

# Owner's Manual & Safety Instructions

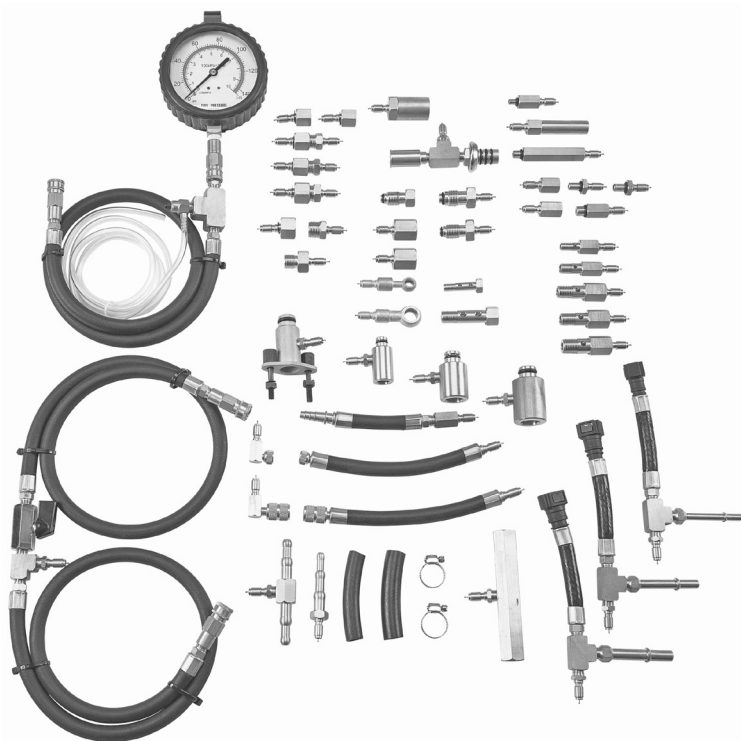
**Save This Manual** Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

23h

# ICON™

## MASTER FUEL INJECTION SERVICE KIT

MH-MF54



64938

Visit our website at: <http://www.harborfreight.com>  
Email our technical support at: [productsupport@harborfreight.com](mailto:productsupport@harborfreight.com)

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

### **⚠ WARNING**

Read this material before using this product. Failure to do so can result in serious injury. **SAVE THIS MANUAL.**

## Specifications


Pressure Scale	0–145 PSI / 0–1000 kPa
Gauge Accuracy	± 1.6%

## Important Safety Information

### WARNING

**Read all safety warnings and instructions.** *Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.*

**Save all warnings and instructions for future reference.**

- Stay Keep your work area clean and well lit.** Cluttered and dark work areas invite accidents.
- Stay alert.** Watch what you are doing, and use common sense when operating tools and equipment. Do not assemble or use this product while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating tools and equipment may result in serious personal injury.
-  **Wear eye protection.** Wear ANSI-approved safety impact glasses and full face shield when using this product.
- Do not force the Service Kit.** Use the correct product for your application. The correct product will do the job better and safer at the rate for which it is designed.
- Maintain the Service Kit with care.** Keep this product clean. Properly maintained products are less likely to malfunction. Do not use damaged products. Tag damaged products “Do not use” until repaired.
- Check for any condition that may negatively affect operation of the Service Kit.** If readings are inconsistent, or if it appears that the fuel gauge is not functioning properly, the Service Kit should be serviced by a qualified service technician. Many accidents are caused by poorly maintained products.
- Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one product may become hazardous when used on another product.
- Industrial applications must follow OSHA requirements.**
- Maintain labels and nameplates on the Service Kit.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
- Use the right product for the job.** There are certain applications for which this product was designed. Do not use small products to do the work of larger industrial products. Do not use this product for a purpose for which it was not intended.

11. **Product service must be performed only by qualified service technician.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
12. **When servicing the Service Kit, use only identical replacement parts.** Follow instructions in the *“Inspection, Maintenance, And Cleaning”* section of this manual. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of personal injury.
13. **Always make sure the area of use for this product is clear of any children.** Do not allow children to play with this product.
14. **Do not allow the vehicle’s engine to run while using the Service Kit.** When running, the engine of a vehicle produces carbon monoxide, a colorless, odorless, toxic gas that, when inhaled, can cause serious personal injury or death.
15. **Prior to using this product, make sure to read and understand all instructions and safety precautions as outlined in the vehicle manufacturer’s manual.**
16. **Always keep hands and fingers away from the moving parts and hot parts of an engine.**
17. **Do not use this Service Kit on diesel fuel systems.**
18. **Do not smoke while performing any fuel injection tests or repairs.**
19. **Always have a dry chemical (Class B) fire extinguisher within reach.**
20. **Make sure to provide a suitable container to catch released fuel when the system is depressurized.**
21. **Take extra care to prevent fuel from contacting hot engine parts.** It is recommended that tests be performed when the engine is cold.
22. **If a drop light is used, do not allow fuel to contact the hot surface of the bulb.**
23. **Never remove any fittings with the engine running.**
24. **Never loosen any fittings or attempt to remove hoses of vehicle or Service Kit until you have relieved the fuel system pressure.** Refer to the vehicle manufacturer’s service manual for specific fuel pressure relief procedures.
25. **Always check all connections for leaks during the testing procedure.** At any sign of leaks, turn off the engine or disable the fuel pump. Clean up any spilled fuel and repair all leaks before resuming test.
26. **When preparing for pressure testing, make sure the vehicle’s transmission is placed in “PARK” or “NEUTRAL” and the emergency brake is applied.**
27. **When the test is complete, depressurize the system and remove the Service Kit.** Reassemble the vehicle’s fuel line(s) to its original condition. Start the engine and check for leaks. If any leaks are present, stop the engine, relieve fuel pressure and repair all leaks.
















28. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near coil, spark plug cables, or distributor of running engine. Engine should be off during distributor adjustment.
29. The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.







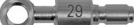

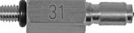

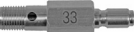


















**SAVE THESE INSTRUCTIONS.**

## Applications

#	Picture	Description	Application
1		High Pressure Gauge with Boot and Hook-145 PSI	Connects to #2 for basic testing.
2		Pressure Testing and Bleed-Off Assembly	Connects to #1 for use in performing tests with High Pressure Gauge and Adapters.
3		CIS/TBI Testing Assembly with Shutoff Valve	For use in testing with High Pressure Gauge, Pressure Testing, and Bleed-Off Assembly and Adapters.
4		Seal and Service Kit	Hose Clamps, Connection Hoses, Washers, O-Rings, Schrader Valves and Wrench.
5		Double Ended Hose Adapter: 5/16" • 3/8"	When vehicles require testing by splicing into 5/16" or 3/8" fuel line hose.
6		Single End Hose Adapter: 1/4" • 5/16" • 3/8"	All vehicles requiring end of line testing with 1/4", 5/16", or 3/8" fuel line hose.
7		Decarbonizing Adapter	Use with a canister-type fuel injector cleaner for intake system decarbonizing.

#	Picture	Description	Application
8		1/4" Hair Pin T-Adapter	For 1/4" hair pin connections. HONDA
9		Schrader Fitting 0.308x32 thread	For smaller Schrader valves. FORD EFI / FORD MPI Adapter
10		Schrader Fitting 7/16"-20 thread	For larger Schrader valves on multi-port vehicles. GENERAL MOTORS, CHRYSLER and Imports with 7/16"-20 threaded test port
11		5/16" Hair Pin T-Adapter	For 5/16" hair pin connections. FORD CFI
12		3/8" Hair Pin Inline T-Adapter	Inline Adapter for vehicles with 3/8" hair pins. GM MPI, CHRYSLER MPFI
13		5/8"-18 External Flare w/Schrader Adapter	Early GENERAL MOTORS TBI systems supply line.
14		5/8"-18 Internal Flare w/Schrader Adapter	Early GENERAL MOTORS TBI systems supply line.
15		16mm x 1.5 External O-Ring Adapter	GENERAL MOTORS TBI supply line.
16		16mm x 1.5 Internal O-Ring Adapter	GENERAL MOTORS TBI supply line.
17		14mm x 1.5 External O-Ring Adapter	GENERAL MOTORS TBI return line.
18		14mm x 1.5 Internal O-Ring Adapter	GENERAL MOTORS TBI return line.
19		14mm x 1.5 External O-Ring Plug	GENERAL MOTORS TBI return line plug for fuel pump pressure test.
20		16mm x 1.5 Inline Adapter	GENERAL MOTORS TBI. Replaces fuel filter with threads on both ends.
21		FORD Spring Lock Coupling Adapter	For Spring Lock fittings— FORD MPI
22		Schrader Fitting— 7/16"-20 Female 90° Elbow	For larger Schrader valves on multi-port vehicles.

