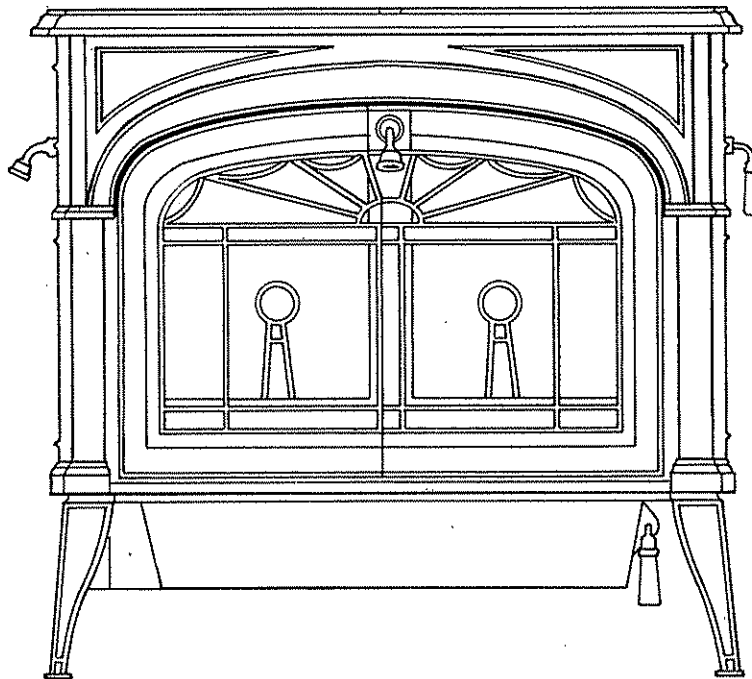


# VERMONT CASTINGS® DEFIANT ENCORE®



— Defiant Encore 0028 —

## Owner's Guide

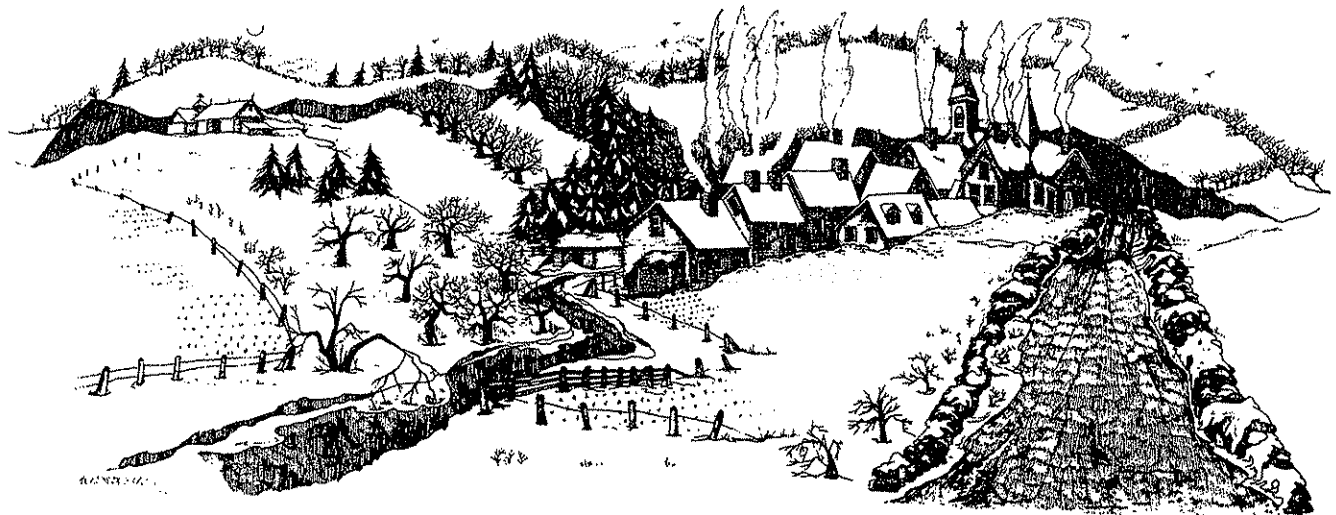
For Use in the U.S.A.

**SAFETY NOTICE: IF YOUR DEFIANT ENCORE IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. FOR SAFETY, FOLLOW ALL INSTALLATION, OPERATION AND MAINTENANCE DIRECTIONS. CONTACT LOCAL BUILDING OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.**

# Welcome...

## THE FIRE ON THE HEARTH

Your Vermont Castings® Defiant Encore® continues the enduring tradition of quality cast iron stoves which warmed Vermont farm houses for generations. Enhancing that rich heritage with a space-age approach to combustion technology, we have developed a stove which loses nothing of the classic beauty of those times, yet fully meets the challenge presented by today's increasing environmental concerns. We are proud to offer you this superb example of the stovemaker's craft.



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The Defiant Encore has been tested and is listed by the R.F. Geisser Laboratory of East Providence, Rhode Island. The test standards are ANSI/UL-1482 and ANSI/UL-737.

The Defiant Encore is listed for burning wood. Do not burn other fuels. The Defiant Encore is NOT listed for installation in mobile homes.

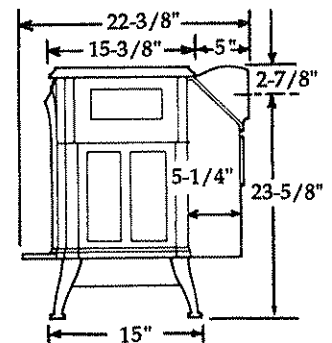
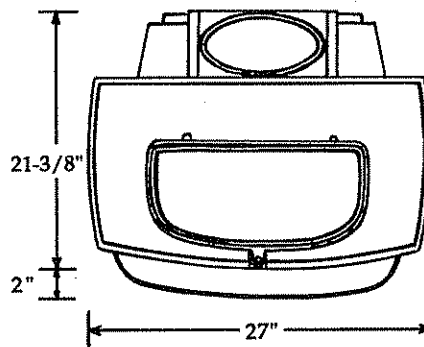
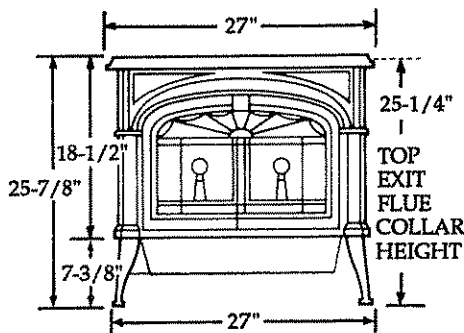
The Vermont Castings Defiant Encore is in compliance with the standards set forth by the Federal Environmental Protection Agency, 40 CFR Part 60.530(c), as stated on the permanent label attached to this appliance.

# How To Use This Manual

We have tried to make this manual as easy to read as possible. Please read the entire manual at least once before you make the final installation connection. This manual contains a great deal of information and is not easily digested in one sitting. Before you light your first fire, study it thoroughly. Take your time, especially reading the Operation section. The quality of the installation (especially the chimney connector and chimney), and the quality of the fuel being burned will affect the performance of your Defiant Encore, but the most important factor is the way you operate the stove.

Save These Instructions. Keeping the manual handy will allow you to refine your operating techniques as you develop skills and confidence. Read it again after you have used your Defiant Encore for a while. Points which may be difficult to understand on first reading will become clear as you acquire hands-on experience. Your Vermont Castings Authorized Dealer, with his knowledge of local conditions, is a valuable source of information should you need further assistance. Experienced advisors from Vermont Castings Team Fireside™ are available at 1-800-22-STOVE (1-800-227-8683). Every Vermont Castings Authorized Dealer, and every member of Team Fireside™, is committed to your satisfaction with your new Defiant Encore.

## DIMENSIONAL VIEWS



## DEFIANT ENCORE SPECIFICATION CHART

Range of heat output*	6,200 - 32,900 BTU/hr.	Flue size	8"
Maximum heat output**	47,000 BTU/hr.	Fuel capacity	40 lbs.
Average area heated***	950 - 1900 sq. ft.	Size & type of fuel	18" - 20" wood logs
Height - w/regular legs	25-1/4" - top exit 26-1/2" - rear exit	Loading	Top or front
w/plinth	23-1/4" - top exit 24-1/2" - rear exit	Flue exit positions	Reversible - top and rear
Width (leg to leg)	27"	Secondary air control	Self-regulating
Depth (leg to leg)	15"	Primary air control	Manually adjusted, thermostatically maintained
Stove weight	350 lbs.	Glass panels	High temperature ceramic, 5 mm. thick

\*Under specific test conditions used during EPA emissions standard testing.

\*\*This value can vary depending on how the stove is operated, and the type and moisture content of the fuel used. Figure shown is based on maximum fuel consumption obtained under laboratory conditions and on average stove efficiencies.

\*\*\*These values are based on operation in building-code conforming homes under typical winter climate conditions in New England. If your home is of non-standard construction (e.g., unusually well-insulated, not insulated, built underground, etc.) or if you live in a more severe or more temperate climate, these figures may not apply. Since so many variables affect stove sizing, consult your Vermont Castings Authorized Dealer to determine realistic expectations for your home.

# THE INSIDE STORY

Your Defiant Encore is actually a highly sophisticated combustion system, designed to deliver maximum energy efficiency while maintaining the aesthetics of fireviewing. It has been our experience that if you understand the inner workings of your stove you will be better able to use it wisely, and gain maximum savings and pleasure from your investment. This knowledge is as important for installation as for daily use, since good performance depends on both correct installation and proper operation. Read this section as well as the installation section before you install or operate your stove.

## *The Combustion Process*

The combustion of wood is a complex process. The following discussion breaks the process down into stages, but remember, in actuality all steps often occur simultaneously.

### STAGE 1. EVAPORATION OF INHERENT MOISTURE

Moisture is evaporated from near the surface of the burning wood. Energy is consumed during this drying process and must be supplied from other burning wood or kindling. The amount of moisture in the wood affects the rate at which wood burns. The higher the moisture content of the wood, the more energy required to dry it and the slower the rate of initial combustion.

### STAGE 2. RELEASE OF VOLATILE MATERIALS

A large percentage of wood's energy, one-third or more, is contained in the gaseous and liquid/vapor materials released as the wood's temperature reaches the 500° F. to 600° F. range. These gases and vaporized tars (commonly referred to as smoke) are by-products of the distillation (pyrolysis) of lignum and cellulose in the wood. They contain molecules composed of various combinations of carbon, hydrogen and oxygen.

### STAGE 3. CHARCOAL COMBUSTION

When the volatiles have been driven from the wood, the remaining material is mainly carbon, or more commonly, charcoal. The combustion of this material occurs on its surface and is recognized by an orange glow, indicating the combustion of carbon and oxygen at an elevated temperature level (1300° F. plus). The charcoal contains as much as two-thirds of the wood's energy. After the charcoal is consumed, the material left (ash) is mainly inorganic material that cannot be burned further.

## SECONDARY COMBUSTION

The volatile materials released from wood during Stage 2 must be burned in order to obtain the best possible heating efficiency and the greatest reduction in creosote formation and air pollution. The process of burning these materials is called secondary combustion.

Secondary combustion can occur in conventional stove designs when fresh air is available and sufficiently

high temperatures (in excess of 1100° F.) are generated by the fire. The flaming you see above the logs in your stove is an uncontrolled type of secondary combustion.

Secondary combustion can occur at much lower temperatures and in a much more controlled manner in a stove with a properly designed and operated catalytic combustion system.

## *The Stove*

### THE CATALYTIC SYSTEM

The components of the catalytic combustion system in your Defiant Encore work together to produce the right conditions for secondary combustion. The catalyst promotes ignition of smoke and gases at temperatures of about 500° F. to 600° F., roughly half the temperature normally required.

Once catalytic ignition begins, heat conservation and recycling within the system itself encourage complete combustion by further raising temperatures. The system will be very effective when the stove is operating at temperature ranges too low to sustain secondary combustion within the stove body, but high enough to activate combustion in the catalytic system.

The **primary combustion chamber** is the cast iron chamber which contains the load of fuel and in which primary combustion takes place. The **secondary combustion chamber** is a rectangular baffled chamber located behind the Encore's fireback. It is made of a high temperature refractory material which helps maintain elevated temperatures within the combustion zone and protects the stove from the extremely high temperatures generated by secondary combustion.

Gases released by primary combustion enter the secondary chamber through a throat at the rear of the primary chamber. Upon entering the refractory chamber, the gases pass through the catalytic element, a high temperature ceramic "honeycomb" coated with a catalytic material. Directional baffles improve combustion efficiency and direct exhaust out of the chamber.

The primary and secondary combustion chambers are separated by a cast iron fireback and an internal bypass

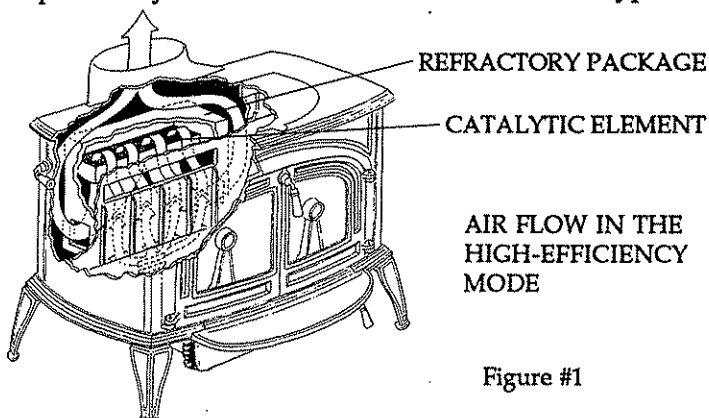


Figure #1

damper. The damper can be set in two positions - open (updraft mode), and closed (high-efficiency mode). When the bypass damper is open, smoke exits to the chimney directly from the primary combustion chamber. When the bypass damper is closed, smoke is forced through the catalytic combustion system before exiting.

## COMBUSTION AIR

Primary air is delivered from the rear of the stove to the upper front through a series of cast iron air manifolds. The most noticeable is the upper cast iron manifold located on the inside of the front (above the door opening). This manifold serves as an air reservoir for delivering a uniform sheet of air down over the glass panels in the front doors. All of the cast iron manifolds serve the additional function of preheating the incoming air. Located on the inside of each front door is an airwash door manifold, visible when the front doors are open. These manifolds seal against the upper cast iron airwash manifold, further ensuring the uniformity of the sheet of air which bathes the glass panels.

A bimetallic coil located on the upper right side of the stove controls the position of the primary air intake shutter.

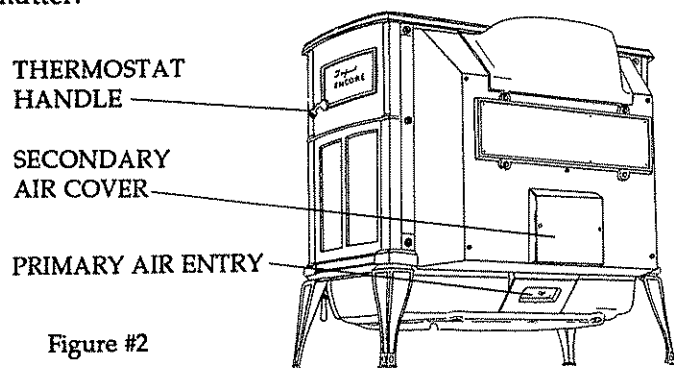


Figure #2

The automatic factory-set secondary air control meters the proper amount of air into the secondary air passageway depending on the temperature it senses within the combustion chamber. This helps compensate for the variable nature of wood combustion and will offset some (though not all) of the problems associated with burning inadequately seasoned fuel.

The heat exchanger is a thin stainless steel panel which forms the passageway for the introduction of secondary air. It also separates the incoming smoke passage from the combustion chamber. Once catalytic combustion begins, some heat is transferred back through the heat exchanger to help preheat the colder incoming smoke. Additional heat is transferred to preheat incoming secondary air. The heat exchanger also supports one side of the catalytic element.

The by-products of combustion leave the secondary combustion zone at elevated temperatures. The heat exchange surface on the back of the stove ensures that maximum heat enters the room while still allowing the exhaust entering the chimney to contain sufficient heat to maintain proper draft. This balancing of heat to the room and heat to the chimney has been carefully considered to provide the best performance given a variety of installation, fuel and weather variables.

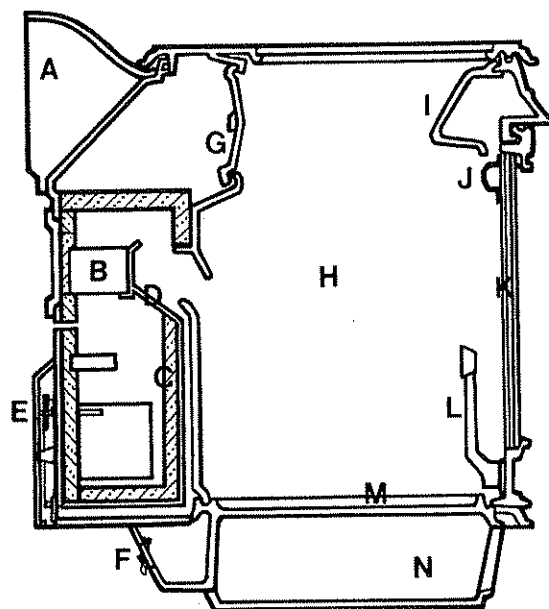
## THE GLASS DOOR SYSTEM

Dual ceramic glass panels with air trapped in between are used in each door, similar to the thermal insulating glass systems used in homes. The inner surface is maintained at an elevated temperature that in combination with the preheated airwash reduces the chance of condensation forming on the glass.

Removable andirons help keep logs away from the glass panels. The andirons are important to maintaining clear fireviewing and should only be removed while reloading through the front doors.

## CUTAWAY VIEW OF THE DEFIANT ENCORE

- A. FLUE COLLAR
- B. CATALYTIC ELEMENT
- C. REFRACTORY LINED SECONDARY COMBUSTION CHAMBER
- D. HEAT EXCHANGER
- E. SECONDARY AIR CONTROL
- F. PRIMARY AIR SHUTTER
- G. DAMPER



- H. PRIMARY COMBUSTION CHAMBER
- I. AIR WASH UPPER MANIFOLD
- J. AIR WASH DOOR MANIFOLD
- K. DUAL CERAMIC GLASS PANELS
- L. ANDIRON
- M. GRATE
- N. ASH DROP

# OPERATION

## Fuel

The fuel you use makes an important contribution to successful operation. You will experience the best stove performance and overall efficiency by burning firewood that has been split, stacked and air-dried for about one year. Burning insufficiently seasoned or "green" wood will lower the performance level of your stove and make more work for the stove tender. With excessively dry wood, on the other hand, you may have difficulty keeping the stove's heat output at a moderate level.

