

SERVICE AND PARTS MANUAL FOR BLOWER MODEL

DR6, 858, 909, 979, 14

DIRECT DRIVE REGENERATIVE BLOWER



AMETEK Dynamic Fluid Solutions
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AMETEK

Your Choice. Our Commitment.™

WARRANTY, INSTALLATION, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS



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1. AMETEK Rotron DR, EN and HiE regenerative direct drive blowers are guaranteed for one full year from the date of installation (limited to 18 months from the date of shipment) to the original purchaser only. Should the blower fail we will evaluate the failure. If failure is determined to be workmanship or material defect related, we will at our option repair or replace the blower.
2. AMETEK Rotron Minispiral, Revaflow, Multiflow, Nautilair, remote drive blowers, moisture separators, packaged units, CP blowers, Nasty Gas™ models and special built (EO) products are guaranteed for one full year from date of shipment for workmanship and material defect to the original purchaser only. Should the blower fail, If failure is determined to be workmanship or material defect related, we will at our option repair or replace the blower.
3. **Parts Policy** - AMETEK Rotron spare parts and accessories are guaranteed for three months from date of shipment for workmanship and material defect to the original purchaser only. If failure is determined to be workmanship or material defect related we will at our option repair or replace the part.

Corrective Action - A written report will be provided indicating reason(s) for failure, with suggestions for corrective action. Subsequent customer failures due to abuse, misuse, misapplication or repeat offense will not be covered. AMETEK Rotron will then notify you of your options. Any failed unit that is tampered with by attempting repair or diagnosis will void the warranty, unless authorized by the factory.

Terms and Conditions - Our warranty covers repairs or replacement of regenerative blowers only, and will not cover labor for installation, outbound and inbound shipping costs, accessories or other items not considered integral blower parts. Charges may be incurred on products returned for reasons other than failures covered by their appropriate warranty. Out-of-warranty product and in warranty product returned for failures determined to be caused by abuse, misuse, or repeat offense will be subject to an evaluation charge. Maximum liability will in no case exceed the value of the product purchased. Damage resulting from mishandling during shipment is not covered by this warranty. It is the responsibility of the purchaser to file claims with the carrier. Other terms and conditions of sale are stated on the back of the order acknowledgement.

Installation Instructions for SL, DR, EN, CP, and HiE Series Blowers

1. **Bolt It Down** - Any blower must be secured against movement prior to starting or testing to prevent injury or damage. The blower does not vibrate much more than a standard electric motor.
2. **Filtration** - All blowers should be filtered prior to starting. Care must be taken so that no foreign material enters the blower. If foreign material does enter the blower, it could cause internal damage or may exit at extremely high velocity.

Should excessive amounts of material pass through the blower, it is suggested that the cover(s) and impeller(s) be removed periodically and cleaned to avoid impeller imbalance. Impeller

imbalance greatly speeds bearing wear, thus reducing blower life. Disassembling the blower will void warranty, so contact the factory for cleaning authorization.

- Support the Piping** - The blower flanges and nozzles are designed as connection points only and are not designed to be support members.

Caution: Plastic piping should not be used on blowers larger than 1 HP that are operating near their maximum pressure or suction point. Blower housing and nearby piping temperatures can exceed 200°F. Access by personnel to the blower or nearby piping should be limited, guarded, or marked, to prevent danger of burns.

- Wiring** - Blowers must be wired and protected/fused in accordance with local and national electrical codes. All blowers must be grounded to prevent electrical shock. Slo-Blo or time delay fuses should be used to bypass the first second of start-up amperage.
- Pressure/Suction Maximums** - The maximum pressure and/or suction listed on the model label should not be exceeded. This can be monitored by means of a pressure or suction gage (available from Rotron), installed in the piping at the blower outlet or inlet. Also, if problems do arise, the Rotron Field representative will need to know the operating pressure/suction to properly diagnose the problem.
- Excess Air** - Bleed excess air off. DO NOT throttle to reduce flow. When bleeding off excess air, the blower draws less power and runs cooler.

Note: Remote Drive (Motorless) Blowers - Properly designed and installed guards should be used on all belts, pulleys, couplings, etc. Observe maximum remote drive speed allowable. Due to the range of uses, drive guards are the responsibility of the customer or user. Belts should be tensioned using belt gauge.

