

## **Regulations**

### **CALIFORNIA REGULATIONS FOR 2001 AND LATER MODEL YEAR SPARK-IGNITION MARINE ENGINES**

Adopted: \_\_\_\_\_



## Final Regulation Order

NOTE: All regulatory text herein is new.

Adopt Title 13, California Code of Regulations, Chapter 9 Off-Road Vehicles and Engines Pollution Control Devices, sections 2440 through 2448 to read as follows:

### Chapter 9 Off-Road Vehicles and Engines Pollution Control Devices

#### Article 4.7. Spark-Ignition Marine Engines

##### **§2440. Applicability.**

- (a) (1) This article applies to model year 2001 and subsequent model year spark-ignition marine engines used to propel marine watercraft, unless
  
  
  
  
  
  
  
  
  
  
- (b) Each part of this article is severable, and in the event that any part of this chapter is held to be invalid, the remainder of this article remains in full force and effect.
  
  
- (c) (1) For purposes of this article, military tactical vehicles or equipment means vehicles or equipment owned by the U.S. Department of Defense and/or the U.S. military services and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.
  
- (2) This article shall not apply to engines used in off-road military tactical vehicles or equipment which have been exempted from regulations under the federal national security exemption, 40 CFR, subpart J, section 90.908, which is incorporated by reference herein. It shall also not apply to those vehicles and equipment covered by the definition of military tactical vehicle that are commercially available and for which a federal certificate of conformity has been issued under 40 CFR Part 91. subpart B, which is incorporated by reference herein.

- (3) The U.S. Department of Defense shall submit to the ARB a list of all vehicles and equipment that are exempted under the above provisions and which are located in the State of California. If any additional vehicle and equipment types are added to the list during any calendar year, the U.S. Department of Defense shall update the list and submit it to the ARB by January 1 of the following year.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

**§2441. Definitions.**

- (a) Definitions in section 1900 (b), Division 3, Chapter 9, Title 13 of the California Code of Regulations, apply with the following additions:
- (1) Abuse means incorrect or improper operation of an engine or equipment unit that results in the failure of an emission-related part.
  - (2) Acceptable quality level (AQL) means the maximum percentage of failing engines that can be considered a satisfactory process average for sampling inspections.
  - (3) ARB Enforcement Officer means any officer or employee of the Air Resources Board so designated in writing by the Executive Officer or by the Executive Officer's designee.
  - (4) Capture rate means the percentage of in-use engines subject to recall which must be corrected to bring the class of engines into compliance. The number of engines subject to recall shall be based on the actual number of engines in use as verified by engine registration records compiled and prepared by industry, or a comparable source as determined by the Executive Officer at the time a recall is initiated.
  - (5) Carryover engine family means an engine family that undergoes certification using carryover test data from previous model years.
  - (6) Certification means, with respect to new spark-ignition marine engines, obtaining an Executive Order for an engine family complying with the spark-ignition marine engine exhaust emission standards and requirements specified in Title 13, California Code of Regulations, sections 2442 and 2447.
  - (7) Complete engine assembly or complete engine configuration means an assembly of a basic engine and all of the specific applicable components (e.g., air inlet, fuel and exhaust systems, etc.) and calibrations (e.g., carburetor jet size, valve timing, etc.) required for the assembly to be installed in a new unit of equipment.
  - (8) Emission control system means any device, system, or element of design that controls or reduces the emission of substances from an engine.
  - (9) Enforcement test results means data or information gathered through enforcement programs conducted by the Air Resources Board. These

programs include, but are not limited to, field inspections, in-use compliance testing, assembly-line testing.

- (10) Engine family means a subclass of a basic engine based on similar emission characteristics. The engine family is the grouping of engines that is used for the purposes of certification.
- (11) Engine identification number means a unique specification (for example, model number/serial number combination) that allows each spark-ignition marine engine to be distinguished from other similar engines.
- (12) Exhaust emissions means matter emitted into the environment from any opening downstream from the exhaust port of a spark-ignition marine engine.
- (13) "Executive Officer" means the Executive Officer of the Air Resources Board or his or her authorized representative.
- (14) Executive Order means an order issued by the Executive Officer certifying engines for sale in California.
- (15) Family Emission Limit means an emission value assigned by a marine engine manufacturer to an engine family for the purpose of complying with a corporate average exhaust emission standard. The Family Emission Limit (FEL) must not exceed the limit specified in this Article.
- (16) Fuel system means all components involved in the transport, metering, and mixture of the fuel from the fuel tank to the combustion chamber(s) including, but not limited to the following: fuel tank, fuel tank cap, fuel pump, fuel lines, oil injection metering system, carburetor or fuel injection components, and all fuel system vents.
- (17) Inboard Engine means a four-stroke spark-ignition marine engine not used in a personal watercraft that is designed such that the propeller shaft penetrates the hull of the marine watercraft while the engine and the remainder of the drive unit is internal to the hull of the marine watercraft.
- (18) Inspection criteria means the pass and fail numbers associated with a particular sampling plan.
- (19) Marine engine manufacturer means any person engaged in the manufacturing or assembling of new spark-ignition marine engines or the importing of such engines for resale, or who acts for and is under the control of any such person in connection with the distribution of such engines. A spark-ignition marine engine manufacturer does not include any dealer with respect to new spark-ignition

marine engines received by such person in commerce.

- (20) Marine watercraft means every description of boat, ship or other artificial contrivance used, or capable of being operated on water.
- (21) Model year means the engine manufacturer's annual new model production period which includes January 1 of the calendar year for which the model year is named, ends no later than December 31 of the calendar year, and does not begin earlier than January 2 of the previous calendar year. Where an engine manufacturer has no annual new model production period, model year means the calendar year.
- (22) New, for purposes of this Article, means a spark-ignition marine engine or watercraft the equitable or legal title to which has never been transferred to an ultimate purchaser. Where the equitable or legal title to the engine or watercraft is not transferred to an ultimate purchaser until after the engine or watercraft is placed into service, then the engine or watercraft will no longer be new after it is placed into service. A spark-ignition marine engine or watercraft is placed into service when it is used for its functional purposes. With respect to imported spark-ignition marine engines or watercraft, the term new means an engine or watercraft that is not covered by an Executive Order issued under this Article at the time of importation, and that is manufactured after the effective date of a regulation issued under this Article which is applicable to such engine or watercraft, or which would be applicable to such engine or watercraft had it been manufactured for importation into the United States.
- (23) "Nonconformity" or "Noncompliance", for the purposes of Title 13, California Code of Regulations, section 2444, means that:
  - (A) a significant number, determined by the Executive Officer, of a class of engines, although properly maintained and used, experience a failure of the same emission-related component(s) within their useful lives which, if uncorrected, results in the engines' failure to comply with the emission standards prescribed under section 2442 which are applicable to the model year of such engines; or
  - (B) a class of engines that at any time within their useful lives, although properly maintained and used, on average does not comply with the emission standards prescribed under section 2442 which are applicable to the model year of such engines.
- (24) Original equipment manufacturer means a manufacturer who purchases engines for installation in its equipment for sale to ultimate purchasers.

- (25) **Outboard engine** means a spark-ignition marine engine that, when properly mounted on a marine watercraft in the position to operate, houses the engine and drive unit external to the hull of the marine watercraft.
- (26) **Personal watercraft engine** means a spark-ignition marine engine that does not meet the definition of outboard engine, inboard engine or sterndrive engine, except that the Executive Officer may in his or her discretion may classify a personal watercraft engine as an inboard or sterndrive engine if it is comparable in technology and emissions to an inboard or sterndrive engine.
- (27) **Production-line tests** are emission tests performed on a sample of production engines produced for sale in California and conducted in accordance with Title 13, California Code of Regulations, section 2446(a).
- (28) **Sales or Eligible sales** means the actual or calculated sales of an engine family in California for the purposes of corporate averaging and production-line testing. Upon Executive Officer approval, an engine manufacturer may calculate its eligible sales through market analysis of actual federal production or sales volumes.
- (29) **Scheduled maintenance** means any adjustment, repair, removal, disassembly, cleaning, or replacement of components or systems required by the engine manufacturer to be performed on a periodic basis to prevent part failure or marine watercraft or engine malfunction, or those actions anticipated as necessary to correct an overt indication of malfunction or failure for which periodic maintenance is not appropriate.
- (30) **Spark-ignition marine engine** means any engine used to propel a marine watercraft, and which utilizes the spark-ignition combustion cycle.
- (31) **Sterndrive engine** means a four-stroke spark-ignition marine engine not used in a personal watercraft that is designed such that the drive unit is external to the hull of the marine watercraft, while the engine is internal to the hull of the marine watercraft.
- (32) **Test engine** means the engine or group of engines that an engine manufacturer uses during certification, production line and in-use testing to determine compliance with emission standards.
- (33) **Ultimate purchaser** means, with respect to any new spark-ignition marine engine the first person who in good faith purchases such new spark-ignition marine engine for purposes other than resale.



- (34) U.S.C. means United States Code.
- (35) "Useful life" for spark-ignition marine engines means nine years for personal watercraft engines and sixteen years for an outboard engine.
- (36) Warranty period means the period of time the engine or part is covered by the warranty provisions.
- (37) "Warranty station" means any dealer, service center or other agent that is authorized by the engine manufacturer to perform diagnostic labor, repairs or replacements of warranted engine components.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

**§2442 Emission Standards**

- (a) Exhaust emissions from new spark-ignition marine engines manufactured for sale, sold, or offered for sale in California, or that are introduced, delivered or imported into California for introduction into commerce must not exceed the hydrocarbon plus oxides of nitrogen (HC+NOx) corporate average exhaust emission standards listed in Table 1 during its designated useful life:

**Table 1.**

<b>Corporate Average Emission Standards by Implementation Date HC+NOx (g/kW-hr)</b>			
<b>Model Year</b>	<b>Max. Family Emission Limit (FEL)</b>	<b>P<sub>tx</sub> &lt; 4.3 kW</b>	<b>P<sub>tx</sub> ≥ 4.3 kW</b>
2001	Not Applicable	81.00	$(0.25 \times (151+557/P_{tx}^{0.9}))+6.0$
2004	80	64.80	$(0.20 \times (151+557/P_{tx}^{0.9}))+4.8$
2008	44	30.00	$(0.09 \times (151+557/P_{tx}^{0.9}))+2.1$

where:

P<sub>tx</sub> is the average power in kW (sales-weighted) of the total number of spark-ignition marine engines produced for sale in California in model year x. Engine power must be calculated using the Society of Automotive Engineers (SAE) standard J1228, November 1991, incorporated herein by reference. Engine manufacturers must not determine P<sub>tx</sub> by combining the power outputs of outboard engines with the power outputs of personal watercraft engines.

- (b) An engine manufacturer may comply with the standards directly on an individual engine family basis. Consequently in Table 1, FELs are not applicable for any model year and P<sub>tx</sub> means the average power in kW (sales-weighted) of the subject engine family produced for sale in California in model year x.

Install Equation Editor and double-click here to view equation.

Compliance with the standards on a corporate average basis is determined as follows:

where:

- n = total number of engine families (by category)
- PROD<sub>jx</sub> = number of units of each engine family j produced for sale in California in model year x.
- FEL<sub>jx</sub> = the Family Emission Limit (FEL) for engine family j in model year x, which must be determined by the engine manufacturer subject to the following conditions: (1) no individual engine family FEL shall exceed the maximum allowed value as specified in Table 1; (2) no engine family designation or FEL shall be amended in a model year unless the engine family is recertified; and (3) prior to sale or offering for sale in California, each engine family must be certified in accordance with the test procedures referenced in section 2447 and must meet the engine manufacturer's FEL as a condition of the Executive Order. Before certification, the engine manufacturer must also submit estimated production volumes for each engine family to be offered for sale in California.
- P<sub>jx</sub> = The average power in kW (sales-weighted) of engine family j produced for sale in California in model year x. Engine power must be calculated using SAE standard J1228, November 1991, incorporated herein by reference.
- STD<sub>ca</sub> = An engine manufacturer's calculated corporate average HC+NO<sub>x</sub> exhaust emissions from those California spark-ignition marine engines subject to the California corporate average HC+NO<sub>x</sub> exhaust emission standard determined from Table 1, as established by an Executive Order certifying the California production for the model year. This Executive Order must be obtained prior to the issuance of certification Executive Orders for individual engine families for the model year.

- (1) For purposes of compliance under this paragraph, engine manufacturers must not corporate average outboard engine families in combination with personal watercraft engine families.
- (2) During the engine manufacturer's production year, for each engine family, the engine manufacturer shall provide the Executive Officer within 45 days after the last day in each calendar quarter the total number of spark-ignition marine engines produced for sale in California and their applicable FEL(s).
- (3) The Executive Order certifying the California production for a model year must be obtained prior to the issuance of certification Executive Orders for individual engine families for the model year.

