

**cincinnati fan**

# **IMPORTANT**

## **INITIAL UNIT STARTUP PROCEDURE** **FOR ALL BELT DRIVEN FANS**

Be sure to read **ALL** of this manual and **ALL** of the **I.S.O.M.** (**Installation, Safety, Operation & Maintenance**) manual **BEFORE** attempting to install and operate this equipment.

**INITIAL UNIT STARTUP**

**NOTICE: Failure to complete and document all the following pre-startup and both post-startup checks, listed in sections A (below) and B on page 3, could void all warranties.**

**A. Pre-Startup & Post-Startup Checks: (Check blocks as each step is completed. Retain this for your records.)**

**A1. Pre-Startup Checks Completed By:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

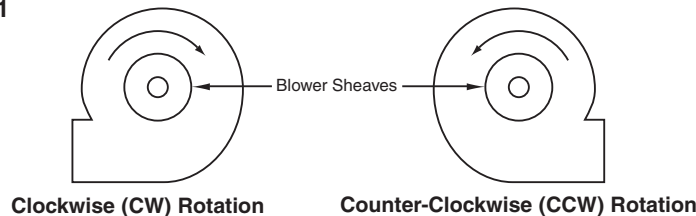
**A2. 8 Hour, Post-Startup Checks Completed By:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**A3. 3 Day, Post-Startup Checks Completed By:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**MAKE SURE POWER TO THE MOTOR IS LOCKED OUT BEFORE STARTING PRE-START OR POST-START CHECKS.**

1.  Check all blower, foundation and duct work hardware to make sure it is tight.
2.  Check all blower wheel, sheave and bearing set screws to make sure they are tight per **Table 1** on page 5 of the I.S.O.M manual.
3.  If the blower wheel or sheaves have a taper-lock bushing, make sure the bolts are tightened per **Table 2** on page 5 of the I.S.O.M manual.
4.  Make certain there is no foreign material in the blower or duct work that can become a projectile.
5.  Make sure any inspection doors in the blower housing or duct work are securely bolted or locked.
6.  Ensure all electrical power components are properly sized and matched for your electrical system.
7.  Check the blower wheel, by turning the blower shaft by hand, to ensure it rotates freely.
8.  Check sheaves for proper alignment and belts for proper tension. **See instructions on pages 5 and 6** of the I.S.O.M manual.
9.  Check that all required guards are properly secured.
10.  Any dampers should be fully opened, then fully closed to make sure there is no binding or interference.
11.  If your blower is mounted on an elevated support structure, make sure the structure is welded at all the joint connections, welds have not cracked and the structure is properly braced to prevent “side sway”.
12.  Close any dampers to minimize the load on the motor, especially on blowers with high temperature construction. **Never** subject a “cold” blower to a “hot” gas stream. If the blower will be handling “hot gases” greater than 150°F (65°C) it is imperative that the blower be subjected to a gradual rate of temperature increase, not to exceed 15°F/minute (8°C/minute). The same temperature limits are also important when the blower is experiencing a drop in temperature until the temperature drops down to 150°F (65°C). Only, when the entire blower has reached an equilibrium temperature of 150°F (65°C), or less, should the power be turned off.
13.  Make sure the power source connections to the blower motor are per the motor manufacturer’s instructions.
14.  Make sure the blower wheel is stationary prior to startup. **Starting a blower with a wheel that is rotating backwards can cause wheel damage.**
15.  Apply power to the blower motor momentarily (i.e. “bump start”) to check for proper blower wheel rotation. If the blower is rotating in the wrong direction, reconnect the motor leads per the motor manufacturer’s wiring schematic. **Blower rotation is determined by viewing the blower from the motor or drive side of the blower, NOT from the inlet side.** After reconnecting the leads, repeat this step. **See Fig. 1 below.**
16.  Apply power to the motor and let it come up to full speed. Turn off the power. Look and listen for any unusual noise or mechanical abnormality while the blower wheel is still spinning. If any are noticed, lock out the power, wait for the blower wheel to come to a complete stop, locate the cause and correct it.

**Fig. 1**



17.  Unlock power to the motor and run the blower for 15-20 minutes to allow belts to “seat” properly. **Turn off and lock out power to the motor.**
18.  Remove the belt guard.
19.  Check the belt tension with a “**belt tensioning gauge**”. If the belts are too loose, loosen the 4 nuts holding the motor feet on the motor slide base and re-adjust the belt tension.
20.  Tighten the 4 nuts in the motor feet.

