

UPON COMPLETION OF THE INSTALLATION THE INSTALLER MUST INSTRUCT THE OWNER AND OPERATOR ON THE FUNCTIONALITY AND THE PROPER OPERATION OF THE BOILER AND THE HEATING SYSTEM.

INSTALLER MUST REVIEW ALL SAFETY INSTRUCTIONS WITH THE OWNER AND OPERATOR.

THIS MANUAL SHOULD BE HANDED TO THE QWNER AND OPERATOR OF THE APPLIANCE.

DANGER!

The installation instructions included in this Manual are intended solely for use by a trained and certified installer, service company or the gas supply company. If the information in this manual is not followed, a fire or explosion may result causing property damage, personal injury, or death.

- ▶ Have installation and service performed by a trained and certified installer or service company, or the gas supply company.
- ▶ Buderus recommends signing a service and maintenance contract with a trained and certified installer or service company that covers annual servicing and condition-based maintenance. Proper maintenance is a fundamental requirement for safe and efficient operation and long service life.
- ▶ The boiler must be serviced annually including the main burner, ignition burner, the entire venting system, and the combustion air supply. All parts that show any signs of damage or corrosion must be replaced.
- ▶ The owner and operator is responsible for the operational safety and regulatory compliance of the heating system.
- ▶ Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or death. Refer to this manual and consult a trained and certified installer or service company, or the gas supply company before installation, service or maintenance.



6 720 804 886-00.1T

Conversion Instructions

Logano G234X

Gas boiler

6 720 805 917 (2017/02) US/CA



Please read carefully before installing and servicing.

Buderus

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1 Safety considerations

1.1 Key to symbols

Warnings



Warnings in this document are identified by a warning triangle printed against a grey background. Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **NOTICE** indicates that property damage may occur.
- **CAUTION** indicates that personal injury may occur.
- **WARNING** indicates that severe personal injury may occur.
- **DANGER** indicates that severe personal injury or death may occur.

Important Information



Important information for the proper use of the boiler is also provided in this manual. You will find the information with a symbol shown on the left and bordered by horizontal lines above and below the text.

Additional symbols

| Symbol | Explanation |
|--------|--|
| ▶ | 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

1.2 Safety instructions

If you hear gas leaking

- ▶ Leave the building immediately.
- ▶ Prevent others from entering the building.
- ▶ Notify the police and fire department from outside the building.
- ▶ **From outside the building**, call the gas supply company and a trained and certified installer or service company.

If you smell gas

- ▶ Turn off the gas shut-off valve.
- ▶ Open windows and doors.
- ▶ Do not touch any electrical switch, telephone, and do not use outlets.
- ▶ Extinguish all open flames.
- ▶ Do not smoke.
- ▶ Do not use lighters.
- ▶ Warn all occupants of the building that they need to leave the building.
- ▶ Do not ring doorbells.
- ▶ Notify the police and fire department from outside the building.
- ▶ **From outside the building**, call the gas supply company and a trained and certified installer or service company.

If you smell flue gas

- ▶ Switch off the heating system by shutting off the emergency shut-off switch.
- ▶ Open windows and doors.
- ▶ Call a trained and certified installer or service company

DANGER: Risk of fatal injury from failing to consider your own safety

- ▶ Never risk your own life. Your own safety must always take the highest priority.

DANGER: Risk of fire when soldering and brazing

- ▶ Take appropriate protective measures when soldering and brazing around combustible and flammable material.

DANGER: Risk of personal injury or death from flue gas poisoning

- ▶ Do not install a thermostatic flue gas damper downstream of the draft hood.
- ▶ Do not tamper with, remove, or attempt to repair the blocked vent switch.
- ▶ When replacing the blocked vent switch, install the new part in the original location.
- ▶ A blocked vent switch tripping more than once indicates a problem with the venting system or chimney which must be repaired immediately.
- ▶ Ensure none of the vent pipes and chimneys are damaged or blocked.
- ▶ Connect only one appliance to each venting system or chimney.
- ▶ The venting system must not feed into or route through another air extraction duct.
- ▶ The venting system must be inspected annually. All parts that show any signs of damage or corrosion must be replaced.

DANGER: Risk of personal injury or death from explosion

- ▶ Work on gas components may only be carried out by a trained and certified installer or service company.
- ▶ Appliance installation, the connection of gas and vent piping, initial commissioning, electrical connections, and service and maintenance must only be carried out by a trained and certified installer or service company.

DANGER: Risk of personal injury or death from flue gas poisoning

- ▶ Never close off or reduce the size of the combustion air openings.
- ▶ The boiler must not be operated until any obstructions have been removed.

DANGER: Risk of personal injury or death from fire

- ▶ Do not use flammable or combustible material in the boiler room.
- ▶ It is recommended not to store any items within 16 inches (415 mm) of the appliance.

DANGER: Risk of personal injury or death from electric shock

- ▶ Before removing the front panel, disconnect the heating system from the electrical power supply by shutting off the emergency shutoff switch or the heating system circuit breaker.
- ▶ It is not enough to switch off the control panel. Power to the panel must be disconnected.
- ▶ Ensure that the power is not restored unintentionally by following proper lock out/tag out procedures.
- ▶ Only qualified electricians are permitted to carry out electrical work.

DANGER: Safety devices

- ▶ Never shut off safety valves.
- ▶ Hot water may escape from the safety valve at any time when the appliance is running.

DANGER: Risk of personal injury or death after a flood

- ▶ Do not attempt to operate an appliance if any part of it has been under water.
- ▶ An appliance that was subject to flooding must be replaced.

CAUTION: Appliance damage from contaminated combustion air

- ▶ Keep the combustion air free of corrosive substances, e.g. halogenated hydrocarbons from painting operations or beauty salons.
- ▶ Keep combustion air free from dust and lint, e.g. from laundry or agricultural operations.
- ▶ If clean room air is not available, fresh outdoor combustion air must be provided.

