



# HD 6/15-4, HD 7/11-4 Service Manual



# 1 Contents

<b>1</b>	<b>Contents</b>	<b>2</b>
<b>2</b>	<b>Preface</b>	<b>4</b>
<b>3</b>	<b>Safety instructions</b>	<b>4</b>
3.1	Hazard levels	4
3.2	General notes on safety	4
<b>4</b>	<b>Environmental protection</b>	<b>4</b>
<b>5</b>	<b>Technical Features</b>	<b>4</b>
5.1	General	4
5.2	Electrical/electronics	4
5.3	Drive	4
5.4	High-pressure pump	4
5.5	Accessories	4
5.6	Field of application	4
5.7	Type plate	5
<b>6</b>	<b>Parts of the system</b>	<b>6</b>
6.1	Overview	6
<b>7</b>	<b>Basic settings and service procedures</b>	<b>10</b>
7.1	Overview appliance components	10
7.1.1	Frame	10
7.1.2	Motor	11
7.1.3	Crank drive	11
7.1.4	Cylinder head	13
7.2	Remove the appliance cover	15
7.3	Oil change	15
7.4	Clean water filter	16
7.5	Replacing the water connection	16
7.6	Removing the pressure switch	17
7.7	Dismantling the cylinder head	17
7.8	Replacing the high and low pressure gaskets	18
7.8.1	Replace the low pressure seals	18
7.8.2	Replace high pressure seals	18
7.8.3	Installing the cylinder head	19
7.9	Replacing the valves	20
7.10	Checking the pressure retaining valve	20
7.11	Checking the overflow valve	21
7.12	Adjusting the overflow valve	22
7.13	Check / replace the mechanics of the pressure switch	23
7.14	Replacing the ceramic piston	23
7.15	Dismantling the pump	24
7.16	Replacing the oil seals	24
7.16.1	Draining the oil	24
7.16.2	Removing the ceramic piston	24

7.16.3 Dismantling the drive . . . . .	. .25
7.16.4 Dismantling the crankshaft . . . . .	. .26
7.16.5 Dismantling the oil seals. . . . .	. .26
7.16.6 Installing the crankshaft . . . . .	. .27
7.16.7 Disassembling and assembling the shaft seal . . . . .	. .27
7.17 Open the electric casing . . . . .	.29
7.18 Replace appliance switch . . . . .	.29
7.19 Replacing the mains cable . . . . .	.30
7.20 Access to the terminal box of the electric motor . . . . .	.31
7.21 Replacing the electric motor . . . . .	.32
<b>8 Troubleshooting . . . . .</b>	<b>.33</b>
8.1 Appliance is not running . . . . .	.33
8.2 Pressure does not build up in the appliance . . . . .	.33
8.3 Water is leaking at the pump. . . . .	.33
8.4 Oil is leaking at the pump . . . . .	.33
8.5 Pump is vibrating. . . . .	.33
8.6 Appliance often turns on and off when hand spray gun is closed . . . . .	.33
<b>9 Technical Documentation . . . . .</b>	<b>.34</b>
9.1 Technical specifications. . . . .	.34
9.2 Special tools . . . . .	.35
9.3 Torques . . . . .	.35
9.4 Circuit diagram . . . . .	.36

## 2 Preface

Good service work requires extensive and practice-oriented training as well as well-structured training materials.

Hence we offer regular basic and advanced training programmes covering the entire product range for all service engineers.

In addition to this, we also prepare service manuals for important appliances - these can be initially used as instruction guides and later on as reference guides.

Apart from this, we also regular information about product enhancements and their servicing.

If you should require supplements, have corrections or questions regarding this document, please address these citing the following subject to: [international-service@de.kaercher.com](mailto:international-service@de.kaercher.com)

Subject:	<b>Fall 114544</b>
----------	--------------------

The responsible product specialist will take care of your issue.

**Copying and duplication of texts and diagrams as well as third-party access to this information is permitted only with the explicit permission of the company:**

**Alfred Kärcher GmbH & Co. KG**  
P O Box 160  
D -71349 Winnenden  
[www.kaercher.com](http://www.kaercher.com)

## 3 Safety instructions

Service and maintenance tasks may only be performed by qualified and specially trained specialists.

### 3.1 Hazard levels

#### **⚠ Danger**

*Immediate danger that can cause severe injury or even death.*

#### **⚠ Warning**

*Possible hazardous situation that could lead to severe injury or even death.*

#### **Caution**

*Possible hazardous situation that could lead to mild injury to persons or damage to property.*

#### **Note**

*indicates useful tips and important information.*

### 3.2 General notes on safety

#### **⚠ Danger**

*Risk of electric shock.*

*Prior to opening the electric casing, the appliance must be de-energised (pull the mains plug) and secured against accidental restart.*

## 4 Environmental protection



The packaging material can be recycled. Please do not place the packaging into the ordinary refuse for disposal, but arrange for the proper recycling.



Old appliances contain valuable materials that can be recycled. Please arrange for the proper recycling of old appliances. Batteries, oil, and similar substances must not enter the environment. Please dispose of your old appliances using appropriate collection systems.

### Notes about the ingredients (REACH)

You will find current information about the ingredients at:

[www.kaercher.com/REACH](http://www.kaercher.com/REACH)

## 5 Technical Features

### 5.1 General

Mobile cold water high-pressure cleaner in different performance categories for commercial use.

- Water inlet with water filter
- Hot water inlet up to 60 °C max

### 5.2 Electrical/electronics

- Power switch
- Pressure switch

### 5.3 Drive

- 4-pole, air-cooled electric motor

### 5.4 High-pressure pump

- 3-piston crankshaft pump, piston with ceramic sleeves
- Pump head made of brass
- Suction and high-pressure valves made of stainless steel
- Overflow valve with pressure and quantity regulation

### 5.5 Accessories

- Trigger gun
- Spray lance
- Power nozzle (stainless steel)
- High pressure hose
- Rotary coupling

### 5.6 Field of application

This service manual describes the following appliances:

HD 6/15-4

HD 7/11-4

## 5.7 Type plate

The type plate is located on the right side of the appliance.



- 1 Part number
- 2 Year of manufacture
- 3 Type of protection
- 4 Typical operating weight
- 5 Flow rate
- 6 Nozzle size
- 7 Max. feed temperature
- 8 Address of manufacturer
- 9 Bar code. Contains part and serial number.
- 10 Max. feed pressure
- 11 Max. operating over-pressure
- 12 Connected load
- 13 Main Supply
- 14 Serial number
- 15 Appliance description
- 16 Symbol: Never operate on the drinking water net without a system separator

## 6 Parts of the system

### 6.1 Overview

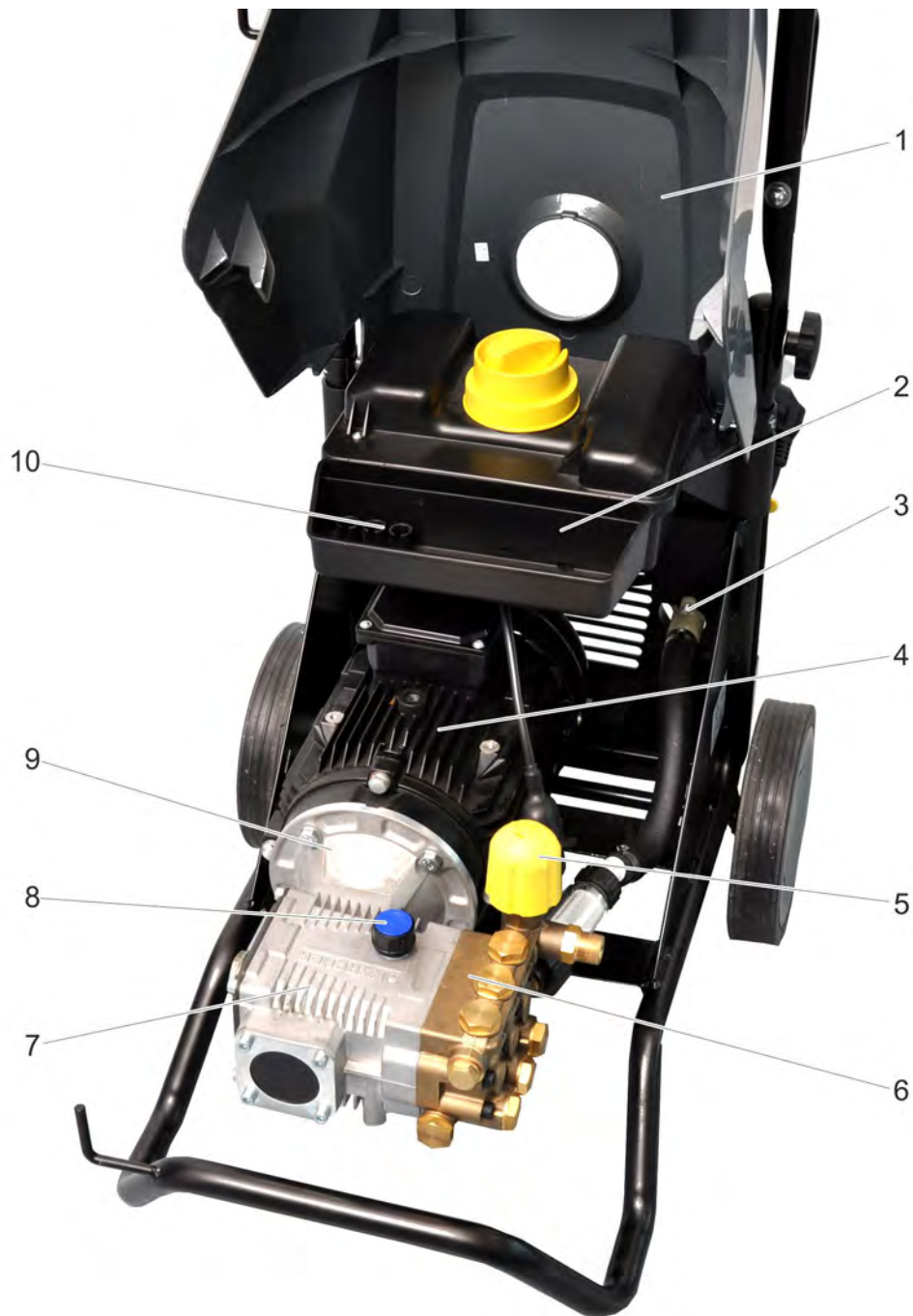


- 1 Push handle
- 2 High pressure hose
- 3 Machine frame
- 4 Wheel
- 5 Waterfilter
- 6 High pressure connection
- 7 High pressure pump
- 8 Nozzle screws  
Power nozzle

- 9 Cover
- 10 Spray lance
- 11 Power switch
- 12 Trigger gun
- 13 Rotary coupling

