

NISSAN R35 GT-R OMEGA 12 KIT

Enthusiasts rallied around the "ALPHA" brand and our flagship vehicle, Omega, as it became the benchmark in R35 GTR performance. With countless world records, awards, and championships the "Alpha" name is the brand by which everything else is measured. Today, we are incredibly proud to announce the next evolution in our R35 GTR turbo kits, the Omega line.

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Introduction

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.

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Disassembly

- 1) Remove the engine and sub-frame.
- 2) Remove the intakes.
- 3) Remove the downpipes.
- 4) Remove the turbochargers and lines.

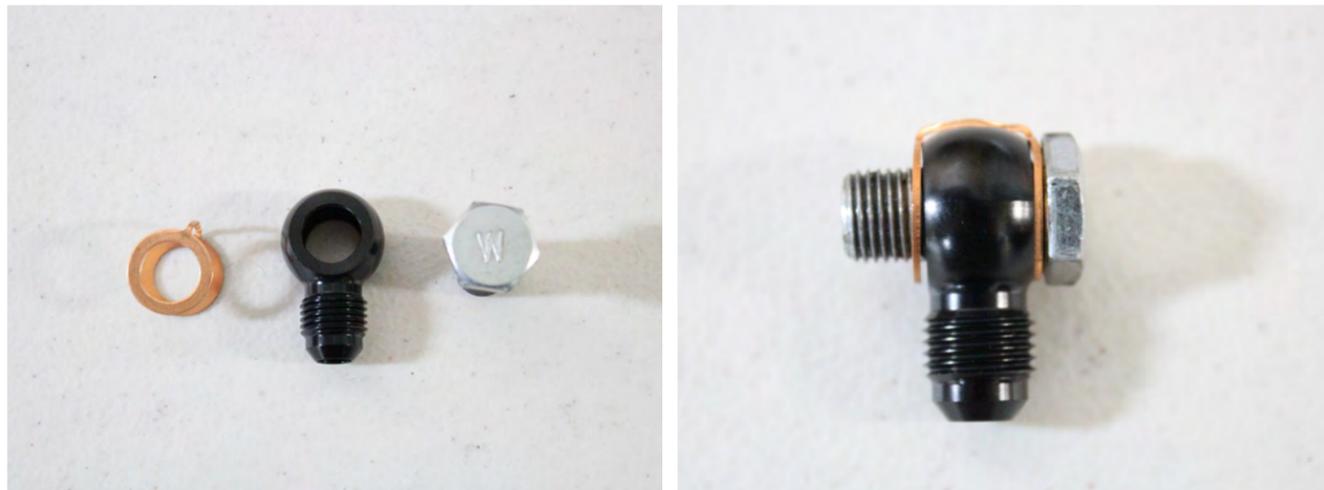
Pre-Installation Checklist

- 1 – Left/Drivers Side Turbocharger (Clocked and assembled with lines and wastegate)
- 1 – Right/Passenger Side Turbocharger (Clocked and assembled with lines and wastegate)
- 1 – Hardware Kit
- 2 – 3" Metal Intake Tubes
- 2 – 3" Silicone Couplers (45, 60)
- 2 – Turbo Outlet Silicones
- 2 – Turbo Outlet Cast Aluminum Pipes

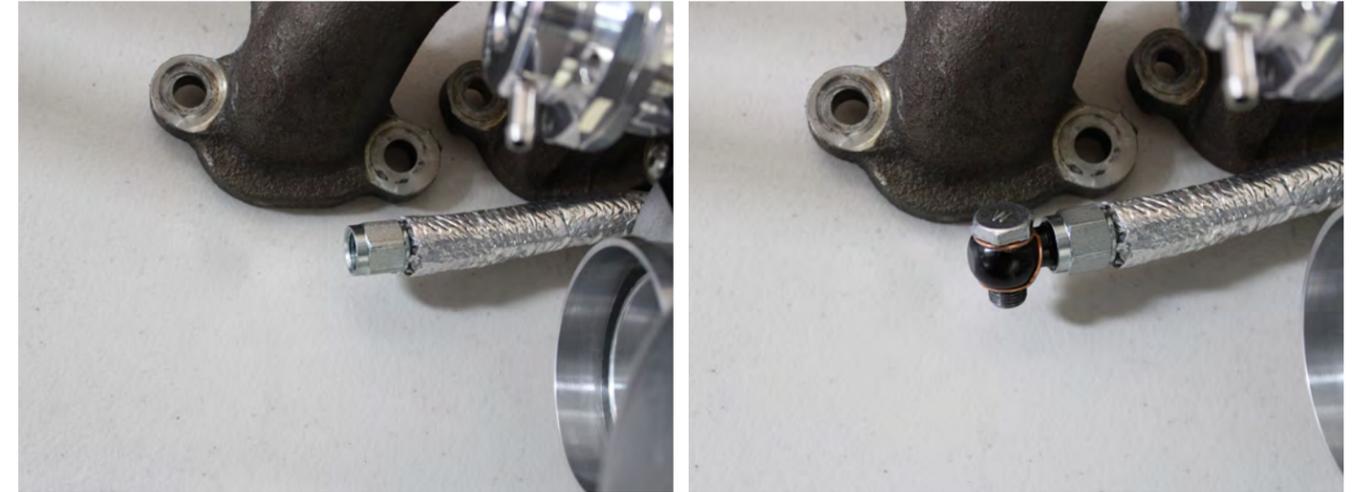
Pre-Install

1. Beginning with the Left/Drivers Side, locate one of the factory banjo bolts removed from the engine with the marking "W".
2. Locate one of the black aluminum banjo adapters and one of the double copper crush washers included in the hardware kit.
3. Assemble as shown.

Notes: The 14mm linked crush washer shown may be substituted for 2-14mm individual crush washers.

