

SERVICE MANUAL



For the
Vermont Castings

Please place picture here.
**1990 - 1993 DUTCHWEST
CONVECTION HEATERS**

MODELS:
2181 (Small)
2183 (Large)
2184 (Extra Large)

HISTORY OF CHANGES

1990 – 1993 DUTCHWEST CONVECTION HEATERS

Models 2181 (Small), 2183 (Large), and 2184 (Extra Large)

In 1990, *Vermont Castings* changed the Dutchwest Convection Heaters to improve the appearance, performance and serviceability of the stoves. The changes include:

- A horizontal brass bar in a convection outlet slot where the top and front meet. This replaces the earlier two separate screened openings.
- Convection air inlets on the bottom of the stove. These become invisible to the user, and replace earlier screened openings on the stove front.
- A modified damper linkage using a ductile-iron 'crank-shaft' passing through an adjustable 'stirrup' lifter.
- A ceramic fiber insulator around the combustor.
- A larger cook top. It is no longer a separate polished part but part of the stove top. A rope gasket is used on the under side of the stove top for quick and easy access to the combustor and damper.
- A heavier catalyst baffle. It is now heavier, and round, and made of ductile-iron, and has a Sequoia-style round air distributor between it and the catalyst.
- Coal grate sides and front are now optional and the fire screen is optional.
- Latches are helical on un-threaded steel stems.
- An 'air balance plate' at the right end of the firebox. This brings room air into the firebox, to balance the effect of the primary air inlet on the side-load door.
- An air diffuser plate on the inside of the side-load door. This slows the flow of the air into the firebox.
- A round flue collar on the small and large units. The extra-large uses the **Encore** 8" oval flue collar.
- Heat-reflective coating on the glass panels. This helps them stay clearer. For the extra-large, there are left and right panels. Glass became standard equipment in 1992.
- Dropped the earlier steel gasket caps for the rocker grates, and substituted a single a cast-iron panel to form the seal on the left side.

In 1992, *Vermont Castings* changed the inner tops to include a separate 'web' piece between the damper and the catalyst. Since the web is separate from the main inner top, it can 'float' in response to the high temperatures in that area.

Instructions for installing the new two piece inner top are found in the [Repair Procedures Section](#).

REPAIR PROCEDURES

1990 – 1993 DUTCHWEST CONVECTION HEATERS

Models 2181 (Small), 2183 (Large), and 2184 (Extra Large)

INSTALLING THE TWO PIECE INNER TOP

Tools Required: Phillips and flat screwdrivers, socket wrench with 7/16" socket/open-end wrench, rubber mallet, and 3 tubes of stove cement, caulking gun, putty knife, rags, hammer, cold chisel, and wooden block.

1. Remove the top (one bolt in each corner). Since there is a gasketed seam between inner and outer tops, you won't need to break a cement seal here.
2. Remove the refractory insulator and combustor.
3. Remove the anchor bolt holding the #29 damper adjuster to the #28 damper. There is a hex nut on the anchor bolt on the under side of the damper.
4. Rotate #35 damper crank counter-clockwise (as you face left side of the stove) until it separates from the #36 damper operating rod. Lift the damper and operating crank off along with adjuster.
5. Lift the front doors (including ash door) and brass bar #60 off the stove front.
6. Remove 2 hex nuts from the studs joining the stove front to the stove sides, above the inner top.
7. Use a hammer and a wooden block to tap outward on the stove front from inside the firebox. Once the cement seal is broken, lift the front off and set it aside. If you have left the ash door on the stove front, do not set the front down vertically--pressure on the ash door can break it or the stove front.
8. Remove the hex nut and washer from the stud above the right rear corner of the inner top (joining the right side and the outer back). From inside, tap outward against the right side to break its cement seal. Pull the right outward and forward at the same time until it clears the inner back and then lift it off.
9. Tap around the left and rear edges of the inner top to separate it from the inner back and the left side, and lift it out.
10. Use hammer and cold chisel to clean old cement out of the joints of all parts to be re-used.

11. Work in reverse order to re-assemble. Replacement inner tops include a separate 'web' piece between the catalyst chamber and the damper opening. This web can move separately in response to the high temperatures in that area.

The web is loosely bolted into place at each end and has Interam gasket to seal its ends. On installation, the Interam gasket can look too small for the gap it seals. However, this Interam will expand greatly under heat, and seal the gaps.

It's worthwhile to do a 'dry fit' to ensure that parts fit together well before you cement anything. Put a heavy bead of stove cement in each joint groove before putting the mating piece of iron into it. When installing the inner top, be sure to align the inner top with the bypass operating rod's hole in the left side so that the bypass gate operates freely without causing the operating rod to be forced to one side of the hole in the stove's left side. Adjust the bypass gate so it closes with only a little pressure.

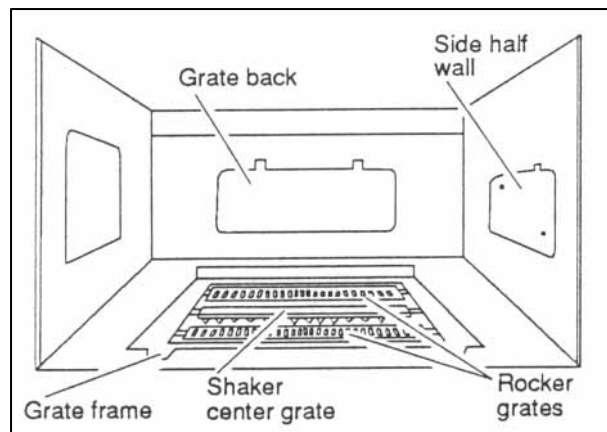
12. Transfer the original baffle, channel cap, and air distributor from the original inner top to the new one.
13. When the inner top is in place and the right side is attached and supports the inner top, use hex bolts and steel tabs to attach the damper to the inner top. After you have positioned the damper crank, damper operating rod, and adjuster--anchor the adjuster to the damper with a hex bolt and nut below the damper.
14. Re-attach the stove front, after cementing its seams where it joins the stove sides and the inner top and the inner bottom. Add the doors.
15. Install the catalytic combustor and insulator. Be sure there is Interam gasket around the combustor.
16. Re-install the brass bar across the top/front opening.
17. Check the gasketing on the under side of the stove top to ensure a good seal here. Replace the top. The bolts should be snug but not overly tight; over-tightening can warp the top, possibly causing leakage.
18. Direct the customer to re-'cure' the stove, to acclimate the new inner top to the pressures of expansion and contraction. Curing is a series of five small fires, with each fire hotter and longer than the previous one.