NOTICE: Risk of appliance damage from improper operation of the boiler

- ▶ Only use the boiler for its intended purpose.
- ▶ Only operate the boiler if it has been installed and maintained per the instructions provided in the Installation Manual.
- ▶ Do not attempt to operate an appliance if any part of it is not in working order or is damaged.
- ▶ Use only original spare parts. The use of parts not supplied by the manufacturer may cause damage to the boiler, other property and personal injury. Also, boiler damage caused by the use of unauthorized parts is not covered by the warranty.

NOTICE:

- ▶ The installation must comply with all applicable national, state, and local codes, rules, and regulations.
- ▶ The operator is responsible for the operational safety and regulatory compliance of the heating system.

NOTICE:

- ▶ Upon completion of the installation, these instructions should be handed to the owner and operator of the appliance.
- ▶ The installer must instruct the owner and operator on the functionality of the components and the proper operation of the boiler and the heating system.
- ▶ The boiler must be serviced annually including the main burner, ignition burner, the entire venting system, and the combustion air supply. All parts that show any signs of damage or corrosion must be replaced.

Conversion to a different gas type

- ▶ Before the heating system is converted to a different type of gas, the gas line must first be shut off and then the power to the heating system disconnected.

2 Product description

These instructions contain important information for the safe and proper conversion of the special gas-fired boiler Logano G234X from natural gas to propane.

The special gas-fired boiler Logano G234X is generally referred to below as a boiler.

These conversion instructions are intended for specialists, who – through their vocational training and experience – are knowledgeable in the handling of heating systems and oil/gas installations.

2.1 Correct use

This conversion kit and the accompanying instructions are for conversion of the special Model G234X gas-fired boiler from natural gas to propane.

Performance requirements

| Boiler size | Unit kW | Burner rating MBtu/hr |
|-------------|---------|-----------------------|
| G234X-38 | 46.9 | 160 |
| G234X-45 | 54.8 | 187 |
| G234X-55 | 66.8 | 228 |
| G234X-64 | 78.0 | 266 |

Tab. 2

2.2 Standards, regulations and directives



Observe all standards and guidelines applicable to the installation and operation of this heating system in your jurisdiction!

2.2.1 National regulations

The design and mode of operation of this boiler comply with the American National Standard ANSI Z21.13/CSA4.9, latest edition for Gas Fired Low Pressure Steam and Hot Water Boilers.

Other approvals and certifications are indicated by stickers on the boiler.

Installation of the boiler must comply with all applicable codes and regulations imposed by the national, Federal or local authorities and bodies. If no specific requirements are defined, the latest edition of the National Fuel Gas Code ANSI Z223.1/NFPA 54 must be complied with for all installations in the USA. Installations in Canada must comply with the latest edition of the Installation Code for Gas Burning Appliances and Equipment, CAN/CSA-B.149. The relevant authorities and regulatory bodies must be informed before installation starts.

Where required by local regulations, the system must comply with the American Society of Mechanical Engineers Safety Code for Controls and Safety Devices for Automatically Fired Boilers (ASME CSD-1).

Carbon monoxide detectors must be installed as specified by the local regulations. **The boiler must be serviced annually.**

2.2.2 Boiler operating conditions

Maximum boiler temperature: 210 °F (99 °C)

Maximum operating pressure: 58 psi (4 bar)

The hot water heating system must comply with all applicable codes and regulations. If an existing boiler is replaced, the complete hot water

pipng system must be inspected to ensure that it is in suitable condition to ensure safe operation.

2.3 Package contents

| Qty | Designation |
|-----|--|
| 1 | Honeywell gas solenoid valve conversion kit # 393 691, comprising: <ul style="list-style-type: none"> • Black safety screw • Pressure adjustment screw • Red spring • Yellow label for gas valve |
| 1 | BBR 12 ignition gas pilot nozzle |
| 1 | Main gas orifices and gaskets |
| 1 | Unit label (to be filled out and attached to the unit) |
| 1 | Technical documentation |

Tab. 3 Included items

- ▶ Upon delivery, check that the packaging is undamaged.
- ▶ Check the delivery for completeness.

3 Converting the heating system to propane



DANGER: Risk of fatal injury from electric current when appliance is opened up!

- ▶ Before opening the boiler, disconnect it from the power supply by means of the emergency shutoff switch or the relevant circuit breaker in the main fuse board.
- ▶ It is not sufficient just to switch off the control panel.
- ▶ Take measures to ensure that the heating system cannot be switched on unintentionally.



DANGER: Risk of fatal injury from the explosion of flammable gases!

- ▶ Operations on the gas pipes may be carried out only by a properly licensed gas contractor.
- ▶ Wait five (5) minutes until all remaining gas has dissipated.
- ▶ Check whether there is any smell of gas, including at floor level.
- ▶ If the smell of gas is noticed, check that the gas shut-off is closed.
- ▶ Repeat the odor test.



WARNING: Risk of fatal injury from failing to follow the conversion instructions.

- ▶ Please use the closed instructions for the conversion.



WARNING: Risk of death from fire or explosion.

- ▶ Never use force to operate the ON/OFF knob (→ Fig. 2).
- ▶ Always turn the ON/OFF knob by hand.
- ▶ Never use tools to turn the knob.
- ▶ If the knob will not turn by hand, don't try to repair it.
- ▶ Contact Buderus Technical Service.

3.1 Shut down the boiler

- ▶ Close main gas shut-off.
- ▶ Disconnect heating system from the power supply.

3.2 Removing the boiler front panel

- ▶ Remove the locking screws [1] on the left and right sides from the bottom of the boiler front panel.
- ▶ Raise the boiler front panel [3], then lift it up and forward.

