

E.O.
Book

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-37
Relating to Exemptions under Section 27156
of the Vehicle Code

OXFORD AUTOMOTIVE PRODUCTS
"MINI-JECTOR FUEL CONTROL" SERIES "M"

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 "Mini-Jector Fuel Control" Series "M" device manufactured by Oxford Automotive Products, 5165 Sherbrooke Street West, Suite 419, Montreal, Quebec, Canada, and marketed by the Duralon Supply of 6150 Mission Gorge Road, Suite 107, San Diego, California 92120, has been found to not reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for 1974 and older model-year vehicles.

The "Mini-Jector Fuel Control" device is a fuel pressure regulator installed in the fuel line between the fuel pump and the carburetor. The normally open valve is biased by a spring force acting on a diaphragm which senses the engine manifold vacuum. The device has an adjustable knob to control the fuel pressure by varying the spring pre-load. The name "Mini-Jector Fuel Control" Series "M" is embossed on the device.

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

Changes made to the design or operating conditions of the device as originally submitted to the Air Resources Board for evaluation that adversely affect the performance of the vehicle's pollution control devices shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

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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 "MINI-JECTOR FUEL CONTROL" SERIES "M" DEVICE.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

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

Sections 39130 and 39184 of the Health and Safety Code provide as follows:

"39130. No person shall install, sell, offer for sale, or advertise, or, except in an application to the board for certification of a device, represent, any device as a motor vehicle pollution control device unless that device has been certified by the board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this section is a misdemeanor."

"39184. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the board for accreditation of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been accredited by the board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as an accredited device which, in fact, is not an accredited device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at Sacramento, California, this 16th day of October, 1974.

WILLIAM SIMMONS
Executive Officer

State of California

AIR RESOURCES BOARD

October 3, 1974

Staff Report

Evaluation of the Oxford Automotive Products
"Mini-Jector Fuel Control" Series "M"
Fuel Controller for Compliance with the
Requirements of Section 27156 of the Motor Vehicle Code

I. Introduction

Oxford Automotive Products, 5165 Sherbrooke Street West, Suite 419, Montreal, Quebec, Canada (formerly G. T. Performance Products - Reference Exhibit A) has applied for exemption from the prohibitions of Section 27156 of the Vehicle Code for the "Mini-Jector Fuel Control" Series "M" device. This section prohibits the installation of any device which may reduce the effectiveness of the motor vehicle emission control system. The applicant is requesting the exemption be granted for all 1974 and older model-year vehicles.

The Air Resources Board has adopted criteria for the evaluation of "after-market" devices for compliance with Section 27156. The basis for evaluation is defined in the "Air Resources Board Criteria for Determining Compliance with Section 27156 of the Motor Vehicle Code", dated February 17, 1971.

II. System Description and Function

The device is a fuel pressure regulator installed in the fuel line between the fuel pump and the carburetor (Exhibit B - Installation Instructions). Exhibit C contains a description of the device. A spring suspended ball is pressed against a spring loaded diaphragm assembly which senses the engine intake manifold vacuum through a rubber hose.

The device has a control knob for adjusting the fuel supply pressure. The device has adjustment indications from "A for economy to E for power." The applicant calibration flow curve indicating the influence of intake manifold vacuum is shown in Figure 1. The applicant claims that the device acts as a "combustion secondary fuel pump, pulsation damper and adjustable fuel pressure regulator" to control the flow of fuel from the fuel pump to the carburetor float bowl. The device is designed to reduce fuel flow during engine operating modes when a high intake manifold vacuum is experienced.

III. Laboratories Test Data

A. Applicant Data

The following is a summary of test data submitted by the applicant and/or his representatives for the ARB staff evaluation.

1. Scott Research Laboratory report #1396-01-0973 dated September 13, 1973 performed by the Federal Hot CVS test method on a 1970 Chevrolet Monte Carlo, 350 CID - 2 V carburetor, automatic transmission, and has New York license #180 ORI, showing the following data:

<u>Test No.</u>	<u>Test Type</u>	<u>Condition</u>	<u>Emissions (gms/mi)</u>			<u>Fuel Economy MPG</u>
			<u>HC</u>	<u>CO</u>	<u>NOx</u>	
1	Hot CVS-1	Baseline	3.78	80.18	1.48	12.16
2	Hot CVS-1	A-Setting	2.79	44.25	2.56	14.15
3	Hot CVS-1	C-Setting	2.79	59.96	1.88	14.06

October 3, 1974

2. Scott Research Laboratory report #1418-01-0174 dated January 11, 1974 performed by the Federal Hot CVS and Steady State test method on a 1972 Chevrolet Camaro, 307 CID-2V carburetor, automatic transmission and identification (VIN: 1Q87F2N167785), showing the following data:

<u>Test No.</u>	<u>Test Type</u>	<u>Condition</u>	<u>Emissions (gms/mi)</u>			<u>Fuel Economy MPG</u>
			<u>HC</u>	<u>CO</u>	<u>NOx</u>	
1, 6, 8	55 MPH-cruise	Baseline-Avg.	0.82	9.84	3.29	18.28
3	55 MPH-cruise	Device-set A	1.04	12.94	3.21	18.96
5	55 MPH-cruise	Device-set C	1.30	24.42	2.52	19.07
2, 7	Hot CVS-1	Baseline-Avg.	3.83	92.55	2.53	13.30
4	Hot CVS-1	Device-set A	3.94	99.75	2.32	13.52

3. Scott Research Laboratory report #1418-02-0174 dated January 18, 1974 performed by the Federal Hot CVS and Steady State test method on a 1970 Valiant, 225 CID-1V carburetor with automatic transmission and identification (VIN: VL41COB355848), showing the following data:

<u>Test No.</u>	<u>Test Type</u>	<u>Condition</u>	<u>Emissions (gms/mi)</u>			<u>Fuel Economy MPG</u>
			<u>HC</u>	<u>CO</u>	<u>NOx</u>	
1, 7	55 MPH-cruise	Baseline-Avg.	0.63	4.95	9.12	24.98
5	55 MPH-cruise	Device-set A	0.63	6.45	8.62	25.03
3	55 MPH-cruise	Device-set C	0.60	5.07	7.65	25.12
2, 8	Hot CVS-1	Baseline-Avg.	1.62	32.59	6.06	17.72
6	Hot CVS-1	Device-set A	1.61	33.74	5.66	17.67
4	Hot CVS-1	Device-set C	1.52	29.12	6.13	17.89

Based on the variability of the data and anticipating operating characteristics of the device, the staff considered the above data inconclusive. Consequently, confirmatory emission tests were performed by the ARB to investigate the effects of the "Mini-Jector Fuel Control" device on the existing emission control system.

B. ARB Data

Back-to-back Hot CVS emission tests were run on the following vehicles:

1. 1974 Ford Galaxie, Automatic, 2-Bbl Carb., 400 CID (274 KJC),
2. 1974 Ford Pinto, Automatic, 2-Bbl Carb., 2.3L (195 LEK).

The device was maintained at setting A throughout the ARB tests to check the case of minimal fuel supply. The test data are presented in the following table:

1. 1974 Ford Galaxie, Hot CVS-1 emission tests:

	<u>Emissions (gms/mi)</u>			<u>Fuel Economy MPG</u>
	<u>HC</u>	<u>CO</u>	<u>NOx</u>	
Average Baseline (3 tests)	1.45	18.3	1.53	10.4
Average Device (3 tests)	1.46	19.6	1.52	10.4
% Change	0.69	7.1	-0.65	0

2. 1974 Ford Pinto, Hot CVS-1 emission tests:

	<u>Emissions (gms/mi)</u>			<u>Fuel Economy MPG</u>
	<u>HC</u>	<u>CO</u>	<u>NOx</u>	
Average Baseline (3 tests)	0.69	16.9	1.17	16.4
Average Device (3 tests)	0.70	16.4	1.21	16.6
% Change	1.45	-3.0	3.42	1.2

3. Bench Flow Tests

In addition to the emission tests reported, bench flow tests were performed to establish the flow characteristics under various levels of signal vacuum and valve setting with water supplied at 5 PSIG. The test data presented in the following tables are typical of the devices submitted.

"Mini-Jector Fuel Control" Valve Flow Characteristics
(Gallons per minute)

Valve Position Signal Vacuum (In.Hg.)	A	Settings C	E
0	1.1	1.1	1.1
16	1.1	1.1	1.1
18	0.9	1.1	1.1
20	0.8-0.4	1.1-0.9	1.1
22	0.6	1.0	1.1
24	0.5-0.1	0.9-0.2	1.1-0.8

IV. Staff Evaluation

The staff evaluation is divided into three parts: (A) Evaluation of the air leak into the intake system, (B) Failure mode of the diaphragm, and (C) Evaluation of the ARB test data.

A. Evaluation of Air Leak into the Intake System

In testing the "Mini-Jector Fuel Control" Series "M" device, the staff discovered the O-ring seals in the control knob housing was

allowing a small amount of air to enter the engine's intake system. The applicant has stated that proper measures had been taken to eliminate the air leak. The applicant submitted two additional devices for evaluation. The results of the ARB flow tests of the new units and the old units are showed in the table below. The amount of air leakage in the new units was considered negligible and judged to have an insignificant effect on the OEM emission control system. The new units will be identified by the letter "M" stamped on the side of the device housing.

