

# TOPTUL<sup>®</sup>

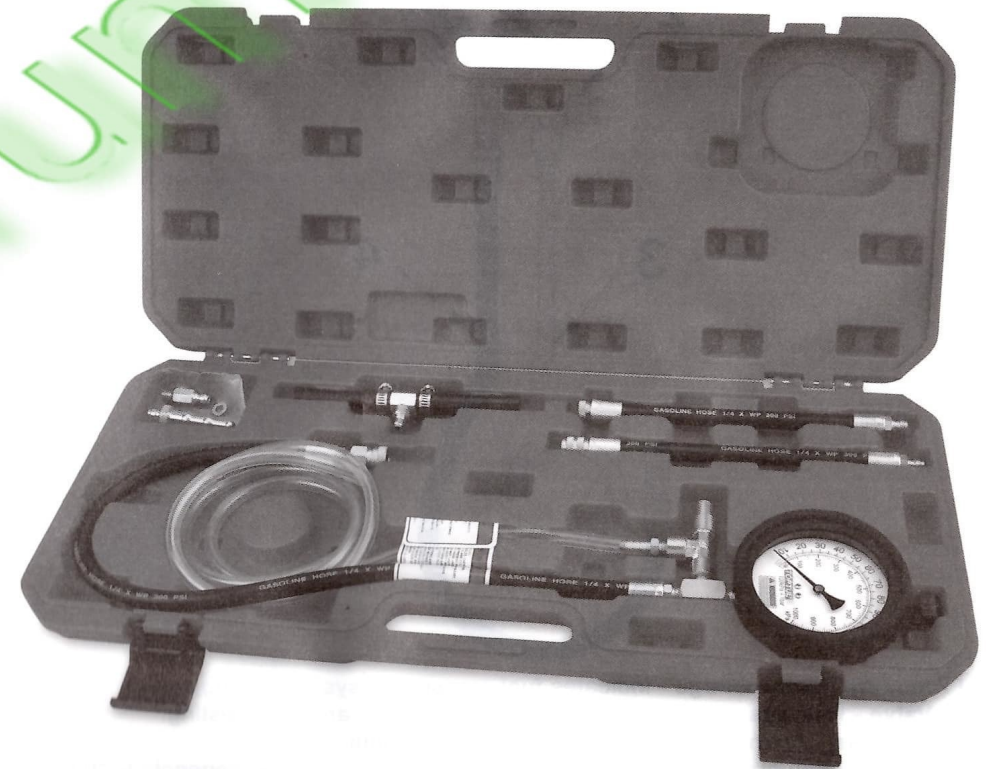
THE MARK OF PROFESSIONAL TOOLS

## Automotive Specialty Tool Kit

### Multi-Port Fuel Injection Pressure Tester Kit (Petrol Engine)

▶ Part No. JGAI0703

## Operational Manual



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THE MARK OF PROFESSIONAL TOOLS

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J1-0703A



PLEASE READ THE SAFETY INSTRUCTION CAREFULLY BEFORE OPERATES THE TOOLS.  
ONLY USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH  
IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY.  
PLEASE KEEP INSTRUCTIONS SAFETY FOR FUTURE USE.

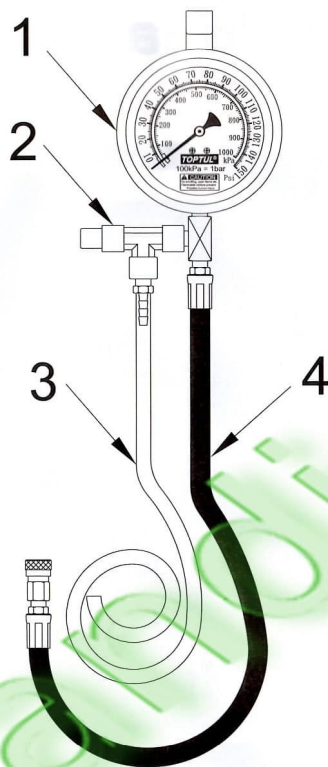
## GENERAL INFORMATION

The Fuel Injection Pressure Tester Kit is designed to perform fuel pressure tests on most domestic and import cars and trucks. The tester efficiently assists you in testing and troubleshooting fuel system problems which can affect the vehicle's performance and fuel economy.

