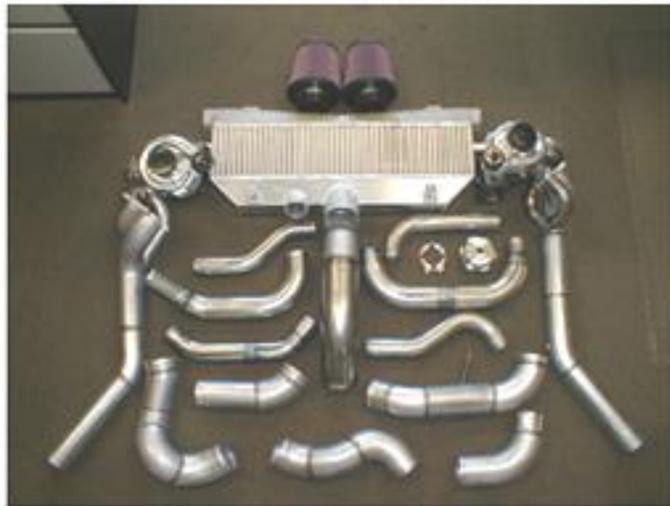




## Twin Turbo C6 Corvette Installation Instructions & Parts List



(253)475-8319 Phone

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<http://forums.turbotechnologyinc.com>

Thank you for purchasing the Turbo Technology C6 twin turbo kit. Please read through all the documentation before undertaking this installation. This document will assume the installer has a certain level of knowledge and skills to complete the task at hand. If you feel uncertain with any of the below steps please feel free to call, e-mail, or visit the Turbo Technology forum for your answers.

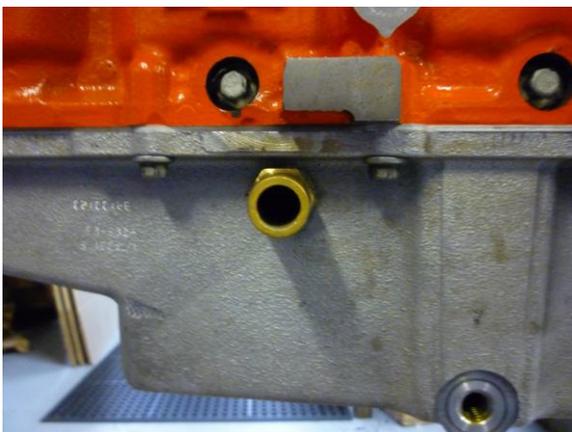
Disconnect the battery and remove the following items in preparation for the turbo kit installation. Fuel rail covers, coil packs and wires, spark plugs, stock air bridge, MAF and tubing, radiator hold down, stock fan shrouds, front fascia and front inner wheel wells and the front lower fascia closeout panels.

Separate the stock "H-Pipe" assembly at the ball flanges connecting it to the catalytic converters. Loosen the rear clamps to the cat back exhaust and remove the 2 fasteners attached to the spring hangers and remove the H-pipe assembly.

Unhook the rear O2 sensors located post converters and unbolt the cats from the stock manifolds. Unplug the stock front O2 sensors and remove the stock exhaust manifolds. Remove the O2 sensors from the stock manifold for reinstallation later.

#### **Installation of turbo drain fittings.**

Measure and mark the locations for drilling and tapping of the drain fittings that need to be installed into the oil pan. Mark the driver's side fitting center drill location at 7/8" down from the bottom of the pan rail and 5-3/8" forward of the oil filter boss.



Mark the passenger side 7/8" down from the pan rail and 9-5/8" forward from the bell housing to pan interface.



Depending on drill bit length and drill type, you may have to drill on a slight angle but you will be able to tap it straight.

Drill using a 45/64" drill bit using a shop vacuum to suck up the shavings when drilling.

Using a 1/2" NPT pipe tap, thread the drilled holes using grease installed in each flute of the tap to hold all shavings.

Using Teflon tape/pipe sealant, install the supplied brass drain fittings.

**Starter wiring check.** Depending on the year, review the starter and wiring picture below.



The factory heat wrapping is sufficient to prevent long term issues.

### **Driver side motor mount modifications.**

Using a pole jack or other suitable support under the oil pan assembly un-bolt the mount from the cradle (18mm nut) and the 3-13mm bolts from the block.

