



Assembly manual

**High-pressure cleaner (1139.39)
for Citymaster 1600**

Introduction

Foreword

Dear customer,

We are certain that the excellent qualities of the device will justify the faith you have shown in us by your purchase.

To guarantee you safe working with the device, please read the Safety instructions chapter before putting it into service.

Your own safety, as well as the safety of others, depends essentially on your ability to control the device.

This assembly manual may be used only in conjunction with the machine's original operating manual.

The assembly manual contains all important information for operation, maintenance and care. The installation procedures described in this assembly manual may only be undertaken by a Hako service centre or a workshop authorised by Hako. Members of staff with the required level of training and expertise are only guaranteed in the said workshops.

We would expressly advise you that no legal claims may be asserted based on the contents of this manual. In the case of necessary repair work, please make sure that only original spare parts are used. Only original spare parts guarantee constant and reliable operational readiness of the device. We reserve the right to make changes in the interests of further technical development.

Valid as from: January 2015

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Notes on warranty

The terms defined in the purchase agreement apply. Claims for compensation in relation to damage are excluded from the terms of the warranty when the damage is the result of the failure to observe rules concerning servicing and maintenance. Maintenance work must be carried out by an authorised Hako service centre and confirmed in the "Maintenance Report", which serves as a warranty logbook.

The following are excluded from the terms of warranty: wear and tear through overuse, defective fuses, improper handling and use and unauthorised modifications. Claims under the terms of the warranty are also annulled when damage occurs to the machine resulting from the use of parts or accessories not explicitly approved of by us or from failure to observe maintenance rules.

Introduction

Intended use

The high-pressure cleaner is an attachment for the Citymaster 1600. This device is intended exclusively for performing all of the customary cleaning of stairs, steps, corners, edges and small elevated surfaces that cannot be reached with the machine.

Any use extending beyond this is not intended use. The manufacturer is not liable for any damage resulting from this and the user alone bears the risk. Intended use also includes compliance with the operating, maintenance and servicing conditions specified by the manufacturer.

The high-pressure cleaner may be used, maintained and repaired only by persons who are familiar with this work and instructed about the dangers.

The relevant accident prevention regulations as well as the other generally recognised safety engineering and occupational medical rules must be complied with.

The manufacturer is not deemed liable for any damage resulting from unauthorised modifications to the machine and the high-pressure cleaner.

Acceptance of the device

Inspect the device immediately on delivery for signs of transport damage. You will be compensated if the damage is immediately confirmed by the haulage contractor and the damage report is sent to our authorised Hako dealer together with the consignment note.

Safety information

1 Safety information

1.1 Safety and warning symbols

All places concerning your safety, the safety of the device and of the environment are provided with these warning symbols in the operating manual.

Symbol	Damage for ...	Definition
Safety instructions 	Persons or things	Safety instructions for avoiding dangerous situations due to inaccurate or omitted compliance with instructions or specified work sequences.
Note 	The machine	Important notes for handling the device for maintaining its suitability for use.
Environmental hazard 	The environment	Environmental hazard due to using materials from which a health and environmental risk proceed.

Safety information

1.2 General notes

- Apart from the instructions in this operating manual, the general safety and accident prevention regulations of the legislation must be taken into account.
- Before the machine is put into service, please read carefully the operating manual you receive as well as further separate instructions for additional implements or attachments and observe them in all aspects in your work.
- The device may be used, maintained and repaired only by persons who have been instructed by Hako experts.
- You should pay special attention to the safety instructions. For errors in operating the device can be avoided and its trouble-free operation can be guaranteed only with precise factual knowledge.
- The operating manual must be available constantly at the place of use of the device and should therefore be kept carefully on the device.
- Please hand over these documents to the new owner/operator on sale or rental of the device. Have the hand-

over confirmed!

- Spare parts must correspond to the original parts with regard to safety.

