



# The Aspen II Multi-Fuel Heater

Model 1405CE

Homeowner's  
Installation  
and Operating  
Manual

For use in Europe



**SAFETY NOTICE: IF THIS APPLIANCE IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THE INSTALLATION INSTRUCTIONS. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH. CONTACT LOCAL BUILDING OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.**

**Do Not Discard This Manual: Retain for Future Use**

## Welcome

Congratulations on your choice of a Vermont Castings Aspen II Multi-Fuel Heater. With this purchase, you made a commitment to make the hearth a place of warmth, beauty and comfort in your home. At Vermont Castings we share that joy and appreciation for the hearth, and we show it in all our cast-iron stoves and fireplaces.

As you become acquainted with your new stove, you will find the aesthetic appeal of cast iron is matched by its superb capacity to absorb and radiate heat.

Also, Vermont Castings products are among the cleanest-burning wood stoves and fireplaces available today. And, as an owner of a Vermont Castings stove, you are making a strong statement for pollution-free energy. But clean burning depends on both the manufacturer and the operator. Please read this manual carefully to understand how to properly operate your stove.

At Vermont Castings, we are equally committed to your satisfaction as a customer and that is why we maintain an exclusive network of the finest dealers in the industry. Chosen for their expertise and dedication to customer service, our dealers are factory-trained and know each Vermont Castings products in detail. Feel free to contact your Authorized Vermont Castings Dealer anytime you have question about your stove or its performance.

We have built your Aspen II Multi-fuel stove with the utmost care. With normal use and proper care, it will provide you with many years of service.

This manual contains valuable instructions on the installation and operation of your Vermont Castings stove. You will also find useful information on assembly and maintenance procedures. We urge you to read the manual thoroughly and to keep it as a reference.

Sincerely,

*All of us at MHSC*

**Save These Instructions For Future Reference**

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# Specifications

## Aspen II Multi-Fuel, Model 1405CE

|                                      |   |  |
|--------------------------------------|---|--|
|                                      | Wood                                    | Smokeless Fuel <sup>2</sup>            |
| Nominal heat output                  | 5.8 kW <sup>1</sup><br>(19,700 BTU/hr)  | 4.7 kW <sup>1</sup><br>(16,000 BTU/hr) |
| Minimum flue draught                 | 12 Pa<br>(0.048" WG)                    | 12Pa<br>(0.048" WG)                    |
| Mean flue gas temp                   | 335°C (635°F)                           | 277°C (531°F)                          |
| Efficiency (space heating)           | 73.4%                                   | 66.5%                                  |
| Fuel size/type                       | 406 mm wood                             | Smokeless fuel                         |
| Flue mass gas flow                   | 4.8 g/s                                 | 5.5 g/s                                |
| CO Emissions (@ 13% O <sub>2</sub> ) | 5100 ppm                                | 3300ppm                                |
| Area Heated .....                    | up to 65 sq. m (700 sq. ft.)            |  |
| Loading .....                        | Front or top                            |  |
| Chimney connector .....              | 152 mm (6") diameter                    |  |
| Chimney flue size .....              | 152 mm (6") minimum                     |  |
| Flue exit position .....             | Reversible, top or rear                 |  |
| Primary air .....                    | Manual set, thermostatically maintained |  |
| Ash handling system .....            | Removable ash pan                       |  |
| Glass panels .....                   | High temperature ceramic                |  |
| Weight .....                         | 70 kg (154 lbs.)                        |  |
| Width (leg-to-leg) .....             | 411 mm (16¼")                           |  |

Depth (leg-to-leg) ..... 403 mm (15⅞")  
 Height to top of flue collar:  
     ..... 579 mm (22¾") top exit  
     ..... 554 mm (21¾") rear exit

1. This value can vary depending on how the stove is operated, the type and moisture content of the fuel used, as well as the design, construction and climatic location of your home. Figures shown are based on nominal fuel consumption obtained under laboratory conditions and on average efficiencies.

2. This stove is approved for use with processed coal fuels generally known as smokeless. Ask your dealer which fuels are acceptable in your area.

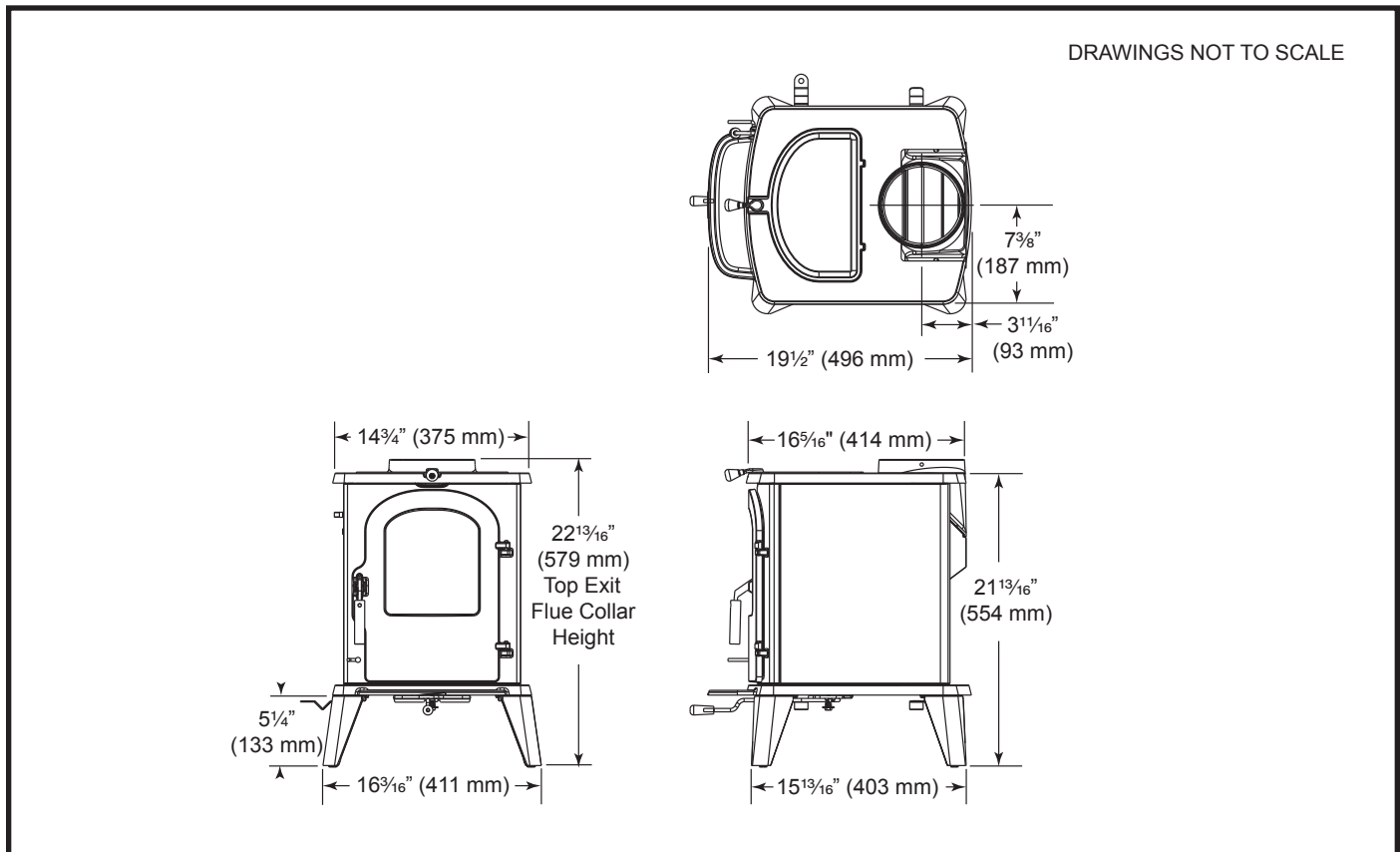


Fig. 1 Aspen II Multi-fuel Heater dimensions.

## Installation

**SAFETY NOTICE: IF YOUR STOVE IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THE INSTALLATION INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.**

Before you begin an 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 is constructed properly to meet all requirements.
- You have all necessary permits from local authorities.

Your local building official is the final authority for approving your installation as safe and determining that it meets local and state codes.

The metal label permanently attached to the back of every Vermont Castings stove indicates that the stove has been tested to current standards. The test standards are UL 1482 and UI 737 for the US and EN13240:2001 + A2:2004 for Europe. Clearance and installation information also is printed on the label. When the stove is installed according to the information both on the label and in this manual, local authorities in most cases will accept the label as evidence that the installation meets codes and can be approved.

However, codes vary in different countries. Before starting the installation, review your plans with the local building authority. Your local dealer can provide any additional information needed.

**IMPORTANT: Failure to follow these installation instructions may result in a dangerous situation, including a chimney or house fire. Follow all instructions exactly, and do not allow makeshift compromises to endanger property and personal safety.**

**All local regulations, including those referring to national and European standards, need to be complied with when installing this stove.**

### Outside Air

In some modern, super-insulated homes, there is not enough air for combustion because of insufficient air infiltration into the building. Such air enters a home through unsealed cracks and openings. Kitchen or bath exhaust fans can compete with the stove for available air and compound the problem.

When poor draft is caused by a low infiltration rate, opening a ground floor window on the windward side of the house and in the vicinity of the stove will usually alleviate the problem.

Another solution is to install a permanent outside air supply to the stove and/or room. In some areas, in fact, bringing air for combustion from outside the home directly to the air inlet of the stove is required for new construction.

An outside air supply is not affected by pressure variations within the house, and improved stove performance often results. An Outside Air Adapter Kit #33258 for the Aspen II II is available from your local Vermont Castings dealer.

### What Kind of Chimney to Use

Your Aspen II Multi-fuel must be connected to a code-approved masonry chimney with a flue liner, to a relined masonry chimney that meets local codes, or to a prefabricated metal chimney. Whatever kind you use, the chimney and chimney connector must be in good condition and kept clean. Figure 2 shows the two chimney types.

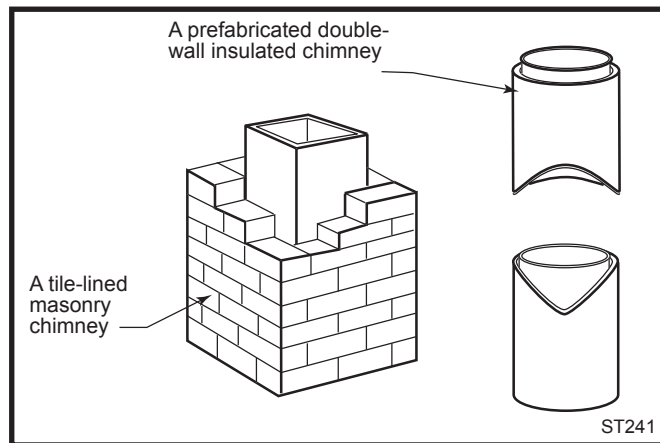


Fig. 2 Standard chimney types.

If you use an existing masonry chimney, it must be inspected to ensure safe condition before the stove is installed. Your local professional chimney sweep, building inspector, or fire department official will be able to inspect the chimney or provide a referral to someone who can.

The flue and chimney design must meet requirement J2, Part J of the building regulations 2000 (Combustion Appliances and Fuel Storage Systems).

## Masonry Chimneys

An inspection of the chimney must confirm that it has a lining. Do not use an unlined chimney. The chimney should have no cracks, loose mortar, other signs of deterioration, or blockage. Repair any defects before using the chimney with your stove.

Seal any unused openings in an existing masonry chimney with masonry to the thickness of the chimney wall, and repair the chimney liner. Openings sealed with pie plates or wallpaper are a hazard; seal them with mortar or refractory cement. In the event of a chimney fire, flames and smoke may be forced out of these unused thimbles.

The chimney should be thoroughly cleaned before use.

A newly-built masonry chimney must conform to the standards of your local building code or, in the absence of a local code, to a recognized national code. Masonry chimneys must be lined, either with code-approved masonry or precast refractory tiles, stainless steel pipe, or a code-approved, "poured-in-place" liner. The chimney's clean-out door must seal tightly.

