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**PRODUCT GUIDE FOR**

**UVS, UVSD & RBA Fans**

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## Introduction

The purpose of this manual is to provide instructions that complement good general practices when installing or operating fans supplied by Ventaire. It is the responsibility of the purchaser to provide qualified personnel experienced in the installation, operation, and maintenance of air moving equipment. Instructions given in the body of this manual are general in nature and apply to a variety of models supplied by Ventaire. Most units can be installed and maintained with the instructions given.

Special applications may require additional information. These instructions are supplied in the form of attached appendices. Use the instructions in the appendix if the directions in this manual differ from instructions in the appendix.

As always, follow good safety practices when installing, maintaining and operating your air moving equipment. A variety of safety devices are available. It is the user's responsibility to determine adequate safety measures and to obtain the required safety equipment.

## Shipping and Receiving

All Ventaire Fan & Blower products are carefully constructed and inspected before shipment to insure the highest standards of quality and performance.

Compare all components with the bill of lading or packing list to verify that the proper unit was received.

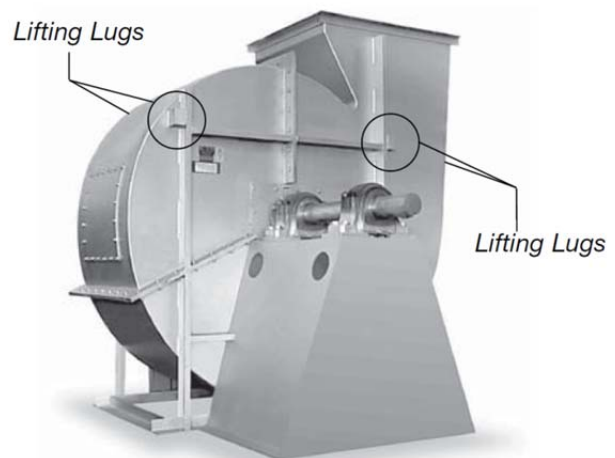
Check each unit for any damage that may have occurred in transit. Any damage should be reported immediately to the carrier and the necessary damage report filed.

## Handling

Handling of all air moving equipment should be conducted by trained personnel and be consistent with safe handling practices. Verify the lift capacity and operating condition of handling equipment. Maintain handling equipment to avoid serious personal injury.

Units shipped completely assembled may be lifted with slings and spreader bars. Use well-padded chains, cables or nylon straps. On most units, lifting lugs are provided for attaching chains (see Figure 1). Lift the fan in a fashion that protects the fan and fan coating from damage. Never lift a fan by the inlet or discharge flange, shafting or drives, wheel or impeller, motor or motor base, or in any other manner that may bend or distort parts.

Partial or disassembled units require special handling. All parts should be handled in a fashion which protects the coatings and parts from damage. Components should be handled such that forces are not concentrated and bending or distortion cannot occur.



The housing should be lifted using straps and spreaders. Do not distort housing or side plates when lifting.

Bearing pedestals should be lifted using straps or padded chains. Under no circumstances should an attached or separated bearing pedestal be lifted by the shaft, bearings, drives, motor or wheel.

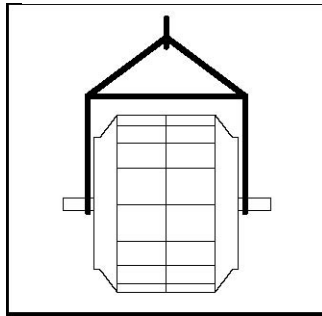
The shaft and wheel assembly may be lifted using a hoist and a spreader with a sling around the wheel (see Figure 1). Take care not to scratch the shaft where the wheel or bearings will be mounted. Never lift or support the assembly by the wheel.

Always support the assembly by the shaft when lifting or storing. Do not support the shaft or the wheel on housing sides. Use only the key provided with the shaft and wheel.

Wheels shipped separately can be lifted by slings running through the blades and around the hub. Never lift the wheel by blades or flanges. Always transport wheels by lifting. Do not roll the wheel as this can damage coatings and change the balance of the wheel.

Bent shafting is a source of vibration and bearing failure, so handle the shaft with care. Any scratches on the shaft may be removed with fine emery cloth or a stone.

