



U.S. Environmental  
Protection Agency

EPA 420-B-98-002  
March 1999

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Engine Compliance Programs Group  
Mail Code 6403J  
Washington DC 20460

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# **CERTIFICATION GUIDANCE FOR ENGINES REGULATED UNDER:**

## **40 CFR PART 86**

On-Highway Heavy Duty Engines

**AND**

## **40 CFR PART 89**

Nonroad CI Engines

Parts of this information collection related to Nonroad CI has been approved by OMB (Control Numbers 2060-0011.09, 0095.10, 0282.10, 1684.04,1695.03, and 1826.01). Public reporting burden for this collection of information is estimated to average 800 hours per engine. Parts of this information collection related to on highway engines and nonroad compression-ignited engines above 37 kW are currently under review by OMB (Former Control No. 2060-0104). The annual public reporting and recordkeeping burden is estimated to average 1,240.5 hours per respondent for the on-highway certification program, 333 hours per respondent for the on-highway AB&T program; 515.8 hours per respondent for the nonroad certification program, and 460 hours per respondent for the nonroad AB&T program. This includes the time needed for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Ms. Sandy Farmer, U.S. Environmental Protection Agency, OPPE Regulatory Information Division (2137), 401 M Street, SW, Washington, DC 20460; and Office of Information and Regulatory Affairs, Office of Management and Budget, Attention: Desk Officer for EPA 725 17th Street, NW, Washington, DC 20503.

This document serves as the Small Entity Compliance Guide for the final rule, "Control of Emission of Air Pollution from Nonroad Diesel Engines" (63 FR 56968, October 23, 1998). Prior to proposing this rule, EPA convened a Small Business Advocacy Review Panel under the Regulatory Flexibility Act to ensure that concerns of small businesses were adequately considered during the development of the rule. On June 10, 1997, the panel presented its report to EPA, outlining flexibility provisions for small businesses subject to the rule and recommending that EPA incorporate them in the rule. In response, EPA proposed and finalized several provisions to ease the compliance burden of this rule for nonroad equipment manufacturers. The provisions are designed to be especially useful to equipment manufactures that are small and that face special obstacles to compliance due to their size. This guide addresses these flexibility provisions in Sections II.T. and II.U.

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## PREFACE

Under the authority of the Clean Air Act and Federal regulations, manufacturers regulated under these parts must submit applications to obtain a certificate of conformity to EPA. This document describes suggested procedures and formats for compiling such applications. This guidance is applicable to engines regulated by the Code of Federal Regulations, Title 40, Parts 86 and 89<sup>1</sup> (40 CFR 86 and 40 CFR 89) and in NO WAY supersedes either Part. Examples of engines covered under this document (jointly referred to as Nonroad Engines) are heavy duty diesel-cycle and gasoline-cycle engines for on-highway use, and nonroad compression ignition engines. This guidance also covers evaporative certification for vehicles containing engines which were certified under heavy duty engine protocol<sup>2</sup>. Marine engines at or above 37 kilowatts are regulated under 40 CFR Part 91 and are not included in this guidance.

Manufacturers should get copies of the applicable regulations. There are definitions, procedures and recordkeeping requirements, among others, associated with the certification process that are not fully addressed in this guidance but with which manufacturers must comply. Copies of 40 CFR Parts 86 and 89 can be obtained by (1) writing to:

Superintendent of Documents  
Attention: New Orders  
PO Box 371954  
Pittsburgh, PA 15250-7954,

(2) calling the Government Printing Office Order Desk at (202) 512-1800 (a charge is applicable), or, (3) downloading them from EPA's Homepage (<http://www.epa.gov/fedrgstr/EPA-AIR>, or <http://www.epa.gov/oms/equip-hd.htm>).

This guidance describes the information that will be generally required by EPA in an application, but this in no way suggests that EPA will not require additional information, testing or the provision of engines for EPA confirmatory testing prior to issuance of a certificate of conformity.

Although the information regularly submitted to EPA is reduced, manufacturers are reminded that information described in applicable regulations must still be retained at the manufacturer's facility and be made available on a timely basis upon request by EPA. In

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<sup>1</sup> Engines regulated by 40 CFR Part 86 typically include engines used in on-highway applications such as heavy-duty gasoline fueled engines (HDGEs), heavy-duty diesel fueled engines (HDDEs), and heavy-duty engines using alternate fuels (CNG, LPG and LNG). Engines regulated by 40 CFR Part 89 include compression-ignition engines used in nonroad vehicles. This guidance also applies to evaporative emission certification required by 40 CFR Part 86 for vehicles employing Heavy Duty Engines.

<sup>2</sup> Please contact Mr. David Good at EPA, National Vehicle and Fuel Emission Laboratory, 2565 Plymouth Road, Ann Arbor, MI 48105, if you want to certify either (1) an Otto cycle heavy-duty engine using the chassis test, or, (2) an evaporative system installed on a vehicle which was certified using the chassis test and is equipped with a heavy-duty engine.

conjunction with adopting this application format EPA may conduct periodic enhanced reviews to verify that manufacturers are following regulatory procedures and may at those times ask for additional information.

Manufacturers may submit applications by e-mail or on diskette using the EPA Information Management System database template and the FileMaker Pro 4.0 application software. The database template is available upon request from EPA. Although EPA encourages electronic application, manufacturers may submit their applications on paper. Be advised that paper submittals will require a longer processing time.

EPA has historically provided periodic guidance to manufacturers in the form of Dear Manufacturer letters and Advisory Circulars (A/Cs). EPA will continue this practice and will mail applicable new guidance to manufacturers at the address of the primary contact listed in the application for certification. Copies of old guidance are available upon request from EPA and are also available at Office of Mobile Sources Internet home page (<http://www.epa.gov/OMSWWW>).

This document has been prepared with input from CARB, EMA, AAMA, and other concerned manufacturers.

## **I. Overview of the Certification Process**

### **A. Timing**

#### **1. When to submit request for certification**

Certification is required on a model year basis. EPA asks that certification applications be submitted no earlier than one year prior to the start of production. For example, for the 2001 model year, certification could be effective as early as January 2, 2000. Therefore, EPA would accept applications for 2001 model year certification in January 1999. Bear in mind that the certificate does not become effective until the effective date shown on it. Due to resource limitations, priority will be given to earlier model year applications already received.

### **B. Initiating Certification**

#### **1. Obtaining Manufacturer Status (One Time Only):**

Before doing anything, notify EPA in writing of your intent to manufacture engines covered by these regulations. If you have not previously worked with EPA, EPA will assign you a manufacturer code. If your company already has a code assigned but has never certified, for example, nonroad engines, you should notify EPA to amend your current status to include nonroad engines. Your manufacturer code will not change. Obtaining manufacturer status does not obligate you to certify.

#### **2. EPA Contact (One Time Only):**

EPA will assign a primary EPA contact person for each manufacturer. Information for the EPA primary contact person may be mailed to (express mail sent to this address will be return to the sender):

Tom Stricker  
On Highway and Nonroad CI Team Leader  
Engine Compliance Programs Group  
U.S. Environmental Protection Agency  
Headquarters, Mail Code 6403-J  
Washington, DC 20460  
Phone: 202-564-9322



FAX: 202-564-2057

For Express Mail Deliveries Only (regular mail delivered to this address will be returned to sender) and for office visits:

Tom Stricker  
On Highway and Nonroad CI Team Leader  
Engine Compliance Programs Group  
U.S. Environmental Protection Agency  
501 3rd St NW, Mail Code 6403-J  
Washington DC 20001

3. Manufacturer Contacts

Each manufacturer designates one or two people who are authorized to discuss certification matters with EPA personnel. This information is submitted as part of the application. Manufacturers who have not previously certified nonroad ci or on-highway engines should inform EPA of designated certification contacts prior to application for certification.

4. Certification Preview (Once Every Model Year):

A manufacturer wishing to certify engines should provide EPA with a preview of its plans for that model year. The plan should include an estimate of the number of engine families to be certified that model year, whether any special testing procedures are anticipated, and any other unusual or special features which may impact certification. The Certification Preview is the best time to notify EPA of any issues where advance Administrator approval may be needed. Failure to obtain needed EPA approvals in a timely manner may result in delays or potential noncertification. Suggested preview topics are contained in Appendix G. It is suggested that the first time a manufacturer certifies that this meeting occur at EPA s offices in Washington, D.C. After that, the preview topics may be addressed in a letter.

5. Application for Certification (Every Model Year, Every Engine Family):

Manufacturers must apply for certification on an annual basis. While a production period greater than one year is permitted, a manufacturer may not use the production period definition to skip certification of a model year. A

production period may include only the January 1 of the calendar year for which the model year is named, ends no later than December 31 of the calendar year for which the model year is named, and does not begin sooner than January 2 of the previous calendar year. (See section I(A) above for when to submit an application.) To expedite EPA review of the application for certification, it is requested that the information be submitted using a consistent format. This format can be found in Appendix A. Directions for completing the application are also found in Appendix A. The following elements comprise a complete EPA application:

- Signed Statement of Compliance (the signed original must be submitted)
- Engine Family Information Form
- Engine Test Information Form
- Engine Model Summary Form
- Engine Part Number Summary Form
- Technical Description<sup>3</sup>

Manufacturers requesting a certificate of conformity for evaporative engine families are only required to submit the Statement of Compliance and an Evaporative Engine Form (EEF).

## C. EPA Review Process

### 1. The Process

Upon receipt of a **complete** application, the assigned EPA representative will make every effort to review it within 30 days. (The first few applications may take longer as the process is debugged ). When a review may be delayed due to unforeseen circumstances, the reviewer will contact you. The reviewer will call you with any questions arising from the review. If the reviewer cannot reach you by telephone in a reasonable amount of time, the question will be submitted in writing. While the reviewer may accommodate an occasional request to expedite a review, he/she is under no obligation to do so. Chronic requests for expedited review cannot be honored. Manufacturers should anticipate and allow at least 30

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<sup>3</sup>Submitted the first year you apply using the new format, and then once every 5 years or when a change occurs or when certifying an engine with new technology.

days for EPA review in their production/manufacturing plans. Additionally, if EPA decides to conduct confirmatory testing, certification may be delayed.

2. EPA Confirmatory Testing:

EPA plans to conduct confirmatory testing of engines in the near future. While reviewing the application, EPA will determine whether it chooses to perform confirmatory testing. Manufacturers should plan to keep the emission data engine in its certification test configuration until EPA issues the Certificate. Should EPA request to perform such testing, adequate advance notice will be given to allow time for shipping, etc.

D. The Certificate of Conformity

Once the review is completed and all questions are answered to the satisfaction of the reviewer, a certificate of conformity will be issued. (Sample is in Appendix C). Certificate language will vary depending on the certification type. Families certified under Averaging, Banking and Trading require special certificate language. The Effective Date is the date that manufacturers may start to introduce engines into commerce. If the certificate was issued unusually early, the effective date may be January 2 of the year prior to the model year. Otherwise, the effective date is usually the date that the certificate was signed.

The Certificate is signed by the Administrator or a designated authority; currently, it is the Director of the Vehicle Programs and Compliance Division. A certificate is not authentic without this signature.

The signed certificate is copied for internal use, and the original will be sent to the address provided in the application for certification for that engine family. **It is very important that this address is kept current notify your EPA Representative if there is an address change.**

## II. EPA Guidance on Specific Topics

### A. Engine Family Name

1. Naming Convention

EPA has developed a standard engine family naming convention which is required for inputting data. (The official format can be found in Appendix D). This name will appear on the certificate, and must also be on the engine label. Although many manufacturers may have separate naming conventions, the EPA engine family name must be referred to in the application for certification, and any other documents or correspondence concerning that family. Failure to refer to the EPA engine family name will cause delays.

2. Engine Family Selection

Engines are grouped into engine families using the criteria found in the CFR. EPA may approve further division or consolidation of families. Requests for further division or consolidation will be handled on a case by case basis.

B. Confidential Business Information

The Freedom of Information Act (FOIA), found at 5 USC §522, is the Federal statute which governs disclosure of information to the public. EPA codification of this Act's requirements can be found in 40 CFR Part 2. Under the FOIA, individuals may request information contained in certification applications, as well as other documents, and EPA is required to provide requested information except as described below. Each Administration since the FOIA was enacted has made clear that the intent of the FOIA process is to release as much information as practical.

There are nine exemptions to releasing information under the FOIA process. The one most applicable to information submitted by engine manufacturers to the Office of Mobile Sources is Exemption 4, Trade Secrets, Commercial, or Financial Information (Confidential Business Information). In dealing with this exemption, EPA's Office of General Counsel (OGC) has made a number of Class Determinations relative to information routinely submitted to EPA in certification applications. A Class Determination is a final confidentiality determination issued by the OGC covering certain identifiable items of information and which may be applied thereafter to information falling within the class. Although these Class Determinations specifically apply to information supplied in motor vehicle and motor vehicle engine certification applications, the staff believes that it is reasonable to apply these principles to nonroad engine certification applications as well.

Manufacturers can choose whether or not to classify any information as Confidential Business Information (CBI). Information items such as projected sales, catalyst loading, and blueprints have been identified as meeting the criteria for Exemption 4 by previous Class Determinations. Manufacturers may classify other information in the certification application as CBI. If EPA receives a FOIA request for the application, the manufacturer must be prepared to substantiate all claims of CBI it has made. (A brief description of this process is contained in Appendix B.)

