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## **FOREWORD**

This 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.

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### IMPORTANT NOTES

ongratulations! You have purchased the finest street supercharger available for the 5.0L Mustang. 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 sys-

tem. 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 trouble-shooting. Once again, we recommend reading the manual before beginning the process. We are available for tech support at (805) 604-1336, Monday through Friday, 8:00 - 4:30 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 selfserve 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. Tou 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 precau-

tions, 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 and 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.



# 1986-1993 5.0L Mustang Part No. 1001830

**BOM** 

**IMPORTANT:** Before beginning installation, verify that all parts are included in the kit. Report any shortages or damaged parts immediately.

Part No.	Description	Qty.
1001830	KIT, 86-93 STD. 5.0L MUSTANG	1
1016417	S/C ASSY, 86-93 5.0 NOVI 1000 CURV	1
1016709	CRANK PULLEY ASSY, 8-RIB NON-UND	1
1016622	ASSY, MTG BRKT, NOVI 1000	1
1016912	S/C TENSIONER, ASSY, 5.0 NOVI 1000	1
1017009	ASSY, AIR DISCHARGE, 5.0 NOVI 1000	1
1017111	ASSY, AIR INTAKE, 5.0 NOVI 1000	1
1019312	ASSY, OIL SUPPLY	1
4FA130-036	ASSY, OIL DRAIN	1
4FA114-023	ASSY, RADIATOR HOSE	1
1017300	ASSY, SMOG PUMP MODIFICATION	1
1017700	KIT, FUEL CONTROL	1
7T640-011	PUNCH, OIL PAN FITTING	1
4809630	INSTRUCTION MANUAL, 86-93 5.0 MUSTANG	1
7U100-055	TIE-WRAPS, 6" NYLON	20
0088575	S/C STRT INFO PKG ASSY PAXT	1
3863515	DECAL, PAXTON COLOR 9" x 3"	1

# **Section 1**

## INITIAL PREPARATION AND REMOVAL

#### 1.1 INITIAL PREPARATION AND REMOVAL

- A. Begin the initial preparation and disassembly process by first disconnecting the negative side of the battery, and draining one gallon of coolant from the coolant reservoir. To do this, disconnect the hose from the bottom of the coolant reservoir and allow to drain into a suitable container. DO NOT allow coolant to drain onto floor, and be sure to mop up any coolant splatter immediately. Animals like the taste of coolant, and if they drink it, it will kill them.
- **B.** Loosen the petcock at the bottom of the radiator and drain approximately one gallon of radiator fluid into a drain pan. (Save the fluid for re-use)



Fig. 1-a

- C. Using a 8mm socket & ratchet or screw driver, loosen the clamps and remove the upper radiator hose from the vehicle (save for re-use). (See Fig. 1-a.)
- **D.** 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.
- **E.** Disconnect the overflow hose from the neck of the radiator and unplug the electrical connector from the coolant bottle.
- **F.** Using a 7/16" wrench or socket, remove the two sheet metal screws securing the fan shroud to the radiator core support
- **G.** 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, remove the fan and clutch assembly out of the vehicle. (See *Figs. 1-b, 1-c.*)

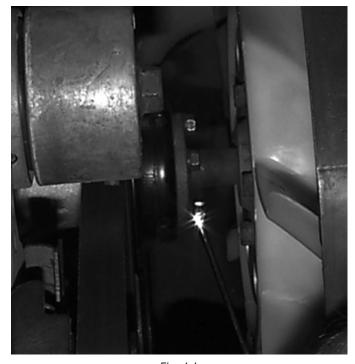


Fig. 1-b

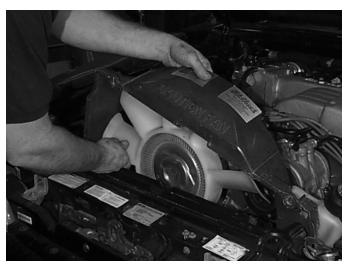


Fig. 1-c

- H 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.
- I 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. 1-d.*)



Fig. 1-d

J. Using a 19mm wrench, loosen the bolt securing the accessory drive belt tensioner to the factory bracket and remove the tensioner from the bracket. (See *Fig. 1-e*.)

