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MASTER
CLIMATE SOLUTIONS



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MANUEL D'UTILISATION ET DE MAINTENANCE	fr
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VEJLEDNING OM BRUG OG VEDLIGEHOLDELSE	da
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ПАЙДАЛАҢУ ЖӨНЕ ТЕХНИКАЛЫҚ ҚЫЗМЕТ КӨРСЕТУ ЖЕТЕКШІЛІГІ	kk

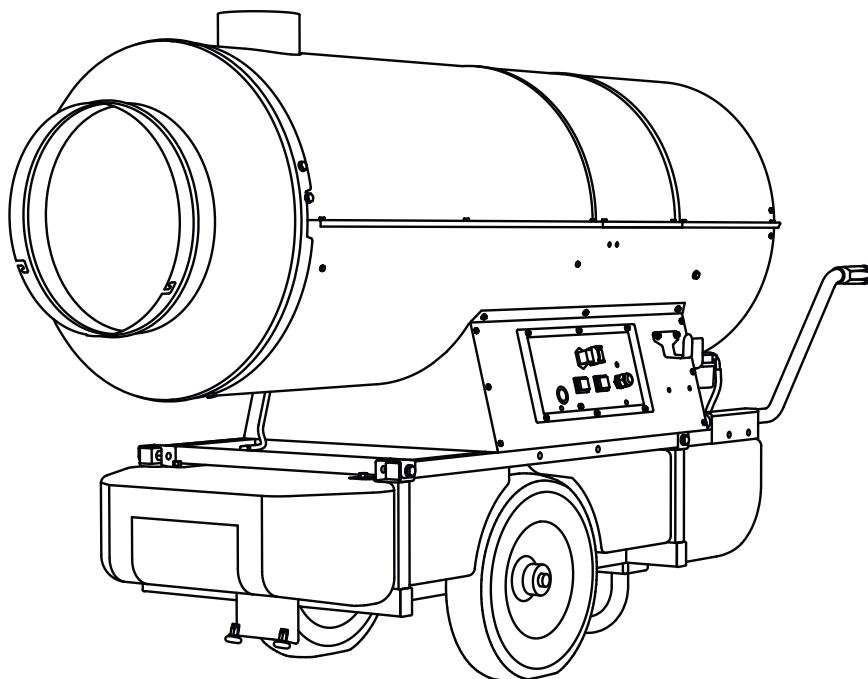
BV 400

**TECHNICAL DATA TABLE - TABELLA DATI TECNICI - TECHNISCHE DATENTABELLE
 - TABLA DE DATOS TÉCNICOS - TABLEAU DES DONNÉES TECHNIQUES - TABEL
 TECHNISCHE GEGEVENS - TABELA DE DADOS TÉCNICOS - TEKNISK DATATABEL
 - TEKNISTEN TIETOJEN TAULUKKO - TABELL FOR TEKNISKE DATA - TABELL
 MED TEKNISKA EGENSKAPER - TABELA DANYCH TECHNICZNYCH - ТАБЛИЦЕ
 ТЕХНИЧЕСКИХ ДАННЫХ - TABULKA TECHNICKÝCH ÚDAJŮ - MŰSZAKI ADATOK
 TÁBLÁZATA - TEHNIČNI PODATKI - TEKNİK VERİLER TABLOSUNDA - TABLICI
 S TEHNIČKIM PODACIMA - TECHNINIŲ DUOMENŲ LENTELĖJE - TEHNISKO
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 TABULKA TECHNICKÝCH ÚDAJOV - ТАБЛИЦА ТЕХНИЧЕСКИ ДАННИ - ТАБЛИЦІ
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 ΤΕΧΝΙΚΩΝ ΣΤΟΙΧΕΙΩΝ - 技术参数 - ТЕХНИКАЛЫҚ КӨРСЕТКІШТЕР КЕСТЕСІ**

