Fuel Induction System Cleaning Instruction Manual

A STEP-BY-STEP GUIDE FOR THE PROFESSIONAL

Instructions for using the
BG Inject-A-Flush® Apparatus, Part No. 9210,
BG Econo ISC Tool, Part No. 9220,
BG Non-pressurized Supply Tool, Part No. 9242,
BG AIS Cleaning Tool Kit, Part No. 9206
and the
BG EGR Service Kit, Part No. 9240

These instructions assume that you have, and know how to properly use, the BG tools listed above. These instructions also assume that you are generally familiar with automotive fuel systems and basic service and repair procedures. **You should not attempt to use this manual unless these assumptions are correct.**

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Introduction

BG Induction System Cleaning Tools and the accompanying products in the BG Cleaning Kits are the most effective apparatus/chemical cleaning combinations available. They work together to clean the entire induction system on all types of carburetted and fuel-injected engines. The BG Induction System Cleaning Tools and Kit packages meet all OEM fuel pressure specs; they pass OEM compatibility tests. The products in these exclusive Cleaning Kits are easy to use and safe — they will not harm any fuel system components including gaskets, hoses, metals, fuel tank bladders, fuel pumps, O-rings, or any materials used in the auto fuel system when used as directed. These products have been carefully engineered to provide the maximum possible benefit that today's additive chemistry can offer.

The Problem

Deposits form throughout the fuel induction system including injectors, valves, combustion chambers and air intake system (plenum). These deposits cause a host of driveability problems, reduce fuel economy and increase emissions.

The Solution

BG Products, Inc. has developed special formulas of solvents and detergents to clean dirty and clogged fuel injectors, intake valves, combustion chambers, air intake systems (plenums) and the entire fuel induction system on all domestic and imported fuel injected cars. With the aid of BG Induction System Cleaning Tools and fittings, clean-up is accomplished without disassembly. Immediate improvement in the performance of the vehicle will be noticed. You will be amazed at the results!

The Benefits

In a word...profitability! With so many of today's engines being fuel-injected, and with such a decline in gasoline quality, there is an ever-increasing need for an efficient, economical means of cleaning automotive fuel systems. The BG Induction Cleaning System offers **significant profit contributions** with a minimal investment... plus **satisfied, loyal customers**.

Improvements from the Field

The hallmark that has made BG Products, Inc. a leader in the industry is our constant commitment to improving our products and services to be the highest quality possible.

This manual will be continuously updated and improved, and we welcome your assistance. The service technicians in the field have more actual working experience with all of the different fuel induction systems than anyone else. You are the experts! If you have suggestions of a better hook-up for any of the makes and models listed in this manual, suggestions toward improving the procedural instructions for easier application, or any new additions to make this manual more complete, please let us know! We will appreciate your expertise and your input.

Simply mail your comments to:

BG Products, Inc., P.O. Box 1282, Wichita, KS 67201

Thanks for your assistance!

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Safety Requirements

Your safety comes first! Please follow these important steps to insure your safety.

1. Wear goggles or safety glasses for eye protection.
2. Keep a UL approved fire extinguisher nearby.
3. Perform service in a well-ventilated area. If possible, vent the exhaust pipe to outside air.
4. Stay away from all ignition sources. Do not use near sparks or open flames.
5. Keep all equipment (tools, electrical cords, hoses, etc.) away from moving or hot engine parts (i.e. fan belts, pulleys, exhaust manifold, etc.).
6. Check fittings for leaks and check fuel lines for cracks both before and after service. Fuel leakage could cause a fire.
7. Check for leaks after setting pressure and opening valve on BG tool before starting engine.
8. When opening a fuel line or fuel rail, fuel may boil out of the opening. Use rags around the opening to soak up any spilled fuel.
9. Do not leave BG tool and cleaning product unattended while the vehicle is running or the ignition is on. The cleaning products are extremely flammable, and the potential for a spark igniting the product always exists in the event of a leak.
10. Use fluorescent lighting for a safer operation. Incandescent lights may create sparks.
11. Maintain recommended pressures.
12. Use fender covers to protect all painted surfaces from fuel or cleaner fluid spills.
13. Keep the work area clean to help insure your safety.
14. Wash hands thoroughly after handling products.

Safety Equipment

- Shop Cloths
- Safety Goggles
- Gloves
- Fire Extinguisher

Safety Precautions

When using BG Air Intake System Cleaner, Part No. 206, please refer to the following safety precautions:

DANGER: FLAMMABLE LIQUID! HARMFUL OR FATAL IF SWALLOWED! VAPOR HARMFUL! Keep away from heat, sparks and flame. Avoid breathing vapors. Vapors may cause respiratory tract irritation, dizziness and/or drowsiness. Use only with adequate ventilation. May cause eye and skin irritation. Wash thoroughly after handling.
KEEP OUT OF REACH OF CHILDREN! Read Material Safety Data Sheet before using this product. BG Products, Inc. accepts no liability for excessive use or misuse of this product.
WARNING: DO NOT ALLOW CONTACT WITH PAINTED SURFACES.

FIRST AID: EYE CONTACT: Flush with large amounts of water for 15 minutes. If irritation occurs, see a physician immediately. SKIN CONTACT: Wash effected area thoroughly with soap and water. If irritation occurs, see a physician immediately. INHALATION: Remove victim to fresh air. If unconscious, administer artificial respiration. Call a physician immediately. INGESTION: DO NOT induce vomiting. Call a physician immediately.

When using BG Fuel Injection System Cleaner, Part No. 210, please refer to the following safety precautions:

DANGER: FLAMMABLE LIQUID! HARMFUL OR FATAL IF SWALLOWED! May cause skin and eye irritation. Keep away from heat, sparks and flame. Use with adequate ventilation.
KEEP OUT OF REACH OF CHILDREN! Read Material Safety Data Sheet before using this product. BG Products, Inc. accepts no liability for excessive use or misuse of this product.

FIRST AID: EYE CONTACT: Flush with large amounts of water for 15 minutes. If irritation occurs, see a physician immediately. SKIN CONTACT: Wash thoroughly with soap and water. If irritation occurs, see a physician immediately. INHALATION: Remove victim to fresh air. If unconscious, administer artificial respiration. Call a physician immediately. INGESTION: DO NOT induce vomiting. Call a physician immediately.

When using BG ISC® Induction System Cleaner™, Part No. 211, please refer to the following safety precautions:

DANGER: FLAMMABLE LIQUID! HARMFUL OR FATAL IF SWALLOWED! May cause eye and skin irritation. May cause headaches and dizziness at high concentrations. Dermatitis is possible with excessive exposure. WARNING: Do not allow contact with painted surfaces.
KEEP OUT OF REACH OF CHILDREN! Read Material Safety Data Sheet before using this product. BG Products, Inc. accepts no liability for excessive use or misuse of this product.

FIRST AID: EYE CONTACT: Flush with large amounts of water for 15 minutes. If irritation occurs, see a physician immediately. SKIN CONTACT: Wash effected area thoroughly with soap and water. If irritation occurs, see a physician immediately. INHALATION: Remove victim to fresh air. If unconscious, administer artificial respiration. Call a physician immediately. INGESTION: DO NOT induce vomiting. Call a physician immediately.

When using BG Air Intake System Cleaner, Part No. 406, please refer to the following safety precautions:

DANGER: EXTREMELY FLAMMABLE! HARMFUL OR FATAL IF SWALLOWED! VAPOR HARMFUL! CONTENTS UNDER PRESSURE! Do not store near heat, sparks or flame or in temperatures above 120°F. Avoid breathing vapors. Use only with adequate ventilation. Do not puncture or incinerate container.
KEEP OUT OF REACH OF CHILDREN! Read Material Safety Data Sheet before using this product. BG Products, Inc. accepts no liability for excessive use or misuse of this product.
WARNING: DO NOT ALLOW CONTACT WITH PAINTED SURFACES.

FIRST AID: EYE CONTACT: Flush with large amounts of water for 15 minutes. If irritation occurs, see a physician immediately. SKIN CONTACT: Wash effected area thoroughly with soap and water. If irritation occurs, see a physician immediately. INHALATION: Remove victim to fresh air. If unconscious, administer artificial respiration. Call a physician immediately. INGESTION: DO NOT induce vomiting. Call a physician immediately.

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Induction System Cleaning Products

BG Induction System Cleaning Tools are designed to be used exclusively with BG Induction System Cleaning Products.

BG Fuel Injection System Cleaner, Part No. 210, contains a lubricant and deposit control additives which "pre-soak" rock-hard deposits on valve tulips to soften and loosen deposits.

BG ISC® Induction System Cleaner™, Part No. 211, will quickly and safely clean fuel injectors and remove hard, baked-on carbon deposits from intake ports, intake valves, and combustion chambers.

Then, the powerful ingredients in **BG 44K®** Part No. 208, are able to provide thorough clean-up. BG 44K cleans the entire fuel system, including fuel injectors, intake valves, ports and combustion chamber. Because it provides efficient removal of upper engine deposits, BG 44K reduces problems caused by deposit build-up such as engine surge, stalling, stumble, hesitation and power loss.

BG Air Intake System Cleaner, Part No. 206 & 406 (aerosol), is a blend of cleaning agents which safely and rapidly remove accumulated deposits from the butterfly/throttle valve, throttle body and idle air control valves of the air induction system. It is used in the final step of the BG Fuel Induction System Cleaning Process. **Note**: BG Air Intake System Cleaner, Part No. 206, is designed for use with the BG AIS Cleaning Tool Kit, Part No. 9206.

When used as directed, BG Induction System Cleaning Products will not harm any fuel system components including gaskets, hoses, metals, fuel tank bladders, fuel pumps, O-rings, etc.

Use of BG Induction System Cleaning Products will truly restore that "like new" performance to all types of fuel-injected engines.

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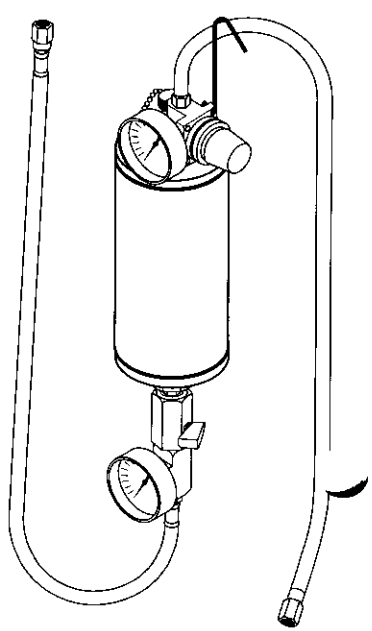
9210 Inject-A-Flush® Apparatus

PART NO. 9210

GENERAL OPERATING INSTRUCTIONS

The BG 9210 Inject-A-Flush Apparatus is a highly effective tool which provides complete "on engine" cleaning of the entire fuel induction system. BG 9210 utilizes air from an air compressor.

1. Read Safety Requirements and Precautions (Section 1) and Material Safety Data Sheets before proceeding.
2. Before using, all fittings on BG 9210 should be tightened. Check for leaks.
3. Before attaching the BG 9210 to the air hose, be sure both regulator valve and lower valve are in the "OFF" position.
4. Remove knurled cap from BG 9210 Tool and pour **BG Fuel Induction System Cleaner** (PN 210) or **BG ISC® Induction System Cleaner**™ (PN 211) into the canister. Replace cap. Do not over-tighten the cap; screwing the cap on too tight could damage the O-ring. Be sure to close vent valve if so equipped.
5. Attach BG 9210 to shop air hose.
6. Proceed to the "Applications" portion of this manual for specific vehicle instructions and remaining procedures for completion of cleaning process.



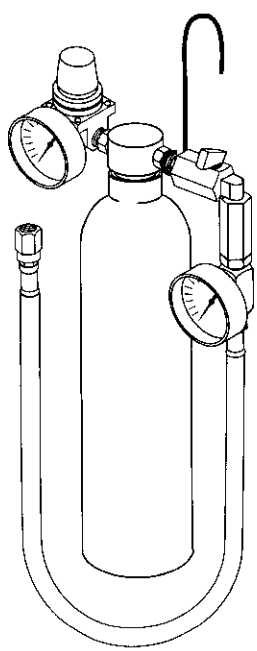
Econo ISC Tool

PART NO. 9220

GENERAL OPERATING INSTRUCTIONS

The BG Econo ISC Tool, Part No. 9220, features a light weight, large 24 oz. capacity tank. It provides extended cleaning time for "on-engine" cleaning of the entire fuel induction system. BG 9220 utilizes air from an air compressor.

1. Read Safety Requirements and Precautions (Section 1) and Material Safety Data Sheets before proceeding.
2. Before using, all fittings on BG 9220 should be tightened. Check for leaks.
3. Remove cap from BG 9220 Tool and pour **BG Fuel Induction System Cleaner** (PN 210) or **BG ISC® Induction System Cleaner™** (PN 211) into the canister. Replace cap. Do not over-tighten the cap; screwing the cap on too tight could damage the O-ring.
4. Before attaching the BG 9220 to the air hose, be sure both regulator valve and lower valve are in the "OFF" position.
5. Attach BG 9220 to shop air hose.
4. Proceed to the "Applications" portion of this manual for specific vehicle instructions and remaining procedures for completion of cleaning process.



AIS Cleaning Tool Kit

PART NO. 9206

GENERAL OPERATING INSTRUCTIONS

The BG AIS Cleaning Tool Kit is designed specifically to clean air intake systems (throttle plate, plenum...) with **BG Air Intake System Cleaner**, Part No. 206. The BG AIS Cleaning Tool Kit is to be used in conjunction with a pressurized supply tool such as the BG 9210 Inject-A-Flush Apparatus or BG Econo ISC Tool, Part No. 9220.

1. Read Safety Requirements and Precautions (Section 1) and Material Safety Data Sheets before proceeding.

2. Connect BG AIS Cleaning Tool to supply tool and make sure all fittings are tight.

3. Remove rubber or plastic boot from the mouth of the throttle body of the air intake. Install BG AIS Cleaning Tool as shown in diagram below. Take care to center the spray nozzle in front of the mouth of the intake. Replace boot and tighten clamp.

4. Pour **BG Air Intake System Cleaner**, Part No. 206, into supply tool. Close all valves and pressurize to 20 PSI.

5. Start engine and run until it is in the closed loop mode. Open supply tool valve and allow engine to run for 20-30 seconds at 20 PSI to allow computer to adjust to this rich condition. Increase pressure to 40 PSI or less for 4 cylinders, 60 PSI or less for 6 cylinders, and 80 PSI or less for 8 cylinders. You may raise RPM slowly every 2-3 minutes to help clear the plenum throat of dissolved deposits and puddles of chemical. However, **do not accelerate engine over 1500 RPM for more than a few seconds or catalytic converver will overheat.**

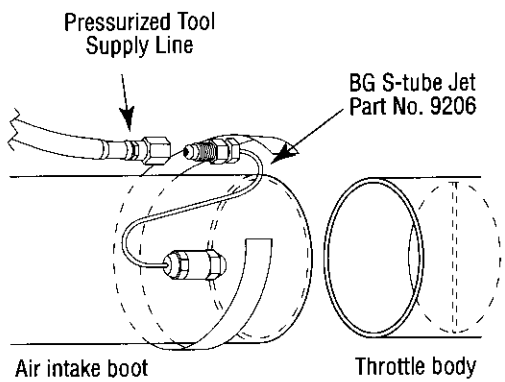
6. **Always drive the vehicle immediately after plenum and/or EGR services to ensure no trouble codes have been set and to remove any puddles of chemical that may have developed. Chemical left standing in puddles for any length of time can**

damage internal regulators and internally painted oil pans. Some exhaust smoke and odor may accompany this service. Driving the vehicle will clear this condition as well.

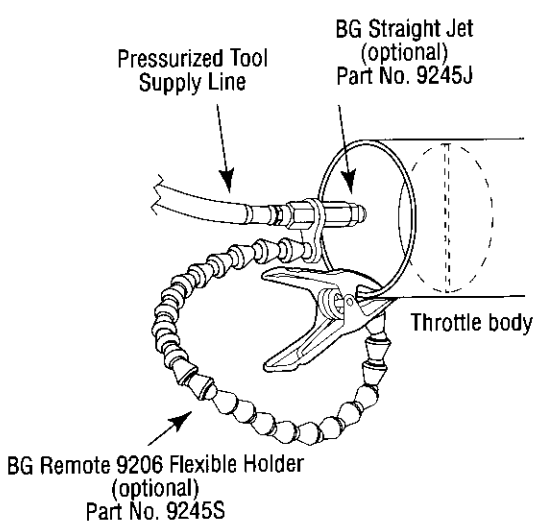
For high mileage vehicles (80,000 miles and up)

For high mileage vehicles, or those with heavy deposits in their plenum, begin the plenum service with one 11oz. can of BG ISC Induction System Cleaner, Part No. 211, followed by two 11 oz. cans of BG Air Intake System Cleaner. This will thoroughly dissolve the deposits and prevent any possibility of spark plug or oxygen sensor fouling.

Hook-up with Intake Boot ON



Hook-up with Intake Boot OFF



Operational Tips

1. Rather than disabling the fuel pump, there is an alternative method which should be considered: If a loop can be made connecting the vehicle fuel supply line to the vehicle fuel return line, it will not be necessary to disable the fuel pump.
2. To help prevent damage, do not clamp plastic line (with or without rubber covering).
3. On vehicles that do not have an installed Schrader valve, remove fuel supply line from fuel rail. Install correct adapter fitting in fuel supply port.
4. On all OBDII-equipped vehicles: When the BG Tool runs out of cleaner, the engine will stall and set 3 to 4 trouble codes in the computer which must to be cleared with a scan tool. To avoid this, shut off the engine *as soon as it starts to die.*
5. All fuel pressure regulators with multi-port fuel injection: Remove vacuum hose from pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure (see Section 4).

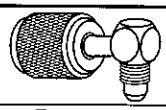
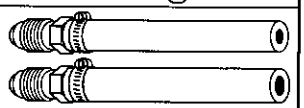
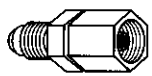
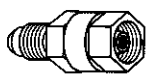
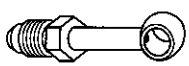
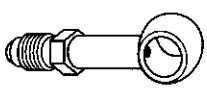
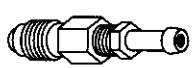
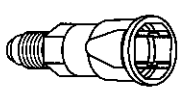
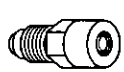
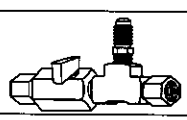
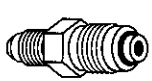
Trouble Shooting

1. **Engine will not start:**
   - Check engine temperature to ensure it is warm; engine must be at operating temperature (195°F).
   - If the entry point is through a Schrader valve, make sure the proper end of the hose is being threaded onto the Schrader valve. Make sure the valve is being opened by the adapter; if not, remove the valve.
   - Check to see if more than the fuel pump was disabled (i.e. electronic ignition, injectors, computer control, etc.)
   - Check the BG Tool outlet valve and make certain the bottom valve on the BG Tool has been opened.
2. **Engine runs only a short period of time:**
   - Make sure the pressure is high enough.
   - Check the return line clamps/plugs.
   - Check to see if anything is blocking the inlet port.
   - Try increasing the pressure and/or rpm slightly.
   - Check container to see if empty; if so, tighten clamp on return line and refill container.
3. **Engine runs an extremely long period of time:**
   - Make sure the fuel pump was disconnected.

Carburetors

The BG Induction System Cleaning Tools and the accompanying products in the BG Induction System Cleaning Kits have proven to be very effective at removing carburetor and valve deposits. Safely block the incoming fuel line or loop it to the return line, and set the pressure regulator on the BG Tool to match fuel pump pressure.

PARTS LIST

Part No.	Description
00	Schrader valve 
01	Bi-Kit 1/4" fuel line with 1/4" male flare 5/16" fuel line with 1/4" male flare 
02	12 mm ring nipple with 1/4" male flare 
03	14 mm ring nipple with 1/4" male flare 
04	8 mm banjo with 1/4" male flare 
05	12 mm banjo with 1/4" male flare 
11	5/16" mm barb with 1/4" male flare 
14	5/16" Ford quick connect 
15	Ford port rail adaptor 
16	T-block & valve assembly 
17	GM TBI adaptor (large) 
18	#6 hose clamp 

PARTS LIST
continued

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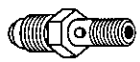
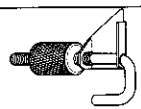
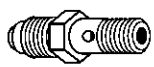
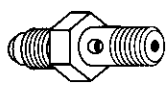
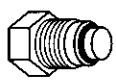
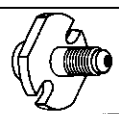
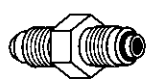
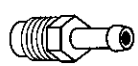
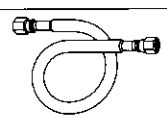
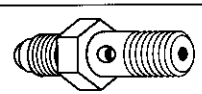
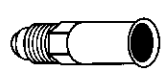
20	8 mm cold start adaptor	
21	Pinch-off clamp	
25	10 mm Toyota adaptor	
26R	12 mm Toyota adaptor 1.5 pitch	
27	GM plug	
32	Mitsubishi supply adaptor (small)	
33	Mitsubishi supply adaptor (large)	
35	GM TBI adaptor (small)	
38	5/16" AMC TBI adaptor	
39	Universal return loop	
40	12 mm fine thread cold start (short)	
41	3/8" connector sleeve	

PARTS LIST
continued

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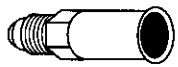
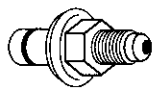
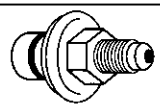
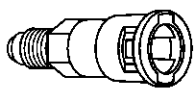
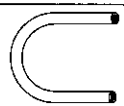
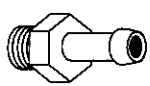
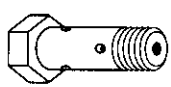
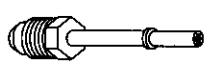
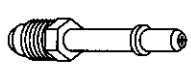
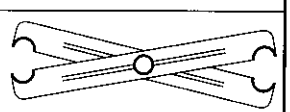
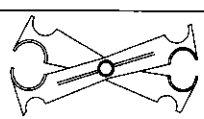
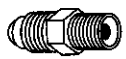
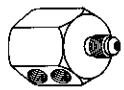
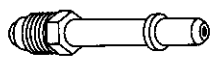
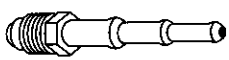
42	1/2" connector sleeve	
43	Universal block	
45	3/8" Ford connector sleeve	
46	1/2" Ford connector sleeve	
47	1/4" quick connect	
49	5/16" U-tube	
50	Volvo loop	
52	12 mm double flow through bolt	
56	1/4" Ford tube adaptor	
57	5/16" Ford tube adaptor	
58	GM quick release 3/8" & 5/16"	
59	Ford quick release 9/16," 21/32," 13/16," & 15/16"	

PARTS LIST
continued

Part No.	Description	
61	5/16" Chrysler TBI adaptor	
62	Fuel Pressure Test Adaptor	
64	3/8" Chrysler & GM male quick connect	
65	Tri-barb	

Glossary

AFC - Airflow Control. A type of fuel injection system that measures the amount of air flowing past a sensor to determine fuel requirements.

Airflow Meter - Used to measure the volume of air entering the engine on many fuel injection systems. Also: Airflow Sensor or Air Mass Meter.

CIS - Continuous Injection System. A Bosch fuel injection system which injects a steady stream of pressurized fuel into the intake manifold.

CIS/Lambda - Continuous Injection System with an oxygen sensor (Lambda = Oxygen).

CISE - Continuous Injection System with Electronic warm-up regulator.

CFI - Central Fuel Injection. A Ford Motor Co. fuel injection system that uses an injector-mounted throttle body assembly.

Control Module - One of several names for a solid state microcomputer which monitors engine conditions and controls certain engine functions, such as air/fuel ratio, injection and ignition timing, etc.

C^3I - Computer Controlled Coil Ignition. General Motors' computerized ignition coil system used on many different engine applications.

"D" Jetronic - (See MPC.) Bosch uses this term to describe a fuel injection system controlled by manifold pressure.

DFI - Digital Fuel Injection. A General Motors system.

ECA, ECM and ECU - Electronic Control Assembly, Electronic Control Module, and Electronic Control Unit. (See Control Module.)

ECI - Electronic Controlled Injection. A system used by Mitsubishi.

EFI - Electronic Fuel Injection. A fuel injection system that uses a micro-computer to determine and control the amount of fuel required by, and injected into, a particular engine.

EGI - Electronic Gasoline Injection. Mazda's fuel injection system used on RX7, RX7 Turbo, 323 and 626 models.

Fuel Distributor - Used on the Bosch CIS fuel injection system, the distributor is supplied with fuel from the fuel tank. Fuel leaves the distributor through one fuel line for each injector at a constant, pre-determined pressure.

Fuel Injector - In all except CIS, CIS/Lambda and CISE systems: a spring-loaded, electro-magnetic valve that delivers fuel into the intake manifold, in response to electrical signals from the control module. In CIS, CIS/Lambda and CISE systems: a spring-loaded, pressure sensitive valve that opens at a pre-set value.

"K" Jetronic - (See CIS.) Bosch uses this term to describe a fuel injection system that features continuous injection. (K = "konstant," the German word for constant.)

"KE" Jetronic - (See above.) Continuous Injection System with Electronic warm-up regulator. (K = "konstant" and E = electronic.)

"L" Jetronic - (See AFC.) Bosch uses this term to describe a fuel injection system controlled by the air flowing through a sensor.

Lambda Sensor - A feedback device, usually located in the exhaust manifold, that detects the amount of oxygen present in exhaust gases in relation to the surrounding atmosphere.

MPC - Manifold Pressure Controlled fuel injection system. A system that determines engine load based upon intake manifold pressure.

MPFI - Multi-Point Fuel Injection. A system that uses one injector per cylinder, mounted on the engine to spray fuel near the intake valve area of the combustion chamber.

PGM-FI - Programmed Fuel Injection. Honda uses this system on Accord, Civic, Civic CRX and Prelude models.

Pressure Regulator - A device to control the pressure of fuel delivered to the fuel injector(s).

SEFI or SFI - Sequential Electronic Fuel Injection or Sequential Fuel Injection. A system that uses a micro-computer to determine and control the amount of fuel required by, and injected into, a particular engine in the same sequence as engine firing sequence.

TBI - Throttle Body Injection. Any of several injection systems wherein the fuel injector(s) are mounted in a centrally located throttle body, as opposed to positioning the injectors close to the intake ports.

TPI - Tuned Port Injection. General Motors' fuel injection system that uses tuned air intake runners for more precise delivery of airflow.

NOTES:

NOTE: In the "Applications" section, a drawing is provided on the **BACK** of each page of written instructions. Therefore, when the "Applications" section of the manual is open, *do not* refer to the drawing on the left side in association with the written instructions on the right side.

Rev. 9/97

Acura Legend

Programmed Fuel Injection – Sequential Fuel Injection

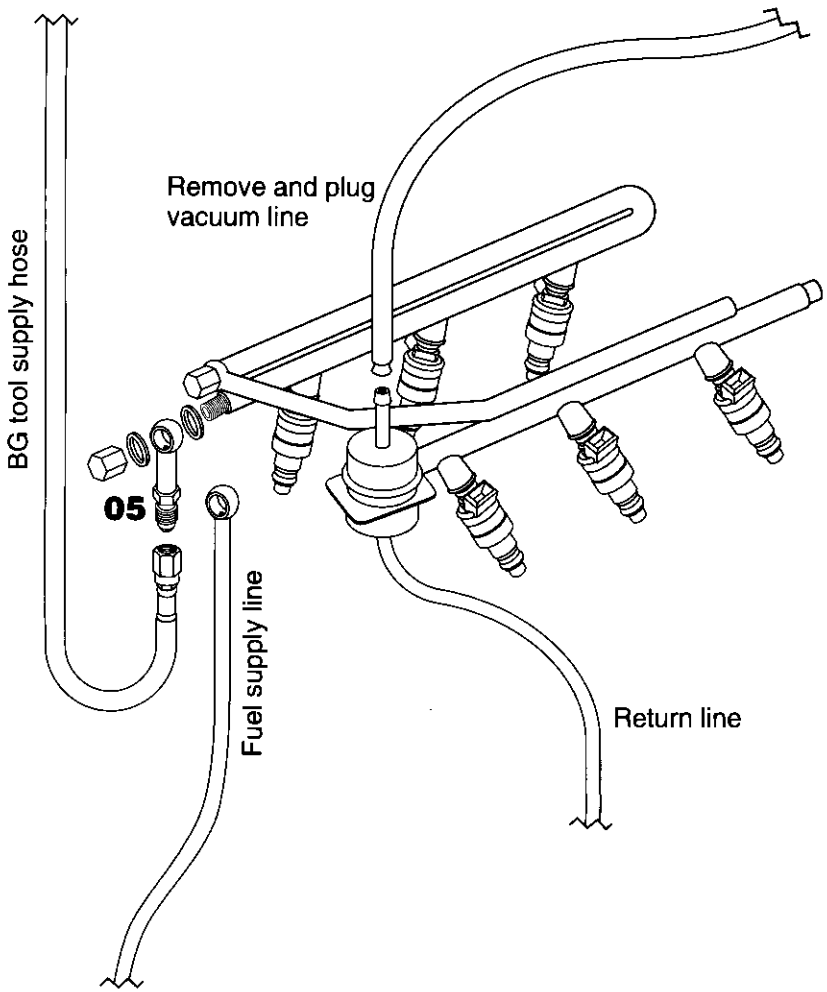
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank or along the frame on the driver's side of the vehicle.
4. Remove the fuel supply cap and install the 12mm Banjo Adaptor, **05**, to the open supply port. Connect the BG Tool Supply Hose to the Banjo Adaptor, **05**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

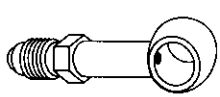
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Acura Legend

Programmed Fuel Injection – Sequential Fuel Injection



BG PARTS



05

Alfa Romeo

L-Jetronic

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.

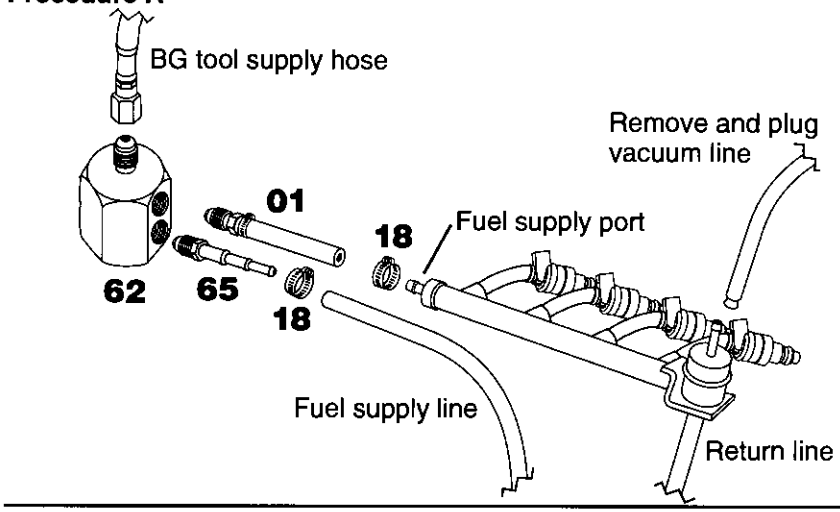
   Procedure B: Remove the Fuel Supply Line. Connectl the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at **37 PSI.***
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

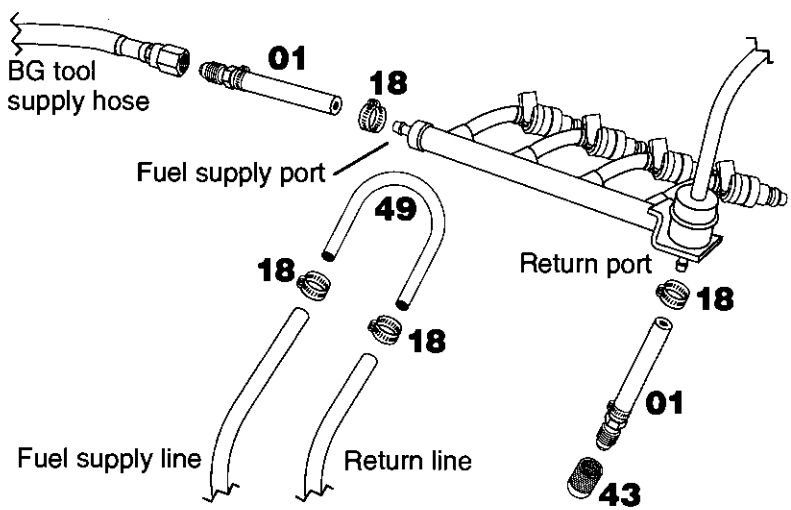
Alfa Romeo

L-Jetronic

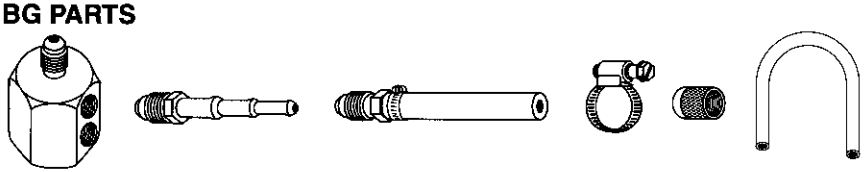
Procedure A



Procedure B



BG PARTS



Alfa Romeo

Milano and 164 L-Jetronic

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

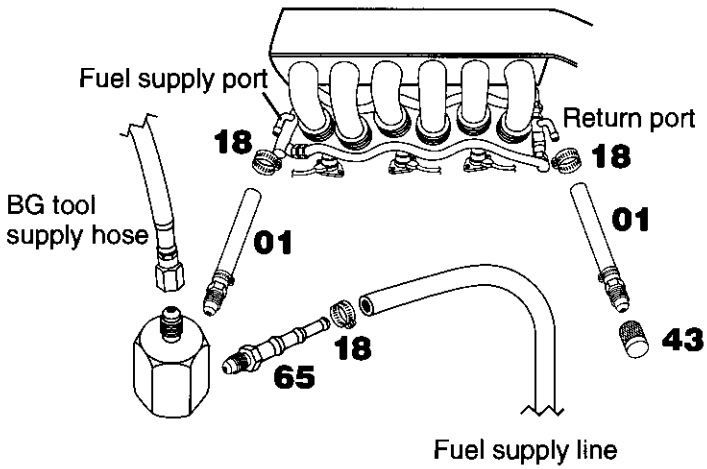
1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.
   Procedure B: Remove the Fuel Supply Line. Install the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at **37 PSI.***
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

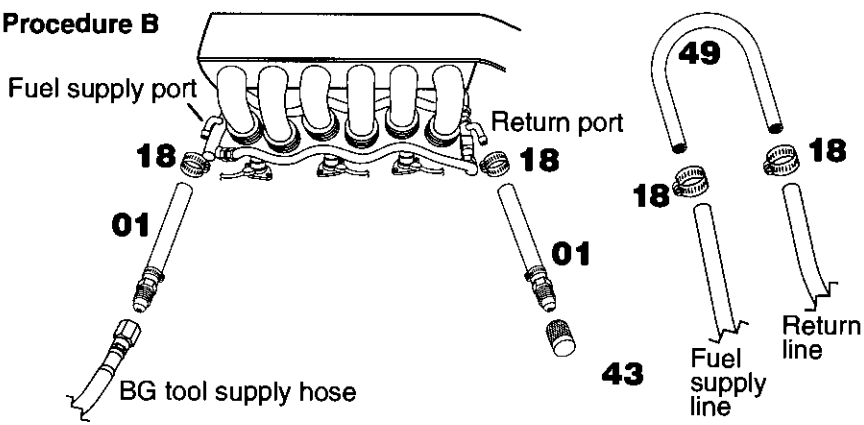
Alfa Romeo

Milano and 164 L-Jetronic

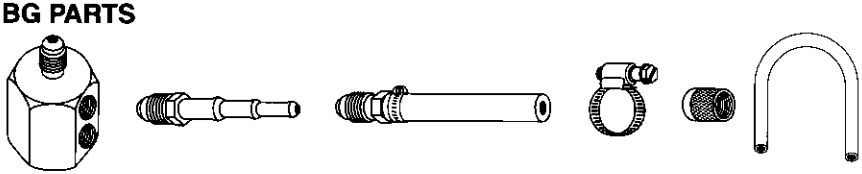
Procedure A



Procedure B



BG PARTS



BMW

L-Jetronic Airflow Controlled

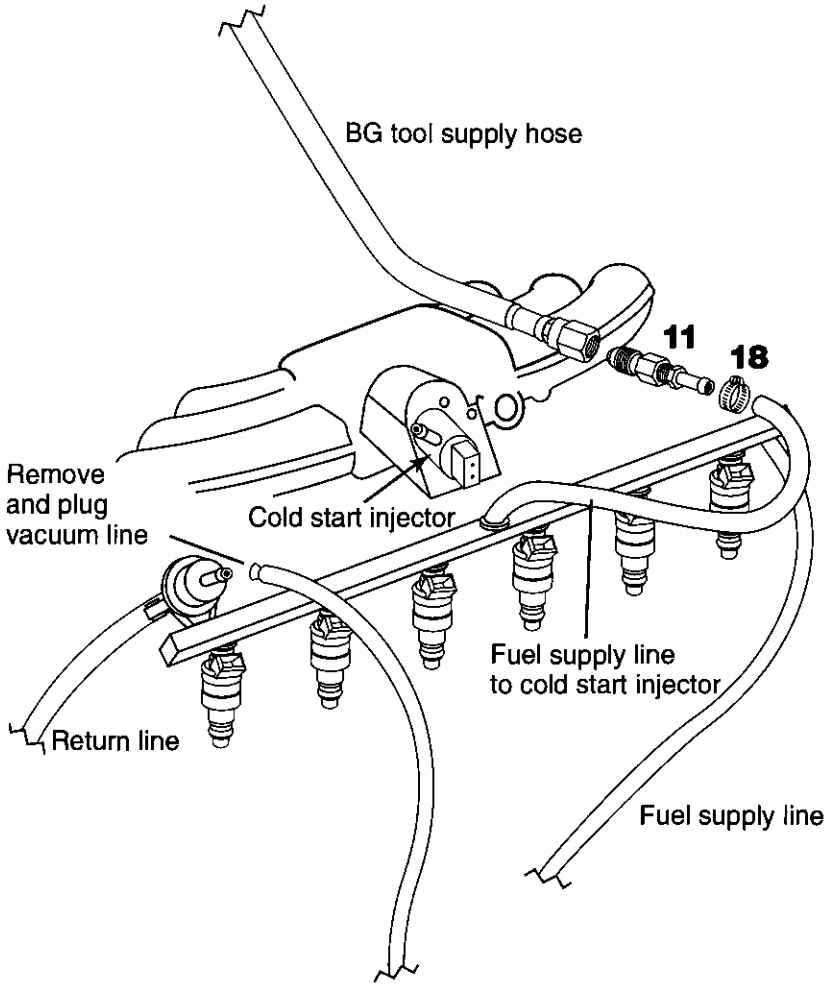
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Remove the Fuel Supply Line going to the cold start injector, and connect the 5/16" Barb, **11**, to that Fuel Supply Line with a 5/16" Hose Clamp, **18**. Connect the BG Tool Supply Hose to the 5/16" Barb, **11**.
4. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
5. Disconnect the fuel pump by removing the fuse marked fuel pump from the fuse box.
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

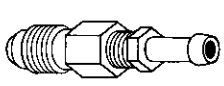
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

BMW

L-Jetronic Airflow Controlled



BG PARTS



11

18

Chrysler

Multi-Point Fuel Injection (with quick connect)

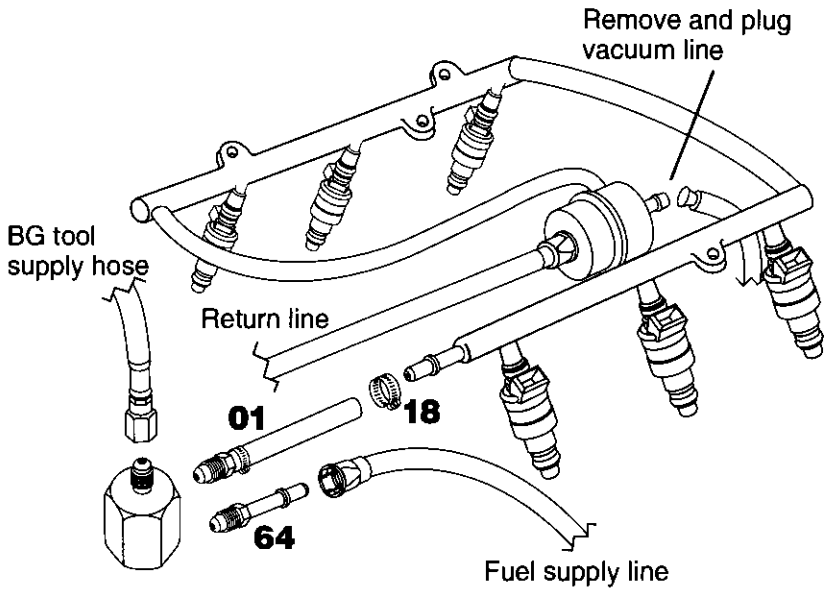
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add BG **44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Connect the 5/16" Hose, **01**, and the 3/8" Male Quick Connect, **64**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the 3/8" Male Quick Connect, **64**, to the Fuel Supply Line. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

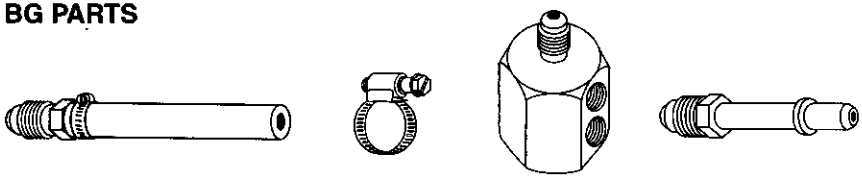
* Pressure 2tings vary from one make of automobile to another; . refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Multi-Point Fuel Injection (with quick connect)



BG PARTS



01 18 62 64

Chrysler

Multi-Point Fuel Injection (with Schrader valve)

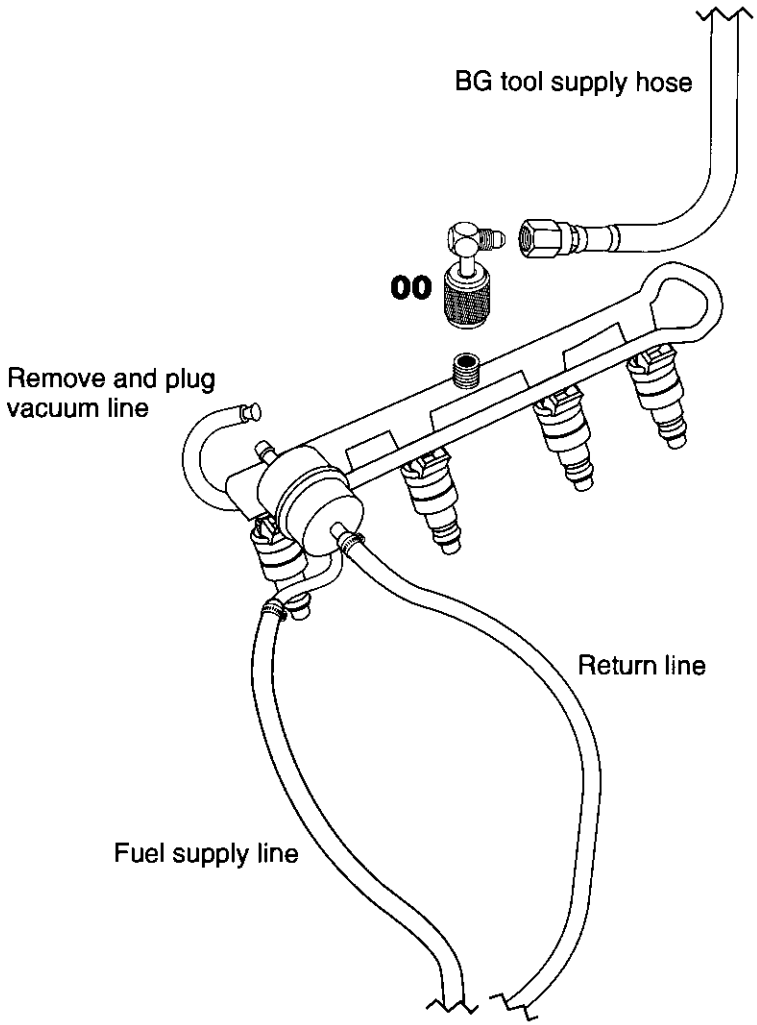
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Connect the Schrader Adaptor, **00**, to the schrader valve on the multi-point rail. Connect the BG Tool Supply Hose to the Schrader Adaptor, **00**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

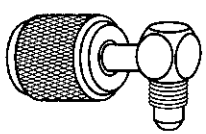
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Multi-Point Fuel Injection (with Schrader valve)



BG PARTS



00

Chrysler

Multi-Point Fuel Injection (without Schrader valve)

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.

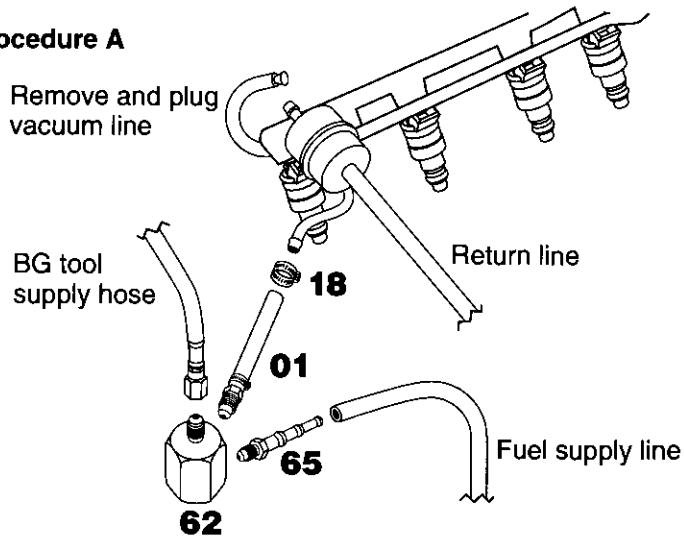
   Procedure B: Remove the Fuel Supply Line. Install the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the throttle body. Loop the Fuel Supply Line and Return Line using the U- Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at **40 PSI.***
4. Start the engine and run at idle until the BG Tool canister is, empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

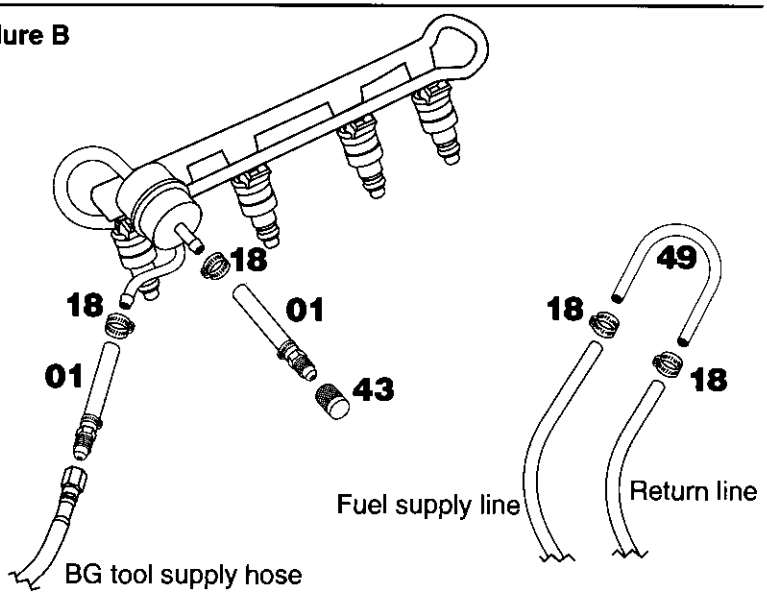
Chrysler

Multi-Point Fuel Injection (without Schrader valve)

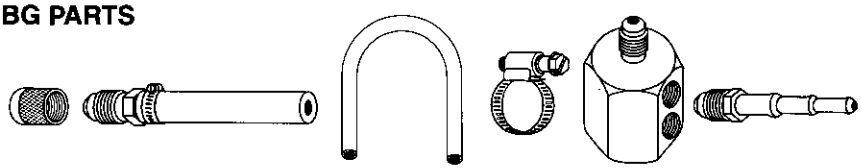
Procedure A



Procedure B



BG PARTS



Chrysler

Throttle Body Fuel Injection (high pressure)

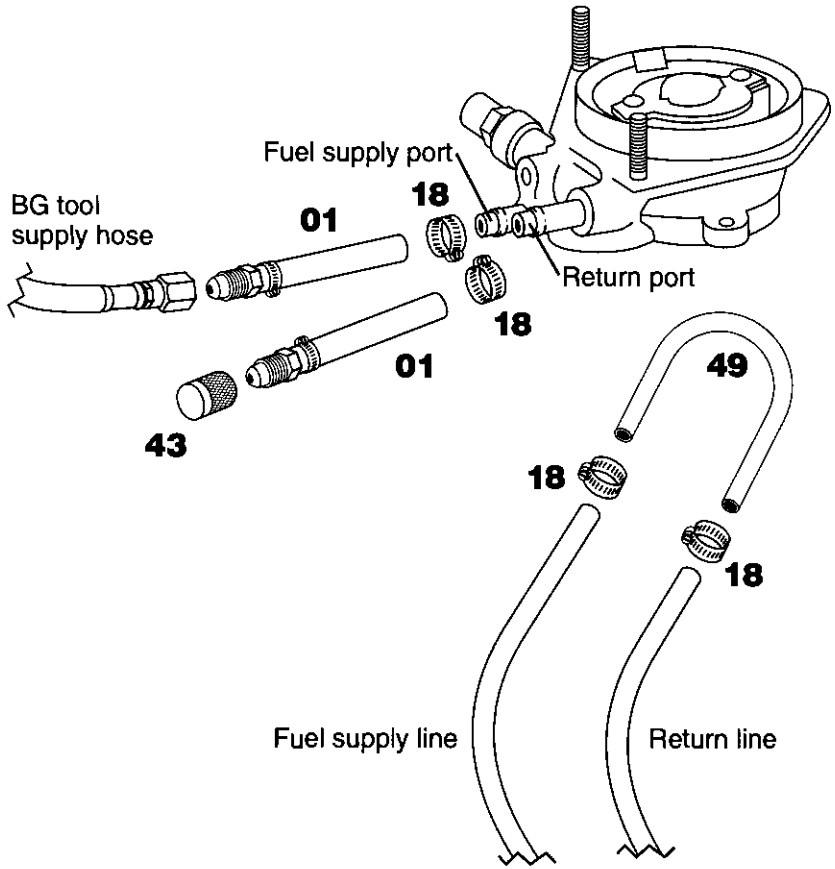
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the Fuel Supply Line. Install the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the Tool Supply Hose to the 5/16" Hose, **01**.
4. Remove the Return Line from the throttle body. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**.
5. Open the valve on the BG Tool and set the regulator valve at **38 PSI.***
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

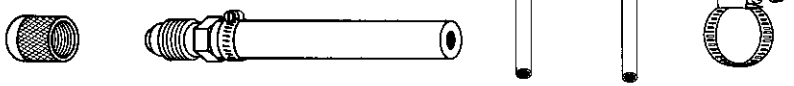
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Throttle Body Fuel Injection (high pressure)



BG PARTS



43 01 49 18

Chrysler

Throttle Body Fuel Injection (low pressure)

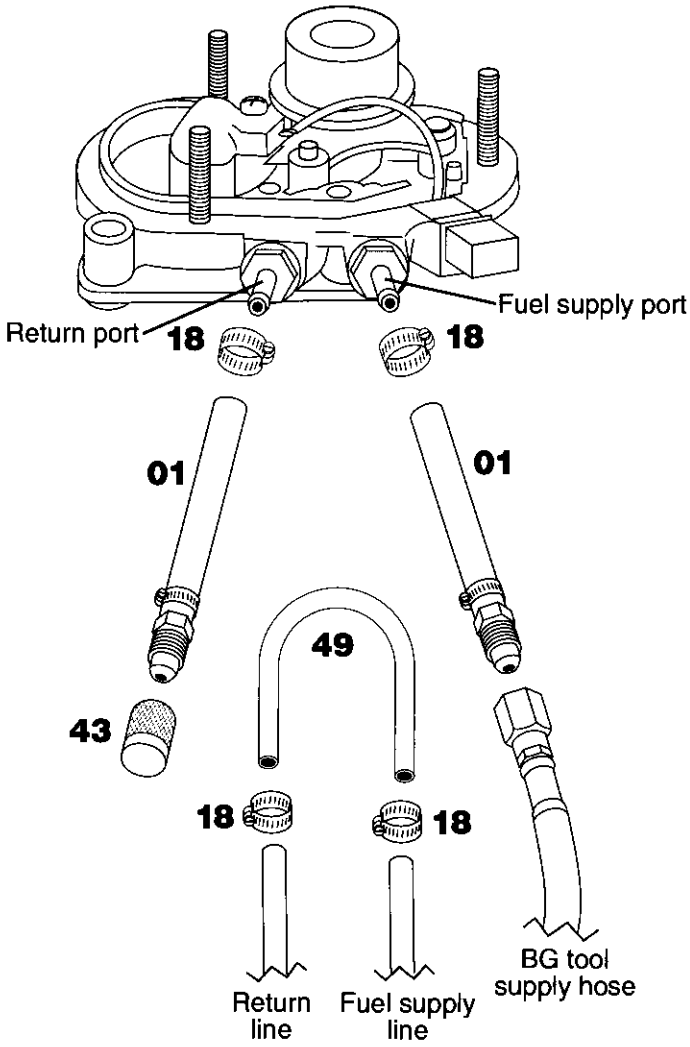
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Remove the Fuel Supply Line and Return Line from the throttle body. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**.
4. Install the 5/16" Hose, **01**, to the open supply port with the 5/16" Hose Clamp, **18**. Connect the Tool Supply Hose to the 5/16" Hose, **01**.
5. Open the valve on the BG Tool and set the regulator valve at **19 PSI.***
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

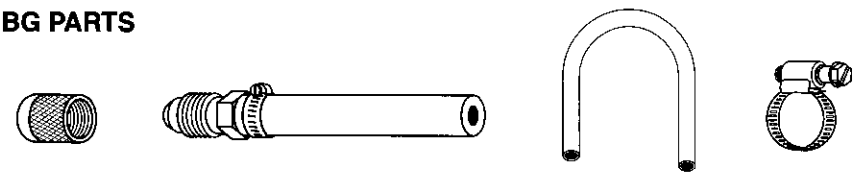
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Throttle Body Fuel Injection (low pressure)



