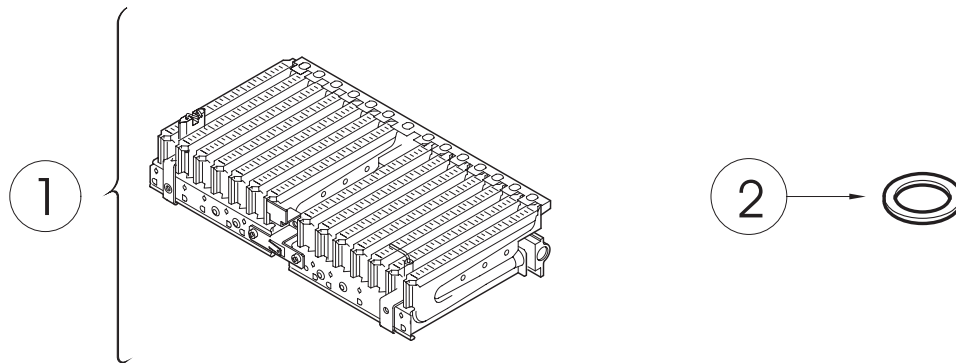


Gas Conversion Kit Instructions

For models: GWH 345 ESR, GWH 450 ESR



Part no. 8 719 002 347/ 8 719 002 348/ 8 719 002 349/ 8 719 002 350



6720608363-00.1SM

Warning: This kit shall be installed by a qualified service agency in accordance with these instructions and all applicable codes and requirements of the authorities having jurisdiction.

Kit components:

1. Complete burner
2. Washer



BOSCH



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1 Gas Type Conversion



LP AND NG ARE EXTREMELY FLAMMABLE SO TAKE EXTRA PRECAUTIONS WHEN PERFORMING ANY WORK ON THE HEATER.



THIS PROCEDURE MUST BE PERFORMED BY A LICENSED GAS TECHNICIAN.

1.1 Preparation

A. Preparation

1. Tools needed:

- flat and Phillips screwdriver
- #40 Torx driver
- digital combustion analyzer
- manometer.

1.2 Gas conversion

Gas conversion

- ▶ Turn off the gas shut off valve.
- ▶ Press power button to off position and unplug.
- ▶ Place control panel into service position.
- ▶ Remove the front cover.
- ▶ Remove combustion cover by releasing the four clips that secure it (Fig. 1).

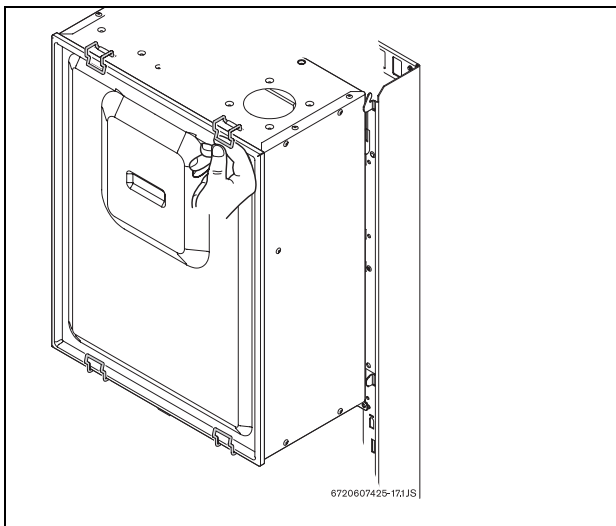


Fig. 1 Combustion cover

- ▶ Remove the burner and washer.

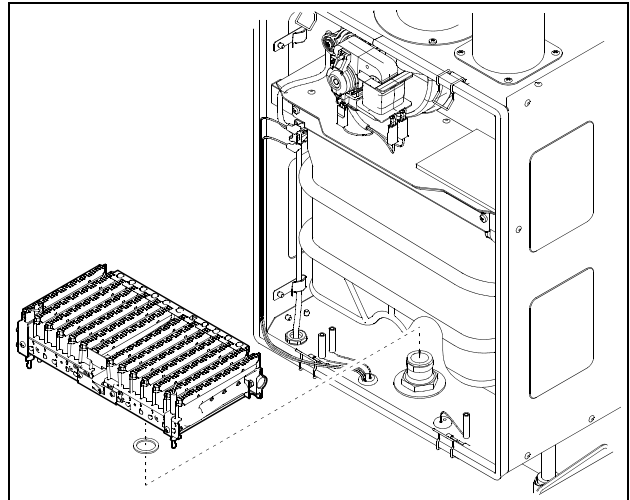


Fig. 2 Remove burner

- ▶ Install new burner with washer.
- ▶ Open gas shut off valve and check for gas leaks.
- ▶ Adjust the gas settings (see chapters 2.2 and 3.1).
- ▶ Record the new gas type on the appliance data plate.



