

# INSTALLATION INSTRUCTIONS FOR WHOLE HOUSE FANS

*Models: CX242DDWT, CX302DDWT, CX24BD2SPD, CX30BD2SPD, CX36BD2SPD*

**Read all warnings and instructions before beginning to install this fan.**

**FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN INJURY OR EVEN DEATH**

1. Do not attempt to use this fan with any speed control device.
2. Use this unit only in the manner intended by the manufacturer. If you have any questions, contact the manufacturer.
3. Before servicing or cleaning this unit, switch power off at the service panel and lock out to prevent power from being switched on accidentally. When service disconnecting means cannot be locked, securely fasten a prominent warning tag to the service panel.
4. Installation work and electrical wiring must be performed by a qualified person in accordance with all applicable codes and standards, including fire-rated construction.
5. When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.
6. The combustion airflow needed for safe operation of fuel-burning equipment may be affected by this unit's operation. Follow the heating equipment manufacturers guideline and safety standards such as those published by the National Fire and Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air-conditioning Engineers (ASHRAE), and the local code authorities.

## CAUTION

**DOUBLE CHECK FAN BLADES ARE SECURE TO HUB PRIOR TO INSTALLATION. BLADES CAN BE DAMAGED DURING SHIPMENT AND CAN BECOME A HAZARD UPON ACTIVATION OF MOTOR!**

1. **This unit has an unguarded propeller. Do not use in locations readily accessible to people or animals.**
2. **For general ventilating use only. Do not use to exhaust hazardous or explosive materials and vapors.**
3. **Carbon monoxide is an odorless, colorless gas that can kill. It may be drawn into the house by operating this fan if your fuel-burning equipment is not properly maintained, or if you lack adequate attic**



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# INSTALLATION INSTRUCTIONS

## VERY IMPORTANT

### Please read before attempting installation

The wooden fan frame is installed *on top* of the joists, and the shutters open up *between* the joists, so the rough opening will be *smaller than* the fan frame size

SHUTTER ROUGH OPENING (L x W)	
24-in	28 x 26
30-in	32 1/4 x 29 1/2
36-in	34 x 37 1/2

### Veins run lengthwise in 24-in and 30-in shutters, and width-wise in 36-in shutters

Center vein is stationary to allow no-cut joist installation

*\*For model CX36BD2SPD – The joist-in method may be used only if the joists are 24-in on center, or greater, and if there is enough space between the involved joist(s) and any walls.*

FINISHED OUTSIDE WOODEN FRAME DIMENSIONS		OUTSIDE SHUTTER DIMENSIONS	
24-in	28 3/8 x 28 3/8	24-in	27 3/4 x 28 3/8
30-in	35 x 35	30-in	31 1/2 x 33 7/8
36-in	42 1/8 x 42 1/8	36-in	39 1/4 x 35 5/8

**24-in FANS:** DO NOT INSTALL IN AN ATTIC SMALLER THAN 1200 sq ft. This fan requires 8-10 sq ft of NET FREE EXHAUST AREA, obtainable with (40) 4 x 16, or (15) 8 x 16 soffit or under-eave vents, or equivalent.\*

**30-in FANS:** DO NOT INSTALL IN AN ATTIC SMALLER THAN 1800 sq ft. This fan requires 10-12 sq ft of NET FREE EXHAUST AREA, obtainable with (66) 4 x 16, or (24) 8 x 16 soffit or under-eave vents, or equivalent.\*

**36-in FANS:** DO NOT INSTALL IN AN ATTIC SMALLER THAN 3000 sq ft. This fan requires at least 14 sq ft of NET FREE EXHAUST AREA, obtainable with (85) 4 x 16, or (31) 8 x 16 soffit or under-eave vents, or equivalent.\*

*\*When measuring vents for NFA, remember that louvers and screens cut down considerably on the available free air – this can be factored in by measuring the length by the width of the open vent area and dividing the resulting surface size in half.*

**DO NOT OVERSIZE YOUR FAN! Additional installation of exterior vents may be required to provide sufficient Exhaust Area (NFA) for your fan to operate safely and effectively. Remember – bigger is not better with Whole House Fans. A smaller fan that operates efficiently will always be preferable to a fan that is too big for its application.**

## HOW DO THEY WORK?

Whole House Fans are designed to pull in fresh, cool air from the outside through open windows in the living space. Hot air is pulled up through the fan, into the attic, and then exhausted through static vents in the undereaves, soffits, roof or gables.