INSTALLING THE SHAKER CENTRE GRATE

The shaker centre grate is easy to install in your stove. It should take about ten minutes to replace it.

Start by removing the grate back and the side half-wall (called 'air balance plate' on some models). Each panel has two bolts holding it in place.

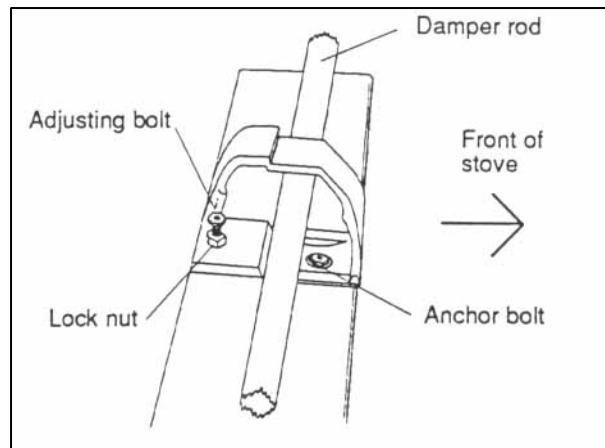
Lift the rear edge of the grate frame (called 'grate' in some instructions) and prop it up out of the way. Now you can lift out the centre grate through the front door and the centre opening of the frame. There is no hardware holding the centre grate; it sits on 'saddles' on the stove's inner bottom. Replace the shaker centre grate, putting the edge with the longer teeth toward the front of the stove. The longer teeth point downward. These prevent coal embers from falling into the pan, unless you intentionally rock the rockers more than 60 degrees. When you lower the grate frame back into position, be sure the rockers are level, so that they will rotate properly when everything is back in place. Then bolt the grate back and the side half wall onto the back and side of the firebox, and you're done. Be sure to build your next fire slowly, so that the new iron will 'cure' properly.



ADJUSTING THE DAMPER

Using a 7/16 socket wrench, preferably with a socket extension:

1. Remove the top.
2. Open the damper.
3. Carefully remove the refractory cover.
4. Loosen the adjusting bolt's lock nut.
5. Loosen the anchor bolt's lock nut, located on the underside of the damper and accessible inside the stove through the front door.
6. Loosen the anchor bolt a turn or two.
7. Tighten the adjusting bolt.
8. Test the damper mechanism. If further adjusting is necessary, continue to tighten the adjusting bolt until the damper closes snugly.
9. When final adjustment has been made, tighten the adjusting bolt lock nut.
10. Tighten the anchor bolt. Tighten the anchor bolt lock nut.



DISASSEMBLY and ASSEMBLY

1990 - 1993 DUTCHWEST CONVECTION HEATERS

Models 2181 (Small), 2183 (Large), and 2184 (Extra Large)

DISASSEMBLY

Clear a space for storing parts as you take the stove apart.

You will need pliers, a 7/16" socket wrench or open end wrench, a 5/32" Allen wrench and a Phillips head screwdriver to remove nuts and bolts and screws. You will need a dead blow hammer to dislodge parts which have been cemented together. A conventional, steel hammer and block of wood may be used in place of the dead blow hammer. Use the block of wood to protect the metal parts from direct blows of the steel hammer.

These directions will tell you what screws or nuts should be removed during the disassembly of your stove. Some hex head screws in the top and sides are for the installation of optional accessories. Do not remove these screws unless directed to do so in the instructions for installation of the accessories.

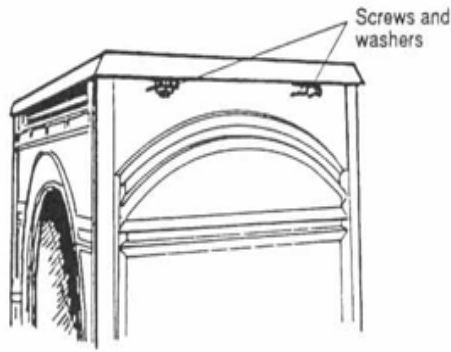
****NOTE:** Wear gloves and protective eye wear.

Instructions are given as you face the stove.

You may wish to pull out, empty and clean the ash pan, and use it to hold hardware you remove from the stove.

- 1. Lift the Probe Thermometer from the Top.**
- 2. Lift the Front Doors from the Stove.**
- 3. Lift the Load Door from the Stove.**
- 4. Remove the Top.**

Use a 7/16" wrench to remove the four hex head cap screws that hold the top plate to the body of the stove. The four screws pass upward through the slotted tabs at the top of each side and into the underside of the top plate. Lift the top from the stove.



Remove the four screws and washers, and lift the top plate from the stove.

****NOTE:** To protect the refractory package and the catalytic combustor from damage as you work on the stove, remove these parts from the inner top. It may be necessary to rock the catalyst gently to free it from the top.

5. Remove the Hearth.

Use a 5/32" Allen wrench to remove the two set screws which hold the hearth in place, and remove the hearth.

6. Remove the Ash Door.

Pull the ash door hinge pins out, and remove the ash door.

7. Remove the Flue Collar.

While holding the nuts that are inside the flue collar with pliers, remove the two Phillips head screws that hold the flue collar in place, and remove the flue collar.

