GAS FIRED CONVECTION HEATERS
GHIBLI SERIES
Models HJ - HT - HTV

Technical information

This manual is divided into three sections:

- ***SECTION 1 - GENERAL INFORMATION***

  It contains all the information relevant to the description of the heaters and their technical features

- ***SECTION 2 - TECHNICAL INFORMATION FOR THE INSTALLER***

  It contains all the instructions that the technical installer must comply with to ensure effective plant operation

- ***SECTION 3 - USER OPERATING AND MAINTENANCE INSTRUCTIONS***

  The section is reserved for the user and contains all the information needed to use the appliance correctly and to perform periodic tests

Important notes:

1 - To use the appliance correctly and safely, the installer, the user and the service man, must comply with what is indicated in this manual.

2 - The word **WARNING!** is followed by information which, because of its importance, must be carefully observed and for which non-compliance may damage the appliance and/or reduce operating safety.

3 - The paragraphs written with **bold** characters contain important information, warnings or recommendations which should be carefully considered.

4 - The technical data, styling characteristics, components and accessories detailed in this manual are not binding. Accorroni S.r.l. reserves the right to make changes, at any time, that are considered necessary to improve the product.

5 - The legal references, standards and technical rules mentioned in this manual are presented merely for the sake of information and should be considered valid as of the date this manual is printed, as indicated on the last page. If new regulations or amendments to current laws go into effect, this will not obligate Accorroni S.r.l. in any way with regard to others.

6 - Accorroni S.r.l. is responsible for ensuring that its product conforms to the laws, directives and construction standards in force at the time the product is sold. Knowledge and compliance with legal regulations and standards regarding plant design, installation, operation and maintenance are the exclusive responsibility of the designer, installer and user.

SUMMARY

SECTION 1 - GENERAL INFORMATION page

SECTION 2 - TECHNICAL INFORMATION FOR THE INSTALLER

SECTION 3 - USER OPERATING AND MAINTENANCE INSTRUCTIONS

FIGURE SUMMARY

SECTION 1 - GENERAL INFORMATION

1. PRINCIPAL CHARACTERISTICS

1.1 APPLIANCE CLASSIFICATION

These appliance are defined as “Independent gas-fired convection heaters”.

In addition, they are classified according to harmonised European standards EN 437 and prEN 613 into:

category - according to the types of gas, at the different supply pressures, that they can use;

type - according to the possible methods to exhaust the combustion productions.

1) Category II_{2H3+}

the heater is suitable to use gas that belongs to two families. The atmospheric burner can be fed with gas from the second group (natural gas - group H) and gas from the third group (butane and propane at the two pressure ratings 28-30 and 37 mbar)

2) Type C_{11}

The natural draft combustion circuit is sealed with respect to the environment in which it is installed and the combustion air supply and combustion product exhaust lines are connected outside the room by means of flues which pass directly through the outside wall of the room.

1.2 CERTIFICATION - CE MARKING

The Ghibli air heaters, as previously described and classified, have obtained the "CE type test certificate" in conformity with EEC Directive 90/396 and with reference to the harmonised European standard prEN 613.

The application of the CE marking shown below on model HTV Ghibli, which can also run on electricity, guarantees that the equipment complies with EEC Directive 73/23 (“Low voltage”) through the harmonized European standard EN 60335-1 and with EEC Directive 89/336 (“Electromagnetic compatibility”) through the harmonized European standards EN 50081-1 and EN 50082-1.

CE
0051

It is important to point out that, to protect the end user, attaching the CE marking means that the manufacturer must submit a declaration of conformity for the entire line of products with the certified characteristics and performance ratings. This is possible through the use, by the manufacturer, of a Quality Assurance system. The efficiency of that system is controlled by the Organisation which issued the certification.

1.3 FUNCTIONAL DESCRIPTION

The Ghibli air heater is essentially made up of a heat exchanger that exchanges heat between the combustion products of a gas burner and either the air flow that occurs by means of natural convection (models HJ and HT) or the forced air flow delivered by a fan (model HTV).

The air in the room is taken in through the lower grille and flows through the exchanger. When the exchanger has been brought to its proper operating temperature by the burner, it releases heat to the air. The warm air is discharged directly into the room through the grille located on the top of the heater.

Combustion air intake and fume exhaust take place outside by means of a special double-section duct, Ø 90 mm.

Therefore, for maximum operating safety the heat exchange and combustion circuits are completely independent.

Models HJ and HT

These air heaters do not require an electric power supply to function. They are equipped with a multifunctional gas valve with modulating thermostatic control for maintaining the desired temperature in the heated area.

A thermocouple safety device interrupts the inflow of gas in case the pilot burner flame accidentally goes out. The pilot burner is manually ignited by means of the piezoelectric igniter.

Model HTV

A centrifugal fan (which can be turned off if you desire) circulates the air in the room. It has three speeds that can be set by the user.

The ignition of the burner and its functioning are completely automatic, without the use of any pilot flame. Air heater operation is controlled by the built-in room thermostat and by a timer that

may be supplied on request.

1.4 CONSTRUCTION CHARACTERISTICS

The casing is built with ivory-coloured, epoxy-powder painted steel plate, with sides made with black, heat-resistant nylon. The two air intake and delivery grilles are located, respectively, at the bottom and at the top of the casing.

The following are located on the front of the unit:

models HJ and HT
The control panel which includes:

- the button for the piezoelectric igniter
- the control and adjustment knob for the multifunctional gas valve

model HTV
The control panel which includes:

- the ON/OFF switch
- the three-position switch for turning off or adjusting the two speeds of the convection fan
- the release button for the burner's control equipment
- lockout (red) and heat request (green) signal leds
- the room thermostat regulation knob
- the plastic cap to be removed in case of installation of the digital timer kit

The following are located on the rear of the unit:

- the connector for the combustion air supply inlet and the combustion product exhaust flue
- the holes to attach the unit to the wall
- the entry with cable gland for the air heater electric power supply, and the opening for the convection fan intake (only for model HTV)

The following are located inside the unit:

- the combustion chamber and the finned heat exchanger made of die-cast aluminum alloy
- the atmospheric burner which comes complete with:
  - pilot burner with ignition electrode and thermocouple for models HJ and HT
  - ignition electrode and flame detection electrode for model HTV
- (only for model HTV) the electric control panel including the burner control device, the gas unit, the room thermostat, and the centrifugal convection fan

1.5 PACKAGE CONTENTS

The air heater is shipped with cardboard packing with two polystyrene foam protection shells which also contain:

- the intake and exhaust duct for walls up to 40 cm, complete with connector flange, ceramic fibre gasket, attachment screws and wind protection terminal
- gas conversion kit with label.
- the gas on-off valve
- a screwdriver to disassemble the casing
- this installation and servicing technical information manual as well as warranty documents

1.6 ACCESSORIES SUPPLIED ON REQUEST

In addition to the material described above, the following accessories can also be supplied on request:

- intake and exhaust duct, 80 cm
- protection grille for standard terminal
- weekly digital timer kit (Ghibli HTV)

1.7 APPLICATION

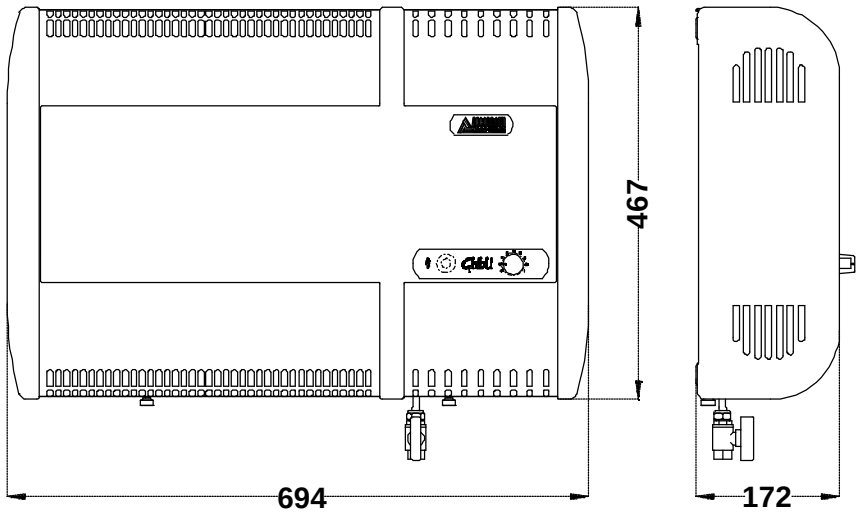
The Ghibli gas heater is an independent appliance designed to heat individual rooms. This design solution is a good alternative to traditional equipment, since it does not involve costly installation work and allows heat to be managed in a personalised manner, room by room, only when it is needed. The Ghibli gas heater is ideal for single-family dwellings, vacation homes, offices, stores, laboratories.

It is particularly suitable for restructuring projects, where a traditional system would require major masonry work or involve exorbitant costs. The Ghibli gas heater can also be added to an existing system.

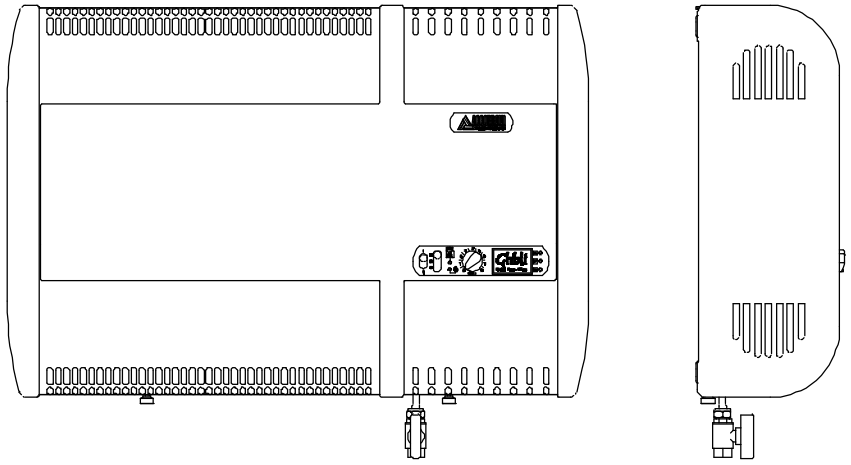
WARNING! It is important to verify that the

1.8 DIMENSIONS

Models HJ-HT



Model HTV



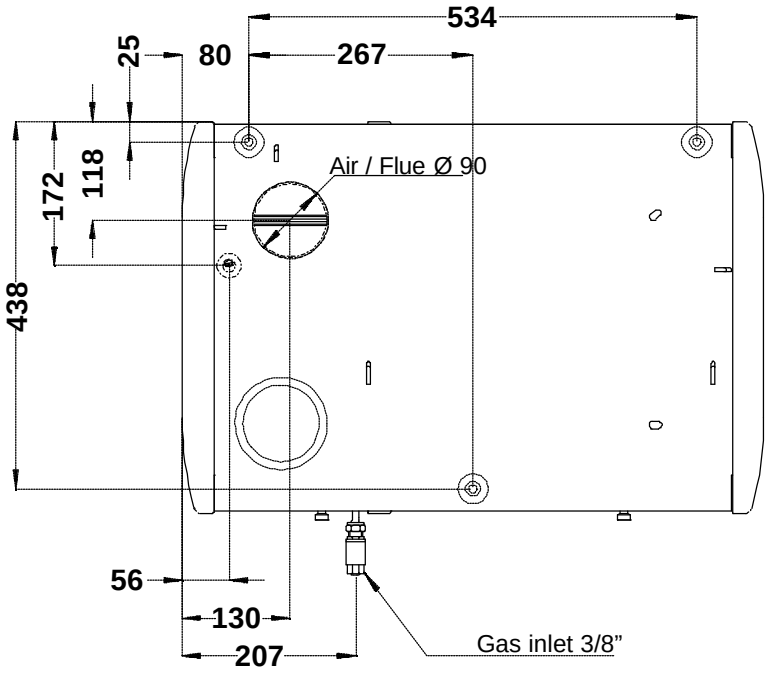
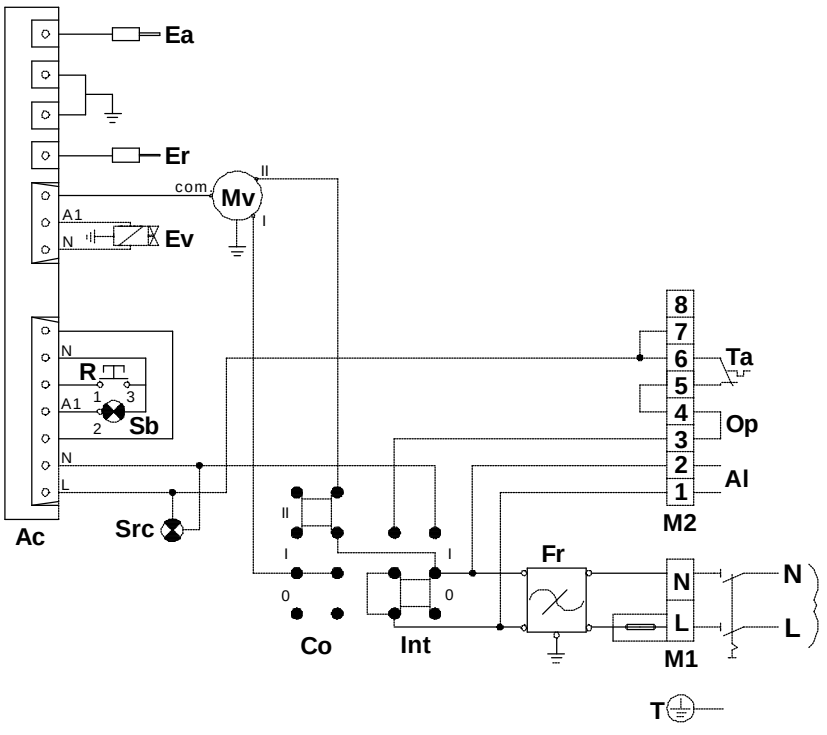


