






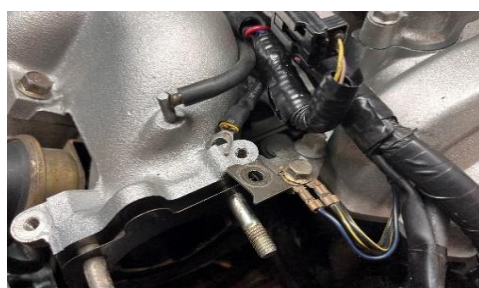
INSTALLATION INSTRUCTIONS




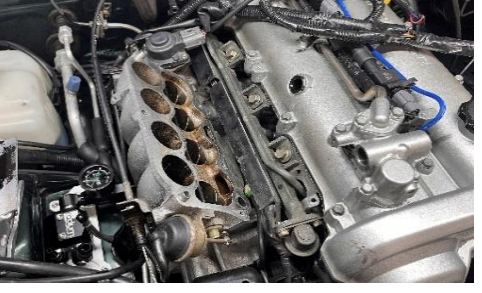
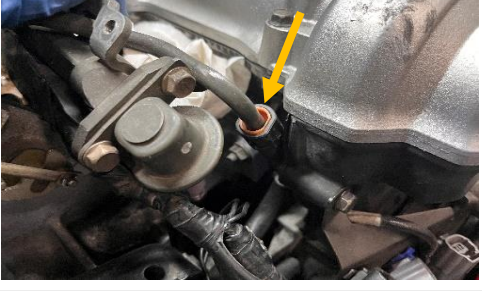

MAZDA MX-5 FUEL RAIL



94-97 Miata (NA), 99-05 MX-5 (NB)



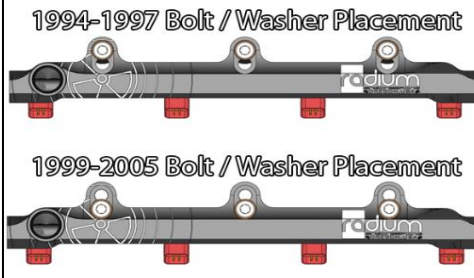
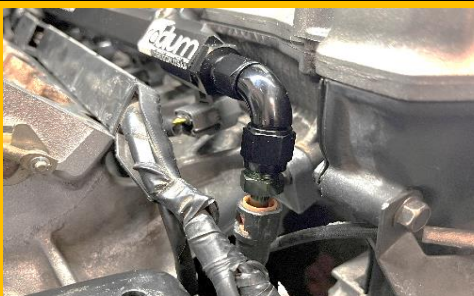

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CAUTION	
<p>Only a qualified technician following applicable safety procedures should perform the installation of this product.</p> <p>One must have knowledge in repair and modification of fuel systems and general vehicle modifications to install this product.</p> <p>Gasoline and other fuels are flammable and can be explosive.</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.</p> <p>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.</p> <p>Consult a service manual for instructions on relieving fuel pressure safely. This product is designed for off-highway and racing use only.</p> <p>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 Wrench	Before beginning, relieve fuel pressure by starting the engine with the fuel pump fuse disconnected or the fuel pump relay unplugged. Allow the car to stall.	
		Disconnect negative battery terminal.	
2		These instructions detail fuel rail installation on a MX-5 (NB) chassis. The upper intake plenum will be unbolted and removed from the lower portion of the intake manifold.	
		Disassembly will be different for MX-5 (NA) models due to the one-piece intake manifold design.	
3	12mm Socket	Disconnect the throttle cable and unplug the TPS sensor and idle motor. Remove the throttle body leaving the coolant lines attached. Position the throttle body out of the way.	
		Disconnect all vacuum line connections from the upper intake manifold.	
4	10mm Socket	Remove the screw holding the electrical ground bracket to the intake manifold just above the throttle body flange.	

5	12mm Wrench	Remove the bolt holding the intake manifold to the bracket in the area under the throttle body flange.	
6	10mm Socket	Remove the small bracket on the intake manifold shown.	
7	12mm Socket	Unplug the PCV valve from the valve cover.	
	10mm Socket	Remove all 6 bolts holding the upper intake plenum to the lower intake manifold. NOTE: It may be necessary to remove the variable cam timing solenoid from the valve cover for added clearance.	
8		Remove the upper plenum and associated gasket. Set aside.	
9	SAE Disconnect Tool	Disconnect the fuel feed line from the area in the front of the fuel rail. This can be done with a small pick or with an SAE quick disconnect tool.	
		Catch any spilled fuel with a rag.	
10	12mm Socket	Unclip the plastic electrical harness holder from the fuel rail.	
		Unplug the fuel injectors from the electrical harness.	
		Remove the three fuel rail mounting bolts.	

