

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-1-5
Relating to Exemptions Under Section 27156
of the Vehicle Code

CONTIGNITRON COMPANY
"EQUALIZER MOD 4-V"

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 39023 of the Health and Safety Code;

IT IS ORDERED AND RESOLVED: That the installation of the "Equalizer Mod 4-V" electronic ignition device manufactured by the Contignitron Company 7625-24 E. Rosecrans Ave., Paramount, California 90723 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 1974 and later model year vehicles except as follows:

- 1) Those vehicles with positive ground or 6 volt systems.
- 2) Those vehicles equipped with capacitive discharge or transistorized ignition systems including breakerless types.
- 3) Those vehicles with special ignition coils.
- 4) Those vehicles without a centrifugal advance.

This device consists of packaged electronic circuits for spark timing and dwell control.

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

Changes made to the design or operating conditions of the device as approved by the Air Resources Board that adversely affect the performance of the vehicle's pollution control device 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 "MOD 4-V" IGNITION 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 unlawful, untrue or misleading advertising and Section 17534 makes violation punishable as a misdemeanor.

Sections 39130 and 39184 of the Health and Safety Code provide as follows:

"39130. No person shall install, sell, offer for sale, or advertise, or, except in an application to the board for certification of a device, represent, any device as a motor vehicle pollution control device unless that device has been certified by the 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 section is a misdemeanor."

"39184. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the board for accreditation 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 accredited by the board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as an accredited device which, in fact, is not an accredited 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 6th day of August, 1975.

WILLIAM SIMMONS
Executive Officer

State of California

AIR RESOURCES BOARD

July 29, 1975

Evaluation of Contignitron Company's
"Equalizer Mod 4-V" Ignition
Device for Exemption from the Provisions
of Section 27156 of the Vehicle Code

I. Introduction

Contignitron Company (Controlled Ignition Electronics), 7625-24 E. Rosecrans Avenue, Paramount, California 90723 has applied for an exemption for its "Mod 4-V" ignition device. This is a modified version of their previously exempted "Mod IV" ignition device (exempted by Executive Order D-1-4, May 30, 1975). This modified version will be offered for installation on the previously omitted Volkswagen and Honda models. Contignitron intends to market this device for 1974 and older model-year Volkswagen and Honda models equipped with a standard 12 volt negative ground Kettering ignition system. A copy of the application is included in Appendix I.

II. Device Description and Function

The "Mod 4-V" is essentially the same as the "Mod IV" with some minor internal circuitry changes. Please see the May 19, 1975 Staff Report "Evaluation of Contignitron Company's 'Equalizer Model 4 (MOD IV)' Ignition Device for Exemption from the Provisions of Section 27156 of the Vehicle Code" for further details.

III. Device Evaluation

A. Contignitron Company's Data

The applicant submitted the revised circuit for the "Mod 4-V" and a spark timing curve for an unspecified Volkswagen distributor both with and without the "Mod 4-V" installed. This advance curve is shown in Appendix I.

B. ARB Data

Tests were performed on an ignition simulator comparing the performance of the "Mod 4-V" device on two representative OEM ignition systems. The two selected systems were:

- 1) 1975 Honda, single point, distributor P/N 30100
657-7710.
- 2) 1973 Bosch (VW), single point, distributor P/N
043905205C.

Table I compares the centrifugal advance characteristics of the above OEM systems and the characteristics obtained with the "Mod 4-V" device installed in these systems. At distributor speeds of 300 RPM and lower, the system input voltage was reduced to 6 VDC to simulate starting conditions. These data indicate that the device produces spark timing that is within acceptable variations from the OEM specifications.

The evaluation of the "Mod 4-V" device included measurements made of the electrical characteristics of the ignition systems considered critical to emission control during the operation of the vehicle. The methodology used for these tests was to determine the maximum spark gap setting for continuous arcing of the OEM system at a distributor speed simulating high cruise conditions. At this setting, measurements of the OEM system electrical characteristics were made. The device was then installed in the system and the sparking capability of the device was observed using the predetermined gap setting and corresponding distributor speed. If the sparking capability is considered equivalent to that of the OEM system, the device's electrical characteristics were measured. Inconsistent or an absence of sparking capability at the predetermined gap settings is unacceptable.

Table II shows a comparison of the electrical characteristics of each type of ignition system. From these tests, the data indicate that the device produced an increase in coil primary current. This may be the result of the method the applicant is using to increase dwell time. However, other related characteristics were not affected by this apparent increase in coil current. In all of the tests, no adverse effects were noted with the device.

IV. Device Limitations

The "Mod IV" device cannot be installed in the following vehicles:

1. Vehicles without a centrifugal advance.
2. Vehicles with positive ground or 6 volt systems.
3. Vehicles with capacitive discharge or transistorized ignition systems including breakerless types.
4. Vehicles with special ignition coils.

V. Conclusions and Recommendations

The staff is of the opinion that the "Mod 4-V" device will not affect the performance and operation of emission control systems. Therefore, the staff recommends that Contignitron Company be granted an exemption for the prohibitions of Section 27156 for its "Mod 4-V" ignition device on 1974 and older model-year vehicles except as noted in Section IV.