Fig. 1

1.9 TECHNICAL DATA TABLE		Units	Ghibli HJ	Ghibli HT	Ghibli HTV
Heat input (H_i)		kW	1,50 - 2,50	1,80 - 3,00	3,00
min - max		kcal/h	1.300 - 2.150	1.550 - 2.600	2.600
Heat output (H_i)		kW	1,25 - 2,15	1,50 - 2,60	2,60
min - max		kcal/h	1.080 - 1.850	1.300 - 2.250	2.250
Gas consumption	Natural gas G20	mc/h	0,16 - 0,26	0,19 - 0,32	0,32
min - max	Butane G30	kg/h	0,12 - 0,20	0,14 - 0,24	0,24
(15 °C - 1.013 mbar)	Propane G31	kg/h	0,11 - 0,19	0,13 - 0,23	0,23
Burner pressure	G20 p 20 mbar	mbar	5,0 - 13,0	5,0 - 12,0	13,5
min - max	G30 p 28-30 mbar	mbar	10,0 - 28,0	11,0 - 28,0	28,0
(15 °C - 1.013 mbar)	G31 p 37 mbar	mbar	12,5 - 36,5	13,5 - 36,5	36,5
Main burner	G20	mm/100	135	150	150
gas injector size	G30 / G31	mm/100	85	90	93
Pilot burner	G20	mm/100	36	36	/
gas injector size	G30 / G31	mm/100	19	19	/
Air delivery	Max. speed	m^3/h	/	/	220
Gas service connection		"	RP 3/8		
Air supply / Flue exhaust diameter		mm	90		
Electrical supply			/	/	230 V ~ 50 Hz
Fuse		A	/	/	2
Electric power		W	/	/	35
Net weight		kg	16,8	16,8	17,6

1.10 WIRING DIAGRAM - Ghibli Model HTV



Al = External timer supply
Ac = Control equipment
Co = Fan speed switch
Ea = Ignition electrode
Er = Flame detection electrode
Ev = Gas solenoid valve
Fr = RFI filter
Int = On-Off switch
M1-M2 = Connection terminal boards
Mv = Fan motor
Op = Bridge for auxiliaries
R = Reset button
Sb = Lockout signal
Src = Heat request signal
T = Earth connection
Ta = Room thermostat
= Fuse, 2 A
- - - - - = Connection to be made
——— = Series connection

Warning:
- Power should be supplied to the heater via a switch with contact opening of at least 3 mm.
- Observe the correct phase-neutral polarity when connecting the single-phase, 230 V ~ 50 Hz power supply.

Fig. 2

1.11 EXPLODED VIEW - Ghibli Models HJ and HT

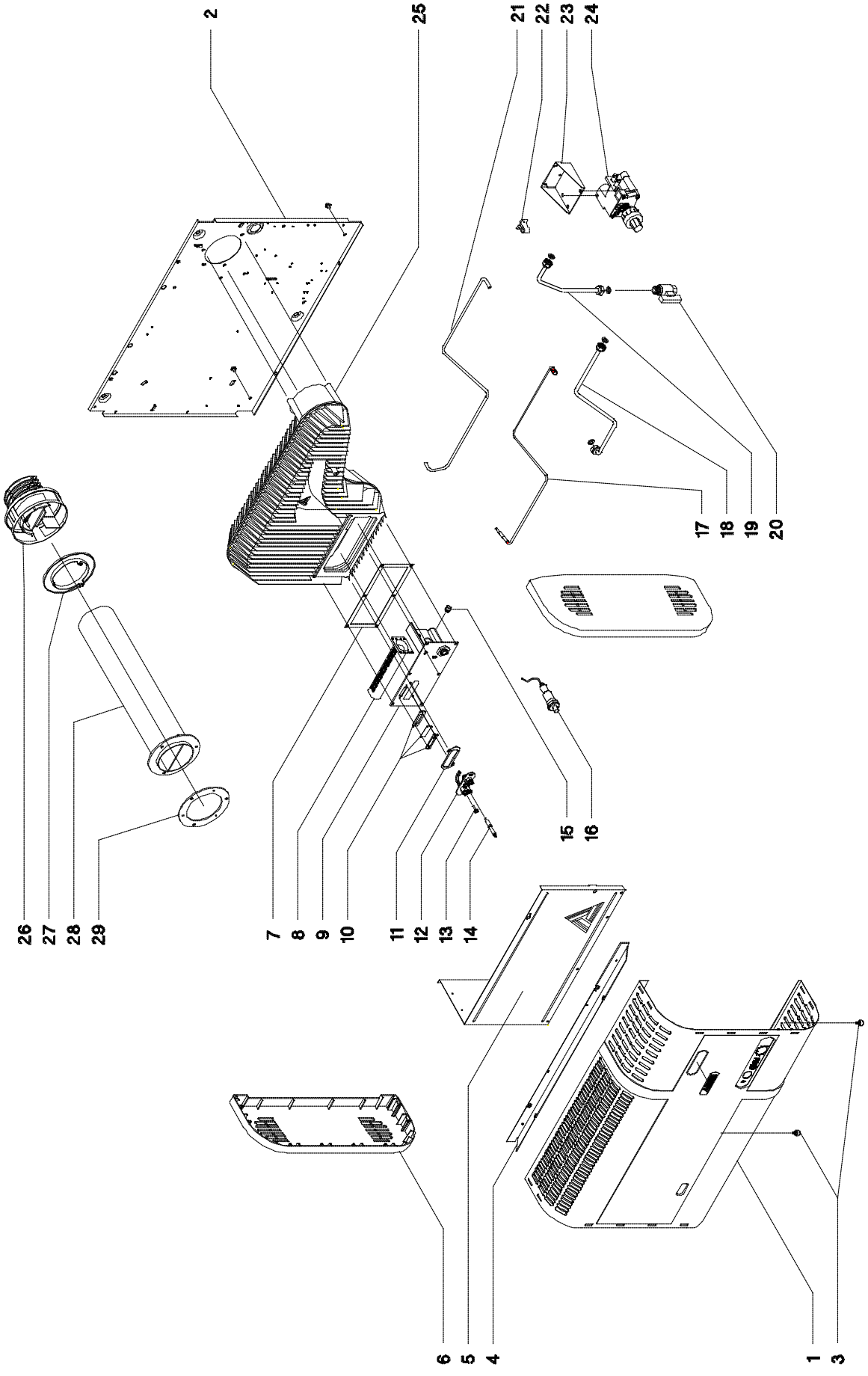


Fig. 3

design and installation conform with current standards.

Legend of components for Ghibli models HJ and HT *(see fig. 3)*

1 Casing
2 Rear panel
3 Casing attachment knob
4 Air deflector
5 Exchanger shield
6 Plastic side
7 Burner gasket
8 Main burner
9 Burner plate
10 Flame inspection window
11 Pilot burner gasket
12 Pilot burner
13 Pilot burner gas injector
14 Ignition electrode
15 Main burner gas injector
16 Piezoelectric igniter
17 Thermocouple
18 Main burner gas pipe
19 Gas supply pipe
20 Gas on-off valve
21 Pilot burner gas pipe
22 Gas pipe attachment plate
23 Gas valve support
24 Multifunctional gas valve
25 Heat exchanger
26 Intake/exhaust terminal
27 External terminal flange
28 Intake/exhaust duct
29 Duct attachment gasket

Legend of components for Ghibli model HTV *(see fig. 4)*

1 Casing
2 Rear panel
3 Casing attachment knob
4 Air deflector
5 Exchanger shield
6 Plastic side
7 Burner gasket
8 Burner
9 Burner plate
10 Flame inspection window
11 Flame detection electrode
12 Ignition electrode
13 Gas injector
14 Internal electric wiring board
15 Commands board
16 Control support
17 Command and control equipment
18 Burner gas pipe
19 Gas unit support
20 Thermostat probe fastening clamp
21 Gas unit
22 Gas supply pipe
23 Gas pipe attachment plate
24 Gas on-off valve
25 Room thermostat
26 Cable gland
27 Heat exchanger
28 Fan
29 Fan scroll
30 Fan motor
31 Digital timer kit (on request)
32 Intake/exhaust terminal
33 External terminal flange
34 Intake/exhaust duct
35 Duct attachment gasket

1.11 EXPLODED VIEW - Ghibli Model HTV

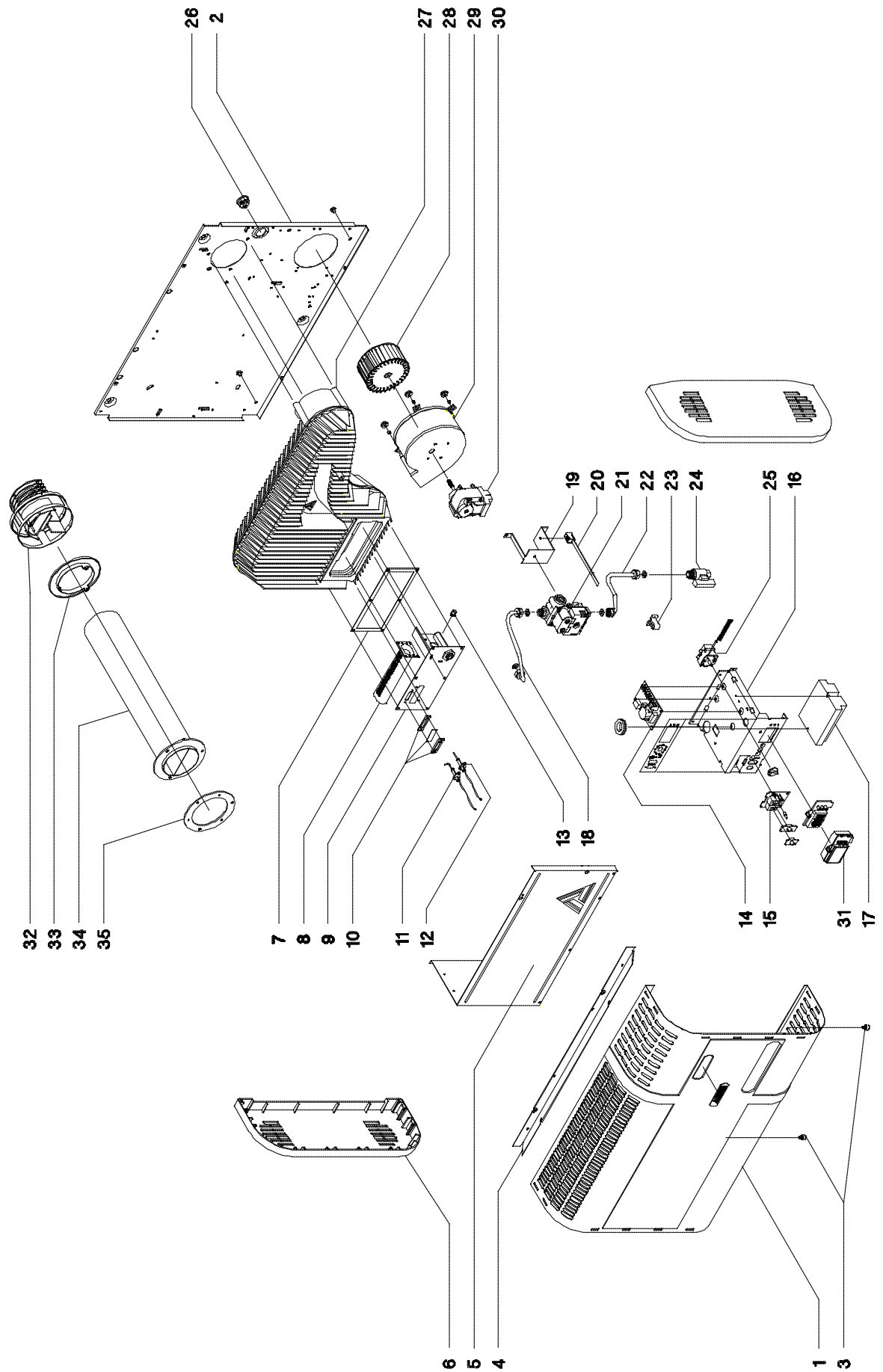


Fig. 4

2. CONTROL AND SAFETY DEVICES

2.1 MODELS HJ and HT

2.1.1 Multifunctional gas valve

The single control knob on the gas valve (*fig. 5*) allows you to perform several functions: turn off the unit, adjust the pilot position, and make adjustments by means of a modulating combined thermostat. The valve does not require an electric power supply. It is equipped with a thermoelectric flame detection device, with a safety lock when it is reset (interlock). A pressure regulator and a minimum flow rate regulator make calibration simple.

