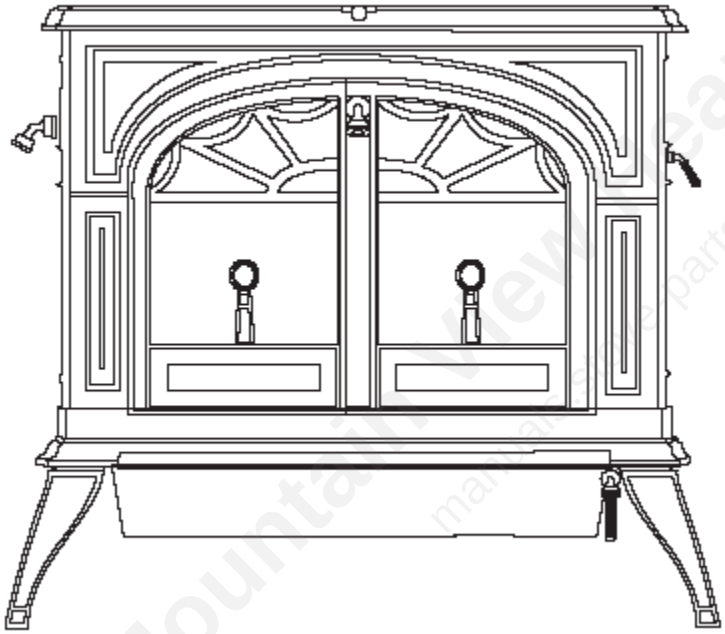
Tear Down/Rebuild



For the

VERMONT CASTINGS

Defiant
Model 1945

TABLE OF CONTENTS

HISTORY OF CHANGES

DEFIANT

Model 1945

This section covers the Defiant Model 1945, built beginning in 2002.

In 2002, ***Vermont Castings*** changed the Defiant stove to remove the attached legs and provide a reversible flue collar. The model designate changed from 1910 to 1945.

- Switched to thicker gasket on the air plates to prevent thermostat pinching 3/12/2002
- Changed door glass gasket from Fibrefax one piece gasket to rope style 9/26/2002
- Modified doors for better fit and sealing 11/11/2002
- Changed to larger diameter gasket around flue collar 5/6/2003
- Replace Nickel handles with Brushed Nickel and Black fallaway handle 5/12/2006
- Replace Black Ceramic handle with wooden handle 08/06/2007
- Start shipping Defiants with legs attached 7/10/2008

DISASSEMBLY and ASSEMBLY

DEFIANT Model 1945

GENERAL INFORMATION

The cast-iron construction of the Defiant stove uses tongue-and-groove seams to join and seal panels to one another. The stove's top and bottom panels trap the sides, front, and back panels. You will work from the inside first, to remove parts from the firebox, then from the top down on the main stove panels.

Required tools are listed in the next paragraph. Work carefully, since cast iron parts are heavy, and the enamel finish is fragile. Work in a well-lighted space such as a workshop or garage. If possible, place the stove on an elevated surface. Stove work is messy; wear a dust mask, goggles, and gloves, and use a drop cloth to contain the mess.

Tools Required

Rubber malletAllen wrench
Phillips screwdriverHammer and wooden block
Slotted screwdriver
Cold chisel or old screwdriver
Putty knife and tube of stove cement, or caulking gun with
Tube of cement
Wire brush (power driven or hand-held)
7/16" box wrench
Ratchet wrench with 7/16" socket

Begin by looking at the exploded view parts diagram on page 2 after the history. Note that in these directions 'left and 'right' mean as you face the stove.

Remove the stove pipe and any accessories attached to the stove: warming shelves, bottom or back heat shields, or outside air adapter. Support the stove so that its cast-iron bottom panel is up on solid, secure wooden blocks or solid raised surface. There are four brackets on the stove bottom; these locate the stove on its shipping pallet. Be sure your wooden supports are not directly under these brackets, to ensure stability.

If the stove is a 'Classic' (plain black) unit, and the replacement side is not painted when you receive it, paint it before you start dismantling the stove, so the paint can dry completely while you work. Two thin coats of paint are better than a single heavy coat; let the first coat dry completely before you apply the second coat.

