GTR X TURBO KIT
INSTALLATION INSTRUCTIONS

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GTR X TURBO KIT

2016

The goal of Alpha Performance is to provide the highest quality, best performing products available. By utilizing research and development, and rigorous testing programs Alpha Performance will never compromise the quality or performance of our products. In addition, Alpha Performance will only provide the finest customer service offering only parts and advice that are in the best interests of the customer. Alpha Performance was built on a foundation of integrity. This is who we are; this is what you can count on.

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 Alpha Performance product(s) please call us for technical assistance. The Alpha Performance tech line can be reached during business hours at 847-709-0530 for Alpha Performance products only.

1. Turbo Kit Packaging Information

The turbo kit is packaged and labeled in sections to aid assembly. Certain components are also individually packaged with its specific hardware. Here is a reference list of the individual packages.

- **Motor Mount Kit**
  - -Left Mount and Hardware
  - -Right Mount and Hardware
  - -Differential Mount and Hardware
- **Manifolds Kit**
  - -Left and Right Manifolds, V-bands, and Hardware
- **Heat Shield Kit**
  - -Left Heat Shield and Hardware
  - -Right Heat Shield and Hardware
- **Left Turbo**
  - -Assembled but not Clocked
- **Right Turbo**
  - -Assembled but not Clocked
- **Turbo Line and Fitting Kit**
  - -Oil and Coolant Lines, Hardware and Fittings
- **Left Side Compressor Outlet Kit**
  - -Silicone, Cast Outlet Pipe, and Hardware to the Intercooler Inlet
- **Right Side Compressor Outlet Kit**
  - -Silicone, Cast Outlet Pipe, and Hardware to the Intercooler Inlet
- **Left Side Carbon Intake Kit**
  - -Carbon Intake Tubes from Compressor Inlet to the Air Filter and Hardware
- **Right Side Carbon Intake Kit**
  - -Carbon Intake Tubes from Compressor Inlet to the Air Filter and Hardware
- **Wastegate Kit**
  - -Wastegates, Boost Control, Hose, Fittings and Hardware
- **Downpipe Kit**
  - -Left and Right Downpipes

Tech Note: Assembly order of the new GTR X Turbo kit will differ from the original version. Make sure to review the installation instruction first to familiarize yourself with the new assembly order. The GTR X Turbo Kit was redesigned from the ground up so many components differ. Also, during engine installation, a second set of hands will be required. The kit utilizes every bit of space available in every area. The setup and clocking process will be require for test fitting and checking during several steps of the installation.

Tech Note: The intake tubes are made from high temperature carbon. They are able to handle sustained temperatures of 240C. Make sure the hose clamps are not over tighten on any carbon tube installed. Also make sure to use the Breeze hose clamps supplied. If other clamps are used, the torque specs listed below are not valid.

Caution! Do Not Over Tighten The Clamps On And Carbon Intake Pipe. Doing So Will Result In Damage To The Carbon Not Covered Under Any Type Of Warranty!

Hose Clamp Torque Spec for all Carbon tube – 20 in-LB or 2.25 N-m
Hose Clamp Torque Spec for all Aluminum tube – 40 in-LB or 4.5 N-m

Disassembly

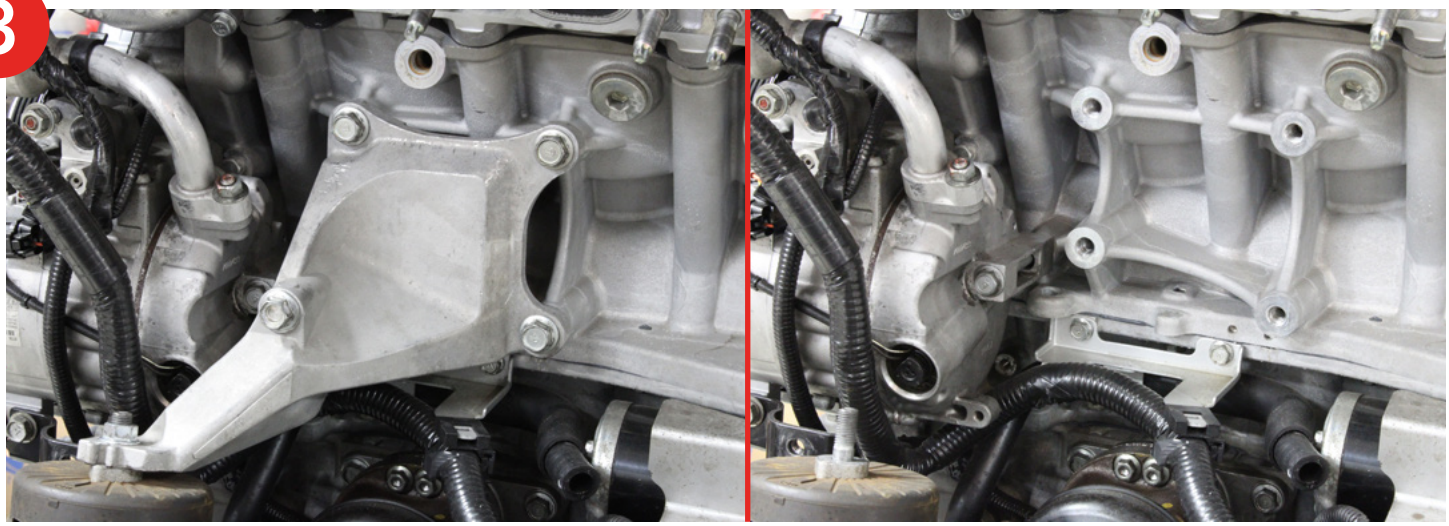
1. Follow the factory service manual to remove the engine in a safe and secure manner

2. Once the engine is removed, disassemble and remove the stock turbos or current turbo kit.

Engine Mount Installation

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.

3



4. The factory motor mount stud needs to be trimmed slightly to add clearance for the compressor outlet silicone. Cut the stud down to the start to the threads if this has not already been done.

4

5. 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.

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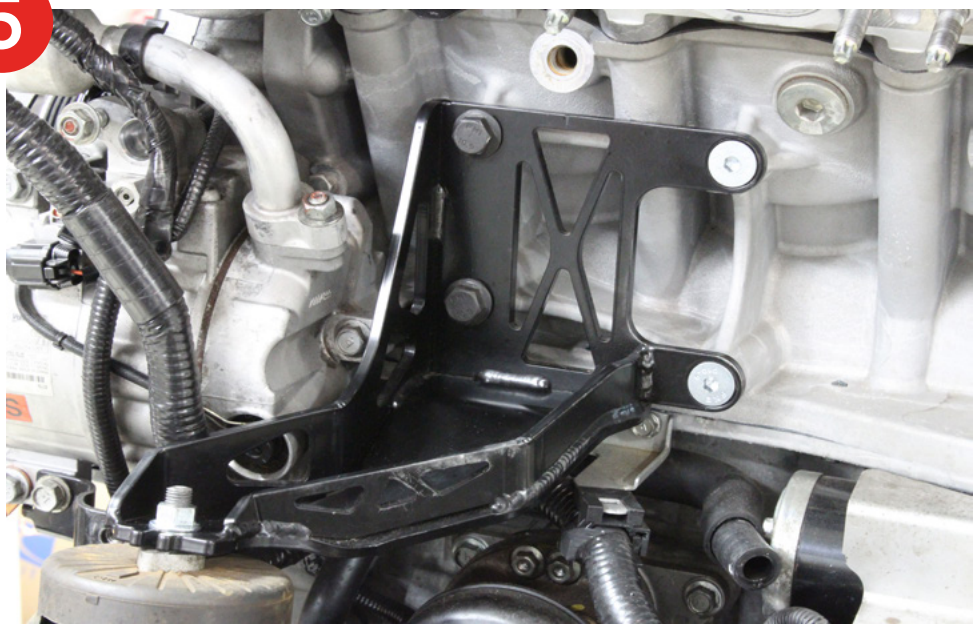
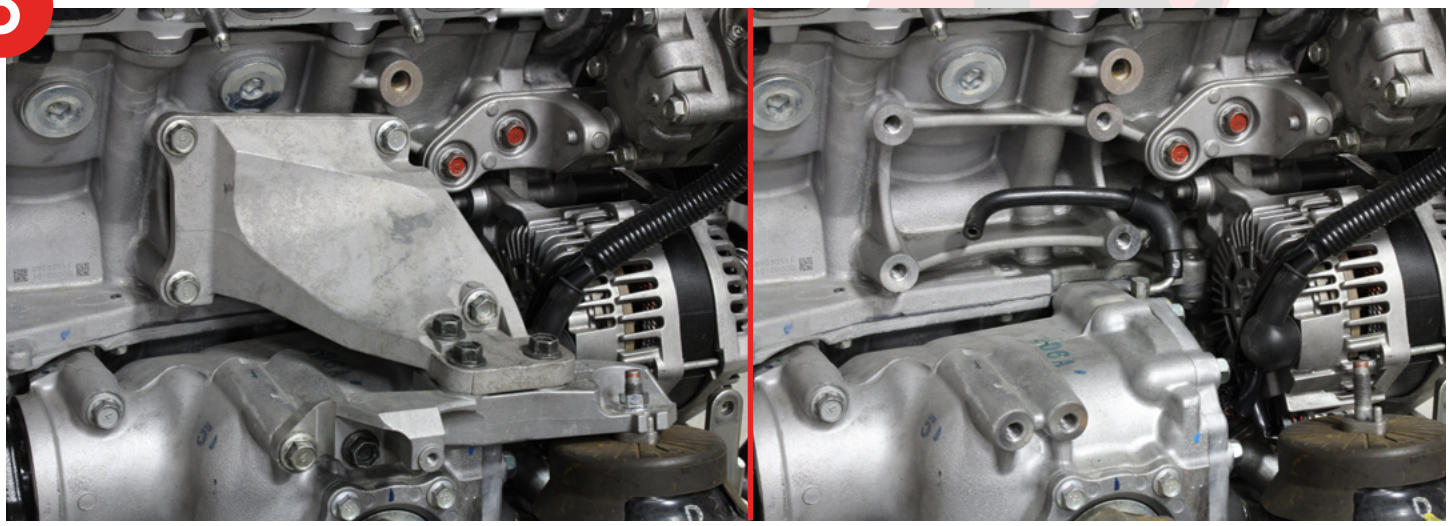


6. Support the engine on the other side and remove the right side engine mount. Remove both the factory engine bracket and the differential mount.

6



7. 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.

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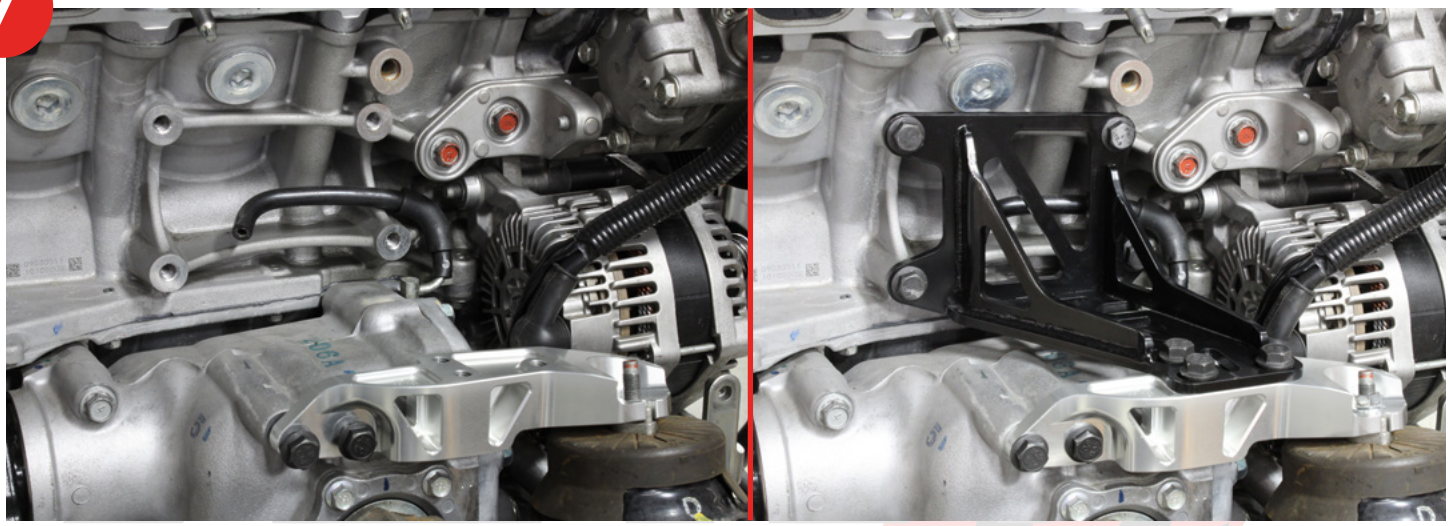

Exhaust Manifold Installation

Tech Note: For the next few steps, make sure all the manifold studs in the head are completely tighten down. Check all the studs for clearance to the manifolds before final installing. Since the manifold runners are large and some variation in castings are possible, the stud ends may need to be trimmed slightly for clearance. Also check the wastegate area of the left hand manifold to the cylinder head. You may have to clearance this area slightly as well.

8. Locate the exhaust manifolds and hardware. Install new supplied exhaust manifold gaskets. Start by installing the left side manifold. Use the supplied exhaust nuts to install the manifold. Make sure to start all the nuts first before tightening. Tighten each nut evenly down otherwise you may not be able to get tooling on certain ones. The rear most nut will require an open 14mm wrench and the other nuts will require a thin wall 14mm socket.

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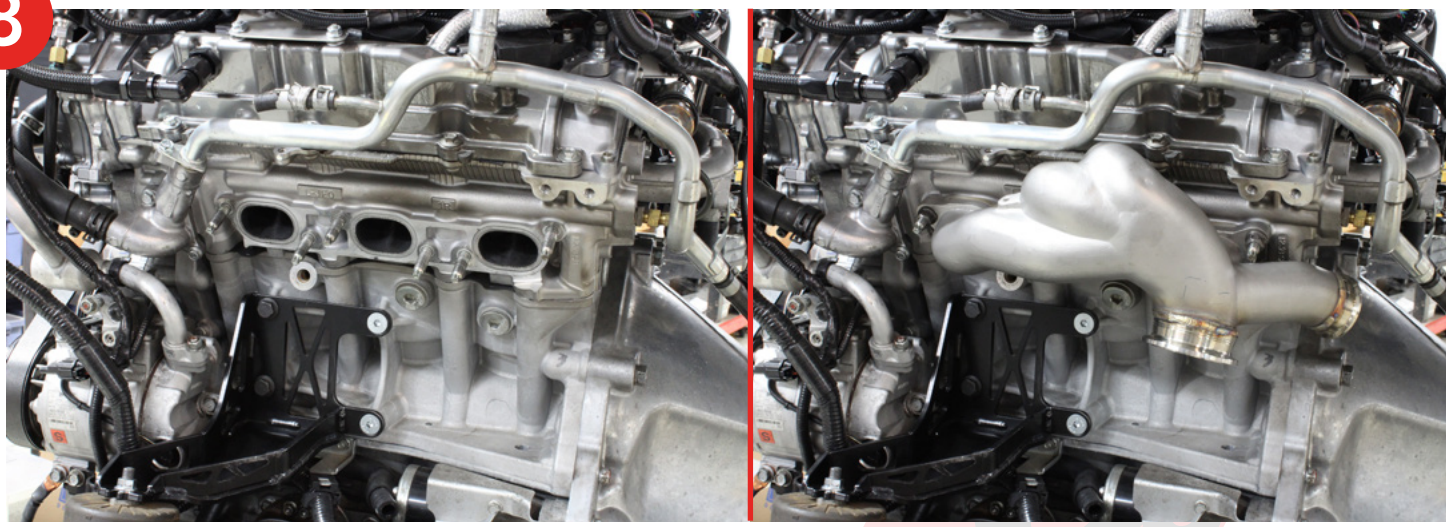
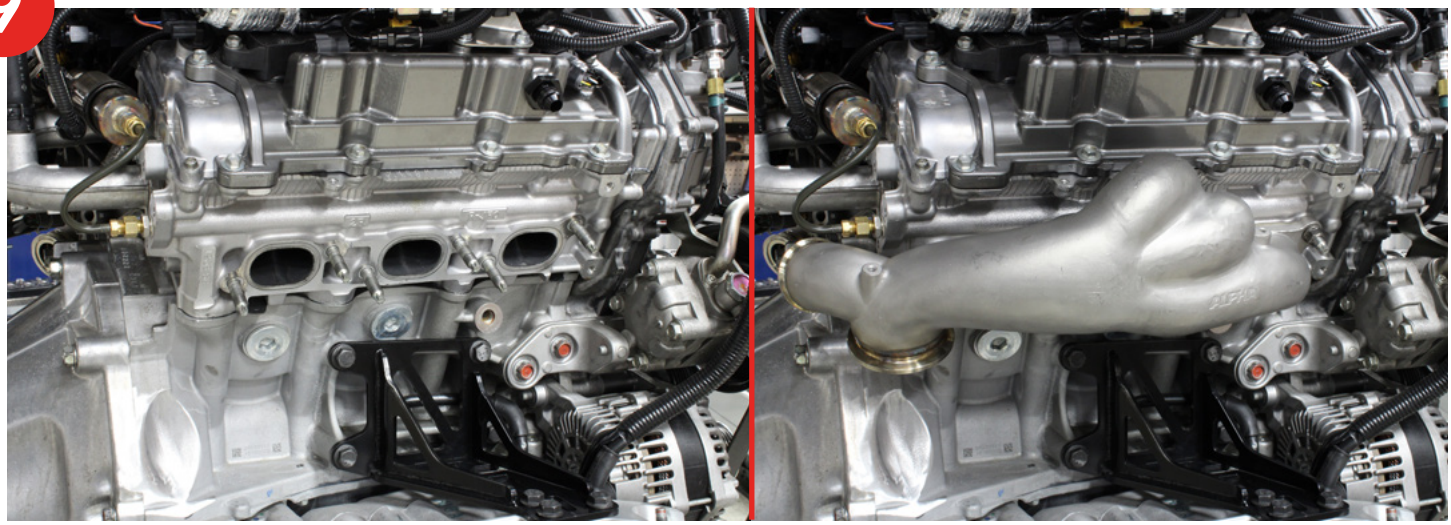


9. Repeat step (8) and install the right side manifold in the same manner. The third nut from the front will require an open 14mm wrench.

