

# PW 20, PW 30/1 Service Manual



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# 1 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*

Subject:	<b>Fall 109999</b>
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The responsible product specialist will take care of your issue.

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D -71349 Winnenden  
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# 2 Safety instructions

## 2.1 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 Technical Features

## **Structure:**

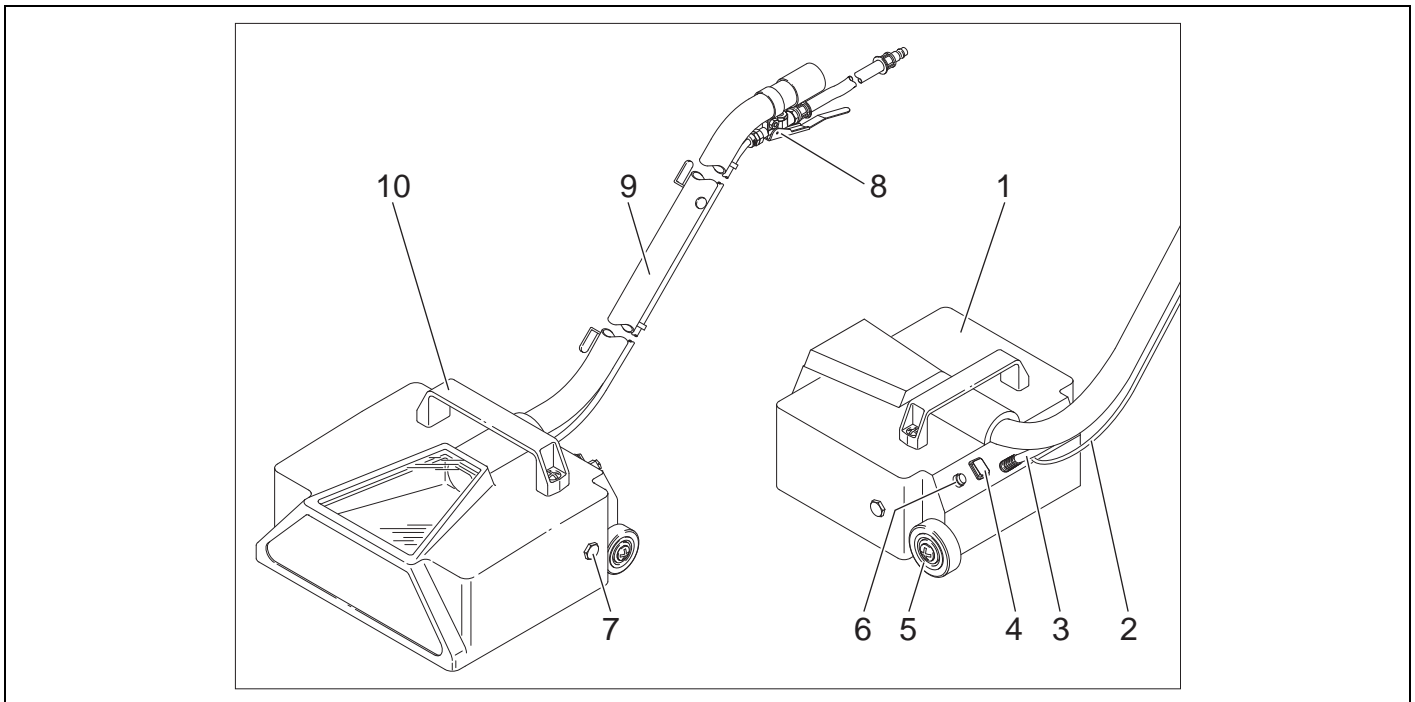
- Brush width PW 20: 290 mm
- Brush width PW 30/1: 315 mm
- Drive motor, shielded, with built-in overload fuse.
- Spray, brush, vacuum in one work process.
- Wide spray nozzles ensure an even spray on the full brush width.
- Quick coupling for easy handling.

## 3.1 Required tools

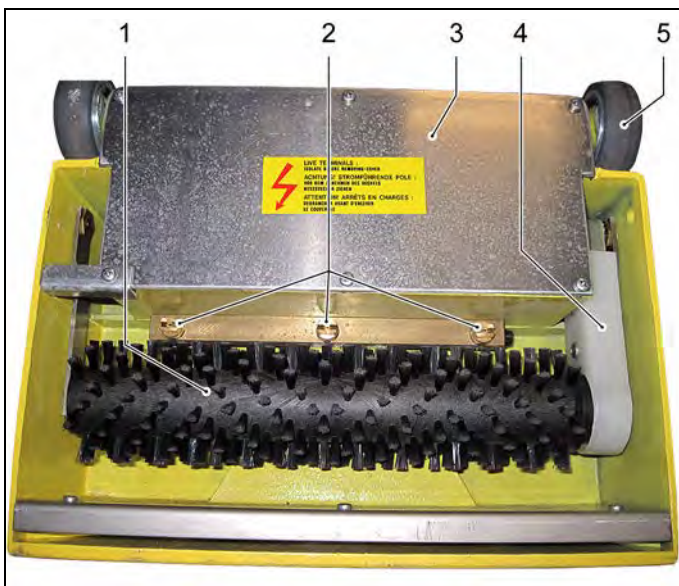
- Philips screwdriver, large
- Flat tip screwdriver, large
- Combination pliers
- Open wrench SW 13, 10, 8
- Hexagonal socket wrench SW 5, 4, 3, 2

## 4 Parts of the system

### 4.1 PW 20

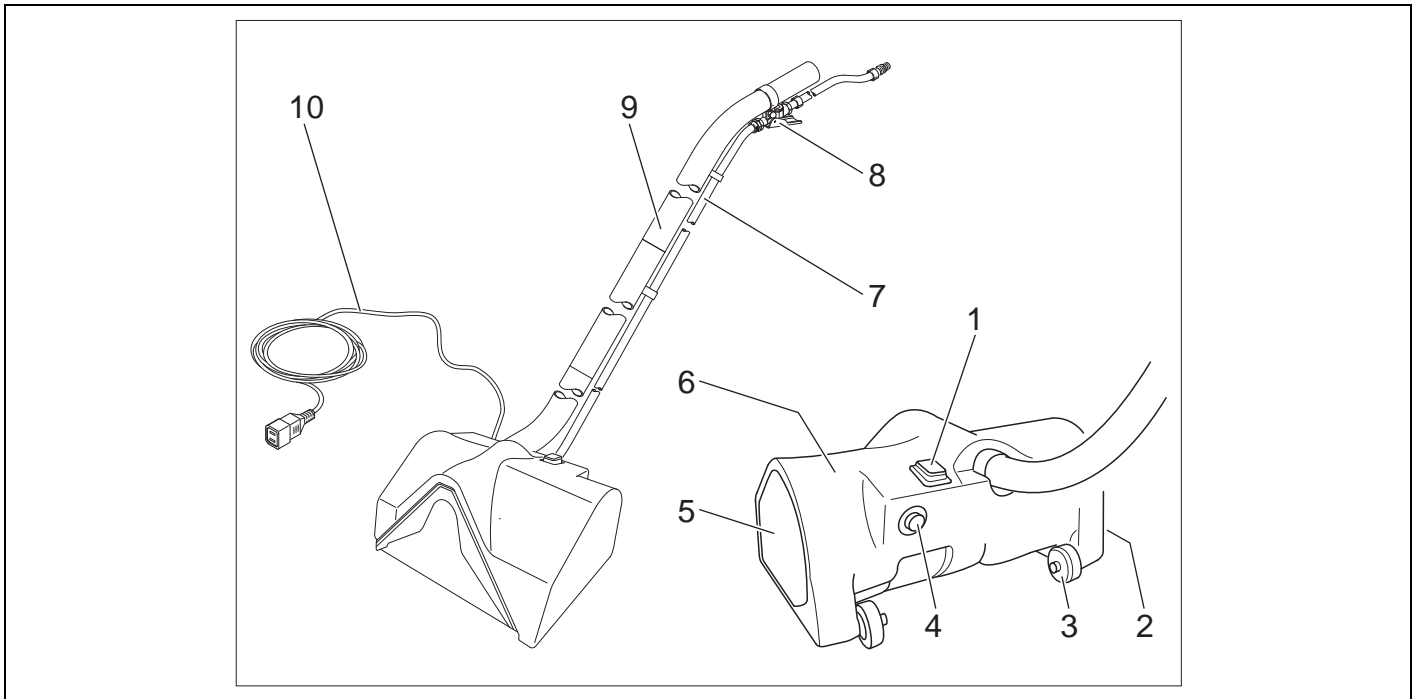


- 1 Casing
- 2 Power cord
- 3 Spray hose
- 4 Power switch
- 5 Running roller
- 6 Safety switch
- 7 Mount for swivel arm
- 8 Valve handle
- 9 Suction pipe
- 10 Carrying handle

