State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-33-1
Relating to Exemptions under Section 27156
of the Vehicle Code

RoInCo
"SCR POWERED ELECTRONIC IGNITION"

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 "SCR Powered Electronic Ignition" device manufactured and marketed by RoInCo of 5600 Lincoln Drive, Edina, Minnesota 55436, has been found to not 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 older model-year vehicles with 12-volt battery and standard ignition coil, contact set and negative ground. The following are specifically excepted:

1. Vehicles originally equipped with a breakerless or electronic ignition system.

2. All 1966-70 model-year vehicles equipped with a Dana or Carter NOx retrofit device using an electronic speed sensor.

The device consists of a silicon controlled rectifier, a capacitor, a diode, and two resistors.

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 performance of 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, 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 "SCR POWER ELECTRONIC 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 3 day of October, 1974.

WILLIAM SIMMONS
Executive Officer

State of California

AIR RESOURCES BOARD

September 27, 1974

Staff Report

Evaluation of the RoInCo "SCR Powered Electronic Ignition" for Compliance with the Requirements of Section 27156 of the California Motor Vehicle Code

I. Introduction

RoInCo of 5600 Lincoln Drive, Edina Minnesota 55436 has submitted an application for an exemption from the prohibitions of Section 27156 of the California Motor Vehicle Code for the "SCR Powered Electronic Ignition" device. Section 27156 of the Vehicle Code prohibits the installation, sale and advertisement of any device or mechanism which reduces the effectiveness of the emission control system. The applicant is requesting the exemption be granted for 1974 and older-model vehicles except those vehicles originally equipped with a breakerless or electronic ignition system and those 1966-1970 model-year vehicles retrofitted with a Carter or Dana NOx device with an electronic speed sensor.

II. Device Description and Function

The "SCR Powered Electronic Ignition" is mounted in the engine compartment and has four color coded electrical leads which are connected to the coil terminals. (Refer to Exhibit I - Installation Instructions) This electrical device basically consists of two resistors, one

SCR (silcon controlled rectifier), one capacitor, and one diode. (Reference Exhibit II - Design Drawing of the Device). If the SCR fails, the circuit is designed to revert back to the baseline (stock) ignition system (Reference - Exhibit III - Device Specification).

When the points are closed, the current flows through D_1, R_1, and R_2 (refer to the circuit diagram Exhibit II). The opening of the points stops the circuit flow through the SCR and causes the current to flow through C_1. The immediate stopping of the current flow through the points will prevent arcing. This causes the magnetic field of the coil to collaspe more rapidly and provide a slightly higher intensity spark at the plugs.

According to the applicant, the "SCR Powered Electronic Ignition" is designed to provide faster cold starts and increases fuel economy. The device is also claimed to increase spark plug and point contact life.

III. Device Evaluation

The applicant did not submit any emission data showing the effects of the device on the OEM emission control system. In order to evaluate this device, the electrical output characteristics of the ignition system with and without the device were compared.

The test vehicle selected has the following specifications:

Make and Model Year	1974 American Motors Ambassador Station Wagon
Engine	360 Cubic Inch Displacement
Carburetor	Two Barrel
Transmission	Automatic
Emission Control	AIR/EGR
Mileage as tested	5537
License Number	E833603

Table 1

Centrifugal Spark Advance in Crankshaft Degrees

RPM	Standard Ignition	"SCR"
Idle	7	7
1000	15	12
1500	19	21
2000	21.5	23
2500	22	23.5
3000	26	27.5

Spark Duration

RPM	Standard Ignition	"SCR"
Idle	1400-1600 Microseconds	1300-1600 Microseconds
2000	1000-1400 Microseconds	1000-1300 Microseconds

Secondary Voltage

RPM	Standard Ignition		"SCR"	
	Firing	Available	Firing	Available
Idle	11-12 KV	26-27 KV	12-13 KV	27-28 KV
2200	10-11 KV	25-26 KV	10-11 KV	26-27 KV

Secondary Voltage Rise Time

RPM	Standard Ignition	"SCR"
Idle	10 Microseconds	10 Microseconds

Idle Exhaust Emissions

Standard Ignition		"SCR"	
HC, ppm	CO, %	HC, ppm	CO, %
116	0.11	98	0.11

Prior to testing, the vehicle's carburetor and ignition settings were adjusted to OEM specifications. The test consisted of measuring the spark advance, spark duration, available and firing secondary voltages, secondary voltage rise time, and idle HC and CO emissions.