Maintenance Procedure

When properly piped, filtered, and applied, little or no routine maintenance is required. Keep the filter clean. Also, all standard models in the DR, EN, CP, and HiE series have sealed bearings that require no maintenance. Bearing should be changed after 15,000 to 20,000 hours, on average. Replacement bearing information is specified on the chart below.

Bearing Part Number	Size	Seal Material	Grease	Heat Stabilized
510217 510218 510219	205 206 207	Polyacrylic	Nye Rheotemp 500 30% +/- 5% Fill	Yes – 325 F
510449 516440 516648	203 202 307	Buna N	Exxon Polyrex Grease	NO
516840 516841 516842 516843 516844 516845 516846 516847	206 207 208 210 309 310 311 313	Buna N	Exxon Polyrex Grease	NO

Troubleshooting

		POSSIBLE CAUSE	OUT OF WARRANTY REMEDY ***
IMPELLER DOES NOT TURN	Humming Sound	<ol style="list-style-type: none"> * One phase of power line not connected * One phase of stator winding open Bearings defective Impeller jammed by foreign material Impeller jammed against housing or cover ** Capacitor open 	<ol style="list-style-type: none"> Connect Rewind or buy new motor Change bearings Clean and add filter Adjust Change capacitor
	No Sound	<ol style="list-style-type: none"> * Two phases of power line not connected * Two phases of stator winding open 	<ol style="list-style-type: none"> Connect Rewind or buy new motor
IMPELLER TURNS	Blown Fuse	<ol style="list-style-type: none"> Insufficient fuse capacity Short circuit 	<ol style="list-style-type: none"> Use time delay fuse of proper rating Repair
	Motor Overheated Or Protector Trips	<ol style="list-style-type: none"> High or low voltage * Operating in single phase condition Bearings defective Impeller rubbing against housing or cover Impeller or air passage clogged by foreign material Unit operating beyond performance range Capacitor shorted * One phase of stator winding short circuited 	<ol style="list-style-type: none"> Check input voltage Check connections Check bearings Adjust Clean and add filter Reduce system pressure/vacuum Change capacitor Rewind or buy new motor
	Abnormal Sound	<ol style="list-style-type: none"> Impeller rubbing against housing or cover Impeller or air passages clogged by foreign material Bearings defective 	<ol style="list-style-type: none"> Adjust Clean and add filter Change bearings
	Performance Below Standard	<ol style="list-style-type: none"> Leak in piping Piping and air passages clogged Impeller rotation reversed Leak in blower Low voltage 	<ol style="list-style-type: none"> Tighten Clean Check wiring Tighten cover, flange Check input voltage
<p>* 3 phase units ** 1 phase units *** Disassembly and repair of new blowers or motors will void the Rotron warranty. Factory should be contacted prior to any attempt to field repair an in-warranty unit.</p>			

Blower Disassembly:

WARNING: Attempting to repair or diagnose a blower may void Rotron's warranty. It may also be difficult to successfully disassemble and reassemble the unit.

- 1) Disconnect the power leads. **CAUTION:** Be sure the power is disconnected before doing any work whatsoever on the unit.
- 2) Remove or separate piping and/or mufflers and filters from the unit.
- 3) Remove the cover bolts and then the cover. **NOTE:** Some units are equipped with seals. It is mandatory that these seals be replaced once the unit has been opened.
- 4) Remove the impeller bolt and washers and then remove the impeller. **NOTE:** Never pry on the edges of the impeller. Use a puller as necessary.
- 5) Carefully note the number and location of the shims. Remove and set them aside. **NOTE:** If the disassembly was for inspection and cleaning the unit may now be reassembled by reversing the above steps. If motor servicing or replacement and/or impeller replacement is required the same shims may not be used. It will be necessary to re-shim the impeller according to the procedure explained under assembly.

- 6) Remove the housing bolts and remove the motor assembly (arbor/housing on remote drive models).
- 7) Arbor disassembly (Applicable on remote drive models only):
 - a) Slide the bearing retraining sleeve off the shaft at the blower end.
 - b) Remove the four (4) screws and the bearing retaining plate from the blower end.
 - c) Lift the shaft assembly far enough out of the arbor to allow removal of the blower end snap ring.
 - d) Remove the shaft assembly from the arbor.
 - e) If necessary, remove the shaft dust seal from the pulley end of the arbor.

Muffler Material Replacement:

- 1) Remove the manifold cover bolts and them manifold cover.
- 2) The muffler material can now be removed and replaced if necessary. On blowers with fiberglass acoustical wrap the tubular retaining screens with the fiberglass matting before sliding the muffler pads over the screens.
- 3) Reassemble by reversing the procedure.

