Checking electronic engine power control (electronic throttle)

Checking drive angle sender for throttle valve drive -G187 and -G188

The throttle valve drive angle senders -G187 and -G188 signal the position of the throttle valve to the engine control unit. Both angle senders are located in the throttle valve control part.

- Connect the vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551 and select engine electronics control unit with "Address word" 01 => Page 01-15.
  For this purpose, the ignition must be switched on.

→ Indicated on display:

Rapid data transfer HELP Select function XX

- Press keys 0 and 8 for the function "Read measured value block" and confirm entry with Q key.

→ Indicated on display:

Reading measured value block Q Enter display group number XXX

- Press keys 0, 6 and 2 for "display group number 62" and confirm entry with Q key.

→ Indicated on display:

Read measured value block 62 ⇒ 1 2 3 4

- Check specifications for electronic throttle potentiometer voltages.

	Display zones			
	1	2	3	4
Display group 62: Electronic throttle potentiometer voltages with ignition on				
Display	**xx %**	**xx %**	xx %	xx %
Display	**Throttle valve angle (angle sender 1)**	**Throttle valve angle (angle sender 2)**	Sender for accelerator pedal position	Sender 2 for accelerator pedal position
Range	**min.: 0 % max.: 100 %**	**min.: 0 % max.: 100 %**	min.: 0 % max.: 100 %	min.: 0 % max.: 100 %
Specified value	**3...93 %**	**97...3 %**	12...97 %	4...94 %

Note:

The engine control unit converts and displays the voltage readings from the angle senders as percentages of 5 V. (A5 Volt supply corresponds to 100 %).

- Observe readouts in display zones 1 and 2.
- Slowly depress accelerator pedal.

Percentage displayed in zone 1 should rise evenly. The tolerance range from 3...93 % is not fully utilised.

Percentage displayed in zone 2 should fall evenly. The tolerance range from 97...3 % is not fully utilised.

If the displays are not as described:

- Check throttle valve control part voltage supply and wiring =>Page 24-180. Pay particular attention to connectors, which may be detached or corroded.
- Check the accelerator position senders =>Page 24-184.

Notes:

- ◆ The reason why the value in display zone 1 rises and that in zone 2 falls is that the potentiometers (angle senders) in the throttle valve control part operate in opposite directions.
- ◆ This means that the voltage picked off by one of the angle senders runs in the direction of 5 V. (As the throttle is opened, the voltage becomes greater and the percentage increases).
- ◆ The voltage picked off by the angle sender 2 runs from 5 V in the direction of 0 V. (As the throttle is opened, the voltage becomes smaller and the percentage decreases).

Checking the voltage supply to the throttle valve control part.

- Check fuse for throttle valve control part.

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

If the fuse is OK:

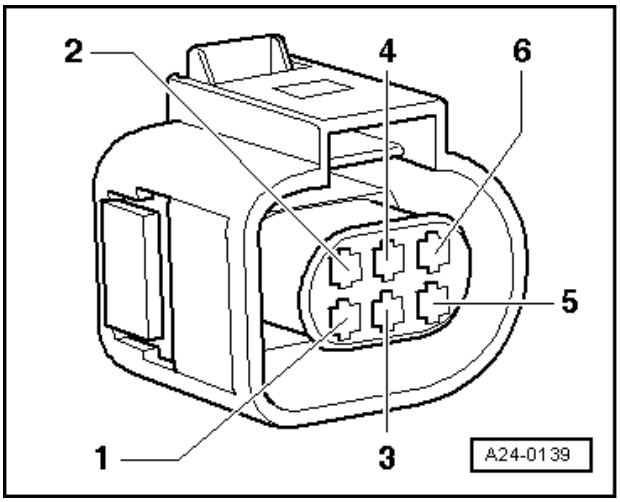
- Unplug the connector from the throttle valve control part.
- Switch the ignition on.

- → Connect hand-held multimeter between the following sockets on the connector to measure voltage:

6-pin connector on wiring harness, socket	Specified value
2 + earth	approx. 5 V
2 + 6	approx. 5 V

If the specified values are not attained, test wiring between the engine control unit to the throttle valve control part =>Page 24-182.

If specifications are not attained, also check the signal and actuation lines of the throttle valve actuator => Page 24-182.

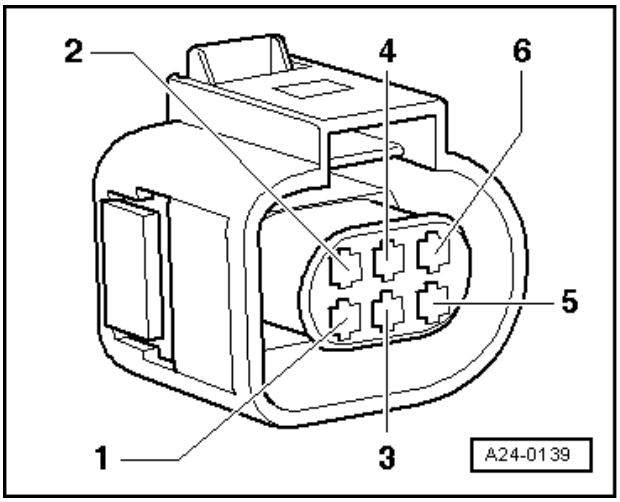


Checking wiring for voltage, signal and actuation

- Connect test box V.A.G 1598/31 to wiring harness for engine control unit; do not connect the engine control unit => Page 24-12.

Check the following wiring connections for open circuit and short circuit to positive or earth.

6-pin connector on wiring harness, socket	Test box V.A.G 1598/31, socket
1	92
2	83
3	117
4	84
5	118
6	91



Wire resistance: max. 1.5 Ohm

- Rectify any open/short circuit as necessary.

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

If no wiring fault is detected:

- Replace throttle valve control part.