Please mark all applicable items as confidential on the application forms (you may do so on the electronic form in the space provided) and specify in your cover letter the length of time for which confidentiality is required.

Please refer to Appendix B for more information on the topic of CBI in certification applications. The EPA contact for CBI questions related to certification is Robert Doyle, (202) 564-9258.

#### C. Audits of Manufacturer Records or Facility

EPA will, from time to time, request additional information from manufacturers on an audit basis. Subjects of possible certification audits include but are not limited to fuel specifications, test engines, test equipment, test records, maintenance instructions, durability methods, warranty statements, tamper resistance methods, adjustable parameters, and averaging, banking and trading. Manufacturers are required to maintain records listed in the CFR.

#### D. Carryover

When no significant changes have been made to an engine family, the manufacturer may request to use test data from the previous model year to represent the new model year. To obtain EPA approval, the differences between the previous and current model year engines must be shown not to cause emission changes that would result in failure of the standards.

#### E. Test Fuel for Nonroad engines

~~~~~ Nonroad engine manufacturers must conduct certification testing using test fuel as described at 40 CFR 89.330. The test fuel meeting the specifications of 89.330 and Table 4 of Appendix A to Subpart D do not require approval prior to conducting certification

testing. Fuels other than those specified above may be used for testing and service accumulation provided: 1) they are commercially available, 2) information, acceptable to the Administrator, is provided to show that only the designated fuel would be used in customer service, 3) use of fuel listed above would have a detrimental effect on emissions or durability, and 4) written approval from the Administrator of the fuel specifications must be provided prior to the start of testing.

The fuel used for certification testing must be indicated on the engine family information form and the test engine information form shown in Appendix A of this guidance. Manufacturers using other fuels or fuels meeting substantially equivalent specifications must seek EPA approval for the alternate fuel and must reference that approval and describe the fuel in the statement of compliance.

#### F. Test Fuel for On Highway engines

For certification testing, gasoline having the specifications listed in 40 CFR 86.1313-94 or substantially equivalent specifications approved by the EPA may be used by the manufacturer, except that the octane specification does not apply. Diesel, methanol, mixtures of petroleum and methanol, and natural gas fuels having the specifications listed in 40 CFR 86.1313-94 may also be used for emission testing. Diesel, methanol, mixtures of petroleum and methanol fuels, and natural gas fuels other than those specified above may be used for testing and service accumulation provided: 1) they are commercially available, 2) information, acceptable to the Administrator, is provided to show that only the designated fuel would be used in customer service, 3) use of fuel listed above would have a detrimental effect on emissions or durability, and 4) written approval from the Administrator of the fuel specifications must be provided prior to the start of testing.

The fuel used for certification testing must be indicated on the engine family information form and the test engine information form shown in Appendix A of this guidance. Manufacturers using other fuels or fuels meeting substantially equivalent specifications must describe, in the statement of compliance, the fuel used and indicate that EPA approved the fuel for use in certification testing.

#### G. Special and Alternate Test Procedures

Special and alternate test procedures may be used instead of prescribed test procedures in 40 CFR Parts 86 and 89 upon annual EPA approval. In the past, on-

highway manufacturers may have requested the use of special and alternate test procedures, and reported their use differently from the format described here. The certification format specified in this document should be followed.

Special or alternate test procedures may include but are not limited to procedures such as alternate mapping procedures, or unique test equipment needs. Manufacturers should propose special and alternate test procedures during the certification preview as described in section I(B)(3). After an initial indication of approval from EPA, manufacturers must submit a written request for the special and alternate procedures. If EPA approves, an approval letter will be sent to the manufacturer. When the manufacturer submits an application for an engine family which was tested using special or alternate procedures, a reference to the procedures must be included in the statement of compliance. The reference should identify the engine families for which the procedure applies, include a brief explanation of the procedure(s) and provide adequate reference to more detailed documentation on the procedure and date of EPA approval.

The requirements to seek EPA approval of special and alternate procedures and to report the procedures in the compliance statement apply to each applicable engine family for each model year regardless of carryover status.

#### H. Special Power Features

Configurations utilizing such features as power enrichment , power boost , or similar options should be rated and tested at the highest power, regardless of either operation time of these features or the advertised power.

#### I. Modification by Equipment Manufacturers (Nonroad Only)

Questions have been asked about allowable modifications to engines made by the equipment manufacturers (such as adding governors, resetting fuel and idle specs, etc). The potential exists for an equipment manufacturer to become an engine manufacturer with obligations to certify the new engine configuration or for tampering on the part of the equipment manufacturer. EPA is now reviewing its tampering policies and may issue an updated guidance document in the future.

#### J. Alternate Useful Life Periods (Nonroad only)

EPA recognizes that it may be appropriate to approve a shorter useful life period for nonroad engines < 37 kW used in a severe-use application. Prior to certification, manufacturers can petition EPA to approve shorter useful life periods. Engines that may be approved for a shorter useful life would be those subject to severe service such as those used in equipment with a short useful life.

EPA has also establish useful life and recall liability periods for <37 kw engines which are shorter than those for 37 kw engines.

Table 1  
 Useful life for <37 engines

| engine power                                | useful life (hours/yrs.) | maximum age for Recall testing (hours/yrs.) | warranty (hours/yrs.) |
|---------------------------------------------|--------------------------|---------------------------------------------|-----------------------|
| < 19 kw                                     | 3000/5                   | 2250/4                                      | 1500/2                |
| 19-37 kw, constant speed w/ rating 3000 rpm | 3000/5                   | 2250/4                                      | 1500/2                |
| all other 19-37 kw engines                  | 5000/7                   | 3750/5                                      | 3000/5                |

#### K. Amending an Application (Running Changes)

Manufacturers must notify EPA anytime they want to change an engine family, or the application we have on file. Submit changes in writing or on 3 1/2 disk to document that production engines are built in accordance with the certificate and to monitor potential changes in emissions from production engines. If the change adds an engine model or affect emission-related components, the change is known as a running change. Changes that affect the durability of the emission control system are also running changes and must be reported. Report simple corrections (typos for example) as corrections .

If a certificate of conformity has not been issued yet, the manufacturer should resubmit the amended record in its entirety (choose new Submission if applying electronically), request that the amended record replace the original submission and follow the process for new submissions.



If a certificate of conformity has already been issued, the manufacturer only needs to submit the following information (in electronic applications, please create a new record and fill in only this information):

Manufacturer Name on the Engine Family Information Form

Engine Family Name on the Engine Family Information Form

Enter Running Change or Correction under the Process Code on the Engine Family Information Form.

Enter a description of the running change or correction and the reason for it in the Comments box on the Engine Family Information Form

Enter responses only for those questions for which a change occurred. (Do this on all forms: Engine Family Information Form, Engine Test Information Form, Engine Model Summary, etc.)

If the running change adds an engine model to a family, has a potential effect on emissions (either increase or decrease) or changes test engine selection, the manufacturer is required to either submit test data showing compliance after incorporating the running change, or submit an engineering evaluation as to why the engines will remain in compliance with all applicable regulations. If the change is not expected to increase emissions, the manufacturer should submit the reason for that conclusion. EPA may require the manufacturer to perform tests on the changed or added engine. Please refer to the applicable regulation for details.

Running changes which would result in the need for issuance of a new certificate of conformity, such as a change in the family emission limit (FEL), cannot be initiated prior to receipt of a new certificate. A FEL change will be effective on the day the new certificate is issued.

Many of on-highway applicants have followed a practice of identifying successive amendments with a number which includes the family designation and model year of the engines being affected. (For example, the number of the first running change in the 1998 model year for family VXY145U1G1RA might be 98-145U1G1RA-01.) This practice has proved to be quite useful and is highly recommended.

EPA should be notified about changes to an engine family in advance. However, EPA regulations provide a concurrent notification procedure for amendments to an existing certificate of conformity. While this procedure does not eliminate EPA review, it does allow manufacturers to make changes without prior EPA review. However, if EPA determines that affected engines do not meet applicable requirements, EPA will

notify the manufacturer that the running change is disapproved and to cease production of the affected engines.

L. Certification Fees

Under the authority of the CAA Section 217, on highway engine manufacturers are required to pay a fee when applying for a certificate of conformity. They are required to be paid prior to any processing of the certification application. EPA will not start the review process until confirmation is received that all required fees have been paid. The amount of the fee is determined under 40 CFR 86 Subpart J. This fee is collected by the Motor Vehicle and Engine Compliance Program in St. Louis, MO. An example of the fee payment form is included in Appendix F.

EPA is not at this time charging a fee for nonroad certification, but has the authority to do so and will do so once program costs can be accurately assessed.

M. Adjustable Parameters

If the manufacturer intends to seal adjustable parameters to prevent adjustment, the methods of sealing must be described in the application. The method of sealing must provide both a visual and a physical deterrence to tampering. If parameters are adjustable, the manufacturer is responsible for assuring emission compliance within the full range of adjustability of those parameters. Manufacturers should report all adjustable parameters in their application whether sealed or not. At present and until future notice, EPA will approve tamper proofing methods if they have received California ARB approval for engines which are both CA and EPA certified.

N. Evaporative Emission Certification (On highway only)

Evaporative Emission certification is required for all new Gasoline-fueled, Natural gas-fueled, Liquefied Petroleum gas-fueled, and Methanol-fueled On-Highway Heavy Duty vehicles. Vehicles similar in evaporative emission control system characteristics may be grouped in the same evaporative emission family. Evaporative emission family naming conventions are described in Appendix D.

The Evaporative Certification Application forms are found in Appendix E. The following elements comprise an evaporative certification application form:  
Statement of Compliance

Engine Evaporative Emission Form  
Technical Description (Appendix A19)<sup>4</sup>

O. Averaging, Banking and Trading

Manufacturers with engine families participating in averaging, banking and trading (ABT) programs are subject to additional reporting, record keeping and compliance requirements as well as additional oversight by EPA. Regulations for ABT programs are at 40 CFR 86.094-15, 86.094-23 (h) and 40 CFR Part 89 Subpart C. As part of the precertification process, manufacturers planning to participate in ABT should be prepared to describe all aspects of how the manufacturer will comply with requirements of these regulations.

No credits may be generated by engines that are exported or subject to state engine emission standards (e.g. are regulated by California). Manufacturers are responsible for tracking engines which are generating credits to the point of first retail sale. As part of the certification process EPA does not typically require information related to engine tracking; however, EPA may require such information either during certification or as part of a follow-up review of records related to ABT.

This guidance does not require submission to EPA of the projected number of credits generated/needed, quarterly projected sales, or other information required at 40 CFR 89.209-96 (a)(6) or 86.094-15 (b)(1)(iv) as a part of the application for certification. However, manufacturers are required to generate and retain this information, and EPA may periodically request submission of this information as part of the review process.

EPA issues conditional certificates of conformity for engine families participating in ABT. These certificates specify the applicable family emission limit (FEL). If a manufacturer desires to change an FEL (via running change), a new certificate must be issued by EPA. Manufacturers must calculate emission credits based on the FEL on the certificate that is in effect at the time applicable engines are introduced into commerce. Consequently, if an FEL change is made during production, the manufacturer is responsible for ensuring that upon the effective date of the new certificate, adequate production information is or will be available to calculate credits with the old and new FEL. The effective date of the FEL change is the effective date of the applicable certificate issued for the new FEL.

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<sup>4</sup> Submitted every 5 years or when a change occurs.

As noted in the attached example statements of compliance, manufacturers must state in the application that the engines for which a certificate is requested will not, to the best of the manufacturer's belief, when included in any part of the ABT program cause the applicable standard(s) to be exceeded.

This guidance in no way changes end-of-year reporting requirements or record keeping requirements.

1. Nonroad Engines

EPA is replacing the existing AB&T program for nonroad engines with a new program. The following is a summary of the new program.. Refer to section 89.203 for a description of the new requirements.

a. 37 kw and above

Credits from Tier 2 and later engines will be [NMHC + NO<sub>x</sub>] credits, since the standard combines both pollutants.

PM will be included in the program.

If a family participates in AB&T, it can't earn credits for [NMHC + NO<sub>x</sub>] and use credits for PM, or vice versa.

FELs will have upper limits. See the table in section R below.

We are replacing the 3 year credit life provision with an unlimited credit life provision.

