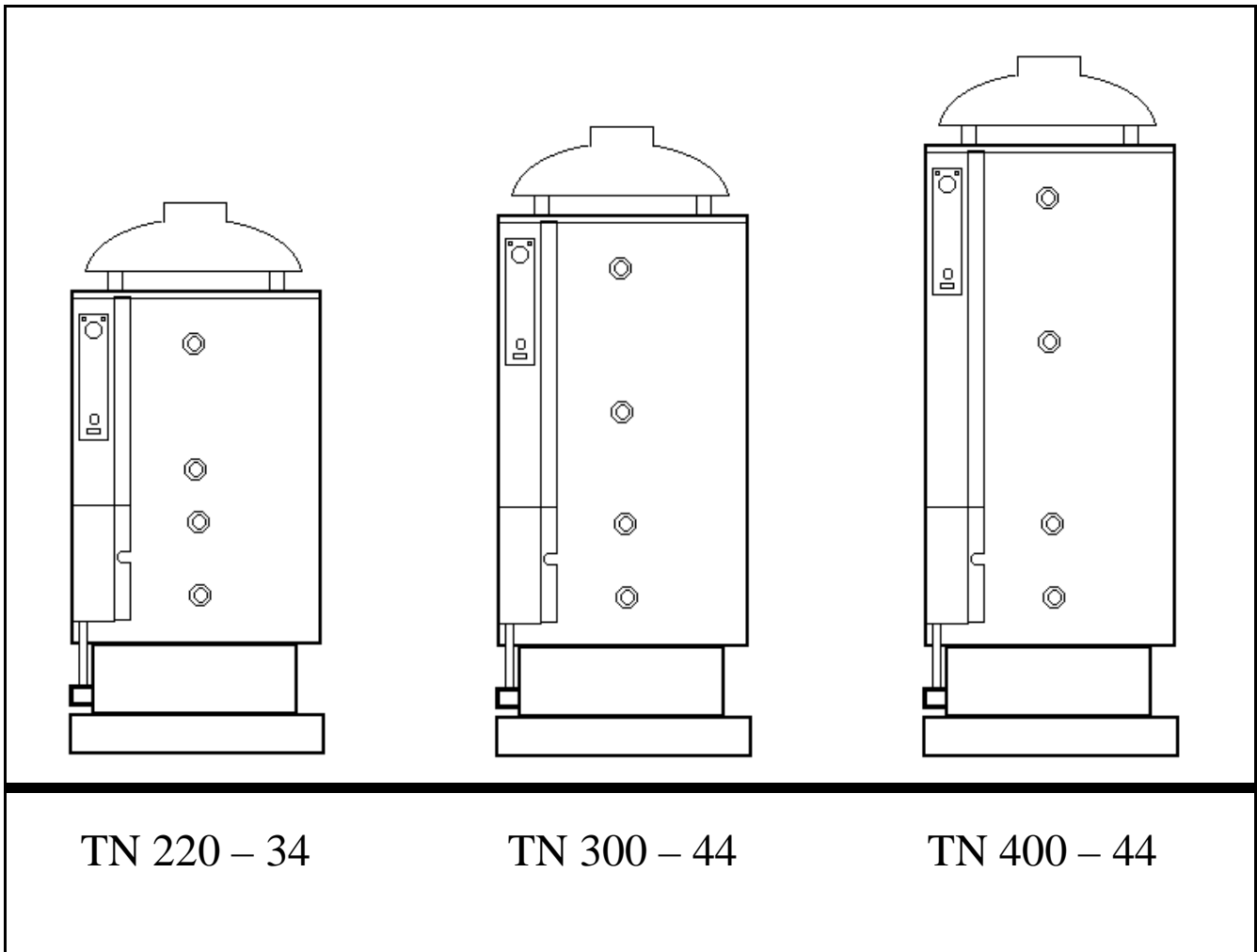


TN 220/300/400

Gas fired storage water-heater for sanitary hot water production with atmospheric burner.



INSTALLATION, OPERATION & MAINTENANCE MANUAL

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1.1 APPLIANCE'S CLASSIFICATION

DEFINITION

These appliances are classified as: "Direct gas fired storage water-heater.

CATEGORY

The category of the appliance is:

II_{2H3+}.....Great Britain & Ireland

This means that the appliance is suitable for gas of 2nd family (G20/25) and 3rd family (G30/31).

TYPE

Following the European Regulation EN 483, the appliance is of kind B_{11BS}, that means an "appliance settled to be connected to a flue gas system for the gas exhausting outside the room in which it is installed and where the combusting air is taken directly from the room where the appliance is installed". The appliance:

- is supplied with draught diverter in the combustion products circuit;
- is supplied with a control device for flue gas spillage.
-

1.2 PACKAGING CONTENT

The appliance is delivered packaged in a wooden crate with appropriate protections.

The draught diverter is delivered in a separate cardboard box, not assembled.

An envelope contains this booklet, the warranty paper and screws to fix the draught diverter.

1.3 CONSTRUCTIONAL AND OPERATIONAL DESCRIPTION

The appliance is manufactured according to the EC regulation 90/396(CEE for gas appliances, and has therefore, the CE agreement. In particular the manufacturing process and the components satisfy the technical European regulation EN 89.

The purpose of this appliance is to allow the heat exchange between the gas combustion products, burned in the combustion chamber and the water inside the tank.

The combustion chamber is placed in the lower part of the appliance, under the water tank. On the top is the draught diverter.

Flue pipes, which go through the water tank, allow the exhausting of the gas of the combustion chamber into the chimney flue and for the thermal exchange. Turbulators have been installed inside the flue exhaust pipes in order to improve the thermal exchange.

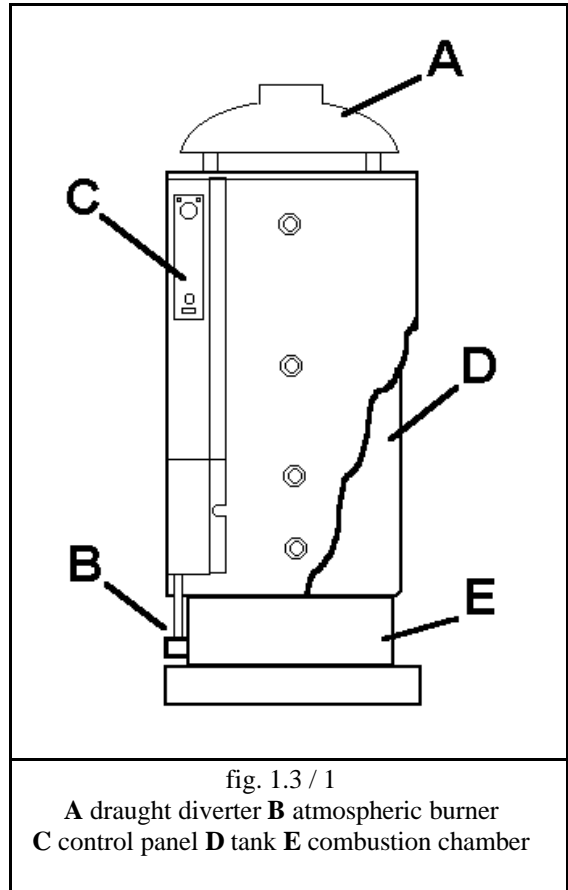
DRAUGHT DIVERTER

It is placed on the combustion products circuit and its

purpose is to keep into pre-set limits the combustion quality and the combustion stability within min. and max. conditions.

ATMOSPHERIC BURNER

It is composed of two parts: a principal burner, which ensures the thermal function of the appliance, and a pilot burner needed to light the principal burner.



CONTROL PANEL

On the instrument control panel there is all required to control and adjust the normal operation of the appliance: On/Off switch, water temperature thermostat, water temperature thermometer. There is also the security flue gas spillage thermostat in case of improper combustion (manual reset) and a red light which lights up when this thermostat has operated.

TANK

It is made of thick sheet steel and assures great resistance to pressure. The inside is coated with opal glass (a vitreous coating baked at over 850°).

