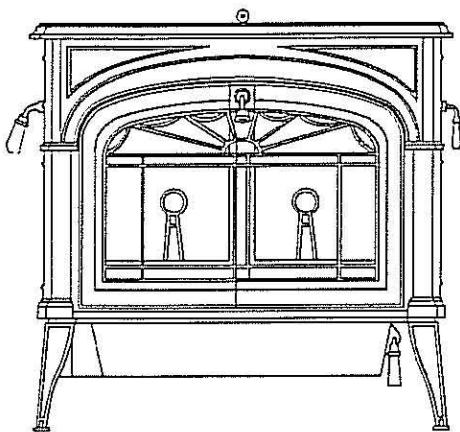


# SERVICE MANUAL



for the

## **Vermont Castings 1991 Defiant Encore Model 2190**

### **Table of Contents**

History of Changes	page 1
Exploded View and Parts List	page 2
Repair Procedures	page 4
Assembly and Disassembly	page 6

## HISTORY OF CHANGES

### 1991 DEFIANT ENCORE

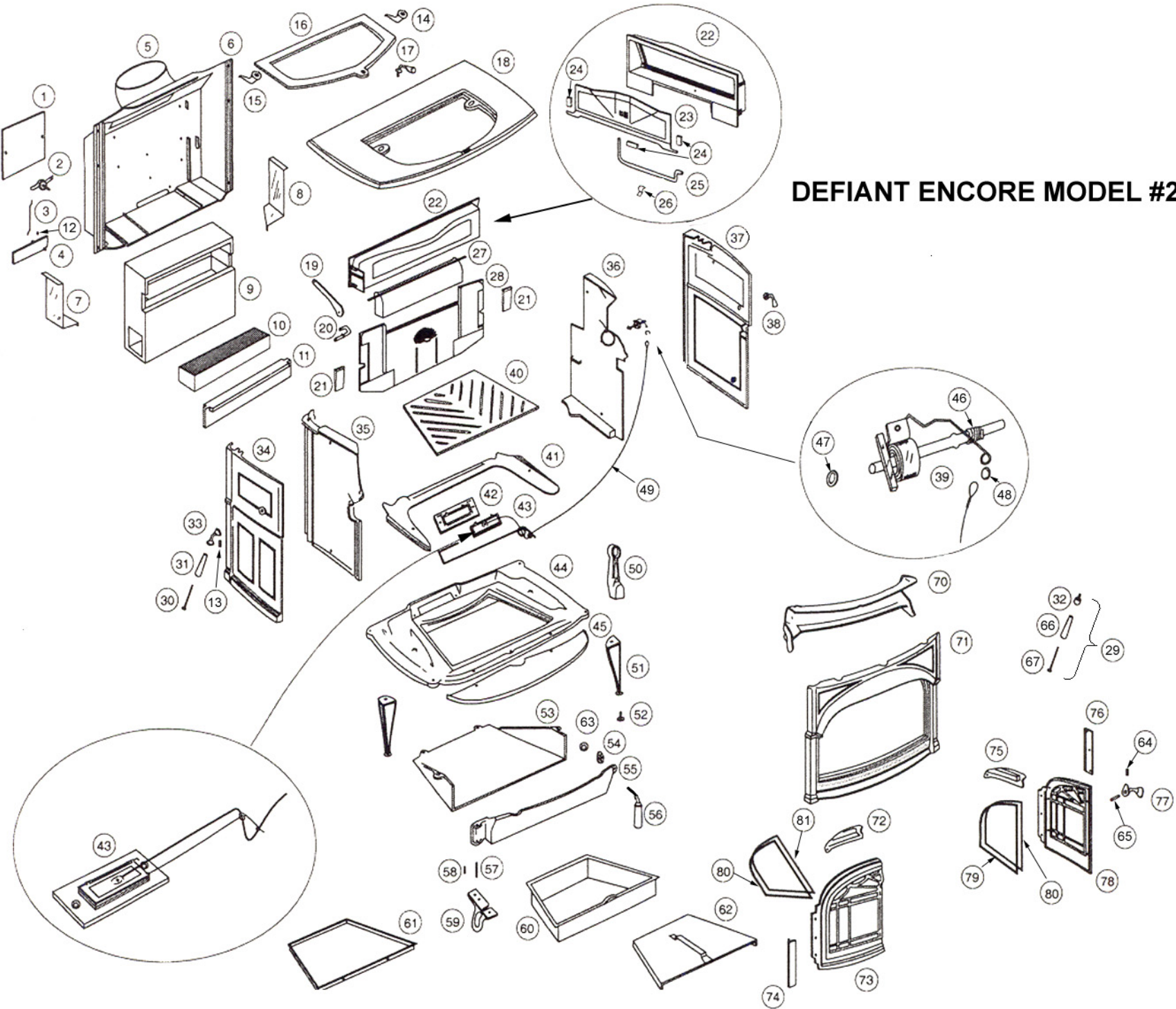
#### Model 2190

This section covers the model #2190 Defiant Encores, built between December 1991 and March 1995.

In December 1991 Vermont Castings changed the Defiant Encore to make the stove easier to build and to service. The revised features include:

- Combustor access through the firebox. Slide the throat hood to one side, then lift it out of the stove. There's no hardware holding it in. Then knock out a wedge on each side of the lower fireback; this releases the lower fireback so that it will come out easily. This exposes the catalytic chamber, which has a removable access panel on the front.
- Easy thermostat and damper linkage access. The left and right inner walls of the stove are gasketed on their back sides, and have two bolts holding each of them in place. Removing these panels exposes the thermostat and the damper linkage for adjustment and service.
- Single-panel glass with a heat-reflective coating on the outer side. Note that the single-pane system requires a dedicated left and right pane. Earlier stoves used a double-pane glass system.
- A simpler ashdoor hinge.
- A revised back removal. There is no hardware holding the back in place (other than the bolts that hold the upper fireback in place).
- Revisions in the catalytic chamber. Vermont Castings deleted the earlier kaowool seal strips below the refractory chamber, and deleted the stainless steel heat exchanger between the chamber and the lower fireback. Secondary air is now guided to the catalyst through channels formed by ribs on the back side of the lower fireback, and on the bottom of the stove back. This type of Encore uses the same catalyst and refractory chamber as the WinterWarm large insert.

In late 1993 Vermont Castings got approval to offer an optional 6" round flue collar for the Encore, as long as the user gave up the firescreen feature. This approval only applies to the #2190-series Encore.



**DEFIANT ENCORE MODEL #2190**

# DEFIANT ENCORE

**MODEL #:** 2190 DEFIANT ENCORE 91

**FEATURES:** MANUFACTURED FROM DEC 12, 1991 THROUGH FEB 1995  
SINGLE PANE IR COATED GLASS & DAMPER HANDLE TOWARDS THE STOVE FRONT LEFT SIDE

