

malfunction, or with the advance approval of the Administrator.

(f) Equipment, instruments, or tools may not be used to identify malfunctioning, maladjusted, or defective engine components unless the same or equivalent equipment, instruments, or tools will be available to dealerships and other service outlets and:

(1) Are used in conjunction with scheduled maintenance on such components; or

(2) Are used subsequent to the identification of a vehicle or engine malfunction, as provided in paragraph (d)(2) of this section for durability data vehicles or in paragraph (e)(1) of this section for emission data vehicles; or

(3) Unless specifically authorized by the Administrator.

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

(2) Complete emission tests (see §§ 86.106 through 86.145) are required, unless waived by the Administrator, before and after scheduled maintenance approved for durability data vehicles. The manufacturer may perform emission tests before unscheduled maintenance. Complete emission tests are required after unscheduled maintenance which may reasonably be expected to affect emissions. The Administrator may waive the requirement to test after unscheduled maintenance. These test data may be submitted weekly to the Administrator, but shall be air posted or delivered within 7 days after completion of the tests, along 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.

[58 FR 4018, Jan. 12, 1993, as amended at 58 FR 9487, Feb. 19, 1993]

**§ 86.094-26 Mileage and service accumulation; emission requirements.**

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

scribes mileage and service accumulation requirements for durability data vehicles run under either the Standard AMA Durability Program of § 86.094-13(c) or the Production AMA Durability Program of § 86.094-13(d), and for emission data vehicles regardless of the durability program employed. Service accumulation requirements for durability data vehicles run under the Alternative Service Accumulation Program may be found in § 86.094-13(e).

(2) [Reserved]

(3) *Emission data vehicles.*

(i)(A) [Reserved]

(B) Emission tests for emission data vehicle(s) selected for testing under § 86.094-24(b)(1) (v) or (viii) shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under high-altitude conditions.

(C) [Reserved]

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.094-24(b)(1) (i) through (iv) to be tested under high-altitude conditions or provide a statement in accordance with § 86.094-24(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-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. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission data vehicle selections under

§ 86.094-24(b)(1) shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.094-24(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 of this chapter. Complete exhaust emission tests shall be conducted for each emission data vehicle selection under § 86.094-24(b)(1). The Administrator may determine under § 86.094-24(f) that no testing is required.

(B) Emission tests for emission data vehicle(s) selected for testing under § 86.094-24(b)(1)(v) shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under high-altitude conditions.

(C) [Reserved]

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.094-24(b)(1) (i) through (iv) to be tested under high-altitude conditions or provide a statement in accordance with § 86.094-24(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 § 86.094-13(e) or § 86.094-23(a) or in paragraph (a)(4)(i)(B) of this section, each durability data vehicle shall be driven on the whole-vehicle mileage accumulation cycle specified in paragraph (a)(2) of this section, with all emission control systems installed and operating, up to a mileage endpoint corresponding to the vehicle's durability useful life as defined in § 86.094-2.

(B) *Extrapolation of durability data and changes to the mileage accumulation cycle.* (1) Once a durability vehicle has reached the greater of 75,000 miles or three-quarters of the applicable durability useful life, the manufacturer

may petition the Administrator to extrapolate the durability data obtained up to that point out to the durability useful life or to replace the mileage accumulation cycle with an alternative that meets the criteria of paragraph (a)(2) of this section. In the petition, the manufacturer shall supplement the durability vehicle data with other information demonstrating the durability of the vehicle's emission control components and systems at or beyond the durability useful life.

(2) Factors the Administrator will consider in evaluating petitions for extrapolation of durability data or for changes to the mileage accumulation cycle include, but are not limited to, any unusual scheduled maintenance, unscheduled maintenance, the general linearity and scatter of the actual data, reasonable explanations for all outlier data, the technical validity of any substitute mileage accumulation cycle, and evidence supplied by the vehicle manufacturer of component and system durability.

(3) If a petition for extrapolation of durability data is approved, the endpoint for whole-vehicle mileage accumulation of the durability data vehicle shall be the mileage attained by the vehicle as reflected in the petition.

(4) Discontinuation of a durability data vehicle shall be allowed only with the consent of the Administrator.

(C) [Reserved]

(D) Except with advance approval of the Administrator, the mileage interval between nominal 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 § 86.094-25(g)(2).

(ii) The manufacturer may, at its option, alter the durability data vehicle at the selected nominal 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 and continue 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 nominal test points. This  $\pm 250$  mile test point mileage tolerance may be modified with the advance approval of the Administrator if the basis for the written request is to prevent an interruption of durability mileage accumulation due to test scheduling conflicts for weekends, holidays, and other similar circumstances.

