Air conditioner or automatic climate control ........ switch off.
Selector lever .......................................... move into position "P."
Testers

connect:
oil remote thermometer (018) 124 589 07 21 00,
lambda control tester (012),
twin socket (031),
engine tester (026),
trigger clamp (011).

Extraction device (014)

position at exhaust tailpipe.

Accelerator control (arrow)

check ease of movement and condition.

Ignition timing

test (see table).

Engine oil temperature

approx. 80°C.

Idle speed

test (see table).

Lambda control

test (see table).

⚠️

Any adjustment which is necessary must only be performed when replacing a fuel injection system component or performing engine repairs. Pay attention to note.
Large repair kit 102 070 01 74.

Smooth engine running

check, switch on all ancillaries for this step.

---

Test and adjustment data

---

National version 🇺🇸 1986 – 1989 information plate black

🇺🇸 as of 1990 information plate Federal black, California yellow

<table>
<thead>
<tr>
<th>Engine</th>
<th>Version</th>
<th>Idle speed</th>
<th>Idle emissions level</th>
<th>Lambda control</th>
</tr>
</thead>
<tbody>
<tr>
<td>103.94</td>
<td>🇺🇸</td>
<td>700 ± 50</td>
<td>35–45%</td>
<td></td>
</tr>
<tr>
<td>103.98</td>
<td>🇺🇸</td>
<td>650 ± 50;</td>
<td>35–45%</td>
<td>1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>as of model year 1990</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>700 ± 50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Test lambda control at 2500/min and read off average value. Detach regeneration line at regeneration valve for this step and close. Compare this reading with the idle speed reading. The average value at idle speed must not differ by more than ±10 from the reading obtained at 2500/min.
### EZL Ignition Timing

<table>
<thead>
<tr>
<th>Engine</th>
<th>EZL Ignition Control Unit</th>
<th>Engine Speed 1/min</th>
<th>Ignition Timing Point in ° CA Before TDC</th>
<th>Resistance Trimming Plug Position or Fuel Type</th>
<th>Without Vacuum</th>
<th>With Vacuum</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Version (USA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103.940</td>
<td>005 545 84 32</td>
<td>3200</td>
<td>Reference resistor 750 Ω</td>
<td>25–29</td>
<td>40–44</td>
<td>7–11</td>
</tr>
<tr>
<td>103.942</td>
<td>006 545 73 32</td>
<td>Idle speed</td>
<td>Reference resistor 750 Ω</td>
<td>7–11</td>
<td>7–11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>006 545 75 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>008 545 61 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>008 545 63 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>008 545 95 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>009 545 79 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103.981</td>
<td>004 545 44 32</td>
<td>3200</td>
<td>Reference resistor 750 Ω</td>
<td>27–31</td>
<td>40–44</td>
<td>6–11</td>
</tr>
<tr>
<td>103.983</td>
<td>004 545 46 32</td>
<td>Idle speed</td>
<td>Reference resistor 750 Ω</td>
<td>6–11</td>
<td>6–11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>005 545 85 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>005 545 87 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>006 545 74 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>006 545 76 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>008 545 96 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>009 545 80 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Special Tools

- Lambda control tester
- Tool 000 589 14 11 00 07
- Tool 124 589 07 21 00 18
- Tool 124 589 19 21 00 07 83
- Tool 909 589 00 21 00

### Commercially Available Tools and Testers (See Workshop Equipment Manual)

<table>
<thead>
<tr>
<th>Designation</th>
<th>e.g. Make, order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twin socket</td>
<td>Hermann, ECD 53</td>
</tr>
<tr>
<td>Engine tester</td>
<td>Bosch, MOT 001.03</td>
</tr>
</tbody>
</table>

### Shop-Made Tool

Slugging drift for steel anti-tamper lock.
Note
The adjusting device (42) for the fuel/air mixture setting is protected against unauthorized adjustment with a steel anti-tamper lock (41).

This anti-tamper lock is knocked in with a special tool in the factory after setting the fuel/air mixture and must not be removed in the workshop.

The fuel/air mixture setting may only be corrected when replacing a component of the fuel injection system (e.g. fuel distributor) or when performing engine repairs.
In this case, the adjusting device (42) must be replaced.

The lambda control must not be tested when the engine is too hot, e.g. immediately after driving sharply or after measuring engine output on the dynamometer.

1 Switch off air conditioner or automatic climate control. Move selector lever into position "P."

2 Connect testers:
oil remote thermometer (018) 124 589 07 21 00,
lambda control tester (012),
twin socket (031),
ingine tester (026),
trigger clamp (011).

