ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 600

[AMS-FRL-4675-2]

Fuel Economy Test Procedures Alternative-Fueled Automobile CAFE Incentives and Fuel Economy Labeling Requirements

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This final rule amends the fuel economy regulations to include alternative-fueled automobiles. The Alternative Motor Fuels Act (AMFA) of 1988 includes 1993 model year and later alternative-fueled automobiles (passenger automobiles and light trucks) in the Corporate Average Fuel Economy (CAFE) program on a favorable basis to encourage the manufacture of these vehicles. The AMFA provides these CAFE "credits" for automobiles designed to be fueled with methanol, ethanol, other alcohols, natural gas, or dual-fueled automobiles designed to operate on one or more of these alterative fuels and gasoline or diesel fuel. Under the AMFA, these credits are only available for automobiles that meet certain requirements regarding: alternative fuel content (e.g., for alcohol fuels, a minimum of 85 percent by volume alcohol), energy efficiency, and driving range. Neither the AMFA nor today's final rule will affect automobiles that do not meet these requirements; such vehicles would not receive the favorable CAFE treatment. Alternative-fueled automobile labeling requirements are also specified in the AMFA. This final rule codifies the requirements of the AMFA in 40 CFR part 600. Recently, AMFA was amended by the Energy Policy Act of 1992, to extend the CAFE credit to automobiles designed to operate on additional types of alternative fuels. However, this final rule does not include these additional alternative fuel types, as they were not included in the CAFE program at the time the NPRM was published and the final rule was developed.

EFFECTIVE DATES: This final rule is effective [Insert date 30 days after date of publication in the FEDERAL REGISTER] except as follows: the effective date for the amendments to 40 CFR 600.006-89(b)(1)(i) and (h) and footnote 4 to the table found at 40 CFR 86.129-94(a) (described in SUPPLEMENTARY INFORMATION, section V: Technical Amendments, paragraph F) will be [Insert date 60 days after date of publication in the FEDERAL REGISTER], unless adverse comment is received by [Insert date 30 days after date of publication in the FEDERAL REGISTER], upon which the amendments to 40 CFR 600.006-89(b)(1)(i) and (h) and footnote 4 to the table found at 40 CFR 86.129-94(a) will be withdrawn before the effective date.

The incorporation by reference of certain publications listed in this final rule is approved by the Director of the Office of the Federal Register as of [Insert date of publication in the Federal Register].

ADDRESSES: Materials relevant to this final rule are contained in EPA Air Docket LE-131, Attention: Docket No. A-89-24, located at the Air Docket Section, U.S. Environmental Protection Agency, Room M-1500, 401 M Street SW., Washington, DC 20460 telephone (202) 382-7548. The docket may be inspected between the hours of 8:30 a.m. to 12 noon and from 1:30 to 3:30 p.m. weekdays. A reasonable fee may be charged by EPA for copying docket materials.

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SUPPLEMENTARY INFORMATION:

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I. Authority

The promulgation of these regulations is authorized by 15 U.S.C. 2001, 2002, 2003, 2006, 2013; 42 U.S.C. 7521, 7522, 7524, 7525, 7541, 7601(a).

II. Introduction

On October 14, 1988, Congress enacted the Alternative Motor Fuels Act (AMFA), Public Law 100-494, 15 U.S.C. §2001 et seq., to encourage: 1) the development and widespread use of methanol, ethanol, and natural gas as transportation fuels by consumers and, 2) the production of methanol, ethanol, and natural gas-fueled motor vehicles. (AMFA §3) The Energy Policy Act of 1992 (Pl. 102-486 October 4, 1992) amended the AMFA to also include liquefied petroleum gas; hydrogen; coal derived liquid fuels; fuels derived from biological materials; electricity; and any other fuel the Secretary of Transportation determines, by rule, is substantially not petroleum and would yield substantial energy security benefits and substantial environmental benefits. The AMFA prescribes explicit requirements in two areas relating to fuel economy of alternative-fueled vehicles: 1) CAFE credit qualification and calculation, and 2) fuel economy labeling.

Regarding the first area, the AMFA §6, 15 U.S.C. §2013, as amended, provides for favorable

CAFE treatment of certain dedicated alternative-fueled vehicles, and dual-fueled vehicles that meet specified requirements. Passenger automobiles and light-duty trucks that can be eligible for CAFE credit include those designed to: 1) operate exclusively on alternative fuels, or,2) operate on either gasoline or diesel fuel, as well as alternative fuels, or a combination of gasoline or diesel fuel and alternative fuels (i.e., dual-fueled automobiles).

The eligibility for favorable CAFE treatment of dual-fueled vehicles is dependent on their ability to meet certain energy efficiency requirements. 15 U.S.C. §2013(h)(1). In order to be eligible, dual-fueled automobiles are to provide equal or superior energy efficiency when operating on the alternative fuel as when operating gasoline or diesel fuel. In addition, in order to be eligible, automobiles capable of operating on a mixture of an alternative fuel and gasoline or diesel fuel which are manufactured in model years 1993 through 1995 (or for a longer period if extended by the Administrator) are to achieve energy efficiency when operated on a mixture of 50 percent alternative fuel and 50 percent gasoline or diesel equal to or superior to that achieved when operated exclusively on gasoline or diesel fuel.

One further requirement established by the AMFA for dual-fueled passenger automobiles to be eligible for CAFE credit is that they comply with minimum driving range requirements established by the Secretary of Transportation. 15 U.S.C. §2013(h)(2) Ranges were established by the National Highway Traffic Safety Administration (NHTSA) for alcohol dual-fueled and natural gas dual-fueled passenger automobiles in the Federal Register on April 26, 1990 (55 FR 17611). The minimum driving range established in NHTSA's rule for alcohol dual-fueled passenger automobiles is 200 miles and the range for natural gas dual-fueled passenger automobiles is 100 miles when operated on the alternative fuel. However, Section 403 (5)(I) of the Energy Policy Act of 1992 amends the Motor Vehicle Information and Cost Savings Act (MVICSA) to require that all dual-fueled passenger automobiles (other than electric automobiles) meet a minimum driving range of 200 miles (or a higher value if determined by the Secretary of Transportation) while operating on the alternative fuel. 15 U.S.C. §2013(h)(2)(C). This amendment supersedes the requirements of AMFA and the NHTSA rulemaking.

For dedicated automobiles, the fuel economy calculated for CAFE purposes is based on the gasoline or diesel content of the mixture which is deemed by AMFA to be 15 percent by volume. 15 U.S.C. §2013(a)(c). Fuel economy for CAFE purposes is then based on the amount of gasoline or diesel fuel consumed. For example, a dedicated alcohol automobile which has a measured fuel economy of 18 miles per gallon of alcohol would receive a rating of 18/0.15 or 120 mpg for CAFE purposes.

Similarly, for dedicated natural gas-fueled automobiles, a gallon equivalent of natural gas is deemed by AMFA to contain 15 percent gasoline or diesel fuel for CAFE purposes. The AMFA provides that 100 cubic feet of natural gas shall be considered to contain 0.823 gallon equivalent of natural gas. 15 U.S.C. §2013(c). The fuel economy for CAFE purposes is based on the equivalent amount of gasoline or diesel fuel consumed. For example, a dedicated natural gas-fueled automobile with a measured fuel economy of 23 miles/100 cubic feet of natural gas at standard conditions would receive a value for CAFE purposes of 186.3 mpg ((23 miles/100 cubic feet)x(100 cubic feet/0.823 gallons equivalent natural gas)x(1 gallon equivalent natural gas/0.15 gallon gasoline)).

For dual-fueled automobiles, the fuel economy for CAFE purposes is to reflect the assumption that the automobiles are operated half of the time on gasoline or diesel fuel and half of the time on the alternative fuel. 15 U.S.C. §2013(b)(d). Therefore, fuel economy is based on the harmonic average of the fuel economy value when operated on gasoline or diesel and the credited fuel economy value when operated on the alternative fuel as described for the dedicated alternative-fueled vehicles above. The

harmonic averaging method required by AMFA is equivalent to averaging fuel consumption (gallons/mile), which is the inverse of fuel economy (miles/gallon). For example, assume a model type achieves a combined city/highway fuel economy of 27 mpg on gasoline and 18 mpg on alcohol. If the model type were dedicated alcohol fueled, the rating for CAFE purposes would be 120 mpg as described previously. The fuel economy value for CAFE purposes of the dual-fueled model type would be 44.1 mpg (1/(((1/27)+(1/120))/2)).

The AMFA also limits the maximum model year increase in a manufacturer's CAFE attributable to dual-fueled automobiles to 1.2 mpg for model years 1993 through 2004 and, if extended by the Secretary of Transportation, to 0.9 mpg for model years 2005 through 2008 for each compliance category of automobiles (i.e. domestic passenger, import passenger, domestic light truck, and import light truck). 15 U.S.C. §2013(g). Furthermore, if the Secretary of Transportation reduces the average fuel economy standard applicable to passenger automobiles to less than 27.5 mpg for any model year, increases above 0.7 mpg in the manufacturer's average fuel economy attributable to dual-fueled passenger automobiles are to be reduced by the amount the standard was lowered, but may not be reduced to yield less than 0.7 mpg.

Regarding the second area, fuel economy labeling requirements, the AMFA §8, 15 U.S.C. §2006(a), requires that specific fuel economy information for dedicated alterative-fueled automobiles and dual-fueled automobiles appear on the fuel economy label and in the Gas Mileage Guide published by the Department of Energy. For dedicated automobiles, the AMFA states that the fuel economy for labeling purposes shall be the fuel economy value calculated for CAFE purposes multiplied by the value, 0.15. 15 U.S.C. §2006(a)(4)(A). For dual-fueled automobiles, the AMFA 15 U.S.C. §2006(a)(4)(B) states that each label must: (i) indicate the fuel economy of such automobiles when operated on gasoline or diesel fuel; (ii) clearly identify such automobiles as dual-fueled automobiles; (iii) clearly identify the fuels on which such automobiles may be operated,; and (iv) contain a statement informing the consumer that the additional information is contained in the booklet published and distributed by the Department of Energy.

To administer the provisions of the AMFA described above, the EPA published a Notice of Proposed Rulemaking (NPRM) in the Federal Register on March 1, 1991. The purpose of the NPRM was to propose to integrate the requirements of the AMFA into EPA's existing fuel economy regulations (40 CFR Part 600) and to frame issues of potential interest to commenters. Again, as stated in the "Summary" section, today's final rule does not affect automobiles that do not meet the eligibility requirements for favorable CAFE treatment specified in the AMFA. Also, to avoid significant delays, this final rule only covers those fuels contained in the AMFA at the time of proposal, namely alcohols and natural gas, and does not address the other fuels added by the Energy Policy Act of 1992, since this Act was passed well after publication of the NPRM and late in the development of this final rule. EPA will include these other fuels in future separate rulemaking. The sections that follow describe the final regulations that have been adopted and the consideration of public comment that led to decisions regarding the final regulations.

III. Description of the Action

Today's final rule sets in place the CAFE credit mechanism and the fuel economy labeling requirements for the 1993 and later model year alternative-fueled vehicles covered by the AMFA, namely alcohol and natural gas automobiles. In addition, since emission standards and emission measurement procedures have already been developed for methanol-fueled automobiles (54

FR 14426), fuel economy measurement procedures for methanol-fueled vehicles are also included in today's rule. The fuel economy calculations for methanol-fueled vehicles are based on the carbon balance technique which relies on the premise that the quantity of carbon contained in the exhaust is equal to the quantity of carbon consumed by the engine as fuel. The proposed equation was based on fixed fuel properties. However, based on comments received in response to the NPRM, EPA decided that measured fuel properties are more appropriate for the calculation of fuel economy and, therefore, today's final rules are based on measured fuel properties. This is further discussed in section V. "Public Participation".

EPA is currently developing emission standards, emission test procedures, and fuel economy calculation procedures for natural gas-fueled vehicles in a separate rulemaking. The notice of proposed rulemaking, "Standards for Emissions From Natural Gas-Fueled, and Liquified Petroleum Gas-Fueled Motor Vehicles and Motor Vehicle Engines, and Certification Procedures for Aftermarket Conversion Hardware" was published in the Federal Register on November 5, 1992 (57 FR 52912). EPA expects that this rule will be promulgated in advance of the completion of the 1993 model year annual production period, after which CAFE for the 1993 model year is calculated, thereby allowing manufacturers to obtain CAFE credits for 1993 model year and later natural gas-fueled vehicles. In the event that this rulemaking cannot be promulgated in time, EPA expects to promulgate those portions regarding fuel economy test and calculation procedures in order to ensure fuel economy credits are available for 1993 model year natural gas-fueled vehicles.

EPA is currently developing a timeline for the development of emission standards and test procedures for ethanol-fueled vehicles. In the event that manufacturers introduce ethanol-fueled vehicles into commerce before federal fuel economy test procedures are established, EPA will consider proposing California test procedures and a fuel economy equation to ensure that a mechanism is in place for ethanol-fueled vehicle CAFE credit as soon as possible.

Today's rule also integrates the energy efficiency requirements of the AMFA into EPA's existing fuel economy regulations. These requirements must be met for a dual-fueled vehicle to be eligible for fuel economy credit. In the NPRM, EPA proposed that the manufacturer must test each dual-fueled vehicle used for fuel economy purposes on both the city and highway driving cycles using three fuels: gasoline or diesel fuel, the alternative fuel, and, in the case of alcohol dual-fueled automobiles, a 50 percent gasoline/50 percent alcohol mixture to satisfy the energy efficiency requirements of the AMFA. 15 U.S.C. §2013(h)(1)(C)(ii),(iii). Although testing on both the alternative fuel and gasoline fuel is required to determine fuel economy, the 50/50 mixture requirement is only needed to determine energy efficiency. After considering comments received from manufacturers, the EPA realizes that the requirement to test every fuel economy vehicle on three fuels could be excessively burdensome compared to the requirements for testing gasoline-fueled vehicles, which are tested on one fuel. Therefore, for dual-fueled vehicles, this final rule requires manufacturers to: 1) perform city and highway fuel economy tests on all vehicles used for fuel economy purposes using both gasoline and the alcohol fuel and, 2) during initial certification, either perform city and highway fuel economy tests on one emission data vehicle per engine family using the 50/50 alcohol/gasoline mixture or provide a statement attesting that equal or superior energy efficiency is attained while using a 50/50 mixture compared to using gasoline, where applicable. EPA retains the right to audit test any vehicle used for fuel economy purposes to confirm the manufacturer's statement. This will reduce the test burden on the manufacturer while preserving the intent of the energy efficiency requirements of the AMFA by ensuring that vehicles are designed to be equally or more energy efficient while operating on the alternative fuel and a 50/50 alcohol/gasoline mixture than when operated on gasoline.