This allows a high chemical resistance to organic solvents and many other chemical substances, excellent abrasion resistance (low friction) and very good thermal stability. This allows long-life and a higher quality water. Inspection and cleaning of the tank are allowed by an appropriate clean out and inspection door.

COMBUSTION CHAMBER

It is placed in the lower part of the appliance and holds the atmospheric burner, flame control sensor (thermocouple) and the pilot burner with ignition electrode.

1.4 CONTROL AND SAFETY DEVICES

MAGNESIUM ANODE

The water heater is protected against metal-to-metal corrosion by a magnesium anode. It has to be replaced every year in order to extend the working life of the appliance. The anode is placed in the inspection flange, on the front of the tank.

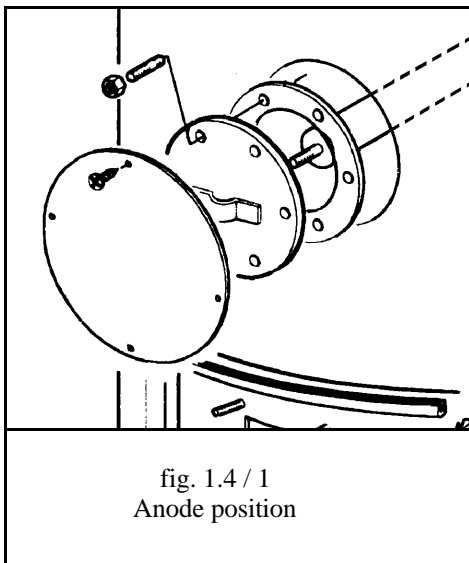


fig. 1.4 / 1
Anode position

GAS VALVE

It is GASTEC approved following the EN 126 regulation. It is a multi-functional valve with on-off gas flow control with double electro-valve. The operation happens through one of 3 positions of control (ignition-working-extinguish).

The inlet and outlet gas connections are threaded 1/2 RP” UNI-ISO 7, whereas the fitting for the thermocouple is M9x1. There also are two (inlet and outlet) Two pressure test point are in the inlet and outlet. Gas valve has a gas filter at the entry.

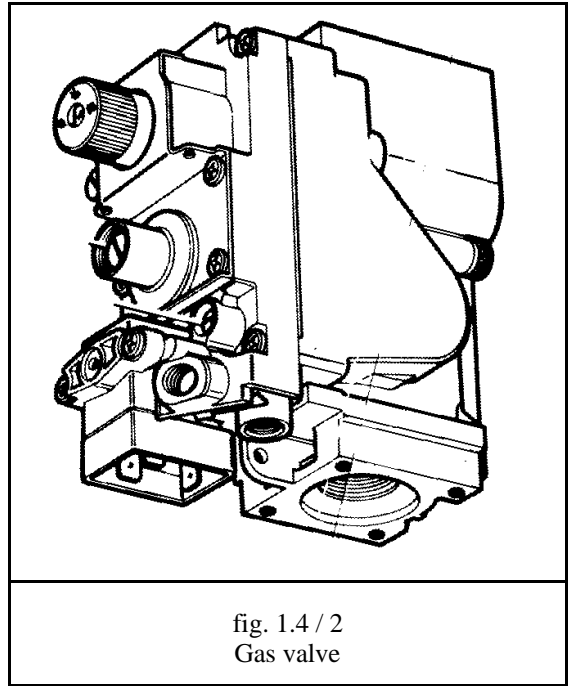


fig. 1.4 / 2
Gas valve

All the setting and regulation operations have to be made by professional qualified people. In case of valve replacement, be sure that the gas flow is in the direction of the arrow on the body the valve and while installing care should be taken to ensure no foreign matter enters into the valve. MAINTENANCE: the only operation allowed is the solenoid replacement, which has to be carried out by qualified personnel..

Gas inlet max. pressure	60 mbar
Pressure outlet range	3 - 30 mbar
Voltage rating	220/240V 50 Hz
Pressure setting	B class
Flame detection	ignition time < 10 sec
	switching time < 60 sec

Pressure safety valve.

We recommend a suitable safety valve is installed.

ADJUSTABLE CONTROL THERMOSTAT 40-80 °C
(VDE (Germany) and IMQ (Italy) approved).

It controls the operation of the appliance switching the burner on and off, according to the water temperature set. This is a single pole liquid filled sensing bulb with operating switch contacts.

SAFETY LIMIT THERMOSTAT
(Flue gas spillage control)

It cuts off the burner operating (by cutting the current to

Control thermostat – Technical data

Temperature range	40° / 80°
Contacts rating	250 V ~ / 2.5 A
Temperature differential	8° ± 2° K
Bulb max. temperature	150° C

the gas valve) in case of improper exhausting of the combustion gas. To restore the normal operation it has to be manually reset. It is a single pole, liquid filled type, temperature limiter with manual reset and positive cut off safety in case of capillary breakage.

SAFETY LIMIT THERMOSTAT (WATER MAX. TEMPERATURE)

It cuts off the burner in case of overheating of the water tank, due to non-working of the adjustable control thermostat. The operation is automatic (automatic reset) as soon as the water temperature reaches standard levels/values. It is a single pole liquid filled type thermostat and two contacts (On/Off switch), safety limit temperature with automatic reset, with positive cutoff safety in case of capillary breakage. The high limit temperature is factory set at 90°.

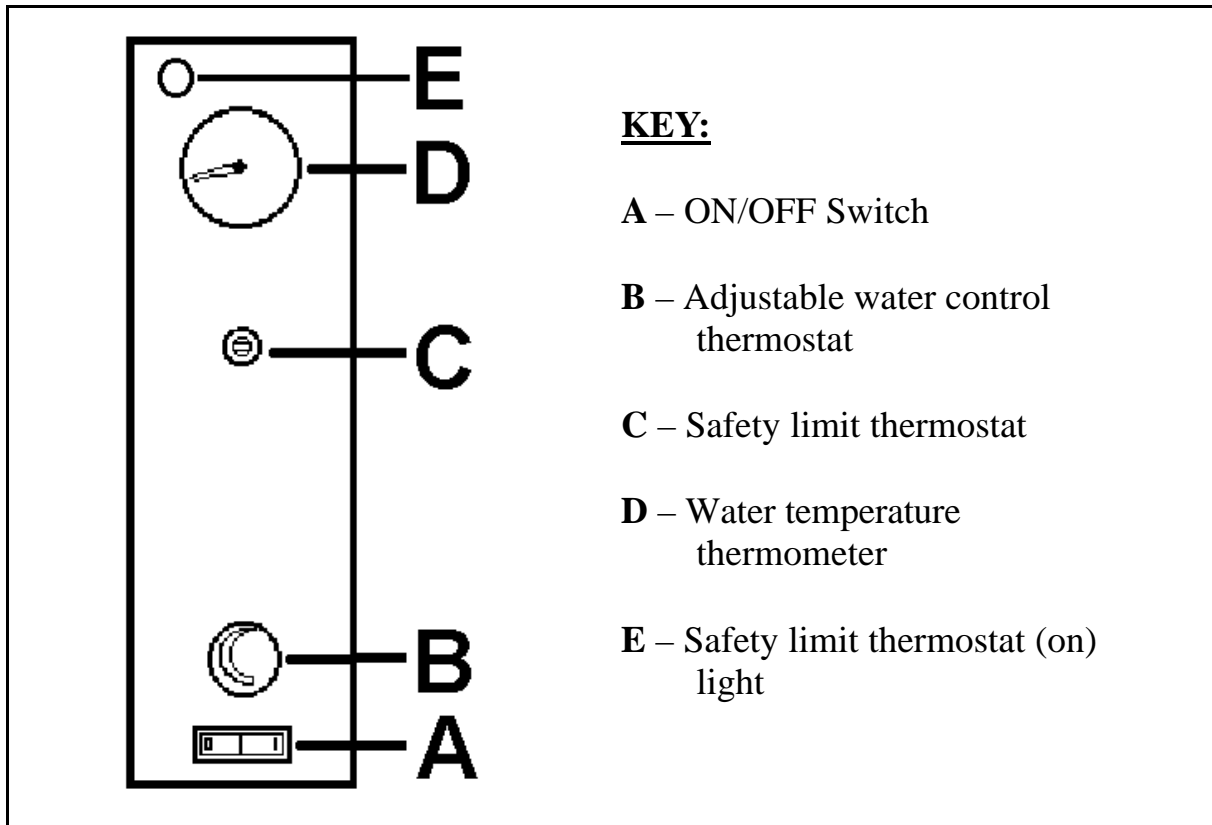
Safety limit thermostat (flue gas spillage control) - Technical data

