

Propane Conversion kit instructions

Condensing gas boiler



6720615152-001.1TD

Required Input Rates

Logamax plus GB162-(L.B.)80 kW 270,000 btu/hr	Logamax plus GB162-(L.B.)100 kW 315,000 btu/hr
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This kit and instructions are for converting the GB162 model boilers from Natural Gas to Liquid Propane.

WARNING!

This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction.

The information in these instructions must be followed to minimize the risk of fire or explosion or to prevent property damage, personal injury or death. The qualified service agency is responsible for the proper installation of this kit.

The installation is not proper and complete until the operation of the converted boiler is checked as specified in the manufacturer's instructions supplied with the kit.

CAUTION!

The gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion.

Notice! Save these instructions for later use.

Logamax plus

GB162-80 kW

GB162-100 kW

GB 162-L.B. 80kW

GB 162-L.B. 100kW

For the contractor

Please read these instructions carefully

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1 Safety considerations

For use in Canada the conversion kit shall be carried out in accordance with the requirements of the provincial authorities having jurisdiction and in accordance with the requirements of the CAN/CGA-B149.1 and CAN/CGA-B149.2 Installation Code. See also E.I.V.

Please observe the following safety instructions.

1.1 Application purpose

This kit and instructions are for converting the Logamax plus GB162-(L.B.)80 kW/100 kW from Natural gas to Liquid Propane.

1.2 Hazard definitions

The following defined terms are used throughout the documentation to bring attention to the presence of hazards of various risk levels. Notices give important information concerning the operation of the product.



DANGER:

Indicates the presence of hazards that will cause severe personal injury, death or substantial property damage.



WARNING:

Indicates the presence of hazards that can cause severe personal injury, death or substantial property damage.



CAUTION:

Indicates presence of hazards that will out cause minor personal injury or property damage.



CAUTION:

Indicates presence of hazards due to electric shock.



Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

1.3 Observe the following warnings



DANGER:

due to explosion of gas.

- ▶ Work only on gas components when you have a license to do so.
- ▶ Note that the assembly of gas and vent connections, the initial start-up, the electrical connections, the maintenance and service can only be performed by a licensed service contractor or technician.



DANGER: Electric shock.

Live components are present inside the boiler.

- ▶ Isolate the electrical mains supply before working on the boiler.
- ▶ Lock-out the mains supplies to prevent accidental activation.

1.4 Additional symbols

Symbol	Function
▶	Sequence of steps
→	Cross-reference to other points in this document or to other documents
•	Listing/list entry
–	Listing/list entry (2nd level)

Tab. 1 Additional symbols

2 Parts list for converting the boiler to propane

Conversion kit propane for the GB162-80 kW/100 kW

7746900499 includes:

- assembly # 774601703A 1 ×
 - gas valve propane
 - venturi
 - orifice # 774600958A
- orifice # 871860872A (> 8.000ft.) 1 ×
- label 80 kW 1 ×
- label 100 kW 1 ×
- O-ring fan-venturi 1 ×
- sealing gas pipe 1 ×
- sealing gas flange 1 ×
- Torx key Tx25 1 ×
- Torx key Tx30 1 ×
- Torx screw 3 ×
- Screw M 5x12 thread 4 ×
- these instructions 1 ×

3 Liquid Propane conversion

To convert the boiler to liquid propane, the following instructions must be adhered to:



DANGER: Risk of explosion.

- ▶ Work on gas appliances must be carried out by competent registered personnel.



If the boiler is installed above 8,000 ft (2,440 m) altitude, the orifice needs to be changed with orifice 5.00" (1,97 mm) part nr: 871860872A.

3.1 Shut down the boiler

- ▶ Turn off the gas supply underneath the boiler.
- ▶ Switch off the boiler using the main switch (→ fig. 1, [1]).
- ▶ Disconnect the electrical power to the boiler.
- ▶ Set the thermostat or other operating control to lowest setting.

