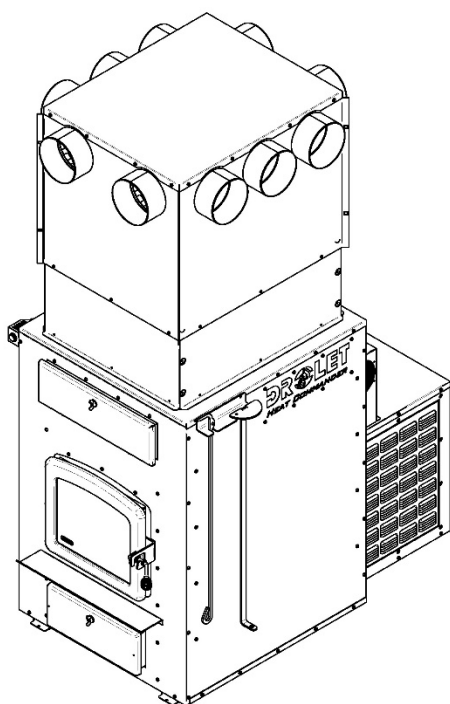




Installation and operating instructions for the Heat Commander **WOOD FURNACE** (DF02003 model)



Verified and tested for Canada
and the United States
by an accredited laboratory

Stove Builder International Inc.
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WRITE THE SERIAL NUMBER HERE :



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Please keep this document!

**READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLING
AND OPERATING YOUR FURNACE.**

THANK YOU FOR CHOOSING THIS DROLET WOOD FURNACE

As one of North America's largest and most respected wood stove, furnace and fireplace manufacturers, Stove Builder International takes pride in the quality and performance of all its products. We want to help you get maximum satisfaction as you use this product.

In the pages that follow you will find general advice on wood heating, detailed instructions for safe and effective installation, and guidance on how to get the best performance from this furnace as you build and maintain fires and maintain your wood heating system.

Congratulations on making a wise purchase.

When this furnace is not properly installed, a house fire may result. To reduce the risk of fire, follow the installation instructions. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

Please read this entire manual before you install and use your new furnace. Failure to follow instructions may result in property damage, bodily injury, or even death. It is important that you follow the installations guidelines exactly.

You may need to obtain a building permit for the installation of this furnace and the chimney that it is connected to. Consult your municipal building department or fire department before installation to determine the need to obtain one. We recommend that you also inform your home insurance company to find out if the installation will affect your policy.

REGISTER YOUR WARRANTY ONLINE

To receive full warranty coverage, you will need to show evidence of the date you purchased your furnace. Keep your sales invoice. We also recommend that you register your warranty online at:

<https://www.drolet.ca/en/warranty/warranty-registration>



Registering your warranty online will help us to quickly track the information we need about your furnace.

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PART A – INSTALLATION

INTRODUCTION

This furnace uses the *Dual Fire*® technology with a two-stage electronic combustion control. Find peace of mind with a self-regulated combustion that allows easy ignition. Its automated air supply and self regulated systems synchronize with your thermostat to offer additional safety, optimize comfort and reduce emissions with minimal maintenance. This model meets the emissions limits of CSA B415.1-10 Standard and EPA 40CFR Part 60, subpart QQQQ (2020 limit).

- We recommend that our woodburning hearth products be installed and serviced by professionals who are certified in the United States by NFI (National Fireplace Institute®) or in Canada by WETT (Wood Energy Technical Training) or in Quebec by APC (Association des Professionnels du Chauffage).

BEFORE STARTING THE INSTALLATION, READ ALL THE INSTRUCTIONS BELOW AND MAKE SURE YOU UNDERSTAND THEM. (IF IN DOUBT, CONTACT OUR CUSTOMER SERVICE AT TECH@SBI-INTERNATIONAL.COM). FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN HAZARD TO YOUR SAFETY AND WILL AUTOMATICALLY VOID THE WARRANTY.

Inspect the furnace to make sure that nothing has been damaged in the shipping. Pull out the tools from the flue pipe and/or exchangers and firebox of the furnace.

IMPORTANT NOTE

FOR, INSTALLATION OF A CENTRAL HEATING VENTILATION SYSTEM, IT IS HIGHLY RECOMMENDED TO CONSULT A HEATING SYSTEM VENTILATION SPECIALIST.

N.B.: STOVE BUILDER INTERNATIONAL INC. IS NOT RESPONSIBLE FOR POOR APPLIANCE PERFORMANCES, DUE TO IMPROPER INSTALLATION OF EXHAUST SYSTEM OR DUCTING.

1 Regulations and safety warnings covering installation

1.1 Regulations covering furnace installation

CAUTION

FOLLOW LOCAL CODES (IF IN DOUBT, CONTACT YOUR LOCAL HEATING APPLIANCE RETAILER, YOUR MUNICIPALITY OR YOUR FIRE DEPARTMENT.

Installation must be made in accordance with the following standards;

Canada: CSA-B365 - Installation code for solid-fuel-burning appliances and equipment.
CSA C22.1 - Canadian electrical code.

United-States: NFPA 90B - Standard for the installation of warm air heating and air-conditioning systems. NFPA 70 - National Electrical Code.

1.2 Cautions and warnings covering installation

- **THE INFORMATION GIVEN ON THE CERTIFICATION LABEL AFFIXED TO THE APPLIANCE ALWAYS OVERRIDES THE INFORMATION PUBLISHED, IN ANY OTHER MEDIA (OWNER'S MANUAL, CATALOGUES, FLYERS, MAGAZINES AND/OR WEB SITES).**
- **AIR DUCTS SERVING A GARAGE SHOULD NOT BE CONNECTED TO OTHER PARTS OF A HOUSE AND THE DUCTING SERVING A HOUSE SHOULD NOT BE CONNECTED TO A GARAGE.**
- **MIXING OF CHIMNEY COMPONENTS FROM DIFFERENT SOURCES OR MODIFYING FURNACE COMPONENTS MAY RESULT IN HAZARDOUS CONDITIONS. WHERE ANY SUCH CHANGES ARE PLANNED, STOVE BUILDER INTERNATIONAL INC. SHOULD BE CONTACTED IN ADVANCE.**
- **ANY MODIFICATION OF THE APPLIANCE THAT HAS NOT BEEN APPROVED IN WRITING BY THE TESTING AUTHORITY VIOLATES CSA B365 (CANADA), AND NFPA 90B (USA).**
- **CONNECT THIS FURNACE ONLY TO A LISTED UL 103 HT OR ULC S629 FACTORY-BUILT CHIMNEY FOR USE WITH SOLID FUEL OR TO A LINED MASONRY CHIMNEY CONFORMING TO NATIONAL AND LOCAL BUILDING CODES.**
- **IF REQUIRED, A SUPPLY OF COMBUSTION AIR SHALL BE PROVIDED TO THE ROOM OR SPACE.**
- **DO NOT STORE NEAR WOOD FURNACE. RESPECT THE PRESCRIBED CLEARANCE BETWEEN COMBUSTIBLES AND HEAT.**
- **DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.**
- **DO NOT INSTALL IN A MOBILE HOME.**
- **DO NOT INSTALL IN ALCOVE.**

1.3 Cautions and warnings covering installation of your pipe connector

Please note that any high-efficiency wood heater like your Heat Commander can accumulate gas and ignite suddenly, creating in rare occasions a burst that can put pressure on the system when it is released. This burst could be powerful enough to detach the pipe connector at the back of the unit if it is not properly secured, causing smoke to spill into the room. For this reason, **IT IS CRUCIAL THAT YOUR PIPE CONNECTOR BE PROPERLY SECURED WITH AT LEAST 3 METAL SCREWS** as indicated in the installation section. Furthermore, to prevent this rare situation from occurring, it is always recommended that you follow these simple loading rules:

Hot ember bed (reload button light is ON or slowly blinking):

1. Make sure you do not have more than 4 inches (100 mm) of embers and ash accumulation at the bottom of the firebox. If so, increase the target temperature on the thermostat to burn the embers or remove ash when the unit has cooled down;
2. Empty your ash pan on a weekly basis to prevent the ash grate to plug;
3. Bring some hot embers to the front of the firebox before loading;
4. Load wood at the back of the firebox to leave approximately 4 to 5 inches (100 to 125 mm) of free space between the front of the firebox and the wood logs.

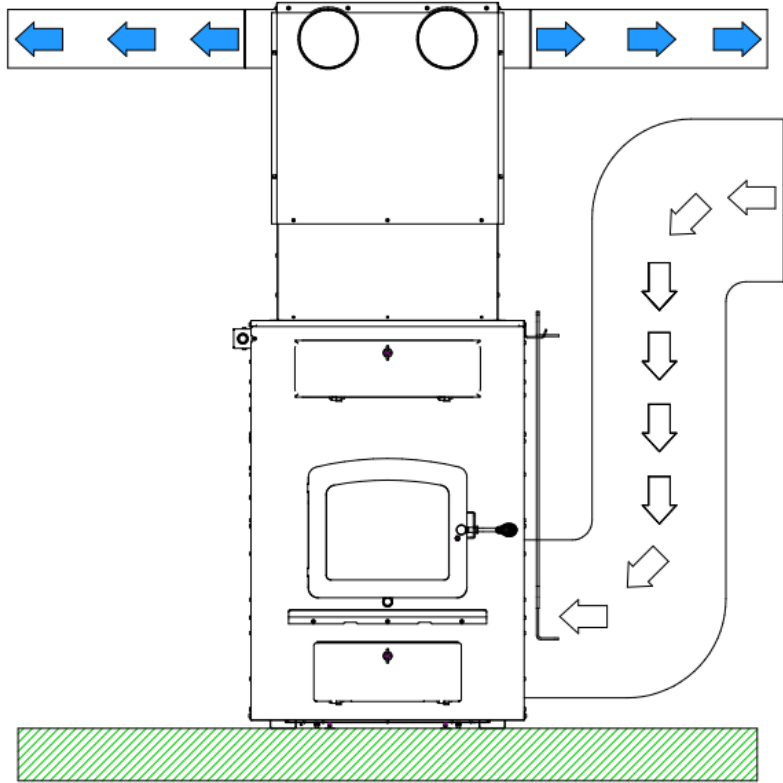
Cold ember bed (reload button light is turned OFF). This condition indicates the furnace is cold and needs to be re-ignited:

1. Press the reload button;
2. Put crumbled sheets of paper and kindling on top of ash grate;
3. Put two logs in a North-South orientation, one on each side of the ash grate;
4. Crisscross additional logs on top of the first two logs;
5. Leave door ajar at a 45° angle from the closed position;
6. Wait for the paper and kindling ignition and close the door.

2 Authorized and non-authorized configuration

2.1 Authorized configurations in Canada and United States

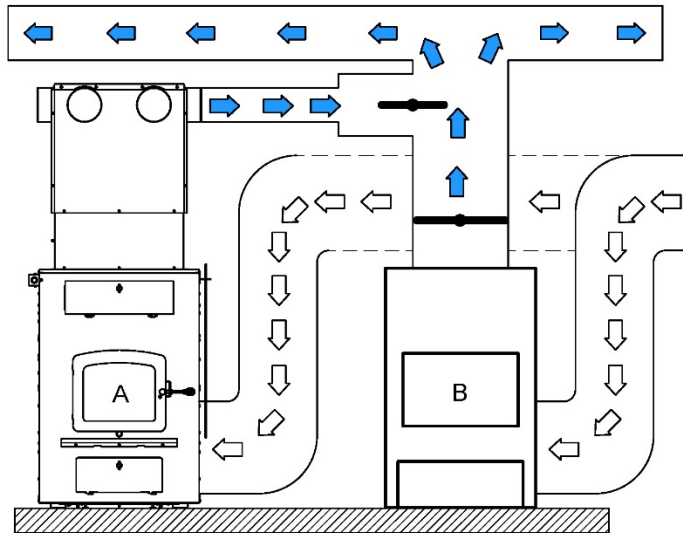
The wood furnace is the only appliance connected to the hot air distribution duct system and air return duct system.



2.2 Authorized configurations in United States only

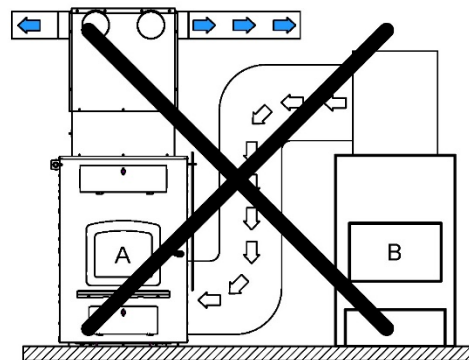
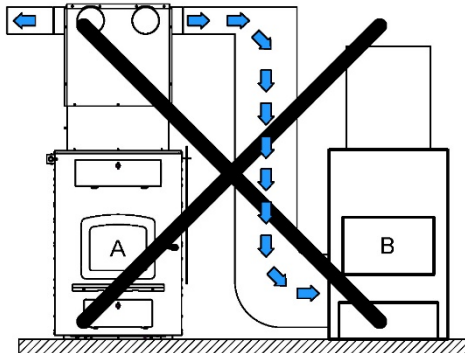
Parallel add-on installation:

- **(A)** represents the wood furnace.
- **(B)** represents the gas, oil or electric existing furnace.
- Power input **(B)** should be equal to or greater than **(A)**.
- Each furnace must have its own air return duct system.
- The highest clearances of **(A and B)** and hot air distribution and air return ducts of must be respected.
- Static pressure of **(A)** must be adjusted to 0.20 in. W.C. (50 Pa).



2.3 Not approved for installation in series with another furnace

- The hot air duct (A) must not be installed in the air return of (B).
- The hot air duct (B) must not be installed in the air return of (A).



3 Setting up the unit and clearances

To reduce the risk of vibration, the furnace must be leveled in both directions and supported evenly to ensure stability.

3.1 Unit location

The furnace must be installed in a location:

- Where outside air supply will be sufficient for proper combustion, otherwise install the optional fresh air supply;
- Where connector is as short as possible in order to minimize the use of 90° elbows and horizontal lengths;
- That ensure a proper installation and safe operation of the appliance;
- Where the owner can ensure cleanliness of the room in the event of negative pressure or temporarily negative;
- Where room to perform maintenance is sufficient and safe.

3.2 Certification label

N.B.: THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS ON THE CERTIFICATION LABEL APPLIED ON THE UNIT.

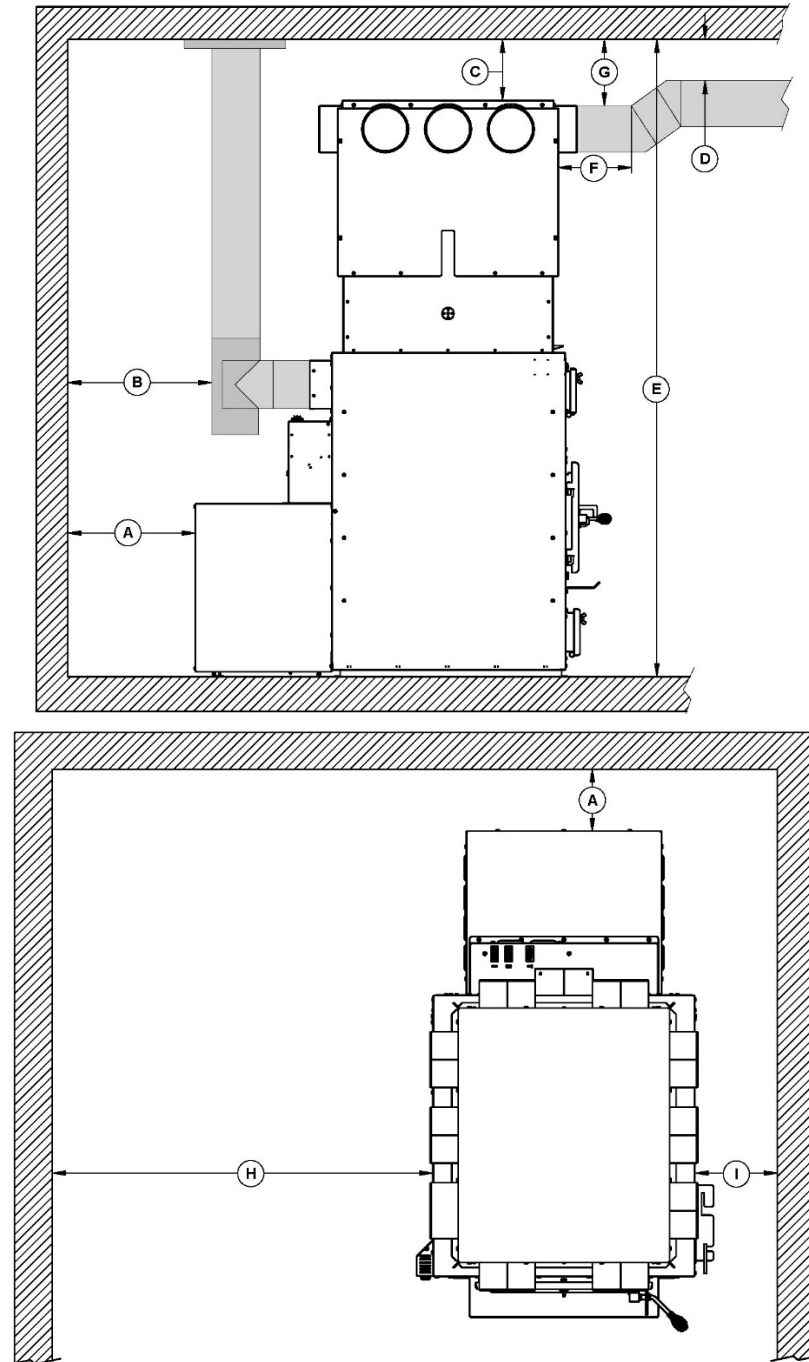
Location: You will find the certification label on the back of the appliance.

Information found on the certification label always overrides the information published in any other publication.

Content of certification label: Model number, serial number, certification agency, Standards, clearances to combustible material, as well as the main safety cautions.

3.3 Clearances to combustible material

The clearances shown in this section have been determined by safety tests under normal and even abnormal operating conditions according to procedures set out in standards CSA B366.1 (Canada) and UL 391 (U.S.A.). Respecting the minimum clearances is mandatory to prevent risk of fire.



3.3.1 Clearances with single wall pipe

	CANADA	É.-U.
A	14.25" (362 mm) (from the back of the blower box)	14.25" (362 mm) (from the back of the blower box)
B	18" (457 mm)	18" (457 mm)
C	5" (127 mm)	5" (127 mm)
D	0" (0 mm)	0" (0 mm)
E	69" (175 cm) minimum	69" (175 cm) minimum
F	12" (305 mm)	12" (305 mm)
G	1" (25 mm)	1" (25 mm)
H¹	24" (610 mm) minimum	24" (610 mm) minimum
I	11" (279 mm)	11" (279 mm)

¹A minimum clearance to the left is required for maintenance or replacement of components, however, a larger clearance is suggested.

3.3.2 Clearances with double wall connector

(The use of a single wall pipe assembly with a heat shield certified to 6 "combustible materials, can be used. Only in this case, the same clearances apply as with a certified double pipe.)

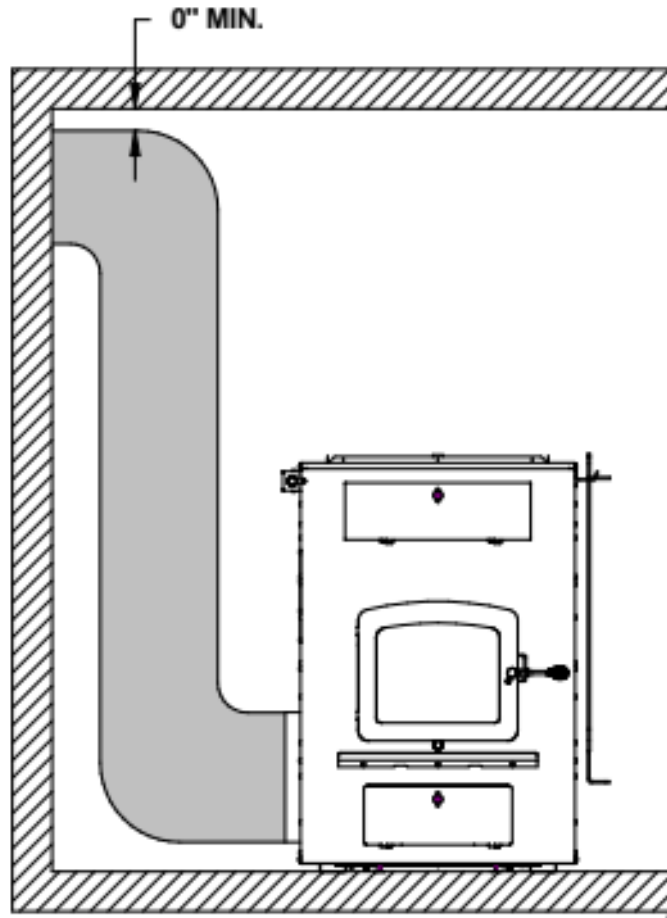
	CANADA	É.-U.
A	6.75" (171 mm) (from the back of the blower box)	6.75" (171 mm) (from the back of the blower box)
B¹	11.5" (292 mm)	11.5" (292 mm)
C	5" (127 mm)	5" (127 mm)
D	0" (0 mm)	0" (0 mm)
E	69" (175 cm) minimum	69" (175 cm) minimum
F	12" (305 mm)	12" (305 mm)
G	1" (25 mm)	1" (25 mm)
H²	24" (610 mm) minimum	24" (610 mm) minimum
I	11" (279 mm)	11" (279 mm)

¹Recommended clearance, otherwise use the clearance provided by the double wall black pipe manufacturer.

²A minimum clearance to the left is required for maintenance or replacement of components, however, a larger clearance is suggested.

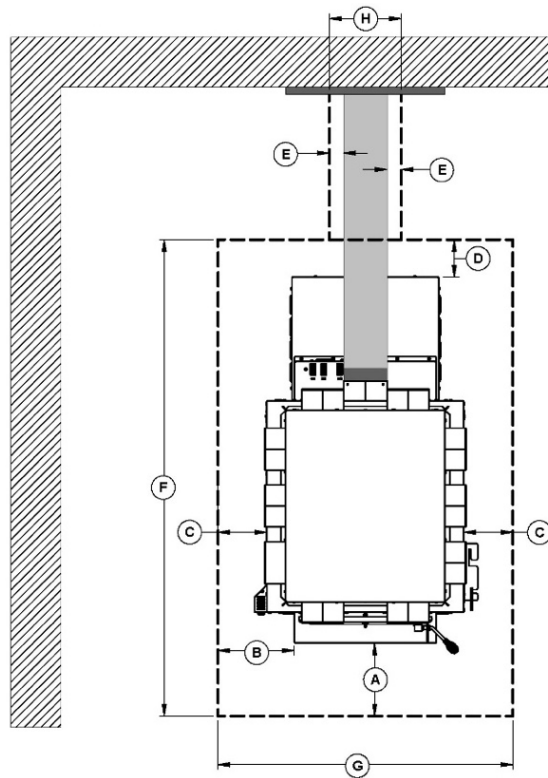
3.3.3 Cold air return ductwork clearances

The cold air return system can be connected to a new or to an existing cold air return ductwork. In both cases, the minimum clearance to combustable material is 0" (0 mm).



3.3.4 Floor protection

- If the floor is made of non-combustible material, no floor protector is required.
- If the floor is made of combustible material, a floor protector is required (see table below).



	FLOOR PROTECTION*	
	CANADA	USA
A	18" (457 mm) From door opening	16" (406 mm) From door opening
B	N/A (USA only)	8" (203 mm) From door opening
C	8" (203 mm)	N/A (Canada only)
D	8" (203 mm) – Note 1	N/A (Canada only)
E	N/A (USA only)	2" (51 MM) - Note 2
F	43 ¾" (1111 mm)	30 ¼" (769 mm)
G	74" (1880 mm)	64" (1626 mm)

*Steel with a minimum thickness of 0.015" (0.38 mm) or ceramic tiles sealed together with grout. No protection is required if the unit is installed on a non-combustible floor (ex: concrete).

Note 1: The floor protection at the back of the furnace is limited to the furnace's required clearance (see (A) 3.3 Clearances to combustible material) if such clearance is smaller than 8" (203 mm).

Note 2: Only required under the horizontal section of the connector. Must exceed each side of the connector pipe by at least 2" (51 mm).

4 The venting system

WARNING:

DO NOT INSTALL A MANUAL DAMPER ON THIS FURNACE.

CAUTION: BEFORE THE CONNECTOR PIPES ARE INSTALLED, MAKE SURE THAT THE EXHAUST PIPE AND / OR THE EXCHANGERS OF THE FURNACE ARE FREE OF ALL ITEMS.

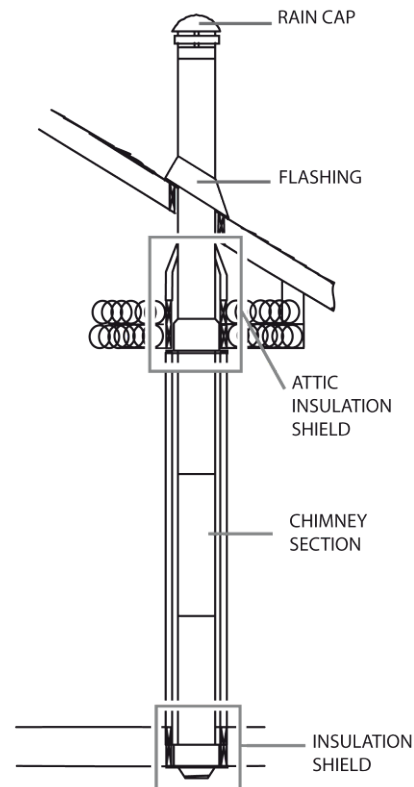
4.1 The chimney

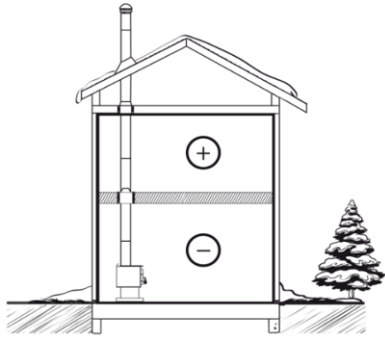
- The furnace must be connected to a factory-built metal chimney that complies with UL 103 HT (USA) or ULC S629 (Canada).
 - o Strongly recommended inner diameter: 6" (152 mm).
 - o A chimney having a diameter of 7" (178 mm) is permitted, if it allows the proper venting of combustion gases and that such application is verified and authorized by a qualified installer. Otherwise, the diameter of the flue must be reduced to 6" (152 mm) by the use of a stainless steel liner made for this purpose.

4.1.1 Factory-built metal chimneys

To be suitable, a factory-built metal chimney also called "high temp" chimney, must comply with UL 103 HT (U.S.A.) or ULC S629 (Canada).

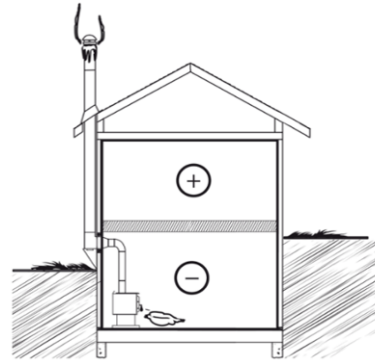
- Use only components intended for the brand and model of chimney you are using.
- Never substitute parts from other chimney brands.
- Never fabricate your own components.
- The chimney must be a type suitable for solid fuel.
- To be safe and effective, the chimney must be installed exactly in accordance with the manufacturer's instructions.





Good system design

Inside chimneys are preferred because even when no fire is burning, there is normally upward flow in the system.



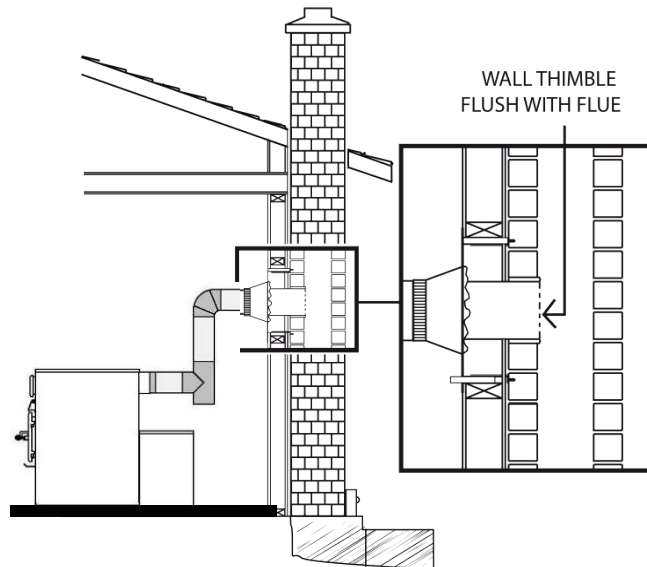
Inferior system design

Outside chimney may be a problem if there are long periods of inactivity or low fire temperatures. A cold chimney may down draft making start up difficult.

4.1.2 Masonry chimneys

The furnace may also be connected to a masonry chimney, provided the chimney complies with the construction rules found in the building code enforced locally.

