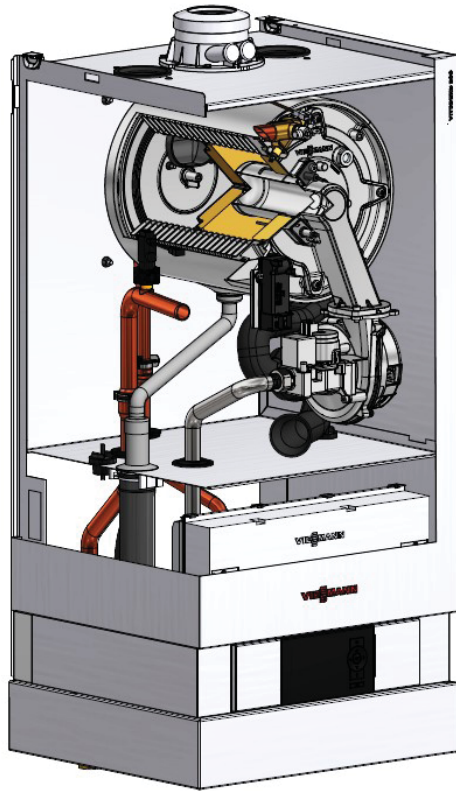


# Vitodens 200-W & Vitodens 222-F Heat Exchanger Replacement Instructions



For use by heating contractor

For use with: Vitodens 200-W, B2HB 19, 26, 35  
Vitodens 222-F, B2TB 19, 35



Vitodens 200-W



5834 998 - 03 01/2019



Vitodens 222-F



# Installation Instructions

for use by heating contractor



## Heat Exchanger Replacement

### Safety and Installation Requirements

Please ensure that these instructions are read and understood before starting any service work. Failure to comply with these instructions may cause product/property damage, severe personal injury and/or loss of life.

#### Working on the equipment

The installation, adjustment, service and maintenance of this product must be performed by a licensed professional heating contractor who is qualified and experienced in the installation, service, and maintenance of hot water boilers. There are no user serviceable parts on the boiler, burner or control.

Ensure that main power to the equipment being serviced is off.

Ensure that the main fuel supply valve to the boiler is closed.

Take precautions to avoid accidental activation of power or fuel during service work.

Do not perform service work on any component part without ensuring safe operation of the heating system. When replacing parts, use original Viessmann or Viessmann approved replacement parts.



For more details refer to the Installation and Service Instructions applicable to this boiler.

### Necessary Tools

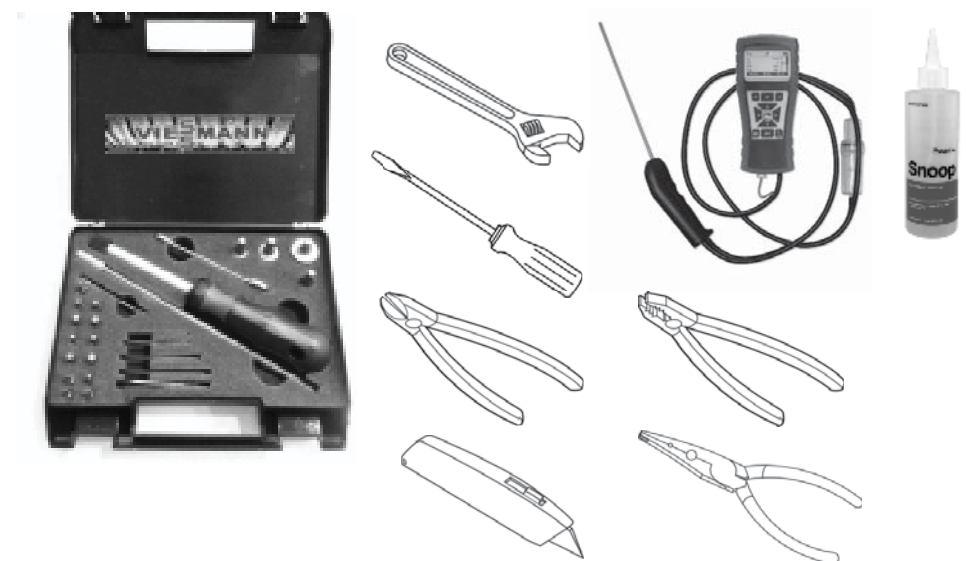
- Viessmann Vitodens Service Tool (PN 9537070)
- Adjustable Wrench (10")
- Side Cutters
- Needle Nose Pliers or Linesman Pliers
- Flat Head Screw Driver
- Utility Knife

#### Cleaning supplies

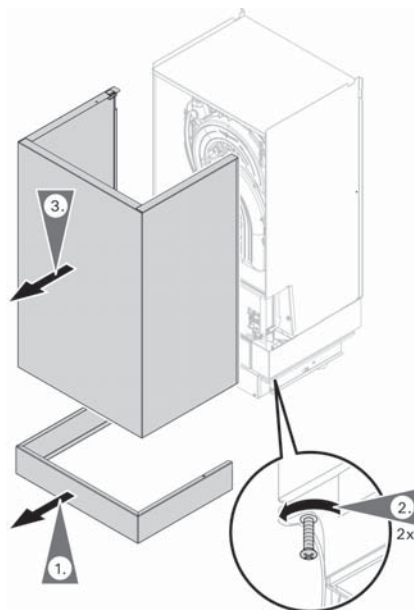
- Rags

#### Special items

- Approved leak detection fluid for natural gas and liquid propane gas
- Flue Gas Analyzer



## Removing the Front Covers (B2HB 19, 26 and 35)



### IMPORTANT

Prior to removing any panels ensure that gas and power is shut off.

#### Removing the front panels

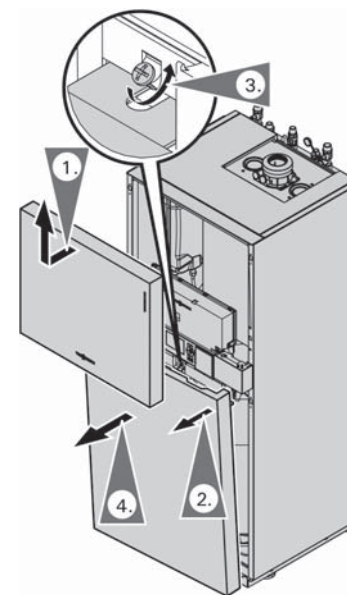
1. Remove the external accessories connection box cover.
2. Loosen the screws at the bottom of the boiler as shown (do not remove completely).
3. Slide out and remove front enclosure panel.
4. Slide both sides of the programming unit cover closed.
5. Release the hinged hooks located on both sides of the control unit.
6. To open hinged cover, lift cover and then fold down the control unit.



For more details refer to the Service Instructions applicable to this boiler.

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## Removing the Front Covers (B2TB 19 and 35)



### IMPORTANT

Prior to removing any panels ensure that gas and power is shut off.

#### Removing the front panels

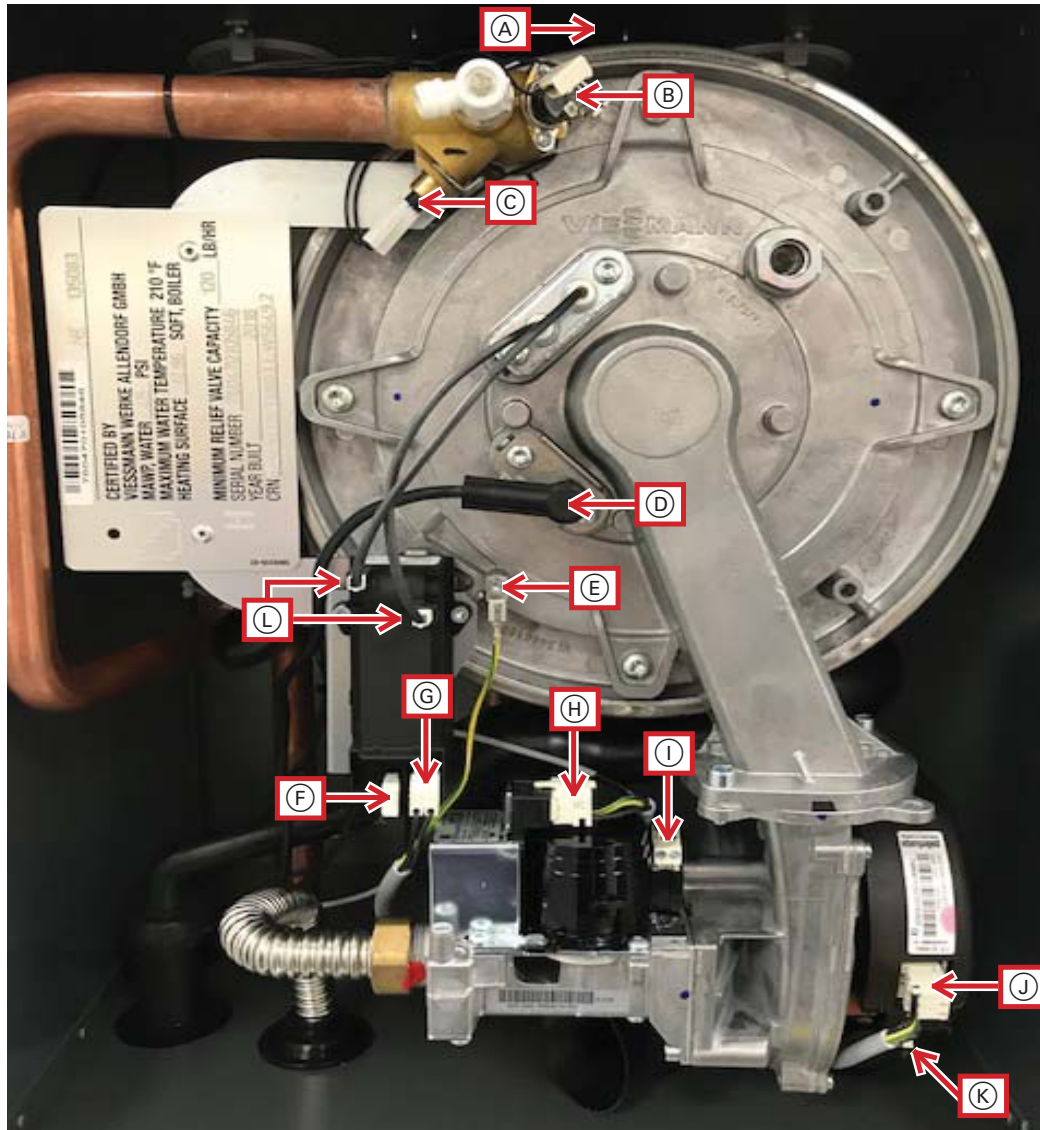
1. Remove the front upper panel.
2. Tilt the lower front panel.
3. Loosen the retaining screw.
4. Remove the lower front panel.
5. Slide both sides of the programming unit cover closed.
6. Release the hinged hooks located on both sides of the control unit.
7. To open hinged cover, lift cover and then fold down the control unit.
8. Remove boiler inner cover.



For more details refer to the Service Instructions applicable to this boiler.

**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
 Drain water from the heat exchanger through the sediment faucet drain valve. For Vitodens 222-F, B2TB  
 the sediment faucet is located down stream of the boiler pump.

Discontent the wiring from the burner, heat exchanger and fan as indicated below:



**Legend**

- (A) Plug #15 (flue gas temp sensor)
- (B) Plug #47 & spade terminal (fixed high limit)
- (C) Plug #3 has 2x connections (boiler supply temp sensor)
- (D) Plug for ionization electrode
- (E) Plug for spade terminal ground wire
- (F) White Plug (without identifying number)
- (G) Plug #54 (ignition transformer)
- (H) Plug #35 (gas valve)
- (I) Plug #190 (gas valve modulation coil)
- (J) Plug #100 (radial fan motor)
- (K) Plug #100A (radial fan motor control)
- (L) White Plugs (ignition electrode wires from transformer)

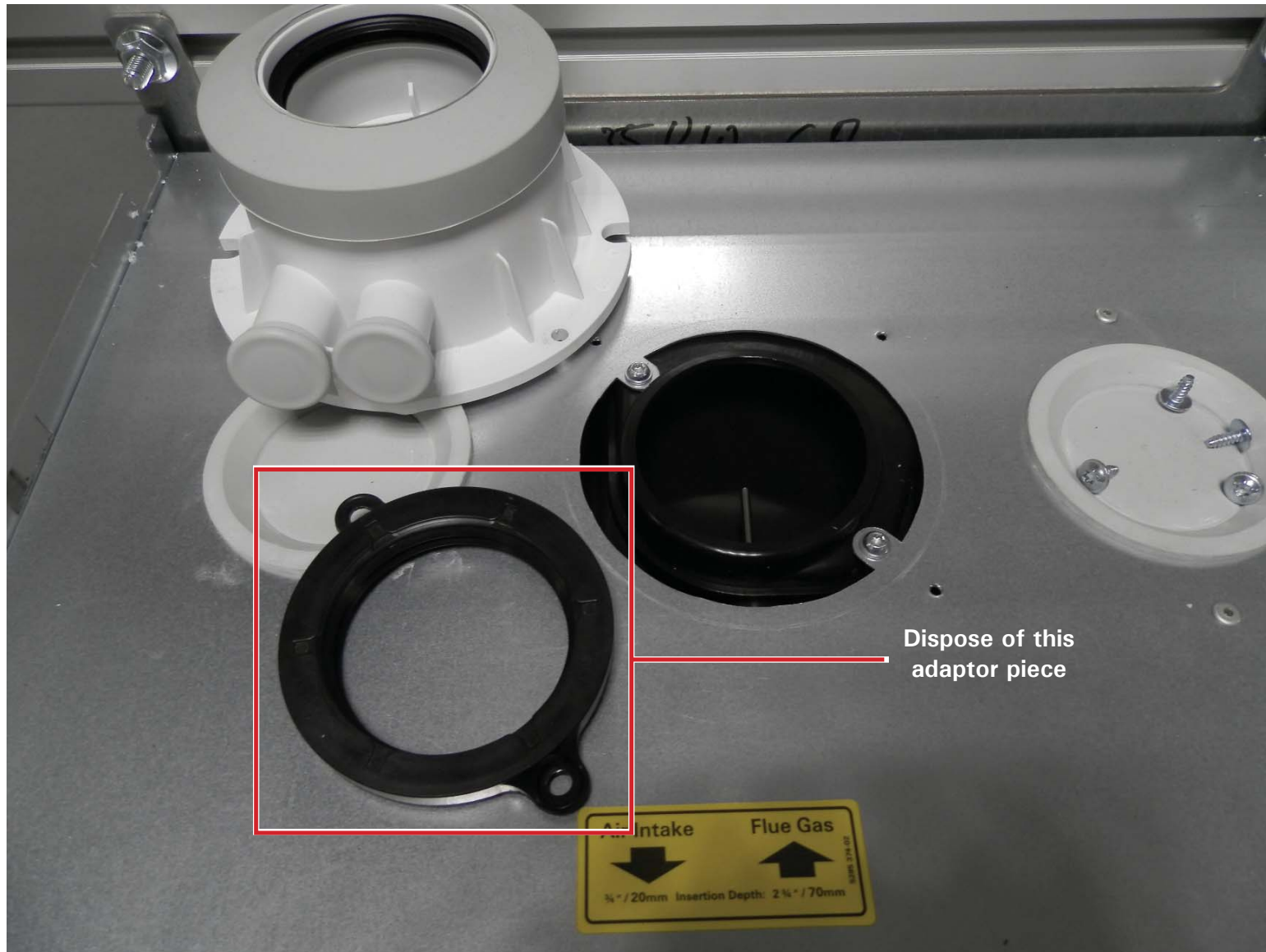
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Disconnect the venting system.



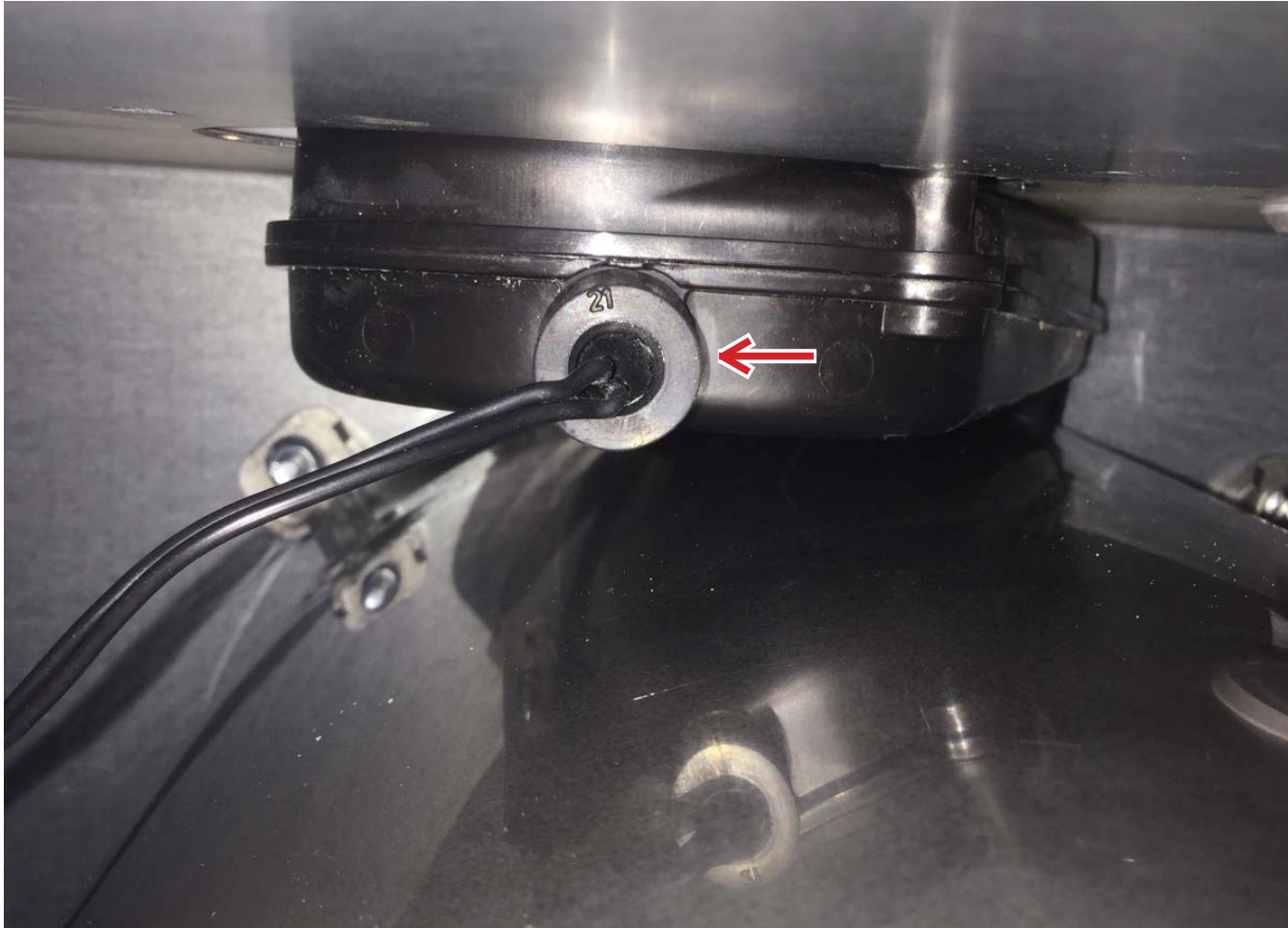
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Using the T-20 Torx bit or 7 mm nut driver, remove the 4x nuts ① which secure the vent pipe adaptor ② to the boiler cabinet. Carefully remove the vent pipe adaptor ②.  
Using the T-20 Torx bit, remove the 2x screws (or nuts) holding the flue gas channel ③ to the boiler cabinet.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
For units found with additional sealing ring (adaptor piece);  
remove and dispose of them (this rework kit resolves this design).



