

# Installation and Operational Manual

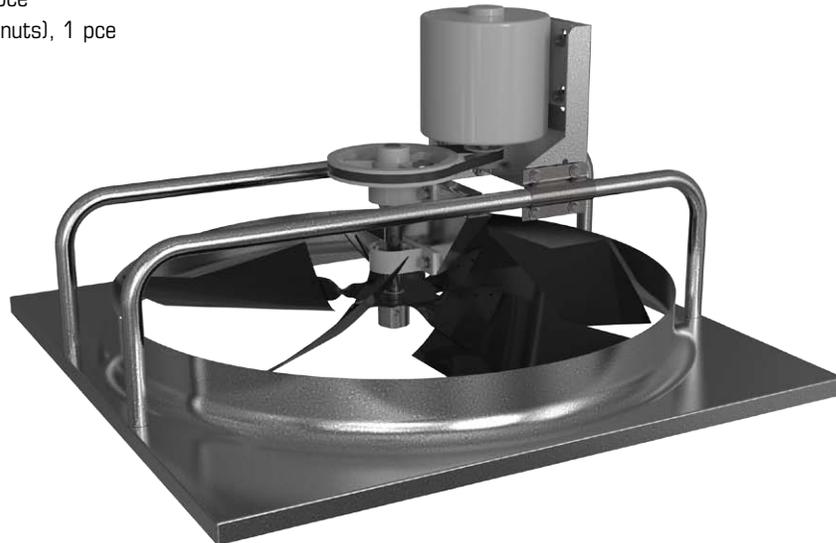
Item #: 483759  
Rev Date: 070113

## 1WHV Series

### Whole House Ventilator

#### 1WHV Kit Includes:

Whole House Ventilator, 1 pce  
Wood Plenum 1" x 4", 1 pce  
12 hr Timer Package, 1 pce  
Ceiling Mount Shutter, 1 pce  
Seal Strip, 1 pce  
Sponge Rubber Vibration Damper, 1 pce  
Additional hardware (bolts, washers, nuts), 1 pce



#### United States

10048 Industrial Blvd., Lenexa, KS, 66215  
Tel.: 800.747.1762 • Fax: 800.487.9915

#### Canada

50 Kanalfakt Way, Bouctouche, NB, E4S 3M5  
Tel.: 800.565.3548 • Fax: 877.747.8116



				
Note	Warning / Important note	Information	Technical information	Practical tip



**Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.**

1. To reduce the risk of fire, electric shock, or injury to person, observe the following:
  - a. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
  - b. Before servicing or cleaning unit, switch power OFF at service panel and lock service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
  - c. **INSTALLATION WORK AND ELECTRICAL WIRING MUST BE PERFORMED BY QUALIFIED PERSON(S) IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS, INCLUDING FIRE-RATED CONSTRUCTION.**
  - d. When cutting or drilling into walls or ceilings, **DO NOT** damage electrical wiring or other hidden utilities.
  - e. Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel-burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and that American Society for Heating, Refrigeration and Air conditioning Engineers (ASHRAE), and local code authorities.
2. This fan is for general ventilating use only. Do not use to exhaust hazardous or explosive materials and vapors.
3. This unit has an unguarded propeller. Do not use in locations readily accessible to people or animals. Mount with the lowest moving parts at least 8 feet (2.5 meters) above floor or grade level.
4. Do not depend upon any switch or thermostat as the sole means of disconnecting power when installing or servicing the fan. Always disconnect power at the main circuit breaker as described above. Failure to do so may result in fatal electrical shock.
  - a. Your whole house fan will operate only on 120 volt AC, 60 Hz (cycle) current. Permanent **THREE WIRE** (grounded) wiring must be used. **DO NOT USE AN EXTENSION CORD.**
  - b. To avoid risk of electrical shock, fire and other injuries, **DISCONNECT MAIN POWER SUPPLY** before installing or servicing. If the power disconnect is out of sight, lock it in the open position and tag it to prevent unexpected application of power. Failure to do so may result in fatal electric shock.
  - c. If shutter is removed for servicing, replace before normal operation.
5. To reduce the risk of fire or electric shock, **DO NOT USE THIS FAN WITH ANY SOLID-STATE FAN SPEED CONTROL DEVICE.**
  - a. Wear safety goggles when drilling, hammering or cutting materials.
  - b. The motor is equipped with a manual reset thermal protector which will disconnect power if the motor overloads. **ALWAYS** disconnect power at the circuit breaker before resetting thermal protector.
  - c. The fan is intended **ONLY** for permanent installation in accordance with the National Electrical Code (NEC) in the U.S.A., all applicable local codes and ordinances, and all sections of this manual. Follow instructions carefully to avoid creating unsafe conditions.
6. Improper grounding may create the risk of electrocution.
  - a. This fan is intended for residential ventilation only. Any other use voids the warranty and may create unsafe conditions. It must **NOT** be used in potentially dangerous locations such as flammable, explosive, chemical-laden or wet atmospheres. Do not operate this fan in areas where gas or oil fired equipment is in operation.
  - b. This fan shall be installed where the entrance of drawn-in water (rain) is unlikely.
  - c. If air discharge is readily accessible, a protective guard **MUST** be installed around it. An effective guard is a 2 X 2" lumber frame with ½" square wire mesh screening securely fastened to it. The guard should not be easily removable.
  - d. Do not insert fingers or foreign objects into the fan. Do not block or tamper with it in any manner while it is in operation.
  - e. Use caution when touching the exterior of the motor before it has cooled. It may be hot enough to cause injury.
  - f. In a case in which property damage may result from malfunction of the fan, a suitable alarm system should be incorporated into the fan circuitry.