8. Remove the Front.

Threaded studs are screwed into the back of the front plate. The studs pass through slotted tabs in the side plates. Nuts screwed onto these studs hold the front to the sides of the stove.

Remove the two nuts and washers, being careful to hold the front in place as you remove the last nut. Lift the front from the stove.



Remove the nuts and washers from the studs passing through the slotted tabs.

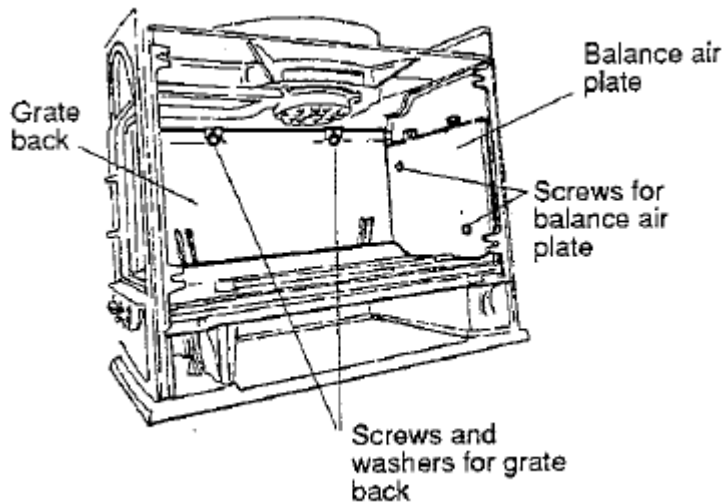
****NOTE:** Stoves are constantly being improved. You may notice some small differences between the stove you are working on and these instructions. These instructions will serve as a guide for disassembling and assembling your stove.

9. Remove the Balance Air Plate.

Remove the two hex head cap screws that hold the balance air plate to the inside of the right side plate, and remove the air plate.

10. Remove the Grate Back.

Remove the two cap screws and washers that hold the grate back to the inner back, and remove the grate back.

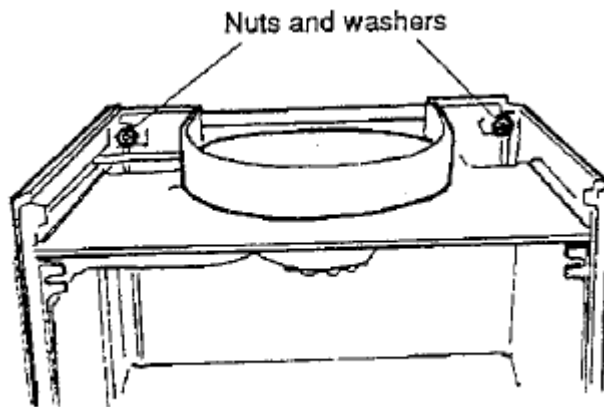


Remove the balanced air plate and the grate back

****NOTE:** The next step is to remove the back. Before removing the back, brace the two sides to prevent them from falling over when the back is removed. A pipe clamp adjusted to hold the two sides together works well.*

11. Remove the Back.

Remove the nuts and washers on the two studs that hold the back to the sides, and remove the back.



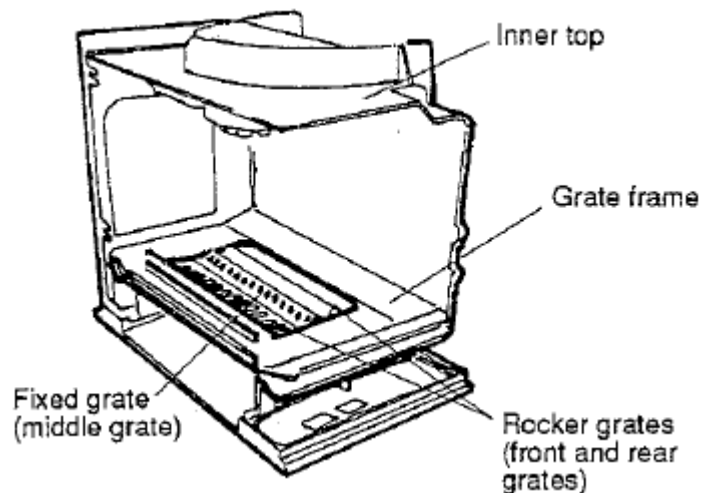
Remove the nuts and washers and remove the back.

On some older heaters, two additional screws, passing through tabs at the lower corners of the back and into the bottom, helped secure the back. A long extension for a $7/16$ " socket is needed to reach these screws.

****NOTE:** Before continuing with the disassembly, brace the left side so that when the right side, inner top and inner back are removed, the left side will remain upright.

12. Lift the Right Side from the Bottom.

13. Lift the Grate Frame from the Inner Bottom.



Lift the grate frame from the inner bottom. Remove the rocker and fixed grates.

14. Remove the Rocker Grates and the Fixed Grate.

Lift the two rocker grates and the fixed grate from the inner bottom.

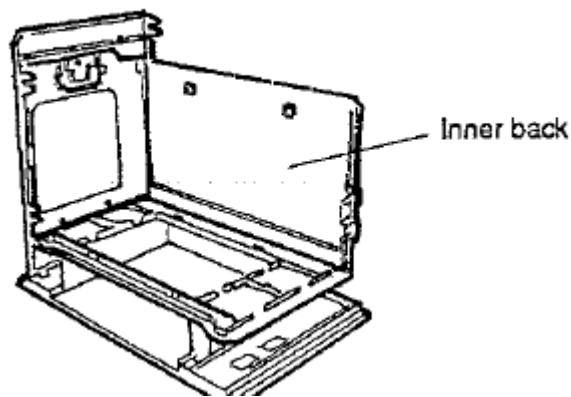
15. Remove the Inner Top.

The inner top is supported by the left side and inner back. Slide the inner top a short distance to the right, and lift it from the inner back. Place it right side up on your work surface.