**Figure 1 Moving Shaft and shaft at points nearest. Wheel with Spreader Bar**



## Short Term Storage

If fan installation is to be delayed, store the unit in a protected area. Protect the fan and motor bearings from moisture and vibration (or shock loading).

## Long Term Storage

**Prior to Storage** – Fan bearings (and motor bearings per the motor manufacturer's specifications) are to be greased at the time of going into extended storage. On belt drive units the belt tension should be reduced to less than half the specified value for the fan's design to prevent a sag/set from forming in the shafts and belts. If the unit was supplied with a motor, the motor windings should be measured at this time and recorded for comparison prior to placing in service. If the fan housing was supplied with a drain connection, this plug should be removed to prevent any moisture from accumulating in this portion of the unit during storage.

**Storage Procedure** – Fans should be stored indoors whenever possible where control over temperature, shock and dust is reasonably maintained. If units are to be stored outside in the elements, they should be covered with a water-resistant material. The bearings should be shielded individually from water and dirt; however, do not

tightly seal to avoid trapping condensation. Stored equipment should be stored on a clean, dry floor or blocked up off the ground on blocks to prevent unit from setting in any water or directly on the ground. If shock or vibration will be present during storage, the unit may need to be placed on some type of vibration dampening material to aid in preventing brinelling of the bearing surfaces.

**Periodic Check** – On a monthly interval, the equipment should be checked to ensure that it has remained in an acceptable stored condition. The fan (and motor if supplied) should be rotated several times by hand while adding enough grease to replenish the bearing surfaces with fresh grease and to maintain a full bearing cavity. Grease used must be compatible with that already supplied in the motor and fan bearings. The fan impeller should be left at approximately 180 degrees from that of the previous month to prevent the shaft and impeller from taking a set in one position. Storage records should be maintained which indicate the above requirements have been followed. Consult the motor manufacturer for proper storage, space heater connection and lubrication if the unit was supplied with one.

**Start-Up** – When the unit is removed from storage, all fan bearing grease should be purged and replenished with fresh grease as per the lubrication decal. The motor should be measured to verify that the resistance is still at a satisfactory level compared to the value recorded prior to storage. Spherical roller bearings with split pillow block housings should be recharged with grease. The bottom half of the housing should be 1/3 full.

## Foundations and Supporting Structures

Floor mounted fans should be installed on a flat, level rigid concrete foundation with a mass at least three to five times that of the assembly supported as a guide, depending on the size and speed of the fan. Foundation shall be suitable for static and dynamic loads and foundation frequencies be separated at least 20% from the rotational speed/speed ranges. The plan area should be no more than twice that required by the equipment. Foundations with larger areas should have correspondingly larger mass. Anchor bolts should be "L" or "T" shaped with sufficient length for nuts, washers, shims, and threads for draw-down. Each bolt should be placed in a sleeve or pipe with a diameter larger than the bolt to allow for adjustment. If the fans are mounted on a sub-structure, an inertia base with spring isolator system should be considered. Fans mounted to or within a structure should be placed as close as possible to a rigid member such as a wall or column. The structure must be designed for rotating equipment; static design for strength is not sufficient to insure proper operation. Supports for suspended fans must be cross-braced to prevent side sway. Structural resonance should be at least 20% from fan operating speed. Vibration

isolators should be used where applicable. Any ducting should have independent support; do not use the fan to support ducting. Isolating the fan from ductwork with flex connections eliminates transmission of vibration. Fans handling hot gases require expansion joints at both the inlet and discharge to prevent excessive loads caused by thermal growth.

### Fan Installation – Factory Assembled Units

Follow proper handling instructions given earlier.

- 1 Move the fan to the final mounting position.
- 2 Remove skid, crates, and packing materials carefully.
- 3 If supplied, place vibration pads or isolation base on mounting bolts. Line up holes in fan base with bolts.
- 4 Place fan on mounting structure. Carefully level unit using shims as required at all mounting hole locations. Bolt down the unit. Be careful not to force the fan to conform to the mounting structure/foundation. This may cause the bearings to become misaligned or pinched causing vibration and premature failure.
- 5 Any grout may now be used. Bolt the fan in position before applying grout. Do not depend upon grout to support rotating equipment.
- 6 Continue with Operations Checklist. Additional instructions may be given for some fan models, components and accessories in the appendix.