Using a grinder or equivalent modify the mount as shown. This will be for clearance of the driver side turbo inlet elbow.

If the starter has a plastic cap installed over a lug located on the far left (9 O'clock position), remove it and bend the tab slightly away from where the turbo exhaust housing will be located.

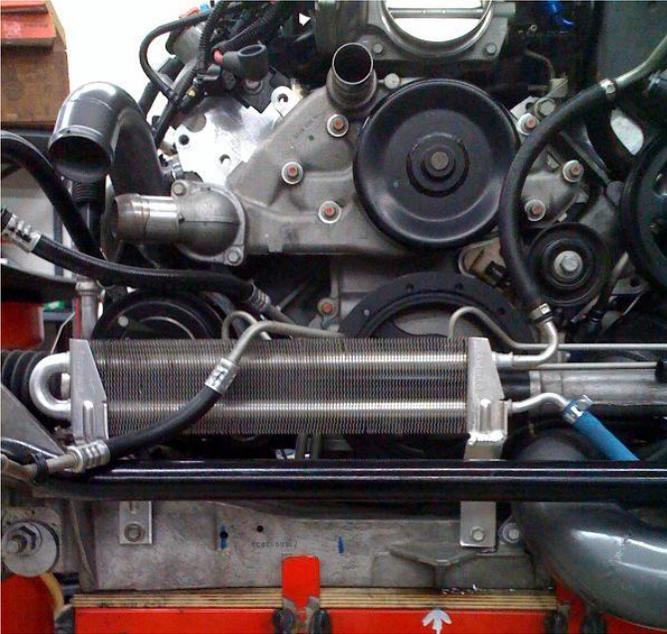


Reinstall the mount to the block and cradle, remove the engine support used to hold the motor in place.

Loosen the wiring nuts on the starter and reposition as shown.



**Drive side turbo inlet side prep work. This will allow for easier installation later on.** Remove both bolts from the power steering cooler to engine cradle and gently pry it up and away to the left.



Unbolt the driver side steering rack bolt and carefully pry up on the rack creating more space between the rack and the engine cradle. It may be easier to unbolt the sway bar. Install a 3" rubber coupler and clamps as shown below.



Using the following pictures, carefully bend the steel portion of the main power steering line located on the outboard side of the gear head. You need to bend it towards the engine block to create more hose clearance between the engine and the main steering gear head.



This will be used to create a loop in the rubber portion of the steering hose to travel under the #1 & #2 inlet pipes that install under the steering rack. Unbolt the steering shaft and unhook for more clearance later.





### **Driver side turbo assembly and installation.**

This will be installed as a pre-assembled unit for ease of installation. Locate the 4 manifold studs and loc nuts. Install the 4 studs into the driver's side manifold. Apply a thin bead of Loctite Ultra Copper RTV to the turbo mating flange. Using the supplied nuts assemble the turbo to the exhaust manifold. Install the supplied -3 AN 13" long stainless line to the turbo oil feed. The 90° fitting goes to the turbo side



Lay the #1 pipe as shown below before installing the driver's side Turbo assembly.



Pre install a 2" silicon coupler and clamp to the turbo discharge.

Once preassembled, loosen the compressor cover bolt so it rotates freely and clock it in the position shown. Do not tighten up the cover bolts yet. This allows the unit to be installed at one time fully assembled.

**You are now ready to install the assembly using the O.E. stock manifold gaskets and fasteners. You cannot use paper or copper gaskets. You must use factory metal gaskets. Torque to 18ft lbs. Do not over tighten or damaged to manifolds will incur.**

From underneath the vehicle, work the assembly up and in. Once the assembly is clear of the engine cradle, continue to push it up while rotating the compressor housing until it is pointing at the driver side frame rail. Then set it down in place, and from the top side install the exhaust gasket and the bolts.



Tighten the compressor cover.



**Passenger side turbo assembly and installation will be installed as a preassembled unit for ease of installation.**

Assemble the passenger side manifold, turbo, 2" discharge hose/clamps and oil feed line, the same as the driver side. Make sure the 27-1/2" feed line is installed with the 90 degree fitting toward the turbo.



Temporarily remove the passenger side valve cover. This will facilitate the installation from the top. Carefully drop the turbo assembly from the top side, you may have to pull back a tad on the cooling - A/C lines. Have patience as it only goes in one way. Keep working it around until it drops in.

