

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-195-1
Relating to Exemptions Under Section 27156
of the Vehicle Code

PAXTON PRODUCTS, INC.
SUPERCHARGER KIT MODEL NO. 10019

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the add-on supercharger kit model number 10019 manufactured by Paxton Products, Inc., of 929 Olympic Blvd., Santa Monica, California 90404-3795, has been found not to 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 1986-1990 model-year Ford Motor Company Bronco and F-150 vehicles powered by a 302 or a 351 CID engine.

This Executive Order is valid provided that installation instructions for this supercharger kit will not recommend tuning the vehicle to specifications different from those submitted by Paxton Products, Inc.

Changes made to the design or operating conditions of the supercharger kit, 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 supercharger kit using an identification other than that shown in this Executive Order or marketing of this supercharger kit for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of a supercharger kit shall not be construed as an exemption to sell, offer for sale, or advertise any component of the kit as an individual device.

This Executive Order does not constitute any opinion as to the effect that the use of this supercharger kit 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 PAXTON PRODUCTS, INC. SUPERCHARGER KIT MODEL NO. 10019.

No claim of any kind, such as "Approved by the 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.

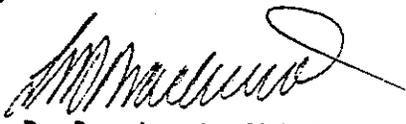
Section 43644 of the Health and Safety Code provides as follows:

"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.

Executive Order D-195, dated August 3, 1989, is superseded and of no further force and effect.

Executed at El Monte, California, this 27th day of October, 1989.


K. D. Drachand, Chief
Mobile Source Division

EVALUATION OF PAXTON PRODUCTS, INC.'S ADD-ON SUPERCHARGER KIT
MODEL NO. 10019 FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE
CALIFORNIA CODE OF REGULATIONS

by

Mobile Source Division
State of California
Air Resources Board
9528 Telstar Avenue
El Monte, CA 91731

(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

State of California
AIR RESOURCES BOARD

EVALUATION OF PAXTON PRODUCTS, INC.'S ADD-ON SUPERCHARGER KIT
MODEL NO. 10019 FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE
CALIFORNIA CODE OF REGULATIONS

October 1989

SUMMARY

Paxton Products, Inc. (Paxton) has requested an update to the existing Air Resources Board's Executive Order (E.O.) D-195 which exempted Paxton's add-on supercharger kit model number 10019 from the prohibitions in California Vehicle Code Section 27156. The update request is to include the 1990 model year Ford Motor Company Bronco and F-150 vehicles powered by a 302 or a 351 CID engine.

Paxton has previously demonstrated, using a 1988 Ford Bronco powered by a 351 CID engine, that their add-on supercharger kit model number 10019 will not adversely affect emissions from the 1986-1990 model year Ford Motor Company Bronco and F-150 vehicles powered by a 302 or a 351 CID engine.

Based on the results from the comparative emission tests previously performed by Paxton, and confirmed by the ARB, and that the 1990 vehicles for which exemption update is requested are carry-overs from the 1989 models, the staff concludes that Paxton's add-on supercharger kit will not adversely affect exhaust emissions from vehicles for which exemption is requested.

The staff recommends that Paxton be granted an exemption for their add-on supercharger kit model number 10019 for installation on 1986-1990 Ford Motor Company Bronco and F-150 vehicles powered by a 302 or a 351 CID engine, and that Executive Order D-195-1 be issued.

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EVALUATION OF PAXTON PRODUCTS, INC'S ADD-ON SUPERCHARGER KIT NO. 10019 FOR EXEMPTION FROM THE PROHIBITIONS IN VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTIONS 2222, TITLE 13, OF THE CALIFORNIA CODE OF REGULATIONS

I. INTRODUCTION

Paxton Products, Inc. (Paxton), of 929 Olympic Blvd., Santa Monica, California 90404-3795, has requested an update to the existing Air Resources Board's Executive Order (E.O.) D-195 which exempted Paxton's add-on supercharger kit model number 10019 from the prohibitions in California Vehicle Code Section 27156. The update request is to include the 1990 Ford Motor Company (Ford) and F-150 vehicles powered by a 302 or a 351 CID engine.

Paxton has previously demonstrated, using a 1989 Ford Bronco powered by a 351 CID engine, that their add-on supercharger kit model number 10019 will not adversely affect emissions from 1986-1989 model year Ford Bronco and F-150 vehicles powered by a 302 or a 351 CID engine.

II. CONCLUSION

Based on the results from comparative emission tests previously performed by Paxton, and confirmed by the Air Resources Board (ARB), and that the 1990 model year vehicles for which exemption update is requested are carry-overs from the 1989 models, the staff concludes that Paxton's add-on supercharger kit will not adversely affect exhaust emissions from vehicles for which the exemption update is requested.

III. RECOMMENDATIONS

The staff recommends that Paxton be granted an exemption for their add-on supercharger kit model number 10019 for installation on 1986-1990 Ford Bronco and F-150 vehicles powered by a 302 or a 351 CID engine. The staff also recommends that Executive Order D-195-1 be issued.

IV. SUPERCHARGER KIT DESCRIPTION AND OPERATION

The Paxton supercharger kit is specifically designed for installation on 1986-1990 Ford Bronco and F-150 vehicles powered by a 302 or a 351 CID engine. The kit operates in conjunction with the original equipment manufacturer (OEM) computer controlled electronic port fuel injection and emission control systems already certified with the stock engine. All the necessary hardware and supplies for installing the supercharger are included in the kit.

The purpose of supercharging an engine is to increase the volumetric efficiency of an engine by forcing more air into an engine than it would consume naturally aspirated (non-supercharged condition). This is accomplished by the addition of a centrifugal blower (Paxton P/N SN-60) that is belt driven at 1.5 times the speed of the engine. Intake air is delivered from the OEM air filtering system to the centrifugal blower. It is then compressed by the supercharger and routed to the throttle body of the electronic fuel injection system.

Maximum positive manifold pressure (boost) is limited to 5 psig by the blower scroll housing and the impeller design. No wastegate or other active boost limiting device is used.

