



City of Rochester

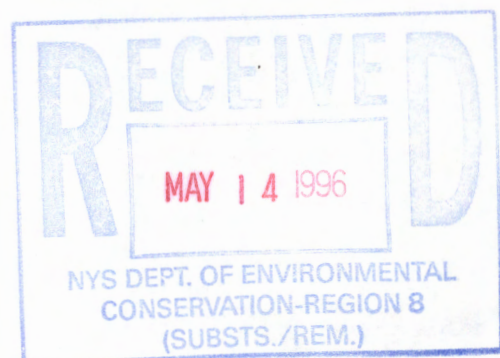
FAX (716) 428-6010
TDD/Voice 232-3260

Department of
Environmental Services

Office of the Commissioner
Division of Environmental Quality
30 Church Street, Rm. 300B
Rochester, New York 14614-1278
Tel.#: (716) 428-6011

May 10, 1996

Todd Caffoe, P.E.
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414



Re: Court Street Parking Garage - Air Emissions Permit Application

Dear Todd:

As you requested in your April 24, 1996 letter, I am providing a revised air emissions permit application for the vent system at the Court Street Parking Garage. We previously had submitted an application with errors in the calculated Short-Term and Annual Impacts. The attached application reflects the corrections that we have discussed. If you would like the emissions rate calculations please give me a call. I am also enclosing the operations and maintenance manual prepared by the contractor that installed the system. This manual is being provided to Marcor of New York for use in its development of an overall operations and maintenance manual which will, as requested in your April 26, letter, include inspections frequencies, sampling frequencies, reporting frequencies, inspection forms, and reporting of equipment malfunctions. We will base the O&M manual on the existing manual for the 911 site system.

Please feel free to contact me at 428-5978 if you have any questions. Thank you for your cooperation and responsiveness on this project.

Sincerely,

Mark D. Gregor, CHMM
Manager, Environmental Quality Division

Enclosure

c: R. Elliott, MCDOH w/enc
D. Napier, NYSDOH w/enc
James Hazel, NYSDEC w/enc
E. Doherty
J. Brennan w/enc
S. Hauser
P. Comerford
A. Klumpp
K. Kohrt, Marcor w/enc

EEO Employer/Handicapped



NON PETROLEUM
 Spill Cleanup/Remediation Air Emission Permit Application
 New York State Department of Environmental Conservation
 Region 8, 6274 E. Avon-Lima Rd., Avon, NY 14414
 5/14/93 DEW

Source: Air Stripper Soil Vent Other (specify) _____

Facility Name: COURT STREET PARKING GARAGE

Facility Address: 194 COURT ST
ROCHESTER, NY

ENVIRONMENTAL QUALITY
 MAILING: 30 CHURCH ST. ROOM 3001
 ROCHESTER, NY 14614

Startup Date JUNE 1, 1996 Shutdown Date NOT YET DETERMINED

Stack Height: 81.78 FT
 Stack Exit Inside Dimensions: 0.16 FT
 Stack Exit Temperature: 100 F
 Stack Exit Flow Rate: 40 CFM

Contaminant Name	CAS #	Emission Rate Potential (lbs/hr)	Percent Control	Actual Emissions (lbs/hr)
Trichloroethene	79-01-06	7.2×10^{-5}	0	7.2×10^{-5}
Tetrachloroethene	127-18-04	3.7×10^{-4}	0	3.7×10^{-4}
Benzene	71-43-02	7.65×10^{-3}	0	7.65×10^{-3}
Toluene	108-88-03	2.40×10^{-3}	0	2.40×10^{-3}
Xylene (o,m,p)	1330-20-07	1.0×10^{-2}	0	1.0×10^{-2}
Ethylbenzene	100-41-04	6.64×10^{-4}	0	6.64×10^{-4}

Use Air Guide 1 (Draft 1991* Edition) screening equations on p. B-9 to estimate ambient impact. Compare impact estimate to AGC and SGC from tables in the back of Air Guide 1. See Air Guide 1, p. 8-9 for compounds not listed. Impact levels must be below guideline concentrations if air pollution control is not used. * Impacts calculated using 1994 edition equations on p. B-1

CAS #	Short Term Impact (ug/m3)	SGC (ug/m3)	Annual Impact (ug/m3)	AGC (ug/m3)
79-01-06	1.22×10^{-2}	$3.3 \times 10^{+4}$	1.88×10^{-4}	4.5×10^{-1}
127-18-04	6.28×10^{-2}	$8.1 \times 10^{+4}$	9.66×10^{-4}	7.5×10^{-2}
71-43-02	1.3	30	2.00×10^{-2}	1.2×10^{-1}
108-88-03	4.07×10^{-1}	$8.9 \times 10^{+4}$	6.26×10^{-3}	$2.0 \times 10^{+3}$
1330-20-07	1.7	1×10^5	2.61×10^{-2}	3×10^2
100-41-04	1.13×10^{-1}	1×10^5	1.73×10^{-3}	1.0×10^3

Air Pollution Control Equipment:

- Not Needed Based on Analysis of Design Conditions
- Not Needed Based on Analysis of Operating Conditions
- Described Below

Air Pollution Control Type:

- None
- Activated Bed Adsorber
- Other, Explain: _____
- Thermal Afterburner
- Catalytic Unit

Manufacturers's Name: _____
 Model Number: _____

Disposal of Collected Contaminants:

- Landfill Off-Site
- Recycled in the Process
- Recycled On-Site
- Other, Explain: _____

Frequency of stack emission monitoring/testing PROPOSED QUARTERLY EXCEPT MONTHLY DURING FIRST QTR
 Monitoring/testing method NIOSH TO-14 MODIFIED FOR SUMMA CANISTER

Name of DEC Spill/Remediation Project Manager TODD CAFFOE, P.E.
 Phone # (716) 226-2466

This is not a permit until signed and dated by the Division of Regulatory Affairs below. All specifications and limits stated above and contained in any attached materials submitted with this application will become binding and enforceable conditions of the permit.

I certify this system will be operated in accordance with the specifications stated above and in compliance with all existing laws, rules and regulations.

