



Alpha 997.1 Turbo Kit

Install Instructions



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A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons or property on public streets or highways. Use or installation of performance parts may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty, and/or new OEM part warranty. Performance parts are sold as-is without any warranty of any type. There is no warranty stated or implied due to the stresses placed on your vehicle by performance parts and our inability to monitor their use, tuning, or modification.

These instructions are provided as a guide only as there are many variables that cannot be accounted for concerning your particular vehicle, including but not limited to model year differences, model differences, the presence of non-OEM parts, and modifications that may already be or were previously installed. A basic knowledge of automotive parts and systems is helpful but a better understanding of the parts and systems on your particular vehicle may be required.

If you have any questions or issues at any time during the installation of your AMS product(s) please call us for technical assistance. The AMS tech line can be reached during business hours at 847-709-0530 for AMS products only.



Disassembly

- 1) Follow the factory service manual instructions to safely remove engine onto a stable platform to install the turbo kit.
- 2) Once the engine is secured on the table, you will begin disassembly.
- 3) Remove the exhaust.
- 4) Remove the engine mounting plate. Make sure to remove tension off the belt before you remove this plate, the main 4 bolts also secure the front water pump assembly in place.
- 5) Remove the factory plastic turbo inlets (these will not be reused)



- 6) Follow the factory service manual to remove the intake manifold. This will gain you access to the turbo coolant and oil feed lines. (Factory hard lines will not be reused except the oil drain tank hard lines). This will also make the injector install easier at a latter step.
- 7) Disconnect the oil and coolant hard lines from the engine. The only factory lines that will be reused are the ones going to the factory oil drain tank. Disconnect them from the tank and pull to the side.





8) Remove each turbo with the coolant and oil feed lines.



9) Once the turbos are removed, remove the oil drain tanks. These will be reused on the Alpha turbos using the original hardware. A new drain o-ring is supplied to replace the old one.

10) At this time with the turbos out of the way, it is a good time to replace the spark plugs that are supplied in the kit.

11) Install the injectors with the intake manifolds off. Once installed, reinstall the intake halves but leave the center plenum off for now.



12) Remove the white plastic air tubes running from the factory turbo bypass valve to the control solenoid. The lines can be removed but the solenoid will remain in place and plugged in to avoid and check engine lights. Boost control must now be done by an external controller and will be covered latter in the install.

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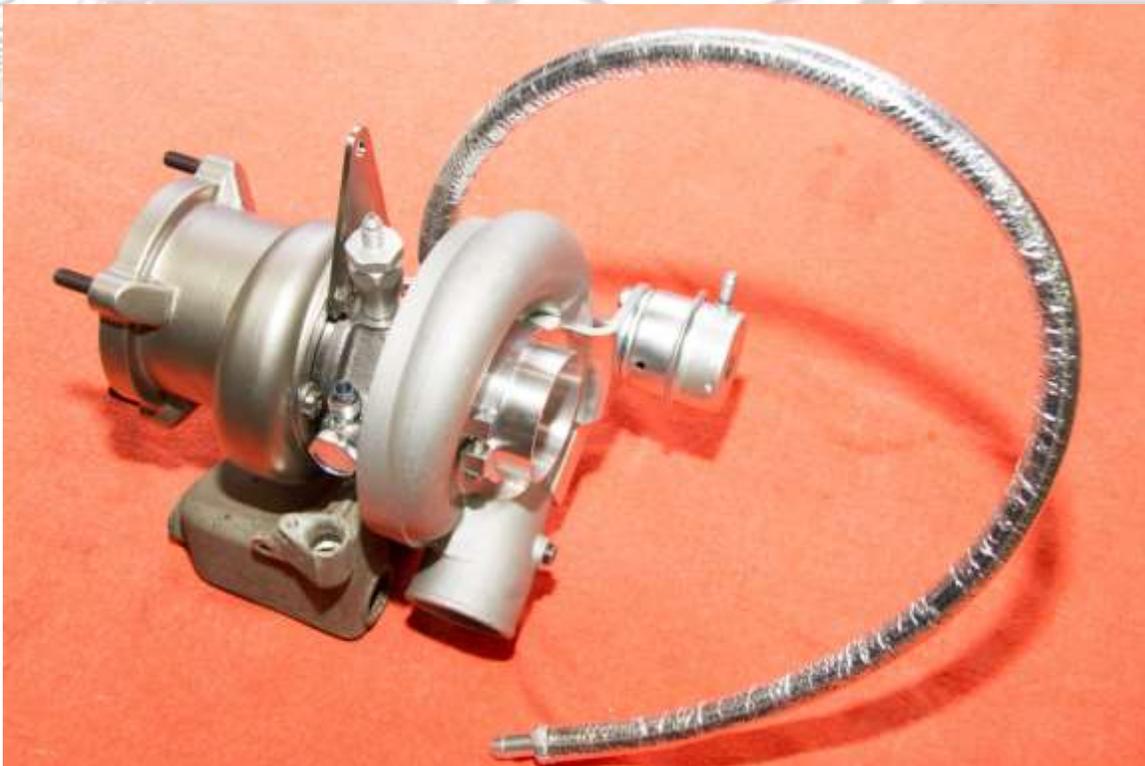


