

USER'S MANUAL and INSTALLATION GUIDE

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THANK YOU

Thank you for purchasing an Aerotech Advantage Fan. Aerotech equipment is designed to be the highest performing, highest quality equipment you can buy. With the proper installation and maintenance it will provide many years of service.

PLEASE NOTE

To achieve maximum performance and insure long life from your Aerotech product it is essential that it be **installed and maintained properly**. Please read all instructions carefully before beginning installation.

WARRANTY

For Warranty claims information see the "Warranty Claims and Return Policy" form QM1021 available from the Aerotech Ventilation System, Munters Corporation office at 1-800-227-2376 or by e-mail at aerotech@munters.com.

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the "Warranty Claims and Return Policy" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Aerotech Ventilation Systems, Munters Corporation.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

INSTALLATION INSTRUCTIONS

Step 1

Construct the framed opening to correct size according to the chart below and your fan size. **See Figure 1.**

FAN DIA.	WALL OPENING (I.D., framed)
	W. H.
36"	43" x 43"
48"	55" x 55"

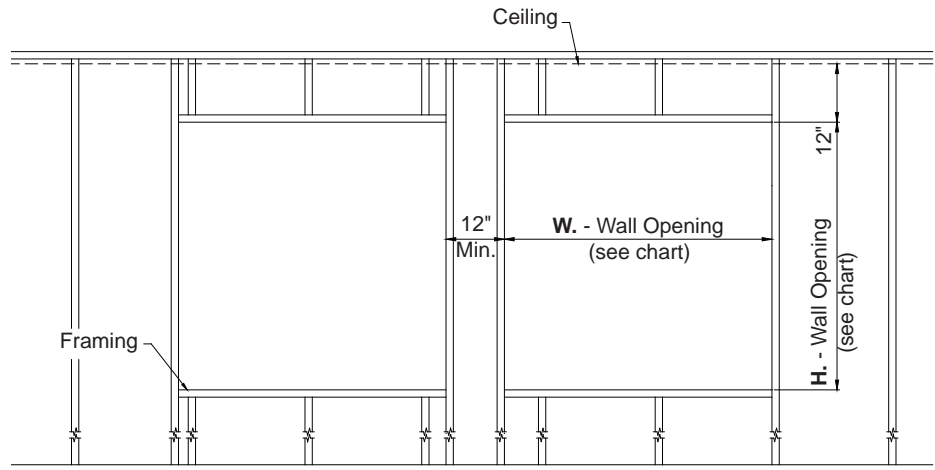


Figure 1



Step 2

Insert fan into the framed opening from the inside. While lifting fan up tight to framing, fasten top of fan with the (3) Fasteners [C] (provided). **See Figure 2.** Next, fasten bottom of fan, then both sides with remaining (9) Fasteners [C] screws (provided). Install flashing around opening tight to fan and caulk around fan to seal.

Step 3

Outlet of fan comes unguarded, it is recommended that an Aerotech discharge cone with guard, a fan hood with guard or a guard by others is installed on outlet of fan at this time. Refer to **QM1009** for Cone Installation.

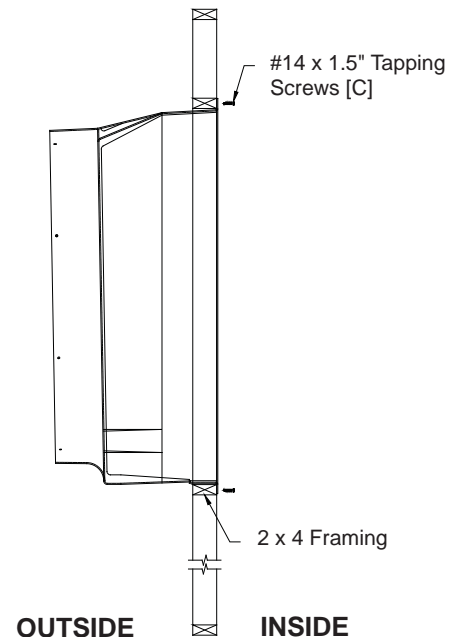


Figure 2

Step 4

Make electrical connection to fan motor per instructions in electrical wiring section and as shown on motor.

