



Owner's Installation Guide for the

# Paxton Automotive Novi 2000 Supercharger

for the

1986-1993 5.0L Ford Mustang

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# **IMPORTANT NOTES**

his manual provides information on the installation, maintenance and service of the Paxton supercharger kit expressly designed for the 1986-93 5.0 Ford Mustang Contact Paxton Automotive Corporation for any additional information regarding this kit and any of these modifications at (805) 604-1336 7:00am-3:45pm PST.

An understanding of the information contained herein will help novices, as well as experienced technicians, to correctly install and receive the greatest possible benefit from their Paxton supercharger. When reference is made in this manual to a brand name, number, specific tool or technique, an equivalent product may be used in place of the item mentioned. All information, illustrations and specifications contained herein are based on the latest product information available at the time of this publication. All rights reserved to make changes at any time without notice.



ever rely solely on a hydraulic lift, when working under a vehicle. Always use approved jackstands to support the vehicle and place them under the manufactures recommended lift points.

When lifting the vehicle, make sure it is on a level surface, preferably concrete or asphalt. The transmission should be in "PARK" or "FIRST", the parking brake engaged, and the wheels blocked.

Never start the car with out first verifying that the transmission is in neutral and the parking brake is set.

Never remove the radiator cap while the engine is still hot. Always wear eye protection when using power tools such as drills, saws, grinders, etc., or when working under a vehicle.

Never smoke, use an open flame, or have sparkproducing items around gasoline or flammable solvents. Always have a fire extinguisher rated for chemical and electrical fires handy when working on motor vehicles.

Run engines only in a well ventilated area.

Carbon monoxide, gasoline and solvent vapors are colorless, and sometimes odorless. These can asphyxiate or explode without warning.

Always disconnect at least the (-) negative or ground terminal of the battery when doing any electrical, fuel system, or under dash work.

We look forward to hearing from you, particularly if you have any comments or suggestions regarding this manual at (805) 604-1336 Paxton Automotive Corporation, 1300 Beacon Place, Oxnard, CA 93033. E-mail Address:

# info@paxtonauto.com

#### \*\*\*NOTE\*\*\*

Through these procedures the word "discard" is used periodically in relationship to items that will no longer be utilized in conjunction with the supercharger installation. It is recommended that these items be saved for future use should it become necessary.

# RECOMMENDED TOOLS FOR INSTALLATION:

- 1. Metric and Standard sockets sets
- **2.** Metric and Standard combination wrenches
- **3.** Phillips and common screw drivers
- **4.** 12" crescent wrench or 36mm open end wrench
- 5. Pliers
- **6.** Wire cutters and wire crimping tool.
- 7. Hose cutters
- 8. 1/8" drill bit and hand drill 37/64 drill bit
- **9.** Allen wrenches
- 10. Small heat source
- 11. 3/8 Tap NPT
- 12. Air Hammer
- 13. Air Compressor

# Section 1

ongratulations! You have purchased the finest street Supercharger available for the 1986-1993 Ford Mustang 5.0. The centerpiece of this kit is the highly efficient and reliable Paxton Automotive Corp. NOVI-2000 supercharger. A mechanically driven (by belt) centrifugal supercharger.

This kit comes with all of the parts you'll need for a successful installation. The operations required have been grouped in order of sequence. Photos and drawings accompany the text, allowing quick orientation and parts identification.

Installation requires a selection of tools which are listed in a table at the end of this section.

We also suggest that you obtain a Ford shop manual and become familiar with the details of your cars systems. Manuals may be obtained from your local Ford dealer or you can order one from Helm publications at (800) 782-4356.

For best results follow the instructions closelyand in sequence. The average installation time for this kit is 8-10 hours. Your actual installation time will depend on skill level and working conditions. The estimate does not include time for initial vehicle inspection, cleaning, fine

tuning or troubleshooting. Before even picking up a wrench, read this entire manual. We are available for technical assistance at

### (805) 604-1336, 7am-3:30pm pacific time.

After reading the manual, verify that all major assembly groups are present in the main kit box. You should have ample space to layout the components. As you remove a box or bag from the main kit, note the identification label

and compare it with the parts list. Please check the box for small parts.

Paxton makes every effort to insure that all parts are included in the box. However, if you discover any missing or mislabeled parts, please contact Paxton by phone for service.

### \*\*\*WARNING\*\*\*

DO NOT attempt installation if any part(s) are missing from this kit. Failure to contact Paxton prior to beginning installation will result in a charge for any missing parts.

Before starting the installation, we suggest your engine compartment be clean. You can clean the engine and compartment with a pressure washer (such as those used at self serve car washes) and a safe-for-aluminum cleaner/degreaser. Cover the distributor with a plastic bag to prevent water from entering.

#### \*\*\*CAUTION\*\*\*

We do not recommend proceeding with the kit installation unless your vehicle is within normal operating parameters.

You are undoubtedly enthusiastic about getting started on your project, but take just a little more time to insure that your safety is not jeopardized. A moment's lack of attention can result in an accident, as can failure to observe certain simple safety precautions. The possibility of an accident will always exist, and the following points should not be considered a comprehensive list of all dangers. Rather, they are intended to make you aware of the risk and to encourage a safety conscious approach to all work you do on your vehicle.

# Section 2 INITIAL PREPARATION AND REMOVAL

egin the initial preparation and disassembly process by disconnecting the battery cables.

