

80

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-11-4
Relating to Exemptions under Section 27156
of the Vehicle Code

WESTERN CONTROLS, INC.
"BREAKERLESS TRANSISTOR 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 "Breakerless Transistor Ignition System" manufactured by Western Controls, Inc., 805 West Madison, Phoenix, Arizona, 85007 and marketed as indicated below 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 1975 and older model year vehicles except as follows:

- 1) Those vehicles equipped with General Motors 4 cylinder engines.
- 2) Those vehicles equipped with General Motors, American Motors, Checker Motors, and International Harvester 6 cylinder engines.
- 3) Those vehicles equipped with Chrysler Corporation 4, 6 or 8 cylinder engines.
- 4) Those vehicles originally equipped with transistorized, capacitor discharge, breakerless ignition systems or dual point ignition systems where one of the points is used to retard timing for emission control.
- 5) Those 1966 through 1970 vehicles equipped with a retrofit NOx device which incorporates retard of basic ignition timing (i.e., Carter, Echlin, GRANCOR (STP) - Air Computer, AQP - Electro-NOx and Kar Kit.)
- 6) Mazda and Fiat vehicles.

The device consists of a magnetic sensor unit and an electronic transistor switching module.

The following is a list of marketing companies and the amplifier module number sold by each firm:

<u>Marketing Organization</u>	<u>Amplifier Model Nos.</u>
Western Controls Inc. 805 W. Madison St. Phoenix, AZ 85007	1058 TR System
"Max" Western Controls Inc. 805 W. Madison St. Phoenix, AZ 85007	1008 TR System
"Filkotronic Ignition" Filko Div. of F & B Mfg. 5480 N. Northwest Highway Chicago, Ill. 60630	F1-150 TR System
"Hays" Hays Sales 15116 Adams Street Midway City, CA 92655	TR-2048 TR System

The following is a list of magnetic sensor kit numbers and their application:

<u>Magnetic Sensor Kit Number</u>	<u>Application</u>
3050	Vauxhall - 4 and 6 cylinder
3051	AMC - 8 cylinder Checker - 8 cylinder GM - 8 cylinder Jeep - 8 cylinder
3056	Ford (English) - 4 cylinder Ford - 4 cylinder Ford - 8 cylinder Sunbeam - 8 cylinder
3057	A.C. (Great Britain) - 8 cylinder Ford - 8 cylinder (Dual Point) Ford - 6 cylinder

Magnetic Sensor
Kit NumberApplication

3065	Alpha Romeo - 4 cylinder Audi - 4 cylinder BMW - 4 and 6 cylinder Ford (German) - 4 cylinder Opel - 4 cylinder NSU - 4 cylinder Porsche - 4 and 6 cylinder Saab - 4 cylinder Volvo - 4 cylinder Volkswagen - 4 cylinder
3066	Alpha Romeo - 4 cylinder (1970-1972) Mercedes Benz - 4 and 6 cylinder Porsche - 4 and 6 cylinder Volvo - 4 and 6 cylinder
3067	Datsun - 4 and 6 cylinder Ford (72-74) - 4 cylinder Honda - 4 cylinder LUV - 4 cylinder Subaru - 4 cylinder
3068	Toyota 4 and 6 cylinder
3069	Aston Martin - 6 cylinder Austin - 4 and 6 cylinder Ford (English) - 4 cylinder Hillman - 4 cylinder Humber - 4 and 6 cylinder Jaguar - 6 cylinder Lotus - 4 cylinder M.G. - 4 and 6 cylinder Morgan - 4 cylinder Morris - 4 cylinder Riley - 4 cylinder Rover - 4 and 6 cylinder Singer - 4 cylinder Sunbeam - 4 cylinder Triumph - 4 and 6 cylinder

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 WESTERN CONTROLS' "BREAKERLESS TRANSISTOR 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 16 day of July, 1976.

Original signed by
Thomas C. Austin
Deputy Executive Officer-Technical

State of California

AIR RESOURCES BOARD

Staff Report

May 3, 1976

Evaluation of Western Controls Inc.'s.
"Breakerless Transistor Ignition System" for Exemption
from the Prohibitions of Motor Vehicle Code Section 27156

I. Introduction

Western Controls Inc., 805 West Madison, Phoenix, Arizona, 85007 has applied (Exhibit I) for an exemption from the prohibitions of Motor Vehicle Code Section 27156 for their "Breakerless Transistor Ignition System".

The applicant is requesting an exemption to be granted for 1975 and older model year vehicles for the devices marketed as follows:

<u>Marketing Organization</u>	<u>Amplifier Model Nos.</u>
Western Controls Inc. 805 W. Madison St. Phoenix, AZ 85007	1058 TR System
"Max" Western Controls Inc. 805 W. Madison St. Phoenix, AZ 85007	1008 TR System
"Filkotronic Ignition" Filko Div. of F & B Mfg. 5480 N. Northwest Highway Chicago, Ill. 60630	F1-150 TR System
"Hays" Hays Sales 15116 Adams Street Midway City, CA 92655	TR-2048 TR System

May 3, 1976

II. System Description

The Western Controls "Breakerless Transistor Ignition System" is designed to replace the breaker points within a distributor. It consists primarily of a magnetic sensor and transistor switching module. The magnetic pickup unit senses the cam lobes of the distributor and triggers the electronic module which uses transistor switching instead of points to make and break the primary current to the ignition coil.

The amplifier (transistor switching module) units will be packaged separately and the magnetic sensor will be packaged as an adapter kit.

The following adapter kit numbers and vehicle application are as follows:

<u>Magnetic Sensor Kit Number</u>	<u>Application</u>
3050	Vauxhall - 4 and 6 cylinder
3051	AMC - 8 cylinder Checker - 8 cylinder GM - 8 cylinder Jeep - 8 cylinder
3056	Ford (English) - 4 cylinder Ford - 4 cylinder Ford - 8 cylinder (Single Point) Sunbeam - 8 cylinder
3057	A.C. (Great Britain) - 8 cylinder Ford - 8 cylinder (Dual Point) Ford - 6 cylinder
3065	Alpha Romeo - 4 cylinder Audi - 4 cylinder BMW - 4 and 6 cylinder Ford (German) - 4 cylinder Opel - 4 cylinder NSU - 4 cylinder Porsche - 4 and 6 cylinder Saab - 4 cylinder Volvo - 4 cylinder Volkswagen - 4 cylinder

Evaluation of Western Controls Inc.'s "Breakerless Transistor Ignition System" for Exemption from the Prohibitions of Motor Vehicle Code Section 27156

May 3, 1976

<u>Kit Number</u>	<u>Application</u>
3066	Alpha Romeo - 4 cylinder (1970-1972) Mercedes Benz - 4 and 6 cylinder Porsche - 4 and 6 cylinder Volvo - 4 and 6 cylinder
3067	Datsun - 4 and 6 cylinder Ford (72-74) - 4 cylinder Honda - 4 cylinder LUV - 4 cylinder Subaru - 4 cylinder
3068	Toyota 4 and 6 cylinder
3069	Aston Martin - 6 cylinder Austin - 4 and 6 cylinder Ford (English) - 4 cylinder Hillman - 4 cylinder Humber - 4 and 6 cylinder Jaguar - 6 cylinder Lotus - 4 cylinder M.G. - 4 and 6 cylinder Morgan - 4 cylinder Morris - 4 cylinder Riley - 4 cylinder Rover - 4 and 6 cylinder Singer - 4 cylinder Sunbeam - 4 cylinder Triumph - 4 and 6 cylinder

Other devices which were included in the original application but did not meet the criteria and were subsequently deleted from the application (See Exhibit II) are as follows:

May 3, 1976

<u>Magnetic Sensor Kit Number</u>	<u>Application</u>
3052	General Motors - 4 cylinder
3053	American Motors - 6 cylinder Checker Motors - 6 cylinder General Motors - 6 cylinder Jeep - 6 cylinder International Harvester - 6 cylinder
3055	International Harvester - 6 cylinder
3058, 3067, 3069, 4052	Chrysler - 4, 6, 8 cylinders (includes Dodge and Plymouth)

Exception is also taken to the application guide notes (Exhibit II) in that the drilling of location holes in the distributor vacuum advance plate or the grinding of cams is not acceptable.