9



Exhaust Manifold Heat Shield Installation

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

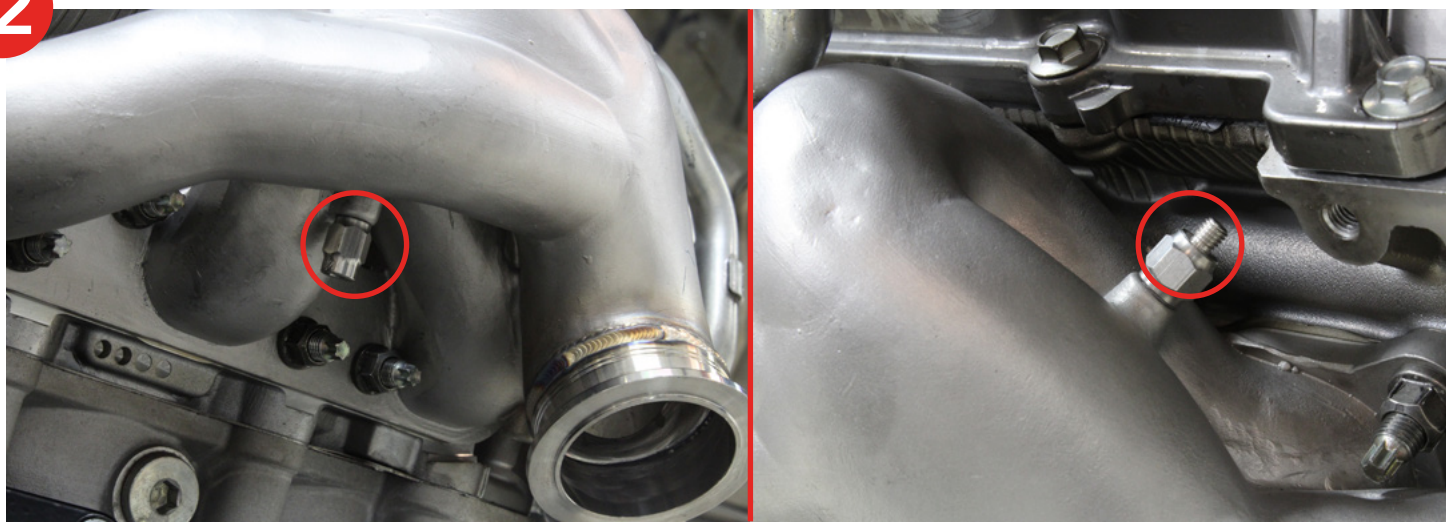
10. Locate the manifold heat shields and hardware. The appropriate hardware is packaged for each set of shields for the left and right side.

11. Locate the machined stanchions in each hardware package. For quick reference, when each stanchion is installed, the machined logo will be right side up where it can be read when looking at the manifolds. Be careful not to over tighten the stanchions in the manifold, they only need to be snugged down.

11

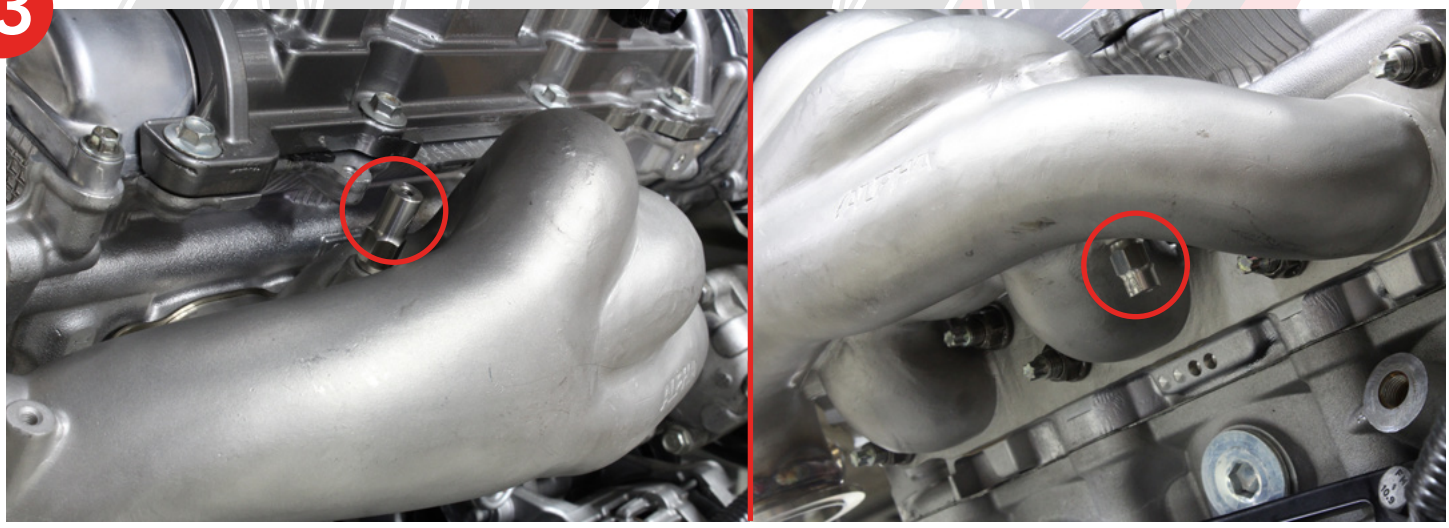
12. On the left manifold, install the stanchions in the locations shown in the pictures.

12



13. On the right manifold, install the stanchions in the locations shown in the pictures.

13

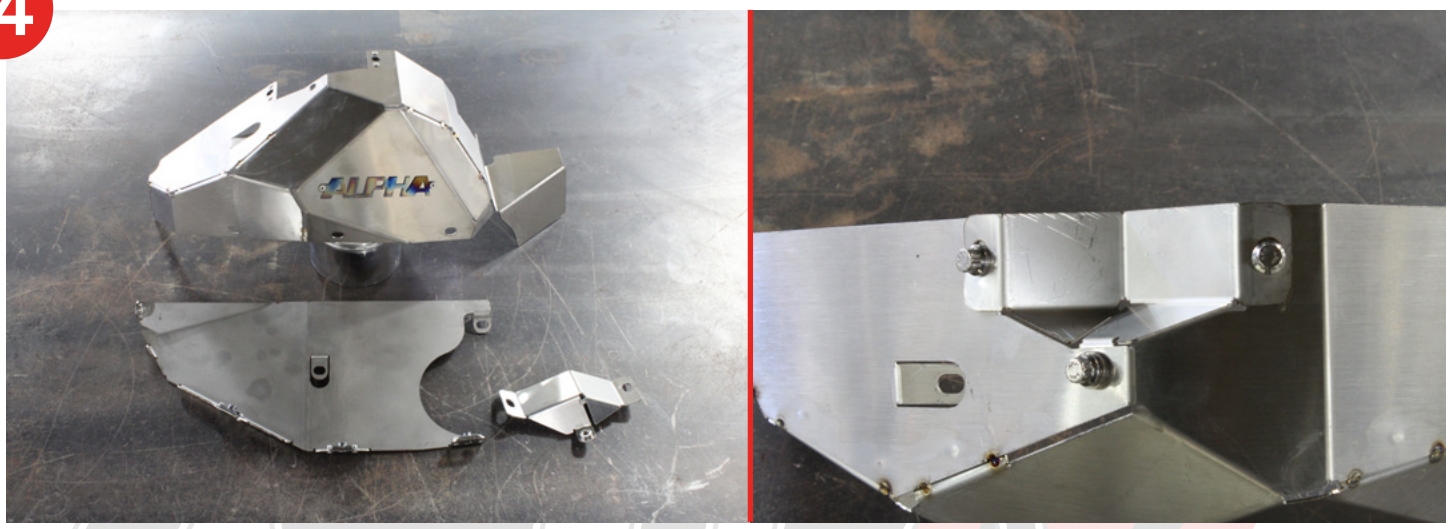


Tech Note: You will notice there is two different types of nuts on the shields. There is a floating nut plate and a pressed in nut. The floating nut plate is a mechanical lock type that does not require a locking washer on the bolts. The other is a standard nut that will require a locking washer. Nord-Lock® 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)

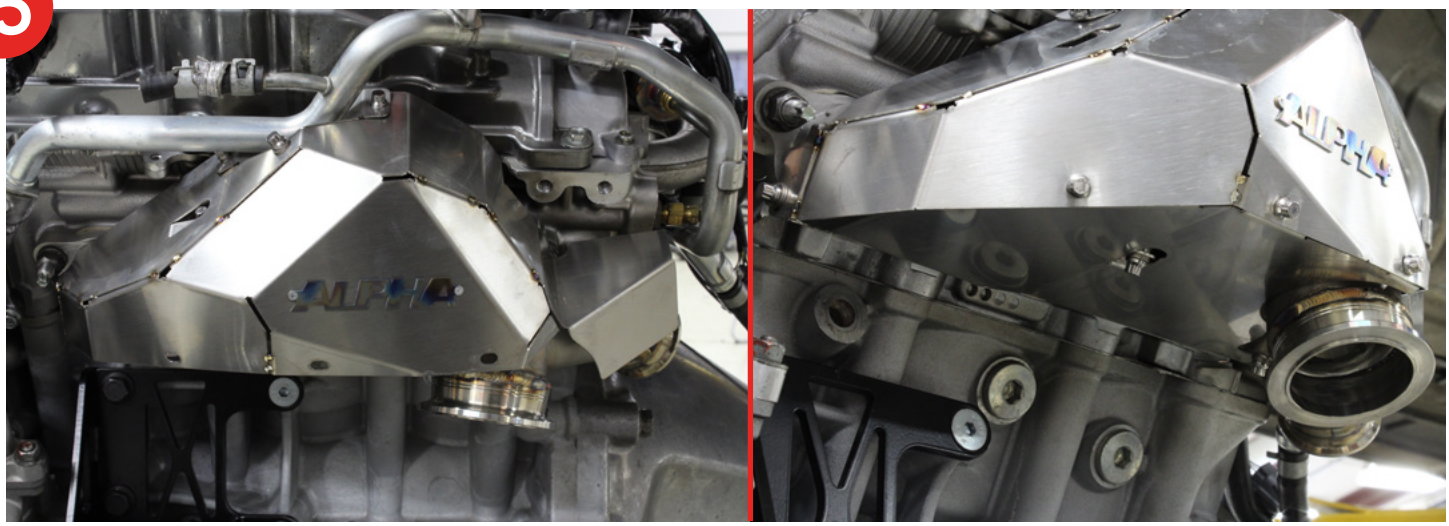
14. Locate the left side shields. There are four individual parts.

14



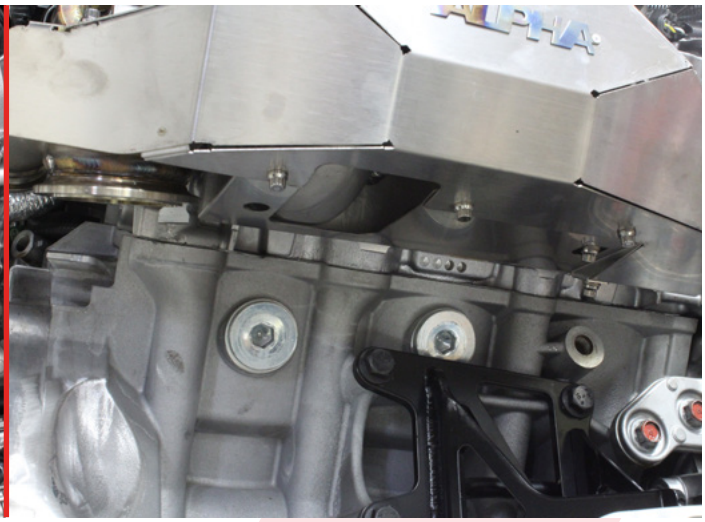
15. Remove the factory water pipe. Install the main shield onto the manifold. Leave the hardware loose for the time being. Install the plate under the bottom of the manifold. Last install the two small top heat shields on to the main shield. Start by tightening all the hardware on the manifold first, then finish by tightening the remaining hardware on the shields. Tighten the 10mm nut last on the rear of the shield.

15



16. Locate the remaining three right side heat shields. Install the right side main shield, leave the hardware loose for the time being. Install the bottom plate followed by the small top cover. Same as the left side, start by tightening all the hardware on the manifold first, then finish by tightening the rest of the hardware on the shields.

16



Turbo Setup and Clocking

17. The next several steps will be for turbo clocking. At this point, nothing will be final installed and the turbo will be removed again.

18. 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.

18

19. Locate the turbos. They have been loosely assembled. The turbos, intakes, and downpipes will need to be installed to properly clock and setup the turbo. We are highly recommend installing the engine as well to check fitment.

20. Install the left side turbo making sure the turbine and compressor housing bolts are loose enough to rotate. Next, install the downpipe and wastegate. If using a wastegate dump tube setup, install the dump tube as well. Loosely install the supplied M10 bolt and nut on the lower downpipe mount. Leave the V-band clamps loose enough to be able to clock and move the tube and downpipe.

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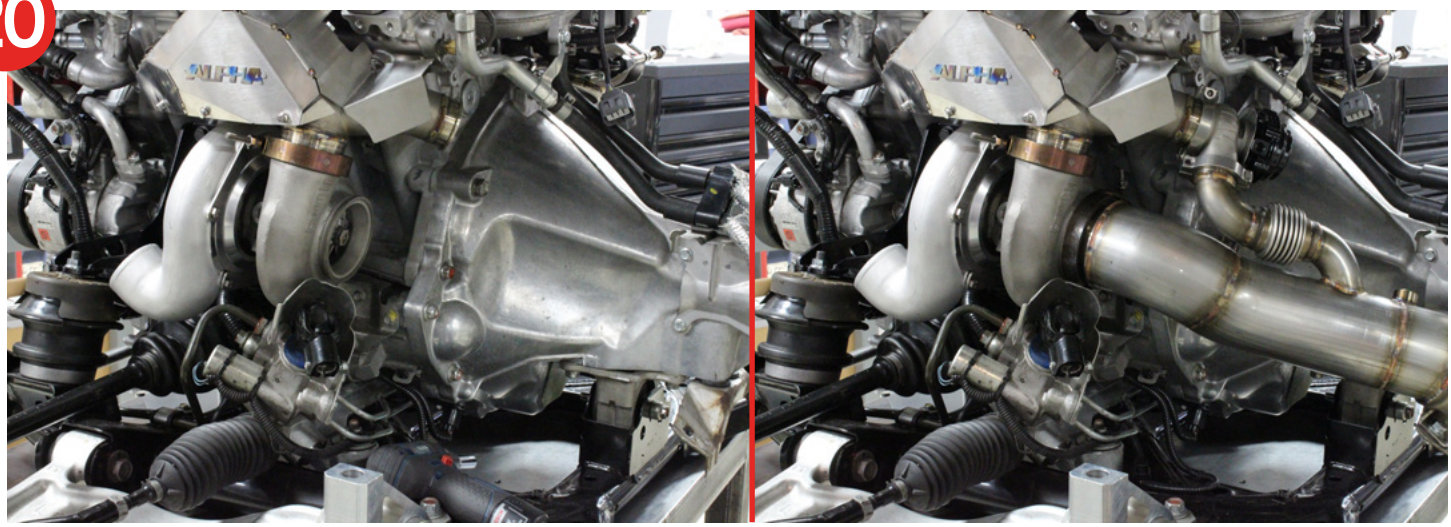
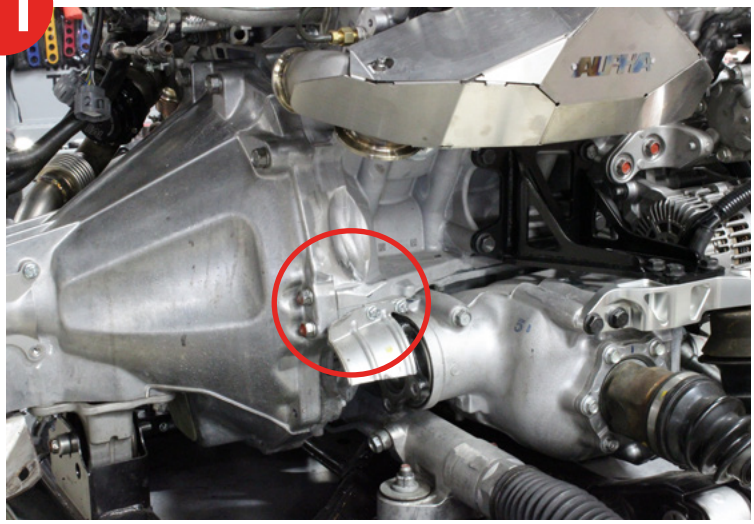


21. The engine block and forward shaft heat shield will need clearance for the turbine housing. Test fit the right side turbo and mark the area where the turbine housing hits. Remove enough material from the edge of the engine block so the turbo fits in place with clearance to the engine block.

21

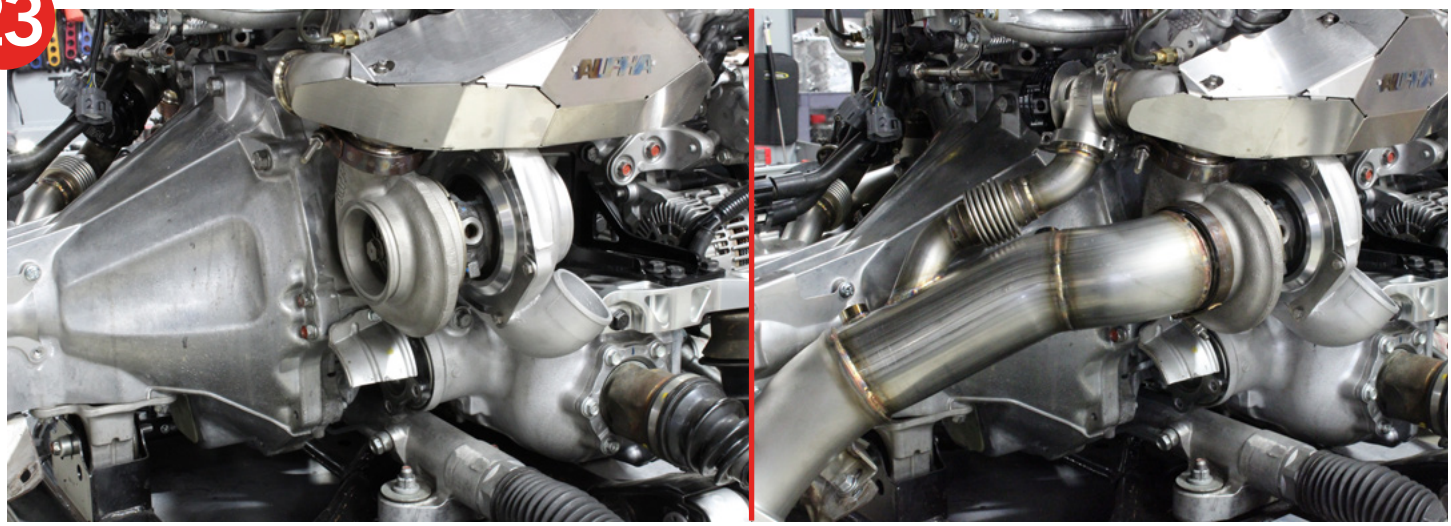


22. Locate the block shield from the heat shield kit. Install the shield as shown. Use a rubber mallet to foam the shield against the block where clearance was made. The shield will form easily to the block. Make sure there is a small air gap between the turbine housing and the block, otherwise, the direct contact will transfer heat.

