to the National Flood Insurance Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90-448), 42 U.S.C. 4001-4128, and 24 CFR Part 1917).

An opportunity for the community or individuals to appeal this determination to or through the community for a period of ninety (90) days has been provided. No appeals of the proposed base flood elevations were received from the community or from individuals within the community.

The Administrator, to whom the Secretary has delegated the statutory authority, has developed criteria for flood plain management in flood-prone areas in accordance with 24 CFR Part 1910.

The final 100-year flood elevations for selected locations are:

Source of flooding	Location	Elevation in feet, national geodetic vertical datum
Saddle River	Terrace Ave	23.6
	Route 46	32.0
	Interstate 80	30.8

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended (42 U.S.C. 4001-4128); and Secretary's delegation of authority to Federal Insurance Administrator, 34 FR 2680, February 27, 1969, as amended (39 FR 2787, January 24, 1974).)

Issued: July 28, 1977.

PATRICIA ROBERTS HARRIS,
Secretary.

[FR Doc.77-25553 Filed 9-9-77;8:45 am]

[Docket No. FI-2985]

PART 1917—APPEALS FROM PROPOSED FLOOD ELEVATION DETERMINATIONS

Final Flood Elevation Determination for City of Myrtle Creek, Oreg.

AGENCY: Federal Insurance Administration, HUD.

ACTION: Final rule.

SUMMARY: Final base flood elevations (100-year flood) are listed below for selected locations in the City of Myrtle Creek, Oreg. These base flood elevations are the basis for the flood plain management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

EFFECTIVE DATE: On publication of the Flood Insurance Rate Map for the City of Myrtle Creek, Oreg.

ADDRESS: Maps and other information showing the detailed outlines of the flood-prone areas and the final elevations for the City of Myrtle Creek are available for review at City Hall, Myrtle Creek, Oreg.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard Krimm, Assistant Administrator, Office of Flood Insurance, 202-755-5581 or toll free line 800-424-8872, Room 5270, 451 Seventh Street SW., Washington, D.C. 20410.

SUPPLEMENTARY INFORMATION: The Federal Insurance Administrator gives notice of his final determinations of flood elevations for the City of Myrtle Creek.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1973 (Pub. L. 93-234), 87 Stat. 980, which added Section 1363 to the National Flood Insurance Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90-448), 42 U.S.C. 4001-4128, and 24 CFR Part 1917).

An opportunity for the community or individuals to appeal this determination to or through the community for a period of ninety (90) days has been provided. No appeals of the proposed base flood elevations were received from the community or from individuals within the community.

The Administrator, to whom the Secretary has delegated the statutory authority, has developed criteria for flood plain management in flood-prone areas in accordance with 24 CFR Part 1910.

The final 100-year flood elevations for selected locations are:

Source of flooding	Location	Elevation in feet, national geodetic vertical datum
South Umpqua River.	Highway 99 [1]	606
	Southern Pacific RR.[2]	613
Myrtle Creek	Highway 99 (Main Ave.).[1]	608
North Myrtle Creek.	Johnson St.[1]	610
	Northeast division [2]	615

[1] Upstream side.
[2] Downstream side.

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended (42 U.S.C. 4001-4128); and Secretary's delegation of authority to Federal Insurance Administrator, 34 FR 2680, February 27, 1969, as amended (39 FR 2787, January 24, 1974).)

Issued: July 28, 1977.

PATRICIA ROBERTS HARRIS,
Secretary.

[FR Doc.77-25554 Filed 9-9-77;8:45 am]

[Docket No. FI-2906]

PART 1917—APPEALS FROM PROPOSED FLOOD ELEVATION DETERMINATIONS

Final Flood Elevation Determination for Ashland County, Wis.

AGENCY: Federal Insurance Administration, HUD.

ACTION: Final rule.

SUMMARY: Final base flood elevations (100-year flood) are listed below for selected locations in Ashland County, Wis. These base flood elevations are the basis for the flood plain management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

EFFECTIVE DATE: On publication of the Flood Insurance Rate Map for Ashland County, Wis.

ADDRESSES: Maps and other information showing the detailed outlines of the flood-prone areas and the final elevations for Ashland County are available for review at Ashland County Courthouse, Ashland, Wis.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard Krimm, Assistant Administrator, Office of Flood Insurance, 202-755-5581 or toll free line 800-424-8872, Room 5270, 451 Seventh Street SW., Washington, D.C. 20410.

SUPPLEMENTARY INFORMATION: The Federal Insurance Administrator gives notice of his final determinations of flood elevations for Ashland County.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1973 (Pub. L. 93-234), 87 Stat. 980, which added Section 1363 to the National Flood Insurance Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90-448), 42 U.S.C. 4001-4128, and 24 CFR Part 1917).

An opportunity for the community or individuals to appeal this determination to or through the community for a period of ninety (90) days has been provided. No appeals of the proposed base flood elevations were received from the community or from individuals within the community.

The Administrator, to whom the Secretary has delegated the statutory authority, has developed criteria for flood plain management in flood-prone areas in accordance with 24 CFR Part 1910.

The final 100-year flood elevations for selected locations are:

Source of flooding	Location	Elevation in feet, national geodetic vertical datum
White River	STH 112	680
	STH 13	636
Bad River-Mellen	STH 169	1222
Bad River-Morse	T43N R2W	1498
Marengo River	T48N R4W	806
	CTH "C"	792
	T46N R4W	779
	T46N R4W	768
	T46N R4W	765
	STH 13	757
Marengo tributary No. 1.	STH 112	809
	T46N R4W	794
	T46N R4W	781
Marengo tributary No. 2.	CTH "E"	792
	T46N R4W	786
	T46N R4W	785
East Fork Chippewa River.	T42N R2W	1519
	Soo Line RR	1518
	CTH "N"	1517
	STH 13	1516
	T42N R2W	1516
	T42N R2W	1515
Butternut Creek	CTH F	1507
	CTH F	1505
	CTH "B"	1498

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended (42 U.S.C. 4001–4128); and Secretary's delegation of authority to Federal Insurance Administrator, 34 FR 2680, February 27, 1969, as amended (39 FR 2787, January 24, 1974).)

Issued: August 11, 1977.

PATRICIA ROBERTS HARRIS,
Secretary.

[FR Doc.77-25555 Filed 9-9-77;8:45 am]

[Docket No. FI-2673]

PART 1917—APPEALS FROM PROPOSED FLOOD ELEVATION DETERMINATIONS

Final Flood Elevation Determination for City of Marietta, Ga.

AGENCY: Federal Insurance Administration, HUD.

ACTION: Final rule.

SUMMARY: Final base flood elevations (100-year flood) are listed below for selected locations in the City of Marietta, Ga.

These base flood elevations are the basis for the flood plain management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

EFFECTIVE DATE: On publication of the Flood Insurance Rate Map for the City of Marietta, Ga.

ADDRESSES: Maps and other information showing the detailed outlines of the flood-prone areas and the final elevations for the City of Marietta are available for review at City Hall, 36 Atlanta Street, Marietta, Ga.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard Krimm, Assistant Administrator, Office of Flood Insurance, 202–755–5581 or Toll Free Line 800–424–8872, Room 5270, 451 Seventh Street SW., Washington, D.C. 20410.

SUPPLEMENTARY INFORMATION: The Federal Insurance Administrator gives notice of his final determinations of flood elevations for the City of Marietta.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1973 (Pub. L. 93–234), 87 Stat. 980, which added Section 1363 to the National Flood Insurance Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90–448), 42 U.S.C. 4001–4128, and 24 CFR Part 1917).

An opportunity for the community or individuals to appeal this determination to or through the community for a period of ninety (90) days has been provided. No appeals of the proposed base flood elevations were received from the community or from individuals within the community.

The Administrator, to whom the Secretary has delegated the statutory authority, has developed criteria for flood plain management in flood-prone areas in accordance with 24 CFR Part 1910.

The final 100-year flood elevations for selected locations are:

Source of flooding	Location	Elevation in feet, national geodetic vertical datum
Slope branch	Apachee St	1,065
	Fairground St	1,039
	Driveway Bridge	1,022
Elizabeth branch	Interstate 75 [1]	1,055
	do.[2]	1,050
	Overbrook Circle	1,032
	Allgood Rd	1,015
Slope Creek	U.S. Highway 41	1,019
	Interstate 75	1,012
	Barnes Mill Rd	987
	Roswell Rd	973
Hope Creek	Loop 120	975
	Interstate 75	963
Rottenwood Creek	Barclay Circle	1,007
	U.S. Highway 41	955
	Franklin Rd	944
	Delk Rd	929
Olley Creek	Bellemeade Rd	987
	Cunningham Rd	977
West Side branch	Polk St	1,053
	Whitlock Ave	1,073
Ward Creek	Maxwell Ave	1,041
	Kilpatrick Ave	1,009
Noes Creek	Kennesaw Ave	1,079
	Burnt Hickory Rd	1,007

[1] Upstream side.
[2] Downstream side.

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended (42 U.S.C. 4001–4128); and Secretary's delegation of authority to Federal Insurance Administrator, 34 FR 2680, February 27, 1969, as amended (39 FR 2787, January 24, 1974).)

Issued: July 28, 1977.

PATRICIA ROBERTS HARRIS,
Secretary.

[FR Doc.77-25556 Filed 9-9-77;8:45 am]

Title 40—Protection of Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

[FRL 779-5]

PART 86—CONTROL OF AIR POLLUTION FROM NEW MOTOR VEHICLES AND NEW MOTOR VEHICLE ENGINES

PART 600—FUEL ECONOMY OF MOTOR VEHICLES

Fuel Economy and Emission Testing and Other Procedures for 1978 and Later Model Year Automobiles

AGENCY: Environmental Protection Agency.

ACTION: Final Rulemaking.

SUMMARY: This action promulgates a regulation originally published as a combined Notice of Proposed Rulemaking (NPRM) and Interim-Final Rulemaking (IFRM) on September 10, 1976. The IFRM dealt with the regulations for the testing and calculation procedures concerning an automobile manufacturer's passenger automobile average fuel economy. The regulations were published as final rules for the 1978 model year and as proposed for 1979 and later model years. The NPRM proposed some test procedure changes to the exhaust emission test procedure used to determine compliance with section 206 of the Clean Air Act and to develop the fuel economy value for fuel economy labeling and compliance purposes. This action promulgates those test procedure changes and the fuel economy calculation procedures as final rules. Comments were received during the public comment period on many aspects of this action, and several changes have been made to the original proposal in response to the comments. In addition, two of the proposed test procedure changes, the revised inertia weight classes and the new definition for option, model, and optional equipment usage are being postponed until the 1980 model year to allow the manufacturers additional time to purchase equipment and to facilitate an orderly changeover to the revised procedure.

EFFECTIVE DATE: For sections applicable to the 1978 model year: September 12, 1977. For sections applicable to later model years: October 12, 1977.

DATE FOR COMMENTS (For interim regulations discussed in the preamble under "Other Minor Changes"): December 12, 1977.

FOR FURTHER INFORMATION CONTACT:

Gary Timm; Office of Mobile Source, Air Pollution Control (AW–455), U.S. Environmental Protection Agency, Washington, D.C. 20460 (202–755–0596).

SUPPLEMENTARY INFORMATION:

STATUTORY BACKGROUND

On December 22, 1975, the President signed the Energy Policy and Conservation Act, Pub. L. 94–163, 89 Stat. 871. Title III of this Act amended the Motor Vehicle Information and Cost Savings Act, 15 U.S.C. 1901 et seq. (hereinafter referred to as "the Act") for the purpose of regulating the fuel economy of automobiles. This notice relates primarily to Section 501 of the Act relating to definitions and Section 503 which requires the Administrator of EPA to promulgate rules prescribing testing and calculation procedures which will be used for the computation of automobile manufacturers' passenger automobile average fuel economy values. These manufacturers' average fuel economy values will be used by the Secretary of Transportation (hereinafter referred to as "the Secretary") to determine compliance with the minimum fuel economy standards in Section 502 of the Act.

SUMMARY OF THE REGULATIONS

These regulations specify testing and calculation procedures for labeling of automobiles and for passenger automobile fuel economy compliance. Since these rules were published previously on September 10, 1976 (41 FR 38673) as interim-final for the 1978 model year and were described in great detail at that time, all of the provisions of the regulations will not be discussed again here. Rather, only those significant portions of the regulations for which comments were received will be discussed in this preamble. How-

ever, the 1978 and later model year testing and compliance procedures are published here in total.

Discussion of Major Issues

Revised inertia weight increments

Under the compliance procedures adopted effective beginning with the 1978 model year, a manufacturer's product line is divided into base levels. A base level is defined as a unique combination of inertia weight class, basic engine and transmission class. A manufacturer must test at least one vehicle per base level. Base levels are further subdivided into vehicle configurations. A vehicle configuration is defined as a unique combination of inertia weight class, basic engine and transmission class (all of which determine a base level) plus engine code, transmission configuration and axle ratio. Vehicle configurations are used to determine the number and types of vehicles that a manufacturer is required to test within a base level.

The NPRM proposed to reduce dynamometer inertia weight intervals in order to reduce weight-related test errors and provide greater incentive for manufacturers to pursue vehicle weight reduction programs which would result in real fuel economy benefits. Currently, dynamometer inertia weight intervals are 250 pounds for inertia weight settings up through 3000 pounds and 500 pounds for settings from 3000 to 5500 pounds. The proposal reduced these intervals to 125 pounds for inertia weight settings up through 4000 pounds and to 250 pounds for settings from 4000 to 5500 pounds.

Based on analysis of the comments on the Notice of Proposed Rulemaking and other available data, EPA has concluded that the potential benefits of the proposal exceed the costs (Technical Support Report for Regulatory Action, "The Effects of Dynamometer Inertia Weight Simulation on Fuel Economy Measurements," U.S. Environmental Protection Agency, February, 1976). Therefore, this test procedure change is being promulgated as proposed except that it will be effective beginning with the 1980 model year. Furthermore, for the purpose of incorporating this test procedure change within the fuel economy program, regulatory provisions have been added as explained below so that this test procedure change will only affect how vehicles are selected and tested within a vehicle configuration and not the number of vehicles specified for required testing.

All manufacturers who commented on the proposed change in inertia weight increments opposed the proposal, at least for 1979. Although not all manufacturers opposed the proposal for the same reasons, the general areas of opposition were:

1. Increased test load.
2. Reduction in measured average corporate fuel economy.
3. Insufficient lead time and high cost for facilities modification.
4. Reduced incentive for vehicle weight reduction.

(1) Increased test load: The preamble to the NPRM suggested that if the smaller dynamometer inertia weight increments were incorporated directly into the current fuel economy program—for example, in the base level or vehicle configuration definition—an approximate doubling of required tests could result since at least one vehicle is required per inertia weight class. EPA stated in the preamble that such a large increase in required testing was not contemplated and therefore requested alternate proposals for incorporating the smaller inertia weight increments which would not result in a significant increase in the number of required tests. Commenting manufacturers largely supported EPA's contention that direct incorporation of the smaller inertia weight increments would approximately double the required number of tests but offered no alternate means for incorporating the smaller inertia weight increments.

So as not to significantly increase the required number of fuel economy tests, EPA is making a distinction between the weights at which vehicles are tested, which have approximately doubled in number, and the weight classes which are used to determine which vehicles are selected for testing. EPA is defining the term "inertia weight class" to replace the term "inertia weight" as previously used in the emission certification program, meaning the class into which a vehicle is grouped based on its loaded vehicle weight, and the term "test weight," meaning the weight, within an inertia weight class, at which a vehicle is tested based on its loaded vehicle weight. Similarly, the definitions of base level and vehicle configuration will now use the term "inertia weight class" in place of the previously used term "inertia weight." In order to accurately represent the weight distribution of vehicles offered for sale within a vehicle configuration and the effect on fuel economy of this weight distribution, the EPA will consider the relative projected sales volume of the various test weights within a vehicle configuration in selecting the test vehicle and establishing its test weight.

Although the inertia weight classes have not been changed in breadth (i.e., the classes below 3000 pounds continue to have a 250 pound range; those above 3000 pounds, a 500 pound range; and the 3000 pound class, a 375 pound range), it was necessary to change slightly the boundary points of the inertia weight classes to make them coincide with the cutpoints for the new test weights.

It may be helpful to explain the need for this change in inertia weight class boundary points. When 125 pound test weight increments are substituted for 250 pound test weight increments (or 250 pound test weight increments are substituted for 500 pound increments) the new test weights fall on the current inertia weight class boundaries. Since standard rules of numerical rounding are used to establish a vehicle's test weight from its loaded vehicle weight, the cutpoints between test weights must be half of the width of the test weight increment, i.e., ±62.5 pounds of the test weight for test weights that are 125 pounds apart (±125 pounds of the test weight for test weights that are 250 pounds apart). Since vehicles which are tested at the same weight must be included in the same inertia weight class, it was necessary to slightly shift the inertia weight boundary points to correspond with the new test weight cutpoints. This results in a shift of 63 pounds in the boundaries for inertia weight classes containing test weights at 125 pound increments, and a shift of 125 pounds for inertia weight classes containing test weights at 250 pound increments.

The choice of whether the boundaries are shifted up or down could be made arbitrarily, except for one factor: the present car population is not randomly distributed within inertia weight classes but tends to be concentrated at the high end of each inertia weight class. It is therefore desirable to shift the boundaries of the inertia weight classes upward, to avoid grouping similar vehicles into separate inertia weight classes which, if done, would tend to increase the requirement for fuel economy data vehicle testing.

An example may be helpful. The current 4500 pound class includes vehicles with loaded vehicle weight of 4251 through 4750 pounds and has a test weight of 4500 pounds. Beginning in 1980, 4500 pounds and each of the two boundary weights of 4250 and 4750 pounds will be test weights. To maintain the range of the 4500 pound inertia weight class at 500 pounds, the 4500 pound inertia weight class must contain two test weights at increments of 250 pounds. The 4500 pound test weight will, of course, be included, but the question is whether the other test weight in the class should be 4250 pounds or 4750 pounds. EPA has decided to include the 4750 test weight to be in the 4500 pound inertia weight class because, at present, more than half of the vehicles in the current 4500 pound inertia weight class fall between 4500 and 4750 pounds. The new 4500 pound inertia weight class will thus include the 4500 and 4750 pound test weights and will have boundaries of 4376 (4500 minus 124) and 4875 (4750 plus 125).

(2) Reduction in measured average corporate fuel economy: All major U.S. manufacturers commented that the change in inertia weight intervals would reduce their measured corporate average fuel economy. Several manufacturers stated that since the fuel economy change would be systematic, a modification of the fuel economy standards would be required.

The Energy Policy and Conservation Act, states that procedures used in testing and calculating fuel economy for use in determining corporate average fuel economy "* * * shall be the procedures utilized by the EPA Administrator for model year 1975 * * * or procedures which yield comparable results" (15 U.S.C. 2003(d)(1)). It is the Agency's opinion that, under this provision of the Act, EPA may modify the 1975 test pro-

cedures to make them more accurate, valid, or easy to administer, so long as the modification does not substantially alter the measured average fuel economy of an ordinary fleet of vehicles subject to the statutory standards. If a vehicle manufacturer has altered the design or composition of its fleet to take advantage of some inaccuracy in EPA's test procedure, elimination of that inaccuracy may substantially alter the measured average fuel economy of an ordinary fleet—one that is not biased to take advantage of the test inaccuracy—then the change would be permissible. By eliminating inaccurately high measured average fuel economy for biased fleets of certain manufacturers, such improvements in EPA test procedures would protect both consumers and competing manufacturers against misleading fuel economy estimates and claims.

Analysis of comments received in response to the Notice and review of data from certification records for the 1975 and 1977 model years indicates reducing the size of the inertia weight increments would not substantially alter the measured average fuel economy of an ordinary fleet of vehicles. The smaller inertia weight test increments are intended to improve the accuracy of test simulation of actual loaded vehicle weights. Adoption of this test procedure change could only decrease a manufacturer's measured average fuel economy if the manufacturer has chosen to bias the weights of the vehicles offered for sale so that, on the average, the weights tend to exceed the current test weight within each inertia weight class, thereby taking advantage of an inaccuracy in the 1975 test procedures. Although eliminating this inaccuracy may substantially alter measured average fuel economy of such a biased fleet, it should not substantially alter the measured average fuel economy of an ordinary fleet without such bias. Therefore, no industry-wide adjustment in either the fuel economy standards or the individual test results is required.

However, under the provisions of NHTSA's final rulemaking on "Reduction Of Passenger Automobile Average Fuel Economy Standards" soon to be published, manufacturers may individually request from NHTSA a reduction in fuel economy standards based on changes in the stringency of nonfuel economy standards or changes in test procedures which affect the stringency of nonfuel economy standards. EPCA provides for such reductions for only the 1978 through 1980 model years due to the lead time constraints placed upon manufacturers for modifying their product plans to meet both fuel economy and non-fuel economy standards (15 U.S.C. 2002(d)). Since this test procedure change is also being promulgated for the emissions certification program, individual manufacturers may request from NHTSA that their individual fuel economy standard be reduced.

(3) Insufficient lead time and high cost for facilities modification: Several manufacturers commented that there was insufficient lead time for the dynamometer modifications prior to the 1979 model year. Although some of the modified dynamometer packages have already been manufactured and delivered, it will take approximately one year to equip one-half of the dynamometers currently in the field. Equitable distribution of the dynamometer modifications might also be a problem. If the available modifications are not uniformly distributed, it may be very difficult for some manufacturers to obtain the new inertia weight systems with sufficient lead time for 1979 model year testing. Therefore, the proposal has been changed to be effective beginning with the 1980 model year. Such a change will provide sufficient lead time for dynamometer facility modifications.

In regard to the cost of the modification, estimates by EPA and manufacturers indicate an expense of up to $20,000 per test cell, which includes $6,000 for automatic road load selection. This modification gives a dynamometer the ability to test vehicles at all the new inertia weight settings. Less costly modifications (about $3,000) are also available; however, these would limit a dynamometer's capability to test vehicles in either the high or low inertia weight ranges, but not in both. Such lower cost modifications may be very practical for manufacturers whose product line does not cover the full range of inertia weights, and for manufacturers who can earmark dynamometers for either low or high inertia weight vehicles. For the full modification at a cost of $20,000 per dynamometer, the total cost to the industry for facility modifications is estimated at $6 million. Amortized over 5 years, this total industry cost equates to approximately $0.14 per vehicle sold. The Agency does not believe that this represents a significant cost burden to the industry.

(4) Reduced incentive for vehicle weight reduction: Some manufacturers commented that the proposed change would reduce, or at least not increase, incentive for large vehicle weight reductions They argue that under the current inertia weight increments, a significant vehicle weight reduction (for example, 500 pounds) may be required in order to move a vehicle into the next lower inertia weight class, but they receive a corresponding fuel economy test benefit. EPA continues, however, to support the increased incentive for weight reduction due to smaller inertia weight test increments. With the adoption of the smaller increments, a larger percentage of manufacturer's product line will be close to the next lower test weight. Therefore, more vehicles will be likely to receive a fuel economy test credit for a relatively small decrease in vehicle weight. The larger credit available by way of a major redesign which significantly reduces vehicle weight can still be realized by a manufacturer. However, as stated by one manufacturer, this change in test weight increments is expected to make vehicle weight reduction efforts more cost effective than under the current system.