To make it easier to raise or move the stove, perform disassembly steps 1 through 9 before you move the stove or raise it on blocks or an elevated work surface.

DISASSEMBLY

Ensure the stove is cool. Remove any ashes and dispose of them properly. Remember that the ashes and embers can stay hot long after the fire has gone out.

1. Lift off the griddle. Open the ashpan door and remove the ashpan. It will be a handy place to store small parts.

2. Remove the front doors. Unlatch the right door, swing it open, then lift it till its bottom hinge pin clears its hole in the lower part of the stove front. Swing the bottom edge of the door away from the stove, and lower the door till its upper hinge pin clears its hole; then pull the door away, Set it down carefully on a padded surface out of the way. Repeat the removal procedure for the left door.

3. Lift out the grate and use a wrench to remove the hex-head bolts and washers holding the two andirons in place. Lift out the andirons and the andiron shelf.

4. Loosen the Allen bolts holding the thermostat and damper handles in place, and remove the handles **(Fig. 1)**.

Fig.1 *Remove Primary Air Handle*

Fig. 2 *Remove Baffle*

5. Remove the throat Baffle **(Fig. 2)** by pulling its bottom edge forward till it clears the ribs on the lower fireback; then slide it to either side. It will the fall into the firebox. Tap out the wedges holding the lower fireback and bricks in place. Remove the firebrick retainer and remove the bricks. Let the fireback, fall forward and lift it out. You may need to lift it slightly to remove it.

6. Remove the left and right air plates. Each has a hex bolt at top and bottom holding it in place. With the bolts removed, gently pry the plates out of place. Pry the forward edge first, being careful to avoid any pressure on nearby outer shell parts, especially if they are enameled. There is fiberglass rope gasket on the outer sides of these panels; leave it in place.

7. Remove the upper fireback assembly. It is held in place with four bolts going inward from the upper corners of the outer stove back. Remove the upper fireback assembly by swinging its right end forward. Watch the left end to be sure the damper rod clears its hole in the left side of the stove. Capture the spacer from between the left side of the upper fireback, and the left side of the stove and keep the washer on the rod.

8. Remove the Flue Collar. The Flue Collar is held in place by two Phillips head screws and two square nuts. Hold the nuts from falling inside the rear of the stove.

9. Remove the left and right stainless steel heat deflectors from the back of the stove. **Gently** slide the refractory insulating chamber forward, and remove it. Leave the catalyst access panel and the catalytic element in place in the chamber. Do not lift the chamber till it has cleared the secondary probe thermometer which enters its rear face (or remove the probe from the back). The chamber can take very high temperatures but it is physically fragile; handle it carefully.

10. Disconnect the thermostat cable from the thermostat rod, and remove the thermostat assembly by pulling it into the firebox. Be sure to keep the small coil friction spring that is on the main stem.

11. Use a Phillips screwdriver to remove the countersunk bolt going through the top at the front under the griddle.

12. Use the 7/16" box wrench, and then the ratchet with the 7/16" socket, to remove a hex nut and washer from the two threaded studs passing through clevises in the upper sides holding the top in place.

13. Use the rubber mallet, or a hammer with a block of wood to cushion the impact, to gently tap against the underside of the stove top, all around the perimeter, inside the firebox, to break the cement seal between the stove top and the rest of the stove body. When the top moves independently of the stove body, carefully lift it off and set it aside. Be especially careful if the panel is enameled. It is heavy; it may take two people to lift off the top. **Since the top traps the stove back in place, either have a helper hold the stove back up while you remove the top or put a strap around the stove body before you remove the top.** Then remove the back.

14. Remove one side, then the other. Remove the hex bolts joining the stove sides to the bottom assembly. Use a rubber mallet or a hammer and a wooden block to tap outward, from the inside, along the joints between the stove side and the bottom and back panels. Have your helper steady the stove body while you gently rock the stove side. When the side moves independently of the rest of the stove, pull it away from the stove body and set it aside.

