

Installation Instructions **High-temperature TOC analyzer CA72TOC**

Dilution pump maintenance



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1 Overview

1.1 Spare parts kits

These installation instructions apply to the following spare parts kits:

Order code	Designation	Page
71101535	CA72TOC dilution pump	→  6
711011608	CA72TOC maintenance, dilution pump	→  9

2 Intended use

- The parts of the kits are to be used exclusively as spare parts for the CA72TOC analyzers . Any other use is not permitted!
- Only use original parts from Endress+Hauser.
- In the Device Viewer, check if the spare part is suitable for the device in question.

3 Personnel authorized to carry out modifications

- 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 these Installation Instructions and must follow the instructions they contain.
- Measuring point faults may be repaired only by authorized and specially trained personnel.
- In the case of Ex-certified devices, the technical staff must also be trained in explosion protection.



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

WARNING

Risk of death from electrical shock!

- ▶ Perform work on the device with the utmost caution, especially when the device remains fully or partially powered on during maintenance tasks.
- ▶ Follow the instructions in the relevant chapters of this manual, as the procedure for electrical safety depends on the service kits used.
- ▶ All work must be carried out according to applicable safety standards.
- ▶ Follow the instructions in the Operating Instructions for the device.

WARNING

Risk of burns!

- ▶ Contact with hot components in the vicinity of the combustion furnace may cause injuries. Where necessary, wear heat-resistant gloves.

CAUTION

Risk to health due to contact with reagents (chemicals) or process solutions!

- ▶ Wear chemical-resistant protective gloves, protective goggles and protective clothing,
- ▶ Immediately rinse splashes with plenty of water and a 1% sodium bicarbonate solution (NaHCO_3 , baking soda).
- ▶ In case of eye contact, rinse the affected area with plenty of water and then seek medical advice. Show the relevant safety data sheet to the physician.
- ▶ Note the nationally applicable workplace safety regulations for the work area when handling toxic or corrosive chemicals.



Potential impact on the process

Before decommissioning an active device, the potential impact on the overall process must be taken into account! This applies in particular when using the switching contacts, the analog signal outputs or the communication interface of the associated measuring instrument to control process variables. Coordinate service tasks with the operator!

5 Scope of delivery

The scope of delivery is stored in the Spare Parts Finder (SFT) as a components sheet. The QR code below enables access to the scope of delivery including an overview of devices with the item numbers of the maintenance parts. The order code, product root or serial number of the device must be entered for this purpose.



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<https://sft-p.cdn.endress.com/>

6 Replacing the components

6.1 Preparation

WARNING

Risk of death from electrical shock!

► **First switch off the main switch!**

 Before removing the gas connection block, make sure that the compressed air supply has been shut down.

1. End the ongoing analysis and shut down the device.
2. Switch off the main switch of the device.
3. Disconnect the device from the power supply by unplugging the mains plug. Ensure that the analyzer remains disconnected from the power supply during repair and replacement work.
4. Open the rear and front door of the measuring system. Use the special key supplied for this purpose.
5. Disconnect the gas supply hose from the connection on the outside of the housing.

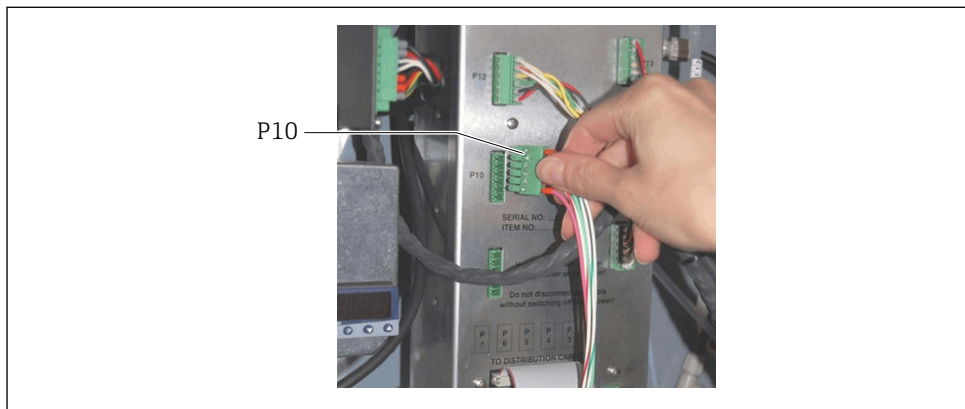
6.2 Replacing the dilution pump

⚠ WARNING

Contact with hot components in the vicinity of the combustion furnace may cause injuries!

► Wear heat-resistant gloves.