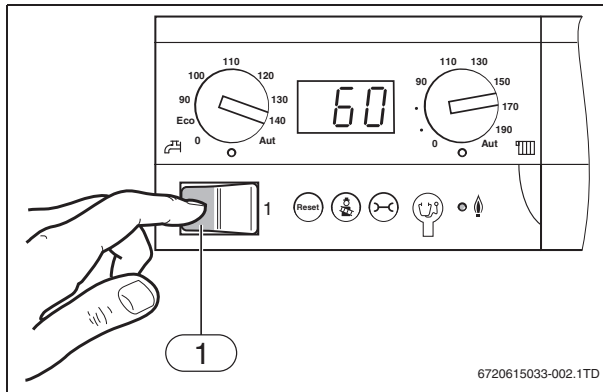


Fig. 1 Main switch

- ▶ Open the boiler door by turning the vent key through ¼ rotation anti-clockwise (→ fig. 2).

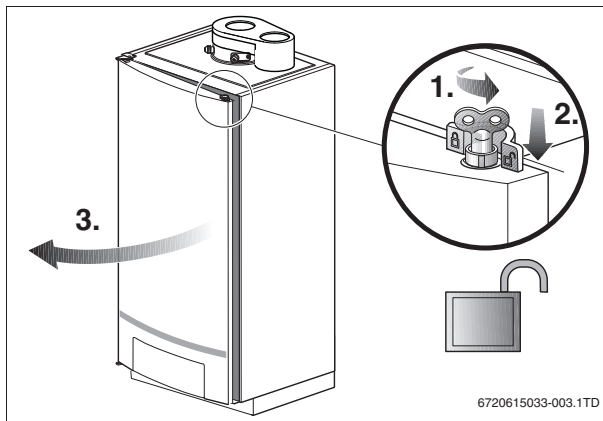


Fig. 2 Opening the boiler door

3.2 Changing the gas valve assembly

- ▶ Loosen the screw connection on the gas valve (→ fig. 3, [1]) and pull the plugs (→ fig. 3, [2]) from the gas valve.

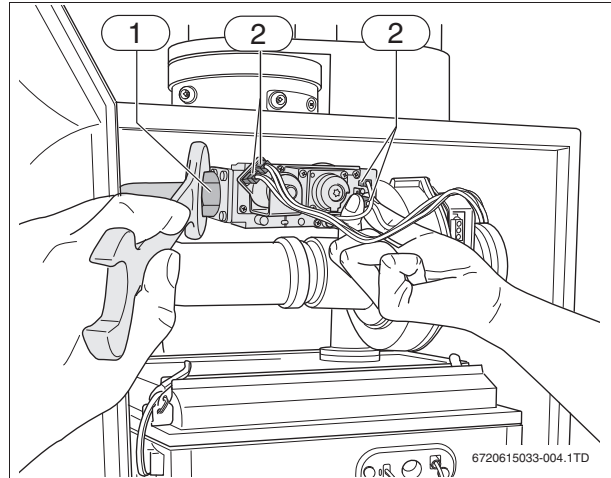


Fig. 3 Undoing the connections to the gas valve

- ▶ Pull both plugs from the fan unit (→ fig. 4, [1]).

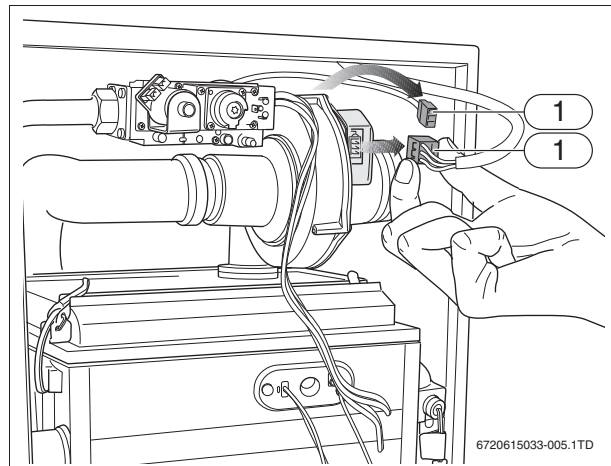


Fig. 4 Removing the connectors from the fan

- ▶ Pull the air suction tube from the fan (→ fig. 5).

