

# Installation Instructions

## **Kit Liquistation CSFxx**

For the maintenance of peristaltic samplers



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# 1 Overview of maintenance kits

	Product			
	A	CSF28		
	B	CSF33		
	C	CSF34		
	D	CSF39		
	E	CSF48		
		Sample collection technique		
		1A	Peristaltic pump	
			Maintenance use	
			B	Yearly maintenance; Components for yearly maintenance
			F	Large maintenance 8 m (26.25 ft); component replacement every 3 - 5 years
			Accessory enclosed	
	PA	Peristaltic pump 8 m (26.25 ft)		
			PE	Distribution arm
			PF	Pressure sensor
CSV18-				Complete order code

# 2 Intended use

The spare part set and the Installation Instructions are used to replace a defective unit with a functioning unit of the same type. Only original parts from Endress+Hauser may be used. As a matter of principle, only spare part sets that Endress+Hauser has intended for the measuring device may be used.

The manufacturer is not liable for damage caused by improper or non-intended use.

Use of the device for any purpose other than that described poses a threat to the safety of people and of the entire measuring system, and is therefore not permitted.

The manufacturer is not liable for damage caused by improper or non-intended use.

### 3 Authorized installation personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to perform the stated tasks.
- The electrical connection may only be established by an electrical technician.
- The technical personnel must have read and understood the Operating Instructions and must follow the instructions contained therein.
- Measuring point faults may be repaired only by authorized and specially trained personnel.



Repairs not described in the Operating Instructions provided must only be carried out directly at the manufacturer's site or by the service organization.

### 4 Safety instructions

- Pay attention to the following safety instructions.



Follow the Operating Instructions for the device.

#### 4.1 Workplace safety

As the user, you are responsible for complying with the following safety conditions:

- Installation guidelines
- Local standards and regulations
- Regulations for explosion protection

#### WARNING

##### **Process pressure and temperature, contamination, electrical voltage**

Risk of serious or fatal injury

- If a sensor has to be removed during maintenance work, avoid hazards posed by pressure, temperature and contamination.
- Make sure the device is de-energized before it is opened.
- Power can be supplied to switching contacts from separate circuits. Also de-energize these circuits before work is performed on the terminals.

#### CAUTION

##### **Activities while the sampler is in operation.**

Risk of injury and infection from the medium!

- Wear protective clothing, goggles and gloves or take other suitable measures to protect yourself.
- Wipe up any medium that escapes with a disposable tissue and rinse with clear water. Then dry the cleaned areas with a cloth.

## 4.2 Operational safety

### Before recommissioning the entire measuring point:

1. Verify that all connections are correct.
2. Ensure that electrical cables and hose connections are undamaged.
3. Do not operate damaged products, and protect them against unintentional operation.
4. Label damaged products as defective.

### During operation:

- If faults cannot be rectified:  
Products must be taken out of service and protected against unintentional operation.

## 4.3 Product safety



The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed.



## 4.4 Electrical safety

The replacement of assemblies for the power supply may only be performed by specially trained electrotechnical staff. All work must be carried out according to applicable safety standards. Built-in protective measures must be restored









# 5 Symbols

## 5.1 Warnings

Structure of information	Meaning
 <p><b>Causes (/consequences)</b> If necessary, Consequences of non-compliance (if applicable) ► Corrective action</p>	<p>This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation <b>will</b> result in a fatal or serious injury.</p>
 <p><b>Causes (/consequences)</b> If necessary, Consequences of non-compliance (if applicable) ► Corrective action</p>	<p>This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation <b>can</b> result in a fatal or serious injury.</p>

Structure of information	Meaning
<div><b>CAUTION</b></div> <div><b>Causes (/consequences)</b> If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action</div>	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
<div><b>NOTICE</b></div> <div><b>Cause/situation</b> If necessary, Consequences of non-compliance (if applicable) ▶ Action/note</div>	This symbol alerts you to situations which may result in damage to property.

## 5.2 Symbols used

	Additional information, tips
	Permitted
	Recommended
	Forbidden or not recommended
	Reference to device documentation
	Reference to page
	Reference to graphic
	Result of a step

