



Technology for life.

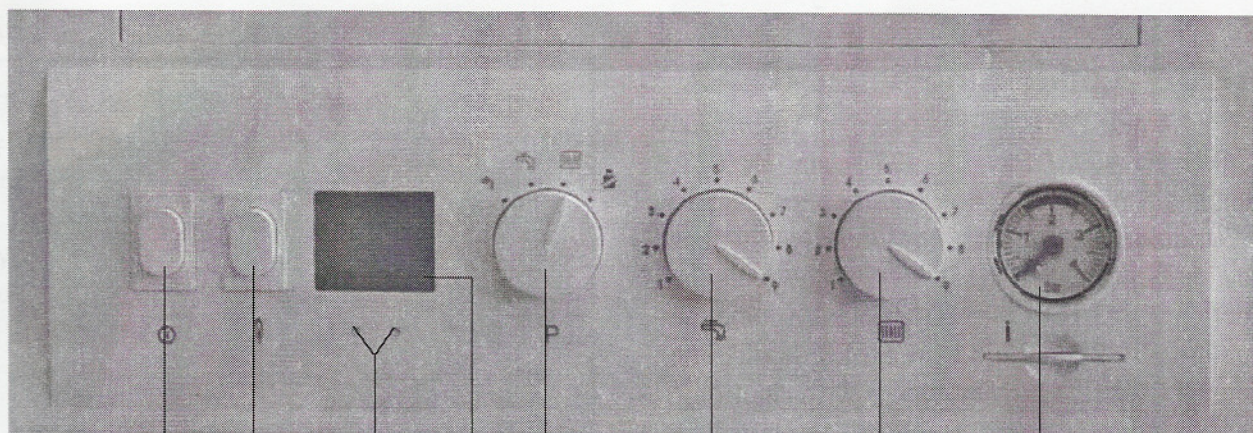
Installation instructions

Gas-fired wall-mounted condensing boiler

TGB-40

TGB-60

Control unit / Function / Operation



ON/OFF switch

Programming keys

Display

DHW temperature selector

System pressure

Reset button

Program selector

Heating water temperature selector



ON/OFF switch ON/OFF

Reset A fault is reset by pressing the reset button which will also restart the system. The system is restarted if the reset key is activated when there was no fault present in the system.

Heating water temperature display or fault code message (flashing)

The current heating water temperature is displayed by a two digit LCD display. A dot illuminates next to the heating water temperature when a flame has been established. A flashing fault code appears in the LCD display instead of the heating water temperature, when a fault has been diagnosed. The following table explains their causes:

Fault code specification

Fault code	Fault	Fault code	Fault
1	STB - High-limit safety cut-out	20	Gas valve, fault 2
4	No flame established	21	Gas valve, fault 1
5	Flame failure during operation	22	Lack of air
6	STW - Excess temperature	23	Differential pressure switch fault
7	STBA - Excess temperature	25	Gas fan, fault
11	Flame pretence	26	Gas fan, fault
12	Flow sensor faulty	30	CRC fault, boiler
13	Flue gas sensor faulty	31	CRC fault, burner
14	DHW sensor faulty (only for SW connection)	32	Fault in 24 VAC supply
15	Outside temperature sensor faulty	40	Low-water indicator
16	Return sensor faulty	XX	Internal fault - control PCB (flashing quickly)

Control unit / Function / Operation

Program selector

Setting



or



Setting




Setting




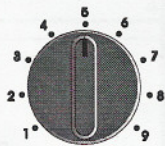
The heating program selector enables you to choose four operating modes:

Summer mode (central heating off) only DHW heating; frost protection for the central heating system is ensured. Integral anti-seizing pump protection.

Winter mode; in winter mode, the boiler heats the heating water temperature to the value set at the heating water thermostat. According to the pump operating mode, the circulation pump operates constantly (factory setting) or only parallel to the burner control with/without run-on period. Select this setting  when connecting control accessories.

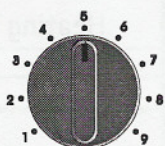
Emissions test mode:

The emissions test mode is activated by rotating the program selector into position . A dot illuminates between the heating water temperature indication on the LCD display, whilst the system is in emissions test mode. The program selector returns automatically to winter mode when it is released. After emissions test mode has been activated, the boiler heats to the temperature set at the heating water thermostat without modulation or to the maximum heating water temperature adjusted via parameter no. 8. Any previous cycle block will be cancelled. The red dot between the heating water temperature indication extinguishes when emissions test mode ends. In conjunction with DRT / DWT / DWTM / DWTK, the emissions test symbol will be transferred to the function display. Activation only on the boiler.



DHW temperature selection

When gas-fired condensing boilers are combined with a DHW cylinder, setting 1-9 corresponds to a cylinder temperature of 15-70 °C.



Heating water temperature selection

The setting range 1-9 corresponds to a heating water temperature of 20-75 (85) °C. The setting on the heating water thermostat will become ineffective when the system is used in conjunction with a digital room thermostat or a weather-compensated controller.



Pressure display

This indicates the water pressure in the heating system. In normal operation, the water pressure should be between 1.5-2.5 bar.

