



Owner's Installation Manual
for the
PAXTON AUTOMOTIVE
NOVI 2000 SUPERCHARGER
for
1996-1998
MUSTANG COBRA

(NON-TUNED KIT)

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Introduction

Congratulations! You have purchased the finest street supercharger available for the Mustang Cobra. The centerpiece of this kit is the High Efficiency PAXTON Supercharger, a mechanically driven centrifugal blower.

This kit comes with all the parts you will need to install the supercharger. The instruction manual has been edited in order of sequence, and photographs and drawings have been included to illustrate the text. This will allow you quick part identification and orientation.

The installation will require metric and SAE sockets and wrenches, a hand drill and bits, an Air Hammer (and compressor), a 3/8" x 18 NPT tap, screwdrivers, and a supply of buckets for the reserve of coolant and oils.

We suggest that you obtain a copy of a Mustang shop manual for your model of car. This may be obtained from your dealer, or may be ordered by mail from Helm Publications at (800) 782-4356. Become familiar with the details of your car's system. If it is not operating within normal parameters, we do not recommend the installation or use of the supercharger.

For the quickest installation time, we suggest that you read this manual thoroughly before beginning. Make sure that you understand the process, have identified the areas of the car that you will be working on, and have the tools that you will need on hand. The average installation time is 8 to 10 hours, but your time will depend on your working conditions, experience installing superchargers, personal skill level, and preparedness for the job. This estimate does not include time for the initial vehicle inspection, cleaning, fine tuning, or troubleshooting. Once again, we recommend reading the manual before beginning the process. We are available for tech support at (805) 604-1336, Monday through Friday, 7AM - 3 PM PST.

After reading the manual, verify that all major assembly groups are present in the main kit box. As you remove a box or bag, note the identification label and compare it to the parts list.

PAXTON AUTOMOTIVE makes every effort to insure that all parts are included in the box. If you discover that you are missing any part, or that a part was damaged in shipping, call PAXTON immediately. DO NOT begin installation if a part is missing. Failure to contact PAXTON prior to beginning installation will result in a charge for the missing part.

We suggest that the engine compartment be cleaned before the installation. You can clean the engine with a pressure washer that is found at self-serve car washes. Use a safe-for-aluminum cleaner/degreaser, and cover the distributor and any electronics with a plastic bag to prevent water from entering.

You are undoubtedly eager to get started, but please take a little more time to insure that your safety is not in jeopardy. A moment's lack of attention may cause a serious injury to you, or to someone else who happens to be standing around. By following some simple safety precautions, you can avoid many potential dangers. The following list is not meant to be a comprehensive list, but rather it is meant to make you aware of some of the risks, and encourage you to take a safety minded approach to your work area.

Never rely solely on a floor jack when working underneath a vehicle. Always use jack stands that are rated for the weight of your vehicle, use them at the recommended lift points, and place your vehicle in 'PARK' or 'FIRST' gear with the parking brake set.

Always use eye protection when using power tools, such as drills, saws, and grinders, or when working underneath a vehicle.

Never smoke, use an open flame, or have spark producing items around gasoline or flammable objects. Always have a fire extinguisher that is rated for chemical and electrical fires handy when working on motor vehicles. Also, make sure that the extinguisher is fully charged.

Operate engines only in a well ventilated area. Carbon Monoxide, gasoline, and solvent vapors are colorless and sometimes odorless, and may asphyxiate or explode without warning.

Always disconnect the battery from your engine before doing work on the electrical or fuel systems, or doing underdash work.

The chemicals used in the vehicle systems, such as oils and coolants, are poisonous. Clean up any spills immediately, and dispose of waste materials properly. Pets, wild animals, and children may die if they ingest the liquid.

PAXTON Automotive thanks you for your purchase. We welcome your comments and suggestions to help us improve our product.

INSTALLATION

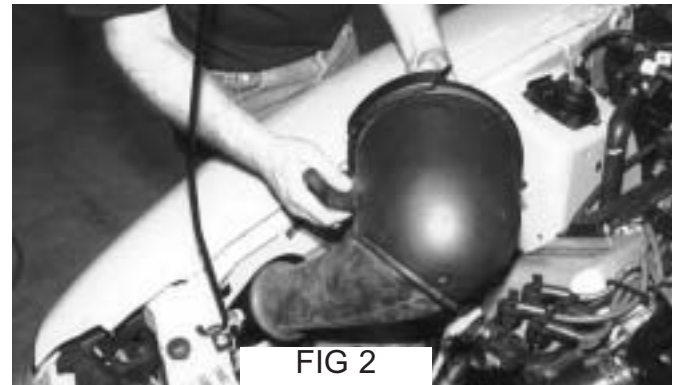
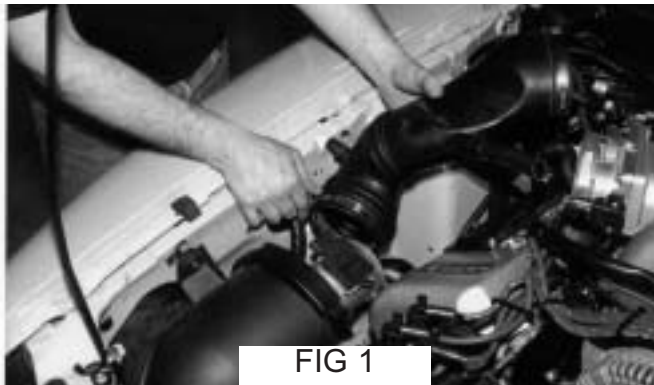
1996-1998 MUSTANG COBRA

NOVI 2000RR SUPERCHARGER

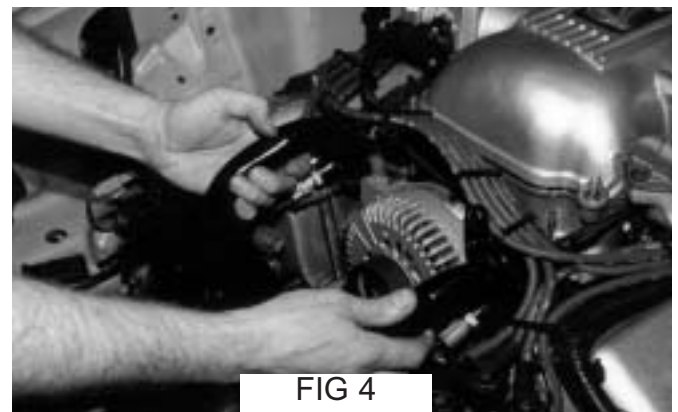
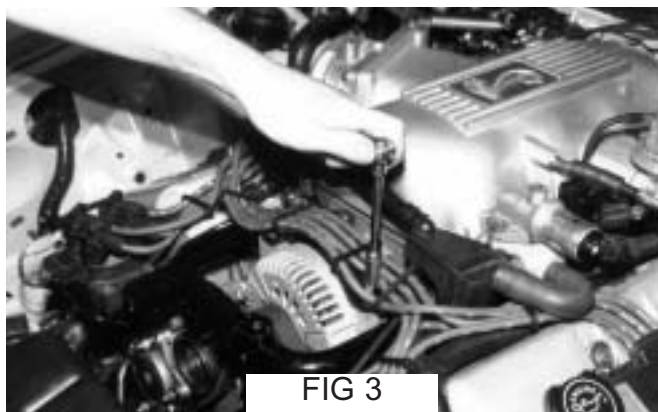
DISASSEMBLY-- Preparing your vehicle.

NOTE: Beware of coolant spills. Mop up any spilled coolant immediately. Radiator coolant very attractive to animals, and highly poisonous.

