



AEROMOTIVE
Part # 14135
'04-'06 Subaru WRX Fuel Rail Kit
INSTALLATION INSTRUCTIONS

CAUTION:

Installation of this product requires detailed knowledge of automotive systems and repair procedures. We recommend that this installation be carried out by a qualified automotive technician.

Installation of this product requires handling of gasoline. Ensure you are working in a well ventilated area with an approved fire extinguisher nearby. Extinguish all open flames, prohibit smoking and eliminate all sources of ignition in the area of the vehicle before proceeding with the installation.

When installing this product, wear eye goggles and other safety apparel as needed to protect yourself from debris and sprayed gasoline.

WARNING!

The fuel system is under pressure. Do not open the fuel system until the pressure has been relieved. Refer to the appropriate vehicle service manual for the procedure and precautions for relieving the fuel system pressure.

The enclosed Aeromotive fuel rails utilize o-ring sealed AN-08 style ports; these ports are NOT PIPE THREAD and utilize NO THREAD SEALANT. To use the enclosed fuel rails in your vehicle's fuel system you must install the necessary adapter fittings and o-rings, high pressure fuel lines and regulator to adapt your system to the configuration and ports of these fuel rails. Please call for a catalog of the complete line of quality Aeromotive products.

The enclosed Aeromotive fuel rails are intended to be installed on an unmodified OEM intake manifold of the identified application. Aeromotive cannot guarantee the proper fitment on aftermarket intake manifolds and the end user is responsible for verifying proper fitment and assumes all liability.

When installing o-rings it is important to place a small amount of light oil on both the o-ring and the mating surface to ease installation and prevent damaging the o-ring.

The following installation instructions are for a typical installation, for specific year and model installation instructions please refer to your vehicles service manual.

Aeromotive system components are not legal for sale or use on emission controlled motor vehicles.

Special tools needed:

Fuel line quick disconnect tool

Supplies needed:

Vehicle service manual

Fuel injector replacement O-rings

Light oil

Solvent parts cleaner

Clean shop towels

This kit contains the following parts:

1ea p/n 14134 Subaru WRX 2.0L Fuel Rails

1ea p/n 13109 EFI Regulator

1ea p/n 15119 Supply Tee Adapter Fitting

2ea p/n 15635 ORB-06 to 5/16" Barb Fitting

3ea p/n 15606 ORB-06/AN-06 Port Fitting

1ea p/n 15607 ORB-08/AN-08 Port Fitting

2ea p/n 15636 ORB-08/AN-06 Banjo Port Fitting

4ea ORB-06 O-Ring

2ea ORB-08 O-Ring

4ea 5/8 Dia. Cushioned Cable Clamp

2ea p/n 15650 -06 Straight Hose End

1ea p/n 15651 -06 45-Degree Hose End

3ea p/n 15652 -06 90-Degree Hose End

1ea p/n 15653 -08 Straight Hose End

1ea p/n 15654 -08 45-Degree Hose End

1ea p/n 15655 -08 90-Degree Hose End

1ea p/n 15665 -08 90-Deg. Male ORB Hose End

10ft -6 Stainless Steel Braided Fuel Line

6ft -08 Stainless Steel Braided Fuel Line

3ft 5/16" 30R9 Fuel Injector Hose

3ft 1/4" OD Vacuum Tubing

The following steps are typical of most installations:

1. Once the engine has been allowed to cool, disconnect the negative battery cable, relieve fuel system pressure and drain engine coolant, referring to the appropriate vehicle service manual for the procedure on doing so.
2. First the factory manifold must be removed using the following steps, for specific details and instructions refer to the factory service manual.
3. Remove the turbo intercooler (top mount only) and air intake duct.
4. Disconnect all the wiring harness connections, noting where each goes.
5. Remove the bolts holding accessories and brackets to the manifold.
6. Disconnect all vacuum lines from the manifold, noting where each goes.
7. Remove the tumbler valve bolts connecting them to the heads, keeping the intake bolted to the top of the tumbler valve. In some cases it may be easier to remove the tumbler valves from the intake manifold.
8. Disconnect the fuel lines from the fuel rail assembly located on the driver side by the firewall, placing clean shop towels around the fuel lines to catch any gasoline that may be spilled during their removal

Failure to satisfy all safety considerations will result in fire, explosion, injury and/or loss of life to yourself and/or others.

