



928 Owners Club

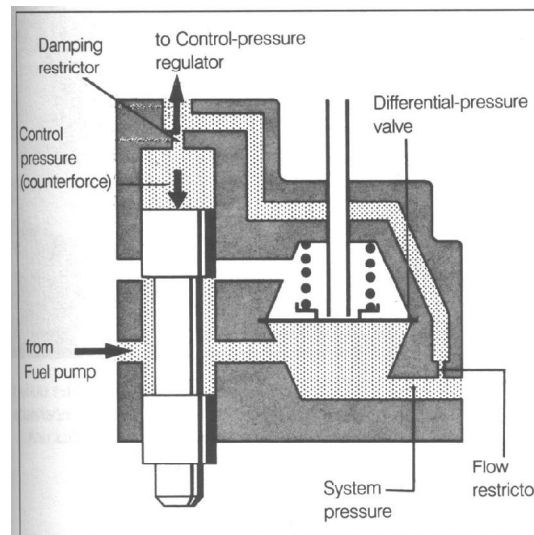
928 K-Jetronic CIS Fuel Distributor Rebuild

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My '79 Euro 928 track car wasn't running properly. When warm, it would loose power at 4,000 RPM and rev no higher. While the specialty of Elektronik Repair, Inc. is rebuilding electronic control modules for Porsche 928s, I felt confident to undertake rebuilding the K-Jetronic CIS fuel distributor thanks to the help of my friends Jay Kempf and Dennis Wilson, who are both experienced with CIS injection system.

The following photos describe the process of rebuilding the Porsche 928 fuel distributor. My car is a 1979 Euro model with the original injection system. Prior to this problem, all fuel injectors, injector grommets, fuel pumps and fuel filter were replaced and the car was running very strong.

The Bosch K-Jetronic CIS fuel distributors are common on all 928s that use these systems. Other Bosch CIS systems may be similar, however later model cars were upgraded with electronics for emissions control.

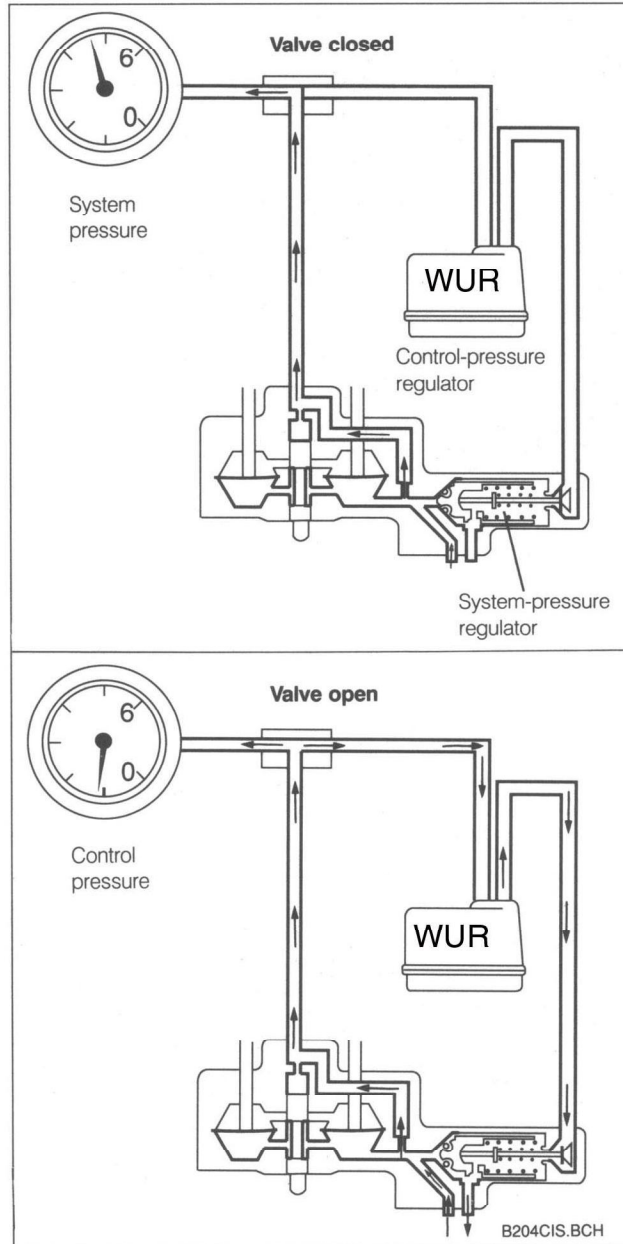


Basic CIS Control Diagram*

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To determine if a CIS is working properly, it is necessary to measure system pressure, control pressure, and fuel pump output. Specific test gauges are necessary. I purchased mine from JC Whitney [catalog no. 123617 Star Hoffman, SKU ZX123617U].