To provide additional fuel to maintain proper air/fuel ratios during boost conditions a fuel control unit is added. The fuel control unit when placed in series with the OEM fuel pressure regulator in the fuel return line will increase the fuel pressure, and fuel delivery, under boost conditions. The unit is activated by a solenoid valve that is turned "on" and "off" via a pressure switch set at 0.95 psi based on the inlet manifold pressure. The fuel control unit has a static set pressure of 70 psi. Maximum static pressure of the OEM fuel pressure regulator is about 34 psi.

The blower is self lubricated by a piston-type oil pump. The oil sump has a capacity of 10 fluid ounces and uses type "A" automatic transmission fluid.

All OEM emission controls are left intact.

V. DISCUSSION

Paxton's add-on supercharger kit model number 10019 applicable for 1986-1989 model year Ford Bronco and F-150 vehicles powered by a 302 or a 351 CID engine was granted an exemption (E.O. D-195) on August 3, 1989. The exemption was granted on the basis that the effectiveness of the vehicle's pollution control system was not reduced. Evaluation consisted of comparative (baseline versus supercharged) CVS-75 and Highway Fuel Economy tests at normal certification dynamometer road loading.

The applicant requested that the exemption be updated to include the 1990 model year Ford Bronco and F-150 vehicles powered by a 302 or a 351 CID engine.

In response to the request, the staff compared the engine design of the 1986-1989 to the 1990 model year Ford Bronco and F-150 vehicles powered by a 302 or a 351 CID engine and found that the engines and emission control systems on these 1990 model year vehicles are carry-overs from the 1989 models. The staff, therefore, is of the opinion that the 1990 models will have the same degree of performance/emissions impact as the previous model year vehicles. Since the data from a 1988 model year Ford Bronco test vehicle showed that the vehicle's emissions were not adversely affected when the supercharger kit was installed, the Paxton kit will have no adverse effect on the 1990 models. No additional testing was required or performed for updating the exemption.

APPENDIX



Installation Instructions

And Owner's Manual

BRONCO + F150
1986-~~89~~ MODELS
90

ALL FUEL INJECTED 302 + 351 ENGINES

California or Federal Models*
(With or Without Air Conditioning)

*California Air Resources Board Exemption Order D-195 - |

Form No. 6189250

Supercharger Serial Number: _____

Date of Shipment: _____

PAXTON PRODUCTS, INC.

929 Olympic Boulevard
Santa Monica, CA 90404 U.S.A.
(213) 450-4800

90

1986-1989 BRONCO/F150P/N 10019

Before installing your new Paxton Supercharger Kit, you should check the following items:

1. Engine Compression should be within Vehicle Manufacturer's specifications, and all cylinders should be within 10 pounds of each other.
2. Engine Timing should be at 10 degrees BTDC, per Manufacturer's specifications.
3. Spark plugs should be in good working order and conform to Manufacturer's specifications.

PREPARATION INSTRUCTIONS

1. Remove air intake hoses between the air cleaner and throttle body.
2. Remove stock fan and fan-clutch assembly.
3. Remove serpentine accessory drive belt.
4. Discharge air conditioner.
5. Remove A/C lines from rear of compressor.
6. Remove A/C compressor (save stock mounting bolts).
7. Drain power steering fluid from pump.
8. Disconnect lines from power steering pump.
9. Remove stock A/C, power steering bracket from vehicle by removing the 3 stock bolts (save bolts).
10. Remove power steering pump pulley from the pump using a pulley puller (as shown in Fig. 1).
11. Remove the pump from the bracket by removing the 3 mounting bolts (save bolts).
12. Re-install the pump to the Supercharger mounting bracket (P/N 48042) using the stock bolts, as shown in Fig. 2.
13. Re-install the pulley on the pump shaft.
14. Remove crankshaft pulley by removing the 4 stock bolts.

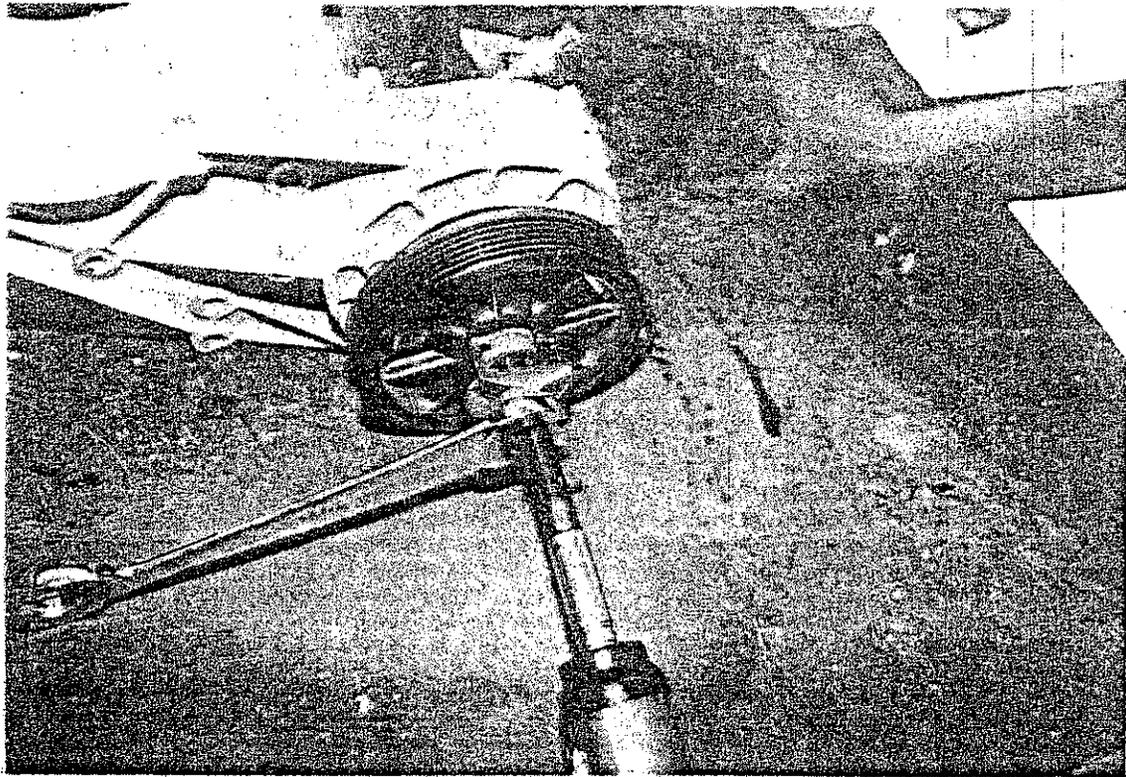


Fig. #1



Fig. #2

90

1986-1989 BRONCO/F150

INSTALLATION INSTRUCTIONS

P/N 10019

1. Install the Paxton Supercharger crank pulley (P/N 48032-600) inside the stock crankshaft pulley and re-install using the four 3/8-16 x 2-1/4 bolts (P/N 102659), 3/8 flat washers (P/N 100375) and 3/8 lock washers (P/N 38276) provided, as shown in Fig. 3.