BG PARTS



43 01 49 18

Chrysler

Colt Vista Multi-Point Fuel Injection

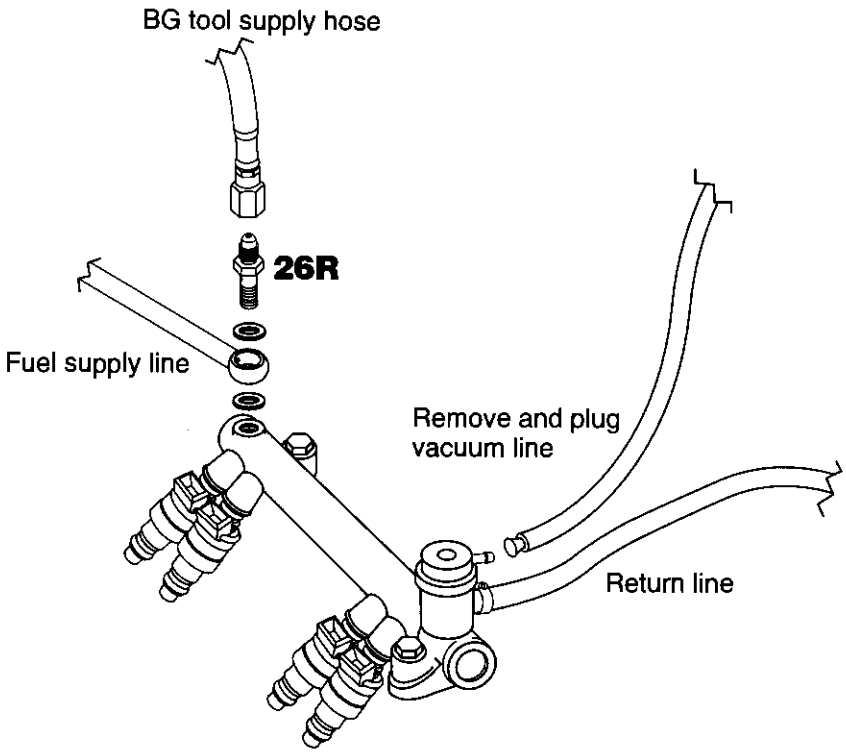
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging under rear seat.
4. Replace the Fuel Supply Banjo Bolt with the 12mm Adaptor, **26R**. Connect the Tool Supply Hose to the 12mm Adaptor, 26R.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

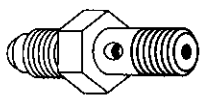
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended

Chrysler

Colt Vista Multi-Point Fuel Injection



BG PARTS



26R

Chrysler

Dodge Multi-Point Fuel Injection (with fuel regulator in tank)

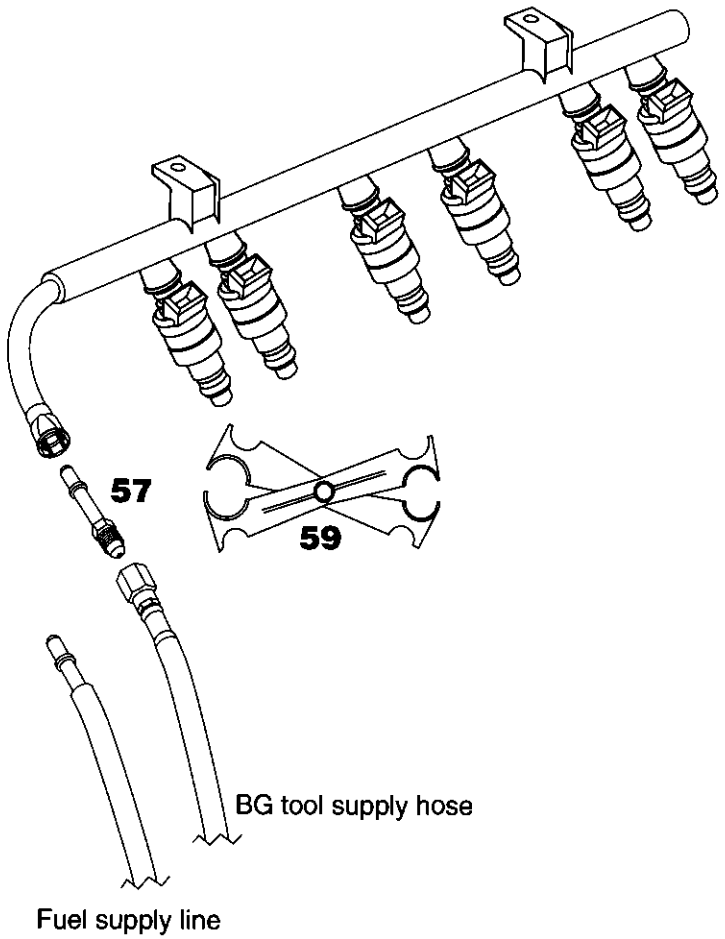
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by removing the fuse or relay located under the hood near the battery. Caution: Do not disconnect the fan relay by mistake or the engine will over heat.
4. Disconnect the Fuel Supply Line using Ford Quick Release, 59, and install the 5/16" Tube Adaptor, 57, to the open supply port. Connect the Tool Supply Hose to the 5/16" Tube Adaptor, 57.
5. Open the valve on the BG Tool and set the regulator valve at 37 PSI.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

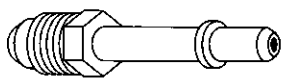
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

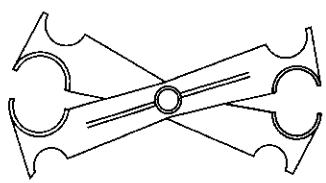
Dodge Multi-Point Fuel Injection (with fuel regulator in tank)



BG PARTS



57



59

Chrysler

Dodge/Plymouth Colt Multi-Point Fuel Injection

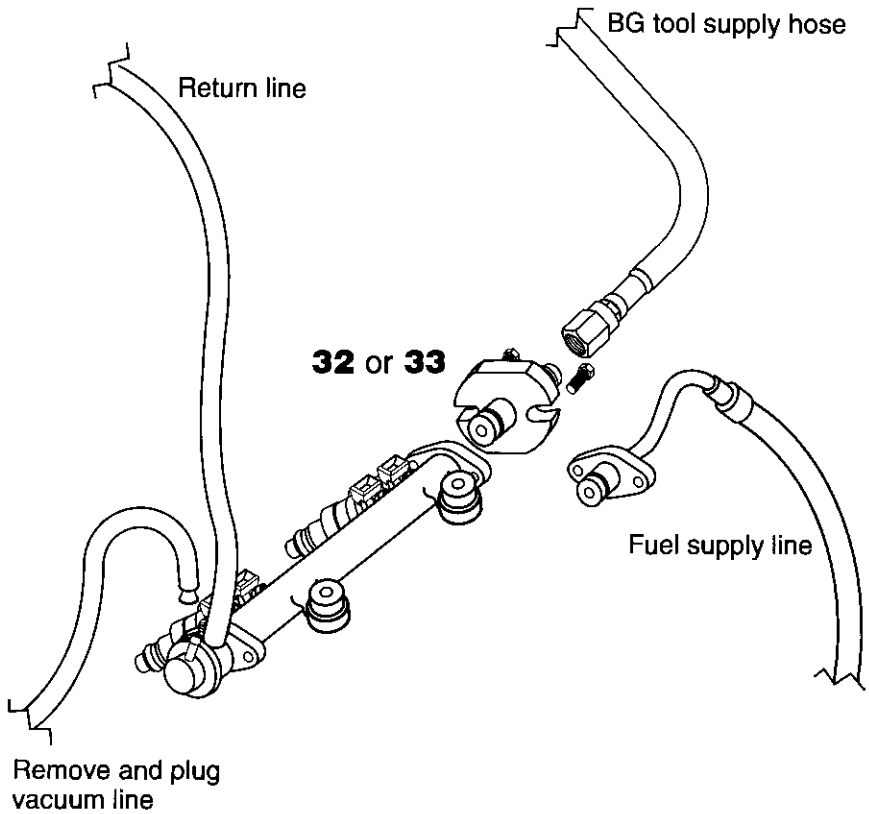
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging under rear seat.
4. Remove the Fuel Supply Line and connect the BG Tool Supply Hose to the rail using the Mitsubishi Supply Adaptor, 32 or 33.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

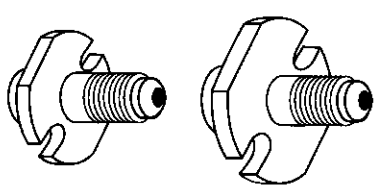
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Dodge/Plymouth Colt Multi-Point Fuel Injection



BG PARTS



32 or **33**

Chrysler

Dodge Stealth/Plymouth Laser/Eagle Talon Multi-Point

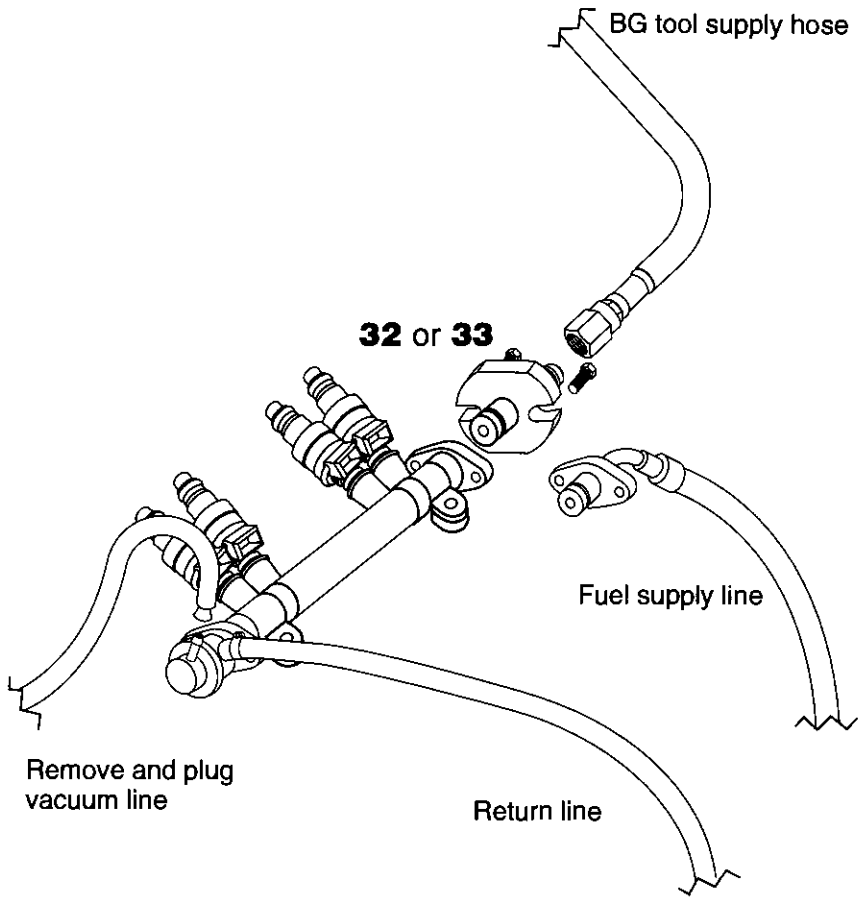
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add BG **44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Remove the Fuel Supply Line and connect the BG Tool Supply Hose to the rail using the Mitsubishi Supply Adaptor, 32 or 33.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

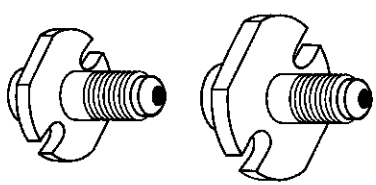
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Dodge Stealth/Plymouth Laser/Eagle Talon Multi-Point



BG PARTS



32 or **33**

Chrysler

Eagle Multi-Point Fuel Injection

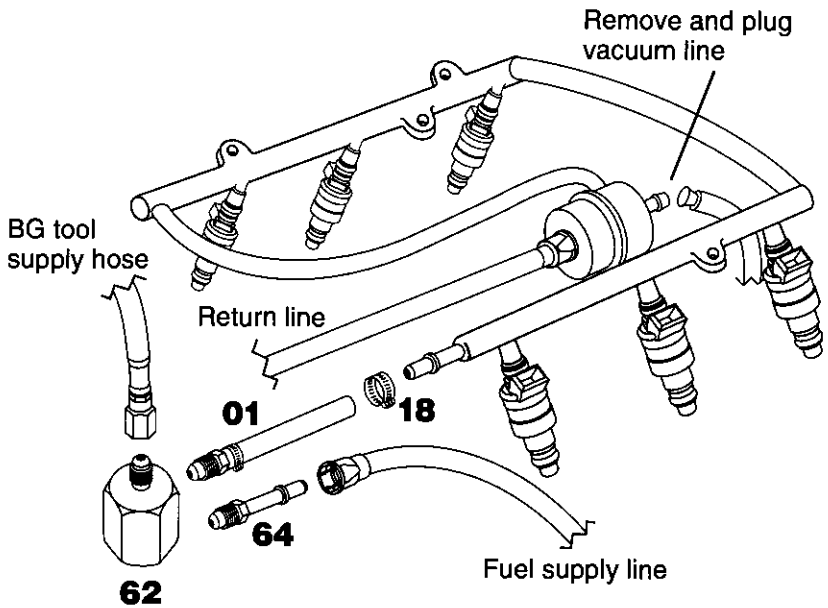
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Connect the 5/16" Hose, **01**, and the 3/8" Male Quick Connect, 64, to the Fuel Pressure Test Adaptor, **62**. Remove the plastic shield mounted over the fuel rail. Disconnect the Fuel Supply Line. Install the 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with the Hose Clamp, 18. Connect the 3/8" Male Quick Connect, 64, from the Fuel Pressure Test Adaptor assembly to the Fuel Supply Line. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

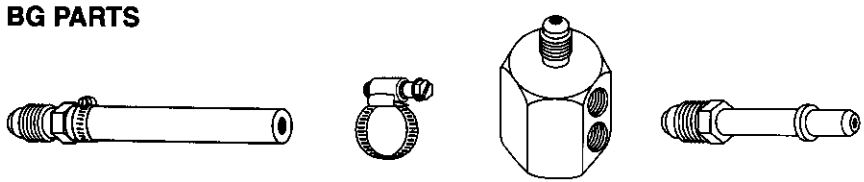
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Eagle Multi-Point Fuel Injection



BG PARTS



Chrysler

Eagle Throttle Body Fuel Injection

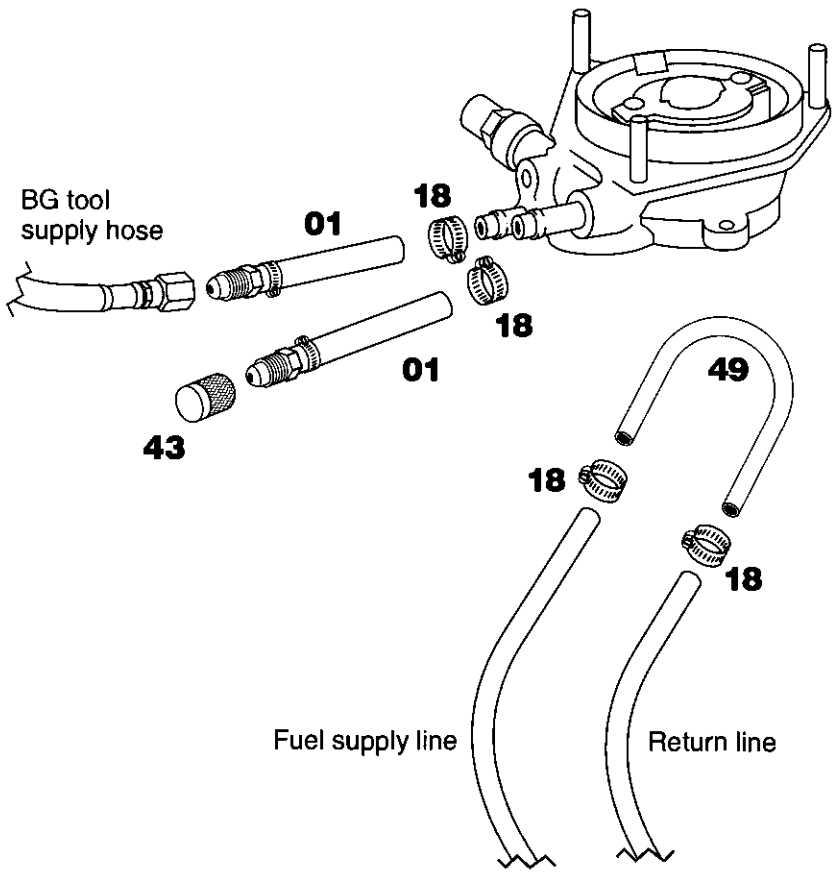
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnecting the fuel pump is not necessary. A bypass loop is accomplished. Remove the Fuel Supply Line and Return Line from the throttle body. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**.
4. Install the 5/16" Hose, **01**, to the open supply port with the 5/16" Hose Clamp, **18**. Connect the Tool Supply Hose to the 5/16" Hose, **01**.
5. Open the valve on the BG Tool and set the regulator valve at **22 PSI.***
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

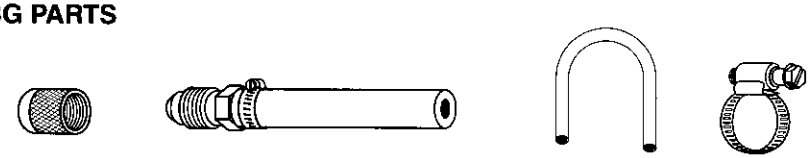
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Eagle Throttle Body Fuel Injection



BG PARTS



43 **01** **49** **18**

Chrysler

Jeep Throttle Body Fuel Injection

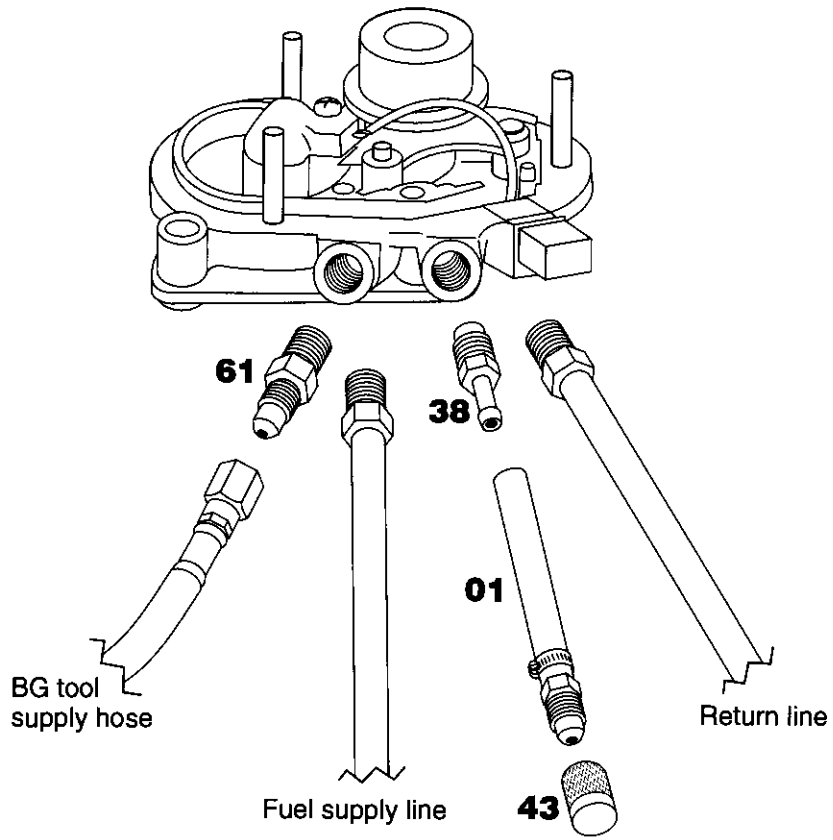
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Remove the fuel Return Line from the throttle body and plug the open port using the AMC TBI Adaptor, **38**, the 5/16" Hose, **01**, and the Universal Block, **43**.
5. Remove the Fuel Supply Line and install the Chrysler TBI Adaptor, **61**, to the open supply port. Connect the Tool Supply Hose to the Chrysler Adaptor, **61**.
6. Open the valve on the BG Tool and set the regulator valve at **22** PSI.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

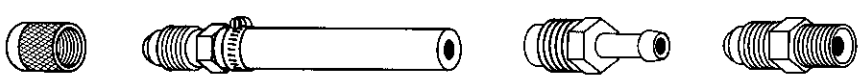
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Jeep Throttle Body Fuel Injection



BG PARTS



43 **01** **38** **61**

Chrysler

Jeep Multi-Point Fuel Injection (with Schrader valve)

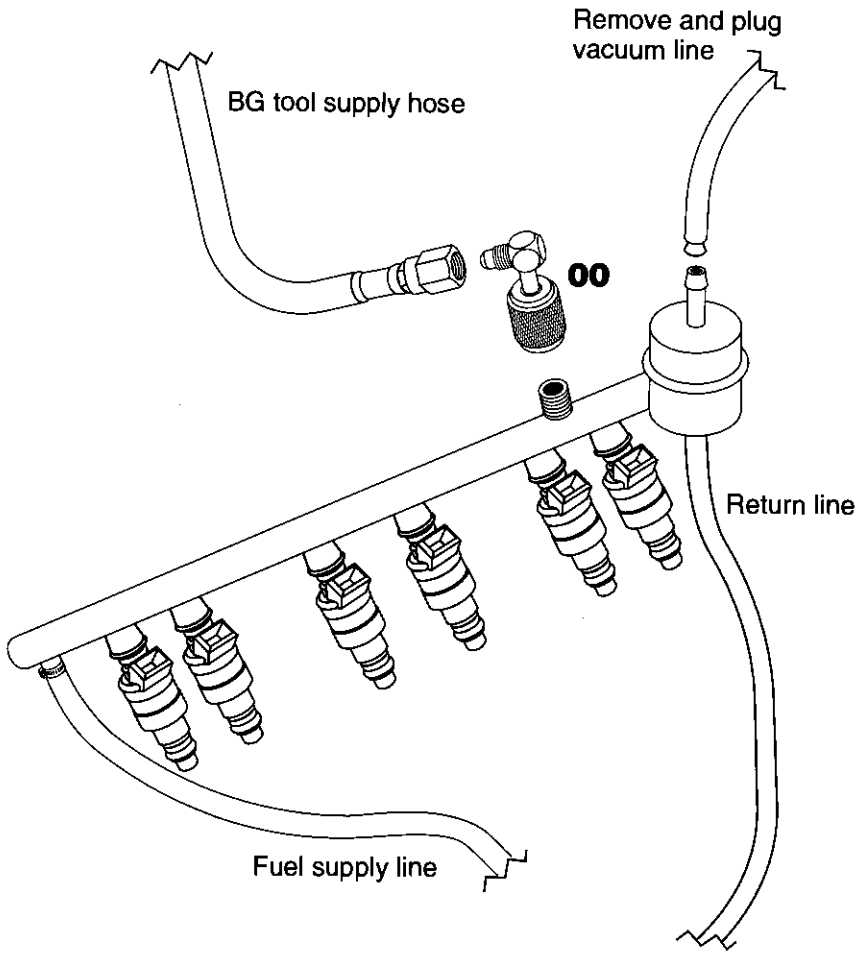
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Install to the BG Tool Supply Hose to the Schrader valve located on the port rail with the Schrader Adaptor, **00**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

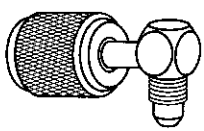
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Jeep Multi-Point Fuel Injection (with Schrader valve)



BG PARTS



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Chrysler

Jeep Multi-Point Fuel Injection (without Schrader valve)

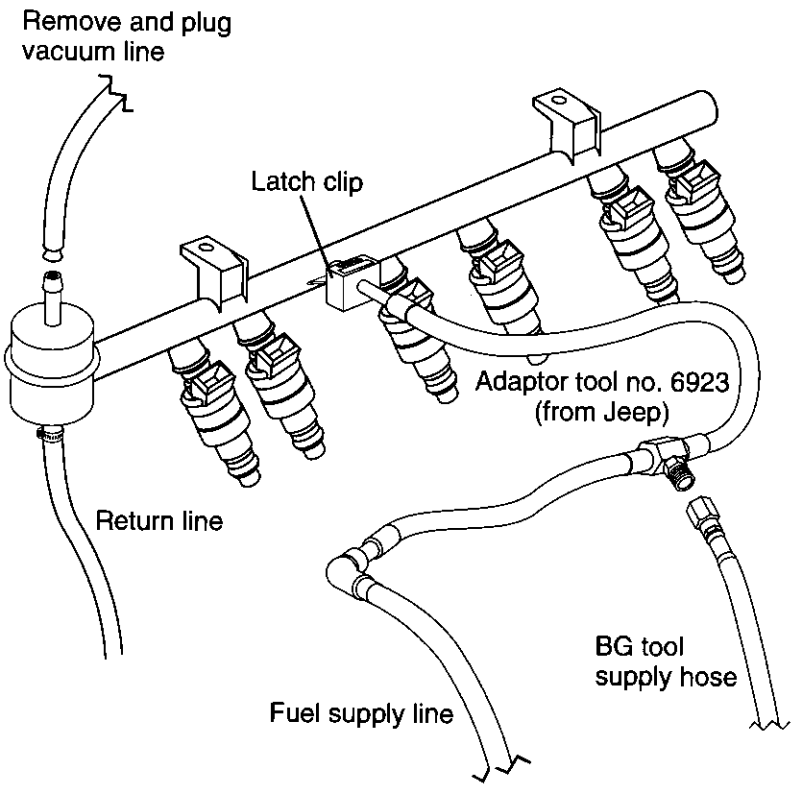
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Disconnect the Fuel Supply Line and install the Adaptor Tool No. 6923 (from Jeep). Attach BG Tool Supply Hose to stud on Adaptor Tool.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Chrysler

Jeep Multi-Point Fuel Injection (without Schrader valve)



BG PARTS

Diahatsu

Multi-Point Fuel Injection

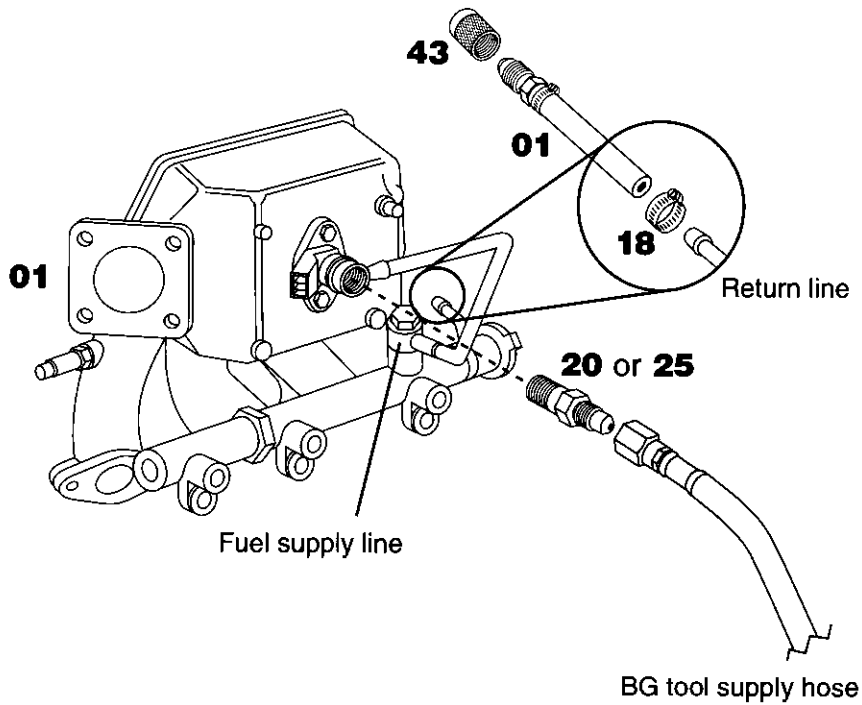
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by removing the fuse or relay located under the hood near the battery.
4. Remove the Return Fuel Line and plug the port with 5/16" hose, **01**, the Universal Block, **43**, and Clamp, **18**.
5. Remove the fuel flow through bolt from the cold-start injector, and install the 8mm or 10mm Toyota Adaptor, **20** or **25**, to the open port. Connect the BG Tool Supply Hose to the Toyota Adaptor.
6. Open the valve on the BG Tool and set the regulator valve at 37 **PSI**.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

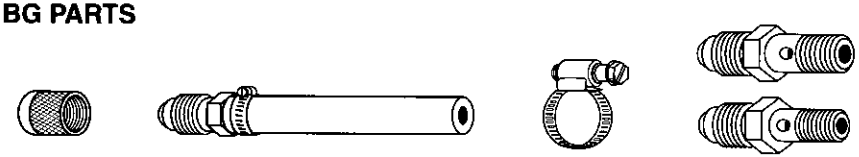
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Diahatsu

Multi-Point Fuel Injection



BG PARTS



43 **01** **18** **20** or **25**

Fiat

Bosch AFC

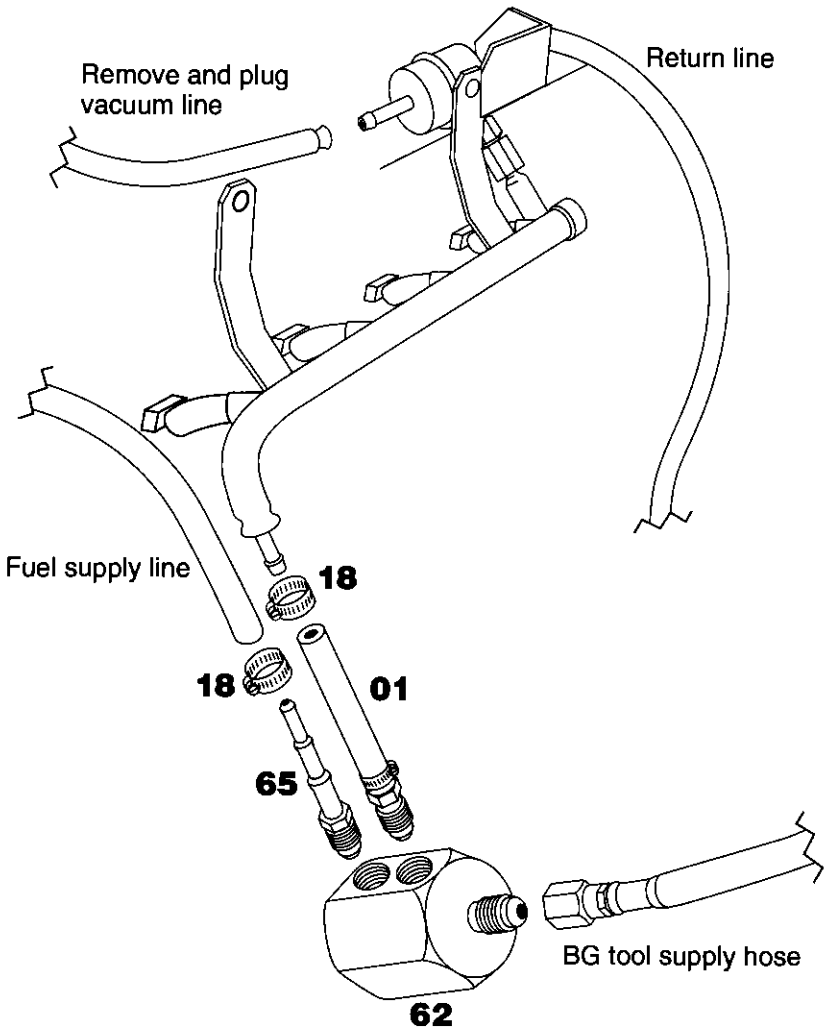
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by removing the quick disconnect at the top of the fuel pump (usually located below the air filter).
4. Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

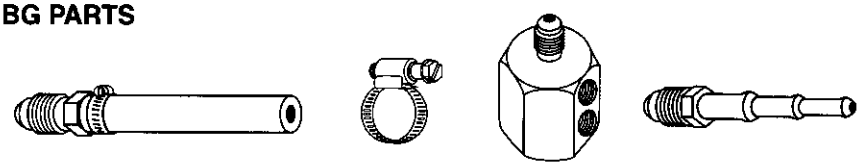
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Fiat

Bosch AFC



BG PARTS



01 18 62 65

Ford

High Pressure Central Fuel Injection

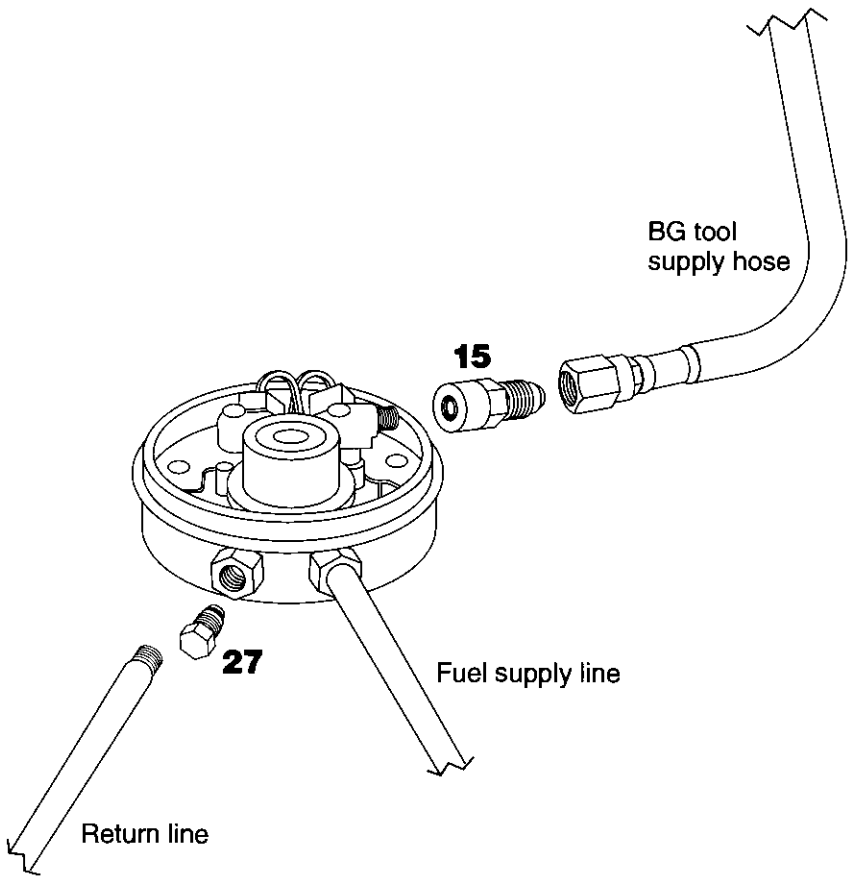
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging at the fuel shut-off (inertia) switch (commonly located in the trunk).
4. Remove the Fuel Return Line from the throttle body and plug the open port using the GM TBI Plug, 27.
5. Install the 5/16" Ford Port Rail Adaptor, **15**, to the BG Tool Supply Hose and connect to the Schrader valve located on the top of the throttle body unit.
6. Open the valve on the BG Tool and set the regulator valve at 42 PSI.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

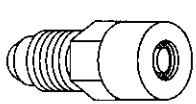
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Ford

High Pressure Central Fuel Injection



BG PARTS



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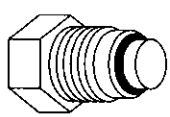


27

Ford

Low Pressure Central Fuel Injection (with metal quick-connect)

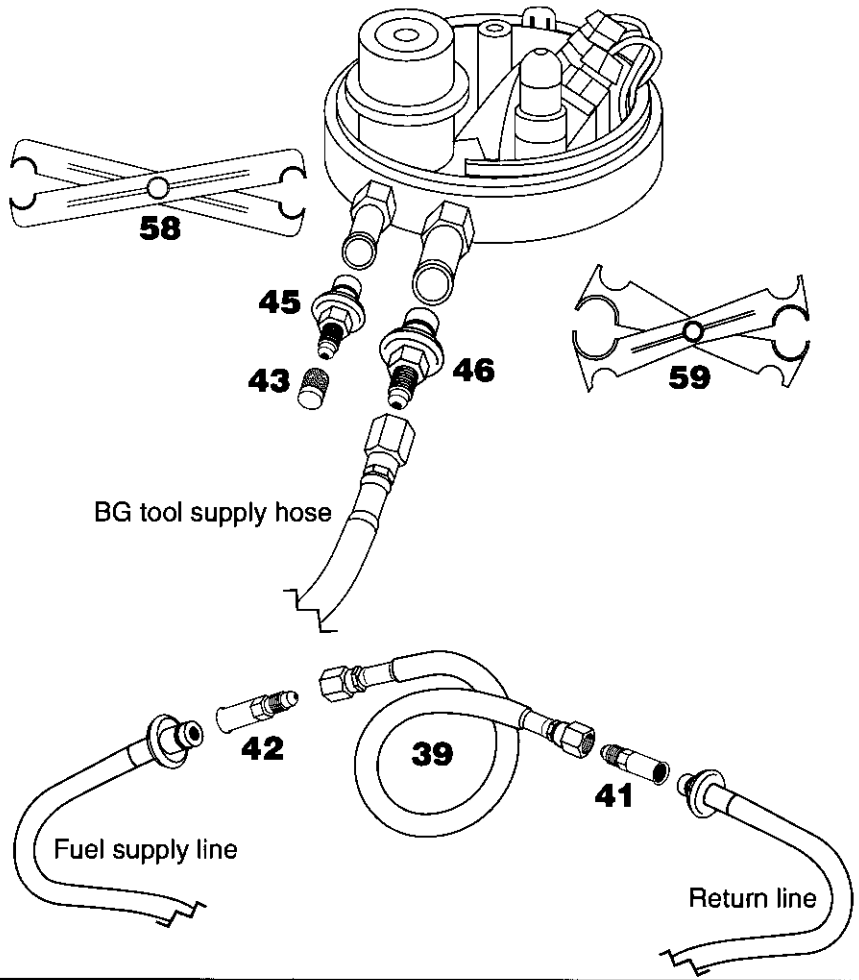
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging at the fuel shut-off (inertia) switch (commonly located in the trunk) OR loop the Fuel Supply Line to the Return Line with 3/8" and 1/2" Ford Connector Sleeves, **41** and **42**, and the Universal Return Loop, **39**.
4. Remove the Fuel Return Line from the throttle body with the GM Quick Release, **58**. Attach the 3/8" Ford Connector Body, **45**, with the Universal Block, **43**.
5. Remove the Fuel Supply Line with the Ford Quick Release, **59**. Install the 1/2" Ford Connector Body, **46**, to the BG Tool Supply Hose and install in the open port on the throttle body.
6. Open the valve on the BG Tool and set the regulator valve at **22 PSI.***
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

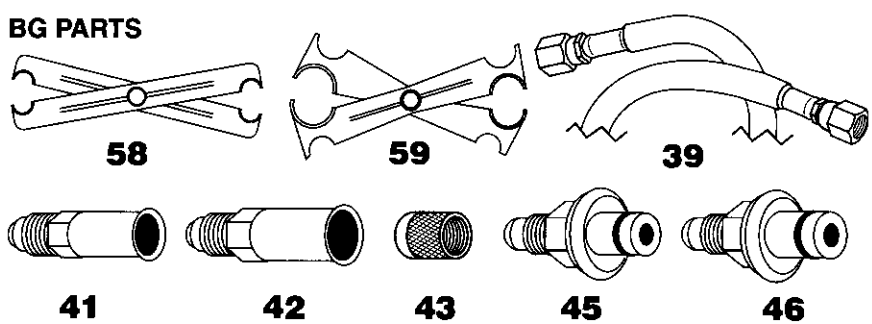
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Ford

Low Pressure Central Fuel Injection (with metal quick-connect)



BG PARTS



Ford

Low Pressure Central Fuel Injection (with plastic quick-connect)

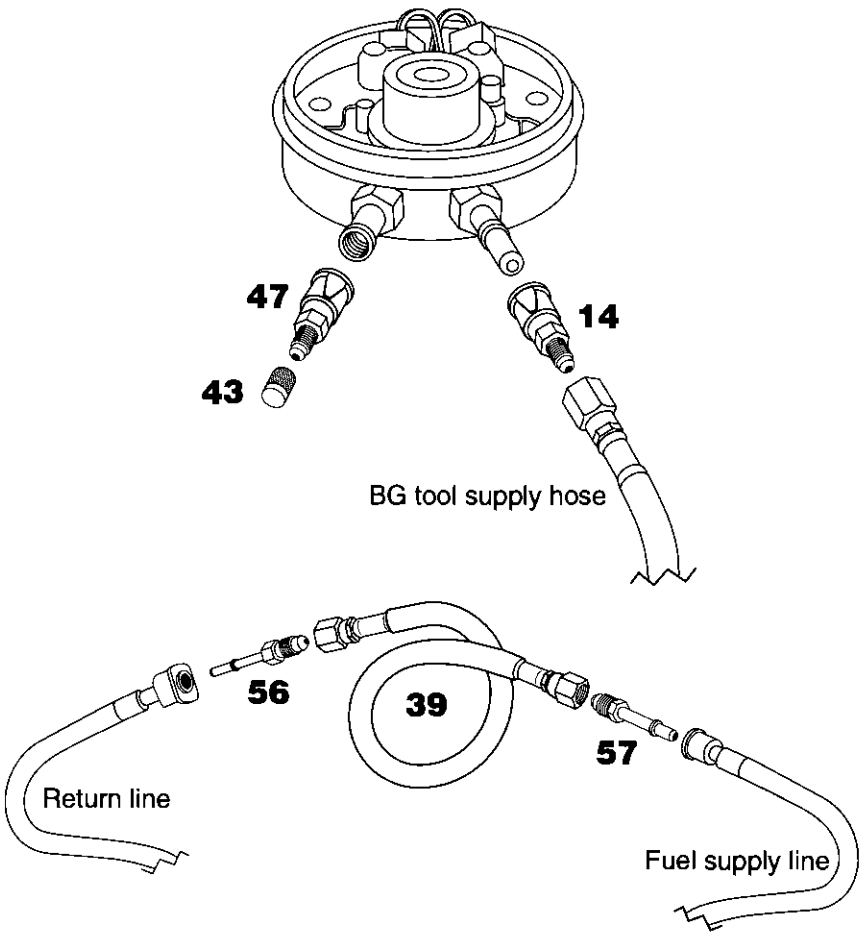
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging at the fuel shut-off (inertia) switch (commonly located in the trunk) OR loop the Fuel Supply Line to the Return Line with 1/4" and 5/16" Ford Tube Adaptor, **56** and **57**, and the Universal Return Loop, **39**.
4. Plug the open port using the 1/4" Quick Connect Adaptor, **47**, and the Universal Block, **43**.
5. Install the 5/16" Plastic Quick Connect Fitting, **14**, to the BG Tool Supply Hose and connect to the open port on the throttle body.
6. Open the valve on the BG Tool and set the regulator valve at 22 **PSI.***
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

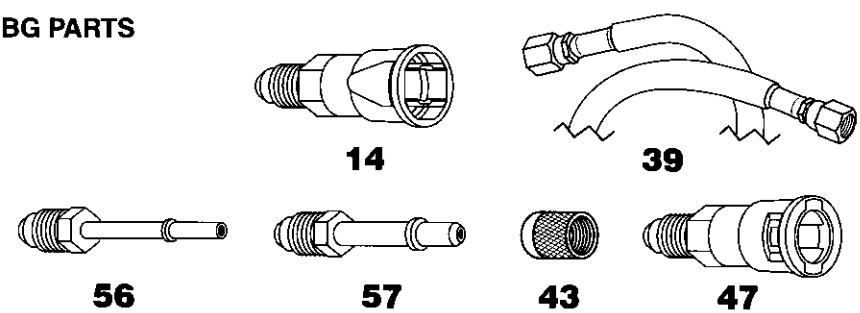
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Ford

Low Pressure Central Fuel Injection (with plastic quick-connect)



BG PARTS



Ford

Multi-Point Fuel Injection

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

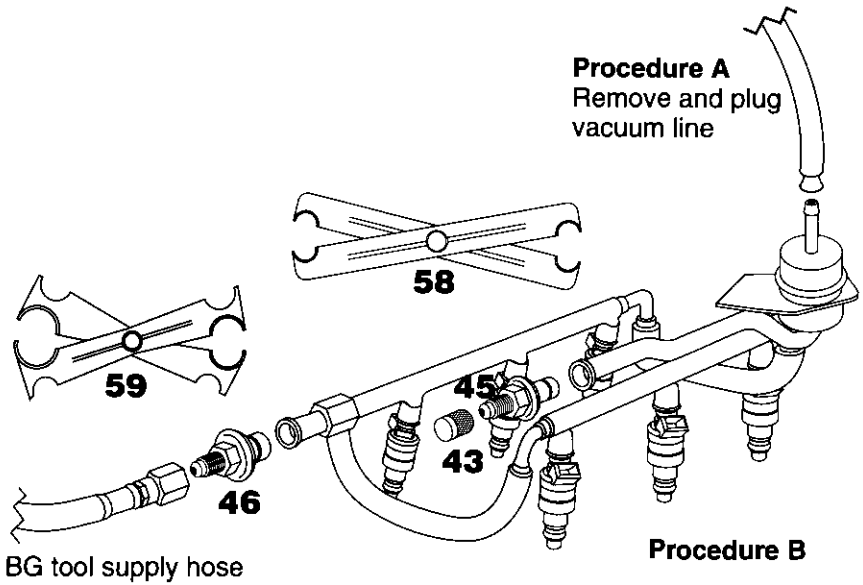
1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Remove the Fuel Supply Line with the Ford Quick Release, 59. Install the 1/2" Ford Connector Body, 46, to the BG Tool Supply Hose and connect to the open port on the multi-point rail. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure (see Section 5 for regulator test procedure).* Go to step 4.

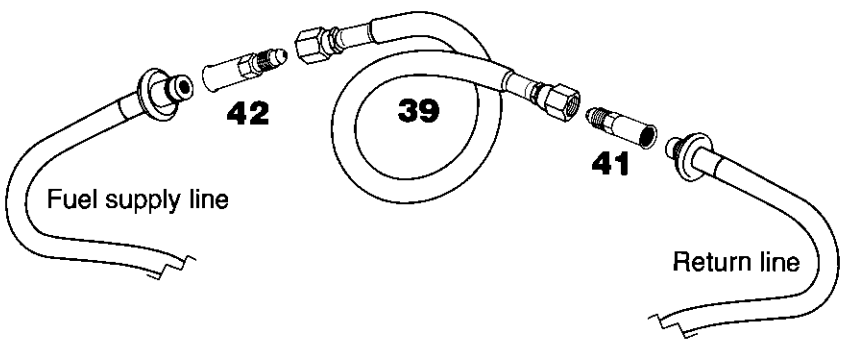
   Procedure B: Remove the Fuel Supply Line with the Ford Quick Release, 59. Install the 1/2" Ford Connector Body, 46, to the BG Tool Supply Hose and connect to the open port on the multi-point rail. Remove the Fuel Return Line using the GM Quick Release, 58. Plug the open port with the 3/8" Ford Connector Body, 45, and the Universal Block, 43. Loop the Fuel Supply Line to the Return Line with 3/8" and 1/2" Ford Connector Sleeves, 41 and 42, and the Universal Return Loop, 39. Open the valve on the BG Tool and set the regulator valve at **42 PSI.***
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

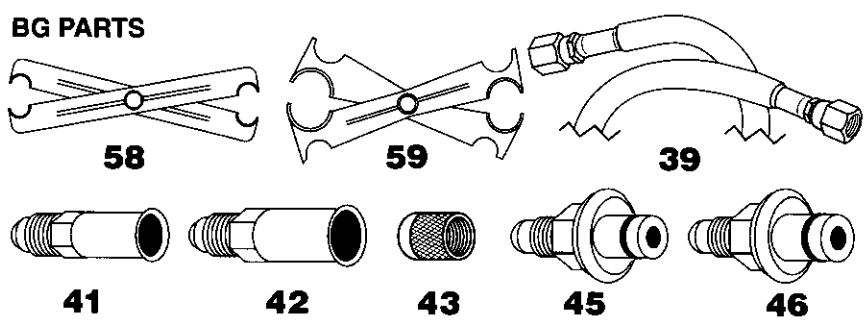
Ford

Multi-Point Fuel Injection





BG PARTS



Ford

Multi-Point Fuel Injection (with Schrader valve)

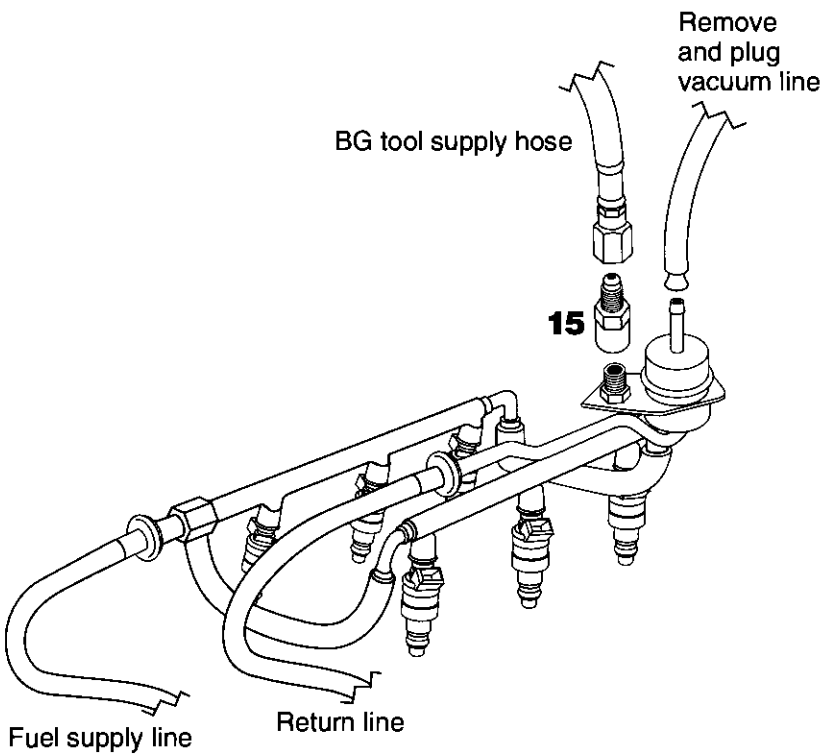
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable the fuel pump with the fuel shut-off (inertia) switch (commonly located in the trunk).
4. Remove Fuel Supply Line. Install the 5/16" Ford Port Rail Adaptor, **15**, to the BG Tool Supply Hose and connect to the Schrader valve located on the multi-point rail.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

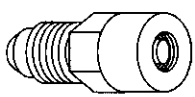
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Ford

Multi-Point Fuel Injection (with Schrader valve)



BG PARTS



15

Ford

Mercury Capri Multi-Point (1991)

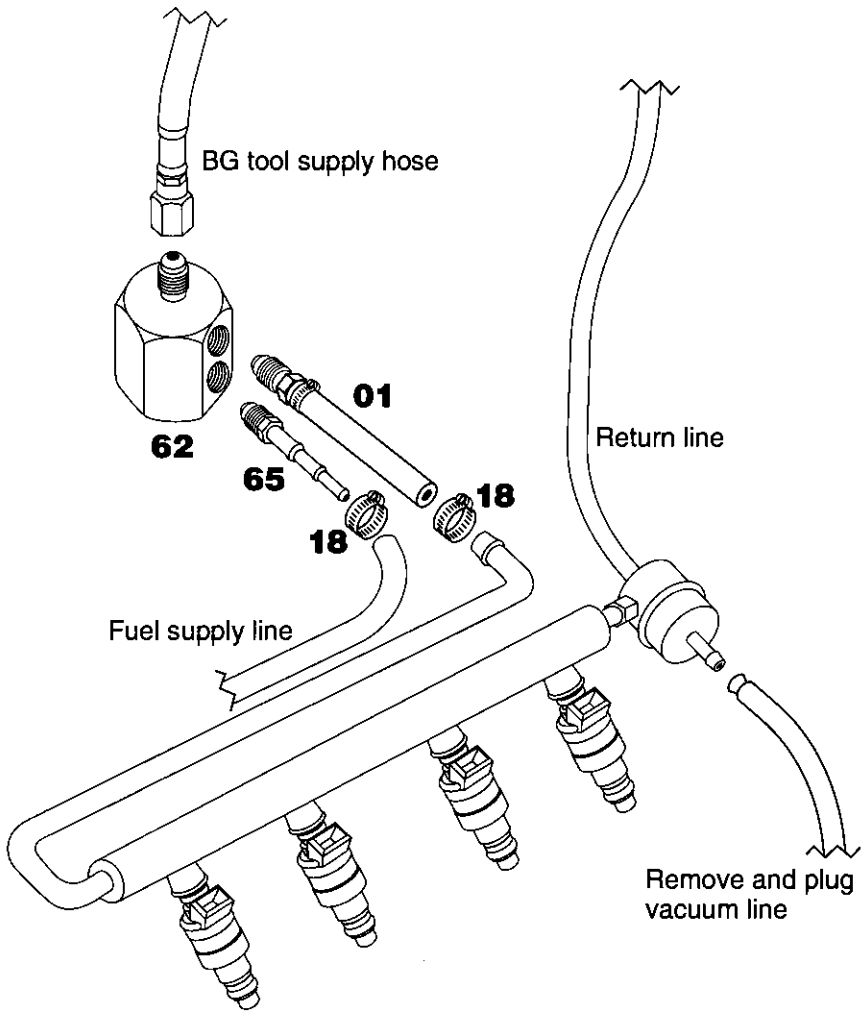
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

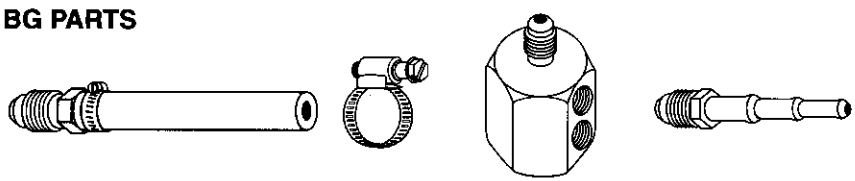
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Ford

Mercury Capri Multi-Point (1991)



BG PARTS



01 18 62 65

Ford

Merkur Multi-Point Fuel Injection

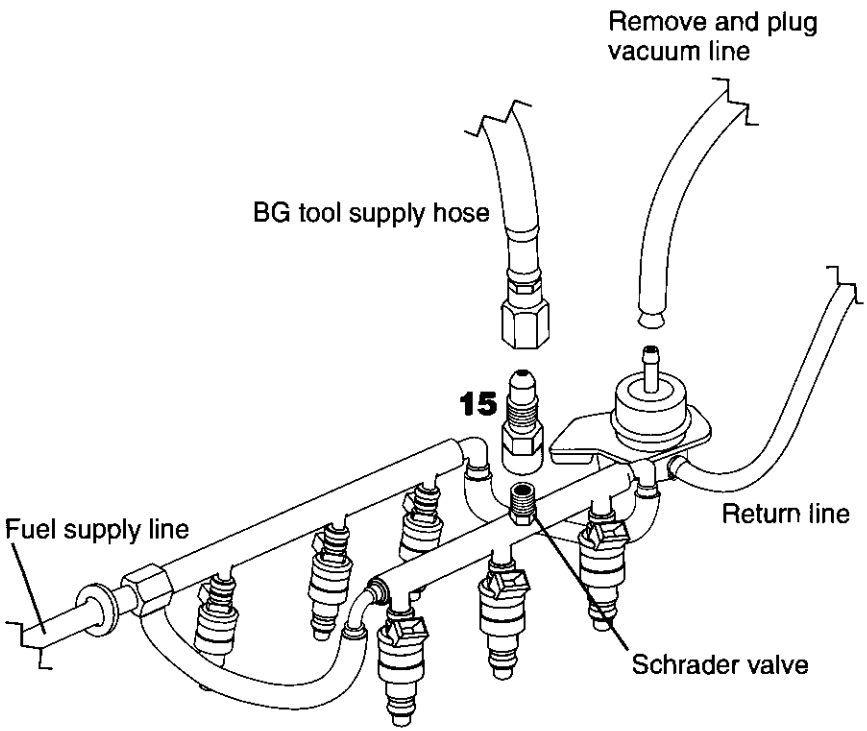
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by hitting at the fuel shut-off (inertia) switch (commonly located in the trunk).
4. Install the 5/16" Ford Port Rail Adaptor, **15**, to the BG Tool Supply Hose and connect to the Schrader valve located on the top of the rail.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