#	Picture	Description	Application
23		Schrader Fitting-- 0.308x32 Female 90° Elbow	For smaller Schrader valves-- FORD EFI/FORD MPI
24		0.430x11mm Fuel Pressure Test Adapter	Fuel rail pressure test adapter.
25		0.580x15mm Fuel Pressure Test Adapter	Fuel rail pressure test adapter.
26		0.625x16mm Fuel Pressure Test Adapter	Fuel rail pressure test adapter.
27		M8x1.00 Male Double Banjo EFI Pressure Test Adapter	Use with #29 to tie inline with any fuel system test or for fuel injection cleaning.
28		M12x1.25 Male Double Banjo EFI Pressure Test Adapter	Use with #30 to tie inline with any fuel system test or for fuel injection cleaning.
29		M8 Female Banjo Fitting	Use with #27--see above.
30		M12 Female Banjo Fitting	Use with #28--see above.
31		M6x1.00 External O-Ring Adapter	For vehicles with 6mm-1.00 fittings-- HONDA, ACURA, STERLING Multi- Port PGM
32		M8x1.00 External O-Ring Adapter	Vehicles with 8mm-1.00 Banjo Bolts-- Asian AFC, EFI, MFI European AFC, CIS, CISE
33		M10x1.00 External O-Ring Adapter	Vehicles with 10mm-1.00 Banjo Bolts-- Asian AFC, EFI, MFI European AFC, CIS, CISE
34		M12x1.50 External O-Ring Adapter	Vehicles with 12mm-1.50 Banjo Bolts-- Asian AFC, EFI, MFI European AFC, CIS, CISE
35		M12x1.25 External O-Ring Adapter	Vehicles with 12mm-1.25 Banjo Bolts-- Asian AFC HONDA, ACURA PGM European AFC, CIS, CISE
36		M14x1.50 External O-Ring Adapter	Vehicles with 14mm-1.50 Banjo Bolts-- TOYOTA AFC
37		M8x1.00 Internal O-Ring Adapter (Long)	For vehicles with metric threads-- European CIS, CISE
38		M8x1.00 Internal O-Ring Adapter	For vehicles with metric threads-- European CIS, CISE
39		M8x1.00 External O-Ring Adapter	For vehicles with metric threads-- European CIS, CISE

#	Picture	Description	Application
40		M8x1.00 External O-Ring Adapter (Long)	For vehicles with metric threads—European CIS, CISE
41		M10x1.00 Internal O-Ring Adapter	For vehicles with metric threads—European CIS, CISE
42		M10x1.00 External O-Ring Adapter	For vehicles with metric threads—European CIS, CISE
43		M12x1.50 Internal Swivel Adapter	For vehicles with metric threads—European CIS, CISE
44		M14x1.50 External & Internal Swivel Adapter	For vehicles with metric threads—European CIS, CISE
45		1/4" BSPT External & Internal Swivel Adapter	For vehicles with metric threads—European CIS, CISE
46		M16x1.50 External & Internal Swivel Adapter	For vehicles with metric threads—European CIS, CISE
47		M14x1.50 Inverted Flare Adapter	Fuel fitting size found on some hard line fuel connections like TOYOTA.
48		M12x1.00 HONDA Pulse Dampener Adapter	Fuel connection for use on some ACURA and HONDA models.
49		0.625x16mm Fuel Pressure Test Adapter—Studded Rail Style	Fuel rail pressure test adapter.



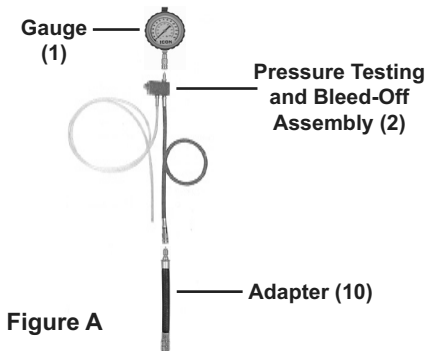
Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section beginning on page 2 of this manual including all text under subheadings therein before use of this product.

The instructions in the *Typical Hook-Ups* section on the following pages are intended as basic guidelines only.

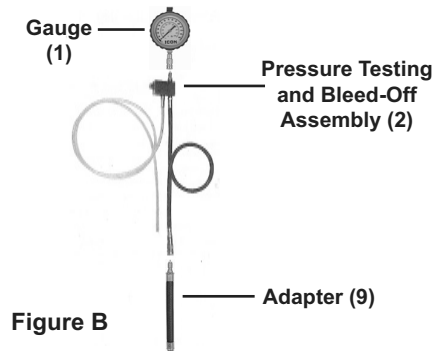
For information on specific tests for a particular vehicle, refer to the vehicle manufacturer's service manual for specifications and appropriate diagnostic and repair/replacement procedures.

## Typical Hook-Ups

**GM Multi-Port and CHRYSLER Multi-Port: FORD Multi-Port (EFI):**



1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
4. Remove the protective cap from test fitting on vehicle.
5. Attach the swivel female fitting on the #10 Adapter to the test fitting on the vehicle. Hand tighten.
6. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick connector on the Adapter.
7. Start the engine and allow it to idle. Check for leaks.
8. Read the Gauge and compare the result with the pressure in service manual.
9. Stop engine and turn ignition OFF.
10. With free end of Bleed-Off Hose in suitable container, press the button on side of bleed-off assembly slowly to depressurize the fuel system.
11. Refer to Safety Information before removing Tester from vehicle.
12. Replace the protective cap onto the test fitting on vehicle. Check for leaks.