Mark DeGuzor
 Signature of Responsible Party

Manager, Envir. Quality Division
 Title

May 10, 1996
 Date

Signature: _____
 Division of Air Resources

Date: _____

Signature: _____
 Division of Regulatory Affairs

Date: _____

cc: DEC Project Manager

Rec'd 4/25/96

New York State Department of Environmental Conservation

Region 8 Office - Division of Hazardous Waste Remediation
6274 East Avon-Lima Road
Avon, New York 14414-9519

Telephone: (716) 226-2466

April 24, 1996

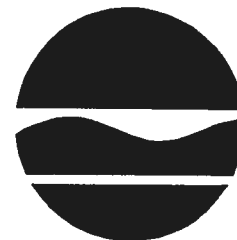
Mr. Mark Gregor
City of Rochester
Department of Environmental Services
30 Church Street - Room 300B
Rochester, New York 14614-1278

Dear Mr. Gregor:

**RE: Interim Remedial Measure (IRM) Report
Court Street Parking Garage Site (February 1996)**

The New York State Department of Environmental Conservation (the Department), the New York State Department of Health (NYSDOH), and the Monroe County Health Department (MCHD) have reviewed the referenced document. We have the following comments:

1. Page 2-7 - Was the dense phase liquid bubble analyzed for any other compounds besides perchloroethylene (PCE)?
2. Pages E-5 and 2-30 - It should be noted in the text that "form oil" was being liberally sprayed on the concrete forms in this area.
3. It was difficult to get an accurate summary of the confirmatory sample results. It would be less confusing if all of the verification samples were on one figure. Samples which exceeded the spill technology and remediation series (STARS) Memo #1 criteria should have the sample results posted on the figure with a notation why they were left in place (i.e. proximity to building).
4. Please include "as-built" drawings for the soil vapor extraction (SVE) system and update the text of Section 3 to reflect that the system is installed.
5. Please provide a revised remediation air emission permit application for the SVE system with an original signature.
6. Operation & Maintenance - Please include an operations & maintenance plan for the SVE system. At a minimum, the plan should include inspection frequencies, sampling frequencies, reporting frequencies, inspection forms, and reporting of equipment malfunctions.



Michael D. Zagata
Commissioner

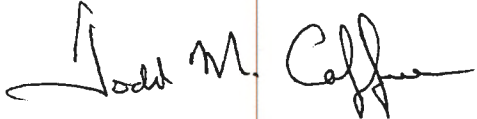
Renée Forgensi Davison
Regional Director

Mr. Mark Gregor
April 24, 1996
Page 2

7. Conclusions - Not all of the contaminated soils are being addressed by the SVE system. Data from Bausch & Lomb (B&L) suggest there is residual contamination beneath the winter garden portion of the B&L building. At a minimum, a groundwater investigation should be conducted to determine if there is a contaminant plume.

Please provide a written response by *May 31, 1996*. Thank you for all of your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "Todd M. Caffoe". The signature is fluid and cursive, with a long horizontal stroke at the end.

Todd M. Caffoe, P.E.
Environmental Engineer II
Division of Hazardous
Waste Remediation

cc: M.J. Peachey
J. Ryan
D. Napier
R. Elliott

LMC Industrial Contractors, Inc.

2060 LAKEVILLE ROAD • AVON, NEW YORK 14414

TEL # 716-226-6244 • FAX # 226-3317

COURT STREET PARKING GARAGE ODOR REMEDIATION TRAINING AND START-UP

Attendees:

Dean Flynn	LMC Industrial Contractors, Inc.
Steve Feuerstein	City of Rochester
Bob Yarger	Marcor
Mark Gregor	City of Rochester
Anne Klumpp	City of Rochester
Bill Gibson	Tri-Line Corp.

Absent:

Pete von Schondorf	Camp, Dresser, McGee
--------------------	----------------------

1. Bill Gibson explained operation and efficiencies of blower.
2. Bill noted that moisture separator should be checked every six (6) months for liquid level.
3. System was started up and allowed to run for approximately 15 minutes.
4. Bob, from Marcor, suggested to install a 1/4" opening on inlet tee to blower LMC will install.
5. Bob also recommended installing a sample port on discharge side of blower.
6. System will be put in to permanent operation upon D.E.C. approval.
7. Bill will provide LMC with three (3) copies of O & M data to be installed in manuals to be provided by LMC.

Prepared by: Dean Flynn (Dean Flynn)

XC: All Attendees
doc
odorrem dean



LMC INDUSTRIAL CONTRACTORS, INC.
2060 LAKEVILLE ROAD
AVON, NEW YORK 14414

PHONE: (716) 226-6244/ FAX: (716) 226-3317

NOTICE OF START-UP

DATE: 11/7/95
TO: STEVE FEUERSTEIN
FROM: DEAN FLYNN
PROJECT REFERENCE: COURT ST PARKING GARAGE

The following mechanical equipment and/or systems have been installed, checked and tested:

ODOR REMEDIATION SYSTEM

This equipment will be put into beneficial operation beginning 11/7/95

Our guarantee period for this equipment will also begin on this date.

TRAINING PERFORMED: 11/7/95

ATTENDEES:

<u>Bill Johnson</u>	<u>Tri-Line Corp</u>	<u>716-894-2740</u>
<u>Bob Yager</u>	<u>MORRIS ENV-</u>	<u>716-287-6955</u>
<u>Andy Duggan</u>	<u>City of Rochester</u>	<u>428-7474</u>
<u>Mark Joyce</u>	<u>City of Rochester</u>	<u>428-5978</u>
<u>Steve Feuerstein</u>	<u>City of Rochester</u>	<u>262-3754</u>

Dean H Flynn
LMC INDUSTRIAL CONTRACTORS, INC.

CUSTOMER REPRESENTATIVE

ODOR REMEDICATION SYSTEM

OPERATION AND MAINTENANCE MANUAL

LMC INDUSTRIAL CONTRACTORS, INC.

COURT STREET PARKING GARAGE

ODOR REMEDIATION TRAINING AND START-UP

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Bob Yarger	Marcor
Mark Gregor	City of Rochester
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Bill Gibson	Tri-Line Corp.

Absent:

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Prepared by: Dean Flynn (Dean Flynn)

XC: All Attendees

doc

odorrem dean



LMC INDUSTRIAL CONTRACTORS, INC.
2060 LAKEVILLE ROAD
AVON, NEW YORK 14414

PHONE: (716) 226-6244/ FAX: (716) 226-3317

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ATTENDEES:

<u>Bill Nelson</u>	<u>Tri-Line Coys</u>	<u>716-894-2740</u>
<u>Bob Yager</u>	<u>MARCOR ENV-</u>	<u>716-247-6955</u>
<u>Walter Duggan</u>	<u>City of Rochester</u>	<u>428-7474</u>
<u>Mark Lopez</u>	<u>City of Roch</u>	<u>428-5978</u>
<u>Steve Feuerstein</u>	<u>City of Roch</u>	<u>262-3754</u>

Dean H. Flynn
LMC INDUSTRIAL CONTRACTORS, INC.