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Disconnect from plug #15 and carefully remove the flue gas sensor from the flue gas channel.  
(Do not use tools to pull out the sensor as it could damage it)

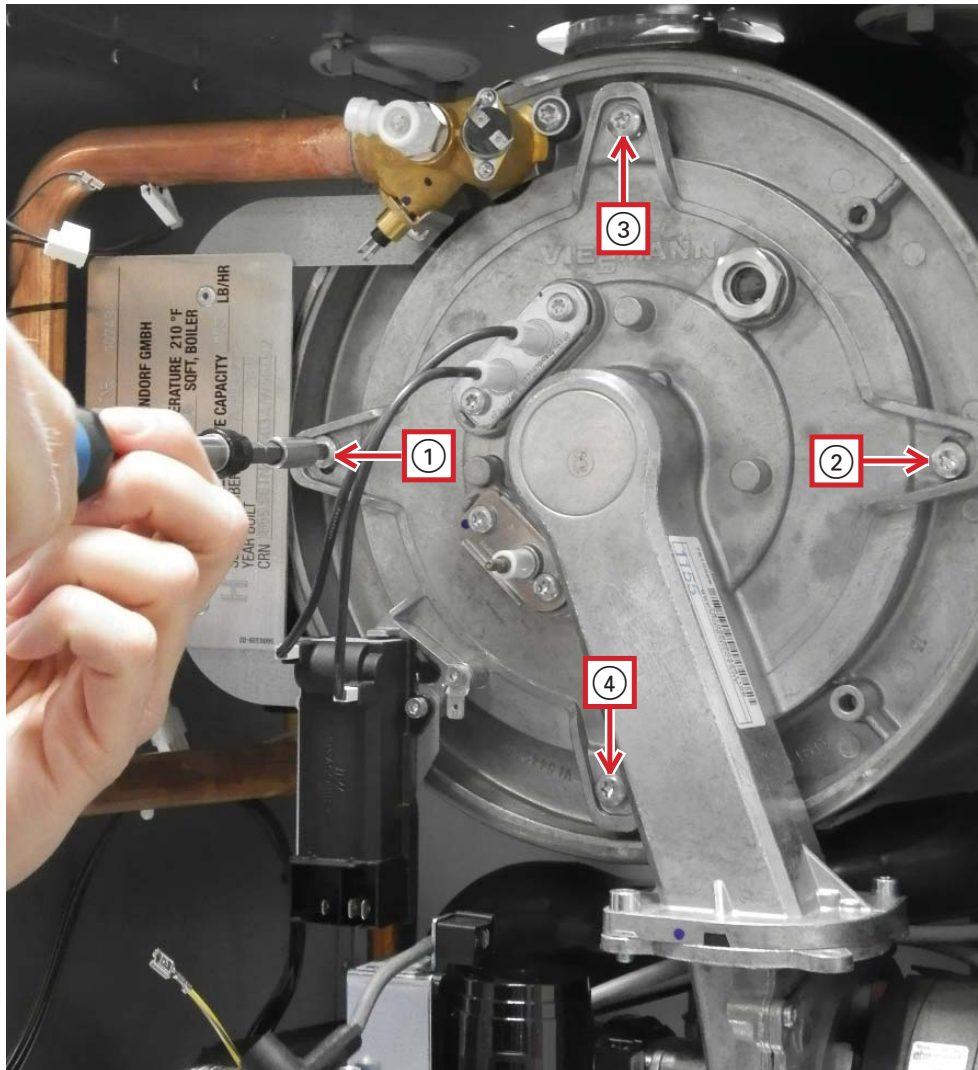




**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Using an adjustable wrench, disconnect the gas supply pipe from the gas valve.  
Remove and discard the old green gas valve gasket.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Using the T-30 Torx bit, loosen and remove the 4x bolts from the burner door assembly.  
Carefully remove burner door assembly and store in a safe place.



**⚠ CAUTION**

To avoid damage to the burner, do not lay burner on its cylindrical burner tube or touch the burner tube mesh. Failure to heed this caution may cause damage to the burner tube, which may lead to improper operation.

**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Use the foam packaging material from the new heat exchanger to protect the control from leaking water.

**CAUTION**  
Residual water may leak out during disassembly

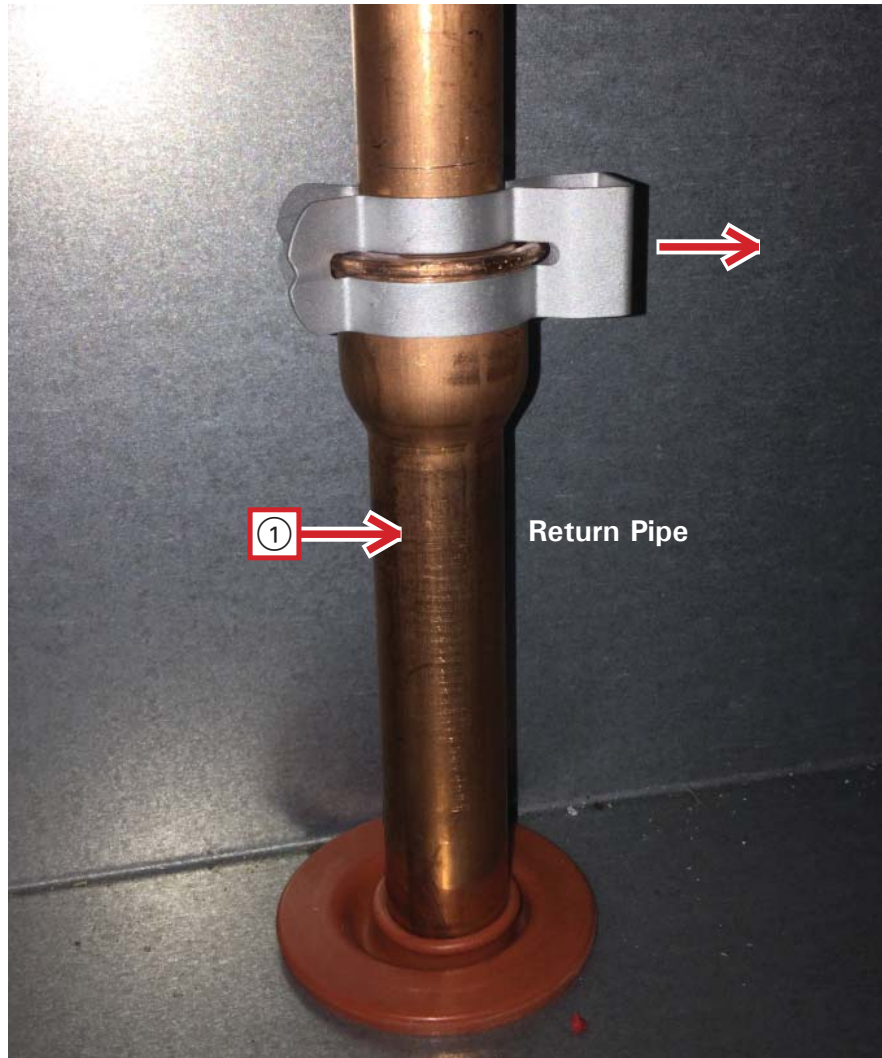


**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Using side cutters, remove the tie wrap which secures the rubber condensate hose to the heat exchanger.  
Remove the condensate hose from the heat exchanger.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Remove the retaining clips on the return pipe ① and supply pipe ② by squeezing the end and pulling out.

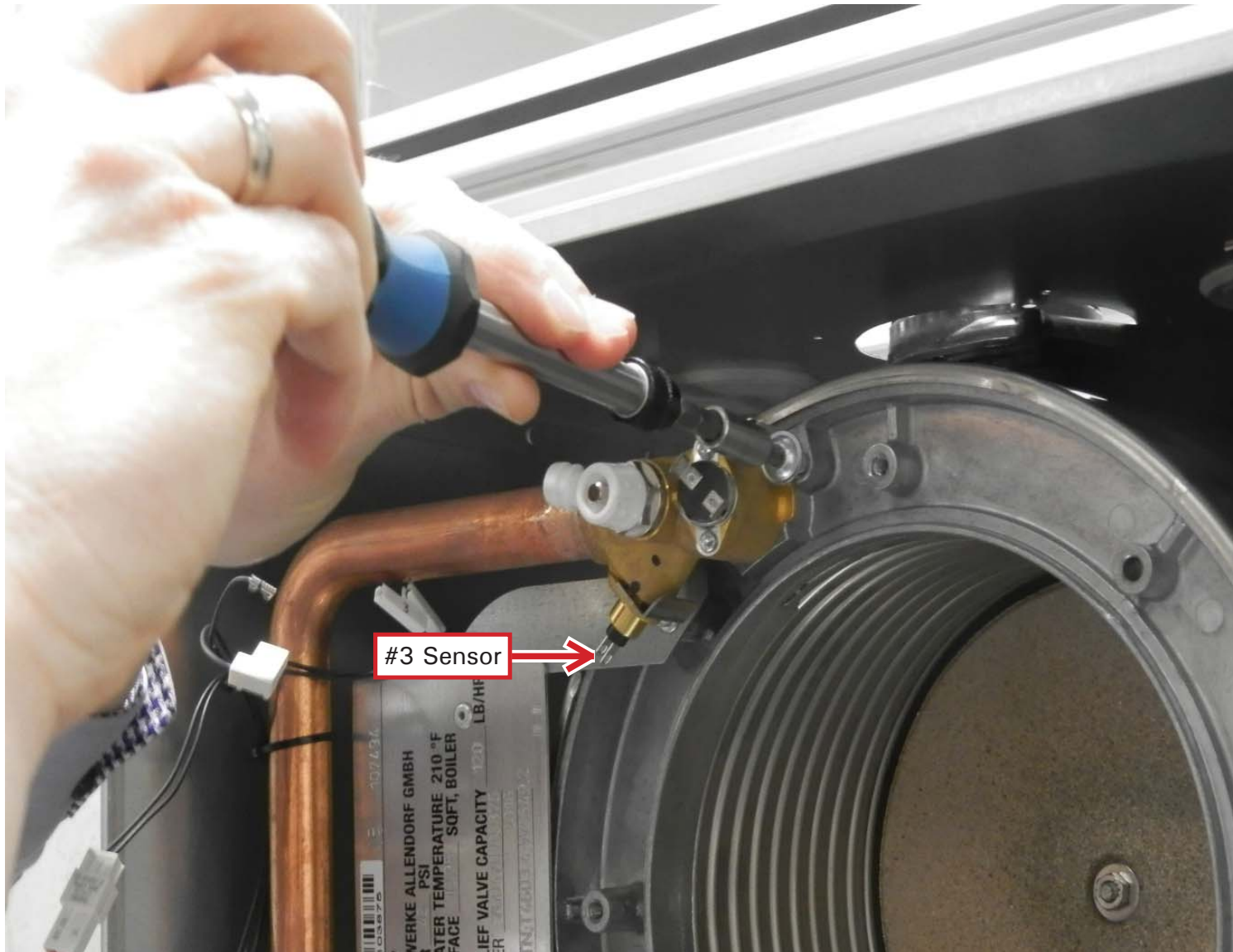
Vitodens 200-W, B2HB 19, 26, 35  
Vitodens 222-F, B2TB 19, 35



Vitodens 200-W, B2HB 19, 26, 35 (Only)  
Vitodens 222-F, B2TB 19, 35 (No retaining clip)



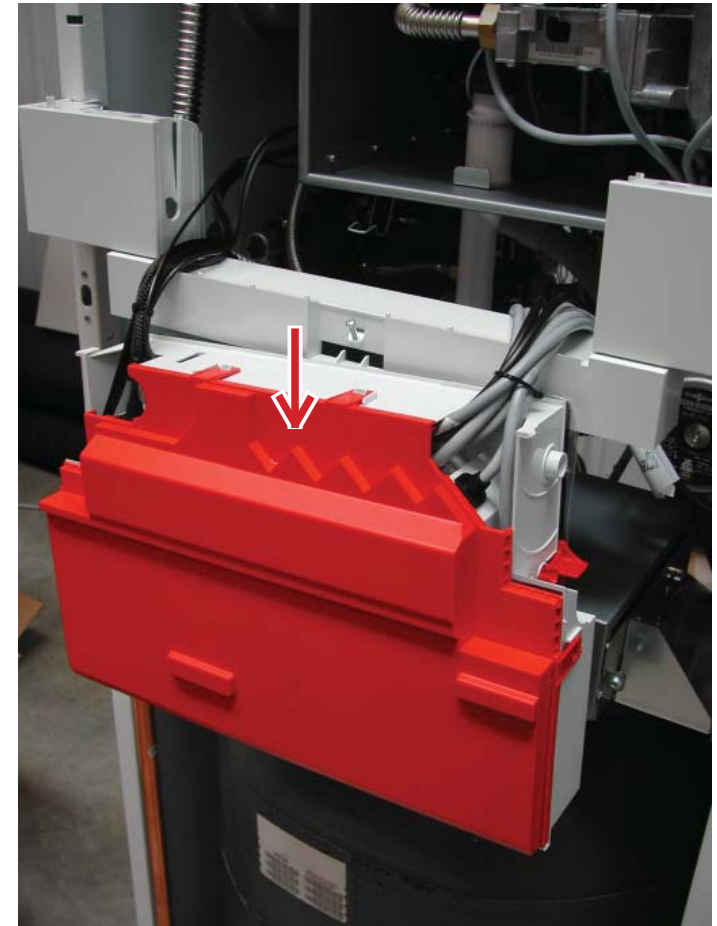
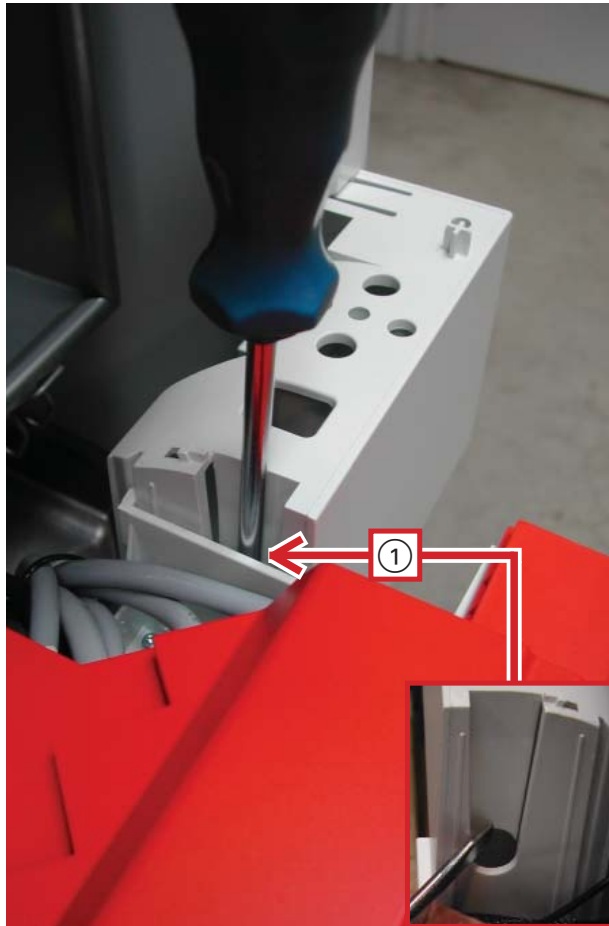
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Remove the #3 sensor to avoid damaging it during removal of the heat exchanger  
Using the T-30 Torx bit, loosen and remove the supply pipe from the heat exchanger nipple.



**Note:** For Vitodens 200-W, B2HB boilers only,  
Use an adjustable wrench to disconnect the return pipe connection from the elbow.  
(located on the lower right hand side of boiler)



**Note:** For Vitodens 222-F, B2TB boilers only,  
Remove the boiler control unit to gain access to the heat exchanger for removal.