****NOTE:** To remove the damper, baffle and air supply channel from the inner top, follow the instructions in steps 19 – 27 after completing steps 16 – 18.*

16. Remove the Inner Back.

Be sure the left side is supported. Slide the inner back to the right and remove it from the stove.



After bracing the left side, remove the inner back

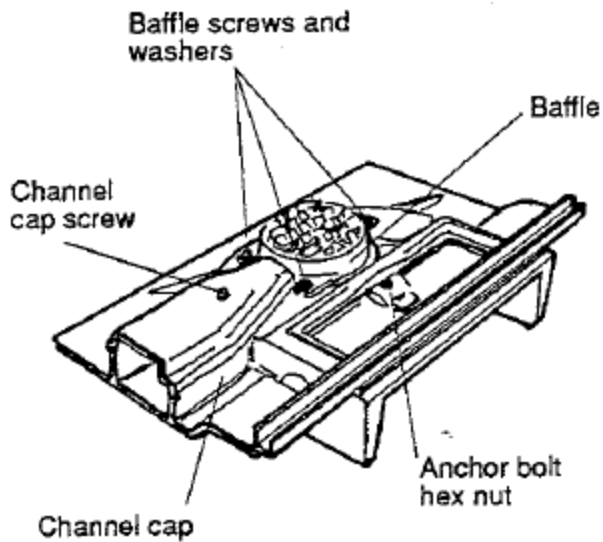
17. Remove the Left Side.

18. Remove the Inner Bottom.

Remove the two long bolts that hold the inner bottom to the bottom, and remove the inner bottom.

This completes the disassembly of the main components of the stove. To remove the damper, baffle and channel cap from the inner top, continue with step 19 below.

19. Turn the Inner Top Upside Down.



Underside of the inner top. Use this illustration for steps 20, 21 and 22

20. Remove the hex nut from the Anchor Bolt.

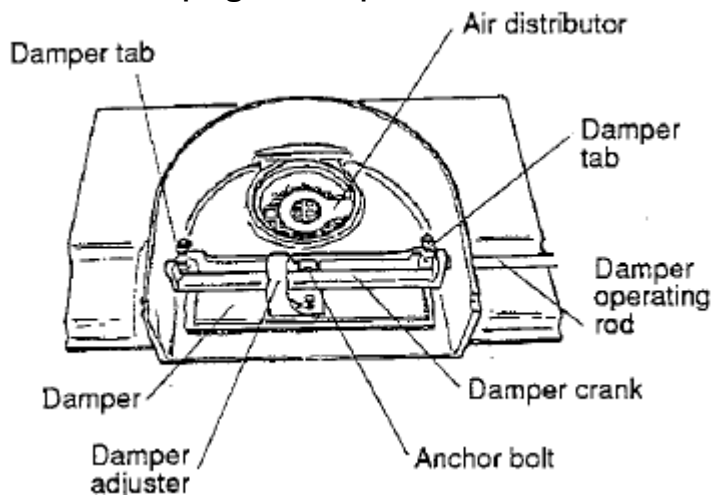
21. Remove the Channel Cap.

Remove the hex head cap screw holding the channel cap to the inner top, and remove the cap.

22. Remove the baffle.

Remove the three hex head cap screws that hold the baffle to the top, and remove the baffle.

23. Turn the Inner Top right side up.



Top of the inner top. Use this illustration for steps 24, 25, 26 and 27.

24. Remove the Damper Tabs.

Remove the hex head cap screws holding the damper tabs to the inner top, and remove the tabs.

25. Remove the Adjuster Bolt.

Remove the hex head cap screw holding the adjuster to the damper.

26. Remove the Damper.**27. Release the Damper Crank.**

The damper operating rod is threaded into the side of the cowl in the top. Unscrew the rod until the damper crank is released from the damper rod. The adjuster will be loosely attached to the crank until the rod is unscrewed.

ASSEMBLY

All nuts and bolts are ¼ - 20 thread size unless otherwise noted. Lengths of bolts are given with the assembly instructions. Use automotive "never-seize" on screw threads to make future repairs easier.

Gasketing

If new parts need to be gasketed, or old parts re-gasketed, **do all of the gasketing before starting to assemble the stove**

Instructions and illustrations are given at the end of this section of the manual.

Parts which need to be gasketed include:

- Top
- Inner top (damper opening)
- Front doors, including opening for insert or glass
- Ash door
- Grate seal
- Balance air plate
- Back (flue collar opening)

Cementing

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.**

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

Parts which need cementing include:

- Bottom
- Inner bottom
- Inner top
- Left and right sides
- Back
- Front

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

Excess cement which shows on the outside of the unit may be removed with a damp sponge. Clean up the excess promptly.

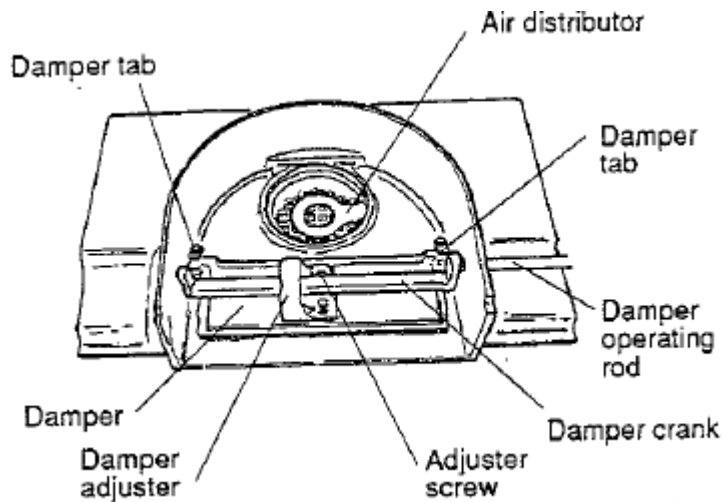
Excess cement on the inside of the unit will not usually be a problem. If clean-up is necessary, instructions will be given.

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

For each illustration, the plate is labeled and the channel to be cemented is marked.

