

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-98
Relating to Exemptions under Section 27156
of the Vehicle Code

INTERNAL ENERGY MANAGEMENT CORP.
"MOLECULETOR FUEL ENERGIZER UNIT"

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 "Moleculetor Fuel Energizer Unit" manufactured by Dotsel and Associates, Houston, Texas, 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 1979 and older model-year 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 "MOLECULETOR FUEL ENERGIZER UNIT".

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.

No fuel economy test either performed by the Air Resources Board or considered by the Air Resources Board to be reliable showed any significant improvement in fuel economy due to the use of the "Moleculetor Fuel Energizer Unit".

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 25th day of March, 1980.

K. D. Drachand

K. D. Drachand, Chief
Mobile Source Control Division

State of California
AIR RESOURCES BOARD

November 17, 1979

Staff Report

Evaluation of the Internal Energy Management
Corporation "Moleculetor Fuel Energizer Unit",
in Accordance with Section 2222, Title 13 of
the California Administrative Code

I. Introduction

Internal Energy Management (IEM) Corporation of Del Rio, Texas has applied for an exemption from the prohibitions of Section 27156 of the Vehicle Code, for an add-on device known as the "Moleculetor Fuel Energizer Unit (MFEU)". Exemption is sought for installation of this device on all 1979 and older gasoline or diesel vehicles regardless of make, model, or engine configuration.

The applicant has submitted the results of tests conducted at Olson Engineering, Inc. of Huntington Beach, CA. Confirmatory tests on two 1979 model-year vehicles were conducted at the Air Resources Board's (ARB) Haagen-Smit Laboratory in El Monte, CA.

II. Device Description and Operation

The "Moleculetor Fuel Energizer" is a section of cylindrical aluminum bar stock approximately one and one half inches in diameter with an axial fuel passage. The cylinder is threaded at both ends to accept fuel line fittings. The device, sold in three different lengths, is installed

in series with a vehicle fuel line on the upstream (low pressure) side of the fuel pump. The MFEU is represented as being charged with an energy field, by a secret process, which affects the structure of fuel molecules passing through it. The applicant stated that the inventor refused to divulge this process.

The device operates, according to the applicant, so that "when the fuel passes through the moleculetor energy chamber (energy field), the molecular structures of the fuel molecules are altered into smaller burnable units. The moleculetor fuel energizer has a similar effect on most impurities the fuel may contain". The staff has yet to devise a plausible explanation as to how the above can occur (see V discussion). The stated purpose of the device is to increase fuel economy.

III. Applicant's Test Results

IEM has submitted numerous testimonials, heavy-duty vehicle tests and light-duty vehicle tests. Of these, the testimonials and heavy-duty truck tests are not well enough documented to be considered valid test data.

Light-duty vehicle tests were conducted by Olson Engineering, Inc.; an independent laboratory capable of performing the Federal Test Procedure (FTP) according to specifications in the Federal Register. A summary of emissions and fuel economy results submitted by the applicant is presented in table 1 on the following vehicles:

Vehicle #1: 1974 Fiat X-1/9, 1300 cc, L4, MT
Vehicle #2: 1979 Chevrolet Malibu, 231 CID, V6, AT
Vehicle #3: 1978 Ford Thunderbird, 400 CID, AT
Vehicle #4: 1979 Buick Regal Turbo, 231 CID, AT
Vehicle #5: 1978 Chevrolet Caprice, 305 CID, AT
Vehicle #6: 1979 Ford Thunderbird, 351 CID, AT
Vehicle #7: 1979 Chevrolet Monte Carlo, 305 CID, AT

Vehicles #1, 2 and 3 were tested in accordance with the ARB specified procedure of back-to-back cold start CVS-75 tests followed by the HFET. These vehicles showed 5-7% fuel economy gains on CVS-75 tests, and 1-2% on highway cycles. Both gains are considered to be within the bounds of test variability.

The applicant submitted CVS-75 tests only on vehicle #4, which fails to meet HC standards, and HFET's only on vehicles #5, 6, and 7. These vehicles show fuel economy increases of 8 to 23%, but the tests appear to be selectively submitted and were not conducted as specified by the ARB. The fuel economy gains exhibited by this last group of vehicles contradicts the results of the tests on vehicles #1, 2, and 3 and the results obtained at the ARB laboratory described in the next section.

Table 1 - Applicant's Test Results

<u>Vehicle No.</u>	<u>Test</u>	<u>HC (g/mi)</u>	<u>CO (g/mi)</u>	<u>NOX (g/mi)</u>	<u>FE (mi/gal)</u>
1	baseline CVS-75	3.83	34.61	1.07	20.21
1	device CVS-75	3.86	31.90	1.09	21.59 (+7%)
1	baseline HFET	1.03	17.95	1.40	30.38
1	device HFET	1.01	15.94	1.65	31.06 (+2%)
2	baseline CVS-75	0.19	3.72	1.19	17.38
2	device CVS-75	0.19	3.74	1.01	18.23 (+5%)
2	baseline HFET	0.03	0.00	0.89	25.70
2	device HFET	0.06	0.00	0.91	26.02 (+1%)
3	baseline CVS-75	0.42	12.22	0.80	10.61
3	device CVS-75	0.35	10.11	0.84	11.11 (+5%)
3	baseline HFET	0.07	1.54	0.60	15.64
3	device HFET	0.05	0.52	0.82	15.86 (+1%)
4	baseline CVS-75	0.71	6.81	1.10	12.77
4	device CVS-75	0.81	4.16	0.98	15.77 (+23%)
5	baseline HFET	0.03	0.09	1.30	16.08
5	device HFET	0.02	0.00	1.16	17.82 (+11%)
6	baseline HFET	0.07	0.04	2.15	16.00
6	device HFET	0.05	0.02	1.26	18.70 (+17%)
7	baseline HFET	0.04	0.23	1.11	20.49
7	baseline HFET	0.04	0.27	1.02	20.84
7	device HFET	0.05	0.21	0.85	21.88
7	device HFET	0.05	1.10	0.65	21.59
7	device HFET	0.05	1.08	0.54	22.72
7	device HFET	0.02	0.23	0.91	23.13
7	avg. baseline HFET	0.04	0.25	1.06	20.66
7	avg. device HFET	0.04	0.66	0.74	22.33 (+8%)

