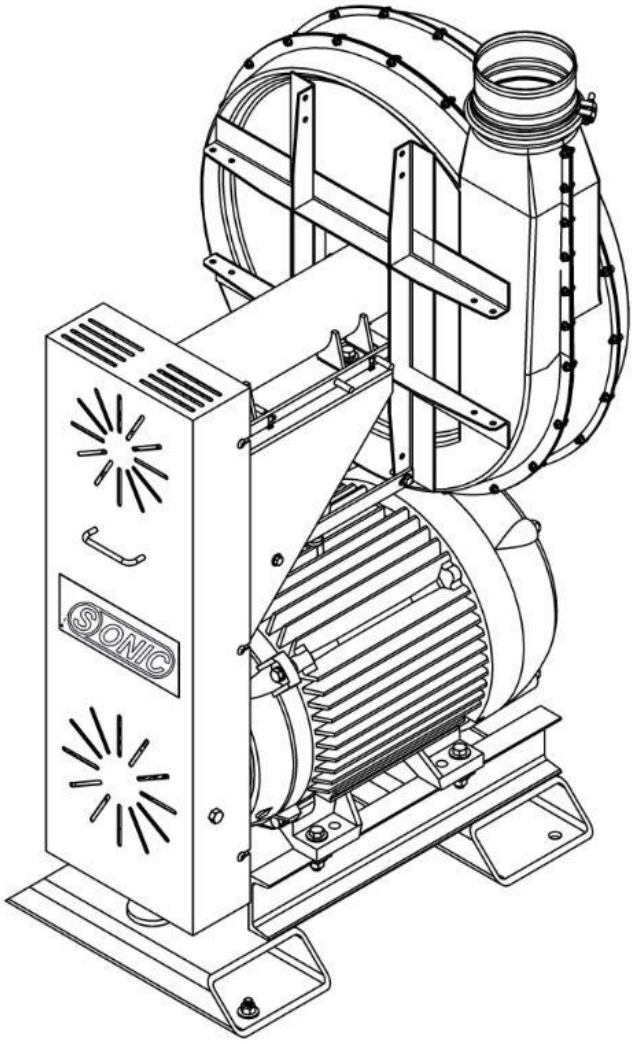
INSTALLATION AND OPERATION MANUAL

SONIC 350 BLOWER



Sonic Air Systems, Inc.
1050 Beacon Street
Brea, California 92821

Phone: (714) 255-0124
Fax: (714) 255-8366
www.sonicairsystems.com

Saving Energy Worldwide...one PSI at a time™

©Copyright 2019-Sonic Air Systems Inc.

Table of Contents

1.1. Electrical  3

1.2. Mechanical  3

2. BLOWER PERFORMANCE & INTERFACES 4

2.2. The Blower Features: 4

2.3. Air Filters 4

2.4. Airknife Systems 4

2.5. Blower Performance 4

2.6. Blower Cavitation (Surging) 5

2.7. Blower Interfaces 5

3. EQUIPMENT INSPECTION AND INSTALLATION 5

3.1. Equipment Inspection 5

3.2. Identification of Blower and Motor 5

Blower Nameplate 6

3.3. Lifting and Handling 8

3.4. Blower Location 9

BELT INSTALLATION AND TENSION ADJUSTMENT 11

1. Belt and Sprockets Combinations 11

2. Belt Removal and Installation 12

3. Sprocket Alignment 14

4. Belt Tension Adjustment 19

SONIC 350 ASSEMBLY – 40&50 HP Motors 23

PARTS LIST AND PART QUANTITIES 24

GENERAL MAINTENANCE 26

TROUBLE SHOOTING 27

©Copyright 2019-Sonic Air Systems Inc.

SAFETY PROCEDURES



1.1. 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 the isolation device has been locked. 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 can not be turned on while personnel 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.

Note: It is recommended to use a soft starter for the motor to prevent belt teeth premature deterioration.

Refer to motor nameplate data for the proper power supply requirements. Make sure the junction box connections are tight and well insulated to prevent shorts and to assure maximum protection against moisture.

Be sure the motor is electrically grounded and the mounting bolts are secure.



1.2. Mechanical

Never run the Sonic blower without the belt guard installed.

Never run the Sonic blower with the outlet open to atmosphere as this can cause motor overload.

Never run the Sonic blower with the inlet open to atmosphere. Always connect the Sonic Inlet Filter to the blower inlet to prevent personal injury and 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 it is running.

Always use proper lifting techniques and equipment.

Observe good safety habits at all times and use care to avoid personal injury or damage to the equipment.

©Copyright 2019-Sonic Air Systems Inc.

2. BLOWER PERFORMANCE & INTERFACES

2.1. Sonic 350 Centrifugal Blower

The Sonic 350 is a dual stage centrifugal blower. With speeds of 3500 up to 4200 RPM, the blower requires a driving power of a 40 to 50 HP motor depending on the amount of airflow demand. The volumetric airflow of the blower ranges between 650 to 3500 SCFM at a discharge pressure ranging between 15 to 100 in. of water. The blower drive consists of motor sprocket, blower sprocket and belt. The procedure for belt tension adjustment is described in Section "Belt Installation and Tension Adjustment".

Of utmost importance in the proper operation of the blower, is the correct face alignment of the blower and motor sprockets. This alignment was performed at Sonic and should not have to be modified. The procedure for sprocket alignment is described in Section "Belt Installation and Tension Adjustment".

> **Note**: The Sonic 350 **is not designed** for series (two stage) operation; consult Sonic engineering for high pressure or vacuum requirements.

2.2. The Blower Features:

- Belt replacement in less than 10 minutes
- Belt tension adjusted with a simple jack screw mechanism
- Permanent grease lubricated bearings for continuous duty
- Dual-stage impeller in series configuration
- Steel construction
- Bracket interface for 40 and 50 HP NEMA and IEC frames
- 4 different blower mounting positions
- Heat of compression temperature rise up to 75°F assists in airknife drying.
- At pressures of 3.5 psi, airknife velocities can reach 35,000 FPM

2.3. Air Filters

For most applications, Sonic filter-silencer assemblies are standard. The filter element is rated to 10 microns and is offered in paper & polyester elements. Paper is low cost and is best suited where frequent cleaning is not required. When heavy dirt loads or moisture is present, polyester elements are best, as they can be cleaned and reused 5-6 times. The vacuum gauge reads normal (green) until the dirt load increases and the red zone reading indicates that filter cleaning or replacement is required. Consult Sonic for HEPA Filters with 0.3 micron rating.

2.4. Airknife Systems

Sonic XE Airknife Systems are designed for each application and must be properly matched to the appropriate Sonic Blower. When properly installed and operated, the electrical load on the motor (amp draw) is intended to be at full load. Any adjustment of the Airknife slots should only be done with the supervision of Sonic Air or our authorized distributor/representative.

2.5. Blower Performance

The Sonic 350 is a dual stage centrifugal blower whose performance is in accordance with fan engineering laws. Horsepower demand increases in proportion to increased volumetric airflow (i.e. motor amperage

©Copyright 2019-Sonic Air Systems Inc.

draw increases). As air volume decreases (valves close, filters clog), the amp draw decreases. Always check a fully installed system to ensure the motor is not overloaded.

2.6. Blower Cavitation (Surging)

The Sonic 350 blower operates properly in the range of flows between 650 and 3500 SCFM without overheating or surging. At flows lower than 650 SCFM the surging is mild however if the blower is run repeatedly at these low settings, the life of the bearings will decrease.

2.7. Blower Interfaces

Blower Inlet – The blower inlet must be coupled to an air inlet filter-silencer or an inlet air safety screen. A Sonic Air inlet filter-silencer should be used in every application in order to protect the blower internal components, to provide the level of air filtration imposed by the application and to reduce the inherent noise which accompanies the flow at the inlet of a turbomachine. Sonic standard filters are rated at 10 microns and are available with paper or polyester elements. Inlet air temperatures must not exceed 125˚F (52˚C). 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 109˚F (43˚C). When air is re-circulated from an Airknife zone, In-Line filters and Water Separators must be used.

Blower Outlet – The blower outlet must always be coupled to a discharge silencer or system piping and directed away from personnel. Discharged air should be silenced to levels required by occupational safety and health standards. In order to minimize the pressure drop and noise transmission, Sonic recommends the use of smooth bore tubing (hard plastic or metal)

Flex Hose and Sleeves – Flex hose can have high-pressure drop and should only be used when absolutely necessary. Flex hose should be able to handle pressures of 10 PSIG at 200ºF (93ºC). 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 T-bolt clamps are standard for blower and piping connections.

Butterfly Valves – Sonic Butterfly Valves are designed to regulate system air flow during normal operation and to allow air leakage in the closed position to prevent blower surging.

3. EQUIPMENT INSPECTION AND INSTALLATION

3.1. Equipment Inspection

Upon receipt of the Sonic Air Centrifugal Blower, make sure that all components listed on the packing slip are present. Check to see that the serial number stamped on the blower housing nameplate matches the packing slip. Inspect the blower to ensure that it is mounted with the correct outlet position and that the motor has the correct horsepower rating, voltage and enclosure. If the inspection reveals any shortages, discrepancies or shipping damage, please call the nearest Sonic Distributor or Sonic Air Systems immediately to have the problems corrected.

3.2. Identification of Blower and Motor

There are two points of identification:

1) Serial number stamped on the nameplate located on the top horizontal rib on the rear of the blower (see Fig. 1).

©Copyright 2019-Sonic Air Systems Inc.

2) Motor manufacturer nameplate on the motor.

Blower Nameplate

Each Sonic Blower has a serial number stamped on the nameplate. Refer to the packing slip and record blower serial number for future reference, on the line below.