Table I shows the results of the test. The installation of the device test when compared to baseline did not significantly change the output characteristic of the OEM ignition system.

IV. Conclusion and Recommendation

Based on the ARB test results, the installation of the "SCR Powered Electronic Ignition" would not adversely affect the performance or operation of the OEM emission control system. The staff recommends that RoInCo be issued an exemption from the prohibitions of Section 27156 of the Vehicle Code for its "SCR Powered Electronic Ignition" except the following:

(1) All 1966 to 1970 model-year vehicles equipped with a Dana or Carter NOx retrofit device using an electronic speed sensor.

(2) Vehicles originally equipped with a breakerless or electronic ignition system.

Exhibit I - Installation Instruction

The RoInCo SCR powered ELECTRONIC IGNITION is a high quality solid state system designed to improve operating efficiency of American and foreign engines! The RoInCo SCR powered ELECTRONIC IGNITION acts as a booster system for your conventional ignition, to activate the opening and closing of the points. This eliminates the arcing of the points which occurs at the time when they are opened by the distributor cam. The RoInCo SCR powered ELECTRONIC IGNITION prevents point arcing because it automatically shuts off all current through the points the instant they are opened. Heavy current passing through the points during this process is the reason for points arcing, wearing and deterioration of the efficiency of a well tuned engine.

Because the RoInCo solid state SCR powered ELECTRONIC IGNITION maintains the functioning of the ignition system in proper operation longer, it also provides additional benefits.

- ☐ Prolongs Plug Life
- ☐ Reduces Tune-Up Frequency
- ☐ Maintains Gas Mileage Between Tune-Ups
- ☐ Provides Faster Starting in Cold Weather

Fool-proof solid state circuitry automatically converts back to original ignition should failure occur.

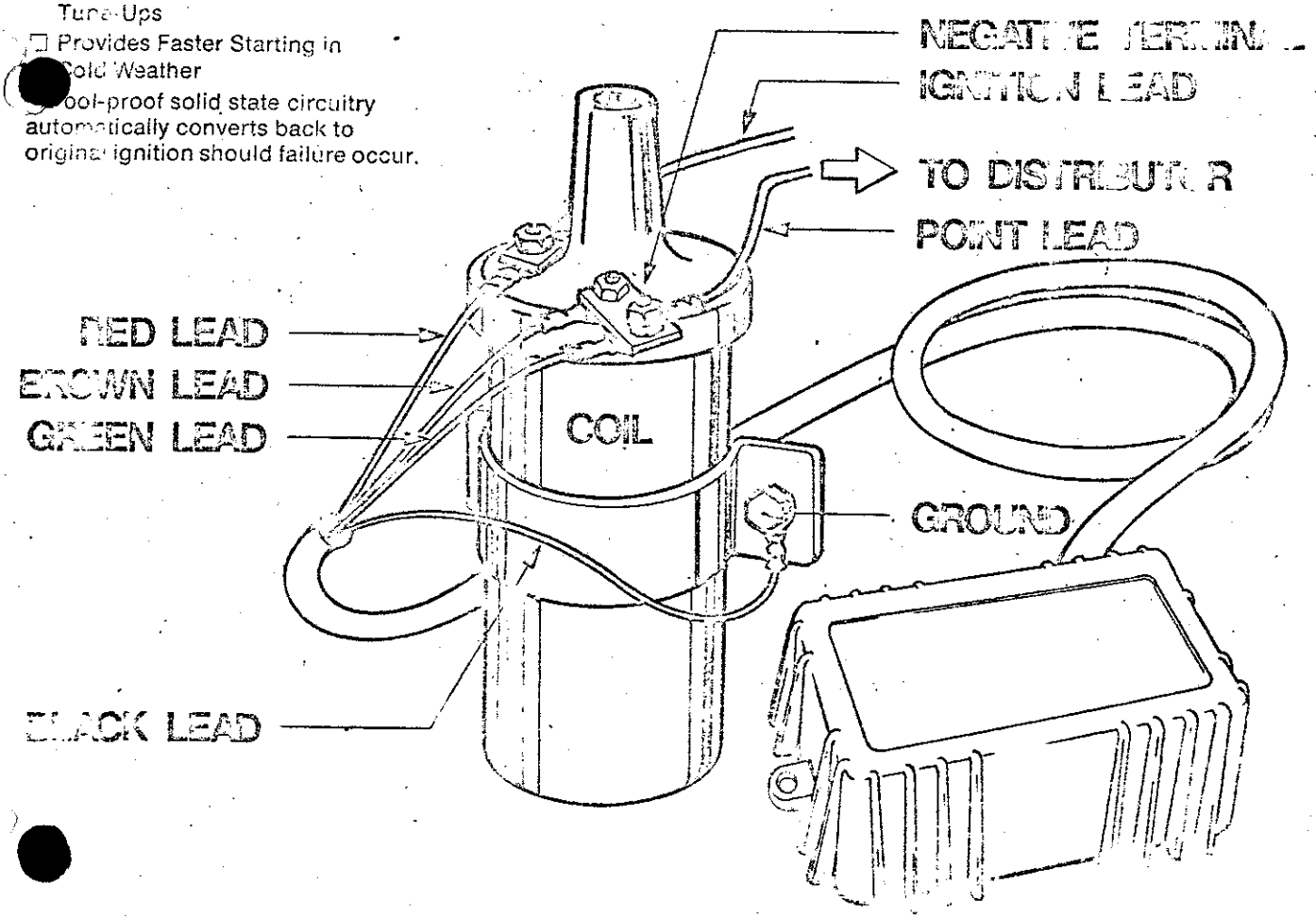
EASY TEN MINUTE INSTALLATION.

