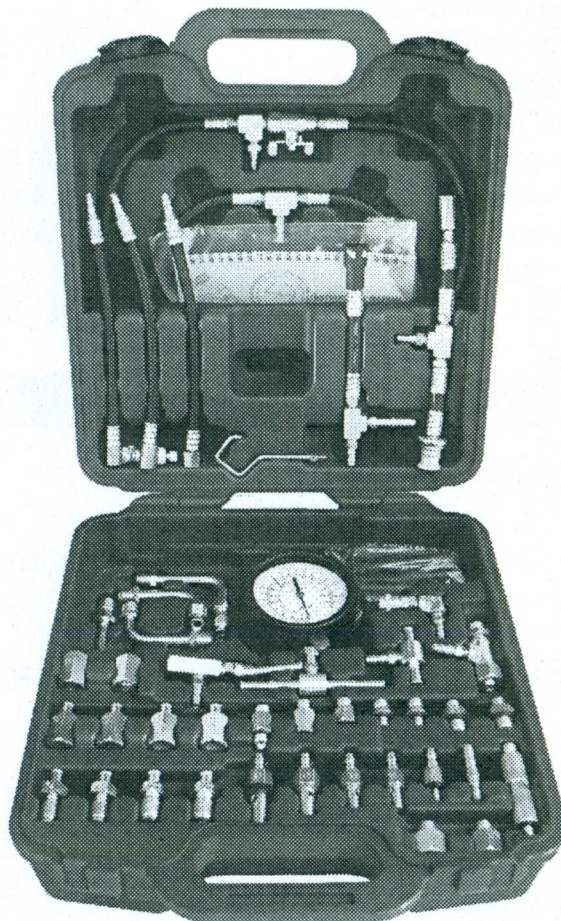


Varenr. 86604

FUEL INJECTION PRESSURE TESTER SET



1. FEATURES

2. SAFETY PRECAUTIONS

3. INSTRUCTIONS

4. SPECIFICATION

5. RELATED ITEMS

1. FEATURES

- This set is designed to test gasoline fuel injection pressure
- Adapters fit to American, Asian and European cars
- The pressure gauge can be hooked under the hood or stick to the windshield when doing a road test.
Apply some water on the vacuum pad behind the gauge before using it

2. SAFETY PRECAUTIONS



CAUTION



CAUTION

- DO NOT use on diesel engines
- DO NOT use on GDI engines
- Wear OSHA approved eye protection
- Loosen fuel cap and release fuel pump pressure
- Tighten all connectors before test. Any fuel leak can be dangerous
- Keep fire away. All the lightening equipment must be anti-break
- Clear residual fuel in all the hoses after test and release pressure before disconnecting adapters and pressure gauge
- Use a rug to clean leaking fuel and dispose the rug into fire-free container

3. INSTRUCTIONS

I. BASIC CHECKS BEFORE FUEL PRESSURE TEST

A. FUEL SYSTEM

1. Check if sufficient level of fuel in the fuel tank (fuel gauge on dashboard may not always be reliable)
2. Check if fuel lines are broken or loosened
3. Check if water or other contaminants are detected in fuel
4. Check if fuel tank ventilation system is working normally and fuel cap is broken
5. Check fuel system related fuses

B. ELECTRICAL SYSTEM

1. Check if electrical parts are disconnected or loosened
2. Check spark plug condition
3. Check engine and computer fault indicators
4. Measure battery voltage (at least 12V) as insufficient voltage may not ensure proper ignition

C. VACUUM LINES SYSTEM

1. Check vacuum lines are disconnected or loosened
2. Check if abnormal noise or audible air leaks
3. Check if excessive fuel or oil leaks
4. Check valve timing and make adjustment
5. Check if coolant leaks in cooling system

II. FUEL INJECTION PRESSURE TEST

- A. Stop the engine before test
- B. Locate fuel supply connectors (most new cars still remain pressure test port or fuel valves). If no such port or valves available, then disconnect the fuel supply line. Preventive actions must be performed before disconnecting fuel lines as high pressure fuel may spray out. Connect the correct adapter or accessories, or use coupler plug (part number 17 or 18) and tighten/fasten all the connections well (Fig. 1 shows an example of test adapter and tube connection)