Assemble to the cylinder head using the gaskets and fasteners.



Reinstall the dipstick tube and dipstick.

**Turbo drain installation and slope verification. This is one of the most critical steps in the turbo installation.**

Locate the bolts, gaskets and turbo oil drain plates, oil drain fittings, & 3/4" hose & clamps. Temporarily place each drain fitting into place and measure the length of hose needed for each side. Cut the hose to length, and slide 2 clamps over it and install the hose onto the fittings installed in the oil pan.

Slide the turbo drain fittings into installed 3/4" hose. Then using the gaskets and bolts, install to the turbo. Do not use RTV or any other type of sealant on these gaskets. **Inspect the slope of the gravity drains to insure they do not travel uphill etc.** If required, the center sections can be rotated by loosening up the compressor cover and exhaust housing bolts and then

rotate into position. ***Don't forget to tighten these bolts when complete.***



Tighten all clamps on the drain fittings

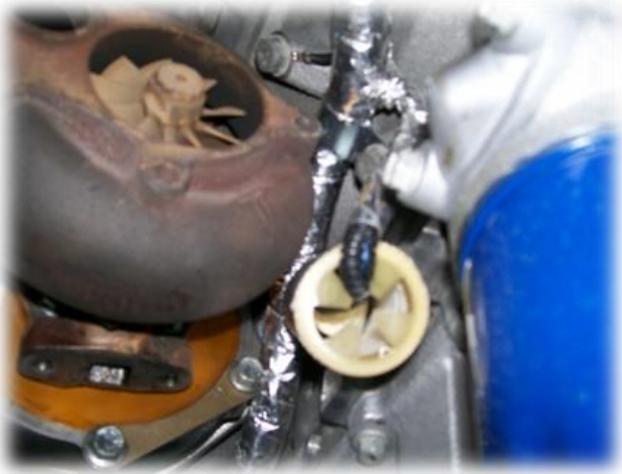
Reinstall the passenger valve cover.

Installation of spark plugs NGK TR6's gapped .032-.035" is suggested / recommended. (Not Included in kit)

**Additional wiring and routing**

Locate the 2 supplied O2 extensions and install one on each side. Route the extensions along the fuel rail and down the back of the engine block and down with the

stock engine harness



Review the pictures, tweak the wiring and clamps (pry it away from the housing) especially on the driver side to provide the most clearance to the hot turbine housings. GM did a great job of wrapping all the wiring for us on the C6 due to the placement of the CATS!

### Turbo charger oiling system

If you have a **Z51 MANUAL** transmission, a **Z06** model, or an *early 2005* model. The turbo charger oiling system, A/C line, and MAF charge pipe maybe be affected depending on your exact model. The oil feed line is affected on **all C6 models** (*If you have an oil cooler there is an additional option*). Below are the necessary steps you'll need to take in addition. Remove the valley cover off of the engine and remove the oil pressure sending unit.

Drill and tap (1/8" NPT) the valley cover as shown below. Make sure to use Teflon tape to ensure a leak free system.



Then re-install the cover as shown below. Run the -3AN lines to the left and right side of the motor and attach them at the turbocharger inlet fitting. Teflon tape is not required on the oil lines; they are self sealing.



Automatic transmission additional steps. If equipped with a M6 skip this section.

On A6 and possibly A4 equipped vehicles you must rework and heat cover the lines.

On the passenger side near the starter, remove or trim down the black plastic bell housing closeout panel. This is done for added clearance to the down pipes. By using a pry bar, carefully bend the lines as shown and cover using the 2 metal zip ties and foil wrap. The object is to get them tucked as tight as you can in the little triangle area.





At the front of the vehicle, you will need to reroute the lower transmission line to the outside of the lower radiator hose. To do this, pull back the plastic cap, remove the wire clip securing the line in the radiator. Reroute behind and to the outside (pass tire side) of the lower radiator hose. Reinstall the line and secure with clip and plastic cap.

### **Down pipe, wastegate installation and exhaust coupling.**

This portion will go easy with a bit of patience and an assortment of 5/16" 12 point wrench's and sockets and swivels.

Locate the driver side down pipe and 5/16" headed 12 point down pipe fasteners.

