

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-54-9
Relating to Exemptions under Section 27156
of the Vehicle Code

PRESTOLITE ELECTRICAL DIVISION OF ELTRA CORPORATION
"B.I.D" BREAKERLESS INDUCTIVE IGNITION SYSTEM

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 39515 of the Health and Safety Code and Executive Order G-30A;

IT IS ORDERED AND RESOLVED: That the installation of the "B.I.D" breakerless inductive ignition system manufactured by the Prestolite Electrical Division, 511 Hamilton Street, Toledo, Ohio 43694, and marketed as indicated herein 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 installation on 1968-1977 Datsun 4 cylinder vehicles except the model B-210 series and those equipped with dual point distributors.

This ignition system consists of an electronic pack, trigger wheel and pick up assembly. The following is a list of companies marketing this device.

<u>Company</u>	<u>Kit Number</u>
Prestolite IDL-5025B	7041
Rite-Line	RL7041
Montgomery Ward	15885

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

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 PRESTOLITE ELECTRICAL DIVISION "B.I.D" BREAKERLESS INDUCTIVE IGNITION SYSTEM.

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 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 Sacramento, California, this 30th day of June, 1978.

ORIGINAL SIGNED BY
THOMAS C. AUSTIN
Thomas C. Austin
Deputy Executive Officer

Mr. W. L. Schull
Prestolite Electrical Division
511 Hamilton St.
Toledo, Ohio 43694

Dear Mr. Schull:

This is in response to your request for an exemption from the prohibitions of Section 27156 of the California Motor Vehicle Code for the Prestolite "B.I.D." breakerless inductive ignition system to be used on 1968-1977 4 cylinder Datsun vehicles.

Our evaluation, documented in the enclosed staff report, indicates that the installation of the "B.I.D." retrofit kit would not cause any adverse effects on the ignition system. We understand that, in accordance with your letter of June, 13, 1978, all claims concerning improved performance, increased spark plug life and more mileage will be deleted from your future advertisement.

Enclosed you will find Executive Order D-54-9 exempting the Prestolite "B.I.D." from the prohibitions of Section 27156 of the Motor Vehicle Code for use on all 1968-1977 4 cylinder Datsun vehicles except the model B-210 series and those equipped with dual point distributors.

Should you have any questions regarding this matter, please contact Mr. N. Kayne, Manager, Aftermarket Parts and Modifications Evaluation Section at (213) 575-6839.

Sincerely,

ORIGINAL SIGNED BY

Thomas C. Austin
Deputy Executive Officer

Attachment

State of California
AIR RESOURCES BOARD

May 11, 1978

Staff Report

(Addendum to Staff Report dated August 1, 1977)
Evaluation of the Prestolite Electrical Division
"B.I.D." Breakerless Inductive Ignition System
in Accordance with the Provisions of Section
2222, Title 13 of the California Administrative Code

I. Introduction

Prestolite Electrical Division, 511 Hamilton Street, Toledo, Ohio 43695, was issued Executive Orders D-54 through D-54-8. These Executive Orders exempted certain vehicles from the prohibitions of Vehicle Code Section 27156 for the Prestolite "B.I.D." Breakerless Inductive Ignition System, which is also known by other brand names described in the aforementioned Executive Orders. These were for particular 1976 and older model year vehicles equipped with a standard Kettering ignition system using device part numbers specifically listed in these Executive Orders. Prestolite is applying for an exemption to VC 27156 for their inductive ignition system installations on 1968-1977 Datsun 4 cylinder vehicles except the model B-210 series and those equipped with dual points. These kits are to be sold under the following brand names.

<u>Company</u>	<u>Kit Number</u>
Montgomery Ward	15885
Rite-Line	RL 7041
Prestolite IDL-5025B	7041

II. System Description

The "B.I.D." is a breakerless, retrofit ignition system utilizing a resonant magnetic pick-up coil and a metallic plated "toothed" trigger wheel (reluctor) which is mounted concentric to the distributor shaft. The reluctor reduces the magnetic field strength in the pick-up coil intermittently when each tooth passes the coil. This voltage reduction triggers a change in a unistable switch which controls a power switching transistor. This power switching transistor controls current flow to the primary of the ignition coil.

III. System Evaluation

Manufacturer's Test Data

The applicant submitted ignition timing data and electrical characteristics for the Datsun 4 cylinder engine (Appendix I) in accordance with the ARB "Criteria for Evaluation of Add-On and Modified Parts" adopted November 4, 1977.

A summary of the applicant's test results are as follows:

A. Spark Advance in Crankshaft Degrees from TDC

<u>Vacuum (in Hg)</u>	<u>Baseline</u>	<u>Device</u>
0	0	0
3	0	0
9	0	0
12	4	3
15	8	7
18	12	10
20	13	12

B. Peak Coil Induced Primary Voltage, V_{peak}

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	290	340
600	260	340
4000	210	310

C. Available Secondary Voltage (with load) KV

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	33	31
600	29	28
4000	24	23

D. Available Secondary Voltage (simulated fouled spark plug) KV

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	20	19
600	17	16
4000	14	13

E. Available Voltage Rise Time, μ Sec.

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	100	110
600	100	110
4000	100	110

F. Spark Duration, μ Sec.

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	2800	2400
600	2500	2400
4000	1700	1400

G. Average Spark Current, milliamps.

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	16.0	26.0
600	18.0	17.5
4000	13.0	20.0

H. Average Spark Voltage - volts

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	540	530
600	520	500
4000	560	560

I. Spark Energy, millijoules

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>
375	24.2	33.1
600	23.4	21.0
4000	12.4	15.7

IV. Discussion of the Applicant's Data

The installation of the Prestolite "B.I.D." retrofit kit indicates a 33% increase in the induced primary voltage (flyback voltage) over the baseline. This increase can delay the collapse of the magnetic flux field within the primary windings of the coil. The delay can be measured in terms of the available voltage rise time, and is directly attributable to the decrease in the available secondary voltage. Decreasing the available secondary voltage by 4 to 6 percent should not cause any adverse effects on the emission characteristics of the Datsun vehicle.

The instantaneous current flowing through the spark gap, from the secondary winding of the coil increases by 53% during cruise conditions (see IIIG). This increase is due primarily to the increase in the flyback voltage of the primary circuit within the ignition coil. By increasing the flyback voltage in the primary, the oscillating current within the secondary circuit is increased by a similar amount. The increase in secondary current increased the spark energy which is beneficial to the ignition system for these low output Datsun ignition systems.

Comparison of these results with models tested in the past, indicated consistent data correlation for all previously approved models. For this reason, there was no confirmatory testing conducted by the ARB laboratory on this device.

V. Applicant's Claims

The applicant submitted a letter dated June 13, 1978 (attached) in which he stated that he will not make the following claims in his future advertising:

1. Improved performance at all speeds.
2. More mileage in the aftermarket.
3. Increased spark plug life.

VI. Conclusion and Recommendation

Based on the data submitted by the applicant, the staff concludes that the device will have no adverse effects on the ignition system of the 1968 through 1977 Datsun 4 cylinder vehicle engines, except for the model B-210 series and those equipped with dual point distributors. The staff is therefore of the opinion that the installation of this device will not increase the exhaust emissions from these engines.

The staff therefore recommends the approval of Executive Order D-54-9.