

## Electric switch over valve for EGR intake air throttling Complaint and fault diagnosis

si 0052 **GB**

MSI-PG 03.01

### Vehicle: Audi / Ford / Seat / Skoda / VW

Type	Engine	Power (kW)	Engine code
various	1,9 SDI	47	various
		47	see
			TECDOC-CD

### Product:

**Electric switch over valve**

**Pierburg-No.** O.E.-No.<sup>\*)</sup>

7.21895.00.0 028 906 283F

7.21895.13.0 028 906 283A

7.21895.30.0 028 906 283J

7.21895.50.0 —

7.21895.63.0 —

**Replacement: 7.21895.55.0** —

### A. Intake air throttling with electric switch over valve

In the case of diverse SDI vehicles, a pneumatically-actuated throttle valve is arranged in the inlet duct to satisfy emission standards.

In a closed condition, the throttle valve increases the pressure drop between the intake pipe and exhaust manifold, in order to achieve the necessary exhaust gas recirculation rate. The valve is activated by the control unit load and speed-dependent via the **electric switch over valve** and actuated by a vacuum bellow.

### B. Complaint and testing

Failure of the electric switch over valve will normally not result in a complaint, but in an increased

NOx emission. As a consequence, vehicles with this fault no longer comply with original requirements. In addition, engine damage cannot be excluded.

It is therefore recommended to test the electric switch over valve as part of a servicing routine or emission test, as described in **Chapter "C"**, as well as also all other emission-related components (see diverse **service informations**).

**Note:** The electric switch over valve for intake air throttling can be activated via actuator diagnosis and so electrically tested. In the diagnosis unit V.A.G. 1551, the electric switch over valve is designated "throttle valve activator (V60)".

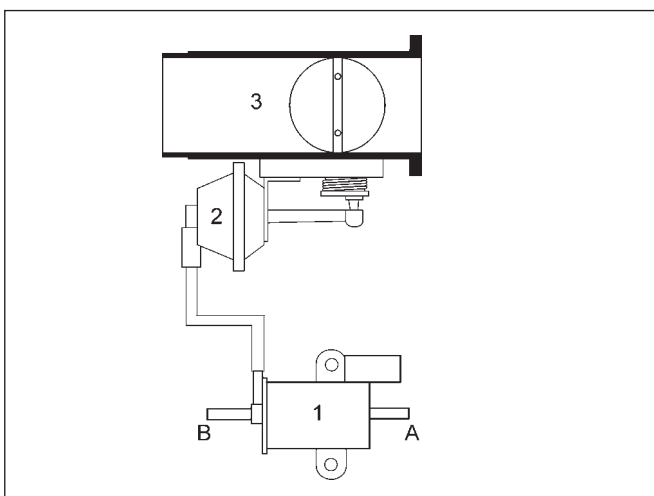


Fig. 1 Intake air throttling arrangement

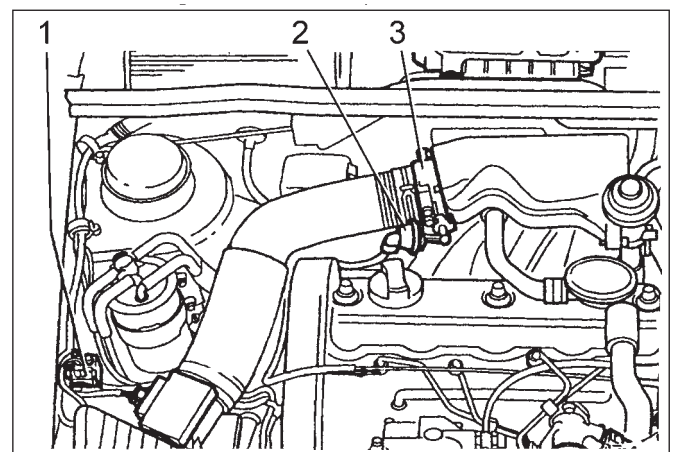


Fig. 2 Intake air throttling, location  
(e.g. Golf, Engine Code AEY)

- To Figs. 1 and 2
- 1 Electric switch over valve
  - 2 Vacuum bellow
  - 3 Throttle body
  - A Air connection
  - B Vacuum connection

<sup>\*)</sup>The listed reference numbers should be listed for comparison only. They may not be used on invoices sent to final users.

Subject to change of illustrations and text.

For changes with regard to respective matching and replacements, refer to the catalogs, TECDOC-CD or systems basing on TECDOC-data, which are currently in effect.

