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# HITZER ENERGY MASTER II STOKER FURNACE MODEL 710 OWNER'S MANUAL INSTALLATION AND OPERATION

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## Save this Manual

- Operating Instructions and Maintenance Enclosed.
- Thoroughly Read and Understand Instructions.
- Always Leave this Manual with Stove Owner.

## Warning

- **FOLLOW THE INSTRUCTIONS WITHIN THIS MANUAL. IF INSTRUCTIONS ARE NOT FOLLOWED, A FIRE MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR EVEN DEATH. REFER TO MARKINGS ON THE FURNACE FOR ADDITIONAL INFORMATION.**
- **CARBON MONOXIDE AND SMOKE DETECTORS/ALARMS MUST BE INSTALLED IN THE HOME AND WORKING PROPERLY**
- **DANGER – RISK OF FIRE OR EXPLOSION  
DO NOT BURN GARBAGE, GASOLINE, DRAIN OIL, OR OTHER FLAMMABLE LIQUIDS. DO NOT USE CHEMICALS OR FLUIDS TO START FIRE**
- **BURN RICE SIZE ANTHRACITE COAL ONLY**
- **STOVE SURFACES MAY BE HOT WHILE IN OPERATION. KEEP CHILDREN AWAY. DO NOT TOUCH DURING OPERATION.**
- **DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE**
- **DO NOT OPERATE WITH FLUE DRAFT EXCEEDING .06 WC (14.945 Pa)**

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## I. WELCOME TO HITZER FAMILY

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Hitzer Inc. welcomes you to a proud and unified team of Hitzer stove owners. Thank You for your recent purchase of a Hitzer Energy Master II Stoker Furnace. We can assure that your Hitzer furnace has the finest Swiss Amish Craftsmanship. Your Hitzer Energy Master II Furnace is built with premium quality materials to ensure safety, durability, and performance. These are all top priorities in the Hitzer line of products.

We would like to personally thank you again and welcome you into our continually growing Hitzer Family. We wish you and your family an extended amount of warmth and comfort, provided by your new Hitzer Furnace. Thanks for choosing Hitzer where our motto is:

“Our Stoves Make Warm Friends.”

## SAFETY NOTICE

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**Safety Notice:** If this Hitzer Stove is not properly installed a house fire may result. For your safety and to reduce the risk of fire, follow the installation instructions carefully. Failure to follow these instructions may result in property damage, bodily injury, or even death. Contact your local building inspector or fire officials about the need for a permit, restrictions, or installation inspection required in your area. Refer to makings on your furnace for more information. Save these instructions for future reference.

**Safety Notice:** Always have working carbon monoxide and smoke detectors installed when using this equipment. It is recommended to have one on each floor of the house and outside of sleeping rooms.

**UL Tested/Label:** Follow the information and clearance charts located on each Hitzer Stove Model. This furnace has been tested to UL 391-2006 & CSA B366.1-M91, approved, and labeled on the rear of each stove.

It is strongly recommended to have this Hitzer Furnace installed by an educated and certified professional heating contractor. Please refer to a NFI (National Fireplace Institute) Certified Installer for your installation needs and questions. Locate an NFI professional at [www.nficertified.org](http://www.nficertified.org).



## II. LOCATION OF STOVE & INSTALLATION

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### **Pre Installation Information:**

Your Energy Master Furnace is intended for use in residential buildings. Do not install in a mobile home. Do not install in a garage.

**IMPORTANT: Always check with local authorities and obtain the necessary permits prior to installing this furnace. This furnace must be installed in accordance with local, state, and national codes and regulations.**

Before installation some questions must be addressed.

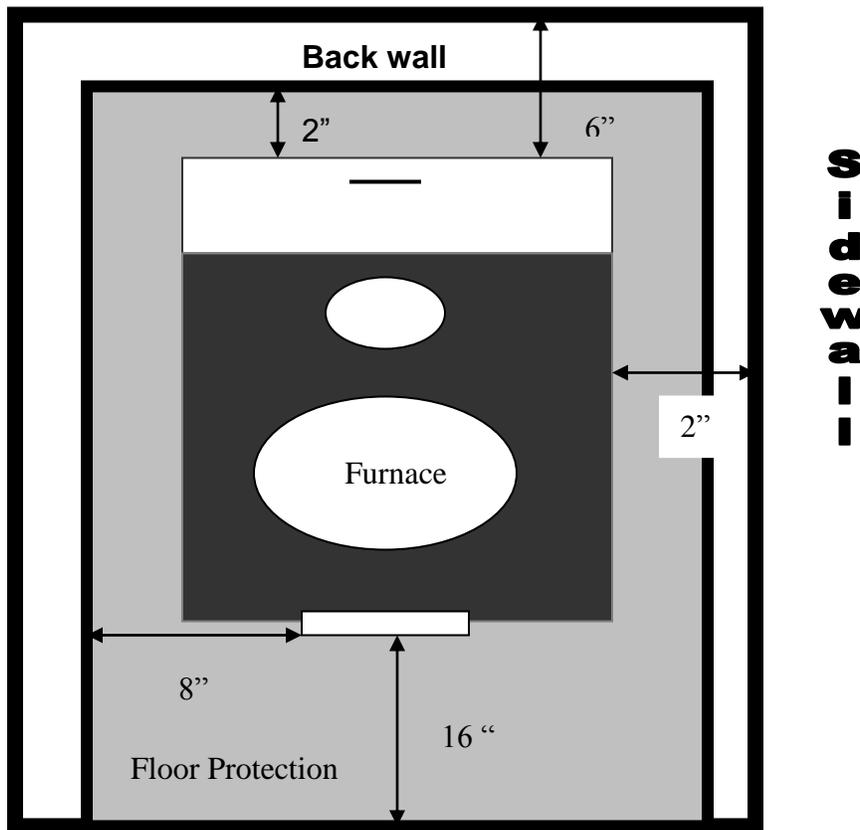
1. Will your Energy Master Furnace be used as a primary (central) furnace, or will it be installed as an add-on to your existing central heating system?
2. If your Energy Master Furnace is to be installed as an add-on, is it compatible with your existing furnace? Your Energy Master Furnace is designed to be used with a listed gas-, oil-fired furnace however not all furnaces will accept add-on applications. Some small furnaces, and especially counter-flow or down-flow furnaces, can not be used in an add-on installation. The CFM (cubic feet per minute) capability between the blower on the existing furnace and the add-on furnace must be compatible. If all these conditions are met then the combined static pressure must not exceed the maximum static pressure listed on the nameplate on either furnace. Before installing your Energy Master Furnace consult your Hitzer dealer or heating contractor and your local, state and national building codes and regulations to determine if your central heating system is compatible with your Hitzer Energy Master Furnace. Once it is determined your existing furnace will accept an add-on installation a parallel installation with return air (outlined later in this manual) is recommended.
3. Can the furnace be vented properly?
  - a. Is the chimney appropriate for this installation? This furnace requires installation in a masonry chimney with a clay flue liner or a metal all-fuel chimney listed to UL103 (CAN/ULC-S629-M87) Type HT. **Do not connect this furnace to a chimney serving another appliance!**
  - b. Has your chimney been inspected? It is important that your chimney is clean and structurally sound (free from defect or damage) before installing your Energy Master Furnace.
  - c. If you are power venting your furnace is there a place to mount the power vent away from obstacles? Refer to power vent placement chart with power vent instructions.
4. Is there easy access to outside combustion air should your furnace require it?
5. Can the furnace be installed safely?
  - a. This furnace must not be installed in a location where it could come in contact with walls, carpeting, curtains/drapes, or other combustible surfaces.
  - b. The clearances listed in this manual and on the furnace are minimum clearances. Any reduction must be approved by the regulatory authority and is not recommended by Hitzer Inc.
  - c. Will this location require floor protection?
  - d. Furnace must not be installed in a sleeping room.
6. How close is the electrical source and does it conform to requirements listed?
7. Are there any local, state, or national codes or regulations concerning the use and placement of your furnace?
8. Are there any structural reasons why the furnace cannot be located where you want it?
9. Will the furnace be easily accessible for refueling, cleaning, maintenance, and repair?