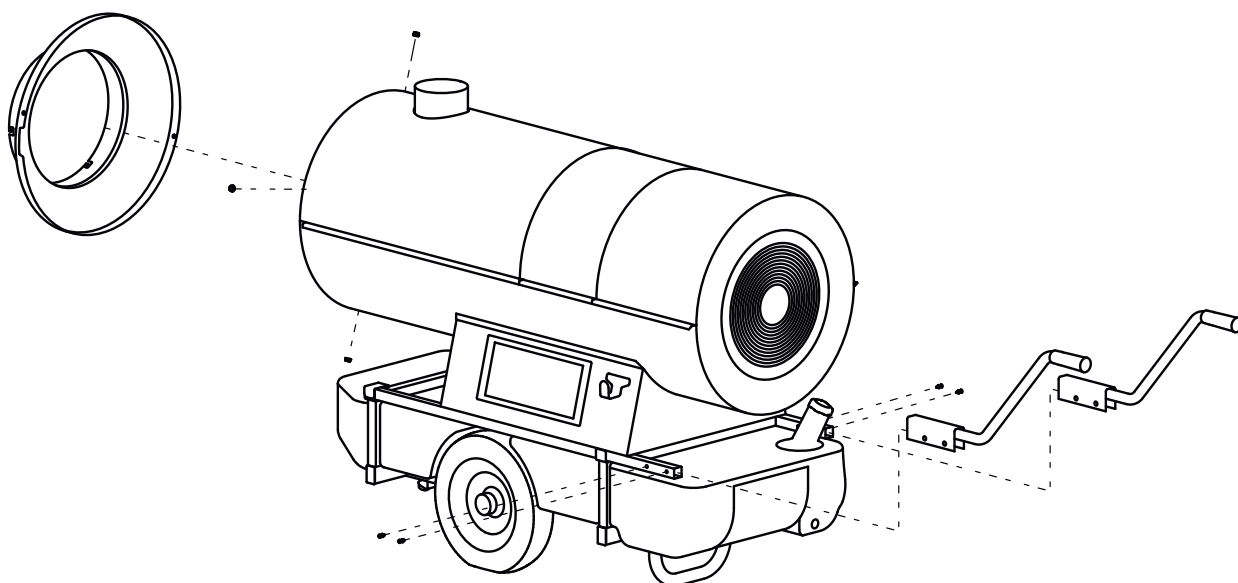
MODEL	BV 400	
		
	80 kW-кВт 68.800 kcal/h-ккал/ч 273.000 Btu/h-БТЕ/ч	110 kW-кВт 94.600 kcal/h-ккал/ч 375.000 Btu/h-БТЕ/ч
	6,3 kg/h-кг/ч	8,4 kg/h-кг/ч
	DIESEL-KEROSENE дизель-керосин	
	150 л-л	
	6.200 m³/h-м³/ч	
	~220-240 V-В (-15% ÷ +10%) 50 Hz-Гц 6,8 A 1,43 kW-кВт	
	200 kg-кг	
	1.75 GpH 60°S DANFOSS	
	900 kPa-кПа 9 bar-бар	1.600 kPa-кПа 16 bar-бар

⚠ IMPORTANT: In order to have a correct function you must use an electrical generator in class G3 or more (frequency variation ±1%, tension variation ±2%). The maximum power of electrical generator must be three time the nominal power of device that you must connect.

**PICTURES - FIGURE - ABBILDUNGEN - FIGURAS - FIGURES - FIGUREN
- FIGURAS - FIGURER - KUVAT - FIGURER - FIGUR - RYSUNKI - РИСУН-
КИ - OBRÁZKY - ÁBRÁK - SLIKE - ŞEKİLLER - SLIKE - PAVEIKSLĖLIAI -
ATTĒLI - JOONISED - IMAGINI - OBRÁZKY - ФИГУРА - МАЛЮНКИ - SLIKE
- EIKONEΣ - 图 - СУРЕТТЕР**

