

14-100 Test program

Model year 1977/78/79

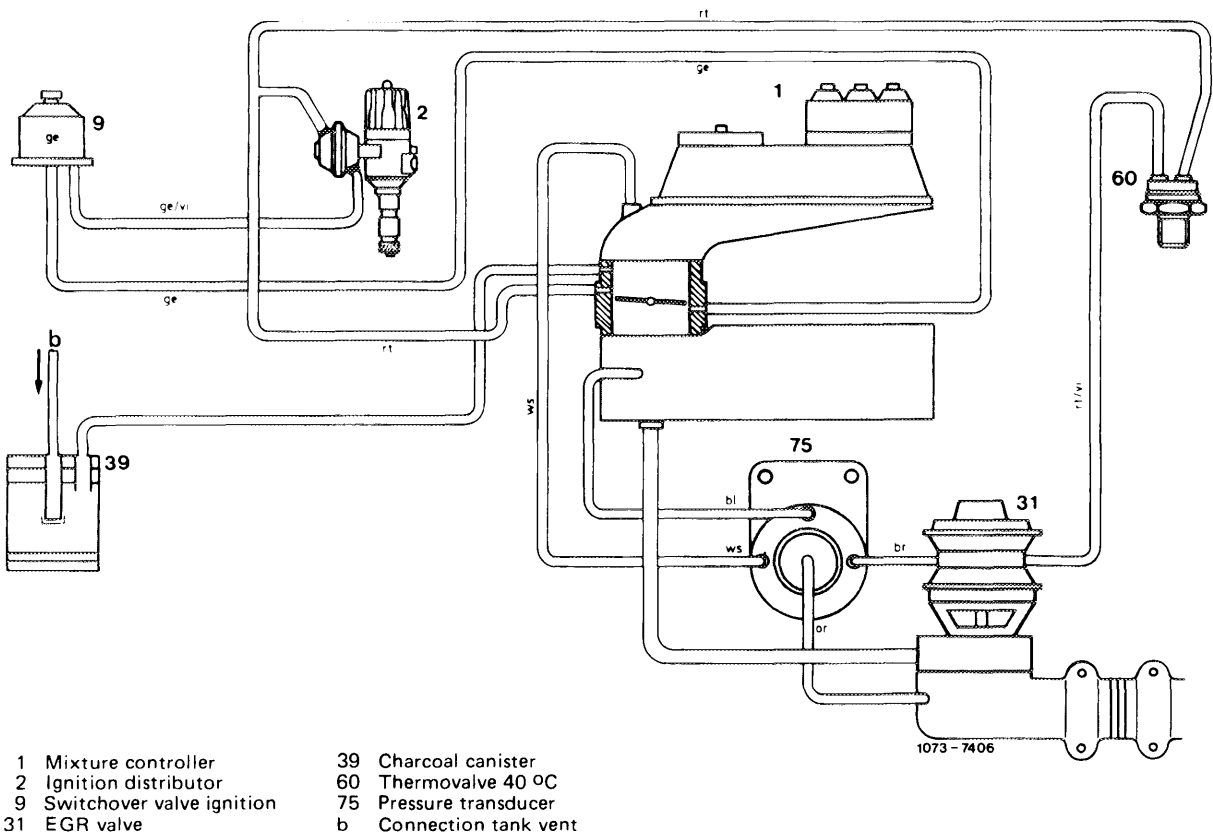
A. Federal version, tourist vehicles Federal version

For complaints such as: Poor warming-up characteristics of engine, poor idle speed, engine not accelerating or splashing during acceleration, check emission control system for function.