## Prefabricated Chimneys

These should be an internal diameter of 150 mm (6") and be of the twin wall insulated construction that has been approved for solid fuel use (e.g. Rite Vent ICS of ICID Lite Chimney Systems). Diameters over 200 mm (8") are not recommended due to the large cross-section causing excessive cooling of the flue gases.

**DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.**

## Chimney Size

An Aspen II Multi-fuel is approved for venting into a masonry chimney with a nominal flue size of 203 x 203 mm (8" x 8"), and into a round flue size of 152 mm (6").

It may not be vented into larger chimneys without a liner to reduce the effective flue size to 152 mm (6") diameter. Larger chimneys must have their flues relined for proper stove performance.

Accessories to make the connection between stainless steel chimney liners and your Aspen II are available through your local dealer.

## Chimney Connector Guidelines

Chimney connector is the double-wall or single-wall pipe that connects the stove to the chimney. The chimney is a masonry or prefabricated structure that encloses the flue. Chimney connectors are used only to make the connection from the stove to the chimney.

## Connecting Flue Pipes

Connector pipes should meet the requirements of the building regulations. This can be achieved by the use of connecting fluepipes included in the following categories:

- a) Vitreous enamelled steel pipe complying with BS 6999: 1989 (1996);
- b) Pipes made from stainless steel as described in BS EN 1008-1:1995 grades 1.4401, 1.4404, 1.4432 or 1.4436 with flue wall thickness of at least 1 mm;
- c) Mild steel fluepipes complying with BS 1449: Part 1: 1991, with a flue wall thickness of at least 3 mm;
- d) Cast iron fluepipes complying with BS 41: 1973 (1998).

Flue Pipes with a spigot and socket joint should be fitted with the socket facing upwards, to contain condensates and moisture within the flue. Joints should be made gas tight using proprietary jointing accessories, or, where appropriate, by packing joint with noncombustible rope and fire cement.

Double-wall chimney connectors must be tested and listed for use with solid-fuel burning appliances. Single-wall chimney connectors should be made of 24 gauge or heavier steel, and should be 152 mm (6") in diameter. Do not use galvanized connector; it cannot withstand the high temperatures that can be reached by smoke and gases, and may release toxic fumes under high heat.

If possible, do not pass the chimney connector through a combustible wall or ceiling. If passage through a combustible wall is unavoidable, refer to the section following on Wall Pass-Throughs. Do not pass the chimney connector through an attic, a closet, or any similar concealed space. The whole connector should be exposed and accessible for inspection and cleaning.

In horizontal runs of single-wall chimney connector without protective shields, maintain a clearance of at least 660 mm (26") from the ceiling.

Keep the horizontal run of chimney connector as short and direct as possible, with no more than one 45 degree elbow. The maximum total length of chimney connector should not exceed 2.4 m (8').

In cathedral ceiling installations, extend the prefabricated chimney down to within 2.4 m (8') of the stove.

**SAFETY NOTE: ALWAYS WEAR GLOVES AND PROTECTIVE EYEWEAR WHEN DRILLING, CUTTING OR JOINING SECTIONS OF CHIMNEY CONNECTOR.**

## Double-wall Chimney Connector

Information on assembling and installing double-wall connector is provided by the manufacturer of the double-wall pipe. Follow the manufacturer's instructions exactly as you assemble the connector and attach it to

the stove and chimney. Using connectors and chimneys from the same manufacturer makes the assembly and installation straightforward.

**NOTE: For installations using double-wall connectors, minimum clearances must conform to the listed clearances in the clearance chart on Page 9.**

### Single-wall Chimney Connector

- Beginning at the flue collar of the stove, assemble the chimney connector. Insert the first crimped end into the stove's flue collar, and keep each crimped end pointing toward the stove.

Using the holes in the flue collar as guides, drill 1/8" (3 mm) holes in the bottom of the first section of chimney connector and secure it to the flue collar with three #10 x 1/2" sheet metal screws.

- Secure each joint between sections of chimney connector, including telescoping joints, with at least three sheet metal screws. The predrilled holes in the top of each section of chimney connector serve as guides when you drill 3 mm (1/8") holes in the bottom of the next section.

- Secure the chimney connector to the chimney. Instructions for various installations follow.

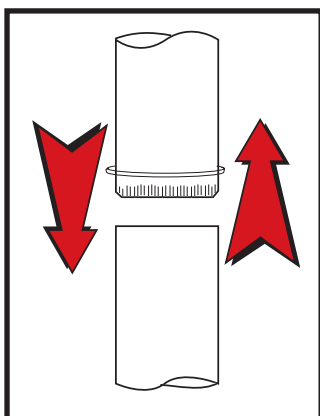
- Be sure the installed stove and chimney connector are correct distances from nearby combustible material.

**NOTE:** Special slip pipes and thimble sleeves that form telescoping joints between sections of chimney connector are available to simplify installations. They often eliminate the need to cut individual connector sections. Consult your local dealer about these special pieces.

### Securing the Single-wall Connector to a Prefabricated Chimney

For prefabricated chimneys, follow the installation instructions of the chimney maker exactly as you install the chimney. The maker of the chimney will supply the accessories to support the chimney, either from the roof of the house, at the ceiling of the room where the stove is installed, or from an exterior wall.

Special adaptors are available from your local dealer to make the connection between the prefabricated chimney and the chimney connector. The top of such adaptors attaches directly to the chimney or to the chimney's ceiling support package, while the bottom of the adaptor is screwed to the chimney connector.



**Fig. 3** The crimped end of the connector points toward stove.

These adaptors are 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. When assembled in this way, any soot or creosote falling from the inner walls of the chimney will stay inside the chimney connector.

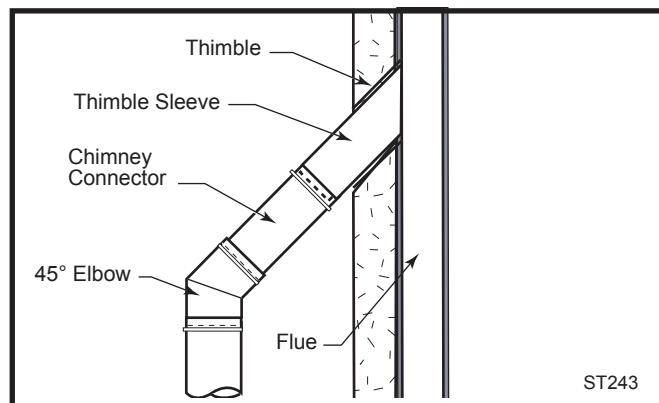
### Securing the Single-wall Connector to a Masonry Chimney

For masonry chimneys, both freestanding and fireplace chimneys may be used for installation of your Aspen II Multi-fuel.

### Freestanding Chimney Installations

If the chimney connector must pass through a combustible wall to reach the chimney, follow the recommendations in the Wall Pass-through section that follows.

The opening through the chimney wall to the flue (the "breach") must be lined with either a ceramic or metal cylinder, called the "thimble", which is cemented firmly in place. The fit must be snug and the joint between the thimble and the chimney wall must be cemented. (Fig. 4)



**Fig. 4** The thimble, made of either ceramic or metal, must be cemented securely in place.

A special piece called the "thimble sleeve," slightly smaller in diameter than standard connector and most thimbles, will facilitate the removal of the chimney connector system for inspection and cleaning. Thimble sleeves should be available from your local dealer.

To install a thimble sleeve, slide it into the breach until it is flush with the inner flue wall. Do not extend it into the actual flue passage, as this could interfere with the draft.

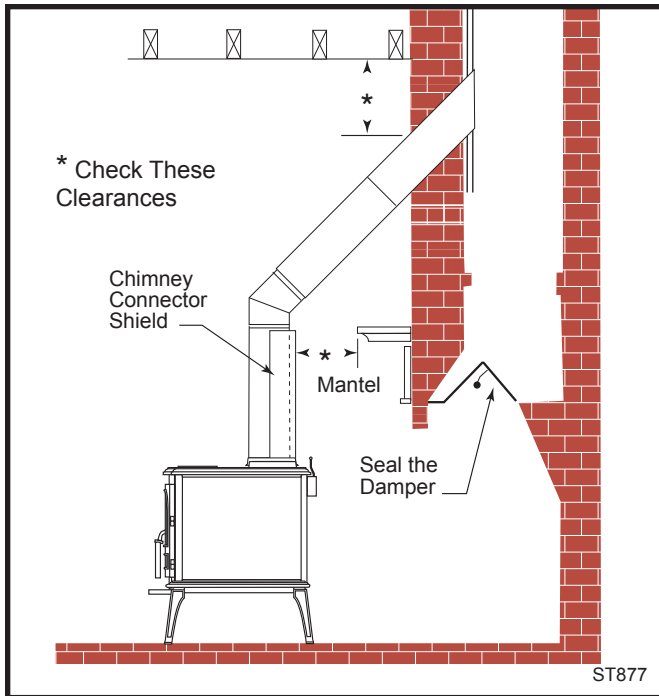
The thimble sleeve should protrude 1-2" (25-51 mm) into the room. Use furnace cement and thin gasketing to seal the sleeve in place in the thimble. Secure the chimney connector to the outer end of the sleeve with sheet metal screws.

Without a thimble, a suitable length of chimney connector can be extended through the breach to the inner face of the flue liner, and cemented securely in place.

Additional pieces of connector are then attached with sheet metal screws.

### Fireplace Chimney Installations - Above a Fireplace

The Aspen II Multi-fuel may be connected to a chimney above a fireplace opening also. In such installations, the stove is positioned on the hearth in front of the fireplace and the chimney connector rises from the stove top and then angles 45° back into the chimney. (Fig. 5)



**Fig. 5** Chimney connector enters chimney above the fireplace.

The chimney liner should extend to the point at which the chimney connector enters the chimney.

If the chimney connector from your installation enters the chimney above a fireplace, follow all the guidelines mentioned above for freestanding installations. In addition, give special consideration to the following points:

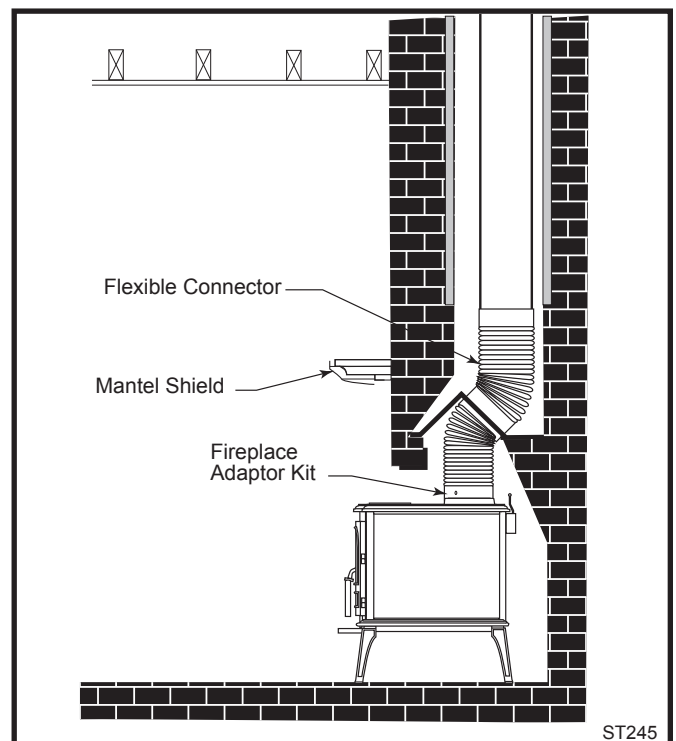
- Check the clearance between the stove and the chimney connector, and any combustible trim or the mantel. Use the necessary combination of mantel, trim, and connector heat shields to achieve the required clearances.
- Check the clearance between the chimney connector and the ceiling. If no heat shields are used, the clearance should be at least 660 mm (26"). To find out how much this clearance may be reduced with heat shields, see the clearance chart on Page 12.
- The fireplace damper must be sealed to prevent room air from escaping up the flue. However, it must be possible to reopen the damper to inspect or clean the chimney.

### Fireplace Chimney Installations - Through a Fireplace

If your fireplace height is at least 635 mm (25"), you may install an Aspen II Multi-fuel with standard legs through the fireplace opening using a 90° Tee kit available from your local dealer. This positive connection kit ensures a tight fit between the stove flue collar and the chimney flue. (Fig. 6)

Fireplace installations, whether connected to the flue above or through the fireplace opening, have special clearance requirements to adjacent trim and the mantel. You will find the required clearances for the Aspen II Multi-fuel fireplace installations on Page 12.

