

Air Conveying Corporation

2196 E. Person Ave. Memphis, TN. 38114 Phone: (901) 454-5016 – Fax: (901) 324-7979 Website: <u>www.airconveyingcorp.com</u>

Air Conveying Corporation Material Handling Fan

Operation and Maintenance Manual

For Models:

M9, M12, M15, M17, M19, M21, M24 & M33



OPERATION AND MAINTENANCE MANUAL DISCLAIMER

While it is the intent of this manual to provide the customer with sound, general documentation on the Air Conveying Corporation supplied equipment, it must also be understood that each order is custom designed, manufactured and installed per our customers' specific application and requirements. Therefore, some of the information contained herein may differ from the actual equipment you may have.

It is Air Conveying Corporation's policy to provide a general manual containing standard parts descriptions and operation guidelines. Should there be any questions or concerns that are not addressed in this manual, please do not hesitate to contact us for further specific information.

Thank you,

Air Conveying Corporation



SAFETY RULES AND GUIDELINES

Safety is a very important concern for Air Conveying Corporation. It is a matter of fact that we strive to provide a safe work environment for the installation crews during installation and safe equipment for our customers use. We have found this policy to be very effective and trust that your company has similar policies and practices to ensure the safety of your personnel as well as ours.

Installation:

It is Air Conveying Corporation's policy to provide general safety practices as it relates to the installation of our equipment. This policy is designed to supplement our customers' safety policy. Since safety policies vary dramatically from customer to customer, our installation crews are continuously instructed to adhere to our customers' specific safety policy primarily. Our crews are required to complete our customers' safety orientation, if applicable, before any work is begun.

Our crews are provided with standard personnel protective equipment. We ask that our customers provide any specific equipment required by their safety policy.

Equipment:

All Air Conveying Corporation manufactured equipment is delivered with safety devices to stop the equipment and related equipment upon the opening of access covers, which could present a hazard. We strongly recommend that all interlocks be wired and maintained correctly. We strongly recommend that only authorized personnel using correct lock out tag out and other safety practices be allowed to work on the equipment.

All Air Conveying Corporation collectors and filters are provided with 1" NPT nipples to be used to connect to the plant fire system. We strongly recommend that the fire system be connected immediately after installation of the unit.

All Air Conveying Corporation equipment have multiple labels attached which warn of rotation, electrical shock, pinch points, automatic starting and other areas where safety should be at a premium. These labels should not be removed or defaced.



THE ACC HEAVY DUTY FAN



Fan	Whl	A				D	-	-	_	100						N			0			-		N		v	v	MICT
Size	Dia	ID	OD	в	C	U	E	E.	G	н	1	1	ĸ	E.	IVI	N	0	Р	Q	ĸ	2	<u>.</u>	U	v	vv	X	Y	wG
M12	20"	11 5/8	' 12"	10 1/2"	12"	1-11/16"	14"	6 1/2"	15"	6 3/8"	7 9/16"	10"	2"	2"	5 1/4"	7 3/4"	14 5/16"	4"	30 13/16"	2 1/2"	1 1/2"	13 3/8"	13 3/8"	14 1/4"	12 1/2"	11 5/8"	5/8"	375
M14	23 1/2"	13 5/8	' 14"	12"	14"	1-15/16"	16 1/2"	7"	16"	7 3/8"	8 5/16"	11"	2"	2 1/2"	6"	8 1/2"	15 5/16"	5"	34 1/16"	2 1/2"	1 1/2"	15 1/2"	15 3/4"	16 3/4"	14 3/4"	13 3/4"	3/4"	475
M15	25"	14 1/2	15"	14"	14"	2-3/16"	18 1/2"	7 1/2"	17"	8 3/8"	9 5/16"	12"	2"	2 1/2"	7"	10"	16 5/16"	5"	37 13/16"	3"	1 1/2"	16 3/8"	18 1/8"	19 1/2"	16 3/4"	15 3/8"	3/4"	600
M17	28 1/2"	16 1/2	' <mark>1</mark> 7"	15"	1 5"	2-3/16"	20"	8 1/2"	19"	8 3/8"	9 7/8"	1 6"	2"	2 1/2"	7 1/2"	11 1/2"	20 3/8"	6"	43 7/8"	4"	1 3/4"	17"	19 3 <mark>/8</mark> "	21 1/2"	<mark>18</mark> "	16 1/4"	3/4"	840
M19	32"	17 1/2	' 18"	16"	<mark>1</mark> 8"	2-15/16"	23"	9"	20"	9 5/8"	10 3/4"	17"	2"	2 1/2"	8"	12"	21 3/8"	6"	45 7/8"	4"	2"	19 1/8"	22"	24"	20"	18"	3/4"	975
M21	35 1/2"	20 1/2	21"	18"	20"	2-15/16"	26"	10 1/2"	24"	10 5/8"	12 3/8"	20"	3"	3"	9"	13"	26 3/8"	7"	54 3/8"	4"	2"	21 1/2"	25 1/4"	27 1/2"	23"	20 3/4"	3/4"	1375
M24	40"	23 1/2	24"	19"	24"	2-15/16"	28"	10 1/2"	24"	11 1/8"	12 7/8"	20"	3"	3"	9 1/2"	13 1/2"	26 3/8"	7"	55 3/8"	4"	2"	24 3/8"	27 1/2"	29 3/4"	25 1/2"	25 1/2"	3/4"	1590

