BOSCH

Gas Instantaneous Water Heaters

For your safety

If you smell gas:
1. **Close gas isolating cock**
2. **Open windows**
3. **Do not actuate any electrical switches**
4. **Extinguish naked flames**
5. **Contact gas authorities immediately**

Do not store or use flammable materials or liquids near the appliance.
Do not place articles on or against this appliance.

Approved for indoor installation only.

WR 250 - 1K..P..
WR 325 - 1K..P..
WR 400 - 1K..P..

- THE APPLIANCE MAY ONLY BE INSTALLED BY AN AUTHORISED PERSON.
- Perfect functioning of the appliance is guaranteed only if this specification and the operating instructions are followed.
- The customer shall be provided with these installation instructions.
- The fitter shall explain the function and operation of the appliance to the customer.
- Servicing may only be carried out by authorised personnel.
- Installation in a marine environment should be avoided.
- Install in accordance with AG601, AS/NZS3500.4.2, NZS5261 and all local building, water and gas fitting regulations.
- Not suitable for pool or SPA application.
- Failure to install the appliance in accordance with these installation instructions may void warranty.

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1. Description of Appliances

Multipoint gas water heaters with built-in draught diverter. White plastic-coated front casing. Suitable for small and large hot water consumption. Particularly suitable for thermostatic mixing batteries and single-level mixers.

1.1 Equipment

- Fully protected with thermoelectric flame failure device;
- Piezoelectric ignition;
- Draught diverter.

1.2 Type overview

WR 250-1	K	V	3	P	23 32	S2400
WR 325-1	K	V	3	P	23 32	S2400
WR 400-1	K	V	3	P	23 32	S2400

W = Multipoint gas water heaters
R = Regulated gas valve
250 = Power code number 17.5 kW (250 kcal/min)
325 = Power code number 22.75 kW (325 kcal/min)
400 = Power code number 28 kW (400 kcal/min)
-1 = Version code number
K = Chimney flue
V = Connector
3 = Remote draw-off unit not convertible
P = Built-in piezo ignition
23 = Gas code number, natural gas H
32 = Gas code number, LP gas
S2400 = Australian code number

1.3 Constructional details

Schematic representation of remote draw-off unit (natural gas).

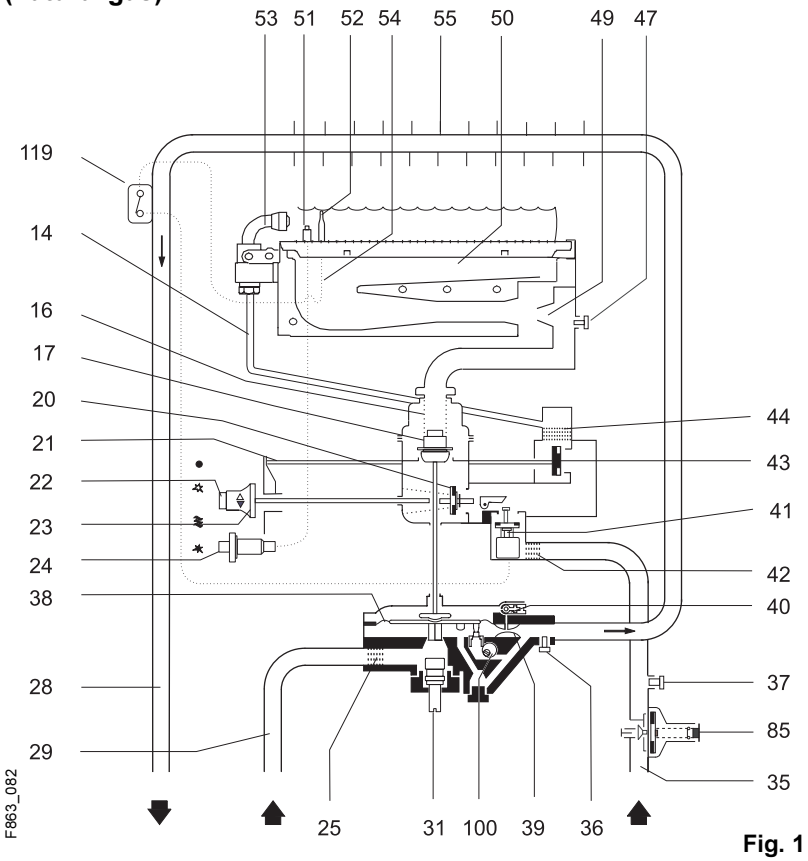


Fig. 1

Schematic representation of remote draw-off unit (LP gas).