CUSTOMER REPRESENTATIVE

2-1/2"-6" Safe Block™ True Union Ball Valves

Hayward 2-1/2" through 6" Safe Block True Union Ball Valves are rated to 225 psi. They provide quick quarter turn shut off and eliminate the need for unions.

Hayward True Union Valves are safe blocked in all sizes and materials. Large size Hayward safe blocked valves feature O-ring backed, reversible teflon seats. This provides a low running and seating torque which extends the cycle life of the valve. Furthermore, should the seats ever become scratched or scored, simply unscrew the seal retainer and reverse the teflon seats for twice the service life. The valve has a highly visible OSHA orange handle that also serves as a special tool used to adjust the seal retainer when compensating for seat wear.

Hayward Safe Block Ball Valves are often used in applications where the fluids being conveyed are highly corrosive and run the full range of the PH scale. Hayward large sized ball valves afford twice the protection against fugitive emissions. A double O-ring stem seal provides a double barrier, preventing chemical seepage through the valve stem.

For added safety, the safe block seal retainer features a left hand thread. The union nut can be disassembled without risk to the seating torque on the ball, or the seating position of the seal retainer. Hayward large size ball valves can be actuated while in service. A unique actuation adaptor kit permits perfect alignment and proper support of Hayward pneumatic and electric actuators.

Hayward 2-1/2" through 4" safe block ball valves are a full port design, while the 6" is venturied from a 4" valve. They are made from NSF approved material and are available in PVC, CPVC, and Polypropylene with Viton or EPDM O-rings.

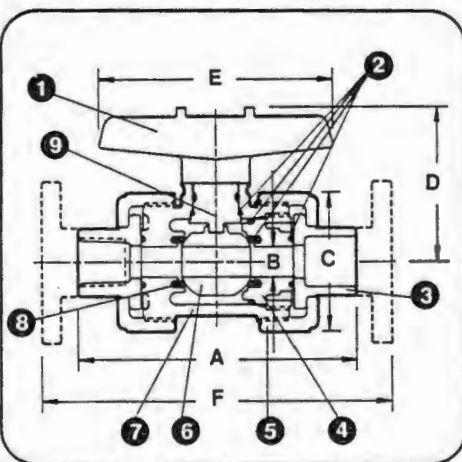


Features

- 225 psi rated
- Safe Block design
- Internals can be inspected and serviced
- Threaded seal retainer to adjust for seat wear
- Reversible Teflon seats doubles the life of the valve
- Full Port design for greater Cv values
- O-ring backed Teflon seats for low running and seating torque
- Double O-ring stem seals for added sealing against chemical and abrasive attack
- OSHA orange handle designed as adjustable tool
- Simple maintenance performed with no special tools

Options

- 2" Square Operating Nuts
- Valve Safe Lock Outs
- Electric & Pneumatic Actuators



2-1/2"-6" Safe Block True Union Ball Valves Parts List

- 1 Handle
- 2 O-Ring Seals
- 3 End Connector
- 4 Seal Retainer
- 5 Union Nut
- 6 Ball
- 7 Body
- 8 Teflon Seat
- 9 Stem

Dimensions

Size	A	B	C	D	E	F	Weight in lbs.	
							Soc/Thd	Flanged
2-1/2"	10.56	3.00	6.40	5.50	10.50	14.38	11.00	15.00
3"	10.56	3.00	6.40	5.50	10.50	14.44	10.50	14.50
4"	12.94	4.00	7.56	6.50	10.50	17.13	17.60	24.80
6"	-	4.00	7.56	6.50	10.50	19.19	-	30.75

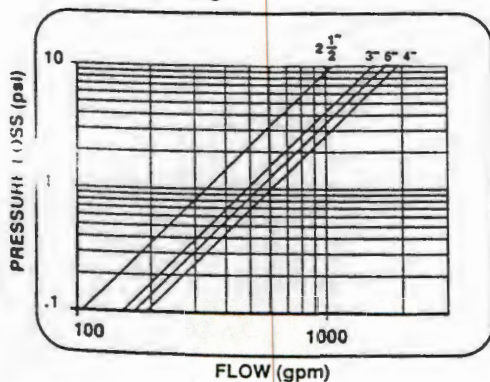
Dimensions are in inches. For reference only.

Selection Chart

Size	Material	End Connection	Seals	Pressure Rating
2-1/2"-4"	PVC	Socket, Threaded or Flanged	Viton	225 psi @ 70° F non shock
	CPVC		EPDM	
6"	PVC	Flanged	Viton or EPDM	
2-1/2"-4"	PPL	Threaded or Flanged	Viton	

