

[®]
Dayton



Centrifugal Belt-Drive Upblast Exhaust Ventilators

**Models 1MBF1, 1MBF2, 1MBE6-1MBE9, 2RB65, 2RB66,
3ATT8A, 3ATT9A, 3ATU1A, 3ATU2-3ATU9, 3ATV1, 3ATV2,
3GY73G, 3GY74G, 4YY13-4YY15, 4YY16A, 4YY17-4YY22,
5DVL4, 5PV06H, 5PV07G, 5PV08G, 6KWJ9, 6KWK3,
16D522-16D526, 20FT09, 20FT14, 33X834-33X836**

®
Dayton

**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.**

**PLEASE REFER TO BACK COVER
FOR INFORMATION REGARDING
DAYTON'S WARRANTY AND OTHER
IMPORTANT INFORMATION.**

Model #: _____

Serial #: _____

Purch. Date: _____

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BEFORE YOU BEGIN

⚠ WARNING

Installation, troubleshooting and parts replacement are to be performed only by qualified personnel.



Electrical Requirements:

- The motor amperage and voltage ratings must be checked for compatibility to supply voltage prior to final electrical connection. Wiring must conform to local and national codes.



Tools Needed:

- Dayton® Roof Curb
- Mounting Fasteners (8)
- Sealant or Caulk
- Tachometer

Recommended Accessories:

- NEMA 1 (1H400, 1H401) / NEMA 4 (1H408, 1H409) Disconnect Switch
- Roof Curb (2RB75-2RB77, 2RB79-2RB82, 24Y860, 2ZV82-2ZV85)
- Ventilated Roof Curb (4HX54-4HX60, 4HX61-4HX63)
- Roof Curb Adapter (3AZK1-3AZK9, 3AZL1-3AZL3)
- Grease Collector Box (48C174, 4HX78)
- Hinge Kit (4HX79, 4YY84-4YY86)
- Clean-Out Port Kit (3ATV9)
- Damper (4HX64-4HX70)
- Birdscreen (4YY78-4YY83)

UNPACKING



Contents:

- Dayton® Centrifugal Belt-Drive Upblast Exhaust Ventilator (1)
- Operating Instructions and Parts Manual (1)



Inspect:

- After unpacking unit, inspect carefully for any damage that may have occurred during transit. Check for loose, missing, or damaged parts. Shipping damage claim must be filed with carrier.
- 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.
- **See General Safety Instructions on page 2, and Cautions and Warnings as shown.**



GENERAL SAFETY INSTRUCTIONS

Ventilators (excluding 6KWJ9, 6KWK3, 33X834 thru 33X836) are UL/cUL Listed Subject 762 (YZHW) and comply with all requirements set forth in NFPA 96 Standard for Ventilation Control and Fire Protection Commercial Cooking Operations.

NOTE: When used with explosion proof motor, ventilators 6KWJ9, 6KWK3, 33X834 thru 33X836 may be used to exhaust potential flammable particles or fumes. Ventilators feature spark-resistant aluminum wheel and rub ring for hazardous locations.

⚠ DANGER *Do not depend on any switch as the sole means of disconnecting power when installing or servicing the ventilator. 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 ventilator, motor openings or drives while motor is connected to power source.*

⚠ WARNING *Do not use this equipment in explosive atmospheres unless motor and disconnect are suitable for use in hazardous environments.*

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 Electric Code (CEC) in Canada.
4. The rotation of the wheel is critical. It must be free to rotate without striking or rubbing any stationary objects.
5. Unit must be securely and adequately grounded.
6. Do not spin ventilator wheel faster than max cataloged fan RPM. Adjustments to fan speed significantly affects motor load. If the ventilator RPM is changed, the motor current should be checked to make sure it is not exceeding the motor nameplate amps.
7. 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.
8. Never open access door to a duct with the ventilator running.

SPECIFICATIONS

Max. Inlet Temp.	300°F
Mounting Location	Roof
Housing Material	Spun Aluminum
Wheel Type	Aluminum, Backward Inclined Centrifugal
Includes	NEMA 1 Junction Box
Agency Compliance	UL/cUL 762, AMCA Sound and Air

Dimensions (inches)

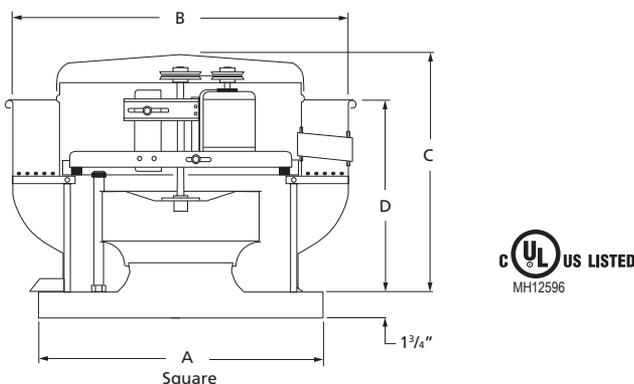


Figure 1

	20FT09 20FT14	16D522	4YY14 2RB65 6KWJ9 1MBE7	16D523	5DVL4	4YY15 1MBE8	33X834
A	19	19	22	19	22	22	22
B	24-7/8	24-7/8	24-7/8	24-7/8	24-7/8	24-7/8	24-7/8
C	25-1/8	25-1/8	25-1/8	25-1/8	25-1/8	25-1/8	29-1/8
D	17-3/8	17-3/8	17-3/8	17-3/8	17-3/8	17-3/8	17-3/8
Wheel Dia.	11	11-1/4	11-1/4	12-1/2	12-1/2	13-1/4	13-1/4
Shaft Dia.	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Recommended Roof Opening (Sq.)	14-1/2	14-1/2	17-1/2	14-1/2	17-1/2	17-1/2	17-1/2
Recommended Damper Size (Sq.)	12	12	15	12	15	15	15