If you are going to re-install the damper, baffle and channel cap on the inner top, follow steps 1 – 8 below. If these parts are already in place on the inner top, start with step 9 below.

Place the inner top right side up on your work table.



Top of the inner top. Use this illustration for steps 1 - 6.

1. Place the Damper Crank in position

Pass the damper crank through the damper adjuster and insert the stub on the left end of the crank into the hole in the left side of the collar.

2. Install the Damper Operating Rod.

Screw the damper operating rod into the side of the collar until the square end of the operating rod meets the end of the crank. Put the square opening in the end of the crank over the square end of the rod.

3. Screw the Rod into position.

Screw the rod in five more turns. The adjuster will turn with the crank.

4. Install the Damper.

Put the damper in place, and secure it with the two damper tabs and ½" hex head cap screws.

5. Attach the Damper Adjuster.

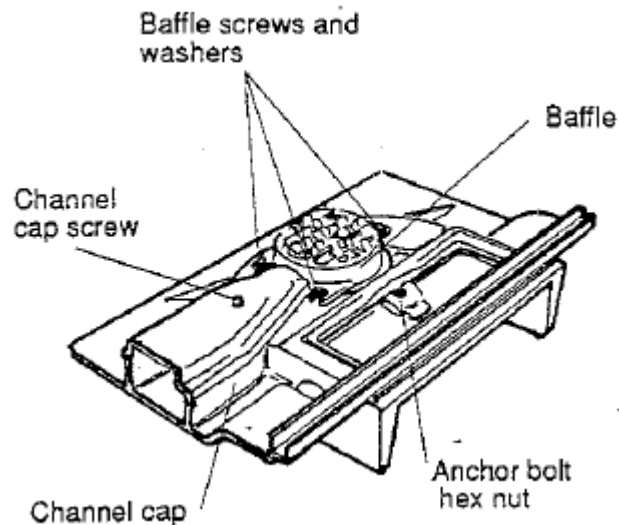
Attach the Damper Adjuster to the Damper with a 1" hex head bolt.

Lock the adjuster to the damper by screwing a hex nut on the bolt on the underside of the damper.

Turn the inner top over.

6. Install the Air Distributor.

Place the air distributor in position with one of the holes in the end of the distributor lined up with the nub on the inner top.



Underside of the inner top. Use this illustration for steps 7 and 8.

7. Attach the Channel Cap.

Cement the channel for the channel cap on the underside of the inner top as shown in figure #C-1 below.

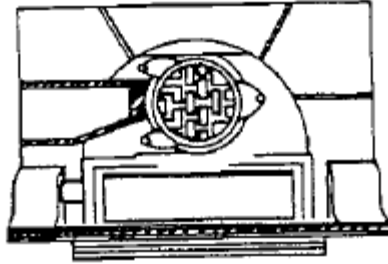


Fig. C-1 Underside of the inner top.

Attach the channel cap with a 2" hex head cap screw, being sure the air distributor is lined up properly as you secure the cap.

8. Attach the Baffle.

Attach the baffle to the top with three $\frac{3}{4}$ " hex head cap screws and washers.

****NOTE:** Be sure the damper moves freely before continuing with the assembly.

9. Install the Inner Bottom.

Cement the channels in the bottom plate as shown in the figure #C-2 below.

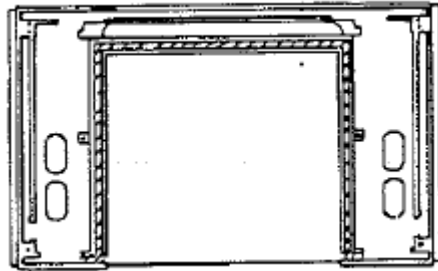


Fig. C-2 Bottom

Place the inner bottom in the cemented channels in the bottom. Bolt inner bottom loosely to the bottom with two $3 \frac{3}{4}$ " hex head cap screws and washers. The bolts will be tightened after the sides and back are in place.

10. Place the Left Side in position.

Cement the channels in the left side as shown in figure #C-3.

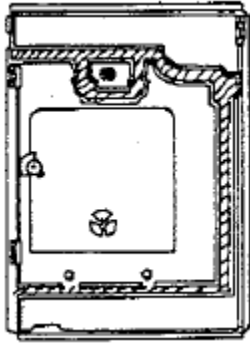


Fig.C-3 Left Side

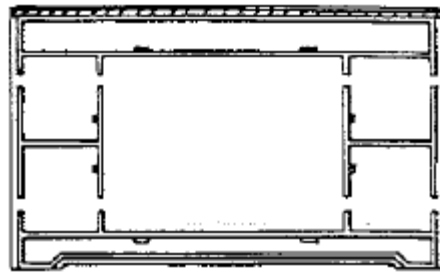


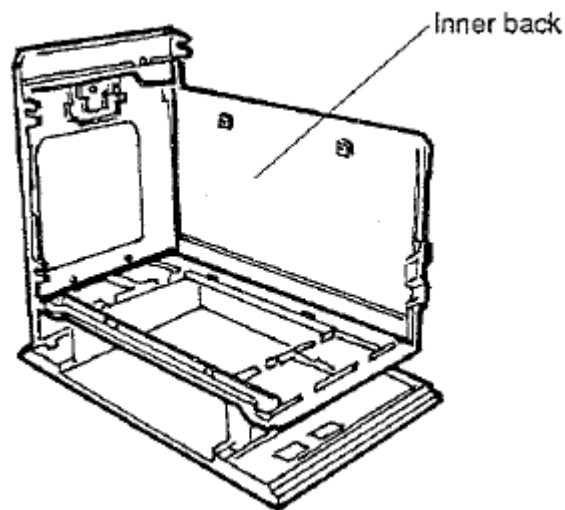
Fig.C-4 Inner Bottom

Stand the left side in position, and brace it so it will stay upright as you install the next parts.

