Techninis vadovas



VIDINIS TIESIOGINIO DEGIMO DUJINIS ŠILDYTUVAS

RTG60, RTG90, RTG120







TABLE OF CONTENTS

Section No.	Section	Pages
1	GENERAL INFORMATION	5-6
1-1	General recommendations	5
1-2	Unit description	5
1-3	Operating	6
1-4	Safety	6
2	TECHNICAL SPECIFICATIONS	7
3	INSTALLATION	8-11
3-1	General rules	8
3-2	Fastening system	8
3-3	Combustion air inlet connection	9
3-4	Gas connection	10
3-5	Change of gas	
4	ELECTRICAL WIRING	12-13
4-1	Electrical diagram	12
4-2	Control signal	12
4-3	Control connection	
4-4	Electrical connection	
5	COMMISSIONING	14-19
5-1	Commissioning	14
5-2	Operating principle	15-16
5-3	Fault display	17
5-4	Bill of material	18-19
6	MAINTENANCE	20-21
6-1	Maintenance	20
6-2	Burner dismounting	21
7	TROUBLESHOOTING	22
8	RECOMMENDATION FOR USER	23

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CE marking

Concerning the technical demands that are required, the CE marking is the official recognition of the quality of design, manufacture and performance of this device. Its long lifetime and its performance will be at optimum level if its use and its maintenance are properly carried out and the regulations in force.

Responsibility

This equipment must be used expressly for the purpose for which *ALETRA* has designed and manufactured it. Any contractual liability of ALETRA is therefore excluded in case of damage undergone by persons, animals or goods, following errors in installation, settings, maintenance and inappropriate use.

The devices must be equipped exclusively with genuine accessories. **ALETRA** will not be held responsible for any damage whatsoever arising from the use of an accessory which is inappropriate to the device.

The devices must be installed by qualified professional workers, respecting the regulations and decrees in force, and in accordance with the instructions shown in this instruction manual. The installer is required to establish installation conformity certificates produced by the ministries responsible for the construction and safety of gas. References to standards, rules and directives mentioned in this manual are given for information purposes and are only valid at the date of printing this manual.

ALETRA is responsible for the conformity of the device to the rules, directives and standards of construction in force at the time of marketing. Knowledge and respect for the legal provisions as well as the standards inherent in the design, implantation, installation, commissioning.

Reception – Storage

The gas unit heater is delivered on a wooden pallet, protected by cardboard packing and a plastic film. It is essential to check the condition of the equipment delivered (even if the packing is intact) and its conformity compared to the order.

In case of damage or missing parts, you must report the observations on the transport company's receipt form in the most precise way possible, "subject to unpacking" has no legal value, and then you must confirm those reservations by registered letter within 48h to the transport company. We remind you that it is the responsibility of the buyer to check the delivered merchandise, no recourse will be possible if this procedure is not respected.

Store the equipment in a clean and dry room, away from shocks, vibration, divergences in temperature and in an ambient environment with a rate of hygrometry lower than 90%.

<u>Guarantee</u>

Your device benefits from a contractual guarantee against any manufacturing defect, the duration of that guarantee is shown in our catalogue.

Our liability as a manufacturer cannot be committed when incorrect use of a device has occurred, where there is a defect or of an insufficiency in the maintenance of that device, or an incorrect installation of the device (it is your responsibility, as regards this, to check that the latter is carried out by qualified professionals).

In particular we will not be held responsible for material damage, intangible losses or bodily injury resulting from an installation which does not conform:

- to the legal and regulatory provisions or those imposed by local authorities,
- to the national or local or particular provisions governing the installation,
- to our instructions and recommendations for installation, in particular the regular maintenance of the devices,
- to the rules of the trade.

Our guarantee is limited to the exchange or repair of only those parts which are recognised as being defective by our technical departments, excluding the cost of labour, travel and transport.

Our guarantee does not cover the replacement or repair of parts as a result of, in particular, normal wear, incorrect utilisation, service visits by unqualified third parties, a defect in or insufficiency of maintenance or surveillance, non-conforming electrical supply and the use of a fuel which is inappropriate or of bad quality.

Sub-assemblies, such as motors, pumps, electric valves, etc..., are only guaranteed if they have never been removed.

The rights established under the European directive 99/44/CEE, transferred by the legislative decree No. 24 of 2 February 2002 published on the Official Journal No. 57 of 8 March 2002, remain valid.