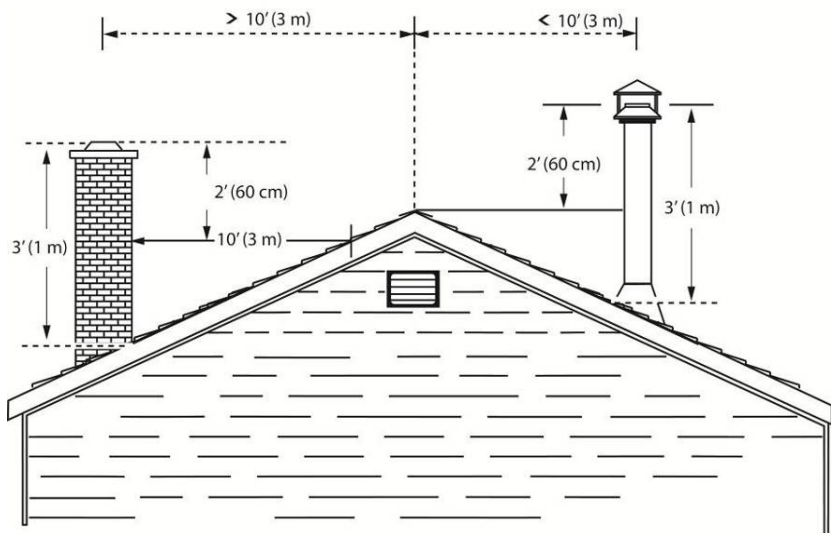
- The chimney must have a clay liner.
- If the masonry chimney has a square or rectangular liner that is larger in cross sectional area than a round 6" (152 mm) flue, it should be relined with a suitably listed 6" (152 mm) stainless steel liner.
- When passing through a combustible wall, the use of an insulated listed thimble is required.
- If a stainless steel liner is installed, it is recommended to extend the liner 12" (305 mm) to 18" (457 mm) above the top of the masonry chimney to favor the draw.



4.1.3 Minimum chimney height

The top of the chimney should be tall enough to be above the air turbulence caused when wind blows against the house and its roof.

- The chimney must extend at least 3 ft. (1 m) above the highest point of contact with the roof.
- Extend at least 2 ft. (61 cm) higher than any roof line or obstacle within a horizontal distance of 10 ft. (3 m).

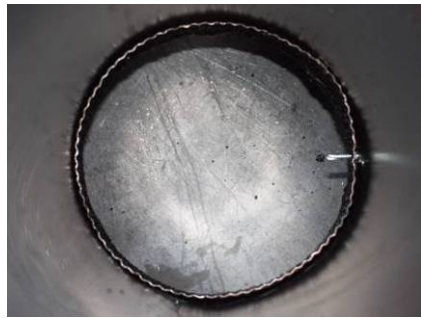


4.2 The connector pipe

- Recommended inner diameter: 6" (152 mm)
 - If an increaser must be used (max 6" (152 mm) to 7" (178 mm)), it must be installed as close as possible to the chimney.

4.2.1 Best practices and requirements of the installation code

- Where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365, Installation Code for Solid-Fuel-Burning Appliances and Equipment;
- A flue pipe must never pass through a combustible floor or ceiling or through an attic, roof space, closet or concealed space;
- Minimum upward slope towards the chimney: 1/4 in/ft. (20 mm/m);
- The maximum horizontal run is 10' (3 m). Do not count the starting elbow;
- All flue pipe joints must be secured with three screws. Failure to secure them to each other may allow for separation and leaks;



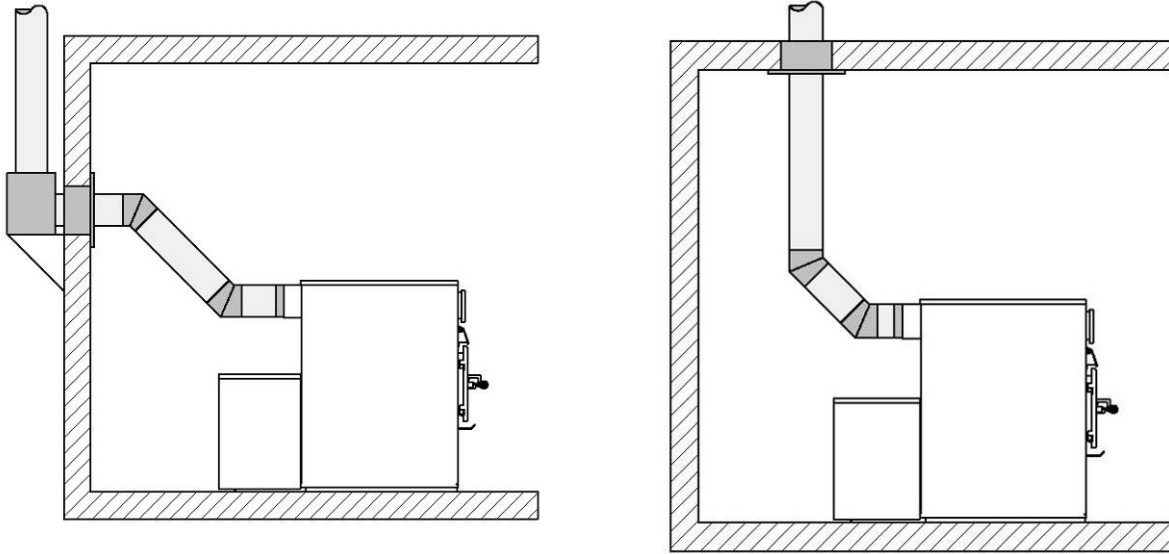
Proper installation



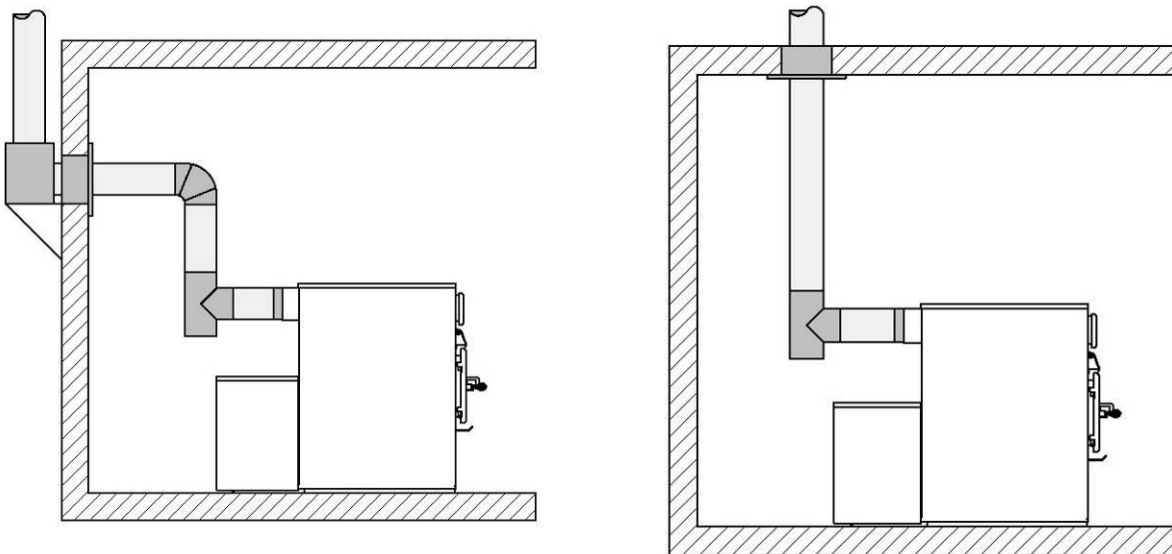
**CAUSES
RESTRICTION**

improper installation

- Maximum unsupported horizontal length: 3 feet (1 m);
- Galvanized flue pipes must not be used because the coatings vaporize at high temperatures and release dangerous gases;
- Flue pipes must be at least 24 gauge in thickness;
- The chimney connector must be in good condition;
- Flue pipe joints should overlap 1 1/4". (30 mm);
- Straight up installations need to have either a connector where one end has no fastener or a telescopic/adjustable length;
- Removal of the assembly for cleaning should not require that the furnace be moved;
- The male ends of the sections must be oriented towards the appliance so that falling dust and condensation stay inside the pipe;
- A straight flue pipe assembly offers the least restriction to gas flow and results in stronger draft. Straight assemblies also need less maintenance as there are less restrictions from corners to collect creosote;
- The use of 45° elbows is strongly recommended;
- Elbow added resistance is equivalent to : a 90° elbow = 5' (152 cm), a 45° elbow = 2.5' (76 cm);
- Never use more than two 90° elbows.



Use 45° elbows where possible, rather than 90° elbows.



Alternative installations with 90° elbow or tee.

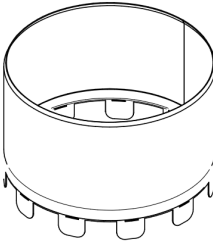
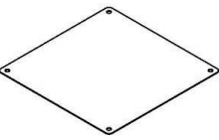
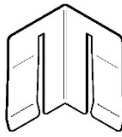
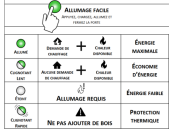
5 Hot air distribution and air return system

The Drolet furnace is designed and equipped with a hot air distribution plenum that may receive 6 to 10, 6" (152 mm) diameter round ducts.

The installer is responsible of the performance of the distribution ducts and the air return system. It will have a direct effect on the ability of the blower to distribute heat efficiently throughout the house. The number, size and length of the ducts of the distribution system and return air will vary depending on the configuration and characteristics of each house.

N.B.: The furnace air jacket is not totally airtight. It is normal to detect some air leaks at the jacket's joints.

Components provided with the furnace to assemble the hot air distribution plenum:

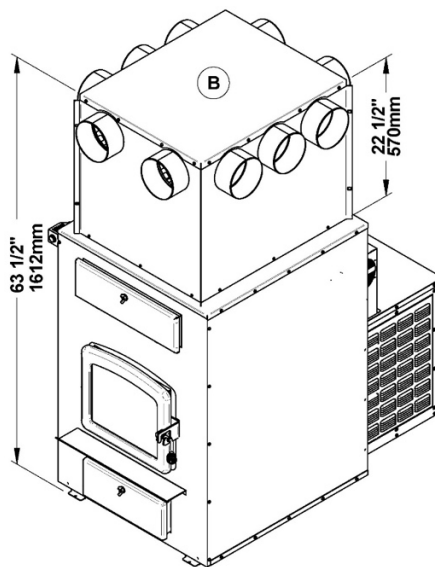
					
10 start-off adapter (A)	4 block-off cap (B)	44 Type A #10 black screws (C)	25 #8 self-tapping black screws (D)	4 corners reinforcement (E)	1 reload button sticker reminder (F)

5.1 Hot air distribution plenum height according to ceiling height

Remember to take into account the 5" (127 mm) clearance to combustibles above the plenum.

5.1.1 Plenum's minimum height (63 1/2" (1613mm) from the furnace base)

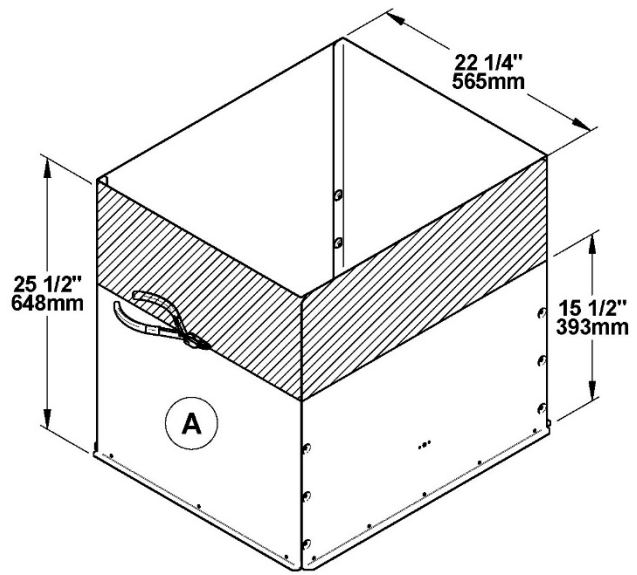
For a minimum ceiling height of 69" (1750 mm).



5.1.2 Adjustable height of the plenum

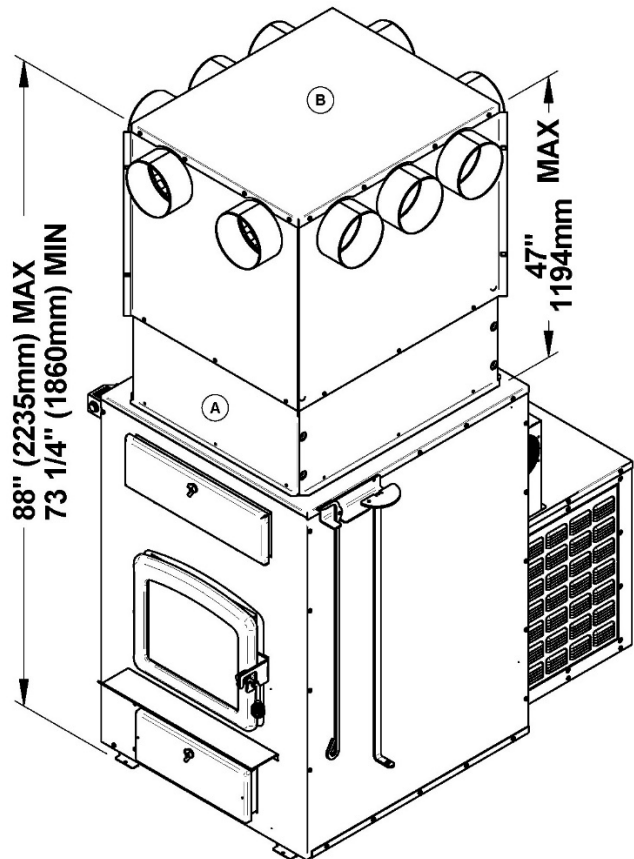
When the ceiling height, measured from the floor, is lower than 78 1/4" (1990 mm), it will be possible to cut the plenum extension (A) of at most 10" (254 mm). The plenum extension (A) must therefore have a minimum height of 15 1/2" (393 mm).

Warning: The plenum extension (A) should not obstruct the openings for the hot air distribution of the plenum (B). The shaded area represents the **maximum** cutting of plenum extension (A).



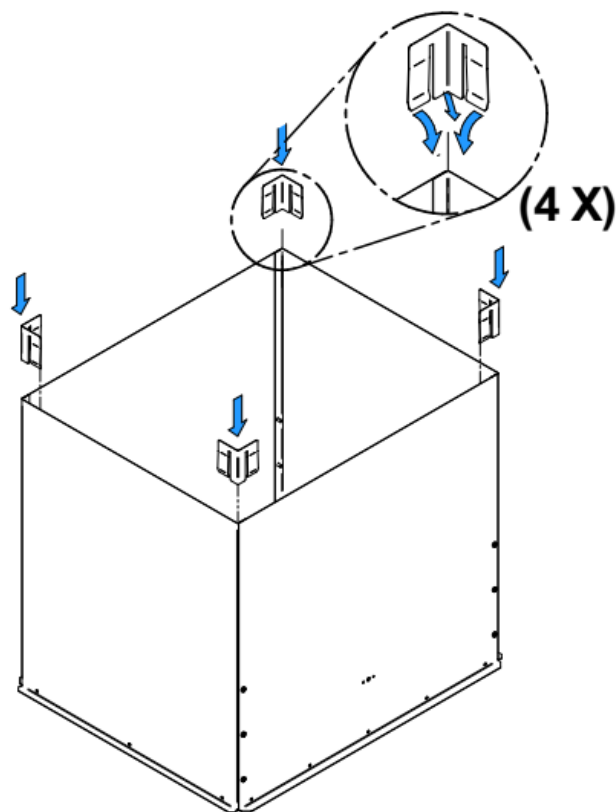
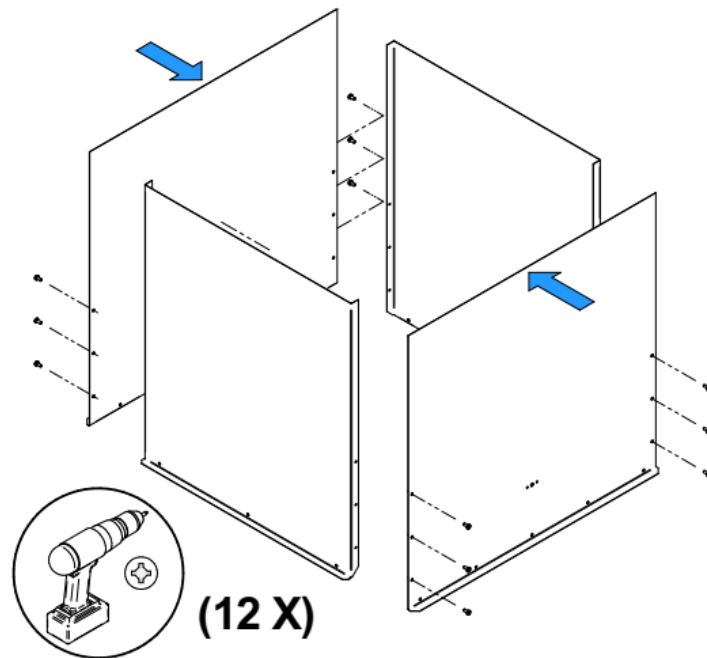
5.1.3 Adjustable height of the plenum (A and B); without cutting 73 1/4" to 88" (1860 to 2240 mm).

For ceiling height from 78 1/4" (1990 mm) to 93" (2362mm) and more.



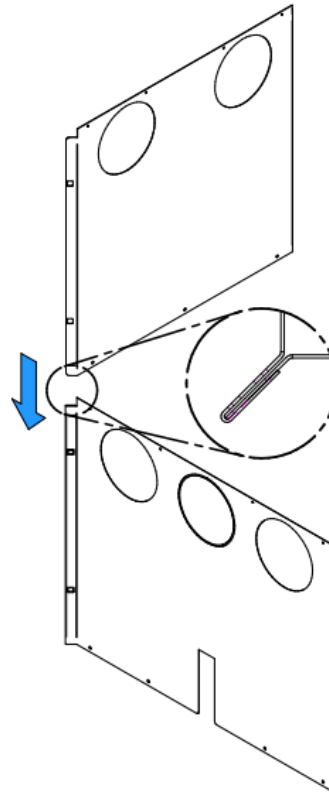
5.2 Assembling the hot air distribution plenum (A and B).

5.2.1 Assembling the plenum extension (A) by means of 12 screws (C) and corner reinforcements (E)

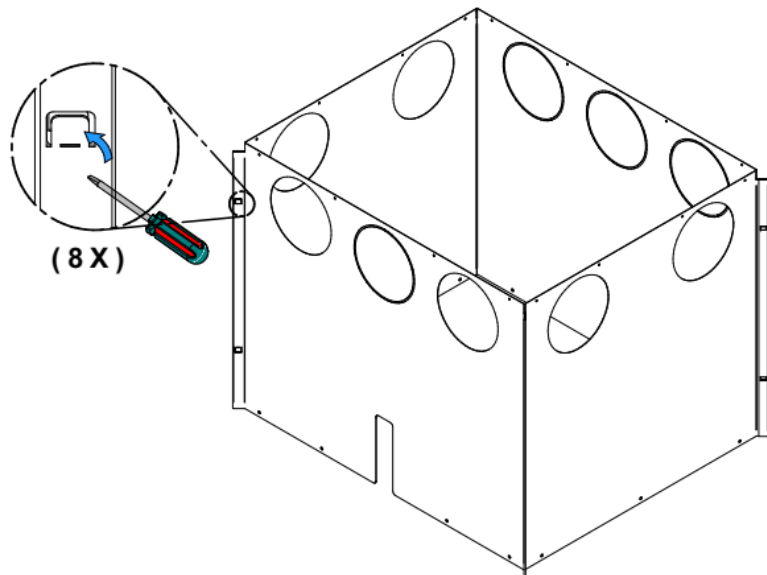


5.2.2 Assembling the plenum (B)

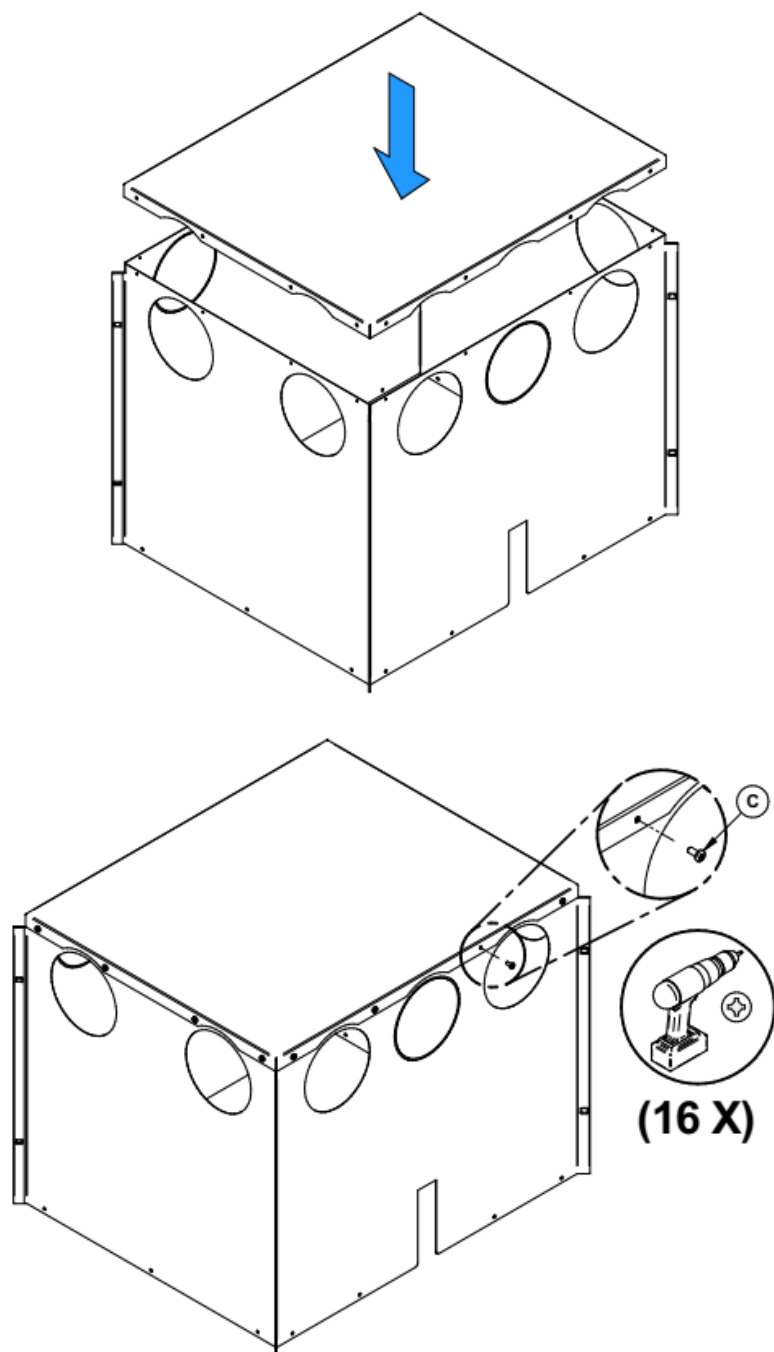
Insert the male end of each panel in the female part of the adjacent panel.



Secure the assembly by bending the two metal tabs in the center of each corner.

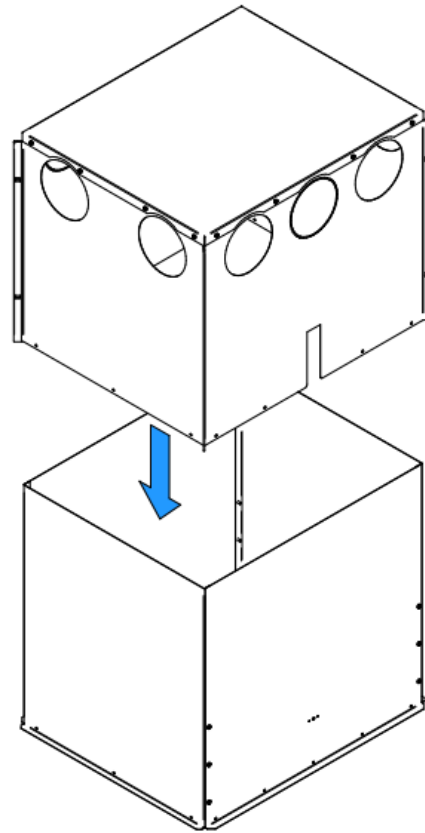


Install the cover on the part **(B)** of the assembly and secure it with 16 screws **(C)**.

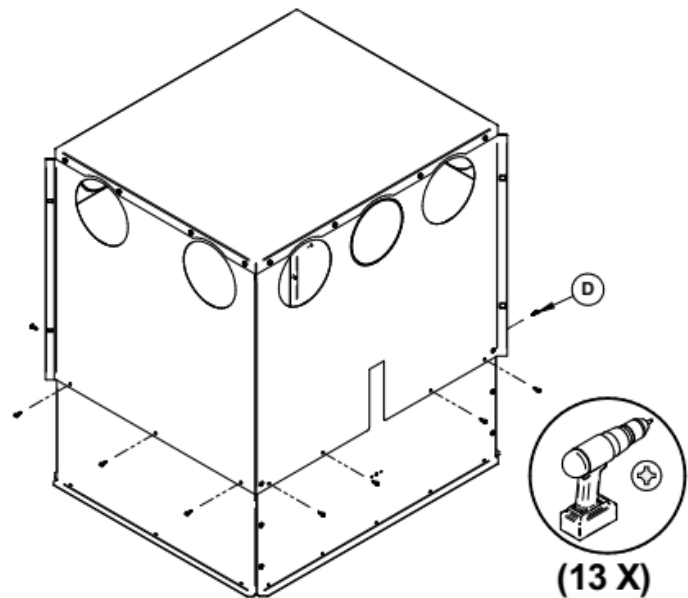


5.2.3 Assembling the plenum extension (A) to the plenum (B)

Slide plenum (B) over the plenum extension (A) to the extent determined in **Section 5.1**.



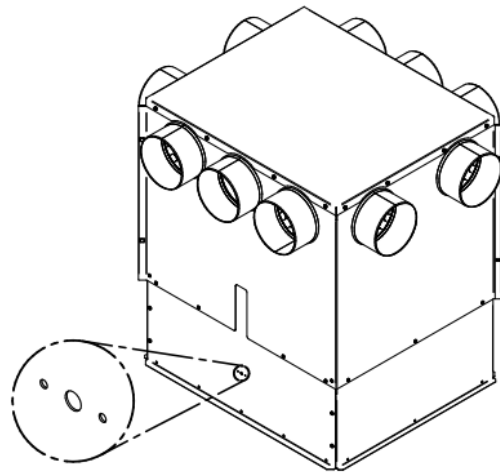
Using 13 self-drilling screws (D), secure the plenum (B) to the plenum extension (A).



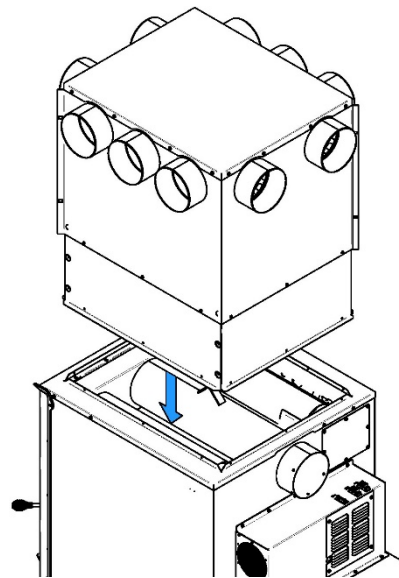
5.3 Installation of the assembled plenum on the furnace

Identify the left side of the plenum, it is provided with holes for the installation of the “RTD” thermal probe.

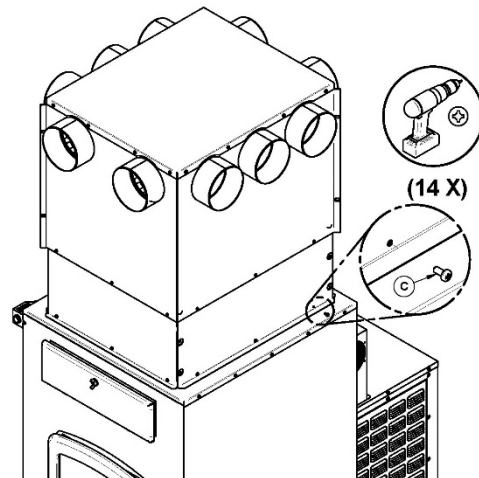
Also, 5 holes are aligned with the fold of the top of the furnace on the left side and three holes on the other sides. This allows you to secure the plenum properly.



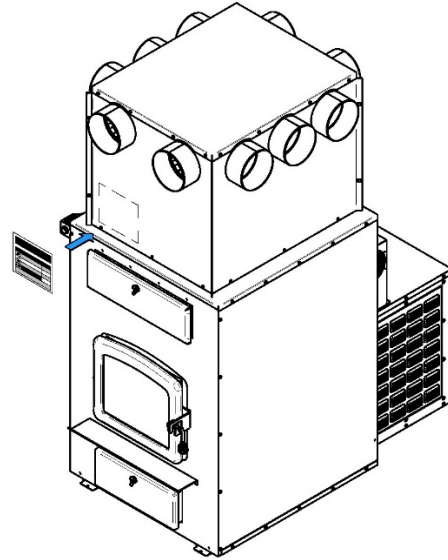
Install the assembly on the furnace, taking care to insert the 4 folds on top of the furnace **inside** the plenum.