11. Install the Inner Back.

Cement the channel in the inner bottom as shown in figure #C-4 above.

Put the inner back in its channel in the bottom, and slide it to the left so it's left edge is seated in the matching channel in the left side.



Cement the channel in the inner bottom and slide the inner back into position

12. Install the Inner Top.

Cement the channel at the rear of the underside of the inner top as shown in figure C-1 (see step 7). Place the rear of the inner top on the top of the inner back, and slide it to the left so the left edge of the inner top is seated in the groove in the left side.

13. Install the Right Side.

Cement the channels in the right side as shown in figure #C-5.

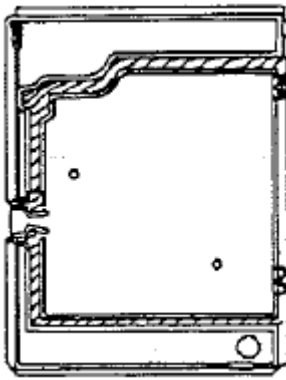
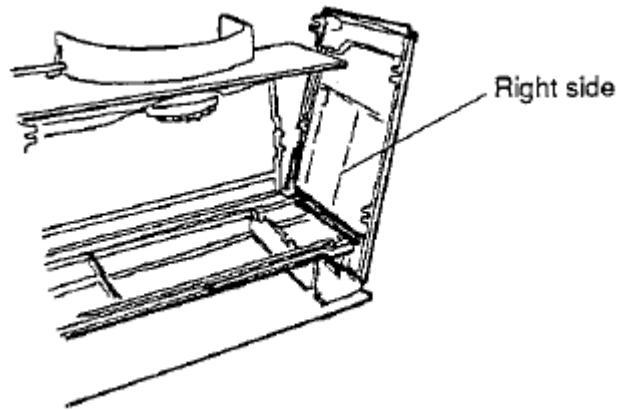


Fig. C-5 Right Side



Place the bottom of the right side plate in position and move the top of the plate forward.

With the top of the side leaning slightly outward, place the right side in position on the bottom. Push the top inward making sure the right edge of the inner top is in the groove in the right side.

Brace the left and right sides with a pipe clamp.

14. Install the Back.

Cement the channels in the back in figure #C-6.

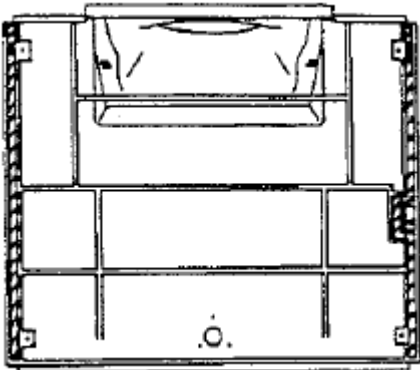
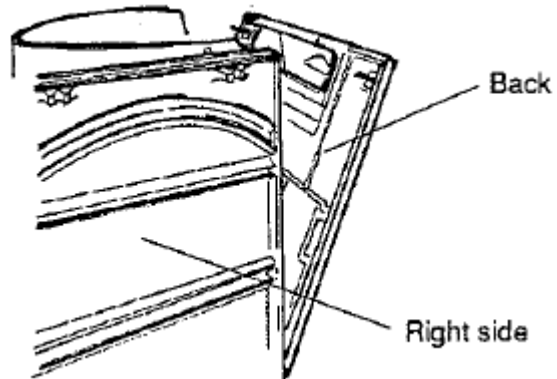


Fig. C-6 Back

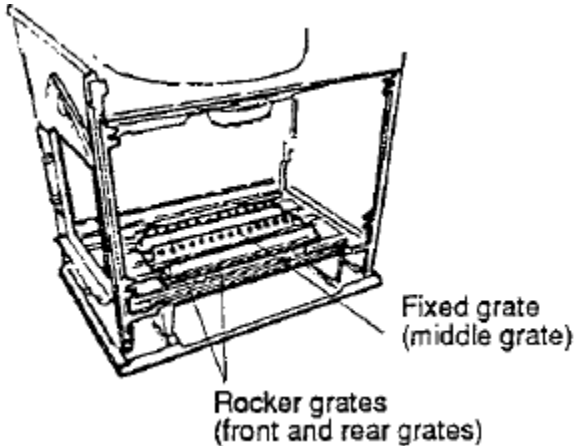


Place the bottom of the back plate in position and move the top of the plate inward.

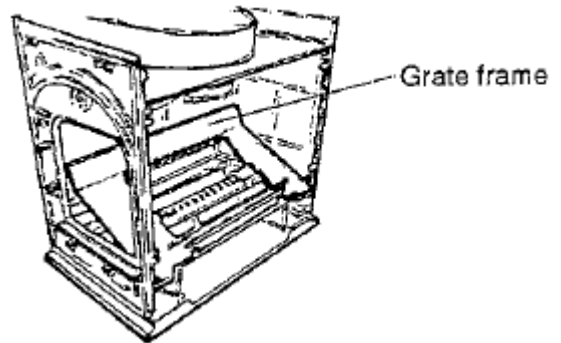
With the back leaning slightly outward, put the back in position on the bottom. Push the top of the back inward so the studs at the top of the back will pass through slotted tabs on the sides. Place washers on the studs. Screw hex head nuts onto the studs to secure the back to the sides. Tighten the bolts holding the inner bottom to the bottom.

15. Install the grates.

Put the rocker grates and fixed grate in position. The tops of the rocker grates should tilt backward slightly.