\* denotes dead product - not available

ITEM #	PART #	DESCRIPTION	ITEM #	PART #	DESCRIPTION
1	160-1492	Secondary Air Cover Plate	39	500-5470	Thermostat Coil & Rod Assembly
2	160-1489	Secondary Air Probe	40	130-7434	Bottom Grate
3	160-1486	Secondary Air Linkage	41	130-8609	Primary Cover Plate
4	160-1490	Secondary Air Flap	42	130-7411	Primary Air Frame Only
5	See Chart	Flue Collar		130-7412	Primary Air Valve Only
6	See Chart	Back		160-1493	Primary Air Rod Only
7	160-8629	Left Deflector	43	500-0337*	Primary Air Regulatory System
8	160-8630	Right Deflector			(Includes #42,49,120-3518 Gasket & 120-0645 Set Screw)
9	160-2510	Refractory Assembly w/ Access Panel	44	130-8604	Bottom
10	30004588	Catalyst	45	See Chart	Ashlip
11	160-2511	Refractory Access Panel Only	46	120-1846	Friction Spring
12	120-1986	Secondary Air Shim	47	120-2471	Flat Washer 1/4 SS
13	120-0563	Set Screw Only	48	120-1864	Eyelet For Thermostat Only
14	130-1832	Right Griddle Quad	49	500-5471	Primary Air Cable c/w 2 Sleeves
15	130-1807	Left Griddle Quad	50	130-7419	Andiron
16	130-0797	Griddle (no quads)	51	See Chart	Leg
17	500-4022	Griddle Handle Complete	52	120-1745	Leg Leveler Bolt 1/4-20 x 1" Hex Head
	160-0658	Griddle Handle Stub Only	53	130-8603	Ashdrop
	160-0661	Griddle Handle Wood Knob Only	54	500-4024	Pawl Assembly
	120-1900	Griddle Handle Bushing Only (2 used)	55	130-8607	Ashdoor
	120-1308	Griddle Handle Wood Handle Screw	56	160-0622	Ashdoor Handle - Shaft Only
	120-3210	Griddle Handle Wood Handle Nut Only		160-0663	Ashdoor Wood Handle Only
18	See Chart	Top	57	120-8608	Ashdoor Hinge Pin
19	160-1034	Damper Actuator Linkage	58	120-3209	Cotter Pin
20	160-1033	Damper Actuator Rod	59	130-8605	Ashdoor Hinge
21	130-1810	Wedge (2 used)	60	500-5746	Ashpan and Cover Assembly
22	130-8624	Upper Fireback Only		160-1025	Ashpan Only
	500-8623	Upper Fireback Assembly (#22 to 26)	61	160-1039	Ashpan Bracket
23	130-8626	Damper Only	62	160-1027	Ashpan Cover
24	160-1488	Damper Tabs	63	120-3290	Large Pawl Jam Nut
25	160-1035	Torsion Bar (damper rod)	64	120-0417	Front Door Handle Set Screw
26	160-1036	Torsion Bar Clip	65	120-0334	7/16-20 x 1" Socket Set Screw
27	130-8625	Combustion Throat (replaces 130-1145)	66	160-0620	Ceramic Handle -Ceramic Part Only
28	130-8646	Lower Fireback (replaces 130-8627)	67	120-1294	Ceramic Handle - Screw Only
29	000-4342	Fallaway Handle Complete (#66, 67,32)	70	130-8615	Front Air Manifold
30	120-1310	Damper Handle Screw Only	71	See Chart	Front
31	160-0664	Wooden Damper Handle Only	72	130-7403	Left Door Manifold
32	160-0650	Threaded Damper Nub Only	73	See Chart	Left Door Only
33	500-4265	Damper Handle Stub c/w Set Screw (#13)	74	130-7402	Left Door Hinge
34	See Chart	Left End	75	130-7404	Right Door Manifold
35	130-8621	Left Air Plate	76	130-7402	Right Door Hinge
36	130-8622	Right Air Plate		160-0416	Upper Hinge Pin
37	See Chart	Right End		160-0417	Lower Hinge Pin
38	500-4224	Thermostat Handle Complete	77	30001759	Front Handle Stub w/ Set Screw (repl 500-4225)
	160-0660	Thermostat Wooden Handle Only	78	See Chart	Right Door Only
	500-4264	Thermostat Handle Stub c/w Set Screw	79	140-8629	Glass, Right Side - IR Coated
	120-1243	Thermostat Handle Long Screw Only	80	120-3556	Glass Gasket - 3' Used Per Glass Panel
			81	140-8630	Glass, Left Side - IR Coated

## Shell Parts - Defiant Encore Model #2190

Part Name	Classic (130)	Red (131)	Sand (132)	Blue (133)	Midn't (134)	Green (231)	Ant Brn (139)
Flue Collar	1304280	2324280*	1324280	1334280	1344280	2314280	N/A
Ash Lip	1307406	2327406*	1327406	1337406	1347406	2317406	N/A
Leg	1307427	1317427	1327427	1337427	1347427	2317427	N/A
Front	1308612	1318612	1328612	1338612	1348612	2318612	N/A
Left Door	1308613	N/A	1328613	1338613	1348613	N/A	N/A
Right Door	1308614	N/A	1328614	1338614	1348614	2318614	N/A
Left End	1308616	N/A	1328616	N/A	1348616	2318616	N/A
Right End	1308619*	1318619*	1328619*	1338619*	1348619*	2318619*	N/A
Top	1308618	2328618*	1328618	1338618	1348618	2318618	N/A
Back	1308620	1318620	1328620	1338620	1348620	2318620	N/A

\*Substitute for original number

### **PACKED INSIDE THE STOVE**

- 500-7300** Parts Bag  
 500-4022 Griddle Handle Complete  
 160-0658 Griddle Handle Stub Only  
 160-0661 Griddle Handle Wooden Knob Only  
 120-1900 Griddle Bushing (2 Used)  
 120-1308 8-32 x 1" Phillips Pan Head Screw  
 120-3210 1/4-so Plain Hex Nut  
 160-0600 Holder, Door Fallaway Handle  
 120-5116 Allen Wrench, 1/8" Short Arm  
 120-5147 Allen Wrench, 5/32" Short Arm  
 120-2061 #10 x 3/4" Black Phillips Pan Head Sheet Metal Screw  
 000-4342 Complete Handle Package  
 160-0660 Thermostat Wooden Knob  
 120-1243 Thermostat Screw 8-32 x 2"  
 2008632 Encore 2190 Manual

### **GASKETS**

- |           |  |       |                           |
|-----------|--|-------|---------------------------|
| 120-3588  | 5/16" Medium Density 6ND Gasket        | 4'    | Left Door                 |
|           |  | 3'    | Right Door                |
|           |  | 3.5'  | Damper Housing for Damper |
|           |  | 3'    | Lower Fireback            |
|           |  | 3.5'  | Ashdoor                   |
| 120-3668  | 5/16" Gasket Wire Fiberglass with Core | 4'    | Top for Griddle           |
| 120-3591  | 5/16" Adhesive Backed Gasket           | 3.25' | Flue Collar               |
| 120-3589  | 3/8" Low Density 6ND Fiberglass        | 4.3"  | Left Air Plate            |
|           |  | 4.7'  | Right Air Plate           |
| 120-3518  | Pre-formed Gasket                      | 1     | Primary Air Frame         |
| 120-3556* | 3/16" 4ND Black Fiberglass Gasket      | 3'    | Each Glass Panel          |

\*000-3427 kit contains enough gasket and cement to gasket all glass with rope gasket

### **ACCESSORIES**

#### **Heat Shields**

- 160-1755 1 1/4" Spacer Used On Bottom & Rear  
 000-5834 Spacer Hardware Kit – Set of 4-160-1755  
 140-2252 Ashdoor Heatshield  
 120-1780 Ashdoor Heatshield Spacer

#### **Warming Shelf**

- 130-2221 Left Bracket  
 130-2222 Right Bracket  
 160-1705 Mittenrack  
 500-7234 Hardware Package

Part Name	Classic	Old Red	Sand	Blue	Midnt	Green	Ant Brn
Shelf	1302208	1312208	1322208	1332208	1342208	2312208	N/A
Dagon Bracket	1302220	1312220	1322220	1332220	1342220	2312220	N/A

