

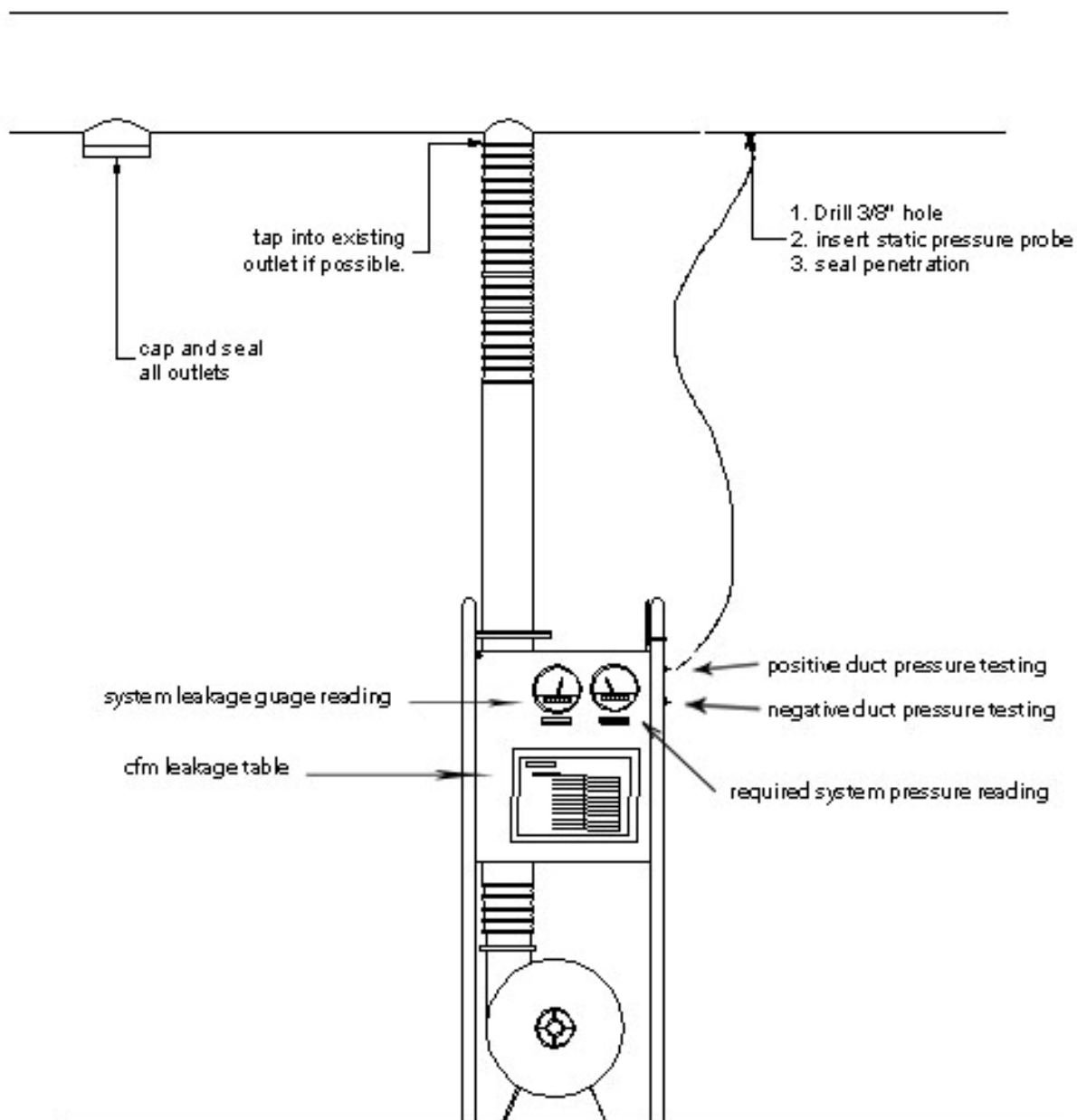
XPT DLT Duct Leakage Tester Setup and Operating Instructions.