Using 14 screws (C), secure the plenum to the furnace.



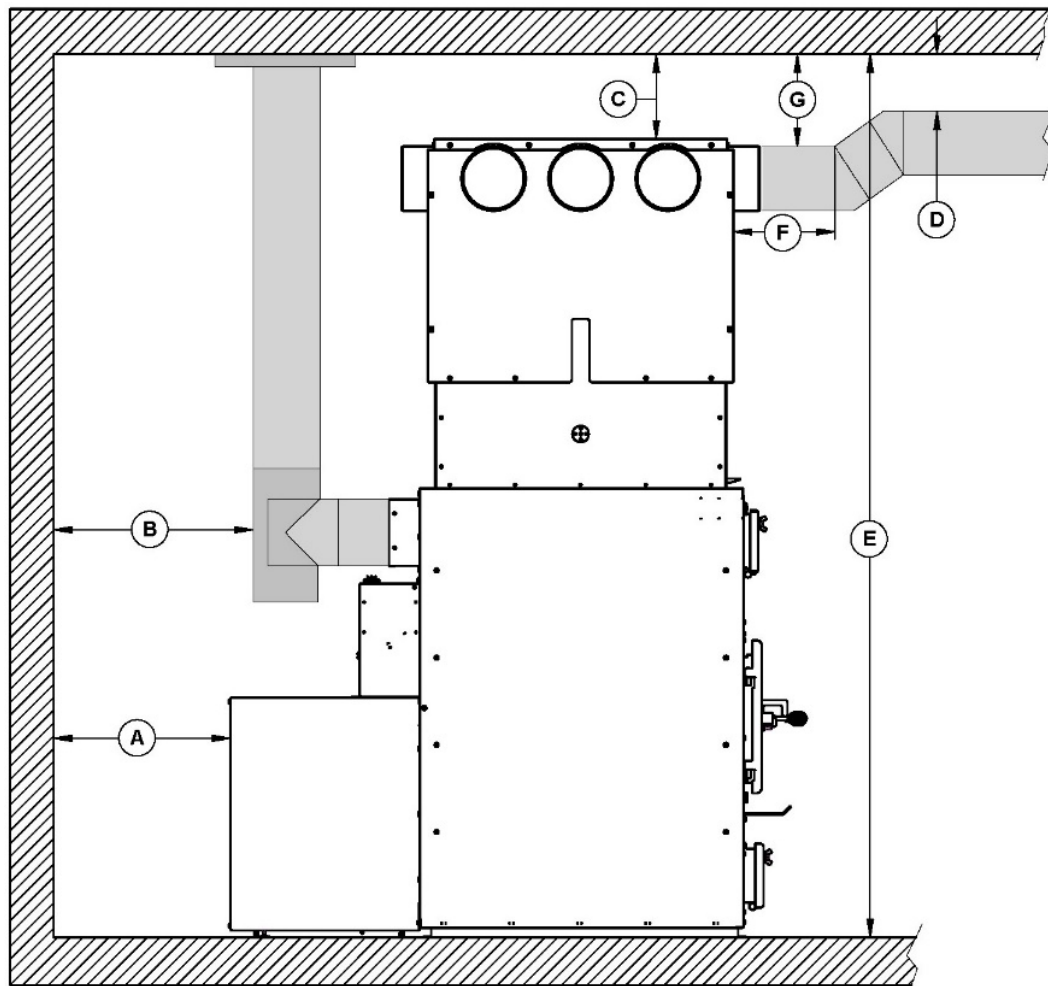
Apply the reload button operation reminder sticker **(G)** on the front of the plenum. The sticker is provided with the owner's manual kit.



5.4 Configuration and restrictions of hot air distribution system

5.4.1 Start-off plenum

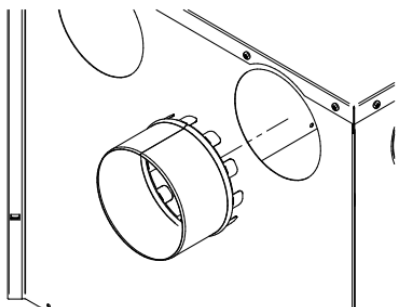
- The plenum can be adjusted from 63 1/2" (1610 mm) to 88" (2240 mm) depending on ceiling height. See **Section 5.1: Hot air distribution plenum height according to ceiling height**.
- The plenum has a minimum height of 22 1/2" (571 mm) and a maximum height of 47" (1194mm) from the top of the furnace **(X)**.
- The minimum clearance **(C)** between the top of the plenum and the ceiling is 5" (127 mm).
- The ducts minimum clearance **(D)** to combustible materials is 0" (0 mm).
- The minimum clearance (G) of the ducts to combustible materials is 1" (0 mm) along the length (F) 12" (305mm).
- The ducts may pass through a combustible wall maintaining a clearance of 0" (0 mm) around ducts.



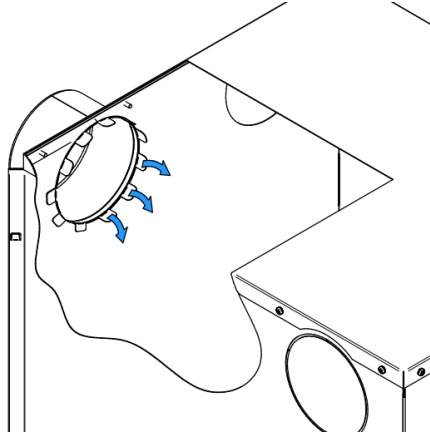
5.4.2 Installing the start-off adapters

After choosing your output configuration, do the following to install the start-off adapters.

Warning: Use gloves to complete the following steps because the start-off adapters and caps can be sharp.

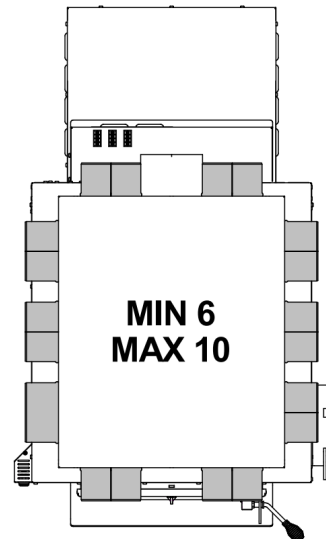


- 1- Position the start-off adapters in the selected distribution hole.
- 2- Fold each tab of the adapter from the inside of the plenum to immobilize the adapter on the plenum.
- 3- Repeat 2 steps above to install other adapters.

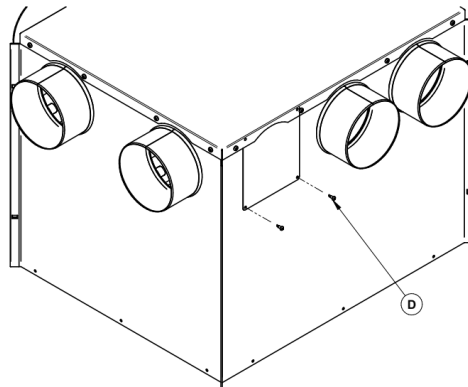
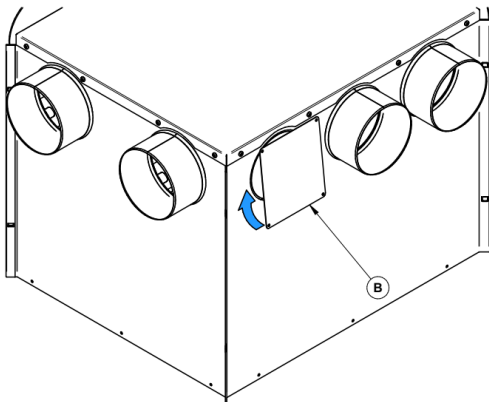


5.4.3 Minimum number of outlets and maximum lengths of ducts

- A minimum of 6 start-off adapters must be installed on the start-off plenum. The location of the adapters has no impact on the distribution of air.



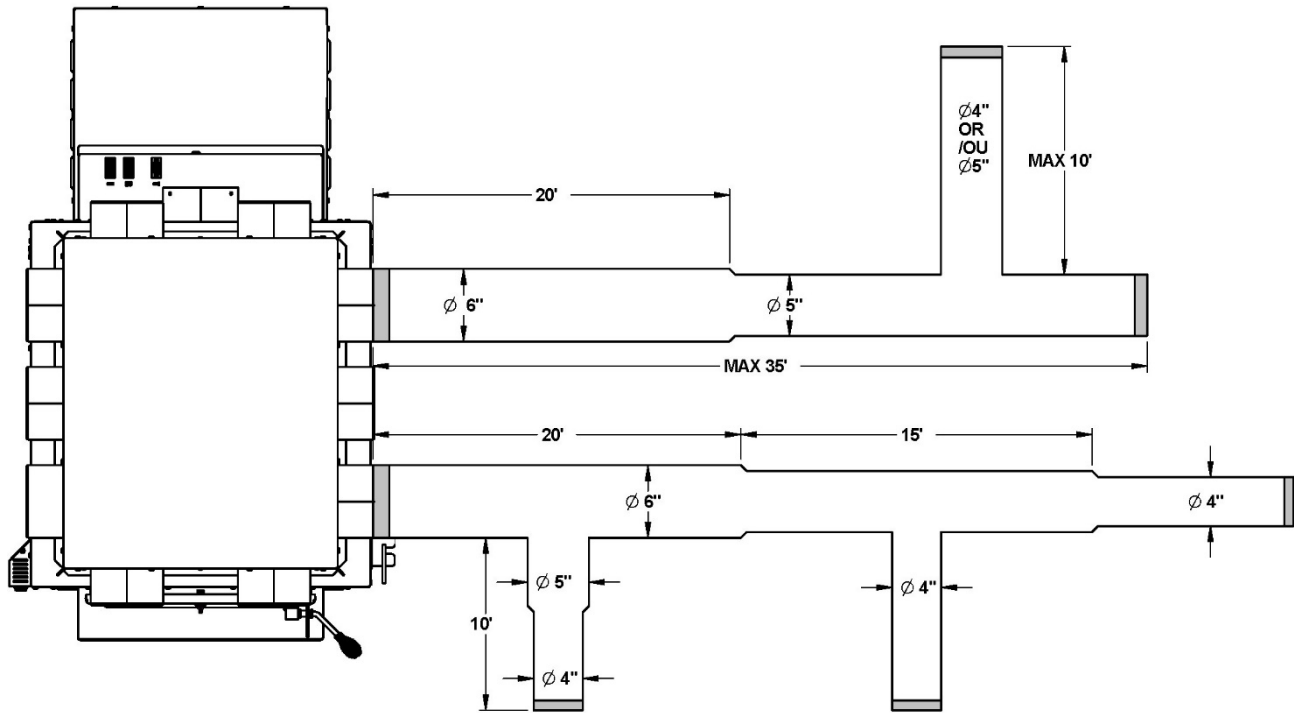
- Block the unused outlets with the block-off caps (**B**) and provided screws (**D**). Insert the block-off under the plenum top.



FAVOUR THE USE OF RIGID DUCTS BECAUSE THERE ARE LESS RESTRICTIVE TO AIR FLOW.

- The maximum run of a main duct is 35' (10.7 m). It must be reduced from 6" (152 mm) to 5" (127 mm) after 20' (6.1 m) or reduce the main duct by 1" (25 mm) at every two secondary duct outputs.
- The maximum length of all the main ducts is 180' (54.9 m).
- The maximum run of a secondary duct is 10' (3 m).
- The maximum length of all the secondary ducts is 100' (30 m).
- The finishing grill at the output of a secondary pipe must be made of metal.
- Have a maximum of three secondary outputs per duct.

Note: figure for illustrative purposes only



For proper static pressure and heat distribution; the total area of secondary duct outlets must be equal or slightly less than the total area of the outlets used on the distribution plenum **(B)**.

Example of surface calculation according to the number of outlets used in the plenum:

Diameter of plenum outlet (in)	Surface of plenum outlet (in ²)	Number of outlets on the plenum	Total surface of plenum outlets used (in ²)
6	28	6	170

The acceptable total area of secondary outlets would therefore be:

Diameter of secondary outlet (in)	Surface of secondary outlet (in ²)	Number of secondary outlets	Total surface of secondary outlets used (in ²)
4	12.5	9	112.5
5	19.5	1	19.5
6	28	1	28
The total area of the secondary outlets of this system would be acceptable because it is equal to or slightly less than the total area of the plenum outlets.			160

ACORDING TO THE NATIONAL BUILDING CODE, THE BTU/H PROVIDED BY AT REGISTER MUST NOT EXCEED 10,250 BTU/H (3kW) AND THE HOT AIR TEMPERATURE AT THE OUTLET OF A SECONDARY DUCT SHOULD NOT EXCEED 158 °F (70 °C).

Once your hot air distribution system is installed, make sure to measure the static pressure in the start-off plenum. Adjust the opening at the end of each of distribution duct with a shutter until you get a minimum static pressure 0.2" W.C. (50 Pa) at the plenum. The recommended air velocity exiting the register should be between 500 and 750 feet per minute.

5.5 Air return system and filter

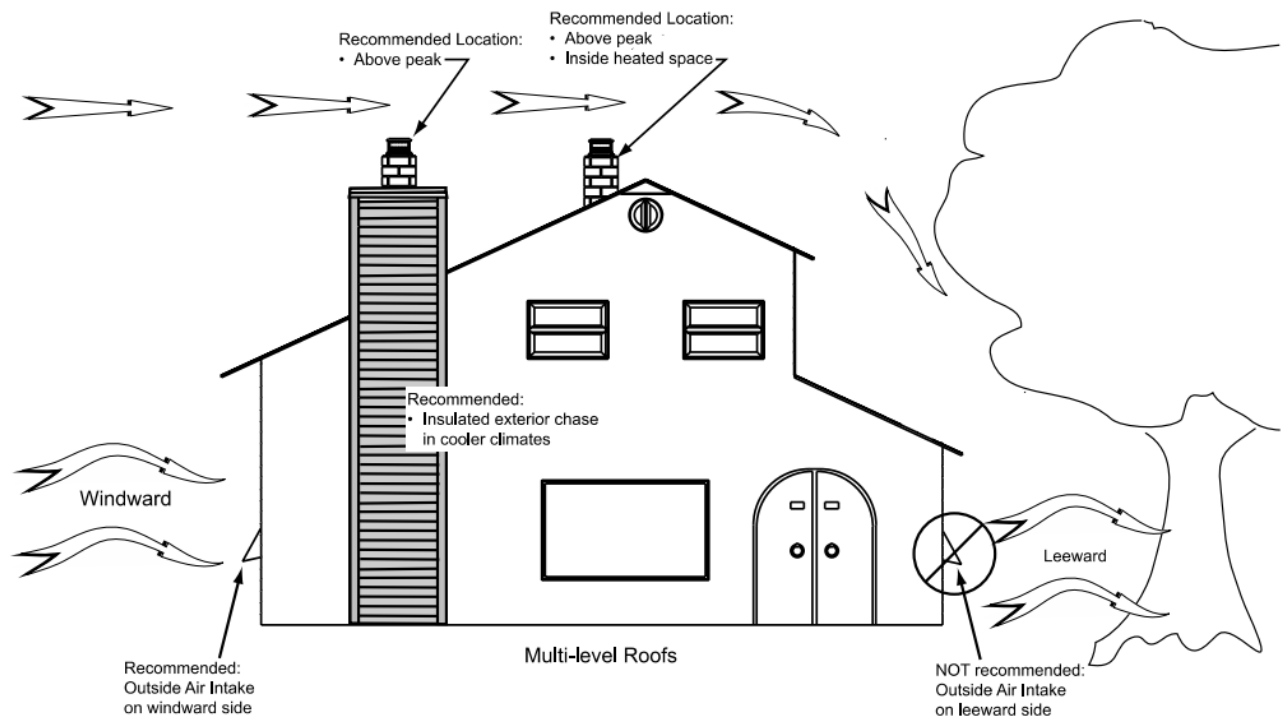
The installation of an optional air return system connected to the blower housing will improve the air circulation throughout the house (see **Appendix 3: *Optional Fresh air return adapter (AC01392)***). The use of the air filter option is recommended. The filter option will significantly reduce dust circulation within the hot air duct and will prevent obstruction of the blower (see **Appendix 2: *Optional air filters (AC01390, AC01391)***).

NOTE: TO ENSURE ADEQUATE STATIC PRESSURE, THE SYSTEM SHOULD BE BUILT IN A WAY THAT THE VOLUME OF COLD AIR RETURN IS AT LEAST EQUAL OR SLIGHTLY HIGHER THAN THE VOLUME OF THE HOT AIR DISTRIBUTION.

6 Air Supply in Conventional Houses

The safest and most reliable supply of combustion air for a wood furnace is from the room in which it is installed. Room air is already preheated so it will not chill the fire, and its availability is not affected by wind pressures on the house.

Unlike commonly expressed concerns, almost all tightly sealed new houses have enough natural leakage to provide a small amount of air needed by the furnace. The only case in which the furnace may not have adequate access to combustion air is if the operation of a powerful exhaust device (such as a kitchen range exhaust or air exchangers) causes the pressure in the house to become negative relative to outdoors.



If an air fresh air supply is installed through the wall of the house, its pressure can vary during windy weather. If there are changes in wood stove performance in windy weather, and particularly if smoke puffs from the furnace, the air duct should be disconnected from the stove to determine if it is the cause of the problem. In some windy conditions, negative pressure at the duct weather hood outside the house wall may draw hot exhaust gases from the furnace backwards through the duct to outdoors. Check the outdoor air duct for soot deposits when the full system is cleaned and inspected at least once each year.

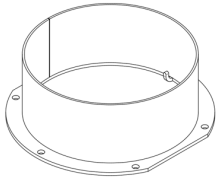
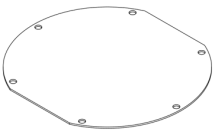
Additional combustion air can be provided following the following methods, provided that they satisfy chapter 4 of the **CSA B365 standard for Canada**:

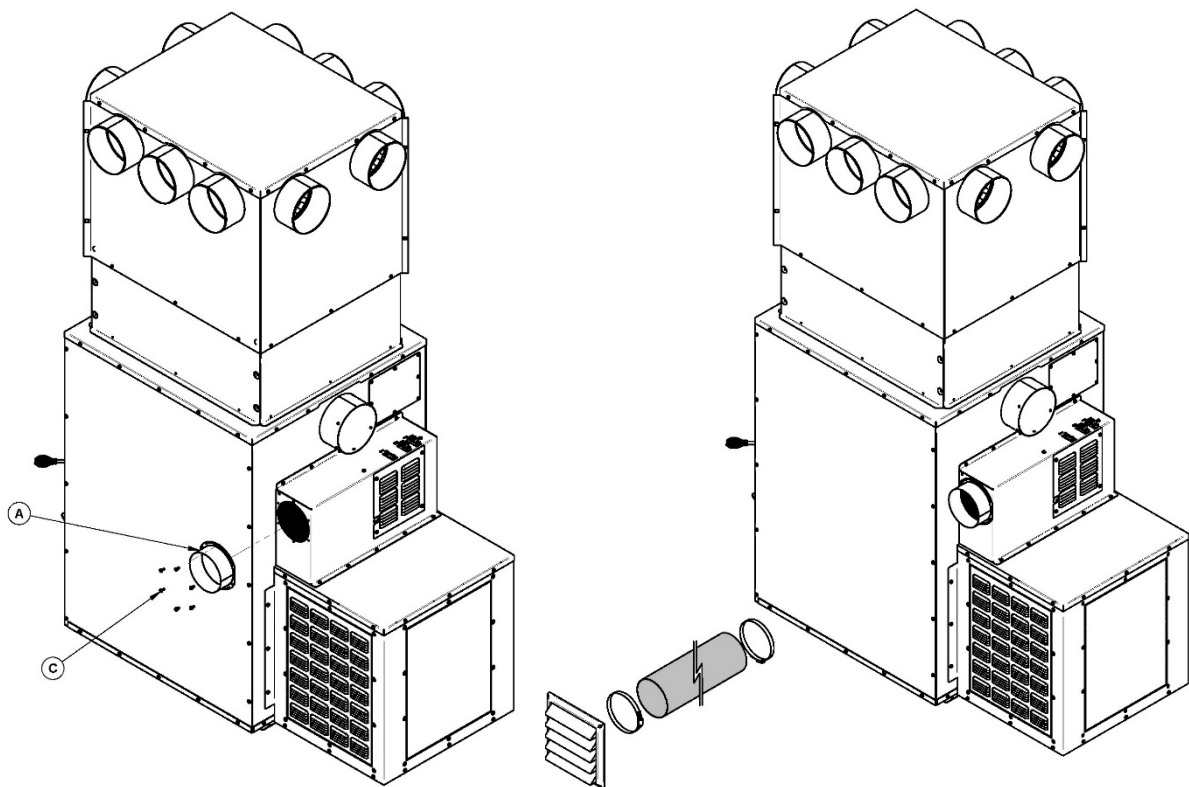
- **Direct combustion air supply:**

Heating units requires specific certification to be connected directly with fresh air supply. The Heat Commander have been tested and is certified to be connected with direct

combustion air. The fresh air supply adapter can be mounted on either side of the unit (left or right) to allow you to choose the most convenient side.

Component provided with the furnace for the installation of a fresh air supply

		
1 Fresh air supply adapter 5" (13 mm) (A)	1 Fresh air cover (B)	12 Type A #10 black screws (C)



- Indirect combustion air supply:

- New combustion air can be brought into a pipe located within approximately 12" (305 mm) of the unit. If the pipe is too close to the furnace, it may interfere with its operation;
- The recommended diameter of the outside air intake pipe is 5" (127 mm);
- Mechanical ventilation system: if the house is equipped with a ventilation system (air exchanger or heat recovery), the ventilation system may provide sufficient auxiliary air to the furnace. Otherwise, the owner should be informed that the ventilation system may have to be rebalanced by a ventilation technician after the installation of the furnace.

7 Electrical connection and calibration of the draw

The furnace is fully assembled at the factory and no electrical connection is required other than plugging the power cord into an outlet.

7.1 Electrical connections

The following instructions do not replace those of the local code.

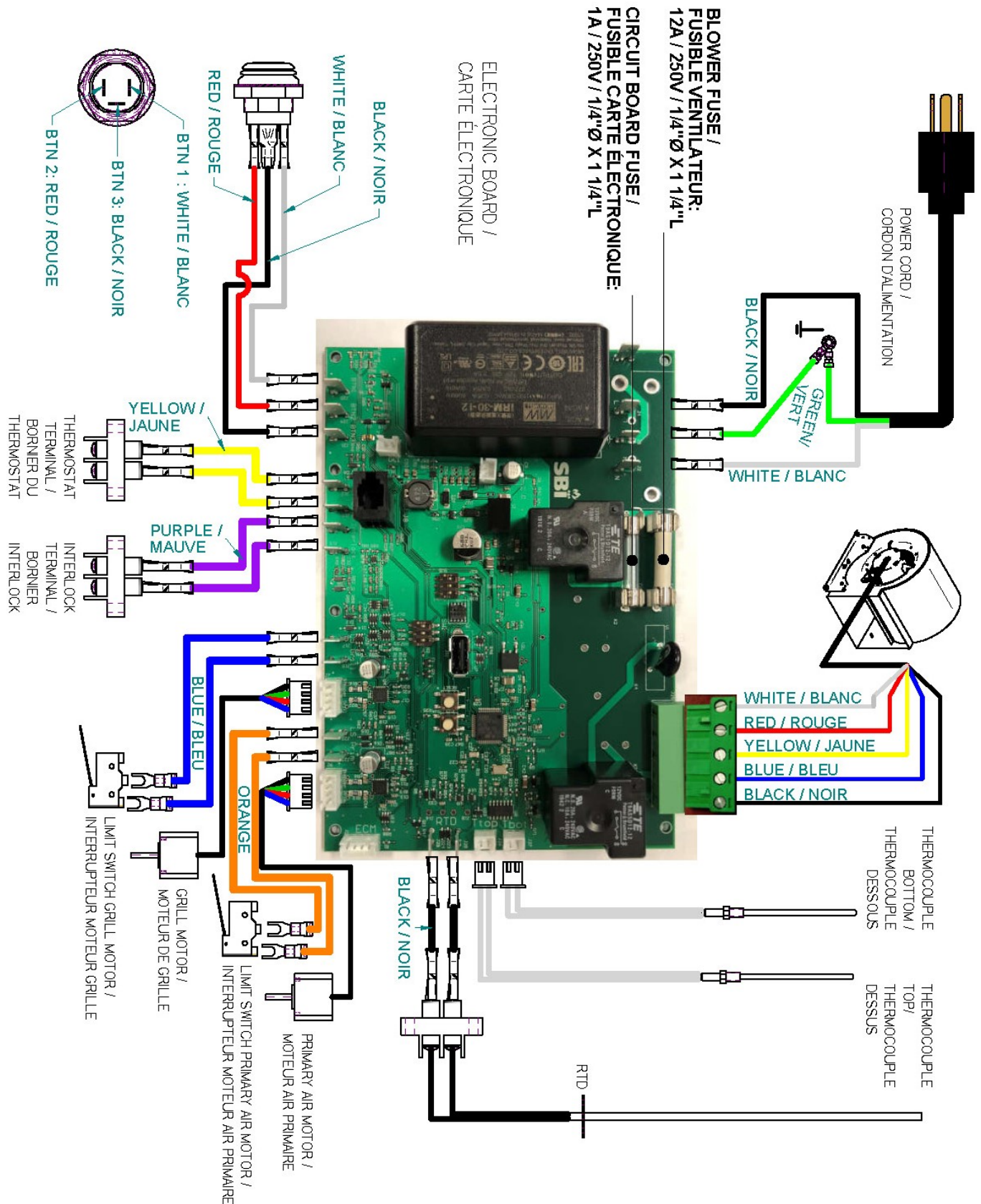
Installation and verification of this appliance must be done by a qualified person.

All wiring from the service panel to the heating unit must comply with the electrical code in force and all local regulations. It is recommended to feed the furnace with its own electrical circuit of 15 amps at 120 volts with a breaker (see wiring diagram).

WARNING

ONLY USE WIRES SUITABLE FOR 167 °F (75 °C) OR MORE.

7.1.1 Electrical Diagram



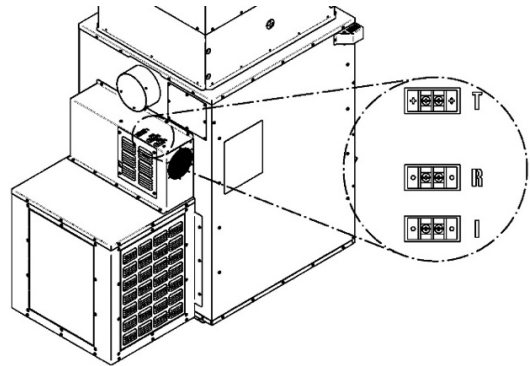
7.2 Furnace terminals identification

The furnace is equipped with three terminal blocks located on the left rear of the furnace. They are identified by the following three letters: T, R and I.

T : Thermostat

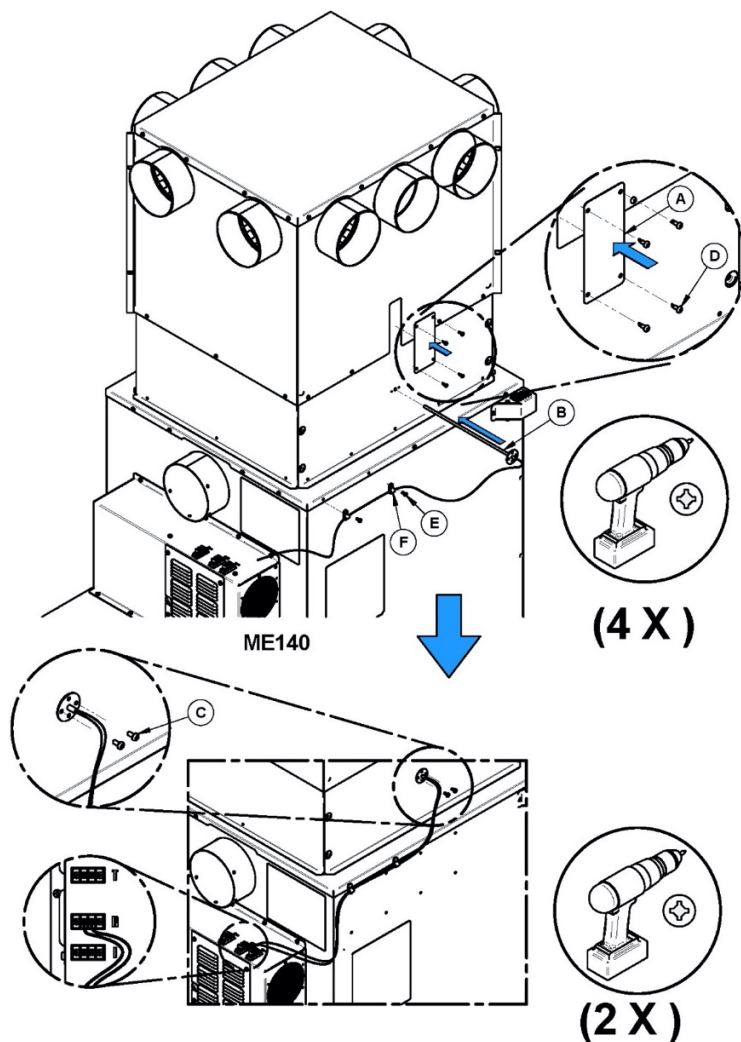
R : RTD (plenum thermal probe)

I : Relais Interlock (parallel add-on)



7.3 Installation and connection of the “RTD” thermal probe

IMPORTANT: The proper positioning of the “RTD” thermal probe is essential to the proper functioning of the furnace. Install it in the opening provided for this purpose on the start-off plenum.



