

Volume

1

XS ENGINEERING, INC.

Department of Research & Development

PowerMax Turbo System: XS21-1200

2000-02 Toyota Celica GT-S

DEPARTMENT OF RESEARCH & DEVELOPMENT

PowerMax Turbo System: XS21-1200
2000-02 Toyota Celica GT-S Installation Manual

© XS Engineering, Inc.
18062 Redondo Circle
Huntington Beach, CA. 92648
Phone 714.698.8300 • Fax 714.698.8301
www.xs-engineering.com

Introduction

Thank you for purchasing the XS Engineering PowerMax Turbo System for the 2000-02 Toyota Celica GT-S. Please take the time to read through and understand this manual fully before you proceed with the installation process.

Pre-Installation Inspection

Please bear in mind that the conversion from a normally aspirated engine into a turbocharged one is no easy task. This is the reason why we strongly suggest that only experienced professionals install this turbocharger system. In addition, we suggest that this turbocharger system only be installed on engines that are in good condition. Please inspect the following:

1. Cooling system – make sure that this is within or better than factory specifications.
2. Ignition system – make sure that this is within or better than factory specifications and that the ignition timing is stock.
3. Fuel delivery system – make sure that the fuel pump, fuel filter, and fuel injectors are all working within or better than factory specifications. Also, make sure that the fuel used is at least 91 octane.
4. Engine compression – make sure that the engine's compression and leak-down levels are within factory specifications.

Installation

Please follow the directions below carefully, making sure to perform each step in its listed order. We would like to stress to you that, when the directions call for you to remove or install any of your vehicle's factory components, you must follow the instructions given in your factory service manual.

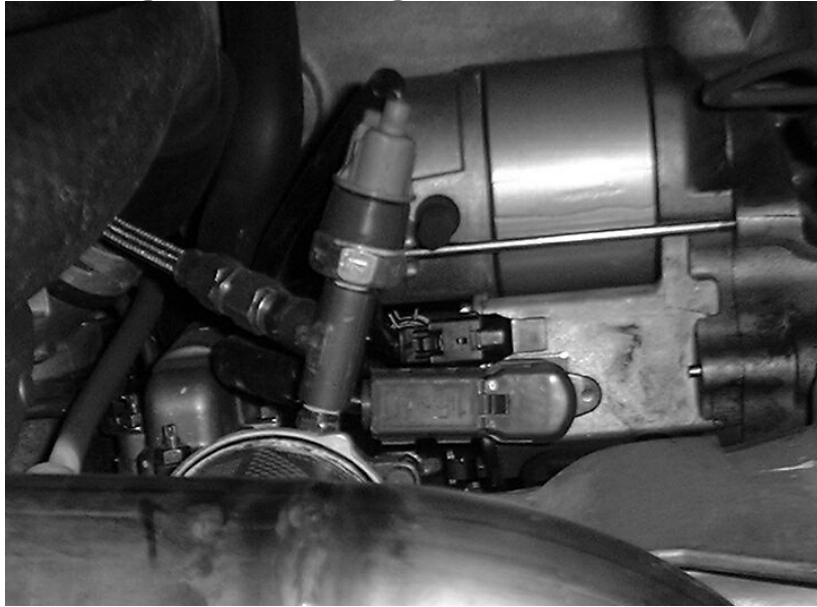
1. Remove the bumper cover, fog lights and bumper reinforcement assembly. Also, remove the splashguards and undertray. *Note: the fogs lights and bumper reinforcement will not be reinstalled.*
2. Drain the engine oil from the oil pan.
3. Remove the airbox.
4. Remove both O2 sensors and exhaust 'B-pipe'.
5. Remove 'B-pipe' heat shield.
6. Remove exhaust manifold's lower heat shield.
7. Remove the passenger side axle. Keep this unit clean as it will be reinstalled at a later step.
8. Remove the exhaust manifold and upper heat shield.
9. Install the included **Exhaust Manifold**.
10. Place the included **Air Filter Assembly** in to its approximate final position.
11. Install the **Turbocharger Assembly** and then install the air filter onto the turbocharger.
12. Install the Exhaust Manifold Bracket.
13. Reinstall the axle.

