



# Alpha R35 GTR Fuel Cooler



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.

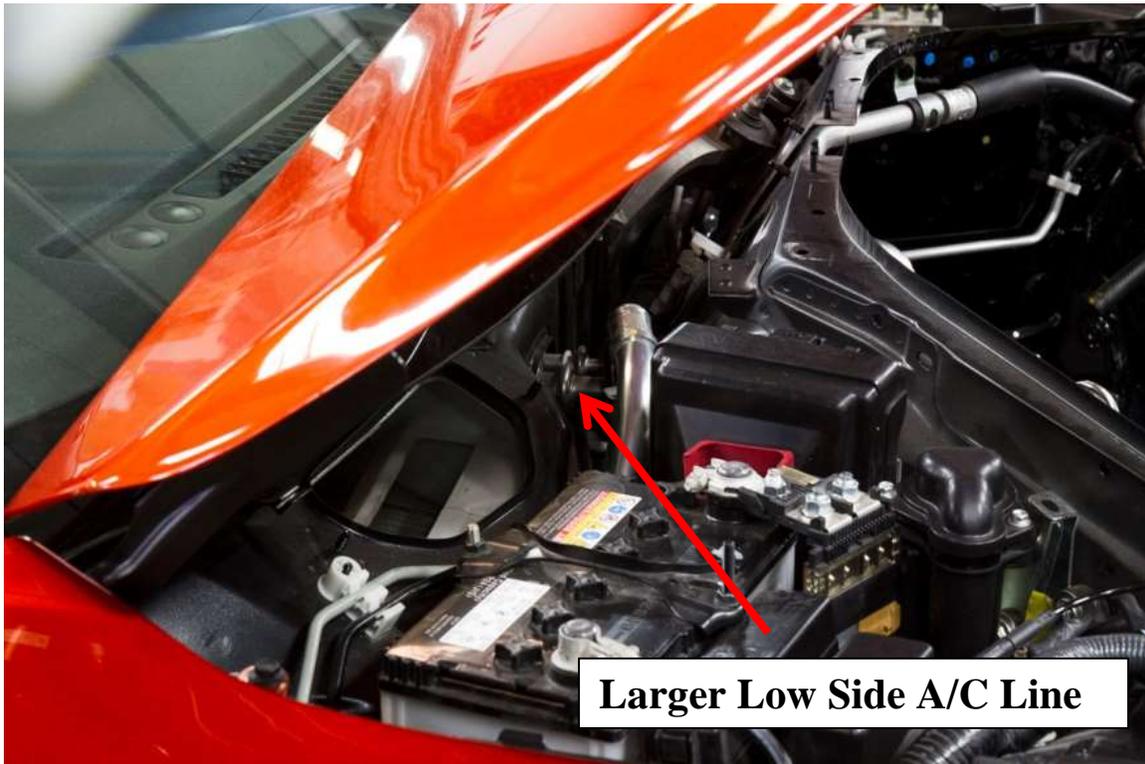
A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons 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.

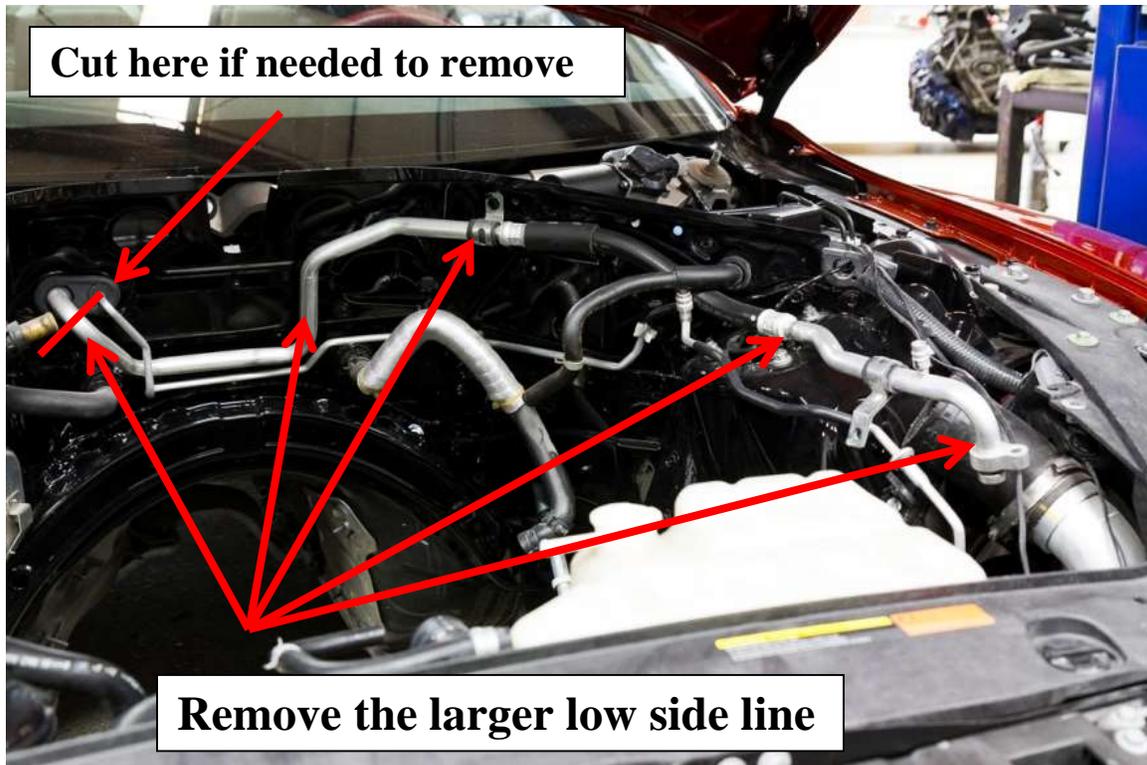
If you have any questions or issues at any time during the installation of your Alpha Performance product(s) please call us for technical assistance. The Alpha Performance tech line can be reached during business hours at 847-709-0530 for Alpha Performance products only.