Today's rule also integrates the fuel economy labeling requirements of the AMFA for

alternative-fueled vehicles into the existing fuel economy regulations. Some minor modifications were made to the proposed label formats as a result of comments received on the NPRM. These changes are discussed in detail in the "Public Participation" section. In response to manufacturers' comments, the EPA is offering an optional label format for dual-fueled vehicles that contains fuel economy values for vehicle operation using the alternative fuel. The AMFA requires that the fuel economy values while operating on gasoline or diesel appear on the label with a statement that further information is contained in the Gas Mileage Guide available at the dealer. This optional label format contains a limited amount of additional information pertaining to the fuel economy while operating on the alternative fuel and should reduce consumer confusion and frustration in obtaining such fuel economy information. Also, this optional label will contain a statement that refers to the availability of additional information in the Gas Mileage Guide. The label formats established under this rulemaking are found in the revised regulations following the preamble.

EPA is working with the Department of Energy (DOE), the Department of Transportation (DOT), and the Federal Trade Commission (FTC) to revise the Gas Mileage Guide to include information on alternative-fueled vehicles. These changes will be coordinated with the FTC's implementation of section 406 of the Energy Policy Act of 1992 (Pl. 102-486) which mandates that the FTC promulgate rules to establish uniform labeling requirements for alternative fuels and alternative-fueled vehicles, including requirements for appropriate information with respect to costs and benefits so as to reasonably enable the consumer to make choices and comparisons. The revisions to the Gas Mileage Guide (including changing the name of the guide to "Fuel Economy Guide") will not be completed in time for inclusion in the 1994 model year guide. Therefore, the fuel economy labeling requirements for alternative-fueled vehicles, which contain label statements that refer the consumer to the Gas Mileage Guide for further information on the fuel economy of alternative-fueled vehicles, are applicable beginning with the 1995 model year. However, those manufacturers who produce 1993 or 1994 model year alternative-fueled automobiles may optionally comply with the labeling regulations in today's rule using the appropriate label wording modifications, approved by the Administrator, regarding availability of additional information in the Gas Mileage Guide.

The AMFA does not address the applicability of the gas guzzler tax to dedicated alternative-fueled vehicles or dual-fueled vehicles. The Secretary of the Treasury (after consultation with the Secretary of Transportation) is authorized by Section 201 of the Energy Tax Act of 1978, 26, U.S.C. 4064 et. seq., to include in the gas guzzler tax program automobiles fueled with any product of petroleum or natural gas, if such inclusion is consistent with the need of the nation to conserve energy. Consequently, the alternative fuels covered by the AMFA could conceivably be included in the gas guzzler tax program. Currently the program is limited to passenger automobiles powered by gasoline or diesel fuel. The Secretary of Treasury has not made a determination to include alcohols or natural gas in the gas guzzler program; therefore, dedicated alternative-fueled vehicles are currently not included in the guzzler program. In the NPRM, the EPA solicited comments regarding whether alternative fueled automobiles or dual-fueled automobiles should be included in the gas guzzler tax program. The comments were forwarded to the Treasury Department for consideration in the determination of applicability of gas guzzler tax to dual-fueled vehicles. The IRS agreed that EPA's decision to label dual-fueled automobiles for gas guzzler tax purposes based on the fuel economy while operating on gasoline is in accordance with the law.

To save time and printing costs, some technical amendments of 40 CFR parts 86 and 600 have also been included in this final rule.

IV. Public Participation

A number of interested parties provided comments on EPA's March 1, 1991 NPRM. These comments and other documents relevant to the development of this final rule are contained in the public docket. The Agency has fully considered these comments in developing today's final rule.

The following section presents a brief summary of the major comments received on the NPRM and EPA's responses to those comments. A separate and more detailed Summary and Analysis of Comments on the NPRM has been prepared and is contained in the public docket. The interested reader is referred to that document for a more complete discussion of the comments, including some of the more minor concerns that have been evaluated, but are not presented here.

A. Options to Include Alternative-Fueled Automobiles in the Fuel Economy Regulations.

Summary of the Proposal

EPA proposed to establish the CAFE incentive mechanism (credit calculation procedures) provided by the AMFA for methanol, ethanol, and natural gas-fueled automobiles in the regulations. EPA also proposed fuel economy measurement procedures for methanol-fueled automobiles. The current requirement that fuel economy data vehicles be covered by a certificate demonstrating compliance with emission standards was proposed to be revised so that it applies only when the vehicles are subject to emission standards. The Agency requested comments on how test procedures for alternative-fueled vehicles other than methanol could be promulgated on a timely basis, and whether there are any alternative fuels other than those addressed in the Alternative Motor Fuels Act, that could be included in the CAFE program in a manner consistent with the need of the nation to conserve energy. More specifically, EPA requested comments on whether the Agency would have good cause to dispense with prior notice and comment (i.e., direct final rule), if necessary to promulgate test procedures in time for manufacturers to obtain credits for vehicles designed to run on alternative fuels not already covered by established test procedures.

Summary of Comments

The Motor Vehicle Manufacturers' Association (MVMA) agreed with the proposal to revise the current requirements so that fuel economy data vehicles be covered by a certificate of conformity only when such vehicles are subject to emission standards. Atlantic Richfield Co. (ARCO) took issue with this proposal, stating that equal treatment is preferred for all the fuels, and that fuel economy determinations should be made on vehicles meeting emission standards both for gasoline and any alternative fuels considered.

A number of comments were received regarding the importance of a level playing field for alternative fuels and that a lack of federal regulations may impede the development of alternative-fueled vehicles. Particularly, a number of commenters urged that the establishment of emission standards and fuel economy test procedures for natural gas vehicles not be delayed. Comments were also received recommending that a timetable for implementation of ethanol-fueled automobile standards and test procedures be established as this technology develops. One manufacturer further commented that it is working on electric vehicles and urged the EPA to work with the Department of Energy to establish a CAFE credit mechanism for electric vehicles. The Northeast Sustainable Energy Association (NESEA) expressed that they were very concerned that the proposed amendments did not

address electric vehicles and that electric-powered vehicles and electric dual-fueled vehicles should be included in fuel economy regulations. The NESEA also encouraged EPA to pursue emission standards for solar, hydrogen, and electric powered automobiles. ARCO stressed that gasoline reformulations should be included when working toward a level playing field for alternative fuels.

A number of commenters recommended that California's existing alternative-fueled vehicle test procedures could be used to generate fuel economy data until federal regulations are promulgated.

Comments were received in response to EPA's request for comments on a direct final rule type approach. Ford stated that manufacturers should be allowed to comment on both test procedures and standards before they are finalized. Ford recommended that EPA schedule workshops to discuss proposed rulemaking, which would be advantageous in allowing manufacturers and EPA to raise questions and concerns before test procedures are published. The Natural Gas Vehicle Coalition (NGVC) believes that sufficient "good cause" exists for EPA to take immediate action to establish emission standards and procedures for natural gas vehicles based on California's standards and procedures.

EPA Response to Comments

The EPA recognizes ARCO's concern that fuel economy determinations be made on vehicles meeting emission standards both for gasoline and alternative fuels. EPA has promulgated emission standards and test procedures for methanol-fueled vehicles and is currently developing standards for gaseous-fueled (CNG and LPG) vehicles. In addition, EPA will continue to assess the need to develop emission standards for other alternative-fueled vehicles. However, in the event that emission standards are not developed and promulgated for alternative-fueled vehicles covered by the AMFA before a manufacturer produces and enters such vehicles into commerce, the current regulations that require that fuel economy data vehicles be covered by a certificate demonstrating compliance with emission standards would not provide a mechanism for obtaining CAFE credit. Therefore, EPA is revising the current regulation so that it applies only where the vehicles are subject to emission standards. This will serve as an interim policy to ensure that manufacturers receive the CAFE credit provided by the AMFA for natural gas-fueled vehicles, ethanol-fueled vehicles and other alternative-fueled vehicles in the event that such vehicles are entered into commerce before emission standards are promulgated.

The EPA agrees with the comments received regarding the importance of a level playing field for the alternative fuels covered by the AMFA as well as other promising alternative fuels. The intent of EPA is to establish emission standards for any alternative-fueled vehicle design before such vehicles are commercially produced or, at the latest, before their sales volume could significantly impact a manufacturer's CAFE. As discussed previously, the EPA has promulgated emission standards and test procedures for methanol-fueled vehicles and is currently developing emission standards and test procedures for natural gas-fueled vehicles. The notice of proposed rulemaking for emission standards and emission test procedures as well as fuel economy calculation procedures for natural gas-fueled vehicles was published on November 5, 1992 (57 FR 52912). EPA expects that this rule will be finalized in advance of the completion of the 1993 model year annual production period after which CAFE for the 1993 model year is calculated, thereby allowing manufacturers to obtain CAFE credits for 1993 model year and later natural gas-fueled vehicles. In the event that this rulemaking cannot be promulgated in time, EPA will expect to finalize those portions regarding fuel economy test and calculation procedures in order to ensure fuel economy credits are available for 1993 model year natural gas-fueled vehicles.

EPA is currently developing a timeline for the development of emission standards and test

procedures for ethanol-fueled vehicles. In the event that manufacturers introduce ethanol-fueled vehicles into commerce before federal fuel economy test procedures are established, EPA will consider proposing California test procedures or procedures similar thereto and a fuel economy equation to ensure that a mechanism is in place for ethanol-fueled vehicle CAFE credit as soon as possible.

EPA has not established a timeline for the development of emission standards or test procedures for hydrogen, electric, and solar powered vehicles. EPA will continue to assess the need for establishing emission standards and test procedures for these vehicles.

The Department of Energy, under the Chrysler Corporation Loan Guarantee Act of 1979, is responsible for developing petroleum equivalency factors for electric vehicles for the purpose of including such vehicles in the CAFE program. The CAFE calculation and test procedures for electric vehicles are contained in 10 CFR Part 474.4. The petroleum equivalency factors for electric vehicles were not extended past 1987. However, due to continued technology development and a strong industry interest in the CAFE treatment of electric vehicles, DOE is currently developing a notice of proposed rule to establish new petroleum equivalency factors.

EPA is currently developing a reformulated gasoline program. Reformulated gasoline will be used in current gasoline-fueled vehicles. The AMFA does not provide CAFE credits for reformulated gasoline-fueled vehicles.

B. Fuel Specifications

Summary of the Proposal

The Agency proposed that alcohol fuel and natural gas fuel used for fuel economy testing and service accumulation shall be representative of commercially available fuel for motor vehicles.

Summary of Comments

Several automobile manufacturers recommended that definite fuel specifications for methanol and natural gas fuels used for emissions and fuel economy testing be adopted. The commenters stated that the proposed procedure allows for too much potential inconsistency between the manufacturers and EPA in fuels used for testing. Without fuel specifications, fuel economy and emission results could vary in response to differences in fuel properties. The manufacturers suggested that specifications for methanol blends be based on chemical grade methanol (ASTM D 1152) and certification grade gasoline (40 CFR 86.113-82a).

EPA Response to Comments

The Agency agrees that setting fuel specifications for alternative fuels for emission and fuel economy testing would reduce the uncertainty associated with certification using unspecified commercially representative fuels. However, EPA believes that, to the extent variability in fuel specifications can affect emissions, fuel specifications for methanol, natural gas, and other alternative fuels used for emissions testing (and, therefore, fuel economy testing since they are calculated from the same test) should be representative of fuels encountered in-use. Certified automobiles are expected to comply with emission standards under normal in-use conditions, which includes the use of fuels that are representative of those commercially available. The Administrator reserves the right to test vehicles using fuels representative of those that in-use vehicles will encounter.

Ideally, fuel specifications should be developed that are representative of in-use fuels. However, since the markets for these fuels for use in motor vehicles are not yet established, and the fuels that become commercially available could vary significantly in composition, a single set of specifications may not be representative of the fuels that could be used. Also, it is difficult to identify which compositions are representative in the absence of established markets.

On April 11, 1989, EPA published a final rulemaking in the Federal Register (54 FR 14426) which established emission standards and test procedures for methanol-fueled automobiles. In that rulemaking, methanol test fuels were required to be representative of in-use fuels. However, the methanol fuel market is not yet at a level of development to allow for the determination of a representative fuel. EPA has developed a package of proposed technical amendments (58 FR 11816, March 1, 1993) to the above-mentioned final rule to improve the quality of emissions data and increase the flexibility for manufacturers to meet the requirements. One of the proposals in this package is to allow a combination of chemical grade methanol and certification gasoline for test fuels in proportions that reflect the composition of the intended in-use fuel (currently this would be 85% methanol and 15% gasoline) until specifications for a fuel representative of in-use fuel can be determined. EPA plans to apply these provisions for both emissions and fuel economy testing purposes.

For natural gas, the issue of setting fuel specifications is being addressed in a separate rulemaking ("Standards for Emissions From Natural Gas-Fueled, and Liquified Petroleum Gas-Fueled Motor Vehicles and Motor Vehicle Engines..." NPRM published on November 5, 1992 57 FR 52912). In the interim, EPA will allow a manufacturer to petition the Administrator to use a specific composition of natural gas, provided that the manufacturer can demonstrate that this fuel is similar in composition to currently available in-use fuel. If standard grade fuels emerge when methanol, natural gas, ethanol, and other alternative fuels become commercially available, EPA will consider such fuels for setting test fuel specifications.

C. Energy Efficiency of Dual-Fueled Automobiles

Summary of the Proposal

EPA proposed a method for determining whether a vehicle meets the AMFA energy efficiency requirements to be eligible for CAFE credit. The method proposed by EPA required each fuel economy data vehicle to be tested under both the city and highway test cycles using the alternative fuel, the petroleum fuel, and, for alcohol dual-fueled vehicles, a 50 percent by volume alcohol and 50 percent petroleum (gasoline or diesel) fuel mixture. The calculation of energy efficiency that was proposed would require manufacturers to determine, and the Administrator to approve, the net heating values and densities of the alternative fuel, petroleum fuel, and 50/50 mixture.

Summary of the Comments

Many manufacturers expressed concern that the proposed testing to determine energy efficiency of dual-fueled automobiles is excessive and may be a deterrent to alternative-fueled vehicle development and production. The manufacturers recommended that the equal or superior energy efficiency determination could be adequately demonstrated when the vehicle is first certified. The comparison of the three fuels could be made one time, for each engine family and could be based on the highway test only. The regulations should allow EPA to waive the 50/50 mixture testing

requirement if demonstrated M85 (or M100) tests indicate a significant increase in fuel efficiency when compared to gasoline tests in the same vehicle.

EPA Response to Comments

The AMFA does not specify how the energy efficiency is to be calculated. However, the intent of the Act is to encourage the use of alternative fuels and the energy efficiency requirement is a means of ensuring that dual-fueled automobiles are designed to be equally or more energy efficient while operating on the alternative fuel. Based on comments submitted by manufacturers, EPA realizes that the proposal to require the manufacturer to test each vehicle used for fuel economy purposes using the three fuels could be unnecessarily burdensome and costly for the manufacturer as compared to the test requirements for gasoline-fueled vehicles, which require tests using one test fuel. For example, if a vehicle, when fueled with an M85 blend, demonstrated significantly superior energy efficiency performance compared to when fueled with gasoline, it is likely to have superior energy efficiency performance when operating on the 50/50 blend as when operating on gasoline. EPA expects that in the vast majority of vehicles demonstrating a superior M85 energy efficiency performance, testing with a 50/50 blend would only serve to confirm expected performance. The energy efficiency requirements could still be equally served by lessening the testing requirements on the manufacturer in conjunction with provisions for EPA to reserve the right to audit test any vehicle used for fuel economy purposes.

