14 Environmental protection and disposal

Environmental protection is one of the fundamental company policies of the Bosch Group.
Quality of products, efficiency and environmental protection are equally important objectives for us. Environmental protection laws and regulations are strictly adhered to.
To protect the environment, we use the best possible technology and materials taking into account economic points of view.

Packaging method

For the packaging, we participate in the country-specific recycling systems, which guarantee optimal recycling.
All packaging materials used are environmentally-friendly and recyclable.

Old appliances

Old appliances contain valuable materials that can be recycled.
The components are easy to separate. Plastics are identified. This allows the various assemblies to be sorted and recycled or disposed of.

15 Inspection and maintenance

Regular service and maintenance are recommended for a long service life of the appliance, for efficient and economical operation, and to keep the environmental impact as low as possible.

DANGER

Explosion!

- ▶ Close the gas cock prior to working on the gas train.
- ▶ Check for gas leaks after carrying out work on the gas train.

DANGER

Risk of flue gas poisoning.

- ▶ Check for leaks after carrying out work on the venting system.

DANGER

Risk of electric shock!

- ▶ Always disconnect the appliance from the mains power before performing any work. Always disconnect the appliance from the mains power before performing any work. Take measures to prevent accidental reconnection.

NOTICE

Insufficient antifreeze can accelerate corrosion.

- ▶ Frost protection level has to be checked annually during the regular scheduled maintenance of the condensing boiler.

Heat exchanger

NOTICE

Damage to the coating of the heat exchanger.

- ▶ Cleaning of the heat exchanger should not be necessary until five years after the initial commissioning.
- ▶ Only use a Bosch cleaning blade and Bosch cleaning brush.
- ▶ Only clean heat exchanger when visibly dirty.

Heatronic boiler control

In case of a component defect, a fault is shown on the display.

The Heatronic boiler control monitors all safety and control components.

NOTICE

The Heatronic boiler control can be damaged by leaking water.

- ▶ Cover the Heatronic prior to working on water filled components.

Important notes

An overview of the faults can be found on page 74.

- The following analytical tools are needed for service and maintenance:
  - Electronic flue gas analyzer for CO_2, O_2, CO, and flue gas temperature (0 to 30 mbar)
  - pH Test strips
  - Glycol tester of antifreeze is being used
- Special tools are not required.
- Approved lubricants are:
  - For parts touched by water: Unisilkon L 641 (part-# 8 709 918 413 0)
  - or fittings: HFt 1 v 5 (part-# 8 709 918 010 0).
- ▶ Use part-# 8 719 918 658 0 as heat conducting paste.
- ▶ Use only genuine Bosch spare parts.
- ▶ Request spare parts.
- ▶ Replace removed gaskets and O-rings with new ones.

⚠ After the inspection/maintenance

- ▶ Re-tighten all loosened threaded connections.
- ▶ Restart the appliance (→ Chapter 8, page 50).
- ▶ Check all connections used during maintenance for leaks.
- ▶ Check the gas-air ratio.

15.1 Description of various steps

15.1.1 Calling up the latest fault (service function 6.A)

▶ Select service function 6**A** (→page 60).

i

An overview of the faults can be found on page 74.

15.1.2 Fresh water filter (only combi boiler ZWB...-3A)

▶ Close cold water tap.
▶ Depressurize the cold water pipe.
▶ To access the filter remove the safety clip (step 1), pull out the pipe (step 2), and remove the filter from the pipe (step 3).
▶ If necessary, clean with plastic brush under running water.

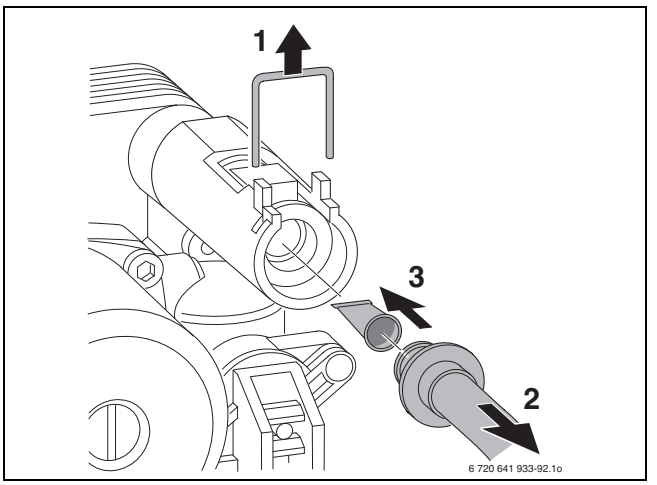

Fig. 83 Filter in fresh water pipe

15.1.3 Plate type heat exchanger (only combi boiler ZWB...-3A)

If the DHW output on the combi boiler is significantly reduced:

▶ Check filter in the cold water pipe for contamination (→ page 66).
▶ Depressurize the appliance.
▶ Remove plate type heat exchanger and replace

-or-

▶ Descale with descaling agent approved for stainless steel (Grade 316-1.4401).