22

23. Install the right side turbo, downpipe, and wastegate as it was done on the left side. Loosely install the supplied M10 bolt and nut on the lower downpipe mount. Leave the V-band clamps loose enough to be able to move the tube and downpipe.

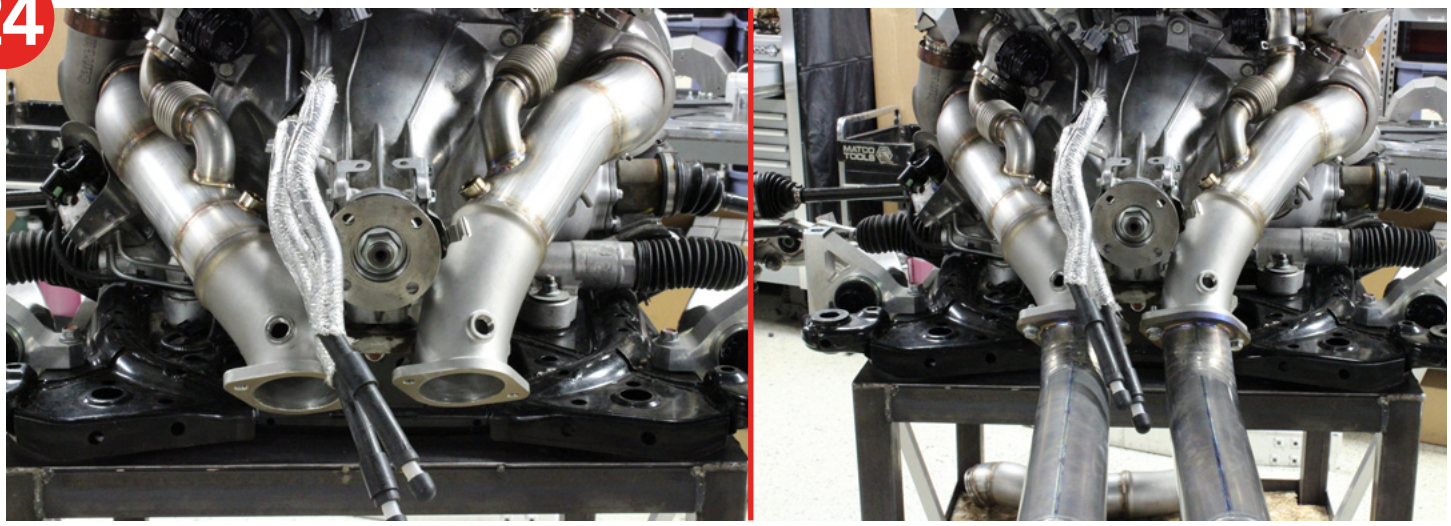
23



24. Install the mid-pipe you plan on using with this vehicle. Only snug down the mid-pipe bolts for now. Since there is slight adjustment in the turbo kit and variation between different manufactures of exhaust systems, doing this will help align the system as a whole.

Tech Note: Due to the amount of different midpipes on the market and each one fitting differently, the midpipe may cause alignment issues with the turbo kit. This may cause the turbos to not clock correctly or have downpipe issues. If this happens, clock the turbo kit where it needs to be and adjustments to your midpipe will have to be made. Center up the downpipes to the factory lower downpipe bracket as best as possible and check.

24

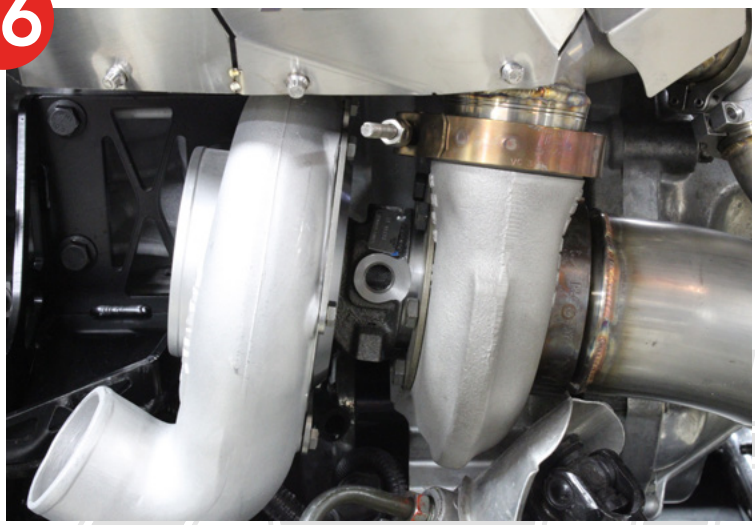


25. After everything is loosely installed, tighten the components in this order alternating from side to side. When tightening, watch for excessive movements or misalignments. Readjust if necessary

a. Manifold to turbine V-bands
b. Turbine to downpipe V-bands
c. Factory downpipe bracket
d. M10 downpipe bracket bolts
e. Midpipe bolts

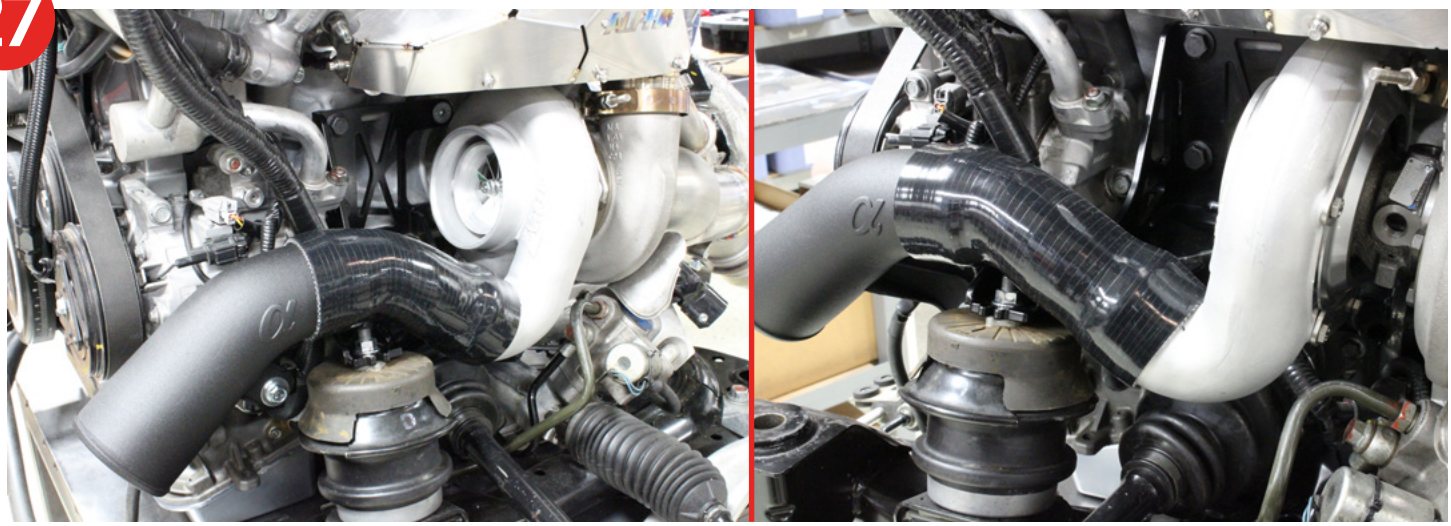
26. Left side turbo clocking. Start by rotating the CHRA so the oil feed port is at the top and level. Snug a couple accessible bolts on the turbine housing.

26



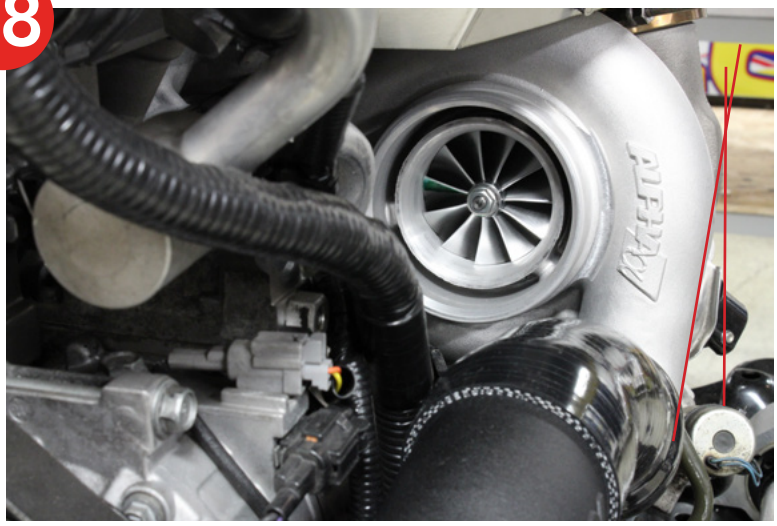
27. Locate the compressor outlet silicone, cast charge pipe, and hardware. Install the silicone and charge pipe as shown. Use the supplied M8 bolt, large washer, and aluminum spacer to bolt the charge piping to the factory location. Install the spacer between the cast charge pipe and the factory mounting bracket.

27



28. Clock the compressor cover inwards slightly as shown in the picture. The compressor outlet silicone and cast outlet pipe should align. Make sure the silicone clears the engine mount bracket. If the compressor cover is rotated inwards too much, the silicone may hit the engine mount bracket and there may not be enough area to route oil and coolant lines.

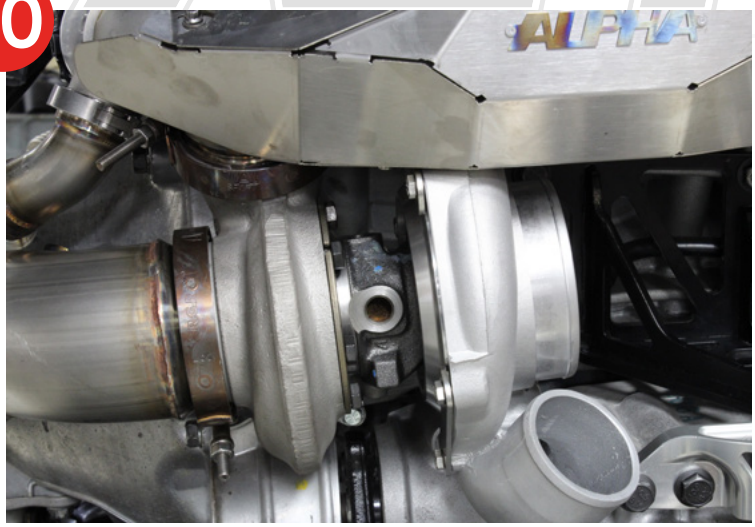
28



29. Once the compressor cover is clocked, snug a couple accessible bolts on the cover to lock it in place.

30. Right side turbo clocking. Start by rotating the CHRA so the oil feed port is at the top and level. Snug a couple accessible bolts on the turbine housing.

30



31. Locate the compressor outlet silicone. Install the silicone as shown. Clock the compressor cover downwards as much as possible leaving the smallest amount of clearance between the outlet silicone on the cover and the billet differential mount. There is also a picture of the silicone removed to see approximately how much clearance there is once adjusted. Again, adjust with the silicone installed and make sure there is enough room to get a hose clamp on as well.

31

32. Once the compressor cover is clocked, snug a couple accessible bolts on the cover to lock it in place.

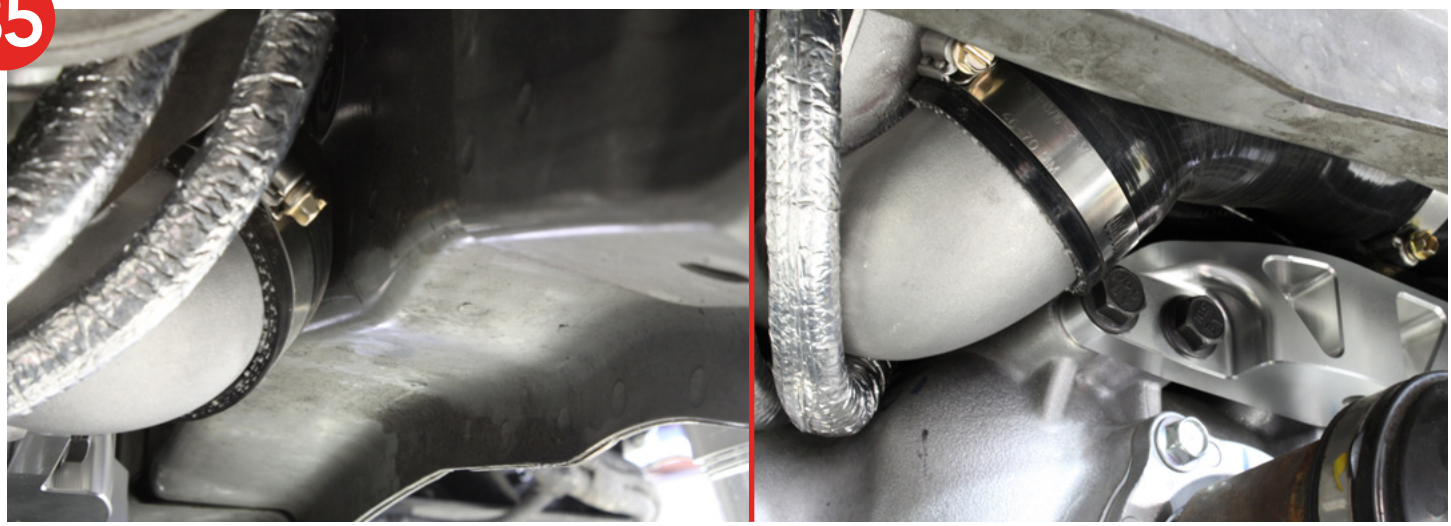
33. At this point, it is a good idea to install the engine and check clearance of the compressor covers to the frame. Check the rest of the kit for any fitment issues.

34. Below are a few pictures showing how close the compressor covers are to the frame when properly setup. On the left side turbo, you will have approximate ¼" or less clearance between the compressor cover and frame. There is a layered plate in the picture that makes it appear to be closer than it is. The housing sits just below this plate.

34

35. On the right side turbo, the outlet will get really close to the frame. Make sure the compressor cover is clocked far enough down so the edge of the outlet sits just below the edge of the frame. The outlet silicone will just touch the frame when installed. This is ok and normal fitment in order to get a 2-1/2" outlet silicone through this area.

35



36. Disassemble and remove the turbos. Tighten the rest of the turbine housing bolts evenly. Also tighten the compressor cover bolts evenly.

Turbo Line Kit and Hardware Installation

37. Locate the line kit. Within the kit will be all the lines, fittings and hardware.

37

38. Starting with the left side turbo, assemble the turbo hardware as shown in the next several steps.

a. Install the oil drain fitting with new gasket and supplied M8 bolts

b. Install the M14 to -6AN fitting with copper crush washer on inside

c. Install the restricted oil feed fitting with new aluminum crush washers

38

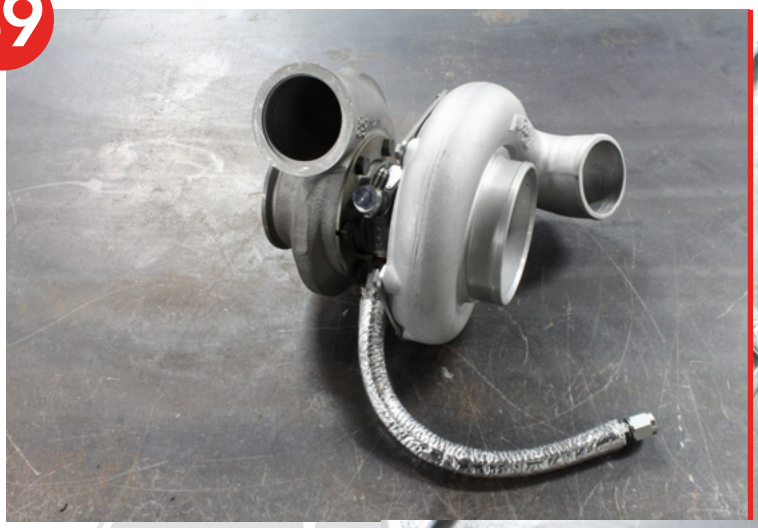
39. The next few steps will be installing the lines onto the turbo. They need to be installed before the turbo is installed.

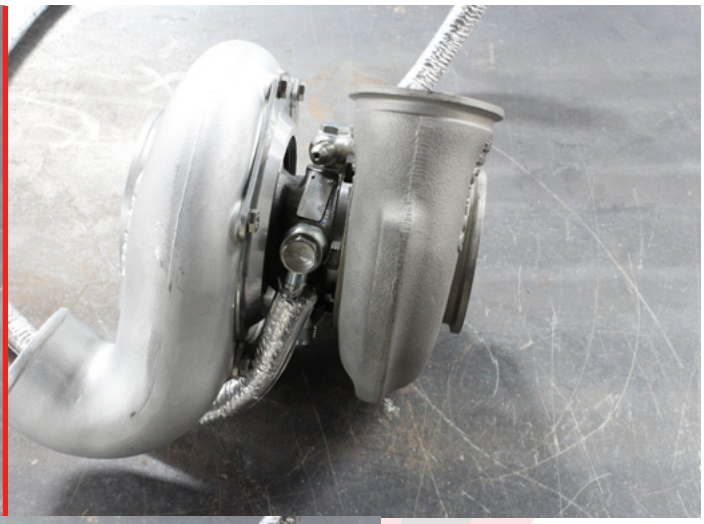
a. Install the short -6AN straight to straight hose on the inside fitting. There are two of these hoses and are the same length on each side.

b. Install the -6AN to brass barb fitting using the Alpha banjo bolt and copper crush washers on the outside of the turbo.

c. Install the shorter of the two -4AN oil feed lines. Install the 45 degree end on the turbo restrictor fitting make sure to tighten the line away from the turbine housing.

