07.3 Mechanical/electronic gasoline injection system (KE injection)

Complaint:

Rough idling

Cause/Remedy

1 Adjust idle speed (07.3-100, *07-2053).

2 Perform fuel quantity comparison measurement (07.3-160, *07-1609).

3 Check whether the marking on the vibration damper and camshaft are aligned. Check timing with dial gauge if necessary (05-215, *05-251).

Complaint:

Engine backfires in warming-up phase; no throttle response when cold

Cause/Remedy

1 With TSZ ignition, check ignition advance in warming-up phase (15-543).

2 Check fuel pressures (07.3-120, *07-1603).

3 Check both post-start enrichment (07.3-124, *07-1630).

4 Check overvoltage protection (07.3-121,*07-1627).

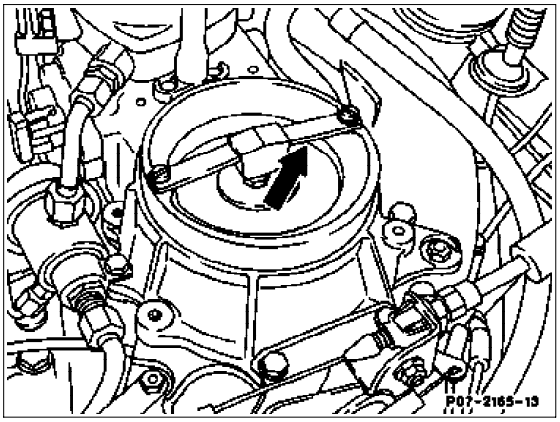
5 Engine 102.961/962 without electronic idle speed control: check auxiliary air valve (07.3-124, *07-2353).

6 The acceleration enrichment of the KE injection system compensates for coked inlet valves; for this reason, do not decoke inlet valves.
If driving faults nevertheless occur, see under "Poor throttle response when accelerating or bucking with lean mixture from approx. 60 °C coolant temperature".

Complaint:

Engine difficult to start when warm

Cause/Remedy
Excessively rapid pressure drop results in formation of vapour bubbles in system.



1 Check KE injection system for leaks by connecting pressure measuring device. Run engine briefly and switch off. The pressure then drops below the closing pressure of the injection valves to approx. 2.8 bar gauge pressure. 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 (07.3-120, *07-1603).

3 Check zero position of air flow sensor plate (07.3-245, *07-1612). The top edge of the air flow sensor plate must be aligned with the top edge of the cylindrical part of the air funnel. The measuring point is located directly below the spring clamp (arrow).

A higher position up to max. 0.2 mm is permissible.

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

4 Check coolant temperature sensor (07.3-121, *07-1613).

Complaint:

Poor throttle response when engine at normal operating temperature

Cause/Remedy
1 Check fuel pressures (07.3-120, *07-1603).

2 Check full load enrichment (07.3-121, *07-1621).

Complaint:

Poor performance

Cause/Remedy

1 Test engine output (07.3-115, *07-1203). There may be a restriction of the cross-section at one of the two front, double-walled exhaust pipes as a result of thermal expansion between inner and outer pipe wall.

As a check, remove front exhaust pipes and inspect with lamp from the 4-hole flange. Replace front exhaust system.

2 Test fuel pressures (07.3-120, *07-1603).

3 Test full load enrichment (07.3-121, *07-1621).

Complaint:

Engine cuts out when idling when air conditioning compressor is switched on (engine 102.961/962 without electronid idle speed control)

Cause/Remedy

Test idle speed stabilization on engines with AC compressor (07.3-145 Section "A", *07-2019).

Complaint:

Engine cuts out when drive position engaged (engine 102.961/962 without electronid idle speed control)

Cause/Remedy

Test idle speed stabilization on vehicles with automatic transmission (07.3-145 Section "B", *07-2019).