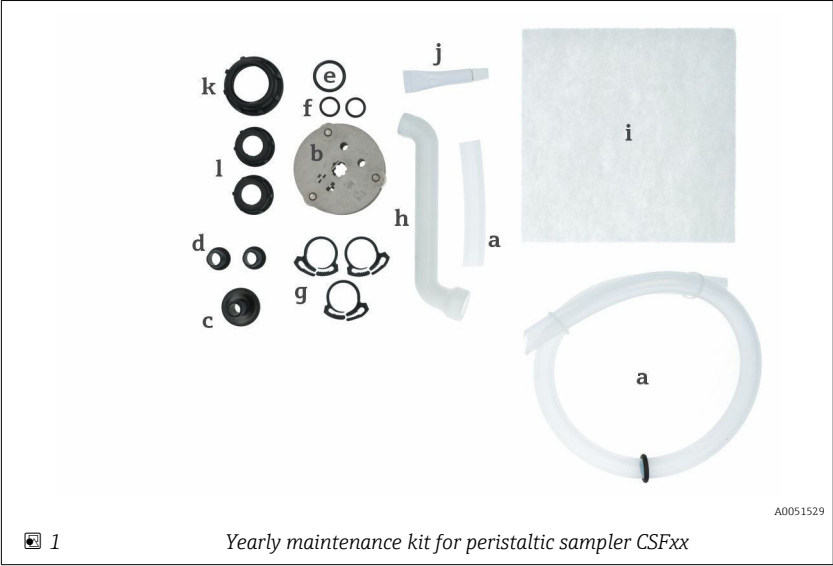
## 6 Scope of delivery

### Overview of yearly maintenance kit for peristaltic sampler CSFxx




The kit contents shown is an example only and illustrates the maximum contents of the yearly maintenance kit for CSFxx. The kit contents you receive will vary depending on the ordered version.

Item	Description
a	Pump hose 8 m (26.25 ft)
b	Roller body
c	Hose connector, straight G1" rad. OD13
d	Hose connector, straight 1/2" ax. OD10
e	O-ring (ID 20.29, W 2.62, OD 25.53, EPDM)
f	O-ring (ID 12.00, W 2.00, OD 16.00, EPDM)
g	Fastening clip
h	Drain pipe
i	Filter mat G2 (167 mm (8.27 in) x 167 mm (8.27 in) x 5 mm (0.2 in))
j	Silicone grease, medium-viscosity tube 3 g (0.1058 oz)
k	Union nut 1" PP
l	Union nut 1/2" PP
	Service kit instructions

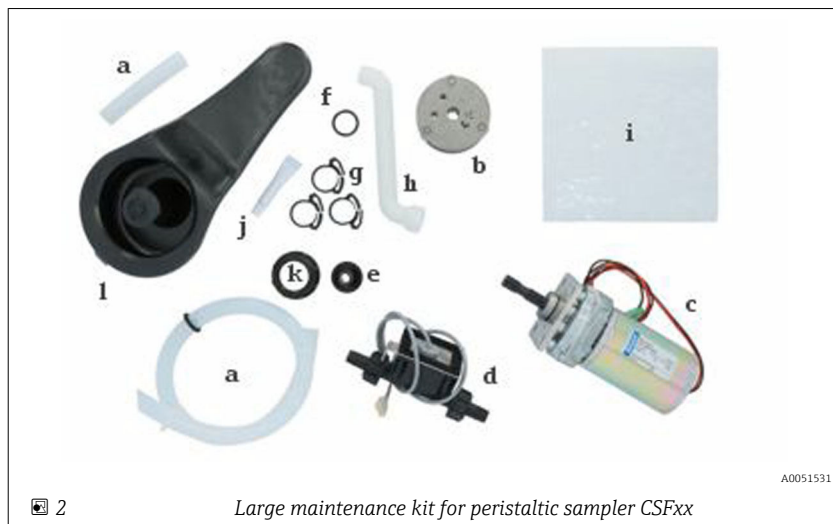


Overview of large maintenance kit for peristaltic sampler CSFxx

 The kit contents shown is an example only and illustrates the maximum contents of the large maintenance kit for CSFxx. The kit contents you receive will vary depending on the ordered version.

Item	Description
a	Pump hose 8 m (26.25 ft)
b	Roller body
c	Motor for peristaltic pump
d	Pressure sensor with housing
e	Hose connector, straight G1" rad. OD13
f	O-ring (ID 20.29, W 2.62, OD 25.53, EPDM)
g	Fastening clip
h	Drain pipe
i	Filter mat G2 (167 mm (8.27 in) x 167 mm (8.27 in) x 5 mm (0.2 in))
j	Silicone grease, medium-viscosity tube 3 g (0.1058 oz)
k	Union nut 1" PP
l	Tap
	Service kit instructions





## 7 Tool list

	 T10,T20,T25	 PH2	 Allen key set	
Graduated cylinder or graduated beaker	Soft cloth			

## 8 Replacement of spare parts

### 8.1 Preliminaries

The following preparatory measures must be performed before maintenance tasks can be carried out:


- Open the upper door of the sampler.

Stop the active sampling program.

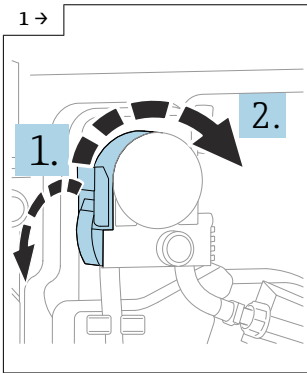
1. On the program screen, select **MODE**.
2. Select **Stop program XY**.
3. The message **No sampling program active!** appears on the start screen.

- Read out all the logbooks.
- Disconnect the sampler from the mains voltage.