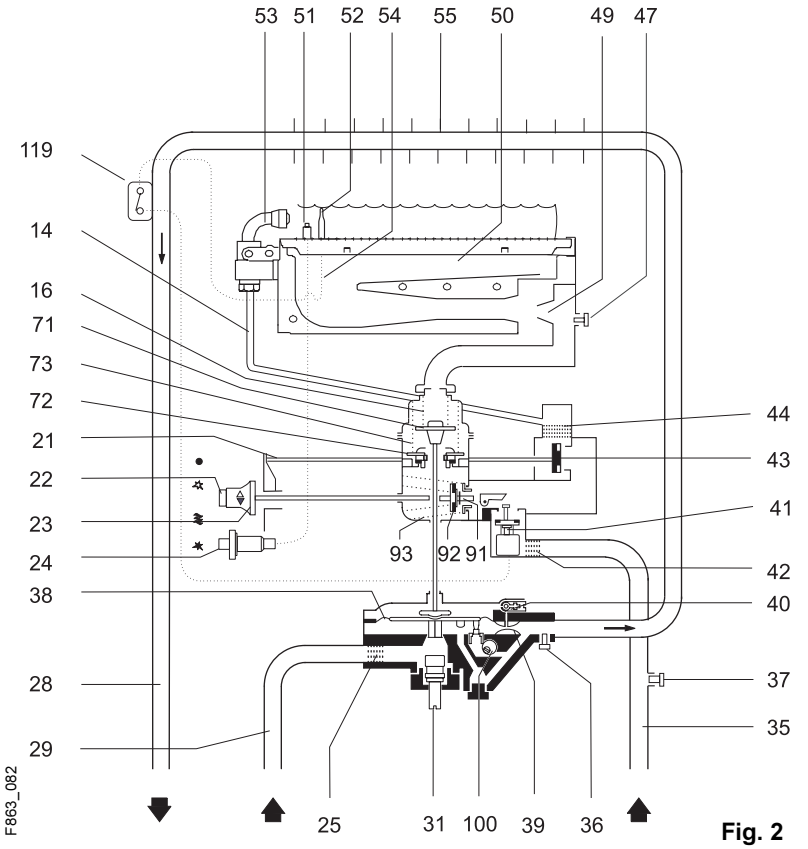


Fig. 2

14 Pilot valve pipe
16 Gas valve spring
17 Gas valve
20 Main gas valve
21 Pilot gas valve stem
22 Pilot gas button
23 Gas control slide
24 Piezo igniter
25 Water strainer
28 Hot water connecting pipe
29 Cold water connecting pipe
31 Water throttle
35 Gas inlet
36 Drain plug
37 Measuring point
38 Diaphragm
39 Venturi
40 Slow ignition valve
41 Magnetic unit
42 Gas filter
43 Pilot gas valve
44 Pilot gas filter
47 Measuring point
49 Injector nozzle
50 Burner
51 Thermocouple
52 Sparking plug
53 Pilot burner
54 High voltage ignition led
55 Heat exchanger
71 Gas valve
72 Gas valve plate
73 Gas valve spring
85 Pressure regulator
91 Main gas valve
92 Main gas valve plate
93 Compression spring
100 Correcting screw for min. water flow
119 Temperature limiter

