



**OWNER'S MANUAL
SAFETY INSTRUCTIONS**

Please read and keep these instructions with the fan.



MODEL: VAF3000P

For use in Class I, Groups A, B, C and D.



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M-VAF3000P

Purchase Date: _____ Serial No. _____

Dealer: _____

REINSTALLATION PROCEDURES CONTINUED

Step Six: Stand unit on its base, once again with the motor shaft towards you. Use a 7/8" open end wrench to tighten the 90" hose fittings onto the brass hex nipples previously installed onto the motor through the motor housing. Be sure to coat threaded joints with Loctite #545 Pneumatic Seal or equivalent product to assure leak free installation of air hose fitting. Attach hose to the fittings by pushing onto ferrule until they snap-lock into place. Tug on hose gently. If hoses release, push more firmly into the ferrule until you hear it snap-lock into place.

NOTE: Orient the unit so the back of the motor is facing you. Reinstall the air hoses into the proper motor fittings.

Step Seven: Test air connections by attaching the unit to air supply line. Inspect hose connections for leaks. If a leak is found, repeat sealing instructions outlined in Step Six.



CAUTION: Never touch the spinning motor shaft – severe personal injury will result.

Step Eight: Lay unit down with the motor shaft facing up. Install fan blade with the flat part of the shaft aligned with the flat guide on the fan hub. Place 3/8" flat washer on top of the fan hub before securing the nut on the shaft with a 9/16" open end wrench. Tighten until you see one thread exposed above the installed nylon nut. You may need to hold the blade by wedging it to prevent rotation during this procedure.



CAUTION: Never operate the unit with the fan blade installed without first installing the safety grill. Severe personal injury will result.

Step Nine: Install grill, duct ring and grounding stud ring to the front of the unit's housing. Assemble bolt with flat washer first, then the ground stud ring and finally the star washer. This bolt assembly is then threaded through the grill and duct ring into the unit's housing. Repeat steps to install grill, duct ring and grounding stud to the rear of the unit's housing. You should use a 1/4" ratchet and a 5.5 mm socket for this procedure.

NOTE: There are three bolts used to attach each grill and duct ring. The longest of the three bolts is used to attach the grounding stud ring to the unit's housing.



CAUTION: Be sure to reattach flat washer, grounding wire stud ring and star washer to ensure proper operation.

Step Ten: Connect completely reassembled fan to air supply line and perform a final inspection of the unit to ensure proper operation.

Step Eleven: Ensure ground continuity with a multi meter. Test with one lead attached to the grounding stud located on the coupler plate, and complete the circuit by touching the secondary lead to the following points while noting meter response:

1. The rivet holding the right side of the safety label in place.
2. The upper left corner rivet holding serial plate in place.
3. Any coupler plate rivet.
4. The front and rear grills. Test one of the bolts not connected to the ground wire.
5. Back of motor (long probe will be required to make contact).

NOTE: Some resistance may be present when testing various points. The objective of this test is to ensure that all wires removed are properly attached.



CAUTION: This unit is UL/CUL listed for use in hazardous locations. The grounding system links metal components together. If you fail to properly reattach grounding stud rings, washers, star washers and bolts, static electric build-up can result. The UL/CUL listing for this unit will also be null and void.

REMOVAL PROCEDURES CONTINUED

Step Six: Flip unit over on its back and remove the front motor assembly bolts with a 7/16" socket.

Step Seven: Use a 9/16" deep socket to remove the remaining brass hex fittings from the motor.

Step Eight: Rotate the unit 180° onto its face. Remove the three rear motor assembly bolts with the 7/16" socket. Fish out the rear motor end plate with an offset screw driver.

NOTE: A grounding wire is attached to the end plate bolt located between the two air motor fittings.



CAUTION: Be sure to note the location of all grounding wires, washers and star washers before removing. Reattached assemblies to the same location from which they were removed in order to safeguard proper ground continuity.