NOTE: On DR068 models with tubular mufflers it is necessary to remove the cover and impeller accessing the muffler material from the housing cavity.

Blower Reassembly:

- 1) Place the assembled motor (assembled arbor assembly for remote drive models) against the rear of the housing and fasten with the bolts and washer.
- 2) To ensure the impeller is centered within the housing cavity re-shim the impeller according to the procedure outlined below.
- 3) If blower had a seal replace the seal with a new one.
- 4) Place the impeller onto the shaft making sure the shaft key is in place and fasten with the bolt, washer and spacer as applicable. Torque the impeller bolt per the table below. Once fastened carefully rotate the impeller to be sure it turns freely.
- 5) Replace the cover and fasten with bolts.
- 6) Reconnect the power leads to the motor per the motor nameplate.

Bolt Size	Torque Pound-Force-Foot
1/4-20	6.25 +/- 0.25
5/16-18	11.5 +/- 0.25
3/8-16	20.0 +/- 0.5
1/2-13	49.0 +/- 1
5/8 -11	90.0 +/- 2

Impeller Shimming Procedure:

WARNING: This unit may be difficult to shim. Extreme care may be exercised.

Tools Needed: Machinist's Parallel Bar
Vernier Caliper with depth measuring capability
Feeler gauges or depth gauge

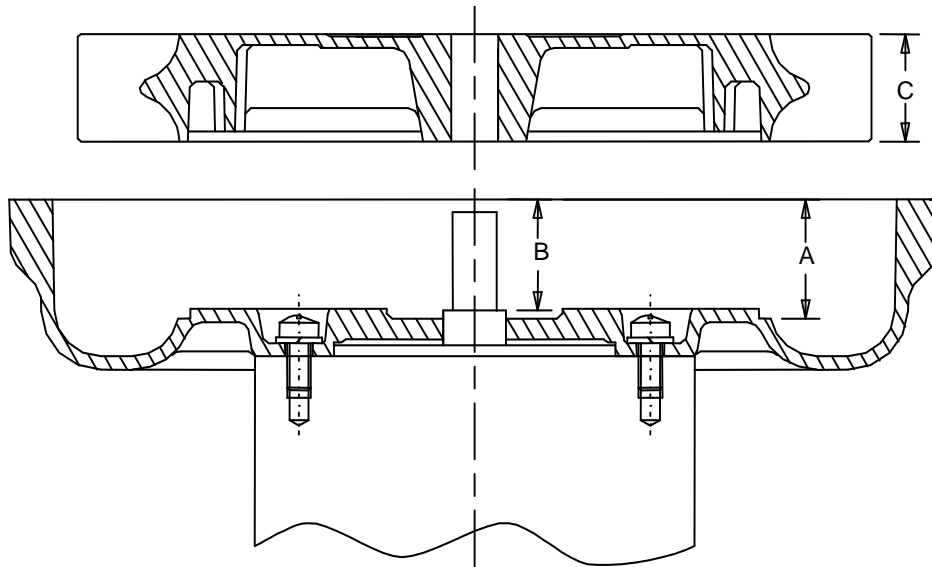
Measure the Following:

- Distance from the flange face to the housing (A)
- Distance from the flange face to the motor shaft shoulder (B)
- Impeller Thickness (C)

Measurements (A) and (B) are made by laying the parallel bar across the housing flange face and measuring to the proper points. Each measurement should be made at three points, and the average of the readings should be used.

$$\text{Shim Thickness} = B - (A+C)/2$$

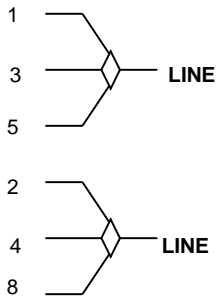
After the impeller installation (step #4 above) the impeller/cover clearance can be checked with feeler gauges, laying the parallel bar across the housing flange face. This clearance should nominally be (A-C)/2.



