



# INSTALLATION INSTRUCTIONS

## FUEL PRESSURE REGULATOR

PART NUMBER: 20-0010 AND 20-0014

For 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.

### IMPORTANT NOTES:

- If used with a fuel pump that has a rated flow of more than 255LPH, the target fuel pressure may not be reliably achieved (too high). Consider using an adjustable regulator from Radium Engineering.
- Only use genuine Bosch "Mini" pressure regulator inserts.
- This regulator is designed to be used with EFI systems only.
- The Bosch insert has the pressure rating printed on it: 300 kpa = 43.5 psi, 400 kpa = 58 psi

### Assembly

If the regulator was purchased as a complete unit, a Bosch insert will already be installed.

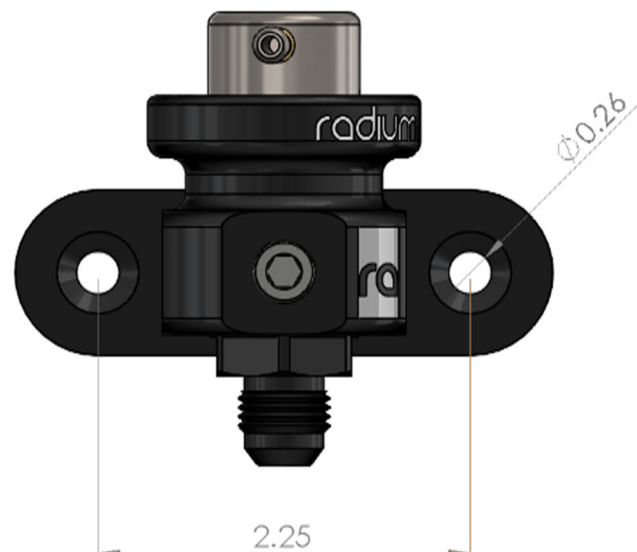
If the regulator was purchased as "No Top" (P/N: 20-0014) Some assembly is required.

Lubricate the O-rings on the regulator insert with engine oil. Press the insert in until it "snaps" into place and is fully seated. Use some snap ring pliers to install the retaining ring, making sure the ring is seated into the groove in the aluminum body all the way around. Once installed, the Bosch insert may rotate 360 degrees.



### Mounting the FPR:

It is best to mount the regulator before installing port fittings, as the fittings may interfere when securing fasteners. Attach the included mounting bracket to the regulator body using the 4 supplied M4 Allen head screws. Use the two M6 countersink screws to secure the regulator to a suitable mounting surface. Keep away from exhaust components and other high-heat areas.



### Fittings and Ports:

The Radium FPR features 3 different ports on the machined housing.

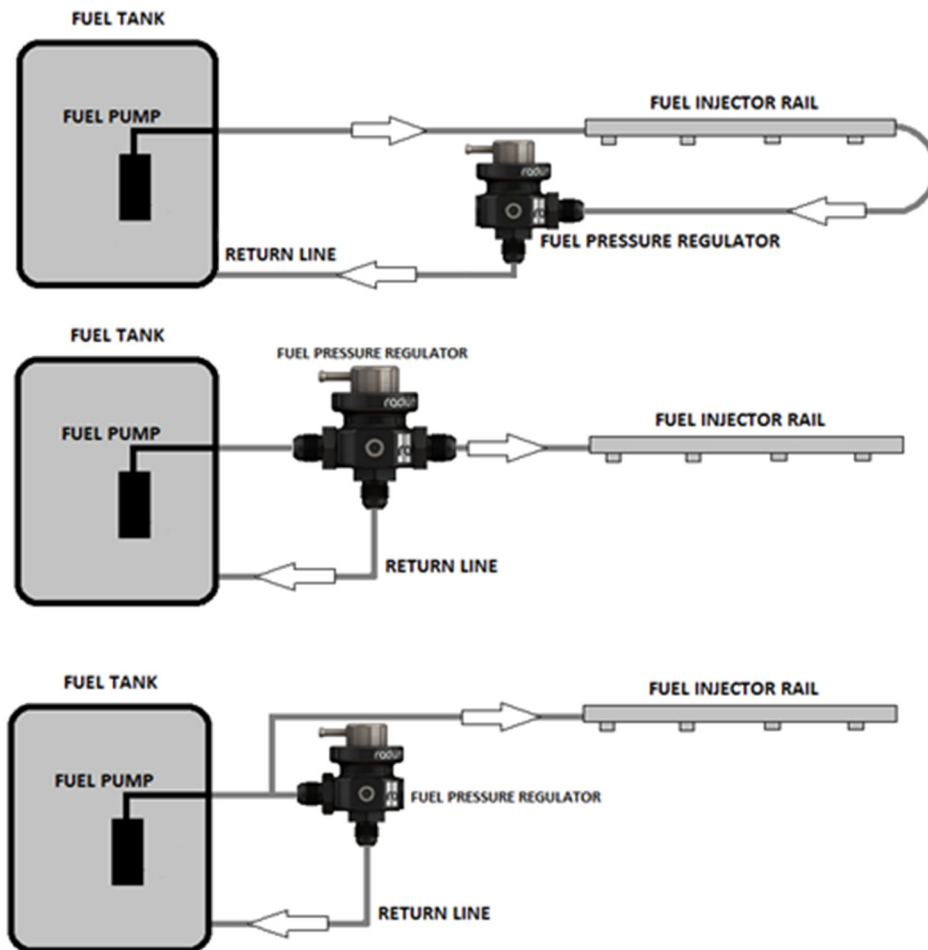
The two 6AN ORB (9/16-18 O-ring) ports are the regulated pressure ports. They are designed to use -6AN ORB fittings. These fittings are commonly available from [www.radiumauto.com](http://www.radiumauto.com). The kit includes an adapter to 6AN male and a plug. **The O-ring MUST be lubricated prior to assembly to prevent O-ring failure.** Do not use thread pastes or tape on these fittings.