1.3 Operating instructions

- Check the device for operating safety before every start-up! Remove faults immediately!
- Before starting work, the operator must familiarize himself with all equipment, operating and actuating elements as well as with their function. It is too late to do this during operation!
- Personal protective equipment must be worn when working with the Citymaster 1600.
- Do not direct the jet of the Citymaster 1600 onto yourself or other persons to clean clothes or footwear.
- If an extension hose is used, the plug and coupling must be water-tight.
- Use the high-pressure lance only when standing on a firm surface, e.g. not on ladders or from the cab.
- The maximum operating pressure set by the manufacturer may not be increased.
- When taking out of service, relieve the pressure of parts under pressure

(hoses, etc.)

- Work only with the machine at standstill and the parking brake applied.

1.4 Maintenance instructions

- Daily and weekly maintenance work must be done by the operating staff. In all other maintenance work, please contact your nearest Hako service centre.
- The maintenance work and maintenance intervals specified in the operating manual must be complied with.
- Use suitable tools for the cleaning and maintenance work.
- Have the device checked for safe condition by an expert in accordance with the accident prevention regulations at appropriate intervals (we recommend at least once yearly).
- Spare parts must at least comply with the technical requirements specified by the manufacturer. This is guaranteed by original spare parts.
- Switch the device off for cleaning and maintaining the machine as well as before replacing parts.
- Cleaning the machine with a high-pressure cleaner or steam jet is not allowed.

Safety information

1.5 Special risks

- Risk of injury! Hydraulic oil issuing under high pressure can penetrate the skin and cause severe injuries. Therefore, even with the smallest wounds, immediately consult a doctor since otherwise severe infections can arise!
- Hydraulic pipes must be correctly run and fitted! The work may be done only by authorised trained personnel! Make sure that no connections are swapped over! Fitting, length and quality, especially pressure and temperature resistance, of hydraulic pipes must comply with the requirements!
- Do not use the device when other persons are in range, unless they are wearing protective clothing.
- Unsuitable extension hoses can be dangerous.

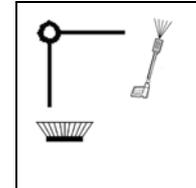
1.6 Environmental protection instructions

- Ensure safe and environment-conserving disposal of operating and auxiliary materials. Collect escaping or spilled operating materials in suitable containers and dispose of them in an environmentally friendly manner.

1.7 Labels on the unit

The following safety and instruction labels are affixed well legibly to the device.

Symbol for changeover valve on the high-pressure cleaner



High-pressure cleaner

2 High-pressure cleaner

2.1 Parts list

- High-pressure pump (1)
- High-pressure hose (2)
- Hose holder with hand valve (3)
- Water hose (4)
- High-pressure lance with lance holder (5)
- Hydraulic hoses (6)
- Piece parts in the plastic bag
- Assembly manual

