



# ATD-5578 MASTER FUEL INJECTION PRESSURE TEST KIT OWNER'S MANUAL



- Tests most fuel injection systems both foreign and domestic
- Features (2) gauges with gauge protectors for accurate testing from 5-150 psi
- Includes late model GM, Chrysler, Mitsubishi and European applications
- Large 3-1/2" gauge with dual reading of 0-150 psi and 0-1,000 KPA
- Low pressure 2-1/2" gauge for an accurate reading below 15 psi
- All adapters, gauge and hose assemblies feature a quick coupling system for fast and efficient testing connection
- Uniquely designed relief valve relieves the pressure and the fuel safely
- Allows checking for sufficient fuel flow
- No need for wrenches or pipe dope

 **WARNING**   
**WARNING:** This product may contain chemicals, including lead, known to the State of California to cause cancer, birth defects or other reproductive harm. *Wash hands after handling.*

Made in Taiwan to ATD Tools, Inc. Specifications  
Visit us at [www.atdtools.com](http://www.atdtools.com)

ATD5578\_rev\_0517

# IMPORTANT PRE-TEST INFORMATION

## Safety Precautions

- 1) Do not smoke while working on fuel systems.
- 2) Never work on fuel systems where a flame or spark could be present. Keep a dry chemical fire extinguisher near you.
- 3) Wear safety glasses at all times.
- 4) Clean all connections and keep dirt out of the system.
- 5) To avoid fuel spray, wrap a shop towel around the pressure tap fittings when connecting and disconnecting adapters.
- 6) Provide for proper ventilation of gasoline and exhaust fumes.
- 7) If a leak or spill develops, turn off ignition, disable fuel pump and clean up any spills immediately.
- 8) Operators must read and follow the operating instructions from a reliable shop manual for proper test procedures, access points, and pressure specifications.

## Pretest System Checks

- 1) Fuel System
  - Look for broken or loose fuel lines.
  - Check for water or other contaminants in the fuel, and make sure fuel tank has sufficient fuel for testing.
  - Check condition of fuel tank venting systems, fuel tank filler cap, and fuel systems related fuses.
- 2) Electrical System
  - Check conditions of all electrical systems and other computer fault indicators.
  - If engine won't start, check for ignition spark using a test plug.
- 3) Battery and Charging System
  - Check battery condition, make sure battery is fully charged.
  - Check for loose or corroded battery cables.
- 4) Miscellaneous
  - Check for loose or disconnected vacuum lines.
  - Check for water or oil leaks.
  - Check for any audible air leaks, unusual noises, fuel pump buzz, engine rattles or knocks.
  - Check valve timing and adjustment.

# BASIC FUEL PRESSURE DIAGNOSIS

Fuel injected engines require precise fuel pressure as well as adequate volume. Without the correct pressure and volume, performance and fuel economy can suffer. Always consult the correct repair manual for accurate specifications.

Fuel pressure problems generally fall into two categories; higher than normal and lower than normal operating pressures. When running tests, it may help to picture the fuel system as a circle. Fuel is pumped from the tank to the fuel regulator and injectors, and the unused fuel is then returned to the tank. The fuel regulator serves as a divider between the supply side and return side. A higher than normal pressure is generally caused by a malfunction in the return side, and a lower than normal pressure is generally caused by a problem in the supply side.

