Paromax

RAFAEL 55

Efficency 94.5%
EPA Certified

Important:
Press the left upper corner of the screen to increase luminosity when the screen is black.

Important:
Close hopper lid or main door.
60 seconds delay before unit will stop.



Version:
AMERICA
(touch screen)

Tested & Listed By O-TL C US Portland Oregon USA
OMNI-Test Laboratories, Inc.

Report No.	**120-S-01B-2**
Approbation:	**ASTM E1509-04, ULC S627-00, ULC/ORD C1482-M1990**

IMPORTANT : Read the manual before using the Rafael

USER MANUAL & MAINTENANCE

WARNING:

PROFESSIONAL INSTALLATION
IS HIGHLY RECOMMENDED

Improper installation, adjustment, alteration, or maintenance can cause injury, property damage, or loss of life. For assistance or additional information, consult an authorized dealer.

Manufactured by **Paromax**
Blainville Qc
Canada J7C 5E2

IMPORTANT INFORMATION:

Model: _____

Serial Number: _____

Purchase date: _____

Purchased from: _____

Please note your serial number when calling for technical support (see page 4)

Ver. RA-En-A 12.09A September 2012

Please note the battery comes shipped inside the hopper. **Important:** remove the battery before start-up.

Congratulations!

MESSAGE TO NEW OWNER

Thank You ! We Appreciate Your Business

The quality of execution of each of our stoves will provide you peaceful years of comfort.
Three steps to follow for the safest and most efficient performance of the unit.

1- Install it properly 2- Operate it correctly 3- Maintain it regularly

PAROMAX : The Passion of Renewable Energy

The RAFAEL is certified to burn: Premium And Low Grade (high ash) Wood Pellets, Corn Kernels And Wheat Grains.

WARNING: Use Fuel Listed Only. That carbon monoxide can result from using fuels that are not recommended by Paromax.

Safety Advisory:

-A fire may result if your appliance is not properly installed. For your safety, follow the installation instructions.
-Contact local officials about restrictions and installation inspection requirements in your area.
-Local regulations and requirements can supersede those specified in this manual if more stringent.

The authority having jurisdiction (such as municipal building department, fire department, fire prevention bureau, etc.) should be consulted before installation to determine the need to obtain a permit.

The installation of this unit must be in accordance with these instructions. Read them carefully before installation. **Keep this manual handy for future reference.**

Package contents	
Quantity	**Description**
1	User manual and Installation
1	AC Power Inlet cord
1	Plastic Cup
1	Black alligator clip for battery
1	Red alligator clip for battery
1	Fuse 500MA
1	7 amp battery back up
1	Poker tool
1	Ash pan

WARNING: Please read this entire manual before installation and use of this multi-fuel burning room heater. Failure to follow these instructions could result in property damage, bodily injury or even death.

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Serial number of the unit

CONTACT YOUR LOCAL BULDING OR FIRE OFFICIAL ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.
CONTACTEZ VOTRE BUREAU DE CONSTRUCTION OU DES INCENDIES AU SUJET DES RESTRICTIONS ET DE L'INSPECTION DES INSTALLATIONS DANS VOTRE QUARTIER.

Listed Room Heater, Pellet, Corn, Wheat Fuel-Burning Type
Also Suitable For Mobile Home Installation Pursuant to (UM) 84-HUD
Unité Cataloguées; Pour Combustible Listé, Granule de Bois, Maïs, Blé,
Peut Être Utilisée Pour L'Installation Dans Une Maison Mobile Sous (UM) 84-HUD

Tested & Listed By O-T-L Portland Oregon USA C US
OMNI-Test Laboratories, Inc.

Report No./Rapport Nu.: 120-S-01b-02

Serial No./ Nu. De Serie: RA

Model: Rafael 55
Tested to: ASTM E1509-04, ULC S627-00, ULC/ORD C1482-90
Type of Fuel: Wood Pelletized, Corn , Wheat Fuel Only
Electrical Rating: 120V, 1 amp, 60 Hz
Input Rating: 7,600 to 34000 BTU Typical
NOTE: Replace glass only with 5 mm ceramic.
Component required for residential and mobile home installation: Listed multi-fuel Vent and component for outside air for mobile home.
DANGER: Risk of electrical shock. Disconnect power before servicing unit. Do not route power cord beneath heater.

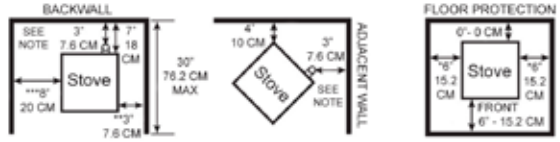
''PREVENT HOUSE FIRES''
Refer to manufactures installation and operating instruction also. CAUTION: Special methods are required when passing chimney through a wall or ceiling. Follow the pipe manufacturer's instructions and local building codes for clearance to combustibles required for the installation of the vent pipe being used. Do not pass chimney connector through a combustible surface. Do not connect this unit to a chimney flue serving another appliance.

WARNING: (Mobile Home)
An outside air inlet must be provided for combustion and be unrestricted while unit is in use. NOTE: Outside air is required for mobile home installation.

"PRÉVENTION DES FEUX DE MAISON"
Se référer au manuel d'installation du manufacturier et d'instruction. AVIS: Des méthodes spéciales sont exigées lorsqu'une cheminée passe à travers d'un mur ou d'un plafond. Suivez les instructions du manufacturier de tuyau et les codes locaux de construction pour l'espace libre des combustibles exigé pour l'installation du tuyau de ventilation en usage. Ne passez pas le tuyau connecteur de cheminée à travers une surface combustible. Ne connecter pas cet appareil à un tuyau de cheminée servant un autre appareil.

ATTENTION: (Maison Mobile)
Une prise d'air extérieur doit être fourni pour l'entrée du brûleur et doit être sans restriction lorsque l'unité est en opération. NOTE: A besoin de l'air extérieur pour l'installation dans une maison mobile.

Modèle: Rafael 55
Testé à: ASTM E1509-04, ULC S627-00, ULC/ORD C1482-90
Type de Gaz: Granule de Bois, Maïs, Blé Seulement
Évaluation Électrique: 120V, 1 amp, 60 Hz
Évaluation Énergétique: 7,600 to 34000 BTU Typique
NOTE: Remplacez la vitre avec de la Céramique de 5mm seulement.
Produits exigés pour l'installation dans une maison résidentielle et mobile: cheminée pour multi-combustibles listée et une prise d'air extérieure pour maison mobile.
DANGER: Il y a risque de choc électrique. Débranchez l'unité avant de faire la maintenance. Ne pas faire passer la corde électrique en dessous de l'unité.



NOTE: REGARDLESS OF THE STOVE CLEARANCE, VENT PIPE MUST ALWAYS HAVE A 3" OR 7.6 CM CLEARANCE. CHIMNEY AND CONNECTOR: 3" OR 7.6 CM LISTED FOR MULTI-FUEL VENT ONLY. FLOOR PROTECTION MUST BE 3/8" OR 1 CM MINIMUM THICKNESS NON-COMBUSTIBLE MATERIAL OR EQUIVALENT, EXTENDING BENEATH HEATER AND TO THE FRONT/SIDES/REAR AS LISTED.

** SIDE WALL TO UNIT	3" - 7.6 cm
BACK WALL TO UNIT	5" - 12.7 cm
CORNER TO UNIT	4" - 10 cm
MAX. ALCOVE DEPTH	30" - 76 cm

*** Unit to sidewall 8" or 20.3 cm clearance for access to control.

NOTE: PEUT IMPOSER L'ESPACE LIBRE DE L'UNITÉ, LE TUYAU DE LA CHEMINÉE DOIT TOUJOURS AVOIR 3" 7.6 CM D'ESPACE LIBRE ENTRE LA CHEMINÉE ET LE CONNECTEUR; UTILISER SEULEMENT UNE CHEMINÉE POUR MULTI-COMBUSTIBLE LISTÉ, OU 7 LE PROTECTEUR DE PLANCHER DOIT ÊTRE DE 3/8" OU D'ÉPAISSEUR MINIMUM DE MATÉRIEL NON-COMBUSTIBLE OU L'ÉQUIVALENT, S'ÉTENDRE EN DESSOUS DE L'UNITÉ ET AU DEVANT/CÔTÉS/ARRIÈRE COMME INDIQUÉ.

** MUR DE CÔTÉ À L'UNITÉ	3" - 7.6 cm
MUR ARRIÈRE À L'UNITÉ	5" - 12.7 cm
COIN DE L'UNITÉ À L'UNITÉ	4" - 10 cm
PROFONDEUR MAXIMUM DE L'ALCOVE	30" - 76 cm

*** 8" ou 20.3 cm est exigé entre l'unité et le mur pour L'accès au contrôle.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Certified to comply with July 1990 particulate emission standards.

AGENCE DE PROTECTION ENVIRONNEMENTALE DES ÉTATS-UNIS
Certifier et conforme aux standards de particule d'émission de juillet 1990

DATE OF MANUFACTURE/ DATE DE FABRICATION

2010 2011 2012 Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Dec.

DO NOT REMOVE THIS LABEL/NE PAS ENLEVER CETTE ÉTIQUETTE
Made in Canada/Fabriqué au Canada

CAUTION : HOT WHILE IN OPERATION. DO NOT TOUCH. CONTACT MAY CAUSE SKIN BURNS. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. SEE NAMEPLATE AND INSTRUCTION. DO NOT OVERFIRE, IF HEATER OR CHIMNEY CONNECTOR GLOWS, YOU ARE OVERFIRING. INSPECT AND CLEAN CHIMNEY AND CONNECTOR FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE, FLYASH BUILD UP MAY OCCUR RAPIDLY. MOVING PARTS MAY CAUSE INJURY.

WARNING: RISK OF SMOKE AND FLAME SPILLAGE. KEEP VIEWING AND ASH REMOVAL DOORS TIGHTLY CLOSED DURING OPERATION. OPERATE ONLY WITH DOORS CLOSED.

CAUTION: OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSIONS OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS. MAINTAIN HOPPER SEAL IN GOOD CONDITION. DO NOT OVERFILL THE HOPPER

AVIS: CHAUD LORSQU'EN OPÉRATION. NE PAS TOUCHEZ . TOUT CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES ENFANTS, LES VETEMENTS ET LES MEUBLES À UNE DISTANCE CONSIDÉRABLE. LISEZ L'ÉTIQUETTE ET LES INSTRUCTIONS. NE PAS SURCHAUFFER. SI L'UNITÉ OU LES TUYAUX DE CHEMINÉE ROUGISSENT, C'EST QUE VOUS SURCHAUFFEZ. INSPECTEZ ET NETTOYEZ LA CHEMINÉE ET LES TUYAUX FRÉQUEMMENT. SOUS CERTAINES CONDITIONS D'USAGE, LES RÉSIDUS DE CENDRE PEUVENT SE FAIRE RAPIDEMENT. TOUTES PIÈCES MOBILES PEUVENT CAUSER DES BLESSURES.

ATTENTION: IL Y A RISQUE DE FUMÉE ET DE FLAMME. GARDEZ LA PORTE DE VUE ET CELLE DES CENDRES FERMÉE HERMETIQUEMENT DURANT L'OPÉRATION. OPERER TOUJOURS AVEC LES PORTES FERMER.

AVIS: OPÉREZ CET APPAREIL AVEC LE COUVERCLE DE LA TREMIE FERMÉ. SINON IL PEUT EN RÉSULTER, DES ÉMISSIONS DE PRODUITS DE COMBUSTION DE LA TREMIE SOUS CERTAINES CONDITIONS. MAINTENEZ LE COUVERCLE DE LA TREMIE EN BONNE CONDITION. NE REMPLISSEZ PAS LA TREMIE TROP PLEINE.

Manufactured by/
Manufacturé par:
Blainville, QC, Canada J7C 5E2
Paromax

COPY

The security label is located on the back panel of the unit.

SAFETY PRECAUTIONS

01- DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL AND DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE

02- Do not store any combustibles near to the unit in operation. Minimum clearance from the unit and to store combustibles are 4 feet or 1.21 meter. Store the combustible in a dry place

03- Do not use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start or freshen up a fire in this unit. Keep all such liquids well away from the unit while it is in use.

04- Do not operate the unit if the burn pot overfill with fuel. Turn off the stove and refer to the maintenance instruction.

05- Do not strike or slam shut the glass door, it may damage or crack the glass.

06- Do not use a substitute materials or components. Always replace by a Paromax part.

07- Do not operate the unit without burn pot ” tube” and the top ring or in invert position (upside down).

08- Do not burn treated material. Other materials such as wood preservatives, metal foils, coal, plastic, garbage, sulphur, or oil may damage the catalyst.

09- Do not add combustible to the burn pot by hand when the unit is in operation.

10- Do not lay the ash pan on combustible floors when the ashes are hot.

11- It is very important to ensure that the unit is installed in a safe manner. Be aware of fire prevention rules and laws in your area. All applicable National and Local codes must be met and complied with. Notify your insurance company of this unit. Do not use makeshift methods or compromise in the installation.

12- We recommend a dealer authorized by Paromax to install your unit. If the unit is installed by an unauthorized installer, Paromax will not be held responsible for any malfunction related to the chimney including a poor performance of the unit.

13- The electrical connection required with the unit consists of AC power inlet cord to plug into a standard wall outlet (120 volts AC) with ground connection.

14- It is strongly recommended to install a smoke detector and an ABC type fire extinguisher near the unit. Using a power surge protector bar helps protect the electrical components of the unit and is highly recommended.

15- Your unit requires periodic maintenance and cleaning. Failure to maintain your stove may lead to a poor performance, smoke spillage in your home or even a more dangerous situation.

16- To start your unit, always use a specified and approved fire starter gel (gel approved for multi-fuel stove). Never use a flammable liquid like gasoline, barbecue fire starter or alcohol. Failure to comply with this may create a hazardous situation and will void all warranties.

17- Never attempt to re-light your unit until the unit has fully cooled down. Never start your unit with a gel fire starter when the burner is still hot, it could cause severe burns. Wait until the unit and the burner are completely cold before you turn it back on.