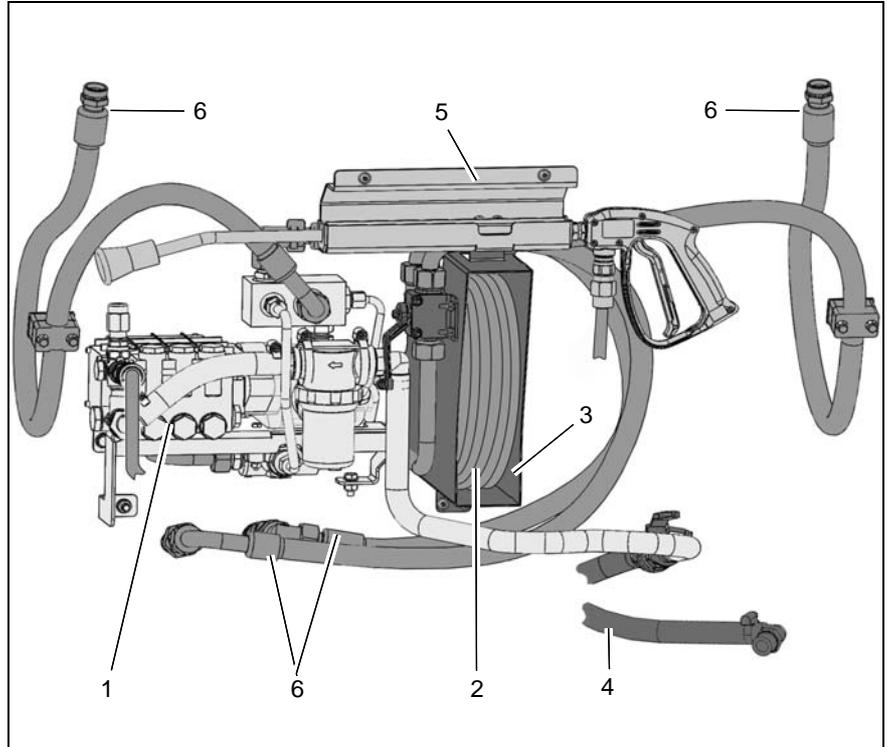


Fig.1

High-pressure cleaner

2.2 Assembling the high-pressure cleaner



Danger!

Hydraulic pipes must be correctly run and fitted! The work may be done only by authorised trained personnel! Make sure that no connections are swapped over! Fitting, length and quality, especially pressure and temperature resistance, of hydraulic pipes must comply with the requirements! Always relieve the hydraulic pipes of pressure in assembly work.

2.2.1 Preparations

1. Place the machine on a level surface and secure it with the parking brake (Fig. 2/1).
2. Switch off the engine and remove the ignition key (Fig. 2/2).
3. Open the rear flap (Fig. 2/2) with the square key and swing it up.

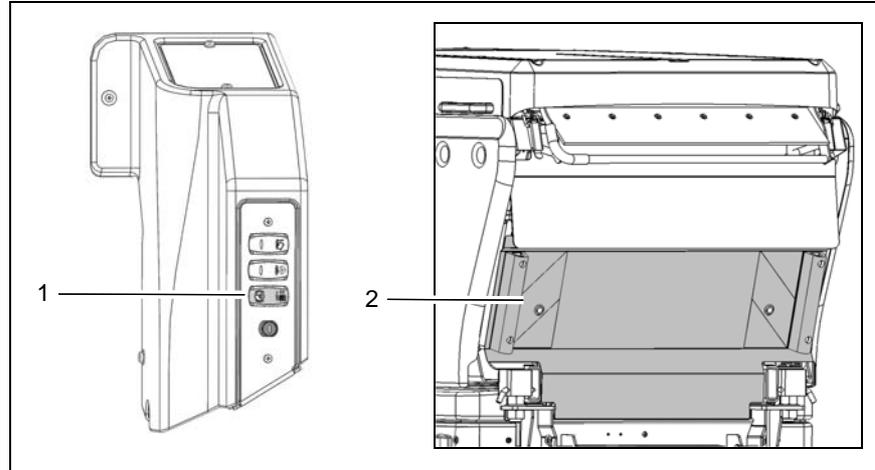


Fig.2

High-pressure cleaner

2.2.2 Mounting the high-pressure pump

1. Fasten the high-pressure pump (Fig. 2/1) with three hexagon head bolts M8x20 to the lower cross-beam (Fig. 2/A,B,C) of the dirt hopper.
2. Fasten the ball cock (Fig. 2/2) with coupling, coupling plug and screw-in nozzle to the connection bracket (Fig. 2/3) of the rear wagon.
3. Fasten the fresh water hose (Fig. 2/4) with hose clamp to the coupling of the ball cock (Fig. 2/2).

2.2.3 Fastening the hose holder with hand valve

Fasten the hose holder (Fig. 2/5) with two M6x20 flanged button head bolts to the lower cross-beam (Fig. 2/D) of the dirt hopper.