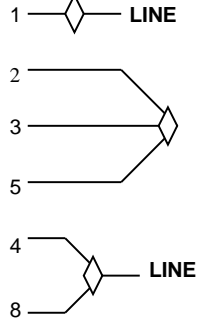
WIRING DIAGRAMS, TEFC and ODP MOTORS

A. 1Ø, 6 WIRE

115 VAC



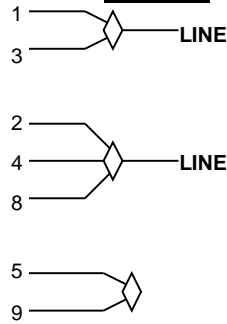
230 VAC



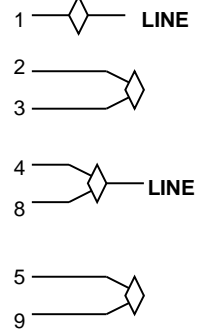
INTERCHANGE LEADWIRES 5 & 8 to REVERSE ROTATION

B. 1Ø, 7 WIRE

115 VAC



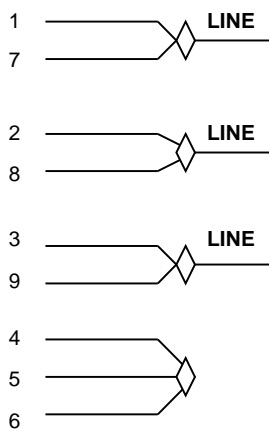
230 VAC



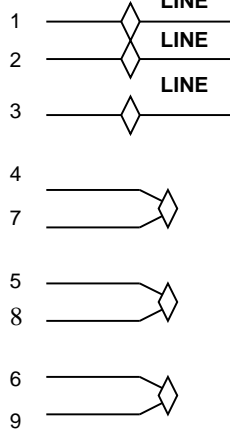
INTERCHANGE LEADWIRES 5 & 8 to REVERSE ROTATION

C. 3Ø, 9 WIRE

230 VAC



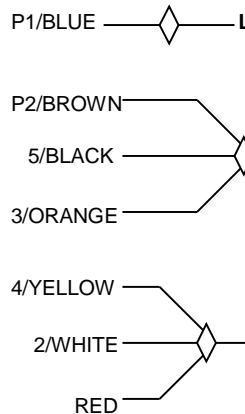
460 VAC



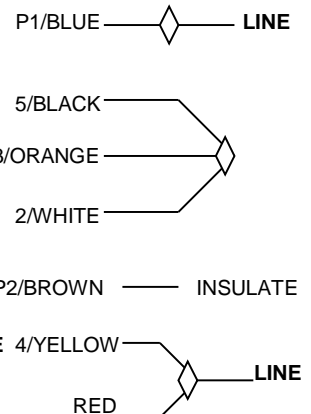
INTERCHANGE ANY TWO LEAD LINES TO REVERSE ROTATION

D. 1Ø, EMERSON 1/8 HP MOTOR

115 VAC



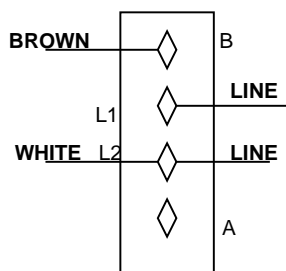
230 VAC



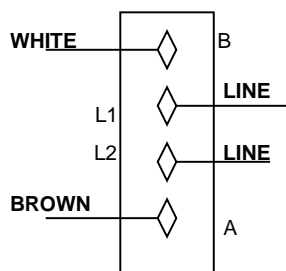
INTERCHANGE RED AND BLACK TO REVERSE ROTATION