Step Nine: The motor is now detached from the mounting assembly. Carefully slip out of the housing for repair. Tape over the air fitting holes to prevent debris from falling into the motor while it is out of the housing.

Step Ten: Decide if you want to ship the motor to the factory for repair, order a service kit or purchase a new motor. Please contact Schaefer at the number listed on the front of this manual to obtain parts, secure a return authorization or receive technical assistance.

REINSTALLING THE AIR MOTOR INTO THE VAF3000P HOUSING

Step One: Prepare motor for installation by removing the shipping plugs from the air motor ports. Lay the VAF3000P face down on a firm work surface.

Step Two: Carefully position air motor into the housing assembly with the motor shafts through the front mounting plate. Be sure to align the air fitting holes of the motor and housing so that the fittings can be installed into the motor through the housing.

Step Three: Coat threaded joints with Loctite #545 Pneumatic Seal or equivalent product to ensure leak free installation of air fittings. Install the two brass hex nipples into the air motor and tighten with a 9/16" deep socket.

Step Four: Stand unit on base with front facing you. Attach motor to front housing plate with three 7/16" bolts while maneuvering the motor into position from the rear. Tighten securely with a 7/16" socket.

Step Five: Lay unit with the rear of motor facing up. Install the rear end plate by using a nail or other object to align end plate, grounding stud ring and threaded hole.

NOTE: The bolt to which the grounding wire must be attached is located between the two air fittings. Secure the three mounting bolts by tightening with a 7/16" socket.



CAUTION: Failure to reattach grounding stud ring will break ground continuity and allow the accumulation of static electricity.



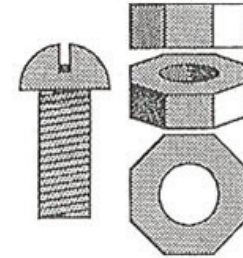
Rear View of Motor

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MOTOR REMOVAL & INSTALLATION TOOL LIST

Socket (7/16")
Deep Socket (9/16")
Open End Wrench (7/8")
Socket and Driver (5.5 mm)
Open End Wrench (3/4")
Loctite #545 or Pipe Seal
Duct tape for sealing motor ports
3 pieces of wood blocking cut to 12"



CAUTION: This unit is UL/CUL listed for use in hazardous locations. The grounding system links all metal components together. If you fail to properly reattach grounding stud rings, washers, star washers, and bolts, static electric build-up can result. The UL/CUL listing for this unit will also be null and void.

MOTOR REMOVAL PROCEDURES

Step One: Remove Grills and Duct Rings from the front and rear of the unit. Use a 1/4" ratchet and a 5.5 mm socket to remove bolts, washers and star washers. Store these components in a safe place. They will be needed for the reassembly of the unit.

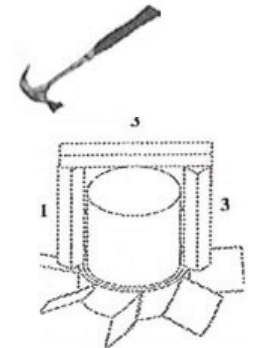
Step Two: Position the unit so that the back of the motor is facing you. Disconnect air hoses one at a time from the motor by pushing in on the ferrule lock ring while pulling on hoses. Label each hose with masking tape and a pen. Mark the top line "Top Inlet". Mark the bottom line "Bottom Exhaust".

Step Three: Use a 7/8" open end wrench to spin off brass hex fittings from the air motor. NOTE: A 3/4" open end wrench may also be needed to spin off air connection ferrules of the 90° elbow because of limited space.

Step Four: Lay unit down with the fan blade facing up. Remove the nylock nut that holds the blade on shaft with a 9/16" open end wrench and remove the 3/8" flat washer. You may need to wedge the fan blade to prevent rotation during this procedure.

Step Five: Flip unit so that blade is facing workbench. Create a 3-legged brace with pieces of wood cut approximately 12" in length. Pound gently on the center of the cross beam to release the fan blade from the shaft.

