

SEPARATE DRIVE REGENAIR BLOWER

OPERATION & MAINTENANCE MANUAL



Thank you for purchasing this Gast product. It is manufactured to the highest standards using quality materials. Please follow all recommended maintenance, operational and safety instructions and you will receive years of trouble free service.



WARNING



PLEASE READ THIS MANUAL COMPLETELY BEFORE INSTALLING AND USING THIS PRODUCT. SAVE THIS MANUAL FOR FUTURE REFERENCE AND KEEP IN THE VICINITY OF THE PRODUCT.

Product Use Criteria:

- Operate at -20°F - 104°F (-29°C - 40°C).
- Protect unit from dirt & moisture.
- Protect all surrounding items from exhaust air. This exhaust air can become very hot.
- Corrosive gases and particulate material may damage unit. Water vapor, oil-based contaminants or other liquids must be filtered out.
- The blower must be installed with the properly sized inlet and inline filters, gauges and relief valves to protect the product from dirt and over-heating.
- Consult your Gast Distributor/Representative before using at high altitudes.



ISO 9001 & 14001 CERTIFIED

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Your safety and the safety of others is extremely important.

We have provided many important safety messages in this manual and on your product. Always read and obey all safety messages.



This is the safety alert symbol. This symbol alerts you to hazards that can kill or hurt you and others. The safety alert symbol and the words "DANGER" and "WARNING" will precede all safety messages. These words mean:



DANGER

You **will** be killed or seriously injured if you don't follow instructions.



WARNING

You **can** be killed or seriously injured if you don't follow instructions.

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and tell you what can happen if the safety instructions are not followed.

INSTALLATION

Correct installation is your responsibility. Make sure you have the proper installation conditions and that installation clearances do not block air flow.

Blocking air flow over the product in any way can cause the product to overheat.

The blower must be installed with the properly sized inlet filter, gauge and relief valve to protect the product from dirt and over-heating.

Mounting

The single impeller blower should be oriented with the shaft in a horizontal position, unless the model's product features state otherwise. Mounting the product to a stable, rigid operating surface and using shock mounts will reduce noise and vibration. Make sure that appropriate noise dampening media is used with respect to the working media for the application.

Rotation

From the drive side of the blower, check that the blower is rotating clockwise. (he drive side is marked with an arrow on most models.) Proper rotation can also be checked by the air flow at the IN and OUT ports.

Plumbing

Remove any foreign material (burrs, chips, welding drops, slag, pipe cuttings, excess sealant, sand or lime)

Check rotation before connecting to plumbing. Inlet and outlet ports are not designed to support plumbing.

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Remove plugs from the IN and OUT ports. Use a small amount of pipe thread lubricant when connecting plumbing to protect the aluminum blower threads. Connect with pipe and fittings that are the same size or larger than the product's threaded ports. When installing two blowers in parallel, use plumbing that is two whole pipe sizes larger in diameter than that of the blower. Be sure to connect the intake and exhaust plumbing to the correct inlet and outlet ports.

Plumbing to remove the hot discharge air of large

Accessories

Install two vacuum gauges, one before and one after filter, to monitor restriction through filters. As filters become clogged, performance efficiency will be reduced. Filters should be checked periodically and replaced when necessary. See pages 6, 7 and 8 for installation.

Install a relief valve to avoid changes in pressure or vacuum that can cause overloading of large blowers. Install an intake filter with a relief valve to prevent foreign material from entering blower if blower is used in a vacuum application in a dirty environment. In applications where there is high humidity or liquids being used in the process, install a moisture separator.

See Recommended Accessories on pages 7-9 or consult your Gast Distributor/Representative for additional filter and accessories recommendations. Do Not install check valves that close with a strong spring. The recommended check valves (page 7) provide minimal pressure drop, positive sealing and are resistant to the high discharge temperatures of large blowers.

Electrical Connection



WARNING

If working media other than standard atmosphere is to be pumped through unit, consult factory for acceptable parameters. Severe personal injury may occur if hazard is ignored.



CAUTION:

Never lubricate this oil-less blower. The sealed bearings are grease packed. All of the wetted components are made with corrosion resistant material and with paper filtration. The unit should last for years.

Internal wetted components are either stainless steel or coated for corrosion resistance. The blower is sealed with a shaft seal and impregnated castings to prevent working fluid leakage during operation.

OPERATION

WARNING

Injury Hazard

Install proper safety guards as needed to prevent any close contact with blower suction area.