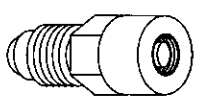
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Ford

Merkur Multi-Point Fuel Injection



BG PARTS



15

Ford

Probe Multi-Point Fuel Injection, L-4 Engine

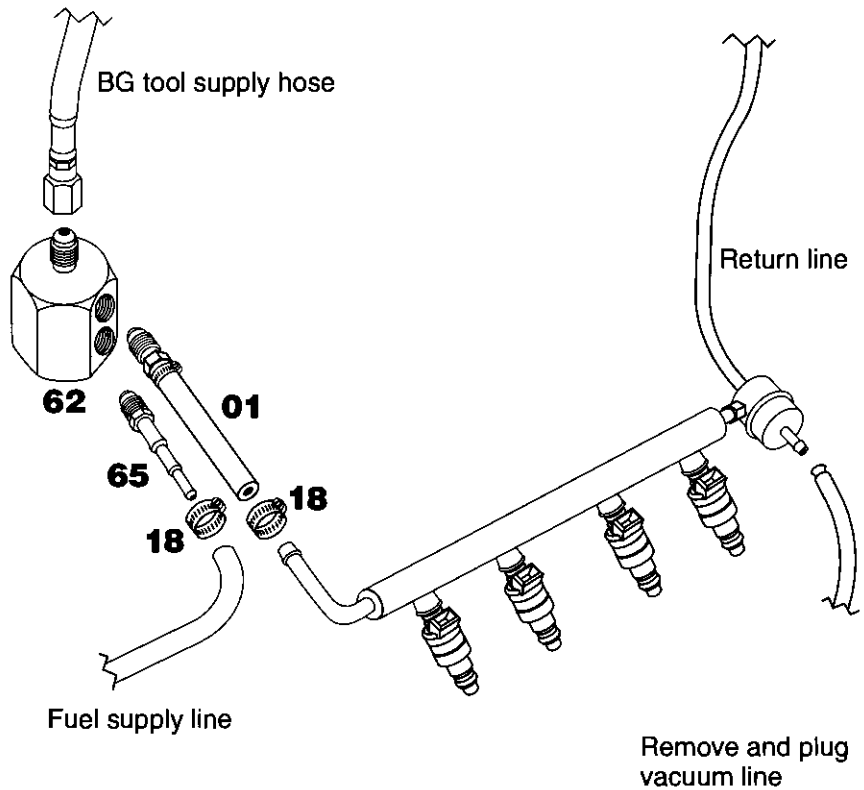
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable inertia switch. Connect the 5/16" Hose, 01, and the Tri-barb Adaptor, 65, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
4. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
5. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
6. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
7. Start the vehicle and check for leaks.
8. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

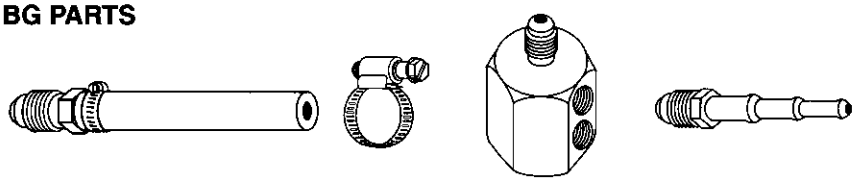
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Ford

Probe Multi-Point Fuel Injection, L-4 Engine



BG PARTS



General Motors

Electronic Fuel Injection – Single Unit (with banjo supply)

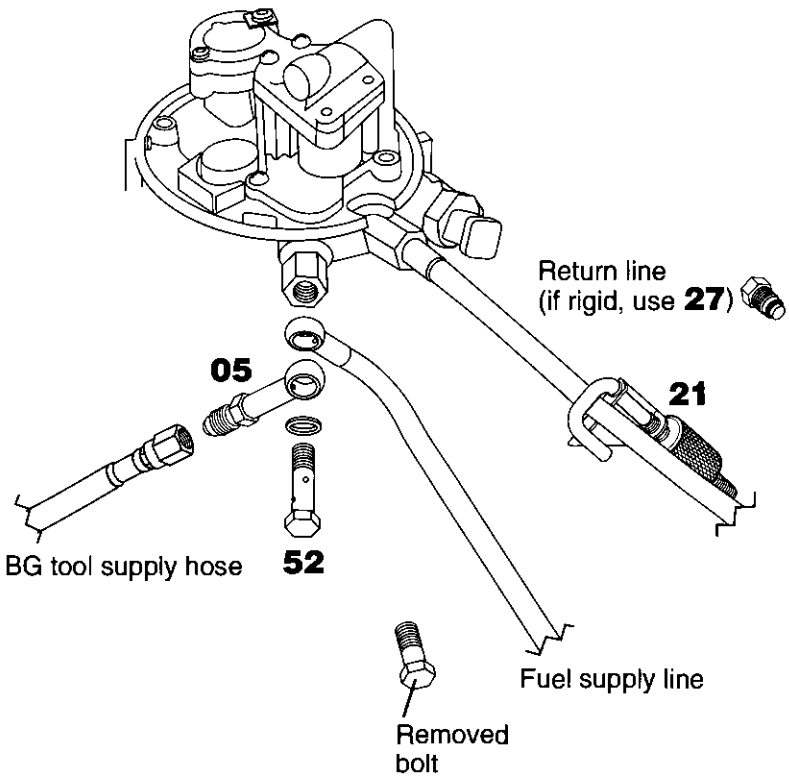
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump. (See Operational Tips, Section 2, Page 5.)
4. Clamp off the Return Line (the smaller of the fuel lines) using the Pinch Off Clamp, **21**. If rigid or braided, plug use the GM Plug, **27**.
5. Remove the Fuel Supply Flow Through Bolt from throttle body. Insert the 12mm Double Flow Through Bolt, **52**, through 12mm Banjo, **05**, and Fuel Supply Line into the open supply port. Connect the Tool Supply Hose to the 12mm Banjo, **05**.
6. Open the valve on the BG Tool and set the regulator valve at **21** PSI.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

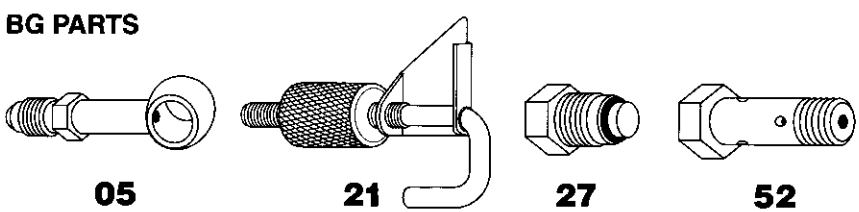
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

Electronic Fuel Injection – Single Unit (with banjo supply)



BG PARTS



General Motors

Electronic Fuel Injection – Single Unit (with O-ring seals)

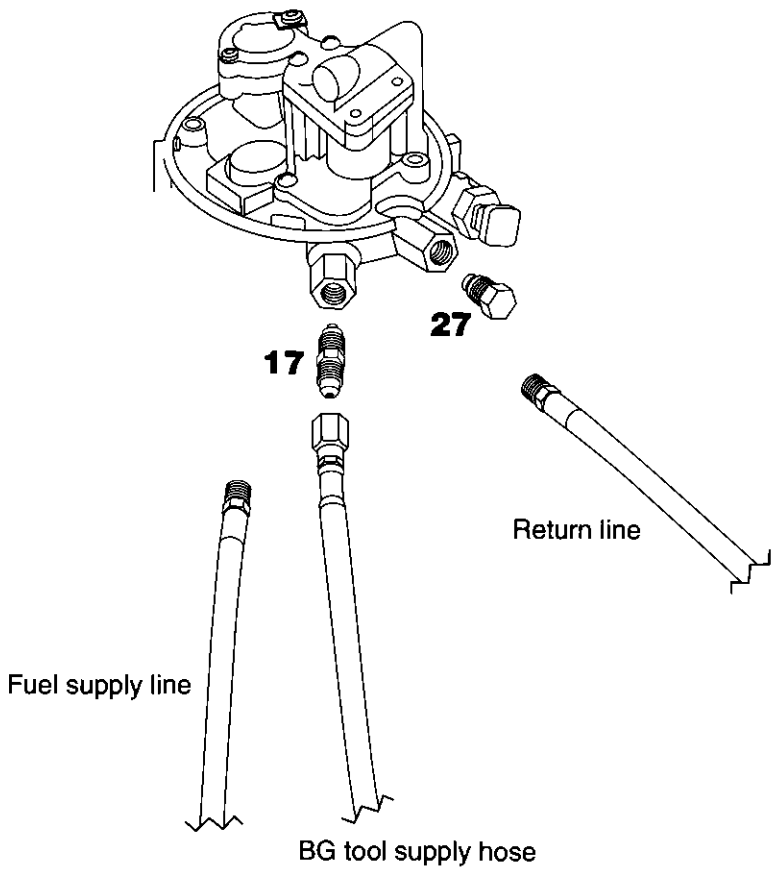
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump. (See Operational Tips, Section 2, Page 5.)
4. Remove the fuel Return Line from the throttle body and plug the open port using the GM Plug, **27**.
5. Remove the Fuel Supply Line and install the GM TBI Adaptor, **17**, to the open supply port. Connect the BG Tool Supply Hose to the GM TBI Adaptor, **17**.
6. Open the valve on the BG Tool and set the regulator valve at **21 PSI**.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

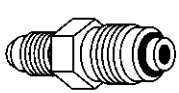
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

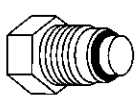
Electronic Fuel Injection – Single Unit (with O-ring seals)



BG PARTS



17



27

General Motors

Electronic Fuel Injection – Single Unit (with Schrader valve)

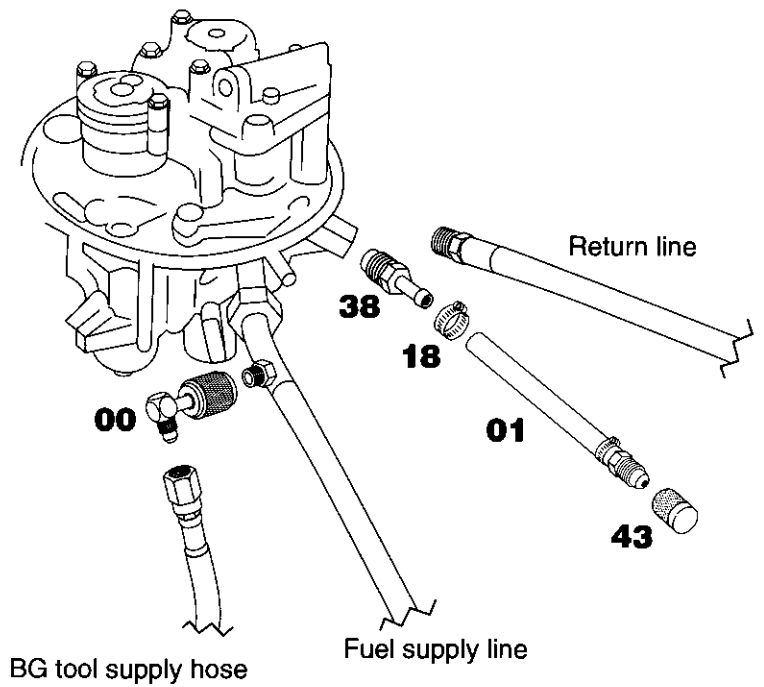
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump. (See Operational Tips, Section 2, Page 5.)
4. Remove the fuel Return Line from the throttle body and plug the open port using the AMC TBI Adaptor, **38**, the 5/16" Hose, **01**, the Hose Clamp, **18**, and the Universal Block, **43**.
5. Connect the Tool Supply Hose to the Schrader valve located on the Fuel Supply Line using the Schrader Adaptor, **00**.
6. Open the valve on the BG Tool and set the regulator valve at **21** PSI.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

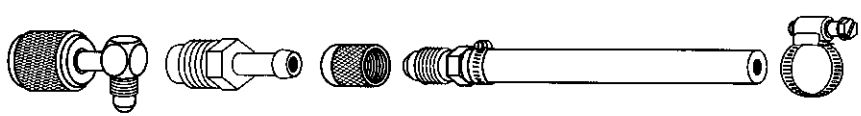
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

Electronic Fuel Injection – Single Unit (with Schrader valve)



BG PARTS



General Motors

Electronic Fuel Injection – Single Unit (without Schrader valve)

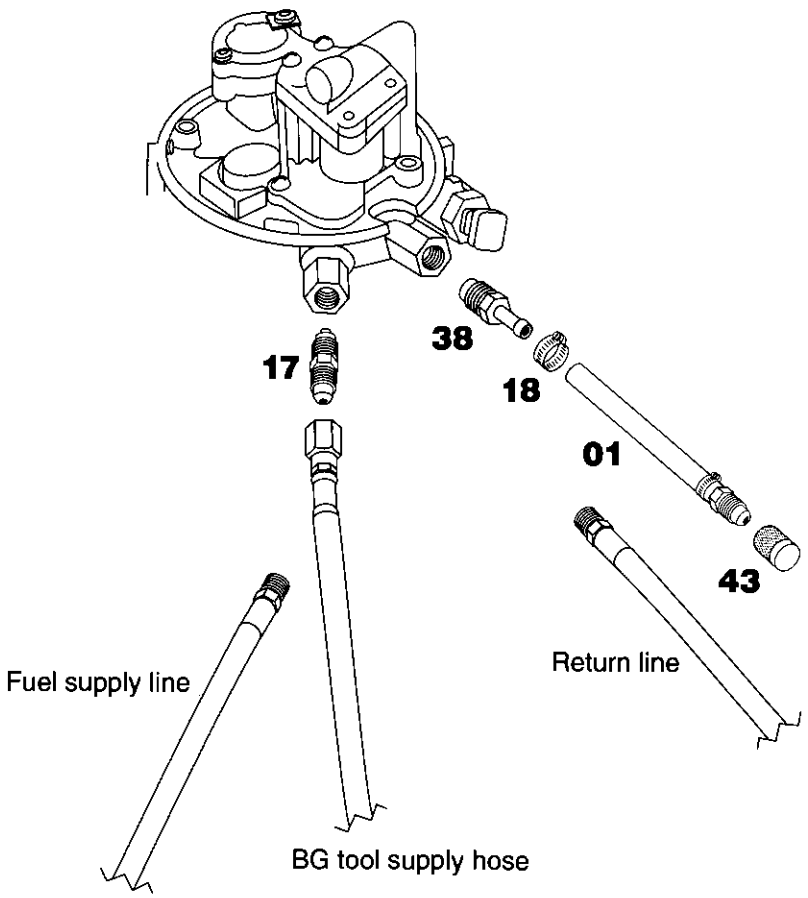
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump. (See Operational Tips, Section 2, Page 5.)
4. Remove the fuel Return Line from the throttle body and plug the open port using the AMC TBI Adaptor, **38**, the 5/16" Hose, **01**, the Hose Clamp, **18**, and the Universal Block, **43**.
5. Remove the Fuel Supply Line and install the GM TBI Adaptor, **17**, to the open supply port. Connect the BG Tool Supply Hose to the GM TBI Adaptor, **17**.
6. Open the valve on the BG Tool and set the regulator valve at **21 PSI.***
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

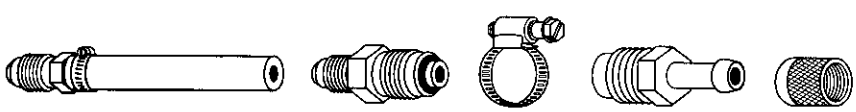
* Pressure settings vary from one make of automobile to another; refer to Section 5 (Fuel Pressure Specifications and Test Procedures) for recommended pressure setting.

General Motors

Electronic Fuel Injection – Single Unit (without Schrader valve)



BG PARTS



01 17 18 38 43

General Motors

Electronic Fuel Injection – Single Unit (without Schrader valve)

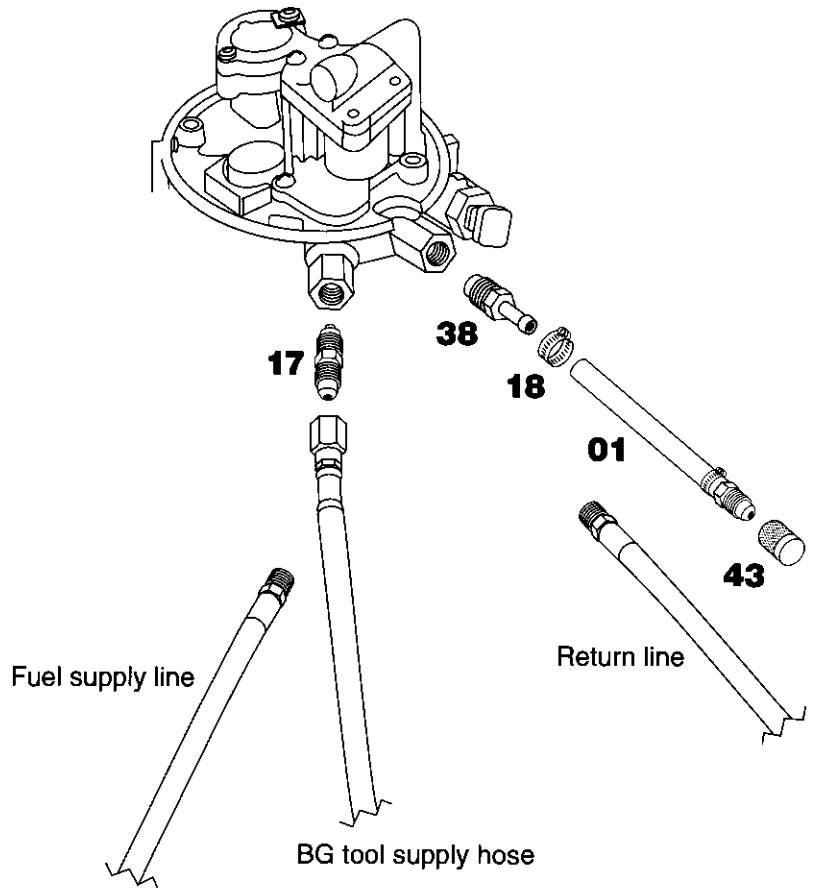
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump. (See Operational Tips, Section 2, Page 5.)
4. Remove the fuel Return Line from the throttle body and plug the open port using the AMC TBI Adaptor, **38**, the 5/16" Hose, **01**, the Hose Clamp, **18**, and the Universal Block, **43**.
5. Remove the Fuel Supply Line and install the GM TBI Adaptor, **17**, to the open supply port. Connect the BG Tool Supply Hose to the GM TBI Adaptor, **17**.
6. Open the valve on the BG Tool and set the regulator valve at **21 PSI.***
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 5 (Fuel Pressure Specifications and Test Procedures) for recommended pressure setting.

General Motors

Electronic Fuel Injection – Single Unit (without Schrader valve)



BG PARTS

01 17 18 38 43

General Motors

Port Fuel Injection/Digital Port Fuel Injection

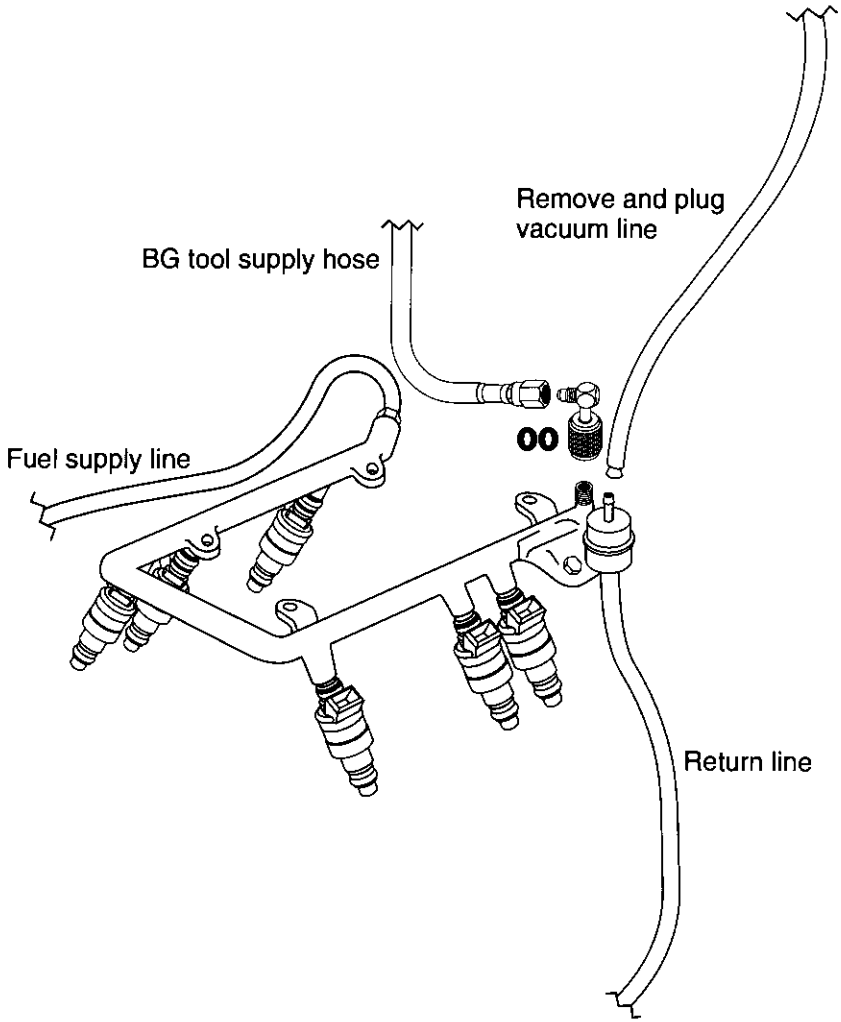
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add BG 44K® (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump. (See Operational Tips, Section 2, Page 5.)
4. Connect the Tool Supply Hose to the Schrader valve located on the port rail using the Schrader Adaptor, **00**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

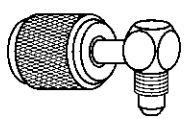
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

Port Fuel Injection/Digital Port Fuel Injection



BG PARTS



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General Motors

Throttle Body Injection (with quick disconnect fittings)

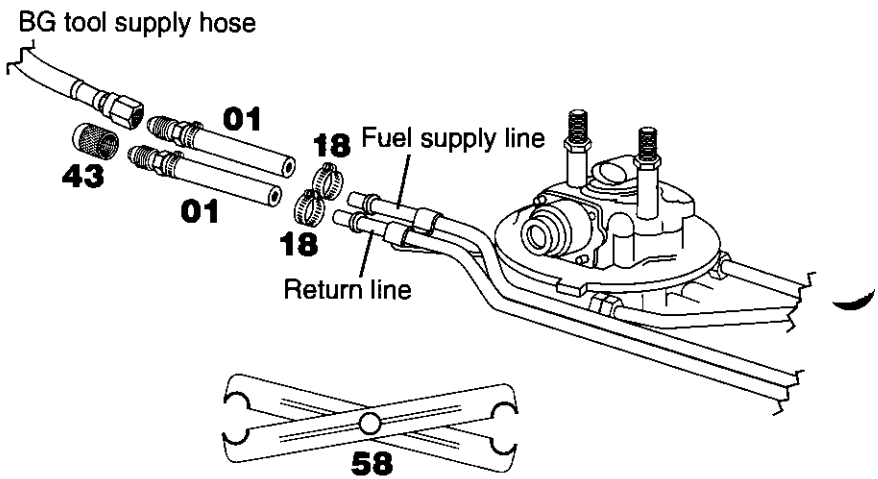
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add BG **44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Remove the Fuel Supply Line and the Return Line using the GM Quick Release, 58. Plug the return port using the 5/16" Hose, **01**, the Hose Clamp, **18**, and the Universal Block, **43**.
5. Install the 5/16" Hose, **01**, to the open supply port with the Hose Clamp, **18**. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**.
6. Open the valve on the BG Tool and set the regulator valve at 24 **PSI**.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

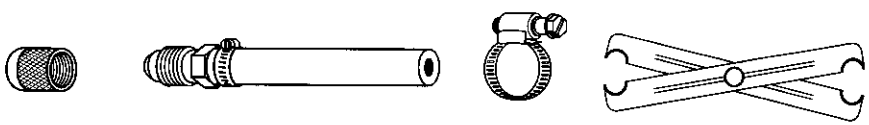
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

Throttle Body Injection (with quick disconnect fittings)



BG PARTS



43 01 18 58

General Motors

Geo Multi-Point Fuel Injection

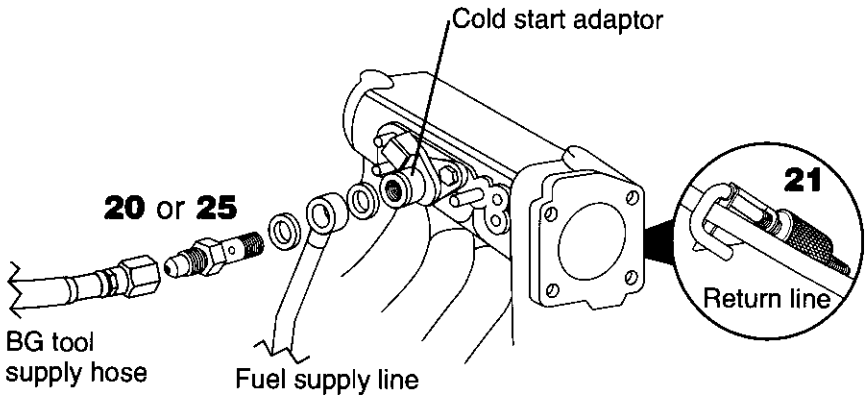
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump under rear seat.
4. Clamp off Return Fuel Line with the Pinch Off Clamp, **21**.
5. Replace the fuel flow through bolt from the cold-start injector, with the 8mm or 10mm Toyota Adaptor, **20** or **25**. Connect the Tool Supply Hose to the Toyota Adaptor.
6. Open the valve on the BG Tool and set the regulator valve at **32 PSI**.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

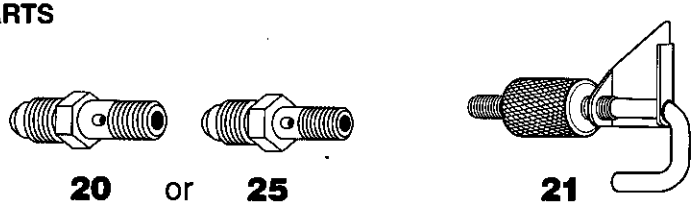
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

Geo Multi-Point Fuel Injection



BG PARTS



20 or **25** **21**

General Motors

Geo Throttle Body Injection

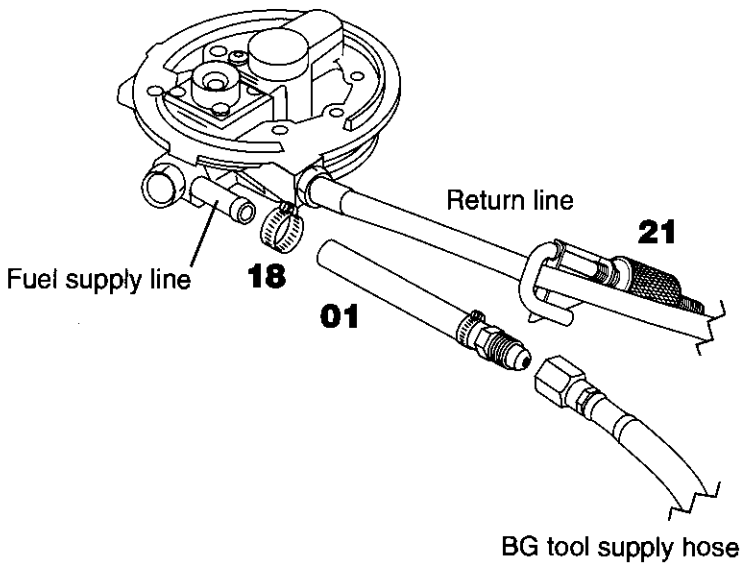
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add BG **44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Remove fuel pump relay located under hood on left fender.
4. Clamp off the Return Fuel Line with the Pinch Off Clamp, **21**.
5. Remove the Fuel Supply Line. Install the 3/8" Hose, **01**, to the open supply port with the Hose Clamp, **18**. Connect the BG Tool Supply Hose to the 3/8" Hose, **01**.
6. Open the valve on the BG Tool and set the regulator valve at **23 PSI.***
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

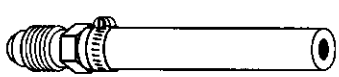
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

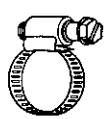
Geo Throttle Body Injection



BG PARTS



01



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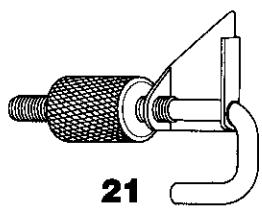


21

General Motors

Lumina APV/Silhouette/Transport Multi-Port Fuel Injection

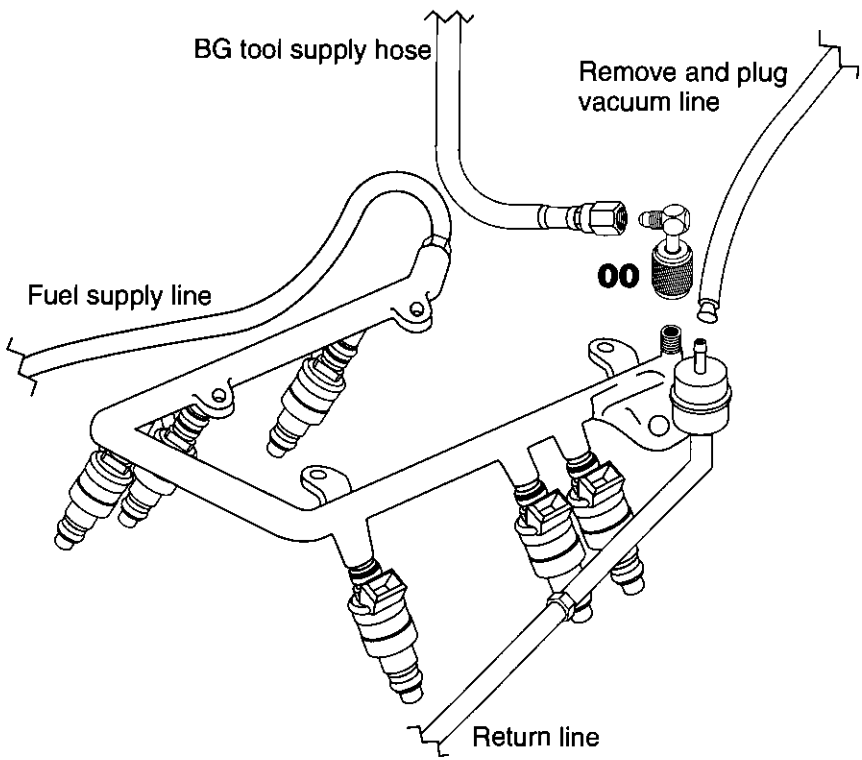
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Unplug fuel pump (under center of vehicle by driver's seat).
4. Connect the Tool Supply Hose to the Schrader valve located on the port rail using the Schrader Adaptor, **00**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

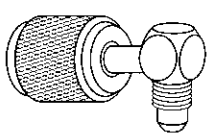
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

General Motors

Lumina APV/Silhouette/Transport Multi-Port Fuel Injection



BG PARTS



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Honda

Programmed Fuel Injection

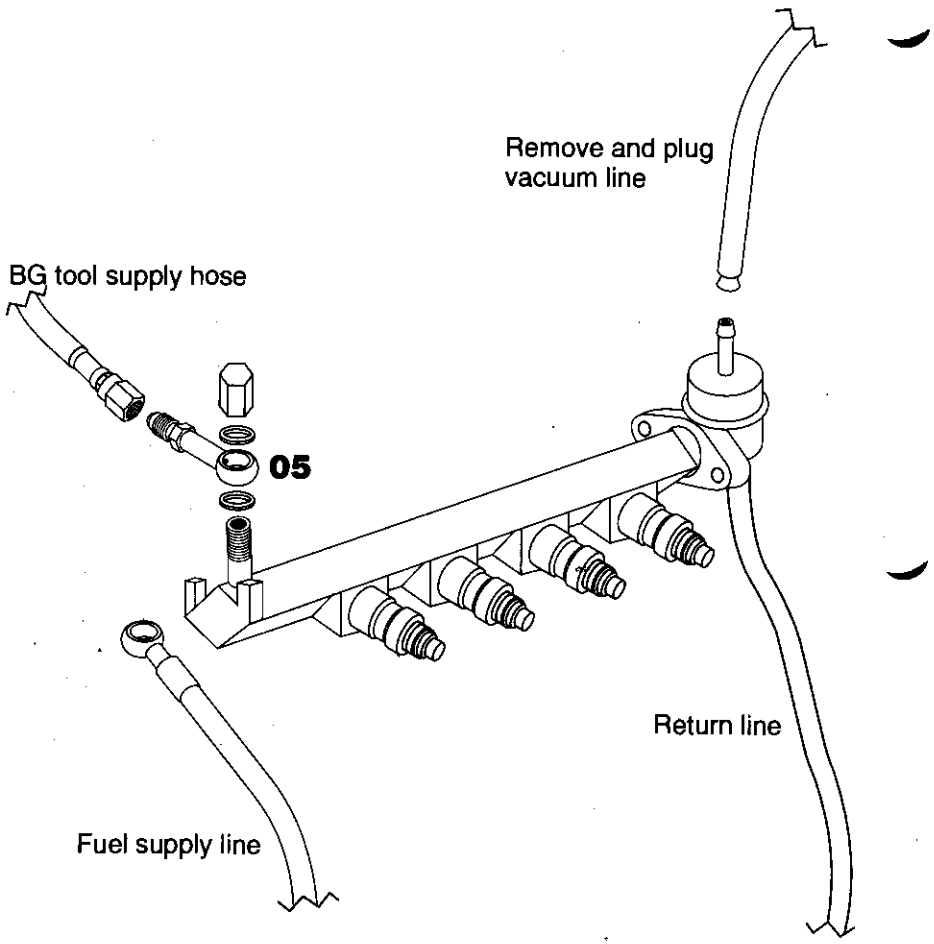
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank or along the frame on the driver's side of the vehicle.
4. Remove the fuel supply cap, and install the 12mm Banjo Adaptor, **05**, to the open supply stud. Connect the BG Tool Supply Hose to the Banjo Adaptor, **05**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

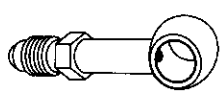
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure settiug.

Honda

Programmed Fuel Injection



BG PARTS



05

Hyundai

Multi-Point Fuel Injection

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Remove the Fuel Supply Line from the rail, and install the 11mm Mitsubishi Supply Adaptor, 32, to the open supply port. Connect the Tool Supply Hose to the 11mm Mitsubishi Supply Adaptor, 32.

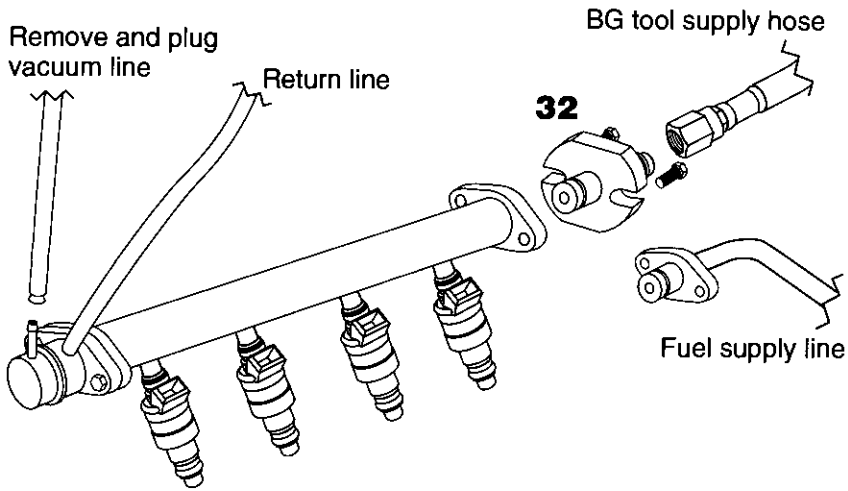
   Alternate Method: Remove the fuel supply banjo from the fuel filter, and install the 12mm Banjo Adaptor, **05**, with the 12mm Cap Nut, 44, to the open banjo. Connect the BG Tool Supply Hose to the Banjo Adaptor, 05.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port with new sealing washers. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

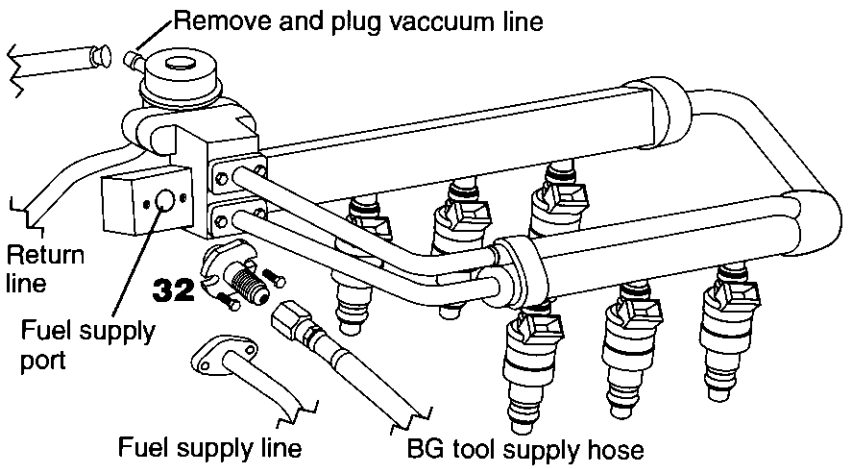
Hyundai

Multi-Point Fuel Injection

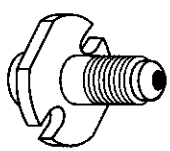
4-cylinder



6-cylinder



BG PARTS



32

Isuzu
I-Tec

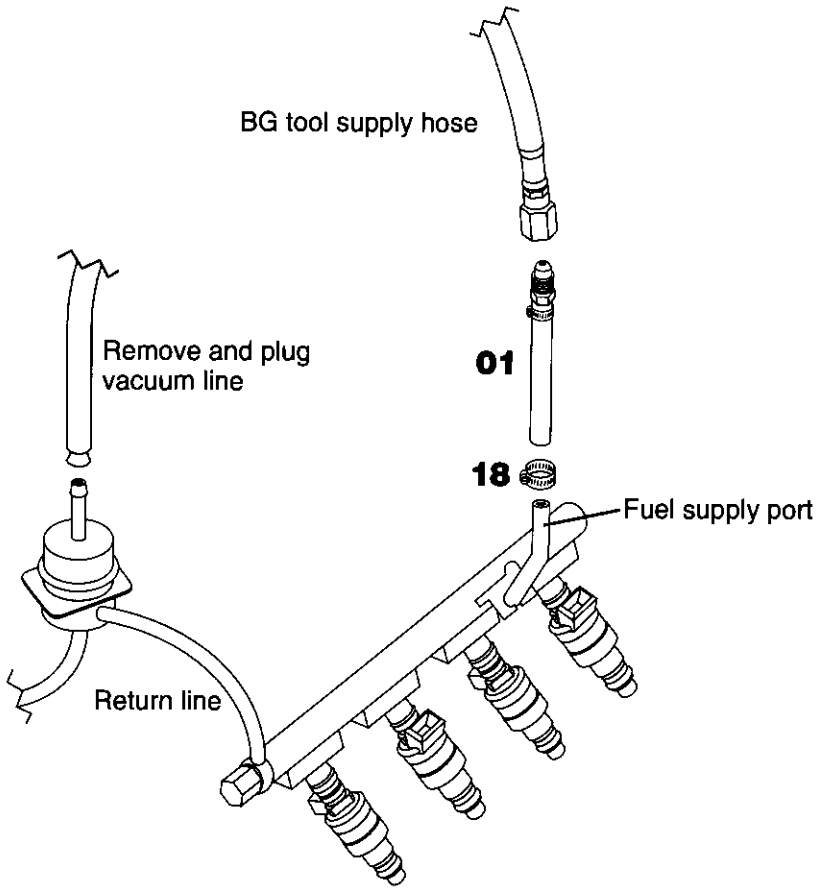
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Remove the Fuel Supply Line from port at fuel rail. Install the 3/8" Hose, **01**, to the open supply port with the Hose Clamp, **18**. Connect the BG Tool Supply Hose to the 3/8" Hose, **01**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose.
6. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

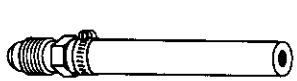
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Isuzu

I-Tec



BG PARTS



01

18

Jaguar

Airflow Controlled Fuel Injection

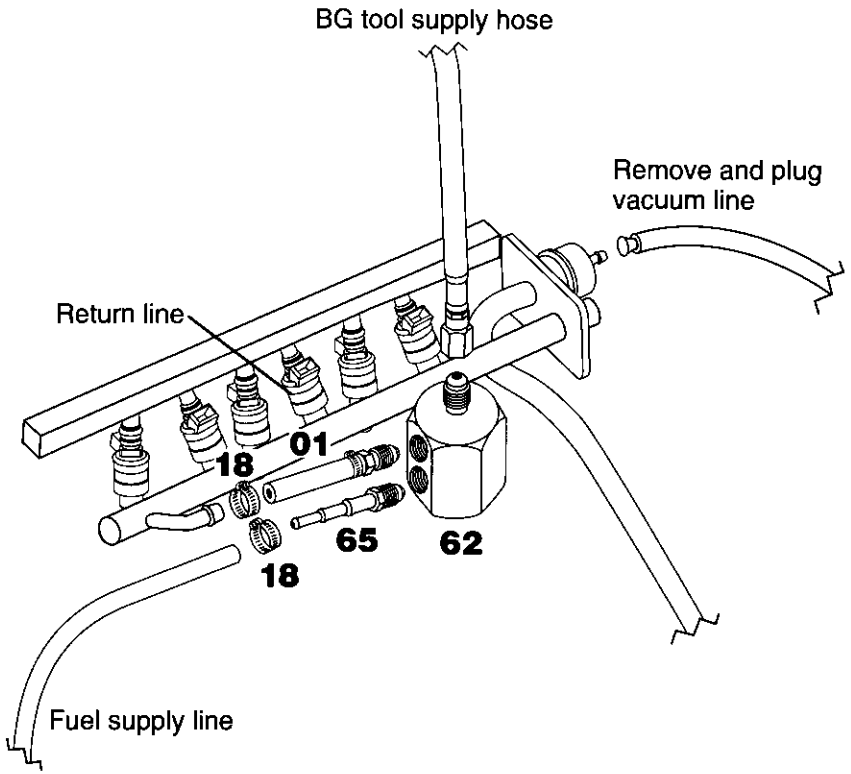
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by removing the fuel pump relay.
4. Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, 65, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

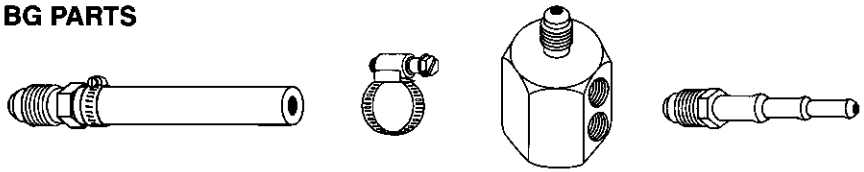
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Jaguar

Airflow Controlled Fuel Injection



BG PARTS



01 18 62 65

Jaguar

"P" Type Fuel Injection

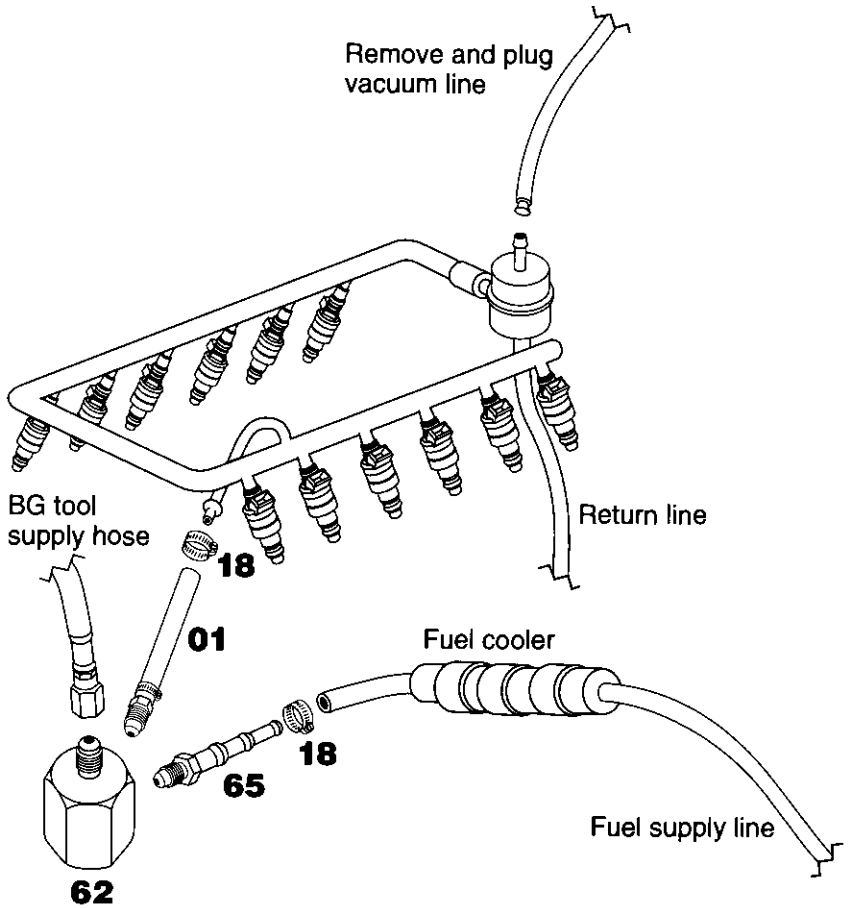
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by removing the fuel pump relay.
4. Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

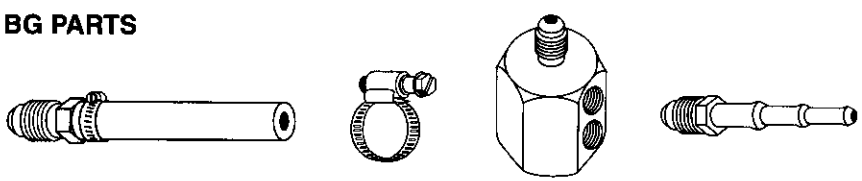
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Jaguar

"P" Type Fuel Injection



BG PARTS



01 18 62 65

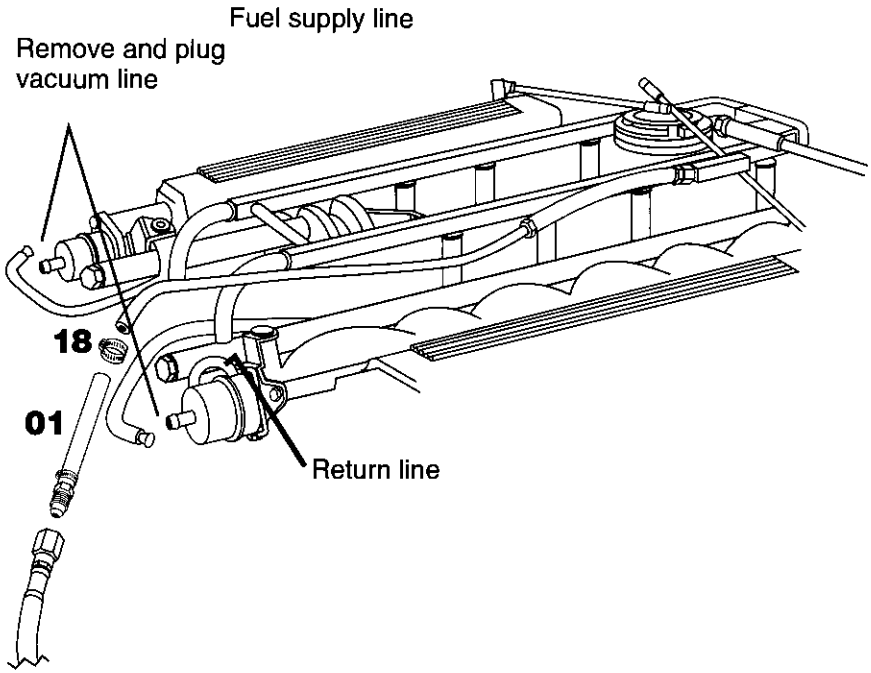
Jaguar
XJS

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

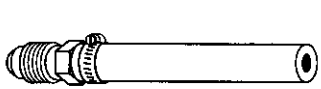
1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by removing the fuel pump relay on right side of trunk.
4. Remove the Fuel Supply Line, and install a 5/16" Hose, **01**, and a 5/16" Hose Clamp, **18**, to the open supply port.
5. Remove vacuum hoses from the fuel pressure regulators. Plug vacuum hoses. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Jaguar
XJS



BG PARTS



01

18

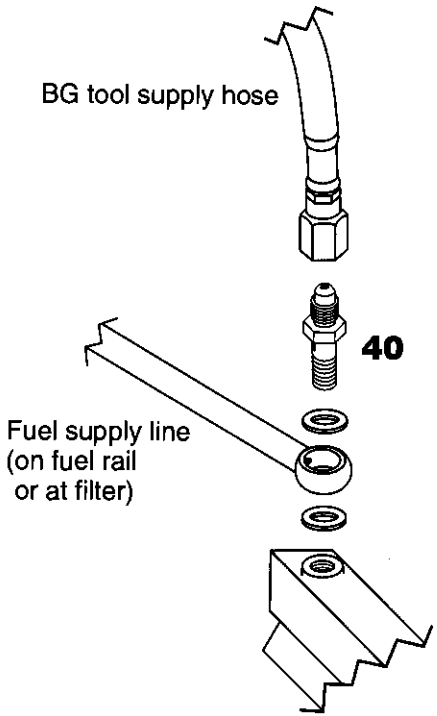
Lexus

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump.
4. Remove the fuel flow through bolt from Fuel Supply Line on fuel rail or at filter. Replace with 12mm Fine Thread Adaptor, **40**. Connect BG Tool Supply Hose to 12mm Adaptor, **40**.
5. Remove and plug vacuum line to regulator.
6. Open the valve on the BG Tool and set the pressure at 5 lbs. less than regulator bypass pressure.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

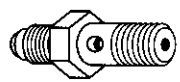
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Lexus



Remove and plug vacuum line

BG PARTS



40

Mazda

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

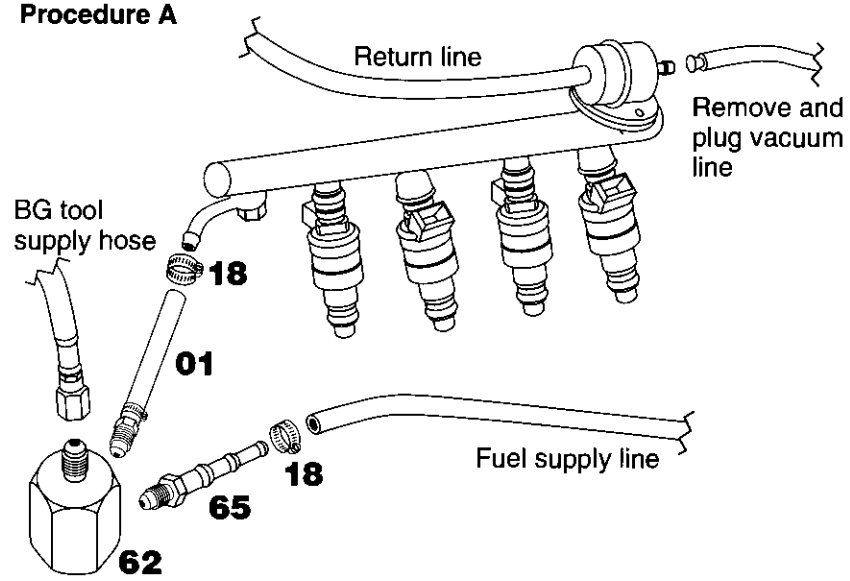
1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step **4**.

   Procedure B: Remove the Fuel Supply Line. Connect the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at **41 PSI**.*
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

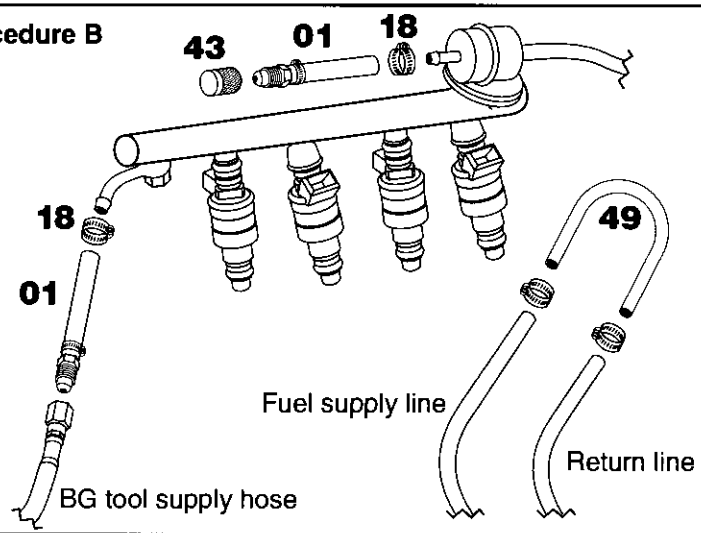
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Mazda

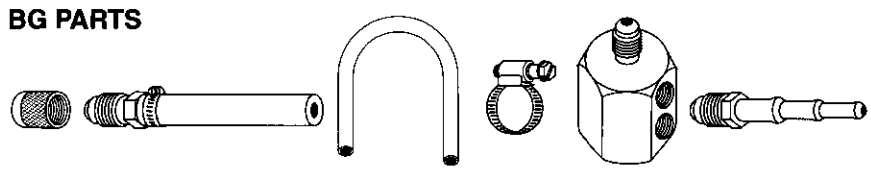
Procedure A



Procedure B



BG PARTS



Mercedes

L-Jetronic Airflow Controlled

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.

