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.***

Dayton® Belt-Drive Filtered Supply Ventilators

ENGLISH

Description

Dayton's centrifugal ventilators are designed to provide filtered supply air to industrial and commercial buildings and commercial or industrial kitchen applications. Dayton's design meets the National Fire Protection Association (NFPA) Bulletin 96. Ventilators include one set of 1" washable aluminum filters. Motor and drive are packed separately when these components are ordered with the ventilator.

All models are UL/cUL Listed Standard 705.

Optional Accessories

General or UL 705	
Description	**Model No.'s**
NEMA 1 Dis. Switch:	
1H400 (2 pole, 115/230V, 2HP max)	
1H401 (3 pole, 230V, 7½ HP max)	
1H401 (3 pole, 460V, 10HP max)	
NEMA 4 Dis. Switch:	
1H408 (2 pole, 115/230V, 2HP max)	
1H409 (3 pole, 230V, 7½ HP max)	
1H409 (3 pole, 460V, 10HP max)	
8" Fixed Roof Curb	4HX41-4HX44
12" Fixed Roof Curb	4HX49-4HX52

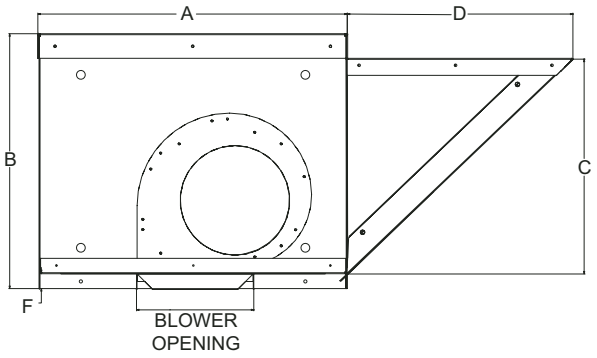

Figure 1 – Belt-Drive Filtered Supply Dimensions

Dayton Electric Mfg. Co. certifies that the ventilators shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

c UL us LISTED

E53236
MH12596

Dimensions and Specifications (See Figure 1)

Model	Wheel Dia.	Shaft Dia.	A	B	C	D	F	Blower Opening	Filter Size	Filter Quantity
4YC82G	10"	3/4"	30"	25"	21¼"	22"	1½"	11⅜ x 13⅛"	20⅝ x 28⅝"	1
4YC47G	12	3/4	34½	32	27½	28½	2	13⁷⁄₁₆ x 15⅝	27⅝ x 19⅝	2
4YC83G	15	1	34½	32	27½	28½	2	15⅞ x 18⅝	27⅝ x 19⅝	2
5AU56	18	1	42	36	30¾	31	2	18⅞ x 21⅞	34⅝ x 21⅝	2
5AU57	20	1⁷⁄₁₆	46	48	43¾	27¾	2	24¾ x 22¾	40⅝ x 27⅝	2

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Dayton®

Dayton® Belt-Drive Filtered Supply Ventilators

Roof and Wall Performance

Model	Wheel Dia.	Fan RPM	HP	Max BHP	# Sones @ .250 SP	CFM Air Delivery @ Static Pressure Shown .125" SP	.250" SP	.375" SP	.500" SP	.750" SP	1.00" SP	1.25" SP	1.50" SP	2.00" SP
4YC82G	10"	415	1/6	0.04	-	735	-	-	-	-	-	-	-	-
		600	1/6	0.175	11.3	1435	1106	-	-	-	-	-	-	-
		689	1/4	0.283	11.4	1722	1472	1115	-	-	-	-	-	-
		760	1/3	0.392	12.8	1949	1730	1471	1048	-	-	-	-	-
		870	1/2	0.609	15.9	2293	2100	1899	1667	-	-	-	-	-
		990	3/4	0.921	20	2661	2485	2324	2140	1661	-	-	-	-
		1090	1	1.243	24	2959	2804	2651	2500	2142	1585	-	-	-
4YC47G	12	550	1/3	0.303	12.8	2254	1760	-	-	-	-	-	-	-
		640	1/2	0.5	16.2	2714	2414	1916	-	-	-	-	-	-
		725	3/4	0.748	21	3139	2902	2562	2117	-	-	-	-	-
		810	1	1.064	24	3557	3353	3119	2747	-	-	-	-	-
		890	1½	1.432	27	3948	3762	3565	3314	2607	-	-	-	-
4YC83G	15	535	1/2	0.544	11.2	3102	2708	2109	1065	-	-	-	-	-
		605	3/4	0.813	15.8	3597	3280	2831	2293	-	-	-	-	-
		670	1	1.128	18.7	4049	3760	3456	2985	1591	-	-	-	-
		745	1½	1.577	22	4560	4304	4048	3719	2854	-	-	-	-
		820	2	2.128	26	5066	4837	4601	4371	3650	2681	-	-	-
5AU56	18	573	1½	1.658	18.7	6220	5814	5296	4740	3134	-	-	-	-
		627	2	2.204	23	6874	6531	6075	5604	4431	-	-	-	-
		713	3	3.303	29	7926	7604	7275	6858	5995	4894	-	-	-
		841	5	5.519	39	9474	9168	8913	8643	7935	7218	6348	5240	-
5AU57	20	642	5	5.504	34	11502	11080	10676	10160	9004	7781	5796	-	-
		732	7½	8.263	44	13229	12848	12491	12137	11208	10161	9111	7519	-
		804	10	11.029	53	14602	14255	13920	13597	12841	11952	10993	10037	6996