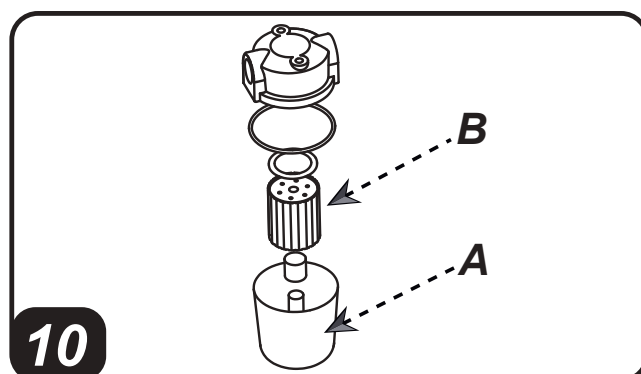
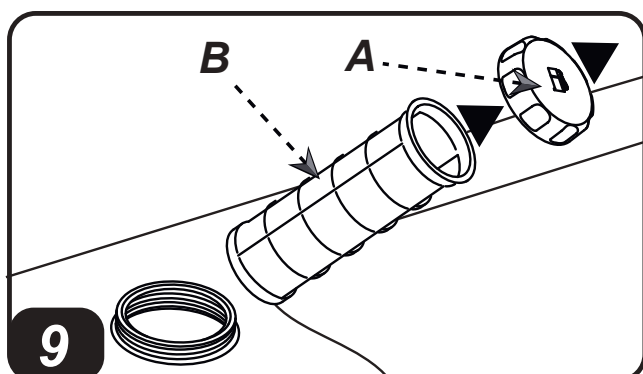
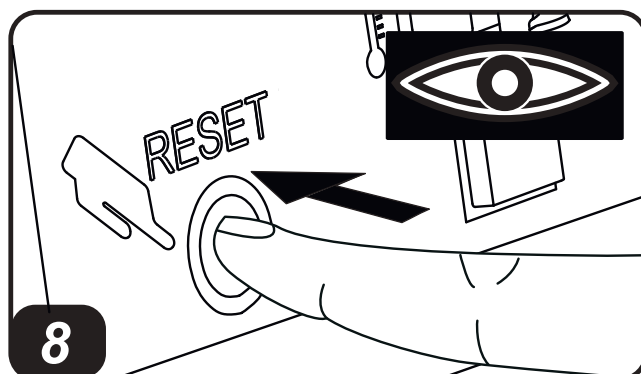
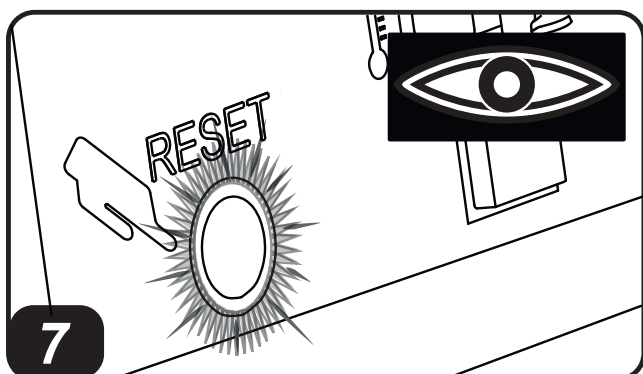
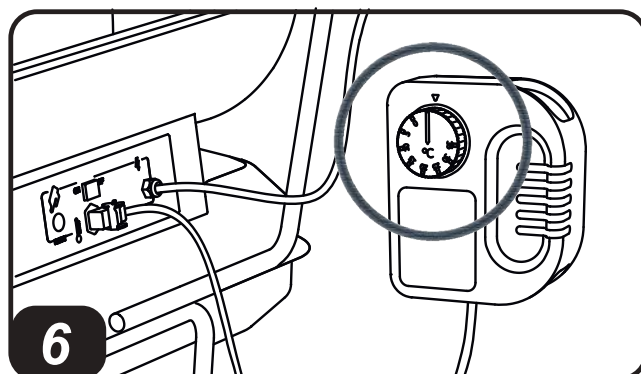
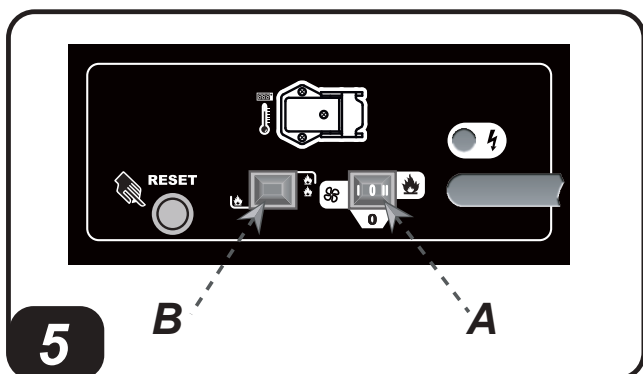
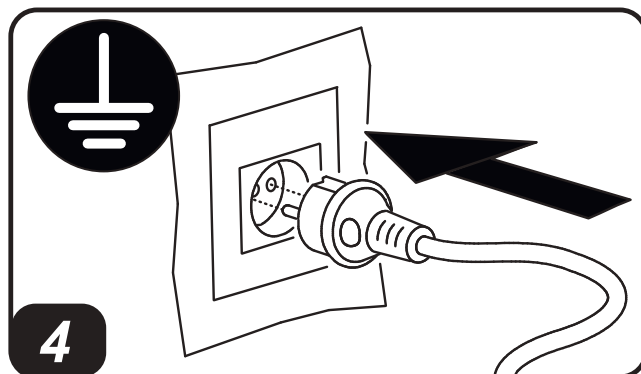
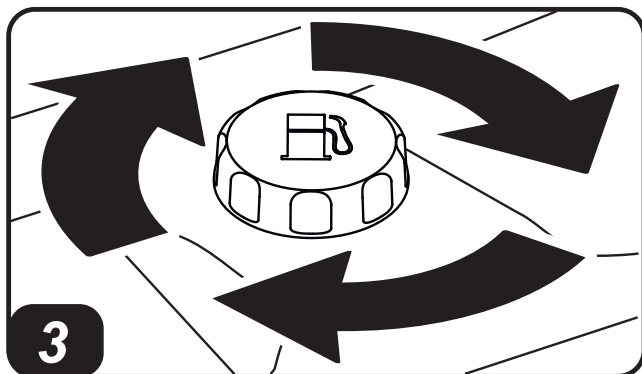