Install the RTD probe in the plenum extension.

Secure the RTD probe with the two screws provided **(C)**.

Connect the RTD probe to the furnace block terminal identified with a “R”.

Use the wire grommets **(F)** supplied with the manual to attach the wires from the RTD to the furnace.

Depending on the height of your ceiling and the plenum adjustment, the clearance hole in the top of the plenum might create an air opening in the plenum. In this case, install the plate **(A)** provided with your plenum kit and secure it with 4 self-drilling screws **(D)** to seal the opening.

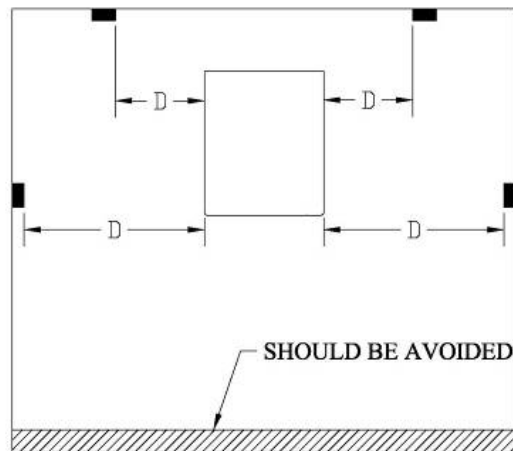
7.4 Thermostat installation

Thermostat use will help you maintain a constant temperature throughout the house. A fixed wall mounted 24v thermostat is required.

Note: Thermostat manufacturer's instruction always overrides the information published in the following section.

Thermostat location

- Must be installed on an inside wall of the house;
- Where it will be the least affected by affected by air currents from a hot air outlet or cold outside walls;
- Must be installed at a minimum of 55" (140 cm) above the floor;
- Must be installed at a minimum of 15' (4.57 m) from the furnace and must not receive radiation heat from the glass door.



D = MINIMUM DISTANCE 15 FEET

Thermostat wiring

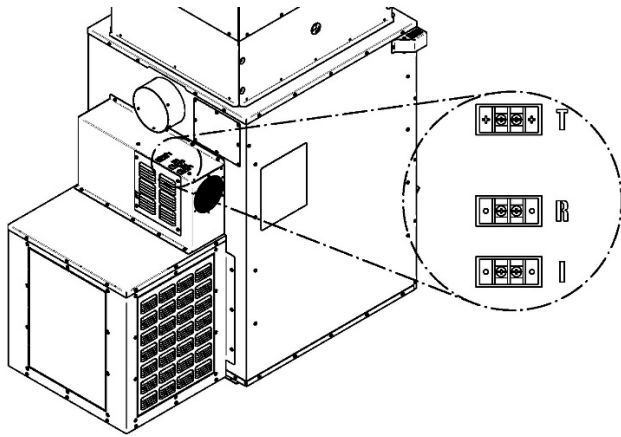
Before installing the thermostat, disconnect the furnace from the outlet.

Use an 18 AWG 2 strand wire.

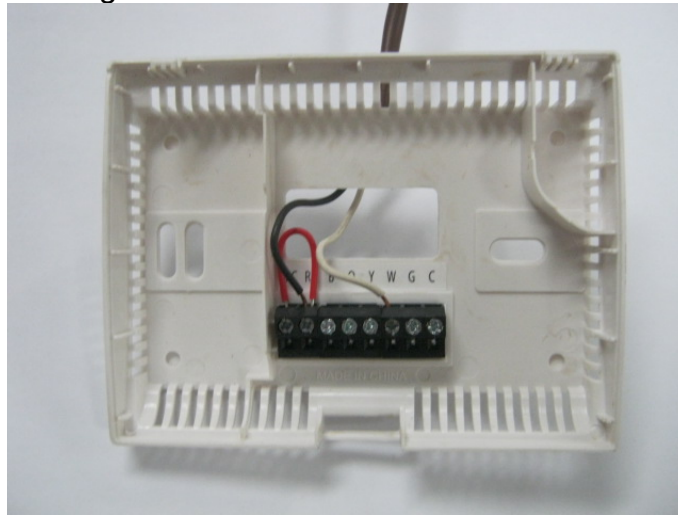
The terminal block is located at the back on the left side of the furnace when facing it. It is identified with the letter "T".

Loosen the two screws in the middle of the terminal block and insert the wires in the terminal. Tighten the two screws.

Open the thermostat housing and connect the wires following the manufacturer's instructions.



Example of thermostat wiring:

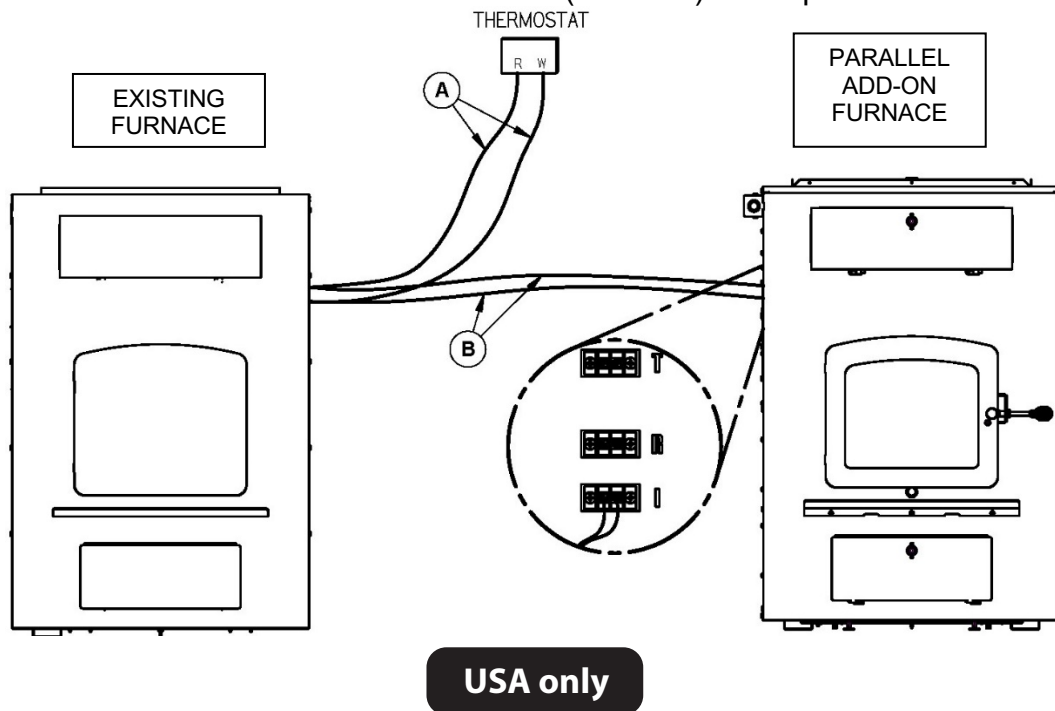


Connect one wire to "RH" and the other wire to "W". The red jumper can be left in place. For more information, refer to the manufacturer's instructions.

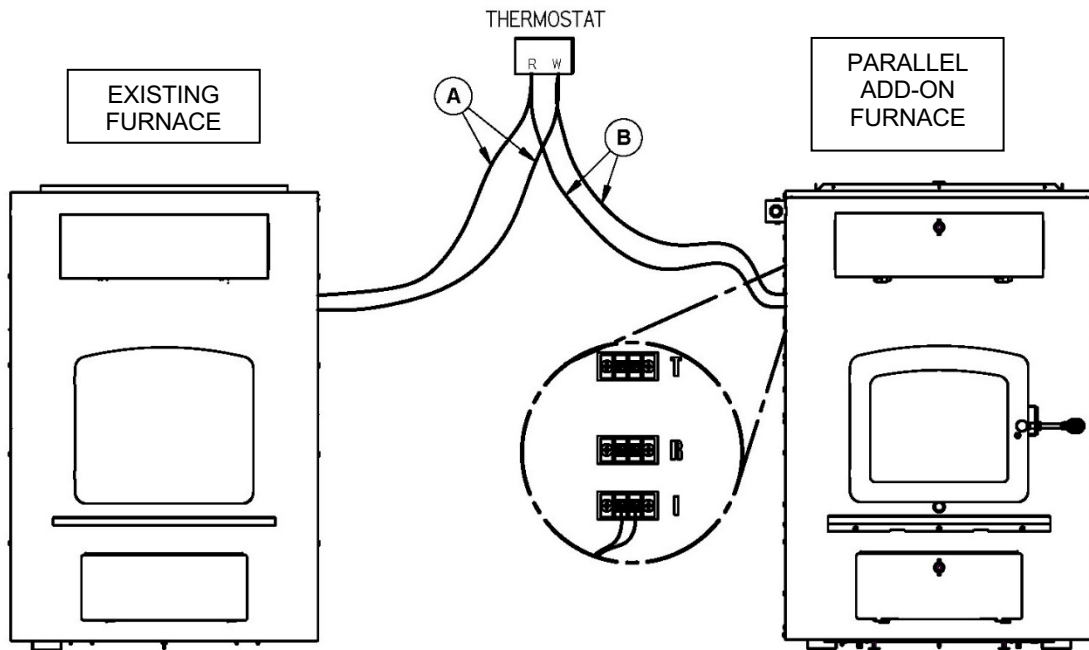
This furnace may be installed in parallel as an add-on to an existing furnace in the USA only. Such an installation requires that the furnace's controls be interlocked to prevent both furnaces from heating at maximum rate simultaneously.

There are two ways to connect the existing thermostat to your device:

- 1- From the terminal of the existing furnace, connect 2 new wires (B) to the existing wire (A) and fix them to the terminal identified "I" (interlock) of the parallel Add-On furnace.



- 2- From the thermostat connected to the existing furnace, connect 2 new wire (B) on the R and W terminals of your thermostat and fix them to the terminal identified "I" (interlock) of the parallel Add-On furnace.



USA only

When the wood furnace receives the signal from the existing furnace thermostat calls for heat, combustion air controls will close slowly, the wood furnace burn rate will reduce to its minimum. After the existing furnace thermostat is satisfied, the wood furnace will return under the control of its own thermostat.

7.5 Blower technical Data

The blower speed must conform to the recommendations of the Warm Air Heating and Air Conditioning National Association and should respect the static pressure ranges in the warm air plenum of the furnace.

MODEL	(DIRECT DRIVE)			FLOW*	TEMP VAR*.	BTU/ H	STATIC PRESSURE	OPTIONAL FILTER
	VENT	MOT.	VIT.	(CFM)	(°F)	(WOOD)	INCH OF W.C. / Pa	(IN)
Heat Commander	DD-10	1/3	1	875	55	55 000	0,2 / 50	20" x 15" x 1"

Volts	Max Amps	Hertz
120	5	60

* These values may vary depending on installation, fuel, static pressure and use.

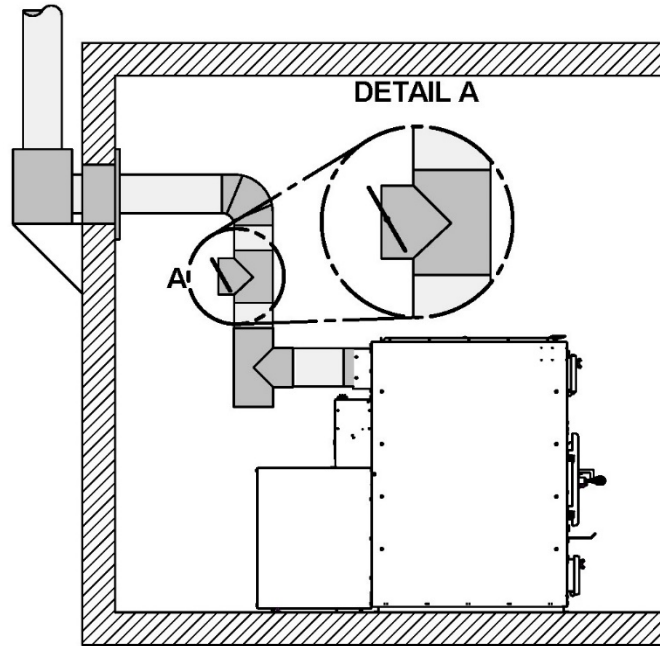
7.6 Draft Calibration

The draft: The measurement is taken in the exhaust pipe 18" (457 mm) above the furnace's flue collar with a tube and a pressure gauge (manometer).

- **Poor: -0.03" W.C. (7.5 Pa) and under:** ignition problems, risk of smoke spillage, low performance of heat exchangers.
- **Ideal: from -0.04" to -0.06" W.C. (10 to 15 Pa):** to obtain the optimum performance of the furnace.
 - o A barometric draft control is not required.
- **Excessive: -0.08" W.C. (20 Pa): WARNING**

This leads to premature wear of the furnace, a situation that is not covered by warranty.

- o A draft greater than -0.08" W.C. (20 Pa) leads to uncontrollable fire even if the air control is in closed position.
- o The self-regulating furnace control system reduces the risk of excessive draft. If necessary, a barometric control must be installed to control excessive draft. It must be adjusted to limit the maximum draft to -0.06 in W.C. (15 Pa).



7.6.1 The use of a stove thermometer

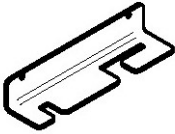
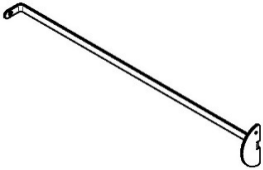
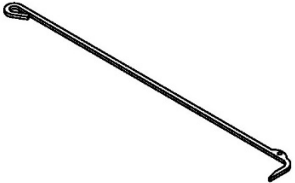
The first use of a thermometer is to inform the user about the discharge temperature of flue gases. Without accurate measurement of the draft using a pressure gauge (manometer), the thermometer will indicate if the temperature is ideal, too low or too high.

The use of a thermometer is therefore an acceptable alternative that can tell if the chimney is hot enough to generate an adequate draft.

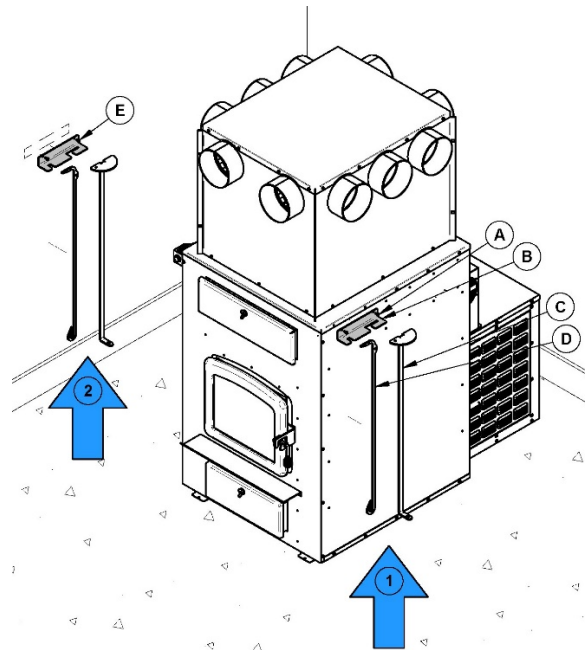
- Use a magnetic thermometer for Single wall connector pipe.
- Use a probe thermometer for Double wall connector pipe.

8 Tool Holder Installation

Components supplied with the device for the installation of the holder:

			
Type A #10 black screws (A)	Tool Holder (B)	Heat Exchanger Scraper (C)	Poker (D)

The tool holder can be installed on the right side of the furnace (1) or on a wall (2) near your furnace. For installation on a wall, use two **E** screws appropriate for the material to which the holder will be attached.

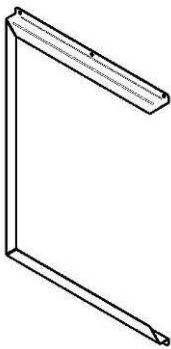


Appendix 1: Optional air filters (AC01390, AC01391)

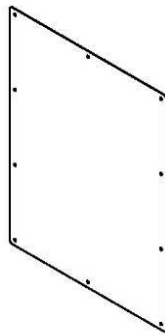
The filter option (AC01390 – cardboard frame or AC01391 – washable aluminum) allows filtrating dirt before distribution warm air in your installation in addition of protecting your blower. This system can be installed on either sides of the blower box located behind the furnace on the most convenient of your installation. This option includes the filter, the filter holder, two caps and the screws necessary for the installation.

Clean and replace filters as often as required.

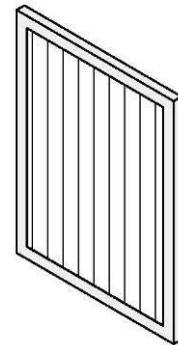
Note: The operation cost is higher and the overall efficiency is reduced when using a dirty filter.



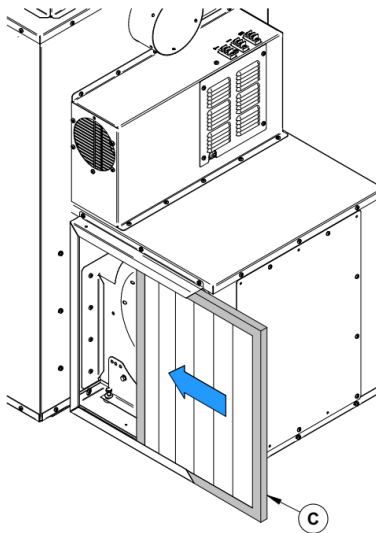
1 filter holder



2 caps



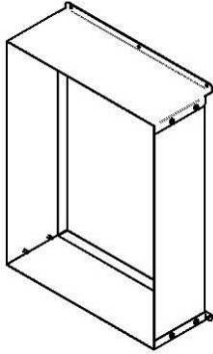
1 filter (15" x 20" x 1")



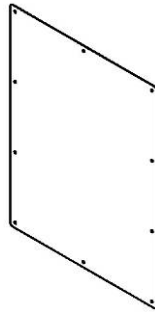
WARNING: IT IS NOT RECOMMENDED TO OPERATE THE FURNACE WITHOUT FILTERS. THIS APPLIES ESPECIALLY TO TEMPORARY HEATING DURING CONSTRUCTION PERIOD. OPERATING THE FURNACE WITHOUT FILTERS WOULD ALLOW DUST AND OTHER PARTICLES IN THE AIR TO CIRCULATE FREELY AND TO PENETRATE INTO THE BLOWER AND MOTOR CARTERS, CAUSING SOME DEFECTS.

Appendix 2: Optional air return adapter (AC01392)

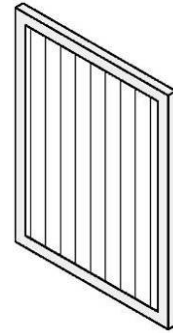
The optional air return adapter (AC01392) can be added to the furnace blower box to increase the efficiency of your system. This option allows you to take in the fresh air from the rooms connected to the return system and bring it back towards the furnace to be heated. This option can be installed on either sides of the blower box. Complete installation instruction can be found in the instruction booklet provided when purchasing this option.



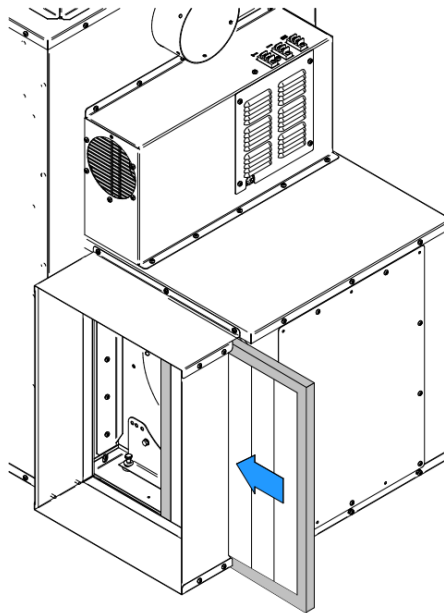
1 air return adapter



2 caps



1 filter



N.B.: TO ENSURE ADEQUATE STATIC PRESSURE, THE SYSTEM SHOULD BE BUILT IN A WAY THAT THE VOLUME OF COLD AIR RETURN IS AT LEAST EQUAL OR SLIGHTLY HIGHER THAN THE VOLUME OF THE HOT AIR DISTRIBUTION.

PART B – OPERATION, MAINTENANCE AND TROUBLESHOOTING

8.1 How to prepare or buy good firewood

8.1.1 What is good firewood?

Good firewood has been cut to the correct length for the furnace, split to a range of sizes and stacked in the open until its moisture content is reduced to 15% to 20%.

8.1.2 Tree species

The tree species the firewood is produced from is less important than its moisture content. The main difference in firewood from various tree species is the density of the wood. Hardwoods are denser than softwoods. People who live in the coldest regions of North America usually have only spruce, birch and poplar, other low-density species to burn and yet they can heat their homes successfully.

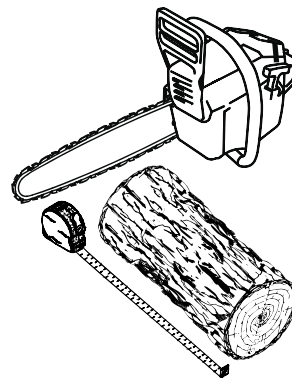
Homeowners with access to both hardwood and softwood fuel sometimes use both types for different purposes. For example, softer woods make good fuel for relatively mild weather in spring and fall because they light quickly and produce less heat. Softwoods are not as dense as hardwoods, so a given volume of wood contains less energy. Using softwoods avoids overheating the house, which can be a common problem with wood heating in moderate weather. Harder woods are best for colder winter weather when more heat and longer burn cycles are desirable.

Note that hardwood trees like oak, maple, ash and beech are slower growing and longer lived than softer woods like poplar and birch. That makes hardwood trees more valuable. The advice that only hardwoods are good to burn is outdated. Old, leaky cast iron furnaces would not hold a fire overnight unless they were fed large pieces of hardwood. That is no longer true. You can successfully heat your home by using the less desirable tree species and give the forest a break at the same time.

8.1.3 Log length

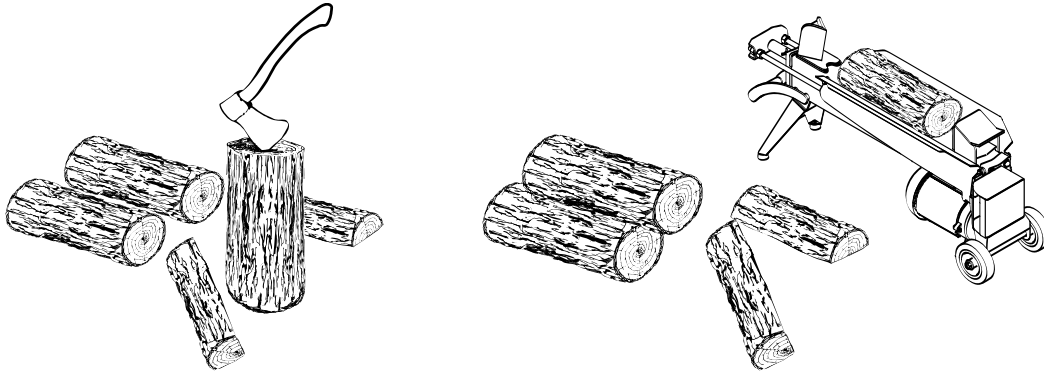
Logs should be cut about 1" (25 mm) shorter than the firebox so they fit in easily. Pieces that are too long make loading the furnace very difficult. The most common standard length of firewood is 16" (406 mm).

The pieces should be a consistent length, with a maximum of 1" (25 mm) variation from piece to piece.



8.1.4 Piece size

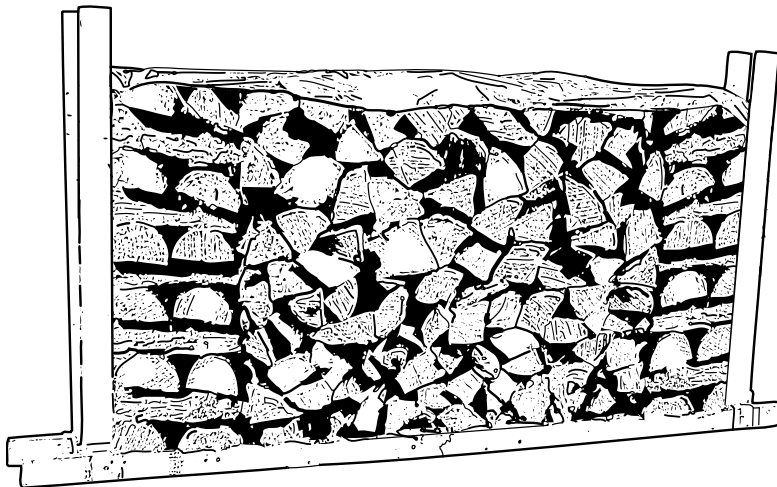
Firewood dries more quickly when it is split. Large unsplit rounds can take years to dry enough to burn. Even when dried, unsplit logs are difficult to ignite because they don't have the sharp edges where the flames first catch. Logs as small as 3" (76 mm) should be split to encourage drying.



Wood should be split to a range of sizes, from about 3" to 6" (76 mm to 152 mm) in cross section. Having a range of sizes makes starting and rekindling fires much easier. Often, the firewood purchased from commercial suppliers is not split finely enough for convenient stoking. It is sometimes advisable to re-split the wood before stacking to dry.

8.1.5 How to dry firewood

Firewood that is not dry enough to burn is the cause of most complaints about wood burning appliances. Continually burning green or unseasoned wood produces more creosote and involves lack of heat and dirty glass door. See **Section 10: Maintaining your wood heating system** for concerns about creosote.



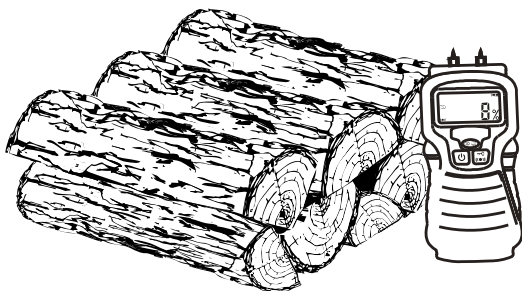
Here are some things to consider in estimating drying time:

- firewood takes a long time to dry
- firewood bought from a dealer is rarely dry enough to burn, so it is advisable to buy the wood in spring and dry it yourself
- drying happens faster in dry weather than in damp, maritime climates
- drying happens faster in warm summer weather than in winter weather
- small pieces dry more quickly than large pieces
- split pieces dry more quickly than unsplit rounds
- softwoods take less time to dry than hardwoods
- softwoods like pine, spruce, and poplar/aspen can be dry enough to burn after being stacked in the open for only the summer months
- hardwoods like oak, maple and ash can take one, or even two years to dry fully, especially if the pieces are big
- firewood dries more quickly when stacked in the open where it is exposed to sun and wind; it takes much longer to dry when stacked in a woodshed
- firewood that is ready to burn has a moisture content between 15 and 20% by weight and will allow your furnace to produce its highest possible efficiency

8.1.6 Judging firewood moisture content

You can find out if some firewood is dry enough to burn by using these guidelines:

- Use the wood moisture meter provided with your furnace to test your firewood. Testing the middle of a freshly split piece of wood is the most accurate test point,
- cracks form at the ends of logs as they dry,
- as it dries in the sun, the wood turns from white or cream colored to grey or yellow,
- bang two pieces of wood together; seasoned wood sounds hollow and wet wood sounds dull,
- dry wood is much lighter in weight than wet wood,
- split a piece, and if the fresh face feels warm and dry it is dry enough to burn; if it feels damp, it is too wet,
- burn a piece; wet wood hisses and sizzles in the fire and dry wood does not.



9 Operating your furnace

9.1 How it works

The Heat Commander furnace is equipped with a self-regulated combustion air supply control system. Using two temperature sensors in the combustion chamber that measure the temperature in real time, your furnace will automatically adjust the amount of combustion air required for the cleanest and most efficient combustion.

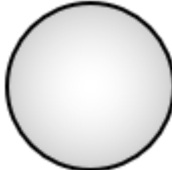
Coupled with the thermostat, the furnace will automatically modulate the combustion rate according to the thermostatic demand. When the thermostat calls for heat, combustion will be at its maximum burn rate. Conversely, when the thermostat is satisfied with heat, the combustion burn rate will be slowed down to maximum.

A third temperature sensor located in the plenum controls the air distribution fan. This will distribute the necessary heat in your ducts to satisfy the thermostat while maintaining a safe temperature in your heating system.