Note: It is recommended that you refer to SMACNA's Duct Leakage Test Manual or equivalent standards recognized locally or by your native country while involved in testing.

Refer to Figure 1 located below while performing the following steps:

1. Make sure you have adequate electrical power for the fan. DO NOT OVERLOAD extension cords. Make sure you use one with the proper gauge.
2. Ensure duct system has been sealed and cured for at least 24 hours prior to testing or according to applicable standards or specifications for that project.
3. Connect your vinyl static pressure tubing to the right side of your tester where two brass connections are located labeled positive or negative system pressurization.
4. Connect your vinyl static tubing to either the top connection for positive duct pressure testing or connect to the bottom connection for negative duct pressure testing. (see diagram below)
5. If possible, position your tester in a location where there will be a straight path for your flexible connection from the differential tube (stack) outlet to the location where you will feed air into the system.
6. Drill a 3/8" diameter hole on the system duct two or three feet away from where the flexible duct connection.
7. Place your static pressure probe on the other end of your pressure tubing into the previously drilled hole.
8. Seal the static probe penetration joint with putty or tape.
9. Zero both gauges before each use. Locate adjusting screw on center front of gauge. Use a small slotted screwdriver. Turning clockwise increases the pressure reading, counter-clockwise decreases it.
10. **(Manual Testers Only)** Close the fan's inlet iris damper to its maximum closed position prior to turning on your tester. If you don't have an inlet damper, place a flat piece of sheet metal, cardboard or plywood that is large enough to cover over the fan's inlet opening. Be sure what you use is not so weak that it can get pulled into the inlet of the fan. (This procedure prevents the tester from possibly over pressurizing your duct system at initial start-up and jeopardizing the integrity of your initial duct sealing process.
11. **(Automatic Testers Only)** Prior to turning on your tester, check the position of the automatic damper and make sure it is at its maximum closed position. (Note: inlet damper maximum closed position is approx. 95% of fully closed) If unsure if at maximum closed position or damper was left open from previous use, adjust your system pressure set point pointer on your system pressure gauge to the "0" position. (See figure 1 located below). Then place a flat piece of sheet metal, cardboard or plywood that is large enough to completely cover over the fan's inlet opening prior to turn on. Be sure what you use is not so weak that it can get pulled into the inlet of the fan. (This procedure prevents the tester from possibly over pressurizing your duct system at initial start-up and jeopardizing the integrity of your initial duct sealing process.
12. Turn on the fan.
13. **(Manual Testers Only)** Adjust your inlet damper until the reading on your system pressure gauge is at the system pressure required for performing the leakage test. If your damper cannot achieve further minimum static pressure readings, then place a flat piece of sheet metal, cardboard or plywood that is large enough to cover over the fan's inlet opening to obtain minimum pressure readings.
14. **(Automatic Testers Only)** While having the fan inlet opening covered, allow the damper to modulate to its maximum closed position. Once it reaches its maximum closed position, then remove the covering over the fan inlet opening and adjust your system pressure pointer on your system pressure gauge to your required system test pressure value and allow your automatic damper to modulate to that set point. (Note: the right knob adjustment on your system pressure gauge is only used, left knob is inoperable). If your damper cannot achieve further minimum static pressure readings, then place a flat piece of sheet metal, cardboard or plywood that is large enough to cover over the fan's inlet opening to obtain minimum pressure readings.
15. Once the required system pressure has been reached and has stabilized, note the reading on your system leakage gauge. (See figure 1 located below). This pressure drop reading will correspond to the amount of air you're feeding into the duct system, which is the amount of air that is leaking out. Use your calibration table to convert your differential reading on your system leakage gauge to its corresponding CFM (cubic feet per minute) value. That CFM value is your actual leakage.
16. If the "system leakage reading" exceeds the maximum allowable leakage, the system is probably leaking too much air. Investigate system for missed outlets or unsealed joints. Then repeat steps 10-16.
17. If the "system leakage reading" does not exceed the maximum allowable leakage and completes the test time cycle requirements, document and/or report your final readings on your system leakage gauge according to the requirements for documentation and reporting for that project.