Anti-seizing pump protection

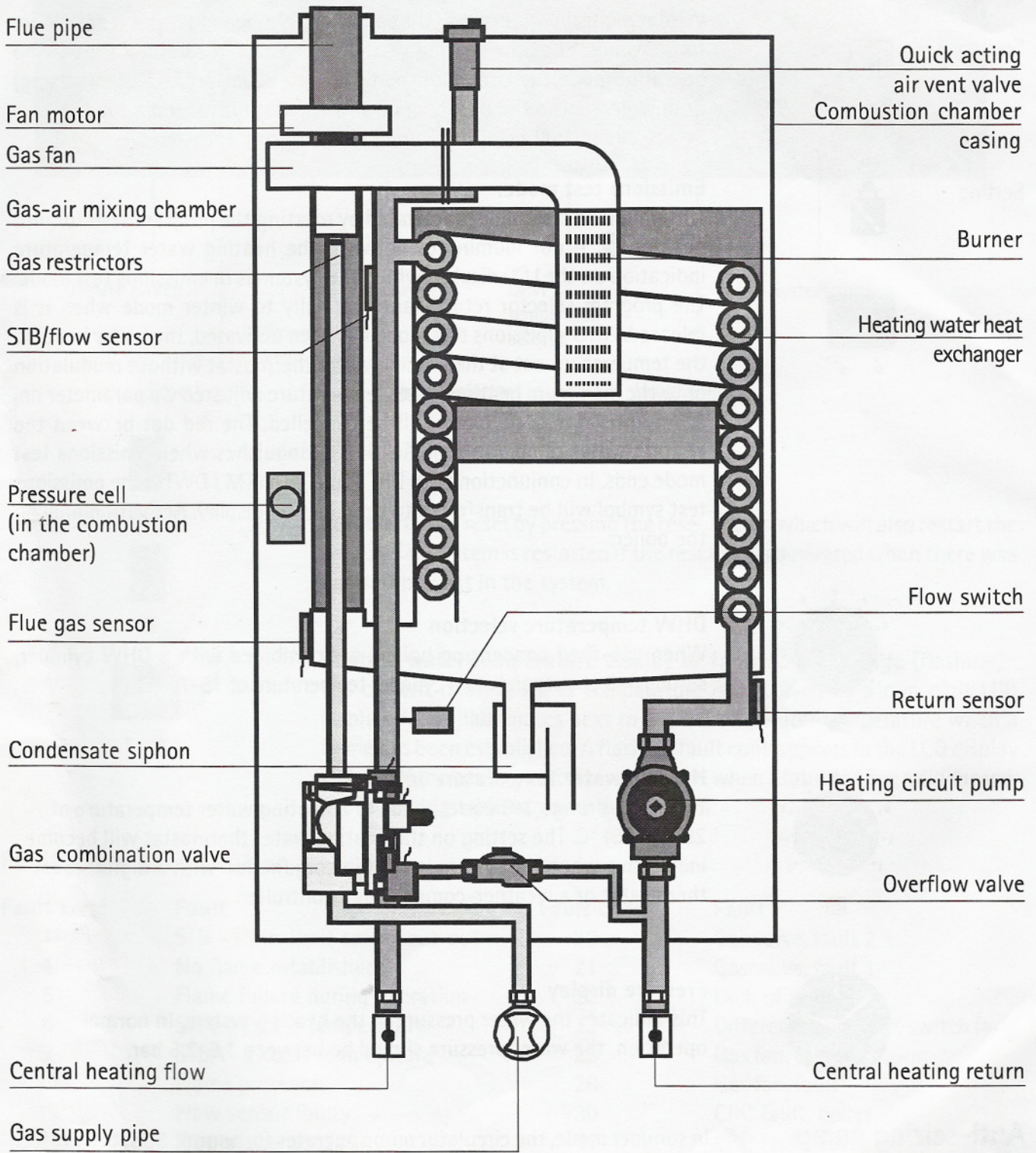
Cycle block

In summer mode, the circulator pump operates for approx. 30 seconds after a maximum idle period of 24 hours.

A burner start-up delay is integrated to avoid frequent burner starts during the heating mode. The cycle block can be adjusted from 0-30 minutes.

Layout

TGB-40 / TGB-60



Dimensions

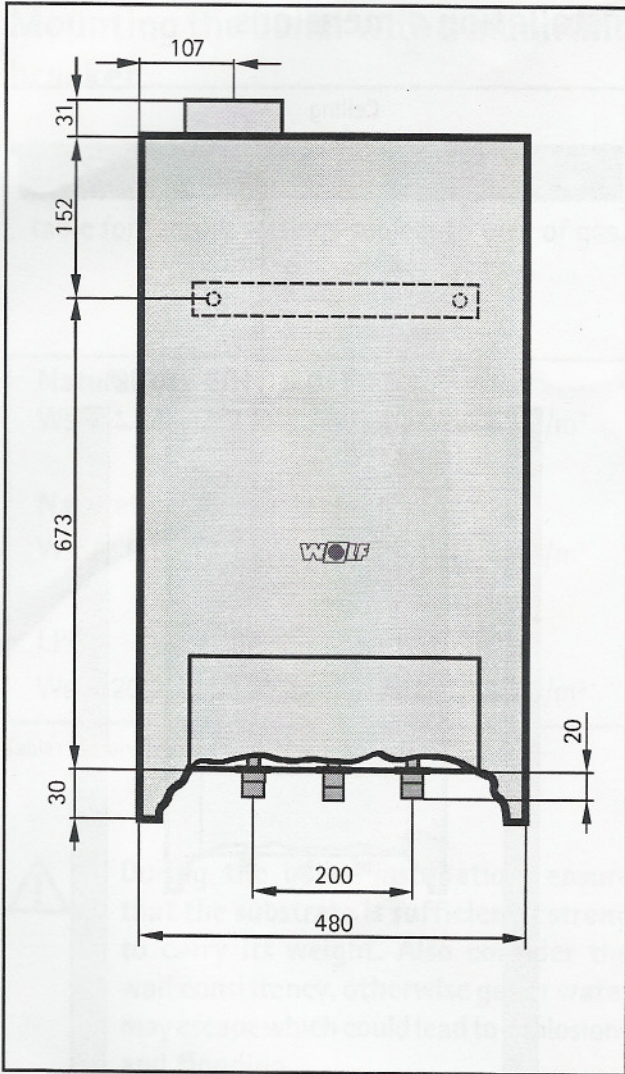


Fig.: Dimensions TGB-40/60

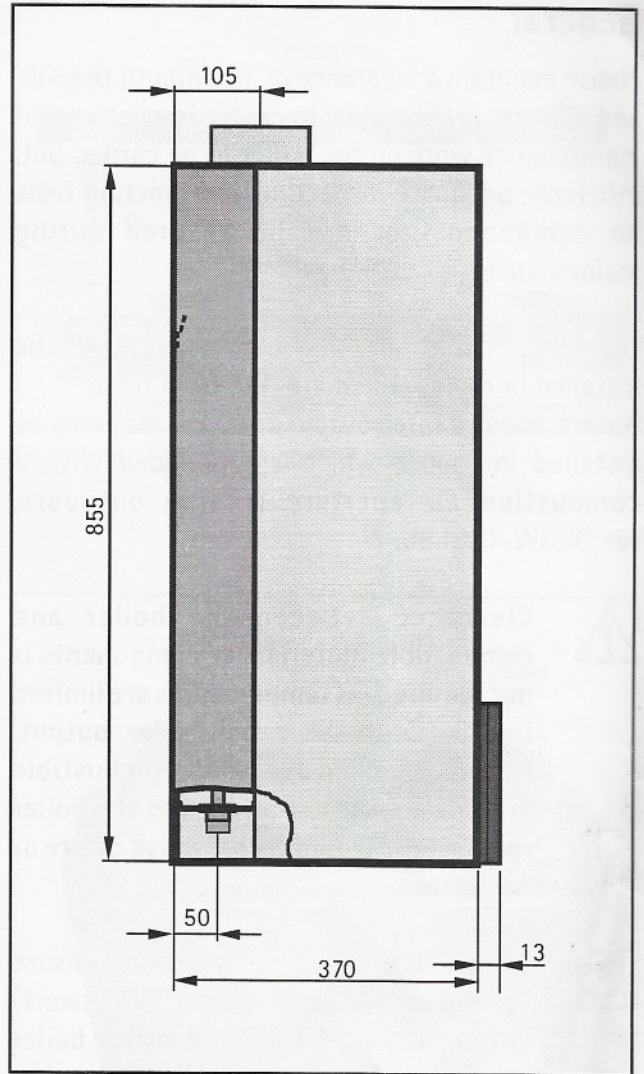


Fig.: Dimensions TGB-40/60

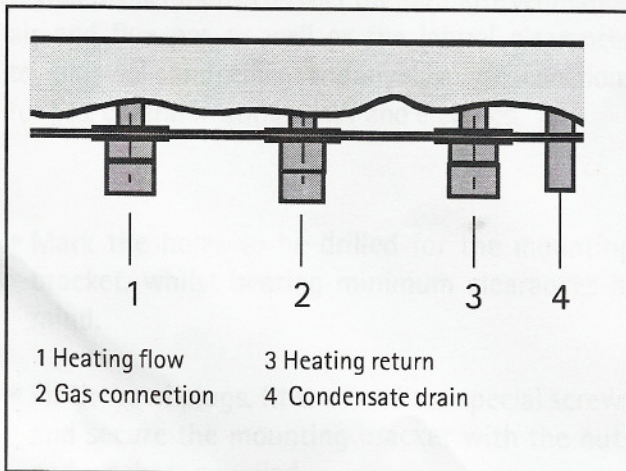


Fig.: Connections TGB-40/60

Initial start-up



Only qualified personnel may carry out the commissioning and initial operation of the boiler and instruct the user.