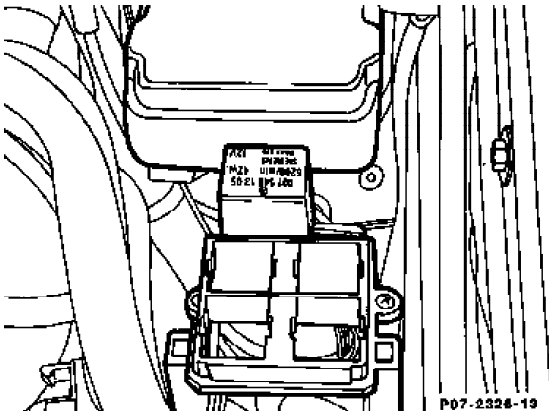
Complaint:

Fuel pump does not run or engine speed limiter not operating

Cause/Remedy

Test fuel pump relay (07.3-165, *07-5792).

Location on engine 102.961



Complaint:

Engine difficult to start when cold or does not run smoothly

Cause/Remedy

1 Adjust starting device (07.3-124, *07-2353).

2 Test acceleration enrichment temperature sensor (07.3-121, *07-1630).

3 Test fuel pressures (07.3-120, *07-1603).

Complaint:

Engine cuts out at high outside temperatures and does not start again until after 10 - 15 minutes

Model 201 up to 08/83

When engine cuts out or when starting, a ringing noise can be heard from the fuel pump

Cause

Formation of vapour bubbles

Remedy

1 Remove fuel suction hose between fuel tank and fuel pump.

2 Lay modified fuel hose with expanded foam rubber below the rear axle and rising continuously. The expanded foam rubber hose must be fitted below the rear axle carrier (07.3-280).

3 Check whether a fuel pump as of Bosch production date 346 (06/83) is installed.

Complaint:

Engine oil diluted

Cause/Remedy

1 Check fuel pressures and internal leaktightness (07.3-120).

2 Test emissions level when engine cold.
Specification: 8 - 10 % CO.

3 Test engine output and exhaust emissions on roller dynamometer (07.3-115).

4 Check whether the starting valve still injects when engine started at normal operating temperature. If yes, test starting valve actuation (07.3-126).

If, after performing these operations, no detectable cause can be found, the dilution of the engine oil may be caused by the fuel.

If high-boiling elements, e.g. diesel fuel or petroleum, have been added to premium grade fuel, this may cause dilution of the engine oil. At the same time this results in an extremely lean mixture and increases the tendency of the engine to ping, particularly under load.

Complaint:

Engine stops and does not start again

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

Remedy
1 Test current consumption of fuel pump.

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

Current consumption: 6 - 10 A

2 If the amperage is exceeded, replace fuel pump.

3 Replace fuel pump relay.

Complaint:

Over-rich mixture, engine cuts out, no throttle response

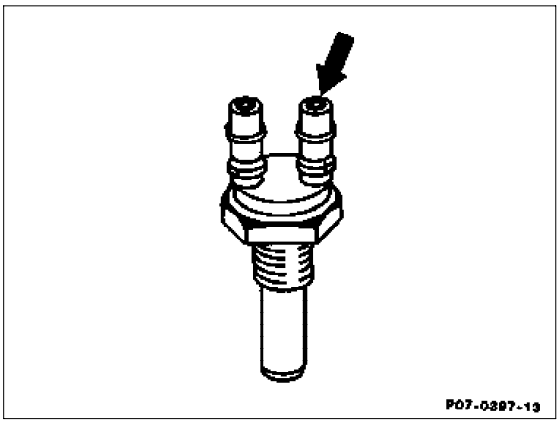
A. Engine 102.983 Std.

B. Engine 102.962/982/983 RÜF/KAT

A. Engine 102.983

Cause
Push-in sleeves of coolant temperature sensor fracture.

Remedy
Install coolant temperature sensor with stabilized sleeves (arrows). Standard since 11/84. Part no. unchanged.



B. Engine 102.962/982/983 RÜF/KAT

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

Remedy
Replace connector.

Parts

Designation	Part no.
Straight connector	011 545 96 28
Right-angled connector	013 545 87 28

Complaint:

Fuel pump loud

Cause/Remedy
When dealing with the complaint "fuel pump loud", a distinction must be made between whether the sound which is heard is a buzzing or clanging noise.

a) Buzzing sound in interior of car (transmission of structure-borne sound).
1 Check condition and routing of fuel pump.
2 Check strainer in feed fitting 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 642 with shaped barrel (see 07.3-280).

b) Clanging noise.
1 Model 201 up to 08/83: check routing of fuel suction hose; must be laid under the rear axle (07.3-280 "Note").