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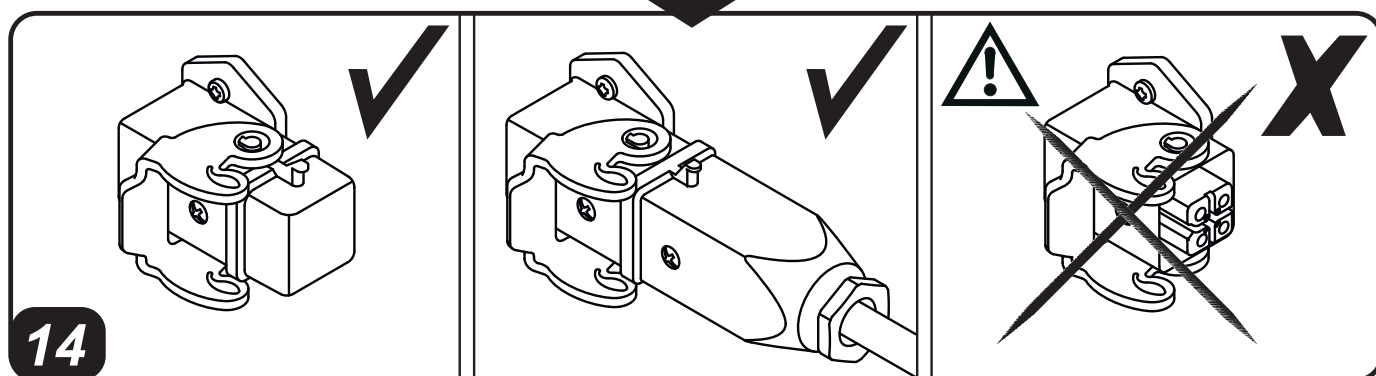
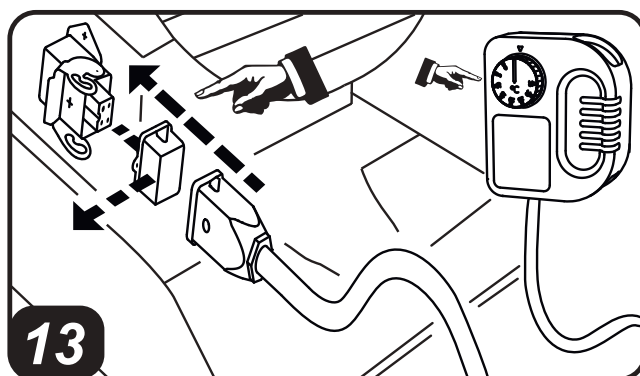
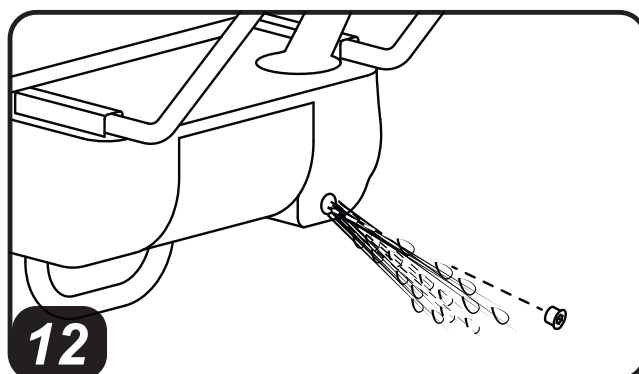
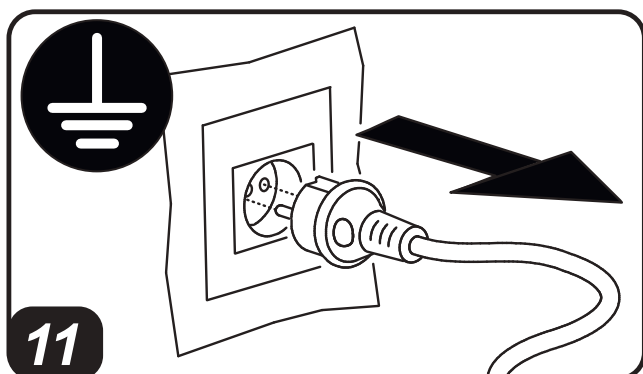