9. Carefully lift off the intake manifold, tumbler valve, OE fuel rail assembly.
10. Remove the three bolts holding the OE fuel lines to the intake manifold.
11. Remove the four bolts holding the OE fuel rails to the tumbler valves.
12. Remove the OE fuel rail assembly from the intake manifold assembly, being careful not to damage the fuel injector o-rings.
13. Place clean shop towels around the injectors to catch any gasoline that may be spilled during their removal. Remove each of the injectors from the manifold by gently pulling upward on each of the injectors.

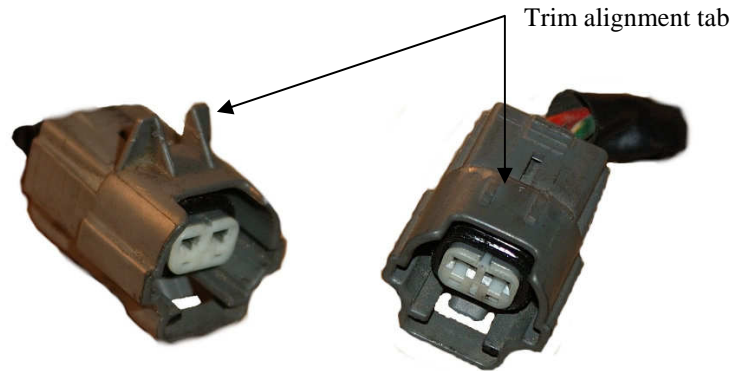
Failure to satisfy all safety considerations will result in fire, explosion, injury and/or loss of life to yourself and/or others.

14. Remove the old o-rings from the fuel injectors, inspect the injectors for any dirt or debris and clean if needed. It is suggested that the old o-rings be replaced, contact your local parts store or dealer to purchase the correct replacement o-rings.
15. Coat the new fuel injector o-rings with a light oil to ease installation.
16. Carefully install the new injector o-rings on the injectors.

When installing o-rings it is important to place a small amount of light oil on both the o-ring and the mating surface to ease installation and prevent damaging the o-ring.

17. Place a thin coat of light oil in the fuel rail injector bores to help prevent cutting the o-rings during installation.
18. Carefully place each of the fuel injectors in the corresponding fuel injector bore of the Aeromotive fuel rails.
19. Place each of the Aeromotive fuel rail / injector assemblies onto each of the tumbler valves, being sure to align the bottom of each injector with the injector bores in the tumbler valve.
20. Reinstall the fuel rail mounting bolts and tighten.

21. With the Aeromotive fuel rail properly secured to the intake manifold, Move the fuel injector vertically downward until it bottoms out on the intake manifold, In this downward position, inspect the upper fuel injector o-ring (on the fuel rail side) and insure it is fully covered by the fuel rail injector bore. If any of the o-ring is exposed, loosen the fuel rail bracket screws and adjust the installation height until the o-ring is no longer exposed and retighten the bracket screws. In the situation where the fuel injector has no vertical travel, either the fuel rail brackets can be adjusted or the brackets shimmed until the fuel injector fits freely. Do not pressurize the fuel rail until the proper fuel rail installation height is achieved.
22. Orientate the fuel injectors such that the electrical connector is aligned with the outer ends of the Aeromotive fuel rail.
23. It will be necessary to trim the alignment tabs off of the fuel injector wiring harness connectors.

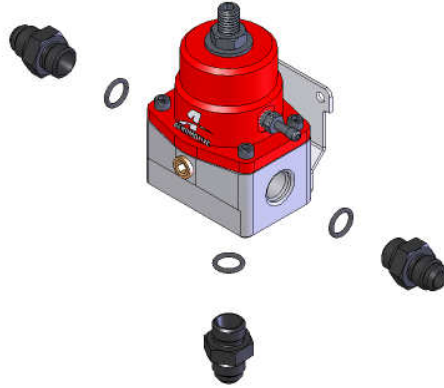


24. Reinstall intake manifold assembly replacing gaskets and retightening bolts as outlined in factory service manual.

Ensure the any spilled gasoline and any gasoline soaked shop towels are cleaned up and removed from the vicinity of the vehicle!

