

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® Air Curtain Motor/Blower Assembly

Description

Dayton Air Curtain Motor/Blower Assemblies are designed to be used in combination with Dayton Air Curtain Cabinets, Model Numbers 6E822A thru 6E826A. Together, the combination creates a Dayton Air Curtain.

These air curtains produce a wall of continuously flowing air that provides a thermal barrier against outside air and prevents heated or cooled air from escaping through open doorways. They reduce humidity and loss of cold air when used over freezer and cooler doors. High traffic area doors can be left open, keeping flying insects out and eliminating the nuisance of automatic or manual doors opening and closing.

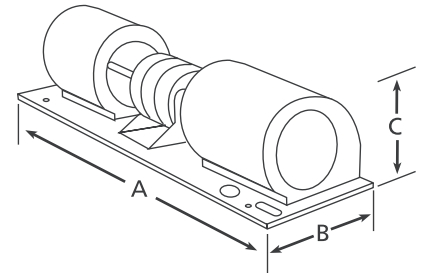


Figure 1 – Dimensions

Dimensions

Model	A	B	C
6E815A	35"	11"	9 ³ / ₄ "
6E816A	35	11	10 ³ / ₄
6E817A	35	11	9 ³ / ₄
6E818A	35	11	9 ³ / ₄
6E819A	35	11	10 ³ / ₄
6E820A	35	11	9 ³ / ₄
6E821A	35	11	9 ³ / ₄

Specifications and Performance

Model	HP	Max. RPM	Max. Motor Watts	208-230/460V, 60 Hz Max. Amps	Type of Entrance	Max. Mtg. Height (Ft.) (Nozzle to Floor)	Max. Ft./Min. at Nozzle	Max. CFM at Nozzle for Motor in Various Cabinet Sizes				
								36"	38"	42"	48"	60"
6E815A	1½	3450	1119	3.80/1.95	Service (High Door)	14	5900	4748	5050	5575	6375	7965
6E816A	1	1725	746	3.20/1.75	Service (High Door)	12	5250	3930	4150	4585	5240	6550
6E817A	1/2	1450	373	1.20/0.75	Service (Rear Door)	10	3800	3075	3250	3600	4100	5130
6E818A	1/4	1100	186	0.80/0.50	Customer (Front Door)	8	2500	2025	2140	2360	2700	3375

Model	HP	Max. RPM	Max. Motor Watts	120V, 60 Hz Max. Amps	Type of Entrance	Max. Mtg. Height (Ft.) (Nozzle to Floor)	Max. Ft./Min. at Nozzle	Max. CFM at Nozzle for Motor in Various Cabinet Sizes				
								36"	38"	42"	48"	60"
6E819A	3/4	1700	750	7.80	Service (High Door)	12	4850	3930	4150	4585	5240	6550
6E820A	1/2	1745	480	4.50	Service (Rear Door)	10	3800	3075	3250	3600	4100	5130
6E821A	1/4	1100	125	3.40	Customer (Front Door)	8	2500	2025	2140	2360	2700	3375

Dayton® Air Curtain Motor/Blower Assembly

Unpacking

1. Place packaged unit on floor with arrows pointing up.
2. Remove staples from top of carton and fold back sides.
3. Remove foam packing and carefully remove motor/blower assembly from carton.

NOTE: After unpacking, inspect carefully for damage that may have occurred during transit. Check for loose, missing or damaged parts, including wire connections.

General Safety Information

▲ WARNING *To reduce the risk of fire, electric shock or injury to persons observe the following:*

1. Use this unit only for the purposes intended by the manufacturer. If you have questions contact the manufacturer.
2. This unit must NOT be used in potentially dangerous locations where flammable, explosive, chemical laden or wet atmospheres exist.
3. Installation of unit and electrical wiring must be done in accordance with all applicable codes and standards, including fire-rated construction, by qualified persons only.
4. This unit is intended only for permanent indoor installations in accordance with the National Electrical Code (NEC) of the United States, all applicable local codes and ordinances, and all instructions in this manual. Any variance voids the warranty and can create unsafe conditions. All wiring should be installed by a qualified electrician, using copper wire only.
5. Check the power source to make certain that it conforms to the electrical requirements of the unit.