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**PICTURES - FIGURE - ABBILDUNGEN - FIGURAS - FIGURES - FIGUREN
- FIGURAS - FIGURER - KUVAT - FIGURER - FIGUR - RYSUNKI - РИСУН-
КИ - OBRÁZKY - ÁBRÁK - SLIKE - ŞEKİLLER - SLIKE - PAVEIKSLĖLIAI -
ATTĖLI - JOONISED - IMAGINI - OBRÁZKY - ФИГУРА - МАЛЮНКИ - SLIKE
- ΕΙΚΟΝΕΣ - 图 - СУРЕТТЕР**



PICTURES - FIGURE - ABBILDUNGEN - FIGURAS - FIGURES - FIGUREN
- FIGURAS - FIGURER - KUVAT - FIGURER - FIGUR - RYSUNKI - РИСУН-
КИ - OBRÁZKY - ÁBRÁK - SLIKE - ŞEKİLLER - SLIKE - PAVEIKSLĖLIAI -
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- EIKONEΣ - 图 - СУРЕТТЕР



NOTE:

[illegible]

IMPORTANT: READ AND UNDERSTAND THIS MANUAL PRIOR TO ASSEMBLING, STARTING UP OR CONDUCTING MAINTENANCE ON THIS HEATER. USING THE HEATER INCORRECTLY CAN CAUSE SERIOUS INJURY. KEEP THIS MANUAL FOR FURTHER REFERENCE.

1. DESCRIPTION

This series of heaters is particularly suited to heating medium to large-sized rooms or areas. Thanks to a heat exchanger, indirect heaters (PIC. 1) separate combustion gases from the hot air released into the environment. This way it is possible to introduce a flow of clean hot air in the area that needs to be heated up and direct exhaust fumes outside.