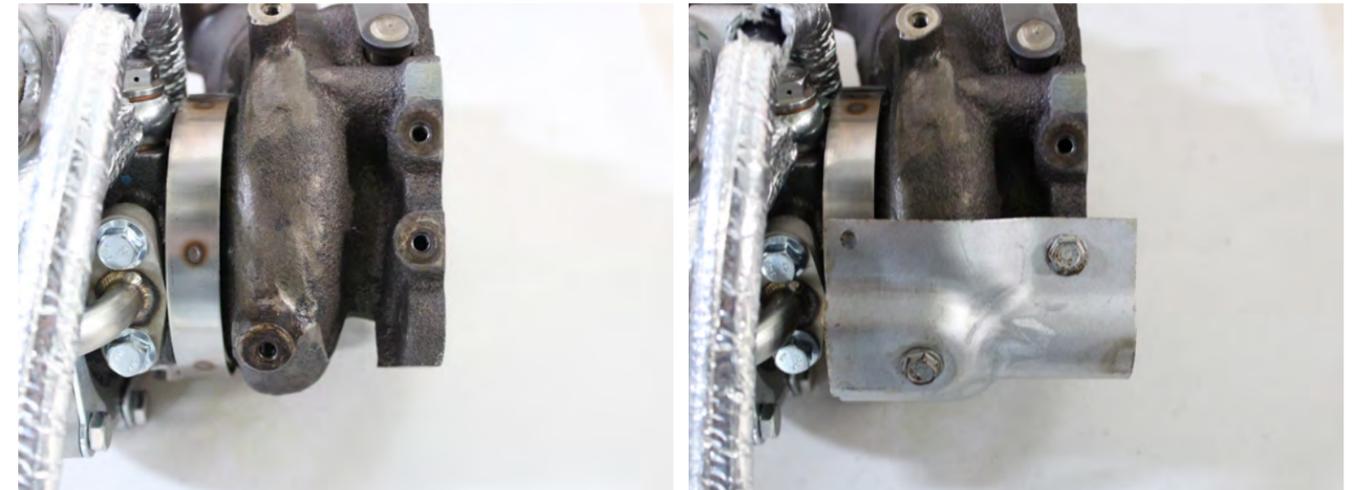


04. Loosely install the banjo adaptor setup onto the rear coolant line on the turbocharger.



05. Install the small heat shield on the bottom of the Left/Drivers side turbo.

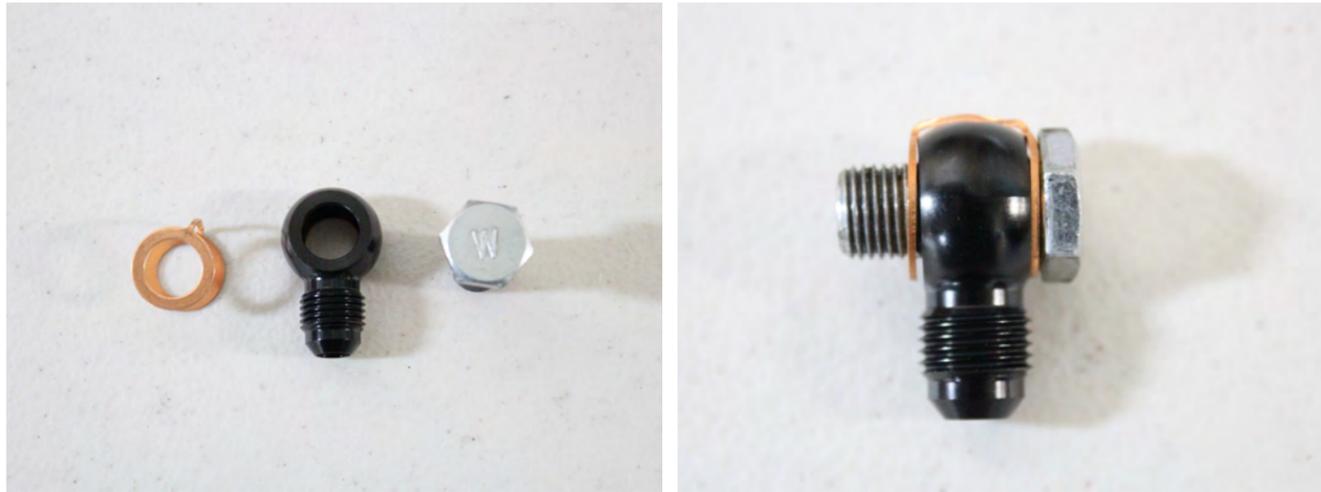
Notes: This cannot be installed once the turbo is installed onto engine.



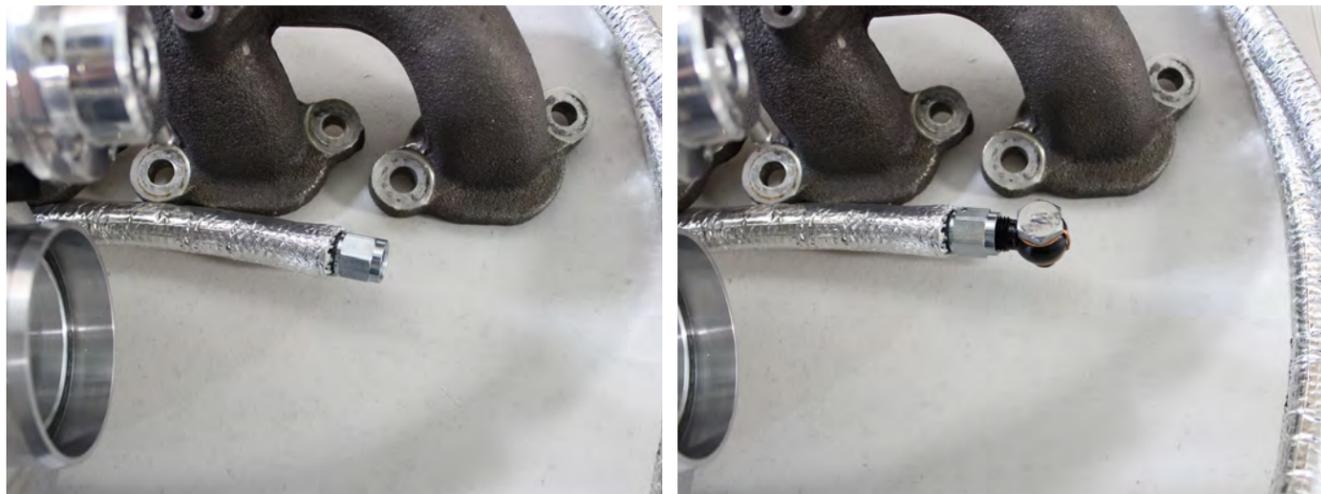
6. Setup the Right/Passenger side.
7. Locate one of the factory banjo bolts removed from the engine with the marking "W".
8. Locate one of the black aluminum banjo adapters and one of the double copper crush washers included in the hardware kit.

09. Assemble as shown.

Notes: The 14mm linked crush washer shown may be substituted for 2-14mm individual crush washers.