This technical manual must be kept in good condition inside the unit.



THIS UNIT IS FOR PROFESSIONAL USE ONLY. ONLY SKILLED AND TRAINED PERSONNEL ARE ALLOWED TO HANDLE IT. IT MUST NOT BE ACCESSIBLE TO THE PUBLIC.



The specifications, illustrations and description contained in this manual are, to our knowledge, accurate at the time of the approval to print. We reserve the right to stop offering some characteristics or to stop the production of a model without notice it, do not constitute an firm agreement of our share.

Safety rules

- It is forbidden to plug and/or reduce the aeration openings of the installation room or the device.

- Never obstruct the blowing and/or the combustion air intake,

Never make any modifications to the settings made by qualified personnel,
Never spray water on the unit heater, or touch the device with parts of the body which are wet and/or with naked feet.

- Never touch hot parts of the unit heater, and/or moving parts,



- Never put or hook any object on the device,

- Any operation on the device is forbidden unless it has been disconnected from the electricity network and the gas supply has been cut off.

- Do not modify the type of gas used, the settings of the device, the safety systems and regulation systems, since that could create dangerous situations.

- Warn the after-sales technician in the case of changing the gas, the gas pressure or modifying the supply voltage.

- In the case of a long period of non-operation, disconnect the electrical supply from the device. When starting the operation again, you are advised to call on qualified personnel. As a general rule all repair and/or maintenance visits must be carried out exclusively by authorised and qualified personnel.

The taking out of a maintenance contract is strongly recommended "see this with your installer".

Cautionary note



Electrical components, drive mechanism and combustible gas can cause injuries. To protect from those risks during the installation or the maintenance, the power supply must be cut and the gas valve closed. Any person involve in the installation or maintenance of this equipment must respect the health and safety standards.

What should you do if you detect a gas smell :

- Close the outside gas valve and the electrical supply then, inform a technician for maintenance.



- Do not try to switch on the device
- Do not switch on the power supply, do not use phone inside the building.
- Call your gas supplier from another phone. Follow the instructions given by your supplier.
- If you cannot contact them, call the fire department.

1-INFORMATIONS GENERALES

1-1 General recommendations

RTGI-RTG Direct gas heaters are designed for horticultural premises, livestock or for supplementary heating in industrial premises.

The unit can only be installed in rooms which are sufficiently ventilated. If you intend to use the heater in a room with a dusty or dirty atmosphere, like poultry houses, the combustion air inlet must be well-sealed and connected to the outside.

Do not block the supply grille and ensure that the hot air circulates freely. Do not put anything within 5 meters from the supply grille of the unit.

This unit is designed for direct blowing, do not connect supply duct to the unit.

The proper functioning of the gas heater depends on correct installation and commissioning.

The installation and maintenance must be carried out by qualified personnel in conformity with the regulatory texts and the rules in force.

The non-compliance with such rules entails the rejection of all responsibility from the manufacturer.

DO NOT INSTALL GAS HEATERS IN :

- Rooms which have a risk of explosion,
- Rooms containing chlorinated combination steam,
- Rooms with a high content of combustible dust,
- Rooms which are excessively humid (electrical danger).
- Domestic premises

After having checked that the installation, respects the recommendations of this notice, it is the responsibility of the installer:

1) to inform the user:

- that he cannot carry out itself any modifications to the design of the devices or the method of carrying out the installation; the least modification (exchange, withdrawal....) of safety components or parts which influence the efficiency of the device or the hygiene of combustion will systematically cause the withdrawal of the EC marking.

- that it is necessary to recommend cleaning and maintenance operations.

An annual preventive maintenance operation is compulsory.

2) to give these instructions to the user. They form an integral part of the device and must be retained and must accompany the device, even in the case of sale to another owner or user.

Being always intent on improving the quality of our products, we seek to improve them on a permanent basis. We therefore reserve the right, at any moment, to modify the specifications shown in this document.

1-2 Unit description

The direct gas heater *RTGI-RTG* is a direct combustion heater, running on natural or propane gas; it is in conformity with the European directives 2009/142/CE and 2009/42/CEE applicable to gas devices (EN525:2009, certificate No. 1312CQ6091 from 06/10/2015).