We are eliminating the "buy high/sell low" power conversion factor provision and replacing it with a sales-weighted average power value.

We are specifying a procedure for calculating and applying NO<sub>x</sub> credits earned under Tier1 standards to families certified to Tier 2 standards.

You can start banking PM credits from Tier 1 families against the Tier 2 PM standards. You may use them to certify Tier 2 families.

b. under 37 kW

Families can participate for both [NMHC + NO<sub>x</sub>] and PM.

If a family participates in AB&T, it can't earn credits for [NMHC + NO<sub>x</sub>] and use credits for PM, or vice versa.

The amount of any credit earned for a <19 kw engine will be calculated based on Tier 2 standards, and the amount earned for 19-37 kw engines will be calculated based on the standard applicable at the time.

FELs will have upper limits. See section R.

Any credits earned on <19 kw engines certified to the Tier 1 standards expire at the end of 2007. All other credits earned have an unlimited life.

Sales-weighted average power must be used in credit calculations. You can't use credits earned from a <19 kw family to certify a \$19 kw family, and you can't use credits earned from a family used in a land-based application to certify a family used in a marine application. You can however use credits from a marine engine to certify a land-based engine.

Trading is prohibited (i.e., you can't exchange credits you earned for credits from another manufacturer) for credits from IDI engines above 19 kW.

Under a special program, you can establish and maintain a negative credit balance for 2 years after Tier 1 standards become effective for <37 kw engines. Your balance must be 0 or positive by the end of the fourth year. A ten percent surcharge will be applied to negative credit balances carried over. This special program applies separately for 0-19 and 19-37 kW categories, and no trading is allowed under the program..

P. Production Part Numbers

Supply a list of all emission control related component part numbers. See Appendix A for form.

Q. Phase-in of standards for <37 kW Nonroad Engines

The new standards apply to nine categories (defined by power range) of engines, and are effective beginning in the 1999 model year. Refer to Table 2 for details.

Table 2  
 Phase-in of standards for <37 kW Nonroad Engines

| engine power | [NMHC +NOx]<br>(g/kw/hr) |          | CO<br>(g/kw-hr) | PM<br>(g/kw/hr)   |          | Smoke opacity)<br>(g/kw/hr) |     |      | Tier | model year std is first<br>effective |
|--------------|--------------------------|----------|-----------------|-------------------|----------|-----------------------------|-----|------|------|--------------------------------------|
|              | std.                     | FEL, max |                 | std.              | FEL, max | accel                       | lug | peak |      |                                      |
| 0-8 kw       | 10.5                     | 16.0     | 8.0             | 1.0               | 1.2      | 20                          | 15  | 50   | 1    | 2000                                 |
|              | 7.5                      | 10.5     | 8.0             | 0.80*             | 1.0      | -                           | -   | -    | 2    | 2005                                 |
| 8-19 kw      | 9.5                      | 16.0     | 6.6             | 0.80              | 1.2      | 20                          | 15  | 50   | 1    | 2000                                 |
|              | 7.5                      | 9.5      | 6.6             | 0.80*             | 0.80     | -                           | -   | -    | 2    | 2005                                 |
| 19-37 kw     | 9.5                      | 16.0     | 5.5             | 0.80              | 1.2      | 20                          | 15  | 50   | 1    | 1999                                 |
|              | 7.5                      | 9.5      | 5.5             | 0.60*             | 0.80     | -                           | -   | -    | 2    | 2004                                 |
| 37-75 kw     | 7.5                      | 11.5     | 5.0             | 0.40*             | 1.2      | -                           | -   | -    | 2    | 2004                                 |
|              | 4.7                      | 7.5      | 5.0             | none              | none     | -                           | -   | -    | 3    | 2008                                 |
| 75-130 kw    | 6.6                      | 11.5     | 5.0             | 0.30*             | 1.2      | -                           | -   | -    | 2    | 2003                                 |
|              | 4.0                      | 6.6      | 5.0             | none              | none     | -                           | -   | -    | 3    | 2007                                 |
| 130-225 kw   | 6.6                      | 10.5     | 3.5             | 0.20 <sup>5</sup> | 0.54     | -                           | -   | -    | 2    | 2003                                 |
|              | 4.0                      | 6.6      | 3.5             | none              | none     | -                           | -   | -    | 3    | 2006                                 |
| 225-450 kw   | 6.4                      | 10.5     | 3.5             | 0.20*             | 0.54     | -                           | -   | -    | 2    | 2001                                 |
|              | 4.0                      | 6.4      | 3.5             | none              | none     | -                           | -   | -    | 3    | 2006                                 |
| 450-560 kw   | 6.4                      | 10.5     | 3.5             | 0.20*             | 0.54     | -                           | -   | -    | 2    | 2002                                 |
|              | 4.0                      | 6.4      | 3.5             | none              | none     | -                           | -   | -    | 3    | 2006                                 |
| above 560    | 6.4                      | 10.5     | 3.5             | 0.20*             | 0.54     | -                           | -   | -    | 2    | 2006                                 |

<sup>5</sup> 1. You should not use the PM adjustment factor at 40 CFR 89.425-96 to adjust your test results for these engines.  
 2. You can average, bank, and trade PM emissions credits beginning with this standard.

## R. Developing deterioration factors for <37 kW Nonroad Engines

### 1. Carry Over and Carry Across

If significant changes haven't been made to the engine, the carry over provision allows a manufacturer to use the same certification data in subsequent model years. The carry-across provision allows a manufacturer to use DF data from one engine on a number of engine families. Engine manufacturers who make on-highway engines may carry across the on-highway DF data to comparable nonroad engines.

### 2. Model Years 99 and 2000

For model year 1999 and 2000 engines rated under 37 kW, manufacturers may determine deterioration factors based on good engineering judgment and reasonably available information. This data can be carried across to other engine families with similar technologies model year 1999 and carried over for model year 2000. A manufacturer may need to provide new data for model year 2001 .

### 3. Established technology

Engines with established technology, DFs may be done using good engineering practices. Certification levels above Tier 3 NMHC+NO<sub>x</sub> standards are established technology, unless equipped with EGR or aftertreatment. A manufacturer may petition to have engines with certification levels below the Tier 3 NO<sub>x</sub>+NMHC standard to be considered established technology. The petition must include proof that the technology used is not significantly different than that used on engines with certification levels above Tier 3 NO<sub>x</sub>+NMHC.

### 4. Allowable maintenance

EPA expects good engineering practice to relate emissions data from an aged engine or components to DFs. This data does not need to follow "Tier 3" protocol for determining DFs. This data may be carried across to other engines with similar technology. This is subject to EPA approval.

Maintenance intervals for DF engines are specified in §89.109. These intervals may be used without EPA approval. The adjustment, cleaning, repair, or



replacement for the following components shall occur at 1,500 hours of use and at 1,500-hour intervals thereafter:

- Exhaust gas recirculation system-related filters and coolers
- Positive crankcase ventilation valve.
- Fuel injector tips (cleaning only)

The adjustment, cleaning and repair of the components listed below shall occur at 3,000 hours of use and at 3,000-hour intervals thereafter for engines rated under 130 kW, or at 4,500-hour intervals thereafter for engines rated at or above 130 kW.

- Fuel injectors.
- Turbocharger.
- Electronic engine control unit and its associated sensors and actuators
- Particulate trap or trap-oxidizer system (including related components).
- Exhaust gas recirculation system (including all related control valves and tubing) except as otherwise provided under 1500 hour maintenance interval
- Catalytic converter
- Any other add-on emission-related component

The Administrator may allow shorter maintenance intervals for engines rated under 19 kW or for constant speed engines rated under 37 kW with a rated speed of greater than or equal to 3000 rpm. This maintenance must be technologically necessary.

§89.109(h)(2) requires manufacturers to demonstrate that critical emissions maintenance has reasonable likelihood of occurring in-use. Critical emission control components are:

- Catalytic converter.
- Electronic engine control unit and its associated sensors and actuators.
- EGR system (including all related filters, coolers, control valves, and tubing).
- PCV valve.
- Particulate trap or trap-oxidizer system.

The following methods will be accepted as proving the likelihood of occurring in-use:

Data proving that the lack of maintenance will result in unacceptable performance in typical operation.

Survey data which demonstrates to an 80 percent confidence level that 80 percent of the engines have the maintenance performed in-use at the recommended levels.

A visible signal which alerts the owner to the required maintenance. The resetting of the signal must be part of the required maintenance.

The manufacturer may provide the maintenance free of charge. The owner must be informed of this in the owners manual.

Another method approved by the Administrator.

#### S. Maintenance intervals for Nonroad Engines

Table 3  
 Maintenance intervals for Nonroad Engines

| Engine Power                                                            | Minimum interval for EGR-related filters and coolers, PCV valve, and fuel injector tips (cleaning only)<br><br>(first occurrence/interval thereafter) | Minimum interval for fuel injectors, turbocharger, ECM and sensors and actuators, PM trap or trap-oxidizer, EGR system incl' control valves and tubing, catalyst, and any other add-on emissions-related components <sup>6</sup><br><br>(first occurrence/interval thereafter) |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19 kW and above, exc. 19-37 kW rated at 3000 rpm and above              | 1500/1500                                                                                                                                             | 3000/3000                                                                                                                                                                                                                                                                      |
| under 19 kW and constant-speed engines 19-37 kW rated at 3000 and above | discretionary; under 1500 requires EPA approval                                                                                                       | discretionary; under 3000 requires EPA approval                                                                                                                                                                                                                                |

EPA is defining the following components as "critical emission-related components." Manufacturers must demonstrate that maintenance will actually be performed in-use if you specify scheduled maintenance for these components.

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<sup>6</sup> Add-on emission related components" means components with the sole or primary purpose of reducing emissions, or components which cause emission control to degrade significantly when they fail, without having a significant affect on engine performance.

- catalytic converter
- electronic engine control unit and its associated sensors and actuators
- EGR system (including all related filters, coolers, control valves and tubing)
- Positive crankcase ventilation valve
- PM trap or trap-oxidizer system
- any other add-on emissions-related component

#### T. Flexibility for Original Nonroad Equipment Manufacturers (OEMs)

Equipment manufacturer that buy engines from somebody else can temporarily build and sell a limited amount of equipment using non-complying engines. EPA understands that some equipment manufacturers might not have time to redesign their equipment to accommodate new engine designs. In addition, an equipment manufacturers can: (1) exceed the limits if the company builds small volumes of equipment, and, (2) continue to build/sell equipment under a "hardship" exemption if these provisions aren't sufficient to relieve the pressure on you.

Current regulations for >37 kW allow equipment manufacturers to deplete supplies of engines which were built prior to the effective date of the standards. This can still be done according to the new rule.

Equipment manufacturers can still use replacement engines in their equipment under the new rule. 40 CFR 89.1003 describes the conditions for using replacement engines.

Equipment manufacturers must comply with certain recordkeeping requirements if they want to use the provisions described in this section.

#### U. Flexibility for Post Manufacture Marinizers (PMMs)

Post-manufacture marinizers can use the same provisions EPA is offering for OEMs who may not have time to redesign their equipment. Alternatively, post-manufacture marinizers can postpone for 1 year their compliance with the Tier 1 standards for <37 kw marine engines, provided they notify EPA in writing prior to the effective date of the standards.

## V. Voluntary low-emitting Nonroad Engine Program

EPA is establishing voluntary standards for manufacturers who may wish to design engines which are cleaner than they are required to be. EPA will designate those engines "Blue Sky Series" if they are certified to these standards. 89.112(f) describes the requirements

## III. Common Application (EPA and CARB for Heavy Duty Engines)

The appendices in this document provide necessary forms and information for a common application format which will satisfy minimum application requirements for both EPA and the California Air Resources Board (CARB).

The EPA application for a certificate of conformity and other necessary information can be found in Appendix A. Upon completion, the application should be sent to the EPA On Highway and Nonroad CI Team Leader. (Refer section I(B)(2), page 1 for further detail.) Applications for CARB executive orders will require additional submissions as specified by CARB listed in Appendix H.

EPA will continue using a standardized engine family naming convention. The engine family name will appear on the engine information label and in the certificate of conformity. The engine family name should be used in all correspondence to EPA concerning that family. Information explaining the naming convention is included in Appendix D. Certificate-related information is required to be maintained by manufacturers. EPA is not specifying a particular format for the maintenance of that information; however, as required by regulation it should be adequately organized and readily accessible to facilitate further review by EPA if requested.

## IV. LABELING

The EPA's streamlined application does not require the submission of sample labels; however we may request copies of labels as part of the review process. CARB requires a label durability statement. Details for the CARB application can be found in Appendix G.

**V. ADDITIONAL REQUIREMENTS FROM CARB (The requirements found in this section are not required by EPA.)**

The documents found in Appendix G are currently required by CARB. EPA requests that these documents, if optionally submitted to EPA, be placed in a separate section of the application in order to simplify the EPA review process. EPA may choose to review these additional documents if submitted. Additionally, EPA may request these documents should further information on a family be necessary for a review.