## Description

Fantech whole house ventilating fans cool and ventilate the entire home by replacing hot, stale air from living areas with cooler outside air. Fans are fully assembled (motor is assembled in collapsed position for ease of shipping and handling) with a sturdy propeller, permanently lubricated ball bearing pillow blocks, 2-speed resilient mount motor, and a heavy-gauge steel venturi panel with sturdy supports. A wood plenum and adhesive-backed sponge rubber mounting strips simplify installation.

All models include a 12-hour timer with hold function, which will turn the fan off at predetermined time or will provide continuous operation, as well as a 2-speed switch that allows selection of desired air delivery volume.

## Unpacking and inspection

After unpacking unit, inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts.

Shipping damage claim must be filed with carrier. Please make note of the model and date code here for future reference. This unit is shipped with motor bracket assembly in collapsed position; remove motor bracket assembly (Do NOT remove motor from motor bracket) by removing four (4) bolts, washers and nuts (two sets on each side) before taking the fan in the attic; save hardware for completing installation. Additional hardware (four bolts, washers, and nuts) is included in the package.

## Dimensions

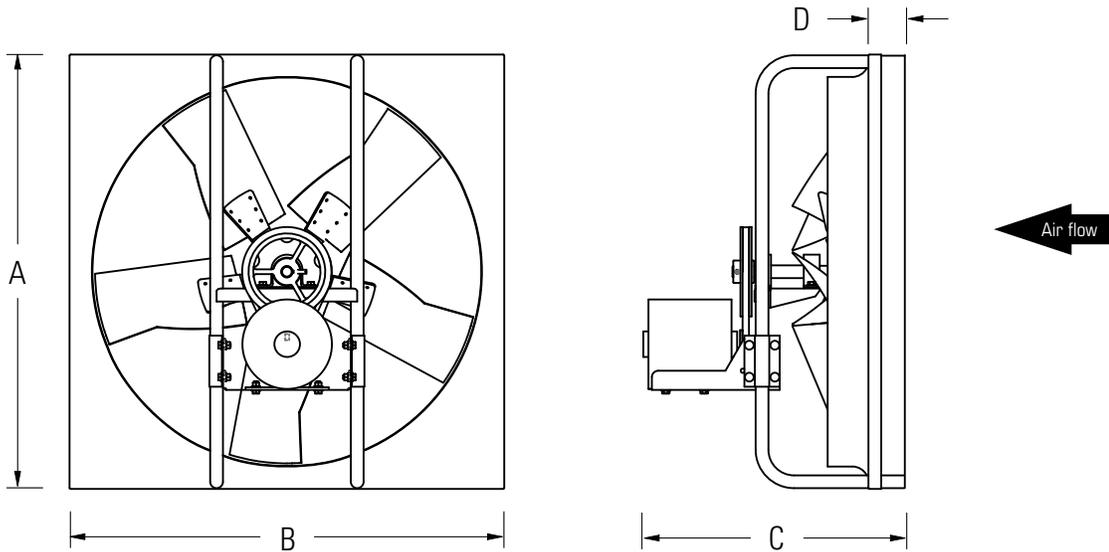


Table 1: Dimensional data

Model	A / B	C <sub>max</sub>	D	Propeller
WHV 24	28	23	4	24
WHV 30	34	24	4	30
WHV 36	40	26	4	36

Dimensional information is in inches.

