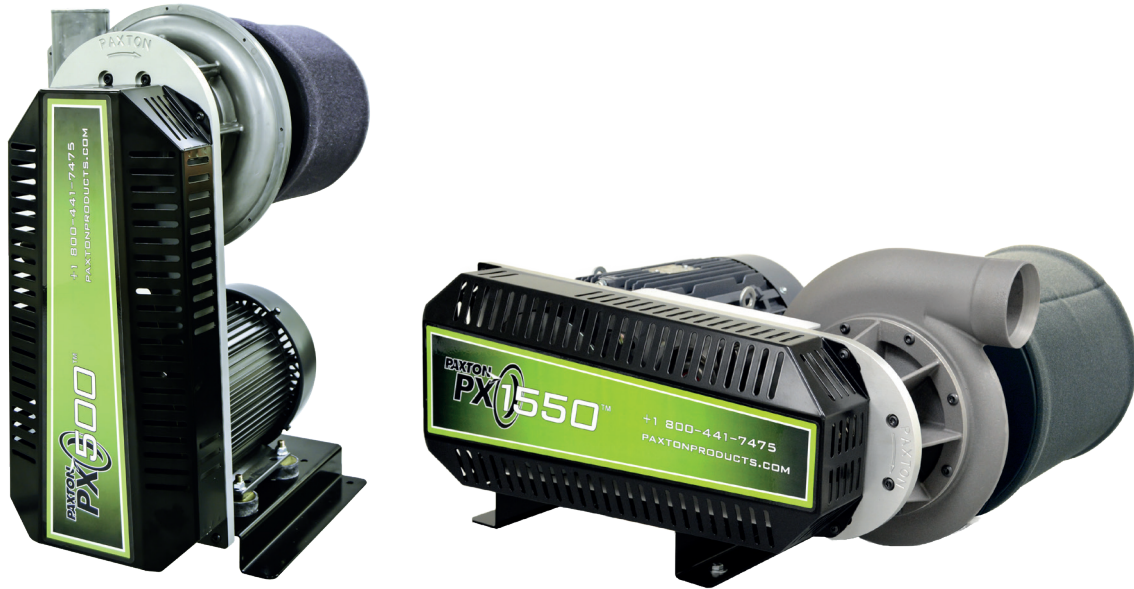


PX-SERIES ULTRA HIGH EFFICIENCY CENTRIFUGAL BLOWERS

Models PX-300, PX-500, PX-750, PX-1000, PX-1500, PX-1550, PX-2000



INSTALLATION & OPERATION MANUAL

PAXTON
PRODUCTS

TW Air Management

10125 Carver Road, Cincinnati, OH 45242
1-513-891-7474 | techsupport@paxtonproducts.com
www.paxtonproducts.com

PLEASE READ THIS MANUAL BEFORE INSTALLING YOUR BLOWER

SAFETY PRECAUTIONS

Safety First! When installing, operating, or servicing the equipment, always use proper safety procedures in accordance with Federal, State and Local laws and regulations. To avoid injury to yourself, others, or damage to the equipment, adhere to the following safety practices.

- **Always use qualified personnel and electricians** for installation, maintenance and servicing of all Paxton blowers and motors. Electrical connections, servicing and maintenance should be performed only by properly trained, certified and licensed electricians. Operating a blower without proper grounding could result in personal injury or death.
- **Always disconnect the electrical power** at the circuit breaker or fuse box, before working on the motor and/or blower assembly. Take special precautions to ensure that the **power cannot be turned "ON"** while you are working on the motor and/or blower assembly. Observe proper lockout/tagout procedures.
- **Always wear safety glasses** while working on any Paxton blower assembly. Per OSHA regulations, always wear hearing protection when working near operating blowers.
- **Do not operate** the motor/blower assembly without the belt guard properly installed, or with the blower inlet **unprotected** by a filter element assembly.
- **Do not operate** the motor/blower assembly with the discharge outlet open. Always connect the outlet to the system piping or Paxton control valves. Failure to operate blowers under a working load could result in high current draw, damaging the motor and electrical systems.
- **Always** keep hands, tools, long hair, loose clothing, neckties, jewelry or similar loose items away from all moving or rotating parts.
- **Use caution** around all water-cooled units; the blower head assemblies operate at high temperatures, causing the outer surfaces to be dangerous to the touch.
- **Always** install motor current protectors (for 3-phase units), circuit breakers or fuses for line protection. Devices should be sized per motor nameplate data.

WELCOME TO PAXTON PRODUCTS!

Paxton Products has been manufacturing high efficiency centrifugal blowers for over 70 years. A Paxton Air System delivers superior drying and blow off performance while conserving energy by coupling high-efficiency centrifugal blowers with Paxton's custom-engineered air delivery devices.

To ensure peak performance of your new Paxton System, please read and follow all installation and operation procedures carefully.

EQUIPMENT ARRIVAL AND INSPECTION

When the shipment arrives, open the crate and inspect the contents. Check the packing list to confirm that all equipment and parts have been received. If any equipment or parts are damaged or missing, you must make a claim with the freight carrier.



Notify Paxton Products of any damages or missing components immediately. We will assist in getting replacement components or parts to you as quickly as possible. **All claims must be made within 10 days of receipt.**



Contact Customer Service at 1-800-441-7475 or by email at techsupport@paxtonproducts.com

Care should be exercised when moving the crate, to ensure that nothing is dropped or damaged.

TOOLS NEEDED FOR INSTALLATION

- 5/16" nut driver
- Phillips head screwdriver
- T27 Torx driver
- T40 Torx driver
- 9/16" socket
- Flat head screwdriver
- 5/16" hex key
- 1/4" hex wrench

TABLE OF CONTENTS

- 4** BLOWER INSTALLATION PROCEDURES
 - 9** INSTALLATION OF THE OUTLET AIR FILTER
 - 11** CHANGING THE BLOWER OUTLET DIRECTION
 - 21** GETTING TO KNOW YOUR BLOWER
 - 22** BLOWER OPERATION AND MAINTENANCE
 - 24** PARTS LIST
-

BLOWER INSTALLATION PROCEDURES (WHEN NO BLOWER ENCLOSURE IS USED)

1. Determine where to position the blower.



A PX-series blower weighs from 140–410 pounds (64–186 kg), depending on the motor size.



The blower will be bolted to a pallet, then boxed for shipment.

2. Unbox the blower and accessories. Unbolt the blower from the pallet.



Tips for blower positioning:

- a. Position the blower as close as possible to the target. The length of piping from the blower outlet to the air delivery devices should be minimized.
- b. If the blower will be placed more than 10 feet but less than 50 feet from the target, 4" solid PVC piping should be used. If the blower will be placed more than 50 feet from the target, 6" solid PVC piping must be used AND the blower performance may be degraded. Refer to Piping Engineering Bulletin at www.paxtonproducts.com for more guidelines.
- c. Minimize turns in the piping from the blower to the target. When turns are required, use long sweep elbows.

Request the Paxton engineering bulletin on piping for more information on piping pressure losses.



Blower must not be placed in ozone-present environments traditionally found in water filling rooms, as ozone compromises the integrity of the belt, resulting in premature failure.

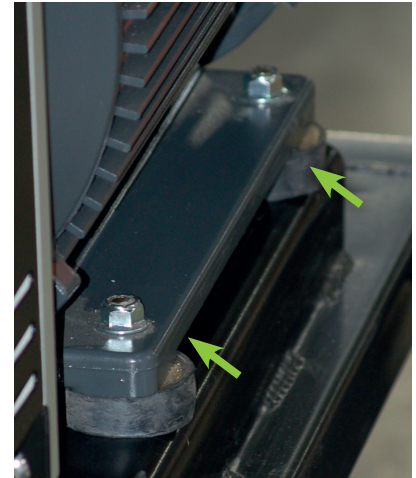
- Using a hoist or crane, lift the blower into position using the two lifting eyes on the motor.



