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Complaint:

**Irregular idling**

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Cause/Remedy

- 1 Adjust idle speed (07.3-2053).
- 2 Perform fuel quantity comparison measurement (07.3-1609).
- 3 Check whether marking on vibration damper and camshaft are aligned. Test timing with dial gauge if necessary (05-215).

**4 Engine 103.981**

If no fault is found after performing normal test operations, the cause of the engine rubber mounts.

Replace both engine mounts,  
right part no. 123 241 41 13,  
left part no. 123 241 50 13,  
and replace both engine shock absorbers,  
part no. 126 240 02 48.

The first version engine shock absorbers are stamped as before with the identification 123 240 23 48 but are identified also with a white coloured dot. The second version engine shock absorbers have the identification 126 240 02 48.

**Note**

Engines with lambda control:

The idling quality of engines with lambda control tends to be poorer. No remedy is available.

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Complaint:

**Engine does not start easily when warm**

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Cause/Remedy

Too rapid pressure drop results in formation of vapour bubbles in the system.

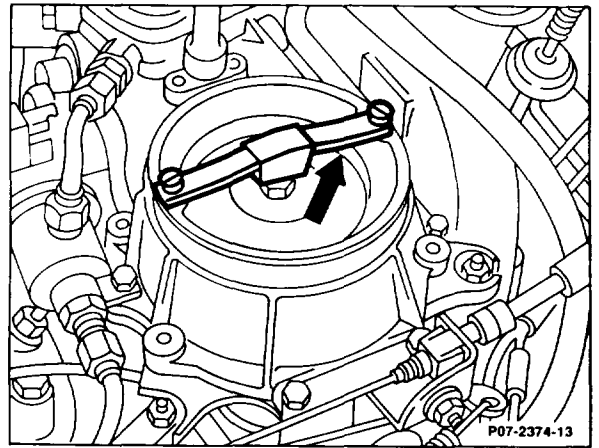
1 Check KE injection system for leaks. To do this, connect pressure measuring device, run engine briefly and switch off. The pressure drops below the closing pressure of the injection valves to about 2.8 bar. After 30 minutes the pressure must be at least 2.5 bar. If the pressure drops to a lower level, check the following points:

2 Check fuel pressures (07.3-1603).

3 Check zero position of air flow sensor plate (07.3-1665). The top edge of the sensor plate must be flush with the top edge of the cylindrical part of the air funnel. The measuring point is located directly below the spring bar (arrow). A higher location up to a maximum of 0.2 mm is permissible.

In this position, a play of 1–2 mm must exist when the air flow sensor plate is pressed as far as the control plunger.

4 Test coolant temperature sensor (07.3-0121).



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Complaint:

**Poor throttle response when engine at operating temperature**

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Cause/Remedy

- 1 Test fuel pressures (07.3-1603).
  - 2 Test acceleration enrichment (07.3-0121).
  - 3 Test part load mixture adaptation, RÜF only (07.3-0121).
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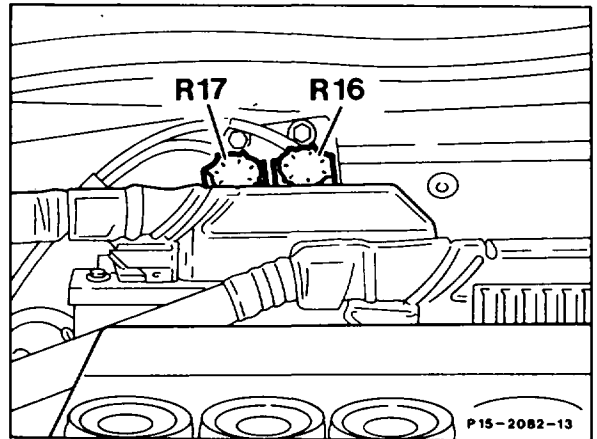
Complaint:

Poor engine output, or poor throttle response at about 120km/h

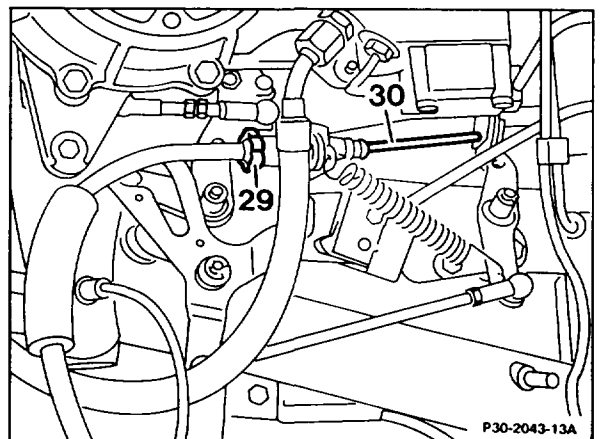
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Cause/Remedy

- 1 Test engine output (07.3-1203).
- 2 Test fuel pressures (07.3-1603).
- 3 Test acceleration enrichment (07.3-0121).
- 4 Test part load mixture adaptation, RÜF only (07.3-0121).
- 5 Check whether resistance trimming plugs are correctly installed:  
R16 = with inscription "EZL"  
R17 = with inscription "KE."



- 6 Check full throttle stop. With engine switched off, depress accelerator pedal from inside car as far as full throttle stop, or if automatic transmission fitted, as far as kickdown switch stop. When this is done, the throttle valve switch must rest against the full throttle stop. Adjust Bowden cable (30), if necessary, with adjusting screw (29).

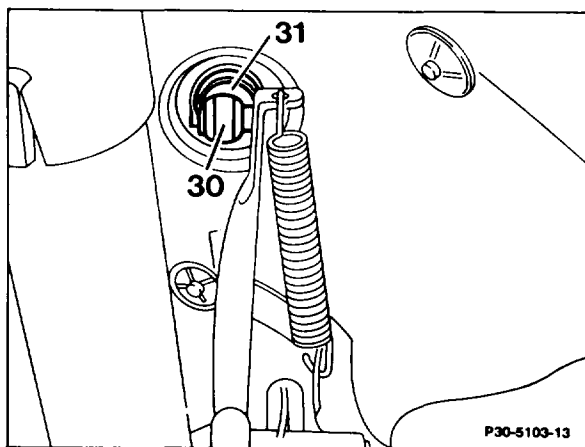


As a check, allow accelerator pedal to move slowly back into idle position. In this position, the roller in the fulcrum lever must be resting free of tension against end stop and the microswitch must be operated. If necessary, adjust Bowden cable (30) from inside car with the knurled nut (31).

**Note**

If acceleration is difficult or jerky, install Bowden cable, part no. 124 300 15 30.

- 7 Test throttle valve switch (07.3-1689).



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Complaint:

**Engine does not start easily when cold or does not run smoothly**

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Cause/Remedy

A starting time of up to 4 seconds is system-related with the KE fuel injection system and should be regarded as normal.

When starting, ensure that **accelerator is not depressed**.

- 1 Test starting device (07.3-2353).
- 2 Test coolant temperature sensor (07.3-0121).
- 3 Test fuel pressures (07.3-1603).

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Complaint:

**Engine cuts out at high outside temperature and does not start again until after 10–15 min.**  
When engine cuts out or when starting a ringing noise (clinking) can be heard from the fuel pump.

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Cause/Remedy

Formation of vapour bubbles.

Fuel suction hose between fuel tank and fuel pump kinked at fuel tank side.

Replace fuel suction hose, part no. 124 470 09 75, and lay free of kinks.

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Complaint:

**Dilution of engine oil**

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Cause/Remedy

- 1 Test fuel pressures and internal leaktightness (07.3–1603).
- 2 Test emissions level with engine cold.  
Specification: 8–10% CO.
- 3 Test engine output and exhaust emissions on roller dynamometer (07.3–1203).
- 4 Check whether the start valve still sprays at normal operating temperature of engine when starting; if yes, test start valve actuation (07.3–1607).

If no clear fault can be found after performing this work, the cause of the engine oil dilution may be the fuel.

If premium grade fuel contains high-boiling additives, e.g. diesel fuel or petroleum, this may cause dilution of the engine oil. At the same time, the mixture becomes very lean and there is a greater tendency for the engine to ping under load.