13) You can also remove the plastic line that runs from the bottom of the solenoid to the brake boost line. Use the supplied 1/8" vacuum cap to cover this port shown in the illustration for 6 speeds cars.

- 14) Tiptronic vehicles will use this port for the coolant valve at the base of the transmission. It controls coolant flow to the transmission heat exchanger. Routing this line will be covered at a latter step.

Turbo Assembly and Install

- 15) In the kit, you will find 2 -3AN gold oil feed fittings. One is a straight and the other is a 90 degree fitting. These are the oil feed adapter fittings for the block. The 90 degree fitting will go in the port on the Passenger side and the straight will be installed in the Driver's side. A new o-ring has already been installed. Use the factory bolts.
- 16) The turbos have the Alpha mounting brackets already installed. They are already clocked and the wastegates are set but should always be double checked before permanent installation!! Shifting may occur during shipment.
- 17) Set the wastegate cracking pressure to 12-13 psi if they need to be adjusted and check to make sure the wastegate arms do not hit anything. They should move freely without binding. The Passenger's side will touch the compressor cover slightly when the door is full open.



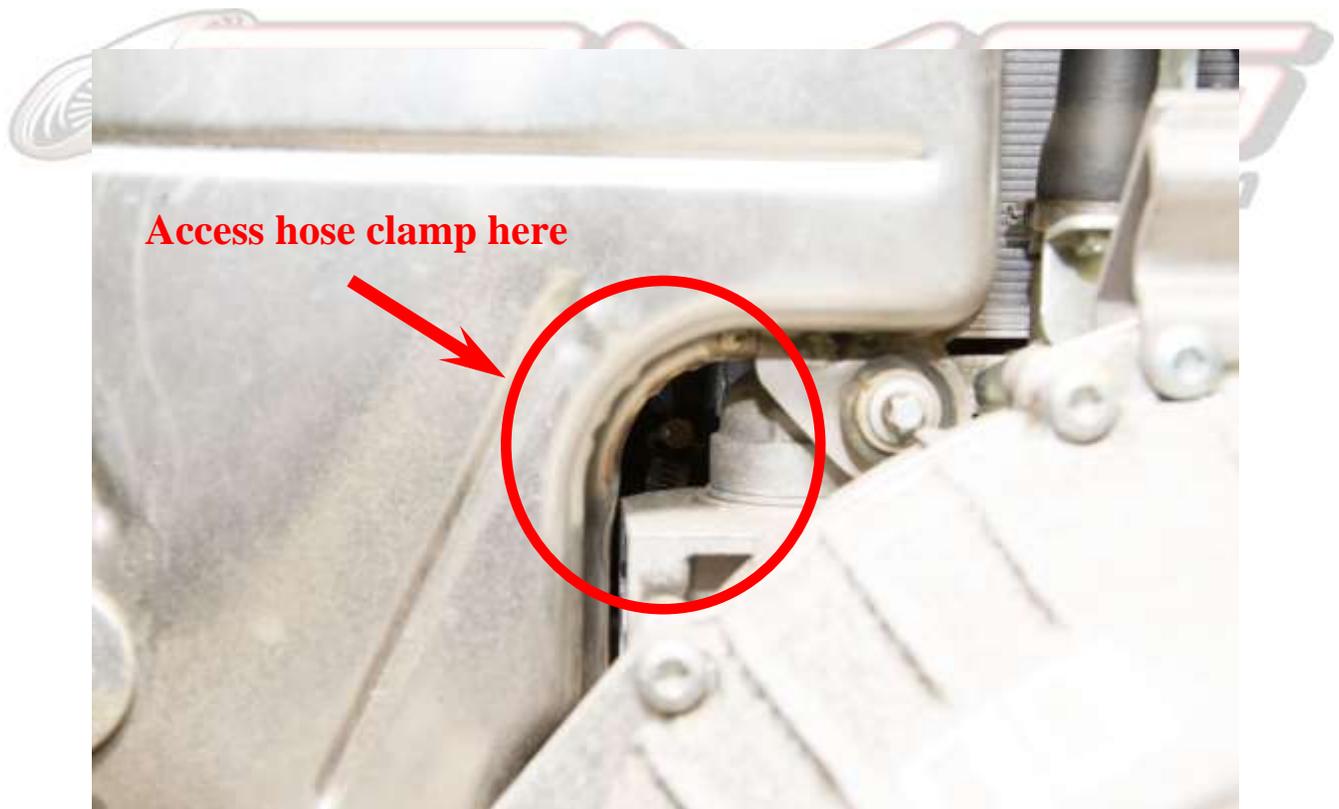
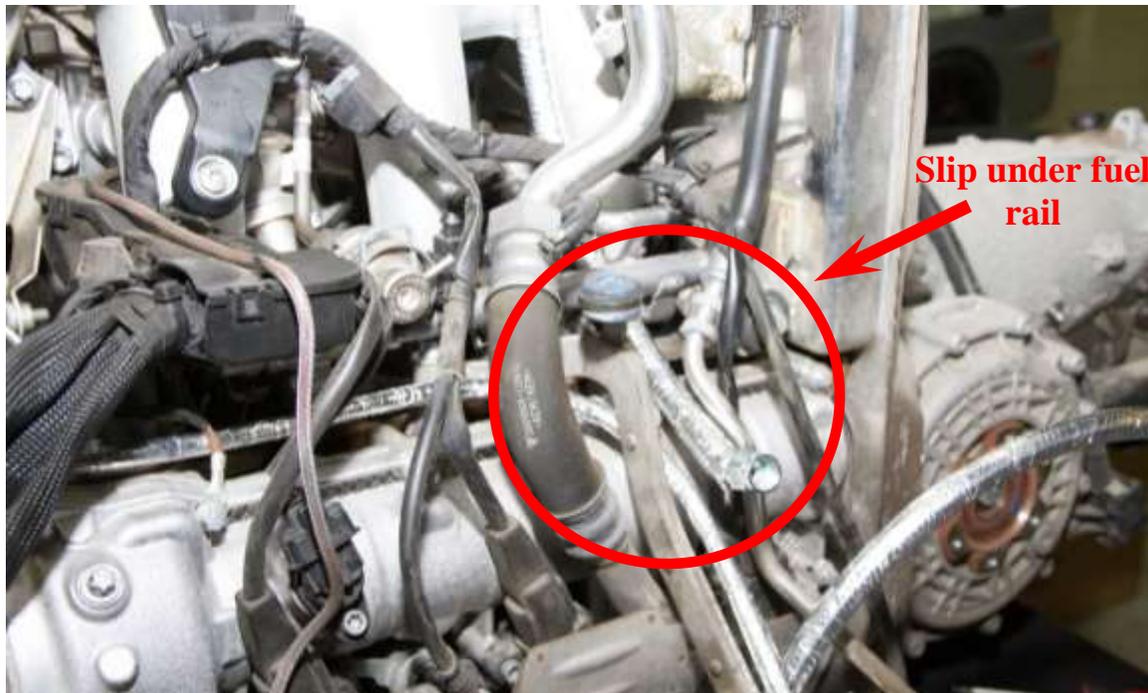
- 18) Begin with the Passenger's side.
- 19) Start by installing the factory oil drain tank using the original hardware and a new supplied o-ring.