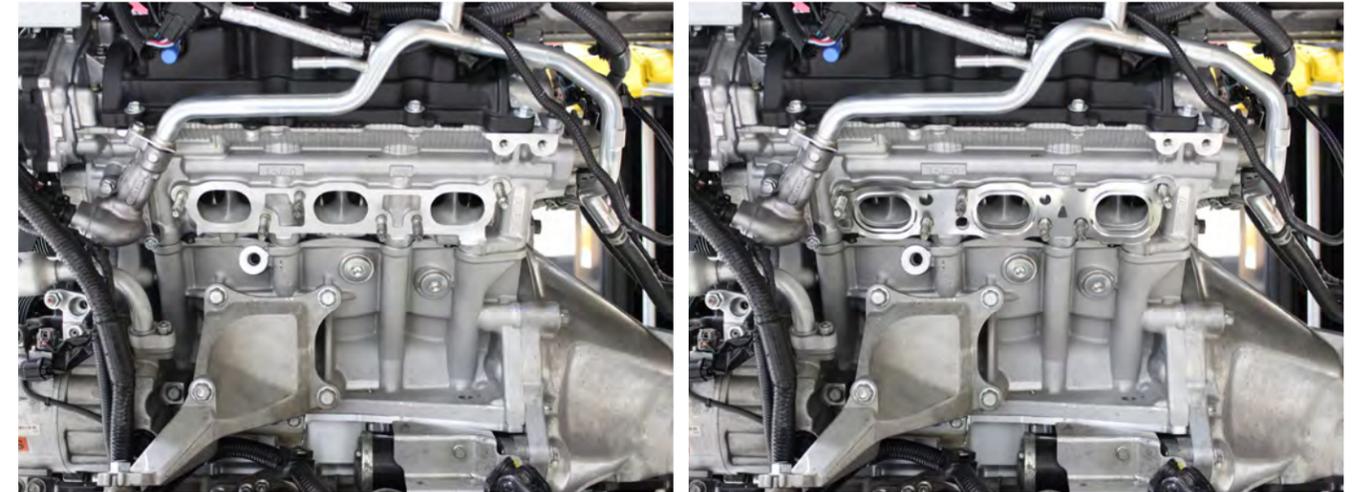


10. Loosely install the banjo adaptor setup onto the rear coolant line on the turbocharger.



Installation

11. Beginning with the Left/Drivers Side, Install the supplied exhaust manifold gasket.



12. Loosely install turbocharger assembly onto cylinder head.

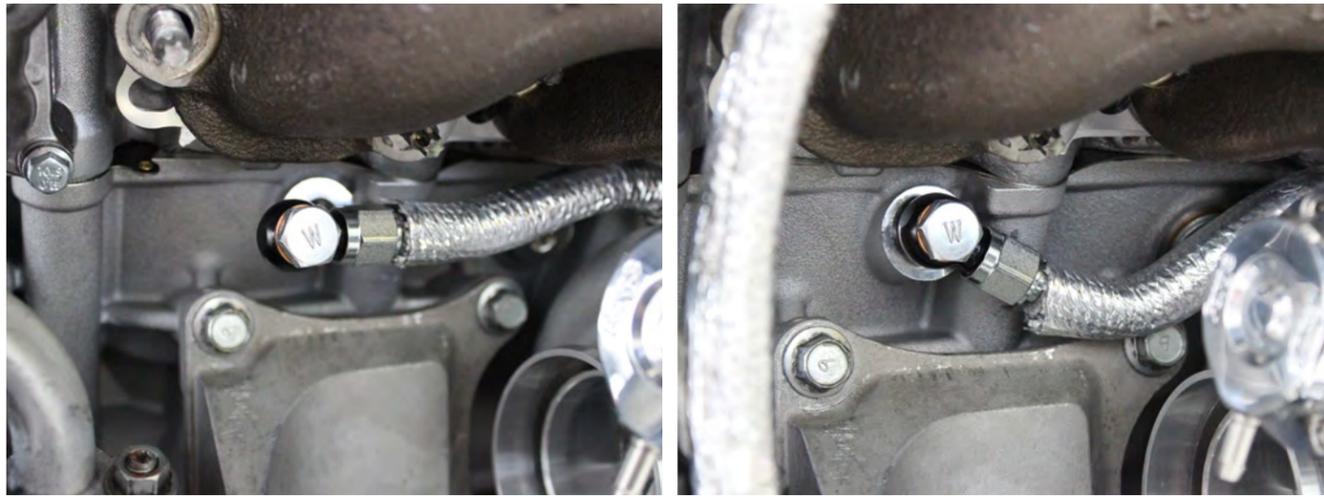
Notes: Leaving the turbo loose will help with the next step.

13. Route and install the rear coolant line.

Tech Tip:

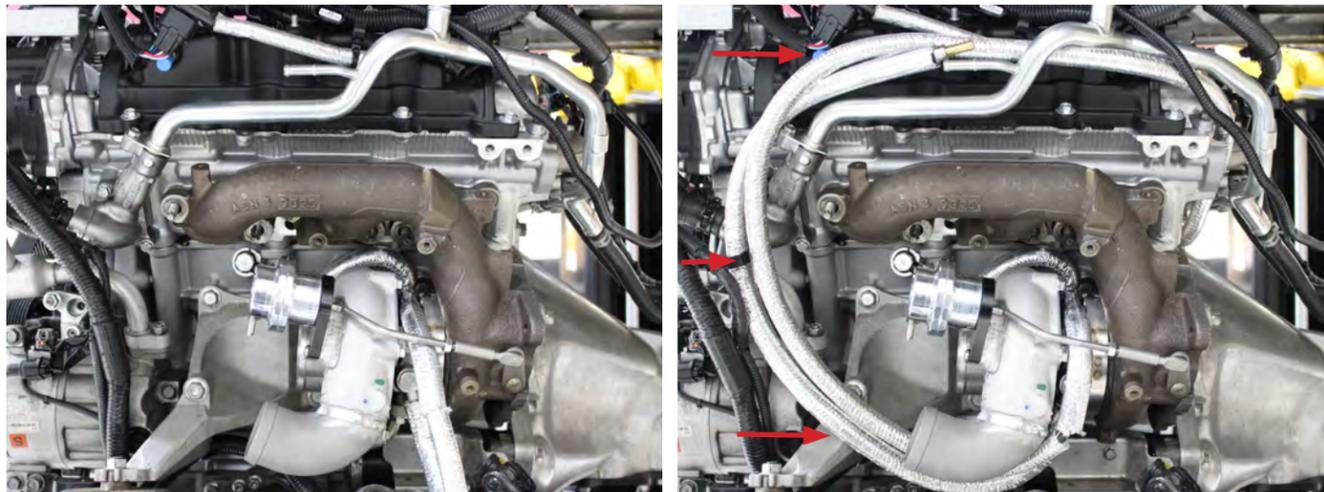
- Thread the Banjo Bolt about 2-3 turns into the block.
- Then tighten the AN fitting. Finish tightening of the banjo bolt while rotating the line clockwise/down (about 30-40 degrees) to gain clearance on the block.
- If you do not rotate the line clockwise/down, the AN connection will hit the block and the banjo connection will not seal and will leak.
- The connection should look like the picture below