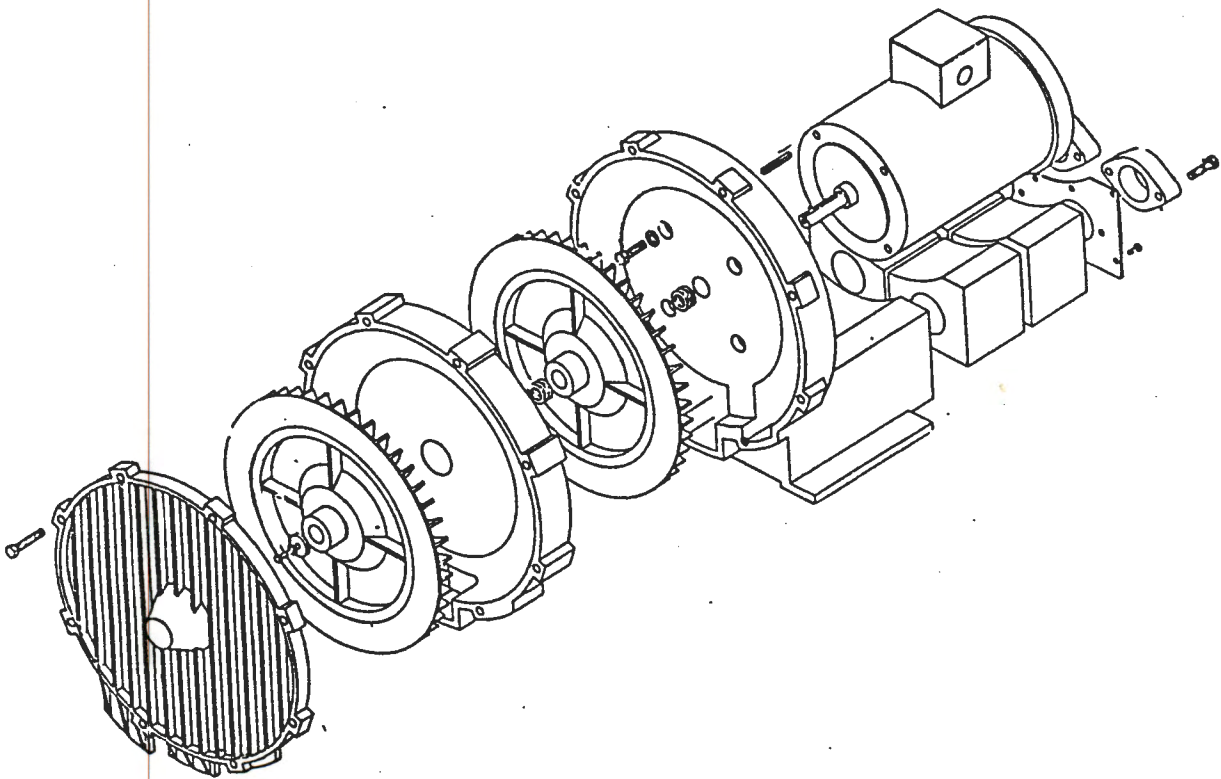
Engineering Specifications

All True Union Ball Valves 2-1/2" through 6" shall be PVC (Polyvinyl Chloride), CPVC (Chlorinated Polyvinyl Chloride) or Polypropylene with (Socket, Threaded, or Flanged) end connections. Seals shall be (Viton or EPDM) with Teflon seats. Valves 2-1/2" through 4" valve shall be a full port design, 6" shall be venturied from a 4" valve. The valves shall have reversible, O-ring backed Teflon seats, be safe blocked, adjustable for seat wear, and serviceable by removal of the seal retainer. The stems shall have double O-ring seals for added safety. For future automation, the valves shall be adaptable for field mountable actuation. As manufactured by Hayward Industrial Products, Inc.



TRI-LINE CORP.
885 Fairport Office Centre
Fairport, New York 14450
Tel: (716) 377-3370
Fax: (716) 377-7314

**SERVICE AND PARTS MANUAL
FOR BLOWER MODEL
EN523**



**ROTRON INCORPORATED
INDUSTRIAL DIVISION
NORTH STREET
SAUGERTIES, NY 12477
TEL. (914) 246-3401**

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Warranty Information

1. **No-Fault Policy** - EG&G Rotron regenerative direct drive blowers are guaranteed up to one full year from the date of purchase to the original purchaser only. Should the blower fail, regardless of the cause of failure, we will at our option repair or replace the blower.
2. **Standard Policy** - EG&G Rotron remote drives, Nasty GasTM models and special built (EO) products are guaranteed up to one full year from date of purchase for workmanship and material defect to the original purchaser only. Should the blower fail, we will evaluate the failure. If determined to be workmanship or material defect, we will at our option repair or replace the blower.
3. **Modified Policy** - EG&G Rotron packaged units, Vacu-Master models and moisture separators are guaranteed up to one full year from date of purchase for workmanship and material defect to the original purchaser only on all parts excluding maintenance/wear items such as belts and bags. Should the blower fail, we will evaluate the failure. If determined to be workmanship or material defect, we will at our option repair or replace the blower.
4. **Parts Policy** - EG&G Rotron spare parts and accessories are guaranteed up to three months from date of purchase for workmanship and material defect to the original purchaser only. Should the part fail, 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. If the failure is determined to be a defect in material or workmanship, Rotron will institute a corrective action. Subsequent customer failures due to abuse, misuse, misapplication or repeat offense will not be covered. EG&G 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, 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. Maximum liability will in no case exceed the value of the product purchased. Other terms and conditions of sale are stated on the back of the order acknowledgment.

INSTALLATION

1. **BOLT IT DOWN** - Any unit must be secured against movement prior to start up or testing to prevent injury or damage.
2. **WIRING** - Blowers must be wired and protected/fused in accordance with local and national electrical codes. All integral motor blowers must be grounded to prevent electrical shock. Wire motors per motor manufacturer's nameplate or consult wiring diagram (Appendix 1).
3. ***PIPING** - All blowers, except SL series, should be piped, muffled and/or filtered prior to start up. Care must be taken so that no foreign material enters the blower. If foreign material does enter the blower it could cause impeller imbalance or it may exit at extremely high velocities.
4. **SUPPORT THE PIPING** - The blower flanges and nozzles are designed as connection points only and are not designed as support members.
5. **EXCESS AIR** - Bleed it off. DO NOT throttle to reduce flow. When bleeding off excess air the blower draws less power and runs cooler.
6. **PRESSURE/SUCTION MAXIMUMS** - The maximum pressure and/or suction as listed on the model decal should not be exceeded. A pressure/vacuum relief valve should be used if these maximums could be exceeded. Do not exceed "max blower amps" as per Rotron nameplate.
7. **START-UP** - Jog power to determine impeller rotation. If rotation is incorrect, rewire per motor nameplate.
8. **REMOTE DRIVE (MOTORLESS) BLOWERS** - Properly designed and installed guards should be used on all belts, pulleys, couplings, etc. Due to the range of uses and drives, guards are the responsibility of the customer/user.

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

MAINTENANCE

No lubrication is required because all units incorporate sealed bearings. Bearing life is approximately 15,000 hours. Replace bearings as needed.

Avoid passing solids or liquids through blower. Use an appropriate filter and/or moisture trap.

Should excessive amounts of material pass through the blower, it is suggested that the cover and impeller be removed periodically and cleaned to avoid impeller imbalance. Impeller imbalance greatly speeds bearing wear, thus reducing blower life.

Preventative Maintenance

Air Filtration

By design EG&G Rotron blowers are able to ingest small quantities of particles without damage. Continuous ingestion of solids will damage or cause impeller imbalance. Inline or inlet filters are highly recommended for all blower applications, especially those in which the purity of the air stream is essential (i.e. plating tanks). Remember, what goes in must come out!

Air supplied by EG&G Rotron blowers is oil free so there is no need for outlet filters. Our inlet filters are rated at 99% efficiency to 10 microns. The filter element is a polyester cloth and is cleanable and replaceable.

Filters with different efficiencies and element materials are available on request. Please see our catalog for filter selection.

Free liquid should not be pumped continuously through the blower. Drop outs or cyclone separators must be placed inline before the blower inlet to intercept entrained liquid.

Flow Controls

Regenerative blowers should not be throttled. These blowers draw more current and run hotter when throttled. Severe motor damage can be incurred by throttling. Instead of throttling, bleed air off. Use an amp meter to monitor running current, as bleed off is adjusted. When running amps are under maximum blower amps (as listed on blower nameplate), then bleed off is correct. Relief valves with adjustable set points can also be used. EG&G Rotron offers a line of pressure and vacuum relief valves. (Please see the master catalog accessory section.)