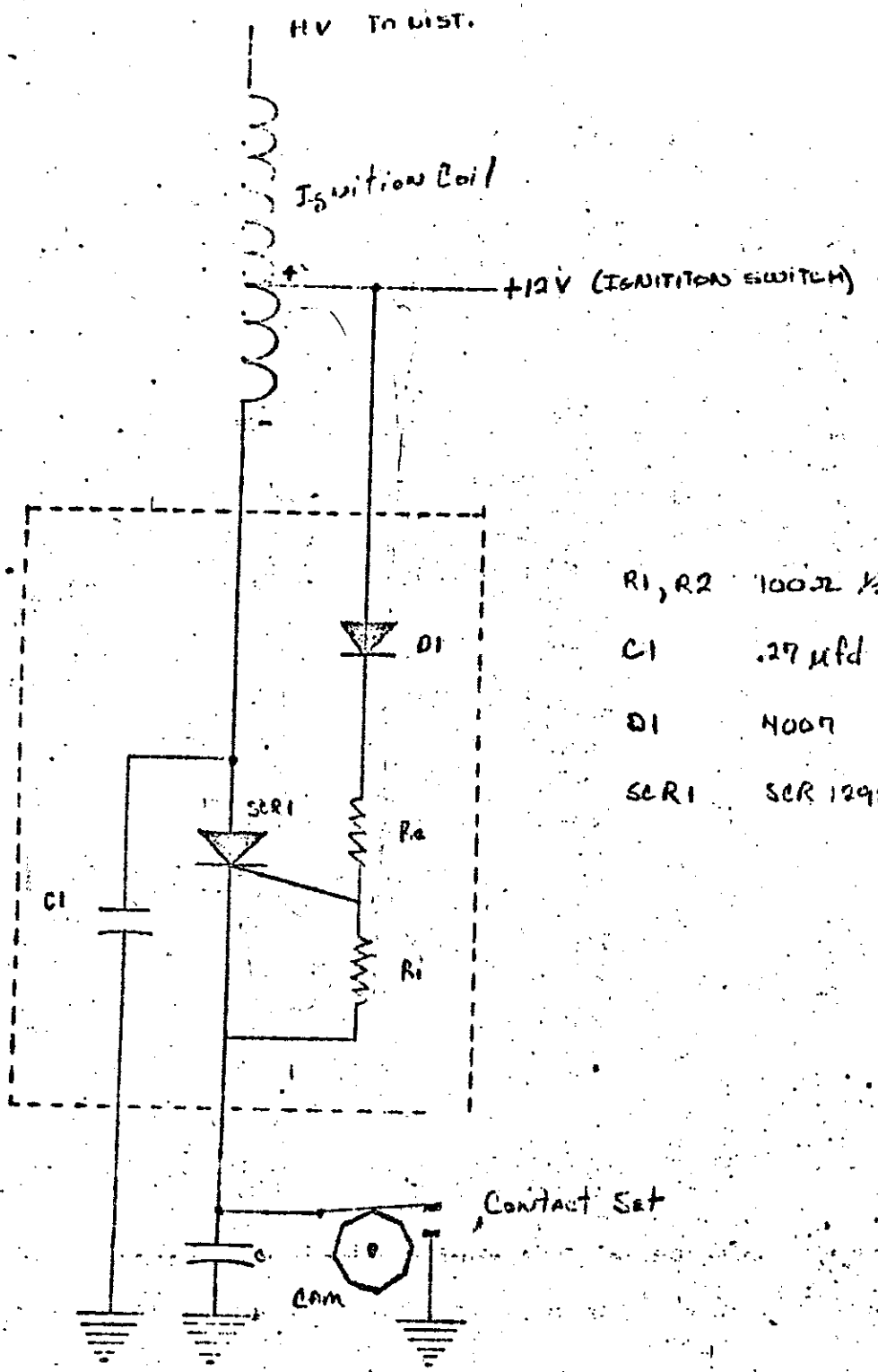
WITH ENGINE OFF...