The die-cast aluminum casing is equipped with 3/8" threaded gas inlet and outlet connections, an outlet for the pilot burner with flow rate regulation, and two inlet and outlet pressure measurement points.

MULTIFUNCTIONAL GAS VALVE
(Ghibli HJ and HT)

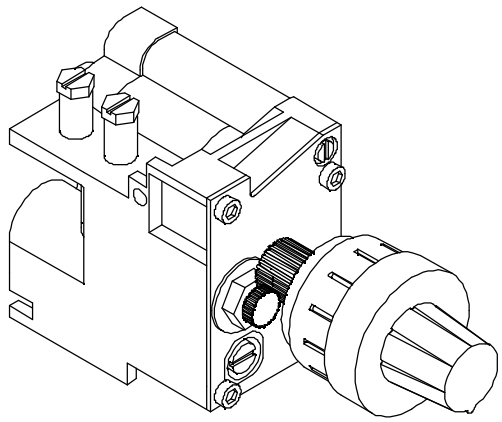


Fig. 5

2.1.2 Thermocouple on the pilot burner

The thermocouple installed on the pilot burner is connected to the gas valve's thermoelectric device. It guarantees that the flame will be detected on the burner. Its provides give ignition times of less than 6 seconds and turn off times between 30 and 60 seconds.

2.2 MODEL HTV

2.2.1 Gas controller

This device is housed in a heat-resistant and shockproof plastic enclosure and is mounted on the air heater electric board *(fig. 6)*.
The control device operates on the ionisation flame detection principle, using a special probe on the burner.

The detection circuit must be fed with single-phase 230 V ~ 50 Hz mains voltage. The circuit is sensitive to the phase-neutral polarity. If this is reversed, the device will lock out within the safety time, even if the flame has a regular shape (for special cases consult our Technical Office).

2.2.2 Gas unit

The gas unit (*fig. 7*) includes two, direct operation solenoid valves with class B closing devices (maximum pressure 50 mbar) and a pressure regulator. The die-cast aluminium casing is

GAS CONTROLLER (Ghibli HTV)

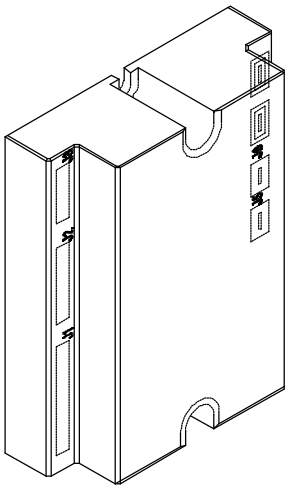


Fig. 6

GAS UNIT (Ghibli HTV)

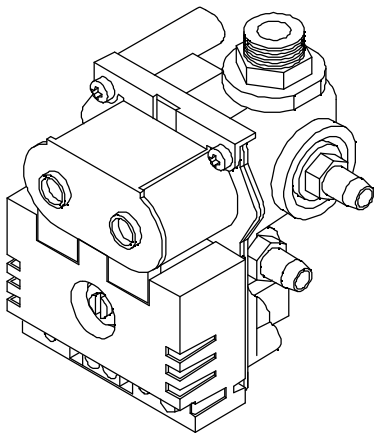


Fig. 7

SECTION 2
TECHNICAL INFORMATION FOR THE INSTALLER

equipped with 3/8 RP threaded gas inlet and outlet connections and two inlet and outlet pressure test points. The gas unit is also equipped with an inlet filter.

3. PRECAUTIONS

3.1 GAS SAFETY REGULATIONS

The law requires all gas appliances to be installed by competent persons in accordance with the regulations. Failure to install appliances correctly may lead to prosecution. It is in your own interests and that of safety to ensure compliance with the law.

3.2 RELATED DOCUMENTS

Notwithstanding their limited scope, the appliances should be installed in accordance with the relevant provisions of the following regulations:

UNITED KINGDOM
Gas Safety (Installation and Use) Regulations 1984 and BS 6891: 1988. Due account should be taken of any obligations arising from the Health and Safety at Work etc Act 1974, the current Building Regulations, the current I.E.E. Regulations and other relevant codes of practice.

IRELAND
I.S.3212: 1987, ICP 4, I.S.327. Due account should be taken of any obligations arising from the current Building Regulations, the current I.E.E. Regulations and other relevant codes of practice.

3.3 TRANSPORT AND HANDLING

The air heater is supplied with standard cardboard packing with two polystyrene foam shells. The packed appliance can be handled by hand or with a fork-lift truck, making sure to observe the instructions given on the box indicated by the special graphic symbols.

When delivered, check that no visible damage on the packing and/or on the appliance has occurred during transport. If damage is noted, immediately submit a claim to the shipping agent.

When removing the air heater from the packing, do not damage the cardboard. The assembly template to be used to make the holes on the wall in the room is printed on that cardboard. Check that the packing includes the appliance but also all the parts indicated in point 1.5. Place the material and the documents in a protected area.

3.4 DATA CHECK

Check that the heater and its technical characteristics match what is indicated by the drawings or other documents.

The type of gas for which the heater has been designed and the supply pressure are found on the exterior of the packing and on a special label located on the inside of the appliance.

WARNING! If the type gas for which the appliance has been designed is different from the one being used, the conversion operation must be carried out by skilled technical personnel.

3.5 USING THE INSTRUCTIONS

WARNING! When installing or working on the appliance, comply with all the instructions given in this manual. Changes to any type of connection and non-compliance with these instructions will immediately invalidate the warranty and release the manufacturer from all responsibilities.

4. INSTALLATION

4.1 POSITIONING INSTRUCTIONS

Before carrying out any installation operations, make sure that the following conditions are

POSITIONING

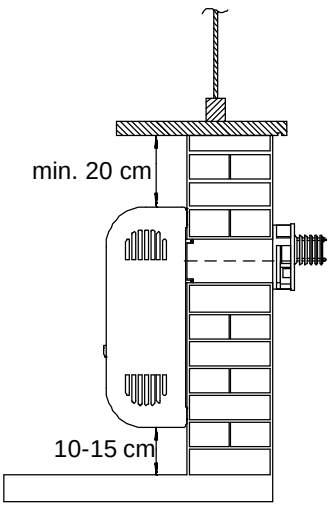


Fig. 8

satisfied regarding the position where the air heater will be installed:

a) the appliance with standard accessories , must be installed on an external wall to ensure that the it operates correctly.

b) it must be possible to provide a gas supply to the selected point and, only for model HTV, also a single-phase 230 Volt ~ 50 Hz power supply line

c) the position must be suitable to distribute the air correctly into the room and the air flow should not be obstructed by obstacles such as furniture or drapes

d) the unit must be installed at a minimum of 10-15 cm from the floor so that the air can circulate properly through the heat exchanger (*fig. 8*). Do not install the base of the appliance at a height of more than 50 cm from the floor, since this would lead to a non-uniform distribution of the warm air and thus waste fuel

e) if the appliance is installed under a window or under a shelf, make sure that the sill or the shelf does not obstruct the flow of warm air; it is recommended that a distance of at least 20 cm is maintained. For this reason and to make maintenance easier, the air heater should not be installed inside niches or in positions where it is difficult to access. The clearances indicated in fig. 9 should be observed.

4.2 AIR INTAKE AND FLUE EXHAUST DUCTS

WARNING! The material used to build the external wall and any covering (wood, plastic) must not be sensitive to the heat generated by the flue gas exhaust duct. If it is heat sensitive, the passage hole must be protected with insulation that insulates the wall or the covering.

These air heaters are defined as type C_{11}, with a combustion circuit that is sealed off from the heated area and that functions by means of natural draft. Therefore, the intake/exhaust duct must go directly through the outside wall of the building. Different paths and/or paths that bend or deviate are not possible.

If the outside wall is thicker than 40 cm, an intake/exhaust duct that is 80 cm long is available upon request.

4.3 OUTSIDE POSITIONING OF THE FLUE GAS EXHAUST TERMINAL

The position of the flue gas exhaust terminal and its distance from windows, ventilation openings, etc. must comply with what is prescribed by the current standards.

If the air heater is installed in rooms on the ground floor and the exhaust faces sidewalks at the level of pedestrians, a special protection grille must be installed, which is supplied on request *(fig. 10)*.

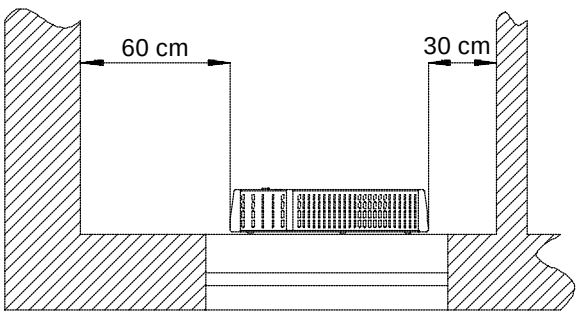
4.4 INSTALLATION OPERATIONS

Install the gas supply lines according to the installation design. For model HTV only, install the power supply lines according to the installation design.

4.4.1 Air heater wall-mounting preparations

Once the position and the height of the appliance from the ground has been determined, use the wall template from the cardboard packing to indicate the positions of the holes to be made

MINIMUM MAINTENANCE DISTANCES



TOP VIEW

Fig. 9

TERMINAL PROTECTION GRILLE

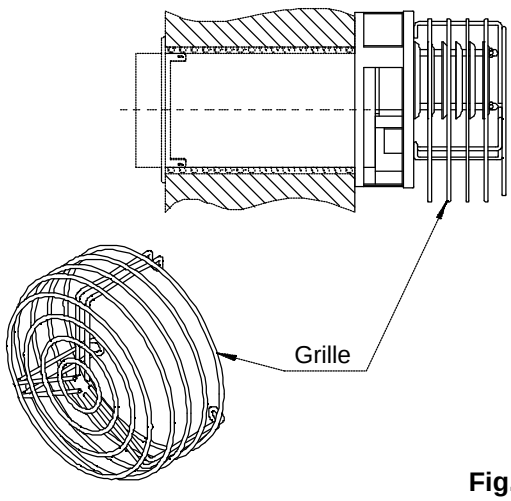


Fig. 10

(three holes to attach the appliance with an Ø 8 mm bit for expansion bolts, one hole for the intake/exhaust duct with special hole cutter Ø 100 mm, to be made as perpendicular as possible to the direction of the wall).

The template also indicates the positions of the electric power supply cable (Ghibli HTV) and gas feeder pipe entries.

4.4.2 Mounting the intake/exhaust duct

The intake/exhaust duct, supplied for walls up to 40 cm, consists of an aluminium pipe with connector flange and an external terminal. Mount the duct in the sequence described below:

a) precisely measure the thickness of the wall. This measurement plus 25 mm corresponds to the distance between the flange and the point at which the duct must be cut (*fig. 11*)

b) use a hacksaw to cut the aluminum duct to this measurement (the thickness of the wall + 25 mm). Use the second flange as a guide to make a perpendicular cut. Trim off any burrs using a file (the second flange will be used as a gasket outside the wall)

c) insert the duct into the appliance using the special gasket and tighten it with the three screws supplied with the kit.

WARNING! The duct can only be connected in one direction; do not force the pipe if resistance is felt. Note the position of the pipe on the flange and turn it in the correct position, if necessary.