E. 1Ø, SPA DUTY WITH TERMINAL STRIPS

LOW 115 VAC

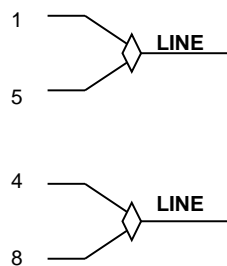


HIGH 230 VAC



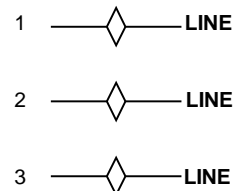
F. 1Ø, 230 VAC

SINGLE VOLTAGE



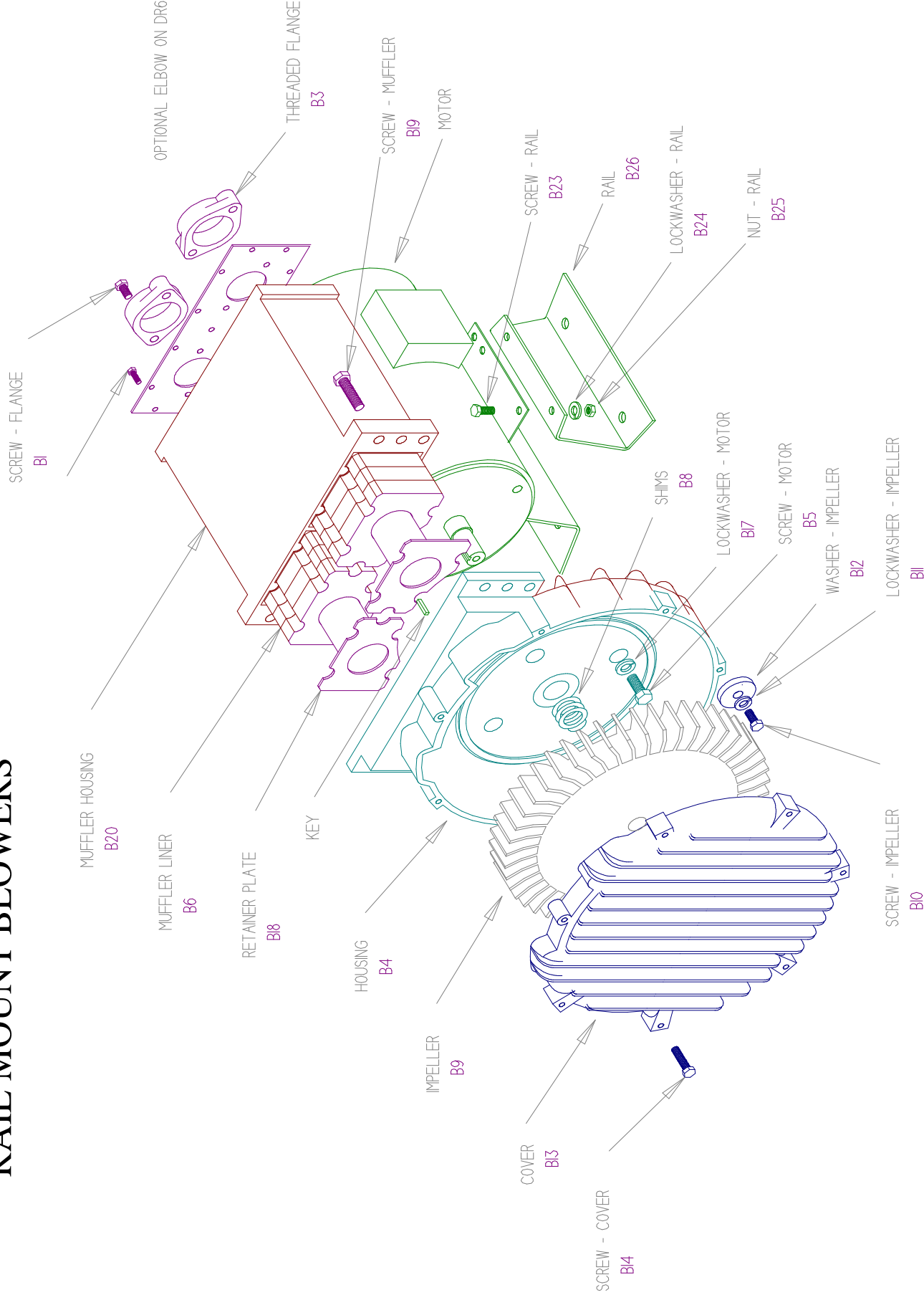
INTERCHANGE LEAD WIRES 5 & 8 TO REVERSE ROTATION