15. Swing open the ashdoor and use a Phillips screwdriver to remove the two counter-sunk bolts holding the Ashlip in place. Slide the ashlip forward and set it aside. Remove the bolts joining the ends to the front panel. Remove the bolts joining the front panel to the bottom assembly. Use a rubber mallet or a hammer and a wooden block to tap outward, from the inside, along the joint between the stove sides and the front panel, and between the front panel and the bottom assembly. When the front panel moves independent of the rest of the stove, have a helper steady the stove body while you pull the front panel (with the air manifold still attached) away from the rest of the stove. Set it down carefully on a soft, padded surface.

16. Remove the air tube cover. It has one bolt at each side going downward into the stove bottom and one at the back.

17. Flip the bottom assembly over and remove the legs. Remove the bolts in the ashdoor hinge supports and remove the ash door.

18. Remove the air manifold from the front. It has three hex head bolts.

19. Examine all castings for cracks, chips or distortions. Repair of replace as needed.

ASSEMBLY

HARDWARE

In most locations, standard hardware is adequate. However, we use either stainless steel or 'Grade 5' hardware to join major body panels in original manufacture. If you lose any of this hardware, be sure to use stainless or Grade 5 hardware as replacements, to ensure good performance from the stove. Stainless steel internal hardware will be move user friendly in the future.

Hardware should be snug but not tight. The hardware aligns parts and draws them together, but it is the cement that provides the seal between parts. The cast iron will expand under heat more than the hardware (since the iron is less dense) and if the hardware is too tight it can cause extra stress on the iron parts.

GASKETING

If you are replacing gaskets as part of standard maintenance, refer to the Maintenance Section of the **Owner's Guide**.

If you are replacing all gaskets as while re-building a firebox, follow the instructions given below. Prepare parts carefully. Channels must be free of old gasketing, cement and paint, and free of dust.

Use high quality gasket cement.

> Work in an area where there is plenty of light and a level work surface. Wear gloves and protective eyewear.

If you will install gaskets on clean, new parts, start with step 3. If you are going to re-gasket old parts, they will need to be cleaned. Start with step 1.

1. Remove old gaskets. If the ends of the gasket meet, note where the joint is.

2. Clean the channels. Use a hammer and cold chisel or screwdriver to remove old cement. Vacuum the channel to remove dust.

3. Choose the correct size gasket. Cut it to the right length, allowing an inch extra for trimming.

4. Wipe the channel to be gasketed with a damp cloth. Place an unbroken 1/8" bead of cement in the channel. Avoid using too much cement. The cement should not saturate the gasket, just hold it in place.

5. Starting with one end, lightly press the gasket into the cemented channel. Trim excess gasket with shears or side cutting pliers. Do not leave any ragged ends. If the ends of the gasket meet, there should be no gaps or overlaps. Do not stretch the gasket as this will make it too thin. A thin gasket may not make a good seal.

6. If possible, place the gasketed part against the surface it will meet. This will seat the gasket evenly.

7. Clean any excess cement that has squeezed out around the gasket.

8. After installing new gaskets, it may be necessary to make adjustments on the damper or load door. Refer to your **Owner's Guide**.

Parts which need to be gasketed include:

Part	Gasket Size	Gasket Part No.
Left front door (Fig. G-1 & G2)	5/16” x 48”	120-3588
Right front door (Fig. G-3)	5/16” x 36”	120-3588
Front door (G-1 & G-3)	3/16” x 42”	120-3556
Griddle (Fig. G-4)	5/16” x 52”	120-3668
Flue collar (Fig. G-5)	7/16” x 52”	30001910
Upper fireback (Fig. G-6) [damper]	5/16” x 42”	120-3588
Upper Fireback (Fig. G-6)	5/16” x 52”	120-3588
Ashdoor (Fig. G-7)	5/16” x 48”	120-3588
Left wear plate (Fig. G-8)	3/8” x 60”	120-3589
Right wear plate (Fig. G-9)	3/8” x 60”	120-3589
Primary air valve (Fig. G-10)	Preformed Gasket	120-3518
Lower fireback (Fig. G-11)	5/16” x 55”	120-3588