# Specification

Table 2: Specification data

Model	Fan Dia.	Rated power	Voltage/ Phase	Full load	RPM	Speed	0.0" P <sub>s</sub>	0.10" P <sub>s</sub>	Sones @ 0.0" P <sub>s</sub>	Sones @ 0.10" P <sub>s</sub>	Cooling capacity	Min. net attic exhaust area
		W	V/~	Amps	min <sup>-1</sup>		cfm		sq. ft.	sq. ft.		
WHV 24	24	1/3	120/1	6.2	529	High	3700	2610	8.2	7.5	850	6
		1/10		3.9	230	Low	1610	1150*	2	-		
WHV 30	30	1/3	120/1	5.8	519	High	6510	5250	12.5	115	1,500	10
		1/10		2.8	341	Low	4280	3460*	6.5	6.5		
WHV 36	36	1/2	120/1	7.0	472	High	10820	9160	13.5	13	2,500	15
		1/4		4.1	318	Low	7290	6200*	8	7.5		

Adequate opening for air intake and net attic exhaust area must be provided for proper fan operation.

Performance ratings include the effects of a shutter in the airstream.

\*Low speed performance is less than 0.1" based on system curve and Fan Law.

## Assembly

This unit is shipped with motor bracket assembly in collapsed position; remove motor bracket assembly (DO NOT remove motor from motor bracket) by removing four (4) bolts, washers and nuts (two sets on each side) before taking the fan in the attic; save hardware for completing installation. Additional hardware (four bolts, washers, and nuts) is included in the package.

## Installation

### Tools required for installation

- Hammer
- Utility knife or sheetrock saw
- Power or hand saw
- Pencil
- Framing square
- Straight edge
- Measuring tape

- Screwdriver
- Safety goggles
- Power or hand drill

### Other material required

- Framing lumber
- Automatic ceiling shutter (see Table below)
- Code-required electrical material

Table 3: Recommended shutter selection

Model	Shutter*	Required ceiling shutter opening	Overall shutter dimensions
WHV 24	1ACC24CS	24 X 24	26 X 26
WHV 30	1ACC30CS	30 X 30	32 X 32
WHV 36	1ACC36CS	36 X 36	44 X 44

Dimensional information is in inches.

\*Insulated shutter covers offered as an accessory to meet California Code A4.207.9.

1ACC1CS-fits 24" and 30" shutters, 1ACC1CL-fits 36"

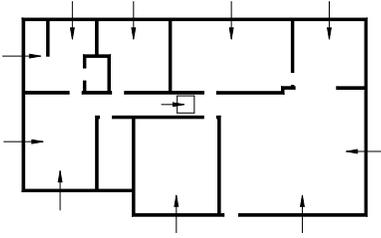


Figure 1 : Airflow being drawn from entire house

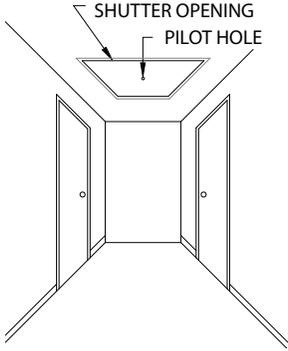


Figure 2: Mounting ceiling shutter

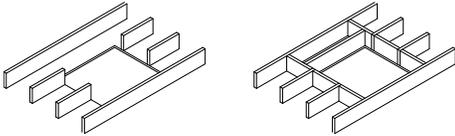


Figure 3: Preparing ceiling for frame

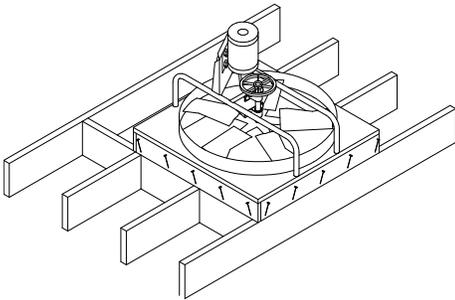


Figure 4: Securing wood plenum

### Location of fan

The fan should be located near the center of the house, preferably in the hallway or corridor. This will allow air to be drawn from all parts of living area (refer to Figure 1).

