



INSTALLATION INSTRUCTIONS

3S-GE / 3S-GTE (GEN3-5) FUEL RAIL

P/N: 20-0949


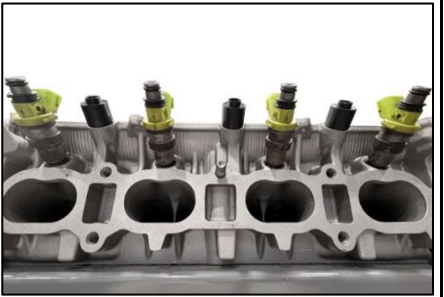


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Support: info@radiumauto.com

CAUTION	
<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. 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.</p>	
WARNING	
<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>	

STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1	10mm Socket Wrench	Be sure to turn OFF the ignition and disconnect the battery.	
		CAUTION: Disconnecting the battery may cancel the fault memories of some control units.	
2	10mm Socket Wrench	Because of the various compatible vehicles, removal of the fuel lines, manifold, fuel rail, and fuel injectors will not be covered. It is recommended to have a factory workshop service manual. NOTES: 1. The OEM mounting screws will NOT be reused. 2. Leave the 3 factory spacers on the head as they will be reused. As shown, there are differences depending on the exact 3S engine. 3. When removing the fuel rail, have a rag handy.	
	Rag		
3		TOYOTA 3S-GE (GEN3-5) & 3S-GTE (GEN4-5): INJECTOR NOTES a. Radium can only recommend the physical dimensions of factory or "OEM equivalent" injectors. b. The 4 provided injector seats will NOT be used for the Toyota 3S-GE (Gen3-5) and 3S-GTE (Gen4-5). c. The injector seats will ONLY be used for the Gen3 3S-GTE.	
4		TOYOTA 3S-GTE GEN3: INJECTOR NOTES a. The OEM "side-feed" fuel injectors cannot be reused. b. Injector Dynamics XXXX.46.11.14 injectors must be purchased. c. At this time, Radium cannot recommend any other injectors. d. The 4 provided fuel injector seats must be used when installing the fuel rail on this (3S-GTE Gen3) cylinder head.	

5	9mm Socket	TOYOTA 3S-GTE GEN3: INJECTOR SEATS A blunt object simplifies this process. Otherwise, these can be pressed-in with your fingers.	
	Tape		
6	Oil	TOYOTA 3S-GTE GEN3: INJECTOR SEATS Thoroughly clean the 4 injector port areas on the cylinder head. Be sure the O-rings are installed into the Radium Engineering injector seat grooves. Lubricate the O-rings and the cylinder head injector ports. Push or tap to fully seat the 4 injector seats into place. NOTE: Do NOT attempt to install these on any other cylinder head besides the 3S-GTE GEN3.	
	Hammer		
7		There are 3 sets of fuel rail mounting feet provided. Depending on the engine type, 2 sets of mounting feet will not be used.	
8	Allen Wrench	TOYOTA 3S-GE GEN3: FUEL RAIL MOUNTING FEET Referencing the depiction above, find the three appropriate mounting feet for the specific engine type. Position the mounting feet on the bottom side of the fuel rail in the orientation shown. Be sure to NOT accidentally use the threaded holes shown in red. Secure the mounting feet using the 6 provided M5x0.8mm socket head screws.	
9	Allen Wrench	TOYOTA 3S-GE GEN4-5: FUEL RAIL MOUNTING FEET Referencing the depiction above, find the three appropriate mounting feet for the specific engine type. Position the mounting feet on the bottom side of the fuel rail in the orientation shown. Be sure to NOT accidentally use the threaded holes shown in red. Secure the mounting feet using the 6 provided M5x0.8mm socket head screws.	
10	Allen Wrench	TOYOTA 3S-GTE GEN3-5: FUEL RAIL MOUNTING FEET Referencing the depiction above, find the three appropriate mounting feet for the specific engine type. Position the mounting feet on the bottom side of the fuel rail in the orientation shown. Be sure to NOT accidentally use the threaded holes shown in red. Secure the mounting feet using the 6 provided M5x0.8mm socket head screws.	

11	Oil	Because this will be a custom fuel rail installation, adapter fittings are NOT included. The fuel rail has two 8AN ORB (3/4"-16) end ports. Go to www.radiumauto.com to find an array of compatible adapter fittings, fuel pressure regulators, pulse dampers, etc. that can be used.	
		NOTE: Lubricate the O-rings prior to installation.	
12	Oil	Lubricate the injector O-rings and the cylinder head injector seats. Insert the lower portion of the injectors, as shown.	
		NOTE: Depending on the injector, the connectors will need to be oriented properly to clear the surrounded area (manifold, mounting bosses, valve cover, etc.).	
		Confirm the OEM spacers are installed onto the cylinder head.	
13	Oil	Lubricate the 4 fuel rail injector bores and line them up with the fuel injectors. Press downward to fully seat.	
	6mm Allen Wrench	Secure the rail using the appropriate M8x1.25mm socket head screws. NOTE: The screw length is dependent on the engine type and spacers.	
		Orient the fuel injectors so the connectors can be plugged in.	
14	10mm Wrench	After all the necessary fuel rail plumbing is installed, reconnect the battery. 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.	
		Start the engine and confirm again while the engine is running.	
		INSTALLATION COMPLETE	