The fuel pressure tester can assist you in identifying and diagnosing:

- Low fuel pump pressure
- Leaking fuel injectors
- Faulty fuel pressure regulator
- Clogged fuel filter
- Leaks in the fuel system

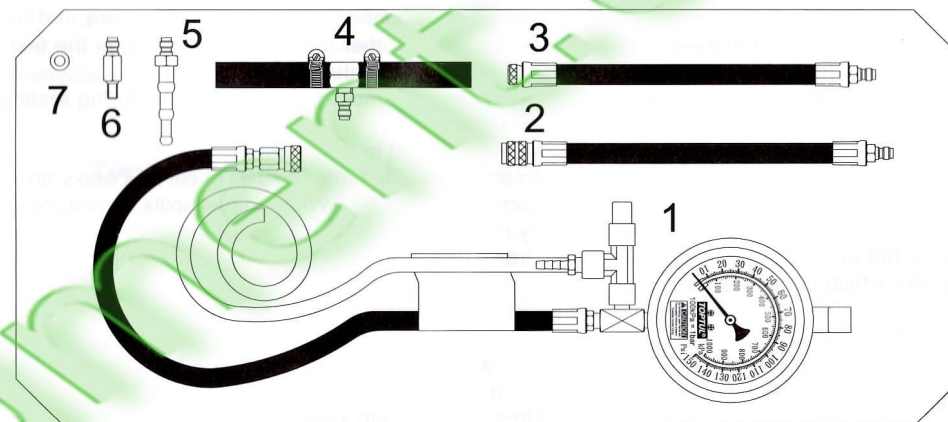
## Fuel Injection Pressure Gauge Tester



1. **Fuel Pressure Tester Gauge** - Indicates fuel pressure in system during test.
2. **Relief Valve** - Relieves pressure in the fuel system during and after testing.
3. **Bleed off Hose** - Drains bleed off fuel into a suitable container.
4. **Gauge Hose** - High pressure hose with threaded female connector; connects to the vehicle's fuel system test port.

**Note:** The adapters provided with the tester are designed to facilitate the most common fuel injection system applications. Some vehicle applications may require additional tools or adapters to properly test the vehicle. Refer to the vehicle's service manual for more information.

## Fuel Injection Pressure Tester Kit



### Kit Content:

| Part NO. | Description   | Q'ty |
|----------|---|------|
| 1        | 3-1/2" Diameter Gauge (150 PSI / 1000 kPa) with Relief Valve, 25.5" 300 PSI Pressure Hose with Quick Coupler & 63" Bleed Off Hose | 1    |
| 2        | Standard Schrader Valve Hose Adapter - 7/16"-20 Female Thread   | 1    |
| 3        | Small Schrader Valve Hose Adapter - .308"-32 Female Thread  | 1    |
| 4        | Double End Hose Connector 5/16" and 3/8"  | 1    |
| 5        | Single End Hose Connector 1/4", 5/16" and 3/8"  | 1    |
| 6        | M6 Thread Fuel Bolt Adapter   | 1    |
| 7        | Copper Washer   | 1    |

## Applications

American vehicles Ford, Chrysler, GM and etc.

## Safety Instruction

- Fix any known mechanical problems before performing any test.
- Read this manual completely before performing any test procedures.
- Read the vehicle's service manual. The service manual provides a specialized test procedures and repair methods.
- Always observe safety precautions whenever working on a vehicle.
- Only work on the vehicle in a well-ventilated area.
- Put transmission in PARK (automatic transmission) or NEUTRAL (manual transmission). Set parking brake.