Floor protection requirements also apply to fireplace installations. Floor protection information is on Page 8.



**Fig. 6** Chimney connector enters chimney through the fireplace opening.

### Wall Pass-Throughs

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

Accessories are available for use as wall pass-throughs. If using one of these, make sure it has been tested and listed for use as a wall pass-through.

Always adhere to local building codes when installing a wall pass-through.

Figure 7 shows an alternate method of passing a connector through a wall. All combustible material in the wall is cut away to provide the required clearance that is three times the pipe diameter. The resulting space must remain empty. A flush-mounted sheet metal cover may be used on one side only. If covers must be used on both sides, each cover must be mounted on noncombustible spacers at least 25 mm (1") clear of the wall.

**DO NOT CONNECT AN ASPEN II MULTI-FUEL TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.**

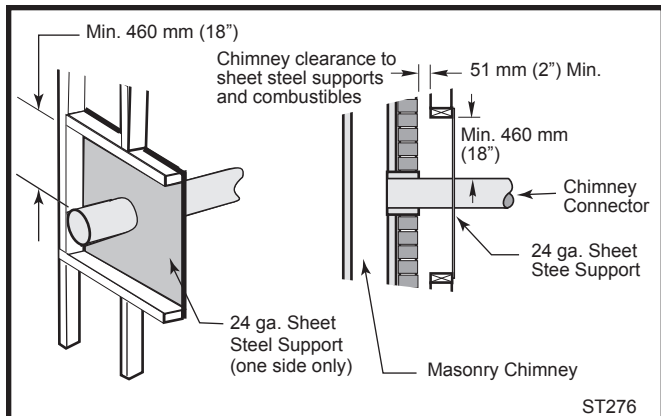


Fig. 7 An approved wall pass-through.

### Hearths

This appliance must be installed on to hearth that meets the requirements of Part J of the Building Regulations 2000 (Combustion Appliances and Fuel Storage Systems). This can be achieved by ensuring that the hearth is constructed and sized in accordance with the guidelines included in section 2 of approved document 'J'. The size and clearances of the hearth are as follows:

The constructed hearth should be constructed in accordance with the recommendations in document J, and should be of minimum width 840 mm and minimum depth 840 mm (if a free standing hearth b) above) or a minimum projection of 150 mm from the jamb (if a recessed hearth a) above).

### Floor Protection for Fireplace Installations

Do not assume your fireplace hearth is completely noncombustible.

Many fireplace hearths do not satisfy the "completely noncombustible" requirement because the brick or concrete in front of the fireplace opening is supported by heavy wood framing as in Figure 8. Because heat passes through brick or concrete readily, it can easily pass through to the wood. As a result, such fireplace hearths can be a fire hazard and are considered a combustible floor.

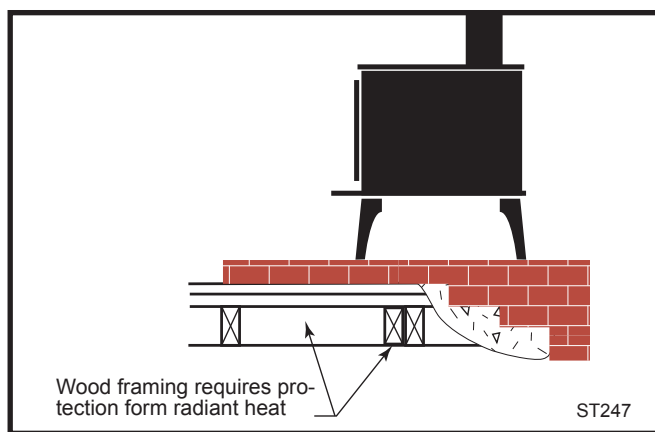


Fig. 8 Supporting timbers under fireplace hearth are considered to be combustible.

Keep in mind that many raised hearths will extend less than the required clearance from the front of the heater when it is installed. In such cases, sufficient floor protection as described above must be added in front of the hearth to satisfy the minimum floor protector requirement from the front of the stove: 406 mm (16") from the front. Fireplace hearths must also offer the required protection of 152 mm (6") on either side.

Optional 76 mm (3") short legs may be used only on such hearths that meet the width and depth requirements outlined previously under "floor protection."

Hearth rugs do not satisfy the requirements for floor protection.

Fireplace installations also have special clearance requirements to the side walls, side decorative trim, and fireplace mantle. Refer to the information on fireplace and mantel trim shields in this section.

### Keep the Stove a Safe Distance from Surrounding Materials

Specifications herein are primarily related to common timberframe construction. Both a stove and its chimney connector radiate heat in all directions when operating, and dangerous overheating of nearby combustible materials can occur if they are too close to the heat. A safe installation requires that adequate clearance be maintained between the hot stove and its connector and nearby combustibles.

Clearance is the distance between either your stove (measured from the back edge of the stove's top plate) or chimney connector, and nearby walls, floors, the ceiling, and any other fixed combustible surface. Your stove has special clearance requirements that have been established after careful research and testing. These clearance requirements must be strictly observed.

In addition, furnishings and other combustible materials must be kept away from the stove as well. In general, a distance of 1220 mm (48") must be maintained between



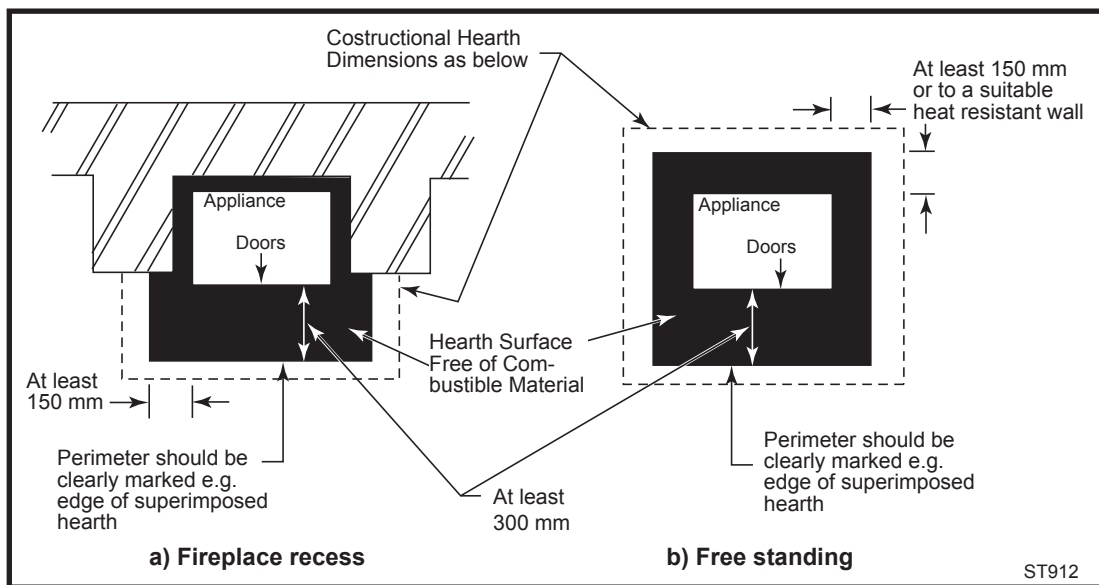


Fig. 9 Noncombustible hearth surface dimensions.

the stove and moveable combustible items such as drying clothes, furniture, newspapers, firewood, etc. Keeping those clearance areas empty assures that nearby surfaces and objects will not overheat.

### Clearances

As with any solid fuel heating stove, extremely high surface temperatures can occur, particularly in the event of uncontrolled operation, e.g. if the doors are inadvertently left open. It is crucial that sufficient clearances are allowed to any combustible surfaces, e.g. wooden mantels or lintels, and to timber framed (studded) walls even if they are faced with noncombustible board. Detailed information on fireplace and hearth construction is provided in section 2 of Document J, all installations must comply with these requirements or with the relevant National or local building standards.

Clearances to timber framed (studded) walls are included below. There are no specific minimum clearances to solid **noncombustible** surfaces (e.g. the sides and rear of Inglenook fire openings constructed from solid masonry) other than to allow safe access to the controls of the stove. For this reason minimum side clearances of 125 mm, and a minimum rear clearance of 50 mm are recommended.

### Summary of Clearances

**Minimum recommended side clearances to non-combustible surfaces 125 mm (5").**

**Minimum recommended rear clearance to noncombustible surfaces 50 mm (2").**

**NOTE:** The minimum thickness of solid noncombustible materials is specified in section 2 of Document 'J', in relation to the clearance of the appliance from the sur-

face. As a general rule, the thickness of solid noncombustible material forming the recess of a fireplace is a minimum of 200 mm.

**Minimum rear clearance from combustible walls (e.g. timber framed or studded walls) 760 mm (30") measured from the rear edge of the stove top. (Fig. 10, B)**

**Minimum side clearance from combustible walls 610 mm (24") measured from the side edge of the stove top. (Fig. 10, A)**

**Minimum distance from stove to movable combustible materials (e.g. furniture, drying clothes, etc.) 1220 mm (48").**

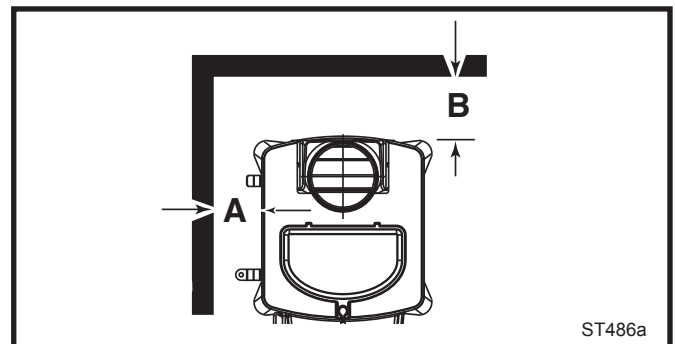


Fig. 10 Minimum clearances.

### Connecting Flue Pipe - Clearances

Single wall connecting fluepipes can reach extremely high temperatures; therefore, clearances from the connecting fluepipe (chimney connector) must comply with the requirements of Part J of Building Regulations 2000 (Combustion Appliances and Fuel Storage Systems). This can be achieved by following the recommendations of Approved Document 'J'. These are as shown in Figure 11.

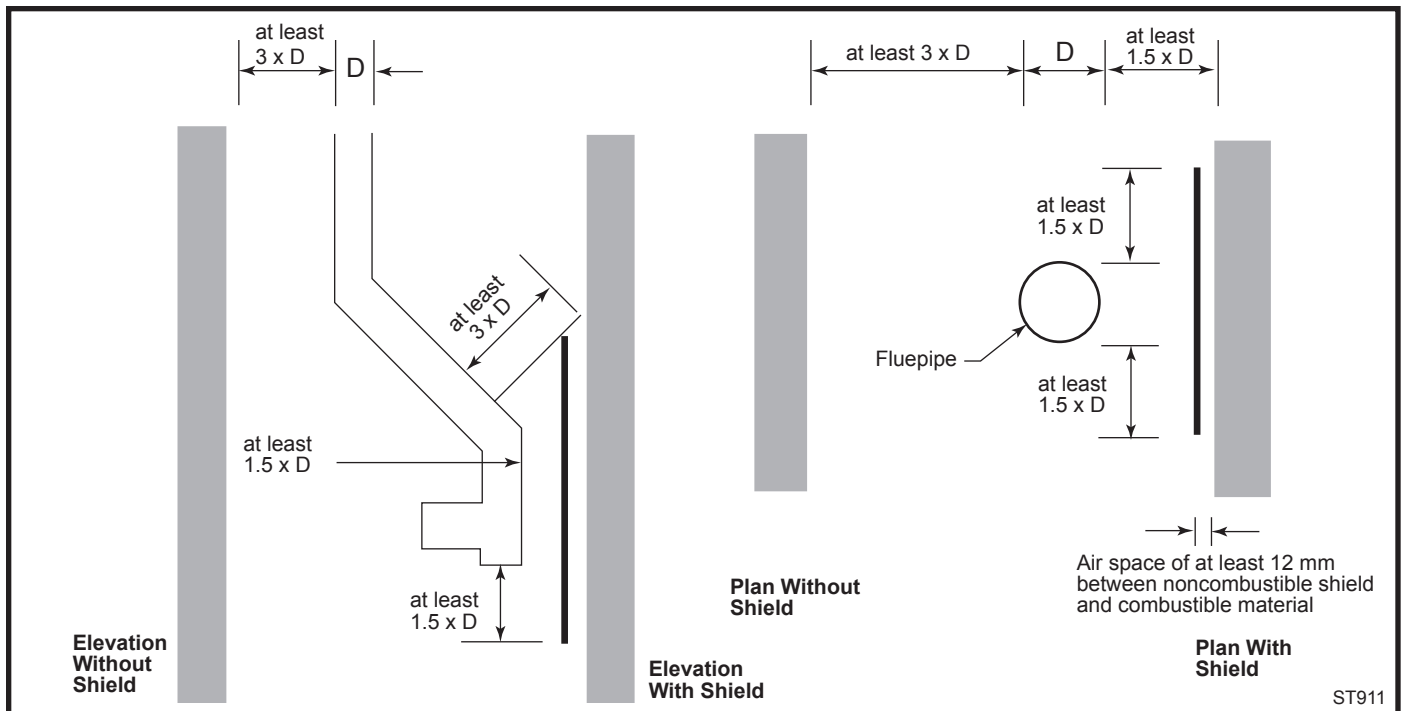


Fig. 11 Connecting fluepipe clearances.