Warning:

When reassembling, make sure the gasket placed between the combustion cover and combustion chamber is in the correct position.

2 Gas Settings



Danger:

The following operations must be carried out by licensed gas technicians.

2.1 Service mode

In order to set the rated heat input/output, the appliance has to be set to Service Mode.

- ▶ Switch off the appliance.
- ▶ Loosen control panel screws.
- ▶ Fold down the control panel to the servicing position.

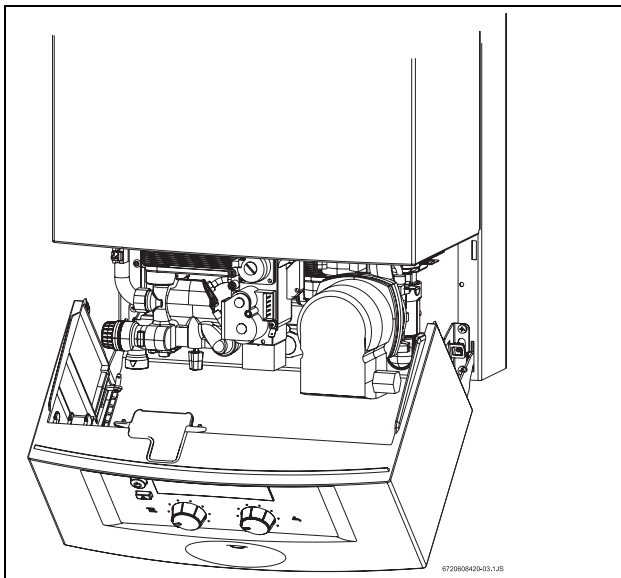


Fig. 3 Service position for gas adjustment

Before Setting the Appliance to Service Mode:

- ▶ Turn up thermostat or aquastat to create a call for heat.

To switch to Service Mode:

- ▶ Switch on the appliance.
- ▶ Press and hold reset switch .
- ▶ Turn left dial to the minimum and then to the maximum. Leave on maximum. To confirm this, the display shows a blinking. Now the appliance is in service mode.
- ▶ Make the adjustments (see chapter 2.2 and 3.2).

To cancel Service Mode:

- ▶ Press power button to "Off", then press again to "On" to return to normal operation.



If the heater is not reset, it returns to normal service after two hours have passed.

2.2 Gas pressure measurement and adjustment

2.2.1 Gas pressure measurement

- ▶ Turn power off.
- ▶ Shut off gas supply.
- ▶ Loosen the sealing screw (7b) and fit manometer to the testing point.

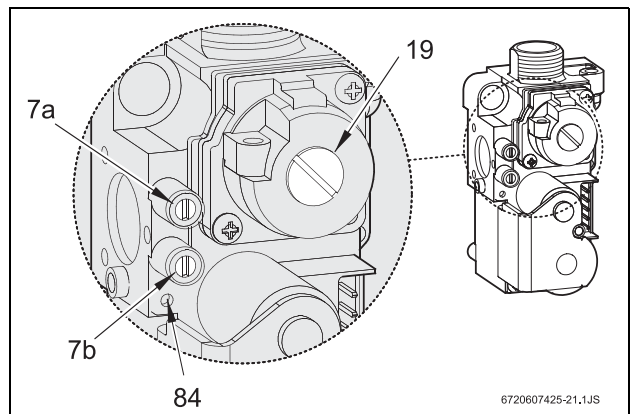


Fig. 4 Gas valve

- 7a** testing point for burner pressure
- 7b** testing point for gas supply pressure
- 19** cap for maximum gas flow rate adjusting screw
- 84** adjusting screw for minimum gas flow rate

Static pressure test


- ▶ Turn gas supply on.
- ▶ Keep unit off and record static pressure reading in Table 2.

Operating pressure test


- ▶ Press On/Off button to turn heater On.
For this test the unit has to be put in Service Level.
- ▶ After 10 seconds, press and hold the reset button.
- ▶ Rotate the recirculating water temperature selector (left knob) to the minimum and then to maximum.
- ▶ Release the reset button and the display should show * (blinking).
The unit has now entered Service Mode.
- ▶ Place a demand for heat by turning external tank thermostat control to maximum for unit to fire at maximum input.
- ▶ Operate all other gas appliances on same gas piping system at maximum output.
- ▶ **Record operating pressure reading in Table 1.**

<p>Static Gas Pressure Reading (see Chapter 2.2)</p> <p>enter here: _____</p>
<p>Operating Gas Pressure Reading (see Chapter 2.2)</p> <p>enter here: _____</p>

Table 1

- ▶ Turn power off.
- ▶ Switch on the appliance and turn the left control  fully clockwise.
- ▶ Check the gas supply pressure: the required pressure for natural gas is between 5.5. to 10.5"W.C. and for Liquid Propane 11 to 13"W.C.
- ▶ If the supply pressure is outside the limits, determine the cause and rectify the fault.
- ▶ If the fault cannot be rectified, notify the gas supplier.
- ▶ Turn off manual gas shut off valve, remove manometer and tighten the sealing screw (7b).
- ▶ Loosen sealing screw (7a) and connect manometer to test port. Open manual gas shut off valve.

