E.O.

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-1-3
Relating to Exemptions under Section 27156
of the Vehicle Code

CONTIGNITRON COMPANY
"MODEL 46", "MODEL 48" and "MODEL 48C"

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 a "Model 46", "Model 48" or "Model 48C" electronic ignition system manufactured by Contignitron Company has been found by the Board to not reduce the effectiveness of required motor vehicle pollution control devices on 1966 through 1970 model year vehicles with engine displacement of greater than 200 cubic inches, except those vehicles equipped with capacitive discharge ignition systems. The "Model 46" device vehicle application is limited to six-cylinder engines; the "Model 48" device vehicle application is limited to eight-cylinder engines except Chrysler products; the "Model 48C" device vehicle application is limited to eight-cylinder engine Chrysler products. Therefore, vehicles so equipped are exempt from the prohibitions of Section 27156 of the Vehicle Code.

The "Model 46", "Model 48" and "Model 48C" electronic ignition systems consists of a transistorized power switching circuit, electronic timer circuit, and circuits to control spark timing as a function of engine speed.

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 originally submitted to the Air Resources Board for evaluation, that adversely affect the vehicle's pollution control devices 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, OR APPROVAL BY THE AIR RESOURCES BOARD ON ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ALLEGED BENEFITS OF THE "MODEL 46", "MODEL 48" AND "MODEL 48C" DEVICES.

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."
>
> "39184. (b) Subdivision (a) shall not preclude any person from installing, selling, offering for sale, or advertising a device as a motor vehicle pollution control device for use on a particular classification of used motor vehicles if the board has found that the installation of the device on that particular classification of used motor vehicle results in such vehicles meeting the state exhaust emissions standards."

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.

Executive order D-1-1, dated March 26, 1974, is hereby rescinded.

Executed at Sacramento, California, this 12th day of May, 1975.

WILLIAM SIMMONS
Executive Officer

State of California

AIR RESOURCES BOARD

April 22, 1975

Staff Report

Evaluation of the Contignitron Company's Request to Modify its "Model 48" Oxides of Nitrogen Control Device for 1966-70 Model-Year Chrysler Vehicle Applications

I. Introduction

Complaints have been received by the Air Resources Board of detonation occurring with 1966-70 model-year Chrysler vehicles when equipped with Contignitron Company's Model 48 oxides of nitrogen control device. In response to these complaints, Contignitron has requested approval to modify the device for this vehicle application. Contignitron's modification request is shown in Appendix I. The modified device is identified as Model 48C.

II. Device Description

The basic electronic circuits for both the Model 48 and 48C devices are as follows:

1. A transistorized power switch circuit to replace the heavy current switching performed by the breaker points in the conventional ignition system.

2. An electronic timer circuit that controls the transistorized power switch for spark time duration.

3. An electronic variable time delay circuit to control spark timing advance.

4. A tachometer circuit to control the variable time delay as a function of engine RPM.

Both devices electronically control the spark timing so as to provide five degrees (Model 48) and three degrees (Model 48C) retard below centrifugal advance (dependent upon distributor centrifugal advance characteristics) below 1700 RPM engine speed. Above 1700 RPM, timing is advanced proportional to engine speed. The Model 48 device provides up to ten degrees timing advance over the centrifugal advance in the high speed region. The Model 48C advances up to three degrees over centrifugal advance and requires a one degree initial timing retard from the vehicle manufacturers specification.

III. Modification Evaluation Testing

A. Emission Tests

1. Contignitron's Data

Contignitron submitted data from tests performed by AESI on (2) 1969 Dodge Pick-ups, 318 CID, 2-bbl carburetor and automatic transmission. These are state-owned vehicles which experienced spark detonation when equipped with the Model 48 device. The vehicles were loaned to Contignitron for its evaluation testing. The following is a summary of Contignitron's test data showing a comparison of the emission levels and fuel economy produced by each device:

Vehicle	Device	Hot-Start CVS-1972 (grams/mile) HC	CO	NOx	Fuel Economy Miles/Gal.
1969 Dodge	Model 48C	2.59	37.74	1.97	13.39
(Lic. No. 806119)	Model 48	2.85	27.73	3.34	15.43
% Change (Mod 48 to Mod. 48C)		-9	+36	-41	-13
1969 Dodge	Model 48C	1.88	22.39	2.21	13.86
(Lic. No. 806113)	Model 48	2.52	17.29	3.46	15.78
% Change (Mod. 48 to Mod. 48C)		-25	+29	-36	-12
Fleet % Change		-17	+34	-38	-13

2. ARB Data

Confirmatory tests were performed on two state-owned vehicles. A description of the vehicles is shown below:

1970 Plymouth, 318 CID, 2-bbl carburetor, automatic transmission, License No. 812751.

1969 Dodge P.U., 318 CID, 2-bbl carburetor, automatic transmission, License No. 806119 (vehicle also used in Contignitron's tests).

The following is a summary of the ARB tests. The specific test data are shown in Table 1.

Vehicle	Device	Hot-Start CVS-1972 (grams/mile) HC	CO	NOx	Fuel Economy Miles/Gal.
1970 Plymouth	Baseline*	2.97	32.33	4.50	15.91
	Model 48*	2.27	28.96	2.76	13.84
	Model 48C*	2.52	34.12	2.58	14.34
% Change Baseline to Mod. 48		-26	-11	-39	-13
% Change Baseline to Mod. 48C		-18	+ 5	-43	-10
1969 Dodge	Baseline**	2.89	21.42	4.15	14.00
(Avg. three tests)	Model 48**	2.00	20.94	2.59	12.34
	Model 48C**	1.78	21.75	2.15	11.93
% Change Baseline to Mod. 48		-31	- 2	-38	-12
% Change Baseline to Mod. 48C		-38	+ 2	-48	-15

*Avg. Two Tests

**Avg. Three Tests

The staff contends that the modifications made to the Model 48 device has not reduced its emission control effectiveness. The modified device does lower fuel economy because of the more retarded ignition timing.

B. Driveability Tests

1. Contignitron's Data

Contignitron performed vehicle acceleration tests on the Model 48C device. No data was presented but Contignitron states that no detonation occurred with the modified device.