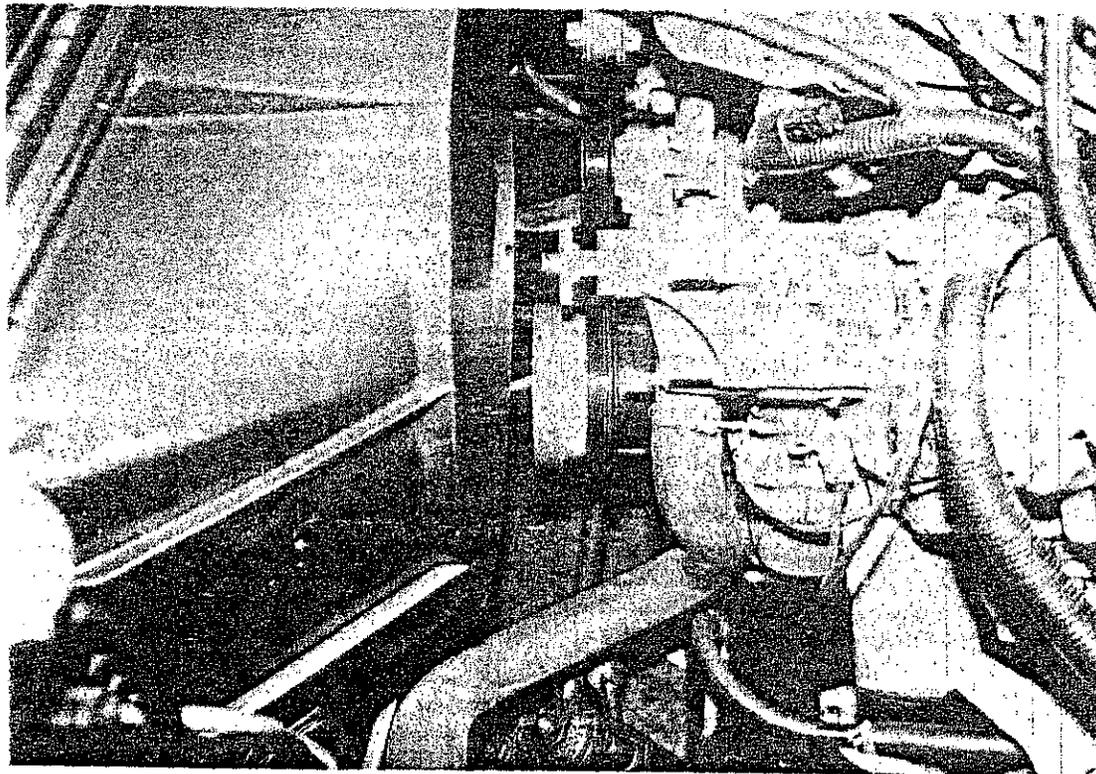


Fig. #3

2. Install the power steering pump pulley on the pump shaft.
- 3A. 1986-1987 Air Conditioned Models:
Using the 3 mounting braces provided (P/N 48047) and the bolts and washers provided (P/N's 102148, 105587, 38276, 100357), install the A/C compressor to the S/C mounting bracket with the ports to the outboard side.
- 3B. 1988-1989 Air Conditioned Models:
Using the stock mounting bolts, install the A/C compressor to the S/C mounting bracket.
- 3C. 1989 A/C Line Extension:
On some 1989 models the A/C lines will not reach with the compressor in the new position. Extend the lines by cutting the already discharged A/C lines as close to the A/C block as possible. See Fig. 4.