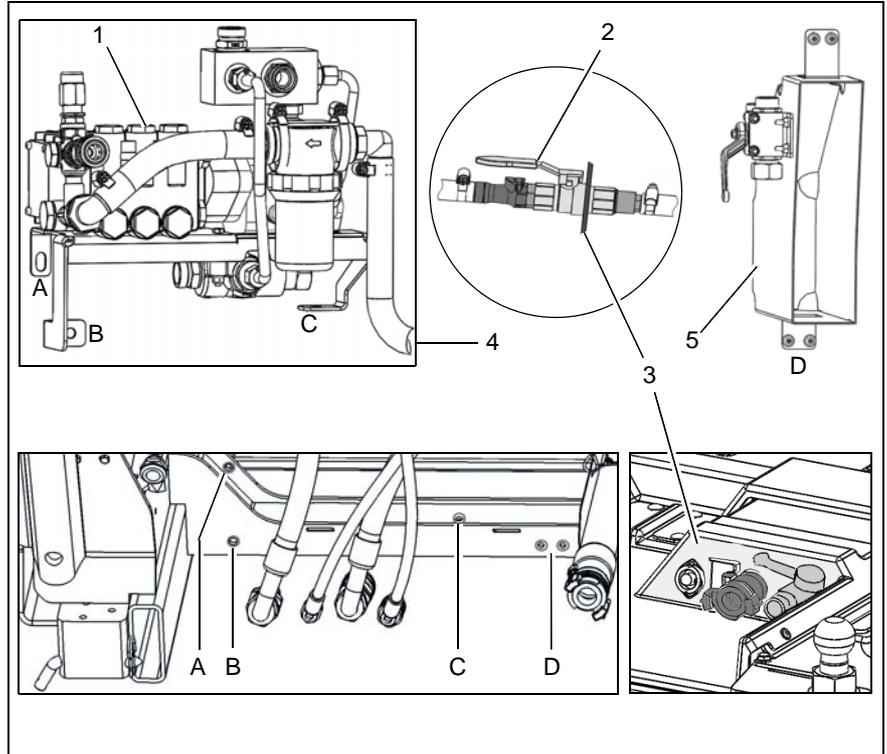


Fig.3

High-pressure cleaner

2.2.4 Fastening the lance holder

1. Fasten the lance holder (Fig. 4/1) with two M6x20 bolts to the upper cross-beam (Fig. 4/2) of the dirt hopper from behind.
2. Fit the lance holder with the two lower bolts to the tab of the hose holder (Fig. 4/3).

2.2.5 Fastening the label

Affix the label (Fig. 4/4) to the side of the hose holder. The position of the label corresponds to the lever positions of the hand valve (Fig. 4/5).

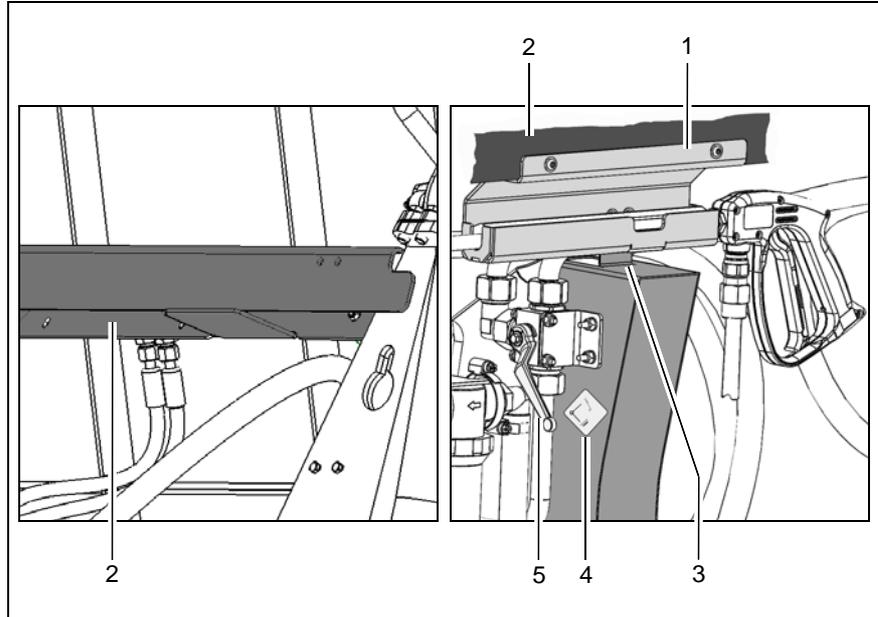


Fig.4

High-pressure cleaner

2.2.6 Running the fresh water hose

1. Fit the fresh water hose (Fig. 5/2) onto the screw-in nozzle (Fig. 5/1) and secure it with a hose clamp.
2. Run the fresh water hose along the circulating water hose (Fig. 5/3).
3. Remove the screw cap (Fig. 5/4) of the fresh water tank (front right tyre) and fit the screw-in nozzle (Fig. 5/5).
4. Fit the fresh water hose onto the screw-in nozzle (Fig. 5/5) and secure it with a hose clamp.

