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who submitted comments during the Spark-Ignition Marine Engine public comment period

State of California
AIR RESOURCES BOARD

Notice of Public Availability of Modified Text

PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE SPARK-IGNITION
MARINE ENGINE REGULATIONS

Public Hearing Date: December 10, 1998
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At a public hearing held December 10, 1998, the Air Resources Board (ARB or the Board) considered adopting sections 2440 through 2447, Title 13, California Code of Regulations ("CCR") and the "California Exhaust Emission Standards and Test Procedures for 2001 Model Year and Later Spark-Ignition Marine Engines" ("Test Procedures"). The purpose of the regulations and test procedures is to reduce emissions of hydrocarbons and oxides of nitrogen from spark-ignition marine engines, specifically outboard marine and personal watercraft engines. The proposed regulatory action is described in detail in the Staff Report, released October 13, 1998.

At the hearing, the Board approved the adoption of sections 2440 through 2447, Title 13, CCR, with modifications to the originally proposed regulatory language. Resolution 98-63 is included as Enclosure 1. The regulatory sections, with the modifications noted, are contained in Enclosure 2, while the test procedures, also with modifications noted, are contained in Enclosure 3. The following is a description, by section number, of the significant modifications:

§ 2440 - Applicability. Pursuant to federal provisions for a national security exemption, language has been added to section 2440 to exempt military tactical vehicles and equipment from the California standards and regulations for new spark-ignition marine engines.

§ 2441 - Definitions.

1. “Complete engine assembly” and “carryover engine family” were added to explain the terms used in sections 2443.1 and 2444, respectively, of the regulations.
2. “Marine vessel” was revised to “marine watercraft” to clarify the scope and applicability of the regulations. “Marine watercraft” includes both boats and personal watercraft in its scope, and more accurately defines the engine categories that affected parties knew the Board was regulating through Resolution 98-63.
3. “Personal watercraft engine” was modified to increase specificity.
4. “Production-line tests” was modified to correspond to the applicable regulations rather than the location at which the tests were conducted. This modification eliminates the perception that a production line test may only occur at the end of the assembly line.
5. “Sales” was added to provide specificity regarding the information that would be deemed acceptable by the Executive Officer. The definition allows the use of calculated sales for use in corporate averaging and production line testing, thereby providing manufacturers a satisfactory method to account for engines that are difficult to track.
6. “Useful life” was modified from six years to nine years for personal watercraft engines. This change was done pursuant to the ARB’s updated emission inventory detailed in Mail-Out MSC 98-34 and approved by the Board at its December 10, 1998, hearing.

§ 2442(a) and (b) - Emission Standards.

In response to a manufacturer request, staff has included an option for engine manufacturers to certify engine families directly to the emission standards rather than on a corporate average basis. This approach would eliminate the need for corporate averaging records to be maintained and reported to the ARB.

The maximum allowable family emission limit (FEL) for model year 2001 was revised to “Not Applicable” to provide greater flexibility to manufacturers in complying with the applicable emission standard during the early years of implementation. Also, the definition of power was separated for use in determining both the applicable emission standard and corporate average emissions. Other minor changes were included to require a manufacturer to certify its corporate average plan in advance of any engine family certification application, to clarify reporting requirements for consistency with the time periods used by the United States Environmental Protection Agency (U.S. EPA), and to allow revision of FELs by the manufacturer. Below are the modified emission standards (in Table 1) and corporate average:

Table 1

Corporate Average Emission Standards by Implementation Date HC+NO _x (g/kW-hr)			
Model Year	Max. Family Emission Limit (FEL)	P _{tx} < 4.3 kW	P _{tx} ≥ 4.3 kW
2001	Not Applicable	81.00	(0.25 x (151+557/P _{tx} ^{0.9}))+6.0
2004	80	64.80	(0.20 x (151+557/P _{tx} ^{0.9}))+4.8
2008	44	30.00	(0.09 x (151+557/P _{tx} ^{0.9}))+2.1

where:

P_{tx} 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 manufacturers must not determine P_{tx} 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_{tx} means the average power in kW (sales-weighted) of the subject engine family produced for sale in California in model year x.

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

$$\frac{\sum_{j=1}^n (PROD_{jx})(FEL_{jx})(P_{jx})}{\sum_{j=1}^n (PROD_{jx})(P_{jx})} = STD_{ca}$$

where:

- n = total number of engine families (by category)
- PROD_{jx} = number of units of each engine family j produced for sale in California in model year x.
- FEL_{jx} = 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_{jx} = The average power in kW (sales-weighted) of engine family j produced for sale in California in model year x.