III. System Evaluation

A. Applicants Test Data

The applicant submitted data for centrifugal and vacuum advance and electrical characteristics for the device when tested according to the SAE J973a test procedure. In order to evaluate the device the ignition system characteristics with and without the device are compared.

The data submitted was for a 1972 Chrysler 8 cylinder, 1972 General Motors 8 cylinder, 1972 Ford 8 cylinder, and 1969 Volkswagen 4 cylinder ignition systems. A data summary is presented as Tables

May 3, 1976

I and II. These results are considered within experimental and test variabilities and are evaluated as meeting the Air Resources Board's criteria for ignition system modifications.

B. ARB Confirmatory Test

Confirmatory tests were conducted by the Air Resources Board Laboratory on an ignition system simulator which consists of a Sun distributor tester, Tektronix Oscilloscope, Sun Ignition analyzer and associated accessories in accordance with SAE J973a instructions. A summary of electrical tests performed on Chrysler and Ford 8 cylinder distributors are shown in Table III.

The ARB data summary indicates a spark timing retardation in crankshaft degrees as follows:

	<u>Centrifugal Retard</u>	<u>Vacuum Retard</u>	<u>Combined Retard</u>
Chrysler	1.0° @ 3600 RPM	6.5 @ 20 in. Hg.	7.5°
Ford	2° @ 2600 RPM	2.5 @ 9, 12 & 15 in. Hg.	4.5°

The Air Resources Board tolerance on ignition timing is 0° advance and 4° maximum retard. The 4.5° degrees retard experienced with the 1967 Ford is considered within experimental and test variabilities and is evaluated as meeting the Air Resources Boards criteria of +0° to -4°.

May 3, 1976

The Chrysler data is clearly beyond the allowable tolerance. This degree of retardation is expected to have an adverse effect on the valve life of an engine. The deterioration of exhaust valve sealing leads to higher hydrocarbon emissions. The applicant was notified of the excessive retardation and has amended (Exhibit II) his application to omit all Chrysler 6 and 8 cylinder and General Motors 4 and 6 cylinder vehicles.

It was noted that the device did cause an increase in coil primary current on both the 1972 Chrysler and 1967 Ford application at the 600 RPM idle condition as follows:

	<u>Ignition Primary Current Amperes</u>	
	<u>1972 Chrysler</u>	<u>1967 Ford</u>
Baseline	2.1	2.5
Device	3.1	3.3

This condition can cause some increased heating of the ignition coil at idle, however this is not considered to be critical. The data on energy and spark duration are judged as meeting the Air Resources Board criteria.

The ARB laboratory tests also indicated that the device was compatible with 1966-1970 NOx retrofit devices using electronic speed sensors.

May 3, 1976

IV. Manufacturer's Claims

The manufacturer stated the purpose of the device is to retrofit breaker point ignition systems but makes no performance claims in the application. It is the staff's judgement that the installation of the device on a vehicle could result in the following:

1. This breakerless system offers potential for reduced maintenance.
2. The electrical characteristics of this system do not indicate any significant benefit on performance, economy or emission reduction than would be obtained from a properly tuned engine.

V. Conclusions and Recommendations

It is the opinion of the staff that Western Controls' "Breakerless Transistor Ignition System" may reduce the effectiveness of required emission control systems by increasing the likelihood of premature exhaust valve burning caused by the device's retardation of OEM timing schedules on certain vehicles.

Therefore, it is recommended that Western Controls be granted an exemption from the prohibitions of Vehicle Code Section 27156 for its "Breakerless Transistor Ignition System" for 1975 and older model year vehicles except as follows:

Evaluation of Western Controls Inc.'s "Breakerless Transistor Ignition System" for Exemption from the Prohibitions of Motor Vehicle Code Section 27156

May 3, 1976

- 1) Those vehicles equipped with General Motors 4 cylinder engines.
- 2) Those vehicles equipped with General Motors, American Motors, Checker Motors, and International Harvester 6 cylinder engines.
- 3) Those vehicles equipped with Chrysler Corporation 4, 6 or 8 cylinder engines.
- 4) Those vehicles originally equipped with transistorized, C.D., breakerless ignition systems or dual point ignition systems where one of the points is used to retard timing for emission control.
- 5) Those 1966 through 1970 vehicles equipped with a retrofit NOx device which incorporates retard of basic ignition timing (i.e., Carter, Echlin, GRANCOR (STP) - Air Computer, AQP - Electro-NOx and Kar Kit.)
- 6) Mazda and Fiat vehicles.

Table I - Western Controls, Inc. Ignition System Data Summary

A. Centrifugal Spark Advance in Crankshaft Degrees

<u>Engine RPM</u>	<u>1972 Chrysler - 8 cylinder</u>		<u>1972 Oldsmobile - 8 cylinder</u>	
	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	0	0	0	0
1400	17	16	4	2
2000	20	19	7	6
2600	24	21	9	8
3000	26	25	12	11

B. Vacuum Spark Advance in Crankshaft Degrees

<u>Vacuum in. Hg.</u>	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
3	0	0	0	0
6	0	0	0	0
9	0	0	4	4
12	9	7	8	8
15	14	14	12	12
20	15	15	20	20

C. Spark Duration in Microseconds

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	1500	1600	2000	1900
2000	1600	1800	1600	1800

D. Secondary Voltage Rise Time in Microseconds

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	125	110	100	100
2000	120	113	100	105

E. Spark Energy in Millijoules

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	25.9	28.8	32.0	32.8
2000	27.6	31.7	26.9	27.0

F. Available Voltage in Kilovolts (with load)

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	24	24	27.5	25
2000	24	24	23.0	23.5

Table II - Western Controls, Inc. Ignition System Data Summary

A. Centrifugal Spark Advance in Crankshaft Degrees

Engine RPM	<u>1972 Ford - 8 cylinder</u>		<u>1969 Volkswagen - 4 cylinder</u>	
	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	1.0	1.0	0	0.4
1400	16.0	15.0	0.4	0.4
2000	21.0	20.0	12.0	9.0
2600	21.0	20.0	16.2	13.4
3000	21.0	20.0	17.0	14.0
3400	21.0	20.0	17.2	14.2
4000			20.0	17.0

B. Vacuum Spark Advance in Crankshaft Degrees

Vacuum in. Hg.	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
3	1.0	1.0	0	0
6	8.0	7.0	5.4	5.4
9	14.0	14.0	10.0	10.0
12	18.0	18.0	12.0	12.0
15	22.0	22.0	12.0	12.0
20	23.0	24.0	12.0	12.0

C. Spark Duration in Microseconds

Engine RPM	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	1600	1900	1950	1000
2000	2000	2000	*1900	1000

D. Secondary Voltage Rise Time in Microseconds

Engine RPM	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	120	88	45	47
2000	80	90	*47	47

E. Spark Energy in Millijoules

Engine RPM	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	24.5	29.1	23.9	24.0
2000	31.5	31.5	*22.8	24.0

F. Available Voltage in Kilovolts (with load)

Engine RPM	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	25	24	22.5	19
2000	24	23	*22.0	20

*Tested at 3000 RPM.