- (4) The engine manufacturer's average HC+NO<sub>x</sub> exhaust emissions must meet the corporate average standard at the end of the engine manufacturer's production for the model year. At the end of the model year, the manufacturer must calculate a corrected corporate average using sales or eligible sales rather than projected sales.
  - (5) Production and sale of spark-ignition marine engines that result in noncompliance with the California standard for the model year shall cause an engine manufacturer to be subject to: revocation or suspension of Executive Orders for the applicable engine families; enjoinder from any further sales, or distribution, of such noncompliant engine families, in the State of California pursuant to section 43017 of the Health and Safety Code; and all other remedies available under Part 5, Division 26 of the Health and Safety Code. Before seeking remedial action against the engine manufacturer, the Executive Officer will consider any information provided by the equipment manufacturer.
  - (6) For each model, the engine manufacturer shall submit California sales data ninety (90) days after the end of the model year.
- (c) The test equipment and test procedures for determining compliance with these standards are set forth in Parts III and IV, respectively, of the California Exhaust Emission Standards and Test Procedures for 2001 and Later Spark-Ignition Marine Engines ( Test Procedures ), adopted December 10, 1998, which is incorporated by reference herein.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

**§2443.1 Emission Control Labels - Model Year 2001 and Later Spark-Ignition Marine Engines**

- (a) Purpose. The Air Resources Board recognizes that certain emissions-critical or emissions-related parts must be properly identified and maintained to ensure that engines meet the applicable emission standards. The purpose of this section is to require engine manufacturers to affix a label (or labels) on each production engine (or watercraft, as applicable) to provide the engine owner and service mechanic with information necessary for the proper maintenance of these parts in customer use. These specifications also require the engine manufacturer to permanently identify the engine with a unique identification number that will be used for enforcement purposes, including in-use testing.
- (b) Applicability. This section applies to:
  - (1) Model year 2001 and later spark-ignition marine engines, which have been certified to the applicable emission standards pursuant to Health and Safety Code section 43013;
  - (2) Engine manufacturers and original equipment manufacturers, as applicable, that have certified such engines; and
  - (3) Original equipment manufacturers, regardless of whether they have certified the engine, if their equipment obscures the emission control labels of such certified engines.
- (c) Engine Label and Location.
  - (1) A legible label must be welded, riveted or otherwise permanently attached by the engine manufacturer to an area of the engine (e.g., block or crankcase) in such a way that it will be readily visible to the average person after installation of the engine in the watercraft. If such an attachment is not feasible, the Executive officer may allow the label to be attached on components of the engine or watercraft assembly (as applicable) that satisfy the requirements of Subsection (c)(2). Such labels must be attached on all complete engine assemblies that are produced by an engine manufacturer.
  - (2) In selecting an acceptable location, the engine manufacturer must consider the possibility of accidental damage (e.g., possibility of tools or sharp instruments coming in contact with the label). Each engine label must be affixed in such a manner that it cannot be removed without destroying or defacing the label, and must not be affixed to any engine (or watercraft, as applicable) part that is likely to be replaced during the engine's (or watercraft's, as applicable) useful life or

that is not integral to the engine's operation. The engine label must not be affixed to any engine (or watercraft, as applicable) component that is easily detached from the engine. If the engine manufacturer claims there is inadequate space to attach the label, the Executive Officer will determine a suitable location.

- (3) The engine label information must be written in the English language and use block letters (i.e., sans serif, uppercase characters) except for units of measurement, which may be sans serif, lower-case characters. The characters must be of a color that contrasts with the background of the label.
- (4) The engine label must contain the following information:
  - (A) The heading "EMISSION CONTROL INFORMATION."
  - (B) The full corporate name or trademark of the engine manufacturer.
    - (i) An engine manufacturer may request the Executive Officer's approval to delete its name and trademark, and substitute the name and trademark of another engine manufacturer, original equipment manufacturer or third-party distributor.
    - (ii) Approval under paragraph (4)(B)(i) above does not relieve the engine manufacturer granted an engine family Executive Order of any requirements imposed by these provisions on the applicable engines.
  - (C) The statement, "THIS (WATERCRAFT S ENGINE or ENGINE, as applicable) IS CERTIFIED TO OPERATE ON (specify operating fuel(s))."
  - (D) Identification of the Exhaust Emission Control System (Abbreviations may be used and must conform to the nomenclature and abbreviations provided in the latest revision of the Society of Automotive Engineer's (SAE) procedure J1930, "Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations and Acronyms", and as specified in section 1977, Title 13, California Code of Regulations.
  - (E) Any specific fuel or engine lubricant requirements (e.g., fuel-oil ratio(s), lead content, research octane number, engine lubricant type).
  - (F) Date of manufacture (day (optional), month and year).
  - (G) An unconditional statement of compliance with the appropriate model year California regulations. For example, "THIS ENGINE CONFORMS TO (model year) CALIFORNIA EMISSION REGULATIONS FOR SPARK-IGNITION MARINE ENGINES." For an engine family certified in California with an FEL different from the FEL assigned federally for the engine family, the following statement shall be appended to the unconditional statement of compliance: AND IS CERTIFIED TO (specify FEL) g/kW-hr HC+NO<sub>x</sub> ENGINE FAMILY EXHAUST EMISSION STANDARD IN CALIFORNIA."
  - (H) The engine family identification (i.e., engine family name). The engine family identification shall be in accordance with the current format used by

the United States Environmental Protection Agency.

- (I) Engine displacement (in cubic centimeters) of the individual engine upon which the engine label is affixed.
  - (J) The maintenance specifications and adjustments recommended by the engine manufacturer, including, as applicable: valve lash, ignition timing, idle air/fuel setting procedure and value (e.g., idle speed drop), high idle speed and spark plug gap. These specifications must indicate the proper transmission position, if applicable, during tune-up and what accessories, if any, should be in operation, and what systems, if any (e.g., vacuum advance, battery, air pump), should be disconnected during the tune-up. If the engine manufacturer does not recommend adjustment of the foregoing specifications, the engine manufacturer may substitute in lieu of the specifications, the single statement, "NO OTHER ADJUSTMENTS NEEDED." For all engines, the instructions for tune-up adjustments must be sufficiently clear on the engine label to preclude the need for a mechanic or equipment owner to refer to another document in order to correctly perform the adjustments.
- (5) If there is insufficient space on the engine to accommodate an engine label that contains all of the information required in Subsection (4) above, the Executive officer may allow the engine manufacturer to modify the engine label in one or more of the following ways:
- (A) Exclude the information required in Subsections (4)(C), (D) and (E) from the engine label. This information must be specified elsewhere on the engine, or in the owner's manual.
  - (B) Substitute the information required in Subsection (4)(J) with the statement, "REFER TO THE OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS." When such a statement is used, the information required by Subsection (4)(J) must be specified in the owner's manual.
  - (C) Exclude the information required by Subsection (4)(F) on the engine label if the date the engine was manufactured is stamped or labeled permanently on the engine (e.g., within the serial number), and this date is readily visible.
- (d) An engine label may state that such engine conforms to any other applicable state or federal emission standards for new spark-ignition marine engines, or any other information that the engine manufacturer deems necessary for, or useful to, the proper operation and satisfactory performance of the engine.
- (e) Engine identification number. Each engine must have a legible, unique engine identification number permanently affixed to or engraved on the engine.

- (f) Supplemental Engine Label Content and Location.
- (1) When a final engine, equipment, or watercraft assembly that is marketed to any ultimate purchaser is manufactured and the engine label affixed by the engine manufacturer is not readily visible, the manufacturer of the final engine, equipment or watercraft assembly (i.e., original equipment manufacturer) must affix a supplemental engine label upon the engine, equipment or watercraft. The supplemental label must be made of plastic or metal, and must be welded, riveted or otherwise affixed permanently to an area of the engine, equipment or watercraft so as to be readily visible.
  - (2) The original equipment manufacturer required to affix a supplemental label must consider the possibility of accidental damage to the supplemental engine label in the determination of the label location. Such a label must not be attached to any engine, equipment or watercraft component that is likely to be replaced during the useful life of the engine, equipment or watercraft (as applicable), and/or is not integral to the engine's operation. Such a label must not be attached to any engine or equipment component that is easily detached from the engine, equipment or watercraft (as applicable).
  - (3) The supplemental engine label must conform to the engine label requirements in Subsections (c)(3) and (4), except that the date of manufacture specified in Subsection (c)(4)(F) may be deleted from the supplemental engine label. When the date of engine manufacture does not appear on the supplemental engine label, the responsible original equipment manufacturer must display (e.g., label, stamp, etc.) the date elsewhere on the engine, equipment or watercraft so as to be readily visible. The original equipment manufacturer must also display the engine identification number elsewhere on the engine that is readily visible if the original number is obscured by the equipment manufacturer's equipment.
- (g) As used in these section, readily visible means that a label is readable by an average person from a distance of 46 centimeters (18 inches) without any obstructions from equipment, watercraft or engine parts (including all engine manufacturer or original equipment manufacturer (as applicable) available optional equipment) except for flexible parts (e.g., vacuum hoses, ignition wires) that can be moved out of the way without disconnection. Alternatively, the label and engine identification information required by these specifications must be no smaller than two (2) millimeters in height (with the exception of units of measurement) provided that no equipment or engine parts (including all engine manufacturer available optional equipment), except for flexible parts, obstruct the label(s).
- (h) The label(s), engine identification number(s) and any adhesives used must be designed to withstand, for the engine's or watercraft s useful life, typical environmental



conditions in the area where the label(s) required by this section are affixed. Typical equipment environmental conditions include, but are not limited to, exposure to extreme heat or cold, engine fuels, lubricants and coolants (e.g., gasoline, motor oil, saltwater, ethylene glycol). The engine manufacturer must submit, with its certification application, a statement attesting that its labels and engine identification numbers comply with these requirements.

- (i) The engine manufacturer must obtain approval from the Executive Officer for all label and engine identification number formats and locations in conjunction with the engine family certification. Approval of specific maintenance settings on labels is not required; however, the format for all such setting and tolerances, if any, is subject to review. If the Executive Officer finds that the information on the label or engine identification number is vague or subject to misinterpretation, or that the location does not comply with these specifications, the Executive Officer may require that the label(s), engine identification number(s) or location(s) be modified accordingly.
- (j) Samples of all actual production labels used within an engine family must be submitted to the Executive Officer within thirty days after the start of production. Engine manufacturers must provide samples of their own applicable production labels, and samples of applicable production original equipment manufacturer labels that are accessible to the engine manufacturers due to the direct market arrangement between such manufacturers.
- (k) The Executive Officer may approve alternate label and engine identification number locations. The Executive Officer may also, upon request, waive or modify the label content requirements provided that the intent of this section is met.
- (l)
  - (1) If the Executive Officer finds any engine manufacturer using labels and engine identification numbers that are different from those approved or do not substantially comply with the readability or durability requirements set forth in these specifications, the engine manufacturer will be subject to revocation or suspension of Executive Orders for the applicable engine families and subject to being enjoined from any further sales, or distribution, of such noncompliant engine families, in the State of California pursuant to section 43017 of the Health and Safety Code. Additional penalties may be assessed to the extent permissible under Part 5, Division 26 of the Health and Safety Code. Before seeking remedial action against the engine manufacturer, the Executive Officer will consider any information provided by the engine manufacturer.
  - (2) If the Executive Officer finds any original equipment manufacturer using labels for which it has responsibility for attaching that are different from those approved or that do not substantially comply with the readability or durability requirements set forth in these specifications, the equipment manufacturer will be

subject to being enjoined from any further sales or distribution, of applicable equipment product line that uses noncompliant labels in the State of California pursuant to section 43017 of the Health and Safety Code. Additional penalties may be assessed to the extent permissible under Part 5, Division 26 of the Health and Safety Code. Before seeking remedial action against the equipment manufacturer, the Executive Officer will consider any information provided by the equipment manufacturer.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

## §2443.2 Consumer/Environmental Label Requirements

- (a) Purpose. The purpose of this section is to require engine manufacturers to affix a single labels on each production spark-ignition marine engine (or watercraft, as applicable) that provides potential engine owners, engine owners, and enforcement personnel with information on the relative cleanliness of the engine under the Air Resources Board s standards.
- (b) Applicability. This section applies to:
  - (1) Model year 2001 and later spark-ignition marine engines, which have been certified to the applicable emission standards pursuant to Health and Safety Code section 43013;
  - (2) Federally certified spark-ignition marine engines produced prior to model year 2001 that comply with the emission standards pursuant to section 2442; and
  - (3) Spark-ignition marine engines produced prior to model year 2001 and shown by the manufacturer to comply with the emission standards pursuant to section 2442.
- (c) If an engine manufacturer has certified a spark-ignition marine engine family to an FEL at or below the exhaust emission standard designated in section 2442 (a), Table 1, the engine manufacturer (or equipment/watercraft manufacturer who uses such engines) must label each new engine within the engine family as a compliant engine-pursuant to this section. If the engine family fails in-use compliance and/or production line testing and corrective action is not taken within thirty (30) days, the engine manufacturer must cease representation of any engines within the family as compliant engines. In this case, corrective action refers only to physical changes made to bring the engine into compliance with its original FEL. Spark-ignition marine engines as described in paragraph (b)(2) may be labeled pursuant to the provisions of this section before the 2001 model year if such engines comply with Title 40, Code of Federal Regulations, Part 91 [October 4, 1996], which is incorporated herein by reference. Spark-ignition marine engines as described in paragraph (b)(3) may be labeled pursuant to the provisions of this section before the 2001 model year if such engines are tested using certification test procedures plus a thirty (30) percent deterioration factor, as applicable. Alternative demonstrations of emissions performance may be used for engines described in paragraphs (b)(2) and (b)(3) if the engine manufacturer demonstrates to the Executive Officer s satisfaction that the emissions performance is representative of actual emissions for the engine family. Any use of the label described below counter to the requirements set forth herein violates this section and may subject the engine manufacturer to penalties as permitted by Part 5, Division 26 of the Health and Safety Code.

(1) Facsimiles of the label format are shown in Figure 1.



**Figure 1**

(NOTE: Labels are not to scale.)

- (A) The engine manufacturer must ensure that the label has the following characteristics:
- (i) Oval shape;
  - (ii) Dimensions of no less than three inches wide by two and a half inches high, except that it may be no less than two inches by one and two thirds inches high for engines that have power outputs of 11.2 kW (15 hp) or less;
  - (iii) A watermark as shown in Figure 2 that is a clear laminate). The watermark must cover the entire label and be screened at no less than fifteen percent; and
  - (iv) All written information required by paragraph (c)(4)(B) must be in the English language and the font must be sans serif. The characters must be a minimum of two (2) millimeters in height except as specified in paragraph (b)(1)(B)(i)(d), and of a color that contrasts with the background on which it is displayed.