Step 5

Insert shutter into fan by sliding the bottom flange of shutter into bottom shutter clips and pressing shutter inward, **See Figure 3A**. Fasten shutter in place by rotating the side and top shutter clips over the shutter flanges, **See Figure 3B**.

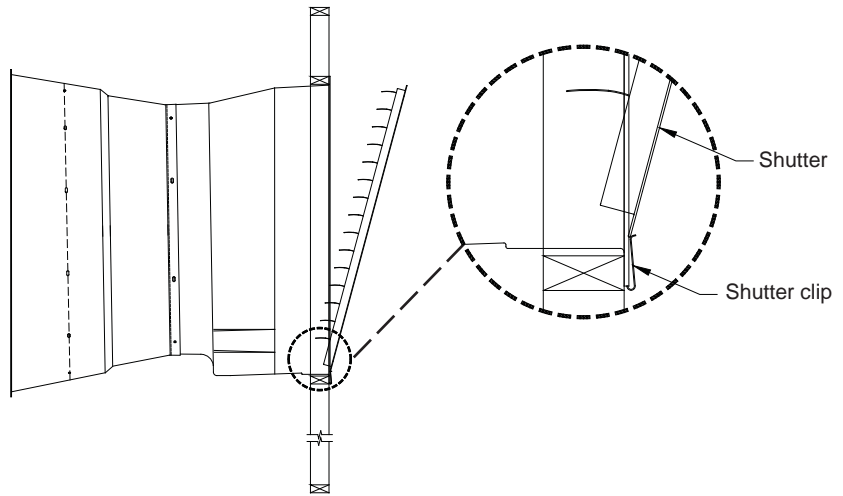


Figure 3A

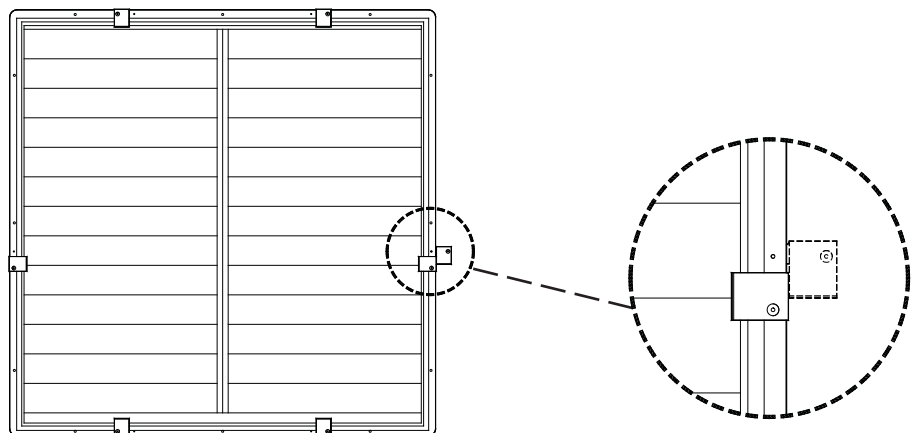


Figure 3B

ELECTRICAL WIRING

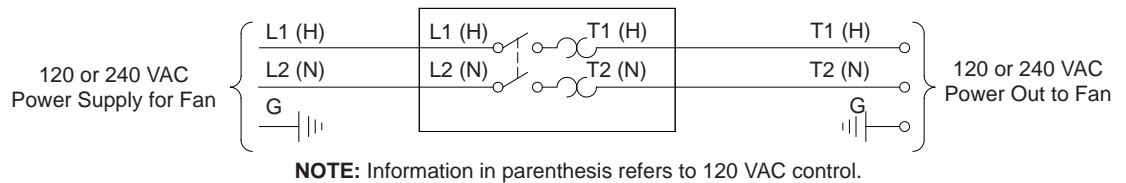


All wiring should be installed in accordance with National, State, and Local electrical codes. Fans used to ventilate livestock buildings or other rooms where continuous air movement is essential should be connected to individual electrical circuits, with a minimum of two circuits per room. For electrical connection requirements, refer to diagram on motor nameplate and to information enclosed with the Aerotech environmental control to be used.