STD_{ca} = An engine manufacturer's calculated corporate average HC+NO_x exhaust emissions from those California spark-ignition marine engines subject to the California corporate average HC+NO_x 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.

§ 2443.1- Emission Control Labels. Staff has removed the requirement for the engine label to be made of either plastic or metal because any material may be acceptable provided it meets the all durability provisions. Manufacturers are also given the option to include either their name or trademark on the label, and the compliance statement has been modified to harmonize more closely to that of the U.S. EPA.

§ 2443.2 - Environmental Labeling. As directed by the Board, working closely with the marine industry and local water agencies, staff has developed new, uniform label designs that denote compliance with the ARB's three emission tiers (see below). The designs are more visible for enforcement use while minimizing visual conflicts with an engine manufacturer's existing graphics. Also as the Board directed, engine manufacturers may label engines produced before the 2001 model year with environmental labels provided they submit data demonstrating compliance with any of the three tiers of emission standards. For any pre-2001

engine certified under the federal marine regulations, compliance will be determined by the engine family's assigned Family Emission Limit (FEL). All other pre-2001 engines must use the actual emission level determined using the required test procedures and deteriorated by an additional thirty percent. This deterioration factor is typical of the compliance margin needed by production engines to comply with the applicable emission standard. Alternative compliance demonstrations may be allowed if they are deemed equivalent by the Executive Officer.

In order to minimize possible mislabeling or fraud, dealers may affix environmental labels on pre-2001 engines only if the engine manufacturer includes printed serial numbers on the label. These numbers must be available to the Executive Officer upon request. The use of serial numbers is intended to deter the removal or duplication of authentic labels for use on non-eligible engines. Mislabeling (e.g., affixing an "Ultra Low Emission" label on an engine or watercraft that only meets the "Low Emission" designation) will require manufacturers to remove the noncompliant labels from the affected watercraft/engines.



The language for replacement engines has been clarified to allow for engines that have emissions either identical to or better than the originally certified engine.

§2443.3 - Environmental Label/Consumer Notification Requirements. The applicability of the environmental label/consumer notification has been added to section 2443.3 in order to be consistent with other marine regulatory provisions. Manufacturers are now required to have facsimiles of the three environmental labels printed on the "hang tag" with the appropriate label marked for the subject engine, except for outboard engines equal to or above 130 horsepower and except for all personal watercraft that are required to show only the Tier 1 2001 and Tier 2 2004 labels until the 2001 model year or until such time that the Executive Officer deems necessary. This flexibility was provided to allow sufficient time for manufacturers to meet possible consumer demand for Tier 3 2008-compliant engines.

The standardized language to be printed on the hang tag has also been modified.

§ 2444 - In-Use Compliance and Recall.

1. The number of engine families required to be tested under the in-use compliance program has been reduced to be more representative of California sales. Manufacturers must now test the greater of one or 25 percent of the engine families offered for sale in the state.

2. "Useful life" has been revised for in-use engines to be consistent with the U.S. EPA's. This would reduce the burden on manufacturers by allowing them to use data collected from their federal fleets.

3. Exceedance of the standards would not necessarily result in the need to submit a plan for voluntary recall. Instead, the staff has modified the language in section 2444(c)(2) to require manufacturers of failing engines to submit a plan that proposes alternatives to remedy noncompliance, as specified in section 2444(c)(3), before a voluntary and/or ordered recall is prescribed. One of the alternatives is the recertification of noncompliant engines to a lower emission level (or a higher FEL). Staff has deleted language that allowed recertification in only the following year; engine manufacturers are now permitted to recertify the engine in the same year in which it failed.

4. A capture rate of 80 percent, as specified in section 2444(e)(2)(A), was considered unachievable by manufacturers due to the lack of voluntary registration by watercraft owners and difficulty in the tracking of engines distributed into California. Therefore, the staff has removed the capture rate and will require manufacturers to provide recall plans that achieve the maximum feasible capture rate.

5. The use of a repair label was deemed to be more appropriate for on-road vehicle recalls and has consequently been deleted.

6. For reporting, manufacturers will be required to submit the identification numbers of all engines repaired under a recall. This requirement is consistent with the in-use reporting provisions for other ARB programs. All in-use data must now be submitted within three months after the completion of testing instead of one, and a minimum of two annual reports is now required for each recall rather than eight consecutive quarterly reports; accordingly, reference to Manufacturers Advisory Correspondence #96-08 in paragraph (e)(4)(A) has been removed. Both revisions are in line with the existing requirements of the U.S. EPA.

