1974-79 EXHAUST EMISSION SYSTEMS
Volkswagen Exhaust Gas Recirculation

All Models

DESCRIPTION

All models use exhaust gas recirculation to reduce exhaust emissions. Some of the exhaust gas from the engine is diverted before it enters the muffler. This gas is routed back into the intake manifold. An exhaust gas recirculation valve controls the exhaust gas flow to intake manifold. The exhaust gases introduced into the combustion chambers help lower the formation of oxides of nitrogen (NOx) during the combustion process.

OPERATION

TYPE 1 , 14 & THING EGR SYSTEM

The EGR valve is controlled by throttle position and engine vacuum. When throttle is opened, current from micro switch is topped and the EGR valve is allowed to operate according to level of engine vacuum. Thus, the amount of exhaust gas recirculation will be determined by engine vacuum. At full throttle, micro switch closes supply current to EGR valve. This causes EGR valve to close, which stops exhaust gas recirculation. *See Fig. 1.*

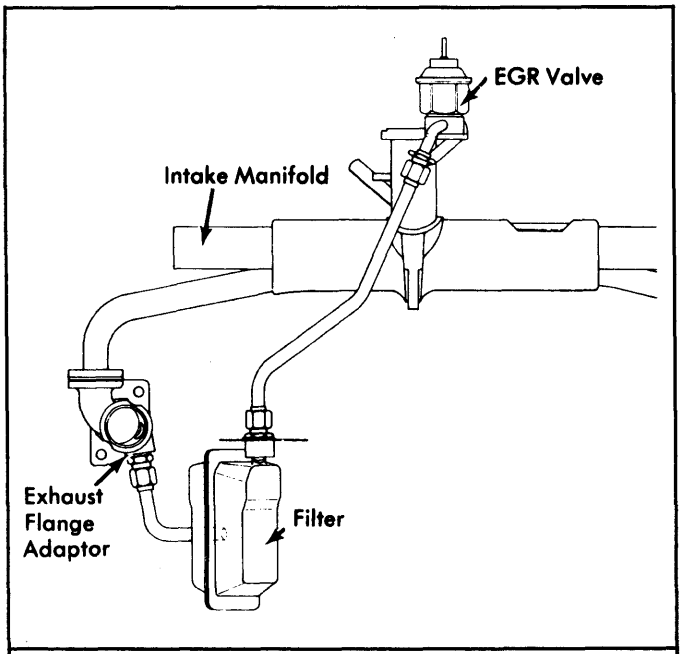

Fig. 1: 1974 Type 1, 14 & THING EGR System

TYPE 2 EGR SYSTEM

At 54° (12°C) engine temperature, temperature valve snaps open which allows vacuum to reach EGR valve. Near half throttle, current from micro switch is interrupted. This allows EGR valve to be opened and exhaust gas recirculation takes place. At full throttle, micro switch supplies current to EGR valve and exhaust gas recirculation stops. At temperatures below 54°F (12°C), temperature valve is closed and no vacuum reaches EGR valve. With temperature valve closed, no exhaust gas recirculation takes place, regardless of throttle position. *See Fig. 2.*

DASHER EGR SYSTEM

The EGR temperature control valve prevents vacuum from reaching EGR valve when engine is cold. When engine reaches normal operating temperature, vacuum is supplied to EGR valve from throttle valve venturi of CIS injection system via a vacuum booster which amplifies this weak vacuum signal to a level which will operate the EGR valve. A vacuum modulator is used to ensure an adequate supply of manifold vacuum to vacuum booster. An EGR delay valve is incorporated on automatic transmission equipped models to delay EGR operation.