**Figure 2**



- (B) Multiple levels of cleanliness. Progressively clean engines shall carry the following notations (as applicable):
- (i) An engine that has an FEL at or below the hydrocarbon plus oxides of nitrogen standard listed in Table 1 of this section for Tier 1 must include the phrase **LOW EMISSION** and a single star symbol as shown in Figure 1.
  - (ii) An engine that has an FEL at or below the hydrocarbon plus oxides of nitrogen standard listed in Table 1 of this section for Tier 2 must include the phrase **VERY LOW** and two star symbols as shown in Figure 1.
  - (iii) An engine that has an FEL at or below the hydrocarbon plus oxides of nitrogen standard listed in Table 1 of this section for Tier 3 must include the phrase **ULTRA LOW EMISSION** and three star symbols as shown in Figure 1.

**Table 1.**

<b>Hydrocarbon plus Oxides of Nitrogen Standards (in g/kW-hr)</b>		
<b>Tier</b>	<b>P &lt; 4.3</b>	<b>P &gt; 4.3</b>
1	81.00	$(0.25 \times (151+557/P^{0.9}))+6.0$
2	64.80	$(0.20 \times (151+557/P^{0.9}))+4.8$
3	30.00	$(0.09 \times (151+557/P^{0.9}))+2.1$

Where P means the average power in kW (sales-weighted) of the subject engine family.

- (iv) All phrases encircling the top portion must have block characters that are a minimum of five (5) millimeters in height except that the characters may be three (3) millimeters for labels sized as allowed pursuant to paragraph (c)(1)(A)(i) for engines that have power outputs of 11.2 kW (15 hp) or less.
- (C) Language other than that specified in paragraph (b)(1)(B) must not be used unless permitted by the Executive Officer.
- (D) The color of the outer oval and stars on the labels must contrast with the engine cover or watercraft hull. The color of the interior oval (i.e., background for the stars) must contrast with the color of the outer oval and stars.
- (2) Label Location. For outboard engines, a single label must be permanently affixed to the back of the engine cover or cowling. For personal watercraft, a single label must be affixed two to three inches to the right of the required

location of the California Assigned Vessel Number displayed on the port side of the hull. Each label must be manufactured and permanently affixed so that it cannot be removed without destroying or defacing the label, must be readily visible and must not be affixed to any location that is likely to be replaced during the engine's useful life. For the purposes of this paragraph, readily visible means that the label's shape and number of stars are discernible from a distance of 100 feet.

- (3) The labels and any adhesives used must be designed to withstand, for the engine's or watercraft's useful life, typical environmental conditions in the area where the labels required by this section are affixed. Typical equipment environmental conditions include, but are not limited to, exposure to extreme heat or cold, moisture, engine fuels, lubricants and coolants (e.g., gasoline, motor oil, saltwater, ethylene glycol). The engine manufacturer must submit, with its certification application, a statement attesting that its labels and engine identification numbers comply with these requirements.
- (4)
  - (A) Labels must be affixed to new watercraft or engines by the engine manufacturer or the original equipment manufacturer. If affixed by the original equipment manufacturer, the engine manufacturer remains the ultimate party responsible for ensuring that the labels are correctly administered. Improper labeling or distribution of labels will subject the engine manufacturer to penalties as described in paragraph (h).
  - (B) Labels on engines or watercraft described in paragraphs (b)(2) and (b)(3) may be applied by either the engine manufacturer, the original equipment manufacturer, distributors or dealers. However, the engine manufacturer remains the ultimate party responsible for ensuring that the labels are correctly administered. Improper labeling or distribution of labels will subject the engine manufacturer to penalties as described in paragraph (h). If the labels are applied by the distributor or dealer, the engine manufacturer must include its name and a serial number on the lower portion of the label as shown in Figure 1. The format of the serial number will be two alpha characters followed by five numeric characters (e.g., AA12345). The serial numbers must be recorded by the distributor or dealer and reported to the manufacturer of the engine when installed on a pre-2001 model year watercraft or engine. These numbers must be made available to the Executive Officer upon request.
- (d) If the engine or watercraft cannot be adequately labeled under the requirements of paragraph (b), the engine manufacturer may request modification of these requirements from the Executive Officer.

- (e) Replacement engines installed in hulls, cowlings or watercraft that had been previously labeled in accordance with these specifications must have identical or improved emissions to that of the original certified engine.
- (f) Samples of all labels produced pursuant to this section must be submitted to the Executive Officer with the applicable certification application.
- (g) Engines that are labeled in accordance with this section and subsequently modified with add-on or modified parts that are not exempted by the Executive Officer, are subject to label removal by an ARB Enforcement Officer or other authorized party.
- (h) If the Executive Officer finds any engine manufacturer using labels for which it has responsibility for attaching that are different from those approved or that do not substantially comply with the discernibility or durability requirements set forth in these specifications, the engine manufacturer will be subject to being enjoined from any further sales or distribution, of applicable equipment product line that uses noncompliant labels in the State of California pursuant to section 43017 of the Health and Safety Code. If the Executive Officer finds any engines or watercraft with labels that are not affixed in accordance with paragraph (c)(1)(B), the engine manufacturer must remove the labels from all affected watercraft and engines and will be subject to being enjoined from any further sales or distribution, of applicable equipment product line that uses noncompliant labels in the State of California pursuant to section 43017 of the Health and Safety Code. Additional penalties may be assessed to the extent permissible under Part 5, Division 26 of the Health and Safety Code. Before seeking remedial action against the engine or equipment manufacturer, the Executive Officer will consider any information provided by the engine or equipment manufacturer.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.







**§2443.3 Environmental Label/Consumer Notification Requirements**

- (a) Applicability. This section applies to model year 2001 and later spark-ignition marine engines, which have been certified to the applicable emission standards pursuant to Health and Safety Code section 43013.
- (b) A nonpermanent label (i.e., hang tag) must be attached to each engine or watercraft, as applicable, at time of sale that includes a copy of the following:

Front of Hang Tag:

*The Star Label means Cleaner Marine Engines*

This engine has been certified as a:

		
		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

(<Check appropriate box.>)

**The Symbol for Cleaner Marine Engines:**

**Cleaner Air and Water** - for a healthier lifestyle and environment.



**Better Fuel Economy** - burns up to 30 - 40 percent less gas and oil than conventional carbureted two-stroke engines, saving money and resources.

**Longer Emission Warranty** - protects consumer for worry free operation.

Back of Hang Tag:

<facsimile of the one star label>

***One Star - Low-Emission***

The one-star label identifies engines that meet the Air Resources Board's 2001 exhaust emission standards. Engines meeting these standards have 75% lower emissions than conventional carbureted two-stroke engines. These engines are equivalent to the U.S. EPA's 2006 standards for marine engines.

<facsimile of the two star label>

***Two Stars - Very Low Emission***

The two-star label identifies engines that meet the Air Resources Board's 2004 exhaust emission standards. Engines meeting these standards have 20% lower emissions than One Star - Low-Emission engines.

<facsimile of the three star label>

***Three Stars - Ultra Low Emission***

The three-star label identifies engines that meet the Air Resources Board's 2008 exhaust emission standards. Engines meeting these standards have 65% lower emissions than One Star - Low Emission engines.

<White Space for dealer or manufacturer identification or additional information>

Cleaner Watercraft - Get the Facts  
1-800-END-SMOG  
www.arb.ca.gov

- (1) Facsimiles of the three environmental labels, as described in section 2443.2(c)(1), with the appropriate label circled or otherwise identified as being applicable to the spark-ignition marine engine, must be displayed on the nonpermanent label. Each facsimile must have dimensions no less than one inch by four-fifths inch.
  - (2) For outboard engines greater than 130 horsepower (97 kilowatts) and all personal watercraft, facsimiles of only the Low Emission Engine and Very Low Emission Engine labels described in sections 2443.2(c)(1)(B)(i) and (ii) need to be displayed on the nonpermanent label until the 2001 model year, or until such time that the Executive Officer deems necessary.
  - (3) All textual information (i.e., characters and/or lettering) required by this section must be no smaller than two (2) millimeters in height.
- (c) The information required by paragraph (b) must also be provided in the owner's manual and in the engine manufacturer's application for certification.
- (d) Samples of all labels produced pursuant to this section must be submitted to the Executive Officer with the applicable certification application.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

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**§2444 In-Use Compliance Testing and Recall Regulations -- Model Year 2001 and Later Spark-Ignition Marine Engines**

- (a) Applicability. This section applies to model year 2001 and later spark-ignition marine engines, which have been certified to the applicable emission standards pursuant to Health and Safety Code section 43013.
- (b) Manufacturer In-Use Compliance Test Procedures.
  - (1) For the purposes of this section, the Air Resources Board will accept emission data collected from the in-use testing program implemented by the United States Environmental Protection Agency as specified in Title 40, Code of Federal Regulations, section 91.803 [October 4, 1996], which is incorporated herein by reference.
  - (2) The Executive Officer, may, upon notice to the engine manufacturer and after review of the engine families identified by the United States Environmental Protection Agency for federal in-use testing, prescribe that a California-specific in-use testing program be conducted pursuant to paragraph (b)(3) at the engine manufacturer's expense if:
    - (A) The results obtained from the federal in-use test program pursuant to paragraphs (b)(1) of this section are determined not to be representative of engines sold and operated in California; or ,
    - (B) The necessity is supported by other data or information (e.g., California-only engine families).
  - (3) California In-Use Testing Program
    - (A) The Executive Officer shall identify engine families and those configurations within families offered for sale in California that the engine manufacturer must then subject to in-use testing for the specified model year. The number of engine families identified shall not exceed 25 percent of the engine manufacturer's families offered for sale in California. The Executive Officer may allow for reduced testing upon the engine manufacturer's demonstration of consistent compliance with the applicable emission standards.
    - (B) Number of Engines to be Tested. The number of engines to be tested by an engine manufacturer must be determined by the following method:
      - (i) A minimum of two (2) engines per family provided that no engine fails any standard. For each failing engine, two (2) more engines must be tested until the total number equals ten.
      - (ii) For engine families of less than 50 engines (California sales) for the identified model year or for engine manufacturers who make less than or equal to 200 engines (California sales) for that model year, a

minimum of one engine per family provided that this engine does not fail any standard. If this engine fails, two (2) more engines shall be tested. For each additional engine failure, the engine manufacturer must continue testing two (2) additional engines until the total number equals eleven.

- (iii) If an engine family was certified using carryover emission data and has been previously tested under paragraph (b)(3)(B) without an ordered recall, then only one engine for that family must be tested. If this engine fails any standard, testing must be conducted as outlined in paragraphs (b)(3)(B), as applicable.
- (C) At the discretion of the Executive Officer, an engine manufacturer may test more engines than the minimums described in paragraph (b)(3)(B) or may concede failure before testing a total of ten engines.
- (D) The Executive Officer will consider failure rates, average emission levels and the existence of any defects among other factors in determining whether to pursue remedial action under this subsection. The Executive Officer may request an ordered recall pursuant to paragraph (e)(2)
- (E) The Executive Officer may approve an alternative to engine manufacturer in-use testing where:
  - (i) engine family production in California is less than or equal to 20 per year; or
  - (ii) engines cannot be obtained for testing because they are used substantially in watercraft that are not conducive to engine removal such as large watercraft where the engine cannot be removed without dismantling either the engine or the watercraft; or
  - (iii) other compelling circumstances associated with the structure of the industry and uniqueness of spark-ignition marine engine applications. Such alternatives shall be designed to determine whether the engine family is in compliance in-use.
- (F) Collection of In-Use Engines. The engine manufacturer shall procure in-use engines that have been operated between half and three-quarters of the engine's useful life. For purposes of paragraph (b) only, useful life means ten (10) years or 350 hours of operation for outboard engines and five (5) years or 350 hours of operation for personal watercraft engines. The engine manufacturer may test engines from more than one model year in a given year. The engine manufacturer shall begin testing within twelve (12) months after receiving notice that the Executive Officer has identified a particular engine family for testing and shall complete testing within twelve months from the start of such testing. Test engines may be procured from sources associated with the engine manufacturer (i.e., manufacturer-established fleet engines, etc.) or from sources not associated with the engine manufacturer (i.e., consumer-owned engines, independently-owned fleet engines, etc.).

- (G) Maintenance, Procurement and Testing of In-Use Engines.
  - (i) A test engine must have a maintenance and use history representative of actual in-use conditions.
    - (a) The engine manufacturer must obtain information from the end users regarding the accumulated usage, maintenance, operating conditions and storage of the test engines.
    - (b) Documents used in the procurement process must be maintained as required by section 30 of the Test Procedures.
  - (ii) The engine manufacturer may perform minimal set-to-specification maintenance on components of a test engine that are not subject to parameter adjustment. Maintenance may include only that which is listed in the owner's manual for engines with the amount of service and age of the acquired test engine. Documentation shall be maintained and retained as required by section 30 of the Test Procedures.
  - (iii) At least one valid emission test, performed according to the test procedures outlined in Part IV of the Test Procedures is required for each in-use engine.
  - (iv) The Executive Officer may waive portions or requirements of the test procedures, if any, that are not necessary to determine in-use compliance.
  - (v) If a selected in-use engine fails to comply with any applicable emission standard, the engine manufacturer must determine the reason for noncompliance. The engine manufacturer must report all such reasons of noncompliance within fifteen days of completion of testing.

(c) Reports and Evaluation

- (1) The engine manufacturer must maintain and submit sufficient records to the Executive Officer within three months of completing testing from the in-use program. These records must include, but need not be limited to, the following for each test engine:
  - (A) Engine family.
  - (B) Engine model.
  - (C) Engine identification (or serial) number.
  - (D) Date of manufacture.
  - (E) Estimated hours of use.
  - (F) Date and time of each test attempt.
  - (G) Results (if any) of each test attempt.
  - (H) Results of all emission testing.
  - (I) Summary of all maintenance and/or adjustments performed.
  - (J) Summary of all modifications and/or repairs.

