



INFINITI Q50/Q60

RED ALPHA HPFP

This pump is CFD-Optimized, all stainless steel, laser welded construction, and is capable of flowing over 36% more fuel than the stock unit.

Table of Contents

PAGE	03	Introduction
PAGE	04	Fuel Pressure Relief
PAGE	05	Disassembly Guide
PAGE	09	Installation Guide
PAGE	13	Tuning

WARNING/DANGER: SERIOUS RISK OF FIRE, EXPLOSION, BODILY INJURY INCLUDING RESULTING DEATH, AND ENGINE, VEHICLE, AND OTHER PROPERTY DAMAGE. THIS FUEL PUMP MUST BE INSTALLED AND REMOVED ONLY BY A QUALIFIED MOTOR SPORTS TECHNICIAN. TECHNICIAN ALSO MUST BE TRAINED IN HOW TO INSTALL AND REMOVE THIS PUMP FROM THIS SPECIFIC VEHICLE. TECHNICIAN MUST NOT SMOKE OR PARTICIPATE IN ANY ACTIVITY THAT WOULD BE CONSIDERED A CATALYST FOR IGNITION WHILE INSTALLING OR REMOVING PUMP AND MUST READ ADDITIONAL SAFETY-INSTRUCTIONS AT <https://www.amspower.com/cart/infiniti-vr30-red-alpha-high-pressure-fuel-pump.html/> BEFORE INSTALLATION OR REMOVAL.

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.

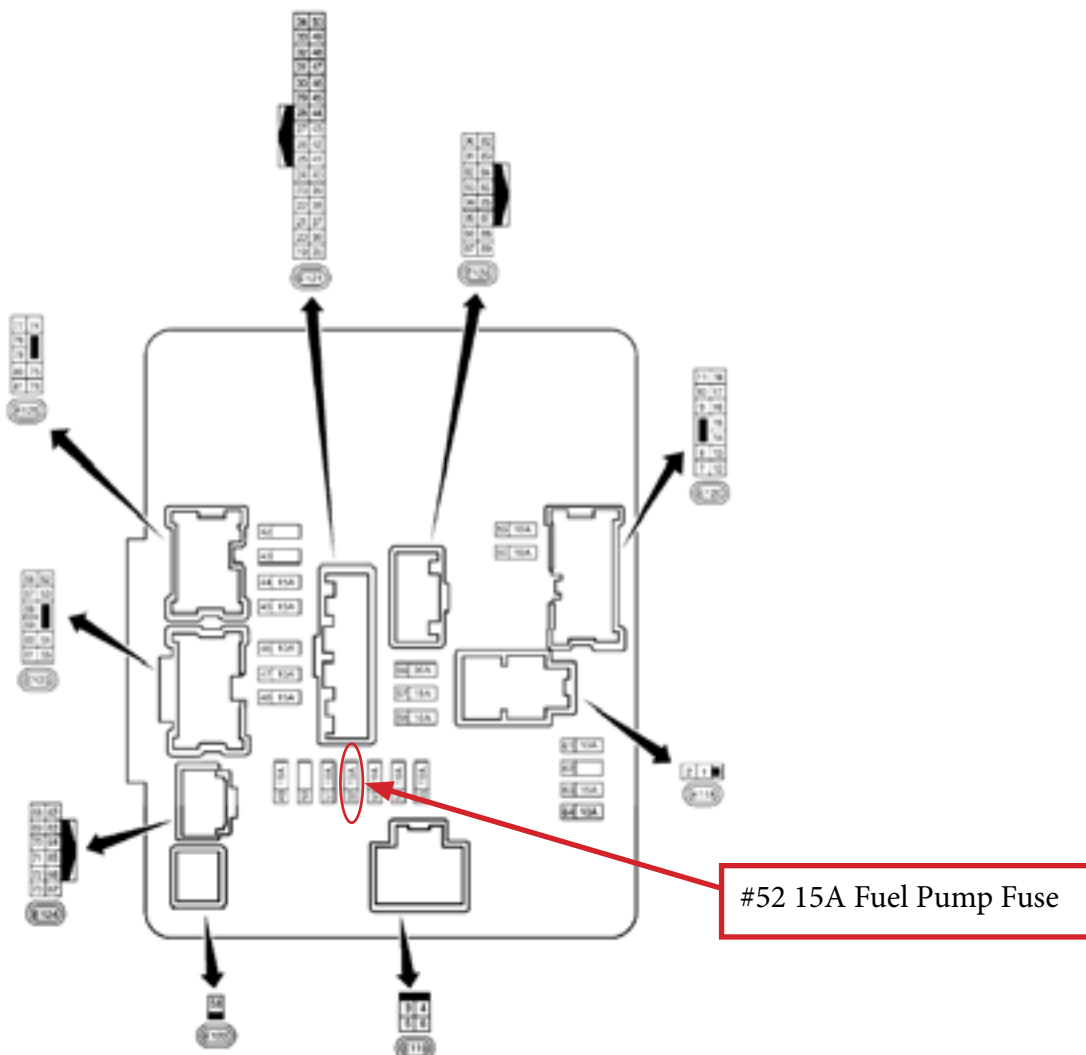
If you have any questions or issues at any time during the installation of your Alpha Performance product(s) please call us for technical assistance. The Alpha Performance tech line can be reached during business hours at 847-709-0530 for Alpha Performance products only.