To remove the plate type heat exchanger:

▶ Unplug electrical connections.
▶ Remove hose from safety relief valve.

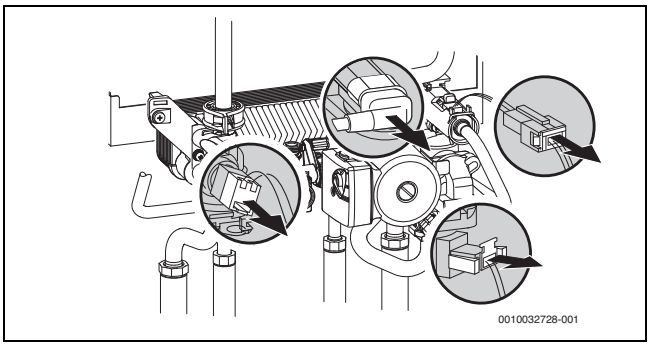

Fig. 84 Unplugging electrical connections / removing hose from safety relief valve

▶ Loosen/remove pipe connections.

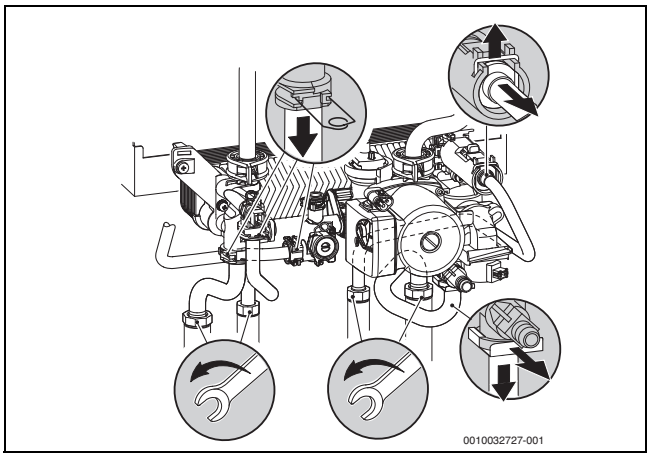

Fig. 85 Removing pipe connections

▶ Remove the boiler pressure gauge from the Heatronic boiler control.

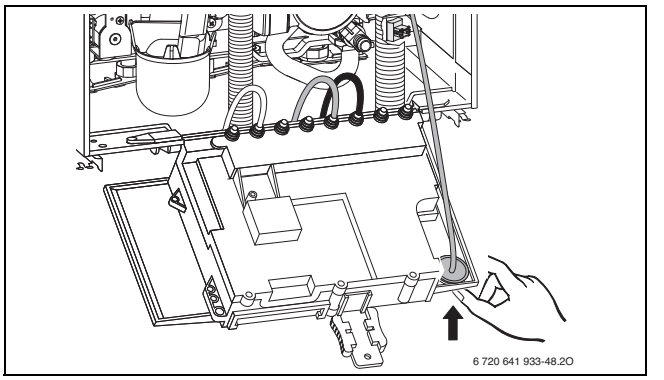

Fig. 86 Removing the boiler pressure gauge

▶ Loosen the quick releases (steps 1 and 2) and remove the hydraulic assembly in its entirety (step 3).

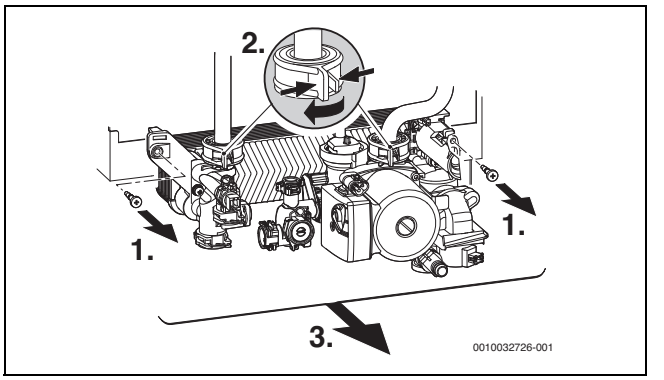

Fig. 87 Removing the hydraulic assembly

▶ Remove the plate type heat exchanger.

