

Instantaneous gas water heater

Models W 125...T1

- installation
- operation
- maintenance

The Bosch instantaneous water heater is a high efficiency, space saving answer to your water heating needs. All Bosch instantaneous water heaters heat water only as required; no energy is lost maintaining a large volume of water at elevated temperatures as in tank-type storage water heaters.

Suitable for heating potable water only – not approved for space heating purposes.



READ INSTRUCTIONS CAREFULLY BEFORE INSTALLING

NOTICE TO INSTALLER: Please leave this manual with the owner or affix adjacent to appliance.

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

ASTRAVAN DISTRIBUTORS, LTD.

123 Charles Street
North Vancouver, B.C. V7H 1S1
Phone Canada: (604) 929-5488
Phone USA: (206) 860-8448
Web Site: www.astravan.com

Note: In case of problems please contact your salesman or installer

DIMENSIONS

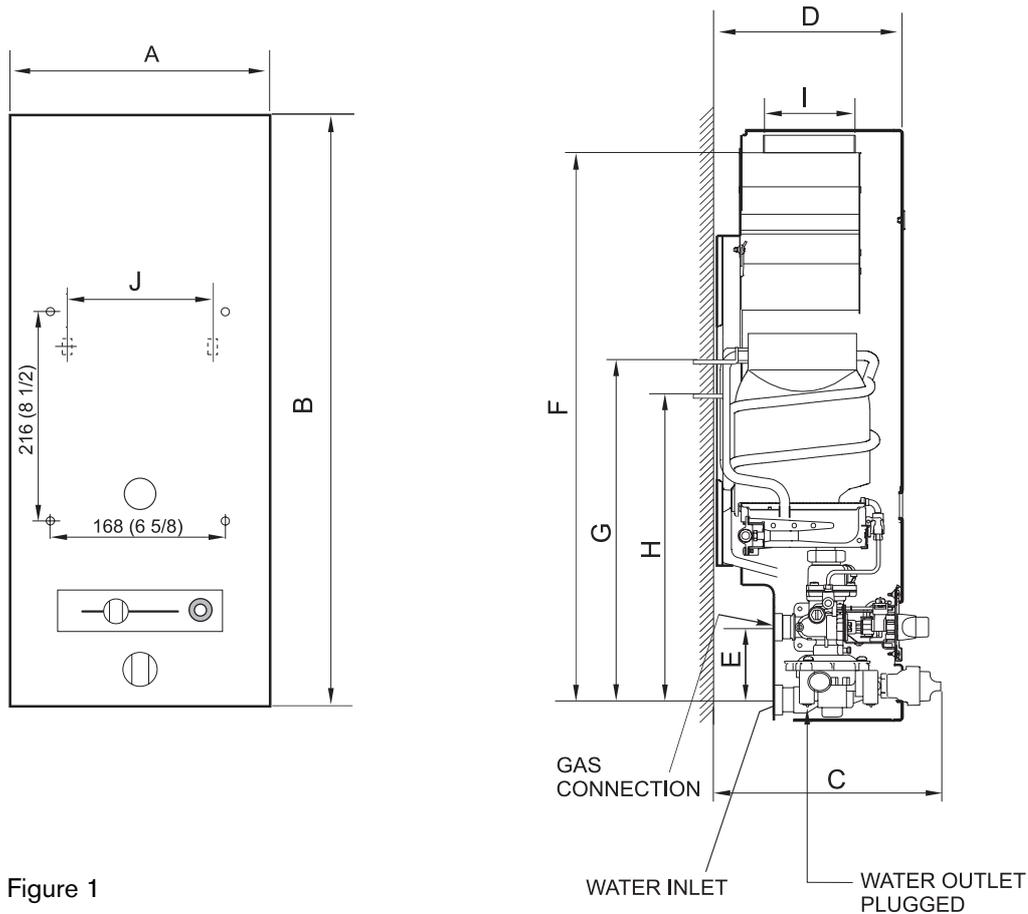


Figure 1

6720606447-01.2AL

Maximum hydrostatic water pressure - 0.97 MPa (150 p.s.i.)
 Maximum recommended working pressure - 0.69 MPa (100 p.s.i.)
 Minimum working pressure - 0.01 1 MPa (2 p.s.i.) at 1.6 Litres/min. (0.5 U.S. Gal/min.) free discharge
 Minimum recommended inlet water pressure for use with showers 40 p.s.i.g.