9.2 How Reload Button Works

The furnace is equipped with a backlit reload button located at the front. To optimize combustion during ignition and reloading, it is necessary to press the reload button. When you press the button, it will flash rapidly three times. Automatically the combustion air supply will be increased to its maximum, thus the ignition of the charge and the recharge will be facilitated.

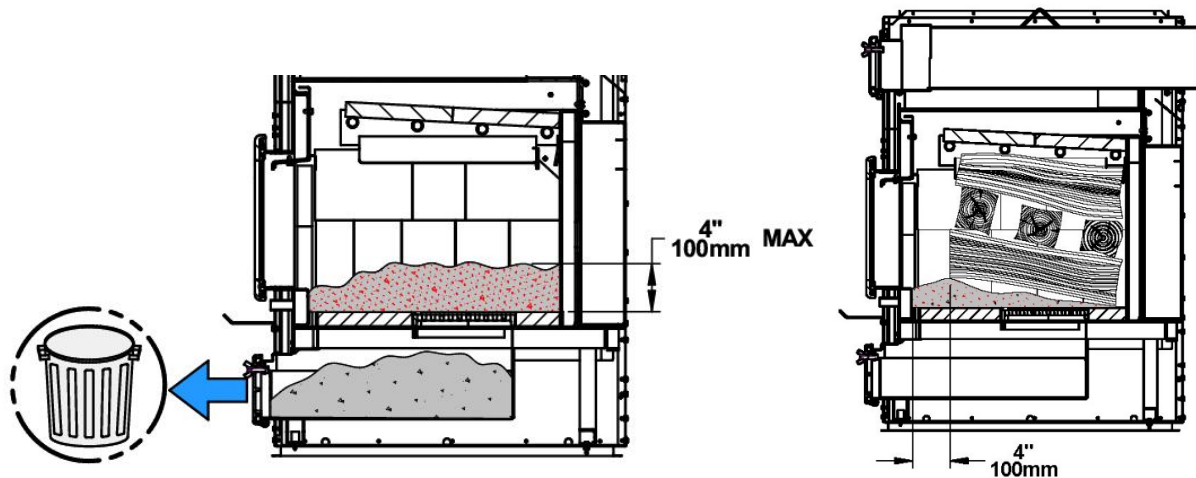
The button indicator light indicates the status of your furnace according to the thermostatic demand and the available heat. See the table below for details of each state.

Led button states	Meaning	Furnace status
Light is ON 	The thermostat calls for heat and there is heat available in the combustion chamber.	Maximum energy: The furnace goes to maximum burn rate and attempts to provide maximum heat while maintaining clean and efficient combustion. The fan blows at normal speed.
Light is OFF 	The furnace is cold. (Does not consider the state of the thermostat)	Low energy: The furnace is cold; it needs to be lit with paper and kindling to provide heat.
Light blinking slowly (1.5 second per blink) 	The thermostat does not call for heat and there is heat available in the combustion chamber.	Energy saving: The furnace burns to a minimum burn rate and distributes as little heat as possible through the distribution air ducts to save wood by maintaining clean and efficient combustion. The fan cycles to remove excess heat.
Light blinking quickly (5 blinks per second): 	The furnace has reached its maximum temperature.	Thermal protection: The furnace control system reduces to minimum the supply of combustion air. If firebox maximum temperature is reached, fan will blow at normal speed. If plenum maximum temperature is reached, fan will blow at maximum speed. DO NOT ADD WOOD

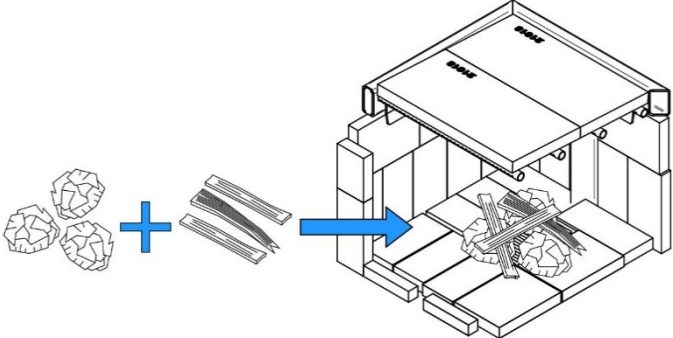
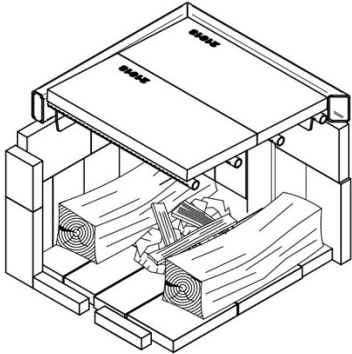
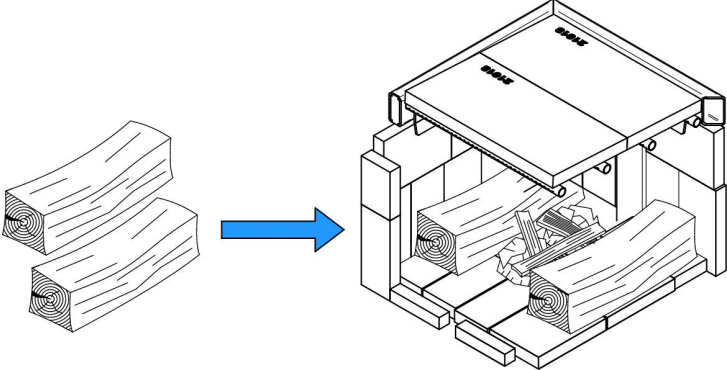
 EASY LIGHTING PRESS, LOAD, LIGHT AND CLOSE THE DOOR		
 ON	 CALL FOR HEAT +  HEAT AVAILABLE	MAXIMUM ENERGY
 BLINKING SLOW	 NO CALL FOR HEAT +  HEAT AVAILABLE	ENERGY SAVING
 OFF	 LIGHTING REQUIRED	LOW ENERGY
 BLINKING FAST	 DO NOT ADD WOOD	THERMAL PROTECTION
POWER OUTAGE REMOVE THE AIR FILTER (IF APPLICABLE)		
FOR ANY ADDITIONAL INFORMATION, PLEASE REFER TO THE « INSTALLATION AND OPERATING INSTRUCTIONS ». 27857A		

9.3 How to light and reload the furnace

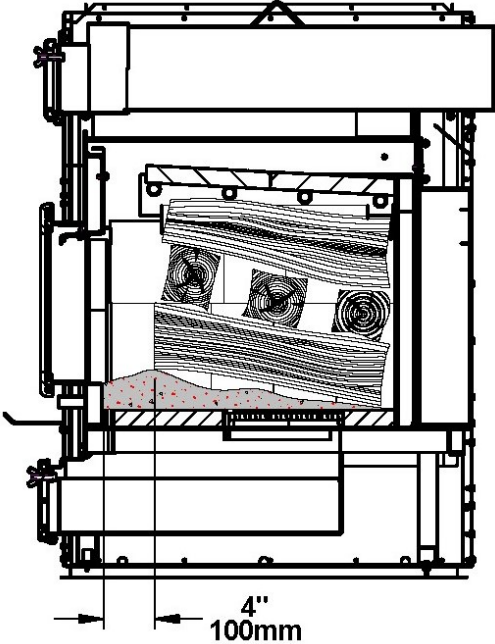
Note: Always keep a maximum of 4 inches of ash in the firebox. Weekly empty the ash drawer to ensure the correct operation of the furnace. For a clean and efficient combustion always keep some space between the logs and leave at least 4 inches of space in front of the logs.



9.3.1 Cold start and cold ember bed (The led button light is OFF)

Press reload button before opening the door	
Place paper and kindling on top of the ash grate	
Place two logs North&South on each side of the kindling	
Place another row in a crisscross pattern on top of the first logs.	
Light the paper and leave the door ajar (45 degree). Wait until the kindling and the logs catch fire. Then close the door.	
Important: never leave unattended the furnace with the door opened.	

9.3.2 Hot ember bed reload (The led button light is ON or slowly blinking)

• Press reload button before opening the door.	
• Open the door and bring hot embers to the front.	
• Load two logs North&South at the back. Crisscross logs over. Always leave 4" of free space in the front.	
• Leave the door ajar(45 degree) until the first flames appear. Then close the door.	
• Important: never leave unattended the furnace with the door opened.	

9.4 Your first fires

Two things will happen when burning the first few fires; the paint cures and the internal components of the furnace are conditioned.

As the paint cures, some of the chemicals vaporize. The vapors are non-toxic, but they do smell bad. Fresh paint fumes can also cause false alarms in smoke detectors.

So, when lighting the furnace, be prepared by opening doors or windows to ventilate the house. Burn one or two small fires to begin the curing and conditioning process. Then build bigger and hotter fires until there is no longer paint smell from the furnace.

As hotter and hotter fires are burnt, more of the painted surfaces reach the curing temperature of the paint. The smell of curing paint does not disappear until one or two very hot fires have been burnt.

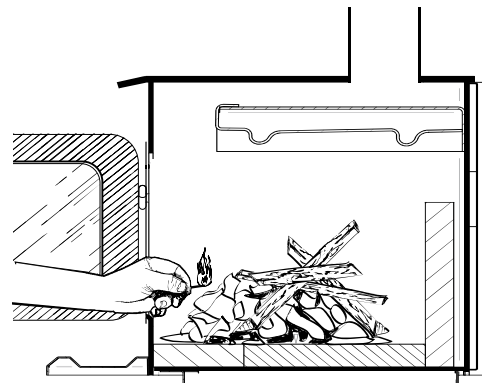
9.5 Lighting fires

Each person who heats with wood develops their own favorite method to light fires. Whatever method you choose, your goal should be to get a hot fire burning quickly. A fire that starts fast produces less smoke and deposits less creosote in the chimney.

Here are three popular and effective ways to start wood fires.

9.5.1 Conventional fire starting

The conventional way to build a wood fire is to bunch up 5 to 10 sheets of plain newspaper and place them in the firebox. Next, place 10 or so pieces of fine kindling on the newspaper. This kindling should be very thin; less than 1" (25 mm). Next, place some larger kindling pieces on the fine kindling. Press the reload button, light the newspaper. If you have a tall, straight venting system you should be able to close the door immediately. If your venting system has elbows or an outside chimney, you may need to leave the door ajar for a few minutes as the newspaper ignites and heat in the chimney produces some draft. Once the fire has ignited, close the door.



A conventional kindling fire with paper under finely split wood.

DO NOT LEAVE THE FURNACE UNATTENDED WHEN THE DOOR IS SLIGHTLY OPENED DURING LIGHTING. ALWAYS CLOSE THE DOOR AFTER LIGHTING.

After the kindling fire has mostly burned, you can add firewood pieces until you have a fire of the right size for the conditions.

9.5.2 The top down fire

The top down fire starting method solves two problems with the conventional method: first, it does not collapse and smother itself as it burns; and second, it is not necessary to build up the fire gradually because the firebox is loaded before the fire is lit. A top down fire can provide up to two hours of heating or more. The top down method only works properly if the wood is well-seasoned.

Start by placing three or four full-sized split pieces of dry firewood in the firebox. Next, place 4 or 5 more finely split pieces of firewood (2" to 3" (51 mm to 76 mm) diameter) on the base logs at right angles (log cabin style). Now place about 10 pieces of finely split kindling on the second layer at right angles.

The fire is topped with about 5 sheets of newspaper. You can just bunch them up and stuff them in between the kindling and the underside of the baffle. Or you can make newspaper knots by rolling up single sheets corner to corner and tying a knot in them. The advantage of knots is that they do not roll off the fire as they burn. Light the newspaper and watch as the fire burns from top to bottom.

9.5.3 Two parallel logs

Place two spit logs in the firebox. Place a few sheets of twisted newspaper between the logs. Now place some fine kindling across the two logs and some larger kindling across those, log cabin style. Light the newspaper.

9.5.4 Using fire starters

Commercial fire starters can be used instead of a newspaper. Some of these starters are made of sawdust and wax and others are specialized flammable solid chemicals. Follow the package directions for use.

Gel starters can also be used, but only to light a fire, in a cold combustion chamber without hot embers inside.

9.6 Maintaining wood fires

9.6.1 General advice

Wood heating is very different than other forms of heating.

Do not expect steady heat output from your furnace. It is normal for its temperature to rise after a new load of wood is ignited and for its temperature to gradually decline as the fire progresses. This rising and falling of temperature can be matched to your household routines. For example, the area temperature can be cooler when you are active, such as when doing housework or cooking, and it can be warmer when you are inactive, such as when reading or watching television.

Wood burns best in cycles. A cycle starts when a new load of wood is ignited by hot coals and ends when that load has been consumed down to a bed of charcoal about the same size as it was when the wood was loaded. Do not attempt to produce a steady heat output by placing a single log on the fire at regular intervals. Always place at least three, and preferably more, pieces on the fire at a time so that the heat radiated from one piece helps to ignite the pieces next to it. Each load of wood should provide several hours of heating. The size of each load can be matched to the amount of heat needed.

When you burn in cycles, you rarely need to open the furnace's loading door while the wood is burning. This is an advantage because there is more chance that smoke will leak from the furnace when the door is opened as a full fire is burning. This is especially true if the chimney connector has 90 degree elbows and if the chimney runs up the outside wall of the house.

IMPORTANT

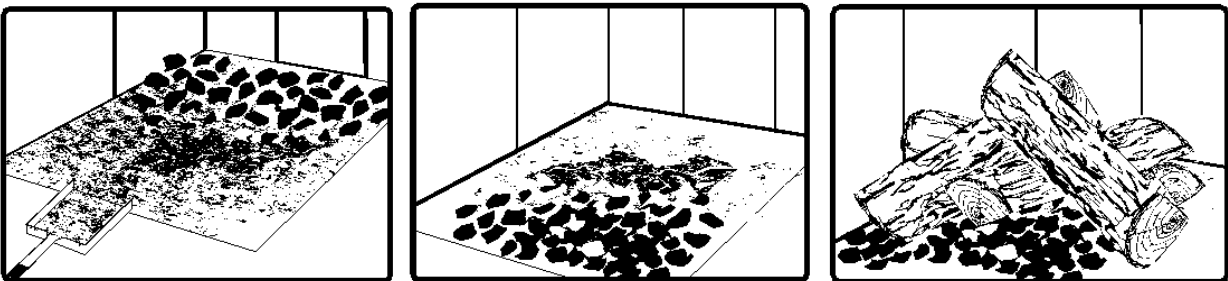
WHEN RELOADING, MAKE SURE YOU KEEP THE AIR INLETS LOCATED AT THE BOTTOM OF THE DOOR INSIDE THE COMBUSTION CHAMBER FREE OF ASH.

OPENING PROCEDURE FOR THE LOADING DOOR

TO MINIMISE THE RISK OF SMOKE SPILLAGE, CRACK THE DOOR OPEN ABOUT AN INCH (25 MM) AND WAIT ABOUT 10 SECONDS BEFORE OPENING IT WIDE TO ALLOW STABILISATION OF THE PRESSURE INSIDE THE FURNACE.

9.6.2 Raking charcoal

Rekindle the fire when you notice that the room temperature has fallen. Do not operate your furnace at too low a setting. Keep the air inlet opened long enough during the fire start-up to prevent the fire from smouldering, which could stain the glass. You will find most of the remaining charcoal at the back of the firebox, furthest from the door. Rake these coals towards the door before loading. There are two reasons for this raking of the coals. First, it concentrates them near where most of the combustion air enters the firebox and where they can ignite the new load quickly, and second, the charcoal will not be smothered by the new load of wood. If you were to simply spread the charcoal out, the new load will smoulder for a long time before igniting.



Remove ash first, and then rake charcoal towards the front of the firebox before loading so that it will ignite the new load.

9.6.3 Firing Each New Load Hot

Press the reload button, place the new load of wood on and behind the charcoal. Close the door. Firing each load of wood hot accomplishes a few things:

- drives the surface moisture from the wood,
- creates a layer of char on the wood, which slows down its release of smoke,
- heats the firebox components so they reflect heat back to the fire, and
- heat the chimney so it can produce strong, steady draft for the rest of the cycle.

DO NOT LEAVE THE FURNACE UNATTENDED WHILE A NEW LOAD IS BEING FIRED HOT.

DO NOT OVERFIRE.

When you burn a new load of wood hot to heat up the wood, the furnace and the chimney, the result will be a surge of heat from the furnace. This heat surge is welcome when the room temperature is a little lower than desirable, but not welcome if the space is already warm. Therefore, allow each load of wood to burn down so that the space begins to cool off a little before loading.

9.6.4 Control of the air supply

Once the firewood, firebox and chimney are hot, the air combustion controls will close gradually to maintain the optimal combustion chamber temperature.

9.6.5 Building different fires for different needs

Your house will need far less heat in October than in January to be kept at a comfortable temperature. If you fill the firebox full in fall weather, you will either overheat the space or turn the furnace down so much that the fire will be smoky and inefficient. Here are some suggestions for building fires to match different heat demand.

9.6.5.1 Small fires to take the chill off the house

To build a small fire that will produce a low heat output, use small pieces of firewood and load them crisscross in the firebox. The pieces should be only 3" (76 mm) to 4" (102 mm) in diameter. After raking the coals, you can lay two pieces parallel to each other corner to corner in the firebox and lay two more across them in the other direction. This kind of fire is good for mild weather when you are around to tend the furnace and should provide enough heat for four hours or more. Small fires like this are a good time to use softer wood species so there will be less chance of overheating the house.

9.6.5.2 Long lasting low output fires

Sometimes you will want to build a fire to last up to eight hours, but do not need intense heat. In this case use soft wood species and place the logs compactly in the firebox so the pieces are packed tightly together.

9.6.5.3 High output fires for cold weather

When the heat demand is high during cold weather, you will need a fire that burns steadily and brightly. This is the time to use your biggest pieces of hardwood fuel if you have it. Put the biggest pieces at the back of the firebox and place the rest of the pieces compactly. A densely built fire like this will produce the longest burn your furnace is capable of.

9.6.5.4 Maximum burn cycle times

The burn cycle time is the period between loading wood on a coal bed and the consumption of that wood back to a coal bed of the same size. The flaming phase of the fire lasts for roughly the first half of the burn cycle and the second half is the coal bed phase during which there is little or no flame. The length of burn you can expect from your furnace, including both the flaming and coal bed phases, will be affected by several things, such as:

- firebox size,
- the amount of wood loaded,
- the species of wood you burn,
- the wood moisture content,
- the size of the space to be heated,
- the climate zone you live in, and
- the time of year.
- the time cycle for the thermostat to call for heat.

The table below provides a very general indication of the maximum burn cycle times you are likely to experience, based on firebox volume.

FIREBOX VOLUME	MAXIMUM BURN TIME
< 1.5 ft ³	3 to 5 hours
1.5 ft ³ to 2 ft ³	5 to 6 hours
2 ft ³ to 2.5 ft ³	6 to 8 hours
2.5 ft ³ to 3.0 ft ³	8 to 9 hours
>3.0 ft ³	9 to 10 hours

9.7 Additional fresh air supply

When the furnace and the chimney are completely cold, it may be necessary to provide fresh air by opening a door or a window for a few minutes while lighting the fire.

Take note that a house constructed or renovated to be airtight may lack the volume of fresh air necessary for the proper combustion of a solid-fuel heating appliance.

In such a case, when starting up the fire, do not operate appliances that evacuate air outside the house, such as:

- Range hood
- Air exchanger
- Clothes dryer
- Bathroom blower
- Ventilated central vacuum system

Exhaust blowers that are in a fuel storage room should be installed so as not to create negative pressure in the room where the solid fuel appliance is located.

A fresh air supply may be necessary to prevent furnace from rejecting products of combustion into the house. The indications used to determine if an additional fresh air supply is necessary are not appropriate for all the situations. When in doubt, it is recommended to install a fresh air supply.

A fresh air supply may be needed if:

- Solid fuel units present anomalies, such as irregular draft, smoke return, bad combustion, and/or reversed draft (whether there is combustion or not);
- Existing units such as a stove, a furnace or fireplace release odours, heat badly, cause smoke returns, or reversed draft (whether there is combustion or not);
- The opening of a window, even slightly, in calm weather (windless), eliminates every problem mentioned above ;
- The house is equipped with a tight vapour/air barrier and adjusted windows, and/or is equipped with an interior air mechanical evacuation device ;
- There is excessive condensation on the windows in winter; and
- The house is equipped with a ventilation system.

If, according to these symptoms or other similar ones, there is insufficient combustion air, it is necessary to ensure an additional combustion air supply (see **Section 6: Air Supply in conventional houses**).

9.8 Ash drawer

Your furnace is equipped with an ash drawer to collect ashes produced by the combustion of wood. The ash drawer is provided with one (1) wing nut to hold the door in a close position. Operating the furnace with the ash drawer open may cause overfiring and damage the furnace. **The drawer must be emptied weekly.**

9.9 Prolonged power outage

To reduce the risk of overheating during a prolonged power outage (more than 10 minutes), the combustion air controls will be closed automatically. If your furnace is equipped with the optional filter, remove the air filter to improve the circulation of air around the combustion chamber of the furnace. Do not load the furnace more than 50 percent of its capacity to prevent the risk of overheating.

10 Maintaining your wood heating system

10.1 Furnace maintenance

Your new furnace will give many years of reliable service if you use and maintain it correctly. Some of the internal components of the firebox, such as firebricks, baffles and air tubes, will wear over time under intense heat. You should always replace defective parts with original parts (see **Section 12: Exploded diagram and parts list**). For firing each load hot to begin a cycle as described above will not cause premature deterioration of the furnace. However, if the thermostat always calls for heat it can cause damage over time. The more the furnace overheats during combustion cycles, the faster its elements will deteriorate. For that reason, **never leave the furnace unattended while a new load is being fired hot.**

Recommended Maintenance Scheduled

Use this as a guide when used under average conditions.

Components	Weekly or after ± 1/3 Face cord	Monthly ± 1 Face cord	Annually or ± 3 Face cord
Glass	Inspect and Clean*		
Combustion Chamber	Empty / Vacuum*	Inspect	
Ash drawer	Empty*		
Air filter (If applicable)		Clean or replace every three months	
Firebricks		Inspect	
Baffle		Inspect	
Air tube		Inspect	
Heat Exchanger		Inspect, Sweep and Clean*	
Door tightness		Inspect and adjust or replace gasket if necessary	
Thermocouples			Inspect and Clean
Chimney			Sweep and Clean if necessary*
Blower			Clean

Face cord; 4'X8'X16" (≈42 cubic feet)

*Cleaning frequency may vary depending on the type of fuel used. Fuel with higher ash content will increase cleaning frequency.

CAUTION: IT IS RECOMMENDED TO CLEAN THE HEAT EXCHANGERS, FLUE PIPE AND CHIMNEY THOROUGHLY AT THE END OF THE HEATING SEASON IN ORDER TO PREVENT CORROSION DURING THE SUMMER MONTHS, CAUSED BY ACCUMULATED ASH AND/OR SOOT AND/OR CREOSOTE.

10.1.1 Ash removal

Ash should be removed from the firebox every week of full time heating. Do not let the ash build up in the firebox because it will interfere with proper fire management.

The best time to remove ash is after an overnight fire when the furnace is relatively cool, but there is still some chimney draft to draw the ash dust into the furnace and prevent it from coming into the room.

After ashes have been removed from the furnace and placed in a tightly covered metal container, they should be taken outside immediately. The closed container of ashes should be placed on a non-combustible floor or on the ground well away from all combustible materials pending final disposal. Ashes normally contain some live charcoal that can stay hot for several days. 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 thoroughly cooled. Other waste shall not be placed in this container.

NEVER STORE ASHES INDOORS OR IN A NON-METALIC CONTAINER OR ON A WOODEN DECK. ALWAYS LEAVE THE CONTAINER ON A NON-COMBUSTIBLE FLOOR.

10.1.2 Cleaning door glass

Under normal conditions, your door glass should stay relatively clear. If your firewood is dry enough and you follow the operating instructions in this manual, a whitish, dusty deposit will form on the inside of the glass after a week or so of use. This is normal and can be easily removed when the furnace is cool by wiping with a damp cloth or paper towel and then drying. **Never attempt to clean the glass when the furnace is hot.**

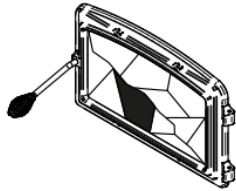
In spring and fall the furnace will cycle less often. You may see some light brown stains forming, especially at the lower corners of the glass. This indicates that the combustion has been incomplete and some of the smoke has condensed on the glass. When the weather is mild, you may find that letting the fire go out is better than trying to maintain a continuous fire. Use the technique described above for building a fire to take the chill off the house.

If you do get brown stains on the glass, you can remove them with special cleaners for wood furnace glass doors. **Do not use abrasives to clean your furnace's door glass.**

The deposits that form on the glass are the best indication of the quality of your fuel and how well you are doing in operating the furnace. Your goal should be clear glass with no brown stains. If you continue to see brown stains on the glass, something about your fuel and operating procedure needs to be changed. Stains on the glass indicate incomplete combustion of the wood, which also means more smoke emissions and faster formation of creosote in the chimney.

When brown streaks are coming from the edge of the glass, it is time to replace the gasket around the glass. The glass gasket should be self-adhesive. Follow the instructions in

section « 10.1.4 Replacement of the glass and gaskets» for installation. Always replace gaskets with genuine ones. See section « 12 Exploded diagram and parts list ».



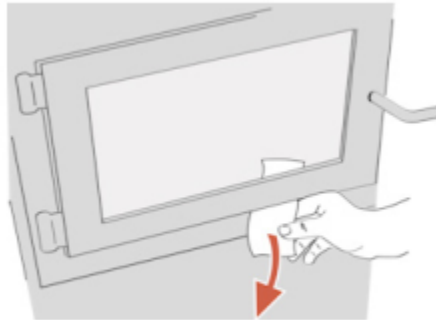
Do not clean the glass when the stove is hot.

Do not abuse the glass door by striking or slamming shut.

Do not use the stove if the glass is broken.

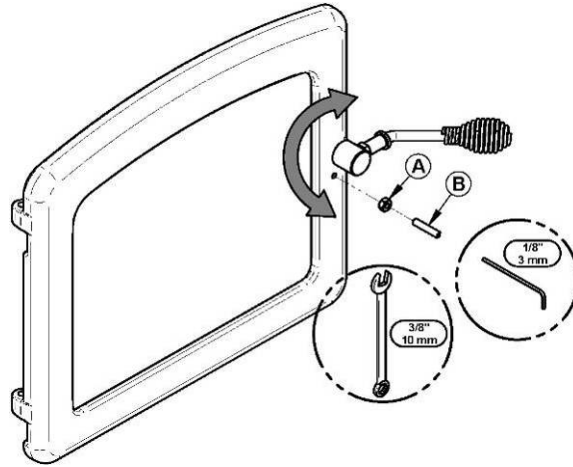
10.1.3 Door adjustment

In order to burn at its best efficiency, the furnace door must provide a perfect seal with the firebox. The tightness of the door seal can be verified by closing and latching the door on a strip of paper. The test must be performed all around the door. If the paper slips out easily anywhere, either adjust the door or replace the gasket.



Door adjustment procedure:

1. Unscrew the locking pin **(B)** and nut **(A)** from the door.
2. To increase the pressure of the door on the gasket, turn the handle. Counter-clockwise, to reduce the pressure of the door on the cord, turn the handle clockwise to clockwise.
3. Finally, screw-in the locking pin **(B)** about 1/4" (6 mm) deep and make sure you lock it with the nut **(A)**. If after adjustment the door is not tight, replace the door gasket.



10.1.4 Replacement of the glass and gaskets

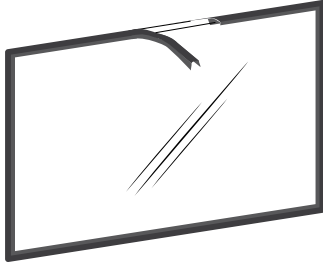
After a year or more of use, the gasket of the door will compress and become hard which can allow air to pass. You can check the air tightness of your door gasket by closing and locking the door on a piece of paper. Check all around the door. If the paper slides easily anywhere, adjust the door and the gasket if this is not enough.

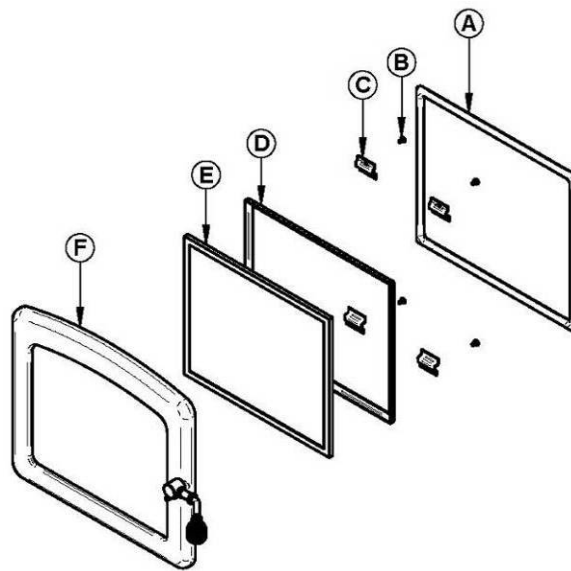
Always use a genuine gasket that you can purchase from your dealer. The correct size and density of the gasket are important to ensure a good seal.