Therefore, this final rule requires that to satisfy the equal or superior energy efficiency requirements of AMFA for favorable CAFE treatment eligibility for dual-fueled vehicles, manufacturers must: 1) perform city and highway fuel economy tests on all vehicles used for fuel economy purposes using both gasoline and the alternative fuel, and , additionally for alcohol dual-fueled vehicles, 2) during initial certification, either perform city and highway fuel economy tests on one emission data vehicle (EDV) per engine family using the 50/50 alcohol/gasoline mixture, or provide a statement attesting that equal or superior energy efficiency is attained while using a 50/50 mixture compared to using gasoline. The EPA retains the right to audit test any vehicle used for fuel economy purposes to confirm the manufacturer's statement. This approach will reduce the test burden on the manufacturer while preserving the intent of the AMFA to ensure that vehicles are designed to be equally or more energy efficient while operating on both the alternative fuel and 50/50 alcohol/gasoline mixture than when operating on gasoline.

The recommendations regarding the sole use of the highway test cycle for determining energy efficiency may not ensure that the equal or superior energy efficiency requirements of the AMFA are met. City and highway energy efficiencies could differ due to engine calibration differences and other design differences. This may not assure that the city energy efficiency requirements for CAFE credit are met as a result of testing using the highway cycle. To better represent in-use driving conditions, the energy efficiency determination should be based on both the city and highway cycles. After experience is gained with the relationship between highway and city energy efficiency for alternative-fueled vehicles, this issue can be revisited.

D. Fuel Economy Calculations - Fuel Properties

Summary of the Proposal

The proposed fuel economy equation was based on fixed values for the fuel properties of

carbon weight fraction and density. For determining energy efficiency, EPA proposed that the manufacturers would be required to determine the net heating values and densities of the alternative fuel, petroleum fuel, and a 50 percent alcohol, 50 percent gasoline mixture where appropriate. EPA proposed that upon reviewing the net heating values and densities submitted by the manufacturer, the Administrator would determine the net heating values and densities to be used in the energy efficiency determination.

Summary of the Comments

The MVMA and Ford recommend that actual methanol fuel properties be used in both the fuel economy calculation and energy efficiency equations with the option of using standard or "fixed" values if the methanol fuel property data are unavailable. The use of actual fuel properties for the gasoline calculations and standard fuel properties for the methanol calculations creates an inconsistency in the energy efficiency calculations since the proposed energy efficiency comparison equation is a ratio of these two values.

MVMA suggested two alternative methods to be used for determining the heating value for methanol fuel blends. The first is to measure the heating value using ASTM D 240, which uses a bomb calorimeter. The second method is to calculate the heating value using:

LHV(BTU/lb)=(mass fraction methanol x 8560) + (mass fraction gasoline x LHV gasoline),

where the LHV gasoline is the heating value of the gasoline portion of the M85 fuel and is measured using ASTM D 3338.

Ford recommended the following equation to calculate fuel economy for methanol vehicles using measured values for the carbon weight fraction and density of the methanol blend:

$$(CWF \times SG \times 3777.623)/[(CWF_{exHC} \times HC)+(0.429 \times CO)+(0.273 \times CO_2)+(0.375 \times CH_3OH)+(0.400 \times HCHO)]$$

Ford recommended that the carbon weight fraction (CWF) of the methanol blend should be determined using ASTM D 3343 and the specific gravity of the methanol blend should be determined using ASTM D 1298. The equation proposed in the NPRM should be contained in the regulation only as an option; with the density of gasoline in the equation revised from 2796 to 2830.

Regarding the determination of the carbon weight fraction of exhaust hydrocarbons (CWF_{exHC}) in the denominator of the methanol fuel economy equation, manufacturers agreed that the effect of this term on fuel economy is very small and measurement of this value is difficult to obtain. They agreed that a standard value should be determined. However, some of the commenters stated that the standard value of 0.866 is not appropriate and the carbon weight fraction of the exhaust hydrocarbons of each blend should be specified and based on test data. One manufacturer agreed that the hydrogen to carbon ratio of 1.85:1 (i.e., $CWF_{exHC} = 0.866$) is adequate for calculating fuel economy.

EPA Response to Comments

Although fixed fuel properties were proposed for the determination of fuel economy for methanol-fueled vehicles in the NPRM, EPA requested comments on the appropriateness of using

fixed fuel properties in place of measured fuel properties. The comments reflect a common desire among manufacturers to use measured fuel properties for the determination of fuel economy of methanol-fueled vehicles. Although the use of measured fuel properties is more burdensome, it is consistent with current gasoline fuel economy regulations and eliminates problems associated with energy efficiency comparisons between gasoline operation and alternative fuel operation. With minor revision, the fuel economy equation for methanol-fueled vehicles recommended by Ford is an appropriate equation if measured fuel properties are used. However, the use of ASTM D 3343 for the measurement of the carbon weight fraction of the methanol blend is not appropriate. This procedure applies to hydrocarbon fuels and is not appropriate for oxygenated fuels. Rather, the carbon weight fraction of the blend can be calculated by the following:

$CWF = (CWF_g \times \text{mass fraction gasoline}) + (CWF_m \times \text{mass fraction methanol})$

where: CWF_g = carbon weight fraction of gasoline as measured by ASTM D 3343.

CWF_m = carbon weight fraction of methanol = 0.375

mass fraction gasoline = $(G \times SG_g)/(G \times SG_g + M \times SG_m)$

mass fraction methanol = $(M \times SG_m)/(G \times SG_g + M \times SG_m)$

where: G = volume fraction of gasoline

M = volume fraction of methanol

SG_g = specific gravity of gasoline as measured by ASTM D 1298

SG_m = specific gravity of methanol fuel as measured by ASTM D 1298

This method requires measurement of the fuel properties of the individual fuels prior to blending. EPA is currently investigating acceptable methods for measuring the carbon weight fraction of the fuels after blending. As these methods are developed and proven satisfactory, EPA plans to revise the regulations to include such methods. EPA will allow the use of other procedures for measuring the carbon weight fraction of the fuel blend if the manufacturer can show that the procedures are

superior to or equally as accurate as those specified in the final rule. To provide flexibility and reduce the burden on manufacturers who may blend the fuels at the pump, the specific gravity of the blend can be optionally determined by measuring the specific gravity of the individual fuels before blending and combining those values as follows:

$SG = SG_g$ x volume fraction gasoline + SG_m x volume fraction methanol

The correct value of the term in the numerator of the fuel economy equation which converts the specific gravity from dimensionless units to grams/gallon should be 3781.8 grams/gallon. This is the product of multiplying the density of pure water at 60°F of 0.99904 grams/cubic centimeter (reference ASTM D 4052) by the volume conversion of 3785.412 cubic centimeters/gallon. Therefore, the value suggested by Ford of 3777.623 is replaced by 3781.8 for the final rule.

The NPRM is unclear as to how the net heating value and the density of methanol/gasoline mixtures are to be determined. EPA agrees that test procedures should be specified in the regulations to eliminate this ambiguity. Therefore, for the final rule, ASTM D 240 is to be used for the determination of net heating value and ASTM D 1298 for the determination of density. However, the use of other procedures will be allowed if the manufacturer can show these procedures to be equal or superior to the specified procedures.

Regarding the determination of the carbon weight fraction of exhaust hydrocarbons (CWF_{exHC}), again the effect of this value on

the determination of fuel economy is expected to be negligible. While the use of different values for different fuel blends would be technically more accurate than using the value of 0.866 for all blends, insufficient data is available to determine appropriate values at this time. In addition, the use of different values would add additional complexity to fuel economy calculations while having a negligible effect on fuel economy values. Therefore, the EPA does not believe that it is appropriate to assign different carbon weight fractions for exhaust hydrocarbons from various methanol/gasoline blends at this time. Until the carbon/hydrogen ratios of the exhaust hydrocarbon constituents can be better assessed, the carbon weight fraction of the exhaust hydrocarbons will be equal to the carbon weight fraction measured for the gasoline portion of the blend or, for neat methanol, equal to 0.866. As experience is gained with measuring the carbon/hydrogen ratios of exhaust hydrocarbons from vehicles fueled with methanol/gasoline blends, this issue can be revisited.

E. Fuel Economy Label Format Requirements

Statement of Proposal

The proposed fuel economy labeling requirements for alternative- fueled automobiles are those currently specified for gasoline-fueled and diesel-fueled automobiles with modification to satisfy AMFA requirements. For dedicated alternative-fueled automobiles, the EPA proposed that the fuel title (e.g. Methanol, Natural Gas) be located above the fuel pump logo and for dual-fueled automobiles, that the title "Dual Fuel" be positioned above the logo. For dedicated alternative-fueled automobiles the EPA proposed that the bottom border of the label contain the statement: "This vehicle operates on [insert appropriate fuel(s)] only". For dual-fueled automobiles, the statement: "This dual fuel vehicle operates on ([gasoline or diesel] or [list alcohols or natural gas])" was proposed to be located on the bottom border of the label. EPA proposed that fuel economy labels for natural gas-fueled automobiles include the statement: "All fuel economy values on this label pertain to gasoline equivalent fuel economy. To convert these values into units of miles per 100 cubic feet of natural gas, multiply by 0.823." For dual-fueled automobiles, EPA proposed that the statement:, "All fuel economy values on this label pertain to [gasoline or diesel] fuel usage. [List alcohols or natural gas] fuel usage will yield different values. See the Gas Mileage Guide for information on [list alcohols or natural gas] fuel usage." The 0.9 and 0.78 multiplicative factors currently used for adjusting the petroleum-fueled vehicle city and highway measured fuel economy values to better represent in-use fuel economy were proposed to be applied to alcohol-fueled, natural gas-fueled, and dual-fueled automobiles.

Summary of Comments

A number of manufacturers expressed concerns regarding the proposed fuel economy labeling requirements for alternative-fueled vehicles. One concern common to many manufacturers related to the requirement to have statements appear on the bottom border of the label. Since manufacturers use printed forms to generate fuel economy labels, the number of preprinted types of forms that manufacturers would have to purchase would increase because of the differences in border wording for different vehicles. Instead, manufacturers recommended that these statements be written just above the bottom border, leaving the preprinted portion of the label unchanged. Manufacturers also recommended that the size of the fuel pump logo be reduced to accommodate fuel titles above the

pump logo and that "Gas Mileage Information" be replaced by a more generic and appropriate title such as "Fuel Mileage Information".

Manufacturers recommended that EPA establish an optional label format to include the fuel economy values for dual-fueled vehicles while operated on the alternative fuel in addition to the fuel economy values while operated on gasoline as required by the AMFA. They recommended that these optional fuel economy values could take the place of the reference to having the customer obtain the information from the gas mileage guide.

One manufacturer recommended that the proposed label for natural gas vehicles, which includes a conversion factor of 0.823 to be used by the consumer to convert mpg to miles per 100 cubic feet of natural gas, should be changed so that the manufacturer would perform the calculation for the consumer. The manufacturer would then report the natural gas fuel economy on the lower right hand side of the label in units that are used at retail.

Several manufacturers commented that the multiplicative factors for label values for gasoline vehicles developed by EPA of 0.90 and 0.78 should also be applied to alcohol and natural gas fuel economy label values. However, these factors may have to be revised as more experience is gained with the use of alternative-fueled vehicles.

EPA Response to Comments

The EPA believes that the concerns of manufacturers regarding printing statements on the bottom border of the fuel economy label are valid. The purpose of the proposed location of the statement on the bottom border was to ensure that the statement was clearly visible and caught the eye of the consumer. However, this objective can still be reached if large print is used and the statement is printed just above the bottom border of the label. Therefore, for the final rule, EPA is requiring that this statement be located just above the bottom border of the label.

EPA agrees with the comments received in regard to the size of the fuel pump logo be slightly reduced to provide adequate space for the fuel title to be positioned above the logo. The slight reduction in logo size will not have any adverse impact on the effectiveness of the label in informing the consumer of the vehicle's fuel economy. In addition, the fuel pump logo statement "Gas Mileage Information" is not appropriate for vehicles powered by alternative fuels. However, in clarifying the comments received on this issue, the commenters who recommended the use of "Fuel Mileage" in place of Gas Mileage agreed with EPA that an even more appropriate term would be "Fuel Economy". Therefore, for the final rule, all label occurrences of the term "Gas Mileage" are replaced by "Fuel Economy".

The AMFA clearly mandates that the label for dual-fueled vehicles contain the fuel economy values when operated on gasoline or diesel fuel, and that additional information be contained in the Gas Mileage Guide regarding operation on the alternative fuel. The information required to be published in the Gas Mileage Guide includes: the energy efficiency and cost of operation of such automobiles when operated on gasoline or diesel fuels as compared to operation of alcohol or natural gas; the driving range of such automobiles when operated on gasoline or diesel fuel as compared to such automobiles when operated on alcohol or natural gas; information regarding the miles per gallon achieved by dual-fueled automobiles when operated on alcohol; and an explanation of how the information may be expected to change when the automobile is operated on mixtures of alcohol and gasoline or diesel fuel. 15 U.S.C. §2006(b)(3)) This information will most likely be of interest to a consumer who is deciding whether or not to purchase a dual-fueled vehicle. Congress recognized that it would be impractical to incorporate all of this information on the fuel economy label and required

that, at a minimum, the label contain gasoline fuel economy information while alternative fuel information is contained in the Gas Mileage Guide. However, the AMFA does not specifically prohibit other label formats.

To avoid consumer confusion and frustration with dual-fueled vehicle labeling, EPA agrees with commenters that it would be beneficial to include fuel economy values while operating on the alternative fuel in addition to those while operating on gasoline on the same label. This could help avoid problems which would occur when a model is offered for sale before the Gas Mileage Guide is available for a particular model year. However, it would not be practical to design an optional label that would contain all the information that the AMFA requires to be contained in the Gas Mileage Guide. Therefore, EPA is providing an optional label format for dual-fueled vehicles that contains limited information on the fuel economy while operated on the alternative fuel. Also, this optional label will contain a statement that refers to the availability of additional information in the Gas Mileage Guide.

The AMFA mandates that the fuel economy label values for dedicated natural gas-fueled vehicles are the values used for CAFE purposes multiplied by 0.15. This requires that the fuel economy value units are in terms of miles per equivalent gallon of gasoline for natural gas-fueled automobiles. The most appropriate units in terms of consumer usefulness are dependent on how the fuel will be sold at retail (e.g., per volume, per weight, per equivalent gallon gasoline). Since the vehicle fuel market for natural gas is not yet established, the most appropriate label units are not known at this time. Therefore, the statement: "To convert these values into units of miles per 100 cubic feet of natural gas, multiply by 0.823." will only be required if natural gas as a motor vehicle fuel is sold on a volume (cubic feet) basis. As an option, the manufacturer can perform the calculation for the consumer and display the values on the label in the following format: "The fuel economy in units of miles per [insert units used in retail] is estimated to be [insert city fuel economy value] in the city, and [insert highway fuel economy value] on the highway." This format can also be used if natural gas is sold in terms of units other than gallon equivalent of gasoline or cubic feet. Also, for the optional label format for natural gas dual-fueled vehicles, the fuel economy units while operating on natural gas will be based on units used at retail.