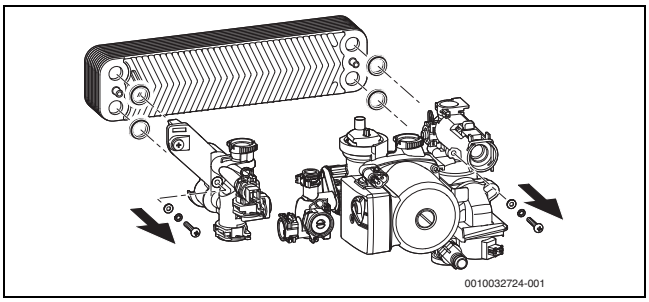

Fig. 88 Removing the plate heat exchanger

- ▶ Install new plate type heat exchanger with new gaskets and reconnect the hydraulic assembly in reverse order.
- ▶ Check all connections used during maintenance for leaks.

15.1.4 Checking electrodes

- ▶ Remove electrode set including gasket and check electrodes for contamination; clean or replace, if required.
- ▶ Reinstall electrode set with new gaskets and check for leaks.

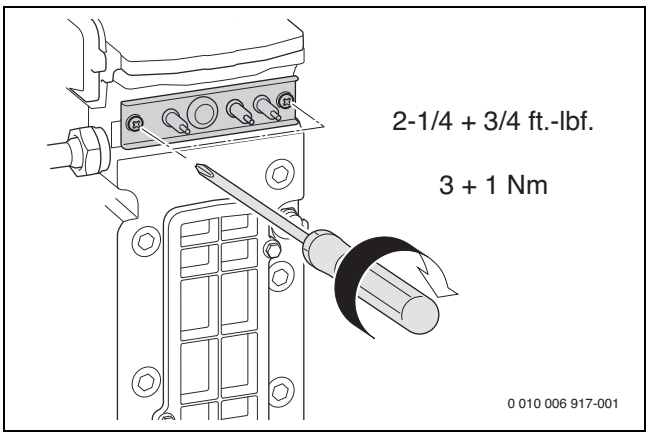

Fig. 89 Reinstalling the electrode set

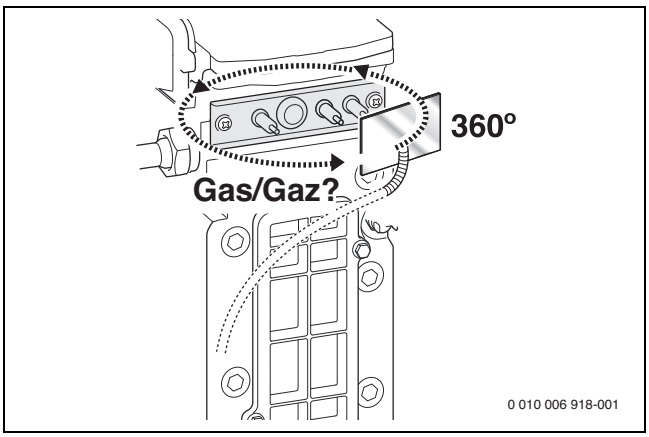

Fig. 90 Check for leaks

15.1.5 Burner servicing

DANGER

Fire danger!

- ▶ The burner may be operated only while installed in a wall-mounted gas condensing boiler.

- ▶ Remove burner lid (steps 1 - 4).