### Fan Installation – Disassembled Units

A unit is considered “disassembled” if any component required for proper operation is shipped or supplied separately or in pieces. Reference earlier instructions concerning proper handling of fan components.

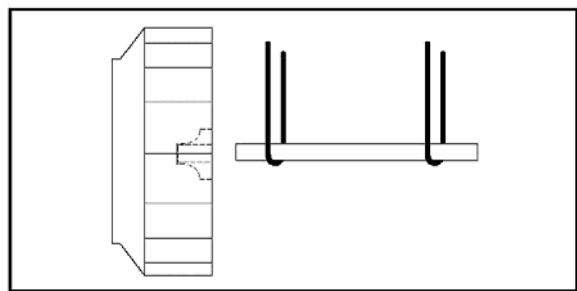
Instructions for Mounting and Assembly of Unit:

- 1 Move lower housing/framework to mounting location.
- 2 If vibration pads or bases are used, place on bolts first. Place lower housing assembly onto bolts.
- 3 Level and shim if required. Bolt into place.
- 4 If separated pedestal or bearing pedestal:
  - a. Bring bearing pedestal to desired location.
  - b. Place any vibration base or pads into place. Set bearing pedestal on bolts.
  - c. Never distort bearing pedestal by forcing it to align with a non-level surface. Shim beneath the pedestal as required.
  - d. Check bearing centerline height. Change centerline height to match centerline height of housing. High temperature units may require the housing centerline to be lower when cold so that it will be centered when hot.
- e. Measure from housing to bearing pedestal.

to bring bearing pedestal into square with housing (a large square may also suffice).

- f. Bolt into position.
- 5 Shaft and wheel assembly preparations:
    - a. Clean protective coating off shaft with solvent. Do not touch clean areas of shaft with hands. Perspiration can cause rust or pitting over time.
    - b. Remove keys from shaft.
    - c. Clean inside of wheel bore with solvent. Make sure setscrews will not interfere when inserting shaft into wheel bore.
  - 6 Arrangement 1, 9 or 10: Drive Component Assembly (See Figure 3):
    - a. Insert shaft into wheel from back side of wheel.
    - b. When shaft is flush with wheel hub, put key into keyway and tighten wheel setscrews.
    - c. Insert shaft through opening in drive side. (If split housed unit, lower into position.)
    - d. Install bearings onto shaft. Do not tighten bearing setscrews at this time. The bearing housing should be perpendicular and the bearing base parallel to the axis of the shaft to prevent loads caused by misalignment.

Figure 3. Drive Component Assembly

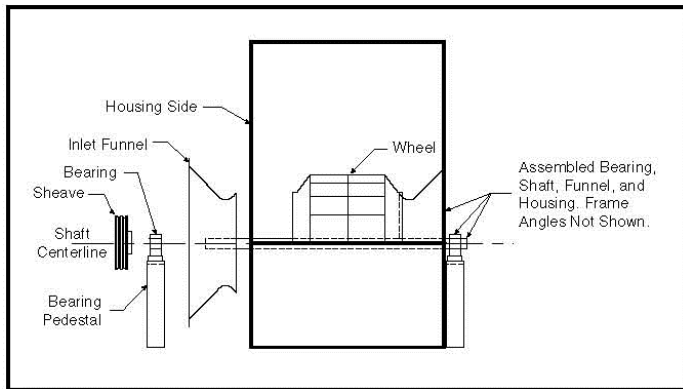


- e. Mount assembly, bolt bearings to drive stand. Shaft must be parallel with side of bearing pedestal. Precision shim bearings as required. After aligning and bolting bearings to pedestal, lock bearings. Be sure expansion bearing (if supplied) is set to allow for growth. Continue with step 8.
7. Arrangement 3 (Split-housed) units (See Figure 4)
    - a. Parts on DWDI units are assembled in the following order as viewed from opposite drive side: Bearing bar assembly and opposite bearing, funnel, (housing side), wheel, (housing side), funnel, drive side bearing bar assembly, drive bearing and sheaves. Mount bearing bar assembly to housing. Center wheel in funnels.
    - b. Parts on SWSI units are assembled in the following order as viewed from opposite drive side: Bearing bar assembly and opposite bearing, funnel, (housing side), wheel, (housing

side), drive side bearing bar assembly, drive bearing and sheaves. Mount bearing bar assembly to housing. (See Figure 7 for wheel-funnel overlap.)