A PX-series blower weighs from 140–410 pounds (64–186 kg), depending on the motor size.

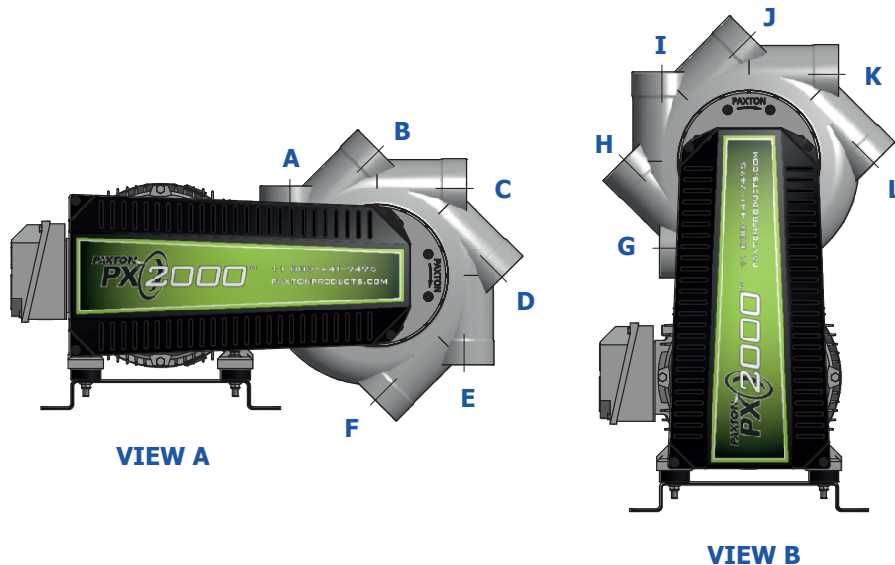


- Mount the blower on a solid flat surface or blower stand. Tighten all mounting bolts and hardware securely.



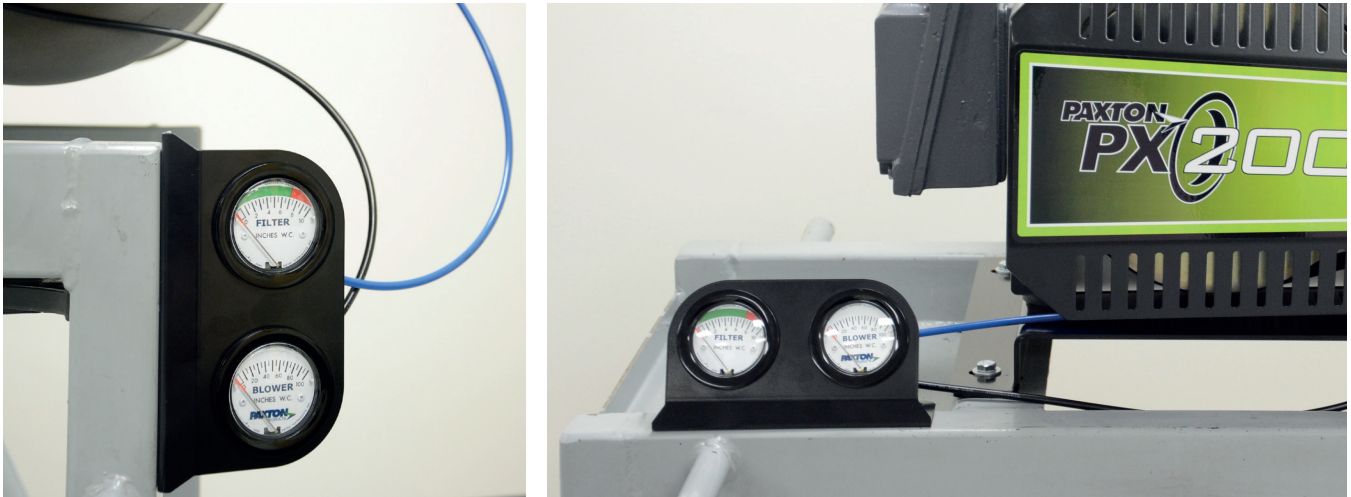
The use of isolation pads under the motor plate is recommended. If needed, order **part # 8005063** from Paxton Customer Service at **800-441-7475**.

- If you need to change the blower outlet direction, please refer to the instructions on page 11.



6. Connect pressure gauges.

The PX-series blowers come equipped with a pressure gauge kit, with one gauge to measure the output pressure of the blower, and one gauge to measure the pressure drop across the filter.



- Mount the pressure gauges where they can be easily seen by operators and maintenance staff, ideally within a few feet of the blower.

i

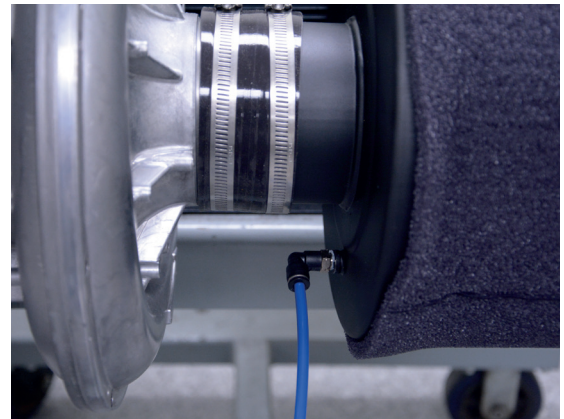
The pressure gauges can be swiveled in the bracket, so they can be mounted either vertically or horizontally.



- Connect black hose to the pressure gauge labeled blower, then cut to length and connect the other end to the port on the blower outlet.

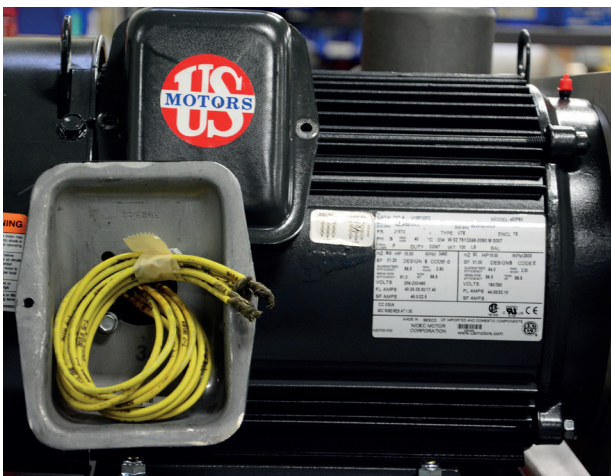


- Connect the blue hose to the pressure gauge labeled filter, then cut to length and connect the other end to the port on the filter housing.



7. Make electrical connections to the motor.

- Switch off and disconnect electricity at the circuit.
- Follow the wiring diagram on the motor nameplate or the enclosed Motor Wiring Diagram to connect to either the power supply or the variable frequency drive (VFD).



- Ensure that all electrical connections are tight and well insulated to protect against moisture.



Refer to the motor nameplate for power supply requirements.

VFDs purchased from Paxton Products will be pre-programmed for use with your blower.



Follow proper lockout/tagout procedures to ensure that the power cannot be turned on while you are working on the motor.

Be sure to ground the motor.

8. Check the rotation.

- After making the electrical connections, proper electrical phase rotation must be determined.
- Bump start (turn on then immediately turn off) the motor to observe the rotation of the motor fins to ensure that it is counterclockwise when facing the far side of the motor. Do NOT remove the belt guard to determine rotation. Note the rotation labels on the blower and motor.

i

If wired improperly and running backwards, the amp draw of the motor will be 80% of the nameplate amp draw, and the blower output pressure will be about 40% of normal. The scroll will be very hot, about 50°F higher than ambient, and about 25°F higher when compared to operating in the forward direction.