- Put blocks on the drive wheels.
- Release fuel system pressure before connecting test equipment or performing tests (refer to your vehicle's service manual for procedures).
- Make sure the ignition is off before connecting or disconnecting any test equipment.
- Never connect the fuel injection tester to any location other than those indicated in the test procedures (many air conditioning fittings resemble fuel injection test ports).
- Fuel and battery vapors are highly flammable. Do not smoke near the vehicle during testing.
- Do not use the test kit on diesel or flex fuel engines.
- Do not attempt to use this tool on systems not covered in this manual.
- During testing, be careful to avoid fuel spills on hot engine parts. If spills occur or if leaks are present, turn ignition off immediately and correct the problem. Wipe up fuel spills immediately.
- Avoid moving fan blades or any potentially moving parts.
- Avoid hot engine parts. Keep tools away from the battery to avoid possible shorting and sparks which could start a fire.
- In case of emergency, keep a fire extinguisher handy. Make sure it is rated for fuel/electrical and chemical fires.
- Never leave the vehicle unattended during testing.
- Take care when working near ignition system components (coil, distributor cap, ignition wire, etc). These are all high voltage areas.
- When placing the bleed off hose into a container to collect excess fuel, make sure the container is approved for gasoline.
- When working on vehicles equipped with airbags, follow all cautions and test procedures in vehicle's service manual to avoid accidental airbag deployment.
- Gasoline and gasoline additives are toxic. Avoid contact of gasoline with skin. Wear protective clothing and eyes/hands covering (safety approved glasses and gloves) when performing pressure tests. In case of contact with skin, wash the area immediately.

### ▶ Basic Check Before Test

#### A. Fuel System

1. Make sure fuel tank has sufficient fuel (do not rely on fuel gauge).
2. Look for broken or loose fuel lines (metal or rubber).
3. Check for water or other contaminants in fuel.
4. Check condition of fuel tank venting system and fuel tank filler cap.
5. Check condition of fuel system related fuses.

#### B. Electrical System (Battery & Charging System)

1. Look for disconnected electrical components.
2. The ignition fires the injector on most fuel injection systems so an ignition spark check is necessary (use a test plug to check ignition spark). If no sparks, repair ignition system.
3. Observe and check engine lamps or other computer fault indicators.
4. Check battery condition. A weak battery will not ensure proper pump delivery or injector triggering.

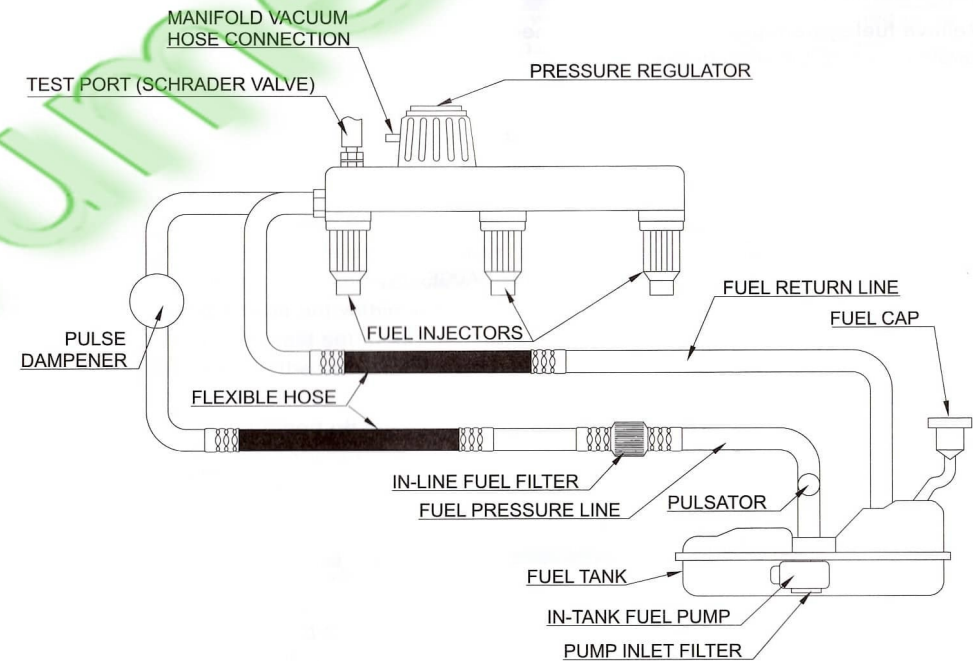
#### C. Vacuum Lines System

1. Check vacuum lines for loose or disconnected lines.
2. Listen for any audible air leaks or unusual noises.
3. Look for excessive oil leaks.
4. Check valve timing and make adjustment.
5. Look for water leak.

