

Manufacturers Advisory Correspondence MAC #2001-01

June 6, 2001

TO: ALL MANUFACTURERS OF SMALL OFF-ROAD ENGINES  
ALL OTHER INTERESTED PARTIES

SUBJECT: Optional Use of the Federal Engine Test Cycle Speed and Load  
Specifications for Exhaust Emission Testing of Spark-Ignition Small Off-Road Engines.

This letter transmits the attached Manufacturers Advisory Correspondence (MAC) which provides the Air Resources Board's (ARB's) policy allowing manufacturers the option to use the United States Environmental Protection Agency's (U.S. EPA's) engine test cycle speed and load specifications for certification and production line testing of spark-ignition small off-road engines. These federal requirements may be used in lieu of the speed and load specifications of Part III, Section 12 (d)(2)(ii) and Part IV, Section 21 (f) of the California Exhaust Emission Standards and Test Procedures for Small Off-Road Engines. Unlike ARB's procedures, the U.S. EPA test procedures specify the same set of speed and load tolerances for both raw gas and CVS methods. A manufacturer will be allowed to use either U.S. EPA tolerances, ARB raw gas method tolerances or ARB CVS method tolerances to test small off-road engines.

Should you have any questions or comments, please contact Mr. Keith Macias, Air Resources Engineer, New Vehicle/Engine Audit Section, at (626) 575-7068 or by e-mail at [kmacias@arb.ca.gov](mailto:kmacias@arb.ca.gov).

Sincerely

/s/

R. B. Summerfield, Chief  
Mobile Source Operations Division

Attachment

SUBJECT

Optional Use of United States Environmental Protection Agency (U.S. EPA) Engine Test Cycle Speed and Load Tolerances for Exhaust Emission Testing of Spark-Ignition Small Off-Road Engines (SOREs).

## APPLICABILITY

2000 and subsequent model-year spark-ignition small off-road engines.

## REFERENCES

1. California Code of Regulations, Title 13, sections 2400 - 2409.
2. "California Exhaust Emission Standards and Test Procedures for 1995 and Later Small Off-Road Engines," as last amended January 28, 2000 (Register 2000 No. 52; 12-29-2000).
3. Title 40, Code of Federal Regulations, section 90.410, "Engine test cycle," as last amended April 25, 2000 (65 Fed. Reg. 24313).

## DISCUSSION

One of ARB's objectives in promulgating the Small Off-Road Engine (SORE) regulations was to harmonize the engine test procedures with the U.S. EPA's test procedures for nonroad spark-ignition engines. This objective is clearly documented in the rulemaking record.

Currently, the SORE regulation allows manufacturers of small spark-ignition engines to conduct certification testing using either the "raw gas" or, upon approval, from the ARB, the "constant volume sampling" test method. Both of these methods prescribe engine speed and load tolerances that must be maintained during each test cycle mode. However, after the effective date of the SORE regulations, U.S. EPA revised the engine speed and load tolerances applicable to testing of nonroad spark-ignition engines, which resulted in a disparity between California and federal test procedures.

Also, during visits to manufacturers' assembly plants and testing facilities in 1999 and 2000, ARB staff observed that manufacturers were experiencing difficulty in complying with the engine and speed load tolerances specified in the SORE regulations, especially for low horsepower engines. In addition, the Engine Manufacturers Association (EMA) has requested that the ARB allow manufacturers to use either the U.S. EPA, ARB raw gas method, or ARB constant volume sampling method engine speed and load tolerances to test SOREs.

Based on the factors discussed above, the ARB finds that the EMA's request is supported by sufficient information showing the necessity to revise the SORE test

procedures, and approves EMA's request pursuant to section 20(h), Part I of the California Exhaust Emission Standards and Test Procedures for 1995 and Later Small Off-Road Engines.

## POLICY

The ARB will allow manufacturers to use the engine speed and load tolerances specified in either: (1) the federal nonroad spark-ignition engines test procedures (40 CFR section 90.410, as amended April 25, 2000), (2) the SORE raw gas method (Part III, section 12(d)(2)(ii) of the SORE test procedures), or (3) the SORE constant volume sampling method (Part IV, section 21(f) of the SORE test procedures). These alternatives are available for engine tests performed using either the raw gas or constant volume sampling method. Manufacturers must specify which tolerances were selected for every engine family they certify with ARB, and must use those same tolerances consistently for all testing pertaining to that engine family.

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: <http://www.arb.ca.gov>.*

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California Environmental Protection Agency