Table III - ARB Data Summary for Western Controls "Breakerless Transistor Ignition System"

A. Centrifugal Spark Advance in Crankshaft Degrees

Engine RPM	<u>1967 Ford - 8 Cylinder</u>		<u>1972 Chrysler - 8 Cylinder</u>	
	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	0	0	0	0
1400	11.5	11.0	18.5	18.0
2000	16.0	15.5	20.5	20.0
2600	19.0	17.0	22.5	22.0
3200	20.5	19.5	24.5	24.0
3600	22.0	20.5	26.0	25.0

B. Vacuum Spark Advance in Crankshaft Degrees

Vacuum in. Hg.	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
3	0	0	0	0
9	11.0	8.5	1.0	0
12	16.5	14.0	10.0	7
15	20.5	18.0	21.0	15
20	24.0	22.0	21.5	15

C. Spark Duration in Microseconds

Engine RPM	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	1450	1300	1800	1800
3000	1000	1000	1300	1200

D. Secondary Voltage Rise Time in Microseconds

Engine RPM	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	40	30	40	30
3000	40	35	40	30

E. Spark Energy in Millijoules

Engine RPM	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	19.0	22.2	27.2	28.5
3000	16.8	17.5	25.6	22.0

Table III (Continued)

F. Available Voltage in Kilovolts (with load)

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	23.5	22.0	25.0	24
3000	21.0	17.5	19.0	19

G. Available Voltage in Kilovolts (Simulating fouled spark plugs)

<u>Engine RPM</u>	<u>Baseline</u>	<u>Device</u>	<u>Baseline</u>	<u>Device</u>
600	18.5	16.0	20	19
3000	16.0	12.0	13	12.5



October 23, 1975

Mr. G. C. Hass
 Division of Vehicle Emissions Control
 Air Resources Board
 9528 Telstar Avenue
 El Monte, Calif. 91713

Dear Mr. Hass:

We respectfully request that you review the attached data and if satisfactory issue exemption status for the Western Controls Transistor Ignition Model 1058 and Filkotronic Model FI-150.

Enclosed is baseline test data and devise test data. All measurements per SAE J973A. High voltage measurements were made per SAE AIR 84A as specified in SAE J973A paragraph 6.1.

Materials for evaluation are OEM replacement parts specified below.

Chrysler Corp:	Ballast Resistor	2775590
	coil	2495531
Delco Remy:	Ballast Resistor	1957154
	coil	1115238
Ford Motor Co:	Ballast Resistor	COLF 12250-A
	coil	BGA 12029-B

Additional data is supplied to verify engine timing to be within specification for all engine distributors including foreign makes.

No data from road tests involving late model vehicles was recorded as Western Controls Model 1058 Transistor Ignition system spark energy levels equaled or exceeded all OEM standard ignition energy levels under road conditions--no misfires were encountered.

Western Controls system Model 1058 incorporates a ballast resistor shunt of 10 ohm to make up for transistor voltage drop. This is wired directly across the existing ballast resistor.

Sincerely,

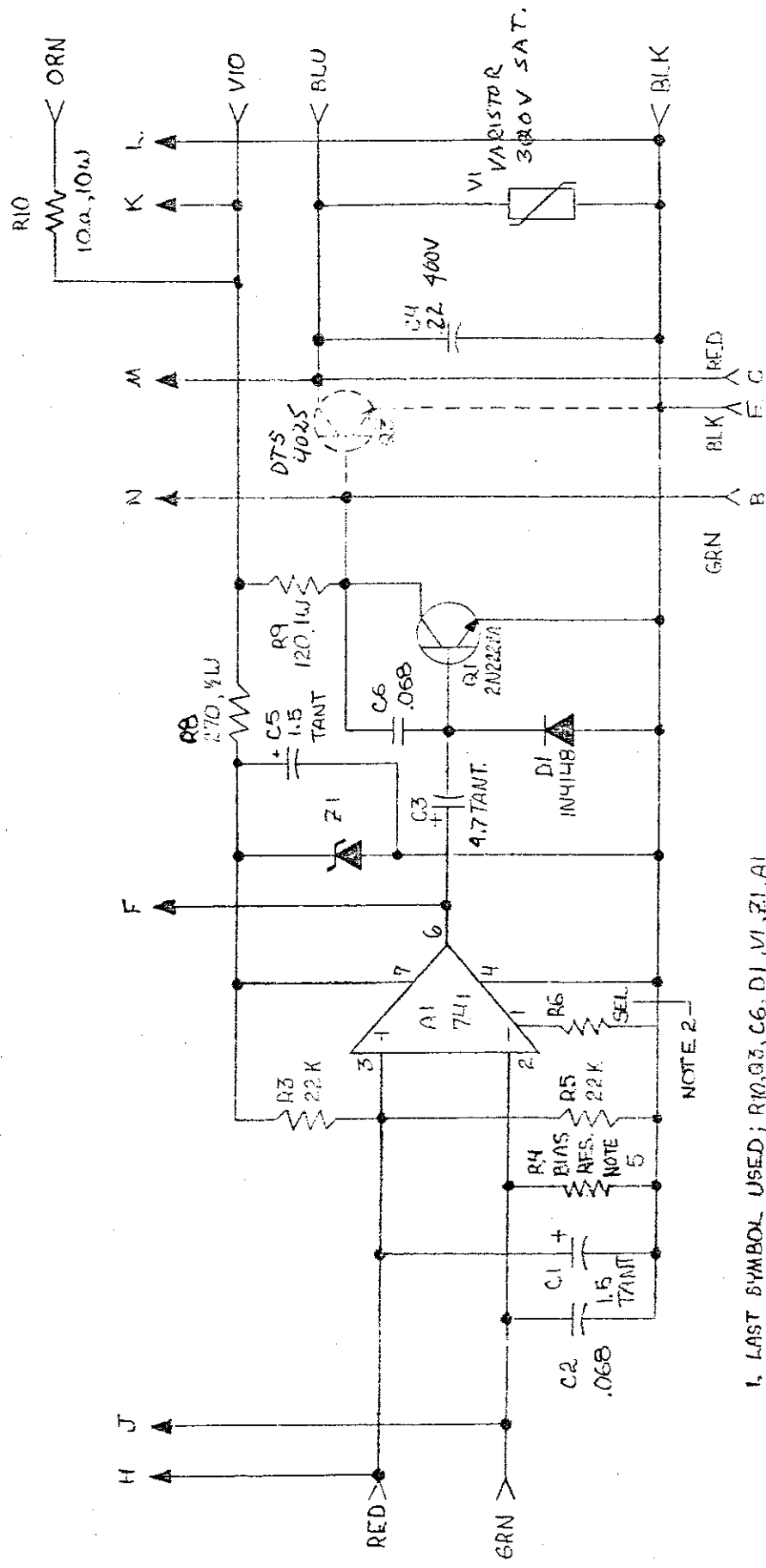
Charles L. Shano
 Charles L. Shano

CLS/tm

encl:

WESTERN CONTROLS, INC. 805 WEST MADISON, PHOENIX, ARIZONA 85007 (602) 258-2821

REV 9-2775
REV 12-9-75



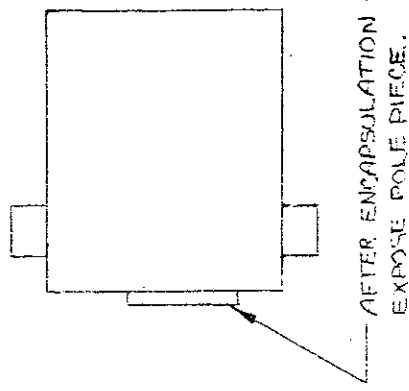
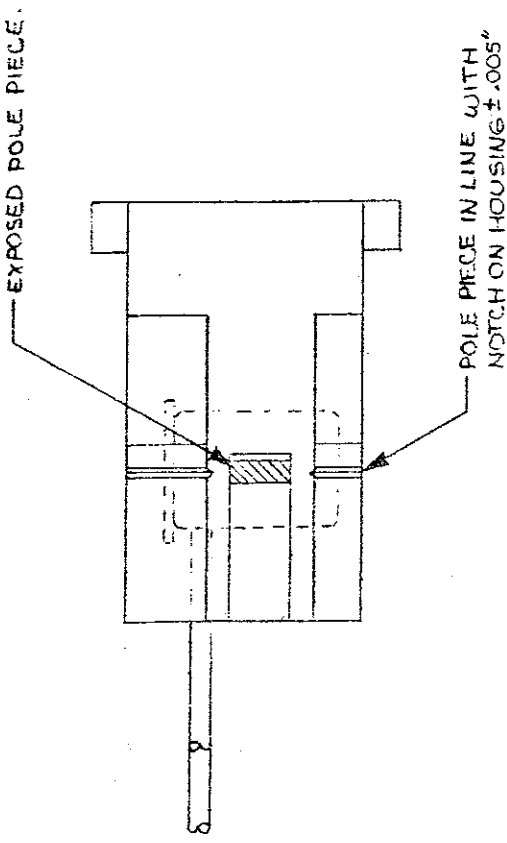
1. LAST SYMBOL USED; R10, Q3, C6, D1, V1, Z1, A1
2. MATCHED WITH IC AS PER TA 141 130.
3. ALL RESISTORS ARE 1/2W, 5% UNLESS OTHERWISE SPECIFIED.
4. ALL CAPACITOR VALUES ARE IN MICROFARADS.
5. MATCHED WITH IC.
6. SYMBOLS NOT USED Q2, R1, R2, R7

NOTE 2-

Western Controls, Inc.