Table I

Centrifugal Advance Data-Distributor Degrees

<u>Distributor Speed-RPM</u>	<u>Honda</u>		<u>Volkswagen</u>	
	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
100*	0.0	0.0	0.0	0.0
200*	0.0	0.0	0.0	0.0
300*	0.0	0.0	0.0	0.0
400	0.0	0.0	0.0	0.0
500	0.0	.5	0.0	0.0
600	.5	1.0	.5	.5
700	2.0	2.0	3.5	3.0
800	3.0	3.0	4.5	4.5
900	3.5	3.5	5.0	5.0
1000	4.0	4.0	5.5	5.5
1100	5.0	5.0	6.5	6.5
1200	5.5	5.5	7.0	7.0
1300	6.5	6.0	8.0	8.0
1400	7.0	7.0	8.5	8.5
1500	8.0	8.0	9.5	9.5
1600	8.5	9.0	10.0	10.0
1700	9.5	9.5	10.5	10.5
1800	10.5	10.5	11.0	11.0
1900	11.0	12.0	11.0	11.0
2000	11.5	12.0	11.0	11.0

*System input voltage - 6 VDC. All other speeds - 14 VDC.

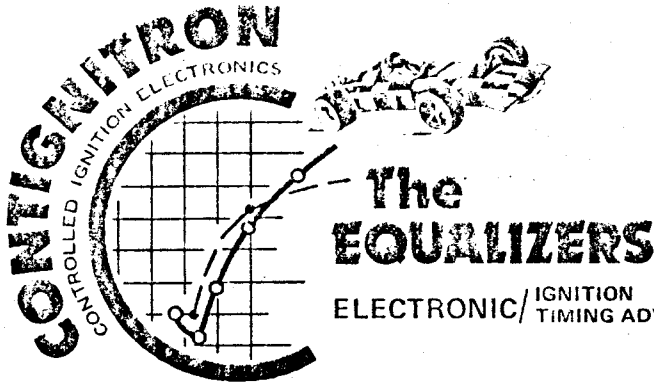
Table II

Electrical Measurements

Electrical Characteristics	Honda		Volkswagen	
	Baseline	Device	Baseline	Device
Engine Speed (RPM)	4000	4000	4000	4000
Supply Voltage (Vdc)	14.0	14.0	14.0	14.0
Coil Primary Voltage (Vdc)	14.0	14.0	14.0	14.0
Coil Primary Current (Amp.)	1.0	1.5	1.0	1.5
Secondary Available Voltage (KV)	15.0	15.0	20.0	20.0
Secondary Required Voltage (KV)	12.0	12.0	12.0	12.0
Secondary Voltage Risetime (Usec)	40	50	40	40
Spark Duration (Usec)	700	700	800	800
Avg. Spark Voltage (V)	1200	1200	1300	1300
Avg. Spark Current (Mamp)	12.9	12.9	17.2	17.2
Spark Energy (Mjoules)	10.9	10.9	18.0	18.0
Maximum Spark Gap Setting (in)	0.25	0.25	0.25	0.25

APPENDIX I

CONTROLLED IGNITION ELECTRONICS
7625-24 E. Rosecrans Ave. ♦ Paramount, Ca. 90723
Tel. (213) 861-4940 ♦ 633-5085



May 21, 1975

Mr. Gay Haas
State of California
Air Resources Board
9528 Telstar Ave.
El Monte, Calif. 91731

Re: Application for Exemption of the Equalizer Mod.IV

Dear Mr. Haas:

On May 21 we had a meeting at your Air Resources Board Laboratories with Mr. Richard Kenney and Mr. Robert Weis, to discuss the evaluation of the Mod.IV as applied to Vehicles from 1971 thru 1975.

After analyzing the spark timing advance curves in a Volkswagen Distributor, it was found an increase in timing of 2° over base line, due to the fact that these Distributors have one of the lobes in the camshaft with 4° more advance than the others. It affects the Equalizer and results in 2° more advance than the base line.

It was decided because of this characteristic, to submit the application except for the Volkswagen and Honda Vehicles, which have this type of Distributor characteristics. Therefore I will be submitting an application for a modified Equalizer Mod.IV with no advance characteristic for the Volkswagen and Honda Vehicles.

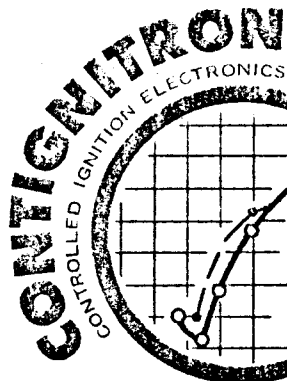
If you have any further questions, please don't hesitate to contact me,

Sincerely yours,

Ben L. Polo
Ben L. Polo,
President

cc:
William Simmons, Executive Officer
Don Drashand
Richard Kenney
Bob Weis

APPENDIX I



**The
EQUALIZERS**

ELECTRONIC/IGNITION
TIMING ADVANCE

CONTROLLED IGNITION ELECTRONICS
7625-24 E. Rosecrans Ave. ♦ Paramount, Ca. 90723
Tel. (213) 861-4940 ♦ 633-5085

May 21, 1975

Mr. Gay Haas
State of California
Air Resources Board
9528 Telstar Ave.
El Monte, California 91731

Dear Mr. Haas:

The Contignitron Company with this letter of application, requests an evaluation and a finding by the Air Resources Board, that the Equalizer Mod.4 V (IV) V Ignition System, when installed in Vehicles 1971 thru 1975 (specifically Volkswagons and Hondas) year models do not reduce the effectiveness of any required motor vehicle pollution control device, and that emissions after installation are at levels, which comply with existing State or Federal regulations for the 1971 thru 1975 model vehicles, and therefore complies with the requirements of section 27156 of the California Vehicle Code.

The Equalizer Mod.4 V is identical to the Equalizer Mod.IV except for the advance regulation which will not advance the 2° that the Mod.IV advances when installed on Volkswagons and Honda Vehicles.

I'm submitting three more samples for your evaluation. If you have any further questions, please don't hesitate to contact me.

cc:
William Simons
Don Drashand
Richard Kenney
Bob Weis

Sincerely,

Ben L. Polo
Ben L. Polo,
President

APPENDIX I

VOLKSWAGON DISTRIBUTOR