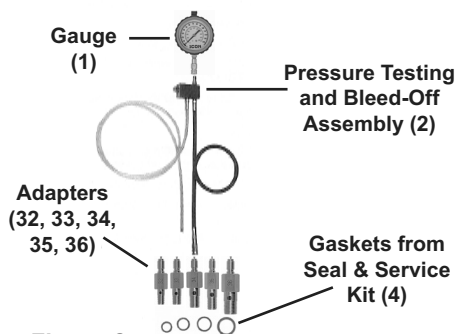


1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. If the vehicle has multi-port fuel injection, the test valve is located on the fuel rail. Remove the protective cap from the test valve.
4. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
5. Attach the female end of the #9 Adapter to test the valve. Hand tighten.
6. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
7. Start the engine and allow it to idle. Check for leaks.
8. Read the Gauge and compare result with pressure in service manual.
9. Stop engine and turn the ignition OFF.
10. With free end of Bleed-Off Hose in suitable container, press the button on side of Bleed-Off Assembly slowly to depressurize the fuel system.



11. Refer to Safety Information before removing Tester from vehicle.
12. Replace the protective cap onto test fitting on vehicle. Check for leaks.

### **Asian and European Multi-Port Vehicles (BOSCH AFC):**



**Figure C**

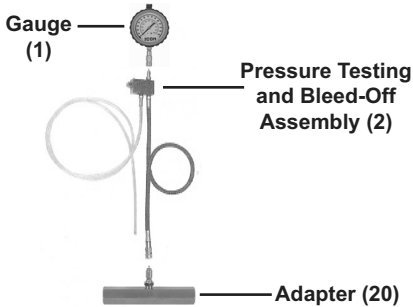
1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. The pressure test connection for these vehicles is located at the point where the fuel inlet meets the fuel rail or cold start injector. The fuel inlet is secured to the fuel rail of cold start injector by a banjo fitting.
4. Remove the banjo fitting that secures the fuel inlet to the fuel rail or cold start injector. Place a shop cloth around the bolt to catch any spilled fuel.
5. Install one of the five pressure test Adapters #32, 33, 34, 35, or 36 with the corresponding sealing washer and one of the gaskets from the banjo fitting so that the fuel inlet is once again connected to the fuel rail or cold start injector. The test Adapter will hold the banjo assembly in position.

6. Torque the Adapters to the following specifications:

Adapter Number	Size	Torque Specifications
32	8mm-1.00	48 In./Lb. (5.5 N-m)
33	10mm-1.00	72 In./Lb. (8.0 N-m)
34	12mm-1.50	96 In./Lb. (11.0 N-m)
35	12mm-1.25	96 In./Lb. (11.0 N-m)
36	14mm-1.50	125 In./Lb. (14.0 N-m)

7. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
8. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the test Adapter.
9. Start the engine and allow it to idle. Check for leaks.
10. Read the Gauge and compare the result with pressure in the service manual.
11. Stop the engine and turn the ignition OFF.
12. With free end of Bleed-Off Hose in a suitable container, press the button on side of Bleed-Off Assembly slowly to depressurize the fuel system.
13. Refer to Safety Information before removing Tester from vehicle.
14. Remove the Tester and the pressure test Adapter.
15. Reassemble the banjo fitting to the fuel inlet and fuel rail (or cold start injector). New Gaskets from the #4 Seal and Service Kit should be used when reassembling fuel lines. Check for leaks.

**GM Throttle Body Injection (TBI) with Fuel Filter Threaded on Both Sides:**

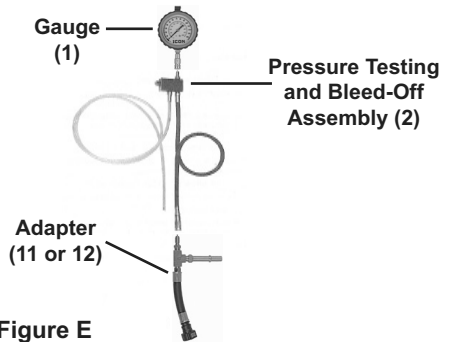


**Figure D**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. Locate the fuel filter on the vehicle.
4. Remove the fuel filter by unscrewing the fuel lines from both ends of the fuel filter. Use a container to catch any fuel that may spill out. Wipe off any excess fuel that may spill on the vehicle.
5. Install the #20 Adapter in place of the fuel filter by threading each fuel line into either end of the Adapter. Do not overtighten.
6. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
7. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
8. Start the engine and check for leaks. Read the fuel pressure. Compare the value on the Gauge to the value in the service manual.
9. Stop the engine and turn the ignition OFF.

10. With free end of Bleed-Off Hose in a suitable container, press the button on side of Bleed-Off Assembly slowly to depressurize the fuel system.
11. Refer to Safety Information before removing Tester from vehicle.
12. Remove the fuel pressure Adapter following the above instructions for removing the fuel filter.
13. Reinstall the fuel filter. Start the vehicle and check for leaks.