- Check the boiler for leaks. Prevent water leaks - the boiler may become too hot - and there may be a risk of scalding.
- Check that all flue gas accessories have been properly installed.
- Open the shut-off valves on flow and return.
- Open the gas shut-off valve.
- Switch on the system ON/OFF switch on the control unit.
- If the system water pressure falls below 1.0 bar, top up with water until a pressure of 1.0 to max. 2.5 bar has been achieved.
- An error code flashes on the display if the boiler has not been properly commissioned. For details about error codes, see the abridged operating instructions.
- Position the operating instructions where they are clearly visible.
- Instruct the user in the operation of the boiler and hand over the operating instructions.

Saving energy

- **Instruct the customer about energy-saving options.**
- Use this opportunity for reducing the heating temperature during night operation using control accessories.
- Adjust the temperature so you are comfortable; every degree of room temperature reduction will achieve energy savings of up to 5 %.
- Reduce the room temperature in unoccupied rooms as far as possible; please observe frost protection.
- Ensure that all thermostatic radiator valves are fully opened in rooms where room thermostats are installed. They must not be blocked by furniture or curtains.
- Position the operating instructions where they are clearly visible.

Please note

To ensure the reliable and economic function of a heating system and to avoid dangers to individuals and prevent material losses, the system user should be advised that an approved specialist should clean and check the heating system annually.

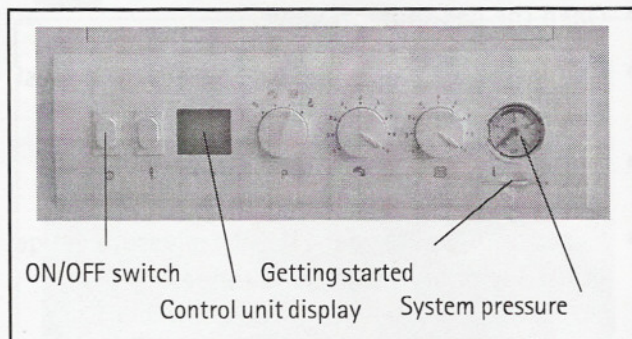


Fig.: Control unit overview

Changing the output

General

The heating output will be determined by the fan speed. You can modify the heating output by changing the fan speed in accordance with the setting values listed in table "Output adjustment".

Lower output limit

- Press both programming keys (+) and (-) simultaneously; the display will show "0".
- With key (+) select **parameter no. 2** for the lower output limit.
- Press reset key; the factory-set parameter value according to the table below will then be displayed.
- Change the parameter with the (+) or (-) key.
- Press the reset key; the modified value will be adopted, and the display will again show the heating water flow temperature. This terminates the adjustment of the lower output.

Upper output limit

- Press both programming keys (+) and (-) simultaneously; the display will show "0".
- With key (+), select **parameter no. 3** for the upper output limit of DHW cylinder loading or **parameter no. 4** for heating mode.
- Press reset key; the factory-set parameter value according to the table below will then be displayed.
- Change the parameter with the (+) or (-) key.
- Press the reset key; the modified value will be adopted and the display will again show the heating water flow temperature. This terminates the adjustment of the upper output.

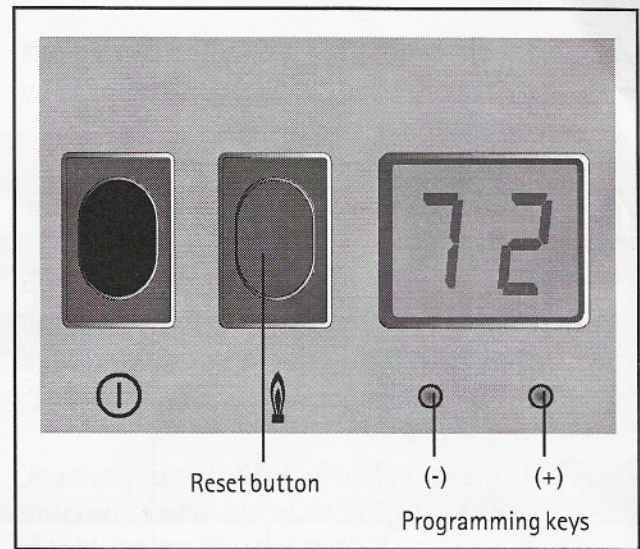


Fig.: Control unit display

Table: Output adjustment TGB-40

Heating output (kW) 50/30	12	15	18	20	23	25	28	30	33	35	38	40
Heating output (kW) 80/60	11	14	17	18	21	23	26	28	30	32	35	37
Display value (r.p.s.)	30	34	39	44	49	54	59	64	69	74	79	84

Table: Output adjustment TGB-60

Heating output (kW) 50/30	24	27	30	33	36	39	42	45	48	51	54	57	60
Heating output (kW) 80/60	22	25	27	30	33	35	38	41	44	46	49	52	55
Display value (r.p.s.)	34	37	41	45	49	53	57	61	65	69	73	79	83

Displaying/modifying control parameters



Modifications must only be carried out by a recognised heating contractor or by Wolf service engineers.



Incorrect operation can lead to the system developing faults.

Please note when using parameter 5 (frost protection/outside temperature), that frost protection is not safeguarded if you set temperatures lower than 0 °C.

Please note

To prevent damage to the heating system, cancel night setback when outside temperatures fall below -12 °C. If this rule is not observed, ice may accumulate on the flue outlet, which may cause injury to individuals or damage to property.

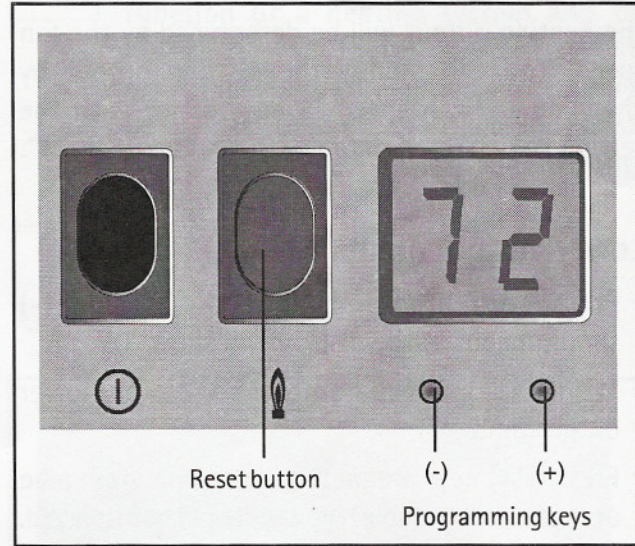


Fig.: Control unit display

Displaying/modifying control parameters

- Press both programming keys (+) and (-) simultaneously until the display shows "0".
- Change the required parameter no. with programming keys (+) or (-).
- Press reset key; the factory-set values according to the "Factory settings" will then be displayed.
- Change the parameter value with the (+) or (-) programming keys.
- Press the reset key; the modified value will be adopted and the display will again show the heating water temperature.