**The necessary exhaust ventilation is measured in square feet of Net Free Area (NFA).**

**Failure to provide sufficient NFA will reduce the fan's efficiency, resulting in noisy operation and the ultimate failure of the motor.**

## SELECT THE INSTALLATION SITE

Every house is different and there is no set rule for the choice of the best site. Check the attic immediately above potential sites for ducts, piping or wiring that would obstruct the installation area. The location should also be an area which is open during operation. Generally they are installed in hallways or laundry areas. However they should not be too close to the kitchen or bathrooms so as not to exhaust unwanted odors, grease, or humidity into your attic.

The installation site *must provide approximately 36-in of unobstructed clearance* between the fan blades and the roof, in order for the exhausted air to disperse correctly and not drop back down on the shutters.

FAN SIZE	SQUARE FOOTAGE OF LIVING AREA, OR ATTIC SIZE IF MULTI-STORY	MINIMUM NFA (NET FREE AREA) EXHAUST REQUIRED
24-in	up to 1800 sq ft if 1 story, or attic size if multistory	8 to 10 sq ft (1152 to 1440 sq in)
30-in	2000 to 3000 sq ft if 1 story, or attic size if multistory	10 to 12 sq ft (1440 to 1728 sq in)
36-in	over 3200 sq ft if 1 story, or attic size if multistory	12 to 14 sq ft (1728 to 2016 sq in)

## Tools and Materials Needed:

- Drill
- 1/4" and 1/8" drill bits
- Straight edge ruler (yardstick, 4 ft level)
- Pencil or marker
- Circular saw
- Ring shank drywall nails (1 1/2")
- #12D nails
- Adjustable wrench
- Flat head screwdriver
- Phillips head screwdriver
- Safety goggles
- Speed square
- Saber saw, reciprocating saw

## **READ THE FOLLOWING BEFORE PROCEEDING**

The fan and shutter are designed for horizontal installation only - the louvers will not function in the vertical position. Decide whether you will use a Joist-In or Joist-Out installation.

### **Joist-in Installation**

If you choose this method, you will leave the ceiling joists intact. You will also need to have another attic access, as the fan will not fit through the shutter opening with the joist(s) in place.

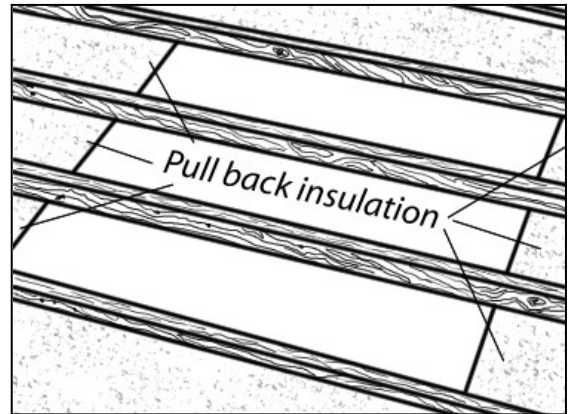
### **Joist-out Installation**

This is the preferred method, as the best location will not necessarily coincide with the position of the joists. For this method, you will remove one or more ceiling joists.

## PREPARE THE SHUTTER OPENING

Remove all insulation from the attic floor above the installation site (be sure to take proper precautions — wear gloves, goggles, and respirator mask). Select the correct rough opening dimension from the chart.

FAN SIZE	SHUTTER ROUGH OPENING
24-in	28 x 26
30-in	29 ½ x 32 ¼
36-in	37 ½ x 34



**\*WARNING: USE THE SHUTTER ROUGH OPENING DIMENSIONS FROM THE CHART. DO NOT USE THE DIMENSIONS OF THE FAN FRAME OR THE INSIDE SHUTTER DIMENSIONS.**

### Joist-in Installation

1. Align the stationary shutter vein with the ceiling joist located in the approximate center of the shutter opening.
2. Draw a line on the ceiling marking the rough opening size of the shutter frame.
3. Double-check the accuracy of the dimensions you have marked and that all the corners are square.