Before installing or servicing the unit be certain that the power source is disconnected. If the power disconnect is not within sight, lock it in the open position and tag it to prevent any unexpected application of power. Failure to do so could result in fatal electric shock.

▲ WARNING *Do NOT depend upon a thermostat or other switch as the means of disconnecting power when installing or servicing the unit. Always disconnect power at the main circuit breaker. Failure to do so could result in fatal electric shock.*

6. When cutting or drilling into walls or ceilings, do not damage other existing electrical wiring or utilities.
7. Pay special attention to grounding information relating to this unit. To prevent the risk of electrocution, the unit must be adequately grounded. This can be accomplished by connecting a grounded conductor between the service panel and the grounding lug located in the wiring compartment. To ensure proper grounding, the grounding means must be tested by a qualified electrician.
8. Do not insert fingers or foreign objects into the air curtain. Do not block, tamper or touch it while in operation or immediately after it has been turned off, as some parts may be hot enough to cause injury if touched.
9. Do not attach ductwork to this unit or attempt to use it as a makeshift air heater. Such use voids the warranty and can create unsafe conditions.
10. Before servicing or cleaning unit, turn power off at service panel and lock panel to prevent power from being turned on accidentally.

▲ WARNING *To reduce the risk of fire or electric shock, do not use this air curtain with any solid-state, speed control device.*

Installation

SINGLE PHASE WIRING, 120 VOLT

1. The cabinet is supplied with the switch wire/selector switch factory connected and the switch wire terminated with an (female) Amp plug.
2. Install motor/blower assembly in cabinet, bringing switch cord connector up through oval hole in motor/blower pan. Connect motor cord (male connector) to switch cord (female connector) to complete the electrical hookup (Figure 2).

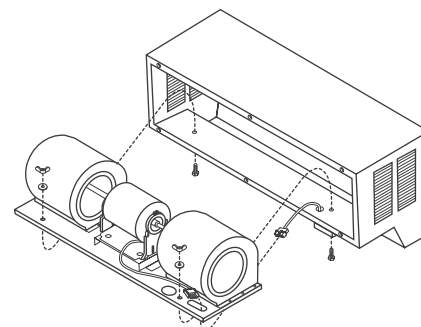


Figure 2 – Installation of Motor/Blower Assembly

3. Secure assembly to cabinet with two wing nuts.

ELECTRICAL CONNECTIONS

▲ WARNING *Air curtains should be installed by qualified personnel only.*

1. See nameplate on motor to connect to correct power supply. Use appropriate size wire for all branch and feeder runs.
2. Installation of wiring, protection and grounding must be according to the National Electrical Code (NEC) in the United States and all local codes.

Models 6E815A thru 6E821A

Installation (Continued)

▲ WARNING *The fan has an internal self-resetting thermal overload protector. Always disconnect at power supply source before servicing.*

NOTE: Motor and HIGH/OFF/LOW rocker switch are prewired. (See Wiring Diagram, Figure 3).

- When running wires from power supply to switch box use appropriate size wiring according to local code, and use a flexible connector to allow for possible angle adjustment.
- Connect supply circuit wires Line/Neutral to terminal marked Line/Neutral, connect the earth/grounding wire (green) to the earth/grounding conductor of the supply circuit using wire nut supplied (Figure 4). Do not leave loose strands or loose connections, carefully pushing all wiring into the switch box.
- Replace switch box cover.
- Unit is now ready for operation.

▲ WARNING *Make sure amp. rating of the ON/OFF switch exceeds amp. rating on motor nameplate.*

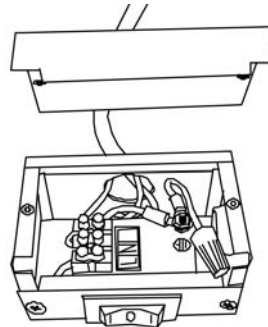


Figure 4 - Electric Box

7. Restore power supply.

NOTE: For proper setting of the air curtain high/low selector switch see instructions in Operation section.