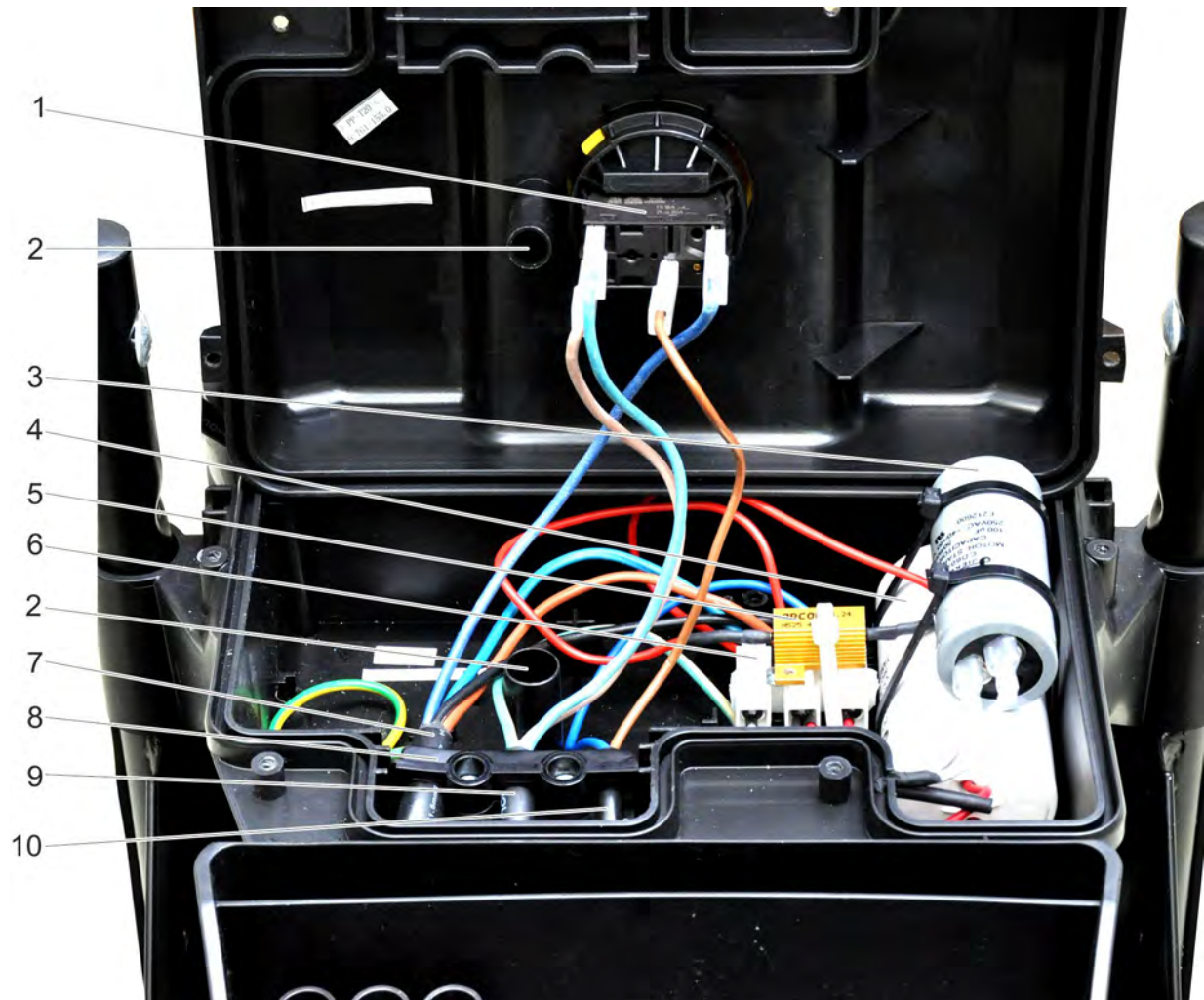


- 1 Trigger gun storage clip
- 2 Oil level indicator
- 3 Oil drain screw
- 4 Storage for spray pipe
- 5 Step depression
- 6 Nameplate
- 7 Water connection
- 8 Mains cable with mains plug
- 9 Cable hook, rotating
- 10 Storage compartment for hoses



- 1 Cover
- 2 Storage compartment
- 3 Water connection
- 4 Motor
- 5 Pressure and volume regulation
- 6 Cylinder head
- 7 Crankcase
- 8 Oil fill screw
- 9 Flange
- 10 Storage compartment for nozzles





- 1 Power switch
- 2 Water drain
- 3 Startup capacitor
- 4 Operating capacitor
- 5 Resistor
- 6 Connection terminals
- 7 Cable from the motor, 5 wires
- 8 Cord grip
- 9 Power cable, 3 wires
- 10 Cable from the pressure switch

## 7 Basic settings and service procedures

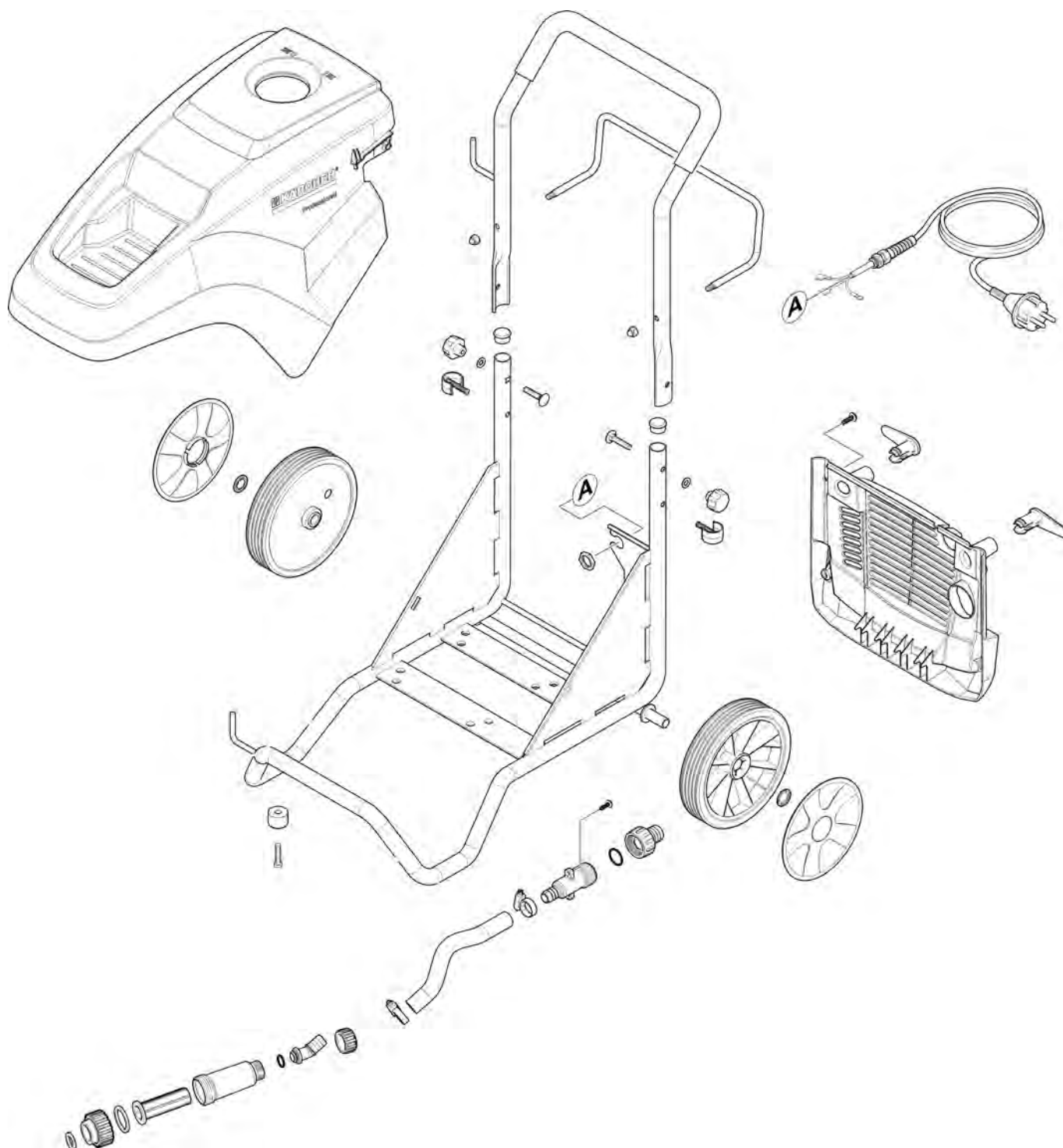
### **⚠ Danger**

First pull out the plug from the mains before carrying out any tasks on the machine.

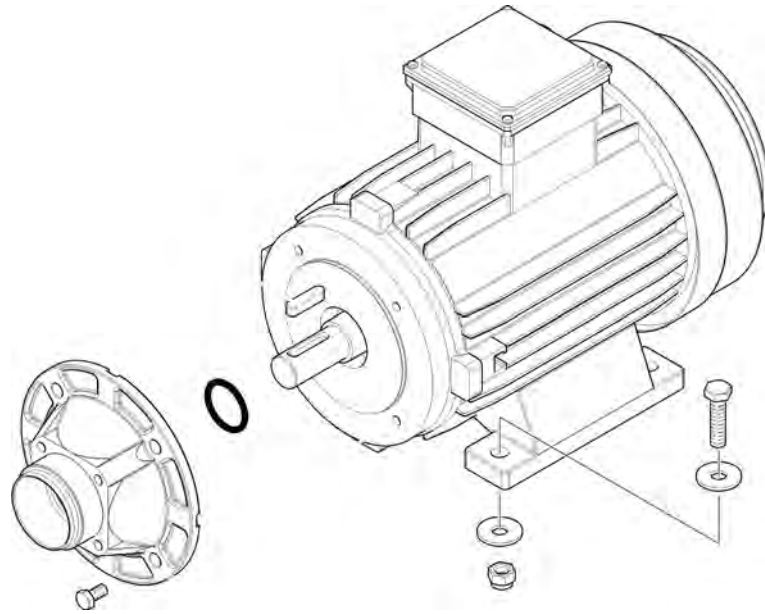
Activate hand spray gun until device is pressure less.