First apply a thin coating of Loctite Ultra Copper Gasket RTV to the down pipe to turbo flange. Then finger start all 5 bolts running them in by hand as far as you can before tightening them.



Do the same now for the passenger side down pipe. There will only be 4 fasteners on this side. The top 2 are very easy to get from the top side.



Locate the waste gates. The springs are installed and they will typically yield 9psi depending on the remainder of the exhaust system. This is the recommended starting point.

Preinstall the banjo fitting into the bottom port of both wastegates. **Make sure the top side is left vented to atmosphere.**

First apply a bead of RTV to the outer diameter of the first slip fit joint and slide it into the down pipe. This will help seal the joint.

Now install the v-band wastegate assembly's. Pictures are currently of the old style 4 bolt ones...disregard.



### **Exhaust completion.**

Install O2 sensors, only the front O2 sensors will be utilized. The rears are to be turned off by your tuner. Zip tie the wiring away from any hot components.

Install the optional wideband in the provided extra port in the passenger pipe. If no wideband is used install the plug.

Locate the stock H-pipe assembly and mark the driver's side 9" back from the face of the front flange. Mark the passenger side 10" from the front flange.

Using a suitable tool (Sawzall, cut-off wheel) cut the pipes where previously marked.

Locate the EZ-seal band clamps and assemble. It is easiest to wrap the clamp around the pipe first to form a circle and then assemble the fasteners.



Install the H-pipe assembly using the stock hardware and band clamps as shown below.

### **Optional catalytic converter installation.**

Location the option catalytic converters, 4 EZ-Seal clamps and the stock exhaust H-pipe and hardware.

Assemble the 4 band clamps, its easiest to wrap the band around the pipe to form a circle and then assemble the hardware.

Mark the down pipe approximately 3" from the end of the bends and cut.

Mark the left and right H-pipes 9" from the face of the front flange and cut.

Install the cats and 2 band clamps onto the end of the H-pipe. Slide them in further back to ease installation on the front side.



Install the H-pipe into the stock mufflers and then lift the front of the assembly to the down pipes and slide it over the end of the down pipes with 2 more clamps and install. Install the rear spring hanger nuts and adjust exhaust as necessary and tighten clamps.

#### **Driver side compressor inlet pipe assembly.**

You may find this part easier, although not necessary to remove the alternator for the next few steps.

Locate and install the driver side 45 degree silicone inlet elbow. It's usually easiest to open the clamp up as big as it will go and slide it over the compressor first. Then work the silicone hose (short side leg toward the compressor) over the inlet and under the clamp. It needs to be placed approximately at the 2 o'clock position.



If not already assembled, re-attach the steering shaft to the steering rack.

Slide the previously tucked away inlet pipe into the 45 degree silicone elbow.

This should be the view of the assembled pipe ready for the intermediate pipe install.

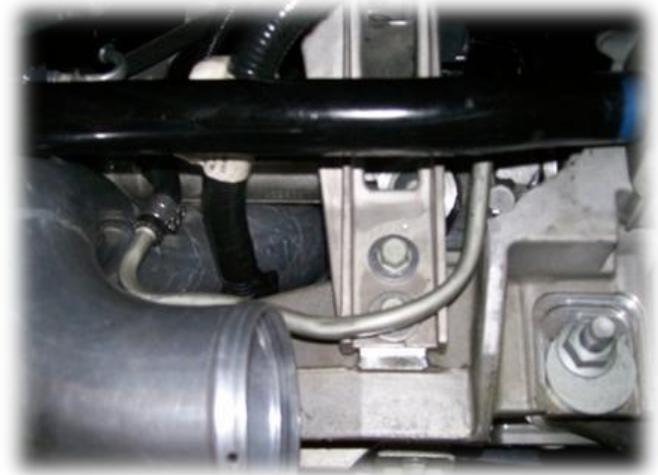


It may be easier to drop the sway bar bushing mounts. We actually find it easier to leave the bar in place.

The right side rack bolt should still be removed from previous steps. Lift up the rack and install the intermediate pipe. Fasten the pipe in place using 1 of the stock steering cooler mounting bolt.



Carefully bend the stock cooler line similar to show below to allow the remaining cooler mounting leg to be bolted into place.