Intervention temperature	70° ±3°
Differential	15°
Contacts rating	250 V ~ / 2.5 A
Bulb max. temperature	125 °C

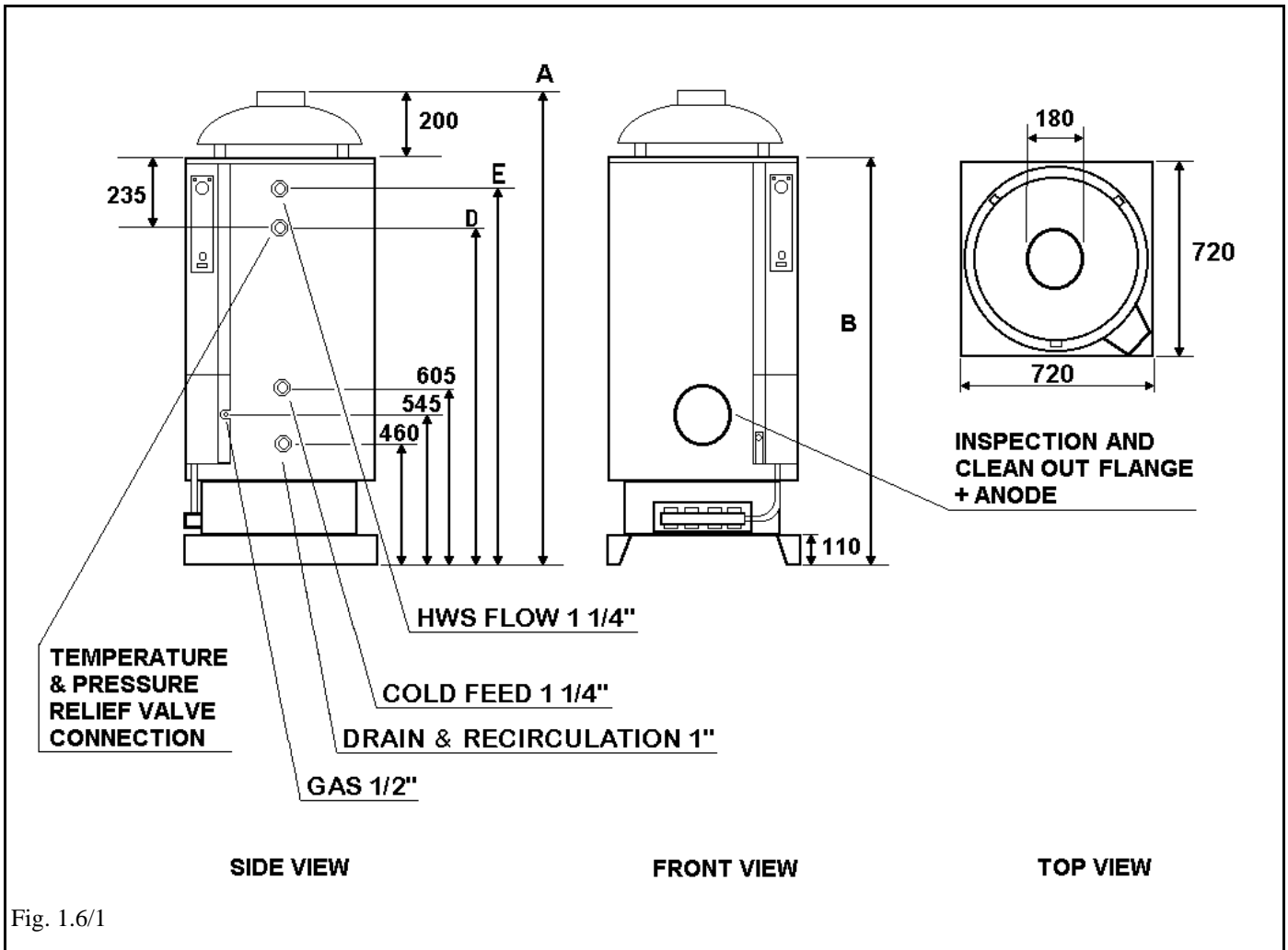
Safety limit thermostat (max. water temp.) Technical data

Intervention temperature	90° ±3°
Differential	12°
Contacts rating	250 V ~ / 2.5 A
Bulb max. temperature	125 °C
Contacts resistance	< 8 mO

1.5 CONTROL PANEL



1.6 DIMENSIONS AND CONNECTIONS



		MOD. 220	MOD. 300	MOD. 400
A	OVERALL HEIGHT	1600 mm	1960 mm	2310 mm
B	HEIGHT WITHOUT DRAUGHT DIVERTER	1400 mm	1750 mm	2100 mm
	WIDTH	720 mm	720 mm	720 mm
	DEPTH	720 mm	720 mm	720 mm

BASE

HEIGHT		110 mm	110 mm	110 mm
WIDTH		720 mm	720 mm	720 mm
DEPTH		720 mm	720 mm	720 mm

HEIGHT FROM FLOOR:

	DRAIN CONNECTION	1"	460 mm	460 mm	460 mm
	GAS CONNECTION	1/2"	545 mm	545 mm	545 mm
	COLD WATER FEED CONNECTION	1"1/4	605 mm	605 mm	605 mm
D	RECIRCULATION CONNECTION	1"	1010 mm	1010 mm	1175 mm
E	HOT WATER CONNECTION	1"1/4	1330 mm	1680 mm	2030 mm