### ▶ Fuel Injection Pressure Test

The test outlined in this manual are for checking Multi-Port Fuel Injection (MFI) fuel system pressures with engine running (key on, engine on) and without the engine running (key on, engine off). Engine running tests are performed with the engine at idle (unless otherwise noted).

#### Typical Multi-Port Fuel Injection (MFI) System



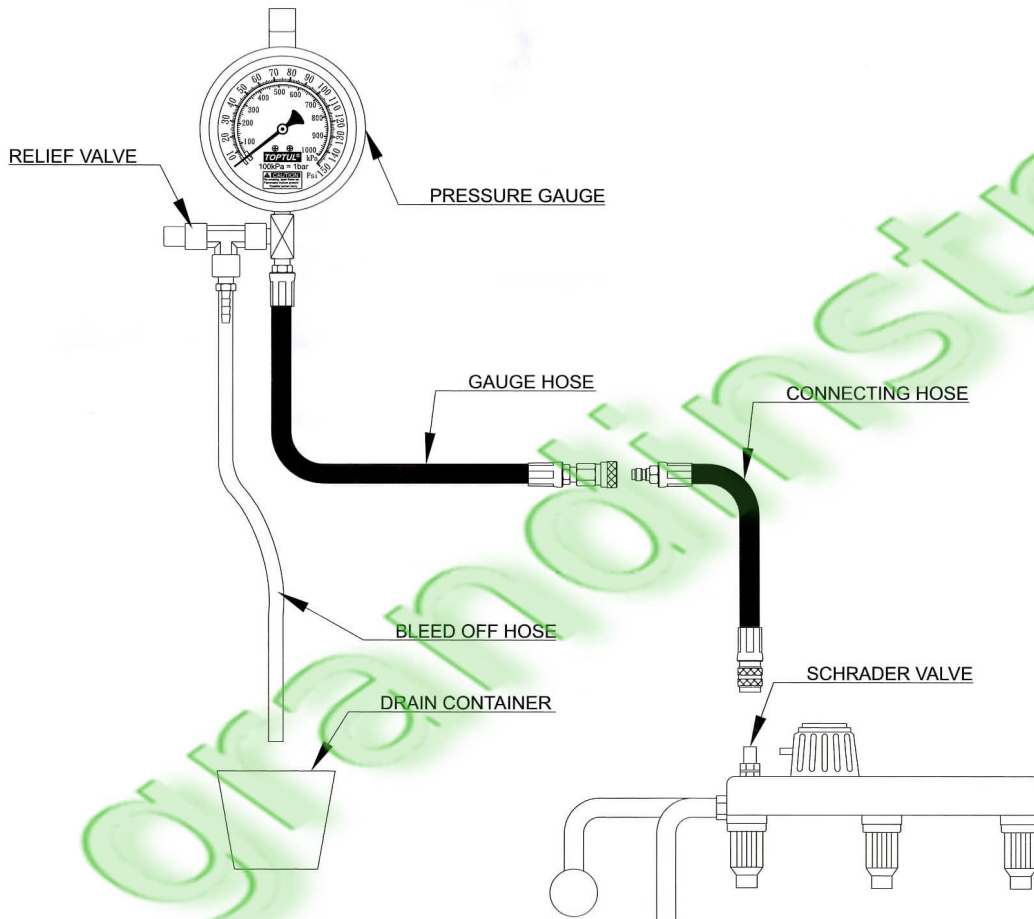
## TEST PROCEDURE

Fuel injection systems are under high pressure. Always relieve system pressure before connecting the tester gauge. Refer to the vehicle's service manual for procedures.