2 Replace fuel pump (wear).

3 If this does not rectify the situation, check drain plug with filter in fuel tank for fouling.

Complaint:

Poor throttle response when accelerating or bucking with lean mixture from approx. +60 °C coolant temperature

Cause
Exhaust levels in part load too low.

Remedy
Test exhaust levels on the roller dynamometer (07.3-115). If the exhaust levels are too low, perform the following remedial meaure:

1 Unscrew electrohydraulic actuator of fuel distributor; reduce fuel pressure in the system beforehand.
2 remove screw plug (brass) and turn adjusting screw about 1/8 turn to the right.
3 Set emissions level for bottom part load to > 0.2 % CO.
4 Check emissions level on roller dynamometer.

If the emissions levels are not reached, repeat procedure.

Complaint:

Engine cuts out occasionally

Model 201.024

Cause
Fuel pump relay occasionally has no ground (may first occur when driving light is switched on or/and horn or headlamp cleaning system operated).

Remedy
Tighten ground connection M9, at front left next to headlamp unit.

Complaint:

Idle speed too high, braking shifts of automatic transmission are performed only occasionally or not at all

Cause
1 Control pressure cable set too short.
2 Throttle control does not return fully to idle setting.

Remedy
1 Adjust control pressure cable.
2 Detach control pressure cable at engine end and perform road test. If the fault no longer occurs, adjust throttle control linkage (30-300).

Complaint:

Vehicle decelerates too late after accelerator eased off (between 3,000 - 2,000 rpm)
Engine 102 KAT/RÜF up to 08/88

Cause
1. Microswitch faulty.
2. Throttle control not correctly adjusted.

Remedy
1. Test microswitch (decel fuel cutoff).
2. Check and adjust throttle control (30-300).
3. Install modified KE control unit.

Control unit

Engine	Part no.
102.962 KAT/RÜF	007 545 03 32
102.982/985 KAT/RÜF	006 545 71 32

Complaint:

Poor idling on engines with lambda control

Cause/Remedy
The idling quality of engines with lambda control tends to be poorer.

No remedy is available.

Complaint:

Engine running faults (poor performance, fuel pump clanging noises, disappears at high outside temperatures)

Model 124.023

Cause

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

Remedy

Replace fuel suction hose and lay free of kinks.

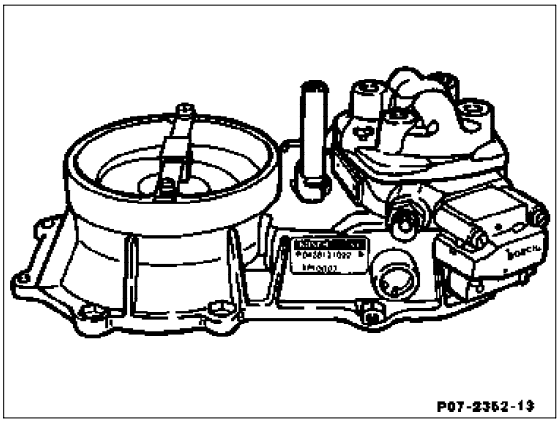
Complaint:

Engine has poor throttle response or idle speed too high

Engine 102.983 RÜF/KAT

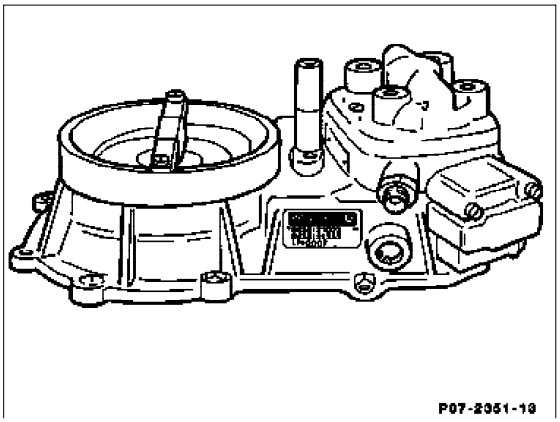
Cause/Remedy

When dealing with the complaint "Engine has poor throttle response or idle speed too high", check whether the type plate on the mixture control unit has a 2-line or 3-line inscription.