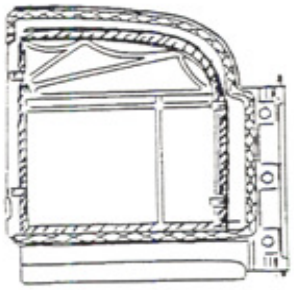


Fig. G-1 Left Door Inside View
5/16” x 48” Fiberglass door to front
3/16” x 42” Fiberglass glass to door

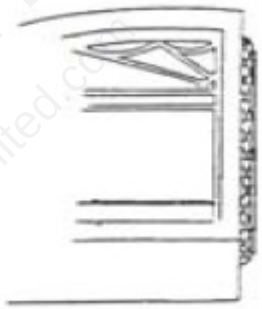


Fig. G-2 Left Door Outside View
Gasket which wraps around from the back.

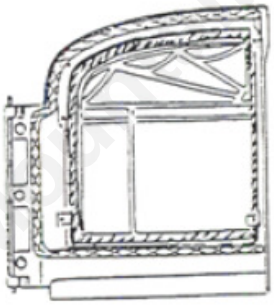


Fig. G-3 Right Door Inside View
5/16” x 36” Fiberglass door to front
3/16” x 42” Fiberglass glass to door

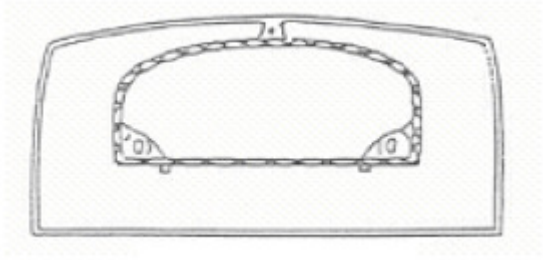


Fig. G-4 Top
5/16” x 52” Fiberglass Griddle to top

Fig. G-5 Flue Collar
7/16” x 52” Fiberglass
Flue collar to top & back

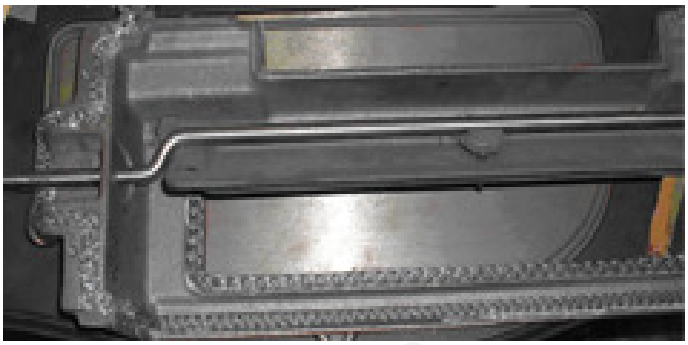


Fig. G-6 Upper Fireback
5/16” x 42” Fiberglass damper to UFB
5/16” x 52” Fiberglass UFB to top

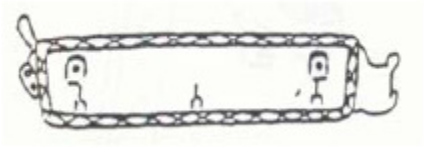


Fig. G-7 Ash Door
5/16” x 48” Fiberglass
Ash door to bottom

Fig. G-8 Left Air Plate
⅜” x 60” Fiberglass
Air plate to left end

Fig. G-9 Right Air Plate
⅜” x 60” Fiberglass
Air plate to right end

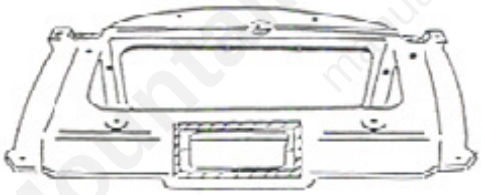


Fig. G-10 Bottom Underside
Preformed Gasket - Primary air valve to bottom

Fig. G-11 Lower Fireback Rear View
5/16” x 55” Fiberglass lower fireback to upper fireback and rear

CEMENTING

A good cement seal in the stove's stationary joints is essential to proper operation. It keeps extra air from entering the stove; this extra air can cause overfiring, smoking, back-puffing, or other problems. It is much better to take extra care in applying the cement than to have to go back later to find any gaps in joint.