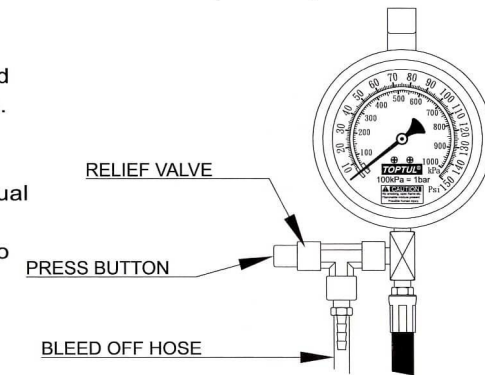
- Before connecting the tester gauge to the fuel system, apply a small amount of light grade household oil or lubricant to the o-rings located in the port adapters.
- When attaching the gauge hose or adapters to the test ports, make sure to use the proper adapter for the vehicle. Take care not to damage the threads on the test port.
- Wrap shop rags around fitting when connecting or disconnecting the tester gauge.
- Have shop rags ready to clean up leaks or spills.

### ▶ Testing System with Schrader Valve Test Ports

1. Relieve fuel system pressure before connecting the tester gauge (refer to the vehicle's service manual for procedures).

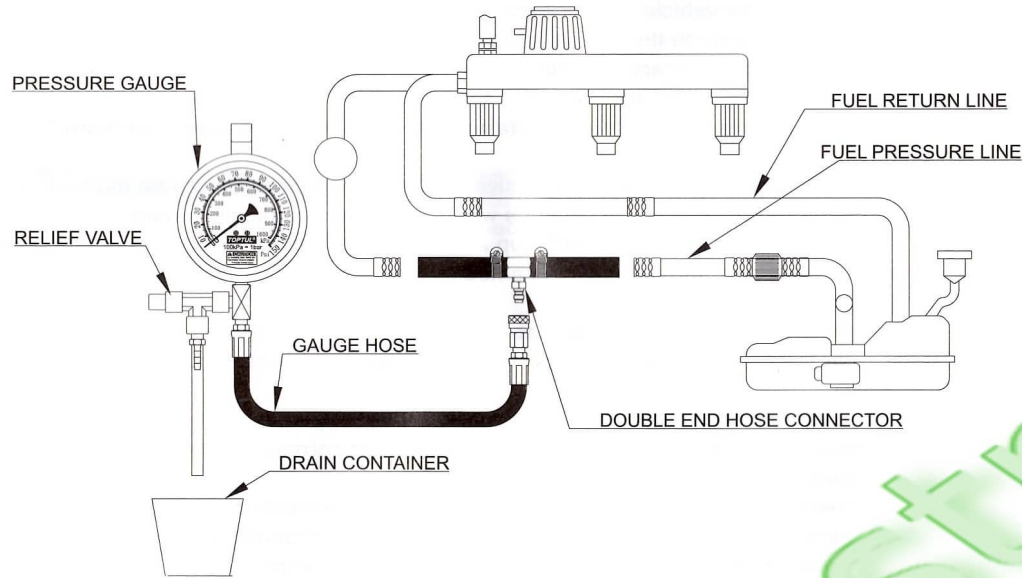


2. Loosen the fuel tank cap to release any pressure from the fuel tank.
3. Make sure the ignition is off. Locate the fuel system's test valve or ports. Remove the protective cap.  
(The air conditioning test port looks similar to the fuel system test port. Do not confuse with ports. Refer to the vehicle's service manual to ensure proper connections.)
4. Connect the tester gauge to the vehicle's fuel system.
5. Place bleed off hose into an approved drain container. Make sure the hose remains in the container until testing is complete.
6. Make sure all of the vehicle's accessories (air conditioner, fan, radio, lights, etc.) are turned off.
7. Turn ignition on and listen for fuel pump activation (most systems will activate the fuel pump circuit for approximately two seconds when the ignition is initially turned on to prime the fuel system). Check the test setup and make sure no fuel leaks are present. If fuel leaks are present, turn off ignition immediately and repair any leaks. Be sure to clean up fuel spills immediately.  
(If the fuel system does not operate as described above, or if fuel system is not operating properly, refer the manufacturer's service manual for repair procedures or activation instructions.)
8. When fuel pump has been activated as described above, the fuel system is pressurized. Verify the tester gauge indicates a system pressure which corresponds with the specifications provided in the vehicle's service manual.  
(If the fuel pressure is not within vehicle manufacturer's specifications, start and idle engine, recheck the test setup for fuel leaks or turn ignition off and follow the test and repair procedures in the vehicle's service manual to correct the problem.)
9. Turn ignition off.
10. Make sure that the bleed off hose is still routed to the drain container. Press and hold the relief valve to bleed off system pressure. Hold the relief valve until the tester gauge indicated "0".
11. Shake the bleed off hose to ensure all residual fuel has been expelled.
12. Wrap a shop rag around the test port area to avoid fuel spray and to absorb excess fuel. Carefully disconnect the gauge hose from the port adapter. Also remove the relative adapter from the vehicle's test port.
13. Remove the bleed off hose from the drain container and hold both gauge hoses over the container to let any remaining fuel drain. Store the tester in a well ventilated area to dry completely.
14. Recheck all fuel system connections, and then start the engine. Check for any leaks and repair as necessary. (The engine may crank for several seconds before restarting.)