## C. Testing electric switch over valves

### Notes:

- It is recommended to first read out the fault memory and then carry out actuator diagnosis according to the instructions of the diagnostic unit manufacturer.
- An electric switch over valve activated through actuator diagnosis is energised at intervals, so that switching of the valve is noticeable. If switching of the valve is noticeable, the voltage supply and the electric switch over valve are electrically o.k. Leakage or internal fouling are not noticeable and must be checked as described in chapters 1.2 and 1.3. If switching of the valve is not noticeable, all of the tests listed below must be carried out.
- The electric switch over valve must be renewed, taking into account the enclosed information leaflet or si 0050.
- After testing and repair, the fault memory must be erased.

### 1. Testing electric switch over valve

#### 1.1 Electrical function

- Alternately apply external voltage (battery voltage) to the electric switch over valve.

#### Required value:

Switching of the electric switch over valve must be noticeable.

If the required value is not reached, renew the electric switch over valve.

#### 1.2 Fouling (internal fouling)

- Check for fouling with a hand vacuum pump, Fig. 3.

#### Required values:

No voltage from connection 1 to 3  
Voltage from connection 2 to 3

If the required values are not reached, renew the electric switch over valve.

#### 1.3 Tightness

- Without voltage applied, connect hand vacuum pump to connection 2, Fig. 3 and apply a differential pressure of about 500 mbar.

**Required value:** No visible drop in differential pressure.

If the required value is not reached or a differential pressure build-up is not possible, replace the electric switch over valve.

## 2. Test on cable harness side

### 2.1 Voltage supply

**Note:** The connector polarity can vary from vehicle to vehicle. The voltage supply is present at contact 1 or 2, Fig. 4. The other contact is intended for ground control purposes.

- Switch off ignition.
- Disconnect connector from electric switch over valve.

- Switch on ignition.
- Depending on vehicle, check voltage at connector contact 1 or 2, Fig. 4 and ground.

**Required value:** Battery voltage

If the required value is not reached, continue with test step 2.2.

### 2.2. Testing cable connections to electric switch over valve

- Switch off ignition.
- Disconnect control unit connector from electric switch over valve.
- Test cables according to circuit diagram of vehicle manufacturer.

**a:** for open-circuit

**Required value:** max. 1.5  $\Omega$

**b:** for short-circuit between cables, to vehicle ground and battery positive

**Required value:**  $\infty\Omega$

If the system should fail to function despite the required values being reached, the control unit may be faulty.

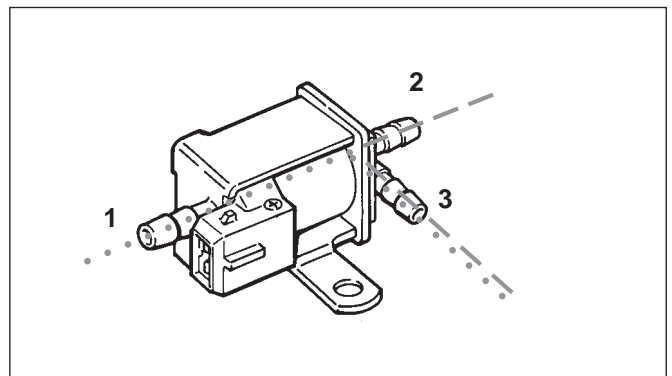


Fig. 3 Electric switch over valve

Techn. Data: Rated voltage: 12 V

Resistance: 28,5 ± 1,5  $\Omega$

Operation: De-energised . . . . .

Energised — — —

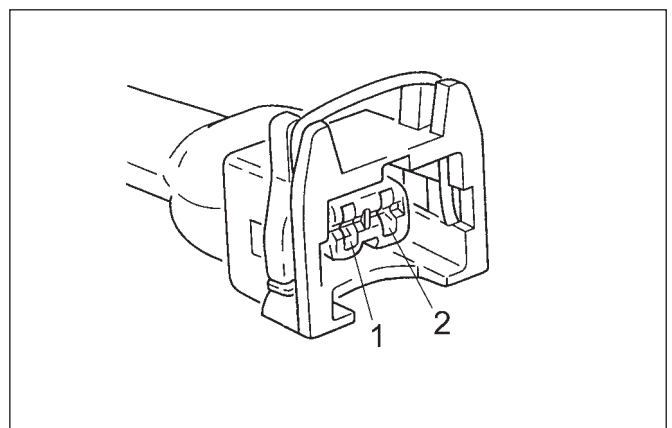


Fig. 4 Electric switch over valve connector