Performance shown is for installation type A: Free inlet, Free outlet. Power rating (BHP) does not include drive losses. Performance ratings include the effects of a filter in the airstream.

The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type A: Free inlet fan sone levels.

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Unpacking

1. Inspect for any damage that may have occurred during transit.
2. Shipping damage claim must be filed with carrier.
3. Check all bolts, screws, set-screws, etc. for looseness that may have occurred during transit. Retighten as required. Rotate wheel by hand to be sure it turns freely.

⚠ CAUTION ***Always use all four lifting holes when using a sling.***

General Safety Information When Installing or Servicing the Fan

⚠ DANGER ***Do not depend on any switch as the sole means of disconnecting power when installing or servicing the fan. Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can result in fire, shock or serious injury. Motor will restart without warning after thermal protector trips. Do not touch operating motor, it may be hot enough to cause injury.***

⚠ DANGER ***Do not place any body parts or objects in fan, motor openings or drives while motor is connected to power source.***

⚠WARNING ***Do not use this equipment in explosive atmospheres!***

1. Read and follow all instructions and cautionary markings. Make sure electrical power source conforms to requirements of equipment and local codes.
2. Ventilators should be assembled, installed and serviced by a qualified technician. Have all electrical work performed by a qualified electrician.
3. Follow all local electrical and safety codes in the United States and Canada, as well as the National Electrical Code (NEC), the Occupational Safety and Health Act (OSHA), and the National Fire Protection Association (NFPA) Bulletin 96 in the United States. Ground motor in accordance with NEC Article 250 (grounding). Follow the Canadian

Models 4YC47G, 4YC82G, 4YC83G, 5AU56 and 5AU57

Electric Code (CEC) in Canada.

4. Motor and fan must be securely grounded (bare metal) to a suitable electric ground, such as a grounded water pipe or ground wire system.

NOTE: Refer to Figure 2 for connection wiring diagram.

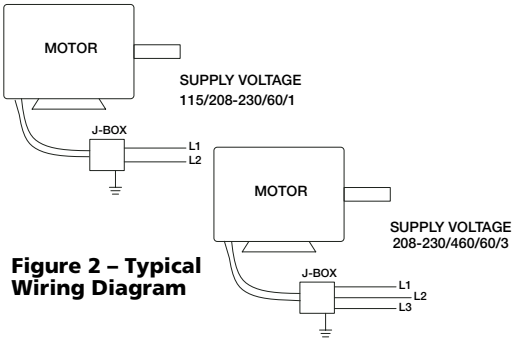

Figure 2 – Typical Wiring Diagram

⚠ CAUTION ***In United States, to reduce the risk of injury to persons, OSHA complying guards are required when fan is installed within 7 feet of floor or working level.***

⚠ CAUTION ***In Canada, to reduce the risk of injury to persons CSA complying guards are required when fan is installed below 2.5 meters (8.2 feet) above floor or grade level.***

5. Do not kink power cable or allow it to come in contact with sharp objects, oil, grease, hot surfaces or chemicals. Replace damaged cords immediately.
6. Make certain that the power source conforms to the requirements for the equipment.
7. Never open access door to a duct with the ventilator running.
8. Motor must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad race way system by using a separate ground wire connected to the bare metal of the motor frame, or other suitable means.