Figure 1



XPT DLT Duct Leakage Tester Setup and Operating Instructions.

Refer to Figures 14 & 15 located at the end of these instructions as a general reference while going through these procedures for setting up and operating your duct leakage tester. (Note: It is recommended that you refer to SMACNA's Duct Leakage Test Manual or equivalent duct testing standards recognized locally for your project.)

Assembly:

1. Note: All testers are shipped with the differential tube or stack disconnected from the fan as to prevent damage. Once you receive your tester, you will have to first remove the hose adaptor from the base of the fan by unlatching it with the quick seal connection ring holding it in place. Once removed, then re-connect your differential tube or discharge stack to the base of the fan using the same quick seal connection ring provided with your tester. Be sure to line up the arrows which are located on the base of the fan and on the differential tube. (See **Figure 1 example below**)



Fig. 1 – Stack Assembly

2. Once your differential tube or stack has been installed, connect your differential sensor hoses to the sensor on your differential tube. The “HI” pressure tube connects to the port marked “HI” on the sensor and the “LO” pressure tube connects to the port marked “LO” on the sensor.
3. Once your differential tube is installed and your “HI” “LO” pressure tubing is connected to the sensor, connect your hose adaptor assembly that you removed from the base of the fan and connect it to the top of the discharge stack of your tester to secure it in place using the additional quick seal connection ring provided with your tester. Assembly is then completed. (See **Figure 2 example below**)



Fig. 2 – Hose Adaptor Connection

Duct Leakage Tester Setup:

1. Ensure duct system has been sealed and cured for at least 24 hours prior to testing or according to applicable standards or specifications for that project.
2. Connect your vinyl static pressure tubing to the right side of your tester where two brass connections are located labeled positive or negative system pressurization.
3. Connect your vinyl static tubing to either the top connection for positive duct pressure testing or connect to the bottom connection for negative duct pressure testing. (*See Figures 3 & 4 examples below*):

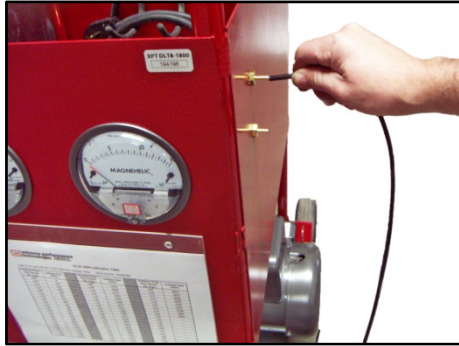


Fig. 3 - Positive Pressure Testing

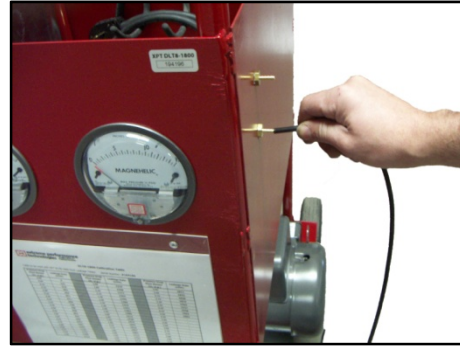


Fig. 4 - Negative Pressure Testing

4. Connect your hose adaptor assembly to either the discharge stack or differential tube for positive duct leakage testing or to the inlet of your fan unit for negative duct leakage testing. (*See Figures 5 & 6 examples located below*):