Displaying/modifying control parameters

Control unit parameters

No.	Parameter	Min	Factory settings		Max.	Units
			TGB-40	TGB-60		
1	Heating water hysteresis (HZ)	0	8	8	20	K
2	Lower speed CH/DHW	27	29	34	45	r.p.s.
3	Upper speed DHW	35	84	83	92	r.p.s.
4	Upper speed heating mode	35	84	83	92	r.p.s.
5	Frost protection outside temperature	-5	+2		5	°C
6	Heating circuit pump mode	0	0		1	1 = Heating circuit pump operates together with the burner 0 = Const. op. in winter mode
7	Heating circuit pump run-on	1	5		99	minutes
8	Max. heating water temperature limit	20	75		85	°C
9	Cycle block	0	5		30	minutes
10	e-Bus address*	0	0		4	-
No.	Display parameter					units
99	Gas fan speed					r.p.s.
98	Outside temperature					°C
97	Actual DHW temperature					°C
96	Set DHW temperature					°C
95	Set flow temperature**					°C
94	Flue gas temperature					°C
93	Actual return temperature					°C

Table: Factory settings control unit parameters

* Set parameter 10 to 1 if the control unit accessory type DWTM is connected.

** When connecting a DWTK, parameter 95 will indicate the modulation level, not the set flow temperature.


Gas-air connection adjustment

Implementation

This adjustment is only permissible after changing the type of gas, or in case of problems.

Implement the gas-air-connection first in the upper load range (emissions test mode) and then in the lower load range (soft start).

Adjusting the CO₂ value in the upper load range (emissions test mode)

- Set the program selector to  emissions test (a red dot appears between the figures on the display).
- Remove the cap nut from the r.h. test nipple "Ventilation air" ⑥.
- Check the CO₂ concentration at the ventilation air nipple ⑥. The flue pipe is not gas tight if the CO₂ content > 0.3 %; rectify the leak.
- Check the CO₂ content at full load.

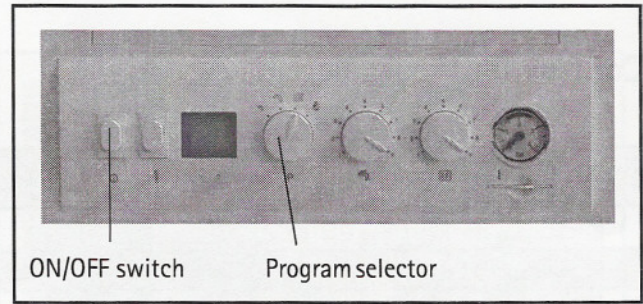


Fig.: Control unit overview

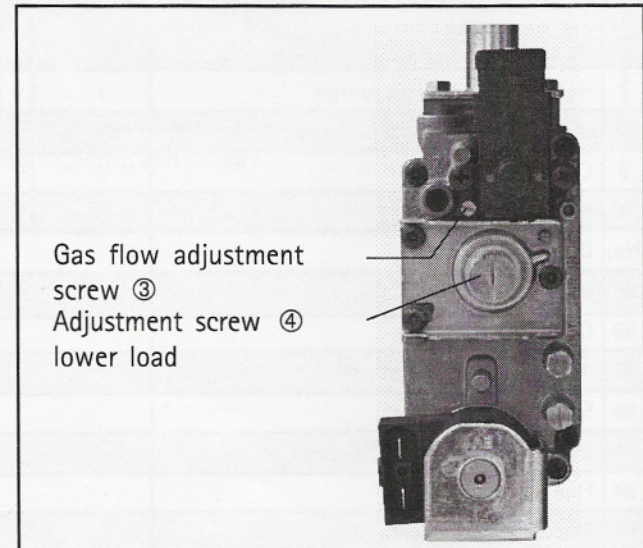


Fig.: Adjusting the CO₂ content

CO₂ value in the upper load range in emissions test mode:

TGB-40	
Natural gas E/H/LL	LPG
9.0 ±0.3 %	10.2 ±0.3 %

TGB-60
Natural gas E/H/LL
9.0 ±0.3 %

Table: CO₂ content to be selected

- Correct the CO₂ adjustment (if required) by carefully rotating the gas flow adjustment screw ③ on the gas combination valve.
- Turn to the right - the CO₂ content will be reduced
Turn to the left - the CO₂ content will increase

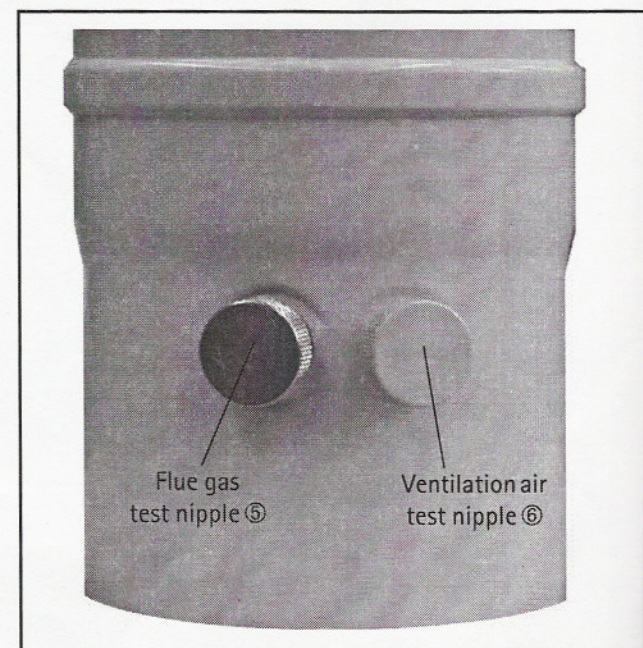


Fig.: Test nipples

Gas-air connection adjustment

Adjusting the CO₂ value in the lower load (soft start) range

- Set the heating programme switch to heating mode.
- Turn to the right - the CO₂ content will be reduced
Turn to the left - the CO₂ content will increase

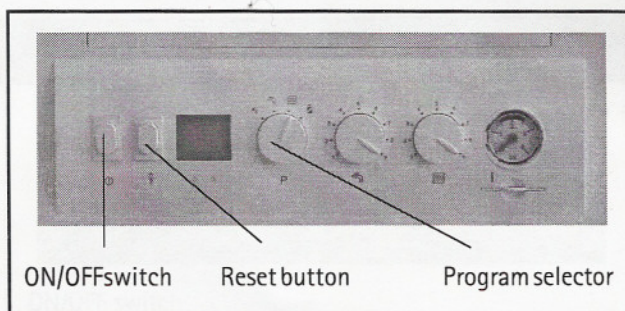


Fig.: Control unit overview

CO₂ value in the lower load range:

TGB-40	
Natural gas E/H/LL	LPG
9.0 ±0.3 %	10.7 ±0.3 %

TGB-60
Natural gas E/H/LL
9.0 ±0.3 %

Table: CO₂ content to be selected

Basic setting

The basic setting may only be implemented if the gas combination valve has been adjusted and the burner no longer starts.