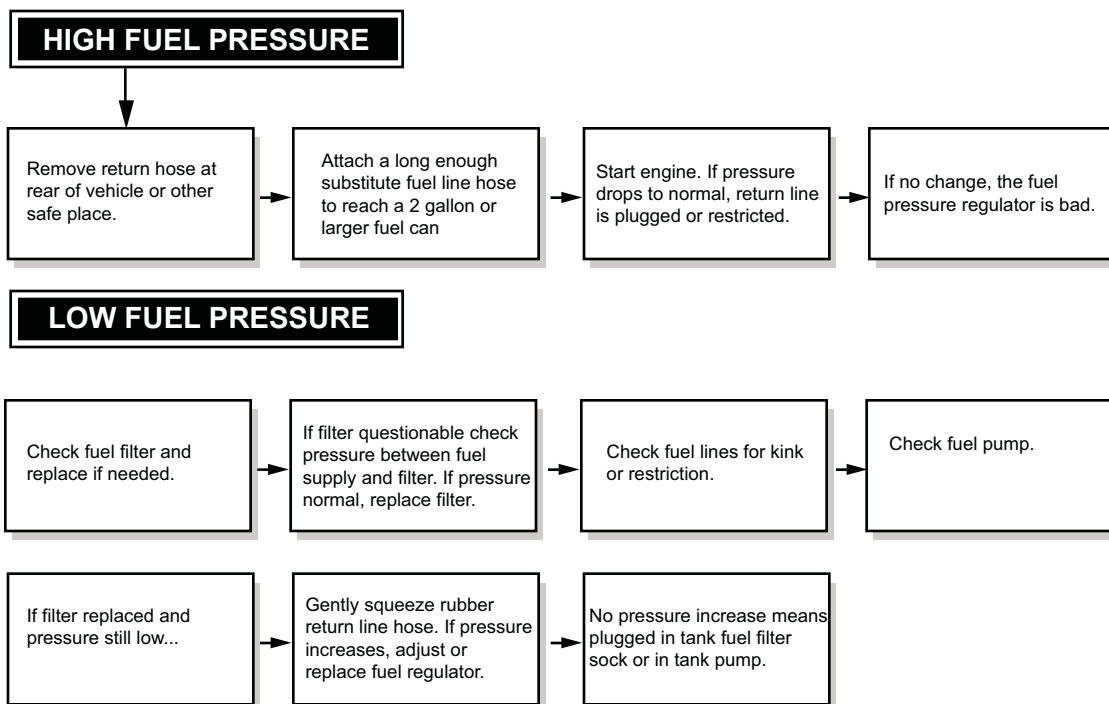
Higher than normal pressure can usually be attributed to faults such as:

- 1) Defective pressure regulator
- 2) A damaged or restricted fuel line
- 3) Excessive tank pressure caused by a poor vent system

Lower than normal pressures can usually be attributed to faults such as:

- 1) Clogged fuel filter
- 2) A damaged or restricted fuel line
- 3) Defective fuel pump
- 4) Defective pressure regulator
- 5) Clogged fuel filter sock in tank
- 6) Low pressure in tank (vacuum) caused by improper venting

## Troubleshooting Multi-Port and TBI Systems



# PROCEDURE TO RELIEVE FUEL SYSTEM PRESSURE

High fuel pressure may be present in fuel lines and components. Unless a Schrader Valve test port is available, most manufacturers require that you relieve the fuel pressure before entering or leaving the system. Follow instructions below to relieve fuel system.

- 1) Remove gas cap with the ignition off
- 2) Unplug or disconnect at fuel pumps. Some vehicles may have two fuel pumps. In tank and outside, make sure both are disabled. Also on some vehicles such as Audi, BMW, Ford, GM, Mazda and Mercedes-Benz, another disabling method must be used. (See Fuel Pressure Release Chart below).
- 3) Turn the ignition key on and start the engine.
- 4) Run the engine until it stalls.
- 5) Crank starter for 3-5 seconds to remove remaining fuel from fuel lines. For cars with inertia switch pressure relief, engage starter 15 seconds to relieve fuel pressure.
- 6) Turn ignition key off.

## Fuel Pressure Release Unplug or disconnect at fuel pump(s)

Acura	Geo	Nissan/Datsun	Subaru
Alfa Romeo	Honda	Peugeot	Suzuki
AMC	Hyundai	Porsche*	Toyota
Chrysler	Isuzu	Renault	Triumph
Daihatsu	Jaguar	Saab	Volkswagen*
Eagle	Jeep	Sterling	Volvo*
Fiat	Mitsubishi		

\* some models have two fuel pumps, in tank and outside. Unplug both.

### Disable in other ways:

#### **Audi**

*Coupe and Quattro: Unplug fuel pump connector  
All others: Remove fuel pump relay*

#### **BMW**

*Through 1990: Disconnect negative terminal of fuel pump.  
1991: Unplug fuel pump connector*

#### **Ford**

*Cars, vans and utility vehicles except Explorer: Disconnect inertia switch  
Explorer: Unplug fuel pump connector  
Some Ford products have two fuel pumps. It is important that both fuel pumps are disabled.*

#### **GM**

*All except below: Unplug fuel pump connector.  
1975-80 Cadillac: Disconnect one fuel pump in gas tank and second one on chassis, left front of tank.  
1986-89 Corvette: Remove fuel pump fuse if one fuel pump.  
If two fuel pumps, remove the correct 10 amp fuse in both the main and auxiliary fuse blocks.*

#### **Mazda**

*MPV, MX-6, 626, RX7, 323, 929 & Navajo: Unplug fuel pump connector.  
B2600, MX5 & Miata: Disconnect circuit opening relay connector.*