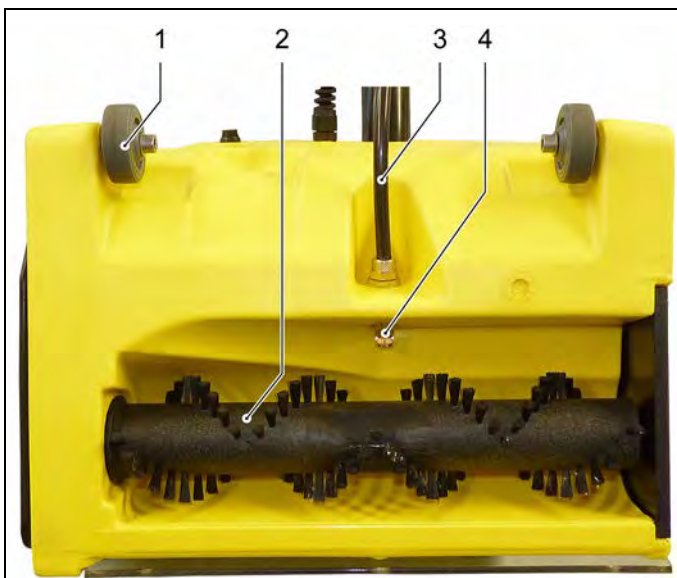


- 1 Brush roller
- 2 Spray nozzles
- 3 Covering plate
- 4 Brush roller drive
- 5 Running roller

## 4.2 PW 30/1



- 1 Power switch
- 2 Holding plate
- 3 Running roller
- 4 Safety switch
- 5 Hood
- 6 Casing
- 7 Spray hose
- 8 Valve handle
- 9 Suction pipe
- 10 Power cord



- 1 Running roller
- 2 Brush roller
- 3 Spray hose
- 4 Spray nozzle

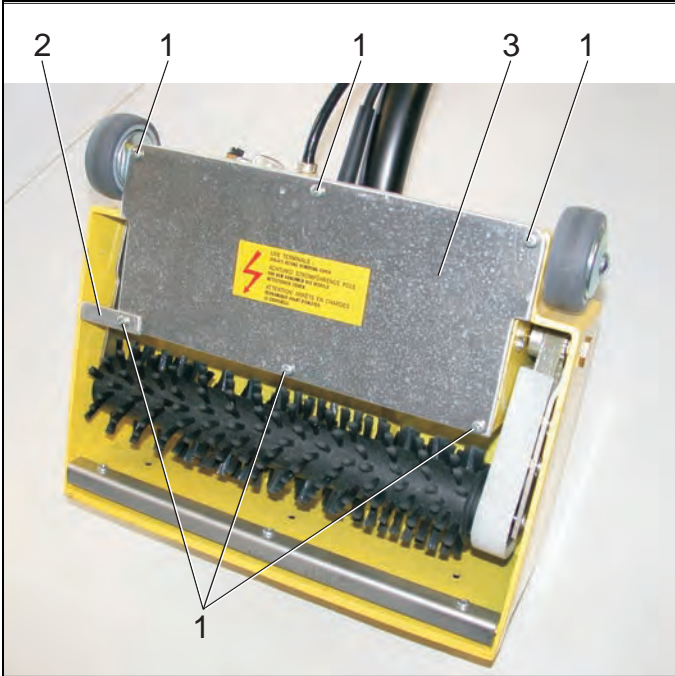
## 5 Basic settings and service procedures

### ⚠ Danger

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

### 5.1 PW 20

#### 5.1.1 Remove the covering plate

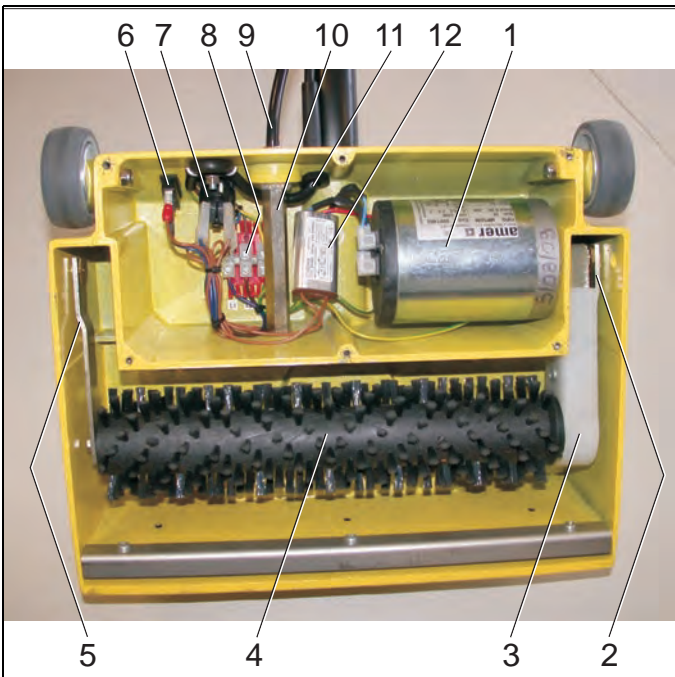


1 Fastening screws

2 Covering plate

→ Unscrew locking screws.

→ Remove the covering plate.



1 Brush motor

2 Swivel arm, right

3 Brush roller drive

4 Brush roller

5 Swivel arm, left

6 Safety switch

7 Power switch

8 Terminal strip

9 Spray hose

10 Spray channel

11 Power cord

12 Anti-interference filter

#### 5.1.2 Replacing the brush roller - PW 20

→ Place the PW 20 on its back and swivel up the brush roller

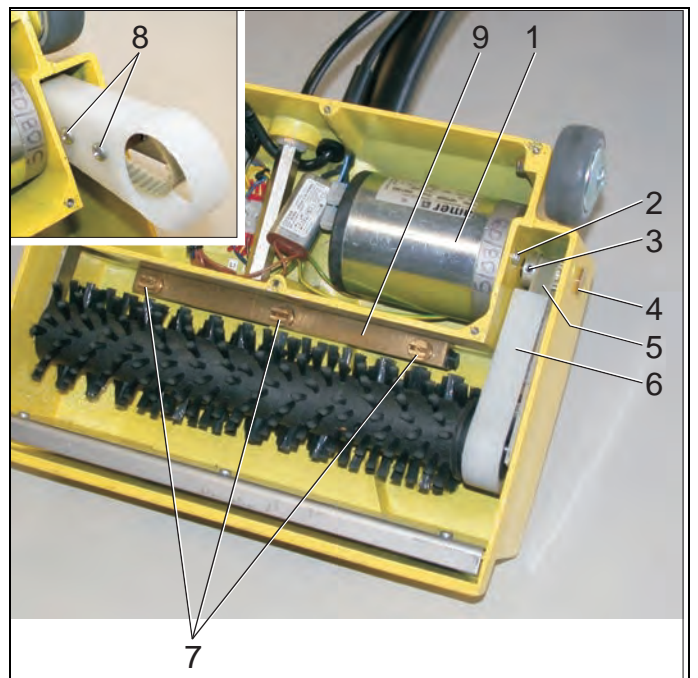
→ Unscrew and withdraw both bolts on the front of the brush.

