# **Owner's Manual**

## **Residential Factory Built Fireplace**

**Operation** • Maintenance • Installation



Keep these instructions for future use.



Dear Customer,

The **Delta** incorporates technology with elegance to give you a beautiful view of the fire without compromising on heating efficiency or environmental quality.

We have designed your new **Delta** to be easy to install, operate and maintain. It is in your best interest to become familiar with it. Study your manual to be sure that the installation is correct, then follow the guidelines for operation and maintenance.

We at RSF Woodburning Fireplaces congratulate you on your choice of the **Delta**, and are confident that you have purchased a fireplace that is simply, the best.

Sincerely, RSF Woodburning Fireplaces TEAM January 2003

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#### DELTA

#### SAFETY FIRST

#### DO'S AND DON'TS

If this fireplace is not properly installed, a house fire may result. For your safety, follow the installation directions. Contact local building or fire officials about restrictions and installation requirements in your area.

NOTE: We strongly recommend installers be WETT or WHERF certified.

To ANYONE using this fireplace:

These DO's and DO NOT's are for your safety.

- 1. **DO** read this instruction manual before lighting your first fire.
- 2. **DO** read the section MOVING THE DELTA before installing (page 10)
- 3. **DO** burn seasoned wood fuel only or processed solid fuel firelogs.
- 4. To avoid glass breakage, **DO NOT** slam the fireplace door.
- 5. **DO NOT** use gasoline, lantern-type fuel, kerosene, charcoal lighter fluid, pellet stove lighter gel or similar liquids to start or freshen up a fire in this fireplace. Keep all such liquids well away from the fireplace while it is in use.
- 6. DO NOT overfire the fireplace. If the chimney connector behind the top louver glows red, or if you are unable to slow down the burning rate of the fire, you are probably overfiring the fireplace.
- 7. DO operate the fireplace with door fully open or fully closed. If door is left partly open, gas and flame may be drawn out of the firplace opening creating risk of both fire and smoke.
- 8. **DO** keep all combustible materials (furniture, shoes etc.) at least 4 feet away from the front of the fire-place.
- 9. **DO** not use a fireplace insert or other products not specified for use with this fireplace.
- 10.**DO** not operate without or with a damaged gasket. To do so will cause damage to the fireplace.

#### CREOSOTE

When wood is burned slowly, it produces tar and other organic vapours, which combine with expelled moisture to form creosote. The creosote vapours condense in the relatively cool chimney flue of a slow burning fire. As a result, creosote residue accumulates in the flue lining. When ignited, this creosote makes an extremely hot fire.

The chimney must be inspected periodically during the heating season to see if a creosote buildup has occurred. If a significant layer of creosote has accumulated (1/4" or more), it should be removed to reduce the risk of chimney fire.

#### Warning: burn seasoned wood only!

- Do not burn: driftwood
  - treated wood
  - coal
  - garbage

plastic

Do not use construction scraps (e.g., 2x4 or plywood scraps) as your only supply of fuel, as you may overheat and seriously damage the fireplace. Use no more than 3 densified fuel logs (e.g. Presto Logs), at a time. Do not poke or stir the logs while they are burning. Use only firelogs that have been evaluated for fireplace use and refer to firelog warning and caution markings prior use.

#### **GENERAL SPECIFICATIONS**

#### **COMBUSTION CONTROL SYSTEM**

Since the doors are sealed, all combustion air must come from outside the house through a draft control. This control has a bimetal coil to allow more air when the unit is cold, and less air when the unit is hot, guarding against overheating. It can be controlled either manually with the lever that is located above the lower right side louvers, or automatically with an optional electric wall thermostat.

For the first few days, it is best to operate the fireplace with the manual control fully open (moved to the right as far as possible). Just control the fire as you would any normal fireplace using two or three logs at a time for a smaller fire, or more logs for more heat. Once you become familiar with operating the fireplace with the control open, you can start experimenting with lower settings. Remember: when the fireplace is hot, the control will not need as much movement to reduce the fire as when it is cold. The bimetal coil will already have shut the damper part way.

#### **FIRESCREEN** (option)

If you want to use the fireplace with the doors completely open, you have to run it with the firescreen (FDFSD) in front of the opening. The firescreen will avoid sparks to fall on the floor. When using the firescreen do not leave the fireplace without any supervision. This option is absolutely needed if you want to use the fireplace the door open.

#### **THERMOSTAT** (option)

If you want constant heat, day and night, you will be surprised of what the wall thermostat option can do for you. Once you have your fire burning, just set the manual control on low (push the draft control lever all the way to the left) and let the automatic thermostat take over. Your room temperature will keep as even as though you were heating with oil, gas, or electricity - except you will find wood heat more comfortable (see Options: Wall Thermostat part FDHC4).

NOTE: This thermostat controls the combustion air rate, not the internal circulating blower.

#### INTERNAL CIRCULATING BLOWER (option)

If you have the optional internal blower installed, adjust the speed of the blower to the output you require. The blower speed control should have been installed at a convenient place on the wall. When a fire is burning, the thermo disc installed inside the fireplace will turn on at 110° F, allowing the blower to operate; this will take about 20 minutes from the time you start the fire. When the Delta cools to 90°F, the switch deactivates the blower. The maximum heat output of the fireplace is greater with the blower running (see Options: Circulating Blower part FDHB5-N).

#### **GRAVITY VENT SYSTEM (option)**

If there are areas in your home that you would like to heat either in an upper level or an adjacent room, the gravity vent system can provide this heat with or without the use of a blower. It is controlled by a gravity vent damper. The handle is located above the top left louvers of the fireplace. Simply turn the lever to adjust the air flow through the gravity vent ducting. As the hot air rises, it will be distributed through the insulated ducting to the outlet (see Options: The Gravity Vent System part FDVD, page 24).