- (K) Determinations of noncompliance and probable causes of failure.
- (L) Description of operating and storage conditions.

- (2) If the results of the in-use emission tests indicate that the average emissions of the test engines for any regulated pollutant exceed the applicable emission standards specified in Title 13, California Code of Regulations, section 2442, the entire engine population so represented shall be deemed to exceed the standards. The Executive Officer shall notify the engine manufacturer of the test results and upon receipt of the notification, the engine manufacturer has 45 days to submit a plan to make up all excess emissions resulting from in-use testing non-compliance in accordance with paragraph (c)(3). If excess emissions cannot be made up in accordance with paragraph (c)(3), the engine manufacturer must implement a voluntary recall plan in accordance with the applicable portions of paragraphs (d) and (e). If ~~no~~ excess emissions cannot be made up in accordance with paragraph (c)(3) and the engine manufacturer does not implement a voluntary recall plan, the Executive Officer may prescribe the implementation of an ordered recall pursuant to the applicable portions of paragraph (e)(2).
- (3) All excess emissions resulting from in-use noncompliance with the California standard must be made up in the model year following the model year in which the notification of noncompliance is received. In-use noncompliance may not be remedied through implementation of the federal in-use credit program described in Title 40, Code of Federal Regulations, Part 91, Subpart N [October 4, 1996]. As an alternative to recall and with prior approval from the Executive Officer, the engine manufacturer may make up the excess emissions by any one or combination of the following options:
  - (A) Recertification of the noncompliant engine family to a lower emission level (or higher FEL) that makes up for the noncompliance, while maintaining compliance on a corporate average basis;
  - (B) Implementation of a running change and/or field fix on the noncompliant engine family;
  - (C) Implementation of market-based incentives, to be approved by the Executive Officer, to make up the noncompliance; or
  - (D) Payment of a noncompliance penalty to be determined by the Executive Officer on a per engine basis as provided by Part 5, Division 26 of the Health and Safety Code.

(d) Voluntary Emission Recalls

- (1) When an engine manufacturer initiates a voluntary emission recall campaign, the Executive Officer shall be notified of the recall at least thirty (30) days before owner notification is to begin. The engine manufacturer shall also submit a voluntary recall plan for approval, as described in paragraph (e) below. A

voluntary recall plan shall be deemed approved by the Executive officer within thirty (30) days after receipt of the recall plan unless objected to in the interim.

- (2) (A) When any engine manufacturer, based on enforcement test results or any other information provided to or required by the ARB, proposes to initiate a voluntary emission recall program, the engine manufacturer shall submit for approval by the Executive Officer an emission recall plan as described in paragraph (e) below. The plan shall be submitted within 45 days following the receipt of a notification from the ARB that enforcement test results or other information demonstrate an engine noncompliance.
- (B) The Executive Officer shall approve the recall plan in writing if it contains the information specified in paragraph (e) where specified and is designed to notify the engine/watercraft owner and correct the noncompliance in an expeditious manner. Notification of engine/watercraft owners and the implementation of recall repairs shall commence no later than the schedule specified under paragraph (e)(1)(C) and (e)(1)(D), respectively, unless the engine manufacturer can show good cause for the Executive Officer to extend the deadline. If the plan does not contain the provisions of paragraph (e), the Executive Officer shall disapprove the plan in writing and require revisions where deemed necessary. The engine manufacturer may contest such a disapproval by requesting a hearing pursuant to Subchapter 1.25, Title 17, California Code of Regulations. If no request for a hearing is made or the hearing upholds the disapproval, the engine manufacturer shall incorporate all requested revisions to the plan and begin implementation of the recall plan within sixty (60) days of receipt of the disapproval.
- (C) The engine manufacturer may also request a public hearing pursuant to the procedures set forth in Subchapter 1.25, Title 17, California Code of Regulations to contest the finding of nonconformity and the need for an ordered recall. If such a hearing occurs and the nonconformity is confirmed therefrom, the engine manufacturer shall submit the recall plan required by paragraph (e)(2) within thirty (30) days after receipt of the Board's decision unless an extension is granted by the Executive Officer.

(e) Voluntary and Ordered Recall Plans

- (1) The recall plan for voluntary and ordered recalls must be submitted to the Executive Officer for review and must contain the following information unless otherwise specified:
  - (A) A description of each class or category of engines recalled, including the number of engines to be recalled, the model year, and such other information as may be required to identify the engines recalled;
  - (B) A description of the specific modifications, alterations, repairs, corrections,

- adjustments or other changes to be made to correct the engines affected by the emission-related defect;
- (C) A description of the method by which the engine manufacturer will notify engine/watercraft owners;
  - (D) A description of the procedure to be followed by engine/watercraft owners to obtain correction of the nonconformity. This may include the date on or after which the engine/watercraft owner can have the nonconformity corrected, the time reasonably necessary to perform the labor to correct the nonconformity and the designation of facilities at which the nonconformity can be remedied;
  - (E) A description of the class of persons other than dealers and authorized warranty agents of the engine manufacturer who will remedy the defect;
  - (F) A description of the system by which the engine manufacturer will assure that an adequate supply of parts is available to perform the repair under the plan, including the date by which an adequate supply of parts will be available to initiate the repair campaign, and the method to be used to assure the supply remains both adequate and responsive to engine/watercraft owner demand.
  - (G) A copy of the letter of notification to be sent to engine/watercraft owners;
  - (H) A copy of all necessary instructions to be sent to those persons who are to perform the repair;
- (2) For an ordered recall, the recall plan shall include the information required for voluntary recall plans as specified in paragraphs (e)(1). Additionally, it shall include the following:
- (A) A plan describing how the maximum feasible capture rate will be achieved for recalls based on either the exceedance of emission standard or on the failure of an emission-related component.
  - (B) The plan shall also include a schedule for implementing actions to be taken including identified increments of progress towards implementation and deadlines for completion of each increment. If, after good faith efforts, the engine manufacturer cannot reach the maximum feasible capture rate by the applicable deadline, the engine manufacturer must propose mitigation efforts to be approved by the Executive Officer that will offset the emissions of the unrepaired engines.
- (3) The engine manufacturer must not condition repair of the noncomplying engine/watercraft on the proper maintenance or use of the engine except for compelling reasons approved by the Executive Officer. The engine manufacturer, however, is not obligated to repair a component which has been removed or modified.
- (4) Record keeping and Reporting Requirements.
- (A) The engine manufacturer shall report on the progress of the voluntary or



ordered recall program by submitting a report one year from the date owner notification begins and a final report an additional year later . Such reports shall be submitted to the Chief, Mobile Source Operations Division, P.O. Box 8001, 9528 Telstar Avenue, El Monte, CA 91734-8001. For each class of engine subject to the recall program, the yearly report shall contain:

- (i) Engine family and emission recall campaign number designated by the engine manufacturer.
  - (ii) Date engine/watercraft owner notification was begun, and date completed.
  - (iii) Number of engines involved in the voluntary or ordered recall campaign.
  - (iv) Number of engines known or estimated to be affected by the nonconformity and an explanation of how this number was determined.
  - (v) Number of engines inspected pursuant to the voluntary or ordered recall plan.
  - (vi) Number of inspected engines found to be affected by the nonconformity.
  - (vii) Number of engines receiving repair under the recall plan and a listing of these engines engine identification numbers.
  - (viii) Number of engines determined to be ineligible for recall action due to removed or modified parts.
  - (ix) A copy of any service bulletins transmitted to dealers or other authorized repair facilities which pertain to the nonconformity to be corrected and that have not previously been reported.
  - (x) A copy of all communications transmitted to engine/watercraft owners that relate to the nonconformity and that have not previously been submitted.
- (B) If the engine manufacturer determines that any of the information submitted pursuant to paragraph (5)(A) above has changed or was incorrect, revised information and an explanation must be submitted. Responses to subsections (5)(A)(v),(vi),(vii),(viii) and (ix) above shall be cumulative totals.
- (C) The engine manufacturer shall maintain the names and addresses of engine/watercraft owners:
- (i) To whom notification was given;
  - (ii) Whose engines were repaired or inspected under the recall plan; and
  - (iii) Whose engines were determined not to qualify for repair due to removed or modified components.
- (D) All reports shall be maintained for not less than one year beyond the useful life of the engines and shall be made available to authorized personnel of the ARB upon request.

- (f) Penalties. Under an ordered recall, failure of the engine manufacturer to notify the engine/watercraft owners and repair the engines in the manner specified in the recall plan constitutes a violation of Health and Safety Code section 43105 and subjects the engine manufacturer to penalties pursuant to Part 5, Division 26 of the Health and Safety Code.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

**§2445.1 Defects Warranty Requirements for Model Year 2001 and Later Spark-Ignition Marine Engines**

- (a) **Applicability.** This section applies to model year 2001 and later spark-ignition marine engines. The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser or first placed into service (e.g., a demonstration engine or watercraft).
- (b) **General Emissions Warranty Coverage.** The manufacturer of each spark-ignition marine engine must warrant to the ultimate purchaser and each subsequent purchaser that the engine is:
  - (1) Designed, built and equipped so as to conform with all applicable regulations adopted by the Air Resources Board pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code; and
  - (2) Free from defects in materials and workmanship that cause the failure of a warranted part to be identical in all material respects to that part as described in the engine manufacturer's application for certification.
- (c) **Warranty Period.** In the case of all new, spark-ignition marine engines, the warranty period will be 4 years or 250 hours of use, whichever occurs first.
- (d) **Subject to the conditions and exclusions of Subsection (g), the warranty on emission-related parts is as follows:**
  - (1) Any warranted part that is not scheduled for replacement as required maintenance in the written instructions required by Subsection (e) must be warranted for the warranty period defined in Subsection (c). If the part fails during the period of warranty coverage, the part must be repaired or replaced by the engine manufacturer according to Subsection (4) below. Any such part repaired or replaced under warranty must be warranted for the remainder of the period.
  - (2) Any warranted part that is scheduled only for regular inspection in the written instructions required by Subsection (e) must be warranted for the warranty period defined in Subsection (c). A statement in such written instructions to the effect of "repair and replace as necessary" will not reduce the period of warranty coverage. Any such part repaired or replaced under warranty must be warranted for the remaining warranty period.
  - (3) Any warranted part that is scheduled for replacement as required maintenance in the written instructions required by Subsection (e) must be warranted for the

period of time before the first scheduled replacement date for that part. If the part fails before the first scheduled replacement, the part must be repaired or replaced by the engine manufacturer according to Subsection (4) below. Any such part repaired or replaced under warranty must be warranted for the remainder of the period prior to the first scheduled replacement point for the part.

- (4) Repair or replacement of any warranted part under the warranty provisions of this article must be performed at a warranty station at no charge to the owner.
  - (5) Notwithstanding the provisions of Subsection (4), warranty services or repairs must be provided at all engine manufacturer distribution centers that are franchised to service the subject engines.
  - (6) The engine owner must not be charged for diagnostic labor that is directly associated with diagnosis of a defective, emission-related warranted part, provided that such diagnostic work is performed at a warranty station.
  - (7) The engine manufacturer is liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.
  - (8) Throughout the engine's warranty period defined in Subsection (c), the engine manufacturer must maintain a supply of warranted parts sufficient to meet the expected demand for such parts.
  - (9) Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of the engine manufacturer.
  - (10) Add-on or modified parts that are not exempted by the Air Resources Board may not be used. Such use by the ultimate purchaser will be grounds for disallowing a warranty claim made in accordance with this article. The engine manufacturer will not be liable under this article to warrant failures of warranted parts caused by the use of an add-on or modified part.
  - (11) The Executive Officer may request and, in such case, the engine manufacturer must provide, any documents that describe that engine manufacturer's warranty procedures or policies.
- (e) Each engine manufacturer must provide a copy of the following emission warranty parts list with each new engine, using those portions of the list applicable to the engine. The list is not exhaustive and may be modified by the Executive Officer as needed.

- (1) Fuel Metering System
  - (A) Carburetor and internal parts (and/or pressure regulator or fuel injection system)
  - (B) Air/fuel ratio feedback and control system
  - (C) Cold start enrichment system
  - (D) Intake valve(s)
  
- (2) Air Induction System
  - (A) Controlled hot air intake system
  - (B) Intake manifold
  - (C) Air Filter
  - (D) Turbocharger systems
  - (E) Heat riser valve and assembly
  
- (3) Ignition System
  - (A) Spark plugs
  - (B) Magneto or electronic ignition system
  - (C) Spark advance/retard system
  - (D) Ignition coil and/or control module
  - (E) Ignition wires
  
- (4) Lubrication System
  - (A) Oil pump and internal parts
  - (B) Oil injector(s)
  - (C) Oil meter
  
- (5) Positive Crankcase Ventilation (PCV) System
  - (A) PCV valve
  - (B) Oil filler cap
  
- (6) Exhaust Gas Recirculation (EGR) System
  - (A) EGR valve body, and carburetor spacer if applicable
  - (B) EGR rate feedback and control system
  
- (7) Air Injection System
  - (A) Air pump or pulse valve
  - (B) Valves affecting distribution of flow
  - (C) Distribution manifold
  
- (8) Exhaust System
  
- (9) Catalyst or Thermal Reactor System

- (A) Catalytic converter
  - (B) Thermal reactor
  - (C) Exhaust manifold
  - (D) Exhaust valve(s)
- (10) Miscellaneous Items Used in Above Systems
- (A) Hoses, clamps, fittings, tubing, sealing gaskets or devices, and mounting hardware
  - (B) Pulleys, belts and idlers
  - (C) Vacuum, temperature, check, and time sensitive valves and switches
  - (D) Electronic Controls
- (f) Each engine manufacturer must provide with each new engine written instructions for the maintenance and use of the engine by the owner. The instructions must be consistent with this Article. A copy of the instructions for each engine family must be provided to the Executive Officer upon commencement of its production.
- (g) Exclusions.
- (1) The repair or replacement of any warranted part otherwise eligible for warranty coverage under Subsection (d) may be excluded from such warranty coverage if the engine manufacturer demonstrates that the engine has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for the repair or replacement of the part.
  - (2) Engine manufacturers must warrant engines for the yearly warranty period specified in paragraph (c) unless the engines:
    - (A) are equipped with hour meters;
    - (B) are equipped with devices similar to hour meters that are approved by the Executive Officer; or
    - (C) are or will be accompanied by other evidence or methods that the Executive Officer determines reliable for determining engine usage in hours.
  - (3) Except as provided in Subsection (1) above, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device (such as an idle limiter cap or plug) is eligible for warranty coverage under Subsection (d).

