

Installation Instructions: VQ35DE Fuel Rail System

Part Number: KK3905

Applications: 2003-06 Nissan 350Z all & 2003-06 Infiniti G35 (VQ35DE and “Rev Up” engines)

Disclaimer and Warranty

A vehicle modified with Cosworth competition and or racing performance products will not meet the legal requirements for operation on public roads and highways. It is the purchaser's responsibility to check and comply with all local, state and federal laws prior to operating vehicle. Installation and use of performance products may also affect and void warranty and insurance policies. In general, Cosworth Performance Parts carry no warranty. Cosworth, LLC and Cosworth Ltd. shall not be liable for direct, indirect, incidental or consequential damage or injury to persons or property that might be claimed as a result from the installation, improper installation, and failure of part including claims for delay, loss of profits or labor. There are no warranties expressed or implied.

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Parts List

ITEM #	QTY.	DESCRIPTION	COSWORTH PART #
1	1	Cosworth VQ35DE Fuel Rail – LH	Not Available
2	1	Cosworth VQ35DE Fuel Rail – RH	Not Available
3	1	Manifold Fuel Supply	Not Available
4	6	Keep Plate Injectors	ZK0014
5	1	Fuel Hose -6 LH	ZK0026
6	1	Fuel Hose -6 RH	ZK0027
7	1	1/4" O/D BENT TUBE, EVAP 350Z	ZK0028
8	6	-6 O-Ring 12.0 x 2.0 SEC	PP1949
9	12	SCREW M4 x 0.7 x 6 SCH. 12.9	20001161
10	4	UNION -6 AL	CT2490
11	1	P-CLIP EPDM 1/4" OD tube 17/64" hole	20001025
12	2	PLUG PORT -6 AL	PR0575
13	1	WASHER - M6 FLAT - SST	PR6125
14	1	PLUG 1/8" NPT, allen zinc plated	PP1120
15	1	Socket Cap Screw, M6x1.0x12, stainless	20001132
16	12	O-Ring .296id x .139 SEC nitrile	PP4578

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General Information

Congratulations, you are the new proud owner of a Cosworth VQ35DE Fuel Rail System. Your new fuel rail system is designed by the very same engineers who design fuel systems for F1, ALMS, Champ Car, Formula Atlantic, WRC, and other forms of professional motorsports. Your fuel rail system provides the basis for a flexible and configurable fuel system that allows you to install and plumb the VQ35DE engine for anywhere between stock and 1100hp of fuel. Your fuel rails are designed to handle the vigor of drag, road, endurance, and all other forms of racing.

It is strongly recommended that this fuel rail system is installed by an experienced tuning shop, mechanic, or engine builder. To maximize horsepower and torque gains, we recommend having your engine professionally tuned and calibrated by an experienced tuning shop also. Your Cosworth fuel rails are not legal for use on pollution controlled vehicles that will be operated on a US highway. Please check your local laws for your local regulations.

Specific applications (350Z and G35) – This manual is designed as a guide to explain the intricacies and details for the assembly of the fuel rail system. Once assembled, it will directly replace the factory fuel rails. Please refer to the factory service manual for all other removal and installation procedures of factory components not covered in this manual.

Your Cosworth VQ35 fuel rail system is designed for use with the 287hp and 300hp rear wheel drive engines. The fuel rail system is not designed for use on any front wheel drive or any other VQ35DE applications. Cosworth does NOT provide technical support for any other configuration other than intended. If you wish to adapt the product to your own application, you will have to do so on your own.

Please take a few minutes to inspect and count the parts to ensure there are no signs of damage or missing parts. Pay special attention to the flat, machined surfaces. If the parts are damaged, please contact the shipping company to make a claim. If you are missing parts and the box was obviously torn or opened, then contact the shipping company to make a claim. If you are missing parts and the box was fully sealed in Cosworth packaging, please contact Cosworth for replacement parts.

