

GT500 INSTRUCTIONS

The logo for HELLION POWER SYSTEMS features the word "HELLION" in a large, bold, metallic font with a red-to-silver gradient and a 3D effect. Below it, "POWER SYSTEMS" is written in a smaller, similar font. The background includes a stylized orange brushstroke of a wing or blade at the top and a large, faint orange globe with latitude and longitude lines at the bottom.

HELLION

POWER SYSTEMS

**HELLION POWER SYSTEMS
07-09 GT500 TWIN TURBO
KIT INSTRUCTIONS**

HELLION

Make sure to read all instructions before attempting installation of turbo system.

Keep in mind that fuel system upgrades may be necessary as power levels increase. However, make sure to leave the stock injectors in place until later in the installation process.

Preparation

1. Secure vehicle on suitable lift or jack stands to allow access to underside of vehicle.
2. Disconnect negative battery cable



Installation

3. Remove air box assembly (including air filter) and intake tube to throttle body along with breather tube from valve cover.
4. Install the supplied K&N breather on the Driver's side valve cover vent.



5. Remove factory MAF sensor from intake tube, as later it will be installed in supplied intake pipe.
6. Remove factory spark plugs, and install supplied plugs making sure plug gap is set to .030"

X-Pipe Modification

6. Disconnect three oxygen sensors and remove them from the factory cross over pipe.
7. Factory X pipe can be cut on car or removed and cut.
8. Next, measure 10 inches rearward of weld on catalytic converter and make mark, then cut the factory X pipe at this mark. Perform this on both sides of crossover pipe.



9. Now, remove the Catalytic converters, and re-install the crossover pipe if it was removed from the vehicle.
10. Remove factory "G-Trac brace" (factory nuts will be re-used to secure supplied turbo shield)



11. Install supplied 10mm bolts and washers through the "G-Trac brace" mounting holes. Bolts should go in from rear of vehicle with the threaded end towards the front of the car.



Oil Supply Block Assembly and Installation



Shown above are the necessary parts for the oil supply block assembly. You may refer to this picture for fitting placement and part orientation.

12. Locate the factory oil pressure sending unit (left side of engine, beneath exhaust manifold). Disconnect sending unit and remove it for reinstallation later.



***Make sure to use appropriate thread sealant on all NPT (national pipe thread) fittings* (High-Temp silicone is recommended)**

13. Install supplied 1/4" NPT male to 1/4" NPT male union into supplied oil pressure distribution hex block.



14. Install oil pressure distribution block in place of factory oil pressure sending unit. Three holes in distribution block should be accessible.



15. Install factory oil pressure sending unit, along with the 2 supplied 1/8" NPT male to -4AN male straight fittings, into oil pressure distribution block.

16. Install the supplied -4AN braided oil pressure feed lines to the -4AN fittings. You will need to use the supplied -4AN 90 degree swivel fitting to attach the feed line on the most forward of the two fittings. The oil pressure feed lines should be installed with the protective heat sleeve on the turbo end of the line.



17. Slide supplied down pipes with 2 1/2" torque clamps on factory crossover pipe where previous cut was made. Leave torque clamps loose at this time. Be sure that down pipes go on correct side by ensuring that oxygen sensor should never point down.



18. Loosely Install both up-pipes from exhaust manifolds on their respective sides using the factory nuts.



Preparing the Turbochargers for Installation.

19. Loosen all clamp bolts around exhaust housings and compressor housings. This will allow you to correctly clock the turbochargers as they are installed. Leave these bolts loose until the turbos are positioned properly and boost pipes are installed.



20. Prepare the oil drain flange by dropping the 2 supplied 8mm socket head bolts into recessed holes in flange. Install supplied 3/8" NPT male to 3/8" NPT female 90-degree block into flange. Keep in mind which side turbo will be installed on as to orient this block so the attached fitting will point towards center and rear of vehicle.

21. Now using gasket supplied with turbo charger, attach the flange to drain side of turbo center section.

22. Repeat the above steps to prepare and install the other drain flange assembly on the second turbo. Ensure that both drain flanges are properly sealed for proper pump operation.

23. Install the 2 supplied 3/8" NPT male to -6AN straight fittings into the 90 degree block in the drain flange.



24. For the oil pressure feed side of the DRIVERS SIDE TURBO CHARGER: Install the supplied 1/8" NPT male to 1/8" female 45 degree fitting into the brass fitting already in turbo. Then install the brass oil check valve fitting (1/8" NPT male to -4AN male) into that 45 degree fitting.