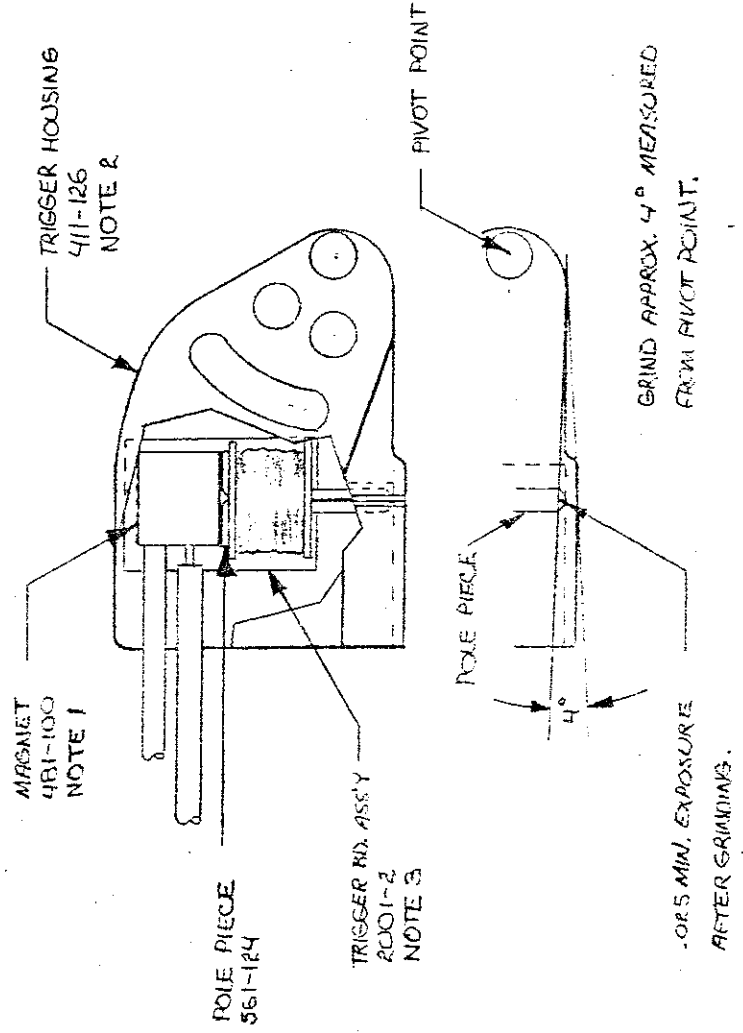
PHOENIX, ARIZONA

SCALE	TOLERANCE: .xx = UNLESS OTHERWISE SPECIFIED	FINISH: —
INITIALS	DATE	This drawing contains designs and other information which are the Property of Western Controls Inc. This drawing may not in whole or in part be duplicated or disclosed or exhibited or used for manufacture of the part without prior written permission of Western Controls, Inc.
DWN	11/27/75	
CHMD		
APPVD		
USED ON	1008	NEXT ASSEMBLY 1008-2
DWG TITLE	SCHEMATIC	
DWG NO	1008-1	



NOTES:

1. POSITION MAGNET TO POLE PIECE ON TRIGGER BD. FLAT SURFACE TOWARD POLE PIECE.
2. FILL TRIGGER HOUSING 1/2 FULL WITH THERMOSET DC 568 MIX 2% HYPOALK COLOR DISPERSION.
3. INSERT PD. ASSY INTO HOUSING, POLE PIECE SHOULD BE IN LINE WITH NOTCH ON HOUSING.
4. ADD DC 568 TO FILL HOUSING, CURF. AT 250°F FOR 3 HRS.
5. TRIGGER POLARITY: RED POS REL. TO FRN. WITH FERROUS METAL PROBE MOVED AWAY FROM POLE TIP (INCREASING AIR GAP).



Western Controls, Inc.

PHOENIX, ARIZONA

SCALE	TOLERANCE: .XX = UNLESS OTHERWISE SPECIFIED	FINISH:	
INITIALS	DATE	This drawing contains designs and other information which are the Property of Western Controls Inc. This drawing may not, in whole or in part, be duplicated or disclosed or used for manufacture of the part without prior written permission of Western Controls Inc.	
DWN	10-23-77	USED ON	2001
CHKD	7-9-77	NEXT ASSEMBLY	NONE
APVD	12-9-74	DWG NO	2001-3
DWG TITLE		TRIGGER FINAL ASSEMBLY	

INSTALLATION INSTRUCTIONS

1. Mount the trigger unit in the distributor using the instructions and material in the adapter kit and hardware bag.
2. Mount the Transistor Electronic Switch Unit in a cool location away from the exhaust manifold. Be certain the harness will reach the distributor and ignition coil connections.

Mount the unit with 3 #12 sheet metal screws. Use the unit base as a template and punch or drill the screw holes with a 5/32" bit.

3. Disconnect the breakerpoint wire from the - negative terminal "Dist" of the ignition coil. Do not remove the tachometer wire or radio suppression condenser if connected.

Connect the Blue wire from the unit to this terminal. Ford engines, use the #10 nut supplied with the adapter kit. Ignition coils with push-on terminals, use the mating terminal supplied. Securely crimp a mating push-on terminal to the Blue wire after removing the fork terminal.

4. Connect the Black wire to engine electrical ground. Secure under a coil mounting bolt, head bolt or other convenient place in contact with the engine block.

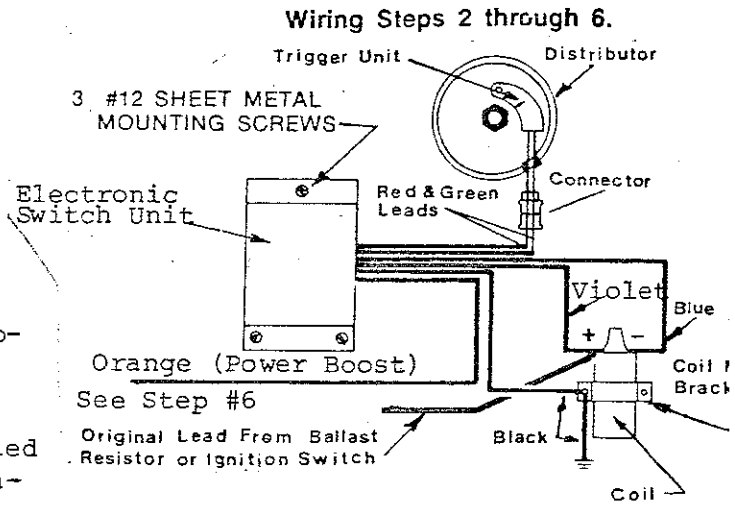
5. Connect the Violet wire to the positive "BAT" terminal of the ignition coil. Use the wire tapper supplied for a convenient, simple connection. See diagram.

6. Connect the Orange (Power Boost) wire to an accessory power connection that is turned on and off with the ignition switch. A convenient connection point can be found at the fuse block, ignition switch side of the ballast resistor or the wire to the anti-dieseling solenoid near the carburetor. Use the remaining wire tapper for this connection.

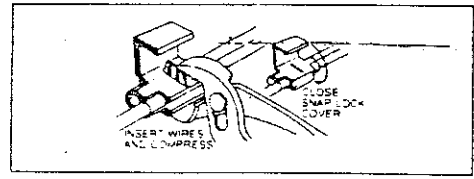
7. Push the red leadwire from the Trigger Unit into the connector half containing the red leadwire from the Amplifier, and the green lead from the Trigger Unit to the connector half containing the green Amplifier lead. Make sure to match red to red and green to green, see illustration.