Keep fingers and objects away from openings and rotating parts.

Product surfaces become very hot during operation, allow product surfaces to cool before handling.

Air stream from product may contain solid or liquid material that can result in eye or skin damage, wear proper eye protection.

Wear hearing protection. Sound level from some models may exceed 85 dBA.

Failure to follow these instructions can result in burns, eye injury or other serious injury.

It is your responsibility to operate this product at recommended pressures or vacuum duties and room ambient temperatures.. Do not throttle discharge or suction pipe to reducer capacity. Throttle will increase differential pressure causing increasing power absorption and working temperatures.

Start Up

Operate blower for an hour and then check:

1. **Ambient temperature** – Check room and discharge air temperatures. Increased room temperatures may require stronger ventilation especially for larger blowers. Exhaust air should not exceed 215°F (102°C) for all blowers less than 3.5 Hp. Exhaust air should not exceed 275°F (135°C) for all blowers above 3.5 Hp.
2. **Working pressure and vacuum values** – Adjust relief valve pressure or vacuum setting, if needed.

MAINTENANCE

WARNING

Injury Hazard

Product surfaces become very hot during operation, allow product surfaces to cool before handling.

Air stream from product may contain solid or liquid material that can result in eye or skin damage, wear proper eye protection.

Failure to follow these instructions can result in burns, eye injury or other serious injury.

WARNING



Electrical Shock Hazard

Disconnect electrical power supply cord to drive motor before performing maintenance on this product.

Some motors are thermally protected and will automatically re-start when protector resets.

If product is hard wired into system, disconnect electrical power at the circuit breaker or fuse box before performing maintenance on this product.

Failure to follow these instructions can result in death, fire or electrical shock.

WARNING

Power must be de-energized and disconnected from the drive motor before servicing. Be sure all rotating parts have stopped, electrical shock or severe cuts can result if hazard is ignored.

It is your responsibility to regularly inspect and make necessary repairs to this product in order to maintain proper operation. Make sure that pressure and vacuum is released from product before starting maintenance.

The separate drive electric motor and blower need periodic cleaning to remove accumulated dust and dirt. If they are not cleaned, this can result in excessive vibration, an increase in temperature or can reduce the service life of the system.

Check filter elements and clean motor and blower after first 500 hours of operation. Replace filter elements. This one procedure will help assure the product's performance and service life.

An increase in the differential pressure across an inlet filter indicates its getting clogged. Clean the inlet air filter as often as needed, blowing down against the current to clean it. A dirty filter cartridge causes a high intake resistance resulting in an increase of differential pressure, absorbed power and working temperature. Failure to clean replace these filters will result in excessive pressure drop, a reduction in system air flow and the blower will run hotter.

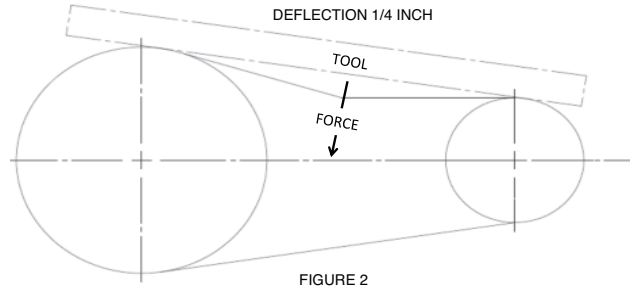
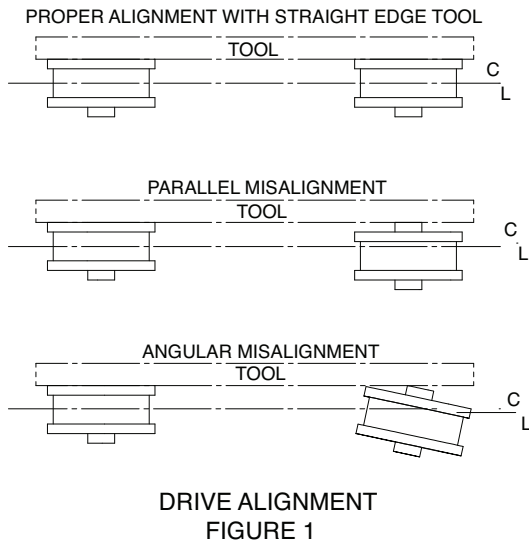
Belt Tensioning and Alignment

Fig. 1 shows how a straight edge tool should be used to avoid parallel or angular misalignment. Table 1 shows the force needed on the electric motor shaft to properly tension the belt drive when the belt is installed. This table also shows the small force needed to cause 1/4" of deflection in the belt, see Fig 2. This is used to check belt tension in new drives or those in service.



