

# Installation instructions

## for contractors

**VIESSMANN**

### Replacing burner components

For MatriX radiant burner, type VMA III

Natural gas E and LL

Also for Vitocrossal 200, type CM2

Rated heating output 87 to 311 kW

### Replacing burner components



## Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

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### Safety instructions explained



#### **Danger**

This symbol warns against the risk of injury.

#### **Note**

*Details identified by the word "Note" contain additional information.*



#### **Please note**

This symbol warns against the risk of material losses and environmental pollution.

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### Target group

These instructions are exclusively intended for qualified contractors.


- Work on gas installations may only be carried out by a registered gas fitter.
- Work on electrical equipment may only be carried out by a qualified electrician.

## Safety instructions (cont.)

### Regulations to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection
- Codes of practice of the relevant trade associations
- Relevant country-specific safety regulations

### Working on the system

- Where gas is used as the fuel, close the main gas shut-off valve and safeguard it against unintentional reopening.
  - Isolate the system from the power supply, e.g. by removing the separate fuse or by means of a mains isolator, and check that it is no longer live.
  - Safeguard the system against reconnection.
  - Wear suitable personal protective equipment when carrying out any work.
-  **Danger**  
Hot surfaces and fluids can lead to burns or scalding.
- Before maintenance and service work, switch off the appliance and let it cool down.
  - Never touch hot surfaces on the boiler, burner, flue system or pipework.

## Safety instructions (cont.)

- ! **Please note**  
Electronic assemblies can be damaged by electrostatic discharge.  
Prior to commencing work, touch earthed objects such as heating or water pipes to discharge static loads.

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## Repair work

- ! **Please note**  
Repairing components that fulfil a safety function can compromise the safe operation of the system.  
Replace faulty components only with genuine Viessmann spare parts.

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## Disposal of packaging

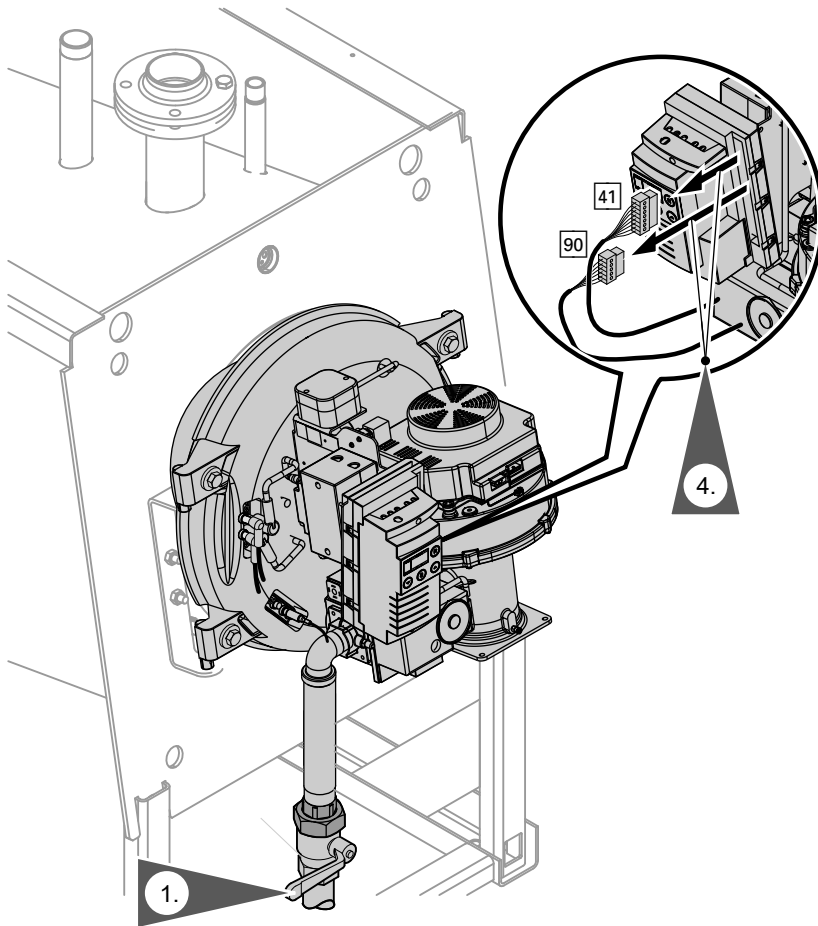
### Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

## Symbols

Symbol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of personal injury
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	<ul style="list-style-type: none"> <li>■ Component must audibly click into place.</li> <li>or</li> <li>■ Acoustic signal</li> </ul>
	<ul style="list-style-type: none"> <li>■ Fit new component.</li> <li>or</li> <li>■ In conjunction with a tool: Clean the surface.</li> </ul>
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do <b>not</b> dispose of component in domestic waste.

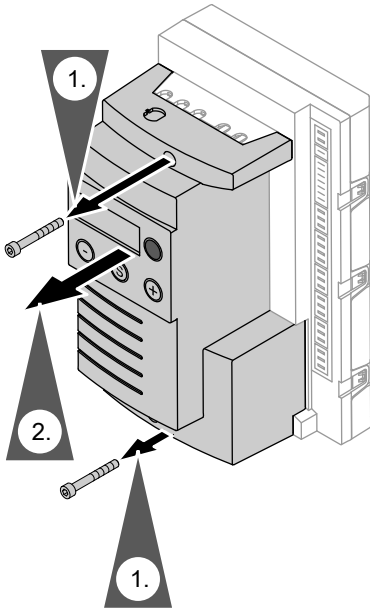
## Preparing for component replacement



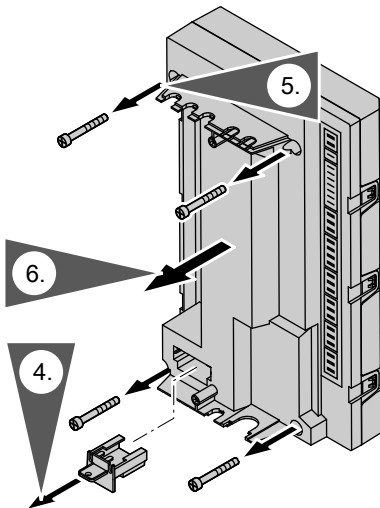
1. Close the gas shut-off valve.
2. Switch OFF the mains isolator (outside the installation room).
3. Remove the burner hood.
4. Disconnect plugs **41** and **90** from the burner control unit.



## Burner control unit VUC 310



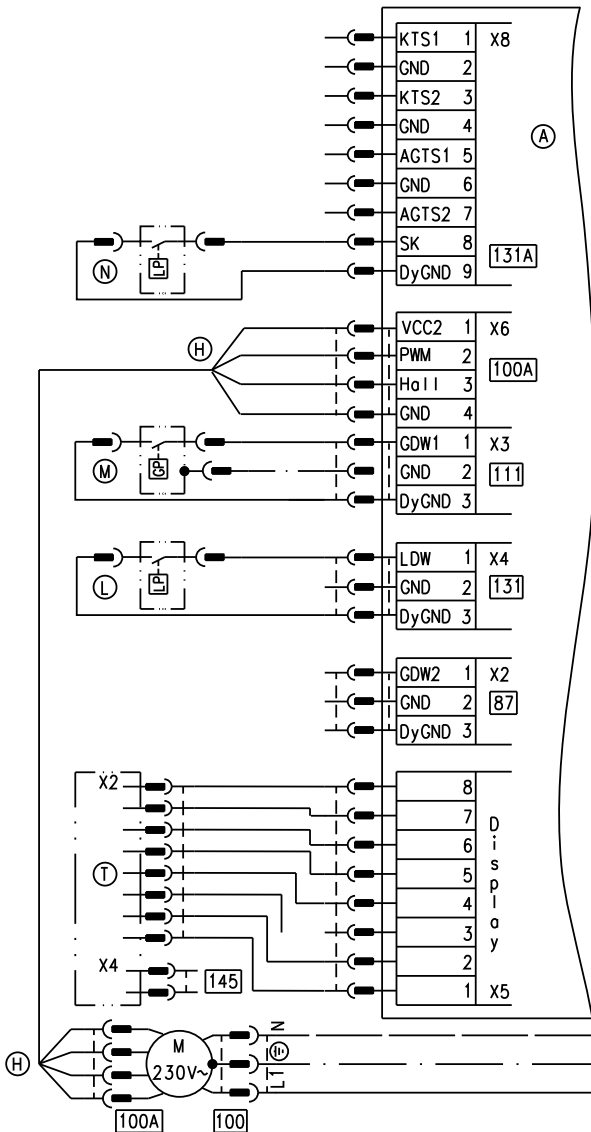
1. Undo 2 fixing screws.
2. Remove the display and programming unit. Pull out the connecting cable plug at the burner control unit. For this, release the locking device on the plug.
3. Disconnect all connecting cables with plugs and strapping plugs from the burner control unit.



4. Remove the coding card from the burner control unit.
5. Undo 4 fixing screws on the burner control unit.
6. Remove the burner control unit.
7. Install the new burner control unit in reverse order.
8. For further assembly steps, see page 51.