Fig. 5 – Hose Connection for Positive Duct Leakage Testing

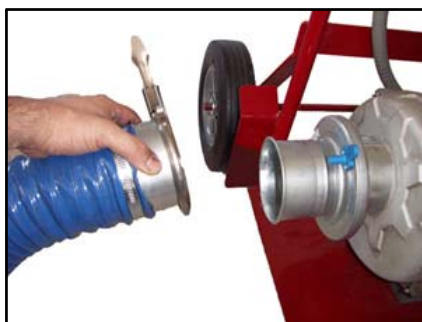


Fig. 6 – Hose Connect for Negative Duct Leakage Testing

Duct Tester Setup & Operation (continued):

5. If possible, position your tester in a location where there will be a straight path for your flexible connection from the differential tube (stack) outlet to the location where you will feed air into the system.
6. Drill a 3/8" diameter hole on the system duct two or three feet away from where the flexible duct connection.
7. Place your static pressure probe on the other end of your pressure tubing into the previously drilled hole.
8. Seal the static probe penetration joint with putty or tape. (See **Figure 7 example below**)

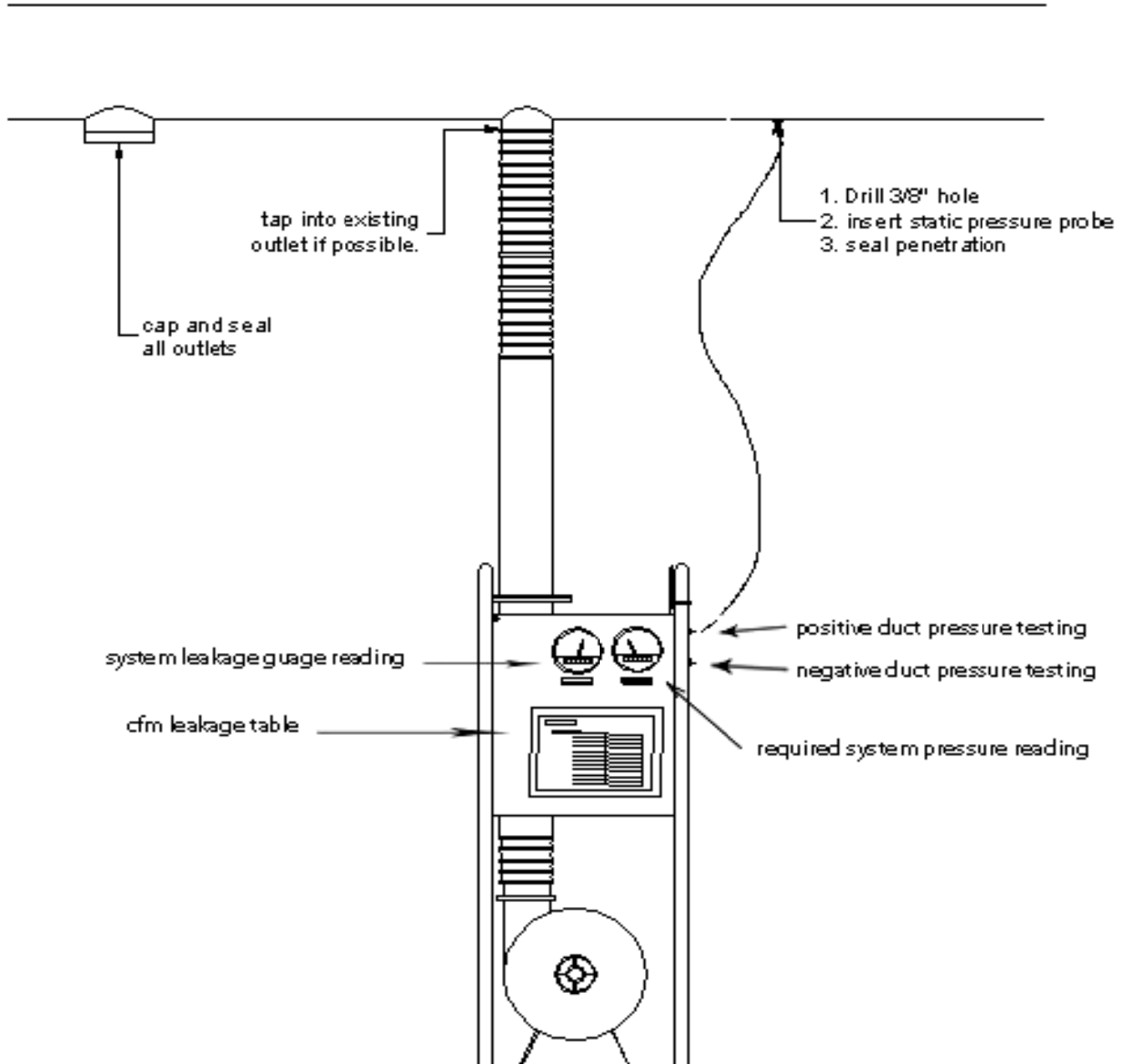


Fig. 7 – Connection and Gauge Locations

9. Zero both gauges before each use. Locate adjusting screw on center front of gauge. Use a small slotted screwdriver. Turning clockwise increases the pressure reading, counter-clockwise decreases it. (See **Figure 8 example on the following page**)

Duct Tester Setup & Operation (continued):



Fig. 8 – Zeroing Gauges

10. **(Manual Testers Only)** Close the fan's inlet iris damper to its maximum closed position prior to turning on your tester. If you don't have an inlet damper, place a flat piece of sheet metal, cardboard or plywood that is large enough to cover over the fan's inlet opening. Be sure what you use is not so weak that it can get pulled into the inlet of the fan. (This procedure prevents the tester from possibly over pressurizing your duct system at initial start-up and jeopardizing the integrity of your initial duct sealing process. *(See Figures 9 & 10 examples below)*)