For applications where gas bleed in/off is not possible, recirculation loops are utilized.

TROUBLESHOOTING

The three most common signs of blower malfunction are:

- 1) excessive noise
- 2) high current draw, and/or
- 3) excessive heat build-up:

1. Excessive Noise

<u>Possible Causes</u>	<u>Solutions</u>
Buildup of ingested material on impeller and housing.	Remove cover. Clean impeller and housing.
Worn bearings.	Replace bearings per specifications. Use only recommended grease.
Impeller interference (impeller hits) due to overheating, which causes metal creep.	Reduce operating point to recommended level. Replace impeller and housing if badly scored.

2. High Current Draw

<u>Possible Causes</u>	<u>Solutions</u>
Damaged or collapsed bearings.	Replace bearings.
Blower operating above rated pressure/vacuum.	Reduce operating point (bleed air, recirculate gas).
Low line voltage, brown out.	Turn off blower until correct voltage is restored.

3. Excessive Heat Buildup

(Same as above section)

Regenerative blowers, especially those in the higher HP ranges, add considerable heat energy to the air stream. It is possible to have a 100° Celcius (212° Fahrenheit) temperature rise above ambient. These temperatures may preclude use of PVC, CPVC or other plastic pipe. If the design point is known, then use of Rotron charts will yield the approximate air temperature rise to be expected (see catalog).

GENERAL DISASSEMBLY

Refer to assembly diagram (Appendix 2) for referenced part designations.

CAUTION: Be sure power is disconnected before doing any work on units.

General Disassembly and Reassembly

1. Be sure not to damage winding heads during servicing.
2. Keep all parts clean.
3. Do not over-tighten bolts and screws.
4. Always furnish model number and part number when ordering spare parts.
5. Refer to exploded views in Appendix 2 for exact blower construction.

Blower/Disassembly

1. Disconnect power leads.
2. Remove or separate piping and/or mufflers from unit.
3. Remove cover bolts (B14) and then cover (B13).
4. Remove impeller bolt (B10) and washers and then remove impeller.

Note: Never pry on the edges of the impeller. Use puller, if necessary.

5. Carefully note number and location of shims (B8). Remove and set aside.

NOTE: If disassembly was for inspection or cleaning purposes, unit may now be reassembled by reversing the above steps. If further disassembly is required (for example, for bearing replacement), the shim order may not be re-used. It will be necessary to re-shim according to the procedure shown under Assembly.

6. Remove housing bolts (B5) and remove motor assembly.

BEARING SELECTION

- All bearings used in EG&G Rotron blowers are of the double sealed variety. In addition, high temperature greases are used to prevent loss of lubrication under severe operating conditions. Select the appropriate bearings by referencing the parts list if ordering from EG&G Rotron or the parts list then selection chart (Appendix 3) when ordering from bearing supply houses.

BEARING REMOVAL

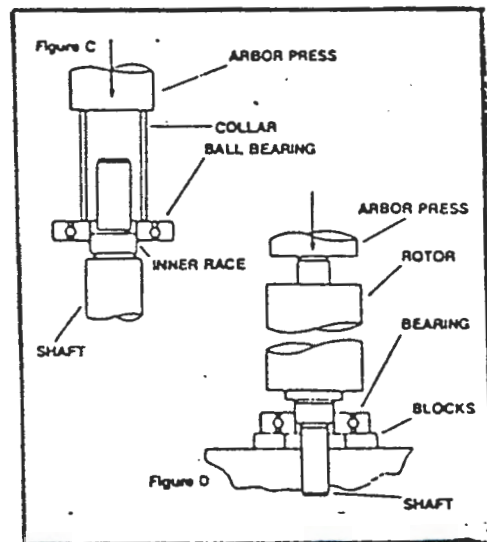
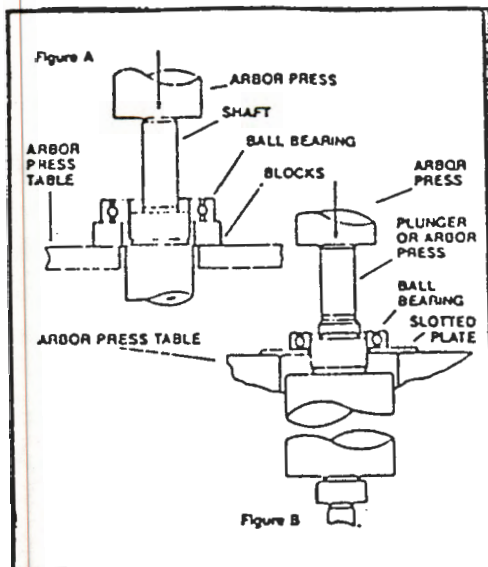
- Figures A and B show recommended methods for removing ball bearings from the motor shaft. The precautions specified for mounting bearings apply equally to the removal. Ball bearings which have been removed from the shaft should never be reinstalled. Precautions apply mainly to scoring of the shaft bearing seat when removing old bearings.

BEARING INSTALLATION

- As shown, an arbor press should be used for mounting ball bearings. The outer race of the bearing should never be subjected to the full mounting force of the arbor press, as this will cause a heavy thrust load to be applied to the balls and races before they are seated and may seriously damage or brinell the bearing. The full force of the arbor press should not be applied until it has been ascertained that the bearing is started straight and not cocked.

Figures C and D show recommended methods for mounting ball bearings on the motor shaft. The "collar" method (Figure C) shows arbor press force applied to the inner race only of the ball bearing. The "mounting block" method (Figure D) shows force evenly applied to both bearing races (inner and outer).

Use of bearing pullers is also an acceptable method of removing bearings. Be sure that bearing shims are replaced in the same quantity and order as removed.



BLOWER/REASSEMBLY

1. Place assembled motor against rear of housing (B4) and fasten with bolts (B5).
2. Reshim impeller according to the procedure as outlined below.
3. Place impeller onto shaft (be sure key is in place) and fasten with bolt (B10), washer (B11 & B12) and spacer (B16) if applicable. TORQUE impeller bolt to specifications on Page 9). Once fastened spin impeller to be sure it turns freely.
4. Place cover in place and fasten with bolts (B14).
5. Reconnect power leads per motor nameplate.

IMPELLER SHIMMING PROCEDURE

Impeller Shimming and Installation Procedure

Tools Needed: Machinist's Parallel Bar
Vernier Caliper with depth measuring capability
Feeler Gauges or Depth Gauge

Goal: To center the impeller in the housing cavity.