14. Install the supplied **Oil Drain Hose** on the turbocharger and mark a suitable position for the **Oil Drain Tube** on the oil pan.
15. Remove the oil pan, then drill a hole large enough to for the supplied Oil Drain Tube. Weld the oil drain tube onto the pan. Clean the pan thoroughly and reinstall.
16. Install the **Lower Intercooler Pipe**. Refer to the image in Step 21.
17. Install the **Downpipe**. Cut stock 'B-pipe' 1.25" forward from the center of the O2 sensor bung. Position the supplied 'B-pipe' flange and bolt it to the downpipe using the two **M10 x 40 Flanged Bolts**. Once in place, weld the modified "B-pipe" and flange together. Fasten the downpipe to the turbocharger using the five M10 Flanged Nuts and one M10 x 35 Flanged Bolt.



18. Remove the oil pressure sender located on the front side of the engine.
19. Install the preassembled **Oil Supply T** and connect the turbocharger's **Oil Inlet Line**. Route this line to the

turbocharger's Oil Inlet Fitting and fasten.

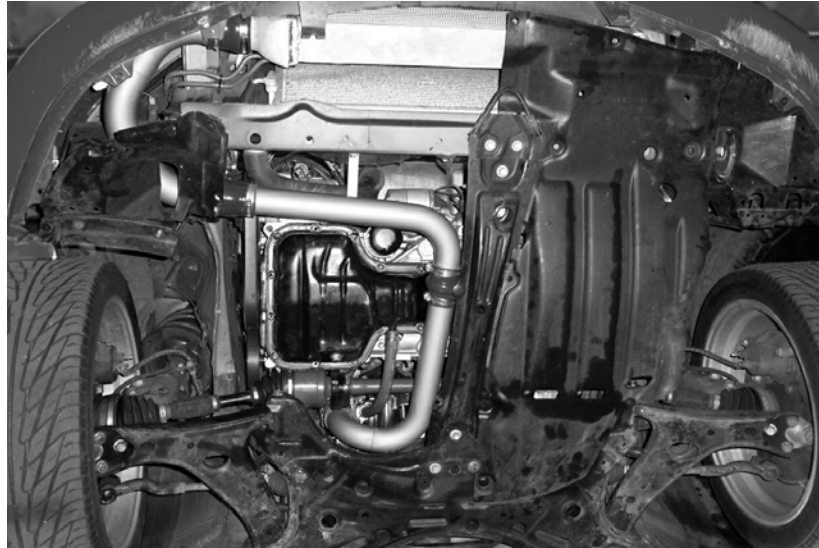


20. Bend back the upper power steering cooler pipe so that it is in line with the lower one. Then, install the **Intercooler Core** using the supplied fasteners and **Brackets**.

