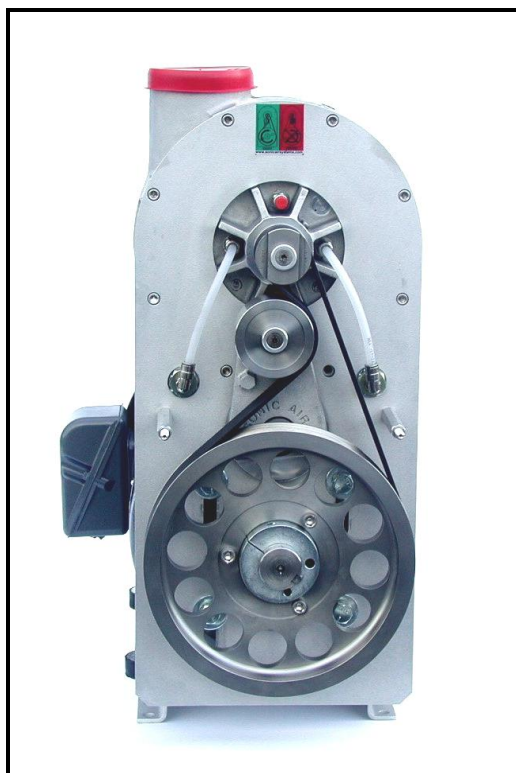




Operation and Maintenance Manual

Sonic 85 / 85C



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Operation and Maintenance Manual

O&M-85

Sonic 85 / 85C

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Revision Log

Rev. Ltr.	Rel. Date	Chg Req.	Description
New		N/A	Initial Release
A	12/22/03	-	Revised bushing dimension to 1.450"
B	02/06/04	-	16G Drive
C	02/18/05	-	Revised bushing dimension to 1.266"
D	03/15/06	-	Added BC replacement procedure
E	08/28/06	-	Revised Blower Maintenance Schedule
F	05/15/09	-	Revised Retainer – Blower Pulley Part Number
		-	Revised Spacer Part Number
G	11/03/09	-	Included notation regarding multiple Starts/Stops

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1 Sonic 85 / Sonic 85C



Figure 1 - Sonic 85

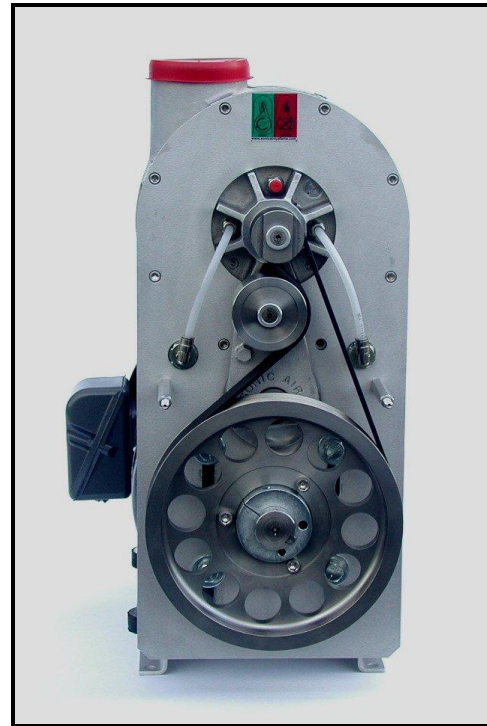


Figure 2 - Sonic 85C

1.1 Introduction

Thank you for the recent purchase of a Sonic 85 or Sonic 85 centrifugal blower or retro-kit. Sonic Air Systems is confident that the blower unit is the best available in this performance range. Sonic manufactures blowers using the finest components available, assembles using only highly trained and qualified personnel, and inspects each unit 100% for quality and performance.

The following manual is intended to:

- Identify safety hazards
- Familiarize personnel with the equipment performance
- Demonstrate typical installation and usage
- Identify maintenance schedule and typical spare components
- Provide Sonics' Performance Guarantee and Warranty information

1.2 Blower Performance

- The Sonic 85 series blower is a single stage centrifugal blower and has been designed in accordance with fan engineering laws. Horsepower demand increases in proportion to increased air volume (motor amperage draw increases). As the air volume decreases (valve closes or filter clogs), the amp draw decreases. **Always check a fully installed system to ensure that the motor is not overloaded.**

- Sonic air blowers have some of the largest turndown ratios of any blower in their performance range. At 10:1, a Sonic 85's range is from 85 cfm (40 lps) to 850 cfm (401 lps) without overheating or surging. Outside of those ranges the air surging is mild and continuous operation may shorten the bearing life.
- The blower inlet must also be hose coupled to an inlet filter-silencer, inlet air safety screen or piped to a delivery system. Sonic inlet filter-silencers should be used in every application where the inlet air is not piped directly to the blower inlet. Sonic standard filters are rated at 10 microns and are available with paper or polyester elements. Inlet air temperature must not exceed 125°F (52°C) unless a Sonic 85C water-cooled unit is used. If the blower is in an enclosed space and the inlet air is piped from another area, make sure that the ambient temperature around the blower / motor does not exceed 110°F (43°C). When air is re-circulated from an air knife zone, in-line filters and water separators must be used to prevent water from entering the blower.
- The blower outlet must always be hose coupled to a discharge silencer, system piping, or otherwise directed away from personnel. Discharged air should be silenced to levels as required by applicable occupational safety standards or corporate standards as applicable. In order to minimize pressure drop and noise transmission, Sonic recommends using smooth bore tubing (hard plastic or metal).
- Flex hose can induce a large pressure drop and should only be used when absolutely necessary. Flex hose should be rated to handle a pressure of 10 psig (0.7 bar) at 200°F (93°C). Flex hose can be used for connecting misaligned piping and bend radii that do not match standard elbows. Be aware that flex hose can collapse inside and should be inspected if flow problems occur. Short rubber sleeves with band clamps are standard for blower and piping connections.
- Sonic butterfly valves have a wafer design that is designed to regulate flow, but will not seal when closed. Air will always leak around the wafer to help minimize blower cavitations.
- The Patent Pending Sonic Belt Tensioner is used to maintain a constant low tension on the drive belt and reduces the maintenance schedule for the blower unit. Belt life is optimized and belt replacement typically takes only 5 to 10 minutes to perform.
- Typical blower noise is approximately 80db to 95db. Sonic Blower Acoustical Enclosures can be used to reduce blower noise to within 75 db to 85 db depending on the blower model. Additional noise reduce is available, contact Sonic for details.

1.3 Product Profile

The Sonic 85 blower with the Sonic automatic belt tensioning assembly requires no periodic belt adjustment. A single Sonic 85 head assembly can be powered by a 5 to 15 horsepower (3.7 to 11.2 kW) motor. The inter-connecting support bracket joining the blower and motor has a belt guard completely enclosing the drive assembly and completing this integral design.

With air / gas delivery up to 850 CFM (401 lps), this unit is well suited for any application with pressures to 4.0 psi (0.28 bar). As a result of the high-speed operation, the total envelope of the blower / motor assembly is one of the most compact and lightweight within its performance range.

1.4 Typical Applications

The following is a list of typical applications for using a Sonic 85 centrifugal blower assembly. This is only a partial list of the possible uses for supplying low cost, clean air to a particular application. Please consult a Sonic Application engineer to design a system to meet any request.

Parts drying	Engine exhaust sampling
Hydrocarbon vapor recovery	Environmental test chambers
Gas boosting	Tank / Pond aeration
Concrete grinding vacuum	Gas meter testing
Cooling	Vacuum hold down
Oil spill containment booms	Air bearings

Special applications and options are available for the Sonic 85 blower unit:

Corrosion resistant electroplating	Air flow control valves
316 Stainless Steel Material Option	Acoustical enclosure
Welded inlet and outlet flanges	In-Line filters and water separators
Water cooling of the bearing housing	Filter Silencers
Operation to 400°F inlet air temperature	Explosion Proof motors
Thermocouple monitoring of bearings	Wash Down duty motors
Discharge silencers	Premium Efficiency (PE) motors
IEC motor compatibility	Hydraulic motors

Sonic also provides a full line of air / gas handling accessories:

Complete drying systems	Air wipe collars
Air blowers from 3 to 50 horsepower	HEPA filters to 1,000 CFM
High efficiency aluminum air knives	Acoustical enclosures
High efficiency stainless steel air knives	Piping accessories

Sonic services four main industries:

Food and Beverage	Wire and Cable
Electronics	Metal and Sheet Fabricators

Please contact a local Sonic representative or a Sonic application engineer to discuss any special considerations or applications.

2 Initial Inspection

Upon receipt of your Sonic Air Centrifugal Blower, make sure that all components listed on the packing slip are present. Check to see that the serial number on the blower housing matches the packing slip (See Figure 4). Inspect the blower / motor to ensure that they are mounted with the correct outlet position and that the motor is the correct horsepower, voltage and enclosure. If you have any shortages, discrepancies, or shipping damage, please call your Sonic Distributor or Sonic Air Systems immediately.



Figure 3 - Sonic Nameplate

The serial number of the blower identifies the blower model, pulley size, belt size, mounting position, and the motor specifications. Please use this number for any correspondence with the Sales / Customer Service Department at Sonic Air Systems.

Blower Serial Number	
-----------------------------	--

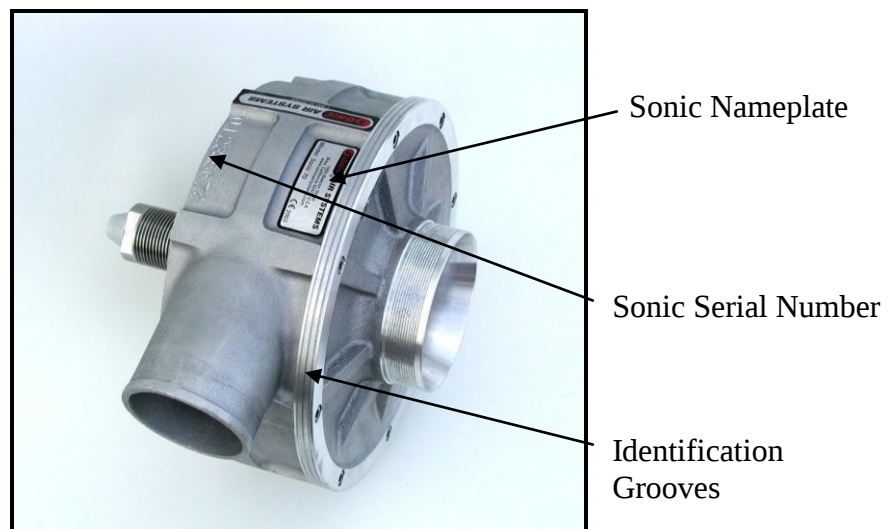


Figure 4 – Blower Serial Number

3 Safety Instructions

3.1 Electrical

- Always use qualified electrical and mechanical personnel for installation and maintenance of Sonic air blowers.
- No work should be performed on a Sonic air blower until the power has been turned off and an isolation device has been applied. Disconnect the electrical power at the motor starter, fuse box, or circuit breaker before working on the blower / motor. Double check to be sure that the power is off and that it cannot be turned on while you are working on the blower / motor assembly.
- Use proper electrical installation, wiring, and controls consistent with local and national electrical codes. A lockable isolation switch should be provided.
- Refer to the motor nameplate data for the proper power supply requirements. Be sure the junction box connections are tight and well insulated to prevent shorts and to assure maximum protection against moisture.



3.2 Mechanical

- Never run the Sonic air blower without the belt guard installed.
- Never run the Sonic air blower with the outlet open to atmosphere as this can cause the motor to overload.
- Never run the Sonic air blower with the inlet open to atmosphere. Always connect your system piping, Sonic inlet filter, or Sonic Inlet safety screen to the blower inlet to prevent personal injury or damage to the blower.
- Keep tools, clothing and hands away from rotating or moving parts while the unit is running.
- Use safety glasses when working around the blower / motor and / or air knife assembly while the system is running.
- Always use proper lifting techniques and equipment.
- Observe good safety habits at all times and use care to avoid injury to personnel and damage to the equipment.



4 Installation and Adjustments

The following steps and procedures detail the installation and setup of a typical blower assembly. Disassembly of a blower unit is the opposite of the assembly procedure.

4.1 Lifting and Handling

Due to the weight of the blower / motor assembly, it should be lifted by a hoist or forklift using the single eyebolt on the top middle of the motor. However, some units may not have specific lifting points, so extra care must be taken. See Section 6.1 - Component Specification Sheet for weight and dimension details.

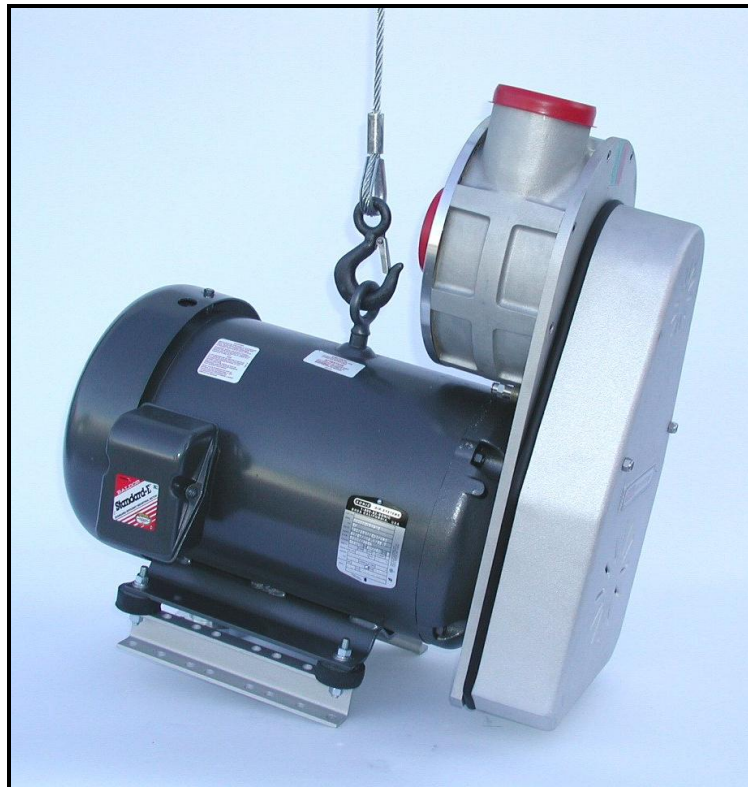


Figure 5 - Blower Lifting Point

4.2 Blower Location

4.2.1 Access

Make certain to allow room for proper ventilation and accessibility to remove the belt guard for belt replacement as well as filter servicing. Never block the ventilation holes in the belt guard. Mount the blower / motor assembly in a well ventilated area to prevent motor overheating and premature belt and / or blower head failure.