Type plate, 2-line

If this fault exists and the mixture control unit has a 3-line type plate, replace air flow sensor and fuel distributor.



Type plate, 3-line

Complaint:

Idle speed increases suddenly and then settles back to normal idle speed

Engine 102 RÜF/KAT

Cause/Remedy
Idle speed adjuster jamming; replace.

Complaint:

Vehicle jerks during deceleration

Engine 102.983

Cause/Remedy
Install modified KE control unit as of production date 547.

Complaint:

Engine surges when idling after blipping throttle

Engine 102.962/982 up to 08/88

Remedy
Install modified KE control unit.

KE control unit

Engine	Part no.
102.962 KAT/RÜF	007 545 03 32
102.982 KAT/RÜF	006 545 71 32

Complaint:

Idle speed too high

A. Engine 102.962/982

B. Engine 102

A. Engine 102.962/982

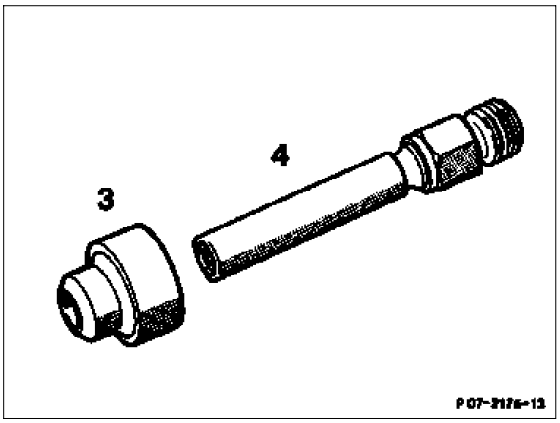
Cause
Return spring in idle speed adjuster broken.

Remedy
Detach cable at idle speed adjuster. If this does not result in change in engine speed, replace idle speed adjuster. Modified as of production date 548.

B. Engine 102

Cause
Unmetered air entering through rubber seals (3) of injection valves.

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



Complaint:

Engine revs up briefly after cruise control mode

Engine 102.982 RÜF/KAT up to 08/88

Remedy
Install KE control unit, part no. 006 545 71 32.

Note
In order to test decel fuel shutoff on these control units, separate the plug connection of the throttle valve switch and bridge the idle speed contact.

Complaint:

High fuel consumption

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a) Engine 102.962 NV (low-compression) RÜF version

Cause/Remedy
On these vehicles the exhaust emissions level in the part load range may be 2 - 3 % CO. To reduce fuel consumption, we recommend converting the vehicles to catalytic converter technology. This results in a reduction in consumption of about 2 liters/100 km.

b) Engine 102.982 RÜF/KAT

Cause
Driving constantly in warming-up phase (in town) may cause the KE control unit to activate the acceleration enrichment through the air flow sensor potentiometer. Fuel consumption is about 2 liters too high.

Remedy
Install KE control unit, part no. 005 545 55 32.

c) Testing

1 Test engine output and exhaust emissions on roller dynamometer (07.3-115, *07-1203).

2 Test fuel pressures (07.3-120, *07-1603).

3 Test coolant temperature sensor (07.3-121, *07-1613).

4 Test full load enrichment (07.3-121, *07-1621).

Complaint:

Over-rich mixture, engine cuts out, no throttle response, occasional black smoke at exhaust smoke

Cause
Loose contact in connector of coolant temperature sensor. Control unit moves into emergency running mode only in the case of open circuit, not in the case of loose contact.

Remedy
Replace connector.

Parts

Designation	Part no.
Straight connector	011 545 96 28
Right-angled connector	013 545 87 28

Complaint:

Engine cuts out when breaking between 60 and 40 km/h when using cruise control
Engine 102.962 KAT/RÜF up to 08/88

Remedy
Install control unit 007 545 03 32.