# 2.1 Fuel tank/Fuel pump removal

- A. The installation of a higher flowing fuel pump is necessary. Before the removal of the fuel tank, be sure the fuel tank is completely empty.
- **B.** Using a hydraulic lift, lift the rear of the Vehicle up and place securely on jack stands.
- C. Remove the three 10mm hex head sheet metal screws securing the fill pipe to the quarter panel. (See *Fig. 2-a.*)

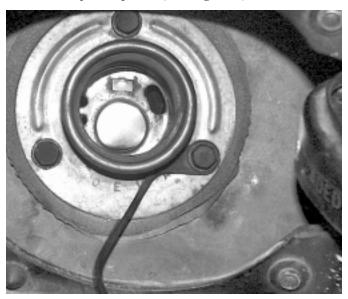


Fig. 2-a

D. Place a jack underneath the fuel tank to lightly hold pressure on the tank to assist in the lowering of the tank and removal of the retainment straps. (See *Fig. 2-b.*) When the gas tank is on the ground unplug the fuel pump and sensor wires, from the sending unit.



Fig. 2-b

- E. Disconnect the three hoses using the supplied fuel fitting removal tools (fuel feed, fuel return and fuel vapor) up in front of the fuel tank.
- **F.** Twist the retainer ring that is securing the fuel sending unit in the top of the tank. Lift the pickup/sending unit assembly out of the tank.
- **G.** Carefully pry off the sock on the end of the pump. Remove the pump from the assembly and install the new pump (it should be a direct replacement). Reinstall the sock on the new pump.
- **H.** Replace the assembly into the tank and secure it with the retainer ring. Be certain that the O-ring is in its proper place and that the ring is turned all the way to its stop position.
- I. Plug the wires/hoses back in and re-install the fuel tank back up into the vehicle.

- J. Loosen the petcock at the bottom of the radiator and drain approximately one gallon of coolant into a drain pan. (Save fluid for re-use.)
- **K.** Disconnect the overflow hose from the neck of the radiator and unplug the electrical connector from the coolant bottle.
- L. Using a 7/16" combination wrench, loosen the four bolts that are securing the fan to the water pump. With an 18mm combination wrench release the tension on the belt tensioner and remove the factory drive belt. Now remove the four bolts that are securing the fan to the water pump. (See *Figs. 2-c.*)



Fig. 2-c

- **M.** Using a 10mm socket & ratchet or screw driver, loosen the clamps and remove the upper radiator hose from the vehicle. *Save for re-use*.(See *Fig. 2-d*.)
- **N.** Using a 7/16" wrench or socket, remove the two sheet metal screws securing the fan shroud to the radiator core support and remove the shroud fan clutch from the vehicle. (See *Fig. 2-e.*)



Fig. 2-d



Fig. 2-e

- O. Using a nut driver or screwdriver, remove the clamps securing the rubber inlet tube to the throttle body and mass air flow sensor and remove the inlet tube.
- **P.** Loosen the clamp securing the mass air flow sensor to the rubber sleeve at the air filter assembly. Unplug the sensor and un-bolt it from the strut tower with a 7/16" socket.
- **Q.** Using a 7/16" deep socket, loosen the nuts securing the air filter assembly to its rubber mounts and remove the filter from the vehicle. Unscrew the rubber mounts from the inner fender. (See *Fig. 2-f.*)



Fig. 2-f

**R.** Using a 19mm wrench, loosen the bolt securing the accessory drive belt tensioner to the factory bracket and remove the tensioner from the bracket. Set aside to be used in a later step of the installation. (See *Fig. 2-f.*)

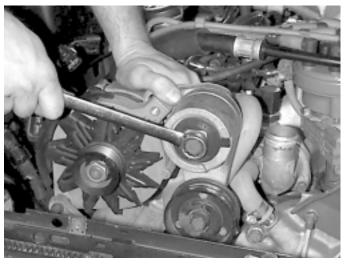


Fig. 2-f

S. Unplug the electrical connection at the alternator, and using a 9/16" and a 1/2" socket, remove the alternator from the factory bracket. (See *Fig. 2-g.*)

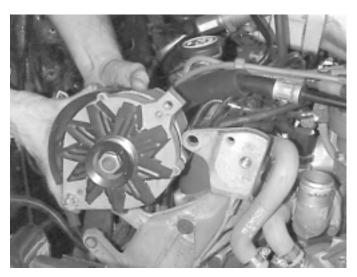


Fig. 2-g

- T. Using a 5/16" nut driver, loosen the clamps and remove the air injection hose from the smog pump and diverter valve up next to the valve cover. Disconnect the vacuum line behind the smog pump and remove the hose from the vehicle. Set aside for re-use
- U. Remove the bolt at the rear of the smog pump using a 9/16" socket and the two at the front of the pump, remove the smog pump from the vehicle.
- V. Using a 9/16" socket and extension, remove the remaining bolts securing the factory bracket to the engine. Set the bracket aside, this bracket will not be re-used.
- W. Using a 9/16" deep socket and extension, remove the fuel line bracket from the front head retaining stud and un-clip it from the factory fuel lines.
- X. On the frame rail, there is an evaporator canister. From underneath the vehicle, use a 1/2" socket and remove the two bolts securing the canister bracket to the frame rail. Reposition the canister forward, towards the front of the vehicle, using one of the stock bolts. Resecure the canister to the frame rail using the forward hole in the frame rail and the rear hole in the bracket.
- Y. Remove the four factory crank pulley bolts with a 9/16" socket and extension and remove the pulley from the vehicle. (See *Fig. 2-h.*)

