

(8)(i) Real time flow rate measurement and calculating devices are permitted under these regulations. The appropriate changes in the above calculations shall be made using sound engineering principles.

(ii) Other systems and options, as permitted under these regulations, may require calculations other than these, but these must be based on sound engineering principles and be approved in advance by the Administrator at the time the alternate system is approved.

(Secs. 202, 203, 206, 207, 208, 301a, Clean Air Act, as amended; 42 U.S.C. 7521, 7522, 7525, 7541, 7542, 7601a)

[50 FR 10706, Mar. 15, 1985, as amended at 52 FR 47876, Dec. 16, 1987; 62 FR 47135, Sept. 5, 1997]

§ 86.1344-90 Required information.

(a) The required test data shall be grouped into the following three general categories:

(1) *Engine set up and descriptive data.* These data must be provided to the EPA supervisor of engine testing for each engine sent to the Administrator for confirmatory testing prior to the initiation of engine set-up. These data are necessary to ensure that EPA test personnel have the correct data in order to set up and test the engine in a timely and proper manner. These data are not required for tests performed by the manufacturers.

(2) *Pre-test data.* These data are general test data that must be recorded for each test. The data are of a more descriptive nature such as identification of the test engine, test site number, etc. As such, these data can be recorded at any time within 24 hours of the test.

(3) *Test data.* These data are physical test data that must be recorded at the time of testing.

(b) When requested, data shall be supplied in the format specified by the Administrator.

(c) *Engine set-up data.* Because specific test facilities may change with time, the specific data parameters and number of items may vary. The Application Format for Certification for the applicable model year will specify the exact requirements. In general, the following types of data will be required:

- (1) Engine manufacturer.
- (2) Engine system combination.
- (3) Engine code and CID.
- (4) Engine identification number.
- (5) Applicable engine model year.
- (6) Engine fuel type.
- (7) Recommended oil type.
- (8) Exhaust pipe configuration, pipe sizes, etc.
- (9) Curb or low idle speed.
- (10) Dynamometer idle speed. (Automatic transmission engines only.)
- (11) Engine parameter specifications such as spark timing, operating temperature, advance curves, etc.
- (12) Engine performance data, such as maximum BHP, previously measured rated rpm, fuel consumption, governed speed, etc.
- (13) Recommended start-up procedure.
- (14) Maximum safe engine operating speed.
- (15) Number of hours of operation accumulated on engine.
- (16) Manufacturer's recommended inlet depression limit and typical in-use inlet depression level.
- (17) Exhaust system:
 - (i) *Petroleum-fueled and methanol-fueled diesel engines:*
 - (A) Header pipe inside diameter.
 - (B) Tailpipe inside diameter.
 - (C) Minimum distance in-use between the exhaust manifold flange and the exit of the chassis exhaust system.
 - (D) Manufacturer's recommended maximum exhaust backpressure limit for the engine.
 - (E) Typical backpressure, as determined by typical application of the engine.
 - (F) Minimum backpressure required to meet applicable noise regulations.
 - (ii) *Gasoline-fueled and methanol-fueled Otto-cycle engines:* Typical in-use backpressure in vehicle exhaust system.
- (d) *Pre-test data.* The following data shall be recorded, and reported to the Administrator for each test conducted for compliance with the provisions of CFR part 86, subpart A:
 - (1) Engine-system combination.
 - (2) Engine identification.
 - (3) Instrument operator(s).
 - (4) Engine operator(s).

(5) Number of hours of operation accumulated on the engine prior to beginning the test sequence (Figure N84-10).

(6) Identification and specifications of test fuel used.

(7) Date of most recent analytical assembly calibration.

(8) All pertinent instrument information such as tuning, gain, serial numbers, detector number, calibration curve number, etc. As long as this information is traceable, it may be summarized by system or analyzer identification numbers.

(e) *Test data.* The physical parameters necessary to compute the test results and ensure accuracy of the results shall be recorded for each test conducted for compliance with the provisions of 40 CFR part 86, subpart A. Additional test data may be recorded at the discretion of the manufacturer. Extreme details of the test measurements such as analyzer chart deflections will generally not be required on a routine basis to be reported to the Administrator for each test, unless a dispute about the accuracy of the data arises. The following types of data shall be required to be reported to the Administrator. The Application Format for Certification for the applicable model year will specify the exact requirements which may change slightly from year to year with the addition or deletion of certain items.

(1) Date and time of day.

(2) Test number.

(3) Engine intake air or test cell temperature.

(4) Barometric pressure. (A central laboratory barometer may be used: *Provided*, that individual test cell barometric pressures are shown to be within ± 0.1 percent of the barometric pressure at the central barometer location.)

(5) Engine intake or test cell and CVS dilution air humidity.

(6) Maximum torque versus speed curve as determined in § 86.1332, with minimum and maximum engine speeds, and a description of the mapping technique used.

(7) Measured maximum horsepower and maximum torque speeds.