Complaint:

A. Engine difficult to start (long starting time)
B. Engine does not fire on all cylinders (rough)

A. Engine difficult to start (long starting time)

Cause
1. If the normal test operations do not reveal any fault, measure the current (mA) at the electrohydraulic actuator during starting. If a negative current (approx. - 40 to 60 mA) is measured here when starting, the KE control unit detects deceleration fuel cutoff.

Remedy
Install Siemens ignition control unit.

Siemens ignition control units

Engine	Part no.
102.962/963	007 545 46 32 1)
102.982/985	007 545 48 32 1)

1) up to 07/89.

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

3. See Group 05 (hydraulic valve clearance compensating elements sticking or jamming).

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

Cause
1. Injection valves leaking.
2. Zero position of airflow sensor plate not in order; fuel distributor.

Remedy
1. Test injection valves, replace if necessary.
2. Check zero position of airflow sensor plate (07.3-245).
Unscrew all the injection lines at the injection valves and at the fuel distributor. Detach fuel pump relay and bridge the two terminals 30 and 87. When the airflow sensor plate is in the zero position, no fuel must flow out at the pressure outlet; test fuel distributor and replace, if necessary.
When the airflow sensor plate is deflected, fuel must flow out simultaneously at all the pressure outlets of the fuel distributor; replace fuel distributor if necessary.

Complaint:

Engine cuts out certainly and starts again after a short time.

Cause/Remedy
As it is difficult to determine the cause of this fault, the following tests should be performed:
1 Test the terminals at the ignition coil.
2 Test cable of terminal TD for intermittent short-to-ground, e.g. at the diagnostic socket, at the tachometer, at the coupling of the fuel pump relay/AC compressor relay.
3 Check the contacts of the couplings of fuel pump relay/AC compressor relay, overvoltage protection with a gauge (e.g. single connector); press in any widened contacts. Check the couplings of the fuel pump relay/AC compressor relay for moisture or corrosion. Clean coupling, if necessary, and replace relay.
4 Check crankshaft position sensor for open circuit by moving the cable at the sensor or at the plug connection; replace if necessary.
5 On models 124, 201 install modified covers of component compartment (see SI 54/48 dated 27.10.87).

Complaint:

On/off ratio cannot be adjusted. Sudden increase in fuel consumption (about 2 - 3 ltr.)

Note
Exhaust system must not have any leaks.

Cause
1 Intermittent or constant 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 intermittent open contact at connector sleeve Z (solder connector in harness of KE control unit coupling).

Remedy
1 Test lambda control at idle speed (07.3-100) and on the dynamometer in upper part load range or when driving (needle must swing). If needle on lambda control tester moves slowly to the stop on the right in the closed-loop mode, the oxygen sensor should be replaced.
2 Separate plug connection of oxygen sensor signal (G3/2x2) and also unplug KE control unit coupling and measure resistance of contact 7 to contact 8.
Specification: 1 W (> 10 kW). If continuity exists (< 1 W) replace engine wiring harness.
3 Open KE control unit coupling (N3) and re-solder connector sleeve Z (solder connector in harness) to contact 7 (cold soldering point).

Complaint:

Fuel accumulator with incorrectly stamped part no.

Note
On vehicles with engine 102 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.

Complaint:

Engine cuts out when driving, does not start again
Engine 102 KAT

Cause
Cable of oxygen sensor occasionally makes contact with driveshaft resulting in a short-to-ground. Conductor path in fuel pump relay burnt through.

Remedy
Replace oxygen sensor. Ensure cable is correctly rooted.
Replace fuel pump relay.

Complaint:

Poor idling

Cause
Idle speed air distributor leaking at sealing surface.

Remedy
Remove idle speed air distributor, coat sealing surface with sealant (Hylomar). Install idle speed air distributor.

Complaint:

Engine surges when idling (at normal operating temperature)

Cause
Airflow sensor potentiometer has intermittent open circuit.

Remedy
Test airflow sensor potentiometer (07.3-121).
Improved version as of production date 061.

Complaint:

Engine does not start

Cause
Shaped hose from idle speed adjuster to air guide housing has jumped off at air guide housing as a result of backfiring in intake manifold.