Please carry out the following steps:

- Turn the gas flow adjustment valve ③ until it is flush with the top of the cast component (gas combination valve). Then turn the screw at TGB-40 three half-turns to the right.
- Turn the adjusting screw ④ on the gas combination valve fully to the right, and then five half-turns to the left.
- Then start the boiler and adjust the gas-air-connection.

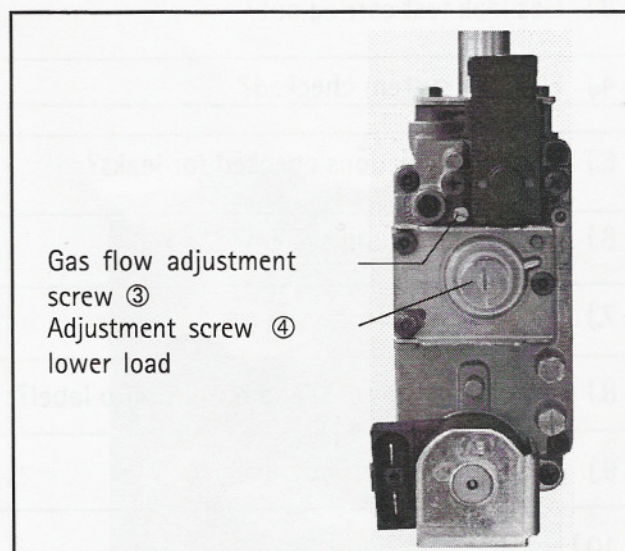


Fig.: Adjusting the CO₂ content

Maintenance

Dismantling the combustion chamber unit

- Remove the combustion chamber housing after releasing the toggles.
- Remove the plug connections from the following components:
Ignition, ionisation, flow and return sensor, flue gas temperature sensor and gas fan.
- Pull the anti-radiation panel forward and unhook the panel.
- Release the fixings between the gas connection and mixing chamber.
- Release the nuts (three no.) on the small combustion chamber lid.
- Remove the whole unit (mixing chamber, fan and small combustion chamber lid).

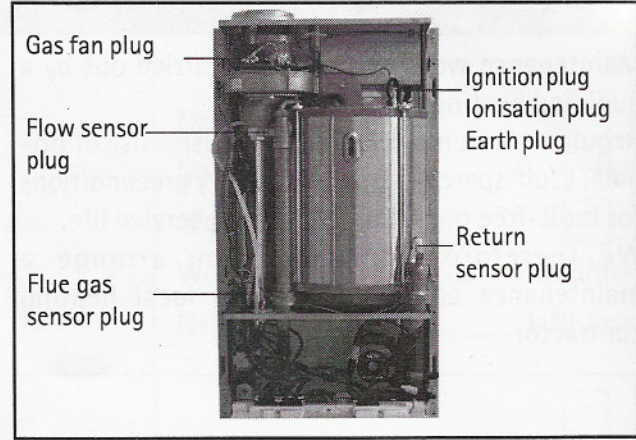


Fig.: Gas-fired condensing boiler with combustion chamber housing removed

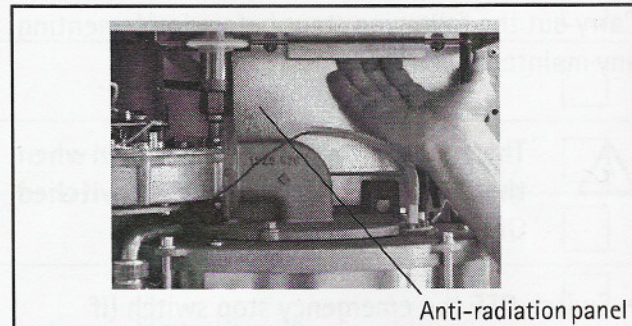


Fig.: Anti-radiation panel

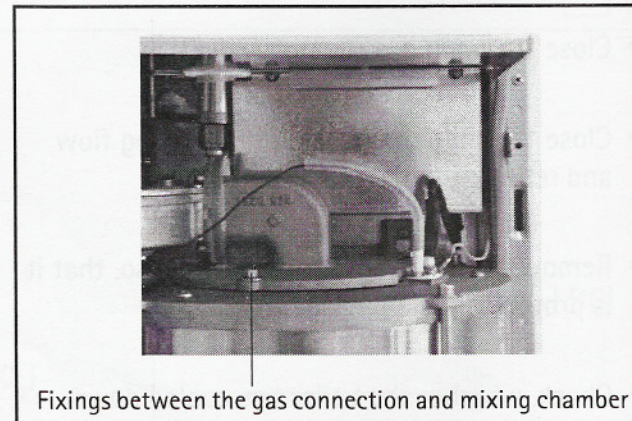


Fig.: Fixings between the gas connection and mixing chamber

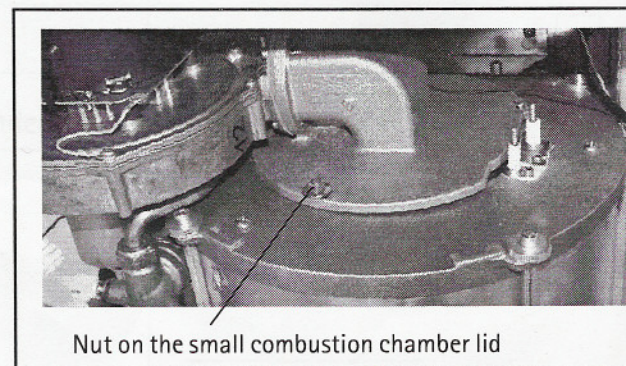


Fig.: Nut on the combustion chamber lid

- Slacken the union nut of the ventilation pipe towards the quick-acting air-vent valve and remove the whole quick-acting vent valve upwards.
- Release the flow and return compression fittings.
- Push the flue pipe damper upwards.
- Unscrew and drain the boiler siphon.
- Undo screw from the lid/rear panel.
- Lift the complete combustion chamber unit out until the condensate drain connection is free and the combustion chamber unit can be removed towards the front.