Fuel Pressure Relief

Warning! Make sure the engine has cooled down. Disconnecting fuel lines on a hot engine can lead to fuel rushing out of fuel lines at random caused by fuel boiling when opened to atmosphere. Fuel temperatures in the low side fuel line can be as high as 150 degrees Fahrenheit at the inlet of the HPFP and the high side can be significantly higher especially at pressures of 200 bar. At a minimum, fuel in the high side rails and lines will follow engine bay temperature. Make sure to follow the OEM fuel pressure relieving procedure. (Without Consult Tool)

01. Pull the #52 (15A) Fuse listed as Fuel Pump in the IPDM. The IPDM (Intelligent Power Distribution Module) is the fuse box located next to the battery in the engine compartment.
02. Start the engine.
03. After the engine stalls, crank it for two or three times to release all the fuel pressure.
04. Turn the ignition OFF.
05. Disconnect the battery
06. Reinstall the fuel pump fuse after HPFP installation. See step #17



Disassembly

01. Remove the engine cover.



02. The HPFP is located on the left side of the engine (Driver's Side), just in front of the intercooler. First start by removing the bracket in front the pump. It is held in place by two 12mm bolts and holds three main harness clips plus one fuel line holder. Disconnect the harness clips and fuel line from its holder, remove the bracket.



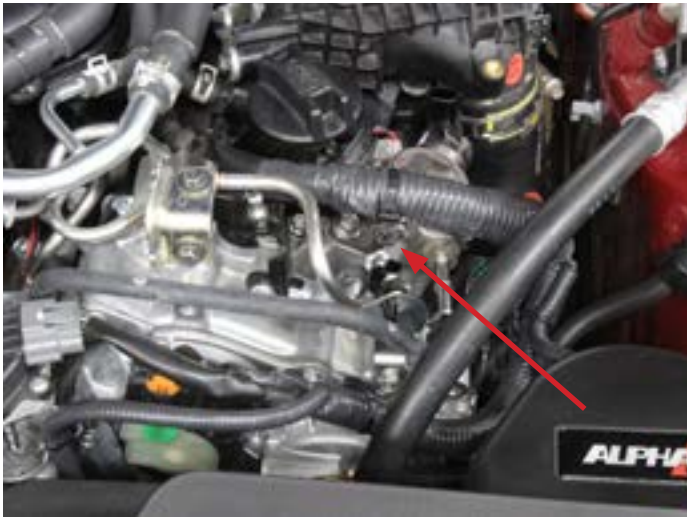
03. If equipped, remove the 10mm bolt and bracket bolted to the intercooler holding the sound deadening cover for the HPFP. Disconnect the connector at the HPFP and remove the cover.



04. Make sure fuel pressure has been relieved as was explained in the first section of the instructions, and the engine is cool. Place a rag under the inlet and outlet fitting on the HPFP to catch any fuel left over in the lines. Start by releasing the red lock tab on the low side inlet fitting. Make sure not to force the red lock tab off as it could break. Carefully spread the two tabs at the top outwards and slide the lock tab downwards. Disconnect the fitting from the HPFP.



