

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-54-10  
Relating to Exemptions under Section 27156  
of the Vehicle Code

PRESTOLITE ELECTRICAL DIVISION OF ELTRA CORPORATION  
"B.I.D." BREAKERLESS INDUCTIVE DISCHARGE 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 Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the "B.I.D." Electronic Ignition System manufactured and marketed by The Presolite Electrical Division, 511 Hamilton St. Toledo, Ohio 43694 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 1979 and older model motorcycles equipped with conventional Kettering ignition system as specified below:

<u>Kit Number</u>	<u>Motorcycle Model</u>
70-44	Honda 750
70-45	Honda GL-1000
70-49	Kawasaki 900 and 1000*
70-50	Kawasaki 650
70-52	Kawasaki 900 and 1000

\*Except those with 1003 advancer

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.

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

EXECUTIVE ORDER D-54-10  
(Page 2 of 2)

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'S "B.I.D." 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.

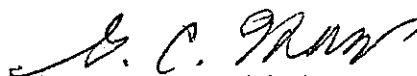
Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

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 El Monte, California, this 21 day of May, 1979.



G. C. Hass, Chief  
Vehicle Emissions Control Division

State of California  
AIR RESOURCES BOARD

STAFF REPORT

May 14, 1979

Evaluation of the Prestolite Electrical  
Division's "B.I.D." Ignition System for  
Motorcycles in Accordance with Section  
2222, Title 13 of the California  
Administrative Code

I. Introduction

Prestolite Electrical Division of Eltra Corporation, 511 Hamilton Street, Toledo, Ohio 43694 has filed an application for an exemption from the prohibitions of the California Vehicle Code Section 27156 for its "B.I.D." electronic ignition kits for motorcycles.

Since motorcycles manufactured after January 1, 1978 are required to meet exhaust emission standards, the evaluation of the kits in this report is limited to 1978 and 1979 model motorcycles only.

Air Resources Board procedure, "Criteria For Aftermarket Ignition System Modifications", adopted on November 4, 1977, has been used to evaluate the kits.

II. System Description and Function

The purpose of this aftermarket retrofit kit is to convert a conventional "Kettering" motorcycle ignition system to an electronic breakerless inductive discharge (B.I.D.) ignition system. The result is that the primary circuit is maintenance free after the

Evaluation of the Prestolite Electrical  
Division's "B.I.D." Ignition System for  
Motorcycles in Accordance with Section  
2222, Title 13 of the California  
Administrative Code

May 14, 1979

kit installation. Periodic point and condenser replacement would not be necessary. The system utilizes a resonant magnetic pick-up coil and a metallic plate "toothed" trigger wheel (reluctor) which is mounted concentric to the distributor shaft. The reluctor reduces the magnetic field strength in the pick-up intermittently when each tooth passes the coil. This is detected by a demodulator circuit. The output of the demodulator is then amplified to turn a power transistor on and off which interrupts the coil primary current flow, inducing a high voltage in the secondary coil. The vehicle application for the kits is as follows for 1979 and older model motorcycles.

<u>Kit Number</u>	<u>Motorcycle Model</u>
70-44	Honda 750
70-45	Honda GL-1000
70-49	Kawasaki 900 and 1000*
70-50	Kawasaki 650
70-52	Kawasaki 900 and 1000

\*Except those with 1003 advancer

### III. System Evaluation

The applicant submitted bench test data for the above kits. A summary of the test results are given in the attached tables.

May 14, 1979

#### IV. Discussion

The applicant did not submit test data for kits numbered 70-49 and 70-52. According to the applicant these kits have the same electronic configurations as kit 70-50. The only difference is the trigger wheels. It was therefore unnecessary to repeat the tests.

The variability of the test data between the baseline and the device did not exceed permissible limits. The only exception was a 2.6° retard at 1100 RPM for kit No. 70-44. Based on previous experience, these variations should not effect emissions and therefore no CVS dynamometer tests are needed.