#### **Mercedes-Benz**

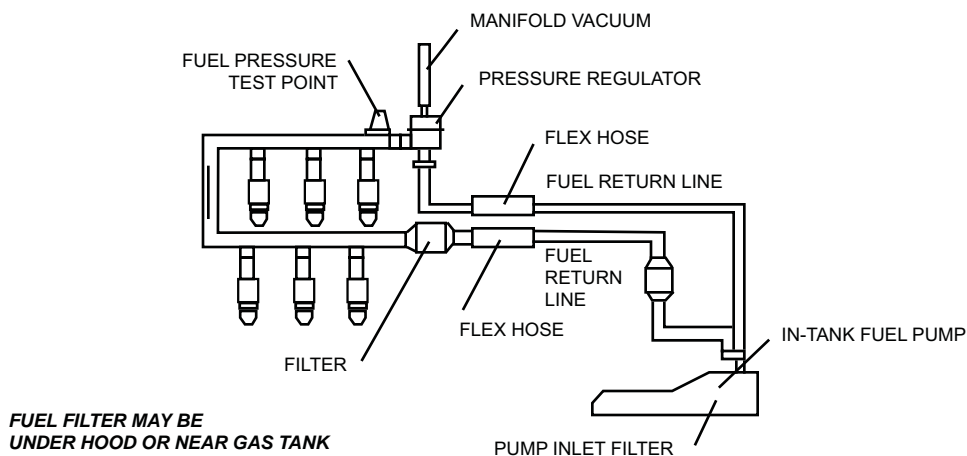
*Disconnect negative terminal or fuel pump connector*

# TYPICAL FUEL INJECTOR PRESSURE TEST

(For Bosch CIS and GM TBI, see additional instructions)

- 1) With engine off, locate fuel pressure port and simply connect the proper adapter to the gauge assembly, thread the adapter to the test port. If no pressure is provided, the system must be opened. Residual pressure must be released before disconnecting any components. See **“PROCEDURE TO RELIEVE FUEL SYSTEM PRESSURE”** and follow instructions. Connect tester using the correct adapter and access point. Always wrap a shop towel around fitting before loosening.
- 2) With gauge connected into system using proper adapters, reactivate fuel pump, turn ignition on and engine off, and check for leaks. If no leaks are detected, observe gauge, Pressure should rise slightly above operating pressure and then stabilize at operating pressure.
- 3) Start engine. If an adjustable fuel pressure regulator is used, pressure should be maintained while running. If a compensating fuel pressure regulator is used, pressure should drop approximately 3-10 psi, depending on manifold vacuum.
- 4) If the fuel pressure is not within specifications, refer to the **“BASIC FUEL PRESSURE DIAGNOSIS”** and **“TROUBLESHOOTING CHART”**.
- 5) If pressures are acceptable, some manufacturers also require a flow test. If so, at this point open the fuel system into a graduated plastic container and observe flow rate.
- 6) Turn key off and observe residual pressure. Some manufacturers prescribe a minimum holding time.
- 7) In conjunction with an injector pulse tester, turn key on, observe pressure, pulse one injector, observe pressure drop. Turn key off, continue with remaining injectors. Caution: Do not repeat this test more than the manufacturers recommendations. Flooding of engine may occur.
- 8) Deactivate fuel pump and relieve fuel system if necessary. With key off, put bleed-off tubing in a fuel can and press bleed valve.
- 9) Remove tester and reconnect all lines.
- 10) Start engine and check for leaks.

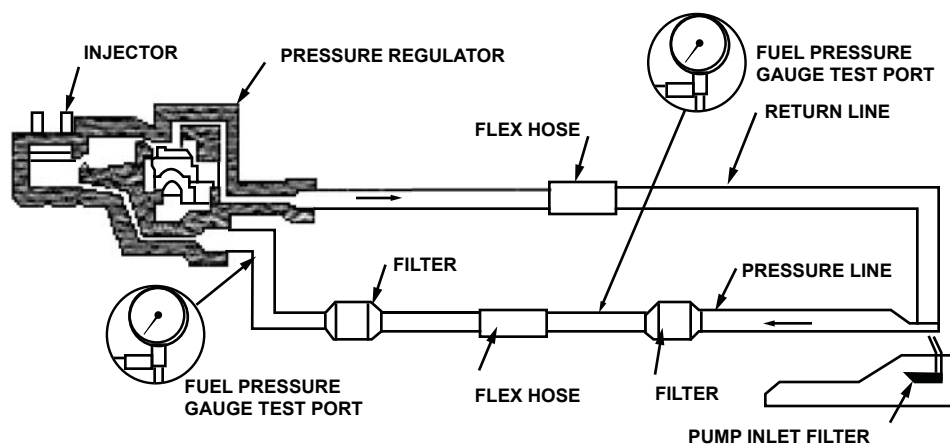
## Typical Multi-port Fuel Injection System With Schrader Valve