	MS	ERIES MAT	ERIAL HAN	DLING FA	NS CAPAC	ITY GUIDE	TABLE AT 70	ED ON DRY AIR D°F, AT 29.92 H.G., 175 LBS./FT ³					
	STATIC PRESSURE												
FAN	CFM BHP RPM	CFM BHP RPM	CFM BHP RPM	CFM BHP RPM	CFM BHP RPM	CFM BHP RPM	CFM BHP RPM	CFM BHP RPM					
SIZE	6″	7″	8″	9″	10″	12″	14″	16″					
M-12	2500 4.3 1780 2875 5.2 1840 3275 6.2 1920 3800 7.8 1990 4200 9.0 2090	2200 4.0 1820 2500 4.6 1865 3000 5.8 1960 3800 9.0 2100 4600 10.0 2150	2200 4.8 1950 2600 5.9 2015 3250 8.0 2120 3700 9.5 2200 4000 10.4 2250	2100 4.9 2040 2800 7.0 2130 3300 8.5 2210 3600 10.3 2290 4000 12.1 2375	2300 6.2 2175 2800 7.7 2265 3200 9.7 2310 3600 11.0 2400 4000 12.9 2450	2600 8.0 2300 3300 11.6 2475 3600 13.0 2540 4000 15.0 2600	2600 9.0 2425 2800 10.6 2560 3200 13.5 2650 3600 16.0 2700	2600 10.0 2650 2800 12.9 2775 3200 16.5 2875					
M-14	2800 4.7 1475 3400 5.8 1550 3800 6.6 1570 4400 8.4 1640 5000 10.2 1700	2800 5.0 1520 3400 6.5 1610 4000 7.8 1665 4400 9.5 1730 5000 11.6 1800	3250 7.1 1685 3750 8.7 1740 4400 10.8 1820 4800 12.9 1860 5300 14.5 1900	3400 8.0 1790 4000 9.4 1825 4600 12.0 1900 4850 14.2 1940 5400 16.8 2000	3300 8.8 1925 3800 11.1 1980 4400 13.2 2025 5000 15.0 2050 5400 17.9 2095	3600 11.7 2075 4400 15.4 2200 5000 18.6 2230 5400 20.8 2385	3700 14.1 2180 4400 18.1 2300 5000 21.6 2385 5400 25.0 2450	4350 22.5 2440 4900 25.0 2520 5400 29.9 2600					
M-15	3400 5.9 1460 4000 7.3 1520 4600 9.3 1570 5600 13.5 1675 6300 16.0 1750	3300 5.7 1440 3900 7.0 1510 4600 9.1 1585 5600 13.5 1675 6300 15.9 1750	3600 7.8 1550 4400 10.6 1635 5000 12.4 1690 5600 14.7 1750 6250 17.1 1800	3900 9.2 1650 4400 11.0 1695 5100 13.0 1750 5600 16.4 1810 6250 19.3 1900	4000 10.7 1800 4600 13.2 1865 5200 15.2 1920 5800 17.0 1940 6250 20.8 1990	4400 15.0 1960 4900 16.8 2000 5600 20.5 2050 6250 25.0 2110	4400 16.9 2100 5000 21.0 2150 5600 26.0 2200 6250 30.9 2260	4900 26.5 2275 5600 32.0 2330 6200 38.0 2420					