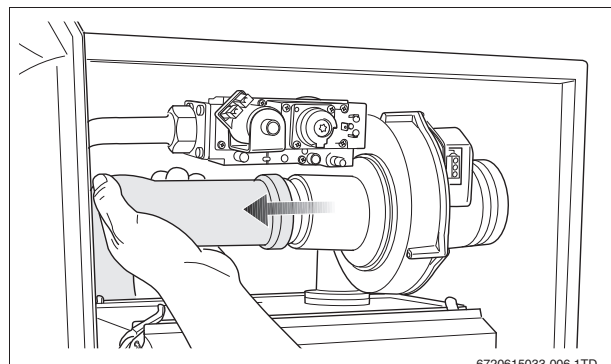


Fig. 5 Pulling the air suction tube from the fan

- ▶ Loosen both retaining clips on the burner cover (→ fig. 6).

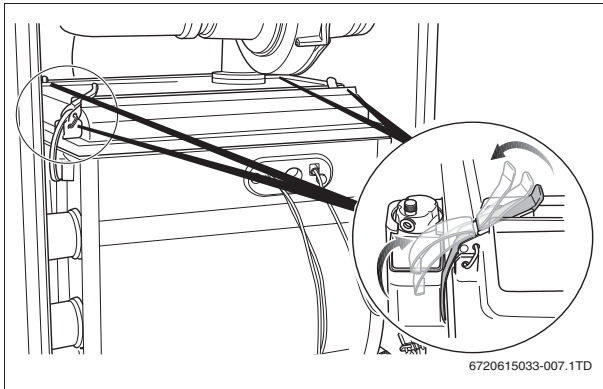


Fig. 6 Opening the retaining clips

- ▶ Remove the burner cover together with the fan unit and the gas valve (→ fig. 7).

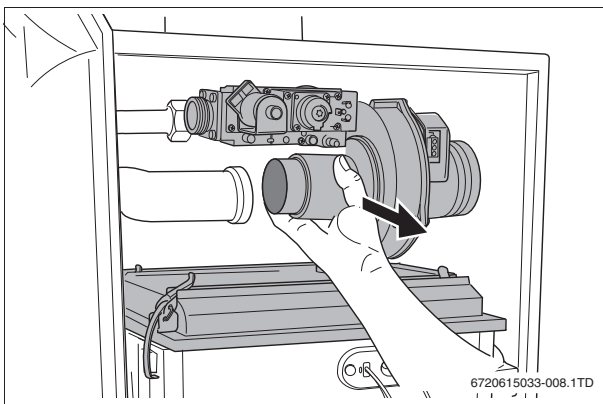


Fig. 7 Removing the burner cover with the gas/air unit

- ▶ Undo the 3 screws (→ fig. 8, [1]) and remove the gas valve with the venturi from the fan unit (→ fig. 8, [2]).

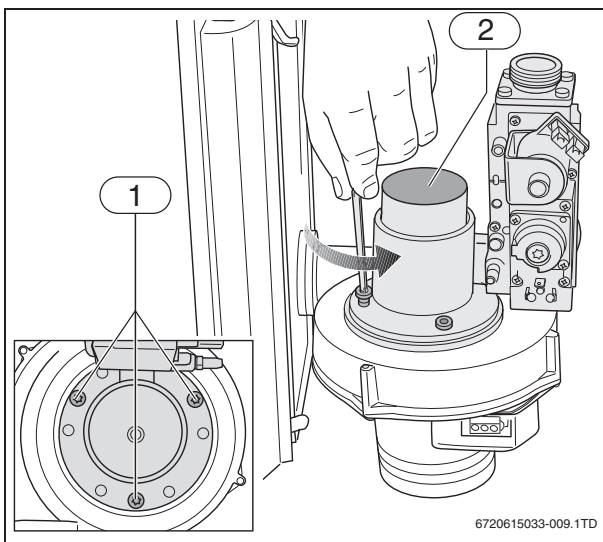


Fig. 8 Removing the screws and gas valve with venturi

- ▶ Take the gas valve and venturi from the conversion kit # 7746900499.
- ▶ If the boiler is installed above 8,000 ft (2,440 m) altitude, the orifice needs to be changed. Follow the instructions below. Otherwise, go to the next step
 - Undo the 4 screws (→ fig. 9, [1]) and remove the gas valve from the venturi (→ fig. 9, [2]).

