

Disclaimer:

This part is for race use only and does not have DOT (Department of Transportation) approval. Any misuse of this product is done so at the buyers own risk.

All items are guaranteed against defects in manufacture, and will be repaired/replaced if needed. However, any damage inflicted by the end user of this product is not the responsibility of WolfKatz Engineering LLC. If a part is not what you expected, you are welcome to return it for a refund if it is in resalable condition.

Unless otherwise stated, these parts have been tested on a 1993 Toyota MR2 Turbo. Any known compatibility problems will be noted. However, due to running model changes made by Toyota, there may be unforeseen changes. While WolfKatz can make recommendations, it is ultimately the responsibility of the purchaser to decide if a part is suitable to his/her application.

Wolf Katz MR2 Fuel Rail Installation Instructions:

Step 1: Disconnect battery and raise the rear of the vehicle. Be sure to support the rear of the vehicle with appropriate jack stands or ramps.

Step 2: Remove the intake pipe that enters the throttle body. Remove the throttle cable from the throttle body and set aside by opening the throttle body all the way and sliding the cable out. Set the cable aside.

Step 3: Remove the throttle body intake flange/tube (four bolts). Remove the intermediary piece bolted to the throttle body and the valve cover (six bolts). Unplug the black connector to the throttle position sensor. Unplug the grey connector to the Idle Air Controller on the throttle body. Unbolt the throttle body, pull off the rubber EGR hose, and set the throttle body on top of the valve cover (four bolts). Save the gasket that is between the throttle body and the intake manifold. If you feel inclined to replace the gasket, I have reused mine several times, the Toyota Part Number for the gasket is 22271-88381 . Don't remove the water hoses from the throttle body, unless you want to make more work for yourself.

Step 4: Now, for the fun part. The throttle body water hoses are connected to a bracket that is bolted to the back of the intake manifold via two 10 mm bolts. These bolts are a real pain to get to, but the bracket needs to be loose in order to remove the fuel rail. From under the car using a 1/4" drive socket and 10mm socket, remove the two bolts and let the bracket with hoses connected hang out.

Step 5: Remove the bolt on top of the fuel filter and save the two aluminum sealing washers. Watch for gas, don't smoke! There might be a bolt holding the hose to the side of the engine, if so, remove it as well. Now, remove the clamps on the drain fuel hose that runs from the fuel pressure regulator to the pipe near the distributor. I have found that needle nose pliers work well with these spring clamps. Save the hose, you may need it later if you are choosing to reuse your fuel pressure regulator.

Step 6: In order to easily remove the fuel rail, the wiring harness on top of the intake manifold will need to be loose. Take the two 10 mm bolts out that hold the plastic harness cover to the intake manifold. Remove the two banjo bolts that hold in the cold start injector line and set the bolts, 4 aluminum washers, and line aside. Next, remove the three bolts that hold the current complete fuel rail in (12 mm). Remove the oil cap and stick a paper towel or rag into the now open hole. Slowly work the fuel rail out of the car with the 3 foot supply hose that you previously unbolted from the fuel filter. Set the assembled unit aside. Be sure to not lose the three plastic spacers that are between the rail and the cylinder head. Now, remove the engine lifting hook that is on the driver's side of the engine. Put the hook in a safe place in case the unthinkable, a blown engine, should happen. You will not be able to reinstall it with the Wolf Katz fuel rail installed.

Step 7: Remove the long hose from the end of the original fuel rail. Be sure to save the aluminum sealing washers and remove the 10 mm bolt on the end of the hold down plate that passes through the clamp around the hose. Unbolt the injector hold down plate and set it aside (4 10mm bolts). If you are reusing the old fuel pressure regulator, remove it now by loosening the nut and turning the entire regulator to take it off.

Step 8: Time to assemble the Wolf Katz Fuel Rail. Place the rail in a vise using soft jaws or a towel to keep it from getting scraped up. Prepare your new injectors to be installed by lubing the o-rings with some light oil. I used some tri-flow, but pretty much any oil would work. Place one of the 4 included new o-rings (thinner ones) in the bottom of each of the injector cavities (they get squeezed to help prevent vacuum leak by the top plate). Insert your new injectors with the plugs facing the proper direction slowly being careful not to rip the o-rings. Now, place the supply hose banjo fitting in place on the end of the rail and secure it with the sealing rings and banjo bolt. Tighten the bolt such that the hose is as close to the rail as possible. Install the cold start injector line with the aluminum washers into the rail so that the banjo fitting with the tab sticking down goes into the groove cut for it. If you are not using the cold start anymore, use the single metric bolt and an aluminum washer (or the included copper washer) to plug the hole.