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Complaint:

**Engine stops and does not start again**

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Cause

Fuel pump relay faulty as current consumption of fuel pump too high.

Remedy

- 1 Test current consumption of fuel pump.

**Test connection**

Remove fuel pump relay and measure with ammeter between contacts 7 and 8, terminals 87 and 30.

Current consumption: 7–10 A

- 2 If the amperage is exceeded, replace fuel pump.
- 3 Replace fuel pump relay.

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Complaint:

## **Fuel pump loud**

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### Cause/Remedy

When dealing with the complaint "fuel pump loud" it is necessary to distinguish between a buzzing sound and a clinking sound.

#### **a) Buzzing sound inside car (transmission of structure-borne noise)**

- 1 Check condition and routing of fuel line.
  
- 2 Check strainer in feed connection of fuel distributor for fouling (high back pressure increases noise level).
  
- 3 Install Knecht fuel filter (if not already fitted).
  
- 4 Replace fuel pump. As of production date FD 642 with shaped track.

#### **b) Clinking noise**

- 1 Replace fuel pump (wear).
  
- 2 If this does not produce a remedy, check drain plug with filter in fuel tank for signs of fouling.



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Complaint:

**Idling speed too high, braking shifts of automatic transmission are performed only intermittently or not at all**

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Cause

- 1 Control pressure cable adjusted too short.
- 2 Accelerator control does not move fully back into idle speed position.

Remedy

- 1 Adjust control pressure cable.
  - 2 Detach control pressure cable at engine end and perform a road test. If the fault then no longer occurs, adjust accelerator control linkage (30-1010).
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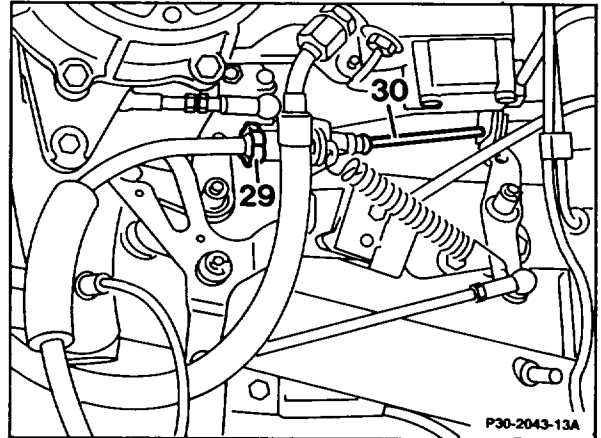
Complaint:

**Vehicle decelerates too late after accelerator released**

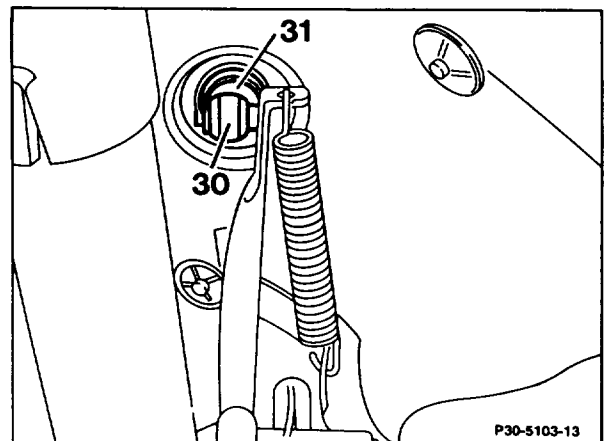
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Cause/Remedy

Retarded decel fuel shutoff as a result of faulty microswitch or sticking Bowden cable. Replace Bowden cable, part no. 124 300 15 30. Adjust Bowden cable. Check full throttle stop. With engine switched off, depress accelerator pedal from inside the car as far as full throttle stop or, if automatic transmission fitted, as far as stop on kickdown switch. When this is done, the throttle valve lever must be resting against the full throttle stop. Adjust Bowden cable (30) if necessary with adjusting screw (29).