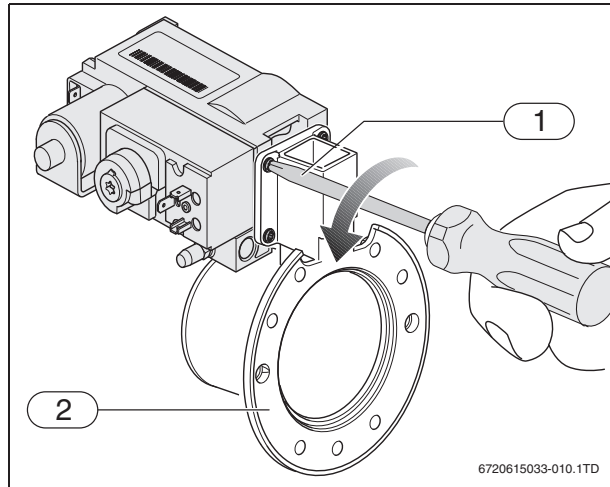


Fig. 9 Removing the gas valve

- Change the 4.70 (0.185") orifice for the 5.00 (0.197"), (→ table 2), (→ fig. 10).

Thermal power gas boiler	Type of gas supply	Altitude ft. (m)	Gas orifice diameter inch (mm)	Venturi article number
GB162-80 kW/100 kW	Natural gas	0-4,000 (0-10,200)	8.40(0.331)	73983
	LPG P	0-8,000 (0-2,440)	4.70(0.193)	7746900499
	LPG P	8,000-10,200 (2,440-10,200)	5.00(1,97)	871860872A

Tab. 2 Gas orifice diameter

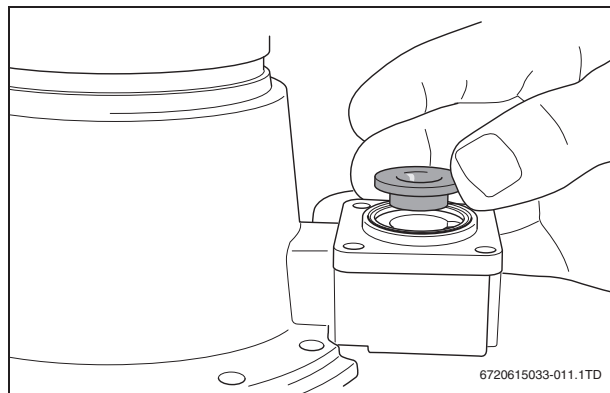


Fig. 10 Changing the orifice

- Install a new O-ring (→ fig. 11).

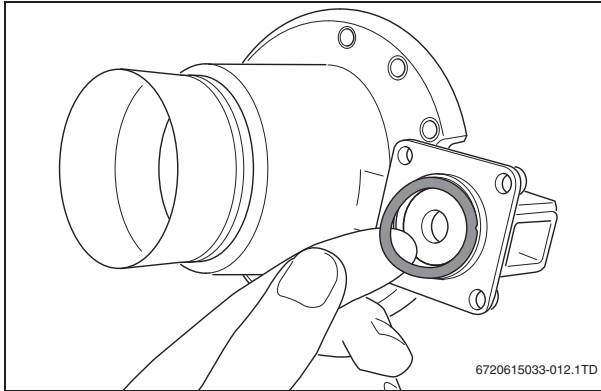


Fig. 11 Placing a new O-ring on the gas valve

- Install the venturi and gas valve of the conversion kit on the fan unit using a new O-ring (→ Fig. 11) and follow the instructions above in reverse order.