Serial No: _____

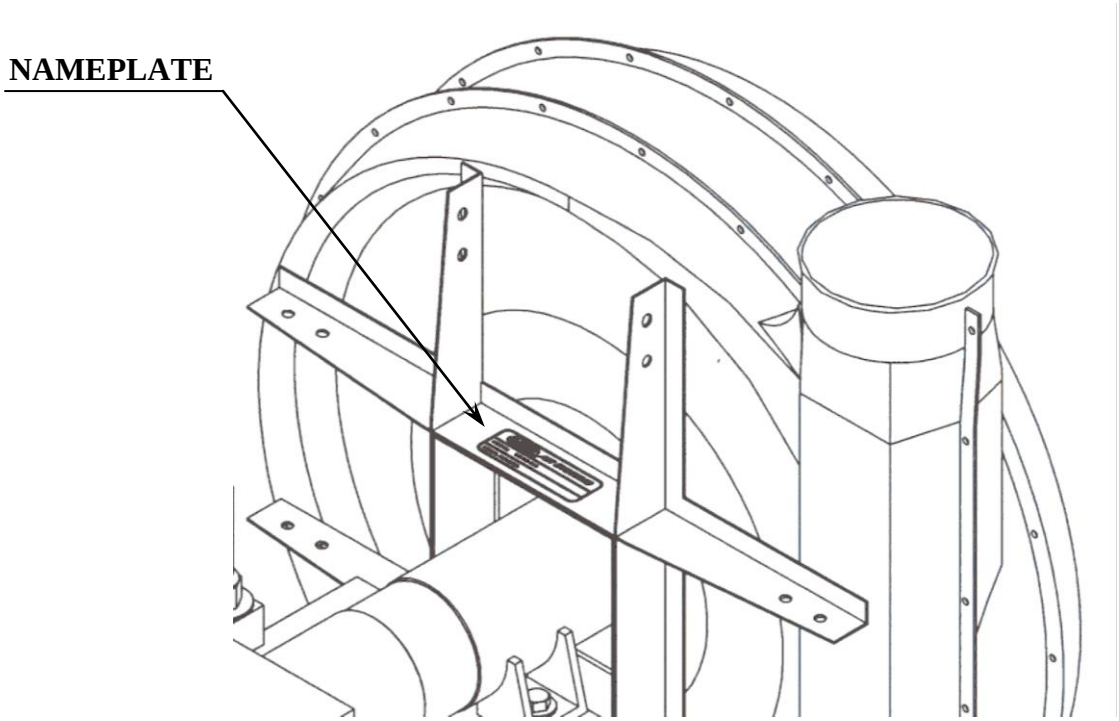
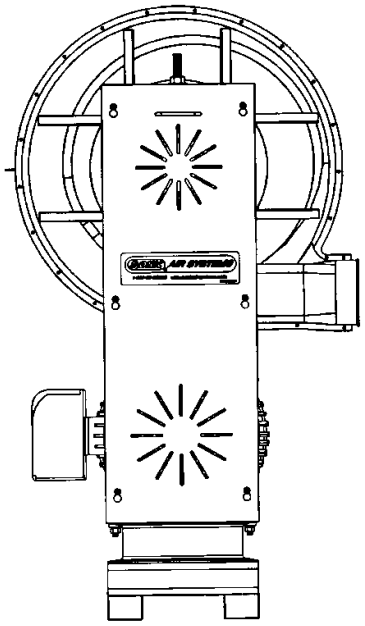
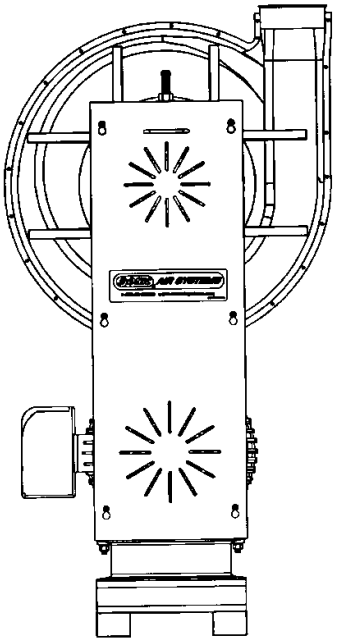


Fig.1 - Blower Identification

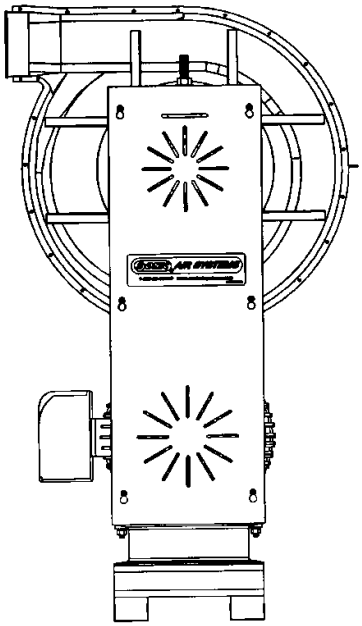
©Copyright 2019-Sonic Air Systems Inc.



POSITION 06



POSITION 04



POSITION 02

Fig.2 - Head Mounting Positions

©Copyright 2019-Sonic Air Systems Inc.

Warning: Blower head **position** is determined by Sonic Air Systems **in agreement** with the customer. Any attempt by the customer to modify the position of the blower head will result in **voiding the factory warranty**.

3.3. Lifting and Handling

Due to the weights of the blower / bracket / motor assemblies, they should be lifted with a hoist or forklift. If lifting the motor independently of the entire assembly it should **only** be hoisted from the single lifting eye located on the top-middle of the housing. If the Blower Head Assembly needs replacing it should **only** be hoisted using (2) lifting straps placed under the Blower cover and hoisted from above. The Bracket, Bracket/Motor Assembly or the Bracket/Motor/Blower Assembly should **only** be lifted with a forklift and using the specially designed bracket legs (rectangular tubing) (see Fig.5). During the handling process follow all safety measures in order to prevent personal injury and equipment damage.

Sonic Equipment	Weight
Sonic 350 with 40 HP TEFC NEMA Frame 324TS	966 lb / 438 Kg
Sonic 350 with 50 HP TEFC NEMA Frame 326TS	1055 lb / 478 Kg
Sonic 350 with 40 HP IEC Frame B14	1055 lb / 478 Kg
Sonic 350 with 50 HP IEC Frame B14	1055 lb / 478 Kg

Note: Motor weight may vary between different manufacturers

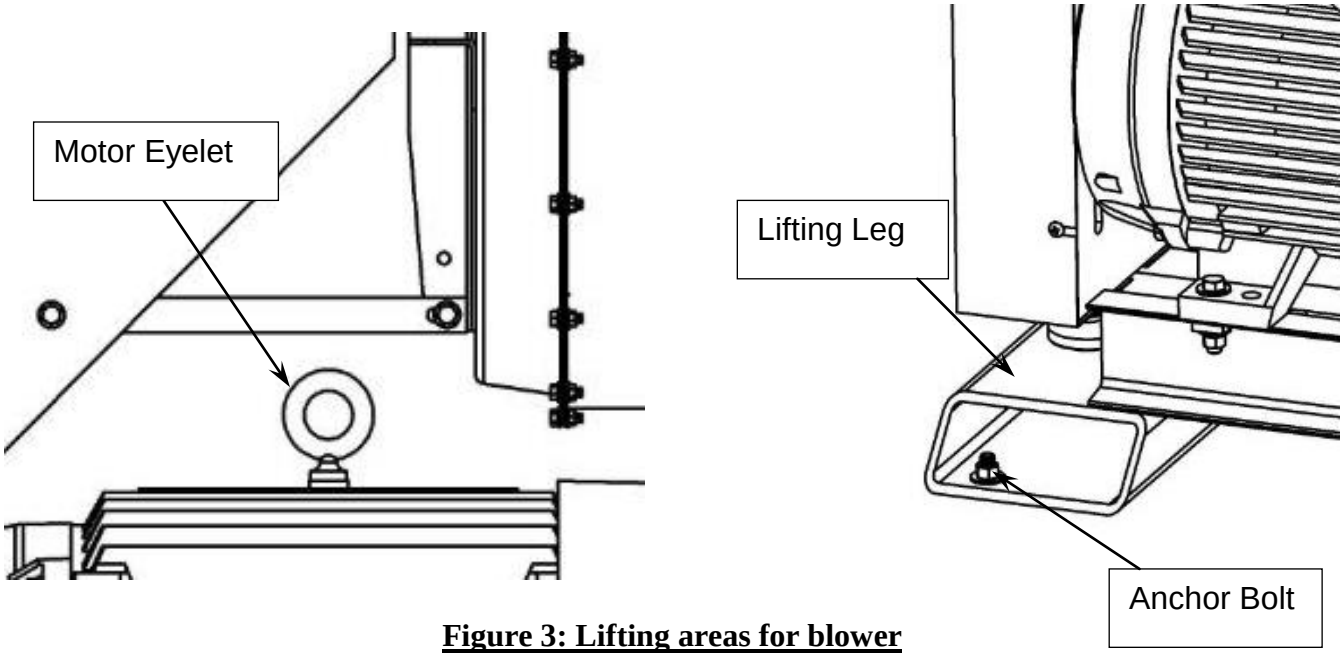


Figure 3: Lifting areas for blower

©Copyright 2019-Sonic Air Systems Inc.

3.4. Blower Location

Access

Make certain to allow room for proper ventilation and accessibility for belt inspection and replacement as well as for inlet filter servicing.

Temperature

The blower/motor assembly must be placed in an area that prevents hard freezes or overheating. Ambient temperature conditions may range from +10˚ F (-12˚ C) to +105˚ F (40˚ C). The blower/motor unit is suitable for outdoor locations, but care should be taken to protect the equipment from temperature extremes, direct exposure to mid day sunshine, rain, snow and dust so as to extend the service life of the blower and motor.