## ENCORE 2190 HARDWARE

20-1326	¼ -20 x 1" Blk Hex Hd CS Gr 2 (or sub 120-1376) <b>( 2-right air plate, 2-left air plate )</b>	120-1392	¼ -20 x 2" Zinc Hex Head Cap Screw Gr 2 <b>( 1-air manifold to front )</b>
120-2470	Washer, ¼ Plain Flat <b>( 2-ends to bottom )</b>	120-0992	10-24 x 1" Zinc Phillips Pan Head Screw <b>( 1-left manifold to door left screw, 2-right manifold to door )</b>
30001794	¼ -20 x ¾" Blk Socket Hd CS (replaces 120-0645) <b>( 1-primary air valve )</b>	120-2471	Washer, ¼" Flat .294 id x .620 od Stainless Steel <b>( 1-primary air assembly, 2-andirons )</b>
120-0896	¼ -20 x ⅝" Black Phillips Round Head Screw <b>( 2-primary air valve to bottom )</b>	120-1340	¼ -20 x ½" SS Hex Head CS {rep 120-1373 - 5/8" May 03} <b>( 2-andirons )</b>
120-1374	¼ -20 X ¾" Hex Head Cap Screw <b>( 4-ashdrop to bottom, 3-hinge to ashdrop, 2-front to ends, 2-ends to bottom )</b>	120-0881	¼ -20 x ¾" Phillips Flat Head Screw <b>( 1-top to front )</b>
120-2474	Washer, Zinc ¼" Flat <b>( 3-ashdrop hinge, 4-ashdrop to bottom, 2-front to ends, 1-front to bottom, 2-left air plate, 2-right air plate, 2-top to ends, 4-ashdrop to bottom, 2-upper fireback to back, 3-each door hinge plate )</b>	120-2473	Washer, Black ¼" Narrow Flat <b>( 2-ashpan bracket )</b>
120-0417	¼ -20 x ¼" Knl Cup Point Socket Set Screw <b>( 1-thermostat stub, 1-ashdoor pawl, 1-front door handle stub )</b>	120-0907	1/4-20 x 1" Black Phillips Round Head Screw <b>( 2-flue collar to top )</b>
120-3210	¼ -20 Hex Nut <b>( 2- top to ends, 1-griddle handle stub, 1-ashdoor pawl, 1-front to bottom )</b>	120-3329	Nut, ¼ -20 Plain Square <b>( 2-flue collar )</b>
120-3290	⅜ -16 Toplock Z Hex Head Jam Nut <b>( 1-ashdoor pawl )</b>	120-1338	¼ -20 x ½" Hex Head Cap Screw <b>( 1-each griddle quad, 2-damper upper fireback, 2-damper for rod and clip )</b>
120-1378	¼ -20 x 1 ¼" Hex Head Cap Screw <b>( 1-front to bottom )</b>	120-1396	¼ -20 x 1½" Zinc Hex Head CS Gr 5 {rep 120-1386 Gr 2} <b>( 2-upper fireback to back )</b>
120-0482	¼ -20 x ½" Socket Flat Head Screw <b>( 2-ashlip )</b>	120-0563	5/16-16 x 5/16" Socket Set Screw <b>( 1-damper handle )</b>
120-1322	10-24 x ½" - Z inc Hex Head Cap Screw <b>( 4-heat shield taps in ashdrop )</b>	120-1243	8-32 x 2" – Z Slot Round Head <b>( 1-thermostat knob )</b>
120-2488	Washer, Zinc ⅜" Flat <b>( 4-legs to bottom )</b>	120-2906	Rivet, Pop ⅜ dia x ⅜ Grip {or use #6 x ¼" SMS} <b>( 6-safety listing )</b>
120-8610	3/8-16 x 1 ¼" Socket Head Allen Bolt <b>( 1-front left leg for ashdoor hinge pin )</b>	120-1986	Shim Ring, 18 Ga Nickel <b>( 1-secondary air flap )</b>
120-1443	⅜ -16 x 1 ¼" Zinc Hex Head Bolt <b>( 3-leg bolts rear and front right )</b>	120-0980	10-24 x ¼" Phillips Pan Head Screw <b>( 3-glass clips right door, 4- glass clips left door, 2-secondary air assembly)</b>
120-1745	¼ -20 x 1" Zinc Hex Head Leveler Bolt <b>( 1-in each of the four legs )</b>	120-4212	¼ -20 x 1¼" Threaded Rod (or 120-4214 – 1½" ) <b>( 2-top to ends )</b>
160-0600	Handle Holder <b>( 1-right front leg )</b>	120-0993	¼ -20 x ⅜" Phillips Pan Head Screw <b>( 2-secondary cover plate to back )</b>
120-0848	¼ -20 x 2" Black Phillips Flat Head Screw <b>( 2-primary air cover plate to bottom )</b>	120-2061	#10 x ¾" Black Phillips Pan Head Sheet Metal Screw <b>( 3-flue collar to connector pipe )</b>
120-1347	¼ -20 x ½" Hex Head Leveler Bolt <b>( 3-each door hinge strip )</b>	120-1308	8-32 x 1" Zinc Slotted Pan Head Screw <b>( 1-griddle handle )</b>
120-0998	10-24 x ½" Phillips Truss Head Screw <b>( 4-rear heat shield taps )</b>	120-1900	Griddle Bushing <b>( 1-griddle handle )</b>
120-2560	Washer, ⅜" Narrow <b>( 1-damper rod )</b>	120-1310	¼ -20 x 3" Zinc Slotted Pan Head Screw <b>( 1-damper handle )</b>
120-0643	10-24 x 7/16" Black Socket Head Cap Screw <b>( 1-door handle stop )</b>	120-1294	¼ -20 x 3⅝" Zinc Slotted Pan Head Screw <b>( 1-fallaway handle )</b>
120-0334	7/16-20 x 1" Socket Set Screw <b>( 1-door insert for handle )</b>	120-4867	1/32" Stainless Steel Control Cable <b>( 3.7'-air thermostat )</b>
		120-4874	1/32" Oval Copper Sleeve <b>( 2-air thermostat control cable )</b>
		120-1899	5/16 Hole Plug <b>( 1-stove back )</b>

120-1846 Friction Spring  
**( 1-primary air assembly )**

30001749 Pin, Cotter  
**( 1-ashdoor hinge pin )**

120-0991 10-24 x 3/4" Zinc Phillips Pan Head Screw  
**( 1-left manifold to door right screw )**

160-0616 Hinge Pin Upper  
**( 2-door assemblies )**

160-1396 Glass Clip, Long .75"  
**( 6-glass panels )**

120-8608 Pin, Hinge  
**( 1-ashdoor )**

120-1864 Eyelet, Thermostat Wire

160-1488 Tab, Damper  
**( 3-damper assembly )**

160-1036 Clip, Torsion Bar (Damper Rod)

160-0617 Hinge Pin Lower  
**( 2-door assemblies )**

160-1394 Glass Clip, Short .62"  
**( 2-glass panels )**

## **REPAIR PROCEDURES 1991 DEFIANT ENCORE Model 2190**

This section covers repairs to the Defiant Encore stoves built between December 1991 and March 1995. You can tell these units from earlier production units most easily by looking for wedges holding the lower fireback in place.

Wear gloves, a dust mask and protective eyewear when working on your stove.