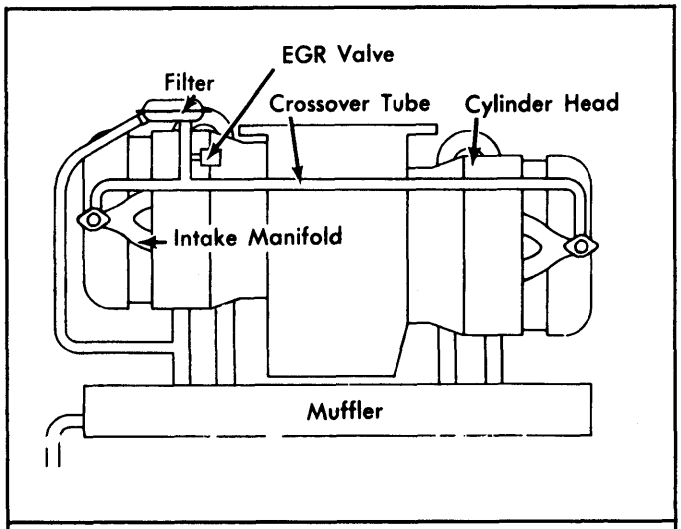

Fig. 2: 1974 Type 2 EGR System

RABBIT & SCIROCCO EGR SYSTEM

Below 81°F (27°C) coolant temperature or 140°F (60°C) oil temperature on 1979 models, the EGR temperature valve is closed and no vacuum is supplied to the first stage of EGR valve. When coolant temperature rises above 120°F (49°C) or 140°F (60°) oil temperature on 1979 models, temperature valve will allow vacuum to reach EGR valve.

During idle and full throttle operation, no EGR will occur due to low vacuum. On California models, the second stage of the EGR valve is connected. Vacuum supply to second stage is from a vacuum reservoir which ensures a constant supply of vacuum to the system.

A temperature valve is also used in second stage of EGR system. The temperature valve only allows vacuum to pass when coolant/oil temperature is above specified temperatures. In addition, a throttle valve micro switch operates a vacuum solenoid valve when throttle angle is between 25 and 67 degrees.

TESTING

TYPE 1, 2, 14 & THING EGR SYSTEM

1976-77 Models - 1) Turn ignition on and move throttle valve. The EGR valve should click. If not, go to next step. If EGR valve does click, go to step **3)**.

2) Unplug EGR valve connector and attach a test light to it. With ignition on, move throttle valve. If test light glows at idle and full throttle positions, replace EGR valve. If not check wiring or throttle valve (micro) switch.

3) Start and warm engine to normal operating temperature. Remove plug from EGR valve. Engine should run rough or stall. If so, no further testing is required. If engine does not respond as indicated, go to next step.

4) Check for presence of vacuum at EGR valve. If vacuum is present, go to next step. If not, check vacuum line for damage or blockage. If line is okay on type 2 models, replace thermal switch.

5) Remove EGR valve and check for exhaust gas recirculation flow at idle. If no exhaust flow is present, check for plugged pipe or replace EGR filter. If exhaust gas flow is present, check outlet pipe for blockage. Repair or replace as necessary. Replace EGR valve is system still does not work properly.

1978-79 Models - 1) Start engine and warm to normal operating temperature. Connect tachometer to engine and check idle speed. Adjust idle speed if necessary.

2) Loosen both lock nuts on adjusting rod. Shorten length of adjusting rod until the EGR valve opens (engine runs rough or stalls). Now turn adjusting rod in opposite direction the specified number of turns. See EGR CONTROL ROD ADJUSTMENT table.

1974-79 EXHAUST EMISSION SYSTEMS
Volkswagen Exhaust Gas Recirculation (Cont.)

EGR CONTROL ROD ADJUSTMENT

Application	Turns
Type 1	1 1/2
Type 2	
Man. Trans.	1 1/6
Auto. Trans.	5/6

DASHER EGR SYSTEM

1975-77 Models - 1) Check vacuum hoses for damage and proper routing. Start and warm engine to normal operating temperature. Remove vacuum hose from distributor retard diaphragm and temporarily connect hose to EGR valve.
2) Engine should run rough or stall if EGR valve is working properly. If engine does not respond as indicated, check for a faulty EGR valve or clogged EGR passage.
3) To check vacuum booster, connect a vacuum gauge between vacuum booster and throttle valve port. With engine at idle, reading should be .2-.3 in. Hg. If not, check throttle valve port for blockage.
4) With specified vacuum obtained, connect vacuum gauge between vacuum booster and temperature control valve. Vacuum gauge reading should be 2-4 in. Hg. If not, replace vacuum booster.