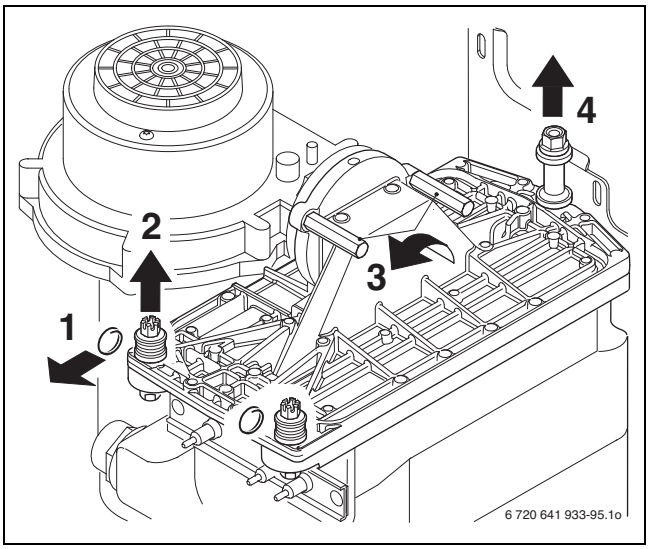

Fig. 91 Removing the burner cover

- ▶ Remove burner and clean its components.

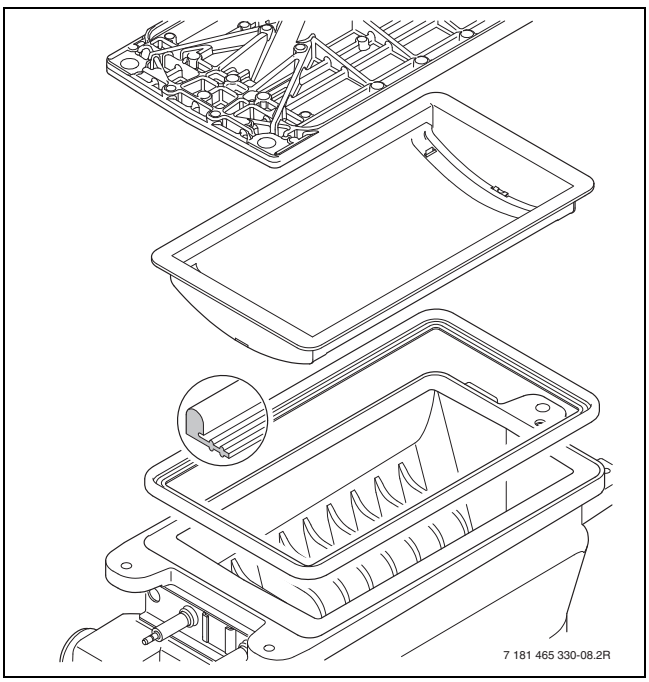

Fig. 92 Burner

- ▶ Reinstall burner in reverse order, including a new gasket if necessary.
- ▶ Adjust the gas-air ratio (→page 62)

15.1.6 Heat exchanger block inspection and cleaning

NOTICE

Damage to the coating of the heat exchanger.

- ▶ Cleaning of the heat exchanger should not be necessary until five years after the initial commissioning.
- ▶ Only use a Bosch cleaning blade and Bosch cleaning brush.
- ▶ Only clean heat exchanger when visibly dirty.

- ▶ Remove the inspection cover (→ page 10) and any sheet metal insert below, if installed.
- ▶ Determine degree of soiling of the heat exchanger through visual inspection.

If mechanical cleaning is required:

To clean of the heat exchanger, use Bosch burner gaskets, cleaning brush kit and cleaning blade, all of which are available as spare parts.

- ▶ Remove the condensate trap (steps 1 and 2) and place a suitable container underneath.