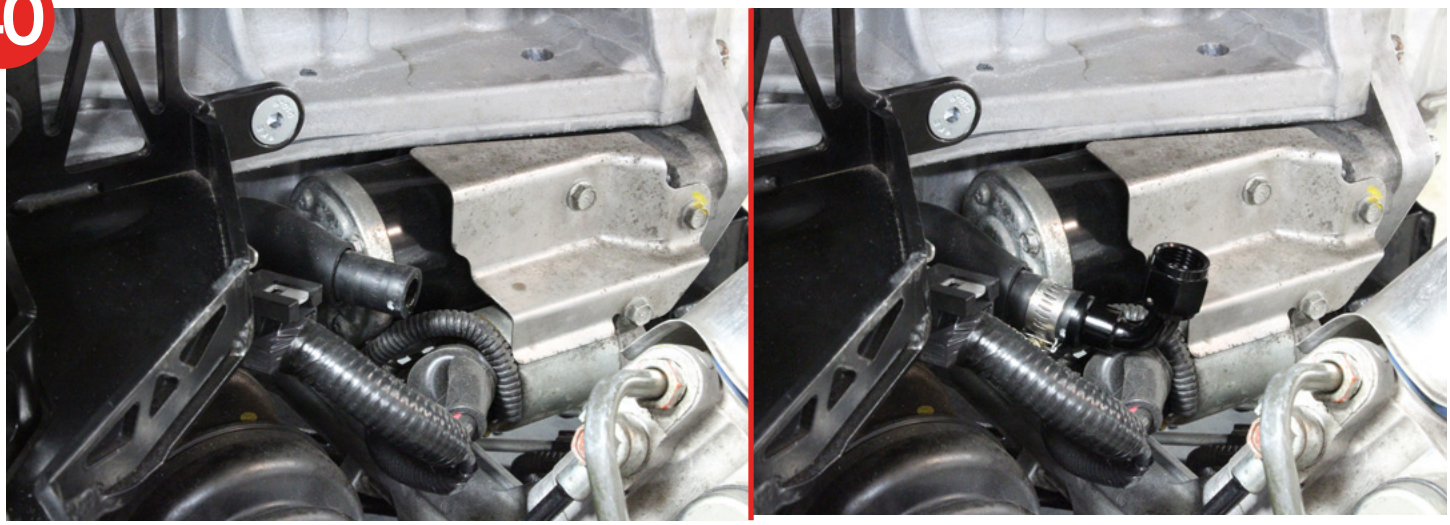
39





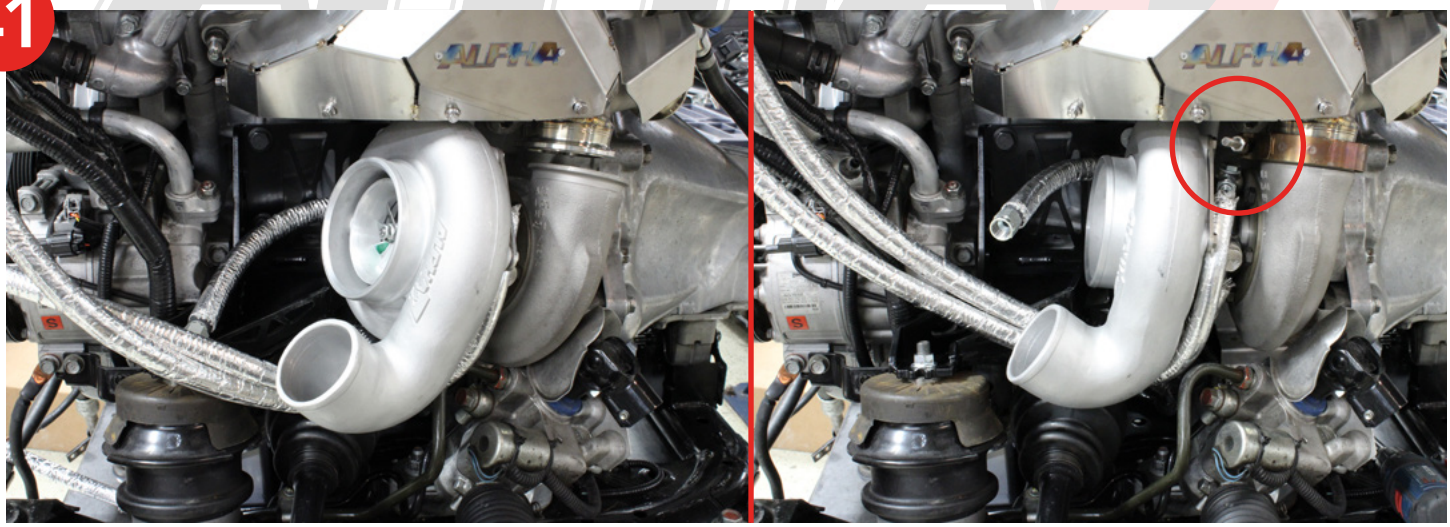
40. Locate the -8AN 90 degree push lock fitting and #6 hose clamp. The factory oil drain hose will be reused. Install the fitting and clamp on the factory rubber hose as shown.

40



41. Confirm all the lines and fittings are tight on the turbo. Set the turbo into place on the left side. Before installing the V-band, connect the -8AN 90 degree oil drain fitting. Space is very tight so being able to move the turbo around will aid in assembly. Tighten the fitting when installed. Once the oil drain fitting is tight and clocked appropriately, install the manifold to turbine V-band. Clock the V-band as shown but let loose enough to still adjust the turbo.

41



42. Locate the 18” long -8AN push lock hose and #6 hose clamp. On the right side of the engine where the factory oil drain was removed, install the open end of the push lock hose with the #6 hose clamp. In order to tighten the clamp, you may have to do so when the engine is installed back into the car. If this is the case, make a note now to do so.

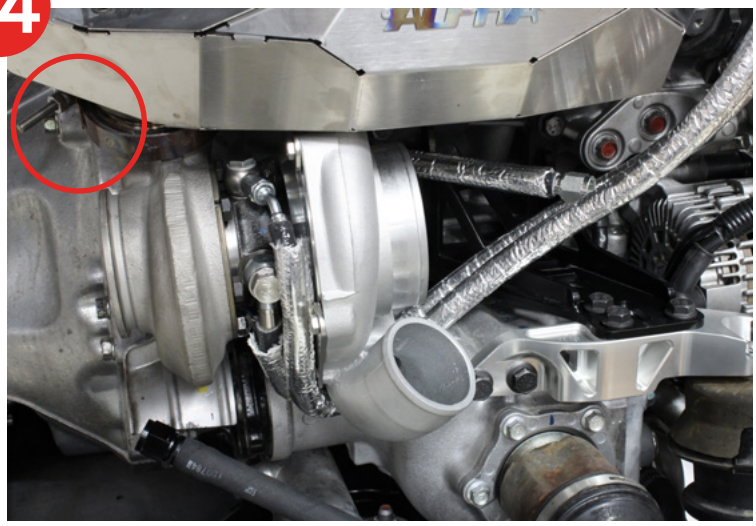
42

43. Within the line kit, there is a large 7/8” vinyl coated clamp. Remove the bolt on the differential and install the clamp to hold the drain hose in place as shown.

43

44. Follow the same steps for assembling the hardware, fittings, and line onto the right side turbo as was done in step 34) and 35). The oil feed line is the longer one and is installed on the right side. Once assembled, install the turbo onto the manifold and clock the V-band as shown. The V-band bolt aligns with the wastegate inlet. Leave the V-band loose enough to adjust the turbo.

44



45. Install and tighten the -8AN oil drain on the right side.

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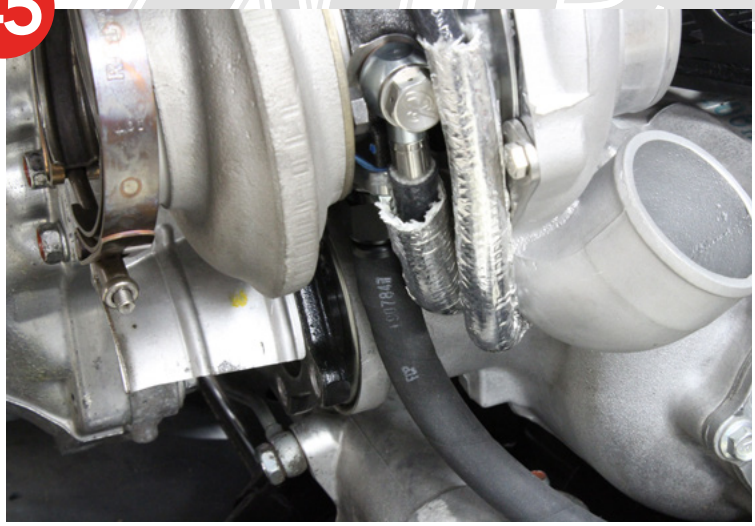

46. Make sure the factory banjo bolts for the water and oil feed fittings are used. The water fittings that are used in the side of the engine block are labeled with a W. The oil feed fittings that are used on the rear oil distribution block are labeled with an R. The R bolts are important as they are factory restricted and work in conjunction with the restricted banjo fitting installed on the turbos.

46

47. Left side turbo line routing and connection. Locate and loosely install the black M12 to -6AN banjo fitting. Use the factory W banjo bolt along with two new copper crush washers. Install and route the hose as shown. Tighten the banjo bolt first then the -6AN fitting for the line.

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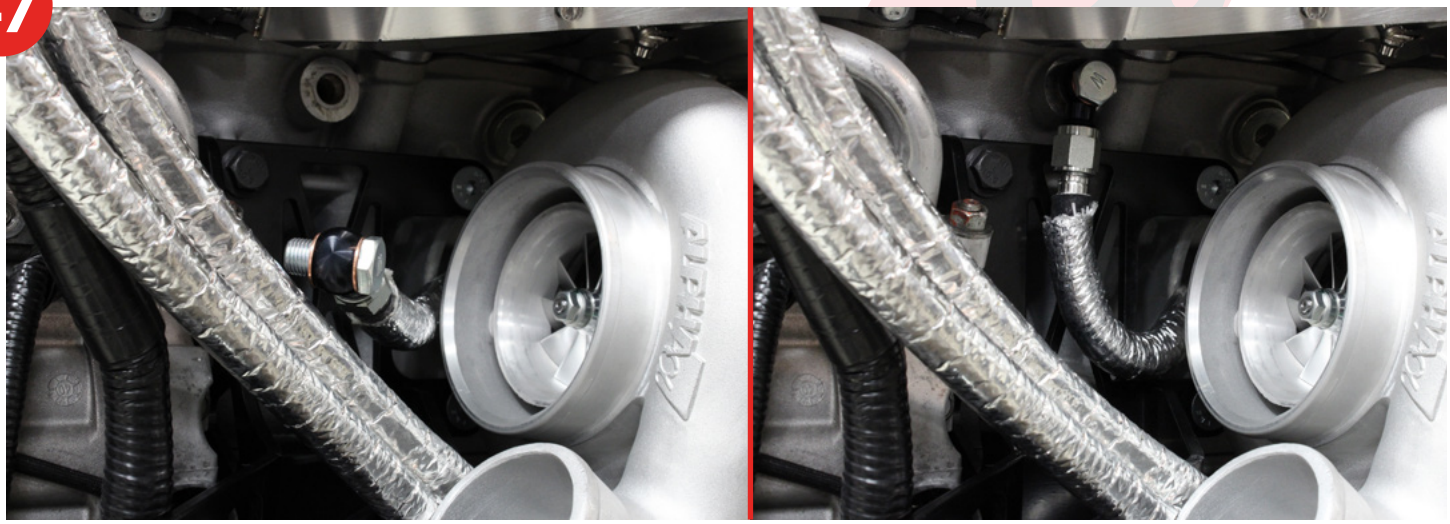
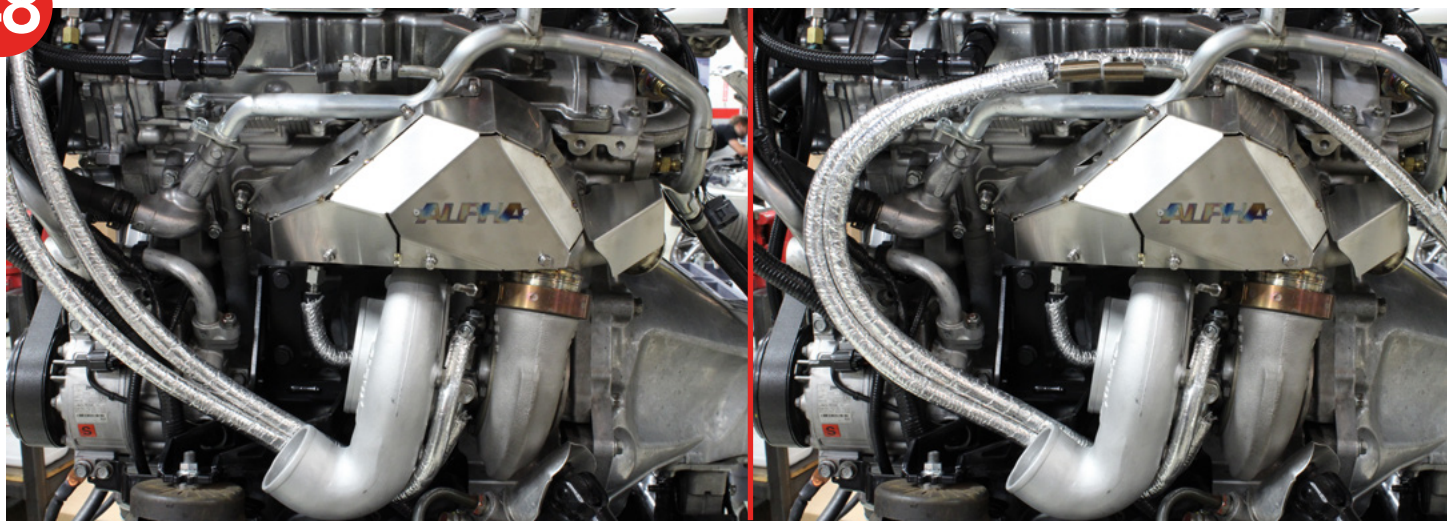


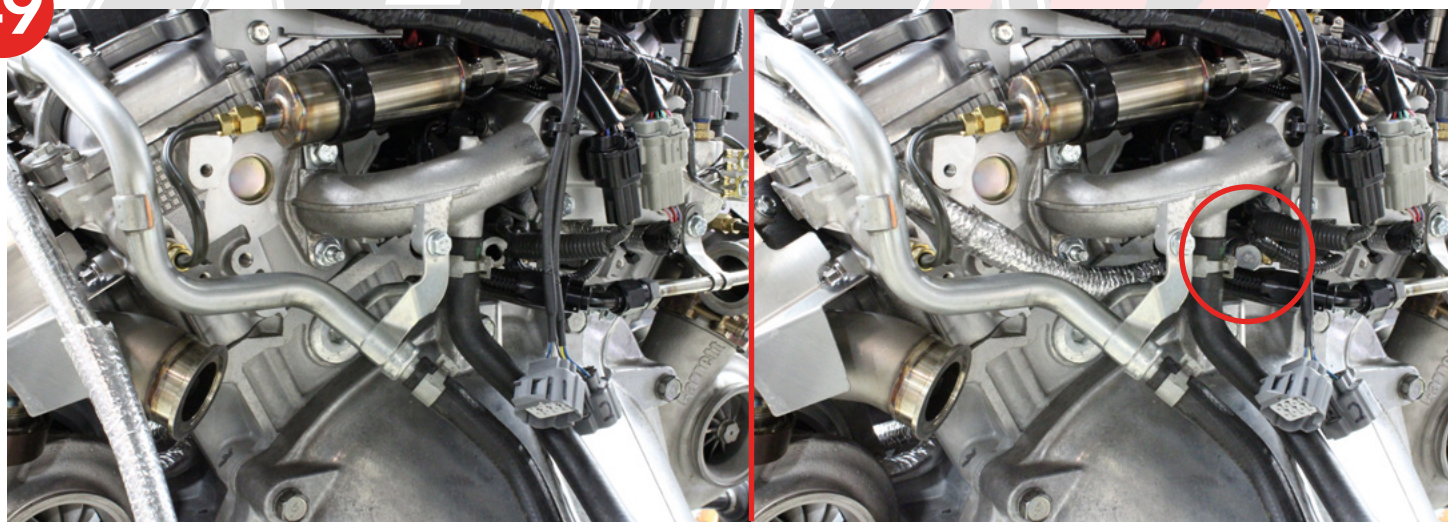
48. Route the coolant return hose with the brass barb and the oil feed line up and around the water pipe as shown. Inspect the factory rubber hose connection on the water pipe. If there is any signs of ware, replace the hose. Make the connection and use the factory spring clamp. Reinstall the factory rubber hose connection heat shields.

48

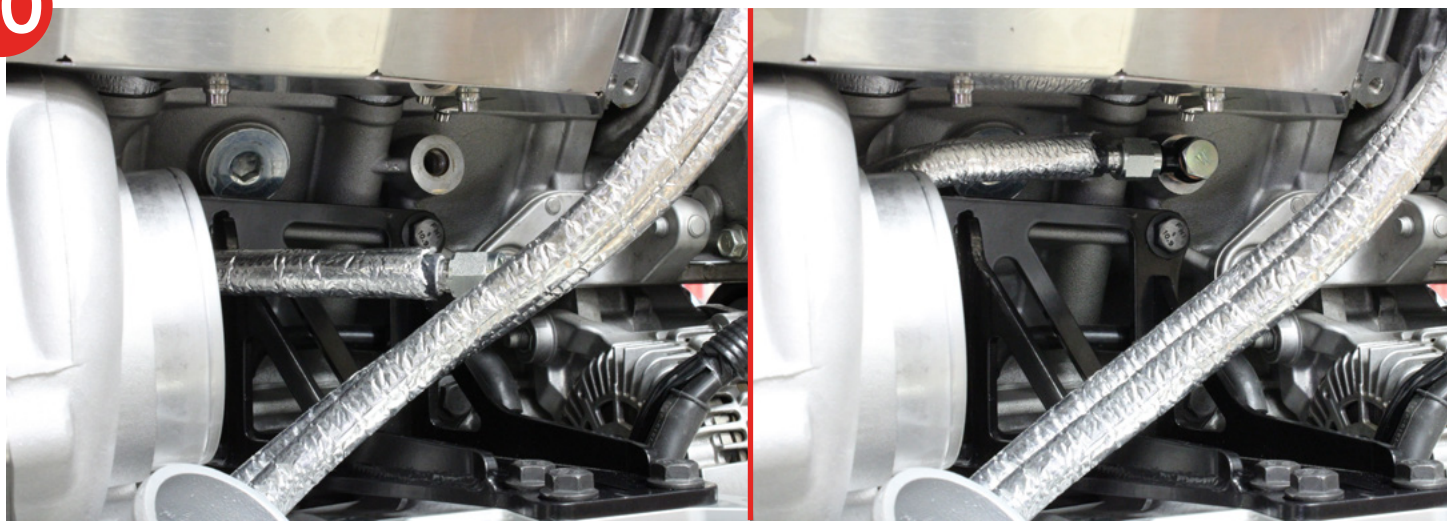


49. Route the oil feed line in between the EGR gasket and the cylinder head. Locate and install the M12 to -4AN banjo fitting. Use the factory R banjo bolt and two new copper crush washers and install the banjo on the oil distribution block. Tighten the banjo bolt first, then tighten the -4AN fitting for the line.