Dimensions (inches) Continued

	16D524		16D525		5PV06H		33X835		4YY17		33X836		6KWK3			
	2RB66		3ATT8A		3ATT9A		3ATU1A		4YY16A		1MBF1		1MBE9		3ATU4	
	3ATU5		3ATU6		4YY18		5PV07G									
A	22	22	26	26	26	26	26	26	26	26	26	26	26	30		
B	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	28-7/8	35-3/8		
C	26-3/8	26-3/8	26-3/8	26-3/8	30-1/8	26-3/8	30-1/8	26-3/8	30-1/8	26-3/8	30-1/8	30-1/8	34-3/4			
D	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	19-3/8	21			
Wheel Dia.	14-3/4	16-1/2	14-3/4	14-3/4	14-3/4	14-3/4	16-1/2	16-1/2	16-1/2	16-1/2	16-1/2	16-1/2	18-1/2			
Shaft Dia.	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4			
Recommended Roof Opening (Sq.)	17-1/2	17-1/2	21-1/2	21-1/2	21-1/2	21-1/2	21-1/2	21-1/2	21-1/2	21-1/2	21-1/2	21-1/2	25-1/2			
Recommended Damper Size (Sq.)	15	15	19	19	19	19	19	19	19	19	19	19	23			

PERFORMANCE

Model	High Pressure, Without Drive Package	HP	RPM	Max BHP	Sones @ .50" SP @ 5 Ft.
2RB65		1/4	2045	0.26	13.9
		1/3	2250	0.35	14.4
		1/2	2580	0.53	16.8
2RB66		1/4	1465	0.26	14.2
		1/3	1605	0.34	15.2
		1/2	1845	0.52	17.0
		3/4	2110	0.78	19.8
1MBF1		1/4	1065	0.26	11.0
		1/3	1165	0.34	12.8
		1/2	1340	0.52	14.4
		3/4	1535	0.74	18.1
		1	1690	1.05	21
1MBF2		1/2	880	0.52	10.5
		3/4	1010	0.79	14.5
		1	1110	1.04	16.9
		1-1/2	1270	1.56	22
		2	1400	2.09	24
		3	1600	3.13	29



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.

	1MBF2	3GY73G			
	3ATU7	3ATU9		3ATV2	
	3ATU8	3ATV1		3GY47G	
	4YY19	4YY20	16D526	4YY21	4YY22
	5PV08G				
A	30	34	40	42	46
B	35-3/8	42-3/4	50	50	58-5/8
C	34-3/4	39-1/2	40	40	44-5/8
D	21	25-1/2	29-1/4	29-1/4	29-7/16
Wheel Dia.	21-1/4	24-1/2	30-1/2	30-1/2	36
Shaft Dia.	3/4	1	1	1	1-1/4
Recommended Roof Opening (Sq.)	25-1/2	29-1/2	29-1/2	37-1/2	41-1/2
Recommended Damper Size (Sq.)	23	27	27	35	39

CFM Air Delivery @ Static Pressure Shown								
0.50"	0.75"	1.00"	1.25"	1.50"	1.75"	2.00"	2.25"	2.50"
761	693	615	522	346	—	—	—	—
860	804	737	665	579	456	—	—	—
1014	969	919	861	799	735	655	550	323
1016	920	798	642	—	—	—	—	—
1146	1063	965	846	704	—	—	—	—
1363	1292	1219	1137	1042	924	800	—	—
1592	1536	1473	1409	1341	1262	1178	1073	965
1487	1252	—	—	—	—	—	—	—
1697	1504	1252	—	—	—	—	—	—
2053	1897	1724	1513	—	—	—	—	—
2433	2301	2165	2015	1855	1638	—	—	—
2722	2611	2488	2365	2228	2082	1899	1664	—
2779	2317	—	—	—	—	—	—	—
3397	3067	2637	—	—	—	—	—	—
3851	3561	3242	2806	—	—	—	—	—
4558	4312	4055	3789	3433	2944	—	—	—
5110	4898	4674	4436	4195	3880	3515	—	—
5943	5775	5581	5385	5182	4971	4760	4476	4189

Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). 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 hemispherical sone levels.

PERFORMANCE CONTINUED

	Model, Assembled 115/208-230	Model, Assembled 208-230/460	Model, Without Drive Package				Sones @ .25" SP 5 Ft.
				HP	RPM	Max BHP	
GETTING STARTED	—	—	20FT14	1/6	1140	0.07	6.3
	20FT09	—		1/4	1725	0.25	13.4
SAFETY / SPECIFICATIONS	—	—	4YY14, 6KWJ9‡, 16D522	1/4	1660	0.26	12.0
	1MBE7	—		1/3	1820	0.35	13.4
	—	—	5DVL4, 16D523	1/4	1410	0.26	12.2
	—	—		1/3	1545	0.34	14.0
	—	—		1/2	1725	0.48	16.7
	—	—	4YY15, 33X834‡	1/4	1305	0.26	13.9
	—	—		1/3	1435	0.35	15.1
—	1MBE8	—	1/2	1645	0.52	17.4	
ASSEMBLY / INSTALLATION	—	—	4YY16A, 16D524, 33X835‡	1/4	1105	0.26	10.6
	—	—		1/3	1210	0.34	11.7
	3ATT8A	—		1/2	1390	0.52	14.2
	5PV06H	—		3/4	1595	0.79	18.5
	3ATT9A	3ATU1A		1	1725	1.00	22
	—	—	4YY17, 16D525, 33X836‡	1/4	875	0.26	10.1
—	—	1/3		965	0.35	11.5	
—	—	1/2		1110	0.54	14.2	
3ATU2	—	3/4		1265	0.79	17.7	
1MBE9	3ATU3	1		1390	1.05	21	
OPERATION	—	—	4YY18, 6KWK3‡	1/4	745	0.26	8.1
	—	—		1/3	820	0.34	10.0
	—	—		1/2	940	0.52	13.1
	3ATU4	—		3/4	1075	0.78	15.8
	5PV07G	—		1	1185	1.04	17.1
	3ATU5	3ATU6	1-1/2	1360	1.58	22	
TROUBLESHOOTING	—	—	4YY19	2	1495	2.10	27
	—	—		1/4	605	0.26	6.7
	—	—		1/3	665	0.35	8.1
	—	—		1/2	760	0.52	10.9
	—	—		3/4	875	0.79	15.2
	3ATU7	—		1	960	1.04	17.7
	5PV08G	—		1-1/2	1100	1.57	23
	—	3ATU8		2	1210	2.10	23
MAINTENANCE / REPAIR							

