

ENCLOSURE 1

Proposed Additional Modifications to the Text of the Large Spark-Ignition Engine Regulations and Test Procedures

NOTE: This document is printed in a style to indicate changes from the originally proposed provisions. Only the parts of the sections that have changed from the text contained in Mail-Out 98-20 that were not included in Mail-Out 99-19, and the sections that have changed from the text contained in Mail-Out 99-19 have been included.

All originally proposed language is indicated by plain type. For context, the modifications presented in Mail-Out MSC 99-19 are shown in underline to indicate additions to the original proposal and ~~strikeout~~ to indicate deletions. The second set of modifications to the language presented in Mail-Out 98-20 and Mail-Out 99-19 are shown in **bold double underline** to indicate additions and **~~bold strikeout~~** to indicate deletions. All other language remains unchanged. All proposed modifications will be made available to the public for a 15-day comment period. Only comments relating to the modifications described in this second notice will be considered by the Executive Officer.

Modifications to the Originally Proposed Regulations

§ 2431 Definitions

(a).... (33) “Small Volume Manufacturer” means **a an engine** manufacturer that produces a total of less than 2000 large spark-ignition engines annually for sale in the United States.

§ 2433 Exhaust Emission Standards and Test Procedures - Off- Road Large Spark-ignition Engines.

(b).... (2) No crankcase emissions ~~may~~ shall be discharged into the ambient atmosphere from any new ~~2004~~ **2001** or later model year off-road LSI engines.

§ 2434 Emission Control Labels - 2001 and Later Off-Road Large Spark-ignition Engines

(b)... (1) 2001 and later model year off-road LSI engines with engine displacement greater than 1.0 liter, that have been certified to the applicable emission standards pursuant to **Section 2433(b) Health and**

Safety Code Section 43013.

- (c).... (1) A **metal** tune-up label made of a permanent material must be welded, riveted or otherwise permanently attached to the engine block or other major component in such a way that it will be readily visible after installation of the engine in the equipment. If the equipment obscures the label on the engine, the equipment manufacturer must attach a supplemental label such that it is readily visible.

§ 2435 Defects Warranty Requirements for 2001 and Later Off-Road Large Spark-ignition Engines

- (a)... Applicability. This section applies to new 2001 and later model year off-road large spark-ignition engines with engine displacement greater than 1.0 liter that are certified for sale in California to the applicable emission standards pursuant to Section 2433(b). The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser. The use of alternative fuels must not void the warranties on any engine certified to use such fuel. 2002 and later model year off-road LSI engines with engine displacement less than or equal to 1.0 liter must comply with the applicable warranty requirements set forth in the California Code of Regulations, Title 13, Section 2405.

- (c).... (10) Add-on or modified parts, as defined in Section 1900~~(B)~~(b)(1) and (B)(10), Title 13, may not be used. Such use **must will, at the discretion of the engine manufacturer**, be grounds for disallowing a warranty claim made in accordance with this article. The engine manufacturer must not be liable under this article to warrant failures of warranted parts caused by the use of such an add-on or modified part.

§ 2436 Emission Control System Warranty Statement.

- (a) Each manufacturer must furnish a copy of the following statement with each new off-road large spark-ignition engine with engine displacement greater than 1.0 liter, that have been certified to the applicable emission standards pursuant to Section 2433(b), using those portions of the statement applicable to the engine. Each manufacturer must furnish a copy of the warranty statement as set forth in the California Code of Regulations, Title 13, Section 2406(a) with each new off-road large spark-ignition engine with engine displacement less than or equal to 1.0 liter, 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 manufacturer's name, optional) is pleased to explain

the **emission control system warranty** on your (**current model year(s)**) (equipment type or off-road large spark-ignition) engine. In California, new off-road large spark-ignition (LSI) engines must be designed, built and equipped to meet the State's stringent anti-smog standards.

(Manufacturer's name) must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor, regulator or fuel-injection system, ignition system, engine computer unit (ECM), catalytic converter and air induction system. Also included may be sensors, hoses, belts, connectors and other emission-related assemblies.

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

MANUFACTURER'S WARRANTY COVERAGE:

The (**current model year(s)**) off-road large spark-ignition engines are warranted for (**warranty period**). If any emission-related part on your engine is defective, the part will be repaired or replaced by (manufacturer's name).