3 Position extraction device (014) at exhaust tailpipe.

4 Check ease of movement and condition of accelerator control.
5 Test ignition timing (see table).

6 Warm engine up to oil temperature of approx. 80°C.

7 Test idle speed (see table).

**Note**
If idle speed differs, test electronic idle speed control (07.3–2006).

8 Test lambda control.

**Note**

<table>
<thead>
<tr>
<th>Lambda control tester</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosch</td>
<td>100% IR</td>
</tr>
<tr>
<td>Hermann</td>
<td>100%</td>
</tr>
</tbody>
</table>

The readout must fluctuate during the measurement. If a constant readout is displayed there is a fault in the lambda control, e.g. oxygen sensor unplugged. See "Testing electronic components of KE injection system" (07.3–0121) for troubleshooting diagram.

- Detach regeneration line to throttle valve assembly at regeneration valve (78) and seal.
- Connect tester to diagnostic socket.

- Test button as specified in the table. Test on/off ratio at 2500/min and read off average value. Compare this reading with the idle speed value. The average value at idle speed must not differ by more than ± 10 (as of 1989 ± 10) from the reading obtained at 2500/min.
The KE control unit must be switched over to on/off ratio output with the pulse reader or with the pushbutton switch (California only) at the test coupling for diagnosis (X92 or X11/4) (see also 07.3-0121, section d).

**USA** Californien version:
Operate pushbutton switch (2, arrow) at test coupling (X92 or X11/4) for between 2 and 4 seconds. LED (4) flashes once (no fault stored in system).
Once again press pushbutton switch (2) for between 2 and 4 seconds. KE control unit is switched over to on/off ratio output. LED shows a steady light.

**Note**
"CHECK ENGINE" warning light does not come on.
If "CHECK ENGINE" does not light up, perform test program 07.3-0121, testing electrical components of KE injection system.

Models 124, 126, 201 up to model year 1989
Models 124, 126, 201
as of model year 1990

013  Pulse counter
G1   Battery
X92  Test coupling for (X11/4) diagnosis (flash code)

Note
The fault memory must have been read out first before the output for the fault diagnosis using the on/off ratio can be performed.
If the pulse readout is "1" or after the last fault has been read, the pushbutton switch on the pulse counter must once again be pressed (2–4 seconds) in order to output the on/off ratio.
9 Set lambda control. If it is necessary to set the on/off ratio after performing engine repairs or replacing a part of the KE injection system, proceed as follows:

- Take off air cleaner.

- Make punch marks in the middle of the shear bolts (arrows) and drill approx. 6–8 mm deep with a 2.5 mm twist drill.

⚠️ Do not drill through bolts as the metal swarf can cause engine damage. Thoroughly remove metal swarf with cleaning rags.

- Unscrew shear bolts with left-hand twist drill.

- Install new repair kit, part no. 102 070 01 74. Tighten bolts until the head shears off.

- Fit on air cleaner.

- Start engine.

- Insert the screwdriver (arrow) through the opening in the top of the air cleaner and press onto the adjusting device (42).
Press the adjusting device down with a screwdriver against the spring force, turn slightly until the hexagon head (43) engages in the mixture regulating screw (61):
Turning to left = leaner – on/off ratio rises.
Turning to right = richer – on/off ratio drops.

After each adjustment, briefly accelerate and check deviations between 2500/min and idle speed, adjust if necessary.

Switch off engine.

Take off air cleaner.

Use the shop-made slugging drift to knock in steel anti-tamper lock (41) with the chamfered side sufficiently for the surface of the anti-tamper lock to be flush with the bottom edge of the taper of the adjusting device (42) or to be slightly deeper.
- Install air cleaner.

- Re-connect regeneration line.

10 Check smooth engine running by moving selector lever into Drive mode, switching on air conditioner/automatic climate control, turning power steering to full lock. Engine must still run smoothly. If necessary, test electronic idle speed control (07.3–2006).

**Note**

**Models 107, 124, 126**
Since January 1989 the steel anti-tamper lock (41) has been designed as a steel ball, previously steel cylinder.

<table>
<thead>
<tr>
<th>Model</th>
<th>Vehicle ident end no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>124 Station Wagon</td>
<td>F 096787</td>
</tr>
<tr>
<td>201</td>
<td>F 574637</td>
</tr>
</tbody>
</table>

Production breakpoint: 12/88

<table>
<thead>
<tr>
<th>Model</th>
<th>Vehicle ident end no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>124 Sedan</td>
<td>A 933300</td>
</tr>
<tr>
<td>124 Coupé</td>
<td>A 934867</td>
</tr>
<tr>
<td>126</td>
<td>A 458731</td>
</tr>
</tbody>
</table>

Production breakpoint: 01/89

![Diagram of vehicle part with model number 41 highlighted]