### Typical installation

#### STEP 1.

Select desired ceiling shutter to meet your specific mounting requirements (see Table 2).



Overall shutter dimensions are 2" larger than opening required. Be sure ample space is available to mount ceiling shutter (refer to Figure 2).

#### STEP 2.

After the installation site has been selected, and using the **INSIDE DIMENSIONS** of the shutter, lightly mark the shutter opening on the ceiling with pencil. Drill a small pilot hole in the center of the square through ceiling. Do not cut opening at this time.

#### STEP 3.

Find pilot hole in attic and temporarily lay out the same opening as on ceiling below. Adjust location of pilot hole in order to cut as few ceiling joists as possible. A minimum clearance of 3 ft. above attic floor is required for installation and the attic must have adequate exhaust vent area for proper performance of the fan (refer to Table 4 for requirements and Figure 5 for examples of exhaust vent systems). Refer to Figure 3 for the following procedures:

- Starting with one joist as a side or end, mark off the opening. Opening should correspond to the required ceiling shutter opening from Table 4.
- Carefully cut and remove section(s) of ceiling and joist(s) running across center of opening.
- Install headers between cut joists to complete framing, which will be same size as ceiling shutter opening dimensions.

#### STEP 4.

Center wood plenum over frame ceiling opening. Securely toe-nail in place (refer to Figure 4).



WHEN TOE NAILING PLENUM IN PLACE, MAKE CERTAIN THAT THE SIDES OF THE PLENUM REMAIN STRAIGHT AND SQUARE, OR THE FAN WILL NOT FIT PROPERLY.

#### STEP 5.

Seal any gaps between plenum and attic fan frame to prevent attic air from being pulled across when fan is running. Use spray foam, caulk, duct tape, or aluminum foil tape. Apply included 1/2" adhesive-backed sponge rubber mounting strip to top of wood plenum.

#### STEP 6.

Set assembled fan on top of rubber mounting strip.



It is not necessary to anchor the fan because its weight keeps it in place. We do not recommend nailing in place, as this tends to transmit any vibration to the framework of your house.

**STEP 7.**

Install motor bracket assembly by following these steps:

- Insert two (2) bolts in each clamp and motor bracket assembly as shown in Figure 7a; two (2) bolts on each side. Add a nut to each bolt and turn it four (4) times. These bolts are used to rest motor bracket assembly on fan tube structure and free your hands for installation.
- Slide and rest motor bracket assembly on fan tube structure as shown in Figure 7b.
- Use four (4) bolts (plus washers) from additional package and insert them through the clamps (two on each side) around the tube structure into the motor bracket holes. Fasten a nut on each bolt and tighten them loosely. See Figure 7c.
- Move motor bracket in direction of fan shaft and install belt by first placing it around the motor pulley and then moving it over the larger fan pulley.
- Push motor bracket away from fan shaft to create proper belt tension and tighten all eight (8) bolts.

Proper belt tension exists when the belt deflects approximately 1/2" when pressed at midspan with normal thumb pressure. Excessive tension will shorten the life of the belt and bearings.

**STEP 8.**

Install the shutter (see separate instructions packaged with shutter), and secure to wood frame with appropriate screws (not supplied).



- Before proceeding, make sure electrical service to the fan is locked in the OFF position.
- For safety, a lockable disconnect switch, UL rated for HP and voltage, should be located near the fan so power can be positively disconnected while servicing the unit.
- All electrical wiring (including jumper wire -see Figure 6) shall be performed only by a qualified electrician. Wiring must conform to NEC and local codes.