8. Check unit for excessive vibration during operation after installation is complete. If excessive vibration is noticed, disconnect from power supply, inspect mounting, and refer to Troubleshooting Chart.

3 PHASE WIRING, 208-230/460 VOLT

NOTE: Motor is factory connected at 460V./60Hz/3PH.

1. The cabinet is supplied with the switch wire/selector switch factory connected and the switch wire terminated with an (female) Amp plug.

- Install motor/blower assembly in cabinet, bringing switch cord connector up through oval hole in motor/blower pan. Connect motor cord (male connector) to switch cord (female connector) to complete electrical hookup (Figure 2).
- Secure assembly to cabinet with two wing nuts.

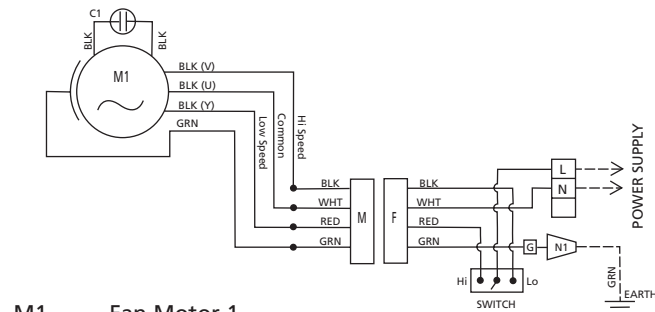
ELECTRICAL CONNECTIONS

▲ WARNING *Air curtains should be installed by qualified personnel only.*

- See nameplate on motor to connect to correct power supply. Use appropriate size wire for all branch and feeder runs.
- Installation of wiring, protection and grounding must be according to the National Electrical Code (NEC) in the United States and all local codes.

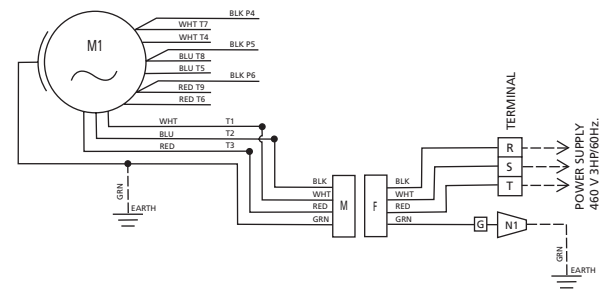
▲ WARNING *The fan has an internal self-resetting thermal overload protector. Always disconnect at power supply source before servicing.*

- Remove two screws on the power supply box to remove cover.
- Remove two screw on the power supply box to remove switch cover.



M1 Fan Motor 1
 C1 Run Capacitor Fan Motor 1
 N1 Wire nut
 - - - Field wiring
 *HIGH/OFF/LOW switch for unheated air curtains only.

Figure 3 - Single Phase Wiring Diagram



M1 Fan Motor 1
 N1 Wire nut
 - - - Field wiring

Figure 3A - 3 Phase Wiring Diagram

Dayton® Air Curtain Motor/Blower Assembly

Installation (Continued)

5. Disconnect the wires at the switch. Connect three wires of cable to the terminal as shown in Figure 3A.

⚠ WARNING Motor was connected at 460V.160Hz/3PH.

For other power supply please refer to wiring diagram (Figure 5)

6. Refer to label to check voltage for which motor was wired. Use terminal provided in power supply box to connect wires from power supply.
7. Connect the earth wire to the earth terminal.
8. Replace switch and switch plate with blank switch plate supplied, Figure 4, reinstall power supply box cover plate.

NOTE: When air curtain is manually controlled (on/off switch not included), a magnetic motor starter is not required.

9. Unit is now ready for operation.
10. Restore power supply.
11. Check unit for excessive vibration during operation after installation is complete. If excessive vibration is

noticed, disconnect from power supply, inspect mounting, and refer to Troubleshooting Chart.

Operation

1. Once power is connected to the unit, fans will start at either high or low preset speed (single phase motor only).
2. The high or low speed indicator controls the flow of air to individual desired performance and energy efficiency (single phase motor only).
3. Air direction is controlled by adjustable vanes at the nozzle to compensate for possible draft conditions.