Prior of removing the defective glass, you need to remove the door gasket. Inspect the door gasket before it is reinstalled to make sure it is in good condition. We suggest replacing the door and glass gasket at the same time as their level of wear over time is similar.

For the following steps, wearing gloves and safety glasses are recommended for handling seals can irritate the skin and the glass can be sharp.

- To replace the door gasket, use the steps 1 to 3 and 10 outlined below.
 - To replace the glass, use the steps 1 to 6 and 9 to 10 outlined below.
 - To replace the glass gasket, use the steps 1 to 10 outlined below.
1. Remove the door **(F)** and place it on a stable work surface, handle down.
 2. Using pliers, remove the door gasket **(A)**.
 3. Using a scraper or a small flat screwdriver, remove the adhesive left in the gasket groove in the door then clean the surface using a commercial vacuum.
 4. Use a Phillips screwdriver or a power drill to remove the screws **(B)** that holds the glass retainer **(C)**.
 5. Remove the glass frame **(D)**.
 6. Remove the glass **(E)** (or pieces of glass if it is damaged) and clean the inside of the door frame.
 7. Remove the old glass gasket.

8. Install the new gasket on the glass. Remove a part of the paper covering the gasket adhesive. Center the gasket on the edge of the glass so that when folded and glued, the gasket is equal on both sides. Do not stretch the gasket during installation. Remove a majority of the paper, turn the glass to facilitate and complete the installation of the gasket. When you return to the starting point, cut the gasket so that the ends overlap by about 1/2" (13 mm).
- 
9. Install the glass **(E)** and glass frame **(D)** centering them in the door frame. Install the glass retainers **(C)** taking care not to over tighten the screws **(B)**. Note that the two main causes of glass breakage are unequal position in the door and screws too tight.
 10. Install the new door gasket **(A)**. To do this, use about 1/4" (6 mm) of adhesive to the bottom of the groove that holds the gasket in the door. Then lay the new gasket starting from the center of the hinge side and taking care not to stretch the gasket during installation. Leave about 1/2" (13 mm) of gasket exceed the frame of the door. Once jointed, push the fibers protruding towards the inside of the groove in the adhesive. Install the door and let dry for 24 hours before using the furnace.



Do not abuse the glass door by striking or slamming shut. Do not use the furnace if the glass is broken. To change the glass, perform the same operation described above.

10.1.5 Cleaning and painting the furnace

Do not attempt to clean or paint the furnace when the unit is hot. Painted surfaces can be wiped down with a damp cloth. Plated or enameled surfaces may be scratched by abrasive cleaners. To maintain the finish at its original brilliance, use only a damp soft cloth to clean plated or enameled surfaces.

If the paint becomes scratched or damaged, you can give your wood furnace a brand-new look by repainting it with heat-resistant or enamel finish paint. Before painting, roughen the

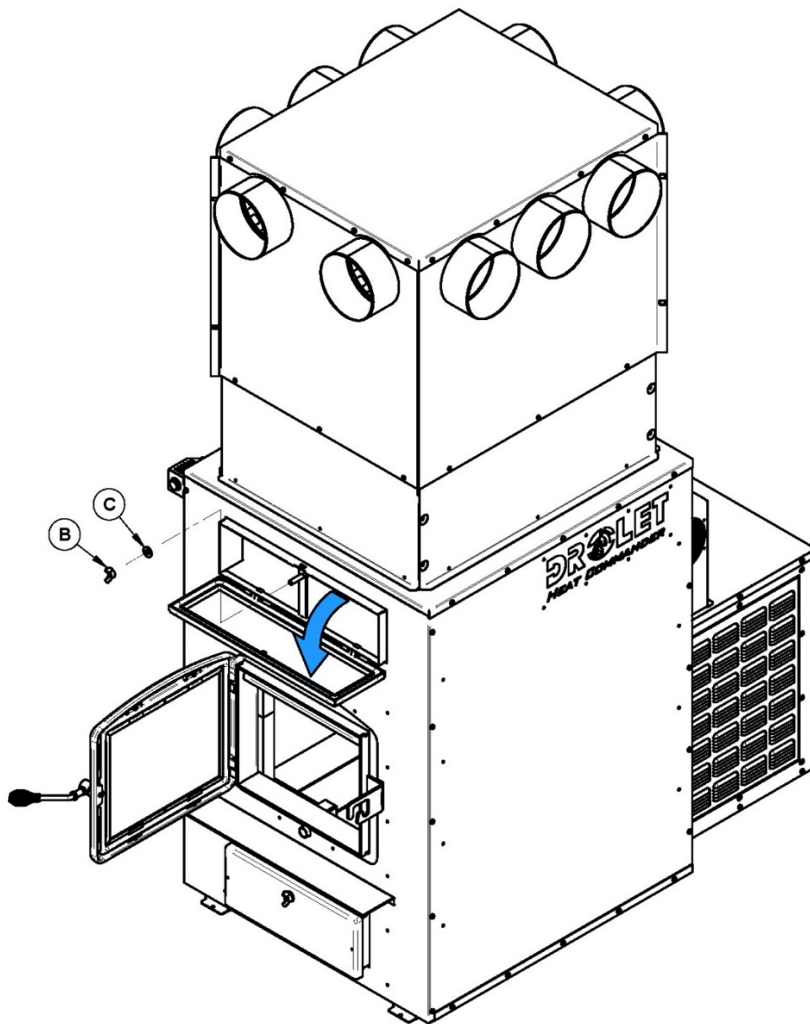
surface with fine sandpaper, wipe it down to remove dust, and apply two thin coats of paint. For best results, use the same paint that was originally used on the furnace, which is available in spray cans. See your dealer for details.

10.1.6 Heat exchangers care

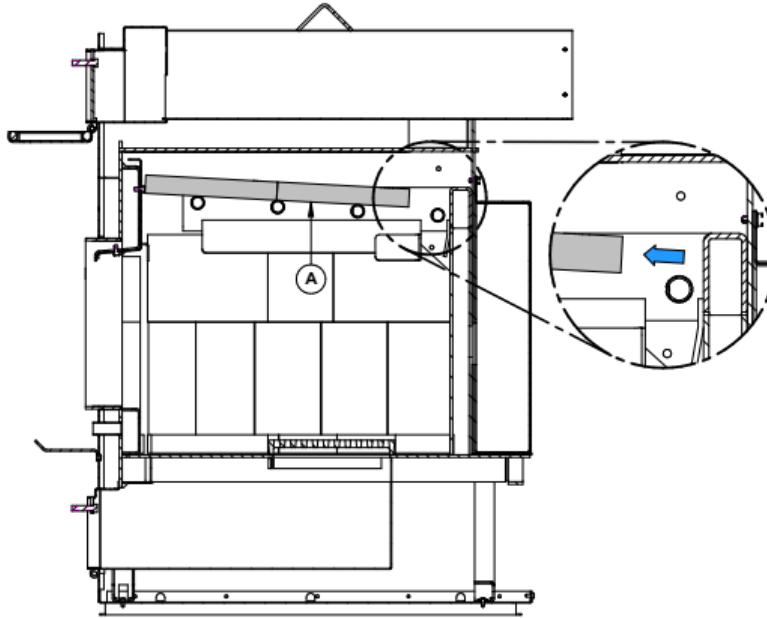
Heat exchangers must be cleaned thoroughly at the end of every heating season. During summer, the air in basements is damper and with minimal air circulation within the furnace, it can mix with creosote and/or soot deposits in the exchangers to form an acid that could accelerate the corrosion process and induce premature decay of the steel. Corrosion damages are not covered under warranty.

Smoke pipe and exchangers must be inspected regularly during the heating season. Access to the exchangers is easy and does not require tools.

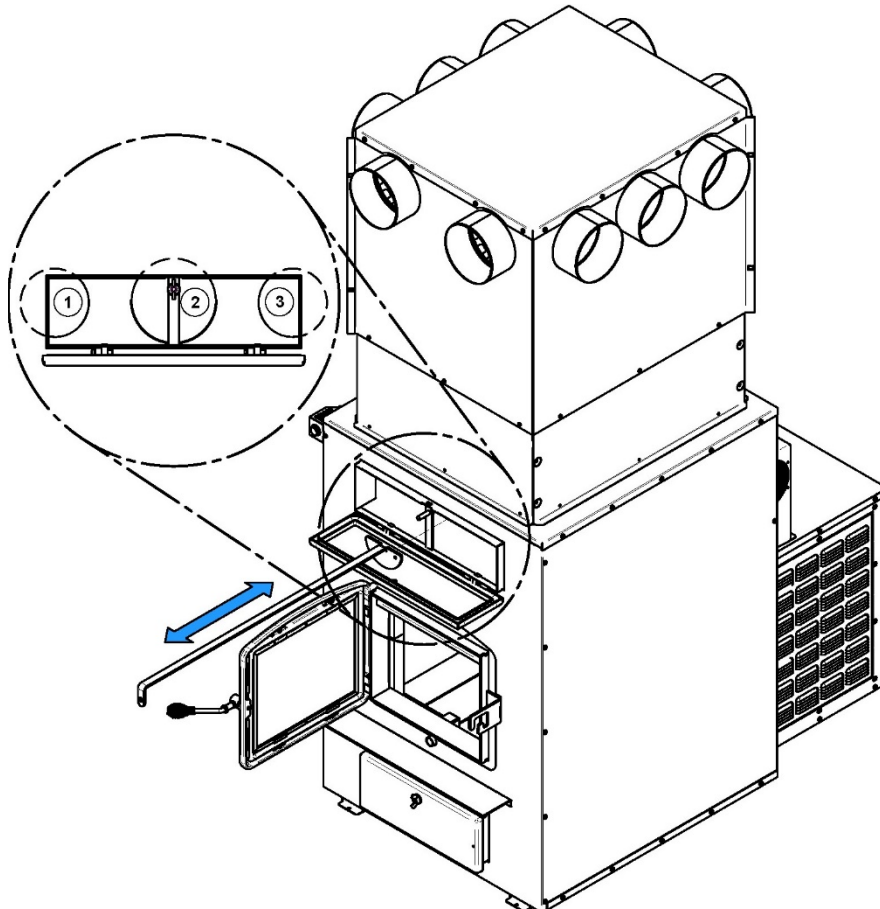
1. Unscrew the wing nut **(B)** and remove the washer **(C)** on the exchanger access door.



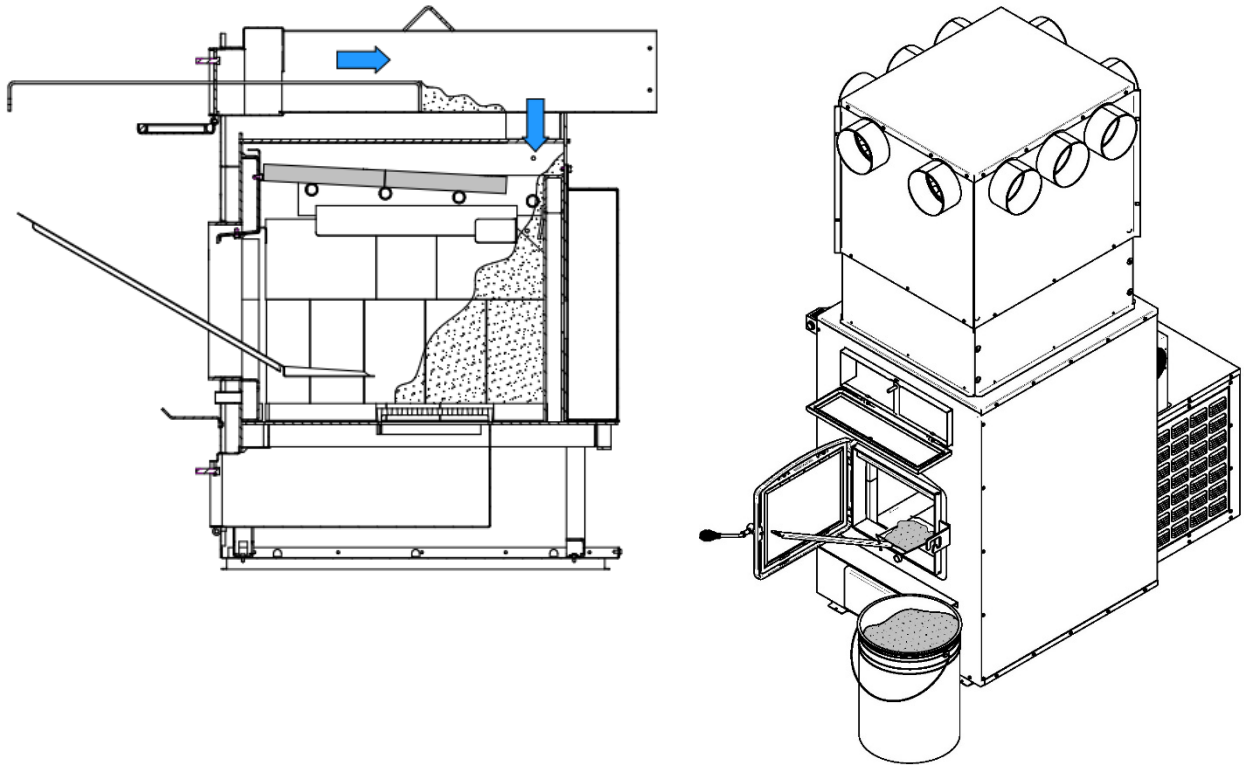
2. Move the baffle of the combustion chamber forward.



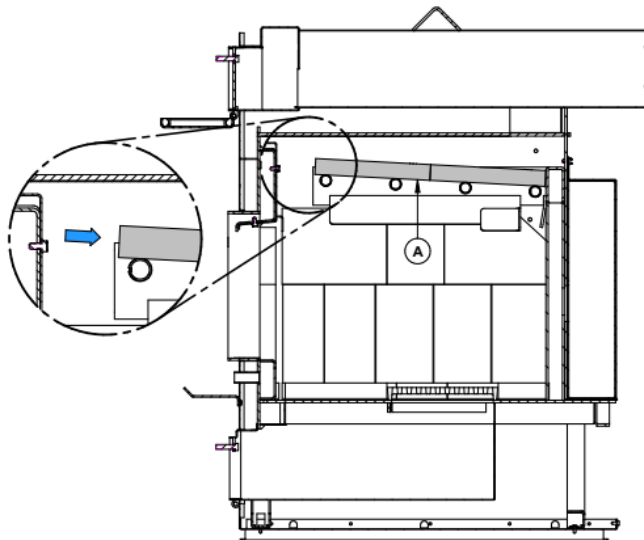
3. Use the tool provided, clean the three exchanger pipes.



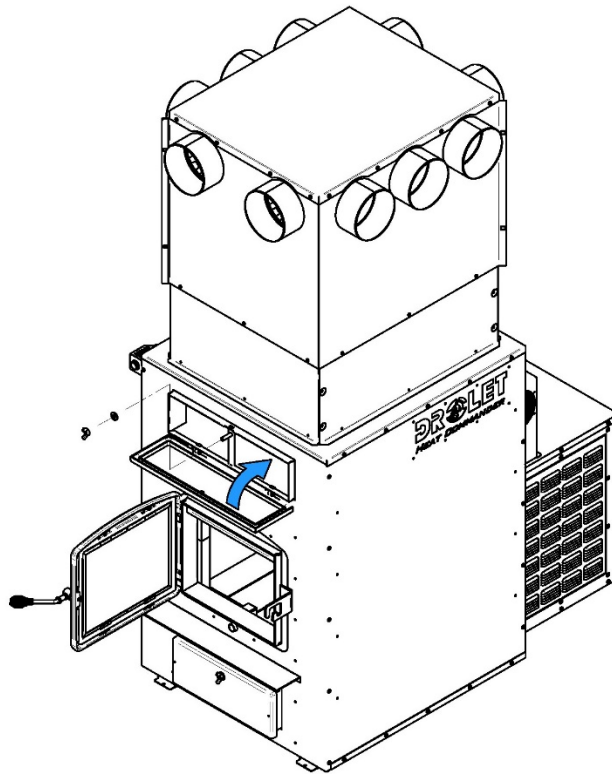
4. Dirt in the lateral exchangers (1 and 3) fall into the combustion chamber at the rear.



5. Dirt in the central exchanger (2) will be removed from the front or the rear of the furnace. If you remove dirt from the central exchange to the back of the furnace, remove the black pipe connector to dispose of the deposit.
6. Then, check that the baffle is clear of ash and reposition it in its original position towards the back of the combustion chamber. **Important to note that the furnace will not burn correctly if the baffle is out of place during use.**



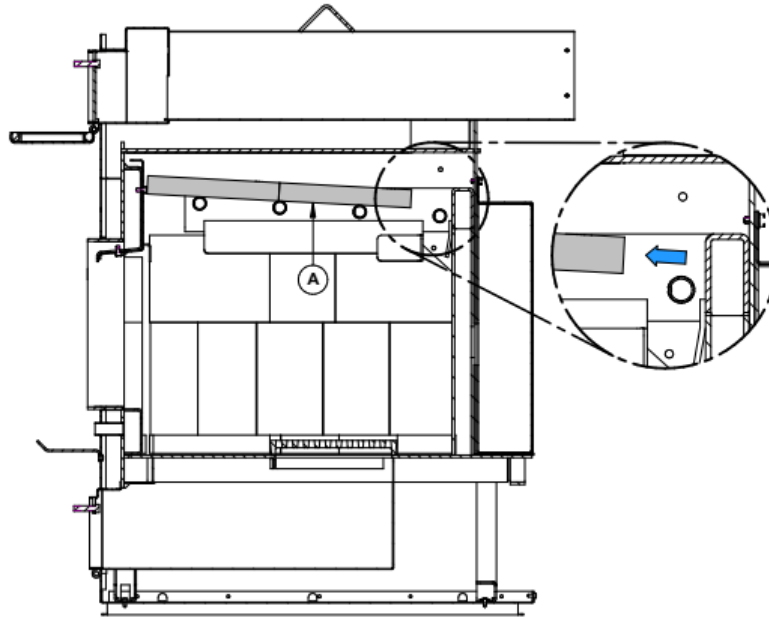
7. Close the exchanger access door and secure it using the washer and wing nut.



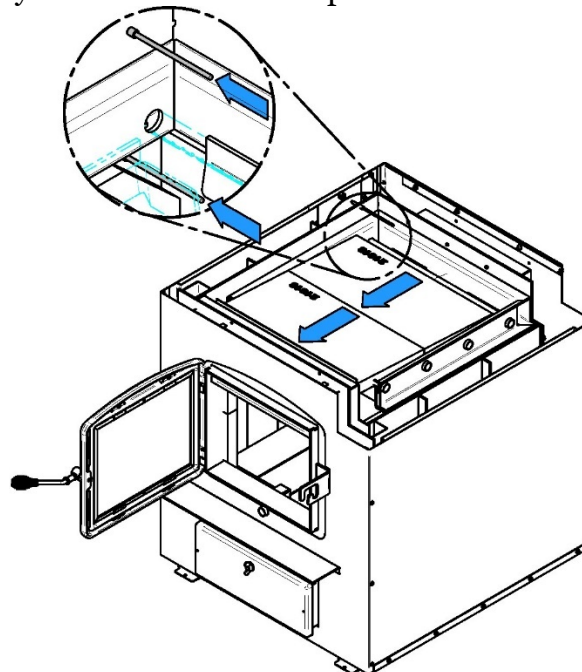
8. If you have performed from the back part of the furnace, reinstall the black pipe connector and secure it with three screws.

10.1.7 thermocouples care

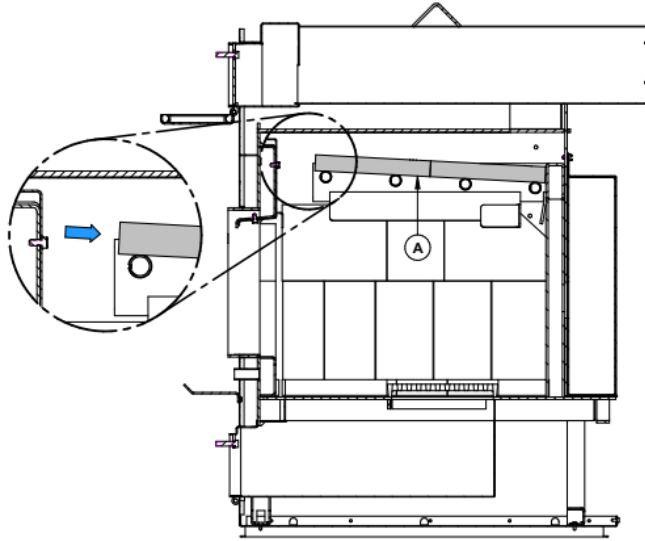
1. Move the baffle of the combustion chamber forward.



2. With a brush, carefully clean the thermocouples.



3. Then, reposition the baffle in its original position towards the back of the combustion chamber. **Important to note that the furnace will not burn correctly if the baffle is out of place during use.**



10.2 Chimney maintenance

Wood smoke can condense inside the chimney connector and chimney, forming a combustible deposit called creosote. If creosote is allowed to build up in the venting system, it can ignite when a hot fire is burned in the furnace and a very hot fire can progress to the top of the chimney. Severe chimney fires can damage even the best chimneys. Smouldering, smoky fires can quickly cause a thick layer of creosote to form. Avoid smouldering so the exhaust from the chimney is mostly clear, creosote builds up more slowly. Your new furnace has the right characteristics to help you to burn clean fires with little or no smoke, resulting in less creosote in the chimney.

10.2.1 Cleaning Frequency

It is not possible to predict how much or how quickly creosote will form in your chimney. It is important, therefore, to check the build-up in the chimney monthly until you determine the rate of creosote formation. Even if creosote forms slowly in your system, the chimney should be cleaned and inspected at least once each year.

Contact your local municipal or provincial fire authority for information on how to handle a chimney fire. Have a clearly understood plan to handle a chimney fire.

10.2.2 Cleaning the chimney

Chimney sweeping can be a difficult and dangerous job. People with no chimney sweeping experience will often prefer to hire a professional chimney sweep to inspect and clean the system for the first time. After seeing the cleaning process, some will choose to do it themselves.

The most common equipment used are fiberglass rods with threaded fittings and stiff plastic brushes. The brush is forced up and down inside the chimney flue to scrub off the creosote.

CAUTION: *Operation of your furnace without the baffle may cause unsafe and hazardous temperature conditions and will void the warranty.*

10.3 Firebricks inspection

Check firebricks to ensure that none are broken or damaged in any way. If so, have the damaged ones replaced.

10.4 Smoke pipe inspection

- The smoke pipe must be inspected regularly during the heating season.
- The pipe must be examined carefully to detect any defect or damage.
- The pipe can be reassembled if no defect is detected and defective pipe must be replaced immediately.
- INSPECT FLUE PIPES, FLUE PIPE JOINTS, AND FLUE PIPE SEALS REGULARLY TO ENSURE THAT SMOKE AND FLUE GASES ARE NOT DRAWN INTO, AND CIRCULATED BY, THE AIR-CIRCULATION SYSTEM.

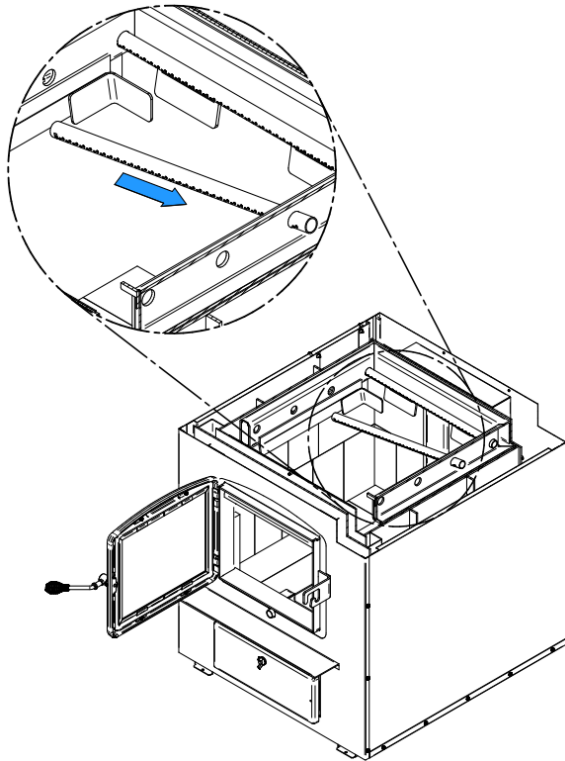
10.5 Blower motor maintenance

Periodic cleaning of the blower housing, impeller and louver as well as blower and blower blades using a vacuum cleaner is necessary in order not to affect performance and cause overheating of the system.

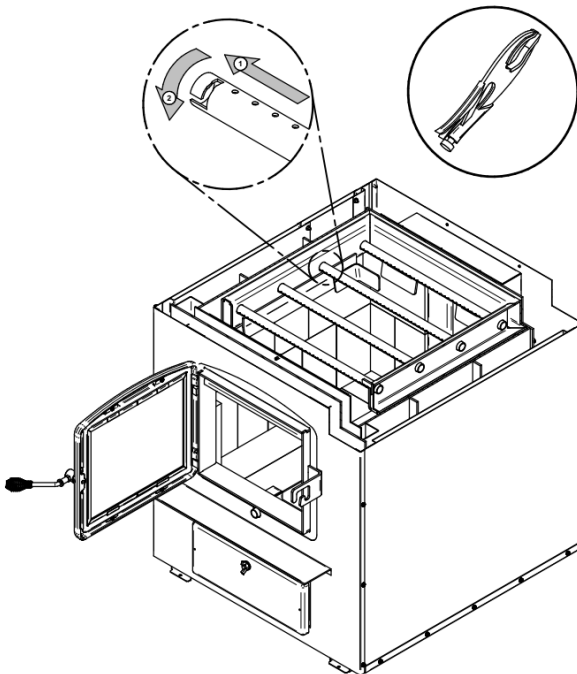
11 Troubleshooting

PROBLEM	CAUSES	SOLUTIONS
Heating inefficient during the first combustions. Lack of draft.	If installed, improper adjustment of the barometric damper (opened too wide). Chimney flue restriction (too long. 90° elbows).	Adjust the damper, minimize the smoke pipe length and use of 45° elbows.
Furnace burns well, warm air plenum is very hot but there is not much heat coming out in the room.	Improper installation of the ducts, low static pressure, unbalanced system (too many warm air outlets and not enough fresh air return).	Rearrange the ducting to respect the minimum static pressure of 0.20 in. W.C. (50 Pa) in the plenum.
Furnace consumes a lot of wood.	The thermostat always calls for heat or is too close to a source of cold air. Air controls not properly adjusted. House not insulated enough. Furnace and ash drawer door not airtight. Furnace too small for the surface to be heated. Unbalanced ventilation system.	Relocate the thermostat. Rebalance the ventilation system to increase the air flow in the room where the thermostat is located. Check tightness of air controls, furnace and ash drawer door.
A lot of creosote, moderate heat output.	Wet wood, lack of draft. Barometric damper not properly adjusted. Restriction in the furnace or chimney.	Use dry wood. Adjust the barometric damper. Clean the chimney, flue pipe and the furnace exchangers.
Furnace heats a lot but the warm air duct does not get hot.	No static pressure. Unbalanced ventilation system. Wet wood or low grade wood.	Use dry wood. Rearrange the ventilation system correctly.
Reload button LED blinking fast	Unit is overheating	Leave the door closed, do not add more wood and wait for the end of combustion. Check the door and the ash drawer door for leaks. Excessive chimney draft. Check the tightness of the air controls.
Primary air controls never opens.	Furnace is not plugged-in.or an electrical component is faulty.	Make sure the furnace is plugged-in a functional power outlet. Test and replace if necessary, control switch, thermostat, and air control motor.