As a check, allow accelerator pedal to move back slowly into idle speed position. In this position the roller in the fulcrum lever must be resting free of tension against end stop and the microswitch must be operated. Adjust Bowden cable (39) if necessary from inside car with the knurled nut (31).



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Complaint:

**Idling speed increases suddenly and then returns to normal**  
RÜF/KAT version

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Cause/Remedy

Idle speed air valve sticking; replace.

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Complaint:

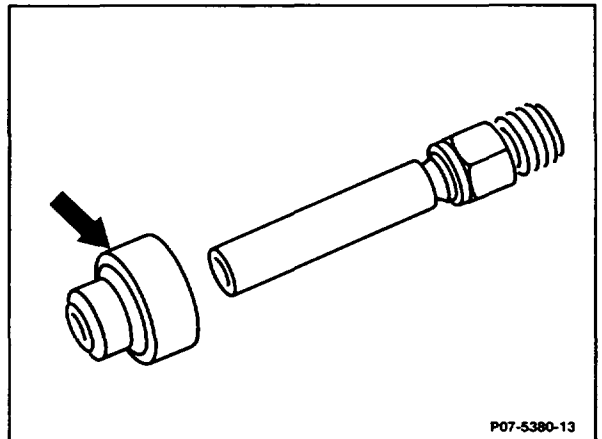
**Idle speed too high**

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Cause/Remedy

Ingress of air through rubber seals (arrow) of  
injection valves.

Spray injection valves with Iso-Oktan; replace  
rubber seals if necessary.



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Complaint:

**Engine mixture too rich, cuts out, poor throttle response, occasional black smoke at the exhaust pipe.**

RÜF/KAT version

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Cause/Remedy

Loose contact in coolant temperature sensor connector. Control unit switches over to emergency running only in the event of open circuit, not in the event of loose contact.

Replace connector.

**Parts**

Designation		Part no.
Connector	straight	011 545 96 28
	angled	013 545 87 28

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Complaint:

**Engine cuts out intermittently and then does not start again**

Model 124

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Cause/Remedy

Fuel pump relay or air conditioner relay faulty because of corrosion. When replacing relay, the component compartment must be sealed (see SI 54/48 dated 27.10.87).

Fuel pump relay as of approx. 06/86 in order.

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Complaint:

**Engine stops suddenly and starts again after a short time**

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Cause/Remedy

As it is very difficult to determine the cause in the case of this complaint, we recommend the following checks:

- Check connections at the ignition coil.
  - Test cable of terminal TD for intermittent connection to ground, e.g. at the diagnostic socket, at tachometer, at the coupling of fuel pump/A/C compressor cut-out relay.
  - Check contacts of the couplings of the fuel pump relay, overvoltage protection with a gauge (e.g. connection cable from electrical connection set 201 589 00 99 00), press back widened contacts.
  - Check couplings of fuel pump/A/C compressor cut-out relay for signs of moisture, corrosion. If necessary, clean coupling and replace relay.
  
  - Check position sensor for open circuit by moving the cable at the sensor or at the plug connection.
  - Check distributor rotor arm and cap. Remove distributor rotor arm for this purpose and check rear for signs of damage.
  - On models 124, 201, install modified component compartment covers (see SI 54/48 dated 27.10.87).
  - On model 126 with ASR, check the contacts of plug connection X89/2.
  - On engine 103 KE control unit, replace after contacting the relevant warranty department. The KE control units have been improved as of production date 061.
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Complaint:

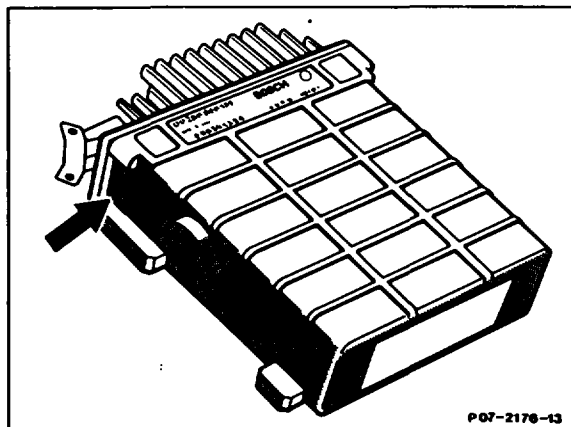
**General engine running complaints**

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**Cause/Remedy**

If engine running complaints occur, faulty input signals to the control unit can be displayed by measuring the on/off ratio (at the diagnostic socket) with the lambda tester (07.3-0121).