2. ARB Data

Warm driveability tests were performed by the ARB laboratory. A summary of these tests is shown below:

	Demerits		
	Baseline	Model 48	Model 48C
1970 Plymouth	0	37	0
1969 Dodge	0	31	12
Total	0	68	12

Sixty-two of the 68 demerits noted in the tests of the Model 48 device were the result of detonations. No demerits for detonations were detected with baseline vehicle or with the Model 48C device. VSAD, Model 48 and Model 48C device centrifugal advance curves are shown in Figures 1 and 2. These Figures show that the modifications have reduced the spark advance of the Model 48 device at the higher engine speeds to only approximately two degrees more advance than the centrifugal advance. The modifications have also limited the change in timing during starting conditions. The Model 48 device advances the spark by up to 12 degrees from the idle speed timing, whereas, the Model 48C device advances the timing by two degrees. The staff is of the opinion that the modified device has improved drive-ability by eliminating the detonation problem and improved starting conditions by reducing the device's effect on timing changes at these conditions.

IV. Compliance with General Standards

The staff contends that the modifications proposed by Contignitron to its Model 48 device does not alter the previous staff evaluations of Contignitron's application for accreditation of its Model 4-8 device and of subsequent device modifications (Models 46 and 48) relative to these requirements.

The initially accredited device, Model 4-8, was designed to produce up to six degrees of spark retard from the centrifugal advance curve. See Figure

3. Because of the concern expressed by the staff regarding the potential adverse temperature effects caused by this amount of spark retard, Contignitron requested approval to modify the device. The modified designs, Models 48 and 46, electronically restored up to 12 degrees of spark advance above the centrifugal advance curve at the higher engine speeds. See Figure 3 for the spark curve of the Model 48 device (used with 8-cylinder engines).

Approval for this modification was granted prior to the hearing to deaccredit the Echlin device. Also prior to the hearing, the accreditation procedures were revised to require positive protection against more than four degrees of spark retard at speeds above 60 mph. The decision rendered by the hearing officer in the Echlin device deaccreditation proceedings did not sustain the Air Resources Board position. Thus, those manufacturers of devices accredited without protection against spark retard at higher speeds were not required to add this feature to their devices. By this decision, Contignitron could market the initially accredited device, Model 4-8, if it elected to do so.

The staff maintains that precedent has been established in the processing of modifications of this type and it cannot invoke the positive spark retard protection requirement of the revised protection requirement of the revised accreditation procedures to Contignitron's modification request. The spark timing produced by the Model 48C device is a compromise between the spark advance characteristics of the Models 48 and 4-8 devices. The modifications have eliminated detonations occurring with Model 48 device

equipped Chrysler products and has improved the control of oxides of nitrogen emissions.

V. Conclusions and Recommendations

Test data and other information presented by the Contignitron Company and data obtained from tests performed by the ARB laboratory on the proposed modified Model 48 device, Model 48C, show compliance to the emission and general standards of the NOx device accreditation procedures.

The staff recommends granting Contignitron Company's request to modify its Model 48 device for 1966-70 model-year Chrysler vehicle applications.

Table 1

ARB Laboratory Emission Test Data

Vehicle	Device	Test No.	Hot-Start CVS-1972 (grams/mile) HC	CO	NOx
1970 Plymouth	Baseline	1	3.22	38.25	3.80
		2	2.90	27.02	5.19
	Model 48	1	2.68	28.82	2.60
		2	1.86	29.09	2.92
	Model 48C	1	2.52	29.25	2.21
		2	2.52	38.99	2.94
1969 Dodge	Baseline	1	2.92	21.36	3.98
		2	2.82	18.60	4.43
		3	2.93	24.31	4.03
	Model 48	1	1.92	20.42	2.59
		2	2.02	21.46	2.51
		3	2.05	20.95	2.68
	Model 48C	1	1.80	22.15	2.56
		2	1.80	21.83	1.71
		3	1.75	21.26	2.18