# Burner control unit VUC 310 (cont.)

## Burner control unit connection diagram

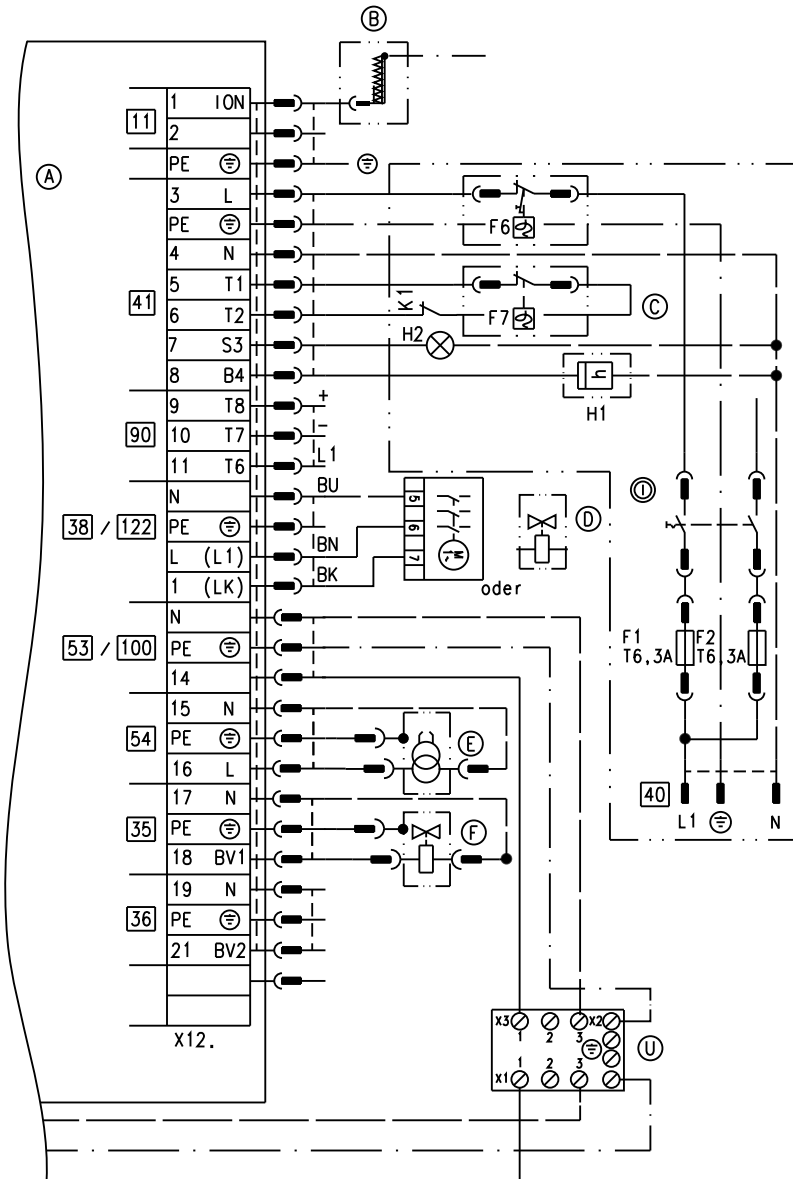


(A) Burner control unit VUC 310

## Burner control unit VUC 310 (cont.)

- Ⓜ Fan motor with PWM control and feedback
- Ⓛ Air pressure switch 1
- Ⓜ Gas pressure switch 1
- Ⓝ Air pressure switch 2
- Ⓣ Display and programming unit

# Burner control unit VUC 310 (cont.)

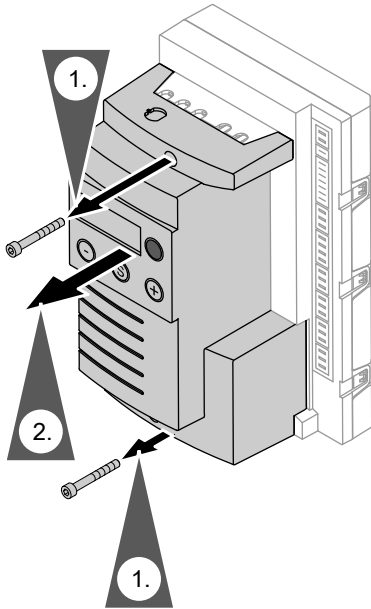


(A) Burner control unit VUC 310

## Burner control unit VUC 310 (cont.)

- (B) Flame monitor with ionisation current
- (C) Vitotronic control unit
- (D) Servomotor for rotary damper or 2/2-way solenoid valve
- (E) Ignition unit
- (F) Fuel valve BV1
- (U) Suppressor choke box
- F1 Backup fuse
- F2 Backup fuse
- F6 High limit safety cut-out
- F7 Temperature controller
- H1 Hours run meter, modulation
- H2 Fault message
- S1 ON/OFF switch

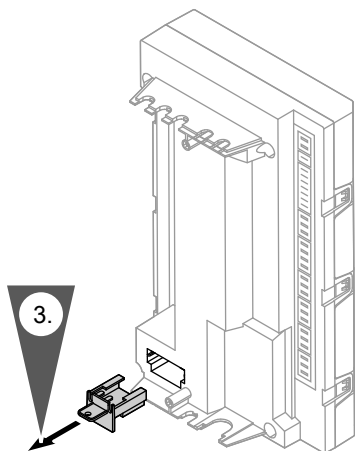
### Coding card on burner control unit VUC 310



1. Undo 2 fixing screws.
2. Remove the display and programming unit.



## Burner control unit VUC 310 (cont.)




- 3. ! Please note**  
The presence of voltage during coding card replacement may damage the coding card or burner control unit.  
Isolate the burner control unit from the power supply.

Remove the coding card from the burner control unit.

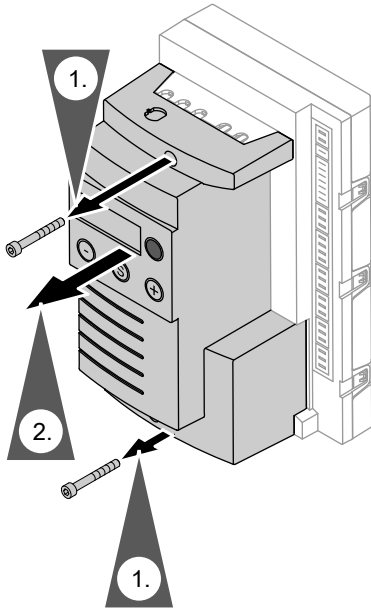
- 4.** Insert new coding card.  
**5.** For further assembly steps, see page 51.

**Note**  
*If fault code "F b7" is displayed, check the coding card.*

 MatriX radiant burner service instructions

## Burner control unit VUC 310 (cont.)

### Display and programming unit of the VUC 310 burner control unit



1. Undo 2 fixing screws.
2. Remove the display and programming unit. Pull out the connecting cable plug at the burner control unit. For this, release the locking device on the plug.
3. Install new display and programming unit in reverse order.
4. For further assembly steps, see page 51.

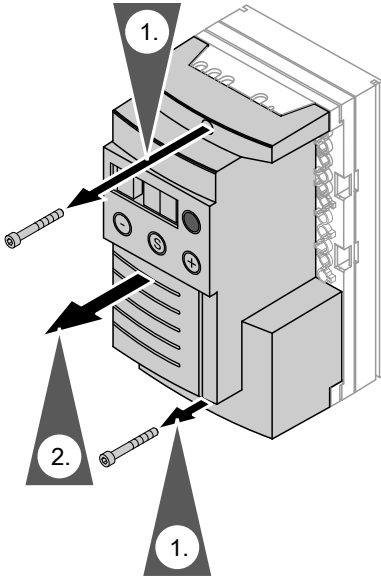
## Replacing burner control unit MPA 51 with MPA5113



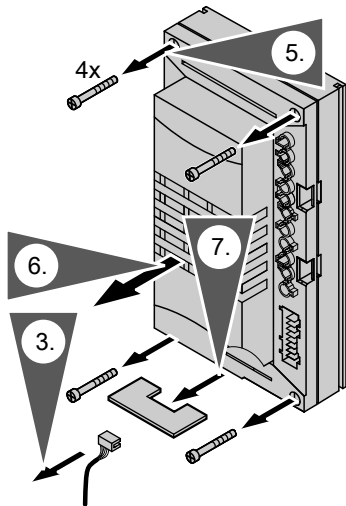
Installation instructions "Replacing the gas burner control unit type MPA51 with type MPA5113"

## Replacing burner control unit MPA 51 with... (cont.)

### Removal



1. Undo 2 fixing screws.
2. Remove the display and programming unit.



3. Pull the connecting cable plug from the burner control unit.
4. Pull all connecting cables with plugs from the burner control unit.
5. Undo 4 fixing screws on the burner control unit.
6. Remove the cable grommets and burner control unit.
7. Extract the parameter memory stick from the burner control unit.



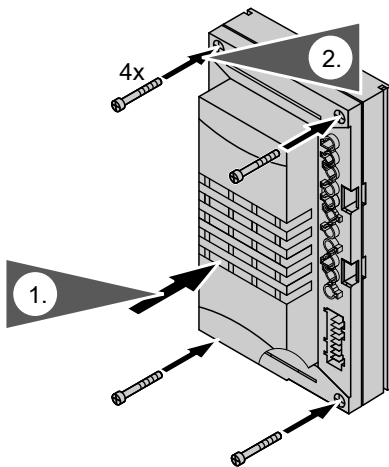
## Replacing burner control unit MPA 51 with... (cont.)

### Installation

#### Burner control unit

**Note regarding Vitocrossal, 186 to 311 kW**

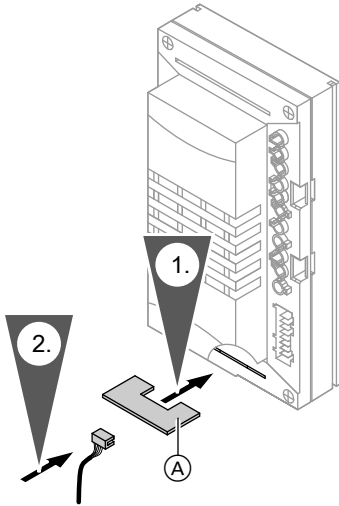
Cable **11** (ionisation cable) included in the coding card standard delivery, must be replaced.



1. Position the burner control unit on the mounting plate.
2. Insert the 4 fixing screws into the burner control unit.

## Replacing burner control unit MPA 51 with... (cont.)

### Parameter memory stick

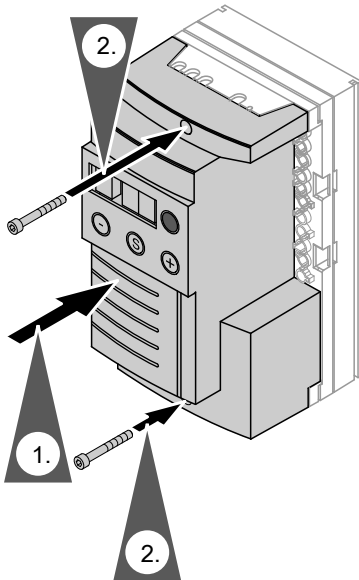


1. For the password of parameter memory stick (A) see the service instructions. Insert parameter memory stick (A).
2. Attach the connecting cable plug.

#### **Note**

Insert strapping plug [47] and ionisation cable [11].