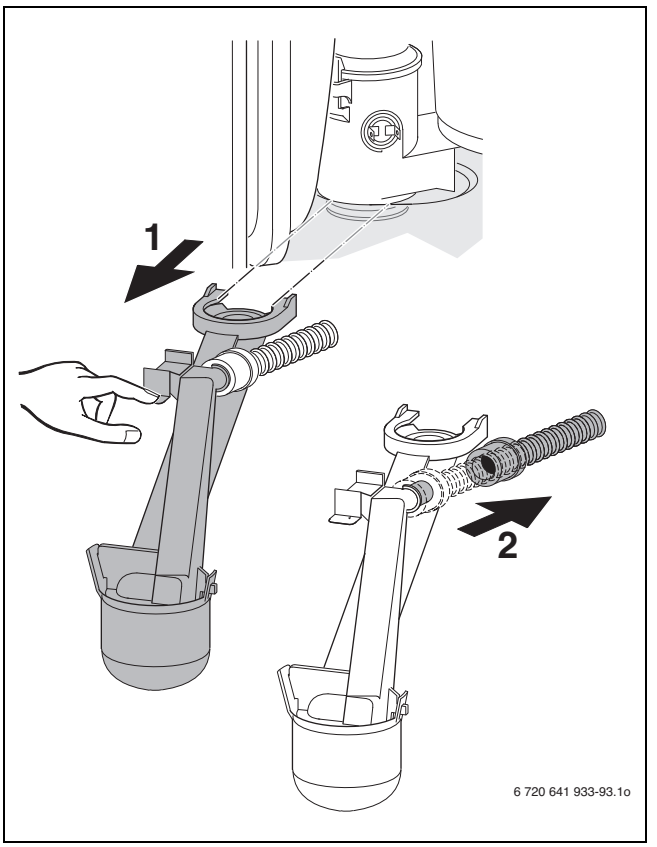

Fig. 93 Removing the condensate trap

- ▶ With the cleaning blade, clean the heat exchanger block from the bottom to the top.

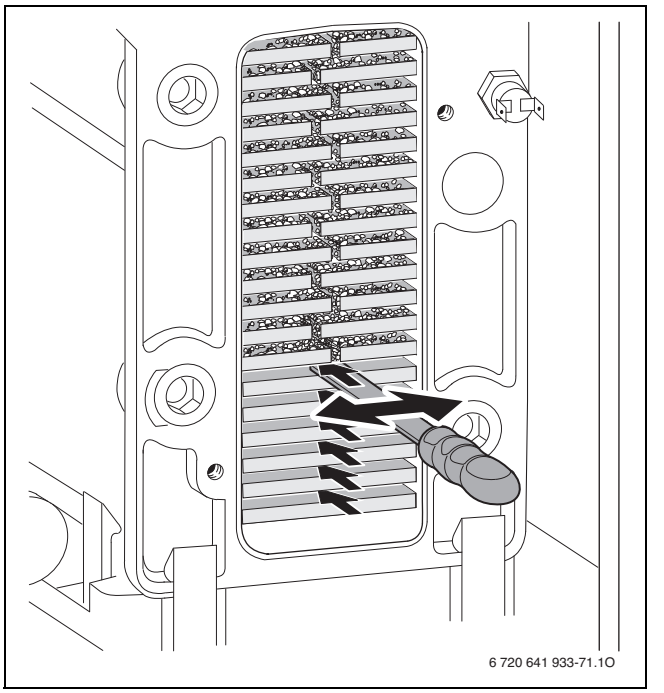

Fig. 94 Cleaning the heat exchanger with the cleaning blade

- ▶ Clean the heat exchanger block with the brush from top to bottom.

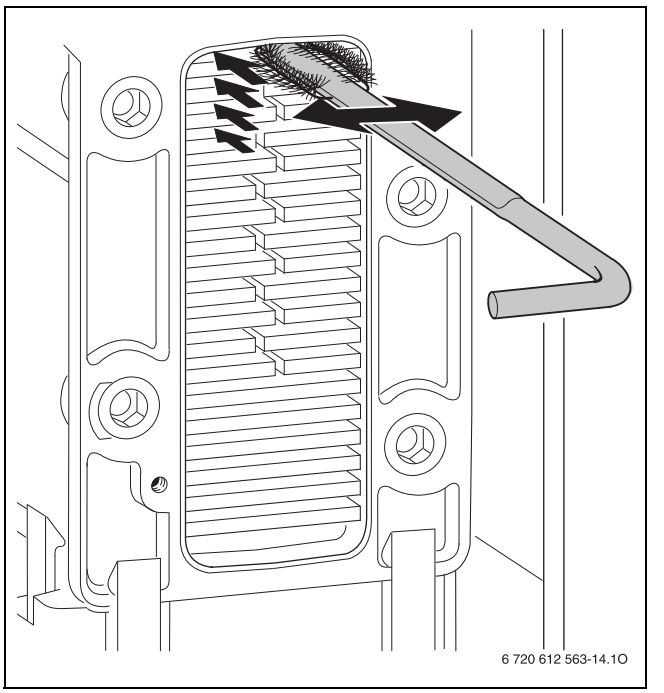

Fig. 95 Cleaning the heat exchanger with the cleaning brush

- ▶ Remove burner (→ Chapter 15.1.5 “Burner servicing”).

▶ Rinse the heat exchanger with water from the top.