Install the rack bolt/nut in its original locations. Reinstall the sway bar bushing mounts if removed. Depending on which suspension option your vehicle has, the sway bar may be very close to this inlet tube. It will self clear in a short period of time. You will hear an occasional clunk for a period of time after install. The sway bar will make a perfect indentation (so nice we can't match it) into the pipe over time and will no longer interfere.



### **Power steering cooler Installation (if equipped)**

Modify the right mounting leg of the stock power steering cooler simply by cutting it off.



## Intercooler installation.

Using a Sawzall or equivalent , cut the extensions from the radiator cradle as show below.



Install plastic plugs provided

Using the supplied M6 fasteners and washers with an assistants help, install the intercooler from the top tabs as shown. Make sure the bottom mounting tabs are setting on top of the radiator cradle.

The M6 fasteners will install into the factory threaded inserts originally used to hole the mounting pins for the stock air box.



Using the bottom mounting tabs as a template, drill holes through the cradle and fasten with the supplied bolts and lock nuts. Do not over tighten these bolts as the lower radiator cradle is very thin.



Relocate and install the outside temp sensor and horns using the original mounting bolt as shown below.

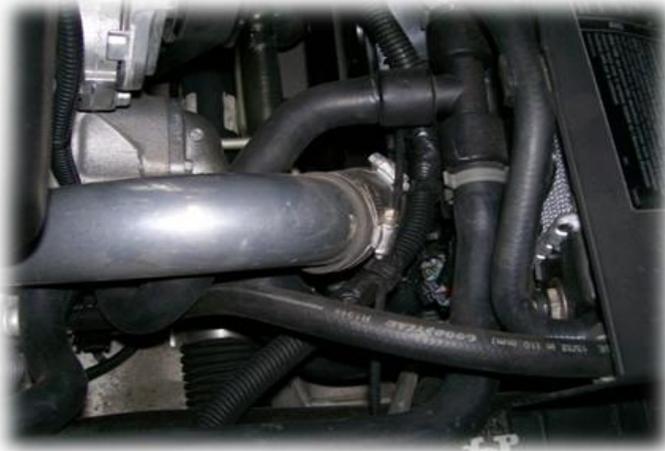


## Passenger side inlet/discharge tubing.

Install 2 ½" couplers onto intercooler. Locate the tube shown below and install into the coupler previously attached to the compressor discharge.



Snake the intermediate pipe and loosely install the pipe into the first discharge pipe installed in the previous step.



The pipe needs to travel through the hoses as shown below. Attach a silicone coupler and 2 clamps to the end.

Before installing the next tube, modify the fan module as shown. It's very simple to do utilizing needle nose pliers by placing the nose of the pliers in between the blades and snapping off the end of the fins. Start from the outside and work inward. Only the outside 4 fins need to be modified.

Locate 2" to 2 1/2" I/C pipe & install onto I/C & intermediate pipe.

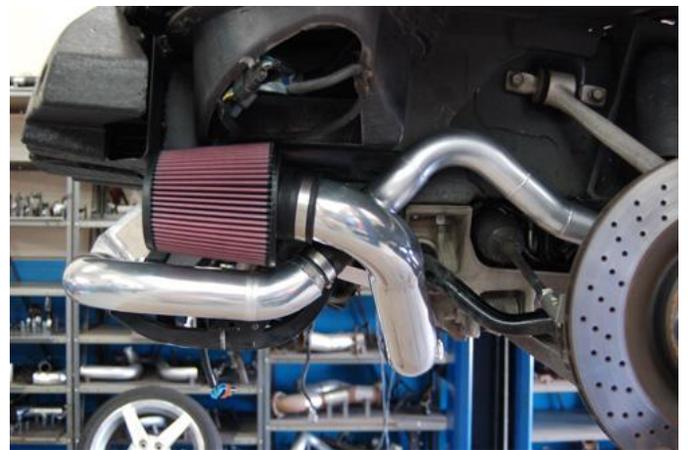


This portion will take a bit of trial and error and a lot of patience for best fit. Don't tighten any clamps until satisfied with the fit, and then tighten all clamps. Locate the "S" shaped silicon hose & install it onto the pass side turbo & position hose to point straight forward beside the A/C compressor.



### Driver side inlet/outlet plumbing.

Locate the driver side inlet pipe, silicon coupler, K&N filter and clamps shown below. This is how the pipe will be routed.



