Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman
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Gray Davis
Governor

July 9, 2001 Mail-Out #MSO 2001-08

TO: ALL ON-HIGHWAY MOTORCYCLE MANUFACTURERS
ALL OTHER INTERESTED PARTIES

SUBJECT: CERTIFICATION GUIDELINES FOR 2001 AND LATER MODEL-YEAR (MY) ON-HIGHWAY MOTORCYCLES (ONMCs)

In December 1998, the Air Resources Board (ARB) amended the emission standards and test procedures for ONMCs, off-road motorcycles (OFMCs) and all-terrain vehicles (ATVs). For ONMCs, the amendments include the first-ever control of oxides of nitrogen (NOx) emissions and a limited banking program for early-compliance emission credits. This Mail-Out describes the new certification guidelines for ONMCs only; a separate Mail-Out will provide the certification guidelines for OFMCs and ATVs.

The enclosed new guidelines for submitting certification applications for 2001 and later MY ONMCs **supersede those described in ARB's Mail-Out MSO 98-05 dated April 13, 1998**. Applications prepared following the new guidelines will permit an expedited review and certification approval by ARB's certification staff. New motorcycles are not legal for sale or use in California until they are certified by the ARB. The guidelines include the following parts.

Part I:	Certification Overview
Part II:	General Instructions
Attachment:	Certification Summary Sheet, Supplemental Information Forms, and Certification Database Forms

An engine family's application package should include the following materials:

1. Cover Letter
2. Certification Summary Sheet
3. Supplemental Information
4. Certification Database. This can be transmitted electronically to the manufacturer's assigned ARB certification staff.

This Mail-Out also provides a reminder that **manufacturers should ensure that the vehicle identification number (VIN) of all new certified ONMCs must not include the character "C" or "3" in the eighth (8th) position to prevent mis-registration of such vehicles by the Department of Motor Vehicles**.

Should you have further questions on this matter, please contact Ms. Veronica Longhi, Air Resources Engineer, On-Road Certification / Audit Section, at (626) 575-6642, or by e-mail at vlonghi@arb.ca.gov.

Sincerely,

/ s /

R. B. Summerfield, Chief
Mobile Source Operations Division

Enclosures

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: http://www.arb.ca.gov.

REFERENCES

The following are the regulations and test procedures pertinent to ONMC certification. References 1 through 5 below are accessible through ARB's internet web site at http://www.arb.ca.gov.

1. Title 13, California Code of Regulations (13 CCR) Section 1958 (Exhaust Emission Standards and Test Procedures)
2. 13 CCR Section 1965 (Labeling)
3. 13 CCR Section 1976 (Evaporative Emission Standards and Test Procedures)
4. 13 CCR Sections 2035 et seq. (Emission Control System Warranty)
5. 13 CCR Sections 2100 et seq. (Enforcement of New and In-Use Vehicle Standards)
6. 13 CCR Section 2235 (Fill Pipes and Openings of Motor Vehicle Fuel Tanks)
7. Title 40, Code of Federal Regulations, Part 86, Subparts E and F (Emission Standards and Test Procedures) (Incorporated by Reference by California)

PART I: CERTIFICATION OVERVIEW

New **on-road motorcycles (ONMCs)** must be certified by the Air Resources Board (ARB) before they can be legally sold or used in California. The **Executive Orders** certifying the ONMCs are valid for only **one model year** of production. **New Executive Orders must be obtained from the ARB for each succeeding production model-year**. **Delivering, importing, selling or offering for sale ONMCs before receiving the proper Executive Orders will subject the manufacturer and dealers to enforcement actions**.

Certified ONMCs are divided into three classes. **Class I** includes ONMCs with an engine displacement from **50 to 169** cubic centimeters (cc). **Class II** is for those equipped with **170 to 279** cc engines, and **Class III** for those at **280 cc and over**. ONMCs with an engine displacement less than 50 cc are not subject to ARB's regulations, and do not have to be certified.

ONMCs are grouped into **engine families** for certification and all related implementation purposes (e.g., new vehicle compliance, recall). An engine family includes vehicle models that share similar vehicle and engine design and emission control features such that these vehicles can be expected to exhibit similar emission performance. The ARB's emission control program for ONMCs can be roughly divided into **three phases**: Pre-Production with **certification**, running changes and field fixes; In-Production with **new vehicle compliance testing**; and Post-Production with **in-use testing**. An overview of each phase is provided below.

WARNING!

The Department of Motor Vehicles will issue a "red" registration sticker to motorcycles (both on- and off-road) and all-terrain vehicles that have the character "C" or "3" in the eighth (8^{th}) position in the vehicle identification number (VIN). Use of vehicles with a red sticker is restricted to designated public riding areas and limited riding seasons.

Manufacturers are advised to ensure that the vehicle identification number (**VIN**) of their certified on-highway motorcycles do **NOT include the character "C" or "3" in the eighth (8^{th}) position**.

1. CERTIFICATION

- Certification Process
- Corporate-Average Compliance
- Durability Testing and Determining Deterioration Factors (DFs)
- Certification Testing
- Data Carryover and Carryacross
- Running Changes and Field Fixes

a. Certification Process

To obtain ARB's certification for an engine family, a manufacturer must determine the useful-life emission deterioration factors (**DFs**) for that family. The DFs are applied to the emission results from the family's official certification test to demonstrate that the certification emission levels, which are the projected useful-life emission rate, comply with all of the applicable emission standards. The ARB may direct the manufacturer to conduct a **retest** if the original test result indicates marginal compliance. Any **anti-tampering device** that will be installed on production vehicles for protection against unauthorized adjustments of emission-related adjustable parameters must be approved by the ARB. The manufacturer's application must also describe all auxiliary emission control devices (**AECD**) and the justifications for using such AECDs to demonstrate that the certified vehicles do not incorporate any

defeat device. (See item S08 in the Supplemental Information in Attachment 1 for further explanation of the AECD and defeat device. The manufacturer's format for the **certification label**, and the location where the label is affixed to each production vehicle must be approved by the ARB. The manufacturer's **emission warranty statement** provided with each production vehicle must also be approved by the ARB.

The manufacturer must submit to the ARB an **application for certification** containing all the required information and test data in the **ARB-specified format**. The ARB is required to approve or disapprove an application within **90 days** after receipt of the **complete application**; the normal processing time is about **4 to 6 weeks**. To **expedite the certification approval**, requests for ARB's approval of the labels, anti-tampering devices, the emission warranty statement, and any **modification to the test procedures** may be submitted in advance of the application.

b. Corporate-Average Compliance (Class III Motorcycles Only)

Compliance with the hydrocarbons (HC) or hydrocarbons-plus-oxides of nitrogen (HC+NOx) exhaust emission standards for Class III ONMCs can be demonstrated either by direct compliance or by corporate averaging. In **direct compliance**, each engine family must comply with the applicable standards.

For **corporate average compliance**, the manufacturer specifies a **designated standard** for HC or HC+NOx, as applicable, for each engine family. The designated standard, which cannot exceed 2.5 grams per kilometer (g/km), is the applicable emission standard for all engines in the family. The **corporate-average emission value**, which is weighted by the designated standard and production volume of each engine family participating in corporate-average compliance, must not exceed the applicable corporate-average standard specified in the regulation. Before any engine family participating in corporate compliance is certified, the manufacturer must obtain an Executive Order approving its corporate average plan. Separate plans are required for Class III ONMCs with 280-699 cc engines and those with 700 cc and larger engines. A sample corporate average plan is provided in the Attachment.

Any changes to a corporate average plan during the model year must be submitted to ARB for review and approval. However, during the model year, manufacturers are not permitted to change the designated standard of any engine family once the family has been certified.

Each manufacturer that certifies using corporate averaging must submit **quarterly reports** of **California production volumes** and the **VIN** of affected vehicles to the ARB's On-Road Certification / Audit Section (see item 2. below). At the end of the production model year, the average HC (or HC+NOx) emission levels must comply with the corporate average standard. Any excess emissions must be remedied. Enforcement actions are also provided for in the regulations.

c. Durability Testing and Determining DFs

The DF is a measure of the emissions deterioration a vehicle will exhibit over its useful life. DFs are determined through the manufacturer's **durability testing**. The durability accumulation schedules for ONMCs are described in the regulations. A manufacturer should submit all alternative durability test plans to ARB for approval prior to conducting the test to avoid rejection of the resulting DFs.

A durability test program acceptable to ARB should include the following elements. A prototype **durability data vehicle** in the configuration expected to exhibit a worst case **high deterioration rate** (e.g., the hottest engine conditions and catalyst temperature) is run on an **operating schedule** and **commercially available fuels** to accumulate mileage and age the vehicle's engine and emission controls. All emission controls must be present and functioning during the durability test. The **total test distance** must be equal to at least one half of the vehicle useful life. The useful life of ONMCs is 12,000, 18,000 and 30,000 kilometers (km) for Class I/II/III motorcycles, respectively. Very small volume manufacturers whose **national** sales do not exceed 300 vehicles per model year may opt to shorten their durability accumulation schedule to no less than 8050 km (5000 miles) in accordance with Section 206 of the federal Clean Air Act. As noted above, the manufacturer should submit such an alternative durability test plan to the ARB for approval.

During mileage accumulation, emission-related **scheduled maintenance,** as permitted in the regulations, may be performed. **Unscheduled maintenance** may be performed only with prior ARB approval. The durability data vehicle's emissions are **periodically measured** using the specified test fuel and test procedures to establish the trend line that will be used to determine the DFs. Manufacturers must follow the test procedures and/or use good engineering practice in scheduling the test points and the number of tests at each test point to ensure that the DFs are un-biased and representative. Depending on the type of anti-tampering devices used, the ARB may specify the **settings of the adjustable parameters** for the purpose of conducting the durability testing.

For ONMCs certified to an HC+NOx standard, the DFs for HC and NOx emissions must be determined separately. Each of these DFs, which are of the multiplicative type, must be 1.000 or greater. (Multiplicative DFs are multiplied with the official certification test results to determine the certification levels.)

For evaporative emissions, manufacturers must determine the DF through both vehicle testing as described above and component bench-aging testing. For bench-aging, the critical components of the fuel and evaporative emission control systems (e.g., carburetor, fuel injectors, carbon canister, purge valve, gas cap) are subject to artificial aging according to the manufacturer's bench-aging test plan that must be approved in advance by ARB. See ARB's Manufacturers Advisory Correspondence (MAC) 81-002 for further guidance for evaporative bench aging. The evaporative DFs, which are of the additive type, must be 0.000 or greater and are determined through vehicle and bench aging. The two DFs are averaged to obtain the overall evaporative DF for certification purposes. (Additive DFs are added to the official certification test results to determine the certification levels.)

d. Certification Testing

After completing the durability test at the total test distance, the manufacturer then conducts a second emission test. The second test is considered the engine family's official certification test to which the DFs are applied (multiplied or added) to determine the family's certification levels. With advance ARB approval, the manufacturer may use the durability test data at the total test distance as the family's official certification test in lieu of conducting a second test.

For ONMCs certified to an HC+NOx standard, the HC and NOx certification levels are determined separately using their applicable DFs before the results are added to determine the family's HC+NOx certification level. The HC+NOx certification level is then compared to the emission standard or designated standard, as applicable, to determine compliance.