Moisture and Debris

Sonic 350 Blowers have a high-speed belt drive, close tolerance components and precision bearings. Do not put the blower in areas where it will be sprayed from a washing / rinsing zone or over-sprayed by an airknife 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, drier area. A Sonic acoustical blower enclosure will also provide additional protection from external influences safe operation. Contact Sonic for additional information.

Wash Down

In factory locations subject to high-pressure water or caustic wash-down cycles, the blower must be protected or relocated in order to prevent damaging it. Raising the blower 1-2 feet above the wash zone is generally enough. Wash-down duty motors and corrosive resistant blower coatings are available to allow full exposure should it be needed.

Vibration

The Sonic 350 blower has a low vibration level and can be bolted to any type of foundation or framework without transmitting any significant vibration. Sonic Air Systems tests have indicated a maximum velocity of .400 in/sec, a value much smaller than the maximum allowable velocity of 0.708 in/sec imposed by ISO Standard 10816-I, class II-D for rotating equipment in this blower category.

©Copyright 2019-Sonic Air Systems Inc.

MOTOR WIRING AND START-UP

Note: **It is strongly recommended to use a soft starter connected in series with the motor power supply. Using a soft starter has the benefit of preventing drive belt damage (destruction of belt teeth in shear) and of eliminating the electric load bursts that can damage the plant power system**.

● Only qualified personnel should perform motor wiring.

● Never run a Sonic centrifugal blower with the discharge open to atmosphere – such a situation leads to motor overloading and motor damaging.

● The Sonic 350 blower must rotate counter clockwise (CCW) when viewed from the sprocket end or clockwise (CW) when viewed from the cooling fan end of the motor – see Fig.6 below.

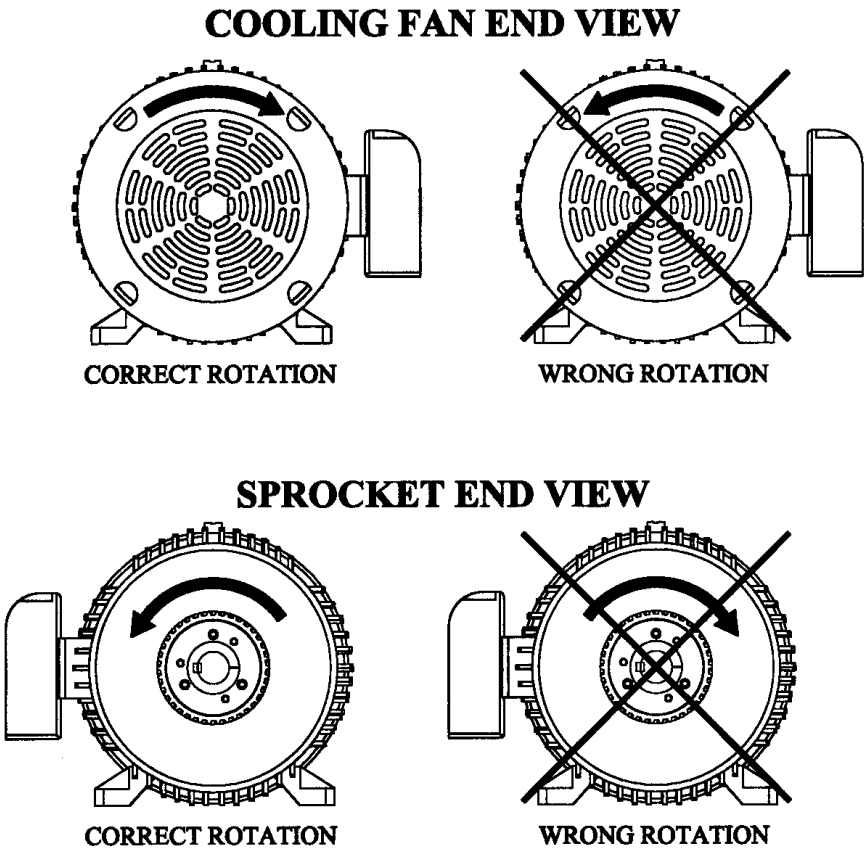


Fig.4 Blower Rotation

©Copyright 2019-Sonic Air Systems Inc.

BELT INSTALLATION AND TENSION ADJUSTMENT

1. Belt and Sprockets Combinations

The Sonic 350 blowers are designed to cover the range of rotational speeds from 2000 RPM through 3500 RPM by using a single size sprocket on the blower shaft and 4 different sprocket sizes on the motor shaft. For any sprocket combination there is only one belt size. To accommodate the different motor shaft sizes specific to the 40 and 50 HP in the NEMA or IEC specifications, it is necessary to use the proper QD bushing (tapered bushing). The tables below give all the part number information applicable to the motor and blower sprockets and QD bushings as well as the drive belt.

Table 1- Drive Belt

Drive Belt Part Number	Drive Belt Length [MM]
12708	1750 (68.90”)

Table 2 - Blower Sprocket and QD Bushing

Sprocket Part Number	Sprocket Outside Diameter [IN]	Sprocket Number of Teeth	QD Bushing Part Number
12772	5.2	30	12678

Table 3 - Motor Sprockets and QD Bushings for use with NEMA motors

			50HP motor	40HP motor
Sprocket Part Number	Sprocket Outside Diameter [IN]	Sprocket Number of Teeth	QD Bushing Part Number	QD Bushing Part Number
12775	6.2	36	12674	12674
12774	5.9	34	12673	12673
12773	5.5	32	12673	12673
12772	5.2	30	12673	12673

Table 4- Motor Sprockets and QD Bushings for use with IEC motors

			40 HP/ 50 HZ	50 HP / 50 HZ
Sprocket Part Number	Sprocket Outside Diameter [IN]	Sprocket Number of Teeth	QD Bushing Part Number	QD Bushing Part Number
12776	6.6	38	12677	12677
12777	6.9	40	12677	12677
12778	7.2	43	12677	12677

©Copyright 2019-Sonic Air Systems Inc.

2. Belt Removal and Installation

Note: this procedure describes belt installation when motor and blower sprockets are aligned; for alignment procedure see paragraph 3 below

2.1 Tools required:

1-1/8 in. open wrench (used at jack-screw hex nut)
15/16 in. socket wrench with 6 in. extension (used at sliding bracket hex nuts)
Cross Recessed (Phillips Head) Screwdriver (used at belt guard screws)
Belt Tension Tester Sonic P/N 12817

2.2 Read all safety procedures before starting any of the following steps.

2.3 Remove belt guard by loosening the six cross-recessed head screws holding it to the structure. Slide the belt guard up and away from the structure (see Fig.7).

2.4 Loosen 1-1/2 turns (**do not remove**) the four 5/8" hex nuts that are holding the blower support bracket to the motor (see Fig.8). Due to the various motor sprocket sizes that are used for any particular application, the center distance of motor / blower sprockets will vary. There is only one belt size used for all applications and, as a consequence, there will be various height positions of the blower relative to the motor.

2.5 Loosen the 3/4" hex lock-nut of the jack-screw mechanism (see Fig.9); turn the jack screw counterclockwise to lower the blower to the proper height that will allow for the belt to easily wrap around motor and blower sprockets. Make sure there is a good meshing between belt teeth and sprocket teeth (see Fig.10).

2.6 In order to raise the blower bracket support and tension the belt, rotate the jackscrew clockwise. Following the procedure described in section 4 below, measure and adjust the belt tensioning force.

2.7 Tighten the four 5/8" hex nuts, that are holding the blower support bracket to the main bracket to 88 +/- 12 ft-lbs. Recheck sprocket alignment as described in section 3 and correct as necessary.

2.8 Tighten the jackscrew locknut.

2.9 Reinstall the belt guard and tighten the six cross-recessed head screws holding it to the structure. Torque to 53 +/- 7 in-lbs.

©Copyright 2019-Sonic Air Systems Inc.