- c. Assemble parts in above order on shaft.
- d. Move assembly into position. Lightly bolt bearings into place.
- e. Shaft should be parallel with discharge of housing. Move bearings to accommodate.
- f. Level shaft; shim bearings if required. Lock bearings. Be sure expansion bearing (if supplied) is set to allow for shaft growth.

Figure 4. Split-housed Drive Component Assembly



8. Install motor on base. Carefully align shafts for drive installation.
9. Mount drives as follows:

- a. Slip (do not pound) proper sheave onto corresponding shaft **CAUTION: PLACING FAN SHEAVE ON MOTOR CAN OVERSPEED WHEEL AND CAUSE STRUCTURAL FAILURE**
- b. Position sheaves so they are placed on motor shaft and fan shaft as close as possible to the motor and/or bearing. The sheave must be positioned so that it does not rub on the bearing motor guard or other structures. On keyed shafts, the key should be placed in the keyway pushed toward the bearing as far as the runout will allow without rubbing. The back of the sheave should be lined up with the end of the key (see Figure 5 on page 3). For sheaves without a key, the sheave should be placed as close to motor and/or bearing as possible without rubbing. Typically the sheave should be at least 1/4" away from the motor, bearing, guard, structures etc.
- c. Align sheaves with a straightedge extended along the perimeters of both sheaves, just making contact in two places on outside perimeters of both sheaves (see Figure 6).

Figure 5. Sheave Position

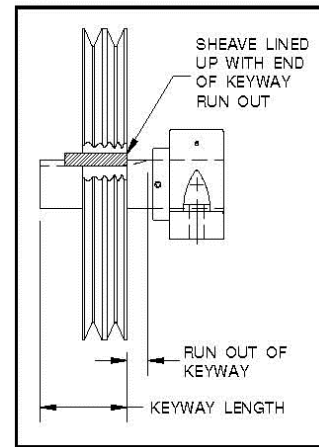


Figure 6. Sheave Alignment

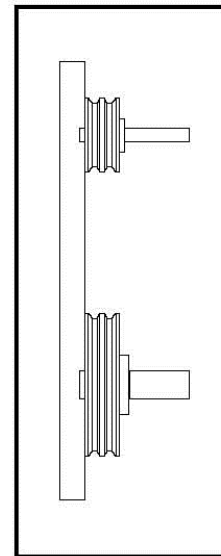


Figure 7 – Wheel Placement

UVS/UVSD, Std BI Wheel Placement							
Size	122	135	150	165	182	200	222
A	12.25	13.50	15.00	16.50	18.25	20.00	22.25
B	0.32	0.34	0.38	0.44	0.56	0.63	0.69
Size	245	270	300	330			
A	24.50	27.00	30.00	33.00			
B	0.75	0.88	0.97	1.06			
UVS/UVSD Air Foil BI Wheel Placement							
Size	182	200	222	245	270	300	330
A	19.00	20.82	23.16	25.51	28.11	31.23	34.36
B	0.38	0.41	0.46	0.50	0.55	0.68	0.75
RBA Wheel Placement							
Size	907	909	911	913	915	917	919
A	0.25	0.38	0.47	0.53	0.59	0.69	0.69

- d. Tighten down sheave bolts.
  - e. Install a matched set of belts. Slide the motor to obtain slack and tighten belts. Using a pry will damage belts.
  - f. Tighten belts to proper belt tension. Ideal tension is just enough tension so that belts do not slip under peak load. Recheck sheave alignment.
  - g. After initial installation of belts, recheck belt tension again after a few days to adjust belt tension. (New belts require a break-in period of operation.)
10. Install any safety devices or accessories supplied. (Accessories commonly used are inlet vanes, shaft seals and shaft coolers, plugs, dampers, and inlet or discharge screens. Refer to appropriate documents in appendix.)
  11. Grout may now be applied. Grout is used to distribute loads and should not be used as the sole support of any rotating equipment.
  12. When connecting the fan to the system, it is recommended that the inlet and discharge be isolated from the system with flex connections (where practical) to block transmitted vibration. All duct connections to the fan should be independently supported. Do not use fan to support duct.