## **APPENDIX A**

### **EPA APPLICATION FORMAT**

- A2. General Instructions**
- A7. Sample Statement of Compliance for Nonroad**
- A8. Sample Statement of Compliance for On Highway**
- A9. Sample Statement of Compliance for On Highway Evaporative Emission Certification**
- A10. Instructions for the Engine Family Information Form**
- A14. Instructions for the Engine Test Information Form**
- A20. Engine Model Summary**
- A21. Engine Model Part Number Summary**
- A21. Technical Description**
- A26. Sample Diskette Label Format**

## General Instructions

The following elements comprise a complete EPA certification application for engines regulated under 40 CFR Parts 86 and 89.

1. Signed Statement of Compliance
2. Engine Family Information Form
3. Engine Test Information Form
4. Engine Model Summary Form
5. Engine Part Number Summary Form
6. Technical Description<sup>7</sup>

However, manufacturers requesting a certificate of conformity for evaporative engine families are only required to submit the Statement of Compliance and an Evaporative Engine Form (EEF).

If a representative other than the Primary Contact is to receive the certificate, please put that information in the Comments field of the Engine Family Information Form.

Manufacturers may submit official correspondence and/or applications through the electronic mail system. Please send all electronic mail to: [deadwyler.richard@epamail.epa.gov](mailto:deadwyler.richard@epamail.epa.gov). Once logged in, the correspondence will be routed to the appropriate EPA person. Please do not send electronic applications directly to the individual EPA certification representatives. It is important to understand that any time information is sent via electronic mail, there is **no guarantee** of security of the information while in transit to the EPA.

A nonroad engine manufacturer may for convenience report certification information to the EPA in English units. However, it is important to understand that metric units are the units used in the nonroad regulations and thus all affected parties must follow these units in complying with the nonroad standards.<sup>8</sup> In other words, the nonroad manufacturer may use English units but will be held accountable to the standards expressed in metric units.

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<sup>7</sup>Submitted the first time a manufacturer uses this format and then once every 5 years or when a new technology is introduced.

<sup>8</sup> See 59 Fed. Reg. 31306, 31314 (June 17, 1994) for standards expressed in English units.

### Confidential Business Information (CBI)

A Confidential Business Information (CBI) block has been included in the Family Information Form, the Test Information Form, the Engine Model Summary Form, and the Technical Description Form. The purpose of the CBI block is to allow the manufacturer to designate which pieces of information, if any, are to be kept confidential. Once the application has been received and reviewed by the EPA certification representative, and upon the EPA certification representative's consent, the material designated confidential by the manufacturer will be erased from the public version of the database and the remainder of the application will be made public.

To use the CBI section, first designate whether or not the information is to be kept confidential until introduction into commerce or indefinitely. If the material is CBI until introduction into commerce, type the introduction into commerce date in the blank on the top of the left hand column and enter the number preceding the question whose response is to remain confidential in the left-hand CBI column. If the material is to remain confidential indefinitely enter the number preceding the question whose response is to remain confidential in the right-hand CBI column. Remember to mark confidential information in ALL documents submitted to EPA, including applications, running changes, corrections, etc.

### Diagnostic Check

The EPA database contains a built-in diagnostic check. The purpose of the diagnostic check is to ensure all required information has been entered on the Family Form, the Test Form, and the Technical Description Form. The diagnostic check also looks for common mistakes such as incorrect engine family model year designators. The diagnostic check **will not** take the place of the certification reviewer. Any errors found on the Family Form, will be listed in a box to the right of the application labeled Family Form Checkout Box. Errors on the Test Form, will be listed in a box to the right of the application labeled Test Form Checkout Box.

### How to handle New Submissions, New Submissions (Continued), Additional Test Engines, Running Changes/ FEL changes, Submission of final test results, and Application Corrections using EPA FileMaker Pro Engine database format

Each of the above instances represents a new record in the EPA FileMaker Pro Engine database. The records are linked through common fields. Records should not be written over when updating due to Additional Submissions, Running Changes, FEL changes, or the need to correct information in the application once the certificate has been issued. Instead, you must create a new record for those submissions following the instructions below. (Manufacturers



submitting paper versions of the application forms should submit a separate page whenever the instructions below specify the creation of a new record).

*New Submissions:* Create a new record. Respond to all applicable questions or enter NA on all of the forms (Engine Family Information Form, Engine Test Information Form, etc.). Please do not leave any questions unanswered. This is the only type of record for which the diagnostic check is activated. Enter New Submission under the Process Code .

*New Submissions: If there are Additional Test Engines:* If there is more than one test engine, complete the entire application for the first test engine, then create a new record. In this new record, fill in ONLY the following information:

Manufacturer Name on the Engine Family Information Form

Engine Family Name on the Engine Family Information Form

Enter New Sub-cont. under the Process Code on the Engine Family Information Form

Complete the Engine Test Information Form in its entirety and on that form enter the previous highest test data set number incremented by one to reflect the new record: for example, this value would be 2" for the second test engine, 3" for the third test engine, etc.

*New Submission (Continued):* You would need to create this record if you have more information to submit than space provided in the forms. For instance, if you run out of space on the Engine Part Number Summary, you would need to do this. Create a new record and fill in ONLY the following information:

Manufacturer Name on the Engine Family Information Form

Engine Family Name on the Engine Family Information Form

Enter New Sub-cont. under the Process Code on the Engine Family Information Form

Enter responses to only those questions on all the forms (Engine Family Information Form, Engine Test Information Form, Engine Model Summary, Engine Parts Summary, etc.) which would not fit in space provided on the New Submission record. Do not enter information in any other fields.

*Running Change:* Create a new record and fill in ONLY the following information:

Manufacturer Name on the Engine Family Information Form

Engine Family Name on the Engine Family Information Form

Enter Running Change under the Process Code on the Engine Family Information Form

Enter the date the running change was implemented in the blank for Estimated Production Start on the Engine Family Information Form.

Enter in **Comments** box on the Engine Family Information Form a description of the change and any explanation as to why the manufacturer believes the engine family remains in compliance. Describe changes here even if the running change does not affect any other information reported in the application.

Enter responses to only those questions which are affected by the running change on all the forms (Engine Family Information Form, Engine Test Information Form, Engine Model Summary, Engine Parts Summary, etc.). If new emission test data is being submitted, complete the Engine Test Information Form in its entirety and on that form increment the previous highest Test Data Set number by one to reflect the new record.

*FEL Change:* Treated the same as a *Running Change*, except the effective date is the date the new FEL is applied to production. EPA will determine that date when the new certificate is issued: leave this blank. Create a new record and fill in ONLY the following information:

Manufacturer Name on the Engine Family Information Form

Engine Family Name on the Engine Family Information Form

Enter **FEL Change** under the **Process Code** on the Engine Family Information Form

Enter the new FEL

Enter in **Comments** box on the Engine Family Information Form the words **FEL Change** and describe the basis for the FEL change (for example, result of internal audits or production line testing, and/or a modification to the engine or its settings). If the FEL change is the result of an engine family modification, the date of the FEL change must reflect the date the engine family modification was implemented on the production line.

Enter responses to only those questions on all the forms (Engine Family Information Form, Engine Test Information Form, Engine Model Summary, Engine Parts Summary, etc.) which are affected by the FEL change. If new emission test data is being submitted, complete the Engine Test Information Form in its entirety and on that form enter the previous highest Test Data Set number incremented by one to reflect the new record.

*Application Corrections:* Only use this category if a correction is required AFTER you have received your certificate of conformity from EPA. PRIOR to certification, the manufacturer should resubmit the corrected record in its entirety, choose **new submission**, request that the corrected record replace the original submission and follow the process for New Submissions. For corrections AFTER certification, create a new record and fill in ONLY the following information:

Manufacturer Name on the Engine Family Information Form

Engine Family Name on the Engine Family Information Form

Enter **Correction** under the **Process Code** on the Engine Family Information Form

Enter in Comments box on the Engine Family Information Form a description of the correction and the reason for the correction.

Enter responses to only those questions on all the forms (Engine Family Information Form, Engine Test Information Form, Engine Model Summary, Engine Parts Summary, etc.) for which a correction is required.

## Sample Nonroad Statement of Compliance

Manufacturer Primary Contact  
XY Engine Company  
4567 Industrial Highway  
El Monte, CA 91731

March 1, 1996

On Highway and Nonroad CI Team Leader  
Engine Compliance Programs Group  
U. S. Environmental Protection Agency  
Mail Code 6403-J  
Washington, DC 20460

Dear Team Leader:

Please find enclosed the model year 1997 application for engine family WXYXL05.0AAA. On behalf of the XY Engine Company, I hereby certify that the test engine(s), as described in this application for certification, has been tested in accordance with the applicable test procedures, utilizing the fuels and equipment required under Subparts D and E of 40 CFR 89 and subpart I of 40 CFR 86, and that on the basis of such tests the engine(s) conforms to the requirements of 40 CFR 89<sup>9</sup>. I further certify that all engines in this engine family are in all material respects as described in the Application for Certification and comply with all requirements of 40 CFR 89 and the Clean Air Act.

[OPTIONAL] I hereby assert that certain information in this application is confidential business information, and request that this information remain confidential until the introduction of these engines into commerce on [DATE]. The information which we assert to be confidential business information [is contained in the answers to questions XX, YY, and ZZ of the engine certification application form(s) has been marked as confidential]. An additional copy of the application with this information deleted is enclosed.<sup>10</sup>

Sincerely,

[MANUFACTURER PRIMARY CONTACT]

Enclosures

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<sup>9</sup> Modify this letter as necessary (i.e., alternative fuels (Subpart P), alternate or special procedures (Subpart B), etc.).

<sup>10</sup> For families participating in ABT an additional statement is required. See applicable regulations for details.

## Sample On-Highway Statement of Compliance

Manufacturer Primary Contact  
XY Engine Company  
4567 Industrial Highway  
El Monte, CA 91731

March 1, 1996

On Highway and Nonroad CI Team Leader  
Engine Compliance Programs Group  
U. S. Environmental Protection Agency  
Mail Code 6403-J  
Washington, DC 20460

Dear Team Leader:

Please find enclosed the model year 1997 application for engine family WXYXH05.0AAA. On behalf of the XY Engine Company, I hereby certify that the test engine(s), as described in this application for certification, has been tested in accordance with the applicable test procedures, utilizing the fuels and equipment required under Subparts D, I, and N of 40 CFR 86<sup>11</sup>, and that on the basis of such tests the engine(s) conforms to the requirements of 40 CFR 86. I further certify that all engines in this engine family are in all material respects as described in the Application for Certification and comply with all requirements of 40 CFR 86 and the Clean Air Act.

[OPTIONAL] I hereby assert that certain information in this application is confidential business information, and request that this information remain confidential until the introduction of these engines into commerce on [DATE]. The information which we assert to be confidential business information [is contained in the answers to questions XX, YY, and ZZ of the engine certification application form] or [has been marked as confidential]. An additional copy of the application with this information deleted is enclosed.<sup>12</sup>

Sincerely,  
[MANUFACTURER PRIMARY CONTACT]

Enclosures

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<sup>11</sup>Modify this letter as necessary (i.e., alternative fuels (Subpart P), evaporative procedures (Subpart M), alternate or special test procedures(Subpart A), etc.)

<sup>12</sup> For families participating in ABT an additional statement is required. Refer to applicable regulations for details.

## Sample On-Highway Evaporative Emission Certification Statement of Compliance

Manufacturer Primary Contact  
XY Motor Company  
4567 Industrial Highway  
El Monte, CA 91731

March 1, 1996

On Highway and Nonroad CI Team Leader  
Engine Compliance Programs Group  
U. S. Environmental Protection Agency  
Mail Code 6403-J  
Washington, DC 20460

Dear Team Leader:

Please find enclosed the model year 1997 application for evaporative family WXYXE0130AAA. On behalf of the XY Motor Company, I hereby certify that the test procedure used to derive the deterioration factors includes, but is not necessarily limited to, a consideration of the ambient effects of ozone and temperature fluctuations and the service accumulation effects of vibration, time, vapor saturation and purge cycling. The test vehicle(s), as described in this application for certification, has been tested in accordance with the applicable test procedures, utilizing the fuels and equipment required under Subparts D, M and P of 40 CFR 86, and that on the basis of such tests the vehicle(s) conforms to the requirements of 40 CFR 86<sup>13</sup>. I further certify that all vehicles in this evaporative family are in all material respects as described in the Application for Certification and comply with all requirements of 40 CFR 86 and the Clean Air Act.

Sincerely,

[MANUFACTURER PRIMARY CONTACT]

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<sup>13</sup>Modify this letter as necessary (i.e., alternative fuels (Subpart P), evaporative procedures (Subpart M), alternate or special test procedures (Subpart A), etc.)

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## INSTRUCTIONS FOR ENGINE FAMILY FORM