**Location:**

The location of the stove is very important for optimum stove performance as well as safety assurance. **When searching for the location of the stove be sure to strictly follow manufactures guidelines, clearance to combustible material requirements, local building, and fire codes. Failure to follow manufacture's instruction and local jurisdiction codes may result in bodily injury, property damage, fire, or death.** Locate the stove where there is sufficient air supply for proper operation to occur. It is vitally important to locate the stove next to existing forced air furnace as well as next to the chimney, or exterior wall for power vent systems. The closer placement to these two items the better the stove will perform, and achieve maximum heat flow. The longer the chimney connector pipe (stovepipe) and farther away the furnace is from the chimney or power vent the less performance is achieved from the furnace. Please consider the construction and layout of the home to be heated and make placement of the Energy Master Furnace to achieve maximum heat benefit it can produce.

**Clearances To Combustibles/Floor Protection:**

This furnace must be placed on a non-combustible floor. If the floor is a combustible material floor protection must be placed underneath it and extend at least 8 inches on each side of the fuel or ash door. It must also extend 16 inches out from the front of the furnace. The floor protection must also be placed underneath the chimney connector (stove pipe) and extend at least 2 inches on either side of the chimney connector. This protection is for hot ash and sparks. It is not needed for heat protection. If your furnace is installed on a concrete basement floor, it is recommended to install on a 2 inch thick nonflammable material. This will reduce contact with the damp floor that can cause possible rust and corrosion.



Minimum Clearance to Combustible Material:

Unit to Side Wall: 2 inches

Unit to Back Wall: 6 inches

Chimney Connector to Back Wall: 18 inches

Chimney Connector to Side Wall: 18 inches

Floor Protection:

Front: 16 inches

Side: 8 inches from either side of the fuel and ash door

Rear: 2 inches

**CAUTION: It is mandatory to abide by clearance to combustibles regulations provided on the furnace label and in this instruction manual. Failure to abide by the clearance requirements may result in a fire.**

**Requirements In Regards To Installation:**

- DO NOT connect to a chimney serving another appliance. Only one appliance is to be used per chimney.
- Flue must be the same size as stove flue collar or larger within requirements of flue size maximums.
- Chimney connector pipe (stove pipe) must be made of at least 24 gauge metal and be attached with crimped ends facing the stove. A minimum of 3 screws is required at each connection point.
- Masonry or manufactured thimble must be longer than the thickness of the wall and does not intrude past the inner face of the chimney liner.
- Thimble may be constructed of approved clay liner thimble tested and labeled. With a 12" non-combustible clearance zone on each side of thimble. Please use NFPA 211 instructions and requirements in regarding thimble information.
- Thimble may be a manufactured thimble or class A chimney pipe. A manufactured component must be installed with listed components accessories and meet manufacturer's specifications.
- It is required to have thimble clearances to combustible material as required by manufacturer and NFPA 211.
- NFPA 211 codes must be followed and an 18" clearance to combustible material is required for chimney connectors.
- This unit must be installed on a noncombustible floor according to the measurements above.
- DO NOT install in a garage.

**Connecting Furnace To Chimney:**

Connection of your Energy Master Furnace to the chimney should be made as direct as possible. It is not recommended to use more than 2 elbows for venting. The pipe connecting the furnace to the chimney should be at least 24 gauge single wall pipe. Thicker gauges and double wall pipe may be used. A ½ inch slope, back toward the furnace, per foot of horizontal run is required. This allows any condensation forming in the pipe to flow back toward the furnace. The connection pipe should be installed so the upper pipe fits inside the lower pipe. Horizontal run pipe should have the seam turned up. Note the point at which the flue passes through a wall to the chimney. This penetration must be made with an approved through the wall thimble or class A chimney pipe and used with the listed proper accessories according to manufacturer's instructions. Chimney connector (stove pipe) CANNOT pass through a ceiling, wall, or any concealed space. Three screws must be attached at each connection point of the chimney connector. When the Class A chimney pipe connects to the masonry, it must be cemented to the chimney, or a thimble must be connected to the chimney and the pipe should be tightly inserted into the thimble without cementing.