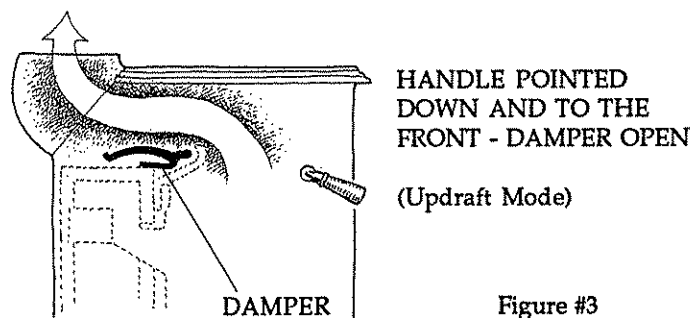
The Defiant Encore is listed for wood only. Do not burn other fuels.

## Controls

Two controls are used to operate the stove.

The **damper handle**, located on the stove's left side, controls the position of the internal bypass damper.

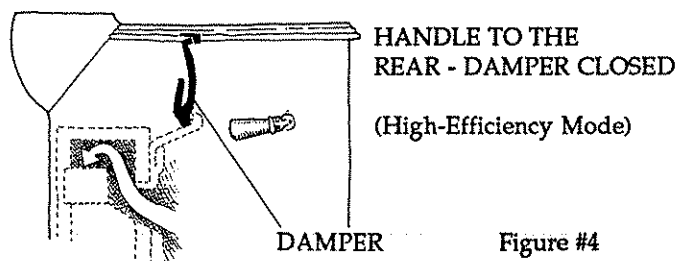
When the damper handle is pointed down and to the front (see illustration), the bypass damper is in the open position. Hot smoke and gases rising from the fire flow directly to the flue collar of the stove and to the chimney. The stove is operating in the updraft mode.



(Updraft Mode)

When the damper handle is pointed to the rear, the bypass damper is in the closed position. Hot smoke and gases rising from the fire are directed through the throat in the fireback and through the catalytic combustion system before passing to the flue collar of the stove and to the chimney. The stove is operating in the high-efficiency mode. (When changing to the closed position, be sure to push the damper handle past the point at which you first feel resistance. The handle will "snap" into the locked position, ensuring that it remains in the proper orientation for catalytic activity.)

There are no intermediate damper positions.



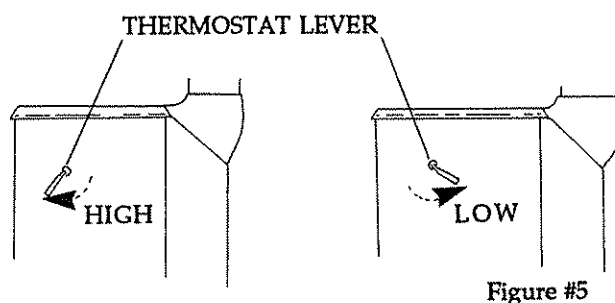
(High-Efficiency Mode)

The **thermostat lever**, located on the right side of the stove, allows manual control of the primary air supply.

As you move the lever toward the front of the stove, the air shutter opens and admits more air. This will increase the rate of combustion and the heat output.

As you move the lever toward the rear of the stove, the air shutter closes and reduces the air supply. This will lower the rate of combustion and the heat output.

In addition to manual control of the primary air supply, automatic control is provided by a bimetallic coil which reacts to the heat of the stove. As the stove gets hotter, the coil slowly closes the air shutter and slows the rate of combustion. As the stove cools, the coil slowly opens the air shutter and increases the rate of combustion. The action of the coil promotes an even heat output from the stove.



## CLOSING THE DOORS

Close the left door first, and then the right door.

Turn the handle counter-clockwise as you move the handle to the straight up and down position.

The handle should meet some resistance as you turn it, and the doors will draw in slightly.

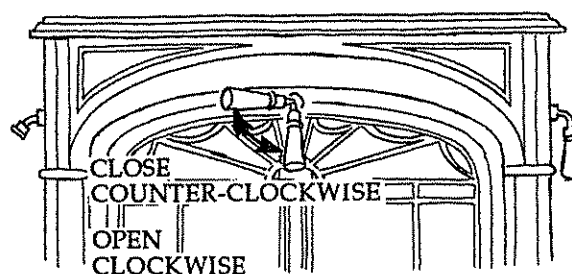


Figure #6

## The Break-In Fires

Cast iron is a superior material for wood heating appliances, but it must be treated with respect. It can be broken with a sharp blow from a hammer or from the thermal shock of very rapid temperature changes. Since cast plates expand and contract with changes in

temperature, allow them to adjust gradually to minimize the stresses. A little extra care and thoughtfulness during the break-in period will help promote a long life for your stove. Follow these guidelines to break in your Encore properly:

- Open the damper. Open the load door. Set the thermostat lever on high.
- Lay some crumpled newspaper and kindling on the bottom grate. Place some dry, finely split kindling on top of the paper, followed by two or three pieces of 1" - 2" split, dry wood. Light the fire. If your chimney is cold, you may have to prime it by inserting a crumpled piece of paper up into the flue collar area behind and above the Encore damper, and igniting it.
- Gradually build up the fire by adding a few 3" - 5" diameter splits.
- Control the size of the fire by adjusting the thermostat lever.
- Allow the fire to burn brightly, and then let it die out. Allow the stove to cool.
- Repeat this small to moderate fire a few times before proceeding to higher heat output fires or the high-efficiency mode. Each successive fire may be slightly hotter and longer.
- Do not close the damper during break-in fires.

## Daily Operation

### STARTING THE STOVE

Once your Defiant Encore has been through the required break-in procedure, you should start operating in the high efficiency mode. Begin by building a fire just as you did for the break-in fires. A strong kindling fire preheats the stove and chimney system. It is a good idea to store your kindling in a warm, dry place; dry kindling will preheat the system more quickly.

Once your fire is burning steadily, continue adding fuel until a 3" - 4" charcoal bed has been established. This may take an hour or more depending on the type of firewood being burned, its moisture content, and the draft in the chimney. Avoid the extremes of a roaring blaze or a slow smoky fire. NOTE: When loading the stove, be careful not to damage any of the gasketing by striking it with a log.

Do not operate the stove with the ash door fully or partially open. This will result in overfiring. Failure to operate the stove according to these instructions could cause damage to your stove, void the warranty, or even result in a house fire. Always observe the cautions and follow the procedures outlined in this Owner's Guide.

**CAUTION: NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR "FRESHEN-UP" A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IT IS IN OPERATION.**

To move into the high-efficiency mode, the stove's griddle temperature should be at least 450° F. Load the stove, using smaller splits of wood on top of the charcoal bed, followed by larger pieces on top. Close the damper to direct the smoke through the catalytic combustion system.

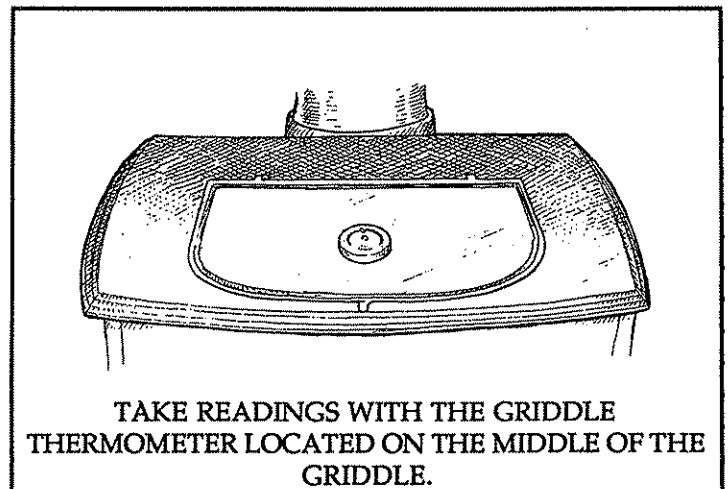
Leave the thermostat lever on high for approximately 15 minutes after you close the damper. This will allow the hot smoke to heat the chamber thoroughly. When the chamber is properly heated, hot smoke entering the chamber will stay warm enough so volatile gases in the smoke chamber will be ignited as they pass through the combustor. After the stove has run with the damper closed for 15 minutes and the catalytic combustion system is thoroughly heated, adjust the thermostat lever to provide the desired heat output.

### USING A SURFACE THERMOMETER

A surface thermometer provides valuable information about stove performance. Until you are familiar with your stove's operation, monitor the griddle surface temperature frequently. For the Defiant Encore, readings in the 350° F. to 500° F. range indicate low to medium heat output. Readings of 500° F. to 600° F. indicate medium heat output. Readings of 600° F. to 750° F. indicate high heat output. Operating your Encore continuously at griddle temperatures of 750° F. or higher may damage the cast iron parts, and may cause damage to the porcelain enamel finishes.

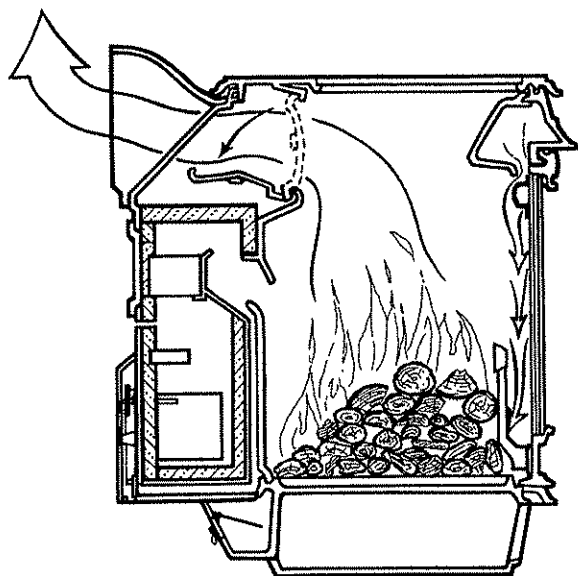
A surface thermometer also provides information to help the operator decide when to adjust the controls and when to refuel the stove. During start-up and after reloading the stove, when the thermometer registers at least 450° F., the stove is hot enough to shift into the high-efficiency mode. The operator should close the damper so that the smoke will be directed through the catalytic combustion system.

Readings lower than 350° F. tell the operator it is time to adjust the primary air for a higher burn rate, or to load the stove. Readings over 750° F. tell the operator to slow the burn rate.

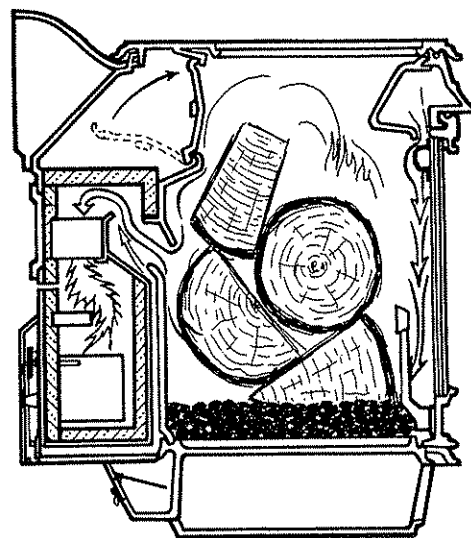




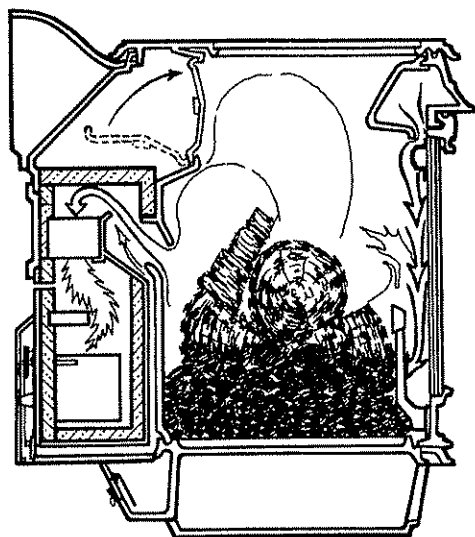
# The Stages of Combustion During Normal Operation



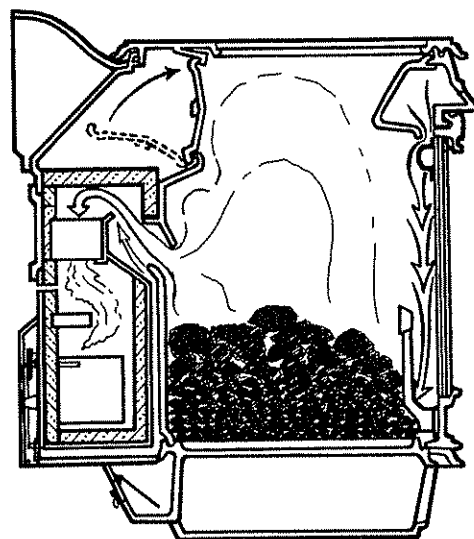
1. **Kindle a fire.** Damper is open. Thermostat lever set to admit large amounts of air. Warm up the stove and establish a charcoal bed. Griddle temperature: 500° F. to 600° F.



2. **Charcoal bed is established.** Stove is loaded (smaller pieces on bottom), thermostat lever set to admit large amounts of air. Close damper when griddle temperatures reach 450° F. to 500° F. Volatiles released from fuel begin to burn in the catalytic combustion system.



3. **Fuel burning briskly,** griddle temperatures 500° F. to 600° F. Thermostat lever adjusted to give desired heat output level. Combustion of volatiles in catalytic combustion system continues. Flaming visible through glass doors at medium heat output level and above. Glowing coals at base of fire are visible at lower heat output levels.



4. **Charcoal burning phase.** Almost all volatiles have been released and burned. Steady heat output continues for several hours. Orange glow visible through glass. Stove should be reloaded when charcoal bed burns down to 3" to 4" depth. Return to stage 2.

## RELOADING THE STOVE

Stove tending time will be greatly reduced if you reload your stove while the system is still hot and there is plenty of charcoal to re-kindle the fire quickly. Including some smaller pieces of wood in the new load of fuel will help the stove regain high temperatures quickly.

Follow this procedure when you reload your stove:

Wear stove gloves.

Check the ash level in the ash pan and empty the pan if necessary.

Set the thermostat on high.

Open the damper.

Open the griddle.

Load wood - smaller, split pieces first.

Close the griddle.

The stove must rebuild its thermal momentum.

Leave the damper open and thermostat lever on high for fifteen to twenty minutes until the surface temperature reaches at least 450° F. Then close the damper to engage the catalyst. After allowing the catalytic system to become thoroughly heated, adjust the thermostat lever to provide the desired heat output. NOTE: If the remaining charcoal bed is relatively thick and if your fuel is well seasoned, it is possible to add fresh fuel (smaller pieces first), close the door and damper, and reset the thermostat within 5 minutes.

## OPEN FIRE BURNING

From time to time you may wish to operate your Defiant Encore in the fireplace mode, with the damper open and the screen in place. Always use the screen when operating the stove in this mode.

The andirons must be in place to maintain clear fireviewing and should only be removed to load through the front doors. Always wear heavy stove gloves, and place the andirons on a non-combustible surface until you replace them in the stove. Most stove owners will prefer the convenience of top loading and will leave the andirons permanently in place.

## Ash Handling

Your stove contains a grate and ash pan system designed to provide maximum woodburning convenience. The grate is slotted to allow wood ashes to filter down to the waiting ash pan below. When the stove is being reloaded, use a slicer or poker to stir the ashes on the grate.

Ash removal will be required every two or three days during normal stove operation. Wear heavy stove gloves when removing the ash pan from an operating stove and disposing of hot ashes. Every few days clear ash from the outside edges of the firebox.

**IMPORTANT:** Check the level of ashes in the ash pan before reloading the stove. If the ashes are close to the top edge of the pan, it is time to empty the pan. By emptying the ash pan before clearing ashes through the grate and reloading the stove, you will avoid having to handle an ash pan full of hot coals. Use extra care if it is necessary to handle the ash pan when it contains hot coals.

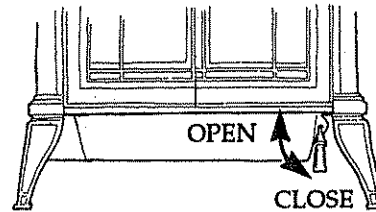


Figure #7

After you unlatch the ash door, it will pivot and deliver the ash pan out of the stove. Slide the cover on the pan and carry it to a safe ash disposal area. If the stove is in operation, close the ash door while you are carrying the ash pan to the ash disposal container.

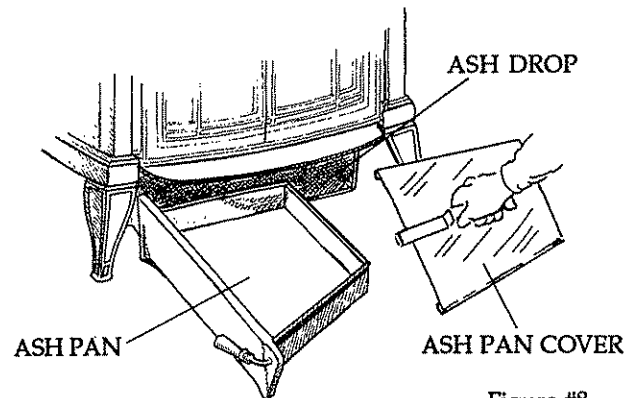


Figure #8

**OVERFIRING WILL RESULT IF THE STOVE IS BURNED WITH THE ASH DOOR OPEN.**

Dispose of the ashes properly. Hot ashes from a stove may generate heat and give off gases for several days after they are removed from the stove. Empty the ashes into a metal container with a tight fitting lid which will prevent air from reaching the hot ashes and will not blow off in the wind. The container should be outside the house and away from any combustible material.

# MAINTENANCE

Maintain your stove properly. The benefits in superior performance and safety that good maintenance bring are well worth the time. These guidelines will help you keep your stove in top shape.