Installation

ROOF MOUNTING

⚠WARNING ***Installation, troubleshooting and parts replacement is to be performed only by a qualified personnel. Consult and follow NFPA 96 recommendations. NFPA 96 instructions supercede this document.***

⚠WARNING ***Do not use a damper or speed control in any kitchen exhaust application.***

NOTE: Refer to motor nameplate for wiring procedures. Refer to switch manufacturer for installation and wiring procedures.

1. Cut an appropriate sized hole in the roof surface. Follow curb manufacturer's installation instructions. Caulk and flash curb to ensure a water tight seal.
2. Position curb/equipment support(s) on the roof.
3. Good duct practices should be done in accordance with SMACNA and AMCA guidelines, NFPA 96 and any local codes. The ductwork should extend far enough above the roofline to meet the supply unit once it is installed. See Figure 3.

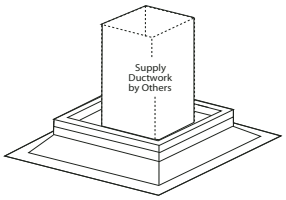

Figure 3 – Installing Ductwork

4. Before installing supply unit, apply a sealant around the perimeter of the supply duct to isolate the fan and minimize vibration. See Figure 4.

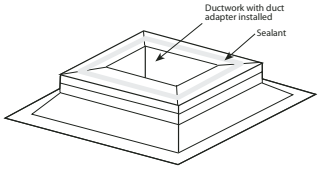

Figure 4 – Applying Sealant

5. Use a crane and set of spreader bars hooked to the factory lifting holes (as shown in Figure 5) to lift and center the unit on the curb. Use self-tapping sheet metal screws to fasten unit to the curb.

NOTE: The use of all lifting holes and set of spreader bars is mandatory when lifting unit.

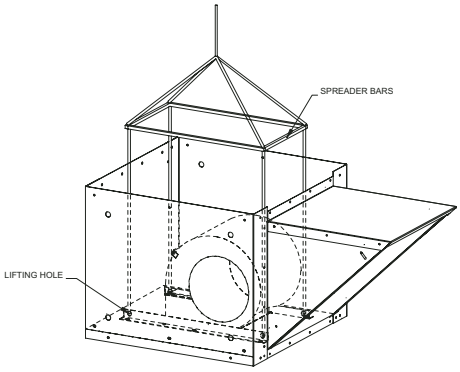

Figure 5 – Lifting Unit

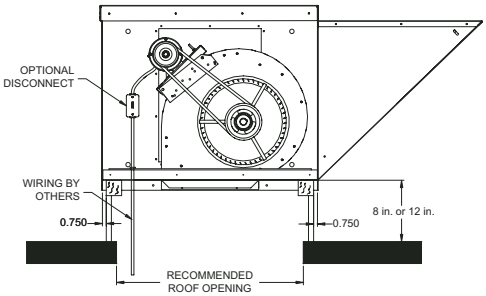

Figure 6 – Mounting

6. Install the motor and drive package as shown in Figures 7, 8 and 9 on page 4.

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Dayton® Belt-Drive Filtered Supply Ventilators

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MODELS 4YC47, 4YC82 AND 4YC83

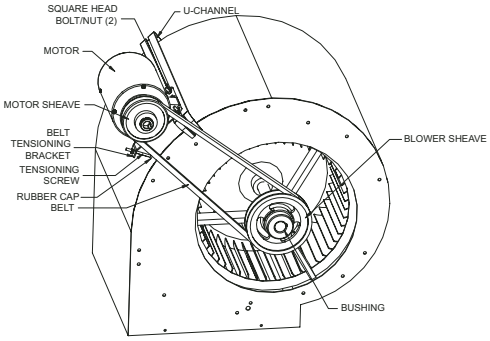

Figure 7 – Drive Package Assembly

a. Install blower sheave and motor sheave.

NOTE: On some units a bushing may be required on blower sheave.

b. Bolt the belt tensioning bracket to the motor using one square head bolt and nut. Snap the rubber cap onto the head of the tensioning screw. Thread the screw through the tapped hole on the belt.

c. Slide the remaining two square head bolts down the U-channel attached to the blower housing.

d. Align the slots/holes of the motor base plate with the two square head bolts, attach the motor with remaining two nuts.

e. Refer to page 5 for motor and Pulley mounting instructions.

