

GTR X Turbo Kit

Note: A T3 turbo is used in some pictures and the location is the same as the gen 2 V-band kit

Disassembly

- 1) Follow the factory service manual to remove the engine in a safe and secure manner
- 2) Once the engine is removed, disassemble and remove the stock turbos or current turbo kit.

Engine Mount Installation

Required: Solid motor mounts are required for installation of the kit. The size of the turbos and the style of routing require these to be installed. Contact your sales representative if you do not already have a set.

- 3) Locate the supplied Alpha engine mount brackets. The hardware for each engine mount bracket is packaged with the appropriate mount. Start by replacing the left side engine mount. Support the engine and remove the left side mount.

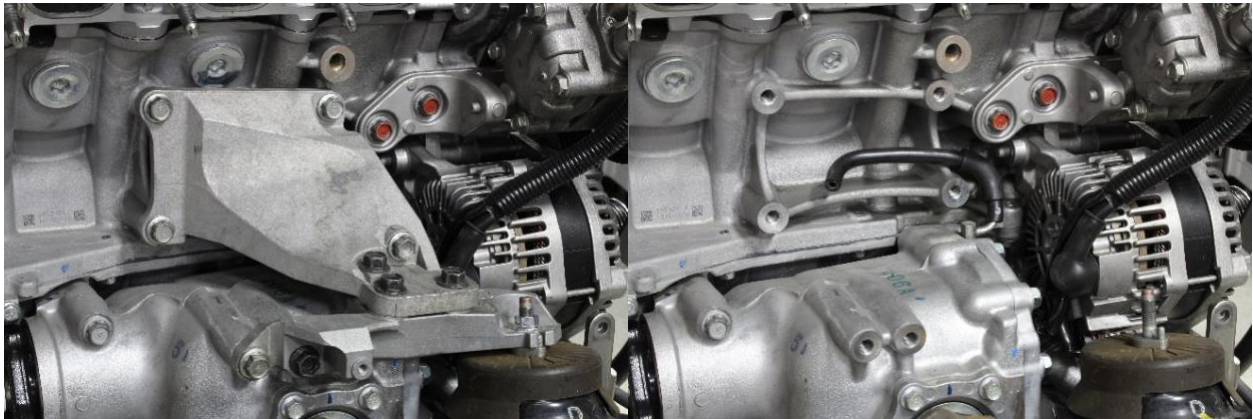


- 4) Install the Alpha engine mount bracket using the supplied hardware. Tighten the hardware on the engine block first with engine still supported. Remove the support and tighten the factory engine mount stud nut last. The mount will require material removal as shown in the photo below.



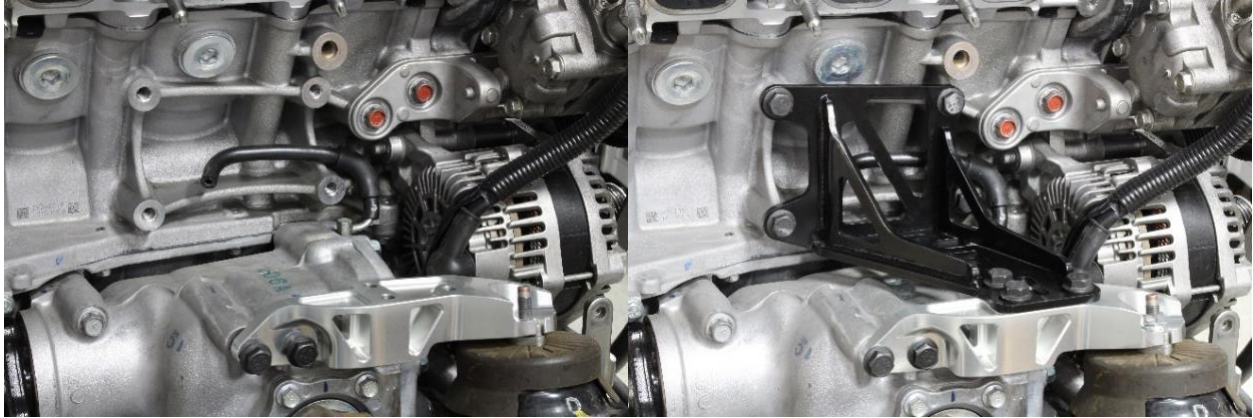


- 5) Support the engine on the other side and remove the right side engine mount. Remove both the factory engine bracket and the differential mount.



- 6) Loosely install the new Alpha billet differential bracket with the supplied hardware. Install the Alpha engine bracket using the supplied hardware. Tighten the hardware to the engine block first. Then run the hardware down on the Alpha billet differential bracket just before they tighten. Remove the engine support and set the engine down on to the mount. Tighten the supplied hardware on the Alpha billet differential mount evenly. Last, tighten the nut on the factory engine mount.

Tech Note: The hardware supplied with the billet differential mount is slightly longer than the hardware used for the Alpha engine mount bracket. Make sure the longer hardware is not used in the engine block as damage may occur.



Exhaust Manifold Assembly and Installation

- 7) Locate the turbo and remove the turbine housings.

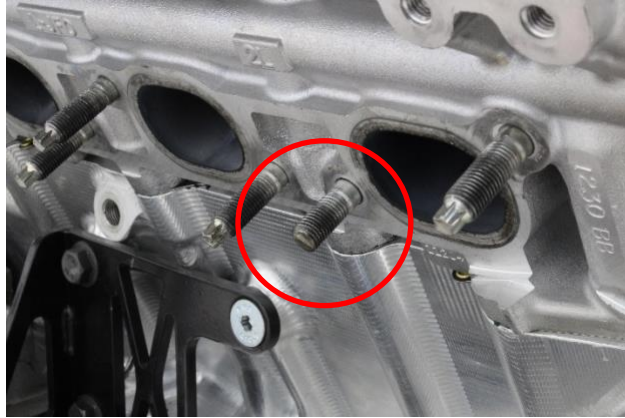
Tech Note: Anti-Seize is recommended for all the hardware used in the exhaust manifolds. We highly recommend Loctite® Nickel 77164 Anti-Seize. Its high nickel content makes it suitable for extreme heat environments.

