(2) Zero and span the HFID at the analyzer ports.

(3) Analyze the background air sample bag through the analyzer ports.

(4) Analyze the background air through the entire sample probe system.

(5) If the difference between the readings obtained is 2 percent or more of the HFID full scale deflection, clean the sample probe and the sample line.

(6) Reassemble the sample system, heat to specified temperature, and repeat the procedure in paragraphs (f) (1) through (6) of this section.

(g) For CH_3OH (where applicable), introduce test samples into the gas chromatograph and measure the concentration. This concentration is C_{MS} in the calculations.

(h) For HCHO (where applicable), introduce test samples into the high pressure liquid chromatograph and measure the concentration of formaldehyde as a dinitrophenylhydrazine derivative in acetonitrile. This concentration is C_{FS} in the calculations.

[54 FR 14602, Apr. 11, 1989, as amended at 60 FR 34375, June 30, 1995]

§ 86.1340–94 Exhaust sample analysis.

Section 86.1340–94 includes text that specifies requirements that differ from § 86.1340–90. Where a paragraph in § 86.1340–90 is identical and applicable to § 86.1340–94, this may be indicated by specifying the corresponding paragraph and the statement ''[Reserved]. For guidance see § 86.1340–90.''

(a) through (d)(6) [Reserved]. For guidance see § 86.1340–90.

(d)(7) Measure HC (except diesels), CH_4 (natural gas-fueled engines only), CO, CO_2. and NO_X sample bag(s) with approximately the same flow rates and pressures used in § 86.1340–90(d)(3). (Constituents measured continuously do not require bag analysis.)

(d)(8) through (h) [Reserved]. For guidance see § 86.1340–90.

[59 FR 48534, Sept. 21, 1994, as amended at 60 FR 34375, June 30, 1995]

§ 86.1341–90 Test cycle validation criteria.

(a) To minimize the biasing effect of the time lag between the feedback and reference cycle values, the entire engine speed and torque feedback signal sequence may be advanced or delayed in time with respect to the reference speed and torque sequence. If the feedback signals are shifted, both speed and torque must be shifted the same amount in the same direction.

(b) *Brake horsepower-hour calculation.* (1) Calculate the brake horsepower-hour for each pair of engine feedback speed and torque values recorded. Also calculate the reference brake horsepower-hour for each pair of engine speed and torque reference values. Calculations shall be to five significant digits.

(2) In integrating the reference and the feedback horsepower-hour, all negative torque values shall be set equal to zero and included. If integration is performed at a frequency of less than 5 Hz, and if during a given time segment, the torque value changes from positive to negative or negative to positive, then the negative portion must be computed by linear interpolation and set equal to zero and the positive portion included. The same methodology shall be used for integrating both reference and actual brake horsepower-hour.

(c) *Regression line analysis to calculate validation statistics.* (1) Linear regressions of feedback value on reference value shall be performed for speed, torque and brake horsepower on 1 Hz data after the feedback shift has occurred (see paragraph (a) of this section). The method of least squares shall be used, with the best fit equation having the form:

$$y=mx+b$$

Where:

y = The feedback (actual) value of speed (rpm), torque (ft-lbs), or brake horsepower.
m = Slope of the regression line.
x = The reference value (speed, torque, or brake horsepower).
b = The y-intercept of the regression line.

(2) The standard error of estimate (SE) of y on x and the coefficient of determination (r^2) shall be calculated for each regression line.

(3) For a test to be considered valid, the criteria in Figure N90–11 must be met for both cold and hot cycles individually. Point deletions from the regression analyses are permitted where noted in Figure N90–11.

213