The EPA agrees with manufacturers' comments regarding the necessity to reevaluate the multiplicative city and highway fuel economy adjustment factors for label values to better represent in-use fuel economy when more experience and data are available for alternative-fueled vehicles.

F. Gas Guzzler Tax Applicability to Alternative-Fueled Vehicles

Statement of Proposal

The Alternative Motor Fuels Act did not address the applicability of the so-called "gas guzzler tax" to dedicated or dual alternative-fueled vehicles. The Energy Tax Act of 1978, 26 U.S.C. §4064, authorizes the Secretary of the Treasury (after consultation with the Secretary of Transportation) to include in the gas guzzler tax program automobiles fueled with any product of petroleum or natural gas if such inclusion is consistent with the need of the nation to conserve energy. While alternative fuels thus could be included in the gas guzzler tax program, the Secretary of Treasury has not included such fuels by regulation under this section to date, and dedicated alternative-fueled automobiles thus do not appear to be currently subject to the gas guzzler tax. However, since dual-fueled automobiles can operate on gasoline, the applicability of the gas guzzler tax under current law is less clear. The EPA solicited comments regarding whether alternative-fueled automobiles or dual-fueled automobiles

should be included in the gas guzzler tax program, but did not make any proposals in the NPRM. These comments were submitted to the Internal Revenue Service for their consideration.

Summary of Comments

Several automobile manufacturers provided comments recommending that dedicated and dual alternative-fueled vehicles not be included in the gas guzzler tax program. These manufacturers stated that the purpose of the AMFA is to facilitate widespread use of alternative fuels through incentives and that subjecting these vehicles to the gas guzzler tax program would contravene the goals of the AMFA. The Senate bill originally included a section intended to "clarify that the lower energy content of the alternative fuels covered by this bill do not trigger the so-called 'gas-guzzler' tax provisions of current law." However, this section was deleted since taxes are revenue related matters that most appropriately should originate in the House of Representatives. Senator Rockefeller stated in the Congressional Record - Senate of April 15, 1988, page S. 4101: "in deleting section 8 from S.1518 that we believe the interpretation of the law should remain exactly as it was with section 8 in the bill."

ARCO recommended that any motor fuel tax be applied equally to all motor fuels including alternative fuels to preserve the energy conservation intent of the Energy Tax Act of 1978. ARCO suggested that dual-fueled vehicles be subject to the gas guzzler tax based on the fuel economy when operated on gasoline. This will appropriately tax vehicles that are designed to run on the alternative fuel but will most likely operate inefficiently on gasoline. The generation of CAFE credits provided by the AMFA would likely result in the production of gas-guzzling vehicles.
ARCO provided an example that showed that a M85 dual-fueled vehicle which has an mpg rating of 20 while operating on gasoline and 16 while operating on M85 would have a calculated fuel economy under the CAFE credit provisions of the AMFA of 34 mpg. They state for this example, at 34 mpg, that the dual-fueled vehicle would not be taxed as a gas guzzler. However, at 20 mpg gasoline fuel economy, ARCO feels that the tax would be justifiable and consistent with the intent of the Energy Tax Act to conserve energy.

NESEA stated that because of the positive attributes of alternative-fueled vehicles and the urgency of switching away from oil-fueled cars, alternative-fueled and dual-fueled vehicles should be included in the gas guzzler tax program as this is an excellent first step in acknowledging the real costs of running gasoline powered vehicles.

EPA Position

The EPA does not have the authority to decide which vehicles and fuels are subject to the gas guzzler tax program. This authority lies with the Department of Treasury. The IRS agreed that EPA's decision to label dual-fueled automobiles for gas guzzler tax purposes based on the fuel economy while operating on gasoline is in accordance with the law. Therefore, EPA will label dual-fueled vehicles using the current regulations for gasoline-fueled vehicles contained in 40 CFR Part 600 §600.513.

V. Technical Amendments

To save the time and printing costs involved in publishing them under a separate notice, the following technical amendments to the 40 CFR parts 86 and 600 are included in this final rule. Technical amendments described under items A and B below were proposed in the NPRM. EPA

received no comments on these amendments and therefore will be included in the final rule as proposed. Technical amendments described under items C, D, and E, were not included in the NPRM. By issuing these technical amendments directly as a final rule, EPA is foregoing the issuance of an NPRM and the opportunity for public comment on the proposal provided by the NPRM rulemaking process. Such a curtailed procedure is permitted by 5 U.S.C. 553(b) and Section 307(d) of the Clean Air Act when issuance of a proposal and public comments would be impracticable, unnecessary, or contrary to the public interest. The Agency is publishing this action without prior proposal because these are non-controversial corrections that rectify minor errors and omissions in the Part 600 regulations in a manner that does not substantively change the requirements of the final rule. The Agency finds that this constitutes good cause under 5 U.S.C. 553(b) for a determination that the issuance of an NPRM is unnecessary.

A. A formaldehyde concentration term is being added to the dilution factor equation located in 40 CFR §§86.144-90(c)(7)(ii) and 86.144-94(c)(7)(ii). Although the magnitude of the formaldehyde concentration is very low, it is possible that an assumption of zero concentration could lead to a slight change in calculated fuel economy. There is no reason why the formaldehyde concentration term should be left out of the equation. With this amendment, all measured carbon-containing compounds will be included in the dilution factor equation.

B. The symbol "x" is struck from the dilution factor equation on 40 CFR §§86.144-90(c)(7)(ii) and 86.144-94(c)(7)(ii) the first time it appears in the equation. The first time "x" appears in the equation, it is used to represent multiplication. All other occurrences of "x" in the equation represent the measured fuel composition parameter:$C_xH_yO_z$. By dropping the first occurrence of "x", only the latter meaning is retained. The multiplication function can be assumed by virtue of a number adjacent to a variable enclosed in parenthesis.

C. Part 600.513-91 (b)(2)(xii) currently reads "(xii) At least 12.5 mpg, the gas guzzler tax statement shall show a tax of $7,700". This has been mis-typed; "At least" should read "Less than". Therefore, the statement is amended to read: "Less than 12.5 mpg, the gas guzzler tax statement shall show a tax of $7,700".

D. To clarify the definition of the "c" factor in 40 CFR §600.513(a)(2) the current language which reads: "c = 1.300×10^{-3} for the 1986 and later model years" is amended to read: "c = gas guzzler adjustment factor = 1.300×10^{-3} for the 1986 and later model years".

E. To correct the references for calculating the "FE" and "a_g" terms in CFR 40 §600.513-91(a)(2) each occurrence of the phrase "in accordance with paragraph (a)(2) of the section" is replaced by the phrase: "in accordance with §600.207".

F. In its Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Gaseous and Particulate Emission Regulations for 1994 and Later Model Year Light-Duty Vehicles and Light-Duty Trucks; Final Rule (also known as Tier 1), 56 FR 25724 (June 5, 1991),EPA adopted the term "heavy light duty truck" (HLDT) for light duty trucks with a gross vehicle weight rating (GVWR) greater than 6000 lbs. Pursuant to the definition of test weight in section 216(8) of the Clean Air Act, as amended in 1990, the Tier I rule also adopted the term "adjusted loaded vehicle weight" (ALVW)(the average of curb weight and GVWR) and required that ALVW be used for

emission testing of HLDTs for one-half the fleet in model year 1996 and the entire fleet beginning in model year 1997. Prior to this time, emissions test weights were determined based on loaded vehicle weight (LVW), which is curb weight plus 300 lbs., and this weight was also used for fuel economy testing conducted at the same time. ALVW is higher than LVW. Testing at a higher weight would negatively impact fuel economy values. Increasing the test weight would therefore have the practical effect of increasing the stringency of the fuel economy standard, which might be addressed by adjusting the standard. Under the Motor Vehicle Information and Cost Savings Act (MVICSA), 15 U.S.C. § 2003(d)(1), fuel economy is to be measured in accordance with testing procedures established by the EPA Administrator by rule. Also under that provision, fuel economy tests are, to the extent practicable, to be conducted in conjunction with emissions tests under the Clean Air Act. The National Highway Traffic and Safety Administration (NHTSA) is responsible for setting the fuel economy standards. 15 U.S.C. § 2002(b).

In its Light Truck Average Fuel Economy Standards for Model Year 1995; Proposed Rule, 57 FR 61377 (December 24, 1992),NHTSA requested comments on the issue of test weight for light trucks over 6000 lbs. GVWR in the context of setting the MY 1995-97 light truck fuel economy standards. GM, Ford, Chrysler, American Automobile Manufacturers Association and Rover Group all supported the continuation of fuel economy testing at LVW. In its Light Truck Average Fuel Economy Standards for Model Year 1995; Final Rule, 58 FR 18019 (April 7, 1993), NHTSA quoted extensively from a January 7, 1993 letter from EPA to industry trade associations explaining that EPA would consider comments during the NHTSA rulemaking regarding the proper test weight for fuel economy testing when developing EPA guidance or rulemaking on this subject. The EPA letter was further quoted as stating that EPA plans to defer to NHTSA's policy decisions on issues such as the competitiveness effects of the alternatives and would follow NHTSA's resolution of the CAFE issue with conforming amendments to its regulations or policy.

NHTSA then concluded in that notice that the preferable solution would be to retain LVW as the test weight for fuel economy purposes. This conclusion was based, in part, on comments expressing the concern that changing the test weight for only a portion of the light truck fleet would cause consumer confusion and affect the competitiveness of manufacturers with a higher proportion of sales of the heavier light trucks. NHTSA finally quoted from a March 4, 1993 letter from EPA to NHTSA that if NHTSA decided against adjusting the CAFE standard to reflect a higher test weight, EPA would undertake "the regulatory and guidance revisions needed to allow dual testing."

Accordingly, EPA is today promulgating a technical amendment to provide that while ALVW is required for emission testing of HLDTs, it is not required for fuel economy testing of such vehicles. Manufacturers may, instead, continue to use LVW as the test weight for fuel economy testing. Vehicle manufacturers, however, have had and continue to have the option of performing simultaneous emissions and fuel economy testing using heavier test weights (ALVW in this case). Therefore, for HLDTs, separate testing using ALVW for emissions and LVW for fuel economy, or combined emissions and fuel economy testing using ALVW is acceptable. However, fuel economy adjustments will not be made to account for potentially lower fuel economy values due to the use of the heavier test weight (ALVW). This technical amendment changes 40 CFR Section 600.006-89 (b)(1)(i) and (h) and footnote 4 to the table found at 40 CFR Section 86.129-94(a) to specify the test weight basis for heavy light duty trucks.

The Agency also reiterates that despite the change in the HLDT emission test wight basis, vehicle manufacturers must still assure that fuel economy data vehicles comply with the applicable exhaust emission standards. The Administrator reserves the right to require the manufacturer to either test using ALVW or submit the vehicle for testing by the Administrator for emission standards

compliance using ALVW for HLDTs.

This action is being taken without prior proposal because EPA believes that this technical amendment is noncontroversial and has been subject to notice and comment through NHTSA's rulemaking and EPA's January 7, 1993 letter referring interested parties to the NHTSA proposed rule and advising that EPA would consider comments from that rulemaking. For these reasons, EPA believes that a prior EPA proposal is unnecessary under the Administrative Procedure Act, 5 U.S.C. § 553 (b)(3)(B).

Nevertheless, the public is advised that this action will be effective 60 days from the date of the Federal Register notice, unless notice is received within 30 days that someone wished to submit adverse or critical comments. If such notice is received, this action will be withdrawn and two subsequent notices will be published. One notice, which will be published before the effective date, will withdraw the final action. Another notice will begin a new rulemaking by announcing a proposal of the action and establishing a comment period. Interested persons are invited to submit comments on this proposed approval. EPA will consider all comments received within 30 days of the publication of this notice. Consequently, this procedure still allows the opportunity for public comment under the Administrative Procedure Act, but provides an expedited procedure for final action where a rulemaking is not expected to be controversial, public comment has already been received by another federal agency, and no adverse comment is expected.

VI. Administrative Requirements

A. Administrative Designation

Executive Order 12866

Under Executive Ordre 12866, [58 Federal Register 51,735 (October 1, 1993)] the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may: (1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfrer with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients therof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

This regulation was submitted to the Office of Management and Budget (OMB) for review under the old Executive Order 12291. It has been determined that this rule is not a "significant regulatory action" under the terms of Executive Order 12866.
OMB reviewed this docuemnt under Executive Order 12866 and had no comment.

B. Reporting & Recordkeeping Requirement

The Office of Management and Budget (OMB) has approved the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq, and has assigned OMB control number 2060-____.

The regulations do not impose any new significant reporting or recordkeeping burden. They provide for the inclusion of alternative-fueled automobiles in the current fuel economy programs. The reporting and recordkeeping burdens associated with fuel economy of alternative-fueled and current automobiles are identical with the exception of minor changes in fuel economy label wording for alternative-fueled automobiles. In addition, it is difficult to accurately separate the total burden of the fuel economy program, because much of the testing and data input for determining fuel economy is coincident to that of the emissions program. In summary, the current impact of the final regulations' testing, recordkeeping and reporting burden is negligible.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Chief, Information Policy Branch (PM-223Y); U.S. Environmental Protection Agency; 401 M St., S.W.; Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

C. Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 requires federal agencies to identify potentially adverse impacts of federal regulations upon small entities. In instances where significant impacts are possible on a substantial number of these entities, agencies are required to perform a Regulatory Flexibility Analysis (RFA).

Pursuant to section 605(b) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities. The fuel economy regulation revisions herein provide Corporate Average Fuel Economy (CAFE) credits to manufacturers of alternative-fueled vehicles who are subject to the CAFE program, most of which are large automobile manufacturers and therefore will not have a significant impact on a substantial number of small entities.

List of Subjects

40 CFR Part 86

Administrative practice and procedures, Air pollution control, Confidential business information, Environmental protection, Gasoline, Imports, Incorporation by reference, Labeling, Motor vehicles, Motor vehicle pollution, Reporting and recordkeeping requirements.

40 CFR Part 600

Electric power, Energy conservation, Gasoline, Labeling, Administrative practice and procedure, Fuel economy.

AUTHORITY: 15 U.S.C. §§2001, 2002, 2003, 2006, 2013; 42 U.S.C. §§7521, 7522, 7524, 7525, 7541, 7601(a).

Dated: _____

_____

Carol M. Browner, Administrator

Table of Changes Made to Various

Subparts	Section	Change	Reason
1. Part 86, Authority		none	
2. §86.129-94, footnote 4		Addition of text to clarify test weight basis for heavy light-duty trucks	Technical amendments
3. §86.144-90, (c)(7)(ii)		Addition of formaldehyde concentration term to DF equation and clarification of "x" term	Technical amendments
4. §86.144-94, (c)(7)(ii)		Addition of formaldehyde concentration term to DF equation and clarification of "x" term	Technical amendments
5. Part 600, Authority		Addition of citations	Incorporate all authority citations.

