

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-116  
Relating to Exemptions under Section 27156  
of the Vehicle Code

WESTERN CARBIDE CORPORATION, INC.  
FUEL MISER

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 Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the "Fuel Miser" manufactured by Western Carbide Corporation, Inc., Stanton, California, has been found not to 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 1981 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 submitted by the device 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. Exemption of a kit shall not be construed as an exemption to sell, offer for sale, or advertise any component of a kit as an individual device.

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 FUEL SAVER.

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.

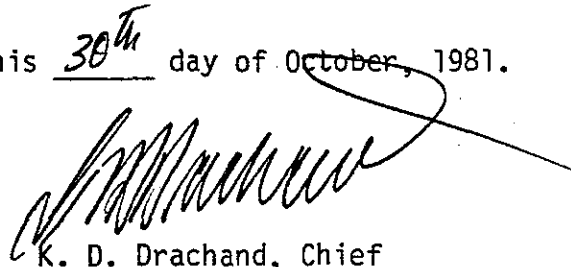
Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

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 El Monte, California, this 30<sup>th</sup> day of October, 1981.



K. D. Drachand, Chief  
Mobile Source Control Division

State of California  
AIR RESOURCES BOARD

Staff Report

October 23, 1981

Evaluation of the Western Carbide's "Fuel Miser" Water Injection System in Accordance with Section 2222, Title 13, of the California Administrative Code.

I. INTRODUCTION

Western Carbide of Stanton, California, has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code for an add-on device known as the "Fuel Miser" water injector. This exemption is being requested for all 1981 and older gasoline-fueled engines.

The device was evaluated by back-to-back Constant Volume Sampler 1975 (CVS-75) tests.

II. DEVICE DESCRIPTION AND OPERATION

The "Fuel Miser" is a vacuum-controlled water injection system. The major components of the system are two nozzles which mount in the spacer plate under the carburetor, a water bag, and a control valve.

The control valve (Figure 1) consists of a vacuum-actuated diaphragm which is connected to a manifold vacuum source and a "reverse taper" needle valve which controls the water flow. The needle is calibrated such that no water flow occurs during idle, deceleration, and mild acceleration. The valve opening is then inversely proportional to manifold vacuum.

### III. APPLICANT'S TEST RESULTS

The applicant submitted hot start CVS-72 data from a 1978 Datsun 280Z and cold start CVS-75 data from a 1981 Mercury Zephyr. These data are:

Vehicle No. 1, 1978 Datsun 280Z, 2.8L automatic transmission, VIN HL530383338, odometer 36505:

|              | Hot Start CVS-72 Test |             |             | Fuel Economy<br><u>mi/gal</u> |
|--------------|-----------------------|-------------|-------------|-------------------------------|
|              | Emissions (g/mile)    |             |             |                               |
|              | <u>HC</u>             | <u>CO</u>   | <u>NOx</u>  |                               |
| Baseline     | 0.47                  | 10.62       | 2.16        | 15.2                          |
| Device       | <u>0.29</u>           | <u>4.73</u> | <u>1.99</u> | <u>15.2</u>                   |
| % Difference | -38.3                 | -55.5       | -7.9        | --                            |

Vehicle No. 2, 1981 Mercury Zephyr, 3.3L automatic transmission, VIN 1MEBP 73B 7BK 63, odometer 5018:

|              | Cold Start CVS-75 Test |             |            | Fuel Economy<br><u>mi/gal</u> |
|--------------|------------------------|-------------|------------|-------------------------------|
|              | Emissions (gm/mile)    |             |            |                               |
|              | <u>HC</u>              | <u>CO</u>   | <u>NOx</u> |                               |
| Baseline     | .29                    | 2.58        | .42        | 17.4                          |
| Device       | <u>.26</u>             | <u>2.84</u> | <u>.45</u> | <u>17.0</u>                   |
| % Difference | -10.3                  | +10.1       | +7.1       | -2.4                          |

### IV. DISCUSSION

The principle of operation of the "Fuel Miser" control valve avoids the major problem (encountered in vacuum-operated water injectors) of

flooding the engine with excessive amounts of water during low demand periods. Although the device is called the "Fuel Miser", no other claim of fuel economy is being made.

The CVS test data indicates no significant increase in emissions or fuel economy occurred as a result of the installation of the "Fuel Miser" on either carburetor-equipped or fuel injected cars.

V. CONCLUSION AND RECOMMENDATION

The staff finds no evidence to indicate that the "Fuel Miser" water injection system will have a significant adverse effect on emissions from a motor vehicle.

The staff, therefore, recommends the approval of Executive Order No. D-116 exempting the "Fuel Miser" water injector from the prohibitions of Vehicle Code Section 27156.

Figure 1  
FUEL MISER CONTROL VALVE