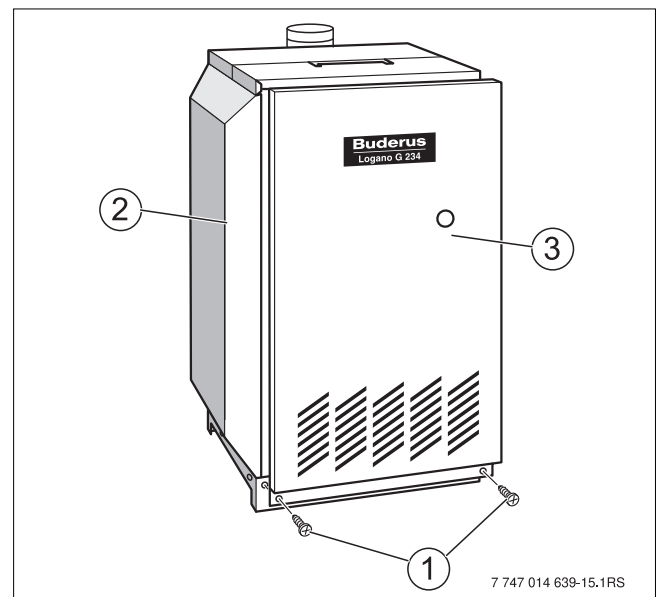


Fig. 1 Remove boiler front panel

- [1] Locking screws
- [2] Boiler jacket
- [3] Boiler front panel

- ▶ Turn the gas valve ON/OFF knob [1] clockwise to the OFF position. Do not use force.

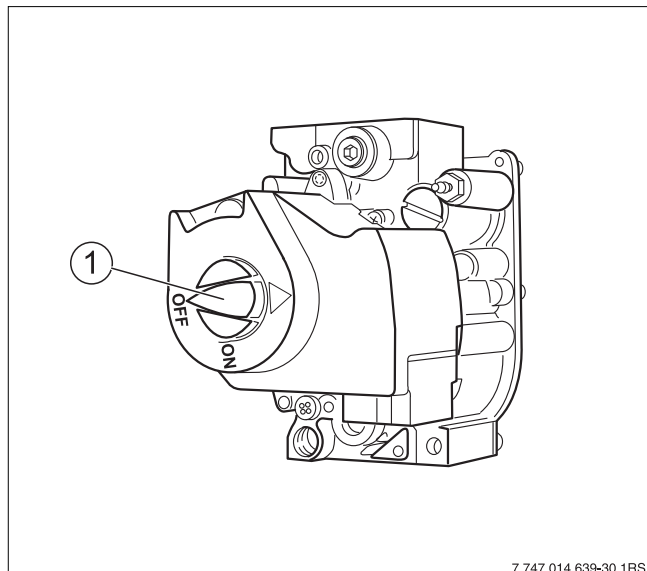


Fig. 2 Gas valve

- [1] ON/OFF knob (in OFF position)

3.3 Converting the burner

3.3.1 Prepare the gas valve

- ▶ Remove the safety screw for the orifice pressure adjustment [1] from the gas valve.
- ▶ Remove orifice pressure adjustment screw [2].
- ▶ Remove the stainless steel spiral spring [3].

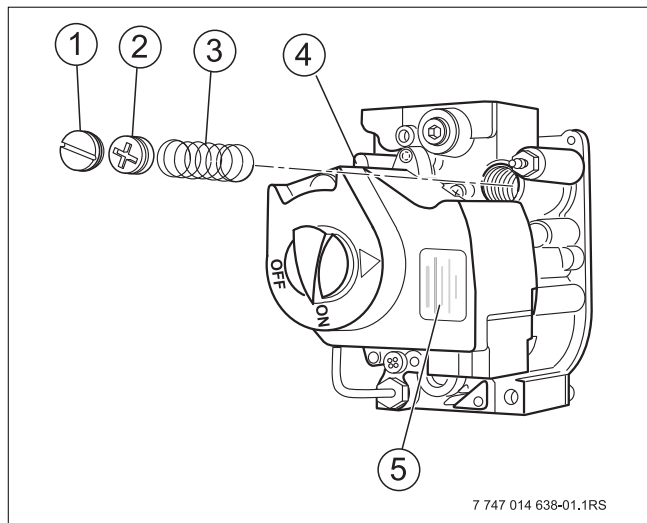


Fig. 3 Gas valve

- [1] Safety screw
- [2] Orifice pressure adjustment screw
- [3] Stainless steel spiral spring
- [4] Gas valve
- [5] Yellow label

- ▶ Install the red spring from the Honeywell LP conversion kit in the gas valve.

- ▶ Screw in the new orifice pressure adjustment screw from the Honeywell LP conversion kit until it is flush with the top of the gas valve.
- ▶ Then turn the orifice pressure adjustment screw six full revolutions clockwise. This corresponds to a pressure preset of approx. 10.0 inch W.C. (25 mbar).



This setting must be checked with a pressure gauge on completion of the conversion.

- ▶ Install new black safety screw from the Honeywell LP conversion kit.
- ▶ Clean the gas valve casing.
- ▶ Apply yellow label (→ Fig. 3, [5]) from the Honeywell LP conversion kit in a readily visible location.

3.3.2 Removing the burner

- ▶ Disconnect pilot gas pipe [6] from the gas valve [7].
- ▶ Disconnect ignition cable [3] from burner control unit.



DANGER: Risk of fatal injury from electrical shock in the event of incorrectly connected wiring!

- ▶ Label all connection cables before disconnecting them.

- ▶ Label wires of flame roll out switch [4] and disconnect from the switch [5].
- ▶ Disconnect connection lines to the gas valve [8].
- ▶ Tie gas line [2] with wire or cord (secure).
- ▶ Unscrew retaining screws [1] on gas feed line and on burner.

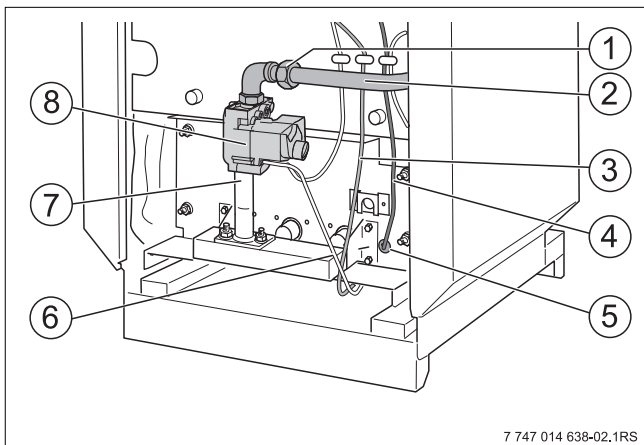


Fig. 4 Remove the burner

- [1] Retaining screw on the gas feed line
- [2] Gas supply line
- [3] Ignition cable
- [4] Connection lines to the flame baffle
- [5] Roll-out switch
- [6] Pilot gas line
- [7] Connection cables to the gas valve
- [8] Gas valve

- ▶ Check the gasket on the gas supply line for damage.
- ▶ Replace damaged gasket.
- ▶ Keep the gasket in a safe place.