14. Tighten the connection on the back of the Center Housing Rotating Assembly. (CHRA) (17mm Wrench)

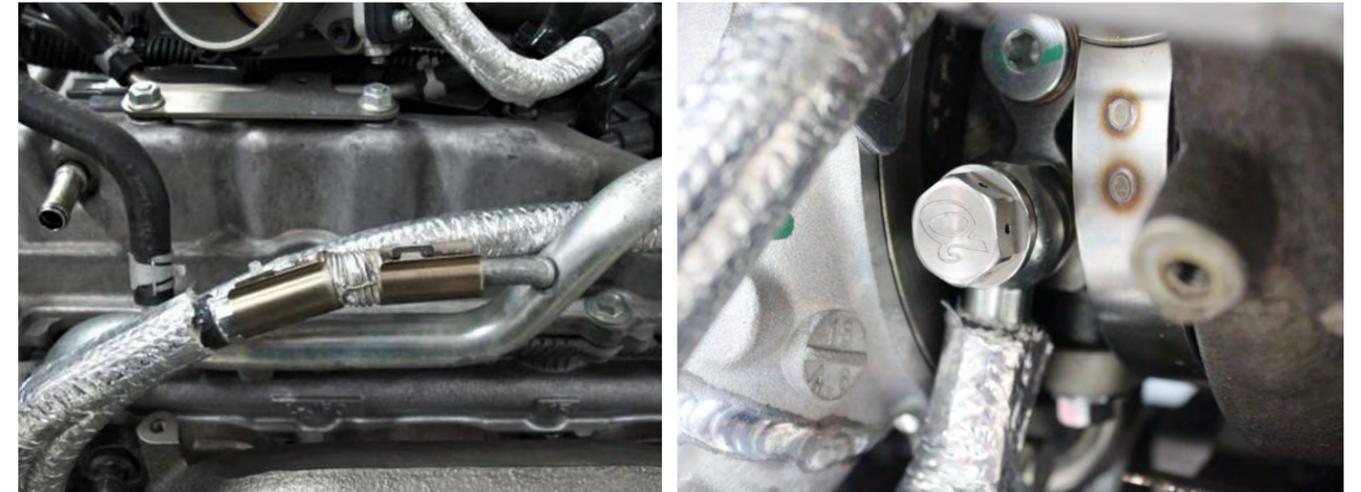


15. Tighten the turbocharger to the cylinder head (reuse factory nuts.)

16. Route the outer coolant and oil feed line as shown.



17. Connect the outer coolant line as shown (reuse factory clamps and hardware.) Tighten the connection on the CHRA.



18. Route the Oil Feed Line as shown (route behind EGR.)

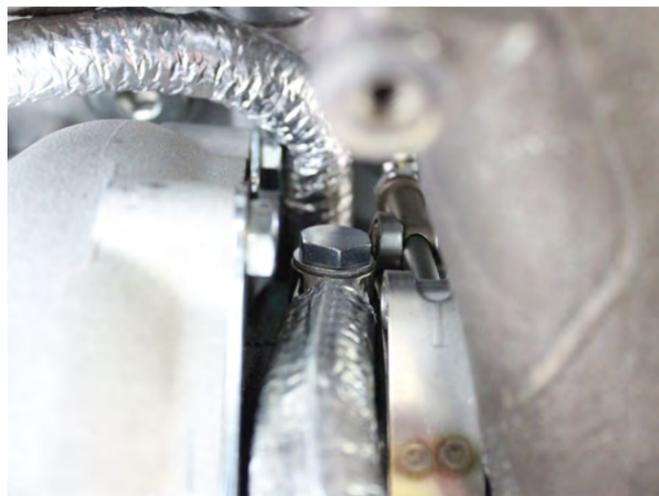


19. Use the supplied metal ties to secure the oil and coolant lines.

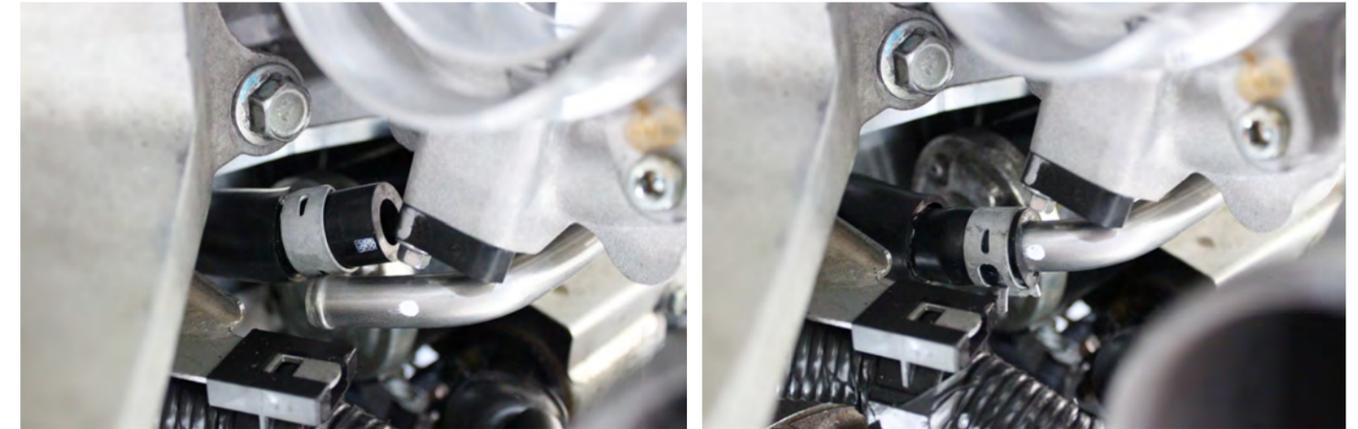
20. Locate one of the silver banjo adaptors and two of the 12mm Copper crush washers. Connect the oil feed line to the factory oil distribution block. Use the factory banjo bolt with the marking "R". Tighten the connections.



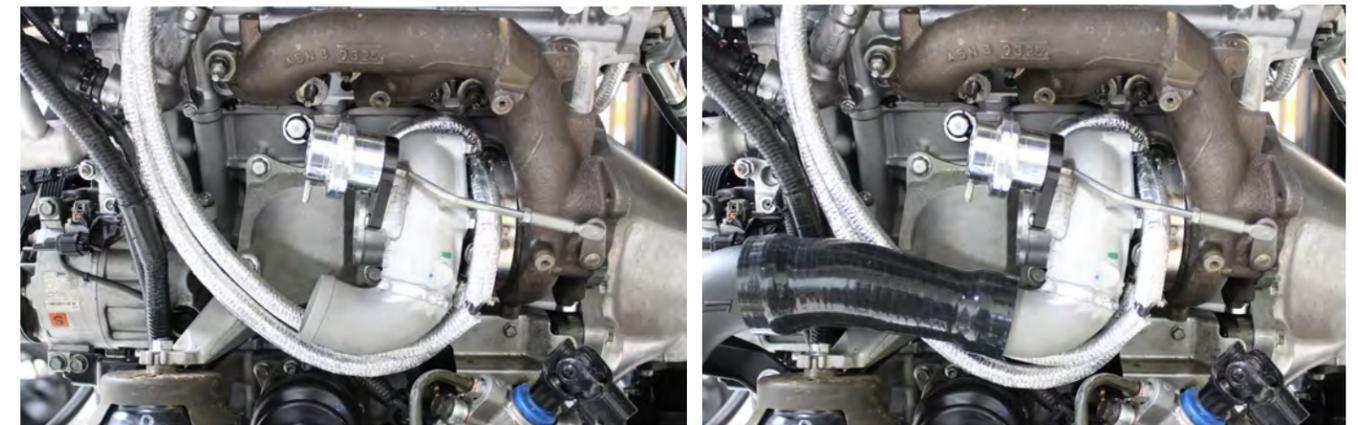
21. Tighten the Oil feed banjo bolt on the top of the CHRA.



22. Connect the oil drain to the factory rubber oil drain hose using the factory clamp.

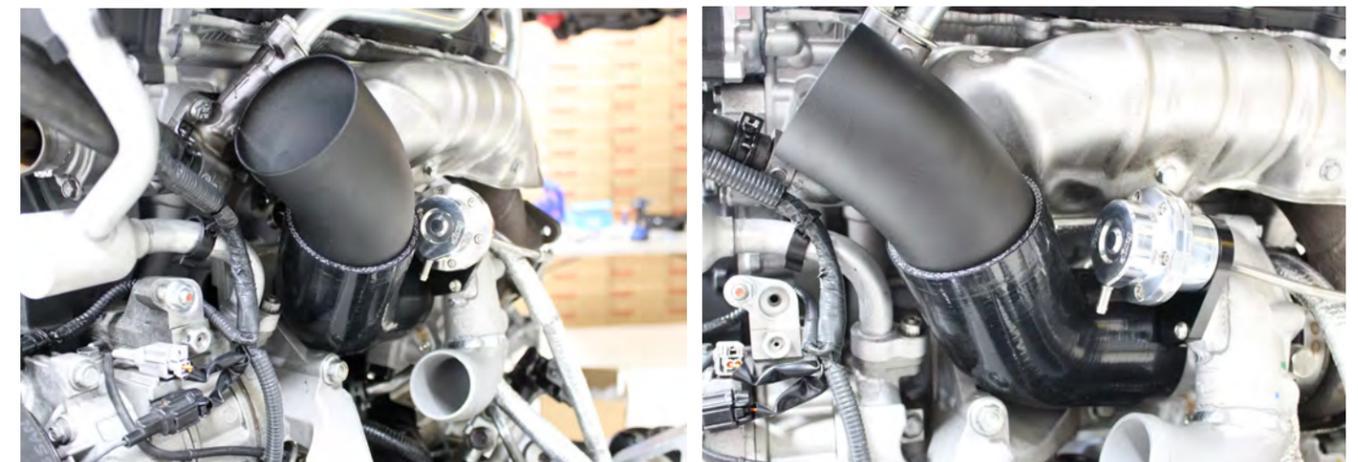


23. Install the turbocharger outlet silicone and metal charge pipe.



24. Install the upper heat shield.

25. Locate the 60 degree silicone intake coupler and the short 45 degree aluminum intake tube. Install as shown. Place the clamps in a position that can be accessible in the vehicle. It may be necessary to install the metal tube after the motor is reinstalled into the vehicle. Fully tighten the clamp onto the turbo inlet, leaving the other only hand tight.