IV. Air Resources Board Laboratory Test Results

The Air Resources Board conducted a test program on two late-model vehicles to provide confirmation of the applicant's results. The vehicles are described below:

<u>Model Year</u>	<u>Make</u>	<u>Model</u>	<u>Engine disp. (in³)</u>	<u>emission controls</u>
1979	Toyota	Corolla S/W	97	EGR, AIR, OC
1979	Chevrolet	Camaro	305	EGR, AIR, OC, EFE

Testing on these vehicles was on a back-to-back basis, e.g. a baseline test was run on a stock vehicle tuned to manufacturer's specifications followed by a test with a model #3 device installed. The Moleculetor was installed according to IEM instructions. One hundred miles was accumulated on each vehicle after the Moleculetor installation, and before the first device test, per IEM request.

The following test series was applied to each vehicle;

- One cold start CVS-75 (FTP)
- One hot start HFET
- One loaded mode
- One steady state at 55 mph, WOT

Cold start CVS-75 and HFET results are given in tables 2 and 3. Emission results indicate that the installation of the moleculetor has no significant adverse effect on emissions. No fuel economy benefit is apparent from these tests.

Fuel consumption results in Tables 2 and 3 are based on the carbon balance method of calculating fuel economy from exhaust gas analysis. Tables 4 and 5 give actual fuel consumption as measured with a Fluidyne Model 1250T digital fuel flowmeter.

Table 2 - 1979 Toyota Corolla CVS Results

<u>Test Description</u>	<u>HC g/mi</u>	<u>CO g/mi</u>	<u>NOx g/mi</u>	<u>FE mi/gal</u>
baseline CVS-75	0.24	3.97	1.17	23.1
device CVS-75	<u>0.28</u>	<u>4.65</u>	<u>0.97</u>	<u>22.7</u>
	(17%)	(17%)	(-17%)	(-2%)
baseline HFET	0.04	0.01	1.77	26.9
device HFET	<u>0.03</u>	<u>0.01</u>	<u>1.51</u>	<u>26.3</u>
	(-25%)	(0%)	(-15%)	(-2%)

Table 3 - 1979 Chevrolet Camaro CVS Results

<u>Test Description</u>	<u>HC g/mi</u>	<u>CO g/mi</u>	<u>NOx g/mi</u>	<u>FE mi/gal</u>
baseline CVS-75	0.37	3.15	0.93	12.7
device CVS-75	<u>0.40</u>	<u>3.41</u>	<u>0.94</u>	<u>12.3</u>
	(8%)	(8%)	(1%)	(-3%)
baseline HFET	0.08	0.05	0.81	18.4
device HFET	<u>0.09</u>	<u>0.05</u>	<u>1.00</u>	<u>17.4</u>
	(12%)	(0%)	(23%)	(-5%)

Table 4 - 1979 Toyota Corolla Fuel Consumption Comparison

<u>Test</u>	<u>Average Baseline Fuel Consumption (cm³/min)</u>	<u>Average Device Fuel Consumption (cm³/min)</u>
Loaded Mode - High Cruise*	105	108
High Cruise	104	105
Low Cruise*	52	50
Low Cruise	49	50
idle*	20	20
idle	20	20
55 mph, WOT	367	370

*without air injection

Table 5 - 1979 Chevrolet Camaro Fuel Consumption Comparison

<u>Test</u>	<u>Average Baseline Fuel Consumption (cm³/min)</u>	<u>Average Device Fuel Consumption (cm³/min)</u>
Loaded Mode		
High Cruise*	279	291
High Cruise	280	289
Low Cruise*	127	119
Low Cruise	137	105
Idle*	42	44
Idle	43	44
55 mph, WOT	611	613
CVS-75	105	108
HFET	164	167

*without air injection

V. Discussion

The applicant has offered no explanation of the mechanism by which the MFEU can break the molecular bonds of gasoline.

Aluminum is not known to act as a catalyst on gasoline, and there is no apparent method of providing energy to the device that would allow it to operate as the applicant describes.

The tests conducted by the ARB indicate that the MFEU does not significantly affect emissions or fuel economy. CVS-75 and HFET carbon-balance fuel economy results, verified by actual flow measurements in most cases, show no fuel economy benefits for the MFEU.

The tests submitted by the applicant on the three vehicles tested according to ARB specifications at Olson Engineering also show no significant effect on fuel economy. The remainder of the applicant's data, as mentioned previously, were not tested according to ARB specifications. Choosing such data to represent the MFEU is misleading.

Tests at wide open throttle (WOT), 55 mph, were designed to demonstrate whether or not the device fuel passage acts as a restrictor at high fuel flows. Fuel consumption was nearly identical for the baseline and device in this mode as well as the other steady states (Loaded Modes).

VI. Conclusion and Recommendation

The staff finds no evidence to indicate that the Moleculetor Fuel Energizer will have a significant adverse effect on emissions from motor vehicles. The staff also finds no evidence to indicate that the Moleculetor will increase fuel economy.

Because of the lack of any significant adverse emissions effect, the staff has no choice but to recommend that the Board exempt the Moleculetor Fuel Energizer Unit from the prohibitions of Vehicle Code 27156.