→ Remove the toothed belt.

→ Remove the brush.

→ Assembly of the brush in reverse sequence.

#### 5.1.3 Replace the brush motor



1 Brush motor

2 Fastening screw for brush motor

3 Drive pinion

4 Mount for swivel arm

5 Gear belt

6 Cover

7 Spray nozzles

8 Fastening screws for cover

9 Nozzle tube

→ Place the PW 20 on its back and swivel up the brush roller

→ Unscrew and withdraw both bolts on the front of the brush.

→ Remove the toothed belt.

→ Remove the brush.

→ Unscrew the fastening screws for the cover.

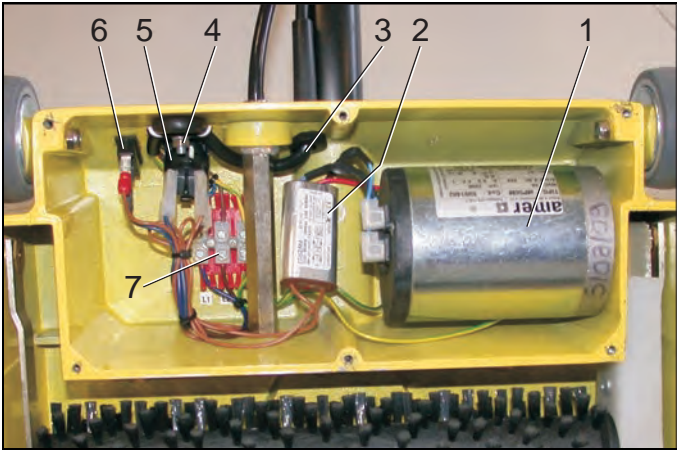
→ Remove cover.

→ Remove the toothed belt, replace if necessary.

→ Remove the fastening screw of the drive pinion.

- Remove the connecting cable from the brush motor.
- Unscrew the fastening screws (2x) for the brush motor.
- Remove the brush motor.
- Install the new brush motor in reverse sequence.

#### 5.1.4 Replacing the mains cable



- 1 Brush motor
- 2 Anti-interference filter
- 3 Power cord
- 4 Clamp for mains cable
- 5 Power switch
- 6 Safety switch
- 7 Terminal strip

- Remove the clamp for mains cable.
- Unscrew the ground cable (protective conductor) from the terminal strip.
- Remove the phase and the zero conductor from the terminal strip.
- Thread the mains cable through the grommet.
- Install the new mains cable in reverse sequence.

#### 5.1.5 Replace the interference filter

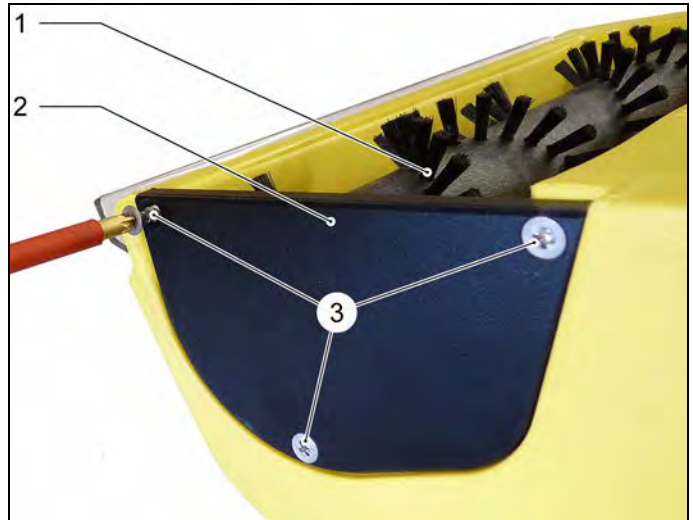
- Remove the connecting cable of the noise filter on the brush motor and unscrew it from the terminal strip.
- Replace the interference filter.
- Connect the new noise filter.

#### 5.1.6 Replace the appliance switch, safety switch

- Remove the connecting cable from the appliance switch/safety switch.
- Replace the appliance switch, safety switch.
- Connect the appliance switch, safety switch.

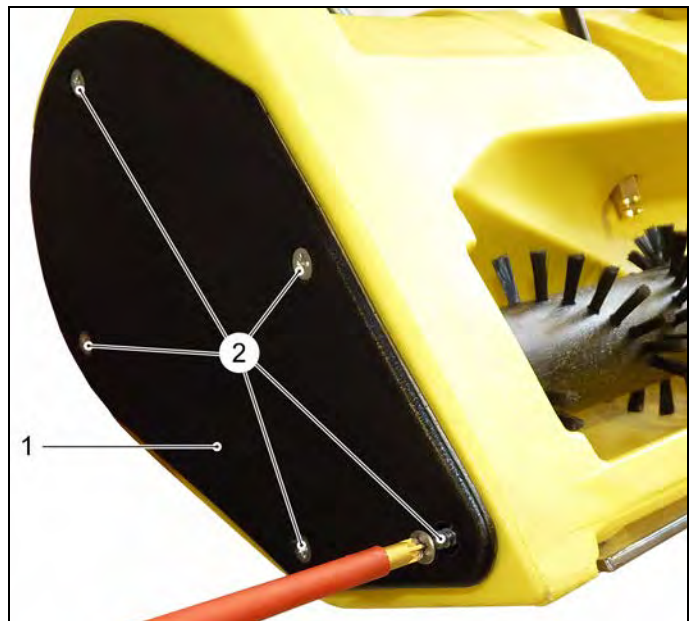
## 5.2 PW 30/1

### 5.2.1 Replacing the brush roller

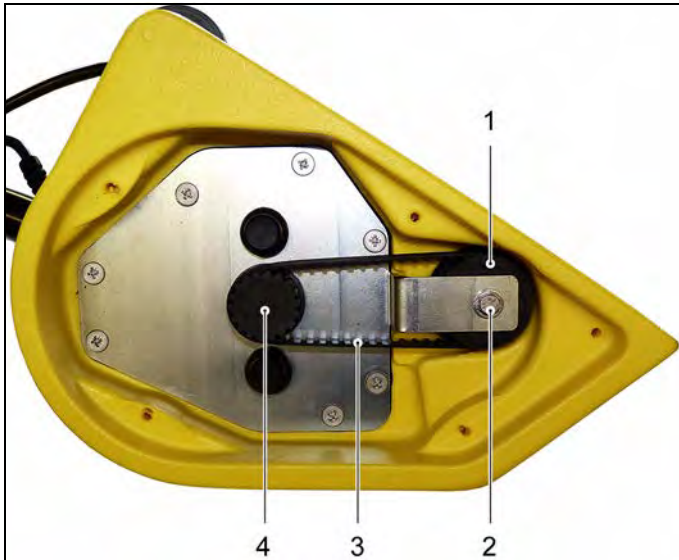


- 1 Brush roller
- 2 Brush roller cover
- 3 Fastening screws

- Place the PW 30/1 on its back.
- Unscrew locking screws.
- Remove the brush roller cover plate.



- 1 Toothed belt cover
  - 2 Fastening screws
- Unscrew locking screws.
  - Remove cover.



