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08-25-2005, 10:14 PM

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post #1 of 102 (permalink)

Nutz 4 Benz

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Bosch D Jetronic and K Jetronic Troubleshooting

Self diagnose your fuel injection woes here.

[K Jetronic Basics](#)

[dfieldatwork](#) likes this.

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08-25-2005, 11:39 PM

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post #2 of 102 (permalink)

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Garage

RE: Bosch D Jetronic and K Jetronic Troubleshooting

Troubleshooting D Jetronic.

No start and fuel pump not working

1)Test the fuse,relay,wiring and fuel pump.

No start and fuel pump working

1)Test the main relay and power from ECU.Ensure there is a good ground from ECU terminal #11 to ground.
2)If the ignition system has a good spark,good power supply,ground to the ECU and continuity at the trigger points(cover this later) and injectors fail to pulse, replace the ECU.

Starts when cold and dies when the key is released

[1\)Trigger](#) points in distributor lack continuity.When

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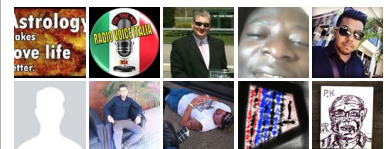
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the engine starts,it is starting off of the cold start injector and as you release the key,the cold start injector shuts off.

Stalls when engine is cold

- 1)Inspect the auxillary air valve.When the engine is cold,remove the hose on the intake side of auxillary air valve and let air to be drawn into it.If the engine speed increases greatly,replace the [auxillary air valve](#).
- 2)Temperature sensor 2 is also critical to cold operation.

Misfire or unstable idle

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.These need to be confirmed first as they are more likely to cause this problem.
- 2)Inspect the circuits and sensors of temperature sensor 1 and 2 and continuity through both sides of trigger points.
- 3)Inspect the vacuum hose that goes between the pressure sensor and the intake manifold.It should have no kinks and not collapse with vacuum present.
- 4)If all the above check out,do an injector flow test.

Misfire while driving

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Do a fuel pressure and volume test.
- 3)If the fuel pressure is constant,test [temperature sensor 2,pressure sensor](#) and throttle switch circuits.

Power is suffering

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Most likely this is due to low fuel pressure.Do a fuel pressure-volume test and pay close attention for loss of pressure.
- 3)If correct,test the circuits of the pressure sensor and temperature sensor 2.If these meet specs,do an injector flow test.
- 4)If everything checks out,repeat this test.

Stalls when you decelerate

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Inspect the hoses and wiring for good contact.
- 3)Check your [throttle stop adjustment](#) and curb idle RPM's.

Smokes and runs rough

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Do a fuel pressure and volume test.
- 3)Inspect the circuits of the temperature sensor 2,trigger points,pressure sensor and injectors.If they check out fine,do an injector flow test.

Misfire under Load

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Do a fuel pressure-volume test.
- 3)Inspect the circuits of [temperature sensor 2](#), pressure sensor,trigger points and injectors.
- 4)If the above are good,do an injector flow test.

Trailer hitching

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Do a fuel pressure-volume test.
- 3)Inspect the circuits of [temperature sensor 2](#), pressure sensor, trigger points and injectors.
- 4)If the above are good, do an injector flow test.
- 5)Check the throttle switch.

Idle speed too high

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Check and adjust the throttle stop and curb idle speed.

Idle speed too low

- 1)Ensure that the ignition system is in good shape and also the intake is in good order.
- 2)Check and adjust the throttle stop and curb idle speed.

[gring](#) and [dfieldatwork](#) like this.

Last edited by Nutz 4 Benz; 08-28-2006 at 04:25 AM.