4.2.2 Temperature

The blower / motor assembly must be placed in an area that prevents hard freezes or overheating. Ambient temperature conditions should range from a low of +10°F (-12°C) to +110°F (43°C). The blower / motor assembly is suitable for outdoor locations, but care should be taken to protect the equipment from temperature extremes, direct exposure to the sun, rain, snow, and dust so as to extend the service life of the blower, motor, and filter.

The blower / motor assembly, while running, can increase the ambient temperature above 110°F (43°C). Always check the running ambient temperature and do not operate above 110° (43°C).

4.2.3 Moisture and Debris

Sonic air blowers have a high-speed belt drive, close tolerance components and precision bearings. Do not put the blower where it will be sprayed from a washing / rinsing zone, from over-spray from an air knife or where dust, dirt, or other debris will attack the drive belt or clog the filter. If the filter needs cleaning or replacing more than one time each month, the blower or filter should be moved to a cleaner, dryer area. A Sonic acoustical blower enclosure will also ensure safe operation.

4.2.4 Wash Down

In factory locations subject to high-pressure water or caustic wash down cycles, the blower / motor unit must be protected or relocated to prevent damage. Raising the blower 1-2 feet (0.3 to .6 meters) above the wash zone is recommended. Wash down duty motors and corrosive resistant blower coatings are available to allow full exposure should it be needed.

4.2.5 Explosive Environments

The Sonic 85 centrifugal blower is made from non-sparking aluminum and therefore is suitable for explosive gases and explosive environments. Special explosion proof motors can also be included for hazardous duty.

4.2.6 Corrosive Environments

The Sonic 85 blower can be protected with special coatings for protection in corrosive environments. Protection level and life of blower is dependent on type of chemical and the concentration level.

4.2.7 Vibration

Due to the low vibration level of the Sonic air blowers, they can be bolted to any type of foundation or framework without transmitting any significant vibration. Sonic provides four rubber isolation mounts on most assemblies to prevent other equipment vibration from damaging the blower bearings.

4.2.8 Water Cooling Circuit

If the inlet air / gas is piped directly to the blower inlet, and the temperature is over 125°F (52°C), a water-cooled blower head must be used to protect the shaft

bearings. The exact water temperature and flow required in the cooling circuit will vary with each blower configuration and application. Although water demand for the blower head varies, the common design point in all applications is that the water exiting from the cooling circuit should never exceed 100°F (38°C). Typical water demand will range from ¼ to ¾ gallons per minute (1 to 3 liters per minute) if using tap water (approximately 65°F (18°C)) and will be significantly lower if chilled water is used.

4.2.9 Thermocouple Option

All Sonic 85 blower heads can be ordered with a thermocouple option. The thermocouple is in direct contact with the shaft bearing and continuously monitors the temperature of the bearing. Continuous monitoring of the blower head bearing temperature can indicate an imminent bearing failure (See Section 12 for Sonics' repair policy). Predicting and anticipating a bearing failure may save costly equipment and / or line down time.

4.3 Belt Installation

Sonic ships all new systems with the drive belt removed. This is to assure that the electrical starter, soft start and wiring is correct before the blower is started. See Section 5.1 for motor wiring instructions and verify that the wiring and blower rotation is correct before installation of the drive belt.

4.3.1 Tools Required

Description	Qty.	Description	Qty.
½ inch socket	1	Rubber mallet (optional)	1
9/16 inch box-end wrench	1	9/16 inch deep socket (optional)	1
¾ inch deep socket (10 hp optional)	1	3/8 inch ratchet driver	1
#3 Drive Extension	1		

4.3.2 Belt Installation Procedure

1. Remove the belt guard using the ½ inch socket. (See Figure 6)
2. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW). At the same time wrap the belt around the blower pulley, then along the right side of the idler pulley, and finally around the motor pulley. (See Figure 7)
3. Slowly rotate the motor pulley to make sure the belt is seated in the grooves.
4. Verify that the belt gap is approximately ¾ inch ±1/16 inch (Factory Set). (See Figure 8)
5. If a ¾ inch belt gap was not achieved, use a 9/16 inch deep socket (¾ inch deep socket for 10hp & 15hp) to loosen the bracket mounting screws behind the motor pulley and slide the bracket. (See Figure 9 and Figure 11)
6. Using the ½ inch socket, reinstall the belt guard.



Figure 6 - Remove Belt Guard

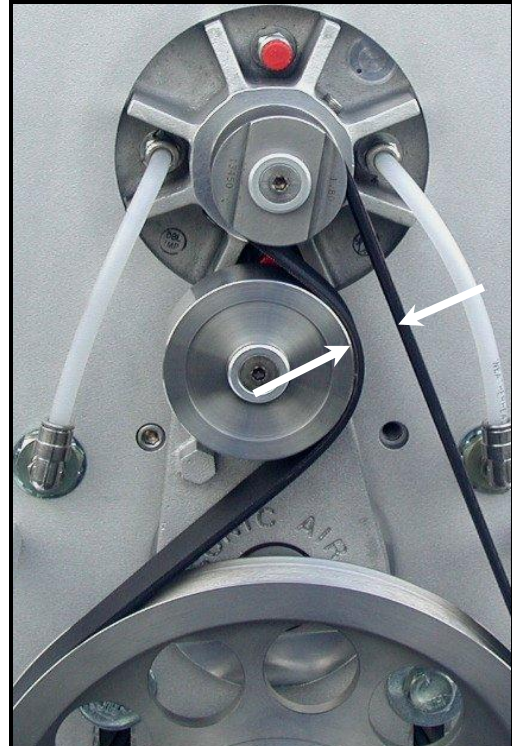


Figure 8 - Verify Belt Gap

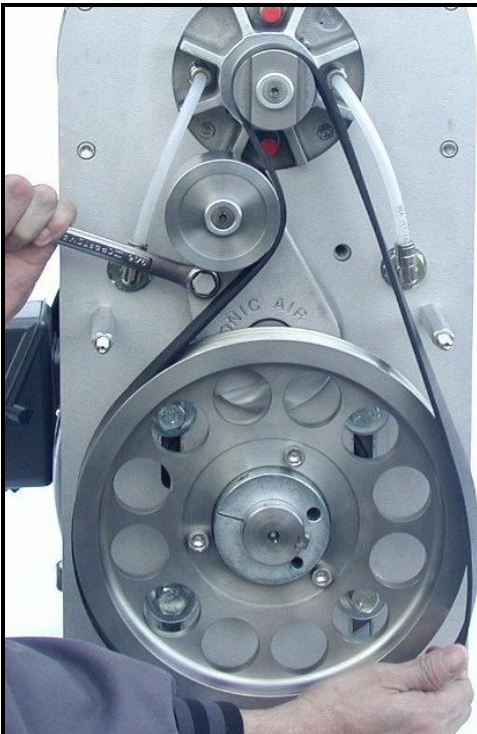


Figure 7 - Install Belt



Figure 9 - Loosen Bracket Hardware

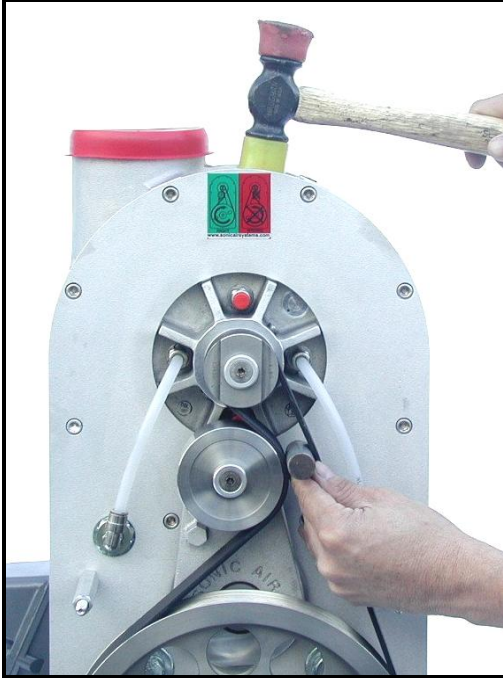


Figure 10 – Adjust Belt Gap to $\frac{3}{4}$ "

4.4 Blower Head Mounting Adjustment

The blower head position was adjusted at the factory to the application specifications. Therefore, it should not be necessary to change the position of the blower head outlet unless the application specifications have changed or the unit is relocated. See Figure 11 for blower head rotation options. Use the following procedure to modify or adjust the blower head rotation.

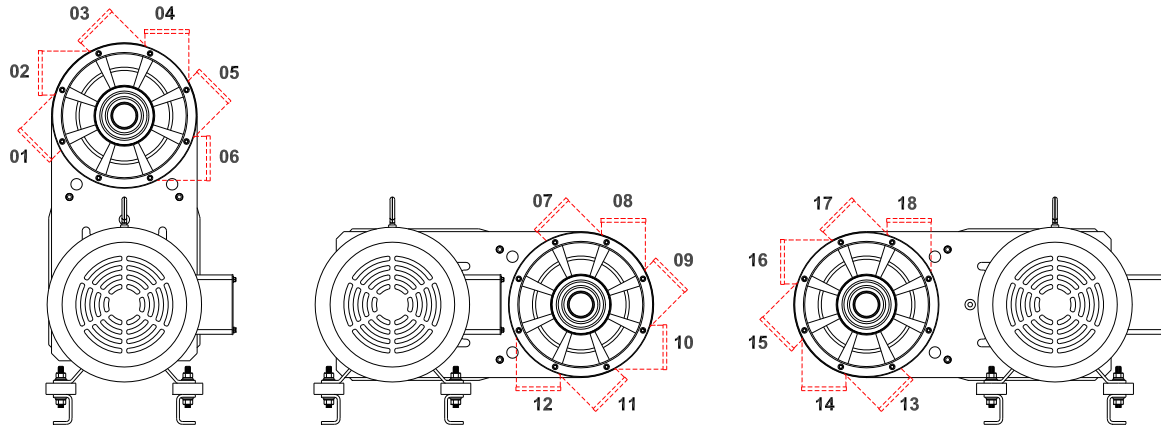


Figure 11 - Blower Rotations

4.4.1 Required Tools

Description	Qty.
3/8 inch ratchet driver	1
9/16 inch deep socket	1
3/4 inch deep socket (10 hp only)	1
1/4 inch allen socket	1
Rubber mallet	1

Description	Qty.
5/16 inch allen socket	1
#3 Drive Extension	1
9/16 inch box-end wrench	1
242 Loctite	1
1/2 inch socket	1

4.4.2 Blower Head Adjustment Procedure

1. Remove the belt guard using the 1/2 inch socket. (See Figure 12)
2. Disconnect the water-cooling lines at the quick disconnect on the blower head. (If Applicable)
3. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW) and remove the belt. (See Figure 13)

Note: If rotating the blower bracket, follow Steps 4 thru 6. If only rotating the blower head, skip to Step 7.

4. Use the 9/16 inch deep socket (3/4 inch deep socket for 10hp & 15hp) to hold the motor pulley in place. Using the 5/16 inch allen socket, remove the motor pulley screws and motor pulley. (See Figure 14)
5. Using the 9/16 inch deep socket (3/4 inch deep socket for 10hp & 15hp), remove the four bracket bolts and washers located behind the motor pulley. (See Figure 15)

6. Rotate the bracket to the desired position and reinstall the bracket bolts and washers. Tighten only one bolt temporarily for belt adjustment. (See Figure 16 and Figure 17)
7. Using the ¼ inch allen socket, remove the eight screws from the bracket that secure the blower head. (See Figure 18)
8. Remove the water-cooling plugs from the blower head and rotate as necessary. (See Figure 19)
9. Rotate the blower head to desired rotation and reinstall the eight screws to the proper torque specifications. (See Section 7.2 - Torque Specifications) (See Figure 20)
10. Using the 5/16 inch allen socket and Loctite, reinstall the motor pulley.
11. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW). At the same time wrap the belt around the blower pulley, then along the right side of the idler pulley, and finally around the motor pulley. (See Figure 21)
12. Slowly rotate the motor pulley to make sure the belt is seated in the grooves.
13. Verify that the belt gap is approximately ¾ inch $\pm 1/16$ inch. If a ¾ inch belt gap was not achieved, use the 9/16 inch deep socket (3/4 inch deep socket for 10hp & 15hp) to loosen the bracket mounting screws behind the motor pulley and slide the bracket. (See Figure 22 and Figure 23)
14. Using the 9/16 inch deep socket (3/4 inch deep socket for 10hp & 15hp), tighten the bracket bolts to the required torque. (See Section 7.2 – Torque Specifications)
15. Reinstall the water-cooling lines. (If Applicable)
16. Using the ½ inch socket, reinstall the belt guard.