Alternatively, close to production time, an **emission data vehicle** (a prototype vehicle with **production-intent calibrations**) which is expected to exhibit the **worst emissions** (e.g., highest specific fuel rate, coolest catalyst temperature) is run according to the manufacturer's **break-in** procedure to stabilize the vehicle's emissions. An emission test is then conducted at the specified **minimum test distance** (2500 km for Class I and II, and 3500 km for Class III ONMCs) using the specified test fuel and test procedures. Depending on the type of anti-tampering device used, the ARB may specify the **settings of the adjustable parameters** for the purpose of conducting the certification test. For the engine family to be certified, its **certification emission level**, which is the emission data vehicle's test result adjusted (i.e., added or multiplied) by the DF, must not exceed the applicable emission standard or designated standard. In this case, the DF must reflect the degree of emission deterioration from the minimum test distance to the useful life mileage. (The DF mentioned in the previous paragraph where the official certification test is at the total test distance reflects the deterioration from the total test distance to the useful life mileage.) This alternative method for the official certification test is mostly used when the durability data vehicle is a similar federal vehicle due to unavailability of a California configuration when the durability test is begun, or when the engine family undergoes a significant running change that requires emission testing.

e. Data Carryover and Carryacross

Subject to ARB approval, in lieu of conducting new tests, the durability data and/or certification emission data may be **carried over** to subsequent engine families in the following model years. A carry-over request may be approved by ARB if there have been no changes that would have resulted in the new selection of the durability data vehicle or emission data vehicle.

Subject to ARB approval, in lieu of conducting new tests, the durability data and/or certification emission data may be **carried across** to a different engine family in the same model year. A carry-across request may be approved by ARB if the manufacturer adequately demonstrates that the DFs and/or certification emission data are representative of those of the new engine family.

f. Running Changes and Field Fixes

Any factory change to vehicles during the model-year production must be approved by ARB via a **running change** request. Any change to the vehicles where the change is implemented after the vehicles have left the assembly line (e.g., at factory warehouses, distribution centers, dealers) must be approved by ARB via a **field fix** request. A field fix request typically occurs after the model-year production has ended. Running changes and field fixes not approved by ARB will render affected vehicles uncertified and subject the manufacturer to ARB enforcement actions.

2. NEW VEHICLE COMPLIANCE TESTING

During the model-year production, the ARB's On-Road Certification / Audit Section may select new vehicles from certain ONMC engine families for compliance testing (commonly known as "Title-13" testing) under authority in 13 CCR Section 2101 and the incorporated "California New Motorcycle Compliance Test Procedures." Batches of five vehicles of each identified engine family are selected from dealer lots, distribution centers, etc. and then shipped to ARB's laboratories or some other designated facilities for testing to demonstrate that the new vehicles actually comply with the emission standards.

Quarterly production reports and year-end compliance reports of Class III ONMCs that participate in corporate average compliance are also required to be submitted to the On-Road Certification / Audit Section.

For questions regarding certification, Title 13 testing and production reports, please **contact** your **assigned certification staff person** or Mr. Duc Nguyen, Manager, On-Road Certification / Audit Section at (626) 575-6844, or by e-mail at dnguyen@arb.ca.gov.

3. IN-USE TESTING

During the useful life of certified vehicles, the ARB's In-Use Testing Section may conduct in-use testing of certain ONMCs to ensure the continued compliance of such vehicles in customer use. If the in-use test results exceed the applicable emission standard, the manufacturer will be required to implement **remedial actions** that are accepted and approved by ARB.

Manufacturers are also required to submit to the In-Use Testing Section quarterly reports of emission warranty repairs when the repair rate exceeds a specified level. Remedial actions by the manufacturer may be required by the ARB based on an evaluation of such warranty reports.

For more information on in-use testing or warranty repairs reporting, please **contact**
Mr. Michael O'Connor, Manager, In-Use Testing Section, at (626) 575-6814, or by e-mail at moconnor@arb.ca.gov.

PART II: GENERAL INSTRUCTIONS

These instructions provide guidance regarding the preparation, submission and revision of certification applications for 2001 and subsequent model-year ONMCs. Only information essential for certification is required in this format. Other information required by the test procedures (e.g., test vehicle build records, test and maintenance records, raw test information and data before data reduction, etc.) must be maintained by the manufacturer and made available to the ARB within 30 days upon request. An application submitted in accordance with these instructions will enable an expedient review and certification by ARB staff. All revisions to the application must be submitted to the ARB for approval.

1. WHERE TO SUBMIT THE APPLICATION FOR CERTIFICATION

All certification-related applications and correspondences should be addressed to:

Mr. R. B. Summerfield, Chief
Mobile Source Operations Division
Air Resources Board
9480 Telstar Avenue, Suite 4
El Monte, California 91734-2301

2. LETTER OF INTENT

A letter of intent should be submitted to ARB in advance of submission of the first application for certification for the model year. The letter of intent should list planned engine families, the projected dates when the applications will be submitted, the dates by which the Executive Orders are needed and the manufacturer's corporate average plan (if applicable). Any certification or testing issues that may delay the certification process of any engine family may be included in the letter of intent. Updates to the manufacturer's certification plan should be submitted in a timely manner. ARB staff uses the information provided in the letter of intent to plan ahead for the certification year and to resolve issues in advance so that the manufacturer's certification schedule can be met.

3. COVER LETTER

A cover letter, signed by the manufacturer's authorized representative, should accompany each engine family application. The cover letter should recap highlights about the engine family, such as the applicable or designated standard, the use of a modified test procedure and anticipated start date of production.

The following statements of compliance should be included in the letter:

a) Conformance with the general standards regarding no increase in emissions or unsafe conditions as stated in Section 86.408-78 of Title 40, Code of Federal Regulations, as incorporated in 13 CCR Section 1958(c).

b) The test vehicle for which data have been submitted has been tested in accordance with the applicable test procedures, that it meets the requirements of such tests, and that, on the basis of such tests, it conforms to the requirements of this Part. (Reference 7.)

4. LABELING

Manufacturers are required to submit an emission control label for each engine family for ARB's review and approval of its format, content, and location. The proposed location should be shown by either a drawing or photograph; however, detailed written descriptions of the label location are also acceptable. Manufacturers may submit a copy or design of the label for ARB's approval in advance of the actual certification application to prevent any certification delay. The label must contain all the information

required by the "California Motor Vehicle Emission Control and Smog Index Label Specifications", as amended August 5, 1999.

5. WARRANTY

The manufacturer's emission warranty statement that will be provided to the end-users must be submitted for ARB's review and approval. Approval of the warranty statement is a condition for Executive Order issuance for each engine family. Manufacturers may submit their proposed warranty statements for approval in advance of the actual certification application to prevent any certification delay. See Reference 6 for ARB's detailed requirements concerning the emission control warranty statements.

6. EARLY COMPLIANCE CREDITS (CLASS III ONMCs ONLY)

Manufacturers of Class III ONMCs that meet or exceed the HC+NOx emission standard for the 2008 model-year early may earn emission credits pursuant to 13 CCR Section 1958(g) that can be used in their 2008 model-year corporate average plans.

Each such early-compliance Class III motorcycle sold between model years 1999 and 2008 is counted as multiples of vehicles as specified in the regulations. The number of these "virtual motorcycles" and their designated standards are applied to the manufacturer's 2008 model-year corporate average plan. The early-compliance emission credits may be used internally by the generating manufacturer only; trading of these credits is not allowed. A sample plan is provided in the Attachment of this document.

7. TEST PROCEDURES

The test equipment provisions and emission test procedures are provided in Reference 7.

8. MODIFIED TEST PROCEDURES

Any modifications to the specified test equipment and/or test procedures due to unique vehicle designs, laboratory equipment arrangements, facility limitations, etc. must be approved by the Executive Officer and described in the application. The use of unapproved test equipment or procedures can result in rejection of generated test data.

9. ADJUSTABLE PARAMETERS AND ANTI-TAMPERING DEVICES

If a test vehicle has a parameter that can be adjusted in a way that can significantly affect emissions, it will be tested at the possible extremes of the adjustment (i.e., maximum rich and lean settings). Samples of a manufacturer's proposed anti-tampering measure, preferably as implemented on the carburetor or engine, to prevent unauthorized adjustments should be submitted in advance of the application to the ARB for approval. All adjustable parameters, sealed and unsealed, and the corresponding ARB approval number must be reported in the application. If the adjustable parameter or method of tamper-resistance is subsequently modified, a new ARB approval will be required.

10. CERTIFICATION EMISSION-TEST FUEL

The fuel for emission testing must meet the specifications in the test procedures to reduce emission variations due to fuel effects. Testing with unauthorized fuel will result in rejection of the test results. The test fuel for gasoline ONMCs is Indolene Clear. The specifications for this fuel can be found in Reference 7 (Section 86.513). For testing of alternative-fueled ONMCs (e.g., natural gas, propane), please contact your assigned certification staff.

11. AMENDMENTS TO THE APPLICATION

Any revisions to the application due to typographical errors, corrections, running changes or field fixes, or new test data and information must be submitted to the ARB. All affected pages must be resubmitted in their entirety. Furthermore, the cover letter accompanying the revisions should describe the revisions in detail.

12. RUNNING CHANGES AND FIELD-FIXES

Any factory change to the vehicles during the model-year production must be approved by ARB via a manufacturer's submitted running change request. Any change to the vehicles where the change is implemented after the vehicles leave the assembly line (e.g., at factory warehouses, distribution centers, dealers) must be approved by ARB via a manufacturer's submitted field fix request; a field fix request typically occurs after the model-year production has ended. Running changes and field fixes not approved by ARB will render affected vehicles uncertified and subject the manufacturer to ARB's enforcement actions. If the change affects an emission-related part or results in a new "worst-case" test vehicle, new test data or engineering evaluations will be required to demonstrate that the engine family will remain in compliance. Only the affected pages and information fields of the application need to be submitted. Running changes and field-fixes are deemed to be automatically approved by ARB if no ARB action is taken within 30 days upon receipt.

13. CONFIDENTIALITY

The ARB will handle submissions of, and requests for disclosure of confidential information in strict accordance with the California Public Records Act (Government Code, sections 6250 et seq.) and Title 17, California Code of Regulations (CCR) sections 91000 - 91022.

Further details regarding the ARB's handling of trade secrets and other confidential information can be found at the following internet address: http://www.arb.ca.gov/regact/confid.htm.

Attachment

Certification Summary Sheet (1 of either 2 pages)

- Blank form in Word 97 format **or** computer summary print-out format

(Manufacturers are also required to submit an electronic certification database for each engine family. For the ONMC electronic certification database program, please contact your assigned ARB certification staff. After completing the electronic certification database, manufacturers are requested to send it electronically to the assigned ARB certification staff, and print a copy of the Certification Summary Sheet for submission with the application in lieu of filling out the Word 97 form.)

Supplemental Information Forms (8 pages)

Certification Database Forms (7 pages)

- 5 pages of computer screen format for data entry.
- 2 pages of description of the data fields on the data entry format.