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5

and 43210-43212, Health and Safety Code.

## § 2445.2 Emission Control Warranty Statement

- (a) Each engine manufacturer must provide a verbatim copy of the following statement with each new 2001 model year and later spark-ignition marine engine, using those portions of the statement applicable to the engine.

### **CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS**

The California Air Resources Board (and engine manufacturer's name, optional) are pleased to explain the emission control system warranty on your (model year)(outboard, or personal watercraft) engine. In California, new (outboard, or personal watercraft) engines must be designed, built and equipped to meet the State's stringent anti-smog standards. (Engine manufacturer's name) must warrant the emission control system on your (outboard, or personal watercraft) engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your (outboard or personal watercraft) engine.

Your emission control system may include parts such as the carburetor or fuel injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, (engine manufacturer's name) will repair your (outboard or personal watercraft) engine at no cost to you, including diagnosis, parts and labor.

#### **MANUFACTURER'S WARRANTY COVERAGE:**

Select emission control parts from model year 2001 and later (outboard or personal watercraft) engines are warranted for 4 years, or for 250 hours of use, whichever occurs first. However, warranty coverage based on the hourly period is only permitted for outboard engines and personal watercraft equipped with appropriate hour meters. If any emission-related part on your engine is defective under warranty, the part will be repaired or replaced by (engine manufacturer's name).

#### **OWNER'S WARRANTY RESPONSIBILITIES:**

- As the (outboard or personal watercraft) engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. (Engine manufacturer's name) recommends that you retain all receipts covering maintenance on your (outboard or personal watercraft) engine, but (engine manufacturer's name) cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.
- As the (outboard or personal watercraft) engine owner, you should however be aware that



(engine manufacturer's name) may deny you warranty coverage if your (outboard or personal watercraft) engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

- You are responsible for presenting your (outboard or personal watercraft) engine to a (engine manufacturer's name) distribution center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact (Insert chosen contact of engine manufacturer) at 1-XXX-XXX-XXXX.

- (b) Commencing with the 2001 model year, each engine manufacturer must also provide with each new engine a warranty statement in accordance with section 2445.1, Title 13, California Code of Regulations, that generally describes the obligations and rights of the engine manufacturer and engine owner under this article. Engine manufacturers must also include in the warranty statement a phone number the consumer may use to obtain their nearest franchised service center.
- (c) Each engine manufacturer must submit the documents required by Subsections (a) and (b) with the engine manufacturer's application for new engine certification for approval by the Executive Officer. The Executive Officer may reject or require modifications of the documents to the extent the submitted documents do not satisfy the requirements of Subsections (a) and (b). Approval by the Executive Officer of the documents required by Subsections (a) and (b) is a condition of certification. The Executive Officer will approve or disapprove the documents required by Subsections (a) and (b) within ninety (90) days of the date such documents are received from the engine manufacturer. Any disapproval must be accompanied by a statement of reasons therefore. In the event of disapproval, the engine manufacturer may petition the Board to review the decision of the Executive Officer pursuant to Subchapter 1.25 of Title 17, California Code of Regulations.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

**§2446. 2001 and Subsequent Model Year Production-Line Test Procedures and Selective Enforcement Auditing Regulations for Spark-Ignition Marine Engines**

- (a) Applicability. This section applies to 2001 and subsequent spark-ignition marine engines. The allowable methods of production-line testing are specified in paragraphs (b) and (c), unless the engine manufacturer can satisfactorily provide an alternate method that shows an equivalent assurance of compliance to that of paragraph (b). The engine manufacturer must choose only one method for each model year and submit its method of production-line testing to the Executive Officer for approval no later than 90 days prior to the start of the subject model year production.
- (b) 2001 and Subsequent Model Year Quality-Audit Production Line Test Procedures
  - (1) Engine Sample Selection
    - (A) Except as provided in subsection (b)(2), the engine manufacturer must randomly select one percent of the California sales volume of engines from each engine family for quality-audit testing.
    - (B) The Executive Officer may, upon notice to the engine manufacturer, require the sample rate to be increased to a maximum of ten percent of production (not to exceed 30 additional engines or units of equipment) of the calendar quarterly production of any engine family.
  - (2) Alternate Quality-Audit Engine Selection Criteria For 2001 and Subsequent Model Years
    - (A) An engine manufacturer may use the alternate engine selection method outlined in this Subsection.
    - (B) Engines or equipment must be randomly selected at a rate of 1.0 percent of engine family production at the beginning of production. When test results of the first 10 engines or units of equipment have been accumulated, an evaluation as indicated below must be made.
    - (C) Calculate the family mean and standard deviation of HC+NO<sub>x</sub>. Identify engines or units of equipment that have emission levels greater than three standard deviations above the mean. Eliminate these emission data points and recalculate the mean and standard deviation. Continue the calculation until there are no values greater than three standard deviations above the mean. Count the number of these data points greater than the emission standard (outlier). If the total number of outlier is equal to or less than the allowable number in Table 1 for each pollutant, the engine family is eligible to continue to a second evaluation, shown in paragraph (D) below. Otherwise, sampling must continue at a rate of 1.0 percent of production for the rest of the month.
    - (D) If the allowable outlier criterion is met, the family mean standard deviation,

and sample size determined for each contaminant before excluding any outlier, are substituted in the following expression:

$$\frac{(\text{emission standard} - \text{mean}) (N)^{0.5}}{(\text{standard deviation})}$$

- (E) If the expression is greater than C in Table 2 below, and the engine manufacturer reasonably estimates that the quarterly engine family production will exceed 5,000 engines or units of equipment, the sampling rate for the remaining portion of the calendar month following the date of selection of the last of the 10 engines or equipment is 10 per month, applied on a prorated basis. If the expression is greater than C in Table 2 below, and the engine manufacturer reasonably estimates that the quarterly engine family production will be 5,000 engines or units of equipment or less, the sampling rate for the remaining portion of the calendar month following the date of selection of the last of the 10 engines or equipment is 5 per month, applied on a prorated basis. If the expression is equal to or less than C in Table 2, the sampling rate continues to be 1.0 percent of production for the remaining portion of the month in which selection of the 10 engines or equipment is completed. The value of C is a function of the coefficient of variation (standard deviation/mean). The coefficient of variation and "C" must be rounded to the number of decimal places shown in Table 2.

Table 1

Sample Size	Allowable Outlier	Sample Size	Allowable Outlier
1- 32	1	430-478	11
33- 68	2	479-528	12
69-107	3	529-578	13
108-149	4	579-629	14
150-193	5	630-680	15
194-238	6	681-731	16
239-285	7	732-783	17
286-332	8	784-835	18
333-380	9	836-887	19
381-429	10	888-939	20

Table 2

Coefficient of Variation	C
0.1	0.5
0.2	1.2
0.3	1.8
0.4	2.5
0.5	3.1
0.6	3.8
0.7	4.4
0.8	5.1
0.9	5.7

- (F) At the conclusion of each month of quarterly engine family production, the emission test data must be evaluated in order to determine the sampling rate as set forth in Paragraphs C and D above. This evaluation must utilize all test data accumulated in the applicable quarter. The sample rate for the next month of production must be determined as follows: ten (10) engines per month when the engine manufacturer's estimated quantity of quarterly engine family production is greater than 5,000; five (5) engines per month when the engine manufacturer's estimated quantity of quarterly engine family production is equal to or less than 5,000; or, one (1) percent of the quarterly engine family production as determined by the sampling evaluation method set forth in Paragraphs D and E.
- (G) For each subsequent quarter, the preceding sample selection method must be followed. The sample rate determination for the first month of each subsequent quarter must be based on the accumulated data from the previous quarter. The sample rate for the succeeding months of the quarter must be determined as previously set forth.
- (H) If the start of production does not coincide with the first of a quarter, the sequence for sample rate determination must be followed, but references to remaining calendar months may not be appropriate.
- (I) Where an engine manufacturer has sampled engines or equipment at a rate of 5 per month following a reasonable estimate that the quarterly engine family production will be 5,000 engines or units of equipment or less, and subsequently determines, or reasonably should determine based on information available to the engine manufacturer, that the quarterly engine family production will exceed 5,000 engines or units of equipment, the engine manufacturer must increase the sampling rate for the quarter such that the requirements of Paragraph D applicable to families reasonably estimated to exceed a quarterly production of 5,000 engines or units of equipment are satisfied.

- (3) Compliance Evaluation
- (A) Each engine manufacturer must review the test results of the first 10 test engines or equipment of each engine family, from each calendar quarter of production or from the start of calendar year production. It must also review the quarter's cumulative test results of each engine family at the end of each month. If 10 or more engines or units of equipment have been tested, the engine manufacturer must notify the Chief of the Mobile Source Operations Division and the Manager of the New Vehicle Audit Section, P.O. Box 8001, 9528 Telstar Avenue, El Monte, CA, 91734-8001, in writing within ten working days whenever an engine family exceeds an emission standard.
  - (B) At the end of the quarter, all of the data accumulated during the quarter are evaluated, and the compliance of the engine family with the family emission levels or emission standards, whichever is applicable, is determined. If a sample size for a particular production quarter is less than ten engines, the data from that quarter must be combined with all of the data from each successive quarter of the calendar year until data from at least ten engines that have been quality-audit tested are included in the quarterly evaluation. If the sample size for the first quarter's production for a calendar year does not contain at least ten engines, the data available for that quarter are evaluated. However, compliance of the engine family with the family emission levels or emission standards, whichever is applicable, is not determined until subsequent quarterly production data is available that includes evaluations of at least ten engines. If the sample size for the last final quarter's production for a calendar year does not contain at least ten engines, the data from the last final quarter must be combined with all the data from each preceding quarter of the calendar year until the sample size contains at least ten engines.
  - (C) When the average value of any pollutant that is rounded off to the same number of significant digits as is the standard, in accordance with ASTM E 29-93a (exceeds the applicable family emission level or emission standard, whichever is applicable; or, when the engine manufacturer's submitted data reveal that the production line tests were performed improperly, the engine family may be determined to be in noncompliance. The Executive Officer will follow the manufacturer notification procedures in section (d)(4).
  - (D) A failed engine is one whose emission test results for a regulated pollutant exceeds the emission standard or FEL, as applicable.
- (4) Reports
- (A) Each engine manufacturer shall submit a written report to the ARB within 45 calendar days of the end of each calendar quarter.
  - (B) The quarterly report shall include the following:
    - (i) The total production and sample size for each engine family.

- (ii) engine identification numbers and explanation of the identification code.
  - (iii) The applicable emissions standards or Family Emission Levels for each engine family.
  - (iv) A description of each test engine or equipment (i.e., date of test, engine family, engine size, engine or equipment identification number, fuel system, dynamometer power absorber setting in horsepower or kilowatts, engine code or calibration number, and test location).
  - (v) The exhaust emission data for HC+NO<sub>x</sub> for each test engine or equipment. The data reported shall provide two significant figures beyond the number of significant figures in the applicable emission standard.
  - (vi) The retest emissions data, as described in Paragraph (v) above for any engine or unit of equipment failing the initial test, and description of the corrective measures taken, including specific components replaced or adjusted.
  - (vii) A statistical analysis of the quality-audit test results for each engine family stating:
    1. Number of engines or units of equipment tested.
    2. Average emissions and standard deviations of the sample for HC+NO<sub>x</sub>.
  - (viii) Every aborted test data and reason for the aborted test.
  - (ix) The applicable quarterly report shall include the date of the end of the engine manufacturer's model year production for an engine family.
  - (x) The required information for all engine families in production during the quarter regardless of sample size.
  - (xi) The start and stop dates of batch-produced engine family production.
- (C) Each engine manufacturer shall submit a copy of the report that has been stored (e.g., computer disc), or may be transmitted, in an electronically digitized manner, and in a format that is specified by the Executive Officer. This electronically based submission is in addition to the written submission of the report.

(c) 2001 and Later Model Year Cumulative Sum Production-Line Test Procedures

(1) Engine Sample Selection

- (A) At the start of each model year, the engine manufacturer will begin to randomly select engines from each engine family with California sales greater than 20 units for production line testing, according to the criteria specified herein.

- (i) For newly certified engine families: After two (2) engines are tested, the engine manufacturer will calculate the required sample size for the model year according to the Sample Size Equation in paragraph (c)(1)(B) of this section.
- (ii) For carry-over engine families: After one engine is tested, the engine manufacturer must combine the test with the last test result from the previous model year and then calculate the required sample size for the model year according to the Sample Size Equation in paragraph (B) of this section.
- (iii) The engines must be representative of the engine manufacturer's California sales. Each engine will be selected from the end of the assembly line. All engine models within the engine family must be included in the sample pool. Each selected engine for quality-audit testing must pass the inspection test, by being equipped with the appropriate emission control systems certified by the ARB. The procedure for randomly selecting engines or units of equipment must be submitted to the Chief, Mobile Source Operations Division, P.O. Box 8001, 9528 Telstar Avenue, El Monte, CA, 91734-8001, before the start of production for the first year of production.
- (iv)
  - (a) Prior to the beginning of the 2001 model year, if an engine manufacturer cannot provide actual California sales data, it must provide its total production and an estimate of California sales at the end of the model year. The engine manufacturer must also provide supporting material for its estimate.
  - (b) For the 2001 and later model years, engine manufacturers must provide actual California sales, or other information acceptable to the Executive Officer, including, but not limited to, an estimate based on market analysis and federal production or sales.
- (B) (i) Engine manufacturers must calculate the required sample size for the model year for each engine family using the Sample Size Equation below.  $N$  is calculated from each test result. The number  $N$  indicates the number of tests required for the model year for an engine family.  $N$  is recalculated after each test. Test results used to calculate the variables in the Sample Size Equation must be final deteriorated test results as specified in paragraph (c)(3)(C).