Figure 12 - Remove Belt Guard

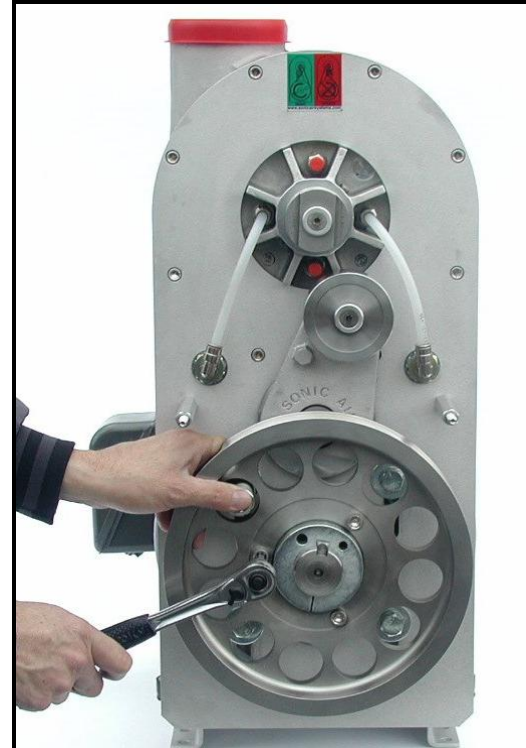


Figure 14 - Remove Motor Pulley



Figure 13 - Remove Belt

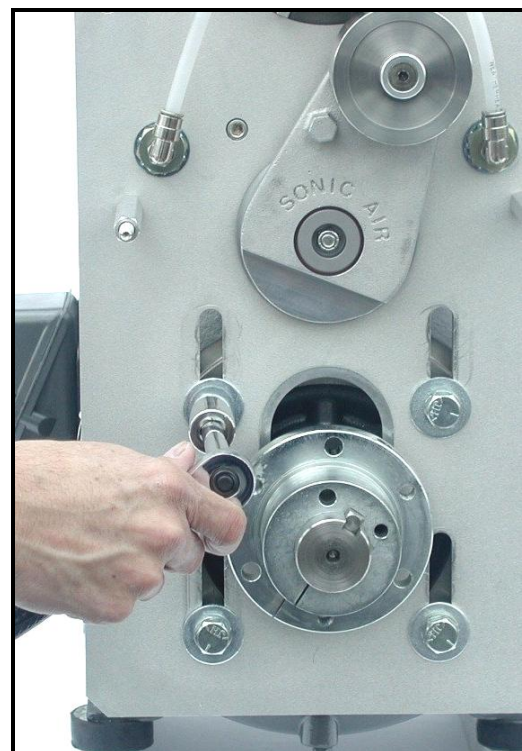


Figure 15 - Remove Bracket Hardware

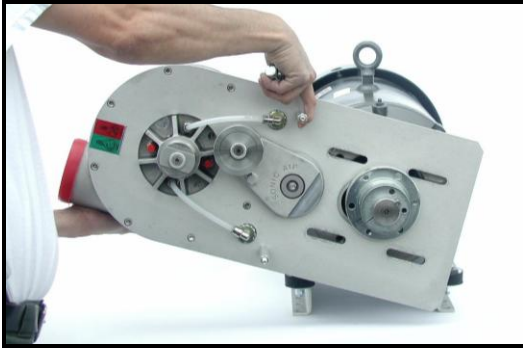


Figure 16 – Rotate Bracket

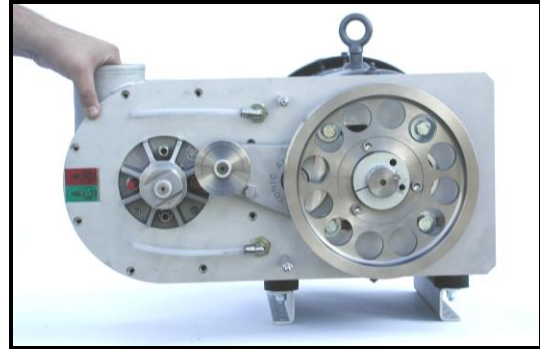


Figure 20 - Reinstall Blower Head

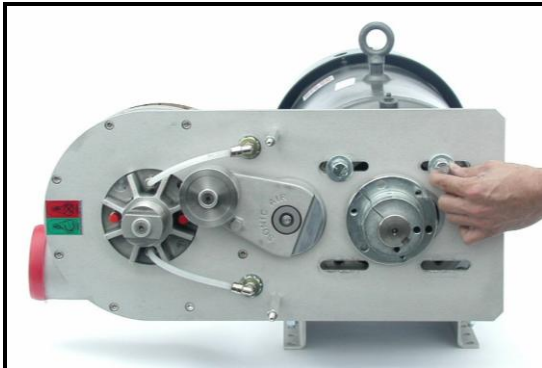


Figure 17 – Install Bracket Hardware

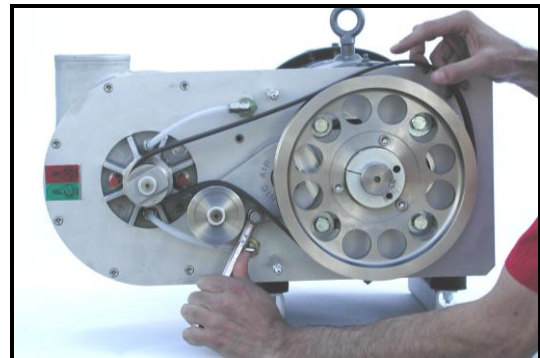


Figure 21 – Reinstall Belt

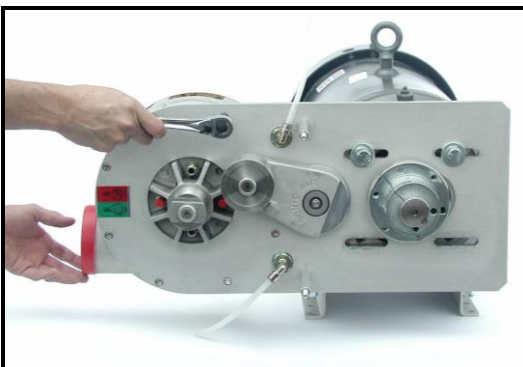


Figure 18 - Remove Blower Hardware

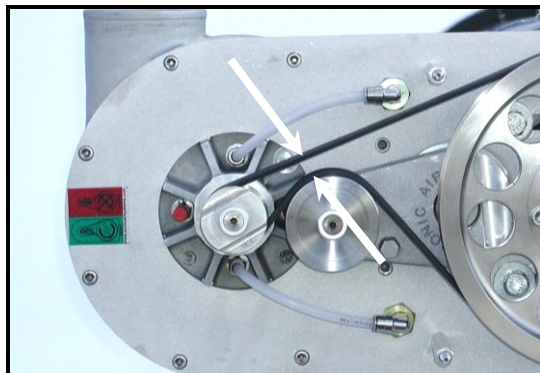


Figure 22 – Set Belt Gap to $\frac{3}{4}$ "

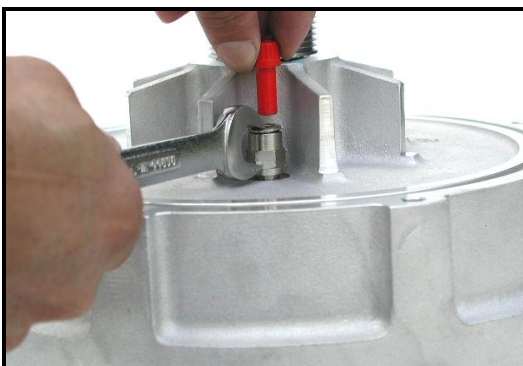


Figure 19 - Move Water-Cooling Plugs

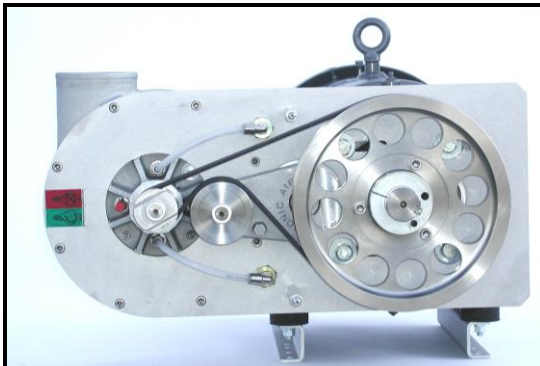


Figure 23 – Final Position

4.5 Retro Kit Installation (Assemble Sonic blower to existing motor)

4.5.1 Tools Required

Description	Qty.
3/8 inch ratchet driver	1
9/16 inch deep socket	1
¾ inch deep socket (10 hp only)	1
5/16 inch allen socket	1
Calipers	1
242 Loctite	1
½ inch socket	1

Description	Qty.
9/16 inch box-end wrench	1
7/32 inch allen wrench	1
Flat head screwdriver	1
Rubber mallet	1
24 inch Straight edge	1
#3 Drive Extension	1
9/16 inch open end wrench	1

4.5.2 Retro Kit Installation

1. Using a 9/16 inch open-end wrench, mount the vibration isolators and uni-mounts to the motor. (See Figure 24)
2. Mount and fasten the bracket assembly to the motor and then tighten only one screw using the 9/16 inch deep socket (¾ inch deep socket for 10hp & 15hp) temporarily for belt gap adjustment. (See Figure 25)
3. Using a flat head screwdriver and a rubber mallet, wedge the screwdriver into the front face of the bushing and then slide it onto the motor shaft. (See Figure 26)
4. Set the bushing to $1.266 \pm .005$ (32.2 mm) from the bushing flange to the bracket and remove the screwdriver. Using the 5/16 inch allen socket and Loctite, install the two bushing screws. Tighten the screws to the specified torque, over tightening may damage the bushing. (See Figure 27, Figure 28, and Figure 29 - Bushing Installation)(See Section 7.2 - Torque Specifications)
5. Tighten the bushing set screw using the 7/32 inch allen wrench
6. Before installing the motor pulley, double check the bushing setting and then install the three pulley screws using Loctite and the 5/16 inch allen socket. Tighten the three pulley screws to the required torque specifications. (See Figure 31) (See Section 7.2 - Torque Specifications)
7. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW). At the same time wrap the belt around the blower pulley, then along the right side of the idler pulley, and finally around the motor pulley. (See Figure 32)
8. Slowly rotate the motor pulley to make sure the belt is seated in the grooves.
9. Using the rubber mallet, adjust the belt gap to ¾ inch $\pm 1/16$ inch. (See Figure 33)
10. Using the 9/16 inch deep socket (¾ inch deep socket for 10hp & 15hp), tighten the bracket hardware. (See Section 7.2 - Torque Specifications)
11. Using a straight edge, check the pulley alignment from the face of the motor pulley to the face on the blower pulley. Verify that there is no gap and the alignment must be within $\pm 1/32$ inch. (See Figure 34)
12. Using the ½ inch socket, install the belt guard.



Figure 24 - Install Uni-mounts

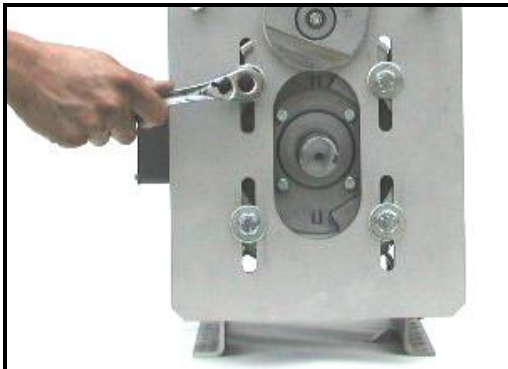


Figure 25 - Mount Bracket to Motor



Figure 26 - Prepare Bushing

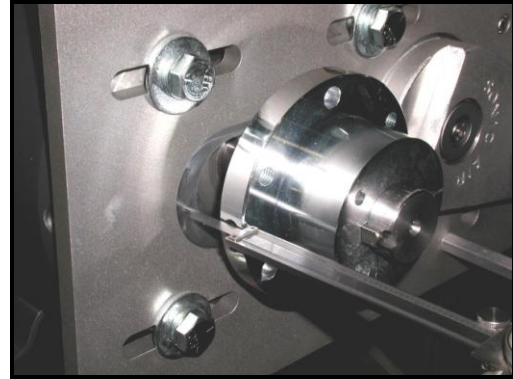


Figure 27 - Install Bushing



Figure 28 - Install Bushing Hardware

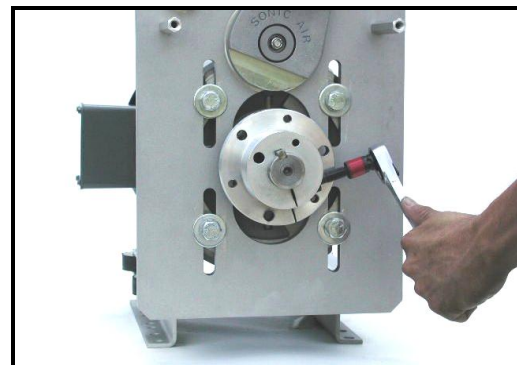


Figure 29 - Bushing Installation

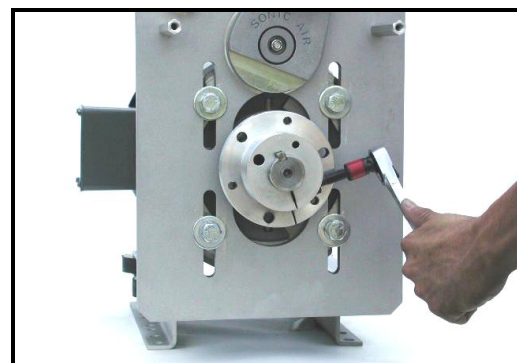


Figure 30 - Install Set Screw

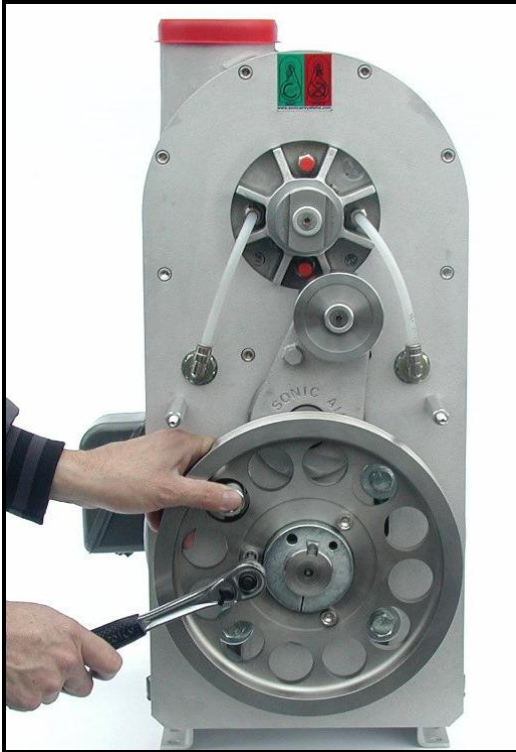


Figure 31 - Install Motor Pulley

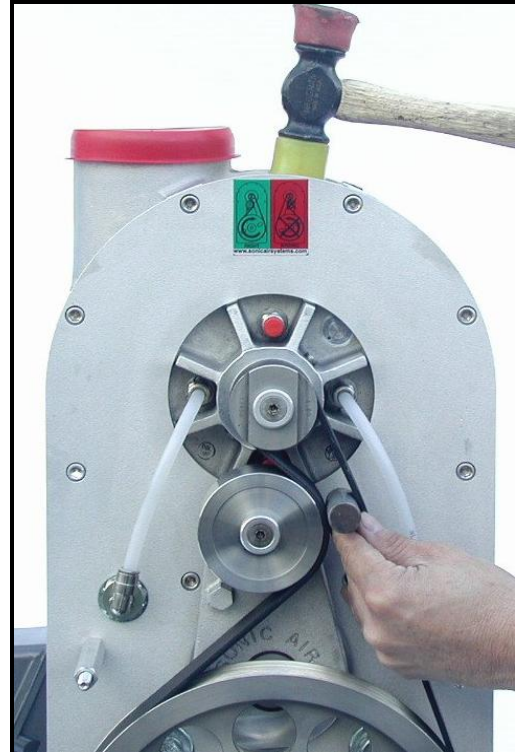


Figure 33 – Set Belt Gap to 1/4"