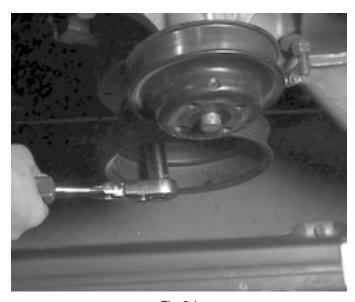


Fig. 2-h

# Section 3

# SUPERCHARGER BRACKET ASSEMBLY

## 3.1 Supercharger kit Assembly

### \*\*\*IMPORTANT\*\*\*

Before continuing drain the motor oil from the vehicle.

- **A.** From underneath the vehicle you will need to drill a pilot hole in the oil pan on the passenger side by using a 1/8" drill bit approximately 1-1/2" from the top and 2" from the front of the oil pan. (See *Fig. 3-a.*)
- **B.** Upon completion of the drilled pilot hole, insert a rigid thin piece of wire through the drilled pilot hole to ensure that there is a straight shot for the punch to go into. If there is anything blocking the path, rotate the engine by hand using the appropriate size socket and ratchet, to rotate the crankshaft. Insert the punch into the pilot hole and evenly enlarge the hole to 9/16".
- C. Using a 3/8 NPT tap (not supplied) tap the punched hole to accommodate the threaded brass fitting. Before tapping, coat the tap with thick lithium grease to retain the metal shavings while you tap the oil pan.
- **D.** Upon completion of the tapped oil pan hole, coat the threaded end of the brass fitting with silicone and thread into the oil pan, be cautious not to over tighten or to strip the oil pan threads.
- **E.** Remove the four bolts securing the factory accessory drive pulley.
- F. With the 4 supplied bolts 3/8 x 1 in length install the new crank pulley and torque the bolts to 25-28ft pounds. (See *Fig. 3-b.*)
- **G.** Locate the two bolts insert these from the rear of the bracket. (See *Fig. xxx*.)
- **H.** Using the 7/16" x 1" bolts and washers, and the 3/8" x 1.5" bolts and washers, secure the cast bracket to the front of the cylinder head.(See *Fig. 3-c.*)



Fig. 3-a

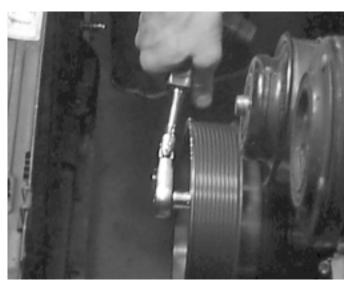


Fig. 3-b



Fig. 3-c

G. Using the main Supercharger bracket bolt it onto the previously installed cast bracket using two of the bolts that measure 3/8" x 6 3/4" and two of the flat washers these bolts will go through the lower two holes on the main S/C bracket then through the cast bracket, and into the cylinder head threads. Do not tighten yet, just get them started. (See *Fig. 3-d.*)



Fig. 3-d

H. The Smog pump is secured with a 3/8" x 5" bolt and flat washer, from the front, through the mounting plate, through the smog pump spacer, through the smog pump and into the bracket boss. The lower mounting is done with a 3/8 x 2" bolt and washer from the back of the bracket into the smog pump. Do not tighten. (See *Fig. 3-e.*)

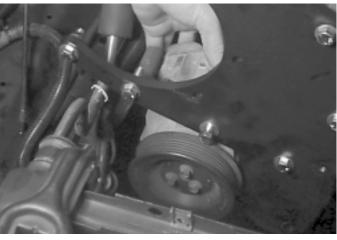


Fig. 3-e

- I. Below the smog pump, The alternator will be mounted. Use the 7/16" x 4" bolt and washer through the mounting plate, through the alternator and into the bracket.
- y. Off the side of the Smog pump, Use the 3/8" x 1" bolt and the supplied lock washer to mount the alternator stay. Use the 3/8" x 1" bolt and lock washer to secure the alternator stay to the ear of the alternator. Do not tighten
- **K.** Following the accessory belt routing diagram, (see *Appendix C*) route the belt around the pulley's. This will have to be moved later, however it is necessary to put the belt in place before the support plate is installed.
- L. Insert the solid idler, arbor and 1/2"-13 x 3" allen bolt into the lower corner of the support plate with the 1/2" nut and flat washer. Tighten this bolt.
- **M.** Attach the 1/2" drain hose to the nipple at the bottom of the supercharger. Secure with the provided clamp. Route the hose down the side of the engine and connect to the nipple previously installed in the oil pan. (See *Fig. 3-f.*)

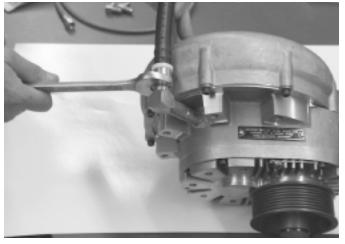


Fig. 3-f

N. Remove the factory oil pressure sensor at the front of the engine on the drivers side of the engine next to the oil filter. Use pipe sealant and install the supplied street tee adapter into the factory fitting where the sensor was. Re-install the factory sensor on one of the ends of the street TEE and tighten using pipe sealant.