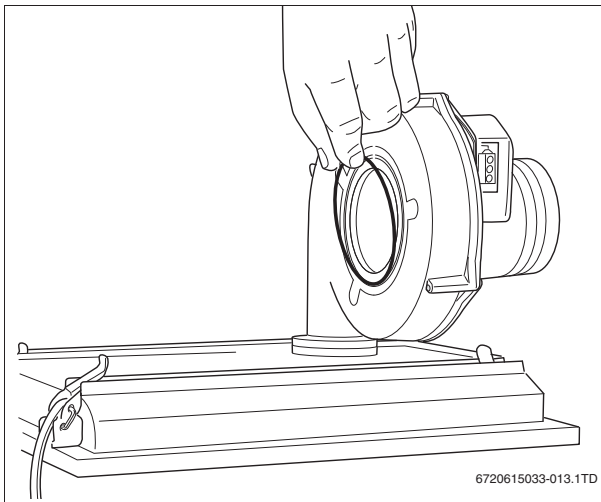


Fig. 12 Placing a new O-ring on the fan unit

- Install the gas flange from the natural gas assembly on the new gas valve (→ fig. 13, [1]).

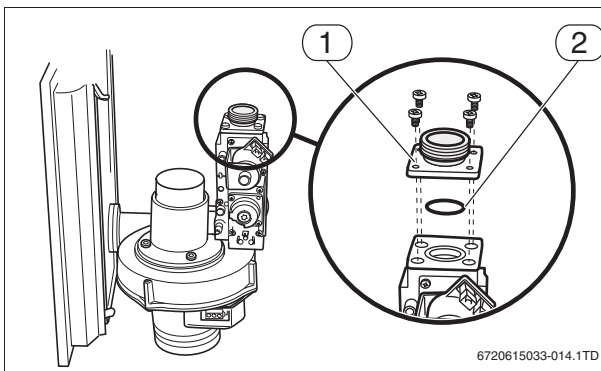


Fig. 13 Installing the gas flange

- Replace the seal under the gas flange with a new seal (→ fig. 13,[2]).

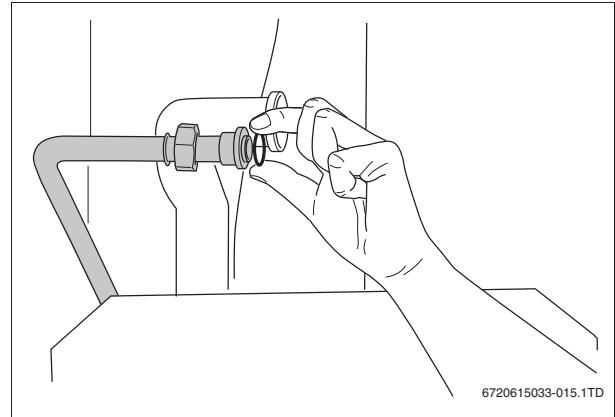


Fig. 14 Installing a new seal on the gas pipe

- Replace the seal from the gas pipe with a new seal (→ fig. 14).
- Refit all parts in reverse order. When re-installing the burner plate, make sure that the notch is on the right-hand side (→ fig. 15).

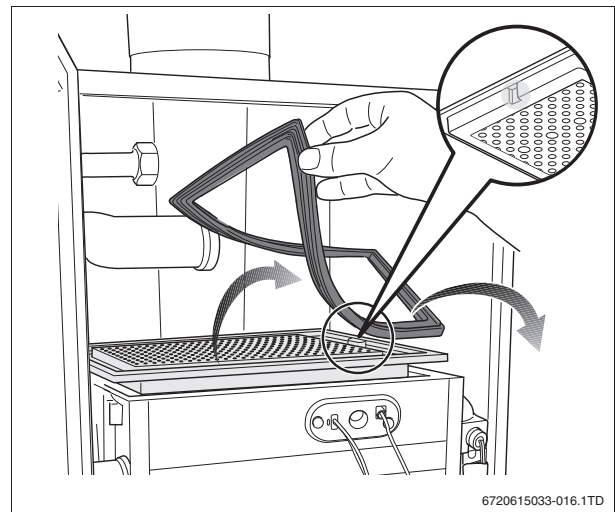


Fig. 15 Re-installing the burner plate

- Carry out the start-up activities and complete a new start-up report.
- Check all joints and gaskets affected by the installation activities while carrying out the tightness test in operating conditions.
- Place a new sticker underneath the existing rating plate sticker indicating the type of gas supply installed.
- Fill out the required information on the conversion label.
- Close the boiler door and lock the fastener by turning the vent key through 1/4 rotation in a clockwise direction.