Figure 1

Centrifugal Spark
Advance Curves

1970 Plymouth

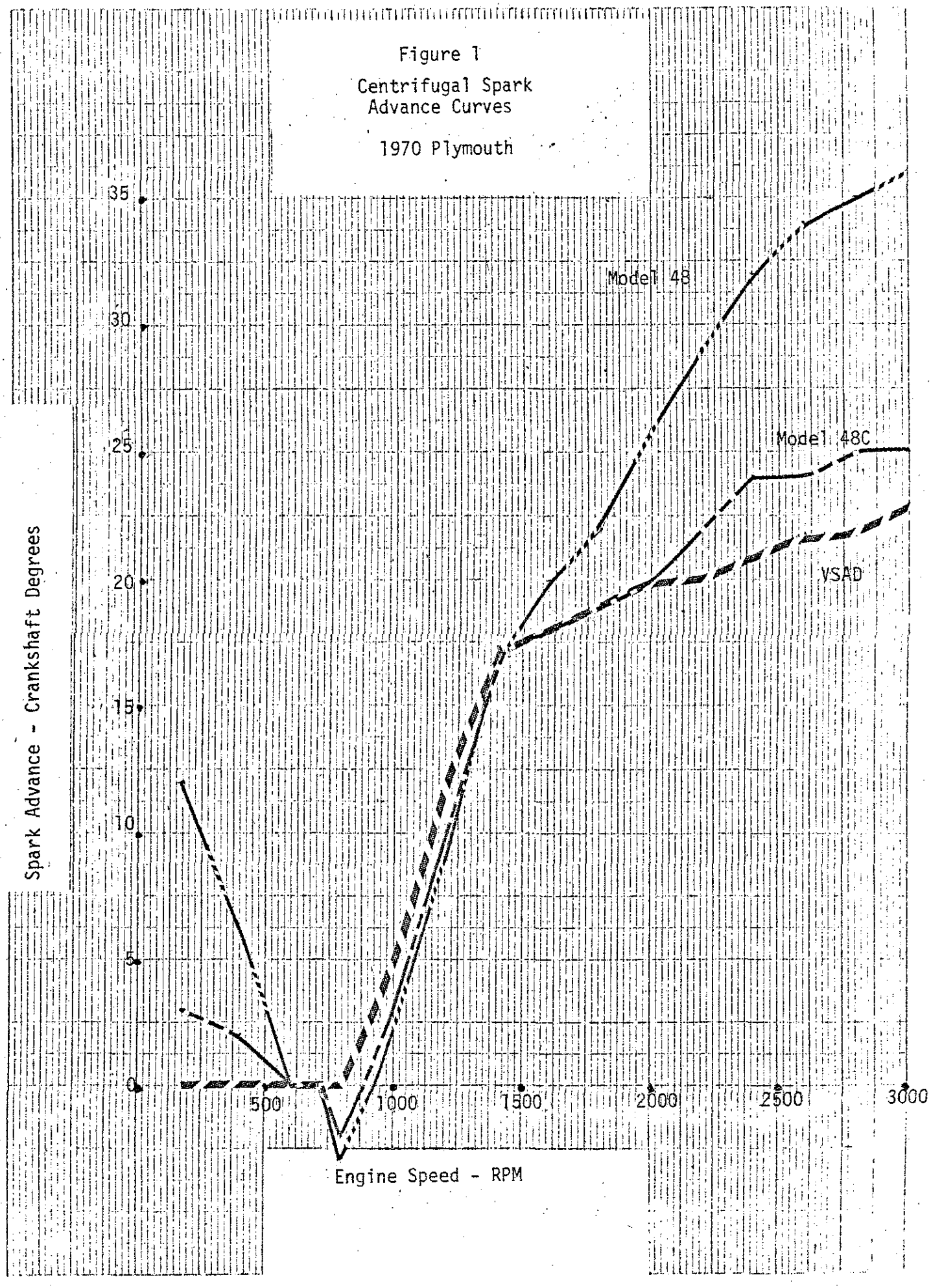
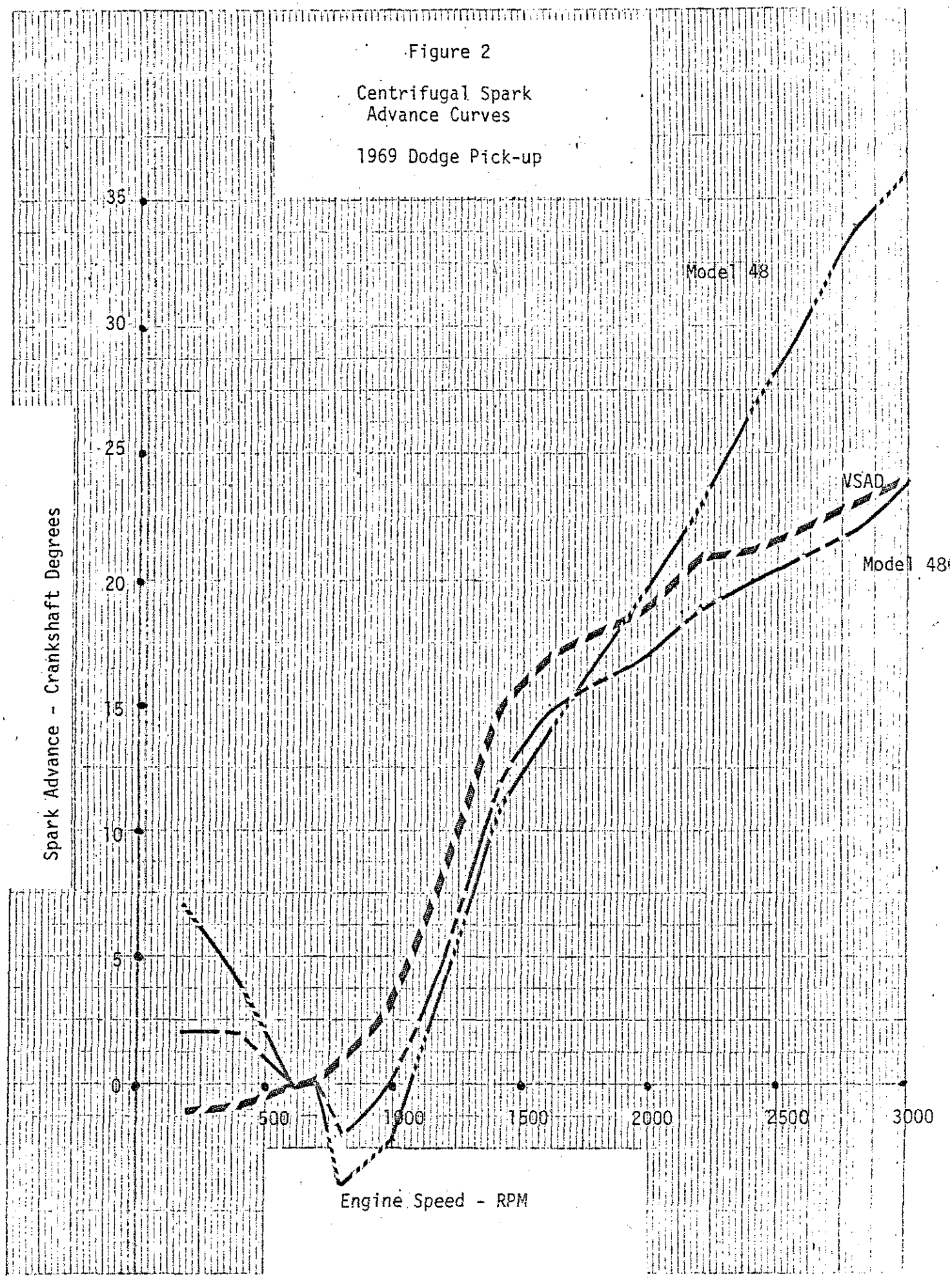
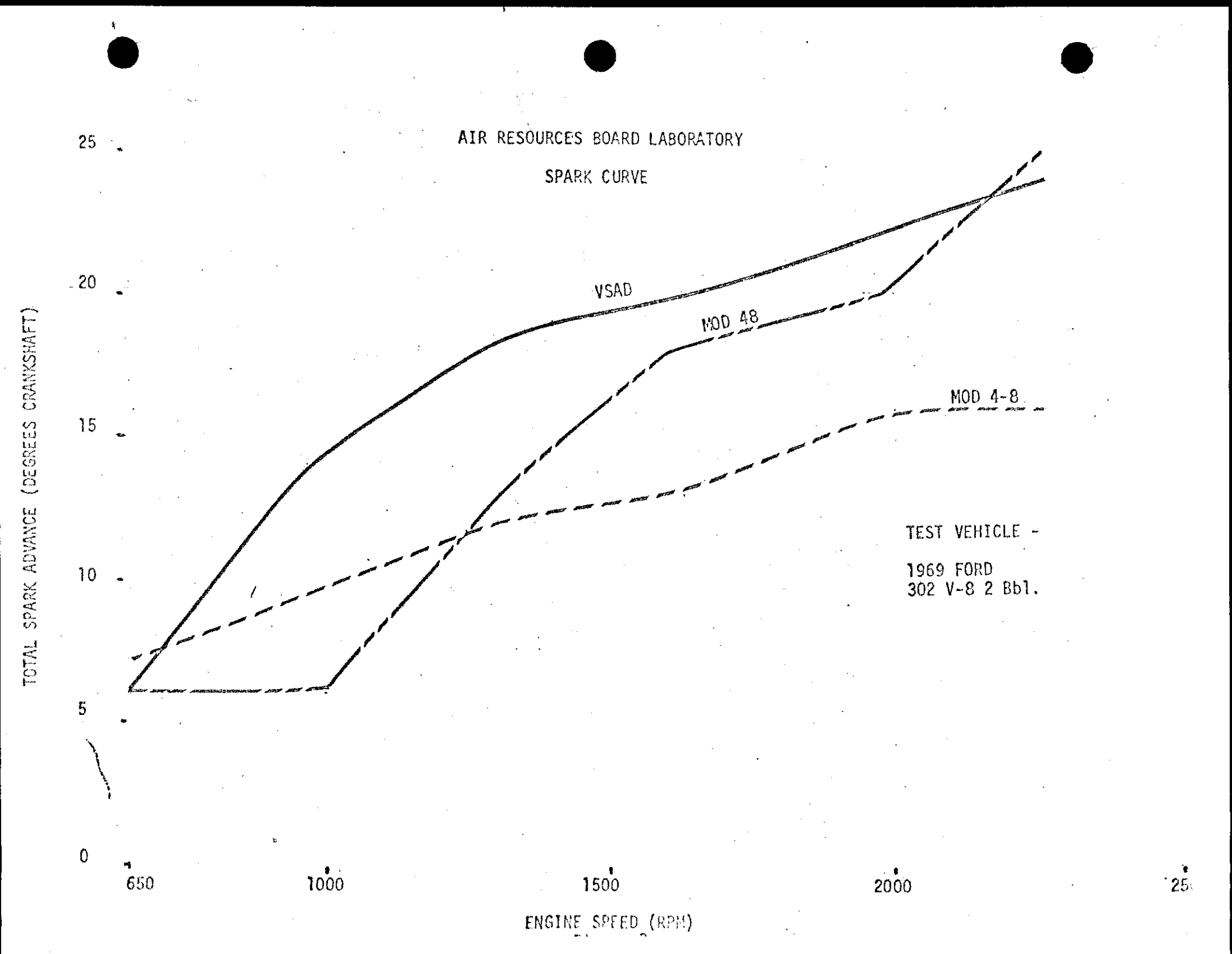