**STEP 9.**

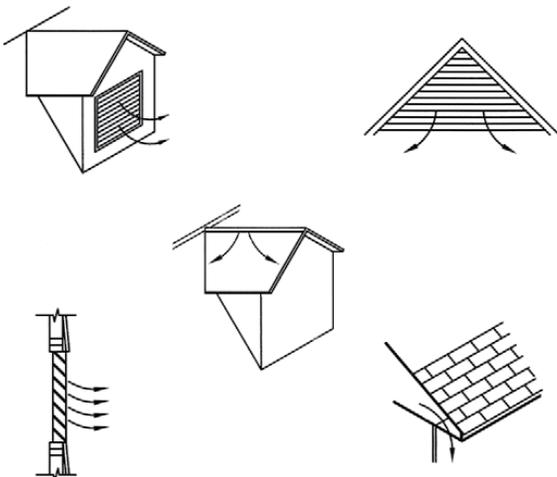
Install the fan control(s) in the desired location and wire according to the appropriate wiring diagram (following applicable NEC and local codes). Connect power to motor and 2-speed switch with timer using approved wiring methods. Motor terminal connection data is provided on the motor terminal box cover plate (refer to Figure 6).



- The fan frame and motor must be electrically grounded to a suitable electrical ground such as a ground water pipe, or properly grounded metallic raceway or ground wire system!
- This fan has rotating parts. Exercise applicable safety precautions during its handling, assembly, operation and maintenance. Disconnect power before handling, assembling, operation or maintaining. If disconnect means is out of sight, lock it in the open position to prevent unexpected starts.
- Insect screen over exhaust opening is not recommended, but if used, add a minimum of 100% to the net exhaust area requirements shown in Table 4.
- Opening for air intake equal to at least 6 square feet must be provided before starting the fan. Failure to do so may result in a broken window or soot being drawn down the chimney and into the house.

**STEP 10.**

Open windows and doors as required. Energize fan momentarily to ensure proper rotation. Fan should turn clockwise as observed from air discharge side or counterclockwise from below. If rotation is incorrect, disconnect power and reconnect motor per instructions on wiring diagram.



**Figure 5: Various exhaust systems**

# Operation

After all installation and wiring procedures have been correctly completed, your fan is ready for operation.



Opening for air intake equal to at least 6 square feet must be provided before starting the fan. Failure to do so may result in a broken window or soot being drawn down the chimney and into the house.

Turn the fan speed switch to the high speed position to provide rapid cooling of the house. Start by setting the timer to the desired time setting or to hold for continuous operation. Switch to low speed for exceptionally quiet operation or to maintain a continuous air movement. The shutter will open and close automatically.

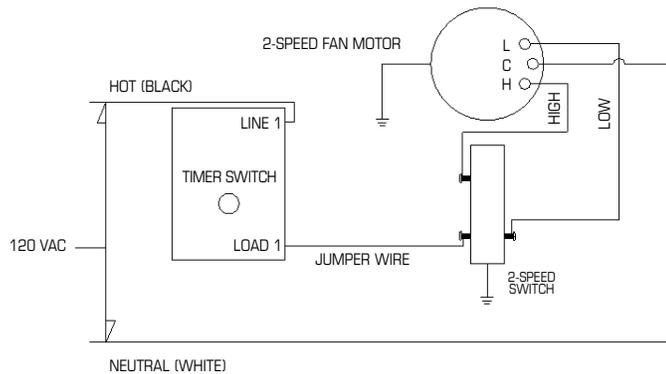
The whole-house ventilating fan does not cool the air but creates a gentle and comfortable air flow. It is especially beneficial in the evening when the outside air drops in temperature. The path of the air flow can be directed by opening the windows in the rooms to be ventilated and closing the windows in the rooms not being used. This will also increase the speed of the air flowing in the rooms where the windows are open.

**Table 4: Fan cooling capacity and net attic exhaust area requirements**

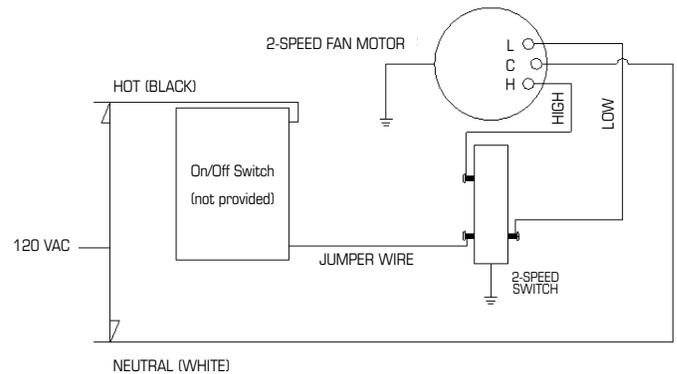
Model	Shutter used	Sq. Ft. cooling capacity	Min. net exhaust area requirements
WHV 24	24 X 24	850	6 sq. ft.
WHV 30	30 X 30	1,500	10 sq. ft.
WHV 36	36 X 36	2,500	15 sq. ft.

