

Wheel Replacement - cast aluminum wheels

Models PB - SPB

INSTRUCTIONS AND PROCEDURES

CF-IPCA-24 ISSUED 4/2024

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT



SPB Centrifugal Blower

instructions

Warning

The instructions and procedures in this manual should only be performed by authorized personnel with mechanical machine training or experience. Proper eyewear safety and all applicable OSHA safety regulations must be utilized while performing the procedures contained herein.

Before starting any of the procedures contained herein, power to the motor must be disabled using OSHA lock-out/tag-out procedures.

Do not attempt to start these procedures until the blower wheel, inside the blower housing, has come to a complete stop.

Failure to follow these instructions could result in blower failure, property damage, severe personal injury and death.

Replacing Blower Wheel Set Screws

- 1 Make sure the power to the motor has been disabled using the proper OSHA Lock-Out/Tag-Out procedures, and the blower wheel has come to a complete stop. If you were not trained in the OSHA Lock-Out/Tag-Out procedures, consult a licensed electrician that has been trained.
- 2 Disconnect any duct work or hose connections from the inlet and/or discharge of the blower housing. If necessary, disconnect the blower base and move the complete blower, motor and base assembly to a work bench.
- 3 Loosen and remove all the bolts, washers and nuts around the perimeter of the blower housing that hold the two housing halves together.

Caution

Since there was a sealant applied when the blower was manufactured, performing Step 3 might require two people to eliminate the chance for personal injury. One person to do the prying and one to hold the inlet side of the housing from falling. Pry the two housing halves apart with a pry bar. The sealant also acts as a bonding agent. On Model PB, be careful not to crack the cast aluminum housing.

4. Loosen and remove the two set screws in the side of the wheel hub with an Allen wrench. Discard the used set screws.
5. Replace the two set screws. **Do Not** tighten them yet. Use new set screws that have a nylon “locking patch” on the threaded side of the screw. The head of the screws should have a **knurled cup-point head**. These two features of the set screw are only good for one time use, which prevents the set screws from vibrating loose while the blower is operating.

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Note

The set screws must be tightened to the proper torque as shown in Table 1. Do Not use an air driven tool such as an impact wrench or pneumatic wrench. These tools could weaken or strip the threads in the wheel.

6. **Important**—Tighten the set screw over the keyway first. Then tighten the set screw onto the shaft.

Table 1

Diameter and Number of Threads/Inch	Hex Wrench Size (across flats)	Required Torque in·lb _f
1/4-20	1/8"	65
5/16-18	5/32"	165
3/8-16	3/16"	228

7. The sealant that was initially applied between the two housing halves must be removed. Using gloves, apply a degreaser such as Naphtha or Toluene to remove the silicone. **Do Not Use Gasoline.**
8. Apply a fresh bead of silicone sealant to the mating flange of the motor side of the housing.

Note

On PB-8 through PB-15A housing sizes, there is a tongue surface on one side of the housing and groove surface on the other side of the housing. Apply the bead of silicone into the groove on the grooved side housing.

9. Re-attach the inlet side of the housing using the same hardware. Tighten all the hardware.
10. Carefully reach into the blower inlet and spin the wheel by hand to make sure it is not rubbing anywhere inside the blower housing and that it rotates freely. If there is a rubbing or grinding sound, locate the cause and correct it.
11. Re-install the blower, motor and base assembly back into the system, if it was removed.
12. Reconnect any duct work, guards or accessories that were removed in Step 2.
13. Reconnect the wiring to the motor in accordance with National Electric Code (NEC) standards.
14. **Bump start** the motor and turn the power off. As the wheel is slowing down, check to make sure it is turning the proper rotation. If it is not, reverse any two power leads (3 Phase motors only) and repeat this step until the proper rotation is achieved.



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15. Perform a vibration test to make sure the vibration levels do not exceed the limits shown in the IOM *User Manual*. You will need to refer to the product *User Manual* for your model fan and arrangement for the correct information. All product *User Manuals* can be found on our web site.

Caution

Any open inlet, discharge, belts and sheaves or couplings MUST be guarded per OSHA standards.

Replacing Wheels

- 1 Make sure the power to the motor has been disabled using the proper OSHA Lock-Out/Tag-Out procedures, and the blower wheel has come to a complete stop. If you were not trained in the OSHA Lock-Out/Tag-Out procedures, consult a licensed electrician that has been trained.
- 2 Follow Steps 2, 3 and 4 on page 2.
3. Position two pry bars 180° apart, behind the back plate of the wheel and behind where two opposite blades connect to the back plate of the wheel. Carefully pry the wheel off of the shaft by applying force between the back plate of the wheel and the blower housing.

Caution

Make sure the wheel can't fall off the end of the shaft and injure your legs or feet.