Quote

Quick Reply

08-26-2005, 12:33 AM

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post #3 of 102 (permalink)

Nutz 4 Benz

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[Garage](#)
 (Thread Starter)

RE: Bosch D Jetronic and K Jetronic Troubleshooting

Testing the D Jetronic Components

Main relay

- 1)There should be 12 volts at pin # 24 of the ECU.
- 2)If not, check for 12 volts at pin # 24 of the relay.
- 3)If 12 volts is not present at the relay but it clicks, replace with a new relay.
- 4)If there is 12 volts at pin # 24 of the relay, repair # 24 wire between relay and ECU.
- 5)If the relay does not click, inspect the wire from the main relay pin # 45 to ground.
- 6)If the ground is good and 12 volts at relay pin # 38 when the engine is cranked, replace the main relay.

Trigger points

- 1)With the engine not running and ECU harness disconnected from the [ECU, check](#) the resistance between ECU harness 12 and 21, then from 12 to 22. One should show a low resistance and the other should show an open circuit.
- 2)Rotate the engine 360 degrees and check the resistance. They should have an opposite reading now.
- 3)If not, perform the same test at the trigger points themselves. This will tell you if it is a component or wiring fault.

Temperature sensor 1

1) [With](#) the engine not running and the ECU harness disconnected from the ECU, connect an ohmmeter between ECU harness pin # 1 and 13. At an ambient temperature the reading should be 200 ohms.

2) If the resistance is well above 200 ohms, check resistance at the sensor itself to determine if it is a component or wiring fault.

3) Check resistance of all the terminals to chassis ground. There should always be an open circuit.

Temperature sensor 2

1) With the engine not running and the ECU harness disconnected from the ECU, check the resistance between harness terminal 23 and ground. The resistance should be 2000 ohms at ambient temperature.

2) If the engine is near operating temperature, the resistance should be below 1000 ohms.

Throttle switch

1) Test the throttle switch with the key on, engine off.

2) Slowly open the throttle, and as it opens the injectors should alternately click. You should hear 20 evenly spaced clicks.



3) If this is not met, place a 0.016 in. (0.4mm) feeler gauge between the throttle stop and throttle stop screw. Connect a [voltmeter](#) to terminal 17 of the throttle switch. The [voltmeter](#) should show voltage while the ignition key is in the on

position. Remove the feeler gauge and the voltmeter should show no voltage now.

4) If this fails, loosen the screws and rotate the switch until it meets these requirements.

5) If they can not be met and voltage is always present no matter where you position, replace the [throttle switch](#).

6) If the voltmeter reads no voltage, ensure voltage is being supplied to the switch. If so, replace the [throttle switch](#).

7) If no clicks are heard while performing test 1 and 2, check wire numbers 20, 17, 14 and 9 for continuity end for end from the ECU to throttle switch.

Pressure sensor

1) [With](#) the engine not running and the ECU harness disconnected from ECU, check the resistance from ECU harness terminal # 7 to 15. Should be 90 ohms and then check the resistance between # 8 and 10. Should be 350 ohms. If this is not met, test the sensor itself.

2) On occasion, the sensor resistance will check out, but will not hold vacuum. Using a hand held vacuum pump perform this test again (step #1)

Injector circuit

1) [With](#) the engine not running and the ECU harness disconnected from ECU, check resistance of ECU harness pins # 3, 4, 5, and 6. All should have less than 25 ohms.

2) If the resistance is greatly higher or lower than 25 ohms, test the injector itself.

3) If the injectors pass, repair the wiring harness.

gring likes this.

Last edited by Nutz 4 Benz; 08-28-2006 at 04:12 AM.

Quote

Quick Reply

08-26-2005, 03:25 PM

Thread Starter

post #4 of 102 (permalink)

Nutz 4 Benz

Gehasst von Puristen



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Vehicle: 81 280E, 84 300D, 84 500SEC, 87 560SEC, 89 300E, 89 560SEL, 91 500SL, 11 GLK350
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Garage

RE: Bosch D Jetronic and K Jetronic Troubleshooting

Troubleshooting K Jetronic

Engine turns but won't start

1) No fuel pressure;

Test the fuel pump and pre-pump and do a fuel pressure and volume test.