(Please Note: Photo is for reference purposes only. Actual part appearance may vary.)



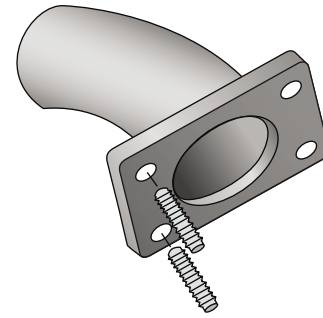
25. For the oil pressure feed side of the PASSENGER SIDE TURBO CHARGER: Install the supplied 1/8" NPT male to 1/8" female 45 degree fitting into the brass fitting already in turbo. Then install the oil check valve fitting (1/8" NPT male to -4AN male) into that 45 degree fitting.



26. Install the 1/8" NPT male to 9/32" barb 90 degree fittings (Supplied with waste gates) into reference port in compressor housing (polished cover).



27. Using the metal gaskets supplied with turbochargers, the 4 supplied 3/8" x 1" bolts, the 4 supplied 3/8" studs, and the 4 supplied 3/8" flange nuts - attach the turbochargers to the up-pipes on their respective sides. (*install the studs in the up-pipe holes closest to the **front** of the vehicle.)



← FRONT



28. With turbochargers tightened to up-pipes, install oil pressure feed lines to check valves on each turbo. Make sure that the oil feed and drain fittings are straight up and down, perpendicular to the ground for proper function.

29. Tighten the nuts that secure the up-pipes to the exhaust manifolds. **The turbo compressor housings should both be within 1/4" of transmission case to ensure proper fitment of boost pipe #1*.*

Oil Pump Assembly and Installation

It is imperative that the oil scavenge pump be properly installed to insure proper oiling of the turbos. Take your time with the installation and study the pictures for fitting locations and placement. We recommend using high-temp silicone to seal all fittings.

30. Install the oil pump on the oil pump bracket using the 4 supplied #10-24 button head screws, washers and nylock nuts.



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****NOTE* At this time, pour a small amount of oil into the pump to lubricate the gears upon initial startup of the pump and vehicle. ****

- 31. Install the 3/8" NPT male to female 90 degree block into the outlet side of the pump (passenger side).
- 32. Then install the 3/8" NPT female to female check valve (*Make sure arrow points upwards toward the valve cover) into the 90 degree block and then the 3/8" NPT male to -6AN male straight fitting into the check valve.
- 34. Next, install the 3/8" Female to 3/8" Female 90 degree brass block into the inlet side of the pump, and then install pressure sensor into block as shown.



35. To install pump and bracket assembly, remove the front passenger nut that hold the right side of the k-member to the frame of the car. Position the assembly over the exposed stud and install the nut loosely.



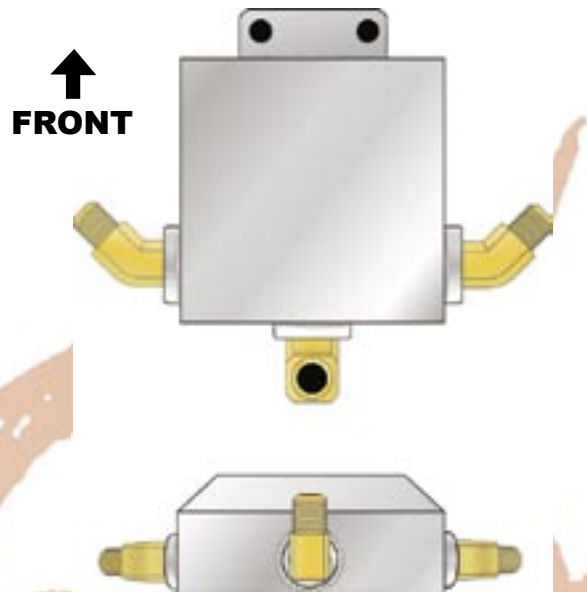
36. Now, install the supplied -8AN oil return lines from turbos and let hang for the time being.



- 37. Tighten the k-member nut securing the oil pump assembly, making sure to torque the nut to 90 ft. lbs.
- 38. Next, locate the turbo shield, shown below, and install in place of factory "G-trac" brace, using hardware installed on step 11.