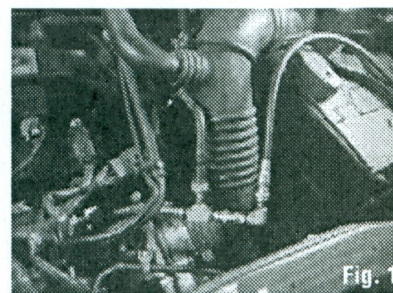
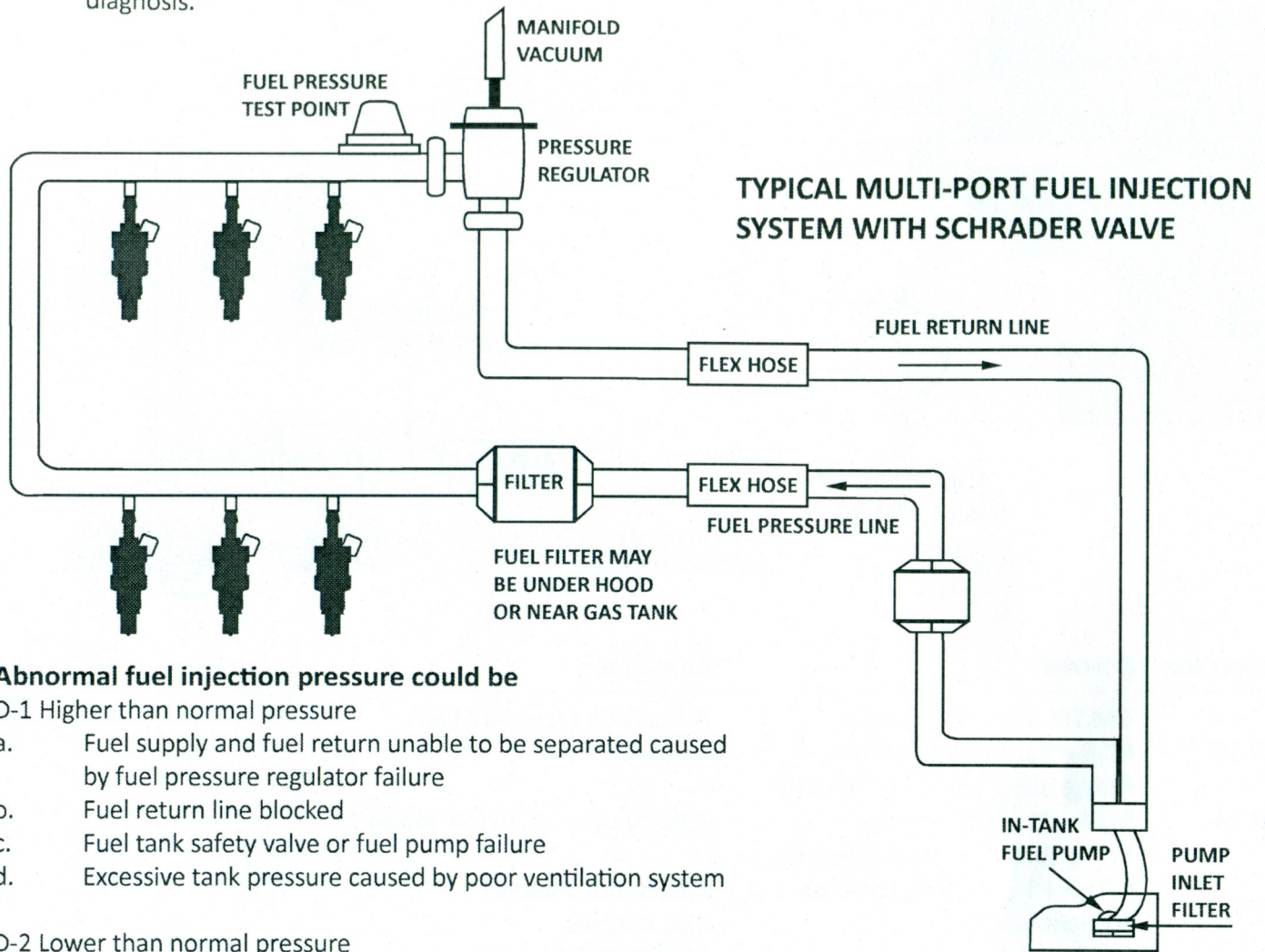