2) Jammed and/or sticking [airflow sensor](#);

Remove the boot that goes to the intake and loosen the center line on fuel distributor. This will relieve the control pressure. Press down on the center bolt of the plate and you should feel no resistance or binding. Also check that the rest height and centering are correct.

3) Auxiliary valve is sticking;

4) Defective [cold start injector](#);

(Thread Starter)

If the injector does not function,the air-fuel ratio will be lean,preventing easy start up.

5)Shorted or defective thermo time switch;
The cold start injector will not work if the thermo time switch is defective.Check this in the event that your [cold start injector](#) does not function before replacing.

6)Control [plunger](#) sticking;
Remove the fuel distributor from the airflow sensor and check to see if it moves freely.

7)Restricted injectors;
For this to be the cause,they would have to be severely restricted,which is why I listed it last.Do an injector flow test and ensure that the delivery is near equal.

Hot starting difficulty

1)Loss of rest pressure;
Do a pressure test and focus on the rest pressure.If it does not pass,check for a defective fuel pump check valve,defective fuel distributor,faulty system pressure regulator and leaking [cold start injector](#).

2)Airflow sensor adjusted incorrectly;
Check height,centering and for binding.Remove the boot and loosen the center line on fuel distributor to relieve control pressure.

3)Sticking or binding of the control [plunger](#);
Remove the fuel distributor and ensure that the control plunger moves freely.

4)Injectors leaking;
Remove the injectors from the intake manifold and with the ignition key on/engine off,press on the center plate to pressurize the system.Inspect and replace any injector that is leaking.

5)Cold start injector leaking;
Same test as above.

6)Shorted thermo time switch;
[Cold start injector](#) is dependent of this component.

7)Incorrect control pressure;
Do a pressure test and verify that the warm control pressure is within spec.

Rough idle (cold)

1)Cold control pressure incorrect;
The movement of the control [plunger](#) will be limited if the cold control pressure is too high.This in turn will limit the amount of fuel able to be delivered through the injectors.The result will be a lean ratio and will cause rough idle.

2)Auxillary air valve defective;
If defective and not opening,idle cannot rise and results in rough idle.

3)Airflow sensor adjusted improperly or binding;
If the movement is not smooth,it will result in air-fuel ratio errors.

4)Leaking [cold start injector](#);
If the cold start injector is leaking,the engine will be overfueled even if cold.If the cold start injector is leaking,the idle will get

worse as the engine temperature increases.

5)Injectors have an unequal flow or spray pattern;
Do an injector flow test and replace any that do not deliver the correct amount of fuel or have a poor spray pattern.

Runs rough (*warm*)

1)Warm control pressure incorrect;
Incorrect warm control pressure that is too high or low will cause an incorrect air-fuel ratio,thus resulting in a rough idle.

2)Airflow sensor adjusted improperly or binding;
If the movement is not smooth,it will result in air-fuel ratio errors.Check for centering and correct rest height.

3)Leaking [cold start valve](#);
Again,will result in overfueling the engine,resulting in a rough idle.

4)Injectors have an unequal flow or spray pattern;
Do an injector flow test and replace any that do not deliver the correct amount of fuel or have a poor spray pattern.

Stalls after starting (*warm*)

1)Warm control pressure;
If the warm control pressure is too high,the air-fuel ratio will be lean.

2)System pressure incorrect;
If too high or low,the air-fuel ratio will be incorrect.

Idle speed high

1)Check [auxillary air valve](#);
Ensure that it is closing.

2)Vacumm leaks;
Self explanatory.

3)Check the minimum air;
Self explanatory.

Backfire in intake

1)Check that CO adjustment is correct;
If incorrect,backfire will result if started and under a load.

2)Boot between [airflow sensor](#) and throttle defective;
Will result in a lean mixture due to secondary air(false air)

3)Vacumm leaks;
Self explanatory.

Misfires

1)Ignition;
Inspect the cap,rotors,wires and plugs.