6. §600.001-93	Addition of section 600.001-93	Do.
7. §600.002-93	Addition of section 600.002-93	Do.
8. §600.006-89, (b)(1)(i),(h)	Addition of text to clarify test weight basis for heavy light -duty trucks	Technical amendments
9. §600.007-80,(f)	Add words "and for which emission standards apply"	Add language to clarify requirements for vehicle acceptability.
10. §600.101-93	Addition of section 600.101-93	Do.
11. §600.107-93	Addition of section 600.107-93	Do.
12. §600.111-93	Addition of section 600.111-93	Do.
13. §600.113-93	Addition of section 600.113-93	Add fuel economy equation for methanol-fueled and methanol dual fuel vehicles.

14. §600.201-93	Addition of section 600.201-93	Incorporation of alcohol-fueled, natural gas-fueled, alcohol dual fuel, and natural gas dual fuel vehicles into the regulations.
15. §600.206-93	Addition of section 600.206-93	Do.
16. §600.207-93	Addition of section 600.207-93	Do.
17. §600.209-95	Addition of section 600.209-93	Do.
18. §600.301-95	Addition of section 600.301-94	Do.
19. §600.307-95	Addition of section 600.307-94	Do.
20. §600.501-93	Addition of section 600.501-93	Do.
21. §600.510-93	Addition of section 600.510-93	Do.
22. §600.513-91, (a), (a)(2), (b)(2)(xii)	Add text regarding dual fuel vehicles, clarify FE, a_g, and	Incorporate dual fuel vehicles and Technical amendments.

	c terms, correct tax applicability <12 mpg.	
23. Appendix VIII	Addition of example label formats for alternative-fueled vehicles.	Do.

For the reasons set forth in the preamble, Chapter 1 of title 40 of the Code of Federal Regulations is amended as follows:

PART 86-CONTROL OF AIR POLLUTION FROM NEW MOTOR VEHICLES AND NEW MOTOR VEHICLE ENGINES: CERTIFICATION AND TEST PROCEDURES

1. The authority citation for Part 86 continues to read as follows:

Authority: Secs. 202, 203, 205, 206, 207, 208, 215, 216, 217, 301, of the Clean Air Act as Amended; 42 U.S.C. 7521, 7522, 7524, 7525, 7541, 7542, 7549, 7550, 7552, and 7601; and Sec. 9701 of the Independent Offices Appropriations Act (31 U.S.C. 9701).

2. §86.129-94 is amended by revising footnote 4 to read as follows:

* * * * *

(a) * * *

[4] For model year 1994 and later heavy light-duty trucks not subject to the Tier 0 standards of §86.094-9 of subpart A, test weight basis is as follows: for emissions tests, the basis shall be adjusted loaded vehicle weight, as defined in §86.094-2 of subpart A; and for fuel economy tests, the basis shall be loaded vehicle weight, as defined in §86.082-2 of subpart A, or, at the manufacturer's option, adjusted loaded vehicle weight as defined in §86.094-2 of subpart A. For all other vehicles, test weight basis shall be loaded vehicle weight, as defined in §86.082-2 of subpart A.

* * * * *

3. §86.144-90 is amended by revising the dilution factor equation in (c)(7)(ii) to read as follows:

§86.144-90 Calculations; exhaust emissions.

* * * * *

(c) * * *

(7) * * *

(ii)

$$DF=\frac{100\left(\frac{x}{x+y/2+3.76(x+y/4-z/2)}\right)}{CO_{2e}+(HC_e+CO_e+C_{CH3OHe}+C_{HCHOe})10^{-4}}$$

* * * * *

4. §86.144-94 is amended by revising the dilution factor equation in (c)(7)(ii) to read as follows:

§86.144-94 Calculations; exhaust emissions.

* * * * *

(c) * * *

(7) * * *

(ii)

$$DF = \frac{100\left(\frac{x}{x+y/2+3.76(x+y/4-z/2)}\right)}{CO_{2e}+(HC_e+CO_e+C_{CH3OHe}+C_{HCHOe})10^{-4}}$$

* * * * *

PART 600-FUEL ECONOMY REGULATIONS FOR 1977 AND LATER MODEL YEAR AUTOMOBILES-GENERAL PROVISIONS

5. The authority citation for Part 600 is revised to read as follows:

Authority: Title III of the Energy Policy and Conservation Act of 1975, Pub. L. 94-163, 89 Stat. 871, Title IV of the National Energy Conservation Policy Act of 1978, Pub. L. 95-619, 92 Stat. 3206, the Revenue Reconciliation Act of 1990, Pub. L. 101-508, 104 Stat. 1388, and the Alternative Motor Fuels Act of 1988, Pub. L. 100-494, 102 Stat. 2452.

6. A new §600.001-93 is added to Subpart A as follows:

§600.001-93 General applicability.

(a) The provisions of this subpart are applicable to 1993 and later model year gasoline-fueled, diesel-fueled, alcohol-fueled, natural gas-fueled, alcohol dual fuel, and natural gas dual fuel automobiles.

(b)(1) Manufacturers that produce only electric vehicles are exempt from the requirement of this subpart, except with regard to the requirements in those sections pertaining specifically to electric vehicles.

(2) Manufacturers with worldwide production (excluding electric vehicle production) of less than 10,000 gasoline-fueled and/or diesel powered passenger automobiles and light trucks may optionally comply with the electric vehicle requirements in this subpart.

7. A new §600.002-93 is added to subpart A as follows:

§600.002-93 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:

(i) Any four-wheel vehicle propelled by a combustion engine using onboard fuel, or by an electric motor drawing current from rechargeable storage batteries or other portable energy storage devices (rechargeable using energy from a source off the vehicle such as residential electric service),

(ii) Which is manufactured primarily for use on public streets, roads, or highways (except any vehicle operated on a rail or rails),

(iii) Which is rated at not more than 8,500 pounds gross vehicle weight, which has a curb weight of not more than 6,000 pounds, and which has a basic vehicle frontal area of not more than 45 square feet, or

(iv) 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: (i) gasoline and diesel fuel for gasoline- or diesel-powered automobiles or (ii) electrical energy for electrically powered automobiles or (iii) alcohol for alcohol-powered automobiles or (iv) natural gas for natural gas-powered automobiles.

(10) Fuel Economy means: (i) The average number of miles traveled by an automobile or group of automobiles per volume of fuel consumed as computed in §600.113 or §600.207 or (ii) the equivalent petroleum-based fuel economy for an electrically powered automobile as determined by the Secretary of Energy.

(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)(i) 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.

(ii) For electric vehicles, the term means the equivalent petroleum-based fuel economy value as determined by the calculation procedure promulgated by the Secretary of Energy.

(14) Average Fuel Economy means the unique fuel economy value as computed under §600.510 for a specific class of automobiles produced by a manufacturer that is subject to average fuel economy standards.

(15) Certification Vehicle means a vehicle which is selected under §86.084-24(b)(1) and used to determine compliance under §86.084-30 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 ultimate 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 passenger 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. For

electric vehicles, basic engine means a unique combination of manufacturer and electric traction motor, motor controller, battery configuration, electrical charging system, energy storage device, and other components as specified by the Administrator.

(22) Transmission Class means a group of transmissions having the following common features: Basic transmission type (manual, automatic, or semi-automatic); number of forward gears used in fuel economy testing (e.g., manual four-speed, three-speed automatic, two-speed semi-automatic); drive system (e.g., front wheel drive, rear wheel drive; four wheel drive), type of overdrive, if applicable (e.g., final gear ratio less than 1.00, separate overdrive unit); torque converter type, if applicable (e.g., non-lockup, lockup, variable ratio); and other transmission characteristics that may be determined to be significant by the Administrator.

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

(24) Vehicle Configuration means a unique combination of basic engine, engine code, inertia weight class, 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 this chapter), 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. For electric vehicles, engine code means a unique combination of manufacturer, electric traction motor, motor configuration, motor controller, and energy storage device.

(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 of this chapter.

(27) Transmission Configuration means the Administrator may further subdivide within a transmission class if the Administrator determines that sufficient fuel economy differences exist. Features such as gear ratios, torque converter multiplication ratio, stall speed, shift calibration, or shift speed may be used to further distinguish characteristics within a transmission class.

(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 Device (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 of 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 construction as defined by number of doors and roof treatment (e.g., sedan, convertible, fastback, hatchback) and number of seats (i.e., front, 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) Van means any light truck having an integral enclosure fully enclosing the driver compartment and load carrying device, and having no body sections protruding more than 30 inches ahead of the leading edge of the windshield.

(40) Base Vehicle means the lowest priced version of each body style that makes up a car line.

(41) Nonpassenger Automobile means an automobile that is not a passenger automobile, as defined by the Secretary of Transportation at 49 CFR 523.5.

(42) Four-Wheel-Drive General Utility Vehicle means a four-wheel-drive, general purpose automobile capable of off-highway operation that has a wheelbase not more than 110 inches and that has a body shape similar to a 1977 Jeep CJ-5 or CJ-7, or the 1977 Toyota Land Cruiser, as defined by the Secretary of Transportation at 49 CFR 553.4.

(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.

(44) Secretary of Energy means the Secretary of Energy or his authorized representative.

(45) Electric Traction Motor means an electrically powered motor which provides tractive energy to the wheels of a vehicle.

(46) Energy Storage Device means a rechargeable means of storing tractive energy on board a vehicle such as storage batteries or a flywheel.

(47) Motor Controller Means an electronic or electro-mechanical device to convert energy stored in an energy storage device into a form suitable to power the traction motor.

(48) Electrical Charging System means a device to convert 60Hz alternating electric current, as commonly available in residential electric service in the United States, to a proper form for recharging the energy storage device.

(49) Battery Configuration means the electrochemical type, voltage, capacity (in Watt-hours at the c/3 rate), and physical characteristics of the battery used as the tractive energy device.

(50) Drive System is determined by the number and location of drive axles (e.g., front wheel drive, rear wheel drive, four wheel drive) and any other feature of the drive system if the Administrator determines that such other features may result in a fuel economy difference.

(51) Subconfiguration means a unique combination within a vehicle configuration of equivalent test weight, road-load horsepower, and any other operational characteristics or parameters which the Administrator determines may significantly affect fuel economy within a vehicle configuration.

(52) Alcohol means a mixture containing 85 percent or more by volume methanol, ethanol, or other alcohols, in any combination.

(53) Alcohol-Fueled Automobile means an automobile designed to operate exclusively on alcohol.

(54) Alcohol Dual Fuel Automobile means an automobile:

(i) Which is designed to operate on alcohol and on gasoline or diesel fuel; (ii) Which provides equal or greater energy efficiency as calculated in accordance with §600.510 (g)(1) while operating on alcohol as it does while operating on gasoline or diesel fuel; (iii) Which, for model years 1993 through 1995, provides equal or superior energy efficiency, as determined in §600.510 (g)(2) while operating on a mixture of alcohol and gasoline or diesel fuel containing 50 percent gasoline or diesel fuel as it does while operating on gasoline or diesel fuel; and (iv) Which, in the case of passenger automobiles, meets or exceeds the minimum

driving range established by the Department of Transportation.

(55) "Natural Gas-Fueled Automobile" means an automobile designed to operate exclusively on natural gas.

(56) "Natural Gas Dual Fuel Automobile" means an automobile: (i) Which is designed to operate on natural gas and on gasoline or diesel fuel; (ii) Which provides equal or greater energy efficiency as calculated in §600.510 (g)(1) while operating on natural gas as it does while operating on gasoline or diesel fuel; and (iii) Which, in the case of passenger automobiles, meets or exceeds the minimum driving range established by the Department of Transportation.

8. Section 600.006-89 of subpart A is amended by revising paragraph (b) and adding paragraph (h) to read as follows:

§600.006-89 Data and information requirements for fuel economy vehicles.

* * * * *

(b)(1) * * *

(i) A description of the vehicle, exhaust emission test results, applicable deterioration factors, adjusted exhaust emission levels, and test fuel property values as specified in §600.113-93 except as specified in paragraph (h) of this section.

* * * * *

(h) For light-duty fuel economy trucks over 6000 lbs GVWR, the manufacturer must submit emissions data generated while using the following test weight basis:

(1) Adjusted Loaded Vehicle Weight (ALVW) as defined in

§86.094-2; or

(2) Loaded Vehicle Weight (LVW) as defined in §86.082-2, in which case the Administrator reserves the right to either require the manufacturer to test using ALVW and submit the data or submit the vehicle for testing by the Administrator for emission standards compliance.

9. Section 600.007-80 of subpart A is amended by revising paragraph (f) to read as follows:

§600.007-80 Vehicle acceptability.

* * * * *

(f) All vehicles used to generate fuel economy data, and for which emission standards apply, must be covered by a certificate of conformity under part 86 of this chapter before:

* * * * *

9a. Section 600.011-93 is added to subpart A to read as follows:

§600.011-93 Reference materials.

(a) Incorporation by reference. The documents in paragraph (b) of this section have been incorporated by reference. The incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at USEPA, OAR, 401 M Street, SW., Washington DC 20460, or at the Office of the Federal Register, 800 N. Capitol Street, NW., suite 700, Washington, DC.

(b) The following paragraphs and tables set forth the material that has been incorporated by reference in this part.

(1) ASTM material. The following table sets forth material from the American Society for Testing and Materials which has been incorporated by reference. The first column lists the number and name of the material. The second column lists the section(s) of this part, other than § 600.011, in which the matter is referenced. Copies of these materials may be obtained from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Document number and name	40 CFR part 600 reference
ASTM E 29-67(Reapproved 1973) Standard Recommended Practice for Indicating which Places of Figures are to be Considered Significant in Specified Limiting Values.	600.002-93(a)(30); 600.113-93(d)
ASTM D 1298-85(Reapproved 1990) Standard Practice for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method.	600.113-93(c)(1)(i), (c)(2)(i)(A), (c)(2)(i)(B), (c)(2)(ii); 600.510-93 (g)(1)(ii)(B), (g)(2)(ii)(B)
ASTM D 3343-90 Standard Test Method for Estimation of Hydrogen Content of Aviation Fuels	600.113-93(c)(1)(ii), (c)(2)(ii)
ASTM D 3338-92 Standard Test Method for Estimation of Net Heat of Combustion of Aviation Fuels	600.113-93(c)(1)(iii)
ASTM D 240-92 Standards Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter.	600.113-93(c)(2)(iii); 600.510-93 (g)(1)(ii)(A), (g)(2)(ii)(A)

10. A new §600.101-93 is added to subpart B to read as follows:

§600.101-93 General applicability.

(a) The provisions of this subpart are applicable to 1993 and later model year gasoline-fueled, diesel-fueled, alcohol-fueled, natural gas-fueled, alcohol dual fuel, and natural gas dual fuel automobiles.

11. A new §600.107-93 is added to subpart B to read as follows:

§600.107-93 Fuel specifications.

(a) The test fuel specifications for gasoline-fueled automobiles are given in §86.113(a)(1) and (2) of this chapter.