Remedy
Install Siemens ignition control unit. Test airflow sensor potentiometer (07.3-121).
Adjust correct on/off ratio (is too lean). Check zero position of airflow sensor plate, center airflow sensor plate (07.3-245). Rubber parts conveying air between airflow sensor and idle speed adjuster must not be swollen; replace if necessary. Check that shaped hose and plastic fitting at air guide housing are tight; replace if necessary.

Complaint:

Engine speed remains briefly at 2,000 rpm when decelerating, engine 102.983 RÜF/KAT

Cause/Remedy
Install airflow sensor, part no. 102 074 09 14 as of production date 952.

Complaint:

Engine cuts out when maneuvering or when decelerating or idle speed occasionally between 900 and 600 rpm
Engine 102.99

⚠
Engine must not be started with the accelerator pedal depressed slightly (opened microswitch of deceleration fuel cutoff).
It is important to ensure that no footmat is pressing on the accelerator pedal which may prevent the accelerator returning fully to idle speed position.

1st cause
Microswitch (S27/2) of decel fuel cutoff does not always close.
2nd cause
Throttle valve switch not switching through; has contact resistance.
3rd cause
KE control unit.

1st remedy
a) Adjust throttle control linkage
- D On vehicles with automatic transmission, see 30-300, Section a.
- D On vehicles with manual transmission up to vehicle ident end no. A473114, F576182, see 30-300, Section a.
- D On vehicles with manual transmission as of vehicle ident end no. A473115, F576183, see 30-300, Section b.

b) Install return spring with increased spring force at fulcrum lever, part no. 102 993 22 10.

2nd remedy
Test throttle valve switch (07.3-152). If measurement differs from specification, replace throttle valve assembly complete.

3rd remedy
Install modified KE control unit, part no. 006 545 02 32 as of production date 072.

Complaint:

Engine cuts out when decelerating

1st cause/remedy
Test electrohydraulic actuator; replace if necessary.

2nd cause
No road speed signal from speedometer to KE control unit (as of 09/88).

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

Switch on ignition. Roll vehicle forward and back. Specification 0 - 12 V without ancillaries, 0 - 9 V with ancillaries such as Tempomat cruise control, temperature display.
Check whether Hall sensor is installed on rear of speedometer. Check cable routing from Hall sensor to coupling X26, connector 11. Test plug connection X53/5 (loose contact), see also Group 54.
Model 124: Check cable routing from Hall sensor to fuse 5, e.g. cable shoe not connected at fuse 5.
Model 201: Check cable routing from Hall sensor to terminal block X5/1, e.g. cable shoe not connected at X5/1.

2. Only model 124 with manual transmission up to end 04/90
Untie cable from pin 16, KE control unit connector to plug connection X26 pin 7 at plug connection X26 and lay to ground. Cable must be nipped off at pin 7.
Note
On vehicles as of 05/90 the cable from KE control unit to plug connection X26 is discontinued.

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

Complaint:

1. Engine does not run

2. On/off ratio cannot be adjusted

Engine 102.96/98 KAT as of 08/89

Cause
Re 1. Oxygen sensor cable has short circuit to ground or conductor path from fuel pump relay is burnt through.
Re 2. Short circuit to sensor signal cable because bracket for oxygen sensor cable is over-tightened.

Remedy
Re 1. Replace oxygen sensor and fuel pump relay.
Re 2. Replace oxygen sensor.
Standard production in order: as of 11/89.
Only tested oxygen sensor are available in the parts sector; the part no. 009 542 87 17 has not changed.

Complaint:

Engine speed remains between 1,200 rpm and 2,000 rpm after easing off accelerator

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Cause/Remedy
When the throttle valve closes slowly when the engine is running, the idle speed contact in the throttle valve switch is not operated resulting in ignition timing point > 15° CS (specification 8 - 12° CS) and the lambda tester indicates on/off ratio of 10 %.