REVISED ROAD LOAD DETERMINATION

When EPA exhaust emission or fuel economy tests are performed on a chassis dynamometer, the dynamometer is adjusted to simulate the road experience of the test vehicle. The total vehicle road load is the sum of the aerodynamic drag and the rolling resistance. The rolling resistance is primarly from the energy dissipation of the tires. On a dynamometer with small, twin rolls, such as that currently used by EPA and the industry, the two tires rotate on the rolls and dissipate approximately the same amount of power as four tires would on a flat road surface. Therefore, the tire rolling resistance of the vehicle is primarly simulated by the power dissipation of the two driving tires during the dynamometer test. The dynamometer power absorption is adjusted for each test and each vehicle, and is intended to predominantly represent the aerodynamic drag of the vehicle.

The current regulations specify that the dynamometer power absorption be determined from the vehicle weight. This assumes that the aerodynamic drag is indirectly predicted by the vehicle weight. This assumption is reasonable for vehicles of conventional shape and proportion because vehicle size, aerodynamic drag, and weight tend to increase simultaneously. However, within a particular weight range, vehicle shape, and thus aerodynamic drag, may vary considerably. The proposed regulations attempted to improve the accuracy of the prediction system by proposing a system based directly on parameters related to the vehicle aerodynamic drag. The proposed system uses vehicle reference frontal area in conjunction with vehicle shape and protuberance information to estimate the aerodynamic drag coefficient of the vehicle.

The comments on this proposal by the manufacturers were negative. The general areas of objection were:

1. The equation predicts higher road load values than those in the current regulations or those derived from road data.

2. The equation is too complex. The necessary parameters are difficult to ascertain. It is confusing.

3. The equation establishes a design standard and may result in vehicle designs which are not aerodynamically optimum.

4. The equation does not consider some important areas of vehicle design which affect the vehicle aerodynamic drag.

In response to these objections, the road load prediction equation has been modified. The discrepancies between the road load values predicted by the equation and the road load data supplied by the manufacturers resulted primarily from discrepancies in the measurements of the vehicle reference frontal areas. The source of these discrepancies has been identified. The use of vehicle reference frontal areas supplied by the manufacturers has eliminated the net overall tendency for the equation to predict road load values higher than those in the current table in the regulations.

The equation has been substantially simplified. The revised equation considers vehicle shape only to determine if the vehicle should be classed as a fastback or

non-fastback model. The separation of vehicles into classes based on aerodynamic drag characteristics is a similar approach to that used in the light-duty truck regulations (41 FR 56316) in which distinctions were made between open and closed bed trucks. Further simplification occurs in the protuberance term of the revised equation since only a single protuberance term is used which corresponds to the increase in frontal area (and hence aerodynamic drag) caused by the various protuberances. Each protuberance was treated individually in the original proposal.

The simplification of the equation should eliminate the objection that it establishes design standards since the revised equation only differentiates between fastback and non-fastback models, and only considers the additional frontal area due to protuberances. In any event, the establishment of testing procedures that take account of the actual effects of a design does not establish a design standard.

The objection that the equation does not consider some important areas of vehicle design which affect the vehicle aerodynamic drag is still valid. However, the simplified equation is substantially more representative than the equation in the current regulations, and it answers the criticisms of the proposed version of excessive complexity and imposition of a design standard.

No manufacturer indicated that the use of an equation for road load prediction, versus the current table, would require significant lead time for equipment modifications. Consequently, effective beginning with the 1979 model year, the method of determining the nominal dynamometer road load setting will be based primarily upon vehicle reference frontal area rather than vehicle inertia weight. Alternative procedures for determining vehicle road load will continue to be allowed.

OPTION, MODEL AND OPTIONAL EQUIPMENT USAGE

The NPRM proposed, for the first time, specific definitions for the terms "option" and "model" as they apply to the emission regulations. Also proposed was a revised method for assigning the weight of optional equipment for calculating vehicle curb weight. The latter proposal stated that an option must now be expected to be sold on over 33 percent of a carline, rather than an engine family, for its weight to be included.

The manufacturers who responded had mixed reactions. All agreed that the proposal was much more realistic than the current regulations, but some objected on the grounds that some vehicles would be shifted to a higher inertia weight class or test weight, the result of which would be a decrease in measured fuel economy. Objections to the model definition were based upon the same reasoning—a change in inertia weight class or test weight.

EPA agrees that individual vehicles may shift from one inertia weight class or test weight to another solely because of these revised definitions just as movement of vehicles between test weights might be expected due to the adoption of smaller inertia weight increments. However, no substantial change in measured average fuel economy of an ordinary fleet of vehicles should result from adoption of this change in definitions of option and model or the revised optional equipment usage procedure. Therefore, for the same reasons as more fully explained in the discussion concerning the revised inertia weight increments, no industry-wide adjustment in the fuel economy standard or individual test results is required. EPA is promulgating the option and model and optional equipment usage changes for the 1980 model year instead of the 1979 model year as proposed in order to coincide with the implementation of the new test weight intervals. This will minimize the disruption of the manufacturers product line while still implementing these amendments. As in the case of the change in dynamometer inertia weight increments, individual manufacturers may request from NHTSA a reduction in their fuel economy standards for the 1980 model year since this test procedure change is also being promulgated for the emissions certification program.

OTHER TEST PROCEDURE CHANGES

The Notice included a number of test procedure changes most of which were promulgated as interim-final for the 1978 model year plus some gasoline test fuel specification changes proposed for 1979. Comments were received on all of these items, with several of the comments being adverse.

Four manufacturers chose to comment on the change to require the measurement of the actual driven distance during the test. The Agency proposed this change in order to be able to measure the distance actually driven by each vehicle on each test, as opposed to simply assuming a nominal driven distance as in the current practice. Although all commentors agreed that the change is a reasonable amendment, one manufacturer argued that the change had a definite directional effect on measured fuel economy and emissions and that a correction factor should be developed. However, tests at the EPA facility have not indicated any necessarily directional effect on measured fuel economy for the industry. For this reason, the actual driven distance measurement will remain in the regulations, effective beginning with the 1978 model year, without any adjustment to the fuel economy standard. However, as in the case of the change in dynamometer inertia weight increments, individual manufacturers may request from NHTSA a reduction in their fuel economy standards for the 1978 through 1980 model years since this test procedure change is also being promulgated for the emissions certification program.

Another manufacturer suggested that other means of measuring actual driven distance are feasible in addition to the technique described in the regulations. The Agency has accepted this suggestion and the accompanying suggestion that the regulations be revised to allow other measurement techniques if approved in advance by the Administrator.

The change in the gasoline test fuel specifications included changes in maximum allowable Research octane numbers and the addition of minimum fuel sensitivity values. There were no adverse comments concerning the reduced Research octane numbers; however, most commentors objected to the magnitude of the sensitivity values for leaded fuel. EPA has re-examined the data available and agrees with the comments that the proposed sensitivity specification for leaded fuel was in error. The regulations are amended to change the leaded test fuel sensitivity specification from 9.0 to 7.5.

For mileage accumulation fuel, the proposed regulations required that the fuel be within 1.0 Research octane number (RON) of the fuel recommended to the consumer and that the fuel sensitivity be a minimum of 8.0. Two manufacturers objected to the RON specification proposed. The comment was essentially that the limit on the RON should reflect the range of commercially available fuel. However, the Agency believes that the vehicles tested for emissions should demonstrate the ability to operate successfully on fuel representative of the fuel which will be recommended to the ultimate purchaser.

Further, an objection to the sensitivity specification was also expressed. As in the case of the test fuel, a re-examination of the data has caused EPA to change its position and amend the sensitivity specification in the final rulemaking from 8.0 to 7.5.

One commentor objected to the increase in the number of calibrating gases for HC and NO_x analyzers. However, more recent data developed by EPA since the publication of the IFRM have further demonstrated the inadequacy of the old procedures and strengthened the need for the new procedure when measuring HC and NO_x on non-linear analyzer ranges. Therefore, the regulations will be adopted as proposed. No adverse comments were received on any other test procedure (Part 86) proposals.

DATA ACCEPTANCE AND DATA HANDLING

One manufacturer pointed out an error in the proposed regulations which is being corrected in the final regulations. The proposal stated that all engine, emission control system, and drivetrain items on a fuel economy data vehicle must be the same as when the mileage was accumulated. This is inconsistent with the EPA policy of allowing some engine components, transmissions, and axles to be changed on fuel economy data vehicles. The final regulations have been changed to correct this error.

Two comments were received regarding the lack of specificity in the regulations regarding the procedures used to evaluate whether test data are acceptable. The current procedure of having only general guidelines in the regu-

lations and re-evaluating the specific data screening criteria annually provides the flexibility necessary to react to changing vehicle designs and circumstances. Therefore, the Agency will not be changing this policy.

The section of the regulations pertaining to the review and acceptance of data caused one manufacturer to express concern that previously accepted data and previously calculated labels might be suspended due to a correlation problem. The Agency realizes the jeopardy which a manufacturer could face if a longstanding correlation problem is suddenly identified. EPA will continually monitor the correlation between the manufacturers' and EPA's laboratories, and will attempt to minimize jeopardy while maintaining the integrity of the program at the highest possible level.

DATA REPORTING

The expanded detail now required in the quarterly production reports drew mixed comments. One manufacturer stated that they did not object to the new requirements; another stated that they could meet the requirements but that the submission of the early 1978 model year quarterly reports might be delayed until new tracking systems are fully implemented. A third manufacturer stated that the new requirements would cause them to need 30 additional days to submit reports.

Because of the widely varying comments, the Agency must assume that the impact of a timing constraint for submission of data differs considerably between manufacturers and that a single timing requirement for all manufacturers may be inappropriate. For this reason, the regulations have been changed from the proposal to allow the Administrator to grant an extension of time to manufacturers for submitting the quarterly production reports.

One manufacturer indicated that it might have a parallel problem in responding to the requirement to calculate and to submit a preliminary average fuel economy value within 10 days. Here also, the regulations are being changed to allow the Administrator to grant a waiver.

The suggestion was received from one source that the Agency accept and use data from uncertified vehicles in the preliminary calculation. However, the preliminary average and subsequent determination of exemption from further running change testing are based on projected sales of certified vehicle configurations rather than actual sales. The major reason the Agency must reject this idea is that a substantial number of certification test vehicles are never certified or, if they are certified, they are not offered for sale. Allowing the use of data from uncertified vehicle configurations would exacerbate the problems associated with determining testing exemptions. If new base levels or vehicle configurations are added to the product line after the preliminary calculation, they are tested (in most cases) and the data included in a recalculation of the preliminary average. By accepting data from uncertified vehicles, the Agency runs the untenable risk of granting an exemption based upon data from a car which may never be certified and sold.

The regulations currently require that any manufacturer who desires to receive a credit for application against another model year's average must conduct running change testing. One respondent commented that it is unfair to require a manufacturer whose average is considerably above the standard to conduct running change testing, when it is clear with or without the running change testing that he deserves a credit. EPA agrees, and the regulations have been amended to modify the restriction on credits. It is expected that separate running change exemption criteria might be applied to manufacturers who desire both a credit and a running change exemption.

GM commented that running changes should be tested only if they affect significant model types, with a significant model type being defined as a model type that constitutes at least one percent of the product line. The Agency has examined this proposal and has found good cause to reject it. An examination of 1977 model year data showed that less than ten percent of GM's model types would be considered to be significant model types. This fact, coupled with another facet of GM's proposal which suggested that only running changes which caused a fuel economy change of ±1 mpg (which is very uncommon) be accounted for in production, would effectively negate the value of testing running changes. Furthermore, the proposal ignores the fact that a series of running changes could cause more than one mpg change in model fuel economy.

The notice requested comments on the expected testing impact upon the regulated industry due to the requirement to evaluate the fuel economy effect of running changes. Two manufacturers responded and neither felt that the proposed sampling scheme was unduly burdensome. One manufacturer expressed concern that although the total number of test vehicles per manufacturer is expected to be minimal, all of these vehicles arriving at the EPA laboratory for testing at the same time could overload the EPA test facility in Ann Arbor. The Agency does not believe that this will be a problem.

BASIC SAMPLING SCHEME

In addition to the comments discussed previously, the Agency received comments on the basic sampling scheme. Two manufacturers supported the scheme as reasonable and sufficient.

The Agency specifically solicited the assistance of the American Society for Testing and Materials (ASTM) in evaluating the sampling scheme. Although time did not permit any official ASTM response, several members of the ASTM statistical committee commented at length on the issue and offered several suggestions.

The committee members strongly opposed the proposed "representativeness" sampling scheme for the purpose of determining a manufacturer's average fuel economy. They suggested that the sampling scheme should be based upon a statistical sampling plan, with both the number of vehicles and the identification of test vehicles determined by statistical methods. Their criticism of the proposal centered upon the facts that the proposal was completely non-statistical in nature and that many statistically insignificant vehicles would be tested.

The Agency is in agreement with the ASTM committee members' comments. As the preamble to the IFRM pointed out, the Agency made a serious and protracted effort to devise a statistically-based sampling scheme for fuel economy compliance. However, the reasons for dropping the original statistical proposals also apply to the ASTM commentors' suggestions, at least for the near term. The requirements of the Act, as well as economic considerations, dictate that the fuel economy testing program and the emission certification program share the same data base to the maximum extent possible. Since leadtime did not permit the redesign and amendment of the regulations for the certification program vehicle selection procedure, EPA had to use data from the certification test vehicles (approximately 600) as the basis of the fuel economy data base and supplement these data with data from additional vehicles as necessary.

A second constraint not mentioned by the commentors from ASTM is that fuel economy data are generated not only for the calculation of a manufacturer's average but also for use in the fuel economy labeling program. The labeling program requires that data generated from only a few test vehicles be representative of the fuel economy of an entire model type. One of the ASTM commentors stated that when sample sizes less than 10 are necessary, purposive sampling rather than random sampling may yield better results. The requirements of the labeling program dictate that some degree of purposive sampling is appropriate unless a considerably larger test fleet with much higher testing costs is to be required. In EPA's judgment, requiring a significantly larger test fleet is not cost effective.

For the longer term, adoption of some of the ASTM committee members' suggestions may be feasible. EPA will give further consideration to the ASTM committee members' proposals and attempt to improve current vehicle selection procedures.

INDEPENDENT AUDIT

One manufacturer commented that it is not possible to provide a meaningful audit of production data, and other commentors challenged EPA's authority to require an independent audit. The Agency believes that an independent audit may be a somewhat burdensome method to verify the accuracy of the final production data that will be used to calculate a manufacturer's final fuel economy average and is therefore substituting the requirement that the chief executive officer of the corporation attest to the accuracy of the production data in lieu

of the independent audit requirement that was contained in the proposal. This approach properly places the responsibility for accurate production data solely on the manufacturer, but it does not specify how the verification of the data should be made.

Other Minor Changes

A number of minor changes are being made to the regulations based on EPA's experience with the mandatory fuel economy labeling program in the 1977 model year and on the pilot fuel economy calculation program. These changes are more significant than technical amendments but do not impose any significant burden on the regulated industry. These changes, listed below are therefore being promulgated as interim regulations, applicable as published to the 1978 model year and proposed for later model years.

The Agency finds that notice and public participation is contrary to the public interest in order to make these rules effective for the beginning of the 1978 model year. Comment is invited on the application of these provisions to later model years.

1. In the certification vehicle definition, the section reference was changed to reflect applicability to light-duty vehicles and light-duty trucks only. (§ 600.002)

2. The requirement was added that all vehicles used to generate fuel economy data must be certified before the data is used in any calculations. (§ 600.007)

3. The round off procedures for calculating fuel economy values for a vehicle configuration and for a model type are clarified. (§ 600.206 and § 600.207).

4. The requirements concerning a manufacturer's request for a general label have been clarified. (§ 600.313–78)

5. The requirements concerning submittal of the manufacturer's average fuel economy value are clarified. The term "public introduction date" has been changed to "date of the preliminary calculation submission." The data to be included in the preliminary calculations are clarified. The precision of the sales fraction to be used in the calculation has been defined. (§ 600.506)

6. The fuel economy data from vehicles tested for determining Part 86 compliance of running changes are included in the determination of average fuel economy. The word "annual" is used in place of "model year" for passenger automobile production data. The conversion factor for converting gallons of diesel fuel to equivalent gallons of gasoline is revised to 1.0 from 0.96. The precision in the manufacturer's average calculation has been clarified and revised. (§ 600.510)

Technical Amendments

As discussed in the IFRM, the Agency must promulgate fuel economy testing and calculation procedures applicable to a model year not less than 12 months before the model year. However, the Act does allow that amendments of a technical or clerical nature may by made subsequent to this time (15 U.S.C. 2003 (d)(3)). The preamble of the IFRM noted that we would evaluate the comments received and make any appropriate technical or clerical amendments, and that these amendments would be effective for the 1978 model year. Accordingly, several amendments have been made to the regulations, most of which are discussed earlier in this preamble, and are outlined below:

1. Measurement of actual driven distance—alternate procedures now allowed if approved in advance by the Administrator.

2. Vehicle acceptability—correct the regulations to reflect current practice.

3. Quarterly production reports—allow the Administrator to waive the timing constraint upon petition of the manufacturer.

4. Preliminary average—allow the Administrator to waive the timing constraint upon petition of the manufacturer.

5. Credits—remove the requirement that a manufacturer must conduct running change testing in order to receive a credit.

In addition, it was determined that the procedures, as described in the IFRM, for the calculation of manufacturers' average fuel economy (§ 600.510) were in need of clarification. In response to this need and in view of the non-passenger fuel economy regulations which will soon be promulgated as amendments to these regulations, it was decided to revise and reorganize the section pertaining to the determination of average fuel economy. The calculation procedures will remain in section 600.510 but the model year report requirements have been placed in a new section 600.512. (The old section 600.512, Independent audit of production data, has been deleted.) The reformulation of the calculation procedures does not represent a substantive change.

Effective Date

The Agency finds that notice and public procedure before promulgating these interim regulations would be contrary to the public interest, because it is in the public interest to make these changes effective at the beginning of the 1978 model year, and notice and public procedure would prevent that. Comment is invited on the application of these provisions to later model years.

Economic Impact

The Environmental Protection Agency has determined that this document does not contain a major action requiring preparation of an Economic Impact Analysis under Executive Orders 11821 and 11949 and OMB Circular A–107.

Availability of Documents

Copies of EPA's summary and analysis of comments to the NPRM and supporting documentation are available for inspection and copying at the U.S. Environmental Protection Agency, Public Information Reference Unit, Room 2922 (EPA Library), 401 M Street SW., Washington, D.C. 20460. As provided in 40 CFR Part 2, a reasonable fee may be charged for copying services.

Date: August 31, 1977.

Douglas M. Costle,
Administrator.

Part 86 of Chapter I, Title 40 of the Code of Federal Regulations is hereby amended in Subparts A and B as follows:

1. § 86.078–37 is amended by revising paragraph (b)(1) to read as follows:

§ 86.078–37 Production vehicles and engines.

* * * * *

(b)(1) Any manufacturer of light-duty vehicles or light-duty trucks, obtaining certification under this part shall notify the Administrator, on a quarterly basis, of the number of vehicles domestically produced for sale in the United States and the number of vehicles produced and imported for sale in the United States during the preceding quarter. A manufacturer may elect to provide this information every 60 days instead of quarterly, to combine it with the notification required under § 86.078–36. The notification must be submitted 30 days after the close of the reporting period unless, upon petition by the manufacturer, the Administrator finds good cause to waive this requirement and set an alternative reporting date for this report. The vehicle production information required shall be submitted as follows:

(i) Total production volume expressed in terms of units produced.

(ii) Model type production volume, expressed for each model type in terms of units produced and as a percentage of total production.

(iii) Base level production volume, expressed for each base level in terms of units produced and as a percentage of (A) the total production of its respective model type(s) and, (B) total production.

(iv) Vehicle configuration production volume, expressed for each vehicle configuration in terms of units produced, and as a percentage of the total production of its respective base level. In addition, each vehicle configuration shall be identified by its appropriate engine-system combination.

2. A new § 86.080–2 is added as follows:

§ 86.080–2 Definitions.

The following definitions apply beginning with the 1980 model years. Section 86.079–2 remains in effect, except for the definition of vehicle configuration which is hereby superseded.

"Body style" means a level of commonality in vehicle configuration as defined by number of doors and roof treatment (e.g., Sedan, Convertible, Fastback, Hatchback).

"Drivetrain configuration" means a unique combination of engine code, transmission configuration and axle ratio.

"Inertia weight class" means the class, which is a group of test weights, into which a vehicle is grouped based on its loaded vehicle weight in accordance with the provisions of Part 86.

"Model" means a specific combination of carline, body style, and drivetrain configuration.

"Option" means any available equipment or feature not standard equipment on a model.

"Standard equipment" means those features or equipment which are marketed on a vehicle over which the purchaser can exercise no choice.

"Test weight" means the weight, within an inertia weight class, which is used in the dynamometer testing of a vehicle, and which is based on its loaded vehicle weight in accordance with the provisions of Part 86.

"Vehicle configuration" means a unique combination of basic engine, engine code, inertia weight class, transmission configuration and axle ratio.

3. A new § 86.080–24 is added as follows:

§ 86.080–24 Test vehicles and engines.

(a) (1) The vehicles or engines covered by an application for certification will be divided into groupings of engines which are expected to have similar emission characteristics throughout their useful life. Each group of engines with similar emission characteristics shall be defined as a separate engine family.

(2) To be classed in the same engine family, engines must be identical in all the following respects:

(i) The cylinder bore center-to-center dimensions.

(ii) The dimension from the centerline of the crankshaft to the centerline of the camshaft.

(iii) The dimension from the centerline of the crankshaft to the top of the cylinder block head face.

(iv) The cylinder block configuration (air cooled or water cooled; L–6, 90° V–8, etc.).

(v) The location of intake and exhaust valves and the valve sizes (within a ⅛-inch range on the valve head diameter).

(vi) The method of air aspiration.

(vii) The combustion cycle.

(viii) Catalytic converter characteristics; gasoline-fueled vehicles and engines only.

(ix) Thermal reactor characteristics; gasoline-fueled vehicles and engines only.

(3) Engines identical in all the respects listed in paragraph (a) (2) of this section may be further divided into different engine families if the Administrator determines that they may be expected to have different emission characteristics. This determination will be based upon a consideration of the following features of each engine:

(i) The bore and stroke.

(ii) The surface-to-volume ratio of the nominally dimensioned cylinder at the top dead center position.

(iii) The intake manifold induction port size and configuration.

(iv) The exhaust manifold port size and configuration.

(v) The intake and exhaust valve sizes.

(vi) The fuel system.

(vii) The camshaft timing and ignition or injection timing characteristics.

(4) Where engines are of a type which cannot be divided into engine families based upon the criteria listed in paragraphs (a) (2) and (3) of this section, the Administrator will establish families for those engines based upon the features most related to their emission characteristics.

(5) The gasoline-fueled vehicles covered by an application for certification will be divided into groupings which are expected to have similar evaporative emission characteristics throughout their useful life. Each group of vehicles with similar evaporative emission characteristics shall be defined as a separate evaporative emission family.

(6) To be classed in the same evaporative emission family, vehicles must be similar with respect to:

(i) Type of vapor storage device (e.g., canister, air cleaner, crankcase).