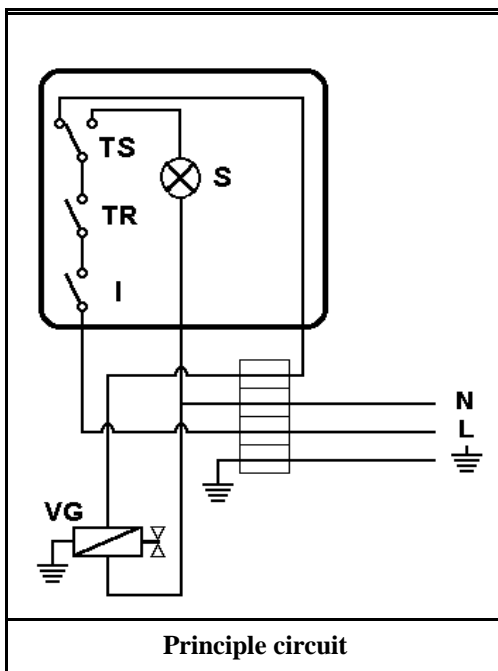
INSPECTION AND CLEANING FLANGE

DIAMETER		120 mm	120 mm	120 mm
HEIGHT FROM FLOOR		620 mm	620 mm	620 mm

1.7 TECHNICAL DATA

	MODEL	220-34	300-44	400-44
STORAGE CAPACITY	litre	220	300	400
NOMINAL INPUT	Kcal/h	29.420	37.840	37.840
	KW	34,0	44,0	44,0
NOMINAL OUTPUT	Kcal/h	25.880	33.530	34.590
	KW	30,1	39,0	40,2
COMBUSTION EFFICIENCY	%	88.5	88.6	91.4
WATER EFFICIENCY	%	84.5	84.2	86.5
TIME TO RECOVER AT 40°C (inlet cold water 15°C)	min	13	14	18
CONTIN. OUTPUT AT 40°C (inlet cold water 15°C)	lt/hr	988	1.274	1.309
INJECTORS - PRINCIPAL BURNER	N°	4	4	4
GAS INPUT RATE G20 20 mbar (NATURAL GAS)	m3/h	3,60	4,65	4,65
INJECTOR DIAMETER	mm	2,60	3,00	3,00
INJECTOR PRESSURE	mbar	10,5	10,5	10,5
GAS INPUT RATE G30/31 29 mbar (LPG)	kg/h	2,68	3,46	3,46
INJECTOR DIAMETER	mm	1,50	1,75	1,75
INJECTOR PRESSURE WITH G30 (BUTANE)	mbar	28,0	28,0	28,0
INJECTOR PRESSURE WITH G31 (PROPANE)	mbar	36,0	36,0	36,0
PILOT BURNER INJECTOR DIAMETER (G20)	mm	0,40	0,40	0,40
PILOT BURNER GAS RATE (G20)	W	190	190	190
PILOT BURNER INJECTOR DIAMETER (G30/31)	mm	0,21	0,21	0,21
PILOT BURNER GAS RATE (G30/31)	W	142	142	142
VOLTAGE SUPPLY	volts	220-240	220-240	220-240
FREQUENCY SUPPLY	Hz	50	50	50
TOTAL POWER CONSUMPTION	w	7	7	7
MAX WATER PRESSURE	bar	6	6	6
WEIGHT	kg	160	202	243

1.8 ELECTRICAL DIAGRAM



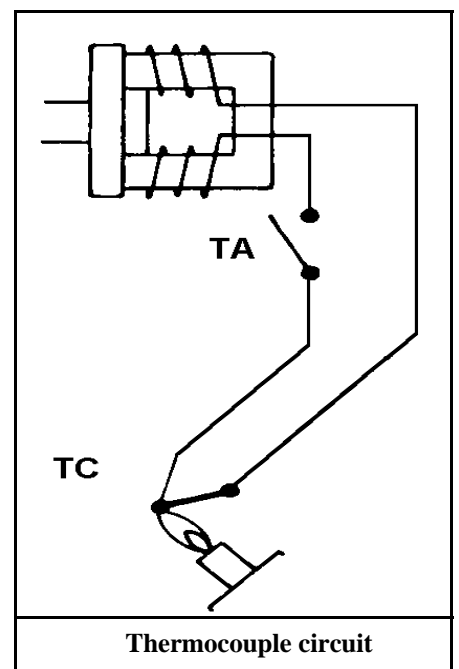
KEY:

PRINCIPLE CIRCUIT

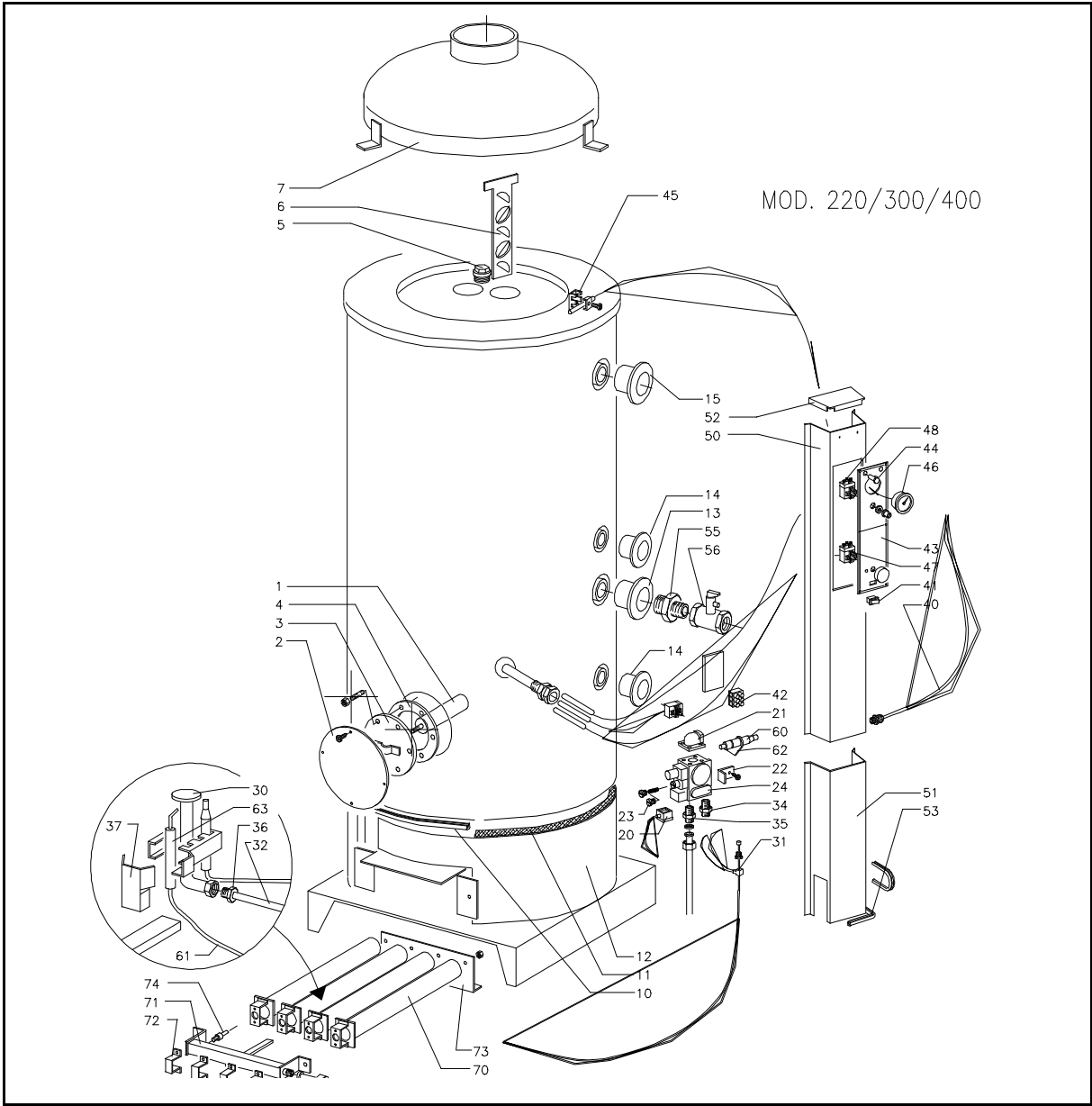
- I ON/OFF Switch
- TR Water temperature thermostat
- TS Flue gas safety thermostat
- S Max. water temperature light
- VG Double gas electrovalve

THERMOCOUPLE CIRCUIT

- TA High limit thermostat
- TC Flame detection thermocouple



1.9 EXPLODED VIEW



COMPONENTS LIST
(for exploded view on previous page)

POS. DESCRIPTION	POS. DESCRIPTION
1 Magnesium anode	41 ON/OFF Switch
2 Flange cover	42 Terminal board
3 Clean out/inspection flange	43 Instrument control panel
4 Clean out/inspection flange gasket	44 Safety limit thermostat (on) light
5 Plug 1"1/4	45 Bracket for flue safety bulb (2pcs.)
6 Flue baffle	46 Thermometer
7 Draught diverter	47 Adjustable control thermostat
10 Casing lower gasket	48 Safety limit flue thermostat
11 Glass-wool insulation	50 Channeling
12 Insulation support ring	51 Module channeling
13 Blue 1"1/4 PVC Wall-cover	52 Channeling cover
14 Black 1" PVC Wall-cover	53 Channeling lower seal
15 Red 1"1/4 PVC Wall-cover	55 1"1/4 - 1" nipple
20 Connector for valve (screws+gasket)	56 1" non-return and safety valve
21 1/2" elbow connection (screws+O-ring)	60 Piezoelectric ignition
22 Bracket for gas valve	61 Ignition cable
23 No-hole plug for LPG	62 Piezo ignition bracket (with screws)
24 Gas valve	63 Ignition electrode
30 Pilot burner	70 Burner
31 Interrupted thermocouple	71 Burner pipe collector
32 Gas pipe pilot burner	72 Burner fixing bracket
33 Gas pipe burner	73 Burner rear bracket
34 Diaphragm (France and Belgium)	74 Injector
35 Double screw 1/2"	
36 Nut fitting	
37 Pilot protection cover	
40 Wiring	