O. Install the steel braided -4 oil line on to the -4 fitting of the street TEE. Neatly route the hose across the front of the engine, behind the accessories and under the supercharger. (See *Fig. 3-g.*)



Fig. 3-g

P. Bolt the Supercharger to the mounting bracket with one of the 3/8" x 1" bolts and washers through the upper most hole and the two lower holes in the mounting plate. Place the support plate over the front of the supercharger and secure with the 3/8" countersunk bolts. (See *Fig. 3-h, 3-i.*)

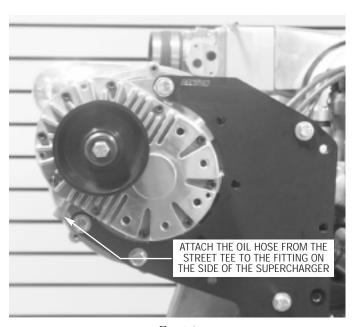


Fig. 3-h

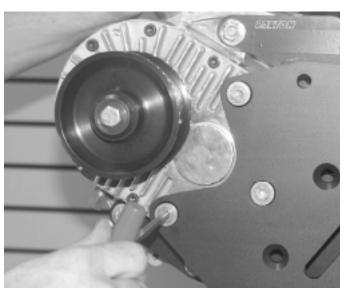


Fig. 3-i

- Q. Install the 3/8" x 2 1/2" countersunk bolt through the lower most hole in the support plate and thread it into the mounting plate. Do not tighten this bolt. (See *Appendix B*.)
- R. Above that, insert two of the 3/8" x 3 1/4" bolts with washers through the support plate, spacer and mounting plate. Secure the accessory drive belt tensioner to the back of the mounting plate with the upper of these two bolts holes, the lower with the 3/8" x 1" bolt and washer provided. Secure the other side of the belt tensioner bracket to the stud at the top of the water pump with the 3/8" nut and washer. Do not tighten these bolts. (See *Fig. 3-i*)
- S. There are three (3) countersunk holes left in the support plate. They each take the remaining 3/8" x 3 1/4" counter sunk bolts. Install these bolts and tighten to 28-30 ft pounds. Upon completion of this step, tighten all of the remaining bolts that have been left hand tight, as well as the Smog and alternator assemblies.
- **T.** Use the supplied 1/2" x 3 1/2" carriage bolt, nut and washer to secure the factory belt tensioner to the new bracket. Tighten nut to 28-30 ft lbs.. (See *Figs. 3-j, 3-k*.)



Fig. 3-j



Fig. 3-k

- U. Install the new fan spacer on the water pump. Place the fan and shroud back into the engine compartment together. Re-install the factory fan and clutch using the 5/16" bolts and washers. Tighten with a 1/2" wrench to the factory specifications. Use the factory screws to re-install the shroud onto the radiator core support.
- V. Use an 18mm wrench to rotate the accessory belt tensioner and reinstall the factory belt in the correct routing. (See *Appendix C*.)
- W. Install the supercharger drive belt between the crank pulley and the supercharger pulley. Route the belt inside the idlers. Use a 3/8" socket and extension and tighten the belt. Once the belt is tensioned, tighten the nut on

- the end of the adjustable idler so that it will not back off.
- X. Find the rubber air injection hose from the diverter valve removed in an earlier step. Shorten the hose by cutting 3" out of the middle of the hose and 1-1/2" off the back end of the hose. Reconnect the two formed pieces together with the sleeve and clamps provided. Re-install the short end hose between the diverter valve and fitting on the side of the smog pump.
- Y. Cut the upper radiator hose. Re-install the longer piece on the thermostat housing angled forward. Install the shorter 90° degree piece on the radiator angled to the side. Install the stainless tube between the two pieces of hose and secure with the supplied clamps. (See *Fig. 3-l.*)

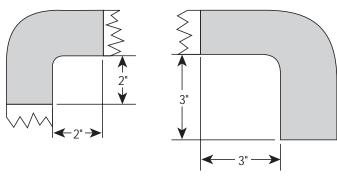


Fig. 3-1

- **Z.** Remove the vent tube from the throttle body and the oil fill cap and clamp, plug the nipple on the throttle body with a nipple plug and using a hose clamp securely retain the nipple cover.
- **AA.** Install the intake u-bend with the supplied 3 1/2" x 4" adapter sleeve and clamps. On the other end of the U-bend, install the 3 1/2" x 3 1/4" adapter sleeve. (See *Appendix E*.)
- **BB.** Plug in the Mass air flow (MAF) sensor and install the sensor into the opposite side of the adapter sleeve with the supplied clamps. (see *Appendix E*)
- **CC.** Install the K&N air filter on the end of the MAF sensor. Tighten the clamp to secure the filter. (See *Appendix E*.)
- DD. Install the brass fitting into the hole in the front of the filter cover and tighten. Place the filter cover over the filter and secure it to the inner fender with the supplied screws. Install the supplied crankcase breather hose on this nipple and route it back to the oil filler cap. Trim to fit and install this end of the hose to the nipple on the side of the oil fill spout clamp to secure.

