

UPDATED INFORMATIVE DIGEST

ADOPTION OF EMISSION STANDARDS AND TEST PROCEDURES FOR NEW 2001 AND LATER MODEL YEAR SPARK-IGNITION MARINE ENGINES

Sections Affected: This action adopts the following sections of Title 13, California Code of Regulations, and the documents incorporated by reference therein: Chapter 9, Off-road Vehicles and Engines Pollution Control Devices; Article 4.7, Spark-Ignition Marine Engines; Sections 2440, et seq., and the incorporated "California Exhaust Emission Standards and Test Procedures for New 2001 and Later Spark-Ignition Marine Engines," "United States Environmental Protection Agency Title 40, Code of Federal Regulations, section 91.803, October 4, 1996," and "ASTM E29-93a."

Background: The California Clean Air Act as codified in Health and Safety Code sections 43013 and 43018 grants the ARB authority to regulate off-road mobile sources of emissions. Included are marine vessels, locomotives, utility engines, off-road motorcycles, and off-highway vehicles. This regulation is being proposed to reduce emissions of hydrocarbons (HC) and oxides of nitrogen (NO_x) from spark-ignition marine engines, specifically, outboard marine and personal watercraft engines. Development of this proposal was undertaken to address the significant emissions impact of these watercraft. Although the United States Environmental Protection Agency (U.S. EPA) has adopted a regulation intended to reduce HC plus NO_x emissions from outboard and personal watercraft engines 75 percent from baseline levels by 2025, the benefits of that program will not be sufficient to meet California's air quality goals.

In crafting the proposal, the ARB staff met with engine manufacturers, trade associations, water agencies, environmental organizations, and other interested parties in numerous individual meetings and calls. The staff also held a public workshop on July 9, 1998.

Related Federal Actions: In 1996 the U.S. EPA adopted federal exhaust emission standards for outboard marine and personal watercraft engines (Title 40, Code of Federal Regulations, sections 89 through 91, October 4, 1996).

As indicated above, the federal program is not sufficient to meet California's SIP requirements or air quality goals. For this reason, a more progressive California specific program was necessary. The cost of the separate California program is justified by both the State and Federal Clean Air Acts and is based on the benefit to human health, public welfare, and the environment. In addition, Health and Safety Code sections 43013 and 43018, and Clean Air Act section 209 authorize the differences from the federal program.

The Adopted Regulations: The adopted regulations will apply to 2001 and later model year outboard marine and personal watercraft engines. The proposed regulations do not apply to

inboard or sterndrive engines. The proposed regulation is designed to harmonize as closely as possible with the federal program through the following:

- Emission standards that are a percentage of the U.S. EPA 2006 standards curve.
- Use of U.S. EPA test procedures and test cycles for certification and in-use testing.
- Acceptance of U.S. EPA test data for in-use and compliance testing.
- Use of U.S. EPA's Cumulative Sum method and Selective Enforcement Audit procedures.
- Use of U.S. EPA's certification label format with additional language added for California, eliminating the need for a second California-specific certification engine label.

Emission Standards

The regulations include exhaust emission standards that are phased-in over three tiers. The first tier, starting in 2001, implements the U.S. EPA 2006 standards. This effectively accelerates the U.S. EPA program by 5 years. Tier 2, will be implemented in 2004 and sets the exhaust emission standards at 80 percent of U.S. EPA's 2006 standards. Tier 3, which is implemented in 2008, lowers the standard to 35 percent of U.S. EPA's 2006 standard. The proposed exhaust emission standards are in-use standards, meaning that the engines must be certified by the engine manufacturer to perform at or below the certified emission standard throughout the useful life of the engine. The regulation allows for corporate averaging of engines, so that on a sales and horsepower weighted basis, a manufacturer's production must meet the emission standards. Through the averaging provision, engine manufacturers may produce engines that emit more than the emission standard, if they are offset with engines that emit sufficiently less than the standard. Averaging is only allowed within the model year; banking and trading of emission credits is not allowed by the regulations. Replacement engines must meet substantially the same requirements.

Emission Control Labels

In order to clearly identify all California-certified, spark-ignited marine engines, the regulation requires that each engine or watercraft be affixed with a permanent engine label. The certification label will be located on the engine, inside the cowling or engine compartment. The label will indicate that the subject engine complies with the California regulations and will be used during inspections, in-use testing and other enforcement programs. The requirements for the certification label are not substantially different from the U.S. EPA requirements and will require minimal modification by engine manufacturers.

Consumer/Environmental Label Requirements and Consumer/Environmental Label Notification Requirements

The environmental label program was adopted in order to establish three tier designations for consumer awareness and water quality protection programs. The labels establish criteria for low-, very low- and ultra low-emission engines and serve to educate consumers about the relative emissions impact of new engines. The labels also establish a standardized mechanism for clearly identifying clean technology engines for use by water agencies to enforce water quality related activity restrictions.

The regulation also establishes a mechanism to recognize existing clean technology engines (four-stroke and direct injection two-stroke engines). Manufacturers are permitted to offer a similar label that corresponds to the cleanliness of the engine. This label will be available from manufacturers, distributors or dealerships for retrofit application to existing four-stroke and two-stroke direct injection engines.