Figure 2

Centrifugal Spark
Advance Curves

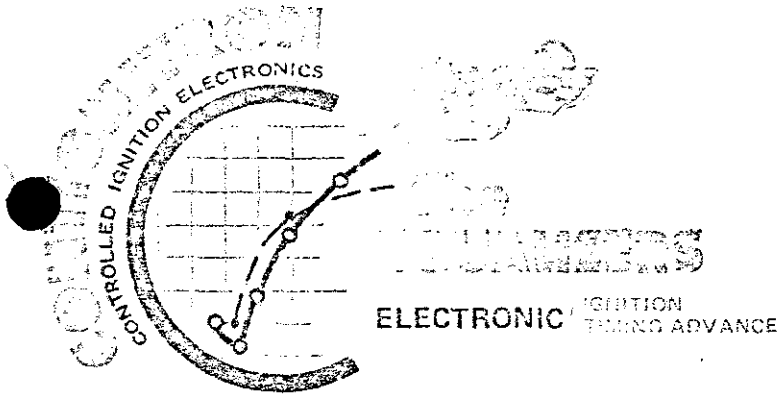
1969 Dodge Pick-up




AIR RESOURCES BOARD LABORATORY
SPARK CURVE
VSAD
MOD 48
MOD 4-8
TEST VEHICLE -
1969 FORD
302 V-8 2 Bbl.
TOTAL SPARK ADVANCE (DEGREES CRANKSHAFT)
ENGINE SPEED (RPM)
0
5
10
15
20
25
650
1000
1500
2000

Appendix I

CONTROLLED IGNITION ELECTRONICS
7625-24 E. Rosecrans Ave. • Paramount, Ca. 90723
Tel. (213) 861-4940 • 633-5065



State of California
Air Resources Board
9528 Telstar Ave.
El Monte, Calif.

ATT: Mr. Joseph Calhoun

Dear Mr. Calhoun:

Contignitron Company with this letter requests permission for modification to the NOX device Model 48 in its application to the Chrysler products.

It has been indicated by your engineering staff, namely Mr. Robert Weis, that some of the Department Transportation Vehicles have experienced pinging during acceleration with the Model 48, specifically Dodge pick-up with 318 cubic inches engine displacement. Since this pinging was experienced in 2 out of 3 vehicles, we are submitting for approval a modification to the Model 48 that remedies this situation. This modification is intended only for Chrysler products, since no other complaints have been received on the other makes.

This modification consists solely of a change in the internal electronic circuitry, with results in a modified advance timing function, more specifically to a limited timing advance at high engine RPM (2000 RPM).

After the modification was performed, timing advance curves were obtained with an Allen Engine Analyzer and no load, both with device in and simple VSAD.

The CVS cycle tests were performed at A.E.S.I., under the direction of Daeco (see attached test data). This CVS tests were performed back to back against the Model 48 Equalizer NOX device.