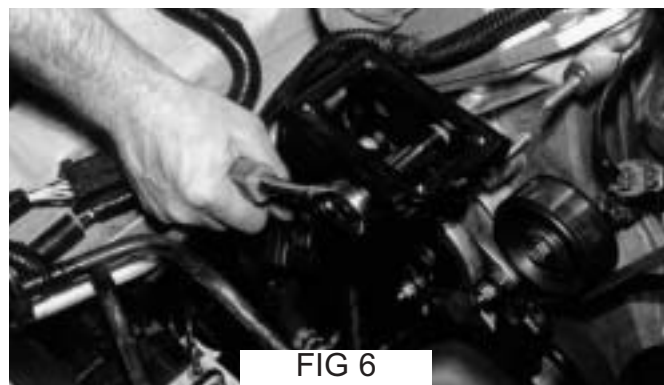
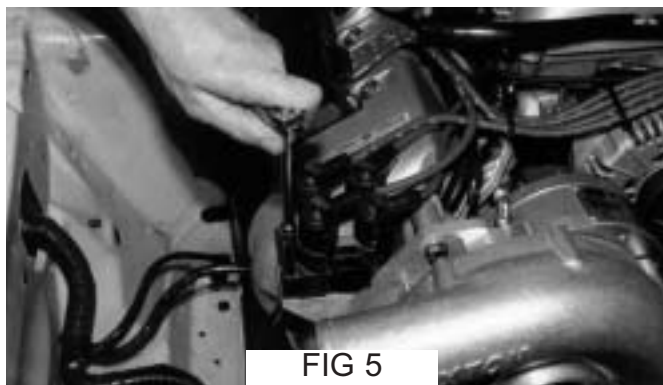
1. Drain approximately one gallon of coolant from the radiator and disconnect the negative side of the battery. Disconnect the MAF sensor, air inlet temp sensor and air idle bypass hose from the air inlet tube, then remove the inlet tube and air filter housing by removing the single 8mm bolt. (Fig. 1, Fig 2)



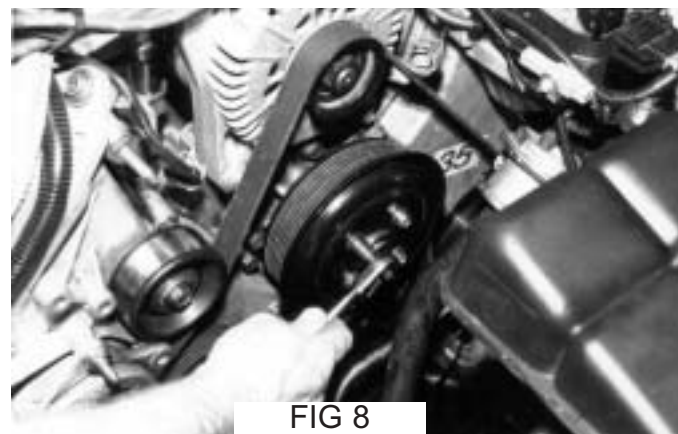
2. Remove the coolant reservoir, upper radiator hose and disconnect the lower hose from the coolant transfer manifold (CTM). Remove the spark plug wire retainer atop the alternator, followed by the stud and nut arrangement that holds the CTM in place. Unplug the two sensors, and remove the CTM (it is press-fit and sealed with O-rings, so it will take some wiggling to get it free). (Fig 3, Fig 4)



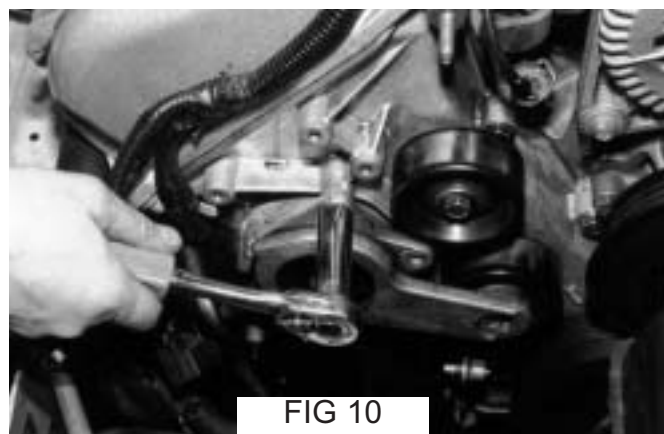
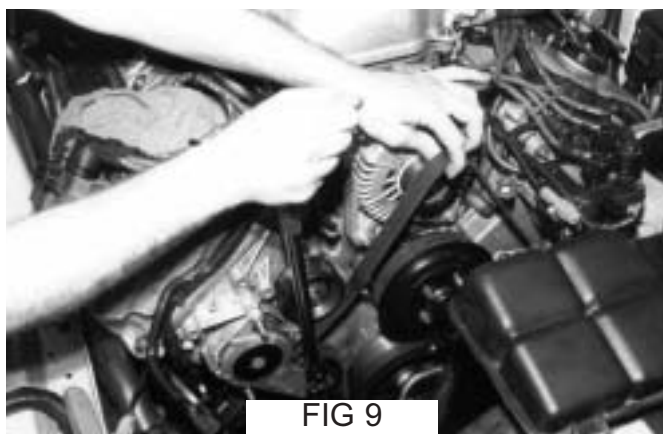
3. Unplug the coil pack and remove the four 7mm bolts that secure the coil pack to its mounting bracket. Place the coil pack aside and remove the mounting bracket by removing the three bolts. (Fig 5, Fig 6)



4. Remove the tensioner limiting bracket. Loosen but do not remove the four bolts securing the water pump pulley. (Fig 7, Fig 8)



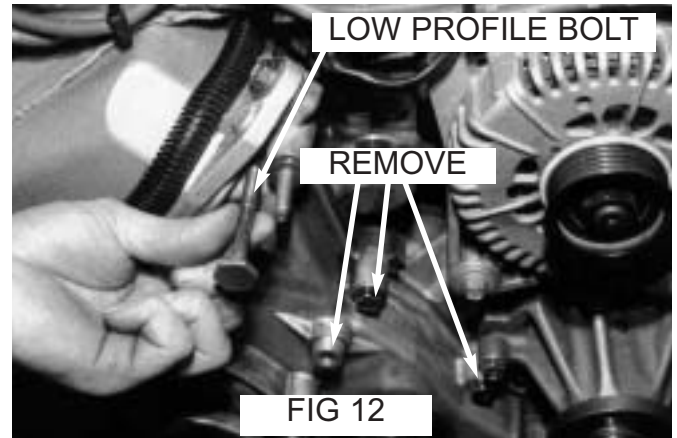
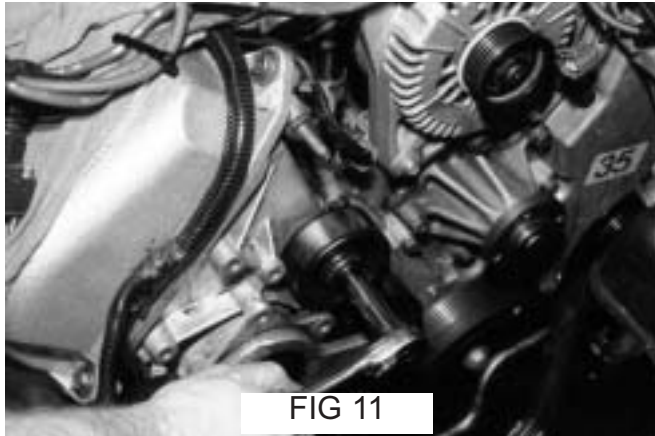
5. Using a 1/2" ratchet or breaker bar, rotate the belt tensioner clockwise then remove and discard the drive belt. (Fig 9)