CAUTION:

Do not over tighten belt as it will cause misalignment and could lead to premature failure.



Gates "Poly Chain" Belt Tensioning Requirements

Gast Blower	Required pull on motor shaft for correct installation	Force to deflect belt 1/4" with new belt drive/ Low limit for broken in drive	Gates Poly Chain Belt Part#
SDR4	66 lbs.	3.5/2.8 lbs	8M-1000-12

Belt Tensioning and Alignment (cont.)

We strongly suggest using a Gates Poly Chain Drive. It has been properly engineered for this type of application.

If you choose to use a "V" belt drive, the sheave on the blower must be less than 4" in outside diameter. This sheave should be mounted on the shaft such that it will not block air from entering the blower cooling fan (we recommend this high speed belt drive be engineered following the belt drive manufacturers recommendations). To avoid annoying vibration and noise, both sheaves should be dynamically balanced and fit snugly on the shaft.

WARRANTY

Gast finished products, when properly installed and operated under normal conditions of use, are warranted by Gast to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase from Gast or an authorized Gast Representative or Distributor. In order to obtain performance under this warranty, the buyer must promptly (in no event later than thirty (30) days after discovery of the defect) give written notice of the defect to Gast Manufacturing Incorporated, PO Box 97, Benton Harbor Michigan USA 49023-0097 or an authorized Service Center (unless specifically agreed upon in writing signed by both parties or specified in writing as part of a Gast OEM Quotation). Buyer is responsible for freight charges both to and from Gast in all cases.

This warranty does not apply to electric motors, electrical controls, and gasoline engines not supplied by Gast. Gast's warranties also do not extend to any goods or parts which have been subjected to misuse, lack of maintenance, neglect, damage by accident or transit damage.

THIS EXPRESS WARRANTY EXCLUDES ALL OTHER WARRANTIES OR REPRESENTATIONS EXPRESSED OR IMPLIED BY ANY LITERATURE, DATA, OR PERSON. GAST'S MAXIMUM LIABILITY UNDER THIS EXCLUSIVE REMEDY SHALL NEVER EXCEED THE COST OF THE SUBJECT PRODUCT AND GAST RESERVES THE RIGHT, AT ITS SOLE DISCRETION, TO REFUND THE PURCHASE PRICE IN LIEU OF REPAIR OR REPLACEMENT.

GAST WILL NOT BE RESPONSIBLE OR LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, however arising, including but not limited to those for use of any products, loss of time, inconvenience, lost profit, labor charges, or other incidental or consequential damages with respect to persons, business, or property, whether as a result of breach of warranty, negligence or otherwise. Notwithstanding any other provision of this warranty, BUYER'S REMEDY AGAINST GAST FOR GOODS SUPPLIED OR FOR NON-DELIVERED GOODS OR FAILURE TO FURNISH GOODS, WHETHER OR NOT BASED ON NEGLIGENCE, STRICT LIABILITY OR BREACH OF EXPRESS OR IMPLIED WARRANTY IS LIMITED SOLELY, AT GAST'S OPTION, TO REPLACEMENT OF OR CURE OF SUCH NONCONFORMING OR NON-DELIVERED GOODS OR RETURN OF THE PURCHASE PRICE FOR SUCH GOODS AND IN NO EVENT SHALL EXCEED THE PRICE OR CHARGE FOR SUCH GOODS. GAST EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE WITH RESPECT TO THE GOODS SOLD. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS SET FORTH IN THIS WARRANTY, notwithstanding any knowledge of Gast regarding the use or uses intended to be made of goods, proposed changes or additions to goods, or any assistance or suggestions that may have been made by Gast personnel.

Unauthorized extensions of warranties by the customer shall remain the customer's responsibility.