25. Find suitable place in the vehicle's engine compartment to mount the Aeromotive regulator, typically on or near the passenger side strut tower. Using the supplied mounting bracket as a template, mark the bracket mounting holes and drill to accept a #10 screw.
26. With the bracket attached to the regulator, mount the bracket and regulator to the vehicle using two #10 screws, nuts and lock washers.

27. Install one ORB-06 o-ring on the port (cut-off) side of each of the three p/n 15606 ORB-06/AN-06 port fittings. Then thread the port (o-ring) side of these fittings into each of the three ORB-06 ports on the regulator.



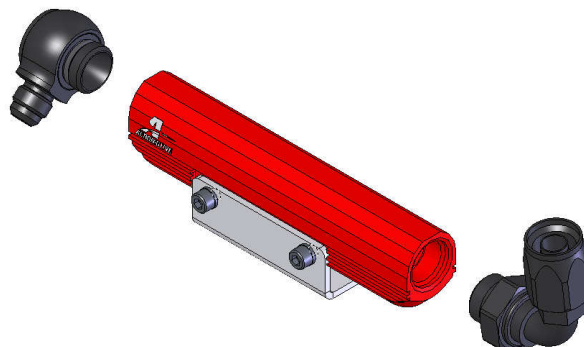
28. Locate the two p/n 15636 ORB-08/AN-06 Banjo Port Fittings and insure that an ORB-08 O-ring is installed on the port Side of each.



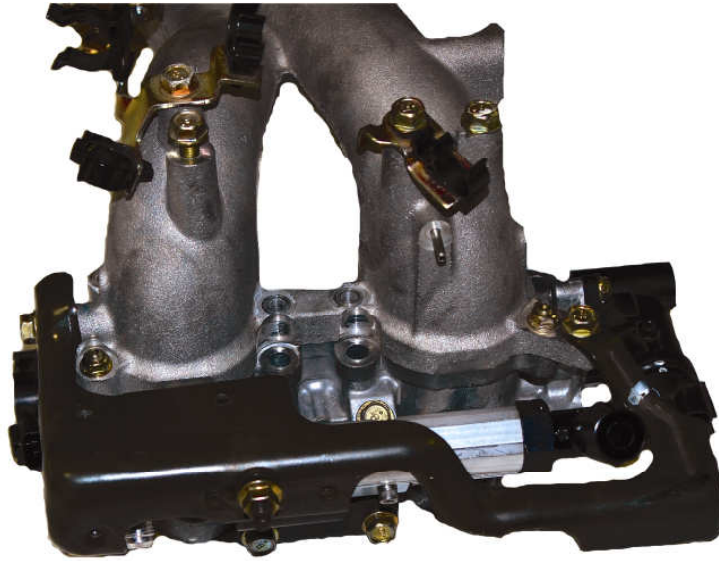
29. Locate the p/n 15665 -08 90-Deg. Male ORB Hose End and install one ORB-08 o-ring.



30. On the passenger side fuel rail, thread the port (o-ring) side of one of the ORB-08 to AN-06 Banjo fitting into the rear port and thread the AN-08 90-degree male ORB hose end in the front port.



31. Reinstall the passenger side “Fuel Pipe Protector” to insure that the rail and fittings have adequate clearance.



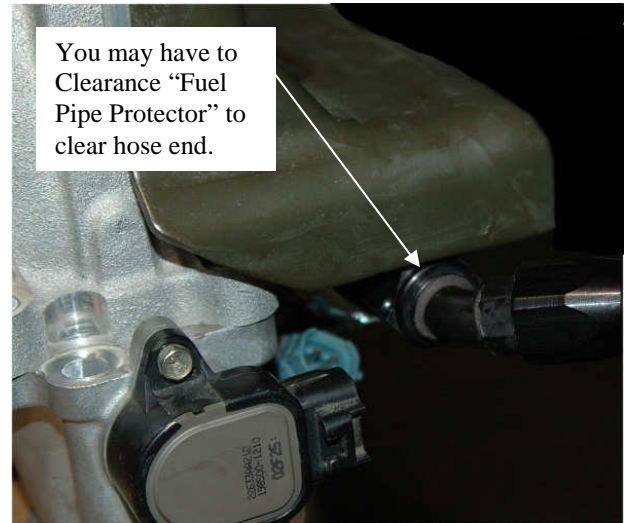
32. Install one ORB-08 o-ring on the port (cut-off) side of p/n 15607 ORB-08/AN-08 port fitting.