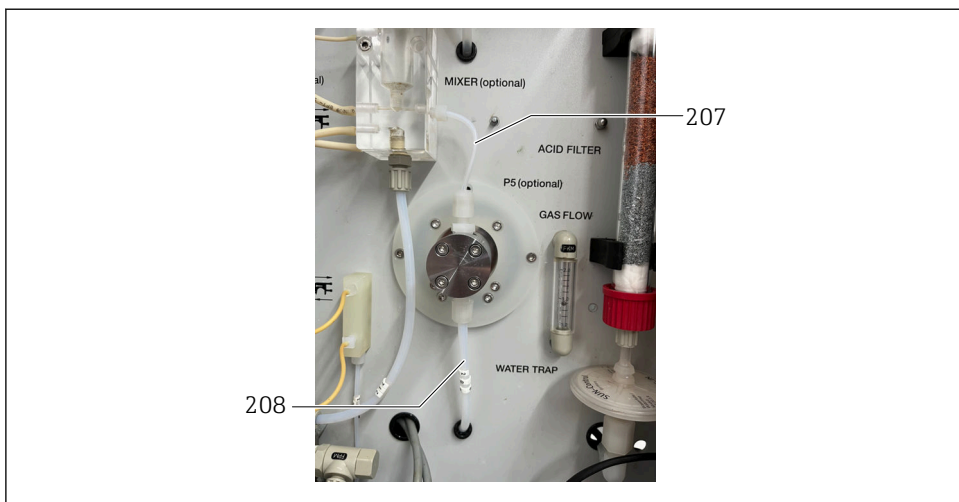
1. Carry out preparatory work as per section 6.1 → 📄 5.
2. Switch off the water supply.
3. Then disconnect plug **P10** of pump **P5** from the pump control system.



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- 📹 1 *Disconnecting plug P10*

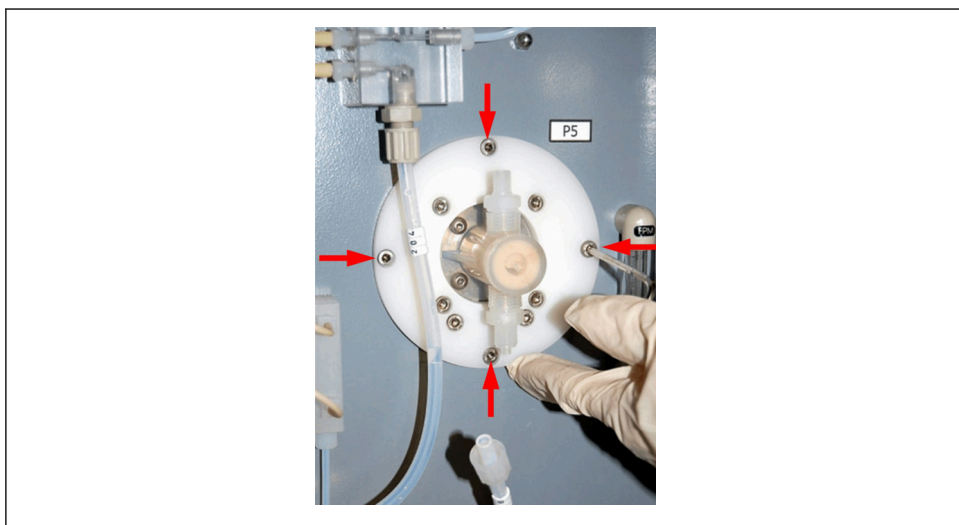
4. Release the lower and upper hose connectors on the pump and remove hoses **207** and **208**.



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2 Removing pump hoses

5. Release the four outer fixing screws on the pump adapter.



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3 Releasing the fixing screws

6. Remove the pump, along with the adapter, from the mounting plate.

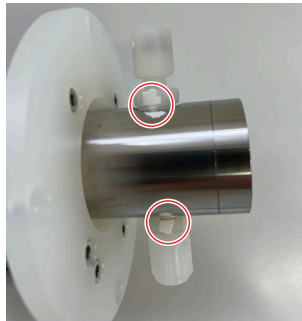


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4 *Removing the pump*

7. Insert the new pump into the mounting plate and secure the adapter with the four outer fixing screws.
8. Reconnect hoses **207** and **208** to the pump head →  2,  7.

 When connecting the hoses, make sure that the hose connectors are not twisted. The hose connectors must not be screwed in further (they will block the pump) or screwed out further (risk of leakage). Make sure that the white position mark is retained.