# ADDITIONAL INSTRUCTIONS FOR GM TBI PRESSURE TEST

- 1) Relieve fuel system pressure. refer to the “**PROCEDURE TO RELIEVE FUEL SYSTEM PRESSURE**”.
- 2) Remove the air cleaner assembly.
- 3) Temporarily plug the thermal vacuum port on the throttle body. When removing the fuel line, always use two wrenches to prevent damage. Install fuel pressure gauge and adapter in fuel line between steel line and flexible hose.
- 4) Reactivate fuel pump, start the engine and check for leaks.
- 5) When fuel pressure has stabilized for a minute or so, gauge should read 9-13 psi.
- 6) If the fuel pressure is not within specifications, refer to the “**BASIC FUEL PRESSURE DIAGNOSIS**” and “**TROUBLESHOOTING CHART**”.
- 7) Deactivate fuel pump and relieve fuel system pressure. With key off, put bleed-off tubing in a fuel can and press bleed-off valve.
- 8) Remove tester and reconnect all lines.
- 9) Start engine and check for leaks.
- 10) Remove fuel from all tester hoses.

## Typical TBI Fuel Injection System



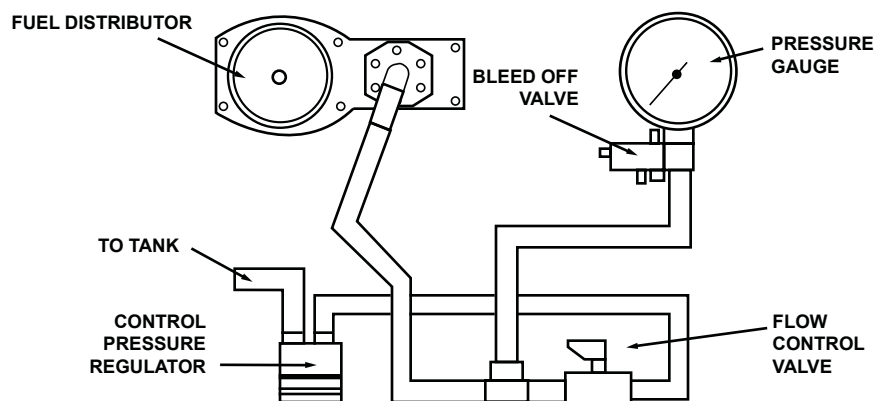
*POSITION OF FILTER MAY VARY*

# ADDITIONAL INSTRUCTIONS FOR BOSCH CIS PRESSURE TEST

Note: Control pressure is measured with valve open, system pressure is measured with valve closed.

- 1) Relieve fuel system pressure. refer to the “**PROCEDURE TO RELIEVE FUEL SYSTEM PRESSURE**”.
- 2) Make sure fuel filter is not clogged. Replace if doubtful.
- 3) Clean dirt off of the fuel distributor cap.
- 4) Install fuel pressure gauge and adapter between the fuel distributor test port and flow control valve. Ensure control lever is in the closed position. Bleed excess air from system by cycling control valve with gauge upside down.
- 5) Using a jumper wire, connect terminals No. 30 and 87 on fuel pump relay. Open fuel pressure gauge control lever. Fuel pressure should be within specification.
- 6) If fuel pressure is too low, perform fuel pump volume check. Also, there may be a blockage in the supply line or leakage in the return line. If fuel volume is okay, the fuel system pressure needs adjustment or replace fuel pressure regulator.
- 7) If fuel pressure is above specification, remove return hose from pressure regulator and repeat test. If fuel pressure is within specification, check for restricted fuel return line. If pressure is incorrect, the fuel system pressure needs adjustment or replace fuel pressure regulator.
- 8) Deactivate fuel pump and relieve fuel system pressure. With key off, put bleed-off tubing in a fuel can and press bleed-off valve.
- 9) Remove tester and reconnect all lines.
- 10) Start engine and check for leaks.
- 11) Remove fuel from all tester hoses.

