Aeromotive 13109

Aeromotive 13109 A1000-6 EFI Fuel Pressure Regulator Instruction Manual

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the Aeromotive 13109 A1000-6 EFI Fuel Pressure Regulator. This high-performance component is engineered for medium to high horsepower engine applications, ensuring precise fuel management and efficient fuel delivery. It features an adjustable base pressure range of 40-75 PSI, 1:1 boost reference, and compatibility with both gasoline and alcohol fuels.

Image 1.1: Aeromotive 13109 A1000-6 EFI Fuel Pressure Regulator

2. Safety Information

Always adhere to the following safety guidelines to prevent injury or damage to your vehicle:

- **Disconnect Battery:** Always disconnect the vehicle's battery before commencing any work on the fuel system.
- **Depressurize Fuel System:** Ensure the fuel system is completely depressurized before disconnecting any fuel lines or components.
- **Personal Protective Equipment (PPE):** Wear appropriate PPE, including eye protection and chemical-resistant gloves, during installation and maintenance.
- **Ventilation:** Work in a well-ventilated area to avoid inhaling fuel vapors.

- **Fire Hazard:** Fuel is highly flammable. Keep all ignition sources, such as open flames, sparks, and hot surfaces, away from the work area.
- **Professional Assistance:** If you are uncertain about any installation or adjustment procedures, consult a qualified automotive technician.

3. Product Overview

The Aeromotive 13109 A1000-6 EFI Fuel Pressure Regulator is a critical component for maintaining consistent fuel pressure in high-performance electronic fuel injection (EFI) systems. Its design ensures optimal fuel delivery under various engine loads and conditions.

Key Features:

- **Adjustable Pressure:** Base pressure is adjustable from 40-75 PSI.
- **Boost Reference:** Features a 1:1 fuel pressure rise ratio with boost.
- **Fuel Compatibility:** Suitable for use with gasoline and alcohol fuels.
- **Gauge Port:** Includes a 1/8" NPT port for easy installation of a fuel pressure gauge.
- **High-Flow Design:** Ensures efficient fuel delivery and superb pressure control.

Image 3.1: Key features of the Aeromotive A1000-6 EFI Fuel Pressure Regulator

4. Specifications

Specification	Detail
Model Number	13109
Brand	Aeromotive
Material	Metal
Exterior Finish	Painted
Adjustable Pressure Range	40-75 PSI
Maximum Operating Pressure	75 PSI
Boost Reference Ratio	1:1
Number of Ports	3
Inlet Connection Size	0.49 Inches
Inlet Connection Type	National Pipe Tapered (NPT)
Outlet Connection Size	0.49 Inches
Outlet Connection Type	Flare
Gauge Port	1/8" NPT
Fuel Compatibility	Gasoline, Alcohol
Item Weight	1.02 pounds

Image 4.1: Product specifications and port details

5. Installation

Proper installation is crucial for the correct function and longevity of your fuel pressure regulator. Follow these general steps:

1. **Preparation:** Ensure the vehicle's battery is disconnected and the fuel system is depressurized. Have all necessary tools and fittings ready.
2. **Mounting:** Securely mount the regulator in a location that allows for easy access for adjustments and monitoring, away from excessive heat sources. Use the provided mounting bracket if applicable.
3. **Fuel Line Connections:** Connect the fuel lines to the regulator's inlet and return ports. Ensure all connections are tight and leak-free. Refer to your specific fuel system diagram for correct routing.
4. **Vacuum/Boost Reference Line:** Connect a vacuum/boost reference line from the intake manifold to the regulator's vacuum port. This line allows the regulator to adjust fuel pressure in relation to manifold pressure.
5. **Gauge Installation (Optional):** If desired, install a fuel pressure gauge into the 1/8" NPT gauge port. Apply thread sealant to the gauge threads before installation.
6. **System Check:** After installation, reconnect the battery. Cycle the ignition key several times without starting the engine to prime the fuel system and check for any leaks. Start the engine and re-check

for leaks.

Note: Always use appropriate fuel-resistant fittings and hoses.

Image 5.1: Bottom view showing fuel inlet and return ports

6. Operation

The Aeromotive 13109 regulator is designed for straightforward operation and adjustment.

Adjusting Fuel Pressure:

1. **Connect Gauge:** Ensure a reliable fuel pressure gauge is connected to the 1/8" NPT port for accurate readings.
2. **Engine Off:** With the engine off and the fuel system depressurized, locate the adjustment screw on the top of the regulator.
3. **Adjust:** Turn the adjustment screw clockwise to increase fuel pressure and counter-clockwise to decrease fuel pressure. Make small adjustments.
4. **Verify:** Start the engine and allow it to idle. Observe the fuel pressure reading on the gauge. Adjust as necessary to achieve the desired base pressure (typically with the vacuum/boost reference line disconnected or at idle vacuum).

5. **Boost Reference:** With the vacuum/boost reference line connected, the fuel pressure should increase by 1 PSI for every 1 PSI of boost pressure. This ensures consistent fuel delivery under forced induction.

7. Maintenance

Regular inspection and basic maintenance will help ensure the continued performance and reliability of your Aeromotive fuel pressure regulator.

- **Leak Inspection:** Periodically inspect all fuel lines and fittings connected to the regulator for any signs of leaks. Address any leaks immediately.
- **Connection Integrity:** Check that all connections are secure and tight. Vibration can sometimes loosen fittings over time.
- **Vacuum/Boost Line:** Ensure the vacuum/boost reference line is free from cracks, kinks, or blockages, which could affect pressure regulation.
- **Cleanliness:** Keep the exterior of the regulator clean from dirt and debris.

8. Troubleshooting

If you encounter issues with your fuel pressure regulator, consider the following common problems and solutions:

Problem	Possible Cause	Solution
Incorrect Fuel Pressure (Too High/Low)	Improper adjustment, faulty fuel pump, restricted fuel lines/filter, incorrect vacuum/boost reference.	Re-adjust the regulator. Check fuel pump function. Inspect fuel lines and filter for blockages. Verify vacuum/boost reference line integrity.
Fuel Leaks	Loose fittings, damaged O-rings/seals, cracked fuel lines.	Tighten all fittings. Replace damaged O-rings or seals. Inspect and replace any compromised fuel lines.
Inconsistent Fuel Pressure	Fluctuating fuel pump output, air in fuel system, faulty vacuum/boost reference, internal regulator issue.	Check fuel pump and electrical connections. Bleed air from the fuel system. Inspect vacuum/boost reference line. If issues persist, professional diagnosis may be required.

9. Warranty Information

For detailed information regarding the warranty coverage for your Aeromotive 13109 A1000-6 EFI Fuel Pressure Regulator, please refer to the official Aeromotive website or contact Aeromotive customer support directly. Warranty terms and conditions may vary.

10. Support

Should you require technical assistance, have questions about installation, or need further support for your Aeromotive product, please utilize the following resources:

- **Aeromotive Official Website:** Visit the official Aeromotive website for product documentation,

FAQs, and contact information.

- **Customer Service:** Contact Aeromotive customer service directly for personalized support.
- **Online Resources:** Explore the Aeromotive Store on Amazon for additional product information and related items.