39. Install fittings into supplied oil reservoir tank as shown, with fittings pointing forward towards turbos. Then mount tank to shield as shown and connect lines.



40. Connect oil line from can to inlet side of pump.



41. Remove the plastic line running from the super charger to the valve in the passenger side valve cover. Install the 2 supplied 5/8" vacuum caps with the 1/2" hose clamps over the exposed barbs.



42. Unplug and remove the valve assembly from the passenger side valve cover. Use a piece of tape to temporarily seal exposed hole in valve cover. Using a 1/4" x 20 thread tap, tap existing two holes in valve cover. Clean debris out of holes and remove tape making sure not to get any metal debris in engine.



43. Install oil return block with 1/4"NPT hole facing towards the passenger side by sandwiching it between stock valve and valve cover using 2 supplied 1/4" x 1 1/2 bolts. Re-connect electrical connector. (see picture on following page)

44. Install 1/4"NPT male to -6AN male straight fitting into oil return block.

45. Install oil return line between oil pump assembly and oil return block #2 with the -6AN 45 degree fitting at the oil pump outlet and the straight fitting at the valve cover.

Oil Pump Wiring

During the oil system wiring process, please refer to the included wiring diagram located on page 12.

46. Locate fuse block located in the engine compartment and remove the top cover.



47. Locate and remove fuse #47

48. Install fuse #47 into supplied mini add on circuit fuse holder on the supplied wiring harness.



49. After installing fuse into holder, insert the mini add on circuit into the slot in the factory fuse block that you removed fuse #47 from.



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50. Locate accessory fuse block located near the passenger shock tower. Locate and remove bolt that attaches accessory block to shock tower.



51. Mount supplied relay by re-installing the bolt back into the shock tower through the small mounting tab attached to relay.

53. Ground relay to chassis at strut tower using the Red wire with the 1/4" eyelet.



54. Attach the Black 12v wire to the positive lug on the main fuse block.



55. Attach positive relay wire to the black wire on the pump.

56. Run the supplied wire and 1/4" eyelet from the red wire on the pump to a stud on the right/front portion of the oil pan.

57. Locate the 1/8" eyelet in the supplied wiring harness. Attach this eyelet to the supplied pressure sensor as shown in the diagram.



58. Using supplied wire & eyelet, attach to the other terminal on sending unit, and route wire into the cabin of the car by removing the inner fender panel and routing wire through rubber grommet located near driver's left foot



59. Mount supplied LED light using supplied bracket or mounting hardware of your choice. Mount in a conspicuous area, such as top of steering wheel. Ground negative LED wire to a chassis ground located in driver's side kick panel.



IMPORTANT

NOTE - It is necessary to prime the oil pump before proceeding with the final installation and operation of the vehicle. To Prime Oil Pump:

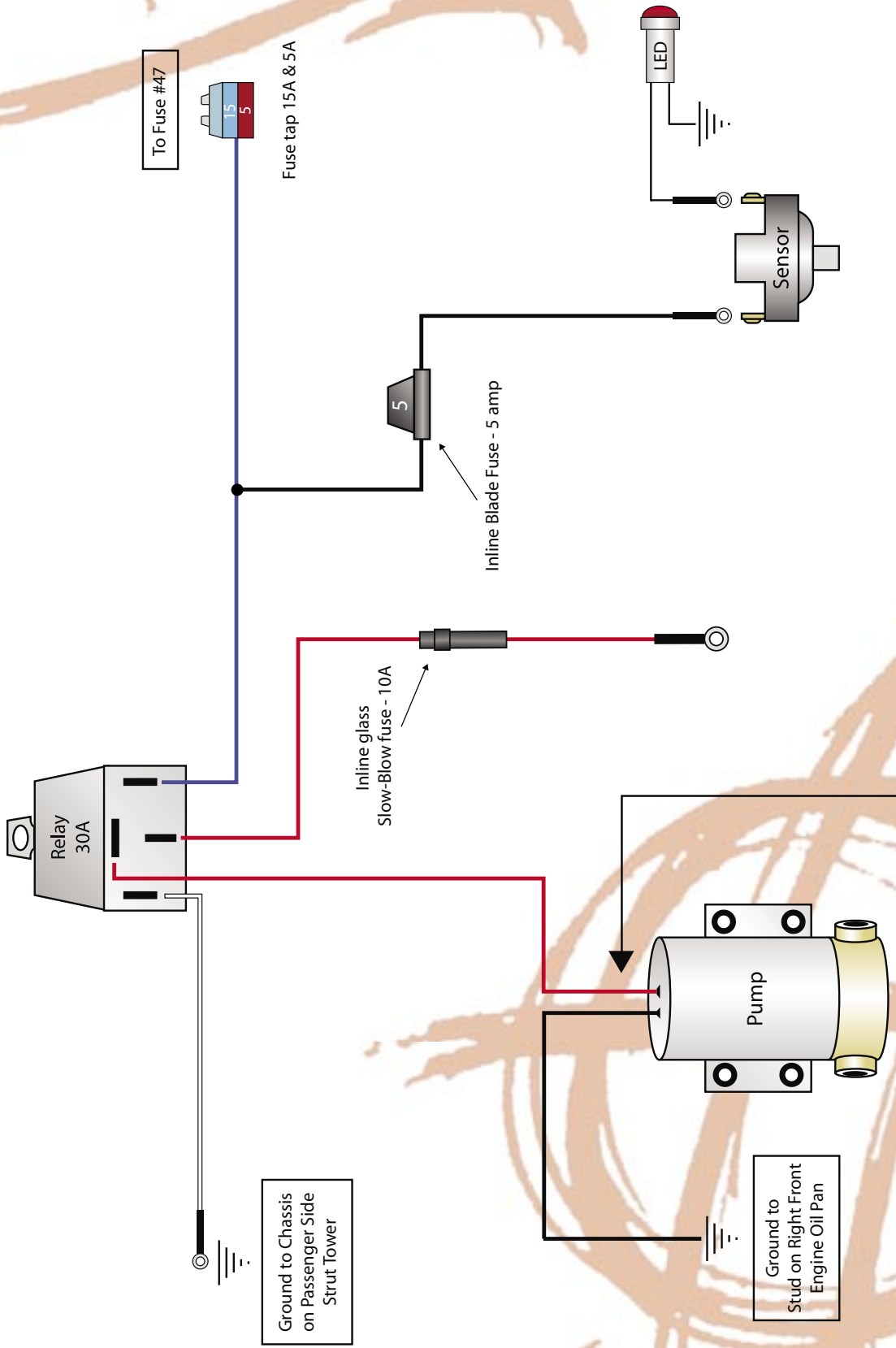
- Find a clean container and pour in 1/2 quart of synthetic oil.
- Insert the -10 line that will be connected to the oil tank into the container of oil
- Using a 12V power source and ground, apply power to the pump and allow the pump to suck up all of the oil in the container, priming the system. Once container is empty, connect line to the rear of the tank.



NOTE - The LED light is a warning light to notify driver if scavenge pump fails to operate for any reason. When car is running (at idle or part throttle), the light will be off (the light may come on under full throttle). If pump fails to operate at idle, the light will come on and vehicle should immediately be pulled to the side of the road or to a safe location, and turned off for investigation of problem. At no point should the vehicle be operated without the scavenge pump functioning. Any operation will cause smoking and potential damage to the turbochargers. After installing warning light, turn key on and off several times and make sure that the light flashes only briefly before turning off. If the light stays on for more than 2 seconds after the key is turned on, do not attempt to start vehicle, and call Hellion - 505-873-4670

****NOTE** - Before attempting any oil system maintenance, make sure to remove the oil drain lines from each turbo, and allow them to drain into a container. This will prevent the oil from accumulating in the turbo.**





NOTICE: After finishing installation of both the oil pump and wiring harness, check for proper flow and operation of the pump before proceeding any further. It is **IMPERATIVE** that this pump operate correctly, or the turbochargers may be damaged, or smoke excessively if the system does not function properly.

NOTE: Due to possible differences in pump wiring, pump direction must be checked once wired. If pump is not pumping in the proper direction (suction side being connected to turbos), it may be necessary to reverse the polarity of the wires leading to pump.