The fire must be out and the stove cool before starting stove maintenance. A strong light will be helpful as you inspect and maintain your stove. Safety goggles, a particle mask, and heavy work gloves are recommended whenever you work on your stove.

## Basics

### CLEANING:

**CAST IRON:** An occasional dusting with a dry rag is usually all that is necessary to keep your Defiant Encore looking new. From time to time, you may wish to go over the cast iron surface with a damp cloth; do this while the stove is cool, and make sure no water remains on the stove surface.

If your stove's paint needs retouching, allow the stove to cool completely. Brush any areas needing attention with a wire brush, and make sure the entire stove is clean and dry. Remove the griddle and set it aside. Touch up the stove with Vermont Castings High Temperature Stove Paint. Apply the paint sparingly. Two light coats are better than one heavy one.

**PORCELAIN ENAMEL:** Use a dry rag or soft brush as necessary. Do not use water or other liquids on your stove. Fingerprints usually can be buffed off porcelain enamel with a dry, soft rag. If marks remain, allow the stove to cool completely, then buff with a slightly damp, soft rag. Dry completely before starting a fire, so wet streaks will not leave spots. Never use abrasives or harsh chemical cleaners on the porcelain enamel finish. The enamel may scratch and expose the cast iron, which can then stain or rust.

If you must remove spills or stains from porcelain surfaces, make sure the fire is out and the stove is completely cold before cleaning. Use **ONLY** a kitchen appliance cleaner and polish especially formulated for enamel surfaces. Apply cleaner sparingly with a soft rag, and buff away **ALL** traces of the cleaner.

### AIR SHUTTER

The primary air inlet shutter is located inside the back of the ash drop and may be viewed from the back of the stove. The shutter must open and close freely when you move the thermostat lever. If it doesn't, remove the cause of the interference. If you need assistance, call your local Vermont Castings Authorized Dealer.

## DOOR LATCHES

The front doors of the stove and the ash pan access door should close securely (to prevent accidental opening) and tightly (to prevent air from leaking into the stove) when the handles are in the closed position. For both handles, the closed position is down.

The handles should resist slightly as they are turned to the closed position and the doors should pull in a little.

Over a period of time, gasketing around the doors will compress and the latch may need adjustment. The procedures for the two handles are different.

To adjust the ash pan door handle, loosen the small locking nut, extend the striker screw one turn, and retighten the small locking nut while preventing the striker screw from turning. Keep making adjustments a little at a time until the setting is right.

### ASH PAN DOOR LATCH

#### SMALL LOCKING NUT

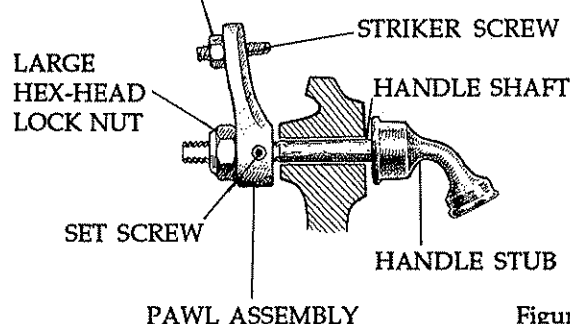
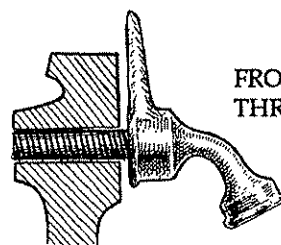


Figure #9

To adjust the handle on the front doors, just open the door on which the handle is mounted and turn the handle one full turn in the counter-clockwise direction. The handle is threaded into the front door. Turning the handle one full turn counter-clockwise will adjust the handle so the doors close more tightly.



FRONT DOOR LATCH HANDLE  
THREADED INTO DOOR

Figure #10

Light colored streaks on the inside of the stove near the door or griddle openings may indicate air leaks due to worn or damaged gasketing. You may also check for leaks by shining a strong light along gasketed seams to see if light leaks through. While minor leaks may be repaired by building up the gasketing in just the area of the leak, it is usually better to replace the gasketing in the door or griddle. Your local Vermont Castings Authorized Dealer can supply the proper size replacement gaskets.

# Glass

## CLEANING

The Defiant Encore glass system is designed so that during normal stove operation you may enjoy the view of the fire for extended periods without experiencing carbon build-up on the glass. Most carbon deposits which accumulate will usually burn off during hot fires.

The ash residue which accumulates on the glass surface should be removed periodically to prevent etching. To clean the glass, follow this procedure:

- Be sure the glass is completely cool.
- Wash the glass with water. No abrasives or special glass cleaners are needed.
- Rinse the glass thoroughly.
- Dry the glass completely.

## REPLACEMENT

If it is necessary to replace glass, use only the high temperature ceramic glass supplied by Vermont Castings. Do not use substitutes.

Do not operate your stove if the glass in the doors is damaged.

### To Remove Glass:

The left and right doors differ slightly. The left door is illustrated. On the right door, one retainer clip is located under the door manifold. Differences in procedures are noted in the instructions.

- Remove the right and left door assemblies. Raise the door until the lower hinge pin clears its drilling; angle the door bottom slightly outward and pull down, releasing the upper hinge pin. Place the doors on a padded work surface, inner side up.

- On the right door, remove the Phillips head machine screw that secures the door manifold to the upper right of the door (as it faces you). Swing the door manifold out of your way.

- Remove the screws holding the retainer clips in place and remove the clips.
- Carefully lift the top glass pane from the door.
- Remove the formed wire gasket.
- Remove the bottom glass pane.

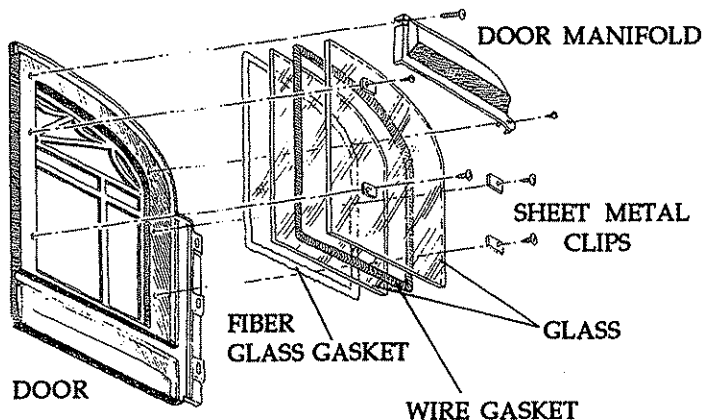


Figure #11

### To Replace the Glass:

- Be sure the gasket around the window opening is in good condition. It must be soft and resilient so the glass will seal properly against the door and prevent air from leaking into the stove. Your local Vermont Castings Authorized Dealer can supply replacement gasket if it is needed.

- Center the first pane of glass on the gasket. Clean the inner side of the glass carefully. When the installation is complete, the inner sides of the glass panes will not be accessible for cleaning.

- Place the formed wire gasket on top of the glass. The gasket may be shaped by hand, if necessary, to make it sit well around the opening.

- Clean one side of the second pane of glass and place the glass, clean side down, on the gasket.

- Secure the glass.

Left Door: Secure the glass in position with four retainer clips. Leave the screws a little loose.

Right Door: Place the clip which is located under the door manifold in position. Secure the glass with the other three clips. Leave the screws a little loose.

- Swing the door manifold back into position on the right door; be sure the screw passing through the end of the manifold nearest the center of the door also passes through the retainer clip.

- Replace the door on the stove. Remove the griddle so you can reach in through the opening and position the manifold. Move the door manifold as high as possible without actually touching the upper air manifold, and as far toward the center of the stove as possible without hitting the door manifold on the other door. Tighten the screws. Open and close the doors to check that the door manifold does not interfere with either manifold.

## Catalytic Element

This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation. It is against the law to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if the catalytic element is

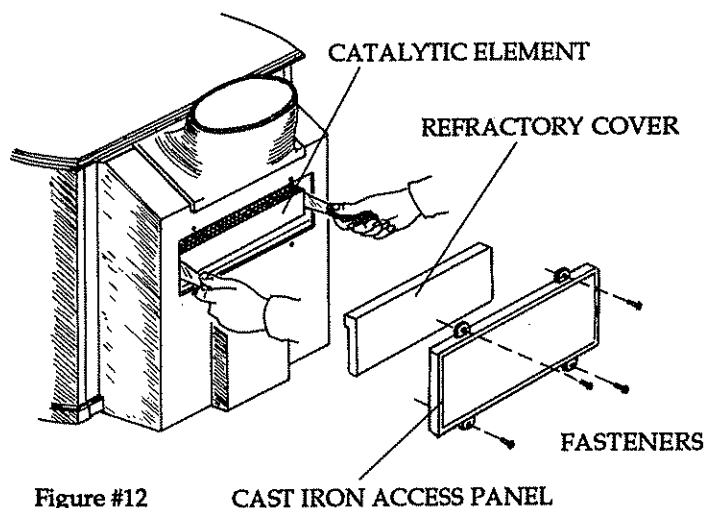


Figure #12

deactivated or removed.

Under normal operating conditions, the catalytic element should remain active for 2-6 years (depending on how much wood is burned). Regular inspections of the chimney and chimney connector are a good way to assess the performance of the catalyst. Loss of catalytic activity will become apparent during these inspections if the amount of creosote in your chimney and/or chimney connector components increases significantly. The catalyst itself should be examined for physical damage three times per year. It is not necessary to remove the catalyst each time unless you find it in need of cleaning.

Follow these steps to pinpoint the cause of the changed stove performance:

- Assess your present stove operating conditions. In Spring or Fall, draft may be less than in the middle of winter, and there may be a change in stove performance. Small hot fires work well in moderate weather.

- Burning improperly seasoned (green) wood will result in lower performance levels than burning properly seasoned fuel. Has your fuel supply changed? You may have to run your stove hotter (more air) to achieve good performance.

- Any changes in operating routines should be considered at this time as a possible reason for changed stove performance.

Should all operating conditions seem consistent with previous experience, remove and inspect the catalytic element using the following procedure:

- Remove the four Phillips head fasteners which secure the cast iron catalyst access panel to the rear of the stove. Remove the panel.

- Gently pry the refractory catalyst cover out with a flat blade table knife.

- Carefully remove the catalytic element. (Note: The element is contained within a stainless steel jacket.) You may have to grasp the element with two flat bladed table knives at the element ends to draw the element from the stove.

- Check the element for a build-up of fly ash. Loss of performance may be due to a build-up of fly ash on the catalyst surface.

- If the honeycomb is clogged, take the element outside for cleaning. A sizable quantity of ash may be removed from the element. Blow gently through the honeycomb. Inspect the element. Although small hairline cracks will not affect performance, the element should be essentially intact. If elements are broken in pieces or have sections missing, they should be replaced. Call your local Vermont Castings Authorized Dealer for information about a replacement element, item # 160-2505.

- If the element is in good shape and all fly ash has been removed, re-install the element in your stove. Slide the element into the opening making sure that it is resting on the stainless steel support ledge which is visible before installation of the element.

- Center the element so that approximately the same space is visible on either side. Gently re-install

the refractory catalyst cover. The "U" shape ridge should be toward the stove with the open end down. The refractory cover should be nearly flush with the other refractory surfaces if properly installed. Replace the cast iron catalyst access panel and securely tighten the fasteners.

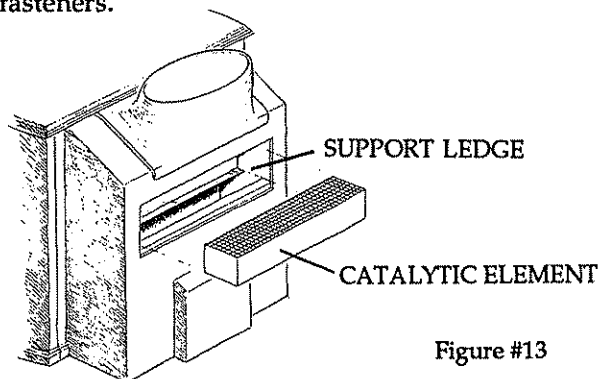


Figure #13

- Clean the chimney and chimney connector.
- Operate the stove in typical manner for two weeks.
- Inspect the chimney and chimney connector frequently during this period.
- A significant reduction in the observed creosote build-up rate is a good indicator that the performance change was due to fly ash deposits on the catalytic element. Continue with regular chimney system inspections to ensure proper performance is being maintained.

- Continued observation of significant creosote build-up is a good indicator that the catalytic element needs to be replaced. Contact your nearest Vermont Castings Authorized Dealer for information about a replacement element.

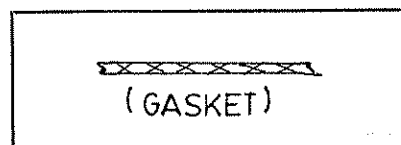
NOTE: Use only the replacement catalyst supplied by Vermont Castings.

## Gaskets

The gaskets used in constructing your Defiant Encore play an important part in ensuring that it will provide you with consistent, reliable performance. Inspection of the gaskets and replacement when necessary is an important part of routine maintenance. Gasketing is used to seal passages so that the air and combustion gases flow properly through the Encore.

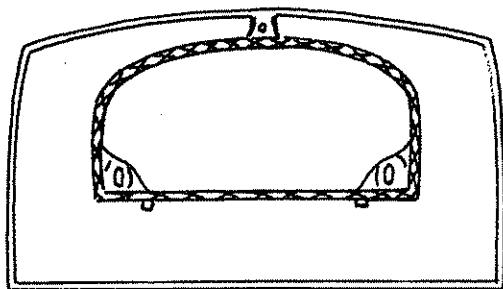
All the gaskets are made of a fiberglass material, and are secured with Vermont Castings High Temperature Stove Gasket Cement.

Each time you examine the catalytic element, or otherwise remove or replace parts is a good time to examine the exposed gasketing. Replace any gasket which appears frayed or worn. Pay particular attention to any point where a continuous gasket meets itself.

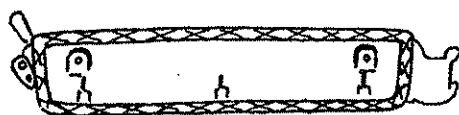


The gasket seals between stove parts which move frequently must be checked regularly for wear or deterioration. These are the gaskets used:

-To seal the griddle edge to the stove top (5/16" wire reinforced).



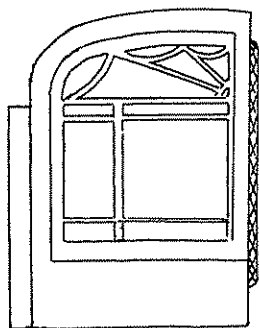
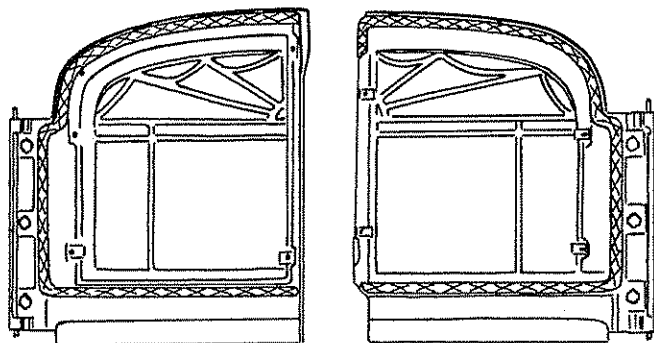
-To seal the ash door to the front of the ash drop (3/8" diameter).



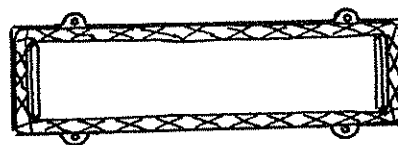
-To seal the damper to the upper fireback (5/16" diameter).



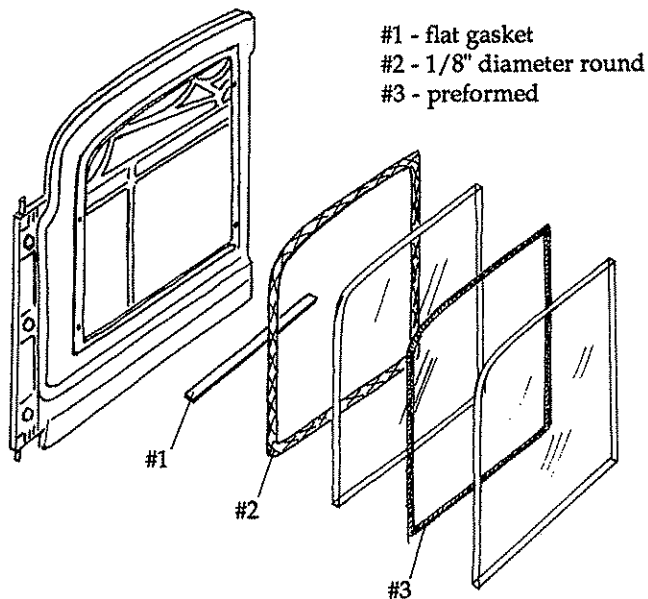
-To seal the front doors to the stove front, and to seal the seam between the two door panels (5/16" diameter).



-To seal the catalyst access panel to the stove back (5/16" diameter).

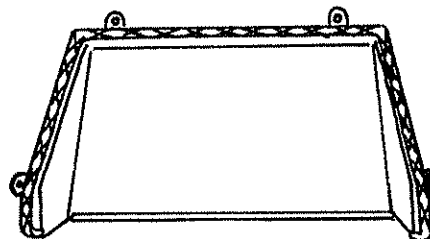


-To seal the glass panels to the door panels (flat, 1/8" diameter, and preformed).

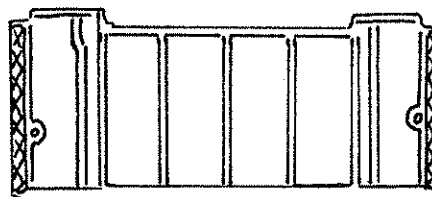


Additional gaskets are used in stove construction, but because they form seals between non-moving parts, they are not as prone to wear or deterioration. If for any reason, however, your Encore is disassembled, check the following gaskets:

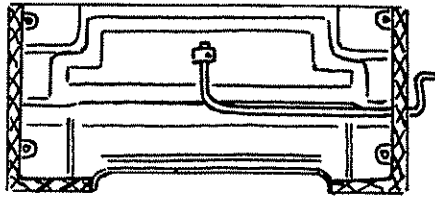
-To seal the ash drop to the bottom (5/16" diameter).