NOTE: Air direction settings are shown in Figures 6, 7 and 8 (pages 4 and 5).

IMPORTANT: In freezer or cooler applications unit is always mounted on the outside (warm side) of freezer or cooler.

NOTE: Cold air escapes near floor level and warm air penetrates curtain near top of doorway. For some applications and conditions it may be necessary to adjust the direction of the nozzle louvers and to switch the high/low settings.

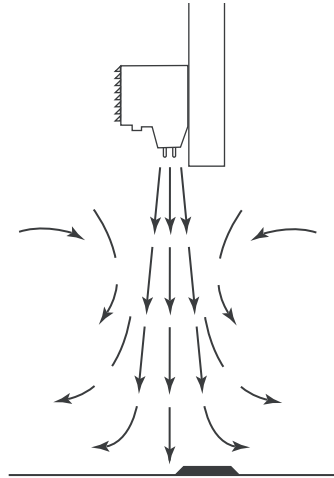


Figure 6 – Desired Air Flow Adjustment for Temperature and Humidity Control

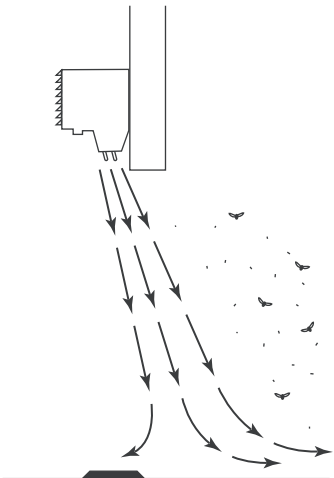
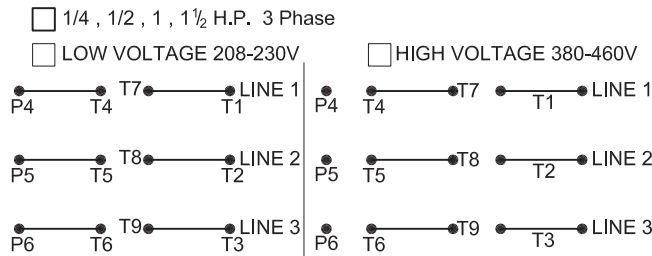


Figure 7 – Desired Air Flow Adjustment for Insect and Dust Control



TO REVERSE INTERCHANGE ANY 2 LINE LEADS

Figure 5 – Wiring Diagram (208-230 Volt or 380-460 Volt)

Models 6E815A thru 6E821A

Operation (Continued)

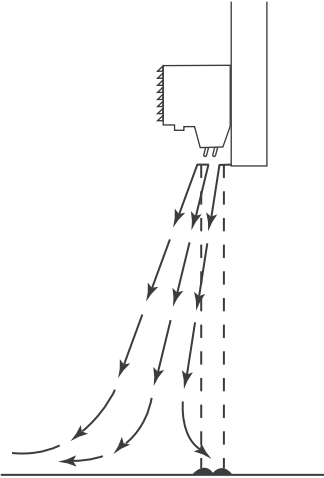


Figure 8 – Desired Air Flow Adjustment for Freezer and Cooler Applications

Maintenance

Always disconnect power supply at service panel before servicing or cleaning motor assembly.

LUBRICATION

Ball bearings are permanently lubricated and do not require any further lubrication.

CLEANING

1. The air curtain cabinet may be wiped off with a damp cloth. Do not use solvents or harsh detergents. Do not allow motor to get wet.

NOTE: Keep air intake louvers clean. Dirt and dust accumulations can affect performance.

2. Check blower wheels for dirt twice a year and clean. If disassembly is necessary, see GENERAL SERVICING section below.

GENERAL SERVICING

⚠ WARNING *When servicing is required, it should be done by qualified persons only.*

⚠ WARNING *Always disconnect unit from power supply before servicing.*

1. Remove motor/blower assembly. Wing nuts and quick disconnect electrical connections allow for easy removal and service.
2. Put motor/blower assembly on workbench.
3. To replace blower wheel, first remove the three slotted hex head screws on outer blower ring assembly. (See Figure 9, Repair Parts Illustration.) Then remove the two hex head screws which hold the wheel onto the shaft.

