

TST POWERMAX™ Installation Instructions

TST POWERMAX™ Kit

Items Required:

24 Valve Engine needing more power
Work light
10 & 13 mm wrenches or sockets
¼ inch wrench, socket or nut driver

12 Volt test light or volt-ohm meter
Fishing wire (coat hanger) 2 to 3 ft long
Pliers (standard & needle nose)
7/16 inch deep barrel socket and ratchet

Knife
Electrical tape
7/16 inch open end wrench
Fender covers

IMPORTANT NOTE: Before starting installation be sure you have the correct parts. Some late '00 – '02 Rams have a different MAP/boost sensor and a different turbocharger. There are three styles of MAP sensors, one round with three pins arrange in a triangle used on '98-'00(see figure 10a), one oval shaped with the three pins in a line used on '01(see figure 10b) and one is square with three pins in a row used on '02 Rams. Be sure you have the correct mating MAP harness. Some engines have a turbo with brass hose fitting (see figure 11a) and this style requires a new brass fitting . Some turbos have a steel tube pressed in (see figure 11b). If your turbo is like that in figure 11b, then you will require a turbos boost spring mechanism as shown in figure 11c. Do not start installation until you have the correct parts.

1. Open the kit to insure you have a **TST POWERMAX™** with attached cable, a large harness, a small harness, a brass boost control elbow and small hose clamp, or a spring mechanism, three electrical connectors, and these written instructions.
2. Park vehicle in a safe working place, set parking brake, put transmission in neutral or park.
3. Open hood and place protective fender covers and work light.
4. Determine a good source for 12 volt keyed fused DC electric power that provides power during the run and starting position. '98 trucks have a connector under hood near the driver side hinge, look for a green wire with black stripe (see Figure 1). '99 thru '02 vehicles have this connector attached to the firewall almost directly above the fuel filter, look for the red wire with a green stripe (See figure 2). Place the burgundy Scotchlock™ connector in the kit over this wire.



Figure 1



Figure 2

5. Disconnect both negative battery cables using a 13 mm wrench and DO NOT reconnect until installation of the kit is complete. Connecting power may cause a fault code in your ECM which only a dealer can remove
6. Using a knife cut about a 1 1/2 inch slit in the large vehicle wiring harness grommet where it passes through the firewall on the driver's side of the vehicle. Take care not to cut into the wiring harness. (See Figure 3).
7. Bend a closed hook on the end of a fishing wire (coat hanger) (see Figure 4) so that the wire does not have a sharp point that might gouge other wires etc. From under hood insert your fishing wire through the slit in the grommet such that the wire is visible near the parking brake pedal inside the cab.



Figure 3



Figure 4



Figure 5

8. From inside the cab attach the ground wire end of the large **TST POWERMAX™** wiring harness loom (Figure 5) to your fishing hook using electrical tape. Attach the hook to the loom, not the ground wire.
9. From under hood, pull your fishing wire back out, bringing all but about the last foot of the large **TST POWERMAX™** wiring harness through the slit in the grommet. All wires that break out of the large wiring harness are connected under hood.
10. Connect small map harness to long harness as shown in figure 5.
11. Using a 13 mm wrench or socket, remove the three bolts holding the throttle bracket assembly to the head (see Figure 6) and move this assembly toward the driver side battery.