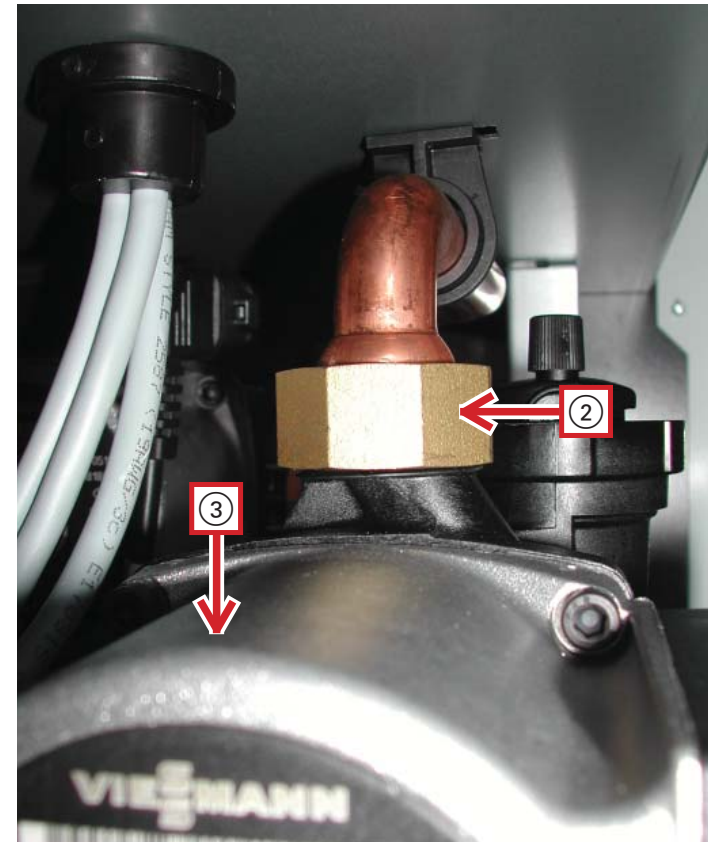


#### Removing the boiler control unit

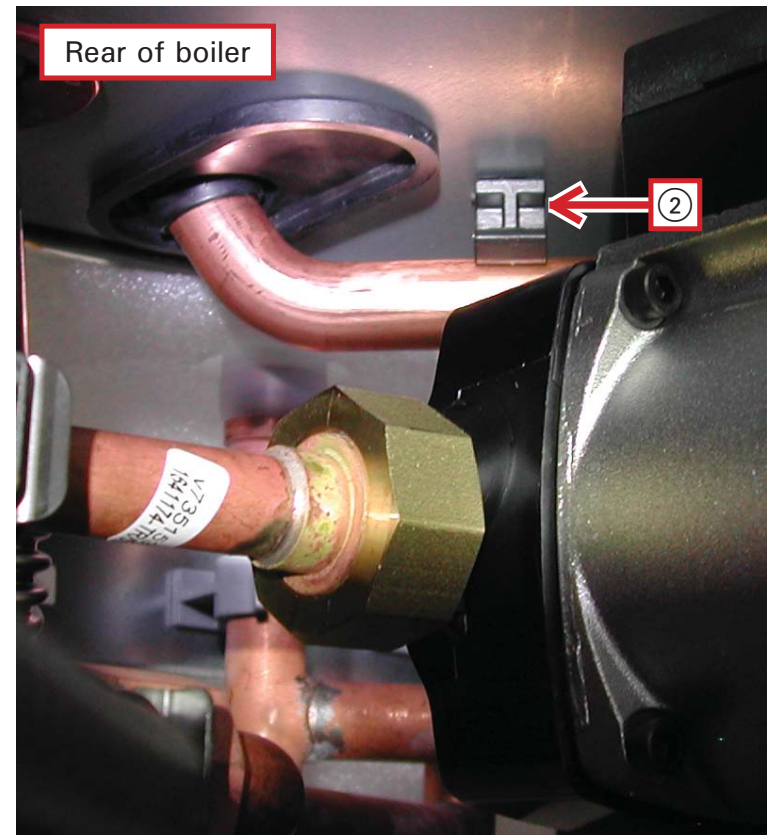
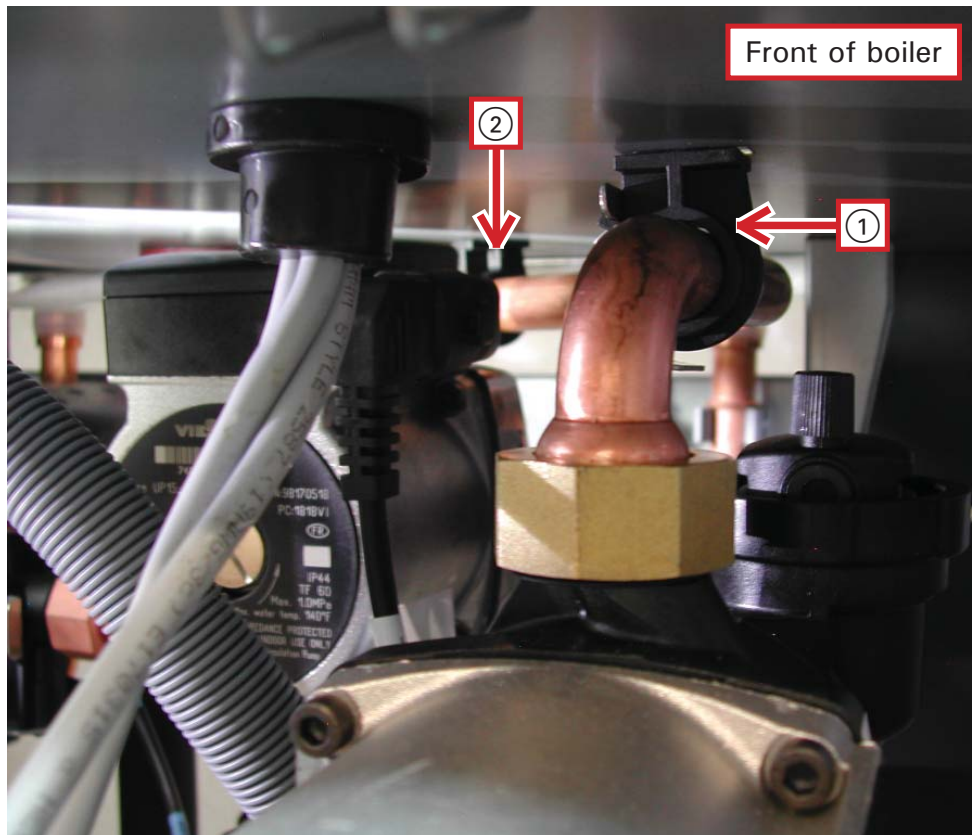
1. Using a flat head screwdriver, release the retaining tabs ① on each side of the control unit.
2. Gently lift the control unit upwards to release it.
3. Carefully swing down the control unit such that it hangs from the wiring harness.



**Note:** For Vitodens 222-F, B2TB boilers only,  
Using the screw driver, push the metal tab towards the rear of the boiler. This will release the fastening clip ①  
from the plastic pipe clip which supports the return pipe. Be careful not to drop the clip.  
Loosen the union nut ② and disconnect the return pipe from the boiler circulating pump ③.

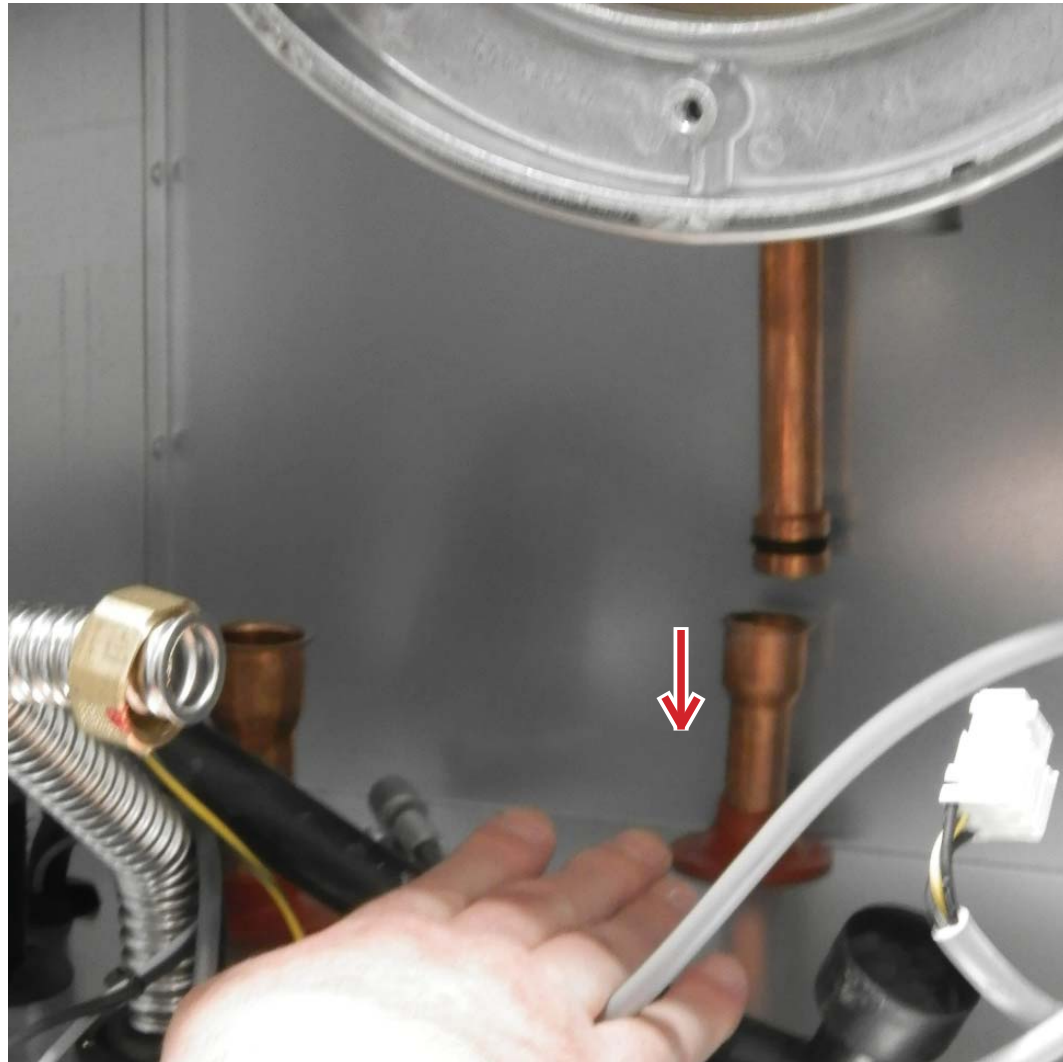


**Note:** For Vitodens 222-F, B2TB Boilers,  
 Carefully pull the return pipe towards the front left side of the boiler.  
 This will allow the return pipe to be disconnected from the front plastic pipe clip ① and the rear plastic pipe clip ②.



**Note:** The rear plastic pipe clip ② is located behind the DHW circulation pump and the bottom rear corner of boiler cabinet

**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Disconnect the return pipe from the heat exchanger by pulling down.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Using the 10 mm nut driver, loosen and remove the 4x nuts while supporting the heat exchanger.  
Bend the rating plate out of the way prior to removing the heat exchanger from the cabinet.

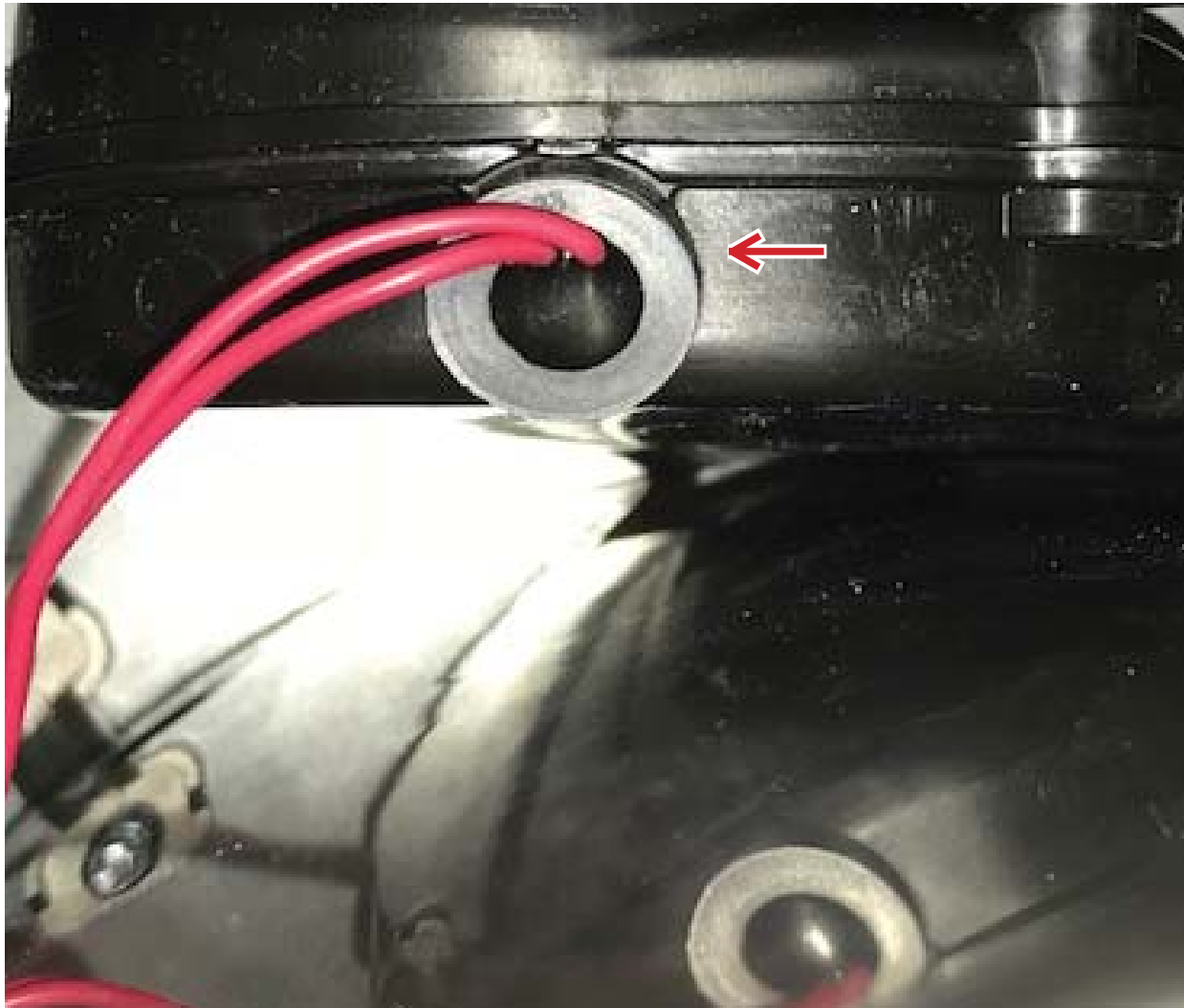
**CAUTION**

Residual water may leak out during disassembly

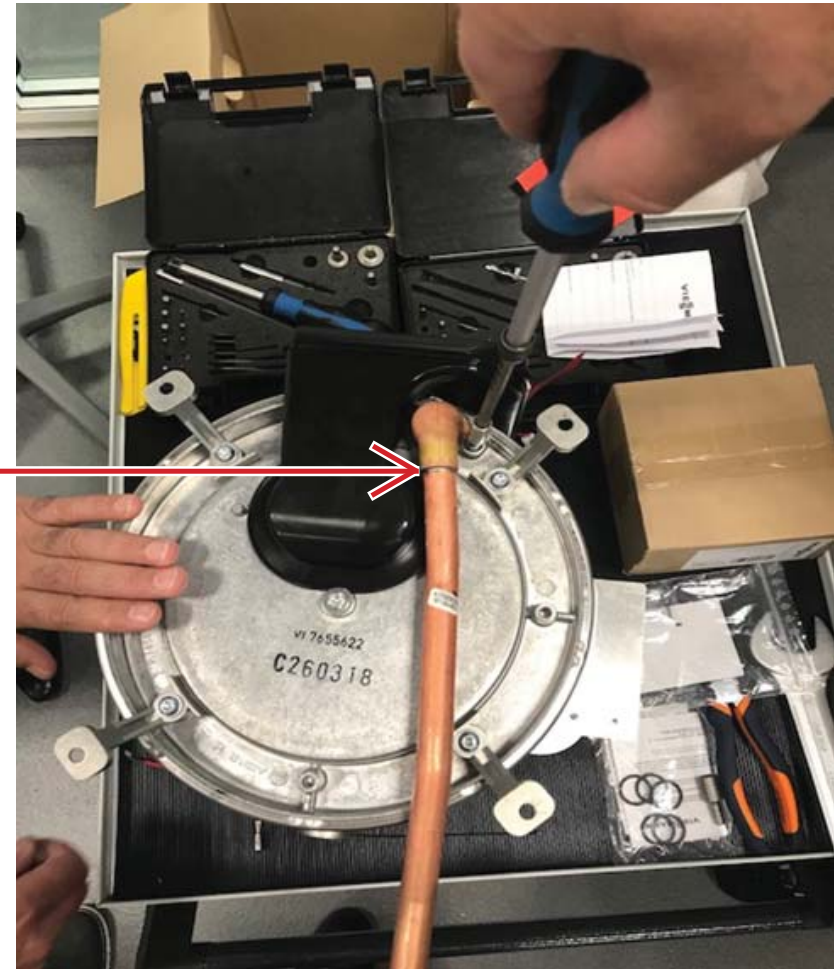
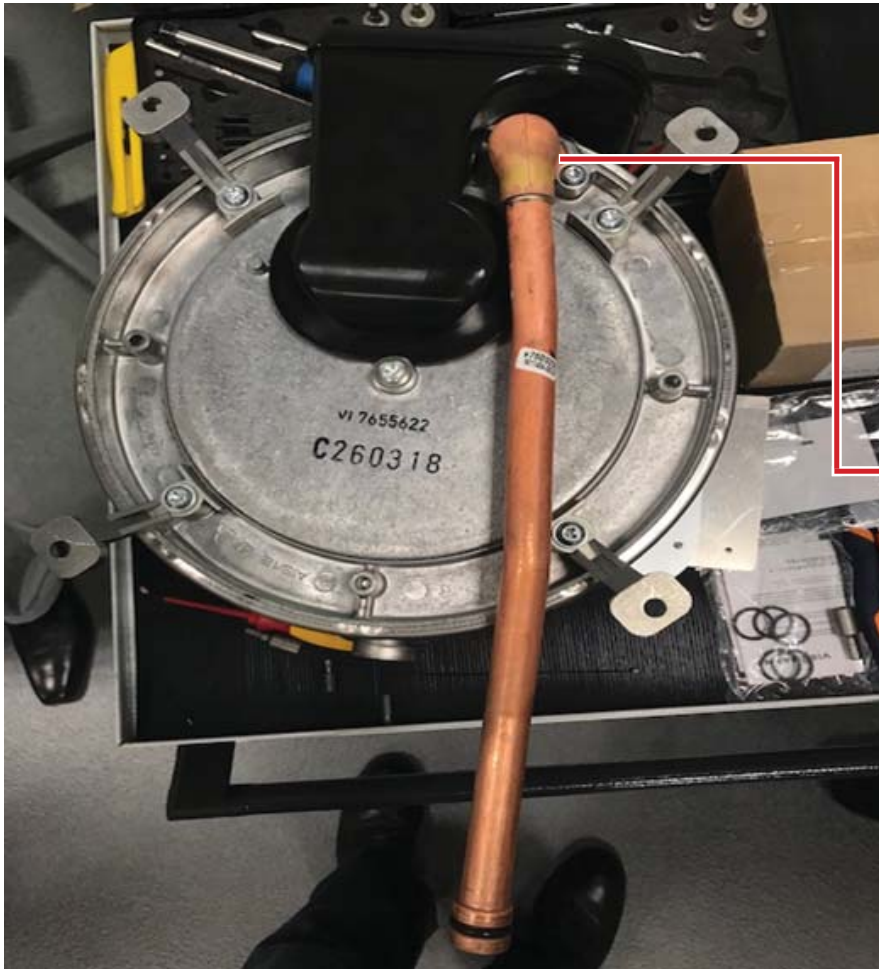
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Reassembly:

With the new heat exchanger on the floor, carefully insert the new flue gas sensor (supplied in the kit) into the flue gas channel.