## **Factory Low Side A/C Line Removal and Disassembly**

- 1) Use an approved method and A/C machine to recover the refrigerant in the system. Record the amount of oil that was removed, you will need this when it comes to charging the system.
- 2) Remove the right side cowl covers.
- 3) Disconnect the rubber air injection hose and pull it through the firewall.
- 4) Locate the low side A/C line coming through the main firewall, (This will be the larger line). This line from the firewall to the inlet of the A/C compressor will have to be removed.



- 5) Use a line disconnect tool, disconnect the connection and pull the hose away from the firewall.
- 6) If the engine is out of the vehicle, this would be the best time to remove this line. The high side A/C line, (smaller one), overlaps the low side line making it difficult to remove.
  - a. If the engine is still in the car, the A/C line will have to be cut in order to remove it from the car. You could also remove the intake manifold and free up some room to do this.

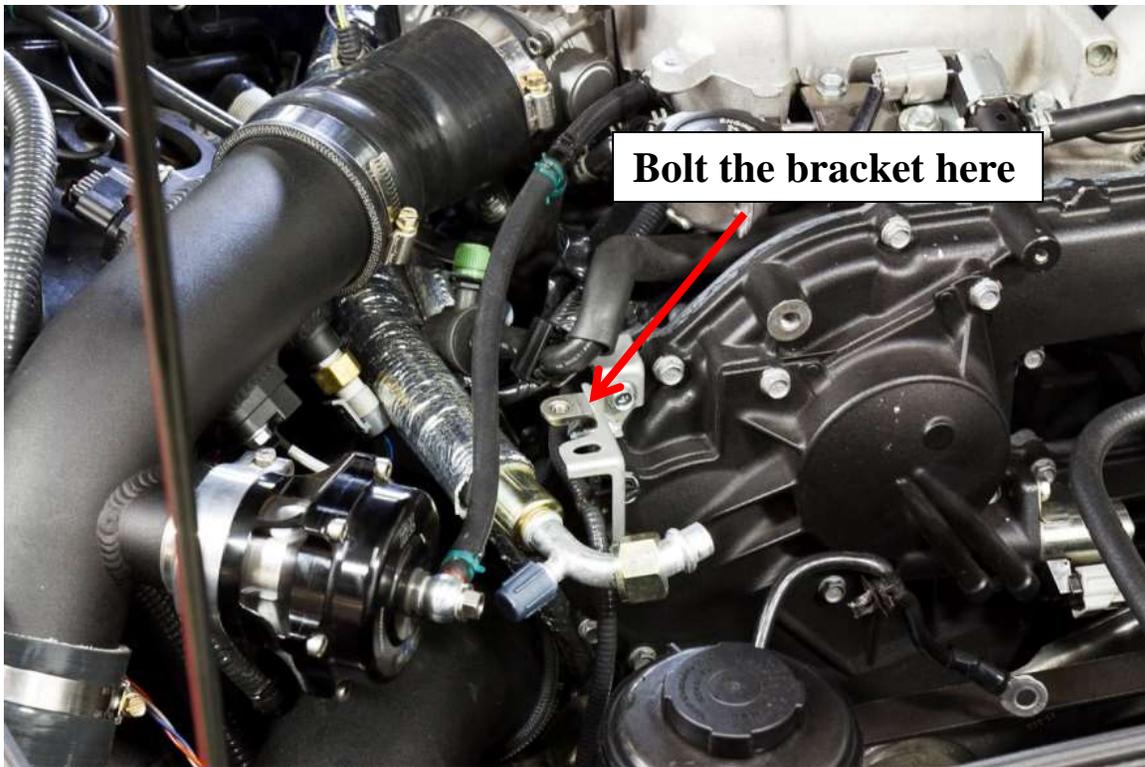


- 7) The firewall grommet pictured above will need to be trimmed to remove the line. Cut a slit into the grommet so you can remove it. It will also need to be trimmed in a later step to pass the new Alpha A/C line through.