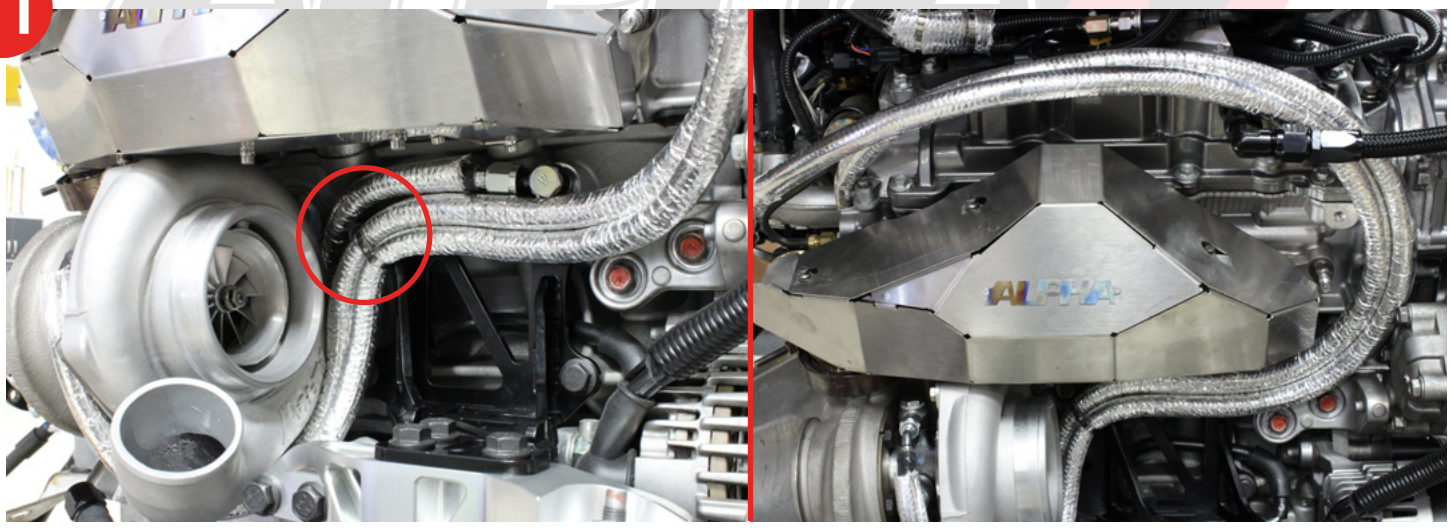
49



50. Right side turbo line routing and connection. Locate and loosely install the black M12 to -6AN banjo fitting. Use the factory W banjo bolt along with two new copper crush washers. Install and route the hose as shown. Tighten the banjo bolt first then the -6AN fitting for the line.

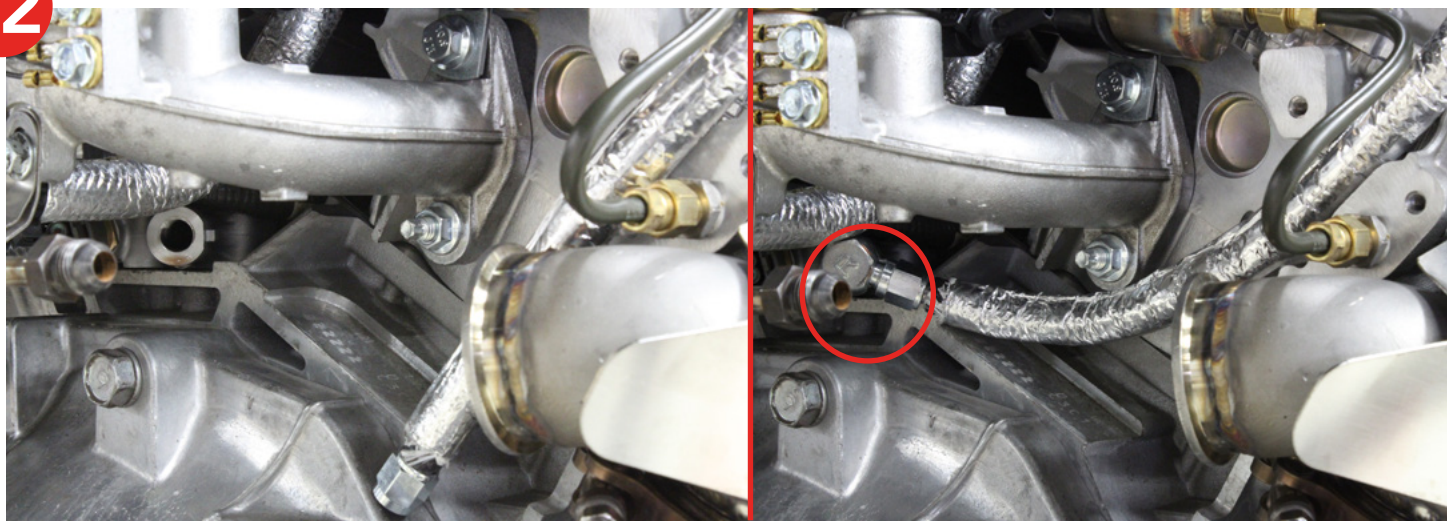


51. Route the oil feed and coolant line under the compressor cover and over the engine mount bracket as shown. Use a supplied metal tie to hold the lines in place. Route the lines up and over the manifold.



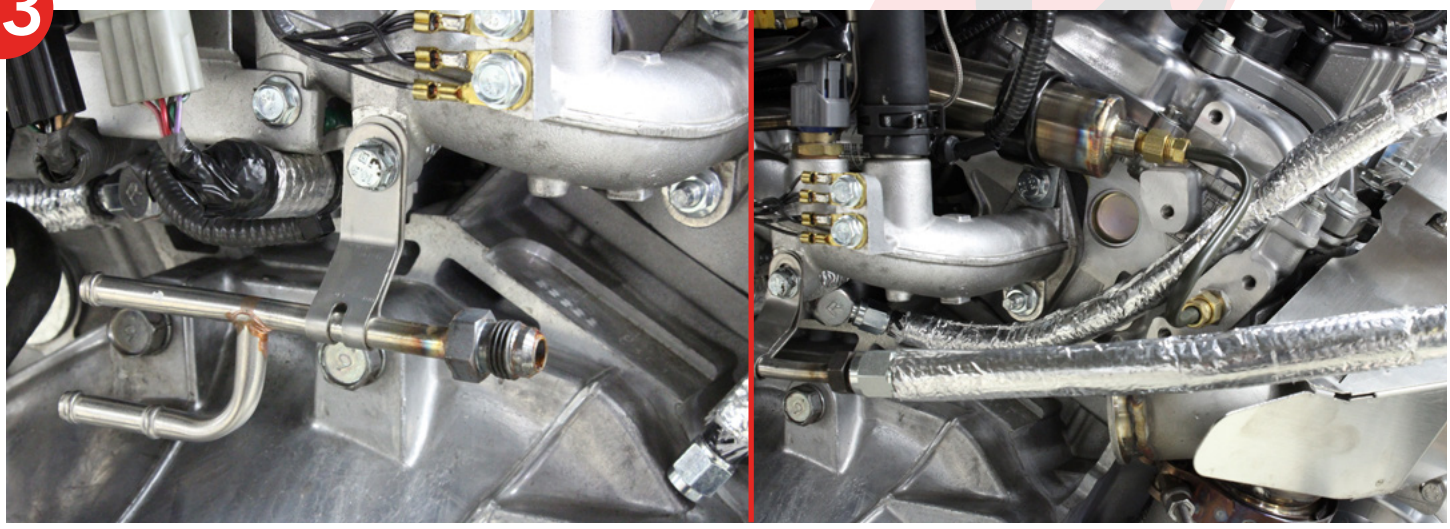
52. Route the oil feed line in between the EGR gasket and the cylinder head. Locate and install the M12 to -4AN banjo fitting. Use the factory R banjo bolt and two new copper crush washers and install the banjo on the oil distribution block. Tighten the banjo bolt first, then tighten the -4AN fitting for the line.

52



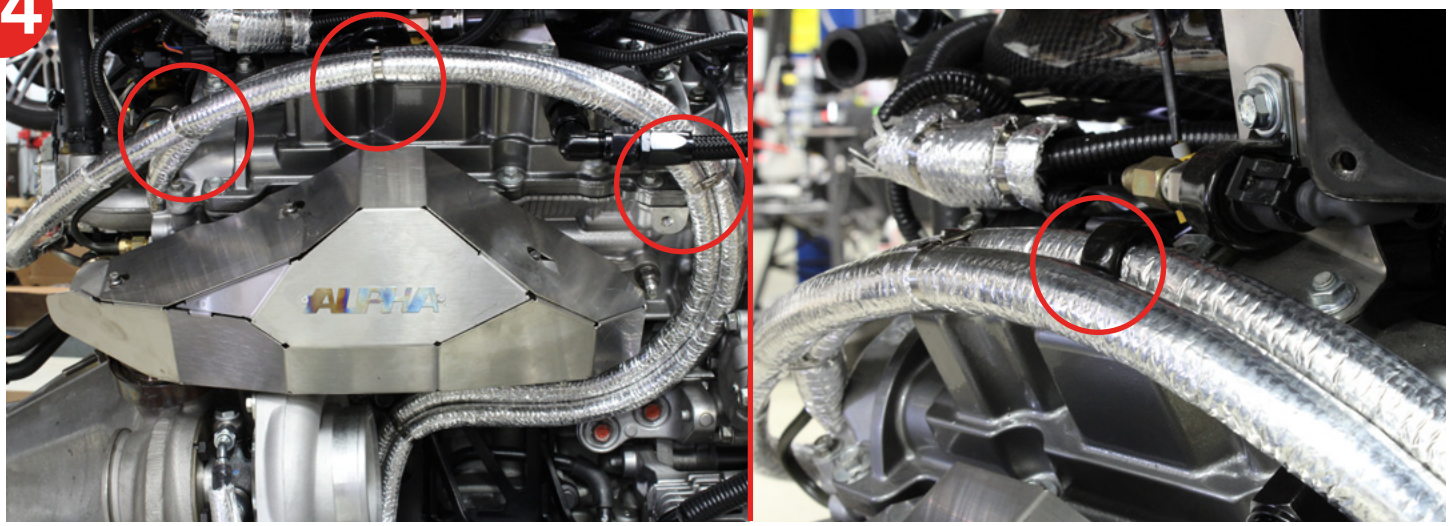
53. Locate and install the supplied modified factory coolant pipe with -6AN male fitting. Install the pipe as shown with the bracket facing outwards away from the engine. Route the turbo coolant line and make the connection. Use the two supplied smooth bore hose clamps supplied to make the connections on the modified coolant pipe barbed ends. Do not reuse the factory spring clamps as they will fail and leak after removal.

53



54. Use three supplied metal ties and secure the oil feed and coolant return line together up and over the manifold. Use the supplied ¾" vinyl coated clamp to secure one of the lines to the EVAP pipe mounting studs on the valve cover. This is the same location the support bracket is mounted for our Carbon intake manifold.

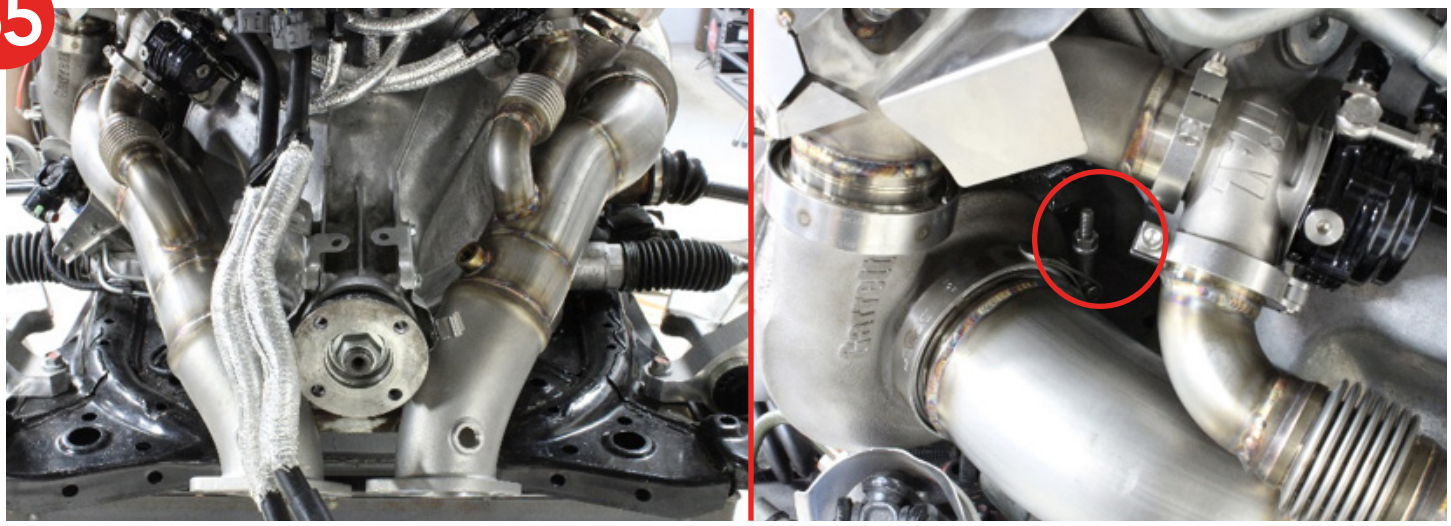
54



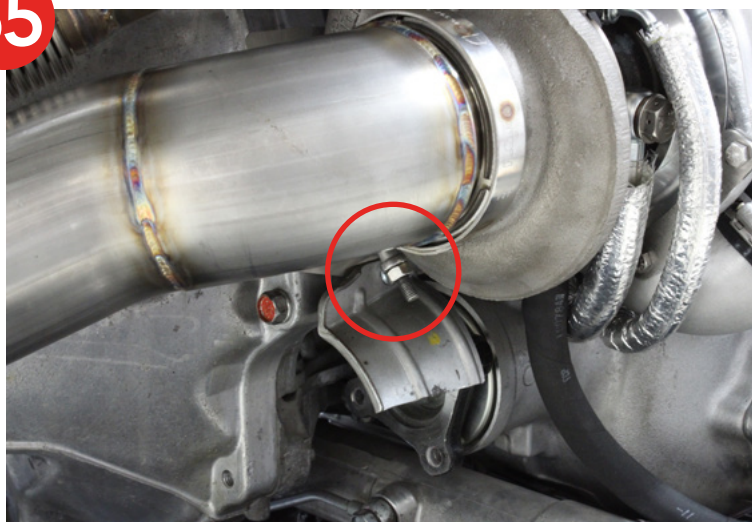
Downpipe Installation

55. Reinstall the downpipes, wastegates, and mid-pipe in the same manner done during the turbo clocking steps. Final tighten the V-band clamps in order it was done on step 24). Leave the wastegates clamps loose as they will be removed once more. Clock the V-band clamps as shown in the pictures below. Once the turbos and downpipes V-band clamps are tight, remove the mid-pipe if used for setup.

55



55

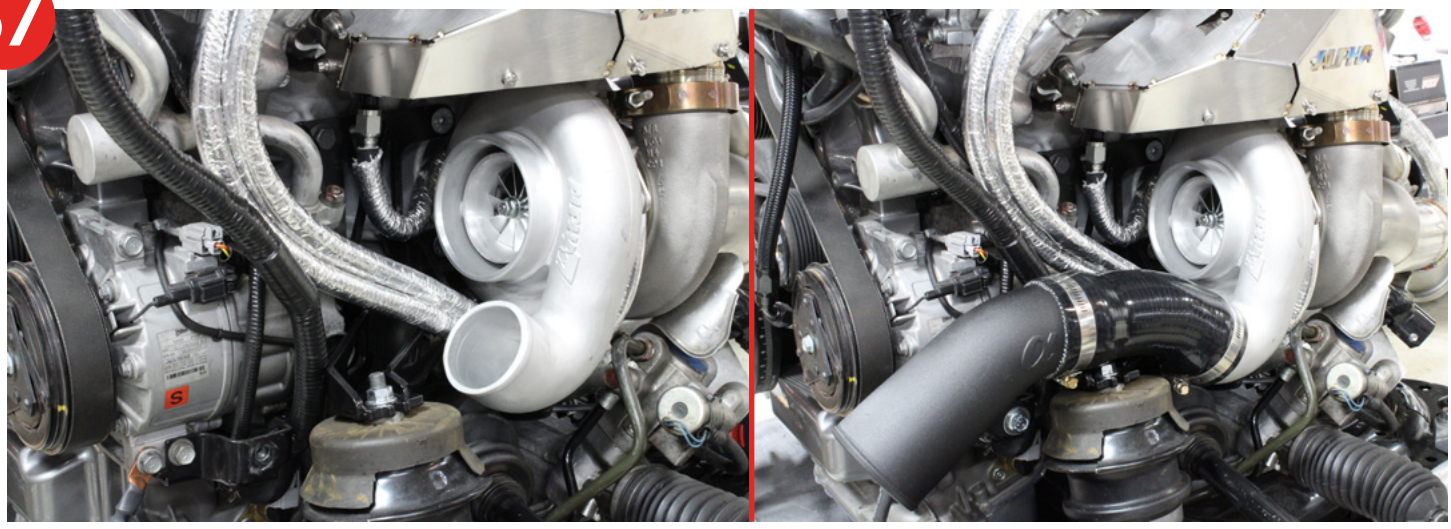


56. At this point, we would suggest reinstalling the engine one more time to make sure nothing has shifted, moved, or set differently than when the system was clocked during setup. Make necessary adjustments if need be.

Compressor Inlet and Outlet Pipe Installation

57. Left side charge piping and intake. Locate the compressor outlet silicone and cast charge pipe installed during turbo clocking. Reinstall the piping with the supplied hose clamps. Make sure the supplied M8 bolt, large M8 washer, and spacer are used. The spacer is placed between the cast charge pipe bracket and the factory bracket. Place the hose clamps in the orientation shown.