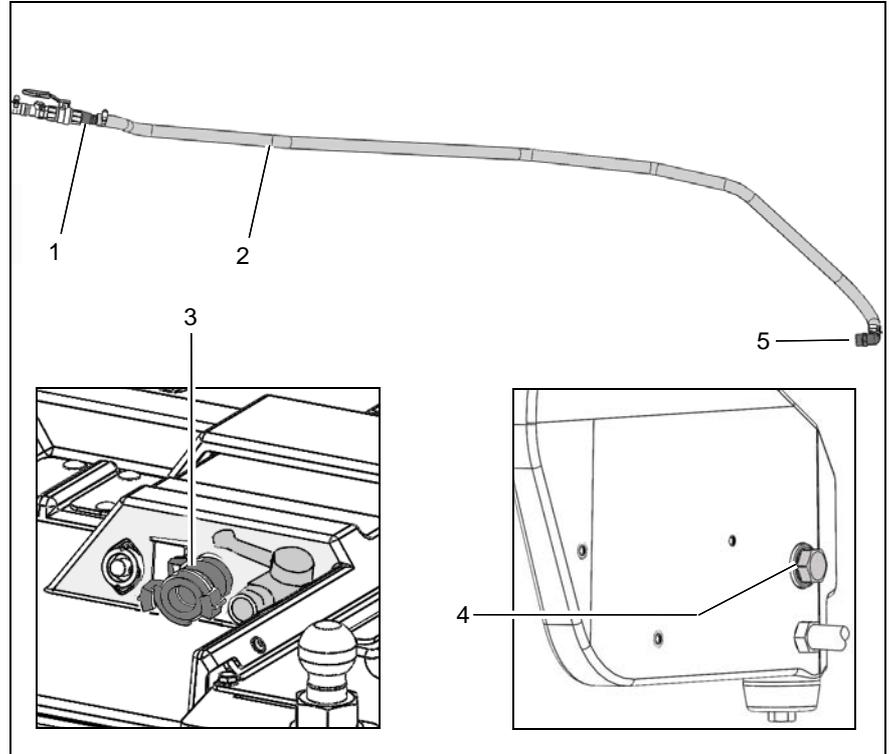


Fig.5

High-pressure cleaner

2.2.7 Connecting the hydraulics

1. Relieve of pressure and dismantle the existing hydraulic hoses (Fig. 6/1) and (Fig. 6/2).

Danger! Observe the safety and environment protection instructions!

2. Connect the hydraulic hose (Fig. 6/A) for the return of the high-pressure cleaner to the screwed pipe fitting (Fig. 6/A).
3. Connect the hydraulic hose (Fig. 6/B) for the supply of the high-pressure cleaner to the screwed pipe fitting (Fig. 6/B).
4. Attach both hydraulic hoses with the clamps (Fig. 6/3) to the cross-beam of the dirt hopper.
5. Connect the hydraulic hose (Fig. 6/C) for the supply of the high-pressure to the supply of the rear wagon.
6. Connect the hydraulic hose (Fig. 6/D) for the return of the high-pressure to the return of the rear wagon.
7. Fit the hydraulic pipe (Fig. 6/E) between the hand valve and hydraulic pump.