6. Remove the uppermost stud bolt on the tensioner. It will be used as a mounting point for the supercharger bracket.(Fig 10)

7. Remove the water pump pulley, followed by the idler pulley (Fig 11), which will be re-installed in a later step.

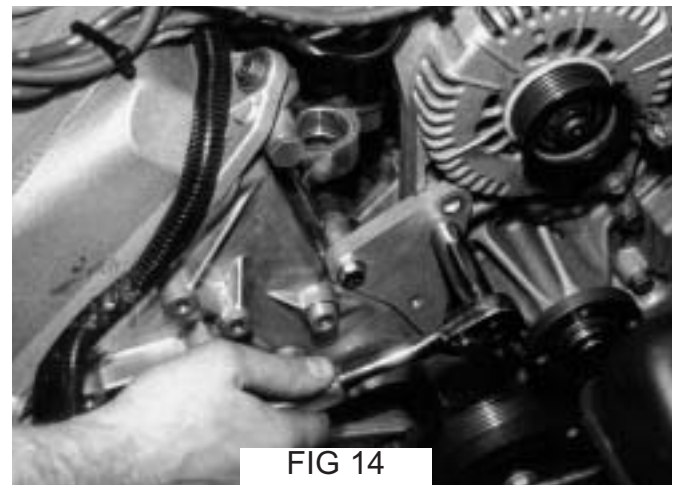
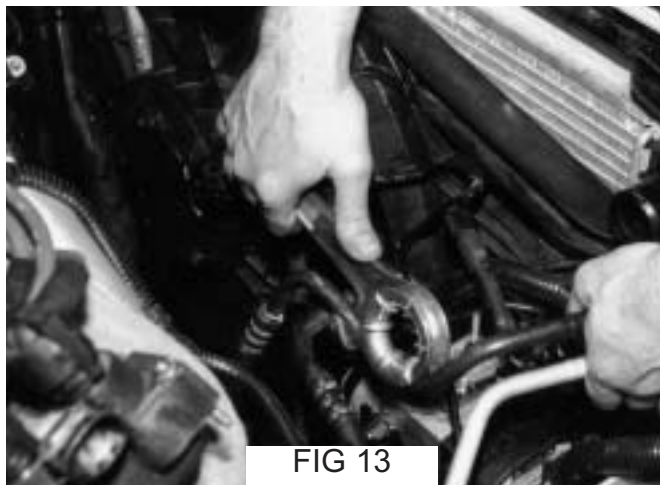
8. Remove the four 18 mm bolts at the front of the engine (marked with arrows in FIG 12). Replace the bolt in the water pump with the supplied bolt and small diameter washer. Replace the topmost bolt with the supplied low profile bolt. The remaining holes will be used as attachment points for the idler support bracket in step 10.



PREPARING TO INSTALL THE SUPERCHARGER

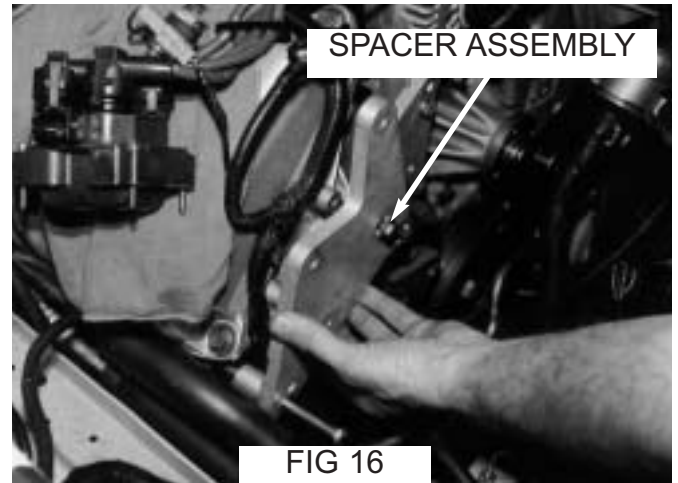
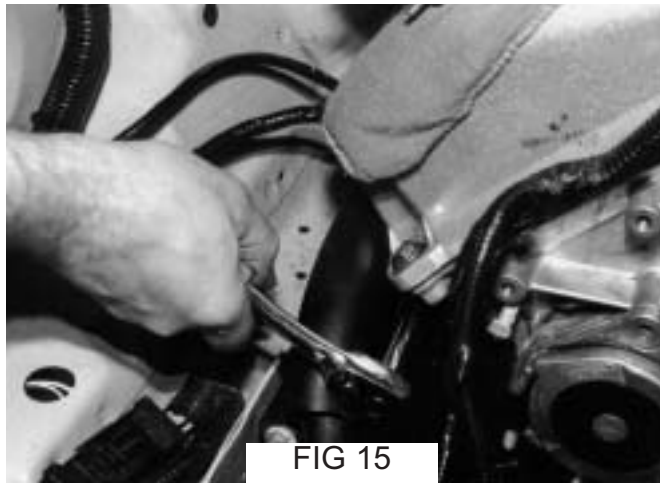
9. Use a tubing bender to bend the metal A/C line. It is first bent upwards, then rotated downward to clear the bottom portion of the supercharger. (Fig 13) NOTE: Use extreme caution during this step. The refrigerant contained within this line is under high pressure and can cause injury if the line ruptures. Use a tubing bender such as the one shown, as well as safety glasses/goggles. Gloves are also recommended.

10. Install the idler support bracket using the holes from step 8. It serves as a support for the main supercharger bracket and mounting point for the supplied idler pulley. (Fig 14)

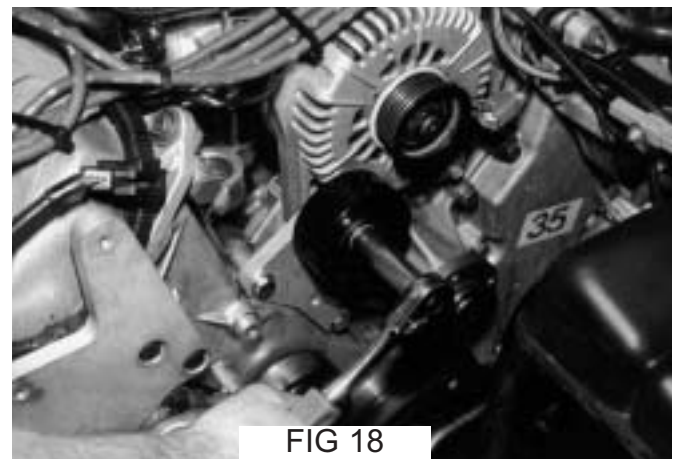
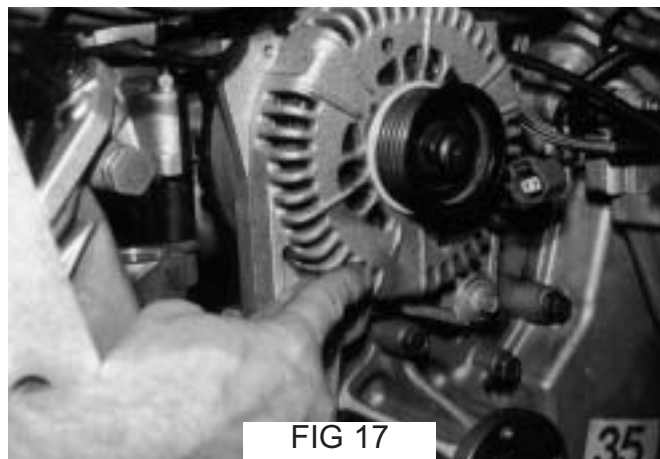