Single Phase Fans: motor overload protection should be provided for each fan. A Circuit Breaker Switch or slow blow motor type fuses must be used **See Figure 4A**. See Aerotech form **QM1400** for proper size.

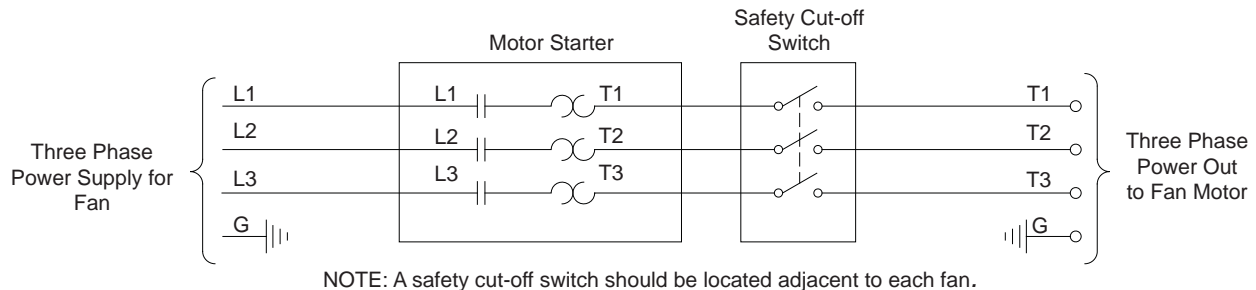
KEY:
 L1 = Line 1 H = Hot
 L2 = Line 2 N = Neutral
 G = Ground

Figure 4A
Single Phase - Motor Overload Protection with Disconnect
(SY2000 or Equivalent)



Three Phase Fans: motor overload protection should be provided for each fan. A three-pole motor starter or slow blow motor fuses must be used. **See Figure 4B**. If a frequency drive (inverter) is used, confirm that motors are rated for inverter duty at the voltage used. The installation of line reactors is recommended to reduce voltage spikes and harmonic distortion. Supplemental motor overload protection is also recommended

Figure 4B
Three Phase - Motor Overload Protection with Disconnect



Recommended wire routing:

As the power cable exits the back of motor form a drip loop and then run power cable down along strut and "zip tie" the cable to strut to prevent cable from getting tangled in the pulley or belt. **See figure 5**. Then run the cable out the hole to the circuit breaker or control panel.

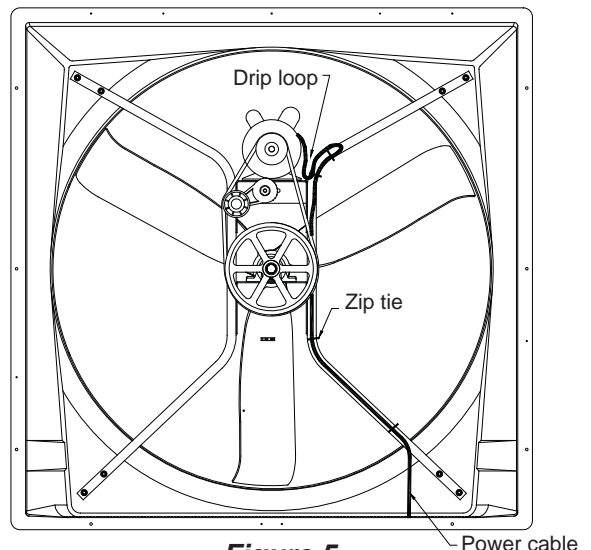


Figure 5

OPERATION

⚠ WARNING



Moving parts,
disconnect power
before servicing.