11.1 Installation of secondary air tubes and baffle



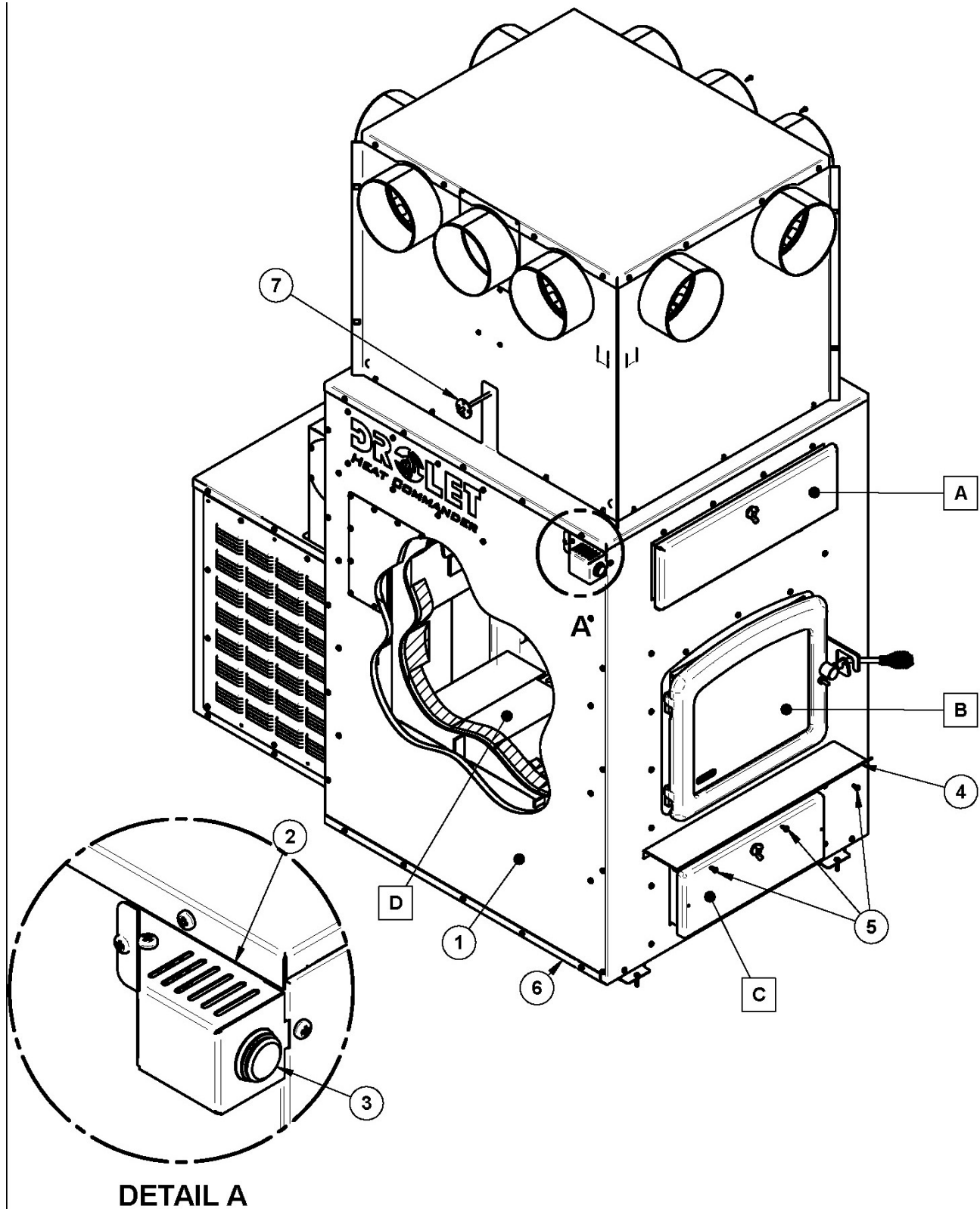
- 1- Starting with the rear tube, lean and insert the right end of the secondary air tube into the rear right channel hole. Then lift and insert the left end of the tube into the rear left channel.

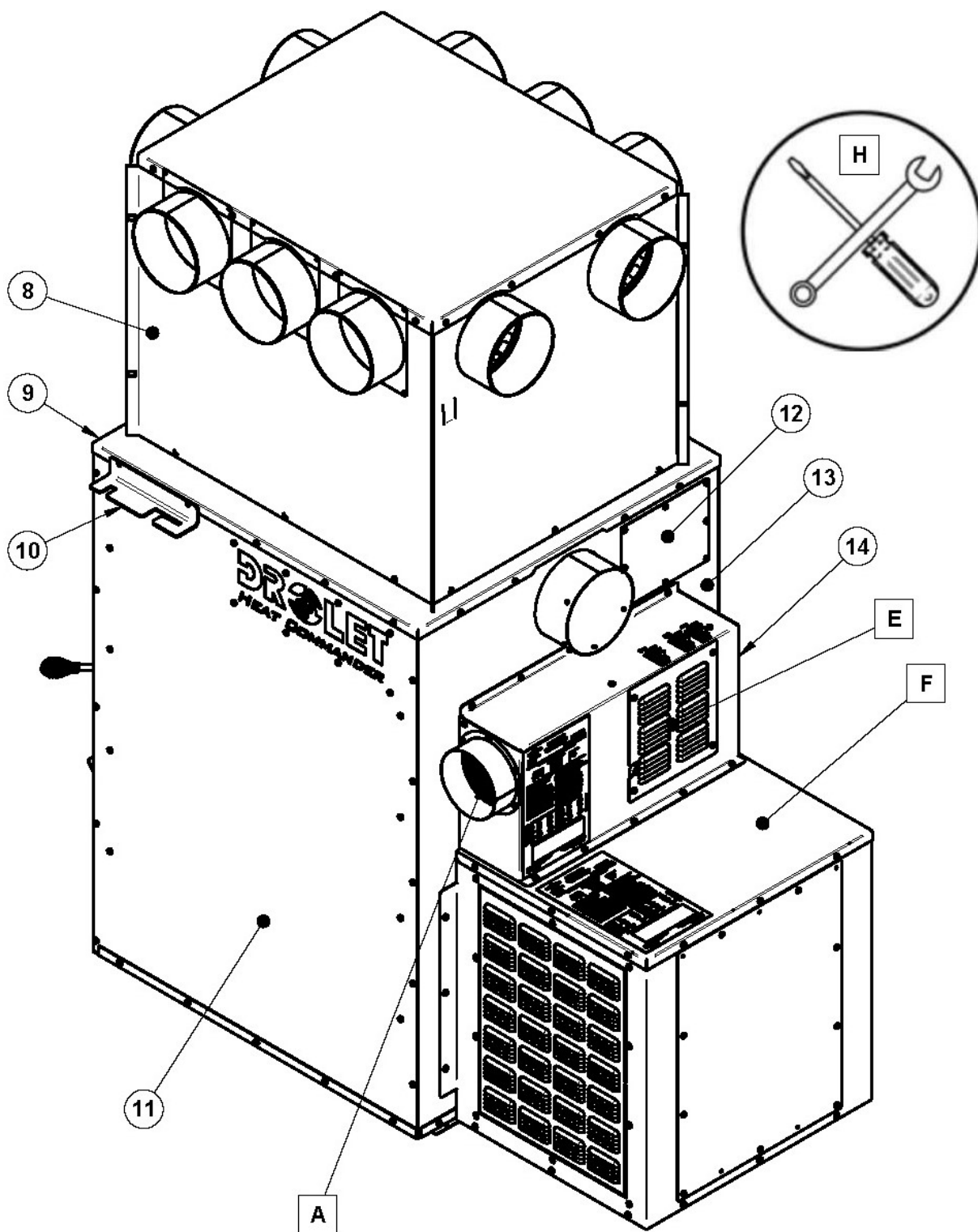


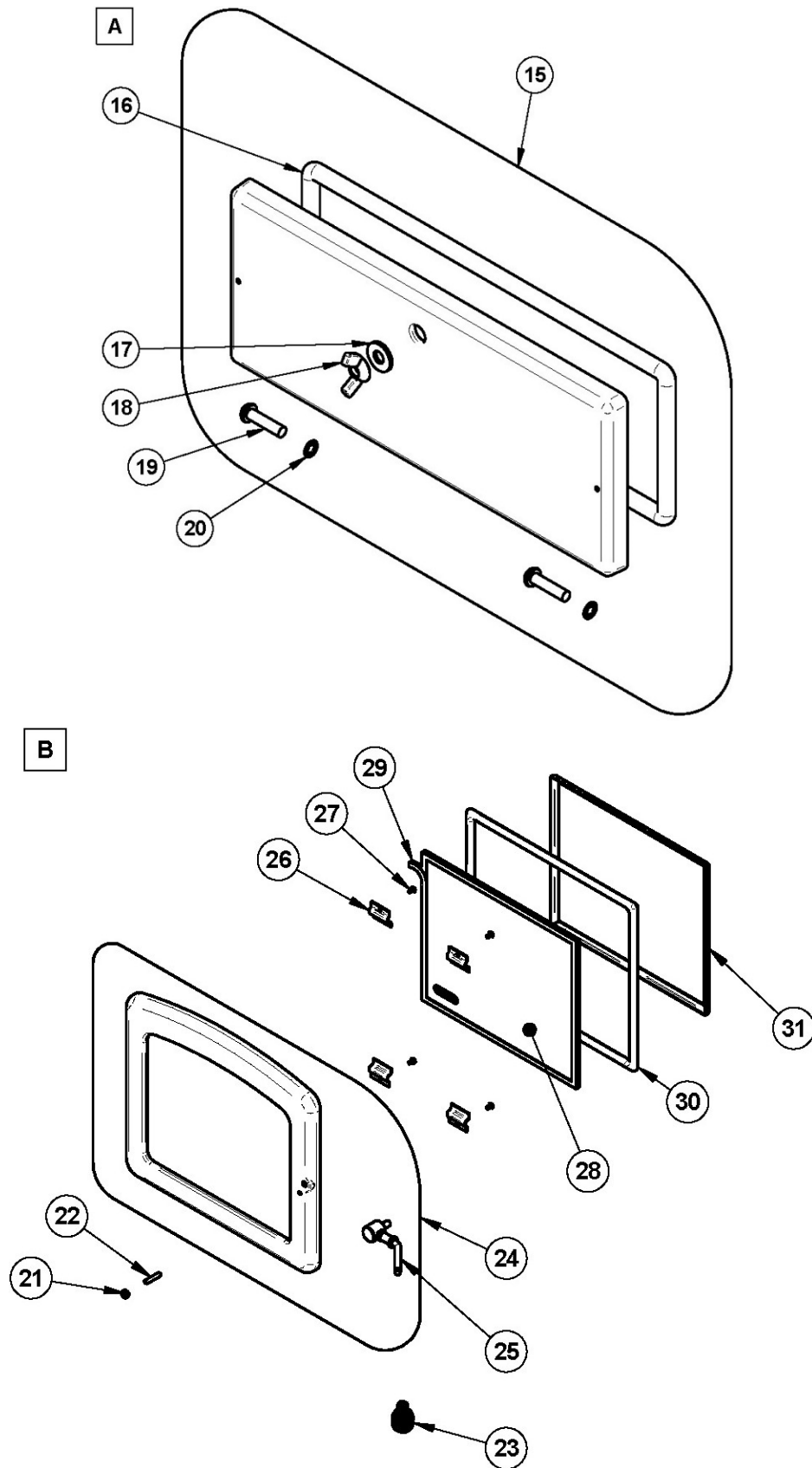
- 2- Align the notch in the left end of the tube with the key of the left air channel hole. Using a "Wise grip" hold the tube and lock it in place by turning the tube as shown. Make sure the notch reaches the end of the keyway.
- 3- Repeat **step 1** and **2** for the other secondary air tubes.
- 4- To remove the tubes, use the above steps in reverse order.

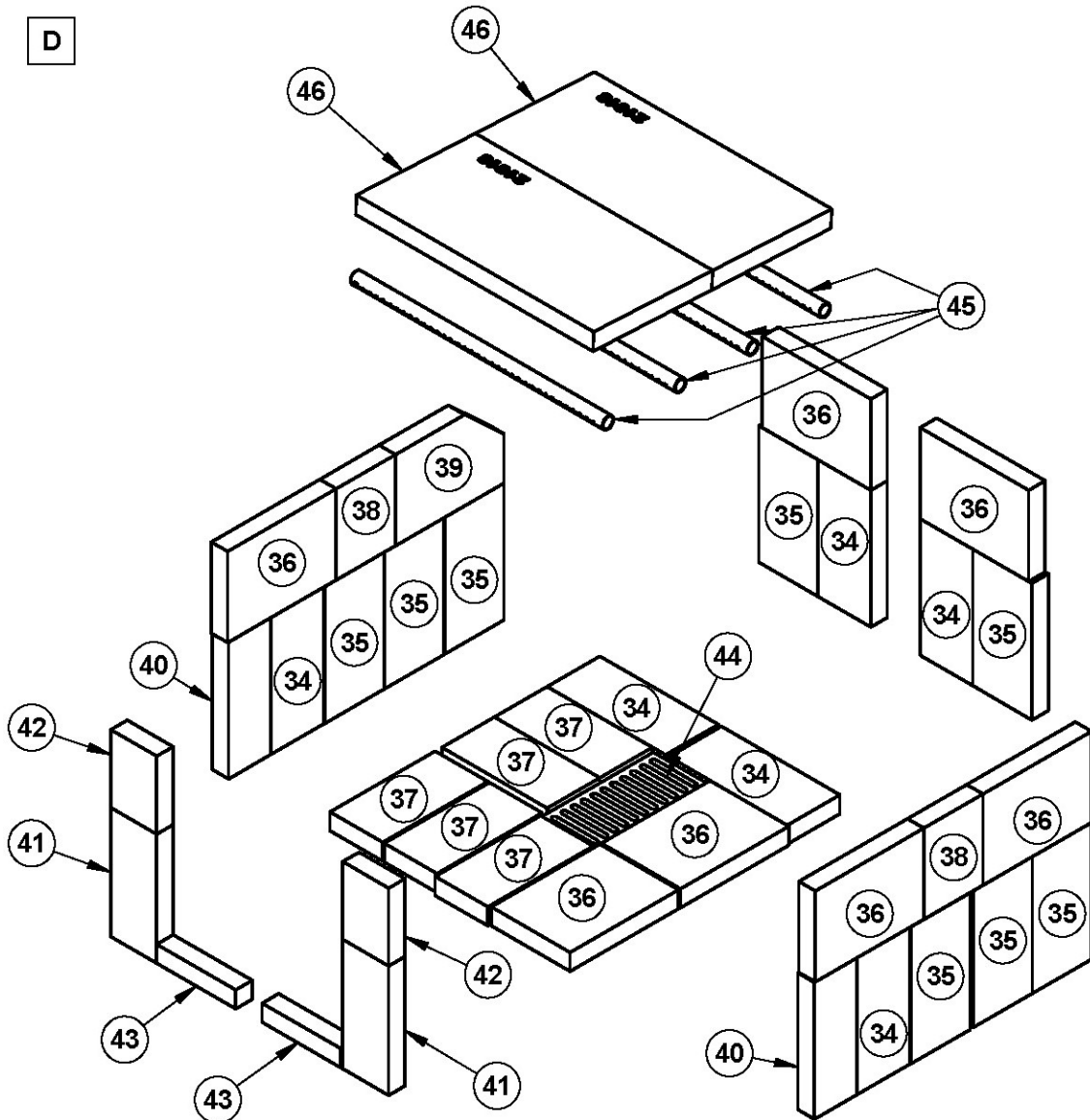
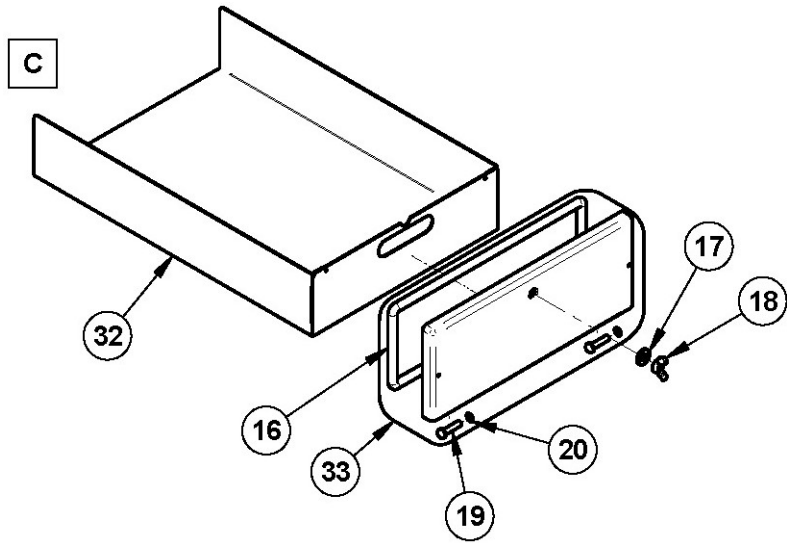
Note that secondary air tubes can be replaced without removing the baffle board. Moreover, the 4 tubes are identical so there is no need to worry about the position of each tube.

12 Exploded diagram and parts list

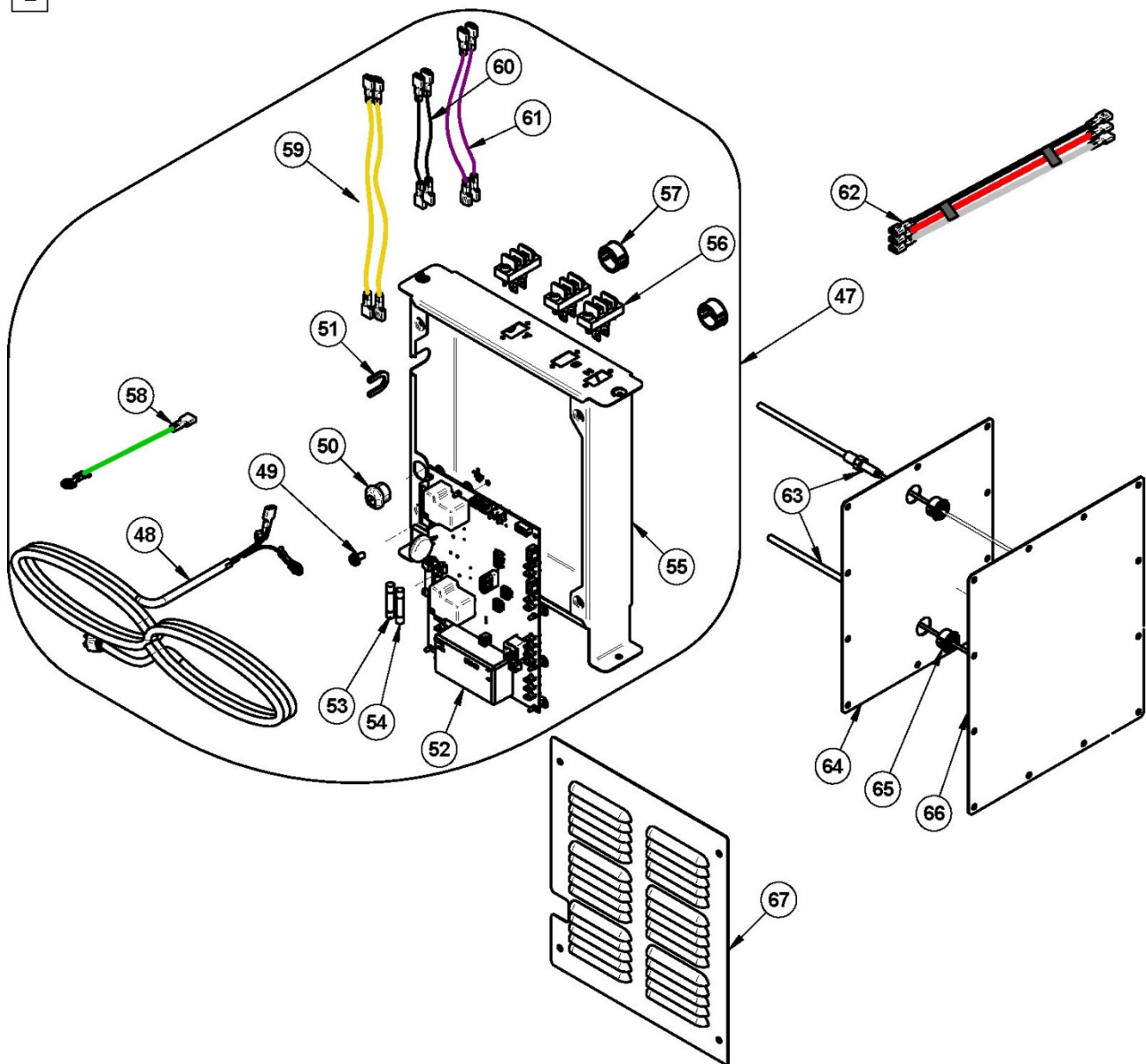




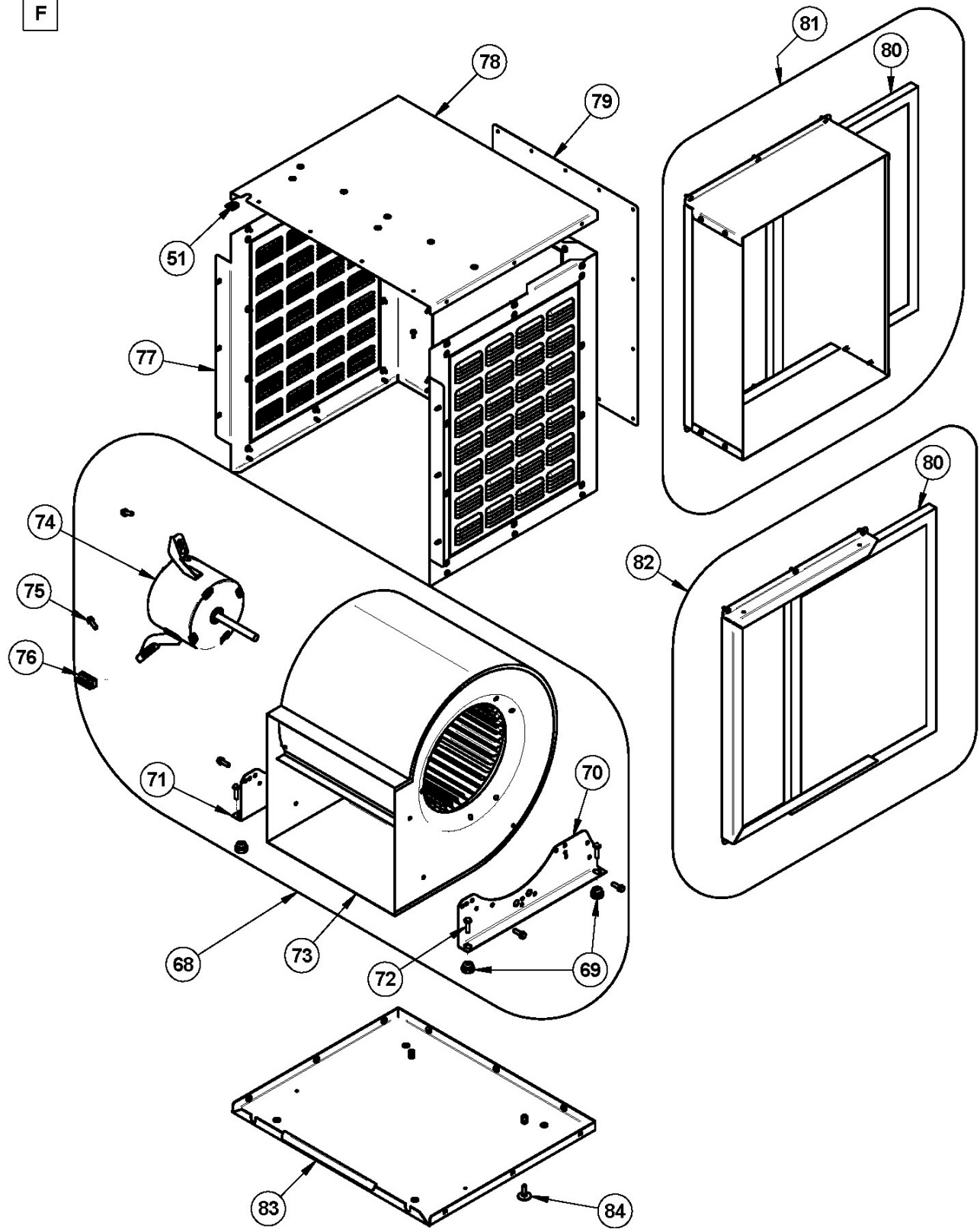


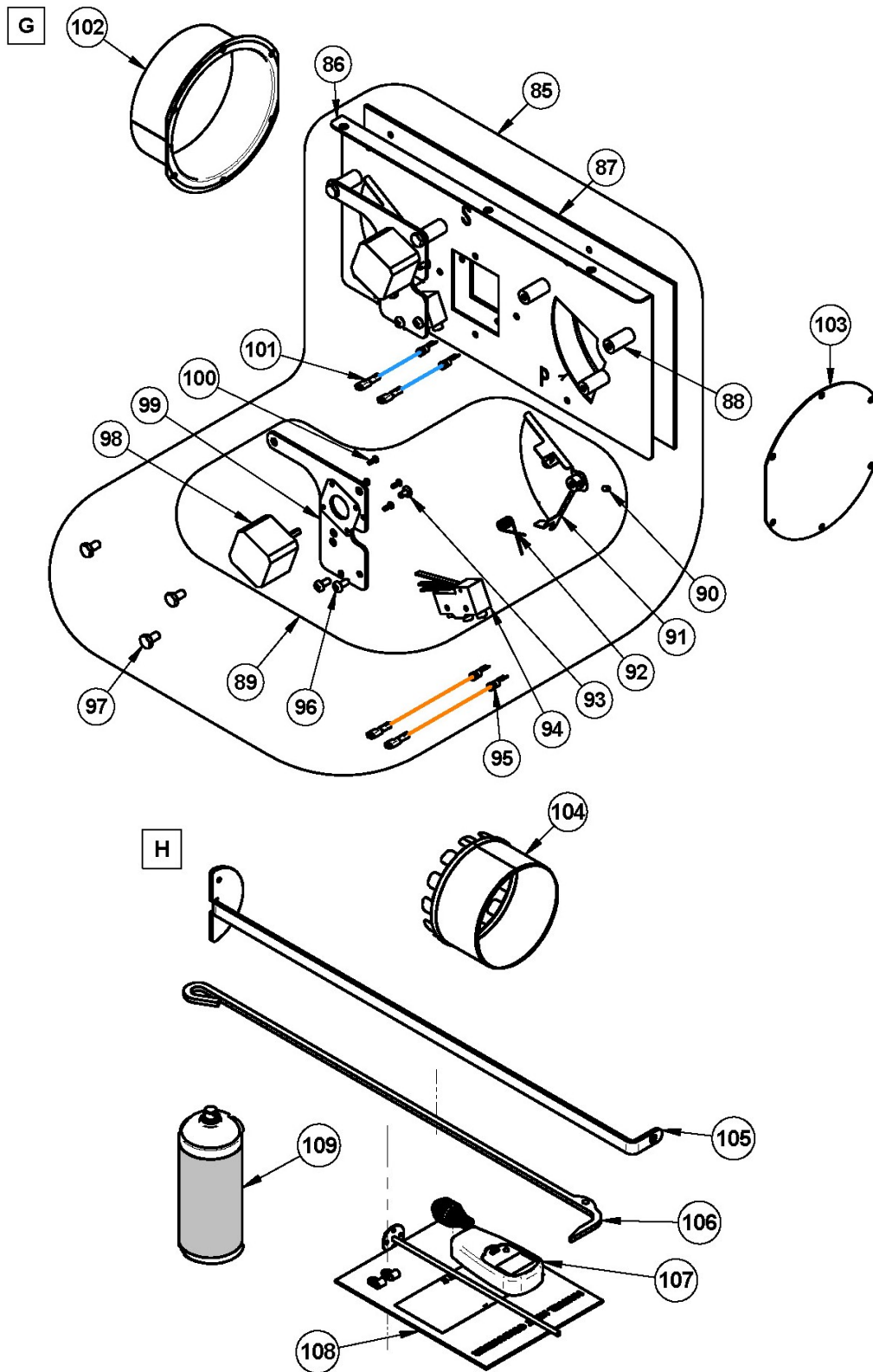


E



F





IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your furnace, please provide the model and the serial number. We reserve the right to change parts due to technology upgrade or availability. Contact an authorized dealer to obtain any of these parts. Never use substitute materials. Use of non-approved parts can result in poor performance and safety hazards.