Fig. 9 - Maximum Closed Position

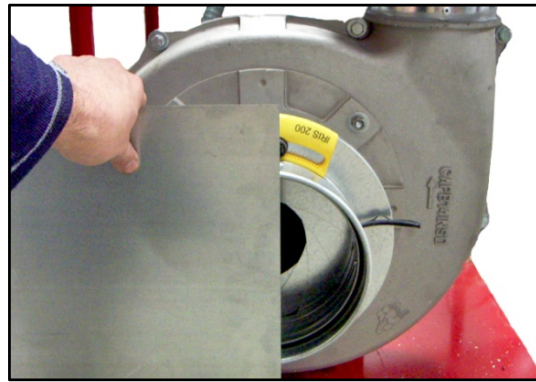


Fig. 10 Fan Inlet Cover (Manual Tester)

11. **(Automatic Testers Only)** Prior to turning on your tester, check the position of the automatic damper and make sure it is at its maximum closed position. (Note: inlet damper maximum closed position is approx. 95% of fully closed) If unsure that your damper is in the maximum closed position or if the damper was left open from previous use, adjust your system pressure pointer adjustment (red needle) on your system pressure gauge just below the "0" position. *(Note: Always use caution when adjusting your pointer to the maximum or minimum positions. Using excessive force while adjusting your pointer to either end of your gauge's pointer stops can cause damage to your gauge. See Figure 11 example below)*



Fig. 11 – Automatic Damper Maximum Closed Setting

Duct Tester Setup & Operation (continued):

12. **(Automatic Testers Only)** Once you have set your pointer just below the “0” position, place a flat piece of sheet metal, cardboard or plywood that is large enough to completely cover over the fan's inlet opening prior to turning on your duct leakage tester. Be sure what you use is not so weak that it can get pulled into the inlet of the fan. **(Note: This procedure prevents the tester from possibly over pressurizing your duct system while the damper is open at initial start-up and jeopardizing the integrity of your initial duct sealing process. See Figure 12 example below):**