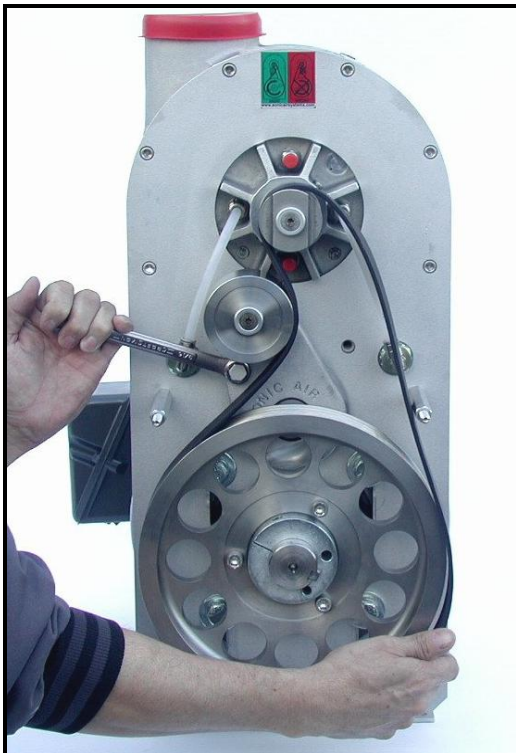


Figure 32 – Install Belt

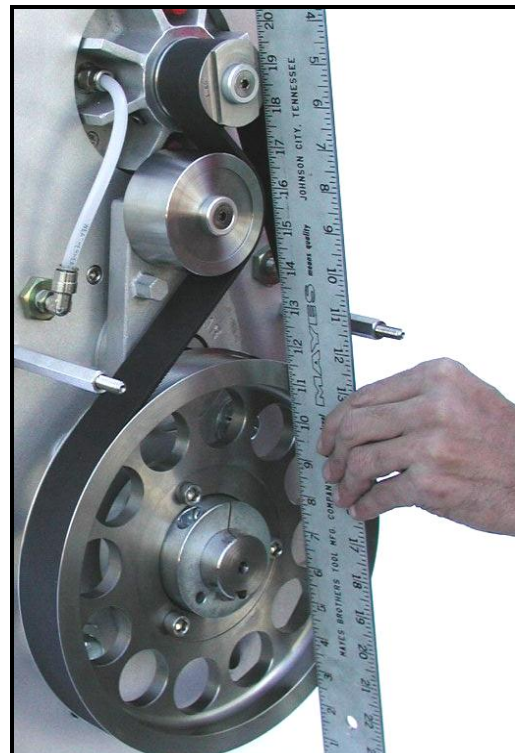


Figure 34 –Check Alignment

5 Electrical Wiring, and Start-Up

5.1 Motor Wiring

- Only qualified personnel should perform motor wiring. Review motor nameplate for wiring diagram and wiring information. Many Sonic motors are dual rated for 50 and 60 hertz operation and therefore will have two nameplates. Every motor is supplied with a sticker indicating the hertz set up of the blower unit.

50 HZ

60 HZ

- Never run a Sonic blower open to the atmosphere as this can cause overloading and damage to the motor.
- All Sonic blowers must rotate clockwise (CW) when viewing the pulley or counter clockwise (CCW) when viewing the cooling fan end of the motor. See the arrow mounted on the motor housing for direction of rotation.



- Sonic blowers are shipped with the drive belt removed. This is because the motor rotation should be checked before installing the belt. Running the blower / motor assembly backwards will cause the blower to under perform by 20%. Running backwards for prolonged periods will cause premature failure of the belts and permanent damage to the belt tensioner assembly. Refer to the Motor Rotation Sticker located on the mounting bracket for correct motor rotation and belt installation. (See Figure 35)

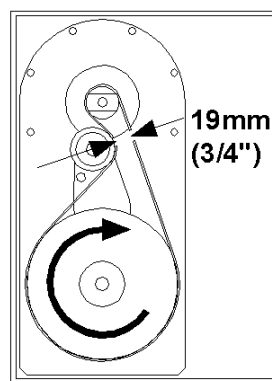
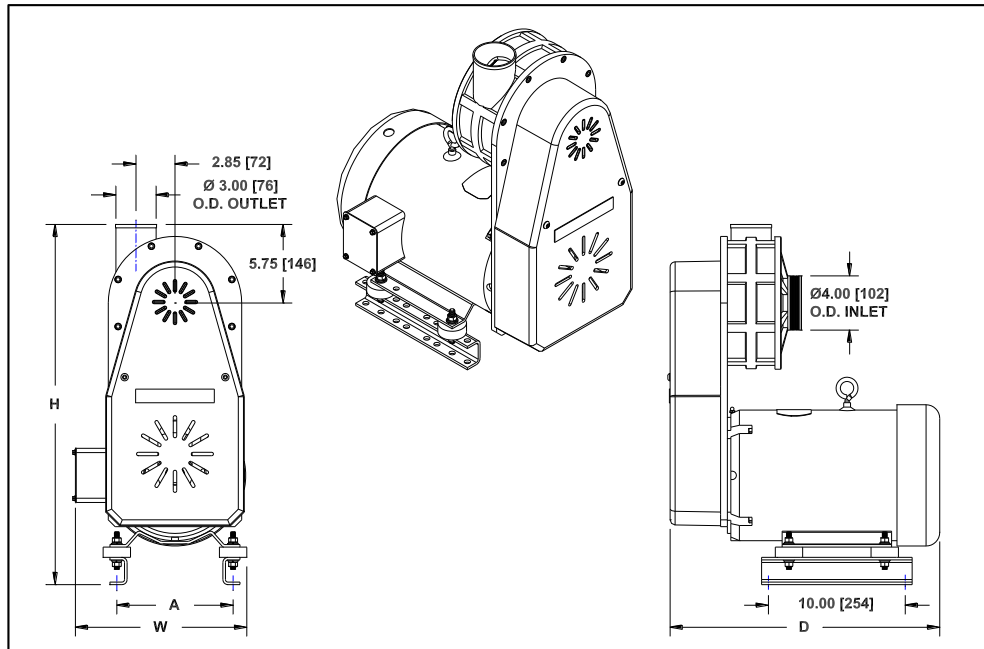


Figure 35 - Motor Rotation Sticker

- If the Blower is subject to multiple Starts/Stops or more than one every seven (7) minutes, then installation of a Soft Start or Sonic Air Diverter (**Y-Verter™ Valve**) is recommended

6 Blower Specifications

6.1 Blower Specification Sheet



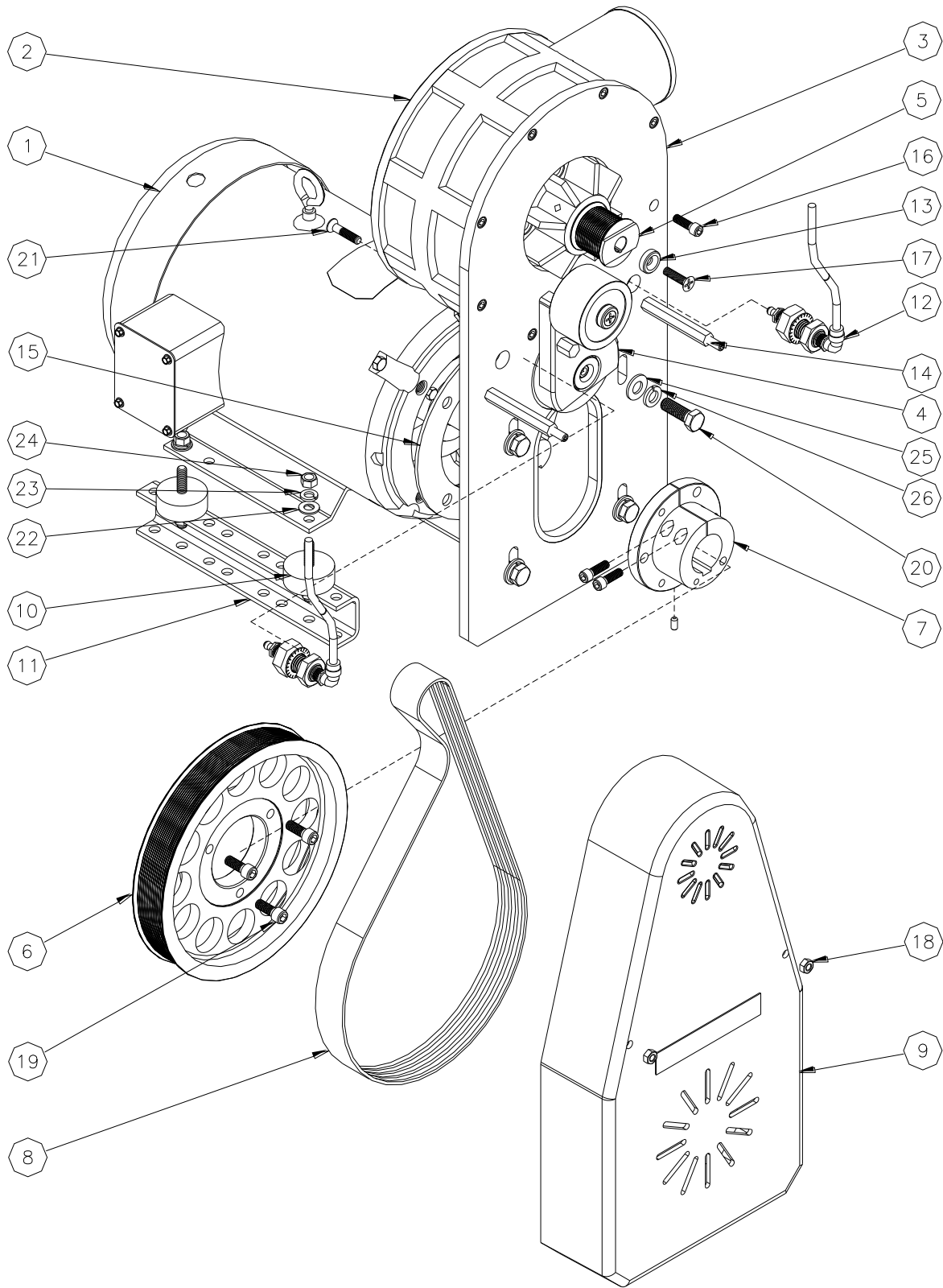
Component Specifications

Description	Blower – Sonic 85				Blower –Sonic 85 Water Cooled			
Sonic P/N	13347	13353	13358	13363	13349	13354	13359	13364
Output Flow Rate	85 cfm (40 lps) to 850 cfm (401 lps)				85 cfm (40 lps) to 850 cfm (401 lps)			
Ambient Temperature	10°F (-12°C) to 105°F (40°C)				10°F (-12°C) to 105°F (40°C)			
Air Temperature Range	< 125°F (52°C)				125°F (52°C) to 400°F (205°C)			
Motors Available	3 Hp	5 Hp	7.5 Hp	10 Hp	3 Hp	5 Hp	7.5 Hp	10 Hp
Width (W)	11.00 in (280 mm)	11.00 in (280 mm)	11.00 in (280 mm)	12.50 in (318 mm)	11.00 in (280 mm)	11.00 in (280 mm)	11.00 in (280 mm)	12.50 in (318 mm)
Depth (D)	16.56 in (421 mm)	18.0 in (458 mm)	19.63 in (499 mm)	21.00 in (534 mm)	16.56 in (421 mm)	18.0 in (458 mm)	19.63 in (499 mm)	21.00 in (534 mm)
Height (H)	25.0 in (635 mm)	25.0 in (635 mm)	25.0 in (635 mm)	25.56 in (650 mm)	25.0 in (635 mm)	25.0 in (635 mm)	25.0 in (635 mm)	25.56 in (650 mm)
Mounting Pattern (A)	7.5 in (191 mm)	7.5 in (191 mm)	7.5 in (191 mm)	8.5 in (216 mm)	7.5 in (191 mm)	7.5 in (191 mm)	7.5 in (191 mm)	8.5 in (216 mm)
Approximate Weight	103 lbs (46.8 kg)	119 lbs (54.1 kg)	133 lbs (60.5 kg)	161 lbs (73.2 kg)	103 lbs (46.8 kg)	119 lbs (54.1 kg)	133 lbs (60.5 kg)	161 lbs (73.2 kg)

Replacement Belt P/N

Pulley 1.50 to 2.20 Diameter	13514	13514	13514	13514	13514	13514	13514	13514
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6.2 Assembly Drawing



6.3 Parts List

6.3.1 Sonic 85 Blower Unit

Item No.	Part No.	Description	Qty.
1	Section 6.4.1	Motor, Electric	1
2	14454	Blower Head, Sonic 85	1
3	Section 6.4.1	Bracket, Sonic 85	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
7	Section 6.4.1	Bushing Kit	1
8	Section 6.5	Belt	1
9	10711	Belt Guard	1
10	11934	Vibration Isolators	4
11	10653	Uni-mounts	2
12		(Not Required)	
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1
18	12342	Nut, 5/16-18 Hex SS w/ Nylock	2
19	10284	Screw, 3/8-16 x 1.0 Lg. SHCS (Bushing Kit)	3
20	10254	Screw, 3/8-16 x 1.5 Lg. HHC Plated (3, 5, 7.5 hp)	4
20(a)	10759	Screw, 1/2-13 x 1.5 Lg. HHC Plated (10 hp)	4
21	12340	Screw, 5/16-18 x 1.5 Lg. FHS SS	1
22	11251	Washer, 3/8" Flat Plated	8
23	11407	Lock Washer, 3/8" Plated	8
24	10273	Nut, 3/8-16 Hex Plated	8
25	11251	Washer, 3/8" Plated (3, 5, 7.5 hp)	4
25(a)	10263	Washer, 1/2" Plated (10 hp)	4
26	11407	Lock Washer, 3/8" Plated (3, 5, 7.5 hp)	4
26(a)	12364	Lock Washer, 1/2" Plated (10 hp)	4