If you don't want to purchase CIS test gauges, I found that SpecialTauto rents them. [See their webpage at <http://www.specialtauto.com/fuel-distributors.html>]



System Test Modes: System and Control Pressure*

The CIS test gauge has a valve that enables testing of both System and Control pressure. These are the two key indicators of CIS health.

The CIS tests recommended are:

a) Check the pressures: Cold start control pressure measurement. The vacuum line to the WUR was removed and plugged.

To measure control pressure, the test valve is open in WUR loop. The following pressures were observed;

<u>Time(sec)</u>	<u>RPM</u>	<u>Control pressure lbs/in² (bar)</u>
0	1400	28 (1.9 bar)
20	1500	34 (2.3)
40	1600	38 (2.6)
60	1400	44 (3.0)
80	1400	50 (3.4)
100	1200	52 (3.5)
120	1100	54 (3.7)
140	1000	54 (3.7)

The test was conducted on a relatively warm morning; it was about 70F. I still observed that the control pressure started low and ramped up to steady state, so I believe that my less than one-year old rebuilt Warm Up Regulator (WUR) is functioning properly.

In a steady state warm condition, the control pressure remained at 54 lb (3.7 bar). The book specifies a pressure (with no vacuum on the WUR) of 2.8 (41 psi) to 3.2 bar (46 psi), so my 928's control pressure was high.

To measure system pressure, the test valve is closed in the WUR loop. The reading was 78 lbs (5.4 bar). The spec is 5.2 to 5.8 bar so my 928 was within specification.

b). Fuel pump delivery: I have two fuel pumps, and the book says the specifications are to pump within 30 seconds a minimum of 1120 cc for one pump and 1360 cc for two fuel pumps. My 928 delivered 1597 cc, so it is passed on fuel delivery.

c) Leak test: With engine off, the system should hold pressure for a specified amount of time. I passed the test. The specs are 2.0 bar after 10 minutes, 1.7 bar after 20 minutes and 1.6 bar after 30 minutes.

Diagnosis: Based upon these test results, rebuilding the fuel distributor is recommended. A store bought rebuilt fuel distributor costs over \$500. I felt that a careful cleaning and replacement of the O-rings was the proper way to go.

Parts for a Rebuild

I located the replacement O-Rings at a local ACE hardware store. Nitrile Rubber or BUNA-N (trade name) are fuel compatible. The O-rings that I purchased are

from SERV A LITE PRODUCTS, East Molene, IL) and can be purchased for less than \$10.00.

The O-Ring sizes that I used are:

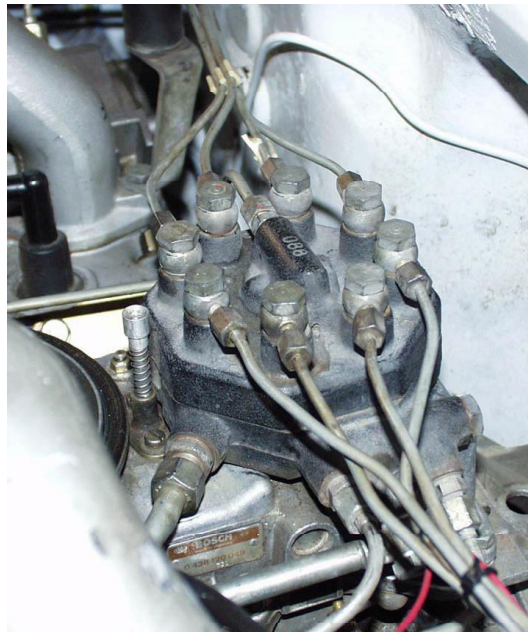
1. Fuel Distributor Base O-Ring (1 required) 35mm ID X 39mm OD x 2 mm thick
2. Control Plunger Barrel (2 required) 22mm ID x 26mm OD x 2 mm thick
3. Cylinder Housing Nozzles (8 required) 8mm ID x 12 mm OD x 2mm thick

There is a greenish colored O-ring in the base of fuel distributor that the control plunger barrel slides into. It is a size that couldn't be replicated, so I reused that old ring. The size that I measured was 27.5 mm ID x 30 mm OD x 2.5 mm thick.



It was recommended to use Permatex Indian Head Shellac as the sealer

Fuel Distributor Removal from the car.



Let the engine sit and cool, preferably for several hours so the residual fuel pressure is at a minimum. The first fuel line that you disconnect is the fuel inlet, it is the easiest to access (see above, the fitting in the lower left). There may be