### Display and programming unit



1. Mount the display and programming unit.

## Replacing burner control unit MPA 51 with... (cont.)

### **Note**

*When commissioning the burner, enable the parameter memory stick.*

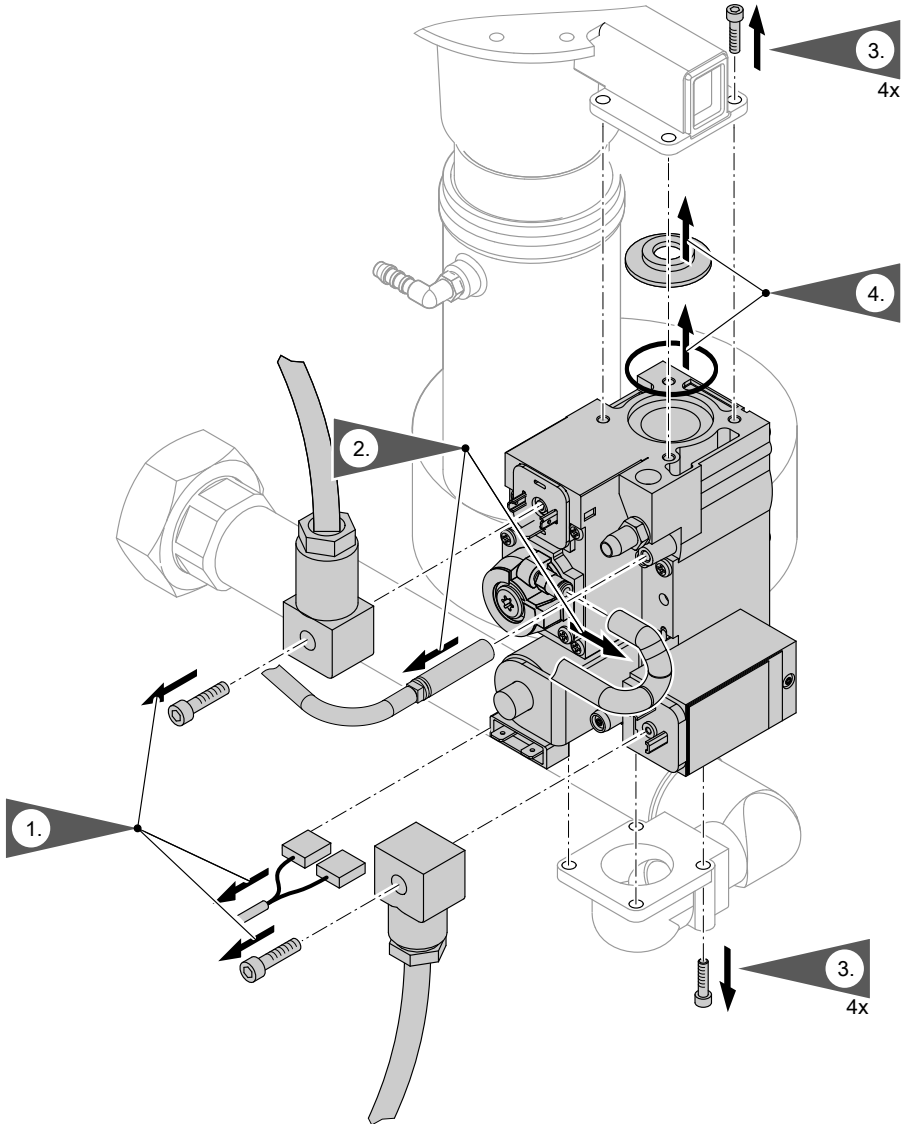
2. Insert the 2 fixing screws.



Burner service instructions

# Gas train

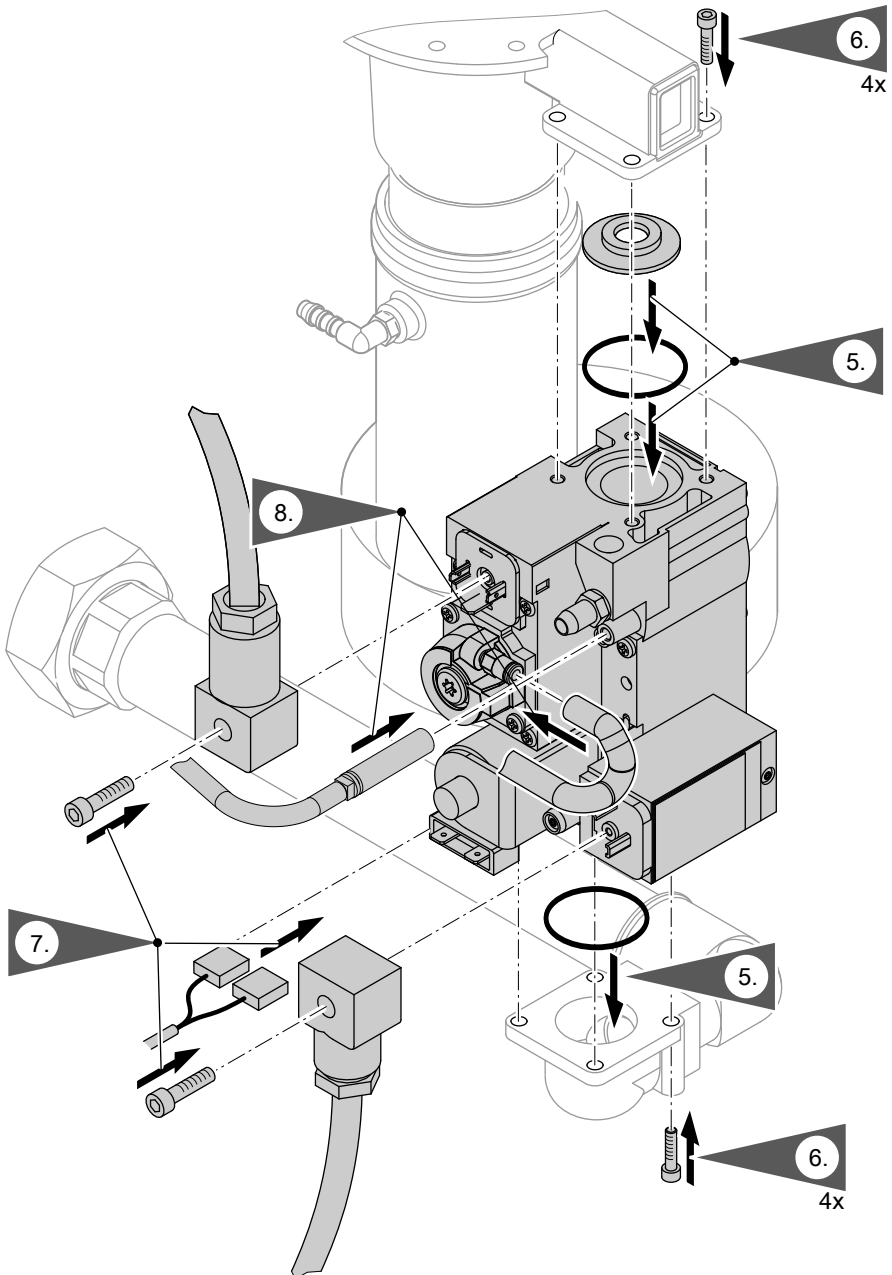
## Gas train for burner 87 kW



## Gas train (cont.)

1. Undo the two screws and pull the plugs from the gas train and gas pressure switch.
2. Pull off the air and compensation hose.
3. Undo the screws.
4. Remove the gas train between the connection flanges on the Venturi pipe and the gas supply pipe.

## Gas train (cont.)



## Gas train (cont.)

5. Replace the gaskets on the inlet and outlet sides.  
**For natural gas E:** Place the restrictor between the gas train and the Venturi pipe.
6. Secure the gas train with screws, tighten stress-free.
7. Attach the plugs to the gas train and gas pressure switch and secure with the two screws. Check for correct orientation when fitting.
8. Reattach the air and compensation hose.

9. For further assembly steps, see page 51.



### **Danger**

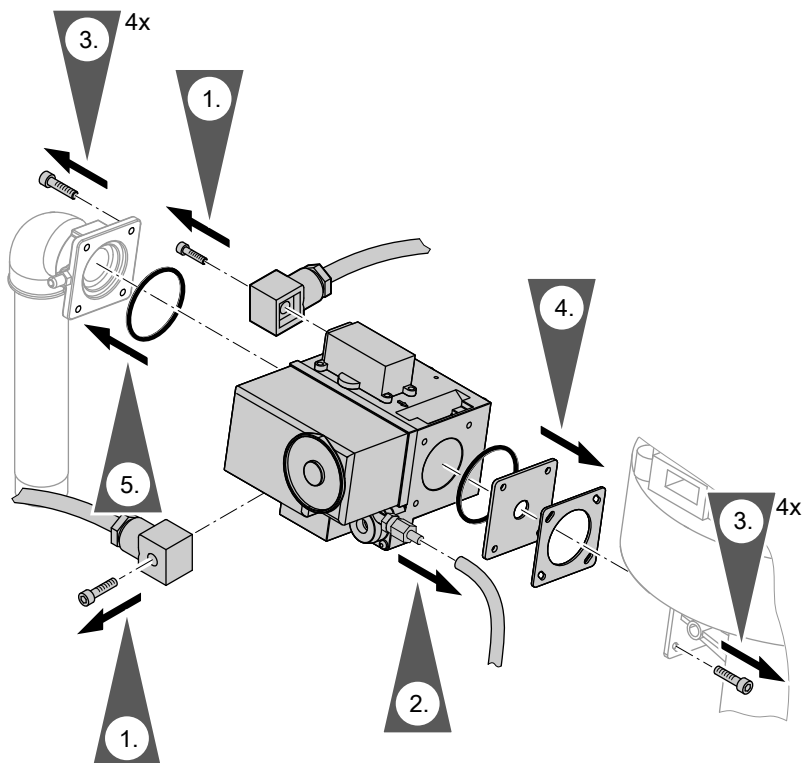
Escaping gas leads to a risk of explosion.  
Check the fitting for gas tightness.



### **Please note**

The use of leak detection spray can result in faulty operation. Leak detection spray must not come into contact with electrical contacts.