Blower rear view, with inlet air filter removed



Failure to determine proper phase rotation WILL cause severe damage to the blower. Note that backwards rotation will still generate some airflow, but not at the desired levels.

If re-wiring to change the phase rotation is required, be sure to unplug, and lockout/tagout the system before proceeding with the wiring.

INSTALLATION OF THE OUTLET AIR FILTER

While inlet air filtration is required on Paxton Air Systems, Paxton also offers HEPA-quality outlet air filtration as an option for critical applications.

Outlet filtration housings are sized to minimize pressure drops across the filter, to maintain system pressures at the target, thus ensuring the highest quality blow off, drying or rinsing.

The outlet air filter comes pre-installed in the filter housing.

1. The outlet filtration housing should be installed within 10 feet (3 meters) of the blower, using the flexible hose provided.

Install one end of the hose to the blower or blower enclosure outlet; and the other end to the inlet of the filter housing.

i

The inlet to the filter housing can be identified using the directional arrow on the filter housing.



2. Connect hose or pipe to filter housing outlet. Flexible hose can be used if the distance to the air delivery devices is less than 10 feet (3 meters). If distance is greater than 10 feet, use PVC piping.





3. For air flows greater than 1000 cfm, two outlet air filters will be required, putting 50% of the air through each filter using the configuration shown here.
4. The outlet air filtration housing comes equipped with a filter gauge for monitoring the pressure drop across the filter.

The gauge must be zeroed at startup. To zero, start the system and allow it to reach target flow rate (10–30 minutes). With the clean filter installed, and using a small flat head screw driver, adjust the gauge to read “0” inches of water column.



New filters can be ordered by calling **800-441-7475** or sending an email to **orders@paxtonproducts.com**

5. The filter should be changed when the pressure drop approaches 10” of water column, i.e. when the gauge indicator reaches the red zone.

CHANGING THE BLOWER OUTLET DIRECTION

TOOLS NEEDED FOR INSTALLATION

- T27 Torx driver
- T40 Torx driver
- 5/16" hex key
- 1/4" hex wrench

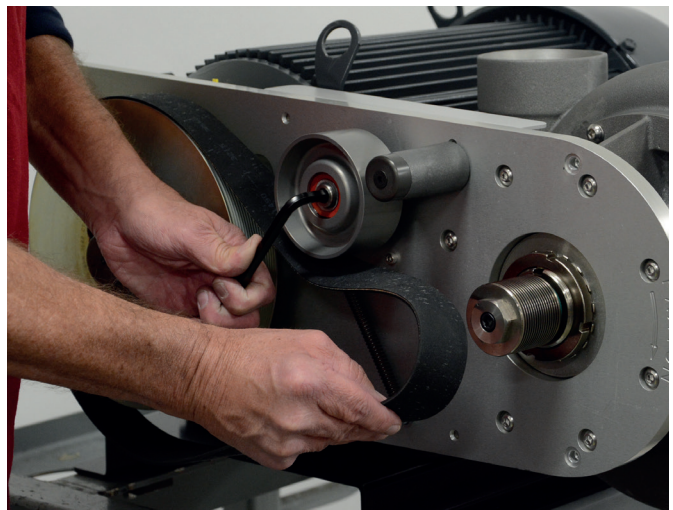
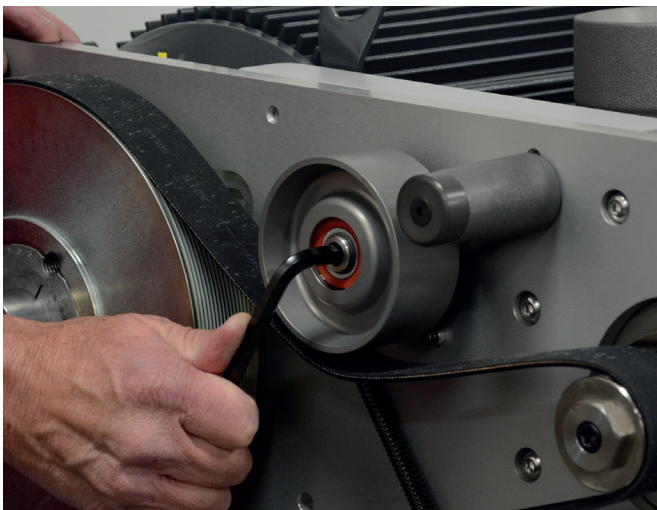
1. Disconnect power to blower.



Follow proper lockout/tagout procedures to ensure that the power cannot be turned on while you are working on the blower.

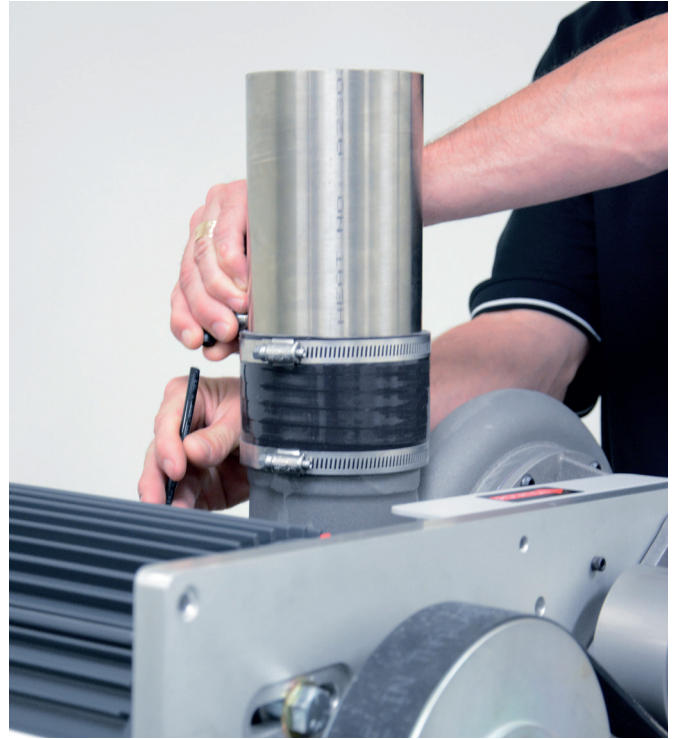
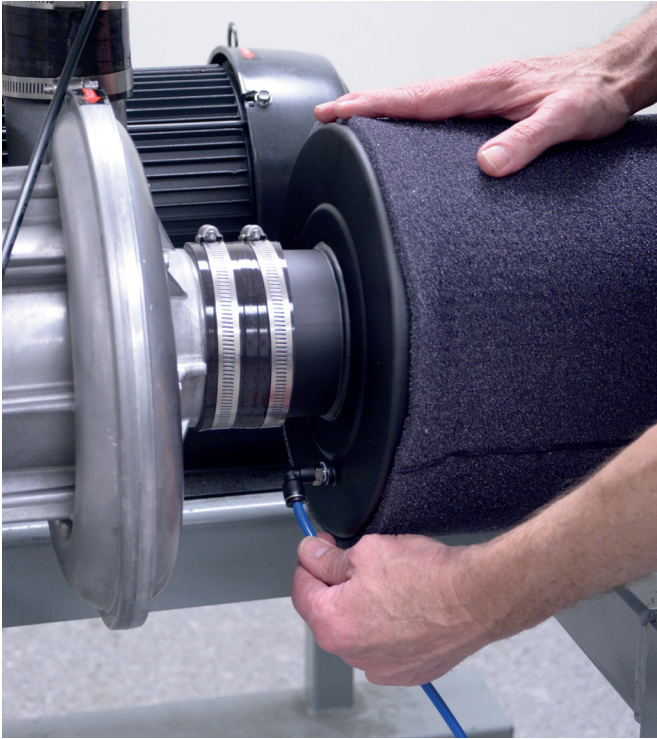