1. Guide 4 lead wires (Green, Red, Brown, & Black) to ignition coil. Ground black wire on coil mounting stud or other suitable ground.
2. Remove nut on + (positive) side of coil and attach red wire terminal lead on top of existing wires. Replace nut and tighten. *(DO NOT REMOVE ANY EXISTING WIRES ON POSITIVE TERMINAL.)*
3. Remove nut and wire lead on – (negative) side of coil (the wire that connects to the distributor). Install adapter board with brown wire lead to negative coil and fitting. Replace nut and tighten. Attach point lead wire just removed from negative coil stud connection to purple lead wire on adapter board.
4. If there is a tachometer lead wire connected to negative coil stud, *DO NOT REPLACE IT OR MOVE IT WITH POINT LEAD, IT SHOULD REMAIN ON NEGATIVE COIL STUD.*
5. Remove condensor from distributor by removing distributor cap and rotor. Loosen point contact screw and remove wire from condensor, retighten screw. Remove condensor by loosening mounting screw. Replace mounting screw, rotor and distributor cap.
6. Using sheet metal screws supplied, mount SCR unit on inside fender well or firewall. Avoid placement near radio antenna.

For best results, install RoInCo solid state SCR powered ELECTRONIC IGNITION to a just tuned engine to maintain peak operating efficiency and benefits.

Unconditionally guaranteed for 5 years. If not satisfied, send sales slip to manufacturer for full refund.





R1, R2	100Ω ½ WATT	10%	
C1	.27 μfd	400 WVDC	Dipped
D1	N4007	Diode	Motorola
SCR1	SCR 1298		MOTOROLA

Exhibit II - Circuit Diagram of
"SCR Powered Electronic Ignition"

State of California
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Exhibit III

SPECIFICATIONS - IGNITION SYSTEM

I. Product Description

Manufacturer RoInCo Name & Model No. SCR Electronic Ignitio

Address 5600 Lincoln Drive Telephone (612)933-5500

Edina, Minnesota 55436 Mounting Position Any

Type of Ignition

Kettering X Capacitive Discharge \ Electronic ____

Other ____

II. Input Requirement

System input voltage and current (volts and amps - RPM curve)

12 Volt DC Neg. Ground

III. OUTPUT Characteristics

A. Primary System

1. System output voltage and current (volts and amps - RPM curve)

Does not change from original equipment

B. Secondary System

1. Available output secondary voltage (specify RPM or submit voltage- rpm curve)

Same as original equipment

2. Secondary voltage rise time Same as original equipment

3. Secondary output energy (at input voltage)

Same as original equipment

4. Spark duration (specify engine RPM) and spark gap)

same as original equipment

IV. Design details

Storage capacitor capacitance (uf) and stored voltage None

C-D unit inductance (uH) None

Pulse triggering source points

Type of transformer in C-D and turn ratio None

Transient voltage protection (open circuits and voltage surges)

SCR rated 1000V pin so amps surge

Close point time limit N/A

Maximum point current and ground circuit resistance

Same as orignal equipment

Oscillator frequency None

Number and type of power transistor None SCR

Ballast resistors required? Yes ____ No X

Resistor Type _____ Resistor Size (ohms) _____

Switch back to stock system? Yes ____ No X

Describe methods if SCR shorts the system reverts to normal ignition.

Moisture and Vibration Protection Potted in epoxy compound

Operating Temperature Range -50° to +300° f.

Humidity Range 0 to 100%

Modifications from O.E.M.

Ignition timing modified? Yes _____ No X

State modifications from O.E.M. Ignition System Characteristics None

Engine Setting Changes? Yes _____ No X

Describe Changes _____

Specify any other changes from O.E.M. Install SCR Ignition between coil and points

VI. Device information

Please attach circuit diagram, O.E.M. and device spark advance curves and photograph of spark line produced by device.

Description of operating principle See attached