6.3.2 Sonic 85C Blower Unit

Item No.	Part No.	Description	Qty.
1	Section 6.4.1	Motor, Electric	1
2	14455	Blower Head, Sonic 85 Water Cooled	1
3	Section 6.4.1	Bracket, Sonic 85	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
7	Section 6.4.1	Bushing Kit	1
8	Section 6.5	Belt	1
9	10711	Belt Guard	1
10	11934	Vibration Isolators	4
11	10653	Uni-mounts	2
12		Feed thru Assembly – Water Cooled	2
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1
18	12342	Nut, 5/16-18 Hex SS w/ Nylock	2
19	10284	Screw, 3/8-16 x 1.0 Lg. SHCS (Bushing Kit)	3
20	10254	Screw, 3/8-16 x 1.5 Lg. HHC Plated (3, 5, 7.5 hp)	4
20(a)	10759	Screw, 1/2-13 x 1.5 Lg. HHC Plated (10 hp)	4
21	12340	Screw, 5/16-18 x 1.5 Lg. FHS SS	1
22	11251	Washer, 3/8" Flat Plated	8
23	11407	Lock Washer, 3/8" Plated	8
24	10273	Nut, 3/8-16 Hex Plated	8
25	11251	Washer, 3/8" Plated (3, 5, 7.5 hp)	4
25(a)	10263	Washer, 1/2" Plated (10 hp)	4
26	11407	Lock Washer, 3/8" Plated (3, 5, 7.5 hp)	4
26(a)	12364	Lock Washer, 1/2" Plated (10 hp)	4

6.3.3 Sonic 85 Retro Kit

Item No.	Part No.	Description	Qty.
1		(Not Supplied)	
2	14454	Blower Head, Sonic 85	1
3	Section 6.4.1	Bracket, Sonic 85	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
7	Section 6.4.1	Bushing Kit	1
8	Section 6.5	Belt	1
9	10711	Belt Guard	1
10	11934	Vibration Isolators	4
11	10653	Uni-mounts	2
12		(Not Required)	
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1
18	12342	Nut, 5/16-18 Hex SS w/ Nylock	2
19	10284	Screw, 3/8-16 x 1.0 Lg. SHCS (Bushing Kit)	3
20	10254	Screw, 3/8-16 x 1.5 Lg. HHC Plated (3, 5, 7.5 hp)	4
20(a)	10759	Screw, ½-13 x 1.5 Lg. HHC Plated (10 hp)	4
21	12340	Screw, 5/16-18 x 1.5 Lg. FHS SS	1
22	11251	Washer, 3/8" Flat Plated	8
23	11407	Lock Washer, 3/8" Plated	8
24	10273	Nut, 3/8-16 Hex Plated	8
25	11251	Washer, 3/8" Plated (3, 5, 7.5 hp)	4
25(a)	10263	Washer, ½" Plated (10 hp)	4
26	11407	Lock Washer, 3/8" Plated (3, 5, 7.5 hp)	4
26(a)	12364	Lock Washer, ½" Plated (10 hp)	4

6.3.4 Sonic 85C Retro Kit

Item No.	Part No.	Description	Qty.
1		(Not Supplied)	
2	14455	Blower Head, Sonic 85 Water Cooled	1
3	Section 6.4.1	Bracket, Sonic 85	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
7	Section 6.4.1	Bushing Kit	1
8	Section 6.5	Belt	1
9	10711	Belt Guard	1
10	11934	Vibration Isolators	4
11	10653	Uni-mounts	2
12		Feed thru Assembly – Water Cooled	2
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1
18	12342	Nut, 5/16-18 Hex SS w/ Nylock	2
19	10284	Screw, 3/8-16 x 1.0 Lg. SHCS (Bushing Kit)	3
20	10254	Screw, 3/8-16 x 1.5 Lg. HHC Plated (3, 5, 7.5 hp)	4
20(a)	10759	Screw, ½-13 x 1.5 Lg. HHC Plated (10 hp)	4
21	12340	Screw, 5/16-18 x 1.5 Lg. FHS SS	1
22	11251	Washer, 3/8" Flat Plated	8
23	11407	Lock Washer, 3/8" Plated	8
24	10273	Nut, 3/8-16 Hex Plated	8
25	11251	Washer, 3/8" Plated (3, 5, 7.5 hp)	4
25(a)	10263	Washer, ½" Plated (10 hp)	4
26	11407	Lock Washer, 3/8" Plated (3, 5, 7.5 hp)	4
26(a)	12364	Lock Washer, ½" Plated (10 hp)	4

6.3.5 Sonic 85 IEC Retro Kit

Item No.	Part No.	Description	Qty.
1		(Not Supplied)	
2	14454	Blower Head, Sonic 85	1
3	Section 6.4.2	Bracket, Sonic 85 IEC	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
7	Section 6.4.2	IEC Bushing Kit	1
8	Section 6.5	Belt	1
9	10711	Belt Guard	1
10	11934	Vibration Isolators	4
11	10653	Uni-mounts	2
12		(Not Required)	
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1
18	12342	Nut, 5/16-18 Hex SS w/ Nylock	2
19	10284	Screw, 3/8-16 x 1.0 Lg. SHCS (See Bushing Kit)	3
20	12653	Screw, M8 x 40mm Lg. HHC Plated (3, 5, 7.5 hp)	4
20(a)	12654	Screw, M12 x 40mm Lg. HHC Plated (10 hp)	4
21	12340	Screw, 5/16-18 x 1.5 Lg. FHS SS	1
22	11251	Washer, 3/8" Flat Plated	8
23	11407	Lock Washer, 3/8" Plated	8
24	10273	Nut, 3/8-16 Hex Plated	8
25	12767	Washer, M8 Plated	4
25(a)	12770	Washer, M12 Plated	4
26	12766	Lock Washer, M8 Plated	4
26(a)	12771	Lock Washer, M12 Plated	4

6.3.6 Sonic 85C IEC Retro Kit

Item No.	Part No.	Description	Qty.
1		(Not Supplied)	
2	14455	Blower Head, Sonic 85 Water Cooled	1
3	Section 6.4.2	Bracket, Sonic 85 IEC	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
7	Section 6.4.2	IEC Bushing Kit	1
8	Section 6.5	Belt	1
9		Belt Guard	1
10	11934	Vibration Isolators	4
11	10653	Uni-mounts	2
12		Feed thru Assembly – Water Cooled	2
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1
18	12342	Nut, 5/16-18 Hex SS w/ Nylock	2
19	10284	Screw, 3/8-16 x 1.0 Lg. SHCS (See Bushing Kit)	3
20	12653	Screw, M8 x 40mm Lg. HHC Plated (3, 5, 7.5 hp)	4
20(a)	12654	Screw, M12 x 40mm Lg. HHC Plated (10 hp)	4
21	12340	Screw, 5/16-18 x 1.5 Lg. FHS SS	1
22	11251	Washer, 3/8" Flat Plated	8
23	11407	Lock Washer, 3/8" Plated	8
24	10273	Nut, 3/8-16 Hex Plated	8
25	12767	Washer, M8 Plated	4
25(a)	12770	Washer, M12 Plated	4
26	12766	Lock Washer, M8 Plated	4
26(a)	12771	Lock Washer, M12 Plated	4

6.3.7 Sonic 85 Upgrade Kit

Item No.	Part No.	Description	Qty.
2	14454	Blower Head, Sonic 85	1
3	Section 6.4.1	Bracket, Sonic 85	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
8	Section 6.5	Belt	1
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1

6.3.8 Sonic 85C Upgrade Kit

Item No.	Part No.	Description	Qty.
2	14455	Blower Head, Sonic 85 Water Cooled	1
3	Section 6.4.1	Bracket, Sonic 85	1
4	13455	Belt Tensioner Assembly	1
5	13450	Pulley, Blower	1
6	13524	Pulley, Motor	1
8	Section 6.5	Belt	1
12		Feed thru Assembly – Water Cooled	2
13	15018	Retainer – Blower Pulley	1
14	13506	Standoff Assembly	2
15	10336	Spacer, C-Face NEMA / IEC	1
16	10454	Screw, 5/16-18 x 1.0 Lg. SHCS SS	10
17	13482	Screw, 5/16-24 x 1.0 Lg. FHCS SS	1

6.4 Motor Reference

All standard Sonic supplied motors are equipped with C-face, foot mounted, and are for 3 phase power only. Special motors are available from Sonic Air Systems and are not included in the following tables.

6.4.1 Nema Motor Specifications

HP	Part No.	Weight	Hertz (Standard)	Voltage (Standard)	Full Load Amps	RPM
5	12038	76 lbs	60	230 / 480	12 / 6	3450
7.5	12351	92 lbs	60	230 / 480	17.4 / 8.7	3450
10	11592	123 lbs	60	230 / 480	23 / 11.5	3500
15	11611	167 lbs	60	230 / 480	34 / 17	3450

Frame Size (NEMA)	Bracket P/N	Spacer P/N	Bushing Size	Bushing Kit P/N	Vibration Isolator P/N
182C – 184C	13173	10336	0.875 inch	11524	11934
182CZ – 184CZ	13173	10336	1.125 inch	11523	11934
182TC – 184TC	13174	N/A	1.125 inch	11523	11934
213TC – 215TC	13174	N/A	1.375 inch	11519	11934

6.4.2 IEC Motor Specifications

HP	Part No.	Weight	Hertz (Standard)	Voltage (Standard)	Full Load Amps	RPM
7.5	13492	92 lbs	50	400 / 690	11.2 / 6.4	2910
10	13491	123 lbs	50	400 / 690	15.2 / 8.8	2900
15	13475	167 lbs	50	400 / 690	22 / 12.7	2920

Frame Size (IEC)	Bracket P/N	Spacer P/N	Bushing Size	Bushing Kit P/N	Vibration Isolator P/N
D112C	13171	10336	28 mm	12905	11934
D132C	13172	10337	38 mm	12906	11934

6.5 Pulley / Belt Cross Reference

Blower Pulley	Pulley Part No.	Motor Hertz	Belt Part No.
1.50 in DIA	13450-150	50	13514
1.55 in DIA	13450-155	50 / 60	13514
1.60 in DIA	13450-160	50 / 60	13514
1.65 in DIA	13450-165	50 / 60	13514
1.70 in DIA	13450-170	50 / 60	13514
1.75 in DIA	13450-175	50 / 60	13514
1.80 in DIA	13450-180	50 / 60	13514
1.85 in DIA	13450-185	50 / 60	13514
1.90 in DIA	13450-190	50 / 60	13514
1.95 in DIA	13450-195	50 / 60	13514
2.00 in DIA	13450-200	50 / 60	13514
2.10 in DIA	13450-210	50 / 60	13514
2.20 in DIA	13450-220	50 / 60	13514

7 Periodic Maintenance

7.1 Maintenance Schedule

Sonic 85 series blowers are designed for 24 hour / 365 day operation with periodic service and / or replacement of the belts and filters.

The following inspection and service intervals are listed as hours of operation or elapsed time from blower installation, whichever comes first. It is always preferable to perform maintenance earlier than recommended, especially in hot, cold, wet, dirty, or otherwise hostile environments.

Inspection or Task	Frequency
Inspect belt for wear	3 Months / 1,000 Hours
Replace belt	12 Months / 4,000 Hours
Inspect belt tensioner	3 Months / 1,000 Hours
Replace belt tensioner	3 Years / 12,000 Hours
Inspect filter / Replace or Clean filter element	Monthly
Inspect motor and grease bearings	12 Months / 4,000 Hours
Replace motor	5 Years / 20,000 Hours
Bearing cartridge bearings	Sealed – No Service Required
Replace bearing cartridge	4 Years / 16,000 Hours
Inspect blower and motor pulley	3 Months / 1,000 Hours
Inspect hardware torque	12 Months / 4,000 Hours

7.2 Torque Specifications

Bolt Description	Recommended Torque Value
1/4-20 SHCS	12 ft-lbs (16 N-m)
5/16-18 SHCS	25 ft-lbs (34 N-m)
5/16-24 SHCS	20 ft-lbs (27 N-m)
3/8-16 HHC	30 ft-lbs (41 N-m)
3/8-16 SHCS	30 ft-lbs (41 N-m)
1/2-13 HHC	45 ft-lbs (61 N-m)

7.3 Belt Replacement Procedure

7.3.1 Tools Required

Description	Qty.	Description	Qty.
9/16 inch box end wrench	1	9/16 inch deep socket (optional)	1
3/4 inch deep socket (10 hp optional)	1	3/8 inch ratchet driver	1
Rubber mallet (optional)	1	#3 Drive Extension (optional)	1
1/2 inch socket	1		

7.3.2 Belt Replacement Procedure

1. Remove the belt guard using the 1/2 inch socket. (See Figure 36)
2. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW) and remove the belt. (See Figure 37)

3. Clean any belt debris or dust from blower and pulleys. Do not use any abrasive materials on the pulley grooves as this will damage the grooves and cause subsequent belt failures.
4. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW). At the same time wrap the belt around the blower pulley, then along the right side of the idler pulley, and finally around the motor pulley. (See Figure 38)
5. Slowly rotate the motor pulley to make sure the belt is seated in the grooves.
6. Verify that the belt gap is approximately $\frac{3}{4}$ inch $\pm 1/16$ inch. (See Figure 39)
7. If a $\frac{3}{4}$ inch belt gap was not achieved, use a 9/16 inch deep socket (3/4 inch deep socket for 10hp & 15hp) to loosen the bracket mounting screws behind the motor pulley and slide the bracket. (See Figure 40 and Figure 41)(See Section 7.2 - Torque Specifications)
8. Using the $\frac{1}{2}$ inch socket, reinstall the belt guard.