## Assembly

### Unpack the Stove

Carefully remove the outer packaging carton from the stove and pallet. Remove the loose items from inside the stove. Check the contents as listed.

- 1, Poker/slicer
- 2, Grate insert plates (for wood burning)

#### Hardware Bag Contents:

- 3, Handles (door, damper)
- 1, Large Allen wrench
- 1, Small Allen wrench
- 1, Multi-function tool

### Prepare Stove for Installation

This stove is very heavy and therefore requires careful handling both to avoid injury and damage to the stove.

1. Carefully lift up and remove the griddle plate from the top of the stove. Place it in a safe place until installation is complete.
2. Remove the wood burning grate inserts and the wooden packaging piece from inside the stove fire-box.
3. Carefully remove the strapping holding the stove to the wooden pallet. Carefully maneuver the stove on the pallet in to a position that allows it to be lifted from the pallet.
4. Remove the outer packing by removing from flue collar.
5. Carefully remove the poker from its position on the door handle. (Fig. 12)

It may be easier to lift the stove if you remove all of the firebrick and grate components from the stove before lifting it to its final position. Follow the "Grate Removal" instructions on Page 21.



Fig. 12 Remove poker/slicer from its shipping position.

### Install Door Handle

The door handle which comes with the stove is designed to be removable to prevent overheating during use. To use the handle, simply slide the collar into the door handle and open the door. When you have either opened or closed the door, remove the handle and store it in a safe place. Alternatively, the handle can be secured in position with the Allen wrench using the concealed socket head grub screw behind the handle boss. **CAUTION: If the handle is secured in place it will become extremely hot when the stove is in use. Suitable protective insulated gloves must always be used when opening the door when the stove is in use.**

### Flue Collar Reversal

If a rear exit chimney connection is required, you will need to rotate the flue collar on the stove.

1. Remove the two (2) screws that hold the flue collar in position. (Fig. 13)
2. Carefully lift the flue collar away from the stove and rotate it 180° clockwise. Be careful not to damage the rope gasket on the flue collar.
3. Replace the two (2) screws removed in Step 1. (Fig. 14)

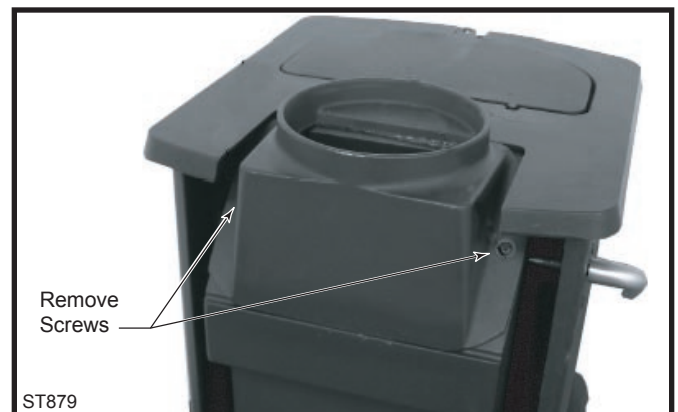


Fig. 13 Remove screws holding flue collar in place.

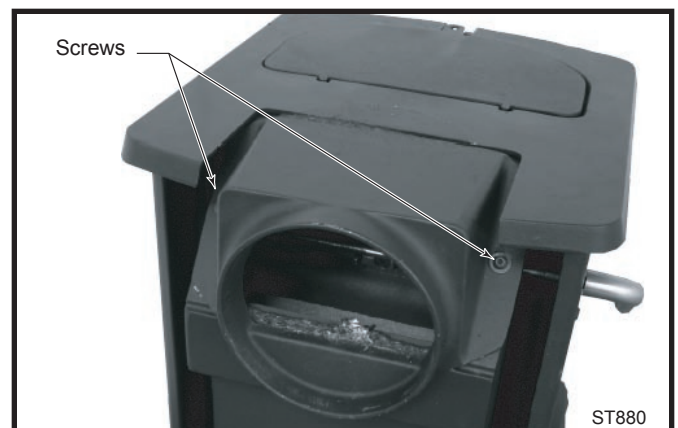


Fig. 14 Flue collare, reversed.

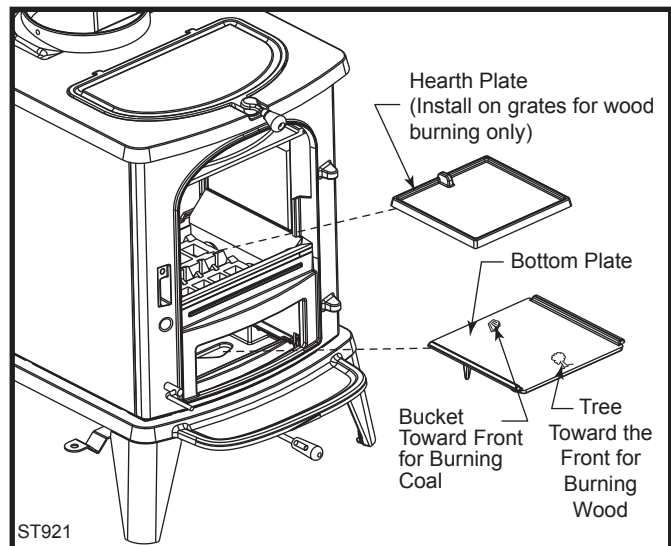
## Connecting the Flue Pipe Connector

The flue pipe connector should be secured to the stove flue collar using the three (3) self-tapping screws provided in the hardware bag. Secure the flue pipe through the holes in the flue outlet of the stove. The joint should then be sealed with stove cement or flue joint sealant designed for solid fuel applications.

## Configure the Stove for your Fuel

As shown in Figure 15, two adjustments are necessary depending on whether wood or coal is being burned in the Aspen II. It is important to configure your stove correctly in order to achieve proper burning and the efficiency and emissions performance the stove is rated for.

The stove is supplied with a hearth plate which is installed on top of the shaker grates for wood burning. This plate is NOT used when burning coal. Further, there is a reversible plate located under the ash pan which directs incoming combustion air to the air wash above the glass door, for wood burning, or beneath the shaker grate for coal burning. Symbols showing a



**Fig. 15** Position the hearth plate and bottom plate depending on fuel being used.

coal bucket and a tree are cast into this plate. The tree symbol should be oriented toward the front (nearest the door) for wood burning and the coal bucket should be oriented toward the front for coal burning.

## Operation

### Basic Operation of the Stove

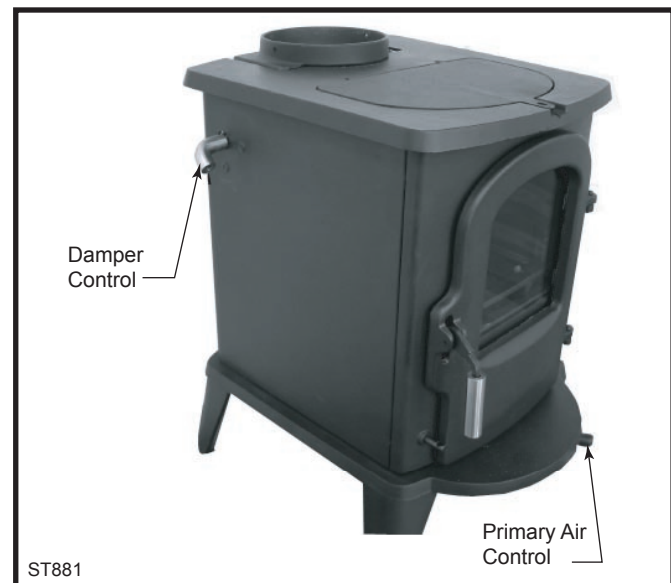
This stove is a premium product constructed from cast iron, and if looked after, will last for many years, even with constant use. The controls are simple to use and comprise a bypass damper that opens or closes the flue outlet and a primary air control lever. The primary air control provides a range of heat output settings. The bypass damper can be opened to increase flue draught for starting or rekindling the fire, and is closed to provide secondary combustion of the flue gases by forcing the flue gases through the louvers in the rear of the firebox and into the secondary chamber.

Secondary combustion occurs in the secondary combustion chamber in the rear of the firebox. The high temperatures attained in this area encourage further burning of the volatile gases in the smoke, reducing emissions, reducing creosote deposits in the flue and increasing the efficiency of the stove. Long burn periods are achieved when the stove is in secondary combustion mode with the bypass damper closed and the primary air control set to its most closed position.

### Using the Controls

Two controls are used to regulate the performance of the Aspen multifuel. A primary air control lever (situated underneath the front of the stove) regulates the supply of air to the fire. A damper (situated at the left hand rear of the stove) opens and closes the direct flue outlet from the rear of the firebox. In the closed position this

damper directs the flue gases through the secondary combustion chamber in the rear of the stove, and in the open position allows unrestricted flow of the flue gases in to the flue, thereby increasing flue draught.



**Fig. 16** Aspen II Multi-fuel heater air controls.

### Primary Air Control

The primary air control lever, located underneath the front of the stove, controls the amount of incoming combustion air for starting, maintaining and reviving a fire. More air entering the stove makes the fire burn hotter and faster, whilst less air prolongs the burn at a lower heat level.

For maximum air supply and greatest heat output the lever should be moved to the right of the appliance, this will also give the shortest burn time as the high air supply will consume the fuel more quickly. To reduce the amount of primary air move the lever to the left.

NB: NEVER continually run the stove with the primary air lever set in the fully open position as this can overfire the product and lead to degradation of the cast iron components.

### The Bypass Damper

The damper handle, located on the top left hand side of the stove, is used to open and close the damper plate. Use the removable handle to operate this control, it may be fixed in place using the Allen screw provided or left loose and stored in the door handle holder behind the front left hand leg.

When the handle is positioned vertically downwards the damper is open. In this position smoke passes directly into the chimney and maximum flue draught is provided. The damper must be open when starting or reviving the fire and whenever the doors or griddle plate are opened.

With the handle pointing forwards, the damper plate is closed. This forces the smoke from the fire down through the secondary combustion chamber before passing into the chimney.

This creates high temperatures in the secondary chamber that assist in burning volatile gases and particles present in the smoke. This position provides long burn times and maximum efficiency.

There are no intermediate positions and the damper must be fully open or firmly closed.

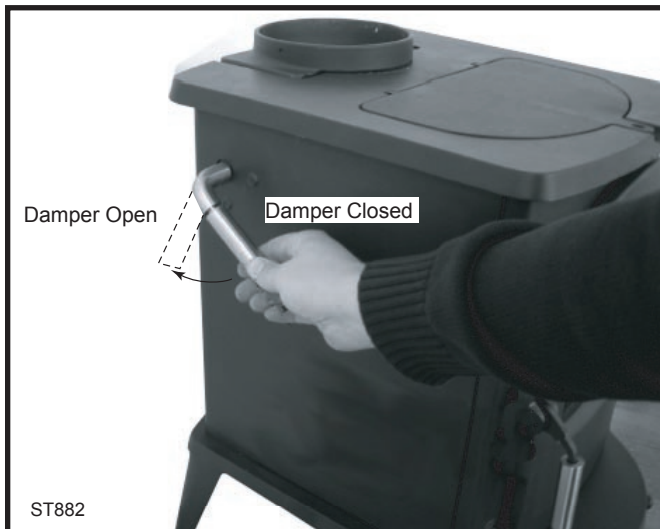


Fig. 17 Damper positions.