### Gas train for burner 115 to 311 kW

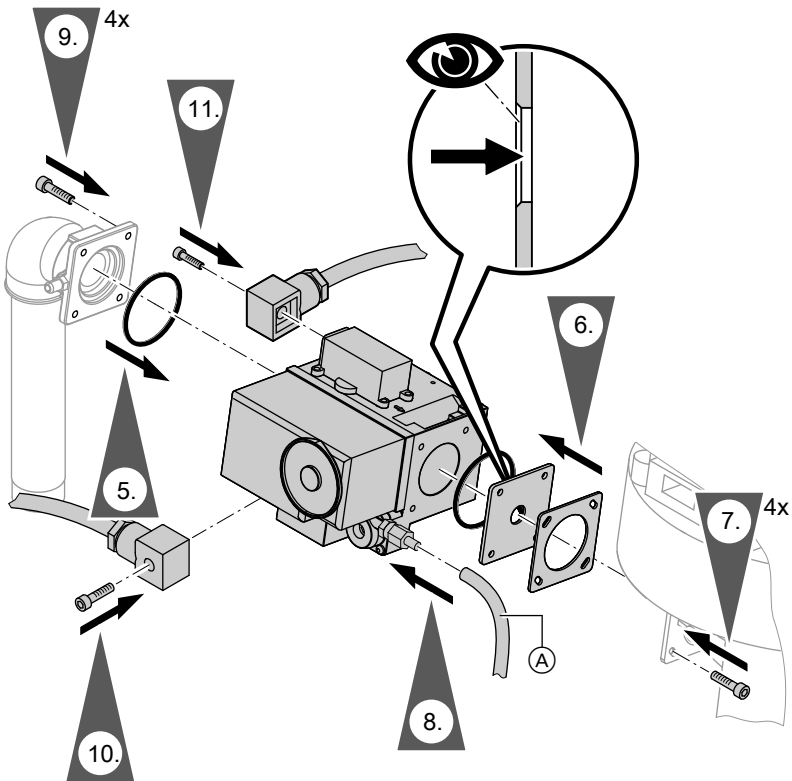


For an overview of the air and compensation hoses see from page 29.

1. Undo the plugs.
2. For 142, 186, 246 and 311 kW:
  - Pull compensation hose off the gas train.
  - For **open flue** operation (246 and 311 kW) remove the compensation hose, if fitted.
3. Undo the screws.
4. Remove gas train with gaskets between the flange and the Venturi pipe.
5. Replace gaskets of inlet flange.



## Gas train (cont.)



6. Replace gaskets on the outlet side.

**For natural gas E:** Insert the restrictor and rubber cork gasket between the gas train and the Venturi pipe.

7. Secure the gas train with screws, tighten stress-free.

8. Connect the compensation line to the gas train. For positioning of the air and compensation hoses see from page 29.

**For 246 and 311 kW:** For systems with **open flue** operation do not attach the end of compensation line (A). See fig. 21, page 31.



Information sheet 5548274

12. For further assembly steps, see page 51.

## Gas train (cont.)



### **Danger**

Escaping gas leads to a risk of explosion.

Check the fitting for gas tightness.



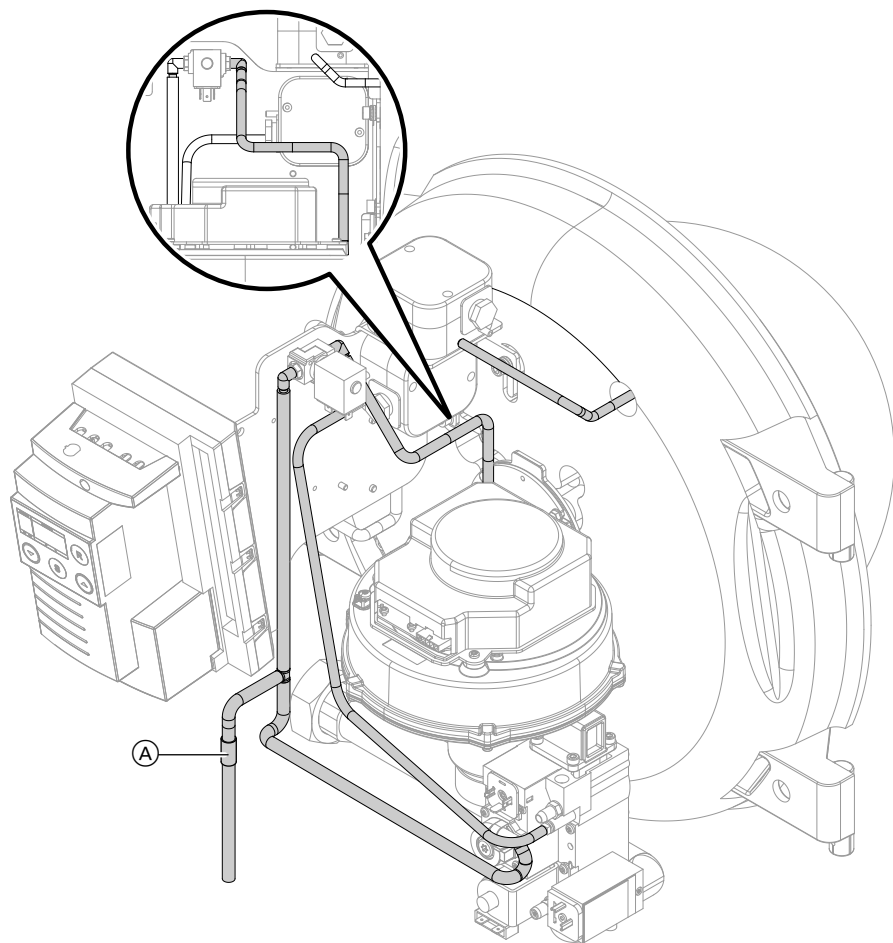
### **Please note**

The use of leak detection spray can result in faulty operation.

Leak detection spray must not come into contact with electrical contacts.