### 7.1 Overview appliance components

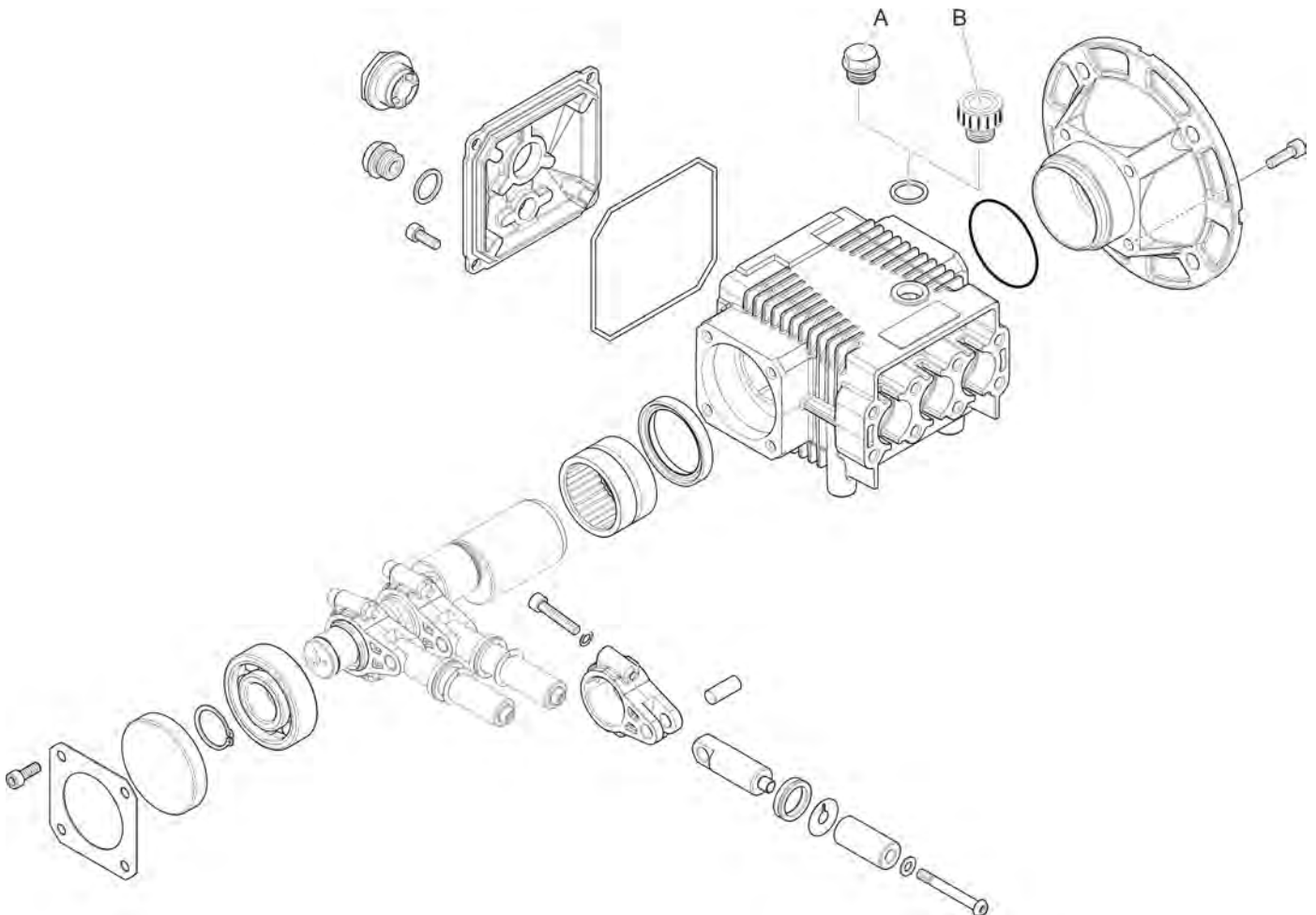
#### 7.1.1 Frame



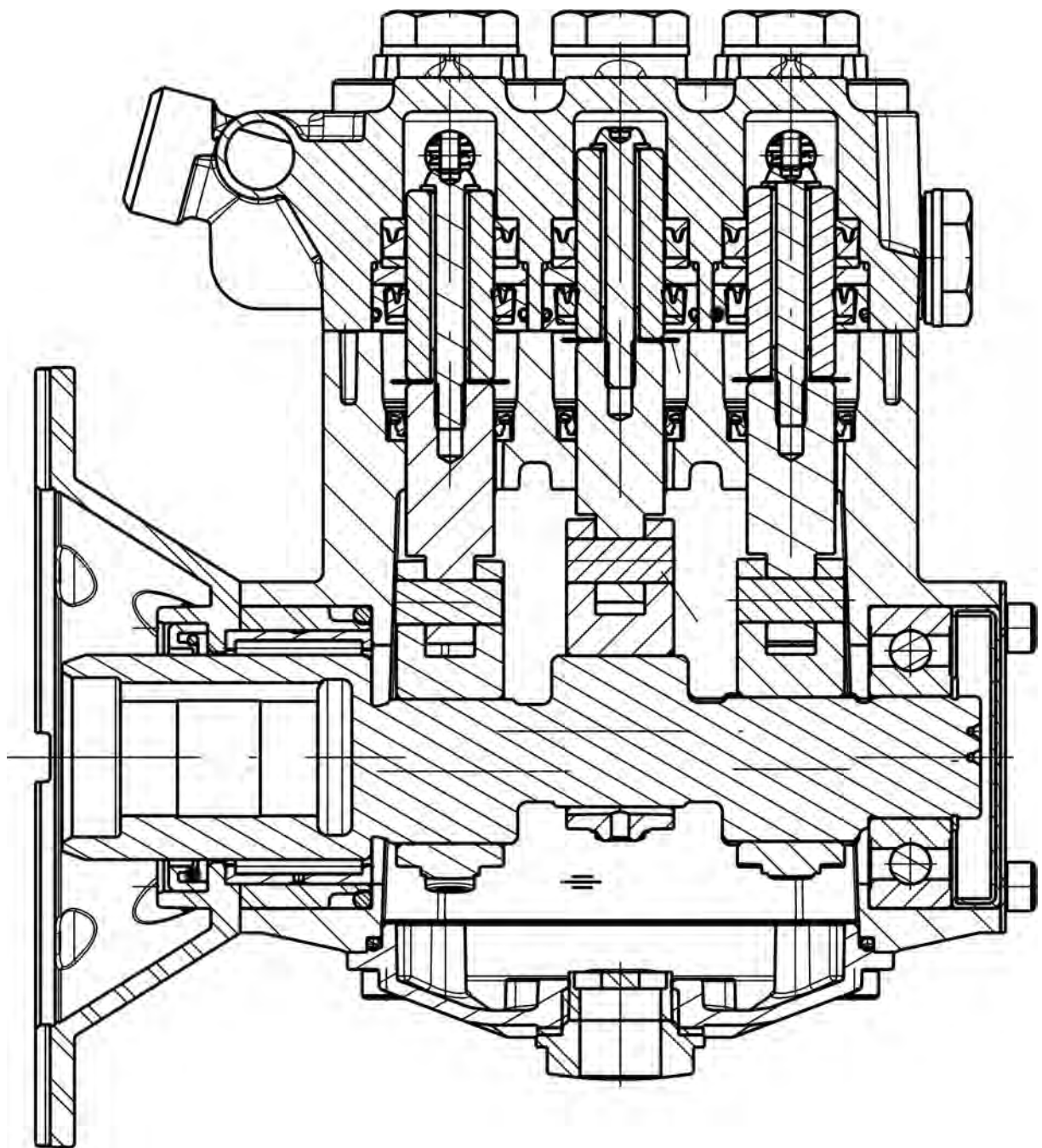
## 7.1.2 Motor



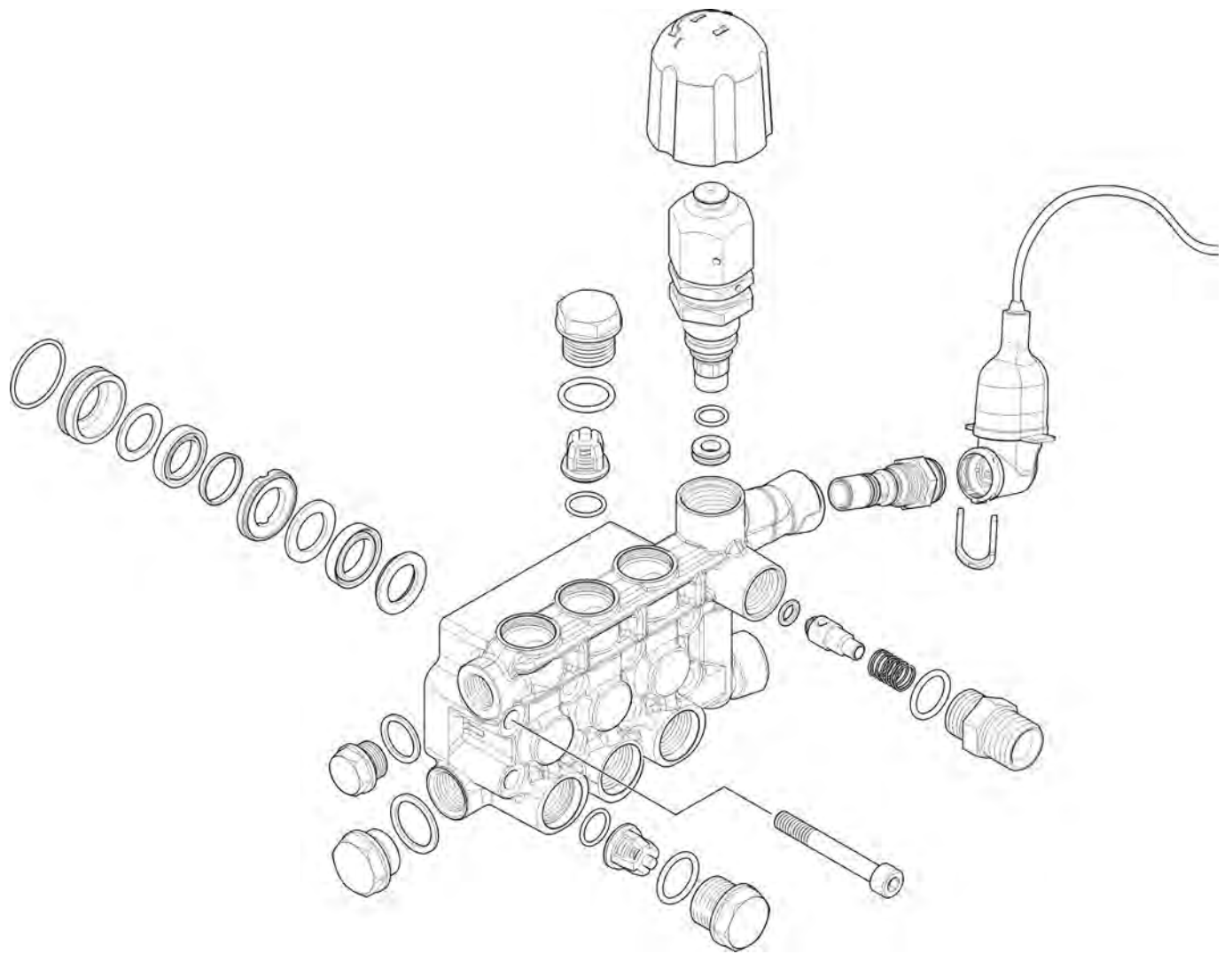
## 7.1.3 Crank drive

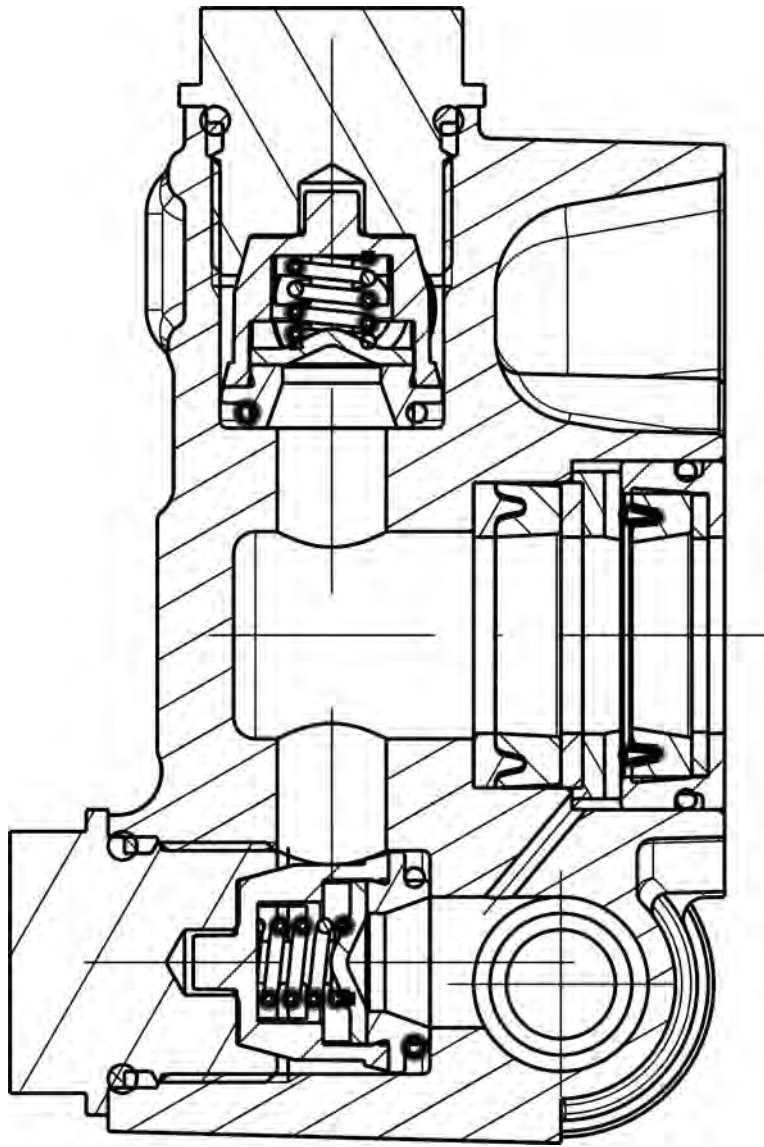


- A Locking screw (delivery condition)
- B Ventilation screw (operation)