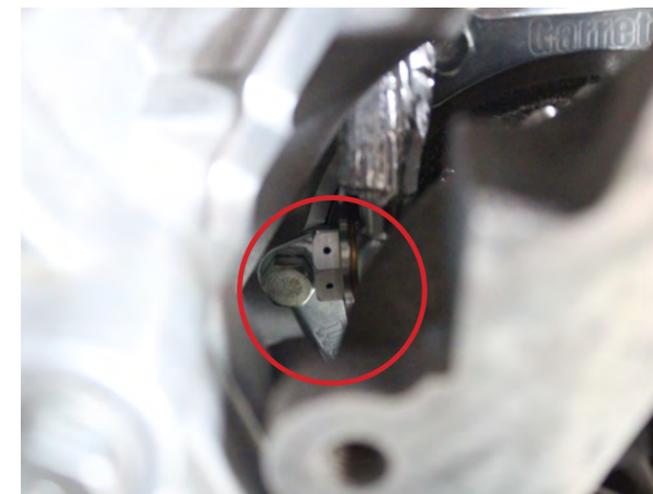
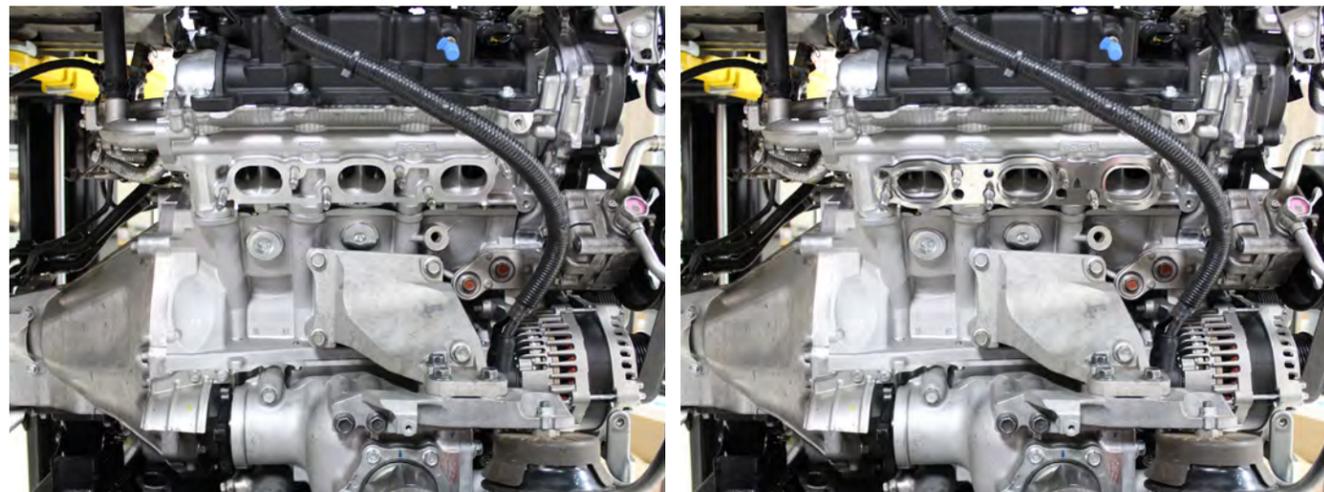
Notes: Clock the silicone inward until there is about a 1/8" gap between the silicone and the manifold heat shield.



26. Install the remaining heat shields. Check for clearance between the wastegate arms and shields.



27. Working with the Right/Passenger side now, install the supplied exhaust manifold gasket.



28. Loosely install turbocharger assembly onto cylinder head.

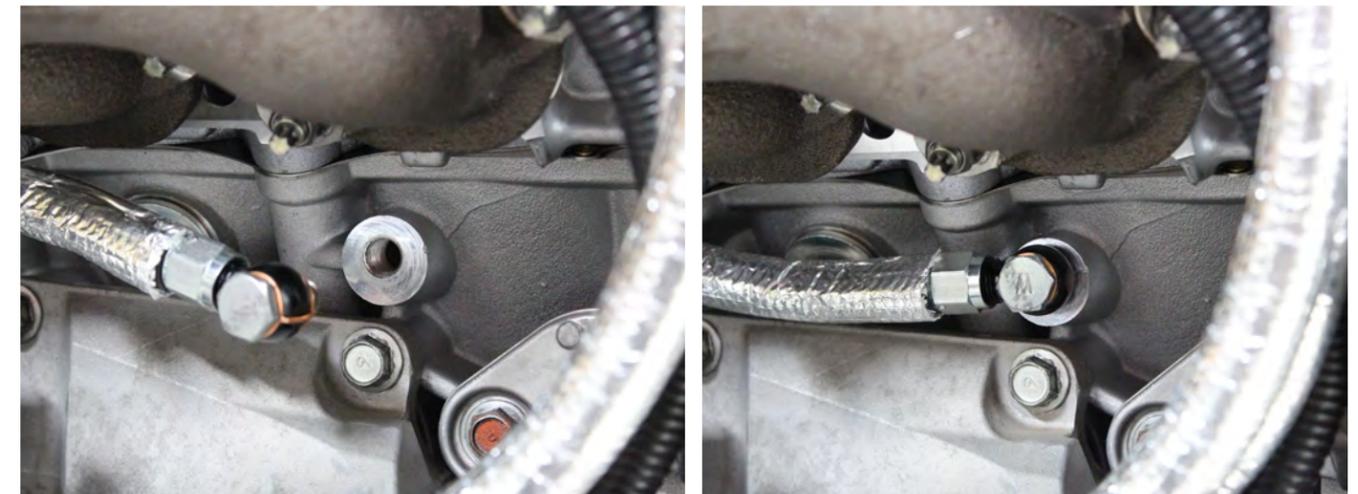
Notes: Leaving the turbo loose will help with the next step.

29. Route and install the rear coolant line.

Tech Tip:

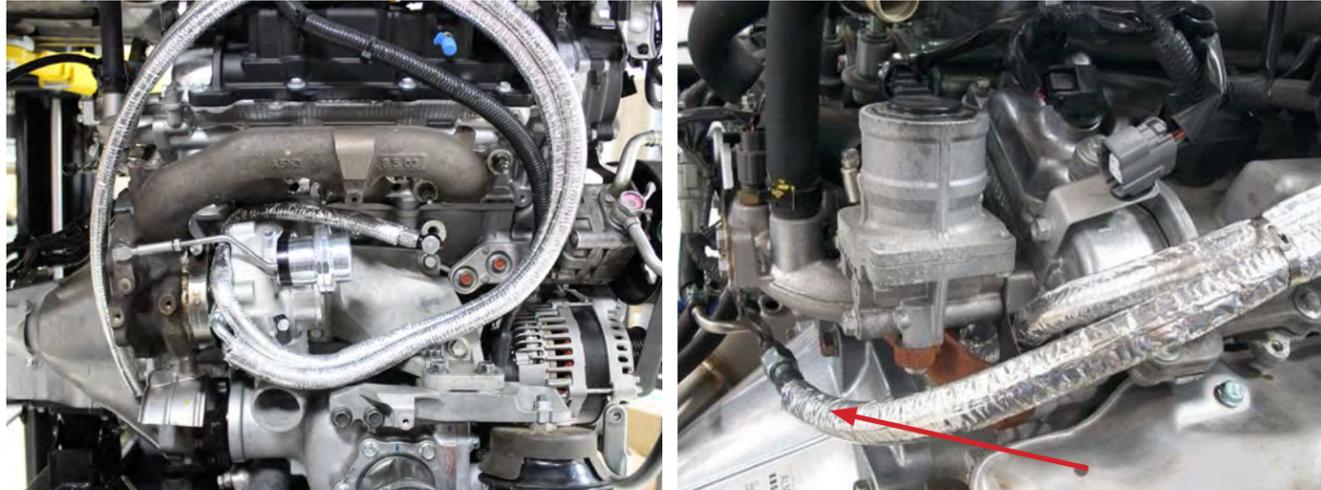
- Thread the Banjo Bolt about 2-3 turns into the block.
- Then tighten the AN fitting. Finish tightening of the banjo bolt while rotating the line counter-clockwise/down slightly (about 10 degrees) to gain clearance on the block.
- If you do not rotate the line counter-clockwise/down, the AN connection may hit the block and the banjo connection will not seal and will leak.
- The connection should look like the picture below.