**FORD Central Fuel Injection (CFI) 1.9L and 2.3L with 5/16" Hair Pin Coupling and GM and CHRYSLER 3/8" Hair Pin Coupling:**

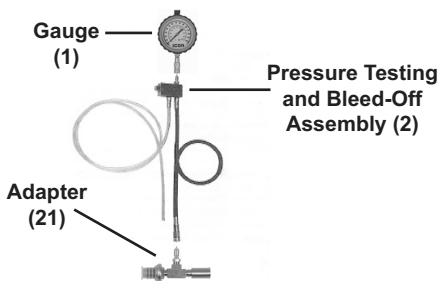


**Figure E**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. The connection with the vehicle's fuel injection system is at the throttle body. Remove the fuel line at the inlet by prying up on the hair pin from the coupling with a small screwdriver. Use care as the hair pin is delicate. Once disconnected, reinstall the hair pin into the hair pin coupling.
4. Attach #11 Hair Pin Adapter for FORD or #12 Hair Pin Adapter for GM and CHRYSLER to the disconnected fuel line. Make sure both ends of mating parts are seated and locked together.

5. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the #11 or #12 Adapter.
  6. Start the engine and allow it to idle. Check all connections for leaks.
  7. Read the Gauge and compare the result with the pressure values in the service manual.
  8. Stop the engine and turn the ignition OFF.
  9. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to depressurize the fuel system.
  10. Refer to Safety Information before removing Tester from vehicle.
  11. Remove the fuel pressure Adapter following the above instructions. Reinstall the vehicle's fuel line. Start the engine and check for leaks.
3. The connection with the vehicle's fuel injection system is on the fuel rail.
  4. A disconnect tool (not included) is required to separate the spring lock fitting on the vehicle's fuel line.
  5. After the spring lock fitting has been disconnected, assemble the #21 Adapter into the line, making sure both ends of the mating couplings are locked together.
  6. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
  7. Start the engine and allow it to idle. Check all connections for leaks.
  8. Read the Gauge and compare the result with the pressure values in the service manual.
  9. Stop the engine and turn the ignition OFF.
  10. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to depressurize the fuel system. Refer to Safety Information before removing Tester from vehicle.
  11. Using a disconnect tool, remove the test Adapter and install the vehicle's fuel line. Start the vehicle and check for leaks.

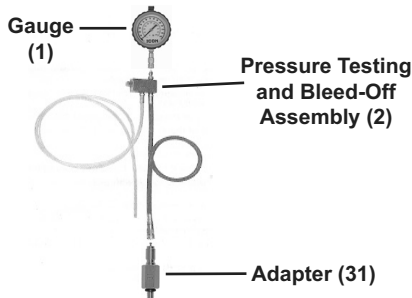
***FORD Central Fuel Injection (CFI)  
with Spring Lock Fittings–2.5L:***



**Figure F**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.

**HONDA, ACURA, and STERLING  
Multi-Port (PGM):**

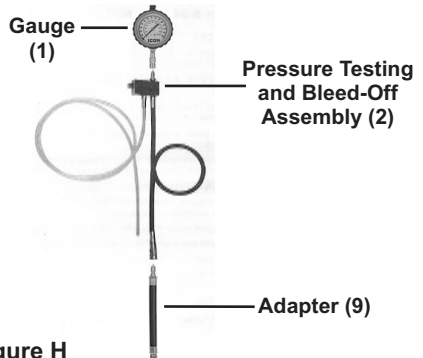


**Figure G**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. The test port is at the vehicle's fuel filter, under the hood, just forward of the firewall.
4. The fuel outlet is secured to the fuel filter by a "double D" bolt. Within this bolt is a smaller hex bolt that provides access to the test connection.
5. Place a shop cloth around the fuel outlet and slowly remove the smaller hex bolt.
6. Screw the small male end of the #31 Adapter into the hole where the removed hex bolt was. Hand tighten.
7. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
8. Start the engine and allow it to idle. Check all connections for leaks.
9. Read the Gauge and compare the result with the pressure values in the service manual.
10. Stop the engine and turn the ignition OFF.

11. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to depressurize the fuel system.
12. Refer to Safety Information before removing tester from vehicle.
13. Re-install the hex bolt on the fuel filter. Check for leaks.