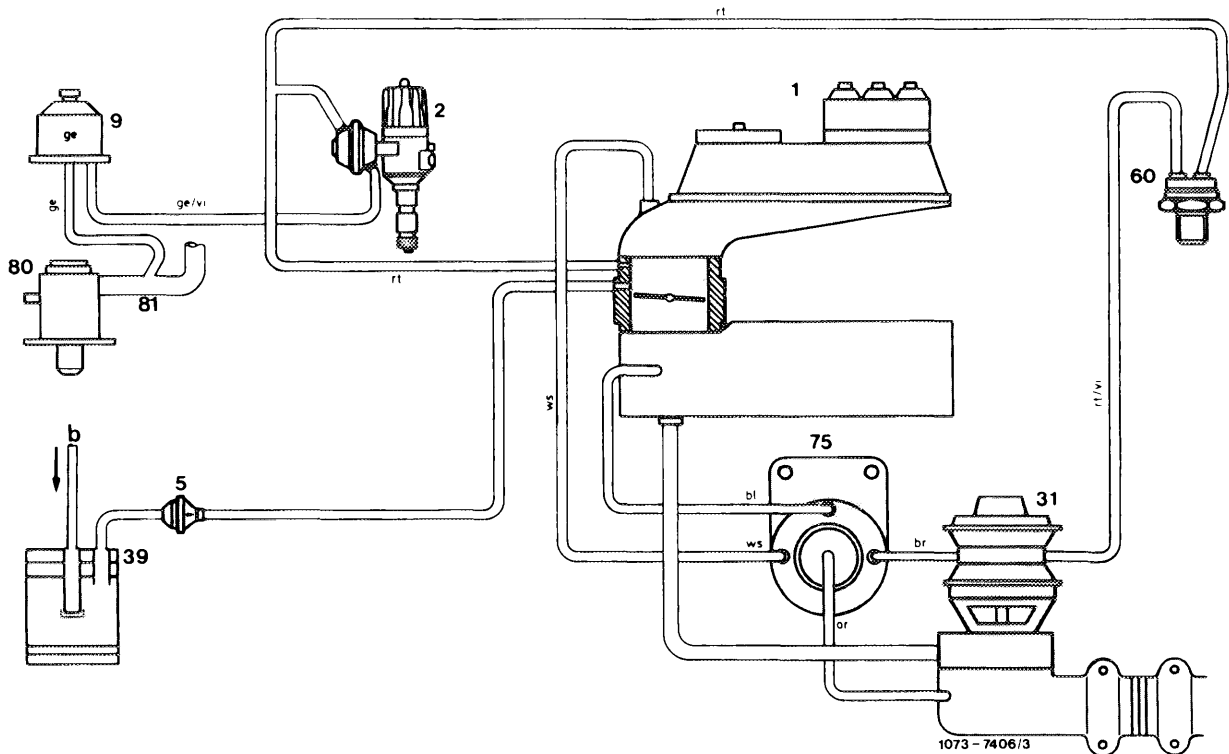
Test conditions: Engine at operating temperature, run engine at idle speed.

Test the following: EGR, air intake and fuel evaporation control system.

Function diagram model year 1977

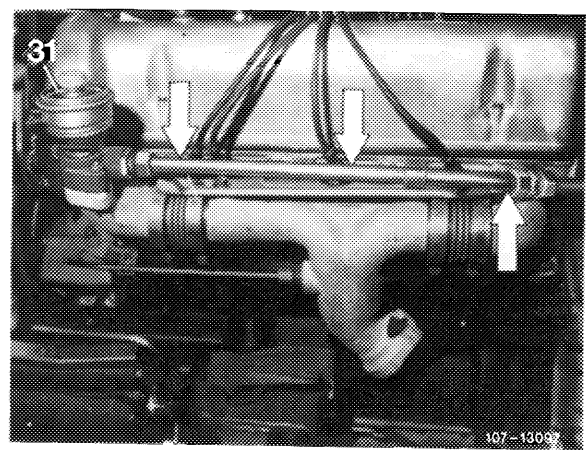


Function diagram model year 1978/79



- 1 Mixture controller
- 2 Ignition distributor
- 5 Regenerating valve
- 9 Switchover valve ignition
- 31 EGR valve
- 39 Charcoal canister
- 60 Thermove valve 40 °C
- 75 Pressure transducer
- 80 Auxiliary air valve
- 81 Contoured hose
- b Connection tank vent

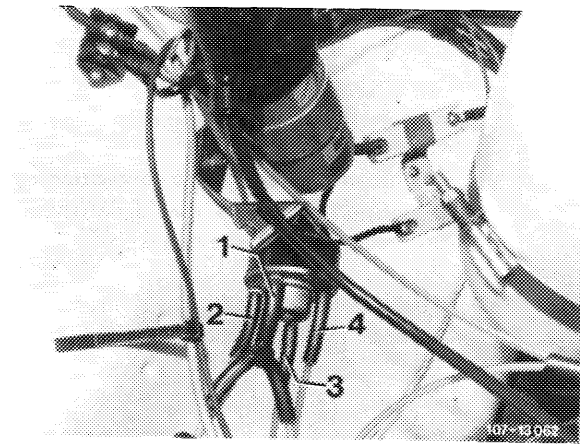
Testing EGR	
Pull brown vacuum line from EGR valve (31) and slowly increase idle speed.	
Engine runs irregularly starting at approx. 1200/min or stops.	Engine runs without change.



Testing vacuum lines

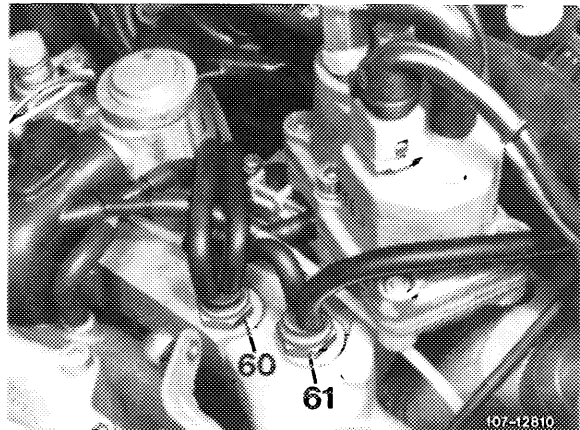
Test layout of vacuum lines on pressure transducer and intake pipe. Note that connections on pressure transducer are identified with color rings. The attached vacuum lines should have the same color.