### Joist-out Installation

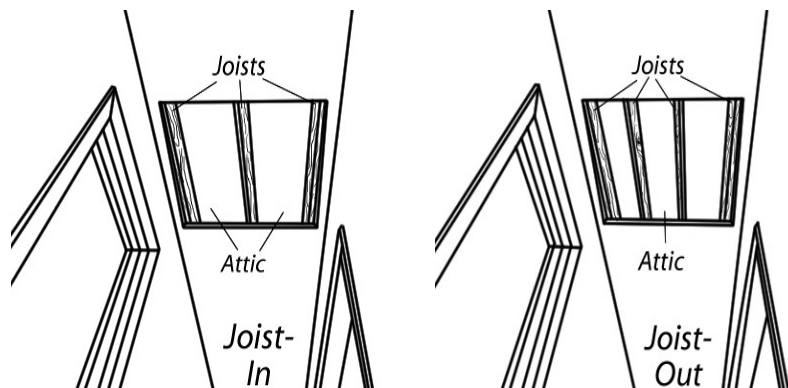
1. Drill two ¼-in holes (from the attic floor down through the ceiling) at the two corners that are aligned with one of the ceiling joists.
2. On the ceiling side, draw a straight line between the two drilled holes. Using this line as a guide, mark the other three sides of the shutter opening, using the rough opening dimensions in the chart above. Double-check the accuracy of the dimensions you have marked, and that all corners are square.
3. From the ceiling side, drill two more ¼-in holes up into the attic at the remaining two corners.

**TIP:** Use the Whole House Fan box as a template to outline the opening and cut to the rough opening shutter dimensions. Starting in the attic, place the template in the desired location and, using a Phillips screwdriver, place a hole at each corner going through the ceiling. Next, place the template inside the four holes on the ceiling and draw the cutout line around the template.

## CUT THE SHUTTER OPENING

1. Cut through the ceiling along the lines you have drawn, being careful not to cut the joists. A circular saw may be used with the shoe adjustment set to a cutting depth equal to the depth of the drywall.
2. Carefully remove the drywall from the opening.

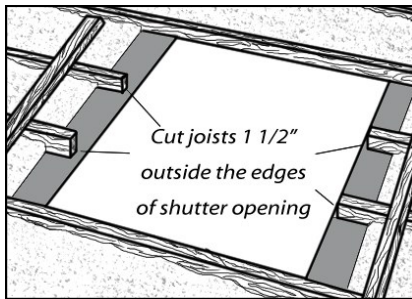
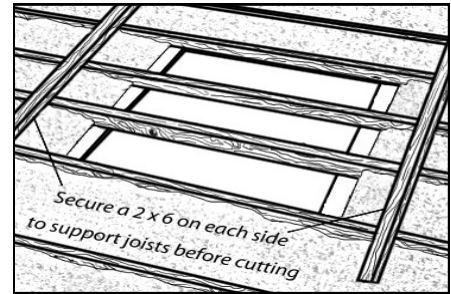
**\*Note\*** Make sure the exposed joint is centered if you have chosen the joist-in installation.



## CUT THE CEILING JOIST (SKIP THIS STEP IF YOU ARE USING THE JOIST-IN METHOD.)

BEFORE cutting the ceiling joists, it is best to stabilize the joists from which you are removing a section. Using 2 x 6 lumber, form a bridge across the joist on either side of the opening. This step will give extra support to the joist, as you cut it, and will also help prevent the drywall from cracking.

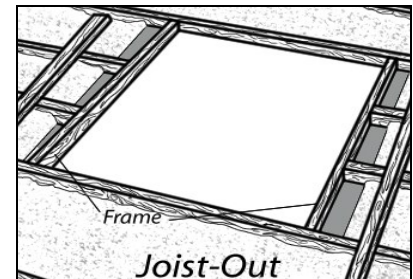
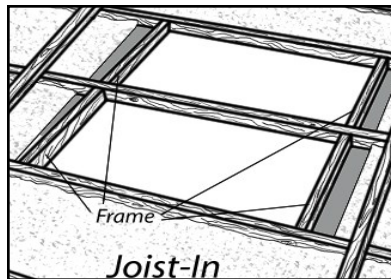
Place the bridge pieces about 6 inches in from the sides of the shutter opening, allowing enough room for the safe use of a hand or power saw. Nail the stabilizers to the joists with #12D nails, or use 2 1/2-in deck screws for greater ease of removal.



Mark the cut lines on the section of joist to be cut. These should be 1 1/2-in outside the edges of the shutter opening (to allow for the framing of the opening). Be certain that the cut lines are square (perpendicular to the joist) so that you will be able to fit the headers tightly against the joist and the shutter opening. After carefully measuring and marking each cut line, cut the joists with a saber saw.

