

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

## CHECK-OUT

1. Disconnect power to all branch circuits of the heater and remove the painted front panel.
2. Place the main control circuit board in the service position.
3. Check the blower wheel for dirt and/or debris and clean if necessary. It is recommended to clean the blower when the heater is cool to the touch.
4. Verify spacing of resistors on damper actuator as shown in Figures 1.
5. Check the clearance between the damper actuator and the damper rod (Figure 2). The damper actuator should be above the lever.
6. With no heat call, the resistors on the damper actuator assembly should be cool and the clearance between the actuator and the rod should be between an 1/8" – 1/4 ". If necessary, calibrate by bending the actuator near its mounting point (Figure 2).
7. Check damper operation by manually pressing the damper rod down and then slowly raising it. If the damper is not free, remove the blower and clean any debris in that area.
8. Use Table 1 and Figure 3 to verify the blower resistor is correct for the blower installed.
9. Disconnect a lead from one (1) of the two (2) "resistor" terminals on the base I/O relay board. Measure resistance between the removed wire and the other "resistor" terminal. Reference Figure 4. If incorrect, replace the blower resistor.
10. Disconnect the orange wires from the damper control board (Figure 5). Check the resistance across the orange wires and verify with Table 2.

**TABLE 2**

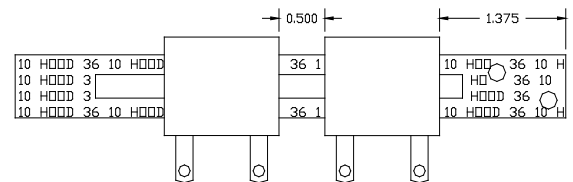
Heater	Resistance
240V	800 ohms
120V	200 ohms
208V	600 ohms



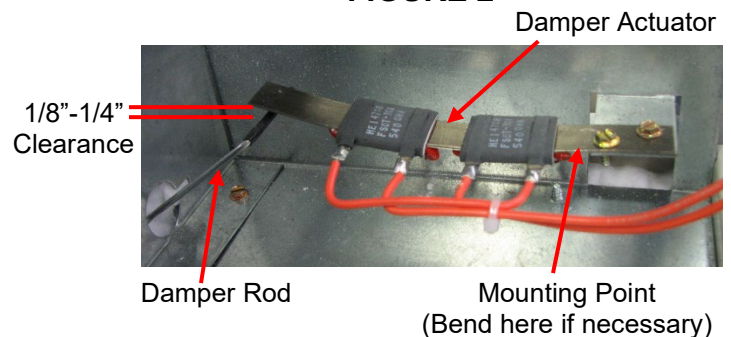
## WARNING

**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.

**FIGURE 1**



**FIGURE 2**



**FIGURE 3**

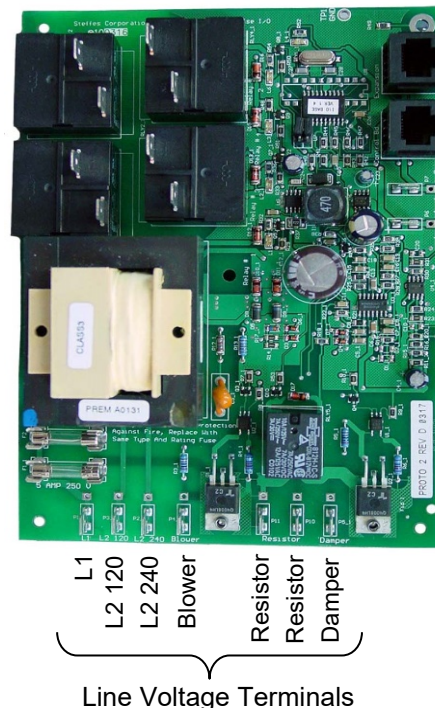


**TABLE 1**

BLOWER RESISTOR OHM VALUE (All resistors are 50 Watt +/- 10%)		
Blower Mfg	Input Voltage	Blower Speed Resistor Required
FASCO	120V	150 Ohm 50W
FASCO	208/240V	600 Ohm 50W
P-Tech	120V	250 Ohm 50W
P-Tech	208/240V	1500 Ohm 50W

11. Energize the heater. Verify Location 111 (L111) has a value of 50-100°F. If this reading is incorrect, verify there is a jumper across the top two positions of the 4-position terminal block on the processor control board.
12. De-energize the heater. Reconnect the orange wires to the damper control board (Figure 5). Re-energize the heater. Make sure there is not a heat call. Check voltage from F to B on the damper control board (right side of Z1 to damper terminal). There should be less than .5 VAC present without a heat call.
13. Set the room temperature set point four (4) degrees lower than the current room temperature.
  - ◆ Blower should not be operating.
  - ◆ Location 120 (L120) and Location 121 (L121) = 0 (zero)
  - ◆ Voltage from F to B on the damper control board (Figure 5) should be zero.
14. Set the room temperature set point one (1) degree above actual room temperature to initiate a heat call.
  - ◆ Blower should be operating.
  - ◆ Damper should be opening.
  - ◆ Location 120 (L120) = blower activation value
  - ◆ Location 121 (L121) = damper activation value
  - ◆ Use the value in Location 120 (L120) and Figure 6 to determine what voltage should be present from F on the damper control board to Blower on the base I/O board. Check voltage.
  - ◆ Use the value in Location (L121) and Figure 6 to determine what voltage should be present from F to B on the damper control board. Check voltage.
  - ◆ Compare voltage reading from F to B on the damper control board to the voltage reading from O to O on the damper control board. The voltage from O to O should be approximately 60% of the voltage from F to B. For example, if the voltage from F to B is 240 VAC, then the voltage from O to O should be approximately 144 VAC ( $240 \times 0.60 = 144$ ).
15. De-energize the heater.  
Disconnect the yellow wire from the damper control board.
16. Re-energize the heater. Check voltage between the two orange wires once again. With a heat call, the voltage should read less than five (5) volts. If the voltage is incorrect, replace the damper control board and the output sensor.
17. Energize the heater and verify heater operation.

**FIGURE 4  
Base I/O Board**



**FIGURE 5  
Damper Control Board**



**FIGURE 6  
Blower/Damper Activation**

