SERVICE AND PARTS MANUAL FOR BLOWER MODEL

SPA DUTY





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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.

3. **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.

- 4. **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.
- 5. 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.
- 6. **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

		РО	SSIBLE CAUSE	OU	T OF WARRANTY REMEDY ***
—	ы	1.	* One phase of power line not connected	1.	Connect
NOT	Humming Sound	2.	* One phase of stator winding open	2.	Rewind or buy new motor
ES	g S	3.	Bearings defective	3.	Change bearings
N N	nin	4.	Impeller jammed by foreign material	4.	Clean and add filter
	шr	5.	Impeller jammed against housing or cover	5.	Adjust
IMPELLER	Ĭ	6.	** Capacitor open	6.	Change capacitor
NPE	No Soun d	1.	* Two phases of power line not connected	1.	Connect
=	oS N	2.	* Two phases of stator winding open	2.	Rewind or buy new motor
	Blown Fuse	1. 2.	Insufficient fuse capacity Short circuit	1.	Use time delay fuse of proper rating
	BI			2.	Repair
	r	1.	High or low voltage	1.	Check input voltage
	Motor Overheated Or Protector Trips	2.	* Operating in single phase condition	2.	Check connections
	tor Overheated Protector Trips	3.	Bearings defective	3.	Check bearings
	rhe or J	4.	Impeller rubbing against housing or cover	4.	Adjust
SN	Ove	5.	Impeller or air passage clogged by foreign material	5.	Clean and add filter
R.	or (rot	6.	Unit operating beyond performance range	6.	Reduce system pressure/vacuum
R	Mot	7.	Capacitor shorted	7.	Change capacitor
MPELLER TURNS		8.	* One phase of stator winding short circuited	8.	Rewind or buy new motor
L E	lal I	1.	Impeller rubbing against housing or cover	1.	Adjust
≥	bnorma Sound	2.	Impeller or air passages clogged by foreign	2.	Clean and add filter
	Abnormal Sound	_	material	3.	Change bearings
	,	3.	Bearings defective		
	ce	1.	Leak in piping	1.	Tighten
Performance Below Standard	2.	Piping and air passages clogged	2.	Clean	
	3.	Impeller rotation reversed	3.	Check wiring	
	Perf slov	4.	Leak in blower	4.	Tighten cover, flange
	B H	5.	Low voltage	5.	Check input voltage

^{* 3} phase units

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.

^{** 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.

- 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

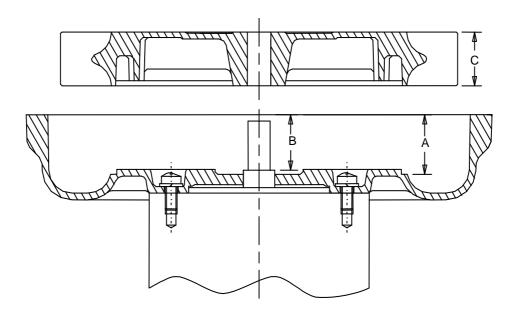
Measure the Following:

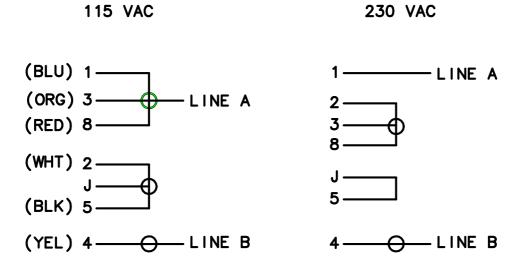
Distance from the flange face to the housing (A)
Distance from the flange face to the motor shaft shoulder (B)
Impeller Thickness (C)

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.

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.

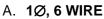


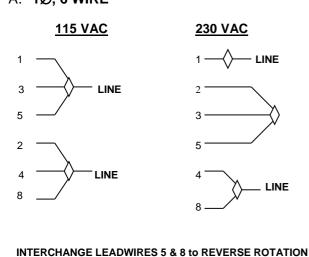


TO REVERSE ROTATION INTERCHANGE 5-8

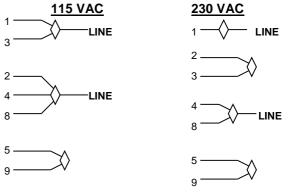
Wiring Diagram Z (For Baldor Motors only)

WIRING DIAGRAMS, TEFC and ODP MOTORS



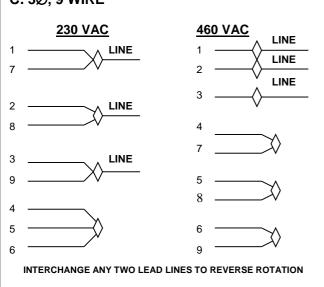


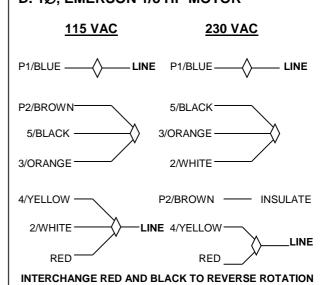




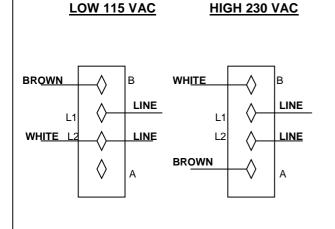
INTERCHANGE LEADWIRES 5 & 8 to REVERSE ROTATION