Prepare parts which will need to be cemented before starting to assemble the stove, but **do not apply cement until just before installing the parts.**

> It is highly recommended you can do a 'dry fit' of the re-assembly steps before applying cement to any parts. Any small adjustments re old cement or casting fit can be done at this time. This will ensure a successful re-assembly.

Cementing instructions are given below. Illustrations showing where to apply cement are given as needed in the assembly instructions.

Prepare parts carefully so that new cement makes a tight seal between the parts to be joined. The channels and edges to be cemented must be free of old cement and dust.

Use high quality stove cement.
New cement hardens quickly when exposed to air.

- Clean and prepare parts ahead of time.
- Apply cement just before putting the parts in place.

Work in an area where there is plenty of light, and a level work surface. Wear gloves and protective eyewear.

If all the parts to be cemented are new, start with step 2. If old parts are to be re-cemented, they will need to be cleaned. Start with step 1.

1. Clean old cement from the channels and edges to be joined. Use a hammer and cold chisel, or screwdriver to remove old cement. Use a wire brush to finish cleaning the channels and edges. Vacuum the channels to remove dust.

2. Wipe the surfaces to be cemented with a damp cloth. Apply a generous bead of cement in the channel. Excess cement may squeeze out of the joint.

3. Excess cement which shows on the outside of the unit may be removed with a damp sponge. Clean up the excess promptly. Porcelain can be permanently damaged by heat cured furnace cement. Excess cement on the inside of the unit will not usually be a problem.

4. Join the two parts. Move the parts as little as possible after they have been put together.

ASSEMBLY PROCEDURE

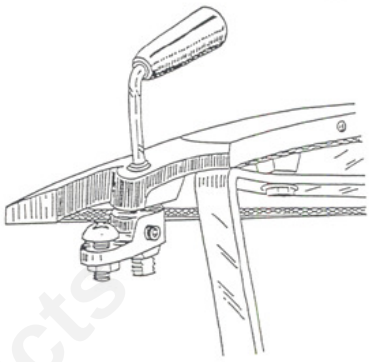


Fig. 3 *Ash Door Latch*

You will need at least 6 tubes of stove cement to re-assemble a Defiant 1945. Cut the tips of the tubes so you can apply an unbroken bead of cement to the cement channels and mating surfaces.

1. Place the stove bottom upside-down. Thread a leg leveler into each leg, and install the legs. Put the handle holder on the right front leg.

2. Attach the ashlip to the bottom with two countersunk bolts **(Fig. 4)**.

Fig. 4 *Attach Ash Lip to Bottom*

3. Attach both ashdoor brackets to the bottom of the stove **(Fig. 5)**. Install the ash door at this time. Screw the socket, button head bolt into the stepped side of the latch pawl **(Fig. 3).** Thread the hex nut onto the end of the bolt and tighten it finger tight against the flat side of the pawl. Slide the ashdoor handle shaft through its hole in the ashdoor. Slide the pawl onto the shaft so that the pawl offset is opposite the handle curve. Ensure that the pawl is against the door and that the handle turns without binding. Tighten the set screw in the pawl. Thread the jam nut onto the handle shaft and tighten it against the pawl. With the bottom still upside down, position the ashdoor between the bottom hinge bracket and the top hinge bracket of the stove; slide the ashdoor hinge pin through the bottom hinge, through the ashdoor bosses, and through the top hinge bracket exposing cotter pin hole between the two ash door hinge bosses. Secure the hinge pin with a clevis pin just above the bottom hinge **(Fig. 6).**

Fig.5 *Attach Ash Door Hinge Brackets*

Fig.6 *Ash Door Installed*

4. Assemble the primary air valve assembly. Put the air frame facedown with the drilled bosses up. Thread the primary air rod through the hole in the bottom of the air valve and just start it into the left top (hinge) hole of the frame. Put the valve and rod in the frame so that the air rod holes align. Push the air rod from left to right through the aligned holes and secure the rod in the frame with a 1/8" friction clip **(Fig. 7)**. Turn the assembly over and install the socket head cap (adjusting) screw, ¼-20 x 3/18", in the centre of the air valve, finger tight.