## ▶ Testing System without Schrader Valve Test Ports

1. Relieve fuel system pressure before connecting the tester gauge (refer to the vehicle's service manual for procedures).



2. Loosen the fuel tank cap to release any pressure from the fuel tank.
3. Verify the ignition is off. Located the fuel system's inlet line (or hose) leading to the fuel rail or throttle body. Refer to the vehicle's service manual for locations.
4. Carefully disconnect inlet fuel line (supply line) from system connection points. Inlet may be under pressure. Try to keep hoses in an upright position to avoid excess fuel leakage. Be sure to clean up fuel spills immediately. (On Multi-Port Fuel Injection (MFI) systems, the supply line connection is typically located at the fuel rail.)
5. Connect the inlet fuel line (supply line) from the vehicle to one end of the tee fitting. Push the hose on to the fitting as far as it will go and secure using a hose clamp. Tighten the hose clamp securely.
6. Connect the gauge hose to the open fitting on top of the tee, finger tight only.
7. Place the bleed off hose into an approved drain container. Make sure the hose remains in the container until testing is complete.

8. Make sure all of the vehicle's accessories (air conditioner, fan, radio, lights and etc.) are turned off.
9. Turn ignition on and listen for fuel pump activation (most systems will activate the fuel pump circuit for approximately two seconds when the ignition is initially turned on to prime the fuel system). Check the best setup and make sure no fuel leaks are present. (If fuel leaks are present, turn off ignition immediately and repair any leaks. Be sure to clean up fuel spills immediately.)
10. When the fuel pump has been activated as described above, the fuel system is pressurized. Verify the tester gauge indicates a system pressure which corresponds with the specifications provided in the vehicle's service manual. (If the fuel pressure is not within vehicle manufacturer's specifications, start and idle engine, recheck the test setup for fuel leaks or turn ignition off and follow the test and repair procedures in the vehicle's service manual to correct the problem.)
11. Turn ignition off.
12. Make sure that the bleed off hose is still routed to the drain container. Press and hold the relief valve to bleed off system pressure. Hold the relief valve until the tester gauge indicated "0".
13. Shake the bleed off hose to ensure all residual fuel has been expelled.
14. Wrap a shop rag around the tee fitting area to avoid fuel spray and to absorb excess fuel. Carefully disconnect the gauge hose from the tee fitting. Hold both the bleed off hose and the gauge hose over the drain container to let any remaining fuel drain. Store the tester in a well ventilated area to dry completely.
15. Loosen hose clamps and remove the tee fitting and any additional hose pieces which were previously installed to perform the testing.
16. Reconnect the fuel inlet (supply line) to its original connection point. Make sure all hose clamps are reinstalled and tightened properly (refer to the vehicle's service manual for proper connections as necessary.)
17. Recheck all fuel system connections, and then start the engine. Check for any leaks and repair as necessary. (The engine may crank for several seconds before restarting.)

### Note:

- Shop rags which have been exposed to any flammable liquids or materials should be stored in any approved container to avoid hazardous conditions.
- The service life of the port adapter o-rings can be prolonged by applying a file of oil to them before storing.