CERTIFICATION SUMMARY

California Environmental Protection Agency
AIR RESOURCES BOARD

ON-HIGHWAY MOTORCYCLES

MODEL-YEAR_____ MANUFACTURER: **EXECUTIVE ORDER:_____**

1. **EPA-Standardized Family Name**:

a. Engine Family:		**b**. Evaporative Family:		**c**. Evaporative Group:	

2. **All Sales Codes within Engine Family**:_____
3. **All Engine Displacement(s) in Engine Family** (units in cubic centimeters, (cc)):

1)	**2)**	**3)**	**4)**

4. **Displacement Class { I =**(50-169cc), **II** =(170-279cc), **III** =(280-699cc), **III** =(≥ 700 cc)**} :** _____
5. **Emission Standards Compliance:** _____
6. If Corp. Avg., list **Designated Standard:** (in g/km)_____ for _____.
7. **Engine Design**:

a. Combustion Cycle:	
@ Oil/Fuel Ratio	
b. Engine Type:	
c. Valvetrain:	
d. Total Number of Intake and Exhaust Valves (Ports) per Cylinder:	
e. Type of Engine Cooling:	
f. Number of Cylinders:	
g. Cylinder Arrangement:	

8. **Intake, Fuel and Emission Control Systems (ECS):**

a. Aftertreatment(s):	
b. Sensor(s):	
c. Fuel System:	
d. Exhaust Gas Recirculation:	
e. Method of Aspiration:	
f. Air Injection Reaction:	
g. Others:	

9. **Deterioration Factors (DFs)**: **a**. New Durability Testing: _____; Carryover from EF:_____;
   b. Durability Engine Model:_____ ID: _____; **c**. Durability Test Distance (km): _____;
   d. Exhaust DF Values (no less than 1.000): HC:_____; NOx: _____; CO: _____.
   e. Evaporative DF Values (no less than 0.000): Average of V+B:_____;Vehicle:_____,Bench:_____.
10. **Certification Test Engine Information**: New Test: _____; Carryover from Engine Family:_____
    a. Test Engine: Model_____ID:_____Rated Power, hp:_____@_____rpm ;Test Dates:_____
    b. Equivalent Inertia Mass (kg): _____ RLF: _____ Trans: _____ MPG: _____.
    c. Special Test Equipment (e.g., cooling fans, special couplings, etc.): Yes/No: _____. If Yes, describe below:

11. **Certification Emission Levels**: HC:_____ HC+NOx:_____ CO:_____ Evaporative:_____.

Test No. and Test Type	(raw) (i.e., no DFs) (g/km; or g/test for Evap)				(i.e., with DFs applied) (in g/km; or g/test for Evap)				
	HC	NOx	CO	Evap HC	HC	NOx	HC+NOx	CO	Evap HC
1									
2									
3									
Standard:								12	2.0

Remarks:

Early Compliance Credits?: _____Multiplier?_____**Issue Date**:_____**Revision Date**:_____
(If Yes, attach credit spreadsheet)

ARB USE ONLY
Processed by:_____ Date:_____ Reviewed by:_____ Date:_____.

AIR RESOURCES BOARD CERTIFICATION SUMMARY ON-HIGHWAY MOTORCYCLES
MODEL-YEAR_____ MANUFACTURER: _____ EXECUTIVE ORDER: M-_____.

1. **EPA-Standardized Family Name**: **a**. Engine Family (EF): _____.
   b. Evaporative Family: _____ **c**. Evaporative Group:_____.
2. **All Sales Codes within EF**: (check all applicable) California-Only___ 50-State___ 49-State Only___.
3. **All Engine Displacements in EF**: (check one) in cubic centimeters (cc) ___ liters (L) ____.
   1) _____ **2**) _____ **3**) _____ **4**) _____.
4. **Displacement Class**: I (50-169cc)____ II (170-279cc)_____ III (280-699cc)____ III (≥ 700 cc) _____.
5. **Emission Standards Compliance** (check one) Direct Standard___ Corp Avg.____.
6. If Corp. Avg., list **Designated Standard** (in g/km): _____ for (check one) HC ___ HC+NOx ____.
7. **Engine Design**: **a**. Combustion Cycle: (check one) 4-stroke___ 2-stroke____@ Oil/Fuel Ratio_____.
   b. Engine Type: (check one) Reciprocating___ Rotary___ Other (e.g., turbine, etc.) (specify)_____.
   c. Valvetrain: (check one) Overhead___ Side___ Reed Valve___ Piston Ported___ Other (specify)_____.
   d. Total Number of Intake and Exhaust Valves (Ports) per Cylinder: 2__ 3__ 4__ 5__ Other (specify)____.
   e. Type of Engine Cooling: (check one) Air____ Water____ Oil____ Other (specify)_____.
   f. Number of Cylinders: (check one) 1__ 2__ 3__ 4__ 5__ 6___ Other (specify)_____.
   g. Cylinder Arrangement: (check one) Inline___ Vee__ Hori.Opposed (Flat)___ Other (specify)_____.
8. **Intake, Fuel and Emission Control Systems**[1]:_____.
9. **Deterioration Factors (DFs)**: **a**. New Dura.Testing: Yes___ No__ Carryover from EF:_____.
   b. Dura. Eng. Model:_____ ID: _____ Durability Test Distance (km): _____.
   d. Exhaust DF Values (no less than 1.000): HC: _____ NOx: _____ CO: _____.
   e. Evap DF Values (no less than 0.000): Average of V+B:_____ Vehicle:_____Bench:_____.
10. **Certification Test Engine Information**: New Test____ Carryover from Engine Family _____.
    a. Test Engine: Model_____ ID:_____ Rated Power, hp:_____@_____rpm.
    Test Dates:_____.
    b. Equivalent Inertia Mass (kg): _____ RLF (nt): _____ Trans: _____ MPG: _____.
    c. Special Test Equipment (e.g., cooling fans, special couplings, etc.): No__ Yes/Describe: _____.
    _____.
11. **Certification Emission Levels**: HC:_____ HC+NOx:_____ CO:_____ Evap:_____.
    (Enter level from confirmatory test, if any. If none, enter the highest value from all tests below.)

Test No. And Type[2]	Official Test Results (raw) (i.e., no DFs) (g/km; or g/test for Evap)				Certification Emissions (i.e., with DFs applied) (in g/km; or g/test for Evap)				
	HC	NOx	CO	Evap HC	HC	NOx	HC+NOx	CO	Evap HC
1									
2									
3									
4									
Standard:									

Remarks: _____.
_____.
Early Compliance Credits?: No _____, If Yes, list **multiplier** _____ and attach credit spreadsheet.
Issue Date: _____. **Revision Date(s)**:_____.

ARB USE ONLY
Processed by: Date: Reviewed by: Date: .

1 Use SAE J1930 abbreviations. Examples: **NA** for natural aspiration; **TC** turbocharging; **SC** supercharging; **CAC** charge air cooling; **CARB** carburetion; **TBI** throttle body fuel injection; **MFI** multiport fuel injection; **SFI** sequential MFI; **DGI** direct gasoline injection; **AIR** secondary air injection; **PAIR** pulsed AIR; **EGR** exhaust gas recirculation; **O2S** oxygen sensor; **HO2S** heated O2S; **OC** for oxidation catalyst; **TWC** three-way catalyst; **OC+TWC** for OC plus TWC in one container; **EM** for Engine Modification (use if only **NA** and/or **CARB** are the only other selections in the field).
Use **prefix** "2" or "3" etc. in front of O2S, TWC, etc. to designate **parallel** arrangement, e.g., 2TWC for two TWCs in parallel. Use **suffix** "2" or "3" etc. to designate **series** arrangement, e.g., TWC(3) for three TWCs in three separate containers one after the other.

2. Enter **C** for certification test, **RT** for confirmation retest, and **RC** for running change testing.

Model Year: _____ **Page: _____**
Manufacturer Name: _____ **Issued: _____**
Engine Family: _____ **Revised: _____**
ON-HIGHWAY MOTORCYCLES SUPPLEMENTAL INFORMATION **E.O.#: _____**

S01. CARBURETOR Yes ____ No_____
- a. Number of Carburetors: _____
- b. Number of Barrels per Carburetor: _____
- c. Feedback Control: Yes ___ No ___
- d. Idle Circuit: Yes ___ No ___
- e. Fast Idle Circuit: Yes ___ No ___
- f. Other Subsystems (specify): _____
- g. Used in previous/other engine model: No ___ Yes ___
  If yes, last model year used: _____

S02. FUEL INJECTION: Yes ____ No _____
- a. Type (e.g., TBI, DGI, MFI, SFI, etc.): _____
- b. Feedback Control: Yes ___ No ____
- c. Point of Injection (e.g., manifold, cylinder, pre-chamber, throttle body): _____
- d. Used in previous/other engine models: No ____ Yes ___ If yes, last year used: _____

S03. CRANKCASE CONTROL
- a. Type (e.g., PCV valve, uncontrolled flow, crankcase scavenging for 2-stroke engines): _____
- b. Routing: Air Cleaner ___ Intake Manifold ___ Inlet Ports (2-Stroke Engines) ___ Other (specify) ___

S04. OXYGEN SENSOR: Yes ____ No _____
- a. Type: Heated ___ Unheated ___ Other (specify) _____
- b. Location: Port ___ Exhaust Manifold ___ Other (specify) ___
- c. Used in previous/other engine models: No ___ Yes ___ If yes, last year used: _____

S05. SECONDARY AIR INJECTION: Yes ____ No_____
- a. Type: Pump ___ (AIR) Pulsed ___ (PAIR)
- b. Point of Injection: Port ___ Exhaust Manifold ___ Other (specify) _____
- c. Method of Modulation: Vacuum ___ Solenoid ___
- d. Sensed Parameters (check all applicable): Coolant Temp ___ Engine RPM ___ MAP ___
  Throttle Position___ Other (specify) _____
- e. Used in previous/other engine models: No ___ Yes ___ If yes, last year used: _____

S06. EXHAUST GAS RECIRCULATION (EGR): Yes ____ No_____
- a. Sensed Parameters (check all applicable): Coolant Temp ____ Engine RPM ____ MAP ____
  Throttle Position____ Other (specify) _____
- b. Method of Modulation: Vacuum ____ Solenoid ____
- c. Used in previous/other engine models: No ___ Yes ___ If yes, last year used: _____

S07. ADJUSTABLE PARAMETERS AND ANTI-TAMPERING MEASURES

Parameter	Adjustable Range (or N/A)	Tamper Resistance Method (or N/A)	Approval Reference

S08. AUXILIARY EMISSION CONTROL DEVICES (AECD)[3] AND DEFEAT DEVICES[4]

TABLE A: Sensed Parameters[5] versus Controlled Parameters[6]

Sensed Parameter	Sensor	Control Parameters				

TABLE B: Justifications for AECDs

Parameters		Device	Justifications / Notes
Controlled	Sensed		

3 **AECD**: any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any of the emission control system.

4 **Defeat Device**: An AECD that reduces the effectiveness of the emission control system under conditions that may reasonably be expected to be encountered in normal operation and use, unless (1) such conditions are substantially included in the emission test procedure, (2) the need for the AECD is justified in terms of protecting the engine against damage or accident, or (3) the AECD does not go beyond the requirements of engine starting. **A pending engine family that is shown to contain a defeat device will not be certified. A certified engine family that is found to contain a defeat device will subject the manufacturer to enforcement actions**.