It is recommended that this operation be done prior to installing the heat exchanger in the boiler cabinet.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Using the T-30 Torx bit, unscrew the cold water return pipe from the old heat exchanger.  
The new heat exchanger is supplied with the o-ring pre-installed. Lubricate this o-ring with the supplied lubricant  
prior to installing the return pipe on the new heat exchanger.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Insert the new heat exchanger into the boiler cabinet.



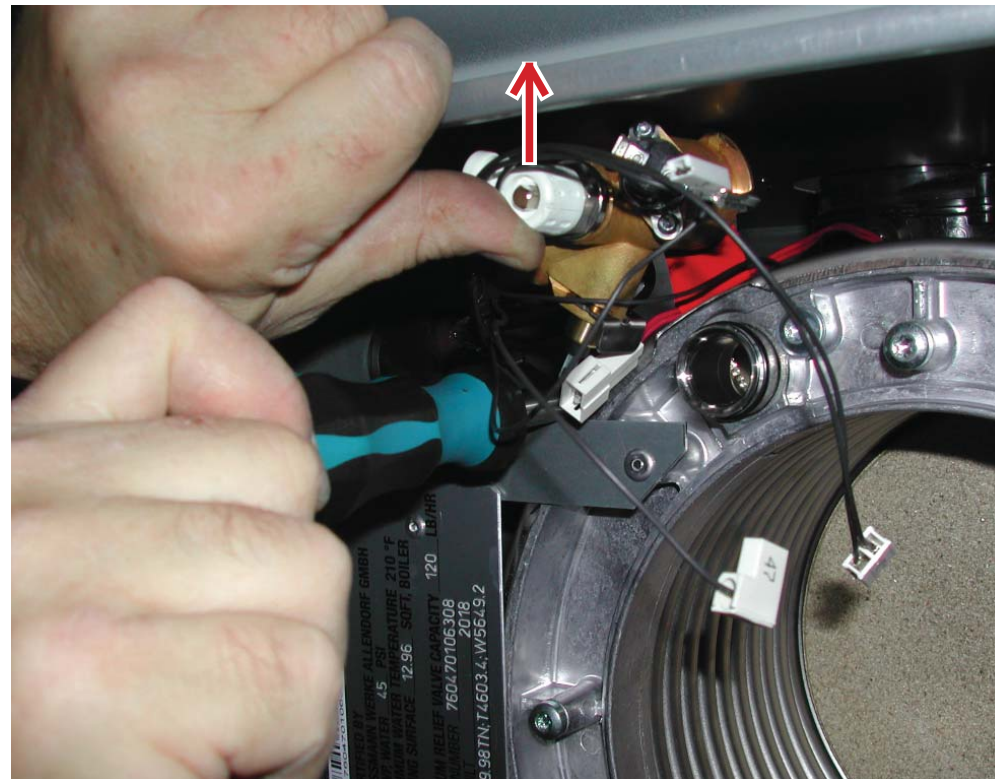
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB, While supporting the heat exchanger, use the 10 mm nut driver to reinstall the 4x nuts which secure the heat exchanger to the rear wall. Torque the nuts to 44 lb.in (5 Nm).

**Note:** For Vitodens 222-F, B2TB boilers, the supply pipe may need to be moved upwards to gain access to the top left mounting stud.

Vitodens 200-W, B2HB 19, 26, 35



Vitodens 222-F, B2TB 19, 35

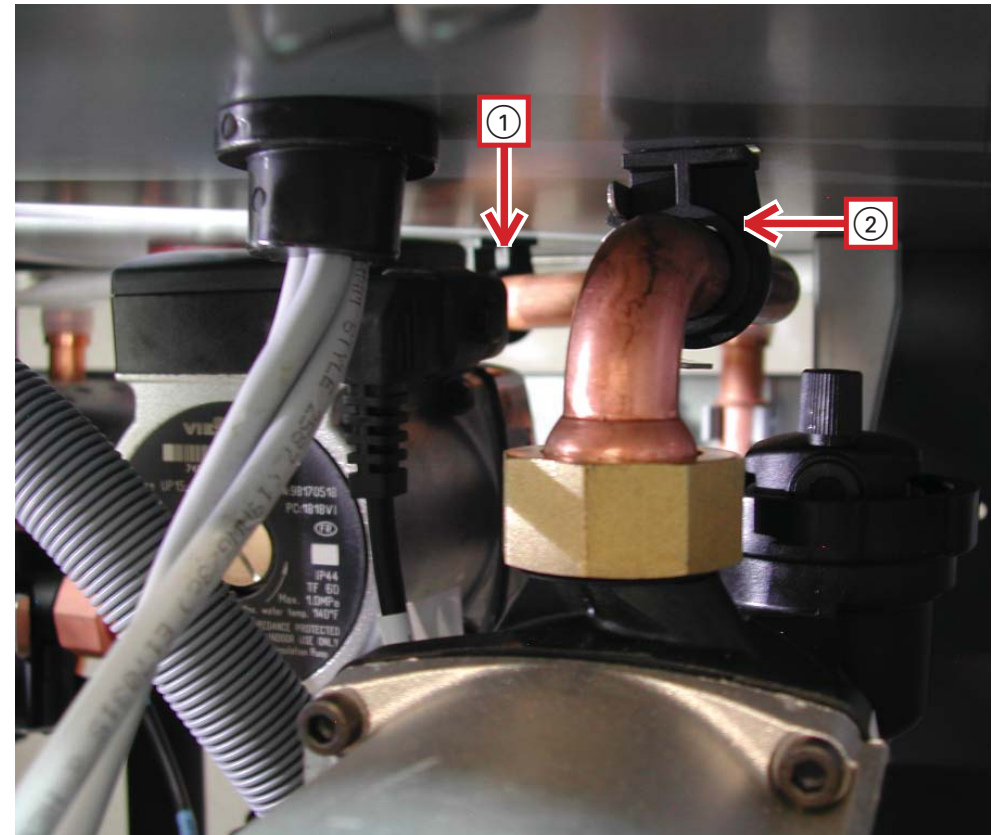
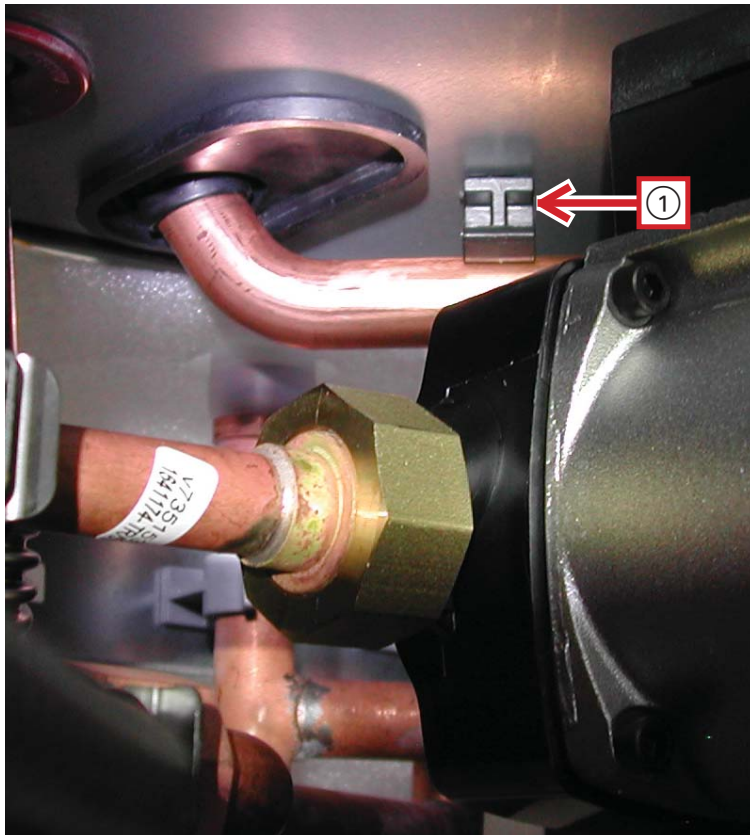




**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Remove the old o-ring and replace it with a new one from the gasket set (supplied).  
Lubricate the newly installed o-ring with the supplied lubricant, then install the pipe from below.

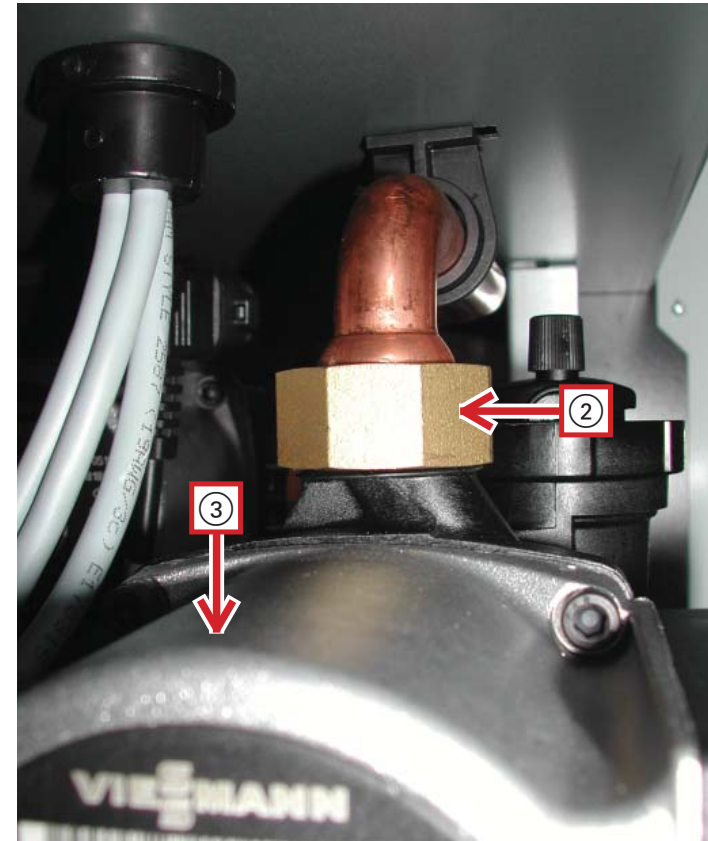


**Note:** For Vitodens 222-F, B2TB boilers only,  
 Carefully reinstall the return pipe by pushing into the rear plastic pipe clip ①, then into the front plastic pipe clip ②.  
 Visually check that the return pipe and rubber gaskets are properly seated before proceeding to the next step.



**Note:** The rear plastic pipe clip ① is located behind the DHW circulation pump and the bottom rear corner of boiler cabinet

**Note:** For Vitodens 222-F, B2TB boilers only,  
 Reinstall the metal fastening clip ① on the plastic pipe clip supporting the return pipe.  
 Reconnect the return pipe to the boiler circulating pump ③ by tighten the union nut ②.



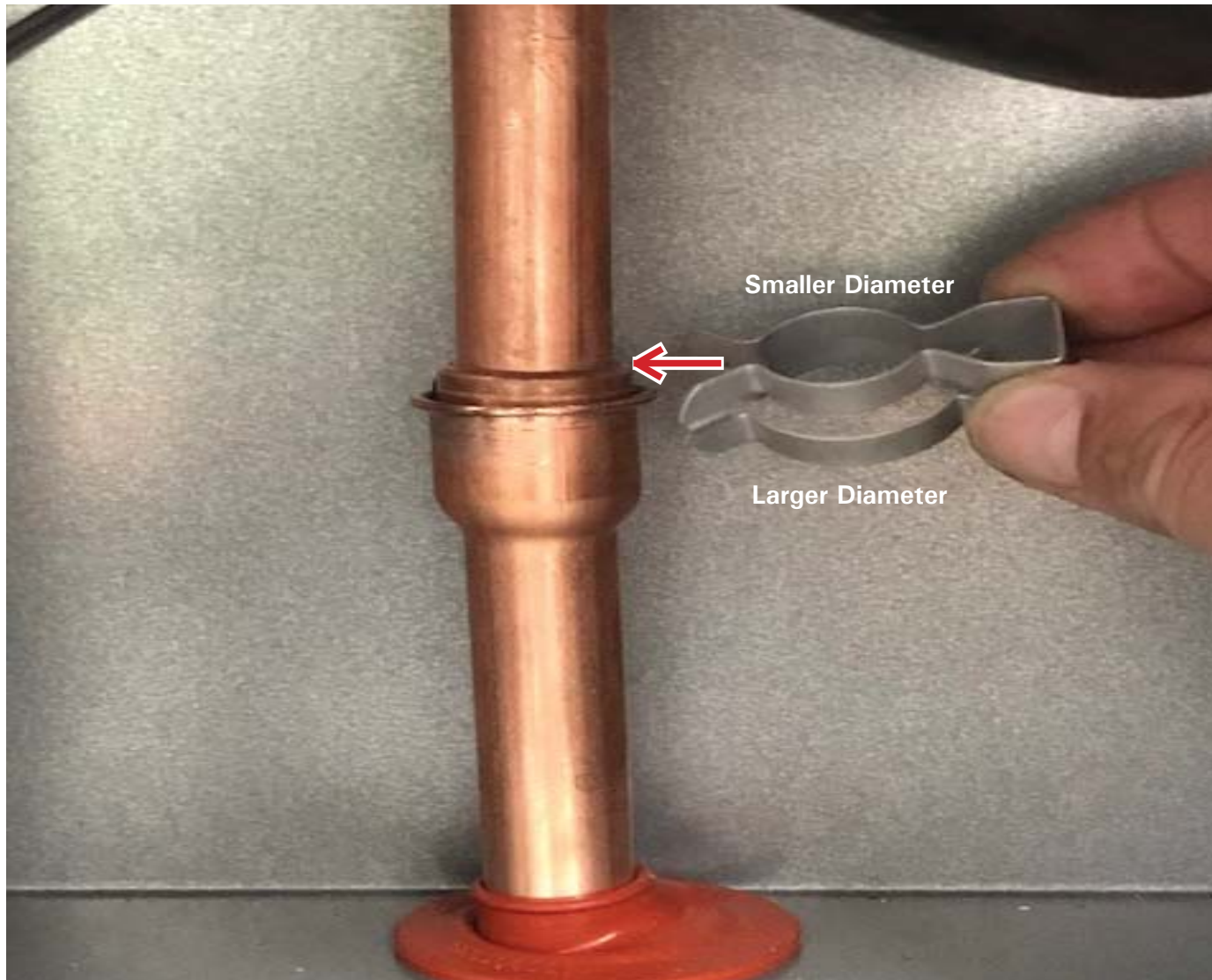
**IMPORTANT**

Replace the old flat gasket with a new one prior to assembling the union nut ② to the boiler pump ③ (gasket is included in the kit).

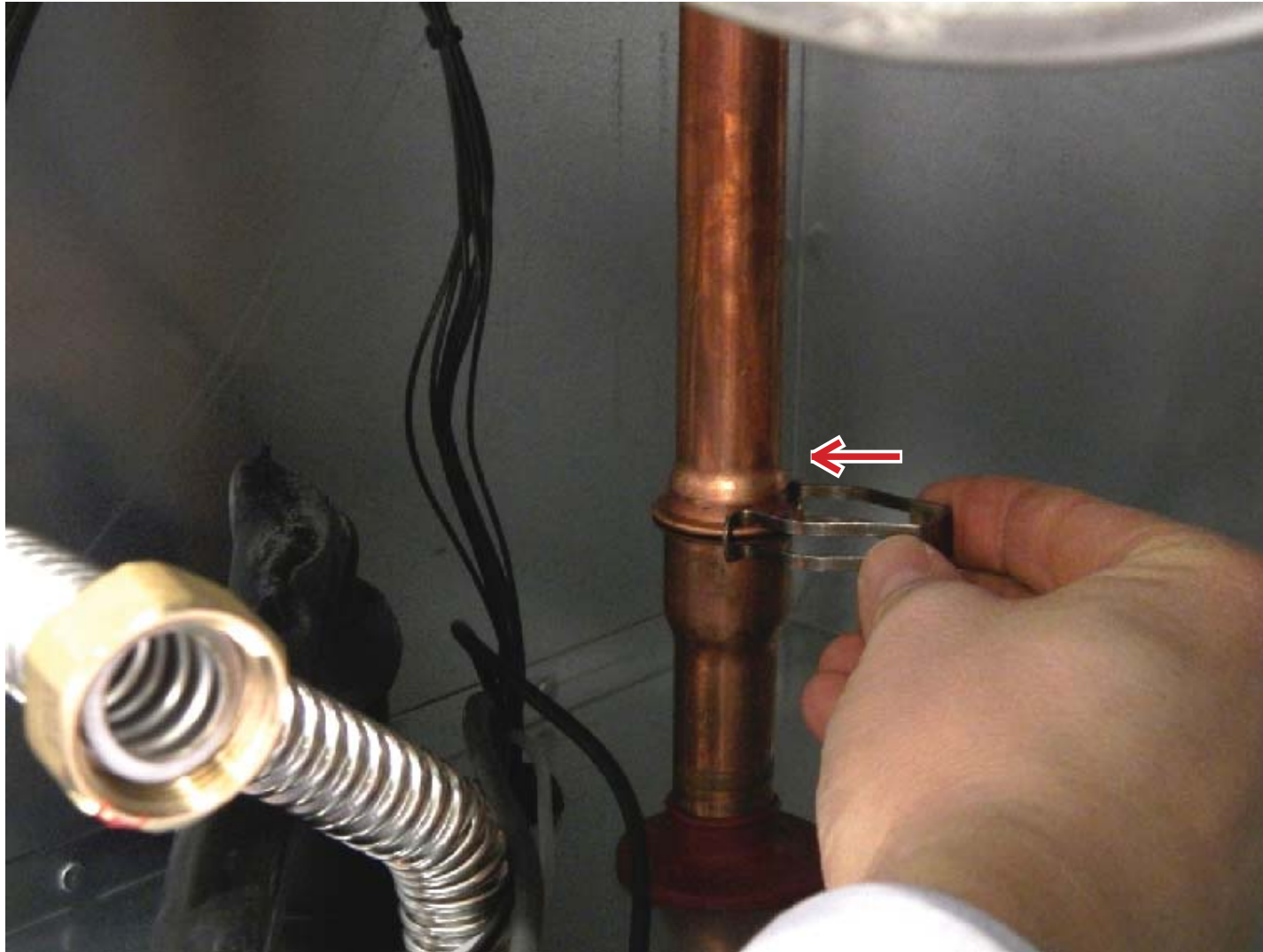
**Note:** For Vitodens 200-W, B2HB boilers only,  
Remove the old flat gasket and replace with the new (green) one supplied in the kit.  
Using an adjustable wrench, reassemble and tighten the return pipe connection elbow.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Attach retaining clip for return pipe (ensure correct seating).  
Verify that the larger diameter faces down and smaller diameter faces up.



**Note:** For Vitodens 200-W, B2HB boilers only,  
Remove the old o-ring and replace it with a new one from the gasket set (supplied).  
Lubricate the newly installed o-ring with the supplied lubricant, then install the pipe from below  
Connect the supply pipes and install the retaining clip (ensure correct fit).