- 1 Connection intake pipe vacuum (blue)
- 2 Connection vent line (white)
- 3 Connection exhaust gas backpressure line (orange)
- 4 Connection vacuum line to EGR valve (brown)



On black thermovalve 40 °C (60) the red vacuum line should be plugged to diagonal connection, and the purple/red vacuum line to straight connection.

Check all pertinent vacuum lines for leaks and blow out vacuum connections.

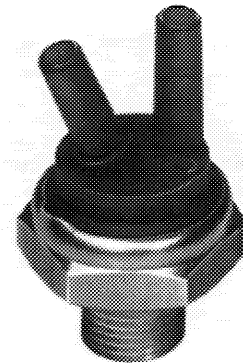


Testing thermovalve 40 °C (60)

The thermovalve is identified by a black plastic section and the designation "50 AA 4" punched into metal section.

Pull off red/purple vacuum line, let engine run and accelerate.

Vacuum should be felt at free connection.

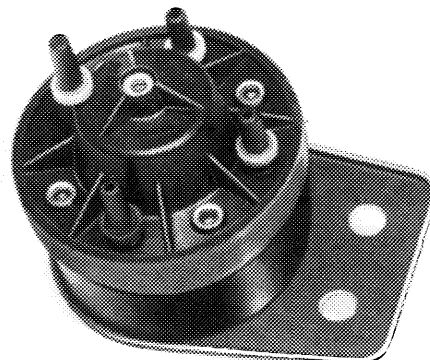


107-10895

Testing pressure transducer (75)

Run engine at idle speed. Pull off brown vacuum line on EGR valve. Connect vacuum pressure gauge or keep vacuum line closed with finger. Vacuum should be available at idle speed.

If there is no vacuum, renew pressure transducer.



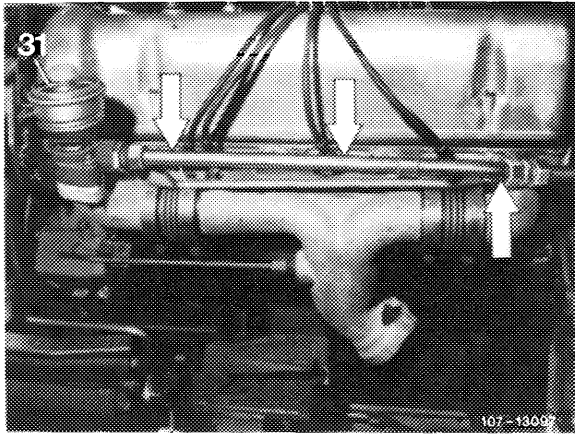
107-12314

Testing EGR valve (31)

Run engine at idle speed. Pull off both hoses on EGR valve.

Plug brown vacuum line to connection for red/purple vacuum line. Engine should run irregularly or come to a stop.

If operation of engine is not changing, renew EGR valve.

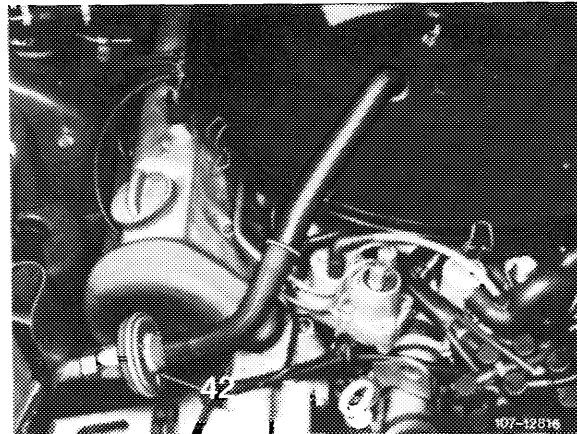


Testing air intake

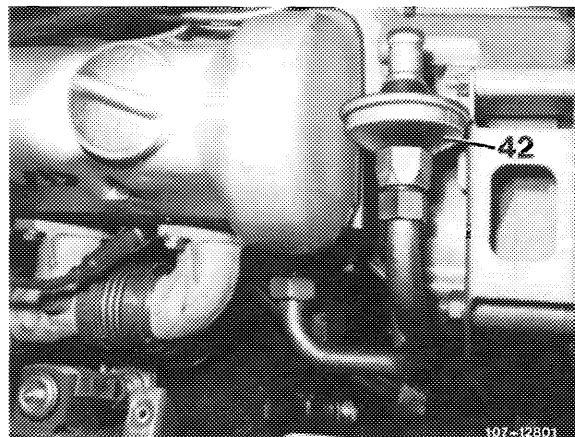
Remove draw-off hose from air filter and keep closed with one finger.

Vacuum available
(suction noise can be heard).