G. 3Ø, 575 VAC

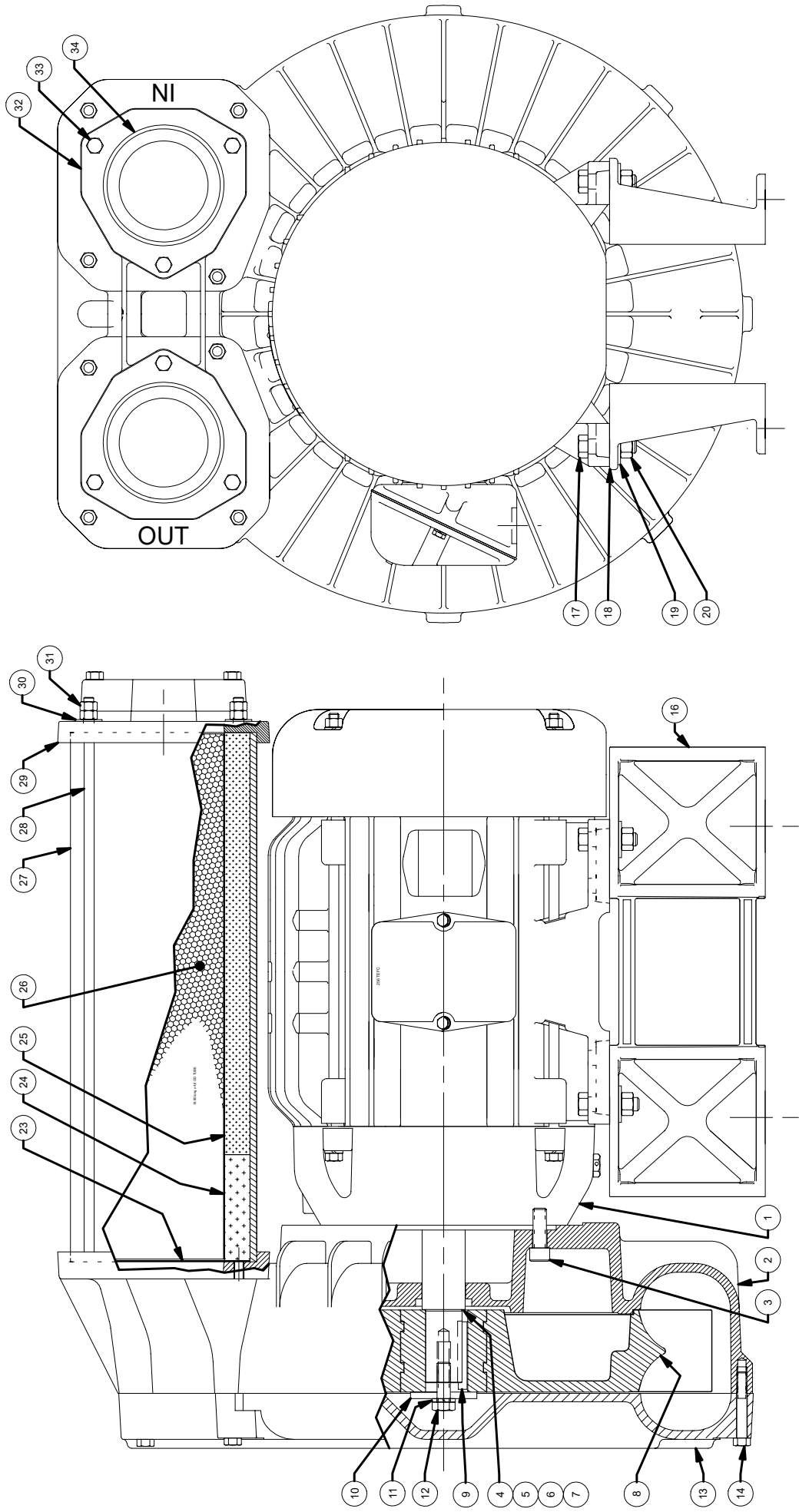


INTERCHANGE ANY TWO LEAD LINES TO REVERSE ROTATION

ASSEMBLY DIAGRAM DR6 DR858 DR909 DR979 DR14 RAIL MOUNT BLOWERS



ASSEMBLY DIAGRAM "B"



DR 6/858/909/979/14

Service and Parts Manual

Model:

Part No.:

Parts Breakdown

DR6
027578
027579
027600
036212
038071

DR858 - Rail
038738
038740
038742
038743
080172

DR858 - Base
038735
038736
038737
080173
080172

DR909 - Rail
038620
038621
038625
080300
038633

DR909 - Base
038622
038623
038626
080183

DR909 - Rail
081737
081739
081738
081744

DR909 - Base
080702
080704
080632
080718

DR14
038750
038751
038759
080451
080612

Item No.	Qty.	Req'd Description	NEW	OBSOLETE
M3	1	Key Motor Shaft	511532	511532
B1	6	Screw, Flange (4 pcs)	155067 (4 pcs)	155067
B3	2	Flange	511614	511614
	2	Screen, Flange Guard	Not Used	Not Used
	2	Screen, Flange Guard	Not Used	Not Used
		Elbow 90°	Not Used	Not Used
B4	1	Housing	515410	515356
B5	4	Screw, Hsg /Motor	155034	140014
B6	28	Muffler Material	Not Used (7 pcs)	551736 (10 pcs)
	2	Muffler Material	Not Used (2 pcs)	551737 (2 pcs)
	2	Muffler Screen guard	Not Used	551730
B8	*	Shim .002"	272703	511547
	*	Shim .005"	272704	511548
	*	Shim .010"	272705	511549
	*	Shim .020"	272706	511550
B9	1	Impeller	515484	515249
B10	1	Bolt, Impeller	251791	120210
B11	1	Lockwasher, Impeller	251787	251788
B12	1	Washer, Impeller	Not Used	511529
B13	1	Cover	515488	515247
B14	8	Screw, Cover	155170	140016
B15	1	Eye Bolt	Not Used	140019
B16	1	Spacer, Impeller Bolt	478336	515555
		Shaft Sleeve	Not Used	Not Used
B17	4	Lockwasher, Housing	251788	Not Used
B18	2	Screen, Muffler	Not Used	551723
	2	Finger guard	Not Used	Not Used
B19	6	Bolt, Muffler Hsg/Hsg	Not Used	155025
B19A	4	Bolt, Muffler Hsg/Hsg	Not Used	120214
B20	1	Muffler Housing	Not Used	550017
	1	Muffler Discrete	522948	Not Used
	2	Bolt, Motor/Muffler	Not Used	Not Used
	2	Lockwasher, Motor/Mu	Not Used	Not Used
	2	Washer, Motor/Muffler	Not Used	Not Used
B23	4	Bolt, Rail	251791	120007

*As needed **Viewed looking at inlet/outlet ports

B24	4	Lockwasher Rail	251787	251787	Not Used	251787	Not Used	251787	See Next Page	251788
	8	Washer Rail/Motor	Not Used	Not Used	Not Used	See Next Page	Not Used	(16) 155091	See Next Page	Not Used
B25	4	Nut, Rail	251789	251789	Not Used	251789	Not Used	251789	See Next Page	155070
B26	2	Rail Mounting	478338	595301	Not Used	See Next Page	Not Used	595301	See Next Page	551658

Model	Part #	Motor	Wiring Diagram	Specific Parts	Bearing, Rear (M1)	Bearing, Impeller End (M2)
DR6D89	027578	500291	C	Elbow - not used	510217	510218
DR6D86	027579	500292	G			
DR6K72	027600	500293	C	Elbow - (1 pc) 120153		
DR6D5	036212	510459	A			
HiE6D89	038071	529325	C			
DR858AY72W	038738	511570	C			
DR858AY86W	080172	515568	G			
DR858AY86X	080173	515568	G			
DR858BB72W	038740	511571	C			
DR858BB86W	038742	515567	G			
HiE858BB72W	038743	529600	C			
DR858BB72X	038735	511571	C			
DR858AY72X	038736	511570	C			
DR858BB86X	038737	515567	G			
DR909BE72W	038620	511572	C			
DR909BB72W	038621	511571	C	B23 (4 pcs) 140016 (16 pcs) 155091		
DR909BE86W	038625	511601	G	B26 (2 pcs) 595301		
DR909BB86W	080300	515567	G			
HiE909BE72W	038633	529601	C	B23 (4 pcs) 120256 (8 pcs) 155091 B26 (2 pcs) 516242	516840	516844
DR909BE72X	038622	511572	C			
DR909BB72X	038623	511571	C			
DR909BE86X	038626	511601	G			
DR909BB86X	080183	515567	G			
DR909BE72W	081737	511572	C			
DR909BB72W	081738	511571	C			
DR909BE86W	081739	511601	G			
DR909BB86W	081744	515567	G			
DR979BE86W	080702	551605	G			
DR979BE72W	080704	551604	C	B4 = 551383, B15 = 140019 B19A = Not used, B23 = 155095, B26 = 595301 B24 = (4 pcs) 251787 & (8 pcs) 155091, B25 = 595301, B20 = 551422		
DR979BE72W	080632	551603	C	B4 = 551560 B15 = Not used B19A = 155070, B23 = 120256 B26 = 551658 B24 = (4 pcs) 251788 & (8 pcs) 120211, (4) 155091, B20 = 551422 B25 = 155070		
DR979BH72W	080718	551635	C		516844	516846
DR14DW72MW	038750	516096	C			
DR14DW86MW	038751	516097	G			
DR14BH72MW	038752	510463	C		516842	516844
DR14BH86MW	038753	511511	G			