1 Adjust throttle control (30-300, Section A or B).
2 Lubricate throttle control (see Repair Instructions, Group 00).
3 Test throttle valve switch (07.3-152).
4 Install strengthened version of return spring for throttle valve, part no. 102 993 23 10.
5 Engines 102.962/963/982/985: check throttle valve body part no.; replace if necessary (07.3-230).
Exchange VDO throttle valve bodies, part no. 002 140 06 53, 002 140 04 53, 001 140 88 53 up to production date 08/89 if complaint is received.
When replacing throttle valve body, the mixture control unit must also be removed complete. Otherwise, it may not be possible to tighten the securing bolts of the throttle valve body with the torque wrench.

6 Engine 102.982/985: replace KE control unit part no. 006 545 79 32 by 010 545 58 32, only up to engine end no. listed opposite:

Engine	Engine end no. man. transm.	Engine end no. autom. transm.
102.982	145250	146038
102.985	033729	080064

Install return spring of throttle valve only up to engine end no. listed opposite.

Engine	Engine end no. man. transm.	Engine end no. autom. transm.
102.910	020007	004237
102.962	278340	148664
102.963	084490	024774
102.982	176251	187035
102.985	040222	088009

Note
See also Programed Repairs:
"A. Engine speed behavior; B. Throttle valve body"

Complaint:

No throttle response when engine cold. Engine surges when idling. Cuts out (outside temperatures < about +10 °C). Engine no longer starts (battery drained)
Engine 102.910/96/98 as of 08/89

Cause
Intake manifold preheater relay scorched (only if battery drained). The relay had a production fault; the relay is in order again as of production date 16.01.1992.

Remedy
Test partial intake manifold preheater (14-456).
Replace intake manifold preheater relay, check coupling and contact for signs of scorching, replace if necessary.

⚠
Preheater flange in intake manifold is in order and does not need to be replaced.

Complaint:

A. Engine speed behavior

B. Throttle valve body

A. Engine speed behavior

The specific engine speed behavior of individual engines is described below in order to facilitate fault diagnosis.

Engine speed "After starting"

Since 09/89 all KAT vehicles (except engine 102.99) have a fast idle speed (1,000 - 1,200 rpm) for up to 1 minute after starting. The operating temperature of the catalytic converter is reached more rapidly with this "heating speed".

Engine speed "Vehicle coasting"

Engines 102, 103, 104 with KE control unit which is supplied with the road speed signal have an idle speed which is 50 - 200 rpm higher when the vehicle is coasting.
Idle speed is not increased on engines 116, 117 and 119 when the vehicle is coasting.

Engine speed "When decelerating"

Deceleration fuel cutoff on engines 102, 103 is activated about 1 second after the accelerator is eased of; this is felt as a slight deceleration jerk.
Deceleration fuel cutoff on engines 104, 116, 117 and 119 is activated immediately after the accelerator is eased off.

Note

Engine speed increases briefly by 100 - 300 rpm when combustion is re-activated in the deceleration mode only on vehicles with automatic transmission. The vehicle speed does not increase, however, when this happens.

B. Throttle valve body

In majority of cases when a throttle valve body is replaced because of the complaint "Engine speed does not drop off" or "Idle speed is not reached", the subsequent inspection does not reveal any fault in the majority of cases. Keep to the following sequence:

1 Adjust throttle control (30-300, Section A or B).
2 Adjust control pressure cable for automatic transmission.
3 Vehicles with cruise control: adjust push-rod.
4 Lubricate throttle control (see Repair Instructions, Group 00).
5 Test throttle valve switch; if incorrect operation exists, replace throttle valve body (07.3-152).
6 Engine 102.962/963/982/985: check throttle valve body part no.; replace if necessary (07.3-230).
Replace VDO throttle valve bodies, part no. 002 140 06 53, 002 140 04 53, 001 140 88 53 up to production date 08/89 if complaint received.
When replacing the throttle valve body, the mixture control unit must be removed complete. Otherwise, it may not be possible to tighten the securing bolts of the throttle valve body with the torque wrench.