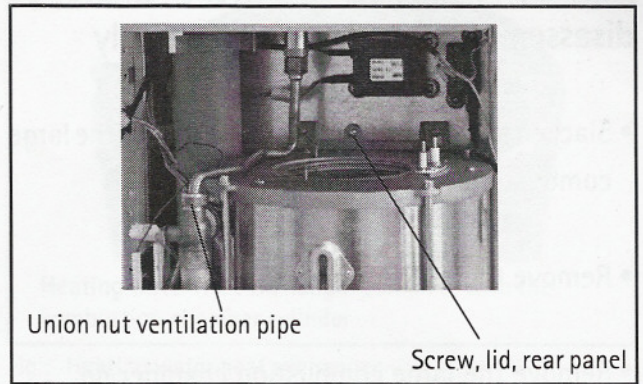


Fig.: Union nut/rear panel, lid

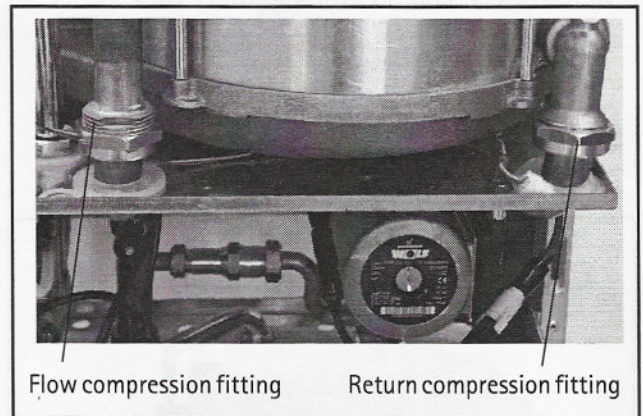


Fig.: Compression fittings

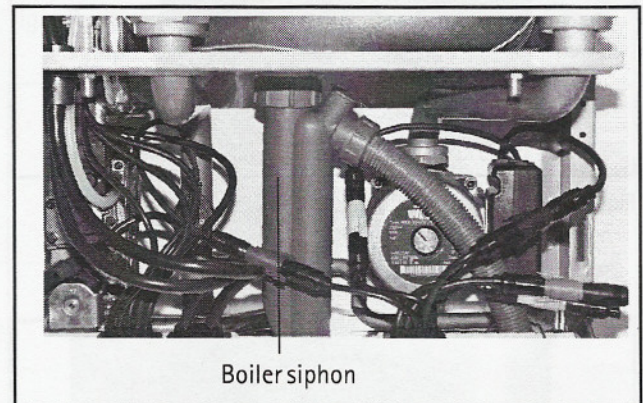


Fig.: Boiler siphon

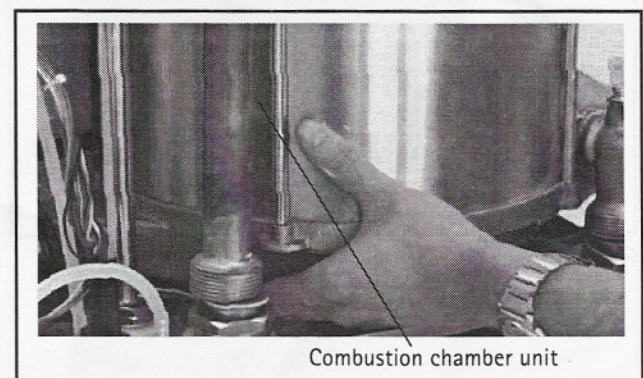


Fig.: Combustion chamber unit

Maintenance

Burner/heating water heat exchange disassembly, cleaning and assembly

- Slacken and remove the threaded rods of the large combustion chamber lid (four no.).
- Remove the burner upwards.
- Remove the large combustion chamber lid.
- Remove the combustion chamber base.

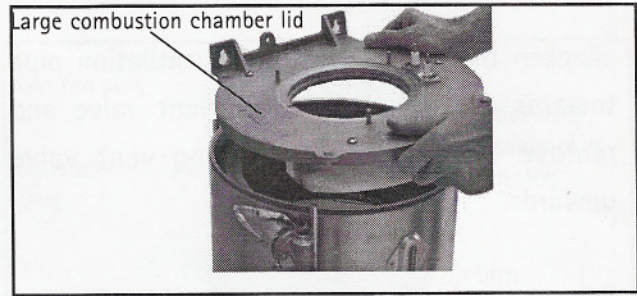


Fig.: Large combustion chamber lid



Fig.: Combustion chamber unit / condensate sump

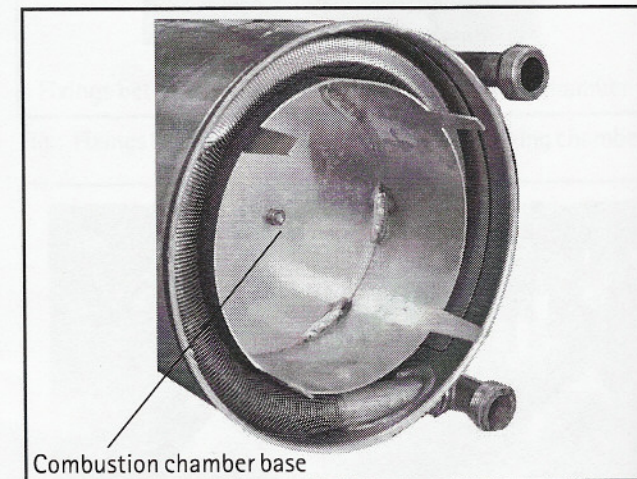


Fig.: Combustion chamber base

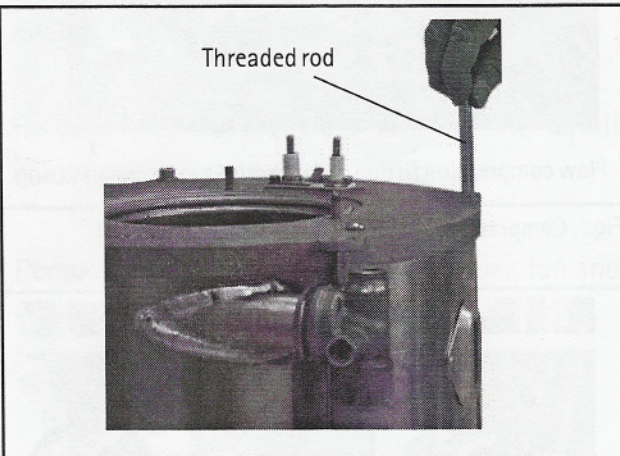


Fig.: Threaded rods of the large combustion chamber lid

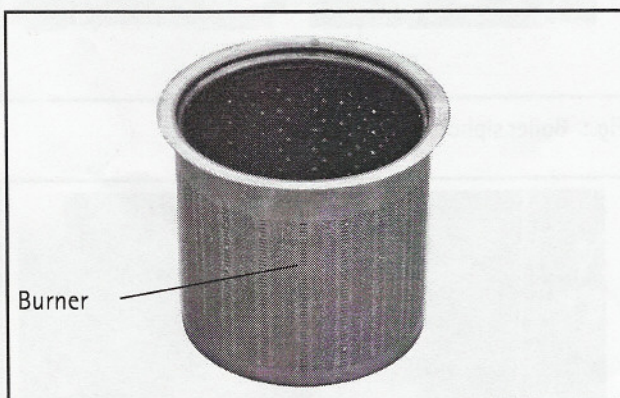


Fig.: Burner

- Remove combustion residues with a plastic brush (non-metallic brush).
- Wash severely contaminated burners in a soapy solution and rinse with tap water.
- Clean severely contaminated heating water heat exchangers with Fauch 600, Fauch 610, Sotin 230 (230 GA) or equivalent cleaning agents and rinse with tap water.
- Reassemble in the reverse order.

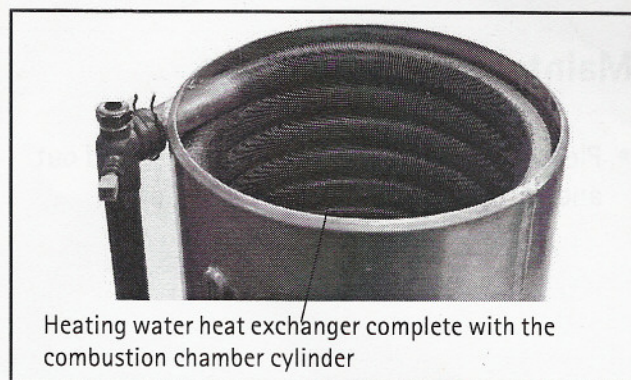
Generally, replace all gaskets on water and flue gas components which have been separated and coat with silicon grease (other grease will destroy the gaskets) prior to reassembly.