## III. TYPICAL INSTALLATIONS

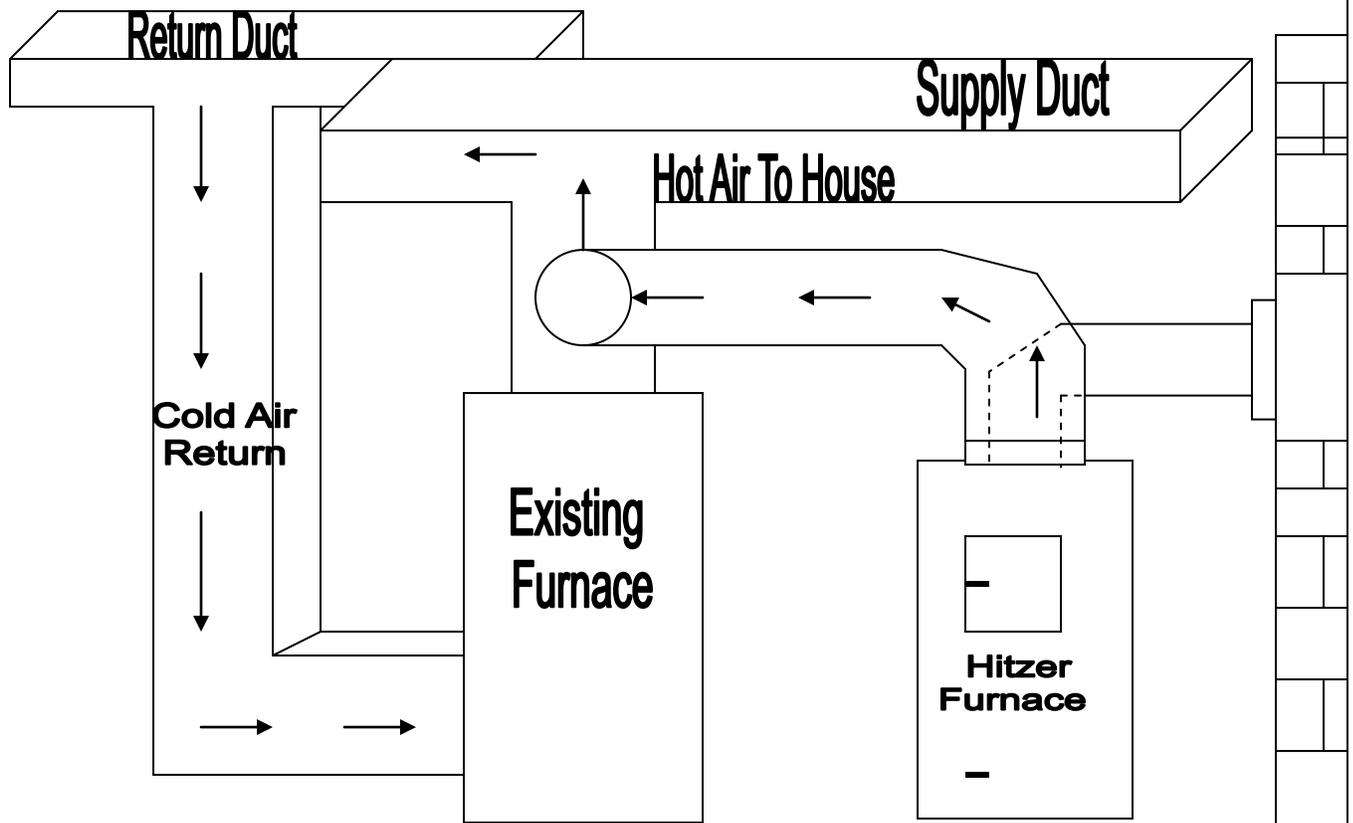
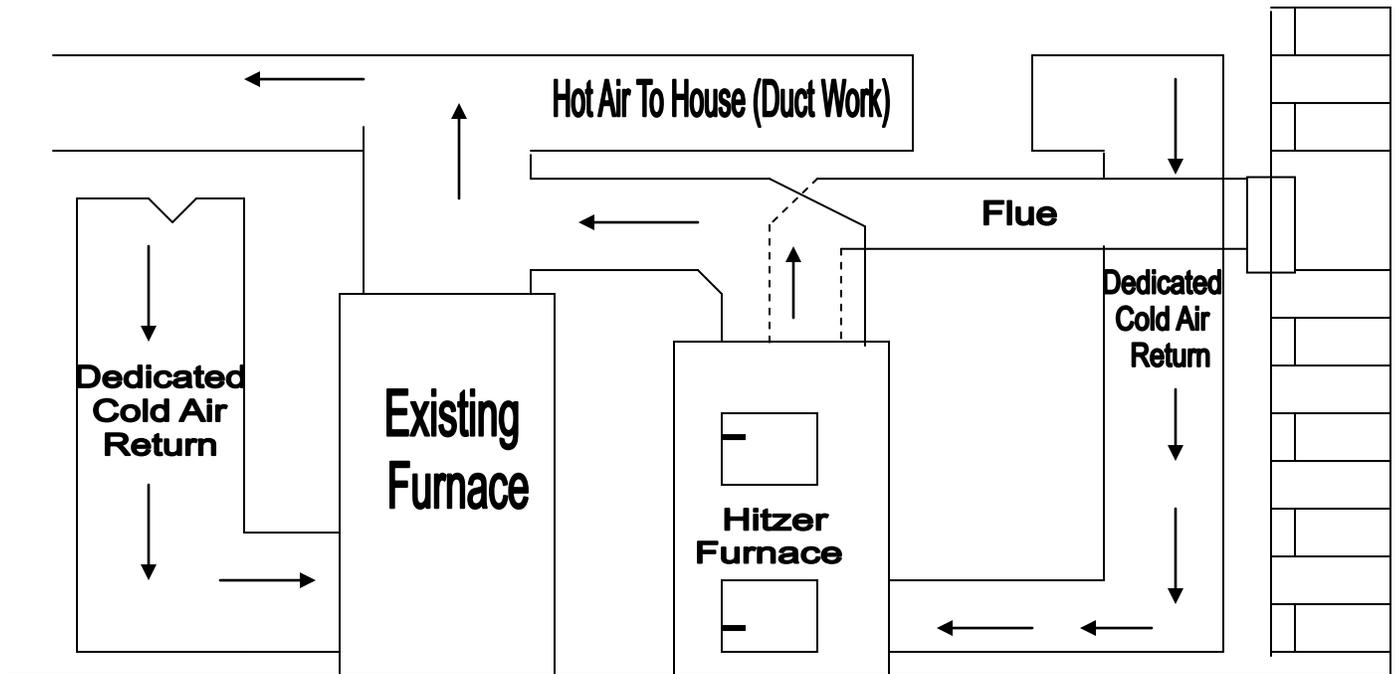
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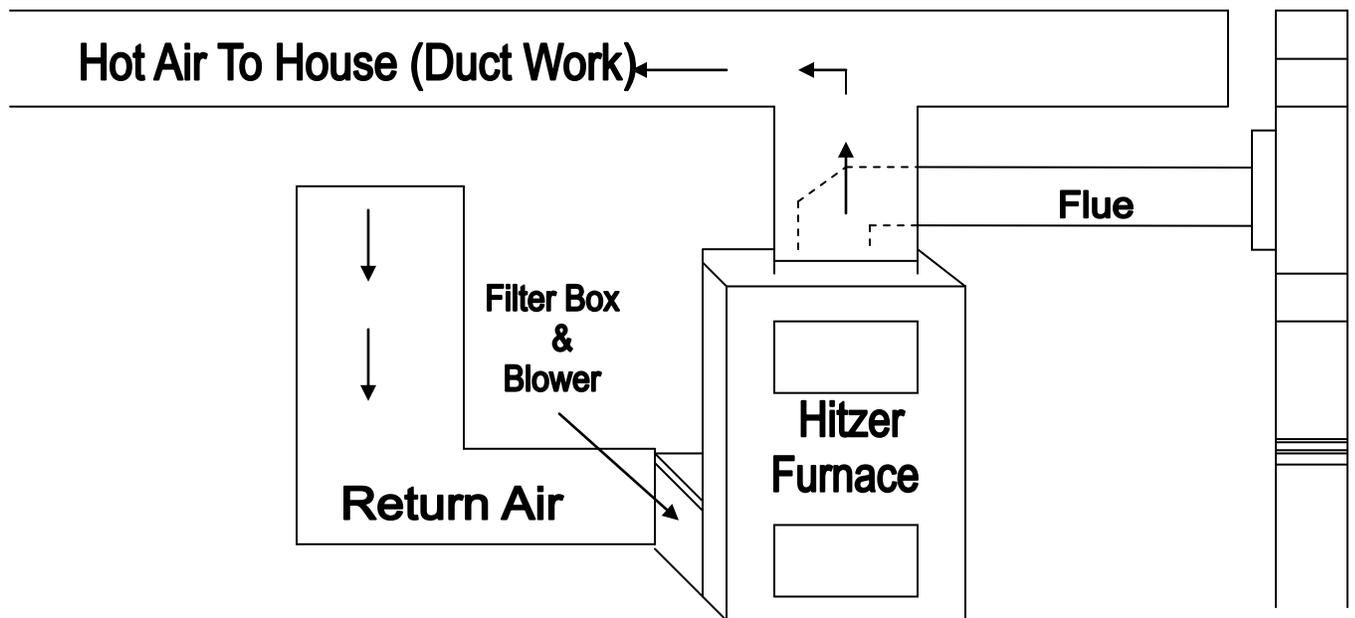
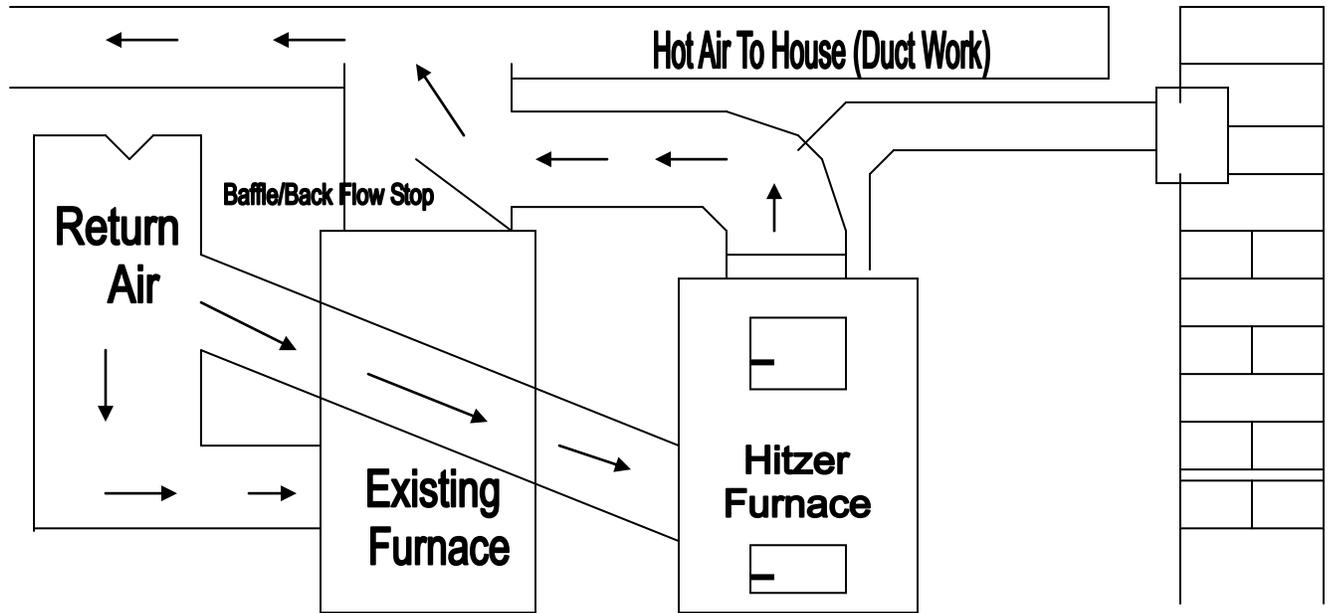
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**Illustrations:**