- 1) INITIAL START-UP: With electrical power off, verify that the fan propeller turns freely and that all fasteners are secure. Turn on electrical power and confirm that the fan operates smoothly.
- 2) ADJUSTMENTS: Set the fan control to the temperature shown on your Aerotech ventilations system drawing, or to a value which will provide the desired environmental conditions.
- 3) BELT ADJUSTMENTS: After 3 days of operation you must tighten fan belt. See Maintenance Section: Belt Tightening.

Single Phase Fans: When variable speed controls are used, the fan's idle speed will need to be set to the recommended minimum airflow rate. Refer to the procedures included with each control. The table below provides airflow rates at various propeller speeds for fans wired for 240 VAC.

A = Fan with cone & shutter B = Fan with hood & shutter

CFM	0.02" Static Pressure				0.05" Static Pressure			
	RPM	A VOLTS	RPM	B VOLTS	RPM	A VOLTS	RPM	B VOLTS
750	—	—	—	—	—	—	350	121
1000	—	—	—	—	370	123	390	128
1250	330	117	330	119	390	127	410	130
1500	360	123	360	125	410	131	430	134
1750	370	125	370	127	425	136	440	136
2000	380	128	390	130	450	137	460	139
2500	410	131	420	135	470	141	480	143
3000	430	135	440	138	490	145	500	146
4000	470	142	480	145	520	149	530	151
5000	520	148	530	152	560	156	570	158
6000	560	154	580	159	590	161	600	162
7000	610	159	640	165	640	166	680	172
8000	650	166	700	173	690	172	750	179
9000	710	172	760	185	740	178	810	209
10,000	770	179	840	225	790	195	—	—
11,300	840	223	—	—	—	—	—	—

Three Phase Fans:

- 1) 36" Direct Drive, 3 Phase fan is not suitable for frequency drive.
- 2) The use of a quality frequency drive and the installation of line reactors is recommended to reduce voltage spikes and harmonic distortion.
- 3) Minimum operating frequency of 30 Hz.
- 4) Will require three pole contactors with overload protection (by others).

MAINTENANCE



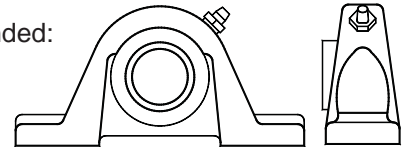
The following inspection and cleaning procedures should be performed monthly:

- 1) **INSPECT PROPELLER:** Check that propeller is secure on motor shaft and that there are no signs of damage. The blades are of a self-cleaning design and should not require maintenance.
- 2) **CLEAN** regularly for best results:
 - **FAN MOTOR:** Remove any dust accumulation from motor using a brush or cloth. (DO NOT use a pressure washer). A clean motor will run cooler and last longer. At the same time, verify that the motor is secure in its mount.
 - **SHUTTER:** Carefully clean dust from shutter blades and frame so that shutter opens and closes freely. A brush or cloth should be used.
 - **GUARD:** Clean any dust or feathers from fan guards using a brush. Dirty guards can reduce airflow.
- 3) **CHECK FASTENERS:** For safety, all fasteners should be inspected. Tighten any loose connections.
- 4) **INSPECT FAN CONTROL:** With power disconnected, inspect all electrical connections. Wiring should be secure and in good condition. Remove any dust build-up from control case and sensor using a soft brush or cloth. **NEVER CLEAN ELECTRICAL EQUIPMENT WITH A PRESSURE WASHER!**

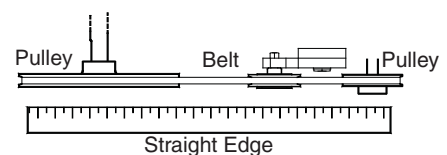
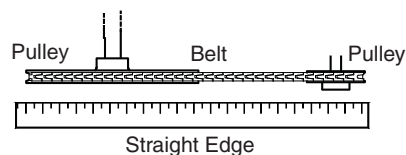
- 5) **GREASE BEARINGS:** Grease bearings every 4-6 months. Use no more than 2 shots when greasing fan.