M-17	3600 6.0 1190 4100 6.9 1225 4800 8.0 1250 5600 10.1 1300 7300 15.1 1400	4000 7.0 1260 4800 9.2 1310 5600 11.0 1360 6500 14.0 1430 7500 16.3 1475	4000 8.0 1340 4900 10.8 1400 5800 14.2 1460 6500 15.7 1480 8000 21.1 1590	4200 9.8 1420 5000 11.5 1460 5900 13.5 1500 6800 17.8 1575 8000 24.0 1650	4800 12.9 1575 5650 16.1 1630 6500 21.1 1685 7200 22.2 1700 8000 25.0 1755	5600 18.8 1725 7000 26.0 1810 8000 30.0 1875 9100 33.2 1935	5600 21.0 1825 6500 26.7 1880 7300 30.1 1935 8000 35.2 1990	6400 30.0 1975 7200 34.0 2020 8000 40.0 2080					
M-19	5200 8.5 1080 6100 10.7 1125 7000 12.6 1160 8200 15.3 1225 9000 18.0 1260	5200 10.0 1145 6000 11.5 1180 7100 14.4 1235 8200 18.0 1275 9000 21.0 1330	6000 12.5 1260 7000 16.0 1285 8000 20.0 1340 9000 24.0 1390 10000 27.2 1425	6000 14.9 1320 7200 18.0 1355 8000 21.0 1390 9000 26.2 1440 10000 30.0 1480	7200 20.0 1440 8200 26.0 1500 9000 27.0 1530 10000 33.0 1580 11000 38.9 1610	6200 23.9 1525 7200 25.2 1560 8200 28.0 1590 10000 38.0 1670	7000 26.8 1610 8200 32.0 1700 9000 38.0 1725 10000 42.0 1775	8000 36.0 1775 9000 43.0 1810 10000 47.5 1855					
M-21	6200 10.6 985 7500 13.0 1030 8500 15.6 1060 9800 19.0 1085 11100 22.5 1140	6200 11.0 1030 7500 14.1 1070 8600 17.0 1100 9850 22.0 1160 11000 27.0 1195	7000 16.0 1100 8600 20.5 1170 9800 23.0 1200 11000 29.2 1240 12000 33.0 1275	7500 17.0 1180 8600 20.9 1200 9800 26.0 1250 11000 31.5 1300 12000 36.9 1340	8600 25.2 1300 9800 31.0 1350 11000 35.0 1375 12000 40.0 1415	8600 19.9 1395 9800 35.0 1430 11000 42.1 1480 12500 49.0 1500	8600 31.0 1460 9800 40.9 1510 11200 48.5 1575 12200 57.0 1610	9800 46.1 1625 11000 52.5 1665 12200 62.8 1700					
M-24	8000 13.0 850 9800 17.1 890 11000 20.6 920 12800 25.0 950 14500 31.0 995	8000 14.5 890 9800 18.6 940 11500 23.9 980 12800 28.5 1000 14500 35.0 1050	9500 21.5 980 11000 26.0 1010 12500 31.9 1040 14500 38.5 1085 16000 44.0 1130	9800 25.0 1060 11500 30.0 1095 13000 36.0 1110 14500 43.5 1150 16000 50.0 1175	11000 31.0 1125 13000 40.0 1180 14500 46.5 1210 16000 53.0 1240 17500 60.0 1250	12500 44.8 1230 14500 53.0 1290 16500 63.0 1315 17000 65.0 1335	12500 51.0 1310 13000 54.0 1325 14500 61.0 1370 16200 71.0 1415	12800 59.5 1410 14500 69.8 1455 16000 78.9 1510					