(ii) Canister design characteristics.

(iii) Fuel system characteristics.

(7) Where vehicles are of a type which cannot be divided into evaporative emission families based on the criteria listed above, the Administrator will establish families for those vehicles based upon the features most related to their evaporative emission characteristics.

(b) Emission data. (1) *Emission-data vehicles.* Paragraph (b) (1) of this section applies to light-duty vehicle and light-duty truck emission-data vehicles.

(i) Vehicles will be chosen to be operated and tested for emission data based upon the engine family groupings. Within each engine family, the requirements of this paragraph must be met.

(ii) Vehicles within an engine family will be divided into engine displacement-exhaust emission control system combinations as applicable. A projected sales volume will be established for each combination for the model year for which certification is sought. One vehicle of each combination will be selected in order of decreasing projected sales volume until 70 percent of the projected sales of a manufacturer's total production of vehicles of that engine family is represented, or until a maximum of four vehicles is selected. If any single combination represents over 70 percent, then two vehicles of that combination may be selected. The vehicle selected for each combination will be specified by the Administrator as to such features as engine code, transmission type, fuel system, inertia weight class, and test weight.

(iii) The Administrator may select a maximum of four additional vehicles within each engine family based upon features indicating that they may have the highest emission levels of the vehicles in that engine family. In selecting these vehicles, the Administrator will consider such features as the emission control system combination, induction system characteristics, ignition system characteristics, fuel system, rated horsepower, rated torque, compression ratio, inertia weight class, test weight, transmission options, and axle ratio.

(iv) If the vehicles selected in accordance with paragraphs (b) (1) (ii) and (iii) of this section do not represent each engine-system combination, then one vehicle of each engine-system combination not represented will be selected by the Administrator. The vehicle selected shall be of the engine displacement with the largest projected sales volume of vehicles with the control system combination in the engine family and will be designated by the Administrator as to such features as engine code, transmission type, fuel system, intertia weight class, and test weight.

(v) The Administrator will also select one vehicle for each engine-system combination within an engine family for which vehicles are to be sold to ultimate purchasers at high altitude.

(vi) The Administrator may combine testing requirements for any vehicle selected under paragraph (b) (1) (v) or (b) (1) (vii) (D) of this section with the testing requirements for any similar vehicle in the same engine-system combination selected under paragraph (b) (1) (ii), (iii), or (iv) of this section or any similar vehicle in the same engine-system, evaporative emission family evaporative emission control system combination selected under paragraph (b) (1) (vii) (A) or (B) of this section. The testing requirements may be combined by the Administrator by requiring a vehicle selected for testing under paragraphs (b) (1) (ii), (iii), (iv), (vii) (A), or (vii) (B) of this section to be modified (if necessary) after mileage accumulation and emission testing for the purpose of demonstrating compliance with § 86.078–23 (c) (1) (ii).

(vii) (A) Vehicles of each evaporative emission family will be divided into evaporative emission control systems. One vehicle of each evaporative emission control system within the evaporative emission family will be selected.

(B) The Administrator may select a maximum of four additional vehicles within each evaporative emission family based upon features indicating that they may have the highest evaporative emission levels of vehicles in that family.

(C) The Administrator may determine that the vehicles selected under paragraphs (b) (1) (ii) through (iv) of this section may be used to satisfy the requirements of paragraphs (b) (1) (vii) (A) and (B) of this section.

(D) The Administrator will also select one vehicle for each evaporative emission control system within each evaporative family for which vehicles are to be sold at high altitude.

(E) Vehicles selected under (b) (1) (v) may be used to satisfy the requirements of (b) (1) (vii) (D).

(2) *Gasoline-fueled heavy-duty emission-data engines.* Paragraph (b) (2) of this section applies to gasoline-fueled heavy-duty engines.

(i) Engines will be chosen to be run for emission data based upon engine family groupings. Within each engine family, the requirements of this paragraph must be met.

(ii) Engines of each engine family will be divided into engine displacement-exhaust emission control system combinations. A projected sales volume will be

established for each combination for the applicable model year. One engine of each combination will be selected in order of decreasing projected sales volume until 70 percent of the projected sales of a manufacturer's total production of engines of that family is represented, or until a maximum of four engines is selected. The engines selected for each combination will be specified by the Administrator as to fuel system.

(iii) The Administrator may select a maximum of two additional engines within each engine family based upon features indicating that they may have the highest emission levels of the engines in that engine family. In selecting these engines, the Administrator will consider such features as the exhaust emission control system, induction system characteristics, ignition system characteristics, fuel system, rated horsepower, rated torque, and compression ratio.

(iv) If the engines selected in accordance with paragraphs (b)(2) (ii) and (iii) of this section do not represent each engine displacement-exhaust emission control system combination, then one engine of each engine displacement-exhaust emission control system combination not represented shall be selected by the Administrator.

(3) *Diesel heavy-duty emission-data engines.* Paragraph (b)(3) of this section applies to Diesel heavy-duty emission-data engines.

(i) Engines will be chosen to be run for emission data based upon engine family groupings. Within each engine family, the requirements of this paragraph must be met.

(ii) Engines of each engine family will be divided into groups based upon exhaust emission control system. One engine of each engine-system combination shall be run for smoke emission data and gaseous emission data as prescribed in § 86.078–26(c)(3). Either the complete gaseous emission test or the complete smoke test may be conducted first. Within each combination, the engine that features the highest fuel feed per stroke, primarily at the speed of maximum rated torque and secondarily at rated speed, will usually be selected. If there are military engines with higher fuel rates than other engines in the same engine-system combinatoion, then one military engine shall also be selected. The engine with the highest fuel feed per stroke will usually be selected.

(iii) The Administrator may select a maximum of one additional engine within one engine-system combination based upon features indicating that it may have the highest emission levels of the engines of that combination. In selecting this engine, the Administrator will consider such features as the injection system, fuel system, compression ratio, rated speed, rated horsepower, peak torque speed, and peak torque.

(c) Durability data. (1) *Durability-data vehicles.* Paragraph (c)(1) of this section applies to light-duty vehicle and light-duty truck durability-data vehicles.

(i) A durability-data vehicle will be selected by the Administrator to represent each engine-system combination. The vehicle selected shall be of the engine displacement with the largest projected sales volume of vehicles with that control-system combination in that engine family and will be designated by the Administrator as to transmission type, fuel system, inertia weight class, and test weight.

(ii) A manufacturer may elect to operate and test additional vehicles to represent any engine-system combination. The additional vehicles must be of the same engine displacement, transmission type, fuel system, inertia weight class, and test weight as the vehicle selected for that engine-system combination in accordance with the provisions of paragraph (c)(1)(i) of this section. Notice of an intent to operate and test additional vehicles shall be given to the Administrator no later than 30 days following notification of the test fleet selection.

(2) *Gasoline-fueled heavy-duty durability-data engines.* Paragraph (c)(2) of this section applies to gasoline-fueled heavy-duty durability-data engines.

(i) A durability-data engine will be selected by the Administrator to represent each engine-system combination. The engine selected shall be of the displacement with the largest projected sales volume of engines with that exhaust emission control system in that engine family and will be designated by the Administrator as to fuel system.

(ii) [Reserved]

(iii) A manufacturer may elect to operate and test additional engines to represent any engine-system combination. The additional engines must be of the same engine displacement and fuel system as the engine selected for that combination in accordance with the provisions of paragraph (c)(2)(i) of this section. Notice of an intent to run additional engines shall be given to the Administrator not later than 30 days following notification of the test fleet selection. Deterioration factors calculated for each engine-system combination shall be applied separately to military and nonmilitary engines within the same engine-system combination.

(3) *Diesel heavy-duty durability-data engines.* Paragraph (c)(3) of this section applies to Diesel heavy-duty durability-data engines.

(i) One engine from each engine-system combination shall be tested as prescribed in § 86.078–26(c)(3)(ii). At each test point, either the complete gaseous emission test or the complete smoke test may be conducted first. Within each combination, the engine which features the highest fuel feed per stroke, primarily at rated speed and secondarily at the speed of maximum rated torque, will usually be selected for durability testing. In the case where more than one engine in an engine-system combination has the highest fuel feed per stroke, the engine with the highest maximum rated horsepower will usually be selected for durability testing. If an engine-system combination includes both military and nonmilitary engines, then the nonmilitary engine with the highest maximum rated horsepower will usually be selected for durability testing.

(ii) A manufacturer may elect to operate and test additional engines to represent any engine-system combination. The additional engines must be of the same model and fuel system as the engine selected in accordance with the provisions of paragraph (c)(3)(i) of this section. Notice of an intent to test additional engines shall be given to the Administrator not later than 30 days following notification of the test fleet selection. Deterioration factors calculated for each engine-system combination shall be applied separately to military and nonmilitary engines within the same engine-system combination.

(d) For purposes of testing under § 86.078–26 (a)(9), (b)(9) or (c)(11), the Administrator may require additional emission-data vehicles (or emission-data engines) and durability-data vehicles (or durability-data engines) identical in all material respects to vehicles (or engines) selected in accordance with paragraphs (b) and (c) of this section: *Provided*, That the number of vehicles selected shall not increase the size of either the emission-data fleet or the durability-data fleet by more than 20 percent or one vehicle, whichever is greater.

(e) Any manufacturer whose projected sales for the model year in which certification is sought is less than

(1) 2000 gasoline-fueled light-duty vehicles, or

(2) 2000 Diesel light-duty vehicles, or

(3) 2000 gasoline-fueled light-duty trucks, or

(4) 2000 Diesel light-duty trucks, or

(5) 700 gasoline-fueled heavy-duty engines, or

(6) 200 Diesel heavy-duty engines,

may request a reduction in the number of test vehicles (or engines) determined in accordance with the foregoing provisions of this section. The Administrator may agree to such lesser number as he determines would meet the objectives of this procedure.

(f) In lieu of testing an emission-data or durability-data vehicle (or engine) selected under paragraph (b) or (c) of this section, and submitting data therefor, a manufacturer may, with the prior written approval of the Administrator, submit exhaust emission data and/or fuel evaporative emission data, as applicable on a similar vehicle (or engine) for which certification has previously been obtained or for which all applicable data required under § 86.078–23 has previously been submitted.

(g) (1) This paragraph applies to light duty vehicles and light duty trucks.

(2) Where it is expected that more than 33 percent of a car line, within an engine-system combination, may be equipped with an item (whether that item is standard equipment or an option), the full estimated weight of that item shall be included in the curb weight computation of each vehicle available with that item in that carline, within that engine-system combination. Where it is expected that 33 percent or less of

the carline, within an engine-system combination, will be equipped with an item (whether that item is standard equipment or an option) no weight for that item will be added in computing the curb weight for any vehicle in that carline, within that engine-system combination, unless that item is standard equipment on the vehicle. In the case of mutually exclusive options, only the weight of the heavier option will be added in computing the curb weight. Optional items weighing less than three pounds per item need not be considered.

(3) Where it is expected that more than 33 percent of a car line, within an engine-system combination, will be equipped with an item (whether that item is standard equipment or an option) that can reasonably be expected to influence emissions, then such items shall actually be installed, unless specifically excluded by the Administrator, on all emission data and durability data vehicles of that car line, within that engine-system combination, on which the items are intended to be offered in production. Items that can reasonably be expected to influence emissions are: air conditioning, power steering, power brakes, and other items determined by the Administrator.

(4) Where it is expected that 33 percent or less of a car line within an engine-system combination, will be equipped with an item (whether that item is standard equipment or an option) that can reasonably be expected to influence emissions, that item shall not be installed on any emission data vehicle or durability data vehicle of that car line, within that engine-system combination, unless that item is standard equipment on that vehicle or specifically required by the Administrator.

4. A new § 86.080–26 is added as follows:

§ 86.080–26 Mileage and service accumulation; emission measurements.

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

(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 the test weight corresponding to the higher loaded vehicle weight.

(3) *Emission-data vehicles.* Unless as otherwise provided for in § 86.078–23(a), emission-data vehicles shall be operated and tested as follows:

(i) *Gasoline-fueled.* (A) Each gasoline-fueled emission-data vehicle shall be driven 4000 miles with all emission control systems installed and operating. Complete exhaust emission tests shall be conducted at zero and 4000 miles on those vehicles selected under § 86.078–24 (b) (1) (ii) through (b) (1) (v). Complete exhaust and evaporative emission tests shall be conducted at zero miles and 4000 miles on those vehicles selected under § 86.078–24(b) (1) (vii). The manufacturer may at his option test the vehicles selected under § 86.078–24(b) (1) (vii) up to three times at the 4000-mile test point as long as the ±250-mile test tolerance is adhered to. The Administrator may determine under § 86.078–24(f) that no testing is required.

(B) The emission-data vehicle(s) selected for testing under § 86.078–24 (b) (1) (v) or (b) (1) (vii) (D) shall be driven 6436 kilometers (4000 miles) at any altitude. Emission tests shall be conducted at zero kilometers (zero miles) at any altitude and 6436 kilometers (4000 miles) under high-altitude conditions.

(C) The emission-data vehicle(s) selected for testing under § 86.078–24 (b) (1) (v) or (b) (1) (vii) (D) and permitted to be tested for purposes of § 86.078–23 (c) (1) (ii) under the provisions of § 86.078–24(b) (1) (vi) shall be driven 6,436 kilometers (4,000 miles) at low altitude. Emission tests shall be conducted at zero kilometers (zero miles) at low altitude and 6,436 kilometers (4,000 miles) under both low- and high-altitude conditions. For the purposes of this subparagraph, "low altitude" means any elevation less than 549 meters (1,800 feet).

(ii) *Diesel.* (A) Each Diesel emission-data vehicle shall be driven 6,436 kilometers (4,000 miles) with all emission control systems installed and operating. Emission tests shall be conducted at zero kilometers (zero miles) and 6,436 kilometers (4,000 miles).

(B) The emission-data vehicle(s) selected for testing under § 86.078–24(b) (1) (v) shall be driven 6,436 kilometers (4,000 miles) at any altitude. Emission tests shall be conducted at zero kilometers (zero miles) at any altitude and 6,436 kilometers (4,000) miles under high-altitude conditions.

(C) The emission-data vehicle(s) selected for testing under § 86.078–24(b) (1) (v) and permitted to be tested for purposes of § 86.078–23(c) (1) (ii) under the provisions of § 86.078–24(b) (1) (vi) shall be driven 6,436 kilometers (4,000 miles) at low altitude. Emission tests shall be conducted at zero kilometers (zero miles) at low altitude and 6,436 kilometers (4,000 miles) under both low- and high-altitude conditions. For the purpose of this subparagraph "low altitude" means any elevation less than 549 meters (1,800 feet).

(4) *Durability-data vehicles.* Unless as otherwise provided for in § 86.078–23(a), durability-data vehicles shall be operated and tested as follows:

(i) *Gasoline-fueled.* Each gasoline-fueled durability-data vehicle selected by the Administrator or elected by the manufacturer under § 86.078–24(c) (1) 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. Complete exhaust emission tests shall be made on all durability-data vehicles selected by the Administrator or elected by the manufacturer under § 86.078–24(c) at the following mileage points: 0; 5,000; 10,000; 15,000; 20,000; 25,000; 30,000; 35,000; 40,000; 45,000; 50,000. The Administrator may determine under § 86.078–24(f) that no testing is required.

(ii) *Diesel.* Each Diesel 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 objectives of the procedure. Complete emission tests (see §§ 86.106 through 86.145) shall be made at the following mileage points: 0; 5,000; 10,000; 15,000; 20,000; 25,000; 30,000; 35,000; 40,000; 45,000; 50,000.

(5) All tests required by this subpart to be conducted after every 5,000 miles of driving for durability-data vehicles and 4,000 miles for emission-data vehicles must be conducted at any accumulated mileage within 250 miles of each of those test points.

(6) (i) The results of each emission test shall be supplied to the Administrator immediately after the test. 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. If a manufacturer conducts multiple tests at any test point at which the data are intended to be used in the calculation of the deterioration factor, the number of tests must be the same at each point and may not exceed three valid tests. Tests between test points may be conducted as required by the Administrator. Data from all tests (including voided tests) shall be air posted to the Administrator within 24 hours (or delivered within 3 working days). In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.078–23. 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 rounded, using the "Rounding Off Method" specified in ASTM E29–67, to the number of places to the right of the decimal point indicated by expressing the applicable emission standards of this subpart to three significant figures.

(7) Whenever the manufacturer proposes to operate and test a vehicle which may be used for emission or durability data, he shall provide the zero-mile test data to the Administrator (except for those vehicles for which the zero-mile test requirement has been waived under § 86.078–23(a) (2)) and make the vehicle available for such testing under § 86.078–29 as the Administrator may require before beginning to accumulate mileage on the vehicle. Failure to comply with this requirement will invalidate all test data submitted for this vehicle.

(8) Once a manufacturer begins to operate an emission-data or durability-data vehicle, as indicated by compliance

with paragraph (a)(7) of this section, he shall continue to run the vehicle to 4,000 miles or 50,000 miles, respectively, and the data from the vehicle will be used in the calculations under § 86.078–28. Discontinuation of a vehicle shall be allowed only with the written 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 Administrator 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 § 86.078–23(b)(2).

(b) (1) Paragraph (b) of this section applies to gasoline-fueled heavy-duty engines.

(2) The engine dynamometer service accumulation schedule will consist of several operating conditions which give the same percentage of time at various manifold vacuums and modes as specified in the emission test cycle. The average speed shall be between 1,650 and 1,700 r.p.m. Subject to the requirements as to average speed, there must be operation at speeds in excess of 3,200 r.p.m. (but not in excess of governed speed for governed engines or rated speed for nongoverned engines) for a cumulative maximum of 0.5 percent of the actual cycle time, excluding time in transient conditions. Maximum cycle time shall be 15 minutes. A cycle approved in advance by the Administrator shall be used.

(3) *Emission-data engines.* Unless as otherwise provided for in § 86.078–23(a), emission-data engines shall be operated and tested as follows: Each emission-data engine shall be operated for 125 hours with all emission control systems installed and operating. Emission tests shall be conducted at zero and 125 hours. Evaporative emission controls need not be connected provided normal operating conditions are maintained in the engine induction system.

(4) *Durability-data engines.* Unless as otherwise provided for in § 86.078–23(a), durability-data engines shall be operated and tested as follows: Each durability-data engine shall be operated with all emission control systems installed and operating, for 1,500 hours. Emission tests shall be conducted at zero hours and at each 125-hour interval. Evaporative emission controls need not be connected provided normal operating conditions are maintained in the engine induction system.

(5) All tests required by this subpart to be conducted after 125 hours of operation or at any multiple of 125 hours may be conducted at any accumulated number of hours within 8 hours of 125 hours or the appropriate multiple of 125 hours, respectively.

(6) (i) The results of each emission test shall be supplied to the Administrator within 72 hours (or delivered within 5 working days). The manufacturer shall furnish to the Administrator an 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. If a manufacturer conducts multiple tests at any test point at which the data are intended to be used in the calculation of the deterioration factor, the number of tests must be the same at each point and may not exceed three valid tests. Tests between test points may be conducted as required by the Administrator. Data from all tests (including voided tests) shall be air posted to the Administrator within 72 hours (or delivered within 5 working days). In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.078–23. Where the Administrator conducts a test on a durability-data engine 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 using two places to the right of the decimal point. These numbers shall be rounded in accordance with the "Rounding Off Method" specified in ASTM E29–67.

(7) Whenever the manufacturer proposes to operate and test an engine which may be used for emission or durability data, he shall provide the zero-hour test data to the Administrator (except for those engines for which the zero-hour test requirement has been waived under § 86.078–23(a)(2)) and make the engine available for such testing under § 86.078–29 as the Administrator may require, before beginning to accumulate hours on the engine. Failure to comply with this requirement will invalidate all test data later submitted for this engine.

(8) Once a manufacturer begins to operate an emission-data or durability-data engine, as indicated by compliance with paragraph (b)(7) of this section, he shall continue to run the engine to 125 hours or 1,500 hours, respectively, and the data from the engine will be used in the calculations under § 86.078–28. Discontinuation of an engine shall be allowed only with the prior written consent of the Administrator.

(9) (i) The Administrator may elect to operate and test any test engine during all or any part of the service accumulation and testing procedure. In such cases the manufacturer shall provide the engine(s) to the Administrator with all information necessary to conduct the testing.

(ii) The test procedures (§§ 86.777–5 through 86.777–15) will be followed by the Administrator. The Administrator will test the engines 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 engines 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 engine other than that specified in this subpart is not allowed except as such testing may be specifically authorized by the Administrator.

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

(2) The procedures set forth in this section describe the service accumulation that shall be accomplished on each test engine and when tests are to be conducted.

(3) (i) *Emission-data engines.* Unless as otherwise provided for in § 86.078–23(a), emission-data engines shall be operated and tested as follows: Each emission-data engine shall be operated for 125 hours with all emission control systems installed and operating. Emission tests shall be conducted at zero and 125 hours.

(ii) *Durability-data engines.* Unless as otherwise provided for in § 86.078–23(a), durability-data engines shall be operated and tested as follows: Each durability-data engine shall be operated, with all emission control systems installed and operating, for 1,000 hours. Emission tests shall be conducted at zero hours and at each 125-hour interval.

(4) A break-in procedure, not to exceed 20 hours, may be run if approved in writing in advance by the Administrator. This procedure would be run after the zero-hour test, and the hours accumulated would not be counted as part of the service accumulation.

(5) Before service accumulation can begin, the following criteria must be met. Failure to comply with these requirements shall invalidate all test data submitted for an engine.

(i) Each engine shall produce at least 95 percent of the maximum horsepower, corrected to rating conditions, at 95 to 100 percent of the rated speed.

(ii) The fuel rate at maximum horsepower shall be within manufacturer's specifications.

(iii) The zero-hour test data shall be provided to the Administrator (except for those engines for which the zero-hour test requirement has been waived under § 86.078–23(a)(2)) and the engine shall be made available for such testing under § 86.078–29 as the Administrator may require.

(6) During service accumulation, hours can be credited toward the required service accumulation hours when the following criteria are met. If these criteria cannot be met, engine operation shall be discontinued and the Administrator shall be notified immediately. (Adjustments to the fuel rate can be approved under the provisions of § 86.078–25.)

(i) Each engine shall produce at least 95 percent of the maximum horsepower, at 95 to 100 percent of the rated speed, observed during zero-hour testing. Horsepower values shall be corrected to the rating conditions.

(ii) The engine shall be operated at 75 percent of the inlet and exhaust restrictions specified in § 86.877–8 except that the tolerance will be ±3 inches of water and ±0.5 inches of Hg, respectively.

(7) During each emission test the inlet and exhaust restrictions shall be as specified in § 86.877–8.

(8) Tests, other than zero-hour tests, may be conducted within 8 hours of the nominal test point.

(9)(i) The results of each emission test shall be air posted to the Administrator within 72 hours of test completion (or delivered within 5 working days). The manufacturer shall furnish to the Administrator an 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 tests. If a manufacturer conducts multiple tests (not to exceed three valid tests) at any test point, the number of tests must be the same at each point. The data obtained from all valid tests shall be used in the calculation of the deterioration factor. Tests between test points may be conducted as required by the Administrator. Data from all tests (including voided tests) shall be air posted to the Administrator within 72 hours or delivered within 5 working days). In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.078–23. Where the Administrator conducts a test on a durability-data engine 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 using two places to the right of the decimal point. These numbers shall be rounded in accordance with the "Rounding Off Method" specified in ASTM E29–67.