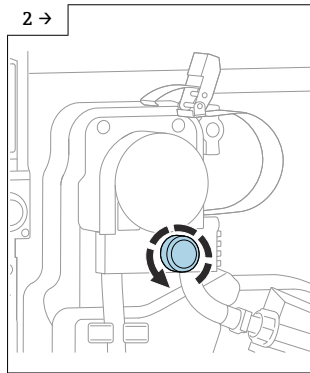
### 8.2 Maintenance

 The maintenance tasks to be performed depend on whether a yearly or large maintenance kit has been ordered. The steps of the yearly maintenance are also contained in the large maintenance.

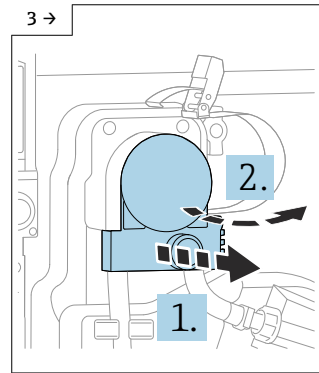
#### 8.2.1 Removal of the roller body



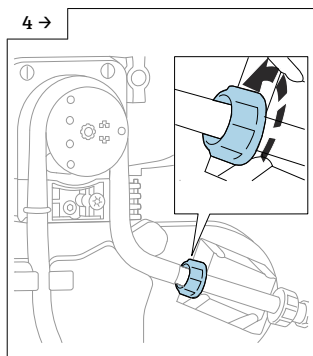
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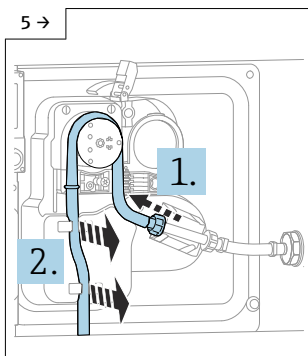
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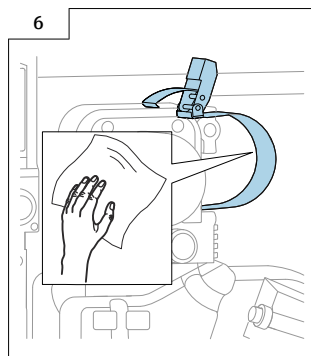
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A0051499

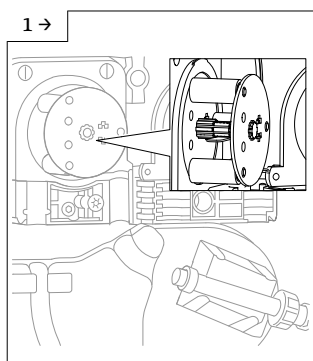


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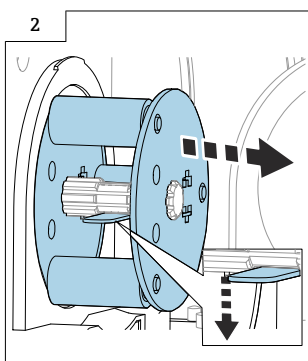


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- Push down the spring latch.
- Remove the roller from the motor shaft.



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A0051503

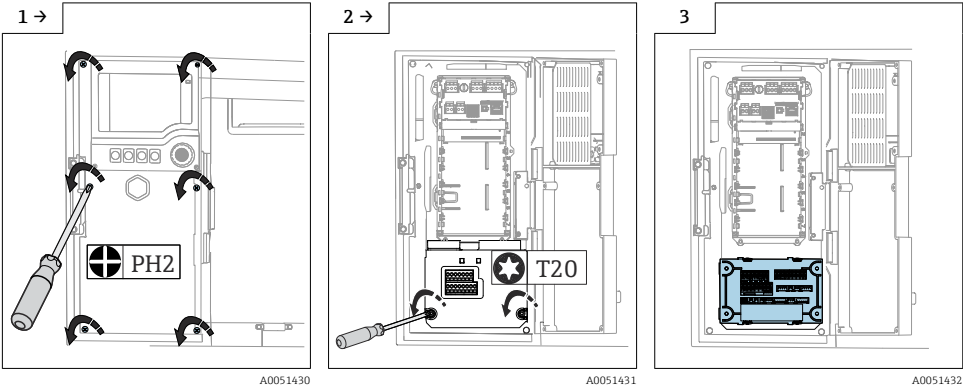
- Dispose of the old roller body.

**i** If performing a yearly maintenance, skip the next three sections and continue with Section 8.2.5. → 18

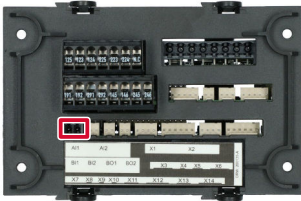


## 8.2.2 Replacement of the pump motor

- Before the pump motor can be replaced, the carrier plate must be removed from the sampler.