As of production date 643 fault recognition is integrated in the KE control unit by measuring the on/off ratio.



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Complaint:

**A. Engine speed characteristics**

**B. Throttle valve body**

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**A. Engine speed characteristics**

The specific engine speed characteristics of the individual engines are described below in order to simplify fault diagnosis.

**Engine speed "after starting"**

Since 09/89 all KAT models (except engines 102.99, 103.94/981/983/985) have a fast idle speed (1000 – 1200 rpm) for up to 1 minute after starting. This "heating speed" is designed to enable the catalytic converter to reach its operating temperature more rapidly.

**Engine speed "when car coasting"**

Engines 102, 103, 104 with KE control unit into which is fed the road speed signal, have an idle speed which is 50 – 200 rpm higher when the car is coasting.

The idle speed of engines 116, 117 and 119 is not increased when the car is coasting.

**Engine speed "in deceleration mode"**

On engines 102, 103 the deceleration fuel cutoff is activated about 1 second after the accelerator pedal is released, and is felt as a slight deceleration jerk.

On engines 104, 116, 117 and 119 the deceleration fuel cutoff is activated immediately after the accelerator pedal is released.

**Note**

Engine speed rises briefly by 100 – 300 rpm when combustion is restored in the deceleration mode only on vehicles with automatic transmission. The vehicle speed does not increase, however, when this occurs.

**B. Throttle valve body**

Throttle valve bodies which have to be replaced after a clear diagnosis, should be replaced in future only in conjunction with the throttle valve switch.

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Complaint:

### **Engine running complaints**

- A. Engine cuts out when idling**
  - B. Engine cuts out after deceleration**
  - C. Engine cuts out when driving at a constant speed**
  - D. Engine cuts out when accelerating**
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Engine running complaints, in particular if the engine cuts out sporadically, may be caused by various factors. More or less comprehensive measures were conducted in the past as a remedy, which were not always successful. The following checks are designed to enable faults in the particular operating states to be specifically detected and rectified. The operating state in which the engine cuts out is of particular importance for determining the remedial measure.

The test steps should be performed in the order stated.

#### **A. Engine cuts out when idling**

##### Cause/Remedy

- 1 Ground cable at the intake manifold and/or spring dome loose or corroded. Unbolt cable, clean and bolt on.
- 2 Contacts at the coupling of the air mass sensor widened. Press contacts together, or replace contacts part no. 003 545 26 26.
- 3 Contacts of the terminals 15, 30, 31 or 87 at the overvoltage protection widened. Press contacts together.
- 4 Measure resistance at air meter sensor between pins 1 and 2. When the air flow sensor control plate is closed  $R = 1$  to  $2\text{ k}\Omega$ ; the resistance must rise continuously when the plate is deflected. No jumps  $R > 2\text{ k}\Omega$  must occur, otherwise replace air flow sensor.
- 5 If the engine cuts out or misfires when the fuel pump relay is knocked lightly, replace relay.
- 6 If the engine cuts out or misfires when the overvoltage protection is knocked lightly, replace overvoltage protection.
- 7 If the engine cuts out or misfires or if idling speed increases when the KE control unit is knocked lightly, replace KE control unit.
- 8 Check whether 4 mm contact of the cable to the crankshaft position sensor has widened, press together if necessary.
- 9 Idle speed air valve modified as of production date 951; up to production date = 950, test internal resistance.  
 $R = 7.5 - 10\ \Omega$  and measure current at idle speed.  
 $I = 600 \pm 50\text{ mA}$ .



