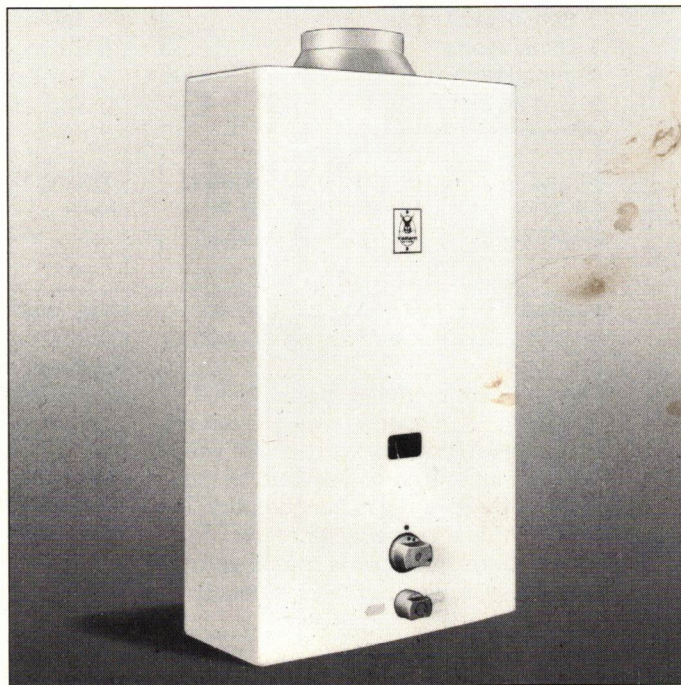


Instructions for installation and Servicing



Vaillant gas water heater MAG[®]

with automatic output adaption
(hot-water control)

MAG 250/7 TZ W

MAG 325/7 TZ W

MAG 400/7 TZ W

for Natural Gas
and Propane
with thermo-electric safety
device and piëzo-igniter

These instructions should be left near the gas meter when the installation is completed.



Vaillant

Your partner for heating, controls and hot water

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Attention

1 Range of application

All our appliances should be installed by qualified fitters only, who will be responsible for the observance of all

existing fitting instructions and regulations.

Vaillant Geysers are gas burning appliances for instantaneous production of hot water.

The units are prepared for multipoint operation. In connection with a Vaillant accessory a direct delivery of hot water is possible. The control-system of the MAG-W varies the gas consumption in relation to the tapped water flow.

This is done smoothly in the range of tapping as outlined in the technical

data. Whether you tap a little water quantity at the bath tub the appliance's output is automatically adapted. The use of thermostatic mixing batteries and single lever batteries is possible. The influence of changing cold water inlet temperature can be compensated by turning of the winter/summer correction knob.

2 Schedule of types

Type	nom. output		l/min (raised 40 °C)	Category
	kW	kcal/min.		
MAG 250/7 TZW NG	17.4	250	6,25	I ₂ HL
MAG 250/7 TZW LPG	17.4	250	6,25	I ₃
MAG 325/7 TZW NG	22.7	325	8,125	I ₂ HL
MAG 325/7 TZW LPG	22.7	325	8,125	I ₃
MAG 400/7 TZW NG	27.9	400	10	I ₂ HL
MAG 400/7 TZW LPG	27.9	400	10	I ₃

3 Dimensions

	Typ		MAG 250/7 TZW NG		MAG 250/7 TZW LPG		MAG 325/7 TZW NG		MAG 325/7 TZW LPG		MAG 400/7 TZW NG		MAG 400/7 TZW LPG	
a	352				422									
b	660				780				844					
c	450				540									
d	135				155									
e	R $\frac{1}{2}$	R $\frac{1}{2}$	R $\frac{1}{2}$	R $\frac{1}{2}$	R $\frac{1}{2}$	R $\frac{1}{2}$	R $\frac{3}{4}$	R $\frac{1}{2}$						
f	110				130									
g	265				325									
h	250				320									
i	112				106									
k	50													