2 Technical Data

Appliance Output		**WR 250 - 1...**	**WR 325 - 1...**	**WR 400 - 1...**
Rated output	MJ/h (kW)	25 (7,0) - 63 (17,5)	25 (7,0) - 82 (22,75)	25 (7,0) - 101 (28,0)
	kcal/min.	250	325	400
Rated input (based on gross c.v.)	kW (MJ/h)	79 (22,0)	104 (29,0)	127 (35,3)
	kcal/min.	315	415	506
Gas inlet pressures				
Natural gas	kPa (mbar)	1,11 (11,1)	1,11 (11,1)	1,11 (11,1)
LP gases	kPa (mbar)	2,75 (27,5)	2,75 (27,5)	2,75 (27,5)
Gas consumption (based on gross c.v. at 15°C / 60°F - 1013 mbar - dry)				
Natural gas (10.5 kWh/m^3 - 9000 kcal/m^3 - 37.8 MJ/m^3)	m^3/h	2,1	2,8	3,4
LP gas (13.8 kWh/m^3 - 11800 kg - 49.6 MJ/kg)	kg/h	1,6	2,1	2,6
Water data				
Max. water flow	ltrs./min.	10	13	16
Temperature rise	°C	25	25	25
Min. inlet water pressure	bar	1,1	1,5	2,0
	kPa	110	150	200
Min. water flow	ltrs./min.	2	2	2
Temperature rise	°C	55	55	55
Min. inlet water pressure	bar	0,3	0,4	0,5
	kPa	30	40	50
Burner pressure for maximum output				
Natural gas	kPa (mbar)	0,89 (8,9)	0,84 (8,4)	0,78 (7,8)
LP gases	kPa (mbar)	2,60 (26,0)	2,60 (26,0)	2,60 (26,0)
Burner pressure for minimum output				
Natural gas	kPa (mbar)	0,15 - 0,25 (1,5 - 2,5)	0,15 - 0,25 (1,5 - 2,5)	0,15 - 0,25 (1,5 - 2,5)
LP gases	kPa (mbar)	0,35 - 0,65 (3,5 - 6,5)	0,35 - 0,65 (3,5 - 6,5)	0,35 - 0,65 (3,5 - 6,5)
Main burner injectors				
Natural gas	Ø mm	1,20	1,30	1,30
LP gases	Ø mm	0,75	0,79	0,76
Pilot burner injector				
Natural gas		blue	blue	blue
LP gases		red	red	red
Flue gas data				
Draught required	mbar (Pa)	0,015 (1,5)	0,015 (1,5)	0,015 (1,5)
	mm.w.g. (In.w.g.)	0,15 (0,006)	0,15 (0,006)	0,15 (0,006)
Flue gas load*	kg/h (lb/h ; oz/h)	43,2 (95 - 1520)	57,6 (128 - 2050)	72 (158 - 2540)
Flue gas temperature*	°C (°F)	160 (320)	170 (340)	180 (356)

3 Installation and Commissioning

Install in accordance with AG601, AS/NZS3500.4.2, NZS5261 and all local building, water and gas fitting regulations.

3.1 Regulations

Before installing the water heater, consult your gas authority.
Installation, gas and flue gas connection and commissioning may only be carried out by an authorised service person.
Also observe any local waterworks and building regulations.
The following guidelines and regulations must be observed: AG 601, NZS 5261 and AS/NZS 3500.4.2 INSTALLATION CODE FOR GAS BURNING APPLIANCES AND EQUIPMENT.

3.2 Location

The appliance should be installed in a frost-protected, well ventilated room. Rooms containing aggressive vapours (sprays, etc.) must definitely be avoided.
In order to prevent corrosion, make sure that the combustion air is kept free of aggressive substances (e.g chlorine, fluorine), which are contained in solvents, paint, adhesives, propellant gases, various household cleaners, etc.
If sealed windows are subsequently installed, sufficient and permanent ventilation of the room must be ensured.
The surface temperature is below 85°C (105°F) (except flue gas). Thus no special protective measures for combustible building materials are necessary. For reasons of servicing, the distances specified in Fig. 3 should be observed.
When installing in a cupboard-like enclosure, the dimensions specified in Fig. 3 must be observed.
Refer AG 601 and NZS 5261.
Not suitable as a SPA or pool heater-

Removal of front shell
Remove retaining nut (below gas slide). Swing the casing to the front and push upwards.

Mounting
Connections for gas and water supply to be fixed as per Fig. 4.

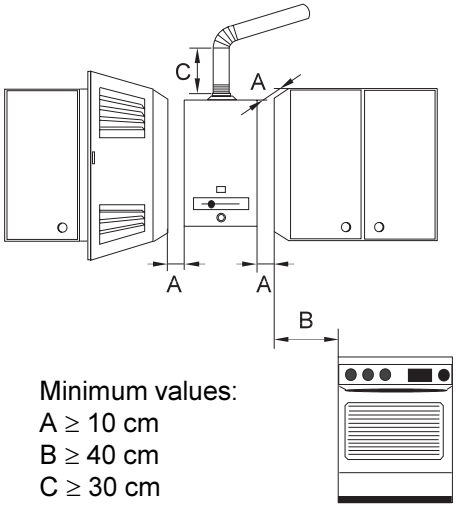


Fig. 3

Gas connection
Ensure gas line is clean.
Fix pipelines in accordance with the specifications listed.
Install gas service cock.
Make sure that the type of gas specified on the nameplate is the same as that supplied by the gas authorities.