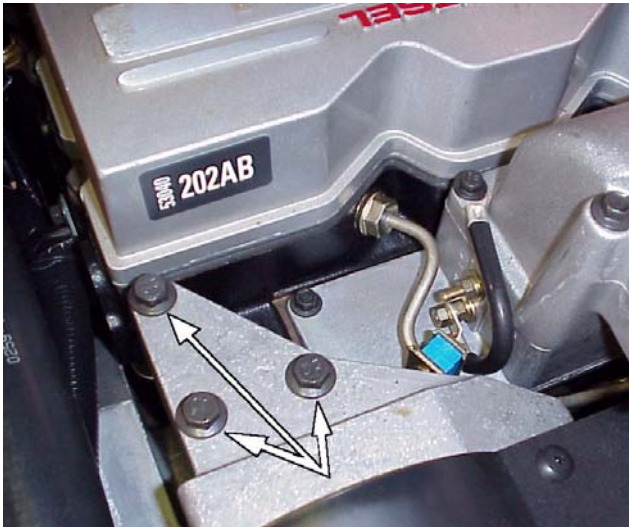


Figure 6

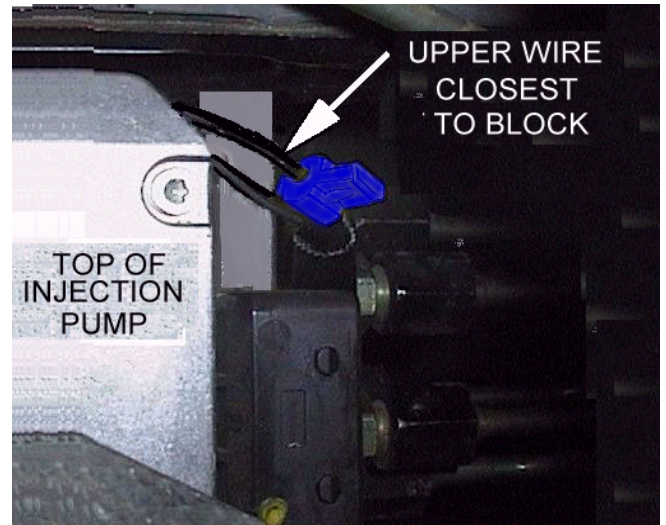


Figure 7

12. Route large **TST POWERMAX™** wiring harness from the slit in the firewall over the clutch and brake linkage toward the engine boost sensor, behind the fuel filter, and to the injection pump.
13. Locate the two stock injection pump wires going from the top of the injection pump to the center of the injection outlet pipes. See Figure 7. Slide the protective insulation covering downward to better expose the upper two wires. Place the large blue Scotchlock™ over the wire closest to the engine head using needle nose pliers. **Note: With the optional POWERMAX™ Grabber, use it in place of the blue Scotchlock™. Push the button on the end of the Grabber to open jaws, insert over pump wire, and release the button. Insert male banana plug into the Grabber.**