The Engine Family Form describes the engine family. The layout of the form is set up to assist the EPA with data input into an electronic data base. Please be sure to include units, or in cases where units are present on the forms, verify the validity of the preset units.

The new Engine Family Form has been created directly in the EPA's Filemaker Pro Information Management System database. The following instructions are provided to assist filling out the form for both the paper and the Filemaker Pro electronic versions. Presently, submission on computer diskette or electronic mail in the Filemaker Pro format or on paper is acceptable. The Filemaker Pro version employs pull-down menus for some questions which will identify all acceptable responses. Where a response is limited by a pull down menu, those responses are described below. These responses are considered the only acceptable ones for both the Filemaker Pro and the paper versions.

### Engine Family Information Form

1. Model Year (pull-down menu)  
The engine model year for which certification is sought (4 digits, ex. 1996).
  - a. Date Received  
Manufacturers leave this blank. The entry will be filled in by the EPA reviewer.
  - b. Time Received  
Same as date received.
2. Carryover (pull-down menu)  
Enter either a Yes or No. If the test data is being carried over, then list which engine family the test data is carried over from.
3. Process Code (pull-down menu)  
Enter either New Submission, Correction, Running Change, or FEL change. Only enter Running Change or FEL Change if the engine family is already certified and you are submitting data to support a running change or an FEL change. Enter New Submission for families which have never been certified AND for carryover families. Directly beneath the process code is a blank line for the date the EPA fees were paid. **As a reminder, an on-highway application should not be filed nor will it be processed**

**by EPA until fees have been paid.** There is a fee application form with instructions in Appendix F. Fees are currently assessed for on-highway certifications only. For nonroad certifications, please enter N/A.

4. EPA Standard Engine Family Name  
See Appendix D for details on the engine family naming convention. [Engine family names consist of 12 digits.]
5. Manufacturer s Family Name  
If a manufacturer has identified an engine family by a name which is different from the EPA engine family name, enter the manufacturer s engine family name here; otherwise, enter N/A.
6. Engine Cycle (pull-down menu)  
Regardless of fuel utilized, if the engine is derived from a diesel engine enter Diesel ; if the engine is derived from an otto cycle engine enter Otto .
7. Displacement  
\_\_\_\_\_ Enter displacement and units employed. Either CID or liters are acceptable. Please be careful to note all units properly.
8. Engine Configuration  
Note the configuration of the engine, for example I6, V6, etc.
9. Emission Control System  
Mark all emission control system components that apply. If the emission control system used by the engine is not included in the provided list, enter the system in the other box which will appear when other is checked, using abbreviations contained in SAE J1930. Alternatively, manufacturers may use the draft SAE document Medium/Heavy Duty E/E Systems Diagnostic Nomenclature if this document is available to them.
10. Fuel Type (pull-down menu)  
Enter type of fuel for which engine family will be certified, choosing from the following list: Diesel, Methanol, Natural Gas, Propane, Ethanol, Gasoline, Oxygenated, Bi-fuel 1(CNG and Gasoline), Bi-fuel 2(CNG and Diesel), Dual Fuel 1(CNG or Gasoline), Dual Fuel 2 (CNG or Diesel), LPG (Specs need EPA approval), and Other (specify what fuel is going to be used in the box which appears and in the compliance statement).
11. Fuel System Type (pull-down menu)



Enter type of fuel system for which engine family will be certified, choosing from the following list: Throttle body Injection, Multi-port Injection, Direct Injection, Central-port Injection, Carburetor, Sequential Fuel Injection, Indirect Diesel Injection, and Other (if Other is checked, specify what fuel system is going to be used in the box which appears when other is checked)

12. Method of Aspiration (pull-down menu)  
Enter type of aspiration method for which engine family will be certified, choosing from the following list: Naturally, Turbo Charged, Turbo Air to Water (TAW), Turbo Air to Air (TAA), Supercharged Air to Water (SAW), and Supercharged Air to Air (SAA).
13. Useful Life Period  
Useful Life should be entered in both years and hours or the number of miles.
14. Exhaust Deterioration Factor Types (pull-down menu)  
On-highway only, select either Additive when no catalyst is present or Multiplicative when a catalyst is present in the space provided. List for both exhaust emission and smoke emissions if applicable. If not applicable, enter NA. (Nonroad, please select NA.)
15. Intended Service Class  
Mark boxes which apply. If you choose other, please explain which service class the engine could/will be used for in the box which appears.
16. Projected Sales  
Enter projected sales numbers for the area for which certification is sought. For example, if applying for 50-state certification, enter projected sales for 50-states.
17. Estimated Production Period  
Enter the start and end dates of the production period. Date format is mm/dd/yy. This information may be used to determine expiration of CBI claims which were made until introduction into commerce.
18. Sales Area (pull-down menu)  
Enter either: Fed, Cal, or 50 state.
19. Plant Contact  
List name(s), title, and phone number(s) of contacts at production plants who are assigned to assist EPA during a Selective Enforcement Audit.

20. Plant Location  
List all plants at which production of this engine family is anticipated. If not enough space is provided in this box, please put additional information in the comment box below.
21. Program Information  
\**Non-Conforming Penalties (NCP)*- mark all boxes which apply; NCPs for PM and NOx are available for on highway engines only. Nonroad manufacturers check none.  
\**Averaging (Ave)* - mark all boxes which apply.  
\**Banking and Trading (B&T)* - mark all boxes which apply.
22. Family Emission Limits  
Enter the Family Emission Limits for which the engine family is being certified in the appropriate blanks for PM or NOx only when engine family is a participant in the ABT program. If not applicable, enter N/A.
23. Nonroad Engine Types  
List the common equipment types in which these engines are utilized (a common equipment type would be one which utilizes 10% or more of the engines produced in the family). Mark all boxes which apply. If other is checked, write the equipment type in the box which appears. On-highway manufacturers mark the NA box.
24. Auxiliary Emission Control Devices (AECDs)[See sections 86.082-2 for on highway and 89.2 for nonroad definitions of AECDs.]  
List all AECDs and those parameters which are sensed and controlled in the proper columns. If an AECD results in reducing the effectiveness of emission control devices, check yes . If yes is checked, a detailed justification of why the AECD should be approved must appear in the Technical Description section of either the current application or a reference made to the appropriate Technical Description document describing the device [86.094-21(b)describes Emission Control System and AECD Technical Description reporting guidelines] in a previous application. EPA does not consider a yes response to mean that the AECD is a defeat device. A yes response to this question indicates only that a justification must be present in the Technical Description section of the application.
25. Adjustable Parameters  
List all adjustable parameters, the adjustable range, and the tamper resistance methods in their proper columns. If not applicable, enter N/A. Please note that an adjustable parameter should be listed even when it is sealed.

## Instructions for Engine Test Information Form

The Engine Test Information Form records test engine information and test data for the engine(s) tested. The form is designed to assist the EPA to input data to an electronic data base. If more than one **test** is performed on the same engine, report each set of test results on the same page, placing each set of test results in its own column (labeled Test 1, Test 2, and Test 3) found on the Test Information Form. Space is provided for up to three tests. If more than one **engine** is tested please place the test information for each engine on its own page and mark the page for the first test engine "Test Data Set 1", the page for the second test engine "Test Data Set 2", etc. (see instructions below for item number 3). See the general instructions for how to create new test engine pages using Filemaker Pro. Please be sure to include units, or in cases where units are present on the forms, verify the validity of the preset units.

The new Test Engine Information form has been created using the EPA's engine database. The following instructions are provided to assist filling out the forms for both the paper and electronic versions. The electronic version employs pull-down menus for some questions to aid in data input. For those questions employing pull-down menus, only the responses contained in the pull-down menu are acceptable even if the application is submitted in a paper version. The instructions below will identify the questions which employ pull-down menus and will list the acceptable responses.

\_\_\_\_\_A nonroad engine manufacturer may for convenience report certification test results to the EPA in English units. However, it is important to understand that metric units are the units used in the nonroad regulations and thus all affected parties must follow these units in complying with the nonroad standards<sup>14</sup> In other words, the nonroad engine manufacturer may use English units but will be held accountable to the standards expressed in metric units.

### Engine Test Engine Information Form

1. EPA Standardized Engine Family Name [12 digits only]  
See Appendix D for details on naming 1998 Model Year and later families. For 1997 MY engine family naming, refer to previous EPA guidance or contact your certification reviewer.
2. Process Code (Pull-down menu)

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<sup>14</sup> See 59 Fed. Reg. 31306, 31314 (June 17, 1994) for standards expressed in English units.

Enter either New submission , Correction , Running Change , or FEL Change in the space provided. Only enter Running Change or FEL Change if the engine family is already certified and you are submitting data to support a running change or an FEL change.

3. Test Data Set

Enter 1" for the first test engine, 2" for the second test engine, etc.

4. Engine Code

Enter Engine code of the test engine or N/A if no code is assigned.

5. Engine Model

Enter the model name of the test engine or N/A if no model name is assigned.

6. Displacement(s) (CID or Liters)

Enter displacement of the test engine and units employed. Either CID or Liters are acceptable. Please be careful to note all units properly.

7. Engine I.D. Number

Enter ID number of the test engine.

8. Rated HP @ Rated RPM

Enter test engine rated power and the speed at which the rated power occurs.

9. Torque(ft-lb) @ Engine RPM

Enter test engine maximum rated torque in foot pounds and the maximum rated torque speed for on-highway engines; enter test engine torque @ intermediate speed for nonroad engines.

10. Waivers

For each of the spaces under waivers, please enter either a Yes , No , or NA . Nonroad engine manufacturers should respond NA to all waivers. Waivers are available upon EPA approval for the following combinations of engine category and pollutant:

| <u>Engine Category</u> | <u>Idle CO</u> | <u>CO</u> | <u>PM</u> | <u>Smoke</u>    |
|------------------------|----------------|-----------|-----------|-----------------|
| Petroleum Diesel Cycle |                | x         |           | x <sup>15</sup> |

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<sup>15</sup>Some restrictions apply to the use of this waiver. Please refer to 40CFR86.095-23(c)(2).

| <u>Engine Category</u>                        | <u>Idle CO</u> | <u>CO</u> | <u>PM</u> | <u>Smoke</u> |
|-----------------------------------------------|----------------|-----------|-----------|--------------|
| Methanol, Natural Gas, or<br>LPG Diesel Cycle | x              | x         | x         | x            |

11. Cold Start (Pull-down menu)

Enter either a Yes , No , or NA in the space provided to indicate use of the cold start waiver. The waiver of the cold start portion of the test is available only for diesel or diesel-derived heavy duty engines. (See 86.094-23(c)(2)(ii) for applicability.) No EPA approval is required. Where the waiver does not apply to the engine being certified, enter NA.

12. Certification Fuel (Pull-down menu)

Enter type of fuel for which engine family will be certified, choosing from the following list: Diesel (Part 89,Sub D,Appdx A,Table 4), Diesel (Part 89,Sub D,Appdx A,Table 5), Diesel (Part 86.1313-49(b)-Table N94-2), Methanol, Natural Gas (Part 86.1313-94(e)(1)), Propane, Ethanol, Gasoline (Part 86.1313-94(a),Table N94-1), Oxygenated, Bi-fuel 1(CNG or Gasoline), Bi-fuel 2(CNG or Diesel), Dual Fuel 1(CNG or Gasoline), Dual Fuel 2 (CNG or Diesel), LPG (Specs need EPA approval), or Other (if response is other , specify the certification fuel in the compliance statement).

13. Special Test Device Check either yes or no . A special test device is any piece of equipment, hardware or input which is not described in the regulations but which is employed in emission-testing. A special test device would include any engine or vehicle part (except as specifically documented by EPA) used while operating the engine on the dynamometer but which is not installed in-use.

Items that are special test devices include but are not limited to: emission monitoring equipment or sensors not described in applicable regulations but used during testing; engine or vehicle parts modified from the configuration or calibration described in the application; or simulated or adjusted inputs or signals (such as a vehicle speed input) to the engine computer.

Examples of items that are not considered special test devices are slave catalyts used only while mapping the engine or equipment used to simulate an intercooler.

14. Test Procedure (Pull-down menu)

Enter the test procedure used from the list below. If any deviations from the regulatory procedures were used or an alternate or special test procedure was used but is not

described in this menu, the manufacturer must specify **Other** in response to this item, and provide a description of the procedure(s) in the statement of compliance. See Section H of this guidance document for the procedure to obtain approval of and how to report alternate and special test procedures.

Pull-down menu options:

- On-Hwy Diesel
- On-Hwy Otto
- Nonroad, 8-Mode & smoke
- Nonroad, D2 (Special Procedure)
- Other (Include in Statement of Compliance)

15. Official Test Results

Record test information from the first test in the column marked "Test 1". Record the date of that test above the column marked "Test 1". If there is a second or third test on the same test engine, record the test date and test results in columns marked "Test 2" and "Test 3" respectively. Record the test results to the number of significant digits listed below. The results are to be recorded in g/bhp-hr if the application is for both EPA and CARB. If only applying to the EPA, the reported units can be either g/bhp-hr or g/kW-hr. The units are to be reported in the units box at the bottom of the table. If an emission level is not required to be reported for the engine being tested, enter "N/A".

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**OFFICIAL TEST RESULTS DIGITS TABLE**

---

|                                       |        |
|---------------------------------------|--------|
| HC/OMHCE g/bhp-hr or g/kW-hr          | X.XX   |
| NMHC/OMNMHCE g/bhp-hr or g/kW-hr      | X.XX   |
| CARBON MONOXIDE g/bhp-hr or g/kW-hr   | XX.XX  |
| OXIDE OF NITROGEN g/bhp-hr or g/kW-hr | X.XX   |
| PARTICULATE g/bhp-hr or g/kW-hr       | X.XXX  |
| FORMALDEHYDE g/bhp-hr                 | X.XXXX |
| ACCELERATION SMOKE %opacity           | XX.X   |

---

**OFFICIAL TEST RESULTS DIGITS TABLE**

|                        |       |
|------------------------|-------|
| LUGGING SMOKE %opacity | XX.X  |
| PEAK SMOKE %opacity    | XX.X  |
| IDLE CARBON MONOXIDE % | X.XXX |
| CO <sub>2</sub>        | XXX   |

16. Deterioration Factors