## Typical C.I.S. Pressure Testing Fuel Injection Hookup



# FUEL INJECTION PARTS AND TEST PORT ADAPTERS



**A**

**A** - 3-1/2" Gauge Head with dual readings; 0-150 psi and 0-1000 KPA (10 Bar). Can be used for all tests



**AE**

**AE** - Low pressure 2-1/2" gauge with dual readings; 0-15 psi and 0-1 kg/cm<sup>2</sup> (1 bar)/ Use for tests where an accurate reading below 15 psi is required



**D**

**D** - Gauge hose assembly with blow down valve. Can be used on all tests between the gauge and adapters. Provides a clean and convenient method of relieving pressure after testing or for a retest. Can also be used for observing steadiness and volume of fuel. Simply put end of clear tubing into proper container and push the side button.



**G**

**G** - CIS/TBI test hose - use when testing CIS or TBI systems where in line connections are needed. Includes shut-off valve for both control and primary system checks. We recommend that the D gauge hose is used with CIS testing, as most manufacturers require that all air is purged from the tester when running tests.



**C**

**C** - Small schrader type test hose with .308 x 32 thread. Common applications - Ford EFI.

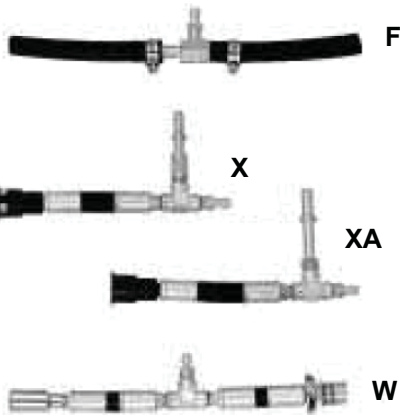


**B**

**B** - Large schrader type test hose with 7/16" x 20 thread. Applications include Chrysler, Jeep and GM test ports.



# FUEL INJECTION PARTS AND TEST PORT ADAPTERS

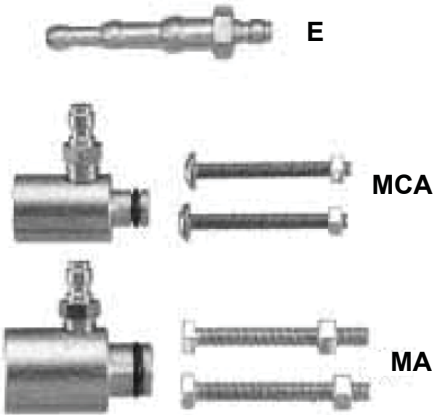


**F** - Double ended barb fitting; Common application - Where 5/16"-3/8" fuel line can be entered for testing - AMC, Chrysler w/TBI, Fiat, GM w/Bosch L-jetronic, Jaguar, Mazda, Nissan, Peugeot, Porsche w/Bosch L-jetronic, Renault, Subaru, Triumph, VW and Volvo w/Bosch L-jetronic.

**X** - Hair Pin Hose 5/16"; Common application - Ford EFI

**XA** - Hair Pin Hose 3/8"; Common application - GM, Chrysler

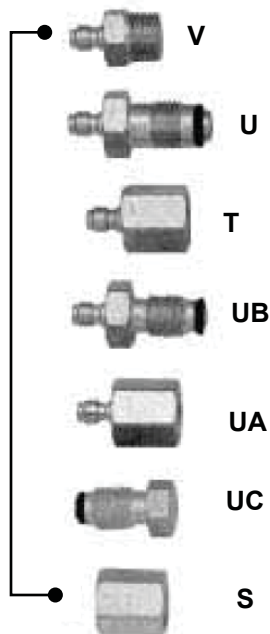
**W** - Spring Lock Hose; Common application - Ford EFI



**E** - Single End Hose Connection 1/4" x 3/8"; Common applications - older port systems with hose connection, and and where rubber hose fuel lines from 1/4"-3/8" can be accessed.

