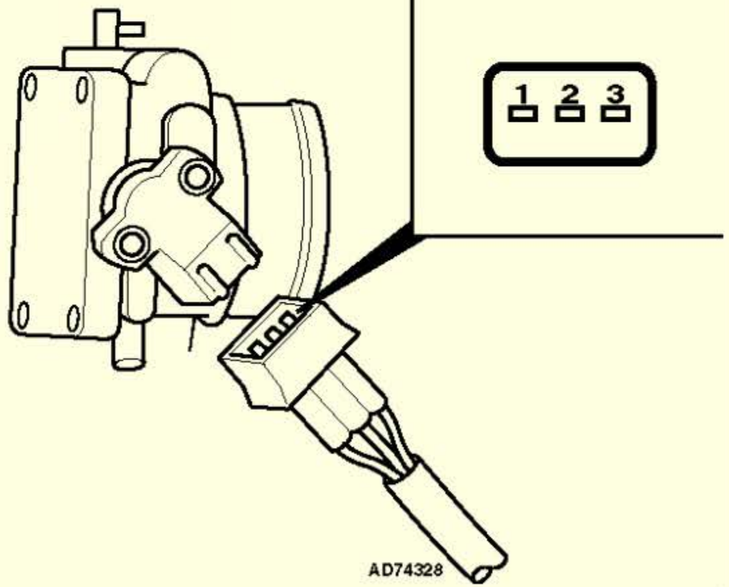
Volkswagen Passat (88-96) 2,0 1990-93
Engine code: 2E
System type: VAG Digifant

- Service adjustments
- Fuel system
- Intake system
  - Throttle position (TP) sensor
  - Volume air flow (VAF) sensor
  - Intake air temperature (IAT) sensor
  - Idle air control (IAC) valve
- Ignition system
- Engine sensors
- Emission control system
- Control system

16



Throttle position (TP) sensor

Checking earth connection - Fig. 16

Technical Data	
Terminals	**Resistance**
3 & earth	Zero

- Ensure ignition switched OFF.
- Disconnect TP sensor multi-plug.
- Check resistance between harness multi-plug terminal and earth.
- If resistance not as specified: Check wiring.

Checking supply voltage - Fig. 16

Technical Data	
Terminals	**Voltage**
1 & 3	5 V approx.

- Ensure ignition switched OFF.
- Disconnect TP sensor multi-plug.
- Switch ignition ON.
- Check voltage between harness multi-plug terminals.

Checking - Fig. 17

Technical Data		
Terminals	**Condition**	**Voltage**
2 & 3	Throttle closed	0,3-1,7 V approx.
2 & 3	Throttle fully open	3-5 V approx.

- Ensure ignition switched OFF.
- Do not disconnect multi-plug. Access TP sensor multi-plug terminals.
- Switch ignition ON.
- Check voltage between multi-plug terminals.
- Operate throttle valve while checking voltage between terminals 2 and 3.
- Voltage change should be smooth.

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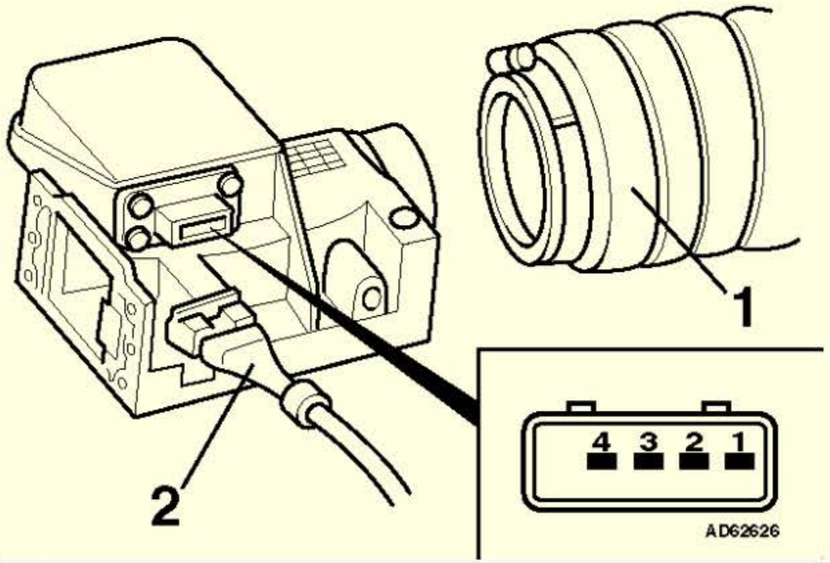
18



Volume air flow (VAF) sensor

NOTE: Incorporates intake air temperature (IAT) sensor.