4.4.3 Unit wall mounting

Unscrew the two screws located at the top and the two screws located at the bottom of the air heater casing and remove it. You may use the supplied screwdriver to do this. Remove the air heater casing; for models HJ and HT be careful to unplug the piezoelectric igniter's connection cable.

It is recommended to use two people to lift and position the air heater to avoid any possible damage to the wall or to the unit.

Lift the air heater, place the intake/exhaust duct into the hole, and then slowly move the heater closer to the wall until it comes into contact with it. Adjust the position of the unit and attach it to the wall using the expansion screws that were previously inserted into the wall.

After repairing any plastering that was damaged outside, fit the gasket flange on the duct. Insert the wind protection terminal on the duct. Make sure that the exhaust part, which can be identified by the presence of six fins, is at the top (*fig. 11*). Use a drill bit with a diameter of 3 mm to drill a hole in the tube at the indicated point. After drilling the hole, reinsert the terminal and use the provided screw to attach it permanently in place. Check its stability.

4.4.4 Gas connection

Mount the gas on-off valve supplied with the appliance using the special gasket. Connect the gas supply line to the valve which is equipped with a female threaded attachment RP 3/8".

WARNING!: The valve must be located in a position that can be easily accessed by the user.

Check the seal on the gas piping and make sure that it was created in conformity with the current

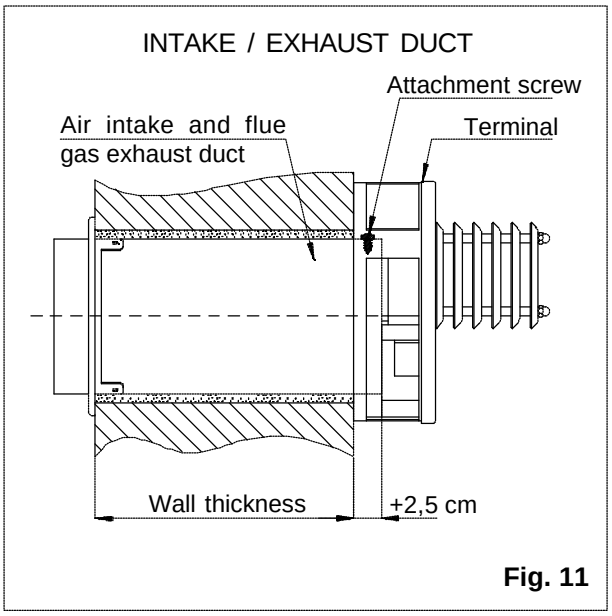


Fig. 11

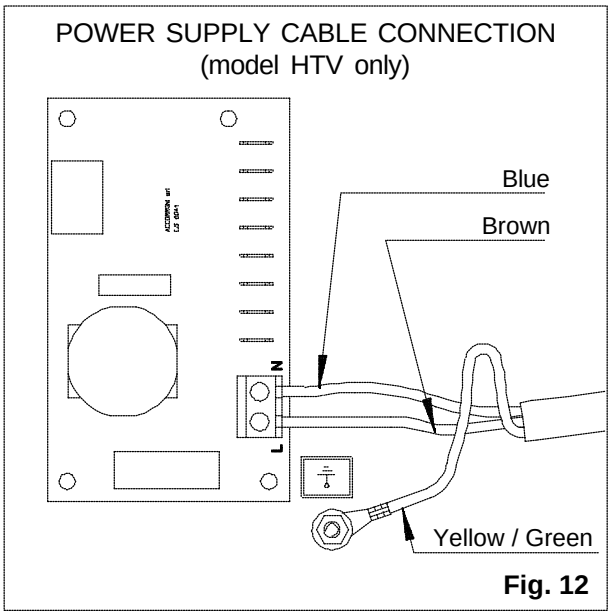


Fig. 12

standards regarding gas installations.

4.4.5 Electrical connections (Ghibli HTV)

Ensure that a single-phase, 230 V ~ 50 Hz electric power supply is available.

The appliance must be properly insolated by means of an omnipolar circuit-breaker with an adequate rating to be used as a general switch to turn off the appliance(s).

Connect the power supply cable to the phase, neutral terminals and earth connection of the appliance. Insert the power supply cable through the special cable gland, making sure to cut the wires so that the yellow/green earth cable is slightly longer than the other two.

This precaution, in case of accidental detachment, allows the earth cable to be the last connection to be removed *(fig. 12)*.

Comply with the phase/neutral polarity, otherwise the control equipment will generate a safety lock out.

THESE APPLIANCES MUST BE EARTHED.

4.4.6 Using a timer (the kit is supplied on request only for Ghibli HTV)

To operate the air heater automatically at predetermined hours, it is possible to install a timer on the appliance, even after the appliance has already been installed. The timer is supplied on request as an assembly kit.

5. START-UP

WARNING! The appliance initial start-up operations and tests must be performed by skilled technical personnel.

5.1 TESTS

5.1.1 Before starting the air heater, make sure that all the current provisions and standards relevant to the installation of these appliances have been observed. Pay particular attention to the correct positioning of the combustion product exhaust terminal.

5.1.2 (Ghibli HTV) Make sure that the single-phase, 230 V ~ 50 Hz electric power supply and the earth wire are connected to the special air heater terminals. The phase conductor must be connected to the terminal marked with the letter "L", otherwise the control equipment will generate a safety lockout.

5.1.3 Make sure that the unit uses the type of gas available, by checking the label on the heat exchanger's front shield.

WARNING! The appliance is delivered already set in the factory to use natural gas G20, with a supply pressure of 20 mbar. Instead, if gas from the third group is used (G30 - G31), first carry out the operations described in point *6.1.*

5.1.4 Check that the gas on-off valves on the meter and on the air heater are open. Make sure that the air inside the gas supply piping has been purged.

5.2 IGNITION

5.2.1 Ghibli HJ and HT ignition procedure

(Refer to fig. 13 when reading the following section)

a) turn the gas valve knob to the "✶" position

b) push the knob down completely and keep it pressed down. Press and quickly release the piezoelectric igniter button on the front of the air heater to create the spark that will ignite the pilot burner

c) keep the knob pressed down for approximately 10 seconds to allow the thermocouple to heat up, then release the knob and make sure that the pilot flame remains lit

d) turn the knob to the minimum setting, to a position between 1 and 3. If the unit is cold, this will allow the exchanger to heat up gradually and the draught to function correctly

e) after 2 to 3 minutes of functioning, turn the knob counterclockwise to the desired position. Remember that the gas flow rate is regulated

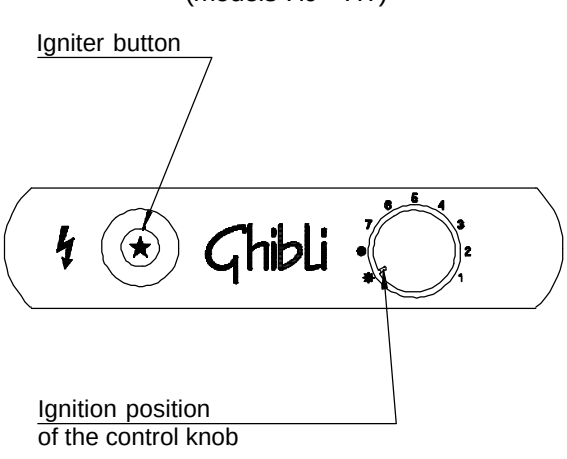


Fig. 13

as follows:

from position 1 = minimum flow rate

to position 7 = maximum flow rate

Note: the relationship between the knob position and the room temperature depends on the size and features of the room to be heated. It is recommend to advise the user to perform some regulation tests so as to achieve the desired temperature in the room. This temperature will be kept constant by the valve's thermostatic device.

5.2.2 Shutdown (models HJ and HT)

To stop the air heater's functioning without completely turning it off, turn the knob clockwise to the "✶" position. This will allow the pilot burner flame to remain lit and you just have to turn the knob counterclockwise to the values between 1 and 7 to return it to normal functioning.

To completely turn off the unit, turn the knob to the "●" position.

IMPORTANT! A safety device (interlock) will be activated in this position. This device prevents the knob from being turned for approximately one minute, thus making ignition impossible during this time. Therefore, before ignition is again possible, you will have to wait until this device allows the knob to be turned.

5.2.3 Ghibli HTV ignition procedure

(Refer to fig. 14 when reading the following section)

a) Place switch *(A)* in the on position "I" to start the ignition cycle. If the digital timer has been installed, refer to the instructions for that device to perform the additional operations

b) Turn the room thermostat dial *(D)* clockwise to the highest value. This marks the beginning of the start-up phase, indicated when the green led *(E)* turns on

c) Check that the red led *(F)* is turned off. If it is on, this means that the burner control equipment is in the "lockout" position. In this case, press the button *(C)* to reset the control equipment, and the red led will turn off

After completing the waiting phase (after about 30 seconds), the system simultaneously opens the gas solenoid valve and activates the transformer to discharge the electrode to ignite the burner.

From the moment in which the burner is ignited, the flame must be detected by the special ionisation sensor within the specific safety time, otherwise the control equipment enters the lock out mode, indicated when the red led *(F)*.

This may occur in particular in a new plant due to air in the gas piping. In this case, wait about one minute and reset the appliance by pressing the "reset" button *(C)* to begin a new cycle. Repeat the operation until the residual air has been purged and the ignition is regular.

The exchanger heating phase begins after the burner has been ignited. The exchanger reaches the rated operating temperature after about three minutes.

The convection fan distributes the warm air in the room. It has two rotation speeds that can be selected with the switch (*B*). For completely silent operation, the fan can be turned off by placing the switch (*B*) in "0" position.

CONTROL PANEL (model HTV)

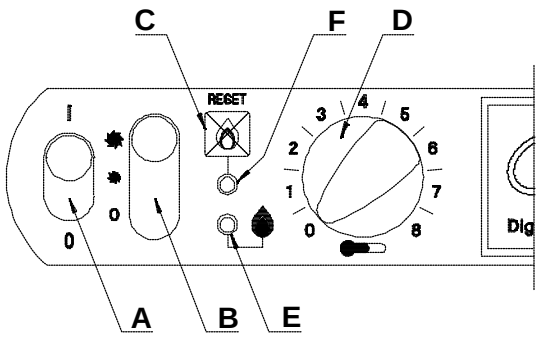


Fig. 14

5.2.4 Shutdown (model HTV)

To turn off the air heater set the switch (A) to the "OFF" position, without moving the temperature regulation dial.

5.3 CONTROLS

WARNING! When operations or visual inspections are performed on the air heater, be extremely cautious and work under safe conditions.

5.3.1 Models HJ and HT

Maximum burner pressure regulation and control (*fig. 15*):

Remove the screw from the pressure outlet (A) and insert a water column pressure gauge tube in it. Start the air heater as described in point 5.2.1 by turning the knob to position 7. Make

sure that the pressure to the burner corresponds to the maximum value indicated in the technical data table on page 7.

If the pressure of the gas delivered to the burner does not correspond to the indicated value, use the special pressure regulator screw (*B*) to set the specified value. Turn it counterclockwise to decrease the pressure and clockwise to increase the pressure (this operation can be carried out only when using G20 natural gas).

Minimum burner flow rate regulation and control (*fig. 15*):

With the pressure gauge inserted in the pressure inlet and while the air heater is operating, turn the knob clockwise until you reach the position (from 1 to 3) where the burner is about to go out. Make sure that the minimum pressure to the burner corresponds to the value indicated in the technical data table.

If the pressure of the gas delivered to the burner does not correspond to the indicated value, use the special screw (*C*) to set the specified value. Turn it clockwise to decrease the pressure and counterclockwise to increase the pressure.

After regulating the pressure, remove the pressure gauge tube and tighten the pressure inlet screw. Use a special spray or electronic leak detector to identify any leaks in the gas circuit.

Regulating the flow rate to the pilot burner (*fig. 15*):

Use screw (*D*) to regulate the flow rate to the pilot burner. Make sure that the flame envelopes the thermocouple well. Turn it clockwise to decrease the flow rate and counterclockwise to increase the flow rate.

Then repeat the startup operation to observe and check that the burner ignites correctly and that the flame is stable.

5.3.2 Model HTV

Insert the water column pressure gauge tube into the pressure outlet on the gas unit *(fig. 16)* after having backed off the screw a few turns. Start the air heater and check that the pressure to the burner corresponds to what is indicated in the technical data table.

If the pressure of the gas delivered to the burner does not correspond to the value indicated, use the special pressure set screw *(fig. 16)*, after having removed the protection plug, to obtain the specified value. Turn it counterclockwise to decrease the pressure and clockwise to increase the pressure (this operation can be carried out only when using natural gas G20).