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Installation Tips

Fuel Injectors

The Cosworth Fuel Rail System is designed to for use with either the factory fuel injectors which are Bosch EV6 type fuel injectors. While the Cosworth Fuel Rail System is designed exclusively for use with the Bosch EV6 type fuel injector, experienced mechanics can also install other types of fuel injectors. The Bosch EV1, Lucas, Siemens, Rochester or RC Engineering fuel injectors can also be used, but washers must be used to shim the fuel rail position to the correct height. Do not use the keep plates (#4) when using injectors other than the Bosch EV6 type. The keep plates are designed specifically for Bosch EV6 type fuel injectors. Because there are a wide variety of injectors that can be made to fit, Cosworth does not offer any technical support when using injectors other than factory or the Bosch EV6 type. Also note that if using washers to shim the height of the fuel rails and using a Cosworth twin plenum intake manifold, you will also have to space the plenum higher to clear the fuel rails due to their higher mounting position. Spacing the manifold higher can be achieved by stacking multiple factory gaskets and/or using an aftermarket phenolic spacer type gasket.

Configurations

Although this instruction manual covers the Cosworth Fuel Rail System to be installed to directly replace the factory fuel rails, an experienced mechanic, tuner, or engine builder can configure the Cosworth rails specifically for your application. Your fuel rail system can be configured with an external regulator, with a balance tube, a single feed, dual feeds, etc. The possibilities are nearly endless. However, Cosworth does not offer technical support with fuel rail plumbing outside of those shown within this manual. It is impossible for us to cover every single configuration and is best left to an experienced mechanic, tuner, or engine builder.

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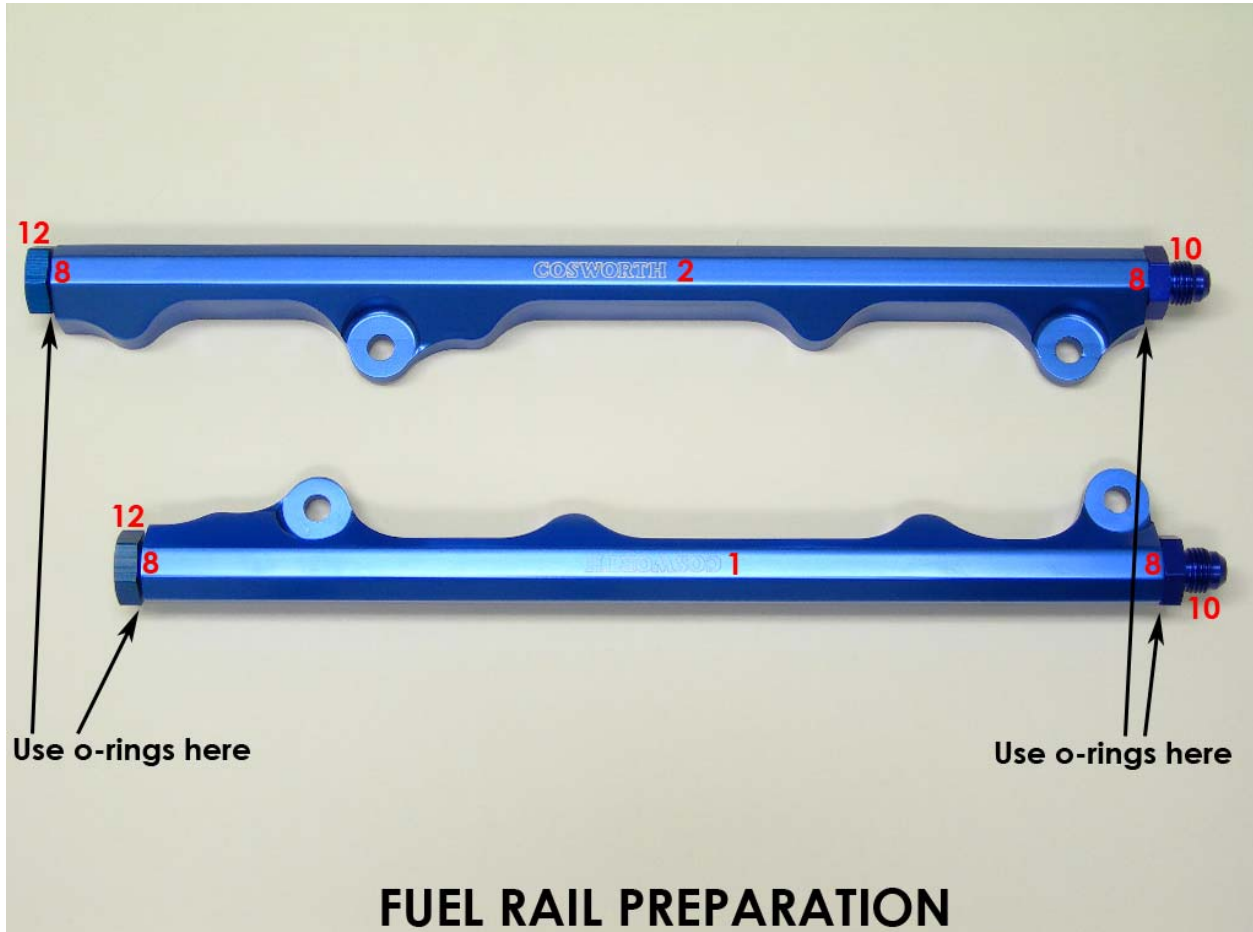
Installation