- **EE.** Place the supplied rubber sleeves on the throttle body inlet and the supercharger outlet. Now place two hose clamps each on both ends of the rubber sleeves. Install the discharge duct onto the outlet of the supercharger and then the throttle body. Adjust the sleeves and tighten the hose clamps using a screwdriver.
- FF. Install the hose that connects the compressor bypass valve to the filter cover between the intake and discharge tubes. Use the supplied 1" rubber sleeves and clamps. Install the valve so that the bottom of the valve points toward the intake duct. Tighten all the clamps. Connect the supplied vacuum hose from the bypass valve to the manifold vacuum tree located on the fire wall next to the brake booster. (See *Appendices*.)
- **GG.** Using the supplied yellow fuel line separator, separate the return line fitting at the fuel rail. Snap the two supplied rubber hoses onto the stock fittings and route both hoses behind the passenger side strut tower.

- HH. Use the F.C.U. bracket as a guide, mark and drill two 1/8" holes in the fenderwell. Secure the F.C.U. to the fenderwell with the supplied sheet metal screws. (See *Appendices*.)
- II. Connect the fuel hoses to the F.C.U. in such a way that the fuel flows from the factory regulator, through the "in" side of the F.C.U. out the bottom of the outside back to the fuel tank.
- JJ. On top of the F.C.U. run a length of hose over and TEE it into the vacuum hose running to the boost bypass valve. Re-using the previously drained coolant, bring the reservoir up to it's stock fill limit, and also verify that the radiator is topped off.

#### \*\*\*IMPORTANT NOTE\*\*\*

Due to tight tolerances, be very careful when closing the hood for the first time, making sure that there is not any interference between the s/c and the hood of the car. By doing this you will eliminate damaging your vehicle and/or supercharger.



Completed Installation on a 5.0L Ford Mustang Motor

# **Section 4**

# FINAL CHECK OUT AND START UP

This section covers pre-start checks and inspections, as well as initial start-up.

### 4.1 Inspect the following:

- A. Wires, harnesses and electrical connections. Are all items properly dressed, connected and secured? If any electrical connections have been dis-connected, re-connect them before you start your vehicle.
- **B.** Hoses, lines and fittings. Are all items properly dressed, connected and secured?
- **C.** Fasteners, brackets, and clamps. Are all items properly installed and tightened?
- **D.** Fluid levels. Is the radiator coolant and the engine oil at their proper levels? Are there any fluid leaks?
- C. Belt(s). Is the serpentine drive belt (or accessory drive and supercharger drive belts, depending on the requirement of your vehicle) properly installed, aligned and tensioned?

# 4.2 Perform the following:

- A. Cycle the ignition key from "off" to "on" position three (3) times at fifteen (15) second intervals. Afterwards, check the entire fuel system for any leaks.
- B. Start the car. Verify that the oil pressure is within the normal operating range. Listen closely. The engine should idle and sound the same as it did before you began the installation. Shutdown the engine, disconnect the oil feed line from the blower. Remove the oil jet from the blower. Blow through the oil jet to ensure there is no blockage or foreign matter plugging it. Reinstall oil jet and oil feed line and proceed.
- C. Allow the engine to come to normal operating temperatures. Bleed the cooling system and top off as necessary.

### 4.3 Check for the following:

- **A.** Fuel leaks.
- **B.** Fluid leaks.
- C. Belt slippage.
- **D.** Throttle response.

#### \*\*\*CAUTION\*\*\*

See the supercharger service manual included in your kit for information on supercharger servicing and maintenance, belt tightening, troubleshooting, special tuning, and warranty information.

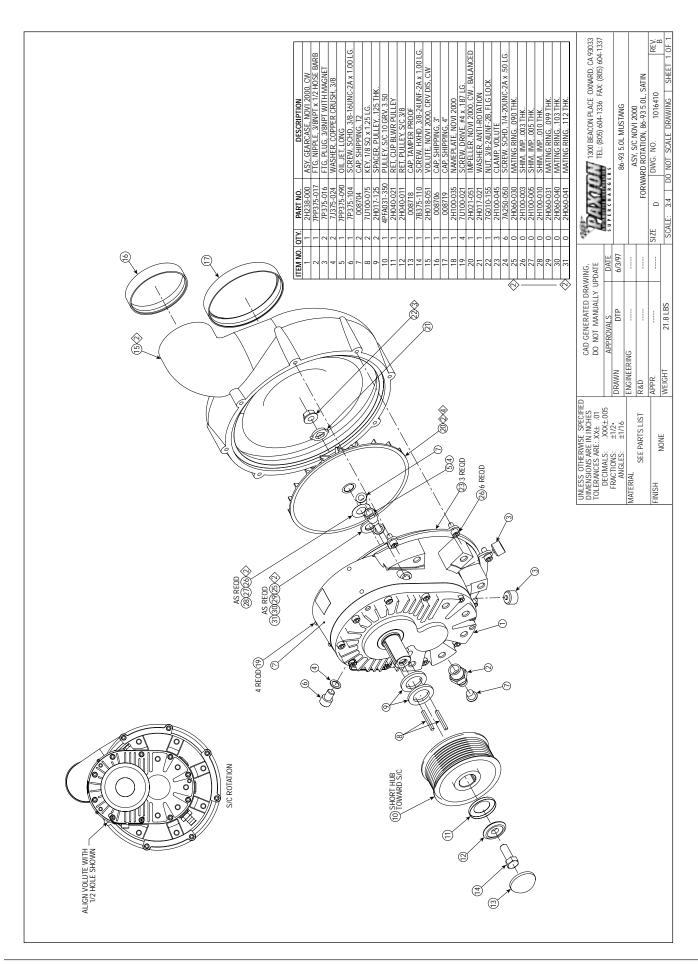
Now that the work is down, it's time to enjoy your labor of love. Take the car out on the road and let it flex it's muscles, but remember, the response and performance will now be different from that to which you have been accustomed. Have fun!