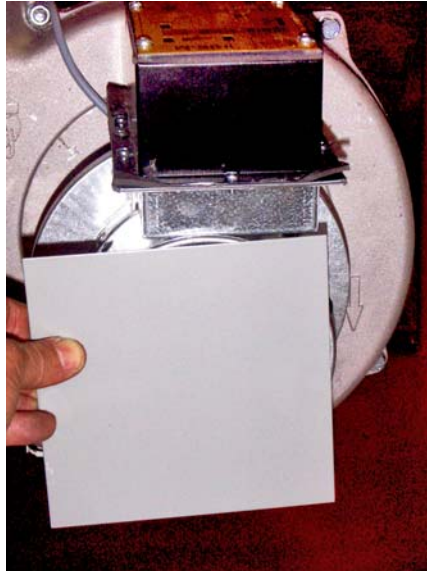


Fig. 12 – Fan Inlet Cover (Automatic Tester)

13. Power on your duct leakage tester
14. **(Manual Testers Only)** Adjust your inlet damper until the reading on your system pressure gauge is at the system pressure required for performing the leakage test. If you cannot achieve further minimum static pressure readings, then place a flat piece of sheet metal, cardboard or plywood that is large enough to cover over the fan's inlet opening to obtain minimum pressure readings. **(See Figure 10 example on previous page)**
15. **(Automatic Testers Only)** While having the fan inlet opening covered, allow the damper to modulate to its maximum closed position. Once it reaches its maximum closed position, then remove the covering over the fan inlet opening and adjust your system pressure pointer on your system pressure gauge to your required system test pressure setting and allow your automatic damper to modulate to that set point. **(See Figure 13 example below):**

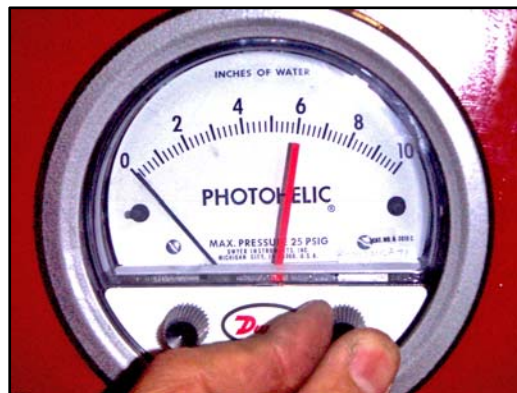


Fig. 13 – Automatic Pressure Control Setting

Duct Tester Setup & Operation (continued):

16. If your damper cannot achieve further minimum static pressure readings, then place a flat piece of sheet metal, cardboard or plywood that is large enough to cover over the fan's inlet opening to obtain minimum pressure readings. **(See Figure 12 example above)**
17. Once the required system pressure has been reached and has stabilized, note the reading on your system leakage gauge. This pressure drop reading will correspond to the amount of air you're feeding into the duct system, which is the amount of air that is leaking out. Use your calibration table to convert your differential reading on your system leakage gauge to its corresponding CFM (cubic feet per minute) value. That CFM value is your actual leakage.
18. If the "system leakage reading" exceeds the maximum allowable leakage, the system is probably leaking too much air. Investigate system for missed outlets or unsealed joints. Then repeat steps 10-19.
19. If the "system leakage reading" does not exceed the maximum allowable leakage and completes the test time cycle requirements, document and/or report your final readings on your system leakage gauge according to the requirements for that project.
20. Once completed with testing, do the following:
 - a) **(Manual Testers Only)** Just prior to shut down of your tester, close your manual damper at the fan inlet to its maximum closed position, then shut down your unit.
 - b) **(Automatic Testers Only)** Just prior to shut down of your tester, adjust your system pressure pointer adjustment (red needle) on your system pressure gauge just below the "0" position to allow your automatic damper to modulate to its maximum closed position. Once your damper reaches this position, then shut down your unit.

Figures 14 & 15 represent general illustrations of how to set up your duct leakage tester.