#### **CENTRAL HEAT SYSTEM (option)**

You have the option to heat remote rooms in your home from the heat generated by your fireplace. If this option is installed, there may be a thermostat installed in the main room you want to heat, away from the room that contains the fireplace. Or a thermostat installed that removes heat from the fireplace when the main room you are trying to heat reaches the desired temperature. This thermostat controls the blower, which brings air to the other rooms in your home, keeping them at the temperature you desire. When the blower is running, it takes air from the room the Delta is in, draws it around the fireplace and distributes it (see Options: Central Heating System parts FDHC6/FDHB6).

NOTE: The blower (part FDHB6) can push warm air either up or down, and can also be zone controlled (see Options: Zone Heating and diagrams). HINT: If some evening you would like to enjoy the ambience of the wood flame, but you are a little too warm, turn up the central heating thermostat and open a window in the room the ducting goes to. This will keep your room in front of the fire from getting too warm.

#### **OPERATION**

#### THE FIRST FIRE

Before the first fire, be absolutely sure to wipe off all fingerprints and debris from the gold plating, if you have chosen this option. The plating undergoes a sealing process during this first fire, and the acid from your finger prints will permanently etch the gold plating. You will experience a slow start-up during the first fire. The refractory bricks still contain moisture and take a good hot fire to get rid of the moisture. While there is moisture in the bricks, the bricks will be black with smoke deposits. When the moisture is gone, the bricks will turn white. You will experience an odour during the first few fires. This odour results from the curing paint and the burn-off of oil from the heat exchanger. Ventilate room to expel odours.

#### LIGHTING

Slide the draft control that is located above the lower right side louvers all the way to the right. Light a fire in the fireplace, starting with paper and kindling only. Then add 2-3" diameter wood. After the fire is established, close the doors to prevent overheating of the fireplace face. The unit is designed to accept combustion air through the outside air duct only. (See the Combustion Control System, page 5) Never use any flammable liquids. Once a coal bed is established, add standard cord wood. Leave the draft control open until the fire is well lit, then adjust it to the level you desire.

#### Warning: Do not use a grate or elevate the fire.

#### REFUELLING

Fuel wood can be of any species. However, ensure that the wood is well seasoned and kept under cover.

NOTE: The central heat and internal blowers, if installed, should be shut off during refuelling to prevent smoke from spilling out of the fireplace.

The door should be opened slowly to keep smoke from spilling into your room. If you do have smoke spillage, check to see that all kitchen and bathroom fans have been shut off. They can cause a vacuum in the house, which pulls smoke out of the fireplace.

#### MAINTENANCE

#### CLEANING

The high heat paint and gold plating can be cleaned with a soft moist cloth. Use a mild detergent and water. Do not use abrasive cleaners!

#### ASHES

Clean the ashes before they become too deep, i.e., before you have a spillage problem when opening the doors.

Ashes should be placed in a metal container with a tightfitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground well away from all combustible materials. If the ashes are disposed of by burial, or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

#### DOORS

Lubricate the door latch and hinges with an all-purpose grease at least once during the burn season. The door has been fitted and adjusted correctly at our factory. Under normal conditions only the door closer should need adjustment. To adjust the door closer catch, loosen the two screws that hold the door closer in place. Slide the door closer in 1/32" increments to the right, tighten screws and (as shown in figure 1a) test to ensure that the door closes tightly. To check if the door seal is tight, try to slide a piece of paper behind the door closes tight and you can still pass a piece of paper past, the gasket may need replacing or the doors need readjusting.

If the door has been replaced the following may need adjusting. First check that the right side door is in the centre of its adjustment. Adjust the hinges so the door closer closes the door. The hinges are adjustable by removing the door, and loosening the small Allen screws on the right side of the hinge. The hinge pins are manufactured off-centre to facilitate easy adjustment. With a flat screwdriver, the pins can be turned so that the doors seal well and fit with each other. After adjustment, tighten the Allen screws, holding the hinge pins in place with the screwdriver, and replace the door. If the left side door fits correctly and the front door does not pass the paper test, then the angle bracket needs to be adjusted. Loosen the four screws that are attached to the centre door and slightly adjust the Allen screws in the angle bracket inward. Tighten the two screws closer to the gasket first then the other two screws. Once the left part of the door seals well the door closer may need to be readjusted. If there is no more adjustment in the door closer the right side door must be loosened and adjusted slightly to the right. Adjust the left door until the doors seal. If the door seal is damaged to the point where it does not seal tightly, the gasket may need to be replaced. The gasket replacement kit (part FDGRK7) is available from your dealer.

The door seal is the most important factor in controlling the burn rate of your Delta fireplace.

#### GLASS

In a controlled combustion firebox, temperatures are not always high enough to keep the glass perfectly clean. We have supplied you with special ceramic glass that will withstand the heat from the fireplace without cracking. A good hot fire usually cleans off most of the deposits that have accumulated.

Remember: the drier the wood, the cleaner the glass.

A word of caution: although heat will not break the glass, be careful **not to hit the glass** with logs.

NOTE: Cleaner glass means a cleaner flue.

Warning: Never clean this glass with an abrasive cleaner. Use only a cleaner recommended by your dealer. Never clean the glass while it is hot. You risk getting a serious burn.



#### If your glass breaks

If your glass breaks, call your dealer for the exact replacement glass and instructions on how to replace the glass and gasket.

