**Bosch Tips**

**Systematic Testing of Lambda Sensors**

### How to detect faulty lambda sensors

**Information on testing:**
For detailed test procedures and test specifications refer to ESI[tronic].

**Failure causes:**
- Electrical faults
- Mechanical damage
- Poisoning/contamination
- Thermal overload

**Symptoms:**
- Malfunction indicator lamp (MIL) on
- Driveability problems
- Unstable idling
- Increased fuel consumption
- Increased exhaust emissions

**Possible consequences:**
- Defective catalytic converter
- Engine bearing damage due to rough running

### Test steps

#### Testing the lambda sensor signal

- **Check vehicle wiring harness for:**
  - Damage
  - Corrosion damage
  - Contacting faults on the connectors
  - Open circuit, short to ground, short to positive and contact resistances

- **Signal profile OK?**
  - Yes (lambda sensor signal OK)
  - No (lambda sensor signal OK)

- **Control unit defective?**
  - Yes
  - No

- **Clear fault memory, run test drive, check fault memory**

#### Testing the lambda sensor heater

- **Check power supply to lambda sensor heater.**
  - Power supply OK?
    - Yes
    - No

- **Check heater resistor at ambient temperature.**
  - Test specifications OK?
    - Yes
    - No

- **Warm-up engine. Measure heating current.**
  - Does the heating current fall as the temperature rises?
    - Lambda sensor defective
    - No

- **Check control unit:**
  - Is the reference voltage OK?
    - Yes
    - No

- **Repair/replace wiring harness**
  - Yes
  - No

- **Control unit defective?**
  - Yes
  - No

- **Lambda sensor heater OK.**
  - Other fault memory, run test drive, check fault memory.