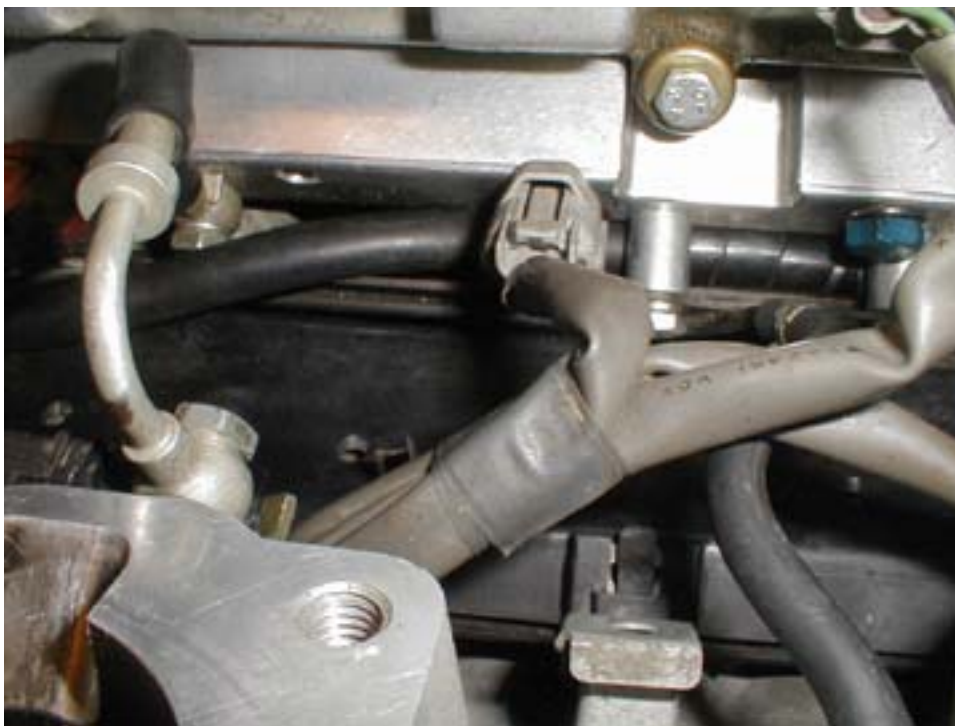
Step 9: Now, find the 4 spacers, 4 1/4 -20 hex bolts, 4 1/4 " lock washers, 4 remaining new o-rings (thicker ones), and the injector hold down plate. The spacers are used to hold the hold down plate in the proper location. Place the remaining new o-rings on top of the injectors and set the spacers in place. Route the fuel hose so that it passes under the hold down plate and between the number 2 and number 3 cylinder spacers. Place the hold down plate on the rail same as it was on the old one and bolt it in place using the hex bolts and the lock washers. It should squeeze the injectors down against the o-rings above and below the injectors. You may have to grind/file away a bit of the top plate near the banjo bolt shown in the picture above to make it clear properly (putting a bend in the very end of the plate would also do the trick).

Step 10: Remove the small clamp on the supply hosed, reverse it, and put it back on. Bolt the clamp in place so the hose is above the rail instead of behind it as it was before. Remove and clean the rubber seals that were on the bottom of the old rail. I was able to reuse mine without and problems, if you want to buy new ones, the Toyota Part number for them is _____. Install the rubber seals on the ends of the new injector rail.

Step 11 (optional): If your rail is setup to use the original regulator, then carefully screw in the regulator. Be sure the locking nut is backed all the off. As the regulator thread disappear into the rail, stop screwing it in. This is actually very important, if you screw in the regulator all the way and then just snug up the regulator nut, the assembled unit won't fit as well in your car! As soon as the o-ring can do its job on the regulator shaft, tighten the locking nut down such that the o-ring is compressed and the regulator sticks out of the end of the rail just a little more than it could have. The return line should be orientated such that it will face the ground when installed. Use the included longer piece of vacuum hose to connect up the regulator to the vacuum port on the regulator. Take the old fuel return hose and spring clamps and place the end with the 90 degree bend closer to the end of the hose on the barb on the regulator. **NOTE: With the Top of Rail FPR Location, you may have to trim your injector hold down plate to insure proper fitment!**



Step 12: Now for the real fun part, installing the rail. Take the assembled unit, long hose and all, and begin to slowly and carefully wind everything into place. This isn't easy, especially if you have the old regulator installed, but trust me, it is possible. Once you have weaved the rail basically into place, now is the tough part. Just as when you install the original rail, the damn thing won't want to go into place because the wiring harness across the intake runners won't let it. You are about to understand why you removed the bolts that hold the wiring harness to the intake runners and the bolts on the throttle body water hose bracket. Using your hands and if available, a friend, work the end of the assembled fuel rail, specifically the injector hold down plate, under the wiring harness. This will seem impossible at first, but it is required to get the rail in place. Once you get it, all will be well. Be sure the three plastic spacers are in place (I actually only use the outer two bolts now because the new rail is so much stiffer/stronger than the old one) and sink in the new blue bolts with washers and lock washers. The bolts should pull the rail down against the plastic spacers. Success! It's in!



Step 13: Now to pressure test the system. First, connect the supply line to the top of the fuel filter (be sure to reuse the aluminum sealing washers with the banjo bolt). Then, if you are reusing your drain hose, connect it with the appropriate spring clamp. If you are using a fuel pressure regulator, then your rail came with an AN – 6 male fitting in the end of it. I suggest mounting your regulator on the trunk wall and routing the appropriate hoses to it from the rail and to the tank drain. Connect the cold start injector line to the bottom of the intake manifold using the sealing washers and the banjo bolt. Remove the

coil spark plug wire from either the distributor or the ignition source. Reconnect the battery, turn the key on and crank the car over a bit (or open the diagnostic port and short pins FP and B+ together with a paperclip. This will run the pump full blast until you take the short out or turn off the key) . Sniff for leaks, beware, as you will likely smell an air fuel mixture coming from the open intake manifold.

Step 14: If no leaks are found, time to hook everything back up! Start by hooking up the four injector leads and the lead to the cold start injector. Take the throttle body and gasket and swing it into position and bolt it home. Reconnect the black connector to the TPS and the grey connector to the idle controller. Reconnect all the vacuum lines to the top of the throttle body and to the fuel rail. If you are using an aftermarket pressure regulator, be sure to hook up its vacuum source via a long piece of vacuum line. Bolt the remaining pieces of the throttle body assembly to the intake manifold and valve cover. Hold the throttle body open all the way and re-connect the throttle cable. Replace the tube from the intercooler to the throttle body inlet and tighten the clamps. You should be all set!

Step 15: Reconnect the ignition source spark plug wire and fire up the engine! Check again for leaks and be sure a steady vacuum is present at idle. Your all set, go forth and make power!