- 1. Remove the door from the fireplace by lifting it off the hinges. If the right side glass needs to be replaced remove door by removing the adjustment/mounting screws (See Figure 1).
- 2. Remove the clips holding the glass in place.
- 3. Clean out any bits of glass and dirt from the gasket.
- 4. Place the new glass into the opening and replace the clips, being careful not to overtighten the screws.
- 5. Check the glass by trying to move it back and forth. It should feel snug, but move slightly without too much effort. If the right glass was replaced, replace the door and adjust it square with the centre door. See section DOORS if the door needs adjustment.

#### **GOLD PLATING**

If you have gold doors or gold louvers, you will be happy to know that they will not tarnish. However, they are not scratch resistant and require a totally abrasive free cleaning. Use only mild soap and warm water to clean the gold when the surface is cool. The use of any household clea-ner, such as Windex, abrasive cleaners, or any form of acid, may permanently etch or remove some of the gold plating. Before every fire, be absolutely sure to wipe off all fingerprints from the gold plating. Acid from debris or your fingerprints may permanently etch the gold plating.

#### **CHIMNEY CLEANING**

Check the chimney for creosote buildup every month until experience shows how often cleaning is necessary. A buildup of 1/4 inch or more should be cleaned mechanically before more creosote accumulates. Use a plastic bristle or wire brush that fits correctly into the chimney. The baffle in the firebox can be removed to gain access to the flue from below.

To remove the baffle, first remove the secondary air pipe. This can be done by removing the cotter pin from the top right side of the secondary air pipe and sliding the pipe as far as it goes to the left. Then when the right side drops out of its hole, slide it to the right until the other side drops. To remove the baffle, push up and slide it off the brackets. Replace both as you removed them and be sure the holes on the secondary air pipe are facing toward the front. You may touch up the face of the Delta with STOVE BRIGHT flat black high temperature paint. The correct paint is available from your dealer. When you paint the face of the fireplace, remove or cover the gold items (i.e., doors and louvers), and cover the area surrounding the fireplace with newspaper. Follow the directions outlined on the approx con DO NOT attempt to paint while the fire

on the spray can. DO NOT attempt to paint while the fireplace is still warm. Keep the spray can away from any source of heat or open flame. Ensure that there is adequate ventilation in the room from the time you start painting until the paint is dry.

#### **REFRACTORY BRICKS INSTALLATION**

The refractories or refractory bricks for the Delta fireplace are placed in the fireplace at the factory. If, for any reason, they should need to be replaced the following order should be observed.

The bottom refractory R4606 and R4605 should be placed at the bottom of the firebox. The two rear refractories R4602 and R4601 should then be positioned taking care to place them as in the diagram. The two side refractories R4604 and R4603 are then positioned once again being careful to place them properly. If the refractories on the back and sides do not fit immediately into position as in the diagram they should not be forced. The refractories can only be fitted into place as they were designed to do. The last three refractories should be placed in front from left to right looking at the fireplace R4608, R4609, and R4607.

These directions should be reversed in order to remove the refractory bricks from the Delta.





#### INSTALLATION

Check local codes concerning restrictions and installation requirements in your area.

Warning: Remove the left and centre doors and cover right side door before installation and place them in a safe area to reduce the possibility of :

- a) vandalism;
- b) sub-trade tool abrasion, chipping, or breaking of glass;
- c) gold finish damage because of muriatic acid, plaster, cement, paint and harmful sprays or liquids, and sub-trade tool abrasion.

#### **MOVING THE DELTA**

Due to the weight of the Delta we recommend you use a furniture dolly and place the Delta as shown in the diagram below. The Delta weighs 620 lbs. complete and 450 lbs. stripped. The Delta should be stripped before moving it if possible. Elevate the fireplace and dolly to a 45° angle to move.

NOTE: If using an Eskelera a 2 x 4 will have to be placed between the two forks before using.



STANDOFF INSTALLATION

Before installing your Delta, the side nailing strips need to be assembled as follows:

- 1. Remove the nailing strips from the top of the unit.
- 2. Remove the four (4) metal screws on each side of the Delta facing.
- Attach the nailing strip to the side of the Delta using the metal screws that you removed in Step 2 (Figure 4).



#### Figure 4: Standoff assembly & installation

NOTE: When using the optional 45° nailing strip be sure to line up the 45° nailing strip with the 45° angle on the top framing guide to ensure facing will be flush.

#### LOCATION

Your Delta fireplace may be installed in many different ways (see Figure 5) without any special floor reinforcement.

Warning: If this fireplace is not properly installed, a house fire may result. For your safety, follow the installation directions and clearances.

- 1. Note the location of roof and floor joists. Choose a location that does not require cutting them.
- 2. If at all possible, run the chimney up the inside of the house. If it must be run up outside, it should be enclosed in an insulated enclosure (see Chase Enclosure). Remember, a cold chimney causes poor draft!





#### **CEILING CLEARANCE**

Ceiling clearance is the distance from the top of the fireplace to the ceiling.

Under no circumstances is the distance between the ceiling firestop and the top of the framing guide to be less than 38 inches.

#### **OUTSIDE AIR DUCT**

After the fireplace is correctly positioned, connect the combustion air inlet duct to the outside. A 4 inch diameter can be use if the total run of the pipe is less than 25 feet. If the total run is longer than 25 feet, a 5 inch diameter flexible pipe must be used.

- 1. Use the side or back outside air outlet.
- 2. Find a convenient location for the combustion air duct and intake air hood. The location of the intake air hood may be above or below floor level (see Figure 7). Under no circumstances should the combustion air inlet be placed in attic spaces.
- 3. Make a 4 1/4" (5 1/4" if using a 5" diameter duct) hole in the outside wall of the house. Mount the register in the hole from the outside with the inlet facing down.
- 4. Place the flexible duct over the intake air hood tube. Carefully pull back the insulation and plastic cover, exposing the flexible duct. Then at each end, attach the duct with

tube. Carefully push the insulation and cover back over the duct. Tape the plastic cover to the end of flexible duct in place with a 2" aluminium duct tape.