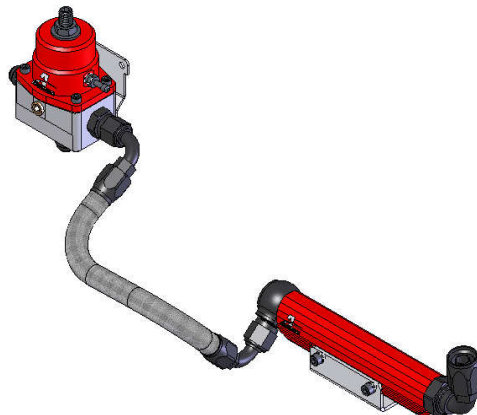
33. On the driver side fuel rail, thread the port (o-ring) side of the remaining ORB-08 to AN-06 Banjo fitting into the rear fuel rail port and thread the port (o-ring) side of the ORB-08/AN-08 port fitting into the front fuel rail port.



34. Reinstall the driver side “Fuel Pipe Protector” to insure that the rail and fittings have adequate clearance, the front edge of the “Fuel Pipe Protector” may need clearanced to allow room for the hose end that threads onto the AN-08 union fitting on the front of the fuel rail.



35. Connect one of the AN-06 90-degree hose ends to the closest inlet (side) port on the fuel pressure regulator and a second AN-06 90-degree hose-end to the Banjo fitting located in the rear of the passenger (right) side fuel rail. Plan a route for the line between the two hose-ends, measure the length of fuel line needed, and cut. See section titled Hose and Fitting Assembly for fuel line assembly instructions. Once the hoses are assembled, **ensure there is no debris in the hose** and install it.



36. Connect one of the AN-06 45-degree hose ends to the Banjo fitting located on the rear of the driver (left) side fuel rail and an AN-06 straight hose end to remaining inlet (side) port on the fuel pressure regulator. Plan a route for the line between these hose-ends, measure the length of fuel line needed, and cut. See section titled Hose and Fitting.

Assembly for fuel line assembly instructions and install the hose-ends. Once the hoses are assembled, **ensure there is no debris in the hose** and install it.



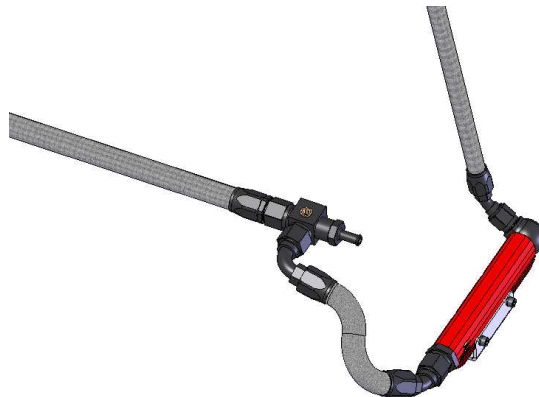
37. Install one ORB-06 o-ring on one of the AN-6 to 5/16 barb adapter fittings. Install the o-ringed side into the ORB-06 inlet port of the supply tee adapter fitting.