NOTE: Even pressure is required on at least two points at the same time to release the fan hub without causing damage to the blade assembly or motor shaft.



CAUTION: Striking the back of the fan hub directly with a hard or sharp object (e.g. hammer or screwdriver) may damage components.

LUBRICATION

An automatic lubricator can be installed in the air line just ahead of the motor. The lubricator should be adjusted to feed one drop of oil per minute. Lubrication is necessary for all internal moving parts and rust prevention. Excessive moisture in the air line can cause rust formation in the motor and might also cause ice to form in the muffler due to the expansion of air through the motor. The moisture problem can be corrected by installing a moisture separator in the line and also by installing an after cooler between the compressor and air receiver. USE DETERGENT SAE #10 AUTOMOTIVE ENGINE OIL.

SERVICING AIR MOTOR

If the motor is sluggish or inefficient, try flushing with recommended solvent. The recommended solvent for air motors and lubricated pumps is Gast Flushing Solvent, Part #AH255 or AH255A, Demkote 2X726 Safety Solvent, Inhibisol Safety Solvent or Dow Chemical Chlorothane.

To flush the unit, disconnect the air line from the coupler plate and remove the felt inside the muffler assembly. Add several teaspoons of solvent directly into the air motor fitting. Rotate the fan shaft by hand in both directions for a few minutes. Connect motor to an adjustable air supply. Slowly apply pressure until there is no trace of solvent in exhausted air system. Reinstall the felt insert and secure the muffler cap.



CAUTION: Foreign material exiting the air motor can be hazardous. Solid or liquid material exiting the unit can cause eye or skin damage. Keep away from air stream. Keep face away from exhaust port. Eye protection is required.



CAUTION: Flush unit in a well-ventilated area only.

Re-lubricate the motor by squirting a drop of oil in the chamber. If the vanes need replacing or foreign materials are present in motor chamber, an experienced mechanic may remove the end plate opposite the drive shaft end. **DO NOT PRY WITH A SCREWDRIVER.** It will dent the surface of the plate and body causing leaks. A puller tool should be used which will remove the end plate while maintaining the position of the shaft. New vanes should have the edge with the corners cut on an angle or the notched edge towards the bottom of the vane slot.

If motor requires service, it is highly recommended that the user remove the motor from the housing as per the instructions provided in this manual and return it to the factory for repair.

A service kit is available; however, it should only be installed by a qualified mechanic. The tolerances inside the air motor must be maintained to ensure top operating performance.

SHUTDOWN AND STORAGE PROCEDURE

1. Turn off air intake supply and remove plumbing.
2. Remove air motor from the connecting machinery.
3. Use clean, dry air at low pressure to 'flush out' condensates, such as water.
4. Re-lubricate the air motor with a squirt of oil in the chamber. Rotate the shaft by hand several times.
5. Plug or cap each port. The unit is now ready for storage.

Schaefer Limited Warranty Policy

Schaefer Ventilation Equipment, LLC (SVE) provides the following limited warranty from the date of invoice to the initial purchaser of our products or to its customer with a dated proof of purchase:

- I. Two-year coverage applies to all products, components and assemblies provided by SVE that prove to be defective in material or workmanship. Any such defective product will be repaired or replaced at SVE's option, with the defective product or component returned, upon approval, to SVE, F.O.B Sauk Rapids, Minnesota.
- II. This warranty does not cover:
 - a. Failure, damage or malfunction as a result of:
 - i. Improper installation or installation not in accordance with installation instructions.
 - ii. Operating conditions that vary from SVE's operating instructions.
 - iii. Misuse, abuse, negligence, alteration, or accident.
 - iv. Transporting the product.
 - v. Improper operation or lack of appropriate or regular maintenance of the product.
 - b. Loss of time, inconvenience, loss of use of the product or other consequential or incidental damages.
 - c. Parts that need replacement due to normal wear and tear.
 - d. Superficial or cosmetic rust or corrosion.
 - e. Any product whose name plate has been removed.

THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS OF USE.