In view of these facts, we here-by request the Air Resources Board approve the modification with respect to the Chrysler products. For any further clarification or questions, please don't hesitate to contact us.

Respectfully,

Ben L. Polo,
President

cc: Mr. Robert Weis
Mr. Gay Haas

DESCRIPTION OF THE MODIFICATION TO THE EQUALIZER MODEL 48:

The Equalizer Model 48C (for Chrysler products) is a Solid State Electronic Controlled system with timing spark advance and spark duration control for the reduction of emission of Nitro-oxides. The original Model 48 electronically controlled the timing retard up to 5 degrees and then a timing advance up to 8 degrees of engine crankshaft angle over and above centrifugal advance or VSAD.

The modified advance system limits the timing advance to a couple of degrees over and above the VSAD. The basic electronic retard is $3\frac{1}{2}$ degrees after installation. The basic timing is set to 1 degree less advance than manufacturers specifications as for installation instructions. The device retards to 3 degrees from centrifugal advance (VSAD) cross over at 1700 RPM and advance 2 degrees over and above VSAD, as can be appreciated on the attached timing curves.

At no time the advance curve from the electronic advance to more than 3 degrees and the retard of the electronic control will be up to 3 degrees from VSAD, depending on the particular distributor centrifugal advance characteristics.

SYSTEM OPERATION:

Is basically the same as the approved device Model 48 with the a fore-mentioned modification to the spark timing advance curve.

OPERATING INTERFACES:

The Equalizer Model 48 and 48C are designed to operate with conventional components on any vehicle engine, coils breaker points and condensers. No special breaker points or ignition coil or special equipment should be used with the Equalizer, or damage to the device may result.

DURABILITY:

The modification to the device is internal and will not affect the durability requirements, from the approved Model 48, (over 2,000 units have been sold and in the field had shown no indication of malfunction) and because the unit has

no moving parts, (is all Solid State Electronic device) its functions will be performed for an indefinite amount of time, under normal operating conditions.

DRIVABILITY:

Acceleration tests were performed in order to determined the effect of the modification. These tests were satisfactory. (No Pinging)

COMPLIANCE WITH GENERAL STANDARDS

The device when installed in a Motor Vehicle engine does not cause the emission into the ambient air of any noxious or toxic matter that is not emitted in the operation of the Motor Vehicle engine before the installation of the device.

UNSAFE CONDITIONS:

The Equalizer Model 48C in its function or malfunction does not result in any unsafe conditions, endangering the motor vehicle and its occupants or persons in close proximity to the vehicles.

INSTALLATION AND SERVICING:

Installation (see figures 1 and 2)

Installation of the modified device is identical to the installation of the Model 48, with exception of the basic timing, which should be set at 1 degree less advance than manufacturer specifications.

SERVICING AND MAINTENANCE:

The Equalizer devices because of the designed operating characteristics, does not require maintenance at any time during its operating life period. Any defect or malfunction is covered ON blanket warranty. (See attached Warranty)

DEVICE WARRANTY:

Provided instructions furnished with each device are fully complied with, the Contignitron Company warrants the "Equalizer Model 48" to be free from all defects in workmanship and material for a period of fifty thousand (50,000) miles of use or

five (5) years from the date of installation, whichever occurs first, and will repair or replace, at Contignitrons option, all or part thereof found within such period, to Contignitrons satisfaction to be defective. "Equalizer 48 system claimed to be defective shall be returned to the installing dealer or an authorized dealer of the "Equalizer 48". This warranty shall not apply to equipment, which has been modified or altered or which has be subjected to abuse, negligence, accident or improper installation or to other than normal intended use.

DAIGH AUTOMOTIVE ENGINEERING CO.

201 West "D" Street
Wilmington, California 90744
Phone (213) 549-0840

June 13, 1974

Mr. Ben L. Polo,
President
CONTIGNITRON
7625-24 East Rosecrans Avenue
Paramount, California 90723

Dear Mr. Polo:

Enclosed are CVS test results performed on the two 1969 Dodge trucks, which you furnished. The trucks were equipped with 318 C.I.D., 2 barrel, V-8 engines and automatic transmissions.

Test Number 1*, was truck license number 806119 with basic timing and idle speed set to manufacturers specifications, (5° B.T.D.C.), with the Contignitron Equilizer unit number 4X8*, disconnected. After the timing was set, the unit was connected and the test performed.

Test Number 2, was the same truck with unit 48, (the old style Contignitron), installed and operating when the timing was set to manufacturers specifications.

Test Number 3, was truck license number 806013. This test was a repeat of Test Number 1, except idle CO was checked and/or set to 1.5%.

Test Number 4 was also truck license number 806013, and the test was a repeat of Test Number 2, except the idle CO was again checked and/or set to 1.5%.

If you should have any further questions regarding these tests, please feel free to contact me at any time.

Sincerely,

DAIGH AUTOMOTIVE ENGINEERING COMPANY

* MOD 48C BLP

Harold D. Daigh
HDD/kk

Enclosure

AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC. ■ 7300 BOLSA AVENUE, WESTMINSTER, CALIFORNIA 92683 ■ 714 897-0333

June 10, 1974

Mr. Harold Daigh
DAECO
201 West "D" Street
Wilmington, California 90741

Dear Mr. Daigh:

AESi is pleased to have this opportunity of presenting the results of the exhaust emissions tests performed on the 1969 Dodge tested at AESi's Westminster Vehicle Emissions Testing Laboratory. Following are the results of the tests. The hydrocarbons (HC), carbon monoxide (CO), carbon dioxide (CO_2) and corrected nitrogen oxides (NOxc) are all presented in grams per mile. The miles per gallon (MPG) are presented as calculated from the mass emissions data using the carbon mass balance technique.

B & P

		HC	CO	CO_2	NO_{xc}	MPG
MOD HBC	Test No. 1	2.594	37.744	589.1	1.974	13.39
MOD 48	Test No. 2	2.852	27.728	517.2	3.340	15.43
MOD HBC	Test No. 3	1.884	22.391	593.4	2.212	13.86
MOD 48	Test No. 4	2.524	17.293	522.2	3.455	15.78

These tests were performed in accordance with the 1973 test procedures for gasoline fueled light duty vehicles as stipulated in 35 Federal Register 219, November 10, 1970, and as amended in 36 Federal Register 28, July, 1971. One modification to the above specifications was made in that the vehicle was tested from a hot start rather than from the cold start specified.