**CAUTION:** When running duct around corners, make certain no crimping that would restrict the combustion air flow occurs.

You must use an insulated duct rated at over 200°F. Our testing has shown that as long as the 5" diameter insulated duct is utilised properly, there is no restriction on the length of the run. It is recommended that the duct does not exceed 12 ft. vertical height rise above the base of the unit. The air inlet should never be less than 5 ft. below the top of the chimney flue and shall not terminate in attic spaces.

#### CHIMNEY

This fireplace is certified for use with 8" ICC model Excel chimney. The chimney system height from the top of the fireplace must be a minimum of 12 ft. and a maximum of 28 ft. The minimum system height of 12 ft. must be increased by approximately 1 ft. for every 2000 ft. elevation above sea level. Every 30° or 45° elbow also increases the minimum height by 1 ft. For example, if you are living 6000 ft. above sea level, your chimney must terminate at least 15 ft. from the top of the fireplace (12 ft. + 3 ft. for the 6000 ft.). See table #1 bellow for more precise recommended flue heights.

#### CHIMNEY INSTALLATION

NOTE: The clearance between the chimney and combustible material must be 2" or more. DO NOT fill this area with insulation.



#### DELTA

- 1. Cut and frame the required holes in the floor, ceiling and roof where the chimney will pass through. Use a plumb bob. The framing size is 14 1/4" square.
- 2. From below, install a radiation shield in each floor through which the chimney passes. At the attic level, install a storm collar above the radiation shield as shown in (Figure 8).
- 3. Place the first chimney length on the fireplace. Secure the chimney length to the fireplace with the three screws provided.

The chimney must extend at least 3 ft. above its point of contact with the roof and at least 2 ft. higher than any wall, roof, or building within 10 ft. of it. Refer to the Excel instruction installation flue height requirements for penetration above a chase.

If the chimney is higher than 5 ft. above the roof, it must be secured using a roof brace.

4. Put the roof flashing into place. Seal the joint between the roof and the flashing with roofing tar. For sloping roofs, place the flashing under the upper shingles and on top of the lower shingles. Nail the flashing to the roof using roofing nails.

If the chimney is enclosed to the roof: USA: use a vented flashing Canada: use a roof radiation shield (ERRS) and a regular flashing

- Place the storm collar over the chimney and flashing. Seal it around the chimney with silicone sealer (DO NOT use roofing tar).
- 6. Fit the rain cap on the chimney. Secure it tightly in place.
- 7. Wash the roof flashing with solvent (or vinegar if the



flashing is galvanized), then paint it with exterior paint.

Read the **Excel** Chimney installation manual concerning requirements for supports bracing anchors, etc.

#### CHASE ENCLOSURE

If the chimney runs up the outside of the house, it must

		TAB	LE 1				
MINIMUM RECOMMENDED FLUE HEIGHTS IN FEET FROM THE TOP OF THE FIREPLACE							
ELEVATION		NUMB	ER OF I	ELBOW	S		
(FEET)	0	2x15°	4x15°	2x30°	4x30°	2x45°	4x45°
0 - 1 000 1 000 - 2 000 2 000 - 3 000 3 000 - 4 000 4 000 - 5 000 5 000 - 6 000 6 000 - 7 000 7 000 - 8 000 8 000 - 9 000 9 000 - 10 000	12' 12'6" 13' 13'6" 14' 14'6" 15' 15'6" 16'	13' 13'6" 14' 14'6" 15'6" 15'6" 16'6" 16'6" 17'6"	14' 14'6" 15'6" 15'6" 16' 17'6" 17'6" 18' 18'6" 19'	15' 15'6" 16' 17' 17'6" 18' 18'6" 19' 20' 20'6"	18' 19'6" 20' 21' 21'6" 22' 23' 24' 24'6"	16' 16'6" 17' 18' 18'6" 19' 20' 20'6" 21' 22'	20' 20' 21'6" 22'6" 23' 24' 24'6" 25'6" 26'6" 27'



be enclosed in a chase structure. It is best to locate the chase away from any overhead obstructions and meet all clearances from such objects. The chase should be constructed in such a way that it is an extension of the home. It should be well insulated between the footings and the floor of the home to prevent heat loss. If the climate in your area is mild, insulate the chase at least to the first firestop. If the climate in your area is very cold, insulate the chase to the top to keep the flue warmer, to increase the draft, and reduce creosote buildup.

If required by local codes, make certain that the walls have been properly insulated, vapour sealed and sheathed with a fire rated gypsum board (see Figure 9-10).

Remember: Check local codes concerning installation requirements and restrictions in your area.

#### FIRE STOP

A fire stop must be placed where the chimney passes through each floor level overhead. This will assist in retarding any spread of fire and act to contain the fire within the area below the firestop.

#### OFFSET CHIMNEY

•	Maximum	offset angle:	4
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• Maximum number of elbows: four (4), resulting in two

45° four (4), resulting in (2) offsets.

An elbow may be installed directly on top of the fireplace if required.





Use the offset option if you need to clear a joist or pass around a cupboard.

Install the fireplace and chimney as described earlier.



When you require an elbow, proceed as follows:

- 1. Install the required elbow. Turn it in the desired direction, and fasten it to the other section with 3 metal screws at the joints.
- 2. Install enough lengths to obtain the desired offset. Secure each joint with 3 metal screws.
- 3. Use another elbow to return the chimney to the vertical direction.
- 4. Install a roof support, an offset support, or a wall support after the return elbow, to support the weight of the flue (elbows are not designed to support a flue above an offset). Refer to the **Excel** chimney installation manual for more information.