Install Equation Editor and double-click here to view equation.

where:

- $N$
- $t_{95}$  = 95% confidence coefficient. It is dependent on the actual number of tests completed,  $n$ , as specified in the table in paragraph (c)(1)(B)(ii) of this section. It defines one-tail, 95% confidence intervals.
- $FEL_{jx}$  = Family Emission Limit
- $\sigma$  = actual test sample standard deviation calculated from the following equation:

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where:

- $X_i$  = emission test result for an individual engine
- $\bar{x}$  = mean of emission test results of the actual sample
- $n$  = The actual number of tests completed in an engine family

- (ii) Actual Number of Tests ( $n$ ) and 1-tail Confidence Coefficients ( $t_{95}$ ) are listed in Table 3 below:



**Table 3**  
Actual Number of Tests (n) and 1-tail Confidence Coefficients ( $t_{95}$ )

n	$t_{95}$	n	$t_{95}$	n	$t_{95}$
2	6.31	12	1.80	22	1.72
3	2.92	13	1.78	23	1.72
4	2.35	14	1.77	24	1.71
5	2.13	15	1.76	25	1.71
6	2.02	16	1.75	26	1.71
7	1.94	17	1.75	27	1.71
8	1.90	18	1.74	28	1.70
9	1.86	19	1.73	29	1.70
10	1.83	20	1.73	30	1.70
11	1.81	21	1.72	$\infty$	1.645

- (iii) An engine manufacturer must distribute the testing of the remaining number of engines needed to meet the required sample size N, evenly throughout the remainder of the model year.
- (iv) After each new test, the required sample size, N, is recalculated using updated sample means, sample standard deviations and the appropriate 95% confidence coefficient.
- (v) An engine manufacturer must continue testing and updating each engine family's sample size calculations according to paragraphs (c)(1)(B)(i) through (c)(1)(B)(iv) of this section until a decision is made to stop testing as described in paragraph (c)(1)(B)(vi) of this section or a noncompliance decision is made pursuant to paragraph (c)(2)(A)(v) of this section.
- (vi) If, at any time throughout the model year, the calculated required sample size, N, for an engine family is less than or equal to the actual sample size, n, and the sample mean,  $\bar{x}$ , for each regulated pollutant is less than or equal to the FEL for that pollutant, the engine manufacturer may stop testing that engine family except as required by paragraph

- (c)(2)(A)(vi).
  - (vii) If, at any time throughout the model year, the sample mean,  $\bar{x}$ , for any regulated pollutant is greater than the FEL, the engine manufacturer must continue testing that engine family at the appropriate maximum sampling rate.
  - (viii) The maximum required sample size for an engine family (regardless of the required sample size,  $N$ , as calculated in paragraph (c)(1)(B)(i) of this section) is thirty (30) tests per model year.
  - (ix) Engine manufacturers may elect to test additional randomly chosen engines. All additional randomly chosen engines tested in accordance with the testing procedures specified in the Test Procedures must be included in the Sample Size and Cumulative Sum equation calculations as defined in paragraphs (c)(1)(B)(i) and (c)(2)(A)(i) of this section, respectively.
  - (C) The engine manufacturer must produce and assemble the test engines using its normal production and assembly process for engines to be distributed into commerce.
  - (D) No quality control, testing, or assembly procedures may be used on any test engine or any portion thereof, including parts and subassemblies, that have not been or will not be used during the production and assembly of all other engines of that family, unless the Executive Officer approves the modification.
- (2) Calculation of the Cumulative Sum Statistic
- (A) Each engine manufacturer must review the test results obtained in paragraph (c)(1) using the following procedure:
    - (i) Engine manufacturers must construct the following Cumulative Sum Equation for each regulated pollutant for each engine family. Test results used to calculate the variables in the Cumulative Sum Equation must be final deteriorated test results as defined in paragraph (c)(3)(C).

Install Equation Editor and double-click here to view equation.

where:

- $C_i$  = The current Cumulative Sum statistic
- $C_{i-1}$  = The previous Cumulative Sum statistic. Prior to any testing, the Cumulative Sum statistic = 0 (i.e.  $C_0 = 0$ )

$X_i$  = The current emission test result for an individual engine

$FEL_{jx}$  = Family Emission Limit

$F$  =  $0.25 \times \sigma$

After each test,  $C_i$  is compared to the action limit,  $H$ , the quantity that the Cumulative Sum statistic must exceed, in two (2) consecutive tests, before the engine family may be determined to be in noncompliance for purposes of paragraphs (a)(2)(A)(iv) and (a)(2)(A)(v).

$H$  = The Action Limit. It is  $5.0 \times \sigma$ , and is a function of the standard deviation,  $\sigma$ .

$\sigma$  = is the sample standard deviation and is recalculated after each test.

- (ii) After each engine is tested, the Cumulative Sum statistic must be promptly updated according to the Cumulative Sum Equation in paragraph (c)(2)(A)(i) of this section.
- (iii) If, at any time during the model year, an engine manufacturer amends the application for certification for an engine family as specified in Part I, section 28 or 29 of the Test Procedures by performing an engine family modification (i.e., a change such as a running change involving a physical modification to an engine, a change in specification or setting, the addition of a new configuration, or the use of a different deterioration factor), all previous sample size and Cumulative Sum statistic calculations for the model year will remain unchanged.
- (iv) A failed engine is one whose final deteriorated test results pursuant to paragraph (c)(3)(C), for a regulated pollutant exceeds the FEL for that pollutant.
- (v) An engine family may be determined to be in noncompliance, if at any time throughout the model year, the Cumulative Sum statistic,  $C_i$ , for, a regulated pollutant is greater than the action limit,  $H$ , for two (2) consecutive tests.
- (vi) The engine manufacturer must perform a minimum of two tests per engine family per quarter, regardless of whether the conditions of paragraph (c)(1)(B)(vi) have been met. The Executive Officer may waive the requirement of this paragraph if the engine manufacturer does not have a failing engine family in the prior two model years of testing.
- (vii) All results from previous quarters of the same model year

must be included in the on-going Cumulative Sum analysis, provided that the engine family has not failed (e.g., if three engines of a family were tested in the first quarter, the first test of the second quarter would be considered as the fourth test).

- (viii) If the Cumulative Sum analysis indicates that an engine family has failed, the engine manufacturer must notify the Chief of the Mobile Source Operations Division, in writing and by telephone, within ten working days. Corrective action will be taken as noted in paragraph (c)(4)(E).
  - (ix) If an engine manufacturer performs corrective action on a failed engine family and then resumes production, all previous tests will be void, and Cumulative Sum analysis will begin again with the next test.
- (B) Within 45 days after the end of the quarter, or when the Cumulative Sum analysis indicates that a decision has been made, the engine manufacturer must provide all the data accumulated during the quarter.
- (3) Calculation and Reporting of Test Results.
- (A) Initial test results are calculated following the applicable test procedure specified in the Test Procedures.
  - (B) Final test results are calculated by summing the initial test results derived in paragraph (A) for each test engine and dividing by the number of tests conducted on the engine.
  - (C) The final deteriorated test results for each test engine are calculated by applying the appropriate deterioration factors, derived in the certification process for the engine family, to the final test results, and rounding in accordance with ASTM E29-93a, incorporated by reference herein, to the same number of decimal places contained in the applicable standard expressed to one additional significant figure.
  - (D) If, at any time during the model year, the Cumulative Sum statistic exceeds the applicable action limit, H, in two (2) consecutive tests, the engine family may be determined to be in noncompliance and the engine manufacturer must notify the Chief of the Mobile Source Operations Division and the Manager of the New Vehicle Audit Section, P.O. Box 8001, 9528 Telstar Avenue, El Monte, CA, 91734-8001, within ten working days of such exceedance by the Cumulative Sum statistic.
  - (E) Within 45 calendar days of the end of each quarter, each engine manufacturer must submit to the Executive Officer a report that includes the following information:
    - (i) The location and description of the engine manufacturer's or

other's exhaust emission test facilities that were utilized to conduct testing reported pursuant to this section;

- (ii) Total production and sample sizes, N and n, for each engine family.
- (iii) The applicable emissions standards for each engine family.
- (iv) A description of the process to obtain engines on a random basis;
- (v) A description of the test engines or equipment (i.e., date of test, engine family, engine size, engine or equipment identification number, fuel system, dynamometer power absorber setting in horsepower or kilowatts, engine code or calibration number, and test location);
- (vi) The date of the end of the engine manufacturer's model year production for each engine family;
- (vii) For each test conducted,
  - (a) A description of the test engine, including:
    - (1) Configuration and engine family identification,
    - (2) Year, make, and build date,
    - (3) Engine identification number and explanation of the identification code, and
    - (4) Number of hours of service accumulated on engine prior to testing;
  - (b) Location where service accumulation was conducted and description of accumulation procedure and schedule;
  - (c) Test number, date, test procedure used, initial test results before and after rounding, and final test results for all exhaust emission tests, whether valid or invalid, and the reason for invalidation, if applicable;
  - (d) The exhaust emission data for CO, NO<sub>x</sub> and HC for each test engine or watercraft. The data reported must provide two (2) significant figures beyond the number of significant figures in the applicable emission standard.
  - (e) The retest emissions data, as described in paragraph (a)(4) for any engine or watercraft failing the initial test, and description of the corrective measures taken, including specific components replaced or adjusted.
  - (f) A complete description of any adjustment, modification, repair, preparation, maintenance, and/or testing that was performed on the test engine, was not reported pursuant to any other part of this article, and will not be performed on all other production engines;

- (g) A Cumulative Sum analysis, as required in paragraph (a)(2), of the production line test results for each engine family;
  - (h) Any other information the Executive Officer may request relevant to the determination whether the new engines being manufactured by the engine manufacturer do in fact conform with the regulations with respect to which the Executive Order was issued;
  - (viii) For each failed engine as defined in paragraph (a)(2)(A)(iv), a description of the remedy and test results for all retests;
  - (ix) Every aborted test data and reason for the aborted test.
  - (x) The start and stop dates of batch-produced engine family production;
  - (xi) The required information for all engine families in production during the quarter regardless of sample size; and
  - (F) Each engine manufacturer must submit a copy of the report that has been stored (e.g., computer disc), or may be transmitted, in an electronically digitized manner, and in a format that is specified by the Executive Officer. This electronically based submission is in addition to the written submission of the report.
- (d) Test Procedures Applicable to All Production Line Testing
- (1) Standards and Test Procedures. The emission standards, exhaust sampling and analytical procedures are those described in the Test Procedures. An engine is in compliance with the production line standards and test procedures only when all portions of the production line test procedures and requirements specified in Part IV of the Test Procedures are fulfilled, except that any adjustable engine parameters must be set to any value or position that is within the range available to the ultimate purchaser.
  - (2) Air Resources Board (ARB) personnel and mobile laboratories must have access to engine or equipment assembly plants, distribution facilities, and test facilities for the purpose of engine selection, testing, and observation. Scheduling of access must be arranged with the designated engine manufacturer's representative and must not unreasonably disturb normal operations (See section 31 of the Test Procedures).
  - (3) Engine Preparation and Preconditioning
    - (A) No emissions tests may be performed on an engine before the first production line test on that engine.
    - (B) The engine or watercraft must be tested after the engine manufacturer's recommended break-in period. The engine manufacturer must submit to the Executive Officer the

schedule for engine break-in and any changes to the schedule with each quarterly report. This schedule must be adhered to for all production line testing within an engine family and subgroup or engine family and assembly plant as appropriate.

- (C) If an engine or watercraft is shipped to a remote facility for production line testing, and adjustment or repair is necessary because of such shipment, the engine manufacturer must perform the necessary adjustments or repairs only after the initial test of the engine or watercraft. Engine manufacturers must report to the Executive Officer in the quarterly report, all adjustments or repairs performed on engines or watercraft prior to each test. In the event a retest is performed, a request may be made to the Executive Officer, within ten days of the production quarter, for permission to substitute the after-repair test results for the original test results. The Executive Officer will either affirm or deny the request by the engine manufacturer within ten working days from receipt of the request.
  - (D) If an engine manufacturer determines that the emission test results of an engine or watercraft are invalid, the engine or equipment must be retested. Emission results from all tests must be reported. The engine manufacturer must include a detailed report on the reasons for each invalidated test in the quarterly report.
- (4) Manufacturer Notification of Failure
- (A) The Executive Officer will notify the engine manufacturer that the engine manufacturer may be subject to revocation or suspension of the Executive Order authorizing sales and distribution of the noncompliant engines in the State of California of the noncompliant engines in the State of California pursuant to section 43017 of the Health and Safety Code. Prior to revoking or suspending the Executive Order, or seeking to enjoin an engine manufacturer, the Executive Officer will consider all information provided by the engine manufacturer, and other interested parties, including, but not limited to corrective actions applied to the noncompliant engine family.
  - (B) The Executive Officer will notify the equipment manufacturer that the equipment manufacturer may be subject to revocation or suspension of the Executive Order or penalized pursuant to section 43017 of the Health and Safety Code. Prior to revoking or suspending the Executive

Order, or penalizing an equipment manufacturer, the Executive Officer will consider all information provided by interested parties, including, but not limited to corrective actions applied to the noncompliant engine family.