No vacuum.



Renew check valve (42).



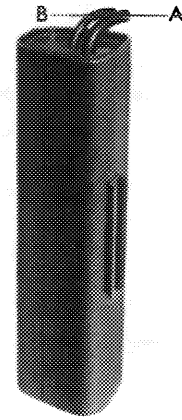
Testing fuel evaporation control system

Pull draw-off hose (B) to throttle valve housing from charcoal canister and keep closed with a finger or connect vacuum gauge.

Slowly increase engine speed to above approx. 2000/min.

No vacuum at idle.
Vacuum increases
with increasing
speed.

No vacuum increase
at increasing speed.

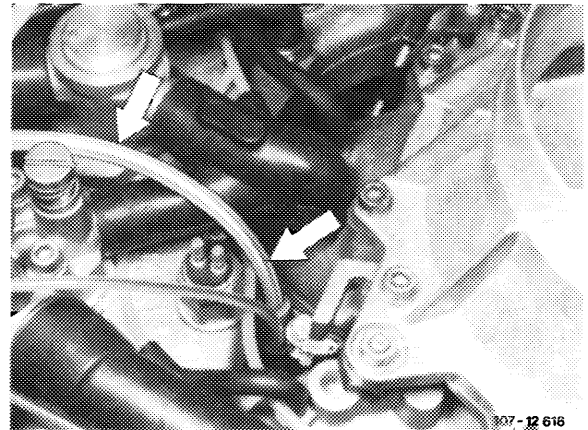


107-9128

Model year 1977

Testing draw-off hose

The draw-off hose (arrows) should be plugged to throttle valve housing. Check hose for leaks and blow out connection on throttle valve housing.



307-12 618

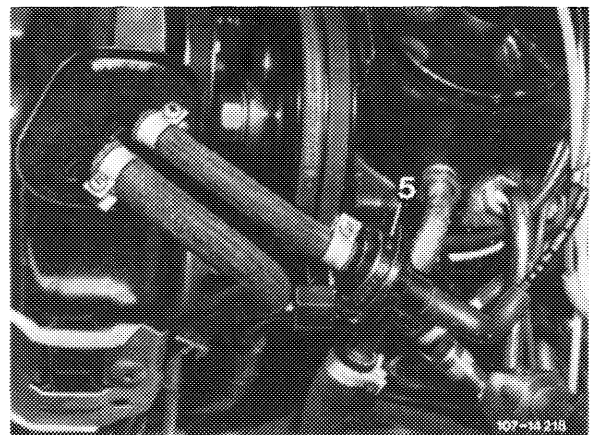
Model year 1978/79

Testing draw-off hose and regenerating valve

The draw-off hose (arrows) should be plugged to throttle valve housing. Check hose for leaks and blow out connection on throttle valve housing.

If there is still no vacuum, pull draw-off hose from regenerating valve and repeat test.

If there is a vacuum, replace regenerating valve.



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End of test.

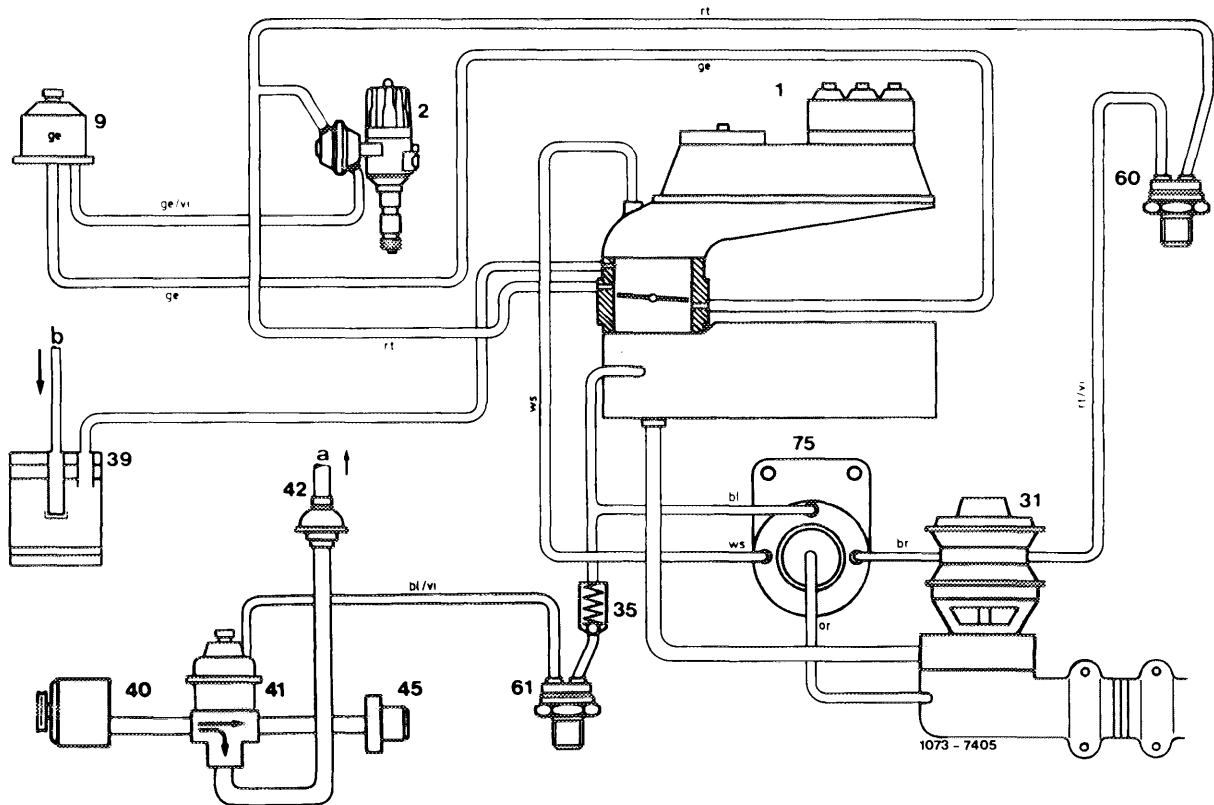
B. California version, tourist vehicles California version