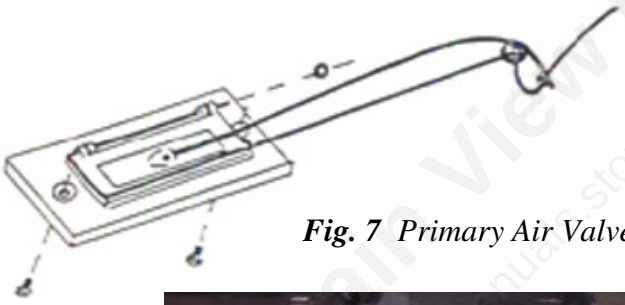


Fig. 7 *Primary Air Valve*

Fig. 8 *Primary Air Valve Attachment*

Fig. 9 *Primary Air Cable & Rod*

5. Thread the running end of the thermostat cable down through the small hole and up through the large hole in the air rod **(Fig. 9)**. Pull the running end of the cable over to the valve and thread it through the small hole in the centre of the valve. Pull 6" of cable outside the valve. Tighten the set screw finger tight. Pass the thermostat cable and air rod through the primary air opening in the stove bottom.

6. Install the primary air valve assembly on the stove bottom with the hinged side down **(Fig. 8)**. Secure the assembly with two Phillips round head bolts, ¼-20 x 5/8" and the formed gasket.

Fig. 10 *Cement Bottom Channels*

7. Turn the stove bottom over onto its legs.

8. Cement all the channels, flanges and mating surfaces in the bottom casting. Keep the cement off the thermostat cable **(Fig. 10)**.

9. Put the stove front in its cemented channel on the stove bottom and secure with one ¼-20 x 1" hex bolt and ¼ washer **(Fig. 11)**.

Fig. 11 *Install Front*

Fig. 12 *Install Air Manifold*

10. Cement all mating surfaces on the stove front. Put the air manifold in position on the inside of the stove front and secure with one hex bolt, ¼-20 x 5/8" long and ¼ washer **(Fig. 12)**.

11. Cement the channels and mating surfaces on the left stove end **(Fig. 13)**. Slide the left stove end into its mating channels in the stove front (you may need to tap with a rubber mallet) and swing the back of the end onto the stove bottom so that the hole in the inside bottom flange of the end aligns with the tapped hole in the stove bottom B **(Fig. 14)**. Secure the end to the bottom and front with ¼-20 x ¾" hex bolts and ¼ washers

Fig. 13 *Left End Cement*

Fig. 14 *Left End in Place*

12. Install the primary air cover plate in its cemented grooves in the bottom of the stove. It is held in place by Phillips flat head screws, two ¼-20 x 2" on each side and one ¼-20 x 1¼" in the rear **(Fig. 15)**.

13. Apply cement to the grooves in the back. Put the stove back into position inserting into the left end channel and into the bottom grooves of the stove. Secure the back to the left end with ¼-20 x ¾" hex bolt and a ¼ washer **(Fig. 16)**.

Fig. 15 *Primary Air Cover Plate*

Fig. 16 *Install Rear*

Fig. 17 *Install Right End*

14. Cement the mating surfaces on the right end. Put the right end into its mating channel on the stove front **(Fig. 17)**. It may need tapping with a rubber mallet. Swing the back end on to the stove bottom so that the hole in the inside of the end aligns with the flange on the stove bottom and mates with the stove rear. Secure the end to the bottom and the rear with ¼-20 x ¾" hex bolts and a ¼ washers.

15. Install the secondary probe assembly **(Fig. 18)**. Insert the double-bent end of the thermostat air link through the hole in the tab end of the thermostat coil. Insert the single-bent end through the hole in the tab on the secondary air flap. Insert the probe through the hole in the stove back and secure it with a Phillips pan-head bolt, #10 – 24 x ¼". Secure the secondary air flap to the stove back with a similar bolt and a shim ring. Tighten the bolt holding the air flap until it is snug. Insure that the flap moves freely up and down and that the flap rests at or near the open position. If there is resistance to free movement of the flap, back off the bolt a ¼ turn and recheck. Install the secondary air cover with the two Phillips pan head ⅜" screws.