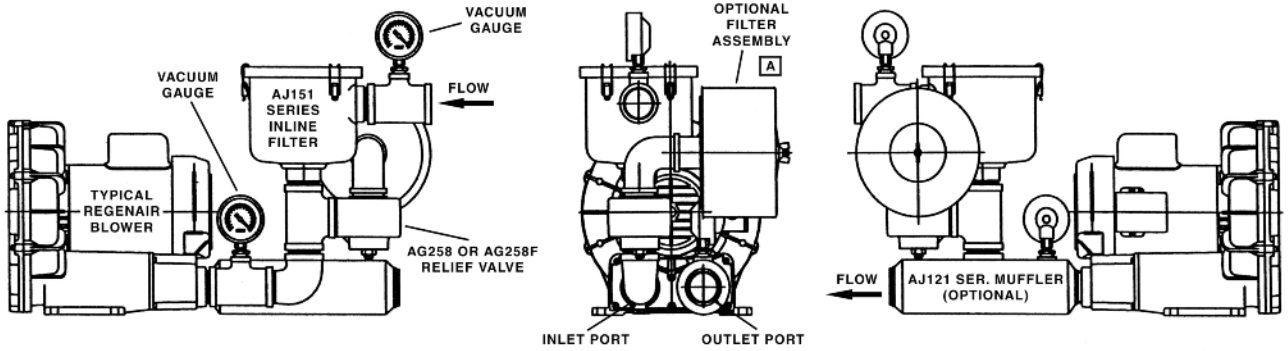
CUSTOMER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF GAST PRODUCTS FOR CUSTOMER'S USE OR RESALE, OR FOR INCORPORATING THEM INTO OBJECTS OR APPLICATIONS WHICH CUSTOMER DESIGNS, ASSEMBLES, CONSTRUCTS OR MANUFACTURES.

This warranty can be modified only by authorized Gast personnel by signing a specific, written description of any modifications.

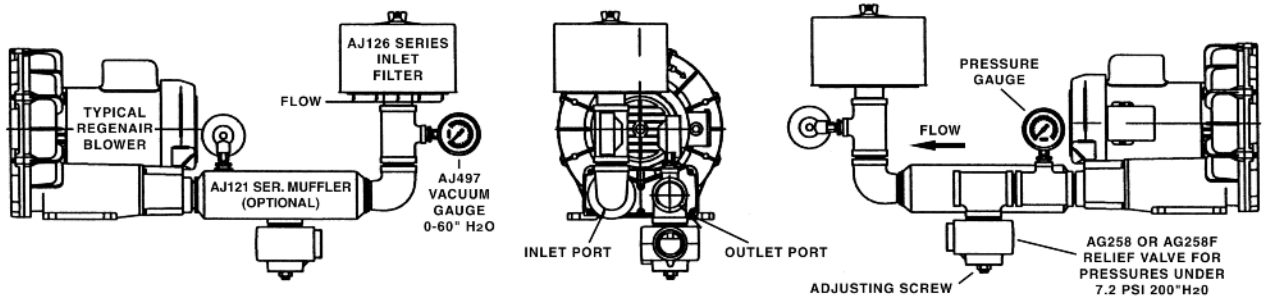
RECOMMENDED ACCESSORIES

The following diagrams are only suggested configurations for these accessories. These accessory configurations may vary depending upon a particular unit's application.

VACUUM ACCESSORIES



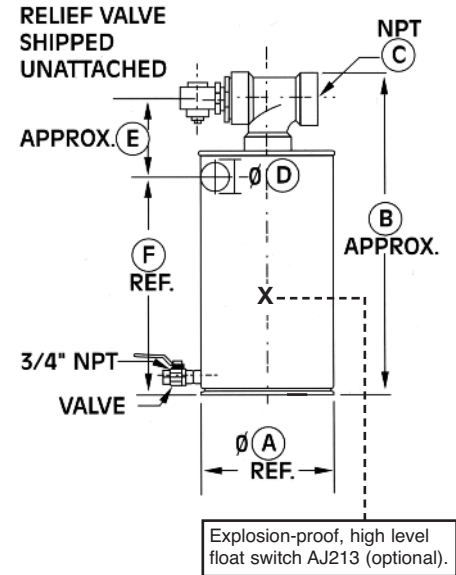
PRESSURE ACCESSORIES



MOISTURE SEPARATOR (FOR VACUUM)

This moisture separator removes liquids from the gas stream in a vacuum process. This helps protect the blower from corrosion and the build up of mineral deposits.