## Fan Operation – Safety

For general safety practices for air moving equipment, see AMCA Bulletin 410. Ventaire has many safety accessories available. These safety devices include (but are not limited to) belt guards, shaft guards, inlet and discharge screens. The use, abuse, or non-use of safety devices is the responsibility of the purchaser.

Facility-related safety conditions include fan accessibility and location. How easily can non-service personnel access the unit? Is the fan in a hazardous duty environment? Was the unit ordered for this duty? Other concerns must also be addressed. All fans should be powered through switches which are easily accessible to service personnel from the fan. Every switch should have the ability to be “locked-off” by the service person and the key to be retained by this person to prevent accidental power of the fan while service is in process.

## Operation Check List

- Verify that proper safety precautions have been followed:
  - Electrical power must be locked off.
- Check fan mechanism components:
- System connections are properly made and tightened.
  - Bearings are properly lubricated.
  - Wheel drives and fan surfaces are clean and free of debris.

Rotate the impeller by hand to verify it has not shifted in transit.

- Check fan/wheel overlap. (See Figure 7)
- Drives on correct shafts (not reversed).
- Check position of guards to prevent rubbing.

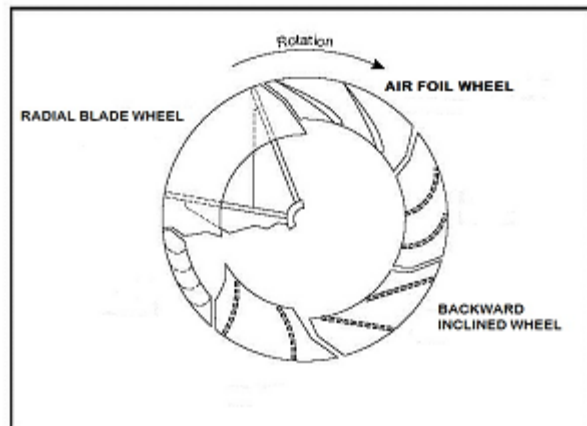
Check fan electrical components:

- Motor is wired for proper supply voltage.
- Motor was properly sized for power and rotational inertia of rotating assembly.
- Motor is properly grounded.
- All leads are properly insulated.

Trial “bump”:

- Turn on power just long enough to start assembly rotating.
- Check rotation for agreement with rotation arrow. Does the assembly make any unusual noise? (See Figure 8)
- Check drive alignment and tension. Does this meet with drive manufacturer’s recommendations?
- Correct any problems which may have been found (Follow safety guidelines - shut power off.) Perform checklist again until unit is operating properly.
- Run unit up to speed.

Figure 8 Wheel Rotation



Verify fastener tightness. These may have loosened during shipment or installation.

- Setscrews attaching wheel hub to shaft.
- Setscrews in drive sheaves or coupling.
- Nuts on inlet funnel.
- Nuts and bolts holding motor.



- Nuts holding housing frame to base and base to ground.
- Nuts on accessories including shaft seal, access doors and pie-splits.
- Bolts in taper-lock bushings.
- Grease line connections.
- After one week of operation, check all nuts, bolts and Setscrews and tighten if necessary.

## Maintenance of Fans

This section contains general maintenance instructions for your Ventaire Fan & Blower unit. For specific information about maintenance of components, particularly for special application fans see the attached documents.

## General Motor Maintenance

The three basic rules of motor maintenance are keep the motor clean, dry and properly lubricated.