**FORD Throttle Body Injection  
with Small SCHRADER Valve:**

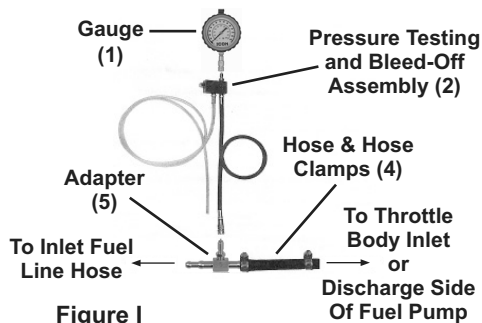


**Figure H**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. Remove the air cleaner assembly. The test valve is located at the top of the throttle body unit.
4. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
5. Attach the female end of the #9 Adapter to the test valve.
6. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
7. Start the engine and allow it to idle. Check all connections for leaks.
8. Read the Gauge and compare the result with the pressure values in the service manual.

9. Stop the engine and turn the ignition OFF.
10. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to depressurize the fuel system. Refer to Safety Information before removing Tester from vehicle.
11. Start the vehicle and check for leaks.

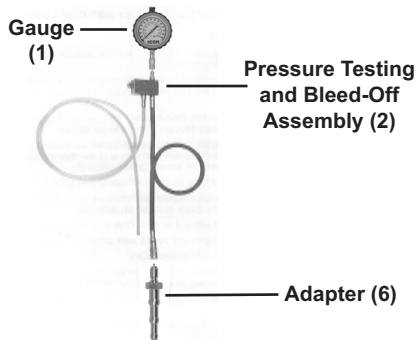
**All Vehicles with 5/16" or 3/8" Fuel Line Hose:**



**Figure I**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. Loosen the hose clamp and disconnect the fuel line hose from the inlet side of the vehicle's throttle body or discharge side of the fuel pump.
4. Assemble the #5 Adapter and Hose with Hose Clamps from the #4 Seal and Service Kit.
5. Connect the #5 Adapter as assembled above between the disconnected fuel line and the throttle body inlet or fuel pump. Tighten all Hose Clamps securely.
6. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
7. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
8. Start the engine and allow it to idle. Check all connections for leaks. Read the Gauge and compare the result with the pressure values in the service manual.
9. Stop the engine and turn the ignition OFF.
10. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to depressurize the fuel system.
11. Refer to Safety Information before removing Tester from vehicle.
12. Replace the vehicle's fuel line and tighten all clamps securely. Check all connections for leaks.

**All Vehicles Requiring End of Line Testing with 1/4", 5/16", or 3/8" Fuel Line Hose:**

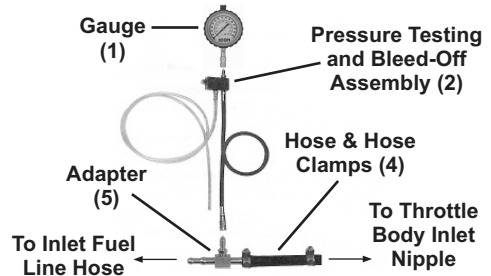


**Figure J**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. Loosen the hose clamp and disconnect the fuel line.
4. Install the #6 Adapter into the fuel supply hose. Tighten hose clamp securely.
5. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
6. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
7. Start the engine and allow it to idle. Check all connections for leaks. Read the Gauge and compare the result with the pressure values in the service manual.
8. Stop the engine and turn the ignition OFF.
9. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to depressurize the fuel system.

10. Refer to Safety Information before removing Tester from vehicle.
11. Reconnect vehicle's fuel line and tighten all clamps securely. Check all connections for leaks.

**CHRYSLER Throttle Body Injection:**

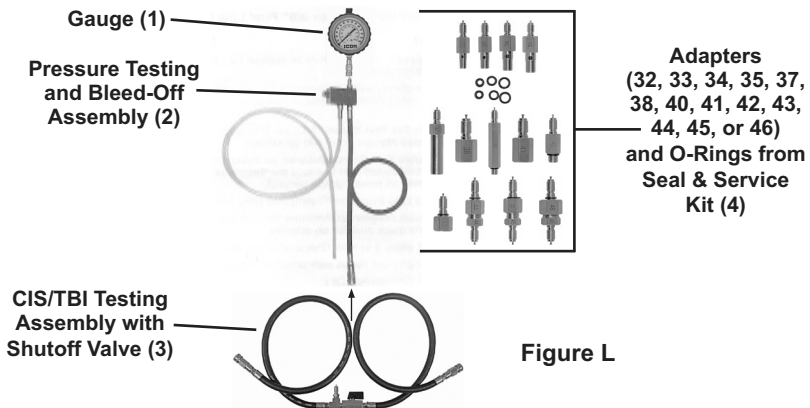


**Figure K**

1. Turn off the ignition.
2. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
3. Loosen the hose clamp and disconnect the fuel line hose from the inlet side of the vehicle's throttle body.
4. Confirm if the size of the inlet fuel line hose is 1/4" or 5/16".
5. Assemble the correct Hose and Hose Clamps from the #4 Seal and Service Kit onto the #5 Adapter.
6. Connect the Adapter assembly between the disconnected fuel line and the throttle body inlet nipple on the vehicle. Tighten all Hose Clamps securely.
7. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.