#### FRAMING IN

The enclosure walls can be framed with any suitable materials (2x4 or 2x6 studs, plywood, gypsum board, etc.). Because of the high heat output potential of the Delta, combustible material must NOT go closer to the fireplace than the stand-offs, top, back and sides. You may also completely cover the top of the Delta as long as you maintain top standoff clearances and the 2" clear-

ances around the chased chimney. The 2" clearance around the chimney must be open to the fireplace up to the first fire stop  $(391/_2" \text{ min.})$ .

#### SPARK GUARD

Install a 5" piece of sheet metal centred under the joint between the fireplace and the hearth extension (see Figure 15). This is required under the centre door only (provided). This will make certain that sparks cannot lodge in the crack and start a fire. If you are preparing a raised fireplace, then a "Z" shaped spark guard must be installed. The height of the Z-shaped hearth guard must equal the distance between the floor and the base of the unit. The minimum depth the spark guard must extend beneath the Delta is 2 ½ inches. (Z-SHAPED GUARD NOT SUPPLIED).



A masonry or other noncombustible mantle may be placed directly above the top louvers. If a wood or other combustible mantle is desired, then it must be at least 10 1/2 inches above the top louver opening (see Figures 16 and 17). No combustible material is to be put under mantle.

#### **HEARTH EXTENSION**

The area immediately in front of the fireplace must be protected by a non-combustible material such as brick, tile, stone, or slate. The protection must extend at least 16" in front and 8" on both sides of the fireplace opening (see Figure 16). There is no minimum thickness required for the hearth extension.







#### DELTA

#### **DELTA OPTIONS**

Just a few comments about your Delta options. The size and shape of your home and how you intend to use your fireplace will determine the options you require.

For a basic, high-efficiency fireplace, you won't need any options or electricity.

Temperature control can be accomplished by adding the thermostat option (part FDHC4). The thermostat automatically controls the amount of combustion air to the fire, leaving your home at an even preset temperature. If you plan to heat your home with the fireplace, the thermostat option will increase comfort, end the fuss of continual manual adjustment, and reduce wood consumption.

For more heat output and increased air circulation, you can add the internal blower (part FDHB5-N). For larger homes in colder climates, this is an important option if you plan to use the fireplace as an important source of heat.

NOTE: It will be difficult to install the internal blower if wiring is not run during framing. If there is any chance that this option will be installed in the future, power should be run to the fireplace and wire must be run to a switch box at a convenient place on the wall for mounting the blower control.

If you have room directly above or adjacent to the room with the fireplace which you would like to heat, you may consider the gravity vent option (part FDVD). The ground gra-vity vent distributes hot air to this room and requires no blower to assist its operation. However, with the internal blower (part FDHB5-N) installed, there will be some increase in warm air movement to the room serviced by the gravity vent.

If you desire even heat throughout your home strictly from your fireplace, or if you want to move heat to a remote area of your home, it is recommended that you incorporate the central heat option (parts FDHC6 and FDHB6). A thermostatically controlled blower takes heat from the fireplace, and distributes the warm air throughout your home - even several stories up or down.

#### WALL THERMOSTAT (FDHC4)

This optional kit allows you to control the temperature by a remote electric wall mounted thermostat.

NOTE: It is strongly recommended that the wiring can be easily hidden.

- 1. Remove both right side louvers. They are held in place by springs underneath, so push down from the top and pull forward.
- 2. The damper motor and transformer are mounted on a bracket in the bottom right hand corner of the fireplace (see Figure 19).
- 3. BEFORE fastening the controls with the 2 screws provided, thread the supplied chain through the spare keyhole in the draft control and attach a pendant to the end, just like the chain that is beside it. Let the chain down on the same side of the heat shield as the existing chain, and attach it to the lever on the damper motor with another pendant. Push the pendant snug into the hole in the lever. Then mount the controls to the bracket.
- 4. Adjust the chain on the draft control lever until it is just snug but the damper is still closed. When the damper motor is energized, the damper should open all the way. Lock the chain onto the keyhole with another pendant just like the chain beside it.
- 5. Wire the thermostat as shown in (Figure 19), using 20/2 wire, making sure the wall control is sufficiently away from the direct radiation of the fireplace. Make certain that it is at least 10 ft. away from the fireplace,



but in the same room. An interior wall is recommended for thermostat installation.

#### **CIRCULATING BLOWER (FDHB5-N)**

NOTE: It is important that the wiring for the blower kit is installed during framing so that the wiring can be easily hidden.

- 1. Remove the bottom middle louver. It is held in place by springs underneath. Therefore, push down from the top and pull forward.
- 2. Hold the blower with the outlet facing up from the back. Fit the blower through the louver opening.
- 3. Slide the blower into the two blower mounts being sure that it is pushed all the way down.
- 4. Mount the thermo disc as shown in (Figure 21). The front face of the fireplace is bent into a flange just above the lower opening. The thermo disc mounts just above the centre louvers. Push the clips on to the flange as far as they will go.

NOTE: One thermo disc is all that is required to operate either the internal blower, the central heat blower, or both. 5. Mount the provided speed control in a switch box at a convenient location on the wall and connect it with conventional 90° C 18 gauge wire (see Figure 20).

#### **GOLD LOUVERS (FDLD)**

The standard black louvers above and below the doors can be replaced with a gold plated set. You may order these from your dealer.

#### Dismantling and assembling louvers

For the following refer to (Figure 22):

- 1. The louvers are held in place by springs underneath. Therefore, to remove, push down from the top and pull the top of the louvers forward.
- 2. Take the assembly apart by removing the top nuts from the rods. Leave the bottom nuts and spring assemblies on the ready rod.
- 3. Assemble the louvers the same way the black ones came apart, reusing the original rods, spacers and springs. There should be about 1/4" of the rod pro-truding above the top nut.



plating. The gold louvers have been coated with a silicone substance that will seal to the gold louvers during the first fire. If you do not wipe off the gold plating, the acid from your fingerprints or other substances will permanently etch the gold plating.

