

§ 86.1542-84 Information required.

(a) *General data—heavy-duty engines.* Information shall be recorded for each idle emission test as specified in 40 CFR part 1065, subpart G. The following test data are required:

- (1) Date and time of day.
- (2) Test number.
- (3) Engine intake air or test cell temperature.
- (4) Barometric pressure.

NOTE: 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) Curb idle speed during the test.
- (7) Idle exhaust CO concentration (dry basis).
- (8) Idle exhaust raw CO₂ concentration (if applicable).
- (9) Dilute bag sample CO and CO₂ concentrations (if applicable).
- (10) Total CVS flow rate with calculated dilution factor for the idle mode (if applicable).

(b) *General data—light-duty trucks.* The following information shall be recorded with respect to each test:

- (1) Test number.
- (2) System or device tested (brief description).
- (3) Date and time of day for the test.
- (4) Instrument operated.
- (5) Vehicle: ID number, manufacturer, model year, standards, engine family, evaporative emissions family, basic engine description (including displacement, number of cylinders, turbo-charger used and catalyst usage), fuel system (including number of carburetors, number of carburetor barrels, fuel injection type and fuel tank(s) capacity and location), engine code, gross vehicle weight rating, inertia weight class and transmission configuration, as applicable.

(6) All pertinent instrument information such as tuning, gain, serial number, detector number and range. As an alternative a reference to a vehicle test cell number may be used, with the advance approval of the Administrator, provided test cell calibration records show the pertinent instrument information.

(7) Recorder charts or computer printouts: Identify zero, span, exhaust gas and dilution air sample traces or computer readings (if applicable).

(8) Test cell ambient temperature and, if applicable, barometric pressure and humidity.

NOTE: 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.

(9) Pressure of the mixture of exhaust and dilution air entering the CVS metering device (or pressure drop across the CFV), the pressure increase across the device, and the temperature at the inlet (if applicable). The temperature may be recorded continuously or digitally to determine temperature variations (if applicable).

(10) The number of revolutions of the positive displacement pump accumulated while exhaust samples are being collected (if applicable). The number of standard cubic feet metered by a critical flow venturi would be the equivalent record for a CFV (if applicable).

(11) The humidity of the dilution air.

NOTE: If conditioning columns are not used (see §§ 86.122 and 86.144) this measurement can be deleted. If the conditioning columns are used and the dilution air is taken from the test cell, the ambient humidity can be used for this measurement.

(12) Curb idle engine speed during the test.

(13) Idle exhaust CO concentration (dry basis).

(14) Idle exhaust raw CO₂ concentration (if applicable).

(15) Dilute bag sample CO and CO₂ concentrations (if applicable).

(16) Total CVS flow rate with calculated dilution factor for the idle mode (if applicable).

[48 FR 52252, Nov. 16, 1983, as amended at 49 FR 48149, Dec. 10, 1984; 70 FR 40441, July 13, 2005]

EFFECTIVE DATE NOTE: At 73 FR 37194, June 30, 2008, § 86.1542-84 was redesignated as § 86.1542, effective July 7, 2008.

§ 86.1544-84 Calculation; idle exhaust emissions.

(a) The final idle emission test results shall be reported as percent for carbon monoxide on a dry basis.

(b) If a CVS sampling system is used, the following procedure shall apply:

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(1) Use the procedures, as applicable, in 40 CFR 1065.650 to determine the dilute wet-basis CO and CO₂ in percent.

(2) Use the procedure, as applicable, in 40 CFR 1065.650 to determine the raw dry-basis CO₂ in percent.

(3) Convert the raw dry-basis CO₂ to raw wet-basis. An assumption that the percent of water by volume in the raw sample is equal to the percent of raw dry-basis CO₂ minus 0.5 percent is acceptable. For example:

10.0% dry CO₂ - 0.5% = 9.5% water
(1.00 - 0.095) (10.0% dry CO₂) = 9.05% wet CO₂

(4) Calculate the CVS dilution factor (DF) by:

$$DF = \frac{\text{Raw wet CO}_2 - \text{background CO}_2}{\text{Dilute wet CO}_2 - \text{background CO}_2}$$

(5) Convert the dilute wet-basis CO to dilute dry-basis values. An assumption that the percent of water by volume in the sample bag is 2 percent is acceptable. For example:

Dilute dry CO = (dilute wet CO) / (1.00 - 0.02)

(6) Calculate the raw dry-basis CO values by:

Raw dry CO = (DF) (dilute dry CO)

(c) If the raw exhaust sampling and analysis system specified in 40 CFR part 1065 is used, the percent for carbon monoxide on a dry basis shall be calculated using the procedure, as applicable, in 40 CFR 1065.650.

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

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Subpart Q—Regulations for Altitude Performance Adjustments for New and In-Use Motor Vehicles and Engines

AUTHORITY: Secs. 215 and 301, Clean Air Act, as amended (42 U.S.C. 7550 and 7601).

SOURCE: 45 FR 66956, Oct. 8, 1980, unless otherwise noted.

§ 86.1601 General applicability.

This subpart applies to manufacturers of motor vehicles and motor vehicle engines (hereafter referred to as vehicles) which are subject to the requirements of title II of the Clean Air Act. This subpart applies to the following vehicles:

(a) 1968 and later model year light-duty vehicles and light-duty trucks.

(b) 1970 and later model year heavy-duty engines built after December 31, 1969.

(c) 1978 and later model year motorcycles built after December 31, 1977.

(d) References in this subpart to engine families and emission control systems shall be deemed to apply to durability groups and test groups as applicable for manufacturers certifying new light-duty vehicles, light-duty trucks, and Otto-cycle complete heavy-duty vehicles under the provisions of subpart S of this part.

[45 FR 66956, Oct. 8, 1980, as amended at 64 FR 23923, May 4, 1999; 65 FR 59963, Oct. 6, 2000]

§ 86.1602 Definitions.

The definitions provided in subpart A also apply in this subpart. Additional definitions that apply in this subpart are as follow:

Altitude performance adjustments are adjustments or modifications made to vehicle, engine, or emission control functions in order to improve emission control performance at altitudes other than those for which the vehicles were designed.

Low altitude means any elevation less than or equal to 1,219 meters (4,000 feet).

Manufacturer parts are parts produced or sold by the manufacturer of the motor vehicle or motor vehicle engine.

§ 86.1603 General requirements.

(a) Manufacturers of vehicles specified in § 86.1601 shall submit to the Administrator for approval the following altitude performance adjustment instructions.

(1) Low-altitude adjustment instructions for vehicles certified to meet the appropriate high-altitude emission standards.