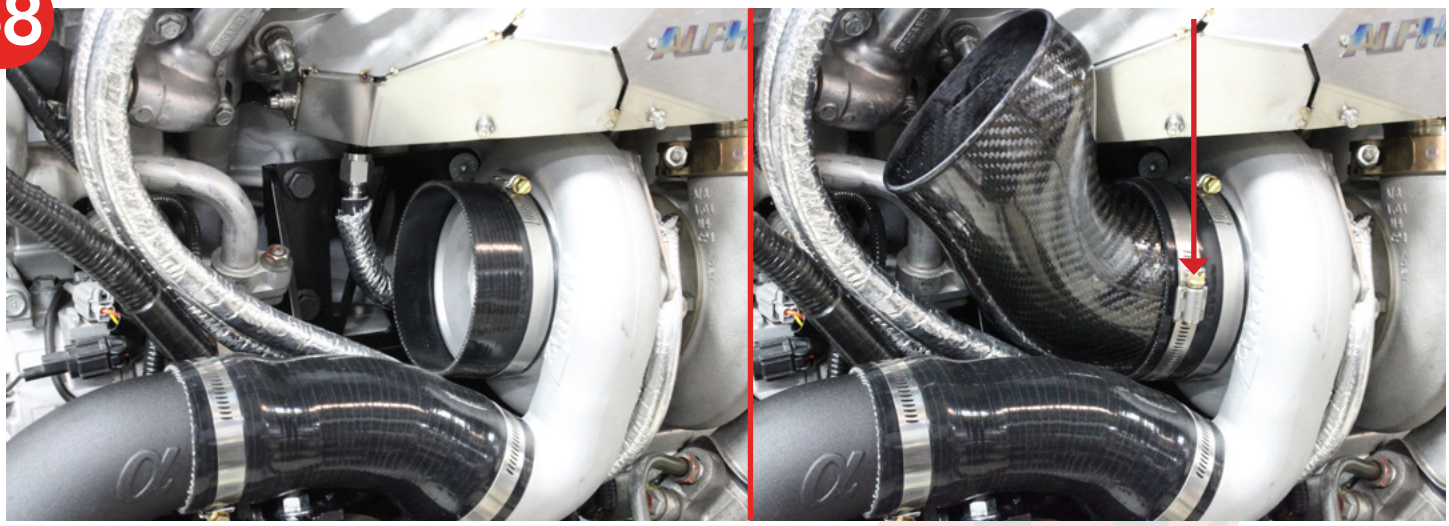
57



58. Locate the short 4” silicone coupler. Install the coupler onto the compressor inlet and secure with a supplied hose clamp. Locate and install the left side carbon intake tube. It is the short one with an oval inlet. Orientate the hose clamps for the carbon tube as shown and only tighten enough to hold the clamp in place but allows the carbon intake to still move.

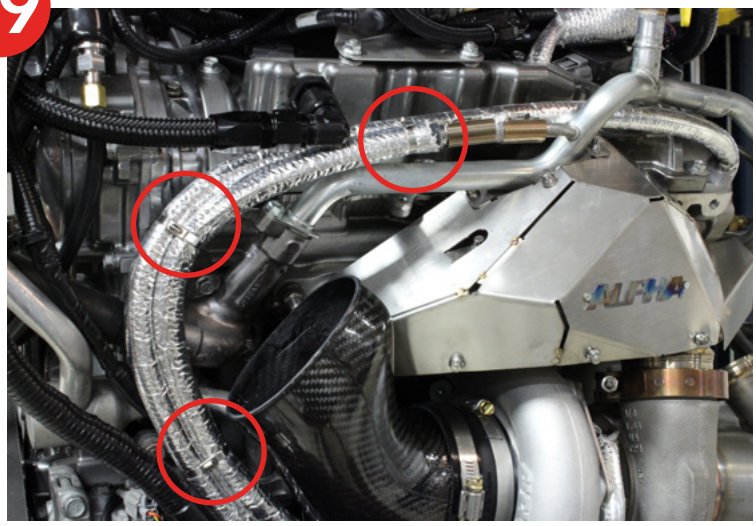
a. Important: The clamp for the carbon intake tube needs to be loose so the intake can be moved around to install the engine. The clamp needs to be clocked in a way where you can reach it with a long extension to tighten it with the engine installed. Once the engine is installed, the rest of the intake will be installed and the hose clamp tighten last after adjustments are made. Rotate the carbon intake tube inwards to the engine as much as possible for now. It will rest against the heat shield and A/C line for now.

58



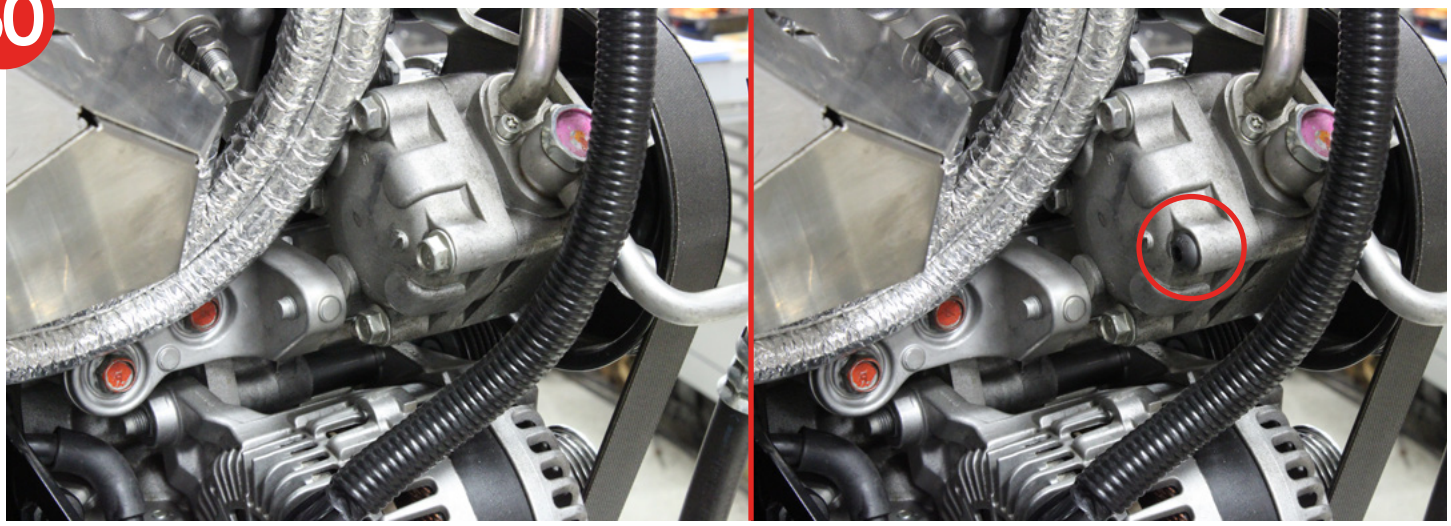
59. Once the intake is in place, route the oil feed and coolant return lines together. Use three metal ties to secure and route the lines together as shown.

59



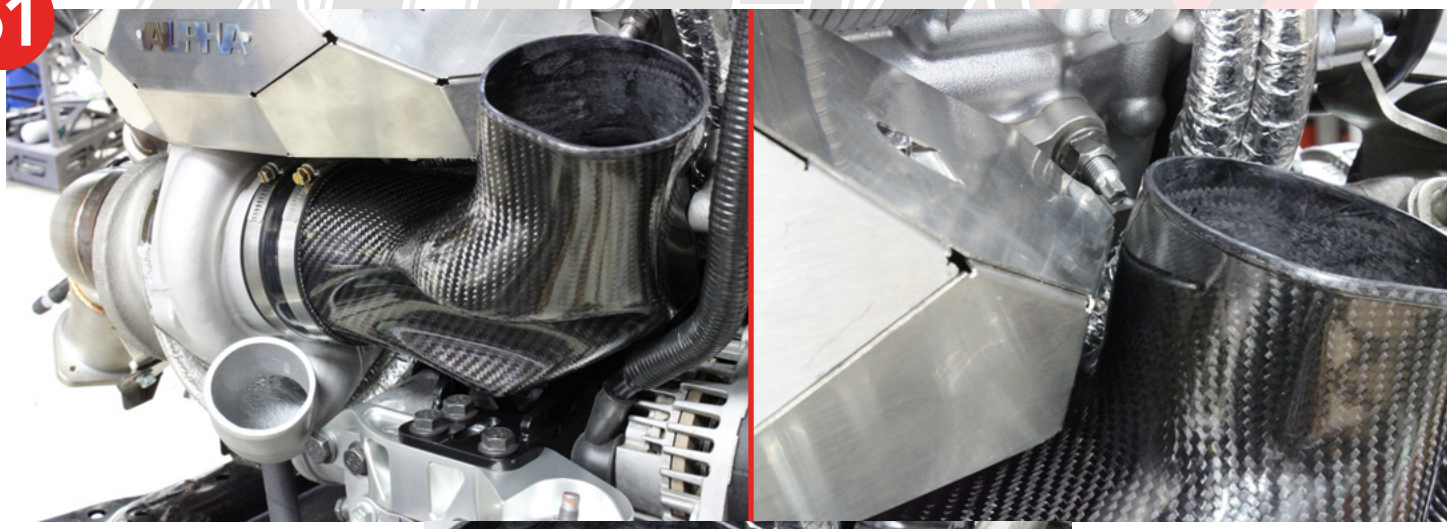
60. Locate the M8 button head bolt in the right side intake kit. Remove the P/S bolt shown and install the M8 button head bolt.

60



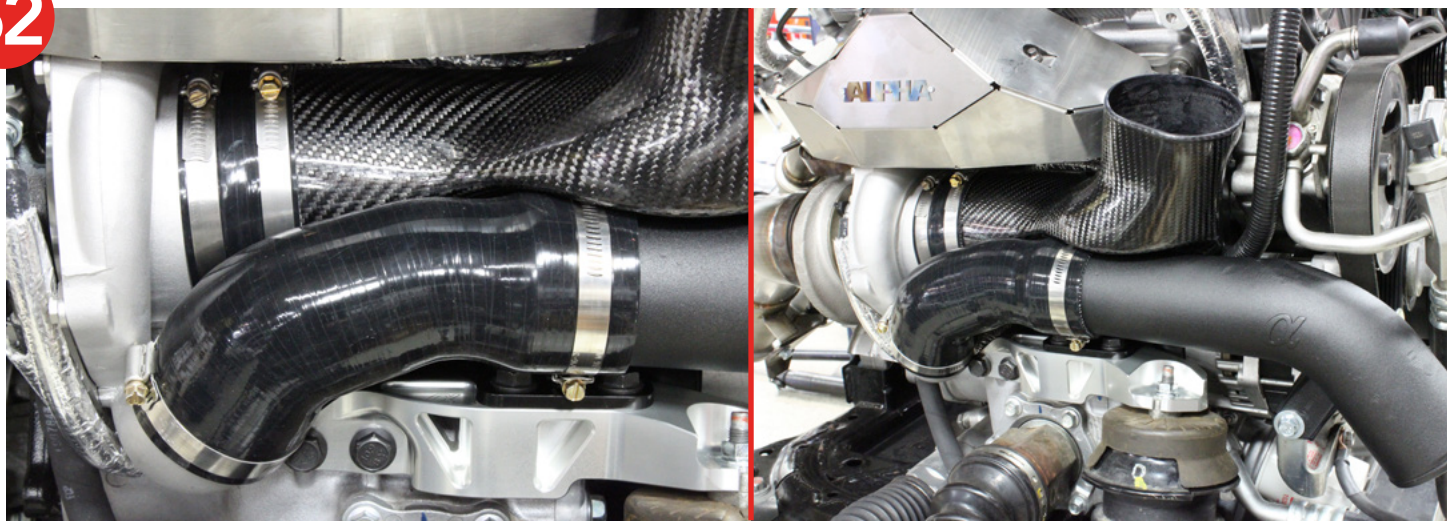
61. Right side charge piping and intake. Locate the short 4” silicone coupler and install it onto the compressor inlet. Secure with a supplied hose clamp. Install the right side carbon intake tube as shown. Adjust inwards as much as possible towards the engine allowing for clearance between the heat shield and P/S pump. Secure with a hose clamp when properly adjusted. Orientate the hose clamps as shown.

61



62. Locate and install the compressor outlet silicone and cast charge pipe. Use the supplied hose clamps to secure the silicone in place and orientate the clamps as shown. The compressor outlet is tight, make sure the hose clamp is completely on the outlet before tightening. Use the supplied M8 bolt and large M8 washer for the cast charge pipe bracket.

62

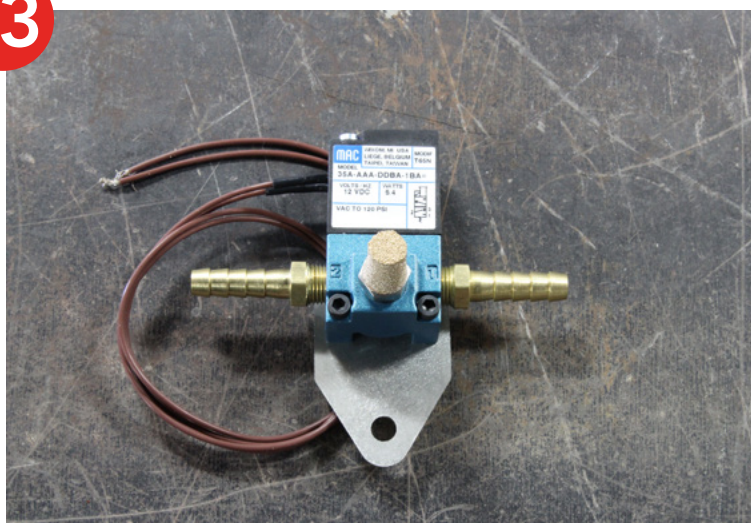


Wastegate Installation and Boost Control Hose Routing

63. Locate the boost control solenoid and hardware. Install the brass fittings and sintered muffler as shown.

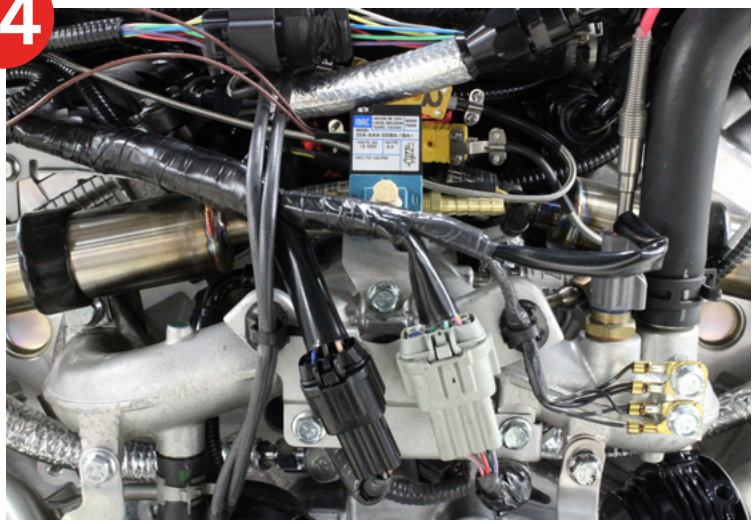
a. Port 1 – Brass Fitting
b. Port 2 – Brass Fitting
c. Port 3 – Sintered Muffler

63



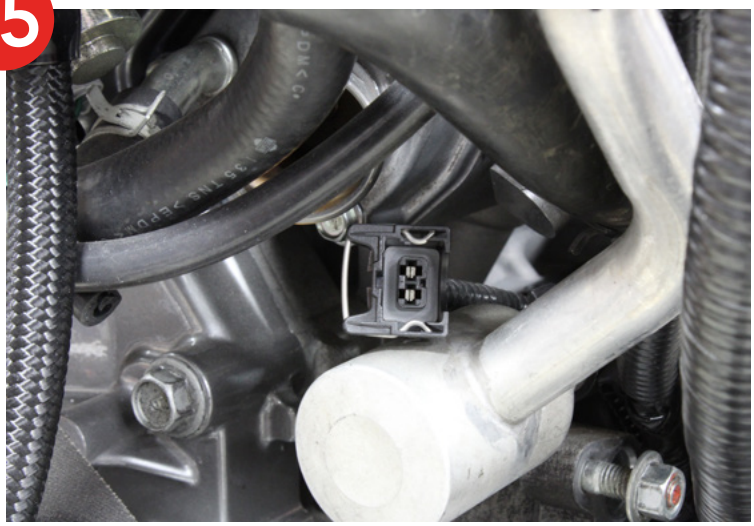
64. Find a suitable location to mount the boost control solenoid. Mount the solenoid away from heat and in a way that will allow easy routing of the hoses. In the picture below is an example where we mounted the solenoid to the center rear bolt of the water pipe. Depending on intake manifold setup and accessories, you may have a different mounting location. It is also a good rule of thumb to mount the boost control solenoid as close to the gates as possible for the best boost control response.

64



65. Locate the extension harness and sealed butt connectors. Extend the two brown wires of the boost control solenoid to reach the factory boost control solenoid connector on the engine harness located on top of the A/C compressor. Polarity of the wires does not matter. Route the harness under the intake manifold and use the supplied ¼" split loom.

65



66. The wastegates should be set in place currently. Choose the fitting location on the wastegates you would like to use. Choose the fitting locations to keep the hoses as far as possible from heat sources. When all the fittings are installed and tight, final install the wastegates.

Tech Note: When final installing the fittings, make sure to use red Loctite® on the fitting threads including the plugs. The Tial fittings are known to loosen up over time due to heat and vibrations without thread locking compound.