- ▶ Loosen retaining nuts [1] on the burner shield.

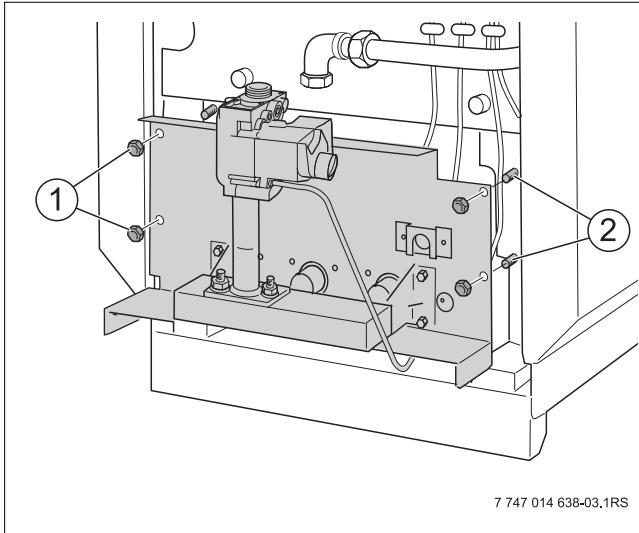


Fig. 5 Removing the burner

- [1] Retaining nuts
- [2] Spacer ring

- ▶ Pull the burner out straight.
- ▶ Make sure that the spacer rings [2] remain on the studs.

3.3.3 Converting the burner

- ▶ Install the new main gas orifices and copper gasket.
- ▶ Ensure that the correct orifices for operation of the boiler are installed (→ Tab. 4).

| G234X | Orifice Size | Number |
|-------|--------------|--------|
| 38 | 2.20 | 3 |
| 45 | 2.40 | 3 |
| 55 | 2.30 | 4 |
| 64 | 2.45 | 4 |

Tab. 4 Size and number of orifices for propane



The orifice sizes in Tab. 4 are for installations between 0 - 8500 feet (0 - 2590 m) above sea level. Contact Buderus if your installation is above 8500 feet (2590 m) above sea level. Do not attempt to restrict the gas flow to the boiler without the approved Buderus parts and relevant technical documentation for conversion.

- ▶ Unscrew pilot burner unit [1] from gas burner.
- ▶ Disconnect pilot gas line [3] from pilot burner unit.
- ▶ Remove pilot orifice [2].
- ▶ Place the new pilot orifice BBR 12 in the pilot burner unit.
- ▶ Screw the pilot line [3] to the pilot burner unit.

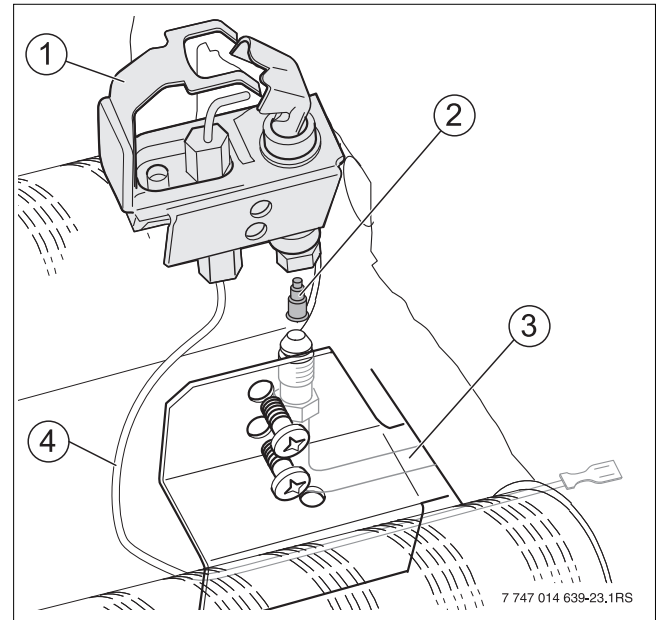


Fig. 6 Pilot burner unit

- [1] Pilot burner unit
- [2] Pilot orifice
- [3] Pilot gas line
- [4] Ignition and monitor lead

3.3.4 Installing the burner

- ▶ Install burner in boiler in reverse order of removal.
- ▶ Tighten the mounting nuts.
- ▶ Tighten the screws on the gas feed line [2] and the burner again.
- ▶ Make sure that the connection pipe gasket removed previously is replaced.
- ▶ Attach wires for the flame roll-out switch [4].
- ▶ Remove wire or rope was used to hold the gas feed line.
- ▶ Connect pilot gas line [6] to gas valve again.
- ▶ Connect ignition cable [3] to the automatic igniter.

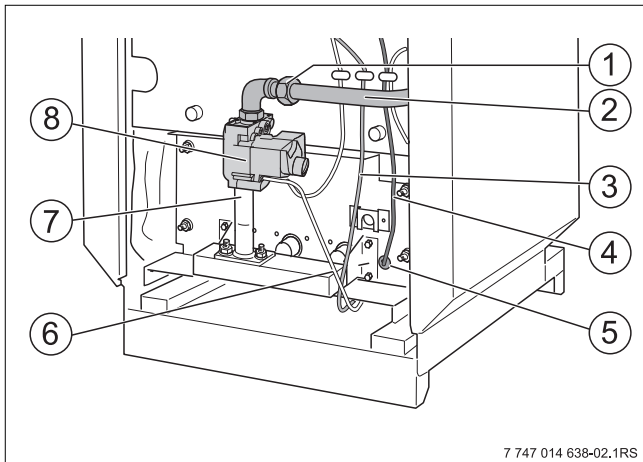



Fig. 7 Installing the burner

- [1] Retaining screw on the gas feed line
- [2] Gas supply line
- [3] Ignition cable
- [4] Connection lines to the flame baffle
- [5] Roll-out switch
- [6] Pilot gas line
- [7] Connection cables to the gas valve
- [8] Gas valve

- ▶ Enter the required information on the conversion label.
- ▶ Attach conversion label on the outside of the boiler jacket as close as possible to the nameplate.