It is a direct gas heating system. For all the range describe in this manual, the release of combustion products is made by a fan placed upstream of the combustion chamber. The combustion air can be taken from the room or the outside.

The direct gas heater *RTGI-RTG* is running with different gas indicated on the label and in accordance with the European directive.

1-3 Operation

RTGI-RTG heaters are designed to heat horticultural premises, livestock or to be used for supplementary heating in industrial premises.

They are composed of a premix burner, set into the flow of air, and a fan to diffuse the hot air.

The combustion air, sucked by a variable combustion fan, go through a Venturi system which controls the good quantity of gas according to the airflow. This mixing is moved to the burner. The ignition probe fires the air/gas mixing and the ionization probe checks if there is a flame.

The flame located in the air stream raises the temperature of the air supplied into the room. The gas and combustion residues are diluted in very low quantity in the heating air.

For versions with modulating burner or variable air fan, it is also possible to vary the power and/or the airflow.

1.4 Specific safety measures

The flame of *RTGI-RTG* direct gas heaters is in the « open air », it is very important to respect a minimum space between the heater and the persons, the animals or the cultures (see Section No. 3 INSTALLATION). Failure to comply this obligation can be very dangerous, even if the unit is off because the ignition is automatic.

The combustion of gas produces CO2, amongst others. A CO2 content in the air can be a danger for people, animals and cultures. Therefore, you need to ensure that the fresh air supply is adapted to the room where units are installed. When the CO2 concentration is too high, the heater does not work correctly because of an incomplete combustion (danger with carbon monoxide CO). The CO2 concentration shall not exceed 1%, and the minimum ventilation requirements for the room where units are installed is 1000 m3/h for each 100 kW of installed power.

For use in greenhouses :

Additional measure to respect :

- The CO2 level shall not exceed 1% (10.000 ppm).

- If the greenhouse is totally closed, you must foreseen ventilation system to have 100m3 of fresh air by m3 of burnt gas and a minimum ventilation of 1 000m3/h for each 100 kW of installed power.

- In the absence of mechanical ventilation, it requires at least two opposite opening, to ensure enough air circulation.

- It is recommended to use the heater with one or several extraction fans and a CO2 detector.

- Do not use sulphurous fuels into the space where the heater is used, because they contain high quantity of sulphur that could be dangerous.

For use in poultry houses :

During the cleaning and/or the disinfection of a poultry houses or the spreading of the litter, the following precautions should be taken. The non compliance can cause an explosion or a fire.

- The CO2 content shall not exceed 0,3% (3000 ppm).

- In the absence of mechanical ventilation, it requires at least two opposite opening, to ensure enough air circulation.

- Protect or remove the heater during the cleaning/disinfection of the building.

- During the spreading of the litter, the heater must be covered in order to prevent the particles from getting inside the unit and risking a fire. Disconnect the heater and cut off the gas to avoid unintentional start.

- Clean the unit after each batch of poultries to remove any residues and to avoid soiling.

- Do not use water when you are cleaning the heater.

2– TECHNICAL CHARACTERISTICS



RTGI-RTG model

Direct combustion heater RTGI-RTG are equipped with axial fan.

They are designed for direct blowing and are equipped in series with a protection grille.

Performances

TVDES	Modulating burner			1 stage burner			
ITFES	RTGI 60	RTGI 90	RTGI 120	RTG 60	RTG 90	RTG 120	
Maximum power	kW	60	90	120	60	90	120
Minimal power	kW	24	27	36	-	-	-
Airflow	m³/h	3 100	3 800	4 700	3 100	3 800	4 700
Delta T of air	°C	57	70	75	57	70	75
Throw distance	m						
Fan diameter mm		420	450	450	420	450	450
Speed of the fan rpm		1350	1150	1350	1350	1150	1350
Gas flow at 15°C Natural G20 Groningen G25 Propane G31	20 mbar 25 mbar 37 mbar	5.73 m ³ /h 6.30 m ³ /h 4.21 kg/h	8.6 m ³ /h 9.47 m ³ /h 6.32 kg/h	11.45 m ³ /h 12.63 m ³ /h 8.43 kg/h	5.73 m ³ /h 6.30 m ³ /h 4.21 kg/h	8.6 m ³ /h 9.47 m ³ /h 6.32 kg/h	11.45 m ³ /h 12.63 m ³ /h 8.43 kg/h
Air inlet diameter	mm	80	80	80	80	80	80
Supply voltage		Single phase 230 Volts / 50 Hz - IP42					
Power consumption W		350	425	575	350	425	575
Nominal intensity A		1.5	2.3	2.5	1.5	2.3	2.5
Weight kg		63	65	65	63	65	65
Noise level dBa							