• A premium non-water based grease is recommended:

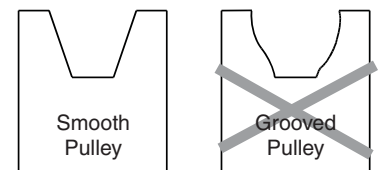
- Shell Alvania #2
- Exxon Unirex N2
- Mobil 532
- Mobil Mobilux #2
- Texaco Premium RB
- Texaco Multifak #2



- 6) **CHECK DRIVE ALIGNMENT:** Use a straight edge to check the alignment of the pulleys. If an adjustment is needed, remove the belt, then loosen the set screw in one pulley and move it. Remember to tighten the set screw after making an adjustment. Drive alignment is very important for long belt life and proper operation.



- 7) **CHECKING PULLEYS:** Roll the belt off and look at both pulleys. If the pulley has grooves in it or is no longer smooth, it needs replacement. A loose or slipping belt will reduce fan performance up to 60% and cause premature belt failure.





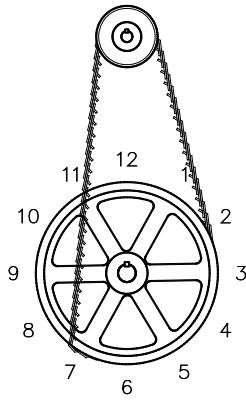
8a) **BELT TIGHTENING:**
All belts must be checked for proper tension after the first 3 days of fan operation and every 4-6 months thereafter.

AeroLink Belt

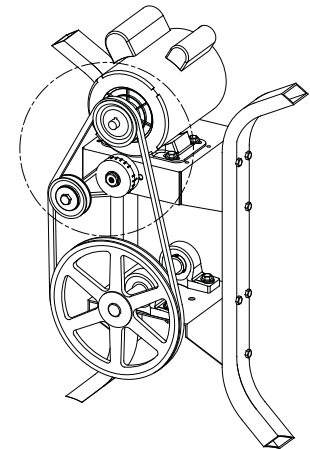
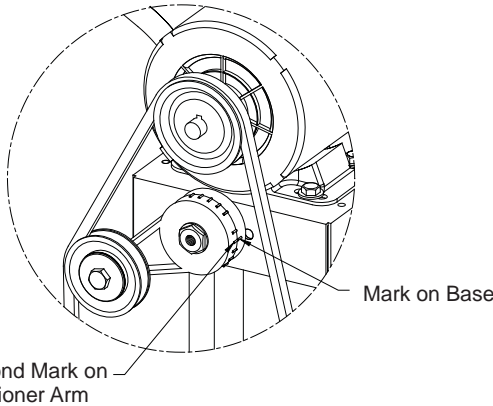
- Roll the belt off the pulleys by forcing it side ways off the larger pulley as you turn the drive by hand.
- Reinstall the belt by wrapping it around the smaller pulley and then starting it over the larger pulley.
- As you continue rolling it onto the larger pulley, the belt should become taut in the position shown below.
- If the belt becomes taut before reaching the position shown, add one link and try again.
- If the belt is loose when in the position shown, remove one link and try again.

8b) **BELT TIGHTENING:**

To adjust the belt tensioner to the proper setting, loosen 10 mm bolt (using 16mm or 17mm end wrench) to allow tensioner arm to rotate. Working from inlet/motor side of fan, place a 27 mm (1 1/16") wrench onto the hex on the tensioner. Turn wrench clockwise until the single mark on base of the belt tensioner is aligned with mark 2 on the tensioner arm. Hold tensioner at this setting and tighten the 10mm bolt to 40 ft.-lbs torque



AeroLink Belt



Solid Belt with Tensioner

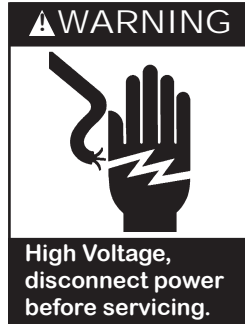
WINTERIZING FAN

In most climates, it is probable that the ventilation system will never need to operate at a total capacity during the colder winter months. Consequently, it is advisable to "winterize" those fans which will not be used in cold weather to avoid unnecessary heat loss and condensation.