2. Remove belt guard by loosening 4 screws using T27 Torx. Place belt guard aside.

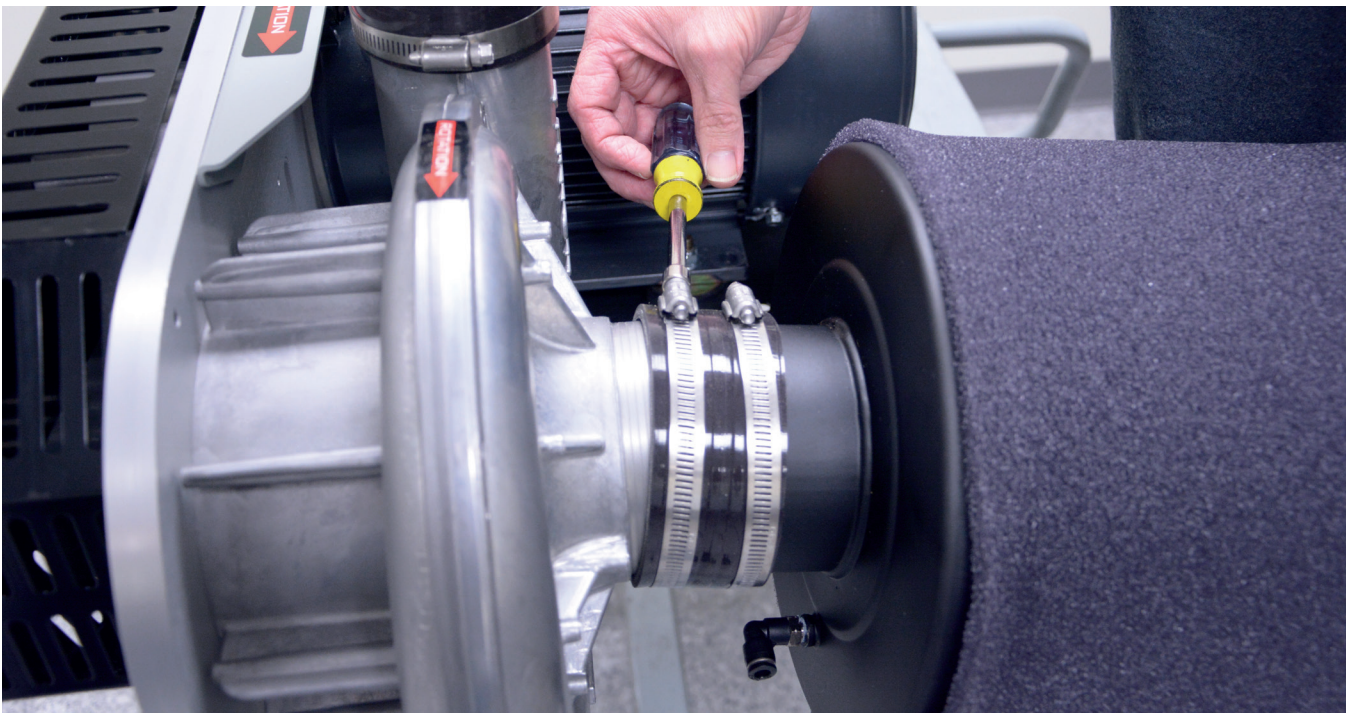


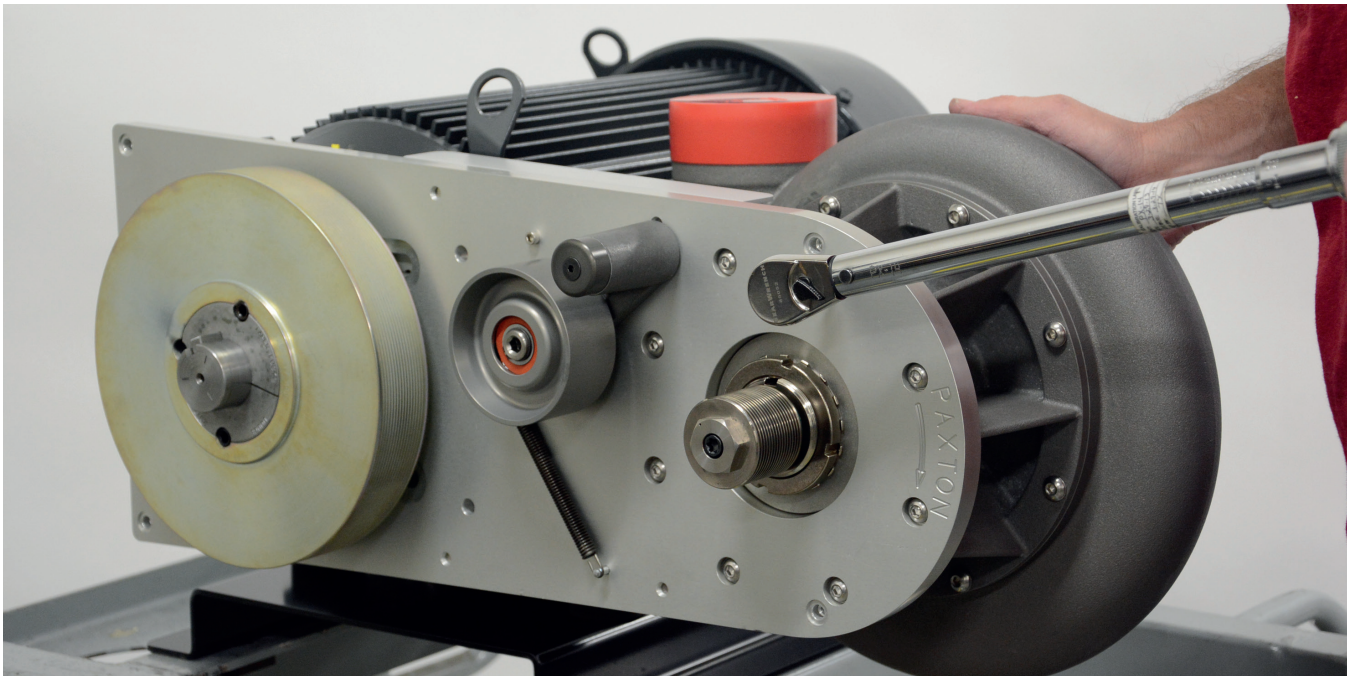
3. Using 5/16" hex key, loosen tensioner by rotating up/clockwise to release tension on belt.

4. Slip belt off beginning at blower pulley, then unwrapping from the motor pulley. Place belt aside.
5. Disconnect pressure fittings on blower head and filter housing by pushing the small ring in while pulling the hose outlet.