Record all deterioration factors except smoke to the nearest thousandth. Record smoke dfs to the nearest hundredth. If a deterioration level is not required to be reported for the engine being tested, enter N/A .

17. Certification Levels (Rounded Test Results with df applied)

Apply the deterioration factors recorded in item 16 to the emission levels reported in item 15, and report the resulting certification results, rounded in accordance with ASTM E29-90, to the number of digits indicated below. If a standard does not apply for the engine being tested, enter N/A .

**CERTIFICATION LEVELS DIGITS TABLE**

|                                       |       |
|---------------------------------------|-------|
| HC/OMHCE g/bhp-hr or g/kW-hr          | X.X   |
| NMHC/OMNMHCE g/bhp-hr                 | X.X   |
| CARBON MONOXIDE g/bhp-hr or g/kW-hr   | XX.X  |
| OXIDE OF NITROGEN g/bhp-hr or g/kW-hr | X.X   |
| PARTICULATE g/bhp-hr or g/kW-hr       | X.XX  |
| FORMALDEHYDE g/bhp-hr                 | X.XXX |
| ACCELERATION SMOKE %opacity           | XX    |
| LUGGING SMOKE %opacity                | XX    |
| PEAK SMOKE %opacity                   | XX    |
| IDLE CARBON MONOXIDE %                | X.XX  |

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## Engine Model Summary Instructions

Enter EPA engine family name and (if applicable) Manufacturer s engine family name in spaces provided in the table above. After entering a line of data (in the table when using the electronic version), press the enter key to move to the next line.

Table entry instructions:

- Col 1:** List All Engine Codes In Each Sales Area In the section labeled Federal Codes, list all engine codes which will be sold exclusively in the 49 state area which excludes CA. In the California Codes section, list all engine codes which will be sold exclusively in CA. For the column section labeled 50 State Codes, list all engine codes which will be sold in all 50 States.
- Col 2:** List all models in each engine code Additionally, identify models for each engine code next to their respective Federal, California, and 50 State code. The test engine model must be among the models listed.
- Col 3:** List the horsepower @ rated speed for each model
- Col 4:** List the Fuel Rate (mm<sup>3</sup> per stroke) @ Rated Speed for each model for diesel-cycle engines only. Enter N/A for Otto-cycle engines.
- Col 5:** List the Fuel Rate (lbs/hr) @ rated speed for each model for diesel-cycle engines only. Enter N/A for Otto-cycle engines.
- Col 6:** List Maximum Rated Torque @ RPM for each model
- Col 7:** List the Fuel Rate (mm<sup>3</sup> per stroke) @ maximum rated torque for each model
- Col 8:** List the Fuel Rate per stroke (lbs/hr) @ maximum rated torque for each model
- Col 9:** List all Emission Control Devices for each model using acceptable abbreviations and acronyms. Provide enough detail to adequately describe the major emission control system components, including especially those components which may differ from model to model. Acceptable acronyms and abbreviations may be found in the SAE J1930 Recommended Practice Electrical/ Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms , June 1993 or the draft SAE Medium/Heavy Duty E/E Systems Diagnostic Nomenclature .

## ENGINE PART NUMBER SUMMARY INSTRUCTIONS

Enter EPA engine family name and (if applicable) Manufacturer s engine family name in spaces provided above the table. Fill in the all appropriate blanks. If a part does not exist, type NA in the space provided. If a part is not listed, but is an emission control system component, go to the additional parts page, type in the name of the part, and list the part number for each of the engine codes and models.

### Instructions for the Engine Technical Description Form

Manufacturers must generate and maintain adequate technical descriptions of certification and production engines to demonstrate compliance with applicable regulations and the Clean Air Act. As described below, a General Technical Section must be submitted to EPA, and a more detailed record including calibrations and a description control system logic must be maintained and provided to EPA upon request.

#### General Technical Description:

The first application using this new format must include a full General Technical Description for each family. After the first year, manufacturers may reference (in the statement of compliance) the model year application containing the full description. Every five years, a new description will be necessary to update records. This section must also be updated when new technology is introduced between the normal five year submission interval.

In accordance with the format presented below, the general technical description must include, but not be limited to:

- 1) A summary table identifying sensed and controlled parameters. (Reference the example below.)
- 2) A description of all fuel and ignition system components.
- 3) A description of all emission control components. (Complete calibrations may not be required but must be maintained as described below. When engine modification is used for emission control, the manufacturer should provide a description of components, strategies and limits necessary for controlling emissions, e.g. injection timing, turbocharger, fuel control, etc.)
- 4) A description of all AECDs including hardware and control system logic. (Reference the example below). If an AECD reduces the effectiveness of the emission control system, a

justification must be provided. (Complete calibrations may not be required but must be maintained as described below.)

- 5) For evaporative certification, a description of all Evaporative Control System Components, including but not limited to hardware and AECs (as described above).

#### Calibrations and Control System Logic:

Manufacturers must maintain calibration information and a description of control system logic for each engine family. (AECs descriptions must be provided as described above.) Like other information submitted to EPA as part of the application, this information must remain up-to-date as changes are made in production, and records must document each calibration produced. Records must include but not be limited to; calibrations, calibration curves, drawings, flow rates, schematics of hose routing, timing strategies and switch points. Additionally, a complete description of strategies contained in control system logic including but not limited to; all modes of operation (or deactivation) for all sensed and controlled parameters, all values of inputs and outputs, timer strategies, and flow charts. This information must be maintained by the manufacturer with certification records and provided to EPA upon request. Small volume manufacturers shall maintain and provide upon request drawings, calibration curves and schematics of hoses routing.

#### General Technical Description Format

| <u>Section No.</u> | <u>Title</u>                                      |
|--------------------|---------------------------------------------------|
| 01.00.00           | Summary Table of Parameters Sensed and Controlled |
| 02.00.00           | Engine Systems                                    |
| 02.01.00           | Fuel Systems                                      |
| 02.01.01           | Fuel Injection                                    |
| 02.01.02           | Carburetor                                        |
| 02.02.00           | Ignition Systems                                  |
| 02.03.00           | Turbochargers and Intercoolers                    |
| 02.04.00           | Emission Control Systems                          |
| 02.04.01           | Crankcase                                         |
| 02.04.02           | Engine Modifications                              |
| 02.04.03           | Air Injection                                     |
| 02.04.04           | Exhaust Gas Recirculation                         |
| 02.04.05           | Catalyst                                          |
| 02.04.06           | Smoke-Puff-Limiter                                |
| 02.04.07           | Other                                             |

- 03.01.00 Auxiliary Emission Control Devices
- 04.01.00 Emission Control Warning Devices
- 05.01.00 Evaporative Emission Control System
- 05.01.01 Fuel Storage Method
- 05.02.01 Fuel Lines
- 05.03.01 Canister
- 05.04.01 Valves
- 06.01.00 Other

**Example Summary Table of Sensed and Controlled Parameters**

Parameters  
Controlled

Parameters Sensed

|               | RPM | FI | EGR | AIR Inj. | Manif. Air Temp | Eng. Temp | MAP | Exh. O2 | TPS | A/C Request | Time | Veh. Spd. |
|---------------|-----|----|-----|----------|-----------------|-----------|-----|---------|-----|-------------|------|-----------|
| FI            | X   |    |     |          | X               | X         | X   | X       | X   |             | X    | X         |
| Fuel Solenoid |     |    |     |          |                 | X         |     |         |     |             |      |           |
| RPM           |     |    | X   | X        |                 |           |     |         |     |             |      |           |
| EGR           | X   |    |     |          |                 |           |     | X       |     |             | X    |           |
| Idle Speed    | X   |    |     |          | X               |           |     |         | X   | X           | X    |           |
| Air Inj.      | X   | X  |     |          |                 |           |     | X       | X   |             | X    |           |

NOTE: The following are partial descriptions of information that may be included in the technical description section. These examples should not be interpreted as maximum or minimum reporting requirements, rather the type of information that may be included. The manufacturer must evaluate all emission control components and must describe each component in sufficient detail so that an engineer skilled in emissions control can understand how it functions. Descriptions must include an explanation of each system's operation, and all circumstance in which an AECD reduces the effectiveness of the emission control system.

## AECD Technical Description Examples

### 03.01.00 Auxiliary Emission Control Devices

03.01.01 General Fuel Control Strategy - Fuel injection timing and quantity is controlled electronically by the engine control computer (ECC). ECC programming is nonadjustable and the fuel calibrations may only be changed by replacing the ECC unit. Fuel injection component descriptions are included in section 02.01.01.

As illustrated in the sensed and controlled parameter table, the fuel control strategy uses numerous inputs to balance optimal engine performance and emission control. As further described below each sensed parameter may be used over the full range of engine operating conditions or solely to identify unique operating conditions such as starting or conditions that may cause engine or emission control system damage.

The fuel control strategy is calibrated to maintain an air/fuel ratio that optimizes catalyst efficiency. Based on engine load (intake manifold vacuum) and engine speed the quantity of fuel is adjusted by changing injection duration. Spark timing is also adjusted. Oxygen sensor feedback enables the ECC to adjust fuel quantity and timing to maintain optimal catalyst efficiency. The ECC will limit fuel when the vehicle or engine speed exceeds prescribed values, but these conditions will not normally result in excessive emissions.

As mentioned above, under some conditions the fuel strategy is not optimized for emission control. The following summary provides justification for each condition in which the effectiveness of the emission control system is reduced by the fuel strategy<sup>16</sup>.

Engine starting and stalling conditions - Fuel quantity and spark (also reference the spark control strategy below) are adjusted when engine RPM are below a prescribed value to improve starting and to avoid stalling conditions.

Overheating - Fuel is increased when coolant temperature exceeds a prescribed value. When this occurs the Engine Temperature warning light is illuminated on the dash and the Check Engine light will remain illuminated until the vehicle is serviced.

O2 sensor signal - If no O2 sensor signal is received by the ECC or if the signal is excessively lean or rich for a prescribed duration of time, the fuel strategy is set in a default mode and the Check Engine light is illuminated until the engine is serviced. This mode is to avoid possible damage to the catalyst.

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<sup>16</sup>Additional Fuel Control Strategy Description May Be Appropriate

03.01.02 Fuel Solenoid - The fuel solenoid is a mechanical component as described in 02.01.08. This solenoid is used to facilitate engine starting and only operates during cranking and for the first 10 seconds after starting when the engine coolant is below 50 degrees F and the ECC is in a default mode. Consequently, this solenoid reduces the effectiveness of the emission control system (fuel strategy and catalyst) but is justified by its limited operation.

## Sample Diskette Label Format

### New submission:

Acme Engine Company  
Nonroad engine  
New Submission 1998 MY  
WACXL08.0ABC, WACXL0.50ABC  
Files: NEW3.FP3  
COV3.WPD, COV4.WPD  
August 12, 1997

### Running change or correction:

Acme Engine Company  
Nonroad engine  
Running Change 1998 MY  
WACXL08.0ABC  
Files: RC3.FP3  
COV3.WPD  
August 15, 1997

## **APPENDIX B**

### Confidential Business Information in the Certification Application



## CONFIDENTIAL BUSINESS INFORMATION

As a general principle, information provided to EPA by individuals or companies will be considered public information and will be provided to those who request it unless the information falls under one of the exemptions listed in the Freedom of Information Act (the Federal statute which governs disclosure of information to the public). One of these exemptions is information which the submitting individual or company asserts is confidential or proprietary information (e.g., trade secrets).

Manufacturers are entitled to assert a claim of confidential business information (CBI) on the information which they are required to submit in a certification application. If information the manufacturer asserts to be CBI is information which is otherwise discernible by physical inspection of the engine (e.g., Question 9, Emission Control System), EPA will not release any such information that qualifies as CBI before the effective date of the certificate. If the manufacturer wishes this information to remain confidential until the engine family is introduced into commerce (when this date is after the effective date of the certificate), the manufacturer must inform EPA of this actual date of introduction into commerce when it submits its certification application, and specifically request that the information remain confidential until the introduction date.

For example, consider this time line for a 1997 model year engine:

|                                     |                  |
|-------------------------------------|------------------|
| Date certificate issued:            | December 1, 1996 |
| Date certificate is effective:      | January 2, 1997  |
| Date of introduction into commerce: | April 1, 1997    |

Under this time line, EPA would not release any CBI from the certificate application until April 1, 1997 or later, provided the manufacturer informs EPA of the date of introduction into commerce and makes such a request when it submits its certification package.

Manufacturers should be aware that certain information in the certification application can retain CBI status even after the actual date the engines are introduced into commerce. If a manufacturer desires that certain information retain CBI status after the date the engines are introduced into commerce, it must make this request when it submits its application package.

Under EPA regulations at 40 CFR sec. 89.7 and 40 CFR sec. 2.203, manufacturers must indicate clearly what information is submitted under an assertion of CBI. Manufacturers may state in the application cover letter which sections of the application are CBI, or/and otherwise mark or stamp the CBI. Whenever a manufacturer submits an application which contains information asserted to be confidential, EPA urges the manufacturer to submit an additional application with all CBI deleted to accompany the original application.