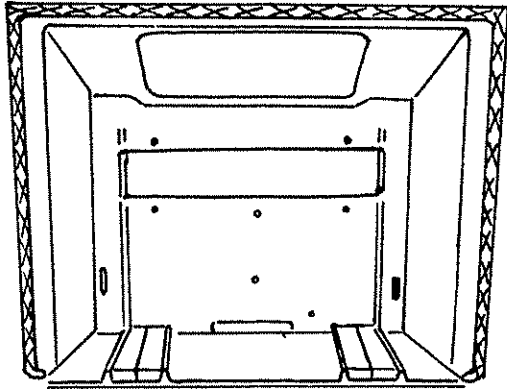
-To seal the lower fireback to the sides (5/16" diameter).



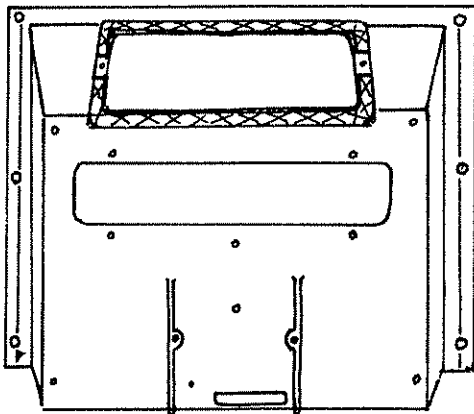
-To seal the upper fireback to the lower fireback and wear plates (5/16" diameter).



-To seal the back to the ends and top (5/16" diameter).



-To seal the stove back to the flue collar (5/16" diameter).



Follow this procedure to replace worn gaskets:

- Remove the old gasketing.
- Clean the gasket channel with a wire brush.

Remove any stubborn deposits with a small cold chisel.

- Clean all parts to be gasketed.
- Cut the appropriate size gasket to length, allowing yourself an inch or two excess.

• Place an unbroken 1/8" bead of gasket cement in the channel to be gasketed.

- Starting with one end, press the gasket into the

cemented channel. If the gasket meets itself, ensure that you have a good joint before trimming the excess gasket. Do not overlap, or leave ragged edges.

- Seat the gasket by placing it firmly against its normal mating surface. Clean away any excess cement.
- Allow to dry.

## The Chimney System

For safety, good stove performance, and to protect your chimney and chimney connector, inspect your chimney and chimney connector on a regular schedule. Clean the system if necessary. Failure to keep the chimney and connector system clean can result in a serious chimney fire.

Clean the chimney using a specially designed brush the same size and shape as the flue liner. Flexible fiberglass rods are used to run the brush up and down the liner, causing any deposits to fall to the bottom of the chimney where they can be removed through the clean-out door. The chimney connector should be cleaned by disconnecting the sections, taking them outside, and removing any deposits with a stiff wire brush. Reinstall the connector sections after cleaning, being sure to secure the individual sections with sheetmetal screws.

We suggest you inspect the system every two weeks when you first start burning your stove. Your experience maintaining the stove and chimney system may show that inspections every two weeks are not necessary, but be sure to inspect the system at least every two months.

When wood is burned, some of the gases which are products of combustion combine with moisture to form combustible deposits (creosote and soot) on walls of stoves, chimney connectors and chimneys. If these deposits are ignited, a very hot fire can result. Reduce the risk of a chimney fire by keeping the chimney system clean.

Very light solid particles may be carried from the fuel bed by draft in the chimney. Even if the particles are non-combustible, they may accumulate enough to reduce the size of the chimney connector and chimney, and restrict draft. (See Safety Tips). Reduce the risk of restricting draft by keeping the system clean.

Other factors which affect stove performance are changes in the wood supply (stoves usually burn better with seasoned wood), changes in the outside temperatures (stoves usually burn better in colder weather), and changes in the direction of the prevailing wind.

If you notice a significant change in stove performance but can't determine the reason for the change, review the operation and maintenance instructions in this manual. Your local Vermont Castings Authorized Dealer will be able to help.

Use the guidelines on page 14 to design a maintenance schedule suited to your installation and operation. NOTE: A catalytic combustion system is not a substitute for chimney system maintenance. Inspect your chimney system (chimney and chimney connector) on a regular schedule. Clean if necessary.

# Maintenance Summary for the Defiant Encore

	STOVE	CHIMNEY CONNECTOR
DAILY	<ul style="list-style-type: none"> <li>• Ashes should be removed when the ashes reach the top of the ash pan. Check at least once a day. Be sure the area around the stove is in order and is kept clear of any combustible material.</li> </ul>	
TWO WEEKS	<ul style="list-style-type: none"> <li>• Inspect the interior of the stove and clear away ashes and wood chips if they are near the exit slot in the fireback.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect chimney connector and chimney. Clean if necessary.</li> </ul>
TWO MONTHS	<ul style="list-style-type: none"> <li>• Check handles and latches to be sure they are working properly. Gasketing becomes compressed after a period of time. Adjust handle tightness if necessary.</li> <li>• Inspect the catalytic element. Clean if necessary. Inspect the gasketing on the access panel before reinstalling it. Replace the gasket if necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect the chimney and chimney connector. Pay particular attention to horizontal runs of chimney connector and elbows. Clean the system if necessary.</li> </ul>
YEARLY SPRING CLEANING	<ul style="list-style-type: none"> <li>• Check gasketing for wear, and replace if necessary.</li> <li>• Remove ashes from the ash pan and place a moisture absorbing material (such as kitty litter) in the pan to keep the interior of the stove dry.</li> <li>• Clean the dust from the inner sides of bottom, rear or chimney connector heat shields if your stove is equipped with them. Clean surfaces are better heat reflectors than dirty surfaces.</li> <li>• Tighten leg bolts and heat shield screws.</li> <li>• Touch up the paint on black stoves.</li> </ul>	<ul style="list-style-type: none"> <li>• Disassemble the chimney connector and take outdoors for inspection and cleaning. Replace weak sections of connector. Repainting a weak spot does not make it strong.</li> <li>• Inspect the chimney for signs of deterioration. Repairs to a masonry chimney should be made by a professional mason. Replace damaged sections of prefabricated chimney. Your local Vermont Castings Authorized Dealer or a chimney dealer can help you determine when replacements are needed.</li> <li>• Thoroughly clean the chimney.</li> </ul>

## MAINTENANCE RECORD

Date \_\_\_\_\_ Maintenance Performed \_\_\_\_\_

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Date \_\_\_\_\_ Maintenance Performed \_\_\_\_\_

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# INSTALLATION

## *Codes and Listings*

Conforming to local building codes will be an important part of your planning. Local authorities make the final decision on whether or not an installation will be approved. They need to know that your installation is safe and meets local and state codes.

A metal label permanently attached to the back of every Vermont Castings stove indicates that the stove has been tested to current UL standards, and gives the name of the testing laboratory. Clearance and installation information is also printed on the label. In most cases, local authorities will accept the label as evidence that, when the stove is installed according to the information on the label, the installation meets codes and can be approved.

However, codes vary in different areas. Be sure to review your installation plans with your local authority before starting the installation. Check with your local Authorized Dealer for help in providing the necessary information to local officials.

Information given in this manual will answer clearance and construction questions for almost all installations. Your local Authorized Dealer will be able to help. For questions left unanswered, we recommend that you refer to the National Fire Protection Association ANSI/NFPA 211-1988 Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances. This standard is the basis for many national and local codes. It is nationally recognized, and is accepted by most local authorities. Your local Authorized Dealer, or your local building official may have a copy.

Remember, your local building official makes the final decision on approvals of installations.

## *Chimneys and Draft*

### BASICS

Understanding how your chimney contributes to stove operation is essential if you are to obtain optimum performance from your Defiant Encore. The chimney provides a safe pathway for hot smoke and exhaust gases to exit from the stove, but in addition, the chimney strongly influences the "draft" necessary for operation of your stove.

Draft is the force which produces a flow of warm gases up and out of the chimney, and draws fresh combustion air into the stove. Your Encore does not come equipped with "draft". Draft is the result of a difference in weight (due largely to a difference in temperature) between the gases inside the chimney, and gases outside the chimney. Because gas expands when heated, warm gases inside the chimney weigh less than

cool gases outside. This weight difference creates the pressure necessary to produce and sustain draft.

As the lighter, more buoyant gases rise up the chimney, draft causes a flow of cooler air into the stove. When starting a fire in a cold stove on an unheated chimney, it may be necessary to provide some assistance by igniting several sheets of crumpled newspaper which have been placed in the flue collar area.

There are other factors which influence draft, such as barometric pressure, wind speed and direction, the height, configuration and size of the chimney, and the airtightness of the home itself.

### OUTSIDE AIR

In some modern, super-insulated homes, the air necessary for combustion is inadequate due to restricted air infiltration into the dwelling. (Infiltrated air is simply that air which finds its way into a home through various cracks and openings in the foundation, along windows and doors, and at other non-weathertight areas.) If the stove is competing with kitchen or bath exhaust fans for available air, the situation is aggravated further. Where poor draft is the result of a low infiltration rate, opening a ground floor window in the vicinity of the stove, or installing a permanent outside air supply, will often alleviate the problem.

In some areas, bringing air for combustion from outside the home directly to the air inlet of the stove is required for new construction. When the air supply for the fire is brought directly from the outside, it is not affected by variations in air pressure within the house. Improved stove performance often results. An Outside Air Adaptor Kit (Item #3257) is available from your local Vermont Castings Authorized Dealer.

### EFFECTS ON STOVE OPERATION

A strong draft will allow you to successfully fine-tune the Encore's performance by adjusting the primary air supply to determine the rate of combustion and heat output. With a strong draft, you can restrict the primary air supply and lower the heat output without risk of suffocating the fire.

A strong draft will be maintained by operating your stove so that combustion gases entering the chimney are hot, and stay hot. No cool air must be allowed to enter the chimney without first having passed through the stove. Make sure that any clean-out doors and thimbles are sealed tightly, and that the chimney is structurally sound.

Weak draft situations are characterized by smoking and odor problems in the house, low heat output, and difficulty maintaining a fire, especially at low thermostat settings. The reverse situation, overdraft, is

rare, but can be recognized by short burn time, poor response when trying to slow down the fire, or by any part of the stove glowing red. (The more common cause of these symptoms, however, is poor maintenance. Following recommended maintenance procedures will ensure consistent stove performance.)

Following the stove manufacturer's recommendation on both chimney size and height will also help ensure adequate chimney flow capacity. Flow capacity measures the ability of the chimney to evacuate combustion gases quickly. Even the strongest draft cannot overcome an insufficient flow capacity; the result is a back up of combustion gases in the chimney which forces smoke out of chimney connector joints or the stove itself. Remember, the Defiant Encore and the chimney must function as a unit. For optimum performance, they must be sized properly for each other. Your Vermont Castings Authorized Dealer can help you assess your existing chimney or plan a new one for best stove operation.

## CHIMNEY GUIDELINES

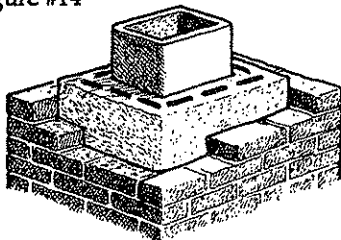
### NEW CHIMNEYS

Both masonry and prefabricated metal chimneys work well. A new masonry chimney should be constructed to conform to the standards of your local building code, if there is one, or a recognized national code. Masonry chimneys must be lined with code-approved masonry or pre-cast refractory tiles, stainless steel pipe, or a code-approved poured-in-place liner. The chimney must have a tight-sealing clean-out door.

A new prefabricated metal chimney must be one tested and listed for use with solid-fuel burning appliances to the High-Temperature (H.T.) Chimney Standard UL-103-1985 (2100° F.) by a nationally recognized testing laboratory. Be sure to follow the chimney manufacturer's instructions precisely if you must pass the chimney through a combustible wall or ceiling. Special accessories may be necessary for this type of installation, and can be obtained from the chimney manufacturer.

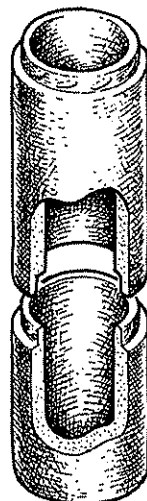
TILE LINED MASONRY CHIMNEY

Figure #14



DOUBLE-WALL INSULATED CHIMNEY

Figure #15



The chimney should extend at least 3 feet above the highest point where it passes through a roof, and at least 2 feet higher than any portion of a building within 10 feet.

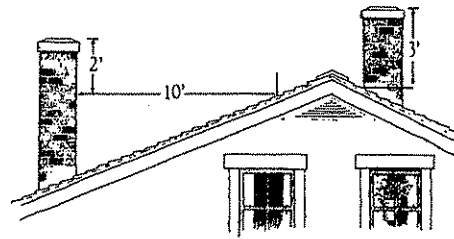


Figure #16

Vermont Castings recommends that for proper draft and good performance, any chimney used with a wood or coal burning stove extend at least 16 feet above the flue collar of the stove.

### EXISTING CHIMNEYS

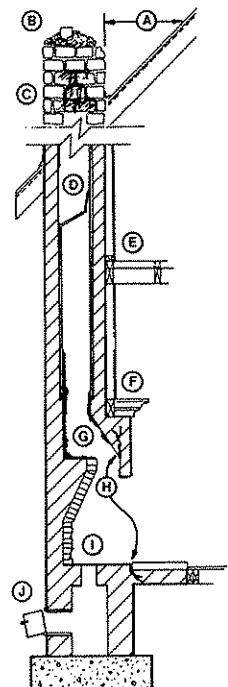
An existing masonry chimney may work well, but be sure to have it carefully inspected before using it. Defects may have gone unnoticed if the chimney previously was used only occasionally. Defects must be repaired before the chimney is used with your stove. If you are not sure that you can make the inspection yourself, your local professional chimney sweep, building inspector, or fire inspector will be able to make the inspection or direct you to someone who can.

The chimney should be thoroughly cleaned before being used with your stove.

First, check to see that the chimney has a lining. Do not use an unlined chimney. Your local Vermont Castings Authorized Dealer or chimney sweep can help you with information about approved chimney lining systems. In addition, look for and repair (if necessary) these defects:

- A. Improper chimney height
- B. Deteriorated chimney cap
- C. Structural defects indicated by creosote stains on the outside of the chimney
- D. Blockage within chimney
- E. Improper clearance between chimney and nearby combustible material (usually 2" - check local codes)

- In a fireplace chimney:
- F. Improper clearance between smoke chamber and nearby framing material (usually 2" - check local codes)
- G. Creosote accumulation on smoke shelf
- H. Structural deterioration
- I. Loose or broken bricks or mortar
- J. Loose or broken clean-out door



Existing masonry chimneys, especially older ones, may have two or more openings through the chimney walls to the same flue. The openings were used to connect stoves in different rooms to the chimney. The unused openings must be sealed with masonry to the thickness of the chimney wall. Unused openings sealed with pie plates or wallpaper are a hazard. In the event of a chimney fire, flames and smoke may be forced out of these unused thimbles.

**DO NOT CONNECT YOUR STOVE OR INSERT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.**

## CHIMNEY SIZE

The Vermont Castings Defiant Encore is designed to perform well when vented through flues which have these dimensions:

### MASONRY:

Square Liner	8" x 8" (nominal)
Rectangular Liner	8" x 12" (nominal)
Round Liner	8" (inside dimension)

### PREFABRICATED:

Round Liner	8" (inside dimension)
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Chimneys with liners larger than 8" x 12" may experience rapid cooling of smoke and reduction in draft, especially if they are located outside the home. These large chimneys may need to be insulated or the flues re-lined for good stove performance. Vermont Castings offers chimney lining accessories to help make the connection between stainless steel chimney liners and our stoves and Fireplace Inserts.

## Clearances

Your stove and chimney connector will radiate energy in all directions when in operation. An important part of planning a safe installation is to be sure combustible materials near your stove do not overheat due to inadequate clearance.

Clearance is the distance between your stove (or chimney connector) and nearby walls, ceiling and floors, as well as other combustible materials. Installing your Defiant Encore to the tested clearance and keeping those clearance areas empty assures that nearby surfaces will not overheat. Correct clearance must also be maintained to moveable items, such as furniture, newspapers, or clothes left to dry near the stove. Keep these combustibles 48" away from the stove surfaces.

Clearance must be large enough so even very dry wood near your stove will not overheat and catch fire. Wood that is part of a wall or floor will dry as it ages, and its ignition point (the temperature at which it will start to burn) will be lowered. The change may take place slowly over a period of many years, or more quickly if the wood is near a source of heat, such as a wood stove.

Your Defiant Encore has been carefully and thoroughly tested by independent testing laboratories to

determine safe clearances. During testing, heat sensors installed in all surfaces near the stove and chimney connector, including floors and ceilings, show the temperatures reached during a variety of combustion situations. Clearance distances are accepted only when the sensors show the stove is far enough from nearby surfaces to meet strict UL or ULC standards.

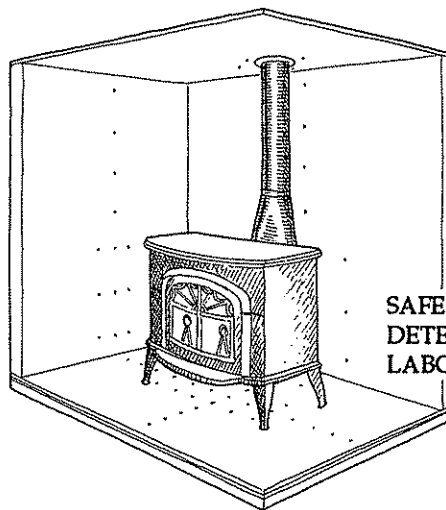


Figure #17

## USING THE CLEARANCE CHART

Separate tests are done for parallel and corner installations, for installations using stove and chimney connector heat shields, and for installations using ventilated wall shields. If your stove will be parallel to the wall behind it (parallel installation), use the columns of the chart labelled "side" and "rear". If your stove will be installed in a corner (corner installation), use the columns labelled "corner". Your stove will be in either a parallel or a corner installation. Use only the part of the chart that applies to your installation. Note: Side clearances do not apply to corner installations.