Turn the room thermostat dial to the minimum value and check that the burner shuts off.

Remove the pressure gauge tube and tighten the pressure regulator screw, carefully checking the seal. Replace the regulator protection plug.

Then repeat the start-up operation to observe and check that the burner has ignited correctly

MULTIFUNCTIONAL VALVE (models HJ - HT)

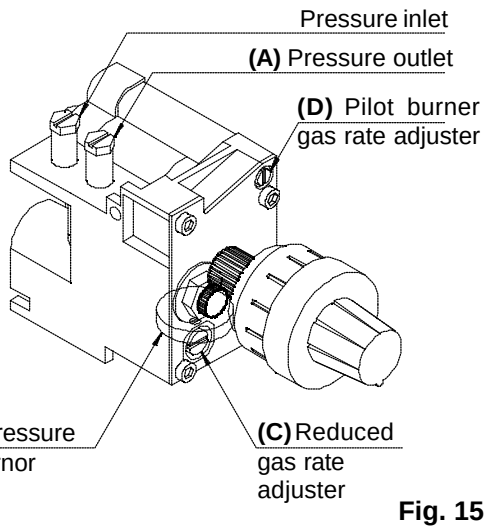


Fig. 15

GAS UNIT (model HTV)

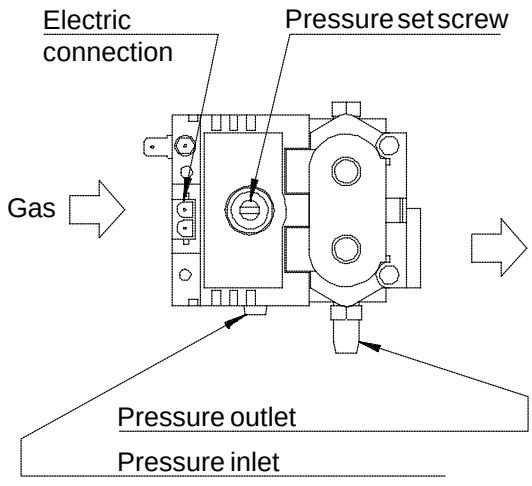


Fig. 16

and that the flame is stable.

5.4 USEFUL INFORMATION

It is recommended that the user be informed about all the operations necessary to use the air heater correctly, with particular reference to the ignition and shutdown phases and about the importance of periodic tests, which must be performed at least once every year by skilled personnel.

6. GAS TYPE CHANGE

WARNING! The operations described below must be carried out by skilled technical personnel.

6.1 SWITCHING FROM GAS IN THE SECOND GROUP (G20) TO GAS IN THE THIRD GROUP (G30 - G31)

6.1.1 Models HJ - HT (*fig. 17*)

a) Check that the envelope supplied with the air heater contains the replacement injectors (for the main and the pilot burners) and the adhesive label, on which to indicate the new type of gas being used, to replace the original one

b) check that the diameter of the injectors indicated for the type of gas to be used *(see technical data table on page 7)* corresponds to what is stamped on the injectors

c) close the gas on-off valve. Free the air heater casing using the two screws located at the bottom and the two screws at the top, which can be accessed by using the screwdriver supplied with the kit. Remove the case carefully; for models HJ and HT be careful to unplug the piezoelectric igniter's connection cable.

d) remove the principal burner's gas supply tube by unscrewing the nuts at its ends. Be careful not to damage the gaskets. Unscrew the two fastening screws on the pilot burner and remove it

e) remove the 6 nuts that fasten the principal burner plate to the heat exchanger and remove it. Be careful not to damage the gasket. Remove the gas injector using a 10-mm hexagonal wrench, replace it with the new one, and then carefully retighten it to ensure a proper seal

f) remount the principal burner, making sure that the gasket is in the correct position. Attach the plate using the 6 nuts that were previously removed. Put the gas supply tube back into place, making sure that the gasket is in the correct position. Tighten the nuts to ensure a proper seal

g) Remount the pilot burner and fasten it in place with the two screws, making sure that the gasket is in the proper position. Use a 10-mm hexagonal wrench to unscrew the gas connector on the pilot burner.
Slowly remove the gas tube until the injector comes out (the injector is attached to the seal). Disconnect the injector and replace it with the new one. Slowly slide the entire assembly completely back into place, making sure that the injector does not disconnect from the seal. Screw down the connector nut and tighten it

h) perform all the operations and controls

GAS TYPE CHANGE - MODELS HJ - HT

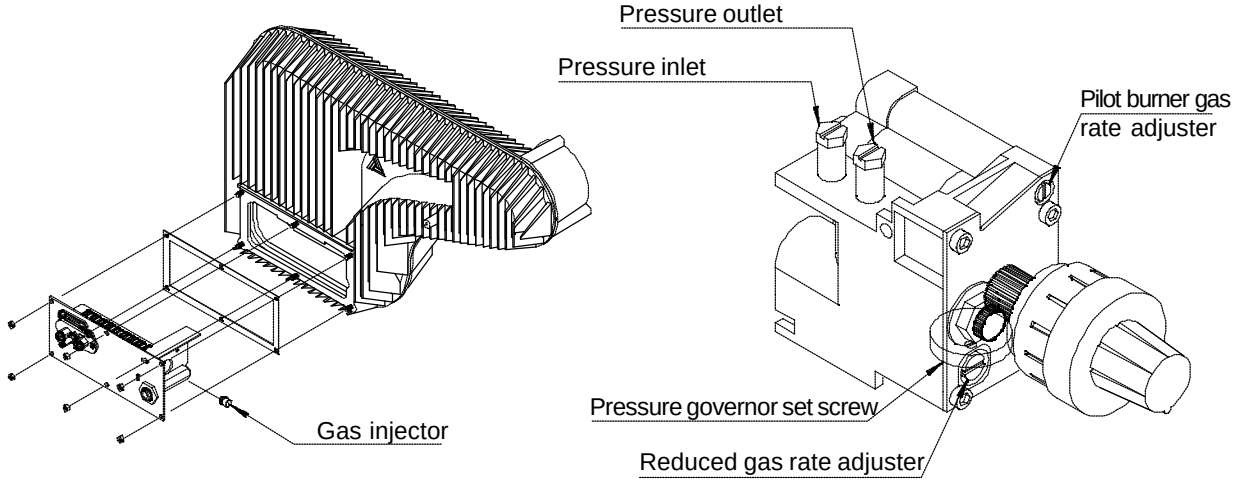


Fig. 17

described previously at point 5.3.1, except that the pressure regulator must be disabled by delicately turning its adjustment screw (*B*) clockwise until it has been fully tightened (*see fig. 15*). In this manner the maximum pressure at the burner will be determined by the value of the inlet supply pressure at the valve.
If the maximum gas pressure at the burner does not correspond to the indicated value, use the pressure regulator (second stage) installed externally along the tube to set the correct value

i) remove the pressure gauge tube and tighten the pressure inlet screw

j) use a special spray or electronic leak detector to identify any leaks in the gas circuit

k) remount the air heater casing and attach it at the four points.

6.1.2 Model HTV (*fig. 18*)

a) Check that the envelope supplied with the air heater contains the replacement injector, the screw block with pin and the adhesive label, on which to indicate the new type of gas being used, to replace the original one

b) check that the diameter of the injector indicated for the type of gas to be used *(see technical data table on page 7)* corresponds to what is stamped on the injector.

c) close the gas on-off valve and disconnect the electric power supply. Remove the air heater casing using the two screws located at the bottom and the two screws at the top, which can be accessed by using the screwdriver supplied with the kit

d) remove the burner's gas supply tube by unscrewing the nuts at its ends. Be careful not to damage the gaskets. Remove the 6 nuts that fasten the burner support plate to the heat exchanger and remove it. Be careful not to damage the gasket. Remove the gas injector using a 10-mm hexagonal wrench and replace it with the new one, then carefully retighten it to ensure a proper seal

e) remount the burner support plate, making sure that the gasket is in the correct position. Attach the plate using the 6 nuts that were previously removed

f) unscrew the pressure governor protection plug located on the gas unit. With care, fully tighten the plastic screw of the pressure governor. Insert the screw block with pin instead of the protection plug to put the governor out of service *(fig. 16)*. **Keep the pressure governor protection plug for future use**

g) insert the water column pressure gauge tube into the upstream pressure inlet on the burner *(fig. 16)* after having backed off the closing screw a few turns

h) start the air heater according to what is indicated in *point 5.2.3*. Check that the supply pressure corresponds to what is indicated in the technical data table. If the gas supply pressure does not correspond to the value indicated, use the pressure regulator (second stage) installed externally to obtain the correct value

i) remove the pressure gauge tube and tighten

GAS TYPE CHANGE - MODEL HTV

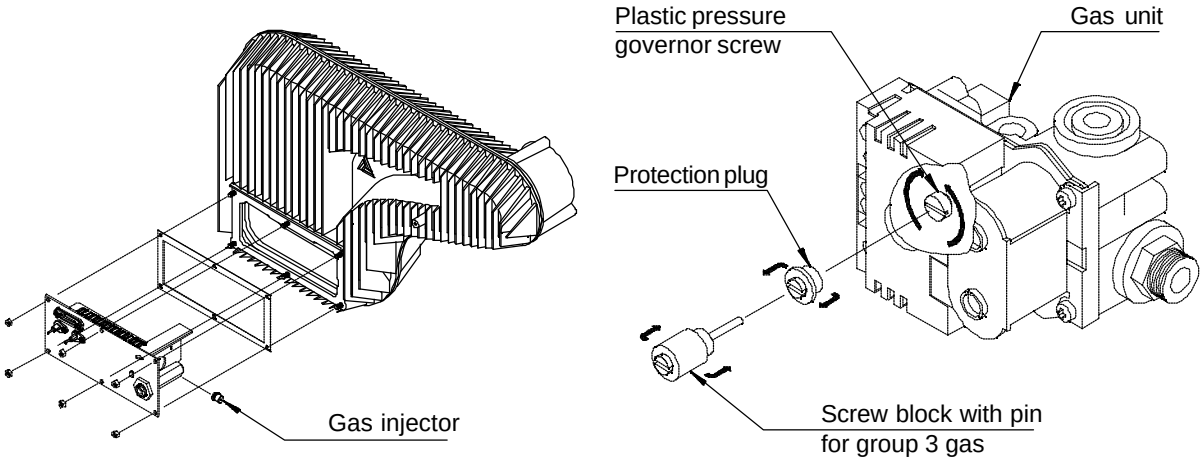


Fig. 18

the pressure inlet screw

j) use a special spray or electronic leak detector to identify any leaks in the gas circuit

k) replace the air heater casing and attach it at the four special points.

6.2 SWITCHING FROM GAS IN THE THIRD GROUP (G30 - G31) TO GAS IN THE SECOND GROUP (G20)

6.2.1 Models HJ - HT (*fig. 17*)

a) check that the adaptation kit envelope contains the replacement injectors (for the main and the pilot burners) and the adhesive label, on which to indicate the new type of gas being used, to replace the original one

b) check that the diameter of the injectors indicated for the type of gas to be used *(see technical data table on page 7)* corresponds to what is stamped on the injectors

c) close the gas on-off valve. Free the air heater casing using the two screws located at the bottom and the two screws at the top, which can be accessed by using the screwdriver supplied with the kit. Remove the case carefully; for models HJ and HT be careful to unplug the piezoelectric igniter's connection cable.

d) remove the principal burner's gas supply tube by unscrewing the nuts at its ends. Be careful not to damage the gaskets. Unscrew the two fastening screws on the pilot burner and remove it

e) remove the 6 nuts that fasten the principal burner plate to the heat exchanger and remove it. Be careful not to damage the gasket. Remove the gas injector using a 10-mm hexagonal wrench and replace it with the new one, then carefully retighten it to ensure a proper seal

f) remount the principal burner, making sure that the gasket is in the correct position. Attach the plate using the 6 nuts that were previously removed. Put the gas supply tube back into place, making sure that the gasket is in the correct position. Tighten the nuts to ensure a proper seal

g) Remount the pilot burner and fasten it in place with the two screws, making sure that the gasket is in the proper position. Use a 10-mm hexagonal wrench to unscrew the gas connector on the pilot burner. Slowly remove the gas tube until the injector comes out (the injector is attached to the seal). Disconnect the injector and replace it with the new one. Slowly slide the entire assembly completely back into place, making sure that the injector does not disconnect from the seal. Screw down the connector nut and tighten it

h) perform all the operations and controls described previously at point 5.3.1

i) replace the air heater casing and attach it at the four special points.

