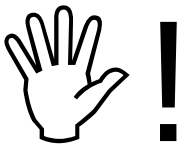
Universal Adjustable Fuel Pressure Regulator

Installation Instructions for:

Part Numbers

25-302

U.S. Patent # 6,298,828



WARNING:

Due to the fact that this installation deals with your fuel system this installation is not for the mechanically challenged! If you are not mechanically inclined or do not understand the procedure please do not attempt the installation. Refer the installation to a reputable mechanic.

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Part Number: 10-292

This part is legal in California for racing vehicles ONLY and should NEVER be used on public highways.

Congratulations! You have just purchased the finest adjustable fuel pressure regulator for your car at any price!

AEM billet aluminum adjustable pressure regulator.

The AEM universal adjustable regulator bolts directly to any high volume fuel rail. It is CNC machined from 6061 T-6 aluminum. The fuel outlet and inlet ports are tapped to 9/16-18 thread, which allows the use of several different hoses. The vacuum reference is 1:1 ratio so for every pound of boost on a turbocharged or supercharged application yields a 1-pound rise in fuel pressure. The range of adjustability is from 20 PSI to the maximum the fuel pump can deliver.

A unique feature of the AEM adjustable pressure regulator is that the discharge port in the regulator is changeable. This allows the user to tailor the regulator return volume to match their fuel pump. A common problem that occurs when using a fixed orifice in a “universal” regulator is that the fuel pressure cannot be effectively controlled when the fuel pump volume is significantly higher than stock. In the case of too small of a discharge orifice, there is a large pressure spike associated with rapid deceleration because the orifice cannot flow enough fuel when the diaphragm is fully deflected to the open position. This causes a momentary rich condition, which may lead to a rough idle quality until the pressure stabilizes. Conversely if the discharge orifice is too large the adjustment is difficult because the response of the fuel flow out of the orifice is too rapid which makes the adjustment screw too sensitive. The AEM regulator is packaged with three orifice sizes, .100”, .150” and .200”. They are easily changed by removing the diaphragm and simply unscrewing the orifice and replacing it with the desired size orifice. The size range provided with the kit is enough to cover any pump from a stock Honda pump to the largest after-market pump available. The replaceable orifices are color coded for easy identification.

For Technical Inquiries
Please E-Mail us at
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Read and understand these instructions BEFORE attempting to install this product

WARNING!!!

- **Do not smoke while working on the fuel system.**
- **Keep open flames or sparks away from your work area.**
- **Be sure to relieve fuel pressure while engine is off.**
- **Disconnect the battery before working on the fuel delivery system.**

1) Installation of the AEM Universal Fuel Pressure Regulator

WARNING!!!

The AEM adjustable fuel pressure regulator has been set to 40psi using a typical fuel pump and a perfect running fuel system. Due to the differences on vehicle fuel pressure on different applications it is *highly recommended* that you adjust the fuel pressure on your vehicle.

Note: The AEM fuel pressure regulator has the .100" orifice installed in the regulator and is set to 40psi. All adjustments of the pressure regulator will be explained in a later portion of the instructions.

a) The AEM universal fuel pressure regulator is designed with the mounting bracket as a bolt on component to the regulator body. If you desire, the regulator can be bolted directly to the car using the four threaded holes at the back of the regulator which are tapped with a 10-32 thread.
   i) Install the mounting bracket to the regulator using the four supplied allen head screws.
   ii) Mount the fuel regulator on a flat surface.
   iii) The diameter of the mounting holes on the bracket are ¼". On the last page of the instructions will be a mounting template, which should be used to mount the fuel regulator.

b) The two inlet ports are tapped with a 9/16-18 thread. The fuel pressure gauge port is tapped with a 1/8-27 NPT.

c) The outlet port is located at the bottom of the fuel pressure regulator. It has a 9/16"-18 thread. You may purchase a 7mm barb fitting from AEM part number 25-390.

d) Connect the vacuum hose to the top of the fuel pressure regulator. (Hose size is a 3/16" or 5mm)

2) Finishing touches

a) Connect the negative battery terminal.

b) Turn the ignition or fuel pump switch to the on position for approximately two seconds. **Do not operate the starter.** Then turn the ignition switch to the off position.

c) Repeat this procedure three times, and then check all fuel system components that were removed during installation for any signs of fuel leakage.

d) If there are signs of leakage you **MUST** correct the leak before proceeding.

If there are no signs of leakage, then start engine and again check for leaks. If there is any sign of leaking you **MUST** repair the leak before driving the vehicle

3) Pressure and orifice adjustments

Note: The AEM adjustable fuel pressure regulator can be fine tuned for your application. These adjustments will be covered in this section. A fuel pressure gauge needs to be used for precise tuning.

a) When fuel pressure adjustments are to be made, loosen the jam nut on the top of the AEM fuel pressure regulator and either tighten or loosen the set screw.
   i) When loosening the jam nut a 3/8" wrench should be used.
   ii) When tightening or loosening the set screw a 3/32" allen key should be used.
      (1) To increase fuel pressure turn the set screw in a clockwise rotation.
      (2) To decrease fuel pressure turn the set screw in a counter-clockwise rotation.

b) When orifice changes are to be made, remove the fuel pressure regulator using the steps in section 4 in reverse order. When this is completed, remove the six bolts from the top of the fuel pressure regulator and use a 3/8" socket to remove the orifice in the regulator and replace with a different size orifice.
   i) When removing the six bolts from the top of the fuel pressure regulator a 9/64" allen key should be used.
      (1) Torque to 24lbf-in.
      (2) There is a constant pressure applied to the diaphragm by the spring inside the fuel regulator make sure parts do not get lost upon removal of these bolts.
   ii) When ever the regulator is dis-assembled check the diaphragm for any wear and tear, which may cause a fuel pressure problem.
      (1) If the diaphragm is damaged contact AEM to purchase a replacement diaphragm.
   iii) When removing the orifice a 3/8" socket should to be used.

(1) Note: **Be careful not to scratch or damage the surface of the orifice in any way, as it is a precision ground surface for the diaphragm to seal on.**
(2) Torque to 10 lbf-ft.
(3) There are three different size orifices supplied in the AEM fuel pressure regulator kit, which are indicated by three different colors. Black = .100" Silver =.150" Gold = .200"
(4) Upon re-installation of the orifice use a light coat of oil on the threads to prevent galling.

iv) Re-assemble the fuel pressure regulator.