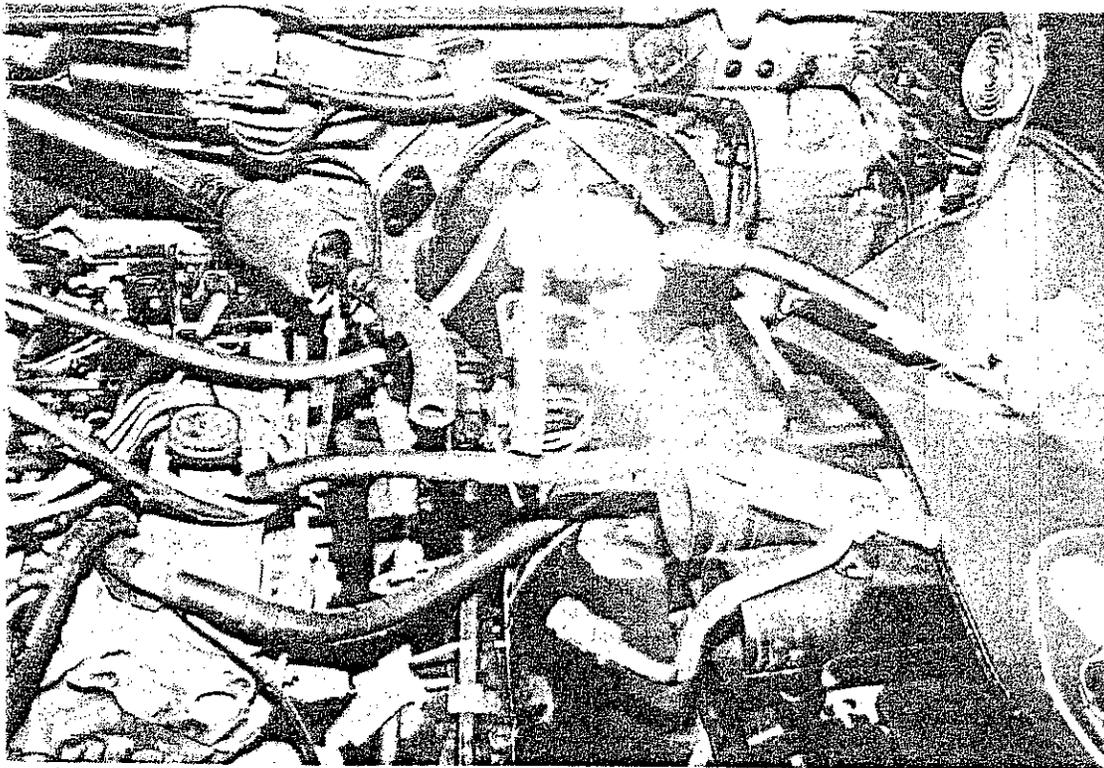


Fig. #4

- 3D. Connect the A/C Fitting Kit (P/N 48150M) to the lines provided (P/N's 48163-4 and 48164-18) and the numbers 12 and 8 hose-to-hose fittings (P/N's 48161 and 48162) as per Fig. 5. (Use special hose clamps provided).

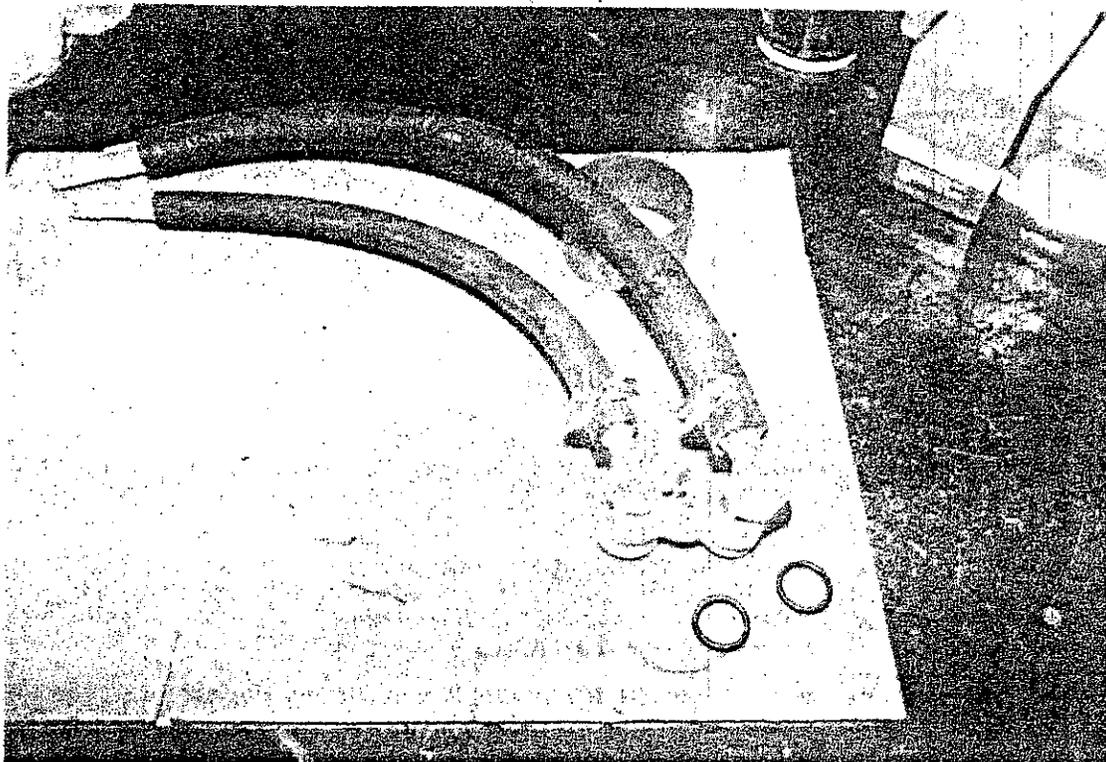


Fig. #5

- 3E. Using the stock mounting bolt, connect the A/C Fitting Kit to the compressor as shown in Fig. 6.