Keeping motors and windings clean is important because dirt and dust serve as thermal insulators. Heat normally dissipated by the motor is trapped causing overheating and/or premature failure. Blow dust and dirt out of windings and off the motor periodically. Use low pressure (50 psig) airstream so that winding damage does not occur. Keep the areas surrounding the motor open so the air can circulate through the motor cooling fan. Follow normal maintenance schedule given to the right.

Motors should be kept dry to avoid electrical short circuits. Motors kept in storage for long periods of time can have moisture condense on the windings. Be certain the motor is dry before using.

Some smaller motors are lubricated for life. Motor bearing lubrication, if required, must follow a rigorous schedule. Motors less than 10 hp running about eight hours a day in a clean environment should be lubricated once every five years; motors 15 to 50 hp, every 3 years; and motors 50 to 150 hp, yearly. For motors in a dusty or dirty environment or running 24 hours a day, divide the service interval by 2. If the environment is very dirty or high temperatures exist, divide the service interval by 4. Lubrication requirements are normally attached to the motor. Do not over lubricate.

Motors controlled by variable frequency drives (VFDs) should be wired in accordance with VFD manufacturer's instructions. The motor must be grounded to earth and proper shielded cabling must be used. Grounding rings should be considered.

## Drive Maintenance

V-belt drives need periodic inspection and occasional belt replacement. When inspecting fan drives, look for dirt buildup, burrs or obstructions which can cause premature belt or drive replacement. If burrs are found, use fine emery cloth or a stone to remove the burr. Be careful that dust does not enter the bearings.

Check the sheaves for wear. Excessive slippage of belts on sheaves can cause wear and vibration. Replace worn sheaves with new ones. Carefully align sheaves to avoid premature sheave failure.

Observe belts for wear. If fraying or other wear is observed to be mostly on one side of the belts, the drives may be misaligned. Reinstall the drives according to instructions given for Fan Installation – Disassembled Units. Never use belt dressing on any belts.

When replacing drive belts, replace the entire belt set. After initial replacement and tensioning, recheck belt tension after a few days to adjust belt tension again. (New belts require a break-in period of operation.)

Figure 9. Safety & Lubrication Instructions for Fans with Ball Bearings.

WARNING									
1. This equipment must not be operated without proper guarding of all moving parts. While performing maintenance be sure remote power switches are locked off. See instruction manual for recommended safety practices.									
2. Before starting: Check all setscrews for tightness and rotate wheel by hand to make sure it has not moved in transit.									
Relubrication Schedule (Months)*									
Ball Bearing Pillow Blocks									
Shaft Dia	Speed (RPM)								
	500	1000	1500	2000	2500	3000	3500	4000	4500
1/2" Thru 1/16"	6	6	5	3	3	2	2	2	1
1 15/16 Thru 2-7/16	6	5	4	2	2	1	1	1	1
2-11/16 Thru 2-15/16	5	4	3	2	1	1	1	-	-
3 7/16 Thru 3 15/16	4	3	2	1	1	-	-	-	-
* Suggested lubrication interval under ideal continuous operating conditions. Relubricate while running, if safety permits, until purging occurs at the seals. Adjust the lubrication frequency depending on the condition of the purges grease. Use one-half of the listed interval for vertical shaft applications or for 24 hour operation. Hours of operation, temperature, and surrounding conditions will affect the relubrication frequency require.									
1. Lubricate with a high quality NLGI No. @ lithium grease having rust inhibitors, antioxidant additives and a minimum oil viscosity of 500 SUS at 100oF (380C). Some greases having these properties are: Shell - Alvania RL Exxon - Ronex MP Mobil - Mobilith SHC100 Exxon - Ronex MP Mobil - Mobilith SCH220									
2. Lubricate bearings prior to extended shutdown or storage and rotate shaft monthly to aid in the corrosion protection.									

## Bearing Maintenance

For instructions covering special lubrication intervals, bearing assembly or disassembly, or installation details, see attached documents. Any bearing which is disassembled should be kept separate from other bearing parts as components may not be interchangeable. Maintain cleanliness of components and bearings to prevent bearing contamination.

Bearing failure can occur from many causes. See the Troubleshooting section for details.

Note: All speeds shown do not apply to all shaft sizes in that group. Consult the factory if in doubt of maximum speed for a particular bearing.