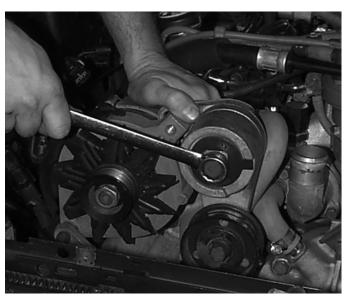


Fig. 1-e

**K.** 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. 1-f*.)

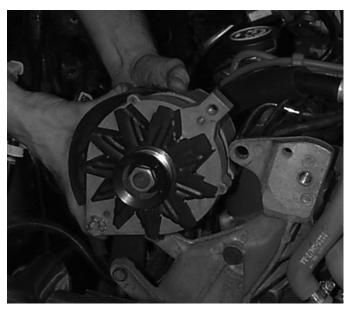


Fig. 1-f

- L. 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
- **M.** 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.
- N. 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, but save it in a safe place.
- O. 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.
- P. 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. Re-attach the canister to the frame rail using the forward hole in the frame rail and the rear hole in the bracket.

Q. Remove the four factory crank pulley bolts with a 9/16" socket and extension and remove the pulley from the vehicle. (See *Fig. 1-g.*)



Fig. 1-g

**R.** With the 4 supplied (bolts 3/8 x 1-3/4 in length) install the new crank pulley and torque the bolts to 25-28ft pounds. (See *Fig. 1-h.*)



Fig 1-h

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# Section 2

## SUPERCHARGER INSTALLATION & ASSEMBLY

#### 2.1 SUPERCHARGER INSTALLATION & 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. 2-a.*)



Fig. 2-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 cycling the key on and off to rotate the crankshaft. Insert the tap into the pilot hole and punch it into the oil pan evenly, the punch must not go in completely into the pan. Open the hole to approximately 9/16" of an inch. Go slow with this so you don't ruin the pan.
- C. Using a 3/8 NPT tap (not supplied) you will now 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.

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

For the next few steps, refer to Appendix A-11 at the back of this manual.

E. Before you install the cast bracket to the front of the engine, insert the 3/8" x 6-1/4" bolt and washers through the back of the cast bracket. At this point, install the smog pump and smog pump spacer and alternator to the cast bracket. Using the 3/8" x 1-3/4" bolt and washer install the bracket with the smog pump and the alternator attached. Install the 7/16" x 1-1/2" bolt and washer in its location noted in Appendix I on page *A-11* and *Fig. 2-b* but don't tighten these bolts yet as you may need to move the bracket to install the rest of the bolts. Attach the front supercharger mounting plate with the nuts, bolts and washers supplied. (See Appendix I, Page A-11 and Fig.  $\hat{2}$ -c.)

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

The smog pump and alternator are not installed in this picture to illustrate the location of the bolts, washers and nuts.)

After all of the bolts are installed, tighten in a uniform pattern.

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

The hoses have been removed for clarity.

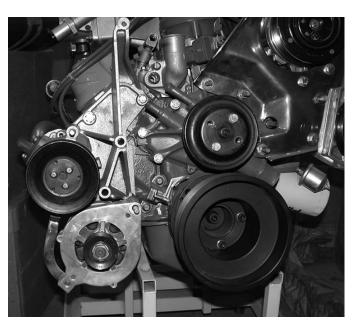


Fig. 2-b

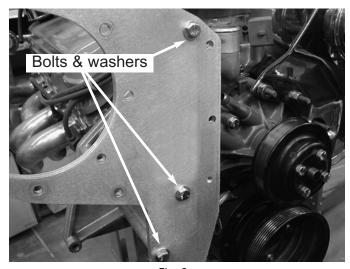


Fig. 2-c

- 1. Secure the factory/spring tensioner assembly to the Paxton belt tensioner mounting bracket using the 1/2" carriage bolt.
- 2. Replace the locking type nut on the A/C mounting bracket stud closest to the water pump with a standard nut.
- 3. Depending on Ford's manufacturing tolerances, it may be necessary to trim about 1/8" off the edge of the flange on the A/C mounting bracket to provide room for the tensioner mounting bracket.
- **4.** Install the tensioner between the supercharger mounting plate and A/C bracket stud using two standard flat washers as a spacer. Secure with two 3/8"-16 x 1" bolts and washers and a 3/8"-16 nut. (See *Fig. 2-d.*)

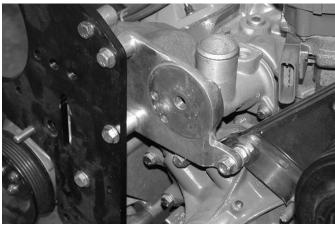


Fig. 2-d

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

Check the accessory belt tensioner pulley alignment. It may be necessary to add or remove a washer to the stud behind the tensioner bracket. Do not tighten the bolts yet, just get them started.