Measure stove clearances between the edge of the stove's top plate and the nearby combustible surface. For most common installations, when the stove has the proper clearance from nearby surfaces, the chimney connector will also have the proper clearance. However, installations vary. It is important to double check all installations for proper chimney connector clearance, as well as for stove clearance.

The clearance distance must be empty, except for non-combustible heat shields. Air flowing between the stove (or chimney connector) and nearby shields carries

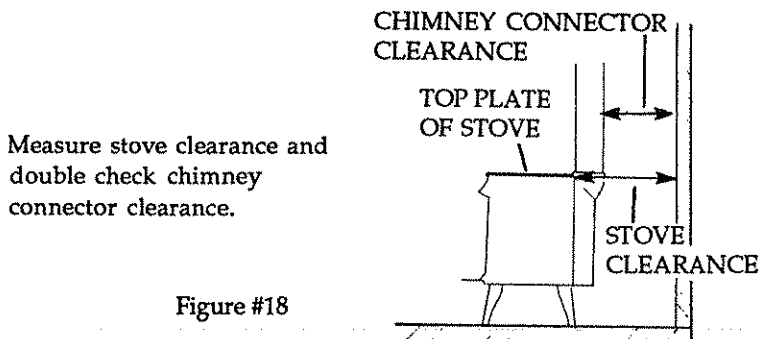


Figure #18

Defiant Encore® Clearance Chart						
STOVE CLEARANCE	Unprotected Surfaces			Protected Surfaces		
	PARALLEL	CORNER		PARALLEL	CORNER	
	INSTALLATION	INSTALLATION		INSTALLATION	INSTALLATION	
	Side	Rear	Corner	Side	Rear	Corner
No Heat Shields	24"	31"	24"	8"	15"	8"
Top Exit, Rear H.S. only <sup>1</sup>	24"	31"	24"	8"	15"	8"
Rear Exit, Rear H.S. only	24"	19"	NA	8"	11"	NA
Top Exit, Rear & Connector Heat Shields, <sup>1,2</sup>	24"	19"	17"	8"	11"	7"
CHIMNEY CONNECTOR CLEARANCE	ALL INSTALLATIONS			ALL INSTALLATIONS		
No Heat Shields	24"			8"		
Connector Heat Shields	12"			4" <sup>3</sup>		
FRONT CLEARANCE TO COMBUSTIBLES	ALL INSTALLATIONS					
	48"					
<sup>1</sup> Shielding for a top exit stove must include a shield insert to protect the area behind the flue collar.						
<sup>2</sup> Chimney connector heat shields must extend exactly 28" above the flue collar of the stove, and a 24" diameter ceiling heat shield must be used. The shield should be 24 gauge or heavier sheetmetal, centered on the chimney connector and be mounted on non-combustible spacers 1" below the ceiling.						
<sup>3</sup> The ceiling heat shield required when chimney connector shields are used should meet the wall protector. This will require trimming the ceiling shield along the line of intersection with the wall protector.						

away heat. Do not block the air flow by filling this empty space with any insulating material.

#### MEASURING THE CLEARANCE DISTANCE FOR A PARALLEL WALL

ALWAYS MEASURE PERPENDICULAR TO THE WALL

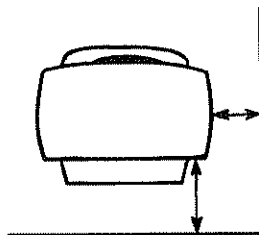


Figure #19

### ALCOVE INSTALLATIONS

Because of their restricted air flow and heat retention characteristics, specific construction requirements and special clearances apply to installations into alcoves. Contact your Vermont Castings Authorized Dealer for instructions and specifications before beginning an alcove installation.

## Clearance Reductions

When no heat shields are used, empty space alone provides the protection against overheating. When shields are used, it is usually possible to reduce clearances, as the shields offer additional protection.

Shields may be attached to the rear of the stove and/or chimney connector, or they may be fitted to the nearby wall surfaces, or a combination of different type shields may be used together.

When shields are attached to the stove or connector, they are mounted 1" to 2" away from the stove or connector surface on non-combustible spacers. The shiny surface of the shield must face the heat source and be left unpainted, enabling it to reflect heat back towards

the stove or connector and away from the wall.

The greatest clearance reductions result from using both stove and chimney connector heat shields as well as wall shields.

Note: When stove or chimney connector heat shields or wall shields are used to reduce clearances, measurements are still made from the stove or connector to the wall, not to the shield.

### ...WITH NO HEAT SHIELDS

If the Defiant Encore is installed parallel to the rear wall (parallel installation) and no stove or chimney connector heat shields are used, the stove must be at least 31" from the wall behind it, and at least 24" from the walls beside it.

If the Defiant Encore is installed in a corner (corner installation) and no shields are used, the rear corners of the stove must be at least 24" from nearby walls.

Unshielded chimney connectors must be a minimum of 24" from the wall or ceiling.

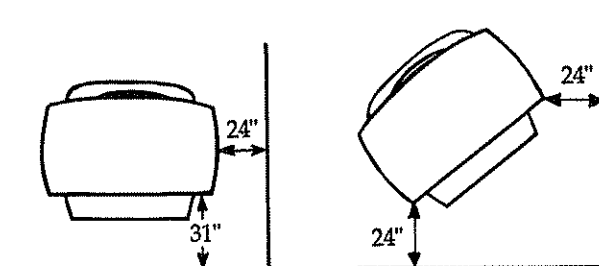
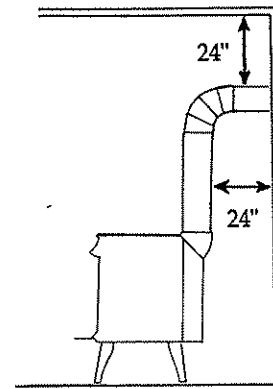


Figure #20

### ...WITH STOVE HEAT SHIELD ONLY

If you install a Defiant Encore in a parallel installation using a stove rear heat shield but no chimney connector shield, different clearances will be required for top-exiting and rear-exiting stoves.

For top-exiting stoves, clearance to the rear wall is determined by heat from the unshielded chimney connector, not heat from the stove. Stove placement must ensure that the unshielded connector cannot overheat the unprotected rear wall. Rear stove clearance must be a minimum of 31".

Side clearance in the same installation is determined by heat from the stove. It must be a minimum of 24".

For rear-exiting stoves, both rear and side clearances are determined by the heat from the stove.

The rear heat shield protects the wall behind the stove so that clearance may be reduced to 19". Side clearance remains the same - 24".

For corner installations use of a rear heat shield alone does not reduce clearance requirements.

A REMINDER: These clearance reductions were determined using Vermont Castings Rear Heat Shields on the Defiant Encore.

### ...WITH CHIMNEY CONNECTOR HEAT SHIELDS ONLY

The Defiant Encore listing is for installations using single-wall chimney connectors. The Clearance Chart gives clearances measured from the chimney connector to nearby walls and ceilings. ("Ceilings" is underlined to remind you that ceiling clearance is an important clearance that is sometimes overlooked.) Be sure to double-check chimney connector clearances before completing your installation.

In a vertical installation into a prefabricated chimney, the heat shield must extend exactly 28" above the flue collar, and a ceiling heat shield 24" in diameter must be installed 1" below the ceiling. The ceiling shield must be constructed of 24 gauge or heavier

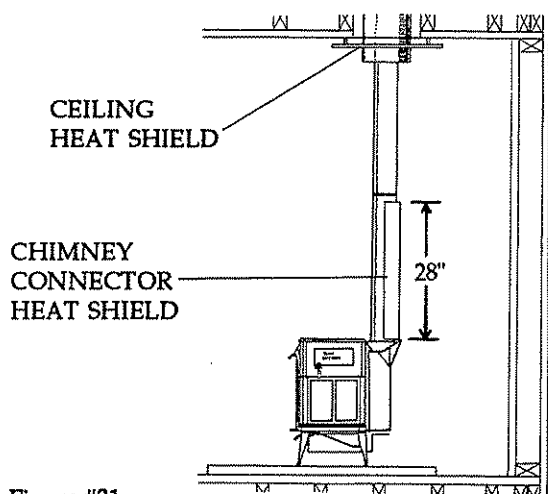


Figure #21

sheetmetal, and be centered on the chimney. In an installation with a vertical run, an elbow, and a horizontal run to a masonry chimney, the connector shield must extend to the elbow OR 28", whichever is less.

### ...WITH STOVE AND CHIMNEY CONNECTOR HEAT SHIELDS.

Use of both stove and chimney connector heat shields reduces clearances further as shown on line 4 of the Clearance Chart.

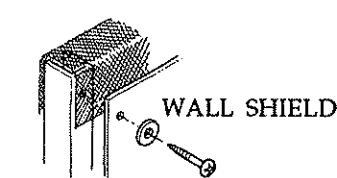
### ...WITH WALL SHIELDS

A properly constructed wall shield may be used to transform a standard wall into a protected wall, allowing you to install to the clearances on the right half of the Clearance Chart. The diagrams on page 20 show correct placement and size of wall shields required for reduced clearances in some of the more common installations.

Wall shields should be constructed of 24 gauge or heavier sheetmetal, 1/2" noncombustible insulation board, or common brick laid on flat (3-1/2" side down). Shields must be spaced out from the combustible wall or ceiling 1" on noncombustible spacers. The spacers should not be directly behind the stove or chimney connector.

Air must be able to flow between the wall and the shield. At least one-half (50%) of the bottom 1" of the shield should be open and the shield must stop 1" from the ceiling. Protect the top opening with metal screening to prevent objects from falling behind the shield.

Shields behind chimney connectors must be 30" wide, centered behind the pipe.



METAL LATH OR NON-COMBUSTIBLE SPACERS

- A. STUD WALL FRAMING
- B. SHEETROCK
- C. SCREWS AND NON-COMBUSTIBLE SPACERS
- D. WALL SHIELD

AIR CIRCULATES BEHIND THE SHIELD FROM BOTTOM TO TOP

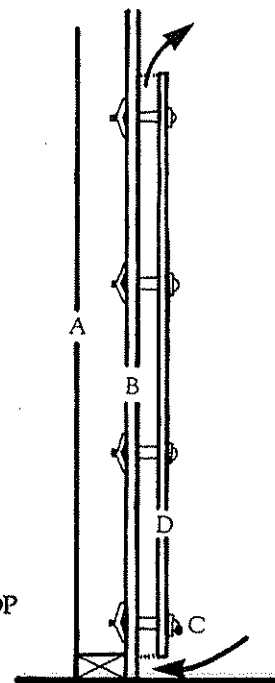
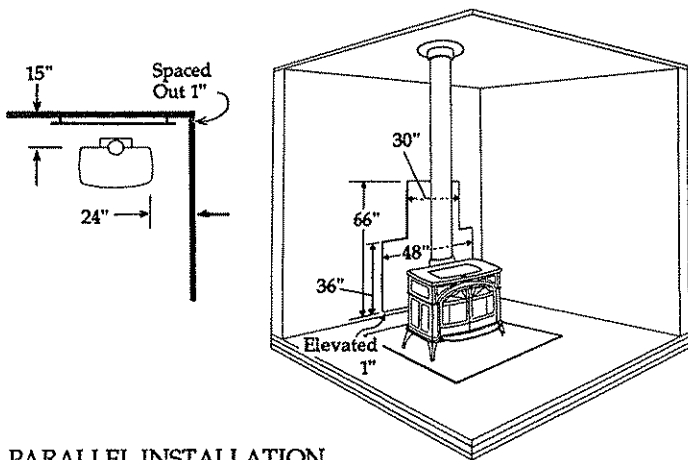
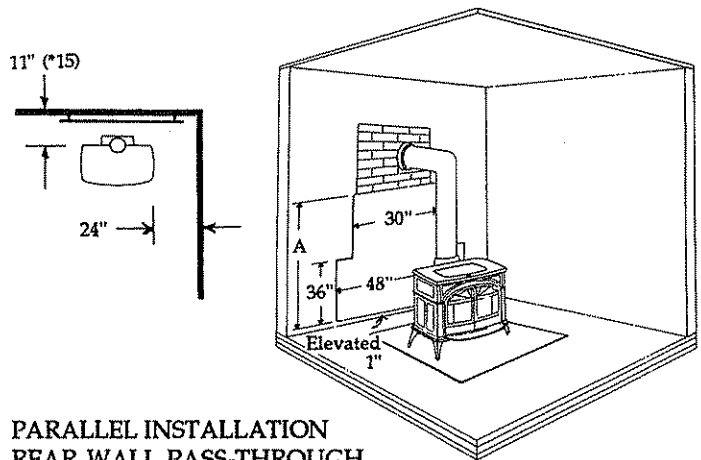


Figure #22

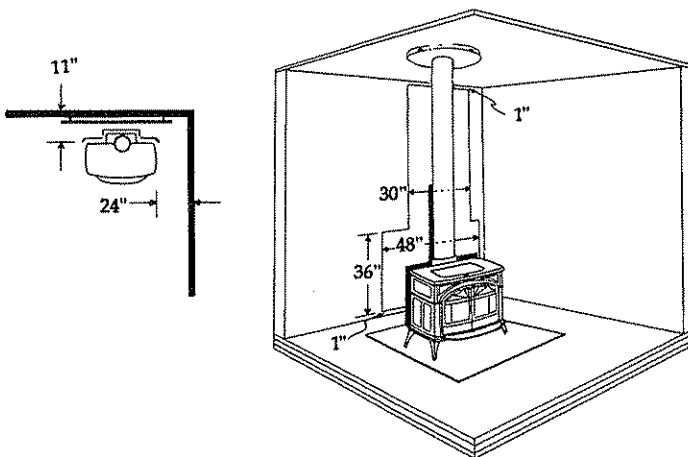
**WALL SHIELD REQUIREMENTS AND MINIMUM STOVE CLEARANCES FOR SOME  
COMMON DEFIAINT ENCORE INSTALLATIONS (NOTE: DRAWINGS ARE NOT TO SCALE)**



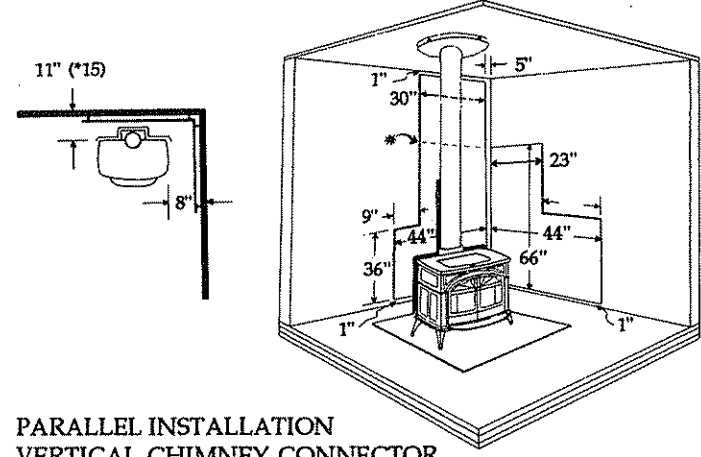
**PARALLEL INSTALLATION  
VERTICAL CHIMNEY CONNECTOR**  
Reduced rear wall clearance. Wall shield behind chimney connector is centered behind the connector.



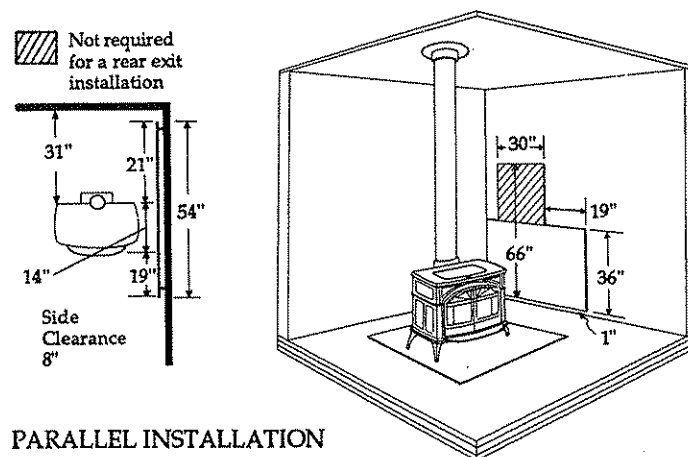
**PARALLEL INSTALLATION  
REAR WALL PASS-THROUGH**  
Reduced rear wall clearance. \*If height "A" is 66" OR reaches thimble, rear wall clearance is 11"; if height "A" is less than 66" AND does not reach thimble, rear wall clearance is 15".



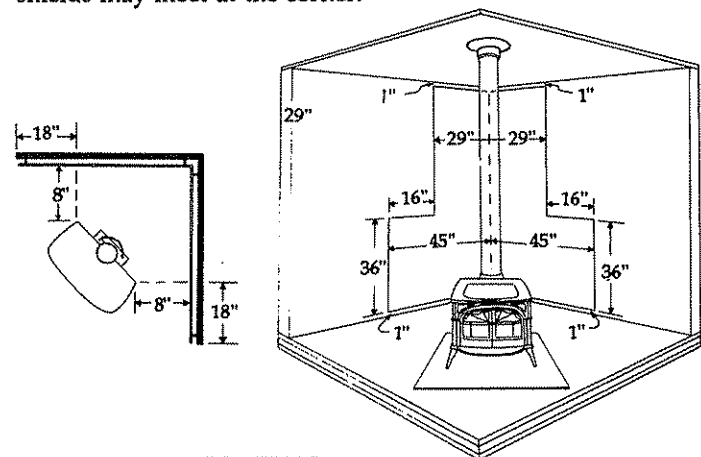
**PARALLEL INSTALLATION  
VERTICAL CHIMNEY CONNECTOR  
STOVE AND CONNECTOR HEAT SHIELDS**  
Reduced rear wall clearance. A ceiling heat shield must be mounted 1" away from the ceiling.



**PARALLEL INSTALLATION  
VERTICAL CHIMNEY CONNECTOR  
STOVE AND CONNECTOR HEAT SHIELDS**  
Reduced rear and side wall clearances. \*If rear clearance is 15" the wall protection needs to be only 66" high, and the chimney connector and stove heat shields are not required. If the chimney connector heat shield is used a ceiling heat shield must be mounted 1" from the ceiling. \*\*Rear and side wall shields may meet at the corner.