<u>Vacuum (in.Hg.)</u>	<u>Air Flow Rate (Cubic Feet per Minute)</u>				
	<u>New Units</u>			<u>Old Units</u>	
	<u>Sample 1A Knob Position</u>	<u>Sample 2B</u>		<u>Knob Position</u>	<u>Knob Position</u>
	<u>A</u>	<u>B</u>		<u>A</u>	<u>B</u>
1	0.01	0.01		0.02	0.03
2	0.01	0.01	Less than	0.03	0.04
6	0.02	0.02	0.004 under	0.04	0.05
10	0.03	0.02	all conditions	0.04	0.05
16	0.03	0.03		0.04	0.05
22	0.03	0.03		0.03	0.04

B. Failure Mode of the Diaphragm

If the diaphragm between the fuel side and vacuum side of the device failed, fuel would be drawn into the intake system. This enrichment of the air/fuel ratio would be expected to increase hydrocarbon

and carbon monoxide emissions. The applicant submitted a specification of the diaphragm material which is claimed to be sufficient to withstand the stresses encountered with the operation of the device (Reference Exhibit D). The staff concurs with this opinion.

C. Evaluation of the Test Results

The emission and the bench flow data were performed with the old units. The device was tested at the setting A which represents the minimal rate of fuel flow when compared to the baseline flow rates. The maximum fuel flow rate with the device is still sufficient to supply the power demands of the engine, hence no leaning of the air fuel ratio would be expected. The device does not have the capability of increasing the fuel flow rate to the carburetor beyond the normal maximum capacity of the fuel pump. The ARB data shows that the "Mini-Jector Fuel Control" device has no significant effect on exhaust emissions or on fuel consumption. Therefore, the new units would be expected to show similar exhaust emission effects.

V. Conclusion and Recommendations

It is the staff opinion that the "Mini-Jector Fuel Control" Series "M" manufactured by Oxford Automotive Products will not adversely affect motor vehicle exhaust emission control systems and hence should be exempt from the prohibitions of Section 27156 of the California Motor Vehicle Code for all 1974 and older model-year vehicles.