The rocker grates should tilt slightly backward



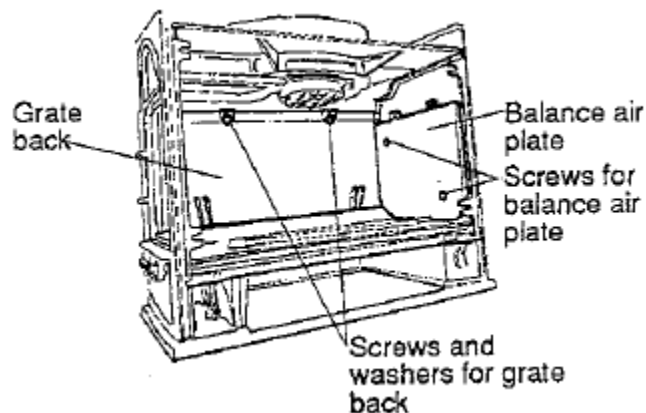
Place the front edge of the grate in position and lower the back edge

16. Install the Grate Frame.

Put the grate frame in place over the grates. Be sure the tops of the rocker grates tilt backward a little.

17. Install the Grate Back.

Attach the grate back to the inner back two $\frac{3}{4}$ " hex head cap screws and washers.



Attach the grate back with screws and washers and the balance air plate with screws.

18. Install the Balance Air Plate.

Attach the Balance Air Plate to the Right Side with two ¾" cap screws.

19. Install the Front.

Cement the channel in the front as shown in figure #C-7.

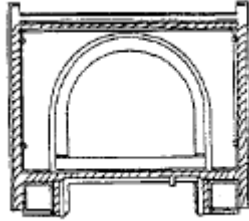


Fig. C-7 Front

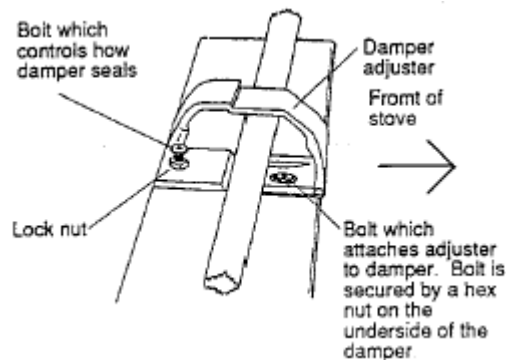
Place the front on the bottom with the top leaning slightly outward. Move the top of the plate into position so the studs in the front pass through the slotted tabs in the sides. Place washers on the studs. Screw hex head nuts onto the studs to secure the front to the sides.

****NOTE:** Before installing the combustor, refractory and top, check the operation of the damper. When the handle is placed on the damper operating rod and is turned clockwise, the damper should lock in the closed position and should seal tightly against the inner top. If adjustment is needed follow this procedure:

The bolt which attaches the adjuster to the damper is secured by a hex nut on the underside of the damper. Loosen this hex nut, and loosen the screw a turn or two.

A bolt passing through the adjuster and pressing against the damper varies the position of the adjuster on the damper and controls how the damper seals when the damper is closed. Loosen the lock nut on this bolt. Tighten this screw a little.

Test the damper. Continue adjusting until the damper closes properly. Then tighten both hex nuts.



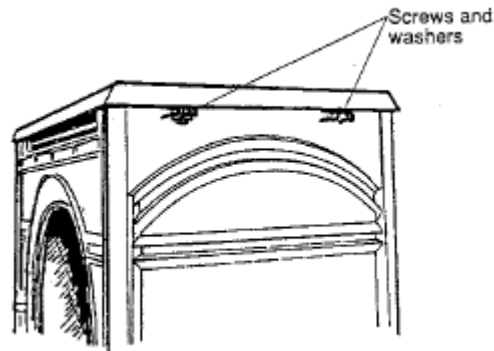
20. Install the Catalytic Combustor and the Refractory Package.

Be sure the interam gasket is in place around the bottom of the combustor. Replace the gasket if necessary. Install the catalytic combustor and refractory package.

21. Insert the Brass Trim in the top of the Front.

22. Install the Top.

Place the top on the firebox, and secure it with four 1" screws and washers. The screws pass upward through slotted tabs on the sides and into the underside of the top.



Attach the top plate to the stove with four 1" screws and washers.

23. Install the Sleeve and Probe Thermometer.

24. Install the Flue Collar.

The two 1" Phillips round head screws which hold the flue collar to the stove are secured with nuts on the inside of the stove.

25. Install the Ash Door.

26. Install the Hearth.

Attach the Hearth with two ½" socket head set screws.

27. Install the Doors.

REMINDER: Be sure to "season" new cast-iron parts by having a few small break-in fires.

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 while re-building a firebox, follow the instructions given below.

Prepare parts carefully so that new gaskets will stay firmly in place. Channels must be free of old gasketing, cement and paint, and free of dust.

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

If you are going to 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. Use a wire brush to finish cleaning the channel. Vacuum the channel to remove dust.
3. Choose the correct size gasket, and cut it to the right length, allowing an inch extra for trimming. Size and length information are given on the illustrations.
4. Wipe the channel to be gasketed with a damp cloth. Place an unbroken 1/8" bead of cement in the channel to be. 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 the Maintenance Section of the **Owner's Guide** for information on testing and adjusting the door latch and testing gaskets for proper fit.

For each illustration, the information includes the plate to be gasketed, the length and size of the gasket, and joint to be sealed. Gasket lengths are given for the Extra-Large Heater, the Large Heater, and the Small Heater.

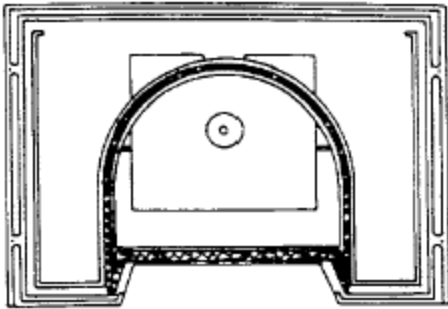


Fig. G-1 Underside of Top
50" - $\frac{3}{8}$ " fiberglass
Seals underside of top to inner top.