BLOWER ROTATION CONFIRMATION

We are requesting that you please take a moment to verify the rotation of the blower you have requested. Blower rotation can be confusing and mistakes are sometimes made. The rotation of the blower is determined by viewing the blower from the drive side (back). When ordering a wheel only, the rotation and model is all that is needed. When ordering a complete blower, the model, rotation and discharge location (shown at bottom of page) is required.

















COUNTER-CLOCKWISE BOTTOM HORIZONTAL (CCWBH)

CLOCKWISE UP BLAST (CWUP)

COUNTER-CLOCKWISE UP BLAST (CCWUP)

COUNTER-CLOCKWISE TOP HORIZONTAL (CCWTH)

CLOCKWISE TOP HORIZONTAL (CWTH)

E CLOC ITAL BOTTOM H (CW





CAUTION

Before performing any housekeeping, repair, or maintenance to the equipment, the main electrical disconnect should be de-activated so that it is impossible for the equipment to be started. It is recommended that all safety switches be activated periodically to ensure their working condition.

Only qualified, trained personnel should be allowed to operate the equipment.





INSTRUCTIONS FOR BLOWER MAINTENANCE

Air Conveying Corporation Blowers have been designed to provide years of trouble-free operation. However, as with any piece of equipment, periodic inspection and maintenance is required.

Before performing any maintenance or inspection, be sure to disable equipment by disconnecting and locking electrical power.

Wheel Balance:

Operation of an unbalanced Blower should be avoided since damage to the wheel, shaft and bearings will result. At the first sign of an unbalanced condition, the bearings, belt drive and mounting bolts should be checked. If the problem is not the result of one of these items, the Blower should be scheduled for shut down. At that time, the wheel should be examined for any cracks or unusual distortion. It is recommended that when replacing a damaged wheel that the shaft be checked for straightness. The removal of the wheel is accomplished by removing the Blower housing. There are three (3) sets of screws on the wheel hub that have to be loosened in order to remove the wheel to assure the proper housing clearance (see Parts Drawing A264 for wheel clearance).

A damaged wheel may be repairable. However, it will be necessary to have it rebalanced to assure smooth operation. If continuous operation of the Blower is required, it is recommended that you stock a spare wheel, shaft and bearings.

Belt Drive:

Belts should be checked for tension and wear, and be replaced is necessary. Replacement belts should be matched sets. Sheaves should be in proper alignments at all times. Proper belt tension is necessary to prevent slippage, especially at a start-up. Belt tension should be checked after 24 hours of initial operation and rechecked approximately one week later. All belts will initially stretch.

Proper tension of a 3-V section belt would be approximately ¼" deflection with 5 to 7 pounds of force applied at the center of the belt span. On a 5-V section belt, the deflection should be ½" with 11 to 16 pounds of force. In obtaining the proper tension on V-belts, it is not necessary to pull them exceedingly taut. They should be tightened only enough to take out slack and undo sag. A good method for checking the proper tension of a V-belt drive is by "striking" the belt with the fist. Slack V-belts feel dead under this test, while properly adjusted V-belts vibrate and feel alive. Another simple test which can be done is to press down firmly on each individual belt in a multi-belt drive. When the top can be depressed so that it is in line with the bottom of other belts on the drive, the correct amount of tension has been applied.



Air Conveying Corporation

Belts should be kept clean, free of oil and protected from sunlight as much as possible. Mineral oil is especially destructive. To clean belts, they should be wiped with a dry cloth. The safest way to remove dirt and grime is to wash with soap and water and rinse well. If by accident the belts become grease or oil splattered, remove with rubbing alcohol. Belt dressing should never be used on a V-belt drive. The V-belt should ride in the sheave groove so that the top surface is just about the highest point of the sheave. If the belt rides too high, it loses contact area. A low-riding belt may "bottom" in the sheave groove, reducing the wedging action on the sides and resulting in slipping and burning.

Bearings:

The proper frequency of lubrication with a recommended grade of lubricant is important (see lubrication instructions). During lubrication, the presence of unusual noise or excessive heat should be noted, and replacement of bearings can then be scheduled at the next shut down period.