PERCENT OF LINE LOAD

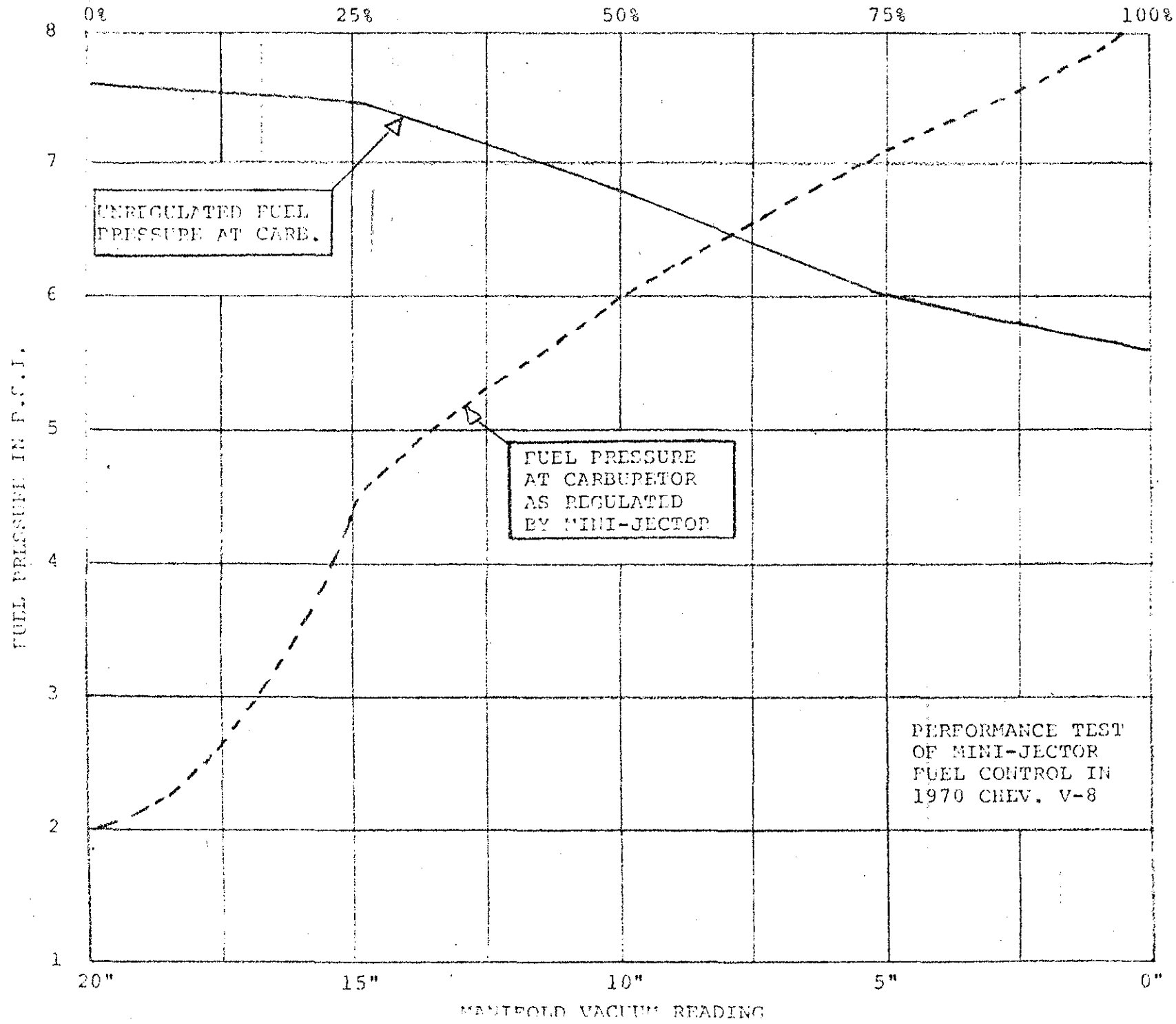


Figure 1 - Mini Fuel-Jector Calibration Curve

PERFORMANCE TEST
OF MINI-JECTOR
FUEL CONTROL IN
1970 CHEV. V-8

OXFORD AUTOMOTIVE PRODUCTS

DIVISION OF
OXFORD INDUSTRIES LTD.

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5165 Sherbrooke Street West
Suite 419
Montreal, Quebec

September 20, 1974

Mr. G.C. Hass
California Air Resources Board
9528 Telstar
El Monte, California 91731

Dear Sir,

Please be advised that Oxford Automotive Products of Montreal, Canada has purchased the patent rights and title to the G.T. Mini fuel-jetor from G.T. Performance Products of Branchville, New Jersey.

Enclosed are photo copies to that effect.

I would also like to advise you that our units will be manufactured as of the last two units which you inspected.

The application for approval which was made in behalf of G.T. Performance Products by Mr. Lowman of Duralon Industries of San Diego is still official.

Would you kindly forward any letters of approval to us at our Sherbrooke Street address in Montreal.

Thanking you, I remain,

Yours truly,



Norman Nulman
Executive Vice-President

Enc:
NN/dk

OXFORD AUTOMOTIVE PRODUCTS

DIVISION OF
OXFORD INDUSTRIES LTD.

— 3 —

5165 Sherbrooke Street West
Suite 419
Montreal, Quebec

June 26, 1974

GT Performance Products, Inc.,
Highway 206,
Branchville, New Jersey 07826Attention: Mr. James J. Spanos
President and Chairman

Dear Mr. Spanos,

This letter serves as a purchase offer for the purchase of the GT Mini Fuel-jector product that is manufactured by GT Performance Products, Inc. This will include the purchase of all inventory as per list attached, patent rights, and applications both global and domestic U.S. This does not include the purchase of GT as a corporation.

The purchase of the product will include all trademark or registered names such as, GT Performance Products and Mini Fuel-jector.

It is understood that the purchase price includes any and all taxes that may be due. It is also understood that the inventory purchase is free of all encumbrances with respect to any third party creditors or claimants.

You will provide us with a bulk sales affidavit which is standard in New Jersey, Pennsylvania and New York. You will also provide us with the standard customary clause to protect the purchasers as is standard in the abovementioned states.

The offer price for the above mentioned is \$~~2,500,000~~ U.S. funds which includes the release of Oxford Industries Ltd. any royalty commitment as outlined in the Agreement between Oxford Industries Ltd. and GT Performance Products dated March 6, 1974.

. . . /2

The attached cheque of \$6,000.00 will cause this contract to be binding and will act as down payment for the abovementioned Agreement. The following will include the pay-out for the remainder of ~~\$120,000~~ which will be paid in the following manner:

Five months equal payment of ~~\$24,000~~ payable on the 30th day commencing July 30, 1974.

The balance of ~~\$120,000~~ to be made in six(6) equal payments of ~~\$20,000~~ per month commencing December 30, 1974

These cheques should be paid to Marchant and Edwards, C.P.A., 24 Front Street, Port Jervis, New York

For this Agreement to be valid and binding, GT Performance Products, Inc. shall furnish Oxford Industries Ltd. all convention applications for patents, assignments to be executed by Mr. Almquist for global patent rights specifically United Kingdom, Japan, Canada and France.