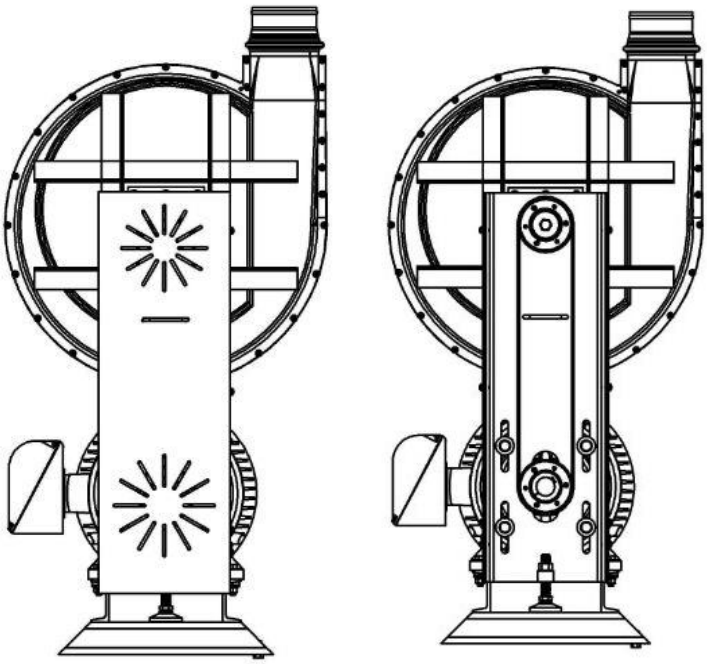


Fig.5 – Removing Belt-guard

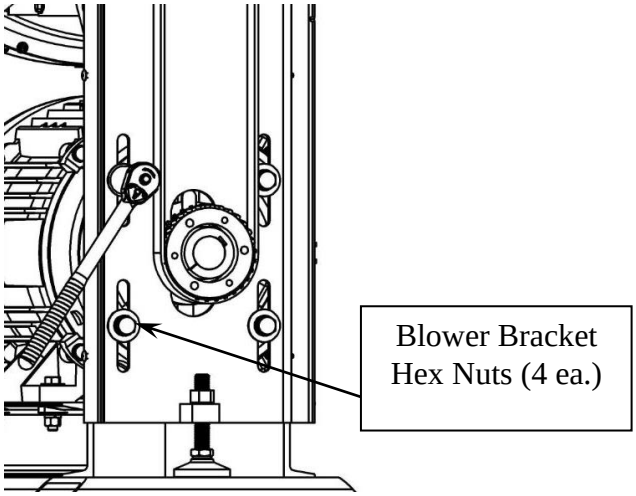


Fig.6 – Blower Bracket Hex Nuts

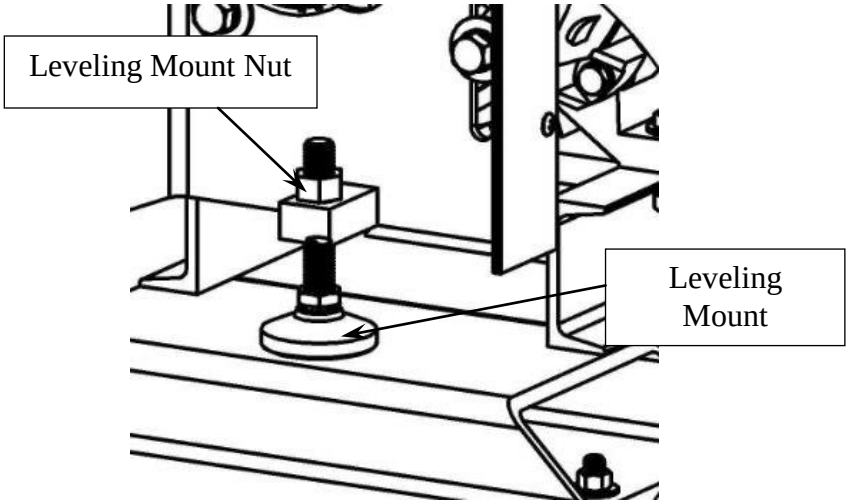


Fig.7 – Jack Screw Hex Nut

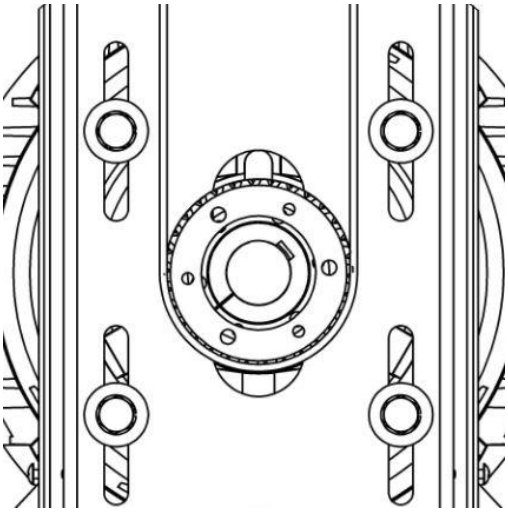


Fig.8 – Belt / Sprocket Mesh

©Copyright 2019-Sonic Air Systems Inc.

3. Sprocket Alignment

Notes **1.**The typical sprocket misalignments encountered with the motor / blower assembly are shown in Fig.11.
2.**No alignment** adjustment is **necessary** at the time of **blower commissioning**.
3.**No alignment** adjustment is **necessary** after **belt replacement.**
4.**No alignment** adjustment is **necessary** after **blower sprocket replacement**.
5.**Offset alignment** adjustment is **necessary** after **motor sprocket replacement**.
6.**Full alignment** adjustment is **necessary** after either **motor or blower replacement.**
7.Keeping sprockets in good alignment provides good meshing between belt and sprockets, reduces vibrations and increases belt life.

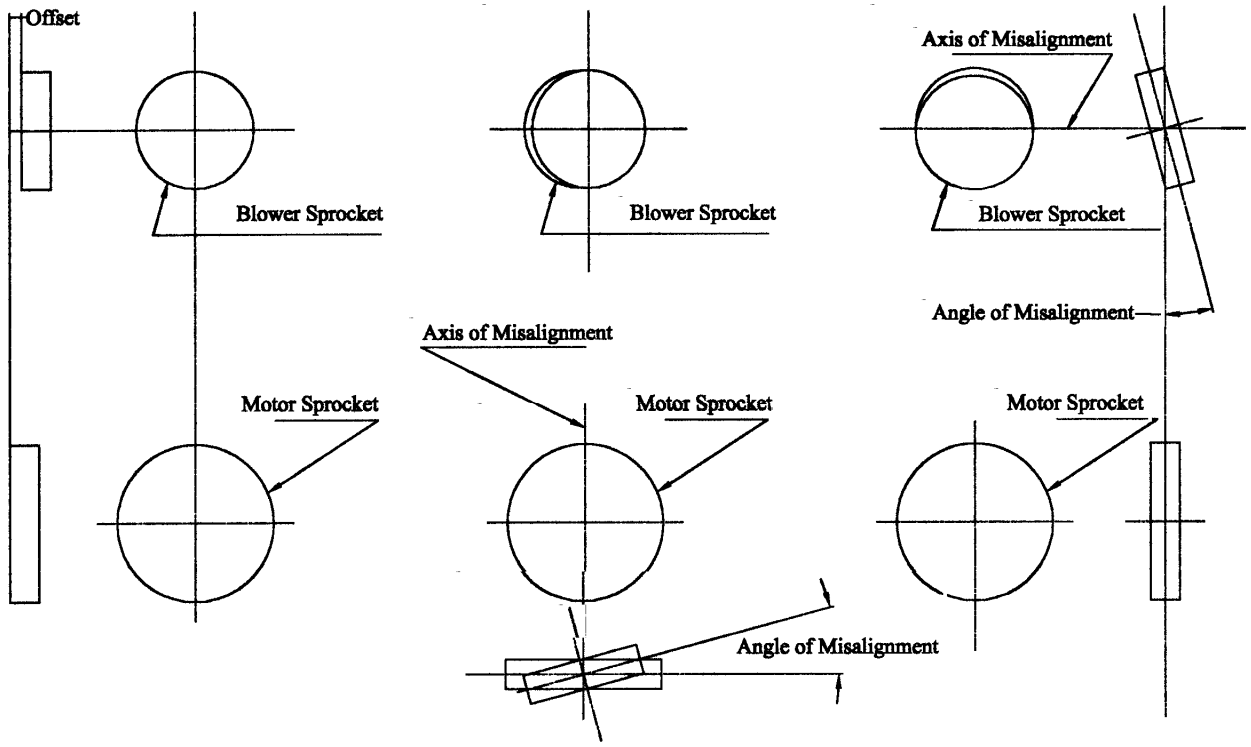


Fig.11 Typical Sprocket Misalignment Condition

Axial (offset) Misalignment	Angular Misalignment along a Vertical Axis	Angular Misalignment along a Horizontal Axis
To correct offset misalignment, slide motor sprocket to its proper position on motor shaft	To correct angular misalignment along a vertical axis, keep motor sprocket at its location and rotate blower on its bracket support until blower sprocket face aligns with motor sprocket face.	To correct angular misalignment along a horizontal axis, keep motor sprocket at its location and shim blower bearing housing pad (on its bracket support) until blower sprocket face aligns with motor sprocket face.

©Copyright 2019-Sonic Air Systems Inc.

3.1 Tools required

- 1-1/8 in. open wrench (used at jackscrew hex nut)
- 3/4 in. open wrench (used at blower pad hex screws)
- 15/16 in. socket wrench (used at bracket to motor hex nuts)
- 3/4 in. socket wrench (used at blower pad hex nuts)
- cross-recessed (Phillips) screwdriver (used at belt guard screws)
- 1/4 in. allen wrench (used at blower sprocket/bushing assembly)
- 5/16 in. allen wrench (used at motor sprocket/bushing assembly)
- 5/32, 1/8 and 3/16 in. allen wrenches (for bushings)
- 0.025 or 0.050 in. thk. Stainless steel slotted shim with slot for 5/8" bolt
- Straight Edge 3 ft. long (used at sprocket alignment and belt tension check)
- Sprocket Installation Tool (Sonic P/N 12816)
- 9/16 in. socket wrench (blower and motor sprocket screws)

3.2 Read all safety procedures (see page 3) before starting any of the following steps.

3.3 Remove belt guard by loosening the six cross-recessed head screws holding it to the structure. Slide the belt guard away from the structure – see Fig.7.

3.4 The alignment verification is done with the 3' straight edge on the left and right side of sprocket faces relative to shafts. Perfect alignment is the situation achieved when good contact exists between straight edge and the faces of the sprockets on each side of the shafts (see Fig.12).
Adjustment for misalignment should be done either by modifying motor sprocket position along motor shaft (when sprocket face planes are offset relative to one another) or by modifying blower position (when sprocket face planes are rotated relative to one another). All alignment adjustments are done with the belt removed.

Offset misalignment (see Fig.11)
– the straight edge either interferes equally with blower sprocket on both sides of blower shaft or there is an equal gap between straight edge and the face of the blower sprocket on both sides of blower shaft.