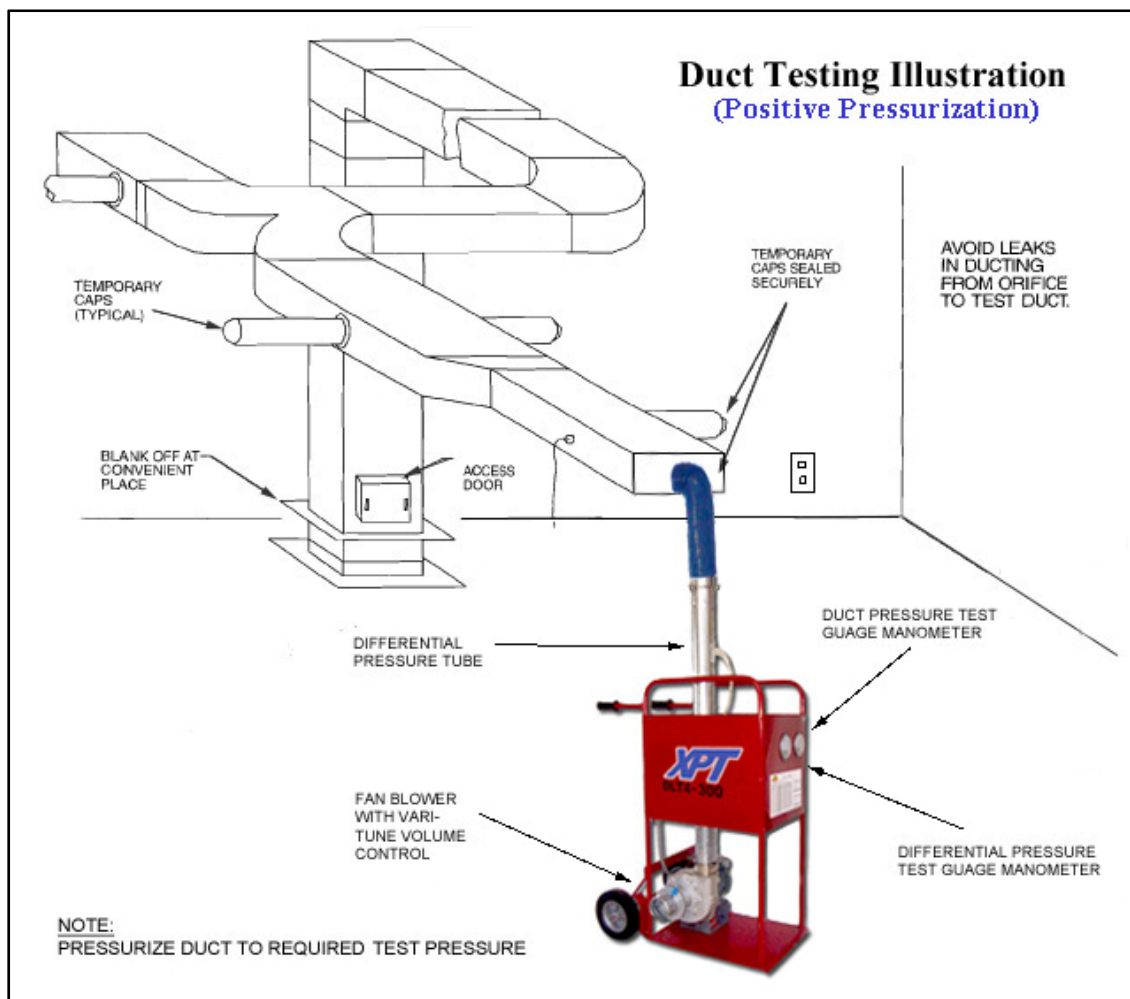


Fig. 14 – Positive Pressure Duct Leakage Testing Setup

Duct Tester Setup & Operation (continued):