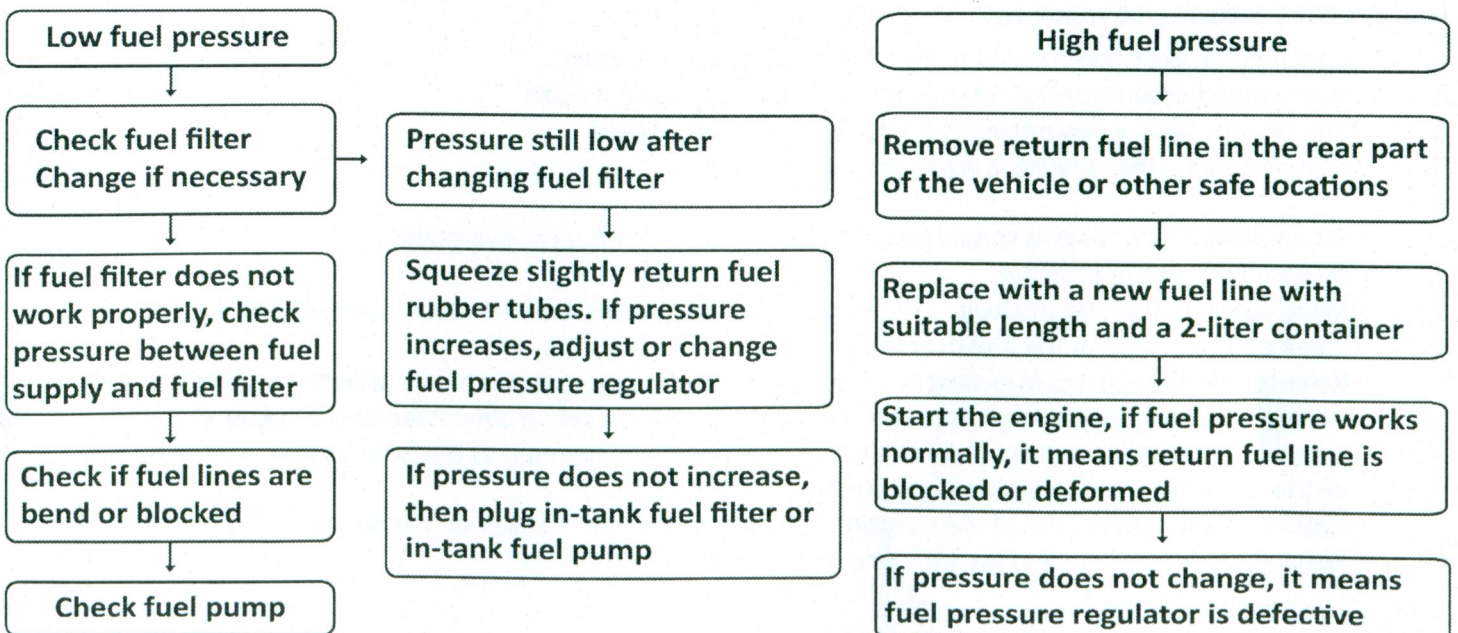
Fig. 1

- C. Engine should be at idle and high rpm when doing the fuel injection pressure test
Air in the gauge tube should be removed by pushing the pressure release button for more accurate result
- D. Read the gauge pointer and compare the value to the auto manufacturer's service manual for detailed diagnosis.