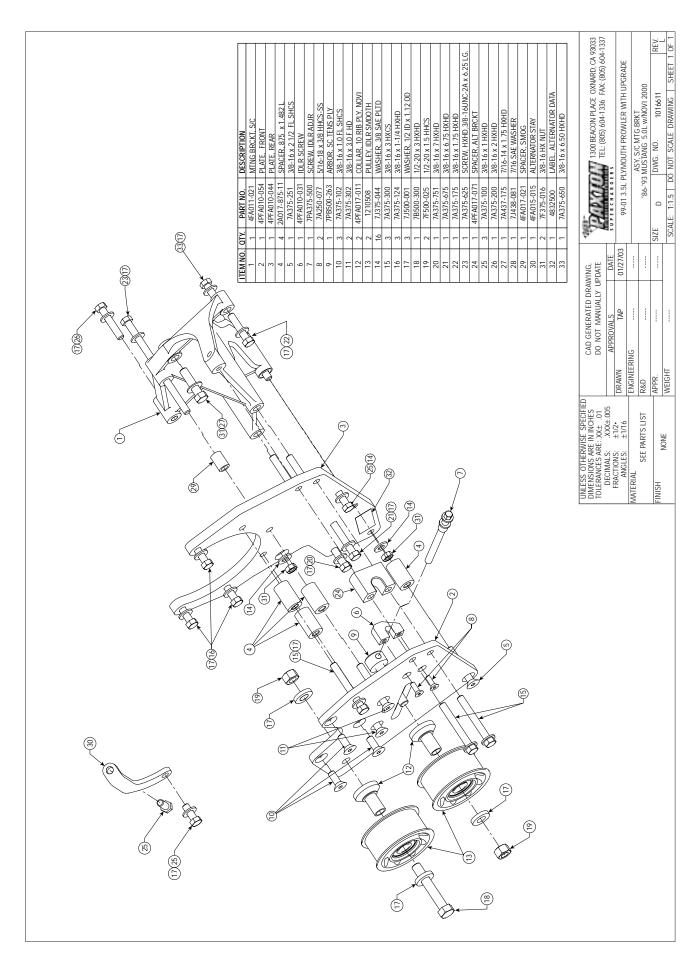
# Appendix

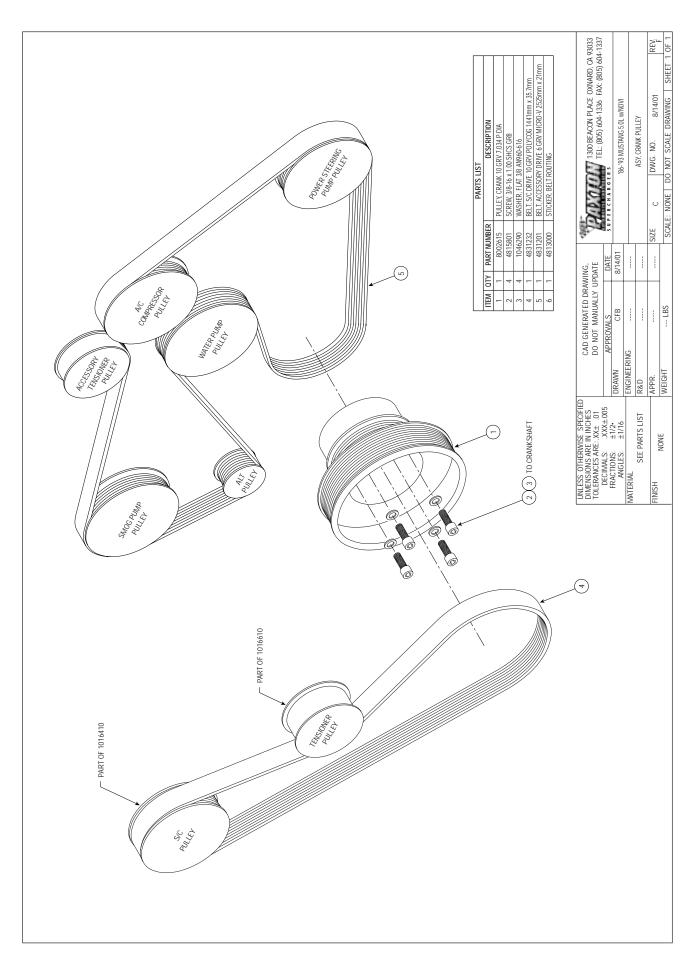
Please realize that PAXTON Automotive is constantly improving the performance and look of the NOVI 2000 supercharger. Parts in your kit may appear differently than what is pictured in this manual. This is due to photographs taken in pre-production, a change in material costs, or an improvement in performance.