5 Examples of Sensed Parameters: atmospheric pressure, crankshaft position, engine RPM, cylinder position, coolant temperature, intake air temperature, intake manifold pressure, throttle position, oxygen concentration in exhaust gas, vehicle speed, knocking, EGR valve position, shift position of transmission, etc.

6 Examples of Controlled Parameters: fuel metering, ignition timing, idle speed, EGR valve, secondary air injection pump or valve, etc.

S09. CATALYTIC CONVERTER: Yes ____ No_____

a. Type/Number/Arrangement (e.g., TWC, OC, 2TWC for 2 parallel, TWC(2) for 2 in series): _____

b. Location (e.g., close coupled, exhaust manifold, muffler): _____

c. Catalyst Manufacturer.: _____

d. Substrate: (i) Volume: _____ cc (ii) Construction: Pellet ___ Honeycomb ___
Number of cells:_____ (per cm^2)
(iii) Composition: Ceramic ___ Metallic ___ (iv) Containment Method: Wire mesh ___ Other (specify) ___

e. Active Material:

Composition (Pt, Pd, Rh): _____ Ratio: _____ Loading (g/L)_____

CONFIDENTIAL

S10. PROJECTED SALES AND PRODUCTION PERIOD **CONFIDENTIAL**

a. Projected California Annual Sales (units): _____ Projected 50 State Sales (units):
b. Estimated Production Period: Start Date: _____ End Date: _____
c. Estimated Introduction into Commerce Date: _____

Model Year: ____________ **Page: ___________**
Manufacturer Name: ______________________ **Issued: ______________**
Engine Family: _________________________ **Revised: _____________**
ON-HIGHWAY MOTORCYCLES SUPPLEMENTAL INFORMATION **E.O.#: ________________**

S11. MODEL SUMMARY (Use an asterisk (*) to identify worst-case engine model used for certification testing.)

S12. Vehicle Or Engine Model	S13. Engine Code	S14. Sales Codes (Check ALL appropriate)			S15. Eng. Displ. (cc)	S16. Rated Power (hp)	S17. Rated Speed (RPM)	S18. Trans. (e.g., M5, A3, CVT)	S19. EIM (kg)	S20. RLF (nt)
		Calif. Only	49-State	50-State						

Model Year: _____ **Page: _____**
Manufacturer Name: _____ **Issued: _____**
Engine Family: _____ **Revised: _____**
ON-HIGHWAY MOTORCYCLES SUPPLEMENTAL INFORMATION **E.O.#: _____**

S21. EMISSION-RELATED PART NUMBERS (Part numbers as stamped on the component, not the stock or inventory numbers, should be listed here.)

	Vehicle Model				
Fuel System:					
Carb/Mixer Assy.					
Fuel Injector					
Fuel Pump					
ECM					
Pressure Regulator					
Oxygen Sensor					
Other (specify)					
Intake System:					
Air Cleaner Element					
Intake Manifold					
Turbocharger					
Supercharger					
Charge Air Cooler					
Other (specify)					
Ignition System:					
Spark Plug					
Ignition Coil					
Ignition Control Valve Module					
Distributor					
Other (specify)					
EGR:					
EGR Valve Assembly					
Vacuum Control Valve					
Air Injection					
Control Valve					
Check Valve					
Solenoid Valve					
Aftertreatment System:					
Catalyst					
Exhaust Manifold					
Crankcase System:					
PCV Valve					

S22. LABELING: Emission label format approved? No____ Yes ___ If yes, reference approval:_____
Sample label attached? No____ Yes (put label in #S23)____

S23. WARRANTY: Emission warranty approved? No___ (Provide full warranty statement in #S23)
Yes ___ (Reference approval: _____)
N/A ___

Have any changes been made since the last approval? No____ Yes ____ If yes, provide an explanation of the changes:

_____
_____
_____
_____
_____
_____

S24. ADDITIONAL INFORMATION AND COMMENTS

S25. CORPORATE AVERAGE PLAN

SAMPLE FORM

CONFIDENTIAL

Manufacturer: ABC Motorcycle Co.
Certification Plan and Estimated Production Volumes
2001 Model Year On-Road Motorcycles

(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)
Engine Family	Models	Estimated Production Volume (Units)		Designated HC or HC+NOx (g/km)	(4) x (6)	2008 Early Compliance Multiplier	2008 Credits (4) x (8)
		Family	Model				
YXZXC.700ABC		30		1.6	48		
	711K		10				
	723B		10				
	747A		10				
YXZXC.850DEF		58		1.2	69.6		
	850B		13				
	850C		45				
YXZXC1.34GHJ		39		0.9	35.1		
	345X		23				
	450W		16				
YXZXC2.00KLM		54		0.8 (HC+NOx)	43.2	1.5	81
	200J		54				
TOTALS:		181			195.9		**81**

ESTIMATED CORPORATE AVERAGE EMISSION VALUE = 3 (7)/ 3 (4) = 195.9/181 = **1.08 g/km** < 1.4 g/km, ∴ PASS

S25. CORPORATE AVERAGE PLAN

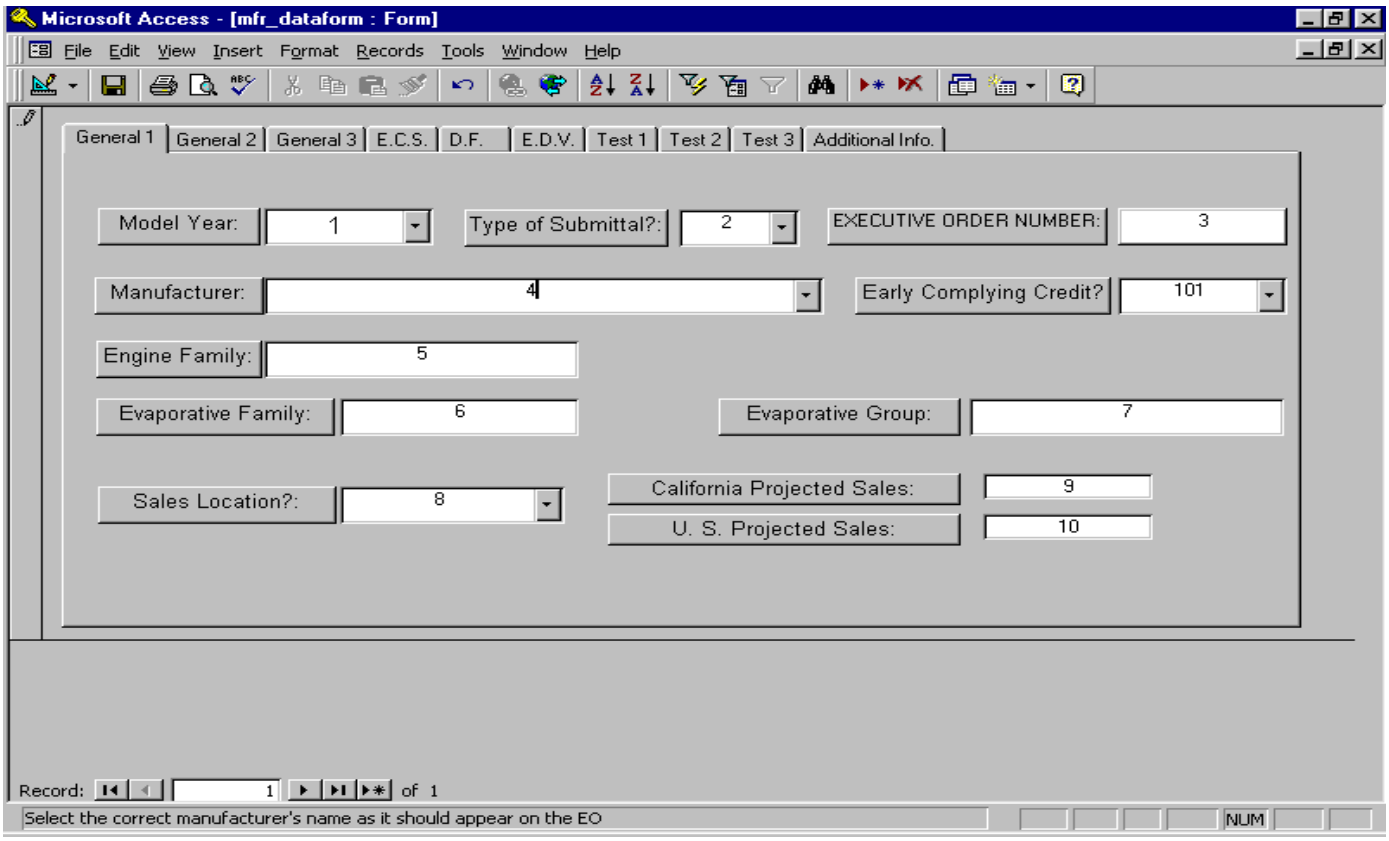
CONFIDENTIAL

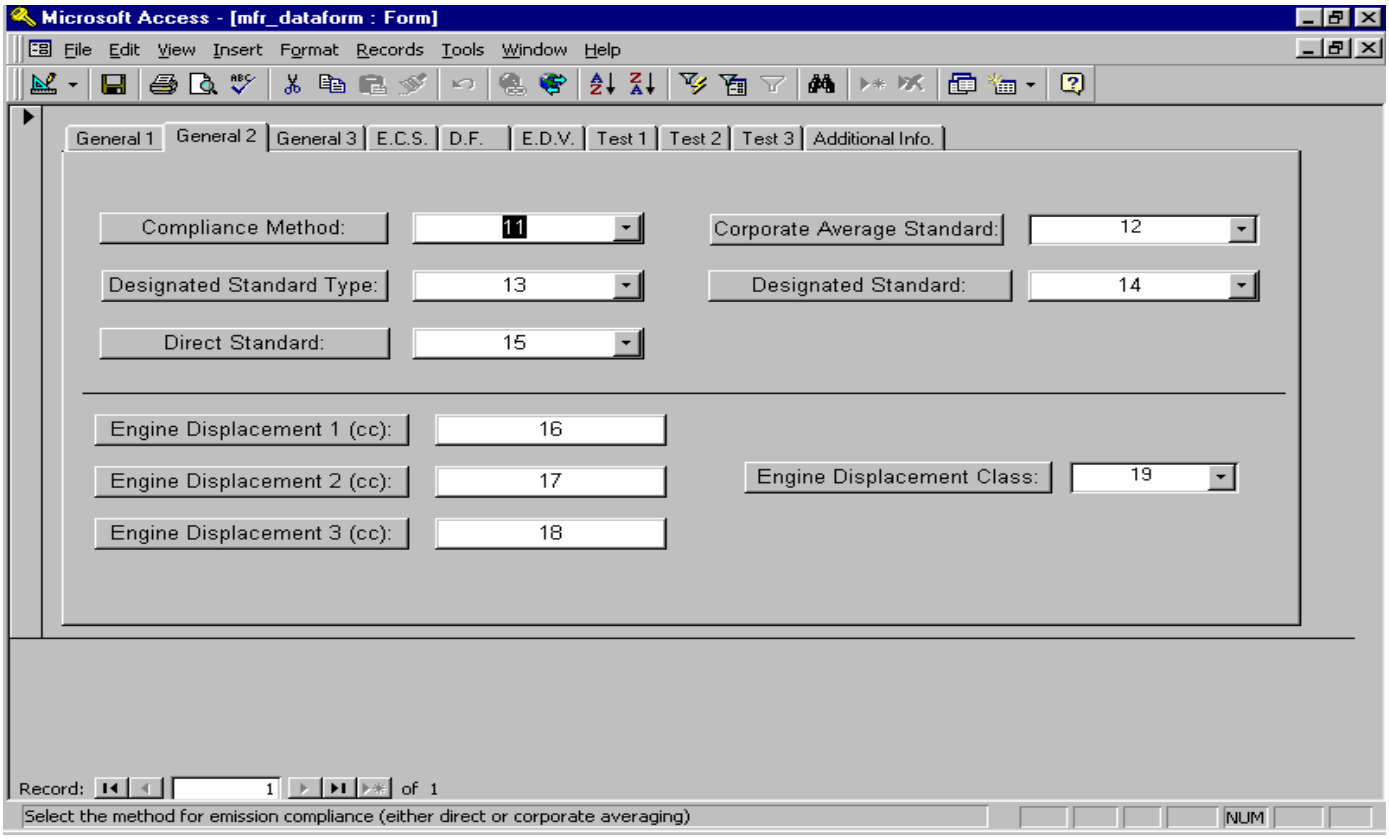
Manufacturer: _____
Certification Plan and Estimated Production Volumes
_____ Model Year On-Road Motorcycles