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5 *Hose connectors*

9. Reconnect the water supply.
10. Reinsert plug **P10** of pump **P5** into the pump control system →  1,  6.

11. Switch the power supply back on.
 ↳ Operation starts automatically.

i If a dilution pump with 1000 $\mu\text{L}/\text{stroke}$ (recognizable by its plastic pump head) was previously used and has now been replaced with a dilution pump with 800 $\mu\text{L}/\text{stroke}$ (recognizable by its metal pump head), the setting parameter **P5 100% [ml/min]** in the control system must be changed from **30.5** to **26.5** (**Menu** → **Settings** → **Basic data**).

6.3 Maintenance of the pump with seal replacement

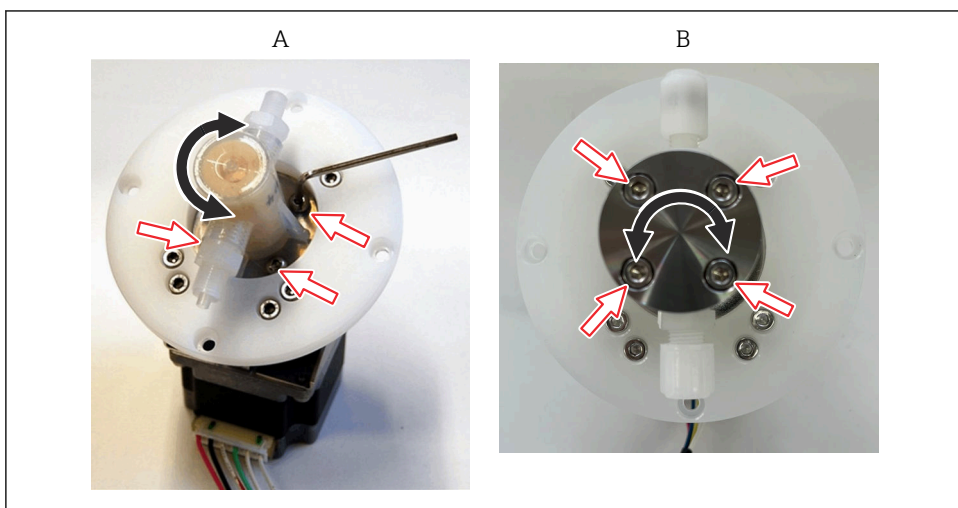
i A mounting aid is required for servicing pump **P5**; this is included in the "CA72TOC maintenance tools" kit (order number 71102317).

6.3.1 Removing the pump

1. Carry out preparatory work as per Section 6.1 → 5.
2. Remove the pump, see steps 1 to 7 in Section 6.2 → 6.
3. Pay attention to the warnings in Section 4 → 4.

i A clean and level working surface is required for the following tasks.

4. Release the four inner screws holding the pump head.

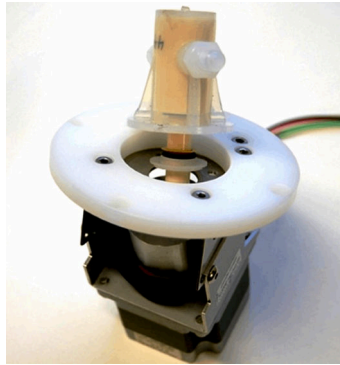


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6 Pump removal

- A 1,000 $\mu\text{L}/\text{stroke}$ pump
 B 800 $\mu\text{L}/\text{stroke}$ pump

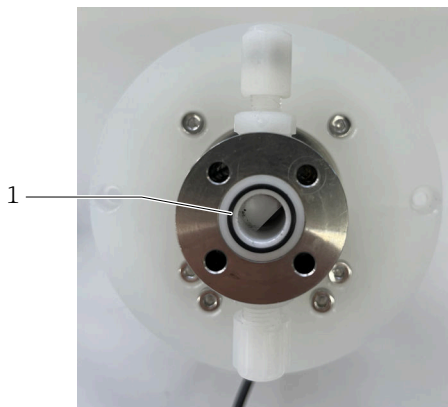
5. Carefully remove the entire pump head from the ceramic piston. If the pump head is blocked, turn it around its axis in its fastening position on the mounting plate
→  6,  9.



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-  7 *Removing the pump head*

-  The cover of the pump head can be removed separately in the 800 μL /stroke pump. Always release the entire pump head and ensure that the O-ring (1) remains between the cover and the pump head →  8,  10.