Dimensions





	А	В	С	D	E	Ø Air	Ø Gas
RTGI-RTG60	1 160	750	530	530	430	80	3/4"
RTGI-RTG90	1 260	750	530	530	430	80	3/4"
RTGI-RTG120	1 260	750	530	530	430	80	3/4"

3– INSTALLATION

The installation and maintenance must be carried out only by qualified personnel.

3-1 General rules

The direct gas heater can be installed directly into the heating room.

Nevertheless, the installer must comply with laws and rules applicable in the destination country. If there is any doubt, request information from inspection and security bodies.

Ventilation :

In rooms where direct gas heater is installed, must have continuous ventilation of minimum 100 m3 of fresh air per m3 of burnt gas or must be connected with airtight pipe from the outside. When the heater is working, the ventilation of the room must be at least 1000 m3/h for each 100 kW of power installed.

Gas connection :

Before installing the heater, it is necessary to check that the local supply conditions (type of gas, pressure) are compatible with the device setting.

CAUTION :

Respect the minimum installation spaces below for safety and maintenance :



3-2 Fastening system

This unit is designed to be suspended

Before fixing the units, it is necessary to make sure of the support's strength.

- The heater has 4 fixing supports.

- The used slings must be adapted to the weight of the suspended device.

- Caution, the mounting must be perfectly aligned, as shown on the picture (maximum angle 5°).

- Fit the unit and make sure it is perfectly horizontal.



3-3 Air inlet connection

During the commissioning or maintenance, make sure that :

- Blowing grilles and combustion air inlet is not obstructed.

- Pipes are well sealed and installed to ensure that no water can come inside the unit and so to avoid electrical hazard. For this, you can use: drain Tee cap, condensate recuperator, etc.

The unit is delivered with burner air inlet (A1). Depending on the type of local, it is necessary to mount :

- Either the protection air inlet grille on the front plate of the burner compartment (A2). In that case, ensure that there is enough ventilation into the room, the required fresh air supply for combustion must be at least 100m3/h per m3 of burnt gas.

- Either the sealed air inlet connector on the front plate of the burner compartment (A3). This mounting is required if the heater is used in dusty, dirty o aggressive atmosphere (poultry houses for example).

The use of airtight pipes involves a perfect sealing of junctions. Then, to facilitate the mounting, it is necessary to use lubricant, non-aggressive for seals (Example: Soapy water)



The connection of the combustion air inlet must be horizontally through the outside. **The mounting must** be realized with a slope opposite to the unit with an angle of 2° minimum, to prevent water into the unit.



CAUTION

- The junctions must be sealed and the section of air pipe must be at least equal to the inlet diameter.

- The total length of the connection cannot exceed 6 m, knowing that : elbow 90° or 45° = 1 m of pipe.

- Pipes and accessories must be approved, use only the ones referenced by ALETRA. The use of material non approved makes the manufacturer warranty void.

3-4 Gas connection

First of all, check if the delivered unit is conformed with the distributed gas. For this, you must refer to the indications mentioned on the unit label. The gas supply must be appropriate to the power of the heater and must be fitted with all monitoring and safety devices required by the norms currently in force.

A precise study must be done on pipe diameter depending on the nature and flow of gas and the length of pipes. Make sure that pipe losses do not exceed 5 % of supply pressure.

Gas connection must be realized in accordance with indoor installation requirements, regardless the type of gas, by a qualified person with necessary approvals.

Check the tightness of the gas circuit after each intervention.

Type of gas connection :

A– Natural gas - supply pressure lower than 50 mbar (stop valve + gas filter)

B– Natural gas - supply pressure higher than 50 mbar (stop valve + gas filter + gas pressure regulator) C– Propane gas (stop valve + gas filter + gas pressure regulator)).

