

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-58-1  
Relating to Exemptions under Section 27156  
of the Vehicle Code

GULF AND WESTERN  
GENERAL AUTOMOTIVE PRODUCTS GROUP  
BREAKERLESS ELECTRONIC IGNITION SYSTEMS

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 the Gulf and Western Breakerless Electronic Ignition Systems, manufactured by the General Automotive Products Division, 17500 Northland Park Court, Southfield, Michigan 48075, and marketed under the following trade names by the listed companies 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 certain 1974 and older model-year vehicles equipped with 12 volt battery, standard ignition coil and negative ground:

"Grand Prix II" - Guaranteed Parts Inc.,  
Seneca Falls, New York 13148

"Poweready" - American Parts  
3000 Pawnee Street  
Houston, Texas 77054

"Magnition" - Sorensen Manufacturing Co., Inc.,  
Glasgow, Kentucky 42141

"Zenith Electronic Ignition" - Zenith Ignition  
Seneca Falls, New York 13148

This exemption is applicable to the following vehicles and covers the breakerless electronic ignition system kits specified:

<u>Engine</u>	<u>Kit Numbers (California)</u>			
	<u>Grand Prix II</u>	<u>Poweready</u>	<u>Magnition</u>	<u>Zenith Electronic</u>
<u>GM-6 cyl.</u> (Includes AMC, Studebaker Checker Motors, Int. Harvester)	ECK-112	30-1012	8912K	130-12
<u>Ford-6 cyl. (Pre '72)</u> <u>( '74-'72)</u>	ECK-123 ECK-121	30-2023 30-2021	8923K 8921K	140-23 140-21
<u>Ford-8 cyl. (Pre '72)</u> <u>( '74-'72)</u>	ECK-122 ECK-120	30-2022 30-2020	8922K 8920K	140-22 140-20
<u>*GM - 8 cyl. (incl. AMC)</u>	ECK-110	30-1010	8910K	130-10

\*Exempted by E.O. D-58 - 8/12/75

This device is not for use on vehicles originally equipped with breakerless, C-D, electronic ignition systems or leading ignition systems for rotary engines or dual point distributors where one of the points are used for emission control and 1966-1970 vehicles with NOx devices and 4° retard (i.e., Carter-CEF, Echlin, STP - Air Computer and AQP - Electro-NOx and Kar Kit).

The devices named in this Executive Order are identical in all respects except their tradenames. The device consists of an amplifier, magnetic sensor, interrupter wheel and wiring harness.

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 exempted by the Air Resources Board, that adversely affect the performance of the 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 "GULF AND WESTERN BREAKERLESS IGNITION SYSTEMS".

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 28<sup>th</sup> day of October, 1975.

WILLIAM H. LEWIS, JR.  
Executive Officer

State of California

AIR RESOURCES BOARD

Staff Report

October 6, 1975

(Addendum to Staff Report Dated July 30, 1975)  
Evaluation of Gulf and Western, General Automotive Products Group's  
Breakerless Electronic Ignition kits for Compliance  
with the Requirements of Section 27156 of the  
California Motor Vehicle Code

I. Introduction

Gulf and Western, General Automotive Products Group, 17500 Northland Park Court, Southfield, Michigan 48075 has submitted an application requesting an exemption from Section 27156 of the California Vehicle Code for its breakerless electronic ignition kits sold under the following trade names: "Grand Prix II", "Magnition", "Zenith" and "Poweready". These electronic ignition systems are identical in all respects and are marketed as follows:

"Grand Prix II" - Guaranteed Parts Inc.  
Seneca Falls, New York 13148

"Poweready" - American Parts  
3000 Pawnee Street  
Houston, Texas 77054

"Magnition" - Sorensen Manufacturing Co. Inc.  
Glasgow, Kentucky 42141

"Zenith Electronic Ignition" - Zenith Ignition  
Seneca Falls, New York 13148

October 6, 1975

A request for granting the exemption on 1974 and older model vehicles equipped with 8 cylinder Delco distributors was granted by Executive Order D-58 dated August 12, 1975. The applicant has made an additional request for exemption for the 6 cylinder Delco distributor and both the 8 and 6 cylinder Ford applications (Reference Exhibit A).

Section 27156 of the Vehicle Code prohibits the installation, sale or advertisement of any device or mechanisms which alters the performance or design of the vehicle's emission control systems. The Air Resources Board is empowered to exempt any devices from this prohibition if a finding shows the device will not reduce the effectiveness of the emission control system.

## II. System Description and Function

The Gulf and Western electronic ignition system is designed to replace the breakerpoints with an electronic switching system. This device consists of an amplifier, magnetic sensor, sensor mounting bracket, interrupter wheel, wiring harness and spacer gauge. The interrupter wheel consists of a metal skirt with six or eight slits depending on the number of cylinders. A more detailed description is provided in the Staff Report dated July 30, 1975 and installation instructions are contained in Exhibit B.

October 6, 1975

This unit is electrically identical to the previously exempted unit. The difference is in the newly designed vacuum advance breaker plate. An additional arm is attached between the breaker plate and the vacuum advance diaphragm arm and gives increased angular motion to the breaker plate which corrects for the spark retard caused by the eccentric pivoted plate. A modified breaker plate is included with each kit. The part numbers are as follows:

<u>Distributor</u>	<u>Breaker Plate No.</u>	<u>Arm #</u>
GM - 6 cyl.	MB 2179	MB 2182
Ford - 6 cyl.	MB 2185	MB 2184
Ford - 8 cyl.	MB 2192	MB 2192

Exhibit C shows these extension arms.

### III. System Evaluation

The applicant submitted test data in its previous request for exemption which showed good correlation with OEM centrifugal advance data but showed excessive spark retard during vacuum advance for the Ford and Chrysler distributors. The Air Resources Board Laboratory also measured the electrical parameters of this system versus the original OEM distributors and showed no significant differences (July 30, 1975 staff report).

October 6, 1975

The subsequent application made by Gulf and Western included curves showing the difference in the vacuum advance between their systems and the original OEM equipment. The differences were within the allowable range of +0° - 4°. (See Exhibit D.)

IV. Conclusion and Recommendation

Based on the applicant's data, the staff believes the installation of this device on 6 cylinder Delco, and 6 and 8 cylinder Ford distributors will not lead to increases in emissions. Therefore, the staff recommends Gulf and Western, General Automotive Products Group be granted an exemption for the "Grand Prix II", "Magnition", "Zenith Electronic Ignition" and "Poweready" systems installed on 1974 and older vehicles equipped with 6 cylinder Delco and 6 and 8 cylinder Ford distributors as follows:

<u>Engine</u>	<u>Kit Numbers (California)</u>			
	<u>Grand Prix II</u>	<u>Poweready</u>	<u>Magnition</u>	<u>Zenith Electronic</u>
GM-6 cyl. (includes AMC, Studebaker Checker Motors, Int. Harvester)	ECK-112	30-1012	8912K	130-12
Ford-6 cyl. (Pre '72 '74-'72)	ECK-123 ECK-121	30-2023 30-2021	8923K 8921K	140-23 140-21
Ford-8 cyl. (pre '72 '74-'72)	ECK-122 ECK-120	30-2022 30-2020	8922K 8920K	140-22 140-20
*GM - 8 cyl. (incl. AMC)	ECK-110	30-1010	8910K	130-10

\*Exempted by E.O. D-58 - 8/12/75

Evaluation of Gulf and Western, General Automotive  
Products Group's Breakerless Electronic Ignition  
Kits for Compliance with the Requirements of Section  
27156 of the California Motor Vehicle Code

October 6, 1975

This device is not for use on vehicles originally equipped with breakerless, C-D, electronic ignition systems or leading ignition systems for rotary engines or dual point distributors where one of the points are used for emission control and 1966-1970 vehicles with NOx devices and 4° retard (i.e., Carter-CER, Echlin, STP - Air Computer and AQP - Electro-NOx and Kar Kit).





General Automotive Products Group

A GULF + WESTERN MANUFACTURING COMPANY (MICHIGAN)

Detroit Sales and Engineering Office

17500 Northland Park Court  
Southfield, Michigan, 48075  
Telephone: 313-444-5090  
313-352-9345

October 3, 1975

Mr. Ettinger  
State of California Resources Agency  
Air Resources Board Laboratory  
9528 Telstar Avenue  
El Monte, California 91731

Dear Mr. Ettinger:

Per our telephone conversation today, this letter will formalize the points of our discussion.

In my letter of August 11, 1975, to Mr. K.D. Drachand, the kit number ECK-111 is an error wherever it appears in that communication. The correct number is ECK-112. The correct number identifies GM-6 applications in California only. Kit number ECK-111 identifies the same applications for the remaining 49 states. This kit is marketed as follows:

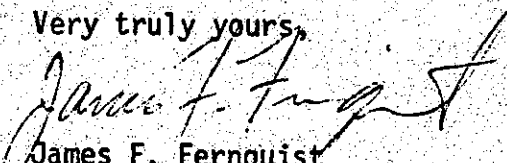
ECK - 112	Guaranteed Parts " Grand Prix II "
30-1012	American Parts System "Poweready"
8912K	Sorensen "Magnition"
130-12	Zenith Electronic Ignition

The second point of our discussion was regarding the 4 cylinder Vega application dated August 20, 1975. You requested completed "Ignition System Test Data sheets and a complete installation procedure. We will prepare this data and forward it to you by October 10, 1975.

The final point of our discussion was regarding the complete installation manuals for the Ford 6 and 8 cylinder and the Gm 6 applications dated August 11, 1975. The complete instruction manuals are attached.

If you have any further questions, please do not hesitate to call me collect. Thank you for your assistance.

Very truly yours,

  
James F. Fernquist  
Senior Engineer  
Electronics & Systems Development

cc: R. Anthony  
R. Bradley  
G. Gilkey  
J. Madeira  
K. Merklen  
D. Talmage



General Automotive Products Group

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Detroit Sales and Engineering Office

17500 Northland Park Court  
Southfield, Michigan, 48075  
Telephone: 313-444-5090  
313-352-9345

August 11, 1975

Mr. K.D. Drachand  
Chief, Vehicle Compliance  
State of California Resources Agency  
Air Resources Board Laboratory  
9528 Telstar Avenue  
El Monte, California 91731

Dear Mr. Drachand:

Please ammend our March 14, 1975 application (with ammendments) for exemption to MV Code Section 27156 to include the following additional applications.

Year	Model or Engine	GP Kit #
<u>American Motors -- 6 Cylinder</u>		
	Ambassador, American, AMX, Classic, Gremlin, Hornet, Javelin, Matador, Rambler, Rebel, Rogue	
74-63	All (w/Delco Distributor)	ECK-111 112
<u>Buick, Apollo, Century, Skylark &amp; Special 6 Cylinder</u>		
74-68	All L-6	ECK-111 112
<u>Checker Motors (Taxi &amp; Car) 6 Cylinder</u>		
74-65	All (DR. Equip.)	ECK-111 112
<u>Chevrolet &amp; Corvette 6 Cylinder</u>		
73-63	All (w/Conventional Ign.)	ECK-111 112
<u>Chevrolet - Camaro, Chevelle, Chevy II (Nova), ElCamino, Monte Carlo 6 Cylinder</u>		
74-63	All (w/Conventional Ign.)	ECK-111 112

K.D. Drachand / ARB.

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Chevrolet - Corvair

6 Cylinder

69-63

All

ECK-111

Ford & Thunderbird

6 Cylinder

71-68

Ford 240 Eng. (w/Conventional Dist.)

ECK-121

8 Cylinder

71-67

All (w/Conventional Dist. &amp; Single Point Sets - Exc. Hi Perf.)

ECK-120

Ford - Fairlane, Falcon & Torino

6 Cylinder

71-68

All (w/Conventional Dist.)

ECK-121

8 Cylinder

71-67

All (w/Conventional Dist. &amp; Single Point Sets - Exc. Hi Perf.)

ECK-120

Ford - Bronco, Maverick, Mustang

6 Cylinder

71-68

All (w/Conventional Dist. - Exc. Mustang II 2800 CC.)

ECK-121

8 Cylinder

71-67

All (w/Conventional Dist. &amp; Single Point Sets)

ECK-120

Jeep Corp. (Includes Kaiser Jeep & Willys)

6 Cylinder

74-72

232, 258 Eng. (DR. Equip)

ECK-111 (2)

Lincoln, Continental, Mark III

8 Cylinder

71-67

All (w/Conventional Dist.)

ECK-120

Mercury

## 8 Cylinder

71-67	All (w/Conventional Dist. & Single Point Sets)	ECK-120
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Mercury - Comet, Cougar, Montego

## 6 Cylinder

71-68	All (w/Conventional Ign. & w/T.E. or Imco)	ECK-121
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## 8 Cylinder

71-67	All (w/Conventional Ign. & Single Point Sets)	ECK-120
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Oldsmobile, Cutlass, F-85, Omega, Toronado

## 6 Cylinder

74-66	All L-6 Eng.	ECK-111
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Pontiac - Firebird, GTO, Lemans, Tempest, Ventura

## 6 Cylinder

74-64	All (w/Conventional Ign.)	ECK-111
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Studebaker & Lark

## 6 Cylinder

66	194, 230 Eng. (DR. Equip.)	ECK-111
65	194, Eng. (Dr. Equip.)	ECK-111

Chevrolet Truck

## 6 Cylinder

74-63	All (w/Conventional Ign.)	ECK-111
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Ford Truck (Including Courier & Econoline)

## 6 Cylinder

71-70	All (Light Duty - w/Conventional Ign.)	ECK-121
69-68	170,300 Eng. (Light Duty)	ECK-121
69-68	240 Engine (w/T.E.) or Imco)	ECK-121

Ford Truck (Cont'd)

69-68 240 Eng. (Dist. C5TF-V, C6TF-AD -  
w/o T.E. or Imco) ECK-121

8 Cylinder

71-67 All (w/Conventional Ign.) ECK-120

GMC Truck

6 Cylinder

74-64 All (L-6 Eng. w/Conventional Ign.) ECK-111

International Truck

6 Cylinder

74-69 232, 258, Eng. (DR. Equip) ECK-111

70 BG-265 Eng. (DR. Equip.) ECK-111

68-67 BG-220, 241, 265 Eng. (DR. Equip) ECK-111

68-67 RD-372, 406, 450 Eng. (DR. Equip. -  
w/Conventional Ign.) ECK-111

68-67 BD-282, 308 Eng. (Dist. 1112692 w/Con-  
ventional Ign.) ECK-111

Enclosed with this submission are the parts, instructions, and drawings pertaining to the modified systems. These parts are hand-made samples, but are functionally identical to production parts. Per your verbal with Roger Anthony on 7/1/75, I understand that this procedure is acceptable.

Gulf + Western will continue to submit amendments for expanded vehicle applications in the future.

Regarding our amendment dated 7/31/75, the Ford 6 Cylinder advance curves were not labeled. Please supercede the graph you received with the enclosed graph, which has been properly labeled.

K.D. Drachand / ARB

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Thank you for your continued assistance on this program. If any additional information is required, please do not hesitate to contact us.

Very truly yours,

*James F. Fernquist*  
James F. Fernquist  
Senior Engineer

Electronics & Systems Development

attachments

cc: R. Anthony  
R. Bradley  
G. Gilkey  
J. Madeira  
K. Merklen  
D. Talmage



**General Automotive Products Group**

A GULF + WESTERN MANUFACTURING COMPANY (MICHIGAN)

Detroit Sales and Engineering Office

17500 Northland Park Court  
Southfield, Michigan, 48075  
Telephone: ~~313-444-5090~~  
313-352-9345

July 31, 1975

Mr. K. D. Drachand  
Chief, Vehicle Compliance  
State of California Resources Agency  
Air Resources Board Laboratory  
9528 Telstar Avenue  
El Monte, California 91731

Dear Mr. Drachand:

Per discussion in your July 3, 1975 meeting with Mr. Roger Anthony, please ammend our request for exemption to MV Code Section 27156 for further applications (as requested on our application dated March 14, 1975 and Mr. Anthony's letter of July 8, 1975).

We now desire exemption for the following applications:

Year	Model or Engine	GP Kit #
<u>Ford Motor Co.</u>		
6 Cylinder		
74-72	All (w/Conventional Ign.--Exc. Mustand II 2800 CC)	ECK-121
8 Cylinder		
74-72	All (w/Single Point Set Conventional Ign.--Exc. High Perf.)	ECK-120
<u>Ford &amp; Thunderbird</u>		
6 Cylinder		
72	Ford 240 Eng. (w/Conventional Dist.)	ECK-121
8 Cylinder		
74-72	All (w/Conventional Dist. & Single Point Sets--Exc. Hi Perf.)	ECK-120

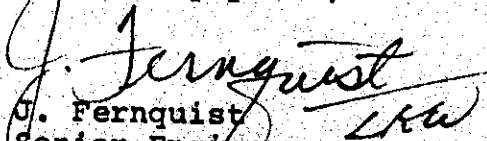
Year	Model or Engine	GP Kit#
<u>Ford - Fairlane, Falcon &amp; Torino</u>		
6 Cylinder		
74-72	All (w/Conventional Dist.)	ECK-121
8 Cylinder		
74-72	All (w/Conventional Dist. & Single Point Sets--Exc. Hi Perf.)	ECK-120
<u>Ford - Bronco, Maverick &amp; Mustang</u>		
6 Cylinder		
74-72	All (w/Conventional Dist.--Exc. Mustang II 2800 CC).	ECK-121
8 Cylinder		
74-72	All (w/Conventional Dist. & Single Point Sets)	ECK-120
<u>Lincoln, Continental, Mark III &amp; IV</u>		
8 Cylinder		
73-72	All (w/Conventional Dist.)	ECK-120
<u>Mercury</u>		
8 Cylinder		
73-72	All (w/Conventional Dist. & Single Point Sets)	ECK-120
<u>Mercury - Comet, Cougar &amp; Montego</u>		
6 Cylinder		
74-72	All (w/Conventional Ign. & w/T.E. or Imco)	ECK-121
8 Cylinder		
74-72	All (w/Conventional Ign. & Single Point Sets)	ECK-120
<u>Ford Truck (Including Courier &amp; Econoline)</u>		
6 Cylinder		
74-72	All (Light Duty-w/Conventional Ign).	ECK-121
8 Cylinder		
74-72	All (w/Conventional Ign.)	ECK-120



Gulf + Western will submit several other amendments for expanded usage of the system on other vehicles at a later date.

Thank you for your continued help on this program. If any additional information is required, please do not hesitate to contact us.

Very truly yours,

  
J. Fernquist  
Senior Engineer  
Product Development

cc: R. Anthony  
R. Bradley  
G. Gilkey  
J. Madeira  
K. Merklen  
D. Talmage

Attachments: Distributor Curves

JF/lkw

# Grand Prix II Electronic Ignition Conversion

Congratulations. You now own the finest electronic ignition conversion system on the market. You will find it easy to install and a pleasure to own. Grand Prix II has been designed for years of trouble-free service, economy and performance.

## PRINCIPLE OF OPERATION

Your new electronic ignition system operates on a new adaptation of a long established principle called the Hall Effect.

The Hall Effect Device is simply an electronic switch, which is actuated by an interrupter called a Signal Chopper. The Hall Device is mounted on the distributor base plate. The Signal Chopper rotates with the distributor shaft to actuate the Hall Device.

The system consists of four parts: (1) The Firing Signal Generator (Hall Device) is a U-shaped solid state device which mounts on the breaker plate where the point set used to go. This device detects the presence or absence of metal, and is used like a solid state point set to break the primary circuit in the control unit. (2) The Signal Chopper rotates between the sides of the Firing Signal Generator. As each opening between the chopper blades passes through the signal generator, a signal is sent to the Control Unit. (3) The Control Unit receives the signal and shuts off the primary current, firing the plugs. (4) The Wire Harness connects the Firing Signal Generator and Control Unit to the coil.

2

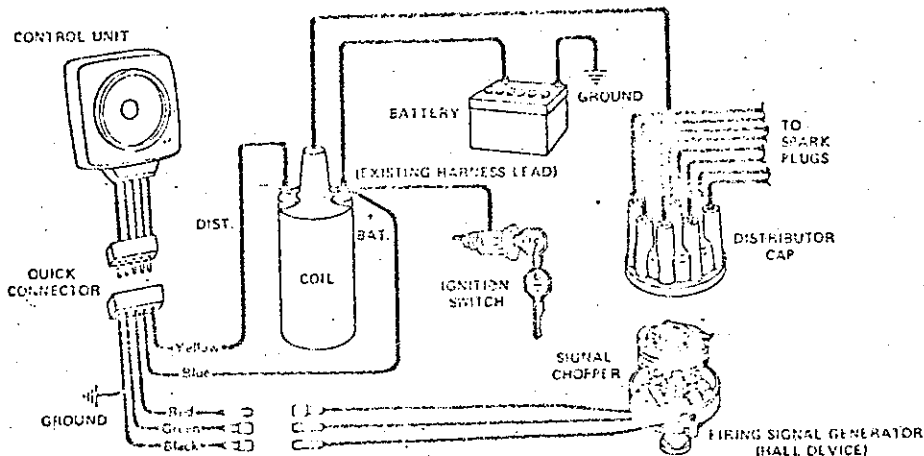
# Grand Prix II Electronic Ignition Conversion

## PART NUMBER ORDERING INFORMATION

All part numbers referred to in this manual are four digit numbers. If you have a need to order any of these parts, please add a prefix code of (EC-). Example: Control Unit 8001

Guaranteed Part No. EC-8001

## WIRE DIAGRAM



## GM 6 CYLINDER INSTALLATION

(Includes 6 Cylinder AMC Products with GM Distributors)

Note: Please read the instructions thoroughly prior to starting the installation of the system.

1. Remove distributor cap. Check for cracks or burnt electrodes. Replace if found defective.
2. Remove rotor and set aside.
3. Remove points and condenser and hold down screw. Set these aside.
4. Remove distributor lead from negative (- or dist.) terminal on the ignition coil. Pull it out of the distributor completely and set it aside.
5. Remove the retaining ring holding the points mounting plate to the distributor. Remove the spring and the plate. Put the spring in a safe place as it will be used later.
6. Remove the two (2) screws holding the vacuum advance chamber to the distributor. These screws will be used again so do not discard them. When removing the screws care must be exercised that no damage occurs to the vacuum chamber. When the screws are removed nothing will be holding the chamber.
7. Line up the hole in the link of the new distributor top plate with the new distributor top plate with the hole in the arm of the vacuum chamber. Start the 4-40 x 1/4" screw tying the two arms together. Be sure the head of the screw is on the bottom. Before tightening the screw be sure the vacuum chamber arm is securely seated between the two tabs of the link. Tighten the screw securely.
8. Carefully locate the hole in the top plate with the post in the distributor. Slide the plate down the post until its nylon feet are resting on the bottom plate. You will now be able to remount the vacuum chamber with the screws removed earlier.
9. Place the spring removed earlier over the post in the distributor. Now carefully press the tinnerman nut over the post until it snaps in place.
10. Place existing distributor wire grommet (rubber insulator) over the signal generator wires. Insert the grommet down into the distributor base plate and seat the grommet into the slot.
11. Position the "signal generator" mounting bracket on the new base plate of the distributor in the similar place previously occupied by the point contact set. Loosely secure bracket to base plate using two #8/32 x 1/4" brass screws in place of the original screws.
12. Place the provided "signal generator" locator (see figure B) over the distributor shaft and slide down until the locator goes inside the slot of the signal generator mounting bracket. Tighten the two screws of the signal generator mounting bracket to the distributor base plate. Remove the locator from the distributor shaft.

## GM 6 Cylinder Installation (cont'd)

13. Place the "signal generator" onto the mounting bracket, using care to align the two locator posts of the bracket into the "signal generator" base. Drive the #8/32 x 1/8" brass "signal generator" mounting screw.
14. Place the signal chopper rotor on the distributor shaft and rotate and push down until you feel it index on the shaft. Make sure the signal chopper blades do not touch the signal generator when rotated.
15. Dress the wires from the "signal generator" through the grommet (rubber insulator) to remove any possibility of the wire getting cut by the rotating signal chopper, but providing enough wire to allow the distributor vacuum advance to work freely. The length of the wires protruding from the distributor should be 5 1/4". Carefully install the loose connector shell on the red wire terminal.
16. Install a good distributor cap and ignition wires.
17. Install the provided harness to the coil and distributor signal generator: (refer to circuit diagram of figure A):
  - a. Connect red wires together.

Guaranteed Parts	APS	Sorensen	Zenith
ECK-112	30-1012	8912K	130-12

## GM 6 Cylinder Installation (cont'd)

- b. Connect green wires together.
  - c. Connect black wires together.
  - d. Connect blue wire to positive (+ or batt) terminal on the coil. Make sure that the original equipment wire to the coil is also still on this terminal.
  - e. Connect the yellow wire to the negative (- or dist) terminal on the coil.
18. Route the wiring across the engine to the fenderwell or firewall of the vehicle. Use care to keep the wiring away from moving mechanisms and exhaust manifold and to allow the harness to flex freely between the engine and fenderwell or firewall.
  19. CAUTION: Before mounting the electronic control unit, make sure the wire harness will reach from the engine to the mounting location and that it is subjected to the least amount of heat. A fenderwell may be best suited (do not mount to a plastic fenderwell). Excess harness length may be folded back on itself and taped together.
  20. Remove the center screw from the control unit and remove back mounting plate. Using the mounting plate as a template, drill four 1/8" holes in firewall or fenderwell.
  21. Mount the control unit mounting plate with 4-#10 x 3/8" sheet metal screws provided. Remount the control unit to the mounting bracket with the center screw.
  22. Plug the wire harness into the control unit. Drill a 1/8" hole in the nearby sheet metal for mounting the ground wire (black). Mount the ground wire with the #10 x 3/8" sheet metal screw provided.
  23. Start engine, check timing and reset to manufacturers specifications if needed. The dwell cannot be adjusted, because it is fixed by design.
  24. For maximum performance, check the condition of all spark plugs, ignition wiring, and coil. Replace if necessary.
  25. Place "Attention" sticker on air cleaner or in other prominent location.
  26. Original parts previously set aside should be retained for re-installation when the car is disposed of.

## FORD 6 AND 8 CYLINDER INSTALLATION

Note: Please read the instructions thoroughly prior to starting the installation of the system.

1. Remove distributor cap. Check for cracks or burnt electrodes. Replace if found defective.
2. Remove rotor. Remove RF shield (if installed). Set these aside.
3. Remove points and condenser and hold down screws and set aside. Relocate the copper braided ground strap wire to the condenser mounting hole using condenser mounting screw.
4. Remove distributor lead from negative (- or dist) terminal on the ignition coil. Pull it out of the distributor completely and set it aside.
5. Remove the retaining clip securing the vacuum advance arm to base plate of the distributor.
6. Remove the retaining clip securing the distributor base plate to the distributor. Also, remove the washers from the post. Place the clip and washers in a safe place as they will be used again.
7. Remove the two (2) screws holding the vacuum chamber to the distributor. You will be reusing these screws later.
8. Now carefully pull the vacuum chamber away from the distributor while applying a small downward force. This should allow the vacuum chamber arm to be lifted from the pin of the distributor base plate. Remove the distributor base plate from the distributor.
9. Install the new distributor base plate in the distributor. Place the vacuum chamber arm inside the tabs of the link extending from the new base plate. Install a 4-40 x 1/4" screw fastening the vacuum chamber arm to the link. Tighten securely.
10. Place the new spacer over the distributor base plate mounting post. Now reinstall the washers removed earlier. Snap the retaining clip onto the post.
11. Place the provided split grommet (rubber insulator) over the signal generator wires and insert the red, black, and green wires individually through the distributor housing hole. Slide the grommet down the wires and seat the grommet into the hole. Note: 2 grommets are provided for different hole sizes. Unused grommet may be discarded.
12. Position the "signal generator" mounting bracket on the base plate of the distributor in the place previously occupied by the point contact set. Loosely secure the bracket to the base plate with 2 brass #8/32 x 1/4" screws provided.

## Ford 6 and 8 Cylinder Installation (cont'd)

13. Place the provided "signal generator" locator (see figure B) over the distributor shaft and slide down until the locator goes inside the slot of the signal generator mounting bracket. Tighten the two screws of the signal generator mounting bracket to the distributor base plate. Remove the locator from the distributor shaft.
14. Place the "signal generator" onto the mounting bracket, using care to align the two locator posts of the bracket into the "signal generator" base. Drive the #8/32 brass "signal generator" mounting screw.
15. Place the signal chopper-rotor on the distributor shaft and rotate and push down until you feel it index on the shaft. Make sure the signal chopper blades do not touch the signal generator when rotated.
16. Dress the wires from the "signal generator" through the grommet to remove excess length of wire and to remove any possibility of the wire getting cut by rotating signal chopper, but providing enough wire to allow the distributor vacuum advance to work freely. The length of the wires protruding from the distributor should be 4 3/4" for the V8 and 3" for the 6 cylinder. Carefully install the loose connector shell on the red wire terminal.
17. Install a good distributor cap and ignition wires.
18. Install the provided harness to the coil and distributor signal generator (refer to circuit diagram of figure A):
  - a. Connect red wires together.
  - b. Connect green wires together.
  - c. Connect black wires together.
  - d. Connect blue wire to positive (+ or batt) terminal on the coil with nut provided. Make sure that the original equipment wire to the coil is also still on this terminal.\*
  - e. Connect the yellow wire to the negative (- or dist) terminal on the coil with nut provided.

\*Note: It is recommended that the original bullet clip be cut off of the wire supplying voltage to the coil, the wire be stripped of 1/4" insulation, and a new terminal (included in package) be installed by crimping it with pliers in its place.

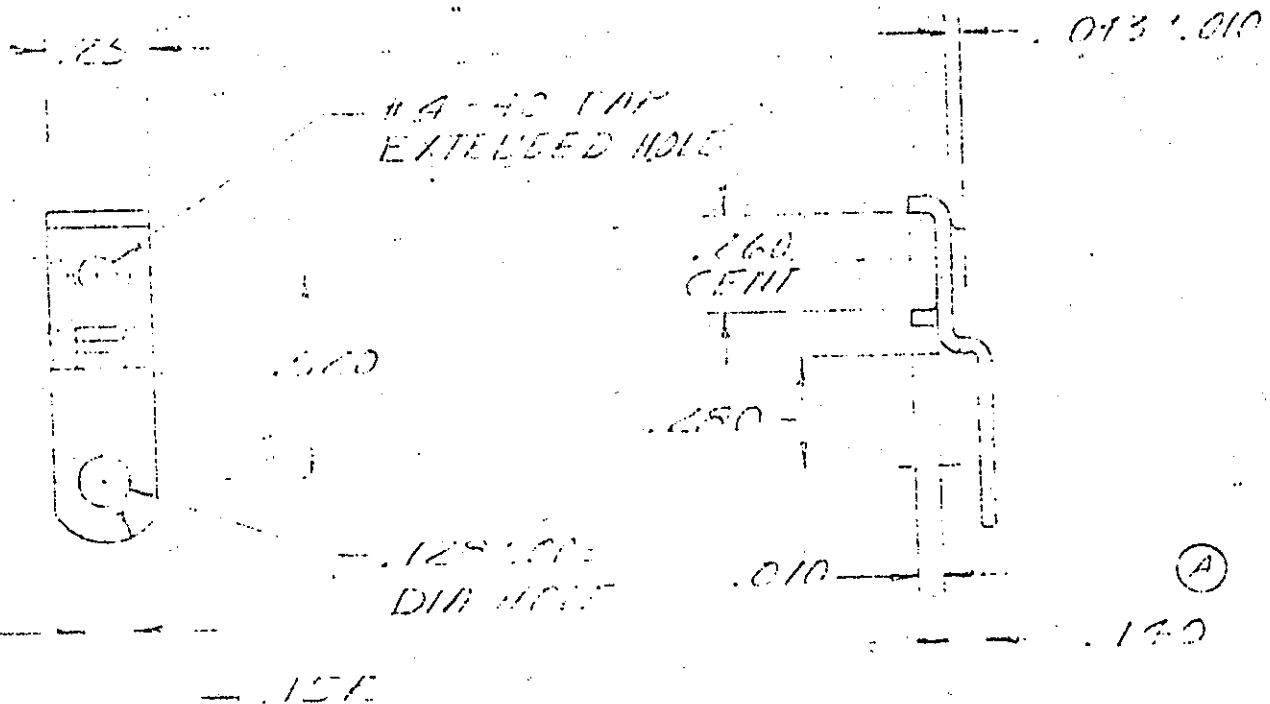
19. Route the wiring across the engine to the fenderwell or firewall of the vehicle. Use care to keep the wiring away from moving mechanisms and exhaust manifold and to allow the harness to flex freely between the engine and fenderwell or firewall.
20. CAUTION: Before mounting the electronic control unit, make sure the wire harness will reach from the engine to the mounting location and that it is subjected to the least amount of heat. A fenderwell may be best suited (do not mount to a plastic fenderwell). Excess harness length may be folded back on itself and taped together.

Ford 6 and 8 Cylinder Installation (cont'd)

21. Remove the center screw from the control unit and remove back mounting plate. Using the mounting plate as a template, drill four 1/8" holes in firewall or fenderwell.
22. Mount the control unit mounting plate with 4-#10 x 3/8" sheet metal screws provided. Remount the control unit to the mounting bracket with the center screw.
23. Plug the wire harness into the control unit. Drill a 1/8" hole in the nearby sheet metal for mounting the ground wire (black). Mount the black ground wire with the #10 x 3/8" sheet metal screw provided.
24. Start engine, check timing and reset to manufacturers specifications if needed. The dwell cannot be adjusted, because it is fixed by design.
25. For maximum performance, check the condition of all spark plugs, ignition wiring, and coil. Replace if necessary.
26. Place "Attention" sticker on air cleaner or in other prominent location.
27. Original parts previously set aside should be retained for re-installation when the car is disposed of.

<u>Guaranteed Parts</u>	<u>APS</u>	<u>Sorenson</u>	<u>Zenith</u>
5 - ECK-123	30-2023	8923K	140-23
8 - ECK-122	30-2022	8922K	140-22





1.5  
 PARTS LIST FOR COMPLETE  
 TREE OF 2.11

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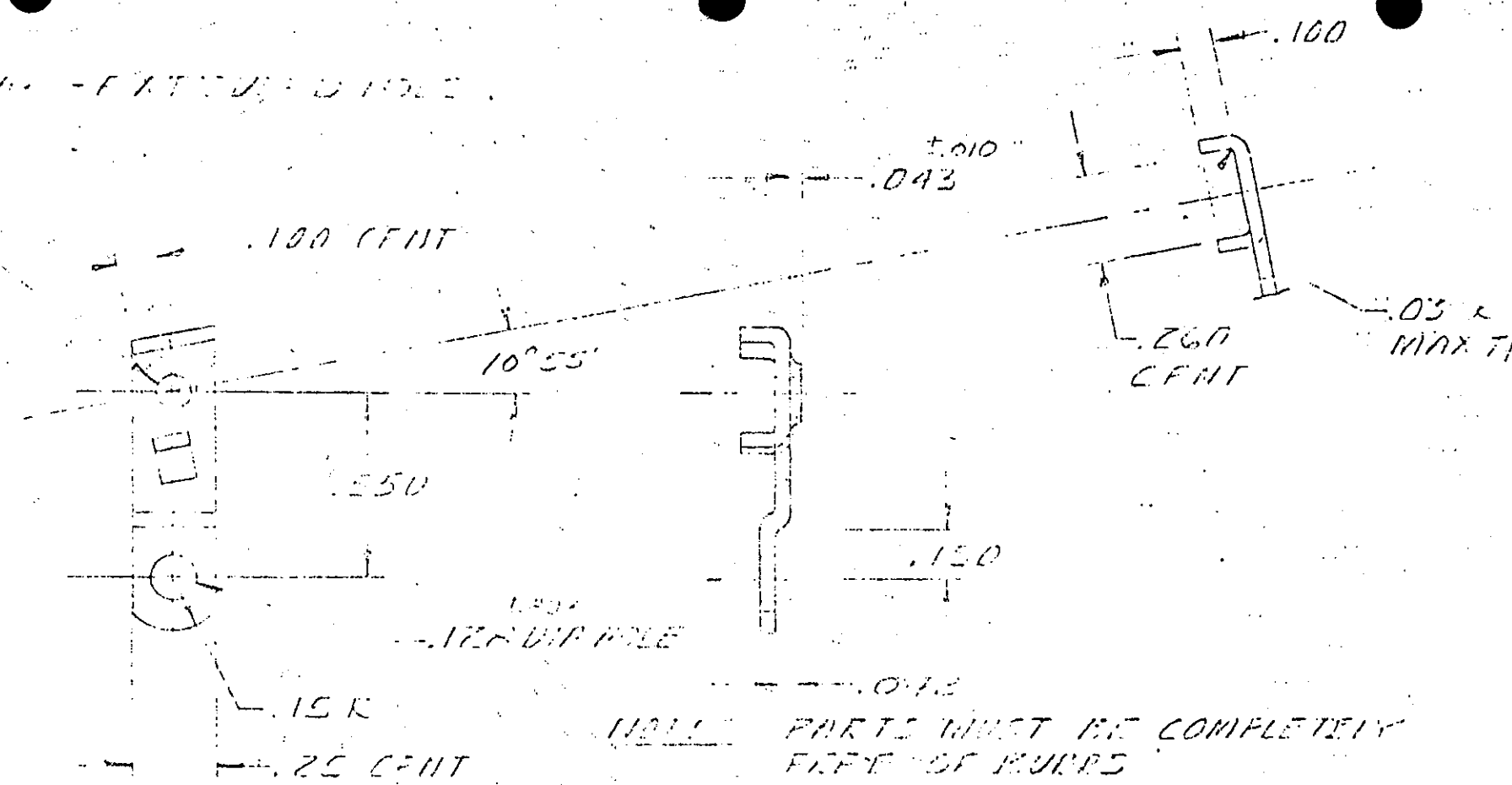
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	FINISH	ZINC PLATE							
ARE IN INCHES DIMENSIONS : 01 DIMENSIONS : 005 DIMENSIONS : 1"	REFERENCE	PERD 8 CYL 70-71							
DATE DRAWN	TITLE	EXTENSION ARM (KALF)	 GENERAL AUTOMOTIVE PRODUCTS GROUP PRODUCT DEVELOPMENT A GM Corp. WESTERN COMPANY COLUMBIAN, INDIANAPOLIS				PRODUCTION NO.		
							PART NO.		
							MBZ193		

EXHIBIT 1 C

A 30 10 - EXTENSION ARM



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 DIMENSIONS ± .005  
 DIMENSIONS ± 1°  
 ALL DRAWINGS

MATERIAL: 1065 SCS 12.8 .0418  
 FINISH: ZINC PLATE  
 REFERENCE: SCALE: 2X

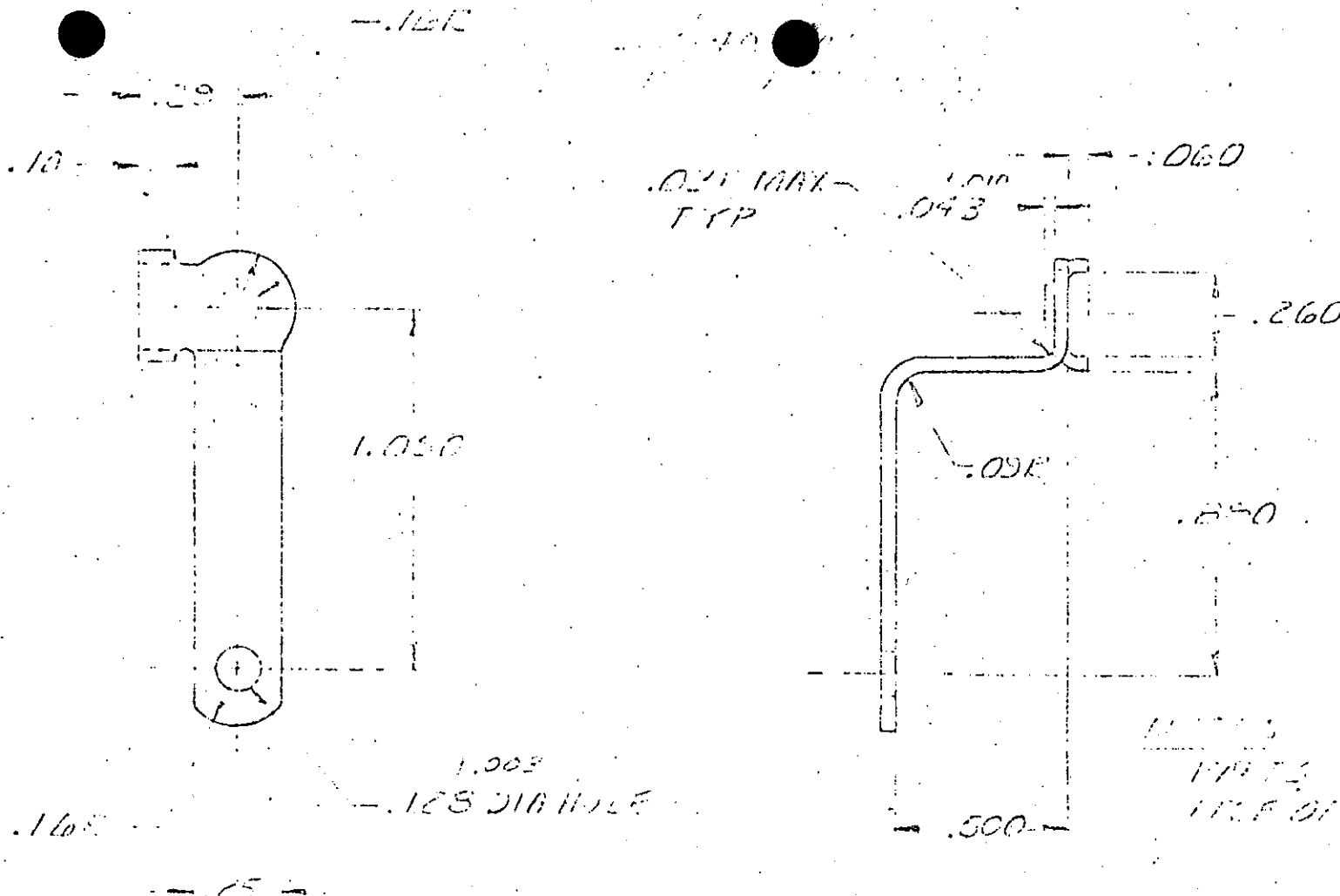
NO.	DATE	REVISIONS	EO	OWN

REV.	DATE	DESCRIPTION
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1	1	

TITLE: EXTENSION ARM (FORD 6 CYL.)


**GENERAL AUTOMOTIVE PRODUCTS GROUP**  
 PRODUCT DEVELOPMENT  
 A GULF & WESTERN COMPANY  
 SOUTHFIELD, MICHIGAN 48075

PRODUCTION NO.  
 PART NO.  
**M7B2184**

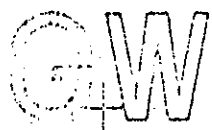


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DECIMAL DIMENSIONS ± .005
ANGLE DIMENSIONS ± 1°
IS A FULL SCALE DRAWING
DATE
1/1/73
1/1/73
1/1/73

MATERIAL	FINISH	REF. SYMBOL	SCALE
1.128 DIA HOLE			
TITLE			
EXTENSION ARM (DELCO 6 CYL.)			

NO.	DATE	REVISIONS	E.O.	MAN.



GENERAL AUTOMOTIVE PRODUCTS GROUP  
 PRODUCT DEVELOPMENT  
 A GILFILL & WATSON COMPANY  
 SOUTHFIELD, MICHIGAN 48033

PRODUCTION NO.
PART NO.
MB 2182

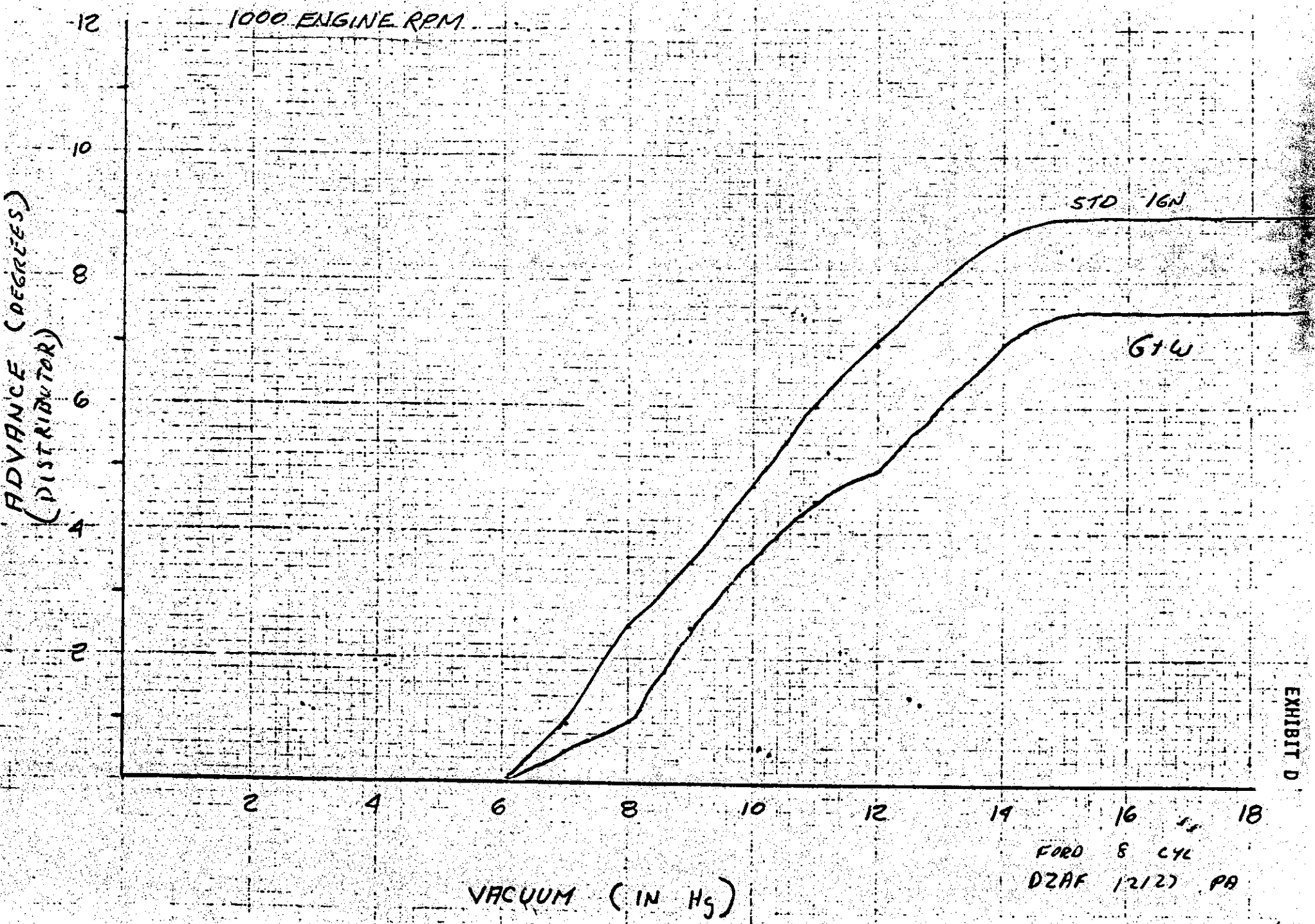


EXHIBIT D

7/30/

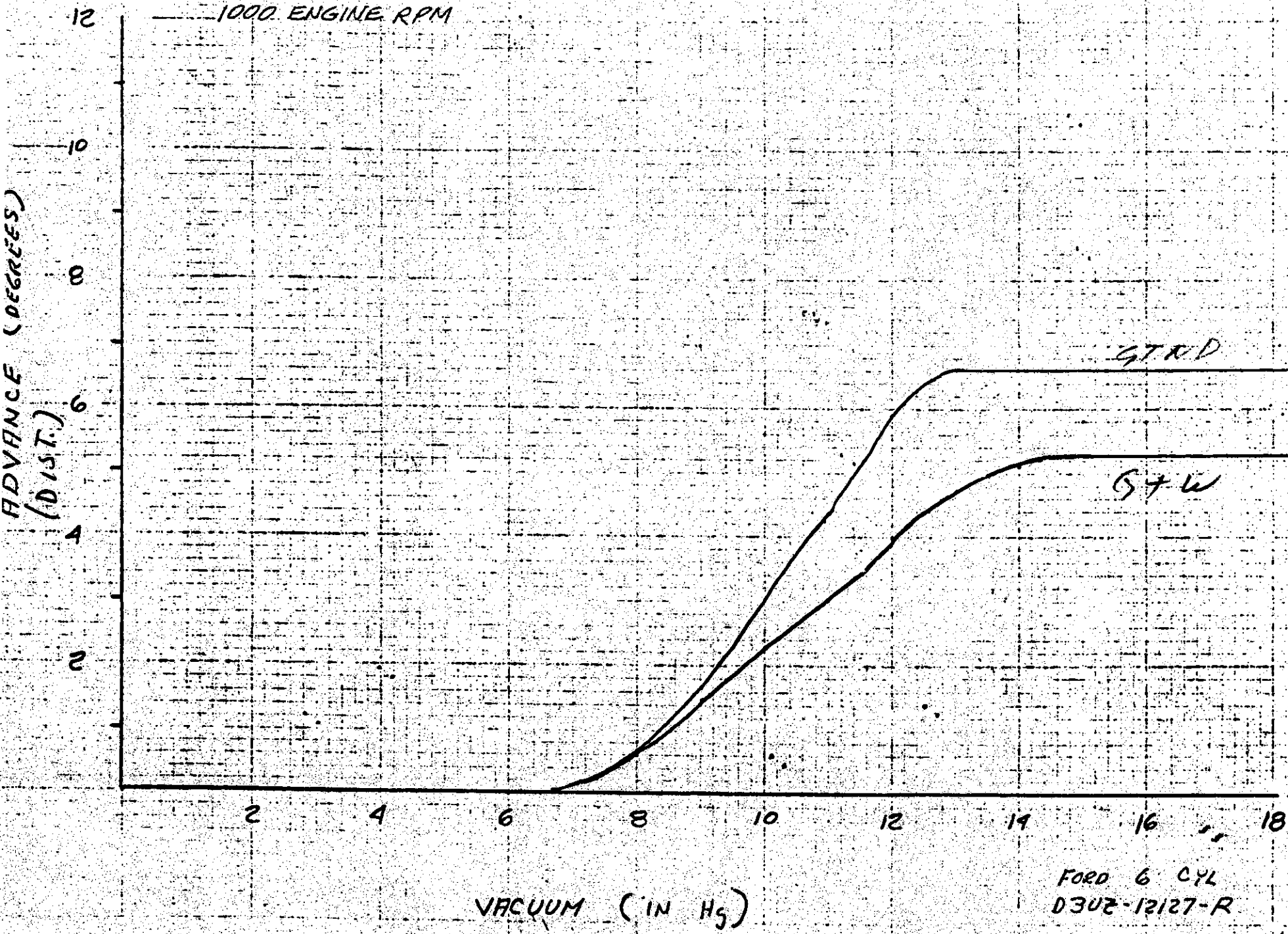


EXHIBIT D

FORD 6 CYL  
D302-12127-R

7/30/63

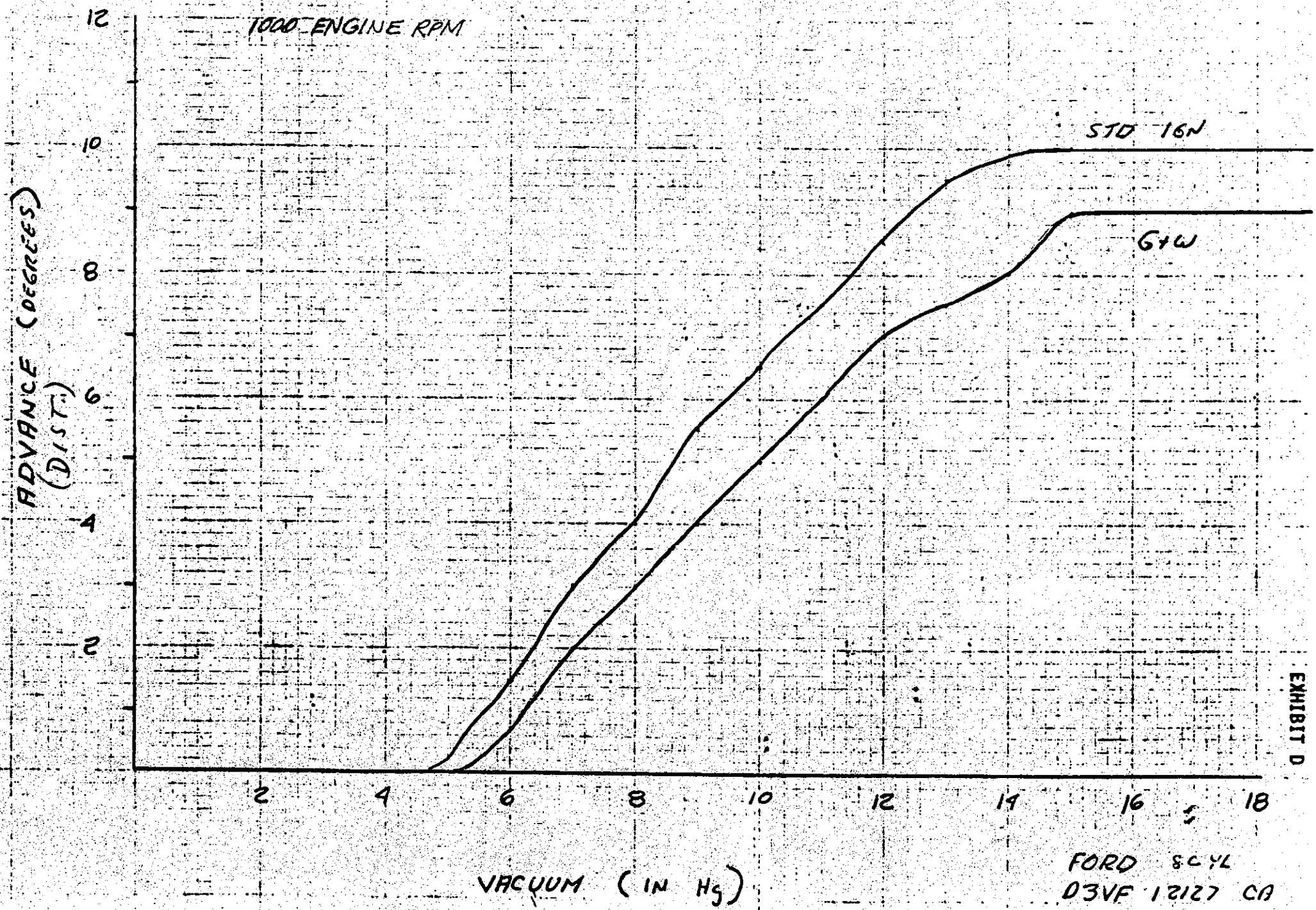
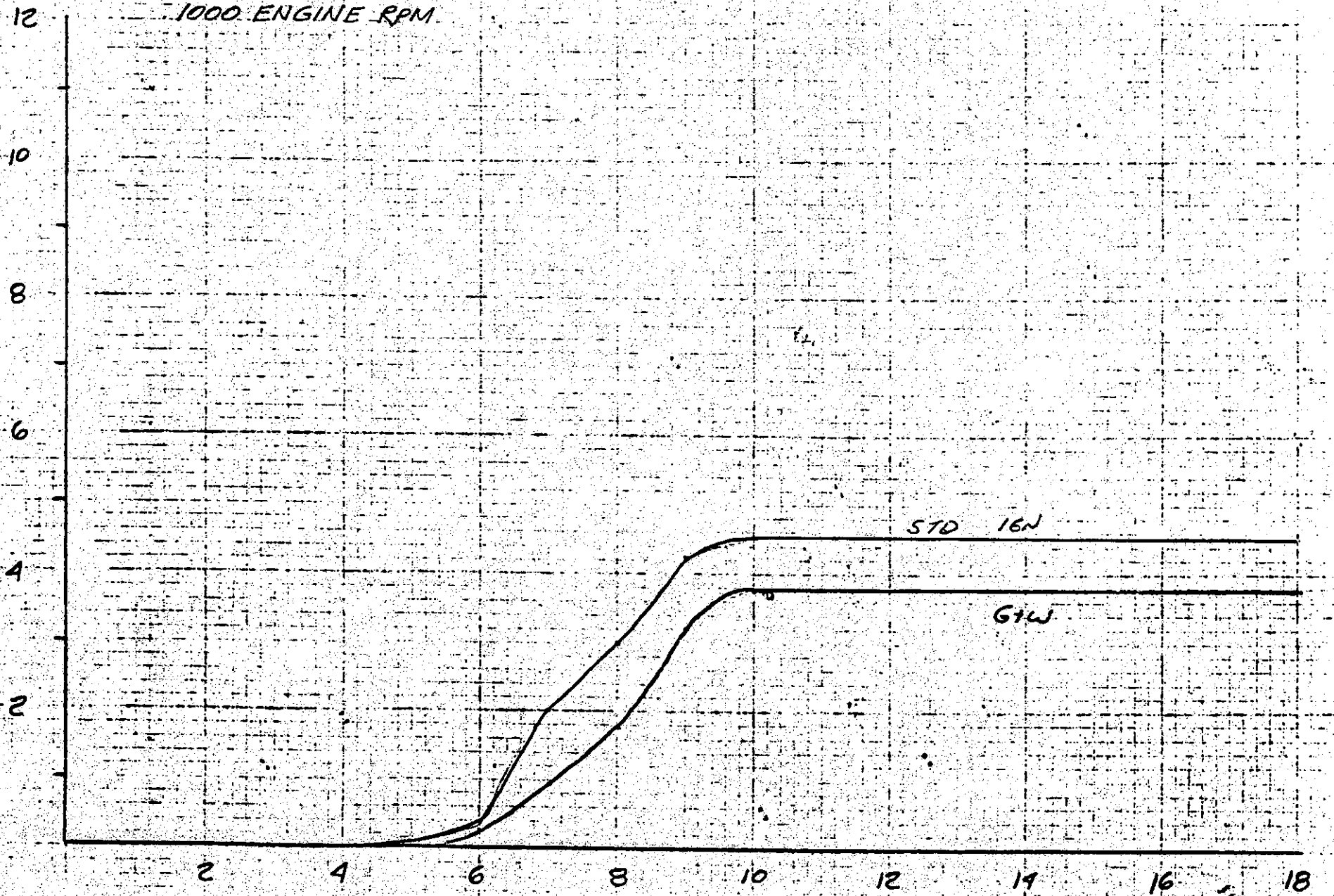


EXHIBIT D

FORD 8 CYL  
D3VF 12127 CA

ADVANCE (DEGREES)  
(DIST.)

1000 ENGINE RPM

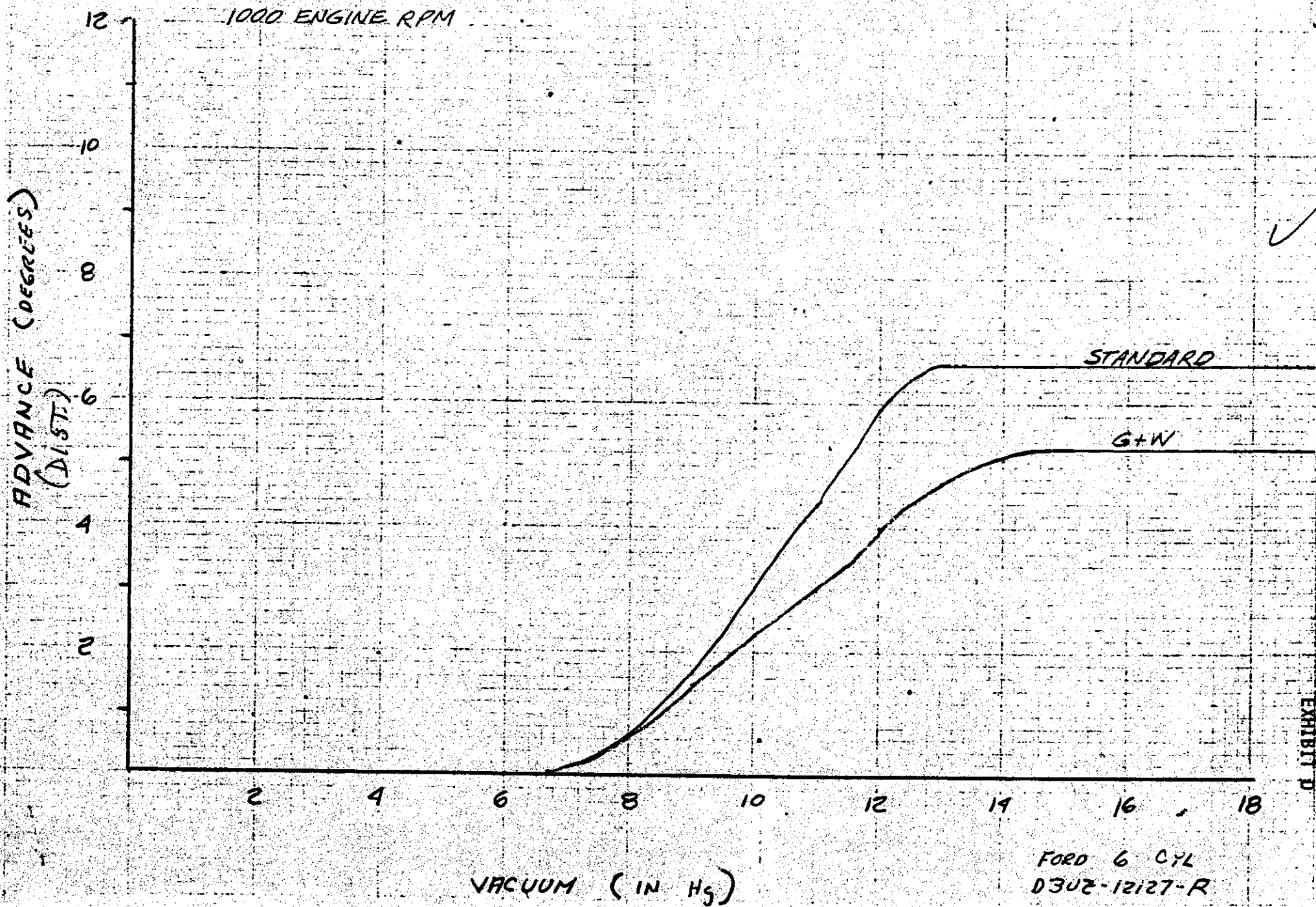


VACUUM (IN Hg)

FORD 8 CYL  
030F 12127 HB

EXHIBIT D

7/29/53



FORD 6 CYL  
D30Z-12127-R

7/30/53

EXHIBIT D



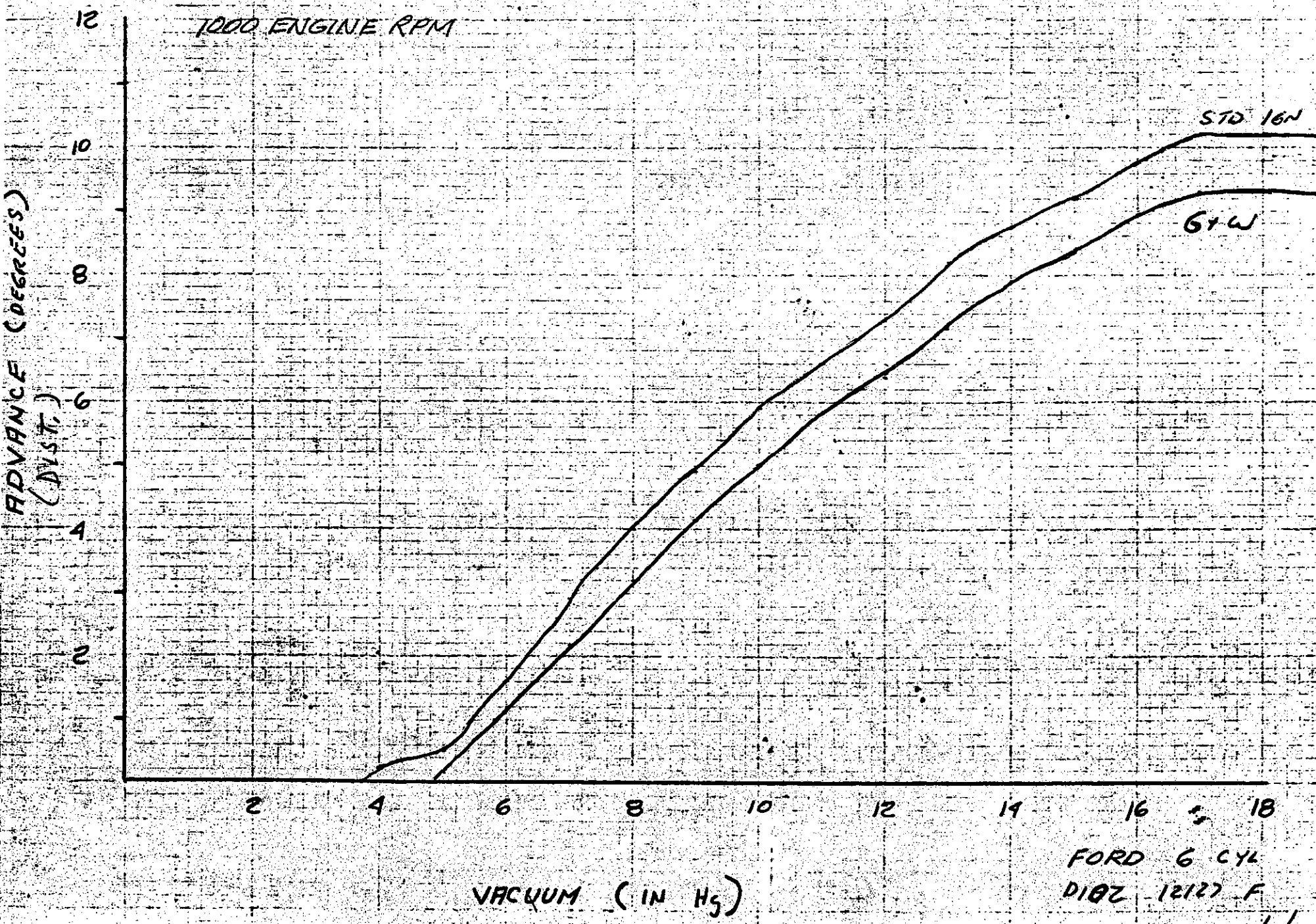


EXHIBIT D

FORD 6 CYL  
D10Z 12127 F

8/5/55

ADVANCE (DEGREES)  
(DIST)

1000 ENGINE RPM

12  
10  
8  
6  
4  
2

2 4 6 8 10 12 14 16 18

VACUUM (IN HG)

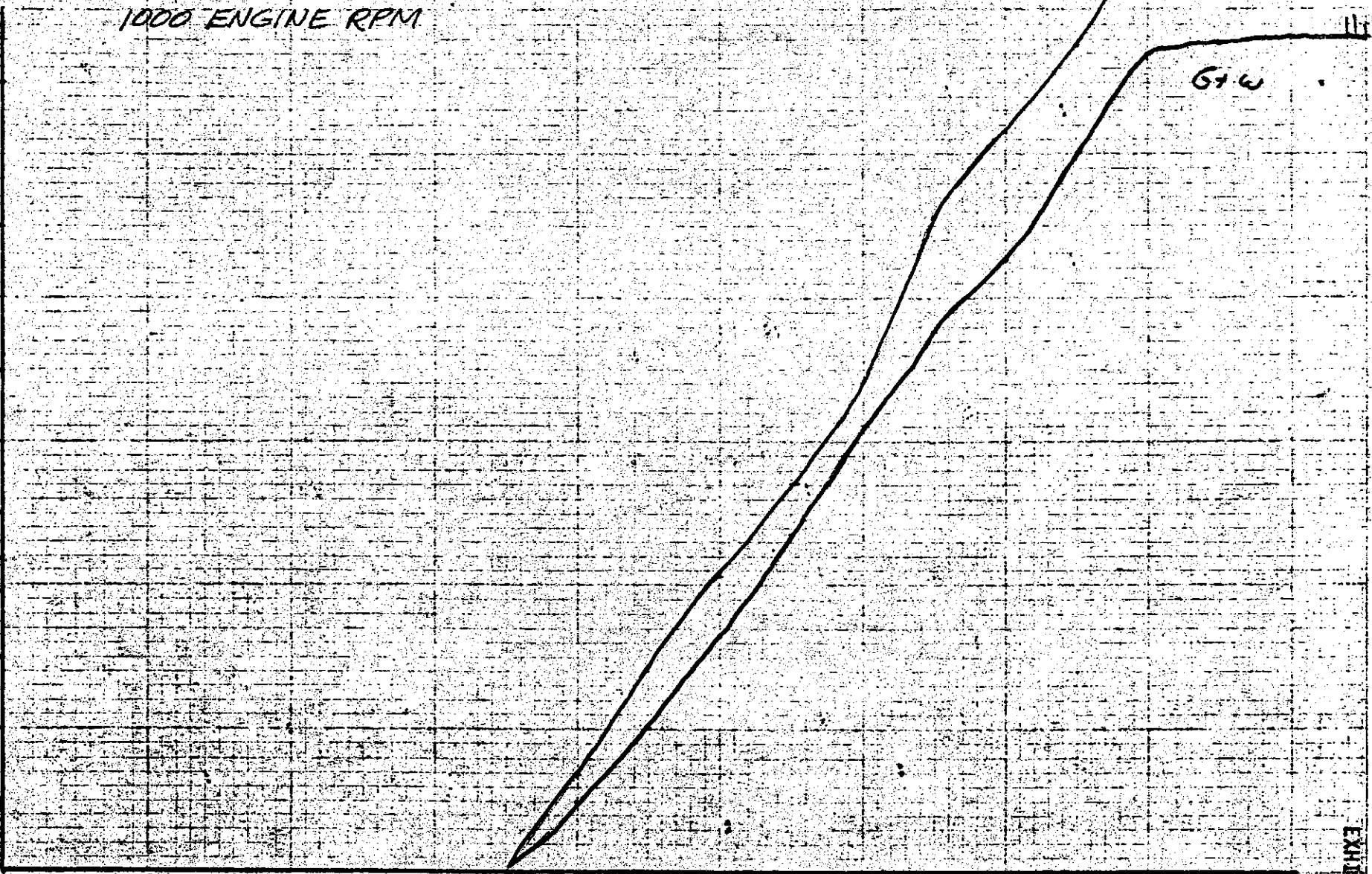
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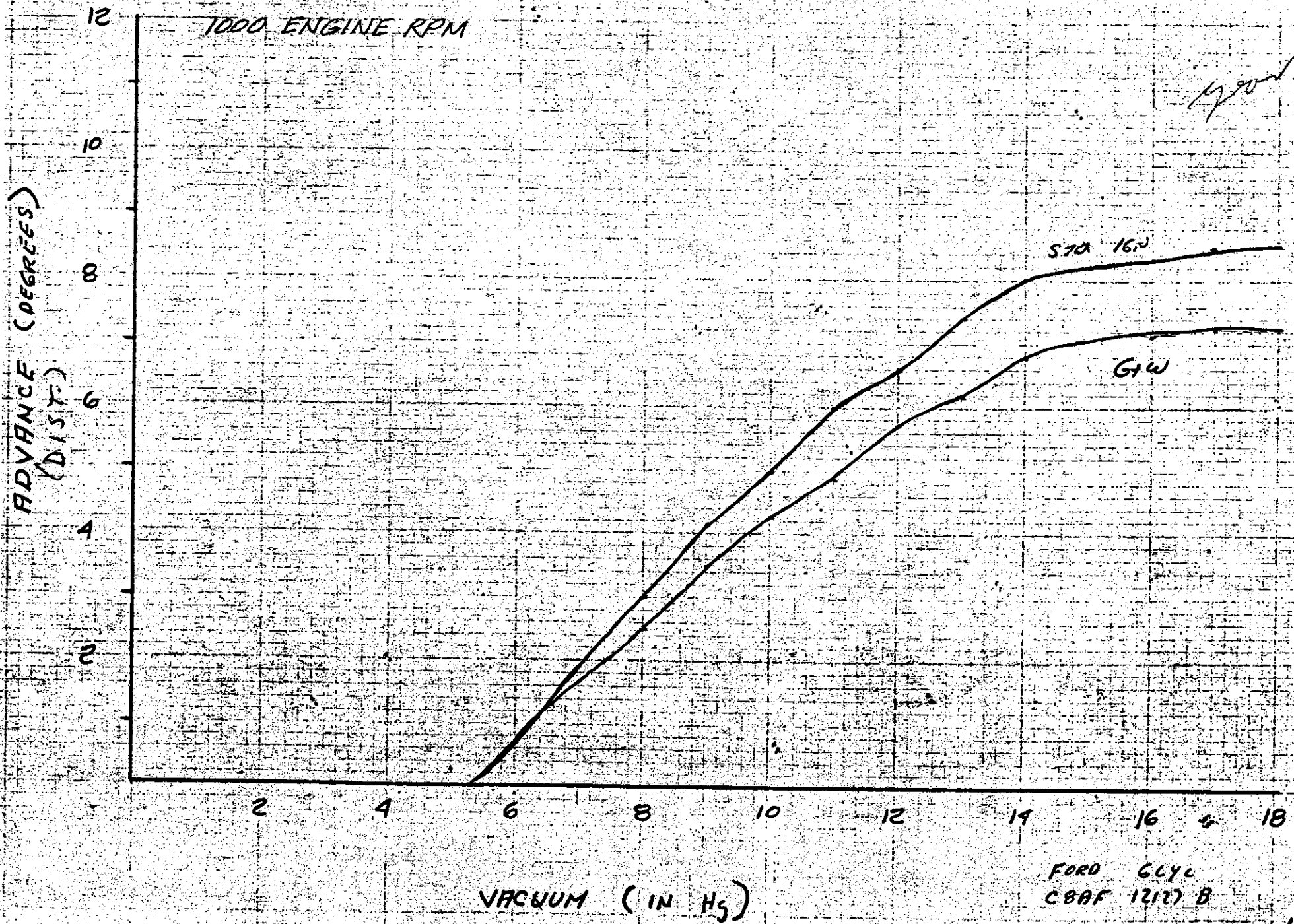
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DELCO 6 CYL  
110465 3A18

EXHIBIT D

8/8/55





FORD 6CYC  
CBAF 1217 B

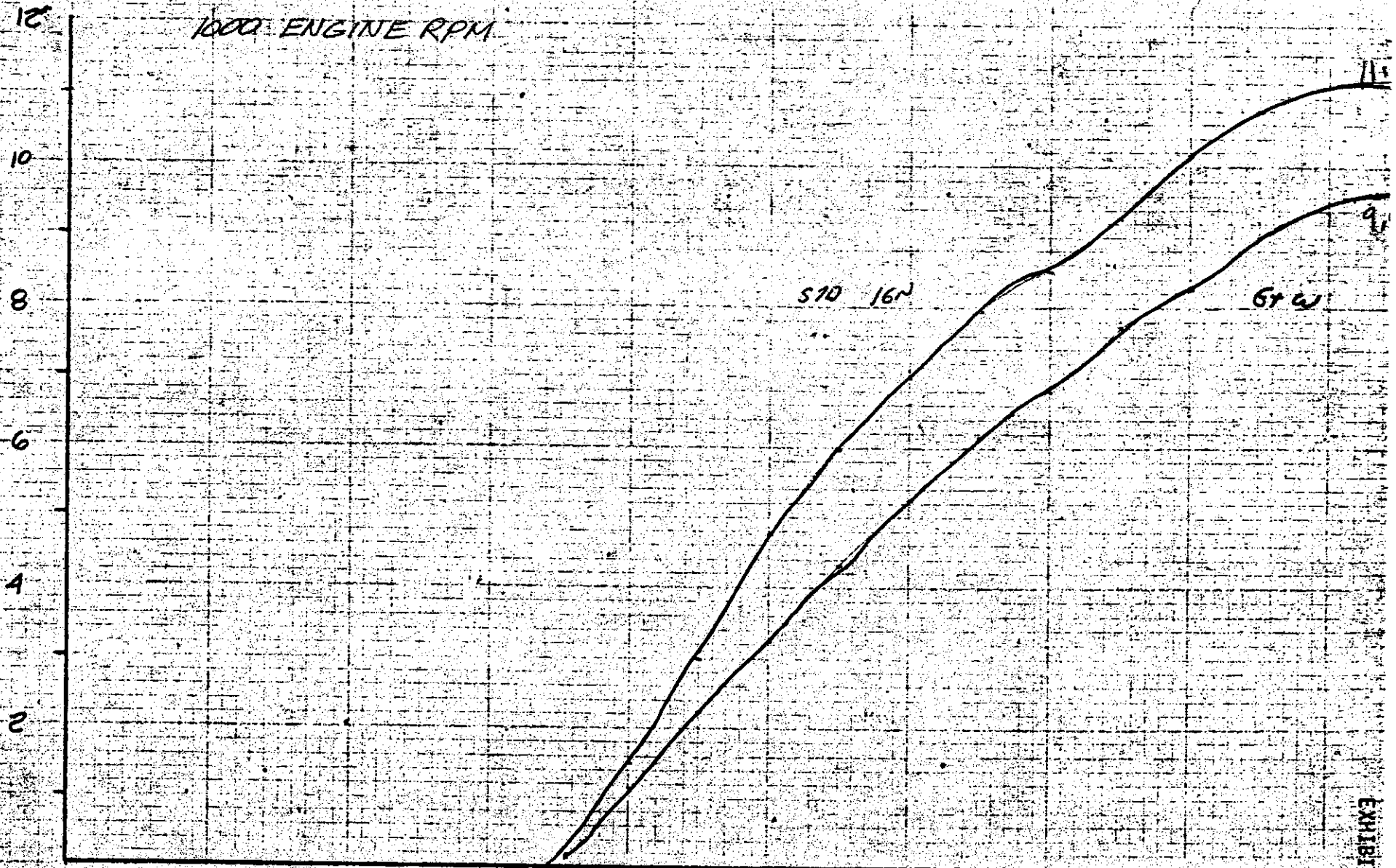
8/6/75

EXHIBIT D

gear?

1000 ENGINE RPM

ADVANCE (DEGREES)  
(DIST.)



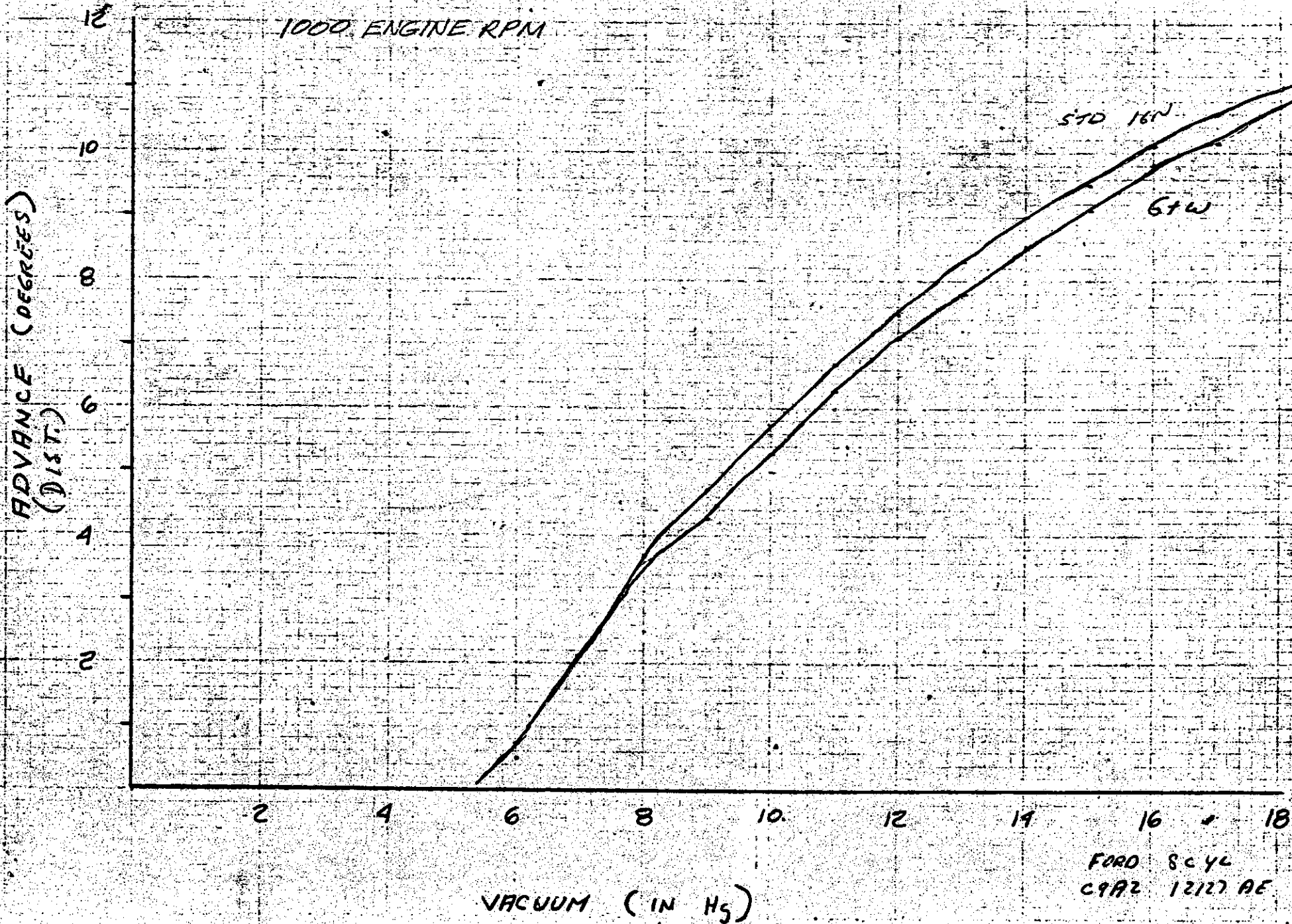
2 4 6 8 10 12 14 16 18

VACUUM (IN HG)

FORD 8 CYL  
DOOZ 12127 D

EXHIBIT 0

8/1/56



FORD 8 CYL  
C9A2 12127 AE

EXHIBIT D

slubs



General Automotive Products Group

A GULF + WESTERN MANUFACTURING COMPANY (MICHIGAN)

Detroit Sales and Engineering Office

EXHIBIT D

17500 Northland Park Court

Southfield, Michigan, 48075

Telephone: 313-444-5090

313-352-9345

September 12, 1975

Mr. M. Luczynski  
State of California Resources Agency  
Air Resources Board Laboratory  
9528 Telstar Avenue  
El Monte, California 91731

Dear Mr. Luczynski:

Enclosed are the vacuum advance graphs of the individual trials which were run to generate the vacuum advance graph for distributor D3AF12127AA, submitted to you with our letter of 9/9/75. The submitted graph was an average of three trials. Enclosed, also, is the original data sheet which was the source for the graphs.

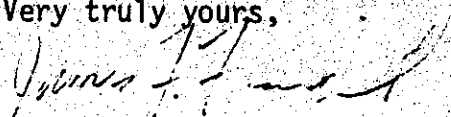
In our telephone conversation of 9/11/75, it was noted that our system was retarded as much as 2.5° (distributor) at 18 inches Hg. vacuum, though it peaked out to about 2.1° (distributor) above 18 inches. We feel that this is not significant, as an engine rarely develops 18 inches (or more) vacuum. This situation also occurs on a very nearly worst case distributor. Therefore, in order to achieve 2.5° distributor retard, it would be necessary to have a worst case distributor in combination with an engine which would develop 18 inches vacuum. This seems highly improbable.

Additionally, the attached graphs of the three individual trials (and the data sheet) indicate that two of the three trials produced better results than the average of the three. Trial one is very nearly within your spec. at 18 inches (2.25° retarded) and is within your spec. at all other vacuum readings. Trial three is still 2.5° retarded at 18 inches, but comes back to 2° retarded when the curve peaks out.

As indicated on the telephone, we are very anxious to receive an indication from your office as to the interpretation of this data. As I mentioned, we are already tooled to produce these kits and an early decision would benefit us greatly.

Thank you again for your assistance in this program. If I can be of further help to you, please do not hesitate to contact me.

Very truly yours,

  
James F. Fernquist  
Senior Engineer  
Electronics & Systems Development

DISTRIBUTOR No: D3AF12127AA  
ENGINE: 73 FORD 8  
RPM: 1000  
DATE: 9-11-75

VACUUM ADVANCE  
TRIAL No. 1

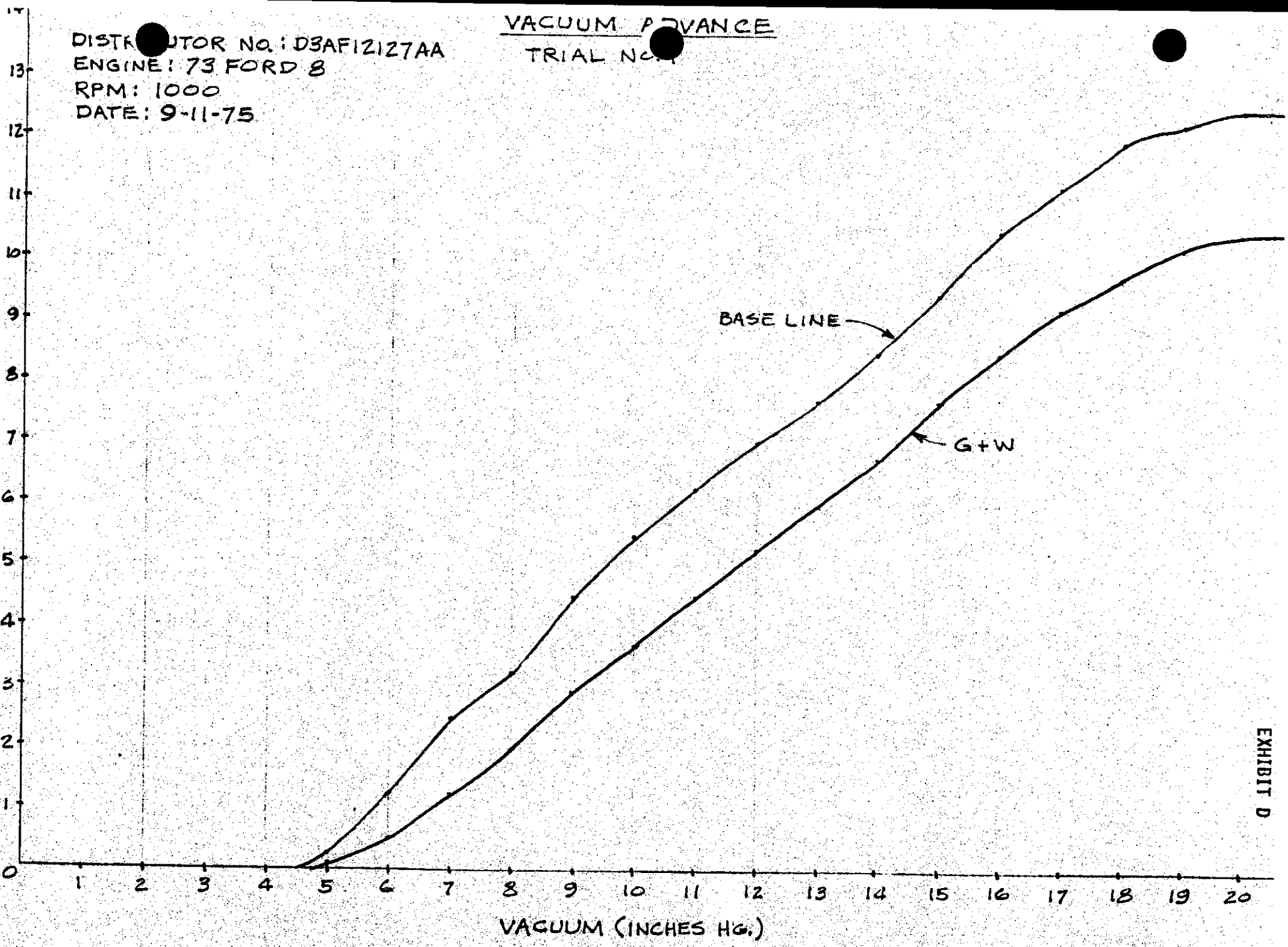


EXHIBIT D

VACUUM ADVANCE

TRIAL NO. 2

DISTRIBUTOR No.: D3AF12127AA  
ENGINE: 73 FORD 8  
RPM: 1000  
DATE: 9-11-75

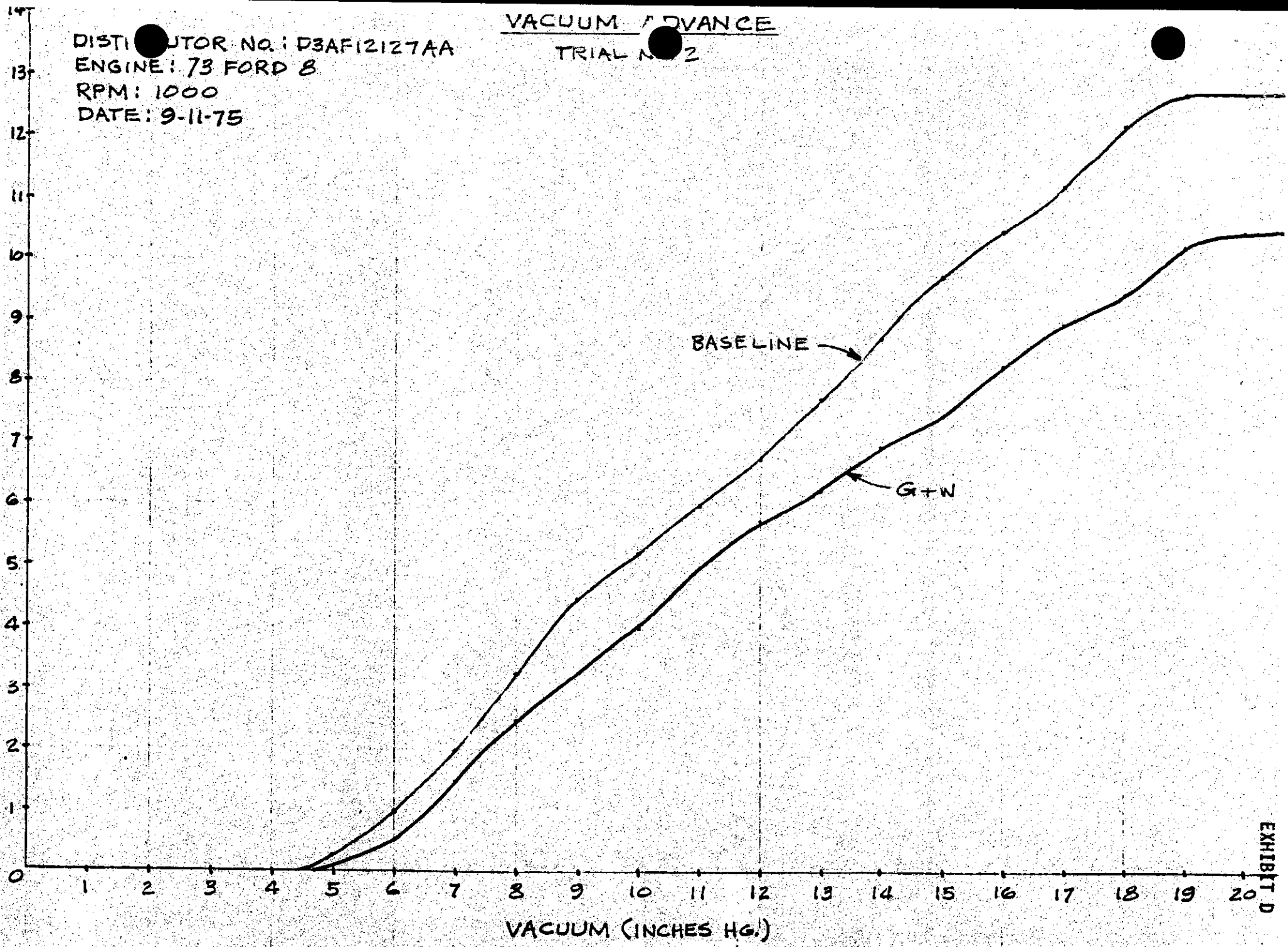


EXHIBIT D



DISTRIBUTOR NO: D3AF12127AA  
ENGINE: 73 FORD 8  
RPM: 1000  
DATE: 9-11-75

VACUUM / VANCE  
TRIAL NO: 3

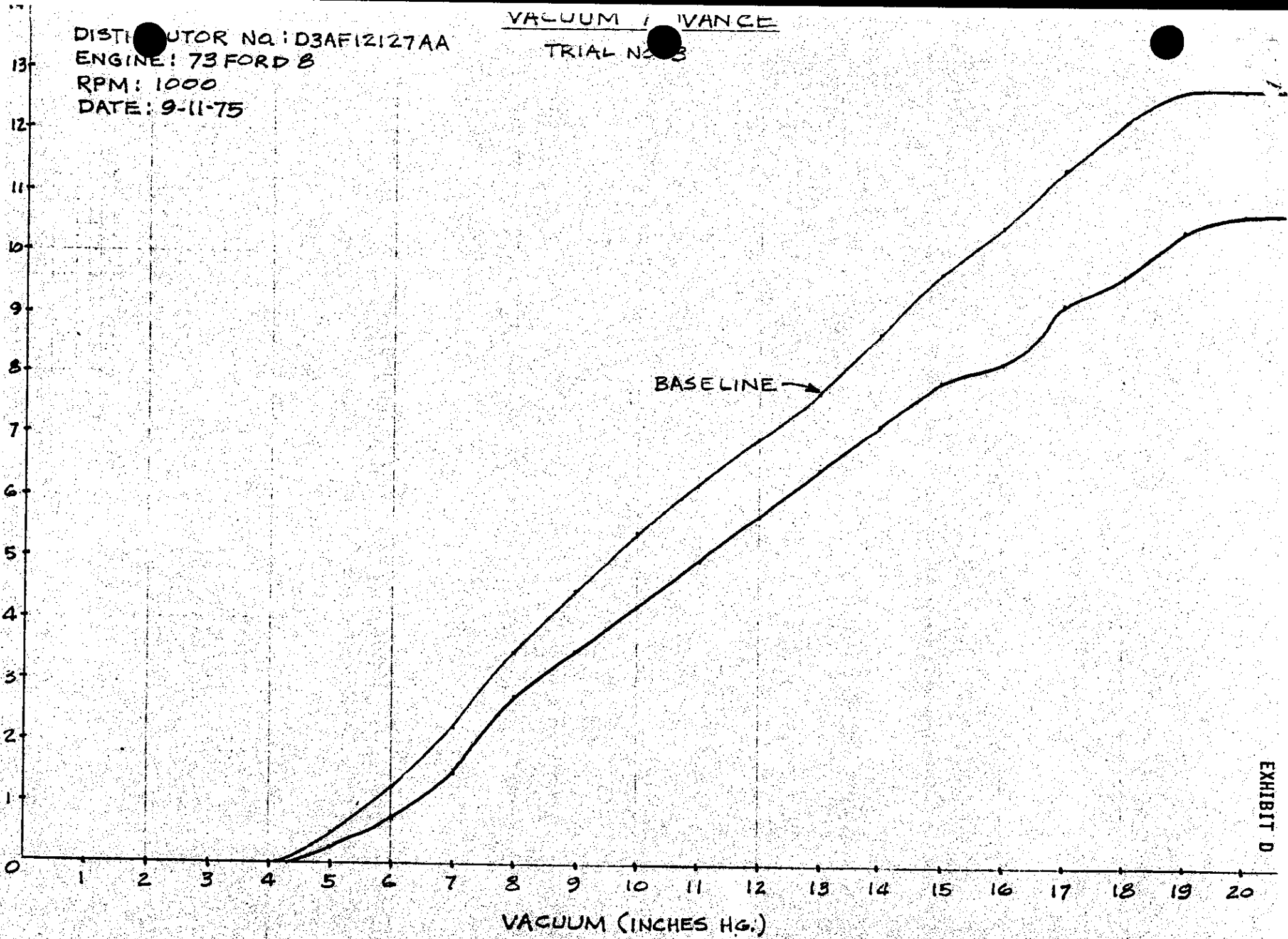


EXHIBIT D