

# INSTALLATION INSTRUCTIONS SUBARU EJ TGV HOUSINGS & DUAL PORT INJECTION

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<b>INSTALLATION</b> 20-0489-0X TGV Housing Kit Follow Steps 1-6	<b>CAUTION</b>
<b>INSTALLATION</b> 20-0499 DPI Fuel Rails Follow Steps 7-12	<p>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.</p> <p style="text-align: center;"><b>Gasoline and other fuels are flammable and can be explosive.</b></p> <p>Only install in a well-ventilated location to minimize buildup of fuel vapors.</p> <p>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.</p>
	<b>WARNING</b>
	<p>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.</p>

**STOP! THIS PRODUCT HAS LEGAL RESTRICTIONS. READ THIS BEFORE INSTALLING/USING!**

**WARNING!**

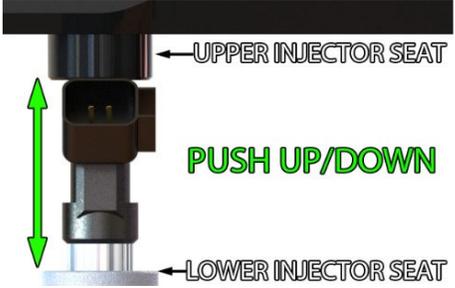
THIS IS A RACE ONLY PRODUCT MANUFACTURED AND SOLD FOR INSTALLATION ON VEHICLES DESIGNED TO BE USED SOLELY FOR COMPETITION PURPOSES. ONCE THIS PART IS INSTALLED, THE VEHICLE MAY NEVER BE USED, OR REGISTERED OR LICENSED FOR USE, ON A PUBLIC ROAD OR HIGHWAY. IF YOU INSTALL THIS PART ON YOUR VEHICLE AND USE THE VEHICLE ON A PUBLIC ROAD OR HIGHWAY, YOU WILL VIOLATE THE CLEAN AIR ACT AND MAY BE SUBJECT TO PERSONAL CIVIL OR CRIMINAL LIABILITY, INCLUDING FINES OF UP TO \$4,819 PER DAY.

IT IS THE RESPONSIBILITY OF THE INSTALLER AND/OR USER OF THIS PRODUCT TO ENSURE THAT IT IS USED IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IF THIS PRODUCT WAS PURCHASED IN ERROR, DO NOT INSTALL AND/OR USE IT. THE PURCHASER MUST ARRANGE TO RETURN THE PRODUCT FOR A FULL REFUND.

THIS POLICY ONLY APPLIES TO INSTALLERS AND/OR USERS WHO ARE LOCATED IN THE UNITED STATES; HOWEVER, CUSTOMERS WHO RESIDE IN OTHER COUNTRIES SHOULD ACT IN ACCORDANCE WITH THEIR LOCAL LAWS AND REGULATIONS.

STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1	10mm Socket	<p><u><a href="#">20-0489-0X TGV Housing Kit, Subaru EJ</a></u></p> <p>To depressurize the fuel system, remove the fuel pump fuse and start engine. Allow engine to stall. Remove ignition key.</p> <p>Caution: Disconnecting the battery may cancel fault memories of some control units. Consequently, before disconnecting the battery, always interrogate the fault memories.</p> <p>Unscrew the fuel fill cap temporarily to relieve any residual air pressure.</p>	
		<p>Reference the factory service manual for removing the tumble generator valve (TGV) housings. This procedure will vary from model to model and will not be covered in this document. Be prepared with a rag to catch coolant and fuel.</p> <p>Proceed to the next step after the TGV housings have been removed from the vehicle.</p>	
		<p>Unpackage the TGV housing kit. Make sure there are 2AN ORB plugs installed in the upper (secondary) injector ports.</p> <p><i>NOTE: If installing the 20-0499 Dual Port Injection Fuel Rail, the plugs can be removed.</i></p>	
2			
3	1/8" Allen Wrench		