CFM Air Delivery @ Static Pressure Shown								
0.00"	0.125"	0.25"	0.375"	0.50"	0.75"	1.00"	1.25"	1.50"
833	754	665	565	408	—	—	—	—
1260	1209	1156	1100	1041	918	759	—	—
1413	1365	1313	1251	1189	1056	861	—	—
1549	1505	1459	1406	1350	1234	1106	900	—
1665	1595	1528	1463	1398	1224	968	—	—
1824	1760	1699	1639	1580	1441	1262	990	—
2037	1979	1923	1869	1816	1710	1571	1406	1176
1790	1709	1629	1547	1458	1201	—	—	—
1968	1895	1822	1749	1671	1479	1198	—	—
2256	2192	2128	2065	2001	1864	1684	1455	—
2001	1906	1793	1667	1515	998	—	—	—
2192	2106	2006	1896	1773	1443	—	—	—
2518	2445	2362	2271	2174	1949	1643	—	—
2889	2826	2757	2683	2602	2430	2225	1968	1568
3125	3066	3005	2936	2865	2711	2539	2339	2085
2515	2362	2177	1974	1744	—	—	—	—
2774	2637	2477	2300	2109	1584	—	—	—
3191	3072	2941	2796	2641	2297	1770	—	—
3636	3532	3426	3301	3172	2894	2583	2163	—
3996	3901	3806	3698	3584	3340	3078	2785	2394
2815	2617	2448	2143	1763	—	—	—	—
3098	2916	2759	2525	2257	—	—	—	—
3551	3389	3243	3115	2879	2363	—	—	—
4061	3919	3786	3666	3554	3141	2652	—	—
4477	4348	4224	4108	4005	3703	3336	2841	—
5138	5026	4913	4811	4710	4532	4232	3912	3537
5648	5546	5443	5345	5254	5082	4921	4598	4313
3403	3054	2675	2144	—	—	—	—	—
3740	3422	3096	2699	2073	—	—	—	—
4275	3994	3718	3413	3048	—	—	—	—
4922	4676	4439	4192	3922	3240	—	—	—
5400	5176	4958	4742	4508	3985	3169	—	—
6187	5992	5798	5610	5421	5006	4529	3861	—
6806	6628	6451	6279	6108	5748	5350	4892	4289

(‡) Ventilator for use with explosion proof motor in hazardous locations. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). 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 hemispherical sone levels.

PERFORMANCE CONTINUED

	Model, Assembled 115/208-230	Model, Assembled 208-230/460	Model, Without Drive Package				Sones @ .25" SP @ 5 Ft.
				HP	RPM	Max BHP	
SAFETY / SPECIFICATIONS	—	—	4YY20	1/4	465	0.26	6.3
	—	—		1/3	510	0.34	7.3
	—	—		1/2	585	0.52	9.5
	—	—		3/4	670	0.79	12.8
	—	—		1	735	1.04	15.5
	3ATU9	—		1-1/2	845	1.57	18.6
	—	3GY73G		2	930	2.10	23
	—	3ATV1		3	1050	3.00	31
ASSEMBLY / INSTALLATION	—	—	4YY21, 16D526	1/3	365	0.34	5.7
	—	—		1/2	420	0.52	7.5
	—	—		3/4	480	0.77	9.9
	—	—		1	530	1.05	12.2
	—	—		1-1/2	605	1.55	15.7
	—	—		2	665	2.07	18.6
	—	3GY74G		3	765	3.15	23
	—	3ATV2		5	905	5.21	32
OPERATION	—	—	4YY22	1/2	320	0.52	6.0
	—	—		3/4	365	0.78	8.5
	—	—		1	400	1.02	11.1
	—	—		1-1/2	460	1.55	15.8
	—	—		2	505	2.06	19.8
	—	—		3	580	3.13	23
	—	—		5	690	5.26	28

GETTING STARTED

SAFETY /
SPECIFICATIONS

ASSEMBLY /
INSTALLATION

OPERATION

TROUBLESHOOTING

MAINTENANCE /
REPAIR

CFM Air Delivery @ Static Pressure Shown								
0.00"	0.125"	0.25"	0.375"	0.50"	0.75"	1.00"	1.25"	1.50"
4216	3768	3188	2162	—	—	—	—	—
4623	4243	3717	3134	—	—	—	—	—
5303	4961	4540	4093	3565	—	—	—	—
6074	5763	5461	5052	4659	3524	—	—	—
6663	6370	6133	5764	5409	4618	—	—	—
7660	7400	7184	6947	6615	6002	5282	—	—
8431	8194	7985	7798	7536	6953	6375	5706	4324
9519	9309	9107	8941	8775	8267	7766	7253	6672
5940	5316	4464	—	—	—	—	—	—
6835	6314	5660	4820	—	—	—	—	—
7811	7377	6844	6231	5440	—	—	—	—
8625	8231	7772	7245	6636	—	—	—	—
9845	9501	9127	8705	8226	7084	—	—	—
10,822	10,508	10,193	9808	9411	8495	7271	—	—
12,449	12,176	11,904	11,607	11,273	10,554	9743	8756	7352
14,727	14,497	14,266	14,036	13,788	13,223	12,614	11,963	11,191
8631	7820	6755	5256	—	—	—	—	—
9845	9142	8299	7286	5767	—	—	—	—
10,789	10,153	9426	8556	7575	—	—	—	—
12,408	11,862	11,281	10,587	9814	7809	—	—	—
13,621	13,125	12,602	12,022	11,359	9878	—	—	—
15,644	15,212	14,769	14,306	13,783	12,597	11,287	9381	—
18,611	18,248	17,884	17,504	17,115	16,236	15,243	14,187	12,985

Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). 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 hemispherical sone levels.