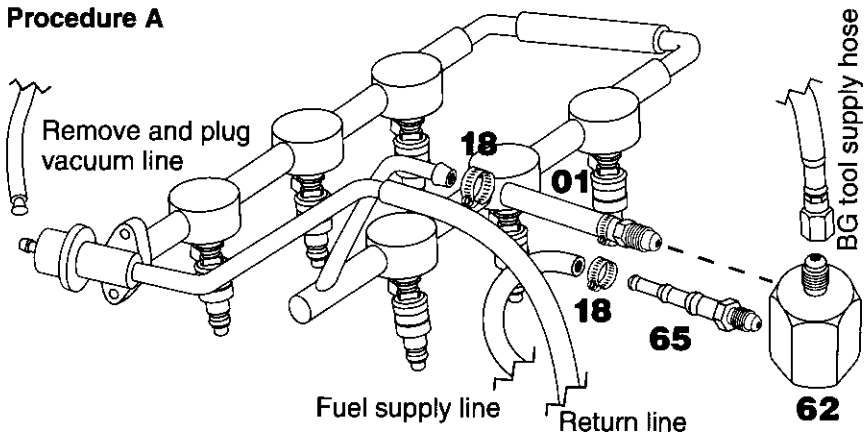
   Procedure B: Remove the Fuel Supply Line. Connectl the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, 49, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, 43, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at 37 **PSI**.*
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

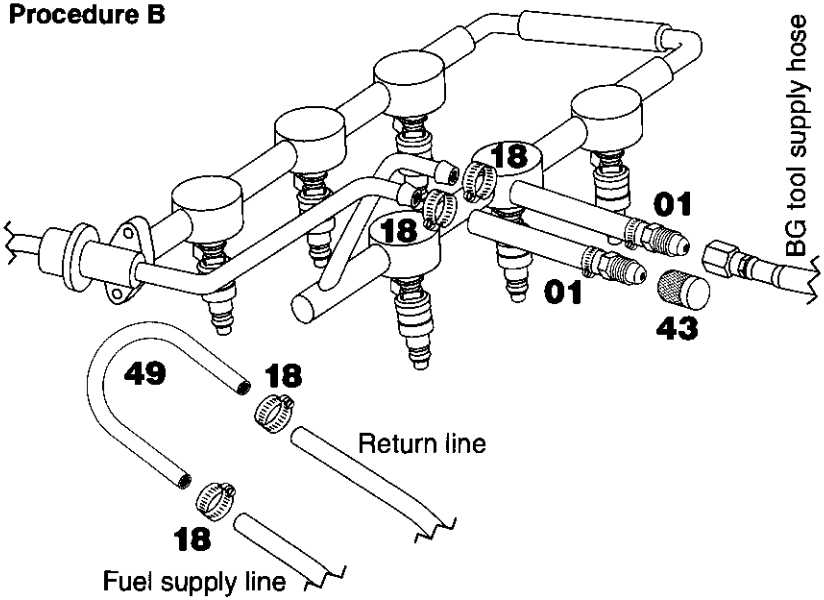
Mercedes

L-Jetronic Airflow Controlled

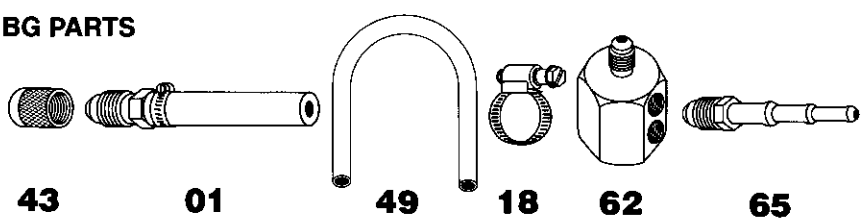
Procedure A



Procedure B



BG PARTS



Mitsubishi

Electronic Controlled Injection

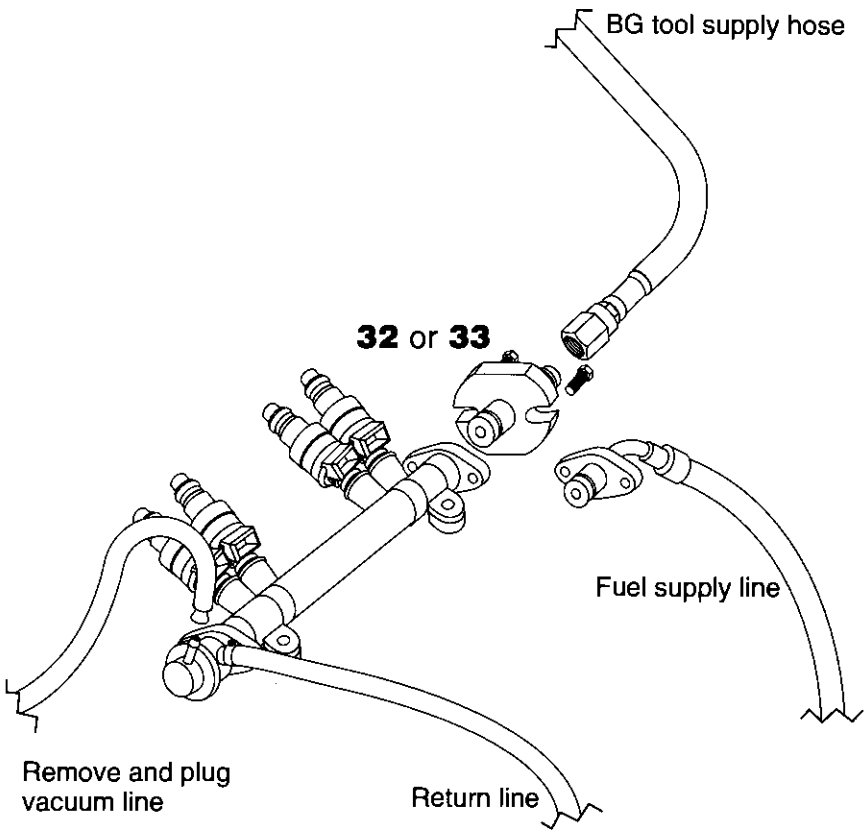
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Remove the Fuel Supply Line and connect the BG Tool Supply Hose to the rail using the Mitsubishi Supply Adaptor, 32 or 33.
5. Open the valve on the BG Tool and set the regulator valve at 5 lb. less than regulator pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

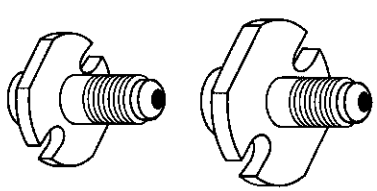
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Mitsubishi

Electronic Controlled Injection



BG PARTS



32 or **33**

Nissan

L-Jetronic Airflow Controlled

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add BG 44K® (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure** A: Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, 65, to the Fuel Pressure Test Adaptor, 62. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, 65, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, 62. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.

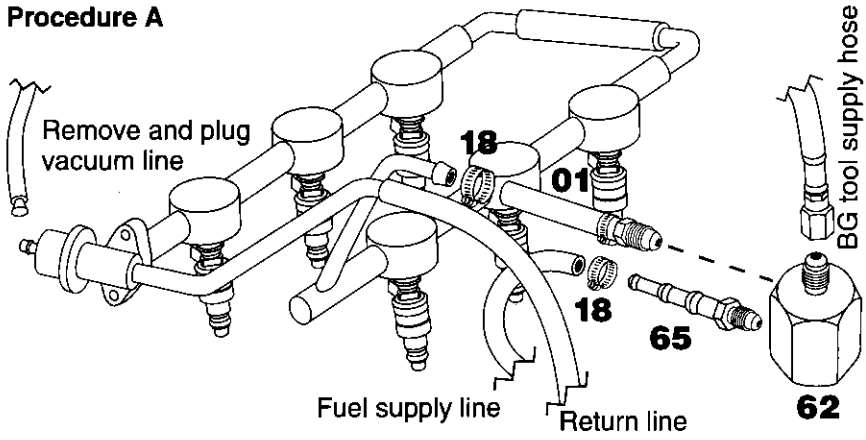
   Procedure B: Remove the Fuel Supply Line. Connectl the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, 49, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, 43, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at **37 PSI**.*
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

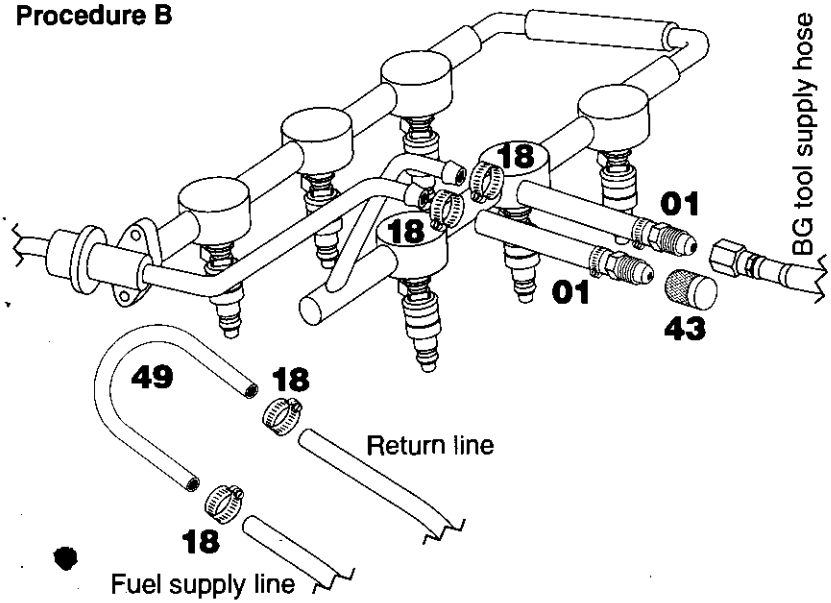
Nissan

L-Jetronic Airflow Controlled

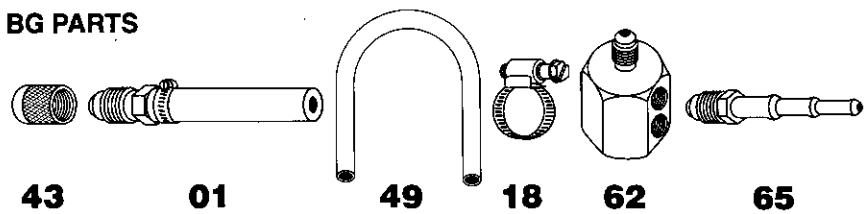
Procedure A



Procedure B



BG PARTS



Nissan

Throttle Body Injection

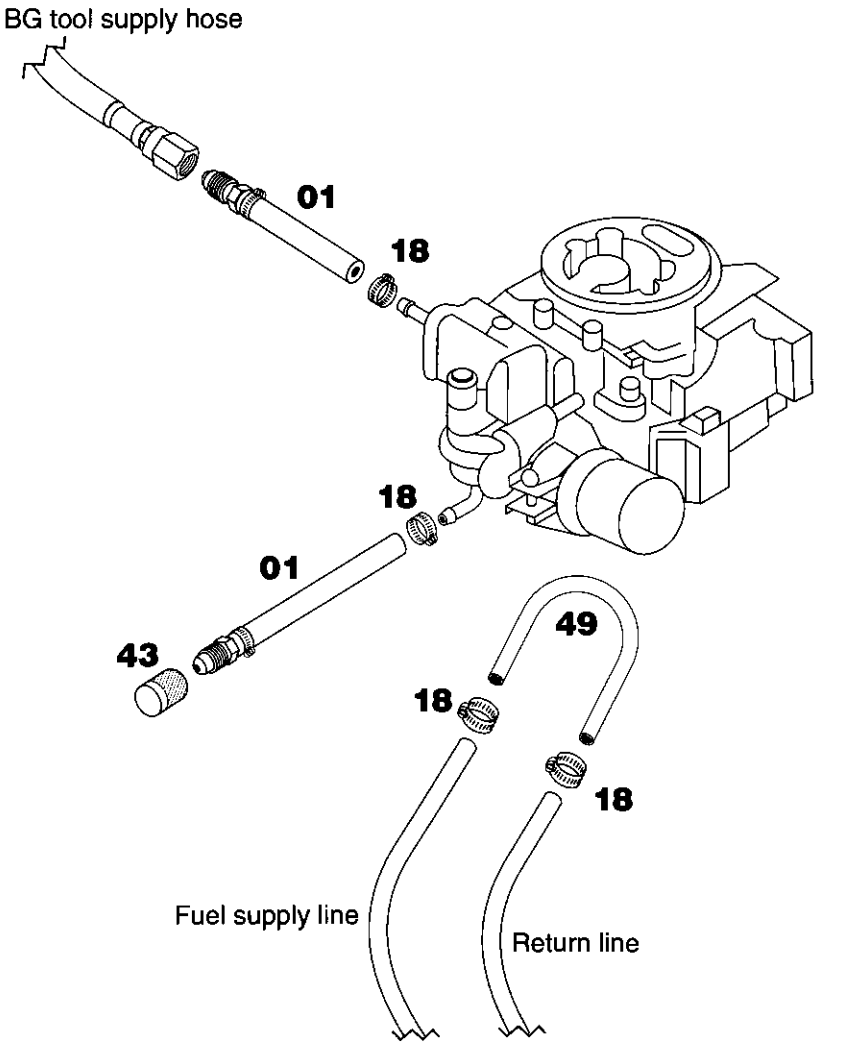
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnecting the fuel pump is not necessary. Remove the Fuel Supply Line and Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**.
4. Install to the open supply port the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**. Connect the Tool Supply Hose to the 5/16" Hose, **01**.
5. Open the valve on the BG Tool and set the regulator valve at 38 **PSI.***
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

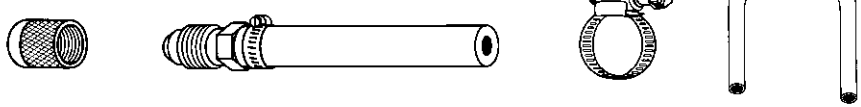
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Nissan

Throttle Body Injection



BG PARTS



43 01 18 49

Porsche

Bosch L-Jetronic

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by pulling the fuel pump relay.
4. Caution: On some models there is a steel sealing ball behind the nut that is on the Fuel Supply Line. Remove nut carefully so that the sealing ball is not lost.

   (a) Remove Fuel Supply Line and connect the 5/16" Hose, **01**, and Hose Clamp, **18**, to the fuel port. (Some 928 models).

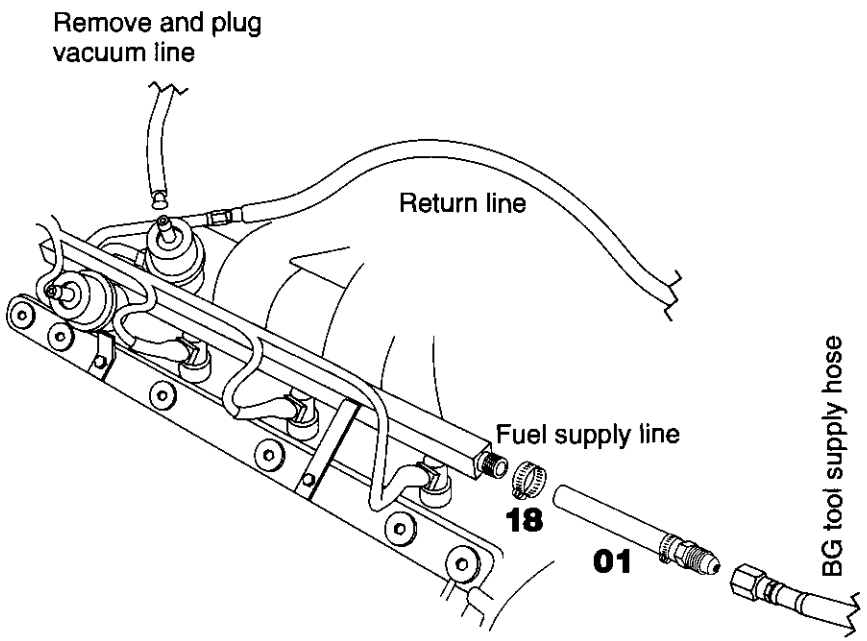
   (b) Remove cap from pressure port on fuel rail. Connect 12mm Ring Nipple, **02**, to the port. Connect Tool Supply Hose to the fitting. (914, 944, and some 911 and 928 models).

   (c) Disconnect the Fuel Supply Line from the cold start injector. Install the 5/16" Barb, **11**, and the Hose Clamp, **18**, in the Fuel Supply Line. Connect the Tool Supply Hose to the 5/16" Barb, **11**. (912E and some 928 models).
5. Open the valve on the BG Tool and set the regulator valve at 5 lb. less than regulator pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

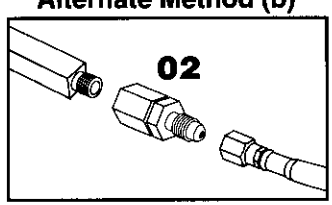
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Porsche

Bosch L-Jetronic



Alternate Method (b)



BG PARTS

01 **18** **02**

Renault

Multi-Point Fuel Injection

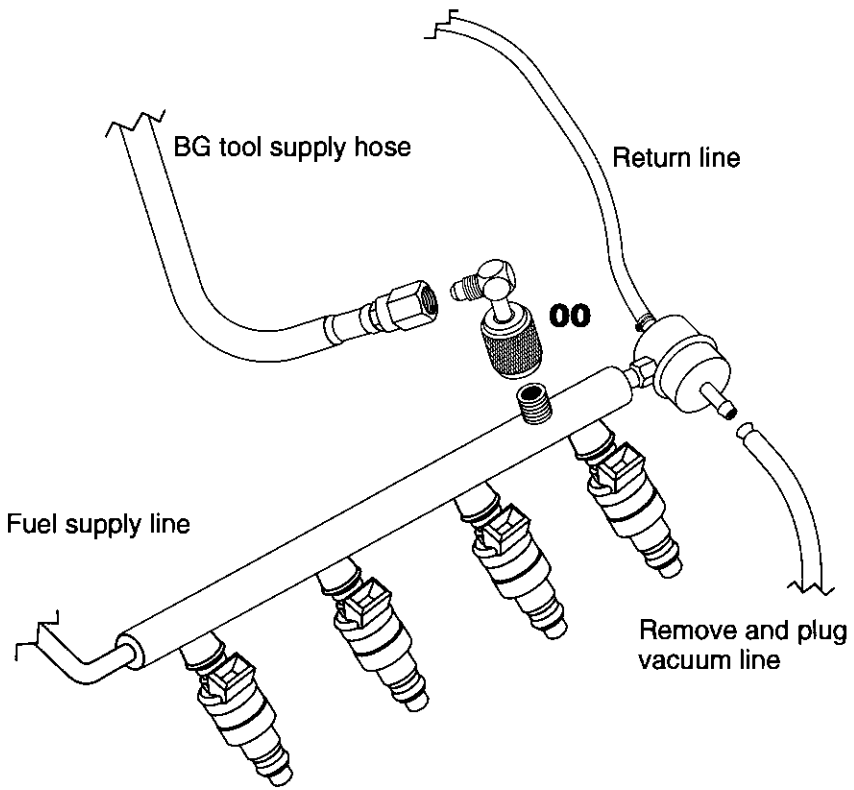
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump by unplugging at fuel tank.
4. Connect the Tool Supply Hose to the Schrader valve located on the port rail using the Schrader Adaptor, **00**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

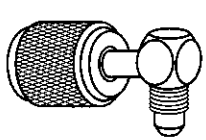
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Renault

Multi-Point Fuel Injection



BG PARTS



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Renault

Throttle Body Injection

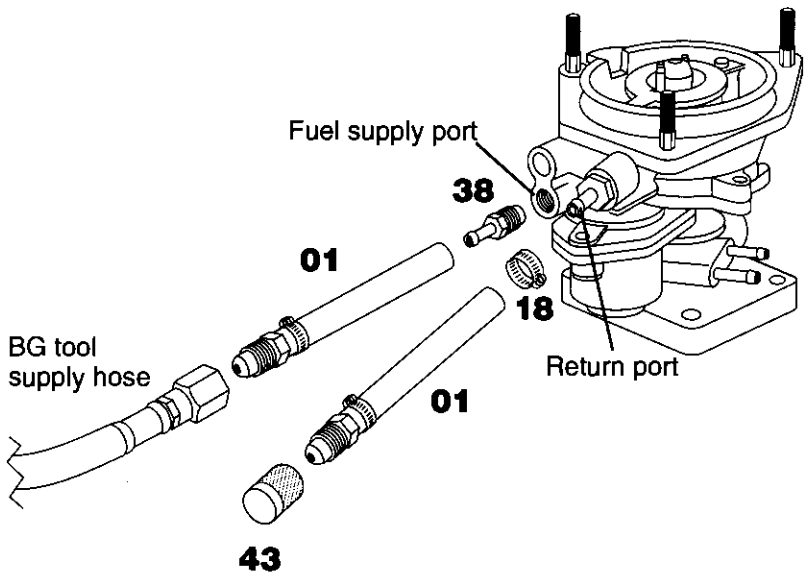
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump by unplugging near the tank.
4. Remove the Fuel Return Line from the throttle body and plug the open port using the 5/16" Hose, **01**, the Hose Camp, **18**, and the Universal Block, **43**.
5. Remove the Fuel Supply Line and install the Chrysler TBI Adaptor, **38** or **61**, to the open supply port. Connect the BG Tool Supply Hose to the Chrysler Adaptor.
6. Open the valve on the BG Tool and set the regulator valve at 32 PSI.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

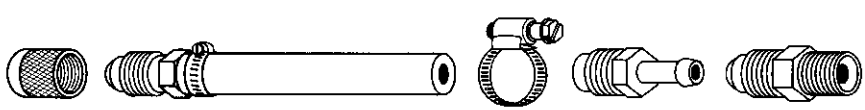
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Renault

Throttle Body Injection



BG PARTS



43 **01** **18** **38** or **61**

Saab

4-cylinder L-H II Jetronic

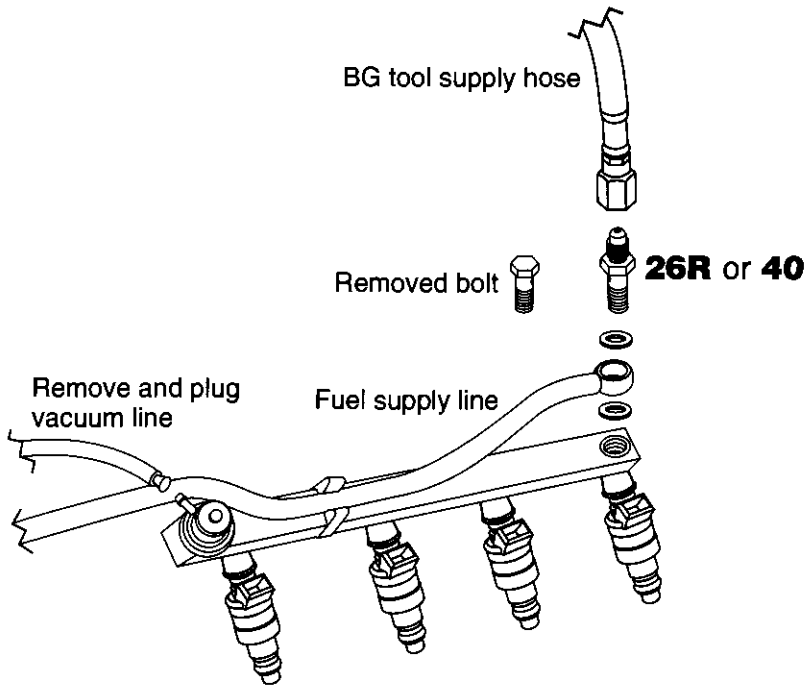
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Remove the fuel pump fuse or unplug fuel pump.
4. Remove the fuel flow through bolt from Fuel Supply Line. Replace with 12mm Fine Thread Adaptor, **40**, or 12mm Adaptor, **26R**. Connect BG Tool Supply Hose to 12mm Adaptor, **40**, or 12mm Adaptor, **26R**.
5. Remove and plug vacuum line to regulator.
6. Open the valve on the BG Tool and set the regulator valve at 5 lb. less than regulator pressure.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Saab

4-cylinder L-H II Jetronic



BG PARTS

26R **40**

Saab

6-cylinder L-H II Jetronic

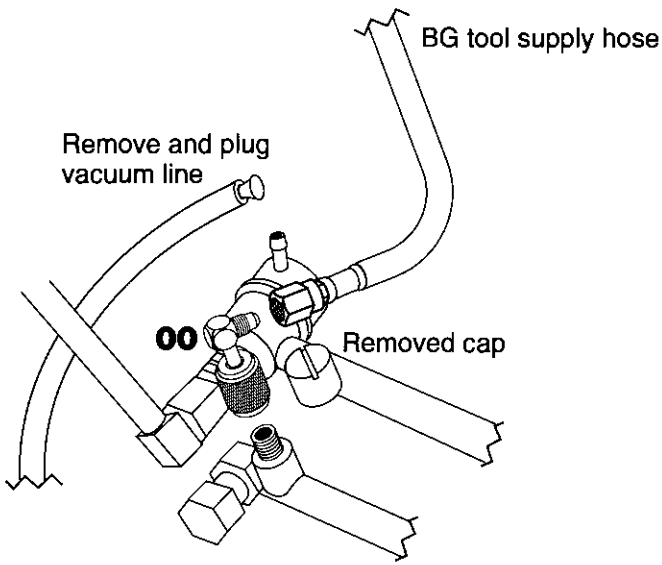
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Remove the fuel pump fuse or unplug fuel pump.
4. Connect the BG Tool Supply Hose to the Schrader valve located on the fuel filter line using the Schrader Adaptor, **00**.
5. Remove and plug vacuum line to regulator.
6. Open the valve on the BG Tool and set the regulator valve at 5 lb. less than regulator pressure.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

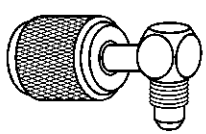
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Saab

6-cylinder L-H II Jetronic



BG PARTS



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Saturn

Multi-Point Fuel Injection

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Remove the fuel pump fuse or unplug fuel pump.
4. Connect the BG Tool Supply Hose to the Schrader valve located on the fuel filter assembly using the Schrader Adaptor, **00**.

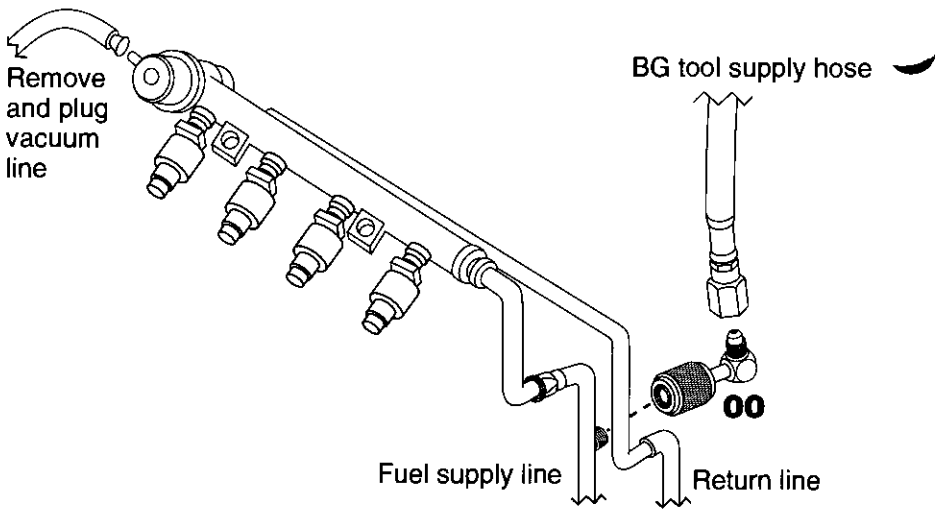
   Note: Aftermarket fuel filter assembly does not have Schrader valve. In this case: Disconnect Fuel Supply Line. Connect 5/16" Hose, **01**, to the open port with the Hose Camp, **18**. Connect BG Tool Supply Hose to 5/16" Hose, **01**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

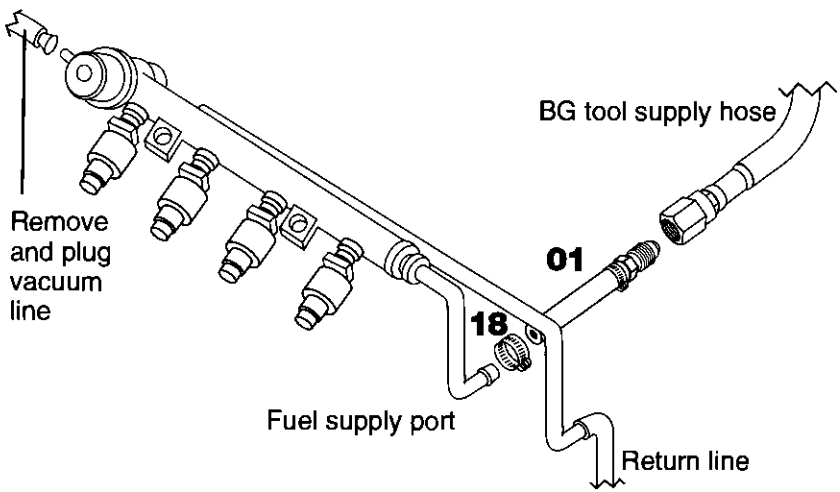
Saturn

Multi-Point Fuel Injection

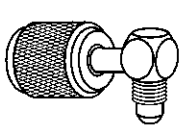
Procedure A



Procedure B



BG PARTS



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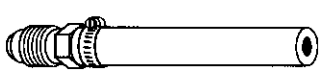


01

18

Saturn

Throttle Body Injection

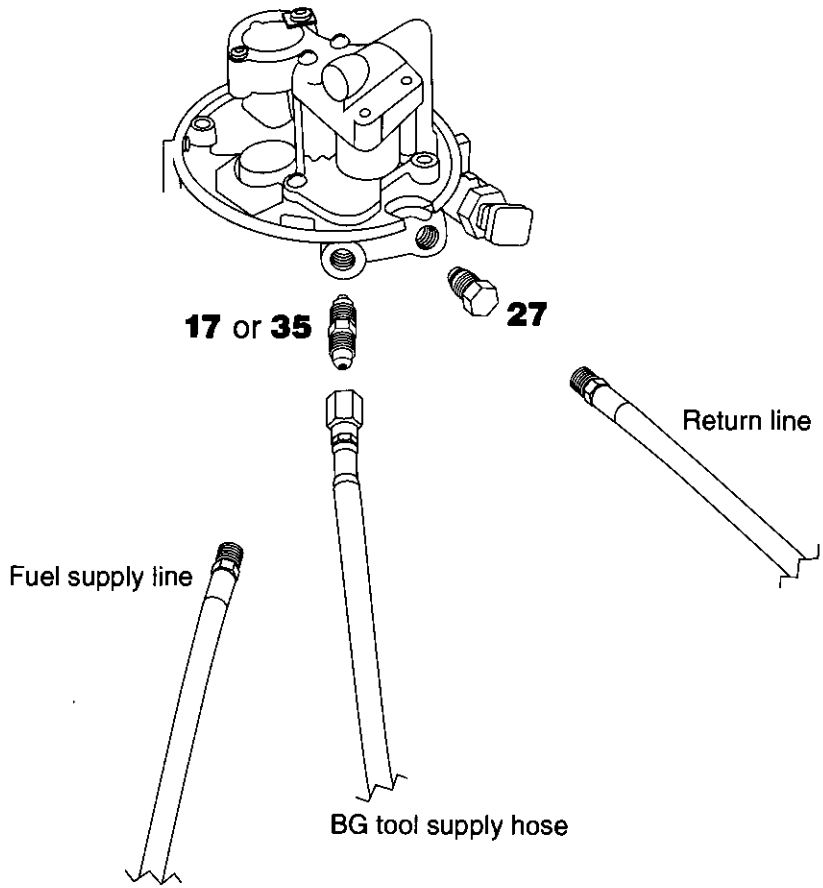
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump. (See Operational Tips, Section 2, Page 5.)
4. Remove the Fuel Return Line from the throttle body and plug the open port using the GM Plug, 27.
5. Install the GM TBI Adaptor, **17** or **35**, to the open supply port after removing the Fuel Supply Line. Connect the BG Tool Supply Hose to the GM TBI Adaptor.
6. Open the valve on the BG Tool and set the regulator valve at **23 PSI.***
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

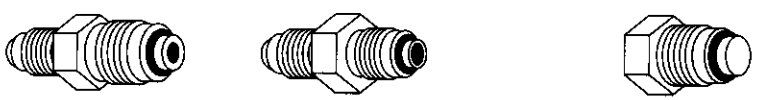
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Saturn

Throttle Body Injection



BG PARTS



17 or **35** **27**

Sterling

Multi-Point Fuel Injection

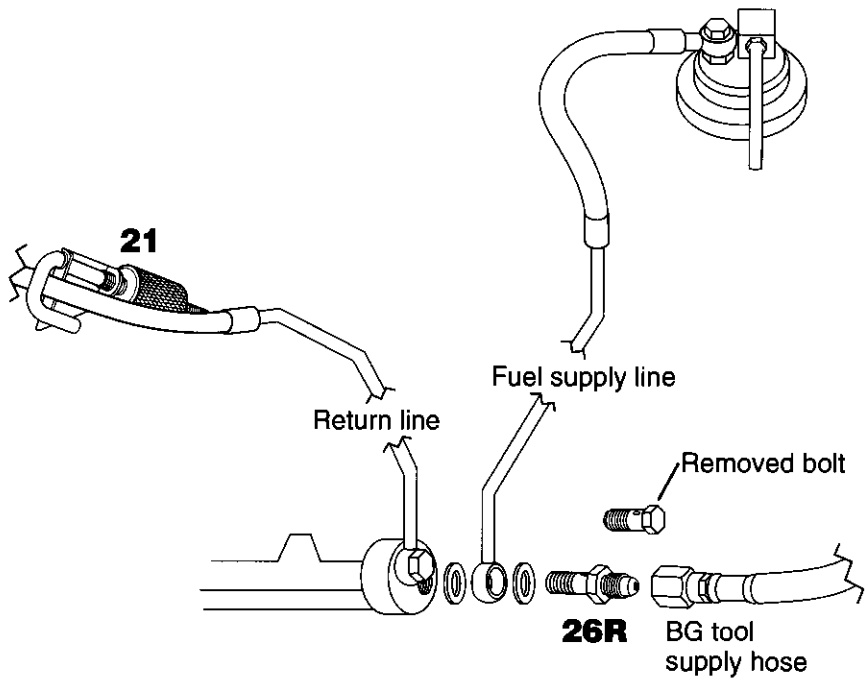
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Unplug the fuel pump under the inspection cover in the trunk.
4. Clamp off the Return Line (the smaller of the fuel lines) with the Pinch Off Clamp, **21**.
5. Replace the fuel flow through bolt with 12mm Toyota Adaptor, **26R**. Connect the BG Tool Supply Hose to the 12mm Toyota Adaptor, **26R**.
6. Open the valve on the BG Tool and set the regulator valve at 42 PSI.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

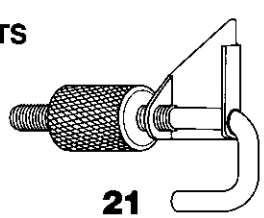
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Sterling

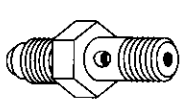
Multi-Point Fuel Injection



BG PARTS



21



26R

Subaru

L-Jetronic Airflow Controlled

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure** A: Disconnect the fuel pump. (**If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.**) Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.

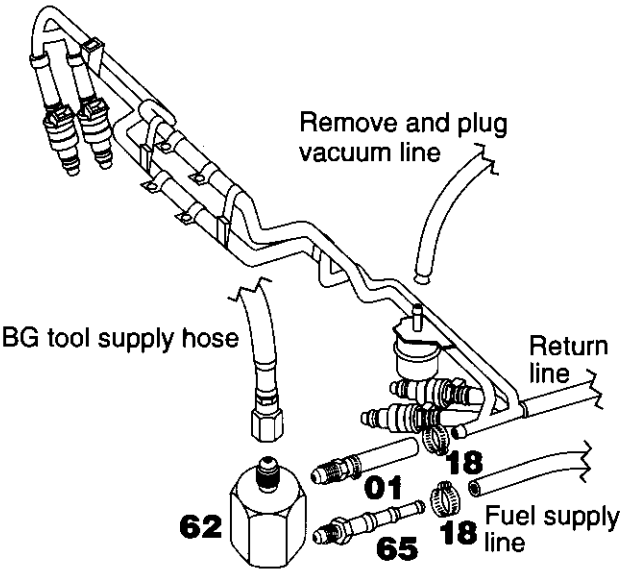
   Procedure B: Remove the Fuel Supply Line. Connectl the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, 43, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at 32 **PSI**.*
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

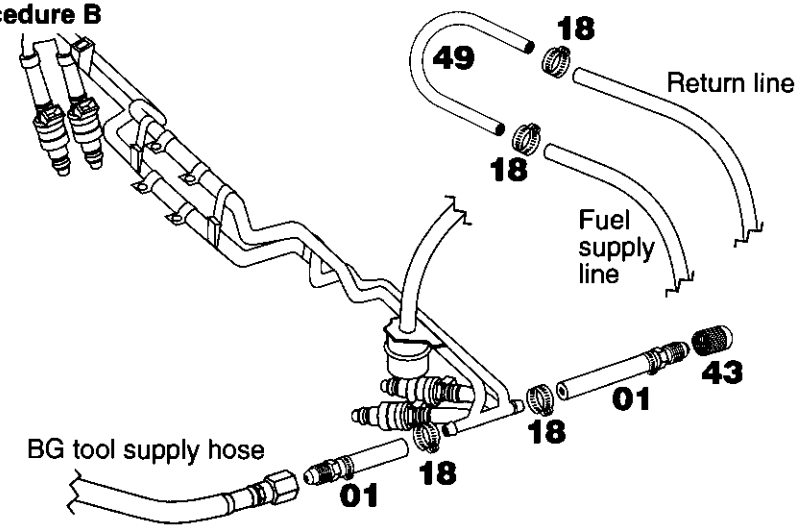
Subaru

L-Jetronic Airflow Controlled

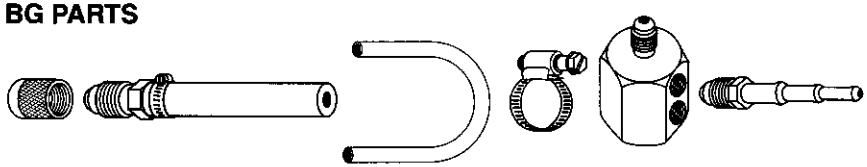
Procedure A



Procedure B



BG PARTS



Subaru

Single Point Fuel Injection

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, **65**, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step **4**.

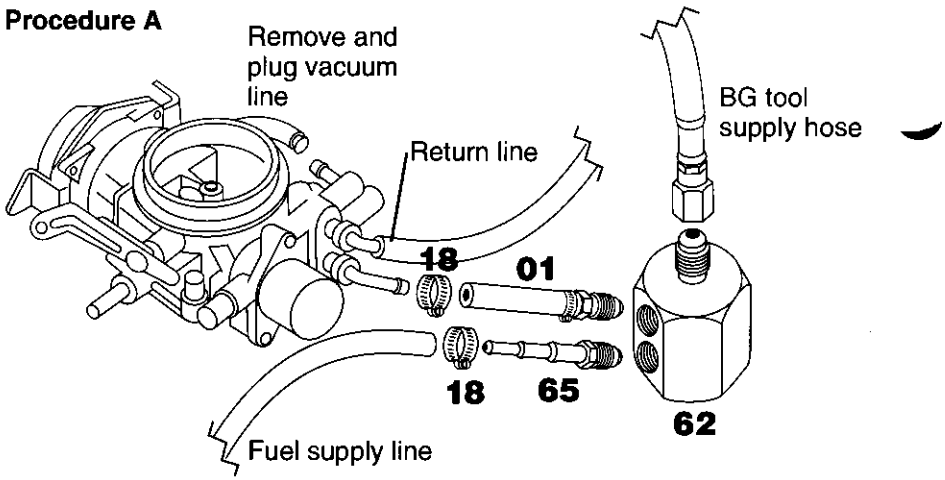
   Procedure B: Remove the Fuel Supply Line. Connectl the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, 43, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at **23 PSI**.*
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

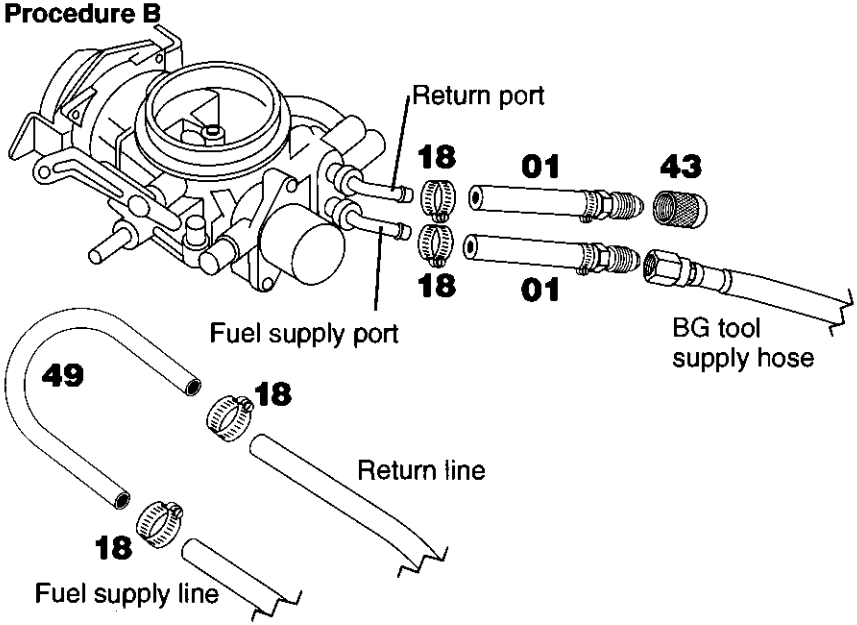
Subaru

Single Point Fuel Injection

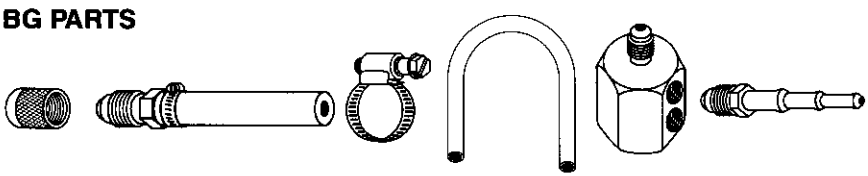
Procedure A



Procedure B



BG PARTS



Suzuki

Multi-Point Fuel Injection

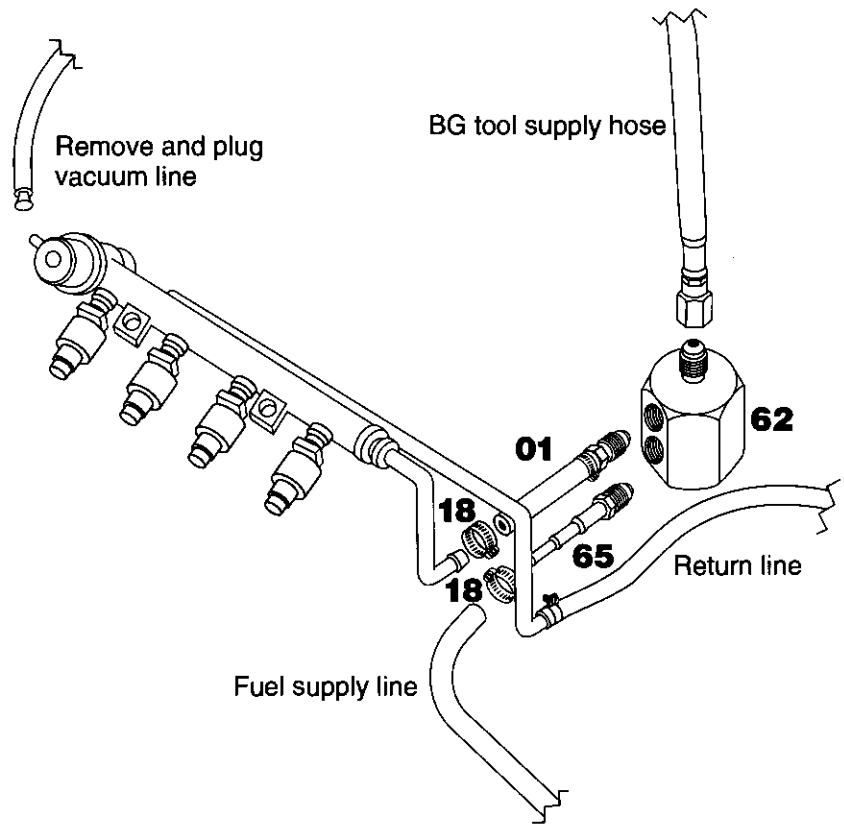
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disable fuel pump.
4. Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, 18. Connect the Tri-barb Adaptor, 65, to the Fuel Supply Line with Hose Clamp, 18. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, **62**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.*
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

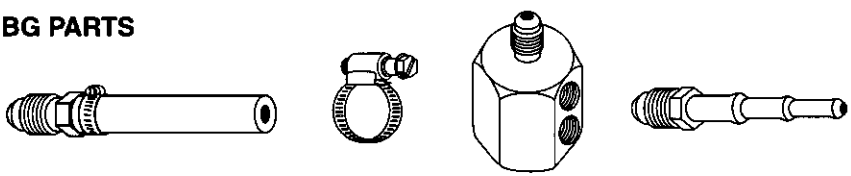
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Suzuki

Multi-Point Fuel Injection



BG PARTS



01 **18** **62** **65**

Suzuki

Throttle Body Injection

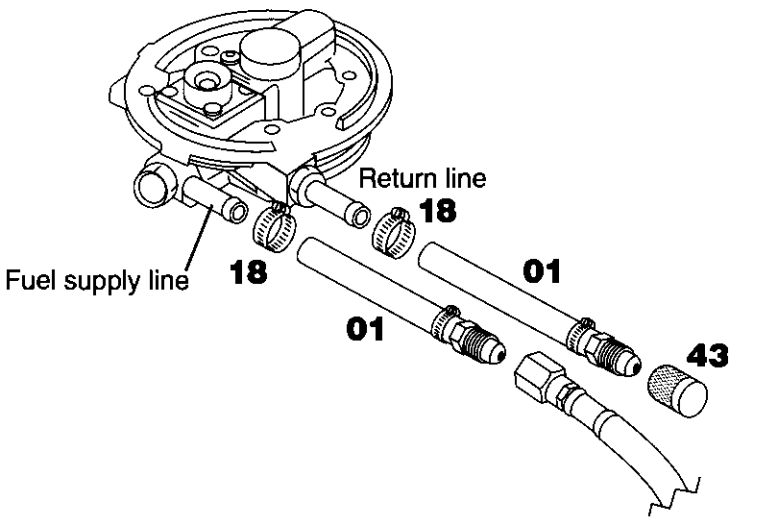
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

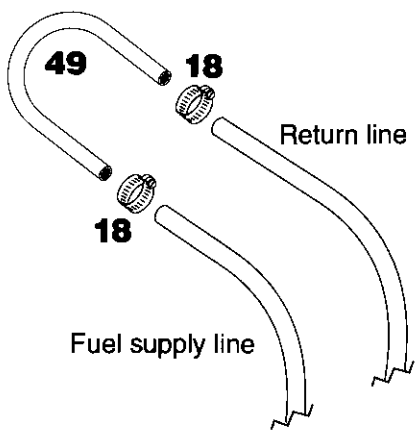
1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnecting the fuel pump is not necessary. Remove the Fuel Supply Line and Return Line from the throttle body. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**.
4. Install the 5/16" Hose, **01**, on the open supply port with the 5/16" Hose Clamp, **18**. Connect the Tool Supply Hose to the 5/16" Hose, **01**.
5. Open the valve on the BG Tool and set the regulator valve at **23 PSI.***
6. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
7. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
8. Start the vehicle and check for leaks.
9. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

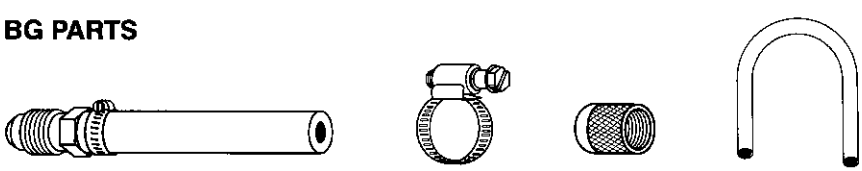
Suzuki

Throttle Body Injection





BG PARTS



Toyota

L-Jetronic Airflow Controlled

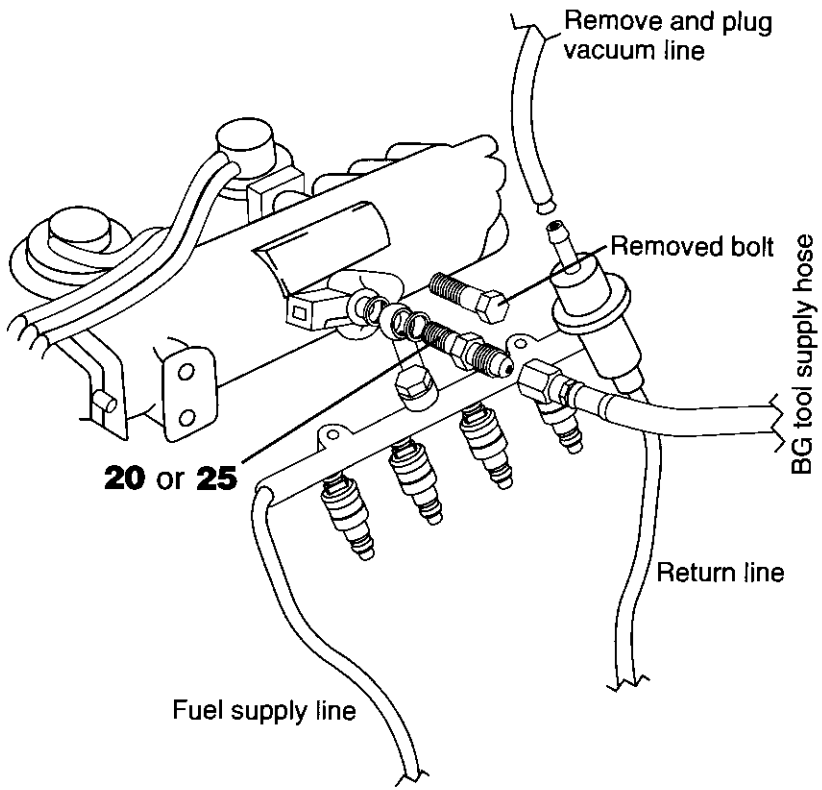
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump through the access panel in the trunk or under the rear seat.
4. Replace the fuel flow through bolt from the cold start injector supply banjo with the 8mm Toyota Adaptor, 20, or the 10mm Toyota Adaptor, 25, whichever is required. Connect the BG Tool Supply Hose to the Toyota Adaptor.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose.
6. Open the valve on the BG Tool and set the regulator valve at 5 lb. less than regulator pressure.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Toyota

L-Jetronic Airflow Controlled



BG PARTS

20 or **25**

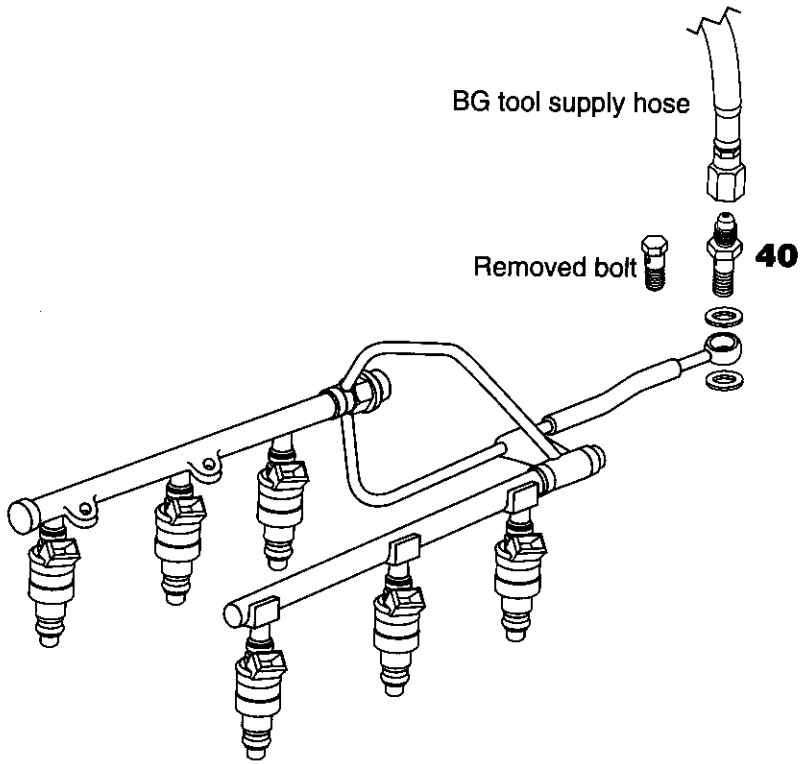
Toyota
6-cylinder

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

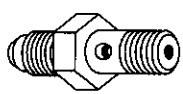
1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump.
4. Replace the fuel flow through bolt from the cold start injector supply banjo with the 12mm Fine Thread Adaptor, **40**. Connect the BG Tool Supply Hose to the 12mm Adaptor, **40**.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose.
6. Open the valve on the BG Tool and set the regulator valve at 5 lb. less than regulator pressure.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Toyota
6-cylinder



BG PARTS



40

Toyota

'97–'99 Camry V-6 Single Fuel Line

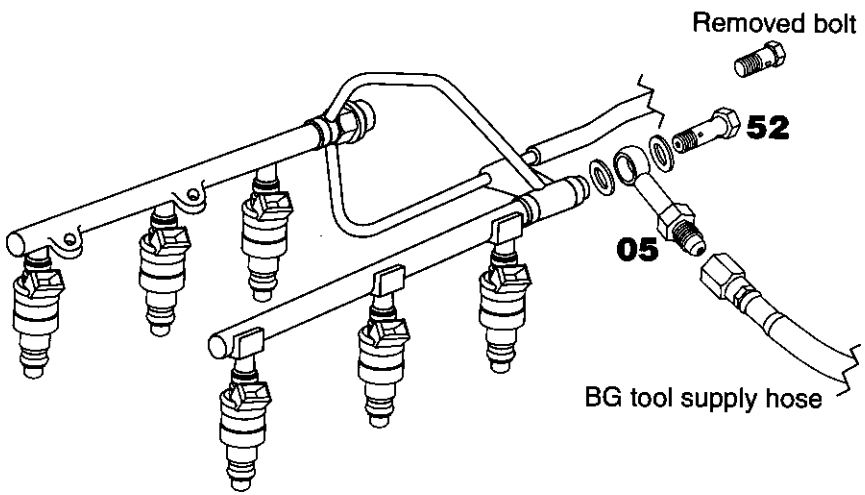
- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. Disconnect the fuel pump.
4. Remove the factory banjo bolt on the opposite end of the fuel pressure dampner. Install the 12mm Banjo Adaptor, **05**, with the 12mm Double Flow Through Bolt, 52.
5. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose.
6. Open the valve on the BG Tool and set the regulator valve at 5 lb. less than regulator pressure.*
7. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
8. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace old sealing washers on fuel supply port around banjo fitting with new sealing washers. Replace the gas cap.
9. Start the vehicle and check for leaks.
10. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

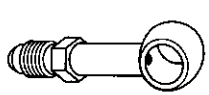
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Toyota

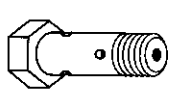
'97–'99 Camry V-6 Single Fuel Line



BG PARTS



05



52

Volkswagen

AFC/Digifant (1987 to present)

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Connect the 5/16" Hose, **01**, and the Tri-barb Adaptor, **65**, to the Fuel Pressure Test Adaptor, **62**. Remove the Fuel Supply Line. Attach 5/16" Hose, **01**, from the Fuel Pressure Test Adaptor assembly to the open supply port with Hose Clamp, **18**. Connect the Tri-barb Adaptor, 65, to the Fuel Supply Line with Hose Clamp, **18**. Connect the BG Tool Supply Hose to the Fuel Pressure Test Adaptor, 62. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.