18- Manual feeding (primer) should only be used to initiate fuel supply to the burner when the hopper is empty. Do not use the manual feed procedure to start your unit, it will cause smoke inside the combustion chamber.

19- Ensure that the ash pan door is securely closed at all times. Air pressure could ignite the fuel accumulated in the burn-pot creating an overdraft condition in the combustion chamber altering the performance of the burn-pot.

20- The fuel supply will not operate if the main door or the hopper door are not closed.

21- The unit must be cold before any attempt to clean the main glasses. Do not use detergent containing abrasives to clean the windows or any other parts of the stove. Use only recommended products found at your local hearth shop for this type of cleaning.

22- Ashes must be disposed in a metal container with a tight lid and placed on a non-combustible surface well away from the house. Wear gloves when handling or emptying the ashes as it can still be very hot.

23- Never use a vacuum cleaner to remove ashes from the stove or the burner or the ash pan, unless the stove is cold for several hours.

24- Do not store or install the battery inside the unit. Risk explosion in case of heat.

Unit location

For optimum benefit with your appliance, speak to an authorized Paromax Dealer concerning the unit location.

The location for your appliance can be a factor in how it will perform. Choose an interior location where the pellet vent will not be affected by any external interference, ex; trees, bushes, walls or fencing (refer to “Vent Termination Requirements” section at page 10). Install the unit according to recommendations made on “clearances” section at page 10 or according to the safety label fixed on the unit.

Always use a pellet vent double wall type PL with a inside diameter of 3” / 7.6 cm or 4” / 10.2 cm maximum. You can pass the pellet vent system thru the wall behind the unit. Paromax recomand to use rigid pellet vent pipe up thru the existing chimney.

Ensure that all clearances to combustibles are met as per the safety label and the diagrams on “Clearances” section at page 9.

This appliance may need outside air if there is a negative pressure within the room. Make sure the outside air supply for the unit does not come from a garage, an attic or any restricted non-ventilated space.

The floor mat under the stove must be of non-combustible material, i.e. cement, ceramics, etc... and must extend 6” or 15.2 cm for the sides and front. **Refer to the diagrams on “Clearances” section at page 9.**

Requirement: Avoid any PL pellet vent quick connection (twist lock) in the attic or roof space, closet or similar concealed space, floor or ceiling. Do not use different brand or models of vent pipe on the same vent pipe installation.

WARNING: DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS UNIT. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE. DO NOT CONNECT TO ANY DISTRIBUTION DUCT OR SYSTEM.

Pellet vent size (PL)

IMPORTANT: Always use a double wall 3” / 7.6 cm or 4” / 10.2 cm PL type pellet vent approved for venting wood pellets fuel or agriculture fuel. A tight seal (silicone or aluminum tape) is recommended on each section of the pellet vent to prevent smoke leakage and odors. The pipe connecting to the unit and the outer wall joints located between the pipes also need to be sealed with high temperature silicone or aluminum tape. The maximum pellet vent height is 35 feet or 10.6 meter. Use a wall thimble for flammable wall or collar for cement wall. Seal the exterior pellet vent with silicone to create a vapor barrier.

It is not recommended to seal the inner walls joints already containing a pre-installed silicone or rubber sealant by the manufacturer of the pellet vent. Do not use a perforated outer wall pellet vent flue channeling fresh air to the burner.

WARNING: DO NOT INSTALL IN SLEEPING ROOM
CAUTION: THE STRUCTURAL INTEGRITY OF THE MANUFACTURED HOME FLOOR, WALL AND CEILING/ROOF MUST BE MAINTAINED

Chimney types (continued)

Since this is a multi-fuel unit, it is recommended to choose an approved venting system. If you choose wood pellets, a double wall 3” or 7.6 cm stainless steel pipes are recommended. For agriculture fuel, it is recommended to use double wall PL type 3” or 7.6 cm stainless with higher quality durability. Refer to the vent pipe manufacturer for more details.

Do not use a non-approved pipe for your vent system. i.e., Dryer vent, “B” vent for gas vent, PVC/plastic pipe or single wall chimney system.

Please note that the length of a horizontal venting system shall not exceed 24” or 61 cm.

Always vent to the outside atmosphere and never into enclosed spaces, i.e. garage, car port etc. Venting systems can generate heat and smoke.

WARNING: HOT UNIT WHILE IN OPERATION.
KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
ANY CONTACT MAY CAUSE SKIN BURNS

Mobile home installation

Use PL type chimney for immediate evacuation outside the mobile home. Refer to the chimney diagram for proper exhaust installation. The space heater is to be connected to a factory-built chimney conforming to CAN/ULC-S629, standard for 650 degrees F or 343 degrees C. For proper clearances, remove outside sections of the chimney when displacing the mobile home. Outside air inlet must be provided for combustion and be unrestricted while unit is in use. Refer to outside inlet installation on page 8. The unit must be securely fastened to the floor by using one bolt in the front and two bolts in the back of the unit.

Recommendation: Chimney installation in a windy area must rise above the roof. It may be normal for ice build-up around the cap during cold or windy days.

High elevation

High altitude reduces air capacity to the burner. To help increase the air speed, a vertical chimney above the roof is recommended to create a natural air flow. Refer to the chimneys diagrams on page 11 and 12.

Negative pressure in the house or starvation air

The use of a bathroom fan, dryer, kitchen hood fan, etc, can create negative pressure, especially in new air tight homes. Combined, these fans consume three times more air than the combustion fan on the unit, and may create a significant drop of pressure therefore a lack of air to the burner that may cause a fire extinguishing. Paromax suggest you take a gauge reading before, during and after the use of your appliances and/or fans to check the pressure variations. If the pressure changes, Paromax recommends installing an outside air intake. Refer to fresh air installation for more information on page 8.

Outside inlet Installation (FA01 kit)

Use a coupling (pipe thread) to increase 1" - 2.5 cm to 2" - 5 cm, install a one way valve, maximum length is 5 feet or 1.5 meter. For more than 5 feet or 1.5 m, increase to 2.5" - 6.3 cm diameter for a maximum of 10 feet or 3 m total. Install cap with a grill to prevent rodent's intrusion.

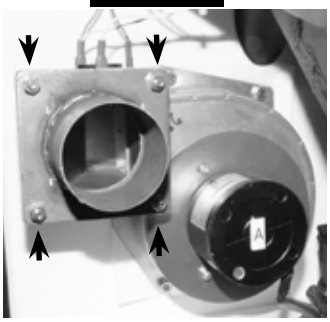
Note: Seal outside pipe joints and wall outlet with silicone to prevent water from entering. To view air inlet location, refer to page 9 (width picture).

Pressure regulator

Natural draft may create a malfunction due to increased pressure. If necessary, obtain a plate restrictor from your dealer.

To install the plate restrictor, refer to the image 1 to view the air outlet. There are 4 nuts and bolts to be removed from the air outlet by using a 7/16 or 11 mm wrench socket. Install the pressure regulator on the combustion fan air outlet; take care to replace the white seals on each side of the pressure plate. Replace the bolts, washers and nuts on the air outlet and tighten the bolts for a hermetic pressure regulator.

Image 1



Battery supplied with the unit

This battery will allow uninterrupted operation of your unit in case of power failure. Please note that this system does not replace the standard electrical power of 120 volt AC of the unit. This is a battery backup feature. When fully charged, it can last 4 hours or less depending on heat level setting (1-5) used. It is recommended to always leave the battery connected. The battery will be recharged when the power comes back.

For an extended performance, we suggest purchasing a 12 volt car battery for a longer use.

If a power outage occurs for more than 3 seconds and there is no battery connected, the fans will stop and there is a risk of smoke. When electricity is restored, the control panel will display the error code VOLT 1. If the unit is still hot, the fans will start to cool down the unit. In case of interruption of less than 3 seconds, the unit could continue to operate normally.

Option: To use the unit on 12 volt continuously as your main power, we recommend to by-pass the power inverter. Disconnect inverter the black wire identified on **COM** and the red wire identified on **V1** on the power inverter and then connect these wires directly to the 12 volt DC source. **The Warranty does not cover any polarity inversion that may damage the control panel** (see picture 36 on page 32).

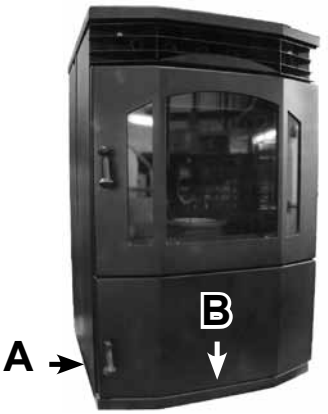
Notice: Your battery is provided with an insulation to prevent ground contact. To avoid any discharge, never sit the battery directly on the ciment floor.

Step	Battery connection order to follow
1	Connect the **red** clip to the positive battery terminal **+**
2	Connect the **black** clip to the negative battery terminal **-**
3	Connect the battery **red** wire to the unit **red** wire.
4	Connect the battery **black** wire to the unit **black** wire.

WARNING: Children should be kept away from the hot unit.

Leveling your unit

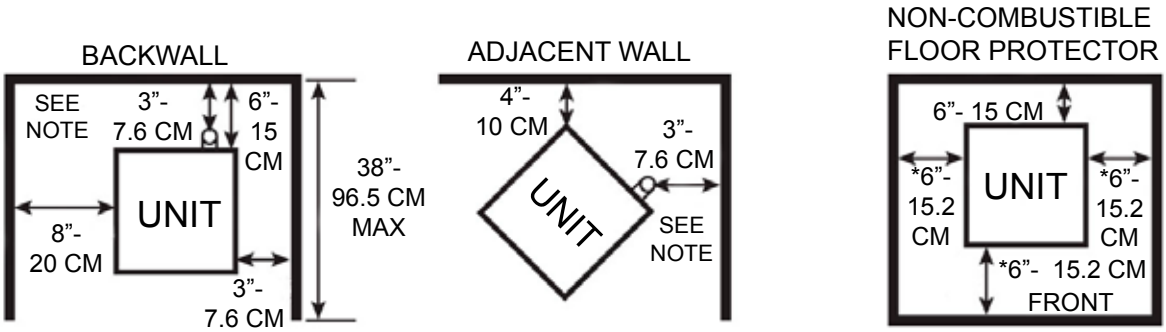
It is essential to level your unit for a stable fuel bed. First put a level on the side of the base (letter A) and use metal “spacer” to adjust the lowest side. And then, level the front by placing the level on the front of the base (B). When burning agriculture fuel, Paromax suggests increasing the height of the front of the unit by 1/4” to 3/8” or 6 to 10 mm. This modification helps to reduce ash accumulation in the front of the burner.



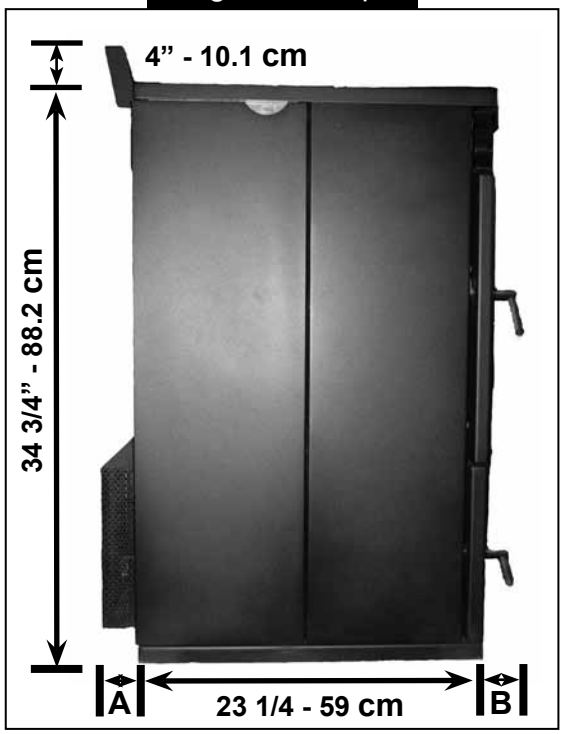
Thermostat installation for the RAFAEL

For thermostat use, purchase a thermostat supply by battery (AA or AAA batteries or 9 volt) or a mercury thermostat or wireless thermostat. Connect the thermostat to purple wires that are located near the control panel inside the unit. **See thermostat operation mode on page 21**

Clearance of the RAFAEL

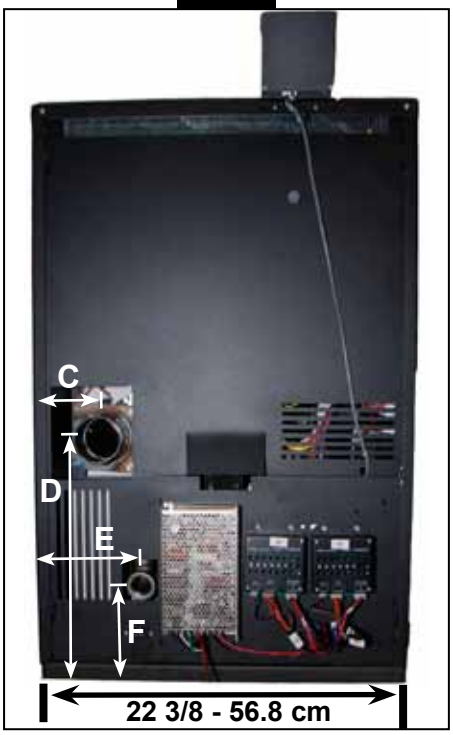


Height and Depth



Safety cover A = 2 1/2” 6.3 cm
Handles B = 3/4” 1.9 cm
Exhaust C = 3 1/2” 8.9 cm D = 14 1/2” 36.8 cm
Fresh air E = 6 1/4” 15.8 cm F = 5 7/8” 14.9 cm

Width



IT IS RECOMMENDED THAT YOUR PELLET STOVE BE INSTALLED BY A PAROMAX AUTHORIZED DEALER/INSTALLER.