IMPORTANT: Note position of wheels to prevent rubbing on housing when replaced.

4. To remove motor:
 - a. Remove blower wheels. (See Step 3 above.)
 - b. Remove six hex head screws from the blower housing (scroll).
 - c. Unscrew motor mounts and remove.
5. Replace motor/blower assembly.

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

24 hours a day – 365 days a year

Please provide 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.

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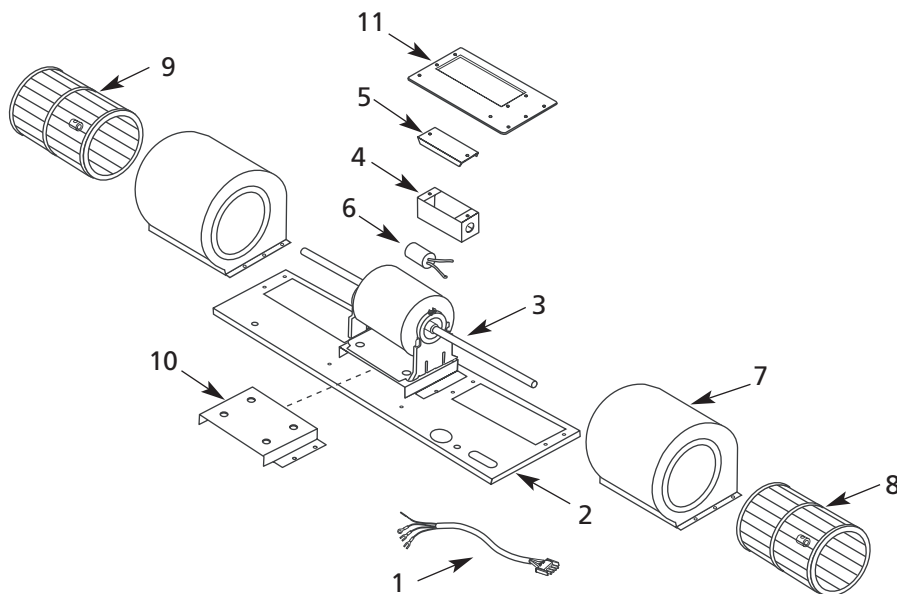


Figure 9 – Repair Parts Illustration for Air Curtain Motor/Blower Assembly

Repair Parts List for Air Curtain Motor/Blower Assembly

Reference Number	Description	Part Number for Models:			Qty.
		6E819A	6E820A	6E821A	
1	Motor power cord. Male	AMW318	AMW318	AMW318	1
2	Blower base pan	AMPU	AMPU	AMPU	1
3	Motor assembly	AM1134	AM1112	AM1114	1
4	Capacitor box	ACAPB	ACAPB	ACAPB	1
5	Capacitor box Cover	ACAPBC	ACAPBC	ACAPBC	1
6	Capacitor	ACAP1134	ACAP1112	ACAP1114	1
7	Blower housing (scroll)	ABH79	ABH67	ABH67	2
8	Right blower cage wheel	ABW79R	ABW67R	ABW67R	1
9	Left blower cage wheel	ABW79L	ABW67L	ABW67L	1
10	Motor mount adapter	AMMAP	AMMAP	AMMAP	1
11	Nozzle adapters	N/A	ANZAP	ANZAP	2

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

24 hours a day – 365 days a year

Please provide 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.