The test data presented above an all source documents are on file at AESi. The results from these tests are only applicable to the specific test vehicle and in no way can be extrapolated to the vehicle population in total. No conclusions should be drawn from these test results other than as they pertain to the specific vehicle tested.

AESi looks forward to again having the opportunity of serving you.

Very truly yours,

W. John Lorance
Laboratory Manager

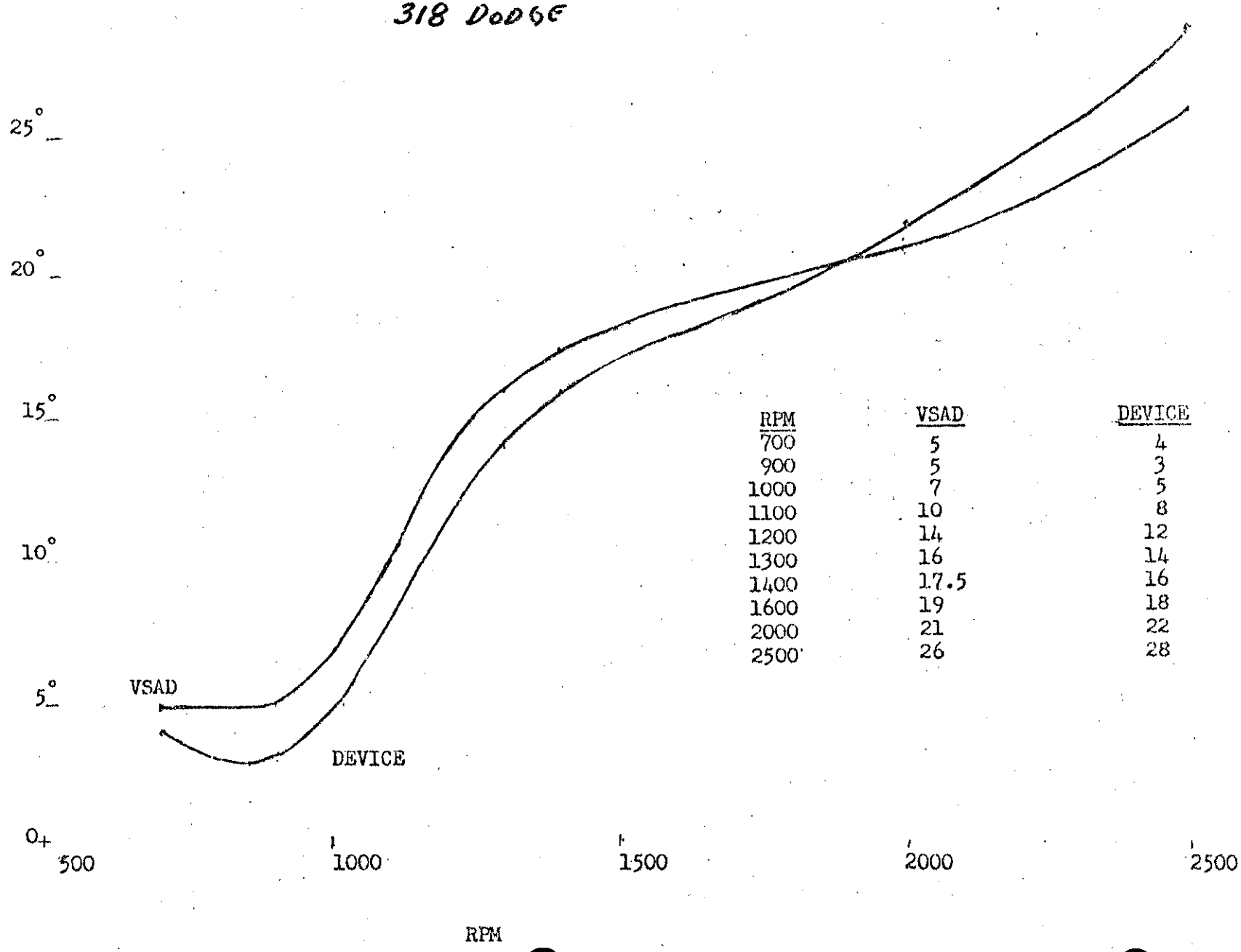
WJL/mc

P.S. Enclosed is the Equalizer Mod 4 manufactured by Contignitron.