These heaters have been designed in line with the most recent safety, operating and duration criteria. The safety devices ensure the machine always operates correctly.

2. SAFETY INFORMATION

WARNINGS



IMPORTANT: This air heater has been designed for mobile and temporary professional applications. It has not been designed for domestic use nor for thermal comfort of human.



IMPORTANT: This appliance is not suitable for use by persons (including children) with reduced physical, sensory and mental capacities or with lack of experience or knowledge unless supervised by a person responsible for their safety. Children must be supervised to make sure they do not play with the appliance.



DANGER: Suffocation by carbon monoxide can be fatal.

The first symptoms of suffocation by carbon monoxide are similar to those of flu with headache, light-headedness and/or nausea. These symptoms could be caused by the faulty functioning of the heater. **IF THESE SYMPTOMS OCCUR, GO OUTDOORS IMMEDIATELY** and have the heater repaired by a technical service centre.

►► 2.1. REFUELLING:

► 2.1.1. Personnel appointed to carry out refuelling must be qualified and fully familiar with this manual and current regulations on how to refuel heaters safely.

► 2.1.2. Only use the type of fuel specified on the heater's identification plate.

► 2.1.3. Before refuelling, turn off the heater and wait for it to cool down.

► 2.1.4. The fuel storage deposit tanks must be located in a separate facility or building.

► 2.1.5. All fuel tanks must be kept at a minimum distance from the heater, in accordance with current safety regulations.

► 2.1.6. Fuel must be stored in areas where the floor surface does not allow underneath dripping, or any other leakage which may ignite the fuel.

► 2.1.7. Fuel must be stored in accordance with current safety regulations.

►► 2.2. SAFETY:

► 2.2.1. Never use the heater in areas with petrol, paint solvents or other highly flammable vapours.

► 2.2.2. Comply with all local legislation and current regulations when using the heater.

► 2.2.3. Heaters used near tarpaulins, curtains or other similar covering materials must be kept at a safe distance. It is advised to use fire-proof covering material.

► 2.2.4. Only use heaters in well-ventilated areas. Set-up a suitable open and ventilated area, with the purpose of introducing fresh air from outdoors, in compliance with the current safety standards.

► 2.2.5. Heaters must be powered only with the correct voltage and frequency values as specified on the heater's identification plate.

► 2.2.6. Only use suitable earthed extension cable.

► 2.2.7. The recommended safety distances between heaters and flammable substances are: front output = 2,5 m; side/top/rear output = 1,5 m.

► 2.2.8. Avoid fire hazards by placing the hot or functioning heater on a flat level surface.

► 2.2.9. Always keep animals at a safe distance.

► 2.2.10. Disconnect the heater from the main power supply when not in use.

- ▶ 2.2.11. When controlled by a thermostat, the heater can turn on at any time.
- ▶ 2.2.12. Never use the heater in frequently used rooms or in bedrooms.
- ▶ 2.2.13. Never block the heater's air inlet or the air outlet (front).
- ▶ 2.2.14. Never move, handle, refuel or conduct maintenance on the heater when it is hot or when connected to the power supply or when in operation.
- ▶ 2.2.15. Only use original kit/hose to direct air flow (in and out) (where applicable).
- ▶ 2.2.16. Keep heater's hot parts at as safe distance from inflammable materials (including the power supply cable).
- ▶ 2.2.17. If the power supply cable is damaged, it must be replaced by a technical service centre, in order to prevent further risks.

3. UNPACKING

WARNING: The packaging material is not a toy. Keep the plastic bag out of the reach of children; danger of suffocation!

- ▶ 3.1. Remove all packaging materials used to wrap and deliver the heater and dispose them in compliance with current regulations.
- ▶ 3.2. If the heater is placed on a moving platform, make sure it is moved gently.
- ▶ 3.3. Check for any damage that might have happened during transport. If the heater looks damaged, immediately inform the dealer from which it was purchased.