05. Next disconnect the high side line by using a 19mm open end wrench.



06. Loosen but do not remove the two 10mm bolts on the bracket supporting the high pressure line. Unbolt the HPFP but do so in steps loosening the bolts one turn at a time. You must do this due to the possibility of cam shaft lobe being at the top and the HPFP being under the load from its return spring. Remove the HPFP once fully disconnected.



07. Make sure the surface of the cylinder head flange is clean. The OEM HPFP seals internally with an O-ring and the new Red Alpha HPFP seals on the surface of the flange with an O-ring installed in the base plate of the HPFP.



NOTES: The next step will require the help of an additional person. You will be required to make sure the fuel pump bucket that rides on the cam is at its lowest position. Due to the heavy spring installed on the Red Alpha HPFP for high RPM use, damage to the cylinder head threads for the HPFP could happen if this is not done. Do not draw the pump down using the bolts if the cam lobe is not at its lowest point!

08. Inspect the fuel pump bucket. If the bucket is at its highest point, the top edge of the bucket will align with the bottom of the chamfered section of the bore shown in the picture. The second picture shows the bucket at approximately its lowest point. If the bucket is at its highest point, you will need to gain access to the crank pulley to rotate the engine over. Raise the vehicle safe manner and remove the lower under tray. Using a short 19mm socket and long ratchet, rotate the engine over clockwise while the second person watches the bucket. The second person may need to push the bucket down during the process. Stop rotating the engine over once the bucket is at its approximate lowest point.



Installation

09. Once the bucket is at its lowest point, set the Red Alpha HPFP in place but do not bolt it in just yet.



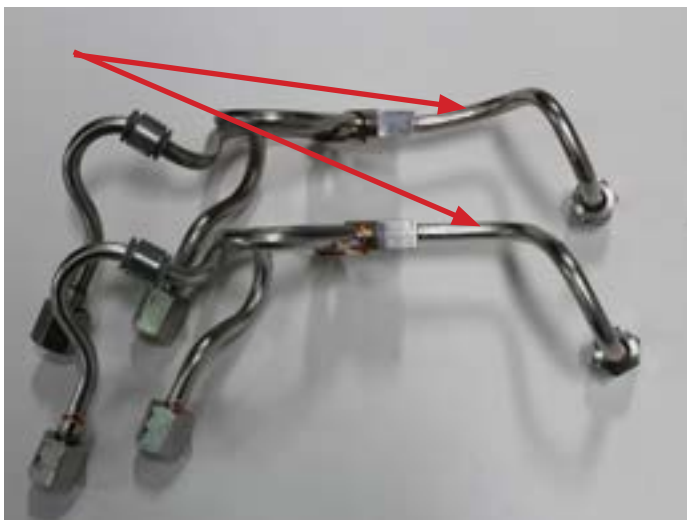
WARNING/DANGER: SERIOUS RISK OF FIRE, EXPLOSION, BODILY INJURY INCLUDING RESULTING DEATH, AND ENGINE, VEHICLE, AND OTHER PROPERTY DAMAGE. THIS FUEL PUMP MUST BE INSTALLED AND REMOVED ONLY BY A QUALIFIED MOTOR SPORTS TECHNICIAN. TECHNICIAN ALSO MUST BE TRAINED IN HOW TO INSTALL AND REMOVE THIS PUMP FROM THIS SPECIFIC VEHICLE. TECHNICIAN MUST NOT SMOKE OR PARTICIPATE IN ANY ACTIVITY THAT WOULD BE CONSIDERED A CATALYST FOR IGNITION WHILE INSTALLING OR REMOVING PUMP AND MUST READ ADDITIONAL SAFETY-INSTRUCTIONS AT [\[https://www.amspower.com/cart/infiniti-vr30-red-alpha-high-pressure-fuel-pump.html/\]](https://www.amspower.com/cart/infiniti-vr30-red-alpha-high-pressure-fuel-pump.html/) BEFORE INSTALLATION OR REMOVAL.

10. The high pressure feed line that connects to the HPFP needs to be modified. Due to the increased size of the pump and the outlet fitting location, the line needs to be modified in order to line up. Below are two pictures showing the misalignment. The clocking and orientation of the fittings are correct, the only correction that needs to be made is the height.