For complaints such as: Poor warming-up characteristics of engine, poor idle speed, engine not accelerating or splashing during acceleration, check emission control system for function.

Test conditions: Engine at operating temperature, run engine at idle speed.

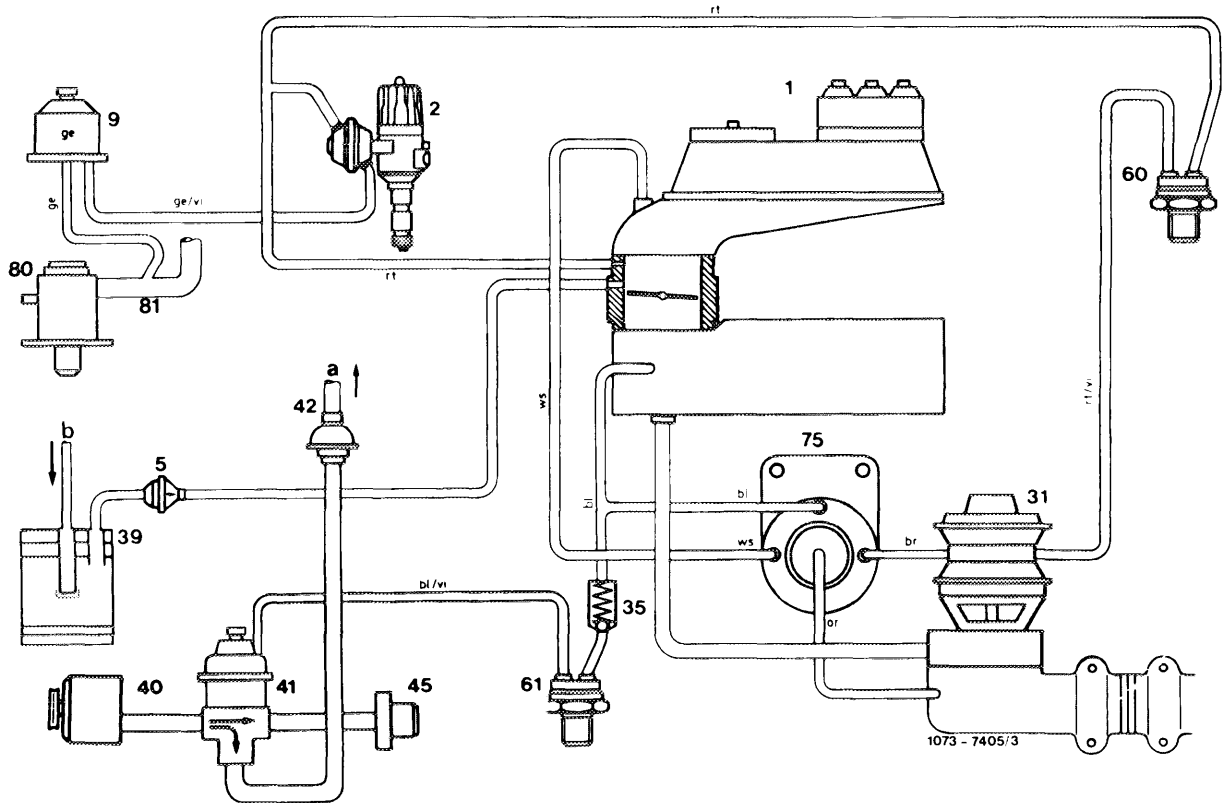
Test the following: EGR, air injection and fuel evaporation control system.