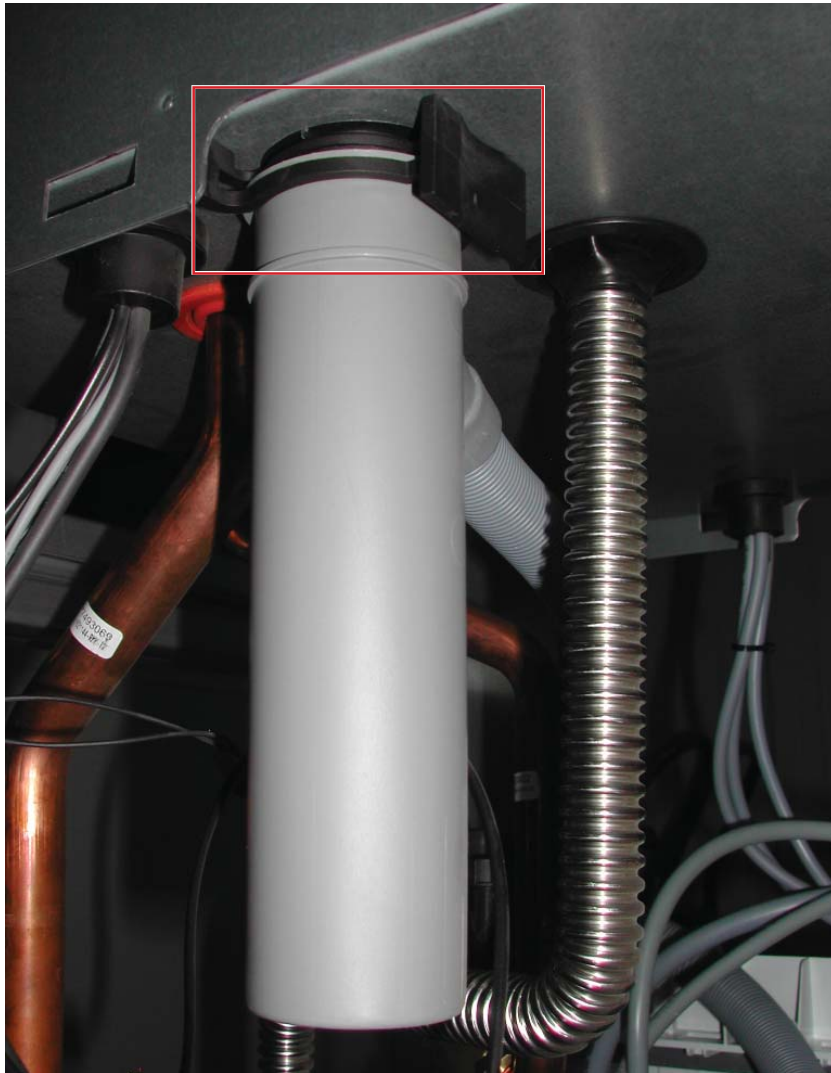


**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Lubricate the heat exchanger o-ring with the supplied lubricant, then connect the supply pipe.  
Using T-30 Torx bit, tighten the supply pipe retaining bolt.



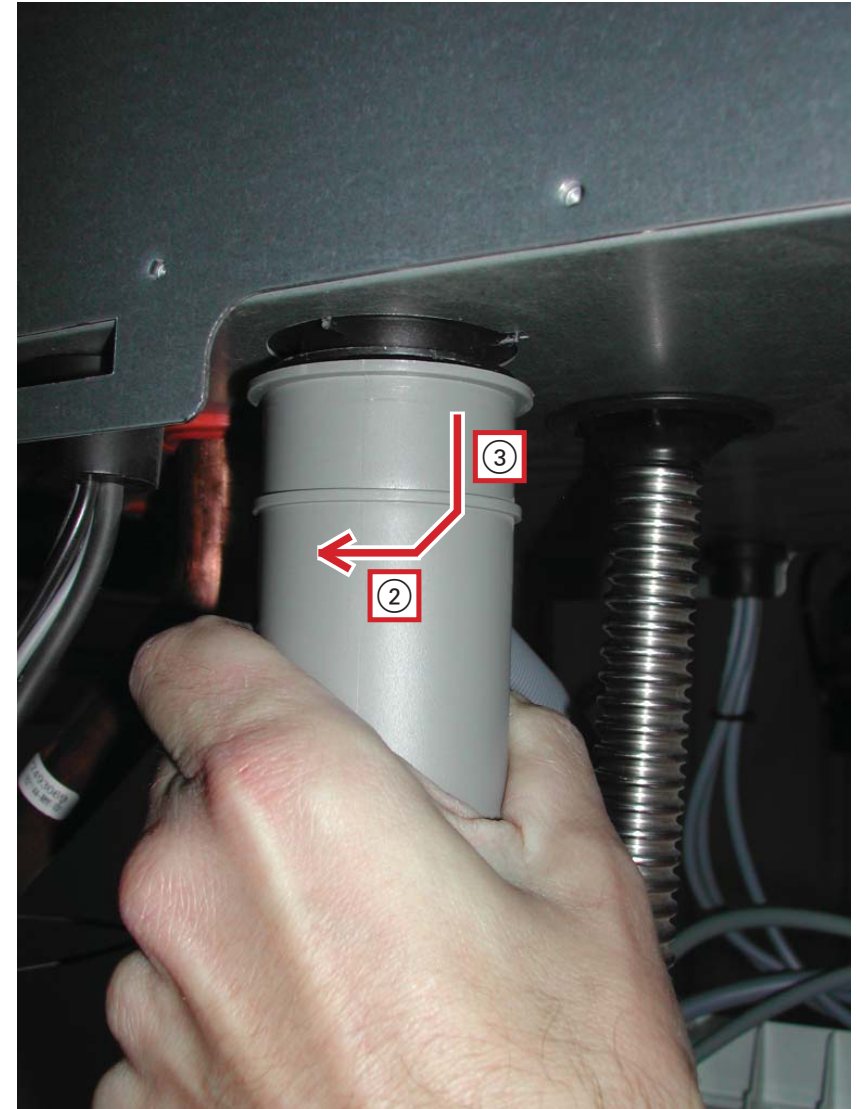
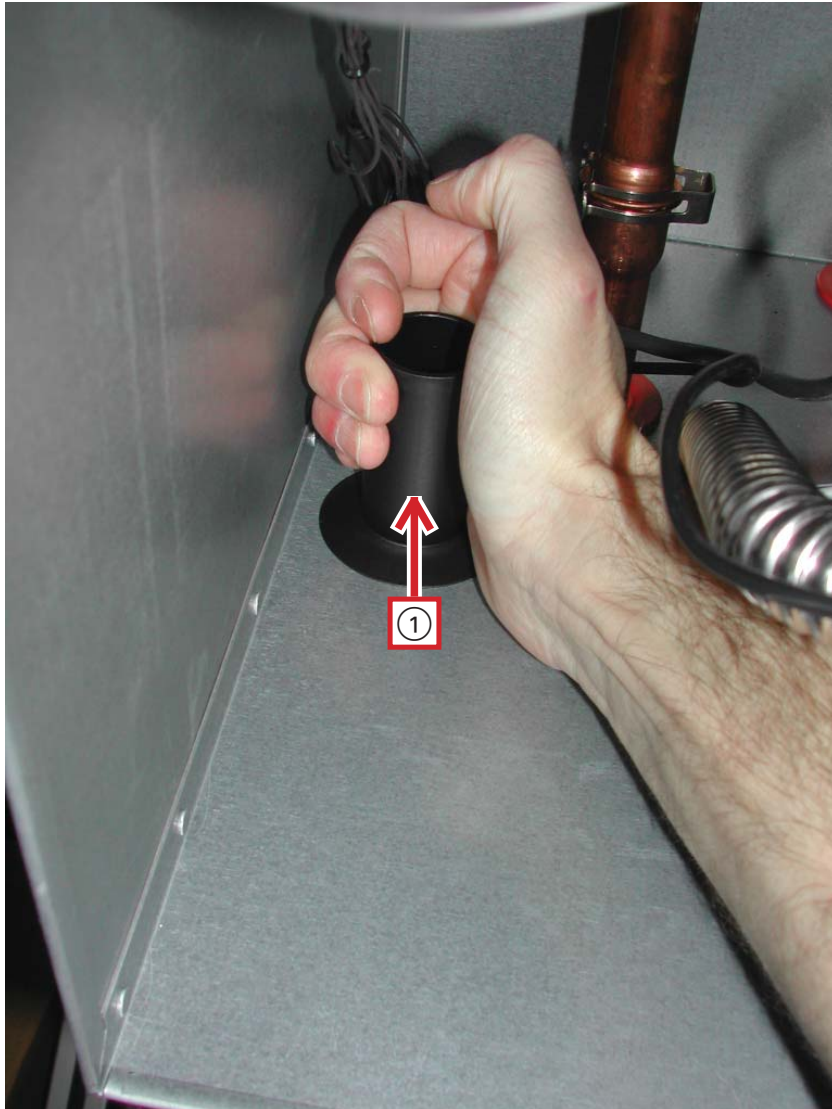
## Replacing the condensate trap (Vitodens 200-W, B2HB and Vitodens 222-F, B2TB)

Using one hand support the lower (grey) portion of the condensate trap.  
Carefully pull back on the retaining clip to release the condensate trap assembly from the boiler cabinet.

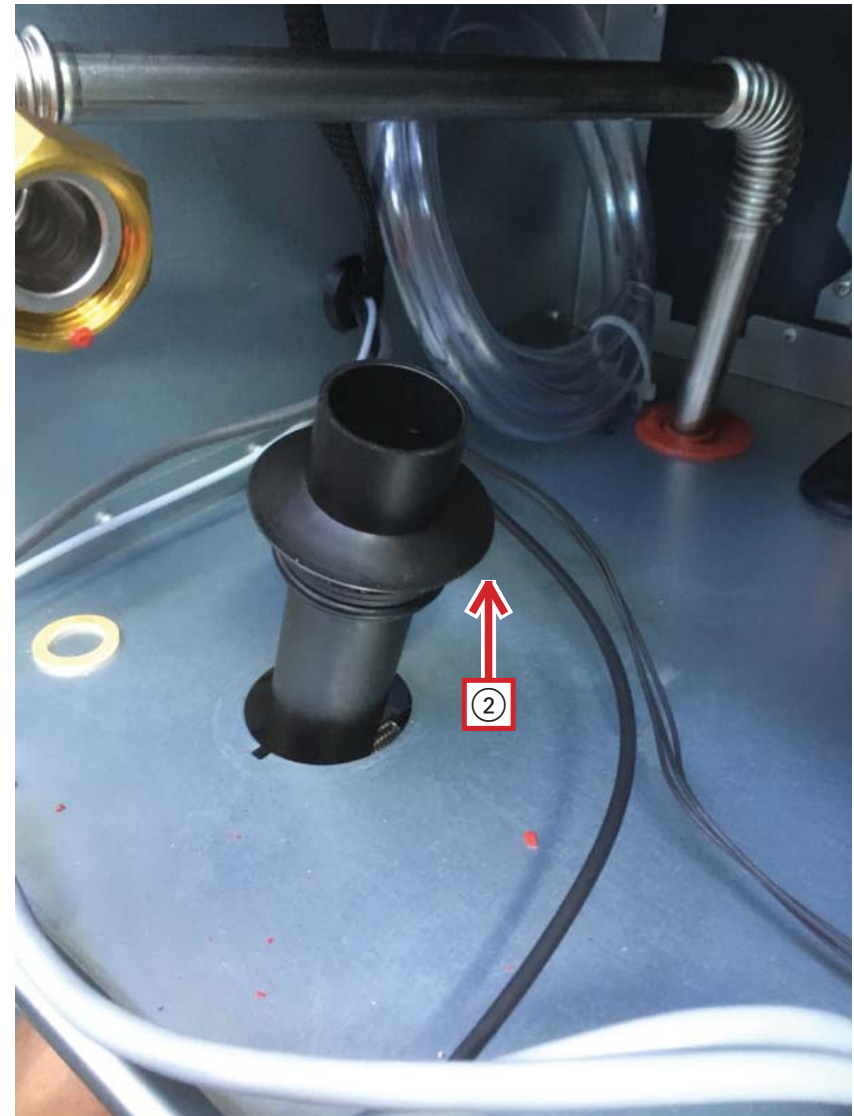




**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Using one hand hold the upper (black) portion of the condensate trap in place ①.  
Carefully twist ② and pull down ③ at the same time to release the lower (grey) portion from the  
upper (black) portion of the assembly.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Once the lower (grey) portion of the condensate trap has released, keep it upright to prevent spillage ①.  
Remove the upper (black) condensate tube from the inside of the boiler cabinet ②.



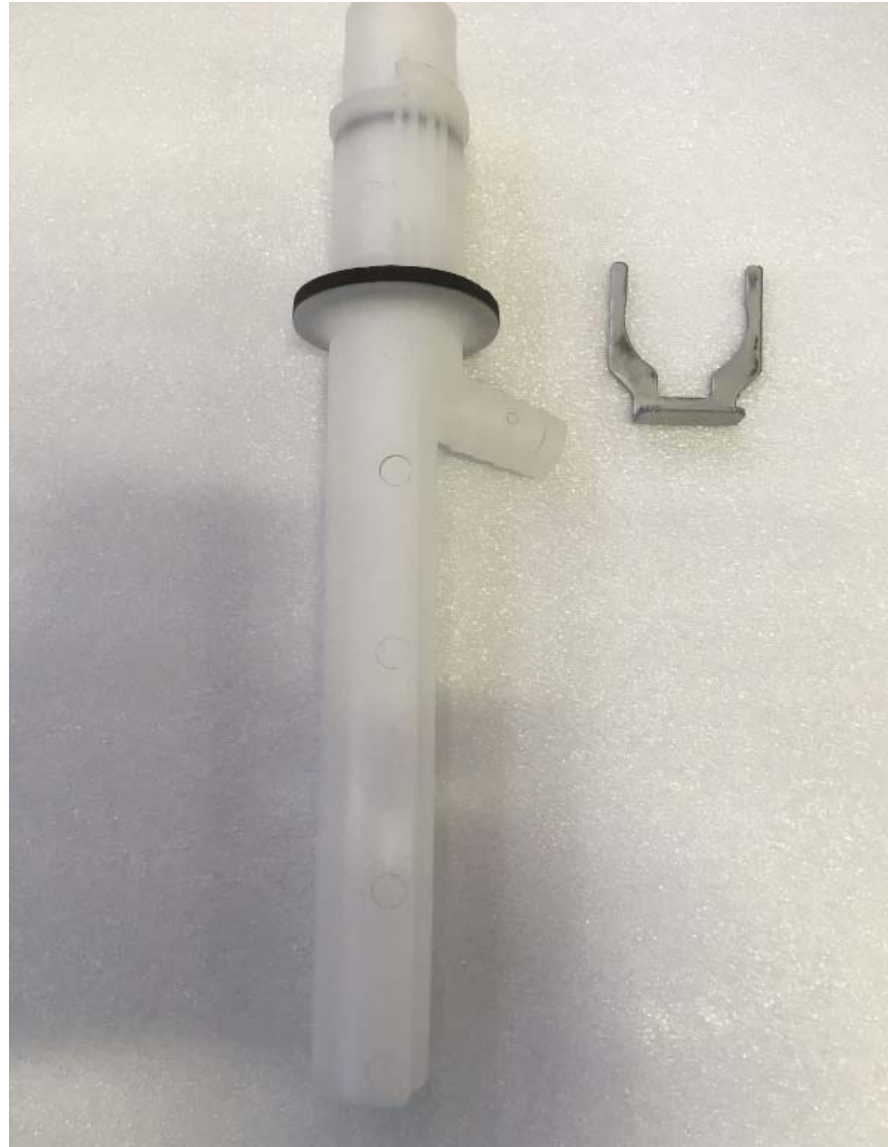
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Carefully tip the (grey) condensate trap ①, which will slowly drain water via the condensate hose ②.

Remove the condensate hose ② from the condensate trap ① and pour remaining water into a suitable drain.

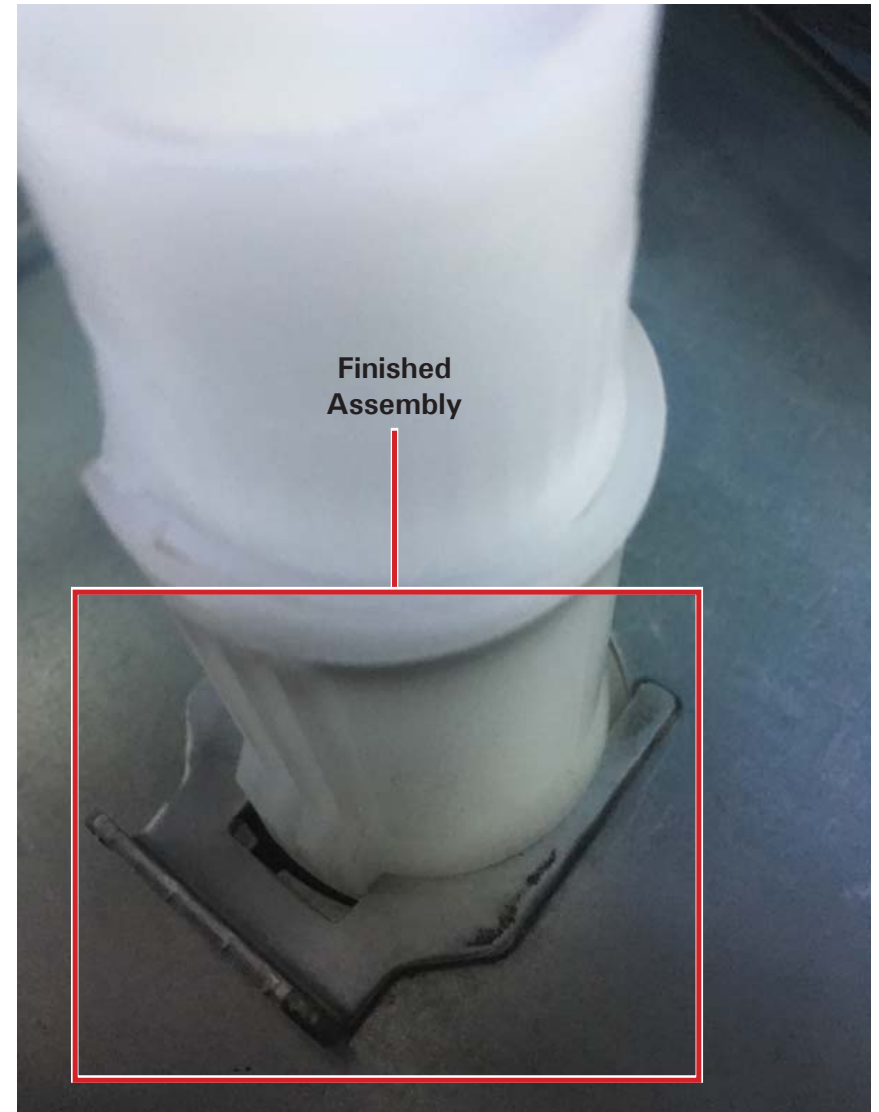
\*Note: The (grey) condensate hose ② will be reinstalled onto the new condensate trap once installed.