- 20) Next install the oil feed/check valve. The check valve has already been assembled for you.
- 21) Install the 27 1/4" coolant hose with 14mm banjo fitting on one end and a 10.7mm barb on the other, to the inside of the turbo closest to the motor using the supplied 14mm banjo bolt and crush washers.
- 22) Install the 14mm banjo to -6AN fitting with the supplied 14mm banjo bolt and crush washers on the outside of the turbo.
- 23) At this point, you can use the supplied exhaust ring gasket, studs, and factory Porsche exhaust nuts to install the turbo onto the manifold. Use the supplied m8 x 1.25 x 25mm bolt and nut and attach the support brackets. Use anti seize on all exhaust studs and nuts.

NOTE: When routing all the turbo lines, you need to get them as low as possible. They cannot be much higher than the factory support bracket otherwise may cause interference issues with the body. The heat shield on the body of the car should be rolled back against the frame to add some clearance.



- 24) Next get the longer oil feed line and install. Route it on the right side of the support bracket then under the fuel rail to the oil feed port on the front of the cylinder head where you installed the gold billet oil feed fitting.



25) Next route the other coolant feed line. 16 1/2" with -6AN 45 degree one end and the larger 5/8" id hose end crimped on. This hose will be hard to route and attach. Route the line under the fuel rail to the turbo and the other end to the port under the oil cooler. Make sure to install the #8 hose clamp on the line first before

installing. Tighten the -6AN 45 degree fitting first. Then you can use a long ¼” extension to tighten the #8 hose clamp from an opening under the back of the oil tank shown in the illustration. A long skinny screw driver helps hold the clamp in place while you tighten it.



26) Next route the other coolant line that was already installed on the turbo over the top of the fuel rail to the factory coolant distribution tee. Use the factory clamp.



27) Next use the stainless steel ties to attach the lines to the support bracket. Make sure all the lines are as low as possible.

- 28) You can now finish assembling the drain tank lines. The hard lines need to be manipulated slightly to get them to line up since the center section of the turbo places the drain tank in a slightly different position. Make sure that the small section of rubber hose is not stressed or kinked.



- 29) On to the Driver's side.
- 30) Install the drain tank with the new o-ring.
- 31) Install the oil check valve fitting.
- 32) Install the 18 1/2" coolant line with 14mm banjo fitting on one end and the 10.7mm barb on the other end to the inside of the turbo closest to the motor with the supplied 14mm banjo bolt and crush washers.
- 33) Install the 14mm banjo to -6AN fitting with the supplied 14mm banjo bolt and crush washers on the outside of the turbo.
- 34) At this point, you can use the supplied exhaust ring gasket, studs, and factory Porsche exhaust nuts to install the turbo onto the manifold. Use the supplied m8 x 1.25 x 25mm bolt and nut and attach the support brackets. Use anti seize on all exhaust studs and nuts.

NOTE: When routing all the turbo lines, you need to get them as low as possible. They cannot be much higher than the support bracket otherwise may cause interference issues with the body. The heat shield on the body of the car should be rolled back against the frame to add some clearance.

- 35) Next install the shorter oil feed line. Route it over the top of the support bracket then along the right side as low as possible to the gold billet oil feed fitting on the cylinder head.

- 36) Next install the 15 ¼" line with -6AN 45 degree fitting on one end and the ½" hose end on the other. Route it on the right side of the support bracket to the aluminum distribution block under the intake manifold. Make sure to have the #6 hose clamp on first.
- 37) Next route the 18 ½" line already installed on the side other line. Route it under the fuel rail with the other coolant line to the coolant distribution tee. Use the factory clamp.