(b) The test fuel specifications for diesel-fueled automobiles are given in §86.113(b) (1) through (3) of this chapter.

(c) The test fuel specifications for methanol fuel used in Otto-cycle automobiles are given in §86.113(a)(3) and (4) of this chapter.

(d) The test fuel specifications for methanol fuel used in diesel cycle automobiles are given in §86.113 (b)(4) through (6) of this chapter.

(e) The test fuel specifications for mixtures of petroleum and methanol fuels for methanol dual fuel vehicles are given in §86.113(d) of this chapter.

(f) The specification range of the fuels to be used under paragraphs (c) and (d) of this section shall be reported in accordance with §86.090-21 (b)(3) of this chapter.

12. A new §600.111-93 is added to subpart B to read as follows:

§600.111-93 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, except as provided for in paragraph (d) of this section. (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 §600.111-93 (b) through (j) inclusive.

(1) The Highway Fuel Economy Dynamometer Procedure consists of 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 emission is collected continuously for subsequent analysis of hydrocarbons, carbon monoxide, carbon dioxide using a constant volume (variable dilution) sampler. Diesel dilute exhaust is continuously analyzed for hydrocarbons using a heated sample line and analyzer. Methanol and formaldehyde samples are collected and individually analyzed for methanol-fueled vehicles (measurement of methanol and formaldehyde may be omitted for 1993 through 1994 model year methanol-fueled vehicles provided a HFID calibrated on methanol is used for measuring HC plus methanol).

(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. Section 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 of this chapter. 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 evaporative 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. Methanol and formaldehyde samples (exhaust and dilution air) are collected and analyzed for methanol-fueled vehicles (measurement of methanol and formaldehyde may be omitted for 1993 through 1994 model year methanol-fueled vehicles provided a HFID calibrated on methanol is used for measuring HC plus methanol).

(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 §86.136(d) and (e) 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 §86.079-25 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 fans(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 §86.137(b)(3) through (6) inclusive 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 of §600.109(b).

(6) When the vehicle reaches zero speed at the end of the preconditioning cycle, the driver has 17 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 §600.109(b) 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.

(i) For methanol dual fuel automobiles, the procedures of §600.111 (a) and (b) shall be performed for each of the required test fuels:

(1) Gasoline or diesel fuel as specified in §600.107 (a) and (b), and

(2) Methanol fuel as specified in §600.107 (c) and (d), and

(3) A mixture containing 50% gasoline or diesel and 50% methanol by volume, applicable during model years 1993 through 1995, or

(4) In leu of testing using the mixture containing 50% gasoline or diesel and 50% methanol by volume, the manufacturer must provide a written statement attesting that the equal or superior energy efficiency is attained while using the 50% gasoline or diesel and 50% methanol mixture compared to using gasoline.

13. A new §600.113-93 is added to subpart B to read as follows:

§600.113-93 Fuel Economy calculations.

The Administrator will use the calculation procedure set forth in this paragraph for all official EPA testing of vehicles fueled with gasoline, diesel, or methanol fuel. The calculations of the weighted fuel economy values require input of the weighted grams/mile values for HC, CO, and CO_2, and, additionally for methanol fueled automobiles CH_3OH and HCHO for both the city fuel economy test and the highway fuel economy test. Additionally, the specific gravity, carbon weight fraction and net heating value of the test fuel must be determined. The city and highway fuel economy values shall be calculated as specified in this section. A sample 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, and, additionally for methanol-fueled automobiles, CH_3OH and HCHO as specified in §86.144 of this chapter. Measure and record the test fuel's properties as specified in paragraph (c) of this section.

(b)(1) Calculate the mass values for the highway fuel economy test for HC, CO, and CO_2, and CH_3OH and HCHO where applicable, as specified in paragraph (b) of §86.144 of this chapter. Measure and record the test fuel's properties as specified in paragraph (c) of this section.

(2) Calculate the grams/mile values for the highway fuel economy test for HC, CO, and CO_2, and CH_3OH and HCHO where applicable, by dividing the mass values obtained in paragraph (b)(1) of this section, by the actual distance traveled, measured in miles, as specified in §86.135(h) of this chapter.

(c)(1) Gasoline test fuel properties shall be determined by analysis of a fuel sample taken from the fuel supply. A sample shall be taken after each addition of fresh fuel to the fuel supply. Additionally, the fuel shall be resampled once a month to account for any fuel property changes during storage. Less frequent resampling may be permitted if EPA concludes, on the basis of manufacturer-supplied data, that the properties of test fuel in the manufacturer's storage facility will remain stable for a period longer than one month. The fuel samples shall be analyzed to determine the following fuel properties:

(i) Specific gravity per ASTM D 1298 (incorporated by reference as specified in §600.011-93).

(ii) Carbon weight fraction per ASTM D 3343 (incorporated by reference as specified in §600.011-93).

(iii) Net heating value (Btu/lb) per ASTM D 3338 (incorporated by reference as specified in §600.011-93).

(2) Methanol test fuel shall be analyzed to determine the following fuel properties:

(i) Specific gravity using either:

(A) ASTM D 1298 (incorporated by reference as specified in §600.011-93) for the blend, or

(B) ASTM D 1298 (incorporated by reference as specified in §600.011-93) for the gasoline fuel component and also for the methanol fuel component and combining as follows:

$SG = SG_g$ x volume fraction gasoline + SG_m x volume fraction methanol.

(ii) Carbon weight fraction using the following equation:

$CWF = CWF_g \times MF_g + 0.375 \times MF_m$

Where:

CWF_g = Carbon weight fraction of gasoline portion of blend per ASTM D 3343 (incorporated by reference as specified in §600.011-93).

MF_g= Mass fraction gasoline = $(GxSG_g)/(GxSG_g+MxSG_m)$

MF_m= Mass fraction methanol = $(MxSG_m)/(GxSG_g+MxSG_m)$

Where:

G= Volume fraction gasoline

M= Volume fraction methanol

SG_g= Specific gravity of gasoline as measured by ASTM D 1298 (Incorporated by reference as specified in §600.011-93).

SG_m= Specific gravity of methanol as measured by ASTM D 1298 (Incorporated by reference as specified in §600.011-93). Upon the approval of the Administrator, other procedures to measure the carbon weight fraction of the fuel blend may be used if the manufacturer can show that the procedures are superior to or equally as accurate as those specified in this paragraph.

(iii) Net heating value (BTU/lb) per ASTM D 240 (incorporated by reference as specified in §600.011-93).

(d) Calculate the city fuel economy and highway fuel economy from the grams/mile values for HC, CO, CO_2, and CH_3OH and HCHO where applicable, and, the test fuel's specific gravity, carbon weight fraction and net heating value. The emission values (obtained per paragraph (a) or (b) of this section, as applicable) used in each calculation of this section shall be rounded in accordance with §86.084-26(a)(6)(iii) of this chapter. The CO_2 values (obtained per paragraph (a) or (b) of this section, as applicable) used in each calculation of this section shall be rounded to the nearest gram/mile. The specific gravity and the carbon weight fraction (obtained per paragraph (c) of this section) shall be recorded using three places to the right of the decimal point. The net heating value (obtained per paragraph (c) of this section) shall be recorded to the nearest whole Btu/lb. These numbers shall be rounded in accordance with the "Rounding Off Method" specified in ASTM E 29-67 (Incorporated by reference as specified in §600.011-93).

(e) For gasoline-fueled automobiles, the fuel economy in miles per gallon is to be calculated using the following

equation:

$$mpg=(5174x10^4xCWFxSG)/[((CWFxHC)+(0.429xCO)+(0.273xCO_2))x((0.6xSGxNHV)+5471)]$$

Where:

HC=Grams/mile HC as obtained in paragraph (d) of this section.
CO=Grams/mile CO as obtained in paragraph (d) of this section.
CO_2=Grams/mile CO_2 as obtained in paragraph (d) of this section.
CWF=Carbon weight fraction of test fuel as obtained in paragraph (d) of this section.
NHV=Net heating value by mass of test fuel as obtained in paragraph (d) of this section.
SG=Specific gravity of test fuel as obtained in paragraph (d) of this section.

Round the calculated result to the nearest 0.1 miles per gallon.

(f) For diesel-fueled 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/miles as obtained in paragraph (d) of this section).

(2) 0.429 multiplied by CO (in grams/mile as obtained in paragraph (d) of this section), and

(3) 0.273 multiplied by CO_2 (in grams/mile as obtained in paragraph (d) of this section).

Round the quotient to the nearest 0.1 mile per gallon.

(g) For methanol-fueled automobiles and automobiles designed to operate on mixtures of gasoline and methanol, the fuel economy in miles per gallon is to be calculated using the following equation:

$$mpg=(CWFxSGx3781.8)/((CWF_{exHC}\ xHC)+(0.429xCO)+(0.273xCO_2)+(0.375xCH_3OH)+(0.400xHCHO))$$

Where:

CWF= Carbon weight fraction of the fuel as determined in paragraph (c)(2)(ii) of this section.

SG = Specific gravity of the fuel as determined in paragraph (c)(2)(i) of this section.

CWF_{exHC} = Carbon weight fraction of exhaust hydrocarbons = CWF_g as determined in (c)(2)(ii) of this section (for M100 fuel, CWF_{exHC} = 0.866).

HC = Grams/mile HC as obtained in paragraph (d) of this

section.
CO = Grams/mile CO as obtained in paragraph (d) of this section.
CO_2=Grams/mile CO_2 as obtained in paragraph (d) of this section.
CH_3OH = Grams/mile CH_3OH (methanol) as obtained in paragraph (d) of this section.
HCHO = Grams/mile HCHO (formaldehyde) as obtained in paragraph (d) of this section.

14. A new §600.201-93 is added to subpart C to read as follows:

§600.201-93 General applicability.

The provisions of this subpart are applicable to 1993 and later model year gasoline-fueled, diesel-fueled, alcohol-fueled, natural gas-fueled, alcohol dual fuel, and natural gas dual fuel automobiles.

15. A new §600.206-93 is added to Subpart C, to read as follows:

§600.206-93 Calculation and use of fuel economy values for gasoline-fueled, diesel-fueled, electric, alcohol-fueled, natural gas-fueled, alcohol dual fuel, and natural gas dual fuel vehicle configurations.

(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 set of city and highway fuel economy values is accepted for a vehicle configuration, these values, rounded to the nearest tenth of a mile per gallon, comprise the city and highway fuel economy values for that configuration.

(2) If more than one city or highway fuel economy value is accepted for a vehicle configuration:

(i) All data shall be grouped according to the subconfiguration for which the data were generated using sales projections supplied in accordance with §600.207(a)(3).

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

(iii) All city fuel economy values and all highway fuel economy values calculated in paragraph (a)(2)(ii) of this section are (separately for city and highway) averaged in proportion to the sales fraction (rounded to the nearest 0.0001) within the vehicle configuration (as provided to the Administrator by the manufacturer) of vehicles of each tested subconfiguration. 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) or (2), weighted 0.55 and 0.45 respectively, and rounded to the nearest 0.0001 mile per gallon. A sample of this calculation appears in Appendix II to this part.

(4) For alcohol dual fuel automobiles and natural gas dual fuel automobiles the procedures of paragraphs (a)(1) through (3) of this section shall be used to calculate two separate sets of city, highway, and combined fuel economy values for each configuration.

(i) Calculate the city, highway, and combined fuel economy values from the tests performed using

gasoline or diesel test fuel.

(ii) Calculate the city, highway, and combined fuel economy values from the tests performed using alcohol or natural gas test fuel.

(b) If only one equivalent petroleum-based fuel economy value exists for an electric configuration, that value, rounded to the nearest tenth of a mile per gallon, will compose the petroleum-based fuel economy for that configuration.

(c) If more than one equivalent petroleum-based fuel economy value exists for an electric vehicle configuration, all values for that vehicle configuration are harmonically averaged and rounded to the nearest 0.0001 mile per gallon for that configuration.

16. A new §600.207-93 is added to subpart C to read as follows:

§600.207-93 Calculation 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) In order to highlight the fuel efficiency of certain designs otherwise included within a model type, a manufacturer may wish to subdivide a model type into one or more additional model types. This is accomplished by separating subconfigurations from an existing base level and placing them into a new base level. The new base level is identical to the existing base level except that it shall be considered, for the purposes of this paragraph, as containing a new basic engine. The manufacturer will be permitted to designate such new basic engines and base level(s) if:

(i) Each additional model type resulting from division of another model type has a unique car line name and that name appears on the label and on the vehicle bearing that label.

(ii) The subconfigurations included in the new base levels are not included in any other base level which differs only by basic engine (i.e., they are not included in the calculation of the original base level fuel economy values), and

(iii) All subconfigurations within the new base level are represented by test data in accordance with §600.010(c)(ii).

(3) The manufacturer shall supply total model year sales projections for each car line/vehicle subconfiguration combination.

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

(ii) Manufacturers shall update sales projections at the time any model type value is calculated for a label value.

(iii) The requirements of this paragraph may be satisfied by providing an amended application for certification, as described in §86.084-21 of this chapter.

(4) 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 has been tested, the vehicle configuration fuel economy values are harmonically averaged in proportion to the respective sales fraction (rounded to the nearest 0.0001) of each vehicle configuration and the resultant fuel economy value rounded to the nearest 0.0001 mile per gallon.

(5) 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.

(6) 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.

(7) For alcohol dual fuel automobiles and natural gas dual fuel automobiles the procedures of paragraphs (a)(1) through (6) of this section shall be used to calculate two separate sets of city, highway, and combined fuel economy values for each base level.

(i) Calculate the city, highway, and combined fuel economy values from the tests performed using gasoline or diesel test fuel.

(ii) Calculate the city, highway, and combined fuel economy values from the tests performed using alcohol or natural gas test fuel.

(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 for vehicles intended for sale in California and for each model type for vehicles 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 a 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.

(5) For alcohol dual fuel automobiles and natural gas dual fuel automobiles the procedures of paragraphs (b)(1) through (4) of this section shall be used to calculate two separate sets of city, highway, and combined fuel economy values for each model type.

(i) Calculate the city, highway, and combined fuel economy values from the tests performed using gasoline or diesel test fuel.

(ii) Calculate the city, highway, and combined fuel economy values from the tests performed using alcohol or natural gas test fuel.

17. A new §600.209-95 is added to subpart C to read as follows:

§600.209-95 Calculation of fuel economy values for

labeling.

(a) For the purposes of calculating the city model type fuel economy value for labeling the manufacturer shall:

(1)(i) For general labels for gasoline-fueled, diesel-fueled, alcohol-fueled, and natural gas-fueled automobiles multiply the city model type fuel economy value determined in §600.207 (b), by 0.90, rounding the product to the nearest whole mpg.

(ii) For general labels for alcohol dual fuel and natural gas dual fuel automobiles:

(A) Multiply the city model type fuel economy calculated from the tests performed using gasoline or diesel test fuel as determined in §600.207 (b)(5)(i) by 0.90, rounding the product to the nearest whole mpg, and

(B) Multiply the city model type fuel economy calculated from the tests performed using alcohol or natural gas test fuel as determined in §600.207 (b)(5)(ii) by 0.90, rounding the product to the nearest whole mpg, or

(2)(i) For specific labels for gasoline-fueled, diesel-fueled, alcohol-fueled, and natural gas-fueled automobiles, multiply the city model type fuel economy value determined in §600.206 (a)(2)(iii), by 0.90, rounding the product to the nearest whole mpg.