NG	Altitude		LPG	Altitude	
	Standard	High		Standard	High
Tap pressure inch	5,7	4,6	Tap pressure inch	10,5	8,4
Manifold burner pressure inch	3,35	2,7	Manifold burner pressure inch	10,2	8,1

Dimensions in millimetres (inches)

A	B	C	D	E	F	G	H	I	J
270 (10 5/8)	610 (25 3/8)	230 (9 1/8)	190 (7 1/2)	70 (2 3/4)	562 (22 1/8)	350 (13 3/4)	312 (12 1/4)	102 (4)	138 (5 3/8)

Model	Type of Gas	Altitude	Input	Main Burner Orifices	
				Size, mm	Qt.
W 125 K...	natural	standart (0-2,000 ft.)	11.7 kW (40,000 Btu/hr)	1.25 diam.	6
	propane			0.76 diam.	6
W 125 K...	natural	high * (2,000-4,500 ft.)	10.5 kW (36,000 Btu/hr)	1.25 diam.	6
	propane			0.76 diam.	6

* The high altitude ratings listed are Canadian Gas Association high altitude ratings and are only valid in Canada. In the U.S., the National Fuel Gas Code, ANSI Z223.1/NFPA 54 recommends for high altitude installations above 2,000 feet, that the input rate be reduced 4% for each 1,000 feet above sea level.

FORWARD

This design complies with CAN 1-4.3-77 and ANSI Z21.10.3b 1994 as an instantaneous gas water heater. In addition the unit complies with CAN1-2.17-M80 for use at high altitude, 2,000-4,5000 feet above sea level.

Installation, operation and maintenance information is provided in this manual. Installation and operation instructions should be thoroughly reviewed before proceeding with installation of the BOSCH instantaneous gas water heater.

The BOSCH instantaneous gas water heater is designed to operate on natural or propane gas; however, make sure that gas on which heater is to operate is the same as specified on the heater's model/rating plate.

In addition to these instructions, the water heater shall be installed in accordance with CAN1-B149 Installation Code (in Canada) or ANSI Z223-1/NFPA 54 National Fuel Gas Code (in U.S.) and/ or local installation codes. These shall be carefully followed in all cases.

INSTALLATION INSTRUCTIONS

Note: Proper plumbing, venting, gas connections and an adequate supply of combustion air are required for safe and reliable operation. Ability equivalent to that of a licensed tradesman in the field involved is required for installation and/or servicing of these water heaters.

LOCATION

Before installing the BOSCH instantaneous gas water heater consideration must be given to proper location. The BOSCH W125K... instantaneous gas water heater may be installed to supply hot water to remote locations. Location should be as close to a chimney or gas vent as practical, in an area with an adequate air supply and as centralized with the piping system as possible. The heater should not be located in an area where it will be subject to freezing. The heater should be located in an area where leakage of the heater or its connections will not result in damage to the area adjacent to the heater or to lower floors of the structure.

Note: When such locations can not be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the heater. The pan must not restrict combustion air flow.

AIR REQUIREMENTS

For safe operation, sufficient air for combustion, ventilation and dilution of flue gases must be available. An insufficient supply of air will result in a yellow luminous burner flame, causing carboning or sooting of the heat exchanger.

In unconfined spaces, in buildings of normal construction, infiltration normally is adequate to provide air for combustion, ventilation and dilution of flue gases. However, a confined space must be provided with two permanent openings to provide combustion and ventilation air to the appliance. Each opening shall have a free area of one square inch per 1,000 Btu/hr of total input rating of all the appliances in the enclosure, but not less than 100 square inches. One opening shall be within 12 inches of the top and one within 12 inches of the bottom of the enclosure.

For either a confined or unconfined space in a building of tight construction, with inadequate infiltration, air must be drawn from the outdoors or from spaces that freely communicate with the outdoors. Two permanent openings located as indicated above are to be provided as follows:

1. **When communicating with outdoors directly, or by means of vertical ducts**, each opening shall have a free area of not less than one square inch per 4,000 Btu/hr of total input of all appliances in the space.
2. **When communicating with outdoors by means of horizontal ducts**, each opening shall have a free area of not less than one square inch per 2,000 Btu/hr of total input of all appliances in the space.

WARNING

1. Flammable materials, gasoline, pressurized containers, or any other items or articles that are potentially fire hazards must never be placed on or adjacent to the heater. The appliance area must be kept free of all combustible materials, gasoline and other flammable vapors and liquids.
2. Do not obstruct the flow of combustion and ventilation air to the appliance.