## Compensation hoses

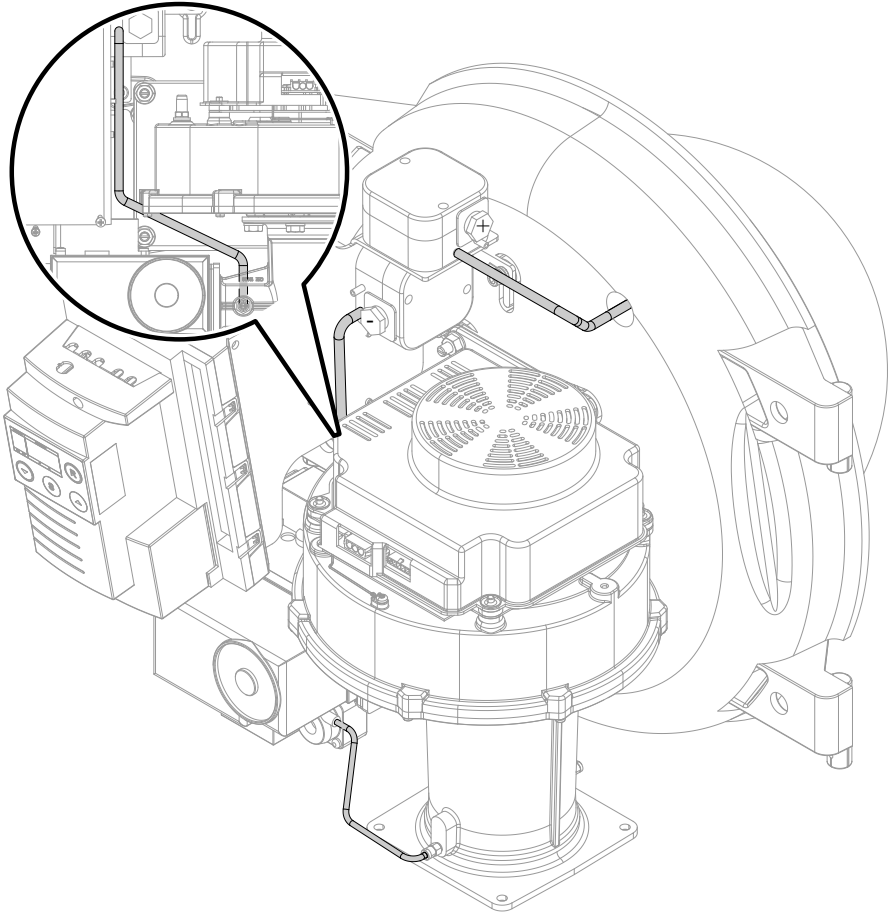
### Burner 87 kW



Ⓐ Enriching nozzle

## Compensation hoses (cont.)

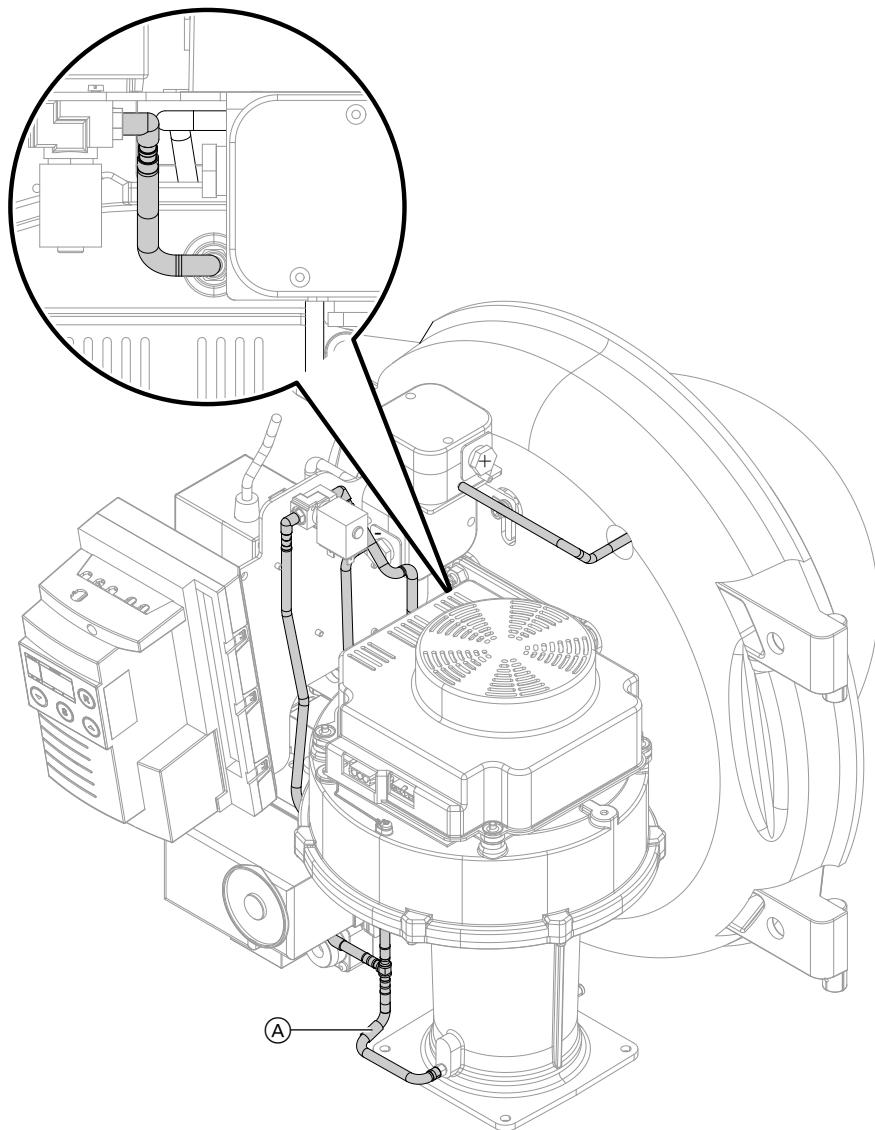
### Burner 115 kW



**Connector on fan**  
*Observe page 40.*

## Compensation hoses (cont.)

### Burner 142/186 kW



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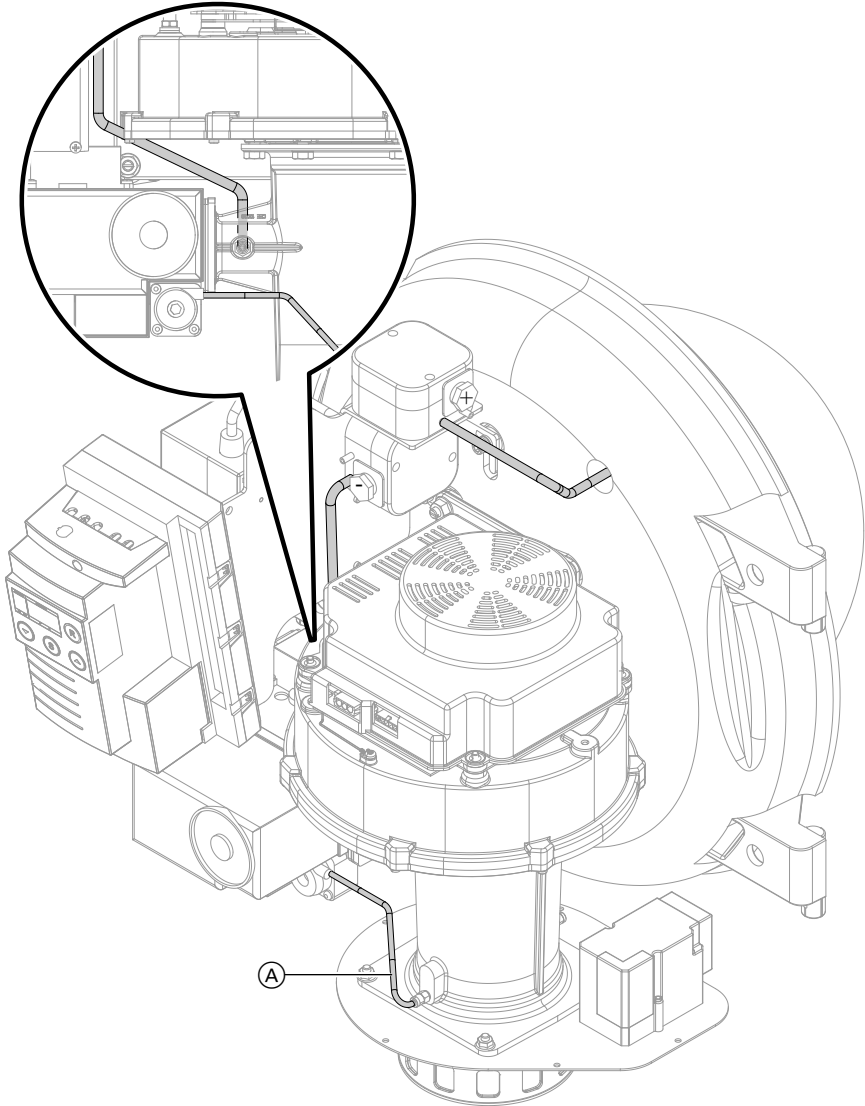
Ⓐ Enriching nozzle

## Compensation hoses (cont.)

**Connector on fan**  
*Observe page 40.*

## Compensation hoses (cont.)

### Burner 246/311 kW



5062833

#### **Open flue operation**

*In the event of poor start-up characteristics, remove compensation hose (A).*

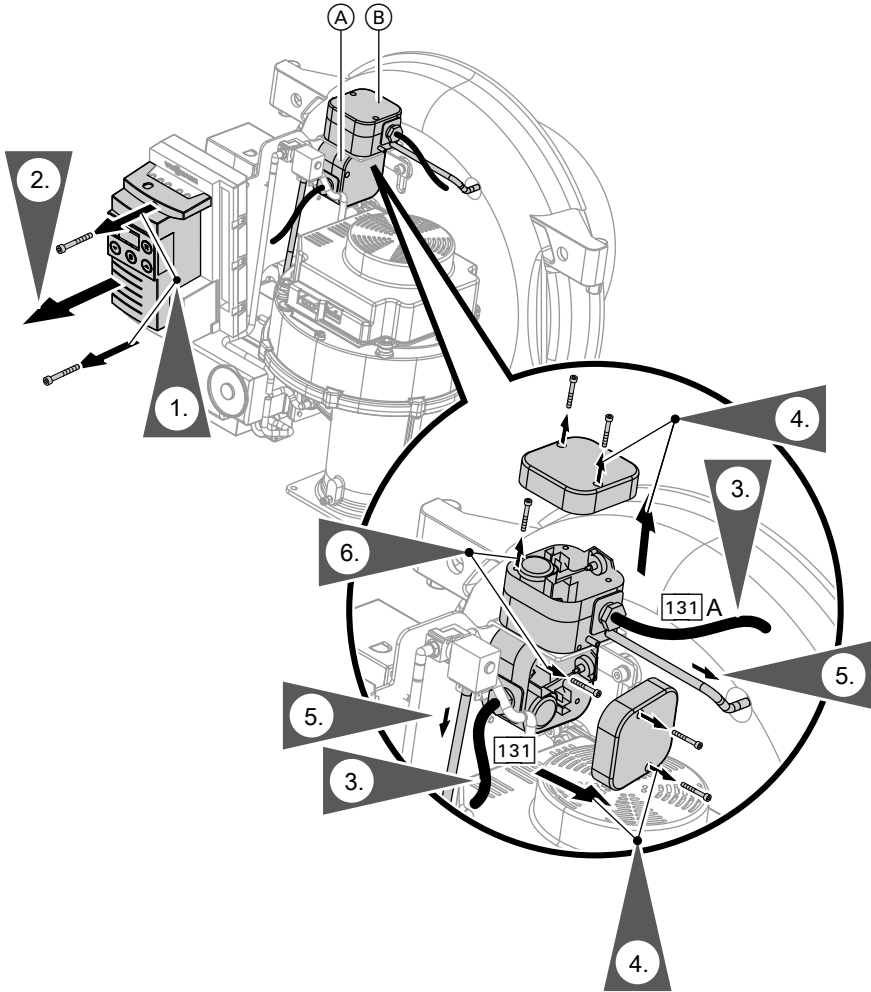
#### **Connector on fan**

*Observe page 40.*



## Air pressure switch

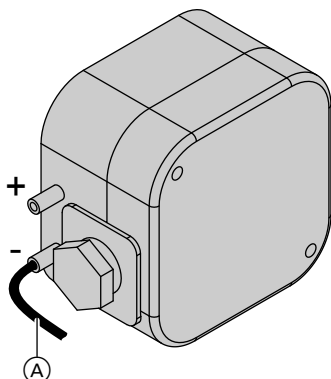
## Air pressure switch





## Air pressure switch (cont.)

- (A) Air pressure switch, Venturi (LDW1, connection hose on connector marked "-")



Observe +/- marking.

- (A) Compensation hose (example)
3. Pull plug 131 (LDW1) or plug 131A (LDW2) from the plug-in strip on the burner control unit.
  4. Undo the screws on the air pressure switch cover. Remove the cover.

- (B) Air pressure switch, combustion chamber (LDW2, connection hose on connector marked "+")

5. Pull the connection hose off the connector.
6. Undo the 2 base fixing screws and remove the base.
7. Install the new air pressure switch in reverse order.

### **Note**

*Attach the connection hose to the corresponding connector.*



Service instructions

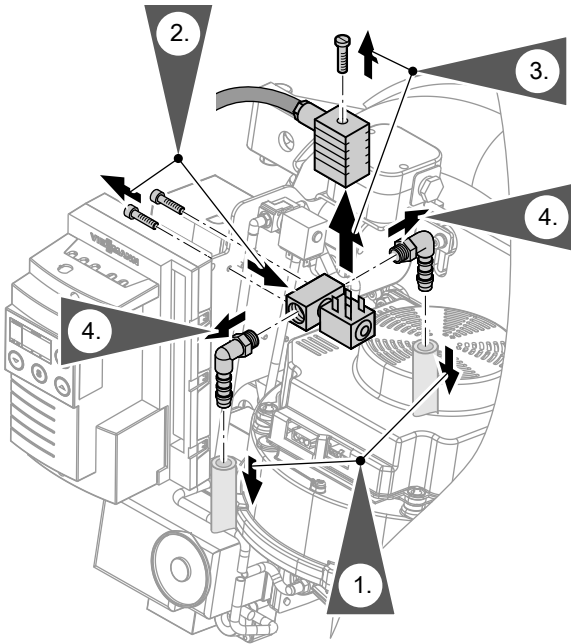
8. For further assembly steps, see page 51.

### **Note**

*Set the new air pressure switch to the value in the table of the service instructions.*

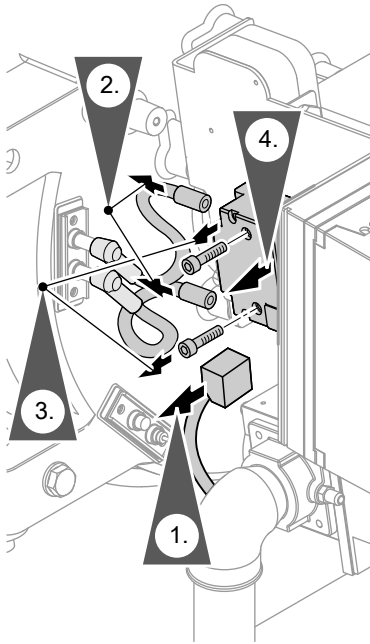
## Choke valve

Only for 87, 142 and 186 kW



1. Remove hoses.
2. Undo 2 screws and remove the valve, note the installation position.
3. Undo plug screw and pull off the plug.
4. Unscrew hose nozzles.
5. Install the new choke valve in reverse order.
6. For further assembly steps, see page 51.