Fig. 18 *Install Secondary Air Assembly*

Fig. 19 *Install Refractory Assembly*

16. Slide the refractory assembly, with the catalytic element and access panel in place, into position between the left and right cast guides and on the left and right cast supports in the bottom **(Fig. 19)**. Secondary air enters the stove under the refractory chamber and travels up between the lower fireback and the refractory assembly. Take care that its opening for the catalytic combustor faces forward, and that the opening is at the top of the front face of the chamber. Notice that there is a hole in the back of the chamber, where the secondary probe enters the chamber; slide the chamber horizontally so that its hole engages the probe. If you are installing a new chamber as part of this repair, first slide the chamber rearward till it just touches the probe, then remove the chamber, and hand-turn a ¼" or ⅜" drill bit through the back of the chamber where the probe made an impression. Do not try to punch out this hole, as the refractory material is brittle and punching can produce a large, ragged hole.

17. Install the left and right deflectors to the left and right of the refractory chamber.. The narrow end of the bottom goes to the back **(Fig. 19).** These protect the stove's outer back panel from the very high temperature gases leaving the refractory chamber; they must be in place.

18. Install the upper fireback assembly **(Fig. 20)**. Be sure the small washer rests against the shoulder on the left of the damper rod. Start by passing the damper rod through its hole in the left side of the stove; then swing the upper fireback to align its bolt holes with the bolt holes in the stove back. Install the four bolts with washers until they are hand-tight **(Fig. 21)**. Then slide the damper rod spacer on to the rod from outside the left side of the stove. Tighten the upper fireback bolts no more than ½ turn with a wrench. This leaves the upper fireback loose so the lower fireback will be easier to install.

Fig. 20 *Install Upper Fireback Assembly*

Fig. 21 *Install Upper Fireback Bolts*

19. Put 1½" threaded stems into the two holes at the rear corners of the underside of the stove top. Apply cement to the perimeter groove on the underside of the stove top **(Fig. 22)**. Carefully lift the top, flip it right-side up, and place it on the stove body. When setting it down, align the threaded stud on each end with mating clevises at **"B"** in **Fig. 5.** Put washers and hex nuts on the studs; tighten hand-tight. Use a rubber mallet to tap the stove top into its final position. Install a countersunk bolt at **"A"** in **Fig. 5** and tighten all three pieces of hardware **(Fig. 23)**.

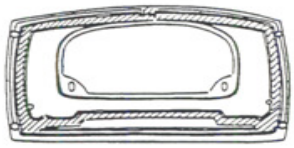


Fig. 22 *Apply Cement to Top*

Fig. 23 *Install Top*

The heaviest parts are now assembled. You may wish to move the stove to its installation spot at this point, to keep it lighter for moving.

20. Install the thermostat assembly in the right end before going further. Put washer, then the friction spring on the outer end of the thermostat assembly shaft, and pass the main shaft through the hole in the stove's right side **(Fig. 24)**. Press the assembly outward enough to cause resistance from the spring and put the thermostat handle base on the stem. Secure it with its Allen set screw. Test the thermostat's action to ensure that it is loose enough to rotate, yet snug enough to stay in any set position when you release the handle. If the handle is loose, release the Allen screw from the handle base and push the assembly further through the stove side. Continue this process till the thermostat assembly remains in position when you release it.

Fig. 24 *Install Thermostat*

21. When the thermostat is working well, install the left and right inner air plates. They each secure with two ¼-20 x ¾" hex bolts and washers **(Fig. 25)**. These plates have rope gasketing on their outer sides.