Below are typical ways of installation formats. Note: these illustrations reflect typical installations and are for design purposes only. Illustrations and diagrams are for informational purposes only. These diagrams are not drawn to scale. Actual installation procedures may vary.

**NOTE:** It is always best to run the supply duct up. The supply duct must be constructed of material with a minimum 250° temperature rating. With the supply duct up, this will allow gravity heat to still rise into the system. The plenum on the furnace must be constructed of metal.





**Notice:** Installations are drawn with a masonry chimney. Manufactured metal chimney listed to UL 103 (CAN/ULC-S629-M87) Type HT or a Hitzer approved power vent system may also be used. Follow manufacturer's instructions/guidelines when using these products.

### Supply Duct:

In order to achieve maximum performance it is important to have the correct size of duct work that corresponds with your Hitzler ENERGY MASTER Stoker Furnace. Your furnace is equipped with a 1009 CFM Blower. In order to achieve maximum performance and heat, it is important to make sure the duct work is sized properly and not too small for the blower assembly. If the duct work is too small your furnace won't achieve full potential. Duct sized excessively large will also be detrimental to the operation of your furnace. NOTE: These calculations are based on a .10 static pressure.

<u>Supply Duct Size</u>	<u>Shape</u>	<u>Approximate Capacity(CFM)</u>
6"	round	120
8"	round	240
10"	round	420
12"	round	680
14"	round	1000
8"x12"	rectangle	480
8"x16"	rectangle	700
8"x 20"	rectangle	910
8"x 22"	rectangle	1000
8"x 24"	rectangle	1200

### Return Air:

Return air is very important and **MUST BE** incorporated into the system. Without adequate return air supplied to your furnace the warm air distributed into your home will be restricted. This will decrease the efficiency of your furnace. You could also cause the furnace to overheat because of reduced air flow causing damage to your unit and voiding your warranty. If your furnace is installed in a basement or utility room that is fairly air tight the blowers on the furnace could depressurize the room and pull toxic flue gasses from the furnace or other burning appliance in the area. These toxic fumes could then be distributed throughout the house causing a very dangerous situation.

The return air can be provided by installing a separate duct system or by tying into the cold air return duct of the existing furnace. Without a return air system warm air will be drawn into your basement, unnecessarily heating unused portions of your home. The return duct should be a minimum of 16" x 20" or equivalent (320sq.in.). The return duct may be attached to the rear of the stoker furnace. Make sure if you are attaching the duct to the rear of the furnace you do not inhibit the removal and replacement of the furnace filters. These filters should be checked and cleaned/replaced regularly to maintain the proper air flow.

### Combustion Air:

All fires need air to burn. The incomplete combustion that takes place in an "air starved" situation causes carbon monoxide (CO) to be produced in quantities that can be dangerous inside a well sealed house. Having a source of combustion air from outside the home will prevent "air starvation" of the furnace. You must provide enough fresh air to assure proper combustion. Outside air is required to replace air used to take the byproducts of combustion out the chimney. Outside air is also required to replace air exhausted by kitchen/bathroom fans, and any other furnace, or water heater chimneys or fans.

#### Outside air may be needed if:

- The solid-fuel-fired appliance does not draw steadily, smell, experiences smoke roll-out, burns poorly, or back-drafts whether or not there is combustion present.
- Any of the above symptoms are alleviated by opening a window slightly on a calm day.
- The house is equipped with a well-sealed vapor barrier and tight fitting windows and/or has any powered devices which exhaust house air.
- There is excessive condensation on windows in the winter.
- A ventilation system is installed in the house.