21.  Unlock power to the motor and run the blower for 8 hours. The belts should be running as shown in **Fig. 4** on page 6 of the I.S.O.M manual. If not, repeat steps 19 and 20 **after you have turned off and locked out power to the motor.**
22.  When belts are running properly, **turn off and lock out power to the motor.** Re-install belt guard
23.  Unlock power to the motor and run the blower.
24.  Measure, record and keep the following motor data for future reference and comparison:

**(Single phase motors will only have L1 and L2 leads)**

**Amperage draw on each motor lead: L1\_\_\_\_\_ L2\_\_\_\_\_ L3\_\_\_\_\_**

**(Running amps should NOT exceed the motor name plate amps for the voltage being operated on).**

**Voltage coming to motor leads: L1\_\_\_\_\_ L2\_\_\_\_\_ L3\_\_\_\_\_**

**(Should be about the same input voltage on all leads).**

25.  After running the blower for 8 hours, **turn off and lock out power to the motor,** remove belt guard and repeat steps 19 through 23 above.
26.  Repeat step 25 after 3 days and periodically after that.

### B. Vibration:

The blower was balanced at the factory to comply with ANSI/AMCA Standard 204-05, Category BV-3. However, rough handling in shipment and/or erection, weak and/or non-rigid foundations, and misalignment may cause a vibration problem after installation. After installation, the vibration levels should be checked by personnel experienced with vibration analysis and vibration analysis equipment.

#### NOTE:

The blower **SHOULD NOT** be operated if the vibration velocity of the blower exceeds 0.40 inches per second, filter out, if the blower is rigidly mounted. If the blower is mounted on isolators or on an isolator base, it **SHOULD NOT** be operated if the vibration velocity of the blower exceeds 0.65 inches per second, filter out.

Vibration readings for belt driven blowers should be taken at the top, sides and end as per Fig. 2 below. They should also be taken on the top, sides and ends of the blower bearings as per Fig. 3 below. After you have taken your vibration readings, write them down in the spaces in Fig. 4 on page 4 and keep for future comparison.

### ⚠ DANGER

If the blower is going to be conveying material, it is the user's responsibility to periodically turn the blower off and lock out the power. The blower wheel should then be checked for material build-up and/or erosion. If material has built up on any parts of the wheel, it **MUST** be removed and cleaned before it is put back into service. If any parts of the wheel have been eroded, the wheel **MUST** be replaced. Failure to perform this inspection can cause excessive vibration that will damage the blower and/or motor bearings. When vibration becomes excessive, it will lead to complete blower failure that could cause property damage, severe personal injury and death. The user must determine the frequency of this inspection based on the actual circumstances of their operation, **BUT** checking the vibration readings should **NEVER** exceed a 12 month period. For the AMCA/ANSI standard for vibration limits, see Fig. 5 on page 4.

Fig. 2 (Motor reading points)

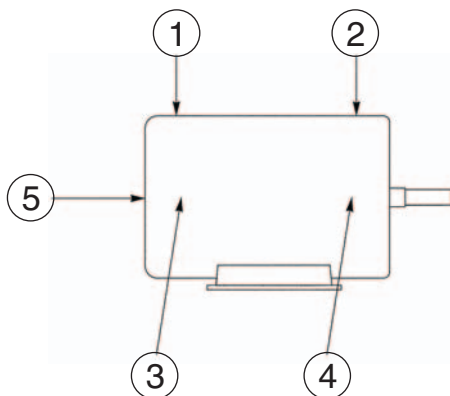


Fig. 3 (Blower bearing reading points)

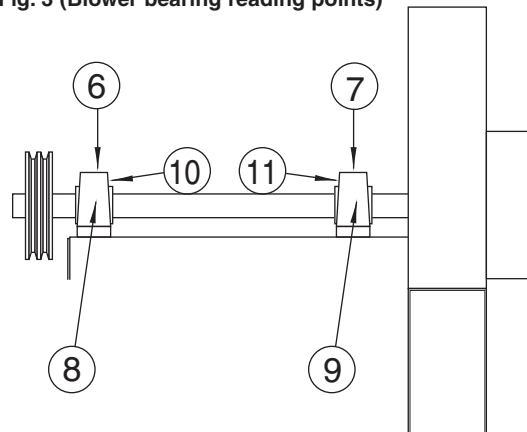


Fig. 4

**VIBRATION METER PROBE POSITIONS**  
For Arrangement 9 and 9CB Blowers

	1	2	3	4	5	6	7	8	9	10	11
<b>A</b>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
<b>B</b>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
<b>C</b>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

**A** Pre-Startup ..... Readings taken by: \_\_\_\_\_ Date: \_\_\_\_\_  
**B** 8 Hour Post-Startup ..... Readings taken by: \_\_\_\_\_ Date: \_\_\_\_\_  
**C** 3 Day Post-Startup ..... Readings taken by: \_\_\_\_\_ Date: \_\_\_\_\_

Fig. 5 Vibration Severity Chart