- Tighten the two 10mm bolts on the high pressure line support bracket first before modifying the high pressure line. The Y block and lines connected to the fuel rails must remain untouched. The only section to modify is the short run from the HPFP to the Y block and mounting bracket. Carefully bend the high pressure line until it perfectly matches up with the outlet fitting on the HPFP. The fitting must match up in height, clocking, and orientation. Continue to adjust until the alignment is correct. Once the alignment is correct, apply a tiny amount of engine oil to the threads of the HPFP fitting and thread the coupler on. Do not tighten the fitting yet. The top line in the first picture below shows the modified line vs the unmodified version just below it.

CAUTION: Take care when modifying the line. Make sure to remove the HPFP when doing this. This is to protect the fittings from damage. If the line or fitting sealing area on the HPFP is scratched and damaged in anyway, the parts will need to be replaced.



- Once everything is lined up properly, install the two supplied M8 allen bolts. Make sure to tighten the bolts in steps the same way as was done during removal. Tighten the allen bolts to 22 ft lbs (29.5 N.m). Once the HPFP is torqued into place, tighten the high pressure fuel line coupler. Tighten the coupler nut to 27 ft lbs (36 N.m). Last, unbolt and retighten the high pressure line support bracket to take any unwanted stress off the line after the HPFP and fittings are tight.

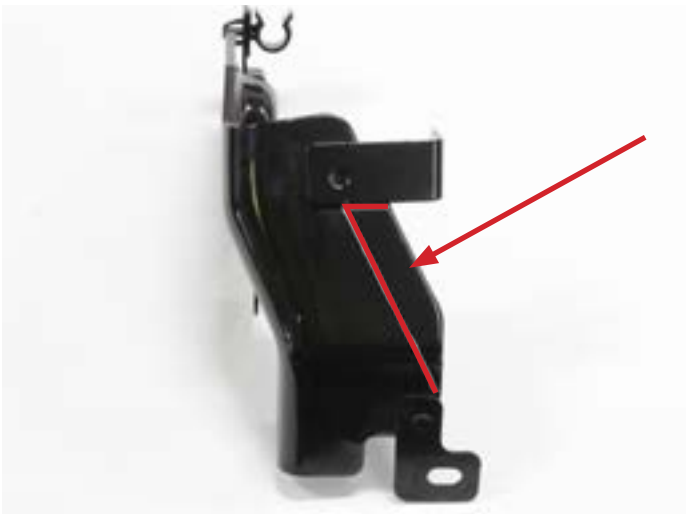


13. Reconnect the low pressure line and slide the red lock into place. A little silicone spray is recommended on the fitting to prevent damage to fitting O-rings. There is a support bracket that can be removed since the low side line location changes with the HPFP. If using our Red Alpha Flex Fuel Kit, this bracket can remain.

NOTES: The low side inlet fitting location of the HPFP was changed for fuel inlet flow optimization. This change had very positive impact on improving flow over previous models of the HPFP.



14. The front bracket removed in step #2 needs to be modified before reinstallation. There is a small section that needs to be cut out in order to clear the inlet fitting of the HPFP as it just touches. The first picture below shows the outline of what needs to be cut out. The second picture shows the section cut out and touched up with paint.



15. Restall the bracket in the reverse order. Make sure the clip the harness back into its three mounting locations.



16. Locate the 5" long 3/8" ID reflective heat sleeve. Install the heat sleeve as shown in the picture below. Make sure to slip the sleeve under the line so the wrapped part is on the top. Also make sure the sleeve is installed close to the pump. Reinstall the low pressure line back into the retaining clip attached to the front bracket.



NOTES: The reflective heat sleeve will protect against chaffing and heat transfer since it touches the high pressure line with the new inlet fitting location. The heat sleeve must be used.

17. Double check all your connections. Reinstall the #52 (15A) fuse removed in the pressure relieving section. Prime and start the engine. Check all lines and fittings for leaks. Reinstall the engine cover once complete.

NOTE: Due to the nature of performance parts with modifying the high pressure line and routing of the low pressure line, routine inspection should be made to all connections and components of your fuel system. We have seen and experienced OEM component failures on these vehicles with zero modifications to the fuel system. Precautions must be made.

Enjoy!

Tuning

In order to take full benefits of our HPFP, special Alpha calibrations to your tune will need to be made. Once the HPFP is installed, the vehicle will run. However, tuning may be required and must be checked! Please contact a Alpha sales representative for your needs.