<u>Caution</u>: for RTGI-RTG60, it is required to put a calibration washer between the gas pressure regulator and the gas valve ! See below and Section <u>« 3-5 Change of gas »</u>

Gas connection kit :

- (1) Gas seal
- (2) Gas connector
- (3) Gas pressure regulator
- (4) Gas filter
- (5) Gas valve
- (6) Calibration washer
- *To know the detail of the kits, refer to their notice



Caution: before opening the gas network, check the tightness untill the gas valve

3-5 Change of gas

Those units are designed to run with different type of gas. To change the gas, follow the procedure below.

This operation must be carried out by a qualified person.

Belgium and Luxembourg : The change of gas is forbidden. Only the manufacturer is allowed to modify the unit.

Before any intervention, cut off the gas and electricity supplies.

During the change of gas, the sticker « gas setting » on the rear of the heater must be modified to report the new setup.

Check the tightness of the gas circuit after each intervention.

Procedure to move from natural gas to propane gas :

1– Unscrew the gas supply connector(1), put the calibration washer (2), see the board below, between the 2 gas seals (3) and put back the connector

2– Unscrew the gas injector (4), put the calibration washer (5), see the board below, between the 2 gas seals (3) and put back the gas injector.

Be careful, only use new gas seals!

3– Check the tightness.

(Reverse procedure to move from propane gas to natural gas)



Model	RTGI-RTG60		RTGI-RTG90		RTGI-RTG120	
Venturi ring	W	White Red Red		Red		Red
Calibration washer	Inlet Solenoid valve	Outlet solenoid valve	Inlet solenoid valve	Outlet solenoid valve	Inlet solenoid valve	Outlet solenoid valve
Natural gas G20/G25	No	Ø 7	No	No	No	No
LPG G31	Ø7	Ø 5,5	No	Ø 7,5	No	Ø 6,7

4– ELECTRICAL WIRING

Be careful, before attempting any work, be sure that the electrical supply is cut off, risk of electrical shock. Those operation must be carrying out by a qualified person with required approvals.

4-1 Electrical diagram



CMBF-1	Electronic PCB
Ventil	Axial fan
THS	Overheat safety thermostat
PA	Fan safety pressure switch
SR	Sensor for return air

579DBC	Gas safety box
VB	Combustion fan

4-2 Control signal

The device can receive and communicate with different information through a 0-10 Volt signal. See section "<u>5-2– Operating mode</u>"

CAUTION: to connect the controller, refer to its technical notice.

4-3 Control connection

The unit is delivered with a connecting socket to connect the controller. Depending on the selected control mode, refer to the diagram below :



4-4 Electrical connection

The installation must comply with local and/or national regulations.

The power supply is in single-phase 230 V with a protected electrical cable. The section of the cable and its protection must be sized according to the number of units on the line and its length. Be sure the ground connection has an adequate size.

Check that the voltage and frequency correspond to the ones needed.

If you connect it to electrical outlet, respect the polarity Phase/Neutral and the grounding.





5 - COMMISSIONING

5-1 Commissioning

1– Before the start-up and heater powering on , check that the different connection have been realized correctly, especially :

- air inlet connection and/or fan grille,
- gas connection,
- electrical connection, ground connection ...

Check also :

- gas or combustion air connections are perfectly sealed.
- protective film on panels is take off.
- safety spaces around the heater are respected.

2– Check the supply voltage: between 210 V and 230 V alternating. Take care to respect the polarity Phase Neutral. In case of « impedent » neutral, foresee a non-polarized control box. Using this box reduces the ionization signal reading and do not allow an optimal modulation (contact the manufacturer for more information).

3– Check that the type of gas and the pressure supply fit with the heater, maximum pressure is 50 mbar, see page 10.

4– Check the connection of 0/10 Volts signal, for automatic operation.

5– Put into service the heaters.

- Open the general gas valve and purge the pipeline.
- Open the gas valve of each unit.
- Check that switch disconnectors of the units are ON.
- Check that the blowing grille is unobstructed.

Automatic mode :

- On the unit control board, check that the heater is in automatic mode, see next page.

- On the 0-10 Volts controller, set up the set point temperature to 1°C more than the room temperature.

- Heaters start up and go to full power, then they automatically adapt themselves to the needed power.

Manual mode :

- On the unit control board, check that the heater is in manual mode, see next page.

- On the control board, set up the set point temperature (TC) to 1°C more that the room temperature.

- Heaters start up and go to full power, then they automatically adapt themselves to the needed power.