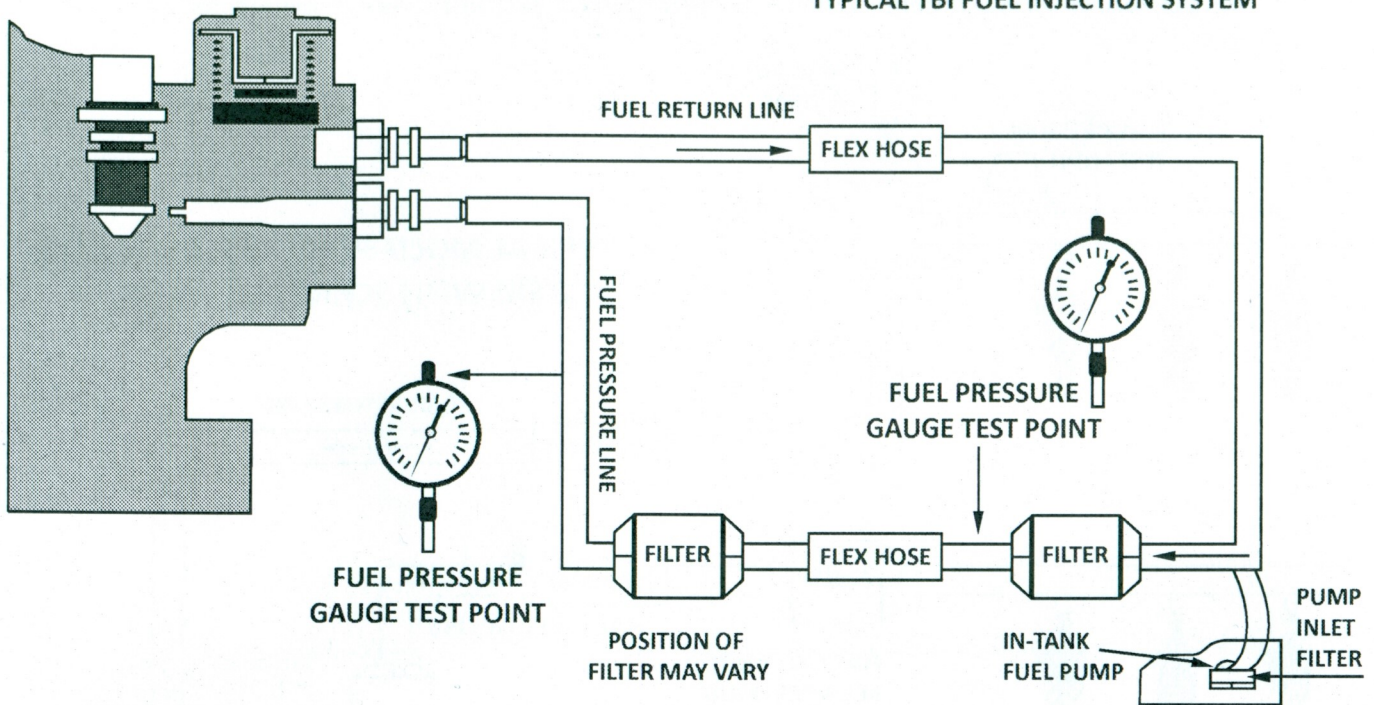
Abnormal fuel injection pressure could be

- D-1 Higher than normal pressure
 - a. Fuel supply and fuel return unable to be separated caused by fuel pressure regulator failure
 - b. Fuel return line blocked
 - c. Fuel tank safety valve or fuel pump failure
 - d. Excessive tank pressure caused by poor ventilation system
- D-2 Lower than normal pressure
 - a. Fuel pump or pressure regulator failure
 - b. Fuel filter clogged or deformed
 - c. Defective fuel tank safety valve
 - d. Low pressure in fuel tank caused by poor ventilation system
 - e. Insufficient voltage



AMERICAN GM TBI ADAPTER APPLICATION

TYPICAL TBI FUEL INJECTION SYSTEM



Adapter No.	Description	Application
3	GM TBI House Assembly	All models except RY-06
13 & 15	M16 × P1.5 10mm tube fitting (silver color with notch)	4.3L V-6
12 & 14	M14 × P1.5 10mm tube fitting (brass color with notch)	2.8L X bodies & 3.8L A bodies
11	M16 × P1.5 - 5/8" × 18 union	1.8L & 2.0L J bodies
36	Straight tubing	1.8L engines
10	Right angle tubing	J2000/6000 Pontiac
27	M12 × P1.25 Banjo Bolt Adapter	Vehicles with Banjo