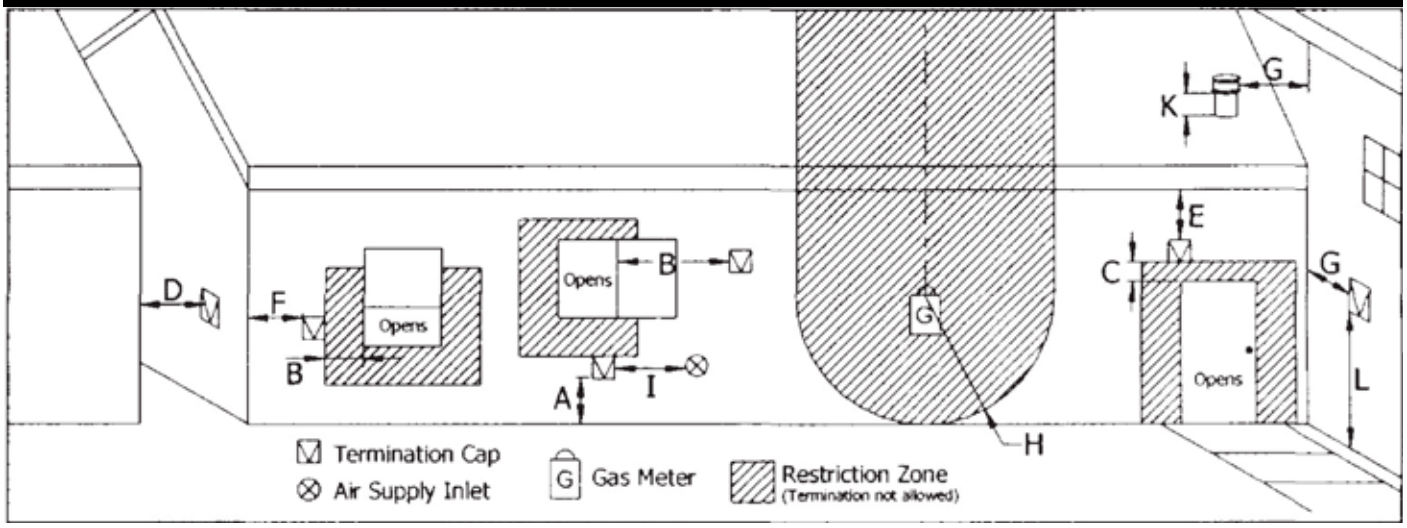
CLEARANCE TABLE: Use in conjunction with diagram on page 11 for allowable exterior vent locations for both horizontal and vertical terminations. Clearances may only be reduced by means approved by a regulatory authority.

	Minimum	Description
A	24” / 61 cm	Above lawns, top of plants, wood or any other combustible materials.
A	12” / 30.5 cm	Above non-combustible surface such as cement and gravel.
B	48” / 122 cm	From beside/below any door or window that may be opened.
C	12” / 30.5 cm	From above any door or window that may be opened.
D	24” / 61 cm	To any adjacent building, fences and protruding parts of the structure.
E	24” / 61 cm	Below any eaves or roof overhang.
F	12” / 30.5 cm	To outside corner.
G	12” / 30.5 cm	To inside corner, combustible wall (vertical & horizontal terminations).
H	36” / 91.5 cm	To each side of center line extended above natural gas or propane meter/regulator assembly or mechanical vent within a height of 4.5 m above the meter/regulator assembly.
I	36” / 91.5 cm	From any forced air intake of other appliance.
J	12” / 30.5 cm	Clearance to non-mechanical air supply inlet to building or combustion air inlet to any appliance.
K	24” / 61cm	Clearance above roof line for vertical terminations.

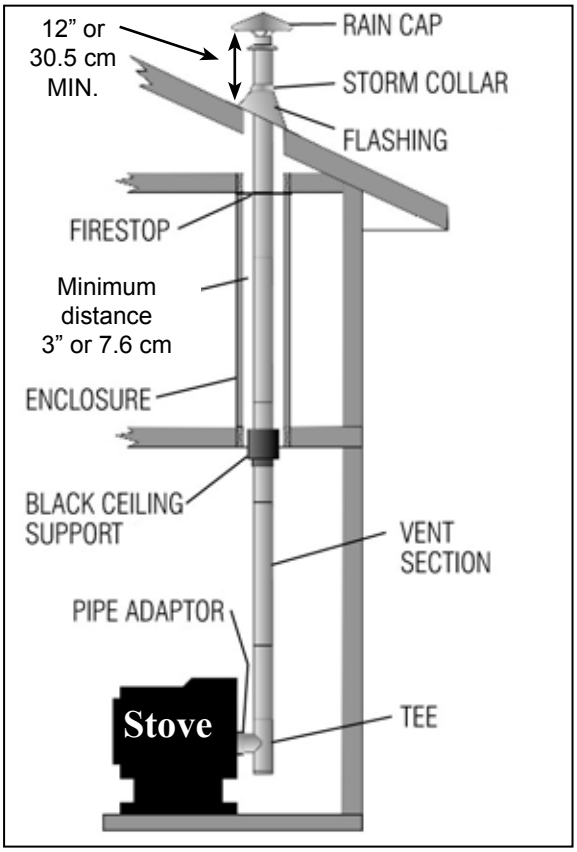
NOTES :

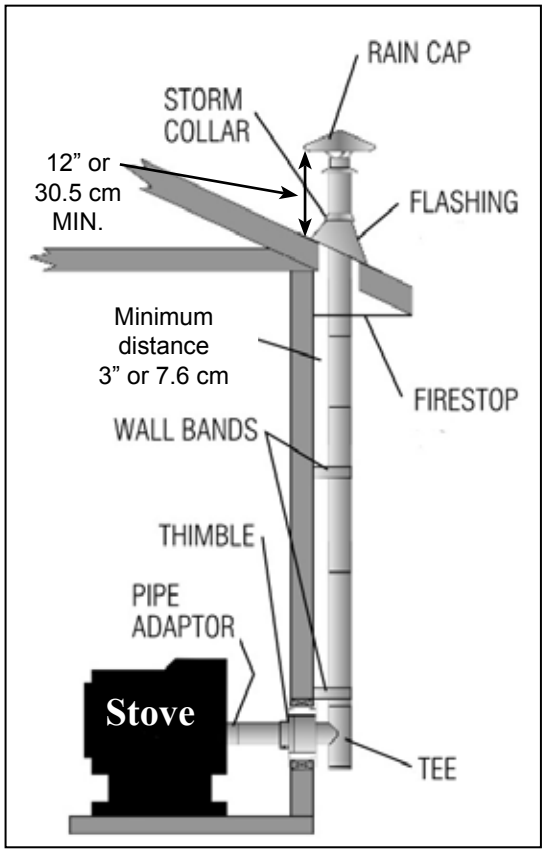
1. Do not terminate the vent in any enclosed or semi-enclosed areas that can build up a concentration of smoke.
2. Vent surfaces can become extremely hot. Keep children away from such areas. Non-combustible shielding or guards may be required.
3. Termination must exhaust above sea level and the inlet elevation. It is recommended to have a short vertical run which will help in the event of total power failure.
4. If the unit is incorrectly vented or the air to fuel mixture is out of balance, a slight discoloration of the exterior of the house might occur. Since these factors are beyond our control we offer no guarantee against such incidents.
5. When installing into an existing masonry chimney, you will probably need a short horizontal section to clear the lintel and allow the hopper lid to open.
6. Vent terminations shall not be recessed into walls or siding.
7. A vent shall not terminate directly above a sidewalk or paved driveway which is located between two single family dwellings and serves both dwellings.
8. If the vent termination is children accessible, a certified guard shall be installed as specified in CGA B149 installation Code in Canada. Note: Local codes or regulations may require different clearances.

Minimum clearances table for a wall installation



INSTALL VENT AT CLEARANCES SPECIFIED BY THE VENT MANUFACTURER
Refer to the norm CAN/CSA-B365-01 before installing the vent.





Equivalent Vent length (EVL)

Venting your unit is crucial for optimum operation. There are five different installation examples recommended by Paromax.

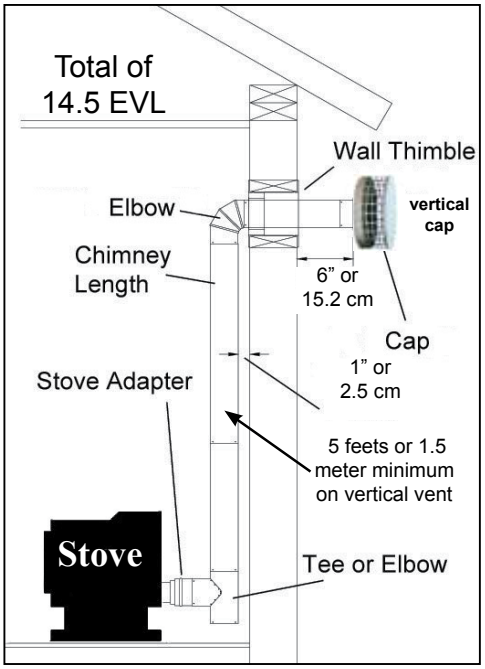
The unit uses the combustion fan to move air from the exhaust to the chimney.

(Next on page 12)

Restriction may come from several different items. Each 45 degree elbow = 3 EVL
Each 90 degree elbow and tee clean out = 5 EVL
Each foot of horizontal run = 1 EVL
Each foot of vertical run = 0.5 EVL

Higher Altitude 3000 ft or 914 m: The vent pipe must be above the roof. If the EVL are **Inferior** to 15, install a vent pipe of 3" or 7,6 cm. If the EVL are **superior** to 15, install a vent pipe of 4" or 10,2 cm.

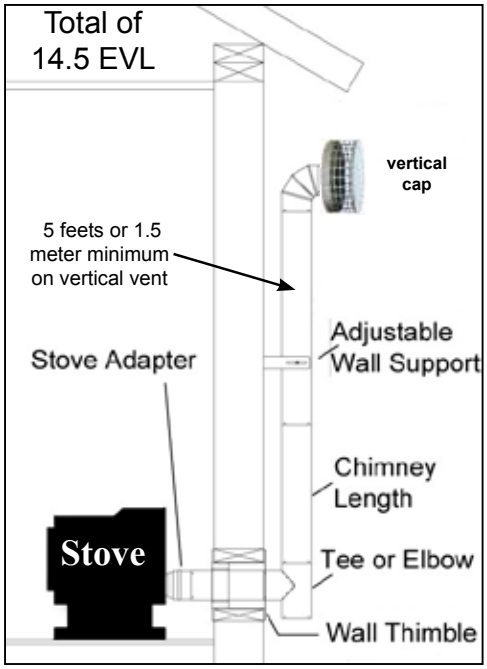
Lower Altitude 2999 ft or 913 m: For the other installation with a vent pipe of 3" or 7,6 cm, the installation rule is the sum of 15 EVL or less. For a superior sum of 15 EVL and up, install a vent pipe of 4" or 10,2 cm.



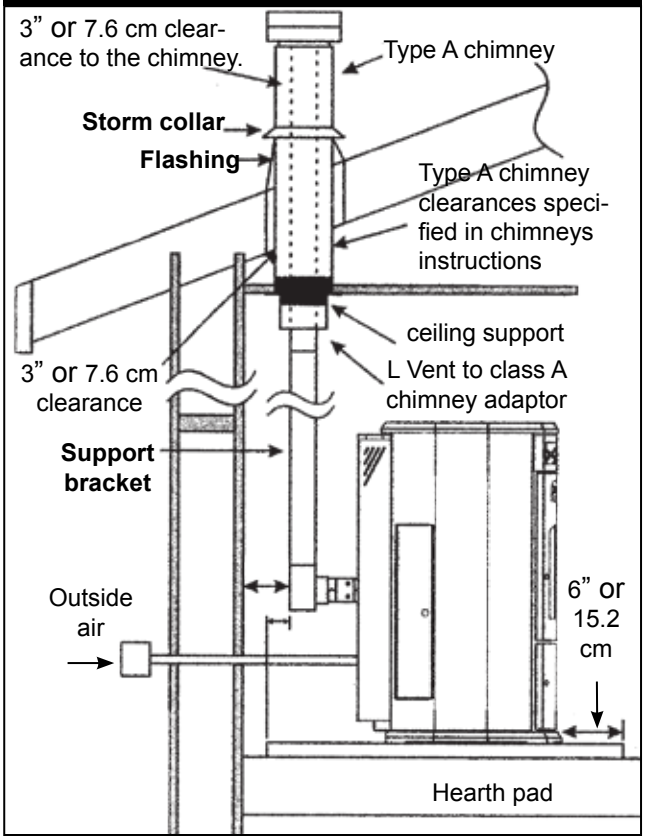
Vertical cap recommended



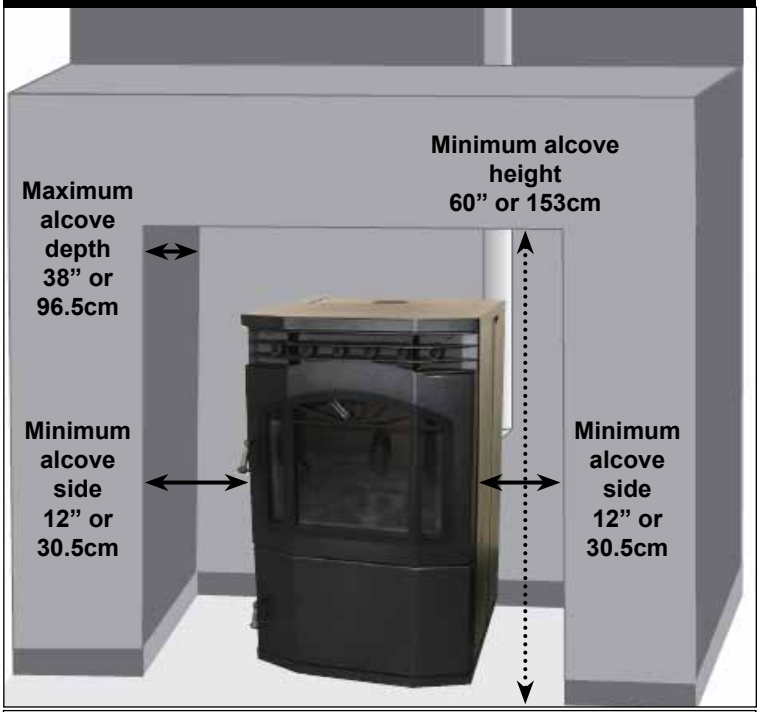
Sealing off the top and bottom of existing chimney with the new pipe is recommended



3" or 7.6 cm pipe in an existing chimney



Alcove installation



The flooring under the unit for alcove must be a non-combustible material, i.e. cement, ceramics, etc, and must extend of at least 6" or 15.2 cm for the sides and 12" or 30.5 cm for the front. Refer to the diagrams on "Clearances" section at page 9.