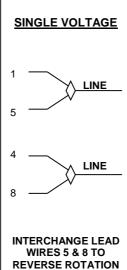
C. 3Ø, 9 WIRE



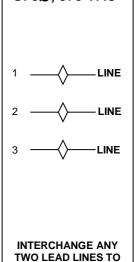


E. 1Ø, SPA DUTY WITH TERMINAL STRIPS



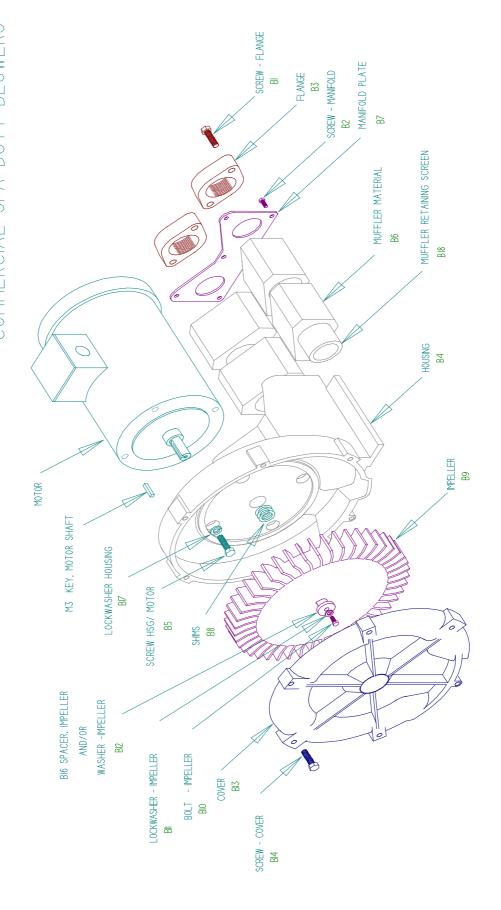


G. 3Ø, 575 VAC



REVERSE ROTATION

ASSEMBLY DIAGRAM COMMERCIAL SPA DUTY BLOWERS



Spa Blower	wer	Spa Blower			ш,	Parts Breakdown	띠	
	3		Model: D Part No.:	Model: DR404AQ58M art No.: 037778	DR454V58 037779 080485	DR505AW58M 037935	DR513V58 038143	DR606L5M 080186 OBSOLETE
Item	Q Y							
No.	Red'c	Req'd Description						
M3	1	Key Motor Shaft		510629	510629	510629	510629	510629
B1	4	Screw, Flange		120162	120162	120162	120162	120255
B2	9	Screw, Manifold		155130	155130 See Next Page	155130	(10 pcs) 120214	155477
B3	2	Flange		510962	510354	510354	510354	511480
B4	1	Housing		517002	See Next Page	517419	516552	529790
B5	4	Screw, Hsg /Motor		155128	See Next Page	155128	251791	251791
B6	9	Muffler Material		517015	See Next Page	515743	(4 pcs) 516560	529781
B7	1	Manifold Plate		517008	515744	517458	529868	511284
B8	*	Shim .002"		510356	510356	510356	510356	510356
	*	Shim .005"		510357	510357	510357	510357	510357
	*	Shim .010"		510358	510358		510358	510358
	*			510359	510359	510359	510359	510359
	*	Shim .030"		Not Used	Not Used	Not Used	Not Used	Not Used
B3	1	Impeller		516987	See Next Page	517433	516557	511272
B10	7	Bolt, Impeller		120214	120214	120214	120325	120325
B11	-	Lockwasher, Impeller		120203	120203	120203	120203	120203
B12		Washer, Impeller		Not Used	Not Used	Not Used	Not Used	Not Used
B13	1	Cover		516990	516990 See Next Page	517431	516559	511274
B14	9	Screw, Cover		155129 See	See Next Page	155236	(8 pcs) 120255 ((4 pcs) 155236
B16	_	Spacer, Impeller Bolt		510355	510355	510355	510355	510355
B17	4	Lockwasher, Housing			251787	251787	251787	251787
B18	_	Screen, Muffler Retaining,	etaining, Right (**)	517016	See Next Page	517435	511718	529782
	~	Screen, Muffler Retaining	Retaining, Left (**)	517016	See Next Page	517435	511718	529782
B19		Bolt, Muffler Hsg/Hsg		Not Used	Not Used	Not Used	Not Used	Not Used
B20		Muffler Housing		Not Used	Not Used	Not Used	Not Used	Not Used
		Bolt, Motor/Muffler		Not Used	Not Used	Not Used	Not Used	Not Used
		Lockwasher, Motor/Muffler	_	Not Used	Not Used	Not Used	Not Used	Not Used
		Washer, Motor/Muffler		Not Used	Not Used	Not Used	Not Used	Not Used
		Spacer, Motor/Muffler		Not Used	Not Used	Not Used	Not Used	Not Used

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

						Bearing,
	Part #	Motor	Wiring Diagram (see note 1)	Specific Parts	Bearing, Rear, (M1)	Impeller End (M2)
	037778	528783	E,Z			
				B2=155477		
				B4=515/3/ B5-251791		
				B9=515675		
	037779	551265	E,Z	B13=551065		
				B14=155236		
				B18=510362		
				B6=(4 pcs)		
				515743		
				B2=155129		
				B4=551001	Call Factory	Call Factory
				B5=155128		
				B9=551067		
	300000	EE10GE	L 7	B13=551065		
	000400	007100	7,5	B14=155129		
				B18=551087		
				B6=(4 pcs)		
				515743 + (2		
				pcs) 551006		
	037935	528785	E,Z			
	038143	551265	E,Z			
	080186	550745	E,Z			
	080605	550745	E,Z			
	080603	511307	see mtr			
moto	Note 1: If motor is Baldor brand Motor use wiring diagram Z	g diagram Z				

DR656L5M 080605

510629 120255 120255 120255 511480 511480 550195 251791 (10 pcs) 551585 510356 510358 510358 510358 510358 120203 Not Used 550249 (8 pcs) 155236 510355 510355 510355 520249 (8 pcs) 155236 510355 51787	S17436 Not Used
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