(10) Once a manufacturer begins to operate an emission-data or durability-data engine, as indicated by compliance with paragraph (c) of this section, he hours or 1,000 hours respectively, and shall continue to run the engine to 125 the data from the engine shall be used in the calculations under § 86.078–28. Discontinuation of an engine shall be allowed only with the prior written consent of the Administrator.

(11) (i) The Administrator may elect to operate and test any test engine during all or any part of the service accumulation and testing procedure. In such cases, the manufacturer shall provide the engine(s) to the Administrator with all information necessary to conduct the testing.

(ii) The test procedures (§§ 86.877–5 through 86.877–14 and §§ 86.977–5 through 86.977–15) will be followed by the Administrator. The Administrator will test the engines 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 engines 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.

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

5. § 86.108–78 is amended to read as follows:

§ 86.108–78 Dynamometer.

(a) The dynamometer shall have a power absorption unit for simulation of road load power and fly wheels or other means of simulating the inertia weight as specified in § 86.129.

(b) (1) The dynamometer shall have a roll or shaft revolution counter for determination of distance driven.

(2) In lieu of the requirement in (b)(1) of this paragraph the manufacturer shall provide some means, approved in advance by the Administrator, for the determination of distance driven.

6. A new § 86.108–79 is added and reads as follows:

§ 86.108–79 Dynamometer.

(a) The dynamometer shall have a power absorption unit for simulation of road load power and flywheels or other means of simulating the inertia weight as specified in § 86.129.

(b) (1) The dynamometer shall have a roll or shaft revolution counter for determination of distance driven.

(2) In lieu of the requirement in (b)(1) of this paragraph the manufacturer shall provide some means, approved in advance by the Administrator, for the determination of distance driven.

(c) Small twin-roll dynamometers shall have a nominal roll diameter of 8.65 inches and a nominal roll spacing of 17 inches. Large single-roll dynamometers shall have a nominal roll diameter of 48 inches. Dynamometers with other roll specifications may be used if the total simulated road load power can be shown to be equivalent, and if approved in advance by the Administrator.

7. § 86.113–78 is amended by revising the last sentence of the text and the table in paragraph (b)(2), and revising the last sentence of the text and the table in paragraph (b)(3) to read as follows:

§ 86.113–78 Fuel specifications.

* * * * *

(b) * * *

(2) * * * "Type 2D" grade diesel fuel shall be used.

Item	ASTM test method No.	Type 2-D
Cetane	D613	42–50
Distillation range	D86	
IBP, °F		340–400
10 pct point, °F		400–460
50 pct point, °F		470–540
90 pct point, °F		550–610
EP, °F		580–690
Gravity, °API	D287	33–37
Total sulfur, percent	D129 or D2622	0.2–0.5
Hydrocarbon composition	D1319	
Aromatics, percent (minimum)		27
Paraffins, naphthenes, olefins		Remainder
Flashpoint °F (minimum)	D93	130
Viscosity, centistokes	D445	2.0–3.2

(3) * * * "Type 2-D" grade diesel fuel shall be used.

Item	ASTM test method No.	Type 2-D
Cetane (minimum)	D613	38–58
Distillation range: 90 pct point, °F	D86	430–630
Gravity °API	D287	30–42
Total sulfur, percent (minimum)	D129 or D2622	0.2
Flashpoint, °F (minimum)	D93	130
Viscosity, centistokes	D445	1.5–4.5

* * * * *

8. A new § 86.113–79 is added, identical to § 86.113–78, except for paragraph (a) which reads as follows:

§ 86.113–79 Fuel specifications.

(a) *Gasoline.* (1) Gasoline having the following specifications will be used by the Administrator in exhaust and evaporative emission testing. Gasoline having the following specifications or substantially equivalent specifications approved by the Administrator, shall be used by the manufacturer in exhaust and evaporative testing, except that the lead and octane specifications do not apply.

Item	ASTM	Leaded	Unleaded
Octane, research, minimum.	D2699	98	98
Sensitivity, minimum		7.5	7.5
Lead (organic), grams/U.S. gallon.		[4] 1.4	0.00–0.05
Distillation range:			
IBP,[2] °F	D86	75–95	75–95
10 pct point, °F	D86	120–135	120–135
50 pct point, °F	D86	200–230	200–230
90 pct point, °F	D86	300–325	300–325
EP,[2] °F (maximum)	D86	415	415
Sulphur, weight percent, maximum.	D1266	0.10	0.10
Phosphorus, grams/U.S. gallon, maximum.		0.01	0.005
RVP,[3] [4] pounds per square inch.	D323	8.7–9.2	8.7–9.2
Hydrocarbon composition:			
Olefins, percent, maximum.	D1319	10	10
Aromatics, percent, maximum.	D1319	35	35
Saturates	D1319	[5]	[5]

[1] Minimum.
[2] For testing at altitudes above 1,219 m (4,000 ft) the specified range is 75–105.
[3] For testing which is unrelated to evaporative emission control, the specified range is 8.0–9.2.
[4] For testing at altitudes above 1,219 m (4,000 ft) the specified range is 7.9–9.2.
[5] Remainder.

(2) Gasoline representative of commercial gasoline which will be generally available through retail outlets shall be used in service accumulation. For leaded gasoline the minimum lead content shall be 1.4 grams per U.S. gallon, except that where the Administrator determines that vehicles represented by a test vehicle will be operated using gasoline of different lead content than that prescribed in this paragraph, he may consent in writing to use a gasoline with a different lead content. The octane rating of the gasoline used shall be no higher than 1.0 research octane number above the minimum recommended by the manufacturer and have a minimum sensitivity of 7.5 octane numbers, where sensitivity is defined as the Research octane number minus the Motor octane number. The Reid Vapor Pressure of the gasoline used shall be characteristic of the motor fuel used during the season in which the service accumulation takes place.

(3) The specification range of the gasoline to be used under paragraph (a) (2) of this section shall be reported in accordance with § 86.077–21(b)(3).

* * * * *

9. § 86.114–78 is amended by adding paragraph (a)(7) to read as follows:

§ 86.114–78 Analytical gases.

(a) * * *

(7) The use of proportioning and precision blending devices to obtain the required analyzer gas concentrations is allowable provided their use has been approved in advance by the Administrator.

* * * * *

10. § 86.121–78 is amended by revising paragraph (b)(3) to read as follows:

§ 86.121–78 Hydrocarbon analyzer calibration.

* * * * *

(b) * * *

(3) Calibrate on each normally used operating range with propane in air calibration gases having nominal concentrations of 15, 30, 45, 60, 75, and 90 percent of that range. For each range calibrated, if the deviation from a least-squares best-fit straight line is 2 percent or less of the value at each data point, concentration values may be calculated by use of a single calibration factor for that range. If the deviation exceeds 2 percent at any point, the best-fit nonlinear equation which represents the data to within 2 percent of each test point shall be used to determine concentration.

11. § 86.123–78 is amended by revising paragraph (b)(3) to read as follows:

§ 86.123–78 Oxides of nitrogen analyzer calibration.

* * * * *

(b) * * *

(3) Calibrate on each normally used operating range with NO in N2 calibration gases having nominal concentrations of 15, 30, 45, 60, 75, and 90 percent of that range. For each range calibrated, if the deviation from a least-squares best-fit straight line is 2 percent or less of the value at each data point, concentration values may be calculated by use of a single calibration factor for that range. If the deviation exceeds 2 percent at any point, the best-fit nonlinear equation which represents the data to within 2 percent of each test point shall be used to determine concentration.

12. § 86.129–79 is amended by revising the table in paragraph (a) and by revising paragraphs (b) and (c) to read as follows:

§ 86.129–79 Road load power and inertia weight determination.

(a) * * *

Loaded vehicle weight (pounds)	Equivalent inertia weight (pounds)	Road load power at 50 mi/h (horsepower)—light duty trucks [1] [2]
Up to 1,125	1,000	
1,126 to 1,375	1,250	
1,376 to 1,625	1,500	
1,626 to 1,875	1,750	
1,876 to 2,125	2,000	
2,126 to 2,375	2,250	
2,376 to 2,625	2,500	
2,626 to 2,875	2,750	
2,876 to 3,250	3,000	
3,251 to 3,750	3,500	
3,751 to 4,250	4,000	
4,251 to 4,750	4,500	
4,751 to 5,250	5,000	
5,251 to 5,750	5,500	
5,751 to 6,250	[4] 6,000	
6,251 to 6,750	6,500	
6,751 to 7,250	7,000	
7,251 to 7,750	7,500	
7,751 to 8,250	8,000	
8,251 to 8,750	8,500	
8,751 to 9,250	9,000	
9,251 to 9,750	9,500	
9,751 to 10,000	10,000	

[1] For all light duty trucks except vans, and for heavy duty vehicles optionally certified as light duty trucks, the road load power (horsepower) at 50 mi/h shall be be 0.58 times B (defined below) rounded to the nearest ½ hp.
[2] For vans, the road load power at 50 mi/h (horsepower) shall be 0.50 times B (defined below) rounded to the nearest ½ hp.
[3] "B" is the basic vehicle frontal area (square foot) plus the additional frontal area (square foot) of mirrors and optional equipment exceeding 0.1 ft² which are anticipated to be sold on more than 33 pct of the car line. Frontal area measurements shall be computed to the nearest 10th of a square foot using a method approved in advance by the administrator.
[4] Light duty vehicles over 5,750 lb loaded vehicle weight shall be tested with a 5,500 lb equivalent inertia.

(b) *Power absorption unit adjustment—light duty trucks.* (1) The power absorption unit shall be adjusted to re-

produce road load power at 50 mph true speed. The indicated road load power setting shall take into account the dynamometer friction. The relationship between road load (absorbed) power and indicated road load power for a particular dynamometer shall be determined by the procedure outlined in § 86.118 or other suitable means.

(2) The road load power listed in the table above shall be used or the vehicle manufacturer may determine the road load power by an alternate procedure requested by the manufacturer and approved in advance by the Administrator.

(3) Where it is expected that more than 33 percent of an engine family will be equipped with air conditioning per § 86.078–24(g)(2), the road load power listed above or as determined in paragraph (b)(2) of this section shall be increased by 10 percent, up to a maximum increase of 1.4 horsepower, for testing all test vehicles representing that car line within that engine-system combination if those vehicles are intended to be offered with air conditioning in production. The above increase for air conditioning shall be added prior to rounding off as instructed by notes 2 and 3 of the table.

(c) *Power absorption unit adjustment—light-duty vehicles.* (1) The power absorption unit shall be adjusted to reproduce road load power at 50 mph true speed. The dynamometer power absorption shall take into account the dynamometer friction, as discussed in § 86.118.

(2) The dynamometer road load setting is determined from the equivalent inertia weight, the reference frontal area, the body shape, the vehicle protuberances and the tire type by the following equations.

(i) For light-duty vehicles to be tested on a twin-roll dynamometer.

$$Hp = aA + P + tW$$

Where:

Hp = the dynamometer power absorber setting at 50 mph (horsepower).

A = the vehicle reference frontal area (ft^2). The vehicle reference frontal area is defined as the area of the orthogonal projection of the vehicle, including tires and suspension components, but excluding vehicle protuberances, onto a plane perpendicular to both the longitudinal plane of the vehicle and the surface upon which the vehicle is positioned. Measurements of this area shall be computed to the nearest tenth of a square foot using a method approved in advance by the Administrator.

P = the protuberance power correction factor from table 1 of this paragraph (horsepower).

W = vehicle equivalent inertia weight (lbs) from the table in paragraph (a).

$a = 0.43$ for fastback shaped vehicles
$= 0.50$ for all other light-duty vehicles.

$t = 0.0$ for vehicles equipped with radial ply tires
$= 3 \times 10^{-4}$ for all other vehicles.

A vehicle is considered to have a fastback shape if the rearward projection of that portion of the rear surface (A_b) which slopes at an angle of less than 30 degrees from the horizontal is at least 25 percent as large as the vehicle reference frontal area. In addition, this surface must be smooth, continuous and free from any local transitions greater than four degrees. An example of a fastback shape is presented in Figure 1.

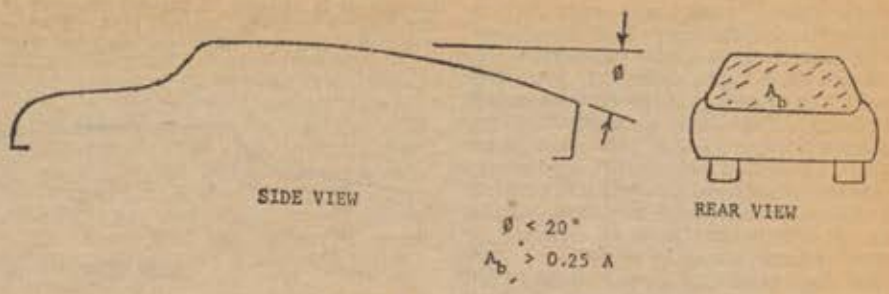

Figure 1

TABLE I.—*Protuberance power, P versus total protuberance frontal area, A_p*

A_p (square foot):	P (*horsepower*)
$A_p < 0.30$	0.0
$0.30 \leq A_p < 0.60$	.40
$0.60 \leq A_p < 0.90$	.70
$0.90 \leq A_p < 1.20$	1.00
$1.20 \leq A_p < 1.50$	1.30
$1.50 \leq A_p < 1.80$	1.60
$1.80 \leq A_p < 2.10$	1.90
$2.10 \leq A_p < 2.40$	2.20
$2.40 \leq A_p < 2.70$	2.50
$2.70 \leq A_p < 3.00$	2.80
$3.00 \leq A_p$	3.10

The protuberance frontal area A_p is defined in a manner analogous to the definition of the vehicle reference frontal area, i.e., the total area of the orthogonal projections of the vehicle mirrors, hood ornaments, roof rack, and other protuberance onto a plane(s) perpendicular to both the longitudinal plane of the vehicle and the surface upon which the vehicle is positioned. A protuberance is defined as any fixture attached to the vehicle protruding more than 1 inch from the vehicle surface and having a projected area greater than 0.01 ft^2 with the area calculated by a method approved in advance by the Administrator. Included in the total protuberance frontal area shall be all fixtures which occur as standard equipment. The area of any optional equipment shall also be included if it is expected that more than 33 percent of the car line sold will be equipped with this option.

(ii) The dynamometer power absorber setting for light-duty vehicles shall be rounded to the nearest 0.1 horsepower.

(iii) For light-duty vehicles to be tested on a single, large roll dynamometer.

$$HP = aA + P + (5.0 \times 10^{-4} + 0.33t)W$$

All symbols in the above equation are defined in paragraph (c)(2)(i) of this section. The rounding criteria of paragraph (c)(2)(i) also apply to this paragraph.

(3) The road load power calculated above shall be used or the vehicle manufacturer may determine the road load power by an alternate procedure requested by the manufacturer and approved in advance by the Administrator.

(4) Where it is expected that more than 33 percent of an engine family will be equipped with air conditioning, per § 86.078–24(g)(2), the road load power as determined in paragraph (c)(2) or (3) of this section shall be increased by 10 percent, up to a maximum increment of 1.4 horsepower, for testing all test vehicles of that engine family if those vehicles are intended to be offered with air conditioning in production. This power increment shall be added to the indicated dynamometer power absorption setting prior to rounding off of this value.

13. A new § 86.129–80 is added to read as follows:

§ 86.129–80 Road load power test weight and inertia weight class determination.

(a) Flywheels, electrical or other means of simulating test weight as shown in the following table shall be used. If the equivalent test weight specified is not available on the dynamometer being used, the next higher equivalent test weight (not to exceed 250 pounds) available shall be used.

Road load power at 50 mi/h—light duty trucks[1 2 3]	Loaded vehicle weight (pounds)	Equivalent test weight (pounds)	Inertia weight class (pounds)
.....	Up to 1,062	1,000	1,000
.....	1,063 to 1,187	1,125	1,000
.....	1,188 to 1,312	1,250	1,250
.....	1,313 to 1,437	1,375	1,250
.....	1,438 to 1,562	1,500	1,500
.....	1,563 to 1,687	1,625	1,500
.....	1,688 to 1,812	1,750	1,750
.....	1,813 to 1,937	1,875	1,750
.....	1,938 to 2,062	2,000	2,000
.....	2,063 to 2,187	2,125	2,000
.....	2,188 to 2,312	2,250	2,250
.....	2,313 to 2,437	2,375	2,250
.....	2,438 to 2,562	2,500	2,500
.....	2,563 to 2,687	2,625	2,500
.....	2,688 to 2,812	2,750	2,750
.....	2,813 to 2,937	2,875	2,750
.....	2,938 to 3,062	3,000	3,000
.....	3,063 to 3,187	3,125	3,000
.....	3,188 to 3,312	3,250	3,000
.....	3,313 to 3,437	3,375	3,500
.....	3,438 to 3,562	3,500	3,500
.....	3,563 to 3,687	3,625	3,500
.....	3,688 to 3,812	3,750	3,500
.....	3,813 to 3,937	3,875	4,000
.....	3,938 to 4,125	4,000	4,000
.....	4,126 to 4,375	4,250	4,000
.....	4,376 to 4,625	4,500	4,500
.....	4,626 to 4,875	4,750	4,500
.....	4,876 to 5,125	5,000	5,000
.....	5,126 to 5,375	5,250	5,000
.....	5,376 to 5,750	5,500	5,500
.....	5,751 to 6,250	[4] 6,000	6,000
.....	6,251 to 6,750	6,500	6,500
.....	6,751 to 7,250	7,000	7,000
.....	7,251 to 7,750	7,500	7,500
.....	7,751 to 8,250	8,000	8,000
.....	8,251 to 8,750	8,500	8,500
.....	8,751 to 9,250	9,000	9,000
.....	9,251 to 9,750	9,500	9,500
.....	9,751 to 10,000	10,000	10,000

[1] For all light duty trucks except vans, and for heavy duty vehicles optionally certified as light duty trucks, the road load power (horsepower) at 50 mi/h shall be 0.58 times B (defined below) rounded to the nearest ½ hp.

[2] For vans, the road load power at 50 mi/h (horsepower) shall be 0.50 times B (defined below) rounded to the nearest ½ hp.

[3] B is the basic vehicle frontal area (square foot) plus the additional frontal area (square foot) of mirrors and optional equipment exceeding 0.1 ft^2 which are anticipated to be sold on more than 33 pct of the car line. Frontal area measurements shall be computed to the nearest 10th of a square foot using a method approved in advance by the administrator.

[4] Light duty vehicles over 5,750 lb loaded vehicle weight shall be tested at a 5,500 lb equivalent test weight.

(b) *Power absorption unit adjustment—light-duty trucks.* (1) The power absorption unit shall be adjusted to reproduce road load power at 50 mph true speed. The indicated road load power setting shall take into account the dynamometer friction. The relationship between road load (absorbed) power and indicated road load power for a particular dynamometer shall be determined by the procedure outlined in § 86.118 or other suitable means.

(2) The road load power listed in the table above shall be used or the vehicle manufacturer may determine the road load power by an alternate procedure requested by the manufacturer and approved in advance by the Administrator.

(3) Where it is expected that more than 33 percent of a car line within an engine-system combination will be equipped with air conditioning per § 86.-078–24(g)(2), the road load power listed above or as determined in paragraph (b)(2) of this section shall be increased by 10 percent, up to a maximum increase of 1.4 horsepower, for testing all test vehicles representing that car line within that engine-system combination if those vehicles are intended to be offered with air conditioning in production. The above increase for air conditioning shall be added prior to rounding off as instructed by notes 2 and 3 of the table.

(c) *Power absorption unit adjustment—light-duty vehicles.* (1) The power absorption unit shall be adjusted to reproduce road load power at 50 mph true speed. The dynamometer power absorption shall take into account the dynamometer friction, as discussed in § 86.118.

(2) The dynamometer road load setting is determined from the equivalent test weight, the reference frontal area, the body shape, the vehicle protuberances, and the tire type by the following equations.

(i) For light-duty vehicles to be tested on a twin roll dynamometer.

$$Hp = aA + P + tW$$

Where:

Hp = the dynamometer power absorber setting at 50 mph (horsepower).

A = the vehicle reference frontal area (ft^2). The vehicle reference frontal area is defined as the area of the orthogonal projection of the vehicle; including tires and suspension components, but excluding vehicle protuberances, onto a plane perpendicular to both the longitudinal plane of the vehicle and the surface upon which the vehicle is positioned. Measurements of this area shall be computed to the nearest tenth of a square foot using a method approved in advance by the Administrator.

P = the protuberance power correction factor from table 1 of this paragraph (horsepower).

W = vehicle equivalent test weight (lbs) from the table in paragraph (a).

a = 0.43 for fastback-shaped vehicles; = 0.50 for all other light duty vehicles.

t = 0.0 for vehicles equipped with radial ply tires; = 3×10^{-4} for all other vehicles.

A vehicle is considered to have a fastback shape if the rearward projection of that portion of the rear surface (A_b) which slopes at an angle of less than 20 degrees from the horizontal is at least 25 percent as large as the vehicle reference frontal area. In addition, this surface must be smooth, continuous, and free from any local transitions greater than four degrees. An example of a fastback shape is presented in Figure 1.

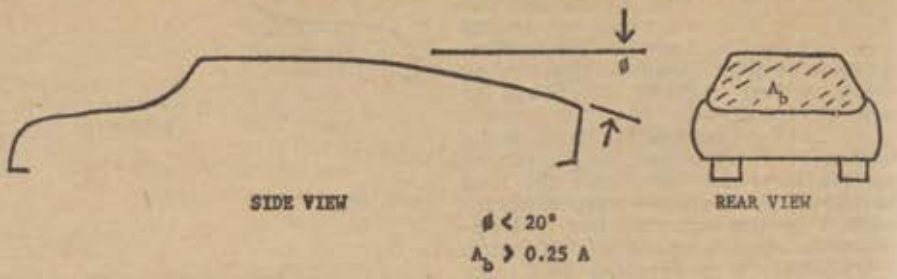

Figure 1

TABLE I.—*Protuberance power, P, versus total protuberance frontal area, A_p*

A_p (square foot):	P (*horsepower*)
$A_p < 0.30$	0.0
$0.30 \leq A_p < 0.60$	.40
$0.60 \leq A_p < 0.90$	.70
$0.90 \leq A_p < 1.20$	1.00
$1.20 \leq A_p < 1.50$	1.30
$1.50 \leq A_p < 1.80$	1.60
$1.80 \leq A_p < 2.10$	1.90
$2.10 \leq A_p < 2.40$	2.20
$2.40 \leq A_p < 2.70$	2.50
$2.70 \leq A_p < 3.00$	2.80
$3.00 \leq A_p$	3.10

The protuberance frontal area, A_p, is defined in a manner analogous to the definition of the vehicle reference frontal area, i.e., **the total area of the orthogonal projections** of the vehicle mirrors, hood ornaments, roof racks, and other protuberance onto a plane(s) perpendicular to both the longitudinal plane of the vehicle and the surface upon which the vehicle is positioned. A protuberance is defined as any fixture attached to the vehicle protruding more than 1 inch from the vehicle surface and having a projected area greater than 0.01 ft^2 with the area calculated by a method approved in advance by the Administrator. Included in the total protuberance frontal area shall be all fixtures which occur as standard equipment. The area of any optional equipment shall also be included if it is expected that more than 33 percent of the car line sold will be equipped with this option.