INSTALLATION INSTRUCTIONS

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

⚠ CAUTION *Do not raise unit by its windband. Avoid lifting ventilator parts. Never pass slings or timbers through the venturi of unit.*

NOTE: When lifting the unit onto the roof, use either the four lifting points on the drive frame or the two lifting points on the bearing plate if present.

Roof-Mount Installation

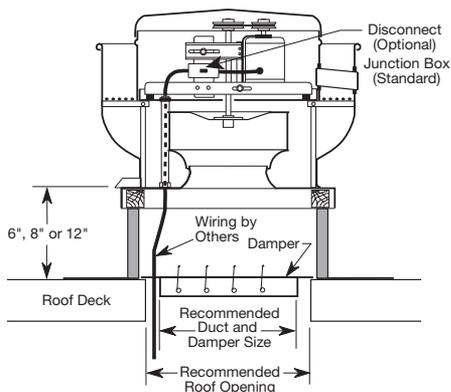


Figure 2

NOTE: Mount unit with a Dayton® roof curb (purchased separately).

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. Install optional backdraft damper. Secure damper flange to curb damper tray.
3. Remove motor compartment cover by removing fasteners. Place cover on a flat surface in an area protected from strong winds.
4. Use lifting points on the drive frame to lift and place the unit on top of roof curb. See Figure 3.
5. Secure ventilator to roof curb using a minimum of eight fasteners.
6. Rotate the wheel by hand to ensure that it does not rub and rotates freely. Wheel position is preset and the unit is test run at the factory. Movement may occur during shipment and realignment may be necessary. Refer to Figure 4 and chart for proper overlap dimensions.

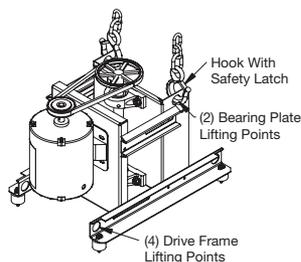


Figure 3

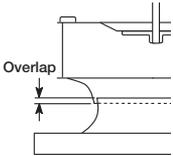


Figure 4

- a. Centering can be accomplished by loosening the fasteners holding the drive frame to the shock mounts and repositioning the drive frame.
- b. Wheel and inlet cone overlap can be adjusted by loosening the set screws in the wheel and moving the wheel to the desired position. Tighten all fasteners and set screws securely.

16D522-16D525, 1MBE7-1MBE9, 1MBF1, 20FT09, 20FT14, 2RB65, 2RB66, 33X834-33X836, 3ATT8, 3ATT9, 3ATU1-3ATU3, 4YY14-4YY17, 5DVL4, 5PV06, 6KWJ9	16D526, 1MBF2, 3ATU4-3ATU9, 3ATV1, 3ATV2, 3GY73, 3GY74, 4YY18-4YY20, 5PV07, 5PV08, 6KWK3	4YY21, 4YY22
--	---	---------------------

Overlap (inches)	1/4	1/2	3/4
------------------	-----	-----	-----

7. Check all fasteners for tightness.
8. Mount and wire safety disconnect switch under motor cover and wire motor per connection wiring diagram. See Electrical Connection. Wire control switches at ground level.
9. The motor's amperage and voltage rating must be checked for compatibility to the supply voltage prior to final electrical connection. Mount and wire safety disconnect switch under ventilator cover and wire motor per connection wiring diagram. See Electrical Connection. Consult local code authorities for your specific requirements.

NOTE: For non-flammable applications, the electrical supply can be routed through the conduit chase between the ventilator base and the bottom of the motor compartment.

10. Replace motor cover.

UL 762 Roof-Mount Installation

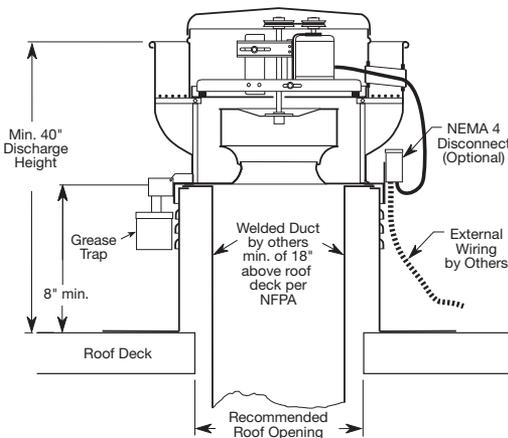


Figure 5

NOTE: UL/cUL 762 Installations are for Restaurant Applications.

▲ WARNING *Minimum duct velocities must be maintained in kitchen exhaust applications. If a speed controller is used, ensure compliance with all applicable codes.*

1. Install per NFPA 96 requirements for restaurant exhaust appliances.

NOTE: For NFPA Restaurant Applications, the electrical supply must enter the motor compartment through the breather tube. Consult local code authorities for your specific requirements.

2. Duct size must be equal to or larger than inlet opening. Some local codes require a continuous weld between duct and inlet. Keep motor cooling tube clear.
3. The following accessories may be required by NFPA-96 depending upon installation; Grease Collector Box, Hinge Kit, Clean-out Port, Vented Roof Curb and External Junction Box.

NOTE: A drain trough is provided on all Dayton roof mount upblast ventilators. Collection for grease and residue must be provided.

▲ WARNING *Do not use a damper in any kitchen exhaust application.*

Motor and Sheave Mounting

NOTE: For UL/cUL Listed units, the motor used with this ventilator must be designated as such by Dayton®. Refer to UL/cUL motor label attached to unit.