NOTE: Although the gold plating will not tarnish, care must be taken not to scratch the surface.

#### DELTA ROCK RETAINER KIT (FDKD)

#### Facing

Facing material may only be non-combustible such as metal, brick, rock, concrete board, or ceramic tile. Gypsum board is NOT an acceptable facing material.

**Warning: DO NOT** restrict air flow through the inlet and outlet louvers of the fireplace.

If you desire to fully face the fireplace with soldiering brick, it is recommended that you purchase the rock retainer kit (part FDKD-1) to help keep the facing in place. It is NOT recommended for brick or other selfsupporting materials. Follow these steps:

NOTE: Remove the fireplace doors and louvers, and store them in a safe place until the masonry work is finished. Acid from the cleaning operation will permanently damage the gold plating. Ensure that the cover remains over the right door.

NOTE: The louvers have two sets of mounting holes.

Use the rear set when there is no facing added to the fireplace and use the front set when a facing has been added. This is a cosmetic recommendation only.

#### Installation

Start by installing the top centre expanded metal flush and centred with the top centre louver opening. (It is recommended that you just clamp the centre piece in place until the sides are lined up) Next install the right and left expanded metal by aligning the edging and the mesh to the centre piece and the side louver openings. Now install the lower arch centre above the door aligning it to the side pieces (see Figure 23).







NOTE: When using wider lintel bar for heavier rock, make sure that you have enough room to open the door wide.

- Cover any remaining area which you wish to put facing material on with wire mesh, or metal lath, overlapping the heavy expanded metal. Make sure nails or staples used for fastening mesh penetrate the studs at least 1".
- Mortar must be "thin set" or "thin bed" type, inherently polymer modified. Do not add water to the mixture (this applies to the grout as well). If the mortar is not modified, you should add a synthetic latex additive. Mix to a firm, moist consistency.
- 4. Using a plasterer's or mason's trowel, apply a scratch coat that covers the wire mesh. Let the mortar set before adding another coat. This will take several hours. Afterwards, apply a thinner coat and the facing. Do not spread plaster over more than a workable area so that the mortar will not set before the facing is applied.
- 5. If additional mortar is required, use a grout bag to fill in the joints. Take extra care to avoid smearing on the surface of the facing.

#### Optional redesign of upper louver area

You may use other decorative materials to cover the upper louver area. However, you must follow the following criteria:

If any material is placed in front of the louvers (brick, tile, etc.) the louvers must first be permanently removed.

The final open area over the louver must be at least 50% of the area of the opening or 100 square inches. For example see (Figure 25).

#### **REMOTE VENTING**

The gravity vent system can distribute air to an upper level or a room next door without an extra blower. The





central heat option allows heat to be sent up to 50 ft. away. (Figure 26) illustrates various certified venting options.

#### THE GRAVITY VENT SYSTEM (FDVD)

The FDVD Kit (see figure 27) includes:

- a grille
- a grille adapter
- a B-vent starter section
- a shut-off damper

IMPORTANT: No substitution of any of these parts is allowed. These genuine RSF Woodburning Fireplaces parts have the correct clearances. These clearances must be maintained for your safety exept that B-vent components can be replace by ICC double wall black pipe ULTRABlack UBF (use only UBF black pipe).

The FDVD system incorporates standard 8" B-vent components for installation. Single wall pipe is not allowed due to the high temperature of the air in a gravity vent system. Any listed brand of 8" B-vent pipe may be used and is not a part of the FDVD. The maximum pipe length is 15 ft. from the top of the fireplace to the outlet. Remember: double wall black pipe from ICC may be used instead of B-vent pipe.

> (Figure 28) indicates the minimum clearances and framing dimensions. Passing through a combustible wall or ceiling requires a minimum clearance of 2" from combustibles.

> Warning: Every measurement and clearance on the illustrations must be followed to assure safety of the installation.

#### Installation

CAUTION: Do not replace the grille from (Figure 28) with shutters. Do not allow heat to be trapped in the gravity vent system.

- 1. Plan the gravity vent run first. Be aware that the maximum actual pipe length between the top of the fireplace and the outlet is 15 feet. There is no maximum number of elbows in a run, but the run must never go in a downward direction as this can trap heat in the gravity vent system.
- 2. The grille adapter is designed to be installed underneath the gypsum board in the wall. In the desired location, frame a 13" x 13" hole to accept the gravity vent grille adapter. Fit the gravity vent grille adapter into the framed hole and fasten it into place with nails or screws. If you are installing the outlet in an already finished area, you must remove the gypsum board and frame a 13" x 13" hole in the existing framing, in order to meet the required clearances.
- 3. Remove the outer cover to the left side of the flue outlet on the Delta.
- 4. Cut the insulation to the size of the opening and slide the cover plate underneath to the side (it is taped in place).

- 5. Install the B-vent starter section. By putting your hand up inside and underneath, bend up at least two of the four tabs at the base of the starter section to hold it in place.
- 6. Install the "shut-off" damper in the B-vent starter section through the left side louvers. The shut-off damper enables the manual control of hot air flowing through the gravity vent pipe. With the top left louver removed, and the angular portion of the rod in hand, insert the damper rod into the rear hole in the starter section. The rod should slide in and down the keyhole, making sure that the #2 washer and spring on the control arm are both on the outside of the starter section and #1 washer is inside the starter section. A definite tension should exist between the shut off damper rod and the starter section. Replace the louvers. The damper rod should protrude above the top of the louvers.
- 7. Install the B-vent pipe between the B-vent starter and the grille adapter. Fasten each joint with 3 screws (if the B-vent pipe manufacturer allows this in their instruction manual). Insert the B-vent pipe in the grille adapter and fasten it with three screws. The B-vent pipe needs only to be inserted into the adapter enough to be able to screw it in place. This allows you about 3 <sup>1</sup>/<sub>2</sub>" of play.