### The Glass Door Panel

The glass panel used in the door of this stove features a heat reflective coating on the outside surface. Heat reflected back by this surface helps to maintain a higher inner glass surface temperature. This, along with the wash of pre-heated primary combustion air over the glass, helps to reduce build up of deposits on the glass and maintain clear viewing under most conditions.

### The Front Grate

The front grate bars are removable for cleaning and servicing. However, they are designed to keep fuel away from the glass door and the stove should not be operated without the front grate bars in place.

The bars are removed by lifting them vertically upwards and freeing them from the retaining channel, they can then be removed from the stove through the front. (Fig. 18)

**NOTE:** The stove can be operated with the top bar removed if necessary, however care should be taken not to overfill the fuel bed in this case.



Fig. 18 The front grates can be removed.

### Adding Fuel

There are two ways to add fuel to the Aspen II multifuel stove. The top griddle opens and provides the most convenient way to add fuel, and, providing the damper is open, this can be accomplished without smoke spilling into the room.

Alternatively, fuel can be added by opening the front glass doors on the stove, again ensuring that the damper is first opened.

To open the doors, using suitable heat resistant protective gloves, the door handle should be inserted in to the door latch stub (unless previously secured in place), and pulled upwards.

The doors must be closed correctly after use. The handle hooks under the fixing bracket located on the stove front.

For safety and greatest efficiency the stove should only be operated with the door and griddle fully closed.

### Using the Air Control Settings Effectively

Correct use of the primary air control will require some experience of using the stove, as exact performance will depend on the flue draft available and the type (and seasoning if wood) of the fuel available.

When first using the stove it is advisable to keep track of the settings used for different levels of room temperature and stove output, and start lower and work upwards to higher outputs as you gain experience with how the stove performs.

For long or overnight burns the air control will need to be fully or almost fully shut down.

Experimentation will reveal whether fully shut down results in the stove dying away and going out, particularly with more dense woods and coal.

Most applications do not require large amounts of combustion air, especially if adequate draft is available. For this reason it is not advisable to use the very high air settings until you have first established that these will not cause over-firing of the stove. If any part of the stove glows during use, this is over-firing and may cause permanent damage to parts of the stove and increase the risk of chimney fire.

### Recommended Fuels

The stove is a multifuel product and, as such, may be operated on most types of solid fuel and wood.

**NOTE:** Refer to the assembly section to configure the stove differently for burning wood or coal.

#### Solid Fuels

The following are recommended for use with this stove:

House coal (trebles, doubles and other small sizes are not recommended)

Anthracite (Large Stove Nuts)

Phurnacite

Homefire and Homefire Ovals

Sunbrite

Ancit

Taybrite

Petcokes and derivatives of petcoke are not recommended for this stove as excessive temperatures can occur and may result in damage to the stove.

#### Wood

Well seasoned hardwoods are recommended for this stove and will give the best output and cleanliness in use. As a rough guide, hardwoods should be split and stacked and allowed to air dry under cover for 8-18 months depending on the split size.

Incorrectly seasoned, green wood or wet timber will not burn effectively as large amounts of heat are required

to drive out the moisture from the wood before it can burn. This lowers the temperature of the stove and flue, reduces output and can cause a substantial increase in deposits of creosote in the stove and flue. With experience, correctly seasoned wood can be identified by the weight and appearance of the logs. Well seasoned wood loses approximately a third of its weight when seasoned and contraction cracks are usually visible on the cut ends.

Examples of the best UK hardwoods for wood burning are: Oak, Beech, Chestnut, Ash, Hawthorn. Other hardwoods are also suitable. Softwoods may be burned but will burn away quickly and provide a lower heat output. The high resin content of softwoods will lead to increased creosote production and deposits in the stove and flue components.

### Lighting the Stove for the First Time

#### Conditioning Your Stove

Cast iron is a superior material for stove construction, but can be broken by a sharp blow or by the severe thermal shock caused by rapid and extreme temperature change.

The cast iron plates expand and contract with changes in temperature. When using the stove for the first time it is important to minimise the thermal stress by allowing the plates to adjust gradually during three or four initial break-in fires by following steps 1-3 below (for wood) or over page (for coal or solid fuel).

#### How to build and sustain a wood fire

The damper must be open when starting a fire or refueling. Fit the wood burning grate inserts if burning only wood.

1. Open the damper and fully open the primary air control.
2. Place several sheets of crumpled newspaper in the stove. Place eight or ten finge sized sticks on to the paper, then lay two or three larger sticks of split dry wood of approximately 25-51 mm (1-2") in diameter. (Fig. 19)

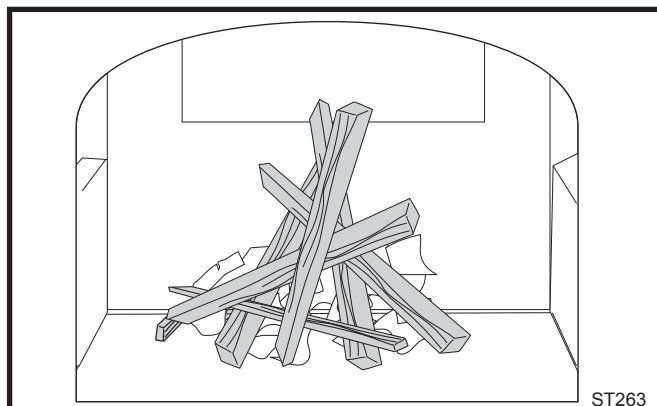


Fig. 19 Start the fire with newspaper and dry kindling.

**DO NOT USE CHEMICALS OR FLUIDS TO START OR REVIVE THE FIRE.**

**NEVER USE PETROL, LIGHTER FLUID, PARAFFIN, KEROSENE OR ANY**

**FLAMMABLE LIQUID ON OR NEAR THIS STOVE UNDER ANY CIRCUMSTANCES.**

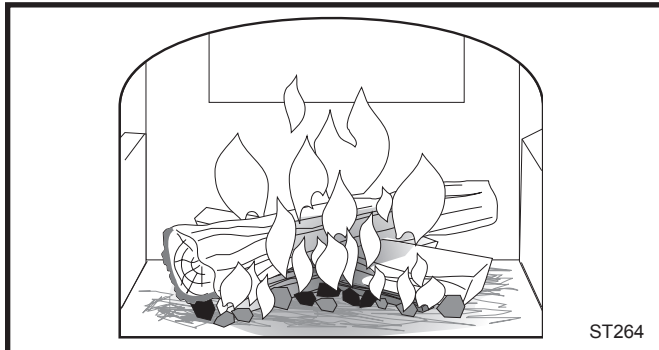
3. Light the newspaper and close the door. Gradually build up the fire by adding a few 76 mm (3") splits. If this is one of the first few "break-in" fires allow the fire to burn brightly, then let it die out.

During the break-in fires do not allow the stove temperature to exceed 260° C (500° F) as measured on the optional stove top thermometer. Adjust the air control to regulate the fire accordingly. During the first few fires it is normal to experience some odour as the various materials used in the stove cure under heat.

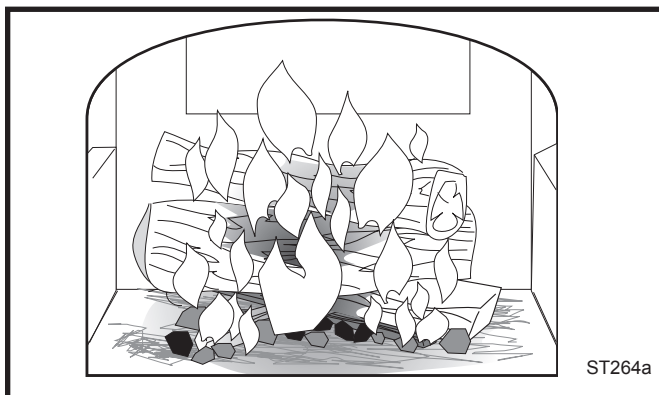
4. After the stove has been broken-in, using steps 1-3, build the fire gradually. Add larger wood with a diameter of 76-102 mm (3"-4"). (Fig. 20)

Continue adding split logs of this size to the briskly burning fire until there is a glowing ember bed of at least 76 mm deep. A good ember bed is necessary to sustain the fire after the damper is closed.

5. Close the damper when the fire is fully established. (Fig. 21) Adjust the primary air control to the desired output.



**Fig. 20** Add larger pieces of wood as the fire begins to burn well.



**Fig. 21** Add full size logs when the ember bed is 3" (75mm) deep.

### Refuel While the Embers are Still Hot

Refuel the stove whilst it is still hot and there are plenty of glowing embers to rekindle the fire. Include some smaller pieces of wood in the new load to help the stove rebuild to operating temperature quickly. Wear appropriate heat resistant gloves and:

1. Open the primary air control lever.
2. Open the damper.
3. Check the ash level in the pan and empty if necessary.
4. Use the slicer / poker to freshen the charcoal bed (do not use the shaker grate when burning wood as this will cause the embers to fall away into the ash pan).
5. Add fuel.
6. Close the damper and rest the primary air control as soon as the fire is re-established.

With a thick ember bed and well seasoned wood this may be carried out immediately after re-fuelling.

### How to Build and Sustain a Coal or Solid Fuel Fire

1. The damper must be open when starting a fire or refuelling.
2. Place several sheets of crumpled newspaper in the stove. Place eight or ten finger sized sticks on to the paper, then lay two or three larger sticks of split dry wood of approximately 25-51 mm (1-2") in diameter. (Fig. 19)

**DO NOT USE CHEMICALS OR FLUIDS TO START OR REVIVE THE FIRE. NEVER USE PETROL, LIGHTER FLUID, PARAFFIN, KEROSENE OR ANY FLAMMABLE LIQUID ON OR NEAR THIS STOVE UNDER ANY CIRCUMSTANCES.**

3. Light the newspaper and close the door. Gradually build up the fire by adding a few pieces of coal or solid fuel. If this is one of the first few "break-in" fires allow the fire to burn brightly, then let it die out.

During the break-in fires do not allow the stove temperature to exceed 260° C (500° F) as measured on the optional stove top thermometer. Adjust the air control to regulate the fire accordingly. During the first few fires it is normal to experience some odour as the various materials used in the stove cure under heat.

4. After breaking in the stove, the fire may be built up to normal operating temperature. Follow Steps 1-3, then continue adding more coal or solid fuel gradually, building up the depth of the fuel until the fire is fully established. Do not allow the depth of the coal bed to exceed the top bar of the front grate as this will allow coals to touch the glass doors. With use it will become apparent how much fuel is required to give a satisfactory burn. An insufficient depth of fuel

can fail to retain sufficient heat to enable the coal to combust correctly (particularly with harder grades of solid fuel) and can result in the fire going out during longer low output burns (e.g. overnight).

5. When the fire is fully established close the damper and set the primary air control lever to provide the desired output.

### Refuel While the Coals are Still Hot

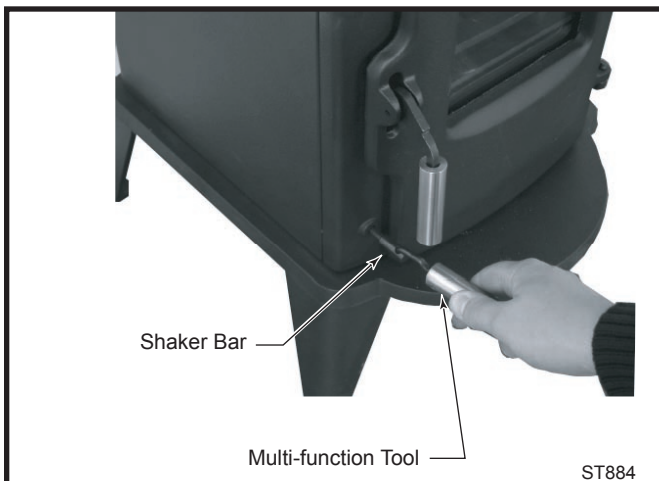
Refuel the stove whilst it is still hot and there are plenty of glowing ashes to rekindle the fire.