MODELS 4YC84 and 4YC85

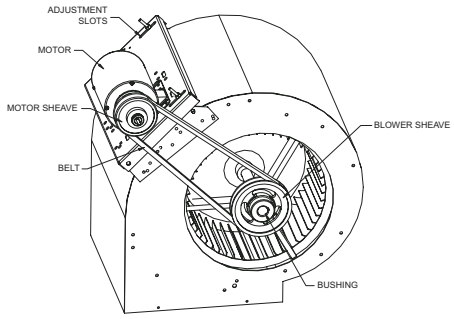

Figure 8 – Drive Package Assembly Model 4YC84

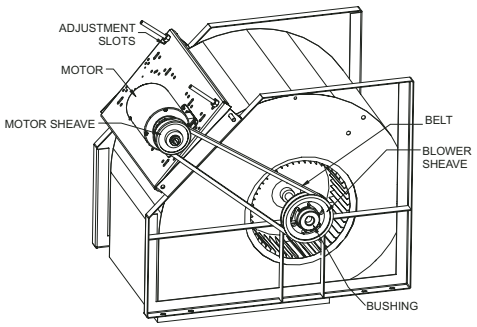

Figure 9 – Drive Package Assembly Model 4YC85

a. Install blower sheave and motor sheave.

NOTE: On some units a bushing may be required on blower sheave.

b. Align the motor with the appropriate holes in the motor mounting plate. Bolt the motor to the motor mounting plate using the four bolts and nuts provided. Make certain to align the sheaves properly.

c. Refer to page 5 for motor and Pulley mounting instructions.

WALL MOUNTING

⚠WARNING ***Only 10" and 12" models are designed for wall mounting. Do NOT attempt to wall mount the 15", 18" or 20" models.***

1. Refer to the instructions, warnings and notes found for roof mounting.
2. **Masonry Wall.** Around the wall opening, install an angle iron frame at least 2" x 2" x 1/4" to match the inside base dimension of the ventilator. Secure with lead cinch type anchors with non-ferrous bolts, not supplied (3 per side). The ventilator should then be mounted (inlet assembly down) to the mounting angle with self tapping sheet metal screws (not supplied) as shown in Figure 10.

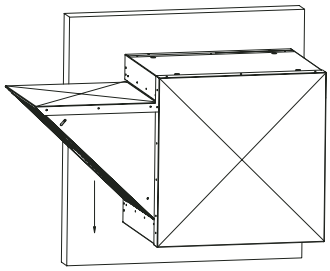

Figure 10 – Recomended Wall Installation

3. **Wood Siding.** Around the wall opening install a wooden frame at least 2" x 4" to match the inside base dimension of the ventilator. Secure with counter-sunk expansion type lag bolts (not supplied, 3 per side). The ventilator should then be mounted (inlet assembly down) to the mounting frame with square head wood screws (not supplied) as shown in Figure 10.

Models 4YC47G, 4YC82G, 4YC83G, 5AU56 and 5AU57

NOTE: The actual size of the wall opening is determined by the duct size.

4. Any mounting flange connection between the wall, mounting flange and the ventilator should be coated with a suitable caulking compound or approved waterproof mastic sealer to prevent water leakage into the ventilator.
5. It is recommended to install the unit with the inlet assembly installed in a horizontal position (left or right install configuration only). The inlet assembly must be rotated so that the filters point in a downward configuration, as shown in Figure 10.

Motor and Pulley Mounting

NOTE: For U.L. listed units, the motor used with this fan must be designated as such by Dayton®.

1. Secure motor to plate using hardware provided. Holes will align when the motor frame (shaft end) is flush with the edge of the motor plate.
2. Mount pulleys on shafts securing to shaft with set screw. Check pulleys for proper alignment. Misaligned pulleys lead to excessive belt wear, vibration, noise and blower loss.

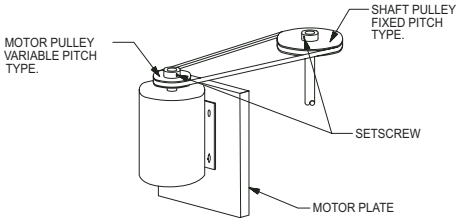

Figure 11 – Drive Package Diagram

3. Install the belt and adjust the tension to allow for 1/64" of deflection per inch of span when moderate thumb pressure is applied to the belt. Too much tension will cause excess bearing wear and noise. Too little tension will cause slippage at startup and uneven wear.