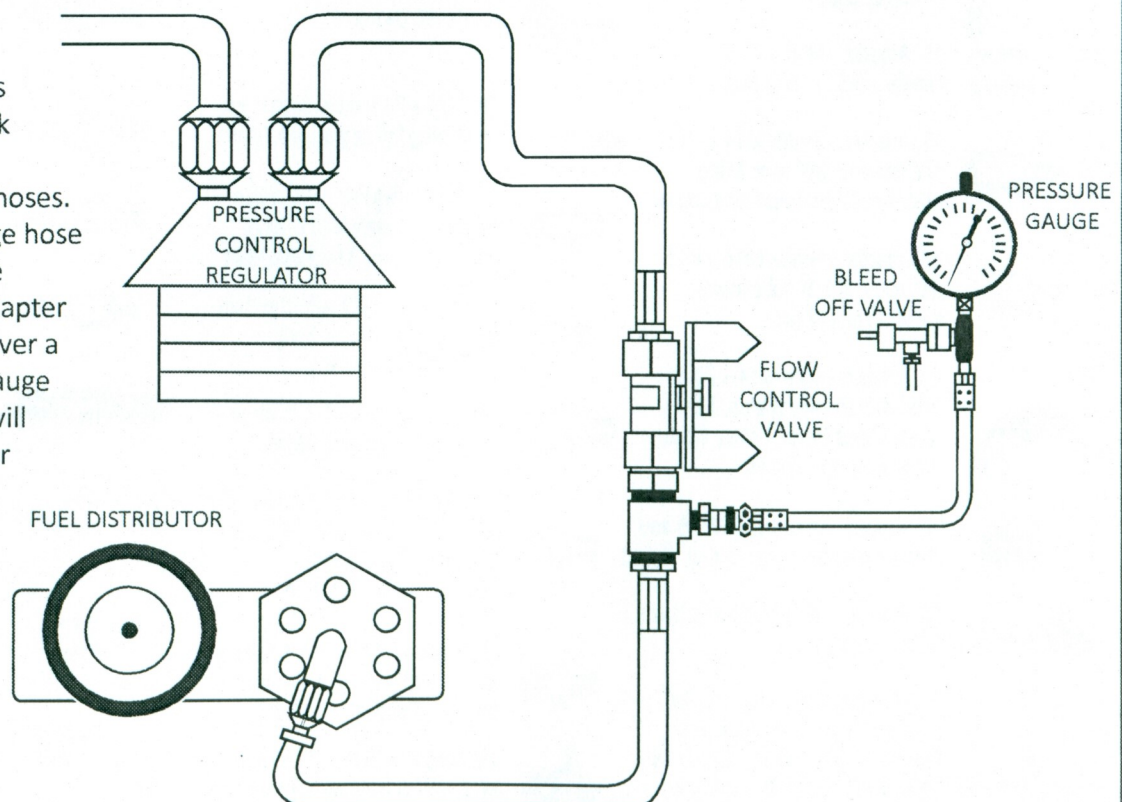
ADDITIONAL INSTRUCTION ON TESTING BOSCH CIS

Four pressure tests can be made with this tester

- Cold fuel pressure control, when engine is cold and valve is open
 - Warm fuel pressure control, when engine is warm and valve is open
 - Primary pressure, when engine is cold or warm, valve is closed
 - Rest pressure, when engine is warm and valve is open
- When doing test A, engine should be cold, standing several hours or overnight
 - Release fuel system pressure
 - Make sure fuel filter is not clogged. If unsure or doubtful, replace a new filter to ensure test accuracy
 - Clean dirt off on top of the fuel distributor
 - Refer to standard CIS hookup diagram. Hook up the tester between the fuel distributor and the pressure control regulator. The hose without the flow control valve should be connected to the center of the fuel distributor. The hose with the flow control valve should be connected to the hose farther away from fuel distributor or connect directly to fuel pressure control regulator
Caution: Tighten manually all the adapters with O-ring to avoid damage on O-ring
 - Reactive the fuel pump and start the engine for checking leaks

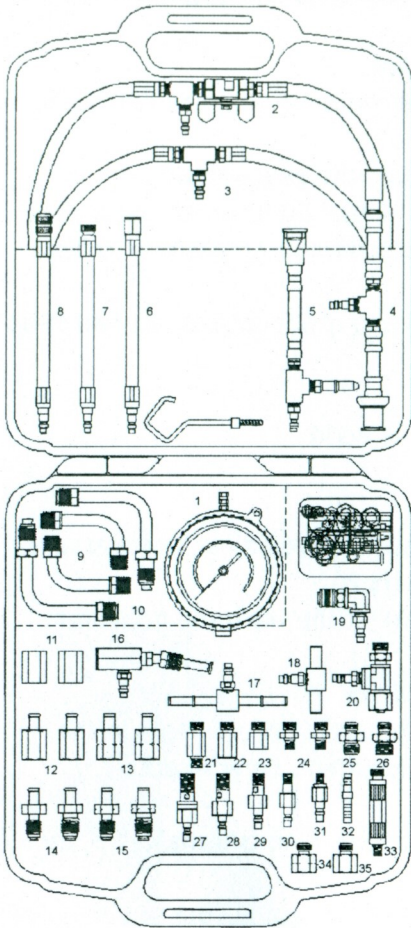
7. When the tester is connected, release air from the fuel system
 - A. If the tester has a release valve under the gauge, wrap the valve with a rug and press the button until air is removed clearly
Caution: Do not release the air if the engine or other tube/hoses/lines are hot
 - B. If the tester has a bleed-off valve, put the end of the bleed-off tube in a fuel container. Run the fuel pump until air is removed clearly.
 - C. If the tester is not equipped with a release valve nor a bleed-off valve, position the gauge downward as far as possible with the gauge below the hoses and control valve. Operate the fuel pump when the engine is off. Open and close the control valve at least five times with the valve in the off-and-on position at least 12 seconds
8. Read the gauge when the pressure becomes stable. If the Cold Control Pressure is not correct, the warm-up regulator may be fault
9. If fuel pressure is normal, proceed to other pressure tests
 - A. Warm Control Pressure and Rest Pressure must be measured with the engine warm
 - B. Primary Pressure can be measured with the engine slightly warm
10. Warm Control Pressure test
 - A. If pressure is not within normal range when measuring Warm Control Pressure, try to adjust fuel pressure regulator. If the pressure still cannot be adjusted to the normal range, then try B.
 - B. When pressure is low with engine at idle, check if the voltage is at least 11.5V at the warm-up regulator plug contacts.
 - C. If full voltage is available on the pug, then replace the pressure control regulator
11. If fuel is too low, test the fuel pump volume. It could also be a blockage in the supply line or leaks in the return line. If none of these problems present, then fuel pressure needs adjustment. Refer to auto manufacturer's service manual for the procedure
12. If Rest Pressure drops drastically, check leaks in O-rings and fuel line connections. If no external leaks, then check for leaks on cold start valve, fuel injectors or fuel pump
13. If no problem can be found in the fuel injection system, check fuel pump. Hook the gauge, put the bleed-off tube into a fuel container of at least 2 liter. Fuel flow in 30 seconds should be 0.75-1liter (1.5-2.0 pints). Turbo charged engines may have a volume of 20-25% more than non-turbo ones
14. Deactivate fuel pump and release fuel system pressure. With the ignition switch off, put the bleed-off tube into a fuel container and press bleed-off valve