Water connection
Lay pipelines in accordance with the water pressure and specifications listed. Comply with local water authority regulations.
If using plastic pipes, a metal pipe connection of 1,5 m (50”) must be provided on the cold and hot water slides.
Installing water connection accessories.
Cold water right.
Hot water left
Avoid restrictions in the pipelines.
Use only gate valves or full flow ball valves. Non-return valves MUST NOT BE USED.

Water settings
At a pressure of 250 kPa the units are set for a water flow as follows:
WR250 = 5.5 litres per min.
WR325 = 7.5 litres per min.
WR400 = 8.5 litres per min.
If greater water flows and thereby lower draw-off temperatures are desired the water throttle (Fig. 2, item 31), should be turned to the right.

Connecting appliance
Attach enclosed wall hooks (Fig. 4).
Connect appliance with the accessories listed in the parts list.

Routing of gases
Lay flue pipe in accordance with the specifications so that it rises and is leakproof.

Leakage test
Open gas isolating cock and water shut off valve.
Check appliance and gas/water connections for leakages.
Start up appliance as shown in “Operation” section.
Carry out a functional check of the flue gas system (draught diverter) using a dew-plate.

4 Connecting Measurements

(all dimensions in mm)

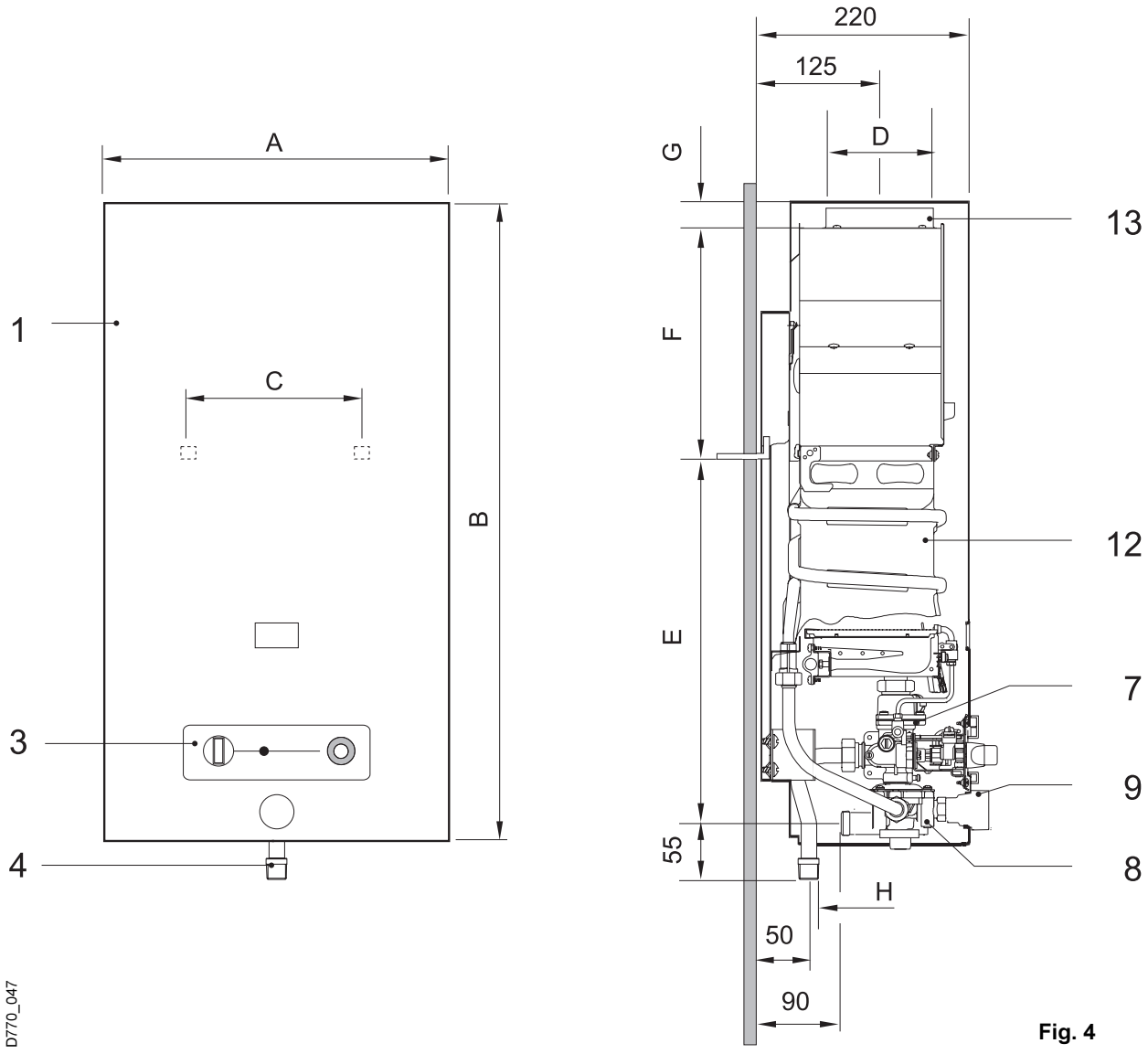


Fig. 4

1 Front cover
3 Shield
4 Gas connection
7 Gas valve assembly
8 Water valve assembly
9 Screw cap
12 Heat exchanger
13 Draught diverter

Appliance dimensions	A	B	C	D	E	F	G	H	
								Natural gas	LP gas
WR 250	360	680	228	110	423	227	25	R3/4"	R1/2"
WR 325	400	755	228	130	460	233	30	R3/4"	R1/2"
WR 400	460	755	334	130	512	182	30	R3/4"	R1/2"

5 Setting appliance

All heaters are adjusted before leaving the factory. LPG gas heaters are adjusted at inlet pressure of 2,75 kPa and Natural gas heaters for 1,11 kPa.

Note: Make sure that the appliance is suitable for the type of gas available at the installation.

