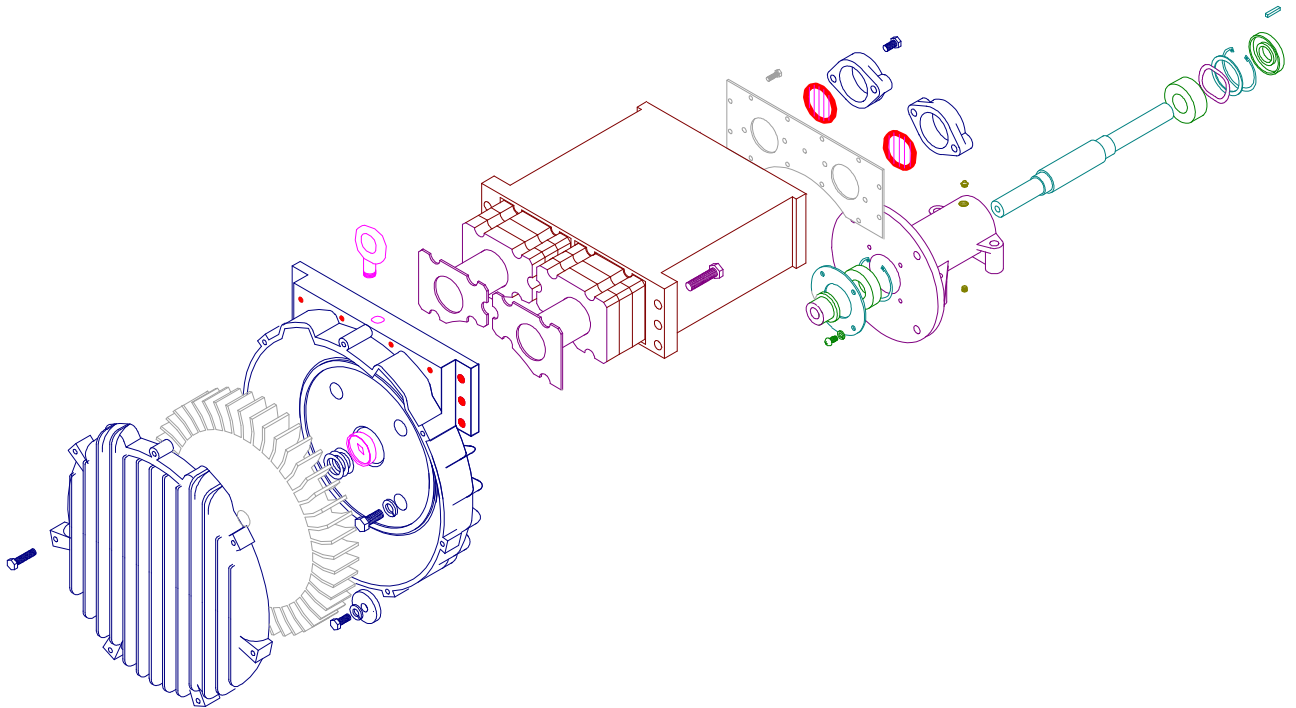


SERVICE AND PARTS MANUAL FOR BLOWER MODEL

DR523RD – DR858RD

REMOTE DRIVE REGENERATIVE BLOWER



AMETEK Dynamic Fluid Solutions
100 East Erie St., Kent, Ohio 44240
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AMETEK

Your Choice. Our Commitment.™

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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.

- 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** - Blowlers must be wired and protected/fused in accordance with local and national electrical codes. All blowlers 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) Blowlers - 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

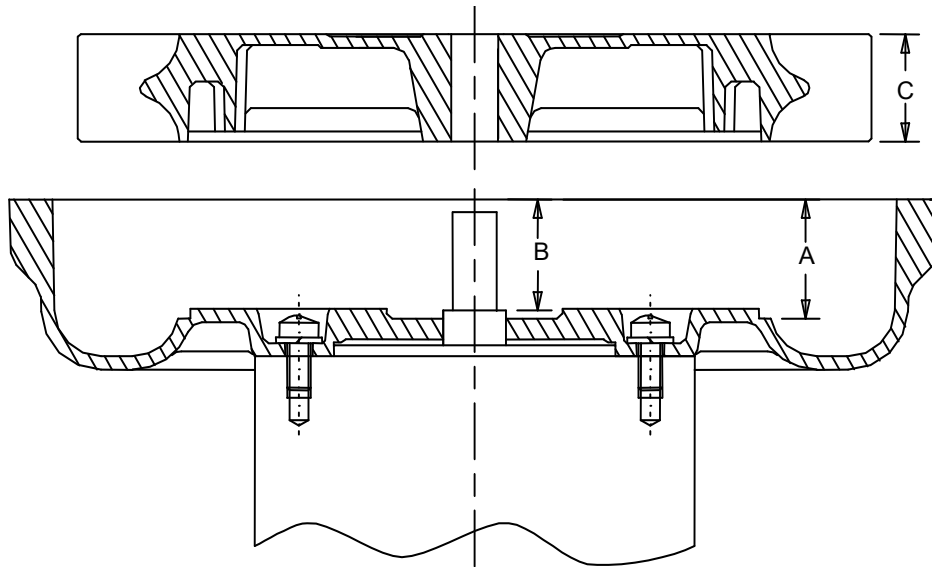
Measure the Following:

- 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.