8. Once the wall facing around the gravity vent grille adapter has been completed, install the grille with the supplied screws. The gravity vent is now ready for operation.

#### THE CENTRAL HEAT SYSTEM

To install the central host option you will need:

1. Part FDHC6: A blower transformer relay, a thermostat and a thermo disc (Figure 30).



- 2. Part FDHC6-1: A back draft damper (Figure 30).
- 3. Part FDHB6: A maximum 636 c.f.m. blower with a variable speed motor, 2 noise reduction collars, a blower speed control, and a mounting bracket (Figure 29).

NOTE: Both part numbers must be used together for this system. Use of any substitutes will decertify the system.

When ducting from the top of the fireplace the 8" back

draft damper prevents hot air from travelling into the 'C' vent (single wall) ducting unless the Central Heat Blower (FDHB6) is operating. When the thermostat calls for heat, the blower turns on and opens the one-way valve. At the same time, the room air is drawn through the upper and lower louvers, which mixes and reduces the overall temperature of the forced air that travels through the ducting.

NOTE: The central heat ducting may be run at a 0" clearance to combustibles.

Warning: If you are ducting out of the top of the fireplace and the backdraft damper is not installed, the central heat ducting will become too hot for the surrounding combustible materials. Any substitute for any RSF kit will void all liability and warranty coverage by RSF Woodburning Fireplaces.

#### Installation

- 1. Remove the cover to the left on the top of the Delta.
- 2. Cut the insulation to the size of the opening and slide the cover plate underneath to the side (it is taped in place).
- 3. Install the back draft damper crimped side up, making sure it is pushed all the way down. Bend out the 4 top tabs once install bend out the tabs on the lower edge of the damper in at least 2 places inside the fireplace with a pair of pliers, so the back draft damper cannot be pulled out again.
- 4. Before proceeding with the installation of the blower,

make sure that the electrical service to the blower is in the "OFF" position. All wiring should be in accordance with local ordinances and the National Electric Code.

NOTE: The blower can basically be installed anywhere in the home. However, some thought should go into the planning, to ensure that the blower noise does not affect rooms you would like kept quiet. If the central heating system duct work is passing through an area in your home that you do not wish to be heated, then the ducting should be insulated. Length of runs should be as short as possible to conserve space and minimize cost. There is a loss of about 15% performance at 50 feet. Also: for your safety the blower automatically shuts off if the air temperature reaches 180° F inside the ducting.

5. Locate the blower in a convenient location. The blower may be installed vertically or horizontally. The horizontal installation can utilize either the supplied mounting bracket or, if you want to install the blower farther away from the ceiling, you can use plumber's strapping. A vertical installation must include the mounting bracket.

NOTE: If you have an existing hot air system, you may safely tie-in to this hot air system. However, no hot air duct is to be connected to the return air of another central heating system.

- 6. Connect the INLET of the blower to the ducting coming from the fireplace, using 8" diameter metal ducting (rigid or flex). Any other size will not work properly. Use only metal ducting between the fireplace and the blower. You may use plastic ducting after the blower, provided the temperature rating of the ducting is at least 250°F. Do not use plastic ducting in a chase.
- 7. To install the blower (for the FDHB6 blower only), attach the noise reduction collars to either side of the blower

using 1/2" self-tapping screws.

 Duct-work can then be run to the desired rooms. Up to six - 5" or five - 6" diameter runs can be installed from this system.

NOTE: Runs must be balanced as air travels along the path of least resistance. Balance the air flow by diameter and length of runs. Longer runs should have larger diameters. Houses vary in size and layout, so duct systems must be specifically designed for each home. The diagrams on this sheet are examples only. The cross sectional area of the distribution system must total at least 50 square inches. If you have more than 50 square inches, some of the system may be shut off, but there must always be 50 square inches of ducting open at all times. For example, if 5" pipe is used for distribution, the cross section of each is 20 square inches. The minimum allowable ducting would be three runs of 5" pipe.

(Figure 33 and 34) illustrate two examples of tying in to existing duct work. Directing air in the right direction will reduce reverse flow when the existing furnace blower is off. Some reverse flow will not cause any problems.

## CAUTION: Tie-ins into existing duct work must be down stream from the existing furnace.

NOTE: When the central heating blower is in operation, it removes air from the room containing the fireplace. If this room can be closed off from the rest of the house (e.g. with a door), a grille with at least a 100 square inch open area





must be installed to allow the air to return to the fireplace. Otherwise periodic smoking from the fireplace will result.