Removing the sampler carrier plate

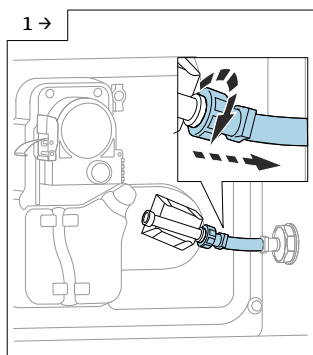


- Disconnect the pump motor cable **X7** and the pressure sensor cable **X3** from the FMSY1 control module. In the case of the version with the "Peristaltic pump safety switch", also disconnect the plug **X13**.

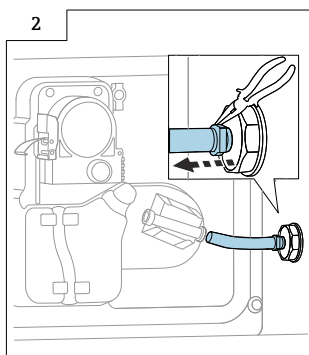
Pump motor cable	Pressure sensor cable	Peristaltic pump safety switch
Disconnect plug <b>X7</b> from the FMSY1 module.	Disconnect plug <b>X3</b> from the FMSY1 module.	Disconnect plug <b>X13</b> from the FMSY1 module.
 <p>A0050553</p>	 <p>A0050635</p>	 <p>A0051852</p>

- Remove the seal in the cable duct.
- Guide the loosened cables through the cable duct from the FMSY1 control module into the sampler.

- Disconnect the short hose.

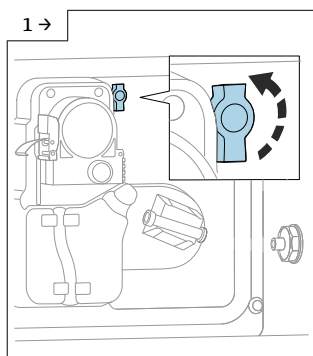


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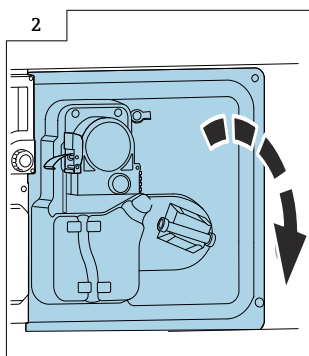


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- Remove the carrier plate.



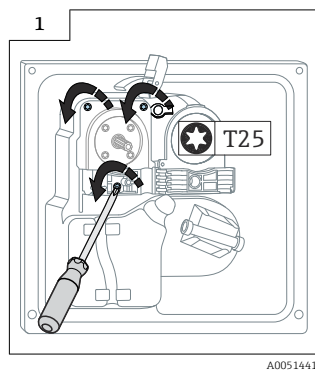
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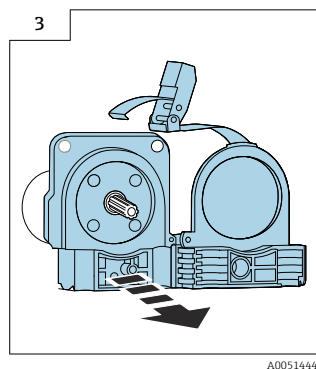
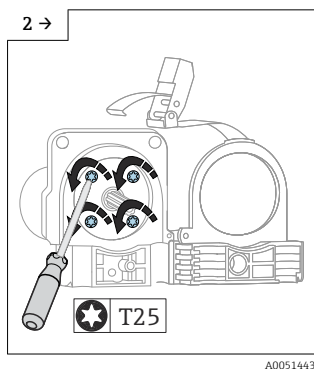
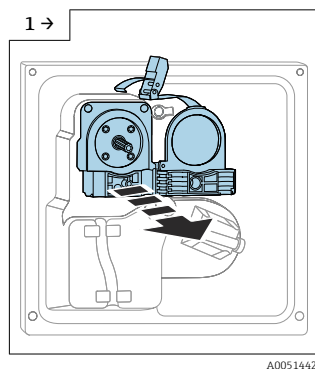
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- Place the carrier plate on an even surface, with the pump housing facing upwards.

## Removal of the pump motor



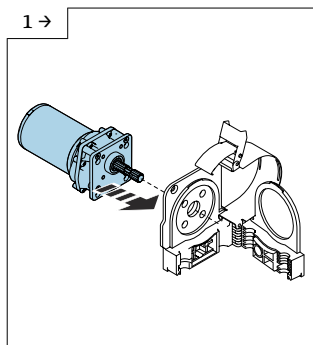
- Carefully remove the pump housing with cables from the carrier plate.



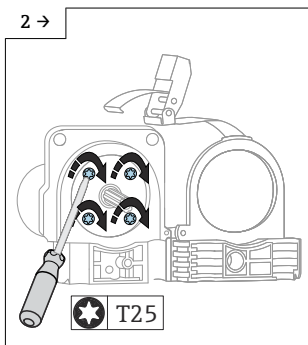
- Replace the old pump motor with the new pump motor from the kit.

