

Diagnosis – Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Function test	Low beam switched on.	After 1 – 2 seconds 50% of maximum illumination. After 30 seconds maximum illumination attained.	23 Test

¹⁾ Observe Preparation for Test, see 22.

 **DANGER!**

High voltage components with switched on Xenon headlamps.

Therefore persons with heart pacemakers should not work on Xenon headlamp components.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Left and right Xenon low beam headlamps (E1e8 and E2e8) do not function.	Fuses Wiring	23 ⇒ 1.0, 2.0
Left Xenon low beam headlamp (E1e8) does not function.	<p>Model 129 Fuse (F1–6) in fuse and relay box (F1) Xenon headlamp (D2R, 35W) ²⁾</p> <p>Model 140 Fuse (F3–11) in fuse box (35-fuse) (F3) in fuse and relay box (F1) Xenon headlamp (D2R, 35W) ²⁾</p> <p>Wiring Xenon headlamp control module (E1n1) with Xenon headlamp ignition module (E1n2)</p>	23 ⇒ 1.0
Right Xenon low beam headlamp (E2e8) does not function.	<p>Model 129 Fuse (F1–7) in fuse and relay box (F1) Xenon headlamp (D2R, 35W) ²⁾</p> <p>Model 140 Fuse (F3–12) in fuse box (35-fuse) (F3) in fuse and relay box (F1) Xenon headlamp (D2R, 35W) ²⁾</p> <p>Wiring Xenon headlamp control module (E2n1) with Xenon headlamp ignition module (E2n2)</p>	23 ⇒ 2.0

¹⁾ Observe Preparation for Test, see 22.

²⁾ To prevent damage to new installed Xenon lamps (D2R, 35W), be certain to check system output (watts) prior to lamp installation.

