

with a complete record of all pertinent maintenance, including a preliminary engineering report of any malfunction diagnosis and the corrective action taken. A complete engineering report shall be delivered to the Administrator concurrently with the manufacturer's application for certification.

(h) All test data, maintenance reports, and required engineering reports shall be compiled and provided to the Administrator in accordance with § 86.090–23.

[53 FR 471, Jan. 7, 1988, as amended at 54 FR 14478, Apr. 11, 1989]

§ 86.090–26 Mileage and service accumulation; emission requirements.

(a)(1) Paragraph (a) of this section applies to light-duty vehicles.

(2) The procedure for mileage accumulation will be the Durability Driving Schedule as specified in appendix IV to this part. A modified procedure may also be used if approved in advance by the Administrator. Except with the advance approval of the Administrator, all vehicles will accumulate mileage at a measured curb weight which is within 100 pounds of the estimated curb weight. If the loaded vehicle weight is within 100 pounds of being included in the next higher inertia weight class as specified in § 86.129, the manufacturer may elect to conduct the respective emission tests at higher loaded vehicle weight.

(3) *Emission-data vehicles.* Unless otherwise provided for in § 86.090–23(a), emission-data vehicles shall be operated and tested as follows:

(i) *Otto-cycle.* (A) The manufacturer shall determine, for engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. Any vehicle used to represent emission-data vehicle selections under § 86.090–24(b)(1) shall be equipped with an engine and emission control system that has accumulated at least the mileage determined under this paragraph. Fuel economy data

generated from certification vehicles selected in accordance with § 86.090–24(b)(1) with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006–82(c). Complete exhaust and evaporative (if required) emission tests shall be conducted for each emission-data vehicle selection under § 86.090–24(b)(1). The Administrator may determine under § 86.090–24(f) that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.090–24(b)(1) (v) or (viii) shall be conducted at the mileage at which the engine system combination is stabilized for emission testing under high-altitude conditions.

(C) Exhaust and evaporative emissions tests for emission-data vehicle(s) selected for testing under § 86.090–24(b)(1) (i), (ii), (iii), (iv), or (vii)(B) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.090–24(b)(1) (i) through (iv) to be tested under high-altitude conditions or provide a statement in accordance with § 86.090–24(b)(1)(v). Vehicles shall meet emission standards under both low- and high-altitude conditions without manual adjustments or modifications. In addition, any emission control device used to conform with the emission standards under high-altitude conditions shall initially actuate (automatically) no higher than 4,000 feet above sea level.

(ii) *Diesel.* (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. Any vehicle used to represent emission-data vehicle selections under § 86.090–24(b)(1) shall be equipped with an engine and emission

control system that has accumulated at least the mileage determined under this paragraph. Fuel economy data generated from certification vehicles selected in accordance with § 86.090-24(b)(1) with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006-82(c). Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.090-24(b)(1). The Administrator may determine under § 86.090-24(f) that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.090-24(b)(1)(v) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) selected for testing under § 86.090-24(b)(1)(i) through (iv) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.090-24(b)(1)(i) through (iv) to be tested under high-altitude conditions or provide a statement in accordance with § 86.090-24(b)(1)(v). Vehicles shall meet emission standards under both low- and high-altitude conditions without manual adjustments or modifications. In addition, any emission control device used to conform with the emission standards under high-altitude conditions shall initially actuate (automatically) no higher than 4,000 feet above sea level.

(4)(i) *Durability data vehicles.* (A) Unless otherwise provided for in § 86.090-23(a), each durability-data vehicle shall be driven, with all emission control systems installed and operating, for 50,000 miles or such lesser distance as the Administrator may agree to as meeting the objective of this procedure.

(B) Complete exhaust emission tests shall be made at test point mileage intervals that the manufacturer determines.

(C) At a minimum, two complete exhaust emission tests shall be made. The first test shall be made at a distance not greater than 6,250 miles. The last shall be made at 50,000 miles.

(D) The mileage interval between test points must be of equal length except for the interval between zero miles and the first test, and any interval before or after testing conducted in conjunction with vehicle maintenance as specified in § 86.090-25(g)(2).