**Figure 6: Recommended wiring diagram: ALL WIRING MUST CONFORM TO CURRENT NEC AND LOCAL ELECTRICAL CODES**

**a) Recommended wiring diagram with timer switch**

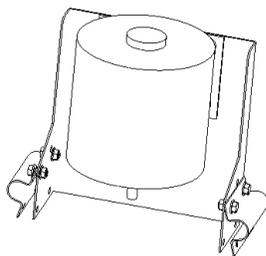


**b) Recommended wiring diagram when timer switch NOT used**

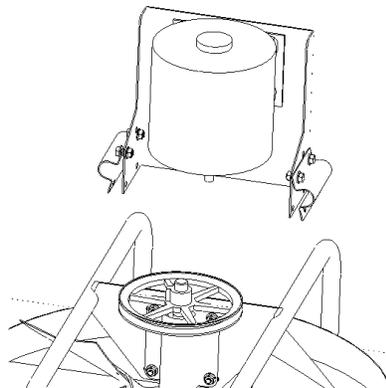


**Figure 7: Motor bracket installation**

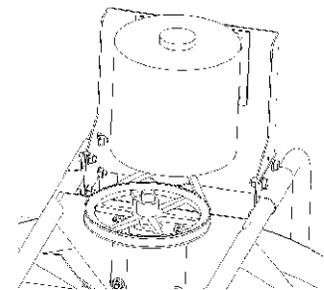
**a) Insert bolts in motor bracket holes**



**b) Rest motor bracket on fan support**



**c) Insert remaining bolts in motor bracket holes**



# Maintenance



- Make certain that electrical service to the fan is disconnected before servicing the fan.
- For safety, a lockable disconnect switch, UL rated for HP and voltage, should be located near the fan so power can be positively disconnected while servicing the unit.
- Do not depend upon any switch or thermostat as the sole means of disconnecting power when installing or servicing the fan. If the power disconnect is out of sight, lock it in the open position and tag to prevent application of power. Failure to do so may result in fatal electrical shock.

- Check belt tension and adjust as necessary while cleaning or maintaining fan. Proper belt tension exists when the belt deflects approximately ½" when pressed at midspan with normal thumb pressure. Excessive tension will shorten the life of the belt and bearings.
- The motor bearings and the pillow blocks are prelubricated at the factory and do not require any further lubrication.



Do not rotate fan by pulling on V-belt. Severe injury could result if fingers are entrapped between the V-belt and pulley.

# Cleaning

When checking belt tension, it is advisable to remove any accumulated dirt from propeller.