●2.1 GENERAL PRECAUTIONS

- This booklet is integral and essential part of the appliance, and it has to be kept with care near the appliance, for any further consultation.
- The appliance has been manufactured for hot water production: any other use of it has to be considered dangerous and not suitable.
- These instructions must be read thoroughly before proceeding, failure to follow the instructions may affect the safety, performance and warranty of the appliance.
- Installation must be carried out by professional, qualified CORGI REGISTERED ENGINEERS in compliance with all current regulations and manufacturers instructions.
- The installation of the water heater must also be in accordance with the current I.E.E Regulations, the By-laws of the Local Water Undertaking, Local Authority requirements and all relevant British Standards.
- The appliance must be installed in a suitable environment that is NOT explosive, flammable, corrosive or damp.
- Neither the supplier or the manufacturer will be responsible for any damage to property, persons, animals or the boiler, as a result of tampering, improper use, installation or maintenance.
- Packaging parts (I.e. plastic bags, polystyrene, wood, clips, nails, etc.) can be harmful to children and must be disposed of immediately and correctly.
- To avoid damage caused by low temperatures it is recommended that the water heater should be drained down if left unused for a long period. Neither the supplier or manufacturer is responsible for any consequential damage caused by low temperature.
- To comply with the warranty these instructions must be adhered to and any original spare parts and kits used.
- In the event of breakdown the appliance should be isolated and a qualified CORGI REGISTERED SERVICE ENGINEER contacted.
- The appliance MUST have an annual service and inspection by a qualified CORGI REGISTERED ENGINEER.

2.2 INSTALLATION RECOMMENDATIONS

During installation and maintenance, respect carefully the instructions contained in this booklet. Changes of any connections or the non-observance of these instructions will cause the warranty to be invalidated.

Before every operation of installation, maintenance or repairing, remember to isolate the electrical supply to the appliance.

2.3 LOCATION OF THE APPLIANCE

As a type B appliance, it is to be installed to a conventional flue system exiting the external of the room in which it is installed; the combustion air is taken directly from the room where the appliance is situated.

The vents may be either situated direct to outside air or to an adjacent room or internal space which must itself have a permanent air vent of at least the same size direct to the outside air. The minimum effective area of the permanent air vents is specified below and is related to the maximum rated heat output of the boiler.

ATTENTION: this appliance can be installed and working only in permanently ventilated rooms.

Do not leave inflammable material close to the appliance, especially in front of (leave at least 50 cm from the opening of the burner) and close to the draught diverter.

Note:

Both air vents must communicate with the same room or internal space or must both be on the same wall to outside air.

The use of mechanical ventilation for combustion and ventilation air must conform to C.P.332: Part 3.

Ventilation and combustion air flows must be proved before the boiler is allowed to operate.

Position of air vents	AIR VENT AREAS	
	Air from room or internal space	Air direct from outside
High level	9 cm per kW (2 in per 5000 Btu/h)	5 cm per kW (1in per 5000 Btu/h)
Low level	18 cm per kW (4 in per 5000 Btu/h)	10 cm per kW (2 in per 5000 Btu/h)

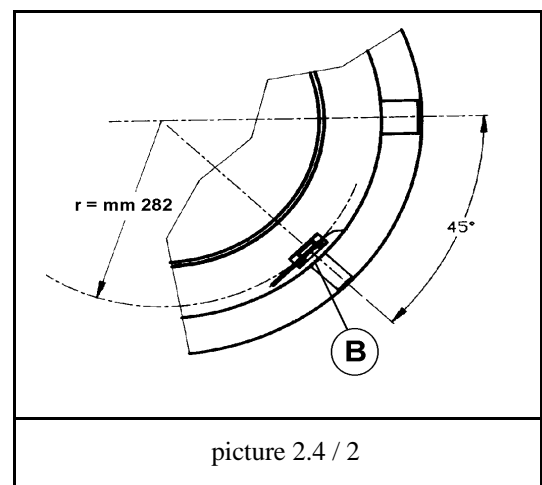
The draught diverter **A** (not assembled - separately supplied) has to be placed on the upper part of the appliance and fixed to the appliance itself through the screws supplied.

Connect the flue gas system to the draught diverter, whose diameter has to be larger than the draught diverter's (Ø180mm).

Ensure that during the installation or the transport the bulb **B** of the flue safety thermostat has not been damaged or moved from its previous position.

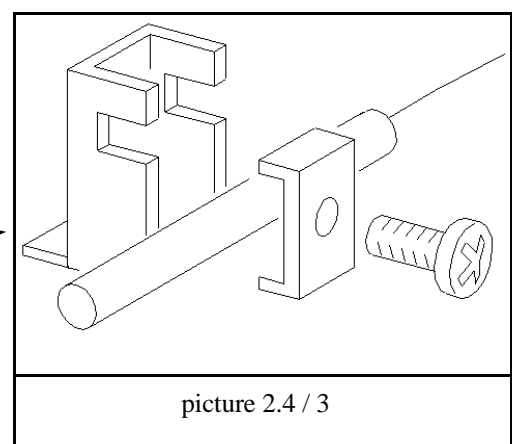
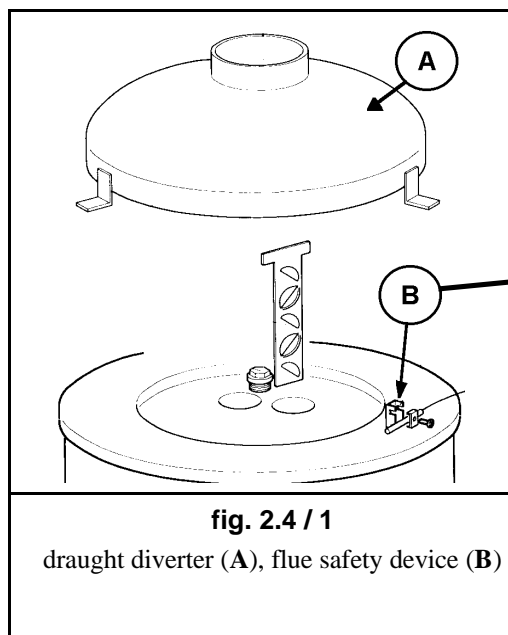
It is absolutely forbidden to tamper or let the flue safety device be out of order.

The proper position of the bulb of the flue safety device is 282 mm from the center of the appliance (73 mm from the external edge), perpendicular to the radius (see pict. 2.4/2) and tighten fastened to the proper stirrup (see pict. 2.4/3).



The replacement of the flue safety device has to be made only by professional qualify people and with original spare parts supplied by the manufacturer.

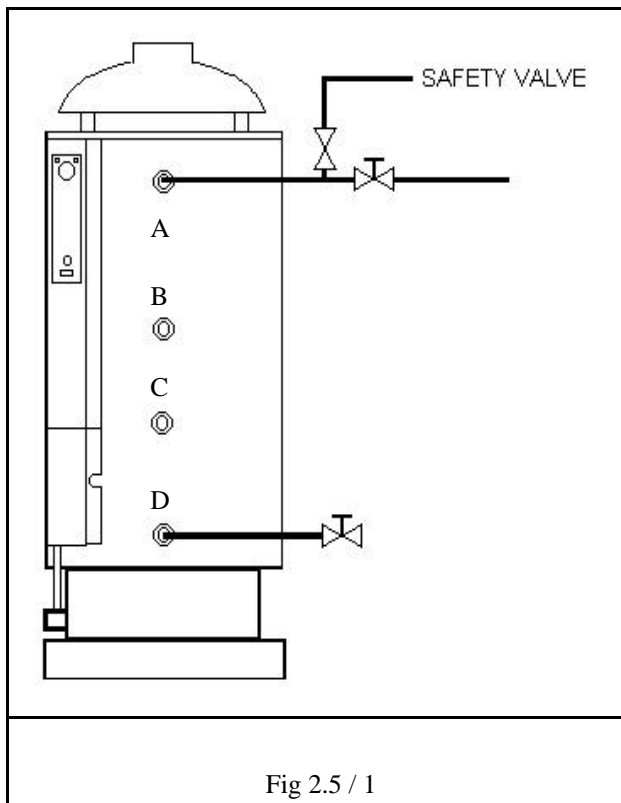
2.4 DRAUGHT DIVERTER INSTALLATION



2.5 WATER CONNECTIONS

- A:** Hot water outlet
Connect the supply line to the hot water services, providing a safety valve and isolating cock.
- B:** Spare tapping
- C:** Cold water inlet and stopcock.
- D:** Drain and recirculation connection.
Connect a drain cock.