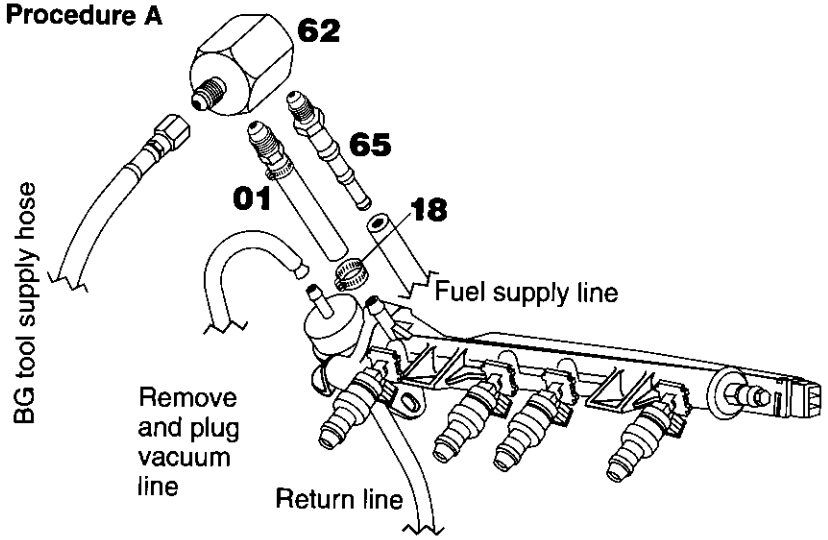
   Procedure B: Remove the Fuel Supply Line. Connectl the 5/16" Hose, **01**, and the 5/16" Hose Clamp, **18**, to the open supply port. Connect the BG Tool Supply Hose to the 5/16" Hose, **01**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line using the U-Tube, **49**, and two Hose Clamps, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at 42 **PSI**.*
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

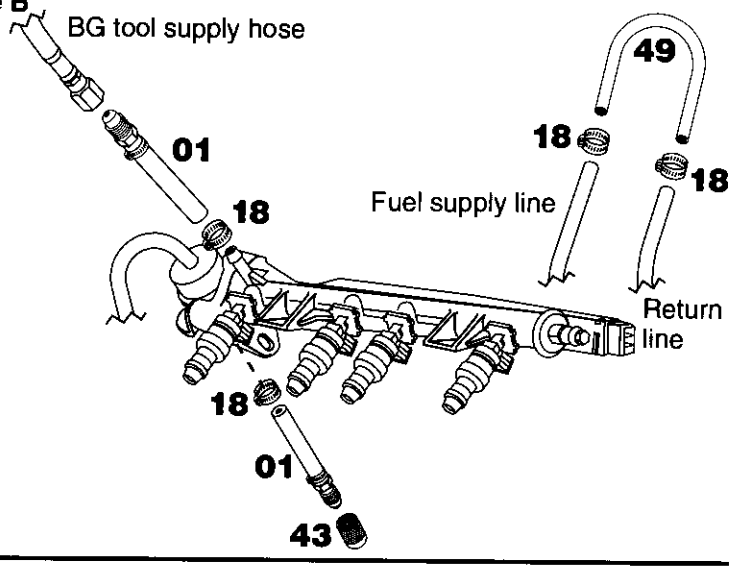
Volkswagen

AFC/Digifant (1987 to present)

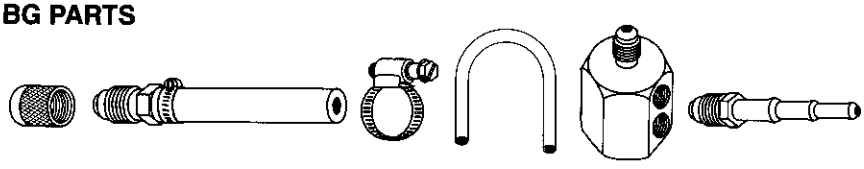
Procedure A



Procedure B



BG PARTS



Volvo

LH-Jetronic Airflow Controlled

- Read guidelines in Section 1 (Safety) and Section 2 (Operating Instructions) before using BG Tool and BG Cleaning Products.

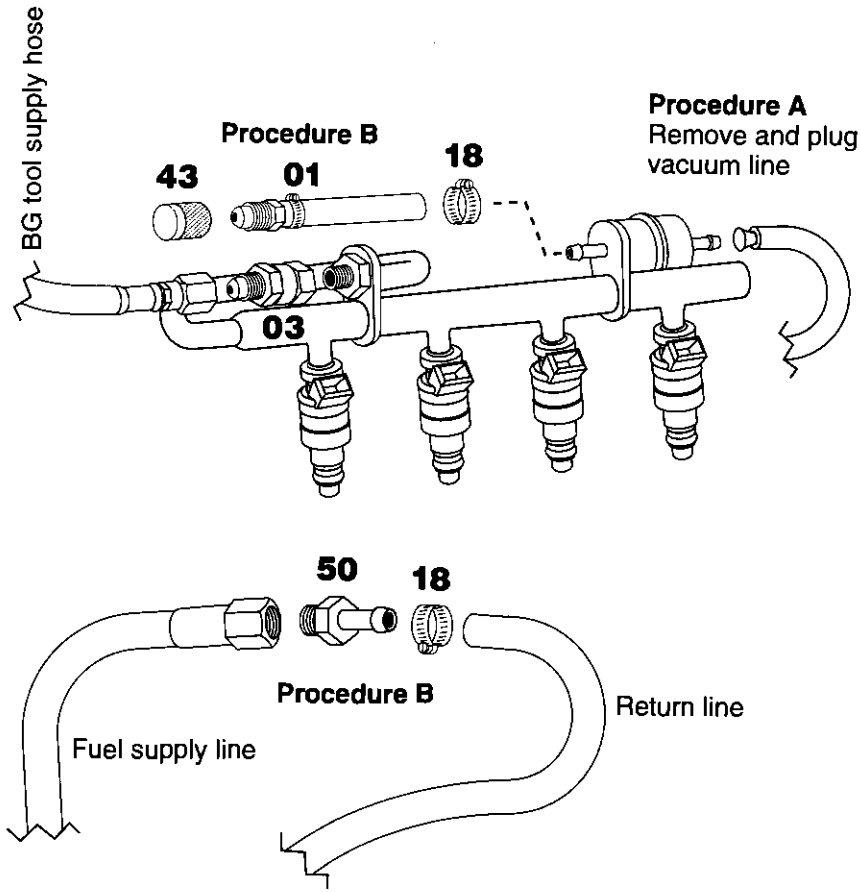
1. Remove gas cap. Add **BG 44K®** (PN 208) to gas tank. Leave gas cap off.
2. Start engine and allow it to reach operating temperature (195°F). Shut engine off. Make sure all accessories (radio, A/C, heater, etc.) are shut off to prevent the possibility of electrical discharge during hook-up.
3. **Procedure A:** Disconnect the fuel pump. **(If the electrical circuit that runs the fuel pump also controls the injectors, reconnect fuel pump and go to Procedure B below.)** Remove the Fuel Supply Line and install the 14mm Ring Nipple, **03**, to the open supply port. Connect the Tool Supply Hose to the 14mm Ring Nipple, **03**. Remove vacuum hose from the fuel pressure regulator. Plug vacuum hose. Open the valve on the BG Tool and set pressure at 5 lbs. less than regulator bypass pressure.* Go to step 4.

   Procedure B: Remove the Fuel Supply Line and install the 14mm Ring Nipple, **03**, to the open supply port. Connect the Tool Supply Hose to the 14mm Ring Nipple, **03**. Remove the Return Line from the rail. Loop the Fuel Supply Line and Return Line with the Volvo Loop, **50**, and a Hose Clamp, **18**. Plug the return port with the 5/16" Hose, **01**, the Universal Block, **43**, and a 5/16" Hose Clamp, **18**. Open the valve on the BG Tool and set the regulator valve at **44 PSI.***
4. Start the engine and run at idle until the BG Tool canister is empty and the engine stalls.
5. Reverse the steps making sure that all adaptors, clamps and plugs have been removed and all lines are properly reinstalled. Replace the gas cap.
6. Start the vehicle and check for leaks.
7. Clean the air intake system and the idle air control valve using **BG Air Intake System Cleaner** (PN 206 or 406). Inspect the air filter to determine if it should be replaced.

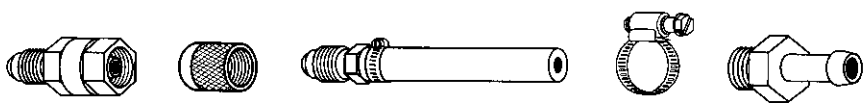
* Pressure settings vary from one make of automobile to another; refer to Section 4 (Fuel Pressure Specifications) for recommended pressure setting.

Volvo

LH-Jetronic Airflow Controlled



BG PARTS



03 **43** **01** **18** **50**

ACURA

1988-99 All Models

SLX—See Isuzu

FUEL SYSTEM PRESSURE

Engine	Year	Pressure PSI[1]	Pressure PSI[2]	Fuel Pump PSI
All	1988-90	36-41	35-37	64-85
1678cc	1991-93	48-56	39-46	64-85
1797cc	1994-99	47-55	38-46	—
1834cc	1991-93	41-48	32-39	64-85
	1994-97	40-47	31-36	—
	1998-99	40-47	36-43	—
2165cc	1997	38-46	30-37	—
2254cc	1998-99	47-54	38-46	—
2451cc	1992-98	43-50	33-41	64-85
2977cc, 3179cc	1991-99	46-53	36-44	64-85
2997cc	1997-99	41-48	37-44	—
3206cc	1991-92	38-46	31-37	64-85
	1993	35-41	29-35	64-85
	1994-95	44-51	36-43	—
	1996-98	38-45	28-35	—
3210cc	1999	41-48	37-44	—
3474cc	1996-99	43-50	35-42	—

1 With vacuum hose to fuel pressure regulator disconnected.
2 With vacuum hose to fuel pressure regulator connected.

IDLE SPEED W/COMPUTER CONTROL

1990-99 All Canadian Models: Pull up on parking brake lever.

1590cc, 1678cc, 1797cc, 1834cc, 2451cc: With engine idling, disconnect the IAC connector. Adjust speed to specified setting value. Reconnect ISC and remove "Hazard" or "Backup" fuse for 10 seconds minimum. Check that idle speed is at specified checking value. Fast idle is not adjustable. Turn on headlights and rear window defroster. Verify that Electrical load speed-up is at specified value. Turn on A/C, blower on high, verify that A/C speed-up speed is at specified value.

2675cc: Check engine speed at idle against specified checking value. If yellow LED on ECM under passenger section is blinking, turn idle screw 1/4 turn clockwise. If yellow LED is on but not blinking, turn idle screw 1/4 turn counterclockwise. Check yellow LED again after 30 seconds and repeat procedure until it is off.

1991-99 2977cc, 3179cc, 1991-92 3206cc: Disconnect the IAC connector and adjust speed to specified setting value. Reconnect ISC and verify that speed is at specified checking value.

1993-95 3206cc: Connect an inductive clamp around loop wire on ignition control module. Check idle speed. Connect the Service Check connector with a jumper wire. Inspect ECM. If yellow LED is blinking, turn idle screw clockwise 1/4 turn. Wait 30 seconds and repeat until LED is off. If yellow LED is on, turn idle screw 1/4 turn counterclockwise. Wait 30 seconds and repeat until LED is off.

1995-98 2451cc, 1996-99 3206cc, 3494cc, 1997-99 2165cc, 2254cc; Disconnect IAC electrical connector and EVAP purge control solenoid value. Adjust speed to specified value. Reconnect IAC and remove, then replace HAZARD, BACKUP or CLDCK fuse to clear ECM. Check that idle is at specified value. All ex. 2254cc and 3494cc, turn on headlights, and rear window defroster. Verify that Elect. Speed-up is at specified value. Turn on A/C and verify that A/C Speed up is at specified value.

1997-99 2997cc, 3201cc: Set idle to specified value.

Engine	Year	Trans-mission	Checking Speed	Setting Speed	Fast Idle (Cold)
1590cc	1988	MT	650-750	500-600	1250-2250
1590cc	1989	MT	700-800	500-600	1250-2250
Elect. & A/C Speed-up	1988-89	MT	700-800	—	—
1590cc	1988-89	AT	650-750 N	500-600 N	1250-2250 N
Elect. & A/C Speed-up	1988-89	AT	700-800 N	—	—
1678cc	1991-93	MT	750-850	550-650	1000-2000
Elect. & A/C Speed-up	1991-93	MT	750-850		
1797cc	1994	MT	700-800	430-530	1400-1800
Elect. Speed-up	1994	MT	800-900		
A/C Speed-up	1994	MT	700-800		

ACURA

ACURA Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Trans-mission	Checking Speed	Setting Speed	Fast Idle (Cold)
1797cc	1994	AT	700-800 N	430-530 N	1400-1800 N
Elect. Speed-up	1994	AT	800-900 N		
A/C Speed-up	1994	AT	700-800 N		
1797cc	1995-97	MT	700-800	430-530	1400-1800
Elect. Speed-up	1995-97	MT	700-800		
A/C Speed-up	1995-97	MT	800-900		
1797cc GSR	1998-99	MT	700-800	430-530	1400-1800
Elect.Speed-up	1998-99	MT	700-800		
A/C Speed-up	1998-99	MT	800-900		
1797cc Type R	1998-99	MT	750-850	600-700	1400-1800
Elect. Speed-up	1998-99	MT	750-850		
A/C Speed-up	1998-99	MT	1000-1100		
1834cc	1990-91	MT	700-800	600-700	1000-1800
Elect. & A/C Speed-up	1990-91	MT	700-800	—	—
1834cc	1990-91	AT	700-800 N	600-700 N	1000-1800 N
Elect. & A/C Speed-up	1990-91	AT	700-800 N	—	—
1834cc	1992-93	MT	700-800	550-650	1000-2000
Elect. & A/C Speed-up	1992-93	MT	700-800		
1834cc	1992-93	AT	700-800 N	550-650 N	1000-2000 N
Elect. & A/C Speed-up	1992-93	AT	700-800 N		
1834cc	1994	MT	700-800	430-530	1400-1800
Elect. Speed-up	1994	MT	770-870		
A/C Speed-up	1994	MT	800-900		
1834cc	1994	AT	700-800 N	430-530 N	1400-1800 N
Elect. Speed-up	1994	AT	790-890 N		
A/C Speed-up	1994	AT	700-800 N		
1834cc	1995-99	MT	700-800	430-530	1400-1800
Elect. Speed-up	1995-99	MT	700-800		
A/C Speed-up	1995-99	MT	770-870		
1834cc	1995-99	AT	700-800 N	430-530 N	1400-1800 N
Elect. Speed-up	1995-99	AT	700-800 N		
A/C Speed-up	1995-99	AT	790-890 N		
2165cc	1997	MT	650-750	500-600	1200-1600
Elect. & A/C Speed-up	1997	MT	720-820		
2165cc	1997	AT	650-750 N	500-600 N	1200-1600 N
Elect. & A/C Speed-up	1997	AT	720-820 N		
2254cc	1998-99	MT	720-820	650-750	1100-1500
		AT	720-820N	650-750N	1100-1500 N
2451cc	1992-98	MT	650-750	500-600	1000-1400
Elect. & A/C Speed-up	1992-98	MT	720-820		
2451cc	1992-98	AT	650-750 N	500-600 N	1000-1400 N
Elect. & A/C Speed-up	1992-98	AT	720-820 N		
2675cc	1988-90	MT	630-730	—	1100-1900
	1988-90	AT	630-730 N	—	1100-1900 N
2977cc, 3179cc	1991-94	MT	750-850	500-600	1100-1900
	1991-94	AT	700-800 N	500-600 N	1100-1900 N
	1995-99	MT	750-850	550-650	1100-1900 N
	1995-99	AT	730-830 N	550-650 N	1100-1900 N
2997cc	1997-99	AT	—	700-800N	900-1300 N
3206cc	1991-92	MT	600-700	450-550	1300-1700
	1991-92	AT	550-650 P	450-550 N	1300-1700 N
3206cc: Coupe	1993	MT	630-730[1]	—	1300-1700
	1993	AT	580-680N[1]	—	1300-1700 N
Sedan	1993	MT	600-700[1]	—	1300-1700
	1993	AT	550-650N[1]	—	1300-1700 N
3206cc: L, LS Sedan	1994-95	MT	600-700[1]	—	1300-1700
	1994-95	AT	550-650 N[1]	—	1300-1700
GS Sedan, Cape	1994-95	MT	630-730[1]	—	1300-1700
	1994-95	AT	580-680 N[1]	—	1300-1700

ACURA Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Trans-mission	Checking Speed	Setting Speed	Fast Idle (Cold)
3206cc	1996-98	AT	590-690N	430-530N	1100-1500 N
Elect.& A/C Speed-up	1996-98	AT	600-700N		
3210cc	1999	AT	—	600-700N	900-1300 N
3474cc	1996-99	AT	600-700 N	430-530 N	1100-1500 N

1 With headlights and heater blower, or AC turned on. Idle speed should be maintained.

AUDI

1988-98

FUEL PRESSURE PROCEDURE

AFC System:

1. Connect appropriate pressure gauge to test port of fuel rail and open gauge valve.
2. Bridge diagnostic connector A, terminal 1 negative (-) with diagnostic connector B, terminal 1. Energize fuel pump, listen for pump to run and remove jumper after a minimum of 4 seconds, read system pressure.

CIS Systems:

1. With engine at operating temperature, connect appropriate pressure gauge between fuel distributor and warm-up regulator.
2. Set gauge valve to open position, start engine and run at idle, allow pressure to stabilize, read control pressure.
3. Set gauge valve to closed position, allow pressure to stabilize, read system pressure.
4. Set gauge to open position, switch off ignition, after 10 minutes read residual pressure.

CIS-E Systems:

1. With engine at operating temperature, connect appropriate pressure gauge between cold start line and lower chamber test fittings of the fuel distributor.
2. Disconnect electrical connector from the differential pressure regulator.
3. Set gauge valve to open position, remove fuel pump relay and bridge terminals to energize pump, allow pressure to stabilize, read system pressure.
4. Set gauge valve to closed position, energize fuel pump, read differential pressure.
5. Set gauge valve to open position, energize fuel pump for 30 seconds, atter 10 minutes read residual pressure.

Motronic Systems:

1. Connect appropriate pressure gauge to test port of fuel rail.
2. Disconnect vacuum hose from pressure regulator, start engine and run at idle, allow pressure to stabilize and take reading.
3. Reconnect vacuum to pressure regulator and check gauge reading.
4. Switch ignition off, after 10 minutes read residual pressure.

FUEL PRESSURE: AFC, MOTRONIC

		System Pressure		
Engine	Year	W/o vacuum PSI	W/vacuum PSI	Residual Pressure PSI
2226cc	1991	43-46	35-39	36-40
	1992-95	58-61	—	49-54
2309cc	1990-91	—	55-61	46
2771cc	1992-97	55-61	48-54	32-44
3562cc	1990-91	58-62	49-54	43-50
3697cc	1997	61	52	44
4172cc	1992-93	58-62	49-54	43-50
	1997	61	52	44

FUEL PRESSURE: CIS, CIS-E

			Pressure			
Engine	System	Year	System PSI	Control PSI	Differential PSI	Residual PSI
1984cc	CIS-E	1988-90	88-96	—	81-91	48
2309cc	CIS-E	1988-91	89-94	—	81-90	51

AUDI & BMW

AUDI Continued

IDLE SPEED

All Engines: Must be at operating temperature, all electrical equipment switched off, cooling fan not running. If equipped with idle speed boost valve, pinch off hose to valve.

1988-91 2226cc Turbo Code MC: Disconnect crankcase breather hoses and plug outlets on valve cover, remove plug from EVAP canister vent pipe at intake boot.

All Other Engines: Disconnect crankcase breather hoses, remove plug from fitting of EVAP canister vent hose.

Engine	Year	Manual Transmission	Automatic Transmission
1984cc	1988-90	780-900[1]	780-900 N[1]
2226cc			
SOHC Turbo	1988-91	750-850	670-770 N
DOHC Turbo	1991-95	770-830[1]	770-830 N[1]
2309cc Code NF	1988-91	670-770[1]	670-770 N[1]
Code NG	1988-92	720-860[1]	720-860 N[1]
DOHC	1990-92	750-850[1]	750-850 N[1]
2771cc	1992-94	700-800[1]	700-800 N[1]
	1995	650-750[1]	650-750[1]
3562cc	1990-91	—	660-720 N[1]
3697cc	1997	—	680-760[1]
4172cc	1992-94	—	660-720 N[1]
	1997	—	720-800[1]

1 Not Adjustable (checking value only).

IDLE MIXTURE

Engine	Year	Idle CO%
1984cc	1988-89	0.3-1.2
2226cc		
SOHC Turbo	1988-91	0.3-1.2
DOHC Turbo	1991-95	0.5-0.9
2309cc Code NF	1988-91	0.3-1.2
Code NG	1988-89	0.6-1.0
DOHC	1990-91	0.5-1.0
2771cc	1992-95	0.3-1.2
3562cc	1990-91	0.5-0.9
4172cc	1992	0.5-0.9

1 Oxygen sensor disconnected.

BMW
1988-98

FUEL PRESSURE

With engine at normal operating temperature and idling.

Engine	Year	Control Pressure PSI	System Pressure PSI
2302cc	1988-91	42-44	40-47
2494cc	1988-92	42-44	40-47
2693cc	1988	35-37	33-38
3428cc	1988-92	42-44	40-47
3453cc	1988-90	42-44	40-47
4988cc	1988-92	42-44	40-47

BMW Continued

IDLE SPEED

Checking speed given, idle is not adjustable.

Engine	Year	Trans-mission	Slow Idle	Fast Idle	AC Speed-up
1796cc	1991-93	MT & AT	810-890 N	—	870-960
	1994-97	MT	800-900	—	800-900
		AT	730-830 D	—	780-880 D
1991cc	1994	MT & AT	720-800 N	—	—
2302cc M20	1988-94	MT	830-930 N	—	—
M50	1991-94	MT & AT	640-740 N	—	—
2494cc	1988-93	MT & AT	720-800 N	—	—
	1994-97	MT	800-900	—	690-790
		AT	730-830 D	—	670-770 D
2693cc	1988	MT & AT	680-760 N	900-1000	800-900
2997cc	1994-97	MT	550-650	—	550-650
		AT	550-650 D	—	550-650 D
3428cc	1988-93	MT & AT	750-850 N	—	—
3453cc M5 to 7-89	1988-89	MT	840-940 N	—	—
from 7-89	1990	MT	930-1010	—	—
M6	1988-89	MT	800-900 N	—	—
3535cc	1991-92	MT	930-1010	—	—
	1993	MT	810-970	—	—
3982cc	1994-97	MT	550-650	—	550-650
		AT	550-650 D	—	550-650 D
4988cc	1988-93	AT	650-750 D	—	—
	1994	AT	750-850 D	—	—
5379cc	1995-97	AT	550-650 N	—	550-650 N
5576cc	1994-95	AT	700-800 N	—	—

IDLE MIXTURE

Engine	Year	Idle CO%
1796cc	1991-95	0.2-1.2
1991cc	1994	0.2-1.2
2302cc DOHC	1988-91	0.2-1.2
2494cc	1988-92	0.2-1.2
	1994-95	0.2-1.5
2990cc	1995	0.5-0.9
2997cc	1994-95	0.5-1.5
3428cc	1988-92	0.5-1.5
3453cc DOHC	1988-90	0.6-1.2
3535cc	1991	0.2-1.2
3982cc	1994-95	0.5-1.5
4988cc DOHC	1988-92	0.2-1.2
4988cc	1994	0.4-2.4
5379cc	1995	0.4-1.6
5576cc	1994-95	0.5-0.9

BUICK

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

All carbureted models, test pump with gauge at carburetor height. On cars equipped with vapor return system, squeeze off return hose to obtain accurate reading.

All models with TBI, pressure measured at fuel inlet of TBI unit.

All models with MFI, pressure measured at fuel rail.

BUICK

BUICK Continued

FUEL SYSTEM PRESSURE Continued

CARBURETED, TBI

Engine	Year	PSI	RPM
2.0L (122) FI	1988-89	9.0-13.0	idle
		13 min.[1]	idle
2.5L (151) FI	1988-92	9.0-13.0	idle
		13 min.[1]	idle
5.0L, 5.7L	1991-93	9.0-13.0	idle
		13 min.[1]	idle
5.0L (307)	1988-90	5.5-6.5	idle

FUEL INJECTED (MFI)

Engine	Year	Pressure (PSI) Ign. on	Pressure (PSI) Idle	Fuel Pump[1]
2.2L, 2.3L (138), 2.4L	1988-98	40.5-47	30.5-44	47 min.
2.8L (173)	1988-89	40.5-47	30.5-44	60 min.
3.0L (181)	1988	40-47	31-42	75 min.
3.1L	1989-99	40.5-47	30.5-44	47 min.
3.3L	1989	40-44	32-46	50 min.
3.3L	1990-92	40-47	31-44	47 min.
3.4L	1994-95	40.5-47	30.5-44	47 min.
	1996-97	48-55	38-52	55 min.
3.8L (231) Code 3	1988	34-40	25-35	75 min.
3.8L (231) Code C	1988-90	40-47	37-43	75 min.
3.8L Code L, 1	1990-95	40-47	30.5-44	47 min.
3.8L Code K	1995-99	48-55	38-52	55 min.
5.7L	1994-96	40-47	30.5-44	47 min.

1 With fuel return line briefly restricted.

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Midpoint of range given is the preferred setting speed.

Idle speed is adjustable only if a specification is given under "Minimum Speed."

All w/TBI or MFI: When specifications appear in Minimum Speed column, disconnect PCV valve hose and allow engine to draw air for two minutes. Disconnect IAC electrical lead and adjust setting speed to specified value. Others, ground diagnostic lead and turn ignition on for 30 seconds. Remove IAC electrical lead and remove ground from diagnostic connector. Start engine and adjust setting speed to specified value.

All carbureted w/ILC: Disconnect and plug vacuum hoses at EGR and canister purge valves. With engine at operating temperature, remove vacuum hose from ILC and plug. Set maximum speed to specified value by holding hex nut and turning plunger shaft. Reconnect ILC vacuum hose and check that minimum speed is at specified value. To adjust, remove rubber and metal plugs from rear center outlet tube, insert a 3/32" Allen wrench. Remove ILC hose and plug. Connect a remote vacuum source and apply vacuum to the unit. Adjust carb base screw to obtain specified shutdown value.

ALL FUEL INJECTED

Engine	Year	Minimum Speed Man. Trans.	Minimum Speed Auto. Trans.	Checking Speed Man. Trans.	Checking Speed Auto. Trans.
2.0L (122) ex. OHC	1988-89	450-650	450-650 N	—	—
2.0L (122) OHC	1988	450-600	450-600 N	800	800 N
2.2L	1993	—	—	—	725-875 N
2.3L	1990-92	—	—	—	800 N max.[1]
2.5L (151)	1988-92	550-650	550-650 N	800	800 N max.
2.8L	1988-89	—	—	—	650-750 D
3.0L (181)	1988	—	450-550 D	—	—
3.1L	1989-90	—	—	750-950	650-750 D
3.1L	1991-93	—	—	—	700-800 N
3.3L	1989	—	—	—	650-750 N
3.3L Century	1990	—	—	—	650-750 N

BUICK Continued

IDLE SPEED W/COMPUTER CONTROL Continued

ALL FUEL INJECTEDContinued

Engine	Year	Minimum Speed Man. Trans.	Minimum Speed Auto. Trans.	Checking Speed Man. Trans.	Checking Speed Auto. Trans.
3.3L Skylark	1990	—	—	—	675-750 D
3.3L	1991-93	—	—	—	650-750 N
3.4L	1994-95	—	—	650-750	650-750 N
	1996-97	—	—	600-700	600-700 N
3.8L (231) FI Code B, 3 & Turbo	1988	—	450-550 D	—	—
3.8L Code C	1988-89	—	—	—	650-750 N
3.8L Code C	1990-91	—	—	—	650-850 N
3.8L Code K, L	1990-95	—	—	—	650-750 N
	1996-99	—	—	—	600-700 N
5.0L	1991	—	—	—	500-600 D

1 With IAC fully seated.
2 With mass airflow sensor.
3 Speed density system.

ALL CARBURETED

Engine	Year	Trans.	Min. Speed	Max. Speed	Fast	Step of Cam
5.0L (307)	1988-90	AT	450 D	700 D	550 D	Low
Base idle	1988-90	AT	450 D	—		

CADILLAC
1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Carbureted models, pinch off fuel return line.

All models with TBI, pressure measured at fuel inlet of TBI unit.

All models with MFI, pressure measured at fuel rail.

Engine	Year	Pressure PSI	Pressure RPM
2.0L	1988	9-13	ign. on
		13 min.[1]	idle
2.8L (173)	1988	40.5-47.0	ign. on
	1988	30.5-44.0	idle
	1988	60 min.	[1]
3.0L	1997-98	46-59	ign. on
4.1L (250), 4.5L (279) TBI	1988-89	9-12	—
4.5L, 4.6L, 4.9L	1990-94	40-50	ign. on
		32-38	idle
	1995	40-50	ign. on
	1996-98	46-59	ign. on
5.0L	1991-92	9-13	idle
		13 min.[1]	idle
5.0L (307)	1988-90	5.5-6.5	idle
5.7L Gas	1990-93	9-13	idle
		13 min.[1]	idle
	1994-96	41-47	ign. on
		31-44	idle

1 Fuel pump pressure with fuel return line briefly restricted.

CADILLAC & CHEVROLET

CADILLAC Continued

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Carbureted

1988-90 5.0L (307): Disconnect and plug vacuum hoses at EGR and canister purge valves. With engine at operating temperature, remove vacuum hose from ILC and plug. Set maximum speed to specified value by holding hex nut and turning plunger shaft. Reconnect ILC vacuum hose and check that minimum speed is at specified value. To adjust, remove rubber and metal plugs from rear center outlet tube, insert a 3/32" Allen wrench. Remove ILC hose and plug. Connect a remote vacuum source and apply vacuum to the unit. Adjust carb base screw to obtain specified base value.

Fuel injected

2.0L (122), 2.8L (173) FI: Ground diagnostic lead and turn ignition on for 30 seconds. Remove IAC electrical lead and remove ground from diagnostic connector. Start engine and set minimum speed to specified value.

1988-89 4.1L (250), 4.5L (279) TBI: With engine at operating temperature, turn engine off and disconnect harness from ISC. Apply 12 volts (+) to third from top of ISC (C), and ground the fourth terminal from top (D) only long enough to retract ISC plunger. Start engine and check minimum speed against specified checking value. If not, set minimum idle to specified value by adjusting base screw.

1988-98 4.1L, 4.5L MFI, 4.6L, 4.9L, 5.7L: With IAC fully retracted, idle should be at specified checking value.

ALL CARBURETED

Engine	Year	Trans.	Min. Speed	Max. Speed	Fast	Step of Cam
5.0L (307)	1988-90	AT	450 D	700 D	550 D	Low
base idle	1988-90	AT	450 D			

ALL FUEL INJECTED

Engine	Year	Transmission	Minimum Speed	Checking Speed
2.0L (122)	1988	MT	575-625	—
2.0L (122)	1988	AT	575-625 N	—
2.8L (173)	1988	MT	—	750-950
2.8L (173)	1988	AT	—	650-750 D
3.0L	1997-99	AT	—	550-675 N
4.1L (250) MFI	1988	AT	500 N	450-550 N
4.5L (279) TBI	1988-89	AT	525 N	475-550 N
4.5L	1989	AT	500 N	500-600 N
4.5L, 4.9L: Allanté	1990-92	AT	500-600 N	—
Others	1990-92	AT	500-550 N	—
4.6L	1993-94	AT	—	600-800 N
	1995	AT	—	700 N max.
	1996-99	AT	—	550-675 N
4.9L	1993-96	AT	500-550 N	—
5.0L	1991-92	AT	—	500-600 D
5.7L	1990-92	AT	—	500-600 D

CHEVROLET

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Carbureted models, pinch off fuel return line.
All models with TBI, pressure measured at fuel inlet of TBI unit.
All models with MFI, pressure measured at fuel rail.

CARBURETED & TBI, DIESEL

Engine	Year	PSI	RPM
4-cyl.			
2.0L (122) 2.2L	1988-93	9.0-13.0 13 min.	ign. on idle

CHEVROLET Continued

FUEL SYSTEM PRESSURE Continued

CARBURETED & TBI, DIESEL Continued

Engine	Year	PSI	RPM
2.5L (151) ex. Lumina	1990	9.0-13.0	ign. on
	1987-90	13 min.[1]	idle
2.5L Lumina	1990-92	26-32	idle
6-cyl.			
4.3L (262)	1988-93	9-13	idle
		13 min.[1]	idle
8-cyl.			
5.0L (305) 4V, 5.0L (307), 5.7L (350) 4V	1988	5.5-6.5	idle
5.0L (305), 5.7L TBI	1988-93	9-13	ign. on
		13 min.[1]	idle

1 With fuel return line briefly restricted.

GASOLINE MFI

Engine	Year	Pressure (PSI) Ing. On	Idle	Fuel Pump[1]
2.2L, 2.3L, 2.4L	1989-99	40.5-47	30.5-44	47 min.
2.8L (173), 3.1L	1988-99	40.5-47	30.5-44	47 min.
3.1L Flex. fuel	1993-94	48-55	38-52	—
3.4L	1991-95	40.5-47	30.5-44	47 min.
	1996	48-55	38-52	55 min.
	1997-99	41-47	31-44	47 min.
3.8L	1995-96	48-55	38-52	55 min.
4.3L	1994-96	40.5-47	30.5-44	47 min.
5.0L (305)	1988-92	40.5-47	30.5-44	60 min.
5.7L (350) ex. DOHC	1988-99	40.5-47	30.5-44	47 min.
5.7L DDHC	1989-95	48-55	38-52	55 min.

1 With fuel return line briefly restricted.

IDLE SPEED W/O COMPUTER CONTROL

Make all adjustments with engine at operating temperature, choke fully open, and electric engine cooling fan off (if equipped).

Disconnect and plug vacuum hoses indicated on emissions label.

Adjust idle solenoid screw, plunger fully extended, or carburetor idle speed screw to specification. If equipped with idle stop solenoid, disconnect the electrical lead and adjust carburetor body screw to specification.

Engines equipped with air conditioning speed-up solenoid, turn A/C on and disconnect compressor clutch wire. Adjust solenoid to specification with plunger fully extended.

To set fast idle, set choke cam on specified step and adjust engine speed to specification.

		SLOW		FAST		
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	Step of Cam
5.0L (305) 4V ex. HO	1988	700	500 D	1800	2200 P	High
solenoid	1988	800	650 D			
5.0L (305) HO	1988	700	600 D	1800	2200 P	High
A/C speed-up	1988	800	650 D			

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Midpoint of range given is the preferred setting speed.

1988-92 All w/FI & TBI when specifications appear in Minimum Speed column: Ground diagnostic lead and turn ignition on for 30 seconds. Remove IAC electrical lead and remove ground from diagnostic connector. Start engine and set minimum speed to specified value.

CHEVROLET & CHRYSLER

CHEVROLET Continued

IDLE SPEED W/COMPUTER CONTROL Continued

All carbureted w/ILC: Disconnect and plug vacuum hoses at EGR and canister purge valves. With engine at operating temperature, remove vacuum hose from ILC and plug. Set maximum speed to specified value by holding hex nut and turning plunger shaft. Reconnect ILC vacuum hose and check to see that minimum speed is at specified value. To adjust, remove rubber and metal plugs from rear center outlet tube, insert a 3/32" Allen wrench. Remove ILC hose and plug. Connect a remote vacuum source and apply vacuum to the unit. Adjust carb base screw to obtain specified shutdown value.

ALL FUEL INJECTED

		Minimum Speed		Checking Speed	
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.
2.0L (122)	1988-89	450-650	450-650 N	—	—
2.2L	1990-91	450-650	450-650 N	—	—
	1992	—	—	525-675	525-675 N
2.2L: Cavalier	1993	—	—	825-975	800-950 N
Beretta, Corsica	1993	—	—	825-975	525-675 N
Lumina	1993	—	—	675-775	675-775 N
2.5L (151)	1988-92	550-650	550-650 N	800[1] max.	800 N[1] max.
2.8L ex. Camaro	1988-89	—	—	750-950	650-750 D
Camaro	1988-89	600-700	500-600 D	—	—
3.1L	1990	—	—	750-950	650-750 D
Camaro	1990	—	—	800[1] max.	800 N[1] max.
3.1L ex. SFI & VFV, 3.4L DOHC	1991-93	—	—	800-900	700-800 N
3.4L Camaro	1993	—	—	800[1]	600-700 D
	1994-95	—	—	800[1]	800 N[1]
3.4L DOHC	1994-95	—	—	650-750	650-750 N
	1996-97	—	—	600-700	600-700 N
4.3L (262)	1988-89	—	400-450 N	—	—
	1990	—	—	—	500-600 D
5.0L (305) MFI	1988	400	400 N	—	—
	1989	400-450	400-450 N	—	—
	1990-91	—	—	600-800	600-800 N
5.0L (305) TBI	1988-89	400-450	400-450 N	—	—
	1990-92	—	—	550-750	500-600 D
5.7L (350)	1988	450	450 N	—	—
5.7L MFI ex. DOHC	1989	—	400-450 N	—	—
5.7L MFI ex. DOHC	1990-92	—	—	600-800	600-800 N
5.7L TBI	1989	—	450-500 N	—	—
5.7L TBI	1990-92	—	—	—	500-600 D

1 With ISC fully seated.

ALL CARBURETED

Engine	Year	Trans.	Min. Speed	Max. Speed	Fast	Step of Cam
5.0L (307)	1988-90	AT	450 D	700 D	550 D	Low
base idle	1988-90	AT	450 D	—	—	—

CHEVROLET, GMC TRUCKS

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Carbureted models, pinch off fuel return line.
All models with TBI, pressure measured at fuel inlet of TBI unit.
All models with MFI, pressure measured at fuel rail.

CHEVROLET, GMC TRUCKS Continued

FUEL SYSTEM PRESSURE Continued

CARBURETED & TBI, DIESEL

Engine	Year	PSI	RPM
4-cyl.			
2.0L (122) 2.2L	1988-93	9.0-13.0	ign. on
		13 min.	idle
2.5L (151) ex. Lumina	1990	9.0-13.0	ign. on
	1987-90	13 min.[1]	idle
2.5L Lumina	1990-92	26-32	idle
6-cyl.			
4.3L (262)	1988-93	9-13	idle
		13 min.[1]	idle
8-cyl.			
5.0L (305) 4V, 5.0L (307),			
5.7L (350) 4V	1988	5.5-6.5	idle
5.0L (305), 5.7L TBI	1988-93	9-13	ign. on
		13 min.[1]	idle

1 With fuel return line briefly restricted.

GASOLINE MFI

Engine	Year	Pressure (PSI) Ing. On	Pressure (PSI) Idle	Fuel Pump[1]
2.2L, 2.3L, 2.4L	1989-99	40.5-47	30.5-44	47 min.
2.8L (173), 3.1L	1988-99	40.5-47	30.5-44	47 min.
3.1L Flex. fuel	1993-94	48-55	38-52	—
3.4L	1991-95	40.5-47	30.5-44	47 min.
	1996	48-55	38-52	55 min.
	1997-99	41-47	31-44	47 min.
3.8L	1995-96	48-55	38-52	55 min.
4.3L	1994-96	40.5-47	30.5-44	47 min.
5.0L (305)	1988-92	40.5-47	30.5-44	60 min.
5.7L (350) ex. DOHC	1988-99	40.5-47	30.5-44	47 min.
5.7L DOHC	1989-95	48-55	38-52	55 min.

1 With fuel return line briefly restricted.

IDLE SPEED W/O COMPUTER CONTROL

Make all adjustments with engine at operating temperature, choke fully open, and electric engine cooling fan off (if equipped).

Disconnect and plug vacuum hoses indicated on emissions label.

Adjust idle solenoid screw, plunger fully extended, or carburetor idle speed screw to specification. If equipped with idle stop solenoid, disconnect the electrical lead and adjust carburetor body screw to specification.

Engines equipped with air conditioning speed-up solenoid, turn A/C on and disconnect compressor clutch wire. Adjust solenoid to specification with plunger fully extended.

To set fast idle, set choke cam on specified step and adjust engine speed to specification.

		SLOW		FAST		
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	Step of Cam
5.0L (305) 4V ex. HO	1988	700	500 D	1800	2200 P	High
solenoid	1988	800	650 D			
5.0L (305) HO	1988	700	600 D	1800	2200 P	High
A/C speed-up	1988	800	650 D			

CHEVROLET, GMC TRUCKS Continued

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Midpoint of range given is the preferred setting speed.

1988-92 All w/FI & TBI when specifications appear in Minimum Speed column: Ground diagnostic lead and turn ignition on for 30 seconds. Remove IAC electrical lead and remove ground from diagnostic connector. Start engine and set minimum speed to specified value.

All carbureted w/ILC: Disconnect and plug vacuum hoses at EGR and canister purge valves. With engine at operating temperature, remove vacuum hose from ILC and plug. Set maximum speed to specified value by holding hex nut and turning plunger shaft. Reconnect ILC vacuum hose and check to see that minimum speed is at specified value. To adjust, remove rubber and metal plugs from rear center outlet tube, insert a 3/32" Allen wrench. Remove ILC hose and plug. Connect a remote vacuum source and apply vacuum to the unit. Adjust carb base screw to obtain specified shutdown value.

ALL FUEL INJECTED

		Minimum Speed		Checking Speed	
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.
2.0L (122)	1988-89	450-650	450-650 N	—	—
2.2L	1990-91	450-650	450-650 N	—	—
	1992	—	—	525-675	525-675 N
2.2L: Cavalier	1993	—	—	825-975	800-950 N
Beretta, Corsica	1993	—	—	825-975	525-675 N
Lumina	1993	—	—	675-775	675-775 N
2.5L (151)	1988-92	550-650	550-650 N	800[1] max.	800 N[1] max.
2.8L ex. Camaro	1988-89	—	—	750-950	650-750 D
Camaro	1988-89	600-700	500-600 D	—	—
3.1L	1990	—	—	750-950	650-750 D
Camaro	1990	—	—	800[1] max.	800 N[1] max.
3.1L ex. SFI & VFV, 3.4L DOHC	1991-93	—	—	800-900	700-800 N
3.4L Camaro	1993	—	—	800[1]	600-700 D
	1994-95	—	—	800[1]	800 N[1]
3.4L DOHC	1994-95	—	—	650-750	650-750 N
	1996-97	—	—	600-700	600-700 N
4.3L (262)	1988-89	—	400-450 N	—	—
	1990	—	—	—	500-600 D
5.0L (305) MFI	1988	400	400 N	—	—
	1989	400-450	400-450 N	—	—
	1990-91	—	—	600-800	600-800 N
5.0L (305) TBI	1988-89	400-450	400-450 N	—	—
	1990-92	—	—	550-750	500-600 D
5.7L (350)	1988	450	450 N	—	—
5.7L MFI ex. DOHC	1989	—	400-450 N	—	—
5.7L MFI ex. DOHC	1990-92	—	—	600-800	600-800 N
5.7L TBI	1989	—	450-500 N	—	—
5.7L TBI	1990-92	—	—	—	500-600 D

1 With ISC fully seated.

ALL CARBURETED

Engine	Year	Trans.	Min. Speed	Max. Speed	Fast	Step of Cam
5.0L (307)	1988-90	AT	450 D	700 D	550 D	Low
base idle	1988-90	AT	450 D	—	—	—

CHRYSLER

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

FI, with vacuum hose connected to fuel pressure regulator.

Engine	Year	Pressure PSI	RPM
4-cyl.			
TBI	1988-91 (early)	13.5-15.5	idle
TBI	1991-95 (late)	38-40	idle
MFI Turbo, Flexible Fuel	1988-94	53-57	idle
MFI	1995	47-51	ign. on
2.0L, 2.4L	1996	48-54	idle
2.0L	1997	48-54	idle
2.4L	1997	47-51	idle
6-cyl.			
Transverse engines: 2.5L	1995-97	47-51[1]	idle
		38[2]	idle
3.3L CNG	1995-97	90-140	idle
All others	1987-96	46-50	ign. on
1997-99	47-51	Idle	
Longitudinal engines			
3.3L	1993-97	53-57	ign. on
		44-48	idle
3.5L	1993-97	46-50	ign. on
		37-41	idle
8-cyl.	1988-89	5.8-7.3	idle

1 Vacuum hose disconnected from fuel pressure regulator.
2 Vacuum hose connected to fuel pressure regulator.

IDLE SPEED W/O COMPUTER CONTROL

8-cyl.:

Disconnect and plug canister control hose and disconnect oxygen sensor electrical lead.
Disconnect and plug EGR, distributor of SCC vacuum hoses. Air cleaner may be removed but plug the air cleaner vacuum hose and leave the SCC electrical leads connected. Ground carb idle stop switch.
With A/C, turn unit on and disconnect the compressor clutch electrical lead. Set speedup speed to specification. Turn A/C unit off and set idle speed to specification.
Without A/C, set idle speed to specification.

		SLOW		FAST		
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	Step of Cam
5.2L (318) 2V	1988-89	—	630 N	—	1700 N	Second
solenoid	1988-89	—	775 N			
5.2L (318) 4V	1988-89	—	750 N	—	1450 N	Second
solenoid	1988-89	—	900 N			

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Idle speed must be within 100 rpm of specification listed.
1988-99 Transverse engines: With TBI, remove PCV valve and install special tool C-5004 (0.125" orifice) into hose. With MFI, disconnect idle purge line from throttle body. Start engine and using Diagnostic Readout Box, access "Minimum Airflow Idle Speed." If checking speed is not within specification range, replace the throttle body.
1993-99 Longitudinal engines: Remove PCV hose from PCV valve and cap the valve. Start engine and using Diagnostic Readout Box, access "Minimum Airflow Idle Speed." If checking speed is not within specified range, replace throttle body.

Engine	Year	Transmission	Checking Speed	Idle Speed	AC Speed-up
2.0L	1995-99	MT	600-1300	—	—
		AT	600-1300 N	—	—
2.2L (135) TBI	1988-90	MT	1100-1300	850	—
	1988-90	AT	1100-1300 N	850 N	—

CHRYSLER

CHRYSLER Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Transmission	Checking Speed	Idle Speed	AC Speed-up
2.2L TBI	1991-92	MT	1100-1300	—	—
	1991-92	AT	1100-1300 N	—	—
2.2L TBI	1993-95	MT	800-1200	—	—
	1993-95	AT	800-1200 N	—	—
2.2L (135) Turbo	1988-89	MT	650-900	900	—
	1988-89	AT	650-900 N	900 N	—
2.2L Turbo	1990	MT	650-1050	950	—
	1990	AT	650-1050 N	900 N	—
2.2L Turbo	1991	MT	550-900	—	—
2.2L Turbo	1992-93	MT	650-1150	—	—
2.4L	1995-99	MT	600-1300	—	—
	1995-99	AT	600-1300 N	—	—
Vans	1996-99	MT	550-875	—	—
		AT	550-875 N	—	—
2.5L (153) TBI	1988-91	MT	1050-1250	850	—
	1988-91	AT	1050-1250 N	850 N	—
2.5L TBI	1992	MT	1050-1250	—	—
	1992	AT	1050-1250 N	—	—
2.5L TBI	1993-95	MT	800-1200	—	—
	1993-95	AT	800-1200 N	—	—
2.5L Turbo	1989	MT	650-900	900	—
	1989	AT	650-900 N	900 N	—
2.5L Turbo	1990-91	MT	650-1200	—	—
	1990-91	AT	650-1200 N	—	—
2.5L Turbo	1992	MT	700-1400	—	—
	1992	AT	700-1400 N	—	—
2.5L Flexible Fuel	1993-94	AT	700-1400 N	—	—
2.5L (V6)	1995-99	MT	500-1100	—	—
	1995-99	AT	500-1100 N	—	—
2.7L	1998-99	AT	350-700N	—	—
3.0L (183)	1988	AT	850-1050 N	800 N	—
3.0L	1989	AT	850-1050 N	700 N	—
Vans	1989	AT	850-1050 N	800 N	—
3.0L	1989-90	MT	750-950	800	—
	1989-90	AT	750-950 N	700 N	—
3.0L ex. Monaco	1991-92	MT	750-950	—	—
	1991-92	AT	750-950 N	—	—
3.0L	1993-99	MT	610-910	—	—
		AT	610-910	—	—
3.2L	1998-99	AT	350-700 N	—	—
3.3L, 3.8L	1990	AT	700-950 N	750 N	—
3.3L, 3.8L	1991-92	AT	700-950 N	—	—
3.3L, 3.8L:					
Transverse engines	1993-98	AT	575-875 N	—	—
Longitudinal engines	1993-97	AT	600-840 N	—	—
3.5L	1993-97	AT	750-1100 N	—	—

CHRYSLER, DODGE, PLYMOUTH

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Engine	Year	Pressure PSI	Pressure RPM
Carbureted & TBI:			
1597cc, 2555cc TBI	1988-89	35-38	idle
Fuel Injected (MFI)			
1468cc FI	1988-96	47-50	38
1597cc	1989-90	47-50	38
1755cc, 1834cc	1989-96	47-50	38
1996cc	1995-97	48-54	—
	1998-99	47-50	—

CHRYSLER, DODGE, PLYMOUTH Continued

FUEL SYSTEM PRESSURE Continued

Engine	Year	Pressure @ Idle PSI[1]	Pressure @ Idle PSI[2]
1997cc	1988-94	47-50	38
Turbo	1990-91	36-38	27
Turbo MT	1992-94	36-38	27
Turbo AT	1992-94	41-46	33
2350cc	1990-96	47-50	38
2497cc	1995-99	47-51	—
2972cc	1989-96	47-50	38
Turbo	1991-96	43-45	34
Pickup	1992-93	47-53	38

1 Pressure regulator vacuum hose disconnected.
2 Pressure regulator vacuum hose connected.

IDLE SPEED W/O COMPUTER CONTROL

Midpoint of range given is the preferred setting.

All 2V: Adjust throttle stop screw or idle speed screw to obtain specified idle rpm. With choke fully closed, adjust fast idle to specified rpm by adjusting fast idle screw under throttle lever.

Midpoint of range given is the preferred setting.

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
1468cc	1988	600-800	650-850 N	2800	2700 N	2nd High
PS, Elect. speed-up	1988	750-950	750-950 N			
A/C speed-up	1988	800-900	800-900 N			
1997cc Pickup	1988-89	650-850	650-850 N	2500	2450 N	2nd High
A/C speed-up	1988-89	850-950	850-950 N			
2555cc Truck	1988-89	700-900	700-900 N	2350	2300 N	2nd High
A/C speed-up	1988-89	850-950	850-950 N			
2555cc Raider	1988-89	700-900	700-900 N	2350	2300 N	2nd High
A/C speed-up	1988-89	900-950	900-950 N			

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Midpoint of range given is the preferred setting speed.

1993 1468cc;
1994 1997cc, 1989-93 1597cc, 1834cc, 1997cc, 2350cc Wagons, 2972cc: Ground ignition timing connector and terminal 10 of self diagnostic connector.

1988 All;
1989-93 Others;
1994 1755cc: Turn ignition to ON position for more than 15 seconds. Turn switch off and disconnect ISC servo harness connector. Ground red wire on computer side of ISC connector (1987-88 1597cc Turbo and 1987-89 2555cc Turbo only). Start engine and adjust speed to specified value.

1994-96 1468cc, 1834cc, 2350cc, 2972cc; 1995 2972cc: Ground ignition timing connector and terminal 1 (upper left) of the self diagnostic connector. Set idle to specified setting speed.

1995-99 Avenger, Sebring: Connect a Scan Tool and check idle against specified value.

All Models: Turn A/C on and verify that speed-up speed is at specified value.

CHRYSLER, DODGE, PLYMOUTH Continued

IDLE SPEED W/COMPUTER CONTROL Coninued

Engine	Year	Trans-mission	Setting Speed	Checking Speed	AC Speed-up
1468cc ex. Wagon	1989-92	MT	700-800	650-850	850
		AT	700-800 N	650-850 N	700 D
1468cc, 1755cc Wagon	1988-90	MT	700	600-800	850
		AT	700 N	600-800 N	650 D
1468cc	1993-96	MT	700-800	650-850	800-900
		AT	700-800 N	650-850 N	800-900 N
1597cc Turbo	1988	MT	700	600-800	850
		AT	700 N	600-800 N	650 D
1597cc	1989-90	MT	750	650-850	850
		AT	750 N	650-850 N	700 D
1755cc Laser	1990-94	MT	600-800	650-750	850
		AT	600-800 N	650-750 N	650 D
1834cc Vista, Colt Wagon	1992-94	MT	650-750	650-850	830
		AT	650-750 N	650-850 N	830 N
California	1993-94	MT	650-750	600-800	830
		AT	650-750 N	600-800 N	830 N
1834cc Colt	1993-94	MT	650-750	650-850	850
		AT	650-750 N	650-850 N	850 N
1834cc	1995-96	MT	650-750	600-800	800-900
		AT	650-750 N	600-800 N	800-900 N
1996cc	1995	MT	—	600-800	—
		AT	—	600-800N	—
	1996-99	MT	—	700-900	750-950
		AT	—	700-900N	750-950N
1997cc Vista	1988	MT & AT	700 N	600-800 N	850 N
	1989-90	MT & AT	700 N	600-800 N	900 N
	1991	MT	650-750	600-800	900
		AT	650-750 N	600-800 N	600 D
1997cc Laser	1990-94	MT	700-800	650-850	850
		AT	700-800 N	650-850 N	650 D
2350cc Pickup	1990-93	MT	700-800	650-850	900
		AT	700-800 N	650-850 N	700 D
2350cc Vista, Wagons	1992-94	MT	700-800	650-850	850
		AT	700-800 N	650-850 N	850 N
2350cc	1995-96	MT	700-800	650-850	800-900
		AT	700-800 N	650-850 N	800-900 N
2497cc	1995-99	AT	—	650-850N	650-850N
2555cc Turbo	1988-89	MT	850	750-950	1000
		AT	850 N	750-950 N	750 D
2972cc	1989-96	MT	650-750	600-800	900
		AT	650-750 N	600-800 N	650 D[1]

1 Truck, 900 N

DODGE TRUCKS

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Engine	Year	Pressure PSI	Pressure RPM
All carbureted & TBI			
2.2L (135)	1988	4.5-6.0	idle
2.5L (135)	1989-95	13.5-15.5	idle
3.9L, 5.2L, 5.9L	1987-91	13.5-15.5	idle

DODGE TRUCKS Continued

FUEL SYSTEM PRESSURE Continued

Engine	Year	Pressure PSI[1]	Pressure PSI[2]	Fuel Pump
Fuel injected: 4-cyl.	1996-98	44-54	—	54 min.
3.9L, 5.2L	1992-93	31 approx.	39-41 approx.	75
3.9L, 5.2L, 8.0L	1994-95	35-45	—	45 min.
	1996-98	44-54	—	54 min.
5.9L: Gas	1993-95	35-45[3]	—	45 min.
	1996-99	44-54	—	54 min.
Diesel	1995-99	25 min.	—	—
CNG	1997-98	190-140	—	—
	1999	110-125	—	—

1 Vacuum hose connected to fuel pressure regulator.
2 Vacuum hose disconnected from fuel pressure regulator.
3 System pressure, does not have vacuum controlled regulator.