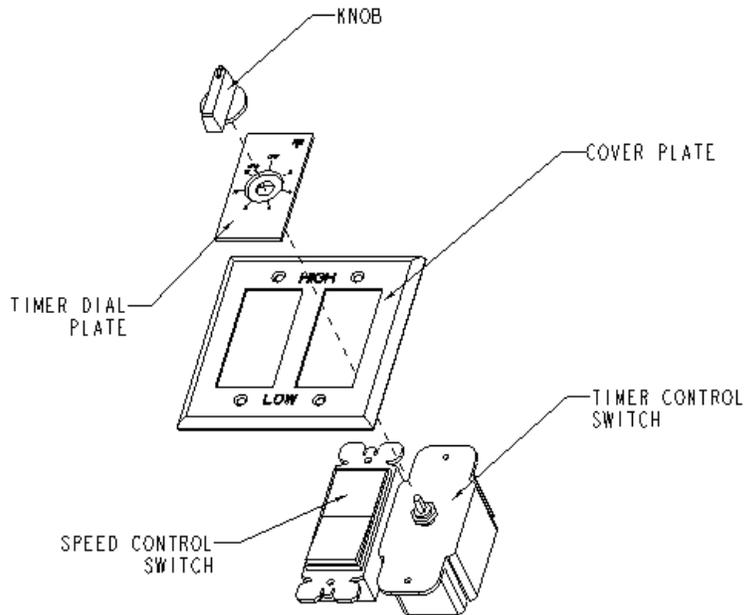


Figure 8: Switch/timer set components assembly

# Troubleshooting

Symptom	Possible causes	Corrective Action
Excessive noise	<ol style="list-style-type: none"> <li>1. Defective bearing</li> <li>2. Foreign material inside bearing</li> <li>3. Pulley not tight on shaft</li> <li>4. Loose or damaged belt</li> <li>5. Damaged propeller</li> <li>6. Motor or propeller loose</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace shaft/bearing assembly</li> <li>2. Replace shaft/bearing assembly</li> <li>3. Check alignment and tighten</li> <li>4. Adjust or replace</li> <li>5. Replace</li> <li>6. Tighten securely</li> </ol>
Fan inoperative	<ol style="list-style-type: none"> <li>1. Blown fuse or open circuit breaker</li> <li>2. Open thermal protector on motor</li> <li>3. Broken belt</li> <li>4. Loose pulley</li> <li>5. Defective motor</li> <li>6. Incorrect motor wiring</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace or reset</li> <li>2. Disconnect power at circuit breaker and reset thermal protector</li> <li>3. Replace</li> <li>4. Check alignment and tighten</li> <li>5. Replace</li> <li>6. Connect per motor wiring diagram</li> </ol>
Insufficient air flow	<ol style="list-style-type: none"> <li>1. Shutter will not open</li> <li>2. Loose belt</li> <li>3. Inadequate intake or exhaust area</li> <li>4. Incorrect motor rotation</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace</li> <li>2. Adjust</li> <li>3. Increase area (see Table 4 and "Operation")</li> <li>4. See Step 10 in "Installation"</li> </ol>
Excessive vibration	<ol style="list-style-type: none"> <li>1. Fan mounted too tightly</li> <li>2. Worn or defective belt</li> <li>3. Misaligned pulley</li> <li>4. Loose motor mounting bolts</li> <li>5. Worn or damaged bearings</li> <li>6. Bent propeller</li> </ol>	<ol style="list-style-type: none"> <li>1. Check rubber mounting strips and reset fan upon the plenum</li> <li>2. Replace</li> <li>3. Check alignment and reposition as required</li> <li>4. Tighten securely</li> <li>5. Replace shaft/bearing assembly</li> <li>6. Replace</li> </ol>

# For repair parts, call 1.800.747.1762 (USA)

7 a.m. to 5 p.m. (CET), Monday-Friday

Please provide following information:

- Model number
- Date code
- Part description and number as shown in parts list

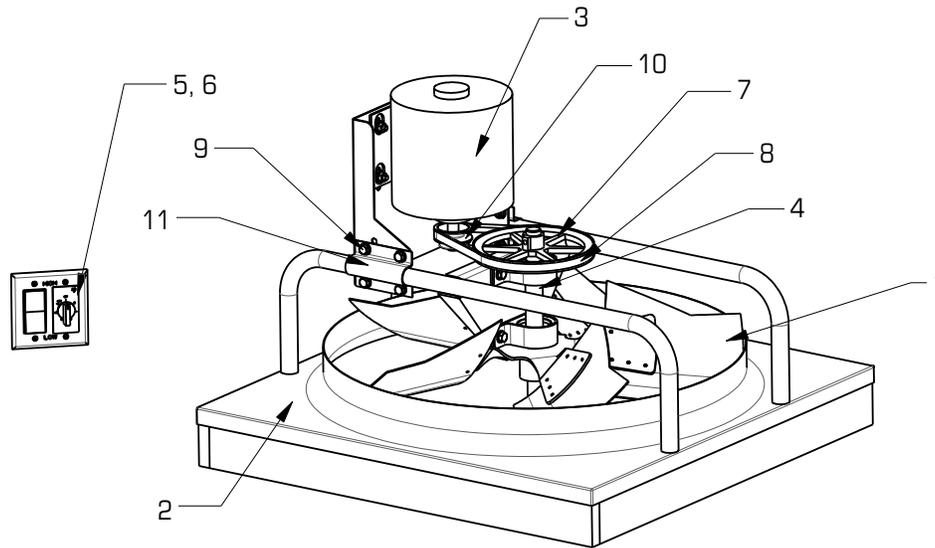


Figure 9: Repair parts illustration

Ref no.	Description	Part number for models:			Qty
		WHV 24	WHV 30	WHV 36	
1	Propeller	483054	483055	483056	1
2	Frame	497380	497381	497382	1
3	Motor	483066	483066	483067	1
4	Shaft/bearing set	497389	497389	497389	1
5	Timer	483076	483076	483076	1
6	Switch	483075	483075	483075	1
7	Fan pulley	AL74 x 7/8	AL74 x 7/8	AL84 x 7/8	1
8	Belt	4L270	4L300	4L330	1
9	Bolt, 5/16-24 x 3/4	*	*	*	16
9	Washer, 5/16 x 5/8	*	*	*	16
9	Nut, flange lock, 5/16-24	*	*	*	16
10	Motor pulley	AK22	AK22	AK23	1
11	Motor support clip	480200	480200	480200	1

\* Standard hardware item, available locally

\*\* Not shown

## Warranty

Fantech, Inc. warrants to the original purchaser that our products will be free from defects in material and workmanship for a period of one (1) year from the date of shipment. THIS IS OUR SOLE AND EXCLUSIVE PRODUCT WARRANTY AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO US IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT OUR PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY US FOR PURCHASER'S USE OR PURPOSE.

This warranty does not cover any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence (other than ours), unauthorized alteration, use beyond rated capacity, or improper installation, maintenance or application. This warranty shall be null and void to the extent that purchaser supplied incorrect information to us about the necessary product specifications or the environment in which the products were to be used, and our selection or design of the products for the purchaser was based in part on such information.

If within thirty (30) days after purchaser's discovery of any warranty defects within the warranty period, purchaser notifies us thereof in writing, we shall, at our option, repair, correct or replace F.O.B. point of manufacture, or refund the purchase price for, the products that we have

found to be defective. Failure by purchaser to give such written notice within the 30-day time period shall be deemed an absolute and unconditional waiver of purchaser's claim for such defects. Products repaired or replaced shall be covered by this warranty for the remainder of the original warranty period or ninety (90) days from the date of shipment, whichever is longer.

Warranty claims should be sent to Fantech, Inc., Attn: Quality Department, 10048 Industrial Blvd., Lenexa, KS 66215. Included in the claim should be Order Number, Model Numbers, Serial Numbers and a detailed description of the issues.

Purchaser assumes all other responsibility for any loss, damage or injury to persons or property arising out of the use of our products, either alone or in combination with other products or components.

## Limitation of Warranty and Liability

THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER SHALL BE LIMITED TO REPAIR, CORRECTION OR REPLACEMENT, OR REFUND OF THE PURCHASE PRICE UNDER THE PRECEDING PARAGRAPH ENTITLED "LIMITED WARRANTY". FANTECH VENTILATION PRODUCTS SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION, SHALL OUR LIABILITY TO PURCHASER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY PURCHASER FOR THE SPECIFIC PRODUCT PROVIDED BY US THAT GAUE RISE TO THE CLAIM OR CAUSE OF

ACTION. PURCHASER AGREES THAT IN NO EVENT SHALL OUR LIABILITY TO PURCHASER AND/OR ITS CUSTOMERS EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES. The term "consequential damages" shall include, but not be limited to, loss of anticipated profits, business interruption, loss of use or revenue, cost of capital, or loss or damage to property or equipment. It is expressly understood that any technical advice furnished by us with respect to the use of our products is given without charge, and we assume no obligation or liability for the advice given, or results obtained, all such advice being given and accepted.

## Warning

Fantech products are designed and manufactured to provide reliable performance, but they are not guaranteed to be 100% free from defects. Even reliable products will experience occasional failures and this possibility should be recognized by the user. If these products are

used in a life support ventilation system where failure could result in loss or injury, the user should provide adequate backup ventilation, supplementary natural ventilation, failure alarm system, or acknowledge willingness to accept the risk of such loss or injury.

Fantech reserves the right to make technical changes.  
For updated documentation please refer to [www.fantech.net](http://www.fantech.net)

Fantech®