Shimming Procedure

Measure the following: Impeller thickness
Distance from the flange face to the housing
at highest point (A).
Distance from the flange face to the motor
shaft shoulder (B).

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 used.

If (A) = (B): Subtract the impeller thickness from (A) to get the total space remaining. Halve this number to get the shim thickness required. Install shims of that amount on the motor shaft.

If (B) is greater than (A): The motor shaft shoulder is below the level of the housing. Subtract (A) from (B) and install that thickness of shimming on the shaft so that (A) = (B). Finish shimming per (A) = (B) above.

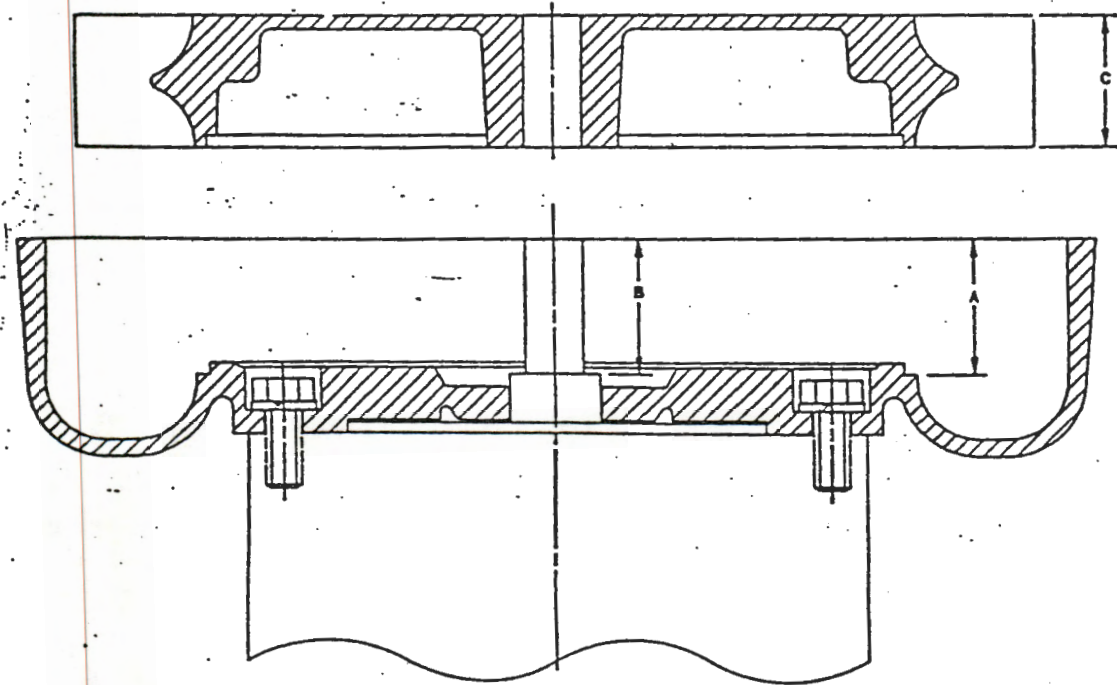
If (A) is greater than (B): The motor shoulder is above the level of the housing. Subtract (B) from (A) and make note of the difference. Proceed per (A) = (B) above EXCEPT subtract from the shimming in (A) = (B) shims equal to the difference just noted. Install the adjusted shim amount on the shaft.

Impeller Installation and Check

With the proper shimming on the motor shaft, install the impeller and impeller bolt and washer(s). Torque the impeller bolt per the following specifications:

<u>Bolt Size</u>	<u>Torque - in.-lb.</u>	<u>Torque - ft.-lb.</u>
1/4 - 20	72 +/- 3	6.0 +/- .25
5/16 - 18	126 +/- 4	10.5 +/- .25
3/8 - 16	228 +/- 6	19.0 +/- .5
1/2 - 13	588 +/- 12	49.0 +/- 1
5/8 - 11	1080 +/- 24	90.0 +/- 2

Check: As a final check, the face clearance from the impeller face to the housing flange face must be measured. This is done with the feeler gauge and parallel bar or with the depth gauge. Measurements should be made at the impeller hub outer rim (at the base of the blades). Again, measure at three points and take the average. The clearance should equal one-half of the sum of the housing depth (A) minus the impeller thickness. The centering tolerance combined with the impeller runout can vary from +/- .012 on the largest blowers.



MUFFLER REPLACEMENT*

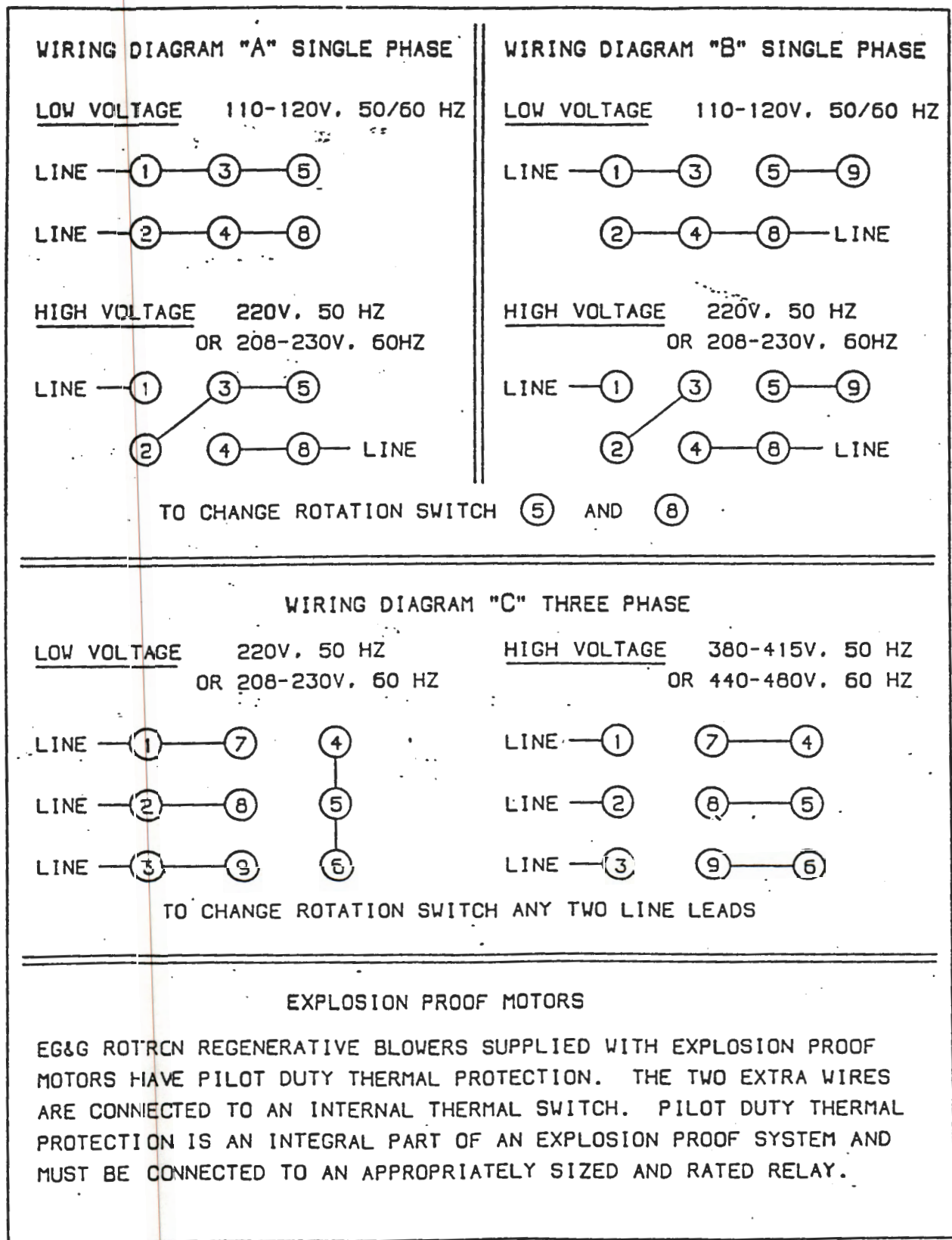
1. Remove manifold cover bolts (B2) and manifold cover (B7).
2. Muffler assembly can now be removed and replaced if necessary.
3. Reassemble by reversing Step 1 above.

