

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-80  
Relating to Exemptions under Section 27156  
of the Vehicle Code

MILEAGE MINDER CO.  
"MILEAGE MINDER" DEVICE

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39515 of the Health and Safety Code and Executive Order G-30A;

IT IS ORDERED AND RESOLVED: That the installation of the "Mileage Minder" device manufactured by Mileage Minder Co., 2999 Mission Street, San Francisco, CA 94110, has been found to not reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for installation on 1978 and older gasoline-powered vehicles.

This Executive Order is valid provided that installation instructions for this device will not recommend tuning the vehicle to specifications different from those listed by the vehicle manufacturer.

Changes made to the design or operating conditions of the device, as exempted by the Air Resources Board, that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE "MILEAGE MINDER" DEVICE.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provides as follows:

"43644: (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at Sacramento, California, this 17<sup>th</sup> day of April, 1978.

*Original Signed by*

Thomas C. Austin  
Deputy Executive Officer

State of California  
AIR RESOURCES BOARD  
March 28, 1978

Staff Report

Evaluation of Mileage Minder Co.  
"Mileage Minder" Device in Accordance with  
Section 2222, Title 13 of the California Administrative Code

I. Introduction

On August 23, 1977, the Air Resources Board (ARB) notified Mileage Minder Co., 2999 Mission Street, San Francisco, CA 94110, that their advertisement of the "Mileage Minder" pressure regulator may be in violation of the California Vehicle Code Section 27156 and the company was requested to apply for an exemption from the prohibitions of this law as provided in Section 2200 of Title 13 of the California Administrative Code. The company claimed by letter dated October 10, 1977, that the governing regulation was not applicable to its "Mileage Minder" device. Two devices were submitted to ARB for evaluation. Pursuant to Section 2224(b) of Title 13, of the California Administrative Code, the ARB conducted tests on the "Mileage Minder" device to determine compliance with the requirements of Section 27156 of the California Vehicle Code.

II. System Description

The "Mileage Minder" device is a fuel pressure regulator installed between the fuel pump and carburetor. The applicant claims the

device is designed to maintain the proper fuel flow to the carburetor at the optimum pressure. By regulating the supply pressure it is claimed that a more uniform level of fuel can be maintained in the carburetor float bowl over the range of operating conditions of the vehicle, thereby enabling better air fuel ratio control.

The device consists of a main upper brass metal housing and lower glass container. The upper housing contains the fuel inlet and outlet, vacuum port for connection to the intake manifold, ball valve, and spring loaded diaphragm, that regulates the opening and closing of the valve. The lower glass container holds the fuel, a highly sensitive porous filter, and a ferrite magnet that attracts metal particles that escape the filter.

The device modulates the fuel pressure by the action of intake manifold vacuum on the diaphragm which regulates the opening and closing of the valve. During high manifold vacuum the spring loaded diaphragm partially closes the valve causing the reduction of outlet fuel pressure. At low manifold vacuum, the valve opens thereby causing the fuel to return to normal pressure.

### III. System Evaluation

The ARB Laboratory evaluation of the device consisted of parametric pressure tests at different engine speed and loading conditions to determine the effect of the "Mileage Minder" device on a typical carburetor. The purpose was to identify any abnormal fuel delivery conditions which could adversely affect exhaust emissions.

Tests were conducted on a 1976 Canadian Ford 302-2V, non-catalyst engine installed on an engine dyno test stand. Steady state tests were performed at idle, 1,000, 2,000, and 2,500 rpm with the engine loaded at 25%, 50% and maximum torque at each speed setting. Fuel flow rates and manifold vacuum were measured and compared to baseline data. Table I summarizes the pertinent test data.

The test results show that the device reduced the output fuel pressure from 5.5 psig to about 2 psig at most of the engine operating conditions except at very low manifold vacuum conditions. At wide open throttle, the output fuel pressure did not change. At any particular combination of engine speed and loading condition, the reduction of fuel output pressure due to the installation of the device did not change the fuel flow rate except at idle which was reduced by 10%. This indicates the device pressure regulation down to 2 psig will not significantly change the air fuel mixture, and consequently will not have any adverse effect on exhaust emissions.

#### IV. Manufacturer's Claims

The manufacturer claims the installation of the "Mileage Minder" device on vehicles will improve fuel economy.

It is the staff's opinion that reducing the fuel supply pressure under non-critical operating modes causes a slight depression in the fuel level of the carburetor float bowl. This could result in a slight leaning of the air/fuel ratio and may contribute to slight improvement in fuel economy. Our previous tests on similar pressure regulators showed a slight improvement in fuel economy of certain vehicles listed.<sup>1</sup> However, the reduction in fuel consumption was minimal and would not justify the cost of such a device for many vehicle applications.

#### V. Conclusion and Recommendation

Based on the discussion presented herein, it is the staff's opinion that the installation of the "Mileage Minder" pressure regulator will not adversely affect the vehicle exhaust emissions. Therefore, the staff recommends that "Mileage Minder" device be granted an exemption from the prohibitions of California Vehicle Code Section 27156 for its "Mileage Minder" device for 1978 and older gasoline-powered vehicles.

<sup>1</sup>Evaluation of Cagle Corporation "Cagle Automatic Fuel Control" Device for Compliance with the Requirements of Section 27156 of the Vehicle Code, dated May 27, 1976.

TABLE I - MILEAGE MINDER FUEL FLOW MEASUREMENTS

| Engine Speed (RPM)                          |          | 900  | 1000 |      |     | 2000 |      |     | 2500 |      |     |
|---|----------|------|------|------|-----|------|------|-----|------|------|-----|
| % of Max. Torque                            |          | Idle | 25   | 50   | 100 | 25   | 50   | 100 | 25   | 50   | 100 |
| Mileage Minder<br>Output Pressure<br>(PSIG) | Baseline | 5.8  | 5.8  | 5.8  | 5.5 | 5.8  | 5.6  | 4.7 | 5.6  | 5.4  | 4.3 |
|   | Device   | 3.5  | 2.2  | 2.4  | 5.3 | 2.0  | 2.2  | 5.1 | 2.0  | 2.1  | 4.5 |
| Manifold Vacuum<br>(In. Hg.)                | Baseline | 15   | 13.2 | 10.4 | 0   | 16.1 | 10.7 | 0.6 | 16.4 | 10.6 | 1.1 |
|   | Device   | 15   | 12.9 | 10.2 | 0   | 15.9 | 10.7 | 0.6 | 16.3 | 10.6 | 1.1 |
| Fuel Flow<br>(gm/sec.)                      | Baseline | 0.9  | 1.2  | 1.4  | 2.8 | 1.9  | 3.0  | 5.9 | 2.4  | 3.8  | 7.3 |
|   | Device   | 0.8  | 1.2  | 1.4  | 2.8 | 1.9  | 3.0  | 5.9 | 2.4  | 3.8  | 7.4 |