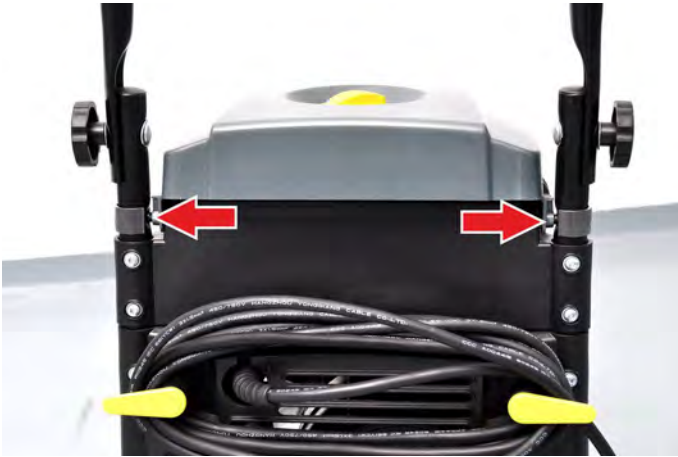


## 7.1.4 Cylinder head





## 7.2 Remove the appliance cover



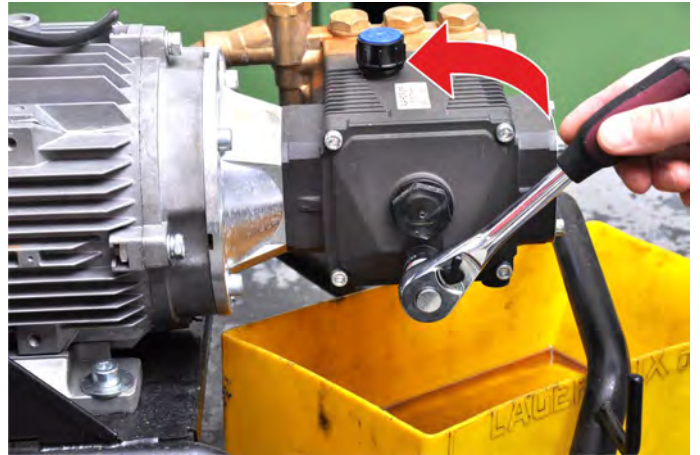
- Pull out both bearings.
- Remove the hood.

## 7.3 Oil change

### Note

See "Technical Details" for details of oil quantity and type.

- Open the device hood.



- Unscrew oil drain plug.
- Drain the oil in a collection basin.
- Fix in the oil drain screw and tighten it.  
Torque 20...25 Nm.



- Turn the oil fill screw out.
- Fill in new oil slowly; air bubbles should go out.  
The oil level must be at the centre of the oil level display.
- Screw in oil filling screw.
- Close cover.

#### 7.4 Clean water filter.

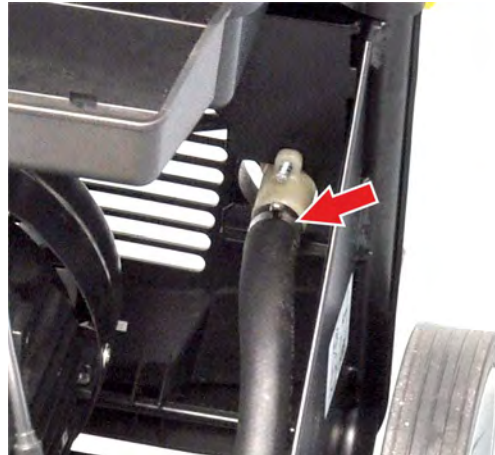


- Unscrew the covering nut.
- Unscrew the filter casing.

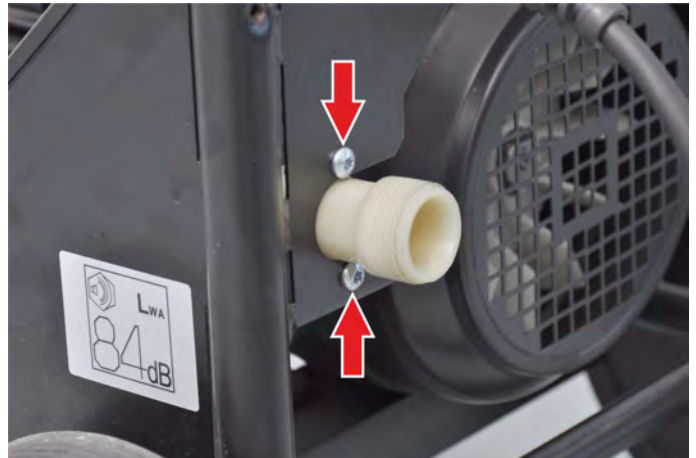


- Take out the filter inlay.
- Clean the filter casing.
- Clean the filter inlay.
- Install the water filter.

#### 7.5 Replacing the water connection



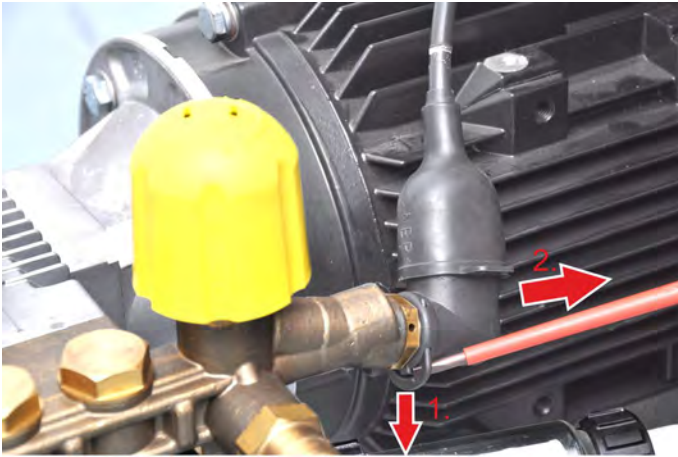
- Loosen the hose clip.
- Pull out the hose.



- Unscrew 2 screws.
- Remove connection nozzle.



## 7.6 Removing the pressure switch



- Pull down circlip.
- Remove the pressure switch.

## 7.7 Dismantling the cylinder head

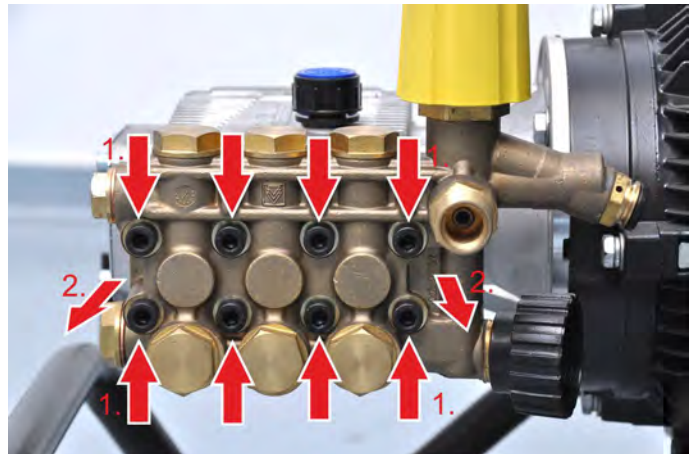


- Disconnect the water supply hose from the cylinder head.

### Note:

Should you wish to replace the valves of the pump as well, perform the following steps prior to dismantling the cylinder head:

- Loosen the valve screws (see "Replacing valves").
- Remove pressure switch (see "Removing the pressure switch").
- Loosen the pressure retaining valve (see "Check pressure retaining valve").
- Loosen the overflow valve (see "Check overflow valve").

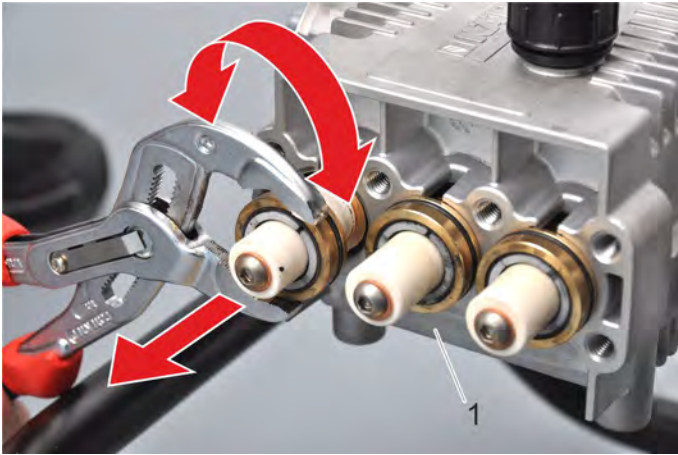


- Unscrew 8 screws.
- Carefully pull out the cylinder head using both hands.

## 7.8 Replacing the high and low pressure gaskets

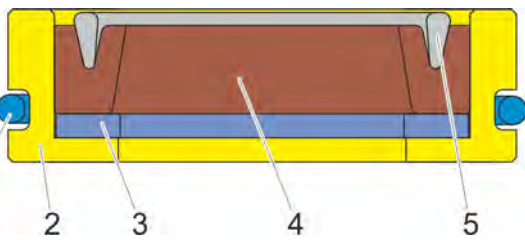
### 7.8.1 Replace the low pressure seals

→ Dismount cylinder head (see "Dismounting the cylinder head").



1 Crankcase

- Turn the low pressure gasket packages back and forth and pull them off the piston at the same time.
- Clean the ceramic piston and check for cracks.
- If there is oil on the piston side of the crankshaft casing, the oil seals must be replaced (see "Replacing the oil seals").



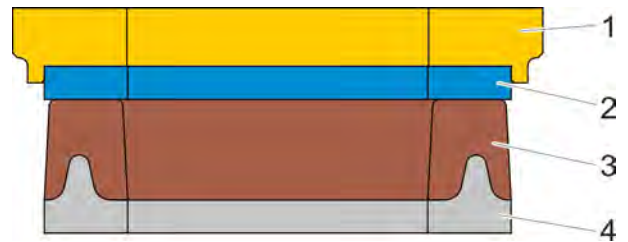
- 1 O ring
- 2 Tin
- 3 Disc
- 4 Washer ring
- 5 Spreader ring

- Assemble new low pressure gasket packages as shown above. Reuse the brass tins in doing so.
- Lightly grease the sealing rings inside (grease 6.288-079.0).
- Lightly grease the O-rings.
- Push the low pressure gasket packages onto the ceramic sleeves of the piston.

### 7.8.2 Replace high pressure seals



→ Dismantle the high pressure gasket packages by means of valve pliers.