CLEARANCES

This heater is designed certified for installation on a combustible wall, in an alcove with minimum clearances to combustible construction of 51mm (2 inches) from sides, 305mm (12 inches) from top and bottom. A minimum of 305mm (12 inches) shall be allowed for maintenance of serviceable parts. Clearance from vent is dependent upon the clearance rating of the venting material used; that is type B-1 vent is approved for 1 inch clearance, B-2 vent for 2 inch, etc.

MOUNTING

The W125K...is designed certified for mounting to a wall. The heater must not be installed directly on a carpeted wall.

The heater must be mounted to the wall using appropriate anchoring materials, through the four holes provided.

Expansion and contraction of piping due to changing water temperature in pipes imparts movement to heater which, if mounted directly to a brittle, board such as plasterboard can cause failure of mounting.

Heater must be mounted level to assure proper operation.

VENTING

The BOSCH model W125K... instantaneous gas water heater has a built-in a draft diverter is designed for indoor installation only. The draft diverter outlet must be connected to a clear, unobstructed vent of the same size or larger, refer to:

- In Canada, CAN 1-B149 Installation Code for detailed requirements
- In U.S., ANZI Z223.1/NFPA 54 National Fuel Gas Code for detailed requirements
- The minimum length of a vertical vent up to the terminal must be 2 1/2 feet.

WATER CONNECTIONS

The W125K comes supplied with a 1/2" NPT cold water inlet adapter and a flexible wire braid hot water outlet with a 1/2" NPT connection.

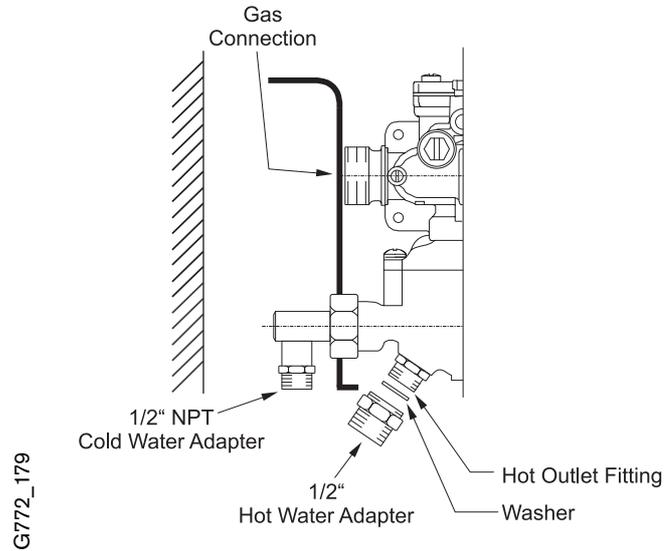


Figure 2

RELIEF VALVE

The listed pressure relief valve supplied must be installed near the hot water outlet at time of installation of the heater. No valve is to be placed between the relief valve and the heater. A drain line must be connected to the relief valve to direct discharge to a safe location. Do not install reducing coupling or any other restriction in the discharge line. The discharge line must be installed so as to allow complete drainage of both the valve and the line.

GAS CONNECTIONS

Before connecting the gas supply to the heater check heater's model/rating plate to make sure that gas on which heater is to operate is the same as specified on the model/rating plate.

The W125K...instantaneous gas water heater is supplied with a gas pipe, a gas pressure regulator and a manual gas cock that must be installed on the heater before attaching the gas supply line, see figure 3. Failure to install gas pipe, the main manual gas valve and the pressure regulator, or the failure to install them in the sequence show in figure 3 will be in violation of the A.G.A. and C.G.A. certification of the unit and can cause damage to heat changer.

BOSCH water heaters are shipped from the factory with the gas pressure regulators preset for the gas shown on the rating plate to the correct pressure.

- In Canada, for high altitude operation;
- In U.S., for standard altitude operation unless specially marked as a high altitude unit.

Check to make sure that the gas listed on the rating plate is same as gas listed on the pressure regulator. See **PRESSURE REGULATION** section of this manual for information regarding gas pressure settings.

Note: Before attaching the gas supply line, be sure that all gas pipe is clean on the inside. To trap any dirt or foreign material in the gas supply line, a dirt leg must be incorporated in the piping. The drip leg must be readily accessible and not subject to freezing conditions. Install in accordance with recommendations of serving gas supplier.

Joint compounds (pipe dope) shall be applied sparingly and only to the male threads of pipe joints. Do not apply compound to the first two threads. The joint compound used must be resistant to the action of liquified petroleum gases.

Before placing water heater in operation check for gas leakage.

Soap and water solution, or other material acceptable for this purpose, shall be used in locating gas leaks. Matches, candles, lighters, or other ignition sources shall not be used for this purpose.