Setting the maximum burner pressure



- ▶ Remove the sealed cap from the maximum gas flow-rate adjusting screw (19).
- ▶ Perform rough gas valve adjustment. If converting to Natural Gas, rotate adjusting screw counter clockwise approximately 4 turns. If converting to Liquid Propane, rotate adjusting screw clockwise approximately 4 turns or until resistance is felt. This rough adjustment should allow the heater to fire for further fine adjustments.
- ▶ Turn the left control  fully clockwise.
The control system will set the appliance to the maximum burner pressure.
- ▶ Adjust the MAX burner pressure using the adjusting screw (19) (Tab. 2).

Gas valve pressure (in W.C.)	GWH 345 ESR		GWH 450 ESR	
	Min	Max	Min	Max
Natural Gas	-0.3	3.5	0.5	4.0
Liquid Propane	0.2	8.2	0.0	9.0

Table 2 Burner pressure

- ▶ Refit the cap to the adjusting screw (19) and seal.

Setting the Minimum Burner Pressure

- ▶ Turn the left control  fully counter-clockwise.
The control system will set the appliance to the minimum burner pressure.
- ▶ Adjust the MIN burner pressure using the adjusting screw (84) (Tab. 2).
- ▶ Check settings by turning the left control  to its clockwise and counter-clockwise limits again and re-adjust settings if necessary.
- ▶ Switch off the appliance in order to exit Service Mode.
- ▶ Turn off the gas shut off valve, remove the manometer and tighten the sealing screw (7a).

3 Measuring and adjusting CO₂ levels

3.1 Checking restrictor plate size by measuring CO₂ level value

- ▶ Remove brass flat head screw from the exhaust collar.

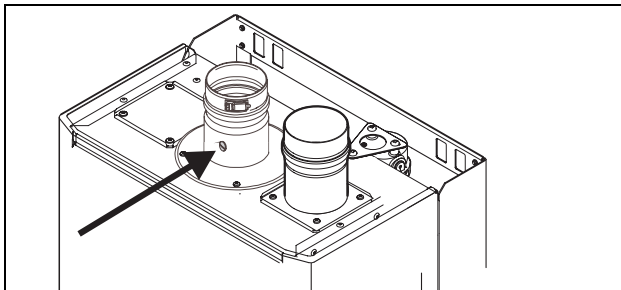




Fig. 5 Measuring port

- ▶ Insert CO₂ analyzer probe into the measuring point. The tip of the probe must be in the center of the flue pipe. Avoid air gaps between probe and measuring port to avoid inaccurate readings.
- ▶ Press On/Off button to turn heater On. For this test the unit has to be put in Service Level.
- ▶ Open a hot water tap.
- ▶ After 10 seconds, press and hold the reset button .
- ▶ Rotate the recirculating water temperature selector (left knob) to the minimum and then to maximum.
- ▶ Release the reset button and the display should show * (blinking).
- ▶ Rotate the hot water temperature selector (right hand knob)  to the maximum.
- ▶ The restrictor size is correct if the CO₂ level is within the values as in table 4.

<p>CO₂ value (%)</p> <p>enter here: _____</p>

Table 3

Appliance	CO ₂ (%)
GWH-345-ESR-N	6.8 - 7.2
GWH-345-ESR-L	7.5 - 8.0
GWH-450-ESR-N	6.5 - 7.0
GWH-450-ESR-L	7.0 - 7.5

Table 4 CO₂ levels at max. input

- ▶ If the CO₂ content is too high, use the next smallest restrictor. If the CO₂ is too low, use the next largest restrictor.

- ▶ After replacing the restrictor, measure CO₂ level again. Repeat procedure until correct level is obtained.
- ▶ Once correct reading is obtained, replace screw with gasket in exhaust collar.
- ▶ Press On/Off button to turn heater Off and exit Service Mode.

3.2 Returning to service

- ▶ Apply conversion sticker to the right side of front cover above rating plate sticker. Ensure information is filled out accurately.
- ▶ Press ON/OFF button to turn OFF the heater and then turn ON the heater.
- ▶ Heater is ready for normal operation.

Replacement Parts available from:

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