## Ignition unit

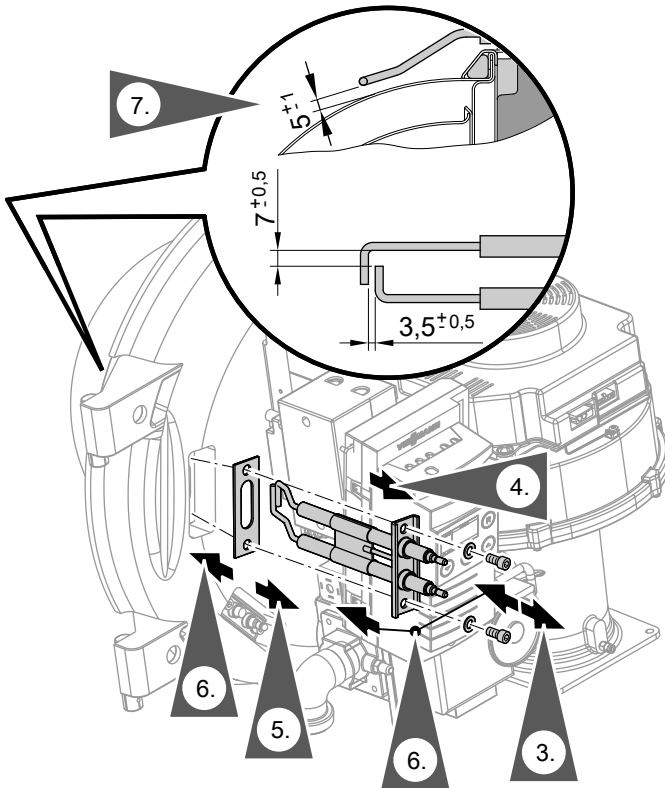


1. Pull the connecting cable off the ignition unit.
2. Pull the ignition cables off the ignition unit.
3. Undo the ignition unit fixing screws.
4. Remove the ignition unit.
5. Install the new ignition unit in reverse order.
6. For further assembly steps, see page 51.

## Ignition cables

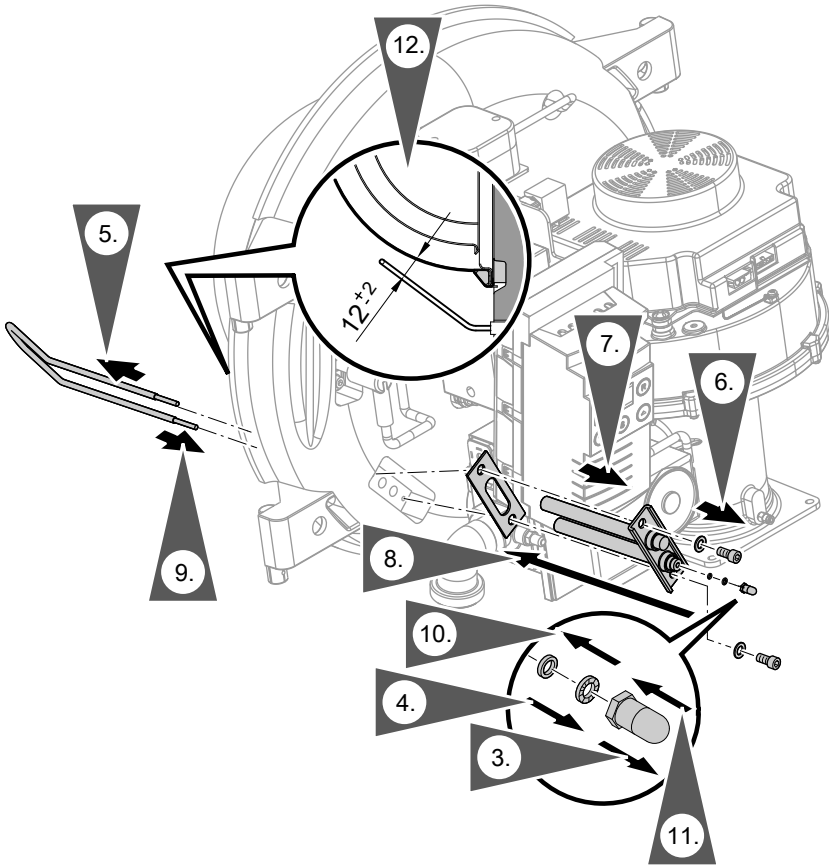
1. Pull the ignition cables off the ignition unit.
2. Pull ignition plugs from the ignition electrodes.
3. Install the new ignition cables in reverse order.
4. For further assembly steps, see page 51.

## Ignition electrode block



1. Undo 4 screws M 12 and open the boiler door.
2. Pull the ignition cables off the ignition electrodes.
3. Undo 2 screws on the retainer.
4. Remove the electrode block.
5. Replace the gasket.
6. Fit the new electrode block.
7. Check the adjusting dimensions of the electrodes.
8. Push the ignition plugs onto the ignition electrodes.
9. For further assembly steps, see page 51.

## Ionisation electrode block



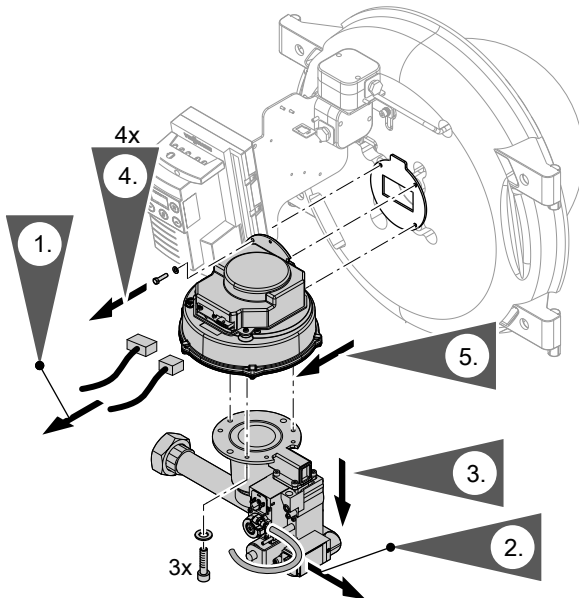
1. Undo 4 screws M 12 and open the boiler door.
2. Pull the connection plug from the ionisation electrode.
3. Undo the connector.
4. Remove the serrated lock washer and O-ring.
5. Remove the electrode by pulling it forwards.
6. Remove 2 screws.
7. Remove the electrode ceramic block.
8. Fit the new electrode ceramic block with new gasket.

## Ionisation electrode block (cont.)

9. Insert the electrode into the ceramic block.
10. Slot the O-Ring and serrated lock washer on.
11. Fit the connector.
12. Check the adjustment dimensions of the electrode and correct if required.
13. Push the connection plug onto the ionisation electrode.
14. For further assembly steps, see page 51.

## Fan

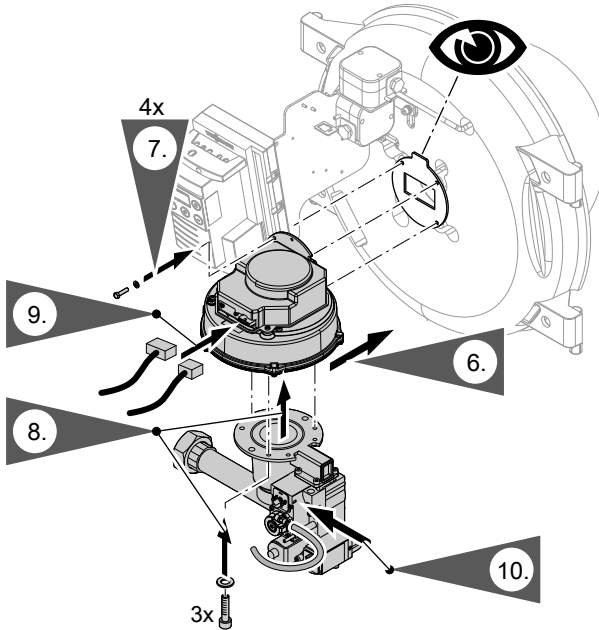
### Fan for burner 87 kW



1. Disconnect both plugs from the fan.
2. Pull the air hose off the fan.

## Fan (cont.)

3. Remove 3 screws on the Venturi pipe. Remove the Venturi pipe with fitted gas train.
4. Undo 4 hexagon nuts.
5. Remove the fan.



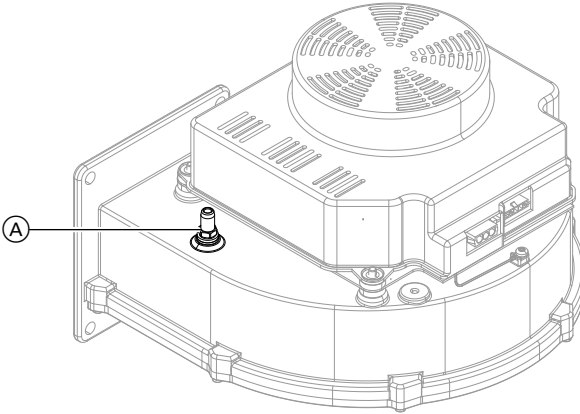
6. Fit the new fan with gasket.
7. Secure the 4 hexagon nuts.
8. Fit the Venturi pipe with fitted gas train using 3 screws.
9. Insert both plugs.
10. Attach air hose.
11. For further assembly steps, see page 51.

### **Note**

*Note position of the gasket, with flag pointing up.*

## Fan (cont.)

### Fan for burner 115 to 311 kW

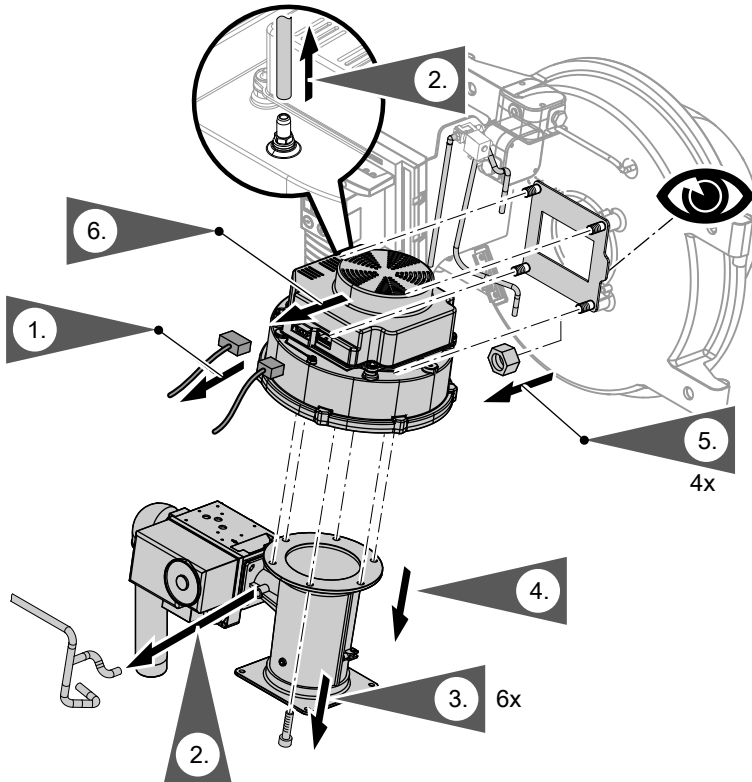


Ⓐ Connector with screw

- For 142 and 186 kW remove screw, attach hose. Check for leaks.
- For 115, 246 and 311 kW tighten the screw in the connector. Check for leaks.