The 1/8 NPT port can be used to monitor fuel pressure using a mechanical gauge or sensor (not included). If not used, plug this hole using the supplied 1/8 NPT plug. Use Teflon based paste or tape on this fitting.

The -6AN male fitting on the bottom of the housing is the fuel return. In all plumbing scenarios, this port must be connected to the fuel return line going to the fuel tank (or surge tank if applicable). Do not use any thread compounds on -AN fittings.

### Plumbing Schematic Examples

There are many ways that the FPR can be plumbed. All methods will use the lower -6AN male outlet port as a return back into the fuel tank (or fuel surge tank if applicable).



## Vacuum Reference

The small vacuum nipple on the regulator is for a 1:1 vacuum reference. This maintains a constant pressure ratio between the fuel pressure and the intake manifold pressure for consistent fuel delivery. If the factory vehicle used a vacuum line to the pressure regulator, route this hose to the barbed nipple on the FPR. NOTE: the regulator tops can be rotated while maintaining a proper seal. This allows the BOSCH regulator vacuum nipples to be clocked 360 degrees.

## Start Up

- Reconnect the battery.
- Turn the ignition to the ON position to allow the fuel pump to prime the system (do not start the engine).
- Cycle the ignition power a few times and check for fuel leaks.
- If there are any leaks, they must be corrected before proceeding.
- Start the engine and recheck for leaks.
- Use a pressure gauge to ensure correct fuel pressure is being delivered at the fuel rail.

## Servicing

- Relieve fuel pressure, as mentioned above.
- Using snap ring pliers, squeeze the internal retaining ring and carefully lift it out of the top of the FPR unit.
- Firmly pull up on the regulator unit and remove from the housing.
- Regulator inserts can be purchased from most major auto parts suppliers and Radium Engineering.

## Troubleshooting

*Issue: The fuel pressure is above the rated value printed on the Bosch insert.*

**A:** make sure the return line is free of any obstructions all the way back to the tank. Make sure return line is of adequate size (5/16" minimum). Fuel pump could be outputting too much flow for the regulator to deal with, try reducing fuel pump output.

*Issue: The fuel pressure is below the rated value printed on the Bosch insert.*

**A:** Pump is not outputting enough fuel for the demand. There is a restriction in the feed line. Try replacing the pump.

*Issue: Fuel is leaking from body of regulator by snap ring.*

**A:** remove Bosch insert and inspect the regulator o-rings for damage. If damaged, replace the Bosch insert. Part number for insert is printed on the body of it and can be purchased from a Bosch parts distributor.

*Issue: Fuel is leaking from 1/8 NPT plug*

**A:** Most likely due to improper installation. Remove the plug and replace it with a new one. Be sure to use a small amount of Teflon paste or tape on the threads.