<http://www.na.henkel-adhesives.com/about-henkel/product-search-1554.htm?nodeid=8804744232961>

- 8) While the CHRA is out of the turbine housing, locate the steel 90 degree -4AN to 1/8" NPT oil feed fittings. The fitting on the left side turbo will be facing the engine. The fitting on the right side turbo will be facing away from the engine. After installing the fitting, reinstall the CHRA into the turbine housing. Make sure to apply Anti Seize to the turbine housing bolts.

Caution! The oil feed fitting on the turbo must be held in place when tightening the 90 degree -4AN fitting. If the oil feed fitting on the CHRA turns and breaks the paint mark, Precision Turbo® will void all warranties for the turbo! There is a tag attached to the turbo indicating this as well.

- 9) There is one exhaust manifold stud on the right side that needs to be cut down. Start by cutting off the reverse Torx section and only a couple threads. This stud will be difficult to get to when installing the manifold so a chrome short swivel socket will need to be used. The length of the stud would interfere with the socket otherwise.



- 10) Loosen all the turbine housing and compressor cover bolts. The manifold and turbos will be installed on to the motor so the turbo can be clocked. Make sure the compressor cover bolts are loose enough so the compressor cover can be turned without damaging the compressor cover O-ring. Make sure to tighten all the manifold bolts to properly clock the turbos and use the oil manifold gaskets.

Note: The engine block on the right side may need clearance for the turbine housing. Clearance as needed.



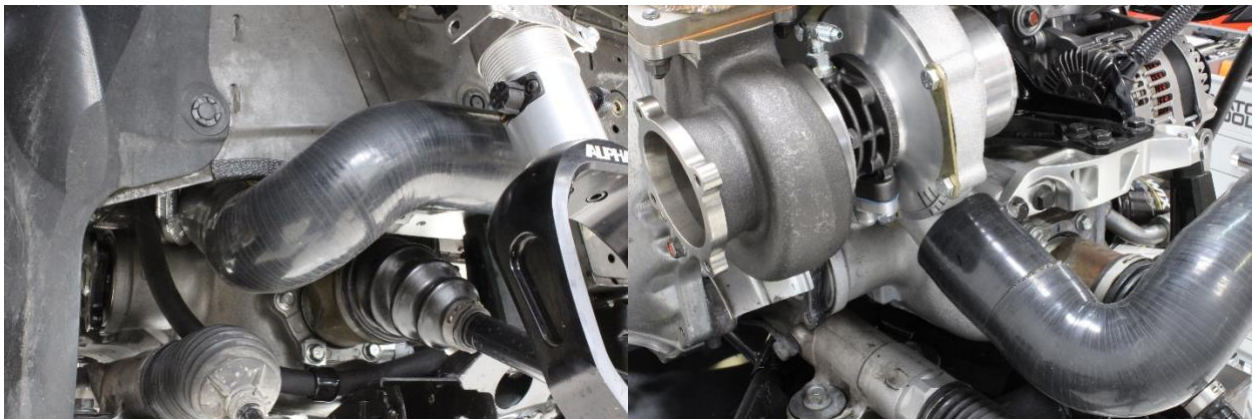
- 11) Adjust the CRHA in the turbine housing on both sides so the oil feed and drain port are vertical. Snug down the accessible bolts on the turbine housing. Make a mark with a sharpie or scribing the housing is also a good idea.

- 12) Next clock the left side compressor cover. To do so, locate and install the left side compressor outlet silicone coupler and cast charge pipe. The short end of the flared silicone coupler will be installed on the compressor side. When installing the cast charge pipe, there is a small aluminum spacer included in the hardware that will be placed between the cast charge pipe bracket and the mounting bracket on the A/C compressor. Rotate the compressor cover inwards as far as it can go without causing interference with the silicone coupler and the engine mount bracket. Snug down a couple bolts and mark the compressor cover.

Note: The engine mount stud on the top may have to be cut down to clear the silicone coupler depending on the mounts used.



- 13) Next clock the right side compressor cover. To do so, you will have to reinstall the engine. Locate the 2-1/2" silicone coupler, 2-1/2" stainless jumper, outlet silicone and the cast compressor outlet pipe. Install all the component as shown setting the silicone coupler on the outside of the frame as high as you can away from the axle. The cast outlet pipe should be fairly level. Mark the compressor cover and snug a bolt down if you can access it.



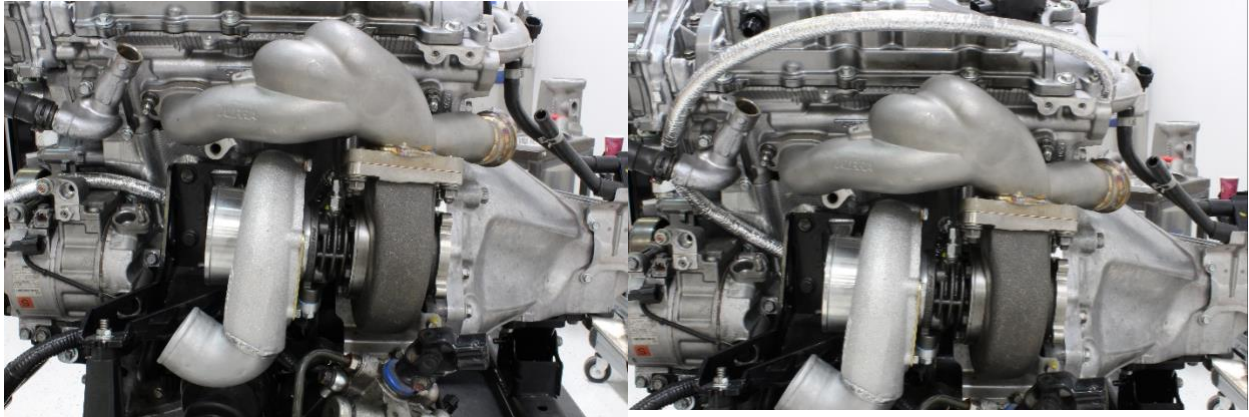
- 14)** While the engine is install, check frame clearance of the left side compressor cover. Make adjustment if needed.
- 15)** Once fully clocked, remove both turbo assemblies. Tighten all of the turbine housing bolts making sure to apply anti seize. Apply a small amount of blue Loctite to all of the compressor cover bolts and tighten. The reason for the Loctite is the seal the bolt holes that are machined through the compressor cover. Without sealant here, there would be a small boost leak.
- 16)** Locate the turbo line kit. On the left side assembly, locate and install the turbo oil drain fitting with the -8AN outlet using the supplied hardware and gasket. Next locate the shorter of the two oil feed lines and install it with the 45 degree end on the turbo.



