

## § 86.884-2

and liquefied petroleum gas-fueled diesel heavy-duty engines.

[59 FR 48521, Sept. 21, 1994]

### § 86.884-2 Definitions.

The definitions in § 86.084-2 apply to this subpart.

### § 86.884-3 Abbreviations.

The abbreviations in § 86.078-3 apply to this subpart.

### § 86.884-4 Section numbering.

The section numbering system set forth in § 86.084-4 applies to this subpart.

[48 FR 52203, Nov. 16, 1983, as amended at 59 FR 48521, Sept. 21, 1994]

### § 86.884-5 Test procedures.

The procedures described in this and subsequent sections will be the test program to determine the conformity of engines with the standards set forth in § 86.084-11(b).

(a) The test consists of a prescribed sequence of engine operating conditions on an engine dynamometer with continuous examination of the exhaust gases. The test is applicable equally to controlled engines equipped with means for preventing, controlling, or eliminating smoke emissions and to uncontrolled engines.

(b) The test is designed to determine the opacity of smoke in exhaust emissions during those engine operating conditions which tend to promote smoke from diesel vehicles.

(c) The test procedure begins with a preconditioned engine which is then run through preloading and preconditioning operations. After an idling period, the engine is operated through acceleration and lugging modes during which smoke emission measurements are made to compare with the standards. The engine is then returned to the idle condition and the acceleration and lugging modes are repeated. Three consecutive sequences of acceleration and lugging constitutes the full set of operating conditions for smoke emission measurement.

(d)(1) Except in cases of component malfunction or failure, all emission control systems installed on, or incorporated in, a new motor vehicle engine

## 40 CFR Ch. I (7-1-03 Edition)

shall be functioning during all procedures in this subpart.

(2) Maintenance to correct component malfunction or failure shall be authorized in accordance with § 86.084-25.

[48 FR 52203, Nov. 16, 1983, as amended at 49 FR 48140, Dec. 10, 1984; 54 FR 14559, Apr. 11, 1989]

### § 86.884-6 Fuel specifications.

The requirements of this section are set forth in § 86.1313.

[54 FR 14559, Apr. 11, 1989]

### § 86.884-7 Dynamometer operation cycle for smoke emission tests.

(a) The following sequence of operations shall be performed during engine dynamometer testing of smoke emissions, starting with the dynamometer preloading determined and the engine preconditioned (§ 86.884-12(c)).

(1) *Idle Mode.* The engine is caused to idle for 5.0 to 5.5 minutes at the manufacturer's recommended curb idle speed. The dynamometer controls shall be set to provide the speed and load necessary to comply with the heavy-duty "curb idle" definition per § 86.084-2, in accordance with predominant engine application.

(2) *Acceleration mode.* (i) The engine speed shall be increased to  $200 \pm 50$  rpm above the measured free idle speed measured at the point where the throttle begins to move from part-throttle to the full throttle position. The speed anywhere during this mode should not exceed this checkpoint speed by more than 50 rpm. The duration of this first acceleration shall be three seconds or less measured from the point where the speed first begins to increase above idle to the point where the throttle reaches full open position.

(ii) Immediately upon completion of the mode specified in paragraph (a)(2)(i) of this section, the throttle shall be moved rapidly to, and held in, the fully open position. The inertia of the engine and the dynamometer, or alternately a preselected dynamometer load, shall be used to control the acceleration of the engine so that the speed increases to 85 percent of the rated speed in  $5 \pm 1.5$  seconds. This acceleration shall be linear within 100 rpm as specified in § 86.884-13(c).