

Defiant Model 1910 Tear Down Rebuild Instructions



Defiant 1910 Service Procedure

Tear Down/Rebuild Instructions for the Defiant 1910 Wood Stove

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. The stove legs are part of the left and right sides of the Defiant Model 1910 stove. To replace the legs, you will need to replace the stove side(s). 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. Stove work is messy; wear a dust mask, goggles, and gloves, and use a drop cloth to contain the mess.

Tools required:

Rubber mallet
Phillips screwdriver
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
Allen wrench
Hammer and wooden block

Begin by looking at the exploded view parts diagram on page 6. Note that in these directions 'left and 'right' mean as you face the stove.

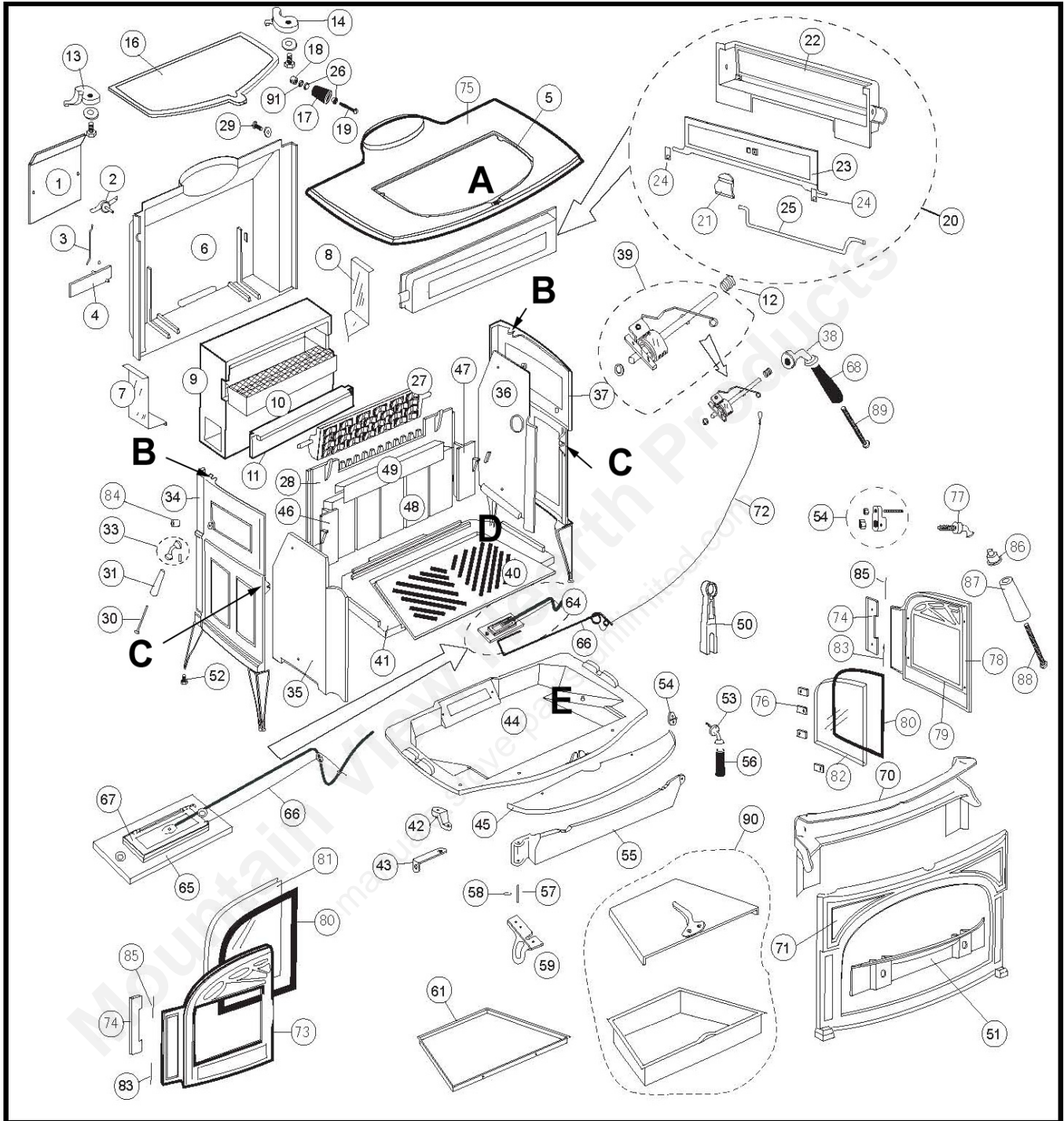
Remove the stove pipe and any accessories attached to the stove: warming shelves, bottom or back heat shields, or outside air adapter. Support the stove so that its cast-iron bottom panel is up on solid, secure wooden blocks, and the legs are a couple of inches off the floor. There are four brackets 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.