Schaefer Ventilation reserves the right to change product design and specification without prior notice or liability.

The above constitutes the sole warranty offered by Schaefer Ventilation Equipment, LLC.

INTRODUCTION

Congratulations on your selection of a new Vane Axial Fan from Schaefer Ventilation. Our goal is to provide you with the very best in high performance air ventilators. Reading this Owner's Manual will help you achieve the maximum benefit from your portable air ventilator. If you do not understand any portion of this Manual, please contact Schaefer, or your authorized Schaefer dealer for proper assistance prior to operating this Fan.

Do not allow anyone to operate the Vane Axial Fan without first reading the Operator's Manual and becoming familiar with its operation. Schaefer has endeavored to provide you with the finest equipment available for providing air for portable ventilation purposes. The possibility does exist, however, that the Vane Axial Fan can be subjected to applications not intended by Schaefer. **Misuse and/or misapplication of the Vane Axial Fan can lead to the possibility of serious damage, injury or even death.** Anyone operating the Vane Axial Fan should refer to current OSHA job safety and health rules and regulations pertaining to the construction industry, with a particular emphasis on 29 CFR 1910, which contains rules governing Permit-Required Confined Spaces for General Industry.

Record the Vane Axial Fan model and serial number in the space provided below.

Model No. _____ Serial No. _____

Date Purchased _____

All specifications are general in nature and are not intended for specific application purposes. Schaefer accepts no responsibility for variations which may be evident in actual products, specifications, pictures and descriptions contained in this publication.


GENERAL TROUBLESHOOTING GUIDE


PROBLEM	CAUSE	SOLUTION
Unit will not run	<ul style="list-style-type: none"> No air supply to unit Faulty air supply line 	<ul style="list-style-type: none"> Connect air supply Perform maintenance and check line to air supply
Unit runs but fan makes loud scraping noise	<ul style="list-style-type: none"> Unit has been severely jolted causing fan to rub against housing Unit has been severely jolted causing housing to deform 	<ul style="list-style-type: none"> Remove motor and replace damaged motor mounts Perform maintenance and check line to air supply
Unit runs but vibrates excessively	<ul style="list-style-type: none"> Severe jolt has bent motor shaft causing unit to be out of balance Fan blade is damaged Dirt build-up on one side of fan blade 	<ul style="list-style-type: none"> Remove and replace motor Replace fan blade as necessary Replace fan blade Clean fan blade
Unit runs but fan does not turn	<ul style="list-style-type: none"> Fan is jammed Housing has been damaged and presses on the fan blade 	<ul style="list-style-type: none"> Remove motor and replace damaged motor mounts Replace fan blade if necessary Replace housing/unit as necessary
Unit runs but does not develop full power	<ul style="list-style-type: none"> Low air supply pressure Low air supply cfm Excessive duct length Worn motor vanes 	<ul style="list-style-type: none"> Supply 100 psi air Increase size of compressor and/or size of supply lines to provide at least 71 cfm Reduce duct length to recommended maximum Rebuild motor

MOTOR TROUBLESHOOTING GUIDE


REASON	LOW TORQUE	LOW SPEED	WON'T RUN	RUNS HOT	RUNS GOOD, THEN SLOWS
Dirt, Foreign Material	X	X	X		
Internal Rust	X	X	X		
Misalignment	X	X	X	X	
Insufficient Air Pressure	X	X			
Too Small Air Line		X			X
Restricted Exhaust		X			
Poor Lubrication	X	X	X	X	
Jammed Machine	X	X	X		X
Compressor Too Small		X			X
Compressor Too Far From Unit		X			X

SAFETY SYMBOL


When you see this symbol,  CAUTION, be aware that personal injury or property damage is possible. The hazard is explained in the text following the symbol.


 **CAUTION:** Severe personal injury or death COULD occur if hazard is ignored.


AIR MOTOR PRECAUTIONS


 **CAUTION:** The air motor is designed to be driven by compressed air. Under no circumstances should the air motor be driven by any other gases. The air motor must not be driven by fluids, particles, solids or any substance mixed with air, particularly combustible substances likely to cause explosions.