- 1 Toothed wheel, brush roller
- 2 Fastening screw, brush roller
- 3 Gear belt
- 4 Toothed drive wheel

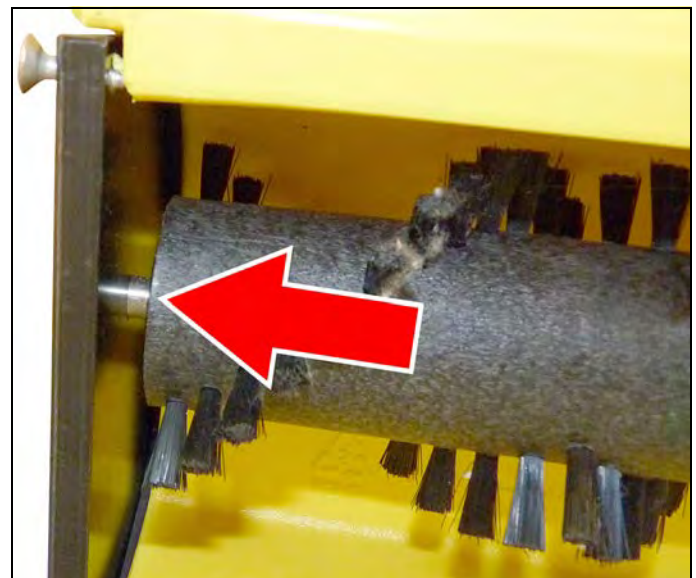
- 3 Toothed drive wheel
- Remove the toothed belts from the toothed wheels.
- Pull the brush roller out of the brush head.



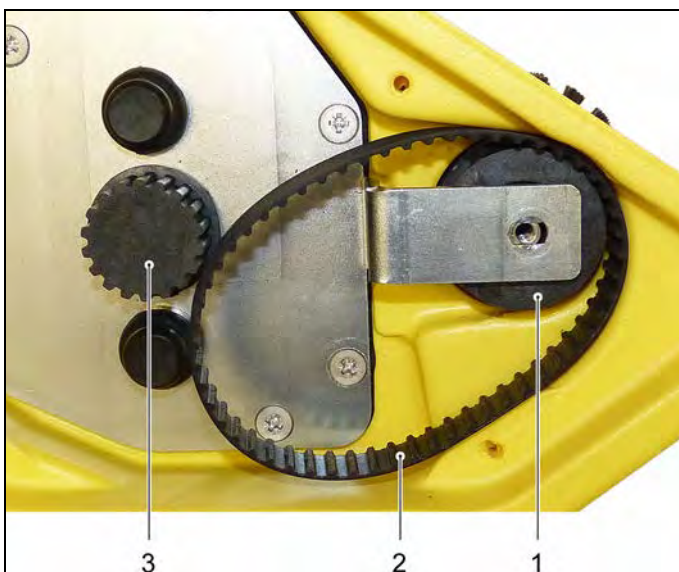
- Install the new brush roller in reverse order.



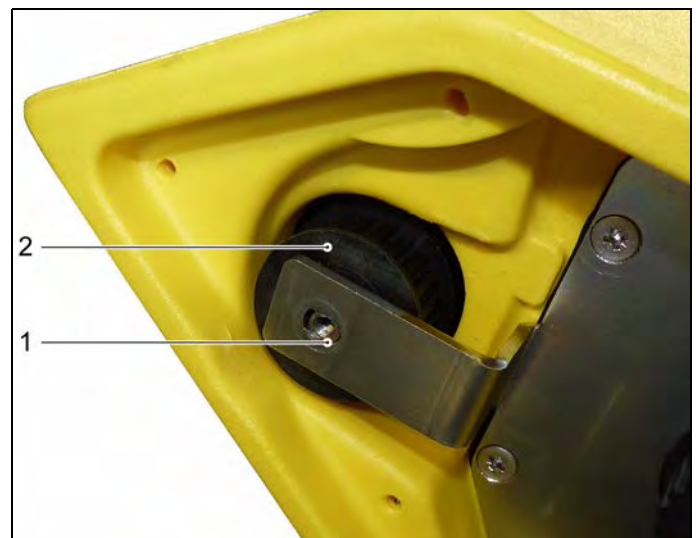
- Remove the fastening screw from the brush roller.



- Insert the brush roller into the guide bore of the brush roller cover plate.

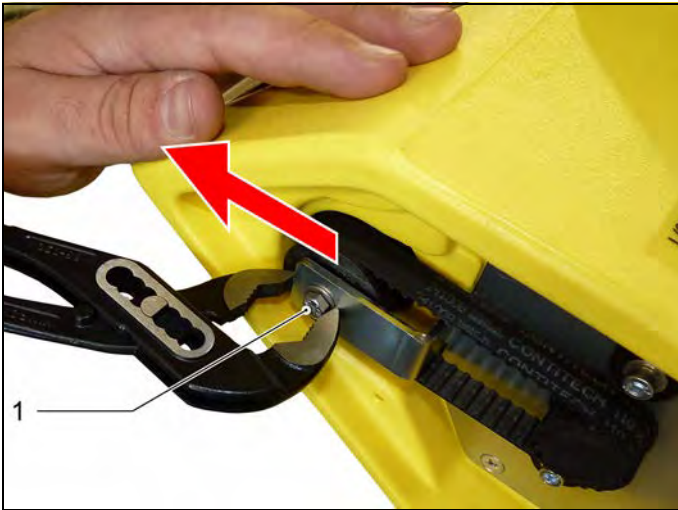


- 1 Toothed wheel, brush roller
- 2 Gear belt



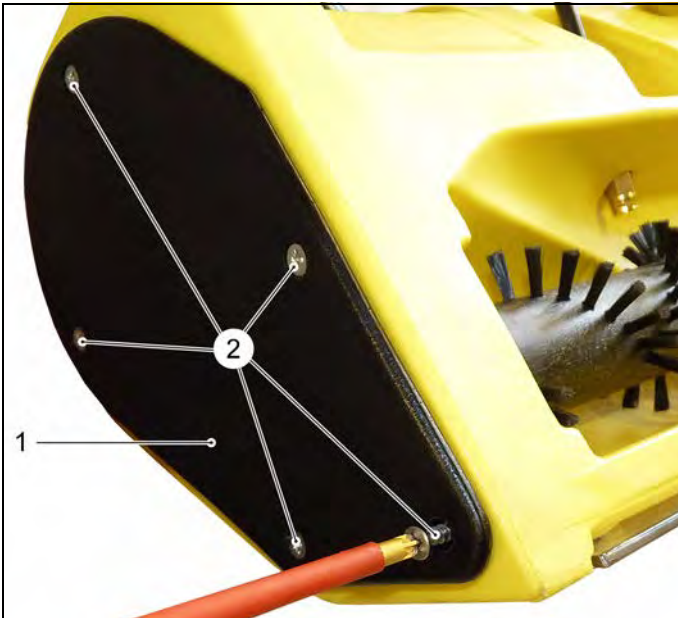
- 1 Elongated hole
- 2 Toothed wheel, brush roller
- Watch for the correct seating of the threaded sleeve in the elongated hole when installing the brush roller.
- Screw in the fastening screw of the brush roller.





- 1 Fastening screw, brush roller  
 → Tension the toothed belt at the fastening screw and tighten the fastening screw using suitable tools.  
 → Screw in the toothed belt cover.

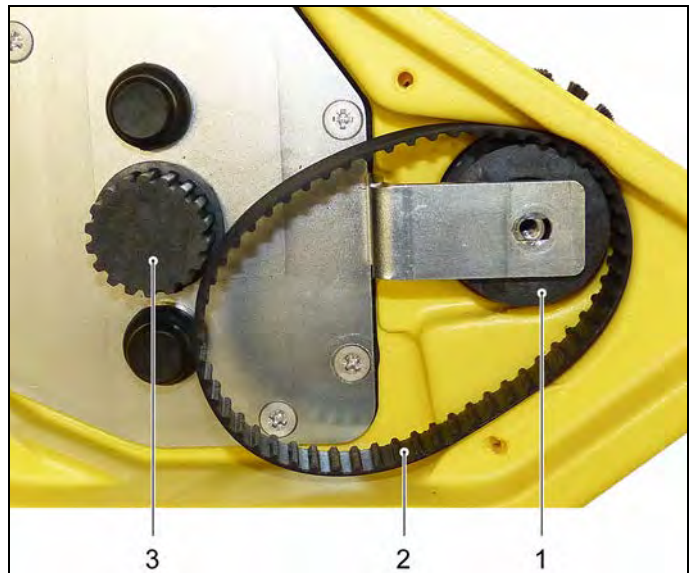
### 5.2.2 Replace the motor.