It is also understood that any stockholders or board members or past officers and/or their corporations will not including GT Performance Products, Inc. engage in the manufacture or assembly in the Mini fuel-jectors for a period of ten(10) years.

It is also understood that GT will make every effort to maintain the premises of Highway 206 for a period of ninety(90) days or 13,000 units whichever is the lesser at the expense of Oxford Industries Ltd. for labour and overhead expenses that would be acquired in that period of time. Overhead expenses shall consist of light, power, telephone and insurance specifically fire and theft.

In the event Oxford Industries Ltd. fails to make payment as scheduled, the royalty agreement stated above is waived and, Oxford Industries Ltd. will have to pay for royalties as stated in original contract dated March 6, 1974 with a grace period of ten(10) days. In the event GT fails to adhere to the terms of the purchase agreement and if for this reason Oxford Industries Ltd. withholds payment then the ~~immediate~~ paragraph above will be waived by GT Performance Products, Inc. *This JPA*

Yours very truly,

OXFORD INDUSTRIES LTD.

Jack Singer
Jack Singer, C.A.

Witness:

M. Orange

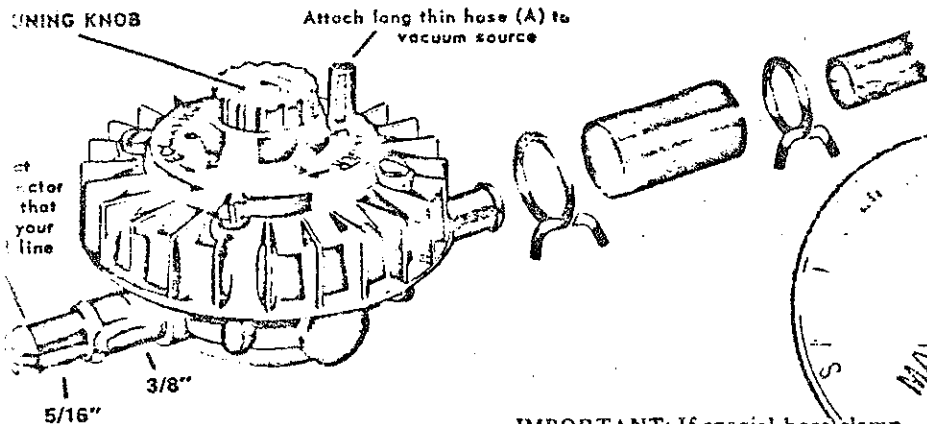
As the power invested in me as the President and Chairman of GT Performance Products, Inc. to accept this offer as an duly authorized.

Signature:

James A. Spang
James A. Spang

Witness:

M. Orange



HOW TO INSTALL YOUR MINI FUEL-JECTOR

Your MINI FUEL-JECTOR may be installed anywhere in the fuel line between fuel pump and carburetor. The preferred location is near the carburetor.

However, the unit will operate side down or at any angle without bending. Only in rare cases, will the fuel line need to be bent.

If you have a rubber fuel line, simply cut out a 4 inch section at any location where there is enough space. Using pliers, slip the four clamps over the hose and install the MINI FUEL-JECTOR.

If your fuel line is all metal, cut out a 4 inch section at any location where there is enough space. If the fuel line must be bent in order to make room, a single cut will usually suffice. Use a tubing cutter if you have one. If a hacksaw or file is used, be sure metal burrs and burrs are removed. To safeguard against possible leaks, it would be advisable to flare ends of metal tubing after cutting.

Hose adaptors and clamps are provided to fit all popular engines. Select appropriate size to fit your fuel line and slip one piece of hose on each end and about half way. Then, slide a clamp over EACH portion that fits over the cut ends of the fuel line. Next, slide a clamp over each hose before installing the MINI FUEL-JECTOR. Tightening the hose connectors will make installation easy. Be sure to install clamps near each end of the hoses to insure a leak-free connection.

IMPORTANT: If special hose clamp pliers are not available, use regular pliers. Be sure to compress the clamps only enough to slip over the hoses. Otherwise, clamps will lose strength.

NOTE: Occasionally, cars with air conditioning may have very little working space under the hood. If necessary, reroute the fuel line by bending it. If extra fuel line hose is required, it may be purchased from any garage or auto parts store. Be careful not to locate the MINI FUEL-JECTOR or any part of the hose near the exhaust manifold or higher than the carburetor inlet.

