



ENCLOSURE INTEGRITY GENERAL TEST PROCEDURE

Clean Air Filter // *Quality Tested. Performance Proven.*

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1. Find a suitable location for the specific test to be run. If an ambient location is necessary for the CO₂ test, find an isolated location away from rapid air currents. If the organic vapor test or the ambient aerosol stationary tests are in order a test chamber with the necessary gas/vapor or aerosol generation equipment is required.
2. Use an external power supply capable of providing the necessary power for normal cab ventilation operation. The highest blower setting (highest flow rate) should be employed for all tests.
3. Make sure that the proper filter is installed for the current test (OV, particulate, CO₂, combination).
4. Assemble the appropriate detectors for the test being performed (optical particle counter(s) aka OPC(s), IR(s), carbon dioxide detectors(s), etc.). The detectors shall be within calibration and properly zeroed.
5. Position the detectors at the proper locations(s). OPC, and IR systems usually require two detectors (one in cab and one outside the cab). Systems can be modified to require only one but two detectors is the preferred arrangement. The CO₂ test can be performed with a single detector but the ambient carbon dioxide concentration should be determined before and after the inside cab readings are measured.
6. Make sure all instruments are in place, properly warmed up, properly zeroed, and ready to collect data.
7. Turn the cab ventilation system on the highest flow rate setting and turn the power supply to the proper voltage.
8. Initiate test and record all values starting at time zero. Monitor all data as a function of testing time until the test is completed. The CO₂ test needs to be continued until the lowest stable carbon dioxide value is obtained from inside the cab. The ambient aerosol test is run until two stable segments of 20 minutes are obtained after equilibration. The OV test is conducted for approximately 10-15 minutes if service life time is not being evaluated. If service life/change out schedule is being determined the test must be conducted until vapor breakthrough has taken place.
9. After testing is complete install air tube to test air flow rate using a hot wire anemometer or equivalent flow rate test instrument. Also record all pressure drop values (across filter, cab pressure, etc.).
10. The white carbon test determines a protection factor for the stationary cab (cab integrity value). The outside/inside concentration of the carbon dioxide values is the protection factor (inside/outside concentration X 100 is percent penetration; 100 minus percent penetration equals percent efficiency).
11. The gas/vapor test at the initial time also gives a cab protection factor (see above for determining).
12. The ambient aerosol test used the two 20 minute segment data to determine protection factor. The 20 minute segment average values for outside and inside the cab are used for these calculations. See above for determining these values.