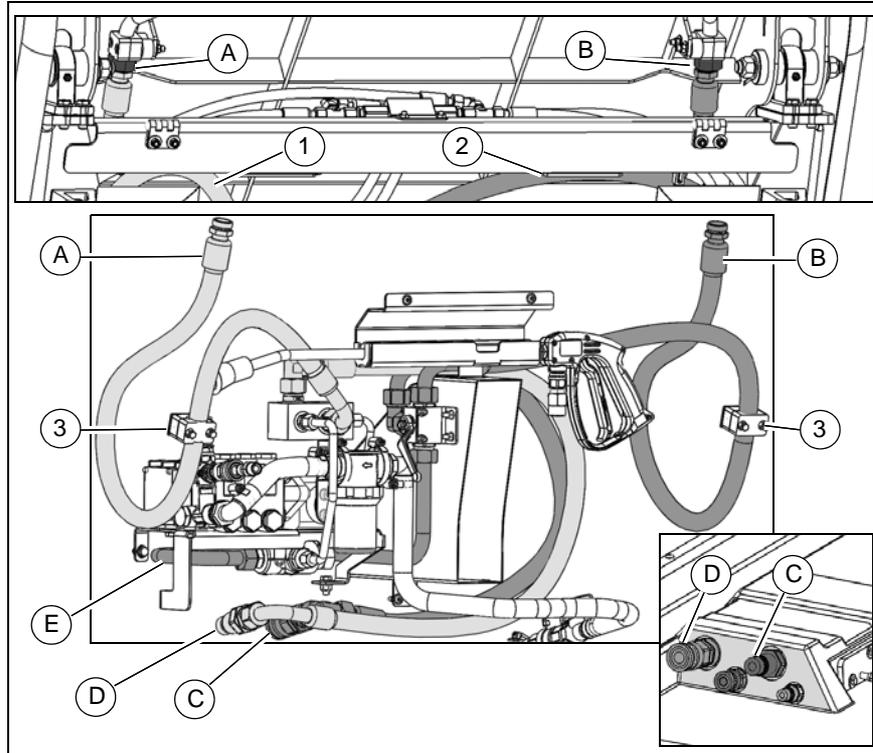


Fig.6

High-pressure cleaner

2.3 Operation

2.3.1 Before putting into service

1. Drive the vehicle to the work site.
2. Lock the parking brake (Fig. 7/1).
3. Fill the fresh water tank (Fig. 7/2).
4. Check and if necessary clean the water filter (Fig. 7/3) of the high-pressure cleaner.



Danger!
The jet of the high-pressure cleaner must not be directed to persons. There is danger of injury!
Do not use high-pressure cleaners for cleaning electrical/ electronic components and the engine compartment!