## Lubrication

Proper lubrication of bearings helps assure maximum bearing life. All fans are equipped with decals indicating relubrication intervals for normal operating conditions. However every installation is different and the frequency of lubrication should be established accordingly.

Experience has shown that airborne moisture and heavy dust will dramatically reduce the life of the bearing lubricant. If any of these adverse conditions exist it is recommended that bearings be regreased after several days of operation. Lubrication intervals can then be adjusted based on the condition of the purged grease Figure 9 illustrates the decal for ball bearings. Observation of the condition of the grease expelled from unit ball or roller bearings at the time of relubrication is the best guide as to whether regreasing intervals and the amount of grease added should be altered. This observation is particularly important when bearings operate continuously over 160°F. Avoid mixing greases with different bases. They could be incompatible and result in rapid deterioration or break-down of the grease. All bearings are filled with grease before leaving the factory. When the fans are started, the bearings may discharge excess grease through the seals for a short period of time. Do not replace the initial discharge because leakage will cease when the excess grease has worked out. Sometimes the bearing has a tendency to run hotter during this period and one should not get alarmed unless it lasts over 48 hours or gets above 220°F. When relubricating, use a sufficient amount of grease to purge the seals. Rotate bearings during relubrication where good safety practice permits.

## Wheel and Shaft Maintenance

Periodically inspect the shaft and wheel for dirt buildup, corrosion, and signs of excess stress or fatigue. Clean the components and, when appropriate, apply new coatings, (Any addition of coatings or weld can create an imbalance.) Check the balance of the assembly.

## Structural Maintenance

All structural components or devices used to support or attach the fan to a structure should be checked at regular intervals. Vibration isolators, bolts, foundations, etc., are subject to failure from corrosion, erosion, and other causes. Improper mounting can lead to poor operation characteristics or fan fatigue and failure.

Check metallic components for corrosion, cracks, or other signs of stress. Concrete should be checked to ensure the structural integrity of the foundation.

## Troubleshooting Guidelines

Use current safety practices when investigating fan or system performance problems. General safe practices and performance troubleshooting guidelines can be found in AMCA Publications 410 and 202, respectively. Fan application and field measurement procedures can be found in AMCA Publications 201 and 203.

## Troubleshooting Performance Problems

The lists below indicate possible areas to check when air or sound values do not match expectations. Most fan problems can be pinpointed to one of these common causes.

### Air Capacity Problems:

1. Resistance of system not at design rating. If resistance is lower than expected, both airflow and horsepower may be up. If resistance is higher than anticipated, air volume will be down.
2. Fan speed is not at design speed.
3. Air density not at design values. Also check air performance measurement techniques/procedures.
4. Devices for air modulation are closed or plugged. Also check filters.
5. Wheel mounted improperly or is rotating in reverse.
6. Parts of system or fan have been damaged or need cleaning.

### Noise Problems:

1. Air performance is incorrect and fan is not at design point of operation. Fan forced to operate in an unstable flow region.
2. Bearing failure. Check bearings (lubrication).
3. Supply voltage high or inconsistent supply frequency. Adjustable frequency controllers can generate motor noise.
4. Objects which are installed in a high velocity air-stream can generate noise. This includes flow sensors turning vanes etc.
5. Poor fan inlet conditions.
6. Parts of system or fan have been damaged or need cleaning.

### Vibration Problems:

1. Misalignment of drive components.
2. Poor foundations or mounting structure (resonances).



3. Foreign material attached to rotating components.
4. Damaged rotating components (bearings, shaft, fan, wheel sheaves).
5. Broken, loose or missing setscrews.
6. Loose bolts.
7. Vibration transmitted by another source.
8. Water accumulating in airfoil blades.
9. Fan is operating in stall or unstable flow region.

NOTE: All fans offered by Ventaire are factory balanced prior to shipment. Handling and movement of the fan during shipment may cause the rotating assembly to shift. Balance should be checked once the fan is installed. If a final trim balance is required, it is the end user's responsibility to bring the fan back to factory specifications. Final trim balancing is not the responsibility of Ventaire. Refer to Figure 10 for vibration guidelines.