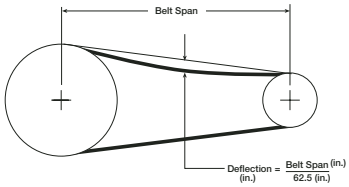

Figure 12 – Belt Tension

4. Adjust RPM to desired level using a variable pitch pulley. After adjustment, motor amperage should be checked to avoid overloading of the motor.

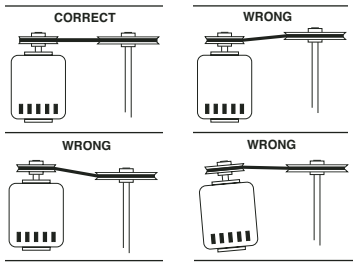

Figure 13 – Pulley Alignment

Assemble Weatherhood

NOTE: Assembly requires a 3/8" nut runner.

1. Remove top cover.
2. Carefully remove weather hood assembly and filters from inside unit.
3. Slide weatherhood into place as shown in Figure 14. Weatherhood flange should be on the inside of the unit.
4. Attach weatherhood by using 3/8" nut runner. Drive the provided 1/4" thread rolling screws through the side panel and into the weatherhood.
5. Loosen the thumb screws on the filter racks. Install filters. Be sure the filters are properly oriented (airflow directions are located on the side of the filter). Slide filter rack back into place and tighten thumb screws.
6. Reinstall top cover.

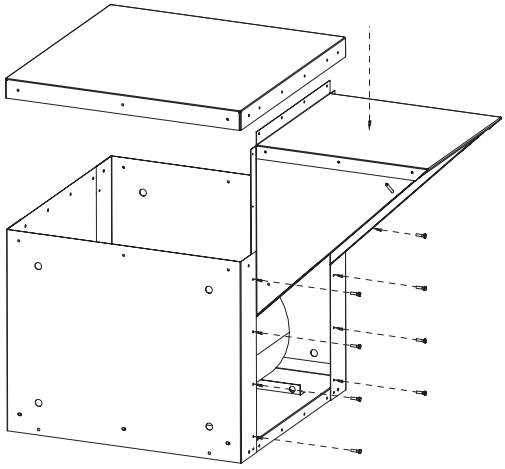

Figure 14 – Weatherhood Assembly

Notes

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide the following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

Address parts correspondence to:
Grainger Parts
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