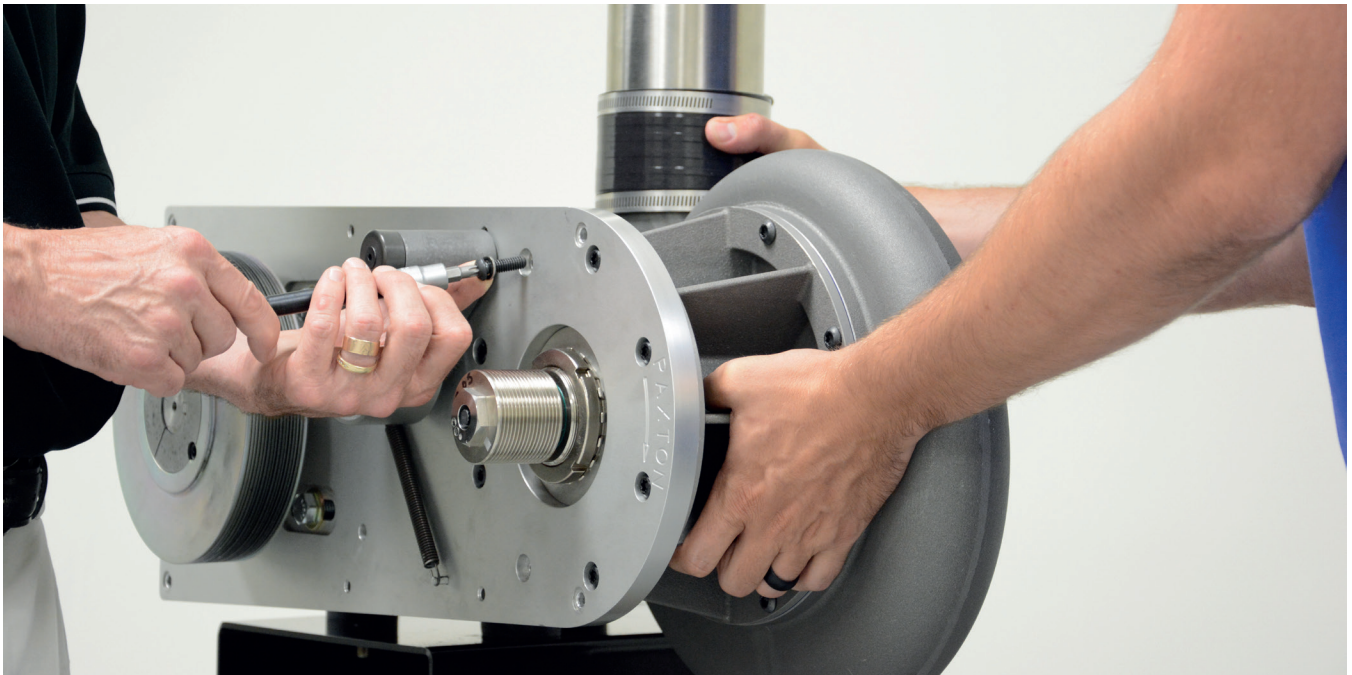


6. Remove the filter housing by loosening the screw on the clamp, then lifting the filter housing off. Place aside.





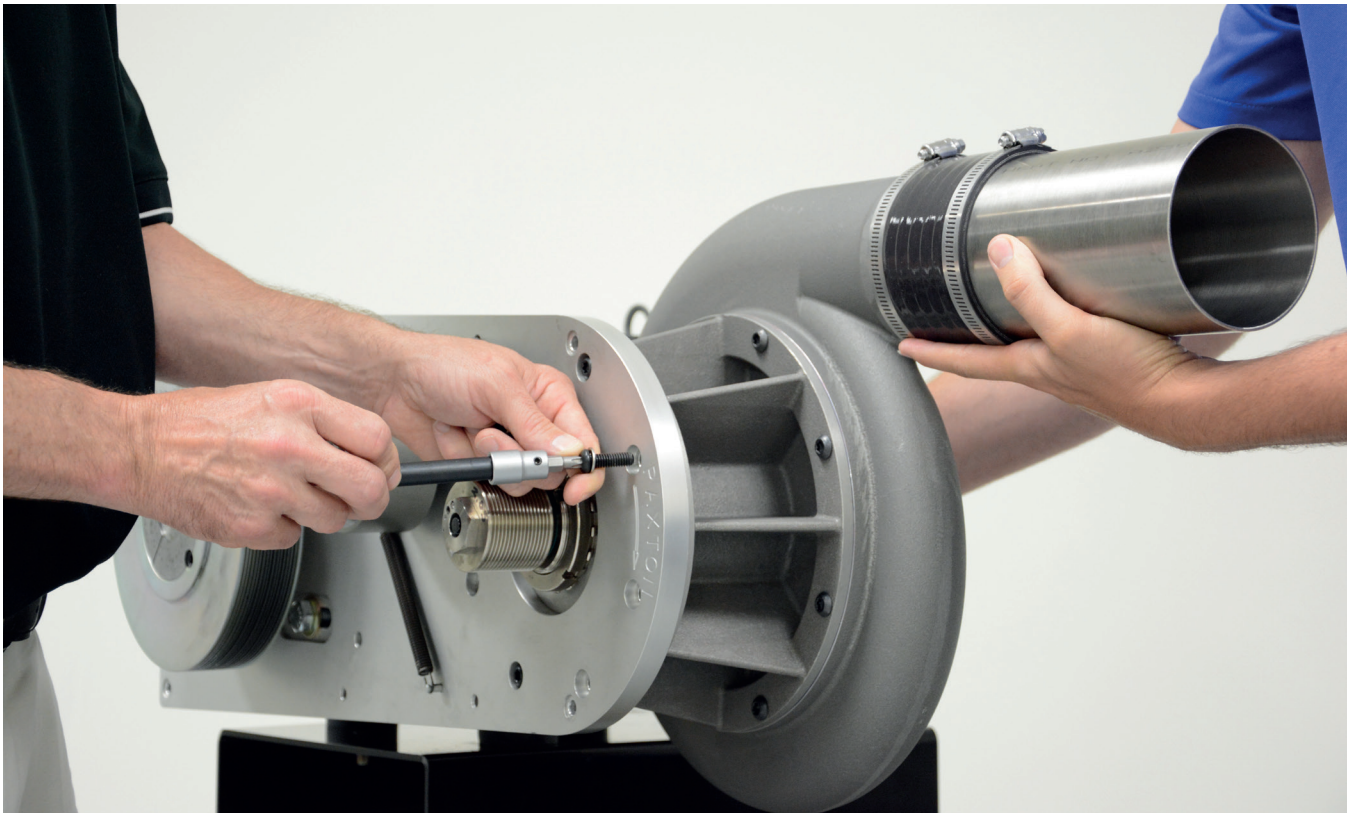
7. Using T40 Torx, loosen 8 bolts around the blower pulley that hold the blower head in place.



8. Using one person to steady the blower head and another to loosen the bolts, remove all 8 bolts.



Due to the weight of the blower head, the use of two people is recommended to prevent damage to the blower head and pulley.



9. Rotate the blower head to the desired outlet position.

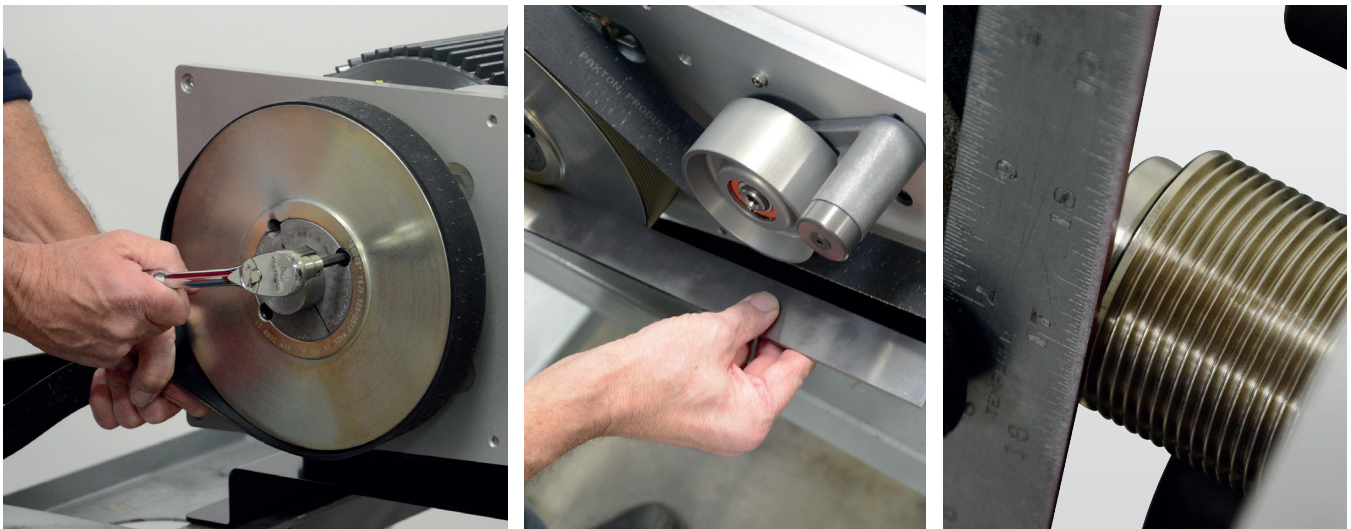
10. Reinstall eight bolts and finger tighten, supporting the blower head on the other side of the plate.