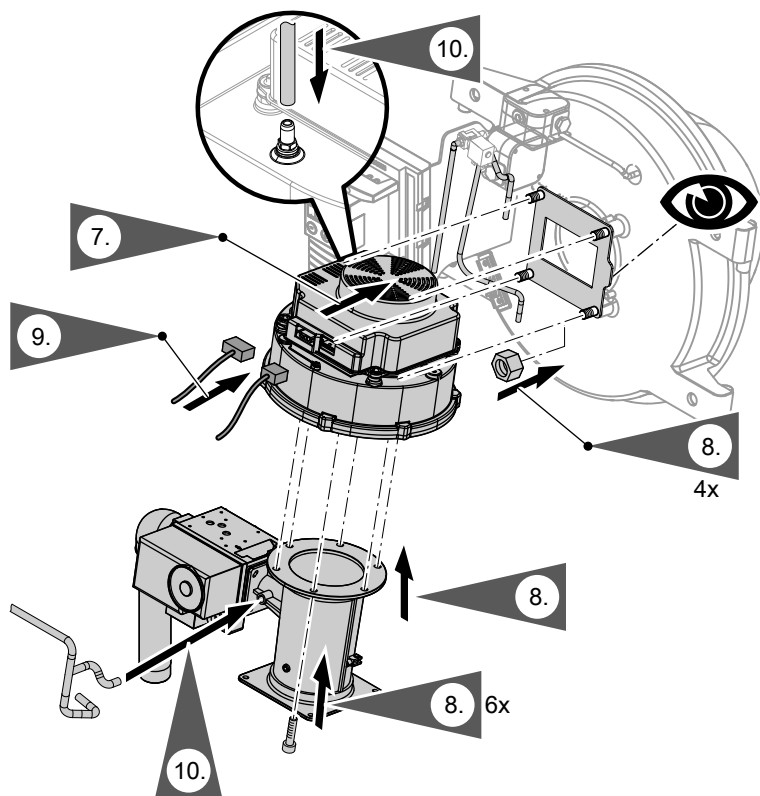


## Fan (cont.)



1. Disconnect both plugs from the fan.
2. Pull air hose off the fan and gas train. (Not applicable to 142 and 186 kW)
3. Remove 6 screws on the Venturi pipe.
4. Remove the Venturi pipe with fitted gas train.
5. Undo the hexagon nuts from the 4 studs.
6. Remove the fan.

## Fan (cont.)



7. Fit the new fan with gasket, pay attention to the positioning of the gasket.

### **Note**

*Ensure the gasket is positioned correctly.*

8. Attach the Venturi pipe with fitted gas train to the fan using 6 screws.
9. Insert both plugs.
10. Attach air hose to the fan and gas train. For output rating 142 and 186 kW, check whether the screw has been removed from the air connector.  
For output rating 115, 246 and 311 kW, check whether the screw in the air connector is tightened correctly. See Fig. 30.
11. For further assembly steps, see page 51.

## Fan (cont.)



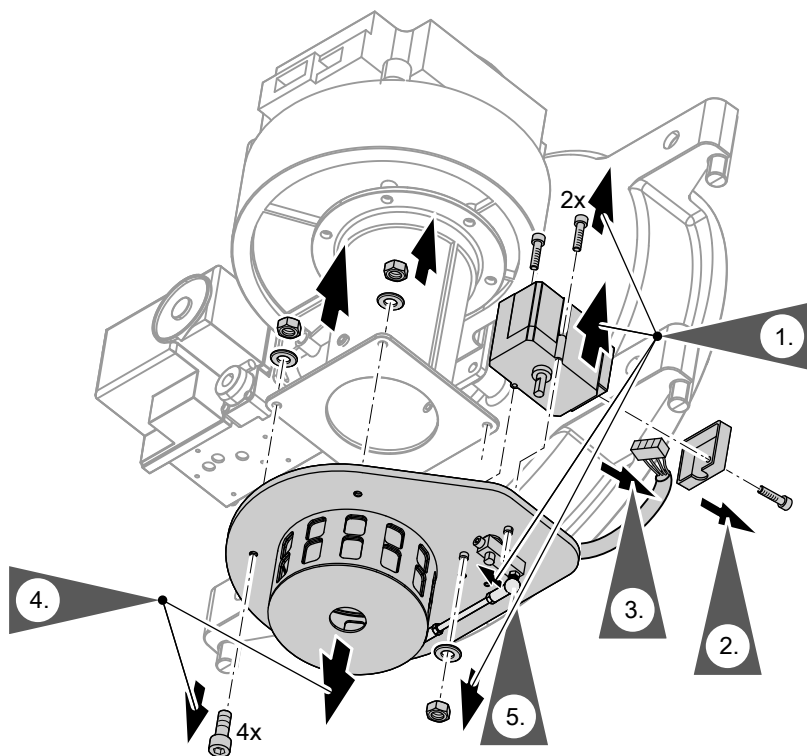
**Please note**  
If the air connector is not tight,  
gas/air mixture may escape.

Check the air connector for  
leaks.

## Rotary damper and servomotor

### Note

*Only burners with 246 and 311 kW  
rated heating output are equipped with  
a factory-fitted motorised rotary  
damper.*



## Rotary damper and servomotor (cont.)

1. Undo the screw on the axis of the servomotor. Undo 2 fixing screws of the servomotor.  
Remove the servomotor.

### Note

*On burners with room sealed operation also remove the cover with ventilation air hose.*

2. Undo the screw in the servomotor cover and remove the cover.
3. Pull connection plug with connecting cable off servomotor.
4. Undo 4 screws from the retaining bracket of the rotary damper.  
Remove rotary damper together with the retaining bracket.
5. Release the articulated rod on the rotary damper using a spanner (SW 7).

6. Install the new rotary damper and servomotor in reverse order.



### Please note

An incompletely opened rotary damper can cause malfunctions or indicate incorrect adjustment of the servomotor.

The rotary damper must be fully open during operation and when the burner is off. If required, adjust the rotary damper via the articulated rod.



Service instructions

7. For further assembly steps, see page 51.

## Burner gauze assembly and thermal insulation block



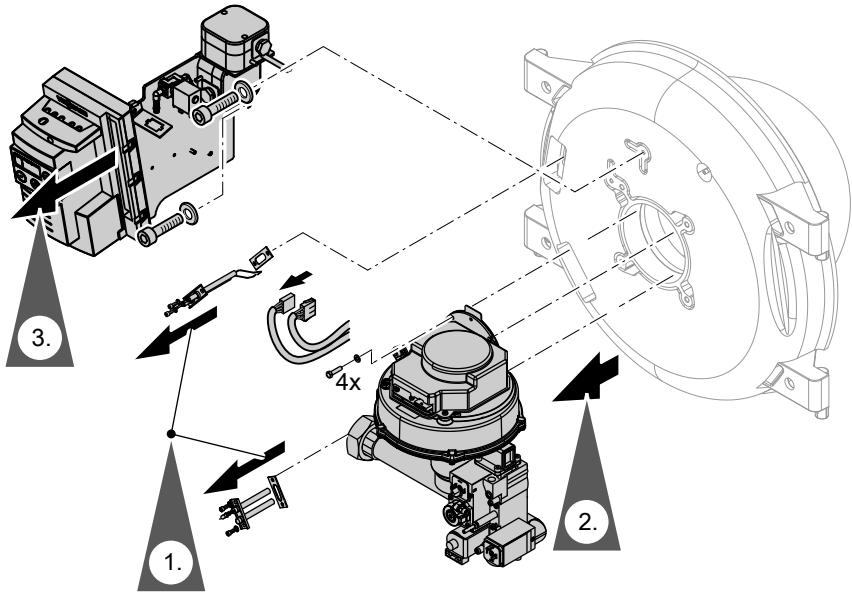
### Danger

When working with high temperature insulation materials that contain zirconium or aluminium silicate ceramic fibres, fibre dust may develop. This fibre dust can be harmful to health.

Only trained personnel may adjust or replace the insulation. Wear suitable protective clothing, especially breathing equipment and safety goggles.

## Burner gauze assembly and thermal insulation... (cont.)

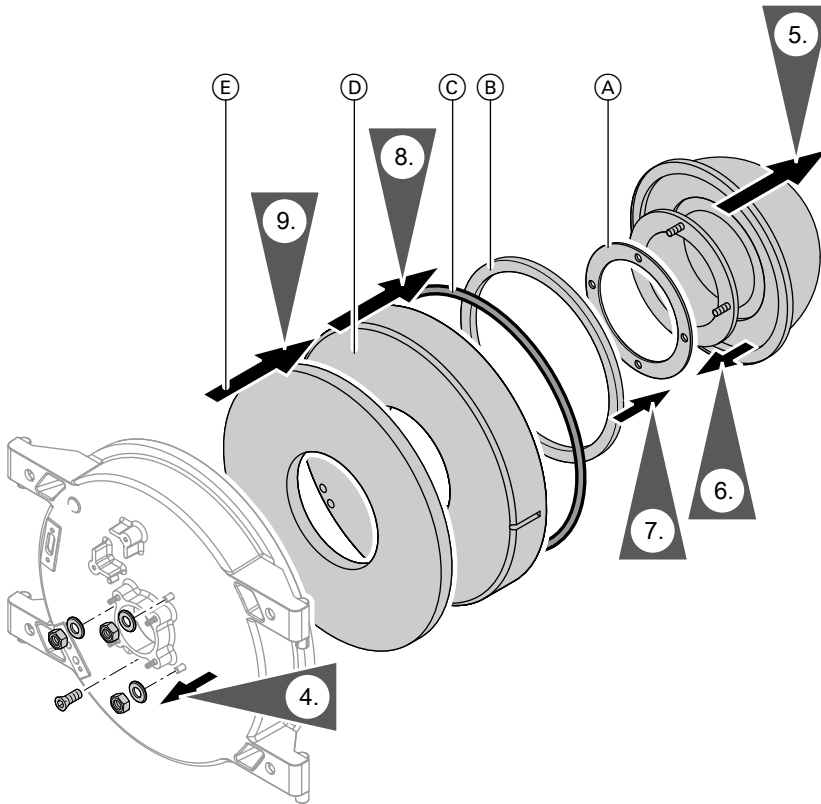
### Removal



1. See pages 36 and 37.

2. See page 38.

## Burner gauze assembly and thermal insulation... (cont.)



- (A) Burner gauze assembly gasket
- (B) Packing cord, burner gauze assembly
- (C) Packing cord, boiler door

- (D) Thermal insulation block
- (E) Thermal insulation mat

## Burner gauze assembly and thermal insulation... (cont.)



### **Danger**

When working with high temperature insulation materials that contain zirconium or aluminium silicate ceramic fibres, fibre dust may develop. This fibre dust can be harmful to health.