Appendix I

806013 #129

318 Dodge

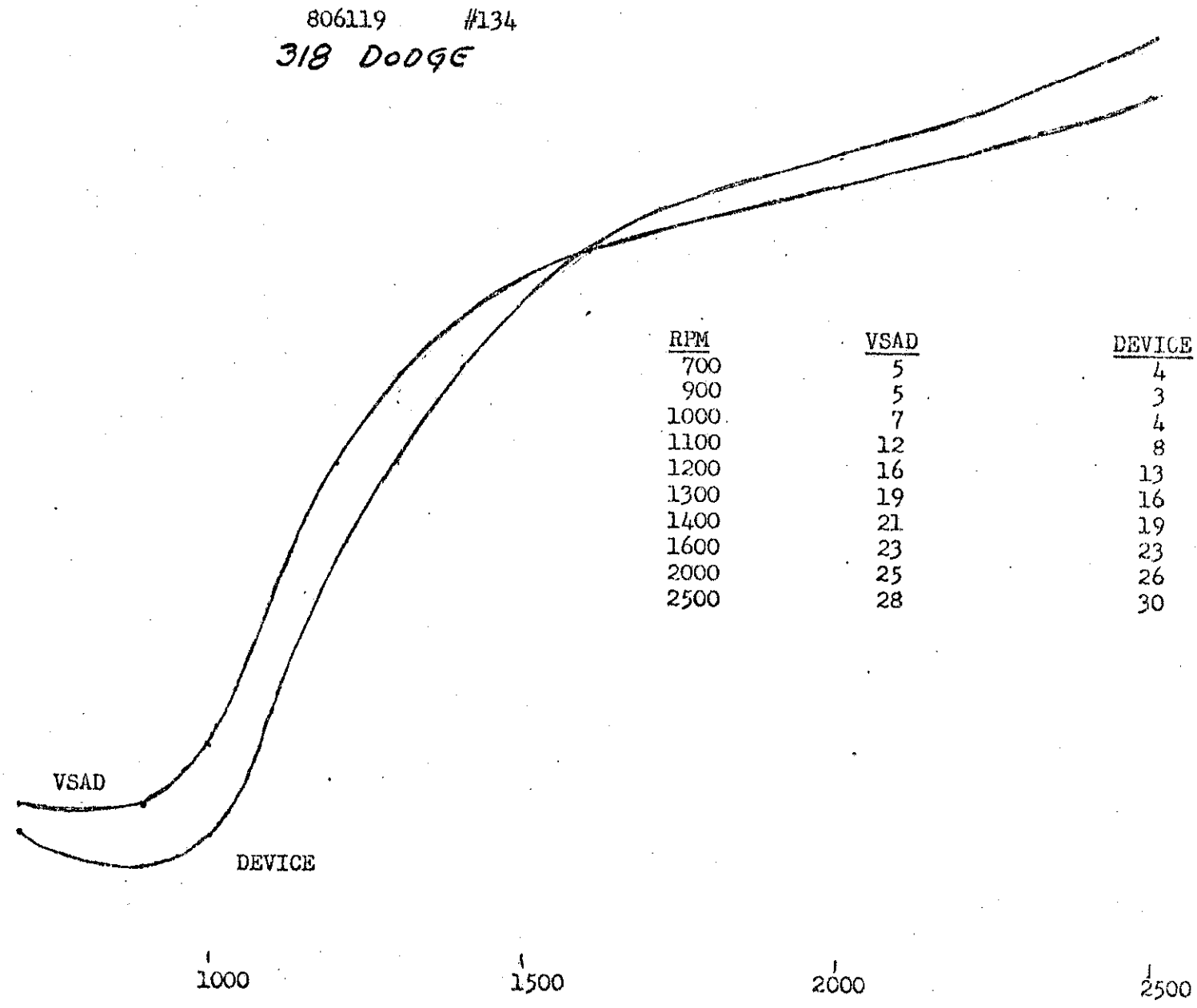


RPM	VSAD	DEVICE
700	5	4
900	5	3
1000	7	5
1100	10	8
1200	14	12
1300	16	14
1400	17.5	16
1600	19	18
2000	21	22
2500	26	28

Appendix I

806119 #134

318 DODGE



RPM	VSAD	DEVICE
700	5	4
900	5	3
1000	7	4
1100	12	8
1200	16	13
1300	19	16
1400	21	19
1600	23	23
2000	25	26
2500	28	30

WARNING

DO NOT INSTALL ON VEHICLES WHICH ARE EQUIPPED WITH CAPACITIVE DISCHARGE IGNITION SYSTEMS. THIS DEVICE IS NOT COMPATIBLE WITH THESE SYSTEMS. FOR INSTALLATION ON NEGATIVE GROUND AND CENTRIFUGAL ADVANCE DISTRIBUTORS ONLY.

DO NOT INSTALL ON VEHICLES WHICH HAVE BEEN EQUIPPED WITH CAPACITIVE DISCHARGE IGNITION SYSTEMS. (OR REPLACE IGNITION COIL BEFORE INSTALLATION OF DEVICE).

VACUUM ADVANCE MUST BE DISCONNECTED WHEN DEVICE IS INSTALLED. FAILURE TO DO SO WILL CAUSE PRE-IGNITION AND VOID WARRANTY.

ANY MODIFICATION TO DEVICE CIRCUITRY, OPERATION OR INSTALLATION IS IN VIOLATION OF THE CALIFORNIA VEHICLE CODE, AND WILL RESULT IN A HEAVY FINE AND THE VOIDING OF ANY WARRANTY.

INSTALLATION OF THE DEVICE MUST BE MADE AWAY FROM THE EXHAUST MANIFOLD AND WHERE IT WILL BE MAINTAINED RELATIVELY DRY, DURING THE RAINY SEASON.

EXTREME CARE SHOULD BE TAKEN WHEN CONNECTING THE BLACK AND WHITE TERMINAL TO THE POINTS SIDE OF THE IGNITION COIL, FAILURE TO DO SO WILL RESULT IN A DAMAGED DEVICE AND VOID ANY WARRANTY.

Models 48C Installation Instructions

1. Installation (See Figure 2)
   - A. Disconnect wire from distributor points at negative side of coil. Remove existing terminal and attach spring terminal supplied with unit to this wire.
   - B. Mount device to chassis of vehicle utilizing metal clamp and metal screw supplied. Device should be mounted *as far from exhaust manifold as possible.* Use #31 drill bit for metal screw hole.
   - C. Loosen nut on positive side of ignition coil, connect red wire and tighten nut. (For later model Ford products supplied with slip connectors, cut off connector.) Strip wire from ignition switch and connect standard spade lug. Connect red wire and wire from ignition switch with standard 10/32 nut.
   - D. Connect black and white wire supplied with spring and spade lug to negative side of coil. (For later model Ford products connect with standard 10/32 nut.)
   - E. Connect braided wire to engine or chassis ground.
   - F. Connect wire from distributor points to green wire and slide insulator sleeve over connection.
   - G. Disconnect and secure vacuum advance hose at engine source with plug.
   - H. Start engine and reset timing* to manufacturers specifications. *It is extremely important that this step be followed because the device, when installed, will electronically retard timing 4° of crankshaft angle.* (Model 48-C reset timing 1° less advance than manufacturers specifications)

Distributors with dual diaphragms, timing must be set to manufacturers specifications and set idle speed to 600 RPM.