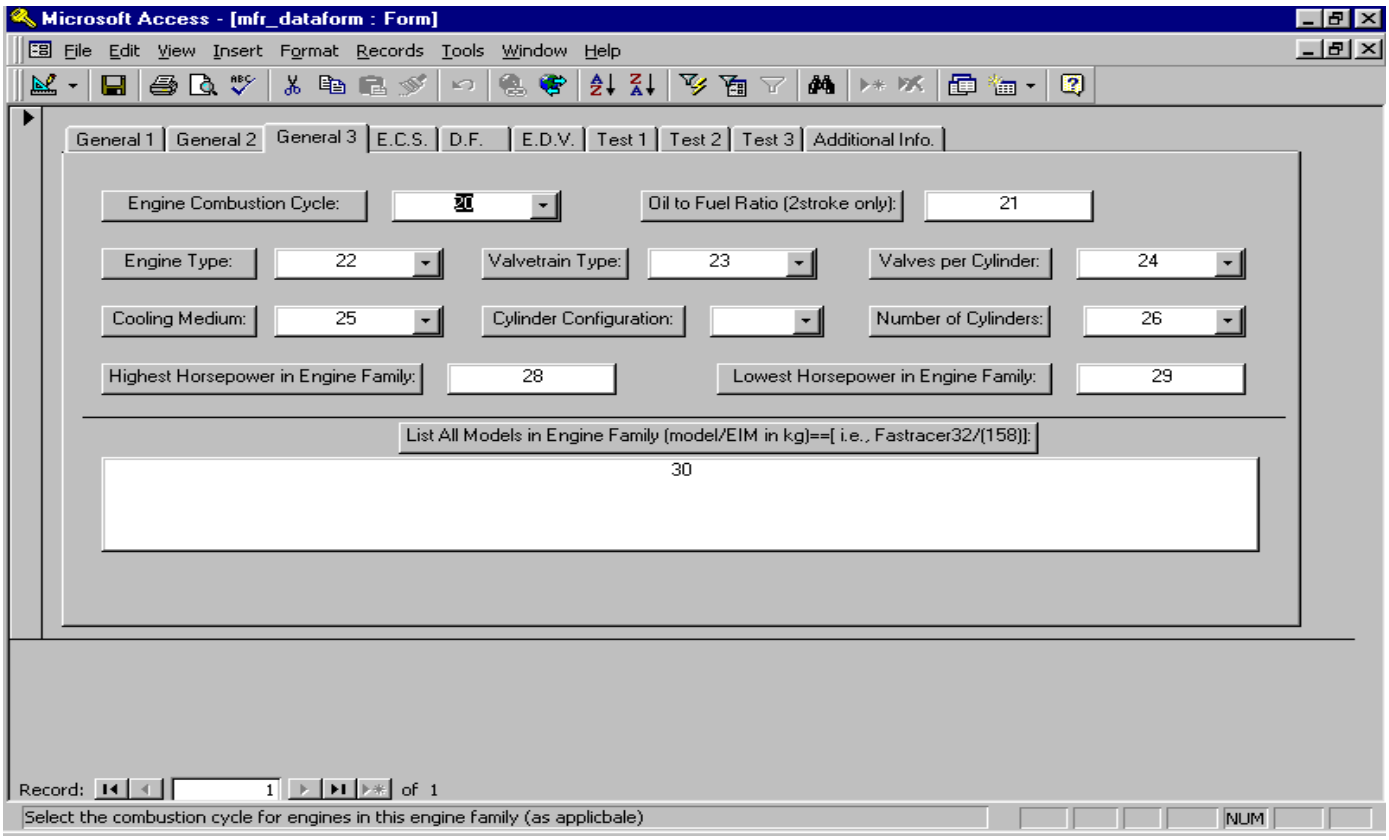
(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)
Engine Family	Models	Estimated Production Volume (Units)		Designated HC or HC+NOx (g/km)	(4) x (6)	2008 Early Compliance Multiplier	2008 Credits (4) x (8)
		Family	Model				
TOTALS:							

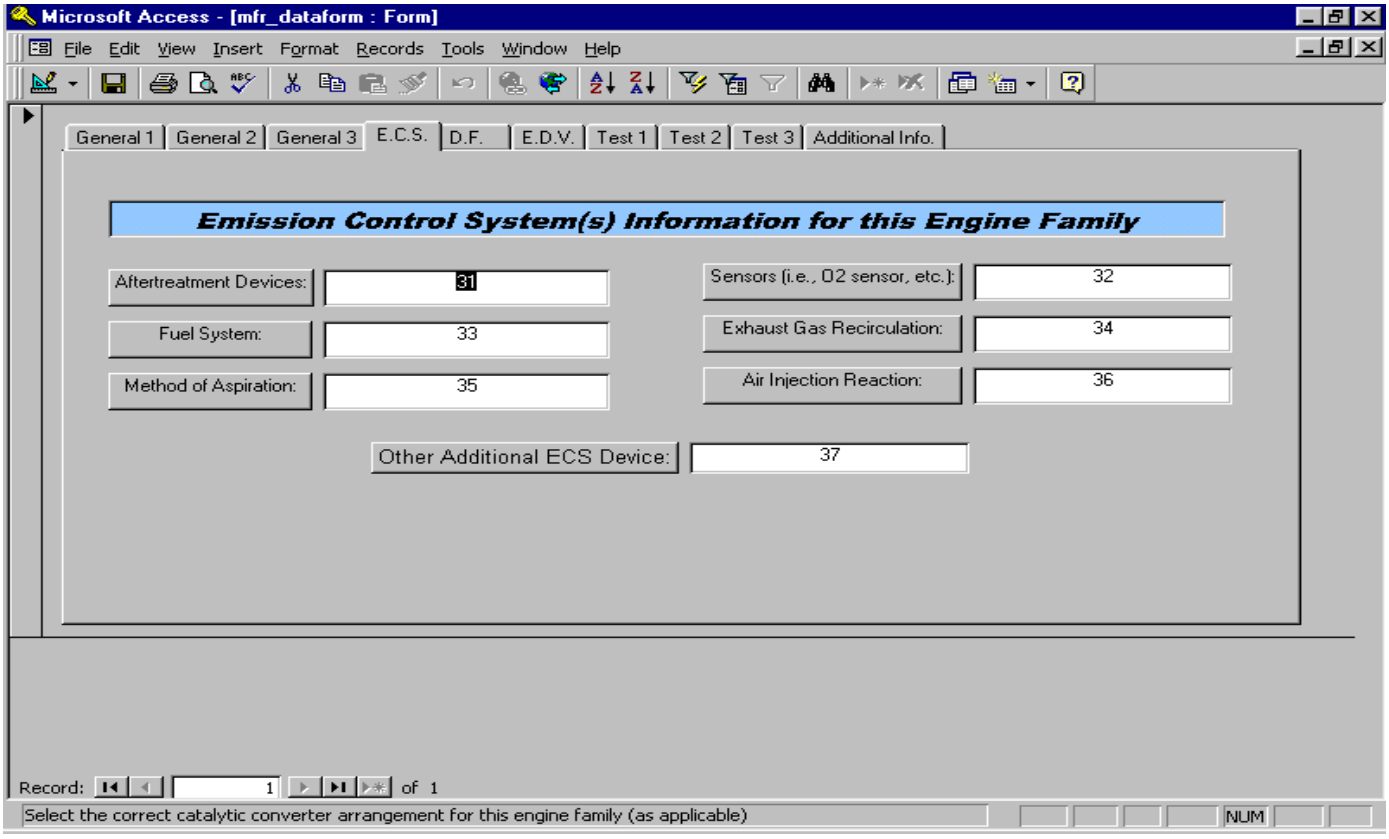
ESTIMATED CORPORATE AVERAGE EMISSION VALUE = 3 (7)/ 3 (4) =

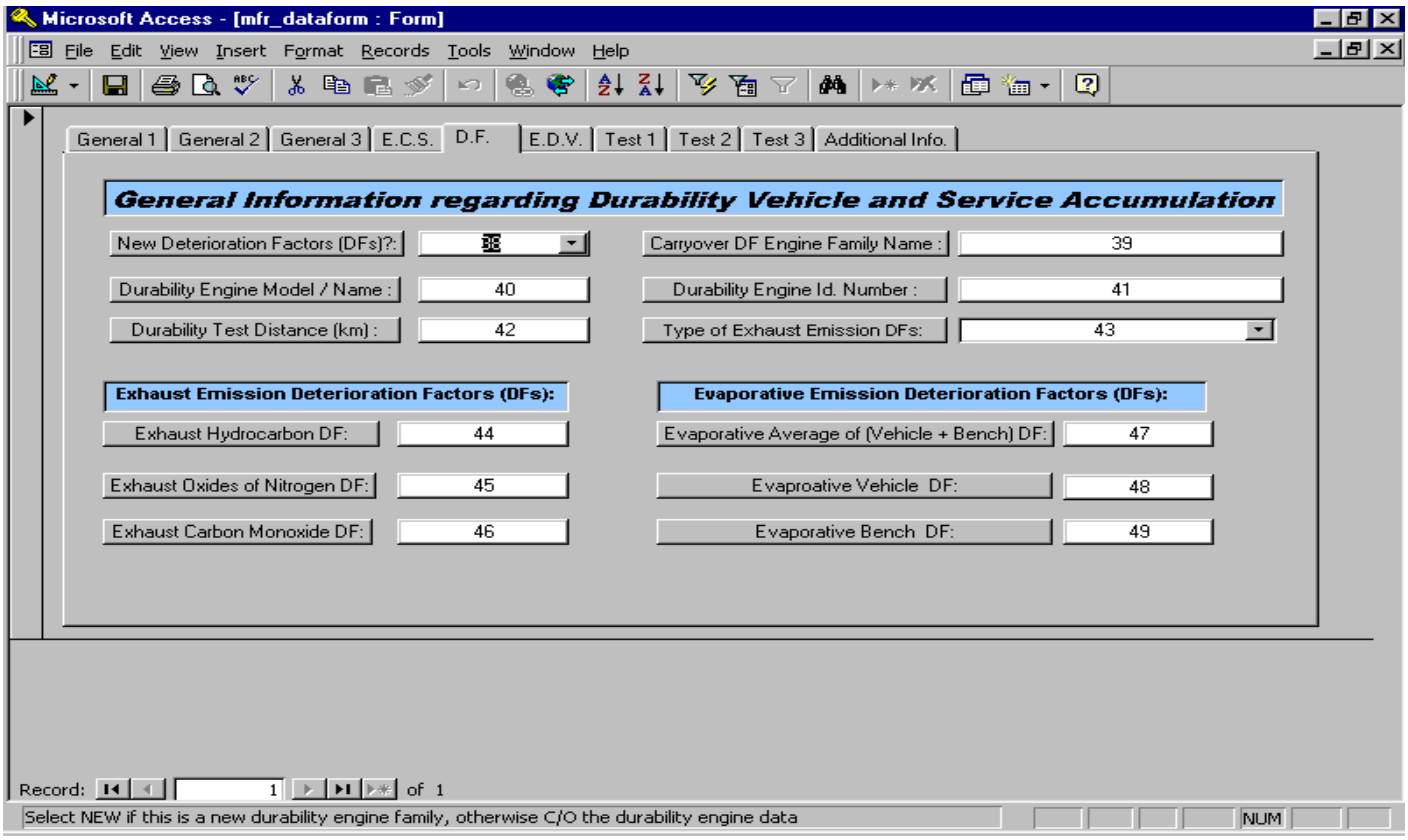
Issue Date: _____ Revision Date(s): _____