- 1 draught-diverter
- 2 cowling
- 3 mounting-holes
- 4 pilot burner
- 5 gas control knob
- 6 warm water connection
- 7 winter/summer correction knob
- 8 cold water connection
- 9 gas connection

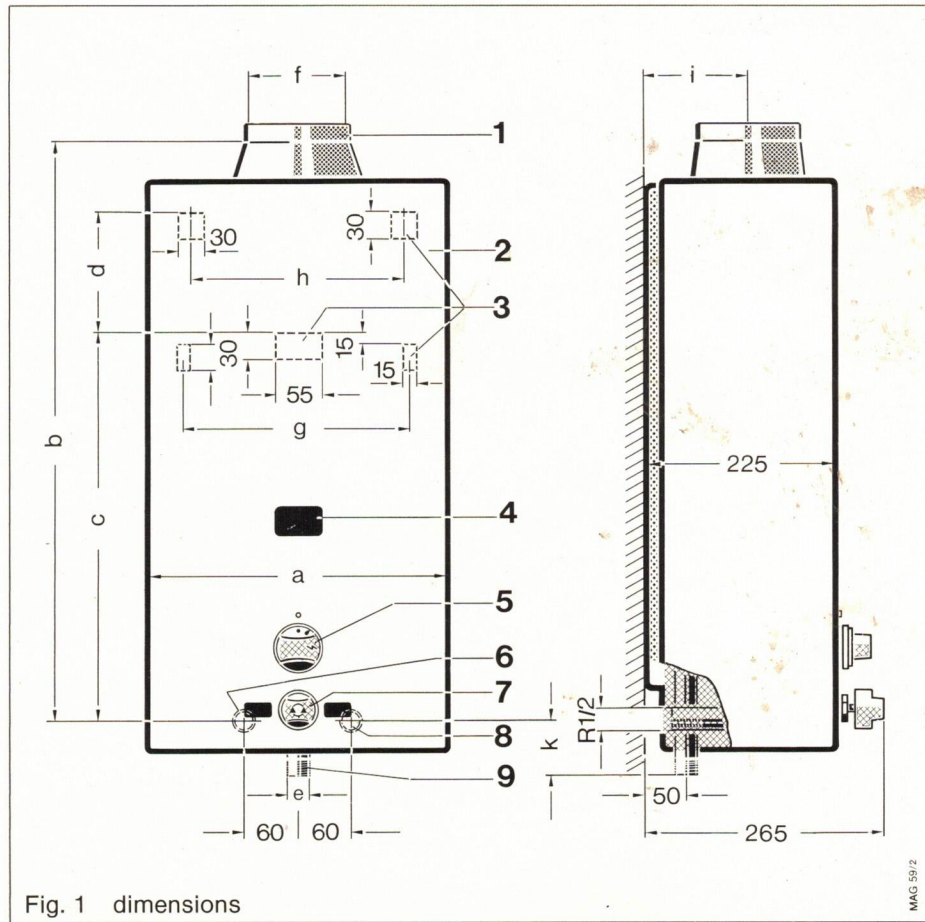


Fig. 1 dimensions

4 Installation

4.1 Standards and regulations

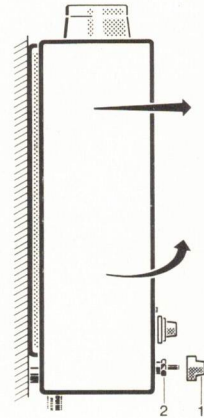
This appliance must be installed in accordance with the manufacturer's installation instructions, uniform building regulations, water supply by-laws, local gas fitting regulations and all other relevant regulations.

4.2 Position of the appliance

The installation of flueless multipoint water heaters is not permitted. For best results install as close as possible to the hot water tap most often used. Lag all hot water pipes. Installation on a combustable surface is only permitted when the special mounting frame is used. The heater should not be installed in rooms with aggressive gases or damps.

Remove front cowling (fig. 2)

- a) Pull off temperature selector knob (1)
- b) Unscrew locking nut (2)
- c) Pull off the tap-knobs (fitted for direct-tapping)
- d) Pull cowling forward and lift off.