Slip the tube into the silicon coupler attaching it to the pipe assembly that travels under the steering rack previously installed. Slip the tube through the stock brake duct tube opening and slip the K&N filter over the end as shown below. The filter is a tight fit but will tuck in alongside the running light assembly.



Locate pass side air inlet pipe & "L" bracket & 5/16" bolt, washer, and 5/16" self tapping bolt.

Slip air filter onto the end of the air inlet pipe. Position pipe up as far as possible to clear steering. Install "L" bracket on pipe. Mark and drill frame for self tapping bolt. Tighten all bolts and clamps.

Locate the self tapping screw used to attach the pipe to the radiator cradle. Adjust as necessary to get the best fit and install the self tapping screw.

It's often easier to mark the location and pre drill a pilot hole. Locate (2) 2" couplers, 2" drivers side pipe, 2 1/2" to 2" I/C pipe



Install 2" coupler onto turbocharger outlet. Install 2" pipe on the silicon hose coupler. Then install 2 1/2" pipe onto the I/C. Connect pipes together using remaining 2" coupler, position and tighten all clamps

The horns will need to be rotated slightly on the mounting bracket. Just loosen up the retaining nut, rotate and tighten till snug.

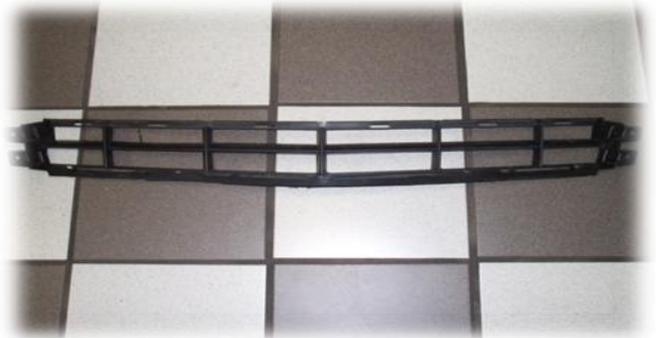


## Fascia Modifications and installation.

Locate the front fascia and remove all center plastic panels including the center grill assembly.



With the center section of the fascia removed, use a suitable tool and cut the bottom section off the bottom as shown. This will provide the clearance need to clear the compressor charge pipes. Reinstall modified grill.



Install the front fascia and snap the top into place. Locate the package of 4 "L" brackets and the top fascia screws and install with the brackets under the fascia. This will support the top panel.

## Bottom fascia closeout, air dams etc.

The following pictures are of the lower air dam installation. Install using the original fasteners in the original mounting positions.



Tighten all fascia bolts and fasteners. Locate lower close out panels. These panels will need to be modified to clear I/C piping. Carefully trim panels to clear tubes. Install using original fasteners. Once again, locate and modify the passenger side front inner fender well for pipe clearance as shown. Install the part using the push pin on the top only for now.



With a little persuasion, you will be able to also install the lower fascia to the radiator cradle in the stock outer location with the stock 7mm screws.



View from front with lower air dams installed.



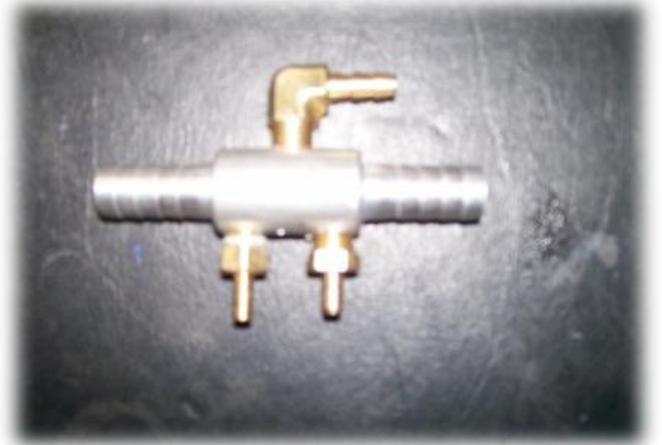
**Vacuum branch install and waste gate/Blow-off valve plumbing.** Locate the supplied vacuum branch.



Locate the Tial blow off valve and components, it should be packaged in a separate box.