TYPICAL CIS PRESSURE TESTING FUEL INJECTION



15. Remove the tester and reconnect all lines
16. Start engine and check for leaks
17. Remove fuel from all hoses. If fuel remains in gauge hose assembly, connect the smallest banjo bolt adapter to the quick coupler over a fuel container. Hold gauge above hose and fuel will flow into the container

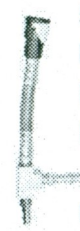
4. SPECIFICATION



1. Gauge (0-120 psi/
0-8 bar) with a 4 ft. hose,
pressure relief valve

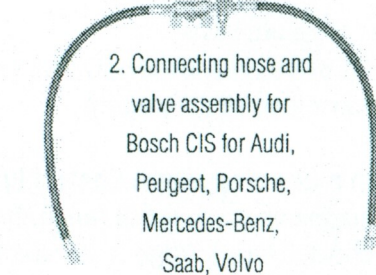


4. Adapter -
Ford EFI



5. Adapter - Acura, Audi, BMW,
Buick, Chevrolet, Chrysler,
Dodge, Ford, GMC, Honda,
Hummer, Infiniti, Isuzu, Jeep, Kia,
Lexus, Lincoln, Mazda,
Mercury, Mitsubishi, Nissan,
Pontiac, Porsche, Saturn, Scion,
Subaru, Suzuki, Toyota, VW

2. Connecting hose and
valve assembly for
Bosch CIS for Audi,
Peugeot, Porsche,
Mercedes-Benz,
Saab, Volvo



6. Connecting hose with
M12 x P1.5 nut

7. Adapter - small Schrader valves -
5/16" x 32 UNF female for BMW, Fiat,
Ford, Jaguar, Kia, Lincoln, Mazda,
Mercury, Volkswagen, Volvo

8. Adapter - standard Schrader valves -
7/16" x 20 UNF female Audi, Buick, Cadillac,
Chevrolet, Chrysler, Dodge, GMC, Hummer,
Isuzu, Jeep, Land Rover, Mercedes-Benz,
Mitsubishi, Pontiac, Porsche, Saab

3. Connecting hose Assembly
for GM TBI



9. 10mm bent tubing with
5/8" - 18 male nut (2 pcs)



10. Bent tubing with 5/8" -
18 invert flare nut,
M16 x P1.5 nut and
O-ring (2 pcs)



11. Adapter - M16 x P1.5
female x 5/8" - 18 (2 pcs)



12. Adapter - female M14 x P1.5
one end and 3/8" tube fitting
other end (2 pcs) Audi and Jaguar



13. Adapter - female M16 x P1.5
one end and 3/8" tube fitting
the other end (2 pcs)



14. Adapter - male M14 x P1.5
and 3/8" tube fitting plus O-ring
(2 pcs) Land Rover, Lexus, Saab,
Subaru, Suzuki, Toyota



15. Adapter - male M16 x P1.5 and
10mm tube fitting plus O-ring (2 pcs)



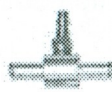
16. Adapter - GEO Storm and Isuzu
(I-Tec Systems)