F. The Smog pump is secured with a 3/8" bolt and flat washer through the cast mounting plate, through the smog pump, through the smog pump spacer and through the front mounting plate. 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. 2-e.*)

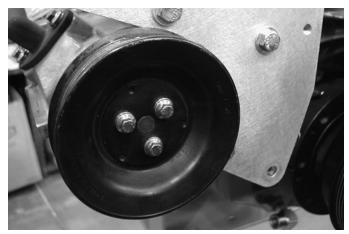


Fig. 2-e

- **G.** Below the smog pump, The alternator will be mounted. Use the 7/16" bolt washer and nut through the rear mounting plate, through the alternator and into the front plate.
- H. Off the side of the Smog pump, use the 3/8" x 1" bolt to mount the alternator support bracket. Use the 3/8" x 1" bolt and lock washer to secure the alternator support bracket to the ear of the alternator. (See *Fig. 2-f.*) Tighten all of the bolts from steps E thru I.

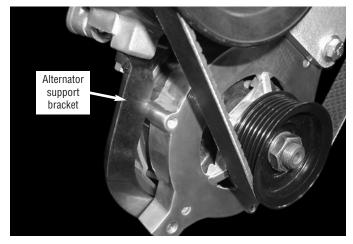


Fig. 2-f

I. Attach the 1/2" drain hose to the fitting 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. 2-g.*) and trim if necessary. Make sure there are no kinks or dips in the oil return or supercharger failure may result.



Fig. 2-g

**J.** Bolt the Supercharger to the mounting bracket with six of the 3/8" x 1.250" bolts and washers through the holes in the mounting plate. (See *Fig. 2-h*.)

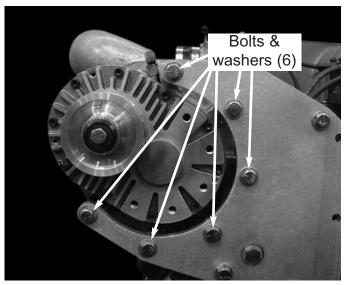


Fig. 2-h

Use a 3/8" socket and extension and tighten the supercharger bolts.

- K. Remove the factory oil pressure sensor at the front of the engine on the drivers side of the engine next to the oil filter. Using pipe sealant, 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.
- L. Install the pre-manufactured braided oil line onto the fitting in the street TEE. Neatly route the hose across the front of the engine, behind the accessories and to the supercharger. (See *Fig. 2-i*.)



Fig. 2-i

M. Mount the S/C belt tensioner to the front cover of the supercharger using the supplied 3/8" bolts and washers noting tensioner plate location. (See *Fig. 2-j.*) Install the supplied tensioner pulley spacer bolt, washer and nut.

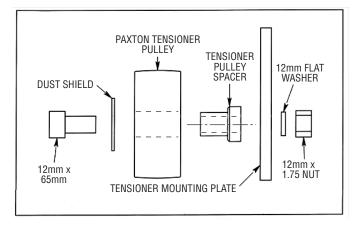


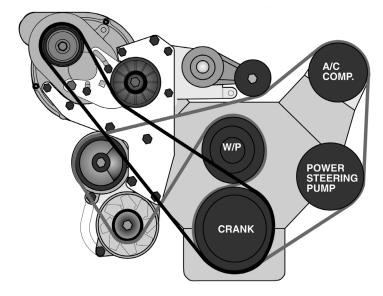
Fig. 2-j

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

There are two holes in the tensioner plate. The upper hole will be used to mount the tensioner pulley when using the 3.5" supercharger pulley The lower hole will be utilized when upgrading to a smaller pulley.



Fig. 2-k



Belt Routing Diagram

- N. Find the rubber air injection hose from the diverter valve. Shorten the hose by cutting 3" out of the middle of the hose and 1-1/2" off the back end. Reconnect the two formed pieces together with the hose union and clamps provided. Re-install the short end hose between the diverter valve and fitting on the side of the smog pump. (See *Appendix E on Pg.A-7*.)
- O. From the stock radiator hose, make two  $90^{\circ}$  elbows by trimming as shown. The first is with 3" long legs for the thermostat housing end. The second, with 2" long legs, is from the middle of the stock hose and attaches to the radiator. (See *Fig. 2-l.*)

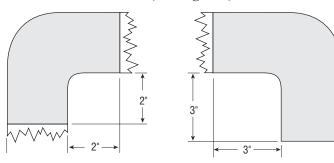


Fig. 2-1

- Place the stainless water pipe between the two hoses placing the shorter leg near the radiator.
- Position the hoses and tube so there is ample overlap for sealing and sucure with the provided clamps.
- Refill the radiator and coolant bottle.

- P. 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.
- Q. 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.
- **R.** Plug in the Mass air flow (MAF) sensor and install the sensor into the other side of the adapter with the supplied clamps.
- S. Install the K&N air filter on the end of the MAF sensor. Tighten the clamp to secure it to the filter.
- T. Find the plastic air filter cover and the 90° barbed fitting and install it in the end of the air filter housing. Attach the supplied 3/8" hose to the barbed fitting. You will also find in the assembly what looks like a fuel filter. This will be used to catch crank case vapor and should be installed between the valve cover oil fill nipple and the air filter cover. Locate the two sheet metal screws and secure the air filter cover to the inner fender. (See *Appendix A-5 for orientation*.)
- **U.** Attach the 3" turbo hose at the throttle body and fasten with supplied hose clamp. (See *Fig. 2-m.*)

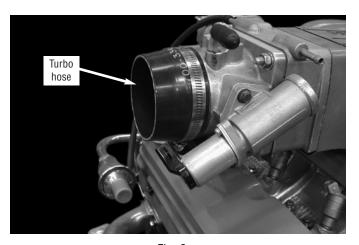


Fig. 2-m

V. Place hose clamps on each end of the rubber sleeves. Install the discharge tube onto the outlet of the supercharger and then the throttle body. Adjust the sleeves and tighten the hose clamps using a screwdriver. (See *Fig. 2-n.*)



Fig. 2-n

- W. 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.
- X. 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.
- Y. 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.
- **Z.** On top of the F.C.U. run a length of hose over and TEE it into the vacuum hose running from the factory fuel pressure regulator.
- AA. 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. The installation has now been completed, proceed to section 4.0 FINAL CHECK OUT AND START UP.



Fig. 2-o / Completed Installation on a 5.0L Ford Mustang Motor

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# Section 3 FINAL CHECK OUT & START-UP

## 3.1 PRE-START CHECKS, INSPECTIONS, INITIAL START-UP

#### **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?
- E. 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?

#### Perform the following:

- F. 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.
- G. 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.

#### **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 before. Take some time to become accustomed to your "new car".

Have fun!

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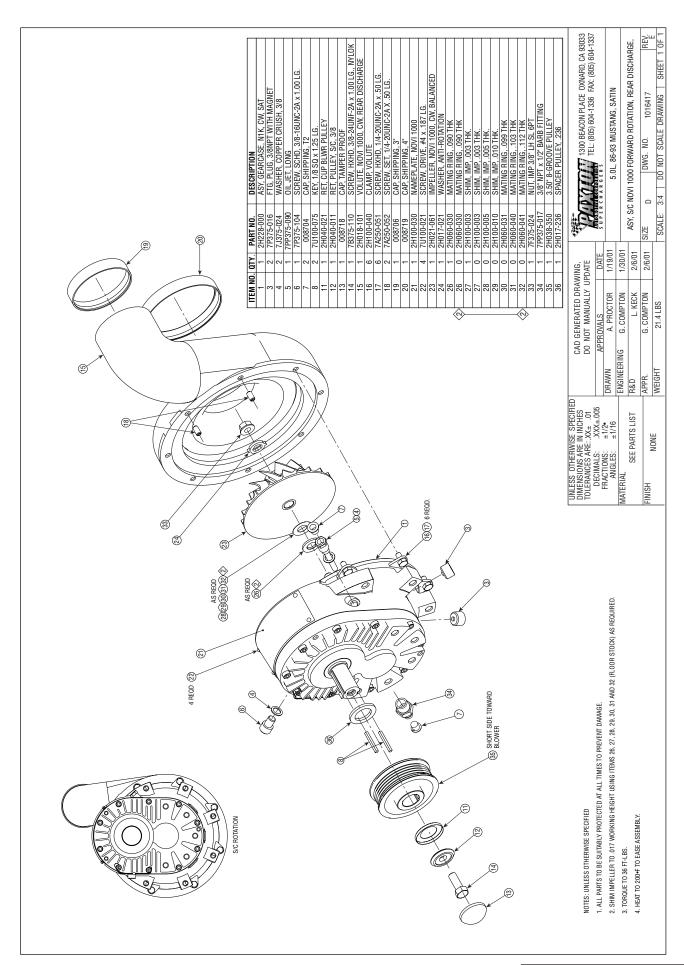
# **APPENDIX**

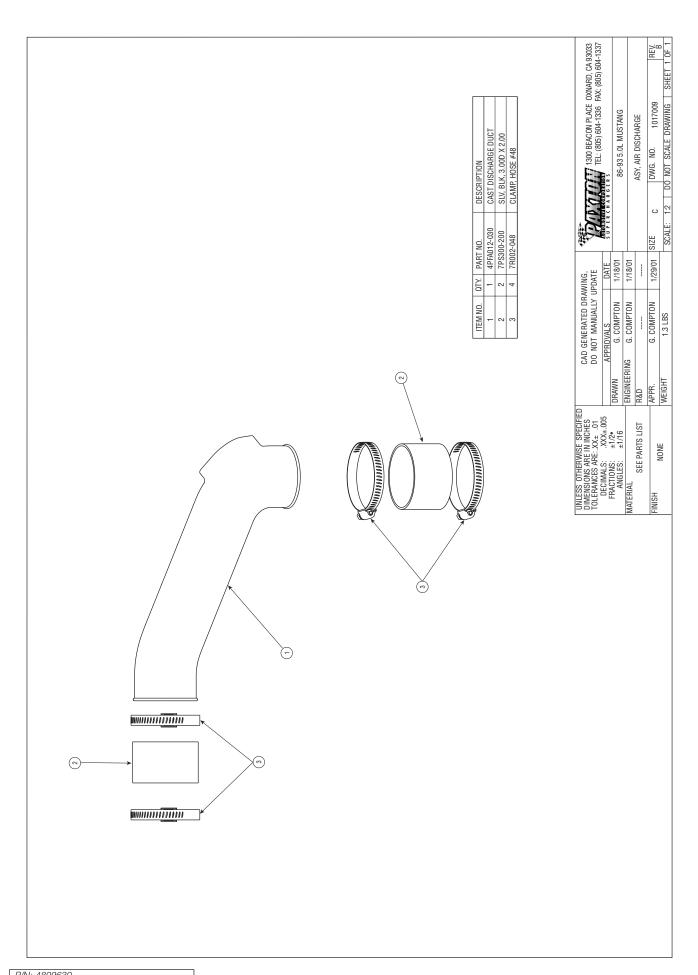
Please realize that **PAXTON Automotive** is constantly improving the performance and look of the **NOVI 1000** supercharger. Parts in your kit may appear differently than what is pictured in this manual. This is due to photographs taken in pre-production, a change in material, costs, or an improvement in performance.

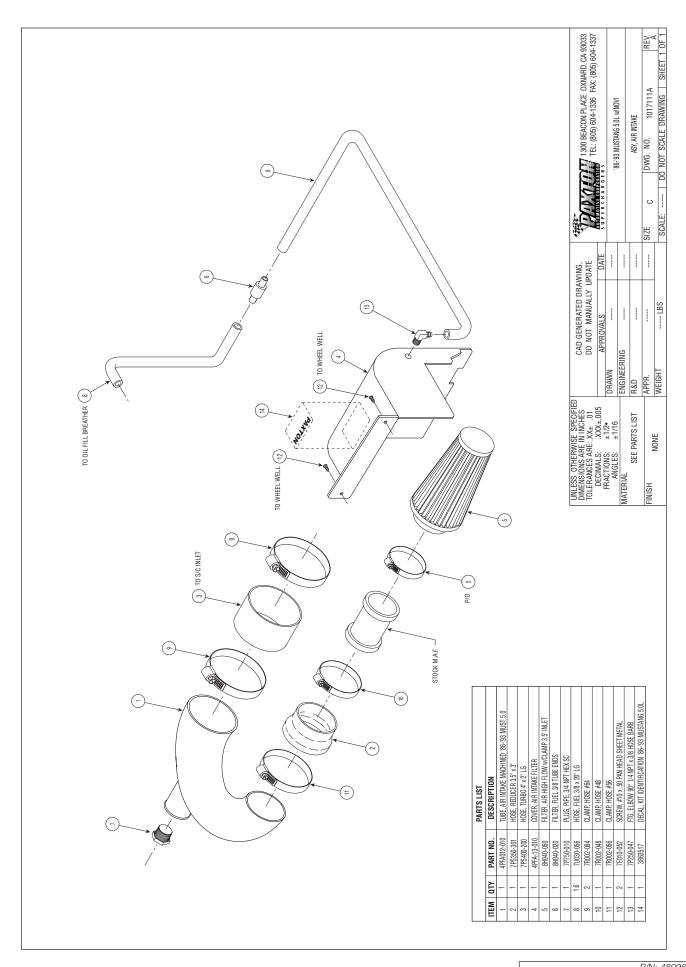
Rest assured that you have purchased the best quality kit that **PAXTON Automotive** manufactures at this time. The installation of the materials will remain the same.

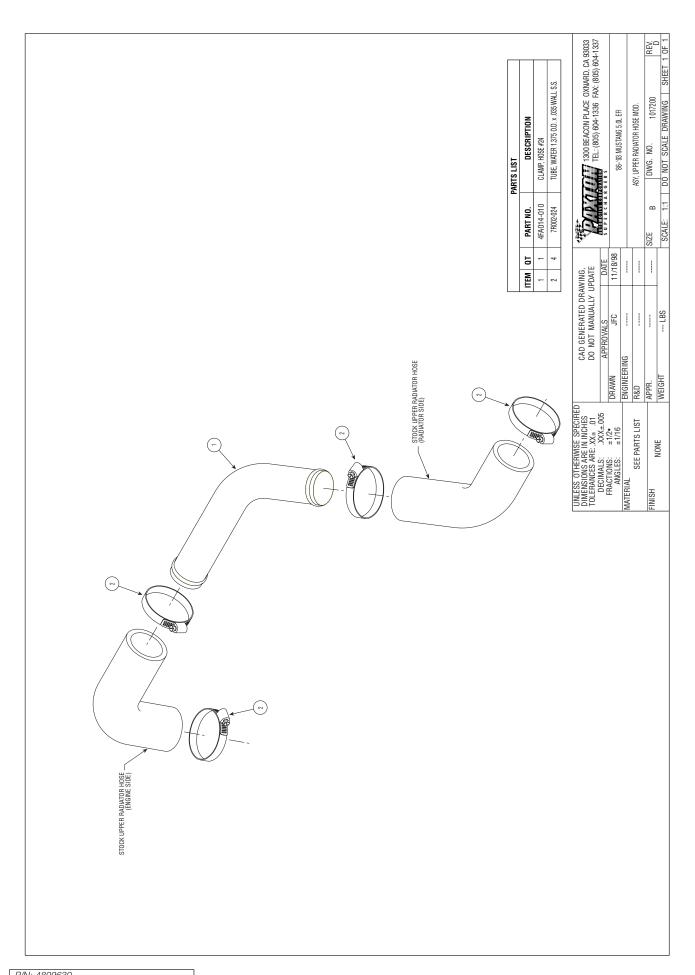
#### **List of Appendices**

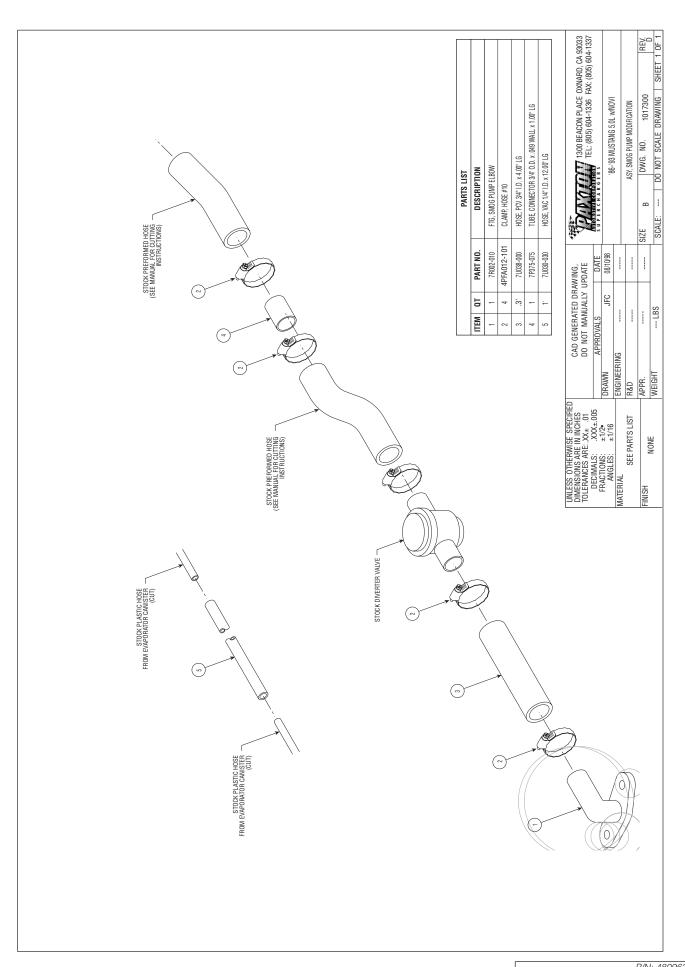
Appendix NumberDWG NumberDWG Title
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B
C
D
E
F1017700KIT, FUEL CONTROL
G
H
I1016622ASY, MTNG BRACKET (LAST DRAWING)

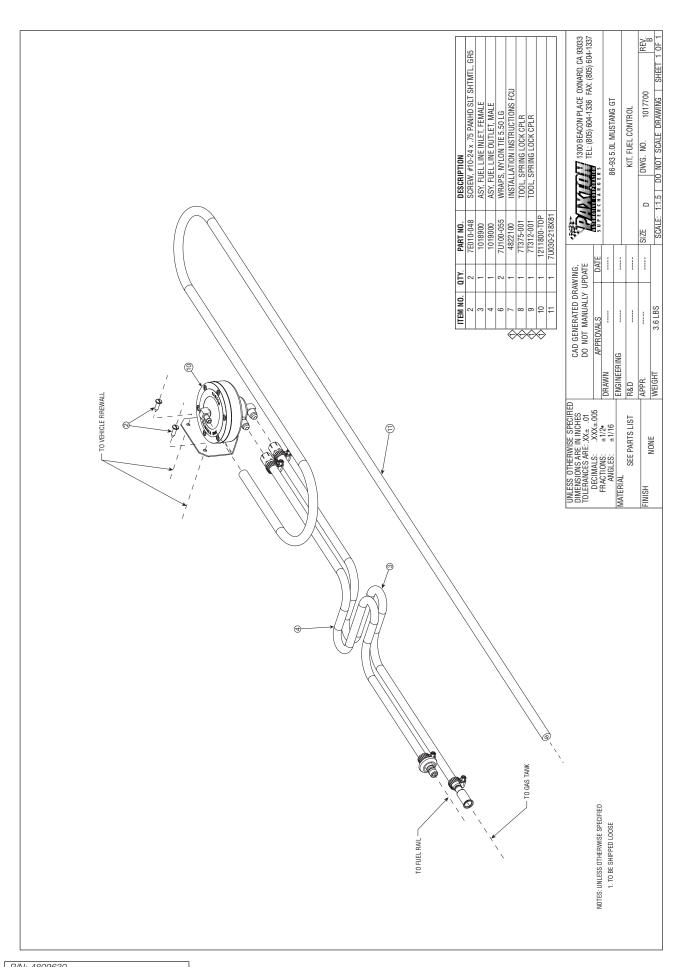


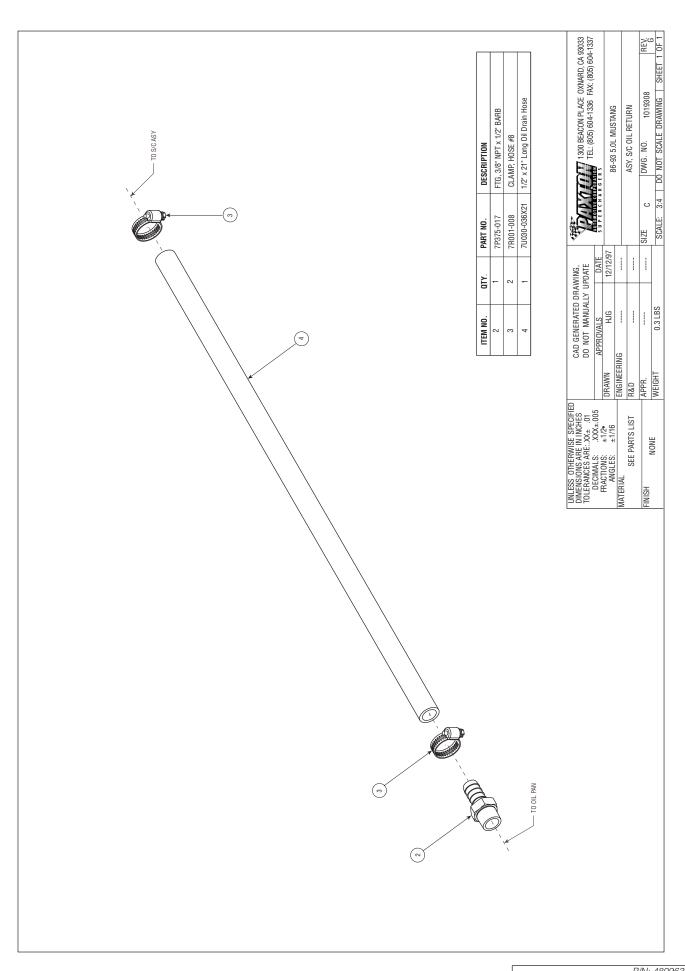


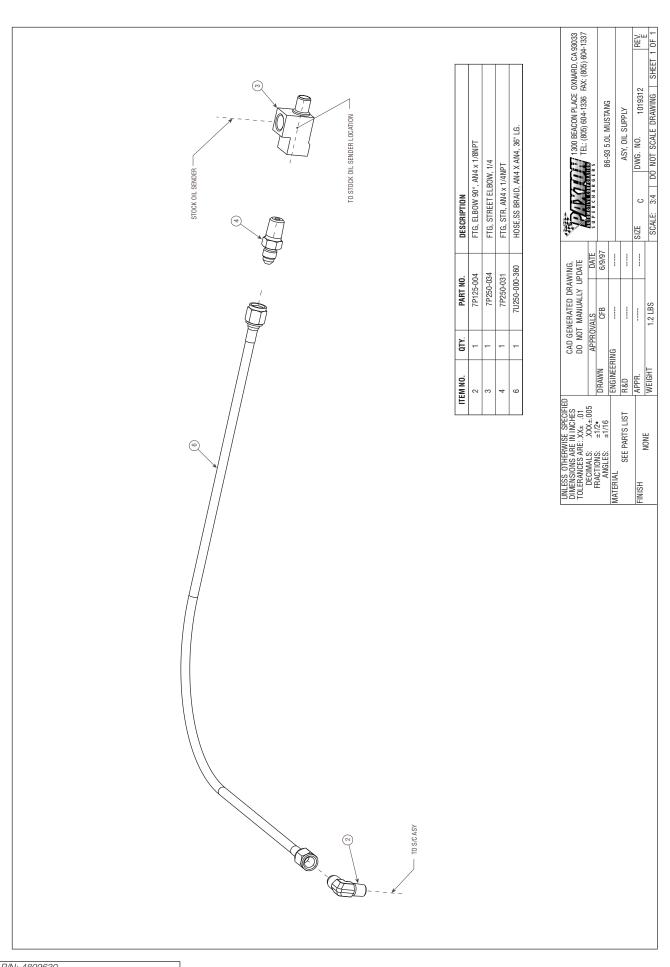


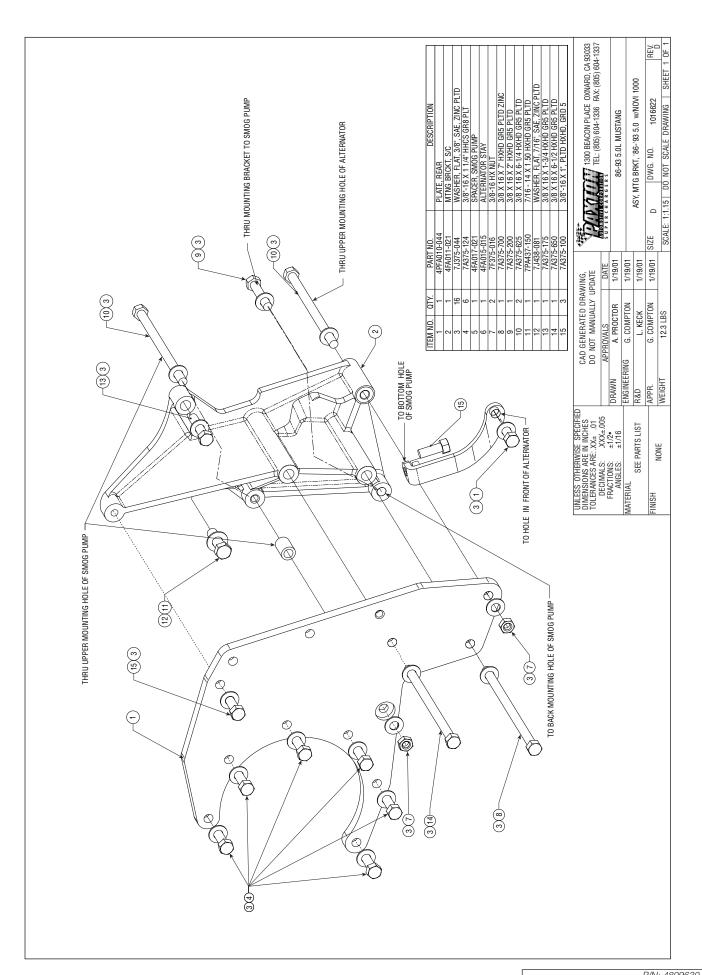














#### SUPERCHARGERS

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