- 17)** Locate the -8AN 90 degree push lock fitting and #6 hose clamp. The factory oil drain hose will be reused. Install the fitting and clamp on the factory rubber hose as shown.



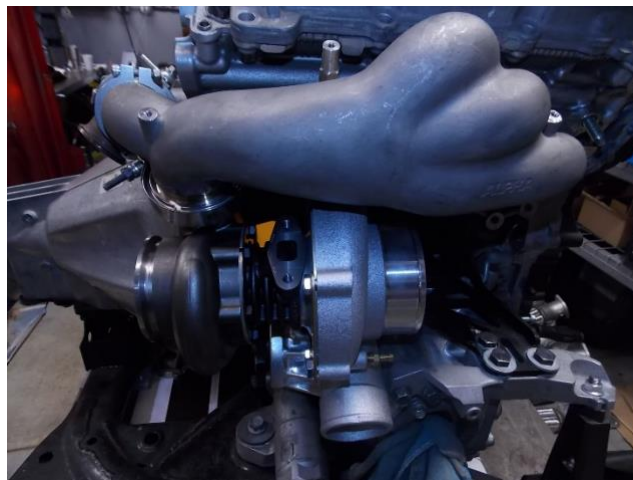
- 18)** Install the left assembly using a new manifold gasket and supplied manifold nuts. Make sure to route the oil feed line behind the engine mount bracket as shown in the picture. Once installed, tighten the oil drain fitting.



19) In the turbo line kit, locate the assembled oil drain fitting with the 18" long -8AN push lock hose installed. Install the oil drain hose assembly onto the right side turbo using the supplied hardware and gasket.

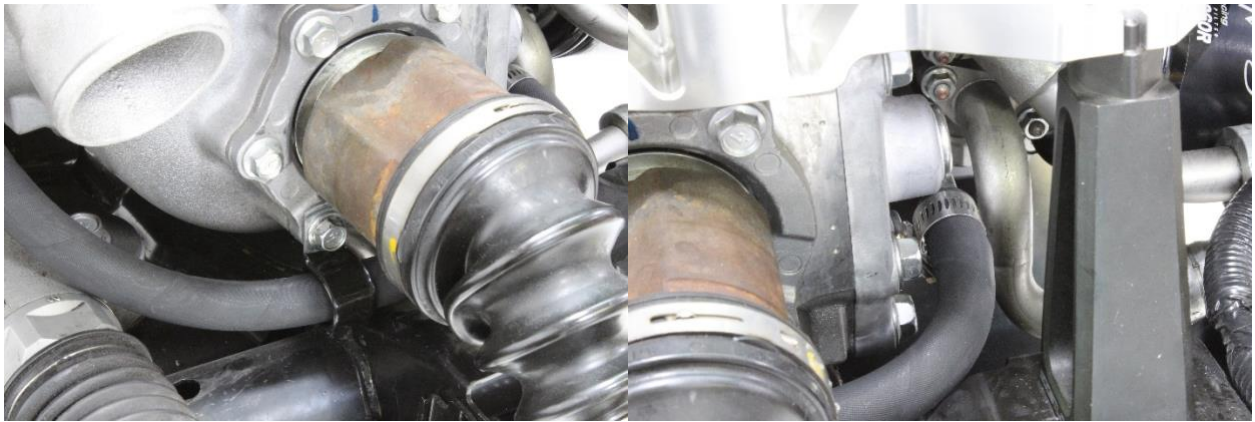


20) Install the right manifold assembly using the new supplied manifold gasket and manifold nuts.

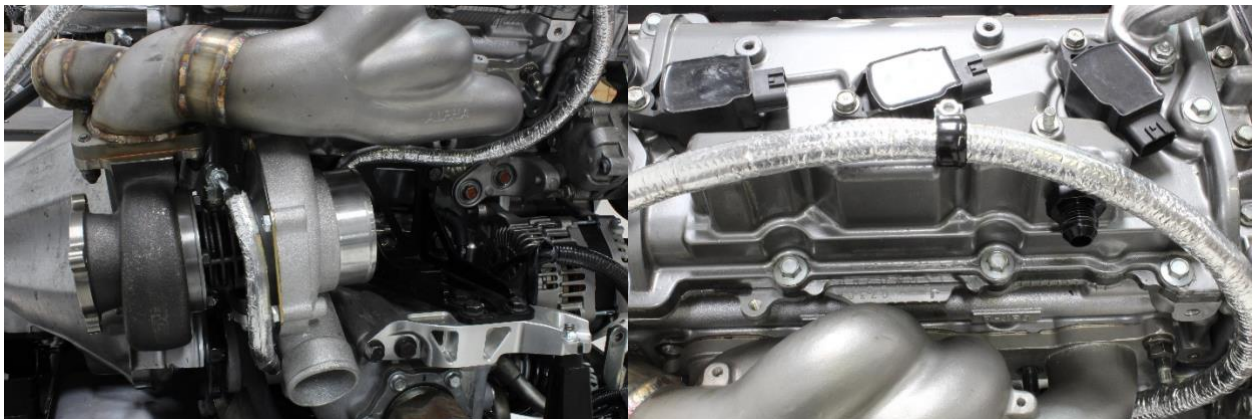


21) Locate the #6 hose clamp and the 7/8" vinyl coated clamp in the line kit. Route the drain hose under the axle as shown to the factory oil drain port on the oil filter housing. Use the vinyl clamp

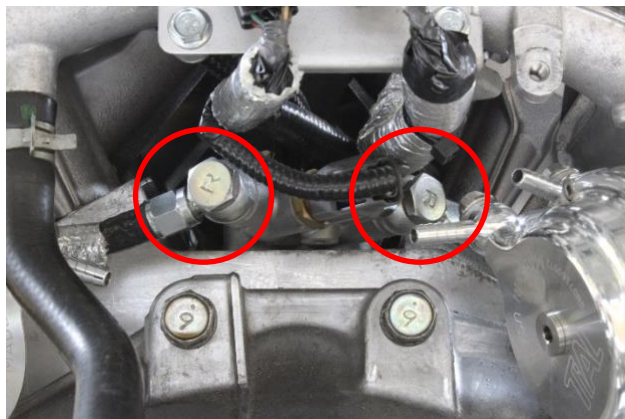
to secure the hose to the side of the diff and the #6 hose clamp to secure the hose to the oil filter housing.