Loosely install the supplied clamp to the neck of the BOV. Set the o-ring into place and install the BOV assembly to the intercooler.

Using suitable tools, tighten the valve being care not to over tighten the assembly. Locate the nipple and install the 1/4" one as shown on the following column.



This is to be installed in the brake booster line as shown. Simply cut and remove a 3" section of the brake booster hose and insert the assembly with the 1/4" brass 90 degree facing up and toward the radiator. No clamps are required on this connection by design.





Using the supplied 1/4" vacuum hose, route a line from the top 1/4" nipple to the 1/4" nipple located on the blow off valve as shown. Be sure to zip tie each end of the hose connections to the nipples.

Locate the 1/4" silicone hose supplied in the kit. Unroll and attach each end of the hose to the open ends of the vacuum branch brass nipples and secure with small zip ties. Carefully route one hose to each of the wastegates.

The hoses are to be attached to the nipples installed in the bottom port of each gate. The top ports of the gates must be left open, vented to atmosphere for proper operation unless the use of a boost controller is to be used.

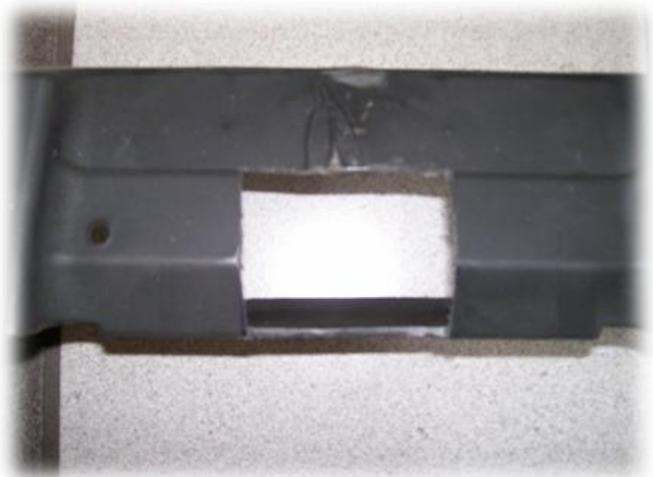
Once installed, secure the hose from contact with any hot side exhaust components as well as zip tying the line to the nipple to prevent them from popping off under boost.

Remove the stock PCV hose from the side of the intake manifold. Using the supplied check valve, fittings, hose and stock PCV horseshoe shaped hose, fabricate the shown assembly. Make sure the flow arrow on the side of the check valve is pointed toward the intake manifold port. Make sure all hose connections are solid and zip tied or clamped.



#### **Radiator hold down, Inlet piping/MAF close out panel, installation.**

Remove the radiator hold down if you have not all ready done so. Measure and mark the centerline in the intake tube depression of the hold down where the charge pipe will travel. Measure 1-7/16" out from the center in both directions. Using a suitable tool, remove the raised section centered between the 2 ridges and the marks as shown.



Locate the 3-1/2" silicone coupler and clamps.

Attach coupler to the top of the intercooler core and slide 2 clamps down on top. Find the 3.5" to 4" silicone transition hose and attach it to the exit side of the MAF pipe.



Install the fuel rail covers, they will fit like stock without modifications even with the use of the Mototron injectors and rail spacers.



Locate and install the 3.5" charge pipe. Tighten the bottom coupler hose clamps. Install the plastic top closeout panel. It will slide in from the front opening between the open hood and front fascia. Install the leading edge on top of the A/C condenser and the other on top of the "L" brackets previously installed.

Now it is time to install the modified radiator hold down. Just pull up slightly on the 3.5" charge pipe and slide the hold down under. Do not install fasteners yet. Install the MAF/Hose assembly next by lifting the 3.5" charge pipe and slide the MAF assembly on as far as it will go. Lower the sensors assembly and slide it back over the 90MM TB. Tighten all clamps and fasteners

Side view of intake charge to placement and closeout panel mounted under the radiator hold down.

After installing the passenger side fuel rail cover, install the supplied custom oil filler cap assembly.





Use (1) 3.5" coupler on the intercooler and (1) 3.50"-4.00" transition coupler on the throttle body. Connect both ends of the pipe with the couplers before you tighten up the hose clamps.