To winterize, turn fan control "off". Install the insulated closure panel over the fan intake. If you don't have an insulated closure panel, a piece of rigid insulation material can be used. **Remember the insulation panel must be removed before warmer weather returns.**

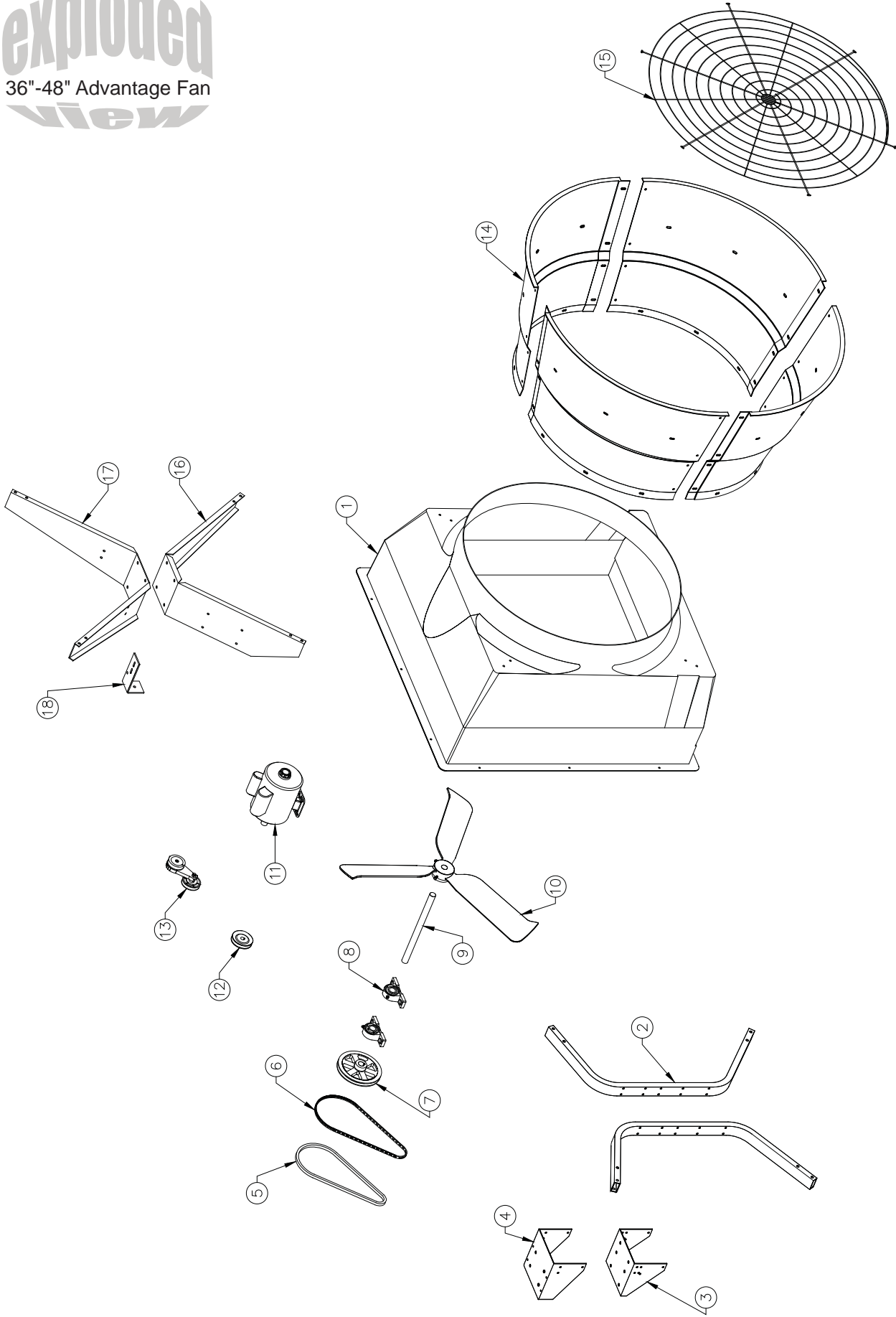
NOTE: At least one single speed fan should be left uncovered and with power available to provide air movement in the event of variable speed control difficulties.