## Mounting the pump motor

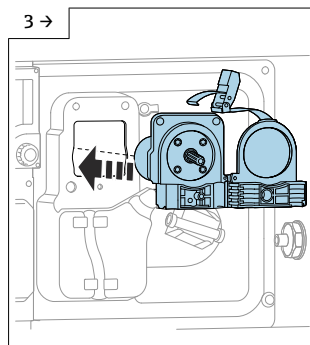
- Applying force, slide the pump motor into the pump housing.



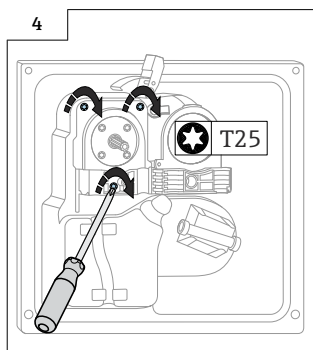
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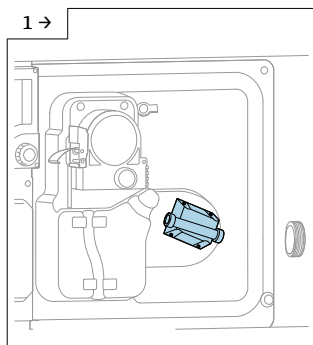


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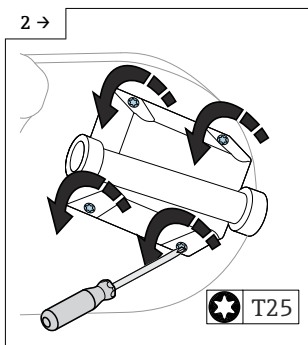


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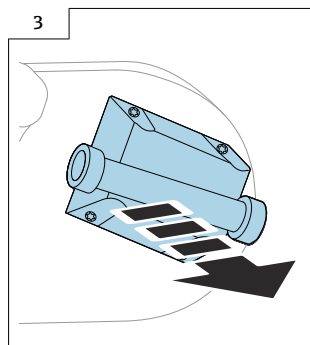
## 8.2.3 Replacement of the pressure sensor



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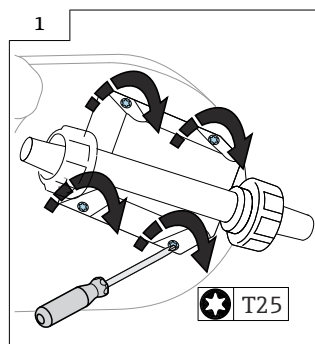
A0051450



A0051451

- Replace the old pressure sensor with the new pressure sensor from the kit.

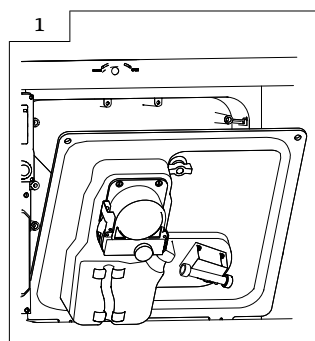
- Guide the cable through the hole in the carrier plate.



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#### 8.2.4 Re-installation of the carrier plate

- With the carrier plate tilted slightly forwards, insert the carrier plate back into the sampler.

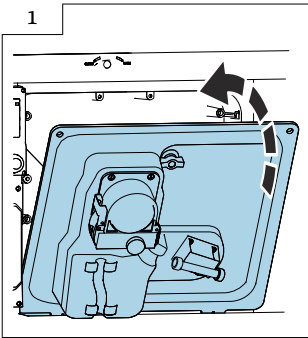


A0051525

- Pull the cables through the cable duct into the interior area of the sampler.
- Put the seal back into the cable duct.

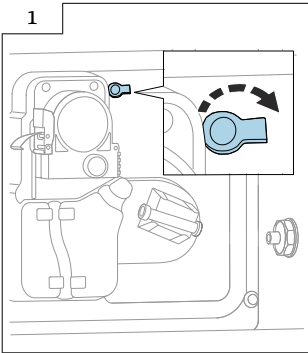


- Stand the carrier plate upright.





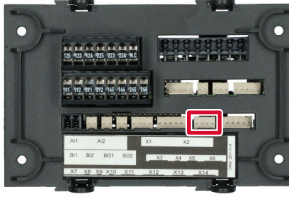
A0051526

- Lock the carrier plate by turning the black handle in the clockwise direction.