2)Fuel delivery inadequate;
Check for binding of airflow sensor,control [plunger](#),
incorrect control or system pressure and restricted injectors.

3)Injectors;

Unequal delivery or poor spray pattern. Do a test and replace any that are defective.

Poor power

- 1) Control pressure too high;
If the control pressure is too high, the control [plungers](#) travel will be limited, resulting in a lean running engine.
- 2) Check ignition components;
Verify that the spark plugs, wires, cap and rotor are not worn.
- 3) Injectors restricted;
Do a test for delivery. If an injector is restricted, fuel delivery will be limited, thus power will suffer.

Sag or stumble when accelerating

- 1) Airflow sensor plate binding or sticking;
If binding or sticking, fuel flow will be limited.
- 2) Control [plunger](#) binding or sticking;
If binding or sticking, fuel flow will be limited.
- 3) System pressure or warm control pressure incorrect;
If too high, the travel of the plunger will be limited.
- 4) Injector flow unequal;
Self explanatory.

Diesels (run on after shut off)

- 1) Airflow sensor sticking or binding;
The plate is not rising to position, continuing to deliver fuel.
- 2) Control plunger binding or sticking;
Remove the [fuel distributor](#) and ensure that the control plunger moves freely.
- 3) Injectors leaking;
Do an injector flow test and make sure that they seat correctly. Replace any that are defective.
- 4) Cold start injector leaking;
Remove and pressurize the system and replace if it leaks.

Fuel consumption high

- 1) Air-fuel ratio incorrect
- 2) Injectors leaking
- 3) Cold start injector leaking

[biker2000](#) and [leescjack](#) like this.

Last edited by Nutz 4 Benz; 08-28-2006 at 04:13 AM.

Quote

Quick Reply

08-26-2005, 04:04 PM

Thread Starter

post #5 of 102 (permalink)

Nutz 4 Benz

Gehasst von Puristen



RE: Bosch D Jetronic and K Jetronic Troubleshooting

K Jetronic Specs

[Fuel pump relay](#)



Date registered: Aug 2005
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Garage
(Thread Starter)

Place an 8 amp fused jumper wire at [fuel pump relay](#) teminals # 30,51 and #87.

Cold control pressure (psi)

model_____50 degreeF. _75 degreeF._100degreeF._

450 76-78 -----19 24 34
450 79 -----19 28 38
280 77(high-alt)-----17 25 33
280 (fed) -----14 21 31
280 (Cali) -----14 21 31
6.9 -----16 25 34

System pressure (psi)

450 federal and california ----- 75-84
450 1977 federal and high altitude----- 75-84
280 1977 high altitude ----- 75-84
280 california ----- 75-84
280 federal ----- 75-84
6.9 ----- 75-84

Warm control pressure (psi)

450 federal and california ----- 49-55
450 1977 federal and high altitude----- 52-58
280 1977 high altitude ----- 52-58
280 california ----- 44-49
280 federal ----- 49-55
6.9 ----- 49-55

Rest pressure (psi)

All ----- 41

Return line (cc per 30 seconds)

450 federal and california ----- 1100
450 1977 federal and high altitude----- 1100
280 1977 high altitude ----- 930
280 california ----- 930
280 federal ----- 930
6.9 ----- 1100

Last edited by Nutz 4 Benz; 08-28-2006 at 04:13 AM.

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09-03-2005, 05:48 AM Thread Starter post #6 of 102 (permalink)

Nutz 4 Benz
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Date registered: Aug 2005
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RE: Bosch D Jetronic and K Jetronic Troubleshooting

K Jetronic components

GLK350

Location: Maui

Posts: 14,902

Mentioned: 0 Post(s)