-To correct offset misalignment, the motor sprocket / QD bushing assembly must be slid on the motor shaft to the correct position. To slide the QD bushing, it is first necessary to disassemble the sprocket by removing the 3 hex head cap screws that hold it to the hub (see Fig.13); afterwards, install the screws into the three threaded holes of the sprocket and by turning the screws, the sprocket will be jacked away from hub. Use the sprocket installation tool for the above operations to prevent sprocket from rotating. Have the tool located into two of the three holes available on the sprocket (see Fig.13). Slide the QD bushing to the proper position by aligning the sprocket faces using the straight edge (see Fig.14). Tighten bushing set screw to 5-7 ft-lbs. After QD bushing relocation, proceed with sprocket reinstallation. Recheck misalignment and correct as necessary following the same procedure. Tighten motor sprocket screws to bushing to 30 ft-lbs.

©Copyright 2019-Sonic Air Systems Inc.

Angular misalignment (see Fig.11)

- along a vertical axis: the straight edge interferes with blower sprocket face on one side of the shaft and there is a uniform gap between straight edge and sprocket on the opposite side of blower shaft

- along a horizontal axis: there is a non-uniform gap between straight edge and blower sprocket on either side of blower shaft.

  -To correct angular misalignment along a vertical axis, loosen the four hex screws (use a 3/4 in. open wrench on bolt head and a 3/4 in. socket on the nut) which hold the blower to the bracket support (see Fig.15), reposition the blower to correct the misalignment, tighten the hex nuts to 48 +/- 7 ft-lbs and check misalignment.

  -To correct angular misalignment along a horizontal axis, loosen the four hex screws (use a 3/4 in. open wrench on bolt head and a 3/4 in. socket on the nut) holding the blower to the bracket support (see Fig.15) and shim the blower base (see Fig.16) using stainless steel slotted shims with tab. Shims must have a slot 5/8 in. wide. Finally, once alignment is achieved, tighten the four hex screws to 35-38 ft-lbs and recheck misalignment.

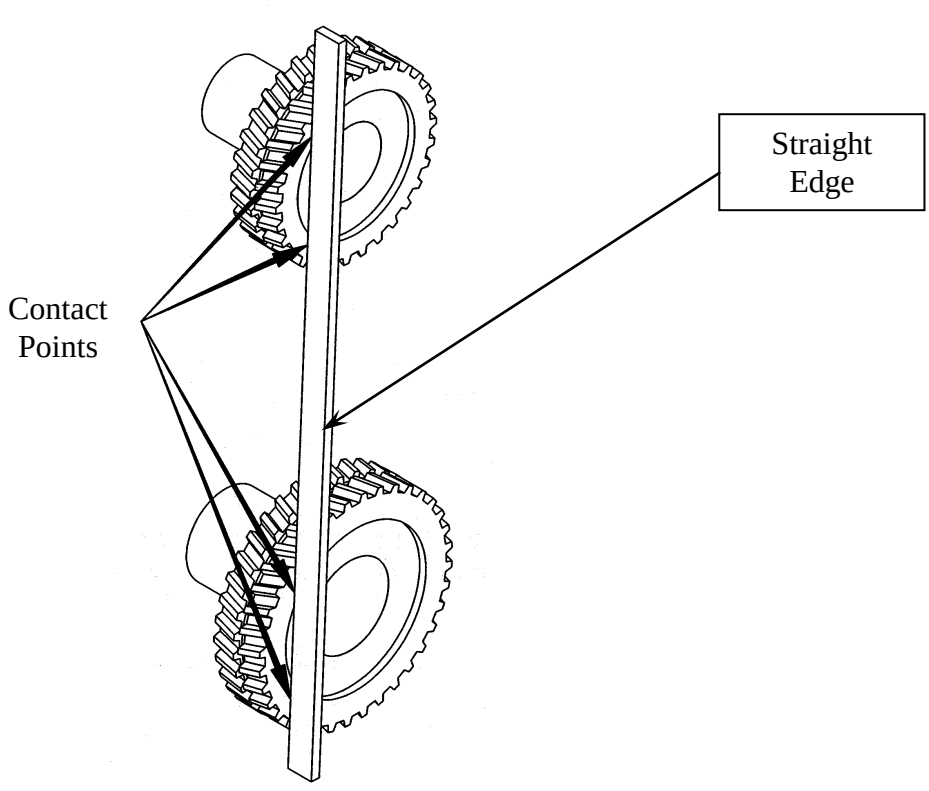


Fig.9 – Checking Sprockets Alignment

©Copyright 2019-Sonic Air Systems Inc.

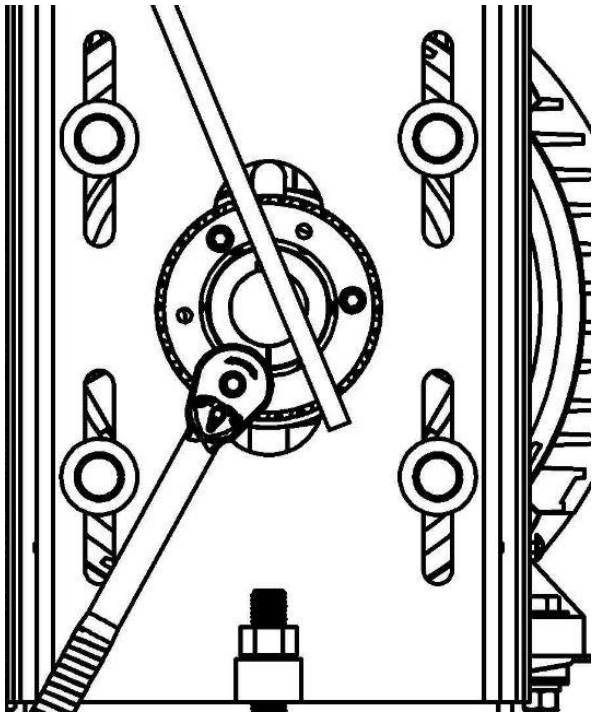


Fig.10 – Loosening Motor Sprocket

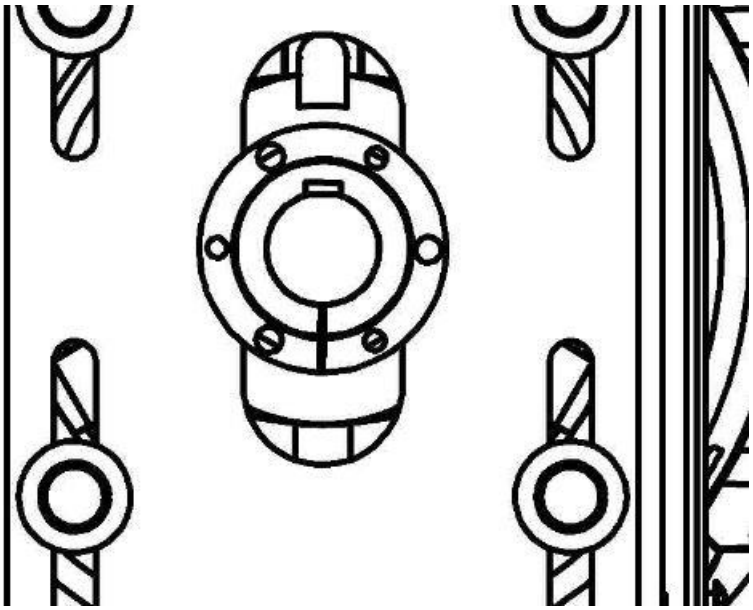


Fig.11 – Repositioning Motor QD Bushing on Motor Shaft

©Copyright 2019-Sonic Air Systems Inc.