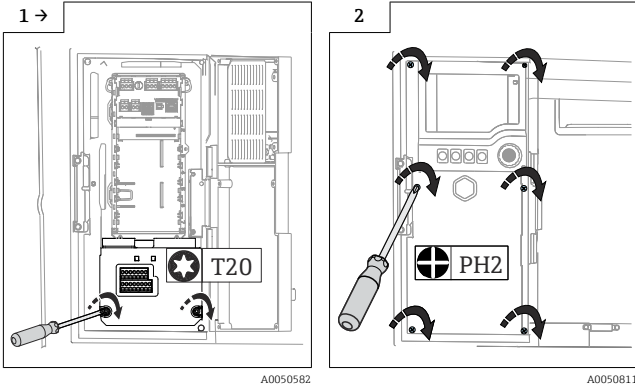


A0051527

- Insert plug **X7** and plug **X3** and, where applicable, plug **X13** back into the FMSY1 control module.

Pump motor cable	Pressure sensor cable	Peristaltic pump safety switch
Insert plug <b>X7</b> into the FMSY1 module.	Insert plug <b>X3</b> into the FMSY1 module.	Insert plug <b>X13</b> into the FMSY1 module.
		
A0050553	A0050635	A0051852

- Check that all connections on the FMSY1 control module are installed correctly.



### 8.2.5 Mounting the new roller body

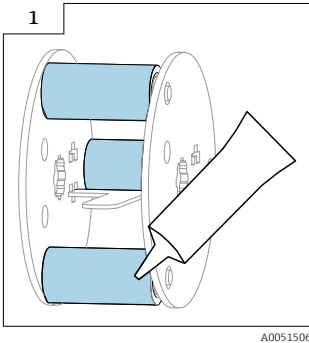
- Take the new roller body out of the kit.
- Lubricate the roller surfaces with the silicone grease enclosed and distribute the grease with your fingers.

#### NOTICE

#### Unlubricated rollers.

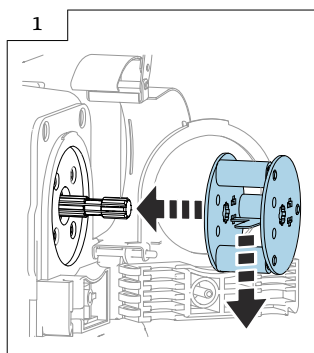
The operating life of the pump hose is significantly shortened.

- Lubricate the roller with the silicone grease enclosed.




- Push down the spring latch.

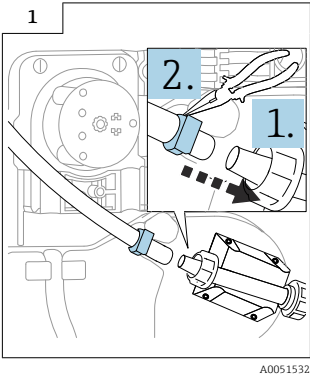
- Push the roller body onto the motor shaft as far as the end stop.




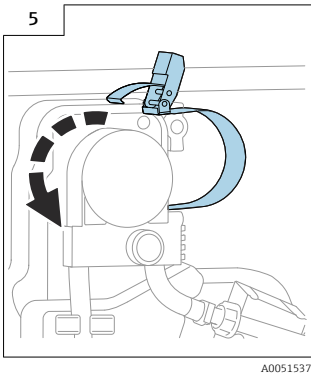
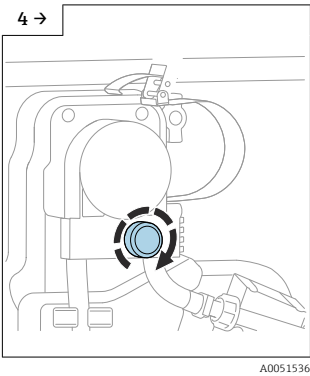
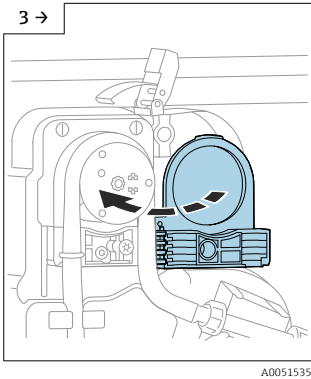
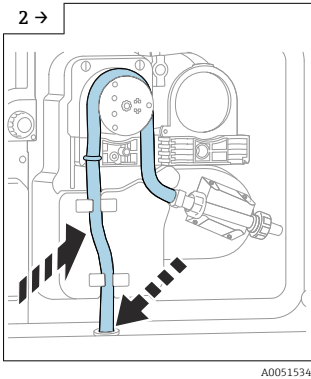
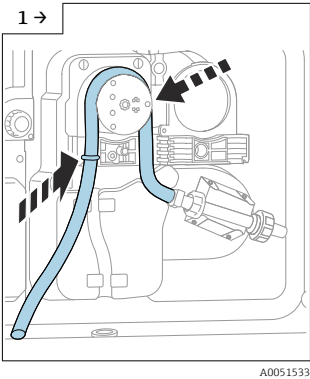
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-  The spring latch must engage correctly in the motor shaft nut.

