

Item # 1159044R (1000/2000 Series Damper Control Circuit Board)  
Item #1041290R (1000 Series Output Temperature Sensor Circuit Board)  
Item #1040388R (2000 Series Output Temperature Sensor Circuit Board)

**THIS PROCEDURE MUST BE PERFORMED BY A QUALIFIED  
TECHNICIAN**



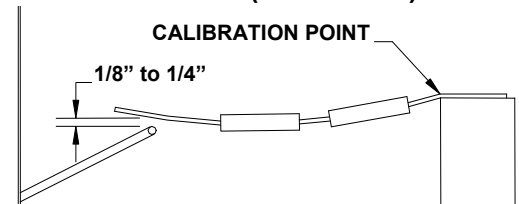
**WARNING**

**HAZARDOUS VOLTAGE:**  
Risk of electric shock.  
Can cause injury or  
death. System may be  
connected to more than  
one branch circuit.  
Disconnect power to all  
circuits before servicing.

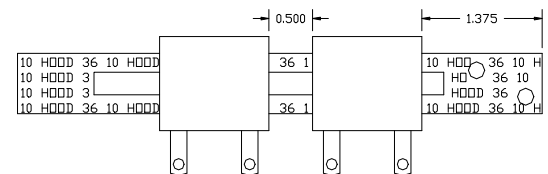
1. De-energize the heater and remove the front panel. Place the main control circuit board in the service position by sliding it off its mounting screws and hooking it on these same screws using the eyelets provided on the front of the circuit board mounting plate.
2. Check the clearance between the damper actuator and the lever extending from the damper assembly. The damper actuator should be on top of the lever. With the resistors cool, there should be a 1/8" – 1/4" gap between the damper actuator and the lever. Calibrate, if necessary, by bending the actuator near its mounting point. (Figure 1)
3. Inspect the blower and clean if necessary. It is recommended to clean the blower when the heater is cool to the touch.
4. Check damper operation to ensure optimum performance of the heater.

**Figure 1**

**2000 Series (Front View)**



**Figure 2**



**1000 SERIES:**

Make certain the damper at the top of the core sets down completely over the openings to ensure a tight seal is achieved. Check the routing of the field installed wiring. This wiring must NOT be placed near the damper actuator or its linkage.

**2000 SERIES:**

Check damper operation by manually pressing the damper lever down and then slowly raising it. If the damper is not free, remove the blower and clean any debris from the damper area.

5. Verify damper resistor spacing as shown in Figure 2.
6. Energize the heater.

**1000SERIES:**

Check settings in Location 28 (L28) and Location 33 (L33). L28 should be set at d20 and L33 should be set at d48. Make the proper adjustments if they are not at these settings. It may be necessary to unlock these locations to make the changes. This is done by changing the data in Location 39 (L39) to d34. Remember to reset the lock when adjustments are complete.

**2000 SERIES:**

Check blower operation as follows:

- (a) Adjust the room temperature set point below the actual room temperature. The blower should not be running.
- (b) Set the room temperature set point one degree above actual room temperature. The blower should now start in low speed.
- (c) Adjust the room temperature set point up until the blower runs in high speed.

**NOTE: Repeat Steps A and B. A blower that struggles to start in low speed can cause the discharge air temperature to get too hot, causing the output sensor to open.**

- Verify that the ohm value on the blower resistor is correct for the application. Reference the Blower Resistor Ohm Value Table for more information.

**BLOWER RESISTOR OHM VALUE**

(All resistors are 50 Watt)

FASCO			
MODEL	120V	208V	240V
2002	150 Ohm	600 Ohm	600 Ohm
2003/2004	125 Ohm	500 Ohm	500 Ohm
2005/2006	100 Ohm	400/500 Ohm	400/500 Ohm

P-TECH		
MODEL	120V	240/208V
2000 Series	250 Ohm	1100 Ohm

**NOTES:**

- Refer to the Unit Identification Label on the left side of heater to determine voltage.
- A 500 Ohm 50 Watt resistor can be used as a replacement in the 240V Model 2005 and 2006. It will slightly reduce low fan speed on these systems.

- Verify that input voltage exists between “F” and “B” quick disconnect terminals on the damper control circuit board when a heat call is present.
- De-energize the heater. Disconnect the orange wires from the damper control circuit board. Check the ohm value across the orange wires. On 240V heaters the ohm value should be 800 ohms; on 120V heaters it should be 200 ohms; and on 208V heaters it should be 600 ohms. If the ohm value is incorrect, replace the damper actuator.
- Reconnect the orange wires to the damper control circuit board. Re-energize the heater. Initiate a heat call by adjusting room temperature set point up. The damper assembly should operate in the 1000 series and the blower should run in the 2000 series. Check voltage between the orange wires. This reading should be between 50 VAC and 145 VAC for 240V heaters; between 25 VAC and 75 VAC for 120V heaters; and between 40 VAC and 125 VAC for 208V heaters.



**CAUTION**

**Risk of electric shock. Can cause injury or death. Use care when measuring voltage on system components. Failure to use caution can result in equipment damage and/or personal injury or death.**

- Adjust the room temperature setpoint below actual room temperature to end the heat call. Check voltage across the “F” and “B” terminals on the damper board. With NO Heat call, the voltage should be zero (0). If voltage exists, verify internal system wiring (specifically, that there are no wires connected to the lower left relay on the main processor control board).

- Disconnect the yellow wire from the damper control circuit board. Check voltage between the two orange wires once again. With a heat call, the voltage should read less than five (5) volts.

- De-energize the heater. Reconnect the yellow wire to the damper control circuit board. If the tests done in Steps 9 or 10 are incorrect, the damper control circuit board should be replaced.

- Return the main circuit board to its original position and install the heater’s front panel. Restore power to the heater.

**Discharge Air System - 2000 Series**