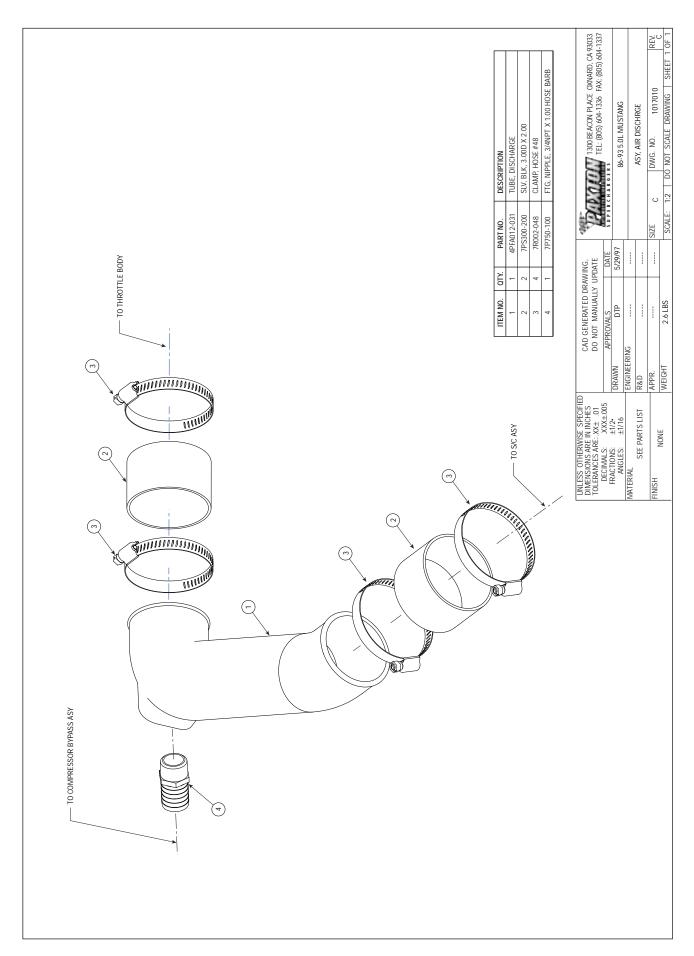
Rest assured that you have purchased to best quality kit that PAXTON Automotive manufactures at this time. The installation of the materials will remain the same.

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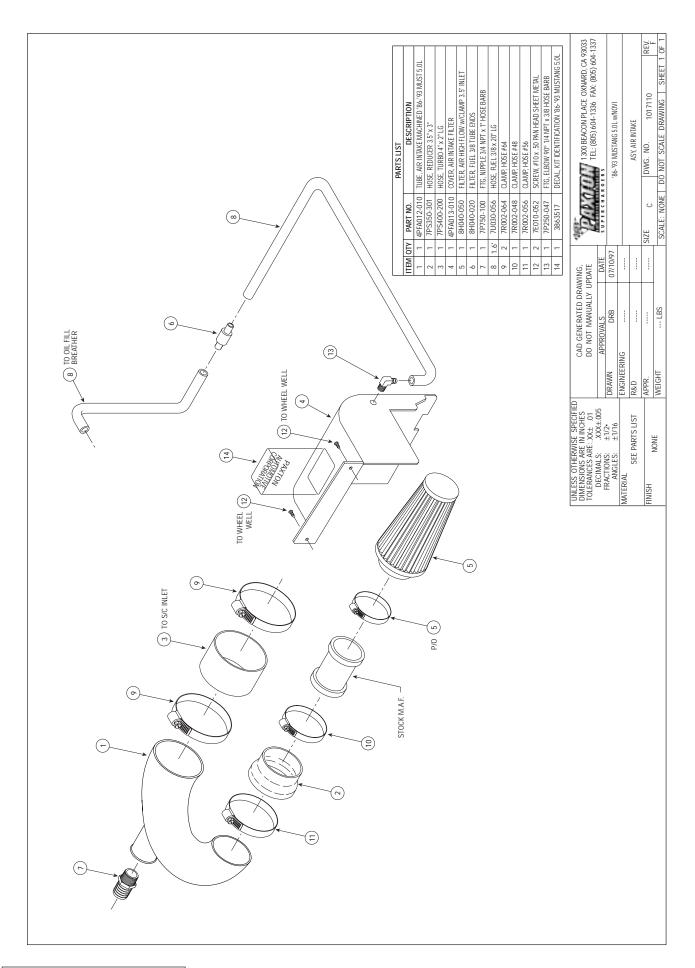