### **REPLACING THE REFRACTORY PACKAGE**

1. Open the damper and remove the handle stub ("faucet").
2. Remove the throat hood; swing its bottom edge forward and then slide the hood to one side until the trailing end drops from its supports. Take it out of the stove.
3. Remove the andirons; one 7/16" hex head bolt each.
4. Remove the two wedges that hold the lower fireback in place.
5. Remove the lower fireback. Simply lift it out of the firebox.
6. Remove the left and right wear plates; two 7/16" hex head bolts each.
7. Remove the damper handle rod and the damper linkage ("hockey stick").
8. Remove the upper fireback. Two hex head bolts hold it in place. The heads are on the outside of the stove back. Swing the right end of the upper fireback assembly forward and let it drop into the fireback.
9. Carefully pull the entire refractory package straight forward. Leave the steel heat exchangers in place in the left and right sides of the stove back.
10. Install the new refractory package. Replace the catalyst. Install the access panel.
11. Inspect, clean; or replace the fireback as needed.
12. Re-install the upper fireback assembly; fasten it in place with two 1/4"-20 x 1-1/2" hex bolts.
13. Re-attach the damper linkage to the damper torsion bar and the damper handle rod; attach the handle and its 'faucet' to the handle rod with the allen bolt, and test the damper for smooth action.
14. Re-install the left and right wear plates, with their two bolts each.
15. Re-install the lower fireback, and secure it with two wedges.
16. Re-install the andirons.

### **REPLACING THE PRIMARY AIR CABLE**

1. Remove the right wedge, between the right wear plate and the lower fireback.
2. Remove the right wear plate (bolts at top and bottom, 7/16" heads)
3. Remove the thermostat handle from the thermostat stem with an allen wrench.
4. Pull the thermostat and stem assembly into the firebox. Be sure to hang onto the friction spring on the stem.
5. Remove the primary air frame and valve assembly. Pull the frame away from the stove bottom and to the right gently, to protect the primary air rod.
6. Detach the old cable from both ends. Be sure to keep the small clip that joins the upper end of the cable to the thermostat.
7. Fish the new cable through the primary air opening at the bottom of the right side of the firebox and through the primary air frame opening at the back bottom of the stove.
8. Attach both ends of the cable. Be sure the cable hangs properly from the rod on the thermostat stem, and passes under the stem. Be sure the friction spring is on the thermostat stem; push the stem through its hole in the stove side and re-attach the handle with the allen bolt. Swing the handle back and forth to ensure that there's a bit of tension on the friction spring. If there's not enough tension on the spring to hold the thermostat assembly in place when you release it, loosen the allen bolt on the handle stem and push the stem further out through the stove side, and re-attach the handle.
9. Clean the primary air frame and its mating surface of any old stove cement. Bolt the frame back into position, and test the thermostat action to be sure the valve nearly closes when the handle is swung fully to the rear.
10. Replace the right wear plate, with the two hex bolts, and replace the wedge that held the lower fireback in place.

## SERVICING THE DEFIANT ENCORE DAMPER

*Repair Procedures*

The Defiant Encore damper system relies on precise geometry. When the user rotates the damper handle, it moves an actuator link that connects to the torsion bar, which moves the damper back and forth. The link locks the damper by twisting the torsion bar slightly. The actuator link is a piece of 1/4" plate steel, shaped like a hockey stick, and is between the left inner and outer plates of the stove.

If the damper jams or will not lock, it will be necessary to get at the linkage.

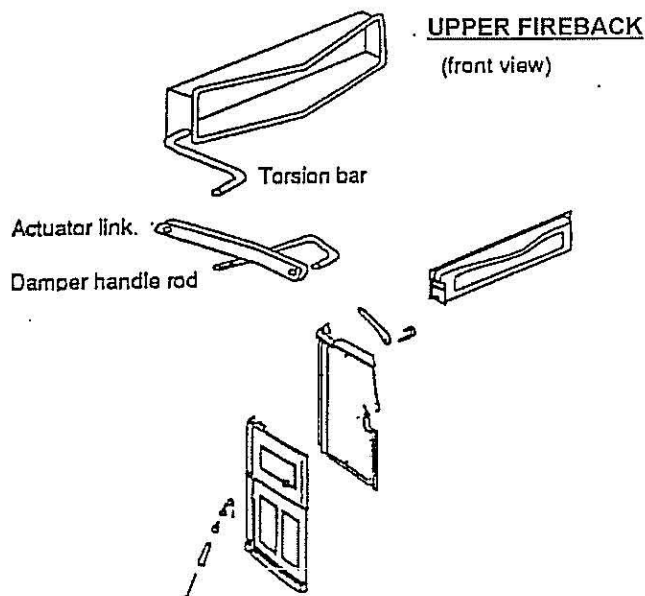
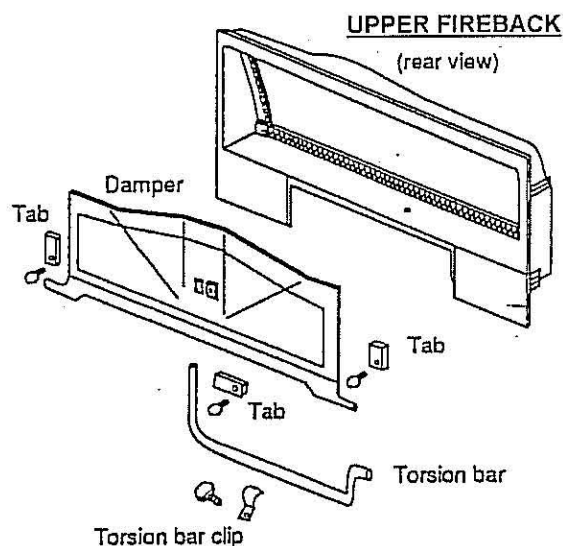
On stoves built before Dec. 1991 (#2140 series), you get at the linkage by removing an access panel at the top of the left inner panel in the firebox. This access panel is bolted and cemented into place; with the access panel removed, loosen the handle stub from the damper handle rod and remove the steel linkage. Be sure to not drop it, because it will be very difficult to retrieve if it falls between the inner and outer walls.

On stoves built between December 1991 and March 1995, (#2190 series) the access panel on the left side of the firebox has a bracket which holds a wedge at the rear, to hold the lower fireback in place. Start by removing the wedge, then remove the hex head bolts at the top and bottom of the inner left panel. This panel has rope gasketing on the back, so it isn't necessary to break any cement seals. Remove the handle from the handle rod, and remove the steel linkage and the handle rod.

First, check the linkage to be sure it's flat; straighten or replace it if it's bent. The linkage has a beveled hole at each end: use a round file to round over the inner bevels on the holes. Replace the linkage and check the damper action. If it has improved, you're done and you can replace the access panels. Before replacing the access panels on post-1991 models, check the back side of it, and the space between it and the outer panel, for any excess cement. This may keep the panel from fitting properly toward the outer side, and may allow the damper linkage to twist slightly, which can allow the damper to jam or not close fully.

Also, check (through the flue collar opening) to make sure the damper tabs and torsion bar clip are not bent, and that their mounting bolts are snug.

In rare cases, the torsion bar may be too short. When you have removed the access panel to the linkage bar, and before you remove the linkage, watch the linkage's action and see if the linkage is starting to come off the torsion bar. If it is, remove the upper fireback and replace the torsion bar with a new one from Vermont Castings.