TROUBLE SHOOTING



SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Fan Not Operating	<ol style="list-style-type: none"> 1. Fan control set above room temperature 2. Blown fuse or open circuit breaker 3. Propeller blade contacting fan housing 4. Fan control defective 5. Motor defective 	<ol style="list-style-type: none"> 1. Set to a lower temperature 2. Replace fuse or reset breaker 3. Realign motor in fan housing 4. Repair or replace control 5. Repair or replace motor
Fan Operating- Insufficient Airflow	<ol style="list-style-type: none"> 1. Variable speed control improperly adjusted 2. Damper door jammed 3. Guard dirty 4. Frequency drive improperly adjusted 5. Incorrect Belt Tension 	<ol style="list-style-type: none"> 1. See Operation, Step 2 for adjustment guidelines 2. Clean damper door & fan housing 3. Clean guard 4. See operation, Step 2 for adjustments guidelines 5. See Maintenance Section, Belt Tightening
Excessive Noise	<ol style="list-style-type: none"> 1. Variable speed control idle speed set to low 2. Variable speed control defective 3. Propeller blade contacting fan housing 4. Motor bearing or shaft bearing defective 	<ol style="list-style-type: none"> 1. Increase idle speed setting 2. Repair or replace control 3. Sand fan housing to remove high spot 4. Repair or replace motor or shaft bearings
Excessive Vibration	<ol style="list-style-type: none"> 1. Motor loose on mount 2. Propeller damaged 3. Motor or propeller shaft bent 	<ol style="list-style-type: none"> 1. Tighten fasteners 2. Replace propeller 3. Repair or replace motor or propeller shaft

WARRANTY: See Aerotech, A Munters Company Limited Warranty Statement



Parts listed are for currently shipped product, for older products contact office or see price sheet BDZP.



Item	Catalog Number			Part Name/Description	Qty
	36" D.D. AT36ZxCP	36" AT365ZxCP	48" AT481ZxCP		
1	FH2136A	FH2136A	FH2148A	Fan Housing, Fiberglass	
2	FH2736	FH2736	FH2748	Left Tubular Strut, H-type	
	FH2737	FH2737	FH2749	Right Tubular Strut, H-type	
3	—	FH2821	FH2821	Bearing Support	
4	FH2825*	FH2820	FH2820	Motor Support w/Tensioner Bracket	
5	—	FH1294	FH1410	Aramid Fiber Belt	
6	—	FH2089	FH1500	Link Belt	
7	—	FH2033	FH2034	Propeller Sheave	
8	—	FH2013	FH2013	Bearing	
9	—	FH2036	FH2036	Shaft	
10	FP1013SS	FP1014SS	FP1016SS	Propeller	
11	FM1011	FM1022	FM1024	Motor: Single Phase	
	FM1051	FM1027	FM1029	3 Phase	
12	—	FH2031	FH2032	Motor Sheave	
13	—	FH2406	FH2406	Idler Pulley	
	—	FH2405	FH2405	Tensioner	
14	FH3336	FH3336	FH3348	Discharge Cone, Fiberglass	
15	FH1336	FH1336	FH2468	Guard	

Misc. Hardware Packages for 36" & 48" fans	all fans
Fan Installation	HP1031
Cone installation	HP1034
Cone Guard Installation	HP1085
Strut and Motor Mounting, H-type	HP1028

Older Parts, before 4/1/04			
16	Lower Strut, X-type	FH2080	FH2075
17	Upper Strut, X-type	FH2081	FH2076
18	Tensioner Bracket, X-type	FH2401	FH2401

*Belt tensioner not included.