- During reassembly, check for correct positioning of the combustion chamber unit in relation to the condensate sump.
- During reassembly, check for correct position of the control cables.

Safety instructions

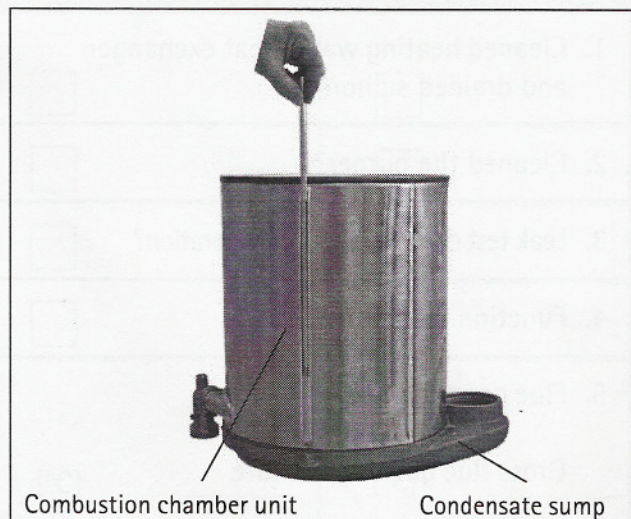
Carry out the following steps after completing the above maintenance steps:

- Open the shut-off valve at the heating flow and return. Open the cold water inlet.
- Top up the heating system, if required, to approximately 1.5 bar, and vent the heating system.
- Open the gas shut-off valve.
- Switch on the emergency stop switch (if installed).
- Switch on the ON/OFF switch on the Wolf gas-fired boiler.
- Check the boiler water and gas connections for leaks.
- Check the boiler for perfect function and flue gas values.
- Hook in the front casing.



Heating water heat exchanger complete with the combustion chamber cylinder

Fig.: Heating water heat exchanger



Combustion chamber unit Condensate sump

Fig.: Position of the combustion chamber unit/condensate sump



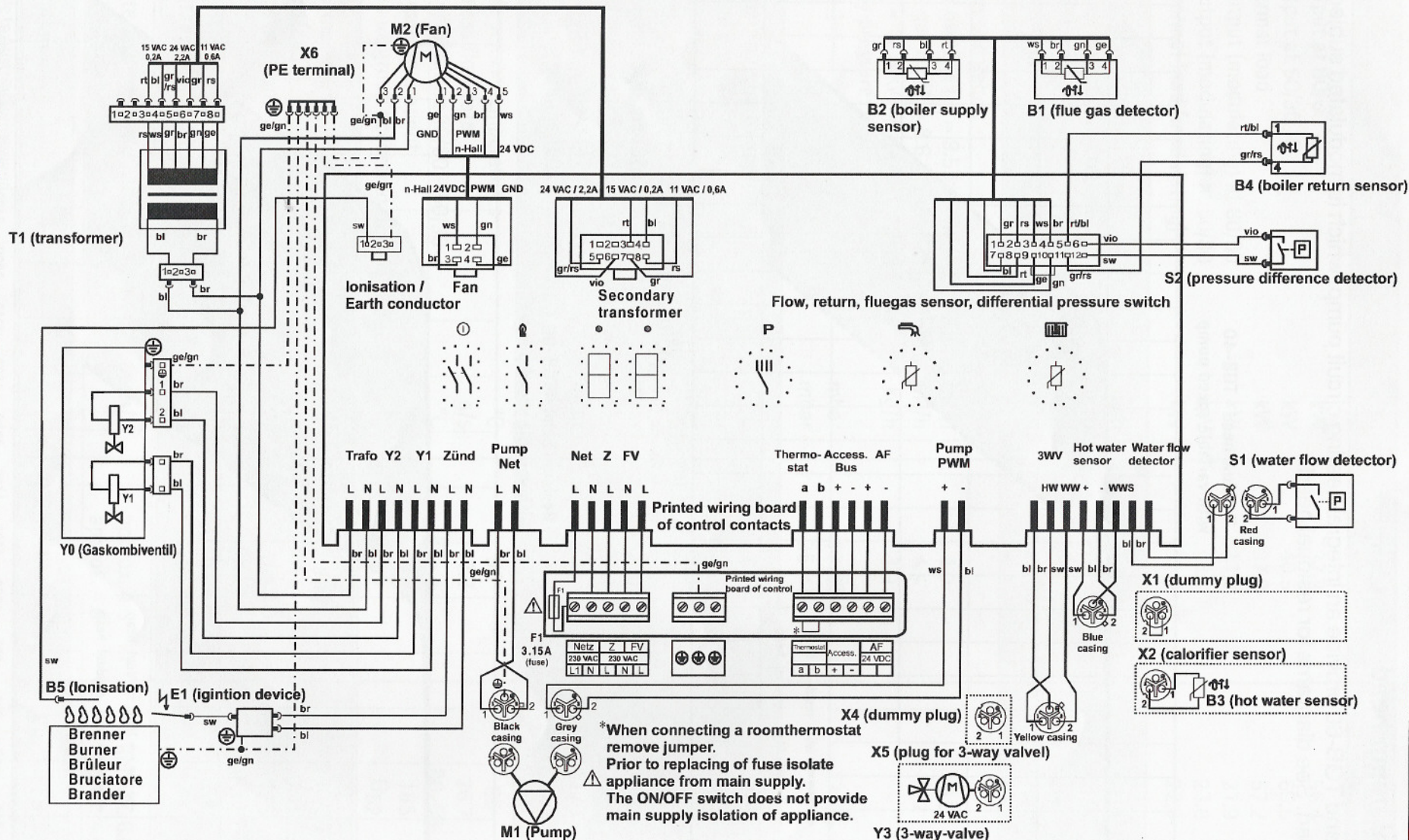
Fig.: Control cable position

Specification

Type		TGB-40	TGB-60
Rated output at 80/60 °C	kW	37.2	55.4
Rated output at 50/30 °C	kW	40.5	60.6
Rated thermal load	kW	37.9	57.2
Lowest output (modulating) at 80/60	kW	11.2	21.9
Lowest output (modulating) at 50/30	kW	12.1	23.6
Lowest thermal load (modulating)	kW	11.4	22.3
Outside diameter heating flow	inch	G1¼"	G1¼"
Outside diameter heating return	inch	G1¼"	G1¼"
Gas connection	R	¾"	¾"
Air/flue gas connection	mm	125/80	125/80
Gas connection value:			
Natural gas E/H ($H_i = 9.5 \text{ kWh/m}^3 = 34.2 \text{ MJ/m}^3$)	m³/h	4.0	6.0
Natural gas LL ($H_i = 8.6 \text{ kWh/m}^3 = 31.0 \text{ MJ/m}^3$)	m³/h	4.4	6.7
LPG ($H_i = 12.8 \text{ kWh/kg} = 46.1 \text{ MJ/kg}$)	kg/h	3.0	-
Gas supply pressure:			
Natural gas	mbar	17-25	17-25
LPG	mbar	25-45	-
Flow temperature up to approx.	°C	85	85
Max. system pressure	bar	2.5	2.5
Heating water heat exchanger water content	litres	2.5	2.5
Residual heating circuit head: Max. modulation			
1720 l/h supply volume (30kW at $\Delta T = 15\text{K}$)	mbar	290	300
2120 l/h supply volume (37kW at $\Delta T = 15\text{K}$)	mbar	150	300
2700 l/h supply volume (47kW at $\Delta T = 15\text{K}$)	mbar	-	170
2580 l/h supply volume (60kW at $\Delta T = 20\text{K}$)	mbar	-	220
Permissible sensor temperatures	°C	95	95
Flue gas mass flow rate	g/s	17.3	26.7
Flue gas temperature 80/60 - 50/30	°C	67- 43	80-50
Available gas fan draught	Pa	130	185
Flue gas valve group according to DVGW G 635		G52	G52
Electrical connection	V~/Hz	230/50	230/50
Fitted fuse (fast)	A	3.15	3.15
Power consumption	W	165	175
Protection		IPX2D	IPX2D
Total weight	kg	53	54
Dry weight (assembled)	kg	40	41
Condensate volume at 40/30 °C	litres/h	approx. 4.5	approx. 6.0
Condensate pH value		approx. 4.0	approx. 4.0
CE designation		CE-0085BM0261	CE-0085BM0261