1. Secure motor to plate (hardware by others). Holes will align when the motor frame (shaft end) is flush with the edge of the motor plate.
2. Mount sheaves on shafts and secure with set screw. Check sheaves for proper alignment, see Figure 6. Misaligned sheaves lead to excessive belt wear, vibration and noise.

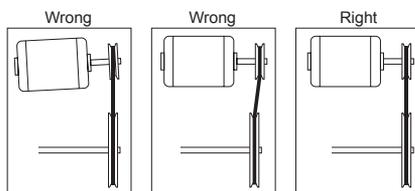


Figure 6

3. Install the belt and adjust the tension.
 - a. Belt tension can be adjusted by loosening four fasteners on the drive frame. The motor plate slides on the slotted adjusting arms and drive frame support angles.
 - b. Models 2RB65, 2RB66, 3ATT8, 3ATT9, 3ATU1, 3ATU2, 3ATU3, 4YY13, 4YY14, 4YY15, 4YY16, 4YY17, 5DVL4, 5DV06, 6KWJ9, 16D522, 16D523, 16D524, 16D525, 20FT09, 20FT14, 33X834, 33X835, 33X836: Belts should be tensioned just enough to prevent slippage at full load. Belts should have a slight bow on the slack side while running at full load. See Figure 7.

- c. Models 3ATU4, 3ATU5, 3ATU6, 3ATU7, 3ATU8, 3ATU9, 3ATV1, 3ATV2, 3GY73, 3GY74, 4YY18, 4YY19, 4YY20, 4YY21, 4YY22, 5DV07, 5DV08, 6KWK3, 16D526: Belt tension should be adjusted to allow 1/64 inch of deflection per inch of belt span when moderate thumb pressure is applied. See Figure 8.

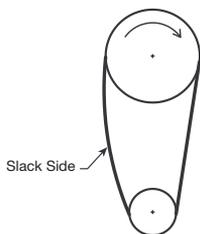


Figure 7

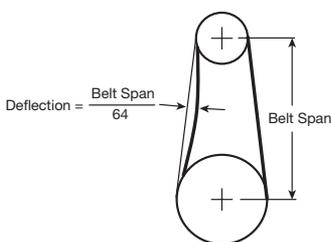


Figure 8

IMPORTANT: Overtightening will cause excess bearing wear and noise. Too little tension will cause slippage at startup and uneven wear.

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

Electrical Connection

CAUTION Comply with all local codes including the National Electrical Code (NEC) and National Fire Protection Act (NFPA).

CAUTION Install in accordance to NEC 70 and NFPA requirements.

IMPORTANT: Exhaust ventilators used in kitchen ventilation applications must have external wiring.

NOTE: Refer to motor nameplate for wiring procedures.

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

NOTE: Motor and disconnect must be classified as hazardous for ventilator to be suitable for use in hazardous environments. Installation must be performed by a qualified personnel with suitable motor and disconnect for application.

2. Wire motor for desired voltage per wiring diagram on motor. Refer to Figure 9 for connection wiring diagram.

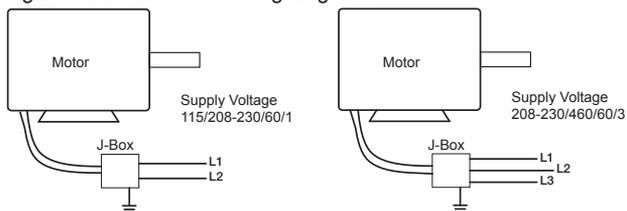


Figure 9

OPERATION

1. Before starting up or operating the unit, check all fasteners for tightness. In particular, check set screws in wheel hub (and sheaves, if applicable). While in the OFF position, or before connecting the ventilator to power, turn the ventilator wheel by hand to be sure it is not striking the orifice or any obstacle.

2. Check wheel rotation (viewing from the shaft side) by momentarily energizing the unit. Rotation should be clockwise and correspond to the rotation decal on the unit.

IMPORTANT: Rotation of the wheel is critical and incorrect rotation will result in reduced air performance, increased motor loading and possible motor burnout.

4. When the ventilator is started, observe the operation and check for any unusual noises.
5. With the system in full operation and all ductwork attached, measure current (amps) input to the motor and compare with the nameplate rating (full-load amps) to determine if the motor is operating under safe load conditions.
6. Adjust RPM to desired level using a variable pitch sheave. After adjustment, motor amperage should be checked to avoid overloading of the motor.

IMPORTANT: Adjust (tighten) belt tension after the first 24-48 hours of operation.

7. Keep inlets and approaches to ventilator clean and free from obstruction.

TROUBLESHOOTING GUIDE

Symptom	Possible Cause(s)	Corrective Action
Ventilator inoperative	<ol style="list-style-type: none"> 1. Blown fuse or breaker 2. Defective motor 3. Incorrectly wired 4. Broken belts 	<ol style="list-style-type: none"> 1. Replace or repair 2. Replace or repair 3. Shut power OFF and check wiring for proper connections 3. Replace
Excessive noise or vibration	<ol style="list-style-type: none"> 1. Belt(s) too loose/tight 2. Loose or defective bearings 3. Loose wheel or sheaves 4. Accumulation of material on wheel 5. Mis-aligned sheaves 6. Ventilator base not securely anchored 7. Motor hood loose and rattling 8. Ventilator wheel out of balance 	<ol style="list-style-type: none"> 1. Adjust tension 2. Replace bearings 3. Tighten set screws 4. Clean 5. Re-align 6. Secure properly 7. Tighten acorn nuts securing motor hood 8. Replace wheel
Insufficient airflow	<ol style="list-style-type: none"> 1. Blocked duct or clogged filters 2. Speed too slow 3. Damper closed 4. Belt slippage 5. Incorrect wheel rotation 6. Loose fitting duct sections permitting air loss 	<ol style="list-style-type: none"> 1. Clean or replace 2. Check for correct drives 3. Inspect/repair 4. Replace/adjust tension 5. Check motor wiring 6. Check for secure connection where duct sections are joined (suggest duct tape at seams for sealed closure)
Motor overloads or overheats	<ol style="list-style-type: none"> 1. Wheel RPM too high 2. Shorted motor winding 3. Incorrect wheel rotation 4. Over/Under line voltage 5. Belt slippage 	<ol style="list-style-type: none"> 1. Check drives 2. Replace motor 3. Check motor wiring 4. Contact Power Company 5. Tighten belt

MAINTENANCE

⚠ WARNING

Disconnect and lockout power source before servicing.

