

AIR RESOURCES BOARD

HAAGEN-SMIT LABORATORY

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April 17, 1986

TO: ALL MOTORCYCLE MANUFACTURERS

Enclosed is Manufacturers Advisory Correspondence (MAC) No. 86-06 regarding evaporative system certification procedures for Class III motorcycles produced by very small volume manufacturers. In response to petitions from motorcycle manufacturers, the Air Resources Board has adopted test procedures which allow the use of an assigned evaporative emission deterioration factor (DF) in lieu of running total test distance durability motorcycles and provide for waivers of evaporative emission testing under certain circumstances. This MAC provides information regarding the new test procedures, i.e., the eligibility requirements and options for those very small volume manufacturers of motorcycles seeking to use an assigned evaporative emission DF for new Class III motorcycle certification in California.

If you have any questions, please contact Mr. R. J. Kenny at (818) 575-6844.

Sincerely,

A handwritten signature in cursive script, appearing to read "K. D. Drachand".

K. D. Drachand, Chief
Mobile Source Division

Enclosure

RELEASE DATE:

- SUBJECT:** Assigned evaporative emission control system (ECS) deterioration factor (DF) and evaporative ECS testing waiver for new Class III motorcycle certification by very small volume manufacturers (500 units maximum annual California sales).
- APPLICABILITY:** 1986 and subsequent model Class III motorcycles of very small volume manufacturers.
- PURPOSE:** To clarify the effect of test procedure amendments adopted by the Air Resources Board (ARB) on October 30, 1985, which allow very small volume manufacturers of motorcycles to use an assigned evaporative DF instead of performing durability testing for new Class III motorcycle certification and provide for waiver of the evaporative ECS testing for these manufacturers under certain circumstances.
- REFERENCE:** California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Liquefied Petroleum Gas- or Gasoline-Powered Motor Vehicles (Adopted April 16, 1975; last amended October 30, 1985).
- BACKGROUND:** On October 30, 1985, the ARB amended the evaporative emission Test Procedures to allow very small volume manufacturers of motorcycles the option of using an assigned evaporative DF for Class III motorcycle evaporative ECS certification instead of performing vehicle and bench durability testing. The amended Test Procedures also provide very small volume manufacturers of motorcycles utilizing an assigned evaporative DF with an optional procedure for demonstrating compliance with the evaporative emission standard.
- GENERAL POLICY:** The amended Test Procedures (Paragraph 8.a.vii) provide that very small volume manufacturers of motorcycles seeking to use an assigned evaporative DF for new Class III motorcycle certification or to receive a waiver of evaporative testing of the minimum test distance motorcycle must meet the following two requirements:
1. total annual motorcycle sales in California do not exceed 500 units, and
 2. a. the evaporative ECS has been previously certified to meet the California emission standards, or
b. the manufacturer provides test data from previous certification to demonstrate durability of the evaporative ECS.

A. Durability

The development of an assigned evaporative DF to represent typical degradation of evaporative ECS of Class III motorcycles of qualified very small volume manufacturers throughout the motorcycles' useful life should be based on an engineering evaluation of pertinent evaporative durability data accumulated from previously certified Class III motorcycles. For 1984, 1985 and 1986 model Class III motorcycles certified to the 6.0 g HC/test evaporative emission standard, the average evaporative DF is 0.110 g HC/test with a standard deviation of 0.194 g HC/test. For Class III motorcycles of very small volume manufacturers, it is expected that the absence of specific emissions control development and production experience will cause considerable variability in actual deterioration rates and absolute emission values when these motorcycles are in customer service. Accordingly, the staff has determined that an assigned evaporative DF of 0.5 g HC/test (i.e., average evaporative DF plus two times standard deviation of the evaporative DF's) would be appropriate for use by most very small volume manufacturers of motorcycles for certification of new Class III motorcycles equipped with previously certified evaporative ECS.

B. Emissions Compliance

Qualified very small volume manufacturers of motorcycles who elect to use an assigned evaporative DF for new Class III motorcycle certification will be allowed to demonstrate compliance with the evaporative emission standards at the minimum test distance of 3,500 km instead of the total test distance of 15,000 km of the normal test procedure. The amended Test Procedures require testing of exhaust emissions after installation of the evaporative ECS, and compliance with the exhaust emission standards when projected to the motorcycles' useful life must be met.

The Test Procedures have been further amended to allow qualified very small volume manufacturers of motorcycles to request, in writing, a waiver of all evaporative emission testing for new Class III motorcycle certification. The waiver shall be granted if compliance with the evaporative emission standards can be demonstrated by an engineering evaluation. The engineering evaluation must show that the motorcycle will comply with the applicable evaporative emission standard. This showing can be made by demonstrating that the stress levels on the evaporative ECS as installed on the Class III motorcycle to be certified are similar to those on a previously certified design, thereby demonstrating that the evaporative ECS will be durable and comply with the

evaporative emission standards for the useful life of the motorcycle when in customer service. The engineering evaluation should include a complete technical description of the evaporative ECS, technical comparison including emission data with a comparable previously certified evaporative ECS, development or equivalent SHED data if available, and other emission-related information as determined by the Executive Officer to be relevant to the evaluation of the Waiver Request. The technical description of the evaporative ECS should include the following:

- a. Blueprints, photographs and drawings of the entire system and components,
- b. Carburetors, including manufacturer, model, part number, number of venturis, carburetor location relative to the engine and the air cleaner, description of carburetor circuits, principle of operation, carburetor sealing, bowl volume and location, vent configuration, and acceleration pump configuration,
- c. Vapor storage device (canister, crankcase, air cleaner, etc.), including manufacturer, model, part number, type and quantity of storage medium, working capacity, configuration, mounting arrangement, location and orientation on the motorcycle, vent mechanism and purge control,
- d. Vapor control routing, including specifications to which the hoses conform, size, length, and clamping method, and
- e. Fuel tank, including material of construction, liner configuration, vapor control baffle configuration, fuel and vapor space capacities, expansion volume, vents, vapor control routing, fuel filler cap, vapor/liquid separator, roll-over valve, seals and gaskets.

C. It should be emphasized that neither the use of an assigned evaporative DF nor the waiver of evaporative emission testing creates an exemption from the exhaust emission standards and test procedures applicable pursuant to Section 1958, Title 13, California Administrative Code, or Subparagraph 8.c.ii of the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Liquefied Petroleum Gas- or Gasoline-Powered Motor Vehicles" as amended on October 30, 1985.

D. Fuel Tank Fill Pipe and Openings Specifications Compliance

When evaporative emission testing is waived by the Executive Officer pursuant to Paragraph 8.a.vii.(B) of the Test Procedures incorporated in Section 1976, Title 13, California

Administrative Code, the manufacturer must either demonstrate compliance with ARB fuel tank fill pipe and openings specifications as required by Section 2290, Title 13, California Administrative Code, and the incorporated "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks," or provide sufficient information to satisfy Executive Order G-70-16-E (exemptions from the specifications). If exemption from the specifications is to be based on the performance of the evaporative ECS, the engineering evaluation required under Paragraph 8.a.vii.(B) of the Test Procedures may be used to determine the evaporative emissions ECS certification level, if evaporative emission test data is unavailable.