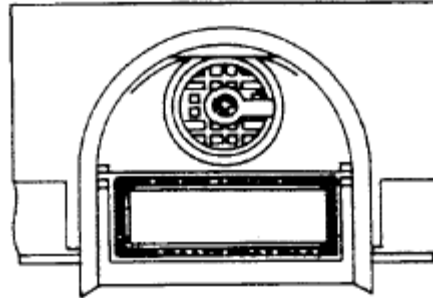


Fig. G-2 Top Side of Inner Top
25" - $\frac{3}{8}$ " fiberglass
Seals damper to inner top



Fig. G-3 Side Door
46" (Extra Large), 40" (Small & Large) - $\frac{7}{16}$ " fiberglass
Seals side door to left side.

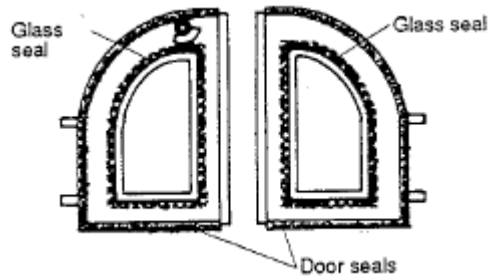
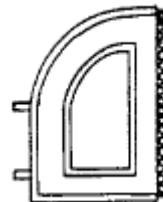


Fig. G-4 Inside of Front Doors
111" (Ex Large), 96" (Large), 89" (Small) - $\frac{7}{16}$ " fglass
Seals doors to front.

60" (Extra Large), 53" (Large), 43" (Small)
Seals glass in doors.

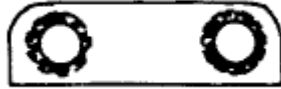


The door gasket on the left door continues down the center seam on the outside of the door.

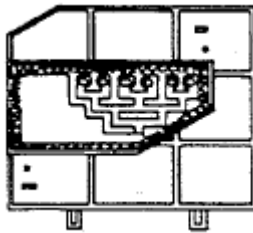
Fig. G-4A Outside of Left Door



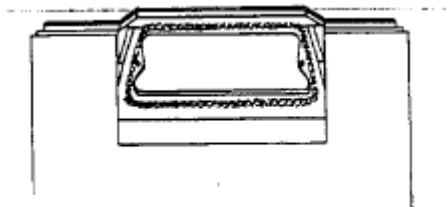
*Fig. G-5 Ash Door
43" (Extra Large), 36" (Large), 29" (Small) – 7/16 fiberglass
Seals ash door to front.*



*Fig. G-6 Grate Seal Gasket
6" - 5/16" griddle gasket
Seals grate seal to side*



*Fig. G-7 Balance Air Plate
30" – 3/16" fiberglass
Seals balance air plate to right side.*



*Fig. G-8 Back
36" - 1/4" fiberglass
Seals flue collar to back*

INNER TOP REPLACEMENT, 1990 DUTCHWEST CONVECTION STOVES

These instructions cover 1990 versions of the small, large, and extra-large Dutchwest Convection stoves.

Tools required: Phillips screwdriver, flat screwdriver, ratchet socket wrench with 7/16" socket/open-end wrench, rubber mallet, and 3 tubes of stove cement, caulking gun, putty knife, rag, hammer, cold chisel, and wooden block.

1. Remove the top (one bolt in each corner). Since there is a gasketed seam between inner and outer tops, you won't need to break a cement seal here.
2. Remove the refractory insulator and combustor. Set them aside carefully.
3. Remove the anchor bolt holding the damper adjuster to the damper ("bypass gate"). There is a hex nut on the anchor bolt on the underside of the damper.
4. Rotate damper crank counter-clockwise (as you face left side of stove) until it separates from damper operating rod. Lift the damper and operating crank off along with adjuster.
5. Lift the front doors (including ash door) and brass bar off the stove front.
6. Remove 2 hex nuts from studs joining the stove front to the stove sides, above the inner top.
7. Use a hammer and a wooden block to tap outward on the stove front from inside the firebox. Once the cement seal is broken, lift the front off and set it aside. If you have left the ash door on the stove front, do not set the front down vertically – pressure on the ash door can break it or the stove front.
8. Remove the hex nut and washer from the stud above the right rear corner of the inner top (joining the right side and the outer back). From inside the firebox tap outward against the right side to break its cement seals. Pull the right side outward and forward at the same time until it clears the inner back and then lift it off.
9. Tap around the left and rear edges of the inner top to separate it from the inner back and the left side, and lift it out.
10. Use hammer and cold chisel to clean old cement out of the tongue and groove joints of all parts to be re-used.
11. Work in reverse order to re-assemble. Replacement inner tops include a separate 'web' piece between the catalyst chamber and the damper opening. This web can move separately in response to the high temperatures in that area. The web is loosely bolted into place at each end and has Interam gasket to seal its ends. It's worthwhile to do a 'dry fit' to ensure that parts fit together well before you cement anything. Put a heavy bead of stove cement in each joint groove before putting the mating piece of iron into it. When installing the inner top, be sure to

align the inner top with the bypass operating rod's hole in the left side so that the bypass gate operates freely without causing the operating rod to be forced to one side of the hole in the stove's left side. Adjust the bypass gate so it closes with only a little pressure.

12. Transfer the original baffle, channel cap, and air distributor from the original inner top to the new one.
13. When the inner top is in place and the right side is attached and supports the inner top, use hex bolts and steel tabs to attach the damper to the inner top. After you have positioned the damper crank, damper operating rod, and adjuster--anchor the adjuster to the damper with a hex bolt and nut below the damper.
14. Re-attach the stove front, after cementing its seams where it joins the stove sides and the inner top and the inner bottom. Add the doors.
15. Install the catalytic combustor and insulator. Be sure there is Interam gasket around the combustor.
16. Re-install the brass bar across the top/front opening.
17. Check the gasketing on the under side of the stove top to ensure a good seal here. Replace the top. The bolts should be snug but not overly tight; over-tightening can warp the top, possibly causing leakage.
18. Direct the customer to re-'cure' the stove, to acclimate the new inner top to the pressures of expansion and contraction. Curing is a series of five small fires, with each fire hotter and longer than the previous one.