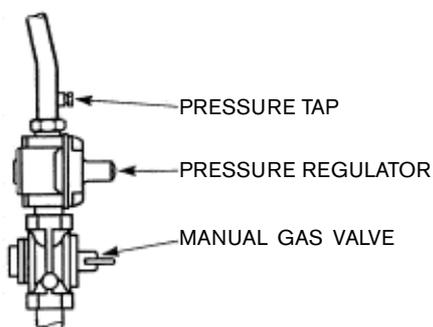


Figure 3

WARNING

The heater and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess 3,45 KPa (1/2 psig).

The water heater must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 3,45 KPa (1/2 psig).

The water heater, including the pressure regulator and manual valve provided with it, must not be operated at gas supply pressures in excess of 3,45 KPa (1/2 psig). If overpressure has occurred such as through improper testing of the gas lines or emergency malfunction of the supply system, the gas valve and regulator must be checked for safe operation. Make sure that the outside vent valves are protected against blockage. These are part of the gas supply system, not the water heater. Vent blockage may occur during ice storms.

PROPANE SUPPLY

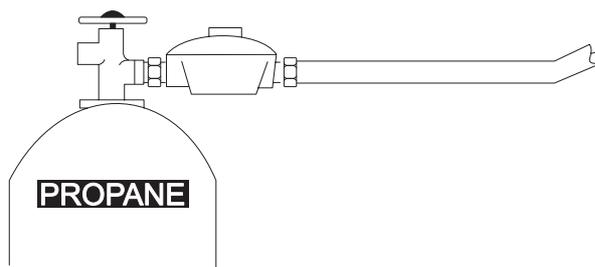


Figure 4

Where used with propane (LP gas) a separate correct propane regulator must be installed at propane tank to deliver propane to BOSCH regulator at 11" W.C. pressure.

OPERATING INSTRUCTIONS

WARNING

If the water heater has been damaged or exposed to flooding, fire, or sooting do not operate the heater until all corrective steps have been taken by a qualified serviceman.

FILLING

Before proceeding with operation of the water heater make sure that the system is filled with water.

- Turn the water flow selector handle clockwise () against stop.
- Open all hot water faucets connected to the W125K...to allow trapped air to escape from heater and piping.
- Close all faucets, once water flows freely and all air has escaped from system.
- The water heater is now ready to be lit.

SERVICE HINT

The screen (strainer) in the water valve, located in inlet of the water valve, may require occasional cleaning due the foreign material in the water supply. This will restrict the flow of water and may affect heater operation and prolong filling time. To inspect the screen, close the cold water supply valve ahead of the heater, disconnected cold water line from inlet of water valve and remove screen from inlet. Clean if required, replace screen in inlet to water valve, reconnected and open cold water supply valve.

LIGHTING

Light the water heater in accordance with the instructions on the Lighting and Operating Plate on the water heater. For your convenience, the instructions are repeated below.

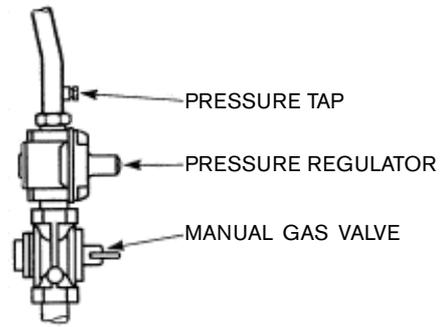
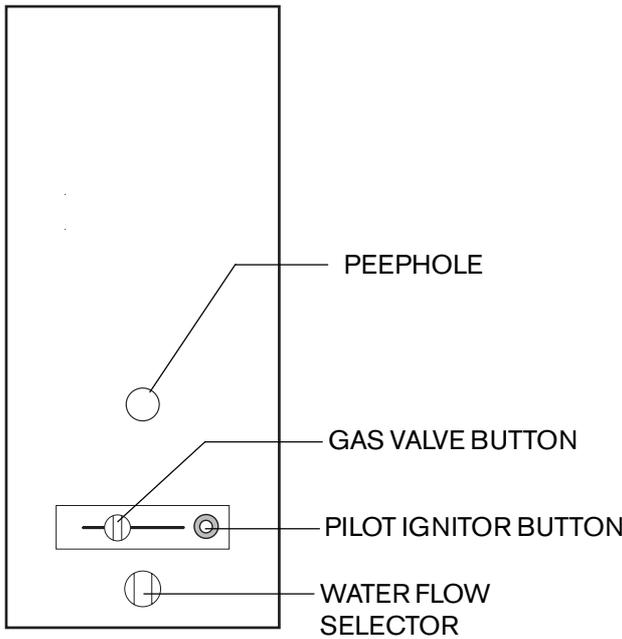
LIGHTING INSTRUCTIONS