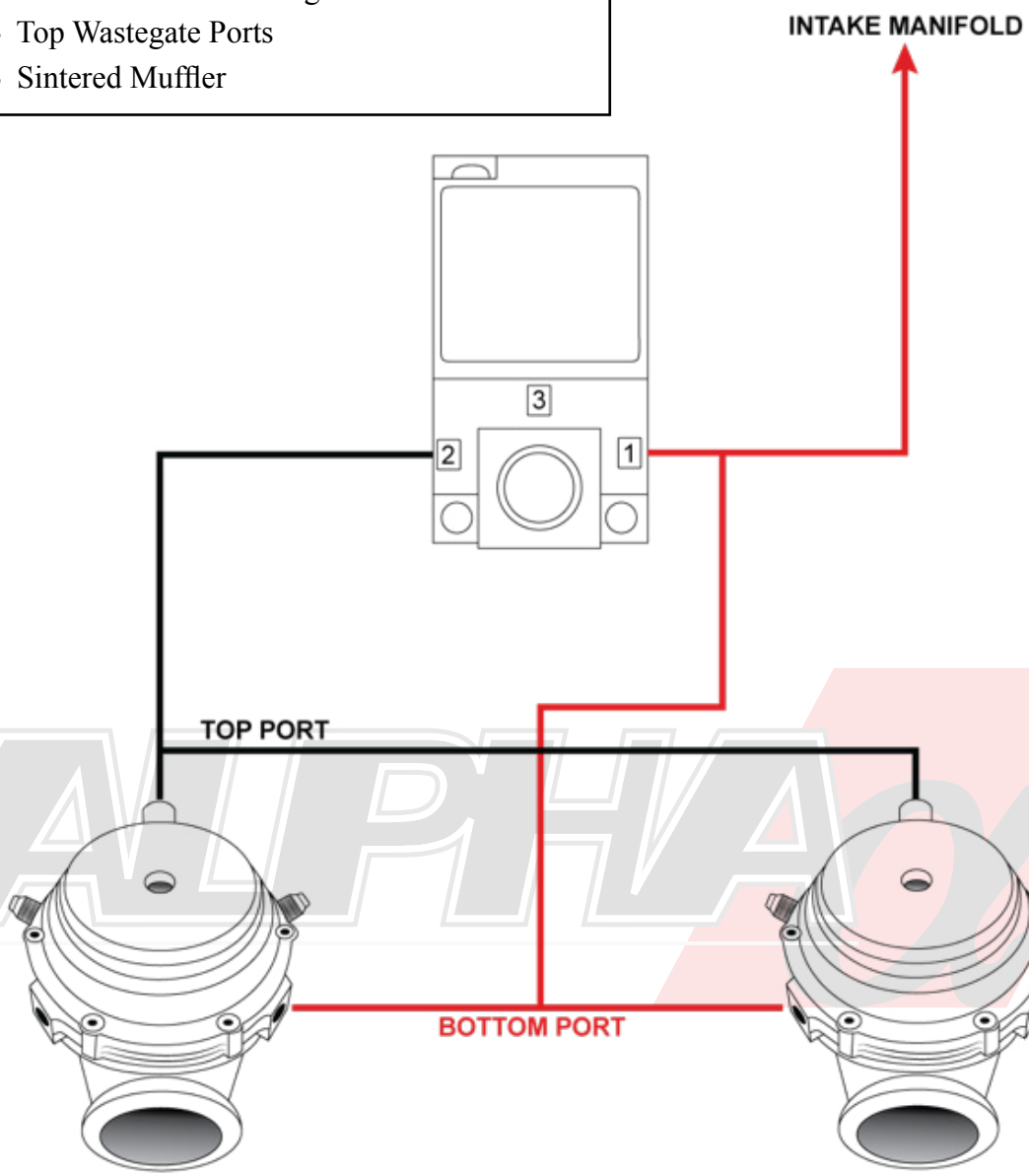
67. Follow the diagram below for proper boost control hose routing and connection points. The pictures followed are an example hose routing. Use the supplied 5mm reinforced hose along with the green spring clamps on all connections. Make sure to use the three supplied brass Tee fittings. Do Not Use plastic tee fittings anywhere as they will melt and fail in this area.

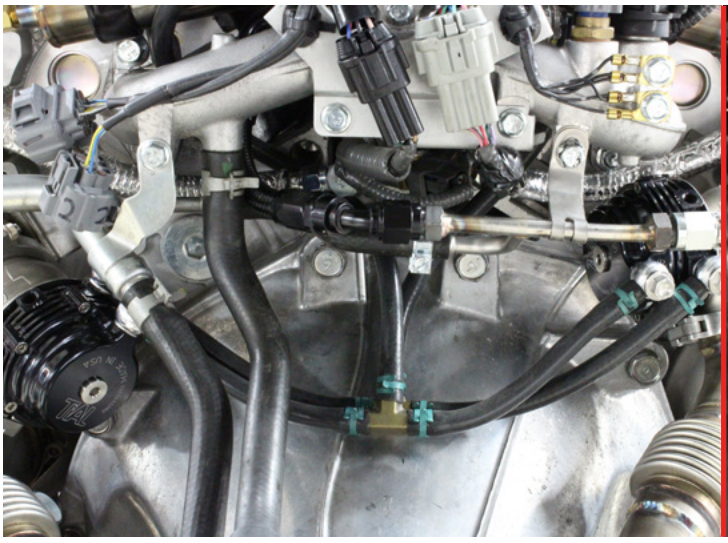
Tech Note: Since every setup is slightly different, your hose routing and boost control solenoid mounting location will vary. Make sure all the connection points are correct based on the diagram as they will always remain consistent as a dual port setup no matter the routing.

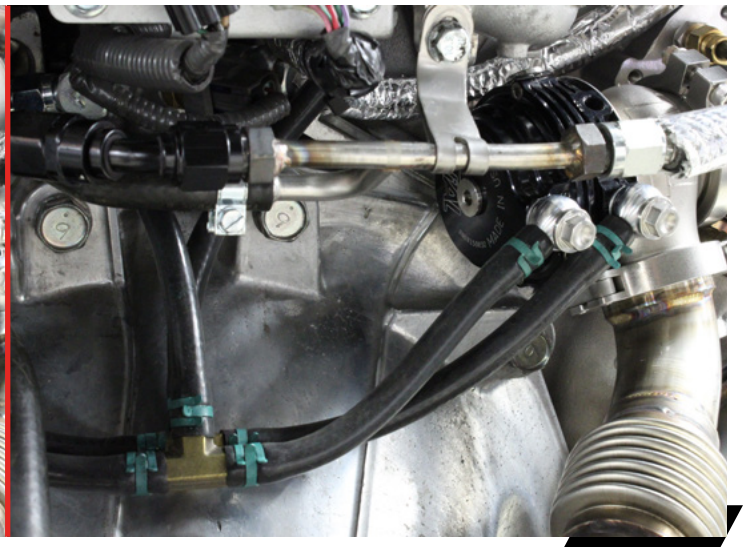
PORT 1 - Boost Pressure Source (Intake Manifold)
(Also Connected to Bottom Wastegate Ports

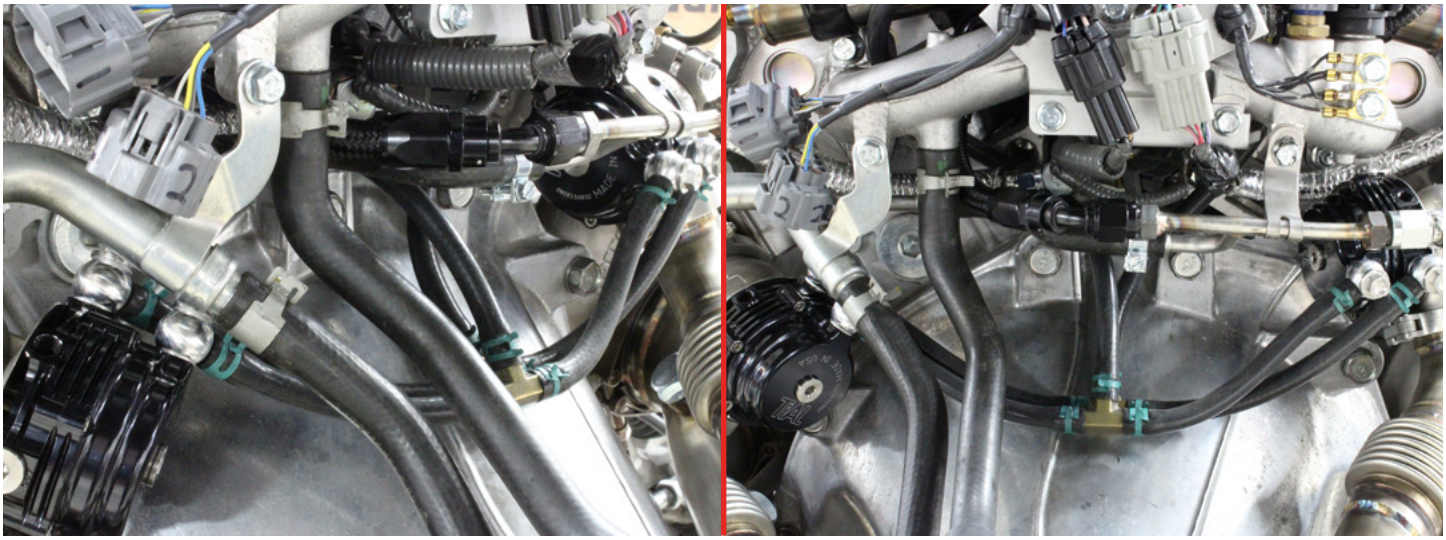
PORT 2 - Top Wastegate Ports

PORT 3 - Sintered Muffler



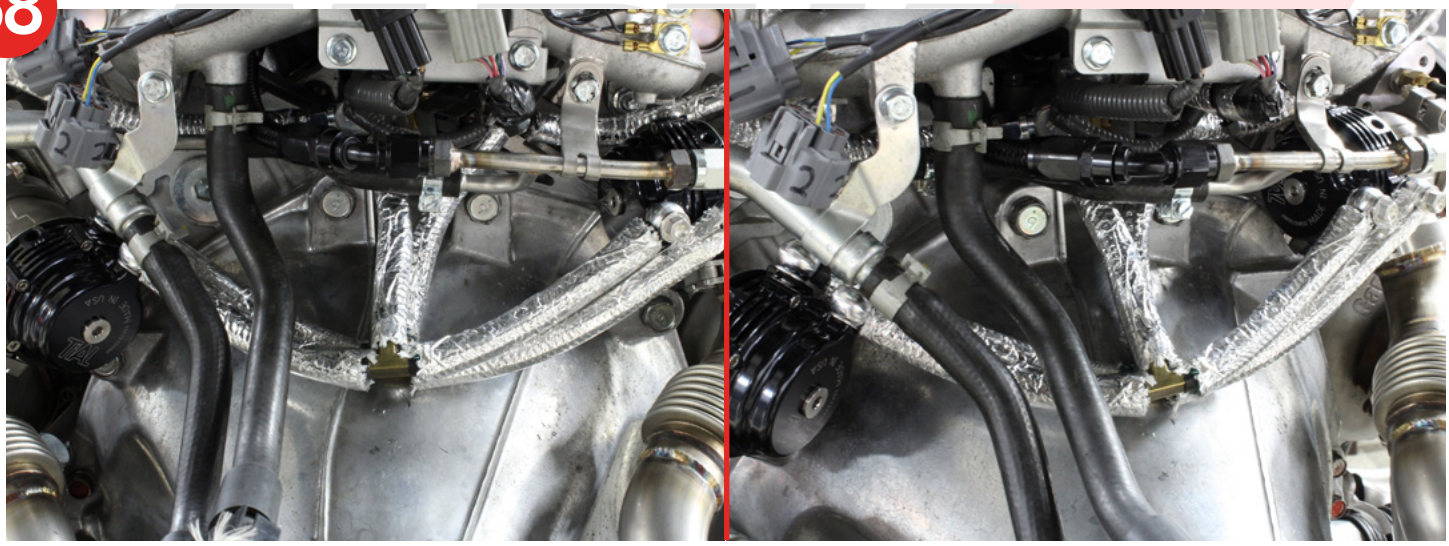






68. Once all your boost control lines are routed, use the supplied reflective heat wrap to cover all the lower silicone hoses including the clamps as shown in the pictures below.

68

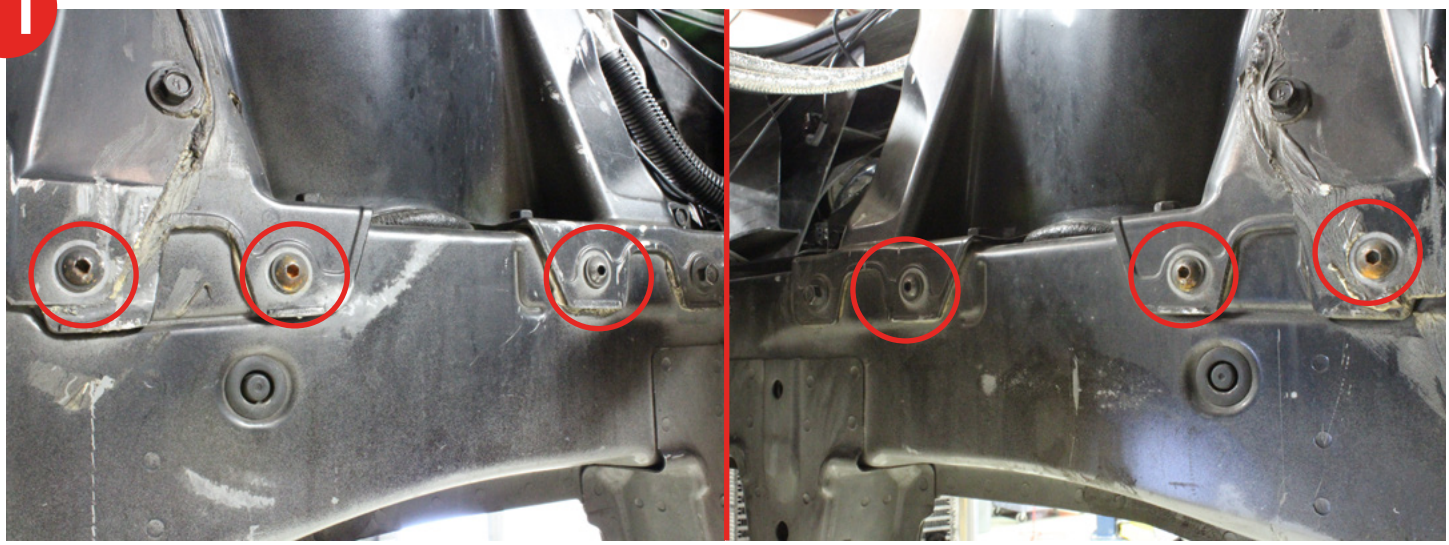


69. Install the widebands and/or O2 sensors you will be using. If you are using the factory Primary A/F sensors, you will need to extend the A/F sensor harness. If using a standalone ECU with external widebands, this step is not required.

70. At this point, double check all your work and connections. Perform an overall inspection and review making sure all hardware, clamps, lines, and connections are tight and correct.

71. Locate the six short M8 button head bolts left over in the exhaust manifold hardware kit. These bolts replace the factory hardware on the inside frame rails of the GTR in the engine bay. Replace the bolts as shown.

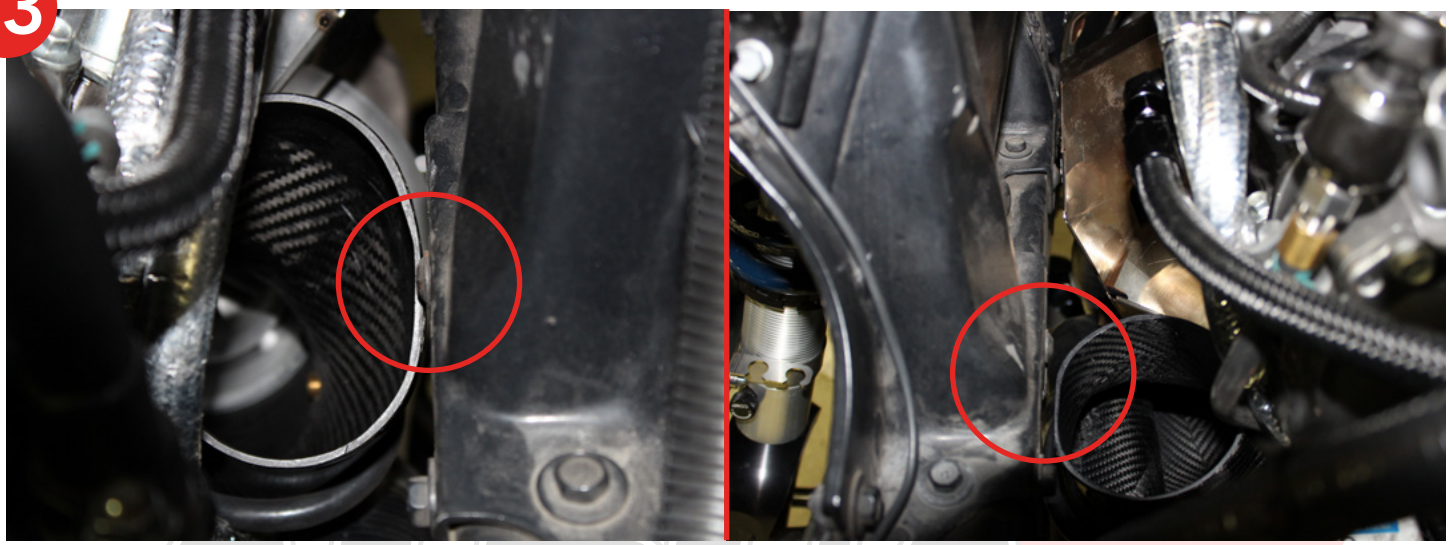
71



72. Make sure the left side carbon intake tube is rotated inwards towards the engine as much as possible and the clamp orientated as shown in step **53a)**.

73. A second set of hands will be required for installing the engine. When installing, take caution and watch the carbon intake tubes. There are layered plates along the frame rails in the engine bay which will catch them and cause damage if not carful. When lower the car onto the engine, you may need to pry in between the carbon intake tube and the frame rails to get around these points as the other person slowly lowers the car onto the engine. The pictures below show the potential issues points.