(ii) The dynamometer power absorber setting for light-duty vehicles shall be rounded to the nearest 0.1 horsepower.

(iii) For light-duty vehicles to be tested on a single, large roll dynamometer.

$$Hp = aA + P + (5.0 \times 10^{-4} + 0.33t)W$$

All symbols in the above equation are defined in paragraph (c)(2)(i) of this section. The rounding criteria of paragraph (c)(2)(i) also apply to this paragraph.

(3) The road load power calculated above shall be used or the vehicle manufacturer may determine the road load power by an alternate procedure requested by the manufacturer and approved in advance by the Administrator.

(4) Where it is expected that more than 33 percent of a car line within an engine-system combination will be equipped with air conditioning, per § 86.-078–24(g)(2), the road load power as determined in paragraph (c)(2) or (3) of this section shall be increased by 10 percent, up to a maximum increment of 1.4 horsepower, for testing all test vehicles of that car line within that engine-system combination if those vehicles are intended to be offered with air conditioning in production. This power increment shall be added to the indicated dynamometer power absorption setting prior to rounding off this value.

14. § 86.135–78 is amended by adding paragraph (h) to read as follows:

§ 86.135–78 Dynamometer procedure.

* * * * *

(h) The driving distance as measured by counting the number of dynamometer roll or shaft revolutions, shall be determined for the transient cold start, stabilized cold start, and transient hot start phases of the test. The revolutions shall be measured on the same roll or shaft used for measuring the vehicle's speed.

15. § 86.136–78 is amended by revising paragraph (c) to read as follows:

§ 86.136–78 Engine starting and restarting.

* * * * *

(c) If the vehicle does not start after 10 seconds of cranking, cranking shall cease and the reason for failure to start shall be determined. The gas flow measuring device (or revolution counter) on the constant volume sampler (and the hydrocarbon integrator when testing diesel vehicles, see § 85.135 Dynamometer Test Runs) shall be turned off and the sample selector valves placed in the "standby" position during this diagnostic period. In addition, either the CVS should be turned off or the exhaust tube disconnected from the tailpipe during the diagnostic period. If failure to start is an operational error, the vehicle shall be rescheduled for testing from a cold start.

(1) If a failure to start occurs during the cold portion of the test and is caused by a vehicle malfunction corrective action of less than 30 minutes duration may be taken (according to § 86.077–25), and the test continued. The sampling system shall be reactivated at the same time cranking begins. When the engine starts, the driving schedule timing sequence shall begin. If failure to start is caused by vehicle malfunction and the vehicle cannot be started, the test shall be voided, the vehicle removed from the dynamometer, and corrective action may

be taken according to § 86.077–25. The reasons for the malfunction (if determined) and the corrective action taken shall be reported.

(2) If a failure to start occurs during the hot start portion of the test and is caused by vehicle malfunction, the vehicle must be started within one minute of key on. The sampling system shall be reactivated at the same time cranking begins. When the engine starts, the driving schedule timing sequence shall begin. If the vehicle cannot be started within one minute of key on, the test shall be voided, the vehicle removed from the dynamometer, corrective action taken, (according to § 86.077–25), and the vehicle rescheduled for testing. The reason for the malfunction (if determined) and the corrective action taken shall be reported.

* * * * *

16. § 86.137–78 is amended by adding a second sentence to paragraph (b)(1), revising paragraph (b)(7), inserting a sentence after the first sentence of paragraph (b)(11), inserting a sentence after the first sentence of paragraph (b)(13), revising the second sentence of paragraph (b)(16), and adding a sentence at the end of paragraph (b)(17) to read as follows:

§ 86.137–78 Dynamometer test runs.

* * * * *

(b) * * *

(1) * * * Reset and enable the roll revolution counter.

* * * * *

(7) Start the gas flow measuring device, position the sample selector valves to direct the sample flow into the "transient" exhaust sample bag and the "transient" dilution air sample bag (turn on the diesel hydrocarbon analyzer system integrator and mark the recorder chart, if applicable), turn the key on, and start cranking the engine.

* * * * *

(11) * * * Before the acceleration which is scheduled to occur at 510 seconds, record the measured roll or shaft revolutions and reset the counter or switch to a second counter. * * *

* * * * *

(13) * * * Record the measured roll or shaft revolutions and reset the counter. * * *

* * * * *

(16) * * * The key-on operation step described in paragraph (b)(7) of this section shall begin between 9 and 11 minutes after the end of the sample period for the cold start test.

(17) * * * Record the measured roll or shaft revolutions.

* * * * *

17. § 86.142–78 is amended by revising paragraph (f) and adding paragraph (p) to read as follows:

§ 86.142–78 Records required.

* * * * *

(f) Vehicle: ID number, Manufacturer, Model year, Standards, Engine family, Evaporative emissions family, Basic engine description (including displacement, number of cylinders, and catalysts usage), Fuel system (including number of carburetors, number of carburetor barrels, fuel injection type, and fuel tank(s) capacity and location), Engine code, Inertia weight class, Actual curb weight at zero miles, Actual road load at 50 mph, Transmission configuration, Axle ratio, Car line, Odometer reading, Idle rpm and Drive wheel tire pressure, as applicable.

* * * * *

(p) The driving distance for each of the three phases of the test, calculated from the measured role of shaft revolutions.

18. A new § 86.142–80 is added to read as follows:

§ 86.142–80 Records required.

The following information shall be recorded with respect to each test:

(a) Test number.

(b) System or device tested (brief description).

(c) Date and time of day for each part of the test schedule.

(d) Instrument operator.

(e) Driver or operator.

(f) Vehicle: ID number, Manufacturer, Model year, Standards, Engine family, Evaporative emissions family, Basic engine description (including displacement, number of cylinders, 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, Test weight, Actual curb weight at zero miles, Actual road load at 50 mph, Transmission configuration, Axle ratio, Car line, Odometer reading, Idle rpm, and Drive wheel tire pressure as applicable.

(g) Indicated road load power absorption at 50 mph (80 km/h) and dynamometer serial number. As an alternative to recording the dynamometer serial number, a reference to a vehicle test cell number may be used, with the advance approval of the Adminstrator, provided the test cell records show the pertinent information.

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

(i) Recorder charts: Identify zero, span, exhaust gas, and dilution air sample traces.

(j) Test cell barometric pressure, ambient temperature 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.

(k) Fuel temperatures, as prescribed.

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

(m) The number of revolutions of the positive displacement pump accumulated during each test phase while exhaust samples are being collected. The number of standard cubic feet metered by a critical flow venturi during each test phase would be the equivalent record for a CFV–CVS.

(n) 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.

(o) Temperature set point of the heated sample line and heated hydrocarbon detector temperature control system (for Diesel vehicles only).

(p) The driving distance for each of the three phases of the test, calculated from the measured roll of shaft revolutions.

19. Section 86.144–78 is amended by revising paragraph (a); adding two terms to the end of the text portion of paragraph (d)(1), revising the equation for H and adding two equations to the end of paragraph (d)(1); adding two equations to the end of paragraph (d)(2); adding two equations to the end of paragraph (d)(3); and revising paragraph (d)(4). § 86.144–78 is amended to read as follows:

§ 86.144–78 Calculations; exhaust emissions.

The final reported test results shall be computed by use of the following formula:

(a) For light duty vehicles and light duty trucks:

$$Y_{wm} = 0.43\ ((Y_{c1}+Y_s)/(D_{c1}+D_s)) + 0.57\ ((Y_{h1}+Y_s)/(D_h+D_s))$$

Where:

Y_{wm} = Weighted mass emissions of each pollutant, i.e.: HC, CO, NO_x or CO_2, in grams per vehicle mile.

Y_{c1} = Mass emissions as calculated from the "transient" phase of the cold start test, in grams per test phase.

Y_{h1} = Mass emissions as calculated from the "transient" phase of the hot start test, in grams per test phase.

Y_s = Mass emissions as calculated from the "stabilized" phase of the cold start test, in grams per test phase.

D_{c1} = The measured driving distance from the "transient" phase of the cold start test, in miles.

D_{h1} = The measured distance from the "transient" phase of the hot start test, in miles.

D_s = The measured driving distance from the "stabilized" phase of the cold start test, in miles.

* * * * *

(d) * * *

(i) * * * CO_{2d} = 0.032%; D_{c1} = 3.598 miles.

* * *

H = (43.478) (48.2) (22.225)/[762 − (22.225×68.2/100)] = 62 grains of water per pound of dry air.

* * *

CO_{2mass} = 1.43 − .032 (1−1/9.116) = 1.402%

CO_{2mass} = (2595.0) (51.85) (1.402/100) = 1886 grams per test phase.

(2) * * *

$CO_{2,test}$=2346 grams per test phase.
D_u=3.902 miles.

(3) * * *

$CO_{2,test}$=1758 grams per test phase.
D_{hi}=3.598 miles.

(4) Weighted mass emission results:

HC_{comb}=0.43 [(4.027+0.62)/(3.598+3.902)]+0.57 [(0.51+0.62)/(3.598+3.902)]=0.352 grams per vehicle mile.

$NO_{x,comb}$=0.43 [(1.389+1.27)/(3.598+3.902)]+0.57 [(1.38+1.27)/(3.598+3.902)]=.354 grams per vehicle mile.

CO_{comb}=0.43 [(23.96+5.98)/(3.598+3.902)]+0.57 [(5.01+5.98)/(3.598+3.902)]=2.55 grams per vehicle mile.

$CO_{2,comb}$=0.43 [(1886+2346)/(3.598+3.902)]+0.57 [(1758+2346)/(3.598+3.902)]=555 grams per vehicle mile.

[Sec. 202, 206, 207, 208 and 301(a) of the Clean Air Act; as amended (42 U.S.C. 1857f-1, 1857f-5, 1857f-5a, 1857f-6, 1857g(a)).]

Part 600 of Title 40 of the Code of Federal Regulations is amended as follows:

20. By revising paragraph (a)(15) of § 600.002-77 to read as follows:

§ 600.002-77 Definitions.

(a) * * *

(15) "Certification Vehicle" means a vehicle which is selected under § 86.077-24(b)(1) and used to determine compliance under § 86.077-30 for issuance of an original certificate of conformity.

* * * * *

21. By adding a new § 600.002-80 reading as follows:

§ 600.002-80 Definitions.

(a) As used in this subpart all terms not defined herein shall have the meaning given them in the Act:

(1) "Act" means Part I of Title V of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 1901 et seq.).

(2) "Administrator" means the Administrator of the Environmental Protection Agency or his authorized representative.

(3) "Secretary" means the Secretary of Transportation or his authorized representative.

(4) "Automobile" means any 4-wheeled vehicle propelled by fuel which is manufactured primarily for use on public streets, roads, or highways (except any vehicle operated on a rail or rails) and which is rated at 6,000 lbs gross vehicle weight or less or is a type of vehicle which the Secretary determines is substantially used for the same purposes.

(5) "Passenger Automobile" means any automobile which the Secretary determines is manufactured primarily for use in the transportation of no more than 10 individuals.

(6) "Model Year" means the manufacturer's annual production period (as determined by the Administrator) which includes January 1 of such calendar year. If a manufacturer has no annual production period, the term "model year" means the calendar year.

(7) "Federal Emission Test Procedure" refers to the dynamometer driving schedule, dynamometer procedure, and sampling and analytical procedures described in Part 86 for the respective model year, which are used to derive city fuel economy data.

(8) "Federal Highway Fuel Economy Test Procedure" refers to the dynamometer driving schedule, dynamometer procedure, and sampling and analytical procedures described in Subpart B of this part and which are used to derive highway fuel economy data.

(9) "Fuel" means gasoline and diesel fuel.

(10) "Fuel Economy" means the average number of miles traveled by an automobile or group of automobiles per gallon of gasoline or diesel fuel consumed as computed in § 600.113 or § 600.207.

(11) "City Fuel Economy" means the fuel economy determined by operating a vehicle (or vehicles) over the driving schedule in the Federal Emission Test Procedure.

(12) "Highway Fuel Economy" means the fuel economy determined by operating a vehicle (or vehicles) over the driving schedule in the Federal Highway Fuel Economy Test Procedure.

(13) "Combined Fuel Economy" means the fuel economy value determined for a vehicle (or vehicles) by harmonically averaging the city and highway fuel economy values, weighted 0.55 and 0.45 respectively.

(14) "Average Fuel Economy" means the production-weighted combined fuel economy value of all passenger automobiles produced by a manufacturer in a single model year as computed in § 600.510.

(15) "Certification Vehicle" means a vehicle which is selected under § 86.077-24(b)(1) and used to determine compliance under § 86.007-30 for issuance of an original certificate of conformity.

(16) "Fuel Economy Data Vehicle" means a vehicle used for the purpose of determining fuel economy which is not a certification vehicle.

(17) "Label" means a sticker that contains fuel economy information and is affixed to new automobiles in accordance with Subpart D of this part.

(18) "Dealer" means a person who resides or is located in the United States, any territory of the United States or the District of Columbia and who is engaged in the sale or distribution of new automobiles to the utimate purchaser.

(19) "Model Type" means a unique combination of car line, basic engine, and transmission class.

(20) "Car Line" means a name denoting a group of vehicles within a make or car division which has a degree of commonality in construction (e.g., body, chassis). Car line does not consider any level of decor or opulence and is not generally distinguished by characteristics as roof line, number of doors, seats or windows except for station wagons or light-duty trucks. Station wagons and light-duty trucks are considered to be different car lines than passengers cars.

(21) "Basic Engine" means a unique combination of manufacturer, engine displacement, number of cylinders, fuel system (as distinguished by number of carburetor barrels or use of fuel injection), catalyst usage, and other engine and emission control system characteristics specified by the Administrator.

(22) "Transmission Class" means the basic type of transmission, e.g., manual, automatic or semi-automatic.

(23) "Base Level" means a unique combination of basic engine, inertia weight, and transmission class.

(24) "Vehicle Configuration" means a unique combination of basic engine, engine code, inertia weight, transmission configuration, and axle ratio within a base level.

(25) "Engine Code" means a unique combination, within an engine-system combination (as defined in Part 86), of displacement, carburetor (or fuel injection) calibration, distributor calibration, choke calibration, auxiliary emission control devices and other engine and emission control system components specified by the Administrator.

(26) "Inertia Weight Class" means the class, which is a group of test weights, into which a vehicle is grouped based on its loaded vehicle weight in accordance with the provisions of Part 86.

(27) "Transmission Configuration" means a unique combination, within a transmission class, of the number of forward gears, and, if applicable, overdrive. The Administrator may further subdivide a transmission configuration (based on such criteria as gear ratios, torque converter multiplication ratio, stall speed, shift calibration, etc.) if he determines that significant fuel economy differences exist within that transmission configuration.

(28) "Axle Ratio" means the number of times the input shaft to the differential (or equivalent) turns for each turn of the drive wheels.

(29) "Auxiliary Emission Control Devices (AECD)" means an element of design as defined in Part 86.

(30) "Rounded" means a number shortened to the specific number of decimal places in accordance with the "Round Off Method" specified in ASTM E 29-67.

(31) "Calibration" means the set of specifications, including tolerances, unique to a particular design, version or application of a component or component assembly capable of functionally describing its operation over its working range.

(32) "Production Volume" means, for a domestic manufacturer, the number of vehicle units domestically produced in a particular model year but not exported, and for a foreign manufacturer, means the number of vehicle units of a particular model imported into the United States.

(33) "Body Style" means a level of commonality in vehicle configurations as defined by number of doors and roof treatment (e.g., sedan, convertible, fastback, hatchback) and number of seats (i.e. front seat, second, or third seat) requiring seat belts pursuant to National Highway Traffic Safety Administration

safety regulations. Station wagons and light trucks are identified as car lines.

(34) "Hatchback" means a passenger automobile where the conventional luggage compartment, i.e., trunk, is replaced by a cargo area which is open to the passenger compartment and accessed vertically by a rear door which encompasses the rear window.

(35) "Pickup Truck" means a nonpassenger automobile which has a passenger compartment and an open cargo bed.

(36) "Station Wagon" means a passenger automobile with an extended roof line to increase cargo or passenger capacity, cargo compartment open to the passenger compartment, a tailgate and one or more rear seats readily removed or folded to facilitate cargo carrying.

(37) "Gross Vehicle Weight Rating" means the manufacturer's gross weight rating for the individual vehicle.

(38) "Ultimate Consumer" means the first person who purchases an automobile for purposes other than resale, or leases an automobile.

(39) through (42) [Reserved]

(43) "Test Weight" means the weight, within an inertia weight class, which is used in the dynamometer testing of a vehicle, and which is based on its loaded vehicle weight in accordance with the provisions of Part 86.

22. By revising paragraphs (b)(1) and (f) of § 600.007-77 to read as follows:

§ 600.007-77 Vehicle acceptability.

* * * * *

(b) * * *

(1) A fuel economy data vehicle may have accumulated not more than 10,000 miles. A vehicle will be considered to have met this requirement if the engine and drivetrain have accumulated 10,000 or fewer miles. The components installed for a fuel economy test are not required to be the ones with which the mileage was accumulated, e.g., axles, transmission types, and tire sizes may be changed. Engine components may be changed only with the advance approval of the Administrator.

* * * * *

(f) All vehicles used to generate fuel economy data must be covered by a certificate of conformity under Part 86 before:

(1) The data may be used in the calculation of any approved general or specific label value, or

(2) The data will be used in any calculations under Subpart F.

23. By adding a new § 600.007-80 to read as follows:

§ 600.007-80 Vehicle acceptability.

(a) All certification vehicles and other vehicles tested to meet the requirements of Part 86 (other than those chosen per § 86.077-24(c)) are considered to have met the requirements of this section.

(b) Any vehicle not meeting the provisions of paragraph (a) must be judged acceptable by the Administrator under this section in order for the test results to be reviewed for use in Subpart C or F of this part. The Administrator will judge the acceptability of a fuel economy data vehicle on the basis of the information supplied by the manufacturer under § 600.006(b). The criteria to be met are:

(1) A fuel economy data vehicle may have accumulated not more than 10,000 miles. A vehicle will be considered to have met this requirement if the engine and drivetrain have accumulated 10,000 or fewer miles. The components installed for a fuel economy test are not required to be the ones with which the mileage was accumulated, e.g., axles, transmission types, and tire sizes may be changed. Engine components may be changed only with the advance approval of the Administrator.

(2) A vehicle may be tested in different vehicle configurations by change of vehicle components, as specified in paragraph (b)(1), or by testing in different inertia weight classes. Also, a single vehicle may be tested under different test conditions, i.e., test weight and/or road load horsepower, to generate fuel economy data representing various situations within a vehicle configuration. For purposes of this part, data generated by a single vehicle tested in various configurations and under various test conditions will be treated as if the data were generated by the testing of multiple vehicles.

(3) The mileage on a fuel economy data vehicle must be, to the extent possible, accumulated according to § 86.077-26(a)(2).

(4) Each fuel economy data vehicle must meet the same exhaust emission standards as certification vehicles of the respective engine-system combination during the test in which the city fuel economy test results are generated. The deterioration factors established for the respective engine-system combination per § 86.077-28 will be used.

(5) The calibration information submitted under § 600.006(b) must be representative of the vehicle configuration for which the fuel economy data were submitted.

(c) If, based on review of the information submitted under § 600.006(b), the Administrator determines that a fuel economy data vehicle meets the requirements of this section, the fuel economy data vehicle will be judged to be acceptable and fuel economy data from that fuel economy data vehicle will be reviewed pursuant to § 600.008.

(d) If, based on the review of the information submitted under § 600.006(b), the Administrator determines that a fuel economy data vehicle does not meet the requirements of this section, the Administrator will reject that fuel economy data vehicle and inform the manufacturer of the rejection in writing.

(e) If, based on a review of the emission data for a fuel economy data vehicle, submitted under § 600.006(b), or emission data generated by a vehicle tested under § 600.008(c), the Administrator finds an indication of non-compliance with Section 202 of the Clean Air Act, 42 U.S.C. Section 1857 et seq. of the regulation thereunder, he may take such investigative actions as are appropriate to determine to what extent emission non-compliance actually exists.

(1) The Administrator may, under the provisions of § 86.077-37(a) request the manufacturer to submit production vehicles of the configuration(s) specified by the Administrator for testing to determine to what extent emission noncompliance of a production vehicle configuration or of a group of production vehicle configurations may actually exist.

(2) If the Administrator determines, as a result of his investigation, that substantial emission non-compliance is exhibited by a production vehicle configuration or group of production vehicle configurations, he may proceed with respect to the vehicle configuration(s) as provided under section 206(b)(2) or section 207(c)(1), as applicable of the Clean Air Act, 42 U.S.C. section 1857 et seq.

(f) All vehicles used to generate fuel economy data must be covered by a certificate of conformity under Part 86 before:

(1) The data may be used in the calculation of any approved general or specific label value, or

(2) The data will be used in any calculations under Subpart F.

24. By adding a new Subpart B reading as follows:

Subpart B—Fuel Economy Regulations for 1978 and Later Model Year Automobiles—Test Procedures

§ 600.101-78 General applicability.

The provisions of this subpart are applicable to 1978 and later model year automobiles.

§ 600.102-78 Definitions.

The definitions in § 600.002 apply to this subpart.

§ 600.103-78 Abbreviations.

The abbreviations in § 600.003 apply to this subpart.

§ 600.104-78 Section numbering, construction.

The section numbering system set forth in § 600.004 applies to this subpart.

§ 600.105-78 Record keeping.

The record keeping requirements set forth in § 600.005 apply to this subpart.

§ 600.106-78 Equipment requirements.

The requirements for test equipment to be used for all fuel economy testing are given in §§ 86.106, 86.107, 86.108, 86.109, and 86.111 of this chapter, as applicable.

§ 600.107-78 Fuel specifications.

(a) The test fuel specifications for gasoline-fueled automobiles are given in paragraph (a)(1) of § 86.113 of this chapter.

(b) The test fuel specifications for diesel automobiles are given in para-

graphs (b) (1) and (2) of § 86.113 of this chapter.

§ 600.108–78 Analytical gases.

The analytical gases for all fuel economy testing must meet the criteria given in § 86.114 of this chapter.

§ 600.109–78 EPA driving cycles.

(a) The driving cycle to be utilized for generation of the city fuel economy data is prescribed in § 86.115 of this chapter.

(b) The driving cycle to be utilized for generation of the highway fuel economy data is specified in this paragraph.

(1) The Highway Fuel Economy Driving Schedule is set forth in Appendix I to this Part. The driving schedule is defined by a smooth trace drawn through the specified speed versus time relationships.

(2) The speed tolerance at any given time on the dynamometer driving schedule specified in Appendix I, or as printed on a driver's aid chart approved by the Administrator, when conducted to meet the requirements of paragraph (b) of § 600.111 is defined by upper and lower limits. The upper limit is 2 mph higher than the highest point on trace within 1 second of the given time. The lower limit is 2 mph lower than the lowest point on the trace within 1 second of the given time. Speed variations greater than the tolerances (such as may occur during gear changes) are acceptable provided they occur for less than 2 seconds on any occasion. Speeds lower than those prescribed are acceptable provided the vehicle is operated at a maximum available power during such occurrences.