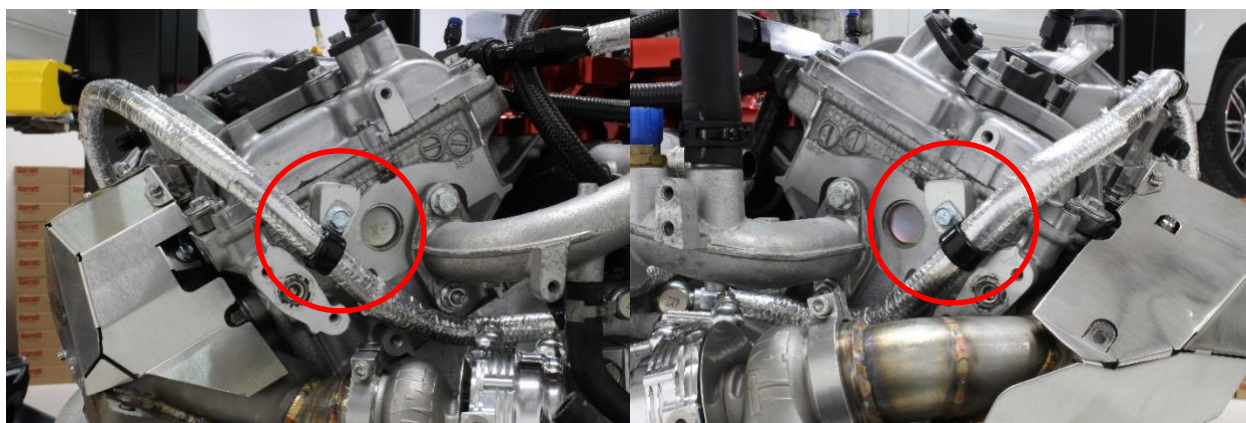
- 22)** Install the remaining oil feed line as shown with the 45 degree hose end on the turbo. Route the hose under the compressor cover, over the top of the motor mount, and around the manifold. Secure the line to the EVAP mounting stud on the valve cover using a supplied vinyl coated clamp.



- 23)** In the rear of the motor, install the supplied steel 12mm x -4AN banjo bolts using new supplied crush washers. Make sure to use the factory banjo bolts with the R labeled on the top. Finish connection the turbo oil feed lines here.



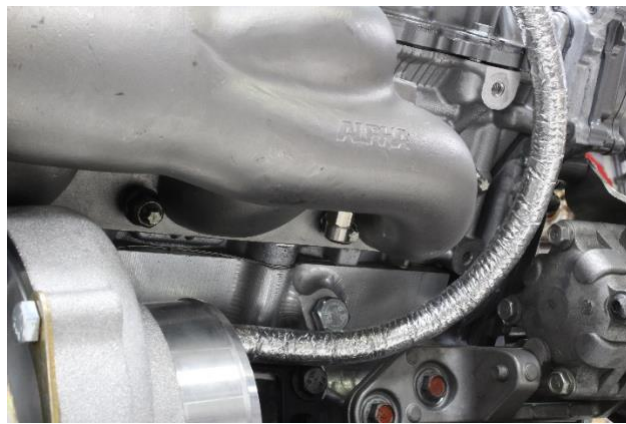
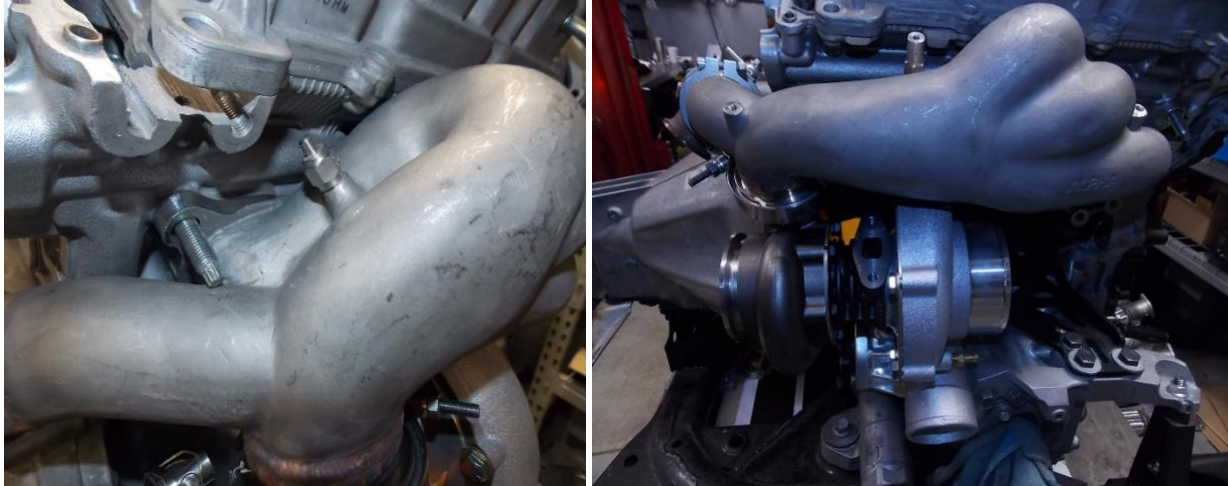
24) Use the two vinyl clamps left in the line kit and M6 bolts to secure the oil feed lines to the back of the cylinder head area. Use the upper EGR valve bolt hole.