73

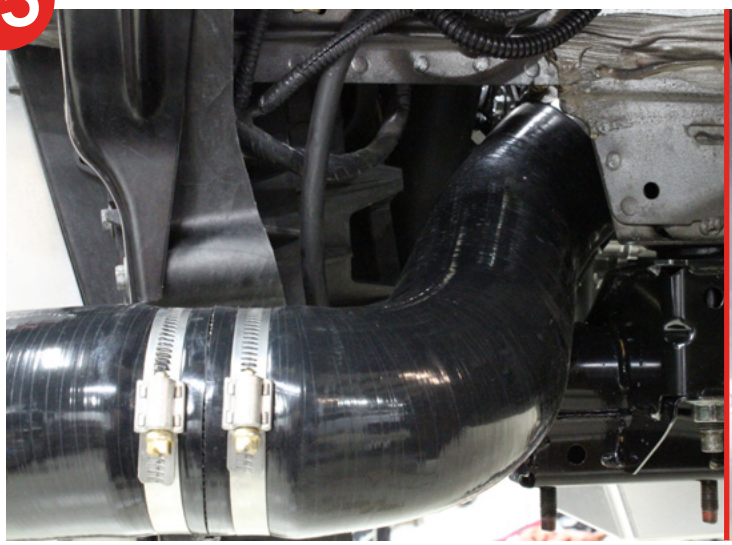


Charge Pipe Installations

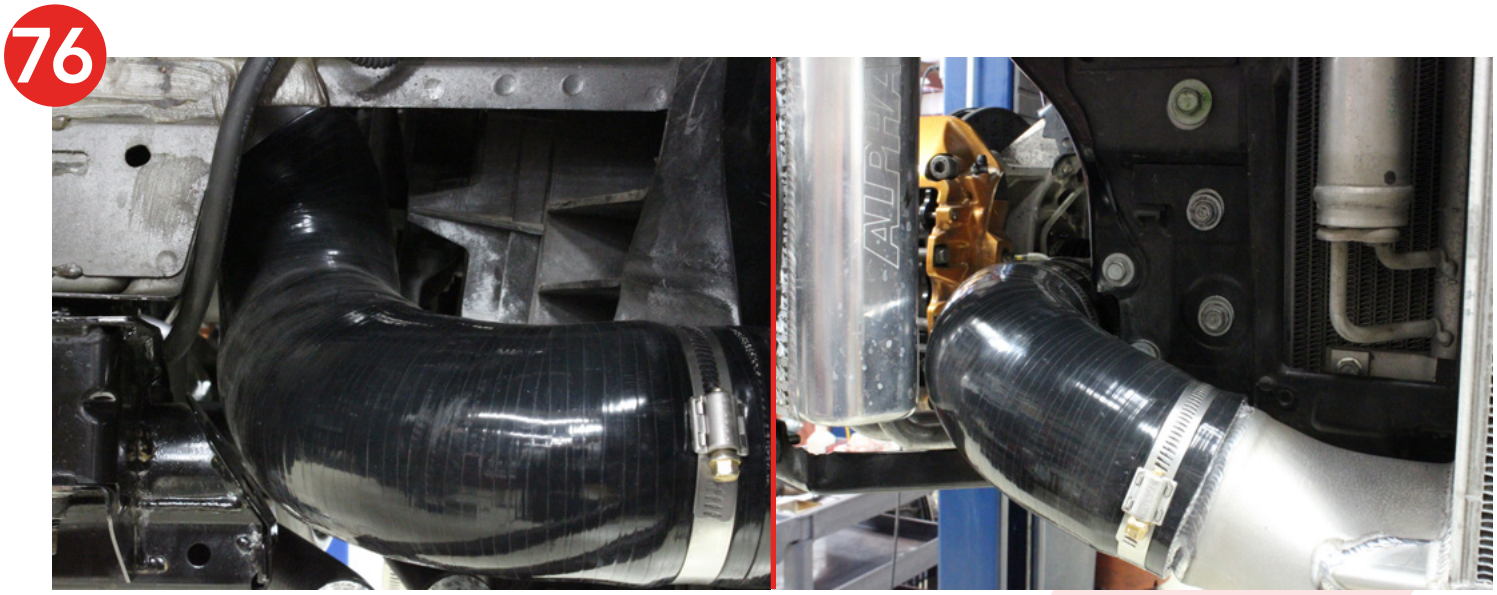
74. The charge piping kits includes silicone that routes from the cast compressor outlets to the inlet of the intercooler. If you already have an Alpha Intercooler setup, the 90 degree silicone will be changed. The old silicone is not a full 3” all the way through as the X kit silicone is.

75. Locate the left side compressor outlet kit silicone. Install the long S style silicone with the loose 45 degree bend on the cast compressor outlet pipe. Next install the supplied 3” jumper pipe. Last, install the 90 degree silicone with the longer leg on the intercooler. Leave all the hose clamps loose to adjust before tightening. Adjust as necessary, then finish tightening all the hose clamps starting from the cast outlet to the intercooler. The pictures below are shown without the washer bottle installed.

75

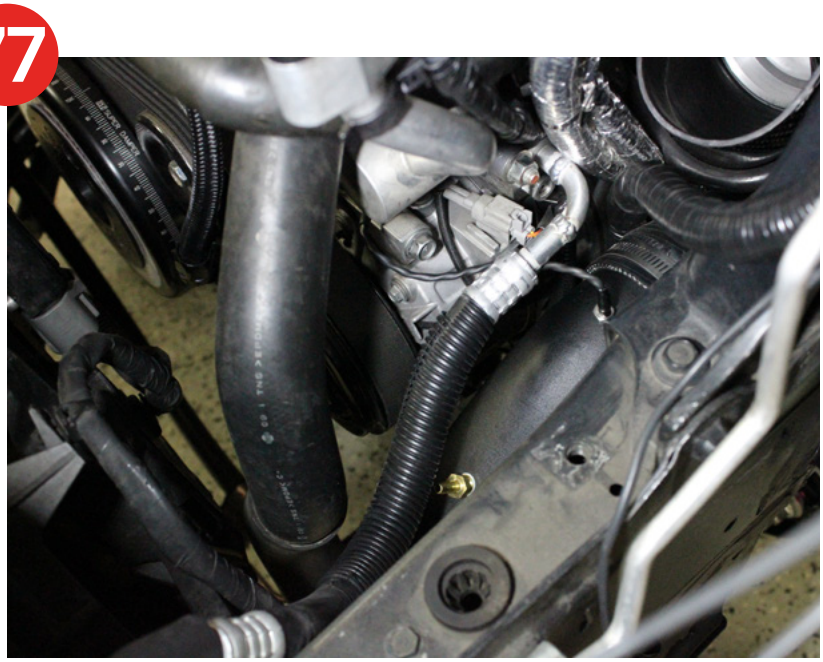


76. Locate the right side compressor outlet kit silicone. Install the long S style silicone with the tight 45 degree downward bend on the cast compressor outlet pipe. Next install the supplied 3” jumper pipe. Last, install the 90 degree silicone with the longer leg on the intercooler. Leave all the hose clamps loose to adjust before tightening. Adjust as necessary, then finish tightening all the hose clamps starting from the cast outlet to the intercooler.



Carbon Intake Kit

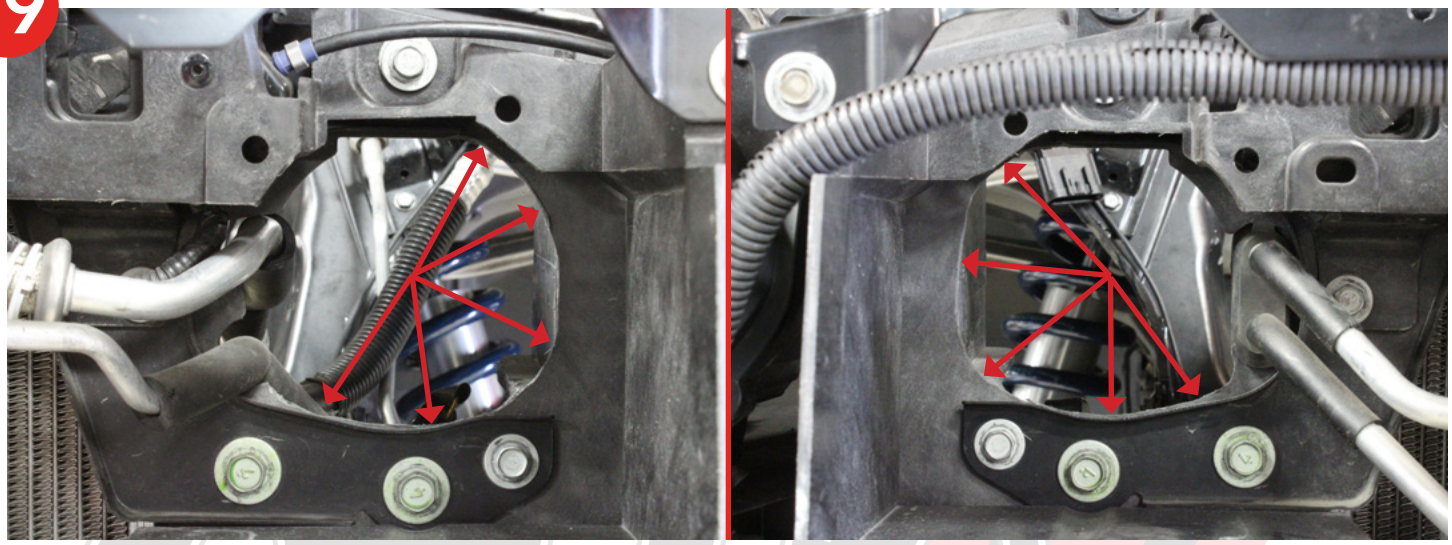
77. Locate the modified A/C discharge hose in the right side carbon intake kit. Remove the factory A/C compressor discharge hose and replace it with the modified one supplied.



78. Locate left and right carbon intake kits. The carbon intakes are 4” and neck down slightly so they can pass through the core support. You will still need to clearance the core support so the carbon intake tube can pass through.

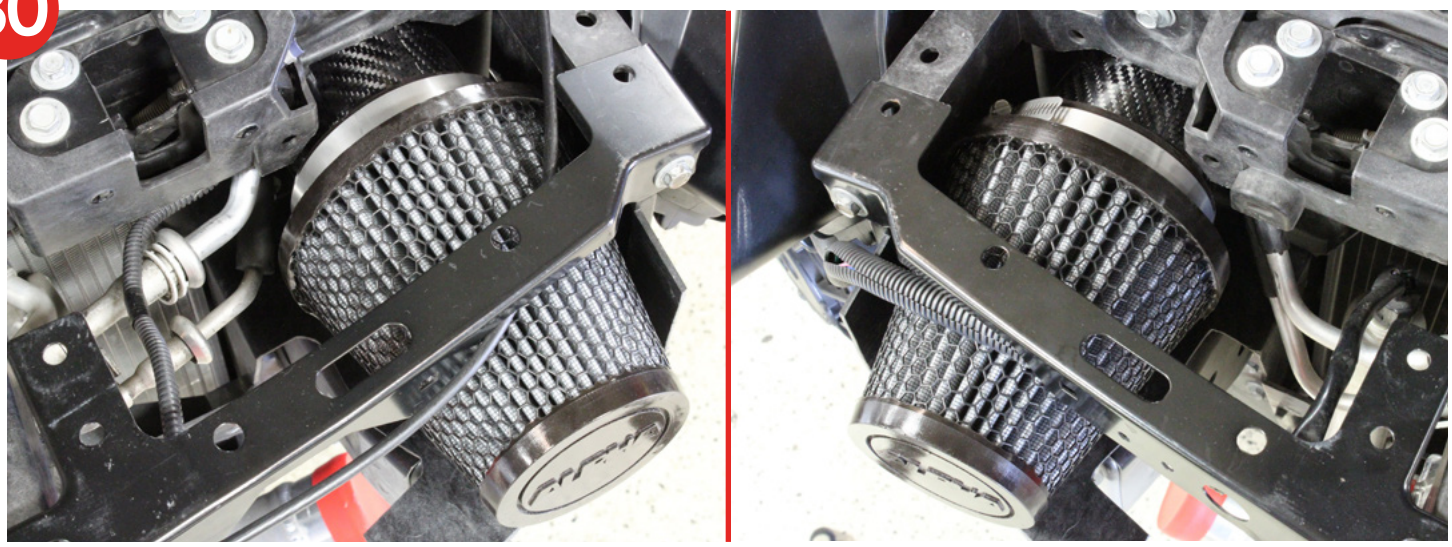
79. The best way to clearance the material is to use a Clog-Free Carbide Burs tool. The wide spaced flutes allow for clean removing of soft materials such as aluminum and plastics. Air saws and other cutting tools will just cause the material to melt and makes the process far more difficult. Make sure to cover and open engine areas and clearance the area shown in the pictures below until the carbon intake tubes can be installed.

79



80. Test fit the carbon intake tubes with the filter. Remove more material if needed.

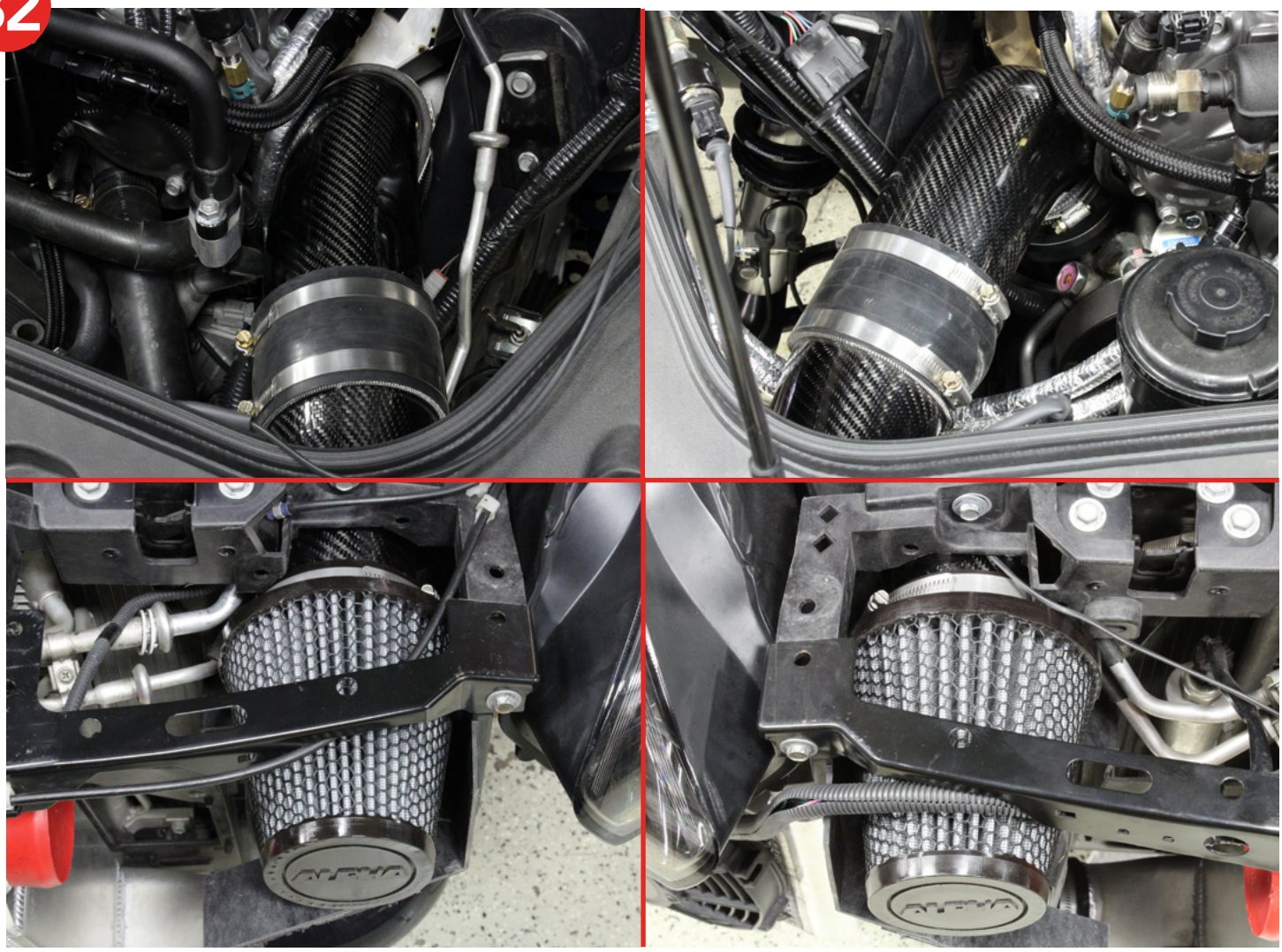
80



81. There is a metal harness support bracket bolted to the frame rail on each side. The bracket supports the starter cable on the left side and the alternator cable on the right side. You will need to remove these brackets to install the carbon intake tubes.

82. Install the carbon intake tubes adjusting as necessary. Start at the engine and work forwards to the front of the car ending at the air filters. For the left side compressor intake, adjust and tighten the hose clamp left loose in step **58a)**.

82



Tech Note: The Alpha air filters may look small, but offer extreme flow. They were designed especially for this turbo kit and are packed with the same amount of filter media of a conventional aftermarket filter 3x its size. During testing, there was only a .2psi pressure drop change @1400whp when removing the filter and netted no measureable hp gains. See the addendum at the end of the instructions for cleaning procedures.

83. If crank case valve cover vents will be routed back into the intakes, push lock hose, grommets, and barbs are included. Locate the where you need to place the grommets in the carbon tubes to make sure the hose is not applying stress to the grommet. Once located, carefully drill the carbon tubes in steps to ½" MAX. Checking the grommet fitment along the way making sure not to go over. You need to make sure the grommet has a tight fit so it will not fall into the turbo. If over drilled, the carbon tube cannot be repaired.

Tech Note: The carbon intake tubes can also be drilled and tapped for a NPT fitting if AN style lines are to be used. The carbon is 1.5mm thick so there is enough material there for this type of application. Again, take caution when drilling and tapping, checking the fitment of the fittings used making sure not to over-do it. There is no repairing the carbon intake tube if the hole is drilled too large or if it is over tapped.

Tech Note: For high HP applications, we advise venting to an external catch can to prevent the intake system to be over loaded with moisture and oil caused by high crank case pressures. Ethanol systems would require a larger can as crank case pressure are normally higher when using this fuel. Common setups would use the Alpha Air/Oil Separator as a first stage, then instead of routing hoses to the intakes, they would be routed to an external catch can in an appropriate size based on your setup. This setup will require minor maintenance such as draining the external can but it would guarantee a dry intake setup.

HTTPS://WWW.AMSPERFORMANCE.COM/CART/ALPHA-R35-GT-R-AIR-OIL-SEPARATOR.HTML

84. Once the turbo kit is fully installed, finish reassembling the rest of the vehicle.

85. Get Tuned and Enjoy!

Alpha Filter Cleaning

Alpha/AMS filters feature a specially designed media that allows performance and efficiency to be restored to near new each time by simply using compressed air from inside out, making frequent washing unnecessary in order to restore filter performance.

Alpha/AMS filters feature a media that is fully compatible with washing.

Biodegradable cleaners such as Simple Green or other mild shop degreasers can be used. Simply place the filter in a solution or spray the cleaner on the filter. Allow the solution to loosen the particulate and then rinse thoroughly. Shake the filter or use compressed air from the inside outward to remove residual water and allow a full day or two to dry. While the media may discolor, filter efficiency and restriction are not affected.

Note: Always follow the dilution and application time instructions for "light cleaning" as indicated by the cleaner manufacturer.