30. Tighten the connection on the back of the CHRA. (17mm Wrench)



31. Tighten the turbocharger to the cylinder head (reuse factory nuts.)

32. Route the outer coolant and oil feed line as shown.



33. Install the modified coolant tee as shown. Connect the outer coolant line as shown. Use the supplied clamps. Tighten the connection on the CHRA.



34. Route the oil feed line as shown (Route behind EGR.)

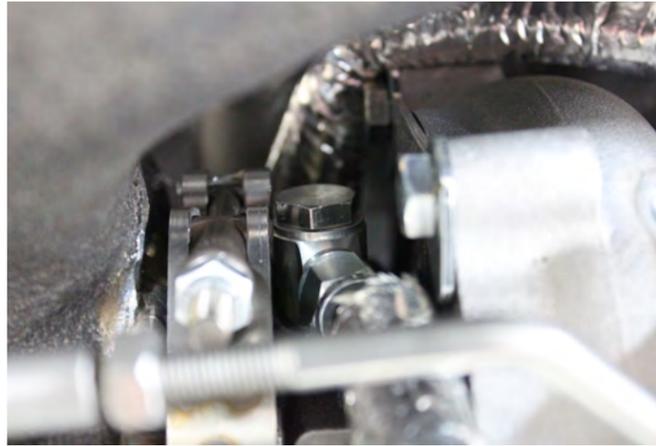


35. Use the supplied metal ties to secure the oil and coolant lines.

36. Locate one of the silver banjo adaptors and two of the 12mm Copper crush washers. Connect the oil feed line to the factory oil distribution block. Use the factory banjo bolt with the marking "R". Tighten the connections.



37. Tighten the oil feed banjo bolt on the top of the CHRA.



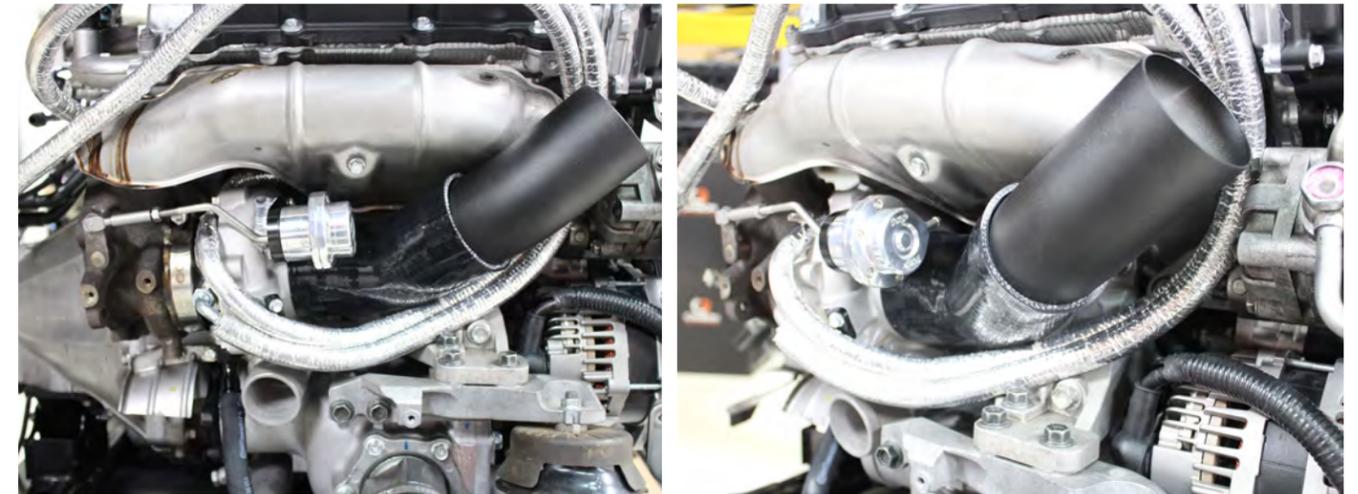
38. Locate the Right/Passenger Oil Drain line. Install as shown. The line runs underneath the right CV axle. Install the loop clamp in the location shown and position so the line does not come in contact with the axle. Connect to the oil return barb on the oil filter housing securing with the supplied hose clamp.

Notes: The hose supplied is cut long in length. In some cases the hose may need to be trimmed.



39. Install the upper heat shield.

40. Locate the 45 degree silicone intake coupler and the short 30 degree aluminum intake tube. Install as shown. Place the clamps in a position that can be accessible in the vehicle. It may be necessary to install the metal tube after the motor is reinstalled into the vehicle. Fully tighten the clamp onto the turbo inlet, leaving the other only hand tight (final tightening will be completed after engine is installed.)



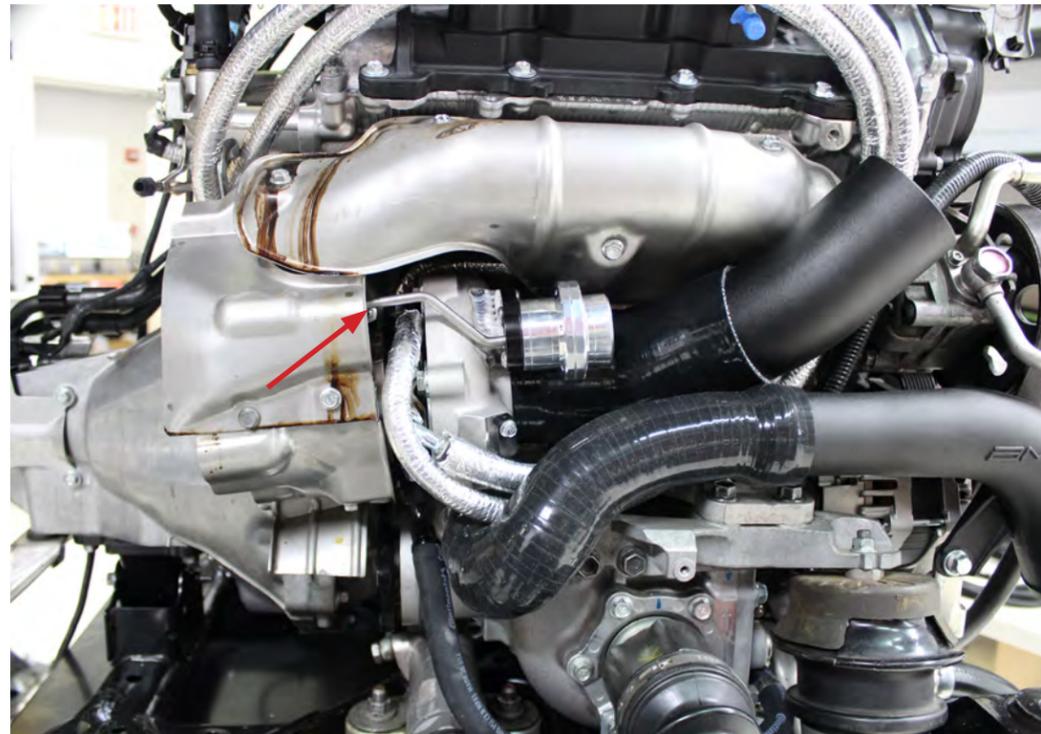
Notes: Clock the silicone inward until there is about a 1/8" gap between the silicone and the manifold heat shield.