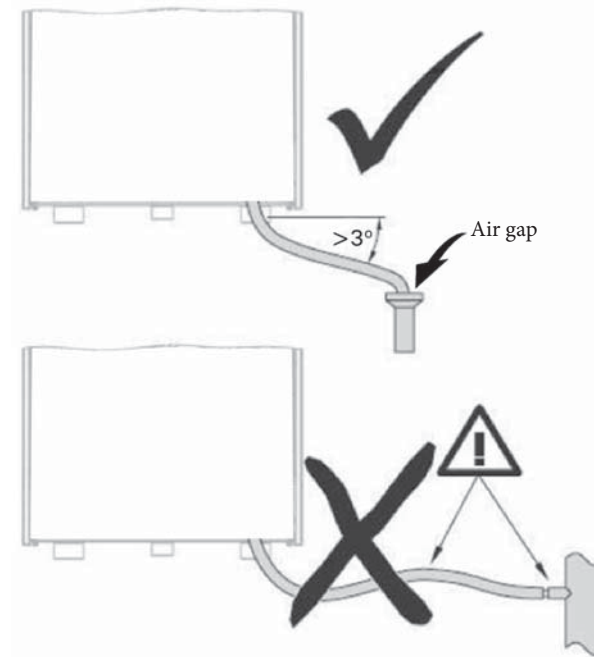
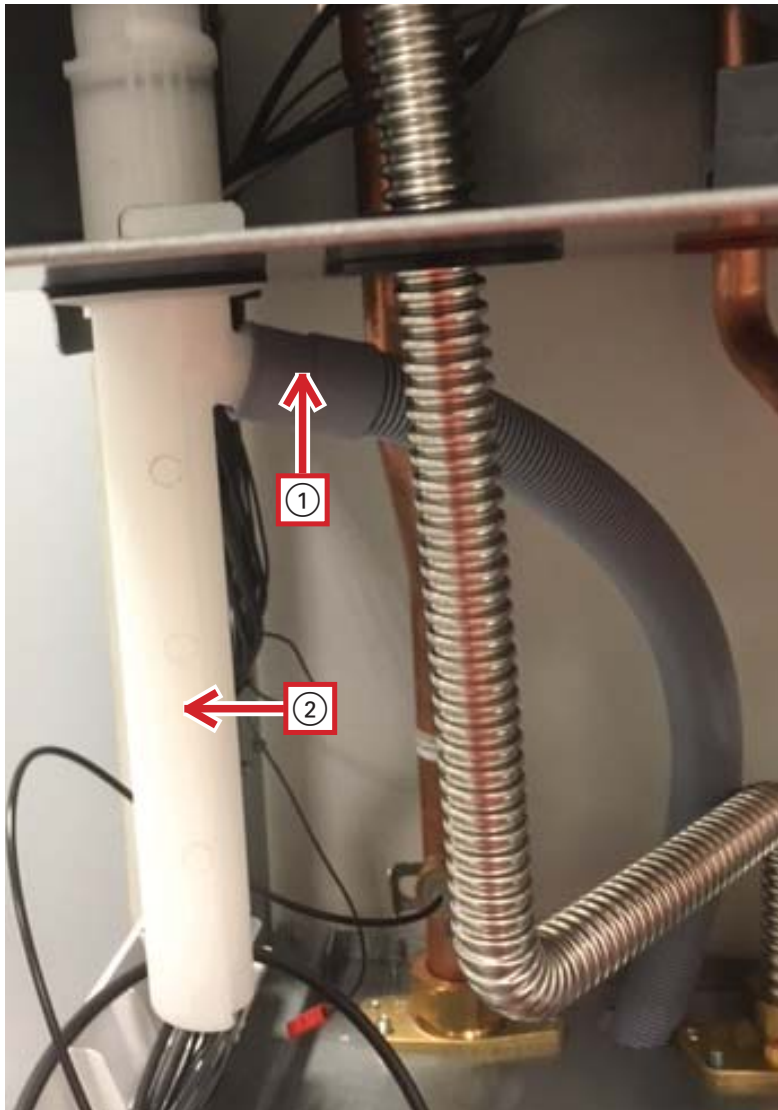
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Prepare to replace the original condensate trap (black & grey version) with the replacement  
condensate trap version shown below:



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Insert the replacement condensate trap from the bottom of the boiler cabinet ①.  
Secure in place using the supplied fixing fork ②.  
(The finished assembly should look like the image on the right)



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB, Reconnect the grey condensate hose ① (removed earlier) onto the new condensate trap ②. Ensure that the condensate hose is adequately sloped downward, promoting proper draining of condensate.



**IMPORTANT**

Pipe ventilation must take place between the siphon trap and the neutralization unit (if applicable).

**IMPORTANT**

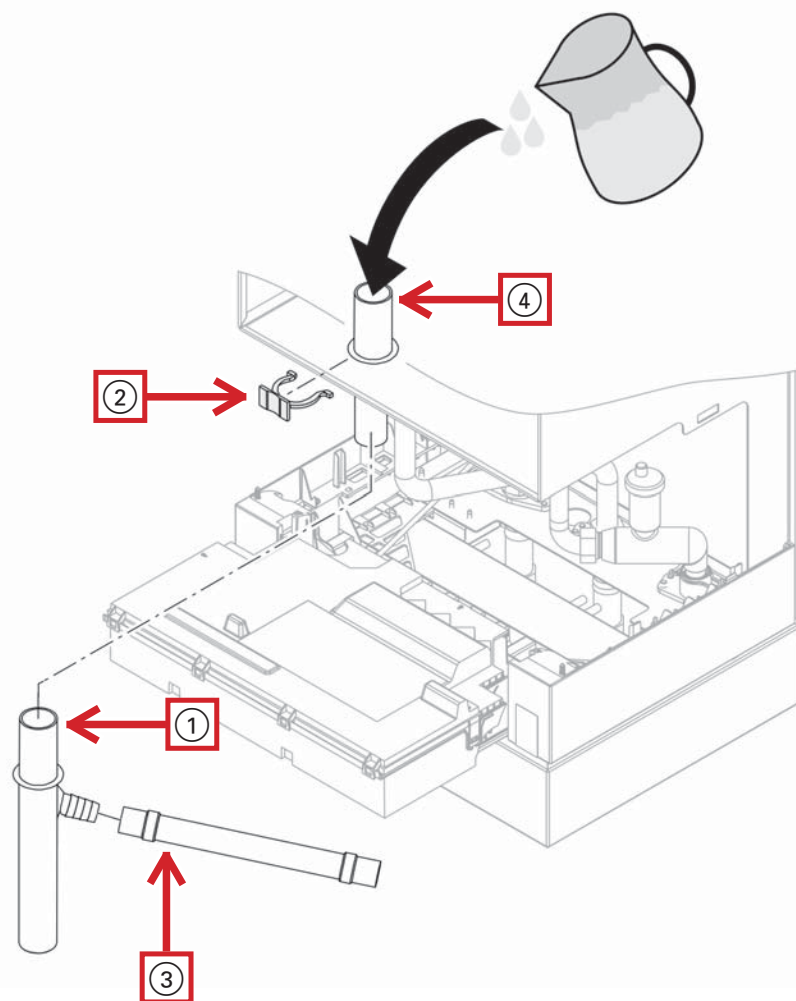
Do not connect the drain pipe from any other appliance, such as water softener backwash pipe, to Vitodens condensate drain pipe.

Discharge condensate from the boiler into the drainage system, either directly or (if required) via a neutralization unit (accessory).



For more details refer to the Installation and Start-up/ Service Instructions applicable to this boiler. Refer to Installation Instructions of Neutralization Unit (if applicable)

**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
 Upon installing the condensate trap assembly (① + ② + ③),  
 fill the condensate trap ④ with a minimum of 10 fl. oz. (0.3 liters) of water.



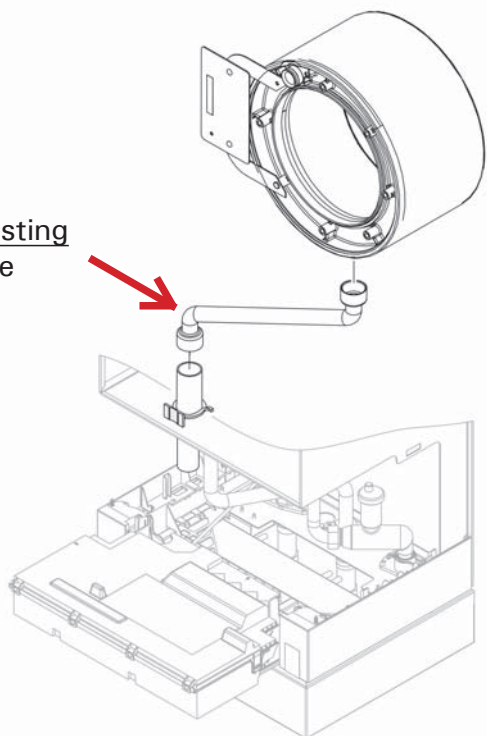
### IMPORTANT

Check for leaks between the condensate trap and discharge hose.

## Reinstalling the heat exchanger (black) condensate hose

Vitodens 200-W, B2HB 19, 26, 35

Reinstall the existing condensate hose



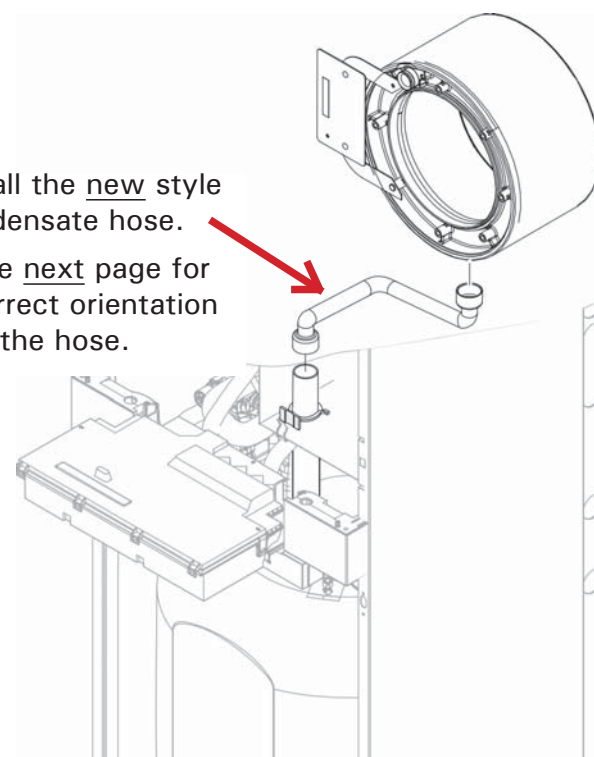
The connection of the new condensate trap is 3/4 in. (20 mm) taller than the existing condensate trap.

The existing black condensate hose can compensate for this height difference while providing the proper downward slope for the condensate to drain.

Vitodens 222-F, B2TB 19, 35

Install the new style condensate hose.

\* See next page for correct orientation of the hose.



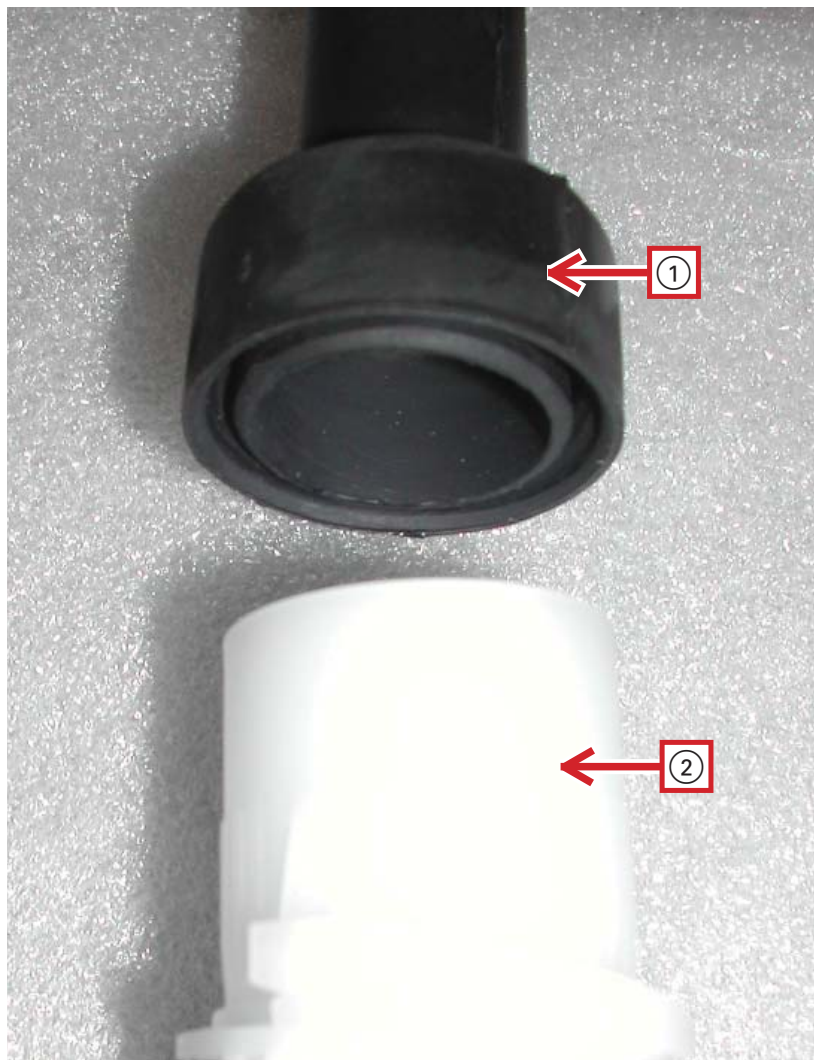
The connection of the new condensate trap is about 2 in. (50 mm) taller than the existing condensate trap.

**Note:** The existing black condensate hose will NOT compensate for the difference in height therefore the new condensate hose MUST be installed (Vitodens 222-F, B2TB models only).

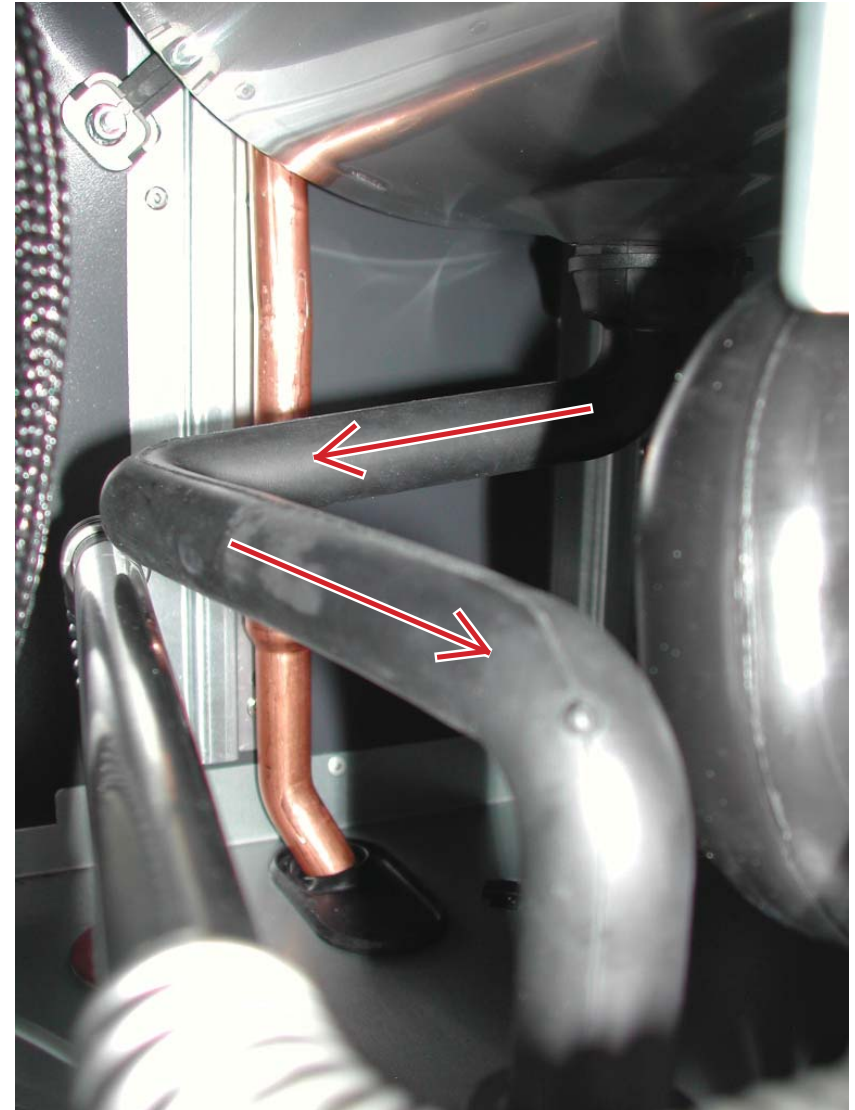
A new black condensate hose is supplied with the repair kit. This hose will be identified with a label: "FOR USE WITH B2TB ONLY".