(ii) The manufacturer may, at its option, alter the durability-data vehicle at the selected test point to represent emission-data vehicle(s) within the same engine/system combination and perform emission tests on the altered vehicle. Upon completion of emission testing, the manufacturer may return the test vehicle to the durability-data vehicle configuration prior to the continuation of mileage accumulation.

(5)(i) All tests required by this subpart on emission-data vehicles shall be conducted at a mileage equal to or greater than the mileage the manufacturer determines under paragraph (a)(3) of this section.

(ii) All tests required by this subpart on durability-data vehicles shall be conducted within 250 miles of each of the test points.

(6)(i)(A) The manufacturer may conduct multiple tests at any test point at which the data are intended to be used in the deterioration factor. At each test point where multiple tests are conducted, the test results from all valid tests shall be averaged to determine the data point to be used in the deterioration factor calculation, except under paragraph (a)(6)(i)(B) of this section. The test results from emission tests performed before maintenance affecting emissions shall not be averaged with test results after the maintenance.

(B) The manufacturer is not required to average multiple tests if the manufacturer conducts no more than three tests at each test point and if the number of tests at each test point is equal. All test points must be treated the same for all exhaust pollutants.

(ii) The results of all emission testing shall be supplied to the Administrator. The manufacturer shall furnish to the Administrator explanation for voiding

any test. The Administrator will determine if voiding the test was appropriate based upon the explanation given by the manufacturer for the voided test. Tests between test points may be conducted as required by the Administrator. Data from all tests (including voided tests) may be submitted weekly to the Administrator, but shall be air posted or delivered to the Administrator within 7 days after completion of the test. In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.090-23. Where the Administrator conducts a test on a durability-data vehicle at a prescribed test point, the results of that test will be used in the calculation of the deterioration factor.

(iii) The results of all emission tests shall be rounded, in accordance with ASTM E 29-67, to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure.

(7) Whenever a manufacturer intends to operate and test a vehicle which may be used for emission or durability data, the manufacturer shall retain in its records all information concerning all emissions tests and maintenance, including vehicle alterations to represent other vehicle selections. For emission-data vehicles, this information shall be submitted, including the vehicle description and specification information required by the Administrator, to the Administrator following the emission-data test. For durability-data vehicles, this information shall be submitted following the 5,000-mile test.

(8) Once a manufacturer submits the information required in paragraphs (a)(7) of this section for a durability-data vehicle, the manufacturer shall continue to run the vehicle to 50,000 miles, and the data from the vehicle will be used in the calculations under § 86.090-28. Discontinuation of a durability-data vehicle shall be allowed only with the consent of the Administrator.

(9)(i) The Administrator may elect to operate and test any test vehicle during all or any part of the mileage accumulation and testing procedure. In such cases, the manufacturer shall provide the vehicle(s) to the Adminis-

trator with all information necessary to conduct this testing.

(ii) The test procedures in §§ 86.106 through 86.145 will be followed by the Administrator. The Administrator will test the vehicles at each test point. Maintenance may be performed by the manufacturer under such conditions as the Administrator may prescribe.

(iii) The data developed by the Administrator for the engine-system combination shall be combined with any applicable data supplied by the manufacturer on other vehicles of that combination to determine the applicable deterioration factors for the combination. In the case of a significant discrepancy between data developed by the Administrator and that submitted by the manufacturer, the Administrator's data shall be used in the determination of deterioration factors.

(10) Emission testing of any type with respect to any certification vehicle other than that specified in this part is not allowed except as such testing may be specifically authorized by the Administrator.

(11) This section does not apply to testing conducted to meet the requirements of § 86.090-23(b)(2).

(b)(1) Paragraph (b) of this section applies to light-duty trucks.

(2) There are three types of mileage or service accumulation applicable to light-duty trucks:

(i) Mileage or service accumulation on vehicles, engines, subsystems, or components selected by the manufacturer under § 86.090-24(c)(2)(i). The manufacturer determines the form and extent of this mileage or service accumulation, consistent with good engineering practice, and describes it in the application for certification.