⚠ CAUTION

Uneven cleaning of the wheel will produce an out of balance condition that will cause vibration in the ventilator.

1. Depending on the usage and severity of the contaminated air, a regularly scheduled inspection for cleaning the ventilator wheel, housing and surrounding areas should be established. Severe applications may require weekly inspection.

IMPORTANT: Follow NEC 70 for cleaning when ventilator is installed on restaurant exhaust appliances.

NOTE: Removal of the entire power pack (motor, drives and wheel) for maintenance or cleaning can be accomplished by removing the breather tube and fasteners. See Figure 10.

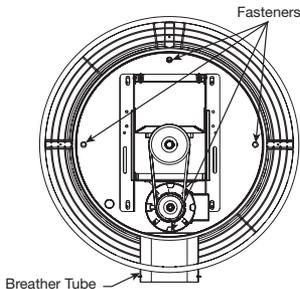


Figure 10

2. Check for unusual noises when ventilator is running.
3. Periodically inspect and tighten set-screws.
4. Periodically check belts for wear and tightness.

NOTE: When replacing belts use the same type as supplied with the unit.

NOTE: For belt replacement, loosen the motor mounting hardware to allow removal of the belt by hand.

⚠ CAUTION

Do not force belts on or off. This may cause cords to break, leading to premature belt failure.

5. Follow motor manufacturer's instructions for motor lubrication.
6. Grease containers must be emptied at regular intervals to prevent overflow.
7. For critical applications, a spare motor and belts should be available.
8. Keep bearings clean and well lubricated (where applicable).

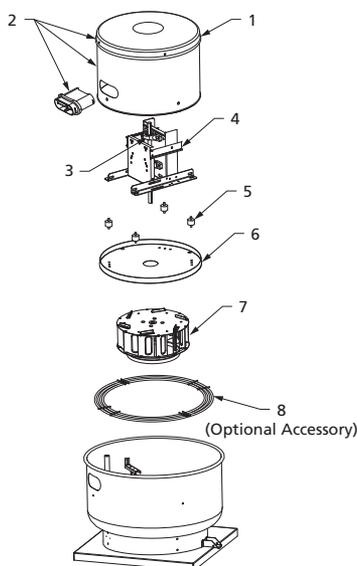
NOTE: Sealed pillow block bearings require no further lubrication.

Recommended Re-lubrication Frequency in Months

Interval (Months)	Type of Service
1 to 3	Heavy duty in dirty, dusty locations; high ambient temperatures; moisture laden atmosphere; vibration.
3 to 6	12 to 24 hours per day, heavy duty, or if moisture is present
6 to 12	8 to 16 hours per day in clean, relatively dry atmosphere
12 to 18	Infrequent operation or light duty in clean atmosphere

- Do not over-grease. Use only one or two shots of lubricant with a hand gun. Maximum hand gun rating is 40 psi. Rotate bearings during lubrication where good safety practice permits. Caution should be employed to prevent over packing or contamination.
- For conditions including high temperatures, moisture, dirt or excessive vibration, more frequent lubrication is recommended.
- Lubricant should be a high quality lithium complex grease conforming to NLGI Grade 2. Factory recommends Mobilux EP-2.
- The use of synthetic lubricants will increase lubrication intervals by approximately 3 times.

REPAIR PARTS ILLUSTRATION FOR LESS MOTOR/DRIVES VENTILATORS



REPAIR PARTS LIST FOR LESS MOTOR/DRIVES VENTILATORS

Ref. No.	Description	Part Number for Models:					Qty.
		1MBF1	1MBF2	2RB65	2RB66	20FT14	
1	Cover	21DY74	21DY74	21DY73	21DY74	21DY73	1
2	Hood Assembly	21DZ05	21DZ56	21DZ02	21DZ05	21DZ02	1
3	Bearing	35JF72	21DT70	21DW60	21DW60	21DW60	2
4	Drive Frame Assembly	21DY98	21DX83	21DP33	21DP35	21DZ03	1
5	Isolator Kit	21DY99	21DZ04	21DY99	21DY99	21DY99	1
6	Support Plate	21DY81	21DY79	21DY80	21DY81	21DY80	1
7	Wheel	21DX93	21DX94	21DP32	21DP34	21DY92	1
8	Birdscreen	4YY79	4YY80	4YY78	4YY79	4YY78	1

For Repair Parts, call 1-800-Grainger
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

Ref. No.	Description	Part Number for Models:					Qty.
		4YY14	4YY15	4YY16A	4YY17	4YY18	
1	Cover	21DY73	21DY73	21DY74	21DY74	21DY75	1
2	Hood Assembly	21DZ02	21DZ02	21DZ05	21DZ05	21DZ56	1
3	Bearing	21DW60	21DW60	21DW60	21DW60	35JF72	2
4	Drive Frame Assembly	21DZ03	21DZ03	21DY98	21DY98	21DZ57	1
5	Isolator Kit	21DY99	21DY99	21DY99	21DY99	21DZ04	1
6	Support Plate	21DY80	21DY80	21DY81	21DY81	21DY79	1
7	Wheel	21DY90	21DZ41	21DW40	21DZ43	21DZ39	1
8	Birdscreen	4YY78	4YY78	4YY79	4YY79	4YY80	1