11. Remove the 13 mm stud bolt that is located under the lower corner of the passenger side valve cover. This bolt stud supports the metal A/C line through the use of a small tab. Enlarge the hole in the tab to 5/16-inch to accommodate the larger fastening hardware for the rear supercharger support bracket. (Fig 15)

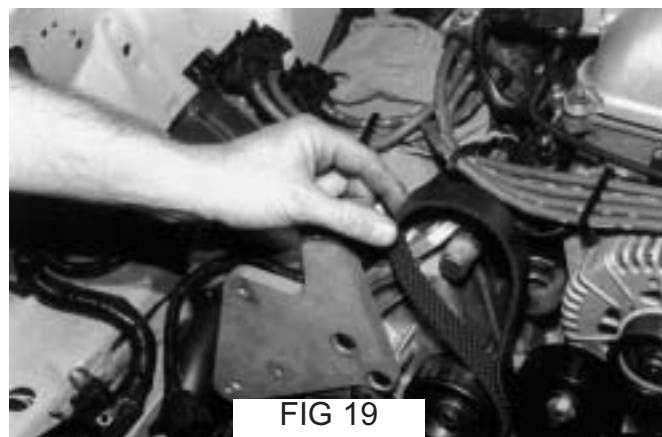
12. Install the rear supercharger mounting bracket in the three holes left by the coil mounting bracket. The bolt/spacer assembly (arrow) bolts into the hole left by the 13 mm bolt stud, and 'sandwiches' the A/C line tab in place between the head and spacer. (Fig 16)



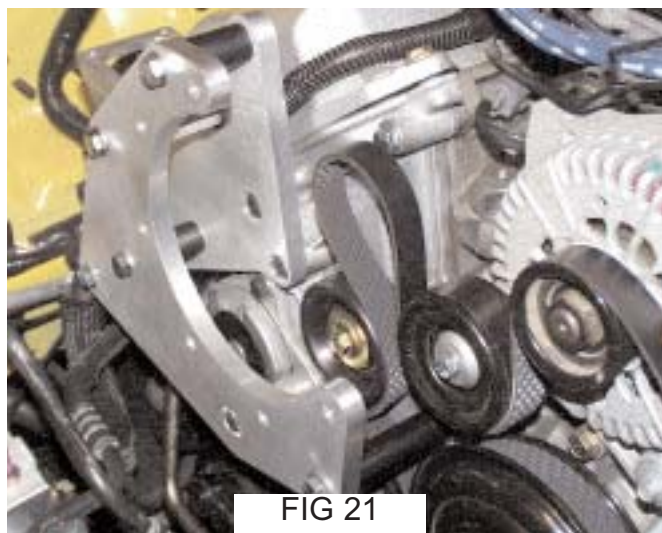
13. Mount the supplied idler pulley on the idler support bracket using the supplied hardware. Trial fit the idler pulley first; if it does not fit, one of the ribs on the alternator must be ground off (Fig 17). When the pulley clears the alternator it can be bolted into place. Install the stock idler pulley in its original location, followed by the water pump pulley using the factory hardware. (Fig 18)



14. Install the supplied accessory/supercharger drive belt and route as stock, but do not install on alternator pulley until after the supercharger is installed. Instead, leave a loop in the belt. (Fig 19)

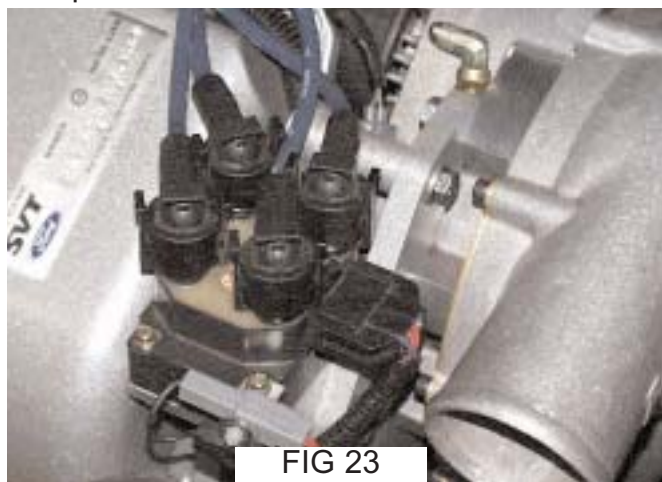
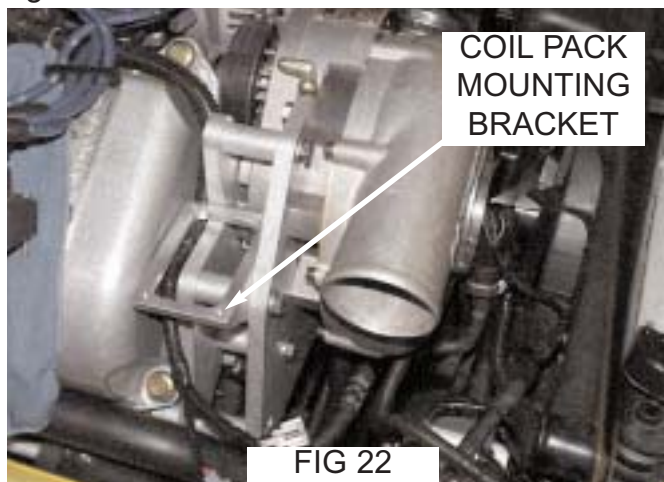


15. The main supercharger bracket comes pre-assembled. Install it as shown. (Fig 20, Fig 21) The belt is shown looped around the alternator for clarity



16. Insert bolts into the bracket from the back. Attach the supercharger oil drain line to the fitting at the bottom of the supercharger, and lower the supercharger into place on the bracket while inserting the drive pulley through the loop in the belt. Bolt the supercharger onto the main bracket using the supplied fasteners, as shown. (Fig 22) The lower bolts are easier to tighten from underneath the vehicle. The belt can now be permanently installed.

17. Install the coil pack onto the mounting bracket, as shown.(fig 23) You will have to reconfigure the wires to allow for the relocation of the coil pack.



COOLING SYSTEM MODIFICATIONS

These modifications are necessary in order to allow clearance for the supercharger.

18. The supplied Coolant Transfer Manifold (CTM) is taller than the original, providing necessary clearance for the supercharger. To mount the new CTM (Fig 24), trim the 6mm portion of the two mounting stud bolts to 3/4 inch, and thread the supplied aluminum spacer stands (Fig 25, arrows) into place to properly locate the CTM. Remove the original coolant temperature sensors from the old CTM and install in the new unit. Install the CTM and secure with the supplied fasteners. (Fig 26)
NOTE: Some kits may be supplied with a CTM that appears differently than the unit shown. Both CTM's mount in the same manner.