Wear appropriate heat resistant protective gloves and:

1. Open the primary air control lever.
2. Open the damper.
3. Check the ash level in the pan and empty if necessary.
4. Use the shaker grate to riddle the coal bed, causing the ash to fall through into the ash pan. (Fig. 22)
5. Add fuel, taking care not to allow fuel to overflow the front grate bars.
6. Close the damper and rest the primary air control as soon as the fire is fully reestablished.

### Operating the Shaker Grate

1. The shaker grate is operated by use of the multi-function tool.
2. Locate the hook on the multi-function tool through the hole in the shaker bar. (Fig. 22)
3. Move the shaker bar in a front to back motion to shake free any ash deposited on the grate bars.



**Fig. 22** Attach the multi-function tool to the shaker bar. Move the shaker bar forwards and backwards.

### Ash Disposal

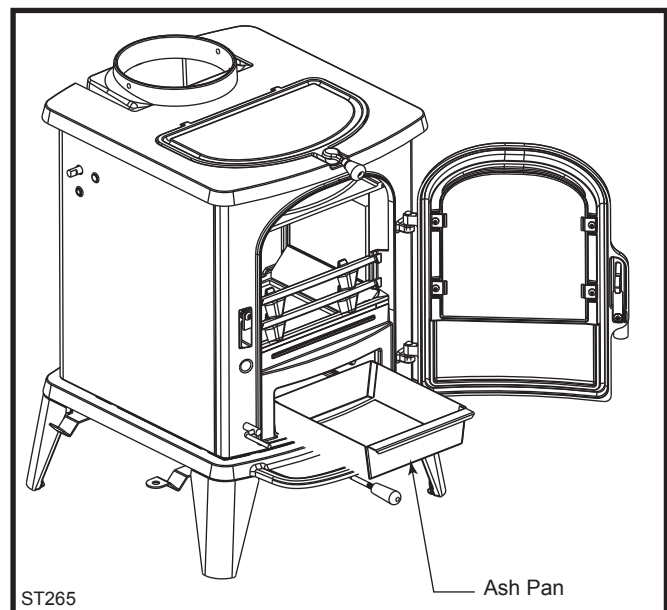
Remove ash before it reaches the top of the ash pan. Check the level at least once a day, and before each refuelling. If the ash level is close to the top of the pan, empty the ash pan as described below: Failure to do this will result in premature failure of the shaker bars due to excessive temperatures caused by ash build up.

**CAUTION:** Wear suitable heat resistant protective gloves.

1. Open the damper.
2. Fully open the front doors.
3. Using the slicer, pull the ash pan fully out of the stove, the slicer locates under the lip in the front of the ash pan. This provides a secure location and allows the slicer to act as a handle for the ash pan. (Fig. 23)
4. Remove the ash pan and dispose of the ashes safely
5. Replace the ash pan in the stove.

Ash should be stored outside in a metal container with a tight fitting lid, away from any combustible material until fully cool. **It is essential to ensure that any ash is fully cooled before final disposal.**

Pure wood ash can be composted and used as a garden fertiliser. Coal and solid fuel ash, or mixed ash should be disposed of with domestic refuse.



**Fig. 23** Primary air outlet - keep clear of ash and charcoal accumulation.



## Draft Management

A stove is part of a system, which includes the chimney, the operator, the fuel, and the home. The other parts of the system will affect how well the stove works. When there is a good match between all the parts, the system works well.

Wood stove operation depends on natural (unforced) draft. Natural draft occurs when the smoke is hotter (and therefore lighter) than the outdoor air at the top of the chimney. The bigger the temperature difference, the stronger the draft. As the smoke rises from the chimney it provides suction or 'draw' that pulls air into the stove for combustion. A slow, lazy fire with the stove's air inlet fully open indicates a weak draft. A brisk fire, supported only by air entering the stove through the normal inlet, indicates a good draft. The stove's air inlet is passive; it regulates how much air can enter the stove, but it doesn't move air into it.

Depending on the features of your installation - steel or masonry chimney, inside or outside the house, matched to the stove's outlet or oversized - your system may warm up quickly, or it may take a while to warm up and operate well. With an 'airtight' stove, one which restricts the amount of air getting into the firebox, the chimney must keep the smoke warm all the way to the outdoors. Some chimneys do this better than others. Here's a list of features and their effects.

### Masonry Chimney

Masonry is a traditional material for chimneys, but it can perform poorly when it serves an 'airtight' stove. Masonry is a very effective 'heat sink' - it absorbs a lot of heat. It can cool the smoke enough to diminish draft. The bigger the chimney, the longer it takes to warm up. It's often very difficult to warm up an outdoor masonry chimney, especially an oversized one, and keep it warm enough to maintain an adequate draft.

### Steel Chimney

Most factory-made steel chimneys have a layer of insulation around the inner flue. This insulation keeps the smoke warm. The insulation is less dense than masonry, so the inner steel liner warms up more quickly than a masonry chimney. Steel doesn't have the good looks of masonry, but it performs much better.

### Indoor/Outdoor location

Because the chimney must keep the smoke warm, it's best to locate it inside the house. This uses the house as insulation for the flue and allows a little heat release into the home. An indoor chimney won't lose its heat to the outdoors, so it takes less heat from the stove to get it warm and keep it warm.

### Flue sizing

The inside size of a chimney for an 'airtight' stove should match the size of the stove's flue outlet. When a chimney

serves an airtight stove, more is not better; in fact, it can be a disadvantage. Hot gases cool off through expansion; if we vent a stove with a 152 mm (6") flue collar [181 sq cm (28 square inch) area] into a 254 x 254 mm (10 x 10") flue, the gases expand to over three times their original size. This cools the gases, which weakens draft strength. If an oversized flue is also outside the house, the heat it absorbs gets transferred to the outdoor air and the flue usually stays cool.

It's common for a masonry flue, especially one built for a fireplace, to be oversized for an airtight stove. It can take quite a while to warm up such a flue, and the results can be disappointing. The best solution to an oversized flue is an insulated steel chimney liner, the same diameter as the stove or insert's flue outlet; the liner keeps the smoke at its original volume, and the result is a stronger draft. An uninsulated liner is a second choice - the liner keeps the smoke restricted to its original size, but the smoke still must warm up the air around the liner. This makes the warm-up process take longer.

### Pipe & Chimney Layout

Every turn the smoke must take in its travel from the stove to the chimney top will slow it down. The ideal pipe and chimney layout is straight up from the stove, to a completely straight chimney. If you're starting from scratch, use this layout if possible. If the stovepipe must elbow to enter a chimney, locate the thimble about midway between the stove top and the ceiling. This achieves several goals: it lets the smoke speed up before it must turn, it leaves some pipe in the room for heat transfer, and it gives you long-term flexibility for installing a taller stove without relocating the thimble.

There should be no more than eight feet of single-wall stove pipe between the stove and a chimney; longer runs can cool the smoke enough to cause draft and creosote problems. Use double-wall stove pipe for long runs.

### Single Venting

Each 'airtight' stove requires its own flue. If an airtight stove is vented to a flue that also serves an open fireplace, or a leakier stove, it's easier for the chimney draft to pull air in through those channels than it is to pull air through the airtight, and performance suffers. Imagine a vacuum cleaner with a hole in the hose to see the effect here. In some cases the other appliance can even cause a negative draft through the airtight, and result in a dangerous draft reversal.

### Creosote

Creosote is a by-product of slow woodburning. It's an organic tar that can condense in the flue if it's dense in the smoke, and slow-moving, and cools off to less than 143° C (290° F). Condensed creosote is volatile, and can generate chimney fires if it gets hot enough. All the features that

affect chimney draft also affect creosote condensation - so use whatever combination of installation features and operational steps will encourage good draft and minimize creosote production.

Because letting the smoke cool off and slow down is one of the keys to creosote production, it makes sense to line a chimney to match the stove's outlet size, for safety reasons as well as performance. Canadian law requires a matching liner to serve any stove or insert vented through a fireplace chimney; in the US, the National Fire Protection Association recommends one if the flue is more than three times bigger (in square area) than the outlet on the stove or insert. Some localities enforce the NFPA guidelines as part of their building codes.

## Fuel

Even the best stove installation will not perform well with poor fuel. The best wood fuel is hardwood that has air-dried 12-18 months. Softwood burns, but not as long as hardwood. Fairly 'green' wood has a good amount of moisture in it; it will burn, but some of the heat potential is used to drive the remaining moisture off the wood. This reduces the amount that reaches your home and can contribute to a creosote problem. There are moisture meters available for firewood; you can also judge your wood by its appearance and weight. If you get it green, lift a piece and get a sense of its weight; it can lose a third or more of its weight as it dries. Also look at the ends of a log; as it dries it shrinks and often cracks. The more weathered and cracked a piece is, the drier it is.

Dry wood burns readily with a good chimney draft. But with modern stoves, the wood can be too dry. While extra-dry wood has little creosote in it, the remainder can 'gas out' from the wood quickly and densely enough to overload the combustion system. If you hear a rumbling or roaring noise, like a propane torch, from the stove, that is a sign that the stove is overfiring. Dry wood can also burn out faster than may be desirable. If dry wood burns out too quickly you can mix in greener wood to slow the fire down.

## Backpuffing

Back-puffing results when the fire produces volatile gases faster than the chimney draft pulls them out of the firebox. The gases back up in the firebox till they're dense enough and hot enough to ignite. If your stove back-puffs, you should open up the damper to let the smoke rise to the flue more quickly, let more air into the firebox, and avoid big loads of firewood. Run your stove with enough primary air so that you always see lively, dancing flames in the firebox; a lazy, smoky fire is inefficient and can contribute to creosote buildup in the chimney.

## Draft Testing

An easy way to test your chimney draft is to close the stove's damper, wait a few minutes to let the airflow stabilize, then see whether you can vary the strength of the fire by swinging the air control open and closed. Results are not always instant; you may need to wait a few minutes for a change in the air control setting to have an effect on the fire. If there's no change, then the draft isn't strong enough yet to let you close the damper, and you'll need to open it for a while longer and manage the fire with the air inlet until the draft strengthens. If you keep track of your burning habits and relate them to their effects on the stove's operation, you'll be rewarded with good performance and a safe system.

## Negative Pressure

Good draft also depends on a supply of air to the stove; a chimney can't pull in more air than is available to it. Sluggish draft results when a house is tight enough to prevent the ready flow of air to the stove, or by competition between the stove and other equipment that sends indoor air outside - especially power-driven equipment like range hoods, clothes dryers, etc. If the chimney draws well with all other equipment turned off (or sealed, in the case of fireplaces and/or other stoves), then you simply need to be careful with timing the use of the other equipment. If you need to crack a nearby window or door to enable the chimney to draw well, that's a sign that you should install an outside-air intake to bring combustion air directly to the stove. Vermont Castings dealers carry adapters to attach to the stove to connect an air duct for outdoor combustion air.

In many cases, local or national codes require the installation of permanently open air vents, particularly with larger appliances (i.e. above 5 kW). Refer to these codes to determine specific requirements for your installation.

## Conclusion

Woodburning is an art rather than a science. Once the stove and chimney system are in place, the stove user can only vary technique, mostly your timing, to achieve good results. If you keep track of your burning habits and relate them to their effects on the stove's operation, you'll be rewarded with good performance and a safe system.

## Maintenance

Let the fire in the stove go out and allow the stove to cool completely before beginning any maintenance procedure.

### Care of the Cast Iron Surface

An occasional dusting with a dry rag will keep the painted cast iron of your Aspen II looking new. The stove's paint can be touched up as needed. First, clean the areas to be painted with a wire brush. Remove the griddle and set it aside. Then, touch up the stove with Vermont Castings high temperature stove paint. Apply the paint sparingly, and keep in mind that two light coats of paint are better than a single heavy one.