We advise to insulate the hot water pipes in order to avoid energy waste.



MODEL	220	300	400
COLD WATER INLET	1"1/4	1"1/4	1"1/4
RECIRCULATION	1"	1"	1"
DRAIN	1"	1"	1"
HOT WATER OUTLET	1"1/4	1"1/4	1"1/4

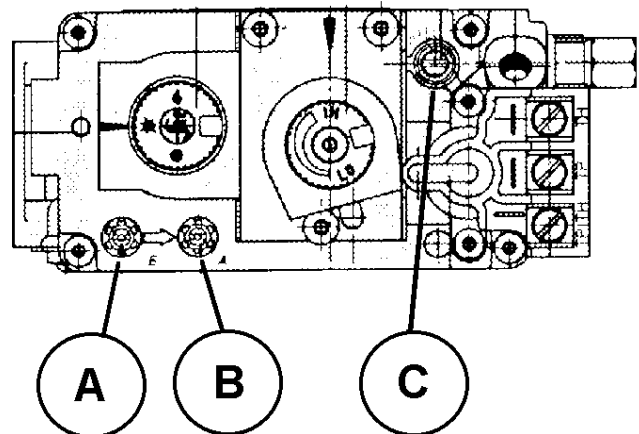
2.6 GAS CONNECTION AND REGULATIONS

MODEL	220	300	400
GAS CONNECTION	1/2"	1/2"	1/2"

A manual gas isolating cock is required adjacent to the unit.

NOTE: for system operating with LPG gas it is necessary to fit a "first stage" pressure reducer close to the tank in order to reduce the pressure to **1,5 bar**. A "second stage" pressure reducer of adequate capacity should be installed close to each heater in order to reduce the supply pressure to **30 mbar** according to UNI-CIG 7432 regulations.

Be sure that the inlet gas pressure of the appliance (through pressure test point **A** on the valve) is the one for which the appliance is set.



The appliance is set at works for the gas and pressure on the data label, according to the following:

G20 (H Gas or Natural gas)

- inlet pressure: 20 mbar
- pressure setting: on
- country: Italy, Spain, Portugal, Great Britain, Ireland, Greece.

The appliance is set at works for the gas and pressure on the data label, according to the following:

G20 (H Gas or Natural gas)

- inlet pressure: 20 mbar
- pressure setting: on
- country: Italy, Spain, Portugal, Great Britain, Ireland, Greece.

MODEL	220-34	300-44	400-44
gas pressure at injector (mbar)	10.5	10.5	10.5
injectors diameter	2.60	3.00	3.00
diaphragm diameter	5.00	5.00	5.70

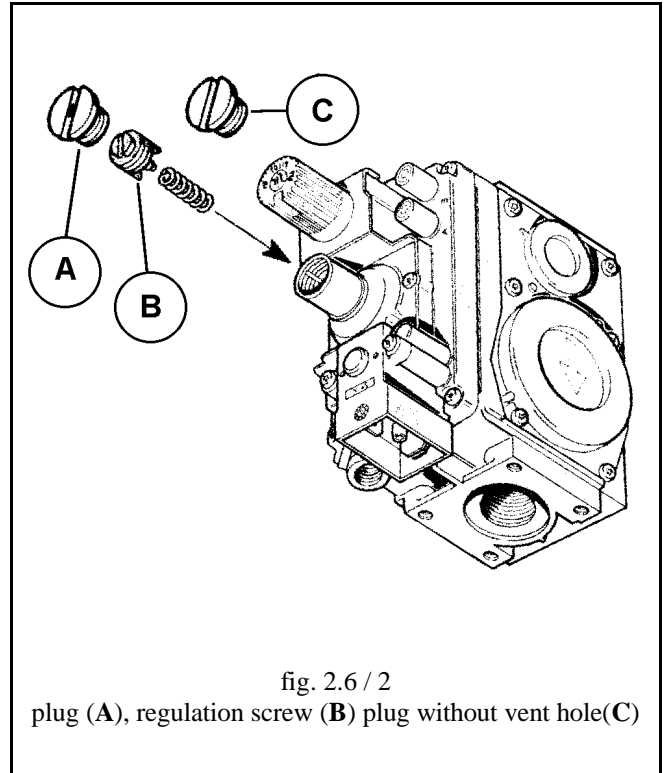


fig. 2.6 / 2
plug (A), regulation screw (B) plug without vent hole(C)

pair G30/31 (LPG or butane/propane)

- inlet pressure: 28-30/37 mbar
- pressure setting: off
- country: Italy, Spain, Portugal, Great Britain, Ireland, Greece, The Netherlands, France, Belgium.

MODEL	220-34	300-44	400-44
injectors diameter	1.50	1.70	1.70
gas pressure at injector butane G30 (mbar)	28,0	28,0	28,0
gas pressure at injector prop G31 (mbar)	36,0	36,0	36,0

SETTING WITH PRESSURE SETTING OFF

Pair G30/31 (LPG or butane/propane)

In this case the valve pressure setting is disregarded: the A plug has to be replaced with the non vented plug C. The regulation screw has to be screwed fully clockwise.

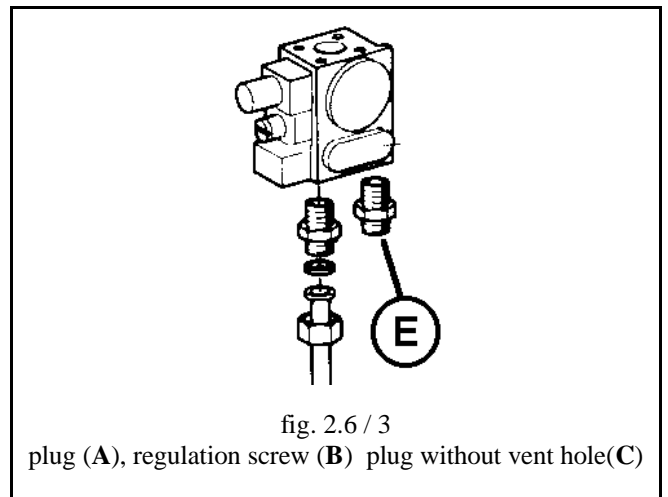


fig. 2.6 / 3
plug (A), regulation screw (B) plug without vent hole(C)

Pair G30/31 (LPG or butane/propane)

The A plug has been replaced with the plug C without a vent hole whereas the regulation screw has been tightened clockwise.

SETTING THE GAS PRESSURE

G20 (H gas or natural gas)

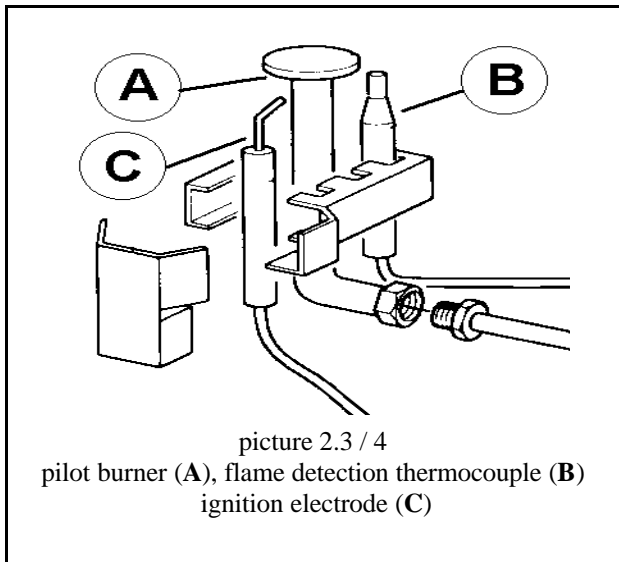
Commission the unit as follows:

With the water-heater operating, take off Plug A (pict. 2.6/2), turn the regulation screw B until the pressure corresponds to that in the tables above; clockwise the outlet pressure increases; anti-clockwise it decreases.