6.2.2 Model HTV *(fig.18)*

a) check that the adaptation kit envelope contains the replacement injector and the adhesive label, on which to indicate the new type of gas being used, to replace the original one

b) check that the diameter of the injector indicated for the type of gas to be used *(see technical data table on page 7)* corresponds to what is stamped on the injector.

b) close the gas on-off valve and disconnect the electric power supply. Remove the air heater casing using the two screws located at the bottom and the two screws at the top, which can be accessed by using the screwdriver supplied with the kit

d) remove the burner's gas supply tube by unscrewing the nuts at its ends. Be careful not to damage the gaskets. Remove the 6 nuts that fasten the burner support plate to the heat exchanger and remove it. Be careful not to damage the gasket. Remove the gas injector using a 10-mm hexagonal wrench and replace it with the new one, then carefully retighten it to ensure a proper seal

e) remount the burner, making sure that the gasket is in the correct position. Attach the plate using the 6 nuts that were previously removed

f) on the gas unit, remove the screw block with pin located on the pressure regulator so as to reset regulation operation

g) start the air heater according to what is indicated in *point 5.2.3*

h) insert the water column pressure gauge tube

into the pressure outlet on the gas unit burner *(fig. 16)* after having backed off the closing screw a few turns. Check that the supply pressure corresponds to what is indicated in the technical data table. If the gas supply pressure to the burner does not correspond to the value indicated, use the pressure governor *(fig. 16)* to obtain the correct value. Turn counterclockwise to decrease the pressure and clockwise to increase the pressure

i) remove the pressure gauge tube and tighten the pressure inlet screw. Insert the regulator protection plug (original equipment)

j) use a special spray or electronic leak detector to identify any leaks in the gas circuit

k) replace the air heater casing and attach it at the four special points.

7. OPERATING DEFECTS

7.1 PRELIMINARY TESTS

Before performing specific tests, make sure that:

a) the gas supply is correct, the gas on-off valve is open and the pressure to the burner corresponds to what is indicated in the technical data table

b) for HTV only, the electric power supply is properly connected (with particular attention focused on the phase-neutral polarity and earth connector)

c) the external terminal of the combustion air intake and combustion product exhaust duct is not obstructed

The following is a list of possible defects along with their probable causes. *The information indicated in italics refers to repair operations or corrections which are the responsibility of the authorised Technical Service Centre.*

7.2 POSSIBLE DEFECTS - Models HJ - HT

7.2.1 The pilot burner does not ignite:

a) The gas flow rate to the pilot burner is not sufficient.

- *Check the gas inlet pressure at the valve and use the pilot burner flow rate adjustment screw (see fig. 15).*

b) The diameter of the pilot burner gas injector does not correspond to the diameter of the gas being used or else it is clogged.

- *Check the correct diameter and/or clean the injector using compressed air.*

c) There is no ignition spark because the electrode is damaged or it is not at the correct distance from the pilot burner.

- *Change the electrode if you find cracks in the ceramic insulation or check the correct attachment position on the threaded connector.*

d) There is no ignition spark because there is a problem with the piezoelectric igniter or the connection cable to the electrode is broken.

- *Check that the igniter produces a spark and that the cable is correctly connected and its insulation is not damaged. Change any defective component (see point 8.1.3).*

7.2.2 The pilot burner does not remain lit

a) The flame is too short and does not sufficiently envelope the thermocouple.

- *Check the gas inlet pressure at the valve and use the pilot burner flow rate adjustment screw (see fig. 15).*

b) There is a problem with the thermocouple or the magnetic unit does not function correctly.

- *First change the thermocouple (see point 8.1.4) and, if necessary, also the magnetic unit (see point 8.1.1). If the problem continues, change the complete gas valve (see point 8.1.2).*

7.2.3 The principal burner does not ignite even if the valve control knob is turned to the maximum value, position 7.

a) The valve thermostat does not function correctly.

- *Change the complete valve (see point 8.1.2).*

b) The principal burner's gas injector is clogged.

- *Check the correct diameter and/or clean the injector using compressed air.*

7.2.4 The principal burner does not remain lit or goes out during functioning even if the room temperature does not require it.

a) The external intake/exhaust terminal is obstructed or it is not in the correct position, thus causing the partial re-entry of combustion products.

- *Check the position and the condition of the terminal and remove any obstructions.*

b) The valve thermostat does not function correctly.

- *Change the complete valve (see point 8.1.2).*

7.3 POSSIBLE DEFECTS - Model HTV

7.3.1 The appliance does not start even if the conditions described in the points 7.1 are correct.

a) the flame detection circuit of the control equipment is malfunctioning and the initial self-check does not allow the cycle to continue.

- *Replace the control equipment (see point 8.2.1).*

b) The flame detection electrode has an earth leakage.

- *Check the correct position of the electrode. The ceramic insulation material may be cracked and this is difficult to determine visually. In case of doubt, replace the electrode (see point 8.2.4).*

7.3.2 At the end of the waiting phase, the ignition electrode does not spark and the control equipment locks out within the safety time.

a) The ignition transformer is malfunctioning.

- *Replace the control equipment which contains the transformer (see point 8.2.1).*

b) The ignition electrode is no longer connected to the equipment connector.

- *Restore the connection or replace the electrode including the cable (see point 8.2.4). Do not make joints to avoid reducing the cable insulation level.*

c) The ignition electrode is not correctly positioned or its ceramic insulation is damaged, with a subsequent leakage of the ignition discharge.

- *Replace the electrode including the cable (see point 8.2.4).*

7.3.3 At the end of the waiting phase, the ignition electrode sparks, but the flame is not formed and the control equipment locks out within the safety time.

a) No gas supply or there is air inside the piping.

- *Determine why there is no gas supply first checking the on-off components on the feed line. Completely bleed off any residual air and restart the appliance.*

b) The gas solenoid valves do not open because the coils are malfunctioning or their electrical connection has been interrupted.

- *Check if the connection cable and relative terminals have been damaged. Use a special tool to verify that the coils have failed and replace them, if necessary (see point 8.2.3).*

7.3.4 At the end of the waiting phase, the ignition electrode sparks, the flame is formed correctly, but the control equipment locks out within the safety time.

a) The phase-neutral electric power supply is not correctly connected to the respective terminals, marked as "L" and "N" and reversing the polarity may de-activate the flame detection device.

- *Check using a multimeter or phase detector and correctly connect the cables to the corresponding terminals.*

b) The flame detection electrode is not correctly positioned and is not in contact with the flame.

- *Check if the electrode is properly connected and if there are any deformations. Comply with what is indicated in figure 28.*

c) The flame detection electrode electric connection has been interrupted.

- *Check the electrode connection to the control equipment. If the cable or ceramic insulation is damaged, replace the electrode in accordance with the positions indicated in figure 28.*

d) The intake/exhaust duct is obstructed.

- *Eliminate any obstructions at the terminal and check that it is in the correct position.*

7.3.5 The control equipment locks out during normal operation

a) The gas supply was cut off and the equipment, after repeating the ignition cycle, and without detecting the flame within the safety time period, entered the lock out mode.

- *Determine why the gas supply prior to the air heater was interrupted. Restart the appliance using the Reset button on the control panel.*

7.3.6 The burner stops while it is operating, even

if the room temperature does not require it

a) The room thermostat is defective.

- *First check that the thermostat sensor is in the correct position and that its operation has not been affected by dust deposits. Otherwise, replace the defective room thermostat (see point 8.2.5).*

b) Incorrect placement of the external intake/ exhaust terminal causes combustion product re-entry which disturbs the flame. This situation makes it difficult to detect the flame.

- *Make sure that the terminal is not positioned in a recess in the wall and that there are no obstacles to the air circulating freely.*

7.3.7 The fan does not function

a) The speed switch is defective or there is a problem with the motor.

- *Use a multimeter to identify the point where the circuit is broken, and change the defective component.*

8. REPLACING PARTS

Since specific technical skills are required to replace the parts listed below, it is recommended to advise the user to always contact skilled technical personnel. For safety and quality reasons, it is recommended to use original spare parts when replacing components.

WARNING! All the following operations must be carried out while the heater is turned off, the gas is disconnected, and, only for model HTV, the power supply is disconnected. When you have finished the operations, carefully check the gas circuit seal and check that all the unit's operating phases run correctly.

GAS VALVE REPLACEMENT

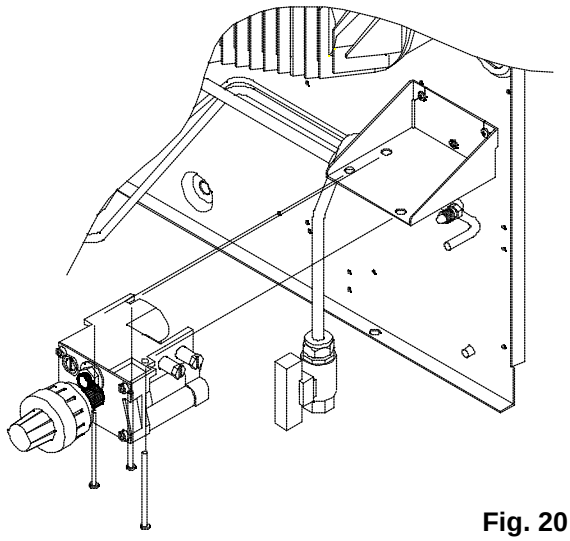


Fig. 20

8.1 MODELS HJ and HT

8.1.1 Gas valve magnetic unit

Unscrew the thermocouple connector on the gas valve using a 9-mm hexagonal wrench and remove it. Use a 14-mm wrench to unscrew the defective magnetic unit (to access the magnetic unit more easily, remove the gas inlet and outlet tubes) and replace it with the new one. Tighten it onto the valve. Screw the thermocouple connector back into place (*fig. 19*).

8.1.2 Multifunctional gas valve

If it is necessary to change the entire valve, remove the following connections to it: gas inlet

GAS VALVE MAGNET UNIT REPLACEMENT

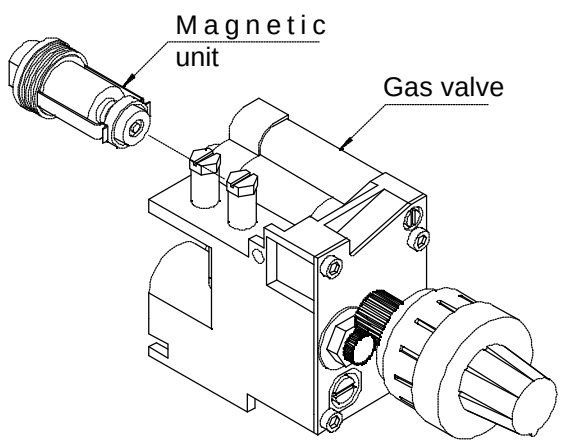


Fig. 19

PIEZOELECTRIC IGNITER REPLACEMENT

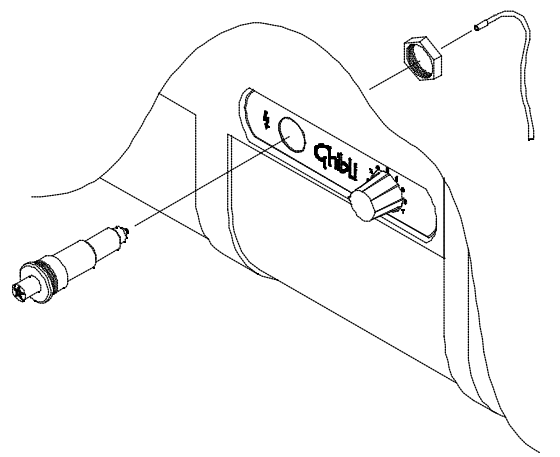


Fig. 21

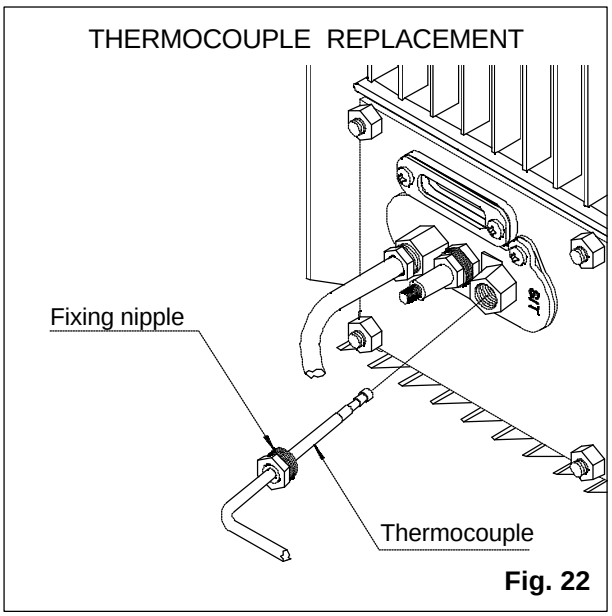


Fig. 22

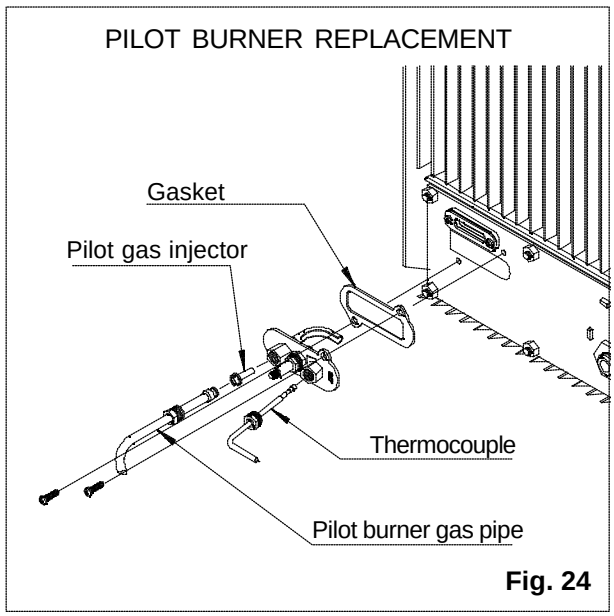


Fig. 24

and outlet tubes using a 19-mm hexagonal wrench, the pilot burner gas supply tube using a 10-mm wrench, and the thermocouple connector using a 9-mm wrench. Remove the thermostat bulb from the fastening clamp and unscrew the two socket hexagonal-head screws that fasten the valve to the support bracket (*fig. 20*).