MAG 60/0

- 1 winter/summer correction knob
- 2 locking nut

Fig. 2 Removing of front cowling

4.3 Gas connection

A gas cock must be fitted and the final coupling to the heater must be made with an approved connection between the gas cock and heater inlet.

Clean out all foreign matter from the gas supply pipe before connecting to the appliance. Shut-off the gas cock and test for soundness.

Note:

NG appliances must be installed with the regulator supplied. Check A.G.A. installation code for gas burning equipment for relevant pipe sizing.

4.4 Cold water

Connection as required by local authorities is made at the R.H. R $\frac{1}{2}$ male facing the back plate (fig. 1, No. 8).

Ensure that an approved isolating valve is fitted.

Flush out all foreign matter from the pipe before connecting to the appliance.

4.5 Hot water

Connection as required by local authorities is made at the L.H. R $\frac{1}{2}$ " male fitting facing the back plate (fig. 1, No. 6). Use copper pipes for all hot water lines.

4.6 Flue

Install flue according to A.G.A code 601 for gas burning appliances and equipment.

4.7 Initial regulations

Note

All heaters are carefully tested and adjusted before despatch but further adjustment may be necessary because of local conditions.

4.8

To expell air from water pipes open all hot water taps then close when all air is purged.

4.9

Ensure that main gas cock and water isolating valve are fully open, prepare heater for operation (see "taking into operation").

5 Gas adjustment

5.1 Pilot burner

The pilot flame has to heat up the thermocouple. The size of the pilot flame is determined by a pilot nozzle adapted to the type of gas.

It is possible to adapt the length to the pilot flame to the different gas main pressures by the regulation screw (fig. 3, no. 5).

The pilot flame is regulated when the main burner is off.

For LP-gas, a regulation of the pilot flame is not necessary.

5.2 Main burner

Check that the heater is supplied suitable for gas to be used. Refer to rating label for gas burner manifold pressures.

Note:

Set summer/winter control on winter by turning clockwise and ensure that sufficient flow of water is passing through the appliance to enable the burner to operate at maximum gas rate.

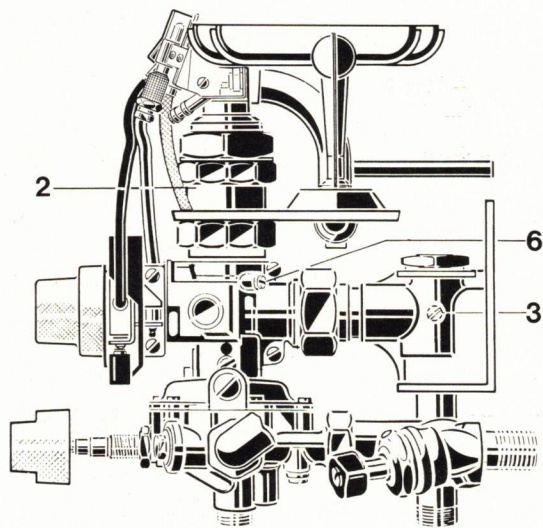
The heater for natural gas is adjusted in the factory to an input as indicated on the rating plate. But because of dif-

ferent local gas characteristics, it is essential to control the gas input in accordance with local conditions as described below.

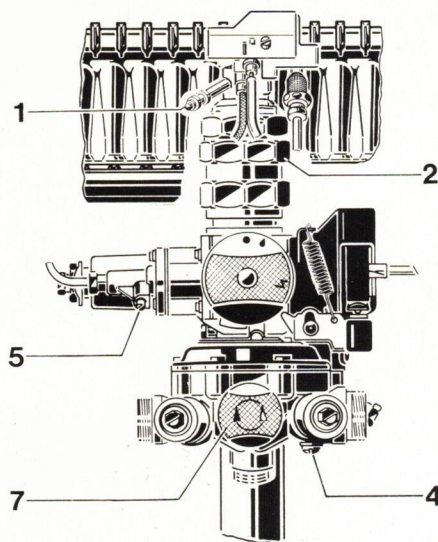
For an exact adjustment, the operative calorific value (H_{UB}) or the wobble number value (W_o) must be known.