Switch off the appliance and restart for a further check about 1 minute later. Replace Plug A after setting.

CALIBRATION GAS RATE TO THE PILOT BURNER

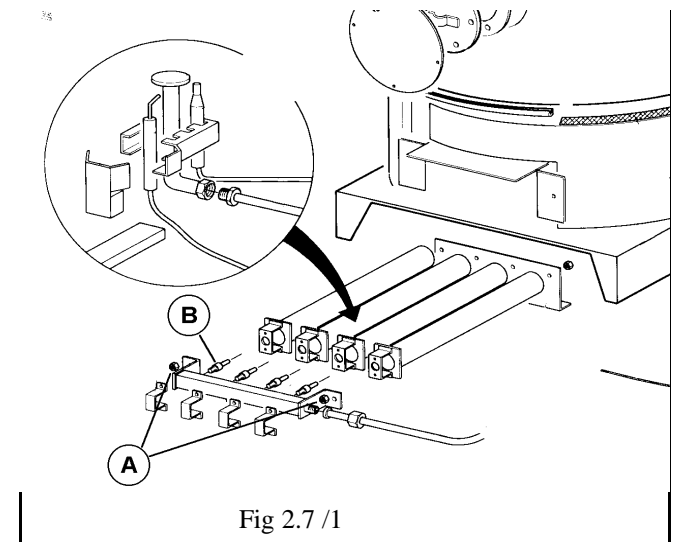
If a calibration gas rate to the pilot burner is needed (i.e. if the flame of the pilot burner is too small or is not well in touch with the thermocouple) work on the **C** screw pict. 2.6; clockwise to decrease the rate; anti-clockwise to increase the rate.



PILOT BURNER INJECTOR DIAMETER

GAS/MODEL	220-34	300-44	400-44
G20	0.40	0.40	0.40
pair G30/31	0.21	0.21	0.21

2.7 GAS SUPPLY CONVERSION



To convert to LPG gas it is necessary to use the proper conversion kit supplied by the manufacturer. Conversion has to be done only by qualified personnel.

For the gas supply conversion, proceed as follows:

1. Obtain the relevant conversion kit (injectors, diaphragm...).
2. Close the gas isolating cock and isolate the electrical supply.
3. Extract the burner from its housing by unscrewing the two securing nuts **A**, after separating the gas supply pipe.
4. Unscrew the four injectors **B** and replace them with the ones in the conversion kit. Fully tighten in order to ensure gas soundness.
5. Work on the gas valve pressure control: if change from G20 (natural gas) to the LPG the pressure control has to be adjusted by tightening screwing the regulation screw **B** (pict 2.6/2) and replacing the plug **A** with the special plug without vest **C** held in the kit.
6. Adjust the gas supply to the pilot burner to let the flame of the pilot burner be well in contact with the thermocouple; work on screw **C** picture 2.6/1: clockwise to decrease, anti-clockwise to increase.
7. Affix the label in the kit on the valve to indicate that the appliance has been set for the new gas type.

WARNING: LPG gas operation, a “first stage” pressure reducer is needed close to the tank in order to reduce the pressure to 1,5 bar. We also recommend to install a “second stage” pressure reducer close to the appliance, in order to reduce the supply pressure to 29 mbar.

IMPORTANT: at the end of setting and regulation operations, check:

1. the electrical isolation of the gas valve connectors
2. the gas soundness
3. the locking of the plug of the pressure test points
4. the proper operating of the appliance

2.8 ELECTRICAL CONNECTIONS

The appliance has to be connected to a 220/240 Volt single-phase supply mains with an efficient earth.

THE MANUFACTURER CAN NOT BE CONSIDERED RESPONSIBLE FOR ANY DAMAGE OR INJURY CAUSED BY FAILURE TO EARTH THE INSTALLATION TO THE REQUIRED STANDARD.

A double pole switch should be fitted close to the appliance to allow the isolation of mains supply. Connect the equipment supply cable, taking care to comply with the electrical standards.

2.9 STARTING THE WATER-HEATER

Before starting the water-heater ensure that:

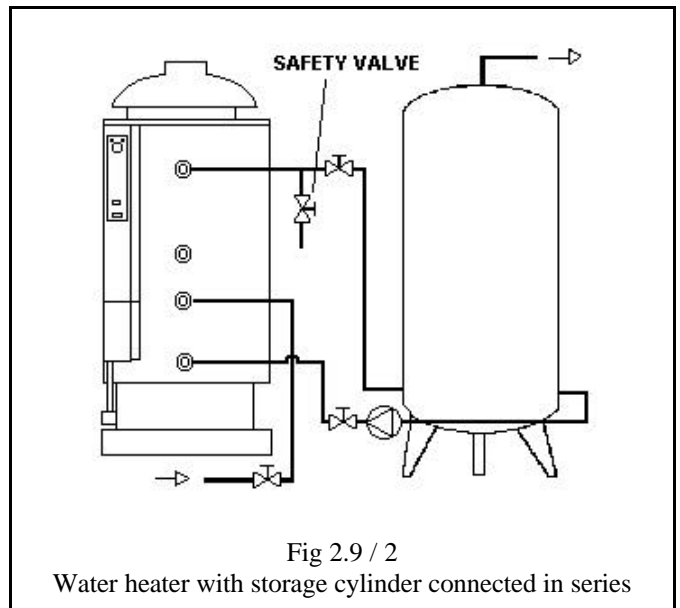
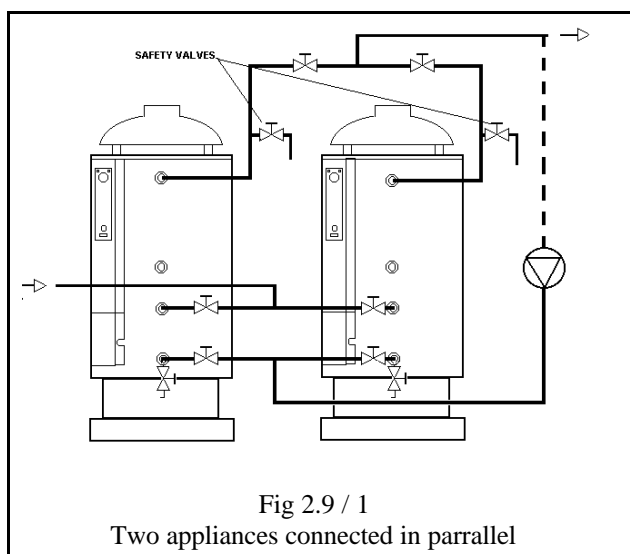
- The appliance is set to function with the correct gas type.
- The regulations about the installation of these appliances are complied with, especially about the proper connection of the flue and the gas supply piping.
- The electrical supply is on and earthing has been carried out in accordance with current regulations.
- The gas isolating cocks at the meter and in the vicinity of the heater are open.
- The water heater is full of water.

2.10 CONNECTION OF SEVERAL WATER-HEATERS

When several water-heaters have to be connected together it is important to connect them in such a way that they can operate individually or together.

This is possible by using valves in the circuit, whose opening and closure allow to decide how many appliances to use according to needs (i.e. low and high seasons, peak periods, repair of equipment, etc).

For example we suggest the following types of layouts:



2.11 FAULT FINDING

The flame of the pilot burner does not form:

- The gas isolating cock is closed or there is no gas supply
- The pilot burner injector is blocked
- The ignition cable is broken or not well connected to the ignition electrode
- The high limit thermostat is working (water max. temperature) on the thermocouple circuit.