Electrical Test Program – Component Locations

Model 129
Xenon Headlamps

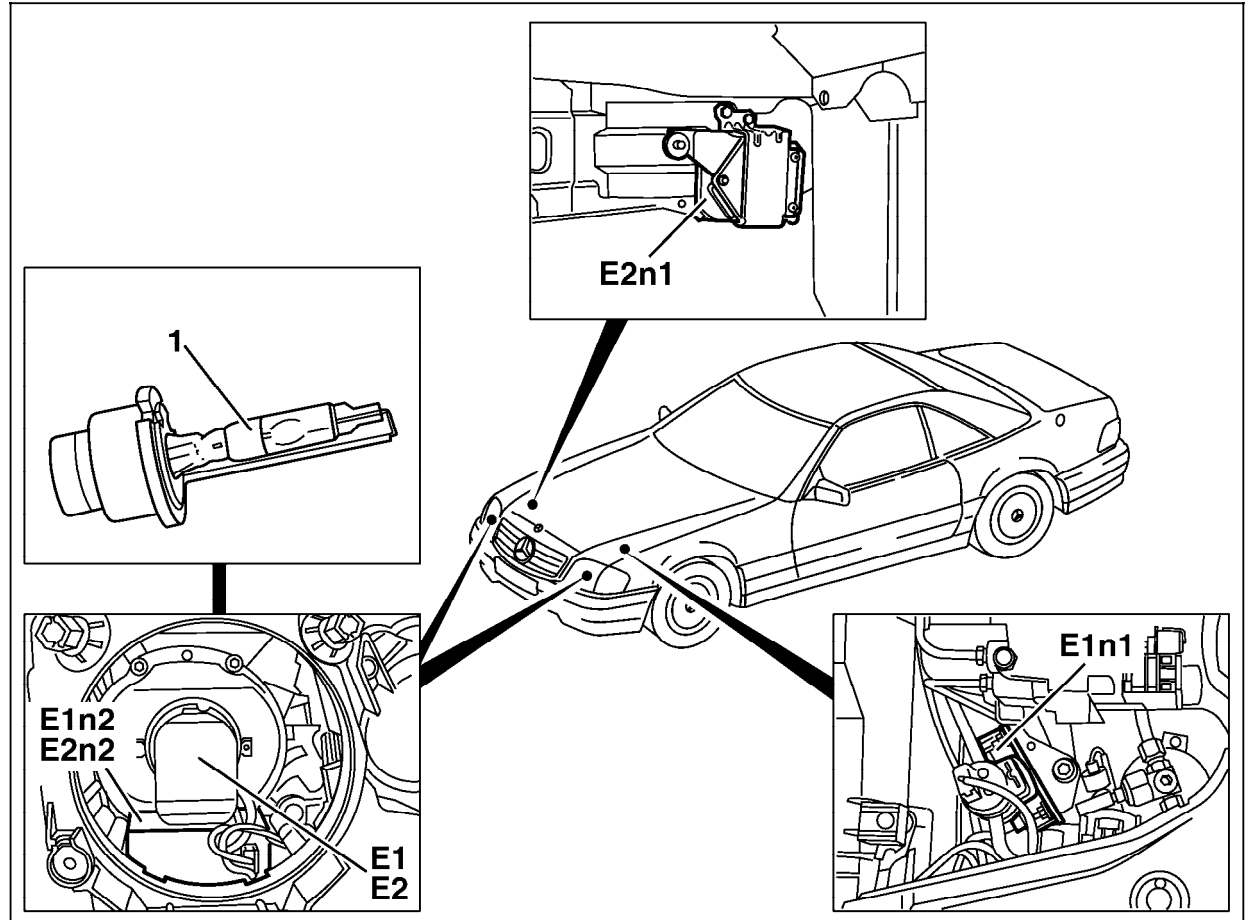


Figure 1

- 1 Xenon headlamp (D2R, 35W)
- E1 Left headlamp unit
- E1n1 Xenon headlamp control module
- E1n2 Xenon headlamp ignition module
- E2 Right headlamp unit
- E2n1 Xenon headlamp control module
- E2n2 Xenon headlamp ignition module

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Electrical Test Program – Component Locations