**MCA** - .430 Male Quick Disconnect Fitting; Common application - Mistubishi and Chrysler.

**MA** - 5/8" Male Quick Disconnect Fitting; Common application - Mistubishi



**V** - 5/8" x 18 Male Fitting (2)

**U** - 16mm x 1.5 Male Tube Nut (2)

**T** - 16mm x 1.5 Male Tube Nut (2)

**UB** - 14mm x 1.5 Male Tube Nut (2)

**UA** - 14mm x 1.5 Male Tube Nut (2)

**UC** - 14mm x 1.5 Plug

**S** - Union - 5/8" x 18

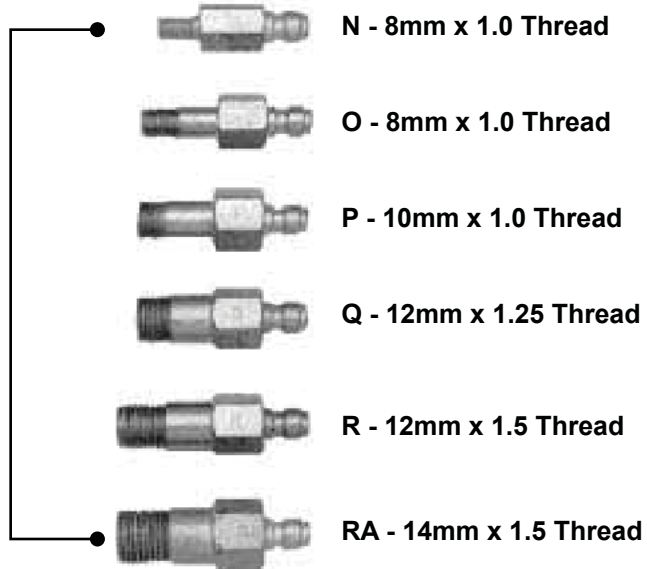
*TBI In Line Testing Adapters  
Common Applications  
GM TBI Systems*

# FUEL INJECTION PARTS AND TEST PORT ADAPTERS

## **End Of Line Fuel Bolt Adapters**

Common Applications:

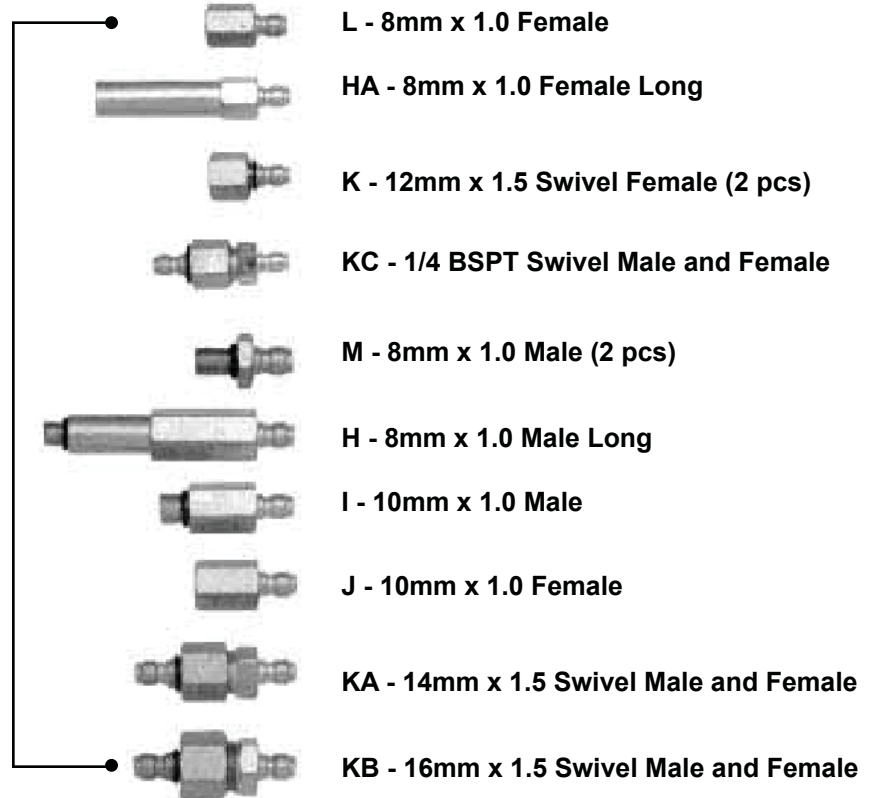
- Acura
- Honda
- Hyundai
- Mazda
- Suzuki
- Toyota