Figure 36 - Remove Belt Guard



Figure 37 - Remove Existing Belt

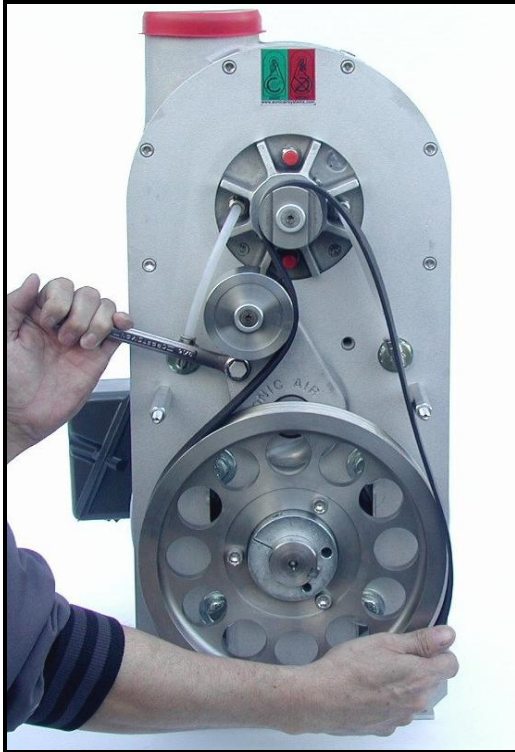


Figure 38 – Install New Belt



Figure 40 – Loosen Bracket Hardware

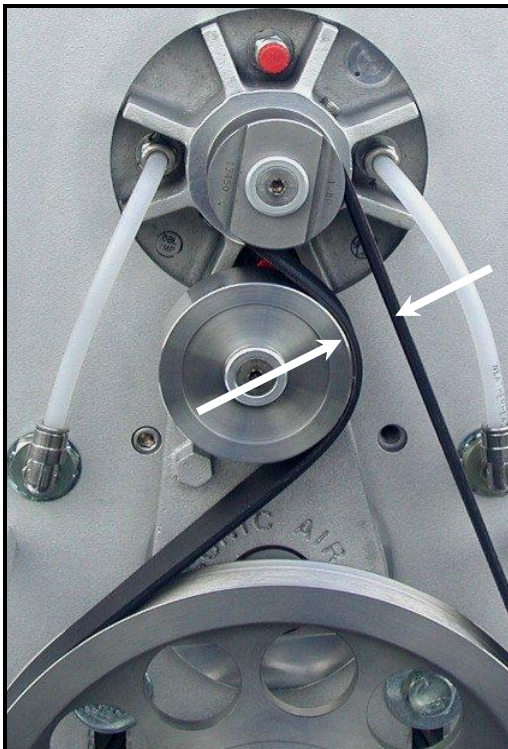


Figure 39 – Verify Belt Gap

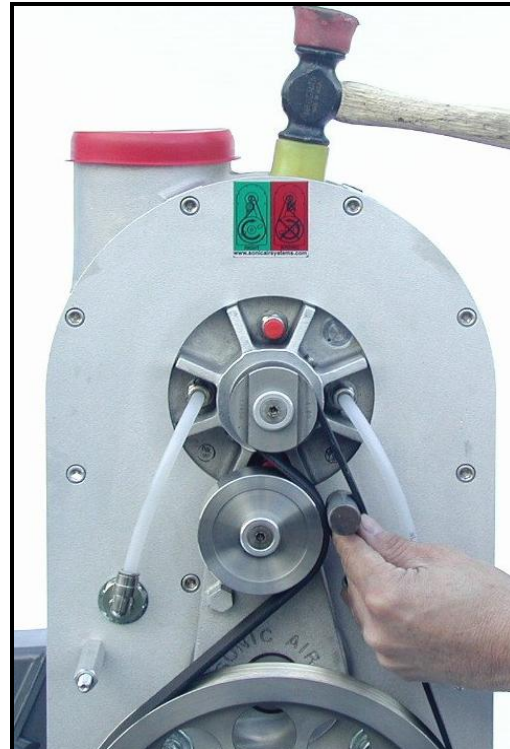


Figure 41 - Adjust Gap to 3/4"

7.4 Belt Tensioner Service

7.4.1 Tools Required

Description	Qty.
3/16 inch allen wrench	1
9/16 inch box end wrench	1
½ inch socket	1
3/8 inch ratchet driver	1

Description	Qty.
Rubber Mallet (optional)	1
9/16 inch deep socket	1
#3 Drive Extension (optional)	1
¾ inch deep socket (10 hp only)	1

7.4.2 Belt Tensioner Service Procedure

1. Remove the belt guard using the ½ inch socket. (See Figure 42)
2. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW) and remove the belt. (See Figure 43)
3. Use the 9/16 inch deep socket (¾ inch deep socket for 10hp & 15hp) to hold the motor pulley in place. Using the 5/16 inch allen socket, remove the motor pulley screws and motor pulley. (See Figure 44)
4. Using the 3/16 inch allen wrench, secure the flat head screw from the back of the bracket while loosening the nylon-insert locknut with a ½ inch socket. This will allow the removal of the belt tensioner. (See Figure 45)
5. **Caution:** After removing belt tensioner, the compression springs will be exposed. Remove these springs temporarily if the new belt tensioner is not installed immediately. Wear safety glasses to prevent potential eye injury. (See Figure 47)
6. At reassembly, the belt tensioner static position should be approximately 25 degrees to the right of blower pulley. Install a new nylon-insert locknut to 20 ft-lbs when installing the new belt tensioner. (See Figure 48)
7. Using the 9/16 inch box-end wrench, rotate the belt tensioner counter clockwise (CCW). At the same time wrap the belt around the blower pulley, then along the right side of the idler pulley, and finally around the motor pulley.
8. Slowly rotate the motor pulley to make sure the belt is seated in the grooves.
9. Verify that the belt gap is approximately ¾ inch ±1/16 inch (Factory Set). (See Figure 49)
10. If a ¾ inch belt gap was not achieved, use a 9/16 inch deep socket (¾ inch deep socket for 10hp & 15hp) to loosen the bracket mounting screws behind the motor pulley and slide the bracket. (See Figure 50 and Figure 51)
11. Using the ½ inch socket, reinstall the belt guard.



Figure 42 - Remove Belt Guard

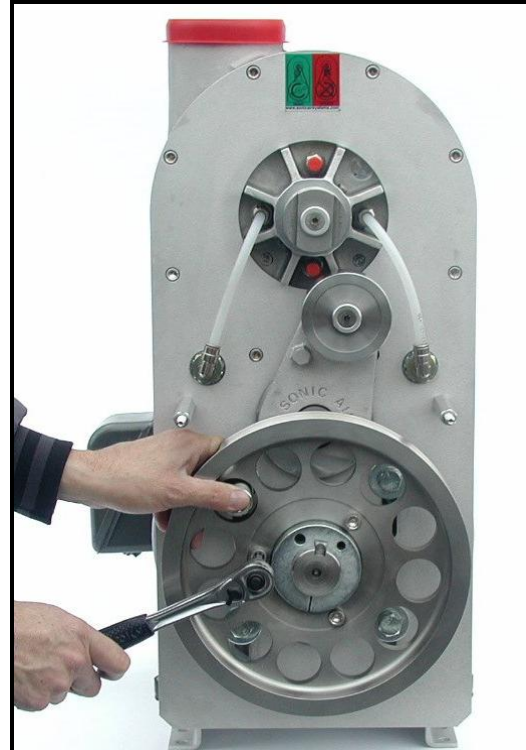


Figure 44 - Remove Motor Pulley



Figure 43 - Remove Belt



Figure 45 - Remove Bolt

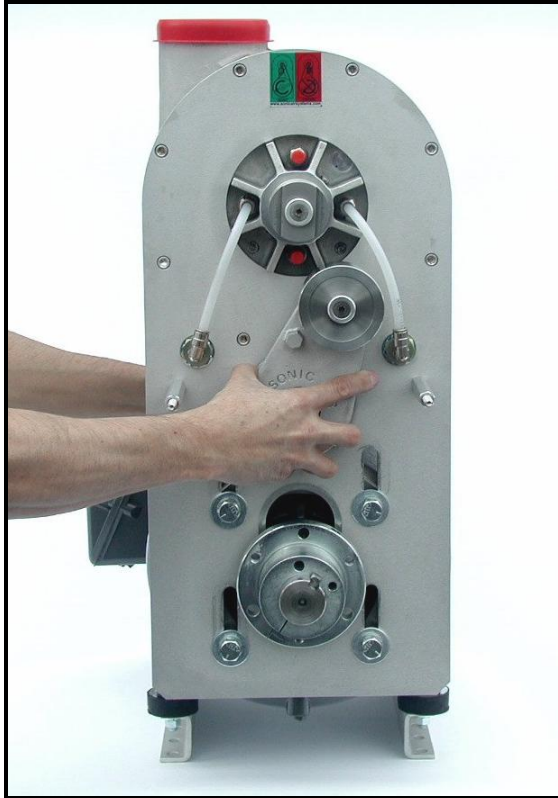


Figure 46 - Remove Belt Tensioner

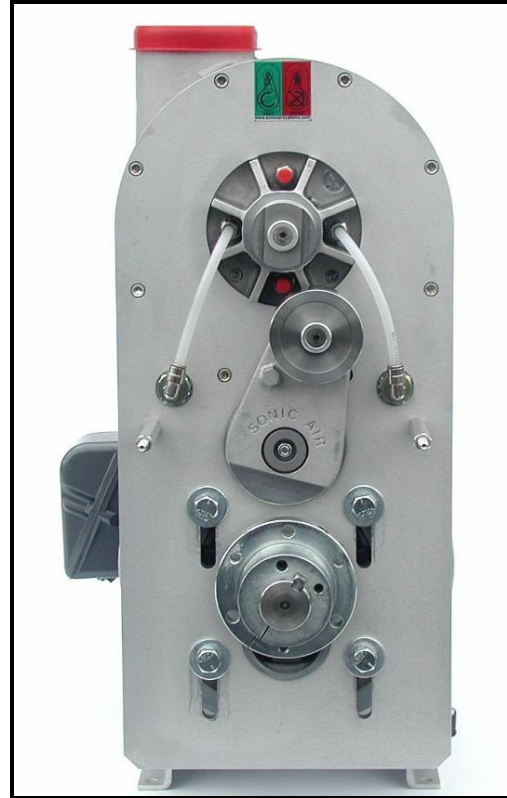


Figure 48 - Correct Position



Figure 47 - Caution Loose Springs

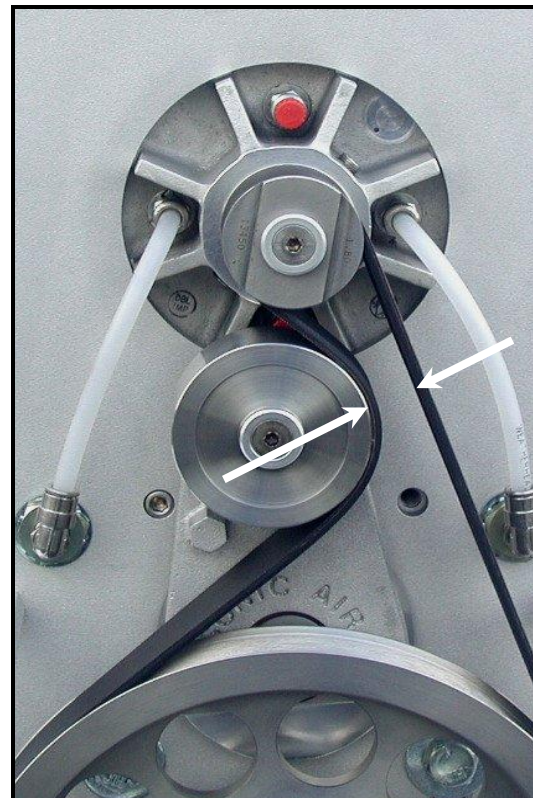


Figure 49 - Verify Belt Gap

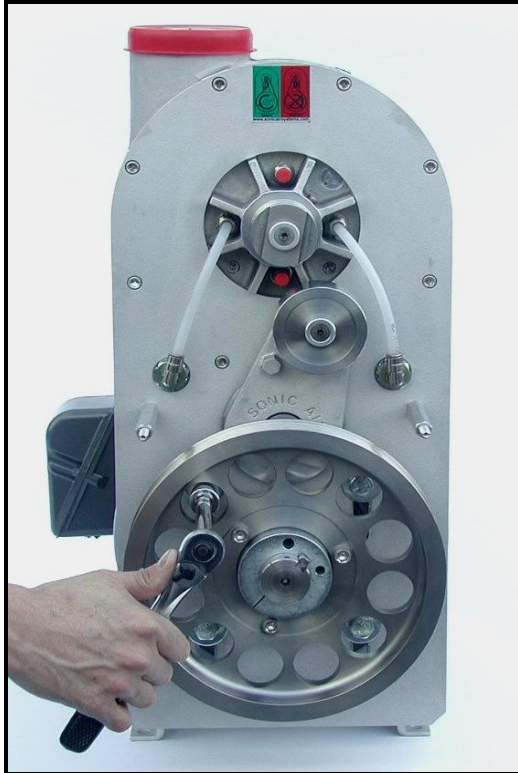


Figure 50 – Loosen Bracket Hardware

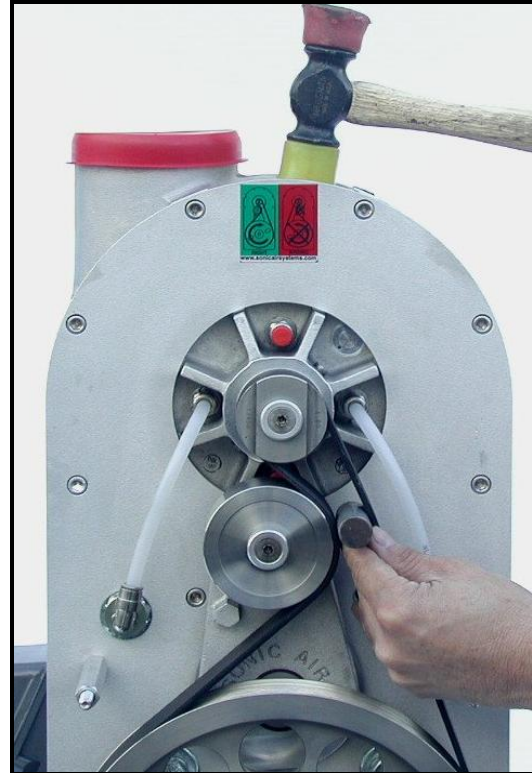
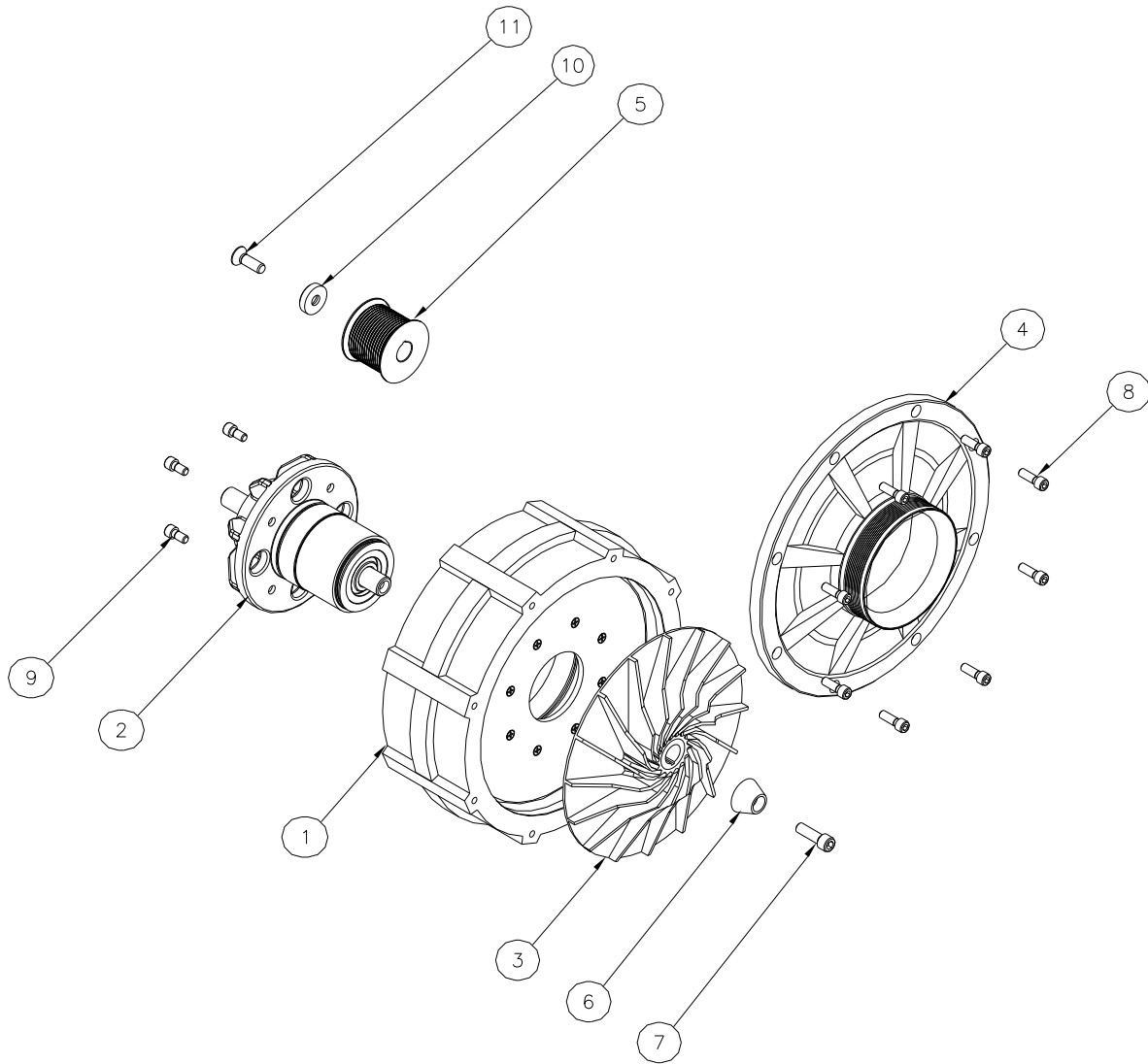