Complaint:

Engine running complaints

A. Engine cuts out when idling

B. Engine cuts out after decelerating

C. Engine cuts out when driving at a constant speed

D. Engine cuts out when accelerating

Engine running complaints, in particular sporadic cutting out of the engine, may be caused by various factors. In the past, more or less extensive work was performed as a remedial measure although this was not always successful. The following tests enable faults in the respective operating states of the engine 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 intake manifold and/or suspension dome loose or corroded. Unbolt cable, clean and bolt on.
2 Contacts at coupling of airflow sensor potentiometer widened. Press contacts together, replace contact part no. 003 545 26 26, if necessary.
3 Contacts of terminals 15, 30, 31 or 87 at overvoltage protection widened. Press contacts together.
4 Measure resistance at airflow sensor potentiometer between pins 1 and 2. When airflow sensor plate closed R = 1 to 2 kW, when deflected, resistance must rise continously; no jumps
R > 2 kW must occur, otherwise replace airflow sensor.
5 If engine cuts out or misfires when fuel pump relay is knocked slightly, replace relay.
6 If engine cuts out or misfires when overvoltage protection is knocked slightly, replace overvoltage protection.
7 If engine cuts out or misfires or if idle speed increases when KE control unit knocked slightly, replace KE control unit.
8 Check whether 4 mm contact of cable to crankshaft position sensor is widened; press together if necessary.
9 Idle speed adjuster modified as of production date 951; up to production date 950, test internal resistance.
R = 7.5 - 10 W and measure current at idle speed
I = 600 F 50 mA.

B. Engine cuts out after decelerating

Cause/Remedy

1 Ground cable at intake manifold and/or suspension dome loose or corroded. Unbolt cable, clean and bolt on.
2 No road speed signal at KE control unit, engine 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 contact.
4 Intermittent open circuit at 1-pin connector of coolant temperature sensor (cold soldering point), engine 102, 103 up to 9/89; engine 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 violet cable of plug connection X26 and connect to ground.
6 Idle speed contact or deceleration fuel cutoff microswitch intermittently not closed in idle position. Adjust throttle control.
7 Contacts at 4-pin connector of coolant temperature sensor widened. Press together contacts; replace connector if necessary.
8 Contacts of terminals 15, 30, 31 or 87 at overvoltage protection widened. Press together contacts.
9 Measure resistance at airflow sensor potentiometer between pins 1 and 2. When airflow sensor plate closed R = 1 to 2 kohms, when plate deflected resistance must rise continously; no jumps R > 2 kohms must occur otherwise replace airflow sensor.
10 If engine cuts out or misfires when fuel relay knocked slightly, replace relay.
11 Check whether 4 mm contact of cable to crankshaft position sensor has widened, press together if necessary.
12 If engine cuts out or misfires or if idle speed increases when KE control unit knocked slightly, 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 Test electrohydraulic actuator; replace if necessary.
15 Test starter lockout and reversing light switch. Internal resistance at selector lever position "D" R > 20 kohms.

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 solder in contact broken. Press together contacts or replace.
2 Ground cable at fuel pump loose. Attach ground cable.
3 Model 124; plug connection X36 loose or contact widened. Press together contact.
4 Intermittent open circuit at 1-pin connector of coolant temperature sensor (cold soldering point), engine 102 up to 9/89; replace connector.
5 Contacts at 4-pin connector of coolant temperature sensor widened. Press together contacts; replace connector if necessary.
6 Wiring at terminals 1 and 15 at ignition coil loose. Tighten wiring.
7 If engine cuts out or misfires when fuel pump relay knocked slightly, replace relay.
8 If engine cuts out or misfires or if idle speed increases when KE control unit knocked slightly, 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 Test fuel pump relay; replace if necessary.
12 Test EZL ignition control unit; replace if necessary.

D. Engine cuts out when accelerating

Cause/Remedy

1 Contacts of terminals 15, 30, 31, 87 and TN/TD at fuel pump relay widened or solder in contact broken. Press together contacts or replace.
2 Ground cable at fuel pump loose. Attach ground cable.
3 Model 124; plug connection X36 loose or contact widened. Press together contact.
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 engine cuts out or misfires when fuel pump relay knocked slightly, replace relay.
7 If engine cuts out or misfires or if idle speed increases when KE control unit knocked slightly, 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 is widened; press together if necessary.
10 Test fuel pump relay; replace if necessary.
11 Test EZL ignition control unit; replace if necessary.