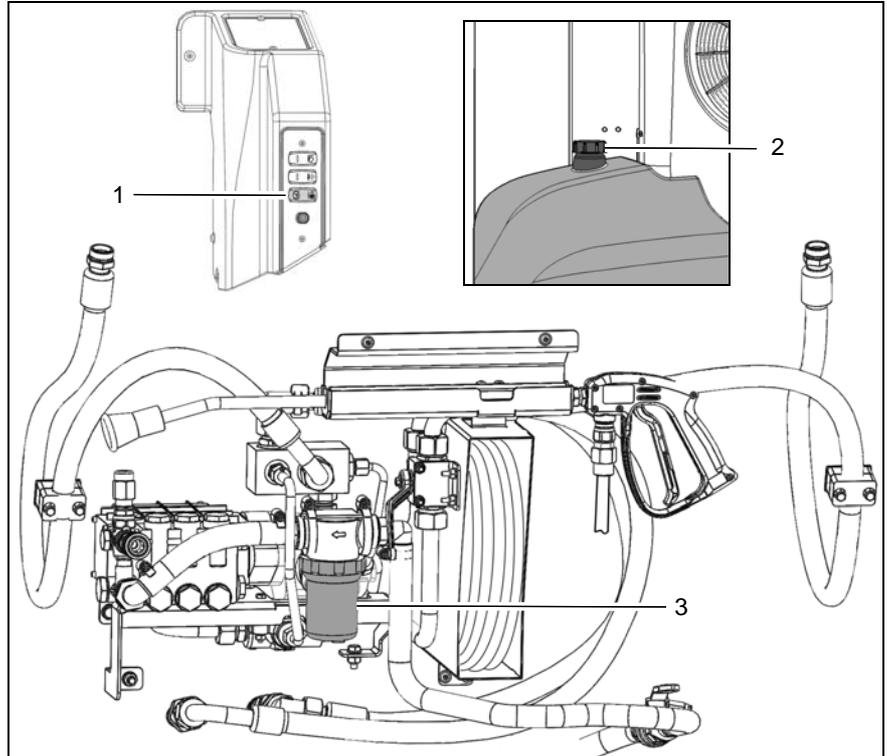


Fig.7

High-pressure cleaner

2.3.2 Working with the high-pressure cleaner

1. Open the rear flap of the dirt hopper.
2. Remove the pressure hose (Fig. 8/1) from the hose holder and plug it into the connection (Fig. 8/2).
3. Set the changeover valve (Fig. 8/3) to the high-pressure cleaner position.
 - Position I: Sweeping hydraulics
 - Position II: High-pressure cleaner hydraulics
4. Open the fresh water supply (Fig. 8/4).
5. Select the working menu in the multifunctional display with the turn-push knob (Fig. 8/5) and set the speed for the high-pressure cleaner in the suction fan menu item (Fig. 8/6).
6. The pressure controller (Fig. 8/7) is preset to 120 bar.
7. Clean the surface with the lance (Fig. 8/8).
8. Set the changeover valve back to the suction fan position and close the fresh water supply. After cleaning, relieve the lance and pressure hose of pressure and stow them in the stowage (Fig. 8/9).

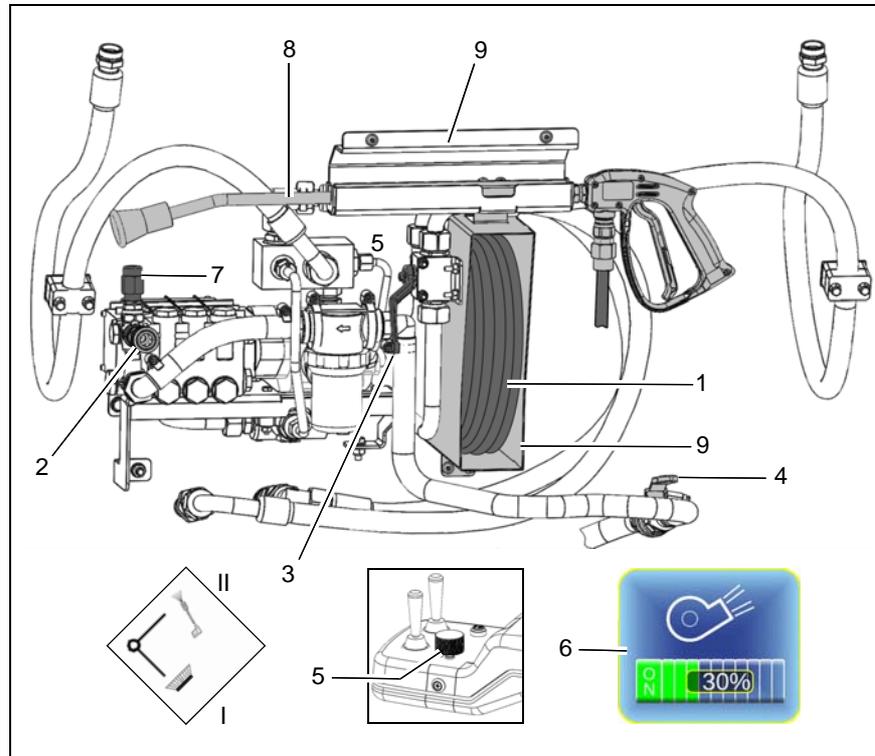


Fig.8

High-pressure cleaner

2.4 Maintenance



Caution!

In winter with danger of frost, drain the water completely out of the high-pressure cleaner.

2.4.1 Cleaning the fresh water filter

Check the fresh water filter (Fig. 9/1) weekly and clean it as required.

1. Unscrew the filter housing (Fig. 9/2).
2. The filter element (Fig. 9/3) can be cleaned by washing or blowing out.
3. Check the seal (Fig. 9/4), replace if necessary.
4. Refit the seal, filter element and filter housing and check their function.