Figure 51 – Adjust Belt Gap to $\frac{3}{4}$ "

7.5 Bearing Cartridge Replacement Procedure

7.5.1 Assembly Drawing



7.5.2 Bearing Cartridge Assembly Parts List

Item No.	Part No.	Description	Qty.
1		Housing-Blower Head	1
	13991	Housing-Sonic 85 BC	
	14449	Housing-Sonic 85C BC	
2	14452	Spindle-Sonic 70/85 Series Bearing Cartridge	1
3	12638	Impeller-Sonic 85/150 Series	1
4	13182	Cover-Sonic 85	1
5	13450-%%%	Pulley-Blower 16G	1
6	10766	Retainer-Impeller	1
7	10769	Screw-5/16-24 x 1.0 lg., SHCS SS	1
8	10686	Screw-1/4-20 x .75lg., SHCS SS	8
9	13759	Screw-1/4-20 x .5 lg., SHCS SS	4
10	15018	Retainer – Blower Pulley	1
11	13482	Screw-5/16-24 x 1.0 lg., FHCS SS	1

7.5.3 Required Tools

Description	Qty.	Description	Qty.
3/16 inch allen wrench	1	Flat Head Screwdriver (optional)	1
9/16 inch box end wrench	1	1 1/8 open end wrench	1
1/2 inch socket	1	1/4 inch allen wrench	1
3/8 inch ratchet driver	1	5/16 inch nut driver	1
1/2 inch open end wrench	1	1/2 inch deep socket	1

7.5.4 Bearing Cartridge Replacement Procedure

1. Remove the belt guard using the 1/2 inch socket. (See Figure 52)
2. Using the 9/16 inch box-end wrench, rotate the belt tensioner arm counter clockwise (CCW) and remove the belt. (See Figure 53)
3. Disconnect the water-cooling lines at the quick disconnect on the blower head. (If Applicable)(See Figure 54)
4. Remove the filter or inlet screen using a flat head screwdriver or a 5/16 inch nut driver. (See Figure 55)
5. Remove cover using a 3/16 allen wrench. (See Figure 56)
6. Remove impeller using an 11/8 inch open end wrench and a 1/4 inch allen wrench. (See Figure 57)
7. Remove blower pulley using a 1 1/8 inch open end wrench and a 3/16 inch allen wrench. (See Figure 58)
8. Remove thermocouple using a 1/2 inch open end wrench. (See Figure 59)
9. Remove compression fitting using a 1/2 inch deep socket. (See Figure 60)
10. Remove bearing cartridge using a 3/16 inch allen wrench. (See Figure 61, Figure 62, and Figure 63)
11. Install new bearing cartridge by reversing previous steps.