Based on EPA's historical experience with certification applications in the on-highway program, EPA notes that certain information in the application should not be considered eligible to fall under a CBI claim under any circumstances. This information is generally available to the public or competitors and disclosure of this information would not be likely to cause any harm to the competitive position of any manufacturer. The Engine Compliance Programs Group (ECPG) staff believes that the information provided in response to the following questions on the Engine Family Information Form should not be considered confidential under any circumstances:

- Manufacturer
- 1. Model Year
- 2. Carryover
- 3. Process Code
- 4. EPA Standard Engine Family Name
- 5. Mfr s Family Name
- 13. Useful Life Period
- 14. Deterioration Factor Types
- 15. Intended Service Class
- 19. Plant Contact
- 20. Plant Location
- 22. Family Emission Limits
- 23. Nonroad Engine Equipment Types

Additionally, the ECPG staff believes that the information provided in response to the questions on the Engine Test Engine Information Form should not be considered confidential under any circumstances.

Finally, manufacturers should remember that, if EPA receives a request under the Freedom of Information Act for release of a certification application, EPA will inform the requestor (in writing) that all information asserted to be CBI by the manufacturer cannot be released until the Agency (which in this instance means the Office of General Counsel (OGC)) makes a "final determination of confidentiality." The EPCG staff will then write to the manufacturer to offer the opportunity to substantiate its claim about the business confidentiality of the information by answering some questions about the information (the questions can be

found in EPA's regulations at 40 CFR 2.204(e)). The EPCG staff will review the manufacturer's responses to these questions and forward them with comments to the OGC for the final determination of confidentiality.

Any questions about this process should be addressed to:

Robert M. Doyle, Attorney-Advisor  
Engine Compliance Programs Group  
U.S. Environmental Protection Agency  
401 M Street, S.W. (6403J)  
Washington, DC 20460  
Telephone (202) 564-9258  
Facsimile (202) 565-2057  
E-Mail : [Doyle.Robert@epa.gov](mailto:Doyle.Robert@epa.gov)

**APPENDIX C**

**CERTIFICATE OF CONFORMITY**

- C2 Sample Nonroad Certificate of Conformity without Banking & Trading**
- C3 Sample Nonroad Certificate of Conformity with Banking & Trading**
- C4 Sample On Highway Certificate of Conformity without Banking & Trading**
- C5 Sample On Highway Certificate of Conformity with Banking & Trading**



**SAMPLE OF NONROAD CI CERTIFICATE OF CONFORMITY WITH BANKING AND TRADING**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, DC 20460  
MODEL YEAR  
CERTIFICATE OF CONFORMITY  
WITH THE CLEAN AIR ACT OF 1970 AS AMENDED IN 1990  
ISSUED TO:

**SAMPLE**

\_\_\_\_\_  
MANUFACTURER

\_\_\_\_\_  
CERTIFICATE NUMBER

\_\_\_\_\_  
Chester J. France  
Director, Engine Programs & Compliance

\_\_\_\_\_  
EFFECTIVE DATE

**SAMPLE**

DATE ISSUED: \_\_\_\_\_

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. § 7547) and 40 CFR 89, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 89 and produced in the stated model year:

**NONROAD COMPRESSION-IGNITION ENGINE FAMILY:**

This certificate of conformity covers only those new nonroad compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 89 and which are produced during the model year stated on this certificate of the said manufacturer as defined in 40 CFR Part 89. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

This certificate of conformity is conditional upon compliance of said manufacturer with the averaging, banking and trading provisions of 40 CFR Part 89, Subpart C. Failure to comply with these provisions may render this certificate void *ab initio*. The family NOx emission limit (FEL) is \_\_\_ g/kW-hr.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 89.129-96 and 89.506-96 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 89. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 89. This certificate does not cover nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

**SAMPLE**

**SAMPLE OF ON HIGHWAY CERTIFICATE OF CONFORMITY WITHOUT BANKING AND  
TRADING**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

**SAMPLE**  
MODEL YEAR  
CERTIFICATE OF CONFORMITY  
WITH THE CLEAN AIR ACT OF 1970 ISSUED TO

MANUFACTURER

CERTIFICATE NUMBER

Chester J. France, Director, EPCD  
OFFICE OF MOBILE SOURCES

EFFECTIVE DATE

DATE ISSUED: \_\_\_\_\_

**SAMPLE**

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. Pursuant to Section 206 of the prescribed in those provisions, this certificate of conformity is hereby issued with respect to the prescribed in those provisions, the found to conform to applicable requirements and which represent fully described in the documentation required by 40 CFR Part 86 and produced in the stated model year:

HEAVY DUTY (HEAVY-HEAVY) DIESEL FAMILY:

This certificate of conformity covers only those new motor vehicle heavy-duty diesel engines which conform to the design specifications that applied to those engines Part 86 and which are produced during the model year production period stated on this Part 86 and which are produced during the model year defined in 40 CFR Part 86. This certificate of conformity does not cover vehicles imported prior to the effective date of this certificate.

**SAMPLE**

It is a term of this certificate that the manufacturer shall consent to the revocation or suspension of this certificate if it is found to be in violation of 40 CFR Part 86.1006 and authorized in a warrant or court order. Failure to comply with the terms of this certificate may lead to revocation or suspension of this certificate. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for reasons specified in 40 CFR Part 86.096-7, and 86.1012.

This certificate does not cover vehicles or engines sold, offered for sale, or introduced, or delivered for sale in the U.S. prior to the effective date of the certificate.

**SAMPLE**





# **APPENDIX D**

## **EPA STANDARD ENGINE AND EVAPORATIVE FAMILY NAMES**

## EPA Standardized Engine and Evaporative Family Names for 1998 and Later Model Year Light-Duty Vehicles, Trucks, Motorcycles and Nonroad Engines

Manufacturers must use a standardized system for identifying their engine families. The system described below was developed by EPA in 1995 to meet the requirements for 1998 and later model years.

The engine family name consists of 12 characters. For the displacement field, zero is used as a space character in the leading position when a value does not apply. To avoid confusion, numeric characters '0' and '1', characters 'I' and 'O' are not used. It is considered a use of characters 'Q', 'L', 'Z', 'S', 'G', which can be confused with '0', '1', '2', use of characters 'Q' has not always been possible. The following method is used to format the standardized engine family name is:

### Family information for all families

| Number Characters | Columns | Description                                                                                       |
|-------------------|---------|---------------------------------------------------------------------------------------------------|
| 1                 | 1       | Model Year (Table 1)                                                                              |
| 3                 | 2-4     | Letter code identifying manufacturer<br>Contact EPA to verify your manufacturer code if in doubt. |
| 1                 | 5       | Family type                                                                                       |
|                   |         | N - Nonstandard family type                                                                       |
|                   |         | V - Light-duty vehicle family                                                                     |
|                   |         | T - Light-duty truck family                                                                       |
|                   |         | C - Motorcycle family                                                                             |
|                   |         | E - Evaporative family                                                                            |
|                   |         | H - Heavy-duty engine family                                                                      |
|                   |         | S - Small SI nonroad family                                                                       |
|                   |         | L - Nonroad CI family                                                                             |
|                   |         | M - Marine engine family                                                                          |
|                   |         | A - California only medium duty family                                                            |
|                   |         | R - Evaporative/Refueling family                                                                  |

| Number Characters | Columns | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4                 | 6-9     | Displacement in liters (e.g., 05.7) and the leading zero is a space) or cubic inches (e.g., 3.4) dual or variable displacement families. For large displacement engines, enter as <u>XX.X</u> format (e.g., 12.1). Small engines may be entered as <u>.XXX</u> format (e.g., .072, 0.07, 00.7). In all cases the displacement will be read in liters if a decimal point is entered will be read in liters if a decimal point is entered will be read in liters if a decimal point is entered will be read in liters if a decimal point is entered will be read in liters if a decimal point is entered will be read in liters if there is no decimal point. |
| 3                 | 10-12   | Sequence characters. Enter any combination of valid characters to unique identification for the engine. Letters and numbers should be selected that minimize possible confusion. <sup>17</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

**TABLE 1. LETTER CODES FOR MODEL YEAR (Column 1)**

| Code | Year | Code | Year | Code | Year |
|------|------|------|------|------|------|
| A    | 1980 | L    | 1990 | Y    | 2000 |
| B    | 1981 | M    | 1991 | 1    | 2001 |
| C    | 1982 | N    | 1992 | 2    | 2002 |
| D    | 1983 | P    | 1993 | 3    | 2003 |
| E    | 1984 | R    | 1994 | 4    | 2004 |
| F    | 1985 | S    | 1995 | 5    | 2005 |
| G    | 1986 | T    | 1996 | 6    | 2006 |
| H    | 1987 | V    | 1997 | 7    | 2007 |
| J    | 1988 | W    | 1998 | 8    | 2008 |
| K    | 1989 | X    | 1999 | 9    | 2009 |

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<sup>17</sup> At a minimum, the sequence characters, in combination with the other characters in the family name, must provide a unique identifier for the family. It is recommended, but not required, that the sequence characters themselves be unique for all families for a manufacturer and model year. These sequence characters may be used to codify information to meet California's requirements, but they will be treated as simple sequence characters by EPA's computer software.

## Evaporative family names

Columns 1-5 are the same as exhaust emission engine family names.

| <u>Number Characters</u> | <u>Columns</u> | <u>Description</u>                                                                                                                                                                                                 |
|--------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4                        | 6-9            | Canister work capacity: Total grams in all canisters                                                                                                                                                               |
| 3                        | 10-12          | Sequence characters. Enter any combination of sequence characters to provide a unique identification for the family name. It is recommended that numbers and letters be selected to avoid confusion. <sup>18</sup> |

**Other engine and evaporative family descriptions will be described in a separate document.**

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<sup>18</sup> At a minimum, the sequence characters, in combination with the other characters in the family name, must provide a unique identifier for the family. It is recommended, but not required, that the sequence characters themselves be unique for all families for a manufacturer and model year. These sequence characters may be used to codify information to meet California's requirements, but they will be treated as simple sequence characters by EPA's computer software.

# **APPENDIX E**

## **EPA EVAPORATIVE SECTION (On Highway Vehicle Certification Only)**

- E2 Instructions for the Engine Evaporative Information Form**
- E4 Sample Evaporative Statement of Compliance**
- E5 Sample On Highway Evaporative Certificate**

## Instructions for Engine Evaporative Emission Certification Form (For On Highway Vehicle Certification Only)

The Engine Evaporative Emission Certification Form contains the information and data used to demonstrate compliance with evaporative emission requirements. The form is designed to assist the EPA data input into an electronic data base. If more than one test is run on one vehicle configuration, each set of test results should be placed in its own column (labeled Test 1, Test 2, etc.) found on the Engine Vehicle Certification Evaporative Form. Please be sure to include units, or in cases where units are present on the forms, verify the validity of the preset units. The on-highway vehicle manufacturer is not required to submit a copy of the engine certification application forms.

For some classes of vehicles, engineering judgement may be used in place of the performance of standard test procedures (see Appendix E Tables). In these instances, data generated through the use of engineering judgement must still be entered in the Evaporative Results section (see item #8 below).

The new Engine Evaporative Emission Certification Form has been created directly in the EPA's engine database. The following instructions are provided to assist filling out the forms for both the paper and electronic versions. Presently, only the paper version is available. The electronic version is being developed. The electronic version will employ pull-down menus for some questions to aid in data input. For those questions, employing pull-down menus, only the responses contained in the pull-down menu are acceptable, even if the application is submitted in a paper version. The instructions below will identify the questions which employ pull-down menus and will list the acceptable responses.

### Engine Vehicle Certification Evaporative Form

1. Model Year (Pull-down menu)  
The model year for which certification is sought (4 digits, ex 1996).
2. Date  
EPA will enter the date form was received.
3. Process Code (Pull-down menu)  
Enter either a New submission , Correction , or Running Change in the space provided.
4. Test Data Set Number  
Enter a 1" for the first test combination. If additional combinations are tested, submit a separate form for each test combination and label the subsequent combinations 2", 3", etc.
5. EPA Standardized Evaporative Family Name  
See Appendix D for more details on evaporative family naming conventions.
6. Fuel (Pull-down menu)  
Enter type of fuel used in test from the following list: Gasoline, LPG, Methanol, CNG, or Other (If other is chosen, in the comment box at the end of the form).

7. A) Evaporative Certification Standard (Pull-down menu)  
Enter the standard used to certify the evaporative system from the following list: 86.091-10(b)- Otto Cycle, 86.091-11(b) - Diesel Cycle, 86.096-10(b)- Otto Cycle, 86.096-11(b) - Diesel Cycle, or 86.098-11 - Diesel Cycle.

B) Weight Category (Pull-down menu)

Enter one of the following weight categories: GVWR  $\leq$  14K, 14K < GVWR < 26K, or GVWR > 26K.

8. Test Results  
Enter date test was run in the corresponding column (MM-DD-YY). [If only one test was run this test combination, enter the results in the column labeled "Test 1".]

Enter the applicable test results, with the deterioration factor applied, into the chart. When a test result is not required, enter NA.

9. Evaporative Family/Engine Family Comparison Information  
Enter information as the table dictates.

## Sample Evaporative Statement of Compliance

Manufacturer Primary Contact  
XY Motor Company  
4567 Industrial Highway  
El Monte, CA 91731

March 1, 1996

On Highway and Nonroad CI Team Leader  
Engine Compliance Programs Group  
U. S. Environmental Protection Agency  
Mail Code 6403-J  
Washington, DC 20460