Function diagram model year 1977



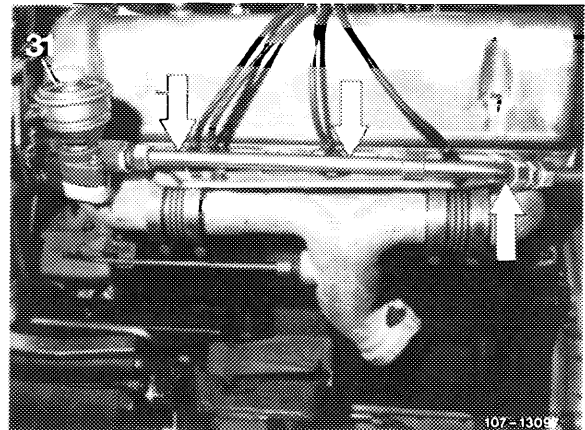
- | | | | |
|-----------------------------|----------------------|-----------------------------|------------------------------------|
| 1 Mixture controller | 39 Charcoal canister | 60 Thermovalve 40 °C | a Air injection line cylinder head |
| 2 Ignition distributor | 40 Air pump | 61 Thermovalve 17 °C | b Connection tank vent |
| 9 Switchover valve ignition | 41 Diverter valve | 75 Pressure transducer | |
| 31 EGR valve | 42 Check valve | 78 Air filter for silencing | |
| 35 Check valve | 45 Air filter | | |

Function diagram model year 1978/79



- | | | | |
|-----------------------------|-------------------------|-----------------------------|------------------------------------|
| 1 Mixture controller | 39 Charcoal canister | 75 Pressure transducer | a Air injection line cylinder head |
| 2 Ignition distributor | 40 Air pump | 78 Air filter for silencing | b Connection tank vent |
| 5 Regenerating valve | 41 Air switchover valve | 80 Auxiliary air valve | |
| 9 Switchover valve ignition | 42 Check valve | 81 Contoured hose | |
| 31 EGR valve | 60 Thermovalve 40 °C | | |
| 35 Check valve | 61 Thermovalve 17 °C | | |

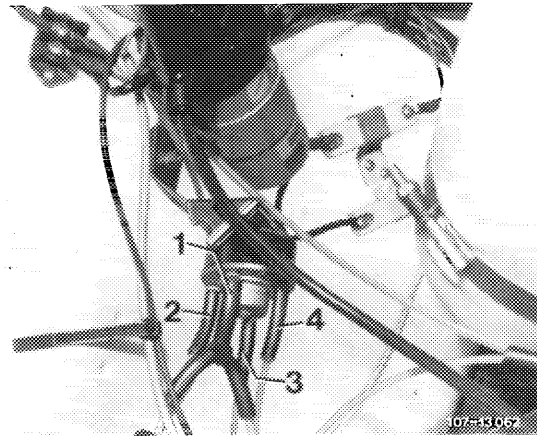
Testing EGR	
Pull off brown vacuum line on EGR valve (31) and slowly increase idle speed.	
Engine runs irregularly starting at approx. 1200/min or comes to a stop.	Engine operation continuous without change.



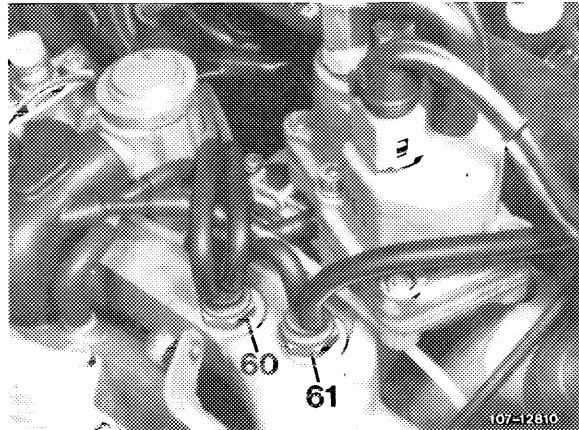
Testing vacuum lines

Test layout of vacuum lines on transducer and intake pipe. Note that connections on pressure transducer are identified with color rings. The plug-on vacuum lines should have the same color.

- 1 Connection intake pipe vacuum (blue)
- 2 Connection positive vent line (white)
- 3 Connection exhaust gas backpressure line (orange)
- 4 Connection vacuum control line to EGR valve (brown)



On black thermovalve 40 °C (60) the red vacuum line should be connected to diagonal connection, and the rubber hose to straight connection. Check all pertinent vacuum lines for leaks and blow out vacuum draw-off connections.

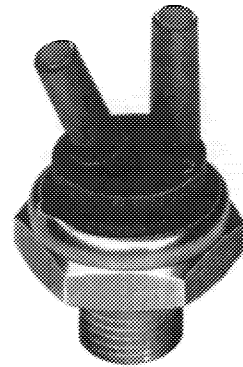


Testing thermovalve 40 °C (60)

The thermovalve is identified by black plastic section and by the designation "50 AA 4" punched into metal section.

Pull off red/purple vacuum line, run engine and accelerate.

Vacuum should be noticeable at free connection.