*As needed **Viewed looking at inlet/outlet ports

Model	Part #	Motor	Wiring Diagram	Specific Parts		Bearing, Rear (M1)		Bearing, Impeller End (M2)	
DR14DT72MW	080451	551037	C						
DR14DT86MW	080612	516100	G			516844			516846
HI14DW72MW	038759	529603	C						

Use Assembly Diagram "B" for non obsolete DR14

DR 14
Service and Parts Manual

Model:
Part No.:

DR14
081476
081479
081483
081497

DR14
081480
081484

DR14
038752
038753

OBSOLETE

Parts Breakdown

REF #	QTY	Description	See Below	See Below	DR14	DR14			
1	1	Motor	See Below	See Below		M3	1	Key Motor Shaft	511532
2	1	Housing	552309	552304		B1	6	Screw, Flange	140016
3	4	Housing to mtr bolts	120256	155025		B3	2	Flange	529912
4	*	Shim	515991	511547			2	Screen, Flange Guard	Not Used
5	*	Shim	515992	511548				Elbow 90°	Not Used
6	*	Shim	515993	511549		B4	1	Housing	515983
7	*	Shim	515994	511550		B5	4	Screw, Hsg /Motor	120205
8	1	Impeller	515509	515683		B6	28	Muffler Material	(12 pcs) 551740
9	1	Mtr shaft Key	155066	511532			2	Muffler Material	(2 pcs) 551741
10	1	Impeller washer	515990	515990			2	Muffler Screen guard	551744
11	1	Impeller lockwasher	251788	251788		B8	*	Shim .002"	511547
12	1	Impeller bolt	155068	120251			*	Shim .005"	511548
13	1	Cover	515910	515910			*	Shim .010"	511549
14	8	Cover screws	155069	155069			*	Shim .020"	511550
15		Not used	Not used	Not used		B9	1	Impeller	515683
16	2	Mounting Rails	551658	551658		B10	1	Bolt, Impeller	120251
17	4	Rail Bolts	120205	120205		B11	1	Lockwasher, Impeller	251788
18	4	Rail spacers	Not used	Not used		B12	1	Washer, Impeller	Not Used
19	4	Rail lockwashers	251788	251788		B13	1	Cover	515910
20	4	Rail -Nuts	155070	155070		B14	8	Screw, Cover	155069
21	4	Rail washers	155091	155091		B15	1	Eye Bolt	140019
22		Not used	Not used	Not used		B16	1	Spacer, Impeller Bolt	515990
23	2	Finger guard screen	552322	552322				Shaft Sleeve	Not Used
24	2	Muffler foam (hi temp)	552328	552328		B17	4	Lockwasher, Housing	Not Used
25	2	Muffler foam (regular)	552327	552327		B18	2	Screen, Muffler Retaining, Right	551727
26	2	Retainer	552332	552332			2	Finger guard	Not Used
27	2	Muffler tube	552324	552324		B19	6	Bolt, Muffler Hsg/Hsg	155067
28	8	Muffler Tie Rod	552325	552325		B19A	4	Bolt, Muffler Hsg/Hsg	120214
29	1	Connector plate	552298	552298		B20	1	Muffler Housing	550039
30	8	Muffler washer	155091	155091			1	Muffler Discrete	Not Used
31	16	Muffler tie rod nuts	251789	251789			2	Bolt, Motor/Muffler	Not Used

*As needed **Viewed looking at inlet/outlet ports

32	2	Flange	529912	529912	2	Lockwasher, Motor/Muffler	Not Used
33	6	Flange bolts	140016	140016	2	Washer, Motor/Muffler	Not Used
34		Flange Cap.	Not used	Not used	B23	Bolt, Rail	155025
35		Not used	Not used	Not used	B24	Lockwasher Rail	251788
36		Nameplate- Blower	Not used	Not used	8	Washer Rail/Motor	Not Used
37		Rotation Sticker	Not used	Not used	B25	Nut, Rail	155070
38		Not used	Not used	Not used	B26	Rail Mounting	551658
39							
40							
41							
42							

Model	Part #	Motor	Wiring Diagram	Specific Parts	Bearing, Rear (M1)	Bearing, Impeller End (M2)
DR14DW72MW	081476	516096	C			
DR14DW86MW	081479	516097	G		516844	516846
DR14BH72MW	081480	510463	C			
DR14BH86MW	081481	511511	G		516842	516844
DR14DT72MW	081483	551037	C			
DR14DT86MW	081484	516100	G		516844	516846
HiE14DW72MW	081497	529603	C			