As directed by the Board, working closely with the marine industry and local water agencies, staff developed new, uniform label designs that denote compliance with the ARB's three emission tiers. 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. Language for replacement engines allows for engines that have emissions either identical to or better than the originally certified engine.

In-Use Compliance Testing and Recall Provisions

Certification with the marine engine regulations requires manufacturers to demonstrate that the engines complies with the emission standards during the useful life of the engine. The regulation allows the use of data obtained through the U.S. EPA in-use testing program to determine compliance with ARB's exhaust emission standards. The regulation also includes the authority for ARB to conduct California-specific in-use testing. California-specific programs will follow the same process as the U.S. EPA to implement testing. This includes appropriately timed notification to the engine manufacturer of the following: the need to test an engine family, sample size for the test, the test engine selection criteria, the emission testing protocol, and the data reporting requirements.

If an engine family exceeds the applicable HC+NO_x standard on average, the family will be subject to remedial action designed to mitigate the increased emissions caused by the noncompliance. These programs may include a combination of the following:

- Payment of a mitigation fee to be used for appropriate emission reduction or verification programs.
- Adjustment of the corporate average standard for subsequent model years.
- Accelerated turn-over program to retire older technology engines, carried out by the manufacturer.
- Demonstration of advanced innovative emission reducing technology on future production engines.

Under this regulation, manufacturers would not be permitted to use federal in-use credits to offset noncompliance. The compliance plan used to mitigate increased emissions from non-compliance with the in-use emission standards will be determined through a consultative process with the ARB and approved by the Executive Officer. If a combination of these programs is found to be ineffective at mitigating the increased emissions resulting from noncompliance, the manufacturer will be subject to an engine recall order.

Defects Warranty Requirements and Emission Control Warranty Statement

The regulation requires that engine manufacturers ensure that the engines they build will have emission-related components that are reliable, durable and capable of complying with the applicable emission standards. The defects warranty contained in the regulation will provide a coverage period of 4 years or 250 hours, whichever occurs first for outboard and personal watercraft engines. The yearly periods represent approximately 25 and 66 percent of the outboard and personal watercraft engines' average useful life, respectively. These warranty periods are appropriate given the cost and duty cycles of the engines. The requirement for an extended emission warranty is consistent with other ARB mobile source regulations. The warranty requirements apply to engine components that affect emissions performance. The warranty requirements do not cover routine and scheduled maintenance or the warranty of parts beyond their designed useful life.

The owners manual of each new marine engine sold in California will be required to include an explanation of the emissions defect warranty and the warranty responsibilities of the owner, including providing proper maintenance.

Cumulative Sum Production-Line Test Procedures and Selective Enforcement Auditing Regulations

The regulations include a production-line testing requirement to ensure that manufacturers are building engines that comply with emission standards. This requirement will follow the procedure used for the U.S. EPA's Cumulative Sum procedure and replicates the statistical foundation of a federal compliance program known as "Selective Enforcement Audit," while providing greater opportunity for a quick decision. This was done to reduce the manufacturers' testing burden, especially for engine families performing consistently below the emission standard by a wide margin.

In addition to the other enforcement programs, the regulation requires the implementation of a Selective Enforcement Audit program to discourage inappropriate production-line testing and/or reporting of insufficient or erroneous data. This requirement is procedurally identical to that finalized by the U.S. EPA and, as the name implies, will be used when the Executive Officer determines that a manufacturer's production test data are questionable or not representative of the engine family. Since a Selective Enforcement Audit can be imposed at any time under short notice, manufacturers are more likely to ensure that their production engines are built exactly as certified rather than risk the assessment of potential noncompliance penalties.

Benefits of this Regulation: This regulation results in 65 percent greater HC + NOx reductions over the U.S. EPA program when fully implemented. This translates into a statewide reduction of 110 tons per summer weekend day of smog forming HC + NOx emissions by 2010 and 161 tons per summer weekend day by 2020. In addition, the South Coast Air Basin, one of California's worst air quality areas, will benefit by the reduction of over 31 tons per summer weekend day of HC + NOx emissions by 2010.

Further, this regulation will help address water quality problems. Unlike automobile emissions, which are exhausted to air, most marine engines exhaust directly into the water. All exhaust pollutants, therefore, are brought into intimate contact with the water body thereby enhancing pollutant transfer. In addition, ARB information indicates that two-stroke carbureted engines discharge an unburned fuel/oil mixture at levels approaching 20 to 30 percent of the fuel/oil mixture consumed. Such unburned fuel includes toxic compounds and oil required for lubricating all two-stroke engines. With fuel consumption rates of watercraft as high as 20 gallons per hour, this is of considerable interest to California's water agencies, particularly the State Water Resources Control Board (SWRCB). Because of this, the SWRCB worked closely with the ARB in the development of these regulations and fully supports this regulation.