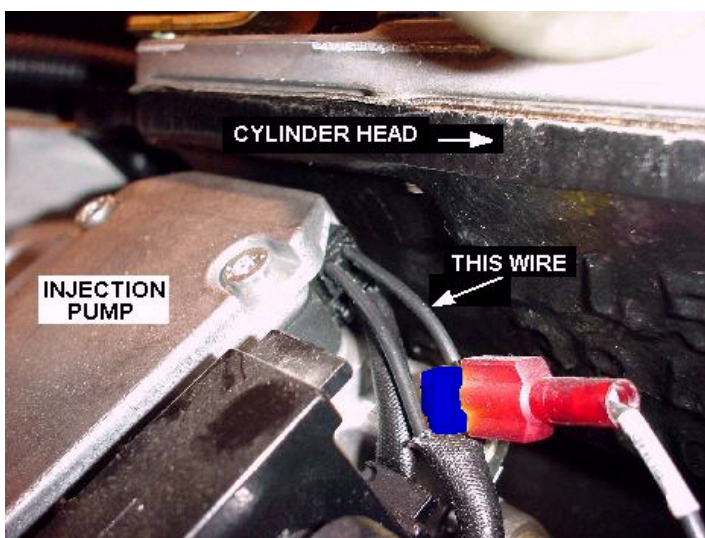


Figure 8

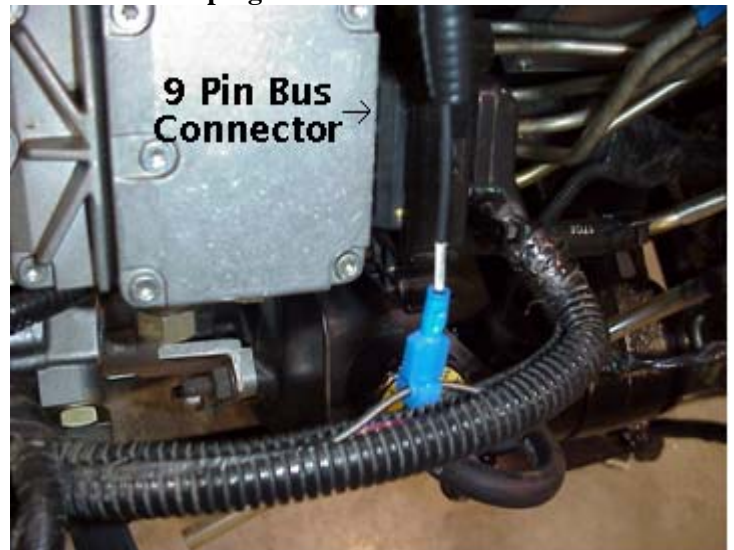


Figure 9

14. Plug the pump burgundy spade connector into the blue Scotchlock™ installed in the step above. See Figure 8. Disregard this step if you have the PM Grabber.
15. Locate the 9 pin bus connector that goes into the injection pump (Figure 9). Inside the split tubing locate the black wire with the tan stripe. Connect the blue Scotchlock™ to this wire with a pair of needle nose pliers. Place the blue spade connector labeled “ground” over the blue Scotchlock™ as shown in Figure 9.
16. Reinstall the throttle bracket and three bolts removed earlier tightening to 18 lb-ft.

17. Disconnect the stock wiring harness connector at the boost sensor (Figure 10a or b), plug in the Map Sensor wiring harness to the stock engine boost sensor, and plug the stock engine wiring harness to the Map Sensor wiring harness.
18. Plug the **TST POWERMAX™** 12 volt keyed burgundy spade connector into the burgundy Scotchlock™ installed in step 4, Figure 1or 2.
19. Plug the **TST POWERMAX™** 9-pin connector to the 9-pin wiring harness connector inside the cab. Exact placement of the **TST POWERMAX™** box is up to the user, the switch and lights should be visible during checkout stages. The unit need not be visible once proper operation is confirmed. **Note: The three wires at the 9 pin connector of the wiring harness are for the remote controls that have built in EGT, Boost, and possibly oil temp gauges. If not using one of these remotes, tape back these wires.**

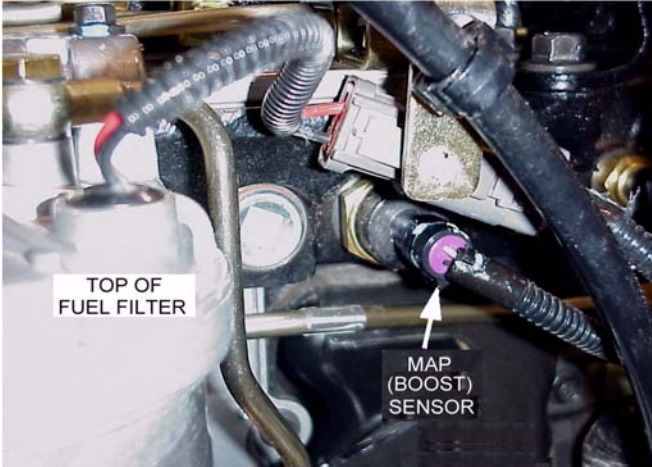


Figure 10a



Figure 10b

20. If your turbo is like the one in Figure 11a, use standard pliers, remove the crimp style clamp from the hose at the brass elbow in the front of the turbo compressor, then remove hose from the brass connector.
21. Using a 7/16 inch open end wrench, remove the stock brass elbow from the front of the turbo compressor housing. Install the **TST POWERMAX™** supplied brass turbo boost controller, reinstall the stock hose, install the new supplied hose clamp and tighten clamp with ¼ in socket. **Note: DO NOT ADJUST allen set screw on brass elbow.**