3.3 Testing for gas leaks

Prior to start-up of the boiler you must check the external tightness of the gas supply valve and confirm this in the start-up report.

**DANGER:** Risk of explosion

- ▶ Check for leaks before working on gas-carrying components.

**CAUTION:**

due to a short circuit.

- ▶ Cover damageable parts before leak testing.
- ▶ Do not spray the leak detection agent onto cables, plugs or electrical connection lines. Do not allow it to drip onto them either.

- ▶ Disconnect the boiler from the power supply.
- ▶ Check the exterior tightness of new conduit sections up to and including the direct sealing point on the gas burner fitting. The maximum test pressure allowed on the input of the gas burner fitting is 60 " W.C. (150 mbar).
- ▶ Check the input rates after converting the boiler to LPG to the values on the front page.

3.4 Inlet gas pressure

**NOTICE**

- ▶ Contact the relevant gas utility company if the required inlet gas pressure is not available.
- ▶ Install a gas pressure regulator before the gas burner fitting if the supply pressure is too high.

- ▶ Open at least 1 thermostatic radiator valve if present to allow water to flow through the boiler. Do not switch on the boiler.
- ▶ Close the gas shut-off valve. Loosen the screw plug on the inlet gas pressure testing nipple by 2 turns (→ fig. 16, [1]).
- ▶ Connect the pressure gauge connection hose to the testing nipple (→ fig. 16, [2]).
- ▶ Slowly open the gas shut-off valve.

The boiler and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 60 " W.C. (150 mbar). The boiler must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 60 " W.C. (150 mbar).

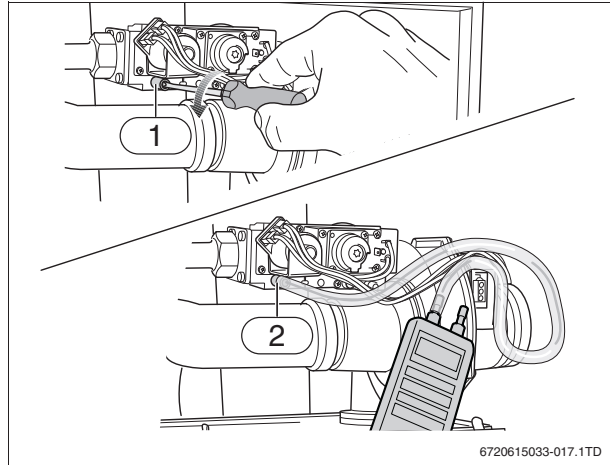


Fig. 16 Measuring the gas supply pressure

- ▶ Press on the control panel cover to open it.

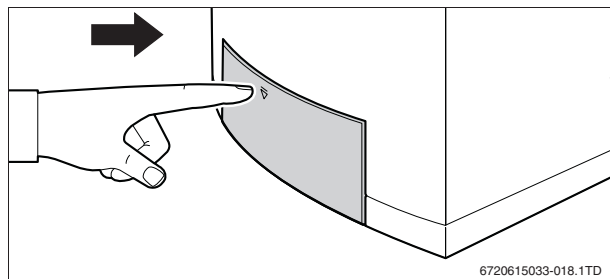





Fig. 17 Opening the control panel

- ▶ Switch on the boiler by setting the main switch to position "1" (→ fig. 1, page 5).
- ▶ Press the "Chimney Sweep"  button and hold it for approx. 2 seconds until the display shows a decimal point.
- ▶ Measure the gas connection pressure as soon as the "Burner" LED lights and enter this value in the start-up report.