1. STOP! Read the safety information, (first section) of the Lighting Instruction Plate on the cover.
2. The main manual gas valve must be closed (turn valve handle clockwise  , see fig. below) and the gas valve button  slide to the far left under the OFF  mark.
3. Wait five (5) minutes to clear out any gas. If you smell gas, stop! Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.
4. The pilot burner is located behind the peephole located in the front center of the jacket directly below this instruction plate.
5. Slide the gas valve button to right to pilot position () and open main manual gas valve (by turning valve handle counterclockwise ).
6. Fully depress gas valve button () and light pilot by pushing pilot igniter button ()
7. Observe pilot flame through peephole. The gas valve button should be held down at least 10 seconds with pilot burning. When the gas valve button is released the pilot should continue to burn.
 - If the gas valve button does not pop up when released stop and immediately call your service technician or gas supplier.
 - If the pilot will not stay lit after several tries, slide the gas valve button to the left. Under the OFF () mark, turn the manual gas valve to the off position and call your service technician or gas supplier.
8. Slide gas valve button to the right to the ON position () the heater will now fire when water is drawn at a rate greater than the threshold flow rate (see manual).

Note: If main burner should fail to ignite make sure pilot is burning. If not repeat lighting procedure steps 1 through 8.

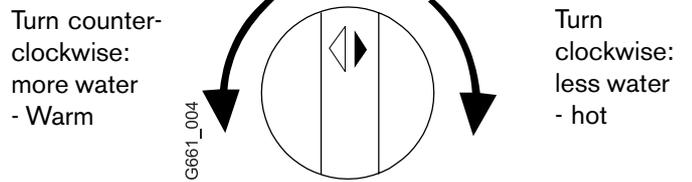
TO TURN OFF GAS TO APPLIANCE

1. Close main manual gas valve and slide the gas valve button to the OFF position.



WATER TEMPERATURE CONTROL

To adjust water temperature use water flow selector, at heater. For hot water rotate control Knob to the right.



PRESSURE REGULATION

The pressure regulator supplied with the water heater is adjusted to operate on the gas specified on the rating plate and:

- in Canada, is factory preset to deliver gas at the high altitude pressure setting listed on the rating plate and as shown below.
- in the U.S., is factory preset to deliver gas at the standard altitude setting listed on the rating plate and as shown below.

The pressure setting of the gas pressure regulator should be checked at installation to assure that the setting is correct for the gas being used and the altitude at which the appliance is installed. See rating plate on the unit, or the chart below for proper settings.

In Canada for a heater being installed at standard altitude (0- 2.000 ft. elevation) the manifold pressure should be reset at installation to value shown on the rating plate, or chart below for standard altitude.

The gas pressures specified below refer to flow pressure taken at the pressure tap in the gas inlet pipe (just above pressure regulator, figure 5) while the heater is operating at full input.

Appliance Regulator Pressure Setting

Type of Gas	Pressure tap		Altitude
	kPa	Inches, W.C.	
natural	1.41	5.7	standart (0,2,000 ft.)
propone	2.61	10.5	
natural	1.14	4.6	high (2,000-4,500 ft.)
propane	2.09	8.4	

Note: The high altitude ratings listed are Canadian Gas Association high altitude ratings for the appliances and are only valid in Canada. In the U.S. the National Fuel Gas Code, ANSI Z 223.1/NFPA 54, recommends for high altitude installations, above 2000 feet that the input rate be reduced 4% for each 1.000 feet above sea level.

The control knob regulates the water temperature by adjusting the flow rate of the water through the heater:

- Maximum flow rate through the heater is 5L/min, (1.3 U.S. gal/min.) with temperature rise of 25°C (45°F) at full input.
- Minimum flow rate through the heater is 2.3 L/min. (0.6 U.S. gal/min) with temperature rise of 55°C (99°F) at full input.

For normal hot water use the control knob of water flow selector should be turned clock wise (↻) to stop and remain in that position. This will permit control of remote temperature by mixing more or less cold water with the hot water supplied by the heater.

Note: If flow rate is adjusted to a point where water flow through the heater is less than 2.3 L/min. the main burner will shut-off. This is a safety feature.