- 6- Perform a gas safety test by closing the gas supply. The unit must stop and make 3 start attempts before moving to safety mode. Reset the unit on the control board, then make the same test by remote reset.
- 7- Switch the heater to the required mode, automatic or manual, and setup the required set point temperature.



5-2 Operation mode





To select its operation mode, press the keys \square and \square then press \blacksquare to validate.

$\mathsf{STOP} \leftrightarrow \mathsf{AUTO} \leftrightarrow \mathsf{MANUAL} \leftrightarrow \mathsf{STOP}$

First line displays the active mode and the information linked to the mode.

In MANUAL mode :

TI : ambient temperature or TC : Set point temperature.

In AUTO mode :

Voltage sent by controller

The second line displays the state of the heater :

- OFF + M = xx % (minimum modulation threshold)
 - 1 stage heater : M = 100 %
 - Modulating heater : M = 30 or 40 %

MANUAL Mode

Display in MANUAL mode :

- OFF, Stop the unit
- START, Start the unit
- POWER, delivered power while units working
- BURNER FAIL, unit in burner safety
- OVERHEAT, unit is on Overheat safety
- FAN ONLY, unit is on ventilation safety

When the manual mode is activated, the unit modulates the power depending on the air intake temperature (measured by the sensor fixed on the fan grille) and the desired temperature (TC)

TI : Air intake temperature (sensor on the fan)

TC : Set point temperature

To set up the set point temperature (TC) press on the key * to display the set point temperature (TC : XX.X °C).

Press the keys or to increase or decrease the point, then press to validate.

 ∇

If there is any failure, ambient temperature remind displayed on the upper corner of the screen, the default is displayed on the second line.



AUTO mode

Display in AUTO mode :

- OFF, Stop the unit
- FAN ONLY, ventilation without heating
- START, Start the unit
- POWER, delivered power while units working
- BURNER FAIL, unit in burner safety
- OVERHEAT, unit is on Overheat safety
- FAN FAIL, unit is on ventilation safety

When the automatic mode is activated, the inlet voltage is displayed on the first line.

If the voltage is between 2 V and 2.9 V, the unit will ventilate only (the state is displayed on the 2nd line).

If voltage is higher or equal to 3V, the unit will start. When the unit is running, it will adapt its power proportionally to the inlet voltage. Example 3.5 Volts = 35 % of power.

If there is any failure, the voltage control remind displayed on the upper corner of the screen, the default is displayed on the second line.

The device can receive and communicate with different information through a 0-10 Volt signal.

Voltage (Volts)	Order(IN 0-10 V)
0	Stop the heater (OFF)
1 to 1,5	Reset the burner (Signal with delay time 1s)
2 to 2,9	Ventilation only
≥ 3	Modulating device : modulation is proportional to the voltage (10 V = 100%). 1 stage device : ON/OFF system

Voltage (Volts)	Feedbacks(OUT 0-10 V)
0	Stop the heater (OFF)
0,5	Manual mode
1	Burner failure
1.5	Overheat
2	Fan failure
2.5	Fan only (ventilation without heating)
≥ 3	Unit is working, the power is displayed in %

5-3 Fault display

Be careful, before resetting the default, check the unit to understand where comes from the problem and so the default, refer to section 7- TROUBLESHOOTING.

This operation must be carried out by a qualified person with necessary approvals.



- 1-Operating mode 2-Ambient temperature
- 3-Fault type



1-Operating mode 2-Voltagesignal sent by the controller 3-Fault type



Burner default

This default is due to a gas « cut off » which switches the control box on safety mode.

To delete the burner default, it is necessary to reset, for this there are 2 methods :

1st, remotely : Send a voltage between 1V and 1.5V during 1 second.

2nd, on the unit : Press the key \bigcirc (the reset is done when the key is released).



Overheat default

This default is due to an important raise of temperature which triggers the safety thermostat. To reset and restart the unit, press the red button on the thermostat, inside the technical compartment of the unit.





<u>Fan default</u> This default is due to a lack of ventilation, which involves a pressure switch failure.

The reset is automatic when the pressure switch changes its status.

Sensor default (Only for manual mode)

This default is due to a dysfunction or a problem of connection of the temperature sensor. The reset is automatic after solving the issue.