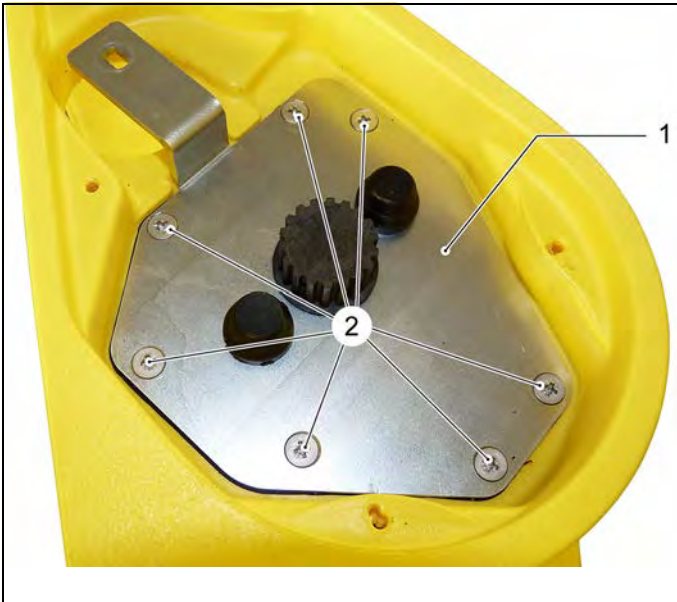
- 1 Toothed belt cover  
 2 Fastening screws  
 → Unscrew locking screws.  
 → Remove cover.



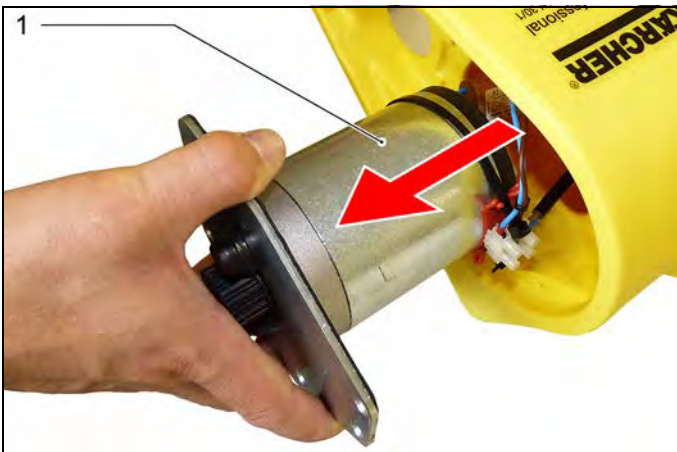
- Remove the fastening screw from the brush roller.



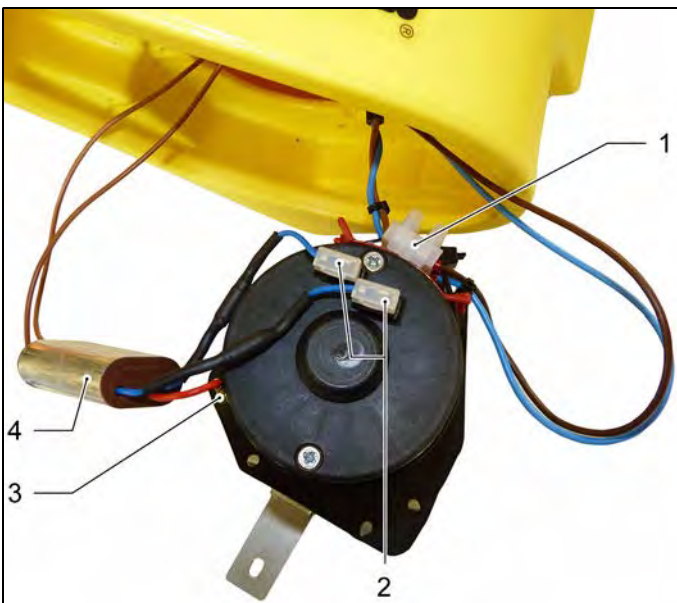
- 1 Toothed wheel, brush roller  
 2 Gear belt  
 3 Toothed drive wheel  
 → Remove the toothed belts from the toothed wheels.  
 → Pull the brush roller out of the brush head.



1 Motor holder  
2 Fastening screws, motor support  
→ Unscrew locking screws.

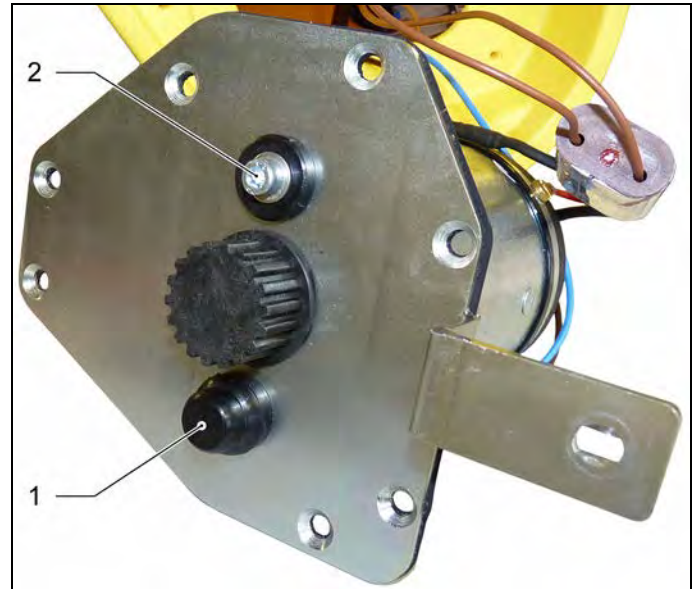


1 Motor  
→ Carefully remove the motor from the casing.

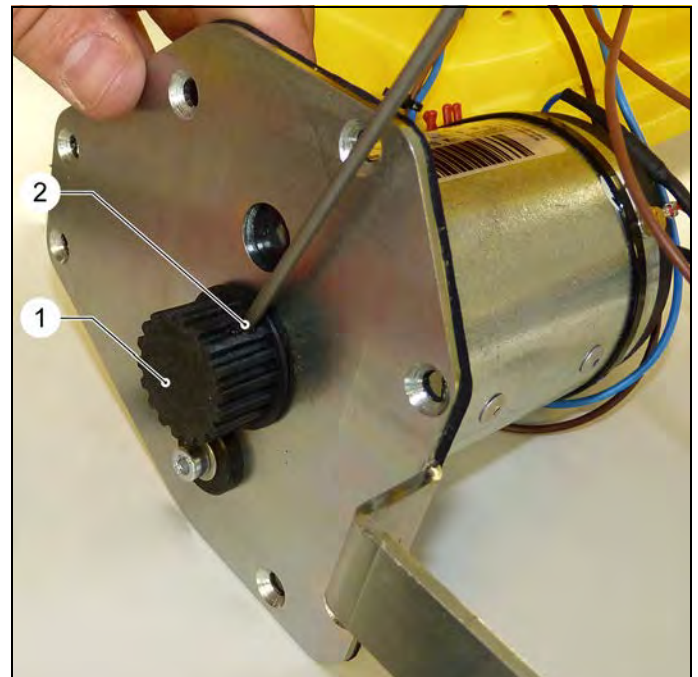


1 Connector  
2 Motor connection plug  
3 Cable connector screw, noise filter  
4 Anti-interference filter

- Remove the connector from the motor.
- Pull the motor connection plug from the motor.
- Unscrew the cable connector screw from the noise filter on the motor.



1 Protective cap (2x)  
2 Motor fastening screws (2x)  
→ Remove the protective caps from the motor fastening screws.  
→ Unscrew the motor fastening screws.



1 Toothed drive wheel  
2 Grub screw (2x)  
→ Loosen both grub screws from the toothed drive wheel.  
→ Pull the toothed drive wheel for the motor axle.  
→ Separate the motor from the motor support.  
→ Replace the motor in reverse order.