For Model Number	R3, R4, R5	R4, R4H, R4P, R5	R4H, R4M, R5, R6, R6P, R6PS,	R4M, R6, R6P, R6PP, R7, R7P, R7S, R9, R9S
Part Number	RMS160	RMS200	RMS300	RMS400
CFM capacity	160	200	300	400
Liquid capacity (gal.)	10	19	19	40
Diameter (A)	14.8"	19.7"	19.7"	24"
Dimension (B)	37.5"	35"	35"	44"
NPT outlet (C)	2"	2"	2.5"	3"
Inlet diameter (D)	2"	2"	2.5"	3"
Dimension (E)	7.5"	7.5"	7.5"	9.7"
Dimension (F)	26.6"	26.6"	26.6"	29"

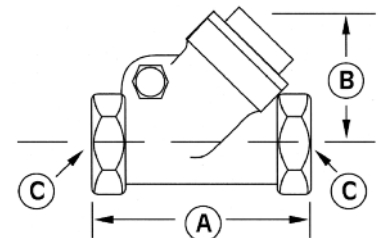


Maximum vacuum allowed: 22" Hg.

HORIZONTAL SWING TYPE CHECK VALVE

This check valve prevents backwash of fluids from entering the blower and air back-streaming. The check valve can be mounted to discharge or inlet either vertically or horizontally. The check valve will open with 3" of water pressure or vacuum.

Model Number	R1, R2	R3	R4, R5, SDR4, SDR4, R4P	R6, R6P, SDR6P, SDR6, R6PS	R7, R7S
Part Number	AH326B	AH326C	AH326D	AH326F	AH326G
Dimension (A)	3.57"	4.19"	4.50"	5.25"	8.00"
Dimension (B)	2.32"	2.69"	2.94"	3.82"	5.07"
Dimension (C)	1.00" NPT	1.25" NPT	1.50" NPT	2.00" NPT	2.50" NPT

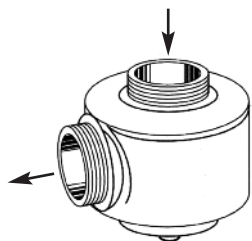


RECOMMENDED ACCESSORIES



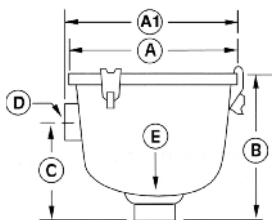
PRESSURE – VACUUM GAUGE

Pressure/Vacuum Gauges				
AJ496	2.50" Dia.	Pressure	1/4" NPT	0-60 in. H ₂ O and 0-150 mbar
AE133	2.50" Dia.	Pressure	1/4" NPT	0-160 in. H ₂ O and 0-400 mbar
AE133A	2.50" Dia.	Pressure	1/4" NPT	0-200 in. H ₂ O
AJ497	2.50" Dia.	Vacuum	1/4" NPT	0-60 in. H ₂ O and 0-150 mbar
AE134	2.50" Dia.	Vacuum	1/4" NPT	0-160 in. H ₂ O and 0-400 mbar
AE134F	3.50" Dia.	Vacuum	1/4" NPT	0-15 in. HG



PRESSURE – VACUUM RELIEF VALVE

Pressure/Vacuum Relief Valves		
AG258	1.50" NPT	Adjustable 30-200 in. H ₂ O; 200 cfm max
AJ121D		Silencer for AG258 Relief Valve
AG258F	2.50" NPT	Adjustable 25-200 in. H ₂ O; 560 cfm max
AJ121G		Silencer for AG258F Relief Valve



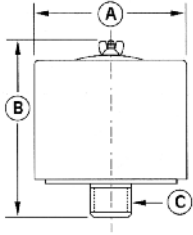
INLINE FILTERS (FOR VACUUM)

The impeller of a blower passes very closely to the housing. It is recommended to have an inlet or in-line filter to ensure a trouble-free service life.

MPT = Male Pipe Thread
FPT = Female Pipe Thread

Model Number	R1	R2	R3	R4	SDR4, R4P, R4H, R5	SDR5, SDR6, R6, R6P, R7M	R6PP, SDR6P, R6PS, R7, R7S	R7S, R9, R9P, R9S
Part Number	AJ151A	AJ151B	AJ151C	AJ151D	AJ151E	AJ151G	AJ151H	AJ151M
Dimension (A)	5.88"	7.38"	7.38"	7.38"	8.75"	8.75"	14.00"	18.50"
Dimension (A1)	–	–	–	–	–	–	16.25"	20.75"
Dimension (B)	4.50"	6.81"	6.81"	6.81"	10.25"	10.50"	27.13"	28.13"
Dimension (C)	2.75"	4.62"	4.62"	4.62"	5.00"	5.50"	18.50"	19.50"
Dimension (D)	1.00" FPT	1.00" FPT	1.25" FPT	1.50" FPT	2.00" FPT	2.50" FPT	3"MPT	5" MPT
Dimension (E)	1.00" FPT	1.00" FPT	1.25" FPT	1.50" FPT	2.00" FPT	2.50" FPT	3"MPT	5" MPT
Replacement Element	AJ135D	AJ135E	AJ135E	AJ135E	AJ135F	AJ135G	AJ135C	AJ135H
Micron	10	10	10	10	10	10	10	10