	2140	2190
Actuator Link	160-1034	160-1034
Damper Handle Rod	160-1033	160-1033
Torsion Bar	160-1035	160-1035
Torsion Bar Clip	160-1036	160-1036
Tab	160-1488	160-1488
Upper Fireback Assy.	500-0335	500-8623
Upper Fireback Only	130-7417	130-8624
Damper Only	130-7421	130-8626
Bolts	120-1338	120-1338

## **DISASSEMBLY AND ASSEMBLY**

### **1991 DEFIANT ENCORE**

#### **Model 2190**

### **DISASSEMBLY**

1. Lift off the griddle and the front doors. Remove the ash pan and dump the ashes. The pan will be a convenient place to store hardware during disassembly.
2. Lift out the grate and loosen the bolts holding the andirons in place. Lift out the andirons.
3. Loosen the allen bolts holding the thermostat and damper handles in place, and remove the handles.
4. Remove the throat hood by pulling its bottom edge forward till it clears the ribs on the lower fireback; then slide it to either side. It will then fall into the firebox. Tap out the wedges holding the lower fireback in place. Let the fireback fall forward and lift it out.
5. Remove the two hex-head bolts holding the left and right inner walls ("wear plates") in place, and remove the wear plates. You may need to pry the forward edges of the plates to get them out of position. Be sure to pad the edges of the enameled stove front if you use a prying tool.
6. Push the damper handle stub into the firebox, releasing it from the steel link. Release the back end of the link from the damper torsion bar, and remove the link.
7. Remove the upper fireback assembly. It is held in place with two bolts going inward from the outer stove back. When the bolts are out, pry the right end of the assembly forward, and remove the assembly through the firebox.
8. Remove the flue collar. It is held by bolts and square nuts.
9. Remove the left and right stainless-steel heat deflectors from the back of the stove. Carefully slide the refractory chamber, including the combustor, forward into the firebox, and lift it out. Handle it carefully, as it's fragile.
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 spring that is on the main stem.
11. Remove the stove top. There are nuts on two vertical threaded stems at the left and right rear corners of the firebox, and one counter-sunk Phillips bolt in front, under the griddle handle notch. Since the top traps the stove back in place, either have a helper hold the back up while you remove the top, or put a rope or strap around the stove body before you remove the top. Then remove the back.
12. Remove one side, then the other. They each have one bolt joining them to the stove front, and one bolt joining them to the bottom. When the hardware is out, break the cement seals and lift the parts off.
13. Remove the stove front. It has one bolt going through the middle of its bottom and into the stove bottom. The air manifold will come with the front when you remove it.
14. Remove the air tube cover. It has one bolt at each side, going downward into the stove bottom.
15. Flip the bottom assembly over, and remove the legs. The left front leg bolt head captures the ashdoor hinge pin; first remove the spring clip going through the hinge pin, then the hinge pin. The ashdoor will then come off.
16. Remove the ashlip. It has two bolts going upward into the stove bottom.
17. Remove the ashdrop. It has four hex-head bolts joining it to the stove bottom.
18. Remove the air manifold from the stove front. It has one hex-head bolt at the top.
19. Examine all castings for cracks, chips, or distortion. Repair or replace as needed. Remove all old gasket material. Use a cold chisel or an old screwdriver to remove old stove cement from cement channels and mating surfaces.
20. Remove the damper from the upper fireback, and remove the gasket. Examine the damper tabs and the torsion bar clips, and replace as needed.

## ASSEMBLY

### Gasketing

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

Parts which need to be gasketed include:

Left front door	5/16" x 58"	#120-3588
Right front door	5/16" x 42"	#120-3588
Front doors (glass)	3/16" x 36"	#1203556
Ashdoor	5/16" x 42"	#120-3588
Griddle	5/16" x 44"	#120-3668
Flue collar	5/16" x 30"	#120-3591
Upper fireback (damper opening)	5/16" x 42"	#120-3588
Left wear plate	3/8" x 24"	#120-3589
Right wear plate	3/8" x 24"	#120-3589
Primary air valve	1/8" x 12"	#120-3518
Lower fireback	5/16" x 36"	#120-3588

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

### 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.

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 a 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 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.

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.

## ASSEMBLY

You will need at least 6 tubes of stove cement to re-assemble a Defiant Encore. 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. Put a generous bead of cement around the top edge of the ashdrop. See figure C-1 below. Attach the ashdrop to the bottom with four hex bolts.

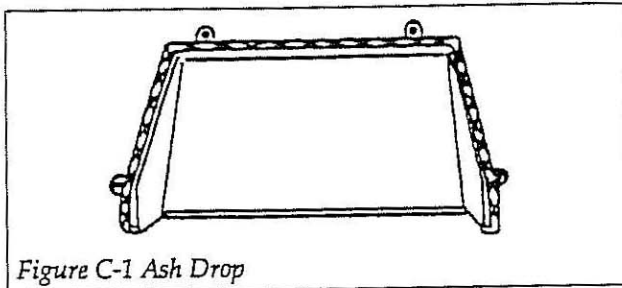


Figure C-1 Ash Drop

Thread a leg leveler into each leg, and install the legs. Put the handle holder on the right front leg. Use an allen bolt to secure the left front leg, to accept the ashdoor hinge.

2. Attach the ashdoor bottom hinge to the bottom of the ashdrop. Attach the ashlip to the bottom with two bolts. Attach the ashdoor by running its hinge pin through the left end of the ashdoor and into the socket head of the left front leg's allen bolt. Run the cotter pin through the hinge pin to hold it in place.

3. Assemble the primary air valve assembly. Put the air frame face down 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 hinge holes align. Push the air rod from left to right through the aligned holes and secure the rod in the frame with the 1/8" friction clip. See fig. A-1. Turn the assembly over and install the socket head cap (adjusting) screw, 1/4-20 x 3/18", in the center of the air valve, finger tight.

4. Install the primary air valve assembly on the stove bottom with the hinged side down. See fig. A-2. Secure the assembly with two Phillips round head bolts, 1/4-20 x 5/8". Turn the stove bottom over onto its legs. Thread the running end of the thermostat cable down through the small hole and up through the large hole in the air rod.

Pull the running end of the cable over to the valve and thread it through the small hole in the center of the valve. Pull 6" of cable outside the valve. Tighten the set screw finger tight. See figures A-1 and A-2.

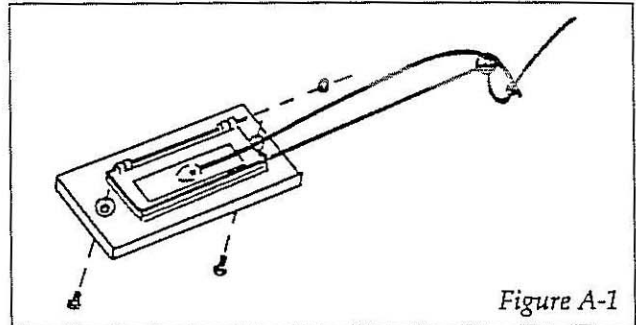


Figure A-1

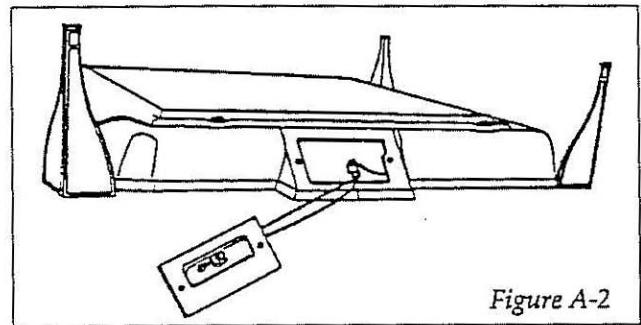


Figure A-2

Pass the thermostat cable through the right-hand gap between the air cover and the stove bottom. Bolt the primary air cover to the stove bottom.

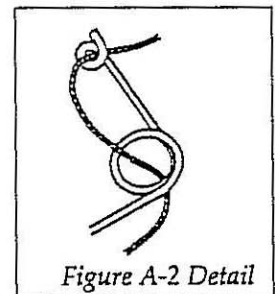


Figure A-2 Detail

6. Cement all the channels, flanges and mating surfaces indicated in figure C-2. Keep the cement off the thermostat cable.