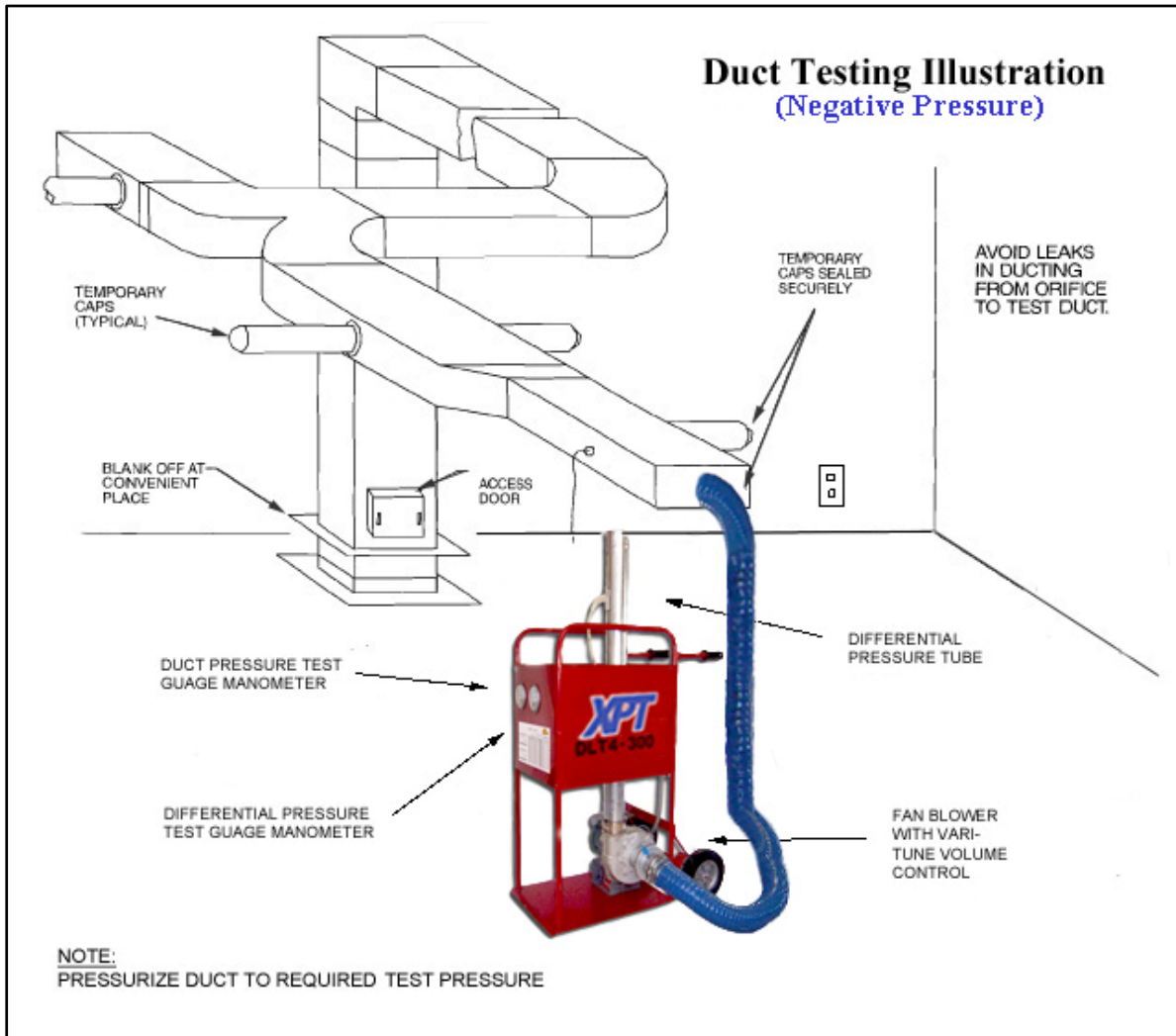


Fig. 15 – Negative Pressure Duct Leakage Testing Setup