Prepare the Cosworth Fuel Rail system for installation by following the steps below.



1. Prepare the fuel supply manifold for installation by using the following red item numbers shown in the illustration above. Use Teflon tape on fitting **#14**. The port for **#14** can also be used for a fuel pressure sender for a gauge, ECU, dash, or data logging system. Do NOT use Teflon tape on the **#10** fittings as the **#8** o-rings are used for sealing. Torque **#10** fittings to 150 lbf-in or 17 Nm.

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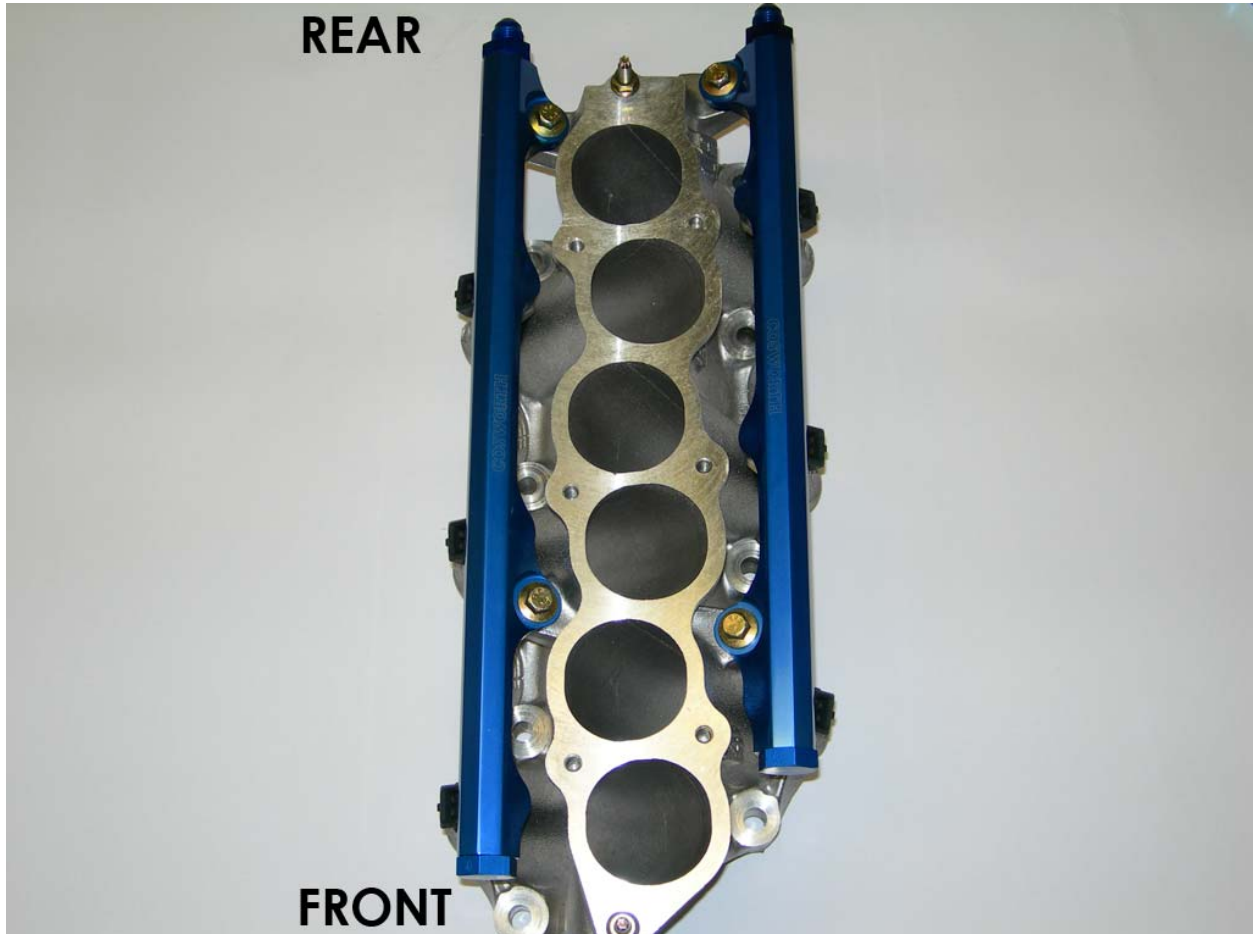
2. Prepare the fuel rails for installation by using the following red item numbers shown in the illustration above. Do not use Teflon tape on the #10 or #12 fittings as the #8 o-rings are used for sealing. Torque #10 and #12 fittings to 150 lbf-in or 17 Nm.