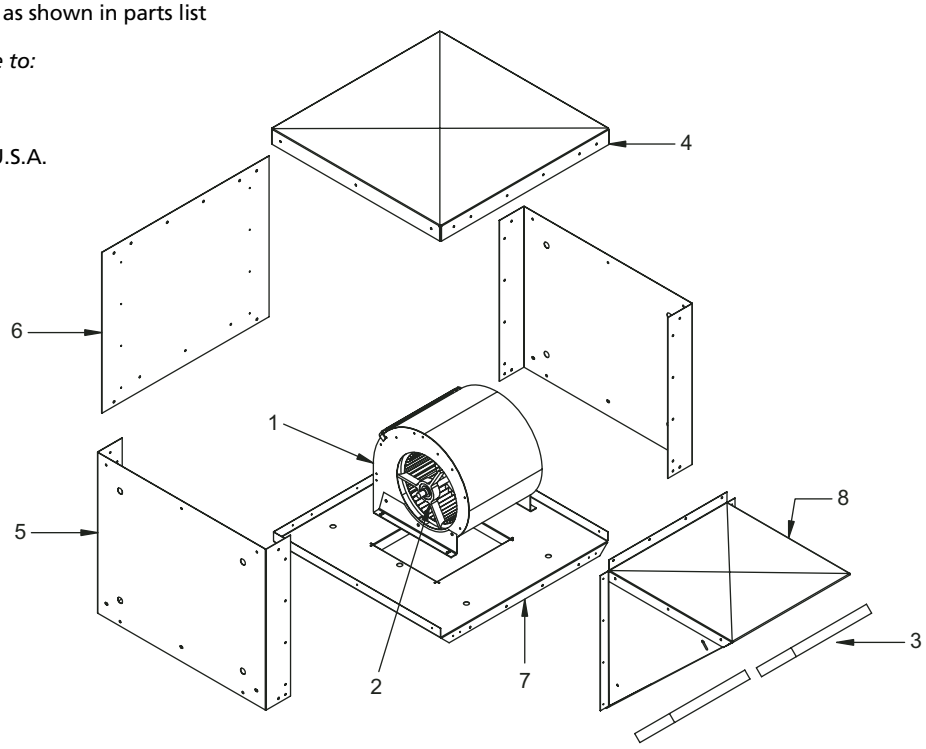

Figure 15 – Repair Parts Illustration

Repair Parts List

Reference Number	Description	Part Number For Models: 4YC82G	4YC47G	4YC83G	5AU56	5AU57	Quantity
1	Blower Assembly	4TM06	4TM03	4TM05	4TM07	6378305	1
2	Bearing(s)	2A757	2A757	2A758	2A758	4XW64	1
3	Aluminum Filter(s)	6378306	6378307	6378307	6378308	6378309	1 *
4	Top Panel	6378310	6378320	6378320	6378323	6378317	1
5	Side Panel	6378313	6378319	6378319	6378324	6378314	1
6	Back Panel	6378312	6378321	6378321	6378326	6378316	1
7	Base	6378311	6378318	6378322	6378325	6378315	1
8	Weather Hood Assembly	6378327	6378328	6378328	6378329	6378335	1

(*)One filter is required for model 4YC82G. Two filters are required for models 4YC47G, 4YC83G, 5AU56 AND 5AU57.

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Dayton® Belt-Drive Filtered Supply Ventilators

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Trouble Shooting Chart

Symptom	Possible Cause(s)	Corrective Action
Ventilator Inoperative	1. Blown fuse or breaker	1. Replace or repair motor
	2. Defective motor	2. Replace or repair
	3. Incorrectly wired	3. Shut power OFF and check wiring for proper connections
	4. Broken belts	4. Replace
Insufficient airflow	1. Blocked duct or clogged filters	1. Clean or replace
	2. Speed too slow	2. Check for correct drives
	3. Damper closed	3. Inspect/repair damper
	4. Belt slippage	4. Replace/adjust tension
	5. Loose fitting duct sections permitting air loss	5. Check for secure connection where duct sections are joined (suggest duct tape at seams for sealed closure)
Excessive noise or vibration	1. Belt(s) too loose/tight	1. Adjust tension
	2. Loose or defective bearings	2. Replace bearings
	3. Loose wheel or sheaves	3. Tighten set screws
	4. Accumulation of material on wheel	4. Clean
	5. Mis-aligned sheaves	5. Re-align
	6. Ventilator base not securely anchored	6. Secure properly
	7. Fan wheel out of balance	7. Replace wheel
Motor overloads or overheats	1. Wheel RPM too high	1. Check drives
	2. Shorted motor winding	2. Replace motor
	3. Incorrect wheel rotation	3. Check motor wiring
	4. Over/Under line voltage	4. Contact Power Co
	5. Belt slippage	5. Tighten belt

DAYTON ONE-YEAR LIMITED WARRANTY. *Dayton® Belt-Drive Filtered Supply Ventilators, Models covered in this manual, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to a Grainger branch, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Grainger's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.*

LIMITATION OF LIABILITY. *DAYTON SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES. DAYTON'S LIABILITY, IN ALL CIRCUMSTANCES, SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCT THAT GIVES RISE TO ANY LIABILITY.*

WARRANTY DISCLAIMER. *Dayton has made a diligent effort to provide product information and illustrate the products in this literature accurately; however, such information and illustrations are for the sole purpose of identification, and do not express or imply a warranty that the products are MERCHANTABLE, or FIT FOR A PARTICULAR PURPOSE, or that the products will necessarily conform to the illustrations or descriptions.*
Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in the "LIMITED WARRANTY" above is made or authorized by Dayton.

PRODUCT SUITABILITY. *Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Dayton attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.*

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow a limitation on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this Limited Warranty, any implied warranties of implied merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

PROMPT DISPOSITION. *Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.*

Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 U.S.A.

Manufactured for Dayton Electric Mfg. Co.
Niles, Illinois 60714 U.S.A.

Dayton®