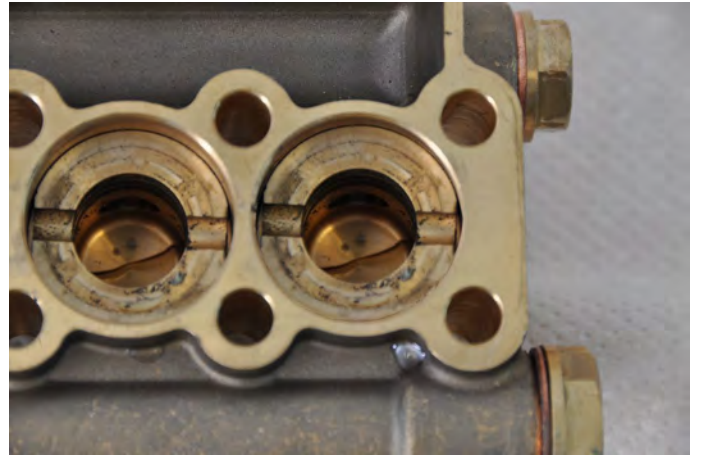
- 1 Brass disc
- 2 Disc
- 3 Washer ring
- 4 Spreader ring



→ Insert the spreader ring in the drilled hole of the cylinder head.



→ Push the sealing ring onto the installation mandrel (special tool).

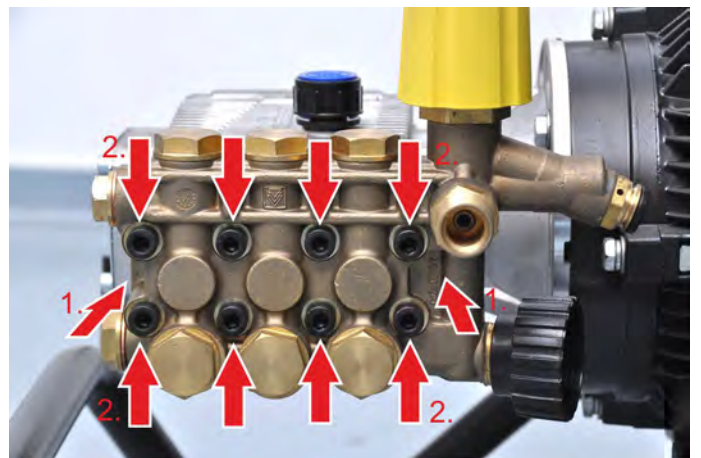


→ Insert both discs of the high pressure gasket package in the cylinder head together.

### 7.8.3 Installing the cylinder head



- Place the installation sleeve on the cylinder head.
- Push the sealing ring through the installation sleeve (special tool) into the cylinder head using the installation mandrel.
- Lightly grease the sealing ring inside (grease 6.288-079.0).



→ Centre the cylinder head on the pistons and push it up to the crankshaft casing in one go.

#### Note:

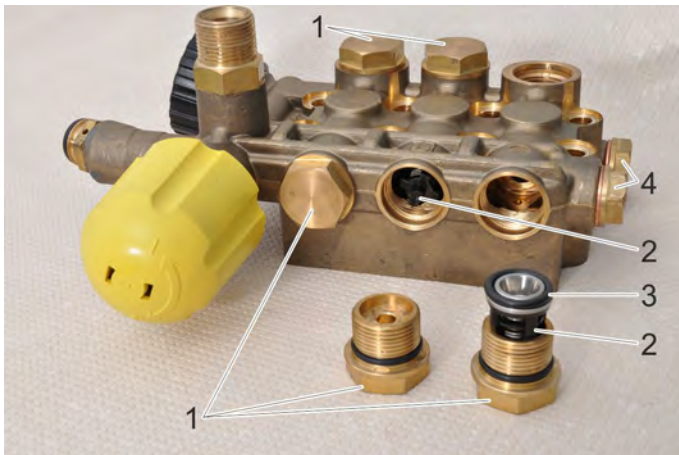
If the cylinder head is pulled back during installation (e.g. because it was jammed during installation), there is a risk that the gasket packages depacketize and are no longer seated correctly when pushed together again.

→ Screw in the cylinder head studs and tighten them crosswise (torque 20...25 Nm).



→ Place the disc inside the brass disc.

## 7.9 Replacing the valves



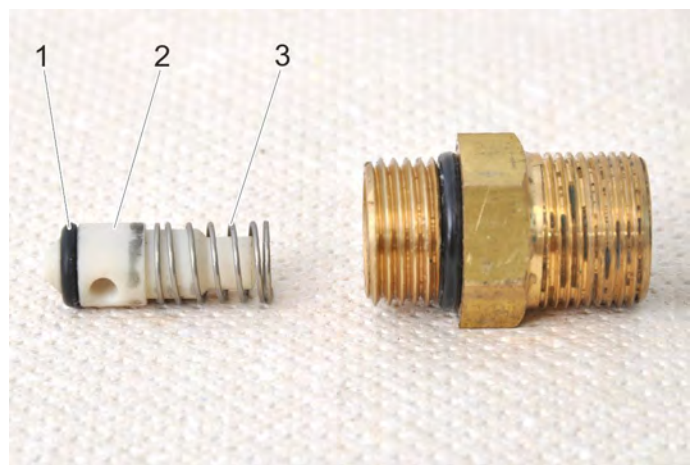
- 1 Valve screw
- 2 Valve
- 3 O ring
- 4 Screwed sealing plug

- Unscrew the valve screws.
- Remove the valve and O-ring.
- Insert a new O-ring in the drilled hole.
- Insert a new valve.
- Check the O-ring of the valve screw, replace if necessary.
- Insert and tighten the valve screw (torque 40...45 Nm).

## 7.10 Checking the pressure retaining valve



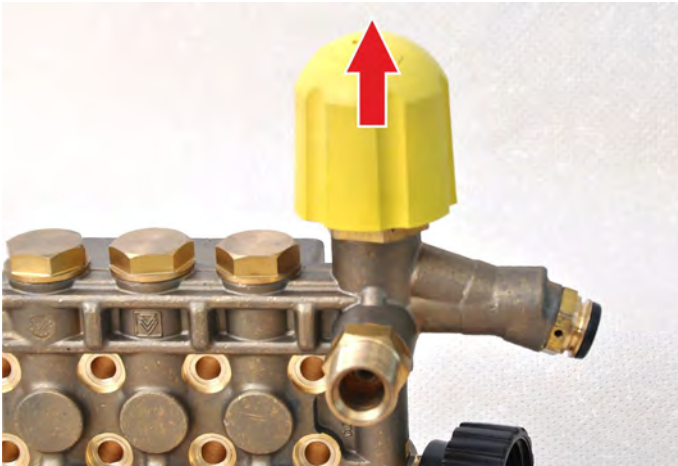
- Unscrew the connecting piece.
- Remove the check valve.



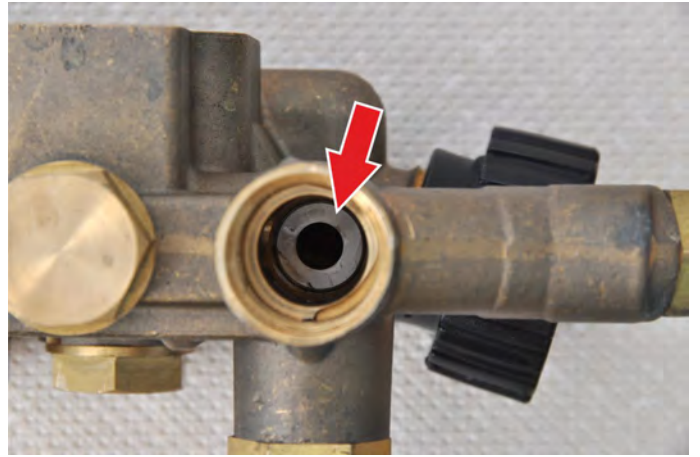
- 1 O ring
- 2 Valve body
- 3 Spring

- Check the valve body, spring and O-ring.
- Check the valve seat in the cylinder head.
- Replace defect parts
- Reassemble the valve.

## 7.11 Checking the overflow valve



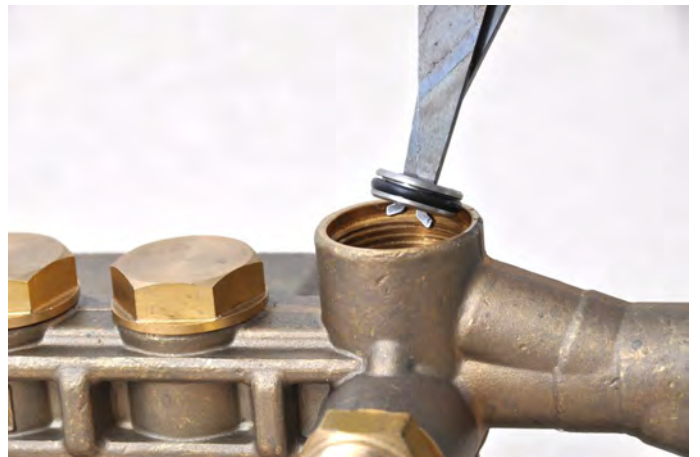
→ Pull off the rotary handle.



→ Clean valve seat.  
→ Check valve seat for wear.



→ Unscrew the overflow valve (wrench size 32 mm).



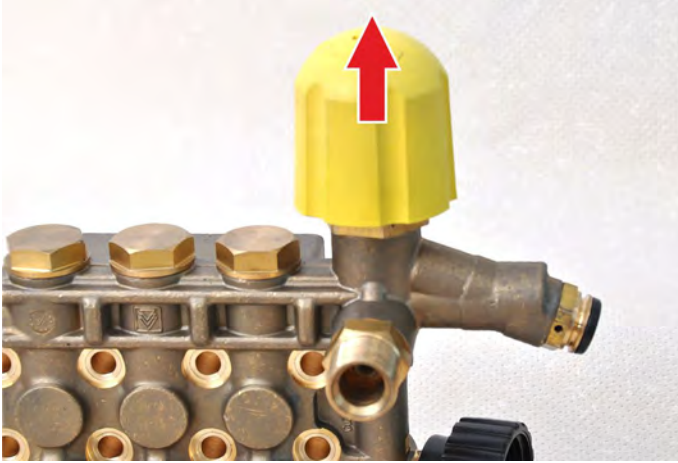
→ Dismantle the worn valve seat by means of valve pliers.



→ Clean valve.  
→ Check ball for wear.

## 7.12 Adjusting the overflow valve

- Install a nozzle size 018 (special tool 5.765-092) on the spray lance.
- Install a pressure gauge (special tool) between the high-pressure connection and the high-pressure hose.
- Set up the power and water supply.



- Pull off the rotary handle.



- 1 Rating nut
- 2 Set screw
- 3 Locknut

- Screw out the threaded pin.
- Loosen the lock nut and turn it all the way down.
- Turn on the appliance.
- Open the hand spray gun.
- Adjust the adjustment nut until the following working pressure is displayed:

HD 6/15-4	16.0...16.4 MPa (160...164 bar)
HD 7/11-4	12.0...12.4 MPa (120...124 bar)

- Open and close the hand spray gun 3 times while the motor is running.
- Check the set pressure and readjust if necessary.
- Tighten the lock nut without moving the adjustment nut.
- Screw in the threaded pin and tighten it.

- Reinstall the original power nozzle on the spray lance.
- Completely unscrew the adjustment nut with the rotary handle (in an anti-clockwise direction).
- Turn on the appliance.
- Working pressure of approx. 3 MPa (30 bar) is applied.
- Open and close the hand spray gun 3 times while the motor is running.
- Completely screw in the adjustment nut with the rotary handle (in a clockwise direction).
- Seal the adjustment nut and lock nut by means of locking paint.
- Fit the rotary handle.

### 7.13 Check / replace the mechanics of the pressure switch



- 1 Sleeve
- 2 Leakage boring

→ Unscrew the sleeve (wrench size 21 mm).

**Note:**

If water leaks from the leakage boring during operation, the entire mechanics of the pressure switch must be replaced.