(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 § 86.091-23. Where the Administrator conducts a test on a durability data vehicle at a prescribed test point, the re-

sults of that test will be used in the calculation of the deterioration factor.

(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) The data from emission data vehicles and durability data vehicles obtained pursuant to the provisions of this section will be used in the calculations under § 86.094-28.

(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 Administrator with all information necessary to conduct this testing.

(ii) [Reserved]

(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 § 86.091-23(b)(2).

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

(2) Four types of mileage or service accumulation are applicable to light-

duty trucks, as described in paragraphs (b)(2) (i) through (iv) of this section.

(i)-(ii)

(iii) Paragraph (b)(2)(iii) of this section applies to mileage accumulation of the duration selected by the manufacturer on emission data vehicles selected under § 86.094-24(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 higher loaded vehicle weight.

(3) Exhaust emission deterioration factors will be determined on the basis of the mileage or service accumulation described in paragraph (b)(2) (i) or (ii) 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. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission data vehicle selections under § 86.094-24(b)(1) shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data

generated from certification vehicles selected in accordance with § 86.094-24(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 of this chapter. Complete exhaust emission tests shall be conducted for each emission data vehicle selection under § 86.094-24(b)(1). The Administrator may determine under § 86.094-24(f) that no testing is required.

(B) Emission tests for emission data vehicle(s) selected for testing under § 86.094-24(b)(1) (v) or (viii) shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing or at 6,436 kilometers (4,000 miles) under high-altitude conditions.

(ii)-(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) [Reserved]

(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 test. In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.094-23. 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) [Reserved]

(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

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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.

[58 FR 4021, Jan. 12, 1993, as amended at 59 FR 36369, July 18, 1994; 62 FR 11082, Mar. 11, 1997; 62 FR 44875, Aug. 22, 1997; 75 FR 22978, Apr. 30, 2010]

### § 86.094–28 Compliance with emission standards.

(a)(1)–(2) [Reserved]

(3) Since it is expected that emission control efficiency will change with mileage accumulation on the vehicle, the emission level of a vehicle which has accumulated mileage equal to the specified useful life will be used as the basis for determining compliance with the standard (or family particulate emission limit, as appropriate).

(4)(i)(A) The applicable results to be used, unless excluded by paragraph (a)(4)(i)(A)(4) of this section, in determining the exhaust emission deterioration factors for each engine-system combination shall be those described in paragraphs (a)(4)(i)(A) (I) through (3) of this section.

(I) All valid exhaust emission data from the tests required under § 86.094–26(a)(4) except the zero-mile tests. This shall include the official test results, as determined in § 86.094–29 for all tests conducted on all durability data vehicles of the combination selected under § 86.094–24(c) (including all vehicles elected to be operated by the manufacturer under § 86.094–24(c)(1)(ii)).

(2) All exhaust emission data from the tests conducted before and after the scheduled maintenance provided in § 86.094–25.

(3) All exhaust emission data from tests required by maintenance approved under § 86.094–25, in those cases

where the Administrator conditioned his approval for the performance of such maintenance on the inclusion of such data in the deterioration factor calculation.

(4) The manufacturer has the option of applying an outlier test point procedure to completed durability data within its certification testing program for a given model year. The outlier procedure will be specified by the Administrator. For any pollutant, durability data test points that are identified as outliers shall not be included in the determination of deterioration factors if the manufacturer has elected this option. The manufacturer shall specify to the Administrator before the certification of the first engine family for that model year, if it intends to use the outlier procedure. The manufacturer may not change procedures after the first engine family of the model year is certified. Where the manufacturer chooses to apply both the outlier procedure and averaging (as allowed under § 86.094–26(a)(6)(i)) to the same data set, the outlier procedure shall be completed prior to applying the averaging procedure.

(B)(1) *Line crossing.* For each exhaust constituent to which a standard in § 86.094–8 applies, all applicable exhaust emission results shall be rounded to the nearest mile and plotted as a function of the mileage on the system. The best fit straight line, fitted by the method of least squares, shall be drawn through all these data points. The data for a given exhaust constituent will be acceptable for use in the calculation of deterioration factors only if the first official test point as determined in § 86.094–26(a)(4)(i)(C), the interpolated intermediate useful life mile point, and the interpolated full useful life mile point on this line, as applicable, are each less than or equal to the respective low-altitude standards provided in § 86.094–8. An exception to this where data are still acceptable is when a best fit straight line crosses an applicable standard but no data points exceeded the standard. This exception shall not apply when mileage accumulation has been curtailed before the durability useful life has been reached, under the provisions of § 86.094–26(a)(4)(i)(B).