11. Check pulley alignment by using a straight edge to ensure motor pulley and blower pulley are flush to ± 0.02 ".

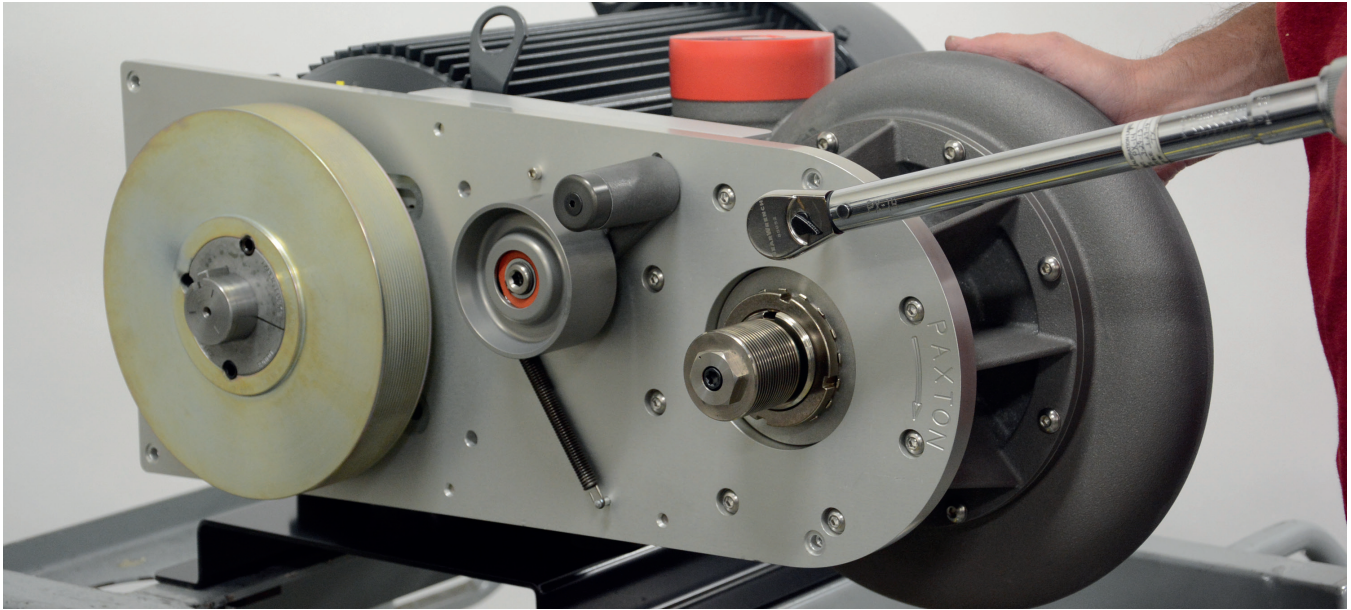


12. If not aligned, the motor pulley can be adjusted using a $\frac{1}{4}$ " hex wrench. Loosen both bolts, then remove one of the two bolts on motor pulley. (A belt can be used to hold the motor pulley while loosening the bolt.)



13. Using the removed bolt, put into the hole at 90° and tighten. When tightening the bolt into this third hole, the motor pulley will loosen so that it can be slid in or out on the shaft to cause alignment. The motor pulley should be aligned to the chamfer of the blower pulley, because tightening of the motor pulley again will draw the motor pulley out slightly, thus coming into alignment with the blower pulley.

14. Once aligned with straight edge, back the bolt out from the third hole in the motor pulley and put back into the first hole. Torque, to 25 ft-lbs (34 Nm), then recheck alignment again. Repeat adjustment if needed.

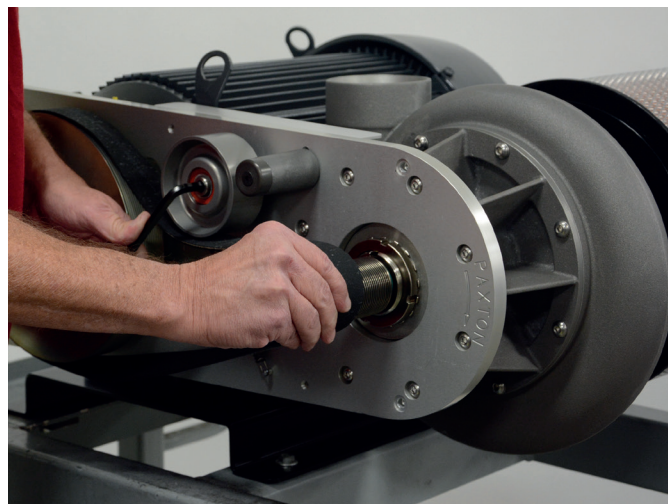
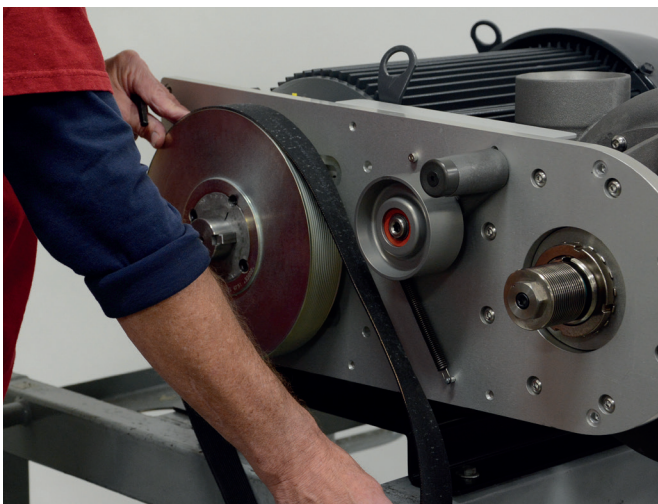


15. Tighten blower head bolts to 10 ft-lbs (14 Nm) of torque.

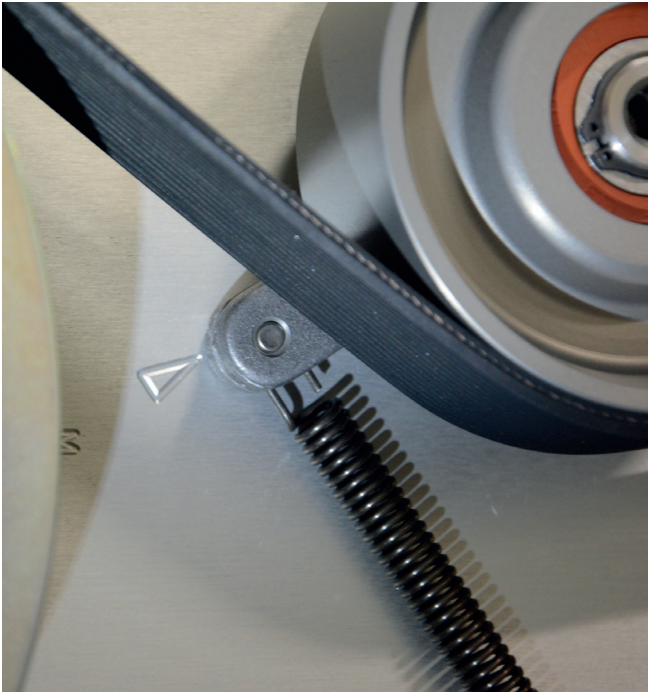


Be careful not to damage the blower pulley while tightening bolts.

16. Reinstall belt by wrapping the belt around the motor pulley and pulling upward toward the blower pulley. Ensure that the rotation arrow on the belt matches the rotation arrow on the blower plate.