Insert the new valve and repeat the previously described operations in the reverse order. Start the air heater and adjust it as described in points 5.3 (if you are using G20 natural gas) and 6.1.1-h (if you are using liquid propane gas). Carefully check the gas connectors' seals.

8.1.3 Piezoelectric igniter

Unscrew the two screws located at the top and the two screws located at the bottom of the air heater casing and remove it. To do this it is possible to use the supplied screwdriver. Remove the air heater casing; be careful to free the gas valve knob on the right side by pressing it and to unplug the piezoelectric igniter's connection cable. Unscrew the plastic nut that fastens the igniter to the air heater casing (*fig. 21*) and change the broken igniter. Connect the cable to the new igniter and fasten the air heater casing back in place using the four screws.

8.1.4 Thermocouple

Unscrew the thermocouple connectors at the valve using a 9-mm hexagonal wrench and at the pilot burner using a 10-mm wrench. Remove the thermocouple tube from the fastening clamps and replace it with the new one (*fig. 22*). Tighten the connectors and fasten the tube in place with the plastic cable glands.

8.1.5 Ignition electrode

Disconnect the cable on the electrode by unscrewing the cable terminal nut. Use a 10-mm hexagonal wrench to unscrew the fastening connector and remove the defective electrode. Put in the new electrode and screw the connector back in place, being careful not to force it too much so as not to damage the ceramic insulation (*fig. 23*). Re-establish the electrical connection.

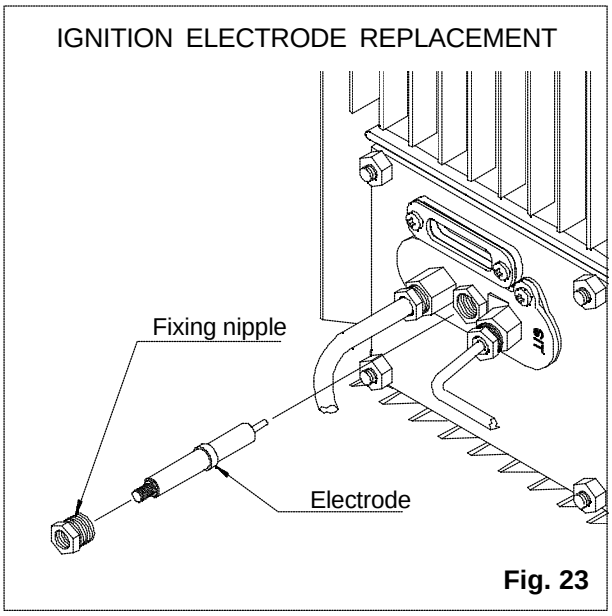


Fig. 23

8.1.6 Pilot burner

Disconnect the cable on the ignition electrode by unscrewing the cable terminal nut. Use a 10-mm hexagonal wrench to unscrew the thermocouple tube connector and the gas supply tube connector; be careful of the injector when it comes out (the injector is attached to the seal).

CONTROL EQUIPMENT REPLACEMENT

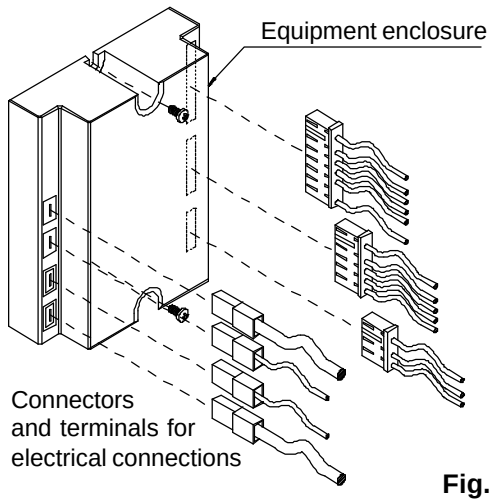


Fig. 25

GAS UNIT COIL REPLACEMENT

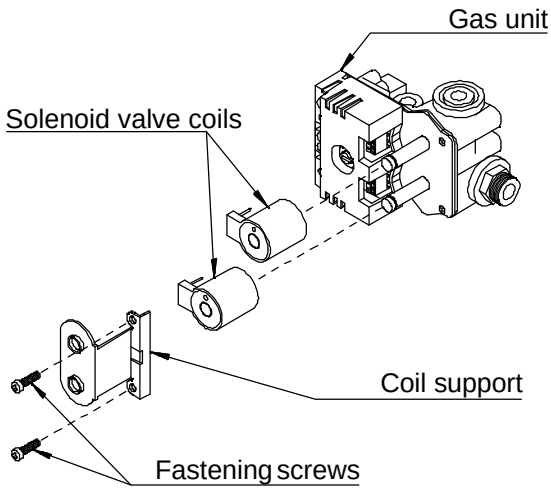


Fig. 27

Remove the burner by unscrewing the two fastening screws and replace it with the new one. Be careful not to damage the gasket (*fig. 24*). Put the gas supply tube connector and the thermocouple connector back in place and tighten them (make sure that the injector is inserted correctly). Connect the cable to the ignition electrode.

8.2 MODEL HTV

8.2.1 Control equipement

Disconnect the cables by pulling on the terminals and extracting the connectors, releasing them first from the special retainer. Replace the equipment, placing it in the special insert and attaching it using the self-threading screw. Insert the terminals and the connectors into their respective housings *(fig. 25).*

8.2.2 Fuse

Remove the fuse cap on the power supply terminal board. Replace it with a new fuse (5x20 -2 Amps - instantaneous type) by exerting slight pressure until it enters the housing. Replace the cap in the terminal board (*fig. 26*).

8.2.3 Gas solenoid valves

Disconnect the electric connection on the gas unit. Remove the two screws that attach the metal support block of the coils and remove it from the housing. Pull out the coil(s) from the unit and replace them with new ones. Replace the metal support block in the correct position and tighten the fastening screws. Re-establish the electrical connection *(fig. 27).*

8.2.4 Electrodes

FUSE REPLACEMENT

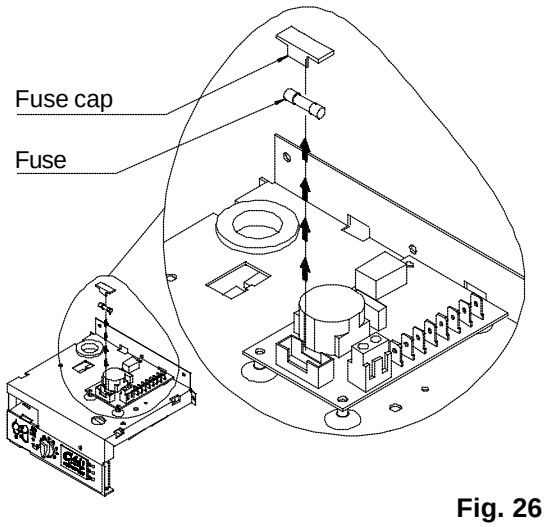


Fig. 26

ELECTRODE POSITIONING

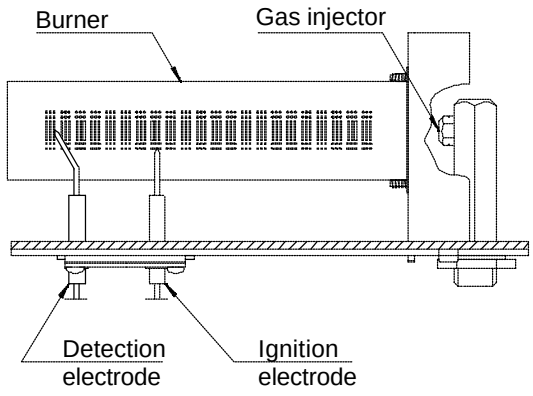


Fig. 28

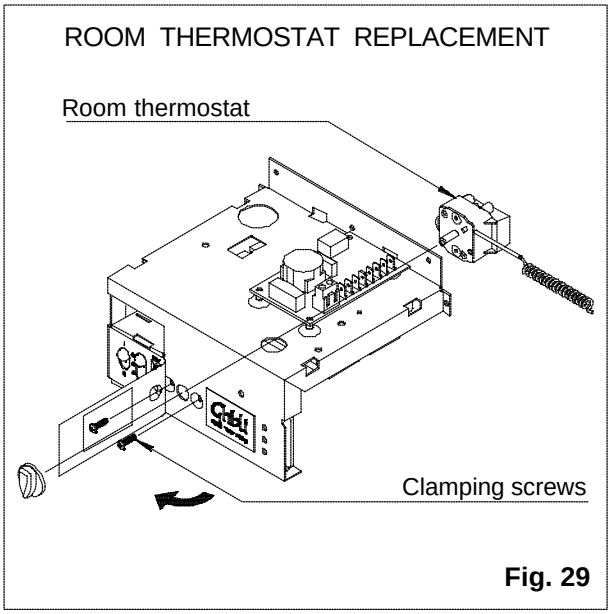


Fig. 29

Disconnect the cable connection on the control equipment. Remove the fastening screws and remove the electrodes from the burner plate. Insert the new electrodes, attach the supports, and re-establish the electrical connection. To check the position of the electrodes on the burner, remove the burner support plate, making sure not to damage the seal gasket. The position of the electrodes with respect to the burner must correspond to what is indicated in *fig. 28*. Replace the burner support plate while making sure that the corresponding gasket is in the correct position. Attach the plate using the 6 screws that were previously removed.

8.2.5 Room thermostat

Remove the thermostat regulation knob. Delicately remove the right part of the adhesive plate on the control panel. Be careful not to damage it. This will uncover the two screws that fasten the room thermostat casing in place. Disconnect the electrical connections, remove the thermostat bulb from the fastening clamp, and then remove the defective component (*fig. 29*).

Insert the new thermostat and perform the operations described above in the reverse order. Carefully reattach the adhesive plate and put the speed switch and thermostat regulation knobs back in place.

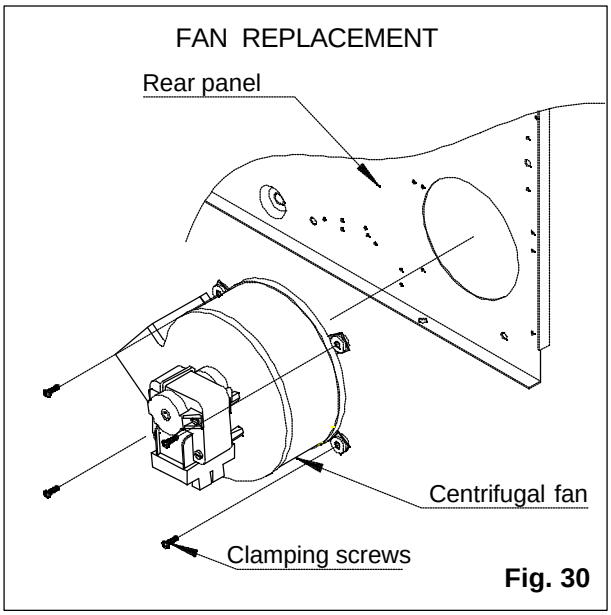


Fig. 30

8.2.6 Convection fan

Disconnect the electrical connection from the connections on the fan motor. Unscrew the four screws that fasten the fan support brackets to the back of the air heater. Remove any dust deposits from the air intake opening at the back of the unit. Then put the new fan and its brackets into position. Make sure that the rubber tubes and their spacers are in the correct position (*fig. 30*). Attach the fan brackets using the screws that were previously removed. Re-establish the electrical connection.