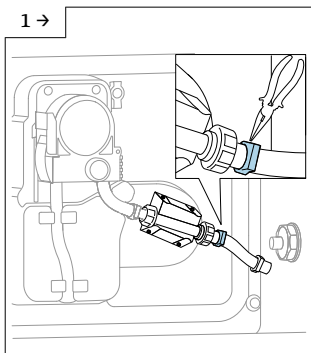
### 8.2.6 Mounting the new pump hose



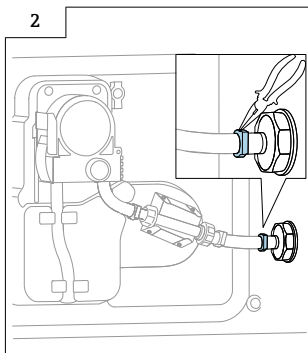
 The O-ring on the pump hose must be seated in the groove provided in the pump housing for this purpose.



- ▶ Connect the short hose to the right hose connection of the pressure sensor and secure it in place with the hose clip.
- ▶ Connect the other side of the short hose to the hose connection of the housing and secure it in place with the hose clamp.



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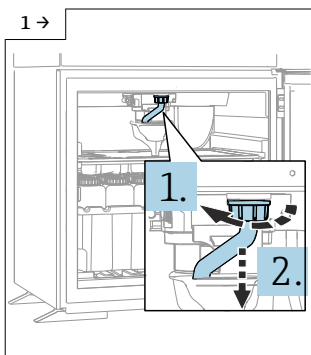


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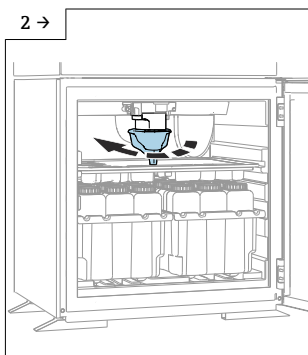
### 8.2.7 Replacement of the downpipe and distribution arm

- ▶ Open the lower door of the sampler.

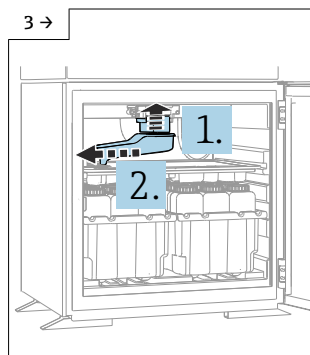
**i** If the sampler has only one bottle, only the downpipe needs to be replaced.



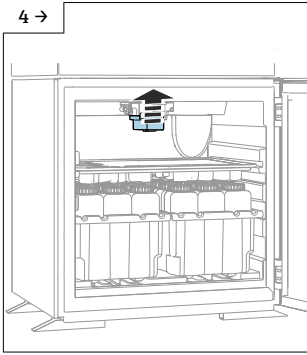
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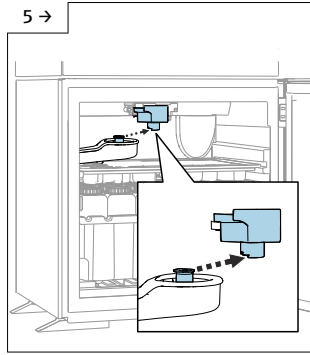
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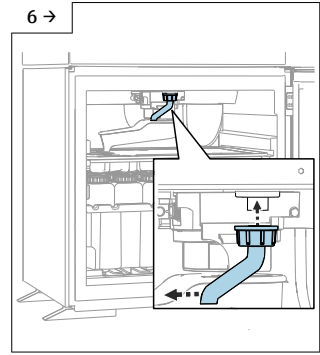
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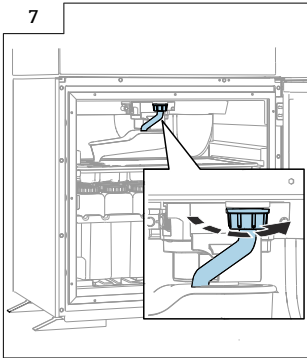
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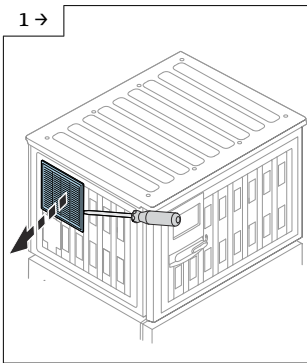


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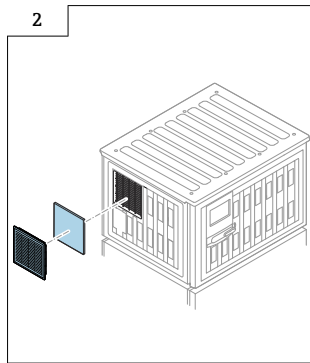


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## 8.2.8 Replacement of the filter mat in samplers with a plastic housing