4. Remove the key in the motor or blower shaft keyway and discard it.
5. Clean the motor or blower shaft of any foreign material. All nicks and burrs in the shaft must be removed with a file and emery paper.
6. All replacement wheels are supplied with two set screws, installed before the wheel is balanced at the factory. Check to make sure that the two set screws in the new wheel are not protruding into the bore or keyway of the new wheel.
7. In most cases the blower wheel can be mounted on the blower or motor shaft by hand and with little force. If the wheel does not slide on, check the wheel bore and the blower or motor shaft for nicks or burrs. The wheels are bored with a $-.000"$ to $+.001"$ tolerance so slight interference may occur between the wheel bore and the blower or motor shaft. If this is the case, a moderate amount of force may be required by using a rawhide or hard rubber mallet. **Do Not Use A Steel Hammer. Using a steel hammer may damage the blower or motor bearings and it can deform the wheel and/or crack the hub.**

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8. The wheel should be positioned on the fan or motor shaft so there is a 1/8" minimum to 1/4" maximum clearance between the back plate of the wheel and the inside of the blower housing.
9. Install a new key of adequate length. For 14" diameter and larger wheels, the length of the key should be 1" minimum.

Note

Each blower wheel is supplied with two set screws. One is over the keyway and the other is 90°-120° away. All set screws have a nylon "locking patch" on the side of the screw and a "knurled, cup point head"

Do Not use an air driven tool such as an impact wrench or pneumatic wrench to tighten the set screws. These tools could weaken or strip the threads in the wheel. The set screws must be tightened to the proper torque as shown in Table 1.

10. **Important**—Tighten the set screw over the keyway first. Then tighten the set screw onto the shaft.
11. The sealant that was initially applied between the two housing halves must be removed. Using gloves, apply a degreaser such as Naphtha or Toluene to remove the silicone. **Do Not Use Gasoline.**
12. Apply a fresh bead of silicone sealant to the mating flange of the motor side of the housing.

Note

On PB-8 through PB-15A housing sizes, there is a tongue surface on one side of the housing and groove surface on the other side of the housing. Apply the bead of silicone into the groove on the grooved side housing.

13. Re-attach the inlet side of the housing using the same hardware. Tighten all the hardware.
14. **Carefully** reach into the blower inlet and spin the wheel by hand to make sure it is not rubbing anywhere inside the blower housing and that it rotates freely. If there is a rubbing or grinding sound, locate the cause and correct it.
15. Re-install the blower, motor and base assembly back into the system, if it was removed.
16. Reconnect any duct work, guards or accessories that were removed in Step 2.
17. Reconnect the wiring to the motor in accordance with National Electric Code (NEC) standards.



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18. **Bump start** the motor and turn the power off. As the wheel is slowing down, check to make sure it is turning the proper rotation. If it is not, reverse any two power leads (3 Phase motors only) and repeat this step until the proper rotation is achieved.
19. Perform a vibration test to make sure the vibration levels do not exceed the limits shown in the IOM *User Manual*. You will need to refer to the product *User Manual* for your model fan and arrangement for the correct information. All product *User Manuals* can be found on our web site.

Caution

Any open inlet, discharge, belts and sheaves or couplings MUST be guarded per OSHA standards.

Changing Wheel Rotation

Models PB-14A - PB-15A - PB-18 and PB-18WA with removable side plate

1. Make sure the power to the motor has been disabled using the proper OSHA Lock-Out/Tag-Out procedures, and the blower wheel has come to a complete stop. If you were not trained in the OSHA Lock-Out/Tag-Out procedures, consult a licensed electrician that has been trained.
2. Follow Steps 2, 3 and 4 on page 2.
3. Position two pry bars 180° apart, behind the back plate of the wheel and behind where two opposite blades connect to the back plate of the wheel. Carefully pry the wheel off of the shaft by applying force between the back plate of the wheel and the blower housing.

Caution

Make sure the wheel can't fall off the end of the shaft and injure your legs or feet.

4. Remove the key in the motor or blower shaft keyway and discard it.
5. Clean the motor or blower shaft of any foreign material. All nicks and burrs in the shaft must be removed with a file and emery paper.
6. Remove the four outer circle bolts, nuts and washers holding the drive side of the housing to the drive side plate of the housing that is bolted to the blower base. Pry the two castings apart
7. Remove the four bolts, nuts and washers holding the inlet side of the housing to the inlet side plate of the housing. Carefully pry the two castings apart.
8. The sealant that was initially applied between the cast parts must be removed. Using gloves, apply a degreaser such as Naphtha or Toluene to remove the silicone. **Do Not Use Gasoline.**

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9. Apply a fresh bead of silicone sealant to all the same mating surfaces of the housing and side plates where you removed the old silicone.

Note

On PB-8 through PB-15A housing sizes, there is a tongue surface on one side of the housing and groove surface on the other side of the housing. Apply the bead of silicone into the groove on the grooved side housing.

When reinstalling the two housing halves, the original inlet side now becomes the drive side and the original drive side now becomes the inlet side.

10. Install the old inlet side housing onto the motor side plate with the original hardware and tighten it.

11. Install the inlet side plate onto the old motor side housing with the original hardware and tighten it.

12. For the rest of the assembly, follow Steps 6 through 19 on pages 4 through 6

Caution

Any open inlet, discharge, belts and sheaves or couplings MUST be guarded per OSHA standards..

wheel replacement

USER MANUAL

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