Figure 11a



Figure 11b

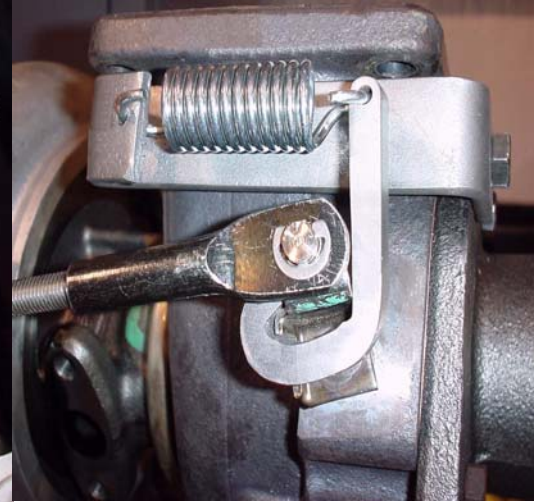


Figure 11c

22. If your turbo is like the one shown in Figure 11b, then install the bracket, spring, and J-hook as shown in Figure 11c. The bracket installs under one of the exhaust outlet screw closest to the turbo mounting flange and exhaust manifold. Use the new capscrew supplied with the kit, tighten to 18 lb-ft. **NOTE: The view in figure 11c is from the engine side.**
23. Check all intercooler connections, hoses and clamps for tightness, tightening each hose clamp with a deep barrel 7/16 inch socket or open end wrench.
24. Reconnect the negative battery cables removed earlier.
25. Remove fender covers and shop light.
26. If all connections have been completed, **DON'T START ENGINE**, before turning on the key, be ready to turn the key off immediately if the green light comes on brightly with the engine not running. If the green light does not brightly come on and stay on, you may proceed.

27. With the key on **WITHOUT STARTING ENGINE** check for a yellow light on **TST POWERMAX™** . A faint yellow light indicates boost sensor circuit is properly connected. If yellow light is not on, recheck all boost sensor connections. If still no yellow light, check the 12 volt keyed connection and the power ground. The yellow light should glow dimly with key on and engine not running, whether the **TST POWERMAX™** switch is in the on or off position. **Don't proceed if you can't get the yellow light to glow.**
28. With the key on, check for a red light on **TST POWERMAX™** . If red light is not on, check to insure the **TST POWERMAX™** switch is in the on position. If still no red light, check for ground connections and the 12 volt positive keyed connections. **Do not proceed if the yellow and red lights do not work.**
29. The green light should not glow brightly when the key is off or when the key is on with the engine not running. If the green light stays on brightly when the engine is not running, immediately turn the key off and disconnect the **TST POWERMAX™** system from your engine/vehicle, a serious connection error or box problem has been encountered. Recheck all your connections before turning the key on again, if no connection errors were found, then the box may be defective. Don't second guess this step, if the green light stays on brightly when the engine is off or at idle, don't continue to use the box, call for help.
30. With engine running at idle the green light should not glow brightly. As engine power is increased the yellow light will glow more brightly as turbo boost increases. As turbo boost exceeds 2 psi the green light should start to glow indicating the box is adding fuel. As turbo boost increases the green light should glow more brightly indicating higher levels of fueling. If the green light does not come on as indicated above, check the fuse in the wiring harness and replace if necessary (5 A maximum). Also check the connection of the spade at the injection pump. Insure that the 9 pin connector is always plugged in before turning power on or a check engine light may come on which may require a dealer scan tool to extinguish.
31. If you cannot make the system work as described above, contact your **TST POWERMAX™** supplier for assistance.

WARRANTY AND DISCLAIMER

TST PRODUCTS, INC. WARRANTS THAT ITS PRODUCTS WILL BE FREE OF FUNCTIONAL DEFECTS AND WILL PROVIDE THE ADVERTISED POWER INCREASE, PROVIDED THEY ARE USED IN ENGINES THAT ARE IN MECHANICALLY GOOD CONDITION. TST HIGHLY RECOMMENDS THE USE OF BOOST AND EXHAUST TEMPERATURE GAUGES WHEN INCREASING ENGINE POWER.

TST DOES NOT WARRANT THE ENGINE, DRIVETRAIN OR BALANCE OF THE VEHICLE IN ANY WAY.

TST SHALL NOT BE RESPONSIBLE FOR ANY MISUSE OR UNSAFE ACTS PERFORMED BY CUSTOMER, WHETHER DIRECTLY OR INDIRECTLY RESULTING FROM THE INCREASE IN ENGINE POWER.

CAUTION: THE INCREASE IN ENGINE POWER MAY EXCEED THE CAPABILITY OF THE STOCK TRANSMISSION/CLUTCH AND/OR OTHER PARTS IN THE VEHICLE DRIVE TRAIN. THE ORIGINAL VEHICLE MANUFACTURER MAY VOID ITS WARRANTY ON THE ENGINE AND/OR DRIVE TRAIN WHEN STOCK POWER IS ALTERED.

CAUTION: WHILE THE ADDITIONAL POWER WILL MAKE IT POSSIBLE TO CLIMB HILLS AND PULL GREATER LOADS FASTER, IT DOES NOT IN ANY WAY IMPROVE OR AFFECT BRAKING ABILITY. USE EXTREME CAUTION WHEN PULLING HEAVY LOADS AND/OR TOPPING HILLS AT HIGH SPEEDS.