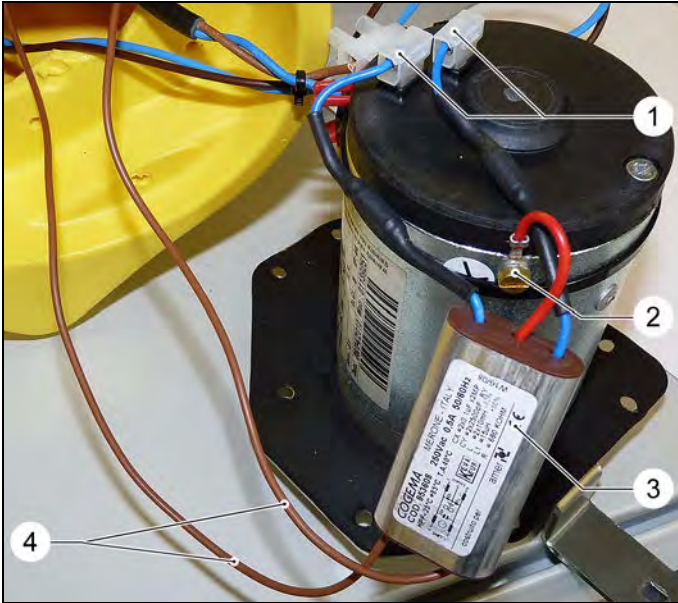
**Note**

*Prior to fastening the motor support, clean the dirt off the seal rubber.*

- Tension the toothed belt as described in Chapter 5.2.1.

### 5.2.3 Replace the interference filter

→ Remove the motor as described in Chapter 5.2.2.

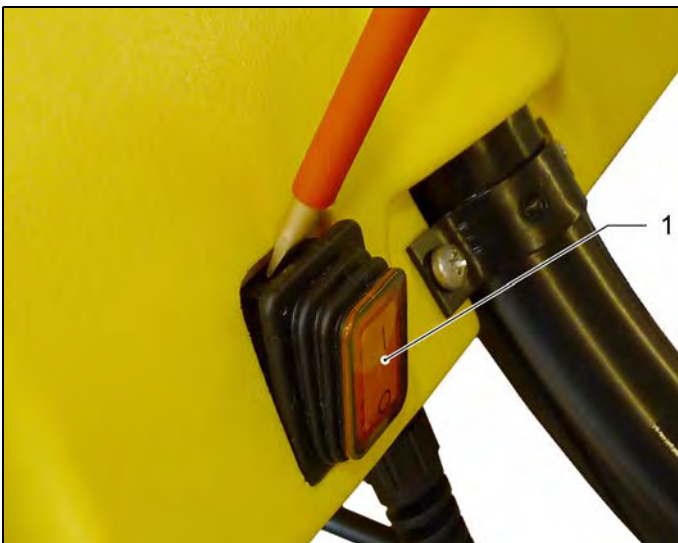


- 1 Motor connection plug
  - 2 Cable connector screw, noise filter
  - 3 Anti-interference filter
  - 4 Connecting cable, noise filter
- Pull the motor connection plug from the motor.  
 → Unscrew the cable connector screw from the noise filter on the motor.  
 → Remove the connecting cable from the appliance switch/safety switch.  
 → Install the new noise filter in reverse order.  
 → Install the motor as described in Chapter 5.2.2.

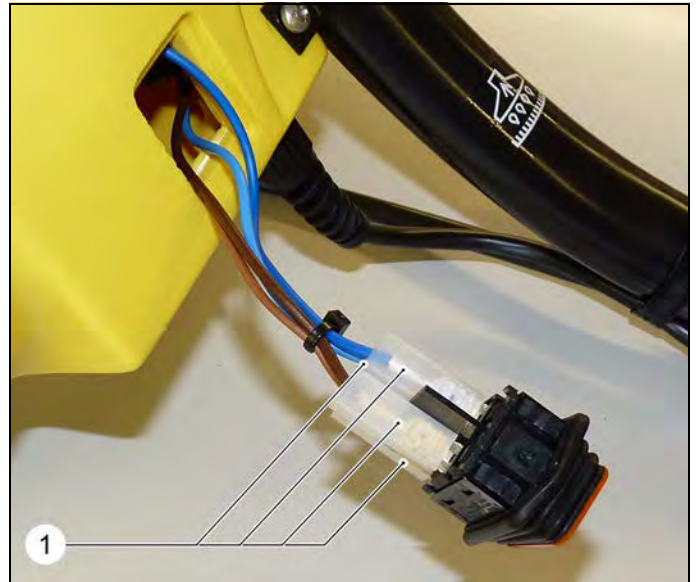
### 5.2.4 Replace toothed drive wheel

The removal of the toothed drive wheel is described in the Chapter 5.5.2.

### 5.2.5 Replace appliance switch



- 1 Power switch
- Push out the appliance switch from the casing using a screwdriver.



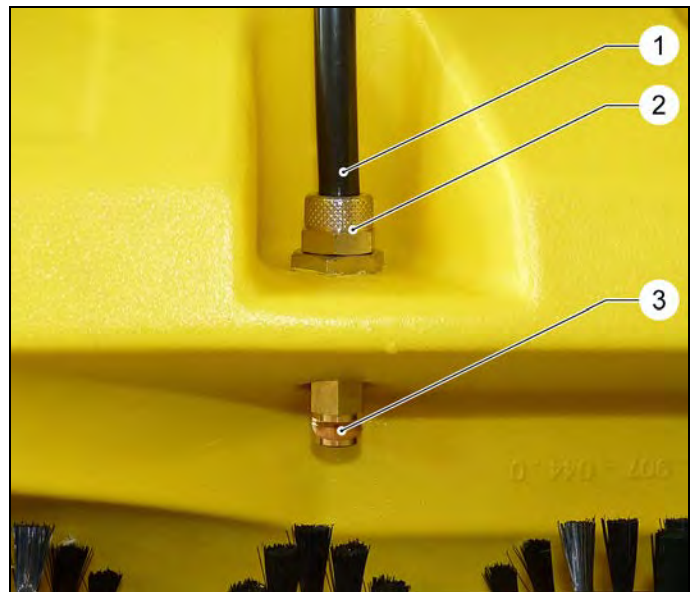
- 1 Connecting cable (4x), appliance switch
- Remove the appliance switch from the casing.

#### Note

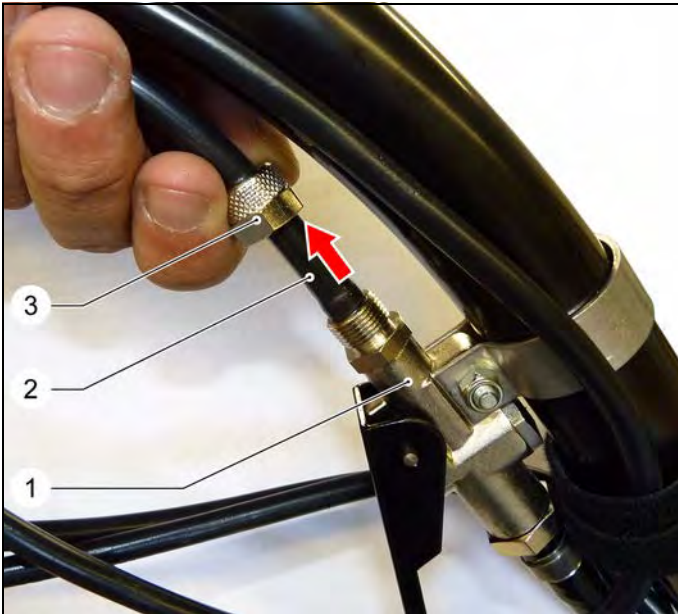
*In order to avoid failures, remember the plug connections of the different connecting cables on the appliance switch.*

- Remove all four connecting cable from the appliance switch.
- Replace the appliance switch and install it in reverse order.