**PARALLEL INSTALLATION  
VERTICAL CHIMNEY CONNECTOR**  
Reduced side wall clearance. The shielding for the chimney connector must be centered behind the connector. The cross-hatched section is not required in a rear exit installation.



**CORNER INSTALLATION  
VERTICAL CHIMNEY CONNECTOR**  
Reduced side wall clearances. Wall shields are to extend 18" to the front of the closest corner.

# Floor Protection

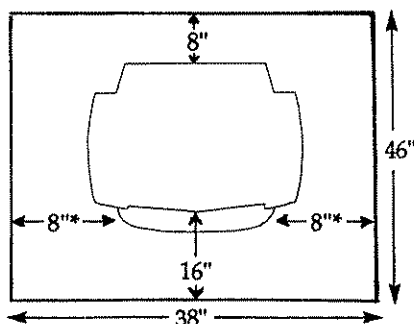
## FREE-STANDING INSTALLATIONS

A stove installed on a combustible floor must first be placed on a non-combustible floor protector. Any floor, with the exception of bare concrete over earth, should be considered combustible. The floor protector should extend 8" from each side of the door opening, 8" from the back of the stove, and 16" beyond the front of the stove. (Measure from the front surface of the doors, not the ashlip.) The minimum size of the floor protector is 38" x

### MINIMUM FLOOR PROTECTOR DIMENSIONS

\*MEASURED FROM SIDE OF DOOR OPENING

Figure #23



46". Protection must also be extended under the full length of any horizontal run of chimney connector. For the 8" connector used with the Defiant Encore, the protector must be a minimum of 12" wide, centered under the connector.

Commonly used floor protector materials such as brick and stone are good spark protectors (when the individual pieces are mortared together) but not good heat protectors. It is necessary to add a bottom heat shield to the stove to provide proper heat protection.

The Defiant Encore may be installed with no bottom heat shield only if the stove is located on a completely non-combustible floor such as a bare, unpainted, concrete basement floor with nothing but dirt beneath it. If there is anything combustible under the stove the bottom heat shield must be used. The shield, attached about 1" below the stove, is unpainted on the side next to the stove and serves very effectively as a heat reflector. Temperatures on the floor under the stove will be much lower than without the shield.

With the bottom heat shield in place, the hearth may consist of any non-combustible material, as long as the minimum hearth dimensions of 38" x 46" are met. When using brick, tile, or stone, individual pieces must be mortared so sparks cannot fall through.

If you are constructing a new hearth, we recommend using a 3/8" non-combustible mineral board base under your hearth's decorative surface, as shown in Figure #24. This provides additional heat protection, and sometimes is required by local codes. You may also choose from a variety of prefabricated floor protectors, tested and listed for use with radiant heaters. Your local Vermont Castings Authorized Dealer will be able to assist you in designing a suitable hearth.

## SUGGESTED NEW HEARTH CONSTRUCTION

NON-COMBUSTIBLE  
DECORATIVE SURFACES

3/8" MINERAL  
BOARD

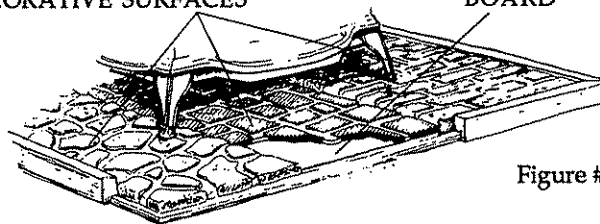


Figure #24

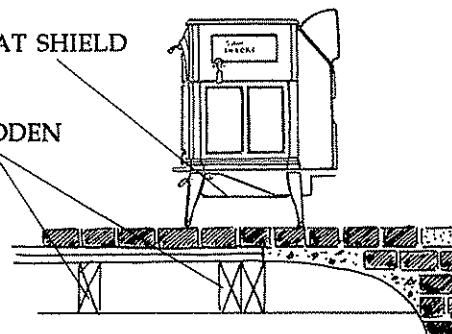
## FIREPLACE INSTALLATIONS

In most fireplaces the brick or concrete hearth in front of the fireplace opening is supported by heavy wooden framing. Bricks and concrete are not good insulators, so heat radiated to the hearth in front of the stove will pass through the hearth and to the wooden supports. These fireplace hearths must be protected like any other combustible floor. If a bottom heat shield is used, the existing fireplace hearth may provide adequate spark and falling ember protection, if it meets the necessary size and construction specifications as detailed for freestanding stoves. If the hearth is not in compliance, a floor protector will have to be constructed.

BOTTOM HEAT SHIELD

HEAVY WOODEN  
FRAMING

Figure #25



## Special Installations

### WALL PASS-THROUGHS

If possible, design your installation so that the chimney connector does not pass through a combustible wall. If you are considering a wall pass-through in your installation, be sure you check with your building inspector before you begin. Also check with the chimney connector manufacturer for any specific requirements.

Accessories are available on the market which have been tested and listed specifically for use as wall pass-throughs. Use only these tested and listed accessories for wall pass-throughs.

The National Fire Protection Association (NFPA) has established guidelines for passing chimney connectors through combustible walls. Many code inspectors follow these guidelines when approving installations.

The illustration shows one NFPA recommended method, in which all combustible material in the wall is cut away from the single wall connector a sufficient



distance to provide the required 12" clearance for the connector. Any material used to close up the opening must be non-combustible.

#### AN APPROVED WALL PASS-THROUGH

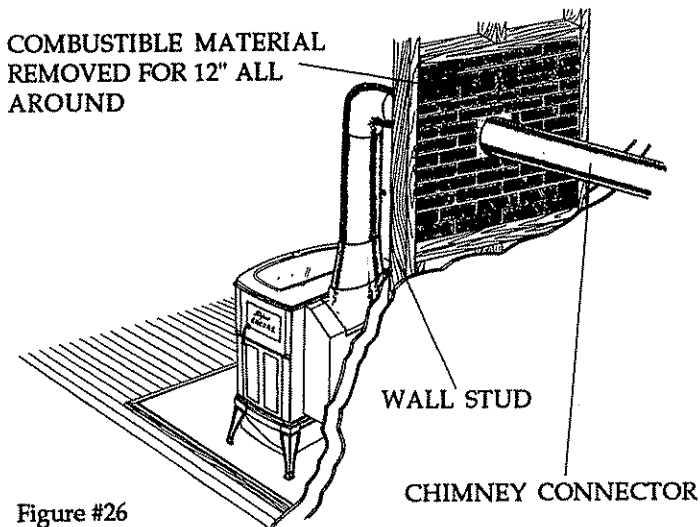
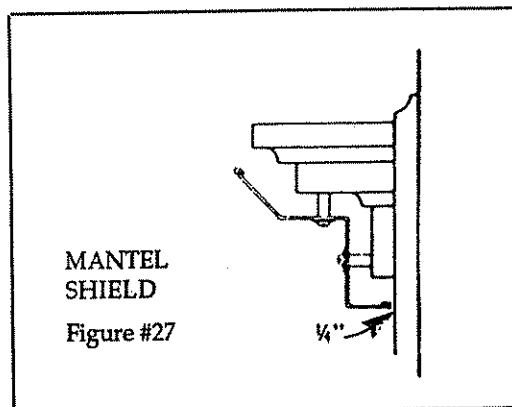


Figure #26

Three other methods are also approved by the NFPA. These are: 1. Using a section of double-wall chimney with a nine-inch clearance to combustibles; 2. Placing a chimney connector pipe inside a ventilated thimble, which is then separated from combustibles by six inches of fiberglass insulating material; and 3. Placing a chimney connector pipe inside a section of eight-inch inner diameter solid insulated factory-built chimney, with two inches of airspace between the chimney section and combustibles.

### FIREPLACE MANTEL AND TRIM SHIELDS

If your installation will utilize an existing fireplace masonry chimney built to code, you must check your fireplace mantel and trim clearances. Ventilated shields (non-combustible shields installed on non-combustible spacers 1" away from the combustible surface) may be used to reduce clearances as shown in Table #2. Mantel and top trim shields for the Defiant Encore must be at least 48" long, centered over the stove; side trim shields must extend the full length of the trim.

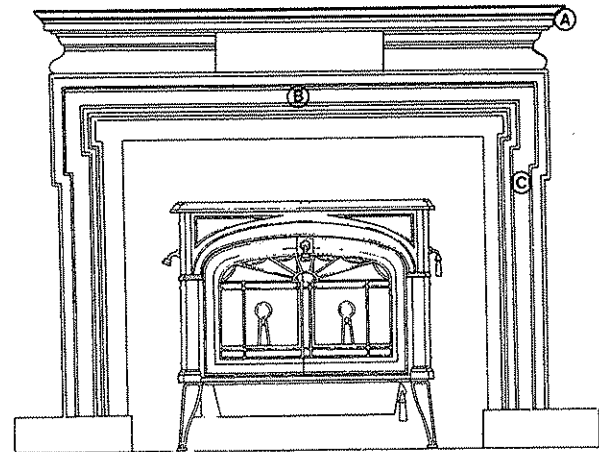


MANTEL  
SHIELD  
Figure #27

Use 24 gauge or heavier sheetmetal.

Refer to the figure below. An unprotected mantel (A) or top trim (B) must have a minimum clearance of 39", measured from the stove's top plate; with a ventilated shield the clearance may safely be reduced to 18". (The maximum depth of the mantel or top trim is 9".)

Unprotected side trim which protrudes 2" or less must have a minimum 10" of clearance, measured from the stove's top side edge; side trim protruding more than 2" requires a clearance of 24". Both trim sizes may be protected with a ventilated shield, reducing the clearance to 8".



	CLEARANCES	
	unprotected	protected
A. MANTEL	39"	18"
B. TOP TRIM	39"	18"
C. SIDE TRIM*	10"	8"
*protruding 2" or less		

## Chimney Connectors

The chimney connector should be made of 24 gauge or heavier sheetmetal, and should be 8" in diameter. Galvanized chimney connector should not be used. It may release toxic fumes when exposed to high temperatures.

The chimney connector should be as short and direct as possible, with no more than two 90 degree turns.

Horizontal runs of chimney connectors should be limited to 3 feet, and slope upward 1/4" per foot going from the stove toward the chimney. The total length of chimney connector should be no longer than 8 feet. In cathedral ceiling installations, a prefabricated chimney should be brought down to within 8 feet of the stove. The whole chimney connector should be exposed and accessible for inspection and cleaning.

Do not pass the chimney connector through a combustible wall if it can be avoided. If this cannot be avoided, follow the recommendations in the section on Wall Pass-Throughs. **NEVER PASS A CHIMNEY CONNECTOR THROUGH A COMBUSTIBLE CEILING.**



### WARNING:

DO NOT USE DOUBLE-WALL CHIMNEY CONNECTORS WITH THE DEFIANT ENCORE UNLESS THEY HAVE BEEN SPECIFICALLY TESTED AND LISTED FOR USE WITH THIS PRODUCT. USE OF DOUBLE-WALL CONNECTORS WHICH HAVE NOT BEEN TESTED AND LISTED FOR USE WITH THE DEFIANT ENCORE MAY RESULT IN TEMPERATURES THAT EXCEED THE LIMITS SET BY THE TEST STANDARDS ANSI/UL 1482. A POTENTIAL HAZARD MAY RESULT, INCLUDING A HOUSE FIRE.

CONTACT YOUR LOCAL VERMONT CASTINGS AUTHORIZED DEALER FOR INFORMATION ON DOUBLE-WALL CHIMNEY CONNECTORS WHICH HAVE BEEN TESTED AND LISTED FOR USE WITH THE DEFIANT ENCORE.

## Installation Procedures

Before proceeding with your installation, review your plans to see that:

- Your stove and chimney connector will be far enough from combustible material to meet all clearance requirements.
- The floor protector is large enough and constructed properly to meet all hearth pad requirements.
- You have all necessary permits from local authorities.

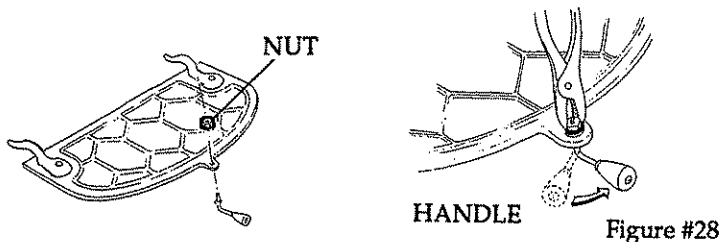
**IMPORTANT:** Failure to follow these installation instructions may result in a dangerous situation, including a chimney or house fire. Follow all instructions exactly.

### SET UP YOUR STOVE

Cast iron stoves are heavy. Have the assistance of at least one other person as you move your stove into position.

Use soap and warm water to wash the protective coating of oil from the griddle. Dry the griddle thoroughly.

To install the handle on the griddle, place the griddle upside down at the edge of a flat surface and assemble the handle as shown.



With the handle pointing 45 degrees from its final position, tighten the nut as far as possible with the pliers. Holding the nut with the pliers, move the handle to its correct position.

The removable insert handle is used to open or close the front doors. After it has been used, it is removed so it won't get hot. It may be stored in the handle holder which is mounted on the right leg. To assemble the insert handle, pass the 3-3/8" screw through the ceramic shaft and into the bright metal nub. Tighten until firm.

To attach the wooden damper handle, insert the threaded screw through the wooden handle and into the damper handle stub. Tighten firmly.

Levellers on the bottoms of the legs can be adjusted so the stove remains steady and level even if installed on an uneven hearth. To adjust the levellers, lift the stove slightly so there is no weight on the leg while making the adjustment.

The flue collar may be reversed by removing the two 1/4-20 x 3/4" Phillips round head machine screws which attach the collar to the back of the stove. Be sure the gasketing around the flue collar opening is in position when you screw the collar back onto the stove.

## The Chimney Connector

### ASSEMBLY

**SAFETY NOTE:** Always wear gloves and safety goggles when drilling, cutting or joining sections of chimney connector.

- Assemble the chimney connector beginning at the flue collar of the stove. Using the holes in the flue collar as guides, drill 1/8" pilot holes in the bottom of the first section of pipe, and secure the pipe to the flue collar with three #10 x 1/2" sheetmetal screws. Use thin gasketing to seal the joint if there is a gap.

- Align the seams of the individual sections. Secure each joint between sections of chimney connector, including telescoping joints, with at least three sheetmetal screws. The pre-drilled holes in the top of each section of Vermont Castings Chimney Connector serve as guides when you drill 1/8" pilot holes in the bottom of the next section.

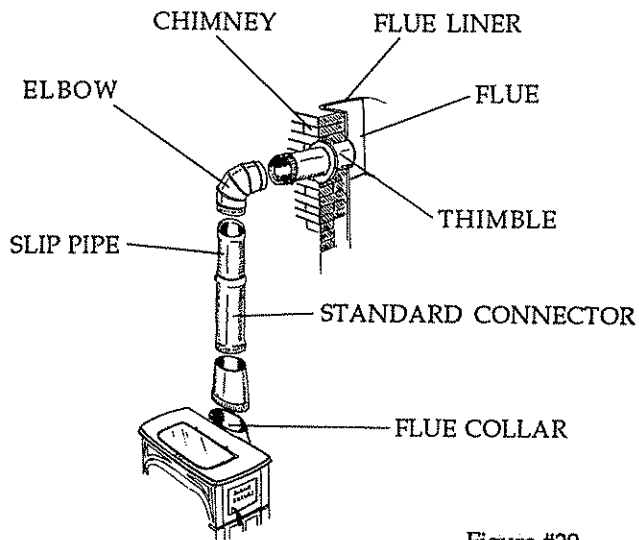


Figure #29

- Secure the chimney connector to the chimney. Instructions follow for different installations.
- Be sure the installed stove and chimney connector are correct distances from nearby combustible material.

NOTE: Vermont Castings offers Slip Pipes, Telescoping Connectors and Thimble Sleeves which can be used to form telescoping joints between sections of pipe. When telescoping joints are used, it is often unnecessary to cut individual sections of pipe.

## SECURING THE CHIMNEY CONNECTOR

### ...TO A PREFABRICATED CHIMNEY

Follow the installation instructions of the chimney manufacturer exactly as you install the chimney. The manufacturer of the chimney will supply the accessories to support the chimney, either from the roof of the house or at the ceiling of the room where the stove is installed.

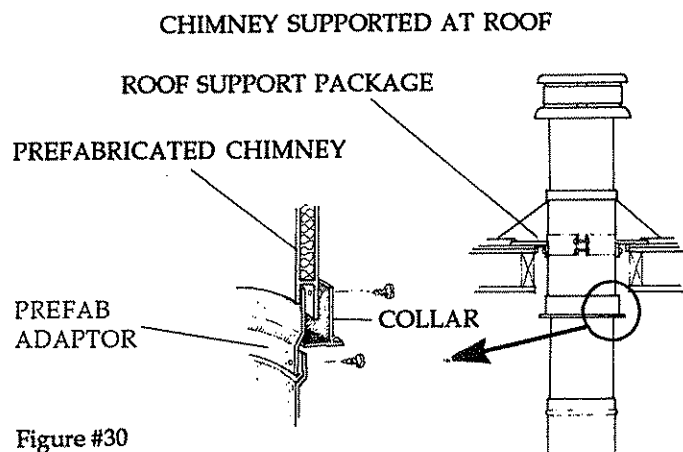


Figure #30

For double-wall insulated chimneys with walls approximately 1" thick, the connection between the metal chimney and the chimney connector can be made with the Vermont Castings Enamel to Prefab Connector. This accessory is used with both black and enamel chimney connectors. The top of the connector attaches directly to the chimney or to the chimney's ceiling support package. The bottom of the connector is screwed to the chimney connector.

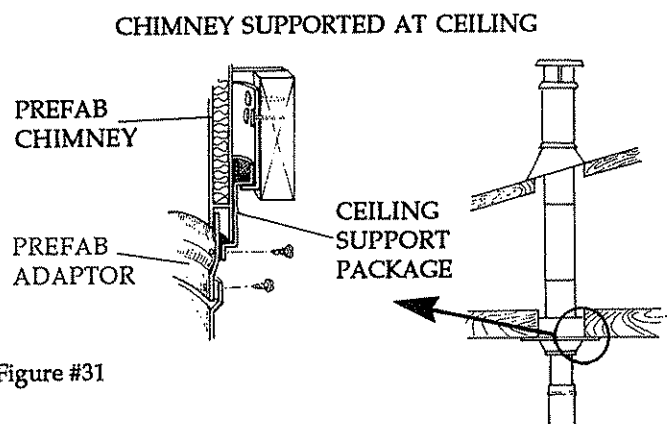


Figure #31

The connector is designed so the top end will fit outside the inner wall of the chimney, and the bottom end will fit inside the first section of chimney connector. In this way, any soot or creosote falling from the inner walls of the chimney will stay inside the chimney connector.