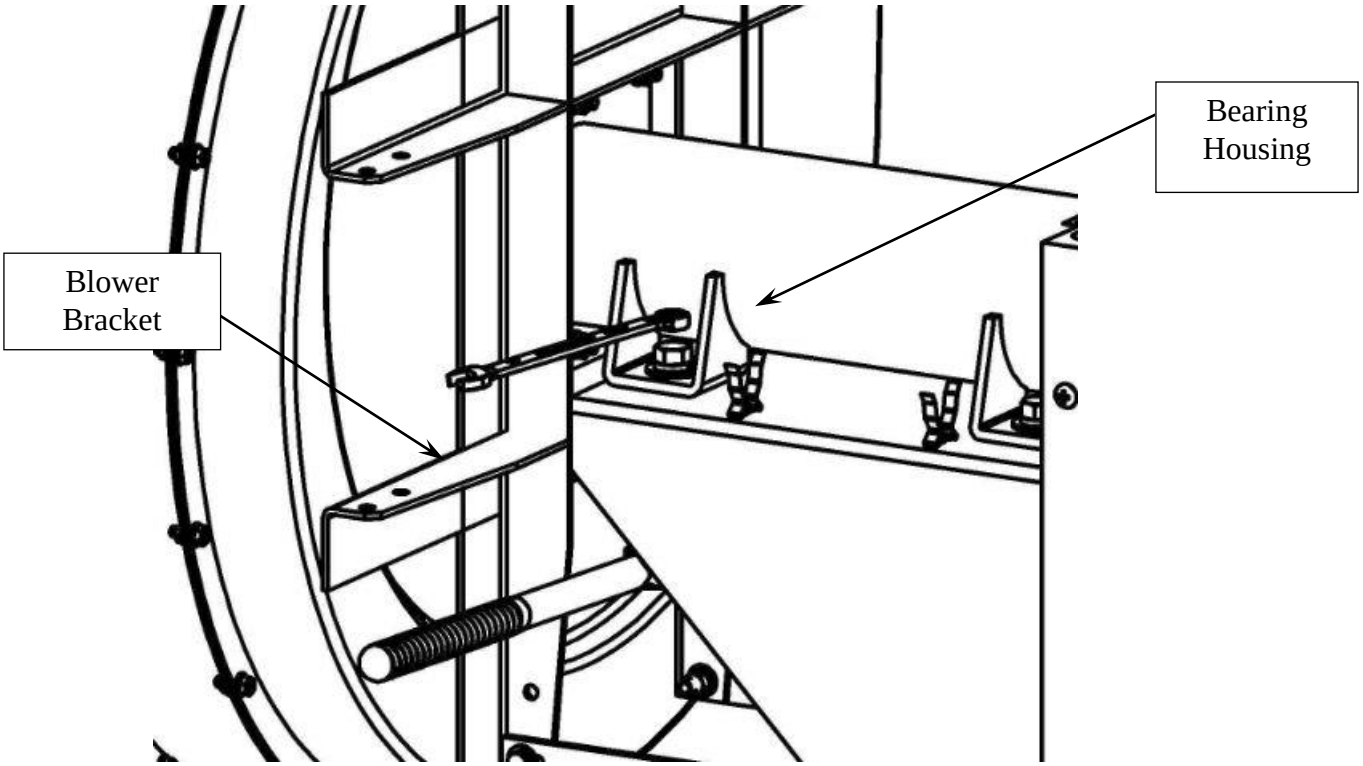


Fig.12 – Loosening the Blower on its Bracket Support

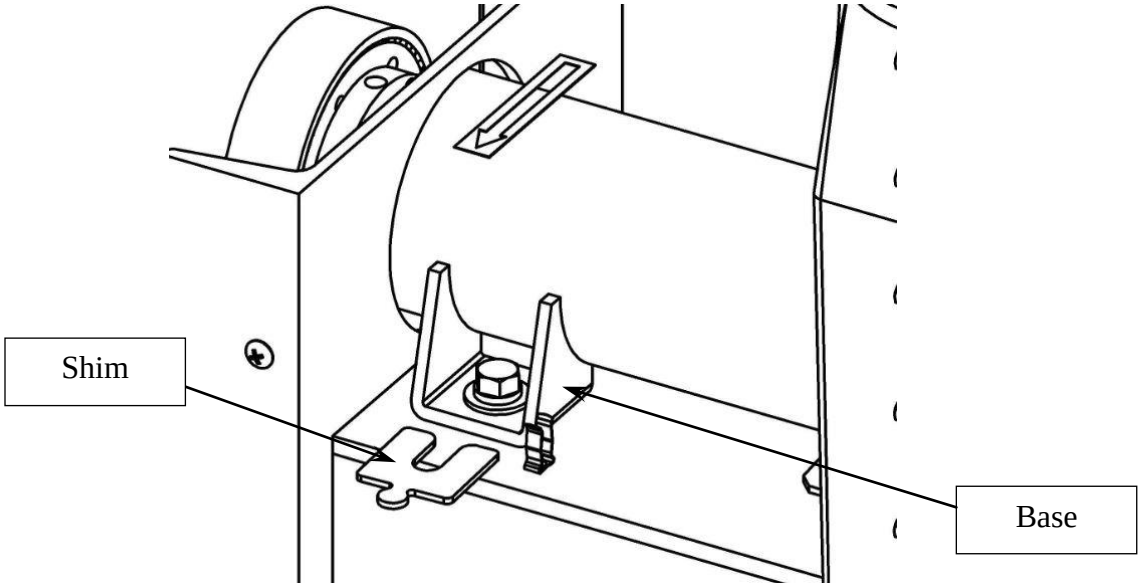


Fig.13 – Shimming Blower Bearing Housing Base

©Copyright 2019-Sonic Air Systems Inc.

4. Belt Tension Adjustment

Notes: **1**.Always adjust the tension on a brand new belt to the values prescribed in tables 4 and 5 under the column "New Belt Tensioning Force"
2.Subsequent to an operating time of 2500 hours, the belt is considered used and it is necessary to readjust the tension using the values prescribed in tables 4 and 5 under the column "Used Belt Tensioning Force".
3.Always check and adjust belt tension when sprocket alignment correction was necessary.
4.Always check and adjust belt tension when the belt is fluttering and excessive vibration is detected at a frequency equal to belt RPM. For the belt P/N 12708 used with the Sonic 350 and which is 1750 mm long, the speed of rotation is calculated as follows:

RPM_{belt}=.046 x $Diameter_{Motor\ Sprocket}$ x RPM_{Motor}

Motor sprocket diameter must be accounted in inches.

4.1 Tools required
- 1-1/8 in. open wrench (used at jack-screw hex nut)
- 15/16 in. socket wrench (used at sliding bracket hex bolts)
- cross-recessed (Phillips) screwdriver (used at belt guard button head screws)
- Straight Edge 3 ft. long (used at sprocket alignment)
- Belt Tension Tester (Sonic P/N 12817)

4.2 Read all safety procedures (see page 3) before starting any of the following steps.

4.3 Remove belt guard by loosening the six cross-recessed head screws holding it to the structure. Slide the belt guard away from the structure (see Fig.7).

4.4 Loosen the four hex bolts 1-1/2 turns (do not remove) that are locking the blower support bracket to the motor (see Fig.8) so that it will easily slide guided by the 4 bolts that are holding it to the motor. Also loosen the 3/4 in. hex lock nut of the jackscrew.

4.5 Rotate the jackscrew hex nut clockwise in order to raise the blower bracket support and to tension the belt.

4.6 The Goodyear Tension Tester includes (2) orings to measure inches of span and pounds of force. Set the inches of span to 26" and set the pounds of force oring to "0 lbf". By placing a straight edge along the belt face, take the force measurement at the midpoint of the belt span: Place the tester at the midpoint of the belt span and press on the plunger of the tester until the "deflection" of the belt reaches the 26" inches of span oring. Now read the oring on the force scale to determine belt tension. A new belt (0-2500 hrs of use) requires 22-24 lbf, a used belt (2500+ hrs of use) requries 16-17 lbf. Use the jack screw mechanism to increase or decrease the tensioning force as required.

4.7 Once proper tension is achieved, tighten the 3/4" hex nut of the jack screw and tighten the four (4) hex bolts that hold the blower support bracket to 100 +/- 10 ft-lbs.

©Copyright 2019-Sonic Air Systems Inc.