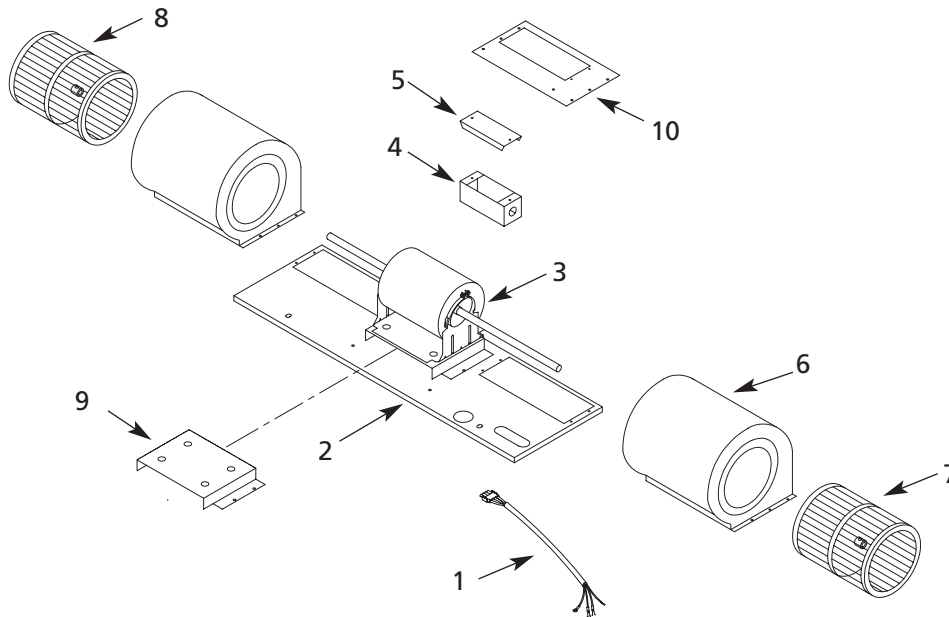


Figure 10 – Repair Parts Illustration for Air Curtain Motor/Blower Assembly

Repair Parts List for Air Curtain Motor/Blower Assembly

Reference Number	Description	Part Number for Models:				Qty.
		6E815A	6E816A	6E817A	6E818A	
1	Motor power cord. Male	AMW318	AMW318	AMW318	AMW318	1
2	Blower base pan	AMPU	AMPU	AMPU	AMPU	1
3	Motor assembly	AM43112	AM4310	AM4312	AM4314	1
4	Capacitor box	ACAPB	ACAPB	ACAPB	ACAPB	1
5	Capacitor box Cover	ACAPBC	ACAPBC	ACAPBC	ACAPBC	1
6	Blower housing (scroll)	ABH57	ABH79	ABH67	ABH67	1
7	Right blower cage wheel	ABW57R	ABW79R	ABW67R	ABW67R	1
8	Left blower cage wheel	ABW57L	ABW79L	ABW67L	ABW67L	1
9	Motor mount adapter	AMMAP	AMMAP	AMMAP	AMMAP	1
10	Nozzle adapters	ANZAP	N/A	ANZAP	ANZAP	2

Dayton® Air Curtain Motor/ Blower Assembly

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Fan not operating	<ol style="list-style-type: none"> 1. Blown fuse or tripped circuit breaker 2. Electricity off 3. Loose cord connection 4. Defective capacitor or motor 	<ol style="list-style-type: none"> 1. Replace fuse or reset circuit breaker 2. Contact local power company 3. Check all connections 4. Replace
Noisy operation	<ol style="list-style-type: none"> 1. Wheel rubbing on housing 2. Motor base or blower loosely anchored 3. Defective motor bearings 	<ol style="list-style-type: none"> 1. Center wheel 2. Tighten bolts 3. Replace motor
Insufficient flow of air	<ol style="list-style-type: none"> 1. Improper voltage 2. Outlet louvers closed 3. Obstructed intakes 4. Motor speed setting on low 5. Dirty blower wheels 	<ol style="list-style-type: none"> 1. Connect to proper voltage 2. Open 3. Remove obstruction 4. Set toggle switch to high 5. Clean
Excessive flow of air	Motor speed setting on high	Set toggle switch to low
Fan cuts out on thermal overload (self-resets)	<ol style="list-style-type: none"> 1. Low voltage 2. Obstruction to blower wheel 	<ol style="list-style-type: none"> 1. Check wire size 2. Remove obstruction

LIMITED WARRANTY

DAYTON ONE-YEAR LIMITED WARRANTY. Dayton® Air Curtain Motor/Blower Assembly, 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 an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton'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. To the extent allowable under applicable law, Dayton's liability for consequential and incidental damages is expressly disclaimed. Dayton's liability in all events is limited to and shall not exceed the purchase price paid.

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 MERCHANTABILITY, 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.

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