#### V. Applicant's Claims

The applicant makes the following four benefit claims for the ignition kits:

1. Saves fuel because the bike is always tuned-up.
2. Saves maintenance because Prestolite's Electronic Ignition is composed of maintenance-free components.
3. Saves space because the electronic components are custom-engineered to replace existing parts.
4. Saves money because they'll never need an ignition tune-up again.

Evaluation of the Prestolite Electrical  
Division's "B.I.D." Ignition System for  
Motorcycles in Accordance with Section  
2222, Title 13 of the California  
Administrative Code

May 14, 1979

The staff is of the opinion that the above claims are not in violation of V.C. Code 27156 or Business and Profession Code 17500.

The applicant submitted a label which fits around the wiring jacket and appears to be satisfactory.

VI. Conclusion and Recommendation

Based on the test data and other information submitted by the applicant, the staff is of the opinion that the Prestolite "B.I.D." Ignition System for motorcycles should have no adverse effects on emissions. The staff, therefore, recommends approval of Executive Order D-54-10.

TABLE 1 Test data for B.I.D. Ignition System

Kit Number: 70-45      Vehicle Application: Honda  
1000 C.C.

S-NO	Operating/Design Variable		DISTRIBUTOR RPM								
	Description	Evaluation Criteria	300			1200			2500		
			Baseline	Device	Change	Baseline	Device	Change	Baseline	Device	Change
1	Spark timing: retard	2° Max. from baseline	2.0° Max. at 500, 700, 800 and 900 RPM.								
2	Spark timing: advance	No advance from baseline	NONE								
3	Secondary available voltage in KV	10% from baseline	16	15	-6.7%	11.5	11.0	-4.5%	13.0	12.5	-3.8%
4	Spark energy in m. joules	20% from baseline	24.5	28.5	+16.3%	14.5	16.5	+13.8%	13.8	16.5	+19.6%
5	Spark duration time in micro sec.	100 micro seconds min	1600	1500	-	1100	1000	-	1100	1100	-
6	Voltage rise time in micro sec.	10 micro	35	80	-	35	70	-	35	75	-

TABLE II Test Data for B.I.D. Ignition System

Kit Number: 70-50      Vehicle Application: Kawasaki  
650 C.C.

S-NO	Operating/Design Variable		DISTRIBUTOR RPM								
	Description	Evaluation Criteria	300			1000			2500		
			Baseline	Device	Change	Baseline	Device	Change	Baseline	Device	Change
1	Spark timing: retard	2° Max. from baseline	1.5° Max. retardation at 1500 RPM								
2	Spark timing: advance	No advance from baseline	NONE								
3	Secondary available Voltage in KV	10% from baseline	14.0	13.0	-7.1%	16	16	0%	19	18	-5.2%
4	Spark energy in m. joules	20% from baseline	8.8	9.3	+5.7%	12.5	14.8	+18.4%	13.44	16.1	+19.8%
5	Spark duration time in micro sec.	100 micro seconds min.	500	600	-	650	900	-	700	1100	-
6	Voltage rise time in micro sec.	10 micro seconds min.	40	65	-	45	65	-	40	60	-



TABLE III Test Data for B.I.D. Ignition System

Kit Number: 70-44

Vehicle Application: Honda 750

S-NO	Operating/Design Variable		DISTRIBUTOR RPM								
	Description	Evaluation Criteria	300			1000			2500		
			Baseline	Device	Change	Baseline	Device	Change	Baseline	Device	Change
1	Spark timing: retard	2° Max. from baseline	2.6° at 1100 RPM								
2	Spark timing: advance	No advance from baseline	NONE								
3	Secondary available voltage in KV	10% from baseline	16	16	-	20	22	+10%	25	26	+8.3
4	Spark energy in m. joules	20% from baseline	22.6	23.4	+3.5%	22.8	26.9	+18.0%	24.9	26	+4.4
5	Spark duration time in micro sec.	100 micro seconds min.	600	1300	-	1100	1150	-	1300	1300	-
6	Voltage rise time in micro sec.	10 micro seconds min.	60	75	-	60	75	-	60	75	-