Fig. 25 *Install Left Air Plate*

Fig. 26 *Install Upper Fireback*

22. Install the lower fireback **(Fig. 26)** . Lean it back against the secondary combustion parts inside the retainers that position the bottom of the lower fireback. Slight notches in the bottom edge of the fireback fit behind these cast retainers. Tap the top of the lower fireback with a mallet to ensure the gasket makes good contact with the upper fireback. Stand the five firebricks up in front of the lower fireback and join the firebricks with the retainer clip. Notice the shallow rib on the rear of the air plate (bottom) that locates the forward edge of the bottom of the firebricks. The bricks fit behind this rib.

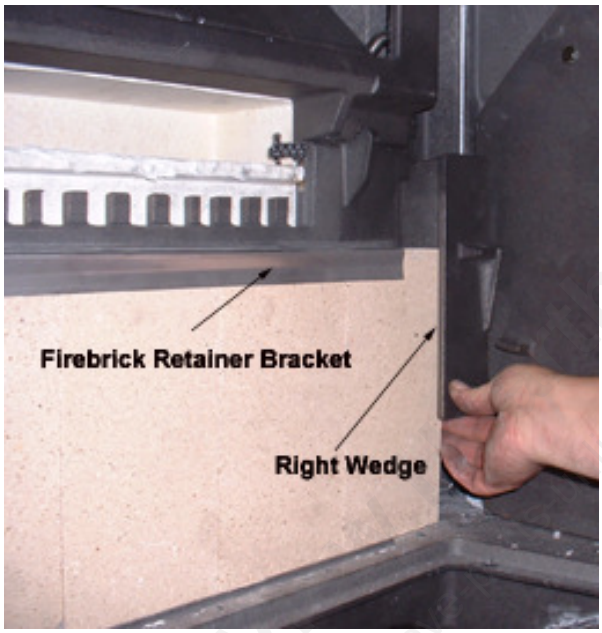


Fig. 27 *Install Wedges*

23. Use the left and right wedges to hold the lower fireback/firebricks in place ((**Fig. 27**). There is a vertical rib on each left and right edge of the fireback; the wedges must bear against the fireback between these ribs and the outermost edges of the fireback while holding the bricks in place. Tap the wedges downward gently with a hammer. The wedges should be snug, but not tight.

24. Tighten the four bolts holding the upper fireback in place on the back of the stove at this time **(Fig. 21)**.

25. Set the grate into place on the stove floor. Notice that the narrow side of the slots faces upward, toward the firebox - this ensures that ashes can fall readily into the ashpan. Be sure the grate fits flush into its recess in the stove bottom matching up with the cast bosses on the rear sides of the grate cut out.

26. Install the andirons and the andiron shelf by bolting each andiron into position with a washer and a ¼-20 x ½" long hex-head bolt.

Fig. 28 *Install Baffle*

Fig. 29 *Install Damper Stub*

27. Install the throat baffle by placing its side support pins on the brackets which are part of the lower fireback **(Fig. 28)**.

28. Attach the damper handle stub to the left end of the damper rod by securing it with an Allen set screw. Make sure the Allen set screw contacts the flat spot on the damper rod "D" end. Test the damper action for smooth operation **(Fig. 29)**.

29. Install the left and right griddle quads on the griddle with ¼-20 x ½" long hex-head bolts. Install the griddle. Install the griddle handle.

30. Install the left front door by sliding its upper hinge pin into its hole in the stove front; raise the door as high as it will go, swing its bottom edge toward the stove body, and align the lower hinge pin with its hole in the stove front. Lower the door as far as it will go. Make sure the door swings open and closed freely, and aligns its gasket with the mating rib on the stove front. Repeat the procedure with the right door, and make sure the latch engages the stove front securely.

31. Re-install the stove. Let the cement dry for 24-48 hours before firing up the stove. The more water there was in your stove cement, the longer you must let it air-dry before firing the stove. Firing the stove before the cement has completely air-dried can drive the moisture out of the cement so fast that it does not bond properly, and can result in leaks in the seams.

32. Cure the stove with a series of small fires according to the directions in the owner's manual. Do not rush this process; the new iron must gradually acclimate to the stresses of heat and expansion. Rapid and extreme temperature changes can stress the iron unduly, and can lead to cracking, warping, or problems with the porcelain enamel finish.