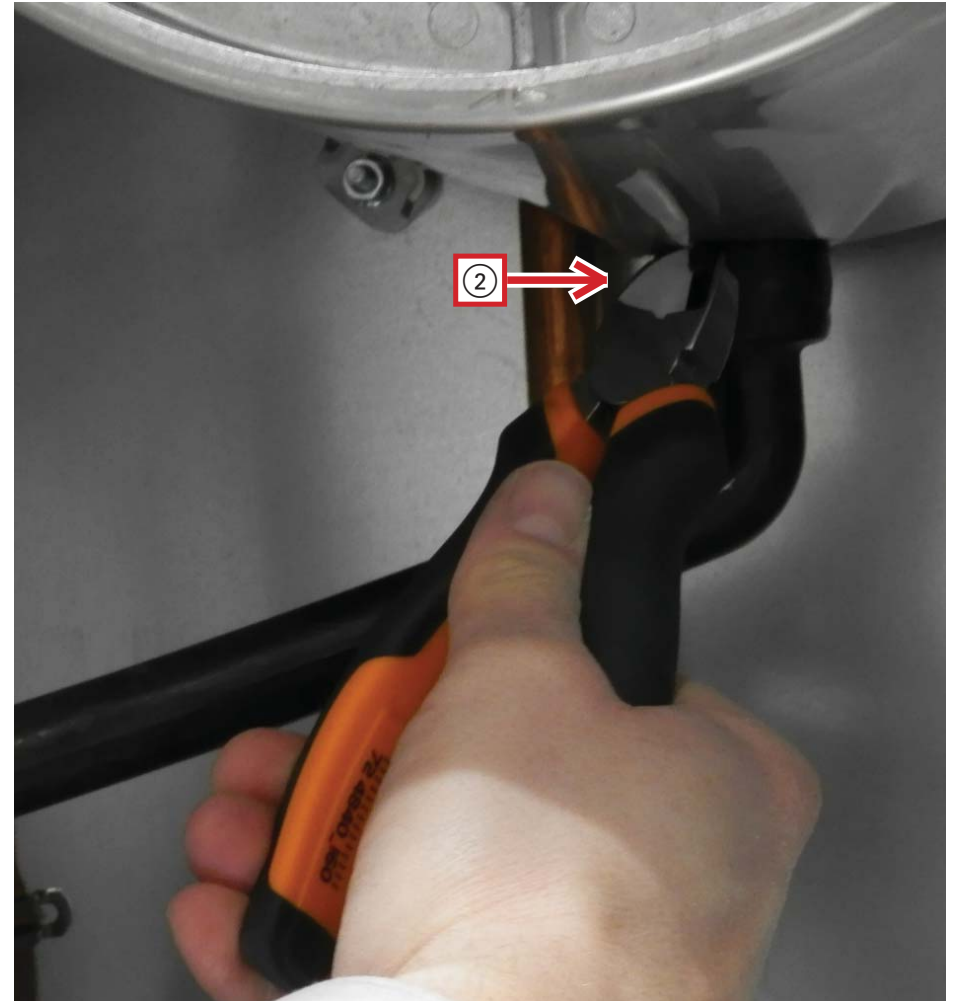
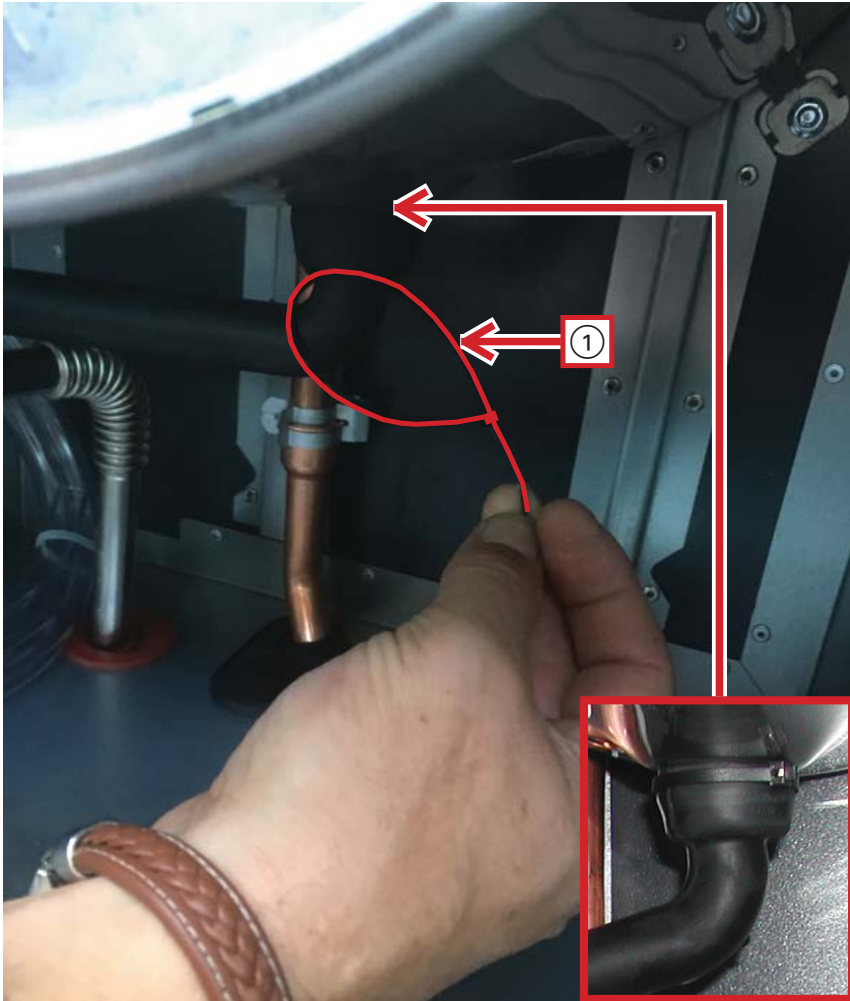
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
When installing the black condensate hose be sure that it is orientated correctly.  
The condensate hose end having the double lip ①, is to be installed on the new condensate trap ②.



**Note:** For Vitodens 222-F, B2TB Boilers,  
Verify that the black condensate hose is installed such that it slopes down towards the condensate trap.

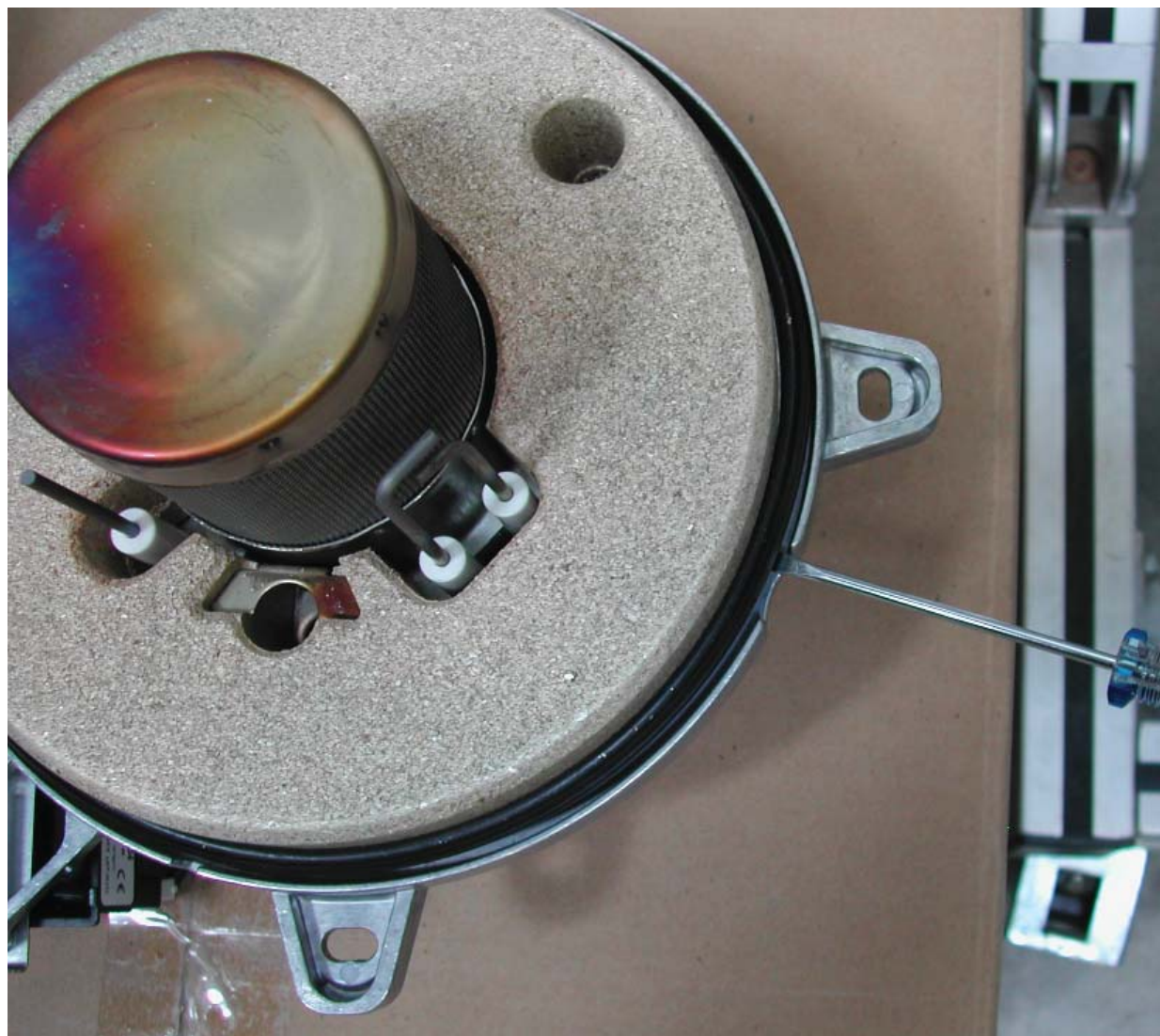


**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
With the condensate hose installed on the heat exchanger, secure in place using the cable tie provided ①.  
Using side cutters, trim remaining length of cable tie for a clean appearance ②.

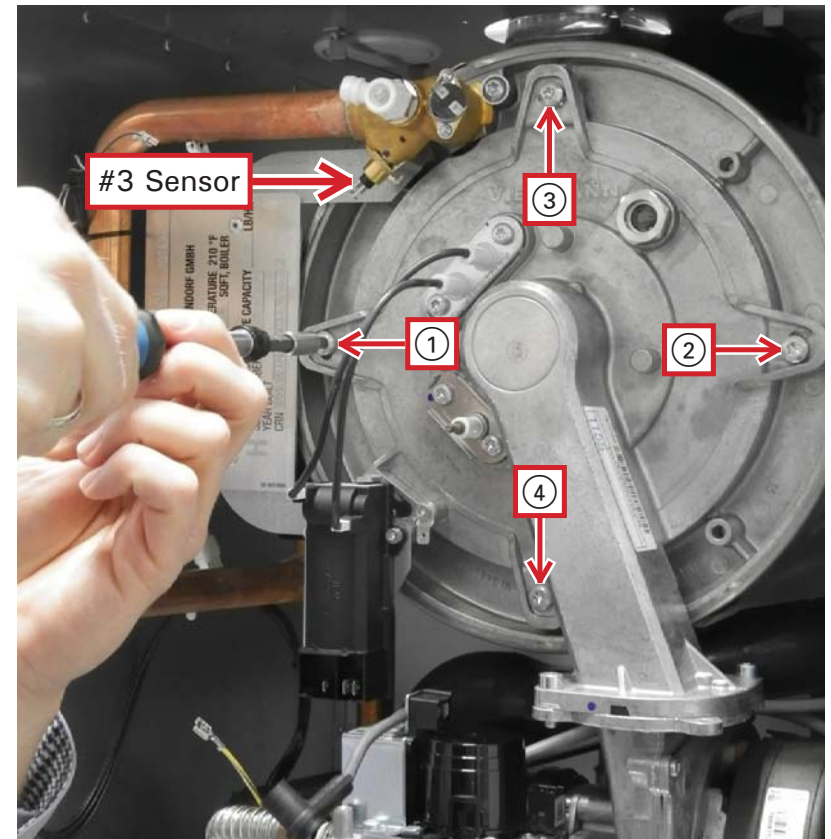
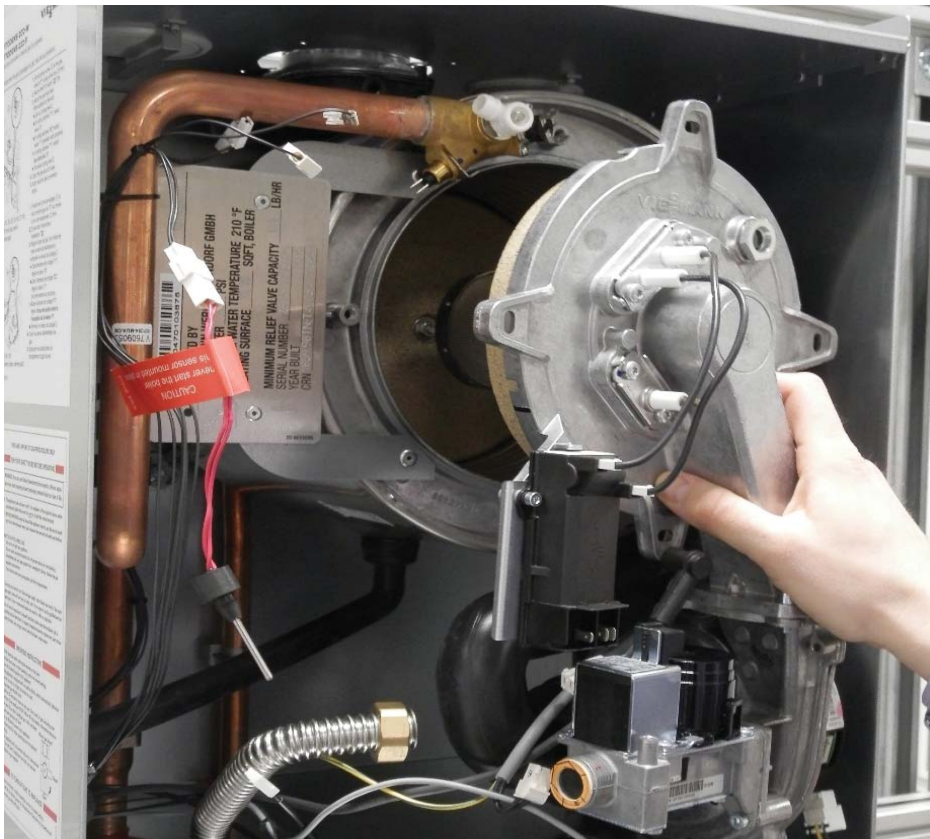


**Reassembly of the burner and wiring (Vitodens 200-W, B2HB and Vitodens 222-F, B2TB)**

Remove the old burner gasket and replace with the new one supplied in the kit.



**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
 Continue reassembling the boiler, by carefully placing the burner assembly on the heat exchanger.  
 Start by installing the 4x bolts by hand (prevents cross threading).  
 Using T-30 Torx bit, diagonally tighten the bolts ①, ②, ③ and ④ on the burner door assembly to a  
 torque of 58 lb.in (6.5 Nm).  
 Reinstall the #3 sensor (removed earlier) on the boiler supply pipe.



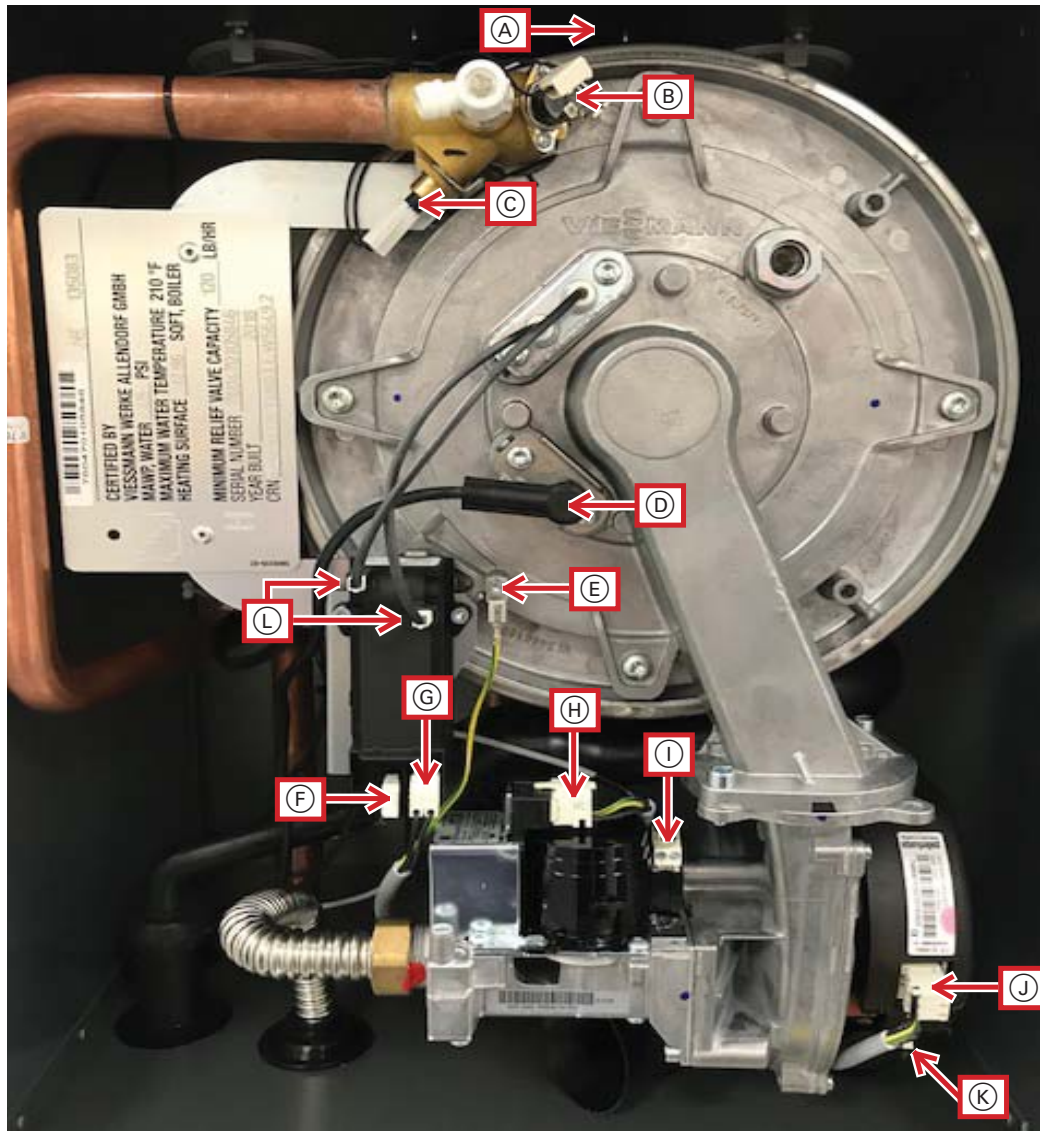
**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Install a new (orange) flat fiber gasket supplied in the kit and connect the gas line to the gas valve.  
Using an adjustable wrench, firmly tighten the gas line nut.  
[Do not exceed a torque of 132 lb.in (15 Nm)]



**⚠ WARNING**

The gas supply piping must be leak tested before placing the boiler in operation.