FIG 24

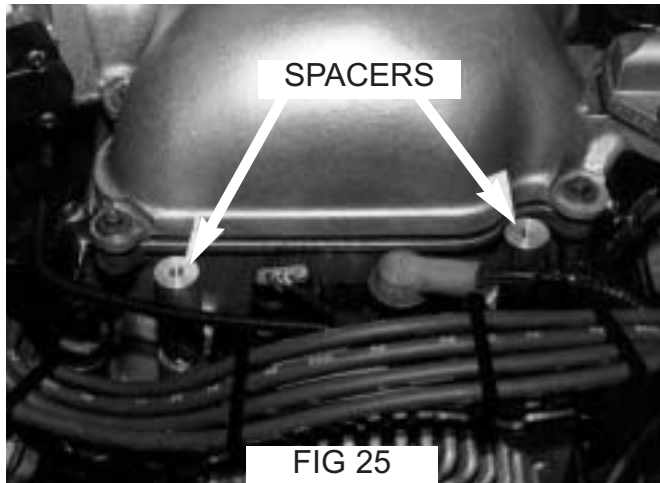


FIG 25

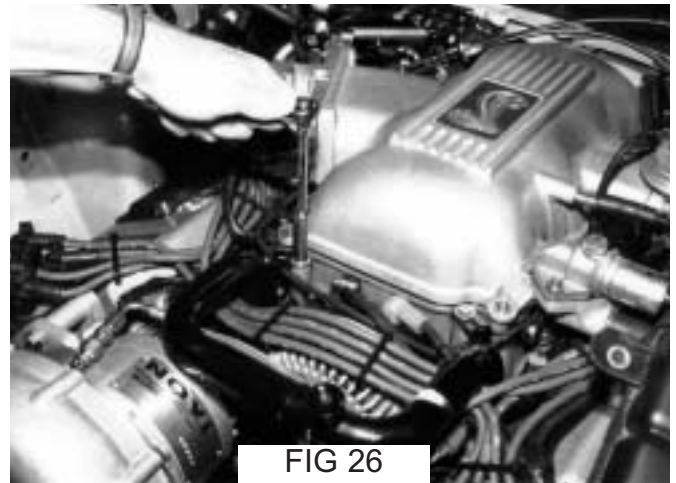


FIG 26

19. Install the straight portion of the Y tube into the lower radiator hose, and orient the angled portion towards the passenger side of the car. (Fig 27) Install the supplied upper radiator hose and attach to the angled portion of the Y tube. Install the upper portion of the Y tube into the CTM. (Fig 28)

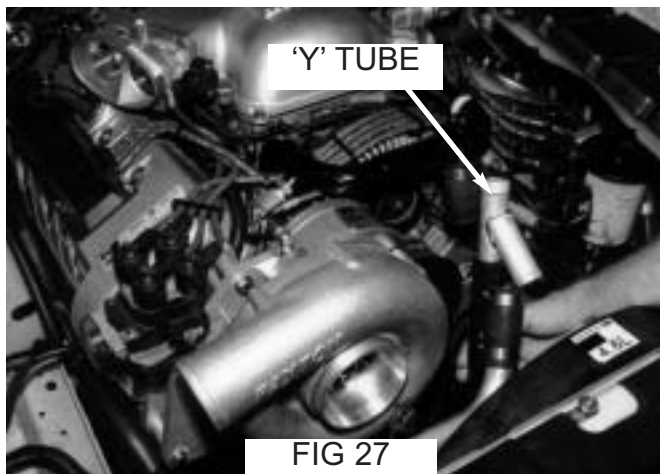


FIG 27

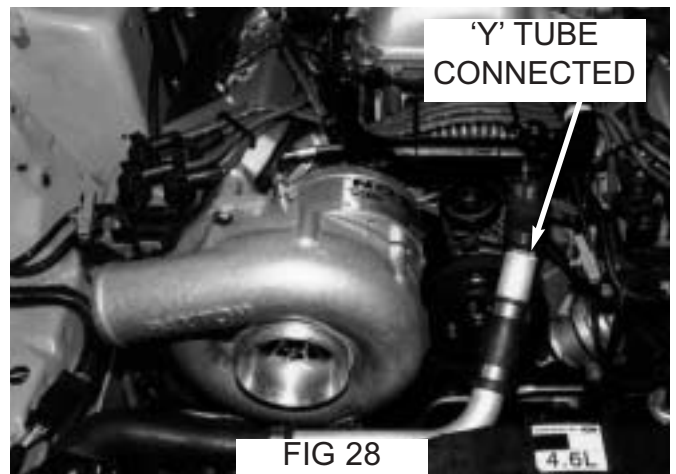
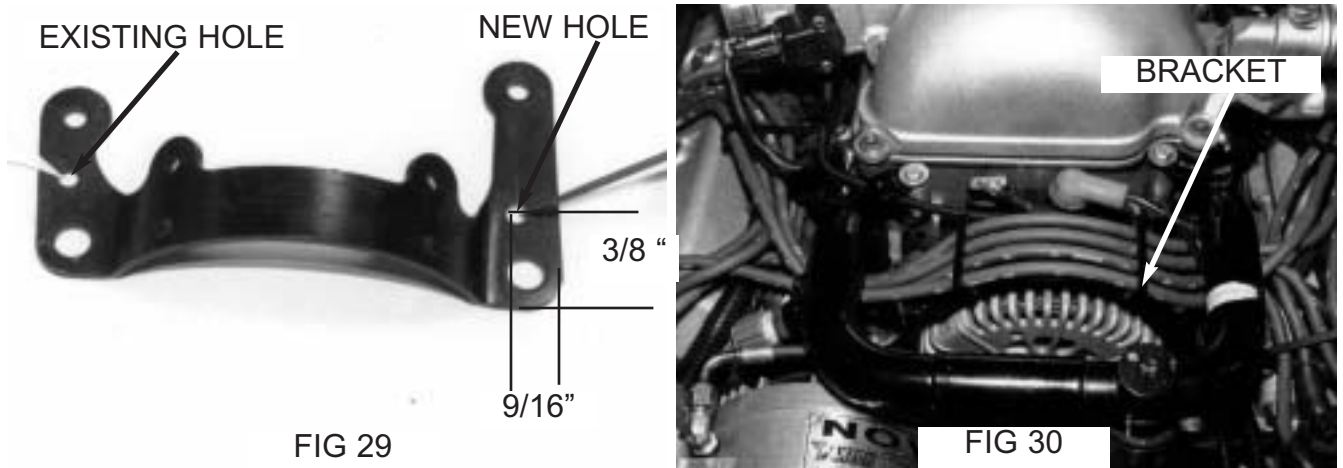


FIG 28

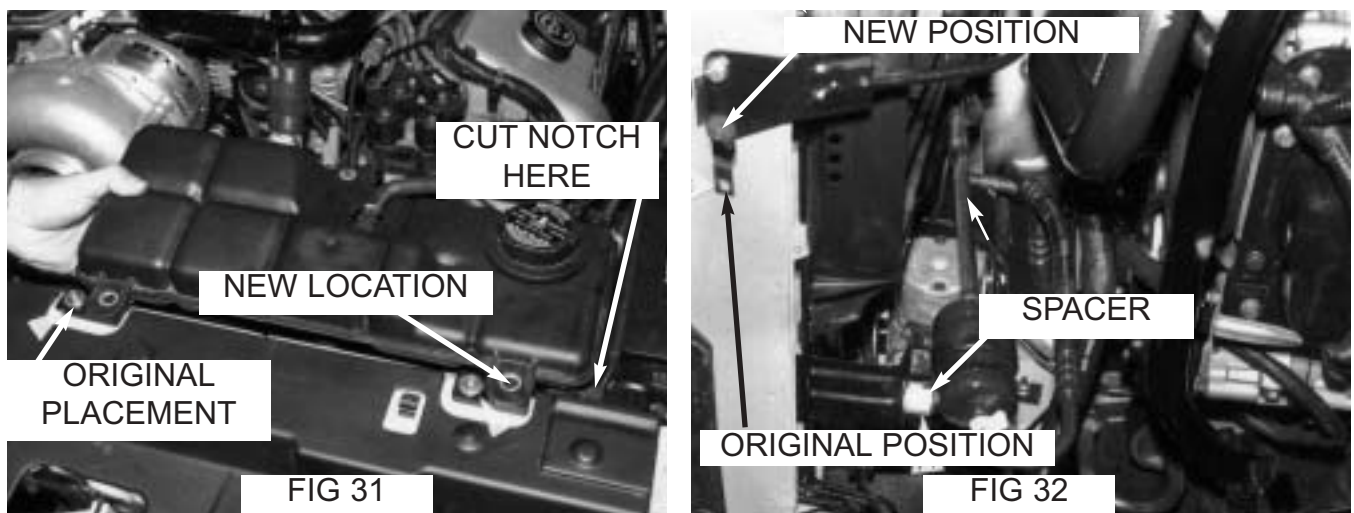
20. Relocate the spark plug wire retainer by drilling a 17/64-inch hole across from an existing hole in the bracket (Fig 29, arrow), and move the bracket forward. It will now be secured by only two factory bolts. Fig 30 shows the completed spark plug wire retaining bracket in place.