3.4 Carrying out leak test

- ▶ Open manual gas shut-off in the gas line.



WARNING: Risk of system damage due to short-circuits!

- ▶ Cover any hazardous locations prior to locating the leaks.
- ▶ Do not spray leak detector onto conduits, plugs or electrical connection cables or allow it to drip onto them.

- ▶ Using a leak detecting spray, check the gas supply line to the gas valve for leaks.

If any leaks are found:

- ▶ Close main gas shut-off.
- ▶ Seal leaks.
- ▶ Using a leak detecting spray, check the gas supply line to the gas valve for leaks again.

If no further leaks are found:

- ▶ Close main gas shut-off.
- ▶ To measure the gas supply pressure, remove the screw plug from the orifice pressure test point (→ Fig. 8, [2], page 8) on the gas valve.
- ▶ Pressure test port.
- ▶ Connect a pressure gauge.

- ▶ To measure the orifice pressure, remove the screw plug for the orifice pressure test point [3] on the gas valve.

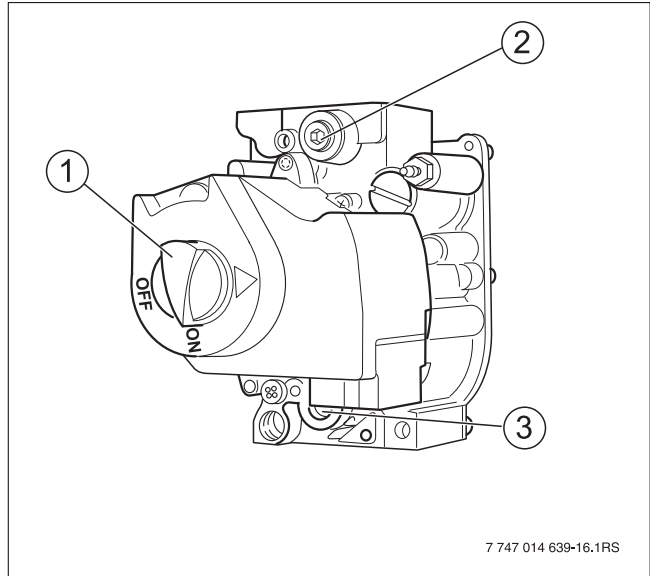



Fig. 8 Gas valve

- [1] ON/OFF knob (in ON position)
- [2] Screw plug for gas supply pressure test port
- [3] Screw plug for orifice pressure test port

- ▶ Pressure test port.
- ▶ Connect a pressure gauge.
- ▶ Open main gas shut-off.
- ▶ Measure the boiler's gas supply pressure.




The supply pressure for natural gas must be between 7" and 10.5" W.C. (17.4 to 26.2 mbar) and between 11" and 13" W.C. for propane gas (27.4 to 32.4 mbar). If the supply pressure for natural gas is not within this range:

- ▶ Contact the service department or gas supplier.

- ▶ Follow the start-up instructions (→ Chapter 4).

4 Start up instructions

4.1 Start-up instructions



DANGER: Risk of fatal injury due to not observing the start-up instructions and resulting incorrect operation.

- ▶ If these instructions are not followed exactly, a fire or explosion may be caused. This can cause significant property damage or risk to life and limb.
- ▶ Observe the start-up instructions.

**DANGER:** Risk of explosion!

If you smell gas there is a danger of explosion.

- ▶ Turn off the gas shut-off valve.
- ▶ Open doors and windows.
- ▶ Do not operate electrical switches, including telephones, plugs or doorbells.
- ▶ Extinguish all open flames. Do not smoke. Do not use lighters.
- ▶ Warn all occupants of the building, but do not ring doorbells.
- ▶ If you can actually hear gas escaping, leave the building immediately.
- ▶ Prevent others from entering and notify the police and fire department **from outside** the building.
- ▶ **From outside the building**, call gas supplier and approved heating contractor.



This unit is fitted with an ignition module that automatically starts the burner. Never attempt to ignite the burner manually.

**WARNING:** Risk of death from fire or explosion.

- ▶ Never use force to operate the ON/OFF knob (→ Fig. 11, [1], page 10).
- ▶ Always turn the ON/OFF knob by hand.
- ▶ Never use tools to turn the knob.
- ▶ If the knob will not turn by hand, don't try to repair it.
- ▶ Contact the service department.

- ▶ Check whether the smell of gas can be detected in the area around the heating system.
This test must also be conducted at floor level, because some types of gas are heavier than air and may accumulate at floor level.

**WARNING:** Risk of fatal injury due to water damage.

- ▶ Do not operate the appliance if any part is or has been under water.
- ▶ Immediately call a qualified service technician to inspect the appliance and to replace any parts of the control system and any gas valves that have been under water.

4.2 Making boiler ready for operation

**DANGER:** Risk of fatal injury due to not observing the start-up instructions and resulting incorrect operation.

- ▶ First read the safety instructions (→ Chapter 4.1, page 8).

If the boiler is not to be put to use immediately after conversion to propane:

- ▶ Perform a leak test again (→ Chapter 3.4, page 8).
- ▶ Wait five (5) minutes until all remaining gas has dissipated.
- ▶ Check whether there is still any smell of gas, including at floor level.

If there is a gas odor:

- ▶ Seal leaks.
- ▶ Repeat the leak test.

If you do not smell gas:

- ▶ Open main gas shut-off.

4.2.1 Turning the heating system on

The boiler is fully functional with the factory-installed AquaSmart and the flue gas damper installed and connected on-site.

- ▶ Switch on the power supply to the heating system (→ Chapter 4.3).
- ▶ Make sure that the room thermostat (optional) signals a heat requirement (set thermostat at least 10 °F above room temperature).

