

Quick Guide DB-DEP700

One-Point 25 Pascal Total Leakage Duct Depressurization Test (pulling air out of the duct system) Using the Minneapolis Duct Blaster® and DG-700 Digital Gauge

1. Connect the Duct Blaster fan to the duct system.

- a) Choose a location to install the Duct Blaster fan. In single, double or triple returned systems, the largest and closest return to the air handler is usually the best choice. **Note:** In multi-return systems (a return in every room), installing at the air handler cabinet is often best.
- b) Remove any remote filters from the chosen return and then connect the black square transition piece to the return using temporary tape. Completely seal the remaining open area of the return with tape.
- c) Pull the Duct Blaster fan and flex duct out of the carrying case. Disconnect the flex duct from the fan and insert the white foam flow conditioner into the round transition piece. Connect the flex duct along with one of the Flow Rings to the inlet side of the fan (i.e. the side without the metal guard) using the round transition piece and connect trim.

When installing the Flow Ring, sandwich it between the round transition piece and the fan inlet flange. Use the Flow Ring which you think best matches the needed fan flow. Connect the open end of the flex duct to the square transition piece using the velcro strap on the flex duct.

- d) Connect the fan speed controller to the fan and plug it into a grounded power outlet.
- e) If your DG-700 gauge and fan speed controller are compatible with Cruise Control, install the fan control cable into the 3.5 mm communication jacks located on top of the DG-700 and on the side of the speed controller (otherwise skip this step). **

| Fan Configuration | Flow Range (cfm) For Series B Duct Blaster |
|-------------------|---|
| Ring 1 | 800 – 225 |
| Ring 2 | 300 – 90 |
| Ring 3 | 125 – 10 |

2. Prepare the duct system and house for the Test.

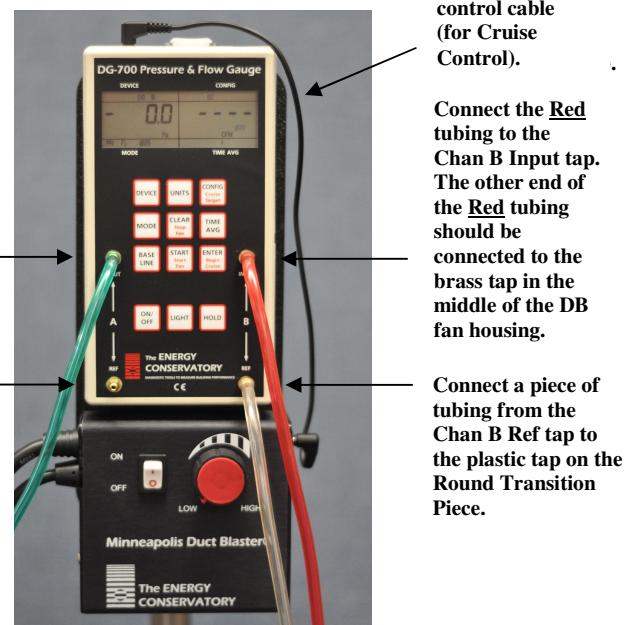
- a) Adjust the HVAC system controls so that the air handler does not turn on during the Test.
- b) Temporarily seal off all remaining supply and return registers, and combustion or ventilation air inlets which are connected to the duct system. Use **Duct Mask™** temporary register sealing material provided with your Duct Blaster, or use painters tape and paper.
- c) Turn off any exhaust fans, vented dryers, and room air conditioners.
- d) Remove all central filters (i.e. in air handler or return plenum).
- e) Open a door or window between the building and outside to prevent changes in building pressure when the Duct Blaster is running.
- f) If the Duct Blaster is installed in an attic, garage or crawlspace - open vents or access panels or doors from these spaces to the outside.

3. Connect tubing to the DG-700 Pressure Gauge.

- a) Select a location to measure duct pressure. The best location for measuring duct pressure is often in the supply trunkline or plenum. Drill a small hole (1/4" to 3/8" OD) into the duct to allow a static pressure probe to be installed. Install the static pressure probe with the end of the probe pointing into the air flow that will be coming from the Duct Blaster fan. If the duct system is reasonably airtight (e.g. less than 200 cfm25 of leakage), duct pressures can be measured at any supply register by inserting a piece of tubing through the temporary register seal.
- b) Connect tubing to the DG-700 as shown in the illustration to the right.