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<http://www.na.henkel-adhesives.com/about-henkel/product-search-1554.htm?nodeid=8804744232961>

25) Locate the heat shield kit. Install the stanchions in the manifolds as shown. The double ended M6 stanchion gets installed on the top of the left manifold. The tall stanchion is installed on the top of the right manifold. The last M6 stanchion is installed on the bottom of the right manifold.



Tech Note: You will notice there is two different types of nuts on the shields. There is a floating nut plate and a pressed in nut. The floating nut plate is a mechanical lock type that does not require a locking washer on the bolts. The other is a standard nut that will require a locking washer. Nord-Lock® washers are supplied for these locations where lock washers are required in a standard pressed nut and in the manifolds itself. Nord-Lock® washers do not get used with the floating nut plates.

ARP 10-32 shield hardware torque spec 31 in-Lb or (3.5 N-m)

Note: There will be several holes in the heat shields that will not be used.

- 26) Install the left side heat shield and leave all the hardware loose until all four parts are installed onto the manifold. Start by installing the top shield along with the two small top shields. Finish by installing the panel under the manifold.



27) Next, install the right heat shield. Start with installing the top shield then finish by installing the bottom shield.



28) The factory downpipe bracket will be reused. Remove the bracket and install it in the reverse direction of stock. Leaving it slightly loose will aid in assembly.





29) Locate the downpipes and hardware. Start by installing the downpipe using the supplied M8 bolts and Nord Lock® washers. There is no gasket so use the supplied high temp sealant to create the seal. On the right side downpipe, the inside bolt hole of the flange has been notched out so the bolt can be started in the turbo and the downpipe slid into place.

30) Use the supplied M10x16mm bolts and nuts to secure the downpipes to the factory lower support bracket. Tighten the lower bracket to the bell housing and downpipes.

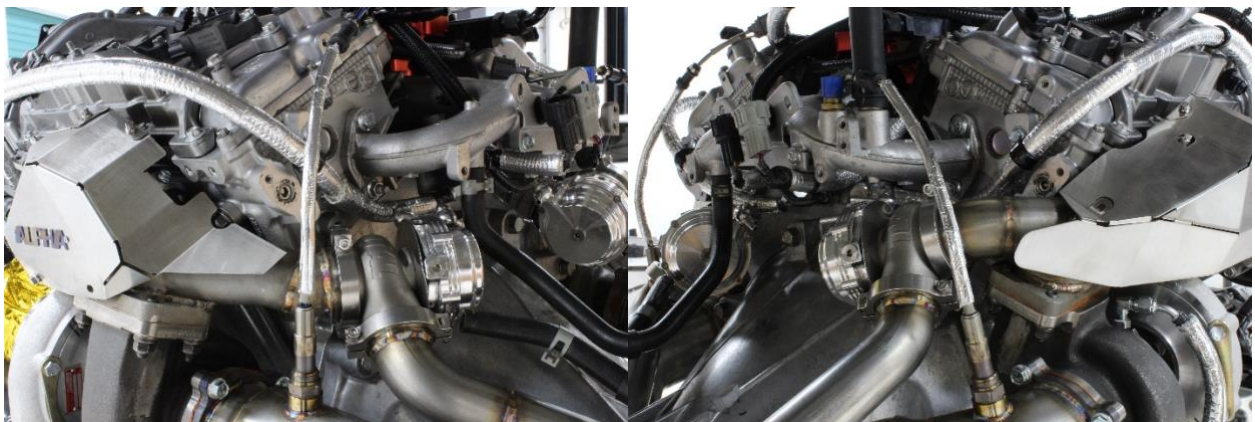




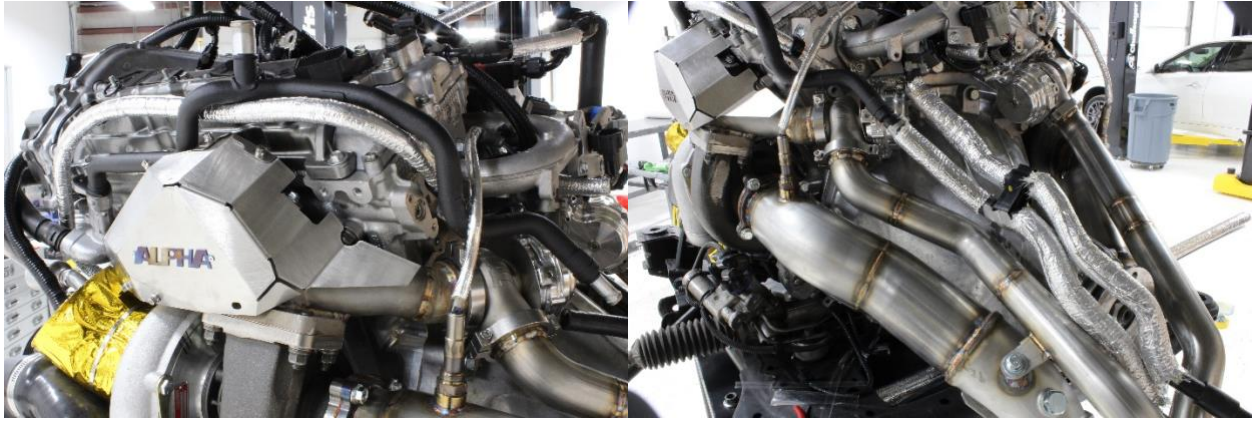
- 31) Test fit the wastegates and dump tubes to get your desired wastegate hose fitting orientation for the top and bottom of the gates. After fitment, install the wastegates and dump tubes.

Tech Note: Make sure the use red Loctite® on all of the wastegate fittings including the plugs. Tial wastegate fittings are known to loosen up over time without this.

- 32) Install the O2 sensors used. Make sure to apply the supplied ¼” reflective heat sleeving on the harness of the sensors and tie the harnesses out of the way from heat sources.