→ Remove and clean the piston and spring.

**Note:**

The disc and gasket shown in the illustration sometimes remain in the sleeve during the disassembly. If this is the case, they must not be removed for installation.

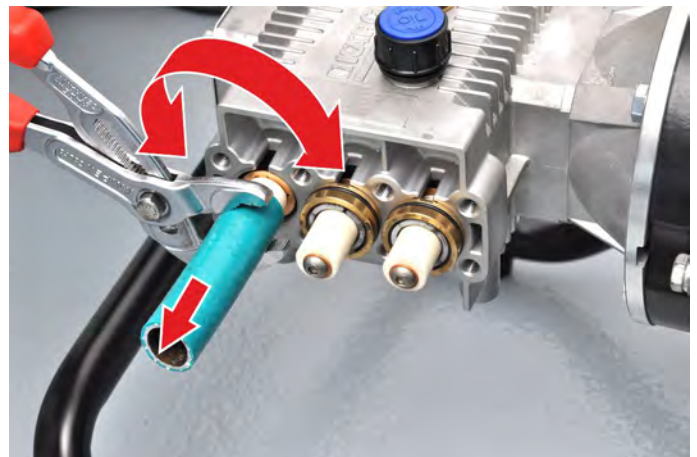
- Grease the skirt and the O-ring of the piston (grease 6.288-079).
- Reinstall the mechanics of the pressure switch.

### 7.14 Replacing the ceramic piston

- Dismount cylinder head (see "Dismounting the cylinder head").
- Pull the low pressure gaskets off the piston (see "Replacing high and low pressure gaskets/replacing low pressure gaskets").



→ Loosen screws.



**Caution**

*Risk of damage. Do not directly touch the ceramic piston with pliers. If a tool is required for removal, use a piece of hose for protection.*

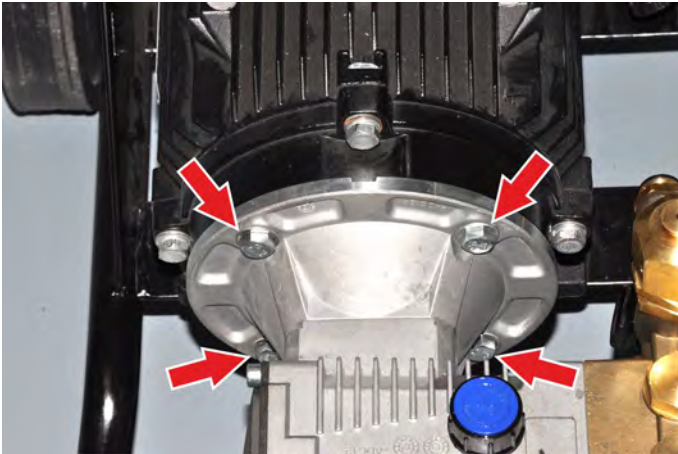
- Pull off ceramic piston.
- Attach new ceramic piston.
- Apply soluble screw securing adhesive to the screw or use a new screw with securing coating.
- Insert and tighten the screw (torque 9...11 Nm).

## 7.15 Dismantling the pump

- Disconnect the water supply hose from the cylinder head.  
(See "Dismantling the cylinder head".)
- Remove the pressure switch.  
(See "Removing the pressure switch".)

### Note:

If the pump is to be disassembled afterwards, loosen all necessary screws prior to disconnecting the pump from the motor.



- Loosen 4 screws.
- Pull the pump off the motor.



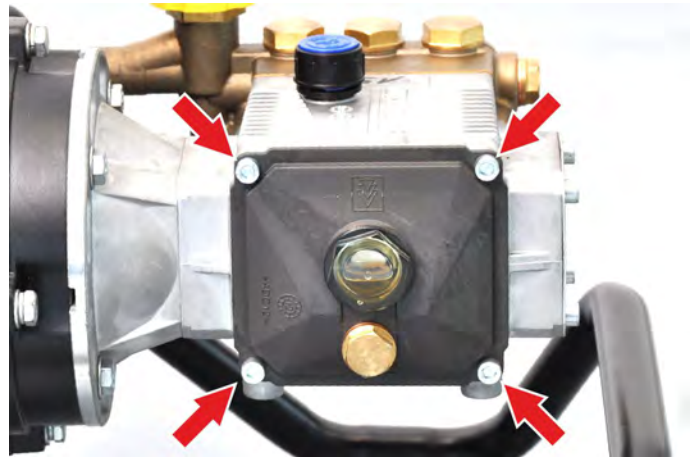
- 1 Seal
- 2 Fitting key

## 7.16 Replacing the oil seals

- Dismount cylinder head (see "Dismounting the cylinder head").

### 7.16.1 Draining the oil

- Place an oilpan underneath the pump.



- Loosen 4 screws.
- Remove the lid.
- Drain and collect the oil.

### Note:

If chips of destroyed pump components are visible in the crankshaft casing or in the oil, the pump is damaged and a repair no longer reasonable. In this case, replace the entire crank drive.

### 7.16.2 Removing the ceramic piston

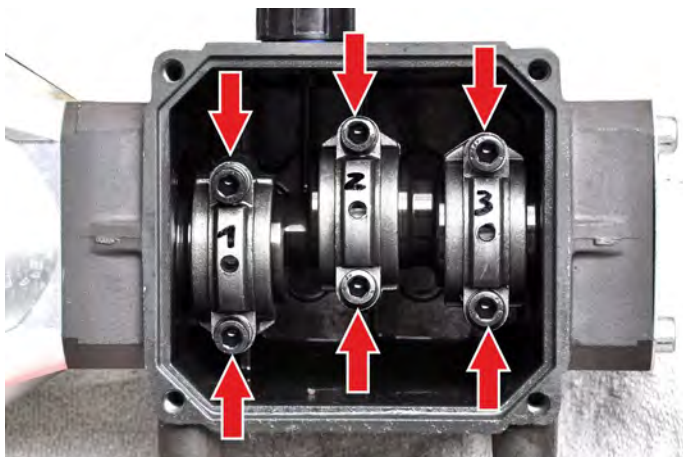
- Dismounting the ceramic piston (see "Replacing the ceramic piston").



- Remove copper discs.
- Disconnect the pump from the motor (see "Dismantling the pump").



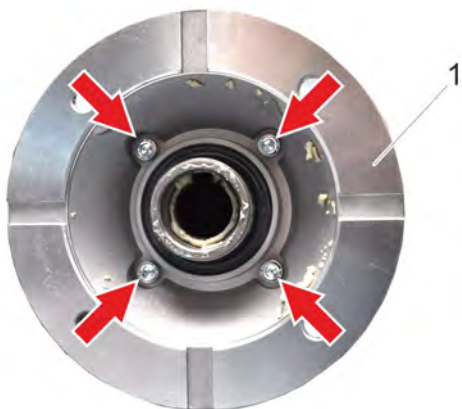
### 7.16.3 Dismantling the drive



- Mark the bearing shells (in the example: 1, 2, 3).
- Loosen 6 screws.

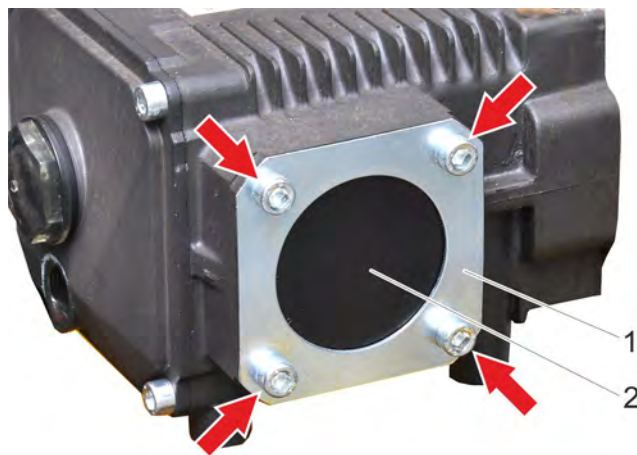


- Remove the bearing shells.
- Mark the piston rods (in the example: 1 dot, 2 dots, 3 dots).



1 Flange

- Loosen 4 screws.
- Pull the flange off the crankshaft casing.



1 Cover  
2 Bearing cover

- Loosen 4 screws.
- Remove the lid.



#### **Caution**

*Risk of damage for the subjacent ball bearing and the gasket seat in the crankshaft casing. Do not position the screwdriver to close to the edge of the cover.*

- Drive the screwdriver into the cover and prise the cover open.



- Remove the safety ring from the shaft.
- Push all pistons completely towards the cylinder head.

#### 7.16.4 Dismantling the crankshaft



- Squeeze out the crankshaft in small steps. Between every step, ensure that the piston rods are not jammed or damaged by the crankshaft.



- Insert a suitable pipe section, e.g. 50x2x250 mm.
- Squeeze out the ball bearing and dispose of.



#### **Caution**

*Risk of damage for the ball bearing. Choose the diameter of the pressing mandrel so that the press-in force acts on the outer ring of the ball bearing.*

- Press a new ball bearing into the crankshaft casing.
- Pull the piston rod with the piston out of the crankshaft casing.

#### 7.16.5 Dismantling the oil seals

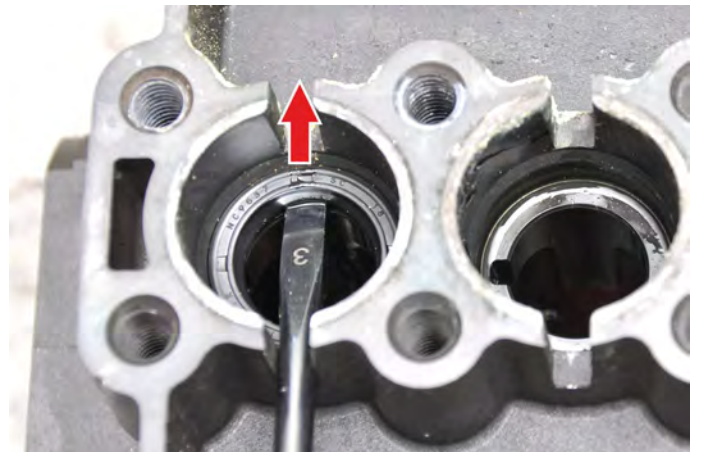
#### **Caution**

*Risk of damage for the gasket seat. Carefully use a screwdriver when dismantling the gasket.*



- Push the oil seal out of the crankshaft casing from the inside to the outside.

or



- Lever out the outer oil seal from the cylinder head side.

→ Clean and check the gasket seat.



→ Place the oil seal on the installation mandrel (special tool) and moisten with water. Do not use oil or grease.



- Drive the oil seal into the drilled hole by means of the installation mandrel.
- Lightly lubricate the piston and piston rod bearing.
- Insert the piston into the crankshaft casing and completely push towards the cylinder head.
- Check the running surface of the crankshaft casing (2x bearing positions, 3x piston rods).