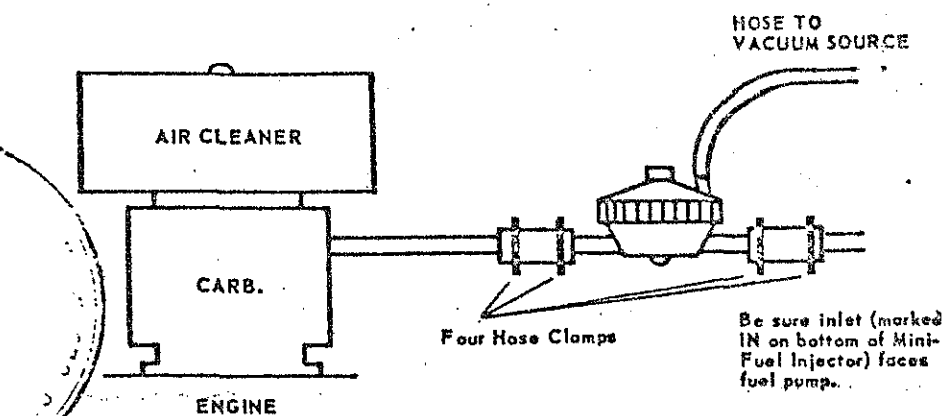
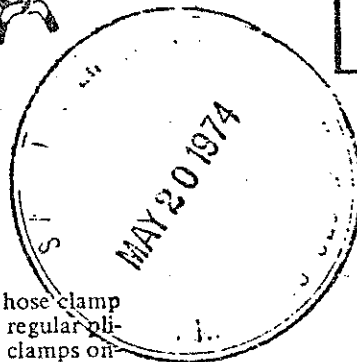
The MINI FUEL-JECTOR comes factory adjusted to be used as a variable fuel control . . . but, also may be used as a constant pressure control (as indicated in paragraph "B" below).

(A) PREFERRED HOOK-UP

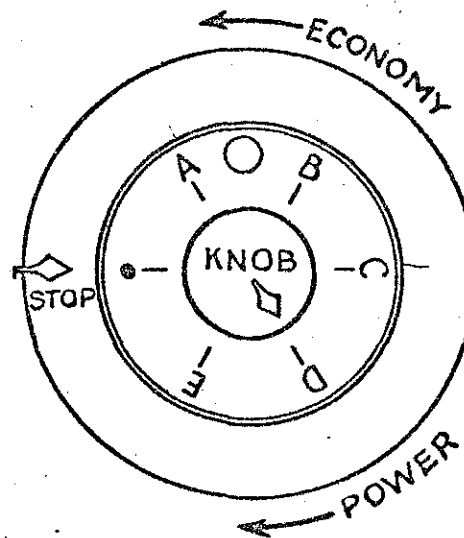
Simply slip the rubber tubing provided over the small (top) vertical tube "A" shown in the illustration. Then, connect the other end to any convenient engine manifold vacuum source (Direct manifold vacuum source will provide full vacuum) the key to our system. If necessary, cut the rubber advance line leading to the distributor . . . and insert the "T" shaped connector provided. Then, connect the tubing leading from the MINI FUEL-JECTOR. Cut excess off.

(B) OPTIONAL HOOK-UP

The MINI FUEL-JECTOR may be used as a straight fuel pressure regulator by simply OMITTING the vacuum connection. As such, it will provide the recognized advantages of a pulsation damper as it reduces harmful fuel pump pressures to a S-M-O-O-T-H economical flow. For maximum mileage, turn adjusting knob counter-clockwise. For racing, turn knob clockwise.



HOW TO USE THE PRESSURE TUNER FOR OPTIONAL ADJUSTMENT



The MINI FUEL-JECTOR comes adjusted for your engine. However, a special "Tuning Knob" has been provided so that you may experiment with different pressure range settings if you so desire. To change adjustment, simply press down and turn the tuning knob right (clockwise) to INCREASE . . . and left (counter-clockwise) to DECREASE outlet pressure. On larger engines, do not turn the tuning knob too far counter-clockwise, as it may

NOT supply enough fuel. To "fine-tune", simply turn the knob clockwise until the idle remains smooth.

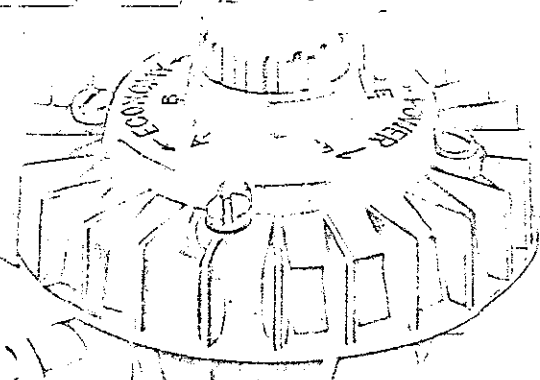
There are FIVE different pressure ranges. When making adjustments, always remember to push the knob DOWN while turning the knob clockwise so that the knob will "climb" the next internal cam.