***NOTE:** On DR068 models with tubular mufflers, it is necessary to disassemble blower from the impeller end to remove muffler material. Please see Disassembly/Reassembly instructions on previous pages.

APPENDIX 1: WIRING DIAGRAMS

WIRING DIAGRAMS ARE FOR STANDARD ROTRON BLOWERS.

IF THERE IS ANY DIFFERENCE, WIRING DIAGRAM ON MOTOR TAKES PRECEDENCE.



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WIRING DIAGRAMS ARE FOR STANDARD ROTRON BLOWERS.
IF THERE IS ANY DIFFERENCE, WIRING DIAGRAM ON MOTOR TAKES PRECEDENCE.

WIRING DIAGRAMS "D" AND "E" ARE FOR
MODELS DR068, DR083 AND DR101 WITH FASCO MOTORS ONLY.

WIRING DIAGRAM "D" SINGLE PHASE

LOW VOLTAGE 110-120V, 50/60 HZ HIGH VOLTAGE 220V, 50 HZ
OR 208-230V, 60HZ

LINE — WHITE

LINE — RED
LINE — BLACK

INS. — BLUE
INS. — YELLOW

BROWN
BROWN

LINE — WHITE

LINE — RED

INS. — BLACK
INS. — BLUE

INS. — YELLOW

BROWN
BROWN

WIRING DIAGRAM "E" THREE PHASE

VOLTAGE 220V, 50 HZ
OR 200-230V, 60 HZ

LINE — WHITE

LINE — BLACK

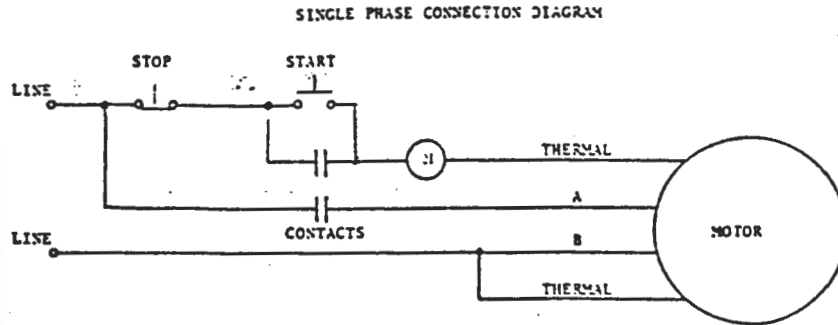
LINE — RED

TO CHANGE ROTATION SWITCH ANY TWO LINE LEADS

APPENDIX I: WIRING DIAGRAMS

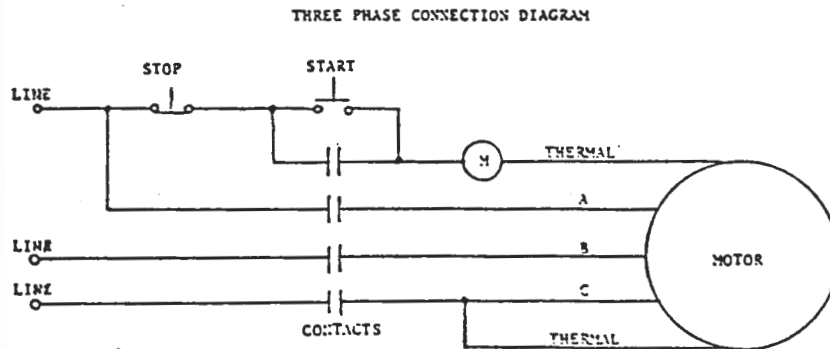
Recommended Wiring Schematic for XP Motors

Diagram F



	115 V. 4 WIRE	230 V. 6 WIRE	115 V. 7 WIRE	230 V. 7 WIRE
A	1-3-5	1	1-3	1
B	2-4-8	4-8	2-4-8	4-8
TIE		2-3-5	5-9	2-3,5-9

Diagram G



	230 V	460 V
A	1-7	1
B	2-5	2
C	3-9	3
TIE	4-5-6	7-4,8-5,9-0

Wiring this explosion-proof blower correctly is essential. Connecting the Pilot Duty Thermal Overload Protection to the proper control circuitry is mandated by UL674 and NEC501. Failure to do so may result in an explosion, and voids EG&G Rotron's warranty. Please contact the Application Engineering Department at the factory if you have any questions.