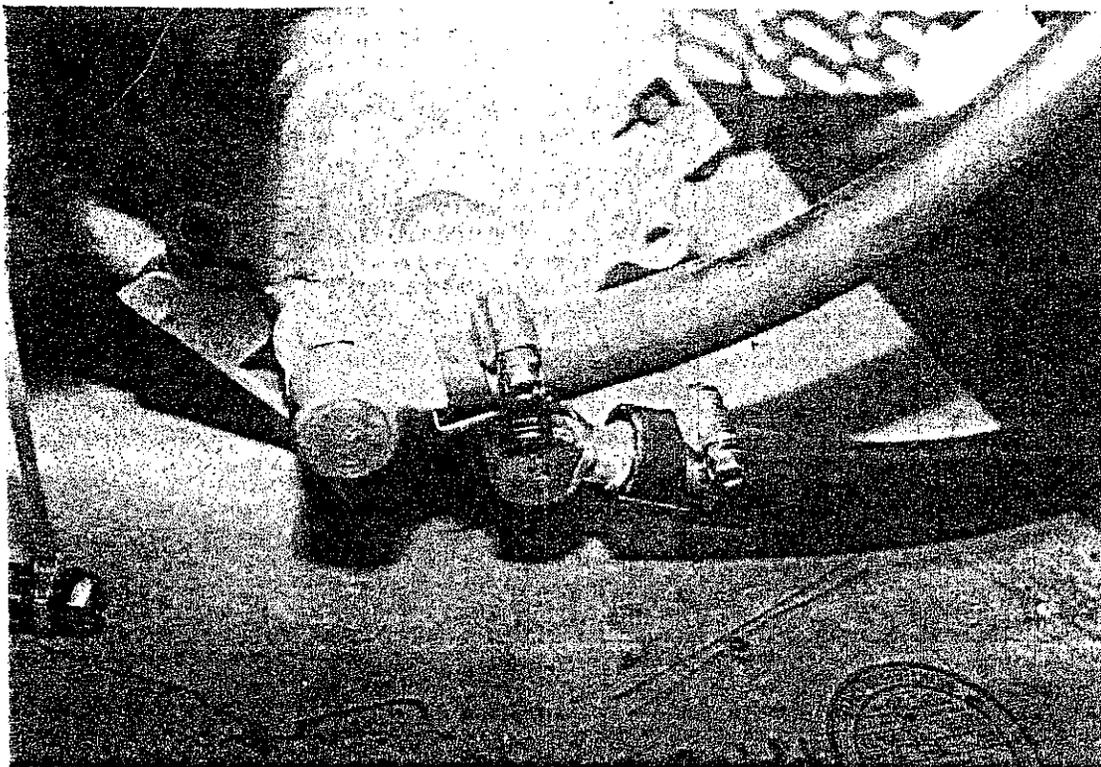


Fig. #6

4. Using the stock mounting bolts (saved in Step 9 of Preparation Instructions), install the Paxton Supercharger mounting bracket (P/N 48042) to the engine. Use the spacer provided (P/N 48055) between the water pump and mounting bracket as shown in Fig. 7. Secure with stock bolts, nuts and washers provided (P/N's 38656 and 100375).
- 4A. 1989 Models:
Connect the cut A/C line to the hose-to-hose fittings and secure with special clamps provided.
- 4B. If the stock A/C wire plug will not reach, use the A/C Wire Kit (P/N 10180) provided to lengthen loom.
5. Install the radiator fan studs (P/N 38830), fan spacer (P/N 48152) and fan as shown in Fig. 7. Secure with 5/16 nuts and washers provided (P/N's 100271 and 101023).
6. Secure the idler arm bracket (P/N 48185) to the mounting bracket using the 3/8-16 x 1 bolts and washers provided (P/N's 102149, 104679 and 38276) as per Figs. 7 and 8. (Do not tighten yet.)

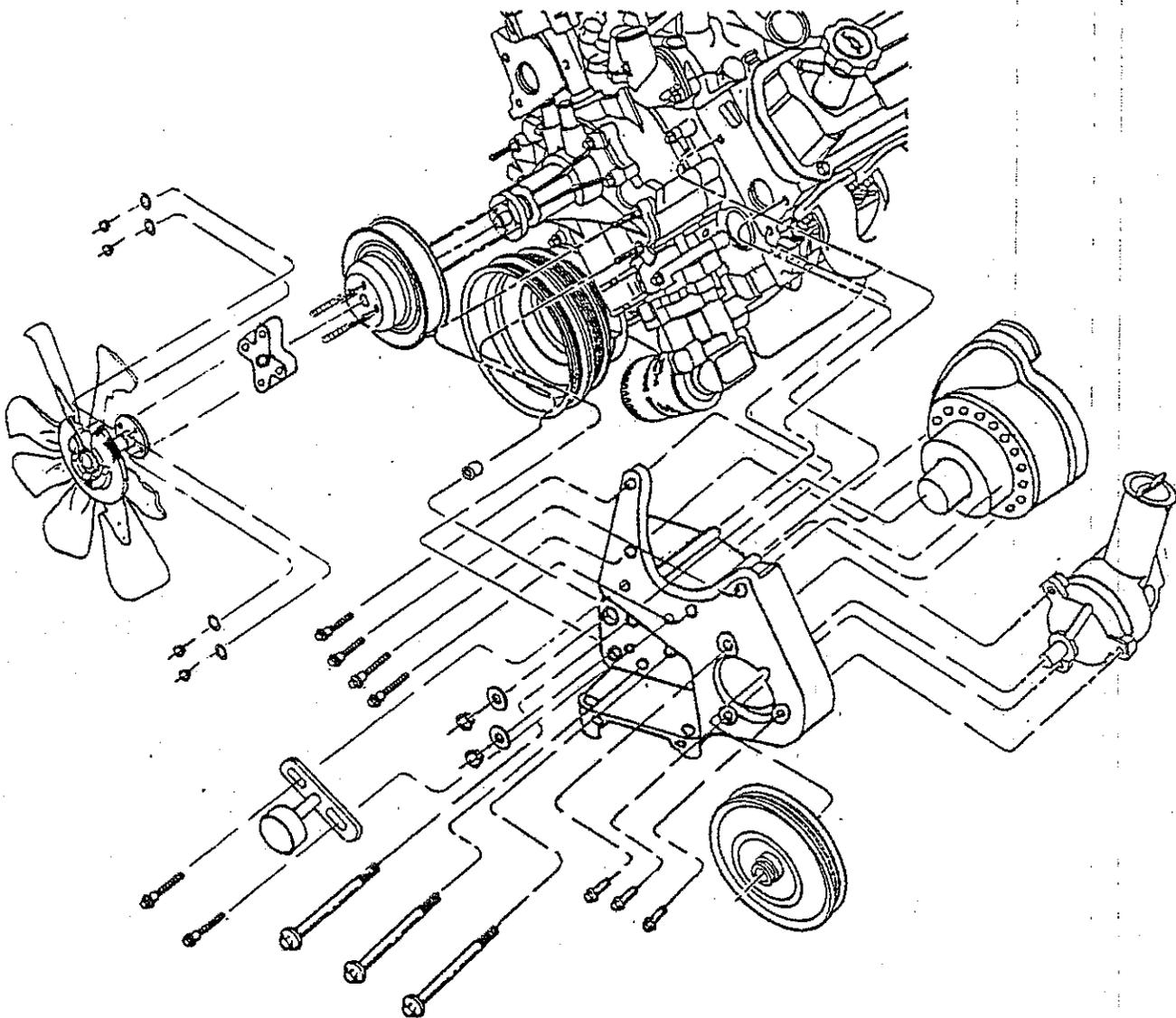


Fig. #7

7. Install the Paxton Supercharger (P/N 10161) to the mounting bracket using the four 5/16-18 x 1-1/4 bolts and washers (P/N's 27372 and 27150) as per Fig. 7. Make sure the red "Paxton Supercharger" label is in the top dead center position. Fill with 10 oz (between the first and second mark on the dipstick) of Type FA Transmission Fluid provided (P/N 48500). Note: Special "Paxta-Trak" Fluid can be used in place of FA Transmission Fluid. Paxta-Trak can be purchased directly from the Paxton factory or your local distributor.
8. Install the Paxton Fuel Control Unit (P/N 10177) as per the instructions that came with the unit.