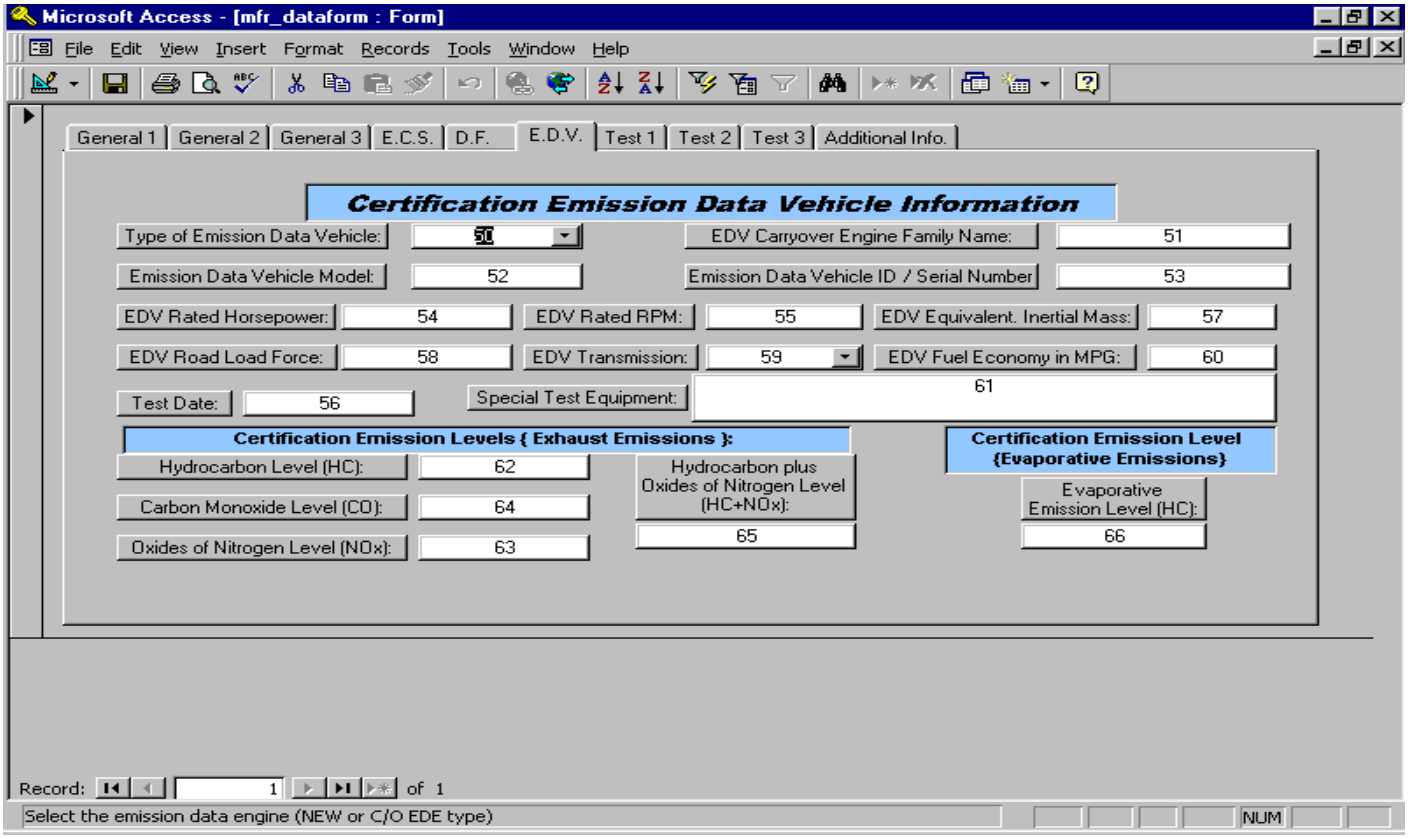

Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Model Year: 1
Type of Submittal?: 2
EXECUTIVE ORDER NUMBER: 3
Manufacturer: 4
Early Complying Credit? 101
Engine Family: 5
Evaporative Family: 6
Evaporative Group: 7
Sales Location?: 8
California Projected Sales: 9
U. S. Projected Sales: 10
Record: 1 of 1
Select the correct manufacturer's name as it should appear on the EO
NUM

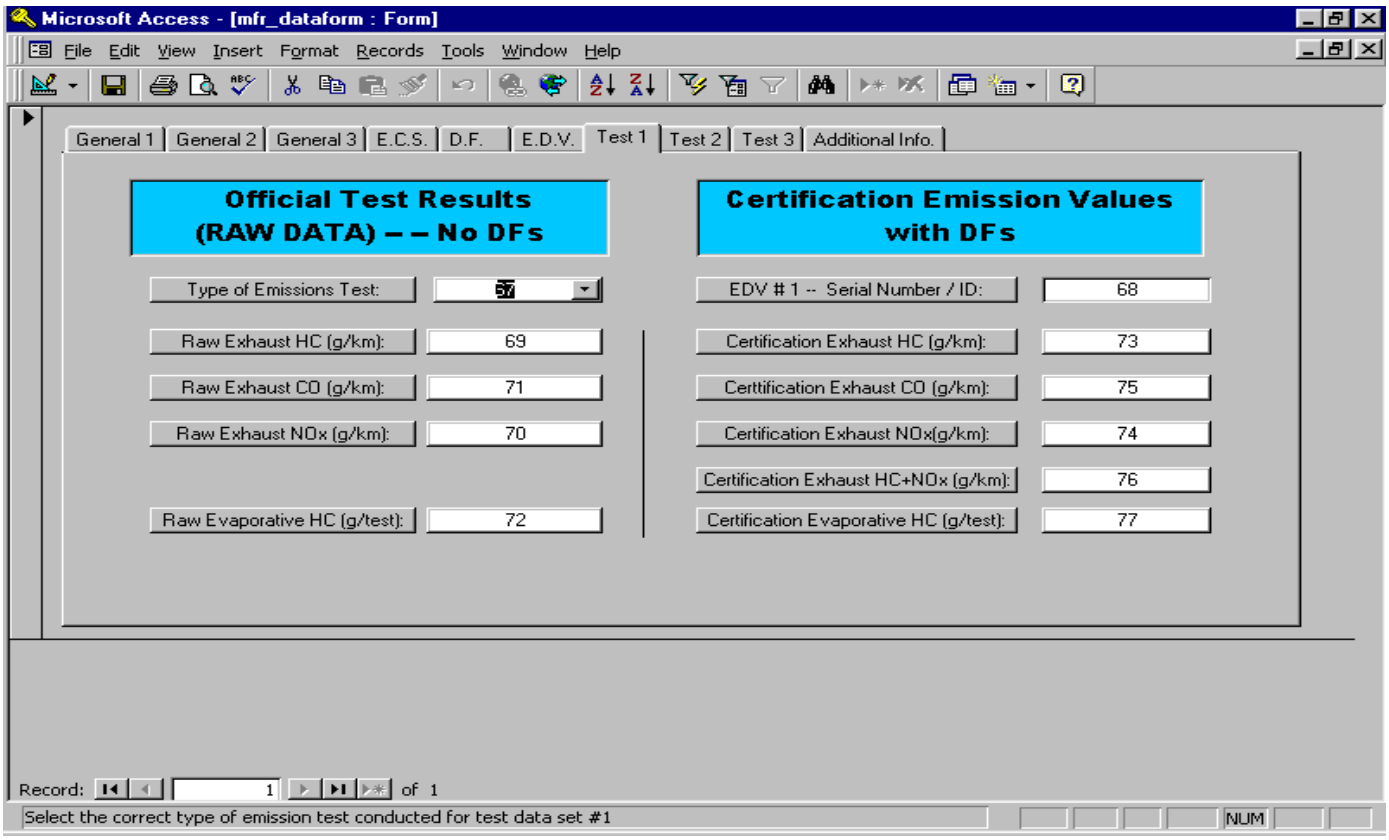

Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Compliance Method: 11
Corporate Average Standard: 12
Designated Standard Type: 13
Designated Standard: 14
Direct Standard: 15
Engine Displacement 1 (cc): 16
Engine Displacement 2 (cc): 17
Engine Displacement Class: 19
Engine Displacement 3 (cc): 18
Record: 1 of 1
Select the method for emission compliance (either direct or corporate averaging)
NUM