(ii) For specific labels for alcohol dual fuel and natural gas dual fuel automobiles:

(A) Multiply the city model type fuel economy calculated from the tests performed using gasoline or diesel test fuel as determined in §600.206 (a)(2)(iii) and (4)(i) by 0.90, rounding the product to the nearest whole mpg, and

(B) Multiply the city model type fuel economy calculated from the tests performed using alcohol or natural gas test fuel as determined in §600.206 (a)(2)(iii) and (4)(ii) by 0.90, rounding the product to the nearest whole mpg, and

(b) For the purposes of calculating the highway model type fuel economy value for labeling the manufacturer shall:

(1)(i) For general labels for gasoline-fueled, diesel-fueled, alcohol-fueled, and natural gas-fueled automobiles, multiply the highway model type fuel economy value determined in §600.207 (b), by 0.78, rounding the product to the nearest whole mpg.

(ii) For general labels for alcohol dual fuel and natural gas dual fuel automobiles:

(A) Multiply the highway model type fuel economy calculated from the tests performed using gasoline or diesel test fuel as determined in §600.207 (b)(5)(i) by 0.78, rounding the product to the nearest whole mpg, and

(B) Multiply the highway model type fuel economy calculated from the tests performed using alcohol or natural gas test fuel as determined in §600.207 (b)(5)(ii) by 0.78, rounding the product to the nearest whole mpg.

(2)(i) For specific labels for gasoline-fueled, diesel-fueled, alcohol-fueled, and natural gas-fueled automobiles, multiply the highway model type fuel economy value determined in §600.206 (a)(iii), by 0.78, rounding the product to the nearest whole mpg, or

(ii) For specific labels for alcohol dual fuel and natural gas dual fuel automobiles:

(A) Multiply the highway model type fuel economy calculated from the tests performed using gasoline or diesel test fuel as determined in §600.206 (a)(2)(iii) and (4)(i) by 0.78, rounding the product to the nearest whole mpg, and

(B) Multiply the highway model type fuel economy calculated from the tests performed using alcohol or natural gas test fuel as determined in §600.206 (a)(2)(iii) and (4)(ii) by 0.78, rounding the product to the nearest whole mpg.

(c) If the resulting city value determined in paragraph (a) of this section exceeds the resulting highway value determined in paragraph (b) of this section, the city value will be set equal to the highway value.

(d) For the purposes of calculating the combined fuel economy for a model type, to be used in determining annual fuel costs under §600.307, the manufacturer shall (except as provided for in paragraph (d)(2) of this section):

(1)(i) For gasoline-fueled, diesel-fueled, alcohol-fueled, and natural gas-fueled automobiles, harmonically average the unrounded city and highway values, determined in (a)(1)(i) and (b)(1)(i), or (a)(2)(i) and (b)(2)(i) of this section weighted 0.55 and 0.45 respectively, and round to the nearest whole mpg. (An example of this calculation procedure appears in Appendix II of this part), or

(ii) For alcohol dual fuel and natural gas dual fuel automobiles, harmonically average the unrounded city and highway values from the tests performed using gasoline or diesel test fuel as determined in (a)(1)(ii)(A) and (b)(1)(ii)(A), or (a)(2)(ii)(A) and (b)(2)(ii)(A) of this section.

(2) If the resulting city value determined in paragraph (a) of this section exceeds the resulting highway value determined in paragraph (b) of this section, the combined fuel economy will be set equal to the highway value, rounded to the nearest whole mpg.

Subpart D-Fuel Economy Regulations for 1977 and Later
Model Year Automobiles-Labeling

18. A new §600.301-95 is added to subpart D to read as follows:

§600.301-95 General applicability.

(a) The provisions of this subpart are applicable to 1994 and later model year gasoline-fueled, diesel-fueled, alcohol-fueled, natural gas-fueled, alcohol dual fuel, and natural gas dual fuel automobiles.

(b)(1) Manufacturers that produce only electric vehicles are exempt from the requirement of this subpart, except with regard to the requirements in those sections pertaining specifically to electric vehicles.

(2) Manufacturers with worldwide production (excluding electric vehicle production) of less than 10,000 gasoline-fueled and/or diesel powered passenger automobiles and light trucks may optionally comply with the electric vehicle requirements in this subpart.

19. A new §600.307-95 is added to subpart D to read as follows:

§600.307-95 Fuel economy label format requirements.

(a)(1) Fuel economy labels must be:

(i) Rectangular in shape with a minimum height of 4.5 inches (114 mm) and a minimum length of 7.0 inches (178 mm) as depicted in appendix VIII.

(ii) Printed in a color which contrasts with the paper color.

(iii) The label shall have a contrasting border at least 0.25 inches (6.4 mm) wide.

(2) The top 50 percent of the total fuel economy label area shall contain only the following information and in the same format depicted in the label format in Appendix VIII:

(i) The titles "CITY MPG" and "HIGHWAY MPG", centered over the applicable fuel economy estimates, in bold caps 10 points in size,

(ii)(A) For gasoline-fueled, diesel-fueled, alcohol-fueled, and natural gas-fueled automobiles, the city

and highway fuel economy estimates calculated in accordance with §600.209 (a) and (b).

(B) For alcohol dual fuel automobiles and natural gas dual fuel automobiles, the city and highway fuel economy estimates for operation on gasoline or diesel fuel as calculated in §600.209 (a)(1)(ii)(A) or (2)(ii)(A) and §600.209 (b)(1)(ii)(A) or (2)(ii)(A).

(iii) The fuel pump logo, and

(iv) The phrase "Compare this [vehicle/truck] to others in the FREE FUEL ECONOMY GUIDE available at the dealer," shall be "dropped-out" of the top border as depicted in the sample label format in Appendix VIII. The phase shall be in lower case in a medium condensed type except for the words "FREE FUEL ECONOMY GUIDE" which shall be capitalized in a bold condensed type and no smaller than 12 points in size.

(v)(A) For alcohol-fueled automobiles, the title"(insert appropriate fuel (example "METHANOL (M85*)")". The title shall be positioned above the fuel pump logo and shall be in upper case in a bold condensed type and no smaller than 12 points in size.

(B) For natural gas-fueled automobiles, the title "NATURAL GAS*". The title shall be positioned above the fuel pump logo and shall be in uppercase in a bold condensed type and no smaller than 12 points in size.

(C) For alcohol dual fuel automobiles and natural gas dual fuel automobiles, the title "DUAL FUEL*". The title shall be positioned above the fuel pump logo and shall be in upper case in a bold condensed type and no smaller than 12 points in size.

(vi)(A) For alcohol-fueled automobiles, the title "(insert appropriate fuel (example "M85"))" centered above the title "CITY MPG" and above the title "HIGHWAY MPG" in bold caps 10 points in size.

(B) For natural gas-fueled automobile, the title "GASOLINE EQUIVALENT" centered above the title "CITY MPG" and above the title "HIGHWAY MPG" in bold caps 10 points in size.

(C) For alcohol dual fuel automobiles and natural gas dual fuel automobiles, the title "GASOLINE" centered above the title "CITY MPG" and above the title "HIGHWAY MPG" in bold caps 10 points in size.

(3) The bottom 50 percent of the label shall contain the following information:

(i) The [vehicle/truck] description, as described in paragraph (c) or (d) of the section, when applicable.

(ii)(A) A statement: "Actual mileage will vary with options, driving conditions, driving habits and [vehicle's/truck's] condition. Results reported to EPA indicate that the majority of [vehicles/trucks] with these estimates will achieve between -- and -- mpg in the city, and between -- and -- mpg on the highway."

(B) The range values for this statement are to be calculated in accordance with the following:

(1) The lower range values shall be determined by multiplying the city and highway estimates by 0.85, then rounding to the next lower integer value.

(2) The upper range values shall be determined by multiplying the city and highway estimates by 1.15 and rounding to the next higher integer value.

(iii)(A) A statement: "For comparison shopping, all [vehicles/trucks] classified as [insert category as determined in §600.315] have been issued mileage ratings ranging from -- to -- mpg city and -- to -- mpg highway." (The range values are those determined in accordance with §600.311.) or, when applicable,

(B) A statement: "A range of fuel economy values for other [vehicles/trucks] classified as [insert category as determined in §600.315] is not available at this time." or by the statement: "Not available."

(iv)(A) The statement: "Estimated Annual Fuel Cost:" followed by the appropriate value calculated in accordance with paragraph (g) or (h) of this section. The estimated annual fuel cost value for alcohol dual fuel automobiles and natural gas dual fuel vehicles to appear on the fuel economy label shall be that calculated based on operating the vehicle on gasoline or diesel fuel as determined in §600.307(g) and (h). At the manufacturers option, the label may also contain the estimated annual fuel cost value based on operating

the vehicle on the alternative fuel.

(B) At the manufacturers option, it may include the fuel cost and the annual mileage interval used to determine the annual fuel cost.

(v) For the 1986 model year only, the statement: "Under EPA's previous fuel economy program, used prior to the 1985 model year, this [vehicle/truck] would have received a single estimate of [insert unadjusted city value rounded to the nearest whole mpg, as determined in §600.207(b)] mpg."

(vi)(A) The Gas Guzzler statement, when applicable (see paragraph (f) of this section), must be centered on a separate line between the bottom border and the Estimated Annual Fuel Cost statements. The words "Gas Guzzler" shall be highlighted.

(B) The type size shall be at least as large as the largest type size in the bottom 50 percent of the label.

(vii)(A) For alcohol-fueled, and natural gas-fueled automobiles, the statement: "*This vehicle operates on [insert appropriate fuel(s)] only." shall appear above the bottom border. The phrase shall be in lower case in a medium condensed type except for the fuels listed which shall be capitalized in a bold condensed type no smaller than 12 points in size.

(B) For natural gas-fueled automobiles, the statements: "All fuel economy values on this label pertain to gasoline equivalent fuel economy. To convert these values into units of miles per 100 cubic feet of natural gas, multiply by 0.823." At the manufacturers option, the statement "To convert these values into units of miles per 100 cubic feet of natural gas, multiply by 0.823." may be replaced by the statement "The fuel economy in units of miles per (insert units used in retail) is estimated to be (insert city fuel economy value) in the city, and (insert highway fuel economy value) on the highway.

(C) For alcohol dual fuel automobiles and natural gas dual fuel automobiles, the statement: "This vehicle operates on [insert gasoline or diesel as appropriate] and [insert other fuel(s) as appropriate]." shall appear above the bottom border. The phrase shall be in lower case in a medium condensed type except for the words "gasoline" or "diesel" (as appropriate) and the other fuels listed, which shall be capitalized in a bold condensed type no smaller than 12 points in size.

(viii) For alcohol dual fuel automobiles and natural gas dual fuel automobiles, the statement: "All fuel economy values on this label pertain to [insert gasoline or diesel as appropriate] fuel usage. [insert other fuel(s) as appropriate] fuel(s) usage will yield different values. See the FREE FUEL ECONOMY GUIDE for information on [insert other fuel(s)] ." At the manufacturers option, the above statements may be replaced by the statement "The fuel economy while using (insert appropriate fuel (example "M85)) is estimated to be (insert city fuel economy value and appropriate units) in the city and (insert highway fuel economy value and appropriate units) on the highway. See the FREE FUEL ECONOMY GUIDE for other information on (insert appropriate fuel).

(4) The maximum type size for the statements located in the lower 50 percent of the label shall not exceed 10 points in size, except as provided for in paragraphs (a)(3)(vii)(A) and (B) of this section.

(b)(1) The city mpg number shall be displayed on the left and the highway mpg number displayed on the right.

(2)(i) Except for the digit "one," each mpg digit shall measure at least 0.35 inches by 0.6 inches (9x15mm) in width and height respectively.

(ii) The digit "one," shall measure at least 0.2 inches by 0.6 inches (5x15mm) in width and height respectively.

(3) The strike width of each mpg digit shall be at least 0.075 inches (1.9mm).

(4)(i) MPG digits not printed as a single character shall be made of a matrix of smaller characters. This matrix shall be at least four characters wide by five characters high (with the exception of three characters wide for the numerical character denoting "one".)

(ii) The small characters shall be made of successive overstrikes to form a reasonably dark and continuous line that approximates a single large character.

(5)(i) If manufacturer chooses to enlarge the label from that depicted in Appendix VIII, the logo and the fuel economy label values, including the titles "CITY MPG" and "HIGHWAY MPG," must be increased in the same proportion.

(ii) The area bounded by the bottom of the fuel pump logo to the top of the border must continue to represent at least 50 percent of the available label area.

(C) The vehicle description on general labels will be as follows:

(1) Model year;

(2) Vehicle car line;

(3) Engine displacement, in cubic inches, cubic centi-meters, or liters whichever is consistent with the customary description of that engine;

(4) Number of engine cylinders or rotors;

(5) Additional engine description, if necessary to distinguish otherwise identical model types, as approved by the Administrator;

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

(7) Transmission class;

(8) Catalyst usage, if necessary to distinguish otherwise identical model types; and

(9) California emission control system usage, if applicable and 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) The vehicle description on specific labels will be as follows:

(1) The descriptions of paragraph (c) of this section;

(2) Inertia weight class;

(3) Axle ratio; and

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

(e) Where the fuel economy label is incorporated with the pricing information sticker, the applicable vehicle description, as set forth in paragraph (c) or (d) of this section, does not have to be repeated if the information is readily found on the Motor Vehicle Information and Cost Savings Act label.

(f)(1) For fuel economy labels of passenger automobile model types requiring a tax statement under §600.513, the phrase "* * * Gas Guzzler Tax: $---- * * *".

(2) The tax value required by this paragraph shall be based on the combined fuel economy value for the model type calculated in accordance with §600.207 and rounded to the nearest 0.1 mpg. Adjustments in accordance with §600.209 will not be used to determine the tax liability.

(g) General labels. The annual fuel cost estimate for operating an automobile included in a model type shall be computed by using values for the fuel cost per volume (gallon for liquid fuels, cubic foot for gaseous fuels) and average annual mileage, predetermined by the Administrator, and the fuel economy determined in §600.209(d).

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

(i) Fuel cost per gallon (natural gas must be expressed in units of cost per equivalent gallon, where 100 SCF = 0.823 equivalent gallons) 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 average, rounded to the nearest 0.0001 gallons per mile (natural gas must be expressed in units of gallons equivalent per mile where 100 SCF=0.823 equivalent gallons) of the fuel economy value determined in §600.209(d) for a model type.

(2) The product computed in (g)(1) and rounded to the nearest dollar per year will comprise the

annual fuel cost estimate that appears on general labels for the model type.

(h) Specific labels. The annual fuel cost estimate for operating an automobile included in a vehicle configuration will be computed by using the values for the fuel cost per volume (gallon for liquid fuels, cubic feet for gaseous fuels) and average mileage and the fuel economy determined in paragraph (h)(1)(iii) of this section.