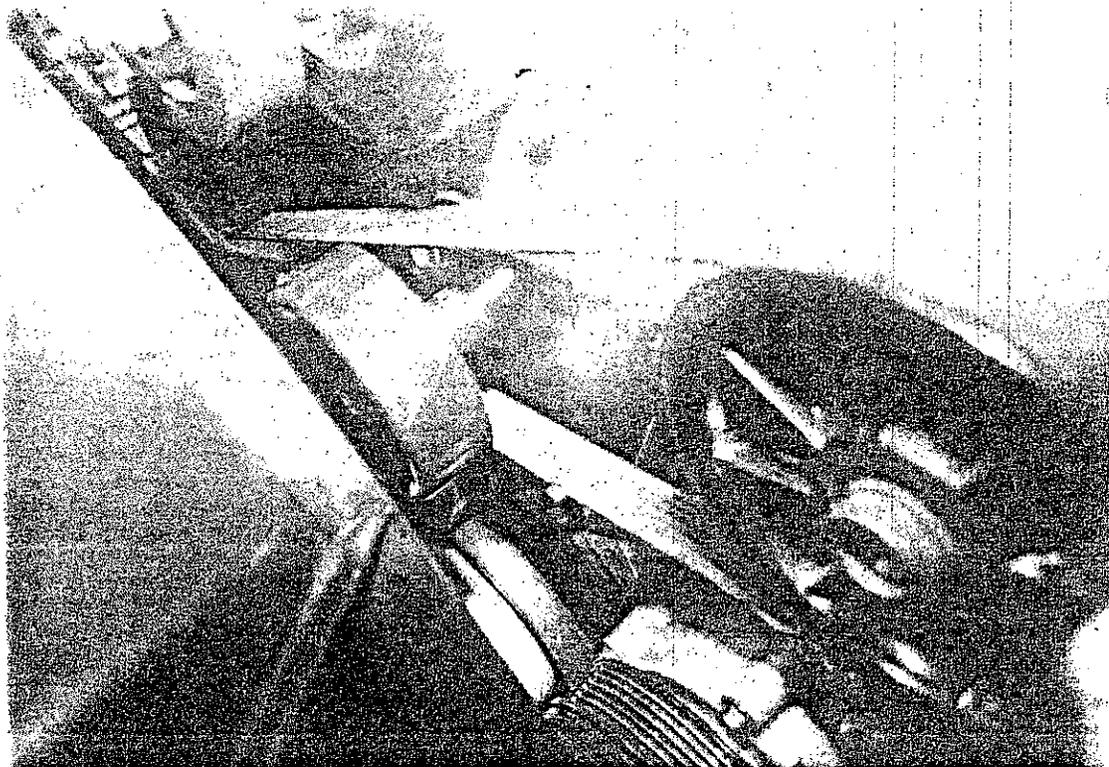


Fig. #8

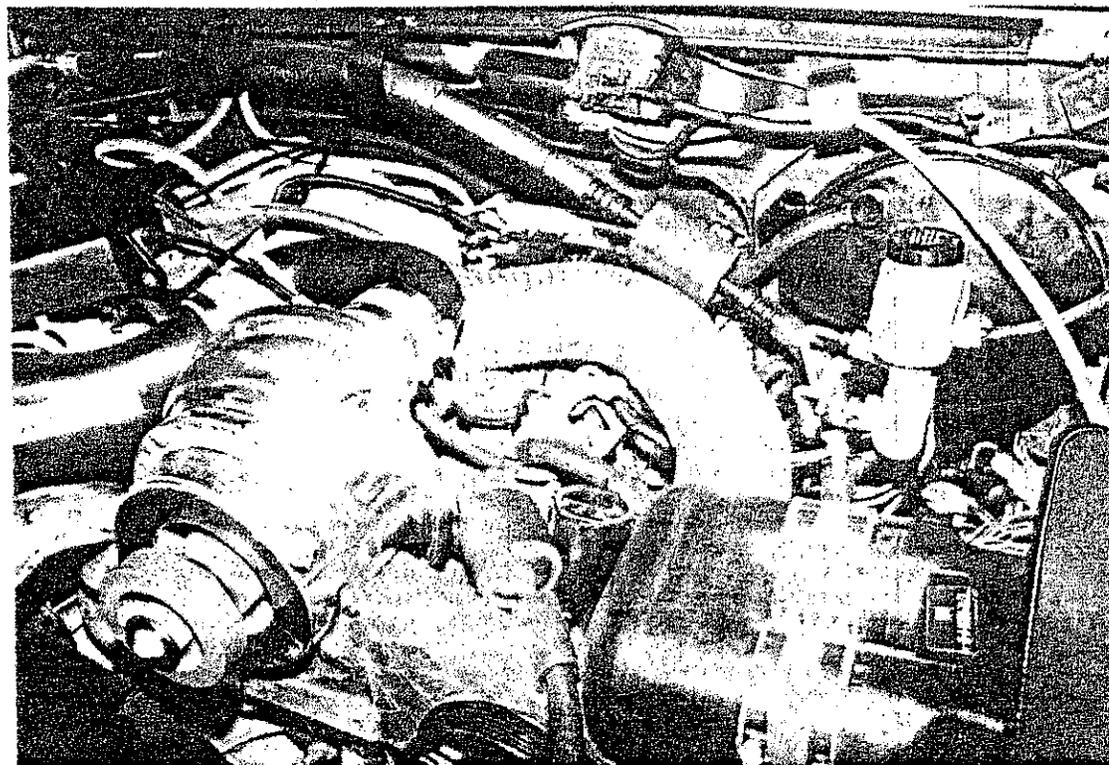


Fig. #9

9. Using the clamp provided (P/N HC-52), secure the 3-1/2" flex tubing to the intake side of the Supercharger, route tubing behind the oil filler cap as shown in Fig. 9.
10. Place the 3" x 2" connector sleeves (P/N 27468-T-SLV2) onto the stock air cleaner, and secure with clamps provided (P/N HC-48) as shown in Fig. 9.
11. Place the 3-1/2" flex tube from step 9 onto the 3-1/2" port of the intake plenum (P/N 48049) and secure with clamp provided (P/N HC-52).
12. Slide the intake plenum (P/N 48049) into the two connector sleeves on the air cleaner as shown in Fig. 9, and clamp with clamps provided (P/N HC-48).
13. Place the two 2-1/4 x 2" connector sleeves (P/N 48048-T-SLV2) onto the throttle body inlet and secure with clamps provided (P/N HC-36).
14. Slide the discharge plenum (P/N 48053) into the sleeves on the throttle body and secure with clamps provided (P/N HC-36) as per Fig. 10.