8. Start the engine and allow it to idle. Check all connections for leaks. Read the Gauge and compare the result with the pressure values in the service manual.
9. Stop the engine and turn the ignition OFF.
10. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to depressurize the fuel system. Refer to Safety Information before removing Tester from vehicle.
11. Reconnect vehicle's fuel line and tighten all clamps securely. Check all connections for leaks.

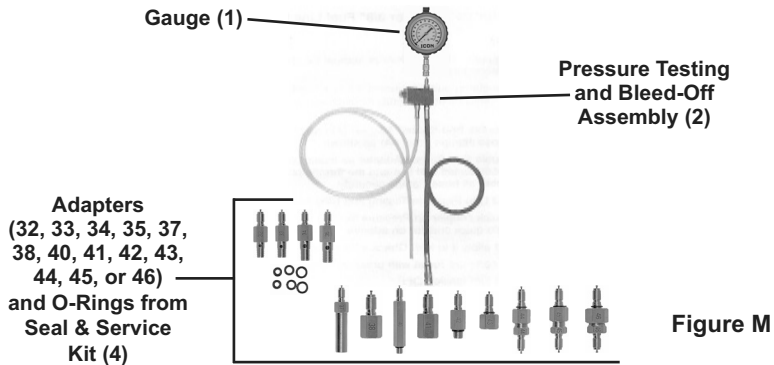
### **BOSCH Continuous Injection System (CIS) Testing:**



**Figure L**

1. Turn off the ignition.
2. Clean the top of the fuel distributor to keep dirt from entering the fuel system.
3. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
4. The CIS system has a primary circuit with pressure regulated at the fuel distributor. This is known as *supply pressure, primary pressure, or line pressure*. The side of the Tester *without* the shutoff valve is connected to this circuit. The other circuit is known as the *control circuit*. This contains the control pressure regulator, known as the *warm-up compensator*. The side of the Tester *with* the shutoff valve is connected to this circuit.
5. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
6. Install Adapter(s) #32, 33, 34, 35, 37, 38, 40, 41, 42, 43, 44, 45, or 46 and O-Ring from the #4 Seal and Service Kit to the engine as required. Hand tighten only. Then connect Hoses to Adapters.
7. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the CIS/TBI Testing Assembly with Shutoff Valve. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to release any air in the test Hose.
8. Refer to Safety Information before removing Tester from vehicle. Remove Tester and Adapters from vehicle. Reconnect vehicle's fuel injection lines to original condition. Start the vehicle and check for leaks.

## **Constant Injection System Electronic (CISE)–European Vehicles:**



1. Turn off the ignition.
2. Clean the top of the fuel distributor to keep dirt from entering the fuel system.
3. Relieve the fuel pressure. Refer to the vehicle's service manual for specific pressure relief procedures.
4. Connect the Gauge to the Pressure Testing and Bleed-Off Assembly.
5. Install Adapter(s) #32, 33, 34, 35, 37, 38, 40, 41, 42, 43, 44, 45, or 46 and O-Ring from the #4 Seal and Service Kit to the engine as required.
6. Attach the female quick coupler on the Pressure Testing and Bleed-Off Assembly to the male quick coupler on the Adapter.
7. Start the engine and allow it to idle. Check for leaks. Read the fuel pressure. Compare the value on the Gauge to the value in the service manual.
8. With free end of Bleed-Off Hose in a suitable container, press button on side of Bleed-Off Assembly slowly to release any air in the test Hose. Refer to Safety Information before removing Tester from vehicle.
9. Remove Tester and Adapter(s) from vehicle.
10. Reconnect vehicle's fuel injection lines to original condition.
11. Start vehicle and check for leaks.



## Maintenance



Procedures not specifically explained in this manual must be performed only by a qualified technician.

### **⚠ WARNING**

**TO PREVENT SERIOUS INJURY FROM TOOL FAILURE: Do not use damaged equipment. If abnormal noise, vibration, or leaking air occurs, have the problem corrected before further use.**

1. **BEFORE EACH USE**, inspect the general condition of the tool. Check for:
  - loose hardware
  - cracked, worn, or damaged Adapters
  - damaged Pressure Gauge and Hose
  - any other condition that may affect its safe operation.
2. **AFTER EACH USE**, wipe external surfaces of the tool with clean cloth.
3. Periodically check the threads for damage.
4. Keep clean and free from dirt, grease and grit.
5. Store tool in its Carrying Case when not in use.

If a problem occurs, have the problem corrected before further use.