- 38) You can now finish assembling the drain tank lines. The hard lines need to be manipulated slightly to get them to line up since the center section of the turbo places the drain tank in a slightly different position. Make sure that the small section of rubber hose is not stressed or kinked.
- 39) The rest of the intake manifold and accessories can now be installed once the turbo coolant and oil lines are routed and secure.
- 40) You can zip tie the VGT connectors out of the way since they will no longer be used.
- 41) EGT Sensors. This will all depend on who is tuning the car. If The Alpha Performance tune is being utilized, the sensor unit must remain plugged in but the sensors themselves must be out of the exhaust stream. Just tie them to the side and out of the way. Other tuners may require them to be in place.



- 42) Included in the kit is a new intake manifold brace that incorporates a vacuum manifold block. The block is already preassembled for you to supply everything needed. The ports in the picture are labeled from left to right 1-6.
- 43) Port 1 – Connect to intake manifold port that supplied the factory bypass control solenoid (using larger supplied 6mm id silicone hose)
- 44) Port 2 – Connect to Driver's side bypass valve (use green clamp at the bypass valve)
- 45) Port 3 – Reference for the boost controller
- 46) Port 4 – Boost control solenoid
- 47) Port 5 – Connects to the Passenger's side bypass valve (use green clamp at the bypass valve)
- 48) Port 6 – 1/4" NPT plug fitting (can be used for any other additional boost source)
- 49) Make sure to use the supplied metal hose clamps (red and green) on all connections possible. Wrap all silicone lines with the supplied reflective heat wrap on top and sides of the motor that are close to heat sources. (oil tank, etc)

- 50) Follow the instructions for the boost controller chosen. The boost control solenoid can be mounted on the passenger side of the new intake manifold support bracket. Enough reinforced silicone hose and heat wrap is included to route lines from the boost control solenoid to the wastegates.



51) For Tiptronic vehicles, there is a coolant control valve located on the tail end of the transmission. It is supplied by a 4mm OD nylon tube that connected to the base of the original turbo bypass control solenoid. Since this solenoid is now not used, this hose needs a vacuum source.

- 52) The original factory lines for the bypass valve should have been removed during step 12.
- 53) A 4mm tube to 1/8" NPT fitting coupled to a 1/8" NPT female to 1/8" barb fitting is supplied.
- 54) Connect this fitting to the factory 4mm OD nylon tube, the tube maybe cut down to allow for better routing. Extra hose was provided. Use a razor blade to get a clean cut on the tube. Do not cut it with side cutters. The connection may not have a proper seal.
- 55) 2 feet of 3mm ID silicone hose and heat wrap is provided. Connect the barb fitting that was installed on the 4mm OD tube to the small port on the side of the brake booster line.
- 56) Make sure to wrap the silicone hose with the provided reflective heat wrap.





57) Next install the turbo inlet tubes. Install the turbo inlet tube with the gold quick connect fitting on the Driver's side and connect the factory breather hose. Install the other turbo inlet on the Passenger's side. Keep the turbo inlet tubes as close to the motor as possible.

58) Next reinstall the motor mount plate and then the exhaust.

NOTE: The new turbo places the exhaust slight rearward in the car by approximately .750". They may cause interference with the mufflers and the rear bumper/heat shield. Check with your local sales rep for exhaust systems known to have no clearance issues or modify your current one.