## FRAME THE SHUTTER OPENING

Use lumber that is of the **same dimension as your ceiling joists** and #12D common nails. On the ceiling side of the installation fasten the sheetrock around the edges of the framed opening. Use 1 1/2-in ring shank drywall nails.



Remove the two bridges across the ceiling joists. Save this lumber to build the facing around the framed shutter opening.

**\*Note\*** Any gaps between the headers and the joists should be sealed with caulk or foam insulation to enable your fan to draw properly.

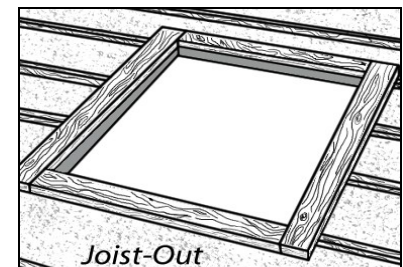
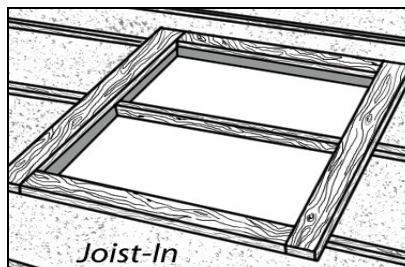
## FACING INSTALLATION

The facing will be square, with the inside dimension measuring the same distance as the shortest dimension of the shutter rough Opening (i.e., 26-inches for a 24-in model, etc.).

The facing will sit over the hole in the ceiling and support the fan assembly. Once your square is built, nail or screw the facing to the framed opening.

**TIP:** If doing a joist-out installation, use the lumber from the support pieces as the long cuts of the facing. Use the removed joists as the short cuts.

**TIP:** For a quieter fan, build a second box frame the same size as the fan frame and install it between the facing and the fan. Ensure a minimum of 36-in clearance between fan blades and attic roof.



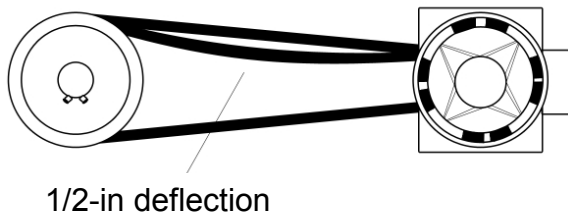


## PREPARE AND INSTALL THE FAN ASSEMBLY

**IMPORTANT:** Your new whole house fan is packed to prevent shipping damage. Before installing the fan in your attic, it must be prepared as follows.

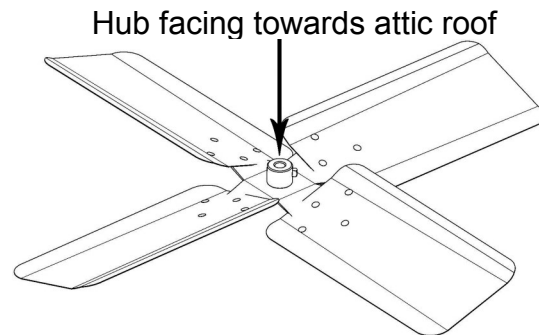
### Belt Drive Models

- The motor is mounted to the underside of the struts for shipping.
- Remove the hardware and remount the motor to the top side of the struts.
- **IMPORTANT: DO NOT OVERTIGHTEN THE BELT!**
- Position the fan belt on the pulleys and adjust it to fit snugly, ensuring it is not over tightened – with about a 1/2-in deflection.
- The hub of the fan blade assembly should be facing up towards the roof.
- Check and tighten the fan blade set screw before operation.



### Direct Drive Models

- For easiest installation, remove the fan blade in order to wire the motor.
- The blade must then be replaced and firmly secured before attempting to operate the fan.
- The hub of the fan blade assembly should be flush with the end of the motor shaft, facing away from the motor towards the roof.
- Check and tighten the fan blade set screw before operation.



Push the fan assembly up diagonally through the shutter opening. If you have chosen a Joist-In Installation, you will need to use some other attic access for the fan, since the fan will not fit through the shutter opening with the joist(s) in place. Place the fan frame on top of the facing, or the additional frame, if you built one.

**\*Note\*** To provide a good seal between the fan housing and facing (or additional frame), and to minimize noise, you may wish to install a felt strip or foam tape between the fan frame and the facing (or additional frame).