FURTHER PROOF: After installing your MINI FUEL-JECTOR, you can actually feel the improvement in fuel system performance. Make this test: With your engine running, simply touch the fuel line on the OUTLET side of the MINI FUEL-JECTOR and you will notice that the MINI FUEL-JECTOR has eliminated the throbbing fuel line "knock" that exists on the INLET side. This proves that the MINI FUEL-JECTOR reduces harmful fuel pump pulsations that otherwise would cause carburetor wear, float "bob" and fuel waste. Though rare, a metal fuel line may vibrate. This is normal. To reduce excessive vibration, simply tie the inlet line to any convenient point.

NOTE: In rare instances, your starting procedure may have to be changed. For example, the accelerator pedal may have to be pumped before starting.

Exhibit B

NEW



Patent Pending

Mini Fuel-Jector

with Universal Jet

vacuum powered fuel controller . . .

automatically controls fuel delivery through unique sensing of engine demand and feeds the exact fuel required for maximum economy and passing power!

GASOLINE SAVINGS

up to 25%
and more

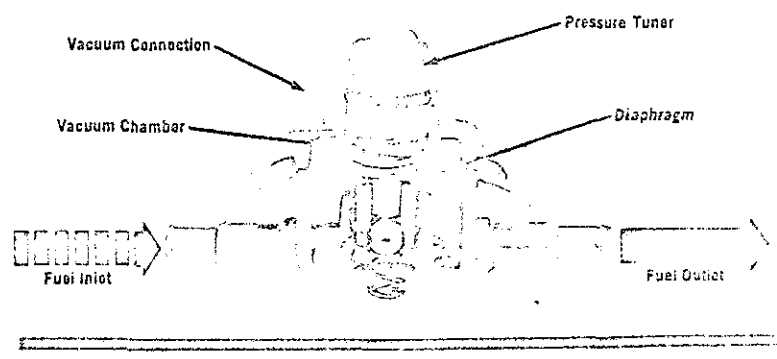
...by proven tests

Independent controlled testing* conducted with Dynamometer control shows:

- ❑ Improved acceleration
- ❑ Fuel economy (both long and short trips)
- ❑ Smoother overall performance
- ❑ Easier starting
- ❑ Fights pollution
- ❑ Eliminates vapor lock and flooding
- ❑ Adjustable pressure tuner for maximum economy or power
- ❑ Fits all cars, trucks, tractors, stationary or racing engines

HOW THE MINI FUEL-JECTOR WORKS:

Gasoline, from the fuel pump, enters the Mini Fuel-Jector with "hammering", intermittent pulsations and passes around the hemispherical valve into the carburetor fuel line. The high pressure surges of fuel exert force against the underside of the diaphragm tending to close the valve. The resulting reduced fuel pressure permits the valve to open again — delivering a full EVEN flow of fuel to the carburetor adequate for normal speeds. But, when a sudden demand is made on the engine for more power, the consequent reduction in manifold vacuum instantly releases the upper spring from its compressed position. This force overrides the pressure regulating diaphragm and holds the valve open so both fuel pressure and volume are stepped up to FULL pump capacity.





GT PERFORMANCE PRODUCTS, INC.

OVER TWENTY-FIVE YEARS OF TREND-SETTING

HIGHWAY 206, BRANCHVILLE, NEW JERSEY 07826 AREA 201-948-4303

June 14, 1974

Mr. Amir Tacawy
State of California
Air Resource Board
9528 Telstar Avenue
El Monte, CA 91731

Dear Mr. Tacawy:

Confirming our conversation of Tuesday, June 11, you mentioned three points of interest in qualifying the MINI FUEL JECTOR in the state of California.

1. Strength of the diaphragm.
2. Question of vapor-lock.
3. Leaning of mixture at low flow.

Enclosed is a specification sheet on the diaphragm that is used in our MFJ. The manufacturer has assured us that this diaphragm has both durability and strength to withstand the conditions exposed to in our MFJ. The spec sheet will support the product.

Vapor-lock. Vaporization of fuel in the fuel system prevents the carburetor from receiving the necessary volume of liquid fuel to run the engine. Vapor-lock is usually due to extreme heat caused by hot weather, pulling heavy loads, high altitude driving, hard, fast driving, an inefficient cooling system or stop and go driving in slow traffic. Vapor-lock can also occur as a result of using volatile low grade gasoline or gasoline designed for winter use and which vaporizes more readily in warm weather.