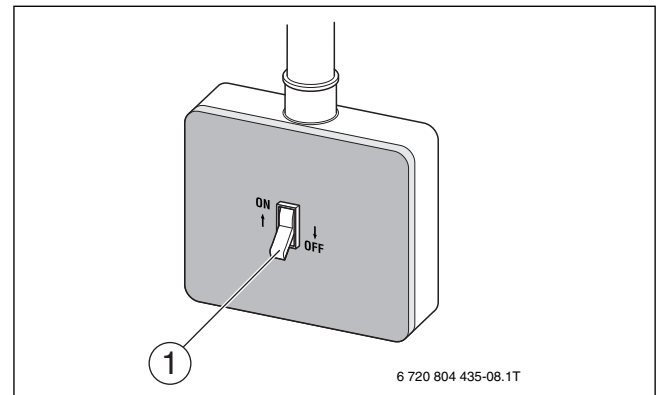


Fig. 9 On/Off switch

[1] Emergency shutoff switch

4.3 Then carry out start-up procedures

The following commissioning work must be performed regardless of the control unit type.

4.3.1 Checking the spark

- ▶ Look at the pilot burner through the inspection hole [1] in the burner cover.

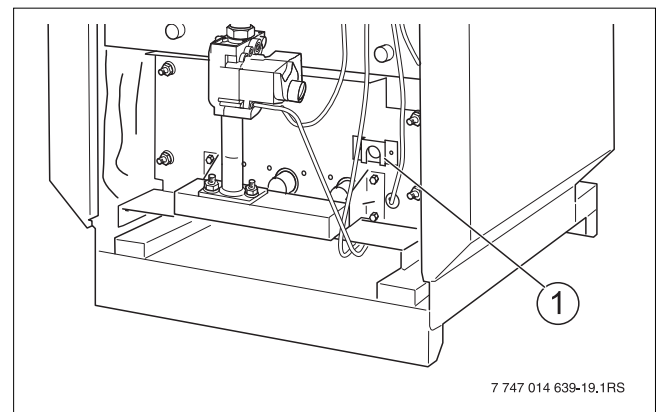


Fig. 10 G234X boiler

[1] Inspection hole

- ▶ Turn gas valve ON/OFF switch [1] counterclockwise to ON position. The burner control unit must generate ignition sparks toward the pilot burner. The ignition flame must appear and then ignite the main burner.

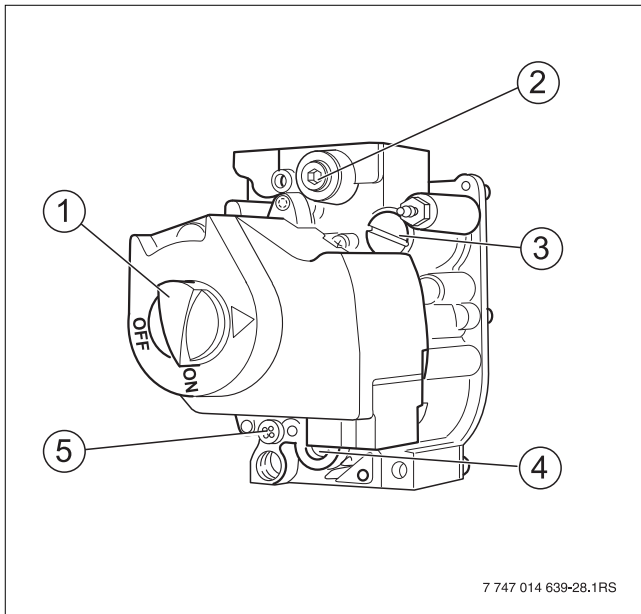


Fig. 11 Gas valve

- [1] ON/OFF knob (in ON position)
- [2] Screw plug for gas supply pressure test port
- [3] Safety screw for orifice pressure setting
- [4] Screw plug for orifice pressure test port
- [5] Safety screw for pilot orifice pressure setting

If the main burner does not ignite:

- ▶ Close main gas shut-off.
- ▶ Disconnect heating system from the power supply.
- ▶ Notify the service department or gas supplier.

If the main burner has ignited:

- ▶ Using a leak detecting spray, check the gas fittings for leaks.

If no further leaks are found:

- ▶ Check the gas supply pressure while the boiler is operating.



The supply pressure for natural gas must be between 7" and 10.5" W.C. (17.4 to 26.2 mbar) and between 11" and 13" W.C. for propane gas (27.4 to 32.4 mbar).

- ▶ Record the measured values in the commissioning report (see installation and maintenance instructions for the boiler).

If any leaks are found:

- ▶ Perform a leak test again (→ Chapter 3.4, page 8).
- ▶ Wait five (5) minutes until all remaining gas has dissipated.
- ▶ Check whether there is still any smell of gas, including at floor level.

If there is a gas odor:

- ▶ Seal leaks.
- ▶ Repeat the leak test.

If you do not smell gas:

- ▶ Open main gas shut-off.

If boiler is equipped with an AquaSmart control unit:

- ▶ Switch on the power supply to the heating system (→ Chapter 4.3, page 9).
- ▶ Make sure that the room thermostat (optional) signals a heat requirement (set thermostat at least 10 °F above room temperature).
- ▶ Check the ignition spark again (→ Chapter 4.3.1, page 9)

4.3.2 Check orifice pressure

- ▶ Set the orifice pressure according to Tab. 5 while the boiler is operating.
- ▶ Remove the safety screw for orifice pressure setting (→ Fig. 11, [3], page 10) from the gas valve.
- ▶ Turn the adjustment screw clockwise to increase the orifice pressure.
- ▶ Turn the adjustment screw counterclockwise to decrease the pressure.
- ▶ Record the measured value in the commissioning report section of the installation and maintenance instructions.
- ▶ Screw the safety screw for orifice pressure setting (→ Fig. 11, [3], page 10) back into the gas valve.

| G234X | Natural gas | | Propane | |
|-------|-------------|--------|-------------|--------|
| | [inch W.C.] | [mbar] | [inch W.C.] | [mbar] |
| 38 | 3.0 | 7.6 | 10.6 | 26.5 |
| 45 | 4.1 | 10.4 | 10.5 | 26.2 |
| 55 | 4.6 | 11.5 | 10.3 | 25.8 |
| 64 | 4.4 | 10.9 | 10.3 | 25.9 |

Tab. 5 Orifice pressure

4.3.3 Checking the ignition flame setting

- ▶ Observe pilot flame through the inspection hole in the burner cover (→ Fig. 10,[1], page 9).
- ▶ The flame must envelope the flame rod 1/2 to 1 1/2 Inches (15 to 40 mm) (→ Fig. 12). If this is the case, continue with Chapter 4.3.4, page 11.