The gas adjustment must be carried out in the following succession:

- a) The stop cocks for water and gas must be fully opened.
- b) Take the heater into operation (see page 7).
- c) The gas flow-rate in l/min can be obtained from the table on page 8. To achieve a better measurement, especially in case of gases with a high calorific value, it is recommended to read off the gas flow-rate reached in three minutes.
- d) MAG 250-400/7 regulation screw for gas pressure (fig. 3, no. 6)
turn to the right = more gas
turn to the left = less gas
- e) After adjustment wait a few seconds until the new gas pressure has established itself.
- f) Take the heater out of operation.



lateral view



front view

- 1 burner pressure test point
- 2 capacity control
- 3 gas inlet pressure test point
- 4 drainage screw
- 5 gas adjusting screw for pilot burner
- 7 summer/winter control

Fig. 3

5.3 Gas inlet pressure

A correct gas adjustment is only possible when the correct inlet pressure is in fact available. For this purpose a test nipple is fitted on the gas inlet connection.

Natural Gas 1.13 kPa
Propane 2.75 kPa

Gas adjustment table

	operative calorific value H_{UB} (15°C, 987 mbar, humid)		gross calorific value H_o (0°C, 1013 mbar, dry)		wobbe-index W_o		gas flow rate l/min. MAG . . . /7		
	MJ/m ³	kcal/m ³	MJ/m ³	kcal/m ³	MJ/m ³	kcal/m ³	250	325	400
natural gas	34,4	8200	40,7	9700	53,0	12620	36,6	46,9	57,9

6 Care and maintenance

The appliance should be checked and cleaned at least once a year by a qualified fitter.

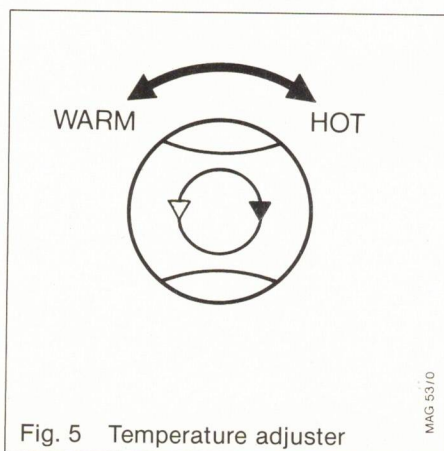
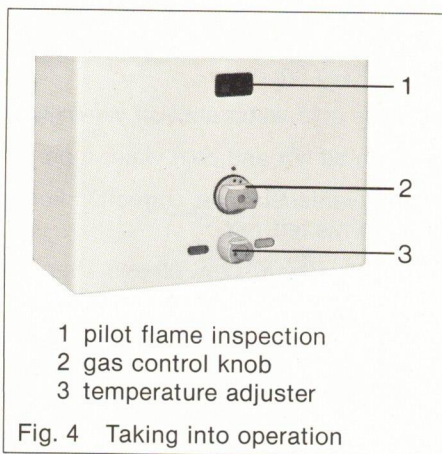
- Remove the heat-exchanger and clean especially the fins carefully (hot water with detergents and brush). Take care not to bend the fins, if necessary straighten the fins with pliers.
- In case of calcareous (hard) water, it is required to decalcify the heater once or twice a year.
- After cleaning, check the performance of the control and safety device.
- For cleaning external parts a moist cloth, possibly with soapy water, is sufficient.

7 Taking into operation

1. Open gas cock and cold water shut-off valve fully.
2. Turn rotation handle of gas section out of shut-off position ● to the left side up to stop point. Whilst turning you can hear the snapping noise of the Piëzo-igniter, igniting the pilot flame.
3. Keep rotation handle approx. 10 sec. at the stop point. If the pilot flame has not been ignited keep rotation handle at the stop point to deaerate the pilot gas tube. Then repeat ignition procedure.
4. Turn rotation handle to the right in position ♦. The appliance is ready to operate. If the pilot flame extinguishes, repeat ignition procedure. Keep rotation handle longer than 10 sec. at the stop point.