### **Alpha Fuel Cooler Installation**

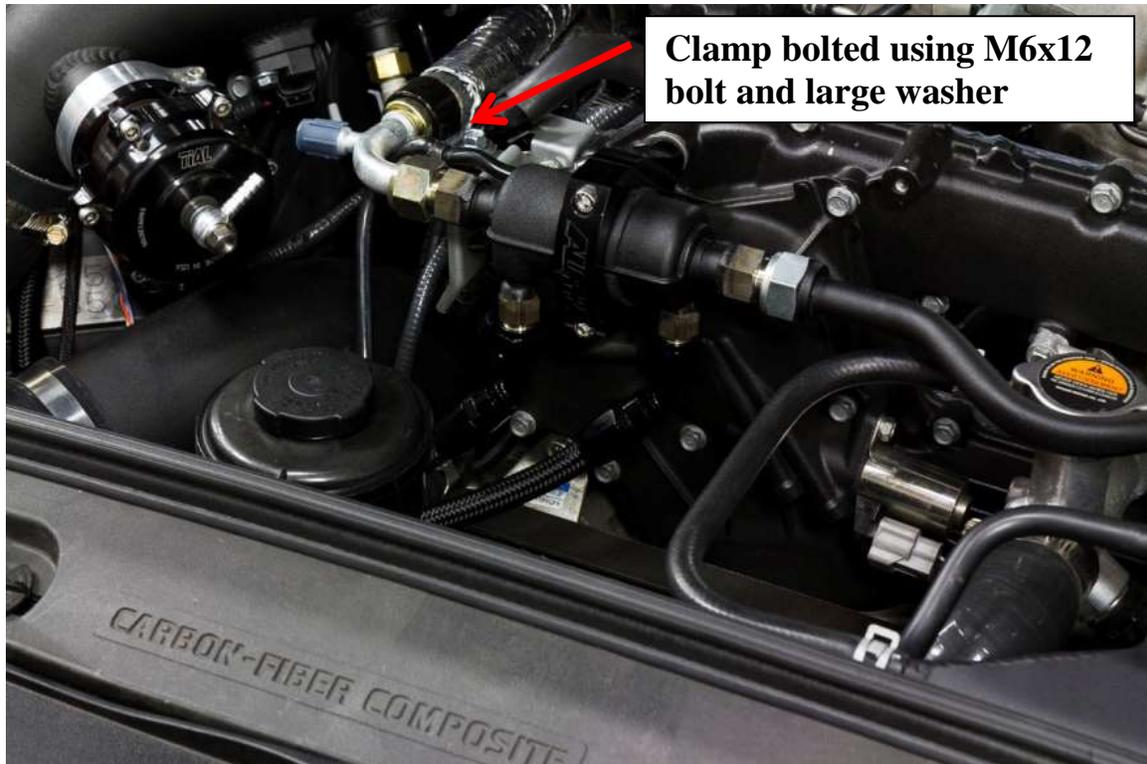
#### Performance Packages

- 8) Locate the new flexible Alpha A/C line with the straight fitting on one end and the 90 degree service port fitting on the other. This will route from the bulkhead connector on the firewall to the front right side of the engine.
- 9) Slide the straight end of the line under the throttle body coupler to the firewall.
- 10) Only use A/C PAG oil on the O-rings for the straight quick connect fitting. Clock the 90 degree fitting so the outlet is pointing across the front of the engine.
- 11) Push the straight quick connect fitting into the bulkhead connector until it clicks and locks into place.
- 12) Once installed trim the firewall grommet as needed and reinstall into the firewall.
- 13) Locate the small 90 degree bracket. This bracket will bolt to the wire harness bracket to an existing hole. There may be a harness clipped into this spot if the factory air boxes and IC piping are being used. If so, just unclip the harness. Bolt the bracket in place using a supplied M6x12 bolt.