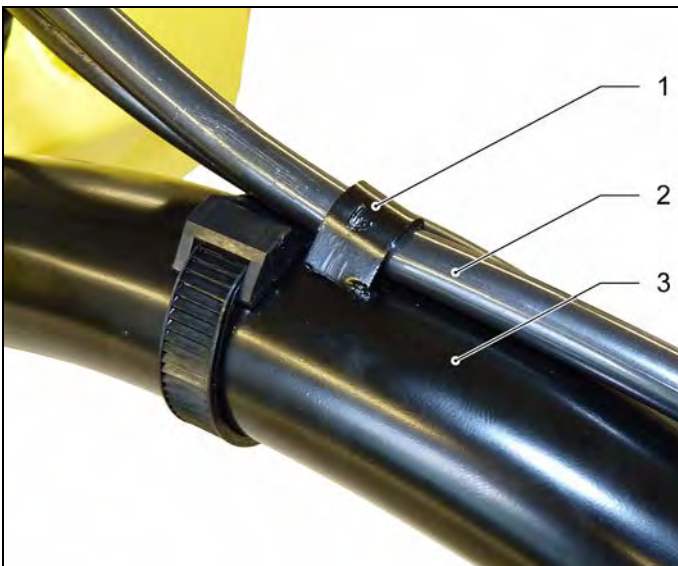
### 5.2.6 Replace the spray hose



- 1 Spray hose
  - 2 Lock nut
  - 3 Spray nozzle
- Place the PW 30/1 on its back.  
 → Unscrew the knurled nut.  
 → Pull the spray hose from the spray nozzle.



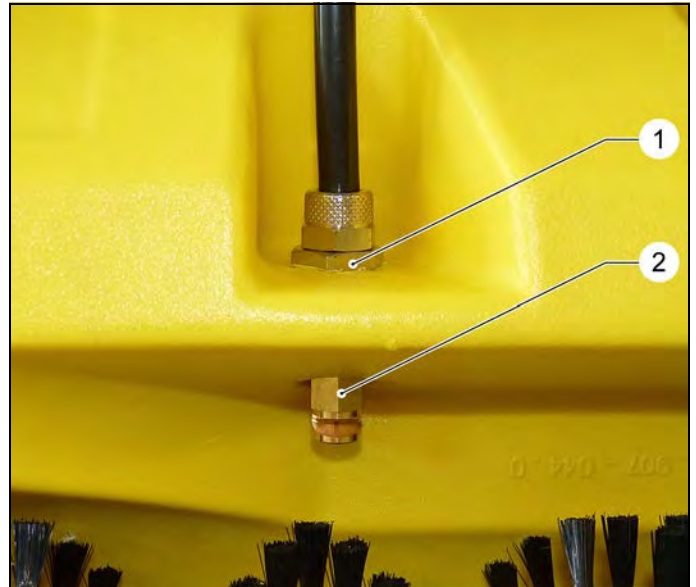
- 1 Spray valve
- 2 Spray hose
- 3 Lock nut
- Unscrew the knurled nut.
- Pull the spray hose from the spray nozzle.



- 1 Hose inlet
- 2 Spray hose
- 3 Suction pipe
- Pull the spray hose from the hose grommets.
- Replace the spray hose and install it in reverse order.

### 5.2.7 Replace the spray nozzle

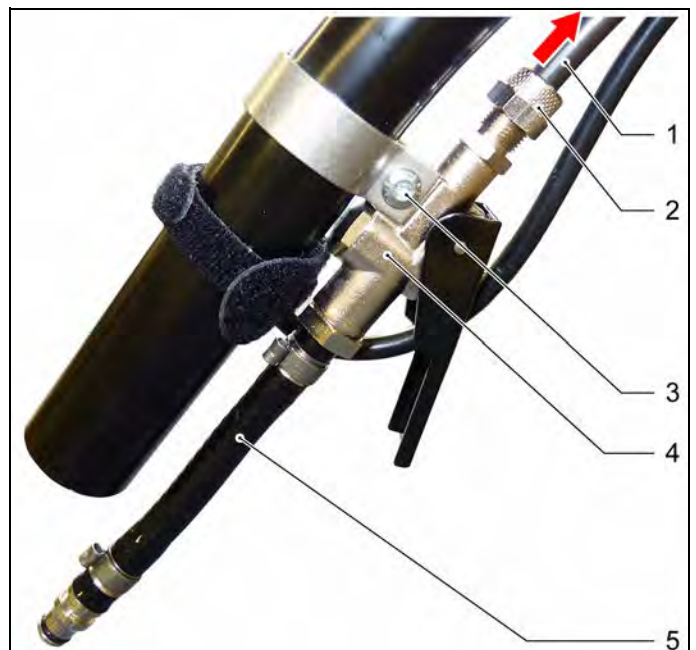
- Pull the spray hose from the spray nozzle as described in Chapter 5.2.6.



- 1 Hexagonal (SW 13)
- 2 Spray nozzle (SW 10)
- Hold the hexagonal with the wrench (SW 13).
- Unscrew the spray nozzle using a wrench (SW 10).
- Replace the spray nozzle and install it in reverse order.

### 5.2.8 Replace the spray valve

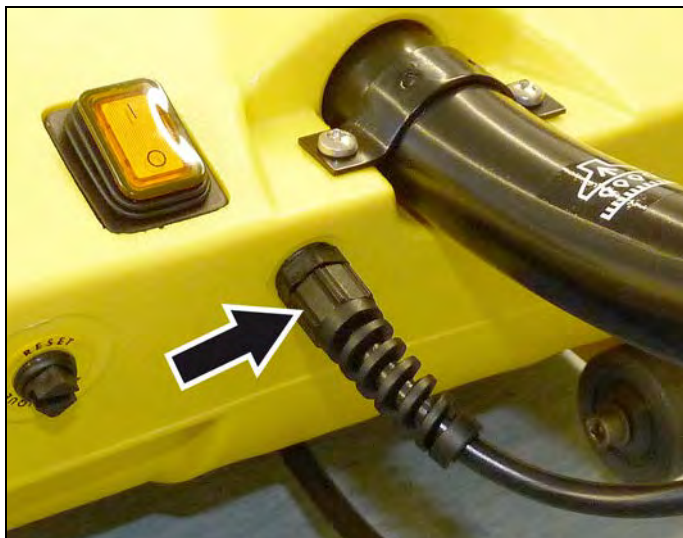
- Pull the spray hose from the spray valve as described in Chapter 5.2.6.



- 1 Spray hose
- 2 Lock nut
- 3 Fastening screws, spray valve
- 4 Spray valve
- 5 Connection hose
- Unscrew the fastening screw from the spray valve and remove the spray valve.
- Replace the spray valve and install it in reverse order.

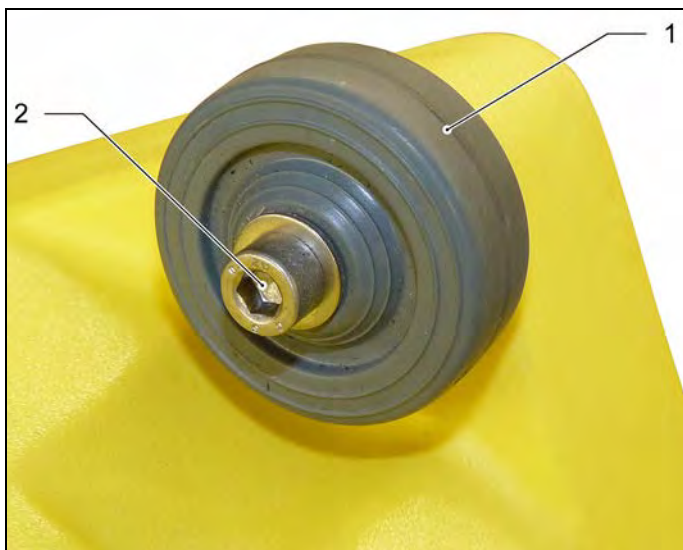
### 5.2.9 Replacing the mains cable

- Remove the motor as described in Chapter 5.2.2.
- Remove the mains cable from the connector on the motor.