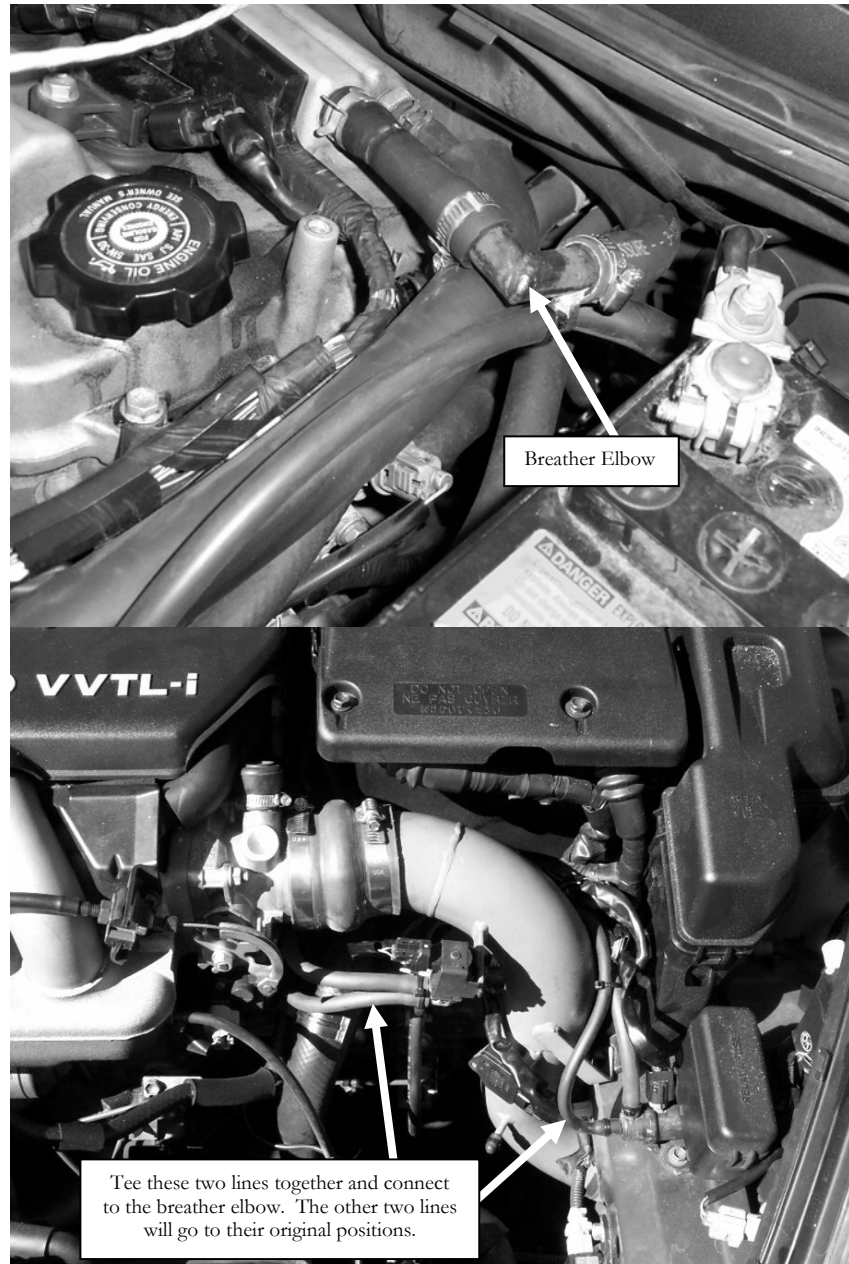


21. Install the remaining Intercooler Pipes. Use the 2" wide by 2.5" long silicone connector to connect the turbocharger to the lower intercooler

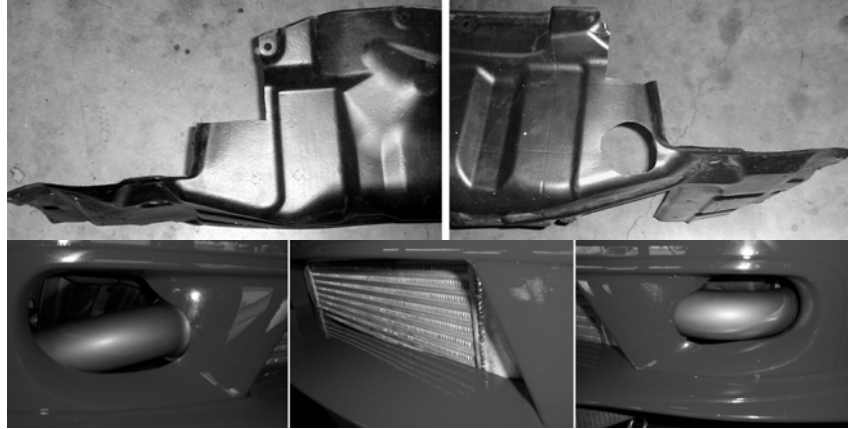
pipe.