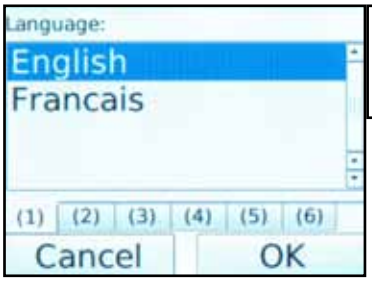
To start the unit: Press the Paromax logo.

Note: Before starting the unit, press the icon menu for language choice, fuel selection, date and time settings and for the thermostat activation.



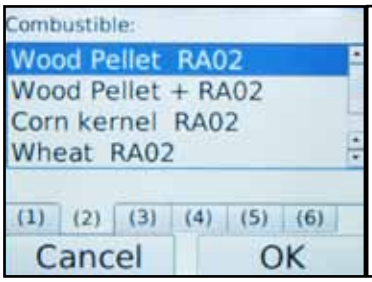
Menu icon: this menu is divided into 6 tabs identified as 1 to 6.

Note: This menu is accessible only when the Paromax name appears.



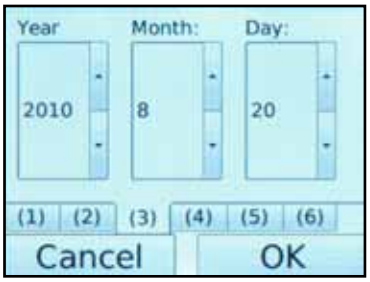
Tabs 1: Is used to select the language.

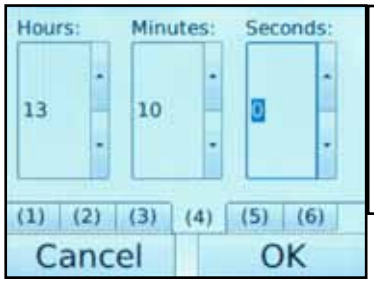
Note: Press the OK icon to accept your selection and exit the menu.



Tabs 2: Is used to change or choose a fuel in the list.
Wood pellet RA05, use for premium pellets
Wood pellet + RA05, use for high ash content pellets
Corn kernel RA05, use for corn kernel, moist 9% to 18%
Wheat RA05, use for Wheat, moist 9% to 18%

Note: Press the OK icon to accept your selection and exit the menu.



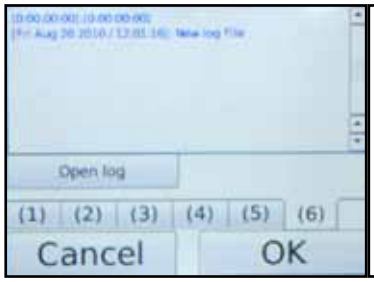


Tabs 3: Is used to set date.

Tabs 4: Is used to set time.

Note: Press the OK icon to accept your selection and exit the menu.





Tabs 5: Is used to activate or deactivate the thermostat mode and also to review unit running time.

Tabs 6: Is used for the log book status.

Note: Press the OK icon to accept your selection and exit the menu.



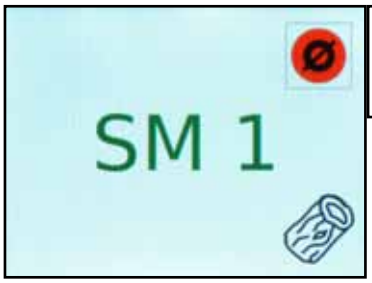
Manual feed: The manual feed mode (primer) is only used to fill the feed system at a first startup or when the hopper is empty. The manual feed will function between 3 to 4 minutes. Make sure all doors are closed when the manual feed procedure is flashing.

Startup mode display



The first start up display is SM 1 mode.

Note: When SM1 is red, close all doors (main door or hopper).



When SM 1 is green, the first 4 minutes start-up mode will begin.

Note: Only the combustion fan is running on SM 1.



Then display SM 2 will appear and run for another 4 minutes for the wood pellets fuel and 21 minutes for the agriculture fuel.

WARNING: Only the stop button (red) is active during the start up mode.

Note: All motors are running on SM2 mode.

Normal operation display



To access the heat level display, press on the flame icon (top left).
To adjust the heat level settings (orange icon), press + (plus) or - (minus) icons to increase or decrease the desired heat level.

Note: Level 1 is regulated with a flow of approximately 1 lbs or .45 kg of fuel per hour and level 5 is regulated with a flow of approximately 4 lbs or 1.81 kg of fuel per hour. The feed system is on when the flame icon becomes green.



To access the combustion air display: press on the fan icon (center left). To adjust the incoming air to the burner, press the green icon + (plus) or - (minus) to increase or decrease the combustion chamber pressure related to the pressure gauge (mini-helic).

Note: Setting 5 is set by default. Setting 1 to 10 is available for adjustments. For more details, refer pressure gauge chapter and chart on page 20.

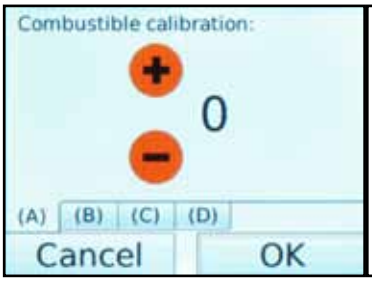


To access ash removal settings: Press on the trash icon (bottom left) to adjust the quantity of ash removed: Press the green icon + (plus) or - (minus) to increase or decrease the fuel bed height in the burner. For more detail, refer to page 19.

Note: Each type of pellet or agriculture fuel produces its own quantity of ash content per hour. Setting 15 is set by default; setting 11 to 20 are available for adjustments. The ash system is on when the trash icon becomes green.



Menu 2 icon, is accessible only when the unit operates in normal mode. This mode is divided into 4 tabs (A to D).



Tabs A: Calibration of the fuel delivered to the burner. The calibration settings can increase or decrease the amount of fuel per hour, ranging from -3 to +3. Refer to page 20 and 21 for more information.

Important: Setting +1, +2, +3 are not functional for heat level 5.

Note: Press the OK icon to accept your selection and exit the menu.



Tabs B: Press on the **enable thermostat icon** to activate or deactivate the thermostat mode. The X in the top box confirms that the thermostat is activated.

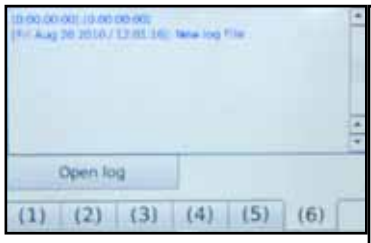
Press **enable mixing mode** icon to activate or deactivate the mixing mode. The X in the bottom box confirms that the mixing mode is activated. The mixing mode can't be selected when the thermostat is activated. See page 21.

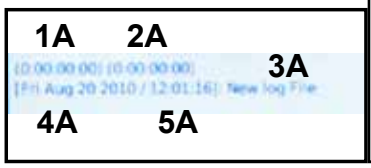
Note: Press the OK icon to accept your selection and exit the menu.



Tabs C: The top time counter displays the number of days, hours, minutes and seconds since last startup of the unit.
The lower time counter displays the number by order of days, hours and minutes since the first startup of the unit.

Note: Press the OK icon to accept your selection and exit the menu.

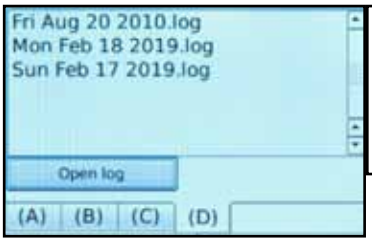




Tabs D: Log book data is to review the operational status and analyzing possible error codes.

Note: Press the OK icon to accept your selection and exit the menu.

1A = Meter indication of overall time. Left to right, months, days, hours and minutes.
2A = Meter indication of running time. Left to right, days, hours, minutes and seconds.
3A = The log book status.
4A = The log book recording date.
5A = The log book recording hours.



Tabs D: Press the Open log icon to view the list by dates of each startup of the unit. Select a date to display the log.

Note: Press the OK icon to accept your selection and exit the menu.

Convection fan

This fan is used to propel hot air into the room. There is no adjustment for the convection fan. The convection fan is factory set and is controlled by the heat level selected (1-5).

WARNING: DO NOT START THE UNIT IF THE GLASS DOOR IS CRACKED OR BROKEN AND NEVER CLEAN THE GLASS WHEN IT IS STILL HOT.

First start up

At its first use, the unit will release a smell caused by the paint and the burning of oily substances used in its manufacture. It may activate the smoke detectors. Open windows to vent.

NOTE: Since the glass door is cold when the unit is turned on, condensation may temporary settle on the glass.

WARNING: Never use the manual feed procedure to start your unit.
Caution: May cause smoke issues in the combustion chamber.

Lighting on your unit

1. Whatever the fuel used, it is recommended to start the unit with wood pellets. This will quickly raise the vent temperatures for a better and faster start up. Failure to use wood pellets could result in slow and difficult lighting procedures. Before each startup, make sure the burn pot and the ash pan are completely empty.
Note: Never attempt to start a fire if the burner is hot and completely full of ashes.

WARNING FOR EMPTY HOPPER:
Starting the unit without first activating the manual feed (primer) can generate smoke in the unit.

Image 2



2. After filling the hopper, press the hand icon on the display to activate the manual feed (primer). All doors must be closed. Doors are not properly closed if the display is flashing. The manual feed procedure will be in operation approximately for 4 minutes to fill the feed system and few pellets will drop into the burner.

Note: Do not forget to validate the proper selected fuel type in the menu. It is impossible to change the fuel selection when the unit is in operation.

3. How to start the unit: Open the main door and press the start icon on the screen. SM 1 display will appear in red and the combustion fan will start. Fill the cup with wood pellets and drop the pellets into the burner. Sprinkle generously the pellets in the burner with an approved fire starter gel and mix well with the poker. Next, use a **match** to light the fire starter in the burner and close the main door. SM 1 will turn green on the display and the startup countdown mode will begin.

Some fire starter gels have a low alcohol content which will result in a weak start-up

4. SM 1 and SM 2 mode will scroll on the screen for a total of 8 minutes for wood pellets and 25 minutes for corn or wheat. Note that the shutdown icon is accessible at all time. Once the startup period is over, the screen will indicate the heat level 3.

WARNING: If the burner only produces smoke, immediately stop the startup procedure or normal mode by pressing the red icon on the screen. Wait until the unit is completely cold before putting it back in operation.

Note: This is a mechanical device. Since it contains two fan motors and two auger motors, it is likely that you will hear sounds from your appliance, these noises are normal.

5. Selecting heat levels; There is a 5 minutes time delay cycle when increasing or decreasing between each level for wood pellet and twenty 20 minutes for corn or wheat.

Fuel chart information	
Heat level	**Fuel per hour**
1	Approximate 1 lb - .45kg
2	Approximate 1.5 lbs - .68kg
3	Approximate 2 lbs - .91kg
4	Approximate 3 lbs - 1.36kg
5	Approximate 4 lbs - 1.81kg

Image 3



WARNING: Never open the main door and the ash door at the same time, this could cause a fire extinction and generate smoke in the unit.

Instruction to optimally burn wood pellets

Use the 16 holes burner. Select **WOOD PELLET** combustible; see tabs 2 on page 13.
Recommendation: Open the air valve (only when unit is cold) to a minimum of 1/8” or 3 mm. The air valve is located near the fresh air inlet in the ash compartment, see picture 3.

For high ash wood pellet content, select **WOOD PELLET +** combustible, see tabs 2 on page 13. Open the air valve to a minimum of 1/8” or 3 mm. In case of ash fusion (clinker), increase the ash evacuation and maintain the fuel bed to 2” or 5 cm. Close the air valve if the ash fusion persists.

Note: Lightly tighten the top threaded disc with your hands when changing the burner. Install the ash box below the burner before installing the burner’s bottom threaded disc.

Paromax has no control over the quality or types of fuels available on the market and will assume no liability for any malfunction related to the type of fuel used.

Instructions for burning high ash fuel

IMPORTANT: Wood pellet with high ash content (WOOD PELLET+) or agricultural products such as corn or wheat requires more attention than for wood pellets. Please follow this instruction or you may risk a failure from the ash removal system causing an accumulation or overflow in the burner and around the burner. These types of problems are your responsibility and are not considered as a malfunction but a non appropriate adjustment on the control board. Wood pellets, corn and wheat fuel have different physical characteristics such as; moisture, grain size and high ash content, therefore these guidelines and instructions will help you get a better performance and understanding of your unit when using different fuel.

First time burning with corn or wheat

To familiarize you with corn or wheat, we recommend using wood pellets during the first days. When you are familiar with the functioning of the unit, you can switch to corn or wheat. Corn or wheat may leave a permanent white deposit on the glass.

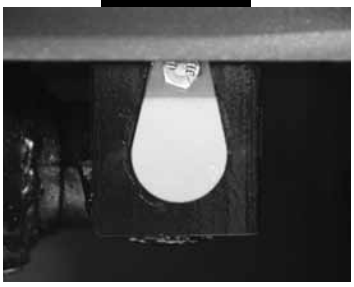
Note: Paromax recommends purchasing a second ash pan when the unit is set to heat level 4 or 5 for more than 24 hours. When the ash pan is full, there is possibility of creating a clinker or a fuel overflow outside the burner. It is recommended emptying the ash pan everyday when burning agricultural combustibles.