Center the fan assembly on the facing and draw alignment marks around the wooden base. Secure the fan assembly to the facing using screws. As you anchor each corner, be sure to check that the fan frame has not moved off the alignment marks.

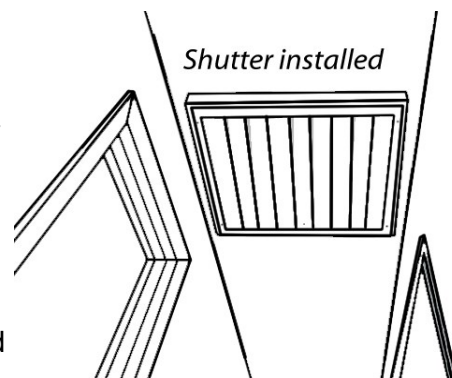
## INSTALL THE SHUTTER

**\*Note\*** Never operate the fan without the shutter installed.

Before installing the shutter, it is necessary to caulk the seams of the frame for an air-tight seal. The shutter itself is 7/8-in larger all around than the shutter opening.

Draw alignment marks on the ceiling to indicate the outer edges of the shutter frame. Refer to the Shutter Dimension Chart on page 2 for size.

Install the shutter using the white-headed wood screws provided with your fan.



## WIRING INSTRUCTIONS

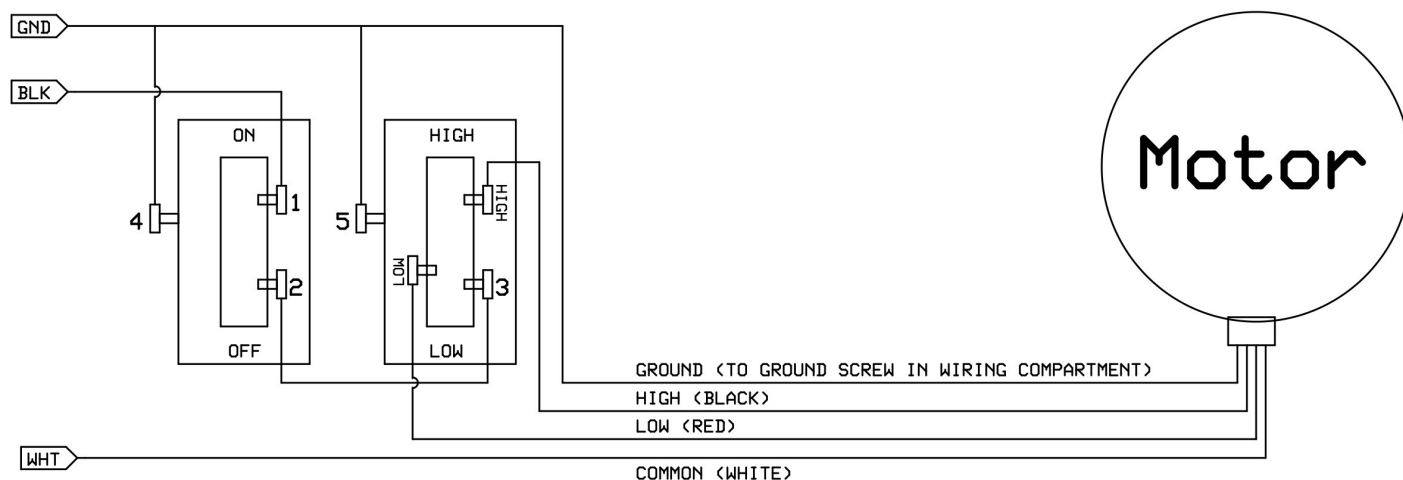
**WARNING:** Before proceeding with this step, disconnect the power supply at the service entrance, or switch off the appropriate circuit breaker.

**\*Note\*** All wiring supplies and installations must meet or exceed the requirements of local electrical and fire codes. Wire to 120 Volt, 60 Hz. circuit only, using 14-3 two-conductor wiring with ground.

Install the included switches in a double gang, UL listed wiring box, in a wall close to the fan. Refer to the figure below to wire all models.