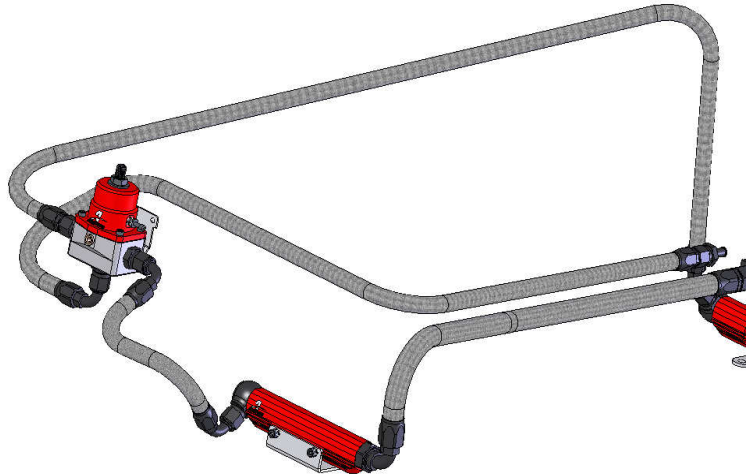
38. Connect the AN-08 straight hose end to the straight-through AN-08 male flare on the supply tee adapter. Plan a route for the line between the supply tee adapter and the AN-08 90-degree male ORB Hose end located in the front of the passenger (right) side fuel rail. Measure the length of fuel line needed and cut. See section titled Hose and Fitting Assembly for fuel line assembly instructions. Once the hoses are assembled, **ensure there is no debris in the hose** and install it.



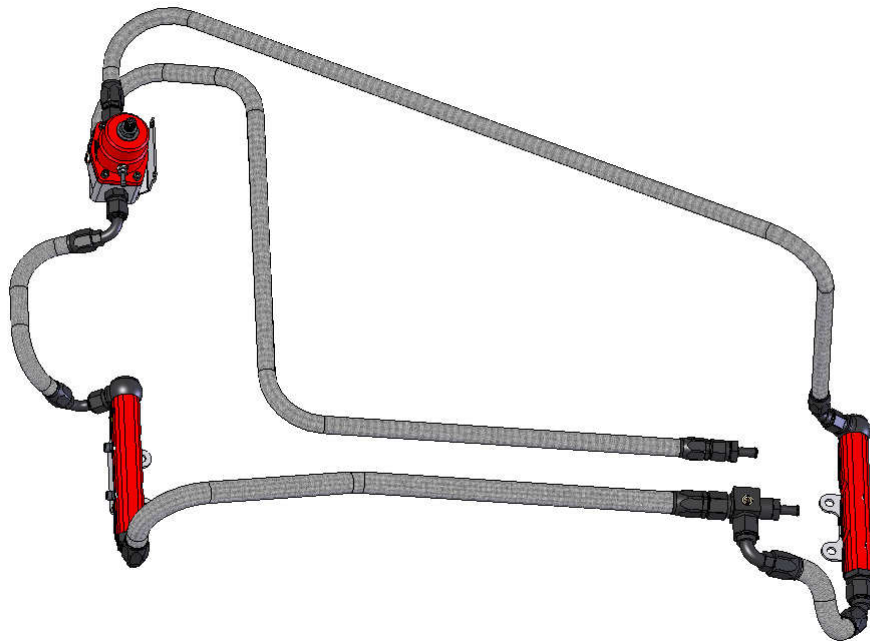
39. Connect one of the AN-08 45-degree hose ends to the front of the driver (left) side fuel rail and an AN-08 90-degree hose end to the 90-degree AN-08 male flare on the fuel supply tee adapter. Plan a route for the line between the fuel rail and the supply tee adapter, measure the length of fuel line needed and cut. See section titled Hose and Fitting Assembly for fuel line assembly instructions. Once the hoses are assembled, **ensure there is no debris in the hose** and install it.



40. Install the barb-end of p/n 15635, AN-06/5/16" Barb Adapter, into the 5/16" return line and clamp securely. Connect a AN-06 90-degree hose-end to the 06-AN male located on bottom of the fuel pressure regulator and a AN-06 straight hose-end to the AN-06 side of new, return line adapter fitting. Plan a route for the line between the fuel pressure regulator and the return line fitting adapter. Measure the length of fuel line needed and cut. See section titled Hose and Fitting Assembly for fuel line assembly instructions. Once the hoses are assembled, **ensure there is no debris in the hose** and install it.



41. After installing all the fuel lines, the system should look similar to below.



Ensure the any spilled gasoline and any gasoline soaked shop towels are cleaned up and removed from the vicinity of the vehicle!