### Installation In A Confined Space:

When the furnace is installed in a utility/storage room or other enclosed areas you must install two open grills. They should be placed in a wall or door opening into the rest of the house. One will supply combustion air. Locate it near the floor. The other is for ventilation and be located near the ceiling. Each

grill must have free area. This open area should not be less than 1 square inch for each 1000 BTU/hr of the total input rating of all the appliances in the confined space.

**CAUTION: ANY FANS/BLOWERS INSTALLED IN THE ROOM WITH YOUR ENERGY MASTER STOKER FURNACE MUST NOT CREATE A NEGATIVE PRESSURE IN THAT ROOM**

## TYPICAL WRONG INSTALLATION

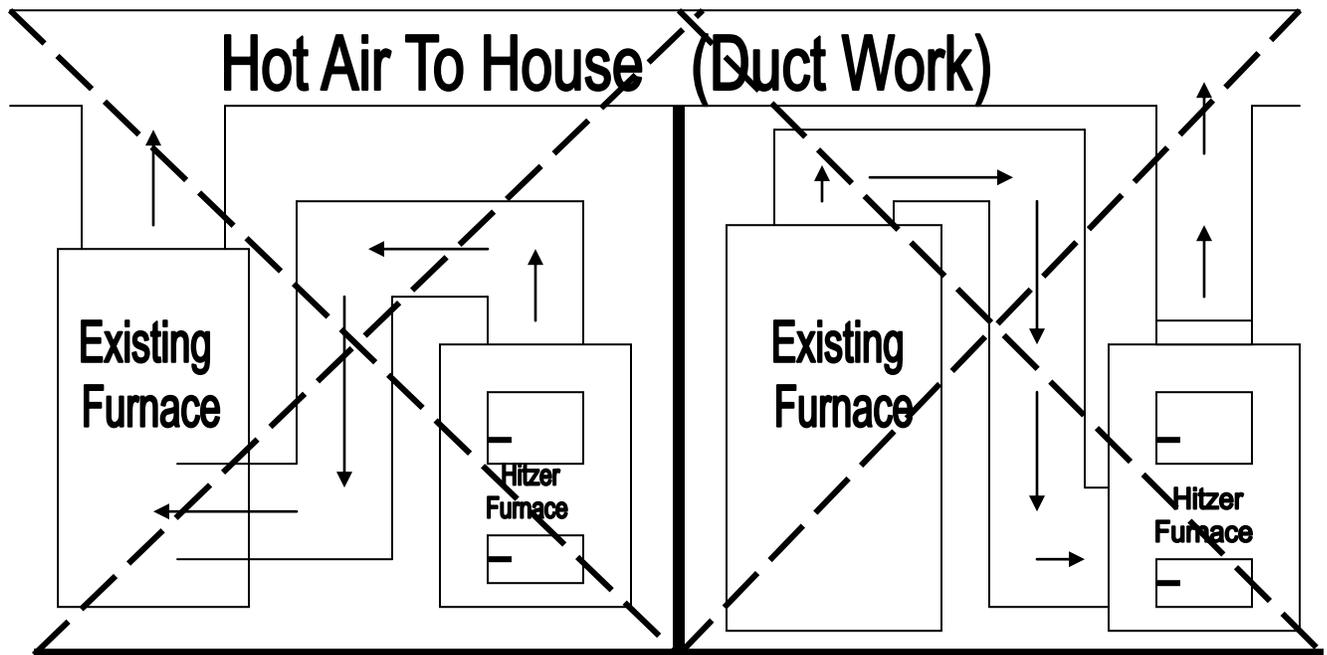
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Do not have supply hot air flow downward as this will not allow the Hitzer Furnace to operate properly.

Do not have the supply air flow back into the blower of existing oil or gas furnace. This could damage the existing furnace controls and/or void any warranty.

Do not have hot air from gas or oil furnace flow downward into the Hitzer Furnace and flow out the Hitzer Furnace to existing duct work.



### Additional Safety Requirements for Canadian Supplemental (add-on) Furnace Installations:

- Do not use duct elbows having an inside radius of less than 6in (150mm) on the (oil, gas, electric) furnace.
- Do not connect to a down flow furnace.
- Do not connect ductwork so that a reverse flow is possible.
- Operate the (gas, oil, electric) furnace periodically to ensure it will operate satisfactorily when needed.
- Certified for installation with the ductwork configurations shown previously.
- Do not relocate or bypass any of the safety controls in the original (gas, oil, electric) furnace installation.
- Do not connect to any furnace that has not been certified initially as complying with CAN/CGA-2.3
- The operation of the gas furnace must be verified for acceptable operation before and after installation of the add-on appliance by a gas fitter who is recognized by the regulatory authority.
- **DO NOT** connect to any gas furnace that is not equipped with an air-circulation blower,
- **DO NOT** connect to or a chimney or vent serving a gas furnace or gas appliance.

- This installation should comply with requirements of CAN/CSA-B365, and changes are made to the central furnace, changes must comply with CSA B139 (for oil-fired), C22.1 (for electric), or CAN/CGA-B149.1 or CAN/CGA-B149.2 (for gas-fired).
- This add-on furnace must only be installed on a furnace duct system and chimney that are in good operating condition.

## IV. FLUE SYSTEMS

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**Masonry Flue System:** A good chimney is essential. A masonry chimney must be built with a low heat masonry material. It is important to make sure that the masonry chimney is structurally sound and on a solid foundation. The masonry chimney must have a liner installed within the chimney construction. An unlined chimney is not safe with solid fuel systems, and may result in a house fire. The liner may be a structurally sound clay liner or a stainless steel liner. If using an existing masonry chimney, be sure to have the chimney examined and cleaned by a chimney professional. The structural foundation of the chimney and liner are important. If the existing clay liner is cracked or damaged, it is recommended to re-line the chimney with a stainless steel liner or other chimney relining system. Be sure the masonry chimney is compatible with the local building codes and requirements. It is important to note that you can only have one appliance per chimney, and it is not permissible to connect your Hitzer Energy Master II furnace to a chimney that is servicing another appliance.

### **Factory Built System:**

A good chimney is essential. The factory built chimney must be a Class A: High Temperature chimney UL listed to UL 103 (CAN/ULC-S629-M87) Type HT. It is required for this Class A chimney to be listed and labeled under the UL standards. If using an existing factory built Class A chimney it must be inspected and cleaned by a certified chimney professional, before use. With Factory Built Chimneys, clearances and distance requirements are required per chimney style. Be sure to follow the manufacturer's clearances and regulations. It is also important to abide by the rules and regulations of local jurisdictions upon chimney installation. Like masonry chimneys, you can only have one appliance per chimney, and it is not permissible to connect your Hitzer Energy Master II furnace to a chimney that is servicing another appliance.