RECOMMENDED ACCESSORIES

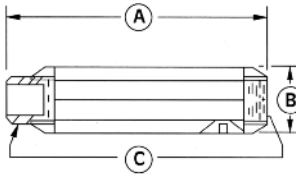


INLET FILTERS (FOR PRESSURE)

All filters are heavy duty for high-particulate service. Inlet filters for Regenair blowers are drip-proof when mounted as shown..

MPT = Male Pipe Thread
FPT = Female Pipe Thread

Model Number	R1, R2	R3	R4, R4H, R4P SDR4, R5	SDR5, R6, SDR6, R5P, R6PP, R6PS	SDR6P, R7, R7P, R7S	R9, R9P, R9S
Part Number	AJ126B	AJ126C	AJ126D	AJ126F	AJ126G	AJ126M
Dimension (A)	6.00"	6.00"	7.70"	10.62"	10.00"	16.00"
Dimension (B)	4.62"	7.12"	7.12"	4.81"	13.12"	14.62"
Dimension (C)	1.00" MPT	1.25" MPT	1.50" MPT	2.00" FPT	2.50" MPT	5" MPT
Replacement Element	AJ134B	AJ134C	AJ134E	AG340	AJ135A	AJ135H
Micron	10	10	10	10	10	10



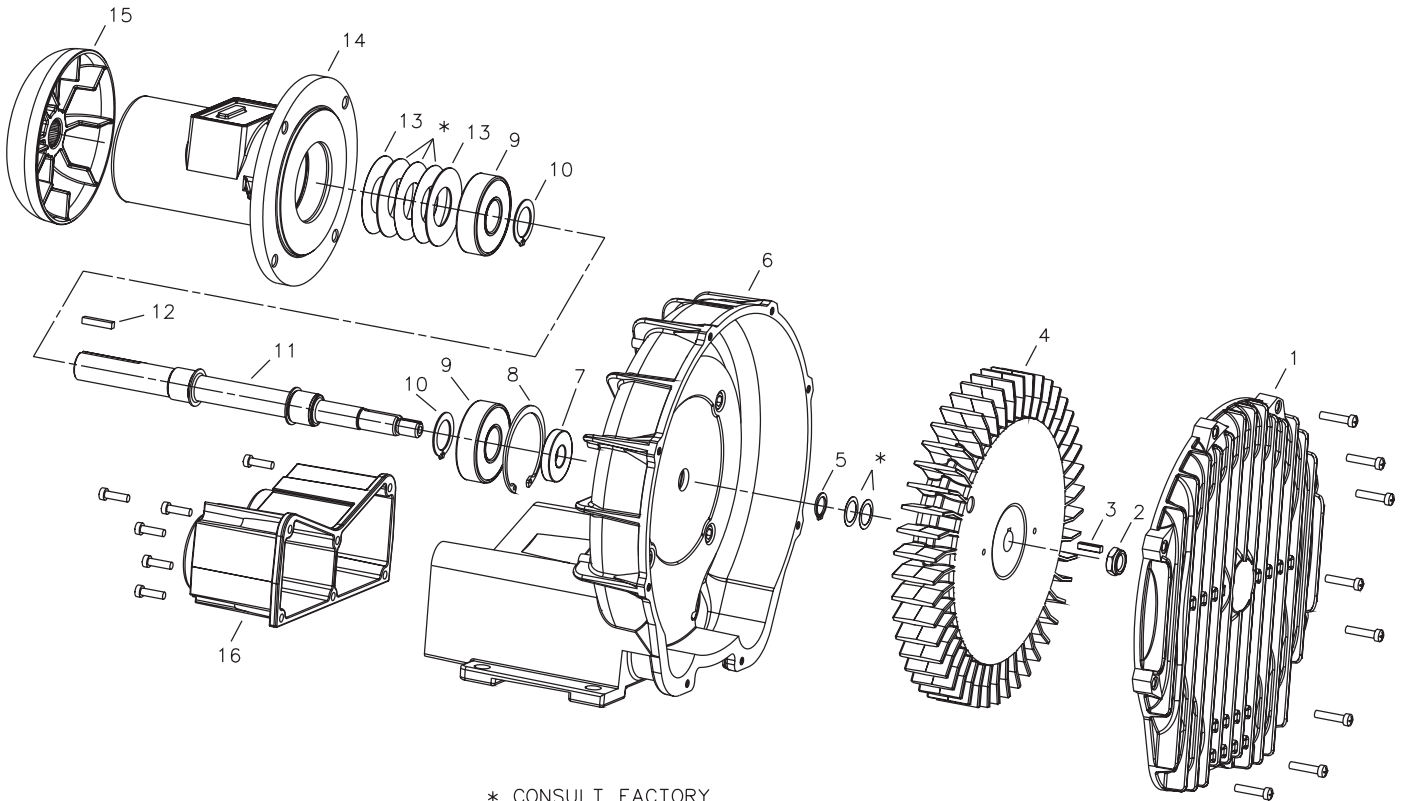
MUFFLERS

Designed to reduce noise by up to 5 dbA and remove high-frequency sound associated with all blowers.

***Used only on applications with clean dry air working media**

Model Number	R1, R2	R3	R4, SDR4, R4P, R5	R4H, R6, R6P, R6PS SDR6P, SDR6	R7, R7S	R6PP, R9 Exhaust	R7P Exhaust
Part Number	AJ121B	AJ121C	AJ121D	AJ121F	AJ121G	AJ121H	AJ121M
Dimension (A)	7.46"	7.94"	12.75"	17.05"	17.44"	20.30"	33.60"
Dimension (B)	2.38"	2.62"	3.25"	3.63"	4.25"	4.75"	6.00"
Dimension (C)	1.00" NPT	1.25" NPT	1.50" NPT	2.00" NPT	2.50" NPT	3" NPT	4"NPT

PARTS & ORDERING INFORMATION



REF#	ITEM	QTY	Part#
1	COVER	1	AJ101DJ
2	LOCK NUT	1	BC181DJ
3	SS KEY	1	AB136AB
4	IMPELLER	1	AJ102DJ
*	SHIM SPACERS	*	AJ109
5	RETAINING RING	1	AJ149A
6	HOUSING	1	AJ103DJ
7	SHAFT SEAL	1	AK271
8	BIG RETAINING RING	1	AB793
9	BEARING	2	AB964DJ
10	RETAINING RING	2	AG900
11	SHAFT	1	AJ157DJ
12	KEY	1	AB136D
13	BEARING SPRING	2	AB791
*	WASHER	*	AB792
