State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-12
Relating to Exemptions under Section 27156
of the Vehicle Code

CLYTRONICS CORPORATION
"CLYTRON"

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 "CLYTRON" capacitive discharge ignition system manufactured by Clytronics Corporation has been found to not reduce the effectiveness of required emission control devices in vehicles and therefore is exempt from the prohibitions of Section 27156 of the Vehicle Code for 1966-1973 model-year vehicles. The device consists of a sensor, d-c to d-c converter, storage capacitor, electronic switch and transformer.

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.

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 "CLYTRON" 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.

Section 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."

EXECUTIVE ORDER D-12 "CLYTRON"

"39184. 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. Any violation of this section is a misdemeanor."

Any apparent violation of the policy or laws will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at Sacramento, California, this 25 day of June, 1973.

JOHN A. MAGA
Executive Officer

State of California

AIR RESOURCES BOARD

May 25, 1973

Staff Report

Evaluation of Clytronics Corporation "Clytron" Breakerless Capacitive Discharge Ignition System for Exemption to the Prohibitions of Section 27156 of the Motor Vehicle Code

I. Introduction

Clytronics Corporation, Colorado Springs, Colorado, has applied for exemption to the prohibitions of Section 27156 of the Motor Vehicle Code for the "CLYTRON" breakerless capacitive discharge ignition system. Section 27156 prohibits the installation of a device that reduces the effectiveness of motor vehicle emission control systems. The applicant intends to sell the device as an "after-market" part to replace the standard ignition system.

The Air Resources Board has adopted criteria for the evaluation of "after-market" devices for compliance with Section 27156. The basis for evaluation is defined in the "Air Resources Board Criteria for Determining Compliance with Section 27156 of the Motor Vehicle Code", dated February 17, 1971.

II. System Description

For a general description of a breakerless capacitive discharge system, see staff report "Evaluation of Capacitive Discharge and Transistorized Ignition Systems for Compliance with the Requirements of Section 27156 of the Motor Vehicle Code", dated February 14, 1973.

The "CLYTRON" device consists of three major components: a sensor, power unit and transformer (electrical schematic attached). The sensor is a photocell mounted on the distributor plate triggered by an interrupting light source. The interrupter is slotted skirt rotor cap fastened to the distributor shaft to furnish proper engine timing. The voltage generated in the sensing unit is fed into a capacitive discharge ignition system to a trigger circuit which discharge the storage capacitor into the primary windings of the output transformer. The capacitive discharge circuit consists of a converter circuit, storage capacitor and an electronic switching circuit. The output transformer is of a specific turns ratio with secondary output voltage of 24000 volts.

III. Emission Testing

The "CLYTRON" device was tested by the Air Resources Board Laboratory. The following vehicle was tested:

1) 1973 Mercury Comet - 302 CID V-8, 2 Bbl., automatic transmission and EGR.

The engine was adjusted to vehicle manufacturer's specifications for spark plug gap, timing, dwell, idle CO and idle RPM. It was verified that the ignition system was operating satisfactorily.

The test results are as follows:

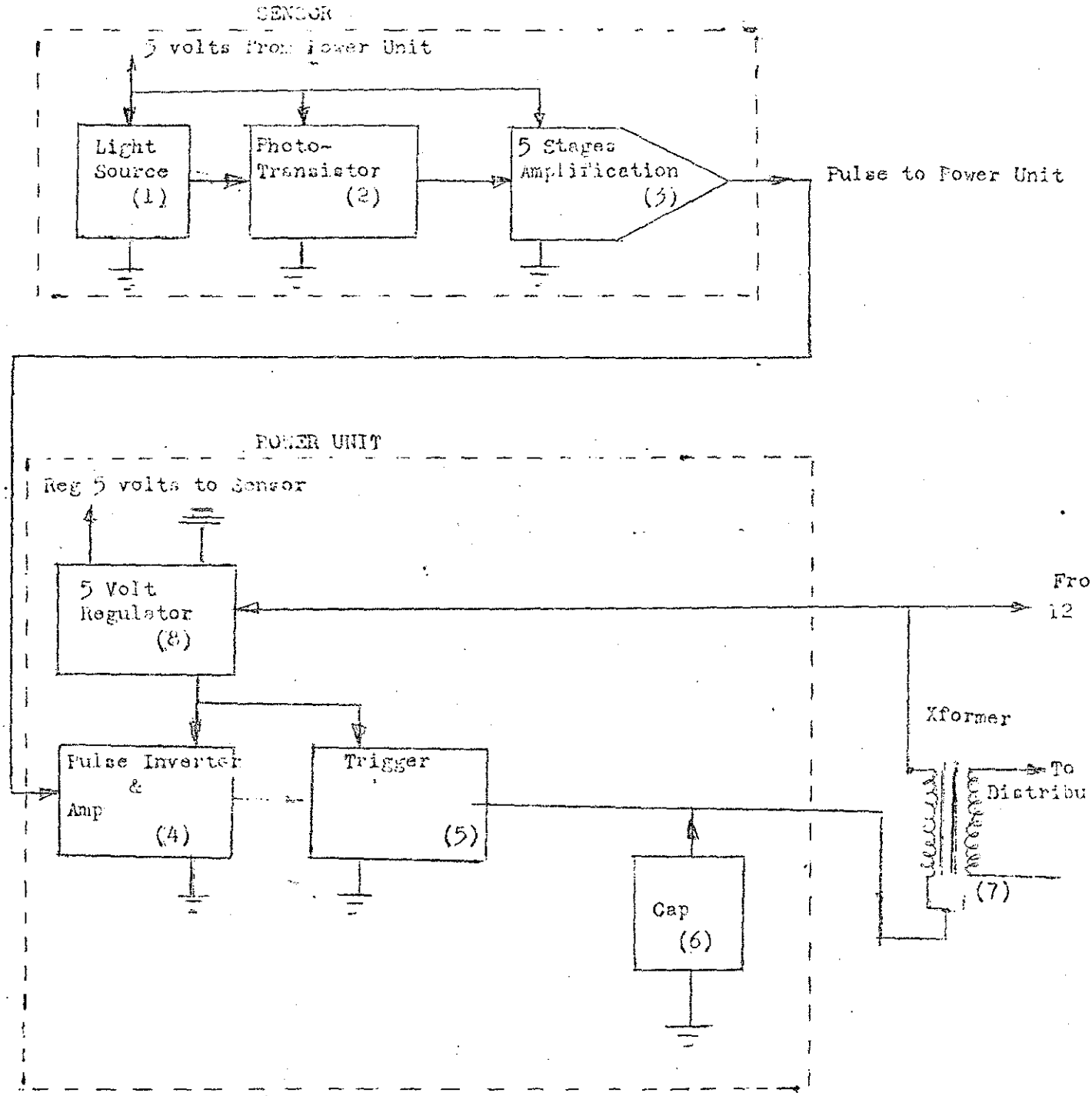
Vehicle	Device	Exhaust Emissions Hot CVS		
		HC gm/mi	CO gm/mi	NO gm/mi
1973 Mercury Comet	No	1.37	15.35	1.52
1973 Mercury Comet	Yes	1.42	14.60	1.61

Vehicle and RPM	Coil Output Voltage			
	Closed Circuit		Open Circuit	
	Baseline	With Device	Baseline	With Device
1973 Mercury Comet				
Idle	12,000	14,000	28,000	22,000
3,000 RPM	8,000	12,000	26,000	34,000

The test data indicate that the device does not produce significant changes in exhaust emissions. The coil output voltages are as expected.

IV. Conclusions and Recommendations

It is the staff opinion that Clytronics Corporation "Clytron" breakerless capacitive discharge ignition system will not adversely affect the performance of the motor vehicle emission control system when evaluated with respect to a conventional ignition system of a "tuned" engine. This device may also have a beneficial effect in the control of vehicle emissions in that the device may maintain the "tuned" condition for a longer period of time. Therefore, the "Clytron" breakerless capacitive discharge ignition system should be exempt from the prohibitions of Section 27156 of the Motor Vehicle Code.



Clytronics Ignition System

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