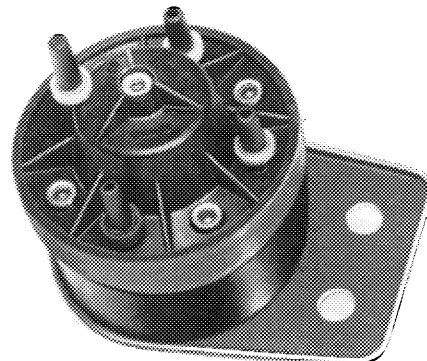


107-10895

Testing pressure transducer (75)

Run engine at idle. Pull off brown vacuum line from EGR valve. Connect pressure gauge or keep vacuum line closed with finger. Vacuum should be available at idle speed.

If there is no vacuum, renew pressure transducer.



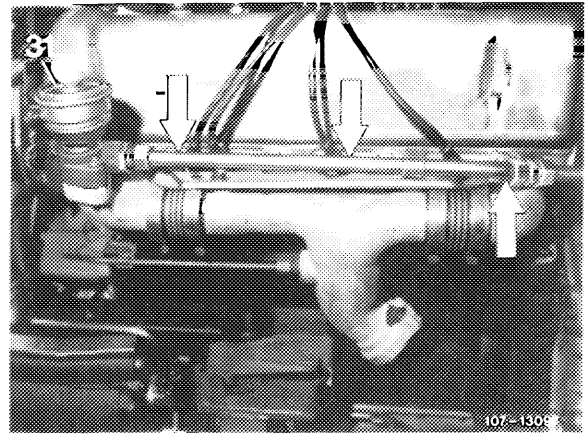
107-12314

Testing EGR valve (31)

Run engine at idle speed. Pull off both hoses on EGR valve.

Plug brown vacuum line to connection for red/purple vacuum line. Engine should run irregularly or come to a stop.

If operation of engine is not changing, renew EGR valve.

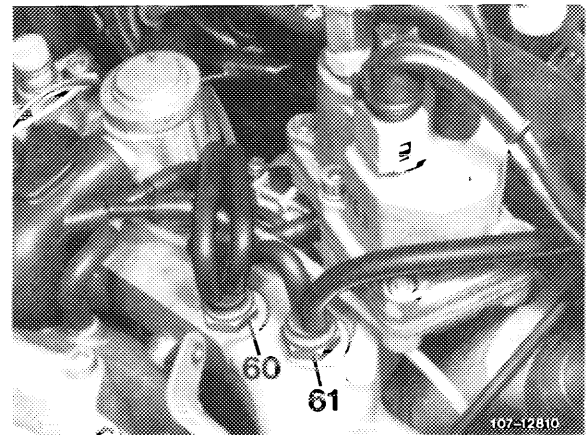


Testing air injection

Connect CO measuring instrument to exhaust gas backpressure line and read exhaust gas value. Pull blue/purple vacuum line from straight connection of thermostable valve (61) and close connection.

Exhaust gas value increasing.

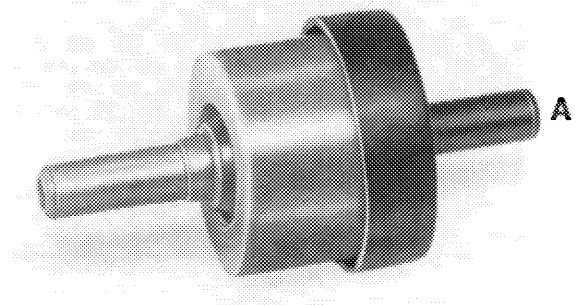
Exhaust gas value not increasing.



Testing vacuum lines

The blue vacuum line with the check valve (35) plugged in-between leads from intake pipe to diagonal connection of thermostable valve (61). The purple/blue vacuum line leads from straight connection of thermostable valve (61) to diverter valve (41).

Connection (A) of check valve (35) should face intake pipe.



Testing vacuum

Pull vacuum line from diagonal connection of thermostable valve (61). Connect vacuum gauge or keep closed with finger. Vacuum should be available at idle speed. If there is no vacuum, test vacuum lines for leaks and blow through vacuum tapping hole (draw-off) on intake pipe.

If there is a vacuum, test thermostable valve (61) or renew.