Now separate the connector halves and firmly push the Trigger leads into the holes until a snap is felt. Then, reconnect the connector halves.

8. Time engine to manufacturer's specifications. Reset sparkplug gap to specifications. Inspect secondary wiring for heat hardening or cracking. Replace if necessary. Dress the Amplifier and Trigger Unit leads for a neat installation.



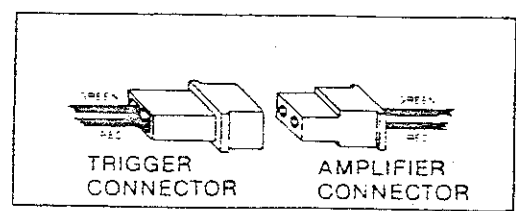
HOW TO INSTALL SELF-STRIPPING ELECTRICAL TAP CONNECTORS



NOTE:

This ignition system will operate with the Orange wire not connected. Its purpose is to increase the available voltage at the sparkplugs providing longer plug life and greater resistance to fouling than other ignition systems of this type. The connection is required on California cars and trucks.

Connector Wiring — Step #7



6 AND 8 CYLINDER CHRYSLER ENGINES

IMPORTANT

THE 383 AND 440 ENGINE DISTRIBUTORS ROTATE IN THE COUNTERCLOCKWISE (CCW) DIRECTION. OTHER ENGINES SUCH AS THE SLANT 6 AND 318 ROTATE IN THE CLOCKWISE (CW) DIRECTION. BE SURE TO DETERMINE THE DISTRIBUTOR SHAFT ROTATION DIRECTION TO CORRECTLY INSTALL THE TRIGGER UNIT.

- () 1. Remove the distributor cap, rotor, condenser and leadwire.
- () 2. Install the adapter plate as shown in figure 1. Use the 8-32 flat head screw provided and tighten securely.

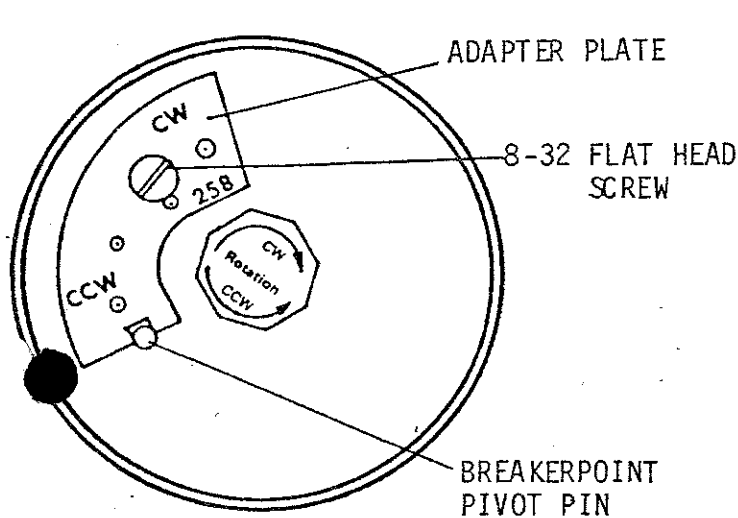


FIGURE 1

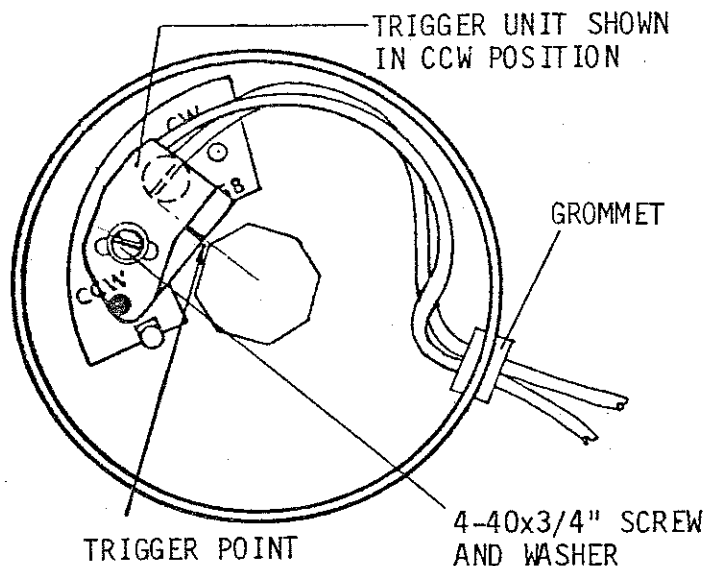


FIGURE 2

- () 3. Install the trigger unit with the 4-40x3/4" screw and compression washer. Do not tighten the screw yet. Be sure the trigger unit is in the correct holes for the rotation direction of the distributor. See figure 2.
- () 4. Crank or rotate the engine so that a peak on the distributor cam is opposite the trigger point.
- () 5. Set the gap between the cam peak and the trigger point to $.010 \pm .004$ inches. Insert a feeler gauge and tighten the screw while pressing against the side of the trigger unit.
- () 6. Insert the rubber grommet into the hole in the distributor wall. Run the trigger wires through the grommet. Drape the wires inside the distributor as shown in the figure.
- () 7. Examine the distributor cap and rotor for cracks and wear. Replace if needed. Install the cap and rotor. Proceed to the main instruction sheet.



April 27, 1976

Mr. K. D. Drachand
Chief Vehicle Compliance
California Air Resources Labr.
9528 Telstar Avenue
El Monte, Calif. 91731

Dear Mr. Drachand:

Thank you for your letter of April 5, 1976. We would like to accept the alternative restrictions you have proposed for breakerless transistor ignition system and omit all Chrysler and all 4 and 6 cylinder General Motors from the exemption list.

Enclosed is a copy of our adapter kit guide showing all vehicles not exempted with asterisk. The asterisk refers to a note #8 on the back page of the guide.

A bold fact type statement on the front cover will call attention to the California requirements.

Please review the marked up application guide to see that it meets your requirements and advise me if any changes are necessary.

Yours Sincerely,

A handwritten signature in cursive script that reads "Charles L. Shano".

Charles L. Shano

CLS/ts

encl:



July 6, 1976

Mr. Mitch Luczynski
California Air Resources Board
9528 Telestar Avenue
El Monte, Calif. 91731

Dear Mr. Luczynski:

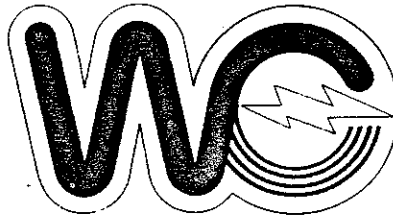
Please note that Western Controls Inc. will completely eliminate all reference to notes 1 through 4 on the application guide. The guide with corrections will be printed and circulated as soon as exemption is obtained.

For your exemption statement please refer to Western Controls application guide No. AG551-303 effective August 1, 1976.

Sincerely,


Charles L. Shano

CSL/ts



WESTERN CONTROLS. inc.

805 WEST MADISON • PHOENIX, ARIZONA 85007
(602) 252-4927

SERIES 3000 ADAPTER KITS

APPLICATION GUIDE FOR ALL BREAKERLESS ELECTRONIC IGNITION SYSTEMS

All trigger units for WESTERN CONTROLS BREAKERLESS IGNITION SYSTEMS can be installed quickly and easily with the Adapter Kits listed in this guide. There is a suitable adapter kit for virtually every domestic and imported engine. The tables list the proper kit to be used with passenger cars, trucks and busses, lift trucks, tractors, farm equipment and industrial engines.

All adapter kits are supplied with necessary hardware and detailed installation instructions.

CONTACT FACTORY FOR APPLICATIONS NOT LISTED.

- INDEX: 1 - Passenger Cars & Light Trucks
2 - Trucks & Busses
3 - Lift Trucks
4 - Tractor & Farm Equipment
5 - General Guide for Industrial Engines
6 - Application Guide Notes

CALIFORNIA VEHICLES

Some of the ignition system applications are not exempt from prohibition. For details see note #4 on the back cover of this guide. This prohibition applies to all highway applications of makes and models marked with * asterisk.