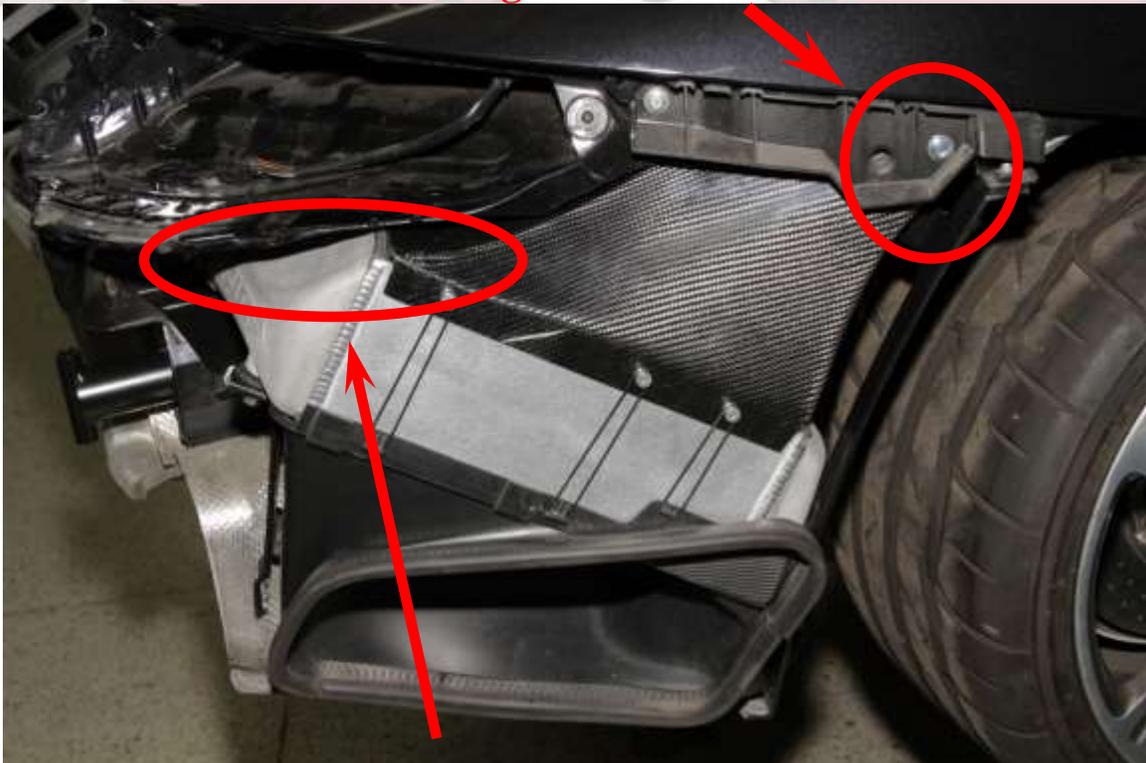
59) Next reinstall the motor in the car following the correct service manual. When installing, watch closely to all the lines, hoses, and new inductions to make sure nothing catches. Grab a couple extra pairs of eyes to help the process.