Warning: Hot water can produce 3rd degree burns, in 6 seconds at 60°C (140°F)
In 30 seconds at 54°C (130°F)

HIGH TEMPERATURE LIMIT SWITCH

The BOSCH W125K...instantaneous gas water heater is equipped with a high temperature unit switch with a set point of 90°C (194°F). If the water temperature at the sensing bulb should exceed 90°C (194°F) the switch will open, interrupting the safety circuit and stopping gas flow to the pilot and main burner.

Pilot outage as a result of high limit operation indicates that the heater is not functioning properly. The heater should be checked by a qualified serviceman and the reason for malfunction corrected. To relight pilot follow instructions provided on the unit.

PREVENTIVE MAINTENANCE

PILOT AND MAIN BURNER

Check pilot and main burners at least every 12 months for the proper flame characteristics.

The pilot flame should envelop approximately 10 mm (3/8 inch) of tip of thermocouple.

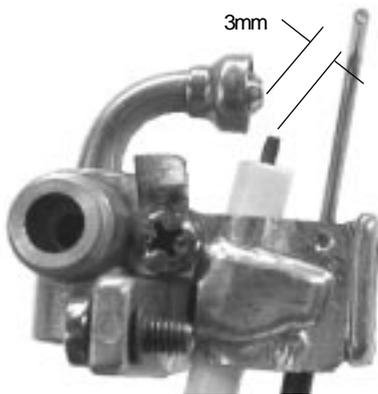
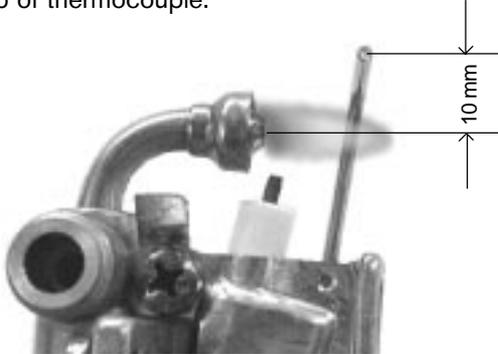


Figure 6

If the pilot flame is too small, then the pilot burner must be cleaned. The position of the igniter electrode should also be checked to assure that electrode is approximately 3 mm (1/8") from pilot, see figure 6.

The main burner should exhibit the following characteristics:

- Provide complete combustion of gas.
- Cause rapid ignition and carryover of flame across burners.
- Operate quickly during ignition, burning and extinction.
- Burner flames should be blue and there should be no lifting of flames from burner ports, figure 7.

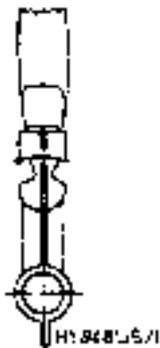


Figure 7

If the main burners fail to exhibit above characteristics they must be cleaned, either by blowing them off with compressed air or by washing them in soap and water and rinsing.

If it proves necessary to wash the main burner assembly the following procedure should be used:

1. Turn off the gas supply to the water heater.
2. Disconnect pilot gas tube at the gas valve and unscrew the gas manifold assembly union nut, where the gas manifold inlet pipe connects to the gas valve and remove the gas burner assembly.
3. Wash in soap and water and then rinse.
4. Reassemble - Check for gas leaks after reassembly and correct as required.
5. Refer to Lighting Procedure to relight the heater.

VENTING

The vent piping and finned heat exchanger should be checked at least once a year for dust and carbon deposits and cleaned as necessary.