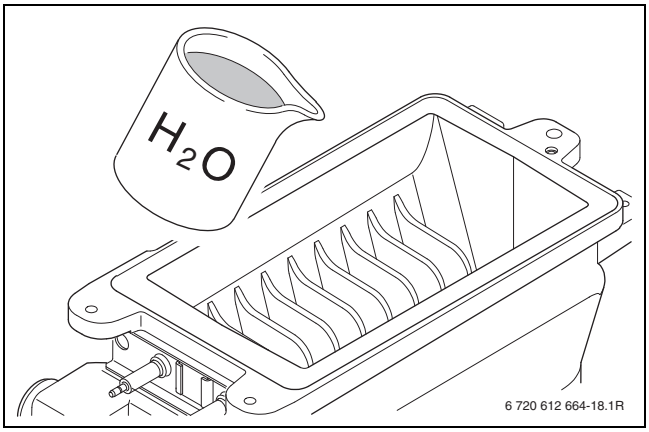

Fig. 96 Rinsing the heat exchanger

▶ Clean the condensate tray (with reversed brush).

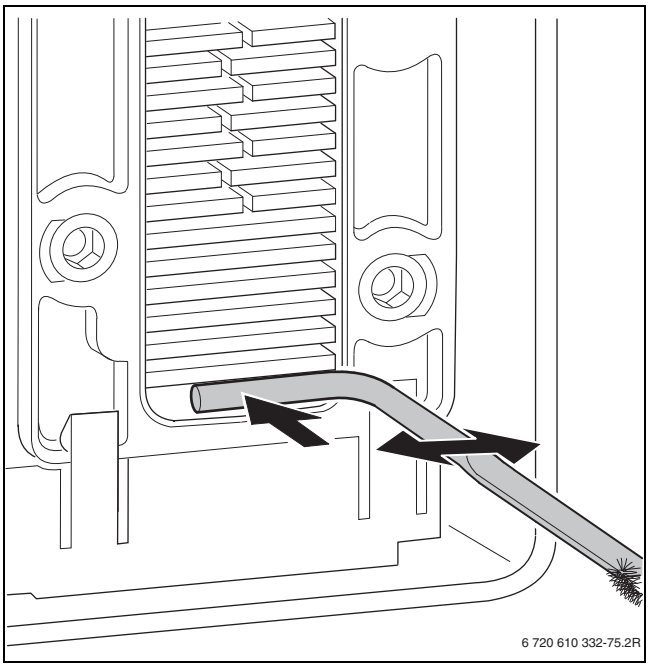

Fig. 97 Cleaning the condensate tray

▶ Rinse the heat exchanger with water from the top.
▶ Clean the condensate trap connection.
▶ Close the inspection opening again using a new gasket and tighten the screws with a torque between 4.1 ft-lbs (5.5 Nm) and 5.1 ft-lbs (7.0 Nm).

15.1.7 Cleaning condensate trap

▶ Remove condensate trap (steps 1 and 2) and check heat exchanger orifice for clear passage.

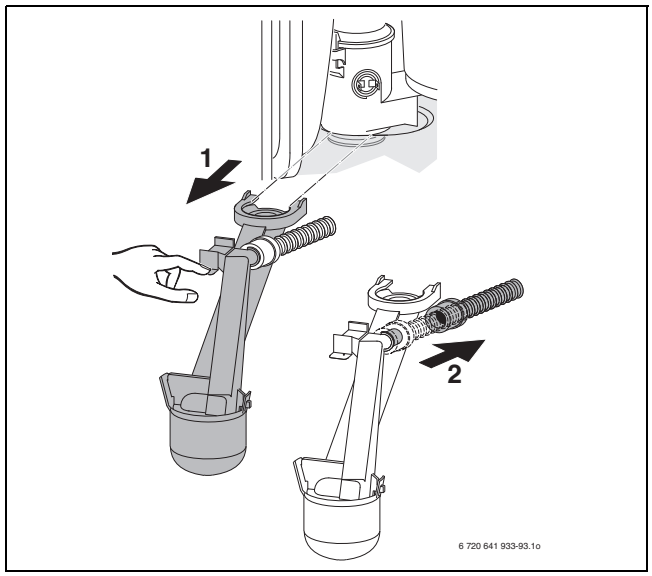

Fig. 98 Removing the condensate trap

▶ Remove and clean the condensate trap lid.
▶ Check condensate hose and clean if necessary.
▶ Fill the condensate trap with approx. 1 cup (1/4 l) of water and reinstall it.