(3) A graphic representation of the range of acceptable speed tolerances is found in paragraph (c) of § 86.115 of this chapter.

§ 600.110–78 Equipment calibration.

The equipment used for fuel economy testing must be calibrated according to the provisions of § 86.116 of this chapter.

§ 600.111–78 Test procedures.

(a) The test procedures to be followed for generation of the city fuel economy data are those prescribed in §§ 86.127 through 86.138 of this chapter, as applicable. (The evaporative loss portion of the test procedure may be omitted unless specifically required by the Administrator.)

(b) The test procedures to be followed for generation of the highway fuel economy data are those specified in § 600.111–78 (b) through (h) inclusive.

(1) The Highway Fuel Economy Dynamometer Procedure consists of a preconditioning highway driving sequence and a measured highway driving sequence.

(2) The highway fuel economy test is designated to simulate non-metropolitan driving with an average speed of 48.6 mph and a maximum speed of 60 mph. The cycle is 10.2 miles long with 0.2 stops per mile and consists of warmed-up vehicle operation on a chassis dynamometer through a specified driving cycle. A proportional part of the diluted exhaust emissions is collected continuously for subsequent analysis using a constant volume (variable dilution) sampler. Diesel dilute exhaust is continuously analyzed for hydrocarbons using a heated sample line and analyzer.

(3) Except in cases of component malfunction or failure, all emission control systems installed on or incorporated in a new motor vehicle must be functioning during all procedures in this subpart. The Administrator may authorize maintenance to correct component malfunction or failure.

(c) Transmissions—The provisions of § 86.128 of this chapter apply for vehicle transmission operation during highway fuel economy testing under this subpart.

(d) Road load power and inertia weight determination—§ 86.129 of this chapter applies for determination of road load power and inertia weight for Highway Fuel Economy Dynamometer

(e) Vehicle preconditioning—The Highway Fuel Economy Dynamometer Procedure is designed to be performed immediately following the Federal Emission Test Procedure, §§ 86.127 through 86.138 of this chapter. When conditions allow, the tests should be scheduled in this sequence. In the event the tests cannot be scheduled within three hours of the Federal Emission Test Procedure (including one hour hot soak evaporation loss test, if applicable) the vehicle should be preconditioned as in paragraph (e) (1) or (2) of this section, as applicable.

(1) If the vehicle has experienced more than three hours of soak (68° F–86° F) since the completion of the Federal Emission Test Procedure, or has experienced periods of storage outdoors, or in environments where soak temperature is not controlled to 68° F–86° F the vehicle must be preconditioned by operation on a dynamometer through one cycle of the EPA Urban Dynamometer Driving Schedule, § 86.115 of this chapter.

(2) In unusual circumstances where additional preconditioning is desired by the manufacturer, the provisions of paragraph (a)(3) of § 86.132 of this chapter apply.

(f) Highway Fuel Economy Dynamometer Procedure—

(1) The dynamometer procedure consists of two cycles of the Highway Fuel Economy Driving Schedule (§ 600.109 (b)) separated by 15 seconds of idle. The first cycle of the Highway Fuel Economy Driving Schedule is driven to precondition the test vehicle and the second is driven for the fuel economy measurement.

(2) The provisions of paragraphs (b), (c), (e), (f), (g), and (h) of § 86.135 *Dynamometer procedure* of this chapter, apply for highway fuel economy testing.

(3) Only one exhaust sample and one background sample are collected and analyzed for hydrocarbons (except diesel hydrocarbons which are analyzed continuously), carbon monoxide, and carbon dioxide.

(4) The fuel economy measurement cycle of the test includes two seconds of idle indexed at the beginning of the second cycle and two seconds of idle indexed at the end of the second cycle.

(g) Engine starting and restarting—

(1) If the engine is not running at the initiation of the highway fuel economy test (preconditioning cycle), the start-up procedure must be according to the manufacturer's recommended procedures.

(2) False starts and stalls during the preconditioning cycle must be treated as in paragraphs (d) and (e) of § 86.136 of this chapter. If the vehicle stalls during the measurement cycle of the highway fuel economy test, the test is voided, corrective action may be taken according to § 86.077–25 of this chapter, and the vehicle may be rescheduled for test. The person taking the corrective action shall report the action so that the test records for the vehicle contain a record of the action.

(h) Dynamometer Test Run—The following steps must be taken for each test:

(1) Place the drive wheels of the vehicle on the dynamometer. The vehicle may be driven onto the dynamometer.

(2) Open the vehicle engine compartment cover and position the cooling fan(s) required. Manufacturers may request the use of additional cooling fans for additional engine compartment or under-vehicle cooling and for controlling high tire or brake temperatures during dynamometer operation.

(3) Preparation of the CVS must be performed before the measurement highway driving cycle.

(4) Equipment preparation—The provisions of paragraphs (b) (3) through (5) inclusive of § 86.137 of this chapter apply for highway fuel economy test except that only one exhaust sample collection bag and one dilution air sample collection bag need be connected to the sample collection systems.

(5) Operate the vehicle over one Highway Fuel Economy Driving Schedule cycle according to the dynamometer driving schedule specified in paragraph (b) of § 600.109.

(6) When the vehicle reaches zero speed at the end of the preconditioning cycle, the driver has 13 seconds to prepare for the emission measurement cycle of the test. Reset and enable the roll revolution counter.

(7) Operate the vehicle over one Highway Fuel Economy Driving Schedule cycle according to the dynamometer driving schedule specified in paragraph (b) of § 600.109 while sampling the exhaust gas.

(8) Sampling must begin two seconds before beginning the first acceleration of the fuel economy measurement cycle and must end two seconds after the end of the deceleration to zero. At the end of the deceleration to zero speed, the roll or shaft revolutions must be recorded.

§ 600.111–80 Test procedures.

(a) The test procedures to be followed for generation of the city fuel economy data are those prescribed in §§ 86.127

through 86.138 of this chapter, as applicable. (The evaporative loss portion of the test procedure may be omitted unless specifically required by the Administrator.)

(b) The test procedures to be followed for generation of the highway fuel economy data, are those specified in § 600.111–78 (b) through (h) inclusive.

(1) The Highway Fuel Economy Dynamometer Procedure consists of a preconditioning highway driving sequence and a measured highway driving sequence.

(2) The highway fuel economy test is designated to simulate non-metropolitan driving with an average speed of 48.6 mph and a maximum speed of 60 mph. The cycle is 10.2 miles long with 0.2 stops per mile and consists of warmed-up vehicle operation on a chassis dynamometer through a specified driving cycle. A proportional part of the diluted exhaust emissions is collected continuously for subsequent analysis using a constant volume (variable dilution) sampler. Diesel dilute exhaust is continuously analyzed for hydrocarbons using a heated sample line and analyzer.

(3) Except in cases of component malfunction or failure, all emission control systems installed on or incorporated in a new motor vehicle must be functioning during all procedures in this subpart. The Administrator may authorize maintenance to correct component malfunction or failure.

(c) Transmission—The provisions of § 86.128 of this chapter apply for vehicle transmission operation during highway fuel economy testing under this subpart.

(d) Road load power and test weight determination—§ 86.129 of this chapter applies for determination of road load power and test weight for highway fuel economy testing. The test weight for the testing of a certification vehicle will be that test weight specified by the Administrator under the provisions of Part 86. The test weight for a fuel economy data vehicle will be that test weight specified by the Administrator from the test weights covered by that vehicle configuration. The Administrator will base his selection of a test weight on the relative projected sales volumes of the various test weights within the vehicle configuration.

(e) Vehicle preconditioning—The Highway Fuel Economy Dynamometer Procedure is designed to be performed immediately following the Federal Emission Test Procedure, §§ 86.127 through 86.138 of this chapter. When conditions allow, the tests should be scheduled in this sequence. In the event the tests cannot be scheduled within three hours of the Federal Emission Test Procedure (including one hour hot soak evaporation loss test, if applicable) the vehicle should be preconditioned as in paragraph (e) (1) or (2) of this section, as applicable.

(1) If the vehicle has experienced more than three hours of soak (68°F–86° F) since the completion of the Federal Emission Test Procedure, or has experienced periods of storage outdoors, or in environments where soak temperature is not controlled to 68° F–86° F, the vehicle must be preconditioned by operation on a dynamometer through one cycle of the EPA Urban Dynamometer Driving Schedule, § 86.115 of this chapter.

(2) In unusual circumstances where additional preconditioning is desired by the manufacturer, the provisions of paragraph (a)(3) of § 86.132 of this chapter apply.

(f) Highway Fuel Economy Dynamometer Procedure—

(1) The dynamometer procedure consists of two cycles of the Highway Fuel Economy Driving Schedule (§ 600.109 (b)) separated by 15 seconds of idle. The first cycle of the Highway Fuel Economy Driving Schedulr is driven to precondition the test vehicle and the second is driven for the fuel economy measurement.

(2) The provisions of paragraphs (b), (c), (e), (f), (g), and (h) of § 86.135 *Dynamometer procedure* of this chapter, apply for highway fuel economy testing.

(3) Only one exhaust sample and one background sample are collected and analyzed for hydrocarbons (except diesel hydrocarbons which are analyzed continuously), carbon monoxide, and carbon dioxide.

(4) The fuel economy measurement cycle of the test includes two seconds of idle indexed at the beginning of the second cycle and two seconds of idle indexed at the end of the second cycle.

(g) Engine starting and restarting—

(1) If the engine is not running at the initiation of the highway fuel economy test (preconditioning cycle), the start-up procedure must be according to the manufacturer's recommended procedures.

(2) False starts and stalls during the preconditioning cycle must be treated as in paragraphs (d) and (e) of § 86.136 of this chapter. If the vehicle stalls during the measurement cycle of the highway fuel economy test, the test is voided, corrective action may be taken according to § 86.077–25 of this chapter, and the vehicle may be rescheduled for test. The person taking the corrective action shall report the action so that the test records for the vehicle contain a record of the action.

(h) Dynamometer Test Run—The following steps must be taken for each test:

(1) Place the drive wheels of the vehicle on the dynamometer. The vehicle may be driven onto the dynamometer.

(2) Open the vehicle engine compartment cover and position the cooling fan(s) required. Manufacturers may request the use of additional cooling fans for additional engine compartment or under-vehicle cooling and for controlling high tire or brake temperatures during dynamometer operation.

(3) Preparation of the CVS must be performed before the measurement highway driving cycle.

(4) Equipment preparation—The provisions of paragraphs (b) (3) through (5) inclusive of § 86.137 of this chapter apply for highway fuel economy test except that only one exhaust sample collection bag and one dilution air sample collection bag need be connected to the sample collection systems.

(5) Operate the vehicle over one Highway Fuel Economy Driving Schedule cycle according to the dynamometer driving schedule specified in paragraph (b) of § 600.109.

(6) When the vehicle reaches zero speed at the end of the preconditioning cycle, the driver has 13 seconds to prepare for the emission measurement cycle of the test. Reset and enable the roll revolution counter.

(7) Operate the vehicle over one Highway Fuel Economy Driving Schedule cycle according to the dynamometer driving schedule specified in paragraph (b) of § 600.109 while sampling the exhaust gas.

(8) Sampling must begin two seconds before beginning the first acceleration of the fuel economy measurement cycle and must end two seconds after the end of the deceleration to zero. At the end of the deceleration to zero speed, the roll or shaft revolutions must be recorded.

§ 600.112–78 Exhaust sample analysis.

The exhaust sample analysis must be performed according to § 86.140 of this chapter.

§ 600.113–78 Fuel economy calculations.

The calculations of vehicle fuel economy values require the weighted grams/mile values for HC, CO, and CO_2 for the city fuel economy test and the grams/mile values for HC, CO, and CO_2 for the highway fuel economy test. The city and highway fuel economy values must be calculated by the procedures of this section. A sample calculation appears in Appendix II to this Part.

(a) Calculate the weighted grams/mile values for the city fuel economy test for HC, CO, and CO_2 as specified in § 86.144 of this chapter.

(b)(1) Calculate the mass values for the highway fuel economy test for HC, CO, and CO_2 as specified in paragraph (b) of § 86.144 of this chapter.

(2) Calculate the grams/mile values for the highway test for HC, CO, and CO_2 by dividing the mass values obtained in (b)(1) by the actual distance traveled, measured in miles, as specified in paragraph (h) of § 86.135 of this chapter.

(c) Calculate the city fuel economy and highway fuel economy from grams/mile values for HC, CO, and CO_2. The HC values (obtained per paragraph (a) or (b) as applicable) used in each calculation in this section are rounded to the nearest 0.01 grams/mile. The CO values (obtained per paragraph (a) or (b) as applicable) used in each calculation in this section are rounded to the nearest 0.1 grams/mile. The CO_2 values (obtained per paragraph (a) or (b) of this section as applicable) used in each calculation in this section are rounded to the nearest gram/mile.

(d) For gasoline-fueled automobiles, calculate the fuel economy in miles per gallon of gasoline by dividing 2421 by the sum of three terms:

(1) 0.866 multiplied by HC (in grams/mile as obtained in paragraph (c)),

(2) 0.429 multiplied by CO (in grams/mile as obtained in paragraph (c)), and

(3) 0.273 multiplied by CO_2 (in grams/mile as obtained in paragraph(c)).

Round to quotient to the nearest 0.1 mile per gallon.

(e) For diesel powered automobiles, calculate the fuel economy in miles per gallon of diesel fuel by dividing 2778 by the sum of three terms:

(1) 0.866 multiplied by HC (in grams/mile as obtained in paragraph (c) of this section),

(2) 0.429 multiplied by CO (in grams/mile as obtained in paragraph (c)), and

(3) 0.273 multiplied by CO_2 (in grams/mile as obtained in paragraph (c)).

Round the quotient to the nearest 0.1 mile per gallon.

25. By revising paragraphs (c)(1) (i), (ii), and (iii) of § 600.206-77 to read as follows:

§ 600.206-77 Calculation and use of fuel economy values for a vehicle configuration.

* * * * *

(c) * * *

(1) * * *

(i) The annual fuel cost per gallon (as obtained by the Administrator from the FEA Administrator), expressed in dollars to the nearest 0.05 dollar, by

(ii) Average annual mileage (as obtained by the Administrator from the Secretary), expressed in miles per year to the nearest 1,000 miles per year, by

(iii) The inverse, rounded to the nearest 0.0001 gallons per mile, of the combined fuel economy value for a vehicle configuration (expressed in miles per gallon rounded to the nearest whole mile per gallon).

* * * * *

26. By adding a new § 600.206-79 to read as follows:

§ 600.206-79 Calculation and use of fuel economy values for a vehicle configuration.

(a) Fuel economy values determined for each vehicle and as approved in § 600.008 (b) or (f) are used to determine city, highway, and combined fuel economy values for each vehicle configuration (as determined by the Administrator) for which data are available.

(1) If only one city fuel economy and one highway fuel economy value exist for a vehicle configuration, those values, rounded to the nearest tenth of a mile per gallon, comprise the city fuel economy value and highway fuel economy value for that configuration.

(2) If more than one city and one highway fuel economy value exist for a vehicle configuration:

(i) All data shall be grouped according to the road load horsepower setting at which the data were generated.

(ii) Within each group of data, all values are harmonically averaged and rounded to the nearest 0.0001 of a mile per gallon for the city fuel economy values, and harmonically averaged and rounded to the nearest 0.0001 mile per gallon for the highway values, in order to determine a city and a highway fuel economy value for each road load horsepower setting at which the vehicle configuration was tested.

(iii) All city fuel economy values and all highway fuel economy values calculated in (ii) are (separately for city and highway) harmonically averaged in proportion to the relative sales within the vehicle configuration (as provided to the Administrator by the manufacturer) of vehicles of each tested road load horsepower setting. The resultant values, rounded to the nearest 0.0001 mile per gallon, are the city and highway fuel economy values for the vehicle configuration.

(3) The combined fuel economy value for a vehicle configuration is calculated by harmonically averaging the city and highway fuel economy values, as determined in § 600.206(a) (1) and (2), weighted 0.55 and 0.45, respectively, and rounding to 0.0001 of a mile per gallon. A sample of this calculation appears in Appendix II to this Part.

(b) The city, highway, and combined fuel economy values determined for the vehicle configuration according to paragraph (a) and rounded to the nearest whole mile per gallon comprise the fuel economy values that appear on specific labels as described in § 600.309

(c) The annual fuel cost estimate for operating an automobile included in a vehicle configuration will be computed by the Administrator by using values for the fuel cost per gallon and avarage annual mileage and the combined fuel economy determined in (a)(3).

(1) The annual fuel cost estimate for a vehicle configuration is computed by multiplying

(i) Fuel cost per gallon (as obtained by the Administrator from the FEA Administrator), expressed in dollars to the nearest 0.05 dollar, by

(ii) Average annual mileage (as obtained by the Administrator from the Secretary), expressed in miles per year to the nearest 1,000 miles per year, by

(iii) The inverse, rounded to the nearest 0.0001 gallons per mile, of the combined fuel economy for a vehicle configuration (expressed in miles per gallon rounded to the nearest whole mile per gallon).

(2) The product computed in (c)(1) and rounded to the nearest dollars per year will comprise the annual fuel cost estimate that appears on specific labels for that vehicle configuration.

27. By adding a new § 600.206-80 identical to § 600.206-79 except that paragraph (a)(2) reads as follows:

§ 600.206-80 Calculation and use of fuel economy values for a vehicle configuration.

(a) * * *

(2) If more than one city and one highway fuel economy value exist for a vehicle configuration:

(i) All data shall be grouped according to each unique road load horsepower setting/test weight combination at which the data was generated.

(ii) Within each group of data, all values are harmonically averaged and rounded to the nearest 0.0001 of a mile per gallon for the city fuel economy values, and harmonically averaged and rounded to the nearest 0.0001 mile per gallon for the highway values, in order to determine a city and a highway fuel economy value for each road load horsepower setting/test weight at which the vehicle configuration was tested.

(iii) All city fuel economy values and all highway fuel economy values calculated in (ii) are (separately for city and highway) harmonically averaged in proportion to the relative sales within the vehicle configuration (as provided to the Administrator by the manufacturer) of vehicles of each tested road load horsepower setting/test weight combination. The resultant values, rounded to the nearest 0.0001 mile per gallon, are the city and highway fuel economy values for the vehicle configuration.

* * * * *

28. By revising paragraphs (d)(1) (i), (ii), and (iii) of § 600.207-77 to read as follows:

§ 600.207-77 Calculation and use of fuel economy values for a model type.

* * * * *

(d) * * *

(1) * * *

(i) Fuel cost per gallon expressed in dollars to the nearest 0.05 dollar, by

(ii) Average annual mileage, expressed in miles per year to the nearest 1,000 miles per year, by

(iii) The inverse, rounded to the nearest 0.0001 gallons per mile, of the combined fuel economy value for a model type (expressed in miles per gallon rounded to the nearest whole mile per gallon).

* * * * *

29. By adding a new § 600.207-78 to read as follows:

§ 600.207-78 Calculation and use of fuel economy values for a model type.

(a) Fuel economy values for a base level are calculated from vehicle configuration fuel economy values as determined in § 600.206(a) for low altitude tests.

(1) If the Administrator determines that automobiles intended for sale in the State of California are likely to exhibit significant differences in fuel economy from those intended for sale in other states, he will calculate fuel economy values for each base level for vehicles

intended for sale in California and for each base level for vehicles intended for sale in the rest of the states.

(2) The manufacturer shall supply model year sales projections for each vehicle configuration within each car line to the Administrator.

(i) Sales projections must be supplied separately for each vehicle configuration intended for sale in California and each configuration intended for sale in the rest of the states if required by the Administrator under paragraph (a)(1), of this section.

(ii) The sales projections must be updated as of the date a manufacturer requests that fuel economy calculations for a model type be made by the Administrator.

(iii) The requirements of this section may be satisfied by providing an amended application for certification, as described in § 86.007-21 of this chapter.

(3) Vehicle configuration fuel economy values, as determined in § 600.206(a), are grouped according to base level.

(i) If only one vehicle configuration within a base level has been tested, the fuel economy value from that vehicle configuration constitutes the fuel economy for that base level.

(ii) If more than one vehicle configuration within a base level have been tested, the vehicle configuration fuel economy values are harmonically averaged in proportion to the respective projected sales fraction (rounded to the nearest 0.0001) of each vehicle configuration and the resultant fuel economy value rounded to the nearest 0.0001 of a mile per gallon.

(iii) If the Administrator has not accepted fuel economy data derived from the testing of a certification vehicle (or a vehicle tested for running changes approved under § 86.078-23) for at least one vehicle configuration within each base level, the manufacturer shall submit (on or before the date that the manufacturer requests the Administrator to calculate the respective general label values) data as specified in § 600.006. The fuel economy data submitted shall be for the vehicle configuration with the largest projected sales within the respective base level.

(4) The procedure specified in § 600.207(a) will be repeated for each base level, thus establishing city, highway, and combined fuel economy values for each base level.

(5) For the purposes of calculating a base level fuel economy value, if the only vehicle configuration(s) within the base level are vehicle configuration(s) which are intended for sale at high altitude, the Administrator may use fuel economy data from tests conducted on these vehicle configuration(s) at high altitude to calculate the fuel economy for the base level.

(b) For each model type, as determined by the Administrator, a city, highway, and combined fuel economy value will be calculated by using the projected sales and fuel economy values for each base level within the model type.

(1) If the Administrator determines that automobiles intended for sale in the State of California are likely to exhibit significant differences in fuel economy from those intended for sale in other states, he will calculate fuel economy values for each model type separately for vehicles intended for sale in California and for those intended for sale in the rest of the states.

(2) The sales fraction for each base level is calculated by dividing the projected sales of the base level within the model type by the projected sales of the model type and rounding the quotient to the nearest 0.0001.

(3) The city fuel economy values of the model type (calculated to the nearest 0.0001 mpg) are determined by dividing one by a sum of terms, each of which corresponds to a base level and which is a fraction determined by dividing

(i) The sales fraction of the base level, by

(ii) The city fuel economy value for the respective base level.

(4) The procedure specified in paragraph (b)(3) of this section is repeated in an analogous manner to determine the highway and combined fuel economy values for the model type.

(c) The city, highway, and combined fuel economy values as calculated in § 600.207(b) and rounded to the nearest whole mile per gallon are the fuel economy values used on general labels for that model type.

(d) The annual fuel cost estimate for operating an automobile included in a model type will be computed by the Administrator by using values for the fuel cost per gallon and average annual mileage, predetermined by the Administrator, and the combined fuel economy determined in (b).

(1) The annual fuel cost estimate for a model type is computed by multiplying

(i) Fuel cost per gallon expressed in dollars to the nearest 0.05 dollar, by

(ii) Average annual mileage, expressed in miles per year to the nearest 1,000 miles per year, by

(iii) The inverse, rounded to the nearest 0.0001 gallons per mile, of the combined fuel economy value for a model type (expressed in miles per gallon rounded to the nearest whole mile per gallon).

(2) The product computed in (d)(1) and rounded to the nearest dollar per year will comprise the annual fuel cost estimate that appears on general labels for that model type.