- 14) Locate Alpha billet fuel cooler bracket and hardware.
- 15) Locate the two rubber pads. These pads mount on the fuel cooler as an isolator inside the billet clamp. Once the fuel cooler is located, they will be installed.
- 16) Remove the right side ground cable bolt. The Alpha bracket will bolt to this location with new hardware.
- 17) The mounting hole of the billet fuel cooler bracket is offset. Install the bracket so the cooler will sit lower than the mounting hole. If mounted the other way, the fuel cooler will be too high and will hit the hood.
- 18) Mount the main half of the bracket using the supplied M8 allen bolt and spacer. Do not forget to leave the ground cable in place. Tighten the bracket in place and make sure it is completely straight up and down.
- 19) There is an inlet and an outlet to the fuel cooler on the A/C side. The inlet has a red paint mark on the fitting. You can also tell the difference by the inlet and outlet id sizes. The inlet will be slightly smaller than the outlet.
- 20) Install the Alpha hard line to the fuel cooler outlet. Only use PAG oil on the O-rings. Leave the fitting loose on the fuel cooler to hardline to allow for adjustment. Bolt the hardline to the factory A/C compressor inlet using the factory 12mm nut and tighten.
- 21) Rotate the fuel cooler so the fuel line fittings are pointing downward and clear the front timing chain cover.
- 22) Adjust the fuel cooler side to side so the hardline bend centers on the coolant filler neck.
- 23) Attach the 90 degree service port fitting to the inlet of the fuel cooler, again only using PAG oil on the O-rings. Leave the fitting loose.

- 24)** Locate the 1" vinyl coated clamp, M6x12mm bolt and large washer. Attach the clamp around the 90 degree fitting with the service port. Bolt it to the small 90 degree bracket installed in step **11**).



- 25)** Once everything is in place, slide the rubber pads around the Alpha fuel cooler. You can choose to glue them in place. Bolt the outer Alpha fuel cooler bracket clamp together using the two supplied stainless M6 allen bolts.
- 26)** Tighten and double check all of your fittings.



## **Fuel Line Installation with Alpha Fuel Rails**

- 27)** Remove the -8AN return line. This line routes from the bottom of the fuel pressure regulator to the factory return hardline.
- 28)** Remove the -8AN O-ring fitting from the bottom of the fuel pressure regulator.
- 29)** Locate the -6 O-ring to -6AN fitting supplied in the kit and install it on the bottom return port of the fuel pressure regulator.
- 30)** Locate the supplied fuel line with the 90 degree -6AN hose end and 45 degree -6AN hose end on the other side.
- 31)** Install this line and route it from the bottom return port of the fuel pressure regulator up and over the strut tower. Route the line under the induction and then up to the fuel cooler. Attach it to the left port of the fuel cooler. (closest to the water neck)
- 32)** Locate the other fuel line, it should have a 90 degree 5/16" bundy quick connect fitting on one end and a 45 degree -6AN hose end on the other.
- 33)** Follow the same routing and make the connections at the factory return hardline and the right side port of the fuel cooler. Tighten and double check all fitting and hoses.
- 34)** Zip tie the lines together and out of the way of components.

## **Fuel Line Installation with Stock Fuel Rails**

- 35) Locate the fuel line with the 90 degree 5/16" Bundy quick connect fitting on one end and a 45 degree -6AN hose end on the other.
- 36) This line routes to the right side of the Alpha fuel cooler and to the factory return hardline. Install the line.
- 37) Locate the other line and male Bundy fitting. The line will have a 120 degree -6AN hose end and the other will be a 45 degree -6AN hose end. The other fitting will be a -6AN to 5/16" male Bundy. Attach the male Bundy to the 120 degree -6AN hose end.
- 38) This line routes from the factory return line to the right side of the Alpha fuel cooler. (the side closest to the water neck)
- 39) Install the line and tighten the fittings. Double check the other fuel lines and fittings.
- 40) Zip tie the lines together and out of the way of components.

## **Charging the A/C System**

- 41) The A/C system capacity has been increased slightly. Factory specs are
  - a. 1.11 lbs
  - b. .50 kg
  - c. 500 grams
- 42) The new capacity will be this
  - a. 1.20 lbs
  - b. .55 kg
  - c. 550 grams
- 43) During charging, you will need to add oil. You will need to increase the oil amount removed in step 1) by .3 fl oz. Add oil and charge the system.
- 44) After charged, start the car and check to make sure the A/C pressures are within specification.
- 45) Now anytime the A/C system is operating, the cooler is working to drop the fuel temperature. The A/C system does not need to be blowing cold in the car all the time. Most automatic HVAC functions will run the A/C system as a conditioner so you can remain comfortable in the car and still have the system function. You can also choose to turn on the A/C directly then set the interior to a comfortable temperature.

**Enjoy!**