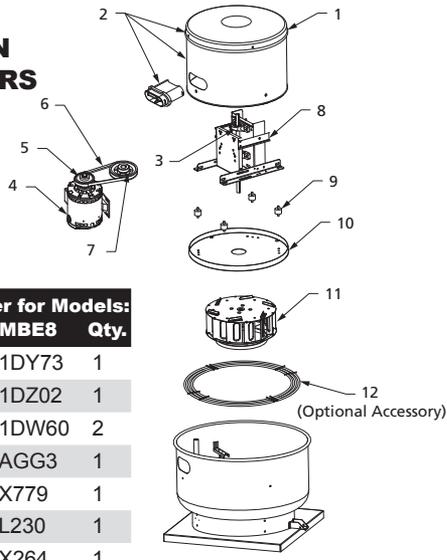
Ref. No.	Description	Part Number for Models:					Qty.
		4YY19	4YY20	4YY21	4YY22	5DVL4	
1	Cover	21DY75	21DY71	21DZ17	21DZ18	21DY73	1
2	Hood Assembly	21DZ56	21DZ58	21DZ60	21DZ62	21DZ02	1
3	Bearing	35JF72	21DT70	21DT70	21DW58	21DW60	2
4	Drive Frame Assembly	21DZ57	21DZ59	21DZ61	21DZ63	21DP33	1
5	Isolator Kit	21DZ04	21DZ04	21DZ06	21DZ06	21DY99	1
6	Support Plate	21DY79	21DZ28	21DZ29	21DZ34	21DY80	1
7	Wheel	21DZ40	21DZ42	21DZ51	21DZ52	21DY82	1
8	Birdscreen	4YY80	4YY81	4YY82	4YY83	4YY78	1

Ref. No.	Description	Part Number for Models:					Qty.
		6KWJ9	6KWK3	16D522	16D523	16D524	
1	Cover	21DY73	21DY75	21DY73	21DY73	21DY74	1
2	Hood Assembly	21DZ02	21DZ56	21DZ02	21DZ02	21DZ05	1
3	Bearing	21DW60	35JF72	21DW60	21DW60	21DW60	2
4	Drive Frame Assembly	21DZ03	21DZ57	21DZ03	21DP33	21DY98	1
(*)	Aluminum Rub Ring	21DP94	21DP94	—	—	—	1
(*)	Conduit Conversion Kit	33M295	33M296	—	—	—	1
5	Isolator Kit	21DY99	21DZ04	21DY99	21DY99	21DY99	1
6	Support Plate	21DY80	21DY79	21DY80	21DY80	21DY81	1
7	Wheel	21DY90	21DZ39	21DY90	21DY82	21DW40	1
8	Birdscreen	4YY78	4YY80	4YY78	4YY78	4YY79	1

Ref. No.	Description	Part Number for Models:					Qty.
		16D525	16D526	33X834	33X835	33X836	
1	Cover	21DY74	21DZ17	21DY73	21DY74	21DY74	1
2	Hood Assembly	21DZ05	21DZ60	21DW19	21DW20	21DW20	1
3	Bearing	21DW60	21DT70	21DW60	21DW60	21DW60	2
4	Drive Frame Assembly	21DY98	21DZ61	21DU82	21DU83	21DU84	1
(*)	Aluminum Rub Ring	—	—	21DP94	21DP94	21DP94	1
(*)	Conduit Conversion Kit	—	—	33M295	33M295	33M295	1
5	Isolator Kit	21DY99	21DZ06	21DY99	21DY99	21DY99	1
6	Support Plate	21DY81	21DZ29	21DY80	21DY81	21DY81	1
7	Wheel	21DZ43	21DZ51	21DZ41	21DW40	21DZ43	1
8	Birdscreen	4YY79	4YY82	4YY78	4YY79	4YY79	1

(*) Not Shown.

REPAIR PARTS ILLUSTRATION FOR ASSEMBLED VENTILATORS



REPAIR PARTS LIST FOR ASSEMBLED VENTILATORS

Ref. No.	Description	Part Number for Models:		
		1MBE7	1MBE8	Qty.
1	Cover	21DY73	21DY73	1
2	Hood Assembly	21DZ02	21DZ02	1
3	Bearing	21DW60	21DW60	2
4	Motor	1AGG2	1AGG3	1
5	Driver Sheave	3X779	3X779	1
6	Belt	3VU39	4L230	1
7	Driven Sheave	3X275	3X264	1
8	Drive Frame Assembly	21DX82	21DZ03	1
9	Isolator Kit	21DY99	21DY99	1
10	Support Plate	21DY80	21DY80	1
11	Wheel	21DY90	21DZ41	1
12	Birdscreen	4YY78	4YY78	1

Ref. No.	Description	Part Number for Models:					
		1MBE9	20FT09	3ATT8A	3ATT9A	3ATU1A	Qty.
1	Cover	21DY74	21DY73	21DY74	21DY74	21DY74	1
2	Hood Assembly	21DZ05	21DZ02	21DZ05	21DZ05	21DZ05	1
3	Bearing	21DW60	21DW60	21DW60	21DW60	21DW60	2
4	Motor	4YU30	1AGG1	1AGG3	4YU30	4YU38	1
5	Driver Sheave	3X587	5UHP7	3X276	3X264	3X264	1
6	Belt	3VU41	3L180	4L270	3VU40	3VU40	1
7	Driven Sheave	3X264	14A167	3X589	3X583	3X583	1
(*)	Driver Bushing	3X573	—	3X573	3X573	3X573	1
8	Drive Frame Assembly	21DY98	21DZ03	21DY98	21DY98	21DY98	1
9	Isolator Kit	21DY99	21DY99	21DY99	21DY99	21DY99	1
10	Support Plate	21DY81	21DY80	21DY81	21DY81	21DY81	1
11	Wheel	21DZ43	21DY92	21DW40	21DW40	21DW40	1
12	Birdscreen	4YY79	4YY78	4YY79	4YY79	4YY79	1

For Repair Parts, call 1-800-Grainger
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