30. By adding a new § 600.207-79 identical to § 600.207-78 except paragraph (a)(3)(iii) reads as follows:

§ 600.207-79 Calculation and use of fuel economy values for a model type.

(a) * * *

(3) * * *

(iii) If the Administrator has not accepted fuel economy data derived from the testing of a certification vehicle (or a vehicle tested for running changes approved under § 86.078-23) for at least one vehicle configuration within each base level, the manufacturer shall submit (on or before the date that the manufacturer requests the Administrator to calculate the respective general label values) data as specified in § 600.006. The fuel economy data submitted shall be for the vehicle configuration with the largest projected sales within the respective base level. The vehicle tested will be tested at the road load horsepower with the highest projected sales within the vehicle configuration.

* * * * *

31. By adding a new § 600.207-80 identical to § 600.207-78 except paragraph (a)(3)(iii) reads as follows:

§ 600.207-80 Calculation and use of fuel economy values for a model type.

(a) * * *

(3) * * *

(iii) If the Administrator has not accepted fuel economy data derived from the testing of a certification vehicle (or a vehicle tested for running changes approved under § 86.078-23) for at least one vehicle configuration within each base level, the manufacturer shall submit (on or before the date that the manufacturer requests the Administrator to calculate the respective general label values) data as specified in § 600.006. The fuel economy data submitted shall be for the vehicle configuration with the largest projected sales within the respective base level. The vehicle will be tested at the road load horsepower/test weight combination which has the largest projected sales within the vehicle configuration.

* * * * *

32. By adding a new § 600.309-80 to read as follows:

§ 600.309-80 Specific label contents.

The specific fuel economy label must contain the following:

(a) The information and statements as described in § 600.307(a) through (k);

(b) A statement that the fuel economy estimates are from tests of this specific vehicle configuration and might not be in the booklet described in Subpart E.

(c) A description of the applicable vehicle specifying:

(1) Car line,

(2) Engine displacement,

(3) Number of cylinders,

(4) Transmission class and number of forward speeds,

(5) Fuel metering system, including number of carburetor barrels, if applicable,

(6) Catalyst usage, if so equipped,

(7) Other engine or vehicle parameters, if approved by the Administrator,

(8) Inertia eight class,

(9) Axle ratio, and

(10) California emission control system usage, where applicable, if the Administrator determines that automobiles intended for sale in the State of California are likely to exhibit significant differences in fuel economy from those intended for sale in other States.

(d) Specific label fuel economy values and estimated fuel cost for that vehicle as determined according to § 600.206.

(e) The estimated range of fuel economy of comparable automobiles and effective date of the range except as provided in § 600.306(b)(1). This range is determined by the Administrator according to § 600.311 for each class of vehicles as described in § 600.315.

33. By adding a new § 600.313–78 to read as follows:

§ 600.313–78 Timetable for data and information submittal and review.

(a) The Administrator will notify the manufacturer of the classification of each of the manufacturer's car lines after the manufacturer makes a request for such determination.

(b) Each fuel economy label format which the manufacturer intends to use must be approved by the Administrator before the manufacturer requests the Administrator to determine fuel economy values for use on that type of label. For example, a California general label format must be approved by the Administrator before the manufacturer requests California general label fuel economy values.

(c) If a manufacturer requests and submits sufficient information, the Administrator will determine, according to Subpart C, general label or specific label fuel economy values based upon information submitted by the manufacturer.

(1) A manufacturer must submit sufficient information to determine general label fuel economy values within the following time constraints:

(i) For model types initially offered for sale on or before the date of the availability of the initial range of fuel economy values of comparable automobiles, the submission must be made prior to the date established by the Administrator.

(ii) For model types initially offered for sale after the date of the availability of the initial range of fuel economy values of comparable automobiles, the submission must be made no later than thirty calendar days before the date that the model is initially offered for sale.

(2) As of the date of the request, the manufacturer may not submit additional information pertaining to this request except as required by the Administrator.

(3) After receipt of a manufacturer's request for computation of label values, the Administrator will review, according to § 600.008, the fuel economy submission received from the manufacturer and notify the manufacturer of approval or request further data, information, or vehicles in accordance with the approval procedure specified in Subpart A.

(4) After receipt of a manufacturer's data, information, or vehicles in response to paragraph (c)(3), the Administrator will conduct any testing and complete data review required under subparagraph (3), and notify the manufacturer of the results of this testing and review.

(5) After completion of any testing or review of the data which satisfy the requirements of paragraph (c)(3), the Administrator will provide the manufacturer with general label and/or specific label (as requested under this paragraph) fuel economy values, annual fuel cost estimates, and a range of fuel economy of comparable automobiles (when a range is available) as calculated from approved data. After receipt of approved fuel economy label values, the manufacturer may use these data in the labeling of his automobiles.

(6) The manufacturer should submit any request for approval of data under this section at least 25 working days before he desires the Administrator's response. This should allow the Administrator sufficient time to conduct any additional testing required.

34. By adding a new Subpart F reading as follows:

Subpart F—Fuel Economy Regulations for 1978 and Later Model Year Automobiles—Procedures for Determining Manufacturer's Average Fuel Economy

§ 600.501–78 General applicability.

The provisions of this subpart are applicable to 1978 and later model year passenger automobiles.

§ 600.502–78 Definitions.

(a) The definitions in § 600.002 and the following definitions apply to this subpart.

(1) "Declared value" of imported components shall be the value at which components are declared by the importer to the U.S. Customs Service at the date of entry into the customs territory of the United States, or, with respect to imports into Canada, the declared value of such components as if they were declared as imports into the United States at the date of entry into Canada.

(2) "Cost of production" of a car line shall mean the aggregate of the products of:

(i) The average U.S. dealer wholesale price for such car line as computed from each official dealer price list effective during the course of a model year, and

(ii) The number of passenger automobiles within the car line produced during the part of the model year that the price list was in effect.

§ 600.503–78 Abbreviations

The abbreviations in § 600.003 apply to this subpart.

§ 600.504–78 Section numbering, construction.

The section numbering procedure set forth in § 600.004 applies to this subpart.

§ 600.505–78 Record keeping.

The record keeping procedure set forth in § 600.005 applies to this subpart.

§ 600.506–78 Preliminary determination of manufacturer's average.

(a) The manufacturer shall submit, for approval by the Administrator, a determination of his preliminary average fuel economy value.

(1) The average must be submitted within 10 days after the date of the availability of the initial range of fuel economy values of comparable automobiles (ref. § 600.314(d)(1)) or within 30 days after the date the manufacturer's first model type is initially offered for sale, whichever is later.

(2) The deadline for submission of the preliminary average may be waived upon petition by the manufacturer to the Administrator if the Administrator finds good cause. The Administrator will set a new reporting date if a waiver is granted.

(b) The preliminary average fuel economy value will be calculated according to the procedures in § 600.510 except that:

(1) Sales projections will be used for the calculations in place of the production values, and must be updated at the time of the preliminary calculation.

(2) The fuel economy data used in the calculation shall be that approved by the Administrator as of the date of the preliminary average calculation including:

(i) All fuel economy data from original certification vehicles and fuel economy data vehicles as required by § 600.207,

(ii) Fuel economy data from all vehicles tested for running changes approved under § 86.077–23, and

(iii) Fuel economy data required by paragraph (d).

(iv) Other fuel economy data accepted by the Administrator under Subpart A.

(c) Minimum data requirements will be established under paragraph (d) of this section for each base level with a sales fraction of 0.0100 or greater (known as a significant base level).

(1) The sales to be used in this determination are those in paragraph (b)(1) of this section.

(2) For the purposes of this section, the sales fraction for a base level shall be the quotient (rounded to the nearest 0.0001) of projected sales of the base level divided by the manufacturer's total projected sales of passenger automobiles, where total projected sales are calculated according to § 600.511 except that projected sales are used in place of production values.

(d) For each significant base level identified in paragraph (c) of this section the manufacturer shall submit prior to the submission of the preliminary calculation, fuel economy data for those vehicle configurations, taken in order of decreasing sales (according to the projection submitted in paragraph (b)(1) of this section, whose sales total a minimum of 90 percent of the sales of that base level. For all other base levels, the minimum data requirements of § 600.207(a)(3)(iii) must be met.

(e) All fuel economy data submitted under this subpart must:

(1) Be determined by the test procedures specified in Subpart B or an approved analytical method as permitted under § 600.006(e), and

(2) Be accepted by the Administrator under the requirements of Subpart A.

§ 600.507–78 Running change data requirements.

(a) The manufacturer will be required to submit additional running change

fuel economy data for any running change approved under § 86.077–23 which creates a new vehicle configuration in a significant base level originally identified for minimum data under § 600.506 (c), or subsequently identified in § 600.508(b), unless exempted by the Administrator.

(1) The manufacturer may petition the Administrator for an exemption from the requirement to submit additional running change fuel economy data.

(2) If the exemption is not granted, the Administrator will notify the manufacturer of the denial and the manufacturer shall submit running change fuel economy data as prescribed in this section.

(b) The additional fuel economy data required for a running change in paragraph (a) of this section will be determined based on the sales of the vehicle configurations in the affected base level as updated and submitted to the Administrator at the time of running change approval.

(1) Within each base level identified in paragraph (a) of this section, fuel economy data shall be submitted for the new vehicle configuration, created by the running change, with the greatest projected sales.

(2) Fuel economy data required by this section shall be submitted no later than 30 days after the manufacturer receives approval of the running change for those running changes approved after the calculation of the manufacturer's preliminary average, and no later than 90 days after the calculation of the preliminary average for those running changes approved prior to the calculation of the preliminary average.

(c) Any manufacturer required to submit data under this section as a result of an addition of a base level under § 600.508, must submit data on any running change identified by paragraph (a) of this section.

(1) Data identified by paragraph (a) of this section which were approved prior to the date of approval to add the base level which caused the recalculation of the preliminary average fuel economy value according to § 600.508, must meet the requirements of (b) of this section, except that the data may be submitted at any time before the final calculation of the manufacturer's average fuel economy value in § 600.510.

(2) Any running change identified by paragraph (a) of this section approved on or after that date must be submitted according to paragraph (b)(2) of this section.

§ 600.507–79 Running change data requirements.

(a) The manufacturer will be required to submit additional running change fuel economy data for any running change approved under § 86.077–23 which creates a new vehicle configuration in a significant base level originally identified for minimum data under § 600.506 (c), or subsequently identified in § 600.508(b), unless exempted by the Administrator.

(1) The manufacturer may petition the Administrator for an exemption from the requirement to submit additional running change fuel economy data.

(2) If the exemption is not granted, the Administrator will notify the manufacturer of the denial and the manufacturer shall submit running change fuel economy data as prescribed in this section.

(b) The additional fuel economy data required for a running change in paragraph (a) of this section will be determined based on the sales of the vehicle configurations in the affected base level as updated and submitted to the Administrator at the time of running change approval.

(1) Within each base level identified in paragraph (a) of this section, fuel economy data shall be submitted for the new vehicle configuration created by the running change, with the greatest projected sales. Unless that configuration was specified and tested under § 86.078–23, the Administrator will specify the road load horsepower for the test vehicle.

(2) Fuel economy data required by this section shall be submitted no later than 30 days after the manufacturer receives approval of the running change for those running changes approved after the calculation of the manufacturer's preliminary average, and no later than 90 days after the calculation of the preliminary average for those running changes approved prior to the calculation of the preliminary average.

(c) Any manufacturer required to submit data under this section as a result of an addition of a base level under § 600.508, must submit data on any running change identified by paragraph (a) of this section.

(1) Data identified by paragraph (a) of this section which were approved prior to the date of approval to add the base level which caused the recalculation of the preliminary average fuel economy value according to § 600.508, must meet the requirements of (b) of this section, except that the data may be submitted at any time before the final calculation of the manufacturer's average fuel economy value in § 600.510.

(2) Any running change identified by paragraph (a) of this section approved on or after that date, must be submitted according to paragraph (b)(2) of this section.

§ 600.507–80 Running change data requirements.

(a) The manufacturer will be required to submit additional running change fuel economy data for any running change approved under § 86.077–23 which creates a new vehicle configuration in a significant base level originally identified for minimum data under § 600.506 (c), or subsequently identified in § 600.508(b), unless exempted by the Administrator.

(1) The manufacturer may petition the Administrator for an exemption from the requirement to submit additional running change fuel economy data.

(2) If the exemption is not granted, the Administrator will notify the manufacturer of the denial and the manufacturer shall submit running change fuel economy data as prescribed in this section.

(b) The additional fuel economy data required for a running change in paragraph (a) of this section will be determined based on the sales of the vehicle configurations in the affected base level as updated and submitted to the Administrator at the time of running change approval.

(1) Within each base level identified in paragraph (a) of this section, fuel economy data shall be submitted for the new vehicle configuration, created by the running change, with the greatest projected sales. Unless that configuration was specified and tested under § 86.078–23, the Administrator will specify the road load horsepower and test weight for the test vehicle.

(2) Fuel economy data required by this section shall be submitted no later than 30 days after the manufacturer receives approval of the running change for those running changes approved after the calculation of the manufacturer's preliminary average, and no later than 90 days after the calculation of the preliminary average for those running changes approved prior to the calculation of the preliminary average.

(c) Any manufacturer required to submit data under this section as a result of an addition of a base level under § 600.508, must submit data on any running change identified by paragraph (a) of this section.

(1) Data identified by paragraph (a) of this section which were approved prior to the date of approval to add the base level which caused the recalculation of the preliminary average fuel economy value according to § 600.508, must meet the requirements of (b) of this section, except that the data may be submitted at any time before the final calculation of the manufacturer's average fuel economy value in § 600.510.

(2) Any running change identified by paragraph (a) of this section approved on or after that date, must be submitted according to paragraph (b)(2) of this section.

§ 600.508–78 Addition of a base level—data requirements.

(a) Any manufacturer who adds a base level to his product line at any time after the preliminary determination of his average fuel economy value in § 600.506, shall submit in accordance with the requirements of § 600.207, fuel economy and sales projection data for such base level.

(b) If a new base level being added has a sales fraction of 0.0100 or greater (as defined in § 600.506(c)(2) using sales updated as of the date of receipt of approval to add the base level, the manufacturer shall, within 30 days of receipt of the approval:

(1) Submit to the Administrator the minimum data required in accordance with § 600.506(c), and then

(2) Recalculate and submit to the Administrator fuel economy values in accordance with procedures in § 600.506 except that all fuel economy data approved by the Administrator to date shall be used.

(c) If the total projected sales, updated as of the date of approval to add the latest base level, of all base levels added since the latest calculation in § 600.506 is equal to a sales fraction of 0.0300 or greater (as defined in § 600.506 (c)(2)), the manufacturer shall recalculate his average as in paragraph (b)(2).

(d) Any manufacturer required under paragraph (b) or (c) to perform a recalculation may be required by the Administrator to supply any additional data required under § 600.507 regardless of any exemption granted under § 600.507(a) based upon the results of that recalculation.

§ 600.509–78 Voluntary submission of additional data.

(a) The manufacturer may, at his option, submit data in addition to the data required by the Administrator.

(1) Additional fuel economy data may be submitted by the manufacturer for any vehicle configuration which is to be tested as required in § 600.506 or § 600.507 or for which fuel economy data were previously submitted under paragraph (a)(2) of this section.

(2) Within a base level, additional fuel economy data may be submitted by the manufacturer for any vehicle configuration which is not required to be tested by § 600.506 or § 600.507. Additional data which is submitted within a base level after the calculation of the manufacturer's preliminary average fuel economy must be submitted in rank order such that data is first submitted for all configurations with a higher sales fraction (as defined in § 600.506(c)(2)).

§ 600.510–78 Calculation of average fuel economy.

(a) Average fuel economy will be calculated to the nearest 0.1 mpg for the classes of automobiles identified herein, and the results of such calculations will be reported to the Secretary of Transportation for use in determining compliance with the applicable fuel economy standards.

(1) An average fuel economy calculation will be made for the category of passenger automobiles that are domestically manufactured plus the includable imports as defined in § 600.511(d)(1).

(2) An average fuel economy calculation will be made for the category of passenger automobiles that are not domestically manufactured as defined in § 600.511(d)(2).

(b) For the purpose of calculating average fuel economy under paragraphs (c) and (e) of this section:

(1) All fuel economy data submitted under § 600.512 must be used.

(2) Fuel economy will be calculated for each model type according to § 600.207 except that:

(i) Separate fuel economy values will be calculated for model types and base levels associated with car lines that are:

(A) Domestically produced and

(B) Non-domestically produced and imported;

(ii) Model year passenger automobile production data, as required by this subpart, will be used instead of sales projections;

(iii) The fuel economy value of diesel-powered model types will be multiplied by the factor 1.0 to convert gallons of diesel fuel to equivalent gallons of gasoline;

(iv) The fuel economy value will be rounded to the nearest 0.1 mpg; and

(v) High altitude test data will be included.

(3) The fuel economy value for each vehicle configuration is the combined fuel economy calculated according to § 600.206 except that:

(i) Separate fuel economy values will be calculated for vehicle configurations associated with car lines that are:

(A) Domestically produced and

(B) Non-domestically produced and imported;

(ii) Model year passenger automobile production data, as required by this subpart, will be used instead of sales projections; and

(iii) The fuel economy value of diesel-powered model types will be multiplied by the factor 1.0 to convert gallons of diesel fuel to equivalent gallons of gasoline.

(c) *For passenger automobiles*, average fuel economy will be calculated as follows:

(1) For the category of passenger automobiles defined in § 600.511(d)(1), divide:

(i) The total domestic production volume plus the includable import volume, as determined in § 600.511, by

(ii) A sum of terms, where

(A) One term is a fraction determined by dividing the includable import volume by the average passenger automobile fuel economy value determined in paragraph (e) of this section, and

(B) Each of the remaining terms corresponds to a domestically produced model type and is a fraction determined by dividing the total production volume of that model type by the fuel economy value for that model type calculated in accordance with paragraph (b)(2).

(2) The average fuel economy for the category of automobiles defined in § 600.511(d)(2) is the value calculated in accordance with paragraph (e).

(d) [Reserved]

(e) An average fuel economy value will be calculated for those passenger automobiles which are not domestically produced and which are imported by a manufacturer, as specified below.

(1) Divide the total volume of passenger automobiles which are not domestically produced and which are imported by

(2) A sum of terms, each of which corresponds to a model type and is a fraction determined by dividing:

(i) The number of passenger automobiles of that model type imported by the manufacturer in the model year, by

(ii) The fuel economy calculated for that model type in accordance with paragraph (b)(2) of this section.

§ 600.510–80 Calculation of average fuel economy.

(a) Average fuel economy will be calculated to the nearest 0.1 mpg for the classes of automobiles identified herein, and the results of such calculations will be reported to the Secretary of Transportation for use in determining compliance with the applicable fuel economy standards.

(1) An average fuel economy calculation will be made for the category of passenger automobiles defined in § 600.511(d)(1).

(2) An average fuel economy calculation will be made for the category of passenger automobiles defined in § 600.511(d)(2).

(b) For the purpose of calculating average fuel economy under paragraphs (c) and (e) of this section:

(1) All fuel economy data submitted under § 600.512 must be used.

(2) Fuel economy will be calculated for each model type according to § 600.207 except that:

(i) Separate fuel economy values will be calculated for model types and base levels associated with car lines that are:

(A) Domestically produced and

(B) Non-domestically produced and imported;

(ii) Model year passenger automobile production data, as required by this subpart, will be used instead of sales projections;

(iii) The fuel economy value of diesel-powered model types will be multiplied by the factor 1.0 to convert gallons of diesel fuel to equivalent gallons of gasoline;

(iv) The fuel economy value will be rounded to the nearest 0.1 mpg; and

(v) High altitude test data will be included.

(3) The fuel economy value for each vehicle configuration is the combined fuel economy calculated according to § 600.206 except that:

(i) Separate fuel economy values will be calculated for vehicle configurations associated with car lines that are:

(A) Domestically produced and

(B) Non-domestically produced and imported;

(ii) Model year passenger automobile production data, as required by this subpart, will be used instead of sales projections; and

(iii) The fuel economy value of diesel-powered model types will be multiplied by the factor 1.0 to convert gallons of diesel fuel to equivalent gallons of gasoline.

(c) *For passenger automobiles*, average fuel economy will be calculated as follows:

(1) For the category of passenger automobiles defined in § 600.511(d)(1), divide:

(i) The total domestic production volume by

(ii) A sum of terms, where each corresponds to a domestically produced model type and is a fraction determined by dividing the total production volume of that model type by the fuel economy value for that model type calculated in accordance with paragraph (b)(2).

(2) The average fuel economy for the category of automobiles defined in § 600.-

511(d)(2) is the value calculated in accordance with paragraph (e) of this section.

(d) [Reserved]

(e) An average fuel economy value will be calculated for those passenger automobiles which are not domestically produced and which are imported by a manufacturer, as specified below.

(1) Divide the total volume of passenger automobiles which are not domestically produced and which are imported by

(2) A sum of terms, each of which corresponds to a model type and is a fraction determined by dividing:

(i) The number of passenger automobiles of that model type imported by the manufacturer in the model year, by

(ii) The fuel economy calculated for that model type in accordance with paragraph (b)(2) of this section.

§ 600.511–78 Determination of domestic production.

(a) An automobile shall be considered domestically produced in any model year if it is included within a domestically produced car line (car line includes station wagons for purposes of this paragraph), unless the assembly of such automobile is completed in Canada and such automobile is not imported into the United States prior to the expiration of 30 days following the end of the model year. For purposes of this paragraph, a car line will be considered domestically produced if the following ratio is less than 0.25:

(1) The sum of the declared value, as defined in § 600.502, of all of the imported components installed or included on automobiles produced within such a car line within a given model year plus the cost of transportation and insuring such components to the United States or Canadian port of entry but exclusive of any customs duty, divided by

(2) The cost of production, as defined in § 600.502, of automobiles within such car line.

(b) For the purposes of calculations under this subpart with respect to automobiles manufactured during any model year,

(1) An average exchange rate for the country of origin of each imported component shall be used that is calculated by taking the mean of the exchange rates in effect at the end of each quarter set by the Federal Reserve Bank of New York for twelve calendar quarters prior to and including the calendar quarter ending one year prior to the date that the manufacturer submits the calculation of the preliminary average for such model year. Such rate, once calculated, shall be in effect for the duration of the model year. Upon petition of a manufacturer, the Administrator may permit the use of a different exchange rate where appropriate and necessary.

(2) Components shall be considered imported unless they are either:

(i) Wholly the growth, product, or manufacture of the United States and/or Canada, or

(ii) Substantially transformed in the United States or Canada into a new and different article of commerce.

(c) If it is determined by the Administrator at some date later than the date of entry that the declared value of such imported components did not represent fair market value at the date of entry, through U.S. Bureau of Customs appraisals, the Administrator may review the determination made pursuant to paragraph (a) of this section as to whether the pertinent car lines which utilize such components were correctly included within the manufacturer's domestically-produced or foreign-produced fleets. If such a determination was in error due to misrepresentation of the valuation of imported components at the date of entry, the Administrator may recalculate the manufacturer's average for the affected model year, according to § 600.510, to reflect the correct valuation of such imported components in each affected car line.

(d) In calculating average fuel economy under § 600.510(c), the Administrator will separate the total number of passenger automobiles produced by a manufacturer into the following two categories:

(1) Passenger automobiles which are domestically produced by the manufacturer plus passenger automobiles which are within the includable import volume of the manufacturer.