17. Manifold with quick coupler
plug 1/4" x 5/16" for Audi, Alfa
Romeo, BMW, Cadillac, Chevrolet,
GMC, Honda, Infiniti, Isuzu, Jeep,
Kia, Mazda, Mercury, Nissan, Peugeot,
Pontiac, VW



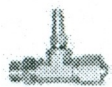
18. Manifold with coupler plug 3/8" -
Acura, Audi, BMW, Cadillac, Chevrolet,
Ford, Infiniti, Isuzu, Jaguar, Kia, Land
Rover, Mazda, Mercury, Mitsubishi,
Nissan, Peugeot, Pontiac, VW



19. Quick coupler plug with quick
nozzle (90 degrees)



20. M14 x P1.5 male-female with
quick plug for Jaguar and Volvo



21. Adapter - M10 x P1.0 male -
M12 x P1.5 male with O-ring
For Daimler and Mercedes-Benz



22. Adapter - M10 x P1.0 female -
M12 x P1.5 male for Ford
Standard and Golf 16V



23. Adapter - M8 x P1.0 female -
M12 x P1.5 male for BMW



24. Adapter - M8 x P1.0 male -
M12 x P1.5 male with O-ring
(2 pcs) for Audi, BMW,
Mercedes-Benz, VW Golf



25. Adapter - M14 x P1.5 male -
M12 x P1.5 male with O-ring
for Audi, Peugeot, Fiat Croma



26. Adapter - M16 x P1.5 male -
M12 x P1.5 male with O-ring for
Ford Scorpio, Citroën XM, Opel Bj 97



27. Adapter - Banjo Bolt M12 x P1.25
for Acura, Audi, Chevrolet, Chrysler,
Honda, Hyundai, Isuzu, Lexus, Opel,
Saab, Toyota, Vauxhall, Volkswagen



28. Adapter - Banjo Bolt M12 x P1.5 for
Audi, Chevrolet, Chrysler, Honda,
Hyundai, Isuzu, Mazda, Lexus, Saab,
Suzuki, Toyota



29. Adapter - Banjo Bolt M10 x P1.0



30. Adapter - Banjo Bolt M8 x P1.0 for
Toyota



31. Adapter - Banjo Bolt M6 x P1.0 with
O-ring for Suzuki



32. Quick plug with 1/4" hose for
Volkswagen



33. Adapter - M8 x P1.0 male - M12 x
P1.5 male with O-ring for Audi Sondera
adapter, secondary adapter



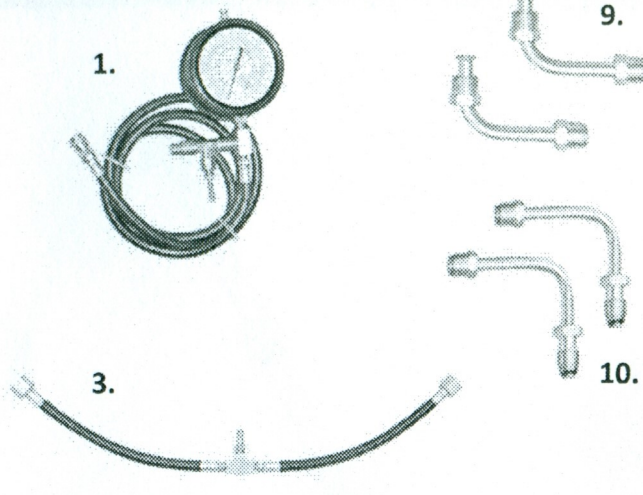
34. Adapter M16 x P1.5 female - M12 x
P1.5 male for Ford Scorpio and Citroën
XM