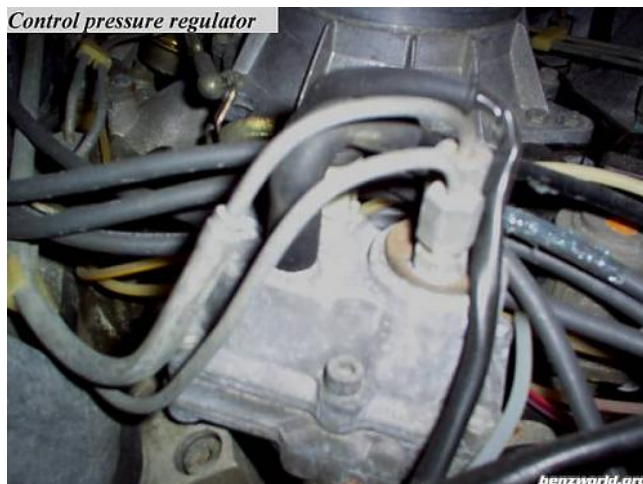
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Garage

(Thread Starter)

Attached Thumbnails*Airflow sensor(aluminum section)**Fuel distributor**Cold start injector* ----->*Control pressure regulator*

This is where shims can be added or removed to adjust pressure



Thermo time switch dead center



Last edited by Nutz 4 Benz; 08-28-2006 at 04:19 AM.

Quote

Quick Reply

09-04-2005, 05:41 PM

Thread Starter

post #7 of 102 (permalink)

Nutz 4 Benz

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Garage
(Thread Starter)

RE: Bosch D Jetronic and K Jetronic Troubleshooting

D Jetronic component identification

The ECU is under the dash on passenger side and CO adjustments are made there on the thumbscrew.

Last edited by Nutz 4 Benz; 08-28-2006 at 04:20 AM.

Quote

Quick Reply

09-04-2005, 07:07 PM

Thread Starter

post #8 of 102 (permalink)

Nutz 4 Benz

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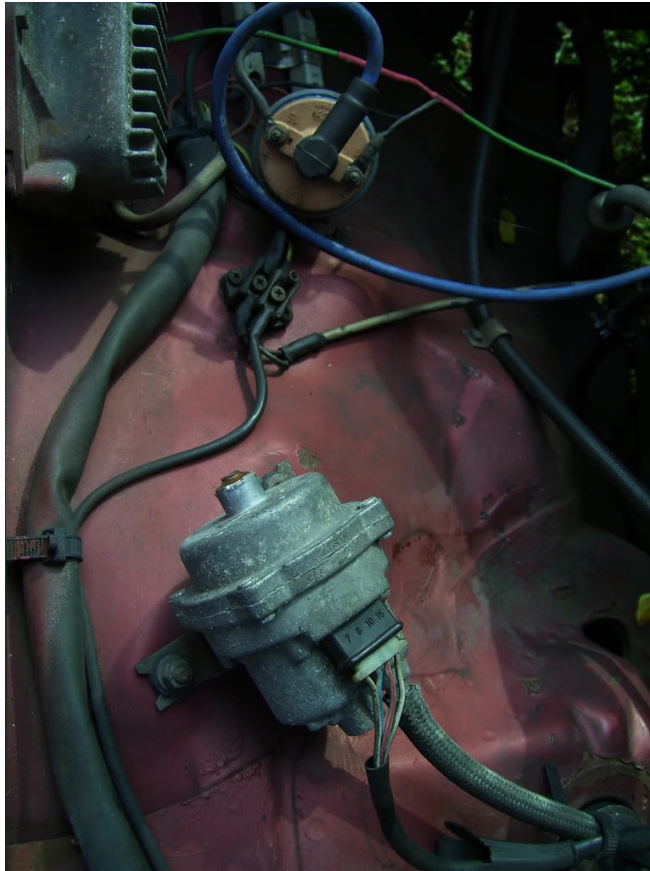
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(Thread Starter)

RE: Bosch D Jetronic and K Jetronic Troubleshooting

D Jetronic components

MPS or manifold pressure sensor

*Last edited by Nutz 4 Benz; 08-28-2006 at 04:22 AM.*

Quote

Quick Reply

09-04-2005, 08:33 PM

Thread Starter

post #9 of 102 (permalink)