4. ASSEMBLY

These heaters are fitted with wheels, a handle and a chimney depending on the model (PIC. 2). These parts, which come with the relative nuts and bolts, are in the heater's packaging.

5. FUEL

WARNING: The heater only works with DIESEL or KEROSENE.

In order to avoid explosions or any fire hazards, use only diesel or kerosene fuel. Never use petrol, naphtha, paint solvents, alcohol or any other highly inflammable fuels. Non-toxic, anti-freeze additives can be used in case of very low temperatures. It is advisable to use winter diesel below 5°C.

6. OPERATING PRINCIPLES

A. Combustion chamber and burner, **B.** Fan, **C.** Motor, **D.** Pump, **E.** Tank, **F.** Chimney.

The pump draws fuel from the tank and brings it to the operating pressure. The fuel is brought to the nozzle that sprays it into the combustion chamber. The combustion is carried out with a mix of air and fuel and the flow of air generated is pushed outside via the rotation of the fan. In direct models combustion products flow together with heated air. In indirect models combustion products are directed outside through the chimney. A series of sensors connected to an electronic control board constantly keep the correct operation of the heater monitored and stops the cycle in the event of anomalies.

7. OPERATION

WARNING: Carefully read the "SAFETY INFORMATION" before switching on the heater.

▶▶ 7.1. SWITCHING ON THE HEATER:

- ▶ 7.1.1. Follow all the safety instructions.
- ▶ 7.1.2. Check if there is any fuel in the tank.
- ▶ 7.1.3. Close the tank cap (FIG. 3).
- ▶ 7.1.4. Connect the power plug to the mains (PIC. 4) (SEE VOLTAGE IN "TECHNICAL DATA TABLE").
- ▶ 7.1.5. Set the "ON/OFF" switch to "FLAME" (A PIC. 5). The heater should turn on within a few seconds. If the heater does not start, refer to paragraph "12. TROUBLESHOOTING".
- ▶ 7.1.6. Maximum power is achieved by setting the power switch to "DOUBLE FLAME" (B PIC. 5).
- ▶ 7.1.7. The heater can be used in ventilation mode, which is activated by setting the ON/OFF switch to "FAN" (A PIC. 5).
- ▶ 7.1.8. For models with a room thermostat, check the set temperature (PIC. 6).

PLEASE NOTE: IF THE HEATER SWITCHES OFF DUE TO LACK OF FUEL, TOP UP THE TANK AND RESET THE HEATER (SEE PAR. 7.2.).

IMPORTANT: In indirect models, combustion products are directed outside through suitable chimney. CARRY OUT THE CHIMNEY IN ACCORDANCE WITH CURRENT SAFETY REGULATIONS AND FOLLOW THE INSTRUCTIONS IN THE RELEVANT SECTION OF THE MANUAL.

►► 7.2. RESETTING THE HEATER:

The appliance stops when an anomaly occurs. The reset button turns on with a steady red light (PIC. 7), it means the heater needs to be reset. To reset the heater, press the reset button all the way down (PIC. 8). Identify and remove the cause that stopped the appliance (for instance, obstruction of air intake and/or outlet, total block of the fan, etc.). Please contact an appointed service center for assistance in case it is impossible to solve the problem.

►► 7.3. SWITCHING OFF THE HEATER:

Set the "I/O" button to "0" (A PIC. 5). Flames extinguish and the fan keeps on working until the combustion chamber has fully cooled down. **Do not pull the plug out until the cooling cycle has totally ended.**

8. CLEANING THE FILTERS

THE FILTERS MAY NEED TO BE CLEANED DEPENDING ON THE QUALITY OF THE FUEL USED.

►► 8.1. FUEL TANK FILTER (PIC. 9):

- 8.1.1. Remove tank (A) cap.
- 8.1.2. Take out the filter (B) from the tank.
- 8.1.3. Clean the filter (B) with clean fuel, without damaging it.
- 8.1.4. Put the filter (B) back in the tank.
- 8.1.5. Close cap (A).