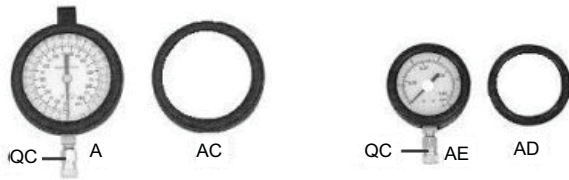


## **In Line Testing CIS, CISE and K-Jetronic Adapters**

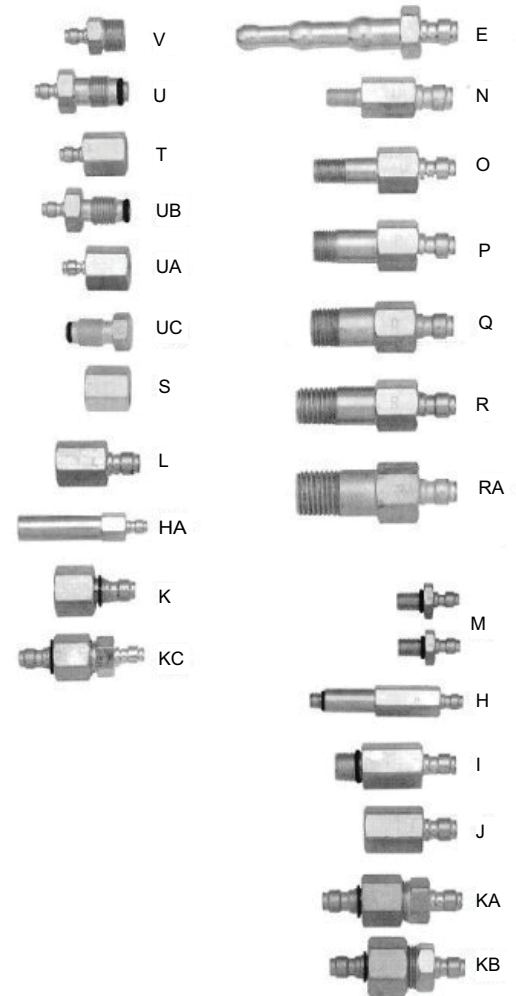
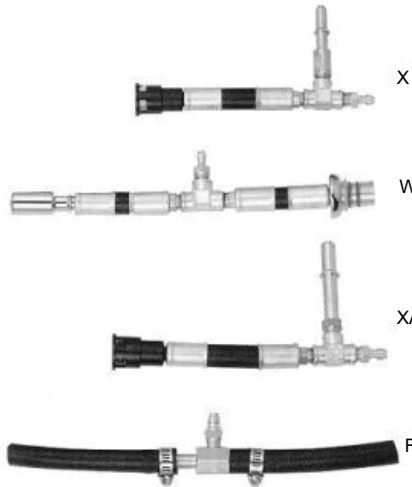
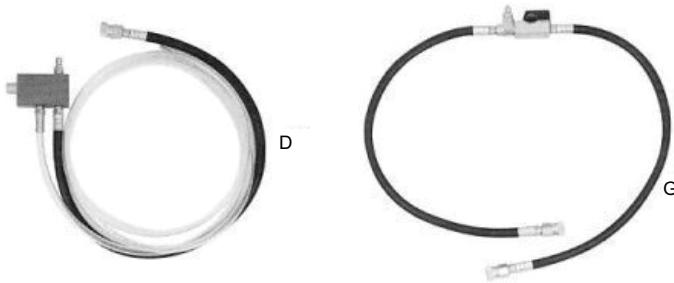
Common Applications:

- Audi
- BMW
- Mercedes
- Peugeot
- Porsche
- Saab
- VW
- Volvo w/CIS, CISE or K-Jetronic Systems





# ATD-5578



ITEM#	ORDERING PART#	PART DESCRIPTION
A	PRT5578-A	3.5" GAUGE W/QUICK COUPLER
AC	PRT5578-AC	3.5" GAUGE PROTECTOR
AD	PRT5578-AD	2.5" GAUGE PROTECTOR
AE	PRT5578-AE	2.5" GAUGE W/QUICK COUPLER
B	PRT5578-B	7/16" x 20 ADAPTER HOSE GM / CHRYSLER
N/S	PRT5578-B-HS	RED SEAL FOR "B" HOSE VALVE
C	PRT5578-C	308 x 32 ADAPTER HOSE FORD EFI
D	PRT5578-D	GAUGE HOSE WITH RELIEF VALVE
E	PRT5578-E	SINGLE END HOSE ADAPTER
F	PRT5578-F	DOUBLE END HOSE ADAPTER 5/16" - 3/8"
G	PRT5578-G	CIS/TBI HOSE ASSY W/VALVE
H	PRT5578-H	8MM x 1.0 MALE CIS FITTING (LONG)
HA	PRT5578-HA	8MM x 1.0 FEMALE CIS FITTING (LONG)
I	PRT5578-I	10MM x 1.0 MALE CIS FITTING
IM	PRT5578-IM	INSTRUCTION MANUAL
J	PRT5578-J	10MM x 1.0 FEMALE CIS FITTING
K	PRT5578-K	12MM x 1.5 FEMALE CIS SWIVEL FITTING
KA	PRT5578-KA	14MM x 1.5 SWIVEL FITTING MALE & FEMALE
KB	PRT5578-KB	16MM SWIVEL FITTING MALE & FEMALE
KC	PRT5578-KC	1/4" BSPT SWIVEL FITTING MALE & FEMALE
L	PRT5578-L	8MM x 1.0 FEMALE CIS FITTING