IDLE SPEED W/O COMPUTER CONTROL

1988, 6- & 8-cyl. models with solenoids. Turn A/C on, set blower to low, disconnect compressor clutch wire. Without A/C, apply battery voltage to solenoid. Adjust speed-up solenoid by removing adjusting screw and spring and inserting a 1/8" Allen wrench into socket and turning. Set idle speed by adjusting screw on carb body.

1988 4-cyl., energize radiator fan with a jumper wire. Remove PCV valve from grommet and disconnect vacuum kicker solenoid electrical lead. Disconnect oxygen sensor test connector on left fender shield. Adjust idle speed screw on top of solenoid to specified idle speed. Place fast idle cam on specified step and adjust to specified value. Disconnect idle solenoid electrical lead and set base idle to specified value.

Other models, set idle speed by turning screw on carb body. Set cam to specified step and adjust fast idle to specification.

5.9L Diesel: Set idle to specified value with A/C on. Push throttle to floor and check or set max. speed.

		SLOW		FAST		
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	Step of Cam
2.2L (135)	1988	850	900 N	1750	1950	Low
base idle	1988	700	700 N			
5.9L (360) LD[1]	1988	800	800 N	1400	1400 N	2nd High
w/decal 628, 630, 725, 727, 729	1988	750	750 N	1400	1400 N	2nd High
Solenoid	1988	800	850 N			
Canada	1988	800	800 N	1400	1400 N	2nd High
5.9L (360) HD	1988	800	800 N	—	—	—
Solenoid	1988	950	950 N			
California	1988	800	800 N	—	—	—
5.9L Diesel	1989-93	750	700 N	—	—	—
Max. Speed	1989-93	2875	2875 N			
5.9L Diesel	1994-96	780	750-800 D	—	—	—

1 Light-duty cycle: GVW of 8500 lb or less. **Heavy-duty cycle:** 1987 models with a GVW of 8501 lb or more.

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

1988-91 V6, V8, 1992 5.9L: Run engine for two minutes and shut off. After 60 seconds, disconnect ISC and coolant temp. sensor connectors. Adjust extension screw on ISC.

1989-99 4-cyl., 1994-99 V6, V8: Connect ORB-II to "check engine" connector. Disconnect PCV valve and install special tool (0.125" orifice, 4-cyl.) or 0.185" (V6, V8) to PCV hose. Start engine and switch ORB to "Min. Airflow Idle Spd." If minimum throttle body airflow is not correct, throttle body must be replaced.

DODGE TRUCKS Continued

IDLE SPEED W/COMPUTER CONTROL

Engine	Year	Setting Speed	Idle Speed	Checking Speed
2.5L	1989-90	—	850	1050-1250
2.5L	1991-95	—	—	1050-1250
3.9L Dakota	1988-89	2500-2600 (N)	750 (N)	—
3.9L Others: MT	1988	2500-2600 (N)	600	—
AT	1988	2500-2600 (N)	850 (N)	—
With decal 033, 034, 601, 603, 791	1988	2500-2600 (N)	750 (N)	—
3.9L	1989	2500-2600 (N)	750 (N)	
3.9L	1990-91	2500-2600 (N)	—	—
3.9L	1994-99	—	—	500-900 (N)
5.2L	1988-89	2750-2850 (N)	700 (N)	—
5.2L	1990-91	2750-2850 (N)	—	—
5.2L	1994-99	—	—	500-900 (N)
5.9L LD	1989	2750-2850 (N)	800 (N)	—
High Altitude	1989	2750-2850 (N)	750 (N)	—
HD	1989	2750-2850 (N)	800 (N)	—
5.9L	1990-92	2750-2850 (N)	—	—
5.9L	1994-99	—	—	500-900 (N)

EAGLE/RENAULT

1988-99

FUEL SYSTEM

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

FUEL SYSTEM PRESSURE

CARBURETED & TBI

Engine	Year	PSI	RPM
2.5L	1988-89	14-15	idle

MFI

Engine	Year	Pressure @ Idle PSI[1]	Pressure @ Idle PSI[2]
1.5L, 1.6L, 1.8L, 2.0L ex. Turbo, 2.4L	1989-98	47-53	38
2.0L ex. Turbo	1995-98	47-50	—
2.0L Turbo MT	1990-94	36-38	27
2.0L Turbo AT	1992-94	41-46	33
2.0L Turbo	1995-97	42-45	33
2.2L	1988-89	—	33-39
3.0L (early)	1988-91	—	28-30
3.0L (late)	1991-92	—	43

1 Pressure regulator vacuum disconnected.
2 Pressure regulator vacuum connected.

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

1995-98 2.0L ex. Turbo:
Remove PVC valve from PCV hose and install special tool (.0125" orifice) into the hose. Connect a Scan tool and access Minimum Idle speed. If checking speeed is not 500-1100 (N), replace the throttle body.

1994-96 1.5L, 1.8L ex. Talon: Ground the ignition timing connector and terminal 1 (upper left) of the 16 terminal self-test connector under dash. Set idle to specified setting speed. Turn A/C on and verify that speed increases to specified value.

EAGLE/RENAULT Continued

IDLE SPEED W/COMPUTER CONTROL Continued

1989-93 1.5L, 1.6L; 1.8L Talon:
1994 1.8L Talon: Turn ignition on for more than 15 seconds and turn off. Disconnect ISC and start engine. Set to specified value. Reconnect ISC and turn A/C on, verify that speed increases to specified value.

1989-93 1.8L ex. Talon, 2.0L, 2.4L:
1994 2.0L Talon, 1995-98 2.0L Turbo Talon: Ground ignition timing connector and terminal 10 of the self-diagnostic connector. Set speed to specified value. Reinstate connections and verify the speed increases to specified value with A/C on.

1988-89 2.5L: Fully extend ISC with tool #7086 and adjust to specified value.

1991-92 3.0L (late): Connect DRB-II and select base idle mode. Verify that idle is at specified checking speed. Replace throttle body if outside range.

Engine	Year	Transmission	Setting Speed	Checking Speed	AC Speed-up
1.5L, 1.6L	1989-92	MT	700-800	650-850	850
		AT	700-800 N	650-850 N	850 N
1.5L Summit	1993-96	MT	750-850	650-850	800-1000
		AT	750-850 N	650-850 N	800-1000 N
1.8L Summit	1993-94	MT	650-750	650-850	850
		AT	650-750 N	650-850 N	850 N
1.8L Summit Wagon	1992-94	MT	650-750	650-850	830
		AT	650-750 N	650-850 N	830 N
California	1993-94	MT	650-750	600-800	830
		AT	650-750 N	600-800 N	830 N
1.8L	1995-96	MT	650-750	600-800	800-900
		AT	650-750 N	600-800 N	800-900 N
1.8L Talon	1990-94	MT	650-750	600-800	850
		AT	650-750 N	600-800 N	650 D
2.0L Talon	1990-94	MT	700-800	650-850	850
		AT	700-800 N	650-850 N	650 D
2.0L Talon	1995-98	MT	—	700-900	750-950
		AT	—	700-900 N	750-950 N
Turbo	1995-98	MT	700-800	650-850	750-950
		AT	700-800 N	650-850 N	750-950 N
2.0L Vista	1989-91	MT	650-750	600-800	900
		AT	650-750 N	600-800 N	600 D
2.4L	1992-94	MT	650-750	650-850	850
		AT	650-750 N	650-850 N	850 N
	1995-96	MT	700-800	650-850	800-900
		AT	700-800 N	650-850 N	800-900 N
2.5L	1988-89	MT	3500	750-800	—
		AT	3500 N	750-800 N	—
3.0L (late)	1991-92	AT	—	565-665 D	—

FORD MOTOR COMPANY

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Carbureted, pinch off fuel return line, if equipped.
All w/TBI, fuel pressure measured at inlet fitting on unit.
All w/FI, fuel pressure measured at fitting on fuel rail.

Engine	Year	Pressure PSI	Pressure RPM
Carbureted:			
1.3L (81)	1988-89	3-6	idle
Fuel Injected: TBI			
1.9L (113)	1988-90	13-17	idle
2.5L (153)	1988-90	13-17	idle
	1989-90	35-55	idle

FORD MOTOR COMPANY Continued

FUEL SYSTEM PRESSURE Continued

Engine	Year	Pressure PSI[1]	Pressure PSI[2]	Fuel Pump
MFI:				
1.3L	1989-93	35-40	25-31	69-85
	1994-97	38-46	30-38	50 min.
1.6L	1991-94	37-42	37-41	64-85
1.8L	1991-95	38-46	30-37	64-85
1.9L, 2.3L OHC, 2.9L	1988-93	35-45	30-45	—
	1994-96	35-40	30-45	—
2.0L MT	1993	35-40	30-45	64-92
2.0L AT	1993	37-46	30-38	64-92
2.0L	1994-97	35-40	30-45	—
2.0L: Escort, Tracer	1998	—	55-85	—
Contour, Mystique	1998	—	30-45	—
2.2L	1989-92	34-40	37-41	64-85
2.3L HSC	1988-94	50-60	45-60	—
2.5L	1988-91	50-60	45-60	—
2.5L Probe	1993-95	37-46	30-38	64-92
2.5L Contour, Mystique	1995-97	35-40	30-45	—
	1998-99	—	45-60	—
3.0L Villager	1993-94	40-43	36-38	58-62
	1995-98	43	34	58-62
3.0L ex. SHO, 3.8L ex. S/C	1988-93	35-45	30-45	—
	1994-97	35-40	30-45	—
	1998-99	—	30-45	—
3.0L SHO, 3.2L SHO	1989-95	30-40	28-33	—
3.4L SHO	1996-97	35-40	30-45	—
	1998	—	30-45	—
3.8L S/C	1989-93	35-40	30-40	—
	1994-97	35-45	28-54	—
4.6L	1991-93	35-40	30-45	—
	1994-95	35-45	28-54	—
	1996-97	35-40	30-45	—
	1998-99	—	30-45	—
Continental	1998-99	—	45-60	—
5.0L	1988-93	35-45	30-45	—
	1994-95	35-40	30-45	—

1 Ignition on, fuel pump running.
2 Idle.

Engine	Year	Pressure PSI[1]	Pressure PSI[2]	Fuel Pump
1.6L	1988-89	28-32	36-42	—

1 Vacuum hose connected to fuel pressure regulator.
2 Vacuum hose disconnected from fuel pressure regulator.

IDLE SPEED W/O COMPUTER CONTROL

1988-91:

5.8L (351) engine, disconnect the VOTM vacuum hose (A/C only). Set idle speed to spec. Apply manifold vacuum to the VOTM and set speed-up speed to spec. To set fast idle, disconnect and plug the EGR vacuum hose.

1988-89:

1.3L (81) 2V, set idle to specified value with cooling fan off. To set fast idle, disconnect fast idle pull-off solenoid vacuum hose and plug. Set fast idle cam on specified step and adjust to specified value. Electrically disconnect electric load vacuum solenoid and race engine momentarily. Set electric load speed-up to specified value. Electrically disconnect A/C speed-up solenoid, race engine momentarily, and set A/C speed-up to specified value.

1.6L (98), set idle to specified value with cooling fan off.

FORD MOTOR COMPANY Continued

IDLE SPEED W/O COMPUTER CONTROL Continued

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
1.3L (81) 2V	1988-89	700-750	—	1650-2150	—	Second
Elect. speed-up	1988	750-850	—			
A/C speed-up	1988	1200-1300	—			
1.6L (98)	1988	800-900	950-1050 N	—	—	—
1.6L	1989	800-900	800-900 N	—	—	—
5.8L (351) Police	1988-91	—	600 D	—	1650 P	Kickdown
A/C speed-up	1988-91	—	700 D			

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Note: w/FI, if idle speed is higher than the specified checking speed, perform a system check before attempting to adjust the idle speed.

1988-97 1.3L: Jumper test connector (black, 1-pin) to ground.

1988-90 1.9L (113) MFI: With engine at operating temperature, disconnect and plug both EGR solenoid vacuum lines. Disconnect ISC electrical lead. Run engine at 2000 rpm for 60 seconds and return to idle. Adjust speed to specified setting speed within two minutes with engine cooling fan on. Repeat if two minutes is exceeded.

1991-94 1.6L Capri: Ground the self-test connector (white, 1-pin).

1991-92 1.8L: Jumper terminal 10 of diagnostic connector to ground. Canada models, apply parking brake to turn off headlights.

1993-97 1.8L, 2.0L Probe, 2.5L: Ground the STI terminal in the Datalink connector.

1988-90 1.9L (113) TBI, 2.3L (140) HSC TBI, 2.5L (153): Idle engine for two minutes (AT in drive) and check idle speed. To adjust, set system in self test mode (see Computer Diagnostic Codes), turn key to run position. When ISC plunger fully retracts, turn key off and disconnect diagnostic mode. Electrically disconnect ISC and gain access to throttle stop screw. Start engine and set idle to specified setting speed.

1991 1.9L: Disconnect ISC air bypass solenoid. Run engine at 2000 rpm for one minute and check/set idle to specified value.

1989-92 2.2L: Ground STI (black, 1-pin) and set idle to specified setting speed.

1988-91 2.3L HSC: Disconnect SPOUT connector. Remove PCV valve and install special tool with .020 orifice. Disconnect ISC and run engine at 2500 rpm for 30 seconds. Set idle to specified setting speed.

1988-91 2.3L (140) OHC & Turbo, 2.9L: With engine at operating temperature, disconnect ISC electrical connector. Disconnect cooling fan electrical connector. Run engine at 2000 rpm for two minutes (1987-90) or 1500 rpm for 30 seconds (1991). Return to idle and adjust speed to specified setting speed. Reconnect leads and verify that checking speed is at specified value.

1993-94 2.5L w/MT, 3.0L Villager: Disconnect idle air control valve.

1991 2.5L

1991-94 3.0L, 3.8L, 4.6L

IDLE SPEED W/COMPUTER CONTROL

1992-95 1.9L, 2.3L, 5.0L ex. Mustang & Mark VII:

Connect a Scan tool and follow the tool manufacturer's instructions on Ford Idle Speed Setting. A constant pulse from the tool means that the idle speed is within limits. A pulse of 8 times per second indicates that the throttle position sensor is out of range due to over adjustment. A pulse of 4 times per second indicates that the base idle is too fast. A pulse of 1 per second indicates that the base idle speed is too slow.

If the idle is slow, inspect for a plate orifice plug. Remove it and turn the idle screw. Make adjustment until a steady pulse is indicated.

If the idle is too fast: V6, V8 RWD, turn the idle speed screw. 4-cyl. RWD & all FWD, inspect the throttle plate orifice. If there is a plug in it, diagnosis of the system is needed. If there is no plug, block the orifice with tape, start the engine and check the idle speed. If it is still too fast, diagnosis of the system is needed. Once repairs have been made to the system, the idle speed can be adjusted. All models, turn the idle speed screw until the Scan tool pulse is constant.

FORD MOTOR COMPANY

FORD MOTOR COMPANY Continued

IDLE SPEED W/COMPUTER CONTROL

1988-90 3.0L (182) ex. SHO: Disconnect timing SPOUT and air bypass valve connectors. Remove PCV valve and install PCV tool (.20" orifice). Run engine at 2000 rpm for 30 seconds (1989-90 only). Set idle to specified setting value. Reconnect connectors and verify checking value is correct.

1993-98 3.0L Villager: Disconnect IAC connector and set idle to specified value.

3.0L SHO: Remove PCV hose from intake manifold. Remove canister purge hose from intake manifold. Connect a vaccum hose between the two manifold open parts. Disconnect ISC electrical connector. Adjust idle to specified setting speed.

1988-90 3.8L (232), 5.0L (302): With engine off, back out throttle plate stop screw enough to clear throttle lever pad. Insert a .070" feeder gauge between the screw and pad. Turn screw until contact is made, then turn in an additional: 5.0L ex. HO, 1⅞ turns; 3.8L & 5.0L HO, 1½ turns.

1991-95 5.0L Mustang, Mark VII: Insert a .025 feeler gauge between stop screw and throttle level. Set idle to specified value and remove feeler.

1994-95 Mustang 3.8L, Thunderbird & Cougar 4.6L
1995 All 4.6L
1996-98 All ex. 1.3L, 1.8L, 2.5L Probe, 3.0L Villager: If idle is not at specified value, remove cables from throttle body and inspect throttle return screw. If the throttle screw does not contact the throttle linkage lever arm, remove the clean air tube and verify that throttle plate is not obstructed and rotates fully closed. If the screw still does not make contact, place a .002-inch feeler gauge between the screw and lever arm. Turn the screw until it just touches the feeler gauge. Remove the gauge and adjust the screw clockwise ½ turn. Start the engine. If idle is still not at specified checking speed, further diagnosis of the system is needed.

1999: Check idle speed against specified value. If idle is not within the range listed, further diagnosis of the system is needed.

ALL FUEL INJECTED
Checking speed is the computer controlled idle speed value.

Engine	Year	Transmission	Setting Speed	Checking Speed
1.3L	1989	AT	800-900 N	—
1.3L	1990-92	MT	680-720	800-900
		AT	830-870 N	800-900 N
1.3L	1993	MT	680-720	—
		AT	830-870 N	—
1.3L	1994-97	MT	650-750	—
		AT	700-800 N	—
1.6L	1991-94	MT	800-900	—
		AT	800-900 N	—
1.8L	1991-95	MT	700-800	—
		AT	700-800 N	—
1.9L (113) TBI	1988-90	MT	550-650	760-840
		AT	550-650 N	760-840 D
1.9L (113) MFI	1988-90	MT	975	900-1100
1.9L	1991	MT	650	730-930
		AT	650 N	730-930 N
	1992	MT	1	800-900
		AT	1	800-900 N
	1993-95	MT	1	800-900
		AT	1	780-950 N
	1996	MT	—	700-750
		AT	—	755-805 N
2.0L	1993-94	MT	650-750	690-910
		AT	650-750 N	690-740 N
2.0L Probe	1995	MT	650-750	720-910
		AT	650-750 N	740-830 N
	1996-97	MT	650-750	720-770
		AT	650-750 N	855-905 N
2.0L Contour, Mystique, Cougar	1995	MT	—	780-980
		AT	—	700-900 N
	1996-98	MT	—	855-905
		AT	—	775-825 N
	1999	MT	—	790-900
		AT	—	790-900 N

FORD MOTOR COMPANY Continued

IDLE SPEED W/COMPUTER CONTROL Continued

ALL FUEL INJECTED Continued

Engine	Year	Transmission	Setting Speed	Checking Speed
2.0L Escort, Tracer	1997-98	MT	—	700-750
		AT	—	755-805 N
	1999	MT	—	750-820
		AT	—	730-790 N
2.2L	1989-92	MT	750	725-775
		AT	750 N	725-775 N
2.3L (140) HSC	1988-90	MT	1575	810-890
		AT	1050 D	690-750 D
2.3L HSC	1991	MT	1525-1575	810-890
		AT	925-975 D	680-760 D
2.3L HSC	1992-94	MT	[1]	840-950
		AT	[1]	840-950 N
2.3L (140) OHC FI	1988	MT	525	690-750
		AT	525 N	690-750 D
w/Calibr. 8-06A-R10	1988	MT & AT	625-675 N	690-750 N
w/Calibr. 8-05A-R10	1988	MT & AT	575-625 N	690-750 N
2.3L OHC	1989-90	MT	600	770-830
		AT	650 N	770-830 D
2.3L OHC	1991	MT	575-625	780
		AT	625-675 N	720 D
	1992-93	MT	[1]	750-820
		AT	[1]	750-820 N
2.3L (140) Turbo	1988	MT	750	825-975
	1988	AT	750 N	825-975 N
2.5L (153)	1988-90	MT	675-725	775-825
		AT	625-675 D	675-725 D
2.5L	1991	AT	[1]	750 D
2.5L Probe	1993	MT	600-700	—
		AT	600-700 N	—
	1994	MT	550-750	—
		AT	550-750 N	—
	1995-97	MT	600-700	—
		AT	600-700 N	—
2.5L Contour, Mystique, Cougar	1995	MT	—	790-820
		AT	—	920-965 N
	1996-98	MT	—	700-750
		AT	—	720-770 N
	1999	MT	—	700-760
		AT	—	700-760 N
2.9L	1988-89	AT	675-725 N	800-900 N
3.0L	1988-90	AT	760 D	—
SHO	1989-90	MT	770-830	—
3.0L	1991	MT	[1]	800
3.0L ex. Probe, Windstar	1992-95	MT	[1]	840-880
3-speed	1992-95	AT	[1]	800-870 N
4-speed	1992-95	AT	[1]	870-920 N
3.0L Probe	1992	MT	[1]	750-850
		AT	[1]	670-740 N
3.0L SHO	1991-95	MT	770-830	750-900
3.0L Villager	1993-98	AT	650-750 N	700-800 N
3.0L Windstar	1995-98	AT	—	675-725 N
	1999	AT	—	680-800 N
3.0L Taurus, Sable	1996-98	AT	—	875-925 N
3.0L Taurus, Sable	1999	AT	—	760-900 N
Flexfuel	1999	AT	—	840-900 N
3.2L SHO	1993-94	AT	—	720-780 N
	1995	AT	—	740-840 N

IDLE SPEED W/COMPUTER CONTROL Continued

ALL FUEL INJECTED Continued

Engine	Year	Transmission	Setting Speed	Checking Speed
3.4L SHO	1996-98	AT	—	875-925 N
3.8L (232) RWD	1988	AT	—	500-600 D
3.8L (232) FWD	1988	AT	—	590-690 D
3.8L RWD	1989-90	AT	—	550-650 D
Supercharged	1989-90	MT	—	700-800
	1989-90	AT	—	550-650 D
3.8L FWD	1989-90	AT	—	650-750 D
Continental	1989-90	AT	—	620-720 D
3.8L Continental	1991	AT	1	625 D
Taurus, Sable	1991	AT	1	640 D
Police	1991	AT	1	700 D
Thunderbird, Cougar ex. S/C	1991	AT	1	600 D
3.8L: Taurus, Sable	1992-95	AT	1	690-770 N
Police	1992-94	AT	1	750-850 N
Thunderbird, Cougar	1992-95	AT	1	740-840 N
Supercharged	1992-95	MT	1	760-860
		AT	1	770-830 N
Mustang	1994-95	MT	—	695-745
		AT	—	675-725 N
Continental	1992-94	AT	1	700-750 N
3.8L Windstar	1995-98	AT	—	675-725 N
	1999	AT	—	700-730 N
Thunderbird, Cougar	1996-97	AT	—	680-730 N
Mustang	1996-98	MT	—	695-745 N
		AT	—	675-725 N
	1999	MT	—	700-780
		AT	—	700-730 N
4.6L	1991	AT	1	560 D
4.6L SOHC	1992-94	AT	1	750-810 N
Thunderbird, Cougar	1994	AT	—	745-795 N
Town Car	1992-94	AT	1	690-750 N
4.6L Mark VIII	1993-95	AT	1	685-790 N
4.6L: Town Car	1995	AT	—	775-825 N
Crown Victoria, Grand Marquis	1995	AT	—	775-825 N
Continental	1995	AT	—	775-825 N
Thunderbird, Cougar	1995	AT	—	745-795 N
4.6L Mustang	1996-98	MT	—	630-680
		AT	—	630-680 N
Thunderbird, Cougar	1996-97	AT	—	745-795 N
Mark VIII	1996-98	AT	—	875-925 N
Others	1996-98	AT	—	775-825 N
CNG	1996-98	AT	—	775-825 N
4.6L SOHC Mustang	1999	MT	—	660-700
		AT	—	660-700 N
Crown Victoria, Grand Marquis, Town Car	1999	AT	—	790-815 N
CNG	1999	AT	—	790-815 N
4.6L DOHC Mustang	1999	MT	—	630-750
		AT	—	630-750 N
Continental	1999	AT	—	695-760N
5.0L: Mustang	1988-90	MT	—	625-775
	1988-90	AT	—	575-725 D
Mark VII	1988-90	AT	—	550-675 D
All others	1988-90	AT	—	525-650 D

FORD MOTOR COMPANY Continued

IDLE SPEED W/COMPUTER CONTROL Continued

ALL FUEL INJECTED Continued

Engine	Year	Transmission	Setting Speed	Checking Speed
5.0L: Mustang	1991-94	MT	625-725	
		AT	625-725 N	
	1995	MT	730-750	650-750
	1995	AT	630-650	650-750 N
Mark VII	1991-92	AT	625-725 N	
T-Bird, Cougar	1991	AT	[1]	610 D
	1992-93	[1]	700-750 N	
Others	1991	AT	[1]	525-650 D

1 Idle speed is only adjustable with a Scan tool, see procedure.

FORD TRUCKS

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Engine	Year	Pressure PSI	Pressure RPM
Fuel Injected:			
2.3L (140)	1988-97	35-45	ign. on
		30-45	idle
2.5L	1998	56-72	ign. on
2.9L (179), 3.0L (182), 4.0L	1988-97	35-45	ign. on
		30-45	idle
Ranger	1998-99	56-72	ign. on
Flexfuel	1998	47-63	ign. on
	1999	55-75	ign. on
Others	1998-99	30-45	ign. on
4.2L	1997	35-45	ign. on
		30-45	idle
	1998-99	30-45	ign. on
4.9L (300)	1988-94	50-60	ign. on
		45-60	idle
	1995-96	35-45	ign. on
		30-45	idle
V8, V10	1988-97	35-45	ign. on
		30-45	idle
	1998-99	30-45	ign. on

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Note: W/FI, if idle speed is higher than the specified checking speed, perform a system check before attempting to adjust the idle speed.

Midpoint of range given is the preferred setting speed.

2.0L (122): With engine at operating temperature and not running, disconnect the ISC electrical connector. Use jumper wires to connect one of the upper terminals (directly beneath plastic lock) to battery voltage (+), and the other terminal to ground (–).

Note: If voltage is applied to the lower terminals, damage to ISC will result. If the ISC extends, reverse the jumper wire connections. Start engine and verify that minimum speed is as specified. Fully extend the ISC with engine not running, and set maximum speed to specifications.

1988-95 2.9L, 7.5L FI:
1990-91 4.0L:
1988-94 2.3L: With engine at operating temperature and not running, disconnect air bypass valve electrical lead. Start engine, run at 2500 rpm for 30 seconds and check setting speed against specifications.

1988-94 3.0L (182): Disconnect spout connector and install PCV special tool (.20 orifice, 1987 only). Disconnect air bypass valve electrical lead and adjust idle to specified setting speed.

FORD TRUCKS Continued

IDLE SPEED W/COMPUTER CONTROL Continued

1988 4.9L (300) FI, 5.0L (302) FI, 5.8L (351) FI: With engine at operating temperature, run at 1800 rpm for 30 seconds and return to idle. Check that speed is at checking value. If speed is too high, disconnect battery positive (+) lead and reconnect. Repeat above procedure. If speed is still too high, check for trouble codes. If none are stored, back out idle air set screw and adjust to setting value. Adjustment must be made within 40 seconds or repeat previous procedure. 1988, after obtaining specified setting speed, back screw out an additional ½ turn.

1989-90 4.9L, 5.0L, 5.8L:

1991 5.0L, 5.8L HD early, 1992-95 5.0L ex. w/ E4OD trans.: Install a .050 (4.9L, 5.0L w/AT) or .030 (5.0L w/MT, 5.8L) feeler gauge between throttle plate stop screw and throttle lever. Disconnect ISC electrical lead and spout connector, start engine. Adjust idle to specified setting value.

1991-95 5.0L w/E4OD trans., 5.8L LD, 5.8L HD (Some), 1992-95, 4.9L: Connect a Scan tool and follow the tool manufacturer's instructions on Ford Idle Speed Setting. A constant pulse from the tool means that the idle speed is within limits. A pulse of 8 times per second indicates that the throttle position sensor is out of range due to over adjustment. A pulse of 4 times per second indicates that the base idle is too fast. A pulse of 1 per second indicates that the base idle speed is too slow.

If the idle is slow, inspect for a plate orifice plug. Remove it and turn the idle screw. Make adjustment until a steady pulse is indicated.

If the idle is too fast, inspect the throttle plate orifice. If there is a plug in it, diagnosis of the system is needed. If there is no plug, block the orifice with tape, start the engine and check the idle speed. If it is still too fast, diagnosis of the system is needed. Once repairs have been made to the system, the idle speed can be adjusted. Turn the idle speed screw until the Scan tool pulse is constant.

1995 2.3L, 3.0L Ranger, 4.0L:

1995 Ranger, Explorer:

1996-98 All:

If idle is not at specified value, remove cables from throttle body and inspect throttle return screw. If the throttle screw does not contact the throttle linkage lever arm, remove the clean air tube and verify that throttle plate is not obstructed and rotates fully closed. If the screw still does not make contact, place a .002-inch feeler gauge between the screw and lever arm. Turn the screw until it just touches the feeler gauge. Remove the gauge and adjust the screw clockwise ½ turn. Start the engine. If idle is still not at specified checking speed, further diagnosis of the system is needed.

1999 All:

Check idle speed against specified value. If idle is not within the range specified, further diagnosis of the system is needed.

ALL MODELS

Checking Speed is the computer controlled idle speed value.

Engine	Year	Min. Speed	Checking Speed	Fast	Step of Cam	Max. Speed
2.0L (122)	1988	700 max.	775-875	3200	High	1800-2200

ALL FUEL INJECTED

1991-94 Others, when no specifications appear in Setting Speeed column: Idle speed is adjustable only when using special tester.

Engine	Year	Transmission	Setting Speed	Checking Speed
2.3L (140)	1988	MT	575[1]	645-795
2.3L (140) w/decal ABT, ABU, CBY, CBU, CBZ	1988	AT	575 N[1]	645-795 D
		MT	575[1]	725-875
		AT	575 N[1]	725-875 D
2.3L	1989-90	MT	575[1]	645-795
		AT	575 N[1]	575-725 D
2.3L	1991	MT	475-575	645-795
		AT	475-575 N	575-725 D
2.3L	1992	MT	450-750	750-900
		AT	500-800 N	680-880 N
2.3L	1993-94	MT	450-750	750-900
		AT	500-800 N	680-880 N
2.3L, 2.5L	1995-98	MT	—	695-745
		AT	—	745-795 N
	1999	MT	—	760-830
		AT	—	760-820 N

FORD TRUCKS Continued

IDLE SPEED W/COMPUTER CONTROL Continued

ALL FUEL INJECTED Continued

Engine	Year	Transmission	Setting Speed	Checking Speed
2.9L	1988-90	MT	725	850
		AT	725 N	800 N
2.9L	1991	MT	700	850
		AT	700 N	800 D
2.9L	1992	MT	700	810-890
3.0L (182)	1988	MT	725	750-850
		AT	625 D	650-750 D
3.0L	1989-90	MT	725	760-830
		AT	625 D	620-720 D
3.0L	1991	MT	550-650	—
		AT	550-650 N	—
3.0L	1992-94	MT	550-650	780-880
		AT	550-650 N	710-810 N
3.0L Aerostar	1995	AT	550-650 N	710-810 N
	1996-97	AT	—	725-775 N
3.0L Ranger	1995-98	MT	—	825-875
		AT	—	875-925 N
	1999	MT	—	760-800
		AT	—	880-920 N
4.0L	1990-91	MT	675	—
		AT	675 N	—
4.0L	1992-94		[2]	730-830
			[2]	730-830 N
4.0L ex. DHC	1995-98	MT	—	725-775
Ranger		AT	—	800-850 N
Others		AT	—	725-775 N
4.0L ex. OHC Ranger	1999	MT	—	760-800
		AT	—	760-830 N
Others		MT	—	715-810
		AT	—	750-830 N
4.0L SOHC	1997-98	AT	—	725-775 N
	1999	AT	—	750-830 N
4.2L	1997-98	MT	—	725-775
		AT	—	800-850 N
	1999	MT	—	680-830
		AT	—	680-830 N
4.6L	1997-98	MT	—	725-775
		AT	—	800-850 N
	1999	MT	—	680-830
		AT	—	680-830 N
4.9L (300): 2WD	1988	MT	650	625-725
4WD	1988	MT	650	650-750
4.9L (300)	1988	AT	550 D	525-625 D
w/decal AEA, AEB, AEC, AED, AEE, AFC, AFG, AFT	1988	AT	550 D	590-690 D
4.9L	1989	MT	750	—
w/calibr. 7-52ER, JR, KR, MR, QR, RR, ZR; 9-72JR	1989	MT	650	—
4.9L	1989	AT	750 N	—
w/calibr. 7-52ER, JR, KR, MR, QR, RR, ZR; 9-72JR	1989	AT	650 N	—
4.9L	1990	MT	700	650-750
w/decal DEN	1990	MT	700	625-725
w/decal DES, DEY, DEZ	1990	MT	700	590-690
4.9L	1990	AT	675 N	550-650 D
w/E40D trans.	1990	AT	675 N	525-625 D
4.9L	1991	MT	[2]	700
		AT	[2]	600 D
w/decal G5A, G5D, G5H, G5L		AT	[2]	575 D
w/decal GHZ, GFJ, G5J		AT	[2]	640 D

FORD TRUCKS Continued

IDLE SPEED W/COMPUTER CONTROL Continued

ALL FUEL INJECTED Continued

Engine	Year	Transmission	Setting Speed	Checking Speed
4.9L	1992-95	MT	2	700-800
3-speed	1992-95	AT	2	600-700 N
4-speed	1992-94	AT	2	670-770 N
	1995		2	640-740 N
4.9L	1996	MT	—	725-775
		AT	—	800-850 N
5.0L (302)	1988	MT	650	775
AT 550 D	675 D			
5.0L (302)	1989-90	MT	700	—
		AT	675 N	—
5.0L	1991	MT	550-850	—
3-speed	1991	AT	525-825 N	—
4-speed	1991	AT	2	640-740
5.0L	1992-94	MT	550-850	660-760
3-speed	1992-94	AT	525-825 N	700-750 N
4-speed	1992-94	AT	2	640-740 N
5.0L	1995	MT	650-750	760-870
Ex. E4OD	1995	AT	625-725	700-750 N
E4OD	1995	AT	2	640-740 N
5.0L	1996-97	MT	—	725-775
	1996	AT	—	800-850 N
	1997-98	AT	—	725-775 N
	1999	AT	—	700-750 N
5.4L	1997-98	MT	—	800-850 N
		AT	—	800-850 N
5.4L SOHC	1999	MT	—	760-830
4R70W		AT	—	720 N
4R100		AT	—	760-830 N
5.4L DOHC Lightning		AT	—	760 N
Expedition, Navigator		AT	—	690-710 N
5.8L (351)	1988-90	MT	730	—
5.8L (351)	1988-90	AT	780 N	—
w/4-speed AT	1989-90	AT	730 N	—
5.8L: LD	1991	MT	2	750-850
		AT	2	750-850 N
HD, early	1991	MT	730	—
3-speed		AT	730 N	—
4-speed		AT	780 N	—
HD, late	1991	MT	2	750-850
		AT	2	750-850 N
5.8L	1993-95	MT	2	750-850
		AT	2	750-850 N
5.8L LD	1996	MT	—	725-775
		AT	—	800-850 N
5.8L HD	1996-97	MT	—	750-850
		AT	—	750-850 N
6.8L	1997-98	AT	—	750-800 N
7.3L DI Diesel	1994-96	MT	—	650
		AT	—	650 D
7.5L (460)	1988-94	MT	650	—
		AT	650 N	—
7.5L ex. 1996 Calif.	1995-96	MT	2	650-750
3-speed	1995-96	AT	2	770-870 N
4-speed	1995-96	AT	2	800-840 N
7.5L Calif.	1996-97	MT	—	725-775
	1996-97	AT	—	800-850 N

1 Reset to 600-650 N if carbon build-up problems in engine are encountered.
2 Idle speed is only adjustable with a Scan tool, see procedure.

GEO

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

At idle unless otherwise indicated.

Engine	Year	PSI	RPM
Carbureted & TBI:			
1.0L, 1.3L	1989-99	23-31	ign. on
		13-20	idle
1.6L Nova	1988	3.5	idle
1.6L Tracker, Sunrunner	1989-95	34-41	idle
		57 min.[1]	—

Engine	Year	Pressure PSI[2]	Pressure PSI[3]	Fuel Pump[1]
MFI:				
1.0L Turbo	1988-91	25-33	35-43	—
1.3L	1994-99	28.5-34	38.5-44	—
1.5L Turbo	1987-88	28.4	35.6	—
1.6L Nova, Prizm	1988-92	30-37	38-44	57 min.
1.6L, 1.8L Prizm	1993-97	31-37	38-44	—
	1998-99	—	44-50	—
1.6L Storm, Sunfire	1990-91	25-30	35-42	65 min.
1.6L, 1.8L Storm, Sunfire	1992	25-30	41-47	60 min.
1.6L Storm, Sunfire	1993	30-36	30-46	60 min.
1.6L Tracker, Sunrunner	1993-98	29-37	35-43	60 min.
1.8L Storm, Sunfire	1993	41-44	41-47	60 min.

1 Fuel pump pressure with return line briefly restricted.
2 Vacuum hose connected to fuel pressure regulator.
3 Vacuum hose disconnected from fuel pressure regulator.

IDLE SPEED W/O COMPUTER CONTROL

1.0L: Set idle speed with all accessories and cooling fan off. Set idle up with lights and heater on. To set fast idle, disconnect and plug coolant hoses at carburetor thermo element and set fast idle cam on index mark. Set fast idle with engine at operating temperature.

1.0L Turbo, 1.5L Turbo: Set idle to specified speed. To set electrical speed-up (1.0L), turn headlights on and adjust screw on solenoid. To set A/C speed-up (1.0L), turn A/C on and adjust screw on solenoid.

1.5L 2V: Disconnect and plug distributor vacuum, canister purge, EGR, ITC, vacuum hoses.

Air-conditioned models equipped with idle speed-up solenoid, turn A/C on and with solenoid fully extended, adjust solenoid to obtain specified rpm.

1.6L Nova 2V: Set idle speed to specified value. To set fast idle, disconnect hose from M port of thermo vacuum switching valve. To set speed-up speed (first step), disconnect vacuum hose from rear of vacuum solenoid. Check speed-up speed against specified value. Reconnect hose and disconnect first hose by linkage to check second step speed-up speed.

1.6L Nova, Prizm FI: Set idle to specified value.

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
1.0L 2V	1988	700-800	800-900 N	2100-2700	2100-2700 N	High
Canada	1988	700-800	800-900 N	1500-2500	1500-2500 N	High
Idle-up	1988	750-850	750-850 N			
1.0L ER	1988	650-750	—	2100-2700	—	High
Idle-up	1988	750-850	—			

GEO Continued

IDLE SPEED W/O COMPUTER CONTROL Continued

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
1.0L Turbo	1988-89	700-800	—	—	—	—
Elect. speed-up	1988-89	750-850	—			
A/C speed-up	1988-89	950-1050	—			
1.5L 2V	1988-89	750	1000 N	—	—	—
A/C speed-up		850	980 N			
1.5L Turbo	1988	900-1000	—	—	—	—
1.6L 2V Nova	1988	650	750 N	3000	3000 N	High
Speed-up (1st step)	1988	800	900 N			
Speed-up (2nd step)	1988	1200-1600	1300-1700 N			
1.6L FI Nova	1988	800	800 N	—	—	—

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

1.0L TBI: 1989-93, 1994 XFI & Fed AT: Install a fuse into diagnostic connector in fuse block. Set idle to specified value. Turn A/C on and adjust speed-up to specified value.

1994 All MT ex. XFI and Calif AT; 1995-98 1.0L, 1.3L: Connect a Scan tool and run through idle speed checking procedure. Compare to specified value.

1.6L, 1.8L Prizm, 1989-92: Jumper terminals TE1 and E1 of diagnostic connector. Set idle to specified value. Turn A/C on and verify that speed increases to speed-up speed.

1989-91 1.6L Tracker, Sunrunner: Set idle to specified value.

1992-98 1.6L Tracker, Sunrunner: Ground diagnostic connector terminal #2, located by battery.

Trans-Engine	Checking Year	Setting mission	AC Speed	Speed	Speed-up
1.0L	1989-90	MT	—	700-800	850-950
1.0L	1989	AT	—	650-750 N	800-900 N
1.0L LSI	1990	AT	—	650-750 N	850-950
Others	1990	AT	—	800-900 N	800-900 N
1.0L XFI	1991-93	MT	—	650-750	650-750[1]
Convertible	1991-93	MT	—	800-900	800-900[1]
	1991-93	AT	—	800-900 N	800-900 N[1]
Others	1991-93	MT	—	750-850	750-850[1]
	1991-93	AT	—	800-900	800-900 N[1]
1.0L: XFI	1994	MT	—	650-750	850-950
Ex. XFI: Fed, Can.	1994	AT	—	800-900 N	850-950 N
Calif.	1994	AT	800-900 N	—	—
All	1994	MT	750-850	—	—
1.0L	1995-96	MT	750-850	—	—
	1997-99	MT	800-900 N	—	—
	1995-98	AT	800-900 N	—	—
1.3L	1993-94	MT	850	—	—
		AT	850 N	—	—
	1995-96	MT	750-850	—	—
	1997-99	MT	800-900 N	—	—
	1995-99	AT	800-900 N	—	—
1.6L Prizm code 6	1989-92	MT	—	800	900-1000
	1989-92	AT	—	800 D	900-1000 N
1.6L Prizm code 5	1990-92	MT	—	700	900-1000
	1990-92	AT	—	700 D	900-1000 N

GEO Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Trans-Engine	Checking Year	Setting mission	AC Speed	Speed	Speed-up
1.6L, 1.8L Prizm	1993-99	MT	650-750	—	900-1000
	1993-99	AT	650-750 N	—	900-1000 N
1.6L Storm, Sunfire	1990-91	MT	800 max.	—	—
	1990-91	AT	800 N max.	—	—
1.6L Tracker, Sunrunner	1989-91	MT	750-850	800	950-1050
	1989-91	AT	750-850 N	800 N	950-1050 N
1.6L Tracker, Sunrunner	1992-98	MT	—	750-850	950-1050
	1992-98	AT	—	750-850 N	950-1050 N

1 Late 1992-93 models, 850-950 (N).

HONDA

1988-99

FUEL SYSTEM

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

With fuel injection; pressure measured at fitting on fuel filter.

Engine	Year	Pressure PSI	Pressure RPM
Carbureted:			
1958cc 2×1	1988-90	2.6-3.3	ign. on
Fuel Injected:			
1493cc, 1590cc	1988-91	35-41	35-37
1493cc, 1590cc	1992-95	40-47	30-38
1590cc Civic	1996-99	38-46	28-36
1595cc	1999	40-47	30-37
Del Sol	1996-97	40-47	31-36
1955cc, 1958cc, 2056cc, 2156cc	1987-90	35-41	35-37
1972cc	1997-99	38-46	30-37
2156cc Accord, SOHC, Odyssey	1991-93	40-47	30-38
	1994-97	38-46	30-37
2156cc SOHC Prelude, 2259cc	1992-96	36-43	28-35
2156cc DOHC	1993-96	33-40	24-31
2157cc	1997-99	40-47	30-37
2254cc	1998-99	40-47	30-37
2675cc	1995-97	44-51	36-43
2997cc	1998-99	41-48	32-40
3474cc	1999	41-48	32-40

1 With pressure regulator vacuum hose disconnected.
2 With pressure regulator vacuum hose connected.

IDLE SPEED W/O COMPUTER CONTROL

Preferred setting is the midpoint of range given.

1988-89 1830cc, 1955cc 2V MT:
Disconnect and plug intake air control vacuum hose, with engine warm, set idle speed to specification.

Turn A/C on and adjust speed-up speed to specified value.

1955cc 2V AT:
Disconnect and plug intake air control vacuum hose. Remove filter from frequency solenoid valve and plug opening in valve. Lower idle speed as much as possible by adjusting throttle stop screw. Set base idle speed to specified value by adjusting screw on throttle cable linkage. Readjust throttle stop screw to idle speed specification. Place transmission in gear and adjust screw on boost diaphragm linkage to idle speed A. Place transmission in neutral and turn A/C on. Set speed-up speed to specified value by adjusting screw on boost diaphragm.

HONDA

HONDA Continued

IDLE SPEED W/O COMPUTER CONTROL Continued

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
1955cc 2V	1988-89	750-850	650-750 N	2000-3000	2000-300 N	High
idle control A	1988-89	—	650-750 D			
speed-up	1988-89	750-850	650-750 N			
base idle	1988-89	—	580-680 N			
1958cc 2×1	1988-90	750-850	700-800 D	1600-2000	1600-2000 N	Third
speed-up		750-850	700-800 D			

1 If adjusted at low altitude, 700-800.
2 High altitude 600-700 N.
3 4WD Wagon, 700-800.

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

1998-99 2997cc, 3474cc; 1996-99 All 1590cc ex. D16Y5 & D16Y8 w/MT: Adjust as necessary by turning idle speed screw ½ turn at a time. Turn A/C on and verify that idle increases to specified value.
1988-99 All others: Electrically disconnect idle air control valve. Set idle to set speed. Remove HAZARD or BACKUP or CLOCK fuse for 10 seconds to reset ECM. Verify that idle is at checking speed. Turn headlights and A/C on separately to check speed-up speeds.
Canada, pull up on hand brake to turn headlights off.

Engine	Year	Trans-mission	Set Speed	Checking Speed	Speed-up Speed	Fast Idle (Cold)
1493cc	1988	MT	575-675	675-775	730-830	1000-1800
		AT	575-675 N	675-775 N	730-830 N	1000-1800 N
1493cc	1989-91	MT	575-675	700-800	750-850	1000-2000
1493cc	1989-91	AT	575-675 N	700-800 N	750-850 N	1000-2000 N
Canada	1990-91	MT	575-675	750-850	750-850	1000-2000
	1990-91	AT	575-675 N	750-850 N	750-850 N	1000-2000 N
1493cc HF	1988-91	MT	450-550	550-650	600-700	1000-1800 N
Calif., High Alt.	1988-91	MT	450-550	600-700	700-800	1000-1800
1493cc D15B8	1992-95	MT	370-470	620-720	700-800[1]	—
1493cc D15Z1	1992-95	MT	370-470	550-650	650-750[1]	—
1493cc D15B7	1992-95	MT	370-470	620-720	700-800[1]	—
		AT	370-470 N	650-750 N	700-800 N[1]	—
1590cc	1988-89	MT	500-600	700-800	730-830 N	1000-1800 N
1590cc	1989	AT	500-600 N	700-800 N	770-870 N	1000-2000 N
1590cc	1990-91	MT	500-600	700-800	730-830[2]	1000-2000
		AT	500-600 N	700-800 N	730-830 N[2]	1000-2000 N
1590cc	1992-95	MT	370-470	620-720	700-800[1]	—
		AT	370-470	650-750 N	700-800[1]	—
1590cc D16Y7 US	1996-99	MT	620-720	—	760-860	—
		AT	650-750 N	—	760-860 N	—
Canada	1996-99	MT	700-800	—	760-860	—
		AT	700-800 N	—	760-860 N	—
D16Y5 US	1996-99	MT	400-500	620-720	700-800[1]	—
		AT	650-750 N	—	760-860 N	—
Canada	1996-99	MT	400-500	700-800	700-800[1]	—
		AT	700-800 N	—	760-860 N	—
D16Y8 US	1996-99	MT	400-500	620-720	700-800[1]	—
		AT	650-750 N	—	760-860 N	—
Canada	1996-99	MT	400-500 N	700-800 N	700-800 N[1]	—
		AT	700-800 N	—	760-860 N	—

HONDA Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Trans-mission	Set Speed	Checking Speed	Speed-up Speed	Fast Idle (Cold)
1595cc	1994-95	MT	370-470	650-750	700-800[1]	—
1595cc	1996-97	MT	400-500	650-750	700-800 [1]	—
		AT	400-500 N	650-750 N	700-800 N[1]	—
1955cc, 1958cc FI	1988-89	MT	600-700	700-800	700-800	1100-1900
		AT	600-700 N	700-800 N	700-800 N	1100-1900 N
1958cc, 2056cc	1990-91	MT	600-700	720-820	720-820	1100-1900
		AT	600-700 N	720-820 N	720-820 N	1100-1900 N
1972cc AC	1997-99	MT	430-530	700-800	700-800	1300-1700
	1997-99	MT			730-830	
	1997-99	AT	430-530N	700-800	700-800N	1300-1700N
1997-99	AT			730-830N		
2156cc SOHC	1990-93	MT	500-600	650-750	720-820	1400
		AT	500-600 N	650-750 N	720-820 N	1400 N
2156cc DOHC	1992-93	MT	450-550	650-750	740-840	—
2156cc Accord	1994-97	MT	500-600	650-750	720-820	1400
		AT	500-600 N	650-750 N	720-820 N	1400 N
2156cc Odyssey	1995-97	AT	500-600 N	650-750 N	720-820 N	1600
2156cc Prelude SOHC	1994-96	MT	500-600	650-750	720-820	400
		AT	500-600 N	650-750 N	720-820 N	400
2156cc Prelude DOHC	1994-96	MT	500-600	650-750	740-840	400
2157cc	1997-99	MT	500-600	650-750	740-840	1200-1600
		AT	500-600 N	650-750 N	740-840 N	1200-1600 N
2254cc	1998-99	MT	650-750	720-820	—	1100-1500
		AT	650-750N	720-820N	—	1100-1500
2259cc	1992-96	MT	500-600	650-750	730-830	400
		AT	500-600 N	650-750 N	730-830 N	400
2675cc	1995	AT	500-600 N	650-750 N	720-820 N	720-820 N
	1996-97	AT	550-650 N	700-800 N	720-820 N	720-820 N
2997cc	1998-99	AT	630-730N	—	630-730N	—
3474cc	1999	AT	680-780N	—	680-780N	—

1 Electrical speed-up listed; A/C speed-up, 760-860.
2 A/C speed-up, 760-860 (N). Wagon, 760-860 (N).

HYUNDAI

1988-99

FUEL SYSTEM

FUEL SYSTEM PRESSURE

Engine	Year	Pressure PSI	Pressure RPM
Carbureted:			
1439cc	1988	2.7-3.7	idle
1468cc	1988-89	2.8-3.6[1]	idle
Fuel Injected:			
1997cc	1988	35.6-38.4[2]	idle
		28.4[3]	idle
All	1989-92	46-49[2]	idle
		39 approx.[3]	idle
1495cc	1993-96	44.3[2]	idle
		37 approx.[3]	idle
1495cc	1997-99	43.5[2]	idle
		36 approx.[3]	idle
1795cc, 1975cc	1996-99	44.3[2]	idle
		37 approx.[3]	idle

HYUNDAI

HYUNDAI Continued

FUEL SYSTEM PRESSURE Continued

Engine	Year	Pressure	
		PSI	RPM
2350cc, 2493cc	1999	46-49[2]	
		37 approx.[3]	
Others	1993-98	46-49[2]	idle
		39 approx.[3]	idle

1 Fuel return line pinched off.
2 Vacuum hose disconnected from fuel pressure regulator.
3 Vacuum hose connected to fuel pressure regulator.

IDLE SPEED W/O COMPUTER CONTROL

To set idle speed, turn idle speed screw to obtain specified value. Adjust solenoids, as equipped, to obtain specified speed-up speed.

Midpoint of range given is the preferred setting speed.

Engine	Year	SLOW		FAST		Step of Cam
		Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	
1468cc	1988	650-850	650-850 N	2800	2700 N	Second
	1989	700-900	700-900 N	2800	2700 N	Second
PS, Elec. speed-up	1988-89	750-950	750-950 N			
A/C speed-up	1988-89	850-900	850-900 N			

IDLE SPEED W/COMPUTER CONTROL

1468cc, 2350cc: Turn ignition on for 20 seconds. Disconnect ISC and start engine. Adjust to specified setting speed.

1597cc, 1836cc, 1997cc, 2972cc: Jumper ignition timing connector terminals, and Self Diagnostic check terminal (10 and ground of DLC).

Engine	Year	Setting Speed	Checking Speed	AC Speed-up
1468cc to 3/93 MT	1990-93	600-800	—	—
AT	1990-93	600-800 N	—	—
1468cc from 3/93: MT	1993-94	725-925	—	—
AT	1993-94	725-925 N	—	—
1495cc MT	1993-99	—	700-900	720-920
AT	1993-99	—	700-900 N	720-920 N
1597cc MT	1992-95	650-850	—	—
AT	1992-95	650-850 N	—	—
1795cc, 1975cc MT	1996-99	—	700-900	750-950
AT	1996-99	—	700-900 N	750-950 N
1836cc MT	1993-95	600-800	—	—
AT	1993-95	600-800 N	—	—
1997cc MT	1988	700	700-800	—
AT	1988	700 N	700-800 N	—
1997cc MT	1992-93	700-800	650-850	—
AT	1992-93	700-800 N	650-850 N	—
1997cc MT	1994-98	650-850	—	—
AT	1994-98	650-850 N	—	—
2350cc MT	1989-91	650-850	650-850	—
AT	1989-91	650-850 N	650-850 N	—
2350cc MT	1999	—	700-900	—
AT	1999	—	700-900 N	—
2435cc	1999	—	600-800 N	—
2972cc AT	1989-93	650-750 N	600-800 N	—
	1994-98	600-800 N	—	—

INFINITI

1988-99
FUEL SYSTEM

FUEL SYSTEM PRESSURE

Values are approximate pressure.

Engine	Year	Pressure[1] (PSI)	Pressure[2] (PSI)	RPM
1998cc	1991-96	36	43	idle
	1999	34	43	idle
2960cc	1990-92	34	43	idle
2960cc	1993-98	36	43	idle
2988cc	1995-99	34	43	idle
3275cc	1997-99	34	43	idle
4130cc	1997-99	34	43	idle
4494cc	1990-96	34	43	idle

1 Vacuum hose connected to fuel pressure regulator.
2 Vacuum hose disconnected from fuel pressure regulator.

IDLE SPEED W/COMPUTER CONTROL

1990-92 M30, 1990-95 Q45, 1992-95 J30: Disconnect idle air control valve electrical lead.
1992-96 G20, 1996-99 I30, J30, Q45, QX4: Disconnect throttle position sensor electrical lead.
All Models: Set idle speed. Reconnect electrical lead and verify that idle is at Checking Speed. Turn A/C on and verify that speed increases to Speed-up value.

Engine	Year	Transmission	Checking Speed	Setting Speed	Speed-up Speed
1998cc	1991-94	MT	750-850	700-800	800-900
		AT	750-850N	700-800N	800-900N
	1995-99	MT	750-850	700-800	850 min.
		AT	750-850N	700-800N	850N min.
2960cc	1990-92	AT	750-850N	700N	750-850N
	1993-95	AT	670-770N	645-695N	750-850N
	1996-97	AT	670-770N	620-720N	800N min.
2988cc	1995-99	MT	575-675	525-625	850 min.
		AT	650-750N	600-700N	850N min.
3275cc	1997-99	MT	700-800	650-750	800 min.
		AT	700-800N	650-750N	800N min.
4130cc	1997-98	AT	600-700N	575-625N	700N min.
	1999	AT	600-700N	550-650N	700N min.
4494cc	1990	AT	700-800N	645-695N	700-800N
	1991-94	AT	600-700N	575-625N	700-800N
	1995-96	AT	600-700N	575-625N	700-700N

ISUZU

1988-99
FUEL SYSTEM PRESSURE

Engine	Year	Pressure PSI	RPM
Carbureted & TBI:			
1471cc 2V	1988-89	3.8-4.7	idle
2254cc 2V	1992-95	3.5	idle
2.8L, 3.1L	1989-94	9-13	idle
		13-18[1]	idle

1 With fuel return hose briefly restricted.

Engine	Year	Pressure PSI[1]	Pressure PSI[2]	Fuel Pump PSI
MFI:				
1471cc Turbo	1988-89	35.6	28.4	—
1588cc ex. Turbo	1989-91	35-38	25-30	—

ISUZU

ISUZU Continued

FUEL SYSTEM PRESSURE Continued

Engine	Year	Pressure PSI[1]	Pressure PSI[2]	Fuel Pump PSI
1588cc Turbo	1991-92	—	40-47	65
1588cc ex. Turbo, 1809cc	1992-93	35-42	30-59	65 min.
2198cc	1998-99	42-55, ign. on	27-52, idle	55 min.
2254cc, 2559cc	1988-97	42	35	43
3165cc, 3494cc	1992-95	41-46	25-30	65 min.
	1996-99	42-55, ign. on	27-52, idle	55 min.