(ii) Mileage accumulation of the duration selected by the manufacturer on emission-data vehicles selected under § 86.090-24(b)(1). The procedure for mileage accumulation will be the Durability Driving Schedule as specified in appendix IV to this part. A modified procedure may also be used if approved in advance by the Administrator. Except with the advance approval of the Administrator, all vehicles will accumulate mileage at a measured curb weight which is within 100 pounds of

the estimated curb weight. If the loaded vehicle weight is within 100 pounds of being included in the next higher inertia weight class as specified in § 86.129, the manufacturer may elect to conduct the respective emission tests at the test weight corresponding to the higher loaded vehicle weight.

(iii) Service or mileage accumulation which may be part of the test procedures used by the manufacturer to establish evaporative emission deterioration factors.

(3) Exhaust emission deterioration factors will be determined on the basis of the mileage or service accumulation described in paragraph (b)(2)(i) of this section and related testing, according to the manufacturer's procedures.

(4) Each emission-data vehicle shall be operated and tested as follows:

(i) *Otto-cycle*. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. Any vehicle used to represent emission-data vehicle selections under § 86.090-24(b)(1) shall be equipped with an engine and emission control system that has accumulated at least the mileage determined under this paragraph. Fuel economy data generated from certification vehicles selected in accordance with § 86.090-24(b)(1) with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006-82(c). Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.090-24(b)(1). The Administrator may determine under § 86.090-24(f) that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.090-24(b)(1) (v) or (viii) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at 6,436 kilometers (4,000-miles) under high-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) selected for testing under § 86.090-24(b)(1) (ii), (iii), (iv)(A), or (vii)(B) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at the 6,436-kilometer (4,000-mile) test point under low-altitude conditions.

(D) If the manufacturer recommends adjustments or modifications in order to conform to emission standards at high altitude, such adjustments or modifications shall be made to the test vehicle selected under § 86.090-24(b)(1) (v) and (viii) (in accordance with the instructions to be provided to the ultimate purchaser) before being tested under high-altitude conditions.

(ii) *Diesel*. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. Any vehicle used to represent emission-data vehicle selections under § 86.090-24(b)(1) shall be equipped with an engine and emission control system that has accumulated at least the mileage determined under this paragraph. Fuel economy data generated from certification vehicles selected in accordance with § 86.090-24(b)(1) with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006-82(c). Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.090-24(b)(1). The Administrator may determine under § 86.090-24(f) that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.090-24(b)(1) (v) or (viii) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at 6,436-kilometer (4,000-miles) under high-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) selected for testing under § 86.090–24(b)(1) (ii), (iii), (iv)(A), or (vii)(B) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at the 6,436-kilometer (4,000-mile) test point under low-altitude conditions.

(D) If the manufacturer recommends adjustments or modifications in order to conform to emission standards at high altitude, such adjustments or modifications shall be made to the test vehicle selected under § 86.090–24(b)(1) (v) and (viii) (in accordance with the instructions to be provided to the ultimate purchaser) before being tested under high-altitude conditions.

(ii) *Diesel*. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. Any vehicle used to represent emission-data vehicle selections under § 86.090–24(b)(1) shall be equipped with an engine and emission control system that has accumulated at least the mileage determined under this paragraph. Fuel economy data generated from certification vehicles selection in accordance with § 86.090–24(b)(1) with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006–82(c). Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.090–24(b)(1). The Administrator may determine under § 86.090–24(f) that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.090–24(b)(1)(v) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at the 6,436-kilometer (4,000-mile) test point under low-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) se-

lected for testing under § 86.090–24(b)(1) (ii), (iii), and (iv) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at the 6,436-kilometer (4,000-mile) test point under low-altitude conditions.

(D) If the manufacturer recommends adjustments or modifications in order to conform to emission standards at high altitude, such adjustments or modifications shall be made to the test vehicle selected under § 86.090–24(b)(1) (v) and (viii) (in accordance with the instructions to be provided to the ultimate purchaser) before being tested under high-altitude conditions.