**Flue Requirements:** It is required to have a chimney that is built according to the chimney manufacturer's specifications and meets local building codes. It is also required to have your chimney inspected and cleaned by a certified chimney professional before your Hitzer Energy Master II furnace installation, and periodically during the heating season. When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire, the results of which can be tragic. If material has accumulated, it should be removed immediately to reduce the risk of a chimney fire. An Anthracite coal fire, as a general rule, does not produce creosote so it should not add to a creosote buildup. It can however get hot enough to ignite an existing buildup thus causing a chimney fire.

**IF A CHIMNEY FIRE DOES OCCUR:** Notify all the occupants of the house and call the fire department immediately. Turn the power to the furnace turned off, and any draft controls should be closed. The barometric damper should be blocked then exit the house at once!

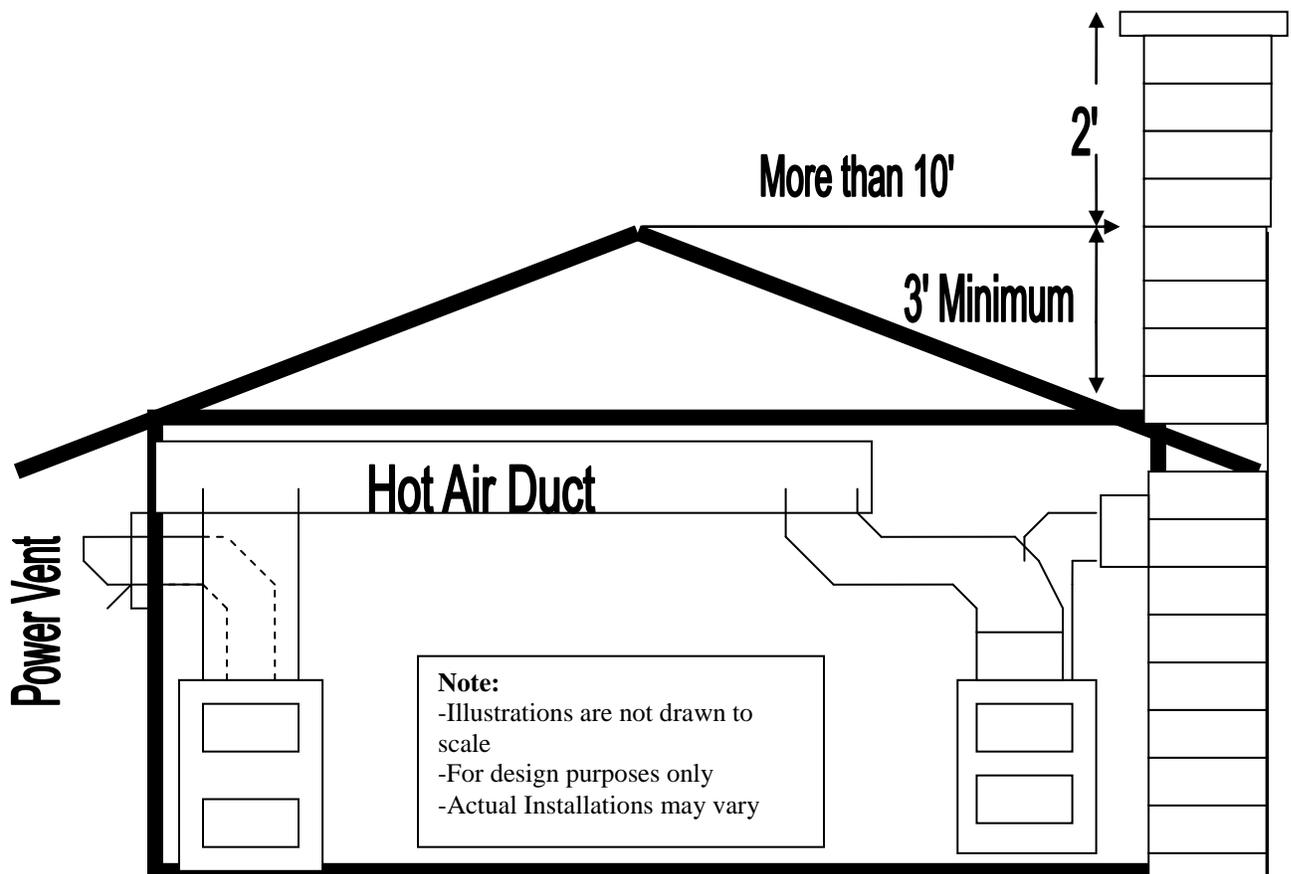
**Flue Size:** The proper flue size is very important. The proper flue size is essential in order to have the correct amount of draft required to operate the Hitzer Furnace. The diameter of the flue size including chimney liner should never be less than the diameter of the flue exhaust collar on the Hitzer Furnace. The flue size for the Stoker Furnace should be a minimum of 6 inches in diameter

The flue size also has a maximum size of inches in order to sustain the desired draft. For an interior chimney the flue and chimney liner size **cannot be larger than 3 times** the square inches of the flue exhaust collar on the Hitzer stove. For an exterior chimney that has at least one side exposed to the exterior of the house the flue and chimney liner **cannot be more than 2 times** the square inches of the flue exhaust collar of the Hitzer Furnace. Also keep in mind the warmer the chimney is the better the draft.

Model	Flue Size (Sq. Inch)		Minimum (Sq. inch)		Maximum (Sq. Inch) Int/Ext	
Stoker	6"	28 sq. in.	6"	28 sq. in.	84 sq. in.	interior
Furnace	6"	28 sq. in.	6"	28 sq. in.	56 sq. in.	exterior

**Chimney Height Requirements:** The minimum height of a chimney system for the Hitzer Stove is 15 feet. The chimney must exceed the roof of a house a minimum of 3 feet at any point of exit. In pitched roof installation the chimney must be at least 2 feet higher than anything within a 10 foot radius of the chimney. It is important to have a chimney draft of .03 - .06 wc. Never operate your furnace at a flue draft exceeding .06 wc (14.945 Pa) or less than .03wc (7.473 Pa). It is required to abide by the manufacture's instructions on class A chimney's as well as local building codes.

All of these requirements must be followed to ensure the best chances for good draft. There are however many environmental factors that can effect your draft. A few of these include wind speed and direction, obstructions diverting winds, barometric pressure and humidity. This is why it is essential to have a barometric damper and carbon monoxide detectors/alarms installed and working properly.



**Power Vent System:**

A Hitzer approved power vent may be used in place of a chimney. **BE SURE TO READ YOUR POWER VENTER INSTALLATION AND OPERATION INSTRUCTION MANUAL BEFORE USING THE POWER VENTER.** Follow the instructions that come with the power venter, for cutting the hole, and mounting the venter to the wall. Connect your Hitzer Energy Master II Stoker Furnace to the power vent using a 6 inch stove pipe and a barometric damper. You need to make certain that the pipe joints are tight together and screwed with a minimum of three sheet metal screws per joint. **Once you have the vent system installed you can then install the wall control thermostat system according to the COAL-TROL DIGITAL™ instruction manual which is supplied in the thermostat box.**

## IV. BASIC REGULATIONS FOR SAFE OPERATIONS

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### **Standard Cautions:**

**CAUTION: ALWAYS HAVE WORKING CARBON MONOXIDE AND SMOKE DETECTORS/ALARMS INSTALLED WHEN USING THIS APPLIANCE. ONE ON EACH FLOOR AND BY SLEEPING ROOMS IS RECOMMENDED**

**CAUTION- Hot Surfaces**

- Keep children away
- Do not touch during operation

**WARNING-Risk of Fire**

Do NOT operate with fuel or ash door open  
Do NOT store fuel or other combustible material within marked installation clearances

**DANGER-Risk of Fire/Explosion**

- **Burn Rice Anthracite Coal Only**
- Do NOT burn garbage, gasoline, oil, or any other flammable liquids

Do NOT connect this unit to a chimney flue serving another appliance.