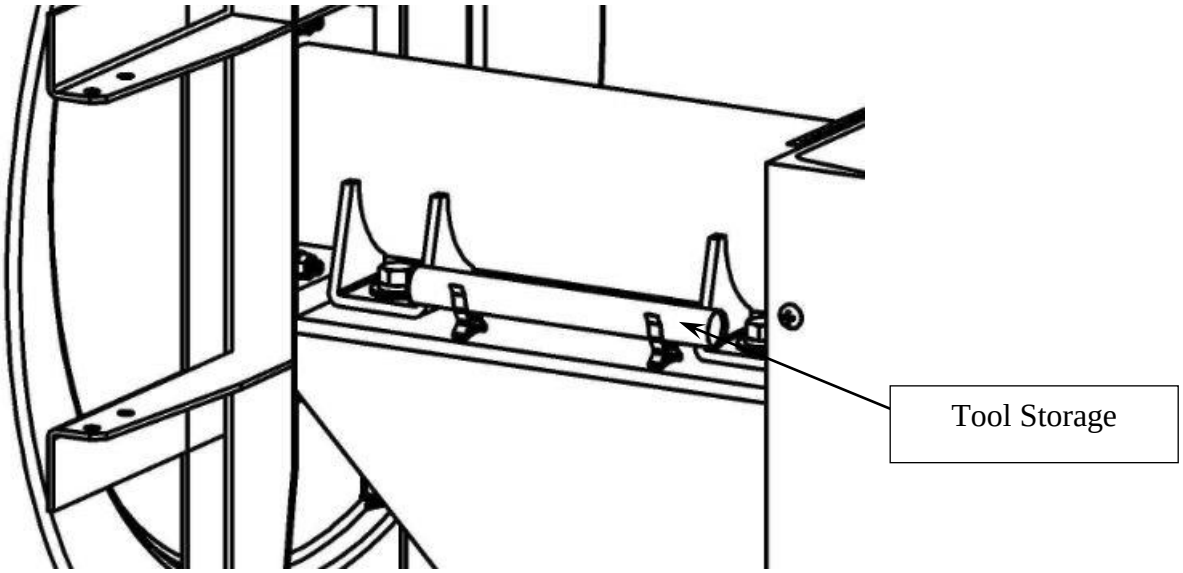


Figure 13B – Tension Tool Storage

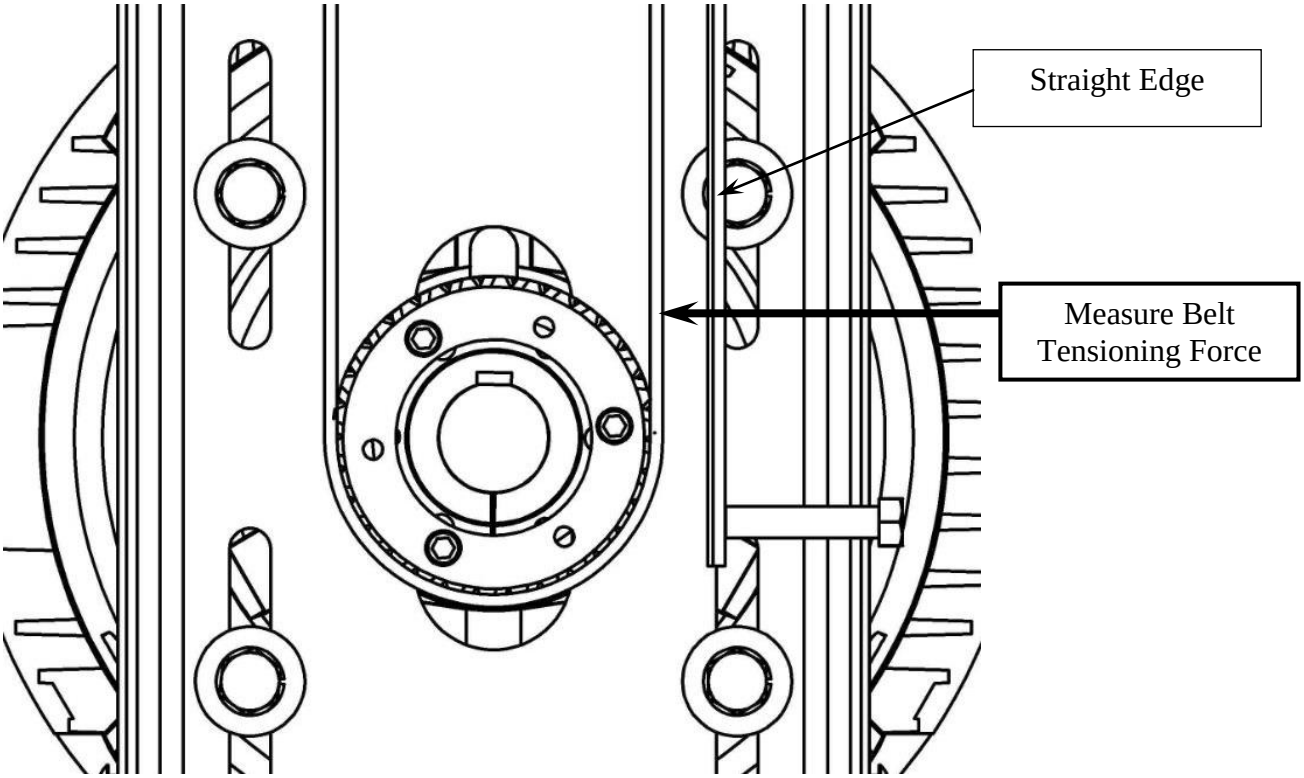


Fig.13C – Belt Tensioning Force Measurement

©Copyright 2019-Sonic Air Systems Inc.

Table 5 – Recommended Belt Tensioning Force for Belt P/N 12708 for applications with IEC 40 HP motors

Motor Sprocket Part Number	Blower Sprocket Part Number	Motor RPM	Blower RPM	**New** Belt **Tensioning Force** [lbf]	**Used** Belt **Tensioning Force** [lbf]	**New** or **Used** Belt **Span Length** [IN]
12776	12772	3000/3600	4200	**19**	**14**	**25**
12777	12772	3000/3600	3967	**20**	**14**	**26**
12778	12772	3000/3600	3733	**20**	**14**	**26**

Table 6 – Recommended Belt Tensioning Force for Belt P/N 12708 for applications with IEC 50 HP motors

Motor Sprocket Part Number	Blower Sprocket Part Number	Motor RPM	Blower RPM	**New** Belt **Tensioning Force** [lbf]	**Used** Belt **Tensioning Force** [lbf]	**New** or **Used** Belt **Span Length** [IN]
12776	12772	3565/3000	4200	**22**	**16**	**25**
12777	12772	3565/3000	3967	**23**	**16**	**26**
12778	12772	3565/3000	3733	**23**	**17**	**26**

Table 7 – IEC FRAME MOTORS
MOTOR / SPROCKET / QD BUSHING CROSS REF.

Motor HP	**Motor Frame**	**Motor QD Bushing Bore Size**	**Motor Sprocket OD**	**Motor P/N**	**QD Bushing P/N**	**Sprocket P/N**
40 (30kW)	**B14**	**48 MM**	**6.6 in**	*	**12676**	**12776**
	B14	**48 MM**	**6.9 in**	*	**12676**	**12777**
	B14	**48 MM**	**7.4 in**	*	**12676**	**12778**
	B14			*		
50 (37kW)	**B14**	**55 MM**	**6.6 in**	*	**12677**	**12776**
	B14	**55 MM**	**6.9 in**	*	**12677**	**12777**
	B14	**55 MM**	**7.4 in**	*	**12677**	**12778**

***** Contact Sonic for appropriate motor

©Copyright 2019-Sonic Air Systems Inc.

Table 8 – Recommended Belt Tensioning Force for Belt P/N 12708 for applications with NEMA 40 HP motors

Motor Sprocket Part Number	Blower Sprocket Part Number	Motor RPM	Blower RPM	**New** Belt **Tensioning Force** [lbf]	**Used** Belt **Tensioning Force** [lbf]	**New** or **Used** Belt **Span Length** [IN]
12775	12772	3500	4200	**19**	**14**	**25**
12774	12772	3500	3967	**20**	**14**	**26**
12773	12772	3500	3733	**20**	**14**	**26**
12772	12772	3500	3500	**21**	**15**	**26**

Table 9 – Recommended Belt Tensioning Force for Belt P/N 12708 for applications with NEMA 50 HP motors

Motor Sprocket Part Number	Blower Sprocket Part Number	Motor RPM	Blower RPM	**New** Belt **Tensioning Force** [lbf]	**Used** Belt **Tensioning Force** [lbf]	**New** or **Used** Belt **Span Length** [IN]
12775	12772	3500	4200	**22**	**16**	**25**
12774	12772	3500	3967	**23**	**16**	**26**
12773	12772	3500	3733	**23**	**17**	**26**
12772	12772	3500	3500	**24**	**17**	**26**

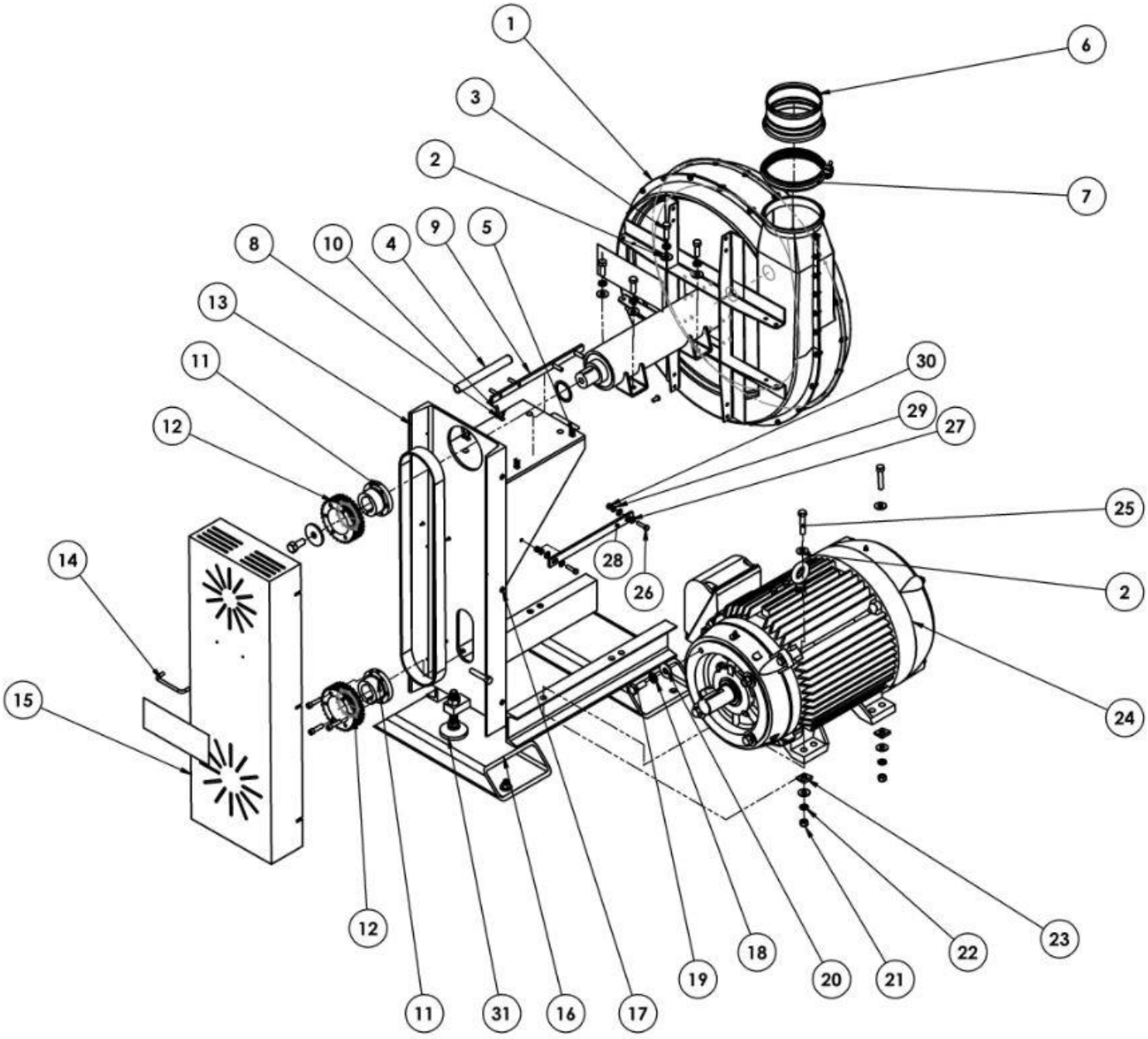
Table 10 - NEMA FRAME MOTORS
MOTOR / SPROCKET / QD BUSHING CROSS REF.

Motor HP	**Motor Frame**	**Motor QD Bushing Bore Size**	**Motor Sprocket OD**	**Motor P/N**	**QD Bushing P/N**	**Sprocket P/N**
40	**324TS**	**1-7/8 in**	**6.2 in**	*	**12676**	**12776**
	324TS	**1-7/8 in**	**5.9 in**	*	**12676**	**12777**
	324TS	**1-7/8 in**	**5.5 in**	*	**12676**	**12778**
	324TS	**1-7/8 in**	**5.2 in**	*		
50	**326TS**	**1-7/8 in**	**6.2 in**	*	**12677**	**12776**
	326TS	**1-7/8 in**	**5.9 in**	*	**12677**	**12777**
	326TS	**1-7/8 in**	**5.5 in**	*	**12677**	**12778**
	326TS	**1-7/8 in**	**5.2 in**	*		

***** Contact Sonic for appropriate motor

©Copyright 2019-Sonic Air Systems Inc.

