



INSTALLATION INSTRUCTIONS

2.8L 12V VR6 FUEL RAIL

VOLKSWAGEN

P/N: 20-0877

Document: 19-0364

Support: info@radiumauto.com

CAUTION

Only a qualified technician following applicable safety procedures should perform the installation of this product.
One must have knowledge in repair and modification of fuel systems and general vehicle modifications to install this product.

Gasoline and other fuels are flammable and can be explosive.

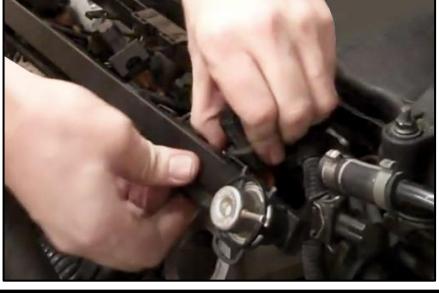
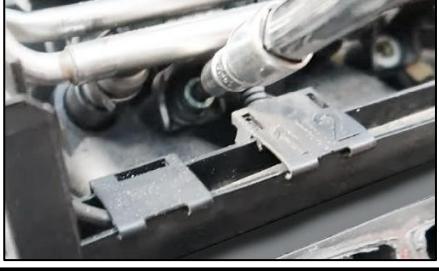
Only install in a well-ventilated location to minimize buildup of fuel vapors.

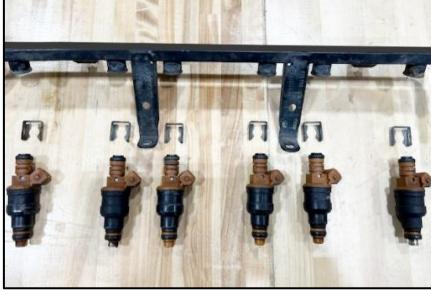
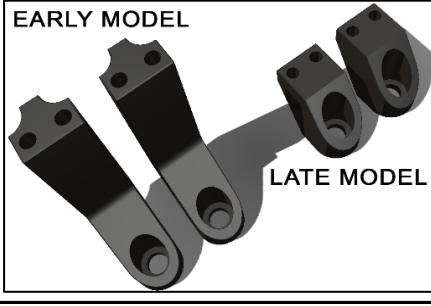
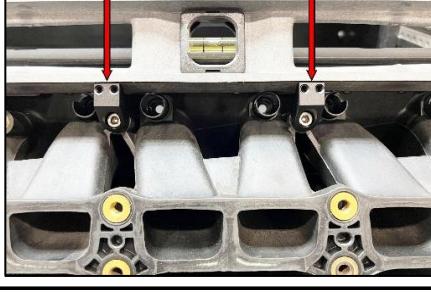
No sparks, open flames, smoking or other ignition sources are to be present. Draining and removal of all fuel from the fuel system is recommended.
Proper eye and personal protection is required at all times during installation.

WARNING

The fuel system is under pressure! Do not loosen any connections until relieving the fuel system pressure.
Consult a service manual for instructions on relieving fuel pressure safely. This product is designed for off-highway and racing use only.
Fuel system components may not be legal for sale or use on emissions controlled motor vehicles. Consult local, state, and federal laws.

STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1		<p>NOTES:</p> <ul style="list-style-type: none"> - This fuel rail is compatible with many different models and engines. - In depth instructions will NOT be covered. - A factory Workshop Manual is recommended. - Because of a clearance issue, the early model 2.8L 12V VR6 upper intake manifold can NOT be reused with the Radium fuel rail. 	
		First, the fuel system will need to be depressurized.	
		Temporarily remove the 15A fuel pump fuse from the fuse box. Next, start the vehicle and allow the engine to stall. Reinstall the fuse and remove the key from the ignition switch.	
	10mm Socket	To disconnect the battery, remove the negative terminal (as shown).	
		CAUTION: Disconnecting the battery may cancel the fault memories of some control units.	
		Getting to the point where the upper intake manifold can be removed can be quite tedious. Shown are 2.8L 12V VR6 upper intake manifolds removed from the vehicle (late model shown at right).	
		NOTE: The early model upper intake manifold (shown left) can NOT be reused with this big bore Radium Engineering fuel rail.	