### Cleaning the Glass

Most of the carbon deposits on the glass will burn off during hot fires. However, the ash residue that accumulates on the glass surface should be removed regularly to prevent etching. Follow this procedure to clean the glass:

- Be sure the glass is completely cool.
- Clean the glass with water or a cleaner made especially for this purpose. Do not use abrasive cleaners.
- Rinse the glass thoroughly.
- Dry the glass completely.

### Glass Replacement

Replace glass only with MHSC part no. 30000362. The glass panel rests on a cushion provided by three flat gaskets, and is held in place by two clips. (Fig. 24) The glass is coated on one side which is slightly colored. Remove the door from the stove and place it on a sturdy, level work surface. Use a towel to protect the porcelain enamel finish.

1. Remove the Door Manifold. (Two phillips head screws).
2. Remove the Retainer Clips. (Two phillips head screws on each clip).
3. Inspect the Gasket. If the window gasket is in good condition, you can leave it in place. If you replace it, use only MHSC gaskets (two vertical- PN 30000383; one horizontal- PN 30000384). Be sure the channel around the window opening is clean, and free of dust.

Place the three flat gaskets (two vertical, one horizontal) into the panel inset as shown in Figure 30.

4. Install the Glass. Lay the glass on the inner gasket with the coated side down (toward the outside of the door). Tighten the screws snugly, but loose enough to allow for a little movement of the glass when the stove is in operation. Overtightening can crack the glass immediately or cause it to crack if it is unable to expand when hot.

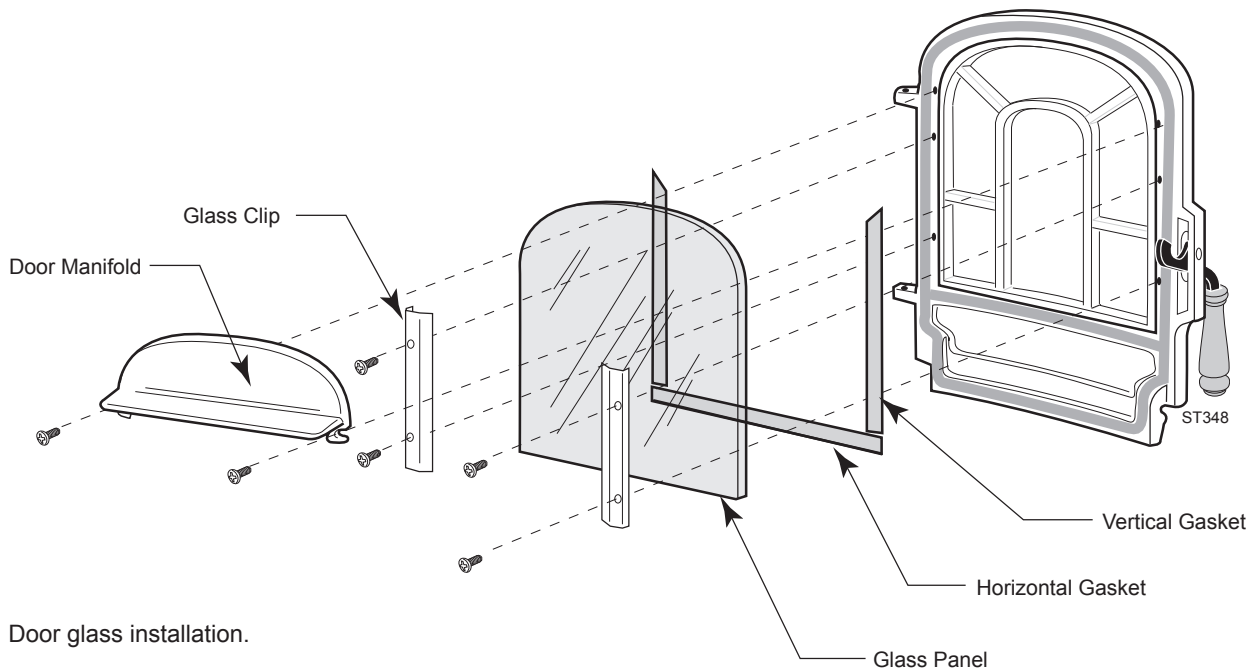


Fig. 24 Door glass installation.

## Gasket Replacement

Your Aspen uses rope-type fiberglass gaskets to make a tight seal between some parts. With use, particularly on those parts that move, gaskets can become brittle and compressed and can begin to lose their effectiveness. These will need periodic replacement.

The sizes of replaceable gasket are listed below, along with their applications.

| Gasket Diameter... | ...And the Parts it Seals   |
|--------------------|-----------------------------|
| 5/16" Round        | Flue Collar Gasket          |
| 3/8" Round         | Top                         |
| 7/16" Round        | Door Gasket                 |
| 1/2" Flat, two     | Vertical Gasket for glass   |
| 1/2" Flat          | Horizontal Gasket for glass |

Wait until the fire is out and the stove has cooled. Be sure to follow the standard safety procedure for working with dusty materials: Wear safety goggles and a dust mask.

Step 1. Remove the existing gasket by grasping an end and pulling firmly.

Step 2. Use a wire brush or a screwdriver to clean the channel of any remaining cement or bits of gasket. Remove stubborn deposits of cement with a cold chisel if necessary.

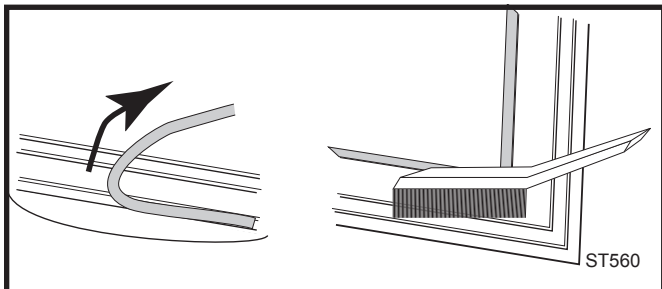


Fig. 25 Remove gasket then clean channel with wire brush.

Step 3. Determine the correct length of the appropriate-sized gasket by laying it out in the channel. Allow an extra 1-2" (25-51 mm), and mark the spot to be cut.

Step 4. Remove the gasket from the channel, place it on a wood cutting surface, and cut it at the marked spot with a utility knife.

Twist the ends slightly to discourage the gasket from unraveling.

Step 5. Lay an unbroken 1/8" (3 mm) bead of gasket cement in the newly-cleaned channel.

Step 6. Starting at one end, press the gasket into the channel.

Ensure a good joint where the gasket meets before trimming any excess. Do not overlap the gasket ends or leave ends with ragged edges.

Step 7. Press the gasketed part firmly against its normal mating surface to seat the gasket evenly in its

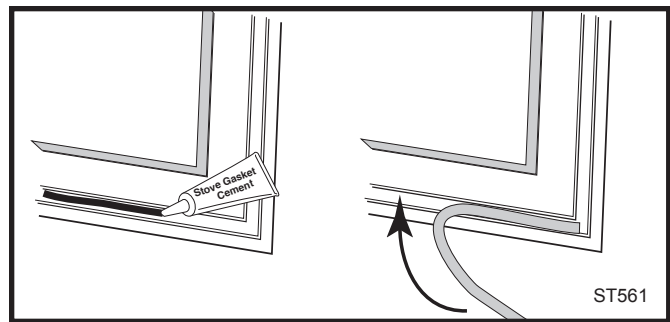


Fig. 26 Lay a bead of gasket cement then press new gasket in place.

channel. Close and latch the door to do this; close the door on a piece of waxed paper to keep the cement from migrating onto the non-gasketed part, or tap other parts

Step 8. Clean excess cement from around the channel. Let the cement that holds the new gasket dry thoroughly.

## Adjust the Door

The door latch may need adjustment as the gasket material compresses over time. The latch engagement may be tightened by removing the shim washers that are under the Latch Plate. (Fig. 33) Remove only one pair at a time. When a tight engagement can no longer be achieved with no shim washers in place, the entire door gasket should be replaced. Use only MHSC part no. 700-0910.

## The Chimney System

### Creosote

Your Aspen is designed to reduce creosote buildup significantly. However, regular chimney inspection and maintenance must still be performed. 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.

**When wood is burned slowly, it produces tar, organic vapors and moisture that combine to form creosote. The creosote vapors condense in the relatively cool chimney flue. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire within the flue system that can damage the chimney and overheat adjacent combustible material.**

**If you do have a chimney fire, promptly:**

- Close the damper and thermostat lever.
- Get everyone out of the house.
- Call the Fire Department.

You should inspect the system every two weeks during the heating season as part of a regular maintenance

schedule. To inspect the chimney, let the stove cool completely. Then, using a mirror and a strong light, sight up through the flue collar into the chimney flue. If it is not possible to inspect the flue system in this fashion, the stove must be disconnected to provide better viewing access.

If a significant layer of creosote has accumulated — 1/8" (3 mm) or more — remove it to reduce the risk of a chimney fire.

Clean the chimney using a 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 sheet metal screws.

If you cannot inspect or clean the chimney yourself, contact your local Vermont Castings' Authorized Dealer or hire a professional chimney sweep.

### Routine Maintenance and Cleaning

Routine maintenance is important to ensure safe and efficient operation of the stove. With experience operating the stove, you will be able to better judge the maintenance periods appropriate to your style of usage. The following is a suggested minimum level of routine maintenance and cleaning:

#### Daily

- Check level of ash in the ash pan at least once every day and empty when full.
- Check primary air shutter and shaker mechanism move freely when operated and that the primary air control flap shuts when the stove is hot and the lever is fully closed.
- Check operation of the damper, it should open and close smoothly and fully.

#### Every Two Weeks

- Clean the glass doors if necessary. Make sure that the glass is fully cool before cleaning.

#### Every Two Months

- Check for deposits of creosote or soot in the fluepipe connector, secondary combustion chamber and interior of the stove. As a general guide, if deposits are 3mm or greater in thickness, they should be cleaned off using a stiff brush.
- Check the closure of the doors. After first allowing the stove to fully cool, this may be carried out with a "paper test". Use a thin strip of newspaper and trap it behind the door seal at various positions around the door, with the door handle in the fully closed

position, the door seal should grip the paper and prevent it from being pulled out from behind the seal. If necessary, adjust the door handle as described in handle adjustment section.

#### Annually

Every spring, at the end of the heating season, perform a thorough cleaning, inspection and repair. The stove and chimney system should be inspected and maintained by a qualified engineer and include the following:

- Thoroughly clean stove interior
- Check all controls operate freely
- Remove all firebricks and thoroughly clean out firebox and secondary combustion chamber (see disassembly instructions)
- Check and replace gaskets and seals as required.
- Check and repaint with stove paint if required
- Inspect, (remove if necessary) and thoroughly clean interior of fluepipe connector using a stiff tight fitting brush. Replace if signs of serious corrosion or deterioration are present.
- Inspect and thoroughly sweep entire flue / chimney. (It is recommended that this work is carried out professionally by a member of the National Association of Chimney Sweeps.
- Check and if necessary, reseal fluepipe connector joints.

### Disassembly of the Stove and Grate Components

#### Disassembly Sequence

1. Carefully lift up and remove the two front grate bars from the retaining channel.



**Fig. 27** The front grates can be removed.

2. Remove the two side firebricks. (Fig. 28)
3. Remove the left hand and right hand horizontal inserts. (Fig. 29)
4. Carefully lift up and simultaneously remove the right hand side of the two bottom grates along with the shaker linkage. These are supported at the right hand side by open retaining slots in the right hand vertical grate insert. (Fig. 30)



Fig. 28 Remove firebrick.



Fig. 29 Remove right and left horizontal inserts.



Fig. 30 Remove right side and bottom grates.

5. Remove the left hand and right hand vertical grate inserts. Note that it may be necessary to gently tap these with a soft faced mallet to break out any residual beads of stove cement left from the original factory stove assembly that may be holding them in place. **NOTE:** They must not be refitted with stove cement, they are designed to be dry fitted and would prove extremely difficult to remove again if cemented in place.

### Removal of the Secondary Combustion Chamber Firebricks and Damper Assembly

1. The damper assembly is retained by two tab bolts. These must first be loosened from both sides of the upper rear face of the stove.
2. When loosened, rotate the two tab bolts from inside the stove to release the damper assembly. Carefully remove the damper retaining plate. Carefully remove the damper plate.
3. Remove the outer firebrick followed by the inner firebrick.
4. With both vertical fire bricks removed the secondary combustion chamber can be thoroughly cleaned out, then if required the base firebrick can be removed.
5. Reassemble in the reverse sequence, taking care to ensure that the front and rear vertical firebricks are correctly positioned to allow the flue gases to pass between.