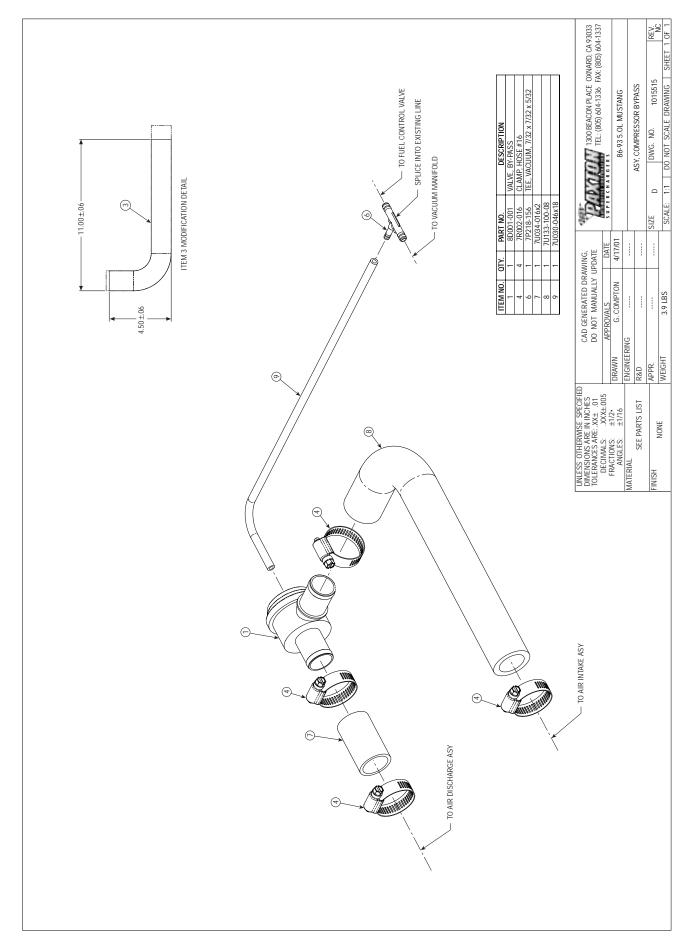


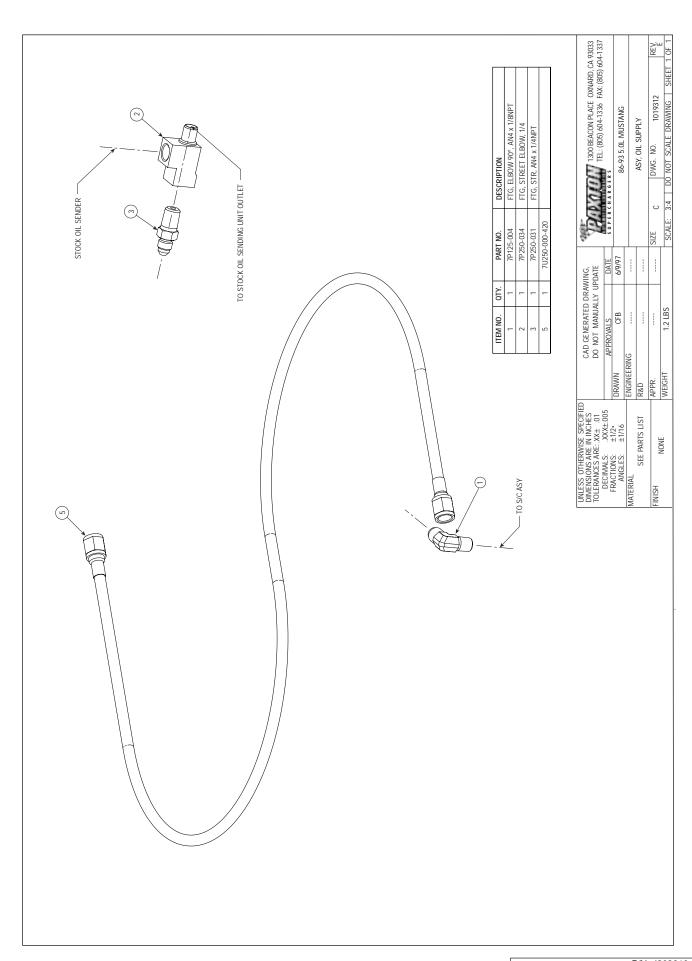
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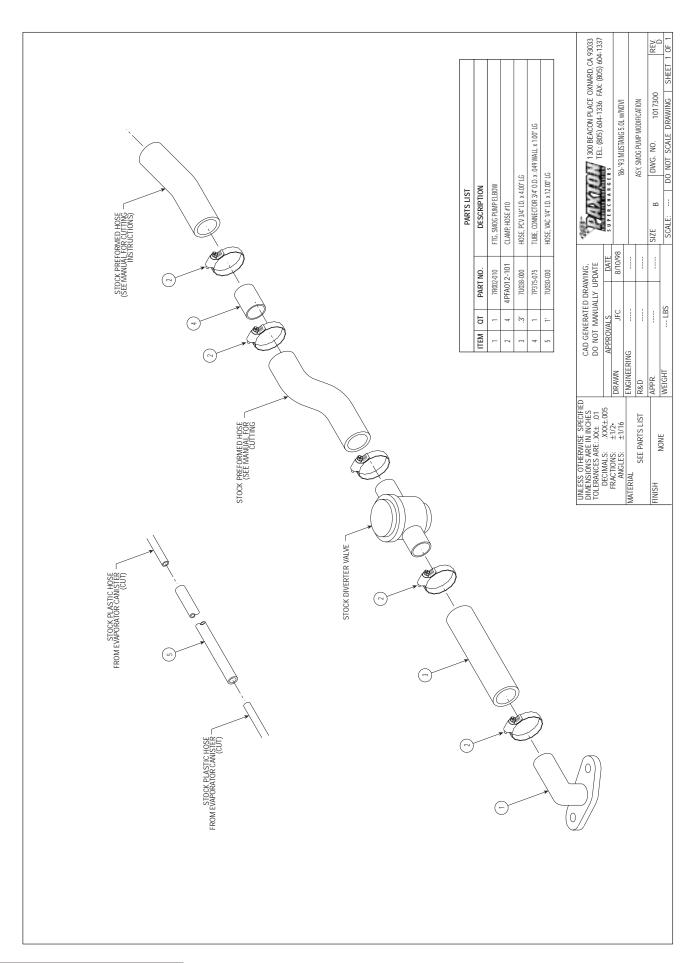


Part Number: 1017702

Part Number: 1015515









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