SONIC 350 ASSEMBLY – 40&50 HP Motors



MOTOR SPROCKET, SPROCKET BUSHING AND BELT VARY WITH THE APPLICATION.
SEE TABLES 1, 3 AND 4 FOR AVAILABLE SIZES AND PART NUMBERS.

Fig.14 Sonic 350 Assembly – 40 & 50 HP

©Copyright 2019-Sonic Air Systems Inc.

PARTS LIST AND PART QUANTITIES

Table 7- Parts List & Quantities

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	15014	BLOWER HEAD-SONIC 350 W/PLATED IMPELLERS	1
2	10263	WASHER-1/2" ZINC PLATED	12
3	12699	SCREW-1/2"-13 X 1 1/2" HHC FULLY THREADED SS	4
4	12817	TOOL-350 BELT TENSIONER	1
5	12844	CLIP-350 BELT TENSIONER TOOL	2
6	12713	ADAPTER-350 BLOWER HEAD OUTLET	1
7	12826	CLAMP W/BOLT-6" 350 OUTLET ADAPTER	1
8	11612	SCREW-6-32 X 1/2" BHSC SS	4
9	12816	TOOL-350 SPROCKET	1
10	12845	CLIP-350 BELT TENSIONER TOOL	2
11	12678**	BUSHING-45 MM SK QD SONIC 350	2
12	12772*	SPROCKET-5.2"OD MOTOR/BLOWER	2
13	14583	BRACKET-SONIC 350 POWDER PAINTED	1
14	12493	HANDLE-ROUND PULL 5/16" THK X 1 5/16" WD X 4" LG	1
15	14584	GUARD-SONIC 350 POWDER PAINTED	1
16	14582	STAND-SONIC 350 POWDER PAINTED	1
17	14471	SCREW-1/4"-20 X 3/4" TRUSS HEAD PHILLIPS SS	6
18	12539	LOCKWASHER-5/8" ZN PL	4
19	12538	SCREW-5/8"-11 X 1 1/2" HHC FULLY THREADED ZN PL	4
20	12573	WASHER-5/8" ZN PL	4
21	12814	NUT-1/2"-13 HEX ZN PL	8
22	12364	LOCKWASHER-1/2" ZINC PLATED	8
23	12811	WASHER-1/2" BEVELED SQUARE	4
24	TBD***	MOTOR- 50HP PE 326TSC TEFC 3600 RPM 3PH 50/60 HZ 208-230/460//190/360V C-FACE W22	1
25	12809	SCREW-1/2"-13 X 2 1/2" HHC 1 1/4"- 1 5/8" THREAD LENGTH ZN PL	4
26	12540	SCREW-5/16"-18 X 1 1/4" HHC FULLY THREADED SS	4
27	12543	WASHER-5/16" SS	8
28	12789	STABILIZER-350 BLOWER ZINC PLATED	2
29	12542	LOCKWASHER-5/16" SS	4
30	12696	NUT-5/16"-18 FINISH HEX SS	4
31	17082	LEVELING MOUNT- SWIVEL W/BOLT & NUT TYPE ZINC PLATED STEEL 3/4-10 THRD 7,400# LOAD 4" BOLT	1

©Copyright 2019-Sonic Air Systems Inc.

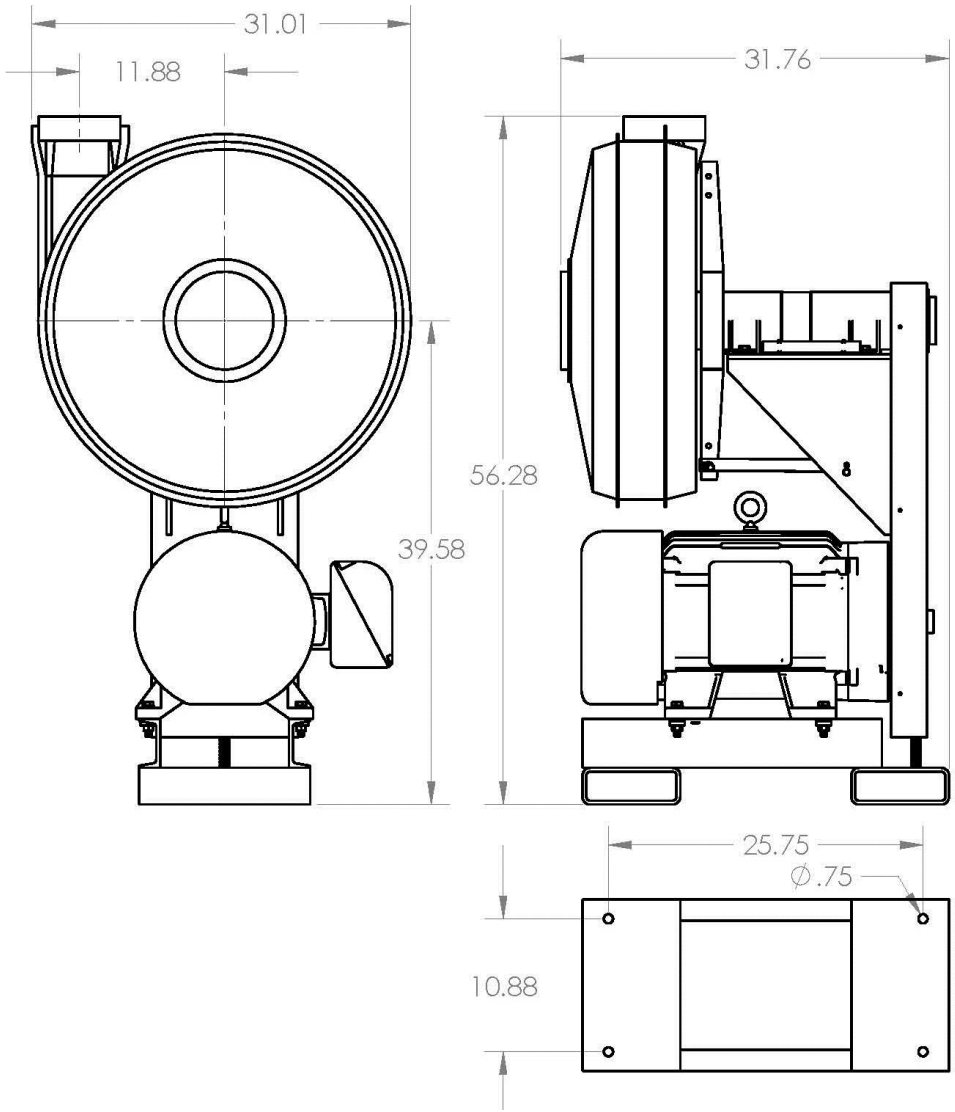
See page 26 for explanations to (*) and (**) and item # 21

*use screw P/N 12828 instead of P/N 12808 with motor sprocket P/N 12772 thru 12774

**for bushing P/N 12674 thru 12677 screw torque value is 30 lb-ft (41Nm); for bushing P/N 12672, 12673 &12678 screw torque value is 15 lb-ft (20 Nm)

*** contact Sonic for appropriate motor

SONIC 350 CENTRIFUGAL BLOWER



Nominal Dimensions

Fig.15 Sonic 350 Assembly – Nominal Dimensions

©Copyright 2019-Sonic Air Systems Inc.

GENERAL MAINTENANCE

Belt
Inspect belts for excessive wear & severe damage. It is recommended to replace them every six months.
Check and adjust belt tension every three months or 1250 hours.

Motor
Check rubber motor mounts periodically. Inspect for cracks.

Notes: Rubber vibration mounts deteriorate over time in ambient conditions. Spare mounts are available at Sonic.

Check motor bearing lubrication every six to twelve months in accordance with motor manufacturer's instructions included with this manual.

Air Filter
Check filters periodically and replace as needed. Read the following information in paragraph "Air Filters" in Blower Performance and Interfaces (page 8).

©Copyright 2019-Sonic Air Systems Inc.

TROUBLE SHOOTING

Problems/Symptom	Cause
Low Flow/Pressure/Vacuum	Blower rotating backwards (incorrect wiring or electrical short) Dirty or contaminated filter Collapsed flexible hose lining Air leaks in system Closed or damaged valve Worn or damaged impeller (s) Drive belt slipping (contaminated or damaged) Worn sprocket(s) Wrong sprocket sizes Wrong drive belts (not Sonic approved) Incorrect piping design (too small) Improper blower size for application
Frequent drive belt failure	Blower rotating backwards (incorrect wiring or electrical short) Motor sprocket wobbling Motor sprocket out of alignment Sprocket teeth worn Hostile environment (belt contaminated) Wrong belt (not sonic approved) Incorrect belt installation method Liquid entering blower inlet (impeller stall)
Electrical overloading	Exceeding rated CFM Blower RPM too high (motor sprocket too large) Motor has winding or bearing damage Electrical supply problems
Irregular/Excessive Noise	Blockage in air line Leak in air line Inlet silencer damaged internally Worn drive belts Bolts loose on blower/motor assembly Vibration mounts loose Blower RPM too high Blower is receiving vibration from other adjacent equipment
Belt Jumping Off	Misaligned sprockets Blower sprocket wobbling Blower rotating backwards (incorrect wiring or electrical short) Belt and sprockets improperly meshed Wrong belt (not Sonic approved)

©Copyright 2019-Sonic Air Systems Inc.