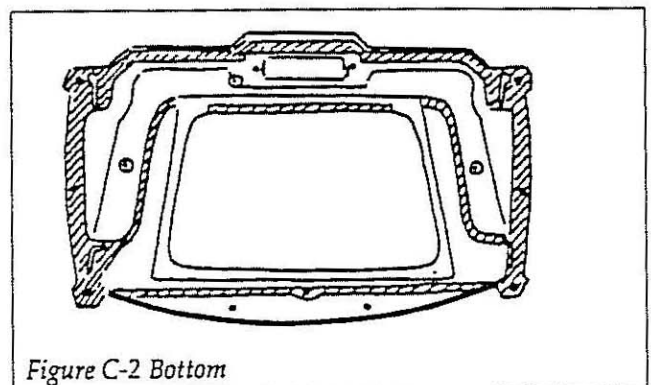


Figure C-2 Bottom

7. Put the stove front in its cemented channel on the stove bottom and secure with one 1/4-20 x 1" hex bolt.

8. Install threaded stems in the tapped holes in the left and right back edges of the stove front. Cement all mating surfaces on the stove front as shown in figure C-4. Put the air manifold in position on the inside of the stove front and secure with one hex bolt, 1/4-20 x 2" long.

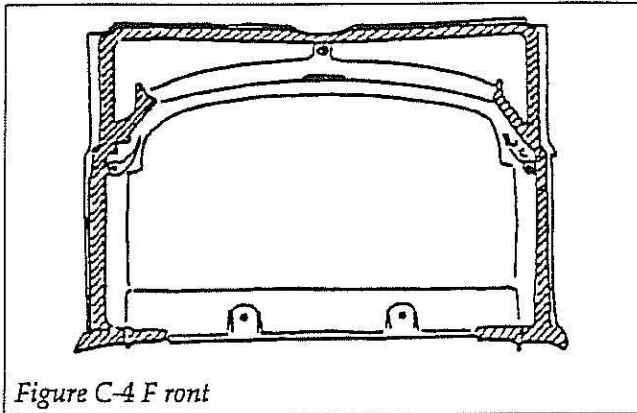


Figure C-4 F front

9. Cement the channels and mating surfaces on the left stove end as shown in figure C-5. Put the left stove end into its mating channel in the stove front, 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. Secure the end to the bottom with a 1/4-20 x 3/4" hex bolt and a washer.

10. Cement the mating surfaces as shown in figure C-6. Put the right stove end into its mating channel on the stove front, 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. Secure the end to the bottom with a 1/4-20 x 3/4" hex bolt and a washer.

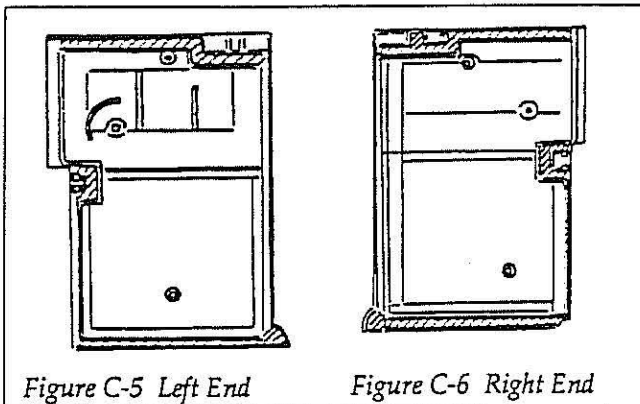


Figure C-5 Left End

Figure C-6 Right End

11. Mount the front to the stove bottom and to the stove ends. The threaded stems on the back edges of the stove front pass through clevises on the front edges of the stove ends, and are secured with hex nuts and washers. The front attaches to the stove bottom with a 1/4-20 hex bolt and washer.

12. Put 1-1/2" threaded stems into the two holes at the rear corners of the underside of the stove top. Apply stove cement to the grooves around the underside of the stove top, and to the rear edges of the stove sides. See figure C-7.

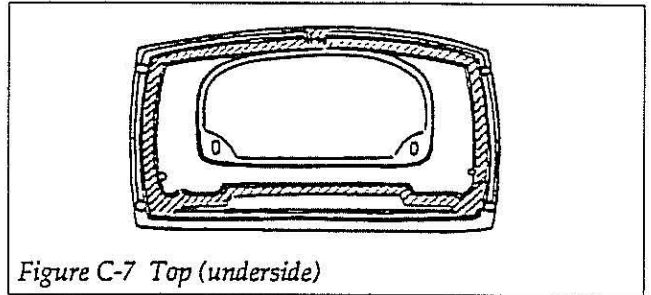


Figure C-7 Top (underside)

13. Apply cement to the grooves in the back. See figure C-8. Put the stove back into position. It will be easiest to have a helper hold it in place temporarily. Install the stove top, which captures the top edge of the back, and secure it with washers and hex nuts on the two threaded stems at the rear corners. Secure the front of the stove top to the stove front with one Phillips-head bolt, 1/4-20 x 1", passing downward through the notch where the griddle handle fits.

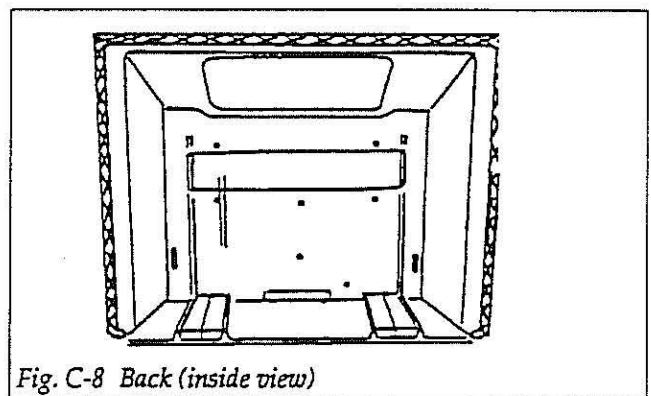


Fig. C-8 Back (inside view)

14. Install the refractory chamber. It should fit snugly against the outer back of the stove, and downward against ribs on the bottom of the back panel. Install the left and right heat deflectors in the heat-exchange passages to the left and right of the refractory chamber.

*Assembly/Diassembly*

15. Assemble the upper fireback assembly. This will include the damper, the torsion bar, and the upper fireback, along with damper tabs and a torsion bar clip. Be sure the hardware is snug.

16. Install the upper fireback assembly. Put the left end into position first, then lift the right end and swing it out to meet the back of the stove. Secure it with washers and two 1/4-20 x 1-1/2" hex bolts going in from the outside.

17. Pass the damper handle rod ('J'-shaped) outward through the left side of the stove. Loosely attach the damper 'faucet' to the rod. Check the holes in the ends of the damper actuator link (which looks like a hockey stick); the holes should be slightly beveled toward the center. If they are not, round over the edges of the holes with a round file. Then mount the link between the damper handle rod and the damper torsion bar. Refer to the Exploded View for positioning guidance. The 'blade' of the hockey stick must be toward the front of the stove, and aimed downward. Test the linkage system's operation. The system should 'lock' when the handle is fully to the rear and the bottom edge of the linkage blade hits the top of the damper handle rod. Tighten the set screw which holds the damper handle ('faucet') to the rod.

18. Install the Left Inner Side; it secures with two 1/4-20 bolts. Re-test the damper system for smooth operation.

19. Install the thermostat. Be sure that the friction spring is on the stem, between the outer end and 'ears' pressed onto the stem, and that the wire stem coming off the bimetal coil passes over the stem and toward the front of the stove. Loosely attach the thermostat handle to the stem, on the outside of the stove. Attach the thermostat cable to the end of the wire stem, and check the system for smooth operation. The primary air valve should close to within 1/4" of the valve frame with the thermostat cable swung fully to the rear. Be sure that the friction spring provides enough friction to keep the valve open when the handle is positioned fully forward.