Figure 52 - Remove Belt Guard

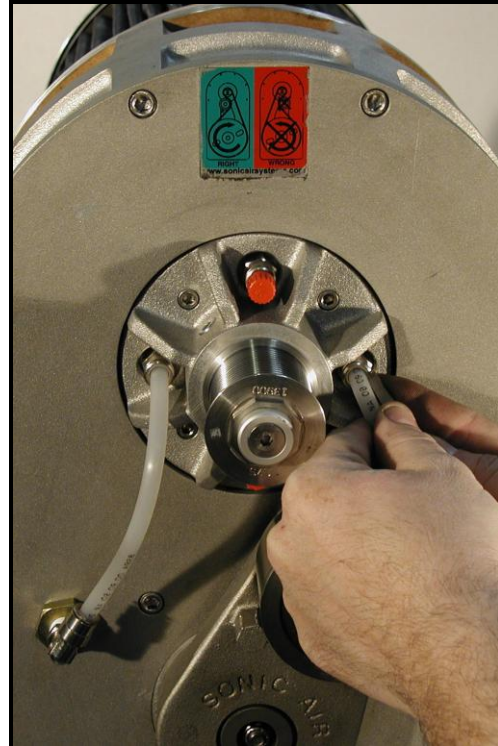


Figure 54 - Remove Water Cooling Tubing

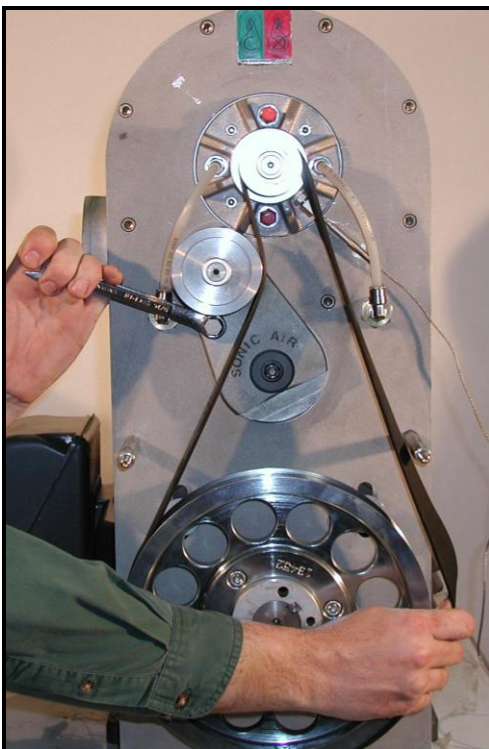


Figure 53 - Remove Belt

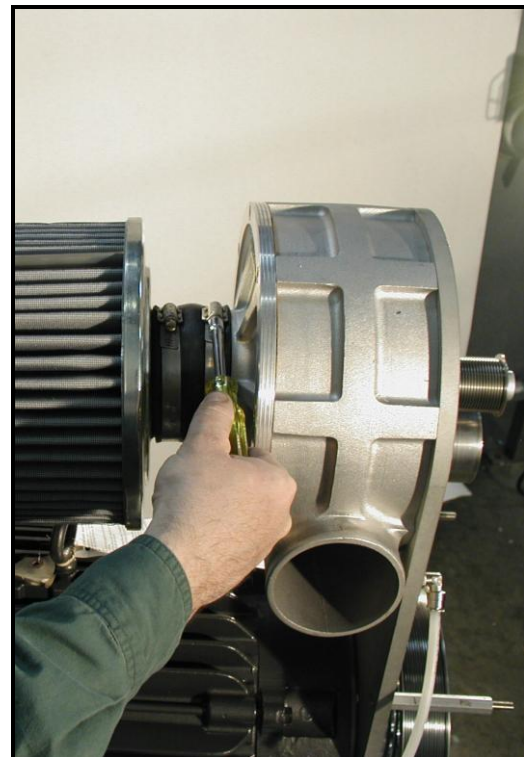


Figure 55 - Remove Filter or Inlet Screen



Figure 56 – Remove Cover

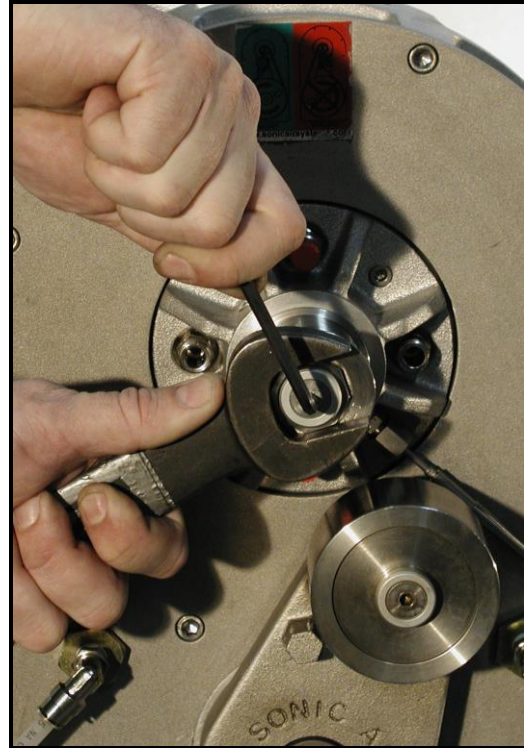


Figure 58 – Remove Blower Pulley

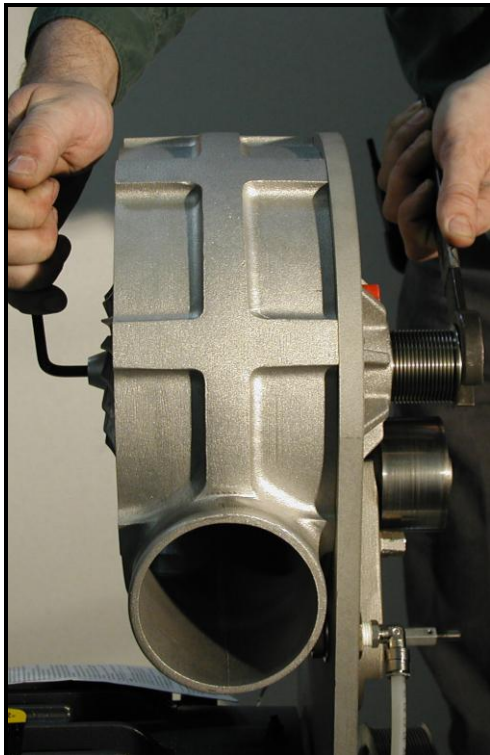


Figure 57 – Remove Impeller

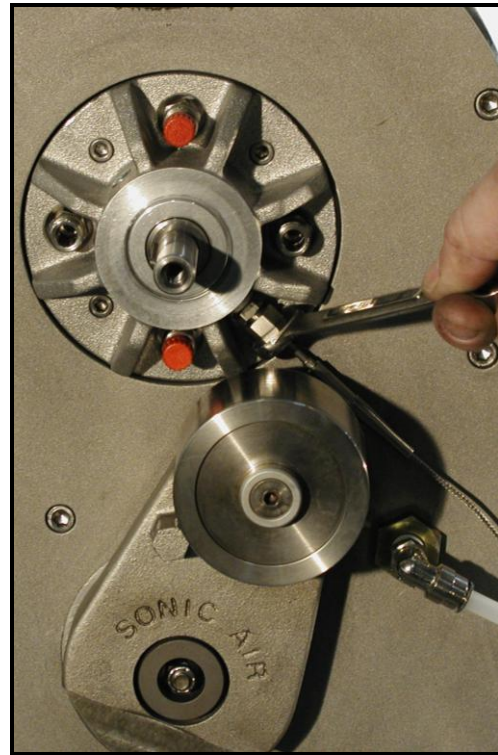


Figure 59 – Remove Thermocouple

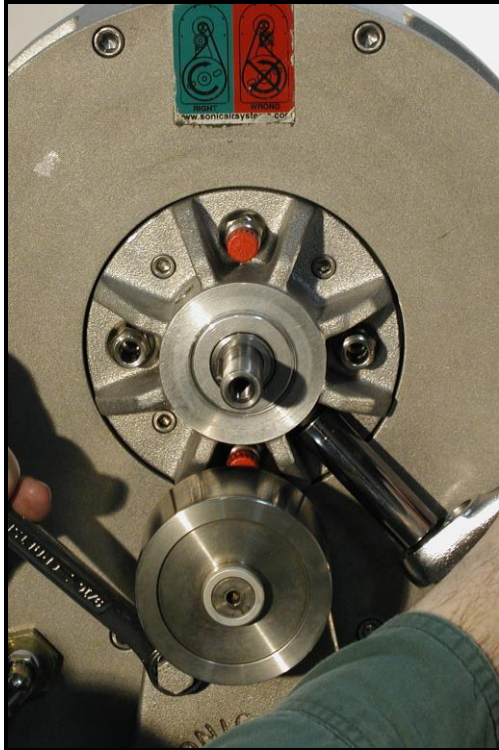


Figure 60 – Remove Compression Fitting

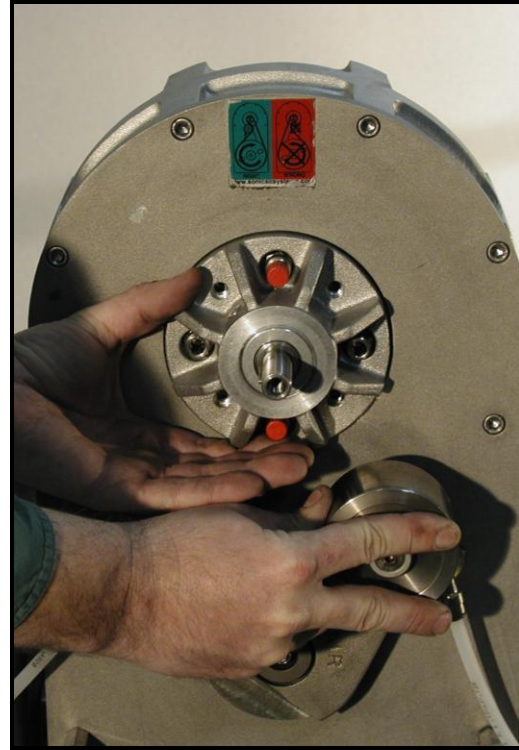


Figure 62 – Remove Bearing Cartridge

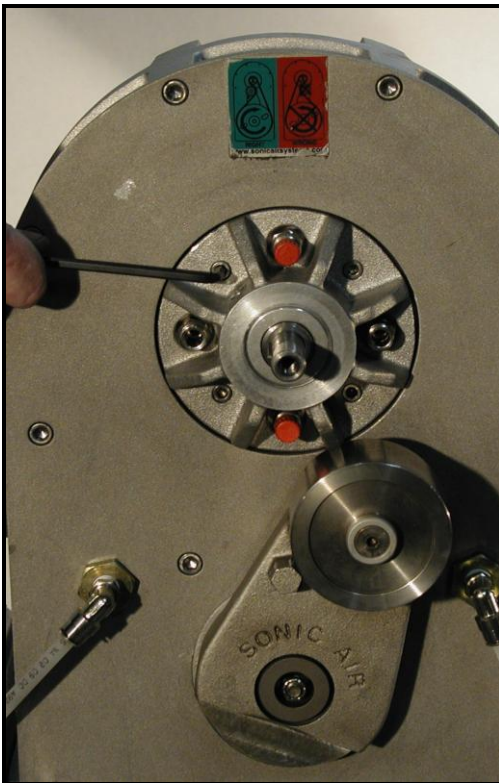


Figure 61 – Remove Bearing Cartridge Hardware

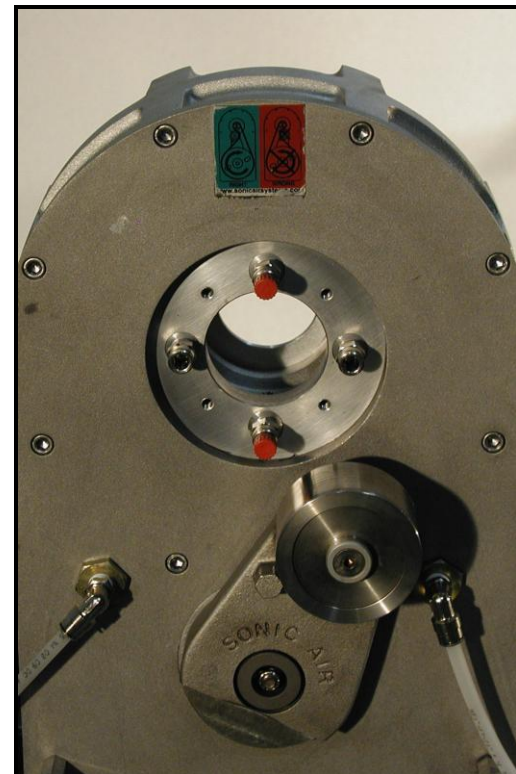


Figure 63 – Blower w/ Bearing Cartridge Removed

7.6 Recommended Spares

Although the Sonic 85 blowers are designed for many years of continued operation, a number of components are wear or consumable items and must be replaced periodically. The following is a list of recommended spare components that should be used to minimize equipment or line down time:

Part No.	Description	Recommended Qty.
14452	Spindle – Sonic 70/85 Series	1
13450-%%%	Pulley, Blower (16 Groove) (%%% Pulley Diameter, 1.45 to 2.20)	1
13524	Pulley, Motor (16 Groove)	1
13514	Belt, Lg., 16 Groove (1.50 to 2.20 Blower Pulley)	2
13455	Belt Tensioner Replacement Kit	1
10316	Filter Element, Paper	2
10317	Filter Element, Polyester	1
See Section 6.4	Motor	1

8 Troubleshooting

Trouble	Cause	Remedy	Section
Low Flow / Pressure / Vacuum	• Blower rotating backwards (Incorrect wiring)	• Reverse motor wiring	5.1
	• Dirty or contaminated filter	• Clean or replace filter element	7.1
	• Collapsed flexible hose lining	• Use only reinforced flexible hose	1.2
	• Air leaks in the system	• Fix leaks	4
	• Closed or damaged valve	• Open or replace valve	1.2
	• Worn or damaged impeller	• Replace impeller and inspect blower housing	7.1
	• Drive belt slipping (Contaminated or damaged)	• Replace belt	4.3, 7.3
		• Replace pulleys	7.1
		• Clean pulleys	7.1
	• Worn pulley	• Replace worn pulleys	7.1
	• Wrong pulley size	• Contact Sonic	Cover
	• Wrong drive belt (Not Sonic approved)	• Use only Sonic supplied belts	4.3, 7.3
Frequent Drive Belt Failure	• Incorrect piping design (Too small)	• Increase piping diameter	4
		• Contact Sonic for design assistance	Cover
	• Improper blower size for application	• Contact Sonic for design assistance	Cover
	• Blower rotating backwards (Incorrect wiring)	• Reverse motor wiring	5.1
	• Motor pulley wobbling	• Replace motor	5.1, 7.1
		• Replace motor bushing	7.1
		• Replace motor pulley	7.1
	• Frequent start / stops without soft start controller	• Install soft start motor controller	5.1
		• Install diverter valve and run continuously	5.1
	• Motor pulley out of alignment	• Realign motor pulley	7.1
		• Replace mounting bracket if damaged	7.1
	• Pulley grooves worn	• Replace pulley	7.1
Electrical Overloading	• Hostile environment (belts contaminated)	• Locate blower in safe location	4.2
		• Purchase Sonic blower enclosure	4.2
	• Wrong belts (Not Sonic approved)	• Use only Sonic supplied belts	4.3, 7.3
	• Incorrect belt installation method	• Properly install belts	4.3, 7.3
Thermocouple Alarm (Optional)	• Worn belt tensioner	• Replace belt tensioner	7.1
	• Liquid entering blower inlet (impeller stall)	• Locate blower in safe location	4
		• Install inline filters	4
	• Exceeding rated CFM	• Contact Sonic	Cover
Irregular / Excessive Noise	• Blower RPM too high (Blower pulley too small)	• Contact Sonic	Cover
	• Motor has winding or bearing damage	• Replace motor	5.1
	• Electrical supply problems	• Replace drive controller	5.1
	• High inlet temperature	• Purchase water cooled blower	4.2.8
Belt Jumping Off	• Dirty air filter	• Reduce inlet temperature	4.2.8
	• High ambient temperature	• Clean or replace filter element	7.1
	• Water cooling low flow	• Purchase water cooled blower	4.2.8
		• Increase flow rate	4.2.8
		• Decrease water temperature	4.2.8
	• Blower speed too high	• Contact Sonic	Cover
	• Broken belt (low temp)	• Replace belt	4.3, 7.3
	• Blockage in air line	• Inspect plumbing and remove blockage	4
	• Leak in air line	• Repair leak	4
	• Inlet silencer damaged	• Replace filter / silencer	7.1
	• Worn drive belt	• Replace belt	4.3, 7.3
	• Bolts loose on blower / motor assembly	• Tighten bolts to proper torque specifications	7.2
	• Motor mounts loose	• Tighten bolts to proper torque specifications	7.2
	• Blower RPM too high	• Contact Sonic	Cover
	• Blower is receiving vibration from nearby equipment	• Install vibration isolators	4.2.7
		• Relocate blower assembly	4.2
	• ¾ inch gap not set	• Adjust belt gap to ¾"	4.3, 7.3
	• Pulleys misaligned	• Realign motor pulley	7.1
		• Replace mounting bracket if damaged	7.1
	• Blower pulley wobbling	• Replace motor	5.1
		• Replace motor bushing	7.1
		• Replace motor pulley	7.1
	• High motor torque	• Replace motor with low torque equivalent	5.1
	• Blower rotating backwards (Incorrect wiring)	• Reverse motor wiring	5.1
	• Belt not set in grooves properly	• Install belt correctly	4.3, 7.3
	• Wrong belt (Not Sonic approved)	• Install Sonic supplied belt	4.3, 7.3

9 Performance Guarantee

Sonic Air Systems, Inc. (SAS) guarantees that each SAS supplied system will meet or exceed the designed level of performance. In the event the system does not achieve the designed performance, SAS will provide additional resources and equipment at no cost or refund 100% of the original purchase price.

- SAS must have quoted the system and supplied the system as quoted
- Buyer pays the original invoice within terms
- Buyer submits notification of system deficiency within 45 days of the original invoice date and allows SAS to remedy the deficiency
- Buyer must obtain written return authorization from SAS for any returns
- Buyer will return the system complete and in like new condition

10 Warranty Policy

Sonic Air Systems, Inc. (SAS) and its employees are proud of our products and are committed to providing our customers with quality, engineered products.

Scope of Warranty: All SAS designed products are warranted against defects in SAS design, workmanship and materials.

Warranty Period:

- Blower motor units are warranted for 18 months commencing on the invoice date from SAS
- Retro-kits and blower heads are warranted for 12 months commencing on the invoice date from SAS
- Repaired blower heads are warranted for 6 months commencing on the invoice date from SAS
- Accessories are warranted for 24 months commencing on the invoice date from SAS

Repairs Within the Scope of the Warranty: If a SAS designed product is defective and the defect occurs during the warranty period, SAS will either repair or replace, whichever SAS believes to be appropriate under the circumstances. SAS is not responsible for removal or reinstallation of product or any incidental or consequential damages resulting from the defect, removal, reinstallation, shipment, or otherwise.

Repairs Outside the Scope of the Warranty: Problems with SAS products can be due to faulty installation, misapplication, inadequate maintenance, non-SAS additions or modifications, or other problems not due to defects in SAS design, workmanship or materials. If SAS determines the warranty consideration is not due to defects in SAS design, workmanship or materials, the buyer will be responsible for the cost of any necessary repairs.

Procedure to Receive Warranty Service:

- Buyer obtains a written return authorization number from SAS
- The authorization number must be noted on the outside of the shipping container
- Buyer will ship F.O.B. destination freight prepaid to SAS factory
- Non-compliance to any of the above procedures, damage resulting from improper packaging, or product exposed to a hazardous substance may result in SAS refusing shipment
- International buyer, please contact SAS for the nearest authorized warranty center

Warranty exclusions:

- Motors shall be warranted under the respective manufacturer's policy
- Product with a tampered warranty seal
- Damage from fire, flood, theft, or vandalism
- Applications not approved by SAS which includes but not limited to product exposed to toxic, flammable, corrosive or other hazardous substance
- Damage resulting from installation or operational error
- Damage resulting from transportation carrier
- Belts, filter elements, or other similar service items
- Blower heads not repaired by factory authorized personnel

No Other Warranties and Liability Limitation:

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL OR IMPLIED. SAS' LIABILITY IN ALL CASES WILL BE LIMITED TO THE REPLACEMENT PRICE OF ITS PRODUCT. AT NO TIME SHALL SAS BE LIABLE FOR ANY COSTS TO THE BUYER FOR LABOR, TRANSPORTATION OR DOWNTIME RESULTING FROM EQUIPMENT FAILURES BY SAS OR OUR SUPPLIERS.

11 24/7/365 Service Program

Sonic Air Systems, Inc. (SAS) provides emergency product and shipping service, 24 hours a day, 7 days a week, 365 days a year, to all customers, worldwide. Shipments are made by Federal Express, UPS or UPS' Sonic Air Service or product may be picked up will-call at the SAS facility in Brea, CA USA. Simply call us at (714) 473-3694 for your immediate service needs.

- SAS charges Sonic list price to the buyer
- Distributor discounts and commissions are ineligible on this program
- All costs will be charged to the buyer's credit card (Master Card, Visa, or American Express, only) or to their previously established SAS credit line that is currently in good standing
- Payments made in US dollars only
- The cost for UPS' SonicAir Service is approximately \$500.00 for a 25 pound package for next flight delivery within the USA
- International shipments will take additional time due to import regulations within the country of destination
- UPS' SonicAir Service will attempt to have the product(s) clear international customs and import procedures, however, UPS cannot guarantee governmental acceptance
- SAS return authorization procedures and policies apply

12 Sonic Repair Policy

Sonic blower heads are high-speed close tolerance machined components. The Sonic 100 blower head is rated for a 20,000 RPM maximum impeller speed. Sonic uses only the best internal components for the blower head assembly and is confident that the head will perform exceptionally in the application it was designed to perform. As with all moving components, the blower head is subject to wear and eventually will fail. Periodic maintenance and inspections will ensure the longest possible life expectancy for the blower head. The most typical mode of failure will be from the shaft bearings and with periodic inspections; this failure can be predicted to some extent. Sonic can also provide a thermocouple option to monitor the temperature of the bearing housing which is used to predict an imminent bearing failure.

Due to the complexity of the internal assembly, the precision components, and the experience of Sonic assembly and repair technicians; it is not recommended that the unit be serviced or repaired in the field. Any attempt to repair the unit within the warranty period will void the warranty. Sonic does offer a repair program in the event the blower fails outside of the warranty period and the blower head is not severely worn or damaged. Sonic recommends that in the event that a blower failure will cause interrupted production, a replacement blower head be purchased as a spare item.

Follow the below return authorization procedure when requesting a blower head repair:

Sonic Air Systems, Inc. (SAS) recognizes the need to return product in certain circumstances. SAS requests written return authorization to track incoming shipments and to efficiently process any repairs or credit invoices.

Repair Return Authorization Procedure

- Buyer issues a purchase order requesting and authorizing a blower head repair (reference purchase order requirements)
- A repair order number will be communicated by 4:30pm PST
- The blower head must include the blower pulley
- The repair order number must be noted on the outside of the shipping container
- Buyer will ship F.O.B. destination freight prepaid to SAS factory
- Non-compliance to any of the above procedures, damage resulting from improper packaging, or product exposed to a hazardous substance may result in SAS refusing shipment
- Repairs will be shipped within 24 hours of receipt in the USA and within 48 hours of receipt internationally