9. PERIODIC MAINTENANCE OPERATIONS

9.1 USER INFORMATION

It is recommended to advise the user to carry out the operations indicated in point *11.1* of this manual at least once every two months.

9.2 YEARLY INSPECTION

9.2.1 Control and safety devices

WARNING! Specific technical skills are required to test the control and safety devices and this is why it is important to contact skilled personnel.

9.2.2 Cleaning the unit

Remove the air heater casing using the two screws located at the bottom and the two screws located at the top. To do this it is possible to use the supplied screwdriver. Remove the air heater casing; for models HJ and HT be careful to unplug the piezoelectric igniter's connection cable. Remove any dust deposits on the air intake and delivery grilles on the casing.

Disassemble the unit's front shield and clean the exchanger using a brush or a jet of compressed air. On model HTV remove the convection fan, disconnect the electrical connection, and remove any dust deposits on

CLEANING OF APPLIANCE - Models HJ - HT

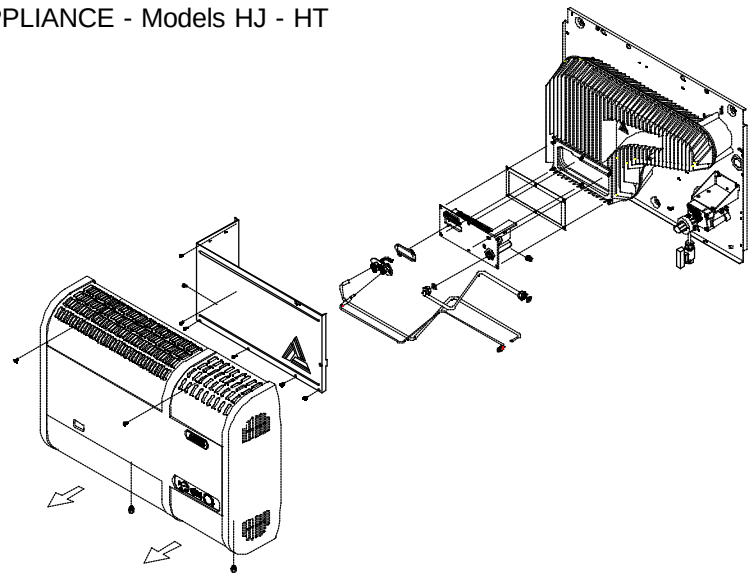


Fig. 31

the fan and on the motor with the same methods as listed above.

Remove the principal burner's gas supply tube by unscrewing the nuts at its ends. Be careful not to damage the gaskets. For models HJ and HT unscrew the pilot burner's two fastening screws and remove it. Unscrew the 6 screws that attach the main burner plate to the exchanger. Remove the plate, making sure not to damage the gasket.

CLEANING OF APPLIANCE - Model HTV

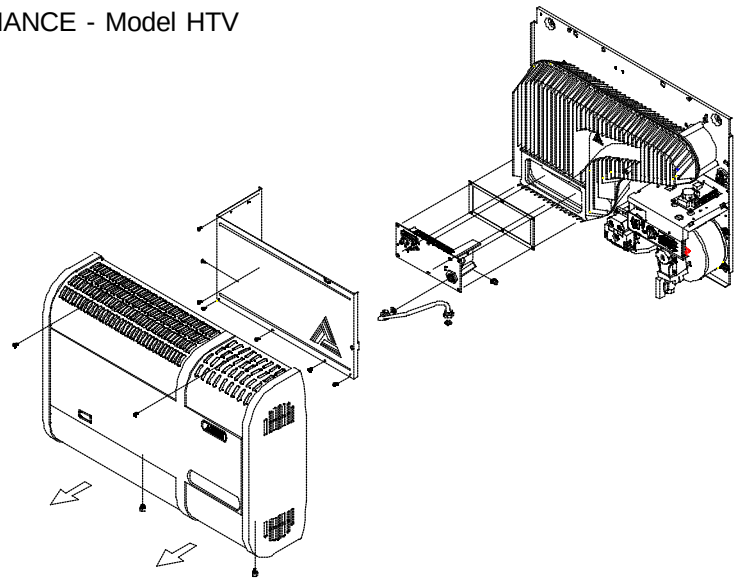


Fig. 32

SECTION 3
USER OPERATING AND MAINTENANCE INSTRUCTIONS

Check the condition of the burner and its parts. For models HJ and HT also check the condition of the pilot and its parts. Check that there are no carbon deposits inside the exchanger. If deposits are found, look for the causes of what is likely non-efficient combustion.

Remount the burner, making sure that the corresponding gaskets are undamaged and are in the correct position. Check that the gas supply tube's gaskets are in the proper position and put it back into place. Tighten the nuts to ensure a proper seal.

Check that the external intake/exhaust terminal is in the correct position, is solidly fastened, and is clean. For model HTV check the condition of the electrical system and check that the connections are in good working order.

Carefully put the components back into place (*figs. 31 and 32*), check that functioning is normal, and check the gas circuit's seal. Carefully carry out all the operations described from point 5.1 to point 5.3. If problems should arise, consult chapter 7 on operating defects.

10. *START-UP*

10.1 FIRST FIRING AND TESTING

WARNING! The first firing of the appliance and the commissioning tests must be performed by skilled technical personnel. Non-compliance with this procedure will invalidate the warranty conditions and release the manufacturer from all responsibilities.

Before operating the heater, make sure that the installer has correctly carried out the installation operations.

10.2 IGNITION

WARNING! Any operation on the appliance not expressly described below must be performed by skilled personnel.

10.2.1 Check that the gas on/off valves are open and, only for model HTV, that the electric power supply is on.

10.2.2 Ignition procedure (models HJ and HT)

(*The following instructions refer to fig. 33*)

b) turn the gas valve knob to the "✶" position

b) push the knob down completely and keep it pressed down. Press and quickly release the piezoelectric igniter button on the front of the air heater to create the spark that will ignite the pilot burner

c) keep the knob pressed down for approximately 10 seconds to allow the thermocouple to heat up, then release the knob and make sure that the pilot flame remains lit

d) turn the knob to the minimum setting, to a

MULTIFUNCTIONAL VALVE CONTROL
(models HJ - HT)

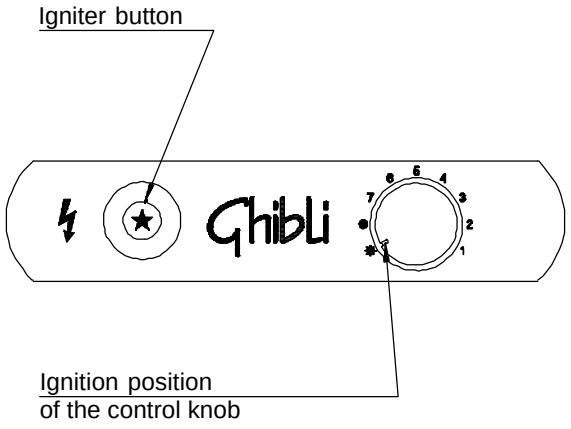


Fig. 33

CONTROL PANEL (model HTV)

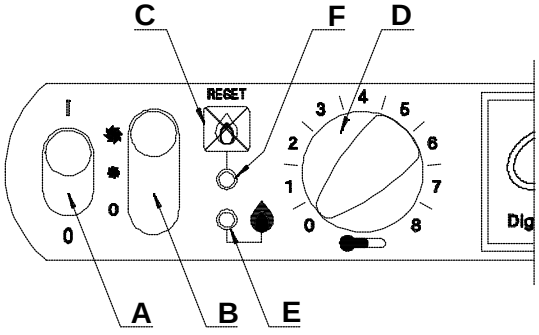


Fig. 34

position between 1 and 3. If the unit is cold, this will allow the exchanger to heat up gradually and the draft to function correctly

e) after 2 to 3 minutes of functioning, turn the knob counterclockwise to the desired position. Remember that the gas flow rate is regulated as follows:
from position 1 = minimum flow rate
to position 7 = maximum flow rate

Note: the relationship between the knob position and the room temperature depends on the size and features of the room to be heated. It is advisable to perform some regulation tests so as to achieve the desired temperature in the room. This temperature will be kept constant by the valve's thermostatic device.

10.2.3 Ghibli HTV ignition procedure

(Refer to fig. 34 when reading the following section)

a) Place switch (A) in the on position "I" to start the ignition cycle. If the digital timer kit has been installed, refer to the instructions for that device to perform the additional operations.

b) Turn the room thermostat dial (D) clockwise to the highest value. This marks the beginning of the start-up phase, indicated when the green led (E) turns on.

c) Check that the red led *(F)* is turned off. If it is on, this means that the burner control equipment is in the "lockout" position. In this case, press the button *(C)* to reset the control equipment, and the red led will turn off. **If the lockout condition continues, this generally means that there is a fault or an operating defect. Therefore, it is recommended to contact a Technical Service Centre.**

After completing the waiting phase (after about 30 seconds), the system simultaneously opens the gas solenoid valve and activates the transformer to discharge the electrode to ignite the burner.

The exchanger heating phase begins after the burner has been ignited. The exchanger reaches the rated operating temperature after about three minutes.

When the room has reached the desired temperature, adjust the room thermostat by turning the control dial slowly (counterclockwise) until the burner turns off (indicated by the green led E). From this point on the air heater will be completely automatic and will maintain the desired room temperature.

The convection fan distributes the warm air in the room. It has two rotation speeds that can be selected with the switch (*B*). At the maximum speed the fan is noisier. Therefore, we recommend using this speed to quickly heat the room, then turn the knob to other position. For completely silent operation, the fan can be turned off by placing the switch (*B*) in "0" position.

10.3 SHUTDOWN

10.3.1 Models HJ and HT

To stop the air heater's functioning without completely turning it off, turn the knob clockwise to the "✶" position. This will allow the pilot burner flame to remain lit. You just have to turn the knob counterclockwise to the values between 1 and 7 to return to normal functioning.

To completely turn off the unit, turn the knob to the "●" position.

IMPORTANT! A safety device (interlock) will be activated in this position. This device prevents the knob from being turned for approximately one minute, thus making ignition impossible during this time. Therefore, before ignition is again possible, you will have to wait until this device allows the knob to be turned.

To turn off the air heater for an extended period of time:

a) turn the knob to the "●" position.

b) close the gas on/off valve

10.3.2 Model HTV

To turn off the air heater just use the room thermostat, just set the switch (A) to the "O" position, without moving the temperature regulation dial.

To turn off the air heater for an extended period of time:

a) set the switch (A) to the "O" position

b) disconnect the electric power supply at the main switch

c) close the gas on-off valve

11. APPLIANCE MAINTENANCE

11.1 ROUTINE MAINTENANCE TO BE PERFORMED BY THE USER

It is recommended that the following operations be carried out at the beginning of each heating season and then at least once every month during operation:

WARNING! The operations described in

CERTIFICATO DI ESAME CE

CERTIFICATO DI ESAME CE DI TIPO n.
EC TYPE EXAMINATION CERTIFICATE n. 0461CS0

L'IMQ quale organismo notificato, ai sensi della direttiva del Consiglio
dalla Direttiva CEE sottoelencata
As Notified Body, IMQ declares that the equipment
by Directive 90/396 EEC of the following product

CONVETTORE A GAS DECLARATION GAS FIRED CONVECTION HEATER

Marca/modello serie Assistenti - Type ref.: GEOLI

Ulteriori informazioni sono riportate in allegato / For further information see annexed

Costruito da/
Manufactured by:
ACCORROSI SRL

a
I-64027 SIVIMO (AN) - VIA PISTOIA, 39

In base alla tabella di delibera, il prodotto è fabbricato, analizzando ed esaminato in una delle procedure ivi previste, consentito alla Ditta di apporre sul prodotto sopra descritto la seguente marcatura:
According to the article 8 of the Directive, this Certificate, together with the observance of one of the procedures there foreseen, allows the firm to affix on the above mentioned product the following marking:

CE 0051

Milano, 04-11-1995

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Il presente certificato annulla e sostituisce il precedente
This Certificate cancels and replaces the previous one

Da ..... datato .....

IMQ, Via Quintiliano 43, 20138 Milano - I