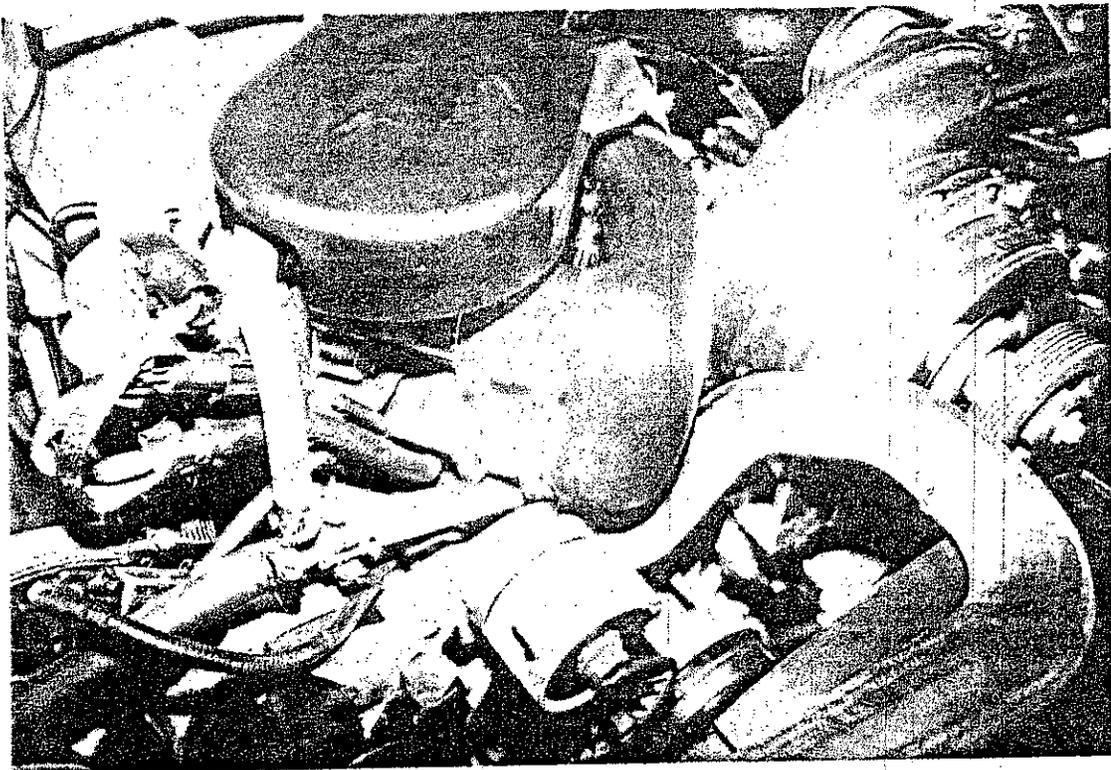


Fig. #10

15. Connect the discharge tube (P/N 48054) between the Supercharger discharge outlet and the discharge plenum using the sleeves and clamps provided (P/N's 27174-T-SLV2, 27174-T-SLV3, HC-40) as shown in Fig. 11.
16. Route the accessory drive belt (P/N 48050) onto the crank pulley and accessories as per belt routing diagram in Fig. 12.