 **CAUTION:** DO NOT USE KEROSENE OR OTHER COMBUSTIBLE SOLVENTS.

 **CAUTION:** Foreign materials exiting the air motor can be hazardous. Solid or liquid materials exiting the unit can cause eye or skin damage. Keep away from air stream.

 **CAUTION:** Keep face away from exhaust port. Eye protection is required.

 **CAUTION:** Water, vapor, oil-based contaminants or other liquids must be filtered out.

 **CAUTION:** Do not drive the air motor in excess of the recommended operating maximums below. Ambient temperature (including the moving airstream) should not exceed 55°C (131°F).


INTERNAL OPERATING MAXIMUMS

Motor Size	Maximum RPM	Maximum Pressure (psi)	Maximum Torque in lb. – inch	Maximum Air Consumption in cfm
V4	3000	100	36	78

 **CAUTION:** Do not allow the air motor to 'run free' at high speeds without a load. Excessive internal heat buildup will result in loss of internal clearance and rapid motor damage.

CFM RATINGS

Free Air	2000 cfm	25' 1-90° Bend	1250 cfm
15' Straight Duct	1700 cfm	25' 2-90° Bend	1100 cfm
15' 1-90° Bend	1400 cfm	100' Straight Blowing	1000 cfm
25' Straight Duct	1600 cfm	100' Straight Suction	1125 cfm

 **CAUTION:** Always disconnect the unit from the air supply before servicing.

GENERAL SAFETY INFORMATION

These instructions are for your protection and convenience. Please read them carefully since failure to follow these precautions could result in injury or even death.

- Always use the VAF3000P in accordance with the required operation standards listed below.
- Never put the VAF3000P into standing water or allow water inside the motor.
- Never store the VAF3000P outdoors.
- Never allow the air intake screens to become plugged.
- Never put any object in the intake screen unless the unit is disconnected from the air supply line and the fan blade has stopped turning.
- Do not allow the unit to be used as a toy. Close attention is necessary when used by or near children.
- Keep hair, loose clothing, fingers and all parts of the body away from the intake screen. If the fan is not working properly because it has been dropped, damaged, left outdoors or submerged in water, contact Schaefer at (320) 251-8696.

INSTRUCTIONS FOR OPERATION AND CARE

OPERATION STANDARDS

FOR ALL APPLICATIONS

- **100 psi maximum**
- **Clean, dry, lubricated air supply required**



FOR HAZARDOUS LOCATIONS

- **CAUTION:** Ground unit at lug on coupler plate
- Air supply lines shall be made of electrically conductive material in accordance with the recommended practice on static electricity, NFPA 77, and/or any other applicable local code

- Your new VAF3000P comes to you completely assembled and ready to operate. Carefully inspect unit for any possible damage from transit.
- When using the VAF3000P, note the directional airflow indicator on the external shell. This is the way the air moves.
- Prior to connecting the VAF3000P to the air supply line, inspect the inlet and outlet screen and remove any debris that may restrict airflow movement.