8 Taking out of operation

Turn rotation handle of gas section to the right in shut-off position ●. If the appliance should be taken out of operation for a longer period we advise to close additionally the gas cock and the cold water shut-off valve.



Gas control knob settings

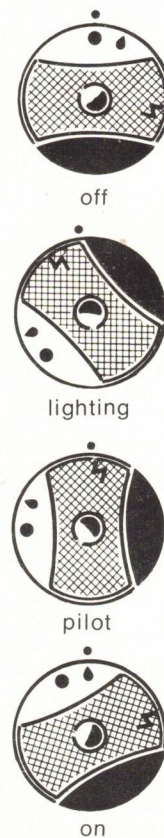
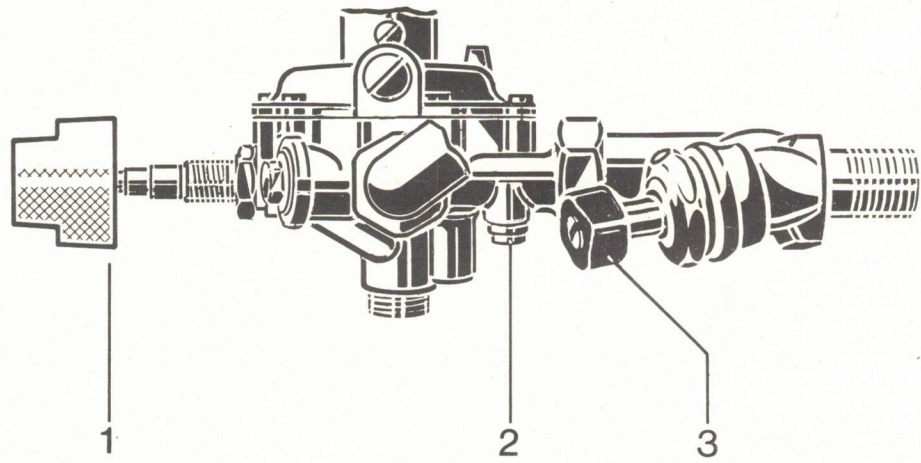


Fig. 6 Gas control knob

9 Prevention of frost-damages

In case of room temperatures below 0°C, the heater should be drained as follows (see fig. 8):

- a) Close cold water shut-off valve (3).
- b) Open **all** hot and cold water taps.
- c) Turn winter/summer correction knob (1) to the left.
- d) Unscrew drainscrew (2) and after complete drainage, replace and tighten screw.



- 1 Temperature Selector
- 2 Drainage Screw
- 3 Cold Water Shut-off-Valve

Fig. 8 Water section

10 Technical Data

We cannot accept responsibility for damage as a result of non-observance of these installation and servicing instructions.



Vaillant

Joh. Vaillant GmbH u. Co
Berghauser Straße 40
P.O.Box 101061
D-5630 Remscheid 1

Telephone (02191) 18-0
Telex 8513-879
Cables vaillant remscheid

M 0492 V
Subject to alterations
Printed in Germany - Imprimé en Allemagne

Typ of appliance	MAG 250 LPG	MAG 250 NG	MAG 325	MAG 400	units
Nominal input	85	79,2	110	134	MJ/h
Nominal output	17,4	17,6	22,7	27,9	kW
Output of water at 50 K rise	2...5	2...5	3...6,5	4...8	l/min
Output of water at 25 K rise	6...10	6...10	8,5...13	10...14	l/min
Minimum water pressure	110	110	140	170	kPa
Maximum water pressure	1300	1300	1300	1300	kPa
gas consumption					
natural gas (nCV s.t.p.) = 30,2 MJ/m ³ (7.200 kcal/m ³)	—	2,4	3	4	m ³ /h
LP-gas (nCV s.t.p.) = 46,2 MJ/kg (11.000 kcal/kg)	1,9	—	2,2	2,6	kg/h