**Remote Drive 523/6/707/858
Service and Parts Manual**

Model:

Part No.:

Parts Breakdown

DR523RD	DR6RD	DR707RDM	DR858RD
038199	038209	038715	038747
037223	036185	036915	036413
OBSOLETE	OBSOLETE	OBSOLETE	

Item No.	Qty.	Req'd	Description				
1	4		Screw, Flange	120162	See Next Page	See Next Page	
2	24		Screw, Manifold	(10 pcs) 120214	Not Used	See Next Page	See Next Page
3	2		Flange	510354	478341	See Next Page	511614
4	1		Manifold	529868	Not Used	See Next Page	See Next Page
5	2		Screen Guard	Not Used	511479	See Next Page	Not Used
6	4		Muffler Material	Not used	Not Used	See Next Page	See Next Page
	1		Screen, Muffler Retaining, Right (**)	Not Used	Not Used	Not Used	See Next Page
	1		Screen, Muffler Retaining, Left (**)	Not Used	Not Used	Not Used	See Next Page
	2		Muffler Wrap	Not Used	Not Used	Not Used	See Next Page
7	1		Eyebolt	Not Used	Not Used	Not Used	140019
8	6		Screw, Muffler Hsg/Hsg	Not Used	Not Used	See Next Page	See Next Page
8A	4		Screw, Muffler Hsg/Hsg	Not Used	Not Used	See Next Page	See Next Page
10	1		Impeller	(2 pcs) 516562	515484	515461	515249
10B	1		Center Annulus	516555	Not Used	Not Used	Not Used
11	1		Housing	See Next Page	515497	See Next Page	See Next Page
11B	1		Muffler Housing	Not Used	Not Used	See Next Page	See Next Page
12	1		Cover	516559	515488	515462	515247
13	8		Screw, Cover	155098	155170	(7 pcs) 155236	140016
14	*		Shim .002"	510292	272703	272703	511547
	*		Shim .005"	500664	272704	272704	511548
	*		Shim .010"	500665	272705	272705	511549
	*		Shim .020"	500666	272706	272706	511550
	*		Shim .025"	500667	Not Used	Not Used	Not Used
15	1		Key, Shaft Inboard	155099	510212	510212	511532
16	1		Washer Flat Impeller	510355	478336	478336	511529
17	1		Lockwasher Impeller	120203	251787	251787	251788
18	1		Bolt, Impeller	120214	251791	251791	120210
			Spacer, Shaft/Impeller	Not Used	Not Used	Not Used	515555
19	1		Seal, Shaft/Arbor	511446	510282	510282	510952
	1		Retainer Seal	511440	Not Used	Not Used	Not Used
20	4		Screw, Hsg/Arbor	251791	251792	251792	155034

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

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Part No.:

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DR523RD	DR6RD	DR707RDM	DR858RD
038199	038209	038715	038747
037223	036185	036915	036413
OBSOLETE	OBSOLETE	OBSOLETE	

Item No.	Qty.	Req'd	Description	Item No.	Item Part No.	
21	4		Lockwasher, Hsg/Arbor	Not Used	251788	Not Used
22	1		Plate, Bearing Retainer	511442	510287	510953
23	1		Bearing Outboard	511445	529192	510960
24	1		Bearing, Impeller End	510217	510218	510219
25	1		Shaft	516591	510284	511871
26	2		Ring Retainer	140004	120202	120305
27	1		Washer, Wave Spring	120247	120201	120304
28			Washer	Not Used	Not Used	510957
29	1		Arbor	511434	510286	510951
30	4		Screw, Plate	251207	120204	120204
31	4		Lockwasher, Plate	140009	120203	120203
32	1		Lip Seal, Shaft/Hsg	516691	Not Used	Not Used
33	1		Key, Shaft Outboard	511443	510289	510963
34			Lube Fitting	Not Used	Not Used	Not Used
35			Pipe Plug	Not Used	Not Used	Not Used
36			Heat Slinger Assembly	Not Used	Not Used	Not Used
38	1		Sleeve, Bearing Retainer	516599	550169	511870
	2		Muffler Discrete	Not Used	Not Used	Not Used

Special Parts Model	Model Part No.	Item No.	Item Part No.
DR858RD	038747	1 2 4 6 8 8A 11 11B	(7 pcs) 551736 (2 pcs) 551737 (2 pcs) 551723 550020 (32 pcs), 515407 (1 pc), 515408 (1 pc), 550075 (2 pcs) 155025 (6 pcs) 120214 (4 pcs) 515410 (1 pc)
DR858RD	036413	1	155025 (4 pcs)

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

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Model:

Part No.:

Parts Breakdown

DR523RD	DR6RD	DR707RDM	DR858RD
038199	038209	038715	038747
037223	036185	036915	036413
OBSOLETE	OBSOLETE	OBSOLETE	

Item No.	Qty.	Req'd	Description
	2 4 & 4A 6 8 8A 11 11B		120325 (17 pcs) 523432 (1 pc) & (1pc) 515252 Not Used Not Used Not Used 515243 Not Used
	2 3 4 5 6 8 8A 11 11B		Not Used 511614 (1 pc) Not Used Not Used 550030 (36 pcs), 550027 (2 pc), 550025 (1 pc), 550075 (2 pcs) 120251 (6 pcs) 120325 (4 pcs) 515495 (1 pc) 550024 (1 pc)
DR707RD	1 2 3 4 5 6 8 8A 11 11B	036915	155095 (4 pcs) 251790 (13 pcs) 478341 (2 pcs) 551264 (1pc) 511479 (2 pcs) Not Used Not Used Not Used 515452 (1 pc) Not Used
DR523RD	6 11	038199	516560 (4 pcs), 511718 (2 pcs) 5288810 (1 pc)
DR523RDNT	6	037223	Not Used

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

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Model:

Part No.:

Parts Breakdown

DR523RD	DR6RD	DR707RDM	DR858RD
038199	038209	038715	038747
037223	036185	036915	036413
OBSOLETE	OBSOLETE	OBSOLETE	

Item No.	Qty. Req'd	Description
	11	516609 (1 pc)