

# Field Calibration Check Procedure

## Minneapolis Duct Blaster System (with DG-700)

The following procedure uses a Duct Blaster Field Calibration Plate to perform a field calibration check on your Series B Minneapolis Duct Blaster System (with DG-700 gauge). The field calibration plate is designed to simulate a duct leakage test with a leakage rate of 106 CFM @ 25 Pascals.

1. Set up the Duct Blaster fan for depressurization testing, with **Ring 3** installed:

- Install the white foam flow conditioner inside the round transition piece (this must always be installed when depressurization testing).
- The round transition piece (with attached flex duct) should be connected to the inlet side of the Duct Blaster fan (using the fan connecting trim), with Ring 3 installed between the round transition piece and the fan inlet. Be sure the connecting trim is securely fastened all the way around the inlet flange of the Duct Blaster fan.
- Be sure the nozzle on Ring 3 is pointing toward the fan motor.



2. Connect the Duct Blaster speed controller to the fan, and plug the speed controller into a power outlet (the controller should be turned off).



3. Install the square transition piece into the open end of the flex duct. Tightly secure the square transition piece to the flex duct using the velcro strap on the end of the flex duct.



4. Fully extend the flex duct away from the fan. Be sure the flex duct is straight, completely extended, and there are no kinks or bends in the flex.



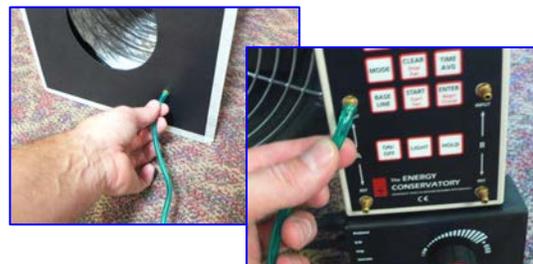
5. Tape the field calibration plate to the end of the square transition piece:

- Line up the outside edge of the calibration plate with the outside edge of the square transition piece.
- Orient the calibration plate so that the label side of the plate (textured surface) is facing out and the smooth side is facing toward the inside of the flex duct.
- Tape the calibration plate to the square transition piece along the entire seam.
- Make sure there are no obstructions in front of the calibration plate.

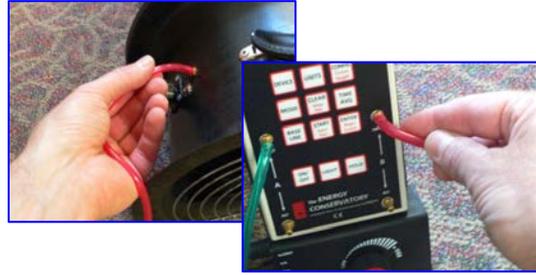


6. Connect tubing to the DG-700 gauge:

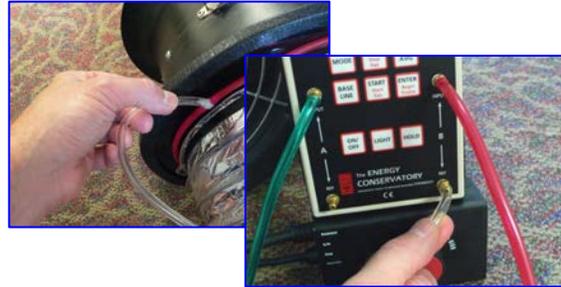
- Connect a piece of tubing from the pressure tap on the calibration plate to the Channel A Input tap.



- Connect a 2<sup>nd</sup> piece of tubing from the brass tap on the Duct Blaster fan to the Channel B Input tap.

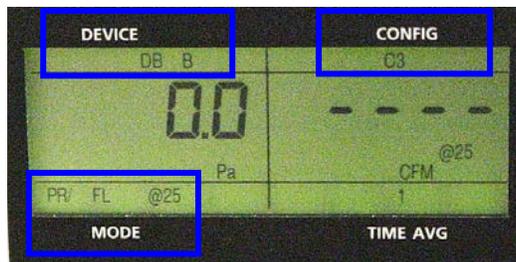


- Connect a 3rd piece of tubing from the plastic tap on the round transition piece to the Channel B Reference tap.



7. Turn on the DG-700 gauge and enter the correct settings:

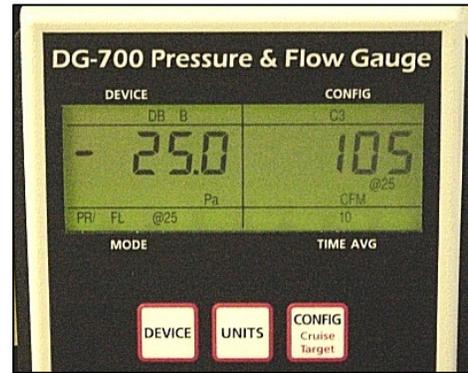
- Turn on the gauge by pressing the **ON/OFF** button.
- Push the **MODE** button 3 times to place the gauge in the **PR/ FL @25** mode (**PR/ FL @25** should be displayed in the MODE window).
- Press the **DEVICE** button 4 times to select the Series B Duct Blaster fan (**DB B** should be displayed in the DEVICE window).
- Press the **CONFIG** button 3 times to select Ring 3 as the current configuration (**C3** should be displayed in the CONFIG window).



- Make sure the DG-700 is located away from the air flow that will be exiting the Duct Blaster fan.

8. Turn on the Duct Blaster fan and take a flow reading from the field calibration plate:

- Turn on the Duct Blaster fan by slowly turning the knob on the fan controller clockwise.
- Adjust the fan until the pressure displayed on **Channel A** is 25 Pa (between 24.5 Pa and 25.5 Pa is acceptable).
- Once the fan speed is adjusted appropriately, set the DG-700 gauge to take 10 second average readings. This done by pressing the **TIME AVG** button twice (**10** should be displayed in the TIME AVG window).
- After 10 seconds, read the flow value displayed on **Channel B** and write it down on a recording form (a sample form is located at the end of this document). In the photo to the right, the flow reading is 105 CFM.



9. Determine if flow reading is within the acceptable range:

- If the flow reading is between 103 and 109 CFM (while Channel A is between 24.5 and 25.5 Pa), the Duct Blaster System (fan and gauge) passes the field calibration check. No additional calibration of the System is needed at this time.
- If the flow reading is less than 103 CFM, or greater than 109 CFM, then the Duct Blaster System fails the field calibration check, and the operator should consult the Troubleshooting Guide below.

### **Troubleshooting Guide (Duct Blaster System has failed the field calibration check).**

- Make sure the tubing connections are correct (see Item 6 above).
- Check tubing for leaks or blocked or pinched tubing. Replace pinched or leaky tubing.
- Make sure you have correctly installed Ring 3 on the Duct Blaster fan in the depressurization mode (see Item 1 above).
- Make sure you have the correct settings entered into the DG-700 (see Item 7 above). Also be sure that air flow from the Duct Blaster fan is not blowing on the DG-700 gauge.
- Make sure the flex duct is straight and fully extended (see Item 4 above).
- Make sure there are no obstructions in front of the calibration plate.
- If the flow reading is high (greater than 109 CFM), check for leaks in the flex duct. Seal flex duct leaks if found, or replace flex duct.

Repeat the field calibration check. If the Duct Blaster System still fails, send the Duct Blaster System (including the DG-700 gauge) to The Energy Conservatory for repairs and/or calibration adjustment. Please include a letter indicating the flow value measured during your field calibration check, as well as billing, shipping and contact information.