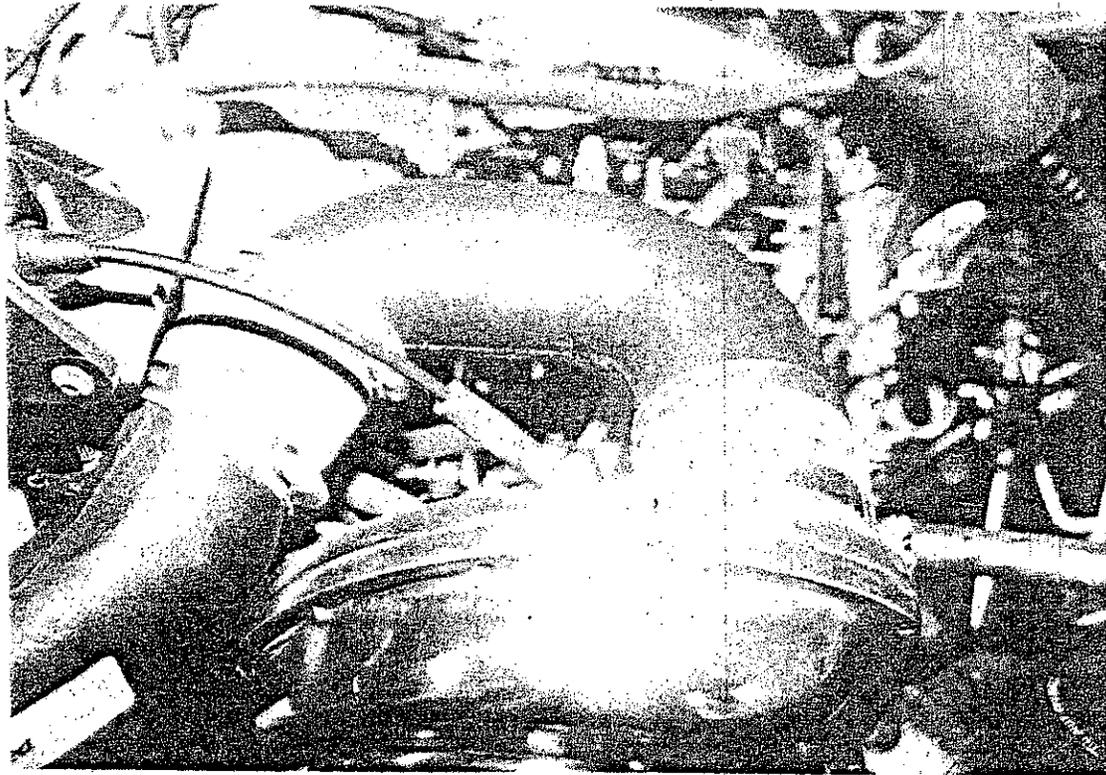


Fig. #11

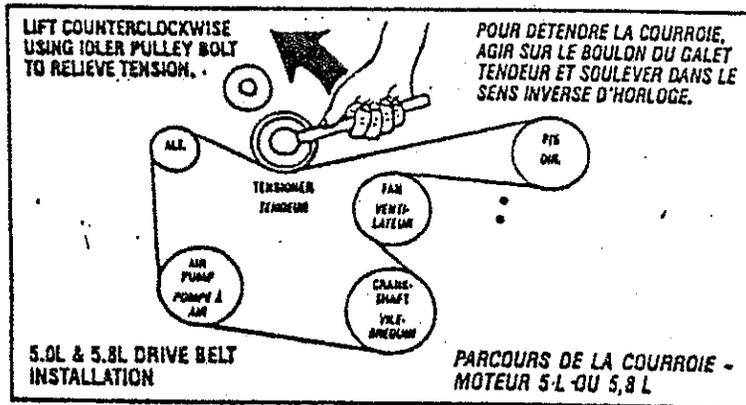


Fig. #12

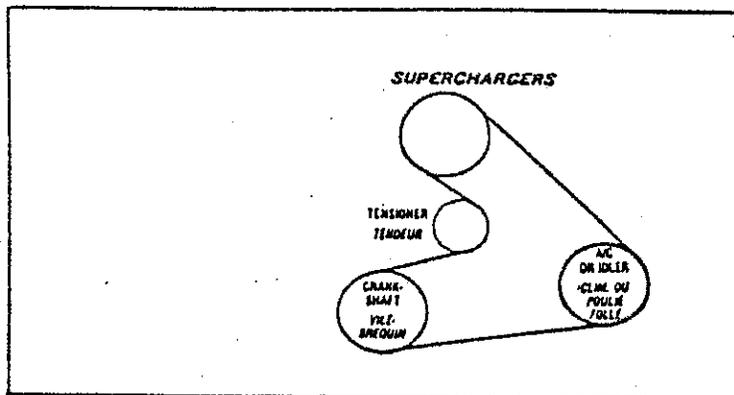


Fig. #13

17. Route the Supercharger/Air Conditioner Drive Belt (P/N 48052) as per Fig. 13. Tighten the belt and idler pulley bolts.
18. Using the Power Steering Extension Kit (P/N 10181) to lengthen the low pressure line, re-install the power steering lines. Fill with power steering fluid.
19. Install the fresh air duct (P/N 48063) between the air cleaner and the front radiator support as shown in Fig. 14.
20. Check to be sure that the Supercharger is full of Type FA Transmission Fluid (P/N 48500).
21. Start the engine and make sure all belts are running flat and true.
22. Re-charge air conditioning system per manufacturer's specs.

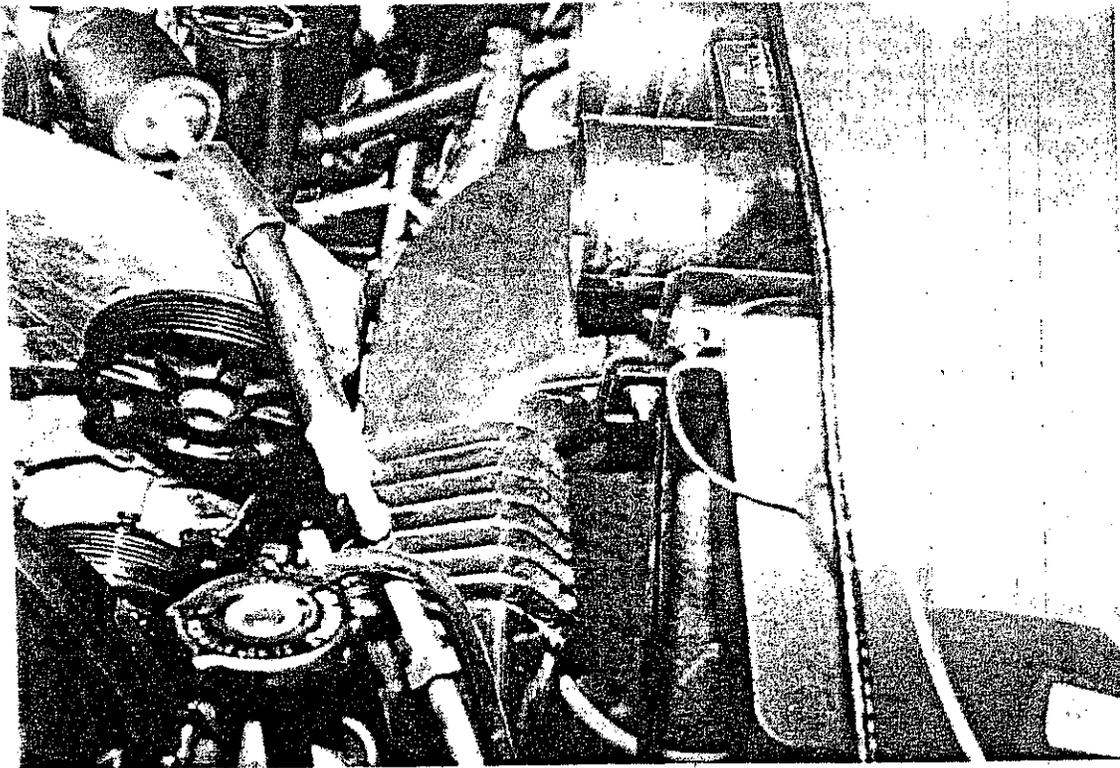


Fig. #14