- Loosen the hexagonal (arrow).
- Remove the cable ties from the suction pipe.
- Replace the mains cable and install it in reverse order.
- Install the motor as described in Chapter 5.2.2.

### 5.2.10 Replace the running roller



- 1 Running roller
- 2 Fastening screw, running roller
- Place the PW 30/1 on its back.
- Loosen the fastening screw.
- Replace the running roller and install it in reverse order.

### 5.2.11 Reset the safety switch



The safety switch is an overload protector switch and is located underneath the protective cap (arrow). If the brush roller is blocked, the safety switch will switch off the appliance.

In order to restart the appliance, reset the safety switch as follows:

- Unscrew the protective cap from the casing using a suitable flat tip screwdriver.
- Press the safety switch to reset it.
- Insert the protective cap and tighten it.

## 6 Maintenance and care

### **⚠ Danger**

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

#### 6.1 After each operation

- Rinse PW 20 or PW 30/1 with clear water.
- Clean the brush roller of lint and dirt.
- Check the spray pattern of the nozzle mouth piece; if it is irregular, clean the nozzle and the mouthpiece.
- Clean the suction hose and nozzles if the suction performance is reduced.

#### 6.2 Half-yearly

- Check the toothed gear wear and the tension, replace if required.
- Check brush wear, replace brush if required.

## 7 Troubleshooting

### **⚠ Danger**

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

#### 7.1 Brush is blocked

##### **Note**

*If the brush is blocked, the brush motor is shut off.*

- Switch the brush drive off at the appliance switch.
- Check brush to see if there are impurities and remove blocking objects, if any.
- Remove the safety cap and press the safety switch by means of a screwdriver.
- Reinstall the safety cap.

## 8 Technical specifications

Appliance type	Appliance no.:	Circuit diagram	Operating instructions	Spare parts list
PW 20 *EU, 220-240 V, 1~ 50/60 Hz	1.735-121.0	0.087-346.0	5.960-684.0	5.955-330.0
PW 30/1 *EU, 220-240 V, 1~ 50/60 Hz	1.913-100.0	0.089-258.0	5.963-318.0	5.957-953.0
PW 30/1 *EU, 220-240 V, 1~ 50/60 Hz	1.913-101.0	0.089-258.0	5.963-318.0	5.957-953.0

The status of the attached circuit diagram represents the creation date of the service manual. This circuit diagram is not updated. When working on the device, please always use the current circuit diagram in Kärcher-Inside.

#### 8.1 Special tools

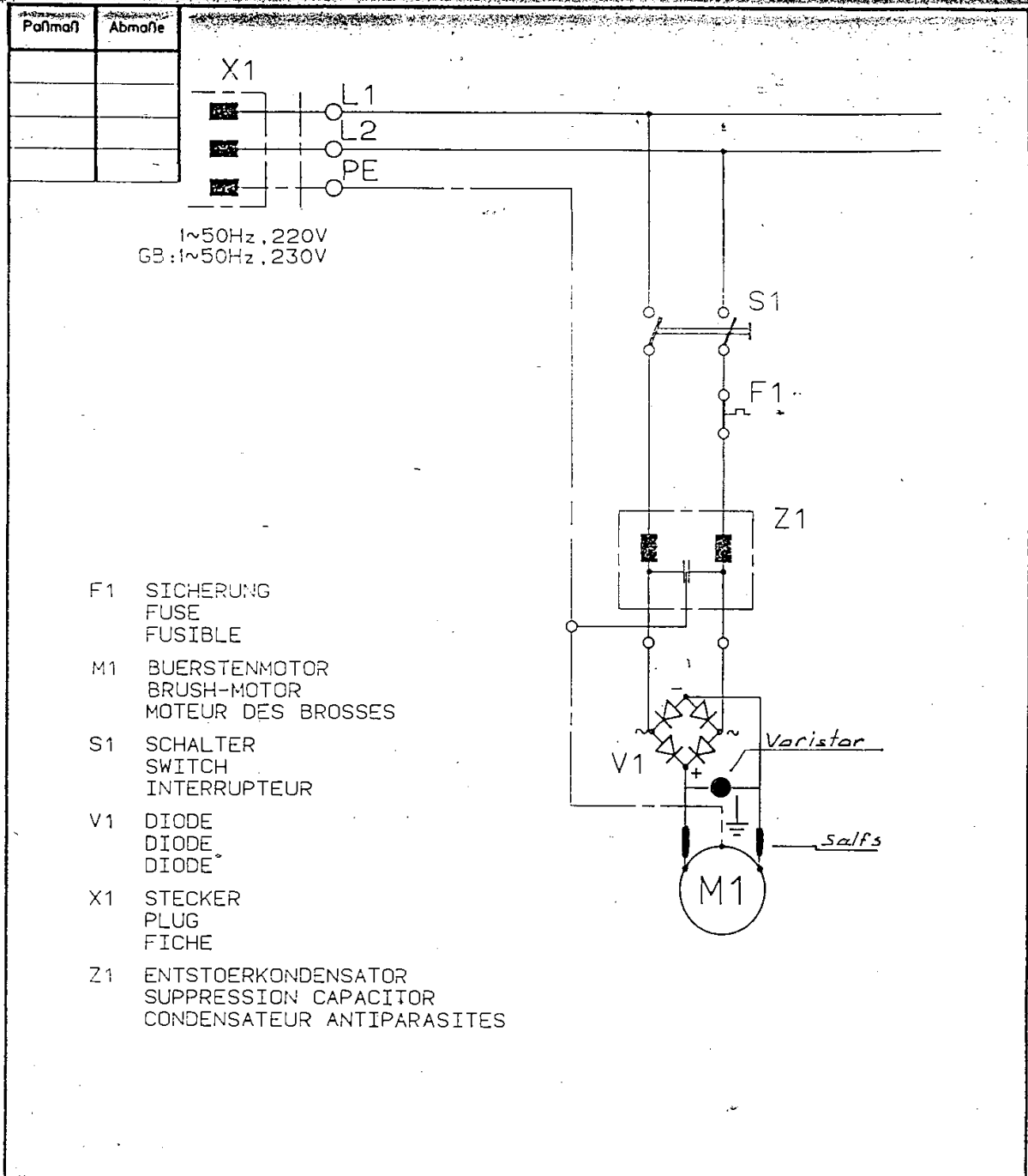
There are no special tools necessary.

#### 8.2 Tightening torques

No data.

# 9 Circuit diagram

## 9.1 PW 20



Ähnlich Zeichnungs-Nr. ---

Mit CAD erstellt	<input checked="" type="checkbox"/> Ja <input type="checkbox"/> Nein	Stückgewicht	---	Maßstab	---	Materialprüfung erforderlich	<input type="checkbox"/> Ja <input type="checkbox"/> Nein
		Allgemeintoleranzen nach	DIN 7168 - m	Maßstab	---	Werkstoff	DIN
		Oberfläche nach	DIN ISO 1332			Zeichnungs-Nr.	0.1087-346
		Oberflächenzeichen	DIN ISO 1332   DIN 3141 Reihe 3	<b>KÄRCHER</b>	Winnenden	Ersatz f(©) Z.GL.NR.V.4.7.86	Ersetzt durch
11.05.88	PA		a 1 6194	$\sqrt{Rz 63}$	$\nabla$	Benennung	
04.07.85	HS		0 47/86	$\sqrt{Rz 16}$	$\nabla\nabla$	CIRCUIT DIAGRAM/SCHEMA DES CIRCUITS	
				$\sqrt{Rz 4}$	$\nabla\nabla\nabla$	STROMLAUFLAN	
				$\sqrt{Rz 1}$	$\nabla\nabla\nabla\nabla$	Maßstab	Blatt 1   Blatt 1