* not applicable to Austria/Switzerland

Wiring diagram TGB-40/60



Troubleshooting

If a fault occurs, the BIAS operating, information and display system displays a fault code, to which cause and remedy from the following table may be allocated. This table is designed to allow your local heating contractor to trace the fault more easily.

E = press the reset button after a fault has been removed

Fault-code	E	Explanation Fault	Possible Causes
1	E	STB - High-limit safety cut-out The flow temperature has exceeded 110 °C.	<p>The maintenance valves were closed during maintenance, no fault.</p> <p>No flow through the heat exchanger due to</p> <ul style="list-style-type: none"> - an inadequately vented system - a faulty overflow valve - a faulty pump + a faulty flow switch - a blocked water pipe + a faulty flow switch <p>The control unit records an incorrect flow temperature due to</p> <ul style="list-style-type: none"> - a faulty flow sensor
4	E	No flame is established No flame is established during the burner start The PCB receives no ionisation signal.	<p>Lack of gas because</p> <ul style="list-style-type: none"> - the gas tap is closed - the gas pipe has an airlock - the gas supply pressure is too low. <p>No ignition spark because</p> <ul style="list-style-type: none"> - the ignition electrode is contaminated or bent - the ignition electrode is faulty, e.g. ceramic fracture - of a faulty ignition transformer - the ignition cable is faulty or disconnected <p>The flame is not recognised because</p> <ul style="list-style-type: none"> - the monitoring electrode is faulty, corroded or bent - the monitoring electrode cable is faulty or disconnected - the earth cable on the ignition electrode is disconnected - the electrode cables are interchanged <p>The gas mixture is difficult to ignite because</p> <ul style="list-style-type: none"> - the CO₂ value is outside the permissible range - flue gas is getting into the combustion air supply - flue pipe is not gas-tight - of wind influence, the wind protection is missing
5	E	Flame failure during operation Flame failure within 15 s after the flame has been successfully recognised.	<p>Lack of gas because</p> <ul style="list-style-type: none"> - the gas supply pressure is too low. <p>The gas mixture is difficult to ignite because</p> <ul style="list-style-type: none"> - the CO₂ value is outside the permissible range - flue gas is getting into the combustion air supply - flue pipe is not gas-tight - the gas restrictors or their gasket not OK, if required for this boiler - of wind influence, the wind protection is missing
6		STW - Excess temperature The flow return temperature has exceeded the limit of the STW shutdown temperature of 95 °C.	<p>The maintenance valves were closed during maintenance, no fault.</p> <p>This can occur during normal operation, if thermostatic valves are closed simultaneously, no fault.</p> <p>If displayed frequently, check the cause for the lack of flow through the heat exchanger, i.e.</p> <ul style="list-style-type: none"> - a faulty overflow valve - a faulty pump + a faulty flow switch - a blocked water pipe + a faulty flow switch

Faulty components must be replaced with original spare parts.

Troubleshooting

If a fault occurs, the BIAS operating, information and display system display a fault code, to which cause and remedy from the following table may be allocated. This table is designed to allow your local heating contractor to trace the fault more easily.

E = press the reset button after a fault has been removed

Fault-Code	E	Explanation Fault	Possible Causes
7	E	STBA - Excess temperature The flue gas temperature has exceeded the limit for the STBA shutdown of 110 °C. Flue gas system protection.	Flue gas temperature too high because - the output is too high - of a contaminated or faulty heat exchanger
11	E	Flame pretence A flame is recognised before the burner starts.	Fault current because - of a faulty monitoring electrode - of a faulty monitoring electrode cable
12		Flow sensor faulty	Short circuit or break in sensor or cable.
13		Flue gas sensor faulty	Short circuit or break in sensor or cable.
14		DHW sensor faulty	Short circuit or break in sensor or cable.
15		Outside temperature sensor faulty	Short circuit or break in sensor or cable.
16		Return sensor faulty	Short circuit or break in sensor or cable.
20	E	Gas valve, 2 fault For 15 seconds after burner operation a flame is still recognised, although gas valve 2 has received a shutdown command.	Gas combination valve faulty
21	E	Gas valve 1 fault For 15 seconds after burner operation a flame is still recognised, although gas valve 1 has received a shutdown command.	Gas combination valve faulty
22	E	Lack of air The differential pressure switch does not switch ON.	Too little combustion air because of - the balanced flue system being too long - the balanced flue system/siphon blocked - of a faulty gas fan Monitoring interrupted by - a faulty differential pressure switch - water or contamination in the hoses to the differential pressure switch - a faulty or disconnected cable
23	E	Differential pressure switch fault The differential pressure switch does not switch OFF.	Gas fan does not switch OFF. Monitoring interrupted by - a faulty differential pressure switch - water or contamination in the hoses to the differential pressure switch.

Faulty components must be replaced with original spare parts.

Troubleshooting

If a fault occurs, the BIAS operating, information and display system displays a fault code, to which cause and remedy from the following table may be allocated. This table is designed to allow your local heating contractor to trace the fault more easily.

E = press the reset button after a fault has been removed

Fault-Code	E	Explanation Fault	Possible Causes
25	E	Gas fan speed not recognised The control unit does not receive a speed signal from the fan.	No signal because - of a faulty gas fan - of a cable break or cable not connected
26	E	Gas fan does not switch OFF The gas fan does not stop.	Modulation (PWM signal) interrupted by - a cable break - plug disconnected
30	E	CRC fault, boiler The EEPROM-record "Boiler" is invalid.	Control PCB faulty
31	E	CRC fault burner The EEPROM-record "Burner" is invalid.	Control PCB faulty
32	E	Fault in the 24 VAC supply External 24 VAC supply outside its permissible range.	- cable to transformer or gas fan faulty - 24 volt - fuse on the PCB faulty or missing - short circuit in fan or three-way valve
40		Low water indicated The flow switch does not switch ON or switch OFF.	System and boiler not adequately vented. Flow switch faulty.
x.y.	E	Electronic module fault The internal self-test has discovered an error.	Control PCB faulty

Faulty components must be replaced with original spare parts.