The flame of the pilot burner does not keep burning:

- Set the pilot burner gas rate with the adjustment screw
- Thermocouple is damaged or not in the flame
- Gas valve is faulty (to be replaced)

The principal burner switches on with a noisily:

- The pilot burner is dirty
- The pilot burner has not been set properly (set flow - par. 2.6)
- The pilot burner is placed improperly

The pilot burner lights the principal burner does not.

- The gas valve control knob is not in the ON position
- There is no electrical supply
- The gas valve coil is faulty
- The gas valve is broken (replace the gas valve)
- The flue safety thermostat is working and the red light **E** (pict. 1.5/1) is on. Unscrew the cover cap **C** and reset the thermostat by pushing the button.

ATTENTION:

If the unit still does not function, turn it off and call a qualified engineer.

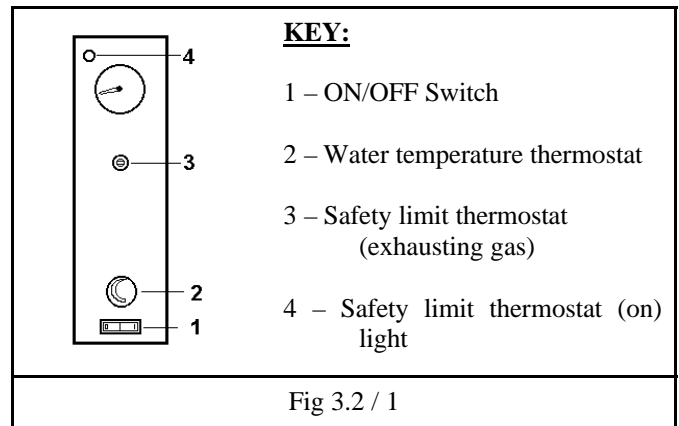
For safety and warranty validity original components and spare parts should be used for replacement and installed by professional qualified people.

3.1 RECOMMENDATIONS FOR THE USER

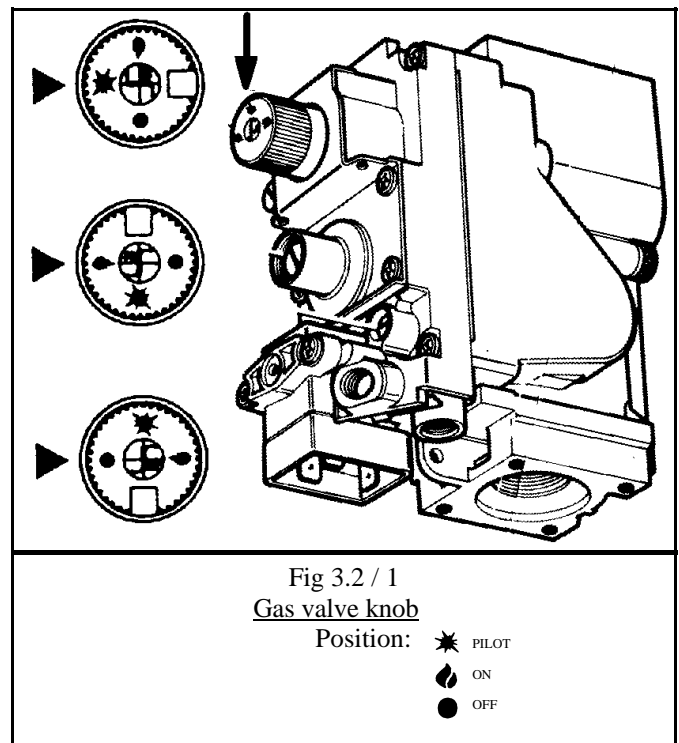
- Keep this booklet with care near the appliance for any further consultation.
- For good working and validity of the guarantee, ask for the unit to be serviced annually by a qualified engineer.
- All the installation operations have to be made exclusively by professional qualified people in respect of the safety regulations in force. An incorrect installation, caused by not observing the manufacturer's instruction can cause damage to people, animals or things for which the manufacturer can not be considered responsible.
- The appliance has been manufactured for hot water production: any other use of it has to be considered dangerous and not suitable.
- The appliance is not to be installed in damp rooms; it has to be protected from water splashes and other liquids, to avoid anomalies to electrical and thermal devices.
- Installation has to be carried out by professional qualified people according to the safety regulations in force.
- Packaging parts (i.e. plastic bags, polystyrene, wood, clips, nails etc.) can be harmful to children and should be carefully disposed of immediately.
- Read carefully the instructions and the advice contained in this booklet concerning safety, installation, use and maintenance.
- If the appliance is sold or transferred to a new owner, make sure that this booklet stays with the appliance, so that the new owner or installer can consult it.
- Do not place anything upon the appliance.
- To avoid damages caused by low temperatures, if the appliance has to be left unused for a long period in a non-heated room, it is recommended the unit is drained completely.
- The manufacturer is not responsible for faults, break downs or for water leakage from the plant caused by low temperatures.
- To get the best efficiency of the appliance and to comply with the guarantee, we advise you to adhere to these instructions, to have the appliance checked by professional qualified people and to use only original spare parts and kits supplied by the manufacturer.

3.2 STARTING THE APPLIANCE

1. **PILOT FLAME IGNITION:** push and turn the knob of the gas valve in the pilot position; push the knob and light the burner through the piezo-electric ignition on the valve. Keep the knob pushed for some seconds, and leave it by checking that the pilot burner flame is established. Repeat if the pilot flame extinguishes.
2. **PRINCIPAL BURNER IGNITION:** push and turn the knob to the On position.
3. set the switch on the ON position "T";
4. set the control thermostat indicator to the desired water temperature (min. 40° max. 70°).



To check the operating of the thermostat, turn the knob 2 (pict. 3.2/1) to the lower value and check that the burner extinguishes. Turn the knob again to the previous pre-set value and check for a proper ignition of the burner.



From this moment on the water heating phase begins: the burner will operate until the water temperature reaches the temperature set at point 2: at this moment the principal burner switches off (the pilot burner remains alight); the burner will operate again if the temperature goes below the pre-set value (i.e. a lot of hot water is used).

FLUE GAS SAFETY OPERATING: the appliance has a flue gas spillage thermostat which operates in case of improper exhausting of the combustion gases (i.e. if the chimney is blocked). If this happens, the red light (4) will be illuminated and the gas supply to the principal burner is stopped. To reset push the button under the cover cap plug (3) in order to restart again the appliance.

If the safety thermostat functions again, switch off the unit, shut the gas isolating valve and call a qualified engineer.

3.3 SWITCHING OFF

To switch off the water-heater for a short period:

- press the **1** switch pict. 3.2/2 to the “O” position (the pilot burner will remain alight).

To switch off the water-heater for a lengthy period:

- press and rotate the knob of the gas valve to the OFF position.
- rotate the knob of the thermostat to the minimum value.
- press the ON/OFF switch to the "0" position.
- switch off the electrical supply by the main isolating switch.
- close the gas isolating valve.
- if the appliance has to be switched off for a very long period in a non-heated room, we advise the unit should be drained completely.

3.4 MAINTENANCE

To ensure the safety of the appliance and to extend its working life it is recommended that an annual check / service of the unit is done, with consideration of the following:

- Magnesium anode replacement
- Internal inspection of the water tank (and removal of calcium deposits on the bottom of the tank) through the inspection and cleaning flange
- Check the gas soundness
- Check the general good operation

3.5 WARRANTY APPLIES

The warranty is valid provided that the installation standards and everything contained in the present booklet are complied with. The warranty for all devices is 12 months .

THE COMPANY RESERVES THE RIGHT TO CHANGE SPECIFICATIONS AND DIMENSIONS WITHOUT NOTICE

STREBEL LTD

1F Albany Park Industrial Estate
Frimley Road, Camberley, Surrey, GU16 7PB
Telephone: 01276 685422 Fax: 01276 685405
E-mail address: info@strebel.co.uk
Website: www.strebel.co.uk