- Connect the incoming power supply wire (BLK) to the top terminal of the On/Off switch (1).
- Connect the bottom terminal of the On/Off switch (2) to bottommost terminal of the High/Low switch (3) using a jumper wire (*not provided*).
- Connect the High speed motor lead (BLACK) to topmost terminal of High/Low switch (HIGH).
- Connect the Low speed motor lead (RED) to the middle terminal of High/Low switch (LOW).
- Connect the incoming common wire (WHT) directly to the common wire (WHITE) from motor.
- Connect the incoming ground wire (GND) to the grounding screw on each switch (4,5) and to the ground screw (GROUND) in the motor box.

Before turning on power to the fan, manually rotate the blade to ensure nothing is obstructing its path.



## OPERATING INSTRUCTIONS

Whole House Fans cool your home by pulling in fresh, cooler air from outside through open windows and doors. For best results in a multi-story home, windows should be opened on alternate levels for most efficient cooling. NEVER operate the fan without open doors or windows.

An added benefit of Whole House Fans is that they also provide forced attic ventilation, contributing to cooler attic temperatures, assisting in reducing energy costs, as well as wear and tear on roofing components.

**Caution:** If your home has a fireplace, be sure that the flue damper is closed to prevent chimney soot from being drawn into the house by the fan. DO NOT operate the fan when a fire is burning in the fireplace.

## COMMON INSTALLATION ISSUES

### Motor Stops After 10-20 Minutes

- A tight belt tension can cause the unit to overheat.
- Insufficient intake or exhaust Net Free Air. Open more doors and windows or increase the amount of ventilation in the attic.
- Check the bearing assembly for resistance on belt driven models to ensure there are no rough spots.

### Unit is Noisy

- If the unit is considered to be too noisy in general, install the additional frame between the fan and mounting frame.  
These are large fans and will make noise while under operation. Moving the fan further into the attic will reduce the apparent noise. Make sure that you still have 36-in of clearance to the roof.
- Check that all screws and bolts are tightened.
- Ensure enough clearance above the unit, minimum of 36-in from fan blades to roof.
- Verify Exhaust NFA. Inadequate NFA will result in the unit working harder and making more noise.

### Not Enough Airflow

- Verify NFA intake and exhaust requirements are being met. Lack of airflow can be the result of lack of fresh air and lack of ventilation to expel the air. Try channeling the air by opening only doors and windows in a certain area to funnel the wind flow.

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## VENTAMATIC, LTD. LIMITED WARRANTY

Ventamatic, Ltd. extends this warranty to the original occupying owner of the home where this product is installed, that this product will be free from defects of material or workmanship for the time period listed by model number below:

**CX242DDWT, CX302DDWT**

**Limited 10-Year**

**CX24BD2SPD, CX30BD2SPD, CX36BD2SPD**

**Limited 10-Year**

No subsequent purchaser of the home in which the product is installed will be entitled to the benefits of this warranty. Ventamatic, Ltd. will replace the defective part or component only and return the new part to you freight prepaid. Customer must bear all other expenses incurred, including labor required for field repair or replacement, and cost of return shipping of the defective part or component to Ventamatic. Customer must also bear the cost of replacement of any part or component and the shipping charges incurred for the replacement and return of any part or component not covered by this warranty, including parts or components damaged by customer.

Ventamatic, Ltd. reserves the right to demand and receive written evidence of the date of purchase before undertaking to perform its obligations under this warranty. **YOU SHOULD, THEREFORE, RETAIN YOUR SALES SLIP FOR THE DURATION OF THE WARRANTY, AND ATTACH IT TO ANY EVENTUAL CLAIM.**

In order to obtain the replacement of a part or component, you must select one of the following methods:

#### **A) Return to factory.**

Return postage prepaid the  
believe to be defective to the address

\*Include your name & address and a copy of your proof  
of purchase or installation.

fan or part you  
below:

**Ventamatic, Ltd.**

**100 Washington Street  
Mineral Wells, TX 76067**

#### **B) Return to place of purchase.**

It is suggested that you first contact the dealer to ascertain if they will honor the warranty.

There is no informal dispute settling mechanism available in the event of a controversy involving this warranty. Any and all implied warranties shall be limited to the duration of the express warranty set forth above. In some states, limitations of the duration of implied warranty do not apply. Ventamatic, Ltd. shall not be liable for incidental or consequential damages, whether direct or indirect based upon breach of warranty, breach of contract, negligence or tort. If any suit or other action is brought against Ventamatic by customer, Ventamatic and customer irrevocably waive the right to trial by jury. Purchase and installation of this product constitutes acceptance of the terms of this warranty by customer.