9. Wire the blower to a 115 volt, 15 amp breaker through the terminal block provided. The variable speed switch provided should be installed in a convenient location near the fireplace so the blower can be shut off during refuelling. The blower transformer relay should be placed in an accessible location near the blower. It should be mounted in a 4x4 electrician's box. You have two options of how you can connect the central heat blower to the blower control assembly. Follow the wiring diagram on (Figure 42).

a) If you would like the blower to turn on when the thermostat calls for heat, first locate the thermostat in the principal room heated by the duct system (this is the most popular use of the central heat blower). Do not install it in the room where the fireplace is installed. We recommend an electrician wire the following. There are yellow, black and red wires coming out of the relay as shown in the wiring diagram. Connect the wire from #4 of the terminal block to the yellow relay wire and the black transformer wire with a wire marrette. Connect the black relay wire to the variable speed switch and leave the red wire unconnected with a wire marrette attached for protection. Connect the neutral (the white wire) to the wire from #6 terminal (see Figure 32).

b) If the fireplace is in a small room and/or you would like the central heat blower to remove air from this room when it becomes too hot, locate the thermostat in the room with the fireplace (this is a less common use of the central heat blower). We recommend an electrician wire the following. There are yellow black and red wires coming out of the relay as shown in the wiring diagram. Connect the wire from #4 of the terminal block to the yellow relay wire and the black transformer wire with a wire marrette. Connect the red relay wire to the variable speed switch and leave the black wire unconnected with a wire marrette attached for protection. Connect the neutral (the white wire) to the wire from #6 terminal.

## Warning: Do not interchange the variable speed control between the central heat blower kit and the internal blower kit.

(Figure 31) shows some ways of ducting the hot air from the blower. You are not restricted in the size of pipe, as long as the total cross sectional area of all runs combined is not less than 50 square inches. The diagram shows alternate blower locations. Only one external blower can be installed.

1. If the blower fails to operate, check the following:

a) Consult the wiring diagram to assure proper connections.

b) To assure proper contact, check the motor lead wiring, incoming supply wiring, and capacitor connections.

c) If possible, use a meter to test for continuity between the fan leads. Please note that the capacitor will show no reading if it is tested with a meter.

2. If the blower still fails to operate, consult your local RSF Woodburning Fireplaces authorized dealer for repair or replacement instructions.

#### ZONE HEATING (FDHCZ-1 AND FDHCZ-2)

For more regional heat control, the Delta is ideally suited for zone heating. (Figure 38) shows an example of a three zone system. The thermostat simultaneously opens the desired valve and starts the blower when heat is required. The zone control system consists of:

1 - FDHCZ-1	- 1 control box
(figure 32)	- 1 blower transformer relay
	- 1 thermo disc

NOTE: The FDHCZ-1 replaces the FDHC6 if you are installing the zone system.

1 to 3 - FDHCZ-2	<ul> <li>1 zone valve (normally closed)</li> </ul>
(figure 33)	- 1 thermostat

The system is wired similarly to the central heat system with the addition of the control box and the zone heat valve (see Figure 39). The whole system runs on 24V AC. Make sure that the thermostats are matched with the correct zone valve. NOTE: THE Delta MUST BE INSTALLED IN ACCOR-DANCE WITH ALL LOCAL CODES, IF ANY. IF NOT, FOL-LOW THE CURRENT CSA C22.1 IN CANADA OR NFPA70 IN USA. INSTALL AND USE AS PER THE MANUFACTUR-ER'S INSTALLATION AND OPERATING INSTRUCTIONS.









Figure 38: Wiring for all systems with zone heat system







the U.S. by NFI (National Fireplace Institute) or in Canada by WETT (Wood Energy Technical Training).







#### **DELTA - Limited Warranty**

#### **30 Year Limited Warranty**

All RSF Woodburning Fireplaces models are warranted against defects in material and workmanship for a period of 30 years, subject to the following conditions:

During the first year **RSF Woodburning Fireplaces** will repair or replace, at our option, any parts which upon examination by an authorized **RSF Woodburning Fireplaces** representative are found to be defective, except the parts listed in the EXCLUSIONS portion of this warranty. **RSF Woodburning Fireplaces** will also pay reasonable labor costs for the repair work.

During the second through fifth years **RSF Woodburning Fireplaces** will repair or replace, at our option, any parts which upon examination by an authorized **RSF Woodburning Fireplaces** representative are found to be defective, except the parts listed in the EXCLUSIONS portion of this warranty. **RSF Woodburning Fireplaces** shall not be responsible for any labor costs associated with this repair work.

During the sixth through thirtieth years **RSF Woodburning Fireplaces** will provide replacement parts, if available, at 50% of the published retail price, except for the parts listed in the EXCLUSIONS portion of this warranty. **RSF Woodburning Fireplaces** shall not be responsible for any labor costs associated with this repair work.

#### EXCLUSIONS

- · Electrical components are warranted for one year only.
- · Glass and gold plating.
- · Damage due to normal wear and tear, such as paint discoloration, worn gaskets, eroded or cracked refractory components.
- · Repairs or replacements necessitated by vandalism, neglect, abuse, over-firing, improper fuel or fuel loads, or failure to adequately service the unit, as stated in the owner's manual.
- · Repairs or replacements (particularly charges for travel and labor) not authorized by **RSF Woodburning Fireplaces** in advance.

#### LIMITATIONS

All items found to be defective will be replaced or repaired upon return of the defective part to an authorized **RSF Woodburning Fireplaces** dealer. **RSF Woodburning Fireplaces** will not be responsible for freight costs related to shipping replacement parts.

Any complete fireplace, or part thereof, that is replaced or serviced under this warranty will be warranted for a period not exceeding the remaining term of the original warranty.

This warranty is not transferable.

This warranty does not apply to damage to the appliance while in transit.

This warranty does not apply if the installation does not conform to the installation requirements in the owner's manual.

**RSF Woodburning Fireplaces** is free of liability for any damages caused by the appliance, as well as material and labor charges incurred in the removal or re-installation of any **RSF Woodburning Fireplaces** fireplace under this warranty. Incidental or consequential damages are not covered by this warranty.

The remedies set forth herein are exclusive, and the liability of the seller shall not exceed the price of the fireplace or part thereof upon which the liability is based.

This warranty is expressly in lieu of all other warranties expressed or implied, including the warranties of merchantability and fitness for use and all other obligations or liabilities on the part of **RSF Woodburning Fireplaces**.