NOTE! - BEFORE the installation of the downpipes, install the throttle body inlet piping and stock MAF meter. With the stock injectors still in place, and after verifying LED light operation, start the car and let it idle for 20-30 minutes. This will seal the turbochargers. During this time, a very small amount of oil may leak from the turbochargers, but this is normal. After the specified time has passed, clean all surfaces and let the car sit for another 10-15 minutes. Then, re-start the car and check for leaks. If there are any major leaks present, shut the car off and call Hellion (505 - 873-4670). If there are no major leaks present, let the car cool, and continue on with the install.

60. Apply film of high temperature silicone sealant on discharge side of exhaust housing of each turbo in order to create seal with down pipe



61. While supporting turbo, slide down pipe towards turbo and attach it with 4 supplied 8mm socket head bolts. Repeat this step with the other side turbo and down pipe using 4 supplied 8mm socket head bolts.



62. Re-install upstream oxygen sensor into right side up-pipe and connect to vehicle wiring harness.

63. Re-install both downstream oxygen sensors into down pipes. *In order to connect sensors, the harness side of the connections must be removed from factory attachment point.

64. Install waste gate pipe to waste gate, using gasket supplied with waste gate and 2 supplied 5/16" x 1" long bolts.

65. Now slide waste gate pipe into down pipe. Use supplied 1 5/8" exhaust clamp, 2 supplied 5/16" x 1.25" bolts and lock nuts to secure waste gate assembly to down pipe and up-pipe.

66. Repeat above steps to attach the other waste gate assembly



67. Install vacuum line supplied with waste gates from fitting in compressor housing to bottom side of waste gate (The non-polished side). If a boost controller will not be used, leave the port on the top side (polished) open to atmosphere.



Boost Tubes

68. First, place boost tube #2 into place by routing it through the passenger side of the Kemember, next to the oil pan, making sure it exits just above the rack, as shown below.



69. Place silicone hoses onto both ends of tube #2, making sure that there is plenty of clamping area. Install supplied T-bolt clamps onto pipe #2, then tighten the clamps.



70. With the housing bolts on the turbos still loose, install the 2" long silicone hoses onto the compressor housings with supplied T-bolt clamps.



71. Next, install the steel air inlet pipes into the 4" Rubber 90 degree inlet hoses.



72. Ensure that hose stints are properly inserted into the middle of the 4" 90 degree rubber hoses.



73. Now install supplied air filters onto the steel air inlets.



74. Next, install 4" rubber hoses with filters and inlets onto the turbocharger inlets. The hoses should be routed over the K-member and should place the filter at the pivot point of the A-arm. See photos for reference.



75. After Both elbows are installed, install Boost pipe #3 with T-bolt clamp and let it hang loosley.



76. (If you ordered the optional intercooler, refer to step 83 at this time, then continue to step 77.). Install 7" Silicone hose onto Boost Pipe #4, and insert through triangular hole in the inner fender area, left side of car, by ABS module.





77. Next, install Bypass valve onto pipe #5, and then insert pipe #5 into the long silicone hose from pipe #4 that extends into engine compartment. Secure with clamp.



78. Now connect vacuum hose to port on top of blow-off valve. This line will tee into vacuum line located on passenger side of engine, near factory supercharger (see picture)



79. Using 3 1/2" Silicone hose and T-bolt clamps, install tube #6, and install silicone coupler onto the throttle body. Now install the stock Mass air element into the MAF pipe included, and install that between the throttle body coupler and tube #6, making sure that MAF airflow direction is correct. Tighten all clamps once pipes are installed



80. After all engine compartment pipes are connected, connect boost pipe #3 to the other pipes, and turn wheel to verify clearance. Leave clamps loose.



81. Next, insert Boost pipe #1 (Y-pipe) into both turbo compressors and into pipe #2. Leave clamps loose until desired fit is achieved. At this point, tighten all clamps and turbo housing bolts.



82. Remove rear K-member Nut on both sides of Vehicle and install included splash shields as shown. After installation, re-torque K-member nut to 90 ft. lbs.





Optional Intercooler Install

83. After installing 7" silicone hose, locate the hole in inner frame (drivers side) and install supplied bracket and 5/16 bolt.. (See picture)



84. Install supplied 90 degree fittings into 3/8 NPT ports on the front of the intercooler tank.

85. Lift intercooler into place, and insert 90 degree bend into the 7" silicone hose, making sure to include clamps. Once in place, secure to support strap with supplied hardware



86. Install silicone hose on lower intercooler tank (with 3" T-bolt clamp on tank side), and insert small 45 degree tube. Leave clamps loose.