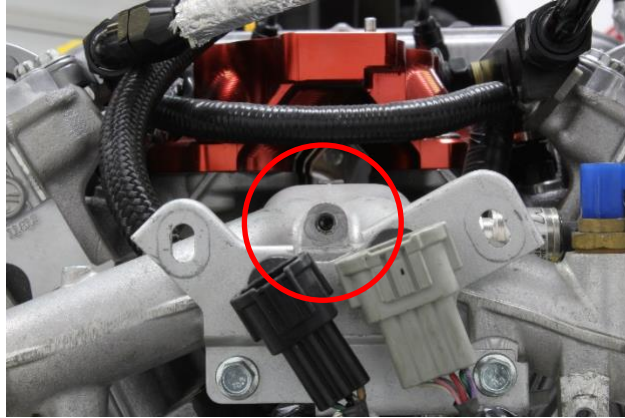
- 33) Install the supplied modified water pipe. Make all your connections. Wrap the water hoses for the in the supplied reflective heat wrap as shown.



- 34) To take full advantage to the turbo kit, a 4 port boost control solenoid was supplied. Make sure to check with your tuner to make sure they can work with this style of solenoid as it differs from the standard 3 port.



- 35) Install the solenoid in a location that allow the shortest and easiest hose routing to the wastegates. Also make sure to route all hoses away from heat sources. Use the supplied reflective heat wrap on all wastegate hoses and connections. We recommend installing the solenoid in the location shown below on the rear of the water pipe. A bracket for the solenoid was included.



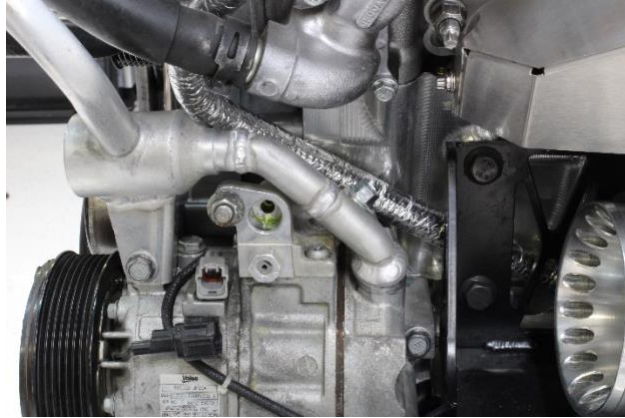
36) Follow the diagram below for the 4 port boost control solenoid hose routing.

.....Picture

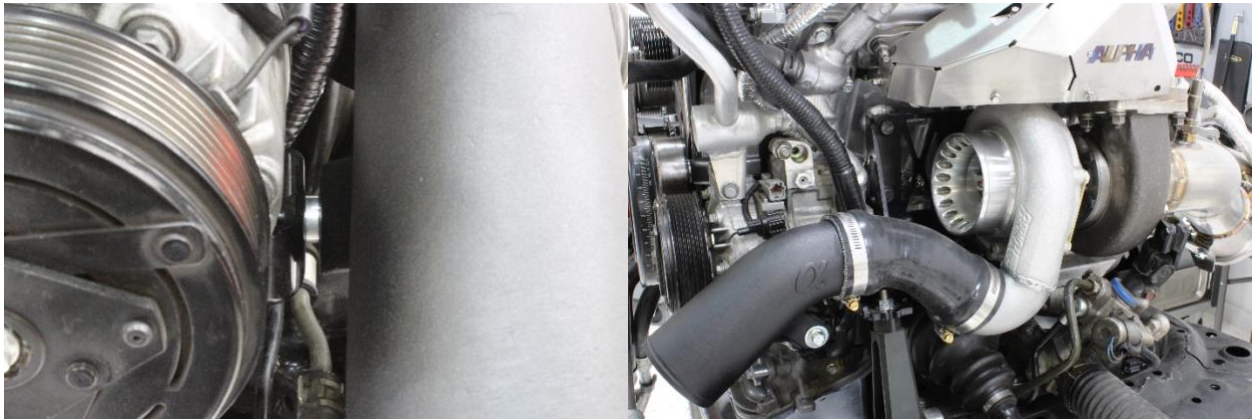
37) After the solenoid is mounted, use the supplied wire harness to extend the wires to the factory boost control solenoid connector by the A/C compressor. Use the supplied connectors and split loom to make the connection.



38) If A/C will be retained, you will need a modified A/C compressor and suction pipe we do in house. The modification is to allow a true 4" intake to be used. Your compressor would have to be sent in or a new one purchased through us. At this time, install the new modified A/C compressor.



- 39) Install the left side charge piping as was done during the clocking steps. Do not forget to install the aluminum spacer between the cast charge pipe and the bracket on the alternator. Double check clearance between the outlet silicone and the engine mount bracket and stud.



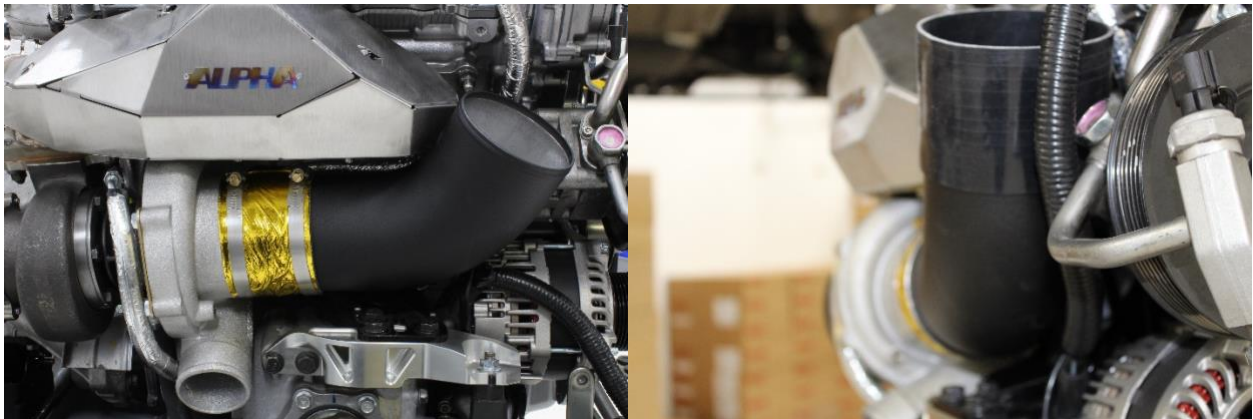
- 40) Locate the short 45 degree 4" silicone coupler with 1" legs and the gold reflective wrap. Wrap the silicone coupler in the gold reflective wrapping. Apply the supplied metal tie around the center of the coupler. Install the coupler onto the left compressor inlet. Rotate it inwards to the motor as much as you can to still allow the intake pipe to be installed. The coupler will just touch the manifold heat shield and the A/C suction pipe.