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

(i) Fuel cost per gallon (natural gas must be expressed in units of cost per equivalent gallon, where 100 SCF=0.823 equivalent gallons) 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 (natural gas must be expressed in units of gallon equivalent per mile, where 100 SCF=0.823 equivalent gallons) of the fuel economy value determined in §600.206(a)(2)(iii) for a vehicle configuration (city and highway values will be adjusted by the factors in §600.209(a) and (b) and combined according to §600.209(d) before the calculation).

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

20. A new §600.501-93 is added to subpart F to read as follows:

§600.501-93 General applicability.

(a) The provisions of this subpart are applicable to 1993 and later model year gasoline-fueled, diesel-fueled, alcohol-fueled, natural gas-fueled, alcohol dual fuel and natural gas dual fuel automobiles.

(b)(1) Manufacturers that produce only electric vehicles are exempt from the requirement of this subpart, except with regard to the requirements in those sections pertaining specifically to electric vehicles.

(2) Manufacturers with worldwide production (excluding electric vehicle production) of less than 10,000 gasoline-fueled and/or diesel powered passenger automobiles and light trucks may optionally comply with the electric vehicle requirements in this subpart.

21. A new §600.510-93 is added to subpart F to read as follows:

§600.510-93 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 is domestically manufactured as defined in §600.511(d)(1).

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

(3) An average fuel economy calculation will be made for the category of light trucks that is domestically manufactured as defined in §600.511(e)(1).

(4) An average fuel economy calculation will be made for the category of light trucks that is not domestically manufactured as defined in §600.511(e)(2).

(b) For the purpose of calculating average fuel economy under paragraph (c), of this section:

(1) All fuel economy data submitted in accordance with §600.006(e) or §600.502(c) shall be used.

(2) The combined city/highway fuel economy will be calculated for each model type in accordance

with §600.207 of this section 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) Nondomestically produced and imported;

(ii) Total model year 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 correct gallons of diesel fuel to equivalent gallons of gasoline;

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

(v) At the manufacturer's option, those vehicle configurations that are selfcompensating to altitude changes may be separated by sales into high-altitude sales categories and low-altitude sales categories. These separate sales categories may then be treated (only for the purpose of this section) as separate configurations in accordance with the procedure of paragraph §600.207(a)(4)(ii), and

(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) Nondomestically produced and imported:

(ii) Total model year 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) Except as permitted in paragraph (d) of this section, the average fuel economy will be calculated individually for each category identified in §600.510(a) as follows:

(1) Divide the total production volume of that category of automobiles by

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

(i) The number of automobiles of that model type produced by the manufacturer in the model year by

(ii) For gasoline-fueled and diesel-fueled model types, the fuel economy calculated for that model type in accordance with paragraph (b)(2) of this section, and

(iii) For alcohol-fueled model types, the fuel economy value calculated for that model type in accordance with (b)(2) of this section divided by 0.15 and rounded to the nearest 0.1 mpg, and

(iv) For natural gas-fueled model types, the fuel economy value calculated for that model type in accordance with (b)(2) of this section divided by 0.15 and rounded to the nearest 0.1 mpg, and

(v) For alcohol dual fuel model types, for model years 1993 through 2004, the harmonic average of the following two terms; the result rounded to the nearest 0.1 mpg:

(A) The combined model type fuel economy value for operation on gasoline or diesel fuel as determined in §600.207(b)(5)(i), and

(B) The combined model type fuel economy value for operation on alcohol fuel as determined in §600.207(b)(5)(ii) divided by 0.15 provided the requirements of §600.510 (g) are met, and

(vi) For natural gas dual fuel model types, for model years 1993 through 2004, the harmonic average of the following two terms; the result rounded to the nearest 0.1 mpg:

(A) The combined model type fuel economy value for operation on gasoline or diesel as determined

in §600.207(b)(5)(i), and

(B) The combined model type fuel economy value for operation on natural gas as determined in §600.207(b)(5)(ii) divided by 0.15 provided the requirements of §600.510 (g) are met.

(d) The Administrator may approve alternative calculation methods if they are part of an approved credit plan under the provisions of section 503(b) of U.S.C. 2003(b).

(e) For passenger categories identified in paragraphs (a) (1) and (2) of this section, the average fuel economy calculated in accordance with paragraph (c) of this section shall be adjusted using the following equation:

$$AFE_{adj} = AFE[((0.55 \times a \times c) + (0.45 \times c) + (0.5556 \times a) + 0.4487) / ((0.55 \times a) + 0.45)] + IW$$

Where:

AFE_{adj} = Adjusted average combined fuel economy, rounded to the nearest 0.1 mpg.

AFE = Average combined fuel economy as calculated in paragraph (c) of this section, rounded to the nearest 0.0001 mpg.

a = Sales-weight average (rounded to the nearest 0.0001 mpg) of all model type highway fuel economy values (rounded to the nearest 0.1 mpg) divided by the sales-weighted average (rounded to the nearest 0.0001 mpg) of all model type city fuel economy values (rounded to the nearest 0.1 mpg). The quotient shall be rounded to 4 decimal places. These average fuel economies shall be determined using the methodology of paragraph (c) of this section.

c = 0.0022 for the 1986 model year.

c = A constant value, fixed by model year. For 1987, the Administrator will specify the c value after the necessary laboratory humidity and test fuel data become available. For 1988 and later model years, the Administrator will specify the c value after the necessary laboratory humidity and test fuel data become available.

$$IW = (9.2917 \times 10^{-3} \times SF_{3\,IWC} \times FE_{3\,IWC}) - (3.5123 \times 10^{-3} \times SF_{4\,ETW} \times FE_{4\,IWC})$$

Note: Any calculated value of IW less than zero shall be set equal to zero.

$SF_{3\,IWC}$ = The 3000 lb. inertia weight class sales divided by total sales. The quotient shall be rounded to 4 decimal places.

$SF_{4\,ETW}$ = The 4000 lb. equivalent test weight category sales divided by total sales. The quotient shall be rounded to 4 decimal places.

$FE_{4\,IWC}$ = The sales-weighted average combined fuel economy of all 3000 lb. inertia weight class base levels in the compliance category. Round the result to the nearest 0.0001 mpg.

$FE_{4\,IWC}$ = The sales-weighted average combined fuel economy of all 4000 lb. inertia weight class base levels in the compliance category. Round the result to the nearest 0.0001 mpg.

(f) The Administrator shall calculate and apply additional average fuel economy adjustments if, after notice and opportunity for comment, the Administrator determines that, as a result of test procedure changes not previously considered, such correction is necessary to yield fuel economy test results that are comparable to those obtained under the 1975 test procedures. In making such determinations, the Administrator must find that:

(1) A directional change in measured fuel economy of an average vehicle can be predicted from a revision to the test procedures;

(2) The magnitude of the change in measured fuel economy for any vehicle or fleet of vehicles caused by a revision to the test procedures is quantifiable from theoretical calculations or best available test data;

(3) The impact of a change on average fuel economy is not due to eliminating the ability of manufacturers to take advantage of flexibility within the existing test procedures to gain measured improvements in fuel economy which are not the result of actual improvements in the fuel economy of production vehicles.

(4) The impact of a change on average fuel economy is not solely due to a greater ability of manufacturers to reflect in average fuel economy those design changes expected to have comparable effects on in-use fuel economy.

(5) The test procedure change is required by EPA or is a change initiated by EPA in its laboratory and is not a change implemented solely by a manufacturer in its own laboratory.

(g)(1) Alcohol dual fuel automobiles and natural gas dual fuel automobiles must provide equal or greater energy efficiency while operating on alcohol or natural gas as while operating on gasoline or diesel fuel to obtain the CAFE credit determined in paragraphs (c)(2)(v) and (vi) of this section. The following equation must hold true:

E_{alt}/E_{pet} > or = 1

where:

E_{alt} = $[FE_{alt}/(NHV_{alt} x D_{alt})] x 10^6$ = energy efficiency while operating on alternative fuel rounded to the nearest 0.01 miles/million BTU.

E_{pet} = $[FE_{pet}/(NHV_{pet} x D_{pet})] x 10^6$ = energy efficiency while operating on gasoline or diesel (petroleum) fuel rounded to the nearest 0.01 miles/million BTU.

FE_{alt} is the fuel economy [miles/gallon for liquid fuels or miles/100 standard cubic feet for gaseous fuels] while operated on the alternative fuel as determined in §600.113;

FE_{pet} is the fuel economy [miles/gallon] while operated on petroleum fuel (gasoline or diesel) as determined in §600.113;

NHV_{alt} is the net (lower) heating value [BTU/lb] of the alternative fuel;

NHV_{pet} is the net (lower) heating value [BTU/lb]of the petroleum fuel;

D_{alt} is the density [lb/gallon for liquid fuels or lb/100 standard cubic feet for gaseous fuels] of the alternative fuel;

D_{pet} is the density [lb/gallon] of the petroleum fuel.

(i) The equation must hold true for both the city and highway fuel economy values for each test of each test vehicle.

(ii)(A) The net heating value for alcohol fuels shall be determined per ASTM D 240 (Incorporated by reference as specified in §600.011-93).

(B) The density for alcohol fuels shall be determined per ASTM D 1298 (incorporated by reference as specified in § 600.011-93).

(iii) The net heating value and density of gasoline are to be determined by the manufacturer in accordance with §600.113(c).

(2) For model years 1993 through 1995, alcohol dual fuel automobiles designed to operate on mixtures of alcohol and gasoline must, in addition to paragraph (g)(1) of this section, to obtain the CAFE credit determined in paragraph (c)(2)(v) and (vi) of this section, provide equal or superior energy efficiency while operating on a mixture of 50% alcohol, 50% gasoline by volume, as while operating on gasoline fuel. The following equation must hold true:

E_{50}/E_g > or = 1

where:

$E_{50} = [FE_{50}/(NHV_{50} x D_{50})] x 10^6$ = energy efficiency while operating on 50% alcohol, 50% gasoline rounded to the nearest 0.01 miles/million BTU.

$E_g = [FE_g/(NHV_g x D_g)] x 10^6$ = energy efficiency while operating on gasoline fuel rounded to the nearest 0.01 miles/million BTU.

FE_{50} is the fuel economy [miles/gallon] while operated on 50% alcohol, 50% gasoline as determined in §600.113;

FE_g is the fuel economy [miles/gallon] while operated on gasoline as determined in §600.113;

NHV_{50} is the net (lower) heating value [BTU/lb] of the 50/50 blend;

NHV_g is the net (lower) heating value [BTU/lb] of gasoline;

D_{50} is the density [lb/gallon] of the 50/50 blend;

D_g is the density [lb/gallon] of the gasoline.

(i) To demonstrate that the equation holds true for each engine family, the manufacturer will:

(A) Test one test vehicle in each engine family on both the city and highway cycles, or

(B) In leu of testing, provide a written statement attesting that equal or superior energy efficiency is attained while using a 50% alcohol, 50% gasoline mixture compared to using 100% gasoline.

(ii)(A) The net heating value for the 50% alcohol, 50% gasoline mixture shall be determined by ASTM D 240 (incorporated by reference as specified in § 600.011-93).

(B) The density for the 50% alcohol, 50% gasoline mixture shall be determined per ASTM D 1298 (incorporated by reference as specified in §600.011-93).

(iii) The net heating value and density of gasoline are to be determined by the manufacturer in accordance with §600.113(c).

(3) Alcohol dual fuel passenger automobiles and natural gas dual fuel passenger automobiles manufactured during model years 1993 through 2004 must meet the minimum driving range requirements established by the Secretary of Transportation (49 CFR part 538) to obtain the CAFE credit determined in paragraphs (c)(2)(v) and (vi) of this section.

(h) For each of the model years 1993 through 2004, and for each category of automobile identified in §600.510 (a), the maximum increase in average fuel economy determined in §600.510 (c) attributable to alcohol dual fuel automobiles and natural gas dual fuel automobiles shall be 1.2 miles per gallon or as provided for in paragraph (i) of this section.

(1) The Administrator shall calculate the increase in average fuel economy to determine if the maximum increase provided in paragraph (h) of this section has been reached. The Administrator shall calculate the average fuel economy for each category of automobiles specified in §600.510 (a) by subtracting the average fuel economy values calculated in accordance with §600.510 by assuming all alcohol dual fuel and natural gas dual fuel automobiles are operated exclusively on gasoline (or diesel) fuel from the average fuel economy values determined in §600.510(b)(2)(vi), (vii), and (c). The difference is limited to the maximum increase specified in paragraph (h) of this section.

(i) In the event that the Secretary of Transportation lowers the corporate average fuel economy standard applicable to passenger automobiles below 27.5 miles per gallon for any model year during 1993 through 2004, the maximum increase of 1.2 mpg per year specified in paragraph (h) shall be reduced by the amount the standard was lowered, but not reduced below 0.7 mpg per year.

22. §600.513-91 is amended by revising paragraphs (a) introductory text, (a)(2), and (b)(2)(xii) to reads as follows:

§600.513-91 Gas guzzler tax.

(a) This section applies only to passenger automobiles sold after December 27, 1991, regardless of the model year of those vehicles. For alcohol dual fuel and natural gas dual fuel automobiles, the fuel economy while such automobiles are operated on gasoline will be used for Gas Guzzler Tax assessments.

(1) * * *

(2) For 1991 and later model year passenger automobiles, the combined general label model type fuel economy value used for Gas Guzzler Tax assessments shall be calculated in accordance with the following equation, rounded to the nearest 0.1 mpg:

$$FE_{adj} = FE[((0.55 \times a_g \times c) + (0.45 \times c) + (0.5556 \times a_g) + 0.4487) / ((0.55 \times a_g) + 0.45)] + IW_g$$

Where:

FE_{adj}= Fuel economy value to be used for determination of gas guzzler tax assessment rounded to the nearest 0.1 mpg.

FE= Combined model type fuel economy calculated in accordance with §600.207, rounded to the nearest 0.0001 mpg.

a_g= Model type highway fuel economy, calculated in accordance with §600.207, rounded to the nearest 0.0001 mpg divided by the model type city fuel economy calculated in accordance with §600.207, rounded to the nearest 0.0001 mpg. The quotient shall be rounded to 4 decimal places.

c= gas guzzler adjustment factor = 1.300×10^{-3} for the 1986 and later model years. * * *

(b) * * *

(2) * * *

(xii) Less than 12.5 mpg, the Gas Guzzler Tax statement shall show a tax of $7,700.

(Title V of the Motor Vehicle Information and Cost Savings Act, 15 U.S.C. 2001 et seq., as amended by sec. 403 of the National Energy Conservation Policy Act, Pub. L. 95-619, 92 Stat. 3256,the Revenue Reconciliation Act, Pub. L. 101-508, 104 Stat. 1388, and the Alternative Motor Fuels Act of 1988, Pub. L. 100-494, 102 Stat. 2452.)

23. Appendix VIII to part 600 is revised to read as follows:

Appendix VIII - Fuel Economy Label Formats

[Insert figures here]

BILLING CODE 6560-50-P