1 Pressure regulator vacuum hose disconnected.
2 Pressure regulator vacuum hose connected.

IDLE SPEED W/O COMPUTER CONTROL

1471cc 2V, 2254cc 2V: Disconnect and plug distributor, EVAP canister purge, and EGR vacuum hoses. Set idle to specified value. With A/C, turn A/C to maximum and adjust speed-up speed to specified value with solenoid fully extended.

1471cc Turbo, 1949cc FI, 1994cc, 2254cc FI: Disconnect wiring connector of vacuum solenoid valve and adjust idle speed by turning screw on throttle body.

2559cc: Disconnect and plug EVAP canister purge and EGR vacuum hoses. Disconnect pressure regulator vacuum solenoid valve electrical connector.

Midpoint of range given is the preferred setting.

		SLOW		FAST		
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	Step of Cam
1471cc 2V	1988	750	1000 N	—	—	—
speed-up	1988	850	980 N			
1471cc 2V	1989	750	1000 N	3700	4100	High
speed-up	1989	850	980 N			
2254cc 2V	1988-95	850-950	850-950 N	2700-3000	2700-3000 N	High
2254cc FI	1988-95	850-950	850-950 N	—	—	—
2559cc	1988-95	850-950	850-950 N	—	—	—

IDLE SPEED W/COMPUTER CONTROL

1988-90 1471cc, 1588cc: Ground test terminal on DLC connector. Race engine over 2000 rpm and set idle to specified value.

		Setting Speed		Checking Speed	
Engine	Year	MT	AT	MT	AT
1471cc Turbo	1988-89	950	—	900-1000	—
1588cc	1989	900	—	—	—
1588cc	1990	950	950 N	—	—
1588cc	1991-93	—	—	800-900	890-990 N
Turbo	1991-93	—	—	850-950	—
1809cc	1992-93	—	—	800-900	800-900 N
2198cc	1998-99	—	—	750-900	750-900N
2.8L, 3.1L	1989-94	—	—	550-750	550-750 N
3.2L, 3.5L	1992-95	—	—	650-850	700-800 N
	1996-99	—	—	650-850	650-850 N

JEEP
1988-99
FUEL SYSTEM

FUEL SYSTEM PRESSURE
FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Engine	Year	Pressure PSI	Pressure RPM
Carbureted & TBI			
4-cyl. w/FI	1988-90	14-15	—
6-cyl. 2V	1988-89	4-5	idle
8-cyl.	1988-91	5.0-6.5	idle

Engine	Year	Pressure[1]	Pressure[2]
MFI			
2.5L, 4.0L, 5.2L	1988-95	31	38-42
	1996	47-51	—
2.5L	1997-99	47-51	—
4.0L	1997-99	47-51	—
Grand Wagoneer	1997-99	44-54	—
4.7L, 5.2L, 5.9L	1997-99	44-54	—

1 With pressure regulator vacuum hose connected.
2 With pressure regulator vacuum hose disconnected.

IDLE SPEED W/O COMPUTER CONTROL
The midpoint of the ranges given is the preferred setting.

On all models disconnect decel valve and canister purge hoses. Do not allow vehicle to idle for more than three minutes.

6-cyl. eng.: Disconnect and plug solenoid vacuum line. Disconnect solenoid electrical lead. Adjust idle speed. Apply vacuum to solenoid and set speed to specification. Apply battery voltage to solenoid and turn A/C on. Set speed-up to specification.

8-cyl. eng.: Adjust idle speed with solenoid fully extended. Electrically disconnect the solenoid and set shutdown speed to specification.

To set fast idle, disconnect and plug EGR vacuum hose.

Preferred setting is the midpoint of range given.

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
4.2L (258)	1988-91	630-730[1]	550-650 D[2]	1600-1800	1750-1950 P	Second
high altitude	1988-91	650-750[1]	600-700 D[2]	1600-1800	1750-1950 P	Second
5.9L (360)	1988-91	550-650	550-650 D	1400-1600	1500-1700 P	Second
shutdown idle	1988-91	450-500	450-500 N			

1 With Sole-Vac Vacuum actuator energized, 900±50. Holding solenoid, 1100±50.
2 With Sole-Vac Vacuum actuator energized, 900 D±50. Holding solenoid, 800 D±50.

IDLE SPEED W/COMPUTER CONTROL
FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

2.5L, 1988-90: Disconnect ISC and fully extend plunger with special tool. Adjust plunger head screw to specified value.

4.0L, 1988-89: Set idle to specified value by adjusting stop screw.

1993-98 5.2L; 1999 2.5L, 4.0L: Disconnect vacuum line at PCV valve and install special tool (0.185" orifice) in hose. Disconnect purge vacuum hose at throttle body and cap the vacuum source. Connect a Scan tool and access Minimum Airflow first. If idle is outside the value given, replace the throttle body.

JEEP & LEXUS

JEEP Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Checking Speed		Setting Speed	
		Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.
2.5L (150) FI	1988-90	750 min.	750 N min.	3500	3500 N
2.5L	1991	800	800 N	—	—
	1999	500-900	500-900 N	—	—
4.0L (242)	1988-89	—	—	700	700 N
4.0L	1990-91	550-650	550-650 N	—	—
	1999	500-900	500-900N	—	—
5.2L, 5.9L	1993-98	—	500-900 N	—	—

LEXUS

1988-99

FUEL SYSTEM PRESSURE

Values are approximate pressure.

Engine	Year	Pressure[1] (PSI)	Pressure[2] (PSI)	RPM
2507cc, 2958cc	1990-93	33-37	38-44	idle
2995cc	1994-96	33-38	38-44	idle
	1997-99	44-50	—	—
2997cc, 3969cc	1990-97	28-34	38-44	idle
	1998-99	44-50	—	—
4669cc	1998-99	28-34	38-44	idle

1 Vacuum hose connected to fuel pressure regulator
2 Vacuum hose disconnected from fuel pressure regulator

IDLE SPEED W/COMPUTER CONTROL

Verify that idle is at specified Checking speed. Turn A/C on and verify that speed increases to specified Speed-up speed with compressor clutch engaged.

Engine	Year	Trans.	Setting Speed	Checking Speed	Speed-up Speed
2507cc	1990-91	MT	—	650-750	780-820
	1990-91	AT	—	650-750N	780-820N
2958cc	1992-93	MT	—	650-750	700
	1992-93	AT	—	650-750N	700N
2995cc	1994-96	MT	—	650-750	700
	1994-96	AT	—	650-750N	700N
	1997-99	MT	—	650-750	650-750
		AT	—	650-750 N	650-750 N
2997cc SC300	1992-94	MT	—	650-750	900
	1992-94	AT	—	600-700N	800N
2997cc GS300	1993-94	AT	—	650-750N	800N
2997cc	1995-97	MT	—	650-750	900
	1995-97	AT	—	650-750N	800N
2997cc	1998-99	MT	—	650-750	850-950
	1998-99	AT	—	650-750N	750-850N
3969cc	1990-92	AT	—	600-700N	900N
3969cc LS400	1993-95	AT	—	650-750N	900N
	1996-97	AT	—	600-700N	700N
3969cc SC400	1993-97	AT	—	650-750N	700N
3969cc	1998-99	AT	—	700-800N	750-850N
4669cc	1998-99	AT	—	650-750N	750-850N

MAZDA
1988-99
FUEL SYSTEM
FUEL PUMP

Engine	Year	Pressure (PSI) Fuel Line[1]	Fuel Line[2]	Fuel Pump
1308cc FI	1988	28.4	34.1-39.8	64-85.3
1308cc	1989-92	27-33	—	71-92
Turbo	1989-92	28.4	34-40	71-92
1308cc	1993-95	28-32	36-38	71-107
1489cc	1995-97	29-34	40-45	72-93
1489cc	1998	29-34	40-45	64-92
1597cc FI	1987-89	24.6-31.3	34-41	64-85
1597cc, 1839cc, 1844cc	1990-93	30-38	38-46	64-92
1597cc 323, 1839cc, 1844cc	1994	30-38	38-46	64-92
1597cc MX-3 Precidia	1994	28-37	37-47	70-95
1597cc	1999	30-38	38-46	64-92
1839cc Protegé, Miata	1995	29-34	40-45	72-93
1839cc Miata	1996-97	30-38	38-46	64-92
Protegé	1996-97	29-34	40-45	72-93
1839cc Protegé	1998	29-34	40-45	64-92
	1999	30-38	38-46	64-92
1839cc Miata	1999	53-61	—	64-92
1991cc	1993-98	30-38	38-46	64-92
2184cc 2V Mech.	1988-92	—	—	3.7-4.7
Elect.	1988-92	—	—	2.8-3.6
2184cc FI	1988-92	27-33	34-40	64-85
2255cc	1995-99	30-41	41-48	92-116
2497cc	1993-97	30-38	38-46	64-92
2497cc 626	1998-99	30-36	39-45	64-92
2497cc Millenia	1998-99	30-38	38-46	64-92
2555cc	1988	—	—	2.8-3.6
2606cc, 2954cc	1988-98	28-38	38-46	64-85

1 Vacuum hose connected to pressure regulator.
2 Vacuum hose disconnected from pressure regulator.

IDLE SPEED W/O COMPUTER CONTROL

Midpoint of range given is the preferred setting.

1988 Rotary engine: Bridge terminals of the initial set coupler, located by washer fluid bottle, and set idle speed to specification.

1989-91 Rotary engine: Ground test connector (single wire, green connector) by battery.

1987-93 Gasoline piston engines: To set idle speed, turn idle speed screw to obtain specified idle. To set fast idle, set cam on specified step and adjust to specified value. To set speed-up speed, activate vacuum ports on vacuum solenoid that correspond to each speed-up system. Adjust vacuum ports on solenoid to specified value.

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
Rotary Engines:						
1308cc FI	1988-92	725-775	725-775 N	—	—	—
Speed-up	1988-92	800	750 D			
Piston Engines:						
2184cc 2V	1987-93	800-850	800-850 N	3000-4000	3000-4000 N	High
Speed-up: A/C	1987-93	1300-1500	1300-1500 N			
Elect. load, PS	1987-93	—	920-970 N			

MAZDA

MAZDA Continued

IDLE SPEED W/O COMPUTER CONTROL Continued

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
2555cc	1987-88	800-850	800-850 N	—	—	—
Speed-up	1987-88	1200-1400	1200-1400 N			

IDLE SPEED W/COMPUTER CONTROL

Midpoint of range given is the preferred setting speed.

Canada models, apply parking brake to turn off headlights.

1991cc w/AT: If Scan tool indicates idle out of limits, remove timing shorting bar and set idle to specified value.

1994 2.3L Pickup: Remove spout shorting bar from connector. Disconnect IAC valve. Run engine at 2500 rpm for 30 seconds and set idle to specified value.

1991-94 V6 Pickups, Navajo: Special Scan tool needed to adjust idle.

1987-95 All other models:
Ground test terminal 10 of DLC and set idle to specified value. Set idle to specified value. Turn on headlights and set heater blower to high. Electrical speed-up should be at specified value. Turn AC on and verify that idle increases to AC speed-up speed.

1996-97: Connect a Scan tool and access idle speed function. Set idle to specified value. Turn on headlights and set heater blowerd to high. Electrical speed-up should be at specified value. Turn AC on and verify that idle increases to AC speed-up speed.

Engine	Year	Transmission	Setting Speed	Electrical Speed-up	AC Speed-up
1308cc	1993-95	MT	700-750	—	875-925
		AT	700-750 N	—	775-825 N
1489cc	1995-98	MT	650-750	650-750	650-750
		AT	700-800 N	700-800 N	700-800 N
1597cc FI	1988-89	MT	800-900	—	—
		AT	800-900 N	—	—
1597cc Miata	1990-93	MT	800-900	—	—
		AT	800-900 N	—	—
1597cc 323	1990-94	MT	700-800	—	—
		AT	700-800 N	—	—
1597cc MX-3	1992-93	MT	700-800	—	800-900
		AT	700-800 N	—	750-850 N
	1994-95	MT	650-750	—	—
	1994-95	AT	700-800 N	—	—
1597cc	1999	MT	650-750	650-750	—
		AT	650-750 N	650-750 N	
1839cc Protegé	1990-94	MT	700-800	—	—
		AT	700-800 N	—	—
	1995-98	MT	700-800	—	700-800
		AT	700-800 N	—	700-800 N
1839cc Miata	1994-95	MT	800-900	—	—
		AT	750-850	—	—
	1996-97	MT	800-900	850	1000
		AT	750-850 N	800 N	800 N
1839cc Miata	1999	MT	750-850	750-850	950-1050
		AT	750-850 N	750-850 N	950-1050 N
1839cc Protegé	1999	MT	650-750	650-750	700-800
		AT	650-750 N	650-750 N	700-800 N
1844cc	1992-94	MT	640-700	—	720-780
		AT	640-700 N	—	720-760 N

MAZDA Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Transmission	Setting Speed	Electrical Speed-up	AC Speed-up
1991cc	1993-95	MT	650-750	—	—
		AT	650-750 N	—	—
	1996-97	MT	650-750	725-825	725-825
		AT	650-750 N	675-775 N	725-825 N
	1998-99	MT	550-850	625-925	625-925
		AT	550-850 N	525-825 N	500-800 N
2184cc FI	1988-89	MT	750	—	800
		AT	750 N	—	800 N
2184cc FI, 626, MX-6	1990-92	MT	725-775	—	800
		AT	725-775 N	—	850 N
2184cc FI Pickup	1991-93	MT	730-770	—	—
		AT	750-790 N	—	—
2255cc	1995-98	AT	600-700 N	—	—
2497cc	1993-97	MT	600-700	—	775-875
		AT	600-700 N	—	775-875 N
2497cc Millenia	1998-99	AT	600-700 N	—	775-875 N
2497cc 626	1998-99	MT	550-750	550-750	725-925
		AT	550-750 N	550-750 N	725-925 N
2606cc	1989-93	MT	730-770	—	—
		AT	750-790 N	—	—
	1994	MT	750-790	—	—
		AT	750-790 N	—	—
2954cc	1988-91	MT	630-670	—	—
		AT	630-670 N	—	—
DOHC	1990-91	AT	680-720 N	—	900 N
2954cc 929	1992-95	AT	680-720 N	—	—
2954cc MPV	1989-98	MT	780-820	—	—
		AT	780-820 N	—	—

4 Electrical speed-up: 525-825 N

MERCEDES

1988-99

FUEL SYSTEM

FUEL PRESSURE

With engine at operating temperature, and idling.

Engine	Year	System PSI
4-cyl.		
2.2L	1994-96	47-53
2.3L	1988-94	77-80
	1996-97	83-86
6-cyl.		
2.6L	1988-94	77-80
2.8L	1993-96	46-52
3.0L SOHC	1988-92	77-80
3.0L DOHC	1988-92	90-93
3.0L	1993-96	46-52
3.2L DOHC	1991-92	90-93
3.2L	1993-96	46-52
8-cyl.		
4.2L, 5.6L	1988-94	90-93
4.2L	1997	47-53
5.0L	1991-94	90-93
12-cyl.		
6.0L	1992-96	46-52

MERCEDES

MERCEDES Continued

IDLE SPEED

Engine	Year	Man. Trans.	Auto. Trans.
2.2L	1994-96	—	650-850
2.3L	1988-93	700-800	600-800 D
2.5L Diesel	1988	660-700	660-700 N
2.5L Turbo Diesel	1991	720-760	660-700 N
2.5L Turbo Diesel	1992-94	720-760	660-760 N
2.6L	1988-93	650-750	550-650 D
2.8L	1993-96	—	600-800 N
3.0L SOHC	1988-92	600-700	500-600 D
3.0L DOHC	1991-94	650-750	550-650 D
3.0L Diesel	1995	—	580-680 N
3.2L	1991-93	—	550-700 D
3.5L Turbo Diesel	1991-94	—	610-650 N
3.6L	1995	—	650-750 N
4.2L	1988-97	—	600-750 N
5.0L	1990-96	—	600-750 N
5.6L	1988-91	—	500-600 D
6.0L	1992-96	—	600-750 N

MITSUBISHI

1988-99

FUEL SYSTEM PRESSURE

Engine	Year	Pressure PSI[1]	Pressure PSI[2]
1597cc Turbo SDHC, 2555cc Turbo	1988-89	35-38[3]	—
All ex. Turbo	1988-96	47-53	38
	1997-99	47-50	38
4-cyl. Turbo MT	1989-94	36-38	27
4-cyl. Turbo AT	1992-94	41-46	33
4-cyl. Turbo	1995-99	42-45	33
V6 Turbo	1991-99	43-45	34

1 Vacuum disconnected from fuel pressure regulator.
2 Vacuum connected to fuel pressure regulator.
3 Measured at TBI unit.

IDLE SPEED W/O COMPUTER CONTROL

Midpoint of range given is the preferred setting.

1468cc, 1988 1997cc Tredia, Cordia w/MT: Set idle speed to specified value. 1988, to set PS/Elect. speed-up, apply 12 volts to throttle opener solenoid and adjust to specified value. To set A/C speed-up, turn A/C on and adjust vacuum actuator to specified value.

All others: Set idle speed to specified value. Turn A/C on and adjust speed-up speed as needed.

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
1468cc Mirage	1988	600-800	650-850	2800	2700 N	2nd High
PS, Elect. speed-up	1988	750-950	750-950 N			
A/C speed-up	1988	800-900	800-900			
1468cc Precis	1988-89 900	700-900 N	700-	2800	2700 N	2nd High

MITSUBISHI Continued

IDLE SPEED W/O COMPUTER CONTROL Continued

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
PS, Elect. speed-up	1988-89	750-950	750-950 N			
A/C speed-up	1988-89	850-900	850-900			
1997cc Pickup	1988-89	650-850	650-850 N	2500	2450 N	2nd High
A/C speed-up	1988-89	850-900	850-900 N			
1997cc Tredia, Cordia	1988	600-800	—	—	—	—
A/C speed-up	1988	800-900	—			
2555cc 2V	1988-90	700-900	700-900 N	2350	2300 N	2nd High
A/C speed-up, Pickup	1988-89	850-900	850-900 N			
A/C speed-up, Montero	1988-90	900-950	900-950 N			

IDLE SPEED W/COMPUTER CONTROL

Midpoint of range given is the preferred setting speed.

1988 Tredia, Cordia w/AT:

Turn ignition on for 18 seconds and turn off. Disconnect ISC actuator and oxygen sensor, start engine. Set idle to specified value. Verify that base idle screw is 2/3 of a turn away from the setting speed. Turn A/C on and verify that speed-up speed is at specified value.

1988 1597cc, 1795cc Turbo, 2350cc, 2555cc Turbo;

1989-93 All Others;

1994-95 1755cc, 2350cc Pickup ex. Calif 2WD:

Verify that TPS voltage is at proper value. Turn ignition on for 20 seconds and turn off. Disconnect ISC servo. Ground red wire in connector (computer side of harness) (1988 1.6L Turbo, 1988-89 2.6L Turbo) and start engine. Set idle speed to specified value. Turn A/C on and verify that A/C speed-up speed is at specified value. This is not adjustable.

1989-93 1597cc, 1834cc, 1997cc DOHC, 2972cc;

1993 1997cc SOHC, 2350cc Expo & 2WD California Pickup;

1994 1997cc, 2350cc, 2WD California Pickup;

1995 2350cc Pickup 2WD Calif.:

Disconnect and ground female end of ignition timing connector. Ground terminal 10 of self-diagnostic connector (under dash). Set idle speed. Reinstate system, turn A/C on and verify the speed-up is at specified value.

1994-95 1468cc, 1834cc, 2350cc Expo, Galant; 2972cc, 3497cc;

1995 1997cc:

1996 All:

Ground the ignition timing connector and terminal 1 (upper left) of the 16 terminal self- diagnostic connector under dash. Set ideal to specified setting value. Turn A/C on and verify that speed-up speed is at specified value.

1995-99 1996cc:

Remove PCV valve from PCV hose and install special tool (.0125" orifice). Connect a Scan tool and access "Minimum Idle Speed." If checking speed is not 500-1100 (N), replace the throttle body.

1997-99: Connect a scan tool and access idle speed functions.

Engine	Year	Trans-mission	Setting Speed	Checking Speed	AC Speed-up
1468cc FI Mirage	1989-96	MT	700-800	650-850	800-900
	1989-92	AT	700-800 N	650-800 N	750 D
	1993-96	AT	700-800 N	650-850 N	800-900 N

MITSUBISHI

MITSUBISHI Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Trans-mission	Setting Speed	Checking Speed	AC Speed-up
1468cc Mirage	1997-98	MT	700-800	600-800	800-900
		AT	700-800 N	600-800 N	800-900 N
	1999	MT	650-750	600-800	750-950
		AT	650-750N	600-800N	750-950N
1468cc FI Precis:					
to 3/93	1990-93	MT	600-800	—	—
		AT	600-800 N	—	—
1468cc FI Precis:					
from 3/93	1993-94	MT	725-925	—	—
		AT	725-925 N	—	—
1597cc	1988	MT	700	600-800	800
		AT	700 N	600-800 N	650 D
1597cc	1989-92	MT	700-800	650-850	850
		AT	700-800 N	650-850 N	700 D
1755cc	1990-94	MT	650-750	600-800	850
		AT	650-750 N	600-800 N	650 D
1795cc	1988	MT & AT	600 (N)	600-800 (N)	
1834cc	1992-93	MT	700-800	650-850	830
		AT	700-800 N	650-850 N	830 N
California Expo	1993	MT	650-750	600-800	830
		AT	650-750 N	600-800 N	830 N
1834cc Mirage	1994-96	MT	700-800	650-850	800-900
		AT	700-800 N	650-850 N	800-900 N
	1997-99	MT	700-800	600-800	800-900
		AT	700-800 N	600-800 N	800-900 N
	1999	MT	650-750	600-800	750-950
		AT	650-750N	600-800N	750-950N
1834cc Expo	1994-96	MT	650-750	600-800	800-900
		AT	650-750 N	600-800 N	800-900 N
1996cc	1995-99	MT	—	700-900	—
		AT	—	700-900 N	—
1997cc Tredia, Cordia	1988	AT	700	600-800 (N)	800-900 (N)
1997cc SOHC	1989-92	MT	700-800	650-850	900
		AT	700-800 N	650-850 N	700 D
1997cc SOHC	1993	MT	650-750	600-800	850
		AT	650-750 N	600-800 N	650 D
1997cc DDHC	1990-99	MT	700-800	650-850	750-950
		AT	700-800 N	650-850 N	750-950 D
Turbo, Galant	1990-92	MT	750-850	700-900	850
2350cc	1988	MT	750	650-850	—
		AT	750 N	650-850 N	—
2350cc Trucks	1989-91	MT	700-800	650-850	900
	1992	MT	700-800	650-850	1000
	1989-92	AT	700-800 N	650-850 N	700 D
2350cc Expo	1992-96	MT	700-800	650-850	800-900
		AT	700-800 N	650-850 N	800-900 N
2350cc SOHC					
Galant, Montero	1994-98	MT	700-800	650-850	800-900
		AT	700-800 N	650-850 N	800-900 N
2350cc Montero, Eclipse	1999	MT	700-800	650-850	750-950
		AT	700-800 N	650-850 N	750-950 N
2350cc Galant	1999	MT	650-750	650-850	750-950
		AT	650-750 N	650-850 N	750-950 N
2350cc DOHC Galant	1994-96	MT	750-850	700-900	800
		AT	750-850 N	700-900 N	800 N
2350cc Truck	1993-96	MT	700-800	650-850	1000
		AT	700-800 N	650-850 N	700 D
2555cc Turbo	1988	MT	850	750-950	1000
		AT	850 N	750-950 N	750 D

MITSUBISHI Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Trans-mission	Setting Speed	Checking Speed	AC Speed-up
2555cc Turbo	1989	MT	850	750-950	900
		AT	850 N	750-950 N	650 D
2972cc	1988	MT & AT	650-750 N	600-800 N	900 N
2972cc Galant	1999	AT	650-750 N	600-800N	750-950N
2972cc Others	1989-98	MT	650-750	600-800	900
		AT	650-750 N	600-800 N	650 D[1]
3497cc	1994-98		650-750	600-800	800-1000
			650-750 N	600-800 N	800-1000 N

1 Truck, 900 (N).

NISSAN

1988-99

FUEL SYSTEM

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

All carbureted & TBI, measured at fuel inlet fitting on unit.

All MFI, measured between fuel filter and metal pipe. Values are approximate pressure.

Engine	Year	Pressure PSI	Pressure RPM
Carbureted & TBI:			
1597cc TBI	1988	14	idle
1597cc	1989-90	43[1]	idle
		34[2]	idle
2389cc	1988-89	36	idle
2960cc TBI	1988-89	36	idle
Fuel Injected (MFI):			
1597cc, 1998cc	1991-94	43	36idle
	1995-99	43	34idle
1809cc Turbo	1988	37	30idle
1809cc DOHC	1988-90	43	36idle
1974cc	1988-89	43	37idle
2389cc	1989-99	43	34idle
2960cc	1988	37	30idle
Turbo	1988	44	30idle
2960cc Maxima	1989-94	43	36idle
2960cc 300ZX	1989	37	30idle
Turbo	1989	44	30idle
2960cc 300ZX	1990-96	43	36idle
2960cc Pickup, Ouest Pathfinder, Altima	1990-98	43	34idle
2988cc	1995-99	43	34idle
3275cc	1996-99	43	34idle

1 Without vacuum applied to fuel pressure regulator.
2 With vacuum applied to fuel pressure regulator.

IDLE SPEED W/O COMPUTER CONTROL

Preferred setting is the midpoint of ranges given.

With engine warm, turn idle speed adjusting screws to obtain specified rpm.

Allow engine to warm up, race engine several times. With FI, disconnect fast idle control device (FICD). Adjust throttle screw to obtain specified rpm.

NISSAN Continued

IDLE SPEED W/O COMPUTER CONTROL Continued

Carbureted:

To set fast idle, open throttle valve and set to specified step of cam. Adjust fast idle screw to specification.

To set A/C speed-up, turn A/C on and set blower to high. Adjust speed-up device adjusting screw to specification.

		SLOW		FAST		
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	Step of Cam
1974cc 200SX	1988	700-800	700-800 D	—	—	—
A/C speed-up	1988	1000-1050	750-850 D			
2389cc Van	1988	750-850	650-750 D	—	—	—
A/C speed-up	1988	900-1000	900-1000 N			
2389cc Pickup, Pathfinder	1988-89	750-850	600-700 D	—	—	—
A/C speed-up	1988-89	850-950	850-950 N			
2960cc Pickup	1988-89	750-850	650-750 D	—	—	—
A/C speed-up.	1988-89	850-950	850-950 D			
2960cc 200SX	1988	650-750	650-750 D	—	—	—
High Altitude	1988	600-700	600-700 D	—	—	—
A/C speed-up	1988	750-850	750-850 D			
2960cc Maxima	1988	700-800	650-750 D	—	—	—
High Altitude	1988	650-750	600-700 D	—	—	—
A/C speed-up	1988	750-850	750-850 D			
2960cc 300ZX	1988-89	650-750	650-750 D	—	—	—
High Altitude	1988-89	600-700	600-700 D	—	—	—
A/C speed-up, all	1988-89	750-850	750-850 D			

1 Checking figure, cannot be adjusted.

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Midpoint of range given is the preferred setting speed.

1988-99 1597cc FI, 1998cc, 2389cc, 1993-94 2960cc 300ZX ex. Turbo, 1995-96 2960cc 300ZX, Trucks; 1996-99 2960cc Quest 2988cc Maxima, 3275cc all:

With engine at operating temperature disconnect throttle position sensor harness connector. Start engine and set idle to specified setting speed. Turn engine off, reconnect harness and restart engine. Verify that idle speed is within checking speed. Turn on A/C and verify that idle increases to specified value.

1988-89 2960cc Turbo, 1988-89 1598cc, 1809cc DDHC:

With engine at operating temperature, turn ignition off and disconnect automatic air control (AAC) valve harness. Start engine and set idle speed to specified value. Switch engine off and reconnect harness. Restart engine and check idle speed against specified value. Turn A/C on and verify that speed-up is at specified value.

All engines, turn A/C on and verify that speed-up speed is at specified value.

1988 1809cc Turbo, 1987-89 1974cc Stanza:

Disconnect throttle valve and automatic air control valve harness. Start engine and adjust idle to specified setting speed. Turn engine off, reconnect harness and restart engine. Verify that idle is at specified checking speed.

NISSAN Continued

IDLE SPEED W/COMPUTER CONTROL

1989-94 2960cc Maxima SOHC:
Turn diagnostic selector screw on ECM fully clockwise. Adjust idle to specified value. Turn selector screw fully counterclockwise and verify that idle is at specified checking value. Turn A/C on and verify that idle increases to specified value.

1990-94 2960cc Trucks
1990-92 2960cc 300ZX; 1993-94 2960cc 300XZ Turbo; 1993-95 2960cc Quest:
Disconnect IACV and set idle to specified value.

1990-96 2960cc 300ZX:
Attach inductive clamp to loop wire on power transistor behind upper radiator hose. Disconnect IAC and set idle to specified value.

All models: After checking/adjusting idle speed, reinstate connections and turn A/C on. Verify that speed increases to specified value.

Engine	Year	Transmission	Setting Speed	Checking Speed	Speed-up Speed
1597cc FI	1988	MT	750	700-900 D	900-1100
		AT	670 D	600-800 D	650-850 D
1597cc 2WD	1989-90	MT	675-775	700-900	950-1150
Sentra	1989	AT	575-675 D	600-800 D	950-1150 N
Sentra	1990	AT	750-850 N	800-1000 N	950-1150 N
Pulsar	1989-90	AT	575-675 D	650-850 D	900-1100 N
1597cc 4WD	1989-90	MT	675-775	700-900	900-1100
	1989	AT	575-675 D	600-800 D	900-1100 N
	1990	AT	750-850 N	800-1000 N	900-1000 N
1597cc U.S.	1991-94	MT	550-650	600-700	600-700
Canada	1991-94	MT	550-650	700-800	700-800
All	1991-94	AT	675-775 N	750-850 N	750-850 N
1597cc	1995-99	MT	575-675	625-725	900 min.
Canada	1995-99	MT	575-675	700-800	900 min.
All	1995-99	AT	675-775 N	750-850 N	900 N min.
1809cc DOHC	1988-90	MT	700-800	750-850	950-1050
		AT	600-700	650-750 D	950-1050 N
1809cc Turbo	1988-89	MT	700	700-800	1000-1050
1974cc Stanza	1988-89	MT	650-750	700-800	950-1050
		AT	550-650 D	650-750 D	950-1050 N
1974cc Stanza Wagon	1988	MT	650-750	700-800	800-900
		AT	550-650 D	650-750 D	650-750 D
1998cc	1991-94	MT	700-800	750-850	800-900
		AT	700-800 N	750-850 N	800-900 N
	1995-99	MT	700-800	750-850	850 min.
		AT	700-800 N	750-850 N	850 N min.
2389cc 240SX	1989	MT	650-750	700-800	950-1050
From eng. KA24-012039	1989-90	MT	600-700	650-750	950-1050
	1989-90	AT	650-750 N	700-800 N	950-1050 N
2389cc 240SX	1991-94	MT	600-700	650-750	950-1050
		AT	600-700 N	650-750 N	950-1050 N
	1995-96	MT	600-700	650-750	1000 min.
		AT	600-700 N	650-750 N	1000 N min.
	1997-98	MT	600-700	650-750	800 min.
		AT	600-700 N	650-750 N	800 N min.
2389cc Altima	1993-94	MT	600-700	650-750	750-850
		AT	600-700 N	650-750 N	750-850 N
	1995-99	MT	600-700	650-750	800 min.
		AT	600-700 N	650-750 N	800 N min.
2389cc Axxess, Stanza: U.S.	1990-92	MT	600-700	650-750	—
		AT	600-700 N	650-750 N	—
Canada	1990-92	MT	600-700	700-800	—
		AT	600-700 N	700-800 N	—

NISSAN & OLDSMOBILE

NISSAN Continued

IDLE SPEED W/COMPUTER CONTROL Continued

Engine	Year	Transmission	Setting Speed	Checking Speed	Speed-up Speed
2389cc Frontier	1998-99	MT	700-800	750-850	875 min.
		AT	700-800 N	750-850 N	875 N min.
2389cc Pickup, Pathfinder	1990-92	MT	700-800	750-850	800-900
		AT	700-800 N	750-850 N	800-900 N
2389cc Pickup, Pathfinder	1993-95	MT	700-800	750-850	—
	1993-95	AT	700-800 N	750-850 N	—
	1996-97	MT	700-800	750-850	900 min.
		AT	700-800 N	750-850 N	900 N min.
2960cc 300ZX Turbo	1988-89	MT	650	650-750	750-850
		AT	600 D	600-700 D	750-850 D
2960cc Maxima SOHC	1989-91	MT	700	700-800	750-850
	1989-94	AT	700 N	700-800 N	750-850 N
2960cc Maxima DDHC	1992-94	MT	650-750	700-800	750-850
	1992-93	AT	650-750 N	700-800 N	750-850 N
	1994	AT	650-750 N	740-840 N	750-850 N
2960cc Trucks	1990-95	MT	700	700-800	750-850
		AT	700 N	700-800 N	750-850 N
2960cc 300ZX	1990-94	MT	650	650-750	750-850
		AT	720 N	720-820 N	750-850 N
Turbo	1990-94	MT	650	650-750	800-900
		AT	700 N	700-800 N	800-900 N
2960cc 300ZX	1995-96	MT	600-700	650-750	800 min.
		AT	670-770 N	720-820 N	800 N min.
Turbo: U.S.	1995-96	MT	600-700	650-750	850 min.
Canada		MT	650-750	700-800	850 min.
		AT	650-750 N	700-800 N	800-900 N
2960cc Quest	1993-95	AT	650-750 N	700-800 N	750-850 N
	1996-98	AT	650-750 N	700-800 N	800 N min.
2988cc Maxima	1995-99	MT	550-650	600-700	850 min.
		AT	600-700 N	650-750 N	850 N min.
3275cc	1996-99	MT	650-750	700-800	850 min.
		AT	650-750 N	700-800 N	850 N min.

OLDSMOBILE

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Carbureted models, pinch off fuel return line.

All models with TBI, pressure measured at fuel inlet of TBI.

All models with MFI, pressure measured at fuel rail.

Engine	Year	PSI	RPM
Carbureted, TBI:			
2.0L (122) FI	1988-89	9.0-13.0	ign. on
		13.0 min.[1]	ign. on
2.5L (151) FI	1988-92	9.0-13.0	ign. on
		13.0 min.[1]	ign. on
5.0L, 5.7L	1991-92	9-13	idle
		13.0 min.[1]	idle
5.0L (307)	1988-90	5.5-6.5	idle

1 Fuel pump pressure with return line briefly restricted.

OLDSMOBILE Continued

FUEL SYSTEM PRESSURE Continued

Engine	Year	Pressure (PSI) Ign. On	Idle	Fuel Pump[1]
Fuel Injected (MFI):				
2.2L, 2.3L, 2.4L	1988-99	40-47	30-44	47 min.
2.8L (173)	1988-89	40-47	30-44	60 min.
3.0L (181)	1988	40-47	31-42	75 min.
3.1L	1989-99	40-47	30-44	47 min.
3.3L	1989	40-44	32-36	50 min.
	1990-93	40-47	30-44	47 min.
3.4L DOHC	1991-95	40-47	30-44	47 min.
	1996	48-55	38-52	55 min.
	1997	41-47	31-44	47 min.
3.8L (231) Code 3	1988	34-40	25-35	75 min.
3.8L (231) Code C	1988-91	40-47	31-43	75 min.
3.8L Code L, 1	1991-95	40-47	30-44	47 min.
3.8L Code K	1995-99	48-55	38-52	55 min.
4.0L	1995-97	48-55	38-52	55 min.
1998-99	40-47	30-44	47 min.	

1 With fuel return line briefly restricted.

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Midpoint of range given is the preferred setting speed.

Idle speed is adjustable only if specifications are shown in the "Minimum Speed" column.

All w/FI & TBI (when specifications appear in "Minimum Speed" column): Ground diagnostic lead and turn ignition on for 30 seconds.

Remove IAC electrical lead and remove ground from diagnostic connector. Start engine and set minimum speed to specified value.

All carbureted w/ILC: Disconnect and plug vacuum hoses at EGR and canister purge valves. With engine at operating temperature, remove vacuum hose from ILC and plug. Set maximum speed to specified value by holding hex nut and turning plunger shaft. Reconnect ILC vacuum hose and check that minimum speed is at specified value. To adjust, remove rubber and metal plugs from rear center outlet tube, insert a 3/32" Allen wrench. Remove ILC hose and plug. Connect a remote vacuum source and apply vacuum to the unit. Adjust carb base screw to obtain specified base value.

ALL FUEL INJECTED

Engine	Year	Minimum Speed Man. Trans.	Minimum Speed Auto. Trans.	Checking Speed Man. Trans.	Checking Speed Auto. Trans.
2.0L (122) OHC	1988	450-600	450-600 N	800 max.[1]	800 N max.[1]
2.2L	1993	—	—	—	725-875 N
2.3L	1990-92	—	—	800 max.[1]	800 N max.[1]
2.5L (151)	1988-92	550-650	550-650 N	800 max.[1]	800 N max.[1]
2.8L (173)	1988-89	—	—	750-950	650-750 D
3.0L (181)	1988	—	450-550 D	—	—
3.1L MFI	1989-91	—	—	750-950	650-750 D
3.1L MFI Code T	1992-93	—	—	800-900	700-800 N
3.1L Code M	1993	—	—	—	600-700 D
3.3L	1989	—	—	—	650-750 N
3.3L Calais	1990	—	—	—	675-750 D
Ciera	1990	—	—	—	650-750 N
3.3L	1991-93	—	—	—	650-750 N
3.4L DOHC	1991-93	—	—	800-900	700-800 N
	1994-95	—	—	650-750	650-750 N
3.8L (231) FI Code 3	1988	—	450-550 D	—	—
3.8L Code C	1988-89	—	—	—	650-750 N
	1990-91	—	—	—	650-850 N
3.8L Code K, L	1991-95	—	—	—	650-750 N
	1996-97	—	—	—	600-700 N

OLDSMOBILE & PONTIAC

OLDSMOBILE Continued

IDLE SPEED W/COMPUTER CONTROL Continued

ALL FUEL INJECTED Continued

Engine	Year	Minimum Speed		Checking Speed	
		Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.
4.0L	1995-99	—	—	—	550-675 N
5.0L	1991	—	—	—	500-600 D

1 With ISC fully seated.

ALL CARBURETED

Engine	Year	Trans.	Min. Speed	Max. Speed	Fast	Step of Cam
5.0L (307)	1988-90	AT	450 D	700 D	550 D	Low
base idle	1988-90	AT	450 D	—		

PONTIAC

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Carbureted models, pinch off fuel return hose.
All models with TBI, pressure measured at fuel inlet of TBI unit.
All models with MFI, pressure measured at fuel rail.

All ex. MFI

Engine	Year	PSI	RPM
4-cyl.			
1.6L (98)	1988-93	9.0-13.0	idle
		13 min.[1]	idle
2.0L (122)	1987-89	9.0-13.0	ign. on
		13 min.[1]	idle
2.5L (151)	1988-91	9.0-13.0	idle
		13 min.[1]	idle
8-cyl.			
5.0L (305) TBI	1988-92	9.0-13.0	idle
		13 min.[1]	idle
5.0L (307)	1988-89	5.5-6.5	idle

MFI

Engine	Year	Ign. On	Pressure (PSI) Idle	Fuel Pump[1]
2.0L	1992-94	40-47	30-44	47 min.
2.0L (122) Turbo	1988-90	35-38	25-30	65 min.
2.2L	1995-99	40-47	30-44	47 min.
2.3L (138), 2.4L	1988-99	40-47	30-44	47 min.
2.8L (173), 3.1L	1988	40-47	30-44	47 min.
3.1L	1989-99	40-47	31-44	47 min.
3.3L	1992-93	40-47	31-44	47 min.
3.4L	1991-95	40-47	31-44	47 min.
	1996-97	48-55	38-52	55 min.
3.8L (231) Code 3	1988	34-40	25-35	75 min.
3.8L (231) Code C	1988-89	40-47	37-43	75 min.
3.8L Code C, L, 1	1990-95	40-47	30-44	47 min.
3.8L Code K	1995-99	48-55	38-52	55 min.
5.0L (305), 5.7L (350)	1988-99	40-47	30-44	47 min.

1 With fuel return line briefly restricted.

PONTIAC Continued

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Midpoint of range given is the preferred setting speed.

If no specifications are listed under "Minimum Speed," the idle is not adjustable.

All w/FI & TBI when specifications are listed in Minimum Speed column: Ground diagnostic lead and turn ignition on for 30 seconds. Remove IAC lead and remove ground from diagnostic connector. Start engine and set minimum speed to specified value.

All carbureted w/ILC: Disconnect and plug vacuum hoses at EGR and canister purge valves. With engine at operating temperature, remove vacuum hose from ILC and plug. Set maximum speed to specifications by holding hex nut and turning plunger shaft. Reconnect ILC vacuum hose and check that minimum speed is correct. To adjust, remove rubber and metal plugs from rear center outlet tube, insert a 3/32" Allen wrench. Remove ILC hose and plug. Connect a remote vacuum source and apply vacuum to the unit. Adjust carb base screw to obtain minimum speed.

ALL FUEL INJECTED

		Minimum Speed		Checking Speed	
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.
1.6L (98)	1988-93	550-650	450-550 N	—	—
2.0L (122) ex. OHC	1988-89	450-650	450-650 N	—	—
2.0L (122) OHC	1988-91	450-600	450-600 N	800[1] max.	800[1] N max.
2.0L OHC	1992-93	—	—	800-950	775-925 N
2.0L (122) OHC Turbo	1988-90	550-650	550-650 N	—	—
2.0L	1992-94	—	—	800-950	775-925 N
2.2L	1990-91	450-650	450-650 N	—	—
	1992	—	—	525-675	525-675 N
2.5L (151)	1988-91	550-650	550-650 N	750-850	750-850 N
2.8L (173), 3.1L	1988-89	—	—	750-950	650-750 D
Firebird	1988-89	600-700	500-600 D	—	—
3.0L (181), 3.8L (231)					
Code 3	1988	—	450-550 D	—	—
3.1L MFI	1990-91	—	—	800[1] max.	800 N[1] max.
3.1L MFI FWD	1992-93	—	—	800-900	700-800 N
3.1L Firebird	1992	—	—	800[1] max.	800 N[1] max.
3.3L	1992-93	—	—	—	650-750 N
3.4L DOHC	1991-93	—	—	800-900	700-800 N
	1994-95	—	—	650-750	650-750 N
3.4L Firebird	1993-95	—	—	800[1] max.	800 N[1] max.
3.8L Code C	1988-89	—	—	—	650-750 N
3.8L	1990-91	—	—	—	650-850 N
	1992-95	—	—	—	650-750 N
	1996-97	—	—	—	600-700 N
5.0L (305) MFI	1988	400	400 N	—	—
	1989	400-450	400-450 N	—	—
	1990-92	—	—	600-800	600-800 N
5.0L (305) TBI	1988-89	400-450	400-450 N	—	—
	1990-92	—	—	550-750	500-600 D
5.7L (350)	1988	—	450 N	—	—
	1989	—	400-450 N	—	—
	1990-92	—	—	—	600-800 N

1 With ISC fully retracted.

ALL CARBURETED

Engine	Year	Trans.	Min. Speed	Max. Speed	Fast	Step of Cam
5.0L (307)	1988-89	AT	450 D	700 D	550 D	Low
base idle	1988-89	AT	450 D			

PORSCHE

1988-99

FUEL SYSTEM

FUEL INJECTION SYSTEM PRESSURE PROCEDURE

CIS System:

1. Connect appropriate fuel pressure gauge between the control pressure line of the fuel distributor and the outlet line of the warm-up regulator.
2. Energize fuel pump with jumper wire.
3. Bleed pressure gauge and set valve to open position, read control pressure.
4. Set valve to closed position, read line pressure.

DME System:

1. Connect pressure tester to fuel pipe.
2. Start engine and read pressure at idle.

LH-Jetronic System:

1. Connect appropriate fuel pressure gauge to inlet of fuel injection manifold.
2. Energize fuel pump: 944: remove DME relay and bridge cavities 30 & 87b, 911: connect fuses 16 & 17 with a jumper wire, 928: remove fuel pump relay and bridge cavities 30 & 87b.
3. Read line pressure.
4. Disconnect jumper wire, pressure should immediately drop to residual specification and maintain pressure for 20 minutes.

FUEL PRESSURE: DME, LH-JETRONIC, MOTRONIC

Engine	Year	System Pressure Not Running PSI (bar)	System Pressure At Idle PSI (bar)	Residual Pressure PSI (bar)
2479cc				
ex. DOHC	1988	33-39 (2.3-2.7)	29 (2.0)	15 (1.0)
DOHC	1988	52-55 (3.6-3.8)	48 (3.3)	44 (3.0)
Turbo	1988-89	33-39 (2.3-2.7)	29 (2.0)	15 (1.0)
2681cc	1989	52-58 (3.6-4.0)	48 (3.3)	44 (3.0)
2990cc	1989-95	52-58 (3.6-4.0)	46-51 (3.1-3.5)	44 (3.0)
3164cc	1988-89	33-39 (2.3-2.7)	29 (2.0)	29 (2.0)
3600cc	1989-96	52-58 (3.6-4.0)	46-51 (3.1-3.5)	39 (2.7)
4957cc	1988-92	52-58 (3.6-4.0)	48 (3.3)	44 (3.0)
5397cc	1993-95	52-58 (3.6-4.0)	—	—

FUEL PRESSURE: CIS

Engine	Year	Control Pressure[1] PSI (bar)	Line Pressure PSI (bar)	Residual Pressure[2] PSI (bar)
3299cc	1988-89	51-57 (3.5-3.9)	87-97 (6.0-6.7)	22 (1.5)
	1991-92	51-57 (3.5-3.9)	87-97 (6.0-6.7)	22 (1.5)

1 With engine running at normal operating temperature.
2 Minimum pressure after 20 minutes.

COLD CONTROL PRESSURE: CIS

Model & Warm-up Regulator Part Number	Pressure[1] PSI (bar) @ 50°F (10°C) Ambient Temp.	Pressure[1] PSI (bar) @ 68°F (20°C) Ambient Temp.	Pressure[1] PSI (bar) @ 86°F (30°C) Ambient Temp.
911:			
0438140045	23-29 (1.6-2.0)	29-35 (2.0-2.4)	35-40 (2.4-2.8)
0438140069	17-23 (1.2-1.6)	26-32 (1.8-2.2)	35-40 (2.4-2.8)
0438140072	22-29 (1.5-2.0)	30-38 (2.1-2.6)	39-46 (2.7-3.2)
0438140090	20-26 (1.4-1.8)	29-35 (2.0-2.4)	38-45 (2.6-3.1)
911 Turbo:			
0438140016, 022	6-12 (0.4-0.8)	15-20 (1.0-1.4)	25-30 (1.7-2.1)
0438140054	15-22 (1.0-1.5)	23-30 (1.6-2.1)	33-39 (2.3-2.7)
0438140112	9-17 (0.6-1.2)	17-23 (1.2-1.6)	23-29 (1.6-2.0)
0438140153	13-23 (0.9-1.6)	22-26 (1.5-1.8)	32-36 (2.2-2.5)

1 With vacuum applied.

PORSCHE Continued

IDLE SPEED

911 ex. Turbo: Disconnect both cases of the Idle Speed Stabilizer (I.S.S.).

924, 944, 968: Disconnect the Idle Speed Stabilizer (I.S.S.).

All models with adjustable idle speed, adjust idle to specified Setting Speed.

Model	Year	Checking Speed	Setting Speed
Boxster	1997-98	790N	—
911 ex. Turbo	1988-89	—	860-900 (N)
911 Carrera 4	1989	840-920 (N)	—
911 Carrera 2 & 4	1990-96	840-920 (N)	—
W/MT	1994-96	760-840 (N)	—
W/Tiptronic	1994-96	710-790 (D)	—
W/AC	1996	840-920	—
911 Turbo	1988-92	—	850-950 (N)
	1993-94	—	900-1000 (N)
924	1988	—	800-880 (N)
928 ex. GT	1988-89	650-700 (N)	—
GT	1988-89	750-800 (N)	—
	1990-95	650-700 (N)	—
944	1988	—	800-880 (N)
	1989-91	800-880 (N)	—
968 W/MT	1992-95	800-880 (N)	—
W/Tiptronic	1992-95	840-920 (N)	—

IDLE MIXTURE

Measured upstream of the catalytic converter, disconnect oxygen sensor and/or secondary air supply where applicable.

Engine	Year	CO% Low	CO% High
2479cc ex. DOHC	1988-89	0.4	0.8
DOHC	1988	0.4	1.2
2681cc	1989	0.4	0.8
2990cc	1989-94	0.4	0.8
3164cc	1988-89	0.4	0.8
3299cc	1988-89	0.4	0.8
3598cc Turbo	1994	0.8	1.2
3600cc	1989-96	0.4	1.2
4957cc	1988-92	0.4	1.2
5397cc	1993-94	0.4	1.2

1 Measured at tailpipe with air pump hose disconnected & plugged.

SAAB

1988-99

FUEL SYSTEM PRESSURE

FUEL PRESSURE PROCEDURE

LH—Jetronic System:

1. Connect appropriate fuel pressure gauge to inlet of fuel injection manifold.
2. Energize fuel pump by connecting jumper wire from fuse #14 to fuse #22.
3. Read system pressure.
4. Disconnect jump wire, pressure should immediately drop to residual specification and maintain pressure for 10 minutes.

CIS System:

1. Connect appropriate fuel pressure gauge between the control pressure line of the fuel distributor and the outlet line of the warm-up regulator.
2. Remove fuel pump relay and energize pump by bridging cavities 30 & 87.
3. Bleed pressure gauge and set valve to open position, read control pressure.
4. Set valve to closed position, read line pressure.

SAAB

SAAB Continued

FUEL SYSTEM PRESSURE Continued

FUEL PRESSURE: LH-JETRONIC

Engine	Year	System Pressure PSI (bar)	Residual Pressure PSI (bar)
1985cc Non-Turbo	1988-90	43.0 (3.06)	39 (2.8)
	1988-92	36.0 (2.5)	33 (2.3)
1985cc Turbo	1994-98	43 (3.0)	29 (2.0)
2119cc	1991-92	43 (3.0)	39 (2.8)
2290cc	1991-98	43 (3.0)	29 (2.0)
2498cc	1994-97	43 (3.0)	29 (2.0)

FUEL PRESSURE: CIS

Engine	Year	Control Pressure[1] PSI (bar)	Line Pressure PSI (bar)	Residual Pressure[2] PSI (bar)
8-Valve Non-Turbo	1988	46-55 (3.4-3.8)	65-75 (4.5-5.2)	22 (1.5)

1 With engine at operating temperature.
2 Minimum pressure after 20 minutes.

COLD CONTROL PRESSURE: CIS

Pressure Regulator Part Number	Pressure PSI (bar) @ 50°F (10°C) Ambient Temp.	Pressure PSI (bar) @ 68°F (20°C) Ambient Temp.	Pressure PSI (bar) @ 86°F (30°C) Ambient Temp.	Pressure PSI (bar) @ 104°F (40°C) Ambient Temp.
0438140020, 085, 070, 102, 111	8-21 (0.6-1.4)	21-24 (1.4-1.6)	24-30 (1.6-2.1)	30-36 (2.1-2.5)

IDLE SPEED

Idle speed is not adjustable unless otherwise noted.

Engine	Year	Manual Trans.	Auto. Trans.
900 8-Valve, all	1988	800-950	800-950 N
16-Valve Turbo	1988-89	775-925[1]	775-925 N[1]
w/o Turbo	1988-89	775-925[1]	775-925 N[1]
All	1990-93	800-900	800-900 N
1985cc, 2290cc	1994-98	800-900	800-900 N
2498cc	1994-97	750-850	750-850 N
9000	1988-94	775-925[1]	775-925 N[1]
2290cc	1996-98	800-900	800-900
2962cc	1995-97	700-800	700-800 N

1 If equipped with idle speed screw, adjust to 850 N.

IDLE MIXTURE

Engine	Year	CO% Minimum	CO% Maximum
1985cc Turbo	1992-93	1.0	1.6
2119cc	1992	0.5	1.5
2290cc	1991-98	0.5	1.5

SATURN

1988-99

FUEL SYSTEM PRESSURE

Engine	Year	Pressure PSI	Condition
1.9L SOHC	1991-94	26-31	idle
		46-94[1]	
1.9L DOHC	1991-94	38-44	ign. on
		31-36	idle
		46-94[1]	
1.9L	1995-99	38-44	ing. on
		31-36	idle
		46-94[1]	

1 Fuel pump pressure.

IDLE SPEED W/COMPUTER CONTROL

1991-94: With IAC fully seated, install plug in air bypass port. Set idle to specified value.
1995-97: Check idle speed only.

Engine	Year	Transmission	Checking Speed	Setting Speed	AC Speed up
1.9L SOHC	1991-94	MT	700-800	400-600	700-800
		AT	600-700 D	400-600 N	725-825 D
1.9L DOHC	1991-94	MT	800-900	400-600	825-925
		AT	700-800 D	400-600 N	725-825 D
1.9L SOHC	1995-99	MT	700-800	—	—
		AT	600-700 D	—	725-825 D
1.9 DOHC	1995-99	MT	800-900	—	825-925
		AT	700-800 D	—	725-825 D

SUBARU

1988-99

FUEL SYSTEM

FUEL PUMP

Engine	Year	Pressure PSI	Pressure RPM
1189cc 2V	1988-91	1.25-2.0	idle
1781cc 2V	1988-89	2.6-3.3	idle
MPFI	1988-90	26-30	idle
SPFI	1988-94	20-24	idle
1820cc	1993-94	26-30	idle
	1997-98	36.3	idle
2212cc	1990-95	26-30	idle
	1996-98	36.5	idle
2457cc	1996-98	26-30	idle
2672cc	1988-89	26-30	idle
3318cc	1992-94	36.3	idle

CARBURETOR CHOKE

Engine	Year	Make	Choke (notches) Man. Trans.	Choke (notches) Auto. Trans.
3-cyl. 1189cc	1988-89	Hitachi OFC328	high	high

SUBARU & TOYOTA

SUBARU Continued

IDLE SPEED W/O COMPUTER CONTROL

Disconnect and plug EVAP canister purge hose at carburetor or throttle body.
With FI, ensure that auxiliary air valve is closed.