Checking operation - Fig. 18

- Ensure ignition switched OFF.
- Disconnect intake air trunking from VAF sensor Fig. 18 [1].
- Operate sensor flap over full extent of travel.
- Check for smooth operation.
- Clean off any gummy deposits with solvent, if necessary.

Checking resistance - Fig. 18

Technical Data		
Terminals	Condition	Resistance
2 & 3	Flap closed	610 Ω approx.
2 & 4	Flap closed	60 Ω approx.
2 & 3	Flap fully open	280 Ω approx.
2 & 4	Flap fully open	780 Ω approx.

- Ensure ignition switched OFF.
- Disconnect intake air trunking from VAF sensor Fig. 18 [1].
- Disconnect VAF sensor multi-plug Fig. 18 [2].
- Check resistance between VAF sensor terminals.
- Operate sensor flap over full extent of travel.
- Check resistance between VAF sensor terminals.
- Resistance change should be smooth.

Checking earth connection - Fig. 18 & Fig. 19

Technical Data	
Terminals	Resistance
4 & earth	Zero

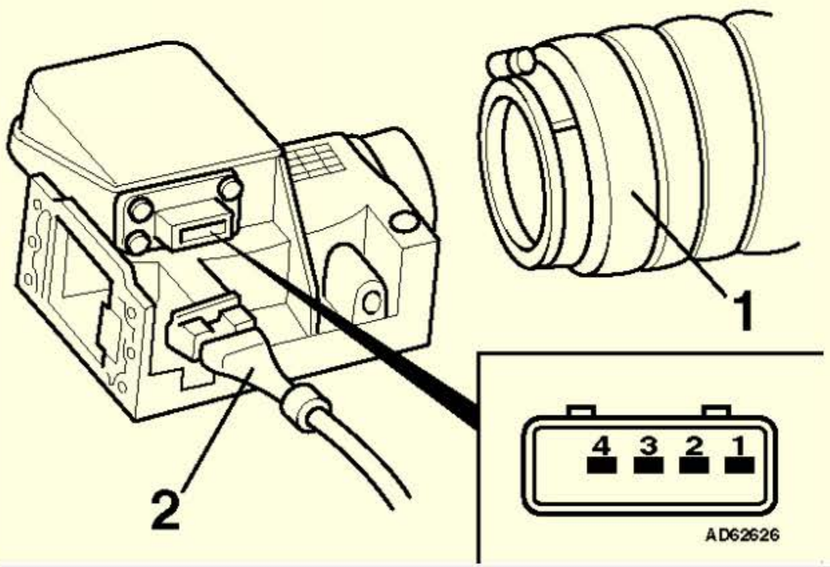
- Ensure ignition switched OFF.
- Disconnect VAF sensor multi-plug Fig. 18 [2].
- Check resistance between harness multi-plug terminal and earth Fig. 19.

Checking supply voltage - Fig. 18 & Fig. 19

Service adjustments
Fuel system
Intake system
- Throttle position (TP) sensor
- Volume air flow (VAF) sensor
- Intake air temperature (IAT) sensor
- Idle air control (IAC) valve

Ignition system
Engine sensors
Emission control system
Control system

18



- Check resistance between VAF sensor terminals.
- Resistance change should be smooth.

Checking earth connection - **Fig. 18** & **Fig. 19**

Technical Data	
Terminals	**Resistance**
4 & earth	Zero

- Ensure ignition switched OFF.
- Disconnect VAF sensor multi-plug **Fig. 18** [2].
- Check resistance between harness multi-plug terminal and earth **Fig. 19**.

Checking supply voltage - **Fig. 18** & **Fig. 19**

Technical Data	
Terminals	**Voltage**
3 & 4	5 V approx.

- Ensure ignition switched OFF.
- Disconnect VAF sensor multi-plug **Fig. 18** [2].
- Switch ignition ON.
- Check voltage between harness multi-plug terminals **Fig. 19**.

Checking signal - **Fig. 18**

Technical Data		
Terminals	**Condition**	**Voltage**
2 & 4	Engine idling	0,9 V approx.
2 & 4	2000 rpm	1,5 V approx.
2 & 4	4000 rpm	2,2 V approx.

- Ensure ignition switched OFF.
- Do not disconnect multi-plug. Access VAF sensor multi-plug terminals.
- Start engine.
- Allow to idle.
- Check voltage between multi-plug terminals.
- Increase rpm to specified values.
- Check voltage between multi-plug terminals.
- Voltage change should be smooth.