**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Re-connect the wiring for the burner, heat exchanger and fan assembly as shown below:



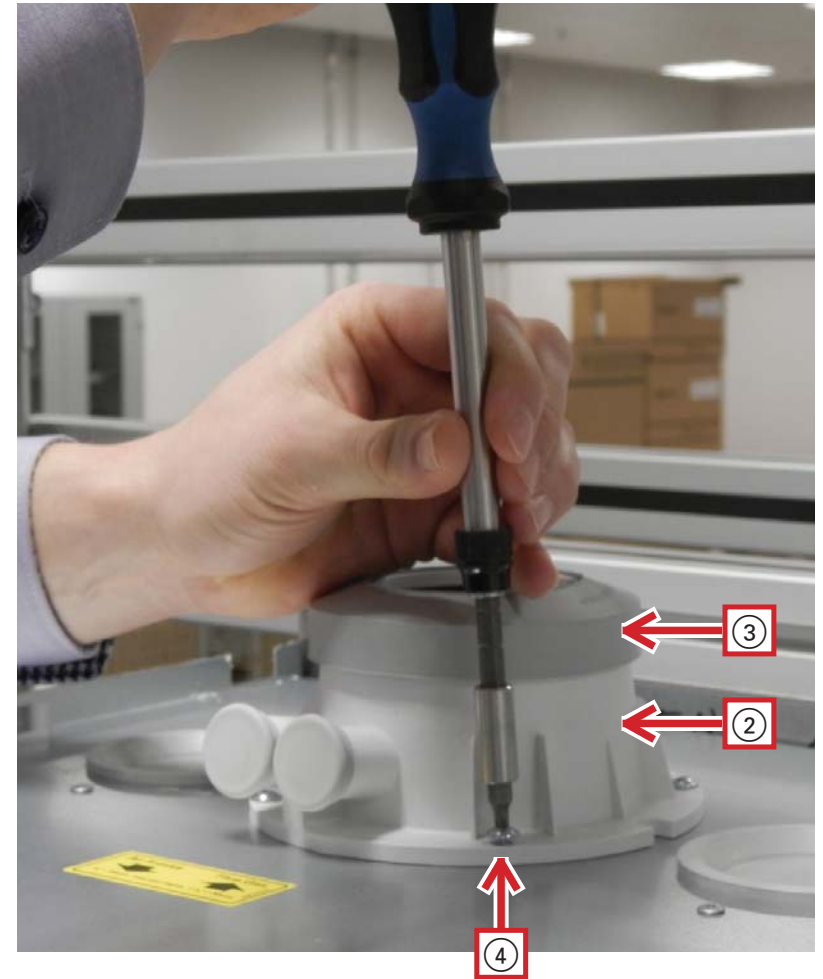
**Legend**

- Ⓐ Plug #15 (flue gas temp sensor)
- Ⓑ Plug #47 & spade terminal (fixed high limit)
- Ⓒ Plug #3 has 2x connections (boiler supply temp sensor)
- Ⓓ Plug for ionization electrode
- Ⓔ Plug for spade terminal ground wire
- Ⓕ White Plug (without identifying number)
- Ⓖ Plug #54 (ignition transformer)
- Ⓗ Plug #35 (gas valve)
- Ⓘ Plug #190 (gas valve modulation coil)
- ⓵ Plug #100 (radial fan motor)
- Ⓚ Plug #100A (radial fan motor control)
- Ⓛ White Plugs (ignition electrode wires from transformer)

**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
 Using the T-20 Torx bit, install the 2x screws holding the flue gas channel ① to the boiler cabinet.  
 Carefully install the new vent pipe adaptor ② supplied in the kit. Install the air intake ③ cover if required.  
 Using the T-20 Torx bit or 7 mm nut driver, install the 4x screws (or nuts) ④ securing the vent pipe adaptor ② to the boiler cabinet.

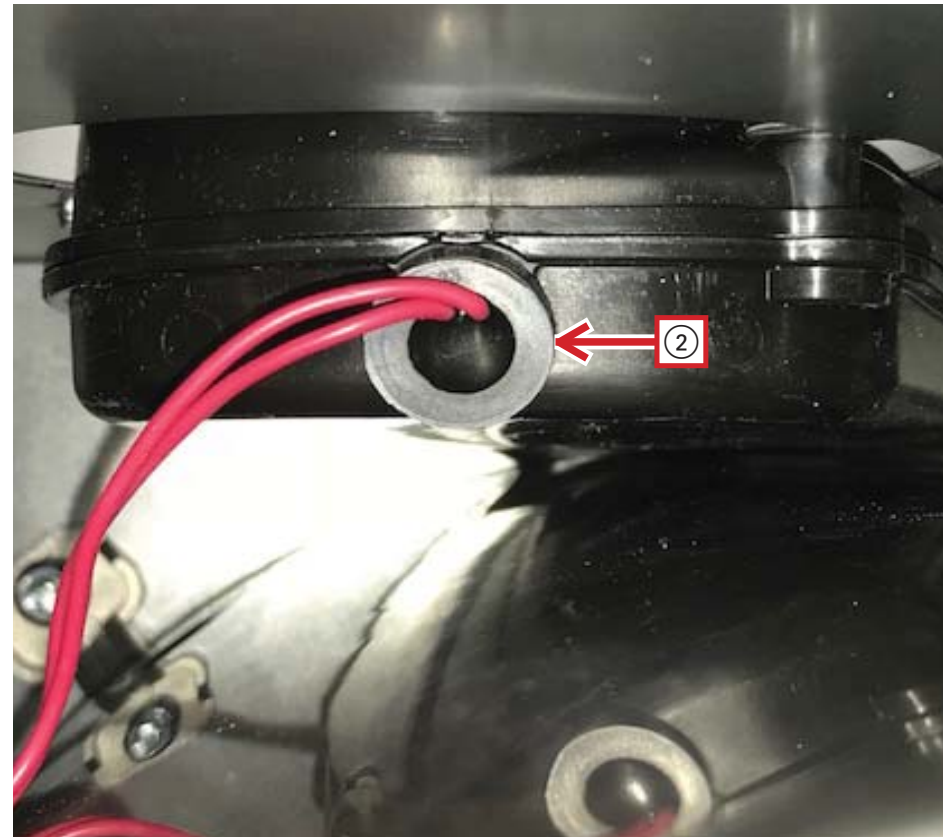
① = 2x self tapping screws (1/2 in. or 12 mm long)

④ = 4x flange head self tapping screws (3/8 in. or 10 mm long)

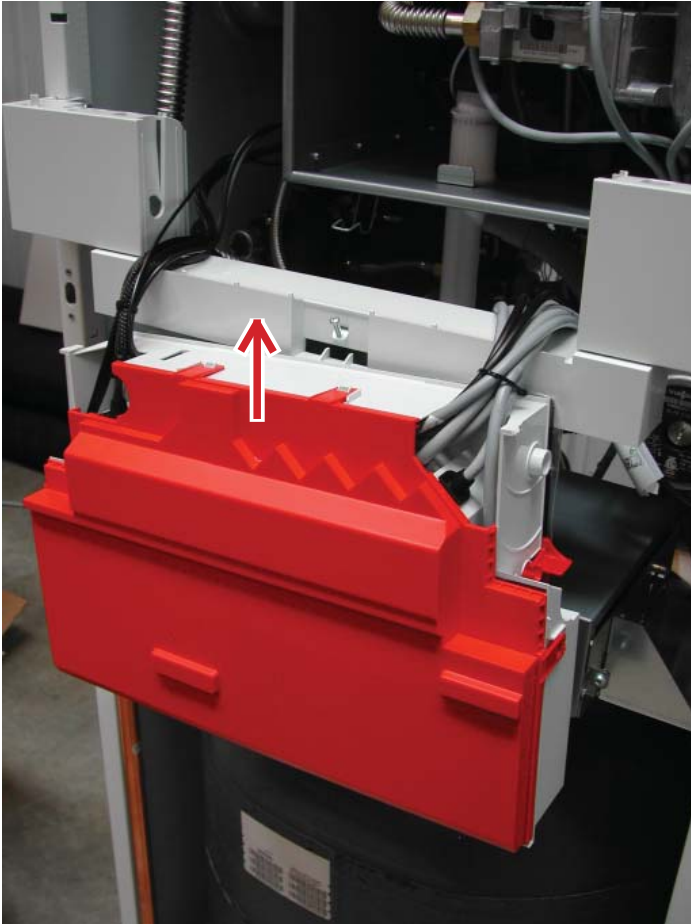




**Note:** For Vitodens 200-W, B2HB and Vitodens 222-F, B2TB,  
Reinstall the venting system on the boiler ①.  
Verify that the flue gas sensor ② is properly seated in the flue gas collector.



**Note:** For Vitodens 222-F, B2TB boilers only,  
Reinstall the boiler control unit.



#### Reinstalling the boiler control unit

1. Lift the control unit upwards such that it is in a vertical position.
2. Carefully align the control unit such that the pivot point aligns with the slot on each side.
3. Slowly lower the control until the retaining tabs engage.

## Restarting the Boiler

1. Connect power and turn on gas.
2. Fill the boiler, bleed air and check for leaks.
3. Run the venting program in the boiler
4. Check the temperature sensor in the exhaust system for correct seating
5. Check all screwed connections and connections for leaks.
6. Place boiler back into operation



For more details refer to the Installation and Start-up/ Service Instructions applicable to this boiler.

### CAUTION

Ensure all joints of gas line are pressure tight and that gas valves do not leak when under normal operating pressure (use approved leak detection liquid).

### WARNING

The gas supply piping must be leak tested before placing the boiler in operation.



## Bleed (Vent) Air from Boiler Heat Exchanger

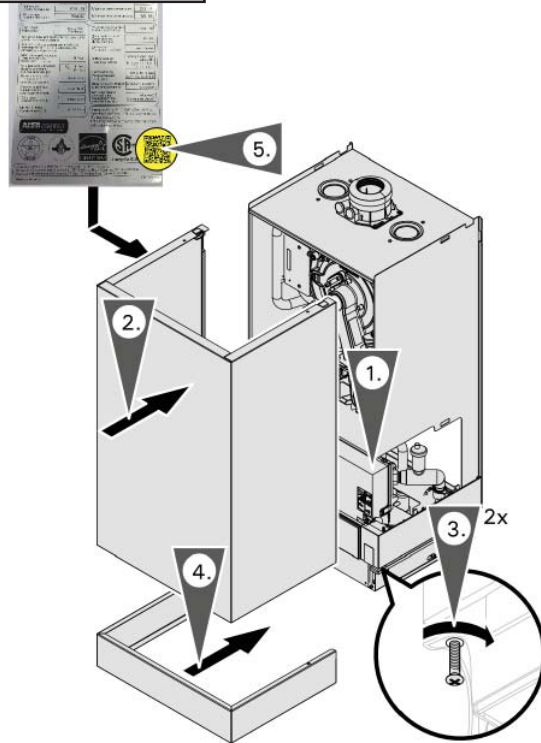
During the venting program, the circulation pump will be alternately switched on and off for 30 seconds respectively over a period of 20 minutes.

The burner is switched off during the venting program. Activate venting program: See "Venting the heating system" in the Installation and Start-up/Service Instructions for more information.

1. Connect hose to boiler filling tap and other end to a fresh water supply (or heating medium).
2. Open fresh water supply valve and then the boiler filling tap slowly (isolation valves must be closed during fill/bleed process).
3. Flush boiler heat exchanger via boiler supply and return (for at least 10 minutes) until all air is removed from the boiler.
4. When the drain valve begins to bleed water, close boiler drain valve, then boiler fill valve and open system isolation valves.
5.
  - a. Close the gas shut-off valve and switch the control unit ON.
  - b. Activate venting program (see next steps).
  - c. Check the system pressure.
6. Activating the venting program:
  - Service menu
  - Press OK and simultaneously for approximately 4 seconds.
  - "Service functions"
  - "Venting"
  - Venting function is enabled.
  - Ending venting function:
    - Press OK or
7. Check system pressure.
8. Ensure adequate fuel supply exists and open gas shutoff valve.

## Reinstalling the Front Enclosure Panel (B2HB 19, 26 and 35)

**IMPORTANT**



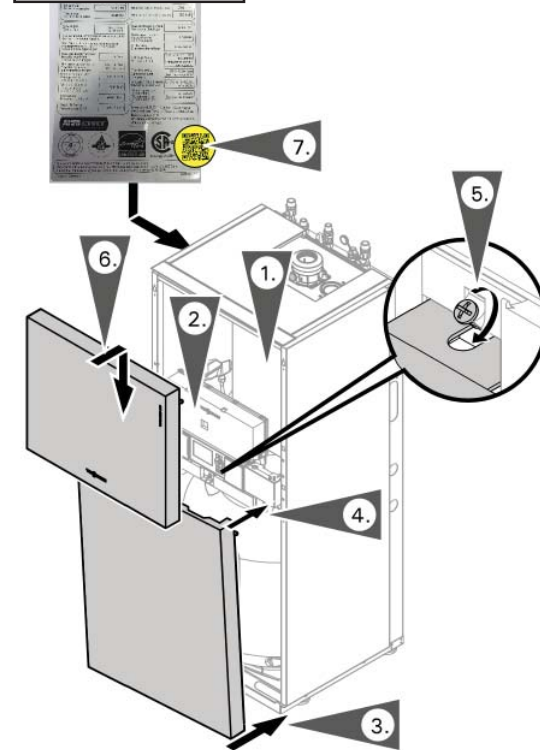
### Fitting the front panels

1. Return control to the upright operating position
2. Set front enclosure panel on the guide rails and push in place.
3. Tighten screws at the bottom.
4. Insert the external accessories connection box cover in place.
5. **Apply the YELLOW sticker (supplied in the kit) to the CSA label as shown which indicates that the heat exchanger has been replaced.**

**Note:** Ensure the locking screws are fitted before operating.

## Reinstalling the Front Enclosure Panel (B2TB 19 and 35)

**IMPORTANT**



### Fitting the front panels

1. Reinstall the burner cover.
2. Return control to the upright operating position.
3. Set in place the lower front panel
4. Install the lower front panel, ensuring that the mounting studs have secured it in place.
5. Insert and tighten the retaining screw.
6. Install upper front panel.
7. **Apply the YELLOW sticker (supplied in the kit) to the CSA label as shown which indicates that the heat exchanger has been replaced.**

## ASME Rating Plate Removal



### IMPORTANT

Take clear photo of the ASME rating plate and submit it with the heat exchanger replacement report (to be completed by heating contractor).

Using a pair of tin snips, cut off the metal ASME rating plate, from the old heat exchanger (see photo above). Upon removing the rating plate, be sure to cut it into two pieces and discard into trash container.

**Note:** Be sure confirmation this action by checking the box on the heat exchanger replacement form (supplied).

## Perform Combustion Analysis (Check CO<sub>2</sub> Setting)

The Vitodens 200-W, B2HB boiler is equipped with the Combustion Management System developed by Viessmann which ensures optimal combustion quality independent of gas quality and type. During initial start-up and maintenance you will only need to check the CO<sub>2</sub> and O<sub>2</sub> content at the boiler vent pipe adaptor.

**Note:** The Vitodens 200-W, B2HB boiler comes factory set for operation with natural gas and altitudes up to 5,000 ft. (1,500 m). The MatriX cylinder burner of this boiler is preset for the entire gas group. No adjustment or readjustment of the burner is required.

For instructions on how to convert to operation with liquid propane gas or how to configure the boiler for high-altitude operation above 5,000 ft. (1,500 m)



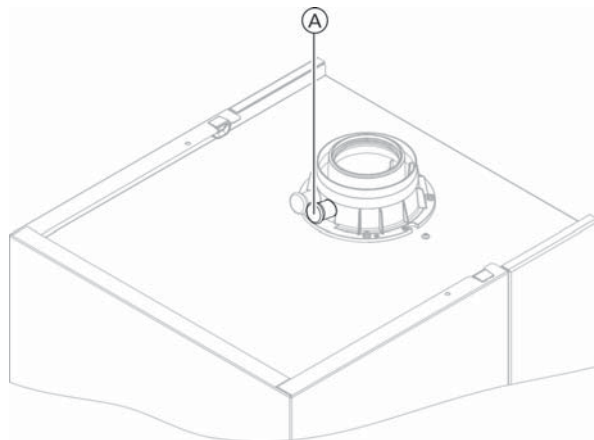
Refer to the Installation and Start-up/ Service Instructions applicable to this boiler.

### IMPORTANT

A CO<sub>2</sub> measurement (see next page) must be taken before and after working on gas appliances to eliminate risks to health and to guarantee the satisfactory condition of the system.

Record the measured combustion values in the sequence stated in the Combustion Analysis Record on page 55 of this manual.

## Perform Combustion Analysis (Check CO<sub>2</sub> Setting)



1. Start up boiler and create heat demand.
2. Selecting low/high fire:  
Service menu
  - Press OK and simultaneously for approximately 4 seconds.
  - "Actuator test"
  - Selecting low fire: select "Base load OFF".  
Then "Base load ON" appears and the burner operates in low fire.
3. Connect a flue gas analyzer to test port (A) at boiler vent pipe adaptor.
4. Measure CO<sub>2</sub> and O<sub>2</sub> content at boiler vent pipe adaptor. If the measured values deviated by more than 1% from the ranges for the respective fuel type listed in the right column or in the table on the next page.
  - CO<sub>2</sub> content range:
    - 7.5 to 10.9% for natural gas
    - 9.0 to 11.3% for LPG
  - O<sub>2</sub> content range:
    - 3.8 to 7.3% for all gas types
5. Enter measured values into the Combustion Analysis Record on the next page. Terminate by selecting 'all actuators off'.
6. Selecting high fire: select "Full load OFF". Then "Full load ON" appears and the burner operates in high fire.
7. Measure CO<sub>2</sub> and O<sub>2</sub> content at boiler vent pipe adaptor. If the measured values deviated by more than 1% from the ranges listed in the right column or in the table on the next page.
  - check the venting system for leaks
  - check that the boiler is set for the gas type used.
  - CO<sub>2</sub> content range:
    - 7.5 to 10.9% for natural gas
    - 9.0 to 11.3% for LPG
  - O<sub>2</sub> content range:
    - 3.8 to 7.3% for all gas types
8. Press to exit actuator test after testing and enter measured values into the Combustion Analysis Record on page 55.

## Combustion Analysis Record

Measurements		Actual Test Results	Setpoint Values
Static pressure	"w.c.		max. 14 "w.c.
<b>Running pressure (supply pressure)</b>			
<input type="checkbox"/> Natural gas	"w.c.		4-14 "w.c.
<input type="checkbox"/> Liquid Propane gas	"w.c.		10-14 "w.c.
Check gas type			
<b>Carbon dioxide content CO<sub>2</sub></b>			
■ at lower end of rated input range	vol. %		
■ at upper end of rated input range	vol. %		
<b>Oxygen content O<sub>2</sub></b>			
■ at lower end of rated input range	vol. %		
■ at upper end of rated input range	vol. %		
<b>Carbon monoxide content CO</b>			
■ at lower end of rated input range	ppm		55 ppm air-free*
■ at upper end of rated input range	ppm		
<b>Ionization current</b>			
Measured current	μA		

\*Fuel type, altitude venting and other site parameters may change



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