(2) Passenger automobiles which are not domestically produced by the manufacturer, are imported by the manufacturer, and are not within the includable import volume of the manufacturer.

(e) For purposes of this section:

(1) The term "includable import volume," with respect to any manufacturer, is the number of passenger automobiles which is the lesser of

(i) The manufacturer's base import volume or

(ii) The number of passenger automobiles calculated by multiplying

(A) The quotient obtained by dividing the manufacturer's base import volume by the manufacturer's base production volume, times

(B) The total number of passenger automobiles produced by the manufacturer during such model year.

(2) The term "base import volume" means one-half the sum of:

(i) The total number of passenger automobiles which were not domestically produced by the manufacturer during the 1974 model year and which were imported by the manufacturer during the 1974 model year, plus

(ii) 133 percent of the total number of passenger automobiles which were not domestically produced by the manufacturer during the first 9 months of model year 1975 and which were imported by the manufacturer during that 9-month period.

(3) The term "base production volume" means one-half of the sum of

(i) The total number of passenger automobiles produced by the manufacturer during model year 1974 plus

(ii) 133 percent of the total number of passenger automobiles produced by the manufacturer during the first 9 months of model year 1975.

(f) For purposes of paragraph (e) of this section, any passenger automobile

imported during model year 1976, but prior to July 1, 1975, will be deemed to have been produced (and imported) during the first 9 months of model year 1975.

§ 600.511–80 Determination of domestic production.

(a) An automobile shall be considered domestically produced in any model year if it is included within a domestically produced car line (car line includes station wagons for purposes of this paragraph), unless the assembly of such automobile is completed in Canada and such automobile is not imported into the United States prior to the expiration of 30 days following the end of the model year. For purposes of this paragraph, a car line will be considered domestically produced if the following ratio is less than 0.25:

(1) The sum of the declared value, as defined in § 600.502, of all of the imported components installed or included on automobiles produced within such a car line within a given model year plus the cost of transportation and insuring such components to the United States or Canadian port of entry but exclusive of any customs duty, divided by

(2) The cost of production, as defined in § 600.502, of automobiles within such car line.

(b) For the purposes of calculations under this subpart with respect to automobiles manufactured during any model year,

(1) An average exchange rate for the country of origin of each imported component shall be used that is calculated by taking the mean of the exchange rates in effect at the end of each quarter set by the Federal Reserve Bank of New York for twelve calendar quarters prior to and including the calendar quarter ending one year prior to the date that the manufacturer submits the calculation of the preliminary average for such model year. Such rate, once calculated, shall be in effect for the duration of the model year. Upon petition of a manufacturer, the Administrator may permit the use of a different exchange rate where appropriate and necessary.

(2) Components shall be considered imported unless they are either:

(i) Wholly the growth, product, or manufacture of the United States and/or Canada, or

(ii) Substantially transformed in the United States or Canada into a new and different article of commerce.

(c) If it is determined by the Administrator at some date later than the date of entry that the declared value of such imported components did not represent fair market value at the date of entry, through U.S. Bureau of Customs appraisals, the Administrator may review the determination made pursuant to paragraph (a) of this section as to whether the pertinent car lines which utilize such components were correctly included within the manufacturer's domestically-produced or foreign-produced fleets. If such a determination was in error due to misrepresentation of the valuation of imported components at the date of entry, the Administrator may recalculate the manufacturer's average for the affected model year, according to § 600.510, to reflect the correct valuation of such imported components in each affected car line.

(d) In calculating average fuel economy under § 600.510(c), the Administrator will separate the total number of passenger automobiles produced by a manufacturer into the following two categories:

(1) Passenger automobiles which are domestically produced by the manufacturer,

(2) Passenger automobiles which are not domestically produced and which are imported by the manufacturer.

§ 600.512–78 Model year report.

(a) For each model year, the manufacturer shall submit to the Administrator a report, known as the model year report, containing all information necessary for the calculation of the manufacturer's average fuel economy.

(b)(1) The model year report shall be in writing, signed by the authorized representative of the manufacturer and shall be submitted no later than 60 days after the report required in § 86.078–37 for the final production quarter.

(2) The Administrator may waive the requirement that the model year report be submitted within 60 days after the final quarterly production report. Based upon a request by the manufacturer, if the Administrator determines that 60 days is insufficient time for the manufacturer to provide all additional data required as determined in either §§ 600.506, 600.507, or 600.508, the Administrator shall establish a date by which the model year report must be submitted.

(c) The model year report must include the following information:

(1) All fuel economy data used in the preliminary calculation and subsequently required by the Administrator either under §§ 600.506, 600.507, or 600.508.

(2) All fuel economy data for certification vehicles, and for vehicles tested for running changes approved under paragraph 86.078–33.

(3) Any additional fuel economy data submitted by the manufacturer under § 600.509.

(4) A fuel economy value for each model type of the manufacturer's product line calculated according to § 600.510.

(5) The manufacturer's average fuel economy value calculated according to § 600.510.

(6) A listing of both domestically and non-domestically produced car lines as determined in § 600.511 and the cost information upon which the determination was made.

(7) Production data, the authenticity and accuracy of which shall be attested to by the corporation, and shall bear the signature of the Chief Executive Officer.

35. By adding new Appendices I and II to Part 600 reading as follows:

APPENDIX I.—HIGHWAY FUEL ECONOMY DRIVING SCHEDULE

(Applicable to 1978 and later model year automobiles.)

*** SPEED (MPH) VS TIME (SEC) ***

SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH
0	SAMPLE ON	50	30.6	100	48.5	150	44.1	200	43.4	250	48.0	300	33.4	350	59.0
1	0.0	51	29.3	101	48.6	151	44.3	201	43.2	251	48.0	301	35.0	351	58.9
2	0.0	52	28.0	102	49.1	152	44.4	202	43.2	252	48.0	302	37.5	352	58.8
3	2.0	53	26.7	103	49.2	153	44.6	203	43.1	253	48.1	303	39.1	353	58.6
4	4.9	54	25.6	104	49.1	154	44.7	204	43.0	254	48.2	304	40.2	354	58.5
5	8.1	55	24.2	105	49.1	155	44.9	205	43.0	255	48.2	305	41.1	355	58.2
6	11.3	56	22.9	106	49.0	156	45.2	206	43.1	256	48.1	306	41.8	356	58.1
7	14.5	57	21.5	107	49.0	157	45.7	207	43.4	257	48.0	307	42.4	357	58.0
8	17.3	58	20.0	108	49.1	158	46.2	208	43.7	258	48.0	308	42.8	358	57.9
9	19.6	59	18.3	109	49.2	159	46.3	209	44.0	259	49.1	309	43.1	359	57.6
10	21.8	60	16.5	110	49.3	160	46.6	210	43.5	260	49.1	310	43.8	360	57.4
11	24.6	61	14.6	111	49.4	161	46.9	211	42.6	261	49.1	311	44.3	361	57.2
12	27.8	62	14.9	112	49.5	162	47.6	212	41.5	262	49.1	312	44.7	362	57.1
13	27.1	63	15.6	113	49.5	163	47.1	213	40.7	263	49.1	313	45.0	363	57.0
14	28.0	64	15.1	114	49.5	164	47.6	214	40.0	264	49.0	314	45.2	364	57.0
15	29.0	65	15.4	115	49.4	165	47.9	215	40.0	265	48.9	315	45.4	365	56.9
16	30.0	66	15.7	116	49.1	166	48.0	216	40.3	266	48.2	316	45.5	366	56.9
17	30.7	67	16.0	117	48.9	167	44.0	217	41.0	267	47.7	317	45.6	367	56.9
18	31.5	68	16.3	118	48.6	168	47.9	218	42.0	268	47.5	318	46.0	368	57.0
19	32.2	69	16.5	119	48.4	169	47.8	219	42.7	269	47.2	319	46.1	369	57.0
20	32.9	70	16.8	120	48.1	170	47.3	220	43.1	270	46.7	320	46.5	370	57.0
21	33.5	71	16.9	121	47.7	171	46.7	221	43.2	271	46.2	321	46.8	371	57.0
22	34.1	72	17.0	122	47.4	172	46.2	222	43.4	272	46.0	322	47.1	372	57.0
23	34.6	73	17.1	123	47.3	173	45.9	223	43.9	273	45.8	323	47.7	373	57.0
24	34.9	74	17.2	124	47.5	174	45.7	224	44.3	274	45.6	324	48.3	374	57.0
25	35.1	75	17.3	125	47.8	175	45.5	225	44.7	275	45.4	325	49.0	375	57.0
26	35.2	76	17.2	126	47.9	176	45.4	226	45.1	276	45.2	326	49.7	376	57.0
27	35.0	77	17.1	127	48.0	177	45.3	227	45.4	277	45.0	327	50.3	377	56.9
28	34.8	78	17.0	128	47.9	178	45.0	228	45.8	278	44.7	328	51.0	378	56.8
29	34.3	79	16.9	129	47.9	179	44.8	229	46.5	279	44.5	329	51.7	379	56.5
30	34.0	80	16.9	130	47.9	180	43.1	230	44.9	280	44.2	330	52.4	380	56.2
31	34.5	81	16.9	131	48.0	181	42.2	231	47.2	281	43.5	331	53.1	381	55.9
32	34.8	82	17.0	132	48.0	182	41.5	232	47.4	282	42.8	332	53.8	382	56.0
33	34.8	83	17.1	133	44.0	183	41.5	233	47.3	283	42.0	333	54.5	383	56.0
34	35.1	84	17.1	134	47.9	184	42.1	234	47.3	284	40.1	334	55.2	384	56.1
35	35.2	85	17.2	135	47.3	185	42.9	235	47.2	285	38.6	335	55.8	385	56.4
36	35.1	86	17.1	136	46.8	186	43.5	236	47.2	286	37.5	336	56.4	386	56.7
37	34.2	87	17.0	137	43.3	187	43.9	237	47.2	287	35.8	337	56.9	387	56.9
38	34.5	88	16.9	138	41.2	188	43.6	238	47.1	288	34.1	338	57.0	388	57.1
39	34.7	89	16.5	139	39.5	189	43.3	239	47.0	289	34.6	339	57.1	389	57.3
40	34.9	90	16.3	140	39.2	190	43.0	240	47.0	290	33.3	340	57.3	390	57.4
41	37.0	91	16.2	141	39.0	191	43.1	241	46.9	291	32.5	341	57.6	391	57.6
42	37.0	92	16.3	142	39.0	192	43.5	242	46.6	292	31.7	342	57.8	392	57.2
43	37.0	93	16.5	143	39.1	193	43.9	243	46.9	293	30.6	343	58.0	393	57.0
44	37.0	94	16.9	144	39.5	194	44.3	244	47.0	294	29.8	344	58.1	394	56.9
45	37.0	95	17.1	145	40.1	195	44.6	245	47.2	295	28.8	345	58.4	395	56.6
46	37.0	96	17.4	146	41.0	196	44.9	246	47.5	296	28.4	346	58.7	396	56.3
47	37.1	97	17.7	147	42.0	197	45.0	247	47.9	297	28.0	347	58.8	397	56.1
48	37.3	98	18.0	148	43.1	198	44.6	248	48.0	298	29.5	348	58.9	398	56.0
49	37.6	99	18.2	149	43.7	199	43.9	249	48.0	299	31.4	349	59.0	399	56.1

SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH	SEC	MPH
400	57.1	450	58.2	500	54.7	550	55.8	600	48.3	650	50.2	700	54.2	750	24.8
401	57.5	451	58.1	501	54.6	551	55.6	601	48.0	651	50.7	701	54.5	751	24.5
402	57.8	452	57.8	502	54.4	552	55.4	602	47.7	652	51.1	702	54.8	752	23.5
403	58.0	453	57.8	503	54.3	553	55.2	603	47.8	653	51.7	703	55.0	753	19.8
404	58.0	454	57.8	504	54.3	554	55.1	604	47.7	654	52.2	704	55.5	754	17.4
405	58.0	455	57.9	505	54.2	555	55.0	605	47.9	655	52.5	705	55.9	755	15.1
406	58.0	456	58.0	506	54.1	556	54.9	606	48.2	656	52.1	706	56.1	756	12.4
407	58.1	457	58.0	507	54.1	557	54.9	607	48.8	657	51.6	707	56.1	757	9.2
408	58.0	458	57.9	508	54.1	558	54.8	608	49.1	658	51.1	708	56.0	758	7.0
409	57.9	459	57.9	509	54.0	559	54.6	609	49.4	659	51.0	709	56.5	759	5.6
410	57.8	460	58.0	510	54.0	560	54.1	610	49.9	660	51.0	710	56.7	760	5.3
411	57.7	461	58.1	511	54.0	561	53.6	611	49.8	661	51.1	711	56.7	761	5.0
412	57.7	462	58.1	512	54.0	562	53.4	612	47.1	662	51.4	712	57.0	762	4.7
413	57.8	463	58.2	513	54.0	563	53.3	613	46.2	663	51.7	713	57.3	763	4.0
414	57.9	464	58.3	514	54.0	564	53.1	614	44.1	664	52.0	714	57.7	764	4.0
415	58.0	465	58.3	515	54.0	565	52.9	615	44.1	665	52.2	715	58.2	765	SAMPLE OFF
416	58.1	466	58.3	516	54.0	566	52.6	616	44.2	666	52.5	716	58.6	MON APR 22/74	
417	58.1	467	58.2	517	54.1	567	52.4	617	44.4	667	52.6	717	59.1		
418	58.0	468	58.1	518	54.2	568	52.2	618	44.8	668	52.7	718	59.2		
419	58.1	469	58.0	519	54.5	569	52.1	619	45.0	669	52.6	719	59.1		
420	58.4	470	57.8	520	54.8	570	52.0	620	45.2	670	52.3	720	58.8		
421	58.5	471	57.5	521	54.9	571	52.0	621	45.4	671	52.3	721	58.5		
422	58.4	472	57.1	522	55.0	572	52.0	622	45.5	672	52.4	722	58.1		
423	58.4	473	57.0	523	55.1	573	52.0	623	45.7	673	52.5	723	57.7		
424	58.8	474	56.6	524	55.2	574	52.1	624	46.1	674	52.3	724	57.3		
425	58.6	475	56.1	525	55.2	575	52.0	625	46.8	675	52.1	725	57.1		
426	58.4	476	56.0	526	55.3	576	52.0	626	47.4	676	52.4	726	56.8		
427	58.2	477	55.8	527	55.4	577	51.9	627	48.1	677	52.1	727	56.5		
428	58.1	478	55.5	528	55.5	578	51.6	628	48.1	678	51.7	728	56.2		
429	58.0	479	55.2	529	55.6	579	51.4	629	48.4	679	51.1	729	55.5		
430	58.0	480	55.1	530	55.7	580	51.1	630	48.7	680	50.5	730	54.6		
431	54.7	481	55.0	531	55.8	581	50.7	631	49.1	681	50.1	731	54.1		
432	54.6	482	54.9	532	55.9	582	50.3	632	49.4	682	49.8	732	53.7		
433	54.5	483	54.9	533	56.0	583	49.9	633	49.4	683	49.7	733	53.2		
434	54.4	484	54.9	534	56.0	584	49.3	634	49.6	684	49.6	734	52.9		
435	54.4	485	54.9	535	56.0	585	48.7	635	49.5	685	49.5	735	52.5		
436	54.3	486	54.9	536	56.0	586	48.2	636	49.4	686	49.5	736	52.0		
437	54.2	487	54.9	537	56.0	587	48.1	637	49.5	687	49.7	737	51.3		
438	54.1	488	55.0	538	56.0	588	47.9	638	49.6	688	49.8	738	50.5		
439	54.0	489	55.0	539	56.0	589	48.1	639	49.2	689	50.0	739	49.5		
440	53.9	490	55.0	540	56.0	590	48.1	640	48.5	690	50.0	740	48.5		
441	53.9	491	55.0	541	56.0	591	48.4	641	48.2	691	50.1	741	47.4		
442	53.9	492	55.0	542	56.0	592	48.9	642	48.8	692	50.0	742	46.6		
443	53.9	493	55.0	543	56.0	593	49.0	643	48.9	693	49.9	743	45.6		
444	53.9	494	55.1	544	56.0	594	49.1	644	49.3	694	49.8	744	44.2		
445	54.0	495	55.1	545	56.0	595	49.1	645	49.8	695	49.6	745	42.5		
446	54.1	496	55.0	546	56.0	596	49.0	646	47.5	696	49.4	746	39.2		
447	54.1	497	54.9	547	55.9	597	49.0	647	46.2	697	49.9	747	35.9		
448	54.2	498	54.9	548	55.9	598	48.9	648	46.4	698	50.3	748	32.4		
449	54.2	499	54.8	549	55.9	599	48.6	649	47.5	699	50.7	749	29.3		

APPENDIX II.—SAMPLE TEST VALUE CALCULATIONS

(APPLICABLE TO 1978 AND LATER MODEL YEAR AUTOMOBILES)

(a) Assume that a gasoline-fueled vehicle was tested by the Federal Emission Test Procedure and the following results were calculated:
HC = 1.03 grams/mile
CO = 6.74 grams/mile
CO_2 = 785 grams/mile

According to the procedure in § 600.113, the city fuel economy or MPG_c for the vehicle may be calculated by substituting the HC, CO, and CO_2 gram/mile values into the following equation.

$$MPG_c = \frac{2421}{(0.866 \times HC) + (0.429 \times CO) + (0.273 \times CO_2)}$$

$$= \frac{2421}{(0.866 \times 1.03) + (0.429 \times 6.74) + (0.273 \times 785)}$$

$$= \frac{2421}{218.1}$$

$$= 11.1 \text{ MPG}$$

(b) Assume that the same vehicle was tested by the Federal Highway Fuel Economy Test Procedure and a calculation similar to that shown in (a) resulted in a highway fuel economy or MPG_h of 18.6. According to the procedure in § 600.113, the combined fuel economy (called $MPG_{c/h}$) for the vehicle may be calculated by substituting the city and highway fuel economy values into the following equation:

$$MPG_{c/h} = \frac{1}{\frac{0.55}{MPG_c} + \frac{0.45}{MPG_h}}$$

$$= \frac{1}{\frac{0.55}{11.1} + \frac{0.45}{18.6}}$$

$$= \frac{1}{0.0737}$$

$$MPG_{c/h} = 13.6 \text{ MPG}$$

36. By replacing all blanket citations of statutory authority for Part 600 with the following single citation:

AUTHORITY: Sec. 301, Pub. L. 94-163, 89 Stat. 901 et seq. (15 U.S.C. 2001, 2003, 2005, 2006).

[FR Doc.77-26374 Filed 9-9-77;8:45 am]

[FRL 779-2]

PART 600—FUEL ECONOMY OF MOTOR VEHICLES

Fuel Economy Labeling and Other Requirements for 1978 and Later Model Year Automobiles

AGENCY: Environmental Protection Agency.

ACTION: Final rulemaking.

SUMMARY: An NPRM published June 6, 1977 (42 FR 28969) proposed several changes to the fuel economy labeling regulations to make the information which appears on fuel economy labels more useful to the consumer. This action adopts several of the proposed changes (essentially as proposed) as follows: division of the "Subcompact" class of passenger automobiles, division of the "Van/Special Purpose Truck" class, use of a normalized width dimension in determining the interior volume index of passenger automobiles, prohibition of the use of specific labels, the requirement that final stage manufacturers affix the fuel economy label, and addition of the number of forward speeds and overdrive to the definition of base level.

EFFECTIVE DATE: September 12, 1977.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: On November 10, 1976, the Environmental Protection Agency promulgated a final rule on fuel economy labeling procedures for 1977 and later model year automobiles (41 FR 49752). At that time EPA recognized the need to consider appropriate improvements to the program and solicited comments from interested parties on several issues regarding vehicle classification and labeling requirements. As a result of these and other comments, several suggested changes to the labeling regulations were proposed by EPA on June 6, 1977 (42 FR 28970).

After receipt of comments from manufacturers, the general public and consumer groups, EPA determined that final action could be taken on a number of proposals, but that others could not be decided on the basis of comments and information received. Thus, resolution of the following issues is deferred and will be the subject of a future rulemaking for 1979 and later model years: Change to the fuel economy estimates used in fuel economy labeling and the "Gas Mileage Guide," changes in the procedures for calculation of cargo volume for station wagons and hatchbacks to determine comparable class for fuel economy labeling, change in the measurement procedure for front seat leg room, and engine code redefinition in relationship to air conditioning usage.

DISCUSSION OF ISSUES RESOLVED BY THIS ACTION

1. *Division of Van/Special Purpose Truck.* EPA proposed for the 1978 model year to separate the Van/Special Purpose Truck Class into two separate classes to distinguish between these vehicles which have demonstrably different uses. Vans were proposed to be defined as any nonpassenger automobile having an integral enclosure fully enclosing the driver compartment and load carrying area and a hood length of less than 30 inches.

All commentors supported the proposal. One manufacturer expressed a reservation concerning the choice of a 30 inch maximum hood length in the definition as being too restrictive to include all future vans. EPA chose this definition to be consistent with the definition used in the emissions program which is based on the characteristics of the present van population. EPA will revise the definition in the future if the van manufacturers show a need that EPA do so.

2. *Division of Subcompact Class.* EPA proposed to divide the current Subcompact class into two smaller classes which the Agency proposed to call "Subcompact and "Small". The purpose of the proposal was to separate the extremely small subcompacts from the subcompacts which approach the compacts in size.

Most commentors agreed with EPA that such a separation was desirable. One manufacturer and the Office of Consumer Affairs (OCA) of the Department of Health, Education, and Welfare disagreed with the proposal stating that little is accomplished by way of reducing the broad fuel economy ranges of the current subcompact class by this proposal and that this proposal would separate into different classes vehicles that consumers viewed as comparable. These comments are correct; no meaningful reduction in the fuel economy range of the subcompact class occurs due to the proposed change but that is not its intended purpose. Its intended purpose is to separate the larger subcompacts from the smallest cars on the market, which it accomplishes. Although the 85 cubic foot volume cutpoint does separate some vehicles which are deemed comparable for marketing and advertizing purposes, this problem is not unique to this class. Any other cutpoint would also cause separation of some vehicles that are comparable in terms of interior size, for there is no gap in the distribution of interior volumes. Noting the lack of such a gap, EPA has decided to divide the present subcompact class with 85 cubic foot volume as the cutpoint, because it divides current subcompacts almost equally and, as such, would most effectively separate vehicles that are not comparable.

Only two suggestions were made regarding the name of the smallest class. It was suggested that the names "minicompact" or "minicar" were more descriptive than "small." EPA has adopted the term minicompact for this class for the 1978 model year.

The analysis of the issue of revising the means of measuring interior volume to be more representative of actual useable space has pointed out again the difficulties associated with the use of fixed cutpoints between classes. EPA will continue to examine other alternatives for cutpoints, and may propose changes for future model years.

3. *Change to the Width Dimension Used in Calculating the Interior Volume Index of the Passenger Compartment.* Due to concern expressed by two manufacturers in comments on the 1977 labeling regulations regarding the proper width dimension to use in calculating the interior volume index of the passenger compartment, EPA proposed two alternatives (numbers used below in parentheses refer to individual dimension measurement procedures in the Society of