Only trained personnel may adjust or replace the insulation. Wear suitable protective clothing, especially breathing equipment and safety goggles.

4. **!**

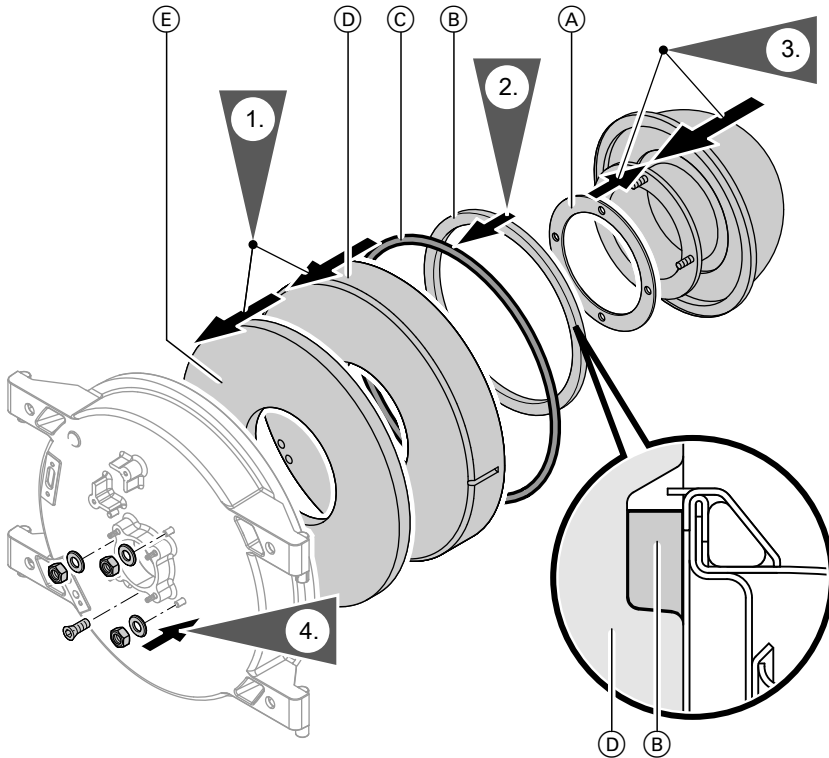
### **Please note**

Take care not to drop the burner gauze assembly as this could damage it.

Hold onto the burner gauze assembly when undoing the screws.

5. Carefully remove the burner gauze assembly.
6. Remove gasket (A) from the burner gauze assembly flange or boiler door and clean the sealing faces.

### Installation



- (A) Burner gauze assembly gasket
- (B) Packing cord, burner gauze assembly
- (C) Packing cord, boiler door

- (D) Thermal insulation block
- (E) Thermal insulation mat

1. Insert the thermal insulation mat and thermal insulation block in the boiler door.

2. Evenly apply adhesive to the groove in the boiler door. Lay packing cord (C) along the groove. Lay packing cord (B) along the inner groove of the thermal insulation block. Check for correct seating.

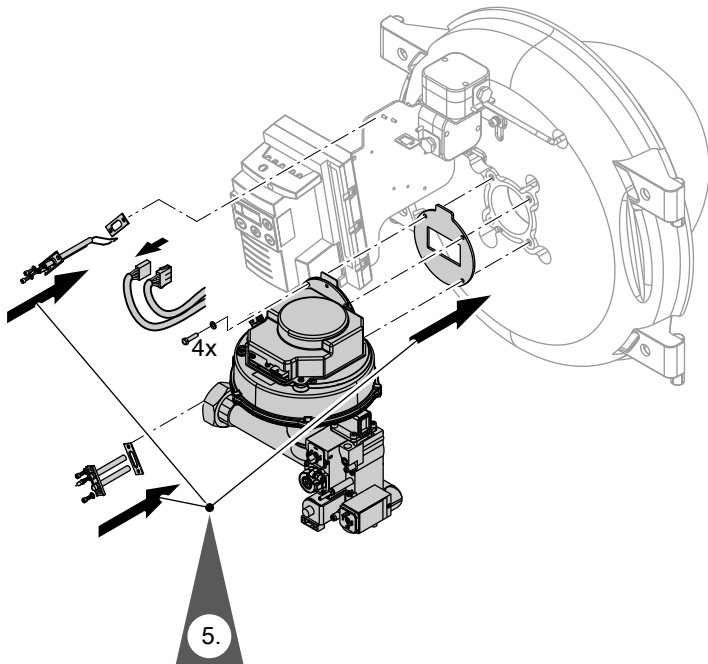


## Burner gauze assembly and thermal insulation... (cont.)

Secure the packing cord with adhesive tape if required. The wrapped joint of the packing cord must not be in the vicinity of a crimp location (recesses in the thermal protection ring of the burner gauze assembly).

3. Push the burner gauze assembly with new gasket (A) onto the boiler door (welded nut at bottom). Insert the burner gauze assembly.

4. Secure the burner gauze assembly with M 8 hexagon nuts and M 8 countersunk bolt with hexagon socket.  
Torque 10 Nm.



5. Refit the ignition and ionisation electrode block, fan and panel with burner control unit.

6. For further assembly steps, see page 51.

## Boiler door



### **Danger**

When working with high temperature insulation materials that contain zirconium or aluminium silicate ceramic fibres, fibre dust may develop. This fibre dust can be harmful to health.

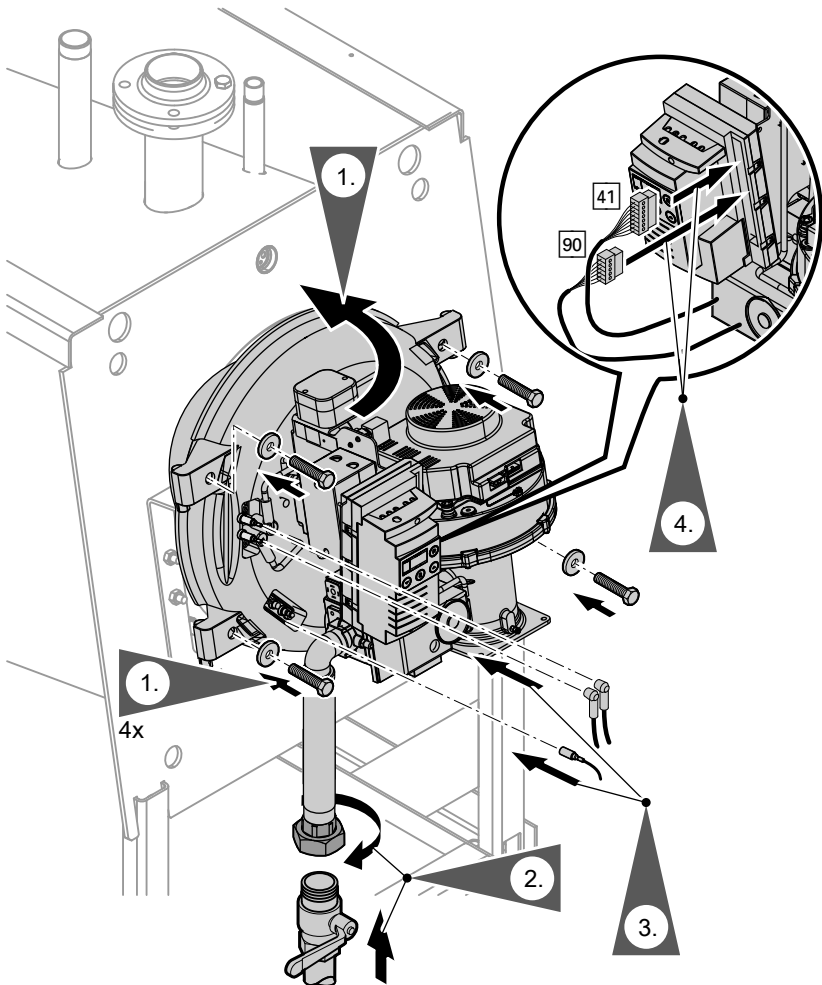
Only trained personnel may adjust or replace the insulation. Wear suitable protective clothing, especially breathing equipment and safety goggles.

Remove burner components, flame tube and gaskets from the boiler door. See Figs. 34 and 35.

Refit all components to the new boiler door. See Figs. 36 and 37.

For further assembly steps, see page 51.

## Further assembly and commissioning



1. If the boiler door is still open, close it. For this, insert 4 screws M 12 and tighten diagonally. Torque 18 Nm.

2. Fit the gas connection line.



### **Danger**

Escaping gas leads to a risk of explosion. Check the fitting for gas tightness.

## Further assembly and commissioning (cont.)



### **Please note**

The use of leak detection spray can result in faulty operation.

Leak detection spray must not come into contact with electrical contacts.

3. If not done yet, insert the electrode plugs.
4. Connect burner cables with plugs **41** and **90** to the burner control unit.

5. Start the burner and carry out a function test.



Burner service instructions

6. Mount the burner hood.

## Final decommissioning and disposal

Viessmann products can be recycled. Components and substances from the system are not part of ordinary domestic waste.

For decommissioning, isolate the system from the power supply and allow components to cool down where appropriate.

All components must be disposed of correctly.

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