5.1 Gas adjustments

Gas burner pressure adjustment

1. Turn off gas supply.
2. Loosen sealing screw D (fig. 5) and connect U tube manometer.
3. Turn on gas supply and start up appliance in accordance with operating instructions. Fully open a hot water tap.
4. Check that burner pressure is as stated on the rating label.
5. If other than specified test inlet pressure. Turn off gas supply, remove manometer, tighten sealing screw, turn on gas supply and test for leaks.

Gas inlet pressure adjustment

1. Turn off gas supply.
2. Remove inlet test point screw A (fig. 6).
3. Attach U tube manometer.
4. Turn on gas supply and start up appliance in accordance with operating instructions.
5. Check inlet gas pressure while appliance is operating.
6. For natural gas appliances adjust pressure at appliance regulator (fig. 1, item 85).
   No adjustment for LP appliances, check cylinder regulator and pipe size.
7. Turn off gas supply, remove manometer, replace sealing screw, turn on gas supply and test for leaks.
8. Note the new type of gas on the appliance's rating plate;
9. Finally, adjust the minimum gas flow of the appliance using a suitable method, the most common one being described below:

a) Select a manometer with a mbar or mm (H_2O) scale;
b) Loosen sealing screw D in the burner pressure tap-off point (fig. 5) and connect the manometer;
c) Open the gas isolating valve;
d) Start up the appliance with the output slide control at the minimum output position;
e) Adjust the pressure using screw C (fig. 6), in compliance with the table supplied together with the conversion kit.

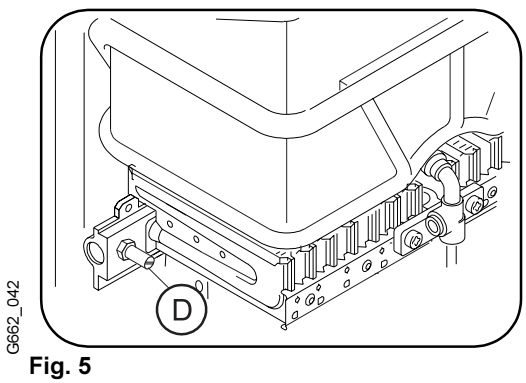


Fig. 5

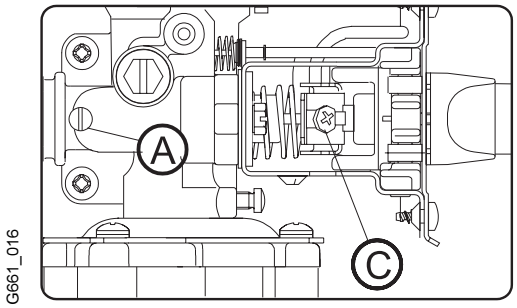


Fig. 6

6 Conversion to other Gases

From natural gas to LP gas and vice-versa.
Conversion kits for new type of fuel to be ordered from manufacturer or agent.
Model designation and type of fuel gas must be stated with order.