Model 140 Xenon Headlamps

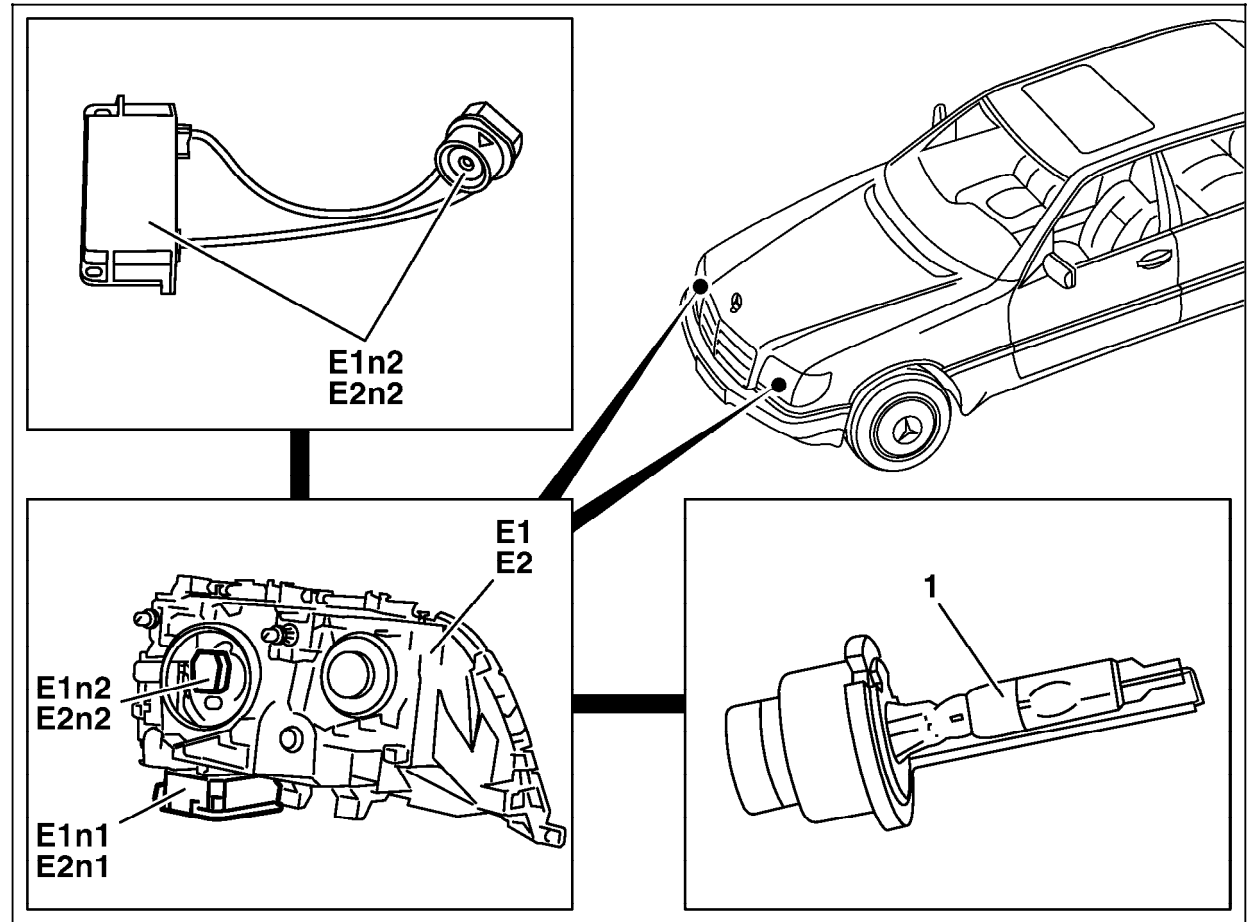


Figure 1

- 1 Xenon headlamp (D2R, 35W)
- E1 Left headlamp unit
- E1n1 Xenon headlamp control module
- E1n2 Xenon headlamp ignition module
- E2 Right headlamp unit
- E2n1 Xenon headlamp control module
- E2n2 Xenon headlamp ignition module

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Electrical Test Program – Preparation for Test



DANGER!
High voltage components with switched on Xenon headlamps.
Therefore persons with heart pacemakers should not work on Xenon headlamp components.

The ignition control module of the Xenon headlamps operates with high voltages. Due to high voltages used by the Xenon headlamps, any contact with the voltage carrying components can be life threatening!

When performing repairs on the Xenon headlamps, with the:

- Replacement of Xenon headlamp components
 - Connection of test equipment
- the exterior illumination system is to be switched **OFF**.

Dangerous high voltages result while working with switched on Xenon headlamps.

It is not permitted to remove or install Xenon headlamp components while the exterior illumination system is switched **ON**.

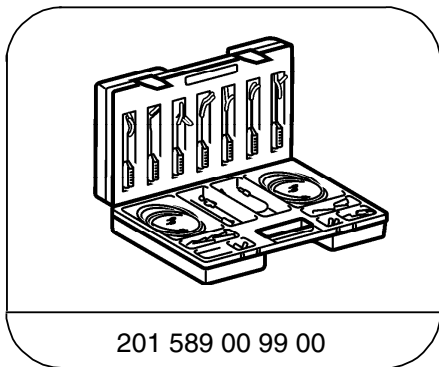
Preparation for Test:

1. Vehicle battery must be sufficiently charged (electrolyte specific gravity: 1:3.6)
2. Check fuses OK.

Electrical wiring diagrams (location of grounds and connectors):

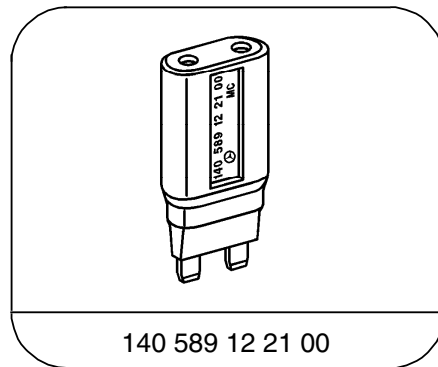
Electrical Troubleshooting Manual, Model 129, Volume 2, group 82, .
 Model 140, Volume 3, group 82