Nutz 4 Benz

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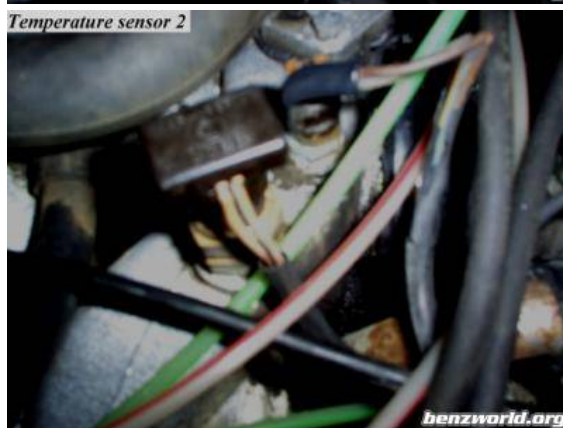
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(Thread Starter)

RE: Bosch D Jetronic and K Jetronic Troubleshooting

More D Jetronic components

Attached Images*Fuel pressure regulator.....Adjustments are made at the 10mm bolt*



Last edited by Nutz 4 Benz; 08-28-2006 at 04:22 AM.

Quote

Quick Reply

12-18-2005, 05:40 AM

Thread Starter

post #10 of 102 (permalink)

Nutz 4 Benz
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RE: Bosch D Jetronic and K Jetronic Troubleshooting

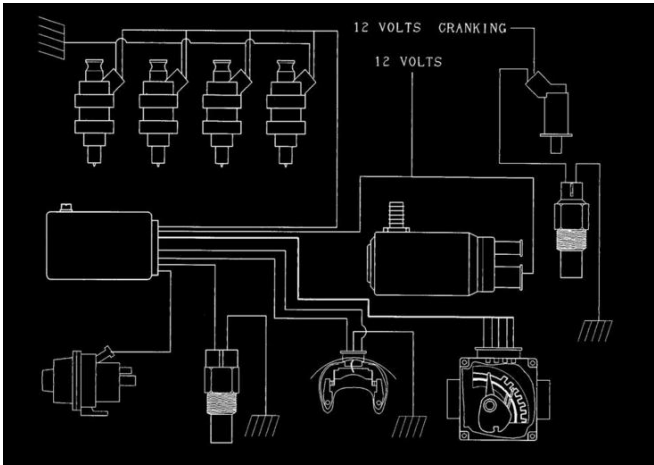
D jetronic diagram



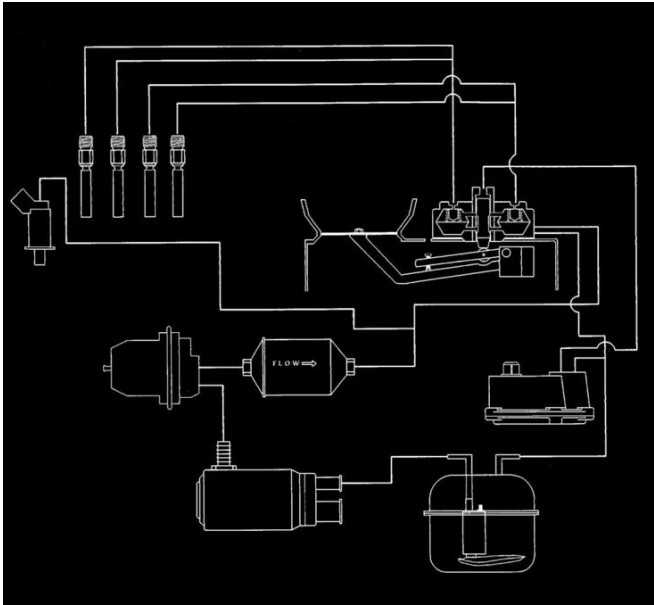
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Garage
(Thread Starter)



K jetronic diagram



Last edited by Nutz 4 Benz; 08-28-2006 at 04:23 AM.

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