Connect the Green (or Clear) tubing to the Chan A Input tap. The other end of the Green tubing should be connected to the duct system (by either inserting into a sealed register, or connecting to the end of the installed static pressure probe).

Connect Chan A Ref tap to inside of building (if gauge is located in the building, leave this tap open). Be sure window is open.



Optional fan control cable (for Cruise Control).

Connect the Red tubing to the Chan B Input tap. The other end of the Red tubing should be connected to the brass tap in the middle of the DB fan housing.

Connect a piece of tubing from the Chan B Ref tap to the plastic tap on the Round Transition Piece.

** Your DG-700 gauge is compatible with Cruise Control if the CONFIG, CLEAR, START and ENTER keys have additional red lettering below the main black script. Cruise Control also requires a Duct Blaster speed controller with a 3.5 mm communication jack installed on the side of the controller box, and a fan control cable.

4. Conducting the Test.

- a) Turn on the gauge by pressing the **ON/OFF** button.
- b) Press the **MODE** button three times to put the gauge into the **PR/ FL @25** Mode. In this Mode, **Channel A** is used to measure duct system pressure while **Channel B** is used to display estimated duct leakage at a test pressure of -25 Pascals. (The leakage estimate shown on **Channel B** is determined by mathematically adjusting the actual air flow from the Duct Blaster fan using the real-time **Channel A** duct system pressure reading and a Can't Reach Pressure factor.)
- c) Check (and adjust if necessary) the selected test Device (i.e. fan) and Configuration (i.e. Flow Ring) shown in the upper part of the gauge display to match the fan and Flow Ring being used in the test. For example, the Device icon for the Series B Duct Blaster fan is **DB B**, and the Configuration icon for Ring 2 is **B2**. Press the **DEVICE** button to change the selected fan. Press the **CONFIG** button to change the selected Flow Ring.
- d) Turn on the Duct Blaster fan.

If Using Cruise Control:

Turn the Duct Blaster speed controller to the “just on” position (i.e. turn the controller knob all the way down counter-clockwise and flip the on/off switch to “ON” – the fan will not be turning). Now press the **Begin Cruise (Enter)** button. The **Channel A** display will now show the number 25 (your target Cruise pressure). Press the **Start Fan (Start)** button. The Duct Blaster fan will now slowly increase speed until the duct depressurization displayed on Channel A is approximately -25 Pascals.

If Manually Controlling Fan:

Turn on the Duct Blaster fan controller and slowly turn the fan controller knob clockwise. As the fan speed increases, the duct depressurization displayed on **Channel A** should also increase. Continue to increase the fan speed until the duct depressurization shown on **Channel A** is between -20 and -30 Pascals. Do not waste time adjusting and re-adjusting the fan speed control to achieve a test pressure of exactly -25 Pascals.

- e) **Channel B** will now display the One-Point 25 Pascal Total Duct Leakage estimate. Record this number. If the leakage estimate is fluctuating more than desired, try changing the Time Averaging setting on the gauge by pressing the **TIME AVG** button and choosing the **5** or **10** second or **Long-term** averaging period. (If “-----” or “**LO**” appear on **Channel B**, see #5 below).
- f) Turn off the Duct Blaster fan. If you are using Cruise Control, this is done by pressing the **Stop Fan (Clear)** button.

5. “-----” or “**LO**” appearing on **Channel B**

Whenever “-----” or “**LO**” appears on **Channel B** in the **PR/ FL @ 25** Mode, the DG-700 can not calculate a reliable leakage estimate. The messages “-----” and “**LO**” appear on **Channel B** under the following three conditions:

- a) “-----” is continuously displayed when the duct test pressure from **Channel A** is below a minimum value of 5 Pascals. Estimating duct leakage results when the test pressure is below this value may result in large errors. If possible, install a larger Flow Ring to generate more fan flow.
- b) “**LO**” is continuously displayed when there is negligible air flow through the test device.
- c) “**LO**” alternates with a flow reading when the air flow reading through the device is unreliable (i.e. you are trying to measure a flow outside of the calibrated range of the test device in its current configuration). If possible, you should change the test device configuration to match the flow rate being measured (e.g. install a smaller Flow Ring).

Note: If you change the Flow Ring on the fan, be sure to change the Configuration setting on the gauge to match the installed Ring.