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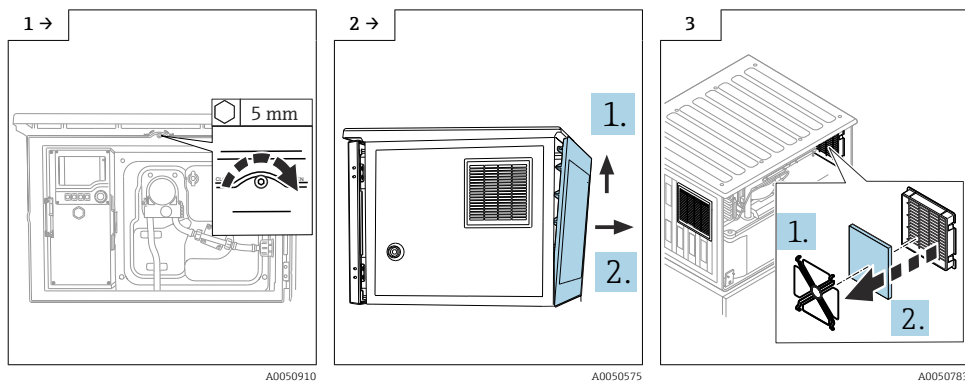


A0050570

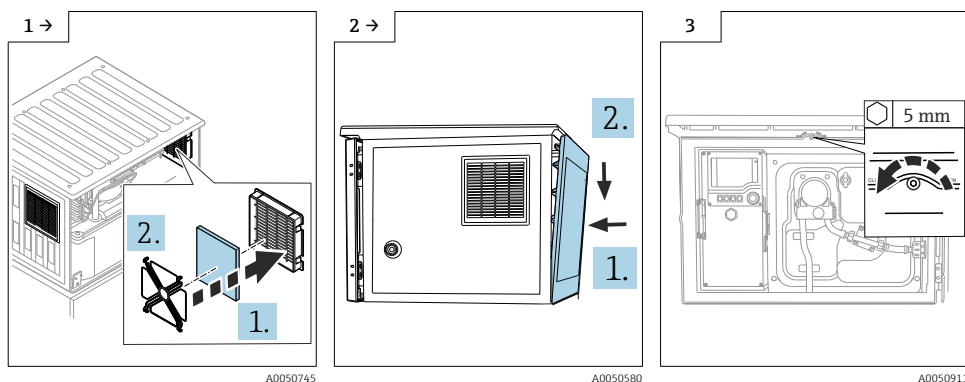
- Replace the old filter mat with a new filter mat from the kit.

 Viewed from the outside, the angled slats of the ventilation grid must slope downwards.

### 8.2.9 Replacement of the filter mat in samplers with a stainless steel housing



- Replace the old filter mat with a new filter mat from the kit.



### 8.2.10 Resetting the counters

The counters must be reset once the pump motor and pump hose have been replaced.

- i** It is recommended to note down all the operating times before resetting the counters.

- Connect the sampler to the mains voltage.

Select the following path in the menu:  
Menu/Diagnostics/Operating time information

1. Select **Pump tube life** and reset.
2. Select **Peristaltic pump** and reset. (Choose only when the pump has been replaced.)

### 8.2.11 Calibration of the sampling volume

#### NOTICE

**Replacement of the pump motor and the pump hose without calibration.**

Damage to the sampler. The safe operation of the sampler can no longer be guaranteed.

- The sample volume must be calibrated.



A graduated cylinder or beaker is needed for the calibration.

- You must ensure that sample is available.

Select the following path in the menu:

- CSF28: Menu/Application/Calibration/Sampling volume
- CSF33/34/39/48: Menu/Calibration/Sampling volume

- Set the **Distribution arm position** and the **Sampling volume**.

### 8.2.12 Calibration of the distribution arm



You can skip this section if the sampler has only one bottle.

#### NOTICE

**Replacement of the distribution arm and downpipe**

The safe operation of the sampler can no longer be guaranteed.

- The distribution arm must be calibrated.

Select the following path in the menu:

- CSF28: Menu/Application/Calibration/Distribution arm
- CSF33/34/39/48: Menu/Calibration/Distribution arm

1. Select **Ref. point** to perform a reference run.
2. Check whether the reference point is correct.
3. If **Yes**, press **OK** to confirm.
4. If **No**, select **Adjust**. Use the arrow keys to set the distribution arm. Press the softkey several times until the reference point is reached. Press the softkey **OK** to confirm.
5. The distribution arm is now calibrated and moves back to the parking position.



Reference point

- Sampler with distribution plate: arrow at front on distribution plate
- Sampler with direct distribution: at front in the middle between the bottles

### 8.2.13 Preparation for sampling routine

1. Check whether all the bottles and the distribution plate are inserted correctly.
2. Take a manual sample to check that everything is working correctly without any problems.



3. Press the softkey **MAN** and select **Start sampling** in the menu.
4. Check the sampling program and start it again / continue it.

## 9 Disposal

- Observe the local regulations.



If required by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), the product is marked with the depicted symbol in order to minimize the disposal of WEEE as unsorted municipal waste. Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

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