APPENDIX 3

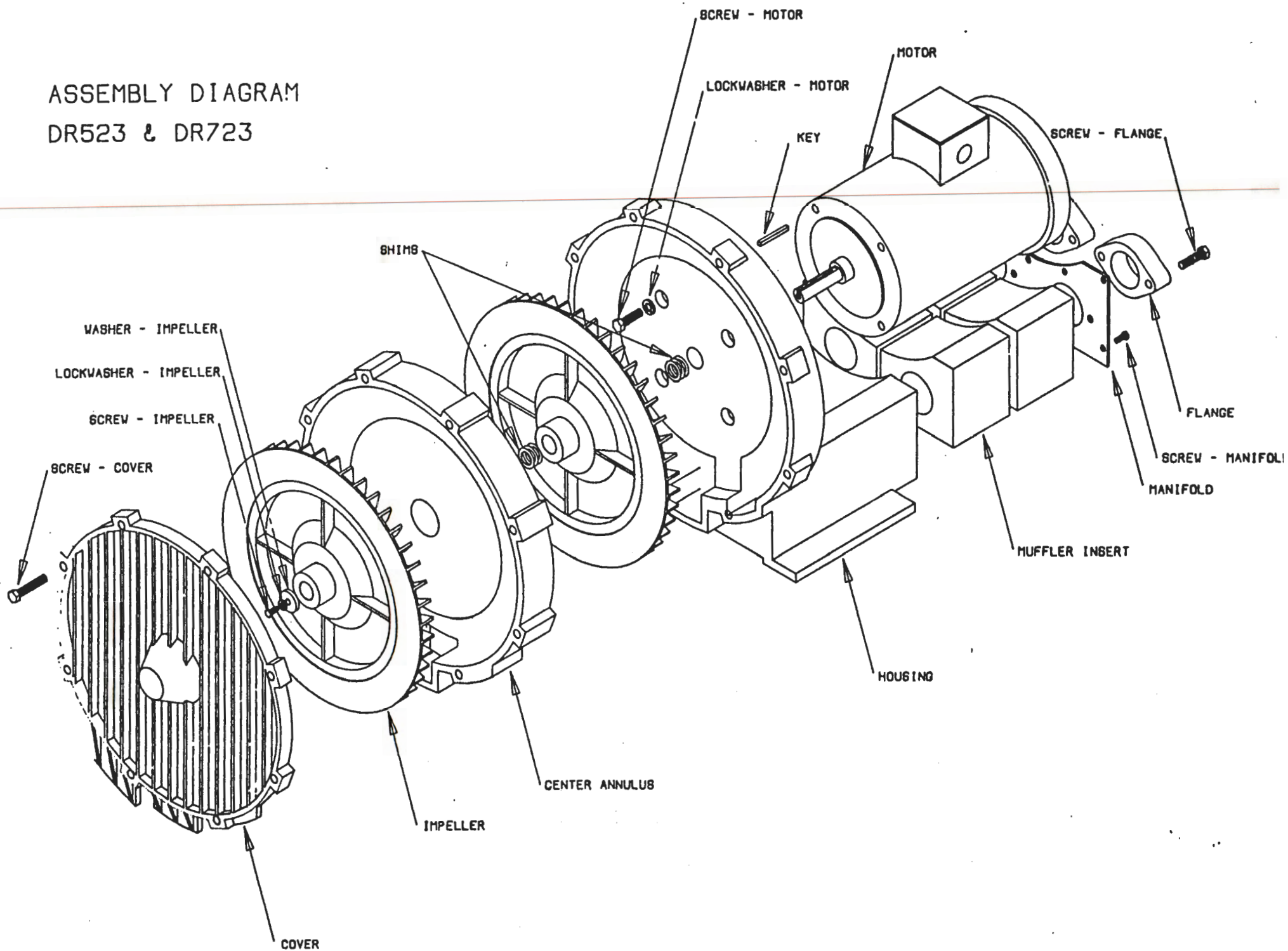
BEARING TYPES AND LUBRICANTS

All Rotron regenerative blowers* supplied with direct fitted motors are designed with ABEC1 quality double sealed ball bearings in the motor. The bearing design in all cases is a C3 fit. Below is our recommended chart by bearing part number.

<u>Part No.</u>	<u>Size</u>	<u>Shielded/Sealed</u>	<u>Grease</u>	<u>Heat Stabilized</u>
510217	205	Double Seal	NYE	Yes
510218	206	Polyacrylic	RHEOTEMP 500	325 deg.
510219	207		30% +/- 5% fill	
510449	203	Double Seal	Shell Dolium "R"	No
516440	202	(BUNA N)	or Chevron SR1-2	
516648	307		25-40% fill	
516840	206			
516841	207		Shell Dolium "R"	
516842	208	Double Seal	or Chevron SR1-2	No
516843	210	(BUNA N)		
516844	309		30% +/- 5% fill	
516845	310			
516846	311			
516847	313			

*NOTE: Change to larger HP motors occurred in late 1986. Some motors sold in 1987 may have old double shield design bearings.

ASSEMBLY DIAGRAM DR523 & DR723



PARTS LIST

Wiring Diagram No.:

G

G

Item No.	Qty Req'd	Description	Wiring Diagram No.:	
			G	G
			EN523M72L 038184	EN523M5L 038223
			-----	-----
			Parts Breakdown	Parts Breakdown
M1	1	Bearing, Rear	510449	510449
M2	1	Bearing, Impeller End	510217	510217
M3	1	Key	155099	155099
B1	4	Screw, Flange	5/16 - 18 X 1 1/4"	120162
B2	10	Screw, Manifold	1/4 - 20 X 3/4"	120162
B3	2	Flange		251790
B4	1	Housing		510354
B5	4	Screw, Hsg to Motor	3/8 - 16 X 7/8"	510354
B6	4	Muffler Material		523420
B7	1	Manifold Plate		251791
B8	*	Shim	.002"	251791
	*	Shim	.005"	516560
	*	Shim	.010"	516560
	*	Shim	.020"	528772
B9	2	Impeller Assembly		528772
B10	1	Bolt, Impeller	1/4 - 20 X 8 3/4"	500664
B11	1	Lockwasher, Shaft	1/4"	500665
B12	1	Washer, Shaft	1/4"	500665
B13	1	Cover		500666
		Center Annulus		500666
B14	8	Screw, Cover	3/8 - 16 X 3/4"	500667
B15		Eye Bolt		500667
B16		Spacer, Impeller Bolt		516562
B17	4	Lockwasher, Housing	3/8"	516562
B18	2	Screen, Muffler Retaining		120214
B19		Bolt, Muffler Hsg to Hsg		120203
B20		Muffler Housing		120203
B21		Heat Slinger		510355
B22		Guard, Heat Slinger		510355
B23		Bolt, Mounting Rail		528716
B24		Lockwasher		523421
B25		Nut		523421
B26		Rail, Mounting		155098
	1	Shaft Seal		Not Used
	1	Motor, Complete		Not Used

* As Needed

CONTENTS

- 1. TRAINING AND START UP**
- 2. BALL VALVES**
- 3. ROTRON BLOWER**

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