#	ITEM	DESCRIPTION	QTÉ
1	SE66170	LEFT PANEL ASSEMBLY	1
2	PL66189	SWITCH BRACKET	1
3	44241	SWITCH PUSH SPST-NO 10A 14V	1
4	PL56276	ASH SHELF	1
5	30154	BLACK SCREW #10 X 5/8" QUADREX #2 TYPE A	3
6	SE66160	AIR JACKET FLOOR ASSEMBLY	1
7	44096	100 OHM RTD PROBE 38" WIRE	1
8	SE66201	PLENUM ASSEMBLY	1
9	PL66172	FURNACE TOP	1
10	PL66196	TOOL HOLDER	1
11	SE66168	RIGHT PANEL ASSEMBLY	1
12	PL66211	THERMOCOUPLE ACCESS PANEL	1
13	PL66164	FURNACE'S BACK	1
14	PL66188	AIR INTAKE	1
15	SE66176	HEAT EXCHANGER ACCESS DOOR	1
16	AC06900	BLACK 1/2" ROUND X 9' GASKET KIT WITH ADHESIVE	1
17	30210	WASHER 29/32" OD X 3/8" ID ZINC	2
18	30416	WING NUT 3/8"-16	2
19	30168	HINGE PIN 5/16"Ø X 1 1/4"L	4
20	30055	HINGE PIN RETAINING RING 5/16" ID X 0.512" OD	4
21	30100	BLACK HEX NUT 1/4 - 20	1
22	30128	SOCKET SET SCREW 1/4"-20 X 1 1/4"	1
23	AC07869	3/8" BLACK COIL HANDLE	1
24	SE24258	CAST IRON DOOR WITH HANDLE	1
25	AC09151	REPLACEMENT HANDLE KIT	1
26	PL51351	GLASS RETAINER FRAME BRACKET	4
27	30124	SCREW #8 - 32 X 5/16" TRUSS QUADREX ZINC	4
28	SE66213	GLASS WITH GASKET - 13 1/8"W X 10 7/8"H	1
29	AC06400	3/4" (FLAT) X 6' BLACK SELF-ADHESIVE GLASS GASKET	1
30	AC06725	GLUE AND 3/4" X 7' WHITE DOOR GASKET KIT	1
31	PL51349	GLASS RETAINER FRAME	2
32	PL66175	ASH PAN	1
33	SE48054	HEAT EXCHANGER ACCESS DOOR	1
34	29015	4" X 9" X 1 1/4" REFRACTORY BRICK	6
35	29010	4 1/2" X 9" X 1 1/4" REFRACTORY BRICK	8

#	ITEM	DESCRIPTION	QTÉ
36	29005	6" X 8 1/4" X 1 1/4" REFRACTORY BRICK HD	7
37	29000	4" X 8" X 1 1/4" REFRACTORY BRICK	5
38	PL66190	HD 4 1/2" X 6" X 1 1/4" REFRACTORY BRICK	2
39	PL66192	6" X 8 1/4" X 1 1/4" HD REFRACTORY BRICK	1
40	29007	3 1/4" X 9" X 1 1/4" REFRACTORY BRICK	2
41	PL36266	REFRACTORY BRICK 3 1/2" X 8 1/2" X 1 1/4"	2
42	PL36116	3 1/2" X 5 1/8" X 1 1/4" REFRACTORY BRICK	2
43	PL66191	1 1/4" X 6" X 1 1/4" HD REFRACTORY BRICK	2
44	24089	CAST IRON ASH GRATE 4 1/2" X 9"	1
45	PL66163	SECONDARY AIR TUBE	4
46	21618	C-CAST FIREWALL - 9.062" X 13.031" X 1.250"	2
47	SE66186	CONTROL BOARD ASSEMBLY	1
48	60013	POWER CORD 96" X 18-3 type SJT (50 pcs per carton)	1
49	31063	SCREW 10-24 X 3/8 HWS TY 23 GREEN	1
50	60008	BLACK NYLON BUSHING	1
51	30494	PANDUIT POLYETHYLENE EXTRUSION	0.1
52	PL66213	CONTROL BOARD HEAT COMMANDER	1
53	44136	FUSE 12A / 250V 1/4" Ø X 1 1/4"L	1
54	44137	FUSE 1A / 250V 1/4" Ø X 1 1/4"L	1
55	PL66186	CIRCUIT BOARD HOLDER	1
56	60036	THERMOSTAT TERMINAL	3
57	30412	UNIVERSAL SNAP-IN BUSHING BLACK	2
58	60340	GREEN ELECTRICAL WIRE TEW 105 DEG C 18 AWG 4 1/16"	1
59	60335	18 AWG CSA TEW 105 DEG C 600V WIRE 9 1/2"	2
60	60429	BLACK ELECTRICAL WIRE TEW 105 DEG C 18 AWG 5 1/2"	2
61	60430	PURPLE ELECTRICAL WIRE TEW 105 DEG C 18 AWG 7 1/2"	2
62	60427	BUTTON WIRING HARNESS	1
63	60413	TYPE K UNGROUNDED THERMOCOUPLE	2
64	PL66173	INNER ACCES PANEL	1
65	30413	SNAP-IN BUSHING BLACK	2
66	PL66174	JACKET ACCES PANEL	1
67	PL66209	CONTROL BOARD ACCESS PANEL	1
68	SE48245	G10 BLOWER ASSEMBLY WITH 1/3HP MOTOR (115v 5A 575W)	1
69	30335	BLOWER ANTI-VIBRATION CUSHION	4
70	30336	RIGHT HOUSING SUPPORT FOR G10 BLOWER	1
71	30334	LEFT HOUSING SUPPORT FOR G10 BLOWER 10-458-085	1
72	30109	BOLT HEX 1/4 - 20 X 1"	4
73	51011	BLOWER HOUSING G-10 DD	1
74	51003	1/3 HP 4 SPEED MOTOR FOR G-10 DD	1
75	30094	HEX SCREW WASHER HEAD 1/4-20 X 3/4" F ZINC TYPE	7

#	ITEM	DESCRIPTION	QTÉ
76	44186	5 POSITIONS TERMINAL BLOCK	1
77	PL66179	BLOWER BOX CONTOUR	1
78	PL66180	BLOWER BOX TOP	1
79	PL66044	BLOWER BOX CAP	2
80	21044	FURNACE CARDBOARD AIR FILTER 20" X 15" X 1"	2
81	AC01392	RETURN AIR DUCT WITH FILTER	1
82	AC01390	CARDBOARD FRAME AIR FILTER WITH SUPPORT (20" X 15" X 1")	1
83	PL66178	BLOWER BOX BASE	1
84	30536	LEVELING BOLT 1/4 - 20 X 1"	2
85	SE66193	DAMPER ASSEMBLY	1
86	PL66193	DAMPER MOTOR BRACKET	1
87	21621	AIR ENTRY HATCH GASKET	1
88	31222	HATCH SPACER	6
89	SE66194	COMPLETE DAMPER ASSEMBLY	1
90	30117	SOCKET SET SCREW #10-32 X 1/4"	2
91	SE66195	DAMPER	2
92	31221	HATCH SPRING	2
93	30354	THREAD SCREW 8-32 X 5/16" TYPE F TRUSS QUADREX STEEL C1022 ZINC	2
94	44190	LIMIT SWITCH	2
95	60431	ORANGE ELECTRICAL ASSEMBLY TEW 105 DEG C 18 AWG 19"	2
96	30154	BLACK SCREW #10 X 5/8" QUADREX #2 TYPE A	4
97	30084	NUT 1/4-20 X 1/2" GRADE 5	6
98	44235	HYBRID STEPPING MOTOR - 12V; 1.8 DEG STEP; 4.8 KG/CM	2
99	PL66194	DAMPER BRACKET	2
100	31212	SCREW M3 X 8 ROUND HEAD SIX PAN HOLLOW TYPE C BLACK	8
101	60428	BLUE ELECTRICAL WIRE TEW 105 DEG C 18 AWG 22"	2
102	SE66198	FRESH AIR INTAKE ADAPTER	1
103	PL66200	AIR INTAKE COVER	1
104	PL66220	6" ADAPTER	10
105	PL48170	HEAT EXCHANGER SCRAPER	1
106	PL48173	POKER	1
107	44171	MOISTURE READER	1
108	46201	DF02003 INSTRUCTION MANUAL	1
109	AC05959	METALLIC BLACK STOVE PAINT - 342 g (12oz) AEROSOL	1

PART C – FEATURES AND SAFETY

13 General information

13.1 Appliance performance ⁽¹⁾

Fuel type	Dry cordwood
Recommended heating area ^[†]	1,000 to 2,500 ft ² (93 à 232 m ²)
Firebox volume	3.6 ft ³ (0.102 m ³)
Maximum burn time ^[†]	10 h
Maximum input capacity (dry cordwood) ⁽²⁾	310,000 BTU
Overall heat output rate (min. to max.) ⁽³⁾	19,354 BTU/h to 47,052 BTU/h (5.6 kW to 13.8 kW)
Nominal heat output at 15lb/ft ³ fuel loading density	75,000 BTU/h
Average overall efficiency ⁽⁴⁾	76.6 % (HHV) ⁽⁵⁾
Delivered heat output rate (min. to max.) ⁽⁷⁾	13,297 BTU/h to 42,234 BTU/h (3.9 kW to 12.4 kW)
Average delivered efficiency ⁽⁸⁾	60.7 % (HHV) ⁽⁵⁾
Optimum efficiency ⁽⁹⁾	83.2% LHV at minimum burn rate
Average particulate emissions rate ⁽¹⁰⁾⁽¹¹⁾	0.095 lb/mmBTU (0.041 g/MJ)
Average CO ⁽¹²⁾	8.78 lb/mmBTU (3.78 g/MJ)
Average electrical power consumption ⁽¹³⁾	330 W

[†] Recommended heating area and maximum burn time may vary subject to location in home, chimney draft, heat loss factors, climate, fuel type and other variables. The recommended heating area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature considering that the space configuration and the presence of heat distribution systems have a significant impact in making heat circulation optimum.

⁽¹⁾ Values are as measured per CSA B415.1-10, except for the recommended heating area, firebox volume, maximum burn time and maximum input capacity. Performances based on a fuel load prescribed by the standard at 10 lb/ft³ and with a moisture content between 18% and 28%.

⁽²⁾ Input value at 10lb/ft³ fuel loading density and dry energy value of 8,600BTU/lb.

⁽³⁾ Overall: Radiated and delivered heat together at 10lb/ft³ fuel loading density over one total burn cycle.

⁽⁴⁾ Efficiency based on delivered heat when allowing cycling from high to low burn to simulate thermostat demand.

⁽⁵⁾ Higher Heating Value of the fuel.

⁽⁶⁾ Lower Heating Value of the fuel.

⁽⁷⁾ Delivered: Remotely provided to other rooms through ducting at 10 lb/ft³ fuel loading density over one total burn cycle.

⁽⁸⁾ Efficiency based on radiated and delivered heat when allowing cycling from high to low burn to simulate thermostat demand.

⁽⁹⁾ Optimum overall efficiency at a specific burn rate (LHV).

⁽¹⁰⁾ Based on delivered heat output.

⁽¹¹⁾ This appliance is officially tested and certified by an independent agency.

⁽¹²⁾ Carbon Monoxide. Based on overall heat output at 10lb/ft³ fuel loading density.

⁽¹³⁾ Unless stated otherwise, measures were taken directly at the main power source and include all electrical components present in the appliance.

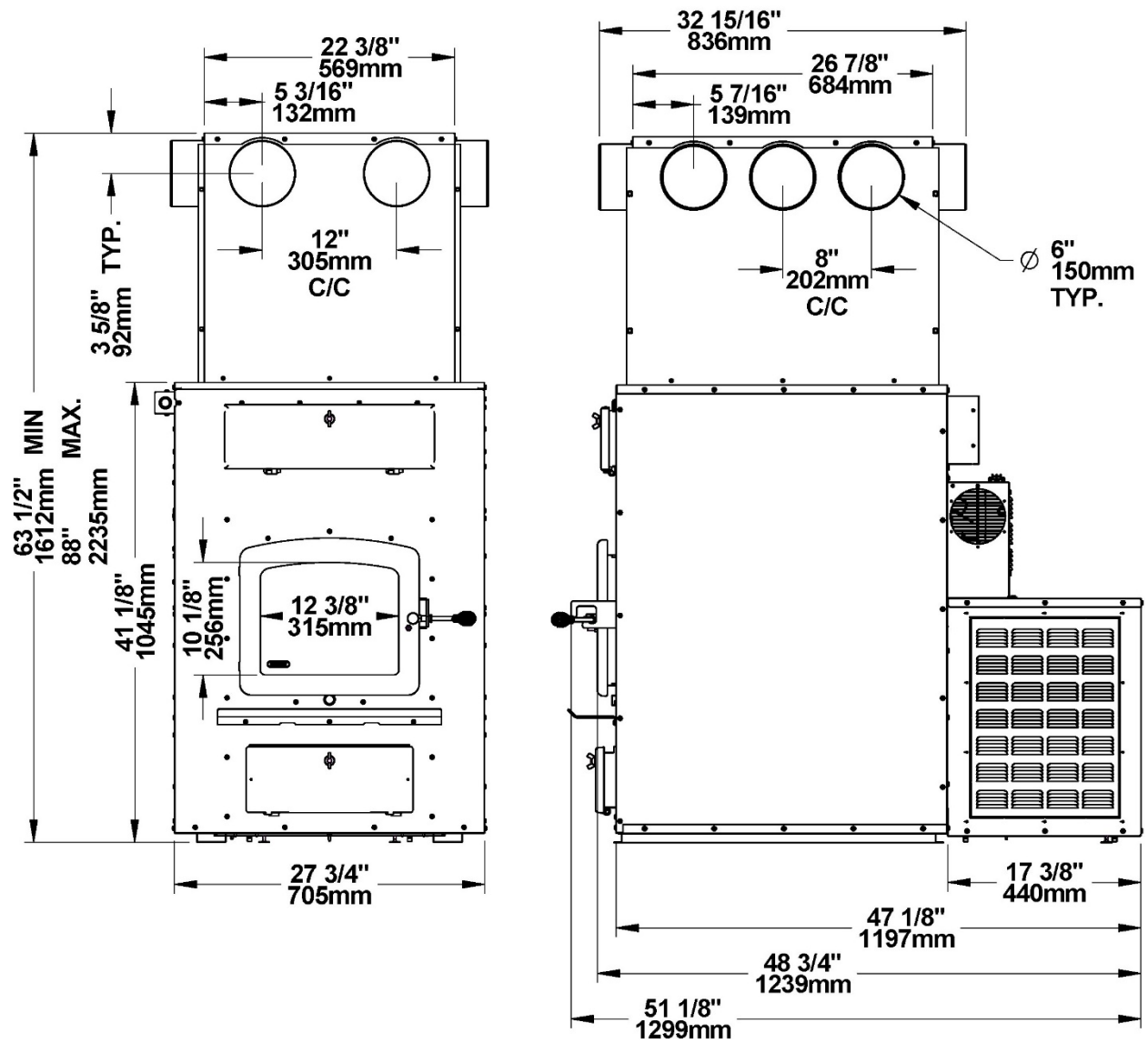
13.2 General Features

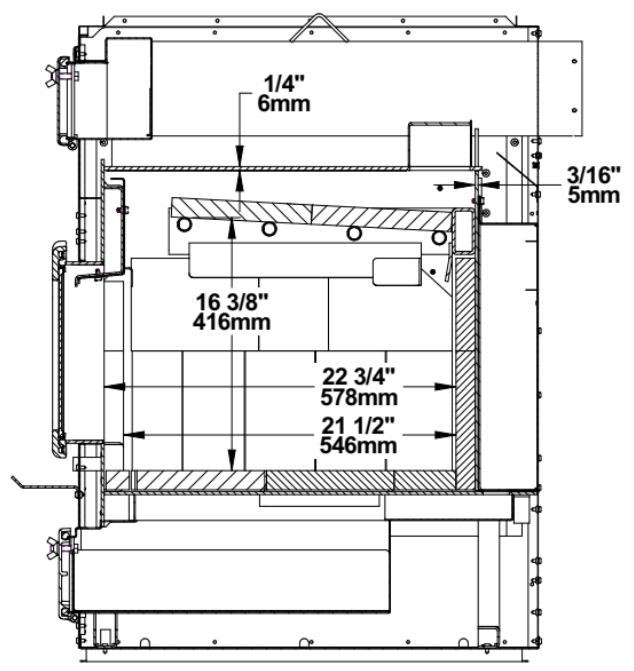
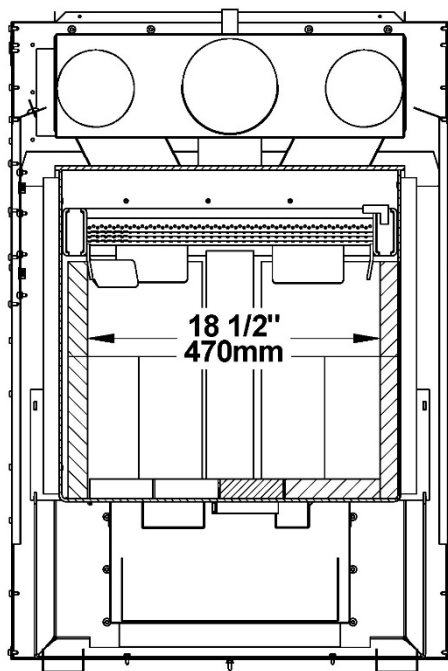
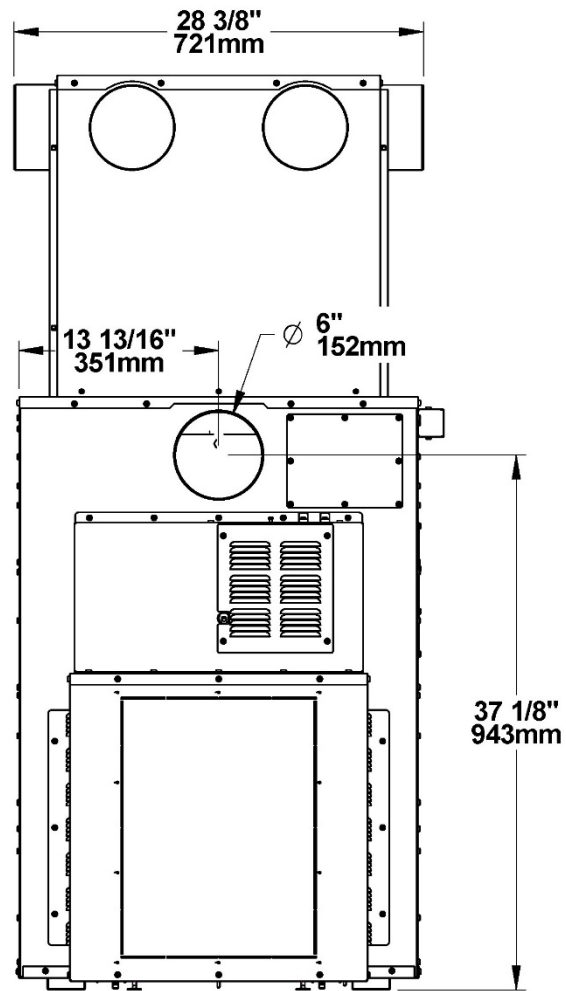
Maximum log length	21" (533 mm) north-south**
Diameter of the flue collar	6 in. (152 mm)
Recommended connector pipe diameter	6 in. (152 mm)
Recommended chimney diameter	6 in. (152 mm)
Required type of chimney	CAN/ULC S629, UL 103 HT (2100 °F)
Baffle material	C-Cast
Alcove installation	Not approved
Mobile home installation†	Not approved
Appliance weight (without option)	605 lb (275 kg)
Shipping weight (without option)	740 lb (337 kg)
Blower	Included
Filter	Non-included: 15 in x 20 in x 1 in
Particulate emission standard	EPA / CSA B415.1-10
USA standard (safety)	UL 391
Canadian standard (safety)	CAN/CSA B366.1

** East-west: through the door you see the longitudinal sides of the logs; north-south: through the door you see the tips of the logs.

† Mobile home (Canada) or manufactured home (USA): The US department of Housing and Urban Development describes “manufactured homes” better known as “mobile homes” as followed; buildings built on fixed wheels and those transported on temporary wheels/axles and set on a permanent foundation. In Canada, a mobile home is a dwelling for which the manufacture and assembly of each component is completed or substantially completed prior to being moved to a site for installation on a foundation and connection to service facilities and which conforms to the CAN/CSA-Z240 MH standard.

13.2.1 Technical data





13.3 The benefits of low emissions and high efficiency

The low smoke emissions produced by the special features inside the furnace firebox mean that your household will release up to 90 percent less smoke into the outside environment than if you used an older conventional wood furnace. But there is more to the emission control technologies than protecting the environment.

The smoke released from wood when it is heated contains about half of the energy content of the fuel. By burning the wood completely, your furnace releases all the heat energy from the wood instead of wasting it as smoke up the chimney. Also, the features inside the firebox allow you to reduce the air supply to control heat output, while maintaining clean and efficient flaming combustion, which boosts the efficient delivery of heat to your home.

The emission control and advanced combustion features of your furnace can only work properly if your fuel is in the correct moisture content range of 15 to 20 percent. See **PART 2 –OPERATION, MAINTENANCE AND TROUBLESHOOTING** for suggestions on preparing fuel wood and judging its moisture.

13.4 The SBI commitment to you and the environment

The SBI team is committed to protecting the environment, so we do everything we can to use only materials in our products that will have no lasting negative impact on the environment.

13.4.1 What is your new furnace made of?

The body of your furnace, which is most of its weight, is carbon steel. Should it ever become necessary many years in the future, almost the entire furnace can be recycled into new products, thus eliminating the need to mine new materials.

The paint coat on your furnace is very thin. Its VOC content (Volatile Organic Components) is very low. VOCs can be responsible for smog, so all the paint used during the manufacturing process meets the latest air quality requirements with regards to VOC reduction or elimination.

The air tubes are stainless steel, which can also be recycled.

The C-Cast baffle is made of an aluminosilicate fibre material that is compressed with a binder to form a rigid board. C-Cast can withstand temperatures above 2,000 °F. It is not considered hazardous waste. Disposal at a landfill is recommended.

Lightweight firebrick is made of pumice and cement. Pumice is in fact volcanic rock, a naturally green product found in the Northwest United States. Disposal at a landfill is recommended.

The door and glass gaskets are fibreglass which is spun from melted sand. Black gaskets have been dipped into a solvent-free solution. Disposal at a landfill is recommended.

The door glass is a 4 mm thick ceramic material that contains no toxic chemicals. It is basically made of raw earth materials such as sand and quartz that are combined in such a way to form a glass at high temperatures. Ceramic glass will not re-melt in the same way as normal glass, so it should not be recycled with your regular household products. Disposal at a landfill is recommended.

14 Safety information

14.1 Cautions and warnings

- A CARBON MONOXIDE (CO) DETECTOR/ALARM IS REQUIRED IN THE ROOM IN WHICH THE FURNACE IS INSTALLED.
- HOT WHILE IN OPERATION, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. GLOVES MAY BE NEEDED FOR FURNACE OPERATION.
- USING A FURNACE WITH CRACKED OR BROKEN COMPONENTS, SUCH AS GLASS OR FIREBRICKS OR BAFFLES MAY PRODUCE AN UNSAFE CONDITION AND MAY DAMAGE THE FURNACE.
- OPERATE ONLY WITH DOOR FULLY CLOSED. IF DOOR IS LEFT PARTLY OPEN, GAS AND FLAME MAY BE DRAWN OUT OF THE OPENING, CREATING RISKS FROM BOTH FIRE AND SMOKE.
- WARNING: AN EXCESSIVE DRAFT MAY CAUSE OVERHEATING AND MAKE THE CONTROL OF THE FIRE DIFFICULT.
- THIS FURNACE IS NOT DESIGNED TO BE USED WITH THE DOOR OPEN. THE DOOR MAY BE OPEN ONLY DURING LIGHTING PROCEDURES OR RELOADING. DO NOT LEAVE THE FURNACE UNATTENDED WHEN THE DOOR IS SLIGHTLY OPENED DURING IGNITION. ALWAYS CLOSE THE DOOR AFTER IGNITION.
- NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL (NAPHTHA), FUEL OIL, MOTOR OIL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS OR AEROSOLS TO START OR 'FRESHEN UP' A FIRE IN THIS FURNACE. KEEP ALL SUCH LIQUIDS OR AEROSOLS WELL AWAY FROM THE FURNACE WHILE IT IS IN USE.
- DO NOT STORE FUEL WITHIN HEATER MINIMUM INSTALLATION CLEARANCES.
- BURN ONLY SEASONED NATURAL FIREWOOD.
- DO NOT BURN:
 - GARBAGE OF ANY KIND,
 - COAL OR CHARCOAL,
 - TREATED, PAINTED OR COATED WOOD,
 - PLYWOOD OR PARTICLE BOARD,
 - FINE PAPER, COLORED PAPER OR CARDBOARD,
 - ALL MANUFACTURED LOGS,
 - SALTWATER DRIFTWOOD OR
 - RAILROAD TIES.
- DO NOT USE LIQUIDS SUCH AS KEROSENE OR DIESEL FUEL TO START A FIRE.
- DO NOT ELEVATE THE FIRE BY USING A GRATE IN THIS FURNACE.
- DO NOT INSTALL AN AUTOMATIC FEEDER ON THIS FURNACE.
- DO NOT INSTALL A MANUAL DAMPER ON THIS FURNACE.
- THIS APPLIANCE SHOULD BE MAINTAINED AND OPERATED AT ALL TIMES IN ACCORDANCE WITH THESE INSTRUCTIONS.
- DO NOT USE FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPHTHA, FUEL OIL, MOTOR OIL, OR AEROSOLS TO START OR REKINDLE THE FIRE.
- WARNING: IT IS IMPORTANT THAT THE FIRING DOOR, THE ASH DRAWER AND THE ASHPLUG BE KEPT CLOSED WHILE THE APPLIANCE IS IN USE. MAINTAIN ALL GASKETS, IF ANY, IN GOOD CONDITION; IN CASE OF DETERIORATION, CONTACT YOUR DEALER FOR A GENUINE REPLACEMENT GASKET.
- THE INFORMATION GIVEN ON THE CERTIFICATION LABEL AFFIXED TO THE APPLIANCE ALWAYS OVERRIDES THE INFORMATION PUBLISHED, IN ANY OTHER MEDIA (OWNER'S MANUAL, CATALOGUES, FLYERS, MAGAZINES AND/OR WEB SITES).
- MIXING OF CHIMNEY COMPONENTS FROM DIFFERENT SOURCES OR MODIFYING FURNACE COMPONENTS MAY RESULT IN HAZARDOUS CONDITIONS. WHERE ANY SUCH CHANGES ARE PLANNED, FURNACE BUILDER INTERNATIONAL INC. SHOULD BE CONTACTED IN ADVANCE.
- ANY MODIFICATION OF THE APPLIANCE THAT HAS NOT BEEN APPROVED IN WRITING BY THE TESTING AUTHORITY VIOLATES CSA B365 (CANADA), AND NFPA 90B (USA).
- IF REQUIRED, A SUPPLY OF COMBUSTION AIR SHALL BE PROVIDED TO THE ROOM OR SPACE.
- DO NOT STORE NEAR WOOD FURNACE. RESPECT THE PRESCRIBED CLEARANCE BETWEEN COMBUSTIBLES AND HEAT.
- DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.
- DO NOT INSTALL IN A MOBILE HOME.
- DO NOT INSTALL IN ALCOVE.
- THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS ON THE CERTIFICATION LABEL APPLIED ON THE UNIT.

- NO PART OF THE FURNACE OR FLUE PIPE MAY BE LOCATED CLOSER TO COMBUSTIBLES THAN THE MINIMUM CLEARANCE FIGURES GIVEN.

WARNING: Respect the local codes (when in doubt, consult your local dealer).



WARNING: This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov/

14.2 Smoke detector

We highly recommend the use of a smoke detector. It must be installed at least 15 feet (4.57 m) from the appliance to prevent undue triggering of the detector when reloading.

14.2.1 Chimney Fire

Regular chimney maintenance and inspection can prevent chimney fires. If you have a chimney fire, follow these steps:

1. Close the furnace door and stop the thermostat demand by reducing the set point temperature;
2. Alert the occupants of the house of the possible danger;
3. If you require assistance, alert the fire department;
4. If possible, use a dry chemical fire extinguisher, baking soda or sand to control the fire. Do not use water as it may cause a dangerous steam explosion;

Do not use the furnace again until the furnace and its chimney have been inspected by a qualified chimney sweep or a fire department inspector.

DROLET LIMITED LIFETIME WARRANTY

The warranty of the manufacturer extends only to the original retail purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your DROLET dealer.

This warranty applies to normal residential use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, venting problems or under-estimated heating area are not covered by this warranty. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature in the designated area in case of a power failure.

This warranty does not cover any scratch, corrosion, distortion, or discoloration. Any defect or damage caused by the use of unauthorized or other than original parts voids this warranty. An authorized qualified technician must perform the installation in accordance with the instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

The manufacturer may require that defective products be returned or that digital pictures be provided to support the claim. Returned products are to be shipped prepaid to the manufacturer for investigation. Transportation fees to ship the product back to the purchaser will be paid by the manufacturer. Repair work covered by the warranty, executed at the purchaser's domicile by an authorized qualified technician requires the prior approval of the manufacturer. All parts and labour costs covered by this warranty are limited according to the table below.

The manufacturer, at its discretion, may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall, in no event, be responsible for any uncommon, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from lifetime coverage. This warranty applies to products purchased after March 1st, 2015.

DESCRIPTION	WARRANTY APPLICATION*	
	PARTS	LABOUR
Combustion chamber (welds only) and cast iron door frame.	Lifetime	3 years
Surrounds, heat shields, ash drawer, steel legs, pedestal, trims (aluminum extrusions), plating (defective manufacture**), and convector air-mate.	5 years	3 years
Removable stainless steel combustion chamber components, secondary air tubes**, deflectors, and supports.	5 years	N/A
Glass retainers, handle assembly, and air control mechanism.	3 years	1 year
Carbon steel combustion chamber components, vermiculite baffle**, and C-Cast baffle**.	2 years	N/A
Standard blower, heat sensors, switches, rheostat, wiring, and other controls.	1 year	1 year
Optional blower, paint (peeling**), ceramic glass (thermal breakage only**), ceramic fibre blankets, gaskets, insulation, and other options.	1 year	N/A
Firebricks.	N/A	N/A
All parts replaced under the warranty.	90 days	N/A

**Subject to limitations above. **Picture required.*

Labour cost and repair work to the account of the manufacturer are based on a predetermined rate schedule and must not exceed the wholesale price of the replacement part.

Shall your unit or a component be defective, contact immediately your **DROLET** dealer. To accelerate processing of your warranty claim, make sure to have on hand the following information when calling:

- Your name, address and telephone number;
- Bill of sale and dealer's name;
- Installation configuration;
- Serial number and model name as indicated on the nameplate fixed to the back of your unit;
- Nature of the defect and any relevant information.

Before shipping your unit or defective component to our plant, you must obtain an Authorization Number from your DROLET dealer. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.