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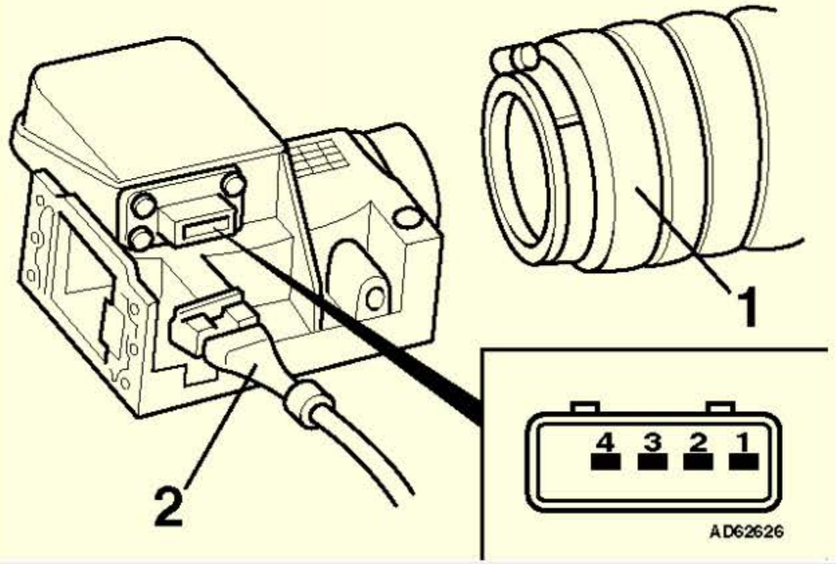
- Emission control system
- Control system

18



Intake air temperature (IAT) sensor

NOTE: Incorporated in volume air flow (VAF) sensor.

Checking resistance - Fig. 18 & Fig. 19

Technical Data		
Terminals	Temperature	Resistance
1 & 4	0°C	5000-6500 Ω
1 & 4	10°C	3250-4500 Ω
1 & 4	20°C	2200-3000 Ω
1 & 4	30°C	1500-2000 Ω
1 & 4	40°C	1000-1400 Ω
1 & 4	50°C	725-925 Ω
1 & 4	60°C	535-675 Ω
1 & 4	70°C	400-500 Ω
1 & 4	80°C	275-375 Ω

- Ensure ignition switched OFF.
- Disconnect VAF sensor multi-plug Fig. 18 [2].
- Check ambient air temperature.
- Check resistance between VAF sensor terminals Fig. 19.

Checking supply voltage - Fig. 18 & Fig. 19

Technical Data	
Terminals	Voltage
1 & 4	5 V approx.

- Ensure ignition switched OFF.
- Disconnect VAF sensor multi-plug Fig. 18 [2].
- Switch ignition ON.
- Check voltage between harness multi-plug terminals Fig. 19.

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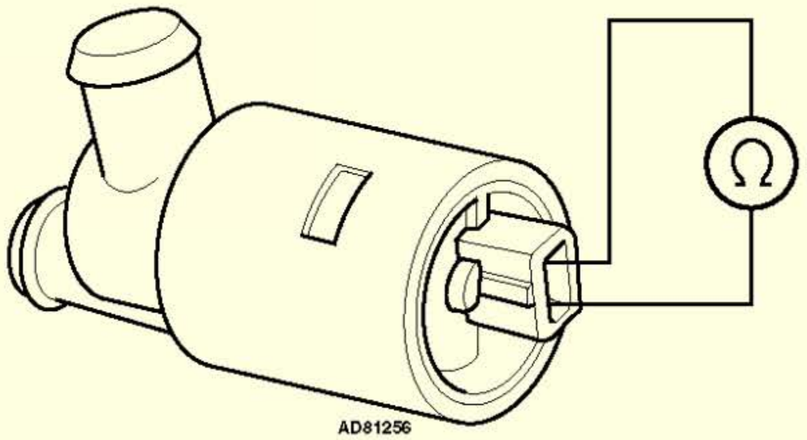
20



Idle air control (IAC) valve

Checking resistance - Fig. 20

Technical Data	
Terminals	**Resistance**
1 & 3	2-10 Ω

- Ensure ignition switched OFF.
- Disconnect IAC valve multi-plug.
- Check resistance between IAC valve terminals.

Checking supply voltage - Fig. 21

Technical Data	
Terminals	**Voltage**
1 & earth	Battery voltage

- Ensure ignition switched OFF.
- Disconnect IAC valve multi-plug.
- Switch ignition ON.
- Check voltage between harness multi-plug terminal and earth.
- If voltage not as specified: Check wiring and fuses.

F1 F2 F3 F4 F5 F6 F7 F9 F11 Ctrl+F4 Ctrl+F8

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