OWNER'S WARRANTY RESPONSIBILITIES:

- As the off-road LSI engine owner, you are responsible for the performance of the **required maintenance listed in your owner's manual**. (Manufacturer's name) recommends that you retain all receipts covering maintenance on your off-road engine, but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the off-road large spark-ignition engine owner, you should however be aware that (manufacturer's name) may deny you warranty coverage if your off-road large spark-ignition engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- Your engine is designed to operate on (**specific fuel(s)**) only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.
- You are responsible for initiating the warranty process. The ARB suggests that you present your off-road large spark-ignition engine to a (manufacturer's names) dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

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

§ 2437 New Engine Compliance and Production Line Testing - New Off-Road Large Spark-ignition Engines Selection, Evaluation, and Enforcement Action

(a)... (1) These procedures ~~are applicable~~ apply, commencing with the ~~2004~~ 2001 model year, to any large off-road spark-ignition engine family group (as defined in Sections 2 and 11 of the “California Exhaust Emission Standards and Test Procedures for New 2001 and Later Off-Road Large Spark-ignition Engines”) or any subgroup within an engine family group selected for compliance testing pursuant to this section, with an engine displacement greater than 1.0 liter, that have been certified to the applicable emission standards pursuant to Section 2433(b). 2002 and later model year large off-road spark-ignition engines with engine displacement less than or equal to 1.0 liter must comply with the new engine compliance test procedures set forth in the California Code of Regulations, Title 13, Section 2407.

(b)... (1) The ~~2004~~ 2001 and subsequent model year off-road large spark-ignition engines with an engine displacement of greater than 1.0 liter, that have been certified for sale in California to the applicable emission standards pursuant to Section 2433(b), are subject to production line testing performed according to the requirements specified ~~herein in this section.~~ The 2002 and subsequent model year off-road large spark-ignition engines with an engine displacement of less than or equal to 1.0 liter, that have been certified for sale in California, must comply with production line testing performed according to the requirements set forth in the California Code of Regulations, Title 13, Section 2407.

§ 2438 In-Use Compliance Testing Program

(b).... (3) An engine manufacturer must test in-use engines from each engine family identified by ARB. All engines selected by the manufacturer for testing must be identified by the manufacturer, and a list of the selected engines must be submitted to the Executive Officer, prior to the onset of testing. Engines to be tested must have accumulated a minimum of ~~0.75 (75 percent)~~ 0.50 (50 percent) of the family's certified useful life period. The number of engines to be tested by a manufacturer will be determined by the following method:

(e)(7)... (A) For each participating engine family, emission credits (positive or negative) are to be calculated according to the following equation and

rounded, in accordance with ASTM E29-93a, to the nearest gram. ASTM E29-93a has been incorporated by reference. Consistent units are to be used throughout the equation. The following equation is used to determine the credit status for an engine family whether generating positive or negative in-use emission credits:

$$\text{Credits (grams)} = \text{SALES} \times (\text{STD} - \text{CL}) \times \text{POWER} \times \text{AF} \times \text{LF} \times \text{UL}$$

Where:

- SALES** = the number of eligible sales tracked to the point of first retail sale in the U.S. for the given engine family during the model year.
- STD** = the emission standard in g/bhp-hr as noted in California Code of Regulations, Title 13, Section 2433.
- CL** = compliance level of the in-use testing in g/bhp-hr as approved by ARB.
- UL** = useful life in hours (5000 hours for engines with displacement ~~of 1.2 liters or greater than 1.0 liter;~~ 3000 hours for engine with displacement less than 1.2 liters).
- Power** = the average power of an engine family in bhp (sales weighted). The power of each configuration is the rated output in ~~kilowatts~~ horsepower as determined by SAE ~~J1228 J1349 (June 1995) or J1995 (June 1995), as applicable. This These~~ procedures has have been incorporated by reference.
- LF** = Load factor; Fraction of rated engine power utilized in-use (0.32 for engines with displacement ~~of 1.2 liters or greater than 1.0 liter;~~ 0.47 for engines with displacement less than 1.2 liters).
- AF** = adjustment factor for the number of tests conducted, as determined from the following table, except that when a manufacturer concedes failure before completion of testing, the adjustment factor shall be 1.0:

Number of Engines Tested	Adjustment Factor
2*, 4	0.5
6	0.75
8	0.9
10	1.0

*Small volume manufacturer

§ 2439 Procedures for In-Use Engine Ordered Recalls for Large Off-Road Spark-Ignition Engines with an Engine Displacement Greater Than 1.0 Liter