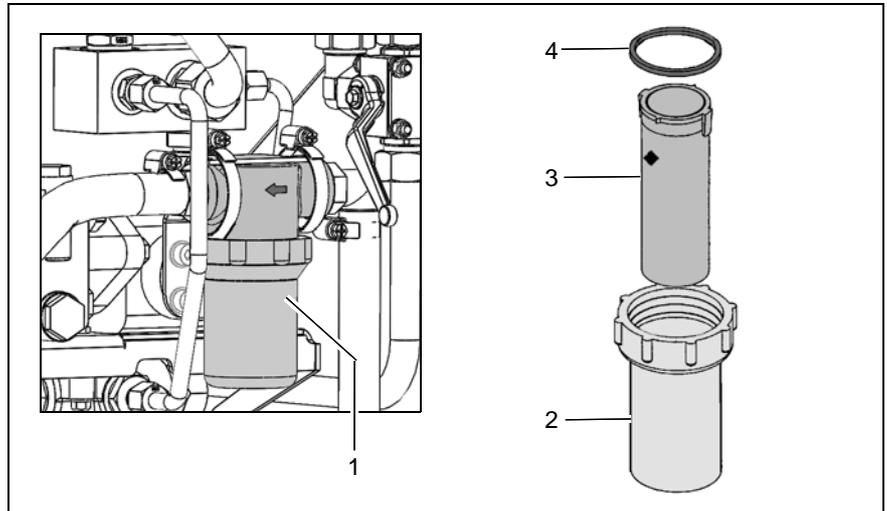


Fig.9

High-pressure cleaner

2.4.2 Checking the spray nozzle

Check the spray nozzle (Fig. 10/1) weekly and clean it as required.

1. Remove the spray nozzle from the lance.
2. The spray nozzle can be cleaned by washing or blowing out.
3. Refit the spray nozzle and check its function.

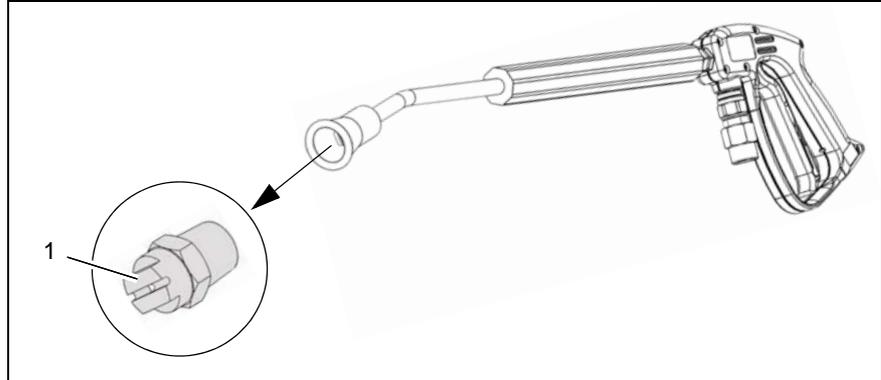


Fig.10

High-pressure cleaner

2.4.3 Checking the gearbox oil

Check the oil level every 500 operating hours and refill gearbox oil as required.

1. Unscrew the dip stick (Fig. 11/1).
2. Check the oil level on the sight glass (Fig. 11/2), if necessary refill a little oil.
3. If the oil is milky (water in the oil) contact an authorised workshop.

2.4.4 Troubleshooting

No pressure present

- Check the fresh water filter.
- Check the nozzle in the lance.
- Vent the device.
- Check the water supply volume.
- Check the high-pressure pump, water hoses, high-pressure lance and all screwed connections for leaks.

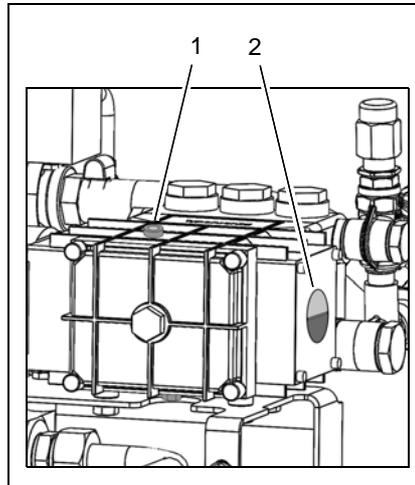


Fig.11

Hako

Clean ahead

Advanced Technology for a Cleaner, Better Environment



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