Preparing the unit for corn or wheat

Install the **24** holes burner and close the air inlet (image 3A).
Note: Refer to the fuel bed level on page 19.

Note: Lightly tighten the upper disc with hands when changing the burner. Install the ash box below the burner before installing the burner's bottom threaded disc.

Image 3A



Clinker prevention

In many cases, the use of certain recommended fire starter gels or materials can cause the beginning of a clinker formation. In the event of a clinker formation during the first 90 minutes, you can use a "poker" to gently disturb the fuel bed (embers) to continue its operation as before.

Note: If you must open the main door while the unit is running, always wear gloves and open the main door slowly and for a very brief moment to prevent the extinction of fire.

WARNING : Never open the main door (glass) and the ash door at the same time, this could generate smoke. Please inspect the door gaskets periodically.

Paromax has no control over the quality or types of fuels available on the market and will assume no liability for any malfunction related to the type of fuel used.

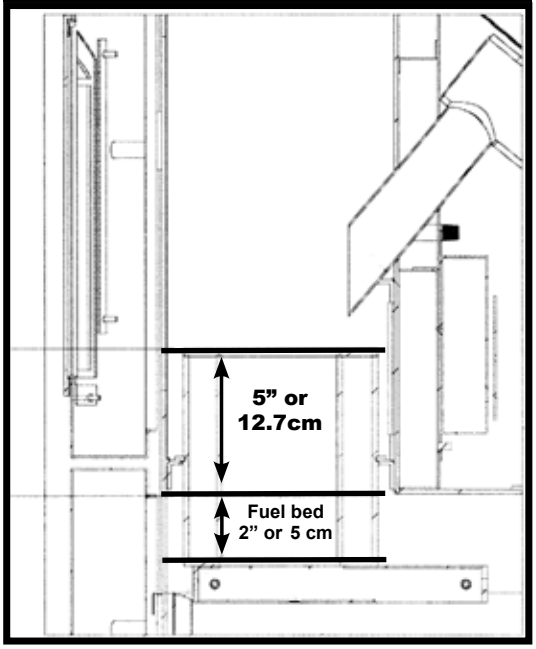
Controlling the fuel bed level (embers)

If the fuel bed (embers) is too high or too low in the burner, follow the following guidelines to help you control and stabilize the fuel bed.

How to measure the fuel bed height

Measured space between the burner top to the fuel bed should be 5” or 12.7 cm.
Note: A line is engraved inside the burner and serves as a reference.

Fuel bed (embers) height



Refer to steps A, B, C when the fuel bed remains at the burner top with settings for the combustion fan at 5 and the ash removal system at 15.

A-Gradually increase the combustion fan of 1 level until the display shows number 6.



B- Gradually increase the ash removal of 1 level until the display shows number 16.



C- Check after one hour if the fuel bed has decreased. If not, repeat steps A and B by 1 level. If necessary, you may repeat these procedures a few times. Refer to chapter Fuel consumption on page 20 and 21 if maximum settings are on the combustion fan and the ash removal.

Note: Memorize new parameters for the combustion fan and the ash removal system in order to apply them at the next start-up.

Refer to steps A, B, C when the fuel bed remains in the burner’s bottom with settings for the combustion fan at 5 and the ash removal system at 15.

A- Gradually decrease the combustion fan of 1 level until the display shows number 4.



B- Gradually decrease the ash removal of 1 level until the display shows number 14.



C- Check after one hour if the fuel bed has increased. If not, repeat steps A and B by 1 level. If necessary, you may repeat these procedures a few times. Refer to chapter Fuel consumption on page 20 and 21 if minimum settings are on the combustion fan and the ash removal.

D- For the loss of the fuel bed (embers) while burning wood pellets when the combustion fan and the ash removal system are at the minimum settings (1 and 11): Reduce the opening of the air inlet, this will help increase the fuel bed on a long-term (4 hours) period (see Image 3 on page 17). According to the pellets used, it is possible that the air inlet shall be closed for better control of the fuel bed.

Note: Memorize new parameters for the combustion fan and the ash removal system in order to apply them at the next start-up.

Paromax has no control over the quality or types of fuels available on the market and will assume no liability for any malfunction related to the type of fuel used.

Pressure gauge adjustment (Minihelic)

The mini-helic indicates the pressure generated inside the combustion chamber while the unit is in operation. The pressure varies accordingly to the selected heat levels (1 to 5). To follow the suggested chart, press the combustion fan icon (green) indicating a plus or minus to increase or decrease pressure. 10 settings are available to calibrate the unit accordingly to the chart. The setting 5 will appear by default.

Pressure gauge



Pressure gauge chart

Heat level	Pressure indicated on the gauge
1	Ranges from .08 to .12 W.C
2	Ranges from .13 à .17 W.C
3	Ranges from .17 à .23 W.C
4	Ranges from .30 à .35 W.C
5	Ranges from .40 à .50 W.C

Important: The pressure indicated on the chart may vary accordingly to the fuel type. The height of the fuel bed dominates over the pressure chart. The moisture and / or size of the fuel may vary the pressure.

Note: Always refer to the fuel bed (embers) height in burner before decreasing or increase the pressure displayed on the gauge.

Adjustment for fuel consumption /hour

Each heat level is factory programmed. The quantity of fuel per hour is displayed in the chart below. The length or moisture can influence the flow per hour. Wood pellets vary in length from one manufacturer to another and the moisture content and grain size also vary and can influence the flow.

Use the heat level 3 as a reference (see chart). Steps to follow: Empty the hopper and fill it with 40 lbs or 18.2kg of fuel. Before startup, fill the measuring cup with wood pellets from another bag and start normally. Verify hopper level after 16 hours of operation. To view how many hours, refer to page 15 tabs C for duration time. Then, check every hour to see when the hopper is empty. A bag of 40 lbs or 18.2kg should last approximately 20 hours on heat level 3, (40 lbs divided 2 lbs/h or 18.2kg divided .91kg = 20 hours)

Note: Refer to page 21 for adjusting the fuel flow.

Fuel chart and timing rate

Heat level	Flow per hour (average)	Pellet ON	Pellet Off	Corn On	Corn Off	Wheat On	Wheat Off
1	1 lb - 0.45kg	**2 sec**	**16 sec**	**1 sec**	**15 sec**	**1 sec**	**12 sec**
2	1.5 lb - 0.68kg	**4 sec**	**19 sec**	**1 sec**	**11 sec**	**2 sec**	**13 sec**
3	2 lbs - 0.91kg	**5 sec**	**17 sec**	**2 sec**	**14 sec**	**3 sec**	**15 sec**
4	3 lbs - 1.36kg	**5 sec**	**11 sec**	**3 sec**	**15 sec**	**5 sec**	**14 sec**
5	4 lbs - 1.81kg	**7 sec**	**10 sec**	**3 sec**	**10 sec**	**6 sec**	**11 sec**

How to program the fuel consumption on the control panel

To adjust the fuel consumption per hour, start the unit and wait for the display to show heat level 3. Go to menu and the combustion calibration will appear. The factory setting default should be zero.

Reference table for heat level 3	
If the results of the flowed time (empty hopper 40 lbs -18.2kg) is	**Ajust the combustible calibration to the numbers suggested below**
17 hours	**-3**
18 hours	**-2**
19 hours	**-1**
20 hours	**0**
21 hours	**+1**
22 hours	**+2**
23 hours	**+3**

Thermostat mode

The thermostat mode is very simple and regulates automatically the room temperature. For pellets, the heat level 1 is the minimum and the heat level 3 or 4 are used for the maximum power. For corn or wheat, the heat level 2 is used for minimum power and the heat level 3 or 4 is used for maximum power. When the red heat level number 3 or 4 appears, the thermostat is on full power.

Caution: When the thermostat mode is activated without a thermostat installed, the heat level 1 will appear after the startup.

Note: Refer to the page 15 on tabs B to activate a thermostat when the unit is functioning.
Refer to page 13 on table 5 when unit is in standby mode.

Mixing mode

Paromax created the mixing mode on normal operation to disturb the fuel on heat level 1, 2 and 3.
Every 12 hours on the same heat level setting, the mixing mode well increase by 1 heat level for 5 minutes to regenerate the fuel bed. After 5 minutes, the heat level returns to your selected level.

Refer to page 15 on table B to activate the mixing mode when the unit is running and press **Enable mixing mode. An X will appear in the box.**

Note: The mixing mode is deactivated when the thermostat mode is activated.

WARNING: Failure to clean frequently the unit may result in poor performance and hazardous situations. Never clean the unit when hot. Refer to combustible schedule below.

Burn-pot and combustion fan: Refer to maintenance on page 24 and 25 for soot, creosote and any ash accumulation.

Maintenance Schedule For Wood Pellets

Unit components	Each start up	Every 2 Weekly	Monthly	Every 2 months
Remove ashes in burn-pot	X			
Check the ash removal system	X			
Check battery contacts and performance	X			
Vacuum out the combustion chamber (step 1)		X		
Empty ash pan		X		
Clean the burn-pot jets			X	
Clean the convection pipes system			X	
Clean the the combustion fan (flywheel)			X	
Clean the combustion chamber (step 1 and 2)				X
Clean the convection fan (flywheel)				X
Inspect chimney joint's seals				X
Clean the chimney				Annual

Maintenance Schedule For Corn, Wheat and high ash content

Unit components	Each start up	Every 2 Weekly	Monthly	Every 2 months
Remove ashes in burn-pot and clean the inner wall of burn-pot (see burn-pot maintenance)	X			
Check the ash removal system	X			
Empty ash pan	**Every 2 days**			
Check battery contacts and performance	X			
Vacuum out the combustion chamber (step 1)		X		
Clean the burn-pot jets		X		
Clean the convection pipes system		X		
Clean the the combustion fan (flywheel)			X	
Clean the combustion chamber (step 2)			X	
Clean the convection fan (flywheel)				X
Inspect chimney joint's seals				X
Clean the chimney				Annual

IMPORTANT: Before each start up, it is recommended to empty the ashes and disposal of ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have been thoroughly cooled. Other waste shall not be placed in this container. Ash container needs to be moved outdoors, immediately. Keep the metal container far of the children.
WARNING: Embers can stay hot for a long time after the fire has been extinguished.

Tools required for maintenance
Ratchet and extension of 6'' / 5 cm
Socket of 1/4" / 6 mm, 5/16" / 8 mm, 11/32" / 9 mm, 7/16" / 11 mm and 9/16" / 14 mm
Allen keys of 1/8" / 3 mm, 5/32" / 4 mm and 3/16" / 5 mm
Flathead screwdriver, Phillips head screwdriver # 2 (star)
Pliers for retaining ring
Hammer
Drill and a 3" / 7.6 cm round steel brush
Long bristle toothbrush or long bristle steel brush
Commercial vacuum cleaner with filter
High temperature lubricant anti-size copper base type

M1- Combustion chamber maintenance

STEP 1: Only when the unit is cold, we suggest using a filter vacuum cleaner to remove ashes **(do not use a household vacuum cleaner or central vacuum type)** accumulated around and in the burner (see image 4). Use a bristle brush to remove the ashes on the convection system pipes and two air inlets (see image 5). Clean the inside of the door.
Note: Use a special bag or filter to eliminate any ashes leaks in the room.

Step 2: For a deep cleaning, after step 1, open the four clean-out doors located inside the combustion chamber (see image 6). It may be necessary to use a hammer to lift these doors upwards and tap gently on side walls to remove the accumulated ashes that are not accessible with the vacuum.

Note: Before reinstalling the clean-out doors, see the section on the combustion fan maintenance chapter M4 on page 25

Image 4

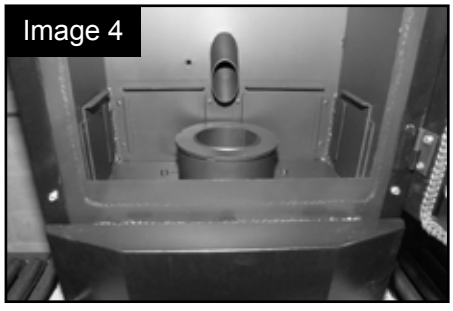
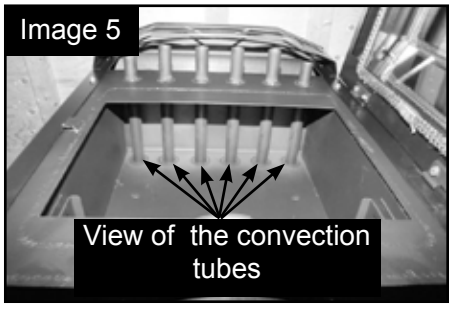
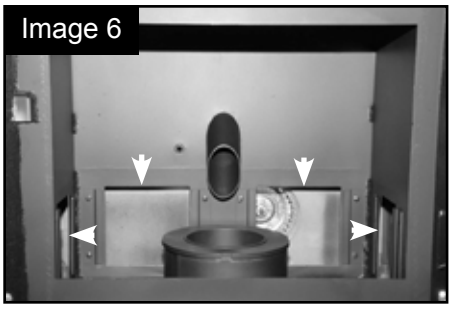


Image 5



View of the convection tubes

Image 6



M2- Burn-pot maintenance

Step 1: Tap counter-clockwise with a flat screwdriver on one of the teeth of the threaded ring. Small strokes are recommended (see image 7).

Step 2: Unscrew counter-clockwise the cylinder with gloves for better grip (see image 8).
Note: If the cylinder does not turn, loosen the two bolts supporting the ash box beneath the burner by using a 9/16" or 14 mm wrench (see image 13 on page 25).

Step 3: To clean the burn-pot holes, use a 1/8" or 3 mm rod from outside to inside (see image 9).
Note: Make sure you put the burner tube back in the right direction: the angled holes upward and straight holes down.

Note: Install the ash box before installing the burner tube

Step 4: Clean the threads before installing the burner (steel brush). See image 10 and 11. Lubricate threads with high temperature grease. Screw lightly the cylinder and ring clockwise See image 8 and 12.

Note: To replace the burner: Always use original Paromax parts available from your dealer.

WARNING: PROTECT YOUR EYES WITH SAFETY GLASSES IF USING A DRILL EQUIPPED WITH A STEEL BRUSH.