**CAUTION**

Use caution when opening loading door. Avoid opening loading door rapidly. This could cause flame to flash out door. This occurs when there is unburned gas at the top of the fire box. When the door is opened, oxygen combines with gases and ignites.

**WARNING**

Have chimney inspected. The chimney is a very important part of your heating system. It must be the right size, properly constructed, and in good condition. Chimney must be at least 15' high and exceed the roof a minimum of 3 feet, unless using Power Vent System

**WARNING-Risk of Fire**

- Comply with all minimum clearances to combustibles as specified.
- Failure to comply may cause fire.

**WARNING-Over Fire Unit**

Do NOT over fire your unit.  
This will cause warping of fire box parts, damage the stove, and void all warranty.

### **Local Codes:**

All local codes should be strictly followed and inspected by local officials. Please follow local building codes, manufacture codes, and fire codes. Local codes vary depending on location and regulations. Communication and inspection in accordance with local building and fire officials must be present and installation must successfully pass the local professional inspection.

## VI. STOVE START UP & OPERATION

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### **Install Coal-Trol Thermostat:**

Once appliance is placed in the desired location you can locate your Coal-Trol thermostat so that the supplied control cable will reach it. The supplied cable is 25 feet long. Longer lengths can be ordered

from your Hitzer dealer or directly from Hitzer. The maximum length that will work is 100 feet. The Coal-Trol control box is located on the top of the blower housing. Connect control cable to thermostat on the wall and to the control box on the furnace. Once the ductwork has been connected mount hi-temperature cut out switch (**set to 155°**) in ductwork approximately 3 inches above the furnace top. Drill 1" hole in duct and mount switch with sensor inside duct. Follow the instructions and set-up procedure included with the Coal-Trol Thermostat.

#### **Start Up:**

**Note:** For the first fire in your new Hitzer Furnace, create a small hot fire to allow paint to cure to the stove. This may create a slight odor as paint cures to the furnace. Let this small fire burn for at least 2 hours before you raise the Coal-Trol temperature setting to maximum heating potential.

### **CAUTION: NEVER USE GASOLINE, KEROSENE, CHARCOAL LIGHTER FLUID, OR ANY OTHER TYPE OF FLAMMABLE LIQUID TO START YOUR FIRE.**

First make sure you have coal in the hopper and the power vent on if applicable. In the center of the grate build a fire with broken up self lighting charcoal, a big hand full of wood pellets, a coal stoker igniting block (coal mouse), or kindling wood. Once the fire is started and established, sprinkle a very thin layer of coal over it and turn the power on to the COAL-TROL DIGITAL™ control. This starts the combustion blower and also the feed motor. As you see the coal start to glow sprinkle another layer of coal on. As this coal starts to glow red the feed motor should now be feeding coal far enough onto the grate that it will start. Once coal is started you can adjust the thermostat to the desired temperature and the automatic system will take over from here.

#### **Adjusting Chimney Draft:**

With the coal fire burning and stabilized, drill a small hole in the back of the stovepipe a few inches above your furnace. Attach a manometer to this hole to read the chimney draft. Adjust the barometric damper so that your manometer reads between .03 and .06 (inches of water column) following the instructions provided with the damper. Do not run at a draft above .06 (inches of water column) as this could cause your stoker to over fire. Over firing can cause a dangerous fire hazard. It would be best to set it with a manometer if available. The settings on the barometric damper are close but not completely accurate.

#### **Measuring Furnace Compatibility:**

Follow the instructions with your Coal-Trol to find the fan speed adjustment. Adjust this from automatic to manual at 99. This is the max speed of the convection fan. At the same time adjust the thermostat on your central furnace 8 to 10 degrees above the room temperature. This should in a few minutes have it's fan running at max. With both fans running at their maximum settings, Drill a small hole in the plenum of each furnace and measure the static pressure in each with a manometer. The maximum static pressure must not exceed the pressure listed on the nameplate of the furnaces. If these pressures are exceeded your installation is incorrect and dangerous. Exceeding these pressures will void your warranties and possibly damage either one or both of your furnaces. This problem can be easily fixed by enlarging your duct work or possibly adding another line to your plenum.

**Notice:** Always burn your stoker with the ash door, glass door, and hopper lid closed and the door gaskets and seals in good condition. Failure to keep these doors closed can result in smoke and carbon monoxide coming into your house creating a very dangerous situation

### **CAUTION: ALWAYS HAVE A WORKING CARBON MONOXIDE, AND SMOKE DETECTOR INSTALLED WHENEVER USING THIS APPLIANCE**

#### **CARBON MONOXIDE**

**Actuation of your CO alarm indicated the presence of Carbon Monoxide. Turn off your coal stove immediately and increase ventilation by opening windows and doors to help move the fresh air throughout the house. Exit the area at once. Contact your installer or other local authorities to determine the source of the carbon monoxide and solve the problem.**

## VII. MAINTENANCE

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Failure to maintain or properly use this appliance may cause a house fire. At the beginning of each heating season this appliance, the connector pipe, and chimney should be inspected to see that it is in good working condition.

### Daily:

- Check ash pan and remove and dump if full. Failure to remove ashes will result in ashes blocking up your grate and your fire will not burn correctly. Ash pan will fill within several days depending on the burn rate. Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. The ashes should be retained in the closed container until all cinders are out and have thoroughly cooled before final disposal.
- Clean glass. Brush fly ash off as it will etch into glass if left on.

**CAUTION: THE ASH PAN AND PARTS OF YOUR STOKER WILL BE HOT. ALWAYS WEAR GLOVES AND PROTECTIVE CLOTHING WHEN EMPTYING ASH PAN OR WORKING ON A HOT OR BURNING STOVE.**

### Weekly:

- Pull small handle on the back of the flue collar out and push back in vigorously several times. This will knock the fly ash off of the heat exchanger plates inside your stoker and down to the bottom of the stoker.
- Clean all ash and fly ash from floor inside of the stoker around ash pan.

Two months or after approximately 2 tons of coal: This cleaning time line will differ from other Energy Master II owners depending on amount of coal burned, ash content of the coal, the burn rate, and draft of the chimney.

- Allow stoker to run out of coal, go out, and cool down.
- Remove chimney connector pipes and check and remove any fly ash accumulation. This will mainly be at the bottom of elbows and horizontal runs.
- Remove all fly ash from heat exchanger plates inside and below the flue collar and on the floor of the stoker around the ash pan.
- Carefully remove or raise cast iron grate and vacuum coal fines and fly ash from under the grate.
- Clean coal fines and dust from under feeder shovel
- Clean glass thoroughly

### End Of The Season:

Summertime moisture and high humidity can be absorbed by dust and fly ash and cause rust and corrosion. A clean stoker helps reduce this.

- Do all the 2 month items plus the following.
- At the end of your heating season remove all coal from hopper. Letting hopper run out of coal while burning is best as it will also remove any moisture left in stoker from damp coal.
- Remove all ash and dust from inside stoker with vacuum and paint brush.
- Carefully raise or remove cast iron grate and vacuum ash and dust from under it.
- Disconnect stove pipes from stoker. Thoroughly clean all fly ash, soot, and dust out of pipe. Especially elbows and horizontal runs.
- Check and clean chimney if necessary.
- Clean all fly ash and dust from heat exchanger plates through flue collar.
- Remove hopper and clean all dust, and coal fines from feeder and under feeder plate. If rust or corrosion is observed on feeder sand lightly and coat with spray paint or a rust inhibitor like WD-40.
- If using a power vent, it must be disassembled, cleaned, and lubricated according to the instructions that came with the power vent.

# VI. TROUBLESHOOTING

## Basic Troubleshooting

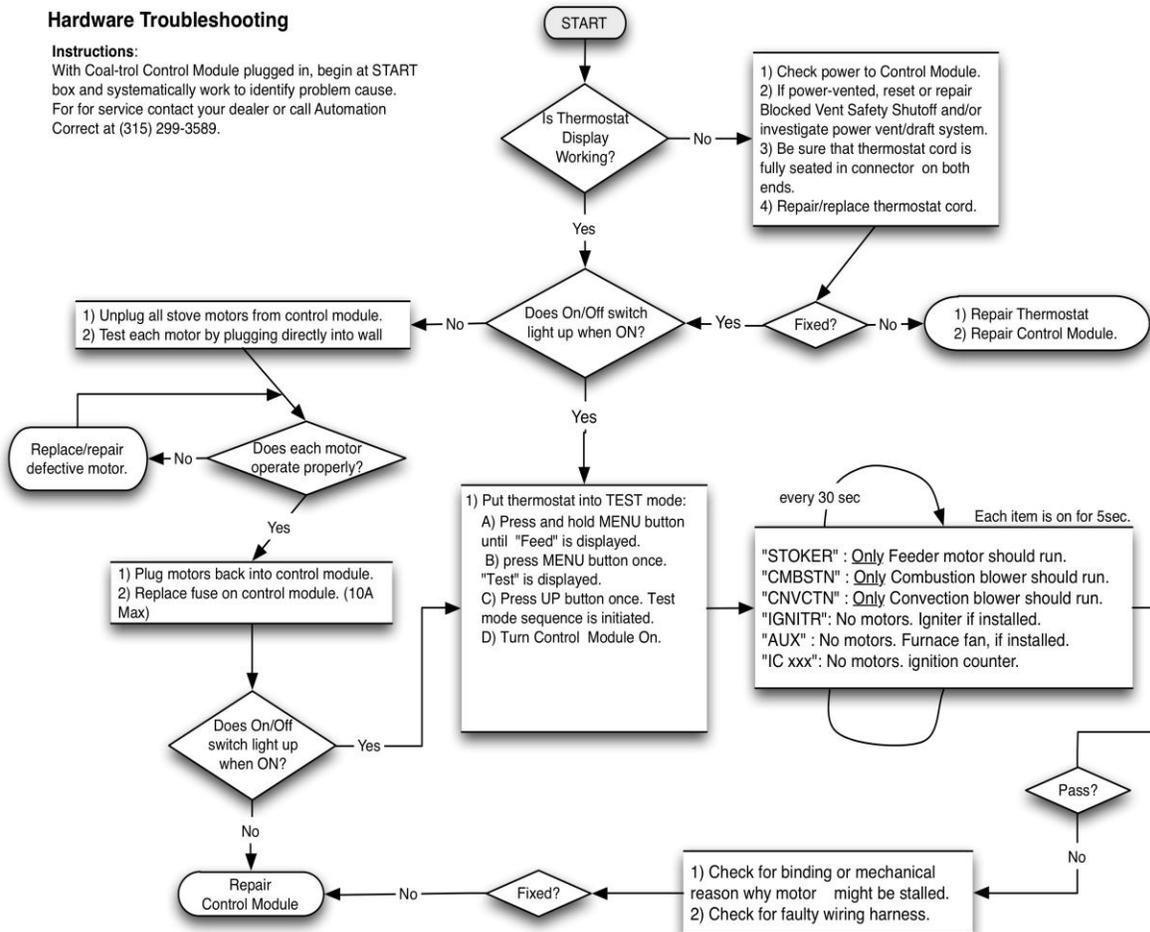
The Coal-trol Digital System is only the command and control piece of a properly operating stove. If the Control Module power light is ON, and the Thermostat is displaying normally, the easiest way to determine the source of an electrical or mechanical problem is to go to TEST mode and observe for proper operation of the controlled item.

Problem	Possible Cause(s)	Possible Solution(s)
Power Light on Control Module is not ON	1) No power to Control Module. 2) Fuse blown in Control Module.	Check power. Turn Power switch ON. Replace fuse. Bad Motor or bad wiring. Bad Control Module.
Thermostat has no display.	1) No power to Control Module. 2) Cable not snapped in. 3) Bad cable.	Check power. Snap in both ends of cable. Replace cable. Bad Thermostat. Bad Control Module.
Fire goes out now, but was working before.	1) Stoker mechanism jamming or dragging. 2) Hopper clogged or empty. 3) Stoker motor defective. 4) Combustion blower defective.	Go to TEST mode and verify that the Stoker motor and Combustion blower are working. Troubleshoot mechanicals. Verify fuel quality and sizing. Bad control cable. Bad Thermostat Bad Control Module.
Hot coals falling off of grate.	1) MAX set too high. 2) Control problem.	1) Go to TEST mode and verify that the Stoker motor and Combustion blower are working properly. If not, replace Control Module. 2) Perform MAX/MIN adjustment.

## Hardware Troubleshooting

### Instructions:

With Coal-trol Control Module plugged in, begin at START box and systematically work to identify problem cause. For service contact your dealer or call Automation Correct at (315) 299-3589.



## IX. FURTHER INFORMATION:

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### **POWER OUTAGES:**

In event of a power outage a small generator or 12 volt battery and an inverter with a capacity of at least 550 watts may be used. The length of the burn time using the back-up system will be determined by the capacity and condition of the battery and the amount of heat needed. Some generators will also work however the output of either must be a pure sine wave. Other outputs can cause the Coal-Troll Digital™ to not work.

You may also contact your Hitzer dealer or Hitzer Inc., for questions or more information regarding stove installation and operation.

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