- (b)(1)... B) (i) a description of each class or category of engines **subject** to recall, including the number of engines **subject** to **be being** recalled, the engine family or a sub-group thereof, the model year, and such other information as may be required to identify the engines;
- (b)... (2) Voluntary Recall Progress Report. **The A manufacturer who initiates a voluntary emission recall campaign pursuant to paragraph (b)(1)(A) of this section** must submit at least one report on the progress of the recall campaign. This report shall be submitted to the Executive Officer by the end of the fifth quarter, as defined in Section 2112 (j), Chapter 2, Title 13 of the California Code of Regulations, following the quarter in which the notification of equipment or engine owners was initiated, and include the following information:

Modifications to the Originally Proposed Test Procedures

§ 1. General Applicability.

(a) These provisions apply to new off-road large spark-ignition engines with displacement greater than 1.0 liter, produced on or after January 1, 2001.

(d) The test procedures for determining certification and compliance with the standards for exhaust emissions from new off-road LSI engines with engine displacement equal to or less than 1.0 liter sold in the state are set forth in “California Exhaust Emission Standards and Test Procedures for 1995 and Later Small Off-Road Engines,” as last amended March 23, 1999.

§ 2. Definitions.

“Small Volume Manufacturer” means an engine manufacturer that produces a total of less than 2000 large spark-ignition engines annually for sale in the United States.

§ 7. Emission Standards for 2001 and Later Model Year Off-Road Large Spark-Ignition Engines.

(c) No crankcase emissions shall be discharged into the ambient atmosphere from any new ~~2004~~ 2001 or later model year off-road large spark-ignition engines.

§ 9. Approval of Application for Certification; Test Fleet Selections; Determinations of Parameters Subject to Adjustment for Certification and New Engine Compliance Testing, Adequacy of Limits, and Physically Adjustable Ranges.

(d)(1)... (iii) In determining the parameters subject to adjustment, the Executive Officer shall consider the likelihood that, for each of the parameters listed in paragraphs (d)(1)(~~ii~~) and (d)(1)(ii) of this section, settings other than the manufacturer's recommended setting will occur on in-use engines. In determining likelihood, the Executive Officer may consider such factors as, but not limited to, information contained in the application, surveillance information from similar in-use engines, the difficulty and cost of gaining access to an adjustment, damage to the engine if an attempt is made to gain such access and the need to replace parts following such attempt, and the effect of settings other than the manufacturer's recommended setting on engine performance characteristics including emission characteristics.

(d)(2)(i)... (A) In the case of an idle mixture screw, the screw is recessed within the carburetor casting and sealed with lead, thermosetting plastic, or an inverted elliptical spacer; or the screw is sheared off after adjustment at the factory, and the inaccessibility is such that the screw cannot be accessed and/or adjusted with simple tools in one-half hour or ~~for~~ for \$52 (1998 dollars) or less.

(d)(2)(i)... (D) In the case of any other parameter, the manufacturer demonstrates that adjusting the parameter to settings other than the manufacturer's recommended setting cannot be performed in one-half hour or ~~costing~~ ~~costs~~ more than for \$52 (1998 dollars). ~~or less.~~

§ 11. Test Engines.

(a)... (5) Engines identical in all the respects listed in paragraph (a)(2) of this section but which use differing fuels may be certified as one engine family, provided the engine family ~~be is~~ certified using the fuel that would yield the worst-case emission scenario.

(d)... (1) The engine manufacturer shall select the engine configuration that best

represents the entire engine family or groups of engine **family families** to demonstrate engine and emission durability. The duration of the engine durability demonstration **for the purpose of generating deterioration factors for the emission calculation** shall be no less than the defined equivalent to the **emissions durability useful life hour** period as defined in these Test Procedures.

(d)(2)...

(iii) In the absence of a manufacturer's specific service accumulation cycle, engine durability demonstration shall be conducted using multiple runs of the ISO 8178, Part IV, test cycle C-2, or for constant speed **engine's engines** using multiple runs of the ISO 8178, Part IV, D-2 test cycle. The engine manufacturer may request, with the advanced approval of the Executive Officer, to reduce the total amount of service accumulation hours for any durability / service accumulation engine. The engine manufacturer may make such request only after an engine has accumulated at a minimum one half of the engine's defined useful life period. The Executive Officer shall base such approval on engine's durability, maintenance events, emission test results, and the stability of engine out emissions.