21. To provide clearance for the washer bottle, modify the driver's side radiator support bracket by cutting a notch in it as shown in Fig 31

22. Relocate the coolant reservoir by widening the notches in the plastic cover and installing the Paxton-supplied aluminum relocation tabs using the stock hardware. (Fig 31, arrows) This will move the reservoir over one inch towards the driver's side. Install the thick round spacers on the recut reservoir bracket. Reinstall the reservoir using the stock nut on the rear notch and the supplied hardware on the front notches.

23. From under the vehicle, remove the two 8mm head bolts securing the coolant reservoir support rod. Relocate the support rod by moving it one bolt hole towards the driver's side and secure with the original bolt. Using a 1/4" drill bit, drill through the remaining mounting hole and secure with the supplied nut, bolt and washers. (FIG 32) You can gain access to the hole through a slot in the body sheet metal directly above the hole you drilled. Slide the 3/8" thick round aluminum spacer onto the threaded portion of the support rod. Reinstall the reservoir.



OIL SYSTEM MODIFICATIONS

The Novi 2000RR supercharger relies on pressurized engine oil for its lubrication. The following steps show how to install the oil feed and drain lines. **NOTE: Do not attempt this step with a hammer and punch, as you will severely dent the front of the pan.**

24. Mark the front of the engine oil pan 1-1/8 inch below the pan rail and between the two pan rail bolts, directly in the center of the small 'hump'. Drill a pilot hole with a 3/16-inch drill bit after smearing the drill bit with heavy grease to prevent small metal particles from falling into the pan. (Fig 33)

Once the hole has been drilled, insert a straight length of welding rod or heavy wire (such as a coat hanger) into the hole approximately three inches to see if it contacts any of the reciprocating assembly (connecting rod, crankshaft counterweight). If it does, turn the engine over and repeat the process until no interference is encountered.

Next, apply a small amount of anti-seize lubricant to the tip of the punch (Fig 34), and insert it into the pilot hole. Hit the punch with an air hammer carefully using small bursts, until the punch is inserted up to its shoulder. **NOTE: Use extreme caution not to make the hole too big, or the drain fitting will not fit and the pan will be ruined.**

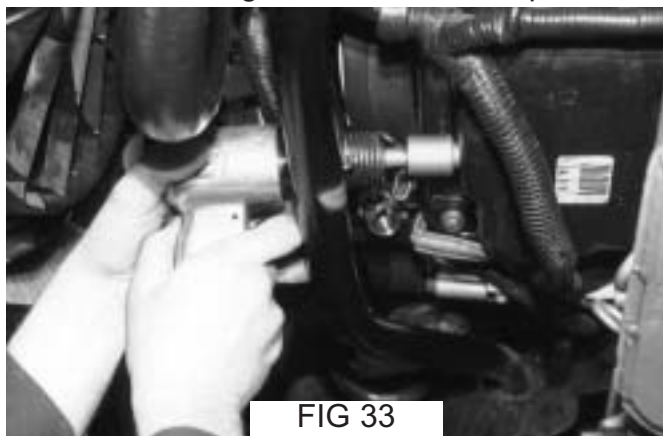


FIG 33



FIG 34

25. Apply a liberal amount of heavy grease to a 3/8-inch by 18 NPT tap (not included), and gradually thread into the hole. **NOTE: Only run the tap 2/3 of the way in. Otherwise the fitting will not seal properly.** Clean the threads using a clean rag and an approved solvent, such as carburetor cleaner. Apply a small amount of silicone RTV to the threads of the supplied 3/8-inch pipe to -8 fitting and insert into the hole, being careful not to over-tighten.

The hex nut of the fitting should be clear of the pan, leaving some thread showing. Install the supercharger drain hose fitting so that the elbow is oriented toward the passenger side, away from the harmonic dampener, (Fig 35)

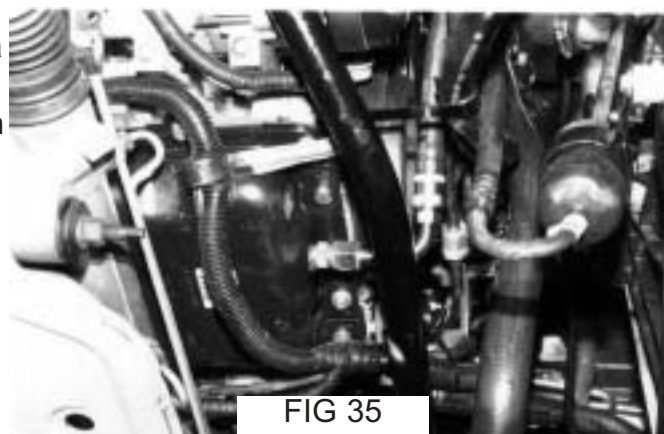
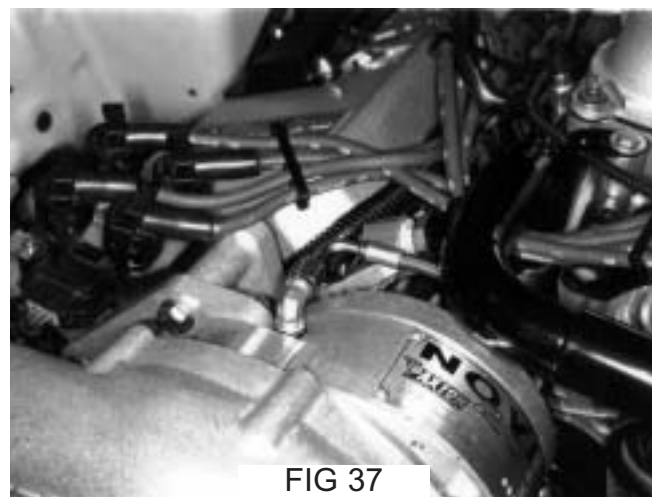
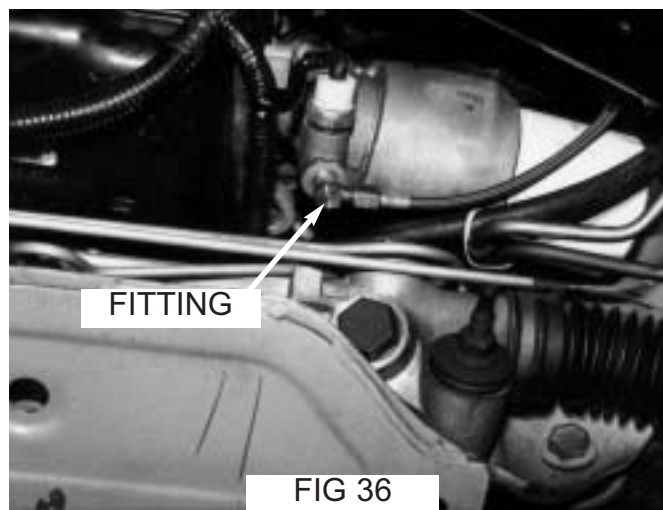