WHEN USED WITH DUCTING



FOR HAZARDOUS LOCATIONS

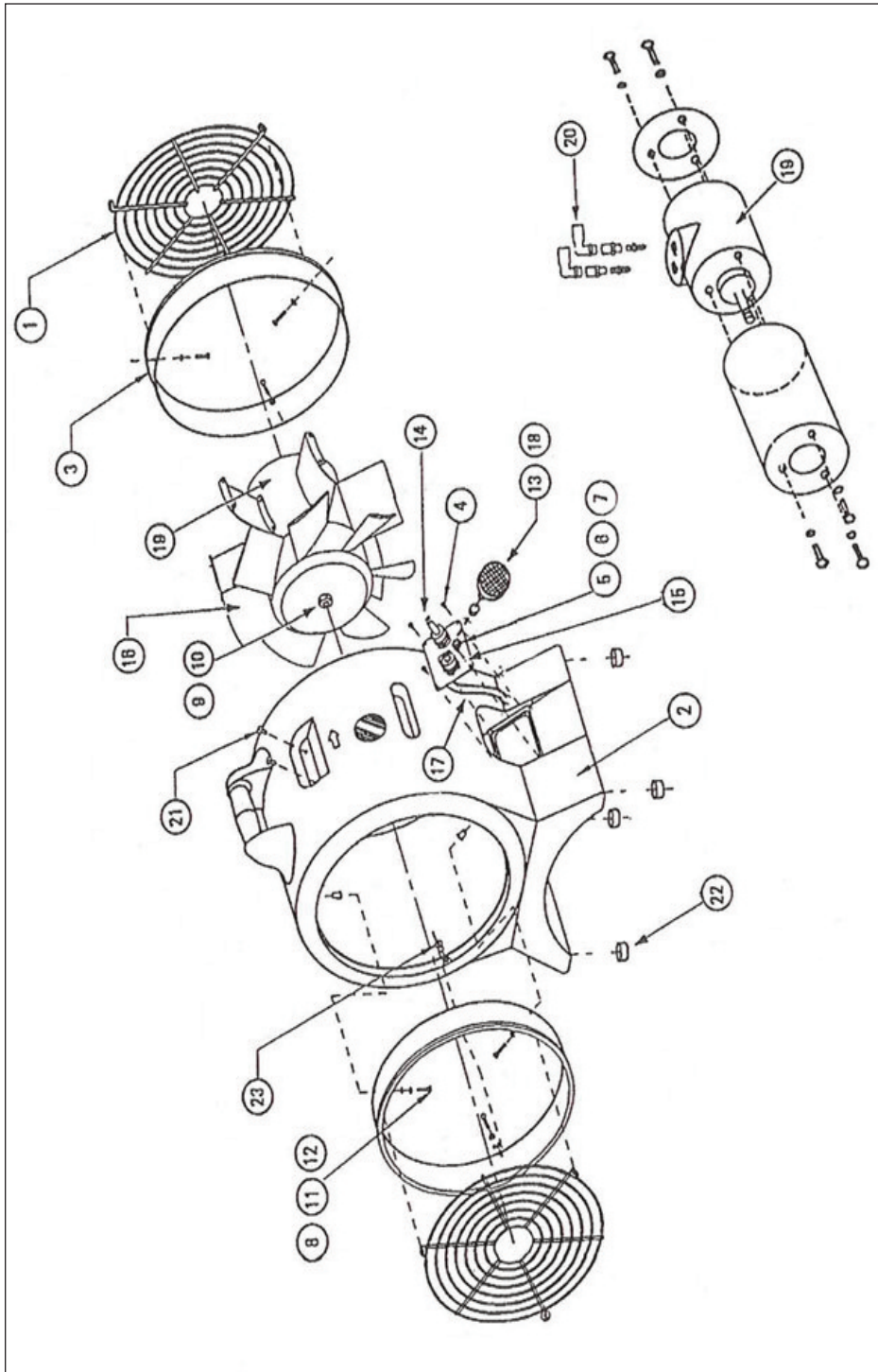
- **Do not install duct when fan is in operation**
- Use only 'Static Conductive Hose' properly grounded. If connecting duct to duct, use only 'Static Conductive' couplers made of aluminum
- Place duct lip over duct adapter and secure firmly
- Note the direction of the airflow as indicated by the arrow on the side of the fan

SPECIFICATIONS

DIMENSIONS

Pneumatic Motor:	1.5 hp	Height:	21"	53.34 cm
RPM:	3000	Width:	14"	35.65 cm
CFM:	2000	Length:	17"	43.18 cm
		Duct Adapter:	12"	30.48 cm
		Weight:	28 lbs.	12.75 kg.