The adjustment screw for the pilot orifice pressure setting is located behind the safety screw for the pilot orifice pressure setting (Fig. 11, [5], page 10).

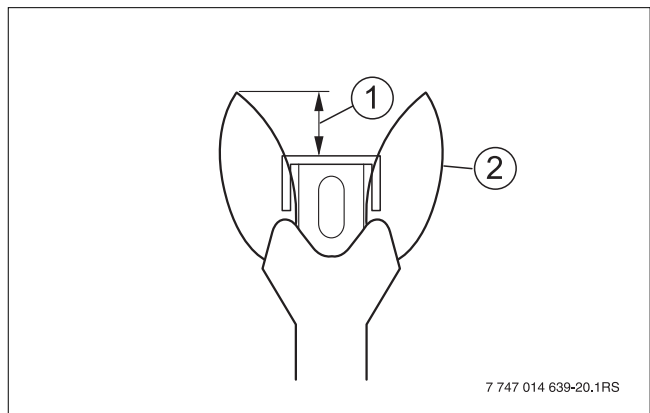


Fig. 12 Correct pilot flame setting

- [1] 1/2 to 1 1/2 Inches (12.7 to 38.1 mm)
- [2] Pilot flame

If the ignition flame is too small or too large:

- ▶ Adjust orifice pressure for pilot orifice at the appropriate adjustment screw.
- ▶ Remove the safety screw for pilot orifice pressure setting (Fig. 11, [5], page 10).

To adjust the ignition flame:

- ▶ Turn the inner adjustment screw clockwise to reduce the size of the ignition flame.

-or-

- ▶ Turn the inner adjustment screw counterclockwise to increase the size of the ignition flame.
- ▶ After adjustment, tighten the safety screw for the pilot orifice pressure setting (Fig. 11, [5], page 10) again.

4.3.4 Checking the main burner flame setting

- ▶ Observe main burner flame [1] through the inspection hole in the burner cover.
The flame must have a steady and fixed contour and generally has a bluish color.

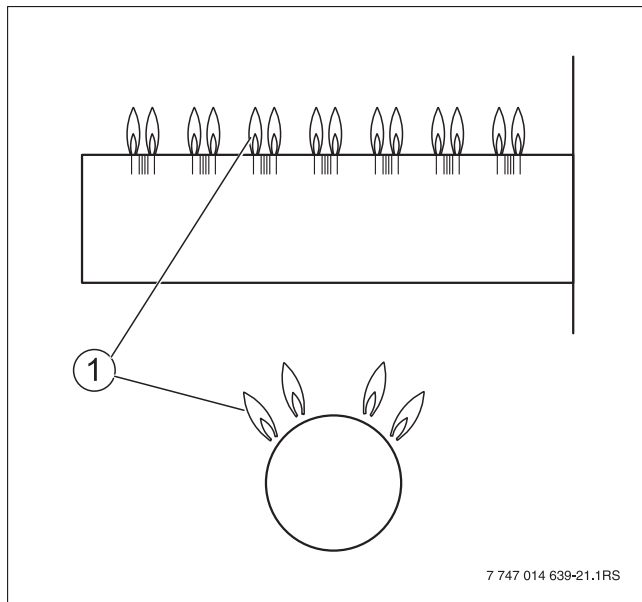


Fig. 13 Main burner

[1] Main burner flame

If the main burner flame meets the requirements:

- ▶ Check flame sensor (→ Chapter 4.3.5).

If the main burner flame is weak or yellow or goes out:

- ▶ Turn the gas valve ON/OFF knob (Fig. 11, [1], page 10) clockwise to the OFF position.
- ▶ Close main gas shut-off.
- ▶ Disconnect heating system from the power supply.
- ▶ Notify the service department or gas supplier.

4.3.5 Checking flame sensor

- ▶ Test the safety switch by closing the gas shut-off.
The main burner flame (→ Fig. 13) and the ignition flame (→ Fig. 12, page 10) are extinguished.

After six (6) seconds at the most the main gas solenoid valve on the gas valve must close with an audible noise. After 90 seconds the ignition module must switch to lock status and stop generating sparks.

- ▶ Disconnect heating system from the power supply.
- ▶ Open main gas shut-off.
- ▶ Switch on unit power supply.
A normal operating cycle must follow.

If the gas valve does not operate correctly:

- ▶ Immediately turn the gas valve ON/OFF knob [1] clockwise to the OFF position.
- ▶ Close main gas shut-off.
- ▶ Disconnect heating system from the power supply.
- ▶ Notify the service department or gas supplier.

If the gas valve operates correctly:

- ▶ Turn gas valve ON/OFF knob [1] clockwise to OFF position.
- ▶ Close main gas shut-off.
- ▶ Disconnect heating system from the power supply.
- ▶ Set thermostat to the lowest value.
- ▶ Remove pressure test port and pressure gauge for measuring gas supply pressure and orifice pressure from the gas valve.
- ▶ Close the openings with the screw plugs [2] and [3] again.