## OPTIONAL TURBO INSTALLATION NOTES

### Precision 6265 Upgrade Notes-

Here are a few installation notes needed when running the Precision units on a TTi STGX system. You'll need to clearance a few areas to fit your new turbochargers. Each car, build and installation is different, so "how much room" you really have or need can and will be different. The following notes are passed on from us at TTi and also our installers. Patience goes along ways! Call or e-mail with any questions (*or suggested provisions!*)

- 1.) Turbo clearance to the outer frame on the right side compressor housing may have to be addressed.
- 2.) Turbo clearance to the k-member at the left side compressor housing may have to be addressed.
- 3.) In some cases the oil drain on the right side interferes with the k-member.
- 4.) Oil dipstick mount on right side cylinder head needs to be modified. Again, you may or may not have this issue. Some installers have had to grind the manifold to get the bolt in.
- 5.) On an A6, the trans lines need to be moved as much as possible for clearance. You should end up with about 1/8" between them and the downpipe. Some customers have wrapped the line for reassurance.
- 6.) On the passenger side upper motor mount stand, the bolt must be removed, the mount needs to be counter sunk and install the counter sunk provided bolt.

Remove the hose that was previously connected to the throttle body inlet tube. This hose routes around and is connected to the dry sump oil tank. Carefully remove the plastic line at the fitting by using a razor blade. Attach the new hose along with the supplied fittings and in-line filter. Route the hose around the backside as shown and place the hose end in the area behind the tank. This will vent to atmosphere.

### A/C Lines

The A/C line on an early model C6 will not clear the inlet of the turbocharger. You'll need to order from GM a later model A/C line, PN **15250411**. See the picture below to help identify which line you have.

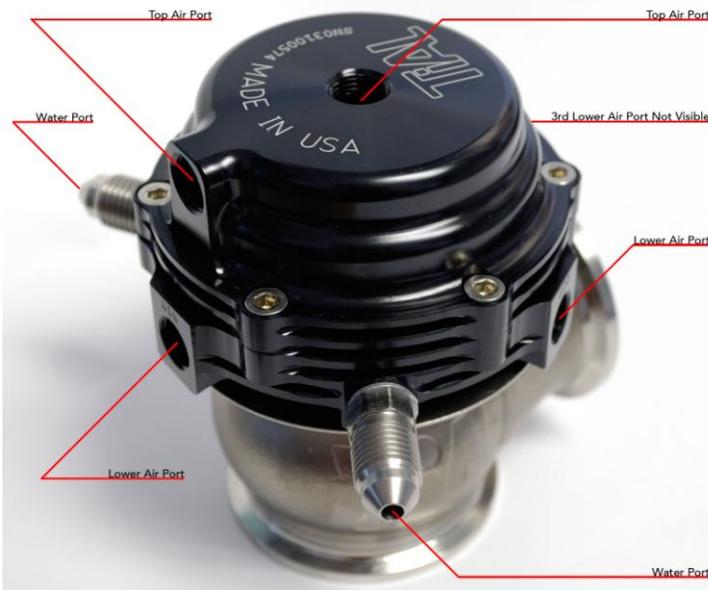


The MAF sensor on LS3 and LS7 (Z06), is different than the standard sensor. Instead of matching your MAF to a K&N air bridge, we have made a completely different pipe instead.

Unscrew your MAF from the stock intake system. Locate the 3.5" intercooler ducting with the MAF flange and reinstall the MAF onto the new pipe.

### TiAL MVS Wastegates (C6 Z06 only)

The new 38mm TiAL MVS gates come with water cooling capabilities (that's what the preinstalled -3AN fittings are for). You can water cool them if you choose too but we do not provide the lines or hardware to do so. If you choose not to run the lines do **nothing** with the gates. The preinstalled -3AN fittings can be left intact if they are not in the way. In the case that they are in the way, simply remove the fitting and vent the passage to atmosphere- DO NOT plug them. The extra provided allen plugs are to plug the extra vacuum/boost ports if you're not using them- they are **NOT** for the water cooling ports.



**For additional help and assistance in installing this system, please use the following sources and you will get the answers you need.**

<http://forums.turbotechnologyinc.com>  
[sales@turbotechnologyinc.com](mailto:sales@turbotechnologyinc.com)  
[geo@turbotechnologyinc.com](mailto:geo@turbotechnologyinc.com)