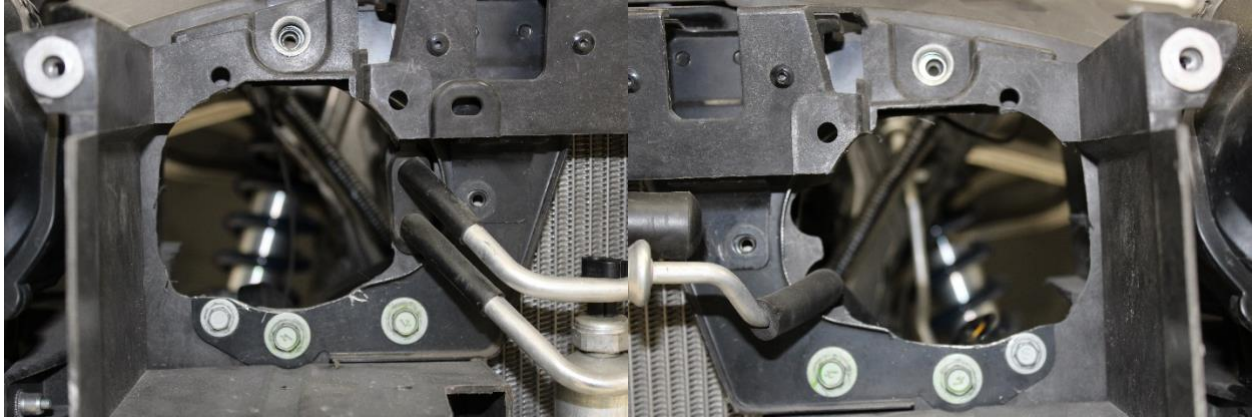
- 41) In the intake kit, there is an 8mm button head bolt. Remove the P/S bolt shown and replace it with the button head bolt.



- 42) Locate one of the 4" straight couplers and the 60 degree 4" intake pipe. Wrap the silicone coupler with the supplied golf reflective wrapping as was done on the left side intake. Install the intake as shown. The intake will need to be rotated so the inlet is vertical. The pipe in the silicone coupler will be a little cheated after rotating. The intake need to be as straight up as possible so it clears the frame rail while installing the motor. Also make sure you can get another 4" straight coupler on the pipe by the P/S pump.

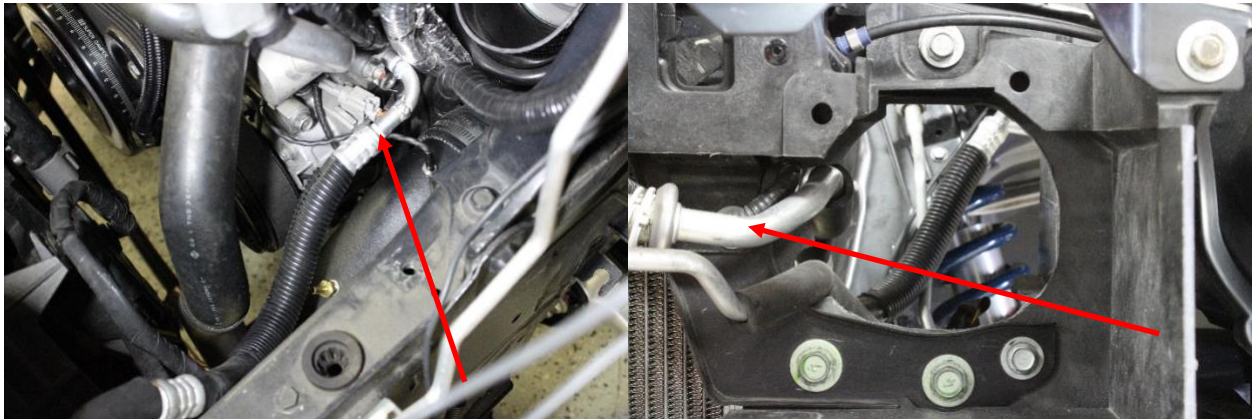


- 43) For the 4" intakes to clear through the core support, you will have to make to opening larger. Clearance as much material as needed so the 4" intake pipes pass through will easy. You will be taking more material out of the bottom of the hole then the top.

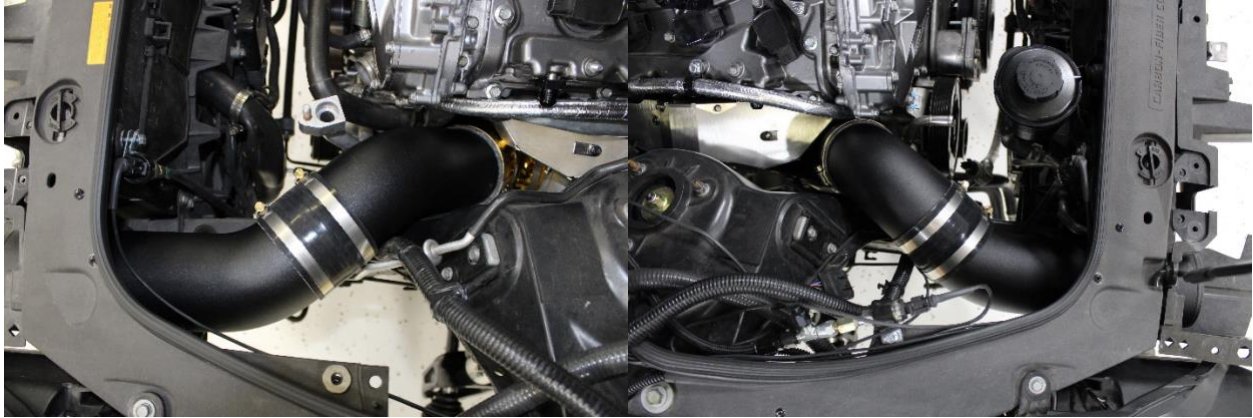


44) Install the engine. Take your time as the right intake tube is really tight through the frame rail area when installing. You may have to make adjustment to the intake to allow it to pass the frame rail.