Note: Tighten the threaded ring with only your hands when cleaning the burner during maintenance. Do not use any tools for tightening.

Image 7



Image 8

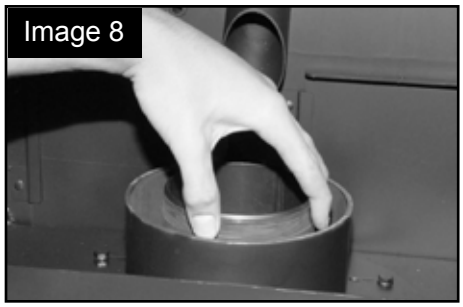


Image 9

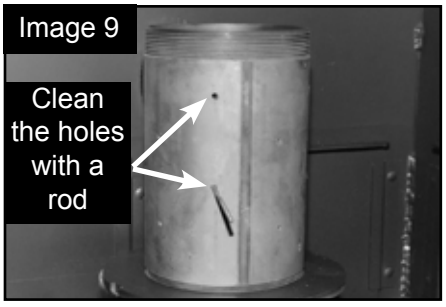


Image 10

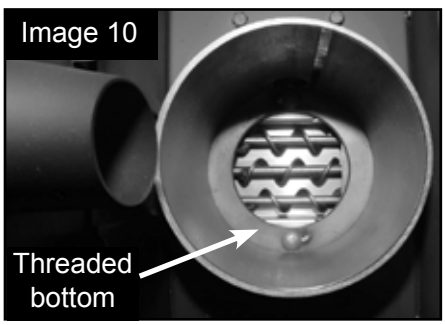


Image 11

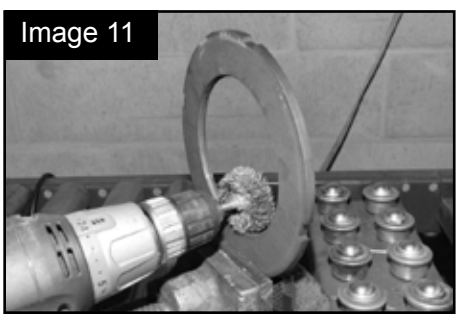


Image 12



M3- Ash removal system maintenance

STEP 1: Evaluate the three ash auger screws condition by using a light (see image 10 on page 24). There is a possibility that the sugar released by burning corn or wheat adheres to the ash screws, causing improper ash removal.

STEP 2: To clean the ash box: unscrew the 2 nuts under the burner using a 9/16" or 14 mm key or socket (see image 13). Use a container with hot water that can receive the ash box. Soak the ash box for half hour (see image 14) and peel the sticky deposits by using a flat screwdriver. Soak again if necessary.

STEP 3: Lubricate the three sprockets with high temperature grease before re-installing (see image 15). When installing the ash box, push completely to the back of the unit and then go forward 1/8" or 3 mm before completely tightening the nuts.

Note: If the mechanism jams, replace the 3 sprockets with part #RA-10-655. Use a 1/8" or 3 mm Allen key to unlock the screws on each sprocket. Leave a slim gap between sprockets and bracket.

Image 13

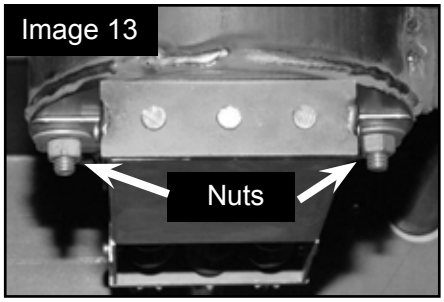


Image 14

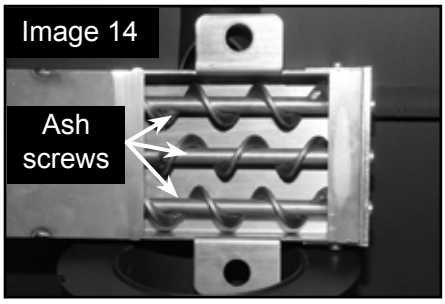


Image 15

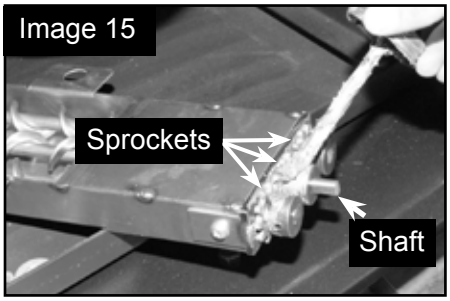
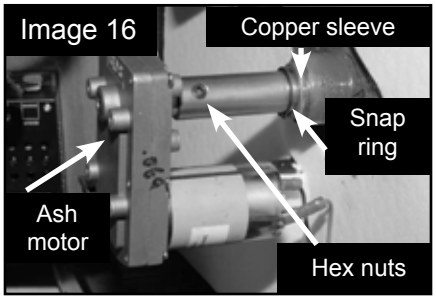


Image 16



M4- Combustion fan maintenance (connected to chimney)

Soot and fly ash formation: The combustion products contain small particles of fly ash. Fly ash may accumulate in the exhaust venting system and restrict the flue gases from flowing. . **The exhaust venting system should be inspected at least once every year to determine if cleaning is necessary.**

You can clean the flywheel directly from the front of the stove, by accessing the clean out door on the right side behind the burn-pot (see image 6 on page 23). Use long bristle brush to clean each space between the wings (see image 17).

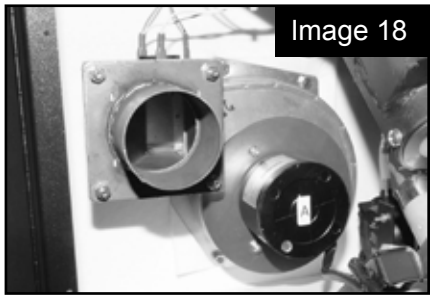
Note: Cleaning the wheel increases the pressure indicated on the gauge and reduce or eliminate any vibration caused by the accumulation of ashes.

Image 17



To remove the combustion fan on the unit: Disconnect all A connectors (see image 32 on page 31) and unscrew the four bolts and nuts (socket 7/16" or 11mm) for separate the pipe adaptor on the pellet vent (see image 18). Now unscrew the 4 nuts on the housing for remove the fan (refer the image 18). Replace both gaskets before you re-assembling the fan.
(part number #RA-10-560 and RA-10-570).

Image 18



M5- Convection fan maintenance

Remove the side panel (see image 19) to access the convection fan (see image 20). Use a bristle brush to clean the spaces of each wing of the flywheel (see image 21), which will help to increase the air flow blown into the room

Note: The cleaning of the wheel increases the volume of hot air blown into the room. To remove the convection fan: unplug all B connectors and remove the two nuts 7/16" or 11 mm (see image 20).

Image 19



Image 20

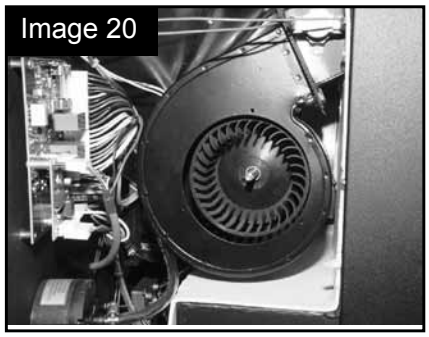
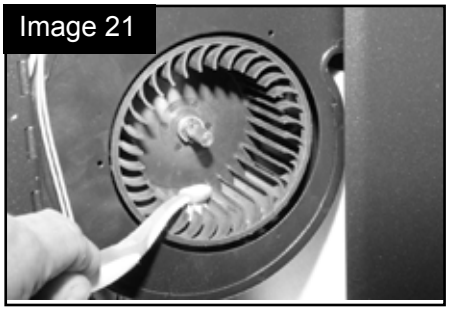


Image 21



M6- Feed system maintenance

At least twice a year or more often, empty the hopper to clean fine particles accumulated at the bottom with a vacuum cleaner (refer to image 22). To replace the feed motor (part #RA-10-470), remove the back panel and unlock the set screw on the shaft with 5/32" or 4 mm Allen key. To replace the nylon sleeve: Unscrew the two bolts (7/16" or 11 mm) on the feed plate holder and slide out the feed auger screw. Use pliers to take off the back retaining ring and replace the bushing.

Note: Reinstall the vacuum switch holder and the ground wire connected on the plate holder bolts: make sure the vacuum switch is installed vertically.

Image 22

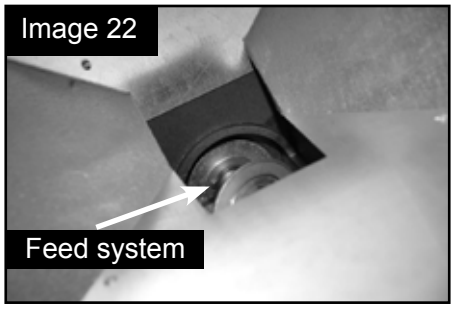


Image 23

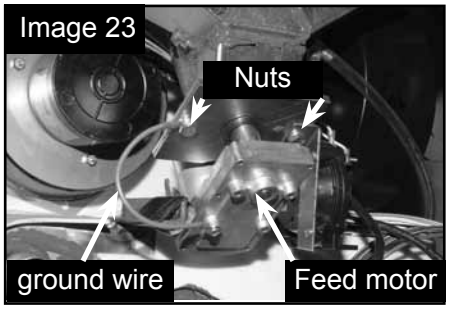
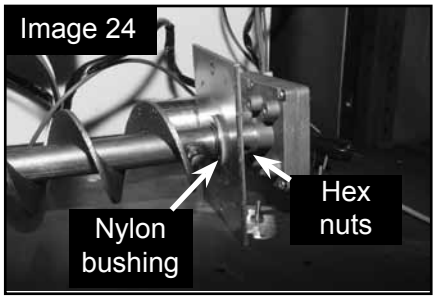


Image 24



M7- Glass replacement

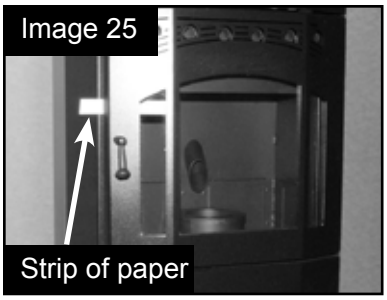
It is recommended to replace the glass on your unit with a 3/16" or 5mm pyro-ceramic high temperature glass (1600F or 870 C) if cracked or broken.

Use any type of gloves suitable to handle broken glass and carefully remove any pieces of glass from the door frame. Dispose of all broken glass properly.

To replace glasses: Unscrew the 8 retaining nuts and remove brackets (11/32" or 9 mm socket). Replace the gasket if needed (Part #RA-10-750). Properly lay the new glass centered in the middle joints and do not over tighten the nuts on the brackets.

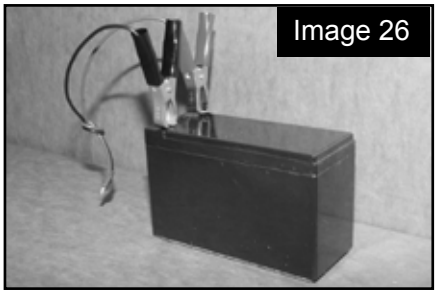
M8- Gaskets

For a better air tightness check gaskets of the main door and ash door every two months and at the beginning of each season. How to verify: Use a piece of paper (1" or 2.5 cm wide) between the door and the unit (image 25). If there's very little resistance when pulling the paper, pinch the gasket with your fingers to regain roundness. Repeat it in different locations around the doors. If you must replace your gaskets, use only a dense gaskets with high temperature silicone (600F or 315C) available from your dealer.



M9- Battery

Check if the grips are well connected on the battery poles (red to red and black to black). Check periodically if the unit will run off the battery. Start the unit without a flame (cold) and disconnect the AC power from the wall. Clean the battery's connection if the unit stops during the test.
Note: Never place a battery directly on concrete as this can damage or discharge it.



M10- Burner

During maintenance, if the burner is difficult to screw, check the burner's cylinder to identify damaged threads (see image 9 on page 24). To repair threads: Use a hacksaw to correct threads deformation or any metal excess. Go to chapter M2 at page 24 for dirty threads.

M11- Cleaning the Unit

When the unit is cold. To clean the glass and remove ash and fly ash, use a standard cleaning product. To remove creosote on glass, refer to your dealer for adequate products. Use a soft and non abrasive cleaner to clean paint parts.

M12- Creosote formation and need for removal

It is imperative to do a complete cleaning of the chimney before the beginning of each season. Guidance on minimizing creosote formation and the need for periodic creosote removal. The chimney should be inspected periodically during the heating season to determinate if a creosote build-up has occurred. If a significant layer of creosote has accumulated (1/8" / 3 mm and more) it should be removed to reduce the risk of a chimney fire. Open the T clean out or unplug the unit on the chimney and use a light to inspect the creosote build-up inside the pellet vent. To remove the creosote, use a 3" / 7.6 cm or 4" / 10.2 cm brush to clean the chimney. We suggest cleaning by a professional.
Note: Refer to maintenance chapter M1 and M4 to remove any creosote accumulation.

WARNING: In case of creosote fire, immediately shut the unit off and call your local fire department.