The inlet gas pressure must be:

- for natural gas - min. 7.0 to 10.5 " W.C. (17.4 to 26.1 mbar), nominal supply pressure 8.0" W.C. (19.9 mbar).
- for LPG - min. 8.0 to 13.0" W.C. (19.9 to 32.3 mbar), nominal supply pressure 11.0" W.C. (27.4 mbar).
- ▶ Press repeatedly the "Service"  button until the temperature indication is displayed.
- ▶ Press the "Chimney Sweep"  button to end the measurement procedure.
- ▶ Close the gas shut-off valve.
- ▶ Remove the connection hose again and tighten the screw plug on the testing nipple.
- ▶ Open the gas shut-off valve again.

3.5 Checking and adjusting the gas/air ratio

- ▶ Switch off the boiler using the main switch.
- ▶ Loosen the screw plug on the measuring nipple for the burner pressure by 2 rotations (→ fig. 18 [1]).
- ▶ Set the pressure gauge to 0.
- ▶ Use a hose to connect the plus terminal of the pressure gauge to the burner pressure measuring nipple (→ fig. 18, [2]).

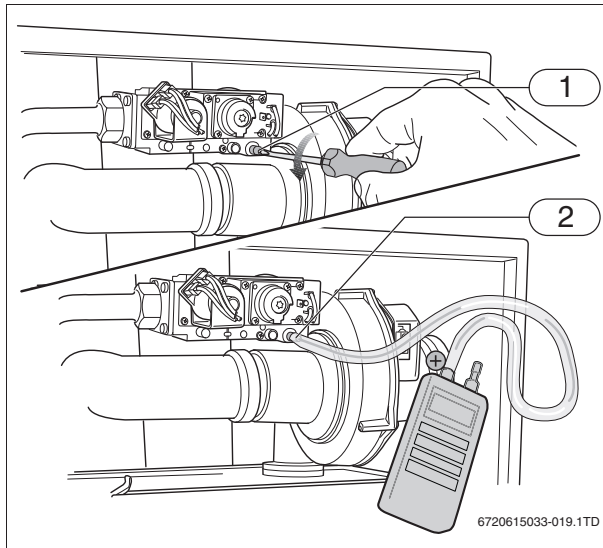


Fig. 18 Checking the gas/air ratio

- ▶ Switch on the boiler using the main switch.
- ▶ Press the “Chimney Sweep” button and hold it for approx. 2 seconds until the display shows the decimal point.
- ▶ Press and hold the “Chimney Sweep” and “Service” button, for approx. 5 seconds, until the display shows $L - -$ (e. g. $L 80$).
- ▶ Set the boiler to partial load (→ Tab. 3).

altitude ft. (m)	Display setting GB162-80 kW	Display setting GB162-100 kW
0-4,000 ft. (0-1,220)	$L 25$	$L 20$
4,000-10,200 (01,220-10,200)	$L 36$	$L 30$

Tab. 3 Partial load set.

- ▶ Pressing the “Chimney Sweep” button for higher values or the “Reset” button for lower values.
- ▶ Read out the differential pressure.
The differential pressure ($p_{Gas} - p_{Air}$) must be -0.04 " W.C. (-10 Pa) (± 0.02 " W.C. = ± 5 Pa)
(read-out on pressure gauge:
 $-0.06 - -0.02$ " W.C. = $-15 - -5$ Pa).
- ▶ Enter the value measured in the start-up report.

- ▶ Adjust the gas/air ratio, if not correct, using the adjustment screw (→ fig. 19, [1]). The adjustment screw is located behind the cover screw.

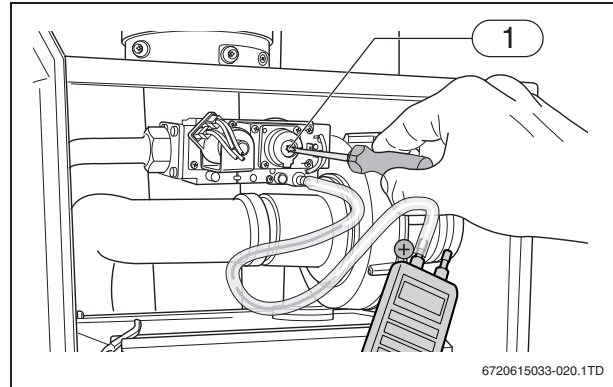


Fig. 19 Setting the gas/air ratio

- ▶ Press repeatedly the “Service” button until the temperature indication is displayed.
- ▶ Press the “Chimney Sweep” button until the decimal point is cleared from the display.
- ▶ Switch off the boiler using the main switch.
- ▶ Remove the measurement set-up, tighten the screw in the burner pressure measuring nipple.
- ▶ Switch on the boiler using the main switch.