5		<p>Carefully pull off the vacuum hose (as shown) from the fuel pressure regulator (FPR).</p> 
6	<p>Pliers Rag</p> <p>Shown are 2.8L 12V VR6 fuel rail barbed inlet/outlets. Early model shown left. Late model shown right.</p>	
7		<p>Pull the main injector wire harness up out of the clips. Rotate all 6 fuel injectors to access the electrical plugs. To free the connectors, squeeze and simultaneously pull up to release.</p> 
8	<p>5mm Allen Wrench 10mm Socket Wrench</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. For early model engines, use a 10mm socket wrench. 2. For late model engines, use a 4mm Allen wrench, as shown. 3. These OEM screws will NOT be reused. 	
9	<p>Rag</p> <p>NOTE: The injectors may or may not remain attached to the fuel rail.</p>	
10	<p>Bring the fuel rail assembly to a workbench.</p> <p>NOTE: For late model engines, the bottom section of the injectors (shown) may or may not pull out of the lower intake manifold seats. They can be put back in the intake manifold or they can be installed onto the fuel injectors. Either way works.</p>	

11	<p>Rag</p> <p>Pick</p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>To unlock the fuel injectors, pry off the 6 metal retaining clips from the fuel rail. These will be reused.</p> <p>Next, pull the 6 fuel injectors from the fuel rail. Inspect the fuel injector O-rings and replace if necessary.</p> <p>NOTE: Early model 2.8L 12V VR6 fuel rail and injectors shown.</p>	
12	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>Provided are 2 different pairs of fuel rail mounts. Depending on the engine, 2 mounts will be used and 2 mounts will NOT be used.</p>	
13	<p>Thread Locker</p> <p>4mm Allen Wrench</p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>Early model 2.8L 12V VR6 lower intake manifold</p> <p>Apply a medium-strength thread locker to the threads of the 4 M5x0.8mm socket head screws. Assemble the 2 (long) fuel rail mounts and the 4 screws to the fuel rail, in the exact orientation shown.</p>	
14	<p>5mm Allen Wrench</p> <p></p> <p></p> <p></p> <p></p> <p>Late model 2.8L 12V VR6 lower intake manifold</p> <p>This newer VR6 lower intake manifold requires 2 unique mounting steps. Do NOT install the (short) mounts to the fuel rail in this step.</p> <p>First, install the (short) fuel rail mounts directly to the intake manifold using the provided M6x1mm socket head screws. Make sure the mounts are level with respect to the manifold as depicted.</p>	
15	<p>Oil Lubrication</p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>Adapter fittings will need to purchased separately. There are three 3/4"-16 (8AN ORB) threaded ports on the fuel rail.</p> <p>Go to www.radiumauto.com and click on the 8AN ORB fittings product page to see the plethora of options. NOTE: Be sure to lubricate the O-rings (shown) prior to installation.</p>	
16	<p>Oil Lubrication</p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>For ease of installation, lubricate the injector O-rings, intake manifold seats, and fuel rail injector bores.</p> <p>Fully insert the injectors into the fuel rail injector bores. Orientate the injectors until they face the proper direction. Next, insert the OEM injector clips making sure they lock in place.</p>	

17	<p>5mm Allen Wrench</p> <p>Early model 2.8L 12V VR6 lower intake manifold</p> <p>Line-up and place the fuel rail assembly onto the intake manifold. Push the fuel rail downwards to fully seat the injectors into the ports.</p> <p>Once everything is positioned correctly, secure the fuel rail using the 2 provided M6x1mm socket head screws, as shown.</p>	
18	<p>4mm Allen Wrench</p> <p>Late model 2.8L 12V VR6 lower intake manifold</p> <p>Line-up and place the fuel rail assembly onto the intake manifold. Push the injectors into the ports. NOTE: If the injector seats are still in the intake manifold, the injectors will need to be rotated accordingly.</p> <p>Once everything is positioned correctly, secure the fuel rail to the Radium Engineering billet mounts using the 4 provided M5x0.8mm socket head screws, as shown.</p>	
19	<p>Plumb the rail to your fuel system (not covered in this manual).</p> <p>For late model engines, reinstall the intake manifold and verify clearance with the new large bore fuel rail, as shown.</p> <p>NOTE: The early model upper intake manifold can NOT be reused with this fuel rail. Radium Engineering does not manufacturer a short runner intake manifold, but they are available from the aftermarket.</p>	
20	<p>10mm Wrench</p> <p>After everything is reinstalled, reconnect the battery.</p> <p>Cycle the keyed ignition switch ON/OFF a few times (without starting the engine). This allows the fuel pump to prime the system. Check for leaks.</p> <p>Start the engine and confirm again while the engine is running.</p> <p>INSTALLATION COMPLETE</p>	