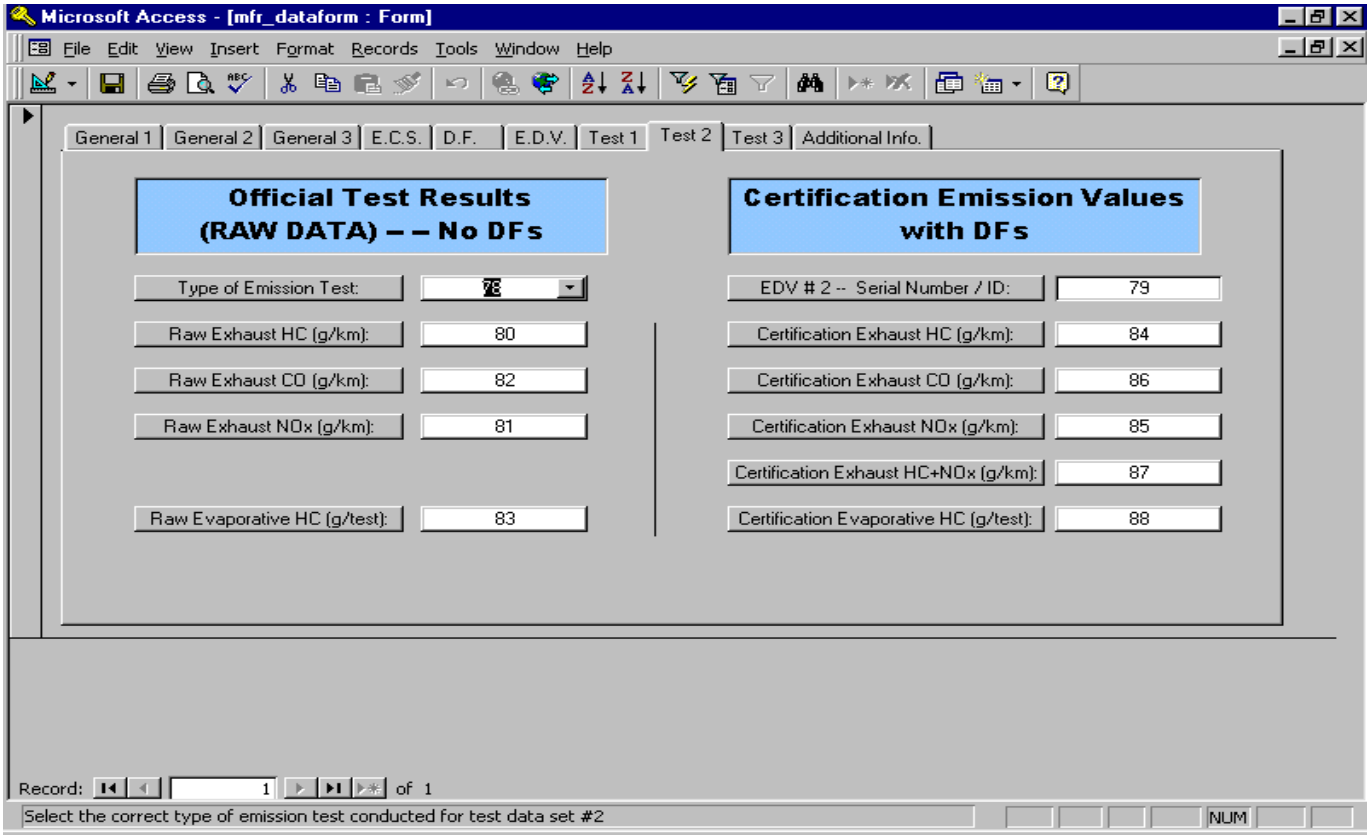

Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Engine Combustion Cycle:
20
Oil to Fuel Ratio (2stroke only):
21
Engine Type:
22
Valvetrain Type:
23
Valves per Cylinder:
24
Cooling Medium:
25
Cylinder Configuration:
Number of Cylinders:
26
Highest Horsepower in Engine Family:
28
Lowest Horsepower in Engine Family:
29
List All Models in Engine Family (model/EIM in kg)==[i.e., Fastracer32/(158)]:
30
Record: 1 of 1
Select the combustion cycle for engines in this engine family (as applicbale)
NUM

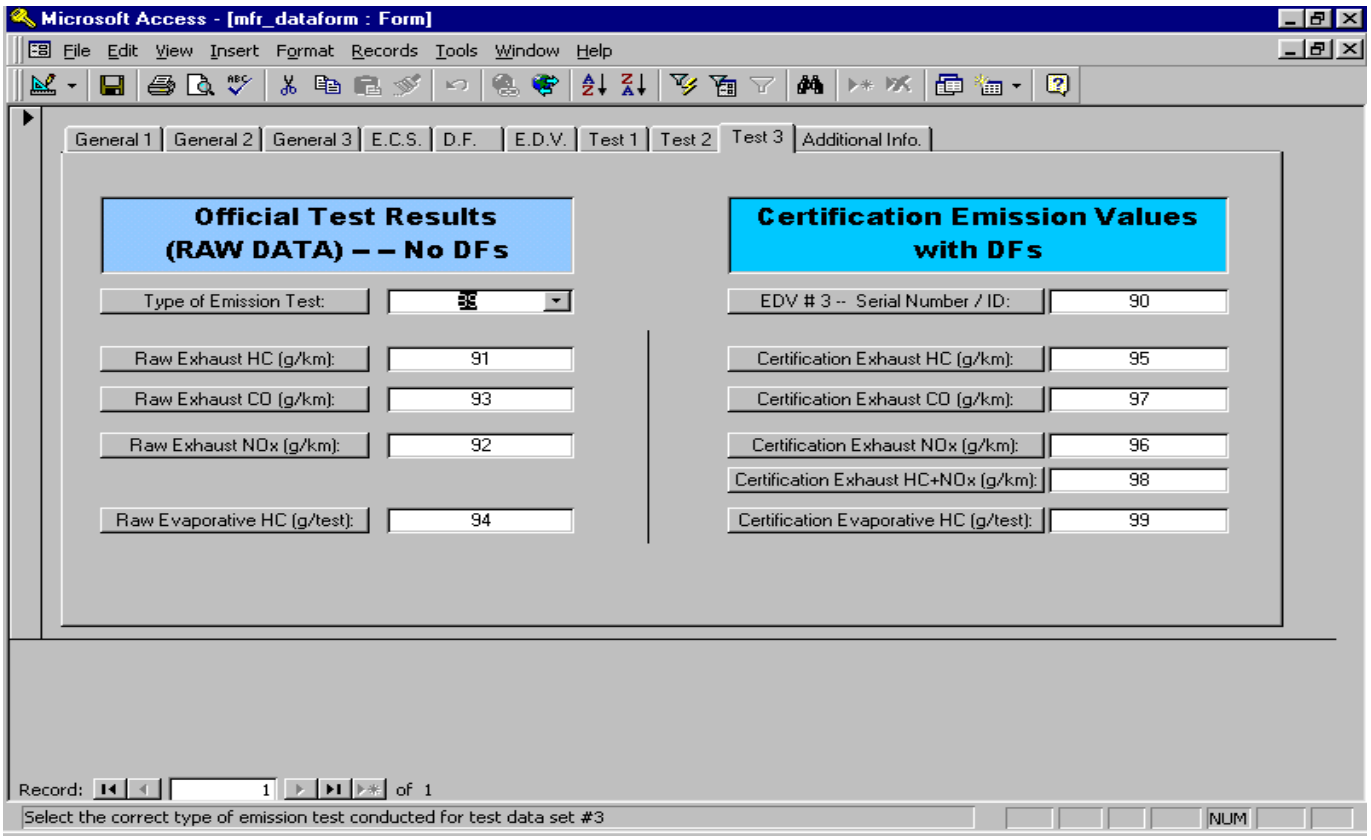

Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Emission Control System(s) Information for this Engine Family
Aftertreatment Devices:
31
Sensors (i.e., 02 sensor, etc.):
32
Fuel System:
33
Exhaust Gas Recirculation:
34
Method of Aspiration:
35
Air Injection Reaction:
36
Other Additional ECS Device:
37
Record: 1 of 1
Select the correct catalytic converter arrangement for this engine family (as applicable)
NUM


Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 | General 2 | General 3 | E.C.S. | D.F. | E.D.V. | Test 1 | Test 2 | Test 3 | Additional Info.
General Information regarding Durability Vehicle and Service Accumulation
New Deterioration Factors (DFs)?:
38
Carryover DF Engine Family Name :
39
Durability Engine Model / Name :
40
Durability Engine Id. Number :
41
Durability Test Distance (km) :
42
Type of Exhaust Emission DFs:
43
Exhaust Emission Deterioration Factors (DFs):
Exhaust Hydrocarbon DF:
44
Exhaust Oxides of Nitrogen DF:
45
Exhaust Carbon Monoxide DF:
46
Evaporative Emission Deterioration Factors (DFs):
Evaporative Average of (Vehicle + Bench) DF:
47
Evaproative Vehicle DF:
48
Evaporative Bench DF:
49
Record: 1 of 1
Select NEW if this is a new durability engine family, otherwise C/O the durability engine data
NUM


Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 | General 2 | General 3 | E.C.S. | D.F. | E.D.V. | Test 1 | Test 2 | Test 3 | Additional Info.
Certification Emission Data Vehicle Information
Type of Emission Data Vehicle:
50
EDV Carryover Engine Family Name:
51
Emission Data Vehicle Model:
52
Emission Data Vehicle ID / Serial Number
53
EDV Rated Horsepower:
54
EDV Rated RPM:
55
EDV Equivalent. Inertial Mass:
57
EDV Road Load Force:
58
EDV Transmission:
59
EDV Fuel Economy in MPG:
60
Test Date:
56
Special Test Equipment:
61
Certification Emission Levels (Exhaust Emissions):
Hydrocarbon Level (HC):
62
Carbon Monoxide Level (CO):
64
Oxides of Nitrogen Level (NOx):
63
Hydrocarbon plus Oxides of Nitrogen Level (HC+NOx):
65
Certification Emission Level (Evaporative Emissions)
Evaporative Emission Level (HC):
66
Record: 1 of 1
Select the emission data engine (NEW or C/O EDE type)
NUM


Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Official Test Results (RAW DATA) – – No DFs
Certification Emission Values with DFs
Type of Emissions Test: 67
Raw Exhaust HC (g/km): 69
Raw Exhaust CO (g/km): 71
Raw Exhaust NOx (g/km): 70
Raw Evaporative HC (g/test): 72
EDV # 1 -- Serial Number / ID: 68
Certification Exhaust HC (g/km): 73
Certtification Exhaust CO (g/km): 75
Certification Exhaust NOx(g/km): 74
Certification Exhaust HC+NOx (g/km): 76
Certification Evaporative HC (g/test): 77
Record: 1 of 1
Select the correct type of emission test conducted for test data set #1
NUM


Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Official Test Results (RAW DATA) – – No DFs
Certification Emission Values with DFs
Type of Emission Test: 78
Raw Exhaust HC (g/km): 80
Raw Exhaust CO (g/km): 82
Raw Exhaust NOx (g/km): 81
Raw Evaporative HC (g/test): 83
EDV # 2 -- Serial Number / ID: 79
Certification Exhaust HC (g/km): 84
Certification Exhaust CO (g/km): 86
Certification Exhaust NOx (g/km): 85
Certification Exhaust HC+NOx (g/km): 87
Certification Evaporative HC (g/test): 88
Record: 1 of 1
Select the correct type of emission test conducted for test data set #2
NUM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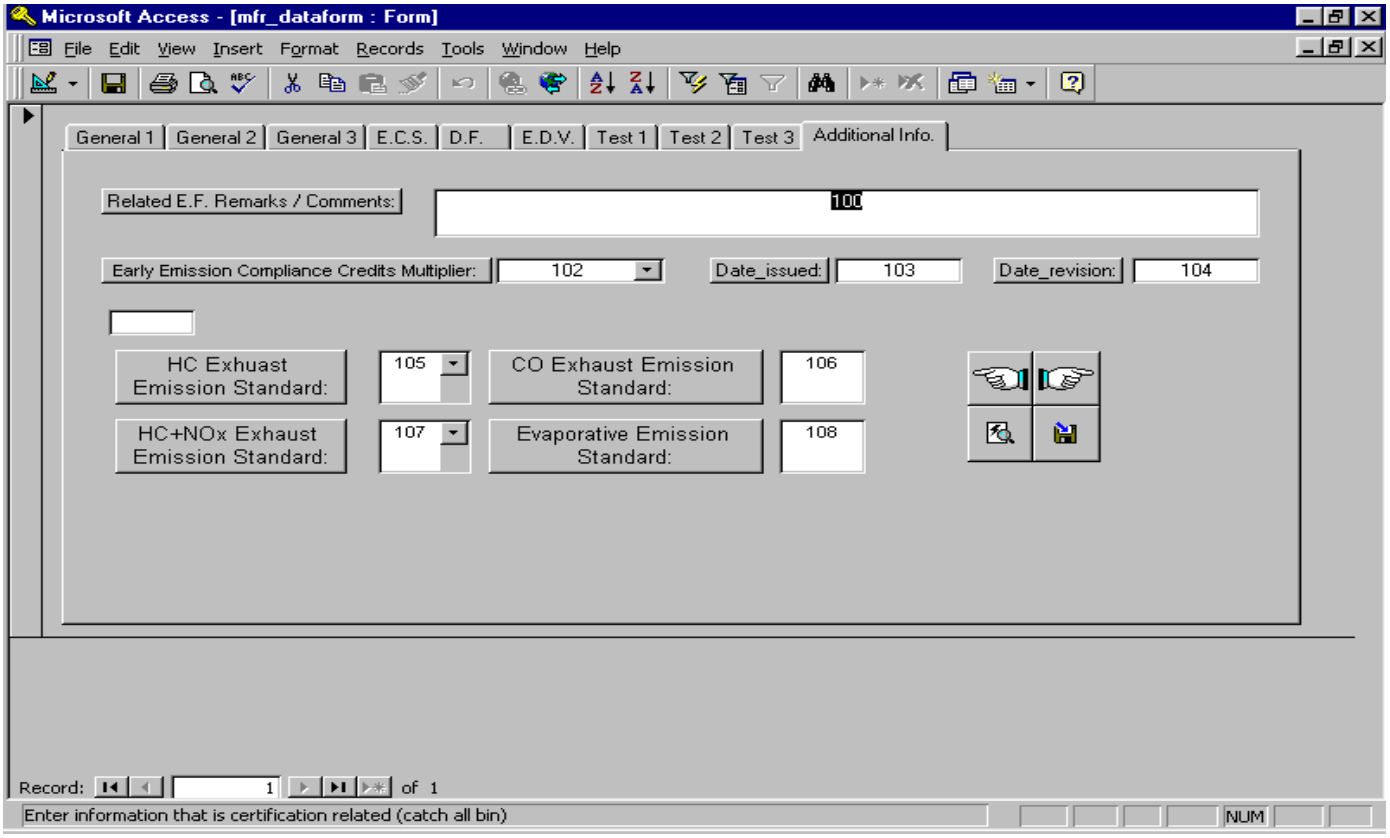
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Official Test Results (RAW DATA) -- No DFs
Type of Emission Test:
Raw Exhaust HC (g/km):
91
Raw Exhaust CO (g/km):
93
Raw Exhaust NOx (g/km):
92
Raw Evaporative HC (g/test):
94
Certification Emission Values with DFs
EDV # 3 -- Serial Number / ID:
90
Certification Exhaust HC (g/km):
95
Certification Exhaust CO (g/km):
97
Certification Exhaust NOx (g/km):
96
Certification Exhaust HC+NOx (g/km):
98
Certification Evaporative HC (g/test):
99
Record: 1 of 1
Select the correct type of emission test conducted for test data set #3
NUM


Microsoft Access - [mfr_dataform : Form]
File Edit View Insert Format Records Tools Window Help
General 1 General 2 General 3 E.C.S. D.F. E.D.V. Test 1 Test 2 Test 3 Additional Info.
Related E.F. Remarks / Comments:
100
Early Emission Compliance Credits Multiplier:
102
Date_issued:
103
Date_revision:
104
HC Exhuast Emission Standard:
105
CO Exhaust Emission Standard:
106
HC+NOx Exhaust Emission Standard:
107
Evaporative Emission Standard:
108
Record: 1 of 1
Enter information that is certification related (catch all bin)
NUM

Item No:	Field Name	Field Type	Field Size	Data Entry Type Dropdown / Type-in
1	model_year	Number (Long)	4	Dropdown
2	SUBMIT_CODE	Text	4	Dropdown
3	EO	Text	14	Type-in
4	MFR_CODE	Text	50	Dropdown
5	ENG_FAM	Text	12	Type-in
6	EVAP_NAME	Text	12	Type-in
7	EVAP_GRP	Text	20	Type-in
8	SALES_CODE	Text	5	Dropdown
9	PROJ_SALE	Number (Double)	8	Type-in
10	us_proj_sale	Number (Double)	8	Type-in
11	EM_STD_COMP	Text	3	Dropdown
12	CORP_AVG_STD	Text	3	Dropdown
13	DESIG_STD_TYPE	Text	6	Dropdown
14	DESIG_STD	Text	3	Dropdown
15	DIRECT_STD	Text	3	Dropdown
16	DISP_1	Number (Double)	8	Type-in
17	DISP_2	Number (Double)	8	Type-in
18	DISP_3	Number (Double)	8	Type-in
19	DISP_CLASS	Text	3	Dropdown
20	ENG_COM_CYC	Text	11	Dropdown
21	OFR_2stroke	Text	2	Dropdown
22	ENG_TYPE	Text	15	Dropdown
23	valvetrain	Text	12	Dropdown
24	VALV_CYL	Text	1	Dropdown
25	COOL_MED	Text	5	Dropdown
26	CYLINDER	Text	1	Dropdown
27	CYC_CONFIG	Text	8	Dropdown
28	HI_ENG_hp	Number (Double)	8	Type-in
29	LO_ENG_hp	Number (Double)	8	Type-in
30	eng_models	Text	250	Type-in
31	ECS_Aftertreatment_ID	Number (Long)	4	Dropdown
32	ECS_Sensor_ID	Number (Long)	4	Dropdown
33	ECS_FuelSystem_ID	Number (Long)	4	Dropdown
34	ECS_EGR_ID	Number (Long)	4	Dropdown
35	ECS_Aspiration_ID	Number (Long)	4	Dropdown
36	ECS_AIR_ID	Number (Long)	4	Dropdown
37	ECS_Others_ID	Number (Long)	4	Dropdown
38	DF_new?	Text	3	Dropdown
39	DF_EF	Text	12	Type-in
40	DF_eng_model	Text	32	Type-in
41	DF_eng_id	Text	20	Type-in
42	DF_eng_km	Number (Long)	4	Dropdown
43	DF_type	Text	3	Dropdown
44	HC_DF	Number (Double)	8	Type-in
45	NOx_DF	Number (Double)	8	Type-in
46	CO_DF	Number (Double)	8	Type-in
47	EVAP_V+B_avg_DF	Number (Double)	8	Type-in
48	EVAP_Vehicle_DF	Number (Double)	8	Type-in
49	EVAP_Bench_DF	Number (Double)	8	Type-in
50	CERT_EDE_type	Text	3	Dropdown
51	CERT_EDE_co	Text	12	Type-in
52	CERT_EDE_model	Text	15	Type-in
53	CERT_EDE_id	Text	20	Type-in

54	CERT_EDE_hp	Number (Double)	8	Type-in
55	CERT_EDE_rpm	Number (Long)	4	Type-in
56	CERT_EDE_date	Date/Time	8	Type-in
57	CERT_EDE_EIM	Number (Double)	8	Type-in
58	CERT_EDE_RLF	Number (Double)	8	Type-in
59	CERT_EDE_Trans	Text	2	Type-in
60	CERT_EDE_MPG	Number (Double)	8	Type-in
61	CERT_TP_equip	Text	250	Type-in
62	CERT_HC_Hi	Number (Double)	8	Type-in
63	CERT_NOx_Hi	Number (Double)	8	Type-in
64	CERT_CO_Hi	Number (Double)	8	Type-in
65	CERT_HC+NOx_Hi	Number (Double)	8	Type-in
66	CERT_EVAP_Hi	Number (Double)	8	Type-in
67	RawDATA_EDV_TYPE1	Text	3	Dropdown
68	RawEDV1	Text	20	Type-in
69	RawDATA_EDV_1_HC	Number (Double)	8	Type-in
70	RawDATA_EDV_1_NOx	Number (Double)	8	Type-in
71	RawDATA_EDV_1_CO	Number (Double)	8	Type-in
72	RawDATA_EDV_1_EVAP_HC	Number (Double)	8	Type-in
73	CertDATA_EDV_1_HC	Number (Double)	8	Type-in
74	CertDATA_EDV_1_NOx	Number (Double)	8	Type-in
75	CertDATA_EDV_1_CO	Number (Double)	8	Type-in
76	CertDATA_EDV_1_HC+NOx	Number (Double)	8	Type-in
77	CertDATA_EDV_1_EVAP_HC	Number (Double)	8	Type-in
78	RawDATA_EDV_TYPE2	Text	3	Dropdown
79	RawEDV2	Text	20	Type-in
80	RawDATA_EDV_2_HC	Number (Double)	8	Type-in
81	RawDATA_EDV_2_NOx	Number (Double)	8	Type-in
82	RawDATA_EDV_2_CO	Number (Double)	8	Type-in
83	RawDATA_EDV_2_EVAP_HC	Number (Double)	8	Type-in
84	CertDATA_EDV_2_HC	Number (Double)	8	Type-in
85	CertDATA_EDV_2_NOx	Number (Double)	8	Type-in
86	CertDATA_EDV_2_CO	Number (Double)	8	Type-in
87	CertDATA_EDV_2_HC+NOx	Number (Double)	8	Type-in
88	CertDATA_EDV_2_EVAP_HC	Number (Double)	8	Type-in
89	RawDATA_EDV_TYPE3	Text	3	Dropdown
90	RawEDV3	Text	20	Type-in
91	RawDATA_EDV_3_HC	Number (Double)	8	Type-in
92	RawDATA_EDV_3_NOx	Number (Double)	8	Type-in
93	RawDATA_EDV_3_CO	Number (Double)	8	Type-in
94	RawDATA_EDV_3_EVAP_HC	Number (Double)	8	Type-in
95	CertDATA_EDV_3_HC	Number (Double)	8	Type-in
96	CertDATA_EDV_3_NOx	Number (Double)	8	Type-in
97	CertDATA_EDV_3_CO	Number (Double)	8	Type-in
98	CertDATA_EDV_3_HC+NOx	Number (Double)	8	Type-in
99	CertDATA_EDV_3_EVAP_HC	Number (Double)	8	Type-in
100	Remarks_all	Text	250	Type-in
101	Comp_Credit	Text	1	Dropdown
102	Comp_Credit_multiplier	Text	5	Dropdown
103	Date_issued	Date/Time	8	Type-in
104	Date_revision	Date/Time	8	Type-in
105	STD_CERT_HC	Text	3	Dropdown
106	STD_CERT_CO	Text	2	Dropdown
107	STD_CERT_HC+NOx	Text	3	Dropdown
108	STD_CERT_EVAP	Text	3	Dropdown