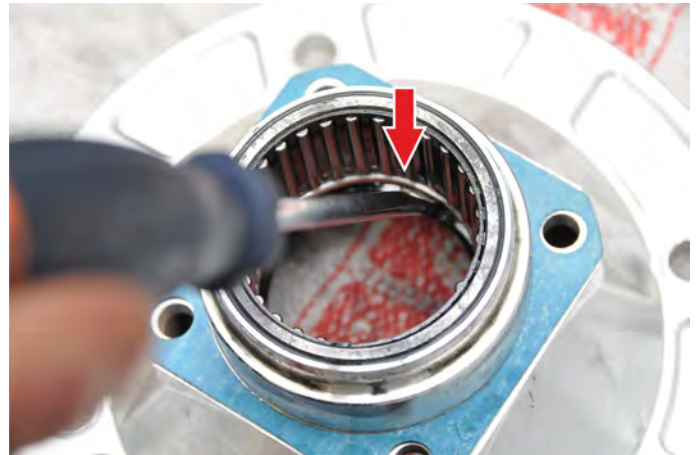
#### 7.16.6 Installing the crankshaft

##### **Caution**

*Risk of damage for the ball bearing. When pressing the crankshaft in, support the ball bearing at the inner and outer ring.*

- Insert the crankshaft in the crankshaft casing and press it in in small steps. Between every step, ensure that the piston rods are not jammed or damaged by the crankshaft.

#### 7.16.7 Disassembling and assembling the shaft seal



##### **Replace needle bearing (if necessary):**

- Heat the flange - the needle bearing will fall out.
- Press new needle bearing all the way in.

##### **Caution**

*Risk of damage for the gasket seat. Carefully use a screwdriver when dismantling the gasket.*

- Push the shaft seal ring out of the flange.
- Clean and check the gasket seat.



- Moisten the new sealing ring with water and press it in.



- Refill fresh oil.  
The oil level is checked at the sight gauge, the level should be at least up to the middle of the sight gauge.

1 O ring

- Replace O-ring.
- Attach the flange on the crankshaft casing.
- Mount the retaining ring to the crankshaft.



- Lightly grease the new cover and press it in.
- Mount the lid.



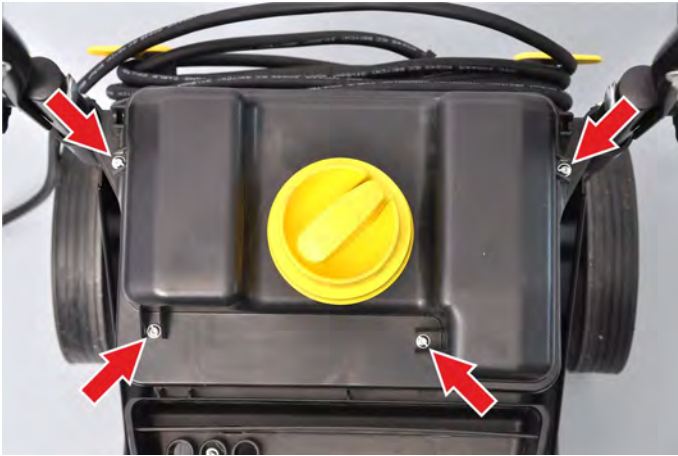
- Install the bearing shells of the piston rods, observe marking.  
Apply soluble screw securing adhesive to the screws and tighten them with 9...11 Nm.
- Attach the lid to the crankshaft casing.
- Grease the shaft in the area of the feather key (grease 6.869-088).
- Attach the pump to the motor.
- Install the cylinder head.

## 7.17 Open the electric casing

### **⚠ Danger**

*Risk of electric shock.*

*Prior to opening the electric casing, the appliance must be de-energised (pull the mains plug) and secured against accidental restart.*

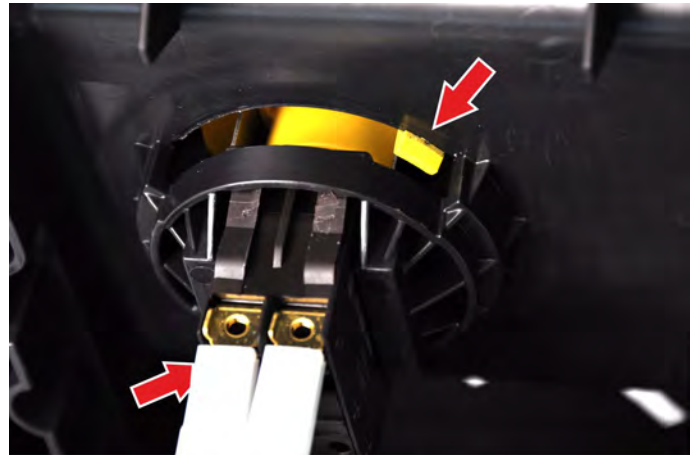


→ Loosen 4 screws.

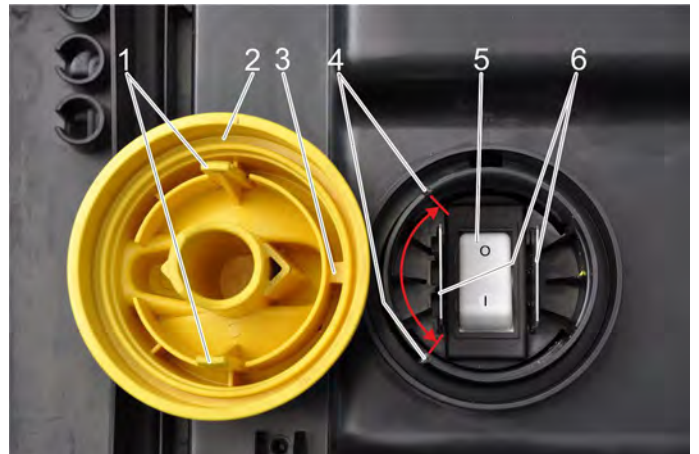
→ Remove the lid.

## 7.18 Replace appliance switch

→ Opening the electric casing (see "Opening the electric casing")



→ Unlock 2 snap-in noses and pull off rotary knob.



1 Locking nose

2 Rotary knob

3 Cam

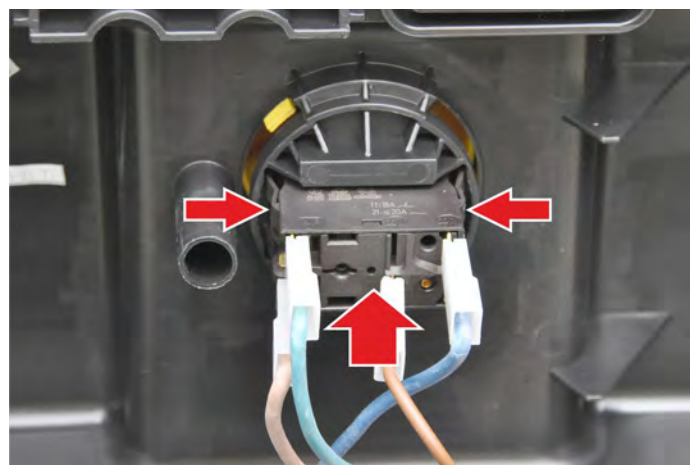
4 Stopper

5 Switch

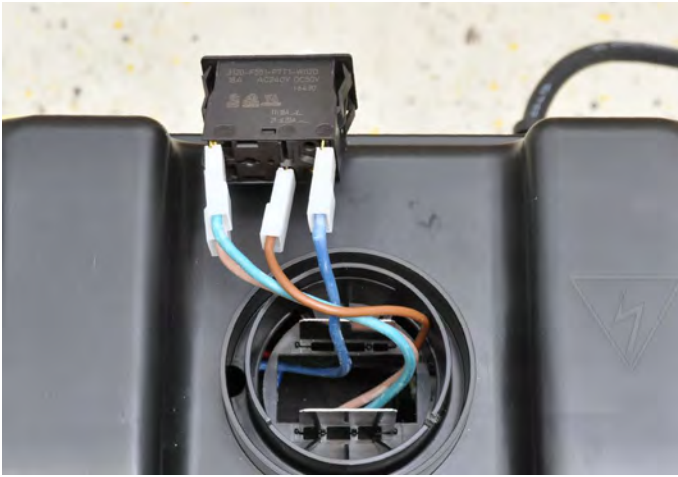
6 Catch spring for switch position

### **Note:**

The rotary knob must be attached in a way that the cam is seated between the two limit stops.

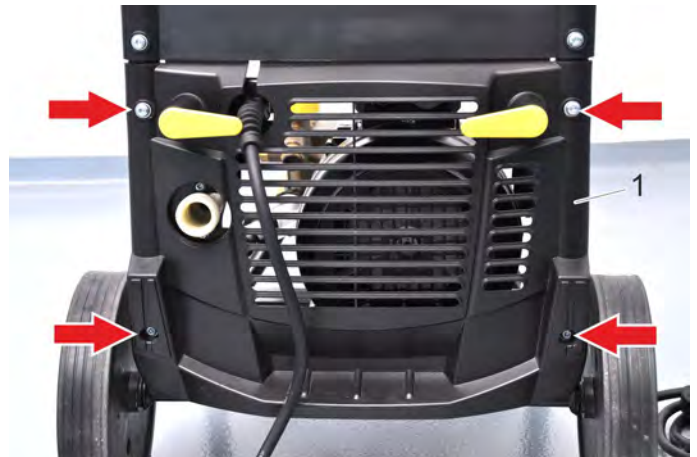


→ Press the detents together and push the switch through the lid.



- Reconnect the cable from the old to the new switch.
- Reinstall the switch and the rotary knob.
- Close the electric casing.

## 7.19 Replacing the mains cable

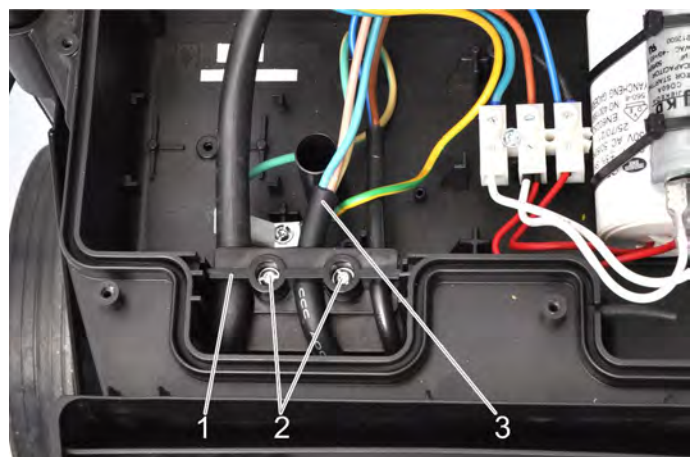


1 Back panel

- Loosen 4 screws.
- Remove back panel.



- Loosen the nut.
- Take out the traction relief from the holder.
- Opening the electric casing (see "Opening the electric casing")



1 Cord grip  
2 Screw  
3 Power cord

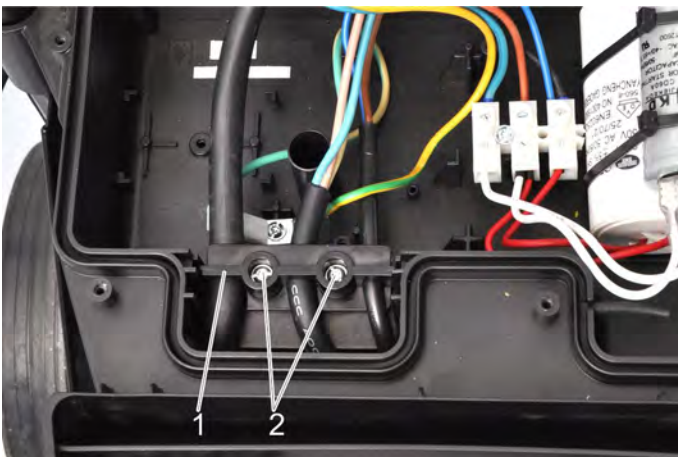
- Unscrew 2 screws.
- Remove the traction relief.
- Disconnect the mains cable.
- Install a new power cable.

## 7.20 Access to the terminal box of the electric motor

- Dismantle the push handle (2 screws) and remove it.
- Remove pressure switch (see "Removing the pressure switch").