## B. Engine cuts out when decelerating

### Cause/Remedy

- 1 Ground cable at the intake manifold and/or spring dome loose or corroded. Unbolt cable, clean and bolt on.
- 2 No road speed signal at KE engines 102, 103 pin 6, on engine 104 pin 29. For remedy see Diagnosis Manual or Repair Instructions.
- 3 Model 124: plug connection X36 loose or contact widened. Press together contacts.
- 4 Occasional open circuit at 1-pin connector of coolant temperature sensor (cold solder point). Engines 102, 103 up to 9/89; engines 116, 117 up to 9/87; replace connector.
- 5 If battery voltage exists at pin 16 of KE control unit when starting (only model 124 with manual transmission), separate pink cable of plug connection X26 and lay to ground.
- 6 Idle speed control or decel fuel cutoff microswitch occasionally not closed in idle speed position. Set accelerator control.
- 7 Contacts at 4-pin connector of coolant temperature sensor widened. Press together contacts or replace connector.
- 8 Contacts of the terminals 15, 30, 31 or 87 at the overvoltage protection widened. Press contacts together.
- 9 Measure resistance at air meter sensor between pins 1 and 2. When the air flow sensor control plate is closed  $R = 1$  to  $2\text{ k}\Omega$ ; the resistance must rise continuously when the plate is deflected. No jumps  $R > 2\text{ k}\Omega$  must occur, otherwise replace air flow sensor.
- 10 If the engine cuts out or misfires when the fuel pump relay is knocked lightly, replace relay.
- 11 If the engine cuts out or misfires when the overvoltage protection is knocked lightly, replace overvoltage protection.
- 12 If the engine cuts out or misfires or if idling speed increases when the KE control unit is knocked lightly, replace KE control unit.
- 13 Move cable of crankshaft position sensor to EZL ignition control unit. If engine cuts out when this is done, replace position sensor.
- 14 Check electrohydraulic actuator, replace if necessary.
- 15 Check starter lockout and reversing light switch. Internal resistance when selector lever in position "D"  $R > 20\text{ k}\Omega$ .

### **C. Engine cuts out when driving at a constant speed**

#### Cause/Remedy

- 1 Contacts of terminals 15, 30, 31, 87 or TN/TD at fuel pump relay widened or soldered connection in contact cracked. Press together contacts or replace.
- 2 Ground cable at fuel pump loose. Fix ground cable.
- 3 Model 124: plug connection X36 loose or contacts widened. Press together contacts.
- 4 Occasional open circuit at 1-pin connector of coolant temperature sensor (cold solder point). Engine 102,103 up to 9/89; replace connector.
- 5 Contacts at 4-pin connector of coolant temperature sensor widened. Press together contacts or replace connector.
- 6 Wiring of terminals 1 and 15 at ignition coil loose; tighten wiring.
- 7 If the engine cuts out or misfires when the fuel pump relay is knocked lightly, replace relay.
- 8 If the engine cuts out or misfires or if idling speed increases when the KE control unit is knocked lightly, replace KE control unit.
- 9 Move cable of crankshaft position sensor to EZL ignition control unit. If engine cuts out when this is done, replace position sensor.
- 10 Check whether 4 mm contact of cable to crankshaft position sensor has widened; press together if necessary.
- 11 Check fuel pump relay, replace if necessary.
- 12 Check EZL ignition control unit, replace if necessary.
- 13 Check KE control unit (Bosch only) up to production date 952, replace if necessary.

### **D. Engine cuts out when accelerating**

#### Cause/Remedy

- 1 Contacts of terminals 15, 30, 31, 87 or TN/TD at fuel pump relay widened or soldered connection in contact cracked. Press together contacts or replace.
- 2 Ground cable at fuel pump loose. Fix ground cable.
- 3 Model 124: plug connection X36 loose or contacts widened. Press together contacts.
- 4 Contacts of terminals 15, 30, 31 or 87 at overvoltage protection widened. Press together contacts.
- 5 Wiring of terminals 1 and 15 at ignition coil loose; tighten wiring.
- 6 If the engine cuts out or misfires when the fuel pump relay is knocked lightly, replace relay.
- 7 If the engine cuts out or misfires or if idling speed increases when the KE control unit is knocked lightly, replace KE control unit.
- 8 Move cable of crankshaft position sensor to EZL ignition control unit. If engine cuts out when this is done, replace position sensor.
- 9 Check whether 4 mm contact of cable to crankshaft position sensor has widened; press together if necessary.
- 10 Check fuel pump relay, replace if necessary.
- 11 Check EZL ignition control unit, replace if necessary.
- 12 Check KE control unit (Bosch only) up to production date 952, replace if necessary.