4	5mm Allen Wrench	Depending on the Subaru model, the intake manifold's interior mounting holes will be in unique locations. Rotate the included eccentric blocks 180 degrees to match the specific Subaru vehicle. <i>NOTE: The intake manifolds from the engines listed below are compatible with the TGV housings. However, top feed fuel rails and fuel injectors must be purchased separately.</i> 04-06 Impreza STi OEM side feed 05-06 Legacy GT OEM side feed 04-05 Forester XT OEM side feed 04-05 Outback XT OEM side feed	<p><b>INTAKE MANIFOLD COMPATIBILITY</b></p>	
	12mm Socket	Inspect and clean the cylinder head mating surface. Align and place the new provided TGV housing gaskets down on the cylinder heads.		
		Four of the long OEM M8 TGV housing mounting bolts (2 on each side) will NOT be reused. Instead, the 4 short M8 bolts (shown) must be used for the outer TGV housing holes. These bolts along with the OEM center bolts that secure the TGV housings to the cylinder heads should be torqued to 18.4 ftlbs (25 Nm)		
		These TGV housings are compatible with OEM Subaru top feed fuel injectors and any injector with the same fitment properties. When installing aftermarket fuel injectors, make sure the injectors have the adapter "buckets" installed on the outlets, as shown in the photo. If these adapters are not present, contact the injector manufacturer.		
5	10mm Socket	Torque the 12 OEM bolts (6 on each side) that secure the intake manifold to TGV housings to 6.1 ftlbs (8.25Nm).		
	Electrical Tape	Reinstall all components in reverse order. Protect the unused TGV electrical connectors with tape.		
		Reconnect the battery and refill coolant system. Cycle the ignition switch a few times (without starting engine). CHECK FOR LEAKS! If no leaks are found, start the engine and check again while running. <b>Installation complete</b>		
6	1/8" Allen Wrench	<b><u>20-0499 Dual Port Injection Fuel Rails, Subaru EJ</u></b>	<p><b>PRIMARY SETUP</b></p>	
	Petroleum Oil	Before beginning, make sure the correct fuel injectors are on hand. Refer to the Radium website for more info. The DPI fuel rails are specific to the 20-0489-0X TGV Housing Kit. First, remove the 2AN ORB plugs from the upper secondary injector ports. <i>NOTE: There are 8 adapters (4 hats/4 seats) included for the primary injectors. For OEM injectors, only the injector hats will be used. For aftermarket Bosch EV14 injectors, only the injector seats will be used.</i>		
		Lubricate the injector adapter O-rings and install to the injectors.		
7	Petroleum Oil	Lubricate all adapter fitting O-rings and secure to the fuel rails. <i>NOTE: Adapter fittings are NOT included. The end ports are 10AN ORB and the top ports are 8AN ORB.</i>		
		Lubricate each fuel injector's top O-ring and fully insert into each Radium fuel rail injector port. Press the included phenolic spacers into the underside of the fuel rail mounts. Position the fuel rail assembly onto the TGV housings and press to seat the lower injector O-rings.		
8				
9				

10	5mm Allen Wrench	Secure the DPI fuel rails to the TGV housing using the provided M8x1.25mm bolts.	
11		For certain engines, modification to the nearby area may be required for best fitment. This could be things such as the intake manifold, coolant expansion tank, etc.	
		Shown is an Subaru EJ255 intake manifold for example. The injector wiring harness mounting tabs on both sides of the intake manifold need to be cut off for the upper secondary injectors to fit.	
12		As a test, push the fuel injectors downward until they bottom out. Now inspect the injectors' upper O-rings and confirm they are still inserted into the fuel rail injector bores. Do not pressurize the fuel system until the proper height is achieved.	
		Orientate the fuel injectors such that the electrical connectors do not experience any interference with the surrounding area such as Subaru AVCS. Plug in each of the fuel injector connectors.	
13	10mm Socket	Reconnect the battery.	
		Cycle the ignition switch a few times (without starting engine). CHECK FOR LEAKS! If no leaks are found, start the engine and check again while running.	
		<b>Installation complete</b>	