FIG 35

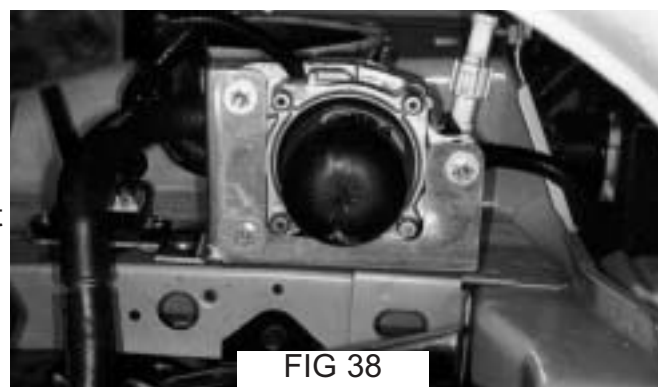
26. The supercharger feed line is attached by removing an existing pipe plug in the bottom of the oil filter housing, and installing the supplied $\frac{1}{4}$ -inch NPT to -4 90-degree fitting and steel braided hose (Fig 36, arrow). Run the line up the side of the engine, between the valve cover and the power steering reservoir bracket, under the coolant transfer manifold and attach it to the supercharger.(Fig 37) Zip tie the oil feed line to the CTM.



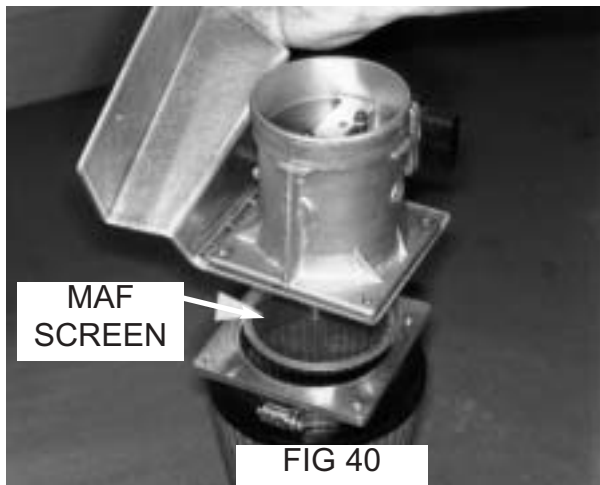
SMOG PUMP/INTAKE SYSTEM MODIFICATIONS

These steps illustrate how to relocate the smog pump and install the new intake system

27. Unbolt the smog pump and ignition module from the passenger side fenderwell. Bolt the smog pump and the module to the new bracket using the supplied screws for the module and factory bolts with supplied nuts for the smog pump. The plug on the module should point straight up. Connect the plug to the module and bolt the assembly to the original mounting point using the supplied bolts and spacers between the bracket and the body. **APPENDIX I, DRAWING 1017306** . Modify the smog pump hose as shown in Appendix I. Re-use the factory couplings and secure with the supplied hose clamp. (Fig 38)

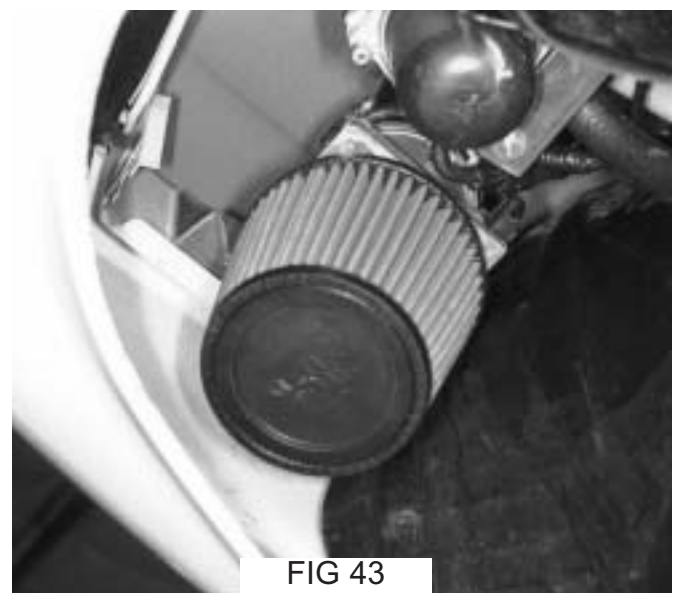


28. The mass air meter is removed from the original air box (Fig 39), and attached to a Paxton-supplied bracket. This assembly is then bolted to the air filter adapter and air filter, (Fig 40, Fig 41). NOTE: Be sure to install the MAF screen as shown (Fig 40, arrow) or the engine will not run properly.



29. Attach the the short side of the plastic elbow (the end with the lip) to the MAF/air filter assembly (Fig 42). Leave the hose clamp loose so the elbow can be rotated once the assembly is mounted in the car.

30: Remove the two nuts located in the passenger side inner fender wall. Push the mass air meter/air filter assembly and inlet tube up into the passenger side fender, and attach to the existing studs in the inner fender panel using the two factory nuts. (Fig 43)



31: Attach the length of flex hose to the plastic elbow on the MAF/air filter assembly inside the fender (Fig 44). Install the cast-aluminum discharge tube using the supplied rubber joints and stainless steel clamps.

32 Attach the 4" hose to the Idle Air Control (IAC) tube and retain with the supplied hose clamp. Attach the other end to the discharge tube and retain with another supplied hose clamp. Use the remaining two hose clamps to secure the hose to the IAC Valve and filter housing. (Fig 45, Fig 46)