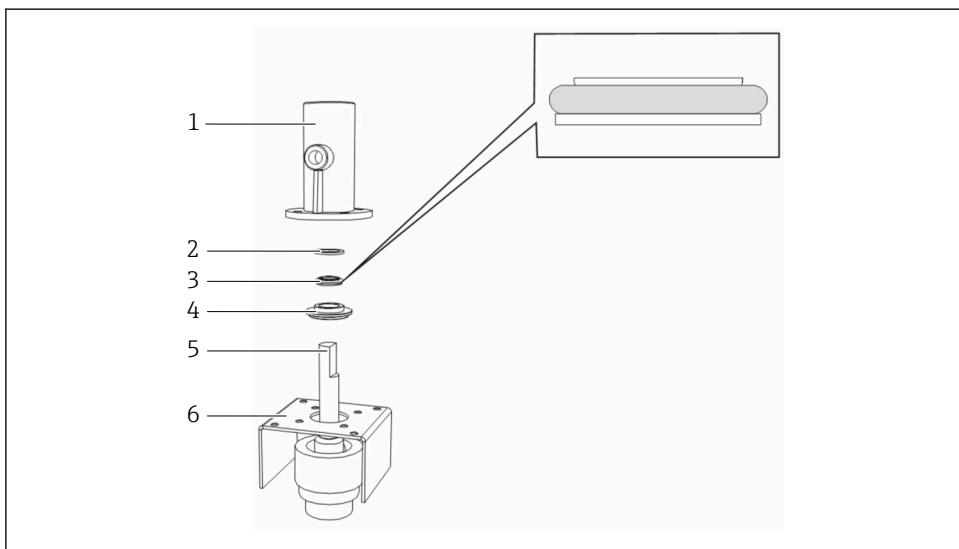


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-  8 *O-ring*

6. Remove the seals.

7. Keep the seal retaining ring (→  9,  11, item 4) and, if present, the silicone ring (→  9,  11, item 2) in a safe place for subsequent installation.
8. Rotate the swashplate downward and remove the ceramic piston (→  9,  11, item 5) from the swashplate bearing.



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9 Seals

- 1 Pump head
- 2 Silicone ring (1,000 μ L/stroke pump only, plastic head)
- 3 Seal with O-ring
- 4 Seal retaining ring
- 5 Ceramic piston
- 6 Pump plate

6.3.2 Cleaning the pump

1. Clean the pump before installing the new seals.
2. Use an acid to clean all mineral deposits from the sliding surfaces of the ceramic.
3. Rinse the acid thoroughly afterwards.
4. Remove any remaining deposits from the ceramic piston using a plastic scouring pad. The pump is clean if the ceramic piston can be inserted into the pump head and rotated 360° without resistance.

6.3.3 Replacing the seals and assembling the pump

1. Push the old seal retaining ring (→  9,  11, item 4) over the ceramic piston. The side pointing to the cross pin on the ceramic piston must fit into the U-shaped pump plate →  9,  11.

2. Fit the mounting aid (see "Kit CA72TOC maintenance tools" note) onto the ceramic piston (→  9,  11, item 5).
3. Slide the new seal with O-ring (→  9,  11, item 3) onto the mounting aid. The O-ring is pointing towards the pump head.
4. **If using the 1,000 µL/stroke pump:** Slide the silicone ring over the mounting aid also. This step is omitted for the 800 µL/stroke pump.
5. Slide the parts onto the ceramic piston.
6. Remove the mounting aid.
7. Insert the cross pin of the ceramic piston into the bushing of the swashplate.
8. Carefully slide the pump head onto the ceramic piston using gentle twisting motions.
9. Secure the pump head loosely with the four inner screws when it is in its final position, i.e., the seal retaining ring (→  9,  11, item 4) fits snugly into the recess in the pump plate (→  9,  11, item 6).
10. Check that the ceramic piston can move freely before tightening the screws crosswise.
11. Insert the pump into the mounting plate and secure the adapter with the four outer screws.
12. Reconnect hoses **207** and **208** to the pump head →  2,  7.
13. Reconnect the water supply. The water pressure must be 3 bar ± 0.2 bar.
14. Insert the plug back into the pump control system (slot **P10** →  1,  6).
15. Switch the power supply back on.
 - ↳ The analyzer automatically switches to measuring mode.

7 Recommissioning

1. Restore the supply of all media.
2. Switch on the analyzer at the main switch.
3. Check the seal of the liquid section as described in the Operating Instructions.
4. Check the seal of the gas section as described in the Operating Instructions.
5. Restart the analyzer as described in the Operating Instructions.
6. Close all doors of the analyzer.

8 Additional documentation

Detailed information on the devices shown here can be found in the Operating Instructions for each device and in the other documentation, available at:

- Product page: <https://www.endress.com/>
- Spare parts finder: <https://sft-p.cdn.endress.com/>
- Device Viewer: www.endress.com/device-viewer
- Smartphone/tablet: Endress+Hauser Operations app

9 Disposal



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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