20. When the thermostat is working well, install the right inner side. It secures with two 1/4-20 hex bolts and washers.

21. Put the catalytic combustor into the refractory package, ensuring that it is fully to the rear. Install the refractory access cover.

22. Install the lower fireback. Ribs on its back side channel secondary air to the combustor. Be sure the panel is fully down in its bottom channel. Secure it with a wedge on each end. Install the throat hood; put one of its end pins on a support on the lower edge of the upper fireback, and slide the hood toward that side until the other end pin is within the other support, then slide it back until it is centered on the lower fireback. Let the lower edge of the hood rest against the lower fireback.

23. Install the slotted grate. It simply rests in place, with the wider side of the slots downward, toward the ashdrop. Bolt the andirons into place.

24. Install the secondary probe assembly. See figure A-8 for positioning guidance.

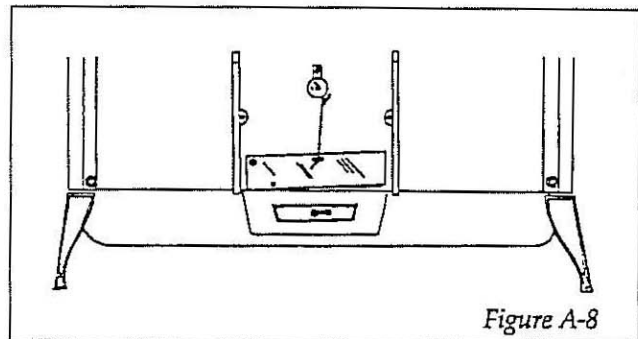
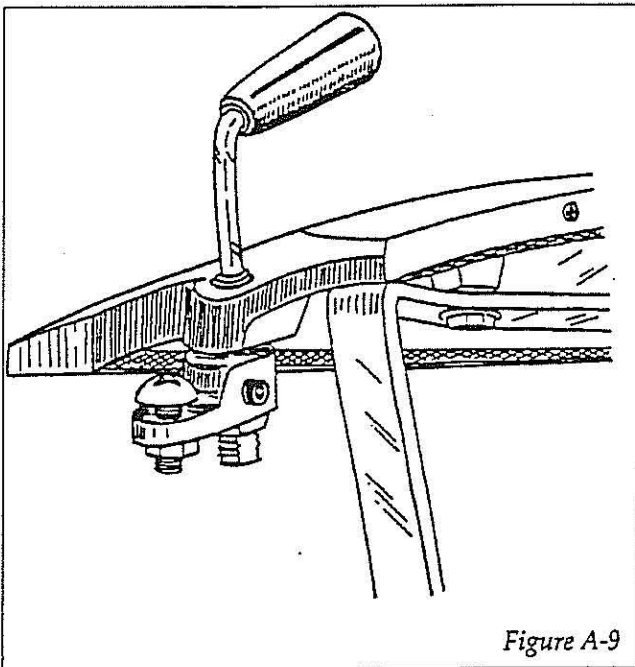


Figure A-8

If necessary, loosen the lock nuts on the probe shaft and adjust the position of the tab on the thermostat coil so that it is at '4 o'clock' as you face it from the rear, with the mounting tab at '12 o'clock'. Insert the double-bent end of the secondary 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 1/4". 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, then back it off 1/4 turn. Insure that the flap moves freely up and down and that the flap rests at or near the closed position.

25. Install the secondary air cover plate. Secure it with two Phillips pan-head bolts, 1/4-20 x 3/8".

26. Assemble and install the ashdoor. Screw the socket, button head bolt into the stepped side of the latch pawl. See figure A-9. Thread the hex nut onto the end of the bolt and tighten it finger tight against the flat side of the pawl. Screw the socket set screw into the handle shaft hole 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 ashdoor 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. Position the ashdoor between the bottom hinge panel and the bottom of the stove; slide the ashdoor hinge pin upward through the bottom hinge, through the ashdoor, and into the socket of the allen bolt holding the left leg to the stove bottom. Secure the hinge pin with a clevis pin just above the bottom hinge.



27. Test the door seal with a 'paper test', closing the door on a slip of paper and latching the door. The easier it is to pull the paper out, the looser the seal is at that spot. Adjust the latch as needed to ensure a good seal all around the door. If latch adjustments don't provide a good seal, replace the gasket with a thicker one, or remove it and apply a thin bead of stove cement to the bottom of the channel. Let this bead dry before you replace the gasket, as fresh cement will soak into the gasket before it hardens, resulting in a poor seal.

28. Install the ashpan bracket on the ashdoor. Secure it with two 1/4-20 x 1/2" hex bolts and washers. Close and open the ashdoor. If the bracket hits the ashlip, adjust it as needed by tapping the bracket or twisting it. Insert the ashpan and re-test the ashdoor operation to ensure that there's no impact between the pan and anything else.

29. Paint the front doors, then assemble them. Mask the gasket channels to avoid overspray. Re-gasket them if necessary. Put them face down on a flat surface, and install the glass. Check the edges of the glass for markings indicating the coated side of the panes; the coated sides go outward, away from the fire. Install the air manifolds.

30. Install the flue collar. It mounts with two Phillips round-head bolts, and nuts inside the stove.

31. Prepare the stove for painting. Clean up any excess cement with a putty knife, and mask the handles, the secondary air cover, and the safety plate. It's better to apply two light coats of paint than one heavy coat.

32. Install and adjust the front doors. The latch assembly adjusts with one turn of the handle faucet. Remove the small allen socket-head bolt from the right door to allow the faucet to spin fully. Use the paper test here to ensure that the doors provide a snug seal all around, including where the right door overlaps the left door.

33. Install the griddle. Gently tap the perimeter of the griddle to seat it against the gasket.

34. If you have replaced any major iron panels, tell the customer to re-cure the stove with a series of four small fires, each hotter and longer than the last, to acclimate the iron to the stresses of heat.

## 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 rebuilding 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 a 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. Use a wire brush to finish cleaning the channel. 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.

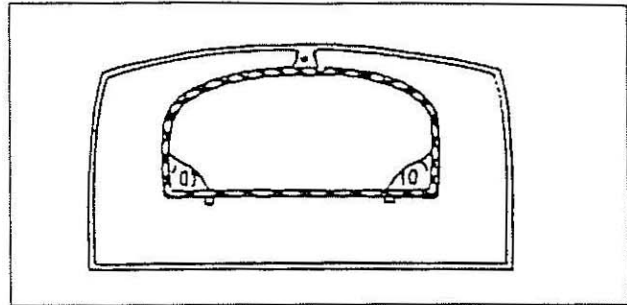


Fig. G-1 Top  
5/16" x 44" wire with fiberglass core for Griddle.

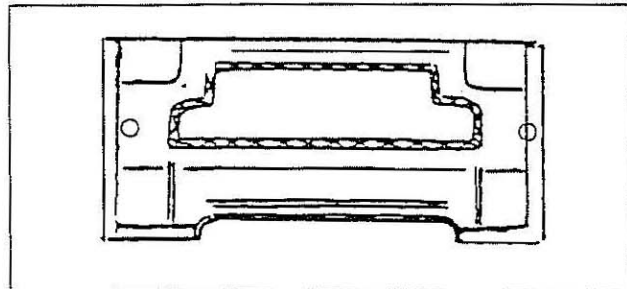


Fig. G-2 Upper Fireback  
5/16" x 42" fiberglass for damper opening.

