

(c) At least monthly or after any maintenance which could alter calibration, the following calibrations and checks shall be performed:

(1) Calibrate the hydrocarbon analyzers (both evaporative and exhaust instruments), carbon dioxide analyzer, carbon monoxide analyzer, oxides of nitrogen analyzer, methanol analyzer, and formaldehyde analyzer (certain analyzers may require more frequent calibration depending on particular equipment and uses).

(2) Calibrate the dynamometer. If the dynamometer receives a weekly performance check (and remains within calibration) the monthly calibration need not be performed.

(3) Perform a hydrocarbon and methanol (if methanol fuel is used) retention check and calibration on the evaporative emission enclosure.

(4) Calibrate the gas meters or flow instrumentation used for providing total flow measurement for particulate sampling.

(d) At least weekly or after any maintenance which could alter calibration, the following calibrations and checks shall be performed:

(1) Check the oxides of nitrogen converter efficiency, and

(2) Perform a CVS system verification.

(3) Run a performance check on the dynamometer. This check may be omitted if the dynamometer has been calibrated within the preceding month.

(e) The CVS positive displacement pump or Critical Flow Venturi shall be calibrated following initial installation, major maintenance, or as necessary when indicated by the CVS system verification (described in § 86.119).

(f) Sample conditioning columns, if used in the CO analyzer train, should be checked at a frequency consistent with observed column life or when the indicator of the column packing begins to show deterioration.

[54 FR 14516, Apr. 11, 1989]

§ 86.116-94 Calibrations, frequency and overview.

(a) Calibrations shall be performed as specified in § 86.117 through § 86.126.

(b) At least yearly or after any maintenance which could alter background

emission levels, evaporative enclosure background emission measurements shall be performed.

(c) At least monthly or after any maintenance which could alter calibration, the following calibrations and checks shall be performed:

(1) Calibrate the THC analyzers (both evaporative and exhaust instruments), methane analyzer, carbon dioxide analyzer, carbon monoxide analyzer, and oxides of nitrogen analyzer (certain analyzers may require more frequent calibration depending on particular equipment and uses).

(2) Calibrate the dynamometer. If the dynamometer receives a weekly performance check (and remains within calibration) the monthly calibration need not be performed.

(3) Perform an organic gas retention and calibration on the evaporative emissions enclosure (see § 86.117-90(c)).

(4) Calibrate the gas meters or flow instrumentation used for providing total flow measurement for particulate sampling.

(5) Check the oxides of nitrogen converter efficiency.

(d) At least weekly or after any maintenance which could alter calibration, the following calibrations and checks shall be performed:

(1) [Reserved]

(2) Perform a CVS system verification, and

(3) Run a performance check on the dynamometer. This check may be omitted if the dynamometer has been calibrated within the preceding month.

(e) The CVS positive displacement pump or Critical Flow Venturi shall be calibrated following initial installation, major maintenance, or as necessary when indicated by the CVS system verification (described in § 86.119).

(f) Sample conditioning columns, if used in the CO analyzer train, should be checked at a frequency consistent with observed column life or when the indicator of the column packing begins to show deterioration.

(g) The Administrator, upon request, may waive the requirement to comply with the specified methanol recovery tolerance (e.g., ± 2 percent in §§ 86.117-90 and 86.119-90), and/or the specified methanol retention tolerance (e.g., ± 4

Environmental Protection Agency

§ 86.117-90

percent in §86.117-90), and instead require compliance with higher tolerances (not to exceed ± 6 percent for recoveries and ± 8 for retention), provided that:

(1) The Administrator determines that compliance with these specified tolerances is not practically feasible; and

(2) The manufacturer makes information available to the Administrator which indicates that the calibration tests and their results are consistent with good laboratory practice, and that the results are consistent with the results of calibration testing conducted by the Administrator.

[56 FR 25774, June 5, 1991, as amended at 58 FR 58422, Nov. 1, 1993; 59 FR 33913, July 1, 1994; 60 FR 34342, June 30, 1995]

§ 86.117-90 Evaporative emission enclosure calibrations.

The calibration of the evaporative emission enclosure consists of three parts: Initial and periodic determination of enclosure background emissions (hydrocarbons and methanol); initial determination of enclosure internal volume; and periodic hydrocarbon and methanol retention check and calibration. Methanol measurements may be omitted when methanol-fueled vehicles will not be tested in the evaporative enclosure.

(a) *Initial and periodic determination of enclosure background emissions.* Prior to its introduction into service, annually thereafter, and after any repair which can affect the enclosure background emissions, the enclosure shall be checked to determine that it does not contain materials which will themselves emit hydrocarbons or methanol.* Proceed as follows:

*NOTE: When methanol as well as hydrocarbons are present in the evaporative enclosure, the HFID hydrocarbon concentration measurement includes the partial response of the HFID to methanol plus the hydrocarbons. Determination of the HFID response to methanol, §86.121, prior to its being placed in service is required for the determination of hydrocarbons.

(1) Zero and span (calibrate if required) the hydrocarbon analyzer.

(2) Purge the enclosure until a stable background hydrocarbon reading is obtained.

(3) Turn on the mixing blower (if not already on).

(4) Seal enclosure and measure background hydrocarbon concentration, background methanol, temperature, and barometric pressure. These are the initial readings C_{HCi} , $C_{CH_3OH_i}$, and P_{Bi} , T_i , for the enclosure background determination.

(5) Allow the enclosure to stand undisturbed without sampling for four hours.

(6) Measure the hydrocarbon concentration on the same FID and the methanol level. These are the final concentrations, C_{HCf} and C_{CH_3OHf} . Also measure final temperature and barometric pressure.

(7) Calculate the mass change of methanol, hydrocarbons, and hydrocarbons plus methanol in the enclosure according to the equations in paragraph (d) of this section. The enclosure background emissions (hydrocarbons plus methanol) shall not be greater than 0.4g for the 4 hours.

(b) *Initial determination of enclosure internal volume.* Prior to its introduction into service the enclosure internal volume shall be determined by the following procedure:

(1) Carefully measure the internal length, width and height of the enclosure, accounting for irregularities (such as braces) and calculate the internal volume.

(2) Perform an enclosure calibration check according to paragraphs (c) (1) through (7) of this section.

(3) If the calculated mass does not agree within 2 percent of the injected propane mass, then corrective action is required.

(c) *Hydrocarbon and methanol (organic gas) retention check and calibration.* The hydrocarbon and methanol (if the enclosure is used for methanol-fueled vehicles) retention check provides a check upon the calculated volume and also measures the leak rate. Prior to its introduction into service and at least monthly thereafter (the methanol check can be performed less frequently, provided it is performed at least twice annually) the enclosure leak rate shall be determined as follows:

(1) Zero and span (calibrate if required) the hydrocarbon analyzer.