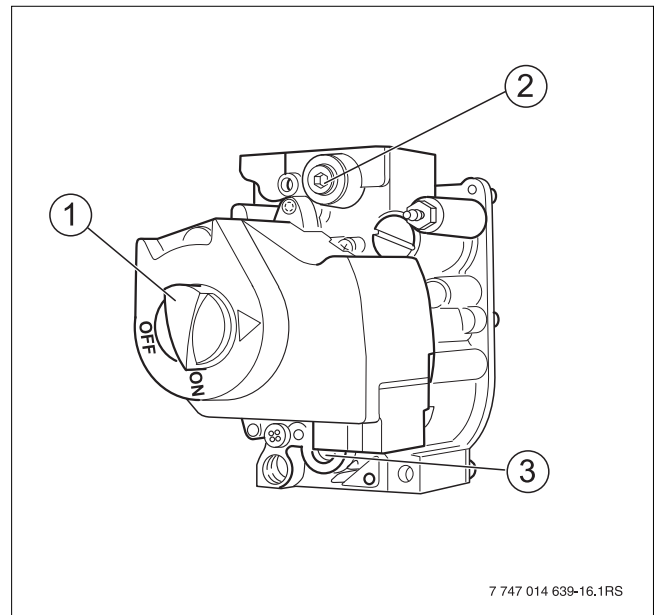


Fig. 14 Gas valve

[1] ON/OFF knob (in ON position)

[2] Screw plug for gas supply pressure test port

[3] Screw plug for orifice pressure test port

- ▶ Making the boiler ready for operation (→ Chapter 4.2, page 9).
- ▶ Repeat all required steps (depending on the controls) described in Chapter 4.2 and Chapter 4.3.
The heating system has now been started up again.
- ▶ Using a leak detecting spray, check the screw plugs [2] and [3] on the gas valve for leaks.

If no leaks are found:

- ▶ Carefully wipe away the leak detecting spray to prevent corrosion caused by the alkaline contents of the soap.

If leaks are found:

- ▶ Close main gas shut-off valve
- ▶ Turn the gas valve ON/OFF knob [1] clockwise to the OFF position.
- ▶ Disconnect heating system from the power supply.
- ▶ Seal leaks.
- ▶ Open main gas shut-off.
- ▶ Switch on unit power supply.
A normal operating cycle must follow.

4.3.6 Check the vent damper



WARNING: Risk of life from leaking flue gases.

► Check that the flue gas damper operates properly.

► Check the flue gas damper position. The flap must be fully opened (vertical position). No flue gas must escape from the draft hood when the burner is operating.

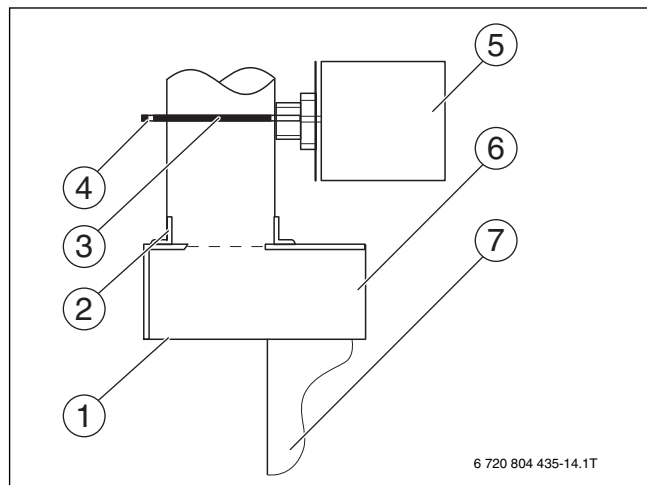


Fig. 15 Checking the flue gas damper

- [1] Open draft hood
- [2] Flue gas connection
- [3] Flue gas damper
- [4] Flue gas damper position indicator
- [5] Flue gas flap motor
- [6] Flue gas collector
- [7] Boiler

4.3.7 Checking the AquaSmart

Check operation of the maximum setting on the AquaSmart to make sure that the boiler switches off as soon as the boiler water temperature set on the AquaSmart is reached. Record the result in the commissioning report.

- Adjust the setting on the AquaSmart to the desired value.
- Replace the front door and close it.

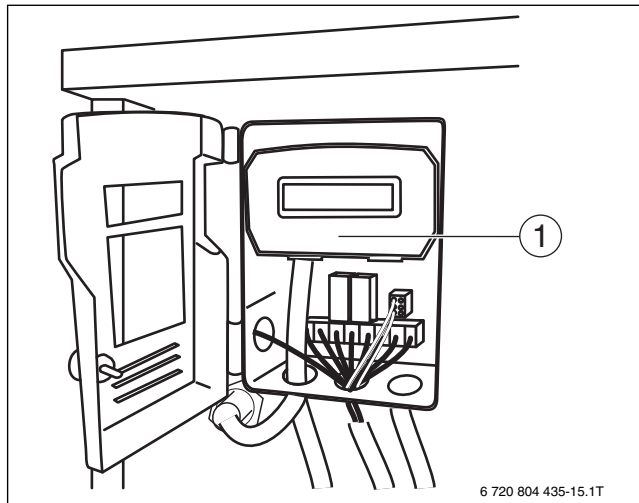


Fig. 16 Check temperature controller

- [1] Adjustment keypad
- Install boiler front panel.

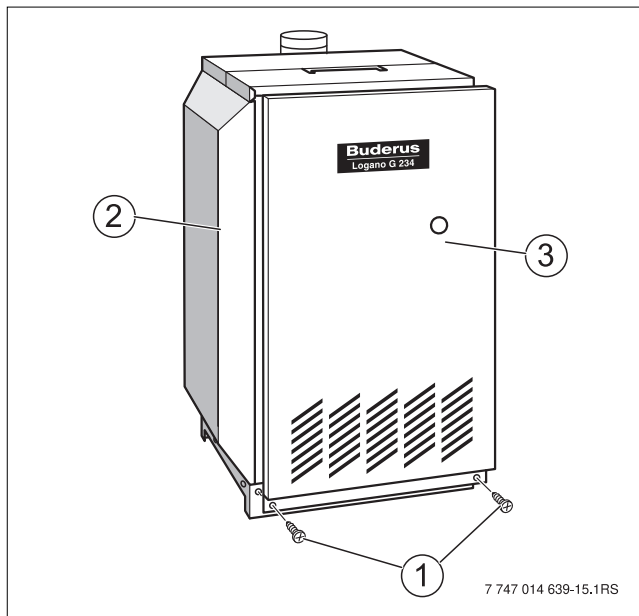


Fig. 17 Installing the boiler front panel

- [1] Locking screws
- [2] Boiler jacket
- [3] Boiler front panel

Notes

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