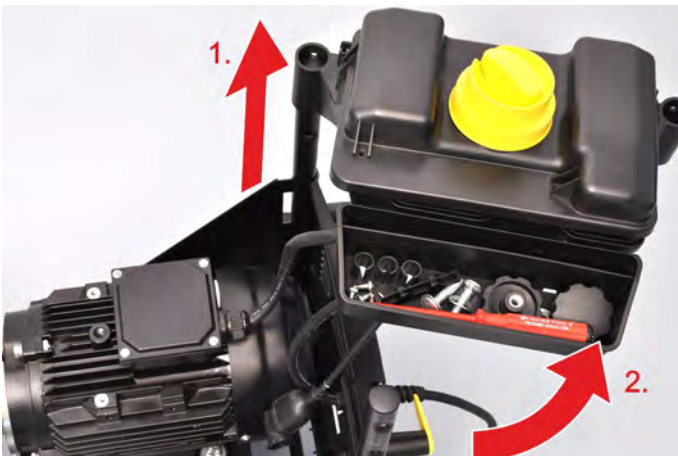


- Loosen 4 screws.
- Opening the electric casing (see "Opening the electric casing")

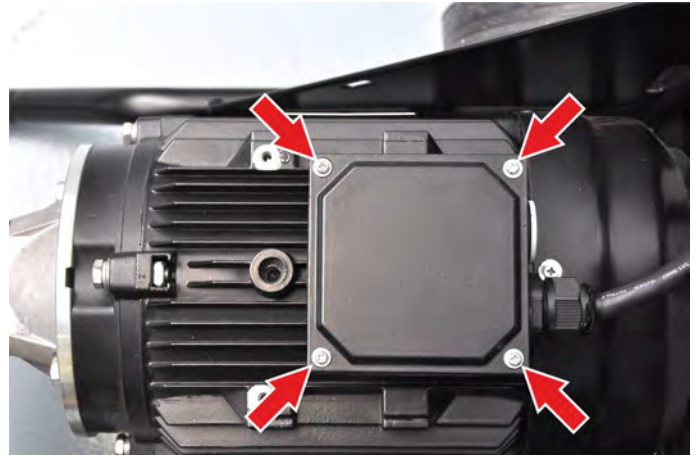


- 1 Cord grip
- 2 Screw

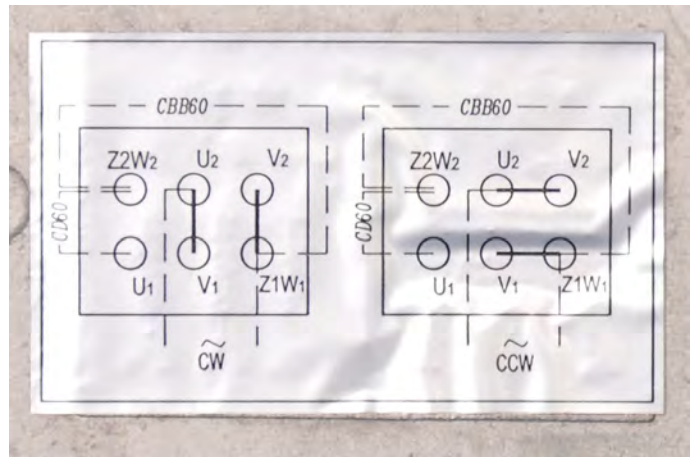
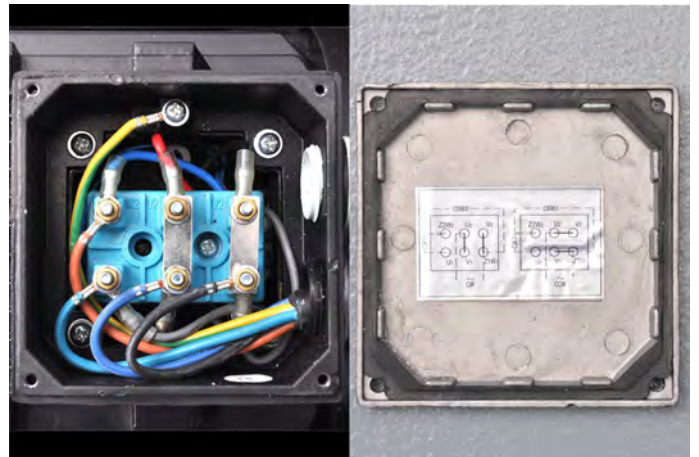
- Unscrew 2 screws.
- Remove the traction relief.



- Lift the electric casing and turn it around the right pipe in an anti-clockwise direction.



- Loosen 4 screws.
- Remove the lid.



cw: clockwise direction  
ccw: anti-clockwise direction

**Note:**  
Only use terminal assignment "cw"!

## 7.21 Replacing the electric motor

### **⚠ Danger**

*Risk of electric shock.*

*Prior to opening the electric casing, the appliance must be de-energised (pull the mains plug) and secured against accidental restart.*

- Remove the high pressure pump from the electric motor.
- Detach the electric motor from the frame.
- Pull the electric motor out from under the electric casing.
- Open the junction box of the electric motor.
- Disconnect the cable.



## **8 Troubleshooting**

### **8.1 Appliance is not running**

- Check connection cable for damages.
- Check the supply voltage.
- Check/replace the appliance switch.
- Check/replace the pressure switch

### **8.2 Pressure does not build up in the appliance**

- Set the pressure and quantity regulation to "MAX".  
(Turn in a clockwise direction to the stop).
- Check the nozzle size, install correct nozzle.
- Clean the nozzle.
- Replace the nozzle.
- Vent appliance.
- Check water supply level (refer to technical data).
- Clean water filter.
- Check all inlet pipes to the pump.
- Check the settings of the transfer port.

### **8.3 Water is leaking at the pump**

3 drops per minute are permitted and can come out from the lower side of the appliance.

- Replace high and low pressure gaskets.

### **8.4 Oil is leaking at the pump**

- Replace the oil seals.
- Replace the shaft seal rings.

### **8.5 Pump is vibrating**

- Clean water filter.
- Check the water suction pipes for leaks.
- Deaerate the appliance (see "Start-up")

### **8.6 Appliance often turns on and off when hand spray gun is closed**

- Check the pump for leaks.
- Check the high-pressure hose and the hand spray gun for leaks.
- Check the pressure retaining valve.


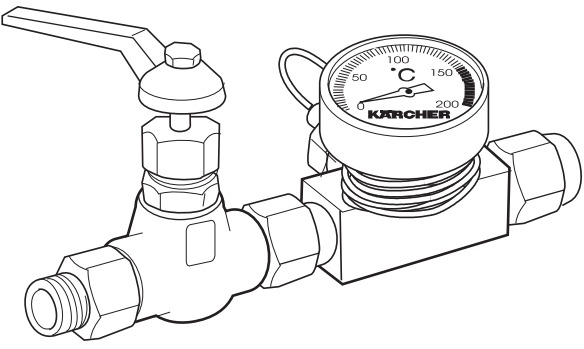
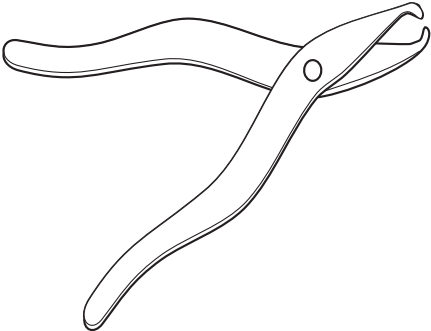
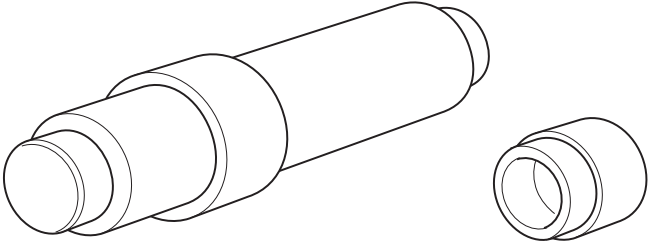
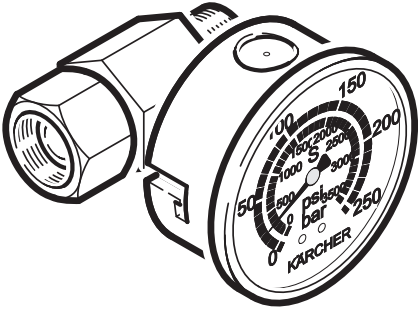
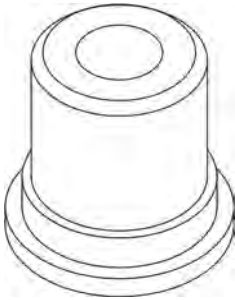
## 9 Technical Documentation

Appliance type	Appliance no.:	Operating instructions	Spare parts list	Circuit diagram
HD 6/15-4	1.367-301.0	5.964-718.0	9.761-167.0	9.761-243.0
HD 7/11-4	1.367-302.0			

### 9.1 Technical specifications

Type		HD 6/15-4 1.367-302.0	HD 7/11-4 1.367-301.0
<b>Main Supply</b>			
Voltage	V	220...240	
Current type	Hz	1~50	
Connected load	kW	3,4	2,9
Protection (slow, char. C)	A	15	13
Maximum allowed net impedance	Ohm	0,2854	
Extension cord 30 m	mm <sup>2</sup>	2,5	
<b>Water connection</b>			
Max. feed temperature	°C	60	
Min. feed volume	l/h (l/min)	900	1000
Suck height from open container (20 °C)	m	0,5	
Max. feed pressure	MPa (bar)	1,0 (10)	
<b>Performance data</b>			
Working pressure	MPa (bar)	7...15 (70...150)	7...11 (70...110)
Max. operating over-pressure	MPa (bar)	19 (190)	15 (150)
Nozzle size		036	050
Flow rate	l/h (l/min)	600 (10)	700 (11,7)
Max. recoil force of hand spray gun	N	29	
<b>Values determined as per EN 60355-2-79</b>			
Hand-arm vibration value			
Hand spray gun	m/s <sup>2</sup>	<2,5	
Spray lance	m/s <sup>2</sup>	<2,5	
Uncertainty K	m/s <sup>2</sup>	0,3	
Sound pressure level L <sub>pA</sub>	dB(A)	74	
Uncertainty K <sub>pA</sub>	dB(A)	3	
Guaranteed sound power level	dB(A)	90	
<b>Fuel</b>			
Amount of oil	l	0,4	
Oil grade		15W40	
<b>Dimensions and weights</b>			
Length	mm	700	
Width	mm	455	
Height	mm	1010	
Weight	kg	52	

## 9.2 Special tools

			
Electric measuring appliance	6.803-022.0	Shut-off valve with thermometer	2.901-030.0
			
Removal pliers, pressure/suction valves and water sieves	4.901-062.0	Installation mandrel oil seal	2.901-033.0
		Installation mandrel high pressure gasket	5.901-227.0
		Installation sleeve, high pressure seal	5.901-226.0
			
Test manometer for working pressure	4.401-072.0	Test nozzle 25018 for HD 6/15 and HD 7/11	5.765-092.0

## 9.3 Torques

Cylinder head	Nm	20...25	Overflow valve	Nm	40...45
Valve screw	Nm	40...45	Threaded pin at the lock nut of the overflow valve	Nm	2...3
Oil drain screw	Nm	20...25	Remaining screws of the pump	Nm	9...11
Pressure switch	Nm	28...32			
Locking screw cylinder head	Nm	40...45			

## 9.4 Circuit diagram

The circuit diagram in the service manual is not updated.

When working on the device, please always use the current circuit diagram in DISIS.