(iii) [Reserved]

(iv) All tests required by this subpart on emission-data vehicles shall be conducted at a mileage equal to or greater than the mileage the manufacturer determines under paragraph (b)(4) of this section.

(c)(1) Paragraph (c) of this section applies to heavy-duty engines.

(2) There are two types of service accumulation applicable to heavy-duty engines:

(i) Service accumulation on engines, subsystems, or components selected by the manufacturer under § 86.088–24(c)(3)(i). The manufacturer determines the form and extent of this service accumulation, consistent with good engineering practice, and describes it in the application for certification.

(ii) Dynamometer service accumulation on emission-data engines selected under § 86.090–24(b) (2) or (3). The manufacturer determines the engine operating schedule to be used for dynamometer service accumulation, consistent with good engineering practice. A single engine operating schedule shall be used for all engines in an engine family-control system combination. Operating schedules may be different for different combinations.

(3) Exhaust emission deterioration factors will be determined on the basis of the service accumulation described in paragraph (b)(2)(i) of this section and related testing, according to the manufacturer's procedures.

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(4) The manufacturer shall determine, for each engine family, the number of hours at which the engine system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested a record of the rationale used in making this determination. The manufacturer may elect to accumulate 125 hours on each test engine within an engine family without making a determination. Any engine used to represent emission-data engine selections under § 86.090-24(b)(2) shall be equipped with an engine system combination that has accumulated at least the number of hours determined under this paragraph. Complete exhaust emission tests shall be conducted for each emission-data engine selection under § 86.090-24(b)(2). Evaporative emission controls need not be connected provided normal operating conditions are maintained in the engine induction system. The Administrator may determine under § 86.090-24(f) that no testing is required.

(d)(1) Paragraph (d) of this section applies to both light-duty trucks and heavy-duty engines.

(2)(i) The results of all emission testing shall be supplied to the Administrator. The manufacturer shall furnish to the Administrator explanation for voiding any test. The Administrator will determine if voiding the test was appropriate based upon the explanation given by the manufacturer for the voided test. Tests between test points may be conducted as required by the Administrator. Data from all tests (including voided tests) may be submitted weekly to the Administrator, but shall be air posted or delivered to the Administrator within 7 days after completion of the tests. In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.090-23. Where the Administrator conducts a test on a durability-data vehicle at a prescribed test point, the results of that test will be used in the calculation of the deterioration factor.

(ii) The results of all emission tests shall be recorded and reported to the Administrator. These test results shall be rounded, in accordance with ASTM E 29-67, to the number of decimal places contained in the applicable

emission standard expressed to one additional significant figure.

(3) Whenever a manufacturer intends to operate and test a vehicle (or engine) which may be used for emission data, the manufacturer shall retain in its records all information concerning all emissions tests and maintenance, including vehicle (or engine) alterations to represent other vehicle (or engine) selections. This information shall be submitted, including the vehicle (or engine) description and specification information required by the Administrator, to the Administrator following the emission-data test.

(4)-(5) [Reserved]

(6) Emission testing of any type with respect to any certification vehicle or engine other than that specified in this subpart is not allowed except as such testing may be specifically authorized by the Administrator.

[54 FR 14478, Apr. 11, 1989]

§ 86.090-27 Special test procedures.

(a) The Administrator may, on the basis of written application by a manufacturer, prescribe test procedures, other than those set forth in this part, for any light-duty vehicle, light-duty truck, heavy-duty engine, or heavy-duty vehicle which the Administrator determines is not susceptible to satisfactory testing by the procedures set forth in this part.

(b) If the manufacturer does not submit a written application for use of special test procedures but the Administrator determines that a light-duty vehicle, light-duty truck, heavy-duty engine, or heavy-duty vehicle is not susceptible to satisfactory testing by the procedures set forth in this part, the Administrator shall notify the manufacturer in writing and set forth the reasons for such rejection in accordance with the provisions of § 86.090-22(c).

[54 FR 14481, Apr. 11, 1989]

§ 86.091-2 Definitions.

The definitions of § 86.090-2 remain effective. The definitions listed in this section apply beginning with the 1991 model year.