Availability of Documents and Contact Person: The Board staff has prepared all necessary reports and documentation for this regulatory action. The ARB staff has compiled a record that includes all information upon which this regulation was based. These reports and full text of the regulatory language may be obtained from the Board's Public Information Office, 2020 L Street, Sacramento, California 95814, (916) 322-2990. They may also be obtained from ARB's web site www.arb.ca.gov. The ARB determined that it was not feasible to draft the regulation in plain English due to the technical nature of the regulation; however, a plain English summary of the regulation is available from the agency and is also contained in the staff report for this regulatory action.

Cost to Public Agencies and to Businesses and Persons Affected: The Board's determinations concerning the costs or savings necessarily incurred in reasonable compliance with the proposed regulations are presented below.

The Board has determined that this regulatory action does not create costs or savings, as defined in Government Code section 11346.5(a)(6), to any state agency or in federal funding to the state, to any local agency or school district whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code, or other nondiscretionary savings to local agencies.

This regulation was evaluated for potential economic impacts on private persons and businesses. The Board has determined, pursuant to Government Code section 11346.5(a)(3)(B), that the regulation will not affect small business because small businesses will not incur costs in reasonable compliance with the regulation. The Board has also determined that this regulatory action will not have a significant adverse economic impact on businesses, including the ability of California businesses to compete with businesses in other states.

The Board has determined that there is no, or an insignificant, potential cost impact, as defined in Government Code section 11346.5(a)(9), on private persons or businesses directly affected resulting from this regulation.

Finally, the Board has determined that the regulation will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within California, or the expansion of businesses currently doing business within California. Assessment of the economic impacts of the regulatory action can be found in the staff report.

Statutory Authority and Hearing Procedures: This regulation was developed under the authority granted in Health and Safety Code sections 39600, 39601, 43013, 43018, 43101, 43102, 43104, and 43105. This action is necessary to implement, interpret, and make specific Health and Safety Code sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5, and 43210-43212.

A public hearing was conducted in accordance with the California Administrative Procedure Act, Title 2, Division 3, Part 1, Chapter 3.5 (commencing with section 11340) of the Government Code. This regulatory action as originally proposed is described in detail in the “Staff Report: Initial Statement of Reasons for Proposed Rulemaking” (Staff Report) released to the public on October 23, 1998. A written report and oral statements were presented by staff at the hearing. Interested members of the public also presented comments orally and in writing. All comments received and staff’s responses thereto are contained in the hearing transcript and the Final Statement of Reasons within this rulemaking file. At its public hearing on December 10, 1998, the Board unanimously adopted Resolution 98-63 approving the adoption of the “Spark-Ignition Marine Engines Regulations”.

At the hearing, the Board also approved modifications to the originally proposed language. These modifications were incorporated into the regulatory language by way of two separate 15-day notices (Mailouts 99-15 and 99-20), which were publicly available on June 28, 1999 and August

2, 1999 respectively. These notices centered on finalizing the environmental label design and correcting minor editorial and other non-substantive text. The public's comments on these modifications and staff's responses thereto are included in the Final Statement of Reasons within this rulemaking file.

Incorporation of Test Procedures and Federal Regulations: The amended test procedures are incorporated by reference in Title 13, CCR, Sections 2440 through 2448. The amended test procedures, in turn, incorporate test procedures adopted by the United States Environmental Protection Agency, Control of Air Pollution; Final Rule for New Gasoline Spark-Ignition Marine Engines; Exemptions for New Nonroad Compression-Ignition Engines at or Above 37 Kilowatts and New Nonroad Spark Ignition Engines at or Below 19 Kilowatts, Title 40, Code of Federal Regulations Parts 89, 90 and 91, October 4, 1996 has been incorporated by reference. This document primarily contains the test procedures, which were retained by ARB for harmonization purposes.

Title 13, CCR Sections 2440 through 2448 identifies the incorporated ARB documents by title and date. The ARB documents are readily available from the ARB upon request and were made available during the subject rulemaking in the manner specified in Government Code Section 11346.7(a). The CFR is published by the Office of the Federal Register, National Archives and Records Administration, and is therefore reasonably available to the affected public from a commonly known source.

The test procedures are incorporated by reference because it would be impractical to print them in the CCR. The existing ARB administrative practice has been to have the test procedures incorporated by reference rather than printed in the CCR because these procedures are highly technical and complex. They include the "nuts and bolts" engineering protocols required for certification of vehicles and have a very limited audience. Because the ARB has never printed complete test procedures in the CCR, the directly affected public is accustomed to the incorporation format utilized therein. The ARB's test procedures as a whole are extensive and it would be both cumbersome and expensive to print these lengthy, technically complex procedures for a limited audience in the CCR.

Consideration of Alternatives. The proposed rulemaking was the result of extensive discussions and meetings involving staff and the directly affected parties (i.e., spark-ignition marine engine manufacturers). Staff considered all of the alternatives proposed by industry, and was able to incorporate many of their suggestions in the rulemaking effort. The Board rejected several major alternatives for the reasons described in the Staff Report at pages 73-76, and in the responses in Section II (H) of the Final Statement of Reasons. A number of modifications proposed during the comment periods were incorporated into the final regulations. The Board has further determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the action taken by the Board.