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3. Install new **#16** o-rings on top and bottom o-ring grooves of fuel injector. After coating o-rings with a light oil, gently insert fuel injector into fuel rail as depicted above. If installing EV6 (stock) type fuel injectors, then insert **#4** keep plate in to the injector's keeper groove. If using any other style injector, do not use the keep plates at all. Then secure keep plate to Cosworth fuel rail with **#9** screws and torque screws to 72 lbf-in or 8.1 Nm. Repeat this procedure for all 6 fuel injectors.

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4. Install LH and RH rail assemblies on to the factory lower intake manifold using the factory M8 bolts and plastic washers if using EV6 (stock) type fuel injectors as depicted in the illustration above. Torque these M8 bolts to 7.9 lbf-ft or 10.7 Nm first from the rear to the front of the engine. Then torque a second time to a final torque of 17 lbf-ft or 23 Nm from the rear to the front of the engine. If you are using another type of injector that is taller in height, you will have to shim the mounting height of the rails with spacers or washers (not supplied) to match the new injectors. Before inserting lower section of the fuel injectors in to the lower intake manifold injector ports, be sure to coat o-rings with a light oil first.

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5. In the illustration above, you can see how the Cosworth Fuel Rail System directly replaces the factory fuel rail assemblies. At this point, the fuel rail assemblies should already be installed on the lower intake manifold.
6. Bolt the **#3** fuel supply manifold assembly to the tabs on the factory intake manifold. Or if you are using the Cosworth Twin Plenum intake manifold, secure the **#3** fuel supply manifold to the billet aluminum bracket that is bonded to the carbon fiber end cap.
7. Now install and connect the **#5** and **#6** fuel hoses between the fuel supply manifold and fuel rail assemblies. The -6AN hose end fittings should be tightened to 150 lbf-in or 17 Nm of torque.
8. Connect the factory fuel supply pulsation dampener to the **#3** fuel supply manifold assembly using the **#9** screws. Tighten the **#9** screws to 64 lbf-in or 7.2 Nm.
9. Before re-installing the intake plenum, prime the fuel system and check for leaks. In case there are any fuel leaks, they can be easily detected with the intake plenum off the engine. If there are any leaks, then double check your installation and replace the o-ring in question.
10. If there are no leaks, then proceed with re-installing all other accessories according to the Nissan factory service manual.

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Warranty

In general, Cosworth competition and/or performance parts carry no warranty. Cosworth LLC and Cosworth Limited shall not be liable for direct, indirect, incidental or consequential damage or injury to persons or property that might be claimed as result from the installation or improper installation and failure of part, including claims for delay, loss of profits or labor. There are no warranties expressed or implied.

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