3.6 Carrying out a tightness test in operating conditions

CAUTION:
due to a short circuit.

Cover damageable parts before leak testing.

▶ Do not spray the leak detection agent onto cables, plugs or electrical connection lines. Do not allow it to drip onto them either.

- ▶ Check all gaskets and joints in the burner gas circuit for leaks while the burner is operational, using a leak detection agent.

3.7 Measuring the CO content

- ▶ Measure the CO content on the flue gas sampling point (→ fig. 20, [1]).

The CO values in an air-free condition must be below 400 ppm or 0.04 vol. %.

Values of 400 ppm and up indicate that the burner adjustment may be wrong, the gas burner fitting or the heat exchanger are dirty or that there may be burner faults.

- ▶ Establish and resolve the cause.
The boiler must be operational when you do this.

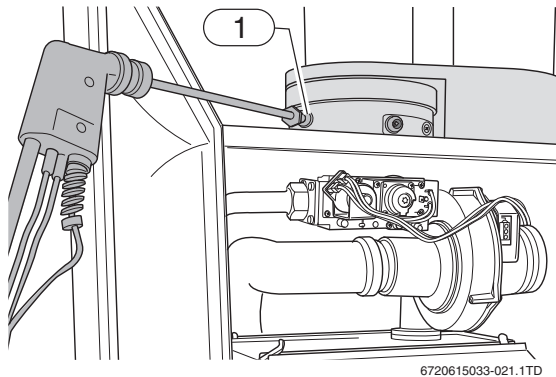


Fig. 20 Measuring the CO content

3.8 Lighting Instructions

For your safety, read before lighting.



DANGER:

What to do if you smell gas:

- ▶ No open fire! Do not smoke!
- ▶ Avoid formation of sparks! Do not touch any electric switch, phone, electric plug or bell!
- ▶ Shut off main gas supply.
- ▶ Open windows and doors!
- ▶ Notify all occupants
- ▶ Leave the building!
- ▶ Immediately call your gas supplier, heating contractor or fire department from a phone outside the building!



WARNING:

due to not following these instructions.

- ▶ If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.
- ▶ Follow these operating instructions.

This boiler is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

Check for smell of gas around the boiler area. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. Do not use this boiler if any part has been under water.

Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any gas control which has been under water.

4 Operating Instructions

Start up the boiler

STOP!

Read the safety precautions on page 10 of this manual.

- ▶ Wait 5 minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP and see the safety information on page 10. If you do not smell gas, go to the next step.
- ▶ Install the casing again.
- ▶ Open the gas shut-off valve.
- ▶ Set the thermostat or other operation control to desired setting.
- ▶ Connect the boiler to the power supply.
- ▶ Switch on the boiler using the main switch (→ fig. 21).

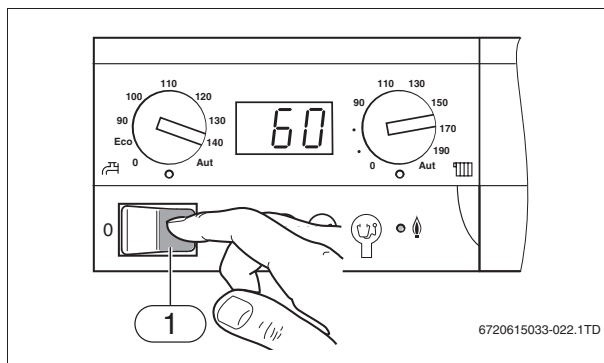


Fig. 21 Mains switch

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