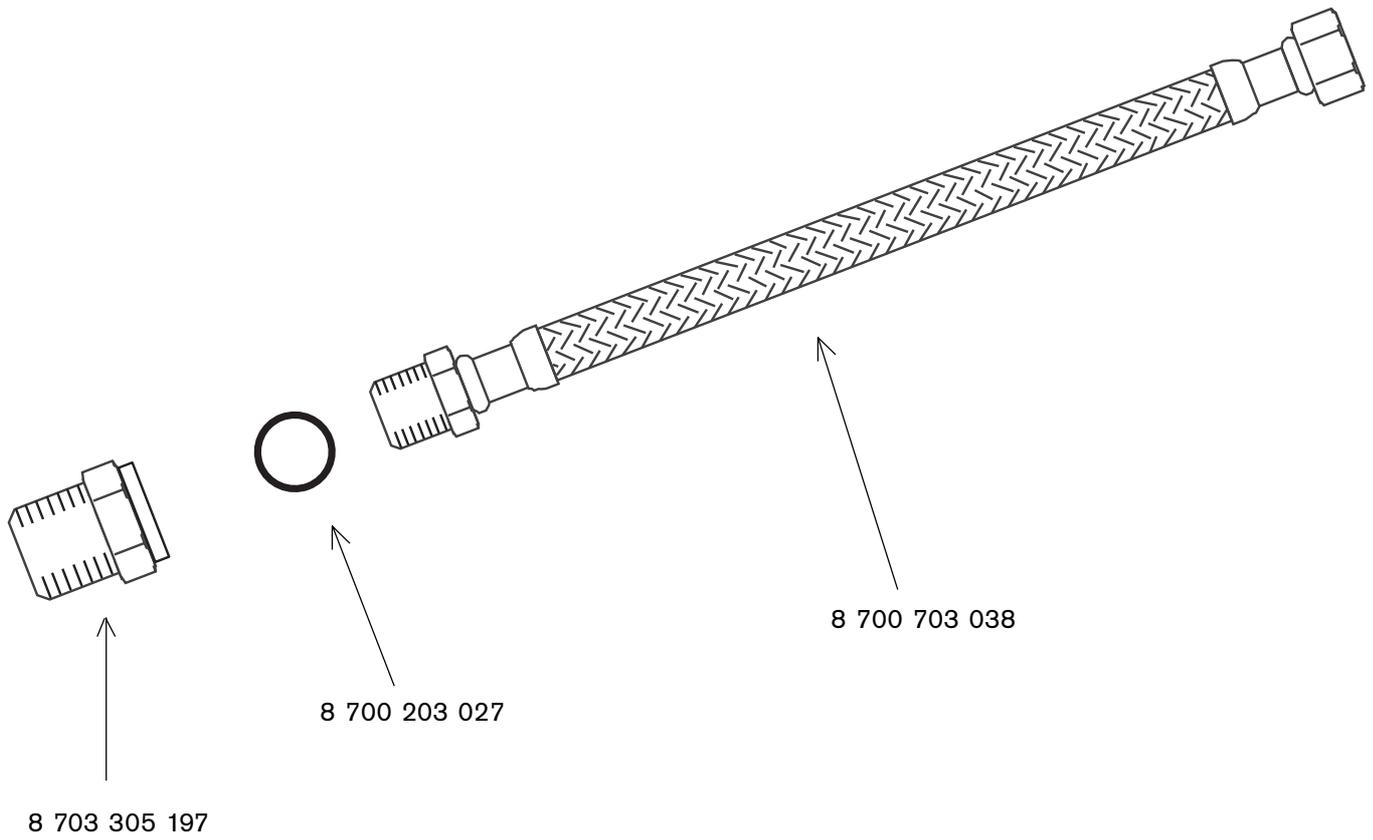
PRESSURE RELIEF VALVE

At least once a year the pressure relief valve should be checked to insure that it is in operating condition. Before testing the relief valve take necessary precautions to prevent water damage. Lift the lever on the valve several times until the valve seats properly and operates freely. Do not check the relief valve when hot water is being draw and the main burner is on. Water exiting the valve under these conditions would be hot.

If the pressure relief valve on the appliance discharges this is an indication of water pressure above the pressure rating of the relief valve. If the pressure relief valve continually discharges on a periodic basis contact the water supplier or local plumbing inspector on how to correct the situation. Do not plug the pressure relief valve.