►► 8.2. INTAKE FILTER, (PIC. 10) DEPENDING ON THE MODEL:

- 8.2.1. Remove the cup (A).
- 8.2.2. Take out the filter (B) from the cup. Keep gaskets for later use.
- 8.2.3. Clean the filter (B) with clean fuel, without damaging it.
- 8.2.4. Put the filter (B) back in the cup.
- 8.2.5. Put the glass (A) back on and reassemble the gaskets correctly.

►► 8.3. FUEL PUMP FILTER:

See the preventive maintenance schedule.

9. STORAGE AND TRANSPORT

WARNING: Before moving the appliance, the heater must be stopped (SEE PAR. 7.3.) and disconnected from the power supply by pulling out the plug (PIC. 11), wait for a complete cool down and close the tank cap properly to prevent fuel leakage. Keep the heater in horizontal and stable position during transport.

IN ORDER TO KEEP THE HEATER IN THE BEST POSSIBLE CONDITIONS, WE RECOMMEND TO FOLLOW THE BELOW PROCEDURE:

- 9.1. Empty the fuel by removing the drain cap at the bottom of the tank (PIC. 12). Dispose the fuel in an appropriate container in accordance with the current safety regulations.
- 9.2. To remove any residual remaining, pour clean fuel and rinse the tank again.
- 9.3. Close the drain cap and the tank cap.
- 9.4. In order to keep the heater in the best possible conditions, we recommend placing it in a dry and safe place.

10. CONNECTING THE ROOM THERMOSTAT

In models with a thermostat connection, remove the cap connected to the appliance and connect the room thermostat (optional) (SEE PIC. 13-14).

WARNING: BEFORE PERFORMING ANY MAINTENANCE OR REPAIRS, UNPLUG HEATER FROM THE MAIN POWER SUPPLY AND MAKE SURE THE HEATER IS TOTALLY COOL.

11. PREVENTIVE MAINTENANCE SCHEDULE

COMPONENT	MAINTENANCE FREQUENCY	MAINTENANCE PROCEDURE
Fuel tank	Clean once a year or as required	Empty and rinse the tank with clean fuel (SEE PAR. 9.)
Filters	Clean or replace once a year or as required (make sure they are intact)	Clean the filters (SEE PAR. 8.)
Fuel pump filter	Clean or replace once a year or as required (make sure they are intact)	Contact a service centre
Electrodes	Clean as required	Contact a service centre
Fan	Clean as required	Contact a service centre
Combustion chamber	Clean as required	Contact a service centre

12. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
The heater does not start or does not operate	<ol style="list-style-type: none"> 1. Starter switch in "OFF" (0) position 2. No power supply 3. Power supply cable interrupted 4. Electronic control board blocked or malfunctioning 5. Incorrect setting of the room thermostat (if present) 6. No fuel 7. External substances or dirt in the fuel circuit 	<ol style="list-style-type: none"> 1. Set the "ON/OFF" switch to "FLAME" (A PIC. 5) 2a. Insert the power plug into the mains socket correctly (PIC. 4) 2b. Check voltage of your electric supply system 3. Contact a service centre 4a. Reset the heater (SEE PAR. 7.2.) 4b. Contact a service centre 4c. Contact a service centre 5. Set the room thermostat to a temperature higher than the working environment temperature (PIC. 6) 6. Top up fuel and reset heater 7a. Empty, rinse and refill the tank 7b. Rinse the filters (SEE PAR. 8.) 7c. Contact a service centre
Smoke while operating	<ol style="list-style-type: none"> 1. External substances or dirt in the fuel circuit 2. Obstructed inlet air vent 3. Incorrect air supply 	<ol style="list-style-type: none"> 1a. Empty and refill the tank with clean fuel 1b. Rinse fuel filters 1c. Contact a service centre 2. Remove all air vent obstructions 3. Adjust the air damper below the fan, in the rear part of the heater (to the left, the damper closes; to the right, the damper opens)
The heater does not turn off	<ol style="list-style-type: none"> 1. Faulty electronic system 	<ol style="list-style-type: none"> 1. Contact a service centre