17. Using one hand to hold the belt and one to release the tension on the tensioner, wrap belt around the blower pulley ensuring that the grooves are aligned.



18. Verify that the grooves in the belt are aligned with the grooves on the motor and blower pulleys by manually turning the belt clockwise. Verify that the arrow on the motorplate is aligned with the idler pin.



19. Replace belt guard.

20. Reinstall filter and housing.



21. Reinstall hoses to blower pressure port and filter pressure port.



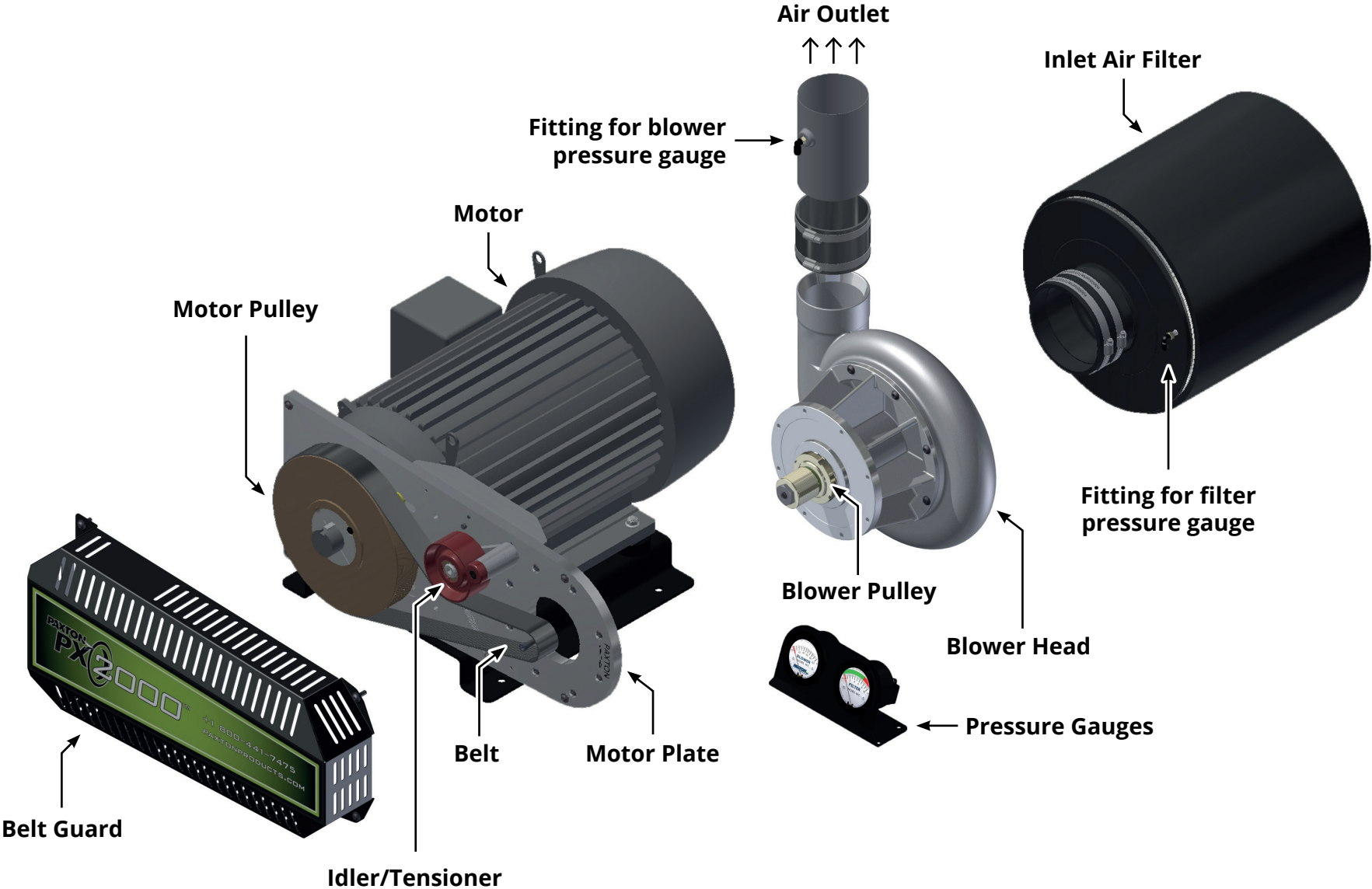
MAINTENANCE GUIDELINES

In order to maintain the blower warranty, it is necessary to use genuine Paxton replacement parts replaced at the minimum frequency prescribed below. Please refer to the Service and Maintenance Manual for replacement instructions.

PAXTON PART	1 OR 2 SHIFTS/DAY OPERATION	3 SHIFTS/DAY OPERATION
Belts	12 months	6 months or 4000 hours
Belt Springs	12 months	6 months or 4000 hours
Tensioners	24 months	12 months
Silencer	12 months	12 months
Filters*	6 months	3 months

* Filters must be changed as often as needed to maintain blower or system performance as measured by increased pressure drop across the filter. The filter must be changed if the pressure drop exceeds 10" of water column. Filter change frequency will vary widely based on environmental and atmospheric conditions.

PX-SERIES BLOWER, EXPLODED VIEW



GETTING TO KNOW YOUR BLOWER

A blower is a popular method for pumping air for industrial applications. Blowers use centrifugal force to aid the pumping. Your new Paxton ultra high efficiency centrifugal blower consists of the following key components:

1. Motor

2. Belt Drive Assembly

- a. Motor Plate
- b. Motor Pulley
- c. Blower Pulley
- d. Idler/Tensioner
- e. Belt
- f. Belt Guard

3. Blower Head

- a. Bearing carrier with ABEC-7 bearings
- b. Scroll
- c. Impeller (inside the scroll)
- d. Outlet Air Pressure Port

4. Inlet Air Filter with Pressure Port

5. Pressure Gauge Kit with Filter Gauge and Blower Gauge

HOW THE BLOWER WORKS

An electric motor spins at about 3500 rpm, and through the blower's belt and pulley system, it causes the impeller to spin at 11,500–18,000 rpm. Room air is drawn into the blower through the inlet air filter. The inlet air comes into contact with the spinning impeller, accelerating the air. The accelerated air exits the blower at high velocity and pressures of 30–80 inches of water (75–250 mbar). The accelerated air is discharged into the piping system as it travels to the air delivery devices.



The blower must not be used without an inlet air filter, as the incursion of dust or dirt into the blower will damage the impeller and void the warranty.

STARTING AND STOPPING

Blower performance over the long term is maximized by minimizing starts and stops. If your application requires frequent starts and stops, the installation of a variable frequency drive (preferred) or soft start system is highly recommended to reduce the initial start up torque. This is particularly critical for larger horsepower models.



Do not start and stop the blower more than 6 cycles per hour, without the use of a variable frequency drive.

BLOWER OPERATION AND MAINTENANCE

BLOWER OPERATION

1. After ensuring correct motor shaft rotation and connecting the air delivery devices, your new Paxton blower is now ready to use.
2. Switch the power “ON” to the blower unit and let it run while you measure the blower’s voltage and amperage rating and compare to the values listed on the motor nameplate. Measure amperage and voltage on L1, L2 and L3 to ground using a Clamp Meter.



Do not operate the blower if it exceeds the voltage or current ratings on the motor nameplate. Call Paxton Technical Support at **1-800-441-7475**.

3. Measure output pressure (page 23) and compare to design pressure, as indicated on the test sheet. If output pressure varies from design pressure by 10% or more, contact Paxton technical service at **1-800-441-7475**.



If wired improperly and running backwards, the amp draw of the motor will be 80% of the nameplate amp draw, and the blower output pressure will be about 40% of normal. The scroll will be very hot, about 50°F higher than ambient, and about 25°F higher when compared to operating in the forward direction.