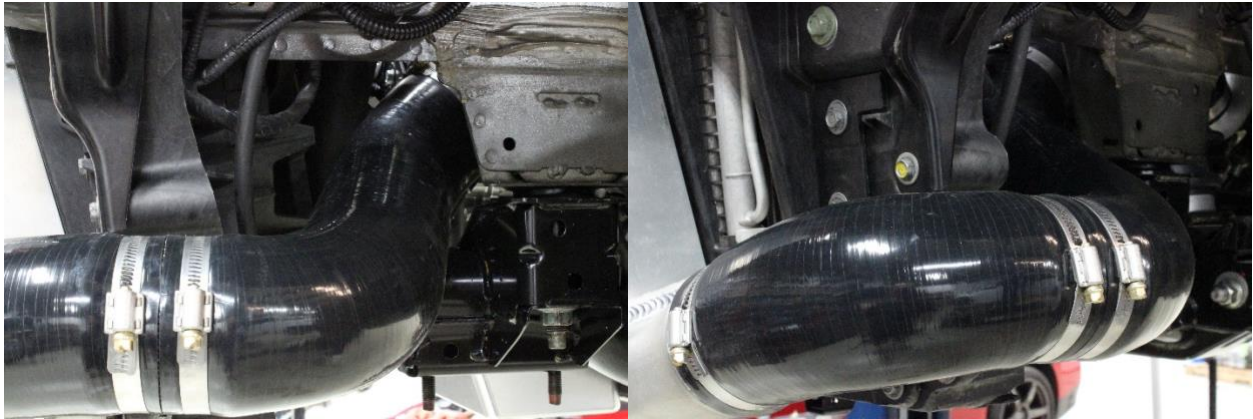
45) If still using A/C, install the supplied modified compressor discharge hose. It is the hose that routes from the A/C compressor to the A/C condenser.



46) Install and adjust the intakes. There are two intake tubes that are identical, these tube pass through the core support. The short 90 degree tube is for the right side and the longer leg 45 degree tube is for the left side. Install the longer leg of the left side intake down on the turbo end.



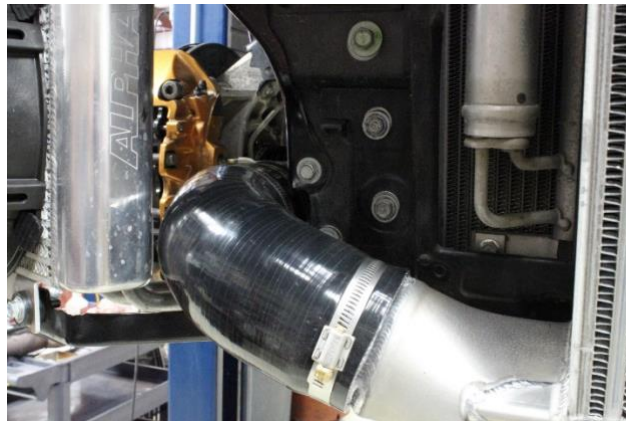
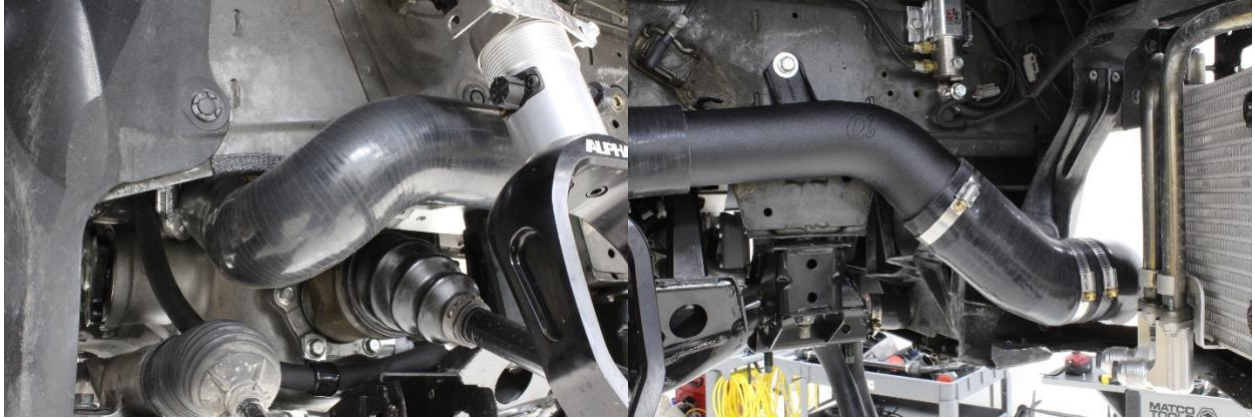
47) Install the charge pipe silicone on the left side. A new S coupler, 3" stainless jumper, and 90 degree 3" silicone coupler for the intercooler were provided. You may also use charge piping of your choice.



Tech Note: Make sure to wipe down the insides of the silicone couplers and the outside of the pipes with a solvent, (brake cleaner, acetone). You can use basic hair spray like Aqua Net to aid in assembly and to help keep the couplers together in high boost applications.

48) Install the charge piping on the right side. Fully install everything up to the intercooler and adjust it as high up as possible. You may need to bend the wheel speed sensor bracket on the frame up and out of the way, or just cut it off. Mark the bolt location of the charge pipe bracket on the frame. Drill a 17/32" or 13.5mm hole to install the supplied rivet nut.

Note: Rivet nut installation tools are commonly available from any tool supplier. Installation tools are also available for purchase as well. Contact your sales representation to order.



49) Finish reinstalling supporting parts for the vehicle.

50) Enjoy!