ITEM#	ORDERING PART#	PART DESCRIPTION
M	PRT5578-M	8MM x 1.0 MALE CIS FITTING
MA	PRT5578-MA	430 MALE QUICK DISCONNECT - MITS/CHRY
MCA	PRT5578-MCA	5/8" MALE QUICK DISCONNECT - MITSUBISHI
N	PRT5578-N	6MM x 1.0 BANJO FITTING
O	PRT5578-O	8MM x 1.0 BANJO FITTING
P	PRT5578-P	10MM x 1.0 BANJO FITTING
Q	PRT5578-Q	12MM x 1.25 BANJO FITTING
QC	PRT5578-QC	QUICK COUPLER FOR GAUGES
R	PRT5578-R	12MM x 1.5 BANJO FITTING
RA	PRT5578-RA	14MM x 1.5 BANJO FITTING
RK	PRT5578-RK	REPAIR KIT (RUBBER SEALS/BRASS)
S	PRT5578-S	5/8" x 18 UNION
T	PRT5578-T	16MM x 1.5 FEMALE TUBE ADAPTER
U	PRT5578-U	16MM x 1.5 MALE TUBE ADAPTER
UA	PRT5578-UA	14MM x 1.5 FEMALE TUBE ADAPTER
UB	PRT5578-UB	14MM x 1.5 MALE TUBE ADAPTER
UC	PRT5578-UC	14MM x 1.5 MALE PLUG
V	PRT5578-V	5/8" x 18 MALE FITTING
W	PRT5578-W	FORD SPRING LOCK HOSE
X	PRT5578-X	FORD HAIR PIN HOSE 5/16"
XA	PRT5578-XA	GM/CHRYSLER HAIR PIN HOSE 3/8"



## WARRANTY

### 1 YEAR LIMITED WARRANTY

THIS WARRANTY AND CONFIRMED RECEIPT(S) SHOULD BE RETAINED BY THE CUSTOMER AT ALL TIMES

PURCHASED FROM: \_\_\_\_\_

DATE PURCHASED: \_\_\_\_\_

INVOICE/RECEIPT NUMBER: \_\_\_\_\_

Your ATD-5578 is warranted for a period of 12 months from the original purchase date.

For a period of one (1) year from your purchase date, ATD Tools Inc. will repair or replace (at its option) without charge, your ATD product if it was purchased new and the product has failed due to a defect in material or workmanship which you experienced during normal use of the product. This limited warranty is your exclusive remedy.

To access the benefits of this warranty, contact your supplier, or point of sale directly. You may be advised to return the product under warranty, freight prepaid, to your supplier for warranty determination.

If this ATD product is altered, abused, misused, modified, or undergoes service by an unauthorized technician, your warranty will be void. We are not responsible for damage to ornamental designs you place on this ATD product and such ornamentation should not cover any warnings or instructions or they may void the warranty. This warranty does not cover scratches, superficial dents, and other abrasions to the paint finish that occur under normal use. It also does not cover normal wear items such as but not limited to brushes, batteries, drill bits, drill chucks, pads or blades.

Subject to the law in your state:

- (1) Your sole and exclusive remedy is repair or replacement of the defective product as described above.
- (2) ATD is not liable for any incidental damages, including but not limited to, lost profits and unforeseeable consequences.
- (3) The repair and replacement of this product under the express limited warranty described above is your exclusive remedy and is provided in lieu of all other warranties, express or implied. All other warranties, including implied warranties and warranties of merchantability or fitness for a particular purpose are disclaimed and, if disclaimer is prohibited, these warranties are limited to one year from your date of purchase of this product.

Some states' laws do not allow limited durations on certain implied warranties and some states' laws do not allow limitations on incidental or consequential damages. You should consult the law in your state to determine how your rights may vary.

[Affix receipt or invoice here for safe keeping]