(8) Measured maximum horsepower and torque.

(9) Measured high idle engine speed (governed petroleum-fueled and methanol-fueled diesel engines only).

(10) Measured fuel consumption at maximum power and torque (petroleum-fueled and methanol-fueled diesel engines only).

(11) Cold-soak time interval and cool down procedures.

(12) Temperature set point of the heated continuous analysis system components (if applicable).

(13) Test cycle validation statistics as specified in § 86.1341 for each test phase (cold and hot).

(14) Total CVS flow rate with dilution factor for each test phase (cold and hot).

(15) Temperature of the dilute exhaust mixture and secondary dilution air (in the case of a double dilution system) at the inlet to the respective gas meter(s) or flow instrumentation used for particulate sampling.

(16) The maximum temperature of the dilute exhaust mixture immediately ahead of the particulate filter.

(17) Sample concentrations (background corrected) for HC, CO, CO₂, and NO_x for each test phase (cold and hot).

(18) *For methanol-fueled vehicles:*

(i) Volume of sample passed through the methanol sampling system and the volume of deionized water in each impinger.

(ii) The methanol concentration in the reference sample and the peak area from the GC analysis of the reference sample.

(iii) The peak area of the GC analyses of the test samples (methanol).

(iv) Volume of sample passed through the formaldehyde sampling system.

(v) The formaldehyde concentration in the reference sample and the peak area from the LC analysis of the reference sample.

(vi) The peak area of the LC analysis of the test sample (formaldehyde).

(vii) Specification of the methanol-fuel used during testing.

(19) The stabilized pre-test weight and post-test weight of each particulate sample and back-up filter or pair of filters.

(20) Brake specific emissions (g/BHP-hr) for HC, CO, NO_x and, if applicable, THCE, CH₃OH and HCHO for methanol-

fueled vehicles for each test phase (cold and hot).

(21) The weighted (cold and hot) brake specific emissions (g/BHP-hr) for the total test.

(22) The weighted (cold and hot) carbon balance or mass-measured brake specific fuel consumption for the total test.

(23) The number of hours of operation accumulated on the engine after completing the test sequences described in Figure N84-10.

[54 FR 14610, Apr. 11, 1989]

§ 86.1344-94 Required information.

(a) The required test data shall be grouped into the following three general categories:

(1) *Engine set up and descriptive data.* These data must be provided to the EPA supervisor of engine testing for each engine sent to the Administrator for confirmatory testing prior to the initiation of engine set-up. These data are necessary to ensure that EPA test personnel have the correct data in order to set up and test the engine in a timely and proper manner. These data are not required for tests performed by the manufacturers.

(2) *Pre-test data.* These data are general test data that must be recorded for each test. The data are of a more descriptive nature such as identification of the test engine, test site number, etc. As such, these data can be recorded at any time within 24 hours of the test.

(3) *Test data.* These data are physical test data that must be recorded at the time of testing.

(b) When requested, data shall be supplied in the format specified by the Administrator.

(c) *Engine set-up data.* Because specific test facilities may change with time, the specific data parameters and number of items may vary. The Application Format for Certification for the applicable model year will specify the exact requirements. In general, the following types of data will be required:

- (1) Engine manufacturer.
- (2) Engine system combination.
- (3) Engine code and CID.
- (4) Engine identification number.
- (5) Applicable engine model year.
- (6) Engine fuel type.

(7) Recommended oil type.

(8) Exhaust pipe configuration, pipe sizes, etc.

(9) Curb or low idle speed.

(10) Dynamometer idle speed (automatic transmission engines only).

(11) Engine parameter specifications such as spark timing, operating temperature, advance curves, etc.

(12) Engine performance data, such as maximum BHP, previously measured rated rpm, fuel consumption, governed speed, etc.

(13) Recommended start-up procedure.

(14) Maximum safe engine operating speed.

(15) Number of hours of operation accumulated on engine.

(16) Manufacturer's recommended inlet depression limit and typical in-use inlet depression level.

(17) Exhaust system:

(i) *Diesel engines:*

(A) Header pipe inside diameter.

(B) Tailpipe inside diameter.

(C) Minimum distance in-use between the exhaust manifold flange and the exit of the chassis exhaust system.

(D) Manufacturer's recommended maximum exhaust backpressure limit for the engine.

(E) Typical backpressure, as determined by typical application of the engine.

(F) Minimum backpressure required to meet applicable noise regulations.

(ii) *Otto-cycle engines:* Typical in-use backpressure in vehicle exhaust system.

(d) *Pre-test data.* The following data shall be recorded and reported to the Administrator for each test conducted for compliance with the provisions of subpart A of this part:

(1) Engine-system combination.

(2) Engine identification.

(3) Instrument operator(s).

(4) Engine operator(s).

(5) Number of hours of operation accumulated on the engine prior to beginning the test sequence (Figure N84-10).

(6) Identification and specifications of test fuel used.

(7) Date of most recent analytical assembly calibration.