The illustrations for the following assembly steps show how to replace the right panel. The procedure is similar for the left end panel.

To make it easier to raise or move the stove, perform disassembly steps 1 through 8 before you move the stove or raise it on blocks.

DEFIANT 1910 PARTS LIST



Disassembly

If the stove has been used, be sure that it is cool before you begin. 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. 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. Use a wrench to remove the hex-head bolts and washers holding the two andirons (#50) in place. Lift out the andirons and the #51 andiron shelf.
4. Lift the throat baffle (#27) off its support brackets and remove it from the stove.
5. Pry the firebrick clip (#49) off the firebricks. Remove the bricks and the clip.
6. Pry up the left and right wedges, #46 and 47; remove them. Pry the lower fireback (#28) forward; remove it from the firebox. You may need to lift it slightly to remove it.
7. Lift out the grate, #40. You can open the ashdoor and push the grate up from below.
8. Remove the left and right air plates, #35 and #36. 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.
9. Use a Phillips screwdriver to remove the countersunk bolt going through the top at A in the exploded view.
10. 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 at "B" in the exploded view.
11. 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. Leave the griddle assembly attached to the stove top.
12. If the damper is closed, open it. Use an Allen wrench to remove the damper handle base (#33) from the left end of the damper rod.
13. Use a 7/16" ratchet socket to remove the four bolts (#29) holding the upper fireback assembly (#20) in place.
14. 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 (#84) from between the left side of the upper fireback, and the left side of the stove.
15. Remove the left and right heat deflectors, #7 and #8.
16. **Gently** slide the refractory insulating chamber (#9 in the diagram) forward, and remove it. Leave the catalyst access panel (#11) and the catalytic element (#10) in place in the chamber. Do not lift the chamber till it has cleared the secondary probe thermometer which enters its rear face. The chamber can take very high temperatures but it is physically fragile; handle it carefully.
17. Swing open the ashdoor and use a Phillips screwdriver to remove the two counter-sunk bolts holding the ashlip, #45, in place. Slide the ashlip forward and set it aside. Remove the bolts at "C" in the diagram; these join the sides to the front panel. Remove the bolt at "E" in the diagram: this joins 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 independently of the rest of the stove, have a helper steady the stove body while you pull the front panel (#71) (with the air manifold, #70 still attached) away from the rest of the stove. Set it down carefully on a soft, padded surface.

18. On each edge of the stove back there are two cast holes for the bolts which hold the upper fireback assembly in place. Run a thin rope through the lower hole on the edge toward the side you will remove, and tie this rope around the opposite side and the back of the stove. The rope doesn't need to be very tight; it only needs to provide support to hold the remaining side in place.

If you are replacing the right side, use an Allen wrench to remove the set screw holding the thermostat handle (#38) to the thermostat assembly's main stem. Push the thermostat assembly (#39) through its hole in the right side. Be sure to capture the narrow washer and the friction spring (#12) on the assembly; you can do this with rubber bands, or by dropping the assembly into a sandwich bag. Put the assembly, with the cable still attached, on the bottom floor of the stove.

19. Remove the appropriate hex bolt at "D" in the diagram. These bolts join 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.
20. Use a hammer and either a cold chisel or an old screwdriver to remove the stove cement from the edges and channels on the panels you will re-use; the top, the edges of the stove front, the left or right edge of the stove back, and the left or right edge and the forward edge of the stove bottom, and the top and forward edges of the remaining side. When cleaning enameled panels you have removed from the stove assembly, be sure to put them on a padded surface to protect the enamel. Use a wire brush to clean off the last bits of cement from the panel edges and channels. The channels don't need to be perfectly clean, but you must ensure that they are clear enough to accept a good bead of stove cement and the edge of the mating panel, and that any remaining cement sticks firmly to the panels.

Reassembly

General Information

Cement: 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.

The easiest and quickest way to apply stove cement is with a tube in a caulking gun. But, the cement needs more water in it to flow through the tube's nozzle, so cement from a caulking gun tube takes longer to dry than cement from a tub.