Figure 10. Vibration guidelines

Condition	Fan Application Category	Rigidly Mounted mm/s (in./s)	Flexibly Mounted mm/s (in./s)
Start-up	BV-3	6.4 (0.25)	8.8 (0.35)
	BV-4	4.21(0.16)	6.4 (0.25)
Alarm	BV-3	6.4 (.025)	8.8 (.035)
	BV-4	4.1 (0.16)	6.4 (0.25)
Shutdown	BV-3	6.4 (0.25)	8.8 (.035)
	BV-4	4.1 (0.16)	6.4 (0.25)

Value shown are peak velocity, mm/s (inches/s), Filter out Table taken from ANSI/AMCA Standard 204-05, Table.6.3.

Values shown are peak velocity, mm/s (inches/s), Filter out Table taken from ANSI/AMCA Standard 204-05, Table.6.3.

**Motor Problems:**

1. Incorrect wiring.
2. Speed of fan too high.
3. Parts improperly installed - binding.
4. Bearings improperly lubricated.
5. WR2 capability of motor too low for application.
6. Protection devices may be improperly sized.

**Drive Problems:**

1. Belts improperly tensioned.
2. Drive alignment is poor.

**Bearing Problems:**

These are self-aligning bearings and should present no alignment problems with one exception: i e., on Sealmaster bearings has a pin beneath the grease fitting that prevents the bearings outer race from rotating. Should this pin jam, the bearing loses its alignment feature. Common failure causes are: (1) set screws loosening and shaft turning within the bearing, and (2) crowned bearing supports. Loosen one bolt and measure the clearance between the pillow block and the support. Add shim to compensate.

**Lubrication:**

The major cause of bearing failure is contamination of grease insufficient grease or incompatibility of grease. If a fan is to be stored for any length of time at the job site, the bearings immediately should be filled with grease while rotating the shaft and then the bearings should be regreased and rotated monthly. This will prevent moisture, which condenses within the bearing, from corroding the raceways. Most greases used on fan pillow blocks are lithium base. Use the greases shown on the bearing decal. Do not mix the bases without completely purging out the initial grease.

Initially follow the lubrication instruction on the side of the fan. The frequency of lubrication should be adjusted depending on the condition of the old grease being purged. This is the responsibility of the user. If the grease is dirty the lubrication frequency should be more often

- a. Noise – If a bearing is increasing in noise intensity and/or vibration it will probably result in failure.
- b. Temperature – If a bearing temperature begins to gradually rise, it will generally result in failure. A bearing can operate up to 200 degrees and operate satisfactorily if the temperature remains constant and the bearing receives adequate lubrication. Remember that a roller bearing under the same load and speed will be somewhat noisier and run warmer than a ball bearing. This is normal.

Rough handling and/or dropping a fan can result in brinelling the bearing. This appears as a clicking noise at first, and then gradually worsens until failure. When replacing a bearing, always align the bearings first, then bolt the pillow blocks to their support, rotate the shaft, fasten the bearings to it. If the bearing is fastened to the shaft first, tightening the pillow block bolts may bind the shaft and preload the bearings



Phone: (952) 894-6637  
Fax: (952) 894-0750  
Email: [info@ventaire.com](mailto:info@ventaire.com)

#### 12-MONTH WARRANTY

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**VENTAIRE** warrants their products, to the original purchaser, to be free from defects in material and workmanship under normal use and service (except for those cases which buyer supplied materials are used) for a period of 12 months from the original date of shipment. During the warranty period, **VENTAIRE**, will at its option, repair, replace, or issue credit for any components that are deemed defective by **VENTAIRE**.

Buyer's failure to pay the full amount due within (60) days of invoice shall release seller from any and all liability or obligation to any warranty.

Before returning equipment for repair or replacement, a **Return Authorization Number** must be obtained from **VENTAIRE** (952-894-6637.) The **Return Authorization Number** must be written on the outside of all shipping cartons. Items returned without a **Return Authorization Number** will be refused. Items returned should be in original condition in which it was received and must be accompanied with a written explanation of the reason(s) for their return.

This warranty does **not** cover damage caused by accident, misuse, misapplication, or unauthorized service modification.