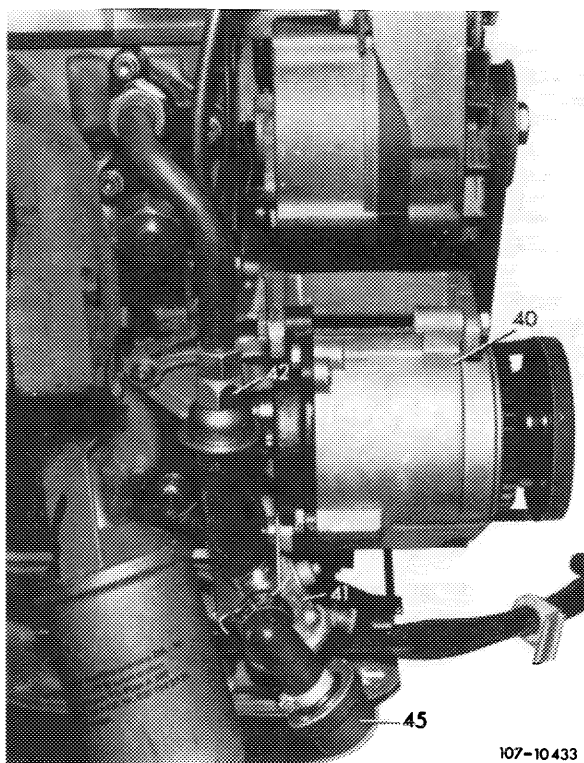
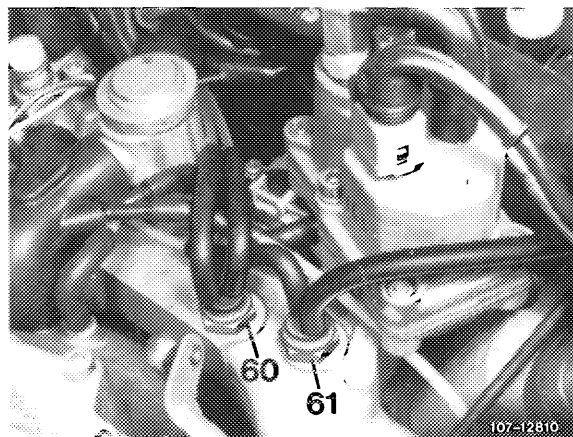
Testing thermovalve 17 °C (61)

The thermovalve is identified by its blue plastic section and the designation "50 AB 5" punched into metal section.

Note: Starting model year 1978 with color code **green**, designation "50 AC 13".

Pull off blue/purple vacuum line. Run engine and accelerate. Vacuum should be felt at free connection.

If thermovalve is in order, renew diverter valve (41).



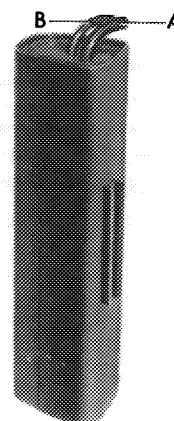
Testing fuel evaporation system

Pull draw-off line (B) to throttle valve housing from charcoal canister and keep closed with finger or connect vacuum gauge.

Slowly increase engine speed to above approx. 2000/min.

No vacuum at idle.
Vacuum increasing
with increasing
speed.

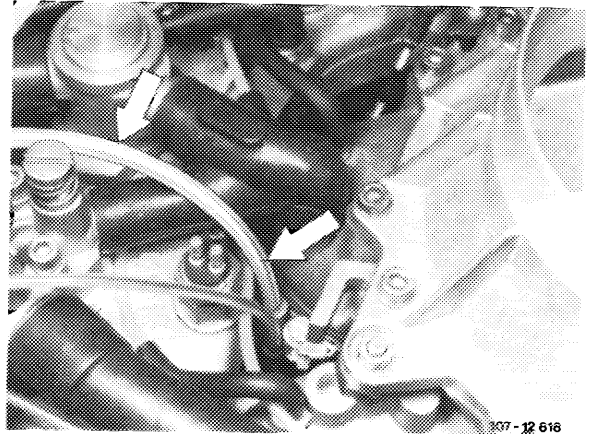
No vacuum increase
with increasing
speed.



Model year 1977

Testing draw-off hose

Draw-off hose (arrows) must be plugged to throttle valve housing. Check hose for leaks and blow out connection on throttle valve housing.



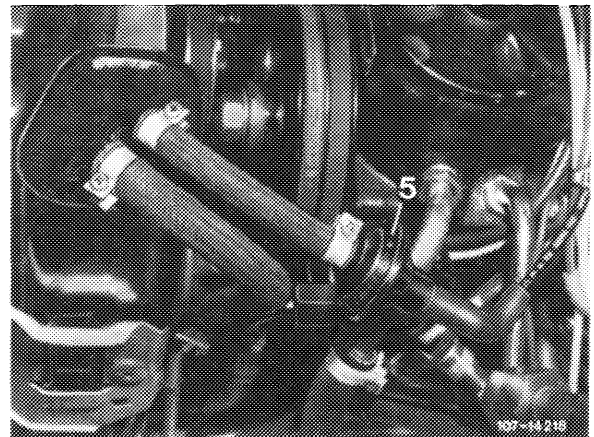
Model year 1978/79

Testing draw-off hose and regenerating valve

Draw-off hose (arrows) must be plugged to throttle valve housing. Check hose for leaks and blow out connection on throttle valve housing.

If there is still no vacuum, pull draw-off hose in front of regenerating valve and repeat test.

If vacuum is available, renew regenerating valve.



End of test.