5-4 Bill of materials



NIO	Description	Share parts reference			
IN [*]		RTG60	RTG90	RTG120	
1	Fixing brackets	RTG21120IB			
2	Blowing grill	RTG17120I			
3	Air inlet	ATE083	ATE083	ATE083	
4	Axial fan	ATE803S	ATE804S	ATE804S	
5	Combustion fan/ gas ramp support	RTG11120	RTG11120	RTG11120	
6	Gas collector		GAZ0018		
7	Electrode support		RTG15120I		
8	Ignition sensor + cable		ATE502 + ATE504	ļ	
9	Burner	UTC0079	UTC0080	UTC0080	
10	Ionization sensor + cable		ATE503 + ATE505	5	
11	Seal for burner flange		RTG001		
12	Pressure switch to control lack of air		ATE462		
13	Seal for combustion fan		UTC0428		
14	Safety thermostat with manual reset	THE147			
15	Combustion fan	UTC0420 UTC0420 UTC0424			
16	Venturi	UTC0403	UTC0402	UTC0402	
17	Gas injector	UTC0621-70			
18	Solenoid valve with pressure regulator	UTC0400			
19	Control box and gas safety	UTC0410			
20	Electronic PCB	ELE1110M (modulating) - ELE1110 (1 stage)			
21a	Fan plate	RTG0260	RTG002120	RTG02120	
21b	Front plate of burner compartment		RTG18120		
21c	Side plate of burner compartment	RTG22120			
21d	Top plate of burner compartment	RTG07120			
21e	Top body plate	RTG0660	RTG06120	RTG06120	
21f	Insulation	RTG0560	RTG05120	CRTG05120	
21g	Right side body plate	RTG1960	RTG19120	RTG19120	
21h	Insulation	RTG0860	RTG08120	RTG08120	
21i	Left side body plate	RTG1960SYM	RTG19120SYM	RTG19120SYM	
21j	Under body plate	RTG0960	RTG09120	RTG09120	
21k	Insulation	RTG060	RTG10120	RTG10120	

6. MAINTENANCE

We recommend a proper and regular maintenance, at least once per year. The heaters used in dirty or dusty atmosphere (poultry houses) must be maintained more frequently. *These interventions must be carrying out by qualified professional.*

6.1 Maintenance

The maintenance must be carrying out when the unit is cold and the gas and electricity are cut off. Do not use water to clean the unit.

Perform the following operations :

- Clean the body, inside and outside the unit, the fan (blades, motor, protection grille)... Clean carefully all components.

- Check if the cables, nuts and bolts are properly tight.

- Check the mounting and tightness of gas connections.

<u>- Electrodes</u>: Ignition flame and control cables must be inspected. In case of damages, replace it. Check electrode gap., see section « Burner cleaning ».

Specific maintenance for poultry houses

In addition to operations above, clean and check the heater each time a change is made to a new batch, before spreading the litter.

1. Take off the possible faeces or dust on the motor fan. The layer deposit acts as insulator, which can cause a motor overheat.

2. Use a soft brush, no flexible metal, to take off all the dried deposits.

3. Blow the clean parts, in particularly inside and outside the body of the unit, the blades of the fan, the motor of the fan, the thermostat, the switch,...

4. Clean the burner with a soft brush, no flexible metal, be careful to do not use compressed air, the projected durst risk to stuck into the perforations of the burner grille and block them !

5. After cleaning, switch the unit on forced heating and let it warms enough to burn the possible dust particles due to cleaning.

6. Stop heating, once the unit is completely cold, cover it to prevent possible combustible particles to settle during the room cleaning.

7. Be sure that the heater is electrically isolated. The switch disconnector is turned off !

8. Disinfect the poultry house and spread the litter.

9. Take off the cover of the heater.

After cleaning the heater, you must perform the following controls :

- Open the gas and check the connection is gas-tight. If the heater has been moved, check that the gas is correctly connected. Be careful, an improper sealing might cause a fire.

- Check the cabling.
- Check the sealing of the burner air inlet, fig.1

- Control and/or check all the recommended operations during commissioning, particularly :

- Gas pressure control
 - Combustion control
 - General functioning control

When finished the inspection, close the technical compartment carefully sealed and refit the grill to close the combustion chamber fig. 2.

Fig.1

Fig.2





6.2 Burner dismounting

This operation must be carrying out by a qualified professional with necessary approvals.