4. The blower will achieve steady state operation in 30–60 minutes.
5. To ensure peak performance of your Paxton Air System, please read and follow all service and maintenance procedures carefully, as defined in the Service and Maintenance Manual, enclosed with the shipment and available online at:

www.paxtonproducts.com/px

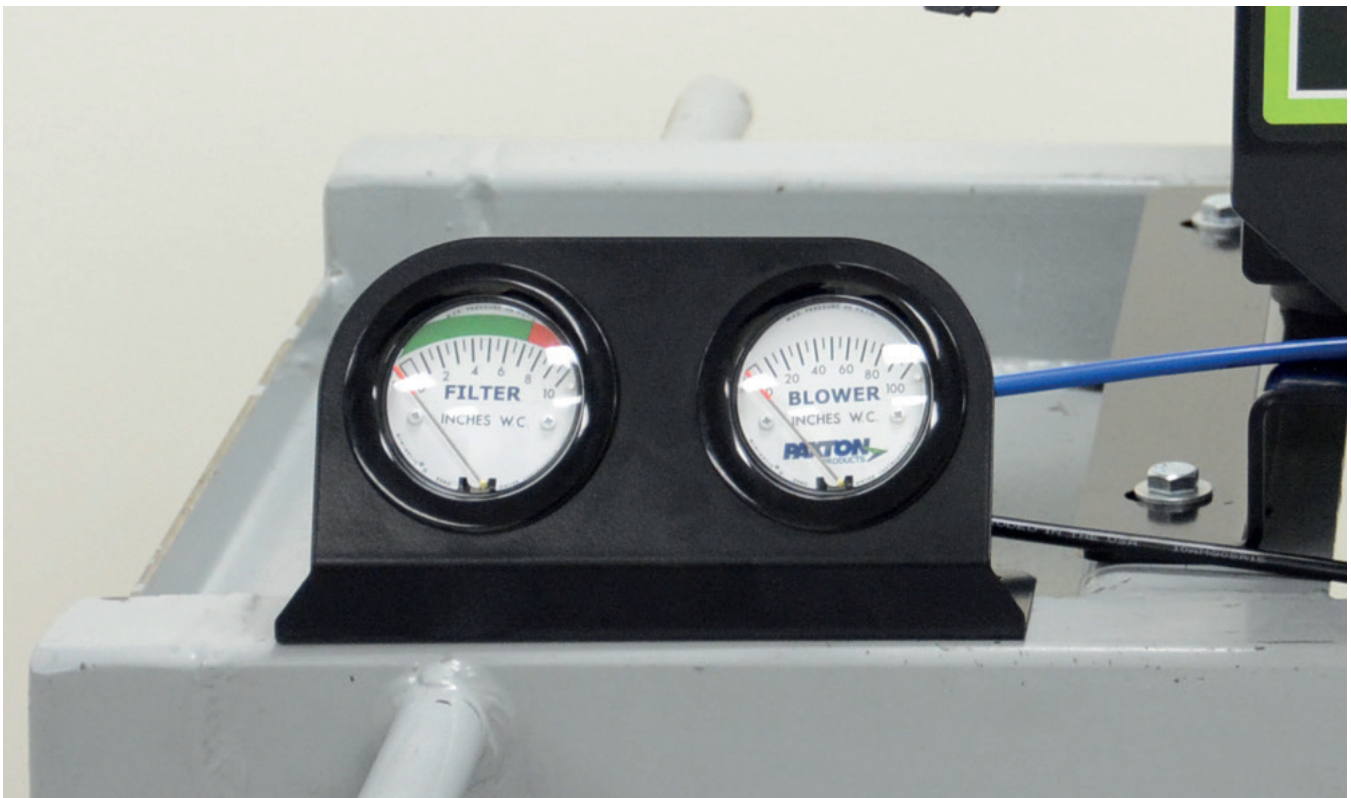
MEASURING PRESSURE

The PX-series blowers come equipped with a pressure gauge kit, with one gauge to measure the output pressure of the blower, and one gauge to measure the pressure drop across the filter.

► **Blower Output Pressure:** Each Paxton Air System is custom-engineered to match the number, size and types of air delivery devices with the flow and pressure of the blower. For one application, it may be optimum for the blower to operate at 50" W/C and 1000 cfm, whereas for another application, 30" W/C and 1400 cfm is specified. The blower is then built and tested to the design pressure and air flow rate. In order to achieve the drying performance specified, it is critical that the blower operate at the design pressure and flow.

The Blower Output Pressure Gauge is designed to indicate the outlet pressure of the blower, signaling proper operation. The pressure gauge should be connected to the outlet fitting of the blower via the pressure tap fitting. Upon start up of the Air System, the indicated outlet pressure should be compared to the design outlet pressure. This pressure gauge is also used for troubleshooting any performance issues. A complete loss of pressure indicates an electrical power issue or a mechanical problem such as a belt failure.

► **Pressure Drop Across the Filter:** The second pressure gauge measure the pressure drop across the inlet air filter, and indicates when the filter must be replaced. Filter replacement is required when the pressure drop across the filter exceeds 10" of water column, or annually, whichever comes first. A drop in pressure indicates a dirty filter.



PARTS LIST

Type	Description	Part #	PX-300	PX-500	PX-750
Blower Head*	Blower head assembly with pulley	8401000-x.xx	✓	✓	✓
Belt	Belt, 16 groove, 460 long	8001460	✓	✓	✓
	Belt, 16 groove, 460 long (5 pack)	8001460-5	✓	✓	✓
Filter Silencers	Filter silencer with housing and clamps, 5 micron, 800 cfm maximum flow	5M-800-H	✓	✓	✓
	Filter elements (2 pack), 5 micron, 800 cfm maximum flow	5M-800-R2	✓	✓	✓
	Silencer cartridge	1200-Silencer	✓	✓	✓
Idler/Tensioner	Idler/Tensioner Assembly	8002562	✓	✓	✓
	Idler/Tensioner Assembly (5 pack)	8002562-5	✓	✓	✓
	Idler/Tensioner Spring, 5 pack	800-Spring-5	✓	✓	✓
	Pivot Assembly for Idler/Tensioner	800-Pivot	✓	✓	✓

* Blower pulley size is dependent on the flow and pressure of the blower. The serial number is needed to determine the lowest blower head assembly.

PARTS LIST

Type	Description	Part #	PX-1000	PX-1500	PX-1550	PX-2000
Blower Head*	Blower head assembly with pulley	8002645-x.xx	✓	✓	✓	✓
Belt	Belt, 16 groove, 460 long	8001460	✓	✓		
	Belt, 16 groove, 490 long	8001490			✓	✓
	Belt, 16 groove, 460 long (5 pack)	8001460-5	✓	✓		
	Belt, 16 groove, 490 long (5 pack)	8001490-5			✓	✓
Filter Silencers	Filter silencer with housing and clamps, 5 micron, 1500 cfm maximum flow	5M-1500-H	✓	✓	✓	✓
	Filter elements (2 pack), 5 micron, 1500 cfm maximum flow	5M-1500-R2	✓	✓	✓	✓
	Silencer cartridge	1500-Silencer	✓	✓	✓	✓
Idler/Tensioner	Idler/Tensioner Assembly	8002562	✓	✓	✓	✓
	Idler/Tensioner Assembly (5 pack)	8002562-5	✓	✓	✓	✓
	Idler/Tensioner Spring, 5 pack	800-Spring-5	✓	✓	✓	✓
	Pivot Assembly for Idler/Tensioner	800-Pivot	✓	✓	✓	✓

* Blower pulley size is dependent on the flow and pressure of the blower. The serial number is needed to determine the lowest blower head assembly.

Paxton Products, an ITW Company

10125 Carver Road, Cincinnati, OH 45242
1-513-891-7474 | techsupport@paxtonproducts.com
www.paxtonproducts.com