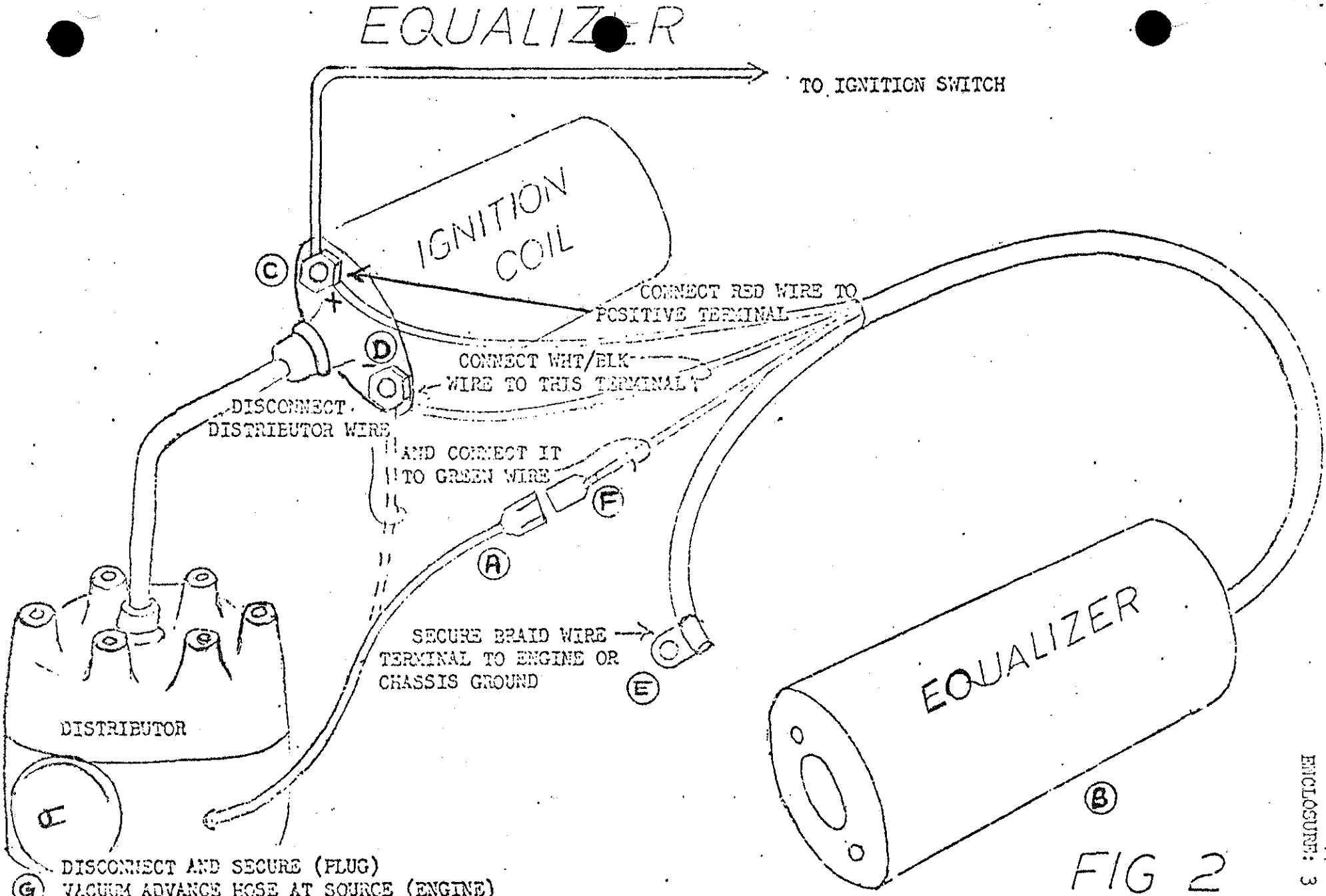


FIG 2

DISCONNECT AND SECURE (PLUG)
(G) VACUUM ADVANCE HOSE AT SOURCE (ENGINE)

(H) 1.- RESET TIMING AFTER INSTALLATION WITHIN 1° OF MFG. SPECIFICATIONS

Appendix 1
ENCLOSURE: 3

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

COMIGNITRON
CONTROLLED IGNITION ELECTRONICS

The EQUALIZERS
ELECTRONIC IGNITION TIMING ADVANCE

WARRANTY

THIS UNIT CARRIES A 50,000 MILE WARRANTY AGAINST ANY MANUFACTURE DEFECTS.

FOR MAXIMUM PERFORMANCE IT IS HIGHLY RECOMMENDED, A TUNE-UP PRIOR TO INSTALLATION OF THE EQUALIZER.

1. - MAKE SURE ENGINE OPERATES WITH SPADE CONNECTOR PROVIDED FOR BREAKER POINTS WIRE AND POINTS SIDE OF THE COIL.
2. - INSTALL DEVICE.- DISCONNECT POINTS CONNECTOR AND CONNECT IT TO GREEN WIRE AND WHITE WIRE TO POINTS SIDE OF THE COIL (REFER TO WARNING ON INSTRUCTION SHEET).
3. - START ENGINE AND RESET TIMING TO MANUFACTURER SPECIFICATIONS.
4. - MAKE SURE GROUND-SHIELD WIRE CONNECTOR MAKES GOOD CONTACT WITH ENGINE CHASSIS GROUND. FALSE OR INTERMITTENT GROUND MAY RESULT IN DAMAGE TO THE DEVICE DUE TO HIGH VOLTAGE DISCHARGE TRANSIENTS.
5. - MAKE SURE IGNITION COIL IS IN GOOD CONDITION. INTERNAL SHORTS WILL CAUSE HIGH VOLTAGE DISCHARGE THRU THE PRIMARY WINDING AND WILL DAMAGE DEVICE.(REFER TO WARNING ON INSTALLATION INSTRUCTION SHEET).
6. - MAKE SURE CONDENSER AND BREAKER POINTS ARE IN GOOD CONDITION(IF NECESSARY REPLACE THEM) BAD CONDENSER AND/OR POINTS WILL CAUSE FAULTY OPERATION ON THE DEVICE TIMING ADVANCE CONTROL. (WILL NOT HOLD TIMING)
7. - This device has been tested at the factory, if after these steps the device fails to operate, please return it VIA UNITED PARCEL SERVICE,Plus $1.00 for Shipping and handling. A replacement or repaired device will be forwarded. In order to expedite repair and/or clarity of instructions, please indicate in writing a brief description of difficulty.