			AB792DJ
14	REMOTE DRIVE HOUSING	1	AJ153DJ
15	FAN	1	AD235D
16	MUFFLER EXTENSION	1	AJ106DJ

TROUBLESHOOTING CHART

Problem	Reason	Remedy
Unusual belt noise	-Misaligned drive -Too high or low belt tension	-Correct alignment -Adjust tension to correct value
Loss of belt tension	-Blower or motor not bolted down tightly -Debris being pinched in between between belt & sprocket	-Check for loose bolts, then realign realign and tension -Keep Gast supplied belt guard in place
Excessive wear to edge of belt	-misaligned drive	-Correct alignment
Premature wear or shearing of belt	-Too high or low belt tension -Blower jammed	-Adjust tension to correct value check to teeth -Check the blower, will it turn easily
Broken Belt	-Debris being pinched in between belt and sprocket	-Keep Gast supplied belt guard in place
Excessive vibration	-Loose sprocket or key -Impeller damaged by foreign material -Impeller contaminated by foreign material	-Tighten and/or Loctite to prevent movement -Replace impeller -Clean impeller, install adequate filtration
Abnormal Sound	-Impeller is damaged or contaminated by foreign material	-Replace or clean impeller -Install adequate filtration
Blown Fuse	-Electrical wiring problem	-Have qualified person check that impeller turns -Check fuse, wiring diagram or wiring capacity
Unit very hot	-Running at too high a pressure or vacuum	-Install a relief valve and pressure or vacuum gauge Clean or replace impeller. Install proper filtration

We have Gast Certified Service Centers throughout the world. For the most up-to-date listing, contact one of our sales offices below:

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