§ 2445.1 - Defects Warranty Requirements.

1. As discussed at the hearing, one manufacturer was concerned with the requirement for hour meters if the hourly warranty period was to be implemented on its products. These meters were stated by the manufacturer to be inaccurate and unreliable. As such, the Board directed staff to add flexibility for the Executive Officer to allow the use of other time-measuring devices or methods provided they are demonstrated to be appropriate and reliable.

2. Paragraph d(1) has been revised to clarify the warranty on non-maintenance parts.

3. Paragraph d(6) has been modified to be more specific on the condition requiring owners to pay for diagnostic labor charges.

§ 2445.2 - Emission Control Warranty Statement

Language in the portion of the statement related to the manufacturer's warranty coverage has been modified to clarify that certain emission-related parts, not the entire engine, are covered for the requisite warranty period.

§ 2446 - Production-Line Testing.

1. Staff addressed the production-line test concerns of small volume manufacturers by incorporating the quality-audit testing procedures used in the small off-road engine category. This testing method requires manufacturers to test one percent of its annual California production. Manufacturers are allowed to choose this or the Cumulative Sum method for testing, but are bound to the chosen method for the subject model year. Other methods may be allowed only if they are comparable to the quality-audit method.

2. To ensure year-round testing under the Cumulative Sum testing procedure, a paragraph has been added to require a minimum of two tests every quarter, regardless of whether the manufacturer has passed production line testing per the required calculated sample size as specified in section 2444. This requirement not only accounts for emission-related problems occurring later in the model year but also builds a foundation of data for this newly regulated industry.

3. Reporting requirements were modified to align more completely with the U.S. EPA program.

§ 2448 - Sunset Review of Marine Regulations. Pursuant to Governor's Executive Order W-144-97, this section was added to the regulations and requires the review of the regulations within five years of their implementation to determine if they should be retained, revised or repealed.

Test Procedures - In addition to changes listed below, staff has made numerous minor revisions to the test procedures that make them consistent with corresponding provisions in the regulations, as well as others that closely follow the federal regulations.

1. Power output for Part I, sections 9 and 20, is calculated using the Society of Automotive Engineers (SAE) standard J1228.

2. The term "Power (%)" was incorrectly indicated in Table 20-1; it has been corrected to "Torque (%)".
3. Reference to engine displacement classes in Part I, section 17, was deleted since they are not applicable to spark-ignition marine engines.
4. The requirement in Part I, section 20, for manufacturers to test engines at both extremes of any adjustable parameter has been deleted. However, the Executive Officer may select any setting within the adjustable range to determine compliance with the standards.
5. In Part IV, section 19(b), an invalid parameter "h" has been corrected in the equation for the humidity factor to "H".

Staff has also made other modifications throughout the regulations and test procedures to correct grammatical and typographical errors, correct references and citations, increase alignment with the U.S. EPA regulations, and improve the clarity of the regulations and test procedures.

As noted above, Enclosure 1 contains a copy of Board Resolution 98-63, approving the above described regulatory action. Enclosures 2 and 3 contain the text of the modified regulatory language and associated test procedures, respectively, with additions to the originally proposed text shown in underline and deletions shown in ~~strikeout~~. Enclosures 4 and 5 are documents proposed for incorporation by reference in the modified language and relied upon in the formulation of the modified regulatory language. All of these enclosures are available online at the ARB's Internet site for the Spark-Ignition Marine Engine regulatory documents -- <http://www.arb.ca.gov/regact/marine/marine.htm>. Printed copies are also available and may be obtained from Ms. Joyce Stephanik, Mobile Source Control Division, at telephone (626) 575-6632 or fax (626) 575-6686.

In accordance with section 11346.8 of the Government Code, the Board directed the Executive Officer to adopt sections 2440 through 2447, as approved, after making the modified regulatory language available to the public for comment for a period of at least 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make further modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

Written comments must be submitted to the Clerk of the Board, Air Resources Board, P.O. Box 2815, Sacramento, California 95812, no later than July 15, 1999, for consideration by the Executive Officer prior to final action. Only comments relating to the modifications described in this notice, will be considered by the Executive Officer.

Sincerely,

Robert H. Cross, Chief
Mobile Source Control Division

Enclosures