ELECTRICAL TROUBLESHOOTING CONTENT

Error code	Possible cause	Possible Solution
THERMO 1	1- Failed to start up properly. The unit has not reached 130 F or 54 C degrees and is in cooling mode. 2- The hopper is empty of fuel and the unit is in cooling mode. 3- If the Hopper is not empty.	1- Not enough fuel or gel in the burner. the alcool content in the gel is no good. 2- Fill the hopper and activate the manual feed. 3- Refer chapter T2.
THERMO 2	The unit is very hot and the fans run at full speed. The high temperature sensor is activated.	The convection fan may have stopped or the fly-wheel is dirty. The sensor 300F is defective. Refer to chapter T3
THERMO 3	High temperature protection sensor is defective.	Replace the high temperature sensor 300F. refer to chapter T4
VOLT 1	Input voltage less than 10.5 volts DC.	Verified the output of the power supply or the battery connections. Refer to chapter T5 and T15.
VOLT 2	No AC power and without the use of the battery.	Hot unit will be in cool down mode automatically when the AC power returns. Refer to chapter T5.
FUS 1	Feeding system fuse is burnt.	Feed system is jam, refer to chapter M6 and before replacing the fuse see chapter T7.
FUS 2	Ash removal system fuse is burnt.	Ash system is jam, refer to chapter M3 and before replacing the fuse see chapter T8.
FUS 3	Main fuse is burnt or bad connection on the touch screen cable	Inrush current on main board. Replace the fuse see chapter T9.
PRES 1	Low pressure (.08 w.c) or no pressure reading	Dirty combustion fan, refer to chapter M4. Defective vacuum switch, refer to chapter T10. The main door was open for more than 60 seconds. or Increase fan settings to maintain higher pressure over .1 W.C on the pressure gauge. Refer to page 20.
HOP 1	Hopper lid open.	Opened lid over 60 seconds or the switch is defective. Refer T11.
	The unit is still running and cold without an error code.	Replace sensor 130F protection, see chapter T2.
	The unit is still running and cold and the screen shows (cool down mode).	Replace sensor 110F protection, see chapter T14.
	The heat function mode is locked on heat level 1, or 3, 4.	Thermostat mode is activated , refer to page 21 for thermostat functions.

ELECTRICAL TROUBLESHOOTING GUIDE

WARNING : Always unplug the AC source (wall outlet) of your unit before performing any maintenance or repair.

T1- The unit will not start

Make sure the power cord is plugged into the unit and wall outlet. Check if the power converter green light is on. If not lit up, refer to Chapter T15.

Note: Unplug the AC current and let the battery operate the unit when testing your components.

T2- Unit stops and displays THERMO 1

How to verify if the sensor Thermo-Disk 130F is good when the hopper is not empty. Relight when the unit is cold and wait 50 minutes to see if the same error code reappears. Replace the Thermo-disk (See image 33 on page 32) if the error code reappears. Refer to the feed system in chapter T7 if the error code does not appear.

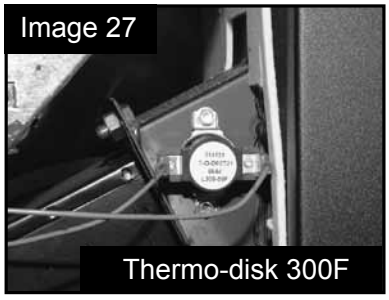
Note: Unplug the AC current and let the battery operate the unit when testing your components.

T3- The unit is very hot and display THERMO 2

Thermo 2 is displayed on the screen: Open the left door and remove the side panel (see image 20 on page 26) and verify that the 2 green wires are connected to the protection (Thermo-disk) 300F (see image 27). Visually inspect if the convection flywheel rotates (see picture 19 on page 26). If the fan rotates, the flywheel needs to be cleaned (refer to section M5 on page 26). Refer to section T9 if the fan is not running.

Note: Unplug the AC current an let the battery operate the unit when testing your components.

Image 27



Thermo-disk 300F

T4- Unit is in standby mode and display THERMO 3

Thermo 3 is displayed when the high temperature protection is defective when the unit is in standby mode. To replace the Thermo-Disk 300F: Remove left side panel of the control panel (see image 27 on page 29) and remove the 2 screws (1/4” or 6mm).

T5- Unit displays VOLT 1

VOLT 1 error code: The battery voltage is below 10.5 volts or the converter is defective. Refer to Chapter T15 to analyze the converter and Chapter M9 for battery maintenance.

T6- Unit displays VOLT 2

Power failure without a battery connected and the unit is still hot. Volts 2 will be displayed at the return of AC power. The unit is in cool down mode. Verify if the convection fan turns while the error code is display on the screen. Refer to the chapter T13 if the motor does not turn.

T7- Unit displays FUS 1

The feed motor is not functioning and the display show FUS 1 code: Replace the 500mA fuse (slow blow) in F2 socket (see image 28). Remove the side panel to access the control panel and replace the fuse (refer to image 19 of page 26). Important: Refer to chapter M6 to clean the fuel system before you restart the unit. Note: After maintenance, use the manual feed icon (primer) to test if the motor is running.
Note: Always unplug the AC source (wall outlet) and DC source (battery) before replacing any fuses.

T8- Unit displays FUS 2

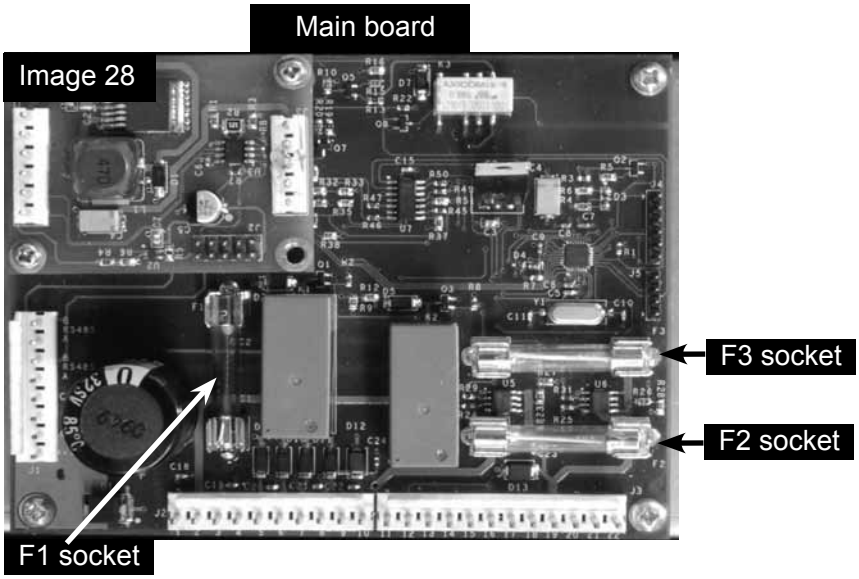
The ash motor is not functioning and the display show FUS 2 code: Replace the 500mA fuse (slow blow) in F3 socket (see image 28). Remove the side panel to access the control panel and replace the fuse (refer to image 19 of page 26). Important: Before you restart the unit, refer to Chapter M3 to clean the ash removal system. Note to check the motor: Press the manual feed and check if the ash removal system is running.
Note: Always unplug the AC source (wall outlet) and DC source (battery) before replacing any fuses.

T9- The unit displays FUS 3

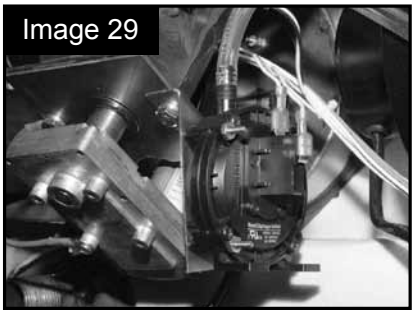
FUS 3: Replace the main fuse **500 MA (fast acting)** in socket F1 (see image 28). Remove the side panel to access the main board to replace fuse (see image 19 on page 26). The fuse is not burnt: verify the cable connections between the touch screen and the main board. See the electric diagram on page 34 and 35.

Note: Always unplug the AC source (wall outlet) and DC source (battery) before replacing a fuse.

Image 28



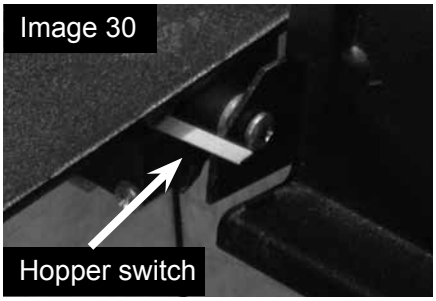
T10- Unit displays PRES 1


Image 29

PRES 1: The pressure switch no longer detects any pressure. The side panel must be removed to access the vacuum switch (see image 29). Verify the tubes connection between the Minihelic gauge and the vacuum switch to the unit and see if the yellow wires are connected. After verifying, Press the start mode without lighting the unit and check if the pressure indicates on SM1 mode is over 0.3 W.C. Replace the pressure switch (see image 29) if SM1 mode is displayed in red. Refer to Chapter T12 if the gauge does not indicate pressure on SM1 mode.

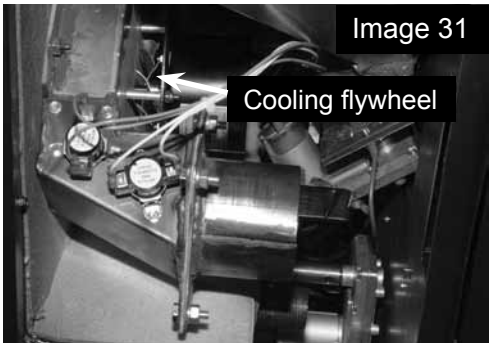
Note: Unplug the AC current and let the battery operate the unit when testing your components.

T11- Unit displays HOP 1



HOP 1: the hopper door has been open for more than 60 seconds when the unit was in operation or failure or switch poor connection.

T12- Combustion fan problems

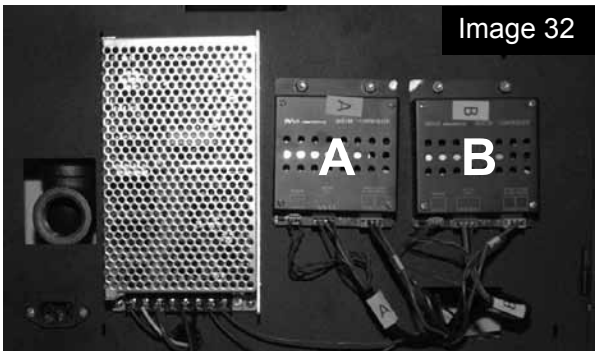


No pressure could be related to a defective fan. Verify the green wiring fan connection on controller A (see image 32). Do a cold start and see if the flywheel is running by opening the door on the right side (see image 31). Replace the combustion fan if it does not rotate.

Low pressure could be related to a combustion fan's flywheel obstructed by ash (refer to chapter M4) or gaskets leakage on both doors (refer to chapter M8). Refer to chapter M13 to determine whether the chimney is not obstructed by ash.

Note: Unplug the AC current and let the battery operate the unit when testing your components.

T13- Convection fan problems

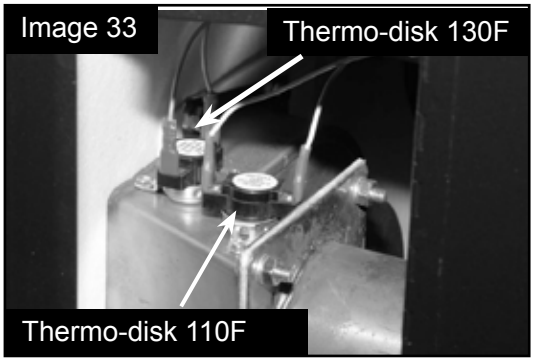


No room air could be related to a defective fan. Verify the green wiring fan connection on controller B (see image 32). Start the manuel feed and see if the flywheel is running by opening the door on the left side (see image 21). Replace the convection fan if the wheel does not rotate.

Note: Unplug the AC current and let the battery operate the unit when testing your components.

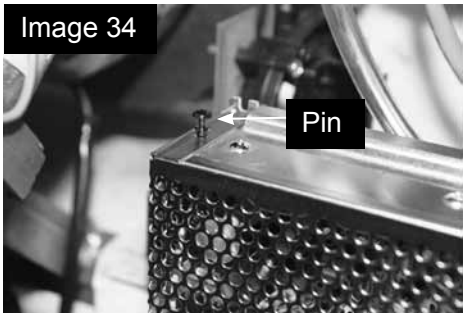
T14- The unit is cold and fans are running

Open the right side door and unplug one of the two white wires connected to the Thermo-disk 110F (see image 33). If the fans stop, replace the disk Thermo-110F.
Note: Unplug the AC current and let the battery operate the unit when testing your components.

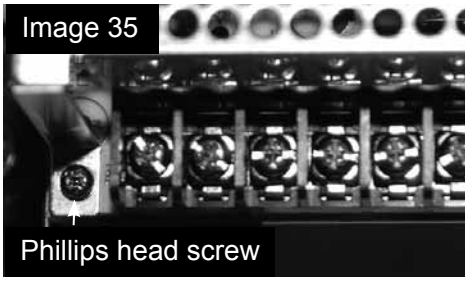


T15- No 12 volts leading to the main board

A- The green light is off (refer to image 37). **First unplug the unit from the AC source.** Remove the cover on the converter, lift the plastic pin using a very thin blade (refer to image 34). Loosen the case screw, (refer to image 35), then lift up the box. Replace the 5 amp fuse, (refer to image 36). Connect the unit to the AC source and verify that the green light and the screen are lit. Replace the converter if the green light is off.

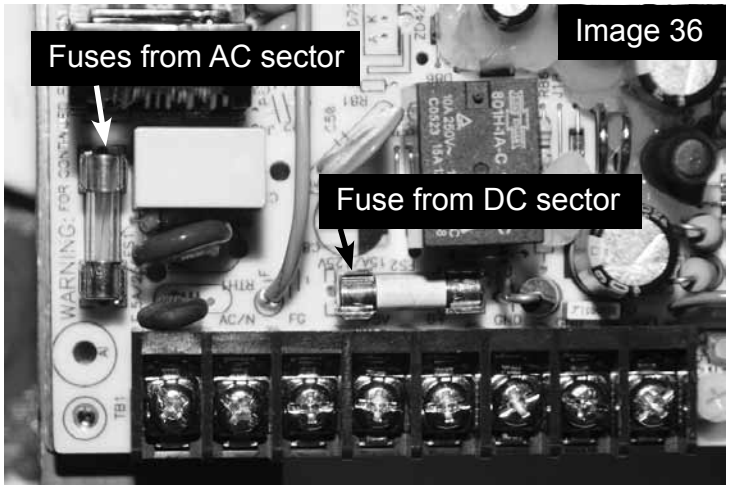


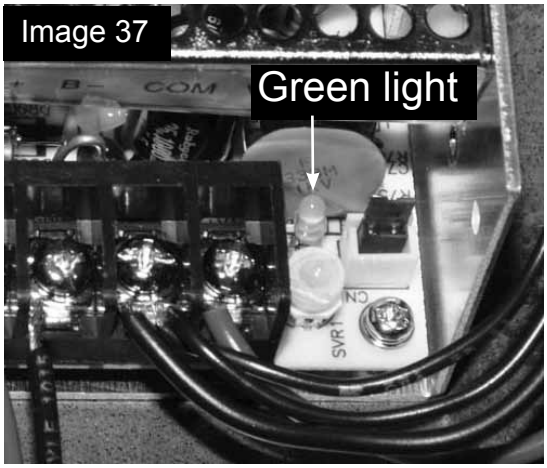
B- Battery Trouble: Check if the battery is charged and properly connected on red and black terminal clips supplied with the unit (12.8 volts). If no abnormality on the battery and connections: Check the DC area 15 amp fuse (see image 36) and replace if necessary.