- (5) Suspension and Revocation of Executive Orders.
- (A) The Executive Order is automatically suspended with respect to any engine failing pursuant to paragraph (b)(3)(A)(iv) or (c)(2)(A)(iv) effective from the time that testing of that engine is completed.
  - (B) The Executive Officer may suspend the Executive Order for an engine family that is determined to be in noncompliance pursuant to paragraph (b)(4)(C) or (c)(2)(A)(v). This suspension will not occur before fifteen (15) days after the engine family is determined to be in noncompliance.
  - (C) If the results of testing pursuant to these regulations indicate that engines of a particular family produced at one plant of an engine manufacturer do not conform to the regulations with respect to which the Executive Order was issued, the Executive Officer may suspend the Executive Order with respect to that family for engines manufactured by the engine manufacturer at all other plants.
  - (D) Notwithstanding the fact that engines described in the application for certification may be covered by an Executive Order, the Executive Officer may suspend such Executive Order immediately in whole or in part if the Executive Officer finds any one of the following infractions to be substantial:
    - (i) The engine manufacturer refuses to comply with any of the requirements of this section.
    - (ii) The engine manufacturer submits false or incomplete information in any report or information provided to the Executive Officer under this section.
    - (iii) The engine manufacturer renders inaccurate any test data submitted under this section.
    - (iv) An ARB enforcement officer is denied the opportunity to conduct activities authorized in this section.
    - (v) An ARB enforcement officer is unable to conduct activities authorized in paragraph (d)(2) of this section because an engine manufacturer has located its facility in a foreign jurisdiction where local law prohibits those activities.
  - (E) The Executive Officer will notify the engine manufacturer



in writing of any suspension or revocation of an Executive Order in whole or in part. A suspension or revocation is effective upon receipt of the notification or fifteen (15) days from the time an engine family is determined to be in noncompliance pursuant to paragraph (a)(2)(A)(v), except that the Executive Order is immediately suspended with respect to any failed engines as provided for in paragraph (b)(4)(C) or (c)(4)(F)(i) of this section.

- (F) The Executive Officer may revoke an Executive Order for an engine family after the Executive Order has been suspended pursuant to paragraph (d)(5)(B) or (C) of this section if the proposed remedy for the nonconformity, as reported by the engine manufacturer to the Executive Officer, is one requiring a design change or changes to the engine and/or emission control system as described in the application for certification of the affected engine family.
- (G) Once an Executive Order has been suspended for a failed engine, as provided for in paragraph (d)(5)(A) of this section, the engine manufacturer must take the following actions before the Executive Order is reinstated for that failed engine:
  - (i) Remedy the nonconformity;
  - (ii) Demonstrate that the engine conforms to its applicable FEL by retesting the engine in accordance with these regulations; and
  - (iii) Submit a written report to the Executive Officer, after successful completion of testing on the failed engine, that contains a description of the remedy and test results for each engine in addition to other information that may be required by this part.
- (H) Once an Executive Order for a failed engine family has been suspended pursuant to paragraphs (d)(5)(B), (C) or (D) of this section, the engine manufacturer must take the following actions before the Executive Officer will consider reinstating the Executive Order:
  - (i) Submit a written report to the Executive Officer that identifies the reason for the noncompliance of the engines, describes the proposed remedy, including a description of any proposed quality control and/or quality assurance measures to be taken by the engine manufacturer to prevent future occurrences of the problem, and states the date on which the remedies will be implemented.

- (ii) Demonstrate that the engine family for which the Executive Order has been suspended does in fact comply with the regulations of paragraphs (b) or (c), as applicable, by testing as many engines as needed so that the Cumulative Sum statistic, as calculated in paragraph (c)(2)(A)(i), falls below the action limit, or the average emissions from the Quality-Audit testing as calculated in paragraph (b)(4)(C) remains below the FEL, as applicable. Such testing must comply with the provisions of paragraphs (b) or (c), as applicable. If the engine manufacturer elects to continue testing individual engines after suspension of an Executive Order, the Executive Order is reinstated for any engine actually determined to be in conformance with the emission standards through testing in accordance with the applicable test procedures, provided that the Executive Officer has not revoked the Executive Order pursuant to paragraph (d)(5)(F) of this section.
- (I) Once the Executive Order has been revoked for an engine family, if the engine manufacturer wants to introduce into commerce a modified version of that family, the following actions must be taken before the Executive Officer may issue an Executive Order for that modified family:
- (i) If the Executive Officer determines that the proposed change(s) in engine design may have an effect on emission performance deterioration, the Executive Officer will notify the engine manufacturer, within five (5) working days after receipt of the report in paragraph (d)(5)(H)(i) of this section, whether subsequent testing under this section will be sufficient to evaluate the proposed change or changes or whether additional testing will be required; and
  - (ii) After implementing the change or changes intended to remedy the nonconformity, the engine manufacturer must demonstrate that the modified engine family does in fact conform with the regulations of paragraphs (b) or (c), as applicable, by testing as many engines as needed from the modified engine family so that the Cumulative Sum statistic, as calculated in paragraph (c)(2)(A)(i), falls below the action limit, or the average emissions from the Quality-Audit testing as calculated in paragraph

(b)(4)(C). When this requirement is met, the Executive Officer will reissue the Executive Order or issue a new Executive Order, as the case may be, to include that family. As long as the Cumulative Sum statistic remains above the action limit, the revocation remains in effect.

(J) At any time after the suspension of an Executive Order for a test engine under to paragraph (d)(5)(A) of this section, but not later than fifteen (15) days (or such longer period as may be allowed by the Executive Officer) after notification of the Executive Officer's decision to suspend or revoke an Executive Order in whole or in part pursuant to paragraphs (d)(5)(B), (C) or (F) of this section, an engine manufacturer may request a hearing pursuant to subchapter 1.25, Title 17, California Code of Regulations, as to whether the tests have been properly conducted or any sampling methods have been properly applied.

(K) Any suspension of an Executive Order under paragraph (d)(5)(D) of this section:

- (i) must be made only after the engine manufacturer concerned has been offered an opportunity for a hearing pursuant to subchapter 1.25, Title 17, California Code of Regulations, and;
- (ii) need not apply to engines no longer in the possession of the engine manufacturer.

(L) After the Executive Officer suspends or revokes an Executive Order pursuant to this section and before the commencement of a hearing, if the engine manufacturer demonstrates to the Executive Officer's satisfaction that the decision to suspend or revoke the Executive Order was based on erroneous information, the Executive Officer will reinstate the Executive Order.

(M) To permit an engine manufacturer to avoid storing non-test engines while conducting subsequent testing of the noncomplying family, an engine manufacturer may request that the Executive Officer conditionally reinstate the Executive Order for that family. The Executive Officer may reinstate the Executive Order subject to the following condition: the engine manufacturer must commit to recall all engines of that family produced from the time the Executive Order is conditionally reinstated if the

Cumulative Sum statistic does not fall below the action limit, and must commit to remedy any nonconformity at no expense to the owner.

(e) Selective Enforcement Auditing Regulations

(1) Test orders.

(A) A test order addressed to the engine manufacturer is required for any testing under paragraph (e).

(B) The test order is signed by the Executive Officer or his or her designee. The test order must be delivered in person by an ARB enforcement officer or ARB authorized representative to a company representative or sent by registered mail, return receipt requested, to the engine manufacturer's representative who signed the application for certification submitted by the engine manufacturer, pursuant to the requirements of the applicable portions of Title 13, California Code of Regulations, section 2447. Upon receipt of a test order, the engine manufacturer must comply with all of the provisions of this subsection and instructions in the test order.

(C) Information included in test order.

(i) The test order will specify the engine family to be selected for testing, the engine manufacturer's engine assembly plant or associated storage facility or port facility (for imported engines) from which the engines must be selected, the time and location at which engines must be selected, and the procedure by which engines of the specified family must be selected. The test order may specify the configuration to be audited and/or the number of engines to be selected per day. Engine manufacturers are required to select a minimum of four engines per day unless an alternate selection procedure is approved pursuant to paragraph (e)(2)(A), or unless total production of the specified configuration is less than four engines per day. If total production of the specified configuration is less than four engines per day, the engine manufacturer selects the actual number of engines produced per day.

(ii) The test order may include alternate families to be selected for testing at the Executive Officer's discretion in the event that engines of the specified family are not available for testing because those engines are not being manufactured during the specified time or are not being stored at the specified assembly plant, associated storage facilities, or port of entry.

- (iii) If the specified family is not being manufactured at a rate of at least two (2) engines per day in the case of engine manufacturers specified in paragraph (e)(4)(G)(i) of this section, or one engine per day in the case of engine manufacturers specified in paragraph (e)(4)(G)(ii) of this section, over the expected duration of the audit, the Executive Officer or her or his designated representative may select engines of the alternate family for testing.
    - (iv) In addition, the test order may include other directions or information essential to the administration of the required testing.
  - (D) An engine manufacturer may submit a list of engine families and the corresponding assembly plants, associated storage facilities, or (in the case of imported engines) port facilities from which the engine manufacturer prefers to have engines selected for testing in response to a test order. In order that an engine manufacturer's preferred location be considered for inclusion in a test order for a particular engine family, the list must be submitted prior to issuance of the test order. Notwithstanding the fact that an engine manufacturer has submitted the list, the Executive Officer may order selection at other than a preferred location.
  - (E) Upon receipt of a test order, an engine manufacturer must proceed in accordance with the provisions of paragraph (e).
- (2) Testing by the Executive Officer.
  - (A) The Executive Officer may require by test order under paragraph (e)(1) that engines of a specified family be selected in a manner consistent with the requirements of paragraph (e)(3) and submitted to the Executive Officer at the place designated for the purpose of conducting emission tests. These tests will be conducted in accordance with paragraph (e)(4) to determine whether engines manufactured by the engine manufacturer conform with the regulations with respect to which the certificate of conformity was issued.
  - (B) Designating official data.
    - (i) Whenever the Executive Officer conducts a test on a test engine or the Executive Officer and engine manufacturer each conduct a test on the same test engine, the results of the Executive Officer's test are the official data for that engine.
    - (ii) Whenever the engine manufacturer conducts all tests on a test engine, the engine manufacturer's test data are accepted as the official data, provided that if the Executive Officer

makes a determination based on testing conducted under paragraph (e)(2)(A) of this section that there is a substantial lack of agreement between the engine manufacturer's test results and the Executive Officer's test results, no engine manufacturer's test data from the engine manufacturer's test facility will be accepted for purposes of this subsection.

- (C) If testing conducted under paragraph (e)(1) is unacceptable under paragraph (B)(ii) of this subsection, the Executive Officer must:
    - (1) Notify the engine manufacturer in writing of the Executive Officer's determination that the test facility is inappropriate for conducting the tests required by this subsection and the reasons therefor; and
    - (2) Reinstate any engine manufacturer's data upon a showing by the engine manufacturer that the data acquired under paragraph (e)(2) were erroneous and the engine manufacturer's data was correct.
  - (D) The engine manufacturer may request in writing that the Executive Officer reconsider the determination in paragraph (B)(ii) of this section based on data or information indicating that changes have been made to the test facility and these changes have resolved the reasons for disqualification.
- (3) Sample selection.
- (A) Engines comprising a test sample will be selected at the location and in the manner specified in the test order. If an engine manufacturer determines that the test engines cannot be selected in the manner specified in the test order, an alternative selection procedure may be employed, provided the engine manufacturer requests approval of the alternative procedure before starting test sample selection, and the Executive Officer approves the procedure.
  - (B) The engine manufacturer must produce and assemble the test engines of the family selected for testing using its normal production and assembly process for engines to be distributed into commerce. If, between the time the engine manufacturer is notified of a test order and the time the engine manufacturer finishes selecting test engines, the engine manufacturer implements any change(s) in its production or assembly processes, including quality control, which may reasonably be expected to affect the emissions of the engines selected, then the engine manufacturer must, during the audit, inform the Executive Officer of such changes. If the test engines are selected at a location where they do not have their operational and emission control systems installed, the test order will specify the manner and location for selection of components to complete assembly of the

engines. The engine manufacturer must assemble these components onto the test engines using normal assembly and quality control procedures as documented by the engine manufacturer.

- (C) No quality control, testing, or assembly procedures will be used on the test engine or any portion thereof, including parts and subassemblies, that have not been or will not be used during the production and assembly of all other engines of that family, unless the Executive Officer approves the modification in production or assembly procedures pursuant to paragraph (B) of this subsection.
  - (D) The test order may specify that an ARB enforcement officer(s) or authorized representative(s), rather than the engine manufacturer, select the test engines according to the method specified in the test order.
  - (E) The order in which test engines are selected determines the order in which test results are to be used in applying the sampling plan in accordance with paragraph (e)(5).
  - (F) The engine manufacturer must keep on hand all untested engines, if any, comprising the test sample until a pass or fail decision is reached in accordance with paragraph (e)(5)(E). The engine manufacturer may ship any tested engine which has not failed the requirements as set forth in paragraph (e)(5)(B). However, once the engine manufacturer ships any test engine, it may not conduct retests as provided in paragraph (e)(4)(I).
- (4) Test procedures.
- (A)
    - (i) For spark-ignition marine engines subject to the provisions of this subsection, the prescribed test procedures are the test procedures as specified in Part IV of the Test Procedures.
    - (ii) The Executive Officer may, on the basis of a written application by an engine manufacturer, prescribe test procedures other than those specified in paragraph (i) for any spark-ignition marine engine he or she determines is not susceptible to satisfactory testing using the procedures specified in paragraph (i).
  - (B)
    - (i) The engine manufacturer may not adjust, repair, prepare, or modify the engines selected for testing and may not perform any emission tests on engines selected for testing pursuant to the test order unless this adjustment, repair, preparation, modification, and/or tests are documented in the engine manufacturer's engine assembly and inspection procedures and are actually performed or unless these adjustments and/or tests are required or permitted under this subsection or are approved in advance by the Executive Officer.