AG-551-303

PASSENGER CARS AND LIGHT TRUCKS

YEAR & MAKE	CYL.	MODEL	KIT NO.	YEAR & MAKE	CYL.	MODEL	KIT NO.
A. C.	8	Cobra	3057	HILLMAN	55-69	All others	(Note 1)
ALFA ROMEO	4	1750 Berlina, Spyder Veloce, GTV Dist. No. 0231129034	3085	50-69	4	High Compression	(Note 1)
68-69	4	1750 Berlina, Spyder, Coupe Dist. No. 0231112070	3066	58-69	4	All not listed above	3069
74	4	2000 Berlina, GT & Spyder Veloce Dist. No. 0231129036	3065	All others	(Note 1)	(Note 1)	(Note 1)
All others	(Note 1)	(Note 1)	(Note 1)	HONDA	4	Civic	3067
AMERICAN MOTORS	8	All	3051	73-75	4		
57-74	6	All SEE NOTE #4	3053	HUMBER	4	Super Snipe	3069
63-74	6			63-68	4	Sceptre (Dist. No. 40799A, B: 40942A; 41125A, 51A)	3069
ASTON MARTIN	6	DB6 & Vantage; Volante	3069	63-69	4		3069
66-68	6	DBS	3069	68	4	Hawk	3069
67-74	6			65-68	6	Imperial	3069
All others	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)
AUDI	4	All	3065	JAGUAR	6	MKX Saloon, XKE	3069
65-75	4			63-64	6	All	3069
AUSTIN (AUSTIN-HEALEY)	4 & 6	All not listed above	3069	65-75	6	All	3069
55-62	4 & 6	A 50, 55, 58, 100; Healey 100-M, C, 100 G, 3000	(Note 1)	72-75	V12	All	3069
65	6	Healey 3000 (Dist. No. 40662D)	(Note 1)	All others	(Note 1)	(Note 1)	(Note 1)
67-69	4	Healey Sprite	(Note 1)	INTERNATIONAL HARVESTER			See Truck and Bus Guide
56-74	4 & 6	All not listed above	3069	JEEP			
All others	(Note 1)	(Note 1)	(Note 1)	68-74	V-6	Late model Distributors w/o adjustment window	3053
BMW	4 & 6	All using Bosch Pts. (1-237-013-044, 057, 062) and similar (1 piece pt. set)	3065	66-74	6	All except V-6 SEE NOTE #4	3053
65-75	4 & 6			66-74	8	All	3051
All others	(Note 1)	(Note 1)	(Note 1)	67-74	4, 6 & 8	All others models	(Note 1)
BUICK		See General Motors		LINCOLN		See Ford Motor Co.	
CADILLAC		See General Motors		LOTUS	4	ELAN + 2, 5, 45, 130S, Sprint	3069
CAPRI		See Ford Motor Co.		LUV		See General Motors	
CHECKER	8	All	3051	MERCEDES-BENZ	4	220 Using Bosch Pts. (1-237-013-059, 061, 062, 082)	3066
57-74	6	All SEE NOTE #4	3053	68-72	6	280 SE (Using Bosch Pts. above)	3066
63-74	6			70-72	6	280 SL/8 (Using Bosch Pts. above)	3066
CHEVROLET		See General Motors		64-74	6	All others	3066
CHRYSLER CORP.	6 & 8	All	3058	MERCURY		See Ford Motor Co.	
62-72	6 & 8	All SEE NOTE #4	3058	M. G.	4	Midget; Magnette; MGA 1500, 1600	3069
72-75	6 & 8	With Elec. Ign.	3067	56-59	4	All	3069
71-75	4	Colt	3067	80-75	4 & 5		
71-72	4	Crickit	3069	MORGAN	4	All	3069
CORVETTE		See General Motors		59-67	4	Plus Four	3069
COURIER		See Ford Motor Co.		58	4		
DATSUN	4	410, 411	3067	MORRIS	4	All	3069
66-67	4	All w/single pt. set	3067	59-71	4	Oxford, Cowley, Minor	3069
67-75	6	240Z, 260Z, w/Manual Trans.	3067 (Note 1)	56-58	4		
71-74	4 & 6	w/o Elec. Ign. (6 cyl. only - Note 5)	(Note 1)	MUSTANG		See Ford Motor Co.	
All others	6	With Elec. Ign.	(Note 5 & 6)	NASH	4	Metropolitan	3069
75	6			55-64	4		
DODGE		See Chrysler Corp.		NSU	4	All	3065
FIAT	All except Dual Point	(Note 1 & 2)	(Note 1 & 2)	67-72	4		
FORD (ENGLISH)	4	Anglia, Cortina (Dist. No. C8AH)	3056	All others	(Note 1)	(Note 1)	(Note 1)
66-67	4	Cortina (Lucas Dist.)	3069	OLDSMOBILE		See General Motors	
67-71	4	(Ford Dist.)	3056	PORSCHE	6	911	3066
65-71	4	All not listed Above	3069	67	6	911	3066
60-62	4	Anglia, Classic, Capri, Corsair, Cortina, Prefect	3069	68-71	6	911S	3066
63-64	4	" " " " " Corsair	3069	67-69	6	911T	3065
All others	(Note 1)	(Note 1)	(Note 1)	68-70	6	911T	3065
FORD (GERMAN)	4	Taurus	3065	68-72	4	912	3066
67-68	4			70-71	4	914/4	3065
All others	(Note 1)	(Note 1)	(Note 1)	70-72	4	914 (w/411E engine) Dist. 0-231-174-001 0-231-174-002	3065
FORD MOTOR CO.	8	All except Dual Point	3056 (Note 1)	73-75	4	914	3065
57-74	8	All Dual Point	3057 (Note 1)	72-74	6	911 Series	3066
57-74	6	All except V-6	3057	RILEY	4	All except 57-58 2.5 & 59-60 2.6	3069
75	4, 6 & 8	All w/Elec. Ign.	4053 (Note 1 & 2)	56-70	4	(Note 1)	(Note 1)
73-74 (72-74 Calif.)	4	Courier	3067	ROVER	4 & 6	All	3069
75	4	Courier (with Dual Point)	(Note 1)	64-74	4	Landrover	3069
Capri, Mustang II, Pinto	V-6	All	3065 (Note 1)	56-63	4	80	3069
73-74	4	2000 cc	3065	59-63	4	2000	3069
71-74	4	1800 cc, 2300cc	3056	63	4		
71-74	4 & V-6	w/o Elec. Ign.	(see proper '74 model)	All others	(Note 1)	(Note 1)	(Note 1)
GENERAL MOTORS CORP.	8	All	3051	SAAB	4	95V4, 96V4	3065
57-74	6	All except V-6 SEE NOTE #4	3053	66-70	4	99E, EA, EMS	3065
63-74	V-6	All (without window in dist. cap)	3053	68-72	4	Sonnet	3065
68-74	4	Except LUV & Opel SEE NOTE #4	3052	All others	(Note 1 & 2)	(Note 1 & 2)	(Note 1 & 2)
63-74	4	Opel	3065	SINGER	4	All except early '68 Gazelle	3069
66-75	4	LUV (Type 1 & 2)	3067	59-70	4		
72-76	4	LUV (Type 3)	(Note 1)	All others	(Note 1)	(Note 1)	(Note 1)
73-75	4			SUBARU	4	1000, 1100, 1300 S	3067
				69-74	4		

PASSENGER CARS AND LIGHT TRUCKS

YEAR & MAKE	CYL.	MODEL	KIT NO.	YEAR & MAKE	CYL.	MODEL	KIT NO.
SUNBEAM				VAUXHALL			
56 - 70	4	All except 56 - 58 Saloon	3069	57 - 58	4	Wyvern	3069
66 - 67	8	Tiger (Ford V-8)	3056	57 - 66	4	Enroy, Victor, Super, Estate Wagon	3050
				63 - 68	4	Vira	3050
				58 - 66	6	Velox, Cresta	3050
THUNDERBIRD		See Ford Motor Co.		VOLKSWAGON			
				68 - 75	4	All except 1970 & 71 411E & EL	3065
TOYOTA				VOLVO			
66 - 75	4 & 6	All w/o Elec. Ign.	3068	62 - 68	4	All	3066
75	4 & 6	With Elec. Ign.	NOTE 2	68 - 69	4	142S, 144S, 145S, 1800S	3066
				68 - 74	6	164	3066
TRIUMPH				69 - 74	4	All not listed above	3065
65 - 70	4	Spitfire (Delco Ignition)	3050				
63 - 70	6	Vitesse w/Delco Ignition	3050				
		w/Lucas Ignition	3069				
56 - 75	4 & 6	All not listed above	3069				

TRUCKS AND BUSESSES

MAKE & YEAR	CYLINDERS	MODEL	W-C KIT No.	MAKE & YEAR	CYLINDERS	MODEL	W-C KIT No.
AMERICAN LAFRANCE				FLEXIBLE			
59 - 64	6	All	3055 (Note 3)	58 - 66	6	All	3055 (Note 7) 3
60 - 64	8	All	3050				
48 - 64	12	All 12 volt	3050	FORD			
AUTO CAR				58 - 74	8	All	3056
54 - 60	6	All 12 volt	3055 (Note 3)	56 - 74	6	All	3057
53 - 57	6	All 12 volt	3050	75	6 & 8	All w/Elect. Ign.	NOTE 2
BROCKWAY				GMC COACH AND TRUCK			
49 - 67	6	All 12 volt	3061 (Note 3)	65 - 72	6	All	3053
				55 - 64	6	All	3055 (Note 7) 3
CHEVROLET				55 - 64	4	On Refrigeration Engine	3054 (Note 7) 3
56 - 74	8	All except with Delco D-103 pts	3051	57 - 74	8	All	3051
63 - 74	6	All SEE NOTE #4	3053	63 - 74	6	All Except V-6 SEE NOTE #8	3053
63 - 74	4	All except LUV	3052	65 - 74	V-6	All Except Dist. 1110 277	3053
LUV		See "Passenger Cars and Light Trucks Guide"		60 - 66	12	All	3072
DIAMOND T (REO)				INTERNATIONAL HARVESTER			
72	8	230 LPG, OV-250	3057	With Delco Distributor			
72	6	6-200	3057	61 - 64	4	Scout 152	3051
72	6	6-130, 145, 162, 169, 190	3062	67 - 74	6	All except w/pt. sets D-100, 111, 105, 105P	3053
67 - 71	6	6-142, 162, 170, 186, 190, 200 (w/1510 Dist.)	3062	57 - 74	6	w/pt. D-100, 111, 105, 105P	3055 (Note 7) 3
67 - 71	8	1308, 1456, 235		58 - 74	8	All	3051
		with D-4141 A, D-4292 AAS Dist.	3062	With I.H.C. - Holley Dist.			
		with D-2475-1A Dist.	3057	56 - 74	4 & 8	w/Ford Pt. Sets 7RA-12171; C9AZ, FAB-12171B; C3AZ, C3DZ, C8AZ, FAA, FAB, FDS-12171 A	3057
57 - 71	8	OV-195, 207, 235	3050	64 - 74	4 & 8	w/I.H.C. Pt. Set 361-764-C1	3062
		with 1110620, 21, 23, 31, 32, 33 Dist.	3051	MACK			
		with 1111660, 61 Dist.		49 - 71	6	All 12 volt	3055 (Note 7) 3
DIVCO				OSHKOSH			
55 - 65	4	All	3054 (Note 3)	48 - 64	6	All Delco Distributors 12 volt	3055 (Note 7) 3
60 - 65	6	Continental Engines	3050	48 - 57	6	IAD Dist	3061 (Note 7) 3
55 - 60	6	Nash Engines	3050	WHITE			
62 - 65	6	All others	3055 (Note 3)	68 - 72	6	w/Holley Dist.	3062
DODGE TRUCK				67 - 72	8	w/Holley 1510 Dist.	3062
62 - 73	6 & 8	with Chrys. Dist. w/o Elec. Ign.	3058	67 - 72	8	w/Delco Dist.	3051
69 - 73	8	with 361-764-C1, 2932887, 3620771, 76D-711A Point sets	3062	66 - 69	8	w/Holley D4108A Dist.	3062
		with Autolite Dist.		49 - 65	6	w/Delco Dist	3055 (Note 7) 3
62 - 67	6	with Autolite Dist.		60 - 65	8	Lansing Engine 8-235A	3051
63 - 67	8	with Autolite Dist.				w/Dist. No. 1111660	3050
70	8	with Chrys. Dist. 287576, 77	3058			w/Dist. No. 1110632	3057
61	8	with Chrys. Dist. 2095270, 1889750	3058	48 - 62	6	with Holley Distributor	
72 - 75	6 & 8	All w/Elect. Ign.	NOTE 2	REO		See Diamond T	

LIFT TRUCKS

MAKE & MODEL	CYL.	ENGINE/DIST.	KIT NO.	MAKE & MODEL	CYL.	ENGINE/DIST.	KIT NO.
ALLIS - CHALMERS				CLARK			
(FP30 & FT-FTL-FTB-FTBL 20-25-30)	4	With FC 133 Wackesha	3	"C" Series	4	All w/D 155G Waukesha, F-163, Y112 Continental (Except C, CY, CFY-20)	3052
		Before s/n 194791 (Pts. No. 4042731-2)	3054 (Note 7) 3	C, CY, CFY-20	4	With Y112 Continental	
		After s/n 194791 (Pts. No. 4056705-9)	3052			w/Screw-on Dist. Cap (Pts. No. 896952)	3052
FT-FTL-FP-FPL 30-40-50	4	With 3/4 B153 - After 5/8 368558	3054 (Note 7) 3			w/Clip-on Dist. Cap (Pts. No. 853628)	3054 (Note 7) 3
F-FL-FP-FPL 30 to 55	4	With 3/4 G153		C, CF, CY, CFY-30, 40, 50	4	With F162 Continental	
		Before 5/8 G56196 (Pts. No. 4042731-2)	3054 (Note 7) 3			w/Screw-on Dist. Cap (Pts. No. 896952)	3052
		After 5/8 G56196 (Pts. No. 4056705-9)	3052	"C" Series	6	All w/F227, 245 Continental and JXLD Hercules (Pts. No. 896952)	3053
AT-ATL 30-40-50	4	With 3/4 B153				With F6209, F209 Continental	
		Before 5/8 G56196 (Pts. No. 4042731-2)	3054 (Note 7) 3			w/Screw-on Dist. Cap (Pts. No. 896952)	3053
		After 5/8 G56196 (Pts. No. 4056705-9)	3052			w/Clip on Dist. Cap (Pts. No. 853528)	3055 (Note 7) 3
(ACC-ACL-ACP-ACPL 20 to 55)	4	All (Pts. No. 4056705-9)	3052	"C" Series	8	With 477 V-8 Ford	3056
(FT-FTL-FTP-FTPL 60 to 100)	6	After 5/8 393705 (Pts. No. 4042731-2)	3055 (Note 7) 3	Clarktor	6	Models 20, 30, 40, 50	3053
FR 150 to 250	6	With 3/4 G2800 (Pts. No. 4056705-9)	3053	IT50, 60N, 60W, 70N, 70W	6	w/Chrysler Industrial 6	3061 (Note 7) 3
						w/Chrysler Slant 6	3058
(F-FL-FPL-FC-FLC-60 to 120 AT-ATL-ATM-ATML-AY 60 to 120)	6	Before 5/8 G56088 (Pts. No. 4042731-2)	3055 (Note 7) 3	DATSUN			
		After 5/8 G56088 (Pts. No. 4056705-9)	3053	All	4 & 6	With Single Point Set	3067
ACC-ACP-60 to 120	6	All (Pts. No. 4056705-9)	3053				

TRACTOR & FARM EQUIPMENT

Exhibit II

MAKE & MODEL	CYL.	ENGINE/DIST.	KIT NO.	MAKE & MODEL	CYL.	ENGINE/DIST.	KIT NO.
RORDSON				MINNEAPOLIS - MOLINE			
J.A. FREEMAN				(LUBE, UBN, UTC, UTI, UTIL, UTS, UTU, GB, GSD, GTB, GTC, ZAS, ZBE, ZBN, ZBU; Uni-Tractor; Harvester G-4; B-4; 445, 550; 4 Star; 4 Star Super; 5 Star; Jet Star; M5; M602 Trac.)	4	All	3054 (Note 7) 3
FRIEND				Jet Star 3; U-302 Tractor	4	Delco Dist. W/Clip-on Cap Delco Dist. W/Screw-on Cap	3054 (Note 7) 3 3052
GRAVELEY TRACTORS				(M670 Tractor; 11-302; Eng. 336-4A, HD-220-4A)	4	All	3052 3
HAGHE				G-704, 5, 6, 7, 8, 900	6	All	3055 (Note 7) 3
HAMN				(G 900, 1000 Tractor; Eng. HD-425A-6A, HD-504A-6A, HD-605B-6A, HD-800-6A)	6	All	3053
HARDIE				(2890; 3490, 96; 4290, 92, 96 Combine)	6	All	3061 (Note 7) 3 (Note 7) 3
HARRINGTON				All Others			
HARVESTER IMPLEMENT <i>ok</i>	6	GO-339A Eng.	3055 (Note 3)	MYERS			
98 Harvester				Chry. Ind. 30	6	Prestolite IAD Dist.	3061 (Note 7) 3 (Note 7) 3
HESSTON				All Others			
INTERNATIONAL HARVESTER				NEW HOLLAND			
(C-175, C-200 Tractor; C-157 World Engine)	4	Prestolite IBT Dist.	3059 (Note 3)	800, 810 Forage Harvester	6	Prestolite IAD Dist.	3061 (Note 7) 3 (Note 7) 3
(TD-6, 9; HA Payloader; HAH-F Payloader)	4	Delco Dist.	3054 (Note 3)	All Others			
C-263, 301	6	Prestolite IBT Dist.	3050 (Note 3)	OLIVER			
TD-18A, 24	6	Delco Dist.	3055 (Note 3)	Tractors			
All Others				248, 283, 310 Eng.	6	Holley Dist.	3057
KAISER				OV-235	8	Holley Dist.	3057
FJ, F4-134, L4-134	4	IAT Dist. only	3059 (Note 3)	1600	6	Oliver Dist.	3053
6-230, L6-226	6	All	3060 (Note 3)	1800	6	W/Screw-on Dist. Cap W/Clip-on Dist. Cap	3053 3055 (Note 7) 3
All Others				(77, 88, 770, 880; Super 950; HC, DG)	6	W/Clip-on Dist. Cap	3055 (Note 7) 3
KROMER				55, 56, 550	4	W/Clip-on Dist. Cap	3054 (Note 7) 3
LUNDELL				(430, 431 Rice Comb.; 525, 535, 542, 545)	6	Prestolite IAD Dist.	3061 (Note 7) 3 (Note 7) 3
MASSEY - FERGUSON				All Others			
(TD-20, 30, 35; TO-35; MF-85, 90; MH-50; AHO Power Unit; 35S.P. Combine; 44 Windrower; 34 Swather)	4	All	3054 (Note 3)	OWATONNA			(Note 7) 3
(MF 50, 65, 202, 204, 358 Industrial Tractor; 35)	4	Delco Dist W/Clip-on Cap Delco Dist W/Screw-on Cap	3054 (Note 3) 3052	POLAND			(Note 7) 3
(35 Spec.; MF-135, 150, 165, 175, 180, 285, 2135, 2200, 2250, 3165; MF36 Swather)	4	All	3052	UNIVERSAL			(Note 7) 3
MF-410, 1100	6	All	3053	WILLYS			
92 S.P. Combine	6	All	3055 (Note 3)	L6-226 Engine	6	IAT 4404A Dist. IAT-4206B Dist.	3060 (Note 7) 3 3061 (Note 7) 3
(60, 70, 72, 80, 82, 90, 92, S.P. Combine; MF-300 S.P. Combine; MF-205 Combine; Corn Picker, Forager S.P.)	6	All	3061 (Note 3)	6-230 Engine	6	IAT-4416 Dist.	3060 (Note 7) 3
48 Haypacker	6	All	3060 (Note 3)	6-232 Engine	6	All	3053
MF-570 S. P. Combine	8	All	3050	V-8-327 Engine	8	All	3051
All Others				WISCONSIN			
McCORMICK - DEERING				4 cyl. Delco Remy	4	W/Clip-on Dist. Cap	3054 (Note 7) 3 (Note 7) 3
MERCURY MFG.				All Others			
A 460 (FC 278 Eng.)	4	825-5 Dist.	3054 (Note 7) 3				

GENERAL GUIDE FOR AMERICAN BUILT ENGINES USED IN LIFT TRUCKS, FARM EQUIPMENT, AND INDUSTRIAL APPLICATIONS

DISTRIBUTOR MODEL	CYL.	O.E.M. POINT SET NOS.	KIT NO.	DISTRIBUTOR MODEL	CYL.	O.E.M. POINT SET NOS.	KIT NO.
AUTO-LITE (PRESTOLITE)				FOMOCO			
IBT	4	1-33, 1-47	3059 (Note 7) 3	172 Indus. Eng. Dist.	4	C9AZ-12171-B	3073
IBT	6	" "	3060 (Note 7) 3	All	6	" "	3057
IAD, IAY	6	1-15, -20, -22, -45, -48	3061 (Note 7) 3	All single point set	8	C5AZ-12171-A	3058
Chrysler	Slant 6 & V-8	Chrys. No. 2098244, 2299322, 2421173	3058	HOLLEY			
DELCO - REMY				4, 6 & 8		76D-711A (I.H.C. No. 361-764-C1) only	3062
Clip-on Dist. Cap	4	D-105, -105P, -100, -111	3054 (Note 7) 3	All other	4, 6 & 8		(Note 7) 3
	6	" " " "	3055 (Note 7) 3				
Screw-on Dist. Cap	4	D-108P	3052				
	6		3053				
w/o Adjust. Window	8	D-103, -103P, -104, -104P	3050				
w/Adjust. Window	8	D-106P, -106PS, -112P, -1007	3051				
12 cylinder dist.	12	Dist No. 1111663-76-88	3072				

* This is a general guide to engine distributors of American manufacture. The adapter kits will "in most cases" fit the distributors. In some cases a slight modification of the adapter plate or relocation of the trigger mounting holes will be required. Refer to instruction sheet included with system for positioning of trigger unit.

APPLICATION GUIDE NOTES

Notes 1 through 4 will be eliminated per your request.

~~NOTE 1 - There is no adapter kit available at this time, however the unit may be installed in the distributor by drilling two holes in the distributor advance plate. All basic hardware and instructions necessary to do this are included with the basic ignition system kit.~~

7-1-76

~~NOTE 2 - On some 4 cylinder cars, it may be necessary to grind the distributor cam lobes slightly to allow the trigger to properly sense the lobe. This is covered in the basic ignition system instructions included with the basic ignition system kit.~~

~~NOTE 3 - On vehicles with breakertype CD ignition, it will be necessary to remove the complete old system, and replace with WC.~~

~~NOTE 4 - This kit permits operating the Western Controls CD Converter unit with the original equipment breakerless distributor. Refer to Western Controls Ignition System brochure DS-551-300 for details.~~

NOTE 1 - If vehicle has an original equipment series tachometer, a 1052 (High Performance) or 1054 (High Performance with limiter) system is recommended to prevent limiting at lower than desired engine RPM.

NOTE 2 - Contact your dealer for availability.

NOTE 3 - Adapter kit is only for distributors having no vacuum advance.

NOTE 4 - Makes and models of vehicles marked with *asterisk are not exempt from prohibition in the state of California when the vehicle is used on the highway. This prohibition applies to all Chrysler Engines, General Motors (Delco) 4 cylinder and 6 cylinder engines.