The burner set can be removed easily from the unit. Proceed as follow :

- 1°/ Cut off the gas from the stop valve and disconnect the electricity supply of the unit.
- 2°/ Disconnect the gas from the unit.
- 3°/ Open the upper plate of the technical compartment , fig.3
- 4°/ Dismount the gas injector (A) and unscrew the 4 nuts of the burner support plate (B)



5°/ Take off the electrical connectors from the combustion fan and disconnect the cables of the ignition and ionization electrodes. Take care to do damage the connections during the operation ! 6° / Take off the burner set, fig. 5 et 6

fig.5 fig.6



The burner

composed of the following elements :

- 1 combustion fan, fixed on the gas collector with 4 screws, the tightness is ensured by a silicone seal.

- 1 gas collector with pipe support plate to fix the set on the heater.

- 1 burner, assembled to the gas collector thanks to a burner spacer, fixed with 4 screws. The tightness is ensured by a permanent seal in high temperature silicone.

- 1 ignition electrode and 1 ionization sensor.

Clean the different parts with a soft brush, no flexible metal. Do no use compressed air because the projected dirt can be stuck into the perforations of the burner grill and so block them !

Check the gap fig.8, of the ignition electrode (6+/-1mm) and the ionization sensor (13+/-2mm) compared to the burner tube.

Proceed the same way to reassemble the burner set.

<u>CAUTION</u>: The gas seals must be replaced by new ones for each operation of mounting/dismounting! The others seals must checked and replaced systematically in case of damage. If there is any doubt, replace them as a preventative measure.

Only genuine parts guarantee a perfect tightness! Use only manufacturer seals or genuine parts!







7- TROUBLESHOOTING

In case of problems, make sure that the conditions required prior to operating the heater are present. If the control box is in the safety position, reset it.

CAUTION : All electrical or mechanical operations must be carried out when the electrical supply is cut off and the gas supply is closed.

Default	Cause	Remedy - Switch ON - Raise the set point of room thermostat - Check the cabling - Check the electrical power - Restart the overheat thermostat - Replace the combustion fan	
The device does not start	 Master switch OFF The room thermostat is not triggered Improper wiring Voltage lack Overheat thermostat triggered Combustion fan out of service 	 Switch ON Raise the set point of room thermostat Check the cabling Check the electrical power Restart the overheat thermostat Replace the combustion fan 	
The combustion fan starts several times without flame and the control box turns on safety (burner default)	 No gas Air into the pipe Wrong air/gas setting Defective gas valve Ignition electrode not properly adjusted or defective Defective control box 	 Check the pressure Purge the pipe Set up the ratio air/gas (Page 25) Replace the gas valve Adjust it or replace it Adjust it or replace it 	
The burner starts, the flame develops, land the control box turns on safety.	 Inversion of neutral and phase Electrical supply without neutral Defective ionization sensor 	 Invers the phase and neutral on the electrical supply Use a control box without impedent neutral Replace the ionization sensor 	
The combustion fan is in full speed but there is no full power.	 Air intake or pair intake pipe blocked Wrong burner setting Air intake temperature too high 	- Unblock the pipe - The combustion setting must be controlled by a factory-based technician - Room temperature is too high	
The unit turns on safety during operation	- Gas supply stops	- Reset by pressing the reset button on the control board	
The burner doesn't modulate and the speed of the combustion fan is full.	 PWM control cable is disconnected Combustion fan defective Electronic PCB defective 	- Check the connection - Replace the combustion fan - Replace the electronic PCB	

CAUTION: only genuine parts allow to maintain safety of the unit and the people. The use of other parts involves only the responsibility of the person and voids the warranty of the product.

8– RECOMMENDATIONS FOR USER

Precaution to be respected :

- Never obstruct the fresh air intake.

- Never obstruct the suction or the blowing.

- Never make any modifications to the adjustments which have been carried out by the qualified professional person.

- Never spray any water into the gas heater

- Warn the after-sales technician when there is a change of gas, gas pressure or a modification of the power supply voltage.

In general, strictly respect all the instructions described in this manual.

You are strongly recommended to take out a maintenance contract: "see with your installer".

What should be done in case of problems?

PROBLEMS	REMEDIES
Smell of gas	- Close the external gas valve and the electricity supply then warn the maintenance technician
The burner stays in safety position	 Press the burner reset button which is on the control board. If the problem persists, contact the after sales technician.



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