42. Using the supplied 5/16" SAE 30R9 fuel injection hose route a line from the OE fuel supply line to the new fuel supply tee-adapter.
43. Using the enclosed 1/4" plastic vacuum line extend the OE boost reference line that was removed from the OE fuel pressure regulator route to the new adjustable Aeromotive fuel pressure regulator.
44. Using the enclosed wire loom clamps secure the fuel line in place as needed.
45. Reinstall any electrical wiring, vacuum lines, fuel lines and throttle body components that where removed for the original fuel rail removal.
46. Refill engine coolant and check system for leaks.
47. Reconnect the battery and turn the ignition to the ON position WITHOUT starting the car. After several second turn the ignition key to the OFF position, wait one minute. Repeat this process until you pressurize the fuel system.
48. Adjust the fuel pressure regulator to the desired fuel pressure (Factory setting with no vacuum is 42 psig). Once the fuel pressure gauge registers the desired fuel system pressure and there are no fuel leaks, start the engine.
49. With fuel pressure in the system, check for leaks from and around all the fuel system components and all fuel lines and connections. If any fuel leaks are found, turn the ignition key to the OFF position, remove any spilled gasoline and repair the leak before proceeding.
50. Once the fuel system has been confirmed to be leak free, test drive the vehicle to insure proper operation and re-check the fuel and coolant systems for leaks. If any leaks are found, immediately shutoff the engine and repair the leak(s)

Hose and Fitting Assembly

CAUTION:

When assembling this product, wear eye goggles and other safety apparel as needed to protect yourself from debris and sharp edges.

- A. Wrap hose with masking tape at desired cutoff length. Cut hose through masking tape squarely to desired length using a cut-off machine or a fine tooth hacksaw. Remove the masking tape.
- B. Unthread the hose socket from the rest of the hose end fitting.



- C. Insert hose in the socket with a twisting and pushing motion until the hose is fully seated in the socket.
- D. Using a grease pencil, marker or tape, mark the location of the hose in relation to the hose socket which you just installed.
- E. Using a light oil lubricate the inside of the hose and the hose end mating parts.
- F. Carefully thread the hose end onto the hose socket, making sure that the hose does not push out of socket, by observing the mark you placed on the hose in step D.





- G. Using a properly sized wrench, complete threading the two components together (The maximum allowable gap between the two fitting components is .030 inches).



- H. Inspect the hose for push out by comparing the mark you made on the hose in step D to the hose end socket location.
- I. Clean all debris from exterior and interior of hose.
- J. All lines should be tested to twice their operation pressure prior to use.

AEROMOTIVE, INC. LIMITED WARRANTY

This Aeromotive Product, with proof of purchase dated on or after January 1, 2003, is warranted to be free from defects in materials and workmanship for a period of one year from the original date of purchase. No warranty claim will be valid without authentic, dated proof of purchase.

This warranty is to the original retail purchaser and none other and is available directly from Aeromotive and not through any point of distribution or purchase.

If a defect is suspected, the retail purchaser must contact Aeromotive directly to discuss the problem, possible solutions and obtain a Return Goods Authorization (RGA), if deemed necessary by the company. Please call 913-647-7300 and dial option 3 for the technical service dept. All returns must be shipped freight pre-paid to the company and with valid RGA before they will be processed.

Aeromotive will examine any product returned with the proper authorization to determine if the failure resulted from a defect or from abuse, improper installation, misapplication or alteration. Aeromotive will then, at it's sole discretion, return, repair or replace the product.

If any Aeromotive product is determined defective, buyer's exclusive remedy is limited in value to the sale price of the good. In no event shall Aeromotive be liable for incidental or consequential damages.

Aeromotive expressly retains the right to make changes and improvements in any product it manufactures and sells at any time. These changes and improvements may be made without notice at any time and without any obligation to change the catalogs or printed materials.

Aeromotive expressly retains the right to discontinue at any time and without notice any Aeromotive product that it manufactures or sells.

This warranty is limited and expressly limits any implied warranty to one year from the date of the original retail purchase on all Aeromotive products.

No person, party or corporate entity other than Aeromotive shall have the right to: determine whether or not this Limited Warranty is applicable to any Aeromotive product, authorize any action whatsoever under the terms and conditions of this Limited Warranty, assume any obligation or liability of any nature whatsoever on behalf of Aeromotive under the terms and conditions of this Limited Warranty.

This Limited Warranty covers only the product itself and not the cost of installation or removal.

This Limited Warranty is in lieu of and expressly excludes any and all other warranties, expressed or implied. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.