Ref. No.	Description	Part Number for Models:					Qty.
		3ATU2	3ATU3	3ATU4	3ATU5	3ATU6	
1	Cover	21DY74	21DY74	21DY75	21DY75	21DY75	1
2	Hood Assembly	21DZ05	21DZ05	21DZ56	21DZ56	21DZ56	1
3	Bearing	21DW60	21DW60	35JF72	35JF72	35JF72	2
4	Motor	4YU35	4YU38	4YU35	4YU31	4YU39	1
5	Driver Sheave	3X276	3X438	3X276	3X276	3X276	1
6	Belt	4L290	6A139	4L310	3X697	3X697	1
7	Driven Sheave	3X591	3X591	4HZ83	3X589	3X589	1
(*)	Driver Bushing	3X573	3X573	3X573	3X573	3X573	1
8	Drive Frame Assembly	21DY98	21DY98	21DZ57	21DZ57	21DZ57	1
9	Isolator Kit	21DY99	21DY99	21DZ04	21DZ04	21DZ04	1
10	Support Plate	21DY81	21DY81	21DY79	21DY79	21DY79	1
11	Wheel	21DZ43	21DZ43	21DZ39	21DZ39	21DZ39	1
12	Birdscreen	4YY79	4YY79	4YY80	4YY80	4YY80	1

Ref. No.	Description	Part Number for Models:					Qty.
		3ATU7	3ATU8	3ATU9	3ATV1	3ATV2	
1	Cover	21DY75	21DY75	21DY71	21DY71	21DZ17	1
2	Hood Assembly	21DZ56	21DZ56	21DZ58	21DZ58	21DZ60	1
3	Bearing	35JF72	35JF72	21DT70	21DT70	21DT70	2
4	Motor	4YU30	4YU40	4YU31	6XWJ0	53J909	1
5	Driver Sheave	3X264	3X438	3X264	3X946	2L486	1
6	Belt	6A140	6A141	6A142	6A145	6X875	1
7	Driven Sheave	4HZ83	4HZ83	4HZ85	3X600	3X607	1
(*)	Driver Bushing	3X573	3X573	3X576	3X576	3X576	1
8	Drive Frame Assembly	21DZ57	21DZ57	21DZ59	21DZ59	21DZ61	1
9	Isolator Kit	21DZ04	21DZ04	21DZ04	21DZ04	21DZ06	1
10	Support Plate	21DY79	21DY79	21DZ28	21DZ28	21DZ29	1
11	Wheel	21DZ40	21DZ40	21DZ42	21DZ42	21DZ51	1
12	Birdscreen	4YY80	4YY80	4YY81	4YY81	4YY82	1

Ref. No.	Description	Part Number for Models:					Qty.
		3GY73G	3GY74G	5PV06H	5PV07G	5PV08G	
1	Cover	21DY71	21DZ17	21DY74	21DY75	21DY75	1
2	Hood Assembly	21DZ58	21DZ60	6366399	21DZ56	21DZ56	1
3	Bearing	21DT70	21DT70	21DW60	35JF72	35JF72	2
4	Motor	4YU40	6XWJ0	4YU35	4YU30	4YU31	1
5	Driver Sheave	3X264	3X945	3X263	3X264	3X264	1
6	Belt	6A116	3X471	3VU40	6A139	6A139	1
7	Driven Sheave	3X795	3X604	3X775	3X789	3X791	1
8	Drive Frame Assembly	21DZ59	21DZ61	21DY98	21DZ57	21DZ57	1
9	Isolator Kit	21DZ04	21DZ06	21DY99	21DZ04	21DZ04	1
10	Support Plate	21DZ28	21DZ29	21DY81	21DY79	21DY79	1
11	Wheel	21DZ42	21DZ51	21DW40	21DZ39	21DZ40	1
12	Birdscreen	4YY81	4YY82	4YY79	4YY80	4YY80	1

DAYTON ONE-YEAR LIMITED WARRANTY

DAYTON ONE-YEAR LIMITED WARRANTY. All Dayton® product 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. If the Dayton product is part of a set, only the portion that is defective is subject to this warranty. Any product or part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton or Dayton's designee designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced with a new or reconditioned product or part of equal utility or a full refund given, at Dayton's or Dayton's designee's option, at no charge. For limited warranty claim procedures, see "Warranty Service" below. This warranty is void if there is evidence of misuse, mis-repair, mis-installation, abuse or alteration. This warranty does not cover normal wear and tear of Dayton products or portions of them, or products or portions of them which are consumable in normal use. This limited warranty gives purchasers specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction.

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THIS LIMITED WARRANTY ONLY APPLIES TO UNITED STATES PURCHASERS FOR DELIVERY IN THE UNITED STATES.

WARRANTY SERVICE

To obtain warranty service if you purchased the covered product directly from W.W. Grainger, Inc. ("Grainger"), (i) write or call or visit the local Grainger branch from which the product was purchased or another Grainger branch near you (see www.grainger.com for a listing of Grainger branches); or (ii) contact Grainger by going to www.grainger.com and clicking on the "Contact Us" link at the top of the page, then clicking on the "Email us" link; or (iii) call Customer Care (toll free) at 1-888-361-8649. To obtain warranty service if you purchased the covered product from another distributor or retailer, (i) go to www.grainger.com for Warranty Service; (ii) write or call or visit a Grainger branch near you; or (iii) call Customer Care (toll free) at 1-888-361-8649. In any case, you will need to provide, to the extent available, the purchase date, the original invoice number, the stock number, a description of the defect, and anything else specified in this Dayton One-Year Limited Warranty. You may be required to send the product in for inspection at your cost. You can follow up on the progress of inspections and corrections in the same ways. Title and risk of loss pass to buyer on delivery to common carrier, so if product was damaged in transit to you, file claim with carrier, not retailer, Grainger or Dayton. For warranty information for purchasers and/or delivery outside the United States, please use the following applicable contact information:

**Dayton Electric Mfg. Co.,
100 Grainger Parkway, Lake Forest, IL 60045 U.S.A.
or call +1-888-361-8649**