Instructions for Fuel Pressure Tester Kit

CAUTION: Always operate with safety precautions in mind. Always wear a face shield when welding around the air bag components and always operate equipment in a well-ventilated area. Failure to do so may result in serious injury or death.

Never use Fuel Pressure Tester Kit on any other fuel than the fuel rail test port. Do not connect Air Conditioning schedule for fuel with the fuel rail test port.

Never attach any Fuel Pressure Tester Kit from fuel rail test port to the air conditioning manager key on.

Always place off of 6. bleed off hose near vehicle. Always keep the bleed off hose away from moving or hot engine parts.

Never smoke or have open flames near vehicle. Vapors from fuel and charging battery are highly flammable.

Never permit fuel to spill on hot engine parts. If a spill or leak occurs, immediately turn ignition key off and then clean up.

Only use the Fuel Pressure Tester Kit for fuel pressure on vehicles having high pressure in safety. Do not use this kit for any other product.

Always operate equipment in a well-ventilated area. Do not inhale any fuel or vapors.

Always use special tools and test equipment away from all moving or hot engine parts. Always block the drive wheels.

Never operate equipment without all covers, the tool(s), or the battery.

Never leave unattended while testing.

Always keep a fire extinguisher suitable for fuel ejected chemical fires handy.

Always wear safety glasses when working around the ignition coil, distributor cap, spark plug wires and spark plugs. These components contain Voltage when the engine is running.

Complete Pre-Testing tasks before beginning fuel pressure checking.

Always follow vehicle maintenance and service procedures.

Fuel Pressure System Theory

Fuel injectors are equipped with safety bags. This will result in a fuel pressure system. When working around the air bag components, care must be taken to avoid damage to your vehicle’s electrical system. The fuel injectors are designed to be built into the intake manifold. The fuel injectors typically have a fuel filter in each fuel injector. The second type is the commonly called Throttle Body Injection (TBI) for GM and Chrysler vehicles or Central Fuel Injection (CFI) for Ford vehicles. These systems use one or two fuel pumps. The fuel system is mounted on top of the intake manifold. The fuel rail is the fuel supply line from the fuel injectors. Fig. 2 illustrates both types of fuel systems.

Fuel System Components

Before doing any fuel pressure testing, it is a good idea to clean or replace the fuel filter. A fuel pump; an electric motor that pumps fuel into the fuel system, is at constant pressure. It is mounted in the fuel tank or on the frame. Some vehicles have more than one fuel pump.

Return Line: Path for excess fuel to return to the fuel tank.

Fuel Rail: The fuel rail assembly is the component responsible for holding the fuel injection system in the engine. The fuel injection system is controlled by the quantity of fuel delivered to each of the fuel injectors.

Fuel Filter: A filter that removes any dirt, rust, or other particles from the fuel supply line. A clogged or restricted fuel filter pressure readings. When replacing a fuel filter it is a good idea to clean or replace the fuel filter.

Fuel Rail Test Port: A schrader valve located on the fuel rail (Fig. 4). It allows connection of a fuel pressure gauge to measure fuel pressure. Do not confuse with the schrader values that are used for checking and service fuel systems.

Fuel Pressure Regulator: The fuel pressure regulator (Fig. 5) is connected across the fuel pressure line and return line. It contains a spring loaded valve assembly that opens to allow the fuel in the fuel rail. When the pressure line fuel pressure is exceeded, it is used to keep a constant fuel pressure to the fuel injectors. Some fuel pressure regulators require a spring preload; pressure can be adjusted by means of a screw or voided out regulated (vacuum actuated) connector. A fuel pressure regulator must be used in fuel systems that require fuel pressure reductions and hard stops.

Fuel Rail: The fuel rail assembly is basically just a fuel reservoir whose purpose is to hold the fuel injectors in the fuel system and hold the fuel flow to the fuel injectors.

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Ford Fuel Rail Test Port: A schrader valve located on the fuel rail (Fig. 4). It allows connection of a fuel pressure gauge to measure fuel pressure. Do not confuse with the schrader values that are used for checking and service fuel systems.

Fuel Pressure Test Procedure

This test procedure explains how to make assurance of fuel pressure readings on vehicles while the ignition key is on and off. The test procedure also explains the safe way to connect and disconnect the fuel pressure tester kit from vehicles equipped with shadetooval values as their rail test ports. If the fuel pressure readings measured in this test procedure are not within your vehicle’s manufacturing specifications then you must use your vehicle service manual along with the fuel system test kit to service vehicle manual. The service vehicle manual does not contain any vehicle specific information.

1. Read at SAFETY PRECAUTIONS AND TESTING CHECKS.
2. Apply a lightweight household oil to the rubber “O” rings inside both test ports.
3. Turn Ignition Key OFF.
4. Locate fuel rail test port and remove protective cap. (See Fig. 4)
5. For Ford/Lincoln/Mercury Vehicles... Test fuel port adapter to fuel rail test port until finger tight against the rubber “O” rings inside both test ports.
6. To safely disconnect the Fuel Pressure Test Kit from the fuel rail, and the repair is completed, the fuel pressure tester kit should be removed at a later time, proceed to Step 9.
7. Turn Ignition key ON.
8. Check fuel system for leaks. If no leaks are found, proceed to Step 9.
9. Read fuel pressure from dial face pointer is resting at the fuel pressure is now within manufacturer’s specifications and an engine run lean or not make an engine runs lean or not.

Fuel Pressure readings that are above the manufacturer’s specifications are generally caused by a fault in the return line fuel pressure system components. Conversely, fuel pressure readings that are below the manufacturer’s specifications are generally caused by a fuel rail fuel pressure system components.

If fuel pressure readings are below within manufacturer’s specifications, then you must use your vehicle service manual along with the fuel system test kit to service vehicle manual. The service vehicle manual does not contain any vehicle specific information.

Possible causes of high fuel pressure readings are the following:

4. Faulty fuel pressure regulator, pressure relief valve.
5. Restriction in return line of fuel rail test port.

Possible causes of low fuel pressure readings are the following:

4. Faulty fuel pressure regulator, pressure relief valve.
5. Restriction in return line of fuel rail test port.

Possible causes of fuel pressure being zero are the following:

4. Fuel pressure regulator, pressure relief valve.
5. Fuel pressure regulator, pressure relief valve.
6. Faulty fuel pressure regulator, pressure relief valve.

END OF BLEED-OFF REGULATOR.

General Fuel Pressure Diagnostics

Fuel pressure testing is an integral part of fuel pressure testing. High fuel pressure will make an engine run rich, while low fuel pressure will make an engine run lean or not at all. Both fuel pressure readings that are above the manufacturer’s specifications are generally caused by a fault in the return line fuel pressure system components. Conversely, fuel pressure readings that are below the manufacturer’s specifications are generally caused by a fuel rail fuel pressure system components.

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