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Complaint:

**Engine vibrates when idling**

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If no differences are found when conducting a check of idle speed, no further test operations are needed. On engine 103 with automatic transmission (not for national versions), the recognition of the selector lever position can be suppressed. Use ohmmeter to test cable from contact 16 at KE control unit to coupling X26 (12-pin connection of engine wiring harness) for continuity. Untie cable at the coupling X26 and connect to ground. This increases idling speed by about 50 rpm when a Drive position is engaged. Further measures (replacing fuel distributor, injection valves) do not provide any remedy and should therefore not be conducted. Slight occasional vibrating of the engine is state of the art. In exceptional cases, contact can be made with VP/PSG1.

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Complaint:

**Engine revs up briefly after using cruise control**

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**Remedy**

Install modified KE control unit.

**Note**

To check deceleration fuel cutoff on these control units, separate the plug connection of the throttle valve switch and bridge the idle speed contact.

**KE control unit**

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Engine	Part no.
103.940 KAT/RÜF	005 545 71 32 <sup>1)</sup>
103.941 KAT/RÜF	
103.981 KAT/RÜF	005 545 57 32 <sup>1)</sup>
103.982 KAT/RÜF	
103.983 KAT/RÜF	

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<sup>1)</sup> Not valid for vehicles which are fitted as standard with the control units 003 545 44 32, 004 545 41 32.

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Complaint:

**A. Engine does not start easily (long starting time)**

**B. Engine does not fire on all cylinders (rough)**

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**A. Engine does not start easily (long starting time)**

Cause

1. If the normal test operations do not reveal any fault, Measure the current at the electrohydraulic actuator during starting (mA). If a negative current is measured here when starting the engine (about -40 to -60 mA), the KE control unit recognizes decel fuel cutoff.

**Siemens ignition control units**

Engine	Part no.
103.94	008 545 63 32
103.98	008 545 64 32 <sup>1)</sup>

<sup>1)</sup> not for engine 103.984.

Remedy

Install Siemens ignition control unit.

2. Engine 103 KAT/RÜF (see also Programed Repairs Group 15: "Poor cold starting properties").

Remedy

Install start valve part no. 102 070 01 46, Bosch spark plugs H 8 DC part no. 003 159 05 03 or Beru 14 K-8 DU/DUO, part no. 003 159 36 03 and fuel pump relay with start valve actuation up to +60 °C.

3. A starting time of up to 4 seconds is system-related with the KE injection system and should be regarded as normal. When starting, ensure that the throttle is not depressed.

4. See Group 05 (hydraulic valve clearance compensating elements not operating easily or jamming).

## **B. Engine does not fire on all cylinders (rough)**

### **Cause**

1. Injection valves leaking.
2. Zero position of air flow sensor plate not in order, fuel distributor.

### **Remedy**

1. Check injection valves, replace if necessary.
2. Check zero position of air flow sensor plate (07.3-1665).

Unbolt all the injection pipes at the injection valves and at the fuel distributor. Remove fuel pump relay and bridge the two terminals 30 and 87. When the air flow sensor plate is in the zero position, no fuel must flow out at the pressure outlets; check or replace fuel distributor if necessary.

When the air flow sensor plate is deflected, fuel must flow out at the same time at all the pressure outlets of the fuel distributor; replace fuel distributor if necessary.

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Complaint:

**On/Off ratio cannot be set. Sudden increase in fuel consumption (about 2 – 3 liters)**

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Note

Exhaust system must not have any leaks

Cause

- 1 Sporadic or continuous failure of oxygen sensor when driving.
- 2 Screened cable of plug connection of oxygen sensor signal (G3/2x2) to the KE control unit, contact 8 has short to ground.
- 3 Loose contact or sporadic open circuit at connector sleeve Z (soldered connector in harness of KE control unit coupling).