11		Remove the fuel rail and injectors.	
		Do not lose the 3 OEM black spacers found under the fuel rail mounting tabs. They WILL BE reused!	
		The three OEM mounting bolts will be replaced with stainless steel M8x1.25mm bolts.	
12	14mm Socket	If using a NB two-piece intake manifold with EGR, remove the engine lifting bracket from the back of the cylinder head. This will create the needed space for the rear fuel rail port.	
13		20-0422 NA Plumbing Kit	
		The OEM parts listed below will be reused for this plumbing kit.	
		4x - Mazda Fuel Hose Spring Clamp	
		2x - Mazda Convoluted Fuel Hose Sleeve (shown)	
		Retain these components during disassembly.	
14	8mm Allen Wrench	20-0423 NB Plumbing Kit	
	24mm Wrench	If creating custom fuel lines and not using either optional plumbing kit, skip to step 18.	
	Oil Lubrication		
		Install the fuel rail port plug and fuel pulse damper adapter into the ports as shown. Lubricate O-rings then tighten.	
15	24mm Wrench	20-0423 NB Plumbing Kit	
	Oil Lubrication	Lubricate the O-ring on the 6AN adapter and install to front fuel rail port.	
16	10mm Socket	20-0423 NB Plumbing Kit	
	Oil Lubrication	Swap the fuel pulse damper from the OEM fuel rail into the Radium fuel rail. Re-use the small screws.	
		NOTE: Rotate the fuel pulse damper as shown prior to tightening the screws.	

17	8mm Allen Wrench	20-0422 NA Plumbing Kit Install the plug in the rear most fuel rail port and the hose barb adapter in the front port. The OEM fuel pressure regulator and associated adapter will installed in the top port of the fuel rail. Swap the regulator from the OEM fuel rail. Lubricate all O-rings before installing the fittings.	
	24mm Wrench		
	Oil Lubrication		
18	Oil Lubrication	Carefully install the fuel injectors into the fuel rail ports.	
19	6mm Allen Torque Wrench	Position the fuel rail in place, lining up the injectors with their respective ports. Position the fuel injector wiring harness below the fuel rail where it will not be pinched. Place the fuel rail spacers underneath each mounting bolt location then install the provided mounting bolts with insulating washers. Ensure all injectors are in place and everything is lined up. Next, tighten the mounting bolts to 14 ft-lbs.	
20		Refer to this diagram bolt/washer placement based on model year.	
21	11/16" Wrench	20-0423 NB Plumbing Kit To complete the plumbing kit install on the NB, install the 90 degree female-female adapter on the fuel rail inlet. Then, install the SAE quick connect adapter (green fitting). Orient the assembly to point downward. Finally, tighten all fittings using a non-marring wrench. To connect the OEM fuel feed line, push until the SAE quick connect "clicks" into position.	
	5/8" Wrench		
22	Hose Cutter	20-0422 NA Plumbing Kit Locate the fuel feed hose. Install the included 5/16" fuel hose to the fuel rail front port and secure using an OEM spring clamp. Run the hose underneath the intake manifold (as shown) and route towards the lower frame rail mounted hard line. Measure and cut the hose to length. It will be roughly ~24" in total length.	
	Pliers		

23	Pliers	20-0422 NA Plumbing Kit	
	Hose Cutter	For the fuel return hose, install the leftover 5/16" fuel hose to the FPR low pressure return barb. Secure using an OEM spring clamp.	
		Run the hose between cylinder 2 and 3 intake manifold runners and route towards the upper frame rail mounted hard line. Measure and cut the hose to length. It will be roughly ~18" in total length.	
24	Pliers	20-0422 NA Plumbing Kit	
		Slide a convoluted sleeve and OEM spring clamp over the fuel feed hose and secure to the lower hard line.	
		Slide a convoluted sleeve and OEM spring clamp over the fuel return hose and secure to the upper hard line.	
25		Reconnect the battery and "key ON" the car to prime the fuel system. Do not attempt to start the engine. Inspect the fuel rail and associated fuel lines for any leaks and address as needed.	
		After inspection is completed, proceed to reassemble the intake manifold and all associated parts that were removed in previous steps.	
		INSTALLATION COMPLETE	