Intercoolers

May Need Clearance



Change these bolts



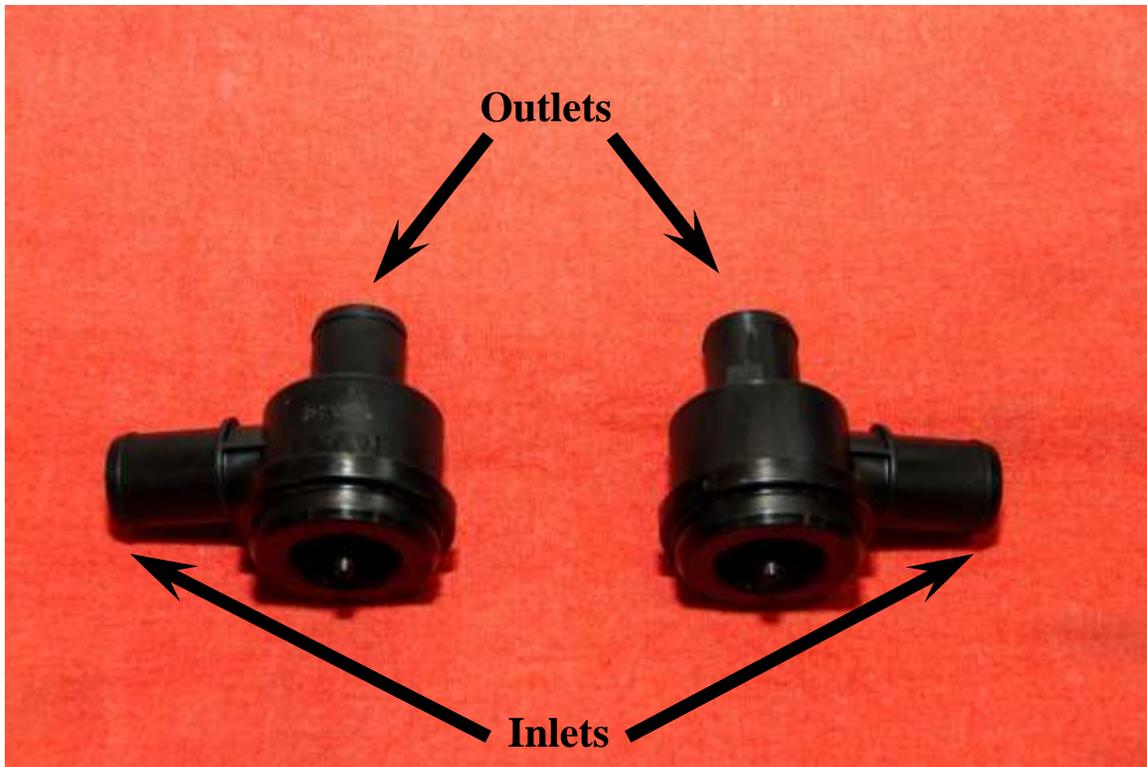
May Need Clearance

- 60) Unbolt both intercooler mounting bracket and remove the factory intercooler assemblies.
- 61) Once on the ground, remove the intercoolers from the mounting brackets. Leave the rubber mounts in the brackets. They will be reused.
- 62) Insert the collared spacers into the rubber bushing on the brackets with the collar facing outwards away from the intercooler.
- 63) The factory lower intercooler duct needs to be trimmed to fit the new intercooler. (locating rib needs to be eliminated)
- 64) Install the new AMS intercooler into the bracket using the M10 x 25 bolts. Make sure the factory lower air duct is in place.
- 65) Place the Alpha carbon air duct on the intercooler and mark where it sits on the intercooler core. There are 4 8.5" strips of foam that will be placed there across the intercooler to prevent any noise and chaffing. Place the foam strips down and install the carbon ducts.
- 66) Install the rubber o-rings onto the side brackets of the carbon duct down to the factory lower air duct. These are there for ease of installation and are not used to hold the air duct in place. Once the assembly is installed, the carbon duct will not move.

- 67) Before installing the intercooler assemblies, replace the 2 bumper clip bolts shown in the picture with the supplied shorter m6 bolts and large washers. They are the bolts closest to the corner of the bumper where it meets the quarter panel. The factory bolts in these locations are too long and may contact the carbon air duct.
- 68) Test fit the intercooler assemblies. There is part of the body just under the tail light that may need to be trimmed to clear the carbon air duct. Some cars will need this done depending on model and year but most will not. Once cleared, install the intercooler assemblies and adjust so the intercooler outlets are centered. This is so the outlet silicone can pass through into the engine bay without interference.
- 69) Install the turbo outlet to intercooler silicone with the supplied hose clamps. The Passenger side wheel well will need some slight trimming at the very bottom to clear the silicone better.

Final Assembly

- 70) Install the factory air box. The Alpha turbo inlets are designed to work with the factory box. The factory air box is highly recommended!!! It has been proven to have no HP restrictions even at 800+ WHP and provides the best seal for fresh air. All other open air inductions in the engine bay will lose significant HP due to the filter being open to hot engine bay air.
- 71) Plug in the MAF sensors. They will be used with our tune.
- 72) Next install the intercooler outlet silicone. Leave everything loose until fully installed and adjusted.



73) Install the Pop Valves making sure the direction is correct. See illustration.

Note: These Pop Valves have an inlet and outlet that are reversed from a standard BOV.





- 74) Remove the MAP sensor from the factory Y-pipe and install in the new Alpha Y-pipe.
- 75) Remove the factory Y-pipe to throttle body coupler and install onto the new Alpha Y-pipe. Make sure this coupler snaps into place when installing.

- 76) There are 2 additional 1/8" NPT ports on the Alpha Y-pipe that are plugged. These are just additional ports and are not used. Make sure these plug are tight if the ports are not being used.
- 77) Install the new Alpha Y-pipe and tighten all the clamps after everything is adjusted. The Pop Valve routing is a little tight and may require a little adjustment to fit. Make sure all factory lines, P/S, A/C etc are in place.
- 78) Follow the factory fluid fill procedure.
- 79) Make sure the new file is flashed before starting the car due to the injector size.
- 80) Once flashed, run, bleed, and top off fluids.
- 81) Get Tuned and enjoy!!