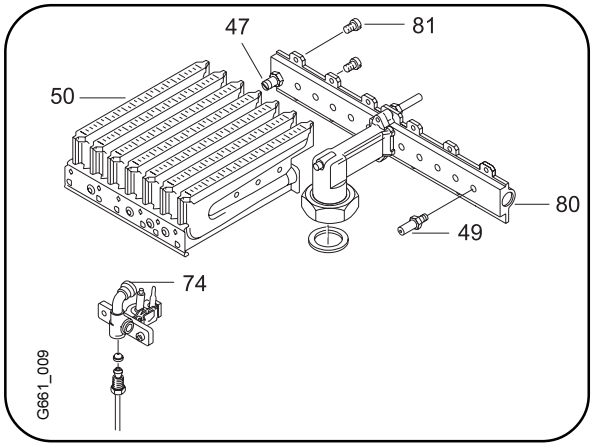
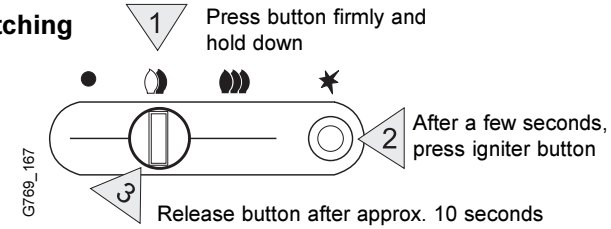


Fig. 7

47 Measuring point for burner pressure
49 Injector orifice
50 Burner assembly, left and right
74 Pilot orifice
80 Burner manifold
81 Screw (short)

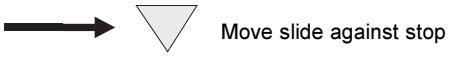
7 Operation

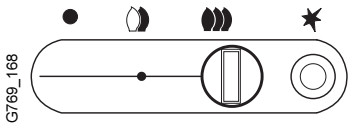
Switching on



If pilot flame does not remain alight, repeat ignition procedure

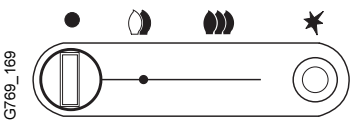
Operating position





gas decrease **gas increase**

Shutting-off



8 Servicing

After 12 to 24 months of service, the appliance should be checked, cleaned thoroughly and descaled if necessary.
Servicing may only be carried out by an authorised person.
The following work must be carried out:

Heating body

Clean heat exchanger on flue gas side. Check heating body and connecting pipes to ascertain whether descaling is required; if necessary, descale heating body with conventional cleaning compounds as specified by the manufacturer
Max. pressure at leakage test 2000 kPa (200 metres w.g.).
Use new seals when reinstalling.

Pilot burner

The flame is supposed to heat the thermocouple approx. 5 mm beneath the tip. If the flame is too small, clean pilot burner (53); if necessary, change pilot orifice and pilot gas filter (44).
If the pilot flame burns perfectly, the solenoid valve (41) must remain open approx. 5 seconds after start-up. If, during the ignition procedure, the pilot flame goes out after the button is released, the contact at the thermocouple lead connections may be defective.
Tighten threaded bushing on solenoid valve (41) and burner; if necessary, change thermocouple or magnetic unit.

Gas valve assembly

Check the gas valves for leaks. For this purpose, start up the appliance and open a hot water draw-off point.
When the gas control slide is moved against left stop the main burner and pilot burner must go out immediately. Clean leaky valves (solenoid valve, Fig. 2, item 41), main gas valve (item 20), pilot gas valve (item 43); change the sealing discs if necessary.

Water valve assembly

Close water shutoff valve; remove water valve assembly; remove cover, clean housing and cover; check relief valve for leaks - clean if necessary.

Leaky stuffing box

Remove O-ring, grease a new O-ring with Unisilkon L641 and reinstall. Complete spare parts sets are available.