Special Tools



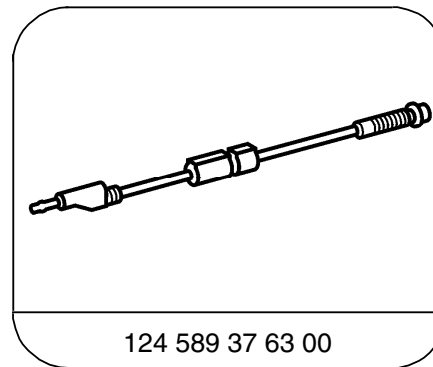
201 589 00 99 00

Electrical connecting set



140 589 12 21 00

Quiescent current test adapter 1



124 589 37 63 00


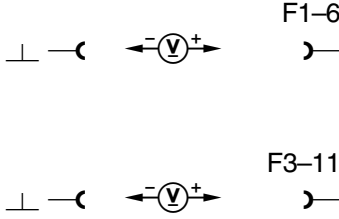
Fused cable

Conventional tools, test equipment

Description	Brand, model, etc.
Multimeter ¹⁾	Fluke models 23, 83, 85, 87
Inductive pickup ¹⁾	Fluke 80i - 1010

¹⁾ Available through the MBUSA Standard Equipment Program.




Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ^{1) 2)}
1.0		<p>Left low beam Xenon headlamp (E1e8)</p> <p>Model 129 Voltage at fuse and relay box (F1)</p> <p>Model 140 Voltage at fuse box (35-fuse) (F3) in fuse and relay box (F1)</p>	 <p>The diagram shows two test setups. For Model 129, a voltmeter (V) is connected across fuse F1-6. For Model 140, a voltmeter (V) is connected across fuse F3-11. Both setups show a ground symbol (⊥) on the left and a terminal symbol (⌋) on the right.</p>	<p>Remove Fuse (F1-6) or Fuse (F3-11) and check voltage using rest current maintenance unit. Low beam: ON</p>	11 – 14 V	Wiring, ⇒ 1.1

1) To prevent damage to new installed Xenon lamps (D2R, 35W), be certain to check system output (watts) prior to lamp installation.

2) Replace complete headlamp unit as necessary.


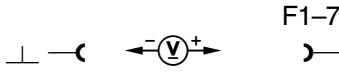
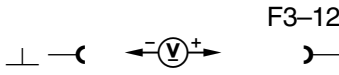
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.1		<p>Model 129 Voltage and amperage at fuse and relay box (F1)</p> <p>Model 140 Voltage and amperage at fuse box (35–fuse) (F3) in fuse and relay box (F1).</p>	<p></p> <p>F1-6 Inductive pickup</p> <p></p> <p>F3-11 Inductive pickup</p>	<p>Remove Fuse (F1-6) or fuse (F3-11). Review Figure 1 and attach multimeters and test cables as shown.</p> <p>CAUTION! Observe multimeter amp reading when switching on low beam.</p> <p>Low beam: ON After approx. 30 seconds measure voltage (U) and amps (I), then calculate wattage (P).</p>	<p>40±5W (P = U x I)</p>	<p>A brief amp flow is noted only when first switching on: Xenon headlamp (D2R, 35W)^{1) 2)}</p> <p>Wattage < 35W or > 45W: Xenon headlamp control module (E1n1) with Xenon headlamp ignition module (E1n2)²⁾.</p>

1) To prevent damage to new installed Xenon lamps (D2R, 35W), be certain to check system output (watts) prior to lamp installation.


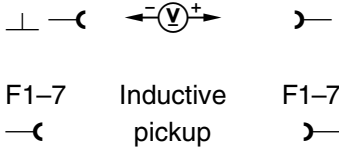
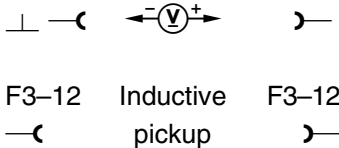
2) Replace complete headlamp unit as necessary.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ^{1) 2)}
2.0		<p>Right low beam Xenon headlamp (E2e8)</p> <p>Model 129 Voltage at fuse and relay box (F1)</p> <p>Model 140 Voltage at