NOTE: For double-wall chimneys whose outside dimension is more than 10-1/4", or triple wall chimneys, check with the manufacturer of the chimney for the right accessories to make the connection from the chimney to the chimney connector.

### ..TO A MASONRY CHIMNEY

Both freestanding masonry chimneys and fireplace masonry chimneys may be used for installation of your Defiant Encore. In a fireplace chimney, the chimney connector can be connected to the chimney either above the fireplace opening, or through the fireplace and damper openings.

**FREESTANDING:** If the chimney connector must pass through a combustible wall to reach the chimney, follow the recommendations in the Wall Pass-Through section.

The connector to a masonry chimney should extend through the chimney wall to the inner face of the liner, but not beyond, and be cemented in place. A preferred alternative, which facilitates removal of the connector for cleaning, is to line the opening to the flue with a metal or fire clay thimble, cemented in place.

If your chimney does have a thimble, use a Vermont Castings Thimble Sleeve to make the connection between the chimney connector and the chimney. The sleeve is slightly smaller in diameter than standard chimney connector pipe so that it will slide inside it. It will also fit inside most metal or ceramic thimbles.

Insert the sleeve through the thimble until it is flush with the inner wall of the flue lining. Use furnace cement and thin gasketing to seal the sleeve in place in the thimble. Secure the chimney connector to the outer end of the sleeve with sheetmetal screws.

In some chimneys which have undersized openings to the flue, the Thimble Sleeve may itself be used as a thimble, provided it is cemented in place.

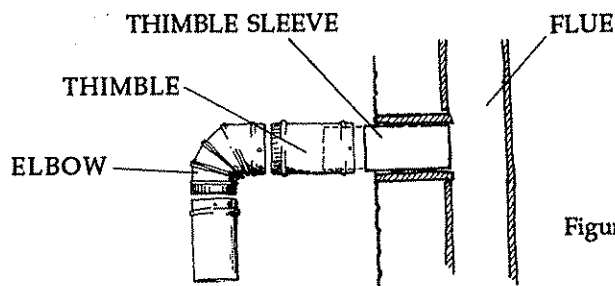


Figure #32

**FIREPLACE - ABOVE THE FIREPLACE:** In this installation, the chimney connector goes up from the stove, turns 90 degrees, and goes back into the fireplace chimney. The liner of the fireplace chimney should extend at least to the point at which the chimney connector enters the chimney. Follow all the guidelines

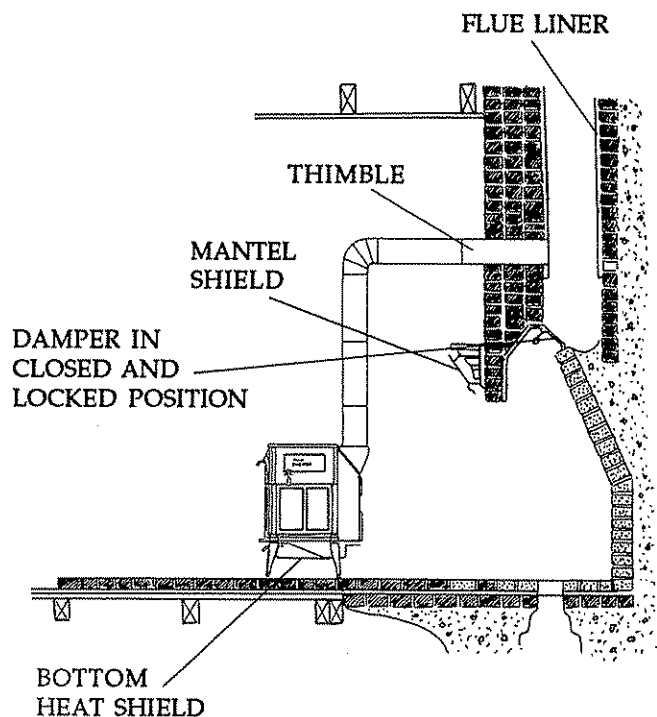
for installing a chimney connector into a freestanding masonry chimney, and watch these additional points:

- If there is a combustible mantel or trim, check the stove and chimney connector clearances in the Clearance Chart. Use the necessary combination of mantel, trim, and connector heat shields to provide the required clearances.

- Double check connector clearance from the ceiling.

- The fireplace damper must be closed and sealed to prevent room air from being drawn up the flue, reducing the draft. However, it must be possible to re-open the damper to inspect or clean the chimney.

#### INSTALLATION ABOVE FIREPLACE OPENING



**FIREPLACE - THROUGH THE FIREPLACE:** When installed through a fireplace opening, the chimney connector goes back from the stove, enters the fireplace cavity, turns upward, and passes through the fireplace damper opening and smoke chamber, and finally to the chimney flue. Watch these points:

- If there is a combustible mantel or trim, check the stove and chimney connector clearances in the Clearance Chart. Use the necessary combination of mantel, trim,

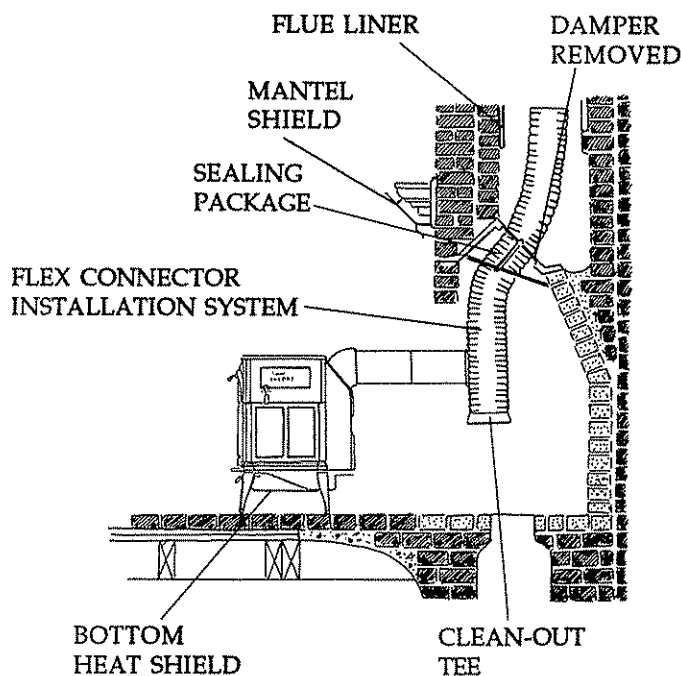
and connector heat shields to provide the required clearances.

- When passing the chimney connector through the damper opening it may be necessary to "ovalize" the connector pipe. Do not make the narrowest width less than 5-1/2". Consider using the Vermont Castings Stove-to-Fireplace Flex Connector, a flexible stainless steel pipe, oval in shape, which can be bent to allow passage through most narrow damper openings.

- The damper should be removed if possible, or sealed in the open position if removal is impossible.

- A seal must be provided so that room air is not drawn into the fireplace and up the chimney, reducing draft. Use of the Vermont Castings Flex Connector System will provide a convenient method for making the required seal.

#### INSTALLATION THROUGH FIREPLACE OPENING



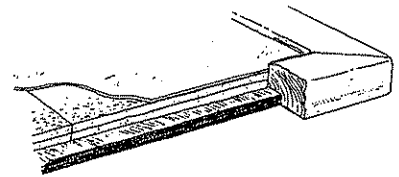
**NOTE:** Do not vent your Vermont Castings stove into a factory-built (zero-clearance) fireplace. Zero-clearance fireplaces and their chimneys are specifically designed as a unit for use as fireplaces. It may void the listing or be hazardous to adapt them for any other use

# Installation Checklist

## UNDER THE STOVE

Combustible material under the stove must be protected from heat from the bottom of the stove and from falling sparks and embers. All floors should be considered combustible with the exception of bare cement, basement floor or slabs with nothing but dirt underneath.

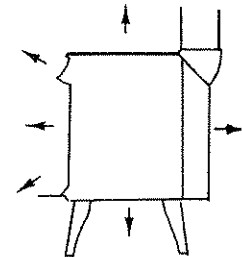
- Floor Protector size and construction information starts on page 21.



## BEHIND AND BESIDE THE STOVE

Combustible material behind and beside the stove must be protected from radiant heat from the stove and chimney connector. Protection is provided by clearance (empty space) and shields, or both. Protection requirements depend on how close the stove will be to combustible material, and whether the stove is in the top exit or rear exit configuration.

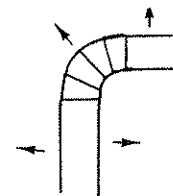
- This information starts on page 17.



## NEAR THE CHIMNEY CONNECTOR

Combustible material near single-wall chimney connectors must be protected from radiant heat from the chimney connector. Although the clearance charts give minimum clearances which consider both stove and chimney connector in most standard installations, double check chimney connector clearances. This is especially important where the chimney connector has long horizontal or vertical runs which may make it pass near combustible material.

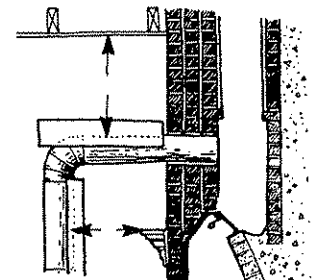
- This information starts on page 17.



## ABOVE THE STOVE AND CHIMNEY CONNECTOR

Combustible material above the stove and chimney connector must be protected. A combustible fireplace mantel may need protection. A ceiling above a horizontal run of chimney connector may need protection.

- This information is found in the charts starting on page 18.



## CHIMNEY THROUGH THE CEILING

Where a chimney passes through a roof or ceiling, clearance must be provided. Most prefabricated metal chimneys must be kept at least 2" from combustible material. Check with the manufacturer of the chimney. According to NFPA, the minimum air space between interior masonry chimneys (any part of the chimney is within the exterior of the house) and combustible material is 2". The minimum air space between exterior masonry chimneys (the chimney is completely outside the exterior of the house) and combustible materials is 1". Check with your local building official.

## CHIMNEY CONNECTOR THROUGH THE WALL

A chimney connector must not pass through floor or ceiling. If properly installed, the connector may pass through a combustible wall.

- This information starts on page 21.

## *Safety Tips*

Do not overfire your stove. If a cast iron plate or the chimney connector glows red you are overfiring. If overfiring occurs, adjust the thermostat lever to decrease the air and slow the fire. If at any time it becomes difficult to slow or regulate the fire in a reasonable time, let the fire go out. Overfiring or difficulty in slowing the fire is the result of too much air entering the stove.

Check these points:

1. Does the air shutter close when you move the thermostat lever to the rear?
2. Is the gasketing in good shape so air does not leak into the stove around the doors and griddle?
3. Are the door handles adjusted so the doors close tightly? Instructions for adjusting the handles are given in the Maintenance Section.

If draft in the chimney is interrupted, smoke, which contains carbon monoxide and other toxic gases, may be forced out of the stove and chimney and into living areas. This is a potentially hazardous condition. If you notice an acrid smell or if smoke backs out of the stove frequently, let the fire go out. Be sure all air inlets are clear, the chimney connector and chimney are clean, and your stove is being operated correctly before starting another fire. The following suggestions may help solve draft related problems:

1. When your heating needs are light and you are operating your stove to produce a small amount of heat, in Spring and Fall for instance, small, hot fires work well.
2. If you notice draft problems when the wind is blowing, install a chimney cap designed to stabilize draft under windy conditions.

Keep all safety equipment ready for use.

1. Test the smoke alarm to be sure it is operating properly.
2. Be sure the fire extinguisher works and is clearly visible. All occupants of the house should know where it is, and how it operates.
3. Have heavy stove gloves available near the stove.
4. Have special safety accessories (for example, a Child Guard Screen) available for use if small children will be in the home.

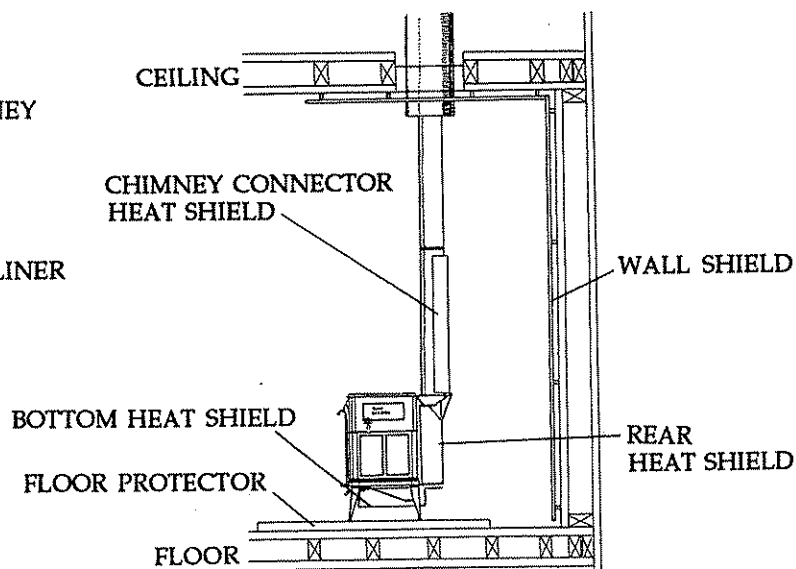
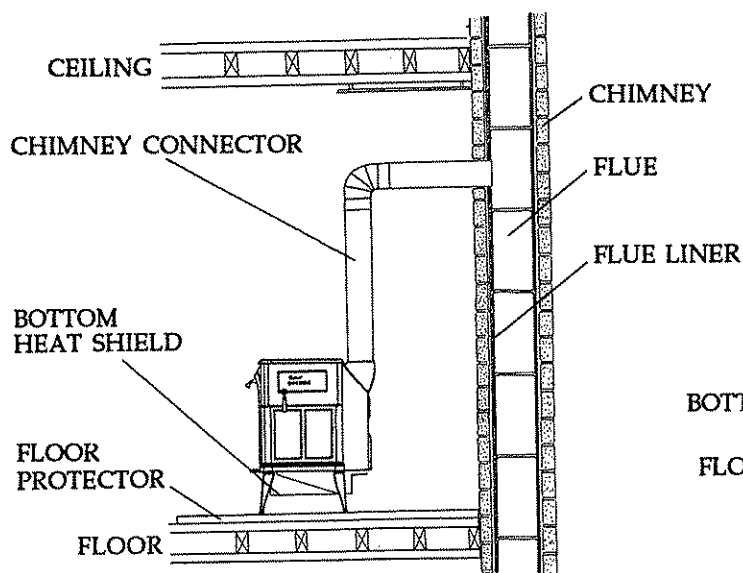
In case of a chimney fire:

1. Close the damper and thermostat lever.
2. Get the people out of the house.
3. Call the Fire Department.

# Glossary

As you read about your Defiant Encore, you may meet some unfamiliar words. The diagrams and explanations presented here will help clarify the information in this manual.

Two typical installations are illustrated. On the left is a stove connected to a masonry chimney; on the right, a stove connected to a prefabricated metal chimney. Fireplace installations are shown in the section on connecting to a fireplace chimney.



**FLUE:** An opening which carries off smoke.

**CHIMNEY:** A masonry or premanufactured metal structure enclosing the flue.

**CHIMNEY FLUE LINER:** The metal, fire clay or other approved lining in a chimney that protects the chimney walls from the hot gases in the flue.

**CHIMNEY CONNECTOR:** The sections of single wall pipe that connect the flue collar of the stove to the chimney. Chimney connectors are used inside the house only, and never as a chimney.

**SLIP PIPE:** A chimney connector of slightly smaller diameter than standard connector pipe. Varying lengths of connector are achieved by sliding the slip pipe into the standard connector.

**THIMBLE:** An opening which penetrates the outer wall of a chimney, and through which the chimney connector reaches the flue.

**TOP-EXITING STOVE:** A stove with the outlet from the flue collar pointing upward.

**REAR-EXITING STOVE:** A stove with the outlet from the flue collar pointing to the rear.

**COMBUSTIBLE MATERIAL:** Any material which will burn. A material is combustible if any part of it, either on the surface or in the interior, contains a combustible substance. Wood, wallpaper, paint, some veneer bricks, sheetrock, and plastic are some examples of combustible materials.

**NON-COMBUSTIBLE MATERIAL:** Any material which will not burn when exposed to fire. Metal, brick, tile, concrete, stone, asbestos, and glass are all non-combustible. For a floor, ceiling or wall to be considered non-combustible, all components, including any unseen framework, must be completely non-combustible.

**FLOOR PROTECTOR:** A non-combustible pad placed on the floor under a stove and extending beyond the stove in all directions. The floor protector serves two purposes. It protects the floor from sparks and falling embers, and protects the floor from heat from the bottom of the stove.

**CLEARANCE:** The minimum safe distance between the stove, or chimney connector, and nearby combustible surfaces. The clearance distance must be empty space except for non-combustible stove or chimney connector heat shields, or wall shields.

**HEAT SHIELD:** A non-combustible reflective heat barrier constructed of sheetmetal, attached to the stove (or chimney connector) with a small space between the stove (or chimney connector) and shield. The shield reflects heat back toward the heat source, and away from the surfaces which need protection. The reflecting surface of the shield must face the heat source and should not be painted.

**WALL SHIELD:** A non-combustible heat barrier constructed of sheetmetal, brick, or manufactured material tested and listed for use as a wall shield, and attached to the combustible surface with a 1" ventilated air space between the wall and the shield. The 1" ventilated air space is required; it cools the combustible wall by providing a channel for air passage.

**CREOSOTE:** Combustible deposits of condensed smoke (vapors and tar mists). When smoke from incomplete combustion enters a chimney with low flue temperature, creosote can deposit on the chimney flue walls. A subsequent hot fire can ignite the deposits and produce a potentially dangerous chimney fire.

**RADIANT HEAT:** Heat transmitted by infrared energy waves. This energy is converted to heat when the infrared waves are absorbed by a solid surface, such as your skin, a table, or a wall.