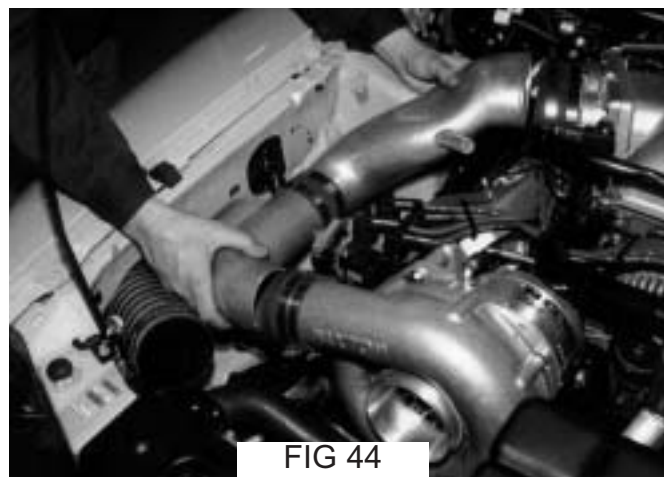


FIG 44

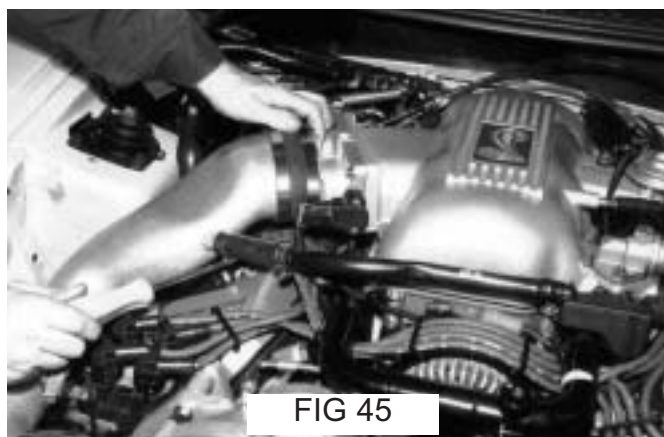


FIG 45

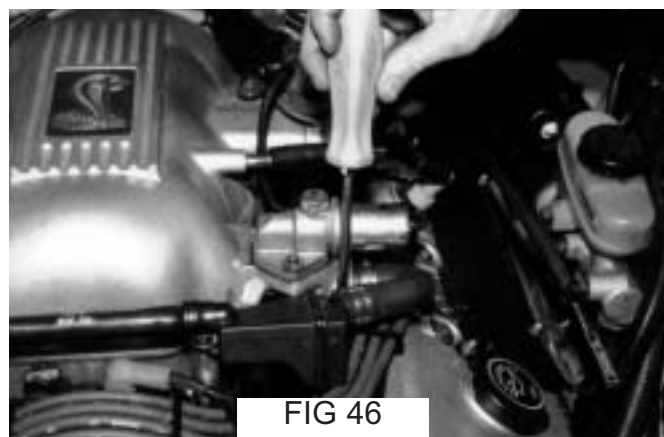
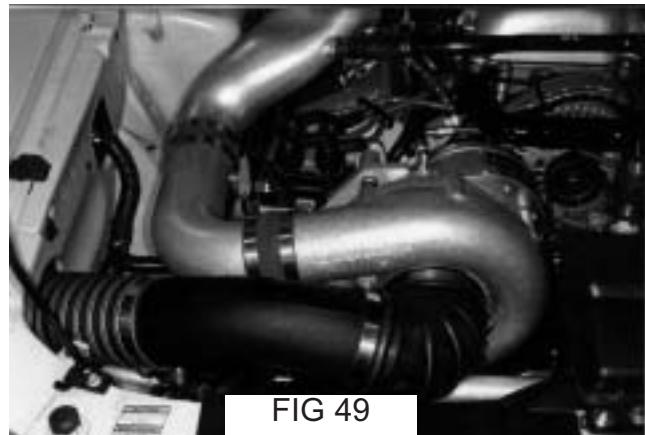
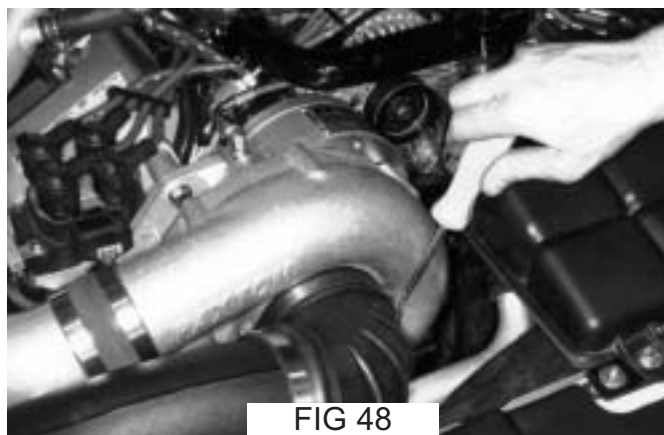
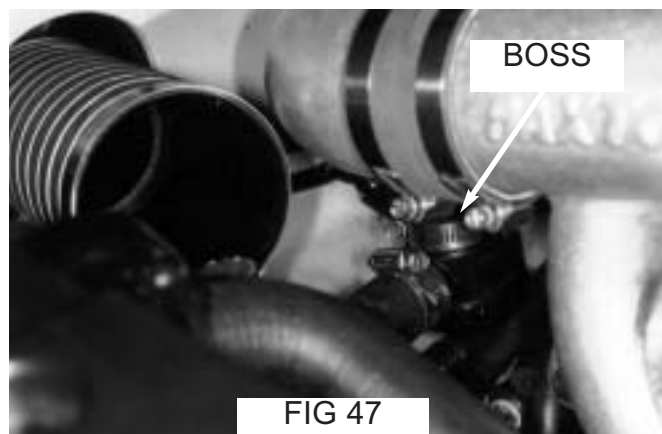


FIG 46

33: Push the short end of the bypass valve onto the boss underneath the discharge tube. The other end will be attached to the boss on the inlet tube.(Fig 47)

34 Install the inlet tube to the flex hose and attach the other end to the supercharger. Attach the bypass hose to the inlet tube and secure with the supplied hose clamp. Adjust for the best fit and tighten all hose clamps. Remove the rubber hose from the crankcase evacuation plastic barb fitting located on the passenger side valve cover. Attach the supplied hose to the plastic barb fitting and route the hose forward to the 90 degree brass fitting on the plastic inlet tube. The supercharger assembly is completed. (Fig 48, Fig 49)



CHECK OUT PROCEDURES

We know that you are anxious to get out and drive your new vehicle, but please take a little bit more time to perform these simple check-out steps.

- A. Inspect all wiring harnesses and electrical connections.. Make sure that all items are properly routed, connected and secured.
- B. Check all hoses, lines, and fittings for properly secured connections..
- C. Make certain all fasteners, brackets, and clamps are installed and properly tightened.
- D. Check serpentine accessory belt and supercharger drive belts for proper tension and alignment.
- E. Cycle ignition key from “off” to the “on” position.
- F. Check the entire fuel system for possible leaks.
- G. Start engine and verify that the oil pressure is within normal range.
- H. Allow the engine to come up to normal operating temperature.
- I. Check the coolant level in the coolant recovery bottle and top off as needed.
- J. Check the following:
 - Fluid Leaks
 - Fluid Levels
 - Belt Slippage
 - Throttle Response

Now that the work is done, it's time to enjoy. **PAXTON Automotive** wants to thank you for choosing our product, and wants to remind you that the performance and response of your vehicle is now different that what you are used to. Please drive cautiously until you have grown accustomed to the feel of your vehicle.

Please see the service manual included in your kit for information on the service and maintenance of your **PAXTON Supercharger**. Belt tightening, troubleshooting, special tuning requirements, and warranty information is also included in the Service Manual.

APPENDIX

Please realize that PAXTON Automotive is constantly improving the performance and look of the NOVI 2000 supercharger. Parts in your kit may appear differently than what is pictured in this manual. This is due to photographs taken in pre-production, a change in material costs, or an improvement in performance.

Rest assured that you have purchased to best quality kit that PAXTON Automotive manufactures at this time. The installation of the materials will remain the same.

List of Appendices

Appendix Number..	DWG Number.....	Rev.....	DWG Title
A	1001814-1	C	KIT, PARTS LIST
B	1011807	C	ASY, S/C NOVI 2000
C	1016607	E	ASY, S/C MOUNTING BRACKET
D	1015927	B	ASY, AIR INTAKE
E	1017007	E	ASY, AIR DISCHARGE
F	1019327	C	ASY, OIL SUPPLY
G	1019328	C	ASY, OIL RETURN
H	1015406	B	ASY, COOLANT BOTTLE RELOCATION
I	1017306	B	ASY, SMOG PUMP RELOCATION
J	1015506	D	ASY, COMPRESSOR BYPASS
K	1015307	E	ASY, RADIATOR TUBE MODIFICATION
L	1015206	B	ASY, A/C LINE SPACER