Only apply cement to a panel when you are ready to attach it to the rest of the stove. If you wish to be sure of the re-assembly sequence, you can do a 'dry fit' of re-assembly steps 1 through 5 as practice before applying cement to any parts.

When you apply cement to a panel, usually you apply it to the groove part of the joint. Fill the groove completely with cement. It's better to have an over-filled joint than to have too little cement in it. When you assemble enamelled parts, wipe off any extra cement on the outside of a panel with a rag dipped in warm water, as soon as you have snugged up the hardware. Cement will dull the enamel finish noticeably.

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.

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.

1. Transfer the leg levelers from the original stove side to the new side. Apply a generous bead of stove cement in the grooves on the stove side shown by the heavy line in Flg.aa. Fasten the side to the bottom assembly with a washer and a 3/4" long hex bolt at the clevis shown at "D" in the exploded view diagram.
2. Remove the rope holding the back and side together. Apply cement to the grooves on the stove's front panel. Have a helper steady the stove body while you lift the stove front into position; be sure to engage the channel across the bottom edge of the stove front with the forward edge of the bottom panel. Secure the front to the side panels with washers and hex-head bolts through the clevises at "C" in the exploded view diagram. Fasten the front to the bottom assembly with a washer and a hex bolt at "E" in the diagram. For extra security you can put the rope around the entire stove body temporarily; place it above the front door opening so that you have access to the firebox for the few following steps.
3. Slide the refractory chamber (#9), with the catalytic element and access panel in place, into position. 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 1/4" or 3/8" 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.
4. Install the upper fireback assembly. Be sure the small washer against the shoulder on the left of the damper rod (#25). 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 bolts, with washers, till they are hand-tight, and then slide the spacer, #84, on to the rod from outside the left side of the stove. Tighten the upper fireback bolts no more than 1/2 turn with a wrench.
5. Apply cement to the perimeter groove on the underside of the stove top. It may take two people to lift the top and flip it over; be sure to hang onto the griddle to keep it from falling open. 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 the exploded view. Put washers and hex nuts on the studs; tighten hand-tight. Install a countersunk bolt at A in the exploded view, and tighten all three pieces of hardware. Remove the rope from around the stove body.

If you are replacing the right side, install the thermostat assembly before going further. Put the #12 friction spring on the outer end of the #39 thermostat assembly, and pass the main stem through the hole in the stove's right side. Press the assembly outward enough to cause resistance from the spring, and put the #38 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.

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

6. Install the left and right inner air plates, #35 and 36. These plates have rope gasketing on their outer sides. Two washers and two 5/8" long hex bolts hold each panel to the outer sides. Be sure the narrow washer stays in place on the inner end of the thermostat stem (see item#39) before you put the right air plate in position.
7. Put the left and right heat deflectors (#7 and 8) in place to the left and right of the refractory chamber. These protect the stove's outer back panel from the very high temperature gases leaving the refractory chamber; they must be in place.

8. Install the lower fireback (#28). Temporarily lean it back against the secondary combustion parts. Notice the retainers that locate the bottom of the lower fireback. Slight notches in the bottom edge of the fireback fit behind these retainers. Use the left and right wedges (#46 and 47) to hold the lower fireback in place; note that the rear vertical edges of the wedges must bear against the outermost edges of the lower fireback. 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. Tap the wedges downward gently with a hammer. The wedges should be snug, but not tight.
9. Stand the five firebricks (#48) up in front of the lower fireback. Put the two left and two right bricks in place first, sliding them behind the left and right wedges. Put the center brick in place last, and join the firebricks with their clip (#49). Notice the shallow rib that locates the forward edge of the bottom of the firebricks. The bricks fit behind this rib.
10. Set the grate (#40) 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.
11. Install the throat baffle (#27) by placing its side support pins on the brackets which are part of the lower fireback.
12. Install the andirons (#50) and the andiron shelf (#51) by bolting each andiron into position with a washer and a 3/8" long hex-head bolt.
13. Attach the damper handle base (#33) to the left end of the damper rod by securing it with an Allen set screw. Test the damper action for smooth operation.
14. 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.
15. 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.
16. 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.

It is normal for there to be a slight noticeable smell during the first few fires, as the cement and paint cure. Ideally you can run these curing fires outdoors, with a few lengths of stove pipe on the stove, to alleviate this.