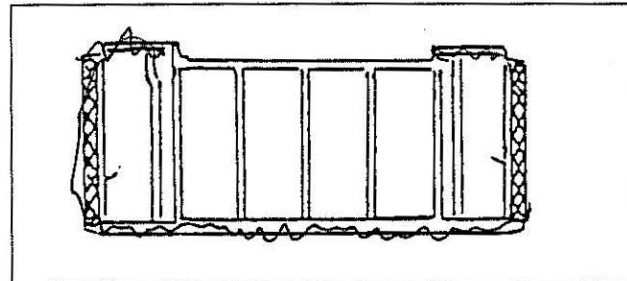


Fig. G-3 Lower Fireback  
5/16" x 36" fiberglass

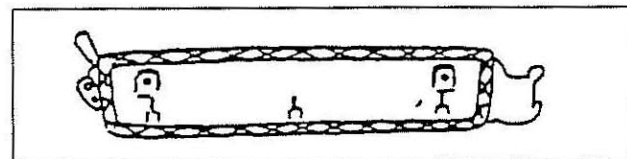


Fig. G-4 Ashdoor  
5/16" x 42" fiberglass

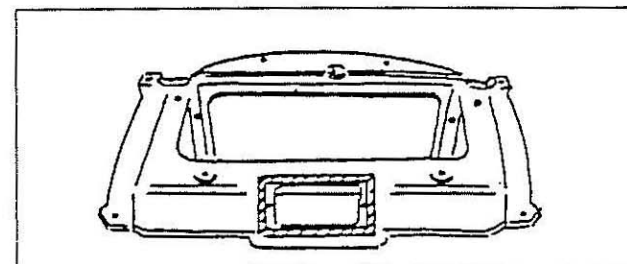


Fig. G-5 Bottom  
1/8" x 12" fiberglass to seal Primary Air Valve to stove bottom.

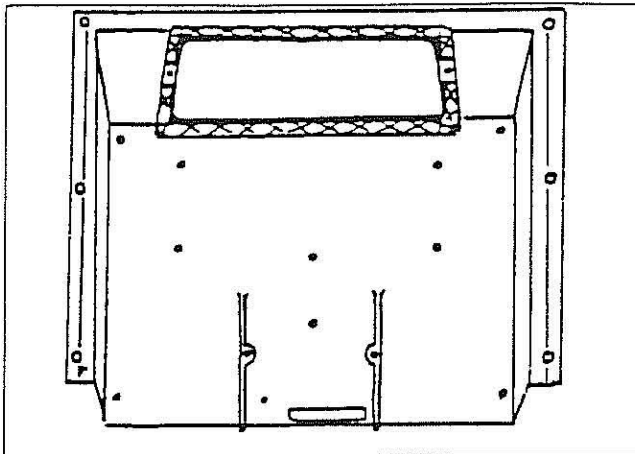


Fig. G-6 Back  
5/16" x 30" adhesive backed fiberglass to seal  
Flue Collar to back of stove.

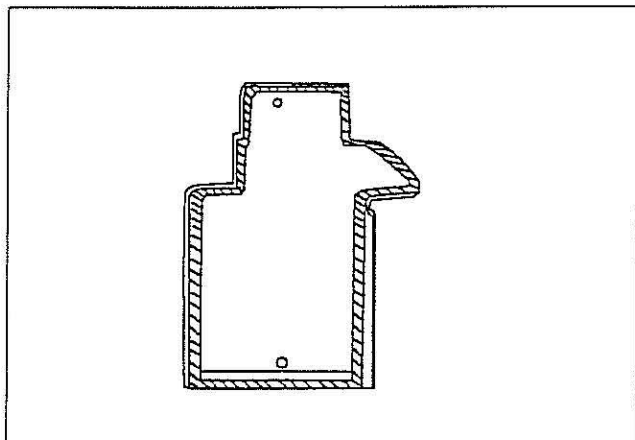


Fig. G-7 Left Inner Side (outside view)  
3/8" x 57" fiberglass

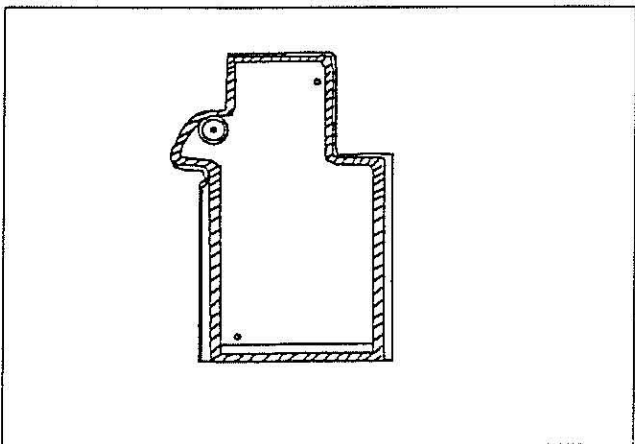


Fig. G-8 Right Inner Side (outside view)  
3/8" x ~~24"~~  
54" fiberglass

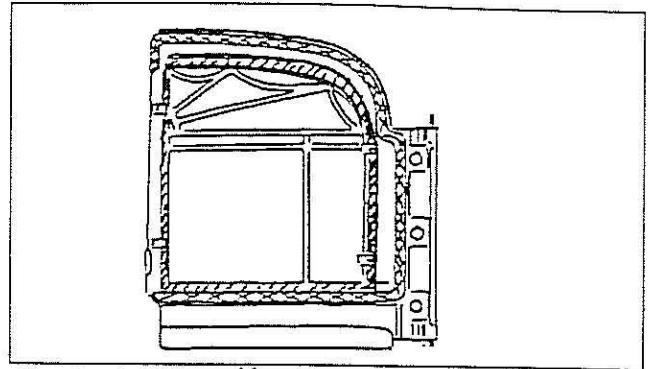


Fig. G-9 Left Door (inside view)  
3/16" x 36" fiberglass to seal glass to door.  
5/16" x 48" fiberglass to seal door to front.

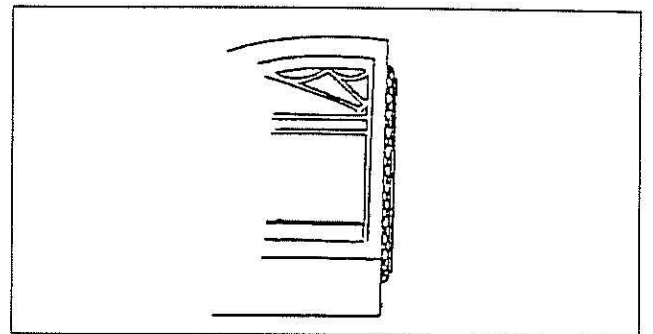


Fig. G-10 Left Door (outside view)  
The gasket which seals the left door to the front  
continues down the center seam on the outside  
of the door. This provides the seal where the  
doors meet

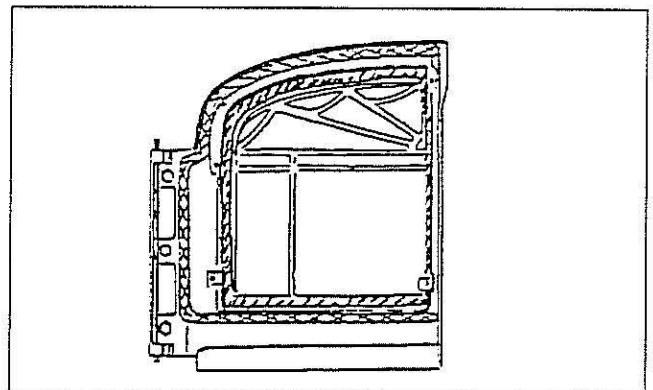


Fig. G-11 Right Door (inside view)  
3/16" x 36" fiberglass to seal glass to door.  
5/16" x 42" fiberglass to seal door to front.