- (ii) The Executive Officer may adjust or cause to be adjusted any engine parameter that the Executive Officer determines subject to adjustment for certification and Selective Enforcement Audit testing in accordance with Part I, section 18 of the Test Procedures, to any setting within the physically adjustable range of that parameter, as determined by the Executive Officer in accordance with section 18, prior to the performance of any tests. However, if the idle speed parameter is one which the Executive Officer has determined to be subject to adjustment, the Executive Officer may not adjust it to any setting that causes a lower engine idle speed than would have been possible within the physically adjustable range of the idle speed parameter if the engine manufacturer had accumulated 12 hours of service on the engine under paragraph (C) of this section, all other parameters being identically adjusted for the purpose of the comparison. The engine manufacturer may be requested to supply information needed to establish an alternate minimum idle speed. The Executive Officer, in making or specifying these adjustments, may consider the effect of the deviation from the engine manufacturer's recommended setting on emission performance characteristics as well as the likelihood that similar settings will occur on in-use engines. In determining likelihood, the Executive Officer may consider factors such as, but not limited to, the effect of the adjustment on engine performance characteristics and information from similar in-use engines.
- (C) Service Accumulation. Before performing exhaust emission testing on a selective enforcement audit test engine, the engine manufacturer may accumulate on each engine a number of hours of service equal to the greater of 12 hours or the number of hours the engine manufacturer accumulated during certification on the emission data engine corresponding to the family specified in the test order.
  - (i) Service accumulation must be performed in a manner using good engineering judgment to obtain emission results representative of normal production engines. This service accumulation must be consistent with the new engine break-in instructions contained in the applicable owner's manual.
  - (ii) The engine manufacturer must accumulate service at a minimum rate of 6 hours per engine during each 24-hour period, unless otherwise approved by the Executive Officer.





- (a) The first 24-hour period for service begins as soon as authorized checks, inspections, and preparations are completed on each engine.
  - (b) The minimum service accumulation rate does not apply on weekends or holidays.
  - (c) If the engine manufacturer's service or target is less than the minimum rate specified (6 hours per day), then the minimum daily accumulation rate is equal to the engine manufacturer's service target.
- (iii) Service accumulation must be completed on a sufficient number of test engines during consecutive 24-hour periods to assure that the number of engines tested per day fulfills the requirements of paragraphs (G)(i) and (G)(ii) of this section.
- (D) The engine manufacturer may not perform any maintenance on test engines after selection for testing, nor may the Executive Officer allow deletion of any engine from the test sequence, unless requested by the engine manufacturer and approved by the Executive Officer before any engine maintenance or deletion.
- (E) The engine manufacturer must expeditiously ship test engines from the point of selection to the test facility. If the test facility is not located at or in close proximity to the point of selection, the engine manufacturer must assure that test engines arrive at the test facility within 24 hours of selection. The Executive Officer may approve more time for shipment based upon a request by the engine manufacturer accompanied by a satisfactory justification.
- (F) If an engine cannot complete the service accumulation or an emission test because of a malfunction, the engine manufacturer may request that the Executive Officer authorize either the repair of that engine or its deletion from the test sequence.
- (G) Whenever an engine manufacturer conducts testing pursuant to a test order issued under this subsection, the engine manufacturer must notify the Executive Officer within one working day of receipt of the test order as to which test facility will be used to comply with the test order. If no test cells are available at a desired facility, the engine manufacturer must provide alternate testing capability satisfactory to the Executive Officer.
  - (i) An engine manufacturer with projected spark-ignition marine engine sales for the California market for the applicable year of 20 or greater must complete emission testing at a minimum rate of two (2) engines per 24-hour period, including each voided test and each smoke test.
  - (ii) An engine manufacturer with projected spark-ignition

marine engine sales for the California market for the applicable year of less than 20 must complete emission testing at a minimum rate of one engine per 24-hour period, including each voided test and each smoke test.

- (iii) The Executive Officer may approve a lower daily rate of emission testing based upon a request by an engine manufacturer accompanied by a satisfactory justification.
  - (H) The engine manufacturer must perform test engine selection, shipping, preparation, service accumulation, and testing in such a manner as to assure that the audit is performed in an expeditious manner.
  - (I) Retesting.
    - (i) The engine manufacturer may retest any engines tested during a Selective Enforcement Audit once a fail decision for the audit has been reached in accordance with paragraph (e)(5)(E).
    - (ii) The Executive Officer may approve retesting at other times based upon a request by the engine manufacturer accompanied by a satisfactory justification.
    - (iii) The engine manufacturer may retest each engine a total of three times. The engine manufacturer must test each engine or vehicle the same number of times. The engine manufacturer may accumulate additional service before conducting a retest, subject to the provisions of paragraph (C) of this paragraph (4).
  - (J) An engine manufacturer must test engines with the test procedure specified in Part IV of the Test Procedures to demonstrate compliance with the exhaust emission standard (or applicable FEL) for HC+ NO<sub>x</sub>. If alternate procedures were used in certification pursuant to Part 1, section 20(c) of the Test Procedures, then those alternate procedures must be used.
- (5) Compliance with acceptable quality level and passing and failing criteria for selective enforcement audits.
- (A) The prescribed acceptable quality level is 40 percent.
  - (B) A failed engine is one whose final test results for HC+ NO<sub>x</sub> pursuant to paragraph (b)(3)(D) or (c)(3)(B), as applicable, exceed the applicable family emission level.
  - (C) The engine manufacturer must test engines comprising the test sample until a pass or fail decision is reached for HC+ NO<sub>x</sub>. A pass decision is reached when the cumulative number of failed engines, as defined in paragraph (B), for HC+ NO<sub>x</sub> is less than or equal to the pass decision number, as defined in paragraph (D), appropriate to the

cumulative number of engines tested. A fail decision is reached when the cumulative number of failed engines for HC+ NO<sub>x</sub> is greater than or equal to the fail decision number, as defined in paragraph (D), appropriate to the cumulative number of engines tested.

- (D) The pass and fail decision numbers associated with the cumulative number of engines tested are determined by using the tables in Appendix A to this subsection (e), Sampling Plans for Selective Enforcement Auditing of Spark-Ignition Marine Engines, appropriate to the projected sales as made by the engine manufacturer in its report to ARB under paragraph (b)(4) or (c)(3)(A). In the tables in Appendix A to this subsection, sampling plan stage refers to the cumulative number of engines tested. Once a pass or fail decision has been made for HC+ NO<sub>x</sub>, the number of engines with final test results exceeding the emission standard for HC+ NO<sub>x</sub> shall not be considered any further for the purposes of the audit.
- (E) Passing or failing a selective enforcement audit occurs when the decision is made on the last engine required to make a decision under paragraph (C).
- (F) The Executive Officer may terminate testing earlier than required in paragraph (C).

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

**Appendix to Paragraph (e) of Section 2446--Sampling Plans for Selective Enforcement Auditing of Spark-Ignition Marine Engines**

Table 1.--Sampling Plan Code Letter

Annual engine family sales (in California)	Code letter
20-50.....	AA. <sup>1</sup>
.....	A.
120-99.....	B.
.....	C.
100-299.....	D.
.....	
300-299.....	
.....	
500 or greater.....	
..	

<sup>1</sup> An engine manufacturer may use either the sampling plan for code letter AA or sampling plan for code letter A for Selective Enforcement Audits of engine families with annual sales between 20 and 50 engines. Additionally, the engine manufacturer may switch between these plans during the audit.

Table 2.--Sampling Plan for Code Letter AA

[Sample inspection criteria]

Stage	Pass No.	Fail No.	Stage	Pass No.	Fail No.
1	( <sup>1</sup> )	( <sup>2</sup> )	11	4	8
2	( <sup>1</sup> )	( <sup>2</sup> )	12	4	9
3	0	( <sup>2</sup> )	13	5	9
4	0	( <sup>2</sup> )	14	5	10
5	1	5	15	6	10
6	1	6	16	6	10
7	2	6	17	7	10
8	2	7	18	8	10
9	3	7	19	8	10
10	3	8	20	9	10

<sup>1</sup> Test sample passing not permitted at this stage.

<sup>2</sup> Test sample failure not permitted at this stage.

Table 3.--Sampling Plan for Code Letter A

[Sample inspection criteria]

Stage	Pass No.	Fail No.	Stage	Pass No.	Fail No.
1	( <sup>1</sup> )	( <sup>2</sup> )	16	6	11
2	( <sup>1</sup> )	( <sup>2</sup> )	17	7	12
3	( <sup>1</sup> )	( <sup>2</sup> )	18	7	12
4	0	( <sup>2</sup> )	19	8	13
5	0	( <sup>2</sup> )	20	8	13
6	1	6	21	9	14
7	1	7	22	10	14
8	2	7	23	10	15
9	2	8	24	11	15
10	3	8	25	11	16
11	3	8	26	12	16
12	4	9	27	12	17
13	5	10	28	13	17
14	5	10	29	14	17
15	6	11	30	16	17

<sup>1</sup> Test sample passing not permitted at this stage.

<sup>2</sup> Test sample failure not permitted at this stage.

Table 4.--Sampling Plan for Code Letter B

[Sample inspection criteria]

Stage	Pass No.	Fail No.	Stage	Pass No.	Fail No.
1	( <sup>1</sup> )	( <sup>2</sup> )	21	9	14
2	( <sup>1</sup> )	( <sup>2</sup> )	22	9	15
3	( <sup>1</sup> )	( <sup>2</sup> )	23	10	15
4	( <sup>1</sup> )	( <sup>2</sup> )	24	10	16
5	0	( <sup>2</sup> )	25	11	16
6	0	6	26	11	17
7	1	7	27	12	17
8	2	7	28	12	18
9	2	8	29	13	18

10	3	9	30	13	19
11	3	9	31	14	19
12	4	10	32	14	20
13	4	10	33	15	20
14	5	11	34	16	21
15	5	11	35	16	21
16	6	12	36	17	22
17	6	12	37	17	22
18	7	13	38	18	22
19	7	13	39	18	22
20	8	14	40	21	22

<sup>1</sup> Test sample passing not permitted at this stage.

<sup>2</sup> Test sample failure not permitted at this stage.

Table 5.--Sampling Plan for Code Letter C

[Sample inspection criteria]

Stage	Pass No.	Fail No.	Stage	Pass No.	Fail No.
1	( <sup>1</sup> )	( <sup>2</sup> )	26	11	17
2	( <sup>1</sup> )	( <sup>2</sup> )	27	12	17
3	( <sup>1</sup> )	( <sup>2</sup> )	28	12	18
4	( <sup>1</sup> )	( <sup>2</sup> )	29	13	18
5	0	( <sup>2</sup> )	30	13	19
6	0	6	31	14	19
7	1	7	32	14	20
8	2	7	33	15	20
9	2	8	34	16	21
10	3	9	35	16	21
11	3	9	36	17	22
12	4	10	37	17	22
13	4	10	38	18	23
14	5	11	39	18	23
15	5	11	40	19	24
16	6	12	41	19	24
17	6	12	42	20	25
18	7	13	43	20	25
19	7	13	44	21	26
20	8	14	45	21	27
21	8	14	46	22	27
22	9	15	47	22	27
23	10	15	48	23	27
24	10	16	49	23	27



25	11	16	50	26	27
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<sup>1</sup> Test sample passing not permitted at this stage.

<sup>2</sup> Test sample failure not permitted at this stage.

Table 6.--Sampling Plan for Code Letter D

[Sample inspection criteria]

Stage	Pass No.	Fail No.	Stage	Pass No.	Fail No.
1	( <sup>1</sup> )	( <sup>2</sup> )	31	14	20
2	( <sup>1</sup> )	( <sup>2</sup> )	32	14	20
3	( <sup>1</sup> )	( <sup>2</sup> )	33	15	21
4	( <sup>1</sup> )	( <sup>2</sup> )	34	15	21
5	0	( <sup>2</sup> )	35	16	22
6	0	6	36	16	22
7	1	7	37	17	23
8	2	8	38	17	23
9	2	8	39	18	24
10	3	9	40	18	24
11	3	9	41	19	25
12	4	10	42	19	26
13	4	10	43	20	26
14	5	11	44	21	27
15	5	11	45	21	27
16	6	12	46	22	28
17	6	12	47	22	28
18	7	13	48	23	29
19	7	13	49	23	29
20	8	14	50	24	30
21	8	14	51	24	30
22	9	15	52	25	31
23	9	15	53	25	31
24	10	16	54	26	32
25	11	16	55	26	32
26	11	17	56	27	33
27	12	17	57	27	33
28	12	18	58	28	33
29	13	19	59	28	33
30	13	19	60	32	33

<sup>1</sup> Test sample passing not permitted at this stage.

<sup>2</sup> Test sample failure not permitted at this stage.



**§2447. California Exhaust Emission Standards and Test Procedures for 2001 Model Year and Later Spark-Ignition Marine Engines.**

Test Procedures referred to in this chapter may be obtained from the State Air Resources Board at P.O. Box 8001, 9528 Telstar Avenue, El Monte, California 91734-8001.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code.

Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

**§ 2448. Sunset Review of the California Regulations for 2001 and Later Model Year Spark-Ignition Marine Engines**

Within five years from the effective date of adoption or date of implementation, whichever comes later, the Air Resources Board, in consultation with the Secretary for Environmental Protection, shall review the provisions of this Article to determine whether they should be retained, revised or repealed.

NOTE: Authority cited: Sections 39600, 39601, 43013 and 43018, Health and Safety Code.  
Reference: Governor s Executive Order W-144-97.