Bearing collar set screws should be inspected after the first 24 hours of operation. A second inspection should be two weeks later. The third inspection should be done one month later with periodic inspections thereafter. See Parts Drawing A-264 for set screw torque valves.

Bearing mounting bolts should be inspected at the same time and be tightened if necessary.

Lubrication Instructions:

Most grease now marketed by the major oil and lubrication companies for use with anti-friction bearings will be found satisfactory for general lubrication for these bearings. The below listed greases are for guidance only and have been selected because of satisfactory performance and national distribution and availability. Any comparable grease should provide satisfactory results.

The greases are among those approved for grease lubricated ball bearings when subject to temperatures between 0 degrees F and 200 degrees F. Bearings are furnished with filled greased cavities. When first run, the bearing temperature may seem unusually high. However, as the excess grease bleeds through the bearing seals the temperatures should reduce to normal. When operating normally, the external temperatures of the bearings should not exceed 200 degrees F.

Frequency of Lubrication:

The frequency of lubrication will vary, depending upon the hours of operation, temperature and surrounding conditions. Please use the following table as a preventative



Air Conveying Corporation

maintenance guide. It is sometimes thought that a bearing is defective because it feels hot to the touch. However, a bearing can operate at up to 200 degrees F and still be within operating temperature range. Please note that the threshold of pain caused by heat is 120 degrees F. The average temperature of hot tap water is 140 degrees F. Just because a bearing feels hot, it does not necessarily mean there is a problem.

OPERATIN	IG ENVIRONMENT	Decring Operating	Greasing Interval		
Dirt Exposure	Moisture Exposure	Temperature			
		2°F to 120°F	6 Months		
Slight	None	120°F to 160°F	2-4 Months		
		160°F to 200°F	1-2 Months		
Moderate		32°F to 160°F	1-4 Weeks		
		160°F to 200°F	1 Week		
Heavy	Direct splash or exposure to outdoor environment	32°F to 200°F	Daily to 1 week as determined by inspection		



Industrial Bearing Products

Rexord Industries, Inc. Indianapolis, Indiana

GREASE LUBRICATION SCHEDULE FOR HORIZONTAL SHAFT APPLICATIONS.

LINKBELT® 300 SERIES BALL BEARING UNITS

SHAFT DIAM.	GREASE AMOUNT	<u>6 MONTHS</u> <u>RELUBE</u>	<u>4 MONTHS</u> <u>RELUBE</u>	2 MONTHS RELUBE	<u>1 MONTH</u> <u>RELUBE</u>
3/4	0.08 oz.	4785	7520	10940	14360
7/8 - 1	0.11 oz.	4085	6420	9340	12260
1-1/8 - 1-3/16	0.15 oz.	3620	5610	8145	10860
1-1/4 - 1-7/16	0.22 oz.	3285	5095	7395	9860
1-1/2	0.30 oz.	3080	4930	7190	9450
1-5/8 - 1-3/4	0.41 oz.	2640	4225	6060	8100
1-15/16	0.52 oz.	2310	3850	5580	7315
2 - 2-3/16	0.70 oz.	2045	3410	4945	6480
2-1/4 - 2-7/16	0.83 oz.	1830	2990	4320	5815
2-11/16 - 2-3/4	1.25 oz.	1660	2580	3865	5155
2-15/16	1.50 oz.	1550	2410	3620	4825
3 - 3-3/16	1.80 oz.	1370	2225	3420	4450
3-7/16 - 3-1/2	2.42 oz.	1350	2025	3040	4050
3-15/16	3.27 oz.	1200	1885	2740	3600

Shaft speed in rpm

* OPERATING TEMPERATURES LIMITED TO -40 TO +225°F

* "DIRTY", CORROSIVE OR WET ENVIRONMENTS REQUIRE MORE FREQUENT RE-LUBE.

* MAXIMUM SPEEDS FOR STANDARD SEALS ONLY.

* REDUCE LUBRICATION INTERVALS BY HALF FOR VERTICAL SHAFT APPLICATIONS

* SUGGESTED GREASES ARE:

EXXON RONEX MP TEXACO PREMIUM RB SHELL ALVANIA 2 GULF CROWN NO. 2 AMOCO RYKON 2