41. Install the turbocharger outlet silicone and metal charge pipe.



42. Install the remaining heat shields. Check for clearance between the wastegate arms and shields.



Final Installation Checklist

43. Double check all connections that have been made along with all fittings on the turbochargers.
- a. Oil feed on CHRA
 - b. Inner and outer coolant lines on CHRA
 - c. Coolant lines on block
 - d. Coolant passage plugs on CHRA
 - e. Oil drain
 - f. Hose clamps
 - i. Turbo inlet
 - ii. Turbo outlet
 - g. Cable ties (securing lines)
 - h. Etc.

Tuning

44. Once the Alpha turbocharger installation is complete, tuning/engine calibration is required to benefit from the upgrade. Your car may run and drive, but you will experience no increase in power and an unstable boost condition, which may lead to component or engine failure. Tuning is required for safe engine operation
45. Please contact an Alpha sales representative for your tuning/engine calibration needs.
46. Enjoy!



Nissan R35 GT-R

OMEGA 12 Turbocharger:

Wastegate Actuator Setup

(Insert Pic Of turbo Kit)

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1. Introduction
2. Wastegate Setup

Introduction:

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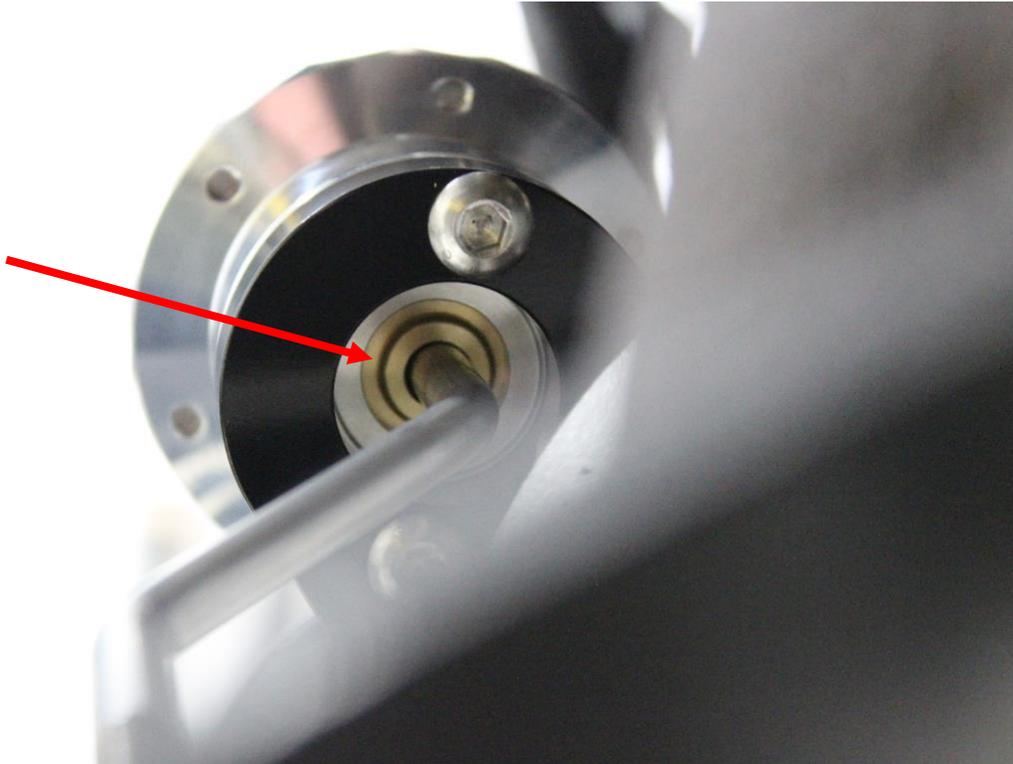
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- The Omega 12 Turbochargers are pre-clocked with the wastegate actuators already pre-set during assembly at AMS.
- If for any reason either or both of the turbochargers have had the clocking orientation altered to better suit the vehicle they are being installed onto, the wastegates will need to be re-set and checked. Follow the instructions below.

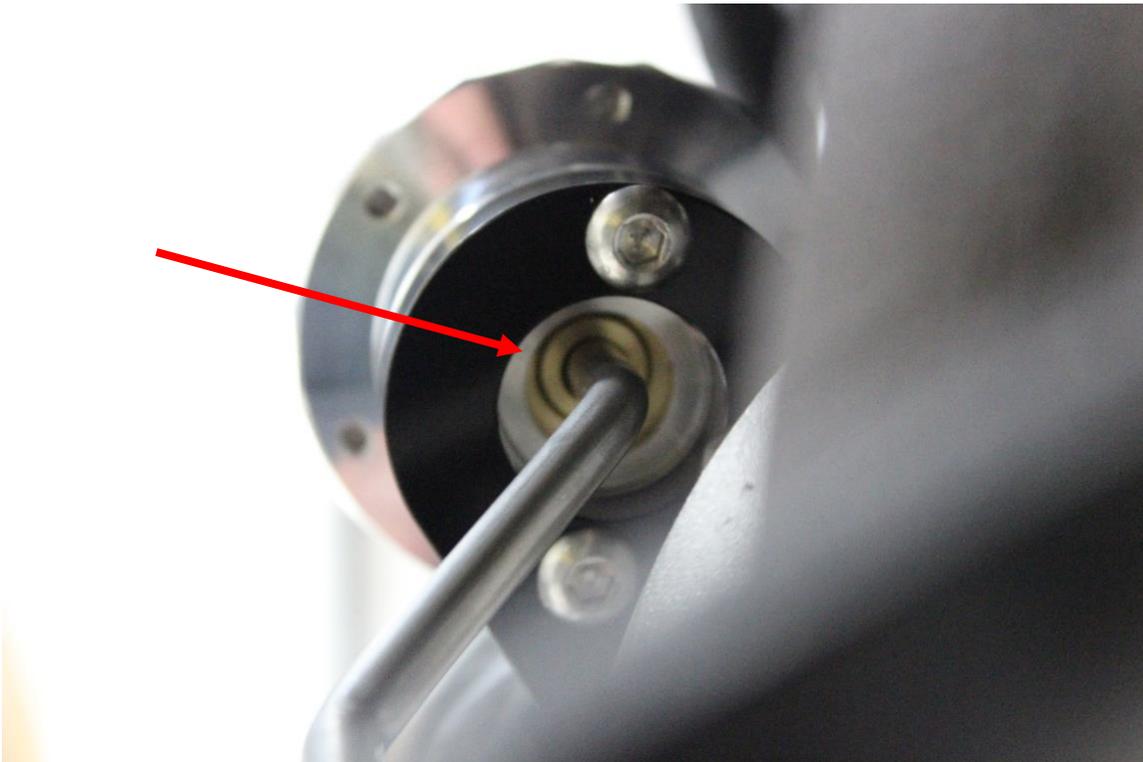
Wastegate Setup

- 1) It is very important that the wastegates open at the exact same pressures. Test the wastegates by applying pressure with an accurate gauge slowly until about 19-20psi. This is pressure at which point the wastegate arm should begin to move. This is referred to as “crack pressure”. The crack pressure needs to be identical between the two turbocharger assemblies. This will ensure maximum performance as well as turbocharger reliability. Both turbochargers will be working equally to produce the desired boost level.
- 2) The correct way to check when the arm moves is by rotation the wastegate flapper door. Just using your fingers, apply a pressure to rotate the door while applying pressure to the wastegates using a Mityvac or other accurate pressure gauge. Right when you can rotate the wastegate flapper door is your cracking pressure.
- 3) Before making any adjustments to the wastegate actuators, you need to make sure the turbo kit and wastegate actuators are clocked correctly. Clock the assemblies so that the wastegate actuator bushings are centered in the actuator body as shown below. The actuator arm should also align with the wastegate door bracket on the manifold.