22. Install the supplied A'PEXi Twin Chamber BOV so that it is positioned vertically. Connect the top port to a pressure/vacuum source from the intake manifold's plenum. You can use the one that is located just forward and below the throttle body. The other two ports should be connected to each other with the rubber hose that is supplied with the BOV.
23. Reinstall the MAF sensor using the supplied **M4 Machine Screws**. Take care not to damage the o-ring.
24. Secure the VSV to the intercooler pipe as shown in the second picture below using the supplied M6 Flanged Bolt. Cap off the PCV on the throttle body using the supplied Vacuum Cap. Replace the affected factory vacuum hoses with the Silicone Vacuum Hoses supplied in the kit. Connect the factory breather hose to the supplied Breather Elbow (so that the brass fitting points towards the front of the engine bay). Now run the supplied 5/8" Breather Hose from the Breather Elbow to the 5/8" barb fitting on the air filter. Be sure to route your vacuum lines in the same fashion as shown in the sample pictures.



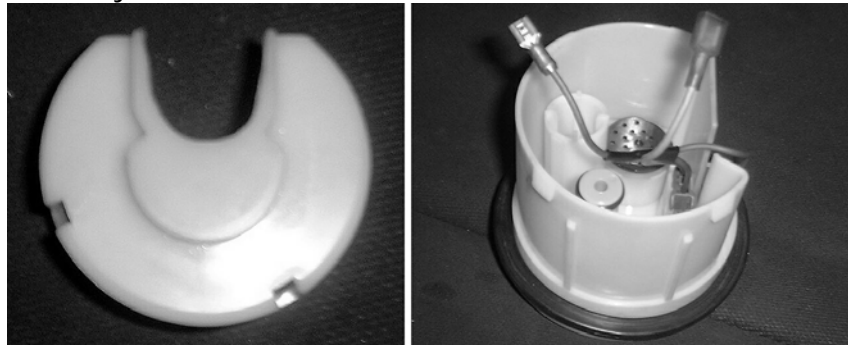
25. Next, trim the bumper cover, splashguards, and wheel wells as necessary and reinstall.



26. Remove the fuel cap to vent gas tank.

27. Install the supplied **Fuel Pump**. Cut all plastic tabs off of the bottom of the fuel pump so that the bottom of the pump is flat. Reattach the factory plastic fuel pump cover. *Note: you will not be reusing the black rubber insulator.* Cut an opening in the bottom of the plastic fuel pump cover as shown in the image in Step 28. Make sure to re-use the factory fuel pump filter strainer.

28. Install the supplied **Spade Connectors** onto the factory fuel pump wires. Connect these to the new pump and reinstall the assembly.



29. Install the supplied **504cc Fuel Injectors**. Then, remove the factory injector plugs and carefully solder the supplied **Injector Plugs** in place.

30. Replace stock ECU with PowerFC.

Post-Installation Inspection

1. Now that you have finished the installation process, take a moment to double check your work. Make sure that you have not skipped any steps.
2. Once you are sure that the installation is complete, check to make sure that the engine is ready to start. Do not forget to replace any fluids that you may have removed from the vehicle during installation.
3. Start the engine and thoroughly check for leaks of any kind. Do not be alarmed by smoke. Residual oil and water on the exhaust manifold, turbocharger and exhaust pipes will take several minutes to burn off.
4. If there are no visible leaks, allow the engine to run for 10 minutes or so. Then, check the turbocharger's oil supply and oil drain for leaks. Repair if necessary.
5. If you notice any unusual sounds or odors, **STOP THE VEHICLE IMMEDIATELY AND CHECK YOUR WORK.**

Recommended Upgrades

1. Spark Plugs - We recommend switching to Iridium Spark Plugs that have a heat range of 8. **DO NOT** use Denso Iridium spark plugs.
2. Ignition Amplifier – We recommend using the XS Engineering Power Pack Ignition Amp.
3. Oil Cooler - Engine oil cooler(s) should be installed on vehicles that will be road raced and are beneficial to street cars as well.
4. Exhaust System - A free-flowing straight-through exhaust system should be used for maximum performance.