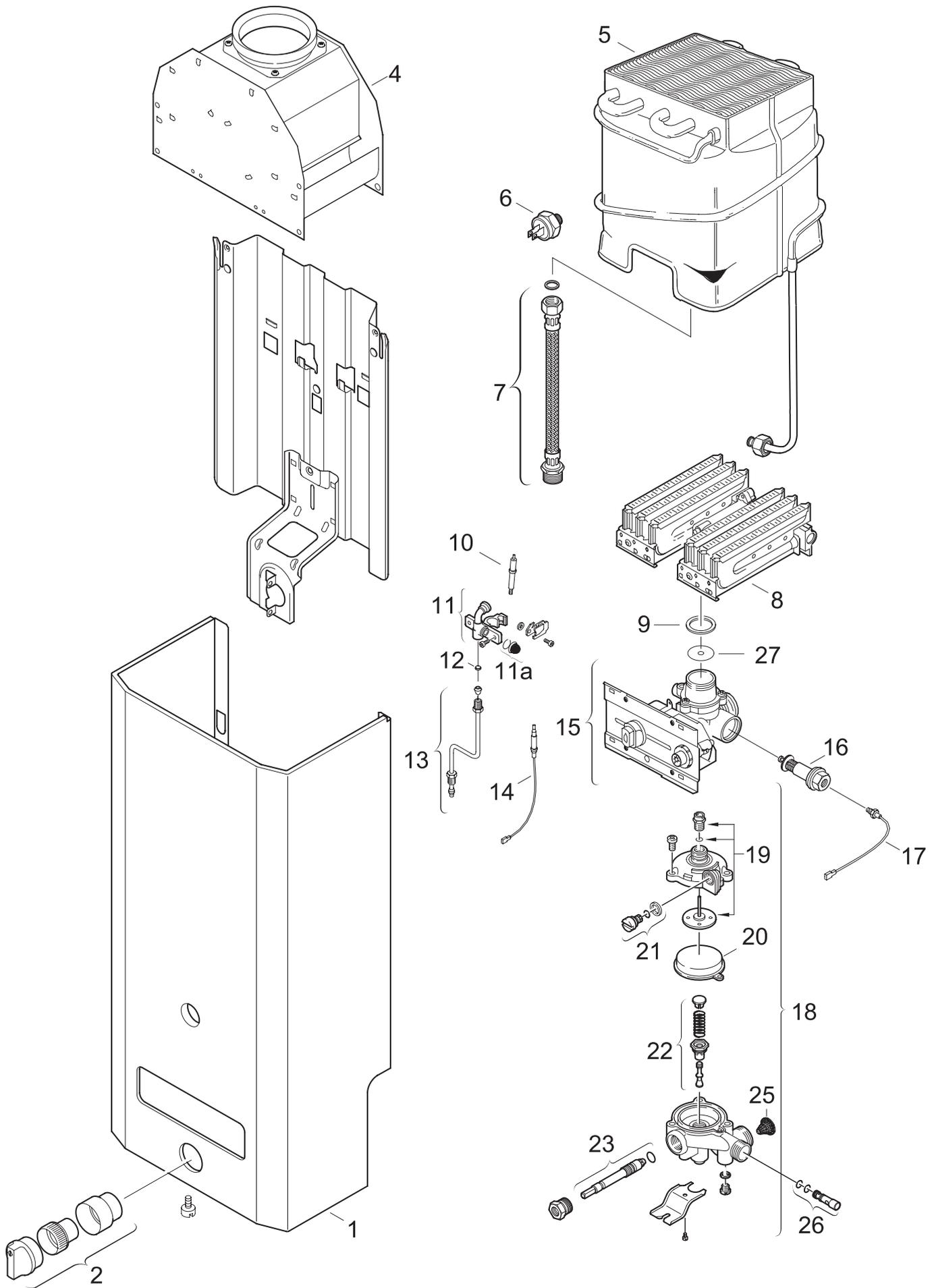
PERIODIC REMOVAL OF LIME DEPOSITS

In hard water areas, depending on frequency of use, the heater should be checked for accumulation of calcium carbonate (lime) and delimed, if necessary. Thereafter a regular schedule, based on initial inspection findings, should be set up to delime the heater. Delivering instructions are available from your Bosch dealer.



NOTE:

THE HOT WATER OUTLET HAS BEEN UPGRADED TO A FLEXIBLE TUBE. NOTE POSITION OF ASSEMBLY - FLAT COPPER WASHER INSIDE BUSHING - THEN ATTACHED TO MALE END OF FLEX TUBE. *DO NOT OVER TIGHTEN*



6720606447-03.1JF

INTERIOR COMPONENTS DIAGRAM AND PARTS LIST

N°	Description	W125
1	Front shell	8705401730
2	Water flow selector handle	8702000218
	#N/A	
4	Draught diverter	8705505361
5	Heat exchanger	8705406149
6	Temperature limit	8707206040
7	Hose	8700703038
8	Main burner	NG 8708120011
8	Main burner	LPG 8708120301
9	Washer	8700103008
10	Sparking plug	8708107002
11	Pilot burner (75)	8708105538
11a	Filter	8700507055
12	Pilot injector (5)	NG 8708200005
12	Pilot orifice (49)	LPG 8748200173
13	Pilot gas pipe	8700707334
14	Thermocouple	8747202083
15	Gas valve	NG 8707011466
15	Gas valve	LPG 8707011145
16	Magnetic unit	8707201012
17	Termo connection	8747202209
18	Water valve	8707002497
19	Repair set for water valve cover	8703406204
20	Diaphragm	8700503050
21	Slow-ignition valve (C)	8708503063
22	Volumetric water governor	8707402018
23	Selector screw	8708500166
	#N/A	
25	Water strainer	8700507001
26	Venturi (H)	8708205210

ASTRAVAN DISTRIBUTORS, LTD.

123 Charles Street
North Vancouver, B.C. V7H 1S1

Phone Canada: (604) 929-5488

Phone USA: (206) 860-8448

Web Site: www.astravan.com