35. Adapter M14 x P1.5 female - M12 x
P1.5 male for Opel, Vauxhall



GM TBI TESTER



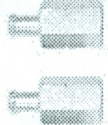
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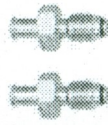
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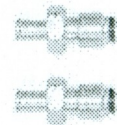
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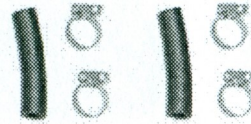
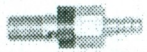
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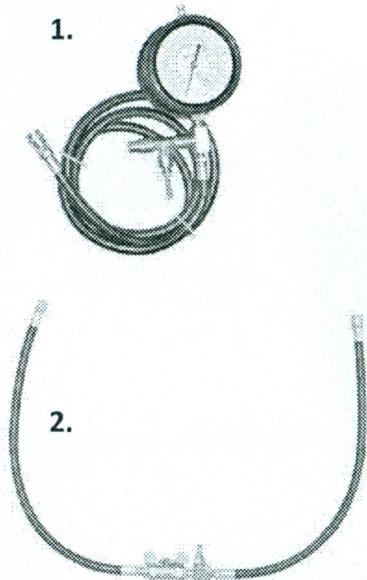


27.



Connecting tubes and hose clamps

BSOCH CIS TESTER



21.



27.



22.



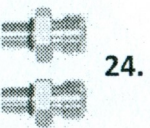
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23.



30.



24.



33.



25.



34.

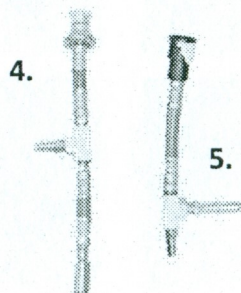
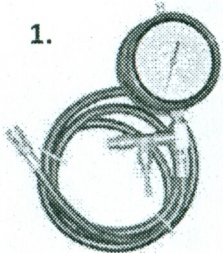


26.



35.

TESTER FOR ALL OTHER SYSTEMS



6.



7.



8.



27.



28.



29.



30.



31.



32.



16.



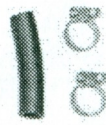
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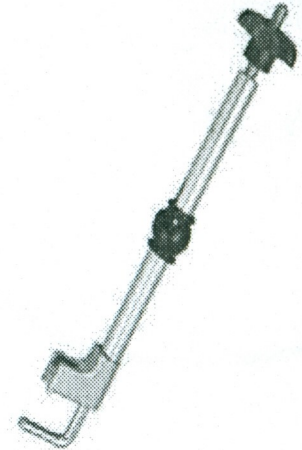
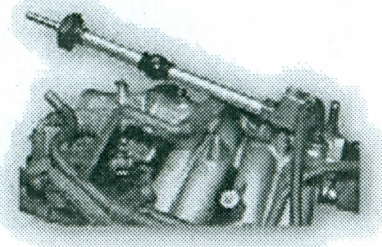
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Connecting tubes and hose clamps

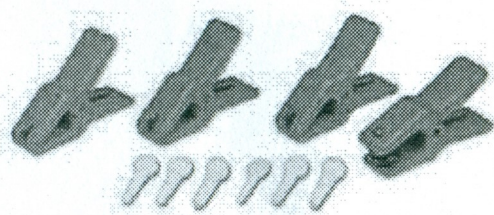
HOSE PINCHER

- Hose pincher is able to stop fluid flow and avoid damaging hoses
- Adjustable for most types of hoses, especially for brake, fuel and cooling system hoses
- Increased length of 310mm is specially designed to enhance working safety
- Maximum application can be as wide as 25.4mm
- Rotate the nut on top to fasten the targeted hose

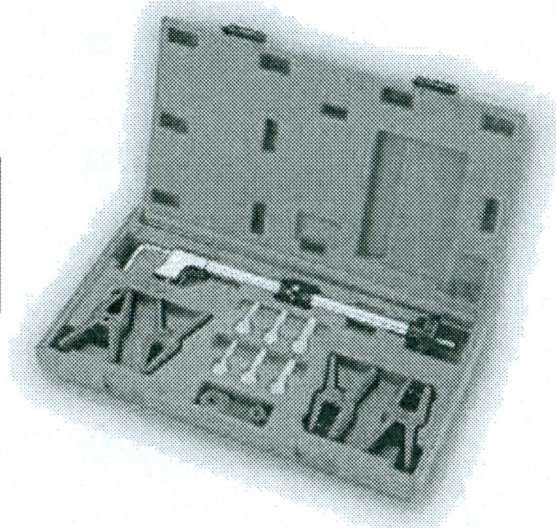


QUICK FLUID STOPPER SET

- Can easily stop fluid flow within fuel injection, fuel supply hoses, and other types of hoses and tubes



Sizes
Banjo
3/8"
1/2"
5/16"



Sizes	Hose pincher
3/16"	L:310mm
1/4"	
5/16"	W: 25.4mm

