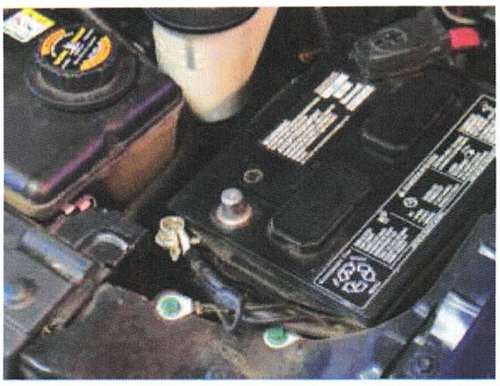
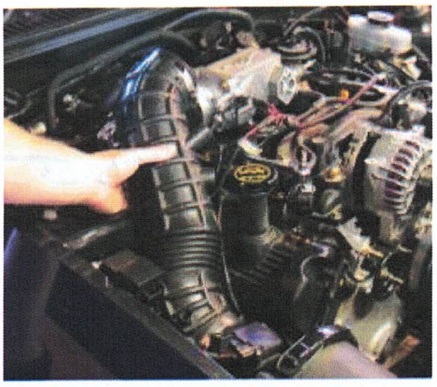
INSTALLATION INSTRUCTIONS

1996-1998 Rev. II Mustang GT Supercharger Kit

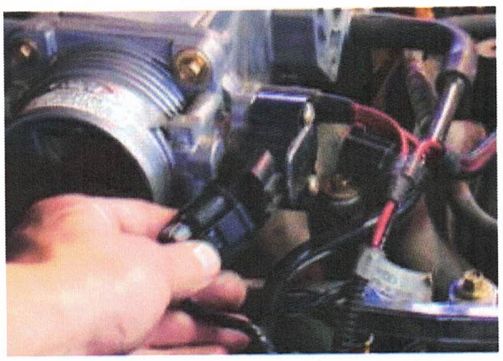
Congratulations on choosing what we feel is the best supercharger kit on the market. Proper installation is the key to long and trouble free operation. Please read and understand thoroughly all of the instructions presented here. We have made major improvements on the Rev II Kit, especially on issues associated with installation time. Every possible effort has been made to assure a quality and complete product. Please check the completeness and condition of your kit as received. If there are any missing or damaged parts, please call us. We will make every effort to remedy the situation in a timely manner. Please note that the water tank in some kits has a dent in the bottom, not to worry. This is supposed to be there to clear the brake system accumulator.

1. 

3. 

1. Disconnect negative ground cable from battery.
2. Remove shock tower brace, if equipped.

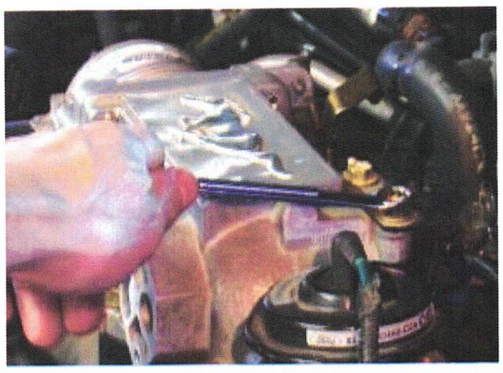
3. Remove mass air sensor to throttle body tube.

4. 

5. 

4. Disconnect vehicle wiring harness connectors from ignition coils; throttle position sensor, idle air, EGR solenoid valve, EGR Pressure Transducer, Temperature Sensors, fuel pressure, and fuel injector connections.

5. Remove PCV hose from vehicle.

9. 

6. Remove spark plug wires.

7. Remove idle air valve, hose and silencer from vehicle.

8. Remove crankcase vent hose from vehicle.

9. Disconnect throttle cable (and cruise control cable if equipped) and mounting bracket from intake manifold. The cables can now be easily detached from bracket with a pair of pliers.

10. Remove vacuum hoses from vehicle.

11. Drain engine coolant from petcock valve on bottom of radiator.

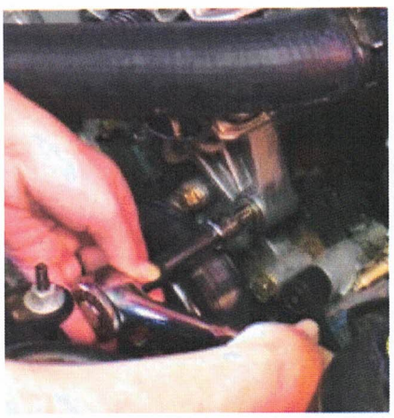
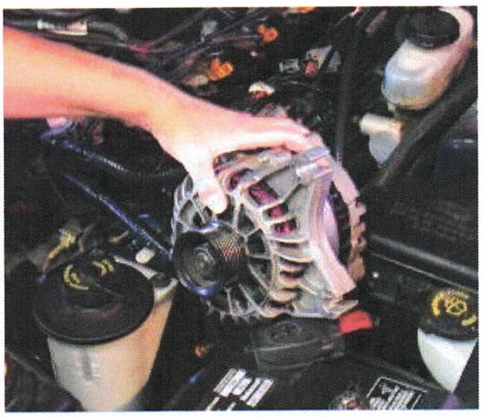
12. 

13. 

12. Relieve fuel system pressure and disconnect spring lock couplings. A special tool is required for each fuel connector. They are available at any auto parts store.

13. Disconnect water heater hose (rear on manifold to firewall) from firewall.

14. Rotate the tensioner with a ratchet and remove the accessory drive belt.

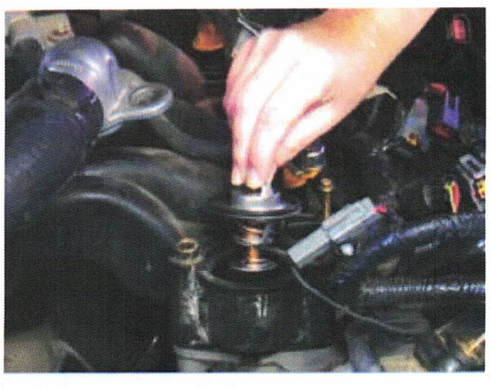
15.  

15. Loosen 2 alternator bolts and remove Alternator.

16.  17. 

16. Remove EGR Solenoid.

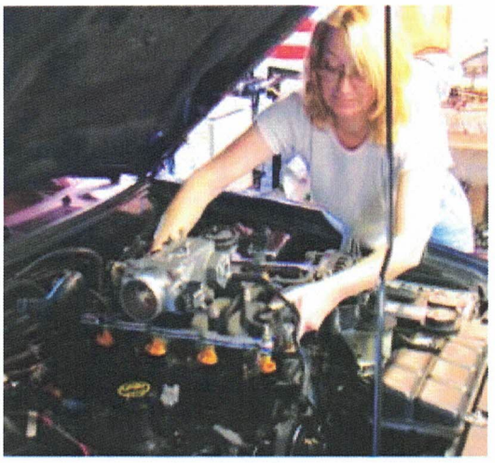
17. Loosen EGR tube retaining nut at EGR Valve. Remove the EGR transducer mounting nuts, and move the transducer to the side. Do not remove the hoses. This will allow you to get to the bolt holding the manifold down.

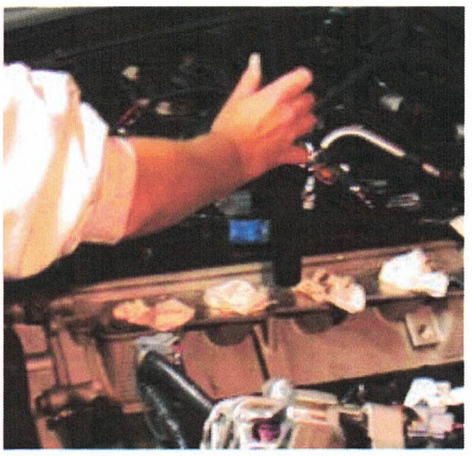
18.  20. 

18. Remove Intake Manifold bolts, including the ones retaining the water outlet.

19. Remove water outlet and upper radiator hose.

20. Remove thermostat and O-Ring from the Intake manifold.

21. 

23. 

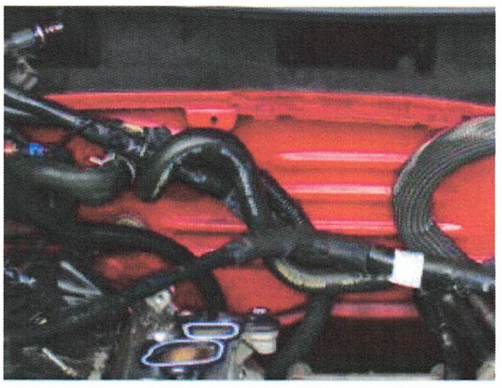
21. Remove Intake Manifold.

22. Remove Intake Manifold Gaskets.

23. Vacuum any dirt or debris from the Intake Manifold flanges.

24. Cover intake ports with duct tape or equivalent.

25. Position the passenger side heater hose out of the way as shown in 26.

26. 

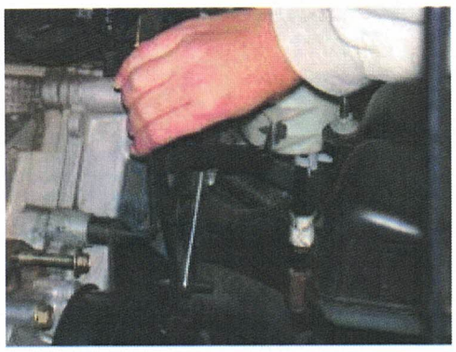
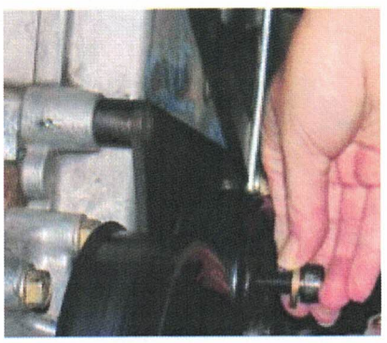
27. 

26. Position the drivers side heater hose as shown to clear new manifold.

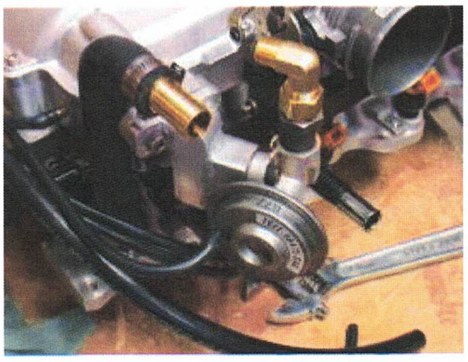
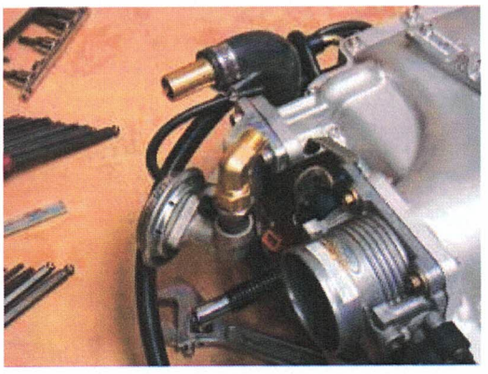
27. Remove 2 nuts and 1 bolt from power steering reservoir mount on front cover. Remove lower stud replace it with the new stud provided, without the integrated nut.

28. Remove front cover bolts, which will need to be replaced for the mounting of the Idler Pulley Mount. To determine which bolts need to be removed, if not obvious to you, hold the mount up to the front cover and position the hole over the stud you just replaced.

29. Position Idler Pulley Mount and retain with bolts provided. (Torque to 17-22 ft-lb.)

28.  29. 

30. Attach Pulley to Mount and retain with provided bolts. (Torque to 17-22 ft-lb.) Reinstall power steering reservoir bolt and nut.

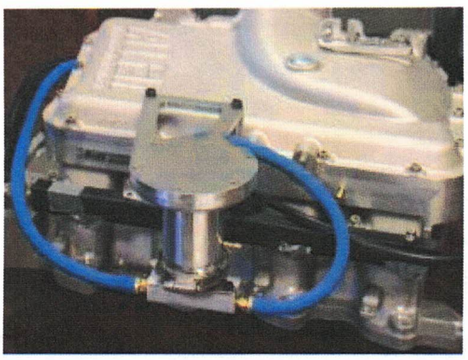
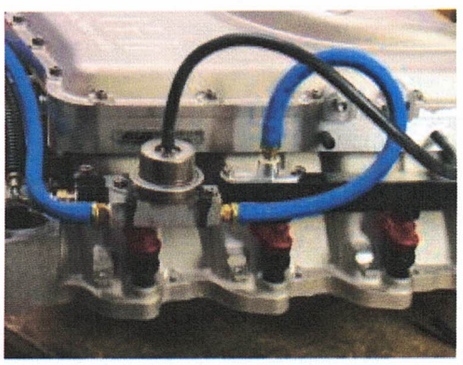
31.  

31. Assemble the EGR Valve from the stock manifold to the new manifold with adapter, bolts and gasket provided. The adapter will allow use of stock Ford shock tower brace. (Torque to 17-22 ft-lb.)

32. Transfer the throttle body from the stock manifold to the new manifold using stock bolts. Reuse the gasket as long as it is not damaged.

33. Transfer the Idle air control valve from the stock manifold to the new manifold using supplied bolts. Reuse the gasket as long as it is not damaged.

34. Transfer the engine temperature sensor from the driver side of the old manifold, to the underside of the water crossover of the new manifold. Transfer the engine temperature sensor from the passenger side of the old manifold, to the topside of the water crossover on the new manifold. (Use Teflon sealant)

35-36.  35a 

35. Transfer the fuel pressure regulator from the stock fuel rail to the fuel rail block as shown. Install the short fuel hose between the "IN" side of the fuel block and the fuel rail adapter as shown. Install

the SFPR over the regulator and install the V-band clamp. Photo 35a. shows installation for the optional 9 p.s.i. system.

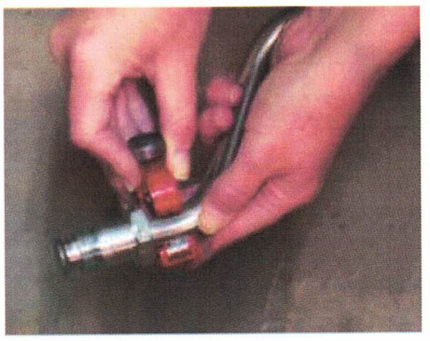
36. Mount the SFPR using the supplied spacers as shown. (not used on 9 p.s.i. system.)

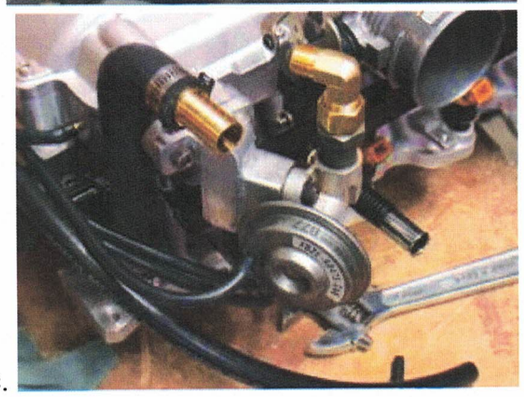
37. Transfer one stock fuel rail bolt from the old manifold to the rear of the new manifold (driver side). This will allow stock ground wire to be used. Be sure to retain the phenolic spacer supplied to insulate the fuel rails from the manifold. (see 71)

38. Transfer the plastic EGR solenoid to new manifold using the bolts supplied, and attach the hose from the manifold to the lower port. Connect the upper port to the EGR valve with supplied hose.

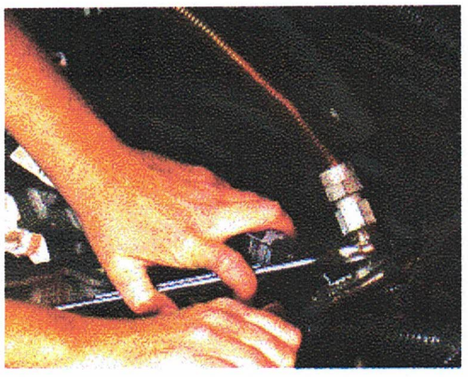
39. Transfer fuel pressure test (schraeder) valve from old fuel rail to new fuel rail (driver side). Use Teflon tape.

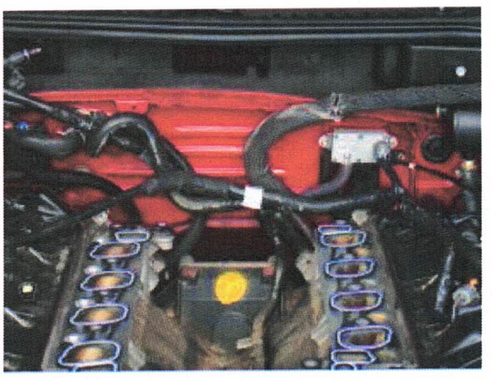
40a. 

40b. 

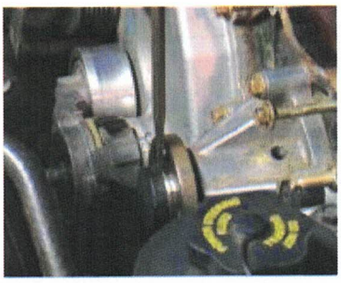
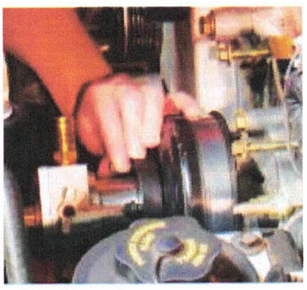
40c. 

40. Since the EGR Valve has been re-located, the EGR Tube must be "Modified". This can be done with common hand tools. (shown Sears 51252 tubing cutter) The tube must be cut in two (2) places and mended with brass crush collars on the end of a flexible stainless steel tube. Cut the tube as shown. The small end cut off in 40b needs to be assembled as shown in 40c.

41a. 

41b. 

41. Tighten all EGR feed tube connections. The photo is shown without the woven heat shield for clarity. Be sure to install heat shield supplied before continuing. Position the EGR tube as shown prior to installing the manifold.

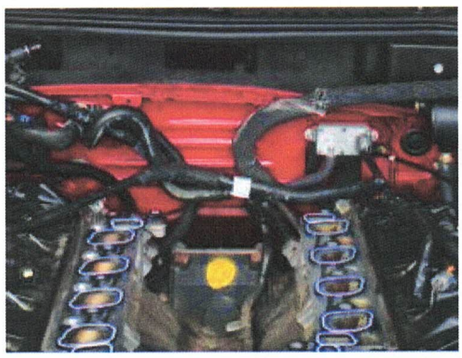
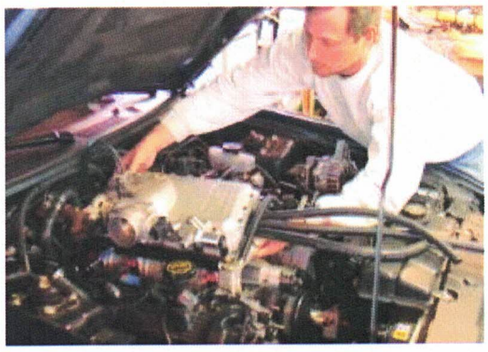
42.  43.  44. 

42. Loosen 4 bolts retaining water pump pulley, and remove pulley.

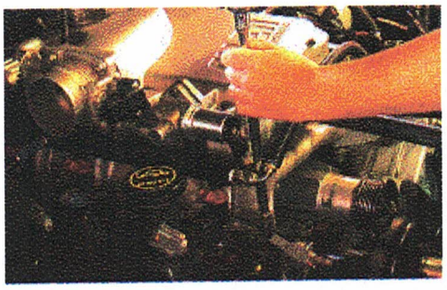
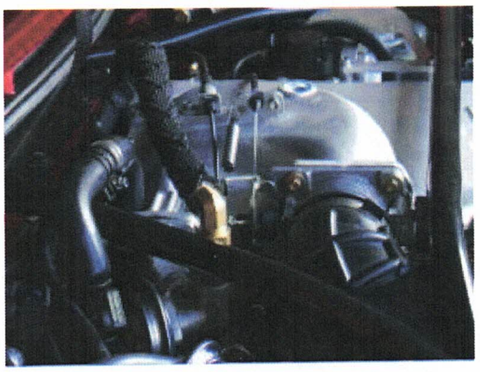
43. Remove black plastic protective sleeve on water pump shaft. This may require a hammer and sharp chisel or a sharp knife. Try not to mar the precision machined surface under the sleeve.

44. Attach the intercooler water pump with the 4 supplied bolts. These can be tightened with a standard 8mm box end wrench. A pair of water pump pliers (spanning 2 of the bolts) can be used to keep the assembly still while tightening each bolt.

45. Re-install the intake manifold gaskets on to the cylinder heads. It is better to use new gaskets for use with P.I. heads. Maker sure they have not been damaged in any way. Position wiring harness and EGR tube as shown. Be sure EGR transducer hoses are attached and nuts are installed as these are difficult to reach once the manifold is installed. Protective tape or equivalent must be removed from the ports now.

45.  46. 

46. Set the Intake manifold / Supercharger assembly onto the engine. Be sure not to damage the gaskets during this procedure. The wiring harness will need to be lifted slightly at the rear of the engine to allow it back into the proper position. The wiring harness should be just above the mounting flange of the manifold. This is best performed with a person on each side of the vehicle to gently guide it into place.

47.  48. 

47. Install the intake manifold bolts supplied (9 hex flange, and 1 long cap screw) and tighten in a crisscross pattern. Repeat this procedure until all bolts are snug and then torque to 17-22 ft-lbs.

48. Connect feeder tube fitting to EGR Valve and tighten. There may be some slight alignment of the flexible stainless steel tube required before this is achievable. Be sure the EGR tube is as far as possible from the wiring .

49. Re-install spark plug wires. Route the wires along the front under the nose of the blower in the engine valley.

50. Attach the Evaporative canister hose to the passenger side 3/8" vacuum tube. (See Figure 1) The existing hose may need to be shortened slightly for a proper fit.

51. Using supplied hose, connect the hose from PCV valve to the driver side 3/8" vacuum tube.

(See Figure 1)

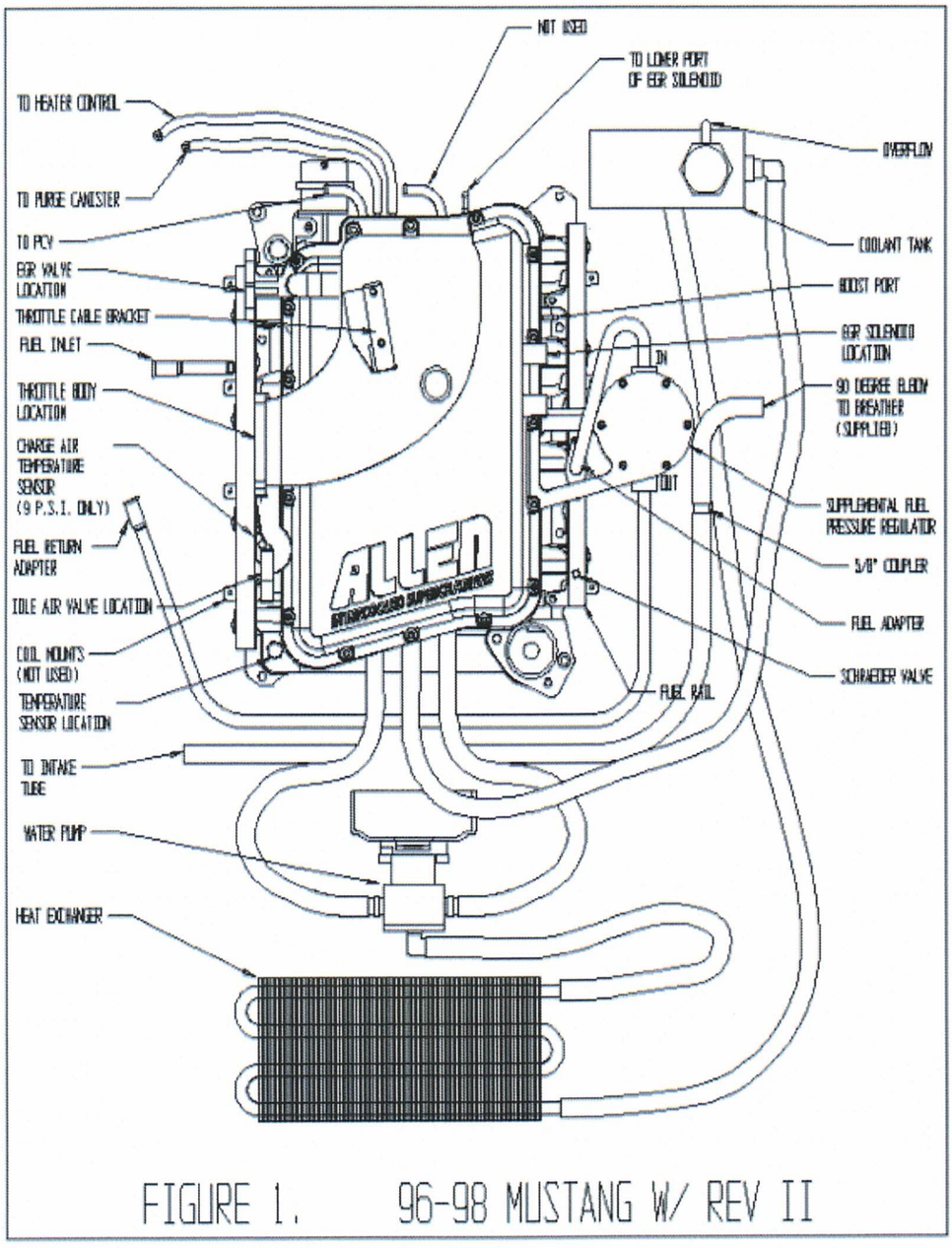
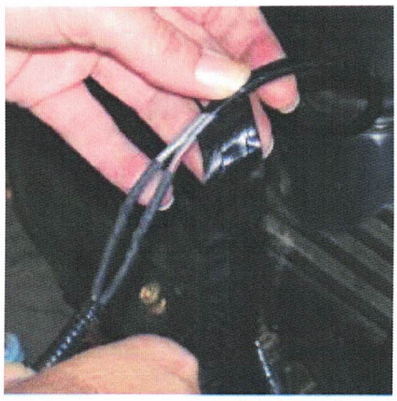


FIGURE 1. 96-98 MUSTANG W/ REV II

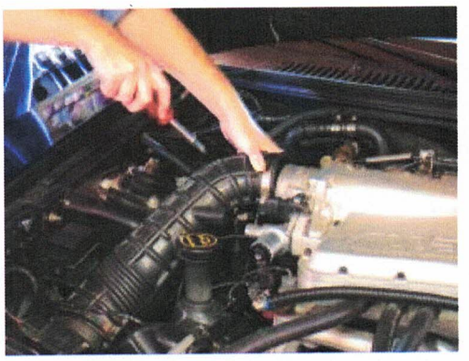
53. 

52. Connect vacuum hoses to heater and purge canister. These hoses have brass reducers attached to them to accommodate the mating hose size. (See Figure 1)

53. The wires for the passenger side coolant temp sensor (6”), drivers side coolant temp sensor (16”), idle air valve (10”), alternator (18”) and throttle body (10”) need to be lengthened. Supplied in the kit are color-coded wires and crimp connectors as well as black corrugated split loom. We recommend soldering and shrink-tubing the connections if possible.

54. Re-attach the throttle and cruise control cables and return spring.

55. 


56.

55. Snap the fuel line connector into the rear of the driver side fuel rail. The fuel return line needs to be routed from the drivers side to the passenger side and connected with the supplied snap fitting. The supplied connector is a push-on fitting. DO NOT us a hose clamp on any of the blue fuel lines.

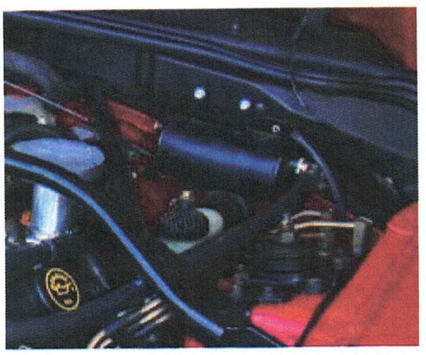
56. Install the rubber air inlet tube from the mass air flow sensor to throttle body and tighten clamps

57. Re-attach formed rubber hose from air inlet to idle air valve. This may require some trimming!

58. Connect valve cover breather hose from driver side valve cover to air inlet tube with 5/8” hose and 90° elbow.

59. Mark hole locations for the intercooler reservoir in windshield wiper motor cover. Check for proper location using the tank, and drill holes (1/4” drill). The small dent in the bottom of the tank should just clear the brake cylinder.

60. Attach Intercooler coolant tank to firewall cover with supplied screws.

59. 


61.

61. Attach ground wire to the fuel rail bolt as shown.

62. 

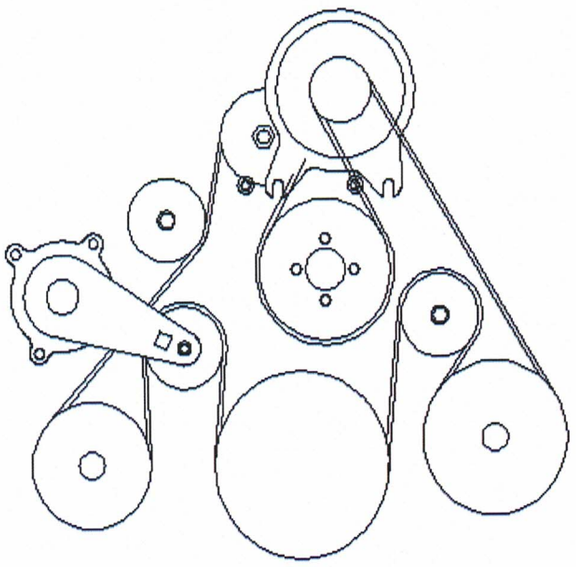
62. Route the supplied drive belt appropriately and position the alternator bracket. Retain with 2 bolts and loosely tighten. (Study Figure 2 thoroughly before attempting this step.)

63. Install the Drive Housing Clamp and tighten bolts to 7-10 ft lbs.

64. Now the alternator bracket can be tightened to 17-22 ft-lbs.

65. Thread bolts (and washers) into the alternator bracket top left and lower right as viewed from front of car.

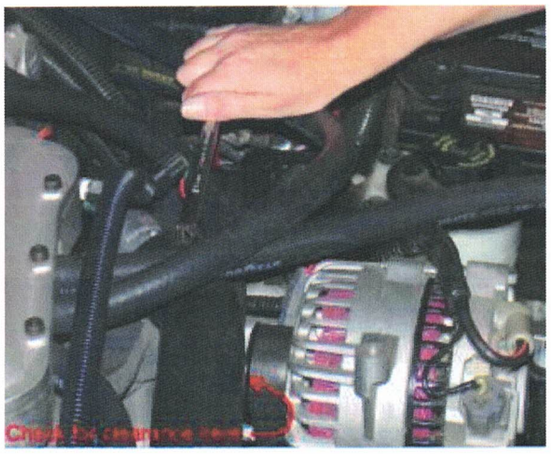
66. Position alternator into bracket while placing the belt over the proper pulleys. The tensioner must be relieved to its slack position during this process. I may be easier to slip the water pump pulley on last as it has no flange. Once the belt is correctly positioned over all pulleys, tighten the supplied bolts to 17-22 ft-lbs.



REQUIRED BELT JK6-1118

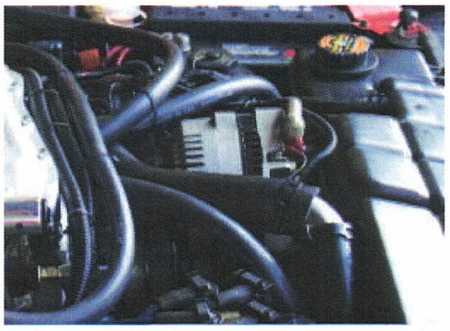
FIGURE 2.

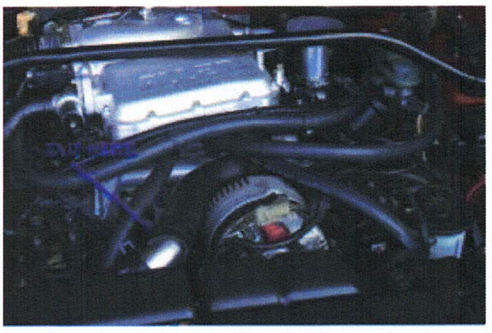
96-98 MUSTANG

67. 

67. Re-install thermostat and o-ring. Be sure to use the supplied spacers.

68. Cut the stock upper radiator hose, and reassemble using 45 degree elbow, and hose clamps supplied. Be sure to rotate thermostat housing away from alternator pulley as far as possible to insure proper working clearances.

68a. 

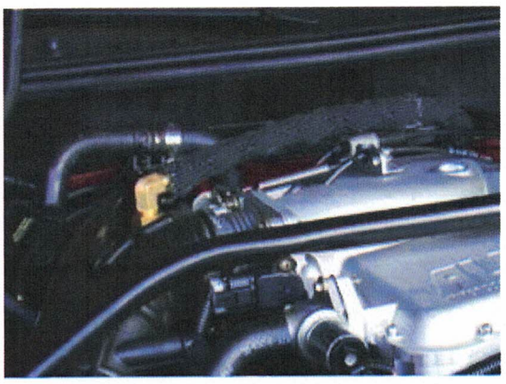
68b. 

69. 

69. With the Heat Exchanger for the Intercooler bolted to its mounting brackets, position the assembly under the valence toward the passenger side of the opening and the fittings on the driver side. Mark hole positions using a magic marker. Remove assembly and drill holes using #29 cobalt drill bit (supplied) for the self tapping screws (supplied). Remove the mounting brackets from the Heat Exchanger. Now you can attach the mounting brackets to the cross-member using access through the hole in the bracket. The Heat Exchanger can now be bolted to the brackets.

70. Connect the hoses to heat exchanger, water pump, intercooler, and tank as shown in Figure 1.

71. 

73. 

71. For cars with stock Ford shock tower braces, install the shock tower brace and snug down the bolts. The brace will most likely be close to the throttle position sensor and the forward bolt of the SFPR mount. Mark these locations with tape, remove the brace, and form a small dent in the underside of the brace in each location. This can be done easily if you have access to a hydraulic press. If not, put duct tape over the location to keep the paint from chipping and tap in the dent with a small hammer. The metal is not very thick and deforms easily. The air inlet hose should also be marked with a magic marker around the brace. Trim the reinforcing ribs from the rubber tube where they hit the brace.

72. Reinstall the brace and tighten all bolts.

73. Re-connect heater hose, looping the hose over the top of the shock tower brace.

74. Re-fill engine cooling system and re-install cap. Close the petcock first!

75. Fill the Intercooler water tank with coolant (50/50 Water Glycol mixture). It may be necessary to burp the system by loosening the petcock on the top of the water pump. Install the Radiator Cap.

76. Your kit is equipped with a high flow fuel pump, it can be installed now. Follow instructions included with the pump, and in the supplement to this manual.

77. The battery cable can now be connected.

Check for any stray tools or spare parts, which may hinder the starting of the vehicle.

Start engine and check for any fuel or coolant leaks, as well as adequate working clearance between parts. Remove intercooler tank cap, and verify flow, top off if necessary. (If you do not see water flowing inside the intercooler reservoir the pump is not properly primed.) Replace cap.

You're done!

FUEL PUMP INSTALL

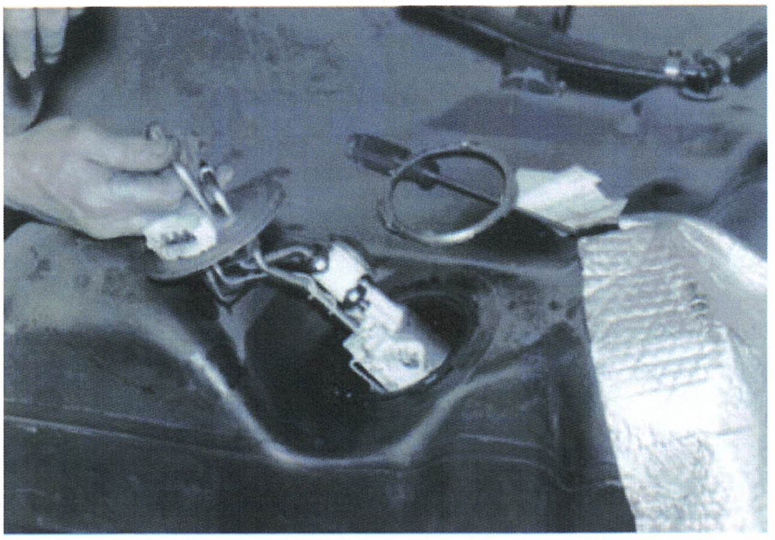
1. Remove the gas tank from car. On the Mustang this can be done by removing the metal screw that holds the support bracket for the gas filler tube, and the 4 strap bolts. Unplug the electrical connection at the rear of the gas tank and the tank will then pull out of the filler tube and drop down. You can then release the plastic clips that hold the fuel lines together.

On the Thunderbird remove the exhaust system by taking off the 2 nuts at the exhaust ball clamp and pop the metal hangers out of their rubber mounts. (Spray WD 40 on the rubber mounts and the metal hangers will pull out). Remove the gas filler hose clamp at the gas tank and also the vent hose clamp by the filler tube and the vent hose clamp over the differential. Remove the 4 strap bolts and drop down

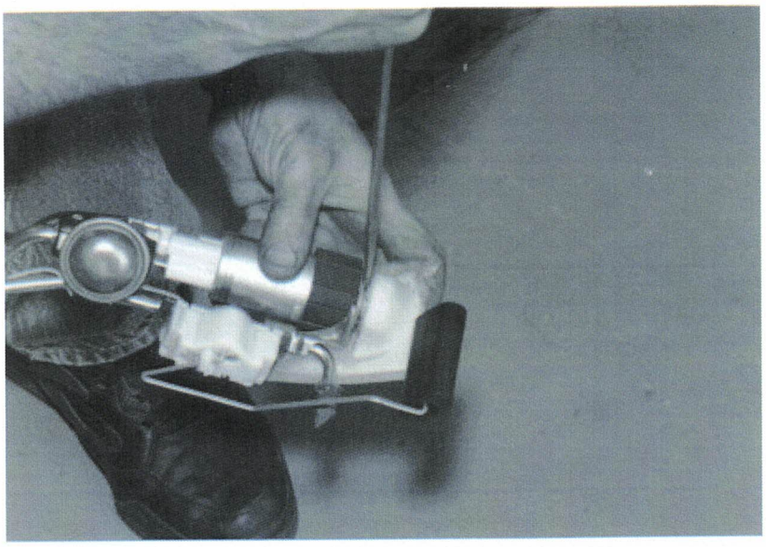
the gas tank.You can now release the plastic clips that hold the fuel lines together and pull off the electrical connection.

2. Remove the large nut, that holds the fuel pump/fuel level assembly.

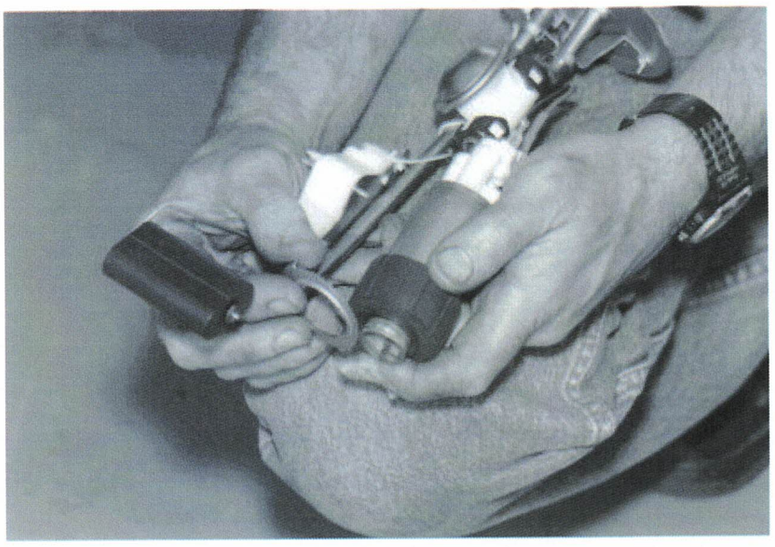
3. Remove the fuel pump/fuel level assembly.



4. Pry the fuel filter off the fuel pump noting which way the large part of the filter is pointing.

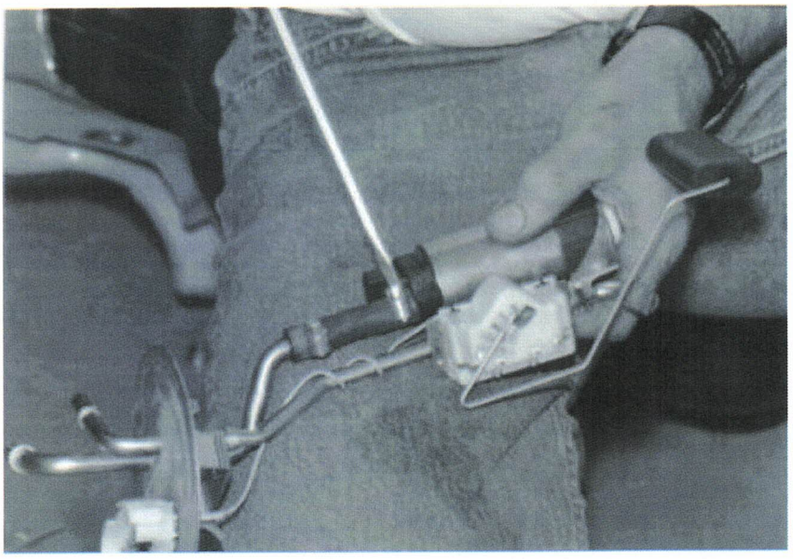


5. Pull the production fuel pump up and slide it out of its mount. Cut the electrical wires and remove the fuel pump.

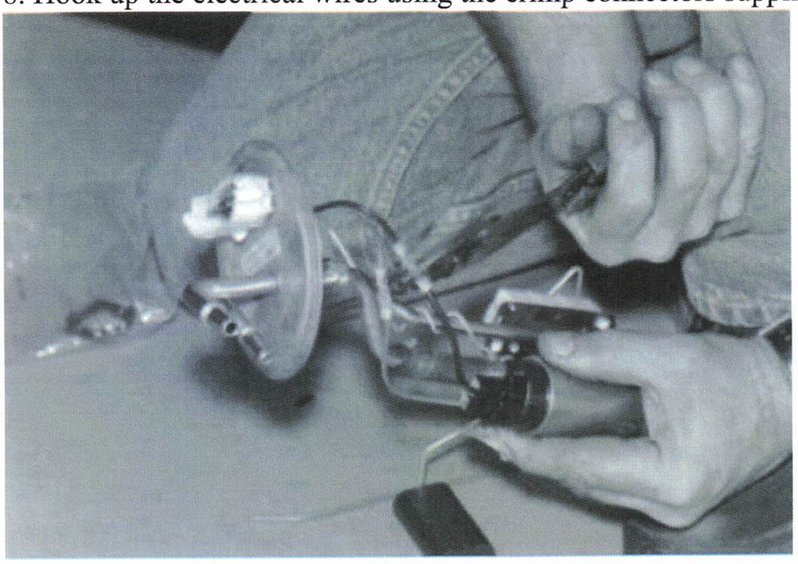


6. Slide the bottom rubber over the new fuel pump.

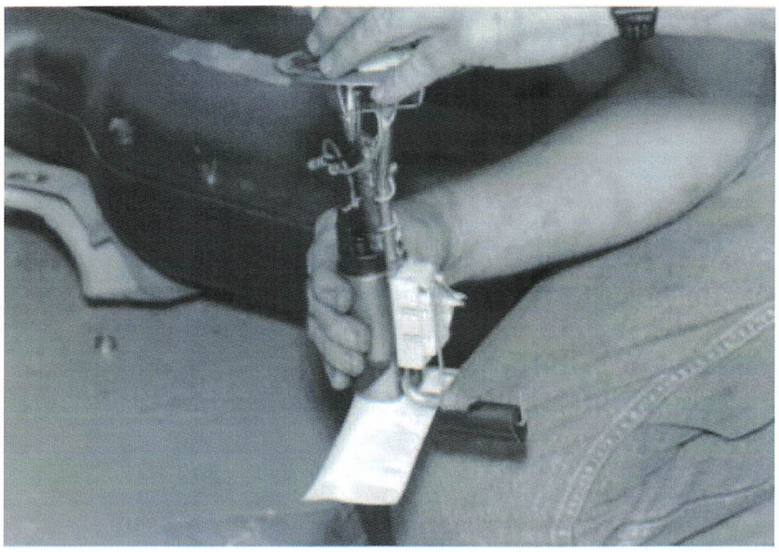
7. Slide the rubber hose and hose clamps over the fuel pump outlet. Slide the fuel pump into its mount and tighten the hose clamps. On the Thunderbird this hose will need to be shortened and the bend straightened out.



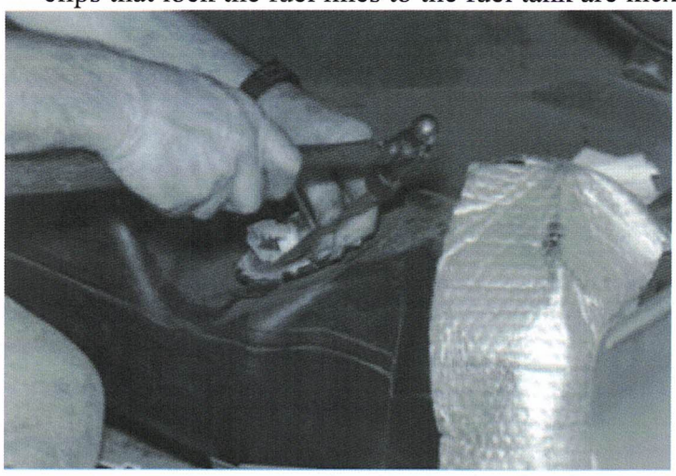
8. Hook up the electrical wires using the crimp connectors supplied with the fuel pump.



9. Push the fuel filter securely on the fuel pump. Make sure it is positioned in the proper direction.



10. Slide the fuel pump into the fuel tank and make sure the O ring seal is in the O ring groove. Tighten the large nut that holds the fuel pump in the tank and Install the fuel tank on the car. The plastic safety clips that lock the fuel lines to the fuel tank are inexpensive and at your Ford dealer if needed.



Dear Customer:

Thank you for your recent purchase of the Allen Engine Development Inc. REV II supercharger kit for your 19__ Mustang GT

Your Kit serial #_____

Calibration Code_____

Kit Model 6 psi ____ 9 psi _____

Date purchased_____

Warranty period_____

(**Warning:** We highly recommend forged pistons and rods for use with all 9 p.s.i. supercharger systems.)

BACK to the supercharger page

Updated Nov 18, 2002