**Do not use damaged equipment.**

## PLEASE READ THE FOLLOWING CAREFULLY

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THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS DOCUMENT AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

# Parts List and Diagram

## Parts List

Part	Description
1	0–145 PSI (0–1000 kPa) Gauge w/Boot & Hang-Up Hook
2	Pressure Testing and Bleed-Off Assembly
3	CIS/TBI Testing Assembly w/Shutoff Valve
4	Seal And Service Kit
5	Double Ended Hose Adapter: 5/16", 3/8"
6	Single End Hose Adapter: 1/4", 5/16", 3/8"
7	Decarbonizing Adapter
8	1/4" Hair Pin T Adapter
9	Schrader Fitting 0.308x32 thread
10	Schrader Fitting 7/16"-20 thread
11	5/16" Hair Pin T Adapter–
12	3/8" Hair Pin T Inline Adapter
13	5/8"-18 External Flare W/Schrader Adapter
14	5/8"-18 Internal Flare W/Schrader Adapter
15	16MmX1.5 External O-Ring Adapter
16	16MmX1.5 Internal O-Ring Adapter
17	14MmX1.5 External O-Ring Adapter
18	14MmX1.5 Internal O-Ring Adapter
19	14MmX1.5 External O-Ring Plug
20	16MmX1.5 Inline Adapter
21	FORD Spring Lock Coupling Adapter
22	Schrader Fitting, 7/16"-20 Female 90° Elbow
23	Schrader Fitting, 0.308x32 Female 90° Elbow
24	0.430x11 mm Fuel Pressure Test Adapter
25	0.580x15mm Fuel Pressure Test Adapter
26	0.625x16mm Fuel Pressure Test Adapter

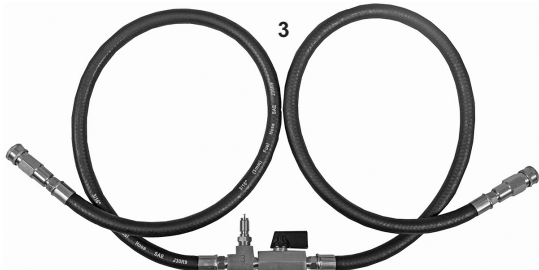
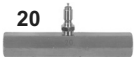
Part	Description
27	M8x1.00 Male Double Banjo EFI Pressure Test Adapter
28	M12x1.25 Male Double Banjo EFI Pressure Test Adapter
29	M8 Female Banjo Fitting
30	M12 Female Banjo Fitting
31	M6x1.00 External O-Ring Adapter
32	M8x1.00 External O-Ring Adapter
33	M10x1.00 External O-Ring Adapter
34	M12x1.50 External O-Ring Adapter
35	M12x1.25 External O-Ring Adapter
36	M14x1.50 External O-Ring Adapter
37	M8x1.00 Internal O-Ring Adapter (Long)
38	M8x1.00 Internal O-Ring Adapter
39	M8x1.00 External O-Ring Adapter
40	M8x1.00 External O-Ring Adapter (Long)
41	M10x1.00 Internal O-Ring Adapter
42	M10x1.00 External O-Ring Adapter
43	M12x1.50 Internal Swivel Adapter
44	M14x1.50 External/Internal Swivel Adapter
45	1/4" BSPT External/Internal Swivel Adapter
46	M16x1.50 External/Internal Swivel Adapter
47	M14x1.50 Inverted Flare Adapter
48	M12x1.00 HONDA Pulse Dampener Adapter
49	0.625/16mm Fuel Pressure Test Adapter–Studded Rail Style
50	Carrying Case (not shown)

### Record Serial Number Here:

**Note:** If product has no serial number, record month and year of purchase instead.

**Note:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 792363649384 when ordering parts.

# Diagram



## Limited Warranty

This ICON product is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one (1) year beginning on the date of purchase (or product receipt, if later). To obtain warranty service, the product or part must be returned to us with proof of purchase (e.g. in-store receipt or packing slip/invoice) and may require shipment by purchaser to a service center at purchaser's expense. If our inspection verifies a covered defect in materials or workmanship during the warranty period, we will, at our option, repair or replace the defective product. We will return repaired products within a reasonable time at our expense, but if we determine that there is no defect, or that the defect resulted from causes not within the scope of our warranty, then we will return the product to you if you pay return shipping costs.

This warranty does not cover any failure or damage that we determine is due directly or indirectly to normal wear and tear, misuse, use not for the intended purpose or not in accordance with the product manual, abuse, accident, rental, modification or alteration, unauthorized repair, improper installation, neglect, lack of maintenance, or any other failure not arising from defective materials or workmanship. Fraudulent returns or claims will be denied. The repair or replacement described in this warranty shall be your sole and exclusive remedy. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES, WRITTEN OR ORAL, AND ANY IMPLIED WARRANTIES ARE DISCLAIMED TO THE EXTENT PERMITTED BY LAW AND OTHERWISE LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN. HARBOR FREIGHT SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES OR COSTS ARISING FROM THIS WARRANTY OR THE USE OF THIS PRODUCT. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THESE LIMITATIONS MAY NOT APPLY TO YOU.

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