Slow ignition valve (Fig. 1, item 40)

Screw out valve and clean to remove dirt particles. The ball element within the valve must be able to move freely (check by shaking). Check the O-ring and replace if necessary. Then reinstall the slow ignition valve.
When reassembling the water valve assembly, it is recommended that a new diaphragm be inserted.
Check all connections for leaks.

Functional test

Start up appliance.
If a hot water draw-off point is opened, the flames must ignite fully after approx. 5 seconds.
If the hot water draw-off point is closed, the flames must go out after approx. 1 second.
If the above values are not obtained, check the water actuated gas valve.
The fault may also be in the slow-ignition valve on the water side.
After the pilot flame has gone out, the solenoid valve (41) must close within 45 seconds. If this time period is exceeded, carry out a check in accordance with the “Pilot burner” selection.

Insufficient delivery temperature

Check gas pressure as shown in “setting gas” section, page 7; with LP gas water heaters, check nominal pressure at measuring point (37). Clean gas filter (42) and burner and check relief valve. Check that the burner and flue gas system function perfectly.

Greasing compounds

Water valve assembly: Unisilkon L 641
Gas valve assembly, incl. burner: HFt 1 v 5

Replacement and spare parts

These may be ordered using spare parts lists.

Warning - If the pilot light is extinguished, wait 5 minutes before attempting to relight the appliance. If the appliance does not operate, burns with yellow flame, leaks water or a gas smell is evident, turn off and contact the local gas authority, the manufacturer or an authorised service person.
When attempting to light the appliance ensure that all hot water taps are turned off.

Warranty Details

Your Bosch Hot Water Unit is guaranteed as follows:
For appliances used in domestic applications, ie. normal hot water drawn from household outlets, the warranty period is One (1) years parts and labour. Additionally, the heat exchanger is covered for a period of ten (10) years (parts only).
For appliances used in commercial applications the warranty period is Six (6) months parts and labour including the heat exchanger.

The warranty period commences from the purchase date. Claims for warranty will only be accepted upon suitable proof of purchase submitted to Robert Bosch (Australia) Pty. Ltd. or an approved Bosch Service Agent authorised to carry out warranty repairs.

PURCHASER'S STATUTORY RIGHTS
The warranty terms set out below do not exclude any conditions or warranties which may be mandatory implied by law, and your attention is drawn to the provisions of the Trade Practices Act, 1974, and State legislation which confers certain rights upon consumers. The ROBERT BOSCH (AUSTRALIA) PTY. LTD. Warranty supplements these.

EXTRACT OF TERMS OF DELIVERY AND SALE:
Warranty of products marketed by Robert Bosch (Australia) Pty. Ltd. herein referred to as RBAU.

a) RBAU warrants products marketed by it as free from faults and defects and having the specified qualities according to the respective state of technology. Notwithstanding that the products may have been sold by description or sample the products shall be accepted by the Buyer even though alterations in design or construction have been generally introduced between the date of contract and the delivery of the products.
b) The warranty shall be limited to the replacement or repair at the option of RBAU of any defective products and of such parts of RBAU's products as have been damaged in consequence of the defect despite proper treatment. Parts replaced will not be returned.
c) i) Repairs and maintenance shall not extend the warranty period of the appliance.
   ii) If the product is located outside of the service agent's area, the consumer shall be responsible for the service agent's travelling costs, and if necessary the expenses of freight, packing and charges of a similar nature.

Without limiting the generality of these terms of delivery this warranty shall not apply to products sold in the following cases :—-

i) if the products sold are repaired or altered by any third party without RBAU's consent.
ii) where parts not manufactured or sold by RBAU are used in and replacement or repair.
iii) if products are not used with proper care and for the purpose for which they are sold and in accordance with any specified instruction for use.
iv) if changes occur in the condition or operational qualities of the products due to incorrect storage or mounting or due to climatic or other influences.
v) in respect of faulty construction or defects due to the use of unsuitable materials if such method of construction or use of material has been specified by the Buyer.
vi) in respect of surface coating and glass damage.
vii) in respect of the replacement of parts when such replacements are part of the normal maintenance, service or normal wear and tear.

No servant or authorised service agent has authority to add to or alter the terms of this warranty.

PLEASE NOTE:- If a service call is requested and it is found that it is not a manufacturing fault, you may be charged for the call even during the warranty period.

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