15.1.8 Checking the mixer diaphragm

▶ Open the mixer unit.
▶ Carefully remove the diaphragm from the fan air intake and check for contamination and cracks.

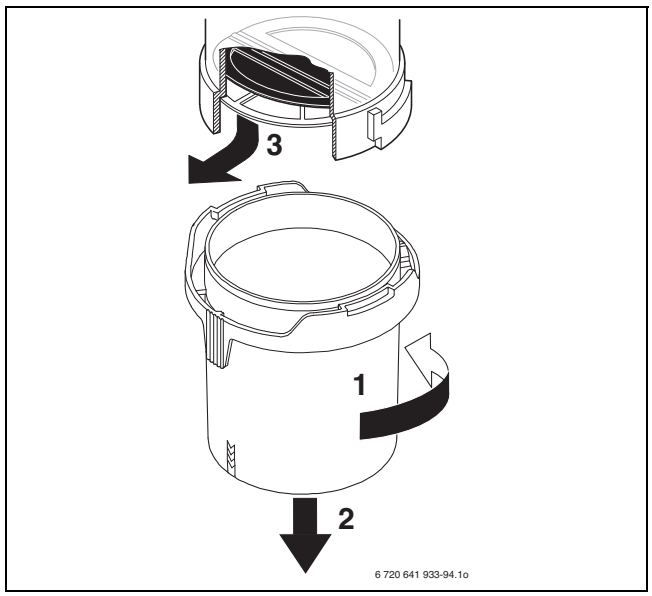

Fig. 99 Opening the mixer unit

▶ Insert the diaphragm into the fan connector.

The diaphragm flaps must open upwards.

▶ Close the mixer unit.

15.1.9 Checking the expansion vessel

Annual inspection of the expansion vessel is required.

- ▶ Depressurize the appliance.
- ▶ If necessary, adjust the expansion vessel pre-charge pressure to the static head of the heating system.

15.1.10 Setting the boiler water pressure

Display on the pressure gauge	
14.5 psi (1 bar)	Minimum filling pressure (when system is cold)
14.5 psi to 21.75 psi (1 bar to 1.5 bar)	Optimal filling pressure
30 psi (2.07 bar)	Maximum pressure at maximum heating water temperature must not be exceeded (safety valve will spill).

Table 31 Operating pressure

- ▶ If the indicator is below 14.5 psi (1 bar) when the system is cold, top up the water. The indicator must be between 14.5 psi (1 bar) and 21.75 psi (1.5 bar).

If using a hose to fill the heating system, prefill the hose with water to prevent air being introduced into the system.

- ▶ If the pressure is not held, check the expansion vessel and heating system for leaks.

15.1.11 Testing system water quality

- ▶ Take a representative sample of the system water and analyze pH using a pH meter or pH test strips.

pH-value	Water preparation
7-8.5	Not needed
4.5-7	Required

Table 32 Water preparation for filling and maintaining the heating system (pH-value)

- ▶ If the value is outside of the permitted range, drain the system, flush, and refill with fresh water to prevent system damage or leaks.
- ▶ If the fill water does not meet the requirements of page 29, treat the water to bring it within the permissible range.
- ▶ If antifreeze is being used in the system, check the frost protection properties to ensure the site specific requirements are met.

15.1.12 Checking the electrical wiring

- ▶ Check electrical wiring for mechanical damage and replace defective cables.

15.2 Maintenance and inspection checklist

- Use this form to guide you through the service and maintenance procedure. Fill out each step according to the findings and work performed.

Date →								
1	Latest fault code from service function **6.A**.							
2	Fresh water inlet filter (Combi boiler ZWB appliances only).							
3	Visual inspection of the combustion air pipes and vent pipes.							
4	Dynamic gas pressure	inches W.C. (mbar)						
5	Gas-air ratio at min./max. nominal output.	min. % max. %						
6	Gas and water-side leak test.							
7	Inspect electrodes.							
8	Inspect heat exchanger block.							
9	Check burner.							
10	Inspect diaphragm in mixer unit.							
11	Clean condensate trap.							
12	With the system depressurized, check the expansion vessel pre-charge pressure vs. the static head of the heating system.	psi (bar)						
13	Check the heating system filling pressure.	psi (bar)						
14	Inspect electrical wiring for damage.							
15	Check settings of the heating control.							
16	Check set service functions according to commissioning report.							

Table 33 Maintenance and inspection checklist