VAF3000P PICTORIAL BREAKDOWN



VAF3000P Parts List

Item	Part Number	Description	Qty
1	GUARD-VAF3000	Wire Guard 12" Black	2
2	HSG-VAF3000	Housing Blue VAF3000	1
3	RING-VAF3000	Duct Ring 12" ABS Black	2
4	0RIVET6-8A	Rivet 3/16" x 1/2" Grip	4
5	0B1420X1RSB	Bolt 1/4"-20 x 1" Brass	1
6	0N1420B	Hex Nut 1/4"-20 Brass	3
7	0WEL14SS	Washer 1/4" External Lock	2
8	0BM3-0.5X25HHSS	Hex Head M3x.5 25mm screw	6
9	0NY3816Z	Nylock Nut 3/8"-16	1
10	0W38X114FWZ	Washer Fender 3/8" x 1-1/4"	1
11	0WM3FSS	M3 Stainless Flat Washer	6
12	0WEL8SS	Star Washer #8	6
13	RBB38X14	Reducer Bushing 3/8" x 1/4"	1
14	QCFM38-AIR	Male Plug 3/8" Industrial Type M	1
15		Coupler Assembly	
	BHF38F	Bulkhead Fitting 3/8"	2
	BHFNUT38	Nut Bulkhead Fitting	2
	EL9038TUBX38NPT	Elbow 90 Swivel Slip On	2
	COUPLATE	Coupler Plate	1
16	BLADE-VAF3000	Fan Blade Assembly 12" 7 Wing	1
17	POLYTUBE38ODBL	3/8" OD Black Tubing	2
18	AIRMUF14	Muffler 1/4"	1
19		Motor Assembly	
	AIRMV4-F-709	Motor	1
	AIRMOTMOUNT	Motor Mount	1
	AIRMMOUNTENDPL	Motor End Plate	1
	0B1420X12HSS	Bolt 1/4"-20 x 1/2"	6
	0WEL14SS	Washer 1/4" External Lock	6
	MTRVN-VAF3000	Motor Mount Vane 12" Black	6
	0SCS832X12	Socket Cap Screw 8-32 x 1/2"	11
	0SCS832X34	Socket Cap Screw 8-32 x 3/4"	1
	0WEL8SS	Star Washer #8	25
	0N832Z	Hex Nut 8-32	13
20		Motor Connection	
	NIPB14H	Pipe Nipple 1/4"	2
	0REDCOUP38X14B	Reducer Coupling 3/8" x 1/4"	2
	EL9012TUBX38NPT	Elbow 90 Swivel Slip On	2
21	0RIVET6-8A	Rivet 3/16" x 1/2" Grip	12
22	0RF78DP	Rubber Foot 7/8" x 5/8" thk SBR	4
23	0WNM3-0.5HT	M3-0.5 Well Nut E632	6
-	WIRE14GGMTW	Wire to Motor	1
-	WIRE14GGMTW	Wire to Guard	2
-	WIRE14GGMTW	Wire to Label	2
-	WIRE14GGMTW	Wire to Ground Stud	1
-	0LN5TERM	Lever Nut 5 Terminal	1
-	0RGTERM1614-10	Ring Terminal 16-14 AWG #10 Stud	5
-	0RGTERM1210-14	Ring Terminal 12-10 AWG 1/4" Stud	3
-	0RGTERM1210-10	Ring Terminal 12-10 AWG #10 Stud	1
-	0CLIP-3000P	Alligator Clip	1
-	0CLIPINS-3000P	Clip Insulator Boot	1
-	WIRE10GGMTW	Wire for Ground, 20' Long	1
-	LABELSAFE-3000P	Safety Label	1
-	LABELBP-3000P	Backer Plate	1
-	LABELSN-3000P	Serial Number Label	1
-	0RIVET6-8A	Rivet 3/16" x 1/2" Grip	6
-	LABELCAMD-3000P	Label Caution Moisture Damage	1
-	0CT8SP	Cable Tie 8" Nylon	1
-	0CT4P	Cable Tie 4" Nylon	1