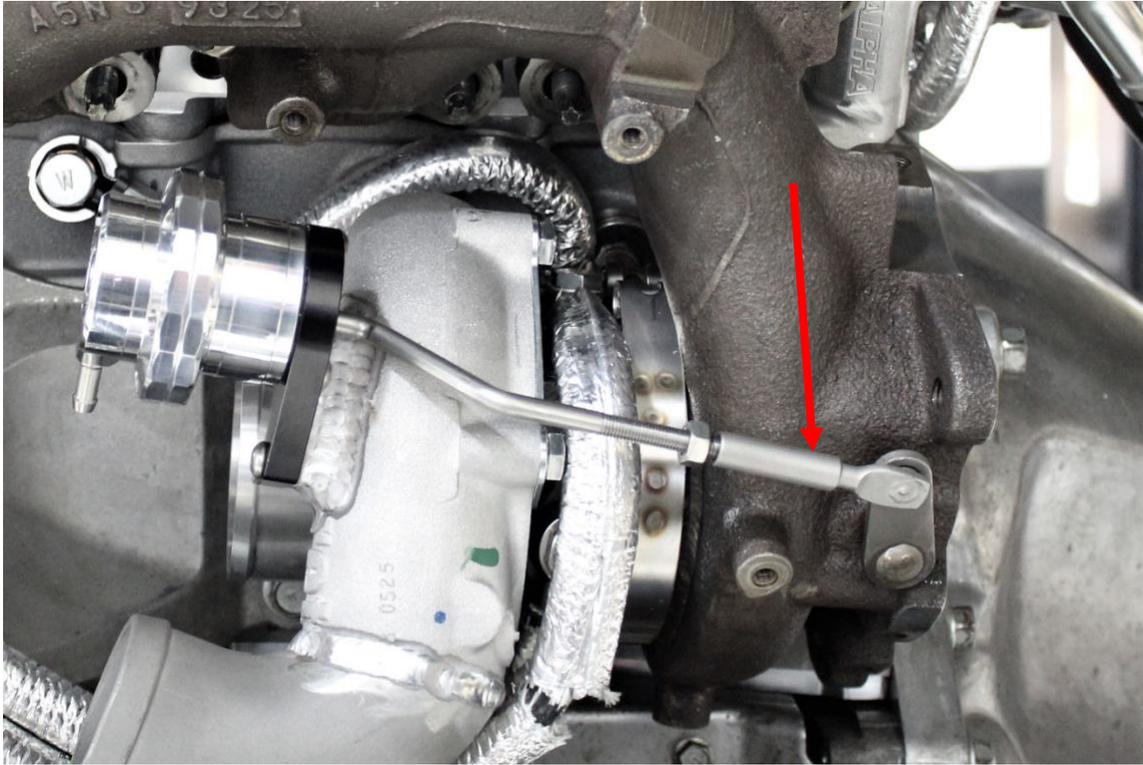
Correct Alignment:



Incorrect:

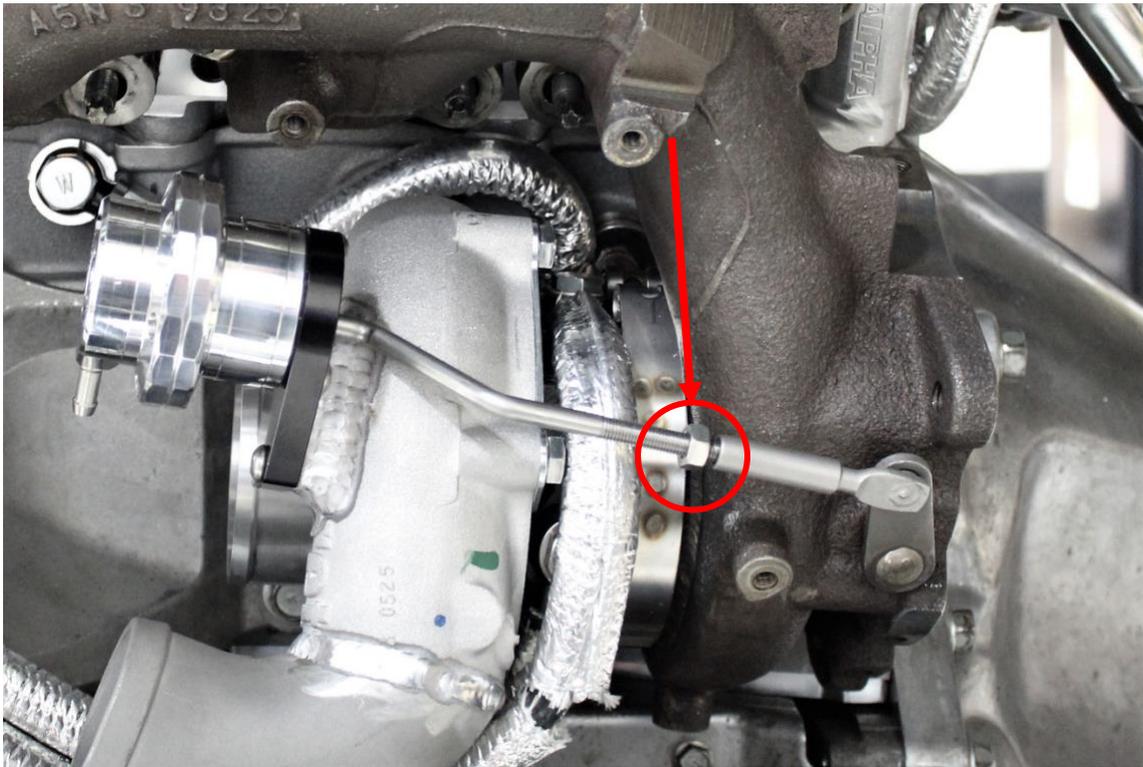


- 4) Rotate the wastegate arm pivot adjustment one full turn at a time and repeat the testing until the crack pressures between the turbochargers is identical.



- 5) Once crack pressure is equalized, actuate the wastegates from fully open and closed a multitude of times, while ensuring that the actuation is smooth without binding.
- 6) Before locking down the adjustment, rotate the actuator arm until the bushing in the actuator housing is centered as was done in step # 3. Check again for smooth actuation.

- 7) While holding the position of the arm, tighten the locknut to lock the adjustment into place.



- 8) After the rods are tight and locked down, recheck the cracking pressure. It will also be a good idea to check your boost control lines and routing as well. Since the wastegate actuators reference hoses are connected most likely near to the boost control solenoid, apply pressure at this point where they tee in together using a Mityvac or other accurate pressure gauge and recheck the cracking pressure. This will ensure there are no issue with the hoses and line routing.
- 9) Double check everything and you should be good to go!
- 10) Enjoy!