

AIR RESOURCES BOARD

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MAIL OUT #95-45



January 10, 1996

**TO: ALL MANUFACTURERS OF UTILITY AND LAWN AND GARDEN EQUIPMENT ENGINES
ALL OTHER INTERESTED PARTIES**

**SUBJECT: Clarification of Certification Requirements for Utility and Lawn and
Garden Equipment Engines (ULGEs) as Detailed in Air Resources Board
Mail-out 95-30**

On May 31, 1995, the Air Resources Board (ARB) staff met with members of the Engine Manufacturers Association (EMA) in regards to several issues related to the certification of ULGEs. As a result of this meeting, Mail-out 95-30 was issued. Staff again met with the EMA on October 24, 1995, to further clarify certain items in Mail-out 95-30. The present Mail-out is in response to the latter meeting and the related EMA October 17, November 10, and November 15, 1995, letters concerning these items. The ARB's responses are summarized below corresponding to the EMA's letters.

1. Part Number Identification for the Fuel Filter

ISSUE: The EMA requests that fuel filters be removed from consideration for part number identification.

RESPONSE: The ARB will not require the part number identification for fuel filters.

2. Test Engine's Power Measurement

ISSUE: The EMA does not believe that it is necessary to report actual rated power of a four-stroke certification test engine for certification purposes. The EMA considers this practice time-consuming and unrepresentative since most of these engines (with the exception of generators) never attain their rated power in operation. The EMA considers the observed power (at 85% of rated speed) from the certification test to be a better indicator of an engine's output.

RESPONSE: The standard practice for certification testing normally involves measuring the rated power of a certification test vehicle or engine prior to the certification test to assure that the test vehicle or engine is suitable for certification purposes. Since the ULGE test procedures are not specific in this area, the ARB will allow manufacturers to determine and report the highest modal power output of the test engine in accordance with the applicable test cycle for the engine (Ref.: Part II, Section 12(a)(2)(ii) and Part III, Section 18(f) of the ULGE test procedures).

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3. Altitude Adjustment

ISSUE: The EMA requests that the ARB reconsider its requirement for ULGE manufacturers to demonstrate that a ULGE's air-fuel ratio with high-altitude modifications will be no richer than that of the standard engine at low-altitude. The EMA recommends that only engineering evaluations or altitude adjustment instructions be submitted.

RESPONSE: For the 1995 and 1996 certification years, the ARB will accept any high-altitude compliance demonstration that is based on good engineering judgment. For 1997 and subsequently, manufacturers are expected to demonstrate high-altitude compliance as described below.

For the 1997 certification year, manufacturers may provide an engineering evaluation showing that the fuel metered by a high-altitude carburetor is reduced by an appropriate amount corresponding to the thinner air at high altitudes. Other methods to demonstrate high-altitude compliance can be used with prior ARB approval. Such engineering evaluations should take into account all relevant factors such as a jet's dimensions and fluid dynamics considerations. The ARB will require that relevant test data be submitted from one engine family as a validation of the engineering evaluation. For example, comparable bench-flowing data (typically provided by the carburetor vendors) for the high-altitude carburetor and the low-altitude carburetor for the same atmospheric conditions can be used to verify the anticipated reduction in fuel flow. Manufacturers are permitted to select any engine family for this full high-altitude compliance demonstration; the engine family with the highest projected sales would be preferred but not required.

The engineering evaluation and validation data from the selected test engine should be submitted in Section 17 of the application. For all other engine families, the ARB will only require that manufacturers provide engineering evaluations and/or the end results of such evaluations. Such information should also be set forth in Section 17 of the applications.

4. Labeling - Harmonization with EPA

ISSUE: The EMA requests that ULGE engine labels be allowed to reference compliance with both federal and California emission regulations.

RESPONSE: The ARB will accept the use of so-called "50-state" emission label formats for ULGE engine families that meet the ARB's regulations. Engine families that can be certified to different federal and ARB standards due to different handheld equipment definitions will be reviewed on a case-by-case basis as to whether a 50-state label may be used.

5. Engine Family Name Carryover

ISSUE: The EMA requests that engine family names be allowed to carryover to subsequent certification years.

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RESPONSE: Carryover of engine family names will be allowed as long as engine family determinators (Ref.: Part I, Section 17 of the Test Procedures) do not change from year to year.

6. Certification Procedure for Carryover Engine Families in Subsequent Years

ISSUE: The EMA requests simplified guidelines for the submittal of carryover engine family applications.

RESPONSE: Manufacturers Advisory Correspondence 95-08 was recently issued which outlines an optional abbreviated format that manufacturers may use to certify carryover engine families for 1996 and subsequently.

7. Labeling - Sample Certification Label Submission

ISSUE: The EMA requests clarification of the ARB's prior statement, "...if the actual label differs from the approved format described in the application, the manufacturer is required to submit the modified label within 30 days of the start of production and to apply the modified label to all previously produced engines."

RESPONSE: The ARB will allow manufacturers up to 90 days after the start of production to submit actual samples of the engine labels. If the submitted label (let's call it "A") differs from the approved format (let's call it "B") that was described in the application, two possible ARB actions can result. If "A" is determined to meet the ARB's labeling regulations, the manufacturer will need to update the application to reflect "A" as the label for the engine family. If "A" is determined to not comply with the ARB's labeling regulations, its use will not be allowed. Instead, the manufacturer will be required to use the previously approved "B" label or some other label format that is approved by the ARB. Furthermore, the ARB expects that all engines produced and shipped for sale during calendar year production will have the correct, approved label.

8. Tamper-Resistant Liquefied Petroleum Gas and Natural Gas Regulators

ISSUE: The EMA stated that it does not wish to use tamper resistance measures on liquefied petroleum gas and natural gas regulators and mixers because of the need to make in-use adjustments to comply with safety regulations and/or variations in fuel compositions and pressures. Alternative-fuel suppliers currently use tamper resistance methods to make these components non-adjustable. According to the EMA, any type of tamper resistance method used on these engines will involve complex design issues, high costs, and low customer acceptance that will make them nonviable at this time.

RESPONSE: The ARB understands that in-use adjustments are necessary for maintaining the safety and performance aspects of alternative-fueled ULGEs, but also recognizes that these adjustments do not necessarily ensure emissions compliance with California regulations. The ARB believes that tamper

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resistance measures that allow for limited customer adjustments and which also provide adequate deterrence to adjustments outside the intended range can meet the ARB's criteria for emissions compliance and should minimize manufacturers' concerns regarding cost, design, and customer acceptance over the long term. The regulation provides that engines that incorporate ARB-approved adjustable tamper resistance measures may demonstrate emission compliance at settings within the intended range of adjustments but that engines that have unacceptable or no tamper resistance measures may be required to demonstrate emission compliance at any settings specified by the ARB. Recognizing the leadtime necessary to develop acceptable anti-tampering measures for alternative-fueled ULGEs, the ARB will conditionally certify such engines during the 1995 and 1996 certification years on the condition that such engines can demonstrate compliance with adopted emission standards at the nominal factory setting of adjustment and that manufacturers attempt in good faith to achieve full compliance with the anti-tampering provisions as expeditiously as possible. Beginning with the 1997 certification year, alternative-fueled ULGEs must have ARB-approved anti-tampering measures for all adjustable emission-related parameters, unless the engines can demonstrate emission compliance at any setting specified by the ARB.

If you have further questions on these issues, please telephone Mr. Duc Nguyen, Manager, Certification Section, or Mr. Dean Hermano, staff engineer, at (818) 450-6103.

Sincerely,



K. D. Drachand, Chief
Mobile Source Division