Note: Clean the connections of the battery for a better connectivity. (refer to the picture 26 to the page 27).

These fuses and labor are not covered by warranty.





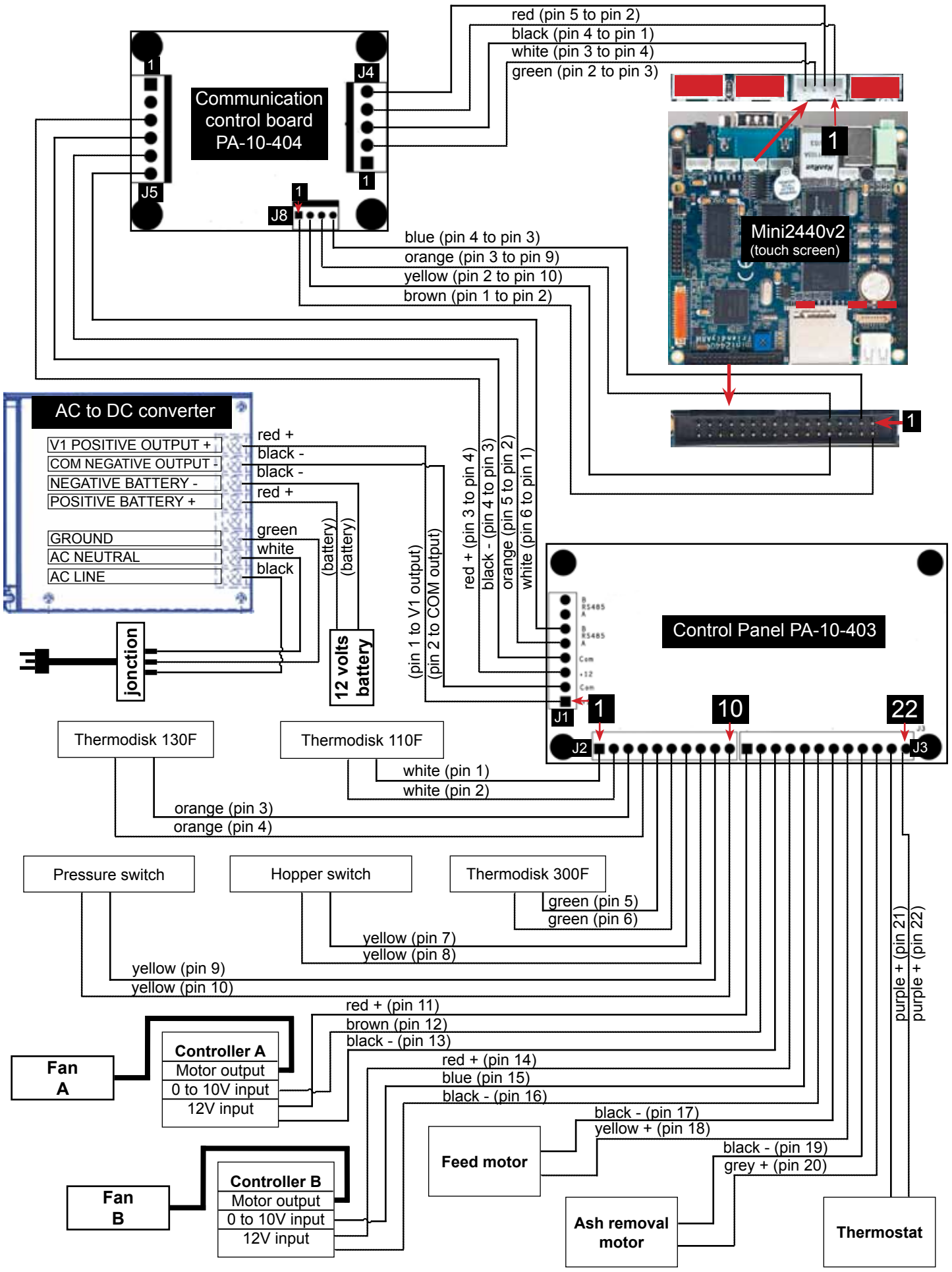
T16- Ash removal system

A noisy ash removal may need to be lubricated. Refer to chapter M3 on page 25.

RAFAEL TECHNICAL DATA

Minimum combustion power	8,500 Btu / hour = 1 lb/h - 2.5 KW / h = .45 kg/h
Maximum combustion power	34,000 Btu / hour = 4 lb/h - 10 KW / h = 1.81 kg/h
Combustion efficiency	86% net efficiency
Power of the combustion fan	25 to 45 cubic feet/min - .7 to 1.3 meter cube / min
Power of the convection fan	35 to 150 cubic feet/min (cfm) - 1 to 4.25 meter3 / min
Hopper capacity	55 lbs - 25 kg
Certification	EN 14785, UL, ULC-C1482, EPA, ASTM E1509, 84-HUD
Emission of particles in the atmosphere	0.6 g/h
Power settings	5 levels
AC voltage required	120 volt to 240 volts / 50 or 60 hertz
Power consumption on 120 volts AC	Min .25 amps / Max .65 amps
Power consumption on 12 volts DC	Min 1.8 amps / Max 4.5 amps (13.8V)
Standby power consumption on 120 volts AC	0.10 amps
Standby power consumption on 12 volts DC	0.03 amps at 13.8 volt
Height	34 3/4" - 88.2 cm
Width	22 3/8" - 56.8 cm
Depth	23 1/4" - 59 cm
Weight	285 lbs - 129 kg
Type of chimney for wood pellets	Double wall stainless steel, PL version
Type of chimney for corn or wheat	Double wall stainless steel+, PL version
Inside diameter of the chimney	3" - 7.6 cm
Patent	US 6,336,449

Paromax reserves the right to change any of the specifications mentioned above without prior notice


Communication control board PA-10-404
J4
J5
J8
red (pin 5 to pin 2)
black (pin 4 to pin 1)
white (pin 3 to pin 4)
green (pin 2 to pin 3)
blue (pin 4 to pin 3)
orange (pin 3 to pin 9)
yellow (pin 2 to pin 10)
brown (pin 1 to pin 2)
Mini2440v2
(touch screen)
AC to DC converter
V1 POSITIVE OUTPUT +
COM NEGATIVE OUTPUT -
NEGATIVE BATTERY -
POSITIVE BATTERY +
GROUND
AC NEUTRAL
AC LINE
red +
black -
black -
red +
green
white
black
(battery)
(battery)
jonction
12 volts battery
(pin 1 to V1 output)
(pin 2 to COM output)
red + (pin 3 to pin 4)
black - (pin 4 to pin 3)
orange (pin 5 to pin 2)
white (pin 6 to pin 1)
Control Panel PA-10-403
J1
J2
J3
Thermodisk 130F
Thermodisk 110F
white (pin 1)
white (pin 2)
orange (pin 3)
orange (pin 4)
Pressure switch
Hopper switch
Thermodisk 300F
green (pin 5)
green (pin 6)
yellow (pin 7)
yellow (pin 8)
yellow (pin 9)
yellow (pin 10)
red + (pin 11)
brown (pin 12)
black - (pin 13)
red + (pin 14)
blue (pin 15)
black - (pin 16)
black - (pin 17)
yellow + (pin 18)
black - (pin 19)
grey + (pin 20)
purple + (pin 21)
purple + (pin 22)
Fan A
Controller A
Motor output
0 to 10V input
12V input
Fan B
Controller B
Motor output
0 to 10V input
12V input
Feed motor
Ash removal motor
Thermostat

Contact an authorized dealer for the listed parts. Does not use substitute parts. Use of unapproved parts may result in poor performance and endanger your safety and void the warranty.

Description	No. pièces
Touch screen kit	RA-10-400
Main control board kit	RA-10-401
Cable for touch screen	RA-10-411
Cable for main control board	RA-10-431
Fuse 500MA slow blow (sockets F2 , F3)	RA-10-405
Fuse 500MA fast blow (socket F1)	RA-10-410
Thermo-disc 110F (white wire)	RA-10-450
Thermo-disc 130F (orange wire)	RA-10-455
Thermo-disc 300F (green wire)	RA-10-460
Vacuum Switch (Gold magnetic)	RA-10-440
Auger feed or ash motors (Sgmada)	RA-10-470
Power supply (12 volts DC with charger)	RA-10-490
Combustion fan (Sn-Tech)	RA-10-510
Combustion steel flywheel	RA-10-540
Combustion fan gasket (white)	RA-10-560
Pipe adaptor gasket (white)	RA-10-570
Convection fan (SN-Tech)	RA-10-530
Convection plastic flywheel	RA-10-550
Speed control for combustion or convection fan	RA-10-520
Burner (threads) for **Wood Pellet**	RA-10-580
Burner (threads) for **Corn and Wheat**	RA-10-581
Top ring with threads	RA-10-590
Feed auger screw	RA-10-600
Nylon Bushing / feed system	RA-10-610
Trust washer	RA-10-615
Ash assembly kit	RA-10-640
Center ash screw	RA-10-645
Left or right ash screw	RA-10-650
Sproket	RA-10-655
Brass bushing (ash system)	RA-10-660
Ash shaft driver (motor to the ash box)	RA-10-665
Ash pan	RA-10-680
Main black door (Assembly parts not include)	RA-10-700
Ash black door (Assembly parts not include)	RA-10-705
Wood handle black	RA-10-710
Door handle black (metal)	RA-10-715
Door Latch	RA-10-720
Center glass Robax 5 mm	RA-10-725
Side glass Robax 5 mm	RA-10-730
Main door gasket (5/8" X 66" or 1.6 cm X 167 cm)	RA-10-735
Ash door gasket (5/8" X 53" or 1.6 cm X 134 cm)	RA-10-740
Glass gasket kit	RA-10-750
high temperature silicone 600F ou 315C	RA-10-760
Manometer gauge (range 0 to .05 W.C)	RA-10-480

Lifetime Limited Warranty

Time Period

PAROMAX offers **5 YEAR warranty on parts and 1 YEAR on labor**, against manufacturing defects on the **steel structure** of the device.

PAROMAX offers **2 YEAR warranty on parts and 1 YEAR on labor**, on all the **electronics components** (convection and combustion fans, the feed & ash motors, power supply, vacuum & hopper switch, electronic boards).

PAROMAX offers **1 YEAR warranty on parts of the ash-removal system and the burner**.

Limitations, Exclusions And Claim Procedure

The warranty starts at the purchase date of the device.

Not cover by labor, charge for service call, diagnosis problem at consumer home and traveling expenses.

All parts or elements device which, according to us, carries traces of defect, will be repaired or replaced, as chosen from PAROMAX, via a dealer or an approved representative, in the condition which the replaced part is returned to PAROMAX by mail with no value, listed defective parts.

Until the defective parts can be examined in order to evaluate the presence of a manufacturing defect, the spare parts will be temporarily charged to you and refunded after review.

The dealer is responsible for the implementation of the warranty and all service on PAROMAX products. PAROMAX will not be held responsible for the results or the labor costs done by an unauthorized distributor or technician.

At anytime, PAROMAX reserves the right to inspect the defective part of the product being the object of a complaint.

All complaints must be transmitted to PAROMAX by an authorized dealer. It is necessary and essential that any complaint presented includes all information making it possible to initiate the procedure, i.e., the name of the customer, the date of purchase, the model, the serial number, the object of the request and the claimed spare parts. Without this information, the complaint will not be valid.

***Parts under warranty are shipped ground service.

Not Covered

The warranty does not cover the gaskets, painting or the ornaments.

In any moment, PAROMAX will not be held responsible for any consequential damage whose cost exceeds the original price of the device.

PAROMAX is under no obligation to improve or modify an already manufactured device. No modification or update will be done on existing devices.

PAROMAX will not be held responsible for travelling expenses for maintenance. The installation and the constraints related to the environment and the service by the users are not the responsibility of the manufacturer and are thus not covered by the provisions of this warranty.

Signs of negligence or misuse are not covered by the provisions of this warranty.

The warranty does not cover parts or elements that have been modified or transformed in some manner or according to us were subject to improper use, lack of maintenance, inadequate installation, negligence or accident, inversion to chimney repression caused by environmental or geographical conditions, bad ventilation, excessive tilting or negative air pressure caused by mechanical systems like a heating appliances, ventilators, driers, etc.

The damage caused to the stove and to spare parts during transportation is subjected to complaint against the carrier on behalf of the retailer and are thus not covered by the present warranty.

PAROMAX will not be held responsible for natural disasters or terrorist acts that can cause a faulty operation of the device.

The working problems caused by an error of the user are not covered by the present warranty.

The joint use of a product manufactured or provided by another manufacturer with your device, without the prior approval of PAROMAX, could cancel the present warranty.

Any modification causing leaks of the device or to the ventilation system is not PAROMAX responsibility and is thus not covered by the present warranty.

Any other type of fuel excluding wood pellets, wood pellets with high ash content, corn and wheat used in this unit invalidate the warranty.

Your Responsibilities

The unit, including any and all accessories, must be installed, operated, and maintained in accordance with all instructions provided in the owner's manual and any additional codes or regulations of local authorities.

Use the factory-build chimney conforming to CAN/CSA-B365-01