Engine	Year	Manual[1] Trans.	Auto.[1] Trans.
3-cyl. 1189cc 2V	1988-93	750-850	—
Speed-up	1988-93	850-950	—
All 1595cc	1988-89	600-800	—
All 1781cc	1988-91	600-800	700-900 N
AC speed-up, 2V	1988-89	900-1000	900-1000 N
AC speed-up, FI	1988-89	800-900	800-900 N

1 Preferred setting is midpoint of range given.

IDLE SPEED W/COMPUTER CONTROL

1781cc TBI: Disconnect air valve control connector and set to specified setting speed.

Engine	Year	Setting Speed	Checking Speed	Speed-up
1189cc	1990-94	—	650-750	—
1781cc TBI	1988-90	500-600	600-800	800-900
Turbo	1989-90	—	700-900	—
1820cc	1993-94	—	600-800	800-900
	1995-98	—	600-800 N	750-850 N
2212cc	1990-98	—	600-800 N	800-900 N
2457cc	1996-98	—	600-800 N	800-900 N
2672cc	1988-91	—	650-850	800-900
3318cc	1992-97	—	510-710	750-850 N

TOYOTA

1988-99

FUEL SYSTEM PRESSURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

Engine	Year	Pressure PSI	Pressure RPM
Carbureted:			
1452cc	1988	2.6-3.5	idle
1456cc	1988-90	3.0	idle
1587cc	1988-89	2.5-3.5	idle
2366cc	1988-90	2.8-4.3	idle

Engine	Year	Pressure PSI[1]	Pressure PSI[2]
Fuel Injected:			
1456cc, 1497cc	1990-96	41-42	33-37
1497cc	1997-99	—	44-50
1587cc 2WD	1988-89	38-44	30-33
1587cc 4WD	1989	33-40	23-30
1587cc Supercharged	1988-89	33-40	20-27
1587cc, 1762cc	1990-97	38-44	30-37
1794cc	1998-99	—	44-50
1998cc, 2164cc, Camry, Celica	1988-91	38-44	33-37
1998cc, 2164cc MR2	1991	33-38	27-31
1998cc	1992-95	33-38	27-31
	1996-99	—	44-50
2164cc	1992-95	38-44	30-37
2164cc Celica	1996	38-44	30-37
Camry	1996	38-44	33-38
2164cc Celica	1997-99	38-44	33-38
Camry, Solara	1997-99	—	44-50

TOYOTA Continued

FUEL SYSTEM PRESSURE Continued

Engine	Year	Pressure PSI[1]	Pressure PSI[2]
2237cc	1988-89	38-44	30-33
2366cc	1988	33-38	27-31
	1989-95	38-44	33-37
2438cc	1991-99	38-44	30-37
Supercharged	1994-97	33-40	24-31
2507cc	1988-91	38-44	33-37
2693cc	1994-99	38-44	31-37
2759cc	1988	33-38	27-31
2954cc	1988	33-40	23-30
2954cc	1989-91	38-44	33-37
Turbo	1989-91	33-40	23-30
2958cc	1988-89	38-44	33-37
	1990-95	38-44	30-37
2995cc	1994-96	38-44	33-38
	1997-98	—	44-50
2997cc	1993-97	38-44	28-34
Turbo	1993-98	33-38	27-31
3378cc	1995-99	38-44	33-38
4477cc	1993-99	38-44	31-37
4669cc	1998-99	38-44	28-39

1 Measured with pressure regulator vacuum disconnected.
2 Measured with pressure regulator vacuum connected.

IDLE SPEED W/O COMPUTER CONTROL

1988-90: 1995cc, 1998cc, 2237cc, 2366cc FI, with cooling fan off and air cleaner installed, race engine for two minutes and set idle to specified rpm. Turn A/C on and verify that idle increases to speed-up speed. Speed-up can be adjusted if adjustment screw is found on idle up device.
1452cc, 1456cc, 1587cc, with cooling fan off and air cleaner installed, set idle to specified rpm.
2366cc 2V, disconnect and plug hoses for HAI, MC, EGR, and choke opener. Adjust idle to specified rpm.
Fast idle adjustment:
1452cc, 1587cc, disconnect and plug vacuum hoses for AS and HIC systems. Remove air cleaner, disconnect vacuum hose from TVSV "M" port, and plug port. Set cam to specified step and adjust to specified rpm.
1456cc, 2366cc, disconnect and plug EGR vacuum hose(s) and adjust speed with cooling fan off.
1991-95 FI: Set idle speed to specified value. Turn A/C on and verify that speed increases to specified speed-up value.
THROTTLE POSITIONER: All years, disconnect and plug vacuum hose on end of unit. Allow step to move into position and adjust linkage screw.

		SLOW		FAST		
Engine	Year	Man. Trans.	Auto. Trans.	Man. Trans.	Auto. Trans.	Step of Cam
1452cc w/5-speed	1988	650	—	3000	—	High
Thrtl. pos.	1988	1400	—			
w/Pwr. Str.	1988	800	900 N	3000	3000 N	High
Thrtl. pos.	1988	1400	1400 N			
1456cc 2V	1988-90	700	900 N	3000	3000 N	High
Throttle positioner	1988-90	1100[1]	1100 N[1]			
A/C speed-up	1988-90	900-1000	900-1000 N			
1456cc FI Tercel	1990-93	750	800 N	—	—	—
A/C speed-up	1990-93	900-1000	900-1000 N			
1456cc Tercel	1994	750	800 N	—	—	—
A/C speed-up	1994	1400-1500	1400-1500 N			
1587cc 2V	1988-89	650	750 N	3000	3000 N	High
Thrtl. pos., Corolla	1988-89	900	900 N			
Thrtl. pos., FX	1988-89	800	800 N			
A/C speed-up	1988-89	900-1000	900-1000 N			

TOYOTA

TOYOTA Continued

IDLE SPEED W/O COMPUTER CONTROL Continued

Engine	Year	SLOW Man. Trans.	SLOW Auto. Trans.	FAST Man. Trans.	FAST Auto. Trans.	Step of Cam
1587cc FI	1988-89	800	800 N	—	—	—
A/C speed-up	1988-89	900-1000	900-1000 N			
1587cc, Corolla 2WD	1990-92	700	700 N	—	—	—
California	1991-92	800	800 N	—	—	—
4WD, GTS	1990-92	800	800 N			
A/C speed-up	1990-92	900-1000	900-1000 N			
1998cc (3S-FE)	1988	650-750	650-750 N	—	—	—
1998cc (3S-GE)	1988-89	750	750 N	—	—	—
2237cc	1988-89	700	750 N	—	—	—
A/C speed-up	1988-89	900-1000	900-1000 N			
2366cc 2V	1988-90	700	700 N	3000	3000 N	High
A/C speed-up	1988-90	900-1000	900-1000 N			
2366cc FI	1988	750	750 N	—	—	—
A/C speed-up	1988	900-1000	900-1000 N			
2366cc Turbo	1988	800	800 N	—	—	—
A/C speed-up	1988	900-1000	900-1000 N			
2366cc FI: 2WD	1989-95	750	750 N	—	—	—
4WD	1989-95	750	800 N			
A/C speed-up, all	1989-95	900-1000	900-1000 N			
2958cc	1988-92	800	800 N	—	—	—
A/C speed-up	1988-92	900-1000	900-1000 N			

1 Inner diaphragm; outer diaphragm, 1800-2200 (N).

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

Jumper terminals T and E1 (1987-88) or TE1 and E1 (1989-99) of check connector under hood. Race engine at 1000-1300 rpm for five seconds. Set idle to specified value if specifications are listed in Checking Speed column. Turn A/C on and verify that speed increases to Speed-up value with compressor running.

Engine	Year	Transmission	Checking Speed	Setting Speed	Speed-up
1497cc Paseo	1992-93	MT	—	750	900-1000
		AT	—	750 N	900-1000 N
	1994-95	MT	—	750	1400-1500
		AT	—	750 N	1400-1500 N
1497cc Tercel	1995	MT	700-800	—	800-900
		AT	700-800 N	—	800-900 N
1497cc	1996-97	MT	700-800	—	800-900
		AT	700-800 N	—	800-900 N
	1998-99	MT	700-800	—	850-950
		AT	700-800N	—	850-950N
1587cc Supercharged	1988-89	MT	800	800	850-950
		AT	800 N	800 N	850-950 N
1587cc Celica	1990-93	MT	—	800	900-1000
		AT	—	800 N	900-1000 N
1587cc, 1762cc	1993-97	MT	650-750	—	900
		AT	650-750 N	—	900 N

TOYOTA Continued

IDLE SPEED W/COMPUTER CONTROL

Engine	Year	Transmission	Checking Speed	Setting Speed	Speed-up
1794cc	1998-99	MT	650-750	—	850-950
		AT	650-750N	—	850-950N
1998cc (3S-FE)	1989-91	MT	650-750	600-700	900-1000
		AT	650-750	600-700 N	900-1000 N
1998cc Turbo	1988-90	MT	700-800	—	900-1000
1998cc Turbo	1991-95	MT	750-850	—	900-1000
1998cc	1996-97	MT	700-800	—	850-950
		AT	700-800 N	—	850-950 N
2164cc Celica:					
U.S.	1990-91	MT	650-750	600-700	900-1000
		AT	650-750 N	600-700 N	900-1000 N
Canada	1990-91	MT	750-850	600-700 N	900-1000
		AT	700-800 N	600-700 N	900-1000 N
2164cc MR2:					
U.S.	1991-93	MT	700-800	650 min.	900-1000
		AT	650-750 N	650 N min.	900-1000 N
Canada	1991-93	MT	800-900	650 min.	900-1000
		AT	700-800 N	650 N min.	900-1000 N
2164cc MR2:					
U.S.	1994-95	MT	700-800	—	900-1000
		AT	700-800 N	—	900-1000 N
Canada	1994-95	MT	800-900	—	900-1000
		AT	700-800 N	—	900-1000 N
2164cc Camry	1992-95	MT	700-800	—	850
		AT	700-800 N	—	850 N
2164cc Celica: U.S.	1992-93	MT	650-750	—	900-1000
		AT	650-750 N	—	900-1000 N
Canada	1992-93	MT	700-800	—	900-1000
		AT	700-800 N	—	900-1000 N
2164cc Celica	1994-95	MT	700-800	—	850
		AT	700-800 N	—	850 N
2164cc	1996	MT	700-800	—	850
		AT	700-800 N	—	850 N
2164cc Celica	1997	MT	700-800	—	900
		AT	700-800 N	—	900 N
	1998-99	MT	650-750	—	800-900
		AT	650-750N	—	800-900N
2164cc Camry, Solara	1997-99	MT	650-750	—	650-750
		AT	650-750 N	—	650-750 N
2438cc	1991-93	MT	650-750	—	900-1000
		AT	700-800 N	—	900-1000 N
2438cc Previa	1994-97	MT	700-800	—	900-1000
		AT	700-800 N	—	900-1000 N
2438cc Tacoma	1995-99	MT	650-750	—	850-950
		AT	650-750	—	850-950 N
2507cc	1988-90	MT	650-750	650 min.	780-820
		AT	650-750 N	650 N min.	780-820 N[1]
2507cc	1991	MT	700	—	780-820
		AT	700 N	—	780-820 N
2693cc	1994-95	MT	650-750	—	900-1000
		AT	650-750 N	—	900-1000 N
	1996-99	MT	650-750	—	850-950
		AT	650-750 N	—	850-950 N
2759cc	1988	MT	650	—	900
		AT	600 D	—	750 D
2954cc	1988	MT	700	—	900-1000
		AT	700 N	—	900-1000 N
2954cc	1989-92	MT	700	—	900
		AT	700 N	—	650 D
2954cc Turbo	1988	MT	650	—	900-1000

TOYOTA & VOLKSWAGEN

TOYOTA Continued

IDLE SPEED W/COMPUTER CONTROL

Engine	Year	Transmission	Checking Speed	Setting Speed	Speed-up
		AT	650 N	—	900-1000 N
2954cc Turbo	1989-92	MT	650	—	900
		AT	650 N	—	700 D
2958cc Camry	1992	AT	650-750 N	—	700 N
2958cc Camry	1993	MT	700-800	—	850
		AT	700-800 N	—	850 N
2958cc Trucks	1993-95	MT	—	750-850	900-1000
		AT	—	750-850 N	900-1000 N
2995cc	1994-99	MT	650-750	—	650-750
		AT	650-750	—	650-750 N
2997cc	1993-98	MT	650-750	—	900-1000
		AT	650-750 N	—	900-1000 N
2997cc Turbo	1993-98	MT	600-700	—	900-1000
		AT	600-700 N	—	900-1000 N
3378cc	1995-99	MT	650-750	—	800-900
		AT	650-750 N	—	800-900 N
3956	1988-92	AT	650	—	900-1000 N
4474cc	1993-97	MT	600-700 N	—	800 N
4669cc	1998	AT	700-800N	—	750-850N
	1999	AT	650-750N	—	750-850N

1 With T-top, 950-1050 N.

VOLKSWAGEN

1988-99

FUEL PRESSURE PROCEDURE

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX A.

CIS Systems:

1. With engine at operating temperature, connect appropriate pressure gauge between fuel distributor and warm-up regulator.
2. Set gauge valve to open position, start engine and run at idle, allow pressure to stabilize, read control pressure.
3. Set gauge valve to closed position, allow pressure to stabilize, read system pressure.
4. Set gauge to open position, switch off ignition, after 10 minutes read residual pressure.

CIS-E Systems:

1. With engine at operating temperature, connect appropriate pressure gauge between cold start line and lower chamber test fittings of the fuel distributor.
2. Disconnect electrical connector from the differential pressure regulator.
3. Set gauge valve to open position, remove fuel pump relay and bridge terminals to energize pump, allow pressure to stabilize, read system pressure.
4. Set gauge valve to closed position, energize fuel pump, read differential pressure.
5. Set gauge valve to open position, energize fuel pump for 30 seconds, after 10 minutes read residual pressure.

Digijet, Digifont Systems:

1. Connect appropriate pressure gauge to test port of fuel rail.
2. Disconnect vacuum hose from pressure regulator, start engine and run at idle, allow pressure to stabilize and take reading.
3. Reconnect vacuum to pressure regulator and check gauge reading.
4. Switch ignition off, after 10 minutes read residual pressure.

FUEL PRESSURE: CIS, CIS-E

			Pressure			
Engine	System	Year	System PSI	Control PSI	Differential PSI	Residual PSI
1780cc	CIS	1988-91	68-78	49-55	—	35-38
	CIS-E	1988-91	75-82	—	68-79	38
1984cc	CIS-E	1990-92	88-96	—	81-91	48
2226cc	CIS-E	1988	75-82	—	68-79	38

VOLKSWAGEN Continued

FUEL PRESSURE PROCEDURE Continued

FUEL PRESSURE: Digijet, Digifont

Engine	Year	System Pressure W/O Vacuum PSI	System Pressure W/Vacuum PSI	Residual Pressure PSI
1780cc	1988-94	44	36	29
1984cc	1993-97	44	36	29
2109cc	1988-91	36	33	29
2451cc	1993	44	36	29
2792cc	1993-94	58	51	36
	1995-97	44	36	29

IDLE SPEED W/O COMPUTER CONTROL

All engines: Must be at operating temperature, all electrical equipment switched off, cooling fan not running. If equipped with ISS (idle speed stabilizer), disconnect both electrical plugs and connect them together.

Engine	Year	Slow Man. Trans.	Slow Auto. Trans.	Maximum Man. Trans.	Maximum Auto. Trans.
1588cc Diesel	1988-92	920-980	—	5300-5400	—
Turbo Diesel	1988	920-980	920-980 N	5050-5150	5050-5150
1896cc Diesel	1993-94	870-930	—	4950-5150	—

IDLE SPEED W/COMPUTER CONTROL

FOR TESTING AND ADJUSTMENT DIAGRAMS, SEE APPENDIX B.

All engines: Must be at operating temperature, all electrical equipment switched off, cooling fan not running.

1988-91 1780cc w/CIS: Disconnect crankcase breather hoses from valve cover and intake air boot, position hoses to draw in fresh air. Disconnect canister vent hose at intake air boot. Clamp off hose to idle speed boost valve.

1988 1780cc w/CIS-E Quantum: Disconnect crankcase breather hoses from valve cover and intake air boot, position hoses to draw in fresh air. Remove plug from EVAP canister vent pipe at intake boot. Clamp off hose to idle speed boost valve.

1988 2226cc: Disconnect crankcase breather hoses, plug outlets but leave hoses open. Remove plug from EVAP canister vent pipe at intake boot. Clamp off hose to idle speed boost valve.

1988-91 1780cc w/CIS-E ex. Quantum: Disconnect crankcase breather hoses from valve cover and intake air boot, position hoses to draw in fresh air. Remove "T" fitting

for EVAP canister from intake air boot, rotate fitting 90 degrees and install restricted end into boot. Clamp off hose to idle speed boost valve.

1988-91 1780cc w/Digifont: Disconnect crankcase breather hoses. Run engine at idle for one minute, disconnect coolant temperature sensor. Rev engine to 3000 rpm several times, allow idle to stabilize before adjusting.

1990-91 1984cc: Disconnect crankcase breather hose, disconnect EVAP canister vent hose at purge valve.

Engine	Code	Year	Checking Speed	Adjusting Speed
1780cc	JH	1988-89	850-1000	—
	JN	1988-91	800-1000	840-880
	PF, RV	1988-92	750-850	—
	PG	1989-92	750-850	770-830
	PL	1988-89	—	800-900
	UM	1988-91	800-1000	840-880
	ACC	1993-94	750-1000[1]	—
1896cc Diesel	AAZ	1993-94	870-930[1]	—
1984cc	9A	1990-94	800-1000[1]	—
	ABA	1993-98	800-880	—

VOLKSWAGEN & VOLVO

VOLKSWAGEN Continued

IDLE SPEED W/COMPUTER CONTROL

Checking Engine	Adjusting Code	Year	Speed	Speed
2109cc	MV	1988-91	830-930	—
2226cc	KX, JT	1988	750-850	780-820
2451cc	AAF	1993	775-825	—
2792cc	AAA, AES	1992-98	650-750[1]	—

1 Connect a ST & access basic adj. Engine warm, electrical accessories & AC off.

IDLE MIXTURE

Engine	Year	CO% Minimum	CO% Maximum
1780cc	1988-89	0.3	1.2
	1990-92	—	1.2
	1993-94	0.2	1.2
1982cc Code 9A	1990-94	0.2	1.2
1984cc	1993-95	0.3	1.2
2109cc	1988-89	0.3	1.2
2226cc	1988	0.3	1.2
2451cc	1993	0.3	1.2
2792cc	1993-94	0.3	1.5

VOLVO

1988-99

FUEL PRESSURE

With engine warm and running at idle.

Engine	Fuel System	Year	Control Pressure PSI	Line Pressure PSI	Residual Pressure PSI
2316cc	LH	1988-92	36	43	28-43
2319cc Turbo, 2435cc	LH	1993-97	—	43	29 min.
2435cc	M	1998	—	43	29 min.
2473cc	M	1995-96	—	43	—
2849cc	LH	1988-90	36	43	—
2922cc	M	1992-97	—	43	—

IDLE SPEED

Midpoint of range given is the preferred setting speed.

Models with CIS & 1989-95 All: Idle speed is not adjustable.

1988: Models with LH-Jetronic: Ground test point (blue/white wire) and adjust idle to specified setting value. Adjust throttle valve switch if setting value cannot be obtained. To adjust, loosen holddown screws and rotate unit clockwise, slowly rotate unit counterclockwise to engage contact stop without opening throttle valve. Tighten holddown screws and check function by removing test point ground. Idle should increase to specified checking value.

Turn on A/C to verify specified A/C speed-up.

Disconnect fuel system temperature sensor and verify specified cold idle speed.

VOLVO Continued

IDLE SPEED Continued

Engine	Year	Checking Speed	Setting Speed	Cold Idle	AC Speed-up
2316cc	1988	730-770 N	750 N	1600-2500 N	900 N
SOHC ex. Turbo	1989-95	725-825 N	—	—	—
Turbo	1989-95	700-800 N	—	—	—
DOHC	1989-92	800-900 N	—	—	—
2319cc Turbo	1994-98	800-900 N	—	—	—
2435cc	1993	750-850 N	—	—	—
	1994-98	800-900 N	—	—	—
2473cc	1995-96	700-800 N	—	—	—
2849cc	1988-90	730-770 N	—	—	—
2922cc	1992-98	700-800 N	—	—	—

IDLE MIXTURE

1991-94 Measured at slow idle with oxygen sensor connected. Take sample from access port upstream of catalytic converter. Mixture not adjustable.
1988-90 Measured at slow idle with air pump or oxygen sensor disconnected. Take sample from access port upstream of catalytic converter.

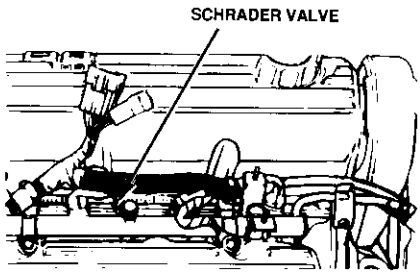
Engine	Year	CO% Minimum	CO% Maximum
2316cc ex. DOHC	1988-90	0.4	0.8
DOHC	1989-90	0.2	1.0
Turbo	1991-95	0.4	0.8
Turbo	1991-92	0.2	1.0
	1993-95	0.4	0.8
2319cc Turbo	1994-95	0.2	1.0
	1996	0.4	0.8
	1997	0.2	1.0
2435cc US	1993-98	0.2	1.0
Canada	1993-95	0.4	0.8
2473cc (F)	1995-96	0.4	0.8
(G)		0.5	2.0
2849cc	1988-89	0.2	1.0
2922cc (F)	1992-97	0.4	0.8
(G)	1992-97	0.5	2.0

CHRYSLER Fuel Pressure

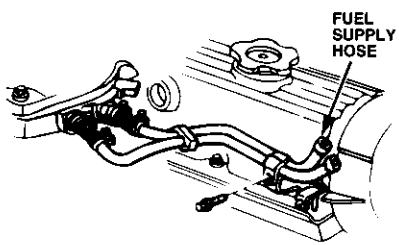
Pressure Test Gauge Connections

Use the following illustrations to locate test ports in various fuel-injected systems.

Domestics

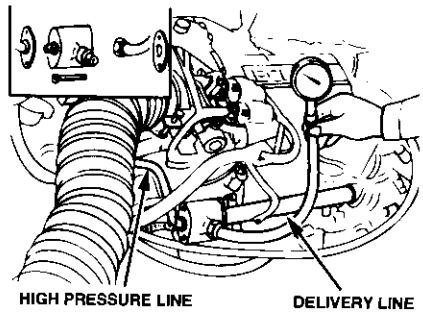


For Chrysler domestic engines with multi-point fuel injection, the Schrader valve is on the fuel rail.

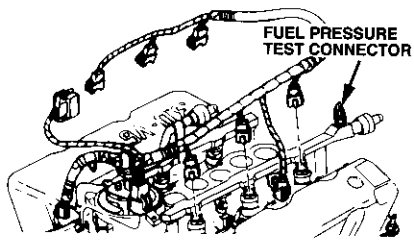


For engines with throttle-body injection, measure the pressure using a tee connector at the fuel supply hose.

Imports



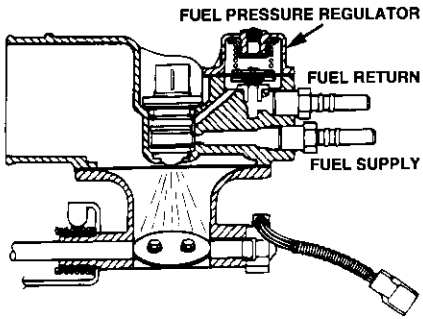
Connect the fuel pressure gauge between the fuel delivery line and the high pressure line. You will need an adapter to do this.



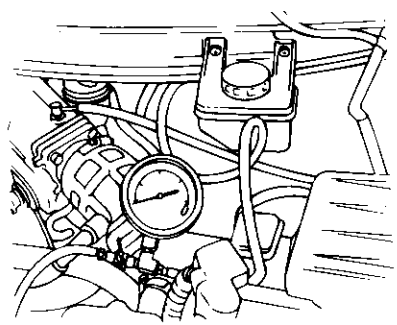
For models with multi-point injection, the test connector is on the fuel rail. On some 1996 models, the test connector is located on the fuel tank-mounted fuel pump module.

APPENDIX A

FORD Fuel Pressure Tests



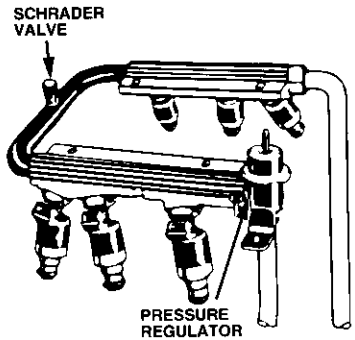
For Ford's throttle body injection system, measure the pressure at the fuel supply line with a tee connector and pressure gauge.



For Ford MFI test, measure pressure in fuel line between fuel filter and fuel rail with main valve open and drain valve closed.

Some CFI systems have a test connector similar to the one used on multi-point injected systems.

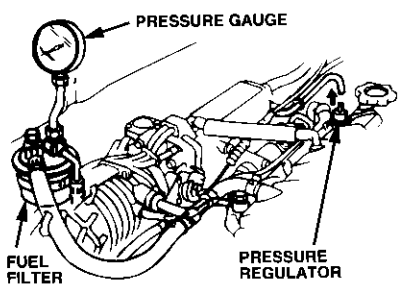
GM Fuel Pressure Tests



For GM vehicles with multi-point injection, use the Schrader valve connector on the fuel rail.

For GM vehicles with TBI, remove the section of hose between the fuel line and the throttle body, and connect the adapter and gauge.

HONDA Fuel Pressure Tests

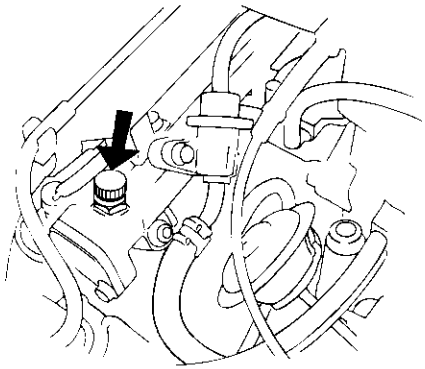


1988-89 Accord; 1988-91 Prelude; 1988-98 Civic, CRX, Del Sol; 1997-98 CR-V.

Remove the bolt from the outlet line on top of the fuel filter. Thread an adapter in its place, and connect the pressure gauge. Disconnect and plug the fuel pressure regulator vacuum hose.

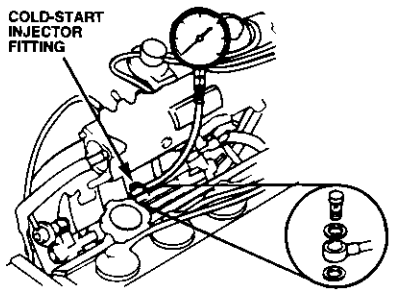
APPENDIX A

FUEL PRESSURE TESTING

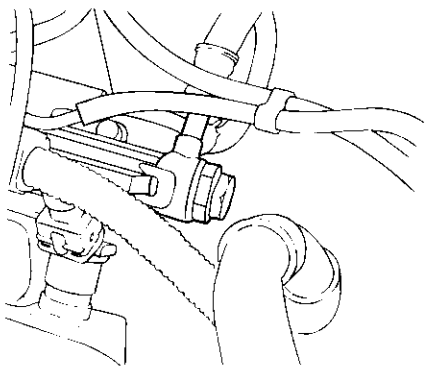


1992-96 Prelude.
Remove service bolt and attach guage.

TOYOTA Fuel Pressure Tests

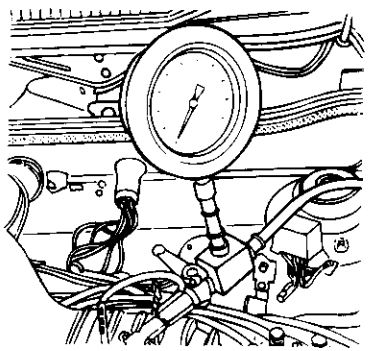


For Toyota, check the fuel pressure at the cold-start injector, fuel filter, or delivery pipe, depending on model. You will need a pressure gauge with a banjo fitting or an adapter.



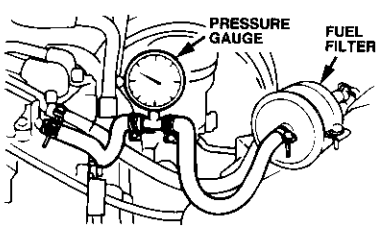
1990-98 Accprd 4-cyl.
Remove plug and install adapter and guage.

VOLKSWAGEN Fuel Pressure



For the Bosch K-Jetronic or KE-Jetronic systems, you need a gauge with an adapter and an inline valve, so that you can shut off pressure when needed. Connect the adapter inline between the fuel distributor and the control pressure regulator.

NISSAN Fuel Pressure Tests

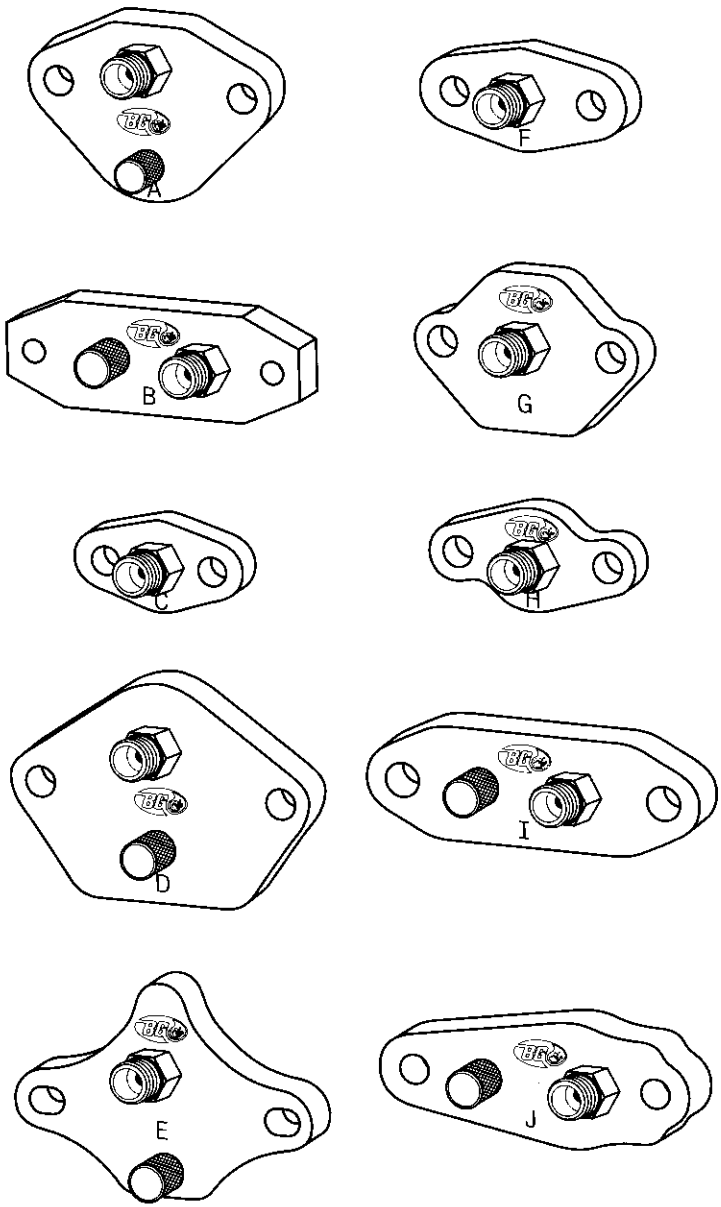


Remove the fuel outlet line at the fuel filter, and connect the gauge inline between the fuel filter outlet port and the fuel outlet line.

EGR Service Tool

PART NO. 9240

EGR ADAPTOR PLATES

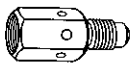


BG EGR Service Tool parts continued on next page

EGR Service Tool (continued)

PART NO. 9240

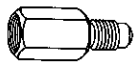
MISC. PARTS



Vented Cap

Do not apply pressure.

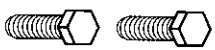
The Vented Cap attaches to the EGR Adaptor Plate and is used with EGR systems that are able to produce a vacuum.



Solid Cap

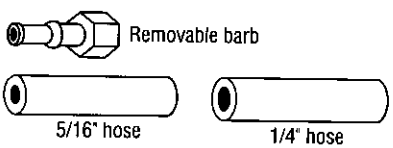
Apply air pressure.

The Solid Cap attaches to the EGR Adaptor Plate and is used to unstop completely plugged manifolds. The Solid Cap should be removed and replaced with the Vented Cap as soon as a vacuum created. Use with pressurized tools (BG No. 9210 or BG No. 9220).



Short Bolts

Use when factory bolts are too long and will not tighten down EGR Adaptor Plate.



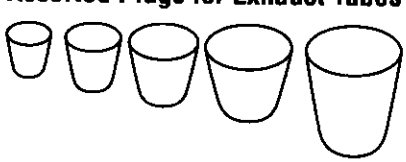
Alternate EGR Flush Method Adaptor

for Pressure Feedback EGR (PFE) Systems

Used with Exhaust Tube Flush Adaptor

On some vehicles the EGR valve cannot be easily removed. Often service can be accomplished by removing the hose from the Pressure Feedback Exhaust (PFE) sensor ports on the steel exhaust feeder and attaching the BG Exhaust Tube Flush Adaptor. The removable barb and chemical resistant hose adaptors (with clamps) are used to make this connection.

Assorted Plugs for Exhaust Tubes



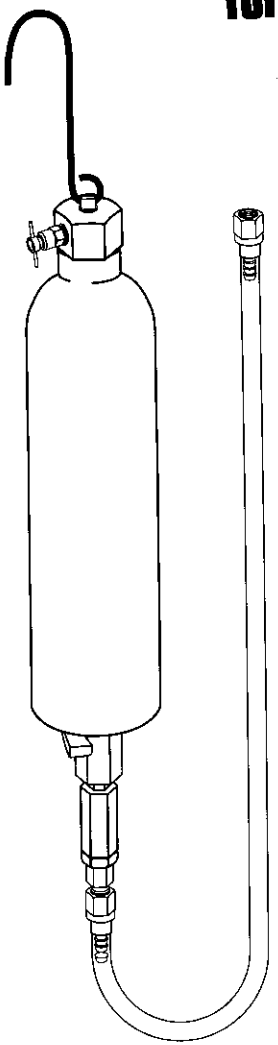
Exhaust Tube Flush Adaptor

for Pressure Feedback EGR (PFE) Systems

Wire Brush

For cleaning 4.9 Cadillac throttle mouth EGR tubes.

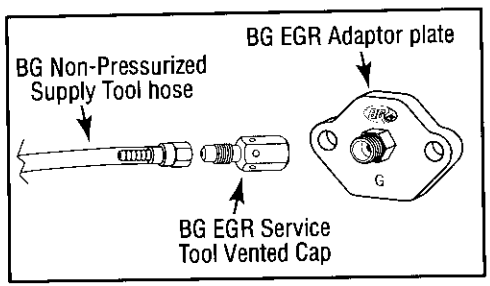
Other Specialty Tools Needed for BG EGR Service



BG Non-pressurized Supply Tool

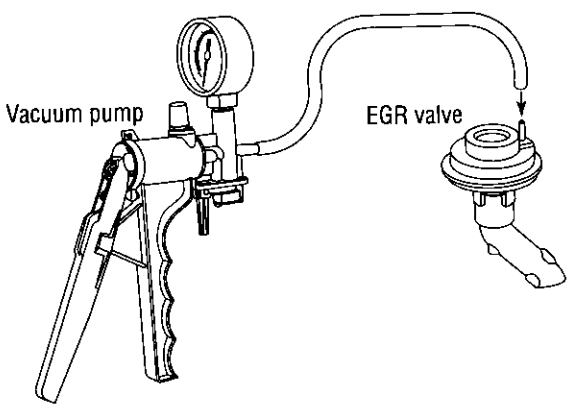
PART NO. 9242

The BG EGR Service Tool Vented Caps and the Exhaust Tube Flush Adaptor are designed to be used with the BG Non-pressurized Supply Tool. This tool has a large micron filter to improve flow. (Note: If a different supply tool is used, be certain that the filters are new and clean. If the system runs longer than 6 minutes per 11 ounces of product, assume the filters or the orifice in the vented cap is plugged.)

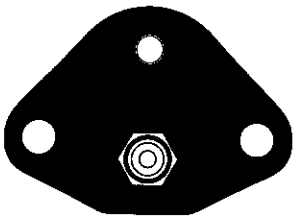


Vacuum Pump

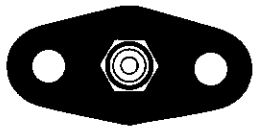
A vacuum pump is needed for testing the EGR valve and opening the EGR valve on PFE systems that are not going to be removed so that the pressurized cleaner can pass through the valve and into the EGR chambers.



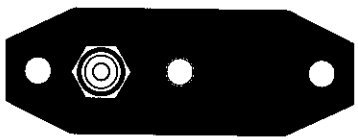
EGR Adaptor Application Guide



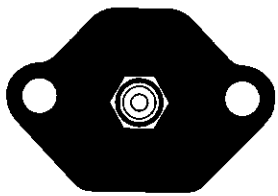
A - GM, Saturn, Jeep/Eagle, Honda, Nissan, Infiniti, Acura



F - Ford 4,6,(4.6) 8 cylinder, Mazda Trk 6

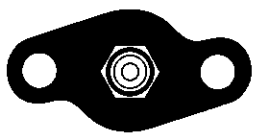


B - Chrysler, Jeep/Eagle 4,6,8 cyl.

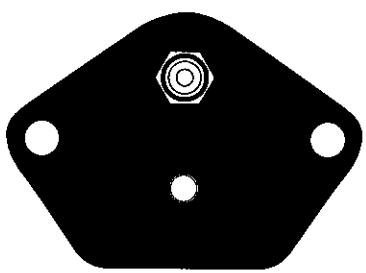


G - Chrysler, Jeep/Eagle

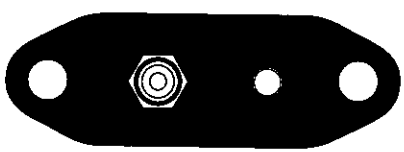
C - Infiniti, Nissan 4,6 cyl.



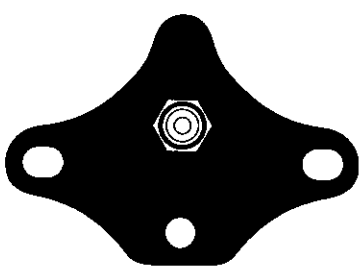
H - Toyota 4 cylinder 1983-95



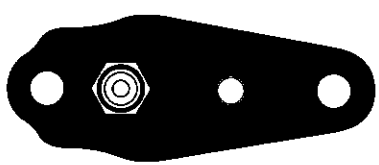
D - GM 6 cylinder (3.1 & 3.8)



I - Ford 4,6,8 cylinder



E - GM 4,6,(4.6) 8 cylinder, Saturn



J - GM, Saturn 4,8 cyl, Jeep/Eagle, Isuzu 6 cyl.

Rev. 3/00

EGR Service

GENERAL INSTRUCTIONS

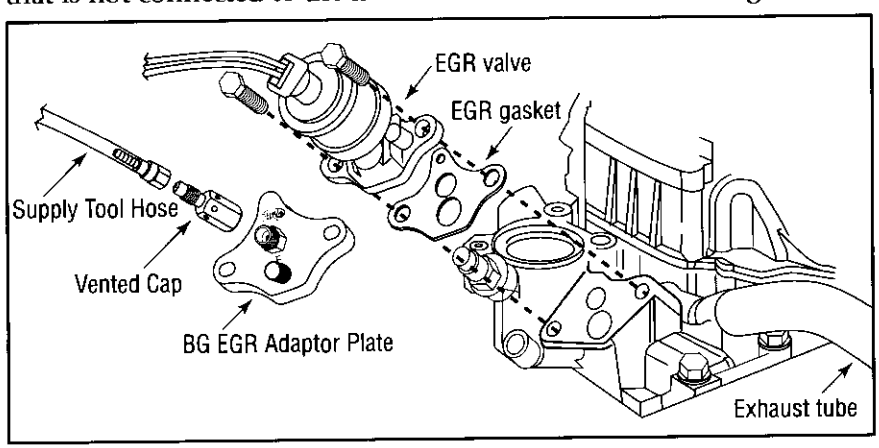
WARNING! BG ISC® Induction System Cleaner, Part No. 211, and BG Air Intake System Cleaner, Part No. 206, are powerful products for professional use only. THEY WILL DAMAGE PAINT, RUBBER AND SOFT PLASTIC COMPONENTS (will not harm plastic manifolds). CLEAN UP SPILLS IMMEDIATELY!

The BG EGR Service is a ***Preventive Maintenance Service***. It may not always open severely plugged passageways on certain applications.

Testing the EGR components. Every EGR Service should begin with a thorough testing of the mechanical, vacuum, and electrical components of EGR system. There are many different configurations and you will need to follow the manufacturers test procedures. When all components are functioning normally you can proceed with the cleaning service.

STEP 1. Locate the EGR valve and remove it.

Begin by locating the vehicles EGR valve attached to the intake manifold. In some instances the EGR valve is operated by an EGR regulator that is not connected to the manifold. Do not remove the regulator.



When removing the EGR valve, try not to remove the vacuum line or the electrical connector to the EGR. Removing this connection will set a diagnostic code which will need to be cleared with a scan tool. If you must remove the vacuum hose from the EGR valve, be sure to plug the hose. On some models, it will be neces-

sary to remove the exhaust feed tube from the valve itself. There is very little pressure on the exhaust at this point and the tube may be plugged with a rubber stopper.

On other models the exhaust feed tube goes directly into the manifold and need not be removed.

STEP 2. Choose correct EGR Adaptor Plate.

Choose the EGR Adaptor Plate that matches the base of the EGR valve you just removed (see "EGR Plate Application Guide"). Attach Vented Cap to EGR Adaptor Plate.

Study the exposed ports in the manifold where the EGR valve used to be. If there is more than one port or chamber in the manifold, be sure the intake cleaning nozzle on the plate is going into the intake. Some of the EGR Adaptor Plates have an exhaust port. This port is for flushing out plugged exhaust feeder tubes and runners. Be sure this port aligns with the exhaust port in the manifold.

STEP 3. Install EGR Adaptor and new gasket

Obtain a new EGR valve gasket. Install the EGR Adaptor Plate and gasket using the bolts removed from the EGR valve.

STEP 4. Testing for total blockage

Before attempting to fill or connect the supply tool to the EGR Adaptor Plate, it is necessary to make sure the system is NOT completely plugged. This is a rare condition, but it must be determined before proceeding.

Start the engine and listen for air sucking into the vents in the Vented Cap. If you cannot hear it, use a piece of paper to determine if there is suction at the vent holes. If there is suction, proceed to Step 5. If **no suction exists, that indicates the system is completely plugged and a special procedure may be used (see "For Completely Plugged Systems Only"), but it is recommended that the system be disassembled and manually cleaned.**

STEP 5. Normal EGR cleaning procedure

Always allow vehicle to reach normal operating temperature before beginning the BG EGR Service to be sure engine is in closed loop operation.

Close ball valve on bottom of supply tool. Open the top and pour in two 11 oz. cans of BG ISC® Induction System Cleaner, Part No. 211.

Close the cap, **but do not close the vent. If supply tool has no vent, leave the cap off or leave loose. Do not pressurize the supply tool.**

Attach supply hose to the cap of the EGR Adaptor Plate, **but do not open ball valve on the tool until the engine has been started.**

Always start the engine before turning on supply tool!

Cleaning with two cans of BG ISC® takes approximately 10–12 minutes before the supply tool is empty. If it takes longer, check supply tool filter for a restriction.

When the supply tool is empty (no more fluid is visible in supply tool hose), shut off engine. Carefully inspect the EGR valve before reinstalling. Use factory authorized test procedures to determine serviceability of the valve. Always reinstall with a new gasket.

Always road test vehicle immediately after BG EGR Service. This is to ensure that no diagnostic codes have been set and to purge the manifold of any puddles of chemical that may have accumulated during the service.

There may be smoke and odor associated with the BG EGR Service, driving the vehicle will clear these characteristics as well.

If, for some reason, the vehicle cannot be driven, the engine should at least be accelerated in short bursts to purge any puddles. Engine should be allowed to idle at least 30 minutes afterwards to complete the purging process. This should be done immediately after EGR service. BG ISC® and its vapors can remove paint from the inside of the oil pan if puddles are allowed to sit in the manifold. Change engine oil after service.

PLENUM CLEANING

Deposits from performing the BG EGR Service are often sucked into the plenum area where they will remain, distorting air flow unless they are flushed away. After completing BG EGR Service, clean the plenum with either the BG AIS Cleaning Tool, Part No. 9206, and BG Air Intake System Cleaner, Part No. 206; or with BG Air Intake System Cleaner (aerosol), Part No. 406.

FOR COMPLETELY PLUGGED SYSTEMS ONLY:

1. Remove the Vented Cap from the EGR Adaptor and replace it with the Solid Cap.
2. Choose a pressurized supply tool (BG 9210 or BG 9220) and close the ball valve. Open the supply tool cap and pour in no more than 1/3 can of BG ISC®. Seal the tool.
3. Attach supply hose to Solid Cap on the EGR Adaptor Plate.
4. Start the engine and pressurize the supply tool to 20 PSI max.
5. Open the ball valve on the supply tool. Leave ball valve open even after the product has been dispensed. **Keep the engine running, DO NOT SHUT OFF! If engine stalls or is shut off while pressure and chemical are entering the EGR chamber, the spark plugs should be removed and the engine slowly turned by hand to purge any product that may have entered the cylinder. If this is not done, HYDROLOCKING MAY OCCUR.**

   Periodically check progress by closing ball valve and monitoring pressure drop. When pressure drops to "0" within 2–5 seconds, system is open enough to service normally. **Be sure to switch back to the Vented Cap and use the BG Non-pressurized Supply Tool for normal EGR Service.**
6. If this procedure does not open up the chamber within 30 minutes, the intake or plenum should be removed and cleaned or replaced. In any event, ***change engine oil immediately*** after EGR service or just before removing plenum.

EXHAUST TUBE CLEANING (where applicable)

Certain vehicles experience problems with restricted or plugged exhaust feeder tubes. This is the tube that connects the exhaust manifold to the intake manifold, usually very near the EGR valve. **Cleaning the intake side of the EGR system will have little or no effect on the deposits in the exhaust feeder tube.**

Do not attempt to clean the intake and exhaust side simultaneously as this may cause the catalytic converter to overheat. Service one side and then the other in no particular order.

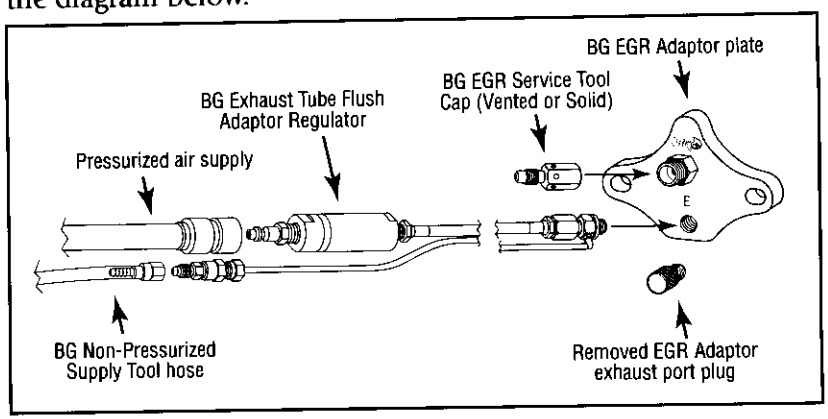
1. Remove the exhaust port plug from the EGR Adaptor. Install the BG Exhaust Tube Flush Adaptor in the exhaust port on the EGR Adaptor Plate and hand tighten. **WARNING! You must install**

either the vented or solid cap on the intake port of the EGR Adaptor to prevent the engine from receiving an excessive amount of air through the port causing idle speed.

Remove the EGR valve according to previous instructions and install the EGR Adaptor Plate on the manifold. Make certain that the exhaust port on the EGR Adaptor Plate is aligned with the exhaust port on the manifold.

2. Close ball valve on supply tool and Fill with two 11 oz. cans of BG ISC®, Part No. 211.

   Attach supply tool to the smaller tube of the BG Exhaust Tube Flush Adaptor and pressurized air to the regulator as shown in the diagram below.



3. Start the engine. Be sure you have air pressure on the BG Exhaust Tube Flush Adaptor. Open the valve on the supply tool. **If engine stalls, shut off supply tool immediately.** Check system to be certain that the EGR valve is closed at engine idle. Do not run this service if engine stalls or attempts to stall. Locate and correct problems with EGR operating system (EGR valve, PFE, etc.)

You do not have to disconnect the BG Exhaust Tube Flush Adaptor in order to clean the intake, just turn the ball valve off on the supply tool and remove the pressurized air source. Proceed with normal EGR Service.

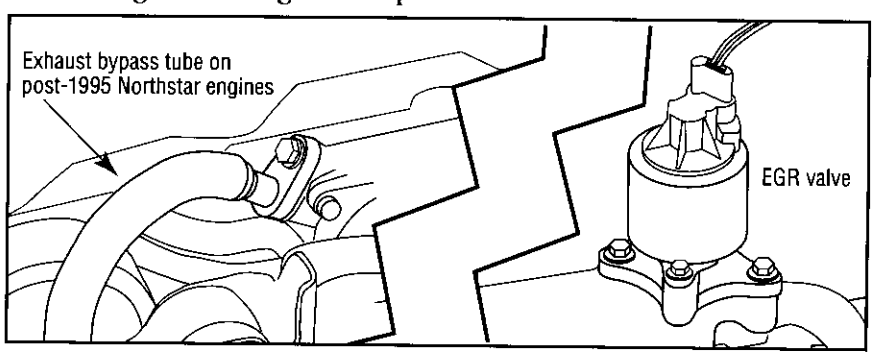
EXCEPTIONS TO GENERAL INSTRUCTIONS

On some vehicles the EGR arrangement requires a different procedure and tools to do proper cleaning. This section addresses those special cases that are known to require special handling.

Cadillac Northstar Pre-1995 without EGR bypass tube

This is a difficult system to clean because of the design of the runners and orifices.

If the Cadillac Northstar 4.6 EGR system is plugged to the point that is effecting drivability, it may not come clean with this process. It may be necessary to remove the plenum cover and manually clean the EGR runners. However, once clean, using the BG EGR Service on a regular (20,000-30,000 mile) schedule will keep it clean and operating. Always drive vehicle for at least 15 minutes at highway speed to allow computer to relearn long term fuel trim (clean engine). If driving is impossible, allow to idle 30 minutes with intermittent bursts of acceleration to remove any chemical puddles that may have developed. Do this immediately after EGR service. Vapor from puddles left sitting in a still engine can damage other engine components.



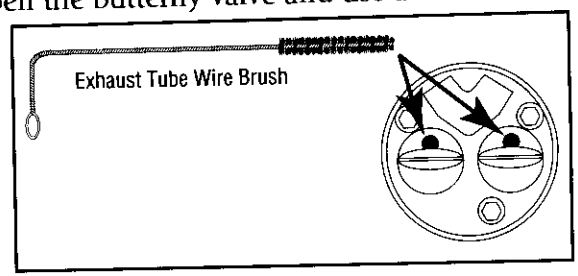
Cadillac Post-1995 with EGR bypass tube

1996 model year Cadillac has an EGR bypass route. This consists of a flexible metal tube that actually connects the EGR valve to the plenum. The original runners are basically inactive. By connecting to do a regular EGR Service, both the connecting tube and plenum itself can be cleaned. Run 11 ounces of BG ISC® through first and follow it with one can of BG Air Intake System Cleaner, Part No. 206. Remove the boot and sensor box combination and use BG Air Intake System Cleaner (aerosol), Part No. 406, to clean the outer mouth of the plenum—**do not spray into the sensor box.**

Cadillac 4.9

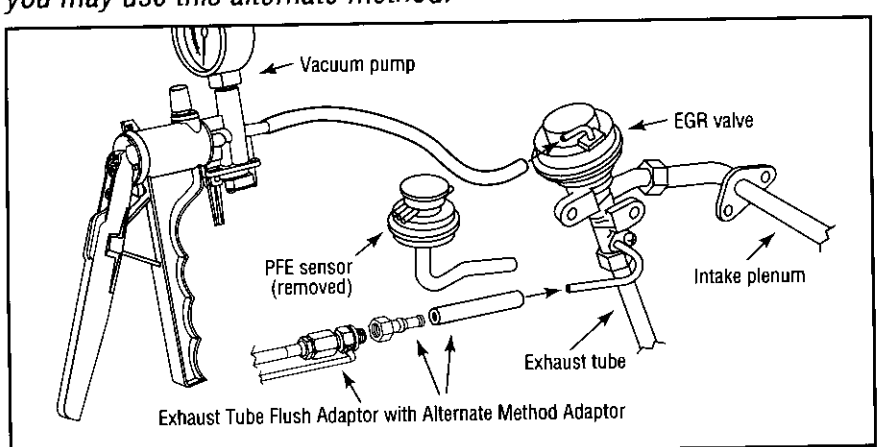
The exception to the normal BG EGR Service for this model is that the exhaust gas is sucked into the plenum at the mouth via two venturi-type tubes. Use two 11 oz. cans of BG ISC® for the regular EGR service. As the BG EGR Service removes deposits from the passage ways, some is redeposited at the mouth of the tubes along with deposits already formed there.

With the engine off, open the butterfly valve and use the Exhaust Tube Wire Brush to clean the inside and the outside of the mouth area of the tubes. Crank or screw the brush into the tubes to avoid rapid deterioration of the brush. Depending on the amount of deposit in the tube, an additional two 11 oz. cans of BG ISC® should be run through the system to flush these tubes.



PRESSURE FEEDBACK EGR (PFE) SYSTEM

If the EGR valve is difficult to remove and is a PFE system, you may use this alternate method.



Before attempting EGR service on PFE systems, you must determine if the system is totally plugged. Do this by starting the engine and while idling, use a vaccuum source to fully open the

EGR valve. If engine stumbles or stalls, the EGR system is OPEN enough to service.

If no change is noted, do NOT attempt the BG EGR Service, instead, refer to factory recommended unplugging procedures.

1. Locate the spike on the exhaust feeder tube that goes to the Pressure Feedback EGR (PFE). Remove the hose and plug it.
2. Attach the BG Exhaust Tube Flush Adaptor via a length of fuel injection fuel line (lesser grade hose will deteriorate quickly and could burst and create a fire hazard). Clamp all connections securely.
3. Remove the vacuum hose from the EGR valve and connect a Mighty Vac or other vacuum source. Fill the supply tool with two 11 oz. cans of BG ISC®. A third can should be run after the first two to compensate for the product that will go down the exhaust. Connect air source and filled supply tool to the BG Exhaust Tube Flush Adaptor.
4. Start the engine and allow it to run until normal operating temperature is reached. Raise RPM to 2500–3000 and open ball valve on supply tool. Engage vacuum to open the EGR valve in two steps. Step 1: Slowly apply approximately 1–2 inch vacuum and hold for 15 seconds. Step 2: Slowly open to 10–15 inches of vacuum and hold for another 15 seconds. Now adjust RPM down to 1100–1200 using a scan tool or tachometer. **CAUTION: DO NOT exceed 1500 RPM for any length of time because this could overheat the catalytic converter.**