Dear Team Leader:

Please find enclosed the model year 1998 application for evaporative family WXYXR0098ABC. On behalf of the XY Motor Company, I hereby certify that the test procedure used to derive the deterioration factors includes, but is not necessarily limited to, a consideration of the ambient effects of ozone and temperature fluctuations and the service accumulation effects of vibration, time, vapor saturation and purge cycling. The test vehicle(s), as described in this application for certification, has been tested in accordance with the applicable test procedures, utilizing the fuels and equipment required under Subparts D, M and P of 40 CFR 86<sup>19</sup>, and that on the basis of such tests the vehicle(s) conforms to the requirements of 40 CFR 86. I further certify that all vehicles in this evaporative family are in all material respects as described in the Application for Certification and comply with all requirements of 40 CFR 86 and the Clean Air Act.

Sincerely,

[MANUFACTURER PRIMARY CONTACT]

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<sup>19</sup>Modify this letter as necessary (i.e., alternative fuels (Subpart P), alternate or special test procedures(Subpart B), etc.)





# **APPENDIX F**

## **EPA MOTOR VEHICLE AND ENGINE COMPLIANCE PROGRAM (MVECP) FEES PROGRAM**

- F1 EPA MVECP Fees Filing Form**
- F2 EPA MVECP Fees Filing Form Instructions**

EPA MVECP Fee Filing Form

OMB Num. 2060-0104, expires 08/31/98

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
MOTOR VEHICLE AND ENGINE COMPLIANCE PROGRAM  
FEE FILING FORM**  
(Please type or print)

Applicant's Corporate Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip Code/Country \_\_\_\_\_

Certification Request Type (check one):

|                          |               |                         |                          |
|--------------------------|---------------|-------------------------|--------------------------|
| <input type="checkbox"/> | LDT/LDV       | LDT/LDV California only | <input type="checkbox"/> |
| <input type="checkbox"/> | HDE/HDV       | HDE/HDV California only | <input type="checkbox"/> |
| <input type="checkbox"/> | HDV Evap-only | Motorcycle              | <input type="checkbox"/> |

EPA standard engine family name:

Exhaust emission control system number:  of

Amount paid (U.S. Funds Only):  \$

Enter check number, "EFT/WIRE" or "EFT/ACH":

[Indicate on the check: std. engine family name and control system number]

[Indicate in the EFT message field:

Location Code# "68-01-0099", "EPA MVECP Fee",  
std. engine family name, control system number, and corporate name]



Waiver (only, if applicable and with prior EPA approval):

|                                                  |                              |
|--------------------------------------------------|------------------------------|
| Waiver approval number _____                     | Projected sales volume _____ |
| Aggregate projected retail sales price: \$ _____ |                              |



Authorized Company Representative Date: \_\_\_\_\_

Typed Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Telephone: \_\_\_\_\_

Send all Fee Filing Forms and all **Checks and EFT/ACH** payments to:

**Environmental Protection Agency  
Motor Vehicle and Engine Compliance Program  
P.O. Box 954472  
St. Louis, MO 63195-4472**

Transmit **EFT/Wire** payments **only** to the New York Federal Reserve Bank and send the Fee Filing Form for the wire to the above address.

EPA MVECP Fee Filing Form

OMB Num. 2060-0104, expires 08/31/98

## **Fee Filing Form Instructions**

### Corporate Name and Address

List the applicant's corporate name and corporate address which will appear on the Certificate of Conformity.

### Certification Request Type

Check the box which specifies the certification request type.

### EPA Standard Engine Family Name

Enter the appropriate EPA standardized engine family name that will appear on the Certificate of Conformity.

### Exhaust Emission Control System Number

Enter the exhaust emission control system number that identifies the unique engine-system combination.

### Amount Paid

Enter the appropriate fee amount for the designated certification request type. The full fee, payable in U.S. dollars, is to accompany the filing form.

### Check Number, EFT/ACH, or EFT/WIRE

Enter the number of the corporate check, money order, bank draft, certified check, **or** enter the letters "EFT/ACH" or "EFT/WIRE" if sending an electronic funds transfer. Indicate the standard engine family name and exhaust emission control system number on the check or EFT. Please contact your certification representative for EFT/ACH payment procedures.

### Waiver (only, if applicable)

All fee waiver requests must be submitted in writing and approved by EPA prior to filing this form. EPA will assign a waiver approval number. Enter the waiver approval number, projected sales volume and aggregate projected retail sales price on the fee filing form. Submit the fee waiver payment.

### Authorized Company Representative

Enter the representative's name (typed), signature, title, telephone number, and date.

### Shipment by Private Mail Service (other than U.S. Postal Service)

If the remitter chooses to ship by a private mail service such as Federal Express, Airborne Express, or another shipping service other than the U.S. Postal Service, then the remitter should send the fee payment and fee filing form to:

**Mercantile Bank N.A.  
Government Lock Box Division  
TRAM#41-2, Operations Center  
1005 Convention Plaza  
St. Louis, MO. 63101-1200**

# **APPENDIX G**

## **CERTIFICATION PREVIEW TOPICS**

### Certification Preview Topics

The certification preview meeting, which should occur annually, is designed to address outstanding issues prior to the application for certification, to answer a manufacturer's questions about the certification process and to help the EPA reviewer schedule the workload so as to avoid any production delays for the manufacturer. It is not necessary to meet in person, but it is recommended. A preview meeting could be handled through a series of letters, especially when an engine is carried over and there are not as many issues to discuss.

#### CERTIFICATION PREVIEW CHECKLIST:

1. Verify manufacturer contact. For first year of certification only: verify manufacturer has a three-digit manufacturer code and has notified EPA of all categories of engines that they intend to certify.
2. Which engine families will also be certified in California?
3. Will fees be paid prior to application for certification of on-highway engine families? (Applications will not be processed until fees are paid)
4. Respond to questions about application format, review any changes in application procedure. (Refer to application format in Appendix A.). The following comprise a complete application:
  - A. Cover letter addressed to the EPA certification team leader, requesting certification for specified engine families.
  - B. Communications and Mailing Information sheet
  - C. Signed statement of compliance specific to the engine family(s) being certified and referencing any applicable pre-approved alternate or special test procedures or alternate fuels.
  - D. Engine Family Information Form (one per engine family)
  - E. Engine Test Information Form (one per test engine)
  - F. Engine Model Summary (one per engine family)
  - G. Engine Model Part Number Summary (one per engine family)
  - H. General Technical Description (may not be required every year)
  - I. Evaporative Family/Engine Family Comparison Form (On-Highway Evaporative Certification only) (one per evaporative engine family)
5. Test engine selection: was selection in accordance with regulations?
6. Adjustable parameters:

Description of tamper resistance  
All adjustable parameters should be listed in application, including those that the manufacturer considers to be sealed.
7. Correlation Testing:

We strongly encourage your participation in the correlation testing program.
8. Product Line:

Discuss any new technology.  
How do you intend to meet the emission standards?

List engine applications.  
List sales volumes.

9. Engine Family Determination:  
Are engines appropriately grouped by engine family?  
Are engine families named correctly?
10. Test Protocols:  
Service accumulation.  
Fuels.  
Maintenance of certification engine.  
Provide test date/location in case we want to observe the testing.
11. Voluntary In-Use Testing:  
Participation encouraged.
12. Information for SEA:  
Preferred locations and contacts for SEA testing.  
List of ports of entry for nonroad engines.  
Assembly Line Testing Data or California Quality Audit data (submission voluntary).
13. Concept of Defeat Device:  
Manufacturer understands concept of defeat device and verifies that no defeat devices have been employed in this model year s certification.

# **APPENDIX H**

## **EXECUTIVE ORDER INFORMATION (CARB ONLY)**

To be completed in addition to Appendix A for California Submissions.

- H1 Sample Off-Road Engine Certification Statement of Compliance**
- H2 Sample On-Road Engine Certification Statement of Compliance**
- H3 Emission Warranty**
- H4 Label Durability Statement**
- H5 Engine/Vehicle Emission Labels**
- H6 Tamper-Resistance**
- H7 Deterioration Factors Form**



**SAMPLE OFF ROAD ENGINE CERTIFICATION  
STATEMENT OF COMPLIANCE**

March 1, 1996

Manufacturer Primary Contact  
XY Engine Company  
4567 Industrial Highway  
El Monte, CA 91731

Mr. Rod Summerfield, Chief  
Mobile Source Operation Division  
California Air Resources Board  
9480 Telstar Avenue  
Suite #4  
El Monte, CA 91731

Subject: 1997 Model-Year Heavy-Duty Off-Road Diesel Cycle Engine Certification for  
Engine Family, VXY14.RZDBRA.

Dear Mr. Summerfield:

Please find enclosed the 1997 model-year application for engine family VXY14.RZDBRA. On behalf of the XY Engine Company, I hereby certify that the test engine(s), as described in this application for certification, has been tested in accordance with the California Exhaust Emission Standards and Test Procedures for New 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines (Test Procedure), and that on the basis of such tests the engine(s) conforms to the requirements of the Test Procedures. I further certify that all engines in this engine family comply with all requirements of the Test Procedures, the Clean Air Act, and the applicable California Code of Regulations.

Sincerely,

[Manufacturer Primary Contact]

**SAMPLE ON-ROAD ENGINE CERTIFICATION  
STATEMENT OF COMPLIANCE**

March 1, 1996

Manufacturer Primary Contact  
XY Engine Company  
4567 Industrial Highway  
El Monte, CA 91731

Mr. Rod Summerfield, Chief  
Mobile Source Operation Division  
California Air Resources Board  
9480 Telstar Avenue  
Suite #4  
El Monte, CA 91731

Subject: 1997 Model-Year Heavy-Duty Diesel Cycle (or Otto Cycle) Engine Certification  
for Engine Family, VXY8.5DZDAAA/VXY7.0C5GAAA.

Dear Mr. Summerfield:

Please find enclosed the 1997 model-year application for engine family VXY8.5DZDAAA/VXY7.0C5GAAA. On behalf of the XY Engine Company, I hereby certify that the test engine(s), as described in this application for certification, has been tested in accordance with the California Exhaust Emission Standards and Test Procedures for New 1995 and Later Heavy-Duty Diesel Cycle Engines (Test Procedures) and the Code of Federal Regulations, Title 40, Part 86, Subparts A, I and N (40 CFR 86 (A), (L), (N)) incorporated by reference and as amended by the Air Resources Board (or California Exhaust Emission Standards and Test Procedures for 1987 and Later Heavy-Duty Otto Cycle Engines and Vehicles (Test Procedures) and the 40 CFR 86 (A), (L), (N), and (P) incorporated by reference and as amended by the Air Resources Board) and that incorporated/amended 40 CFR 86. I further certify that all engines in this engine family comply with all requirements of the Test Procedures and the incorporated/amended 40 CFR 86, the Clean Air Act, and the applicable California Code of Regulations.

Sincerely,

[Manufacturer Primary Contact]

## **SAMPLE EMISSION WARRANTY**

Emission warranty requirements are specified in Title 13, California Code of Regulation, Section 2035 et seq. (13 CCR 2035) for on-road heavy-duty. Manufacturers are required to furnish with each new vehicle or engine a warranty statement which generally describes the obligations and rights of the vehicle or engine manufacturers and the owners. A list of warranted parts must be included in the warranty for all heavy-duty engine and vehicles. A list of high-cost warranted parts must be included in the warranty for all incomplete or diesel medium-duty vehicles and engines certified under the optional heavy-duty engine test procedures. The Air Resources Board's California Emission Control Warranty Statement (13 CCR 2039 or 13 CCR 2426) must be repeated verbatim, and is required in addition to the manufacturer's own emission warranty statement under 13 CCR 2035 et seq. Or 13 CCR 2425. Approval by the Air Resources Board of a manufacturer's warranty statement is a condition for certification (13 CCR 2038(m)/2039(c) or 13 CCR 2425(f)/2426 (c)). The Air Resources Board recommend that manufacturers submit and receive the required warranty approval before sending the certification application.

## **ENGINE/VEHICLE EMISSION LABELS**

The California Code of Regulations, Title 13, Section 1965 (13 CCR 1965) requires manufacturers to conform to the California Motor Vehicle Emission Control Label Specifications for on-road products and conform to California Code of Regulations, Title 13, Section 2424 (13 CCR 2424) for off-road products. Section 7 of 13 CCR 1965 and Section g of 13 CCR 2424 require manufacturers to obtain approval from the Air Resources Board for all label formats and locations prior to use. The Air Resources Board recommend that manufacturers submit a photograph or a photocopy of the applicable label(s) for approval prior to production. Samples of all actual production labels used within an engine family are required to be submitted to the Air Resources Board within thirty(30) days after the start of production (13 CCR 1965(g) or 13 CCR 2424(h)).

## **LABEL DURABILITY STATEMENT**

A manufacturer is required to submit with its application for certification a statement attesting that the label and adhesives used shall be designed to withstand, for the vehicle's or engine's total expected life, typical vehicle or engine environmental conditions in the area where the label is attached (13 CCR 1965(6) or 13 CCR 2424 (f)).

### **TAMPER RESISTANCE**

Manufacturers are required to provide in the application for certification the following information for engine/vehicle that have emission related adjustable parameters:

- (1) identify individual adjustment;
- (2) provide detailed descriptions of the component either by submitting drawing(s) or the actual component;
- (3) the physical range(s) of the adjustment;
- (4) the effects of such adjustments;
- (5) the emission effects by such adjustment; and
- (6) the tamper-resistance measures employed on the adjustment to deter tampering.

The ARB suggest that manufacturers submit the tamper-resistance information in advance of sending the application for certification. If the specific engine family does not have any adjustable parameter, then the manufacturer may provide a statement to such effect.

**DETERIORATION FACTOR FORM**

DETERIORATION FACTOR for Engine Family: \_\_\_\_\_

Engine Code: \_\_\_\_\_

Engine Serial Number (ESN): \_\_\_\_\_

Tested for Model Year: \_\_\_\_\_

Advertised hp \_\_\_\_ @ \_\_\_\_ rpm w/Fuel Rate \_\_\_\_ mm<sup>3</sup>/S

| Hours | Equivalent Miles | Accel. | Smoke       | Gaseous Emissions |    |     | Part. | CO |
|-------|------------------|--------|-------------|-------------------|----|-----|-------|----|
|       |                  |        | (% Opacity) | Peak              | HC | Nox |       |    |
|       |                  |        | Lug-Down    |                   |    |     |       |    |
|       |                  |        |             |                   |    |     |       |    |
|       |                  |        |             |                   |    |     |       |    |

|  |                    |                   |
|--|--------------------|-------------------|
|  | <b>Useful Life</b> | <b>Initial</b>    |
|  | <b>Projected</b>   | <b>Stabilized</b> |
|  | <b>Value</b>       | <b>Value</b>      |
|  |                    | <b>DF</b>         |

**Accel. :**

**Lug-Down :**

**Peak :**

**HC :**

**NOx :**

**CO :**

**PM :**

**Formaldehyde :**

**Describe here or on a separate form:**

**1) Durability Test Procedure**

## 2) Maintenance Log