RABBIT & SCIROCCO EGR SYSTEM

1975-77 Models - 1) Check vacuum hoses for damage and proper routing. Start and warm engine to normal operating temperature. To test first stage of EGR valve, temporarily connect vacuum hose from anti-backfire valve to EGR valve. Engine should run rough or stall. If not, check for a faulty EGR valve or clogged EGR passage.
2) To test full load enrichment switch on California models, connect an ohmmeter to switch terminals (ignition off). Close throttle valve and check that ohmmeter reads infinity.
3) Press accelerator pedal to floor. Just before pedal reaches floored position, ohmmeter reading should change to zero (0) ohms. If not, adjust switch by loosening retaining screws. Tighten screws and check switch for proper operation.
1978 Models - 1) Check vacuum hoses for damage and proper routing. Start and warm engine to normal operating temperature. With engine idling, check that there are no leaks in EGR system feed line (exhaust manifold to EGR valve).
2) Disconnect vacuum hose from EGR valve and temporarily connect vacuum hose from power brake booster to EGR valve. Engine should run rough or stall. If engine does not respond as indicated, check for a faulty EGR valve or clogged EGR passage.
3) Connect a vacuum gauge to temperature valve, in place of vacuum hose that goes to EGR valve. With engine at normal operating temperature, there should be 2-4 in. Hg of vacuum. If not, replace temperature valve.
1979 Models - 1) Start and warm engine to normal operating temperature. Remove vacuum hose from distributor retard diaphragm and connect hose to EGR valve.
2) Engine should run rough or stall if EGR valve is working properly. If engine does not respond as indicated, check for a faulty EGR valve or clogged EGR passage.
3) Connect a vacuum gauge between EGR temperature control valve and EGR valve. With engine idling at normal operating temperature, there should be 2-4 in. Hg of vacuum. If not, replace EGR temperature control valve.
4) Now connect a vacuum gauge between vacuum amplifier and temperature control valve. Vacuum gauge reading should be 2-4 in. Hg. If not, replace vacuum amplifier.

MAINTENANCE

Every 15,000 miles or 12 months, the entire EGR system should be checked and EGR maintenance indicator reset. Reset EGR indicator by pressing reset button located on sensor which is mounted on speedometer cable. *See Fig. 3.*

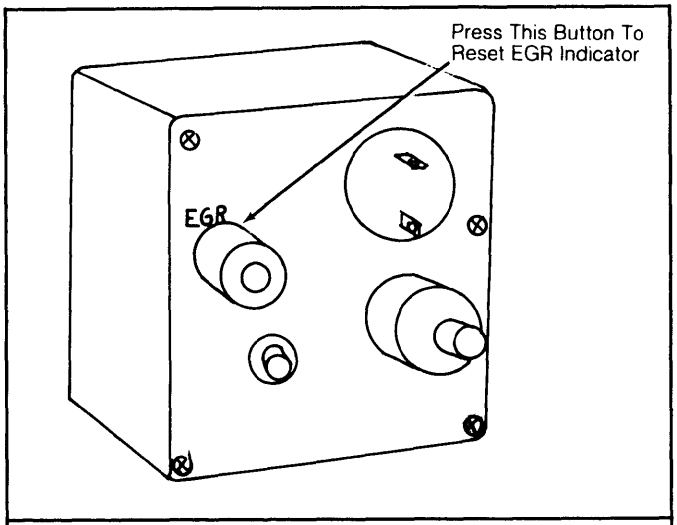

Fig. 3: Resetting EGR Maintenance Indicator