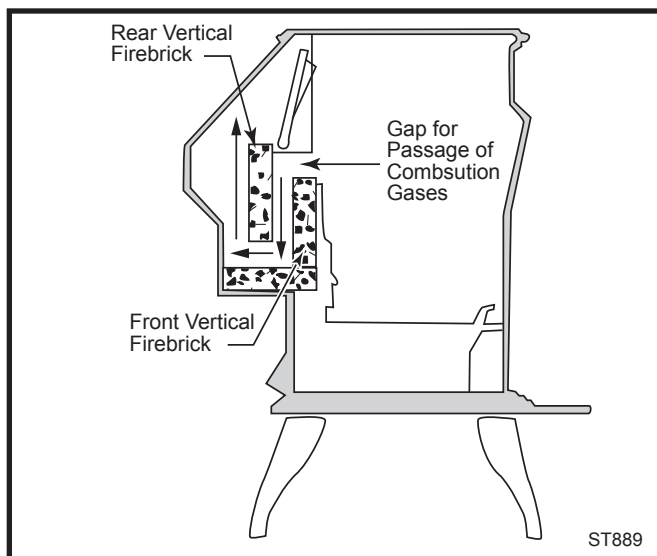
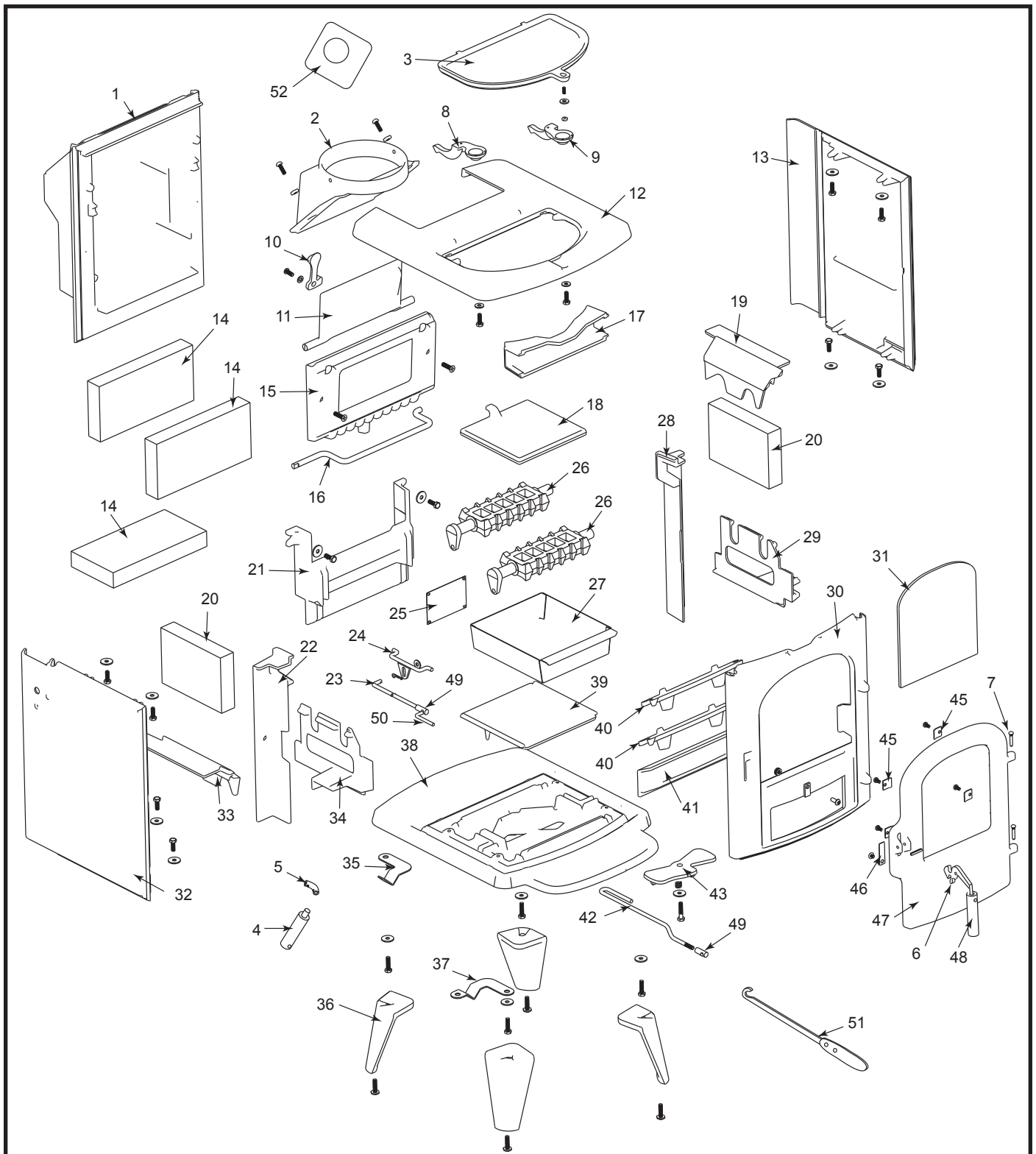


Fig. 31 Remove vertical firebrick.



MHSC reserves the right to make changes in design, materials, specifications, prices and discontinue colors and products at any time, without notice.

# Aspen II Multi-Fuel Heater

## Model 1405CE

## Aspen II Multi-Fuel Heater

### Model 1405CE (continued)

| Item Description            | Part Number |
|-----------------------------|-------------|
| 1. Back                     | 30002105    |
| 2. Flue Collar              | 30002126    |
| 3. Griddle                  | 30002109    |
| 4. Handle                   | 30002041    |
| 5. Fallaway Stub            | 30002040    |
| 6. Door Latch               | 30002151    |
| 7. Door Pin                 | 1201836     |
| 8. Quad, Right              | 30002194    |
| 9. Quad, Left               | 30002193    |
| 10. Damper Clip             | 1306725     |
| 11. Damper                  | 30002121    |
| 12. Top                     | 30002108    |
| 13. Side, Right             | 30002111    |
| 14. Fireback, Split         | 1601103     |
| 15. Upper Fireback          | 30002106    |
| 16. Rod                     | 30002129    |
| 17. Manifold                | 30002187    |
| 18. Grate                   | 30004205    |
| 19. Brick Support, Right    | 30002120    |
| 20. Firebrick, Side         | 30002200    |
| 21. Lower Fireback          | 30002107    |
| 22. Left Vertical Manifold  | 30002186    |
| 23. Front Linkage           | 30002150    |
| 24. Linkage                 | 30002147    |
| 25. Label                   | 1601223     |
| 26. Grate                   | 30002116    |
| 27. Ashpan                  | 30002130    |
| 28. Right Vertical Manifold | 30002185    |
| 29. Grate Support           | 30002117    |
| 30. Front                   | 30002110    |
| 31. Glass                   | 30002128    |
| 32. Side, Left              | 30002112    |

| Item Description        | Part Number |
|-------------------------|-------------|
| 33. Brick Support, Left | 30002119    |
| 34. Grate Support       | 30002118    |
| 35. Bracket             | 30002227    |
| 36. Leg                 | 30002123    |
| 37. Bracket             | 1600600     |
| 38. Bottom              | 30002104    |
| 39. Air Plate           | 30002133    |
| 40. Fettle              | 30002152    |
| 41. Fettle              | 30002122    |
| 42. Actuator            | 30002131    |
| 43. Air Valve           | 1301814     |
| 45. Glass Clip          | 30002146    |
| 46. Latch               | 1201843     |
| 47. Door                | 30002113    |
| 48. Handle Fallaway     | 30002297    |
| 49. End Cap, Linkage    | 30002153    |
| 50. Rod, Fallaway       | 30002154    |
| 51. Slicer Poker        | 5005708     |
| 52. Beauty Ring         | 30002428    |



1. In the diagrams and throughout this manual, 'left' and 'right' mean as you face the stove.
2. The glass panels have a heat-reflective coating on the outside and are not interchangeable.
3. Hardware in this stove is in standard U.S. (inch) sizes. Most hardware items are available at local hardware stores.

**Please record the following information  
for future reference.**

Stove Serial No. \_\_\_\_\_

Dealer \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_

Date Purchased \_\_\_\_\_

Installer \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_

Date Installed \_\_\_\_\_



# Warranty

## Limited 3 Year Warranty

MHSC warrants that this woodburning stove 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.

MHSC will repair or replace, at its option, any part found to be defective upon inspection by a Vermont Castings Authorized Dealer. The customer must return the defective part or the stove, with shipping prepaid, to the Authorized Dealer or pay for any Authorized Dealer in-home travel fees or service charges for in-home repair work. It is the dealer's option whether the repair work will be done in the customer's home or in the dealer's shop. 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 woodburning stove 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 woodburning stove are warranted to be free of defects in material and workmanship for a period of one year from the date you receive it: 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 the part with postage prepaid to a Vermont Castings Authorized Dealer.

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 Aspen II Multi-Fuel 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 its installation at the time of replacement.

For stove purchases made after June 30, 1990, a third year (25 - 36 months) of no charge replacement will be made when combustor failure is due to thermal degradation of the substrate (crumbling of ceramic material). The customer must pay for any in-home travel fees, service charges, or transportation costs for returning the Aspen II Multi-Fuel to the Authorized Dealer.

| Amount of Time Since Purchase | Credit Towards 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 product must be installed or serviced by a qualified installer, preferably NFI or WETT (Canada) certified, as prescribed by the local jurisdiction. It must be installed and operated at all times in accordance with the Installation and Operating instructions furnished with the product. Any alteration, willful abuse, accident, or misuse of the product shall nullify this warranty.
2. This warranty is transferable; however, proof of original retail purchase is required.
3. This warranty does not cover misuse of the Aspen II. Misuse includes overfiring which will result if the Aspen II is used in such a manner as to cause one or more of the plates to glow red. Overfiring can be identified later by warped plates and areas where the paint pigment has burned off. Overfiring in enamel fireplaces is identified by bubbling, cracking, chipping and discoloration of the porcelain enamel finish. MHSC offers no warranty on chipping of enamel surfaces. Inspect your woodburning stove prior to accepting it for any damage to the enamel.
4. This warranty does not cover misuse of the stove as described in the Owner's Guide, nor does it cover any stove which has been modified unless authorized by a MHSC representative in writing. This warranty does not cover damage to the Aspen II Multi-Fuel caused by burning salt saturated wood, chemically treated wood, or any fuel not recommended in the Owner's Guide.
5. This warranty does not cover a stove repaired by someone other than a MHSC Authorized Dealer.
6. Damage to the unit while in transit is not covered by this warranty but is subject to a claim against the common carrier. Contact Vermont Castings Authorized Dealer from whom you purchased your stove or MHSC if the purchase was direct. (Do not operate the stove as this may negate the ability to process the claim with the carrier.)
7. Claims are not valid where the installation does not conform to local building and fire codes or, in their absence, to the recommendations in the Owner's Guide.
8. The salt air environment of coastal areas, or a high-humidity environment, can be corrosive to the porcelain enamel finish. These conditions can cause rusting of the cast iron beneath the porcelain enamel finish, which will cause the porcelain enamel finish to flake off. This warranty does not cover damage caused by a salt air or high-humidity environment.
9. MHSC shall have no obligation to enhance or update any unit once manufactured.

IN NO EVENT SHALL MHSC BE LIABLE FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES. ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, ARE LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. THIS WARRANTY SUPERCEDES ALL OTHER ORAL OR WRITTEN WARRANTIES.

Some states do not allow the exclusion or limitations of incidental and consequential damages or limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific rights and you may have other rights which vary from state to state.

## How to Obtain Service

If a defect is noted within the warranty period, the customer should contact a Vermont Castings Authorized Dealer or MHSC 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.
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. MHSC reserves the right to withhold final approval of a warranty claim pending a visual inspection of the defect by authorized representatives.

**MHSC**

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149 Cleveland Drive • Paris, Kentucky 40361  
[www.mhsc.com](http://www.mhsc.com)