Remedy

- 1 Test lambda control when engine idling (07.3–1100) and on the dynamometer in the upper part load range or when driving (readout must fluctuate). If the readout of the lambda control tester moves slowly to the stop on the right in the close-loop mode, replace oxygen sensor.
- 2 Separate plug connection of oxygen sensor signal (G3/2x2), and also disconnect KE control unit coupling and measure resistance of contact 7 to contact 8.  
Specification:  $\infty \Omega$  ( $> 10 \text{ k}\Omega$ ). If continuity exists ( $< 1 \Omega$ ) replace engine wiring harness.
- 3 Open KE control unit coupling (N3) (except model 126) and re-solder connector sleeve Z (soldered connector in harness) to contact 7 (cold solder point).

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Complaint:

**Fuel accumulator with incorrectly stamped part number**

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Note

On vehicles with engine 103, fuel accumulators with an incorrectly stamped part no. 000 476 10 21 have been installed. The fuel accumulators are in order and need not be replaced.  
Correct part no. 000 476 05 21 or 000 476 06 21.

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Complaint:

**Engine cuts out when driving, does not start again**

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Cause

Cable of oxygen sensor occasionally makes contact with propeller shaft causing short to ground.  
Conductor path in fuel pump relay burnt through.

Remedy

Replace oxygen sensor.  
Ensure cables correctly rooted.  
Replace fuel pump relay.

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Complaint:

**Engine surges when idling (at normal operating temperature)**

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Cause

Air flow sensor has occasional open circuit.

Remedy

Test air flow sensor (07.3-0121).  
Improved version installed as from production date 061.

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Complaint:

**Engine does not start**

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Cause

Shaped hose of idle speed air valve to air guide housing jumped off at air guide housing as a result of slapping in the intake manifold.

Remedy

Install Siemens ignition control unit. Test air flow sensor (07.3-0121).  
Set correct on/off ratio (is too lean). Check zero position of air flow sensor plate, center sensor plate (07.3-1665). Rubber components between air flow sensor and idle speed air valve which convey air must not be swollen; replace if necessary. Check to ensure shaped hose and plastic connection fitting at the air guide housing are tight; replace if necessary.

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Complaint:

## Engine cuts out when decelerating

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### 1. Cause/Remedy

Test electrohydraulic actuator, replace if necessary.

### 2. Cause

No road speed signal from speedometer to KE control unit (engine 103 as of 07/87, engine 103.942 as of start of production).

### Remedy

1. Connect multimeter to KE control unit coupling, connector 6 and to ground.

#### **Models 124, 201**

Switch on ignition, roll vehicle forward and back, specification 0 – 12 V without electrical components, 0 – 9 V with components such as cruise control, temperature gauge.

Check whether Hall sender is installed on rear of speedometer. Check routing of wiring from Hall sender to coupling X26, connector 11. Check plug connection X53/5 (loose contact), see also Group 54.

Model 124: Check routing of wiring from Hall sender to fuse 5, e.g. cable shoe not connected to fuse 5.

Model 201: Check routing of cable from Hall sender to terminal block X5/1, e.g. cable shoe not connected to X5/1.

#### **Models 107, 126**

Run vehicle on dynamometer or road. Specification at 40 km/h > 1 V.

Check routing of wiring from output of electronic speedometer to coupling X26, connector 6.



KE control unit must be connected.

2. Only models 124, 126 with manual transmission up to end 04/90:

Untie cable from pin 16 of KE control unit connector to plug connection X26 pin 10 at X26 plug connection and lay to ground.

#### Note

On vehicles as of 05/90 (except model 126) the cable from the KE control unit to the plug connection X26 is no longer fitted.



Use ohmmeter to ensure that the cable to the KE control unit pin 16 (engine 102, 103) or pin 28 (M104) and not the cable to the ignition starter switch (S2/1) is laid to ground otherwise a short circuit may occur.



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Complaint:

**Diagnosis with fault storage (pulse readout on engine systems control unit MAS)**

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Note

Engine systems control unit (MAS), pulse readout 2 and 3: the pulse readouts stated are stored faults although no faults exist in the systems. They can therefore be ignored.