**CONVECTIVE HEAT:** Heat transmitted by the movement of heated matter (such as air molecules). Warm air rising is a good example of the natural convection of heat. Convective heat transfer can be enhanced by the use of fans or blowers.

**FACTORY-BUILT FIREPLACE:** A fireplace, most often made of steel, designed to be installed with a prefabricated, factory-built chimney. **NOTE: NOT SUITABLE FOR USE WITH THE DEFIANT ENCORE.**

**ZERO-CLEARANCE FIREPLACE:** A type of factory-built fireplace with enough insulation and/or air flow space to allow installation directly next to combustible materials. **NOTE: NOT SUITABLE FOR USE WITH THE DEFIANT ENCORE.**

**MASONRY HEAT FORM:** A factory-built metal form around which a code-approved masonry fireplace and a code-approved masonry chimney can be built. **NOTE: SUITABLE FOR USE WITH THE DEFIANT ENCORE IF INSTALLED ACCORDING TO DIRECTIONS.**

**PRIMARY COMBUSTION:** The combustion of the solid portion of a fuel, for wood occurring at 450° F. to 500° F., but possible under certain conditions at temperatures as low as 200° F.

**PRIMARY COMBUSTION CHAMBER:** The main firebox of the stove in which all primary combustion takes place. Partial secondary combustion also occurs.

**VOLATILES:** Unburned hydrocarbons released as gases and vapors during the primary combustion of wood or coal. Volatiles can undergo further combustion, and may contain 50% or more of the heat potential of wood. When left unburned, volatiles represent a heat loss, and contribute to pollution.

**CHARCOAL:** Residue which remains after all the volatiles have been driven out of solid fuel. Primary combustion of charcoal continues until only inorganic ash remains. Primary combustion of true charcoal produces no flame.

**SECONDARY COMBUSTION:** Combustion of the volatiles released during primary combustion, requiring temperatures in excess of 1000° F. for ignition.

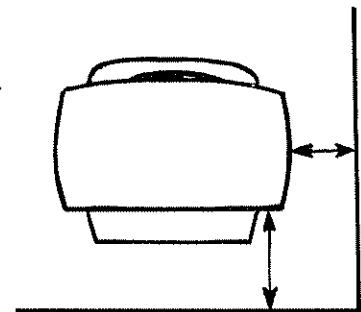
**SECONDARY COMBUSTION CHAMBER:** A chamber in which combustion of volatiles takes place. The secondary combustion chamber must be able to withstand the high temperatures of 1000° F. or more generated by volatile combustion.

**REFRACTORY:** A solid material capable of withstanding high temperatures in a corrosive environment. Modern refractories are often ceramic materials.

**PARALLEL INSTALLATION:** The back of the stove is parallel to the wall behind it.

#### PARALLEL INSTALLATION

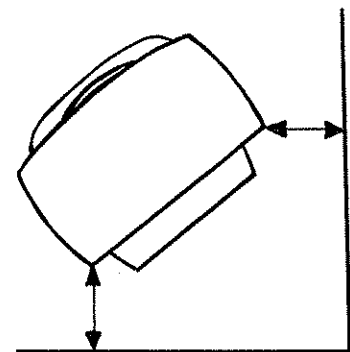
Use side and rear clearances.



**CORNER INSTALLATION:** The back of the stove faces the corner of the room.

#### CORNER INSTALLATION

Use corner clearances.



## APPENDIX - CATALYTIC COMBUSTORS

In any chemical reaction, including the combustion process, there are certain conditions which must be met before the reaction can take place. For example, a reaction may require a certain temperature, or a certain concentration of the reactants (the combustion gases and oxygen), or a certain amount of time. Catalysts, though not changed themselves during the reaction, have the ability to act at a molecular level to change these requirements. In the secondary combustion chamber of the Encore, the catalyst reduces the temperature at which secondary combustion can occur from the 1000° F. - 1200° F. range to the 500° F. - 600° F. range, increasing efficiency, and reducing creosote and emissions.

The catalytic reaction, though advantageous, does have some limitations of its own. Primary among these is that the reactants (the gases) must come into close physical contact with the catalyst itself. To ensure the necessary contact, the catalytic element in your Encore is composed of a ceramic base in the shape of a honeycomb. On each of the honeycomb's many surfaces a coating of the catalyst (usually a noble metal such as platinum or palladium) is applied. The large exposed surface area in this configuration ensures that the combustion gases have the greatest opportunity to come in contact with the catalyst.

Loss of catalytic activity will be apparent in several ways. First you will notice an increase in fuel consumption. Second, there will be a visible increase in the rate at which creosote builds up in your chimney connector system. You may also notice that there is a heavy discharge of smoke coming out of the chimney. There are a number of catalytic problems which can cause loss of activity.

**BLOCKAGE:** While the honeycomb pattern ensures good contact, it also increases the resistance to flow of the combustion gases, and, because of the many surfaces, provides more places for creosote and fly ash to deposit. It is important to follow the operating instructions in order to minimize these deposits, and to

periodically inspect your catalyst for signs of blockage.

**MASKING OR POISONING:** While the catalyst itself does not enter into the combustion process, it is possible for certain elements, such as lead and sulfur, to attach to the active sites on the surface of the honeycomb. Though the catalyst is still there, it is covered, or masked, by the contaminant, and cannot function. To avoid this situation, it is important not to burn anything in your Encore which is a source of these contaminants. Particularly avoid painted or treated wood, coal, household trash, colored papers, metal foils, or plastics. Chemical chimney cleaners may also contain harmful elements. The safest approach is to burn only untreated, natural wood.

**FLAME IMPINGEMENT:** The catalytic element is not designed for exposure to direct flame. If you continually overfire your Encore, the chemistry of the catalyst coating may be altered, inhibiting the combustion process. Thermal degradation of the ceramic base may also occur, causing the element to disintegrate. Stay within the recommended temperature guidelines in the Operation section.

**MECHANICAL DAMAGE:** If the element is mishandled, damage may occur. Always treat the element carefully. Remember the catalyst is made of a ceramic material; treat it as you would fine china. Hairline cracks will not affect the performance of the catalyst, as long as the steel sleeve holds the element in the proper position.

**PEELING:** Peeling of the surface coat may occur if the catalytic element is subjected frequently to excessive temperatures. Follow the operating instructions carefully to avoid this type of damage.

Your Vermont Castings Encore is equipped with either a Corning Catalytic Combustor, or an element manufactured by Technical Glass Products. The products are equivalent. If for any reason you must ship your catalytic element, remember its fragile nature. Place the element in a plastic bag, and package it with a generous amount of shock absorbing material.

### SAVE THIS INFORMATION FOR FUTURE REFERENCE

Please log all purchase information here, as it will be helpful for servicing or warranty:

Model \_\_\_\_\_

Serial # \_\_\_\_\_

(Located on a metal tag permanently attached to the back, side or ash door of your Vermont Castings stove or fireplace.)

Date of Manufacture \_\_\_\_\_

(Located on a metal tag permanently attached to the back of your stove or fireplace.)

Where did you purchase your stove or fireplace?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date of Purchase \_\_\_\_\_



## WARRANTY - FOR USE IN THE U.S.A.

### LIMITED 3 YEAR WARRANTY

Vermont Castings, Inc. warrants that this Defiant Encore® will be free of defects in material and workmanship for a period of three years from the date you receive it, except that the catalyst, thermostat assembly, handles, glass door panels, cement, and gasketing shall be warranted as described below.

Vermont Castings, Inc. will repair or replace, at its option, any part found to be defective when the Defiant Encore® is returned with shipping charges prepaid to a Vermont Castings Authorized Dealer. The customer must pay for any Authorized Dealer in-home travel fees, service charges, or transportation costs for returning the stove to the Authorized Dealer. If upon inspection, the damage is found to be the fault of the manufacturer, repairs will be authorized at no charge to the customer for parts and/or labor.

Any Defiant Encore® or part thereof that is repaired or replaced during the limited warranty period will be warranted under the terms of the limited warranty for a period not to exceed the remaining term of the original limited warranty or six (6) months, whichever is longer.

### LIMITED 1 YEAR WARRANTY

The following parts of the Defiant Encore® are warranted to be free of defects in material and workmanship for a period of one year from the date you receive it. These parts are the thermostat assembly, handles, glass door panels, cement, and gasketing. Any of these items found to be defective will be repaired or replaced at no charge, upon the return of said part to a Vermont Castings Authorized Dealer with postage prepaid.

Any part repaired or replaced during the limited warranty period will be warranted under the terms of the limited warranty for a period not to exceed the remaining term of the original limited warranty or six (6) months, whichever is longer.

### LIMITED CATALYST WARRANTY

The catalyst will be warranted for a six year period as follows: If the original catalyst or a replacement catalyst proves defective or ceases to maintain 70% of its particulate emission reduction activity (as measured by an approved testing procedure) within 24 months from the date the Defiant Encore® is received, the catalyst itself will be replaced free. From 25 - 72 months a pro-rated credit will be allowed against a replacement catalyst and the cost of labor necessary for replacement at the time of replacement. The customer must pay for any in-home travel fees, service charges, or transportation costs for returning the Defiant Encore® to the Authorized Dealer.

AMOUNT OF TIME SINCE PURCHASE	CREDIT TOWARD REPLACEMENT COST
0 - 24 months	100%
25 - 36 months	50 %
37 - 48 months	30%
49 - 60 months	20%
61 - 72 months	10%

Any replacement catalyst will be warranted under the terms of the catalyst warranty for the remaining term of the original warranty. The purchaser must provide the following information in order to receive a replacement catalyst under the terms of this limited warranty:

1. Name, address and telephone number.
2. Proof of original purchase date.
3. Date of failure of catalyst.
4. Any relevant information or circumstances regarding determination of failure.
5. In addition, the owner must return the failed catalyst.

### EXCLUSIONS & LIMITATIONS

1. This warranty is transferable; however, proof of original retail purchase is required.
2. This warranty does not cover misuse of the Defiant Encore®. Misuse includes overfiring which will result if the Defiant Encore® is used in such a manner as to cause one or more of the plates to glow red. Overfiring can later be identified by warped plates and areas where the paint pigment has burned off. Overfiring in enamel stoves is identified by bubbling, cracking, chipping and discoloration of the porcelain enamel finish. Vermont Castings offers no warranty on chipping of enamel surfaces. Inspect your Defiant Encore® prior to accepting it for any damage to the enamel.
3. This warranty does not cover misuse of the Defiant Encore® as described in the Owner's Guide, nor does it cover an Defiant Encore® which has been modified unless authorized by a Vermont Castings representative in writing. This warranty does not cover damage to the Defiant Encore® caused by a salt environment or from burning salt saturated wood, chemically treated wood, or any fuel not recommended in the Owner's Guide.
4. This warranty does not cover an Defiant Encore® repaired by someone other than a Vermont Castings Authorized Dealer.
5. Damage to the unit while in transit is not covered by this warranty but is subject to a claim against the common carrier. Contact the Vermont Castings Authorized Dealer from whom you purchased your Defiant Encore® or Vermont Castings if the purchase was direct. (Do not operate the Defiant Encore® as this may negate the ability to process the claim with the carrier.)
6. Claims are not valid where the installation does not conform to local building and fire codes or, in their absence, to the recommendations in our Owner's Guide.

### HOW TO OBTAIN SERVICE

If a defect is noted within the warranty period, the customer should contact a Vermont Castings Authorized Dealer, or Vermont Castings if the purchase was direct, with the following information:

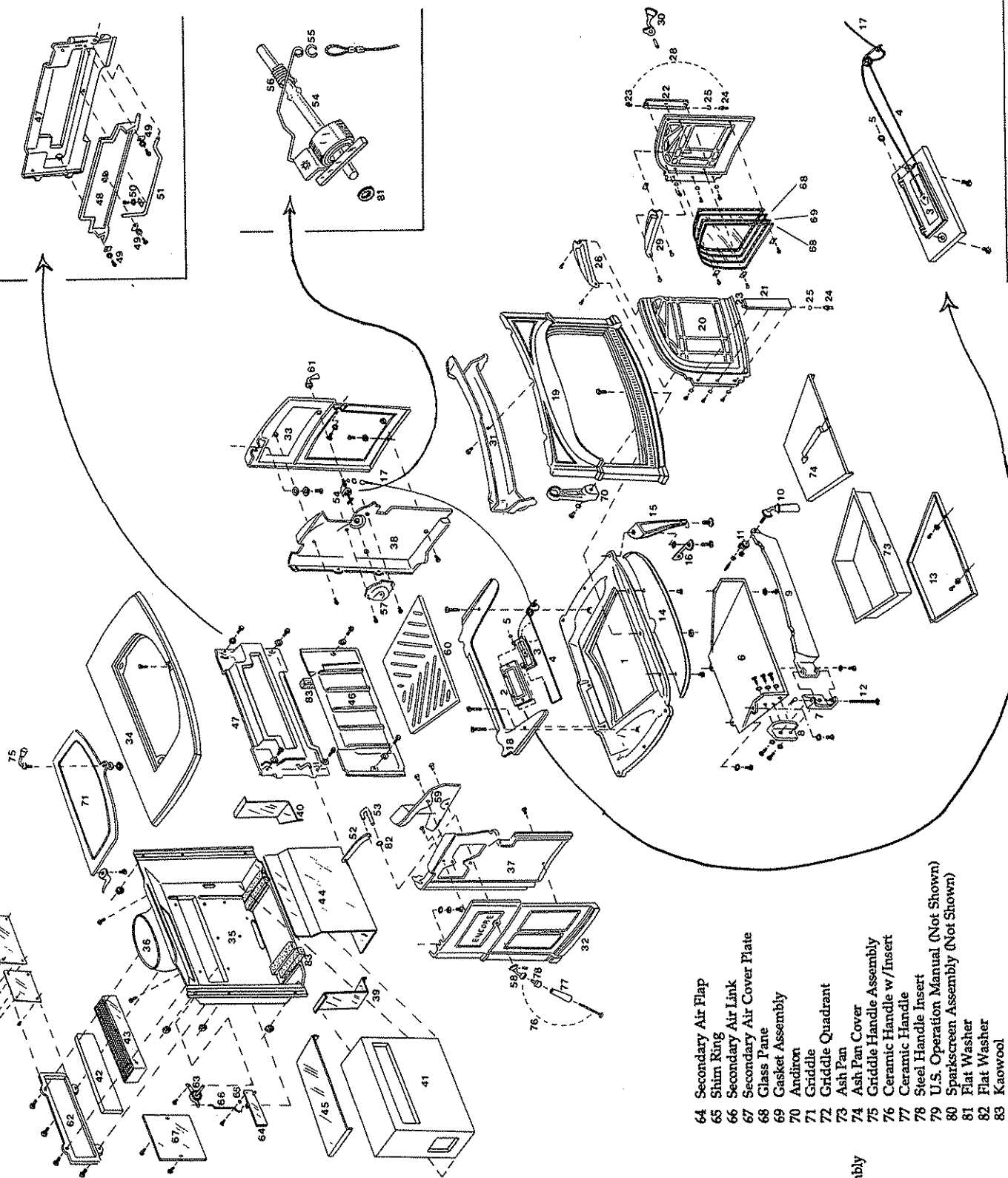
1. Name, address, and telephone number of the purchaser.
2. Date of purchase.
3. Serial number from the label on the back of the stove.
4. Nature of the defect or damage.
5. Any relevant information or circumstances, e.g., installation, mode of operation when defect was noted.

A warranty claim will then start in process. Vermont Castings reserves the right to withhold final approval of a warranty claim pending a visual inspection of the defect by authorized representatives.

# DEFIANT ENCORE® REPAIR/ REPLACEMENT PARTS LIST

## DEFIANT ENCORE® EXPLODED VIEW

- 1 Stove Bottom
- 2 Primary Air Frame
- 3 Primary Air Valve
- 4 Primary Air Rod
- 5 Primary Air Rod Clip
- 6 Ash Drop
- 7 Ash Drop Split Hinge
- 8 Ash Drop Split Hinge
- 9 Ash Door
- 10 Ash Door Handle
- 11 Pawl
- 12 Clevis Pin
- 13 Ash Pan Bracket
- 14 Ash Lip
- 15 Legs
- 16 Door Handle Insert Holder
- 17 Cable Assembly
- 18 Primary Air Tube
- 19 Front
- 20 Left Door
- 21 Left Door Hinge Assembly
- 22 Door Hinge Boss
- 23 Upper Door Pin
- 24 Lower Door Pin
- 25 Jump Ring
- 26 Left Door Manifold
- 27 Right Door
- 28 Right Door Hinge Assembly
- 29 Right Door Manifold
- 30 Door Handle Assembly
- 31 Front Air Manifold
- 32 Left End
- 33 Right End
- 34 Top
- 35 Back
- 36 Flue Collar
- 37 Left Air/Wear Plate
- 38 Right Air/Wear Plate
- 39 Left Heat Deflector
- 40 Right Heat Deflector
- 41 Refractory Assembly
- 42 Catalyst Access Panel
- 43 Catalyst Block
- 44 Heat Exchanger
- 45 Refractory Cover
- 46 Lower Fireback
- 47 Upper Fireback
- 48 Damper
- 49 Damper Tab
- 50 Torsion Bar Clip
- 51 Torsion Bar
- 52 Actuator Link
- 53 Damper Handle Rod
- 54 Thermostat Coil and Rod Assembly
- 55 Jump Ring
- 56 Friction Spring
- 57 Thermostat Access Cup
- 58 Damper Handle Stub
- 59 Damper Link Access Panel
- 60 Flat Grate
- 61 Thermostat Handle Assembly
- 62 Catalyst Access Panel
- 63 Secondary Air Probe Assembly
- 64 Secondary Air Flap
- 65 Shim Ring
- 66 Secondary Air Link
- 67 Secondary Air Cover Plate
- 68 Glass Pane
- 69 Gasket Assembly
- 70 Andiron
- 71 Griddle
- 72 Griddle Quadrant
- 73 Ash Pan
- 74 Ash Pan Cover
- 75 Griddle Handle Assembly
- 76 Ceramic Handle w/Insert
- 77 Ceramic Handle
- 78 Steel Handle Insert
- 79 U.S. Operation Manual (Not Shown)
- 80 Sparkscreen Assembly (Not Shown)
- 81 Flat Washer
- 82 Flat Washer
- 83 Kaowool







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