87. Attach 45* tube to Boost Pipe #3 with steering wheel turned all the way to the right, and ensure that there is no interference. Tighten clamps.



88. Locate 3/4" Heat exchanger outlet hose, located near the front lip of the car, on the passenger side of the car. Clamp or drain the hose and cut as close to the middle as possible. See following picture to locate the hoses that you will be cutting.



89. After cut is made, insert supplied $\frac{3}{4}$ " Tee and attach supplied $\frac{3}{4}$ " hose to the remaining port. Run this hose to the top fitting on the intercooler.



91. The intercooler system will need to operate for a while in order to bleed out any air that may be present in the system. Ensure that full coolant flow is established before attempting and dyno runs.

90. Locate the other hose, at the top of the engine, that runs from the factory intercooler to the coolant reservoir, and cut it as shown. After cutting, insert the other supplied $\frac{3}{4}$ " Tee and run the supplied $\frac{3}{4}$ " hose, with $\frac{1}{8}$ " worm clamps to the bottom fitting on the intercooler.



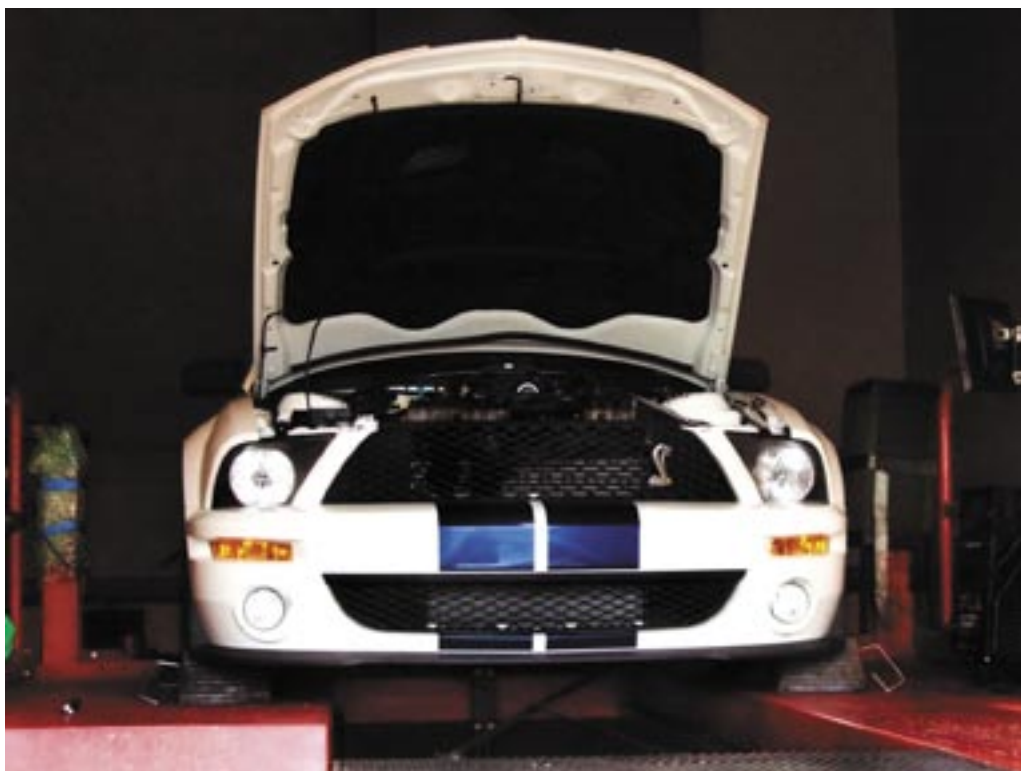
FINAL STEPS

CHECK ALL CLAMPS AND HOSES

MAKE SURE COOLANT LEVEL IS TOPPED OFF

REINSTALL ANY PANELS OR PIECES THAT WERE REMOVED

START CAR AND CHECK FOR ANY FLUID LEAKS



TAKE THE VEHICLE TO A DYNO FACILITY IMMEDIATELY AFTER INSTALL TO PREVENT ANY DAMAGE FROM OCCURING DUE TO THE TUNE PUTTING THE VEHICLE UNDER BOOST WITHOUT THE PROPER TUNE MAY RESULT IN MAJOR ENGINE DAMAGE.