The Mini Fuel Jector can help correct this "hot" fuel problem by holding the fuel in the line under compression so it will not vaporize until after it is delivered to the carburetor.

The Mini Fuel Jector can also reduce vapor lock tendency by increasing fuel pump output during the non-pumping part of the pump stroke.

June 14, 1974
Mr. Amir Tacawy
Page 2

With the Mini Fuel Jector, there is practically no opportunity for vapor-lock to occur as a result of reduced pressure, because vapor present in the fuel line will be harmlessly controlled in the MFJ's fuel chamber where it tends to additionally cushion the flow of gasoline and therefore, do no harm.

In reference to leaning of the mixture at low flow: The product at the "A" setting (low flow) is designed to feed the minimum amount of fuel. As you explained the oxides of nitrogen increase is due to more fuel to air mixture.


I am totally surprised that we lean the mixture at the low flow. I would suspect it on the "E" setting.

The basic principle of our system is to feed fuel on demand. On hard acceleration the vacuum is depleted, the pusher valve is completely depressed and the fuel flows. On stop and go driving, the vacuum, which is constant, raises the diaphragm which lifts the valve and provides fuel required for the driving conditions.

Our "A" to "E" settings do not restrict pressure like a pressure regulator. Once you have selected the proper setting for a vehicle, the vacuum overrides the setting and feeds fuel as required. The control knob is designed for various size engines and their fuel requirements.

We hope that we have supplied you with enough information to approve our product. If there are any questions, please don't hesitate to contact me.

Sincerely yours,


James J. Spanos
President

JJS:gc
Enc.

a division of The Richardson Company 579 SOUTH AVENUE, BEACON, NEW YORK 12508 ☐ 914/831-2800

Chemprene, Inc., Beacon, N. Y.

CRP 6023 - Data Sheet

	Properties of CRP Spec. 6023	Specification Mil-C-8068B Type II	Requirements AMS 3274-D
<u>Coating Compound # 623</u>			
<u>Original Properties</u>			
Hardness, Shore A, Points	60 ± 5	60 ± 5	
Tensile Strength, PSI	1875	1500 min.	
Elongation, %	425	400 min.	
<u>Air Aged 70 hrs. @ 212°F</u>			
Hardness, Points Change	+7	± 15 max.	
Tensile Strength Change	+10%	-15% max.	
Elongation Change	-26%	-60% max.	
<u>ASTM Ref. Fuel A (Mil-S-3136 Type I) - 70 hrs. @ 75°F</u>			
Tensile Strength Change	-3.7%	± 25% max.	
Elongation Change	-8.7%	± 15% max.	
Volume Change	-5.0%	-10% max.	
<u>ASTM Ref. Fuel B (Mil-S-3136 Type III) - 70 hrs. @ 75°F</u>			
Tensile Strength Change	-30%	-40% max.	
Elongation Change	-33%	-35% max.	
Volume Change	+17%	+25% max.	
<u>Fabric Substrate</u>			
Nylon	Plain weave		Plain weave or 2/1 Twill
Weight, oz./sq. yd.	5.5	5.5	
Count, ends/inch	90 x 90	90 x 90	
Breaking Strength, Grab	350 x 350 lbs.	300 x 300 lbs. min.	
<u>Coated Fabric</u>			
Weight, oz./sq. yd.	20.0		
Thickness	.025 ± .002"	.025 ± .002"	.025 ± .002"
Breaking Strength (Grab Method)	350 x 350 lbs.		300 x 300 lbs. min.
Burst Strength, Original	600 lbs.	500 lbs.	500 lbs. min.
Burst After 70 hrs. /212°F Air Age	500 lbs.	500 lbs. min.	500 lbs. min.
Burst After 70 hrs. /75°F Type I Fuel	500 lbs.	500 lbs. min.	
Burst After 70 hrs. /75°F Type III Fuel	500 lbs.	500 lbs. min.	
Tear, Trapezoid - ASTM D751	25 x 25 lbs.		25 x 25 lbs.
ASTM Ref. Fuel 'A' -24 hrs. /75°F Vol. Chge.	-20%		-25/0 %
ASTM Ref. Fuel 'B' -24 hrs. /75°F Vol. Chge.	+30%		0/+40%
ASTM Ref. Fuel 'B' Dried 24 hrs. /158°F	-25%		-25/0%
Adhesion, lbs./in. Peel	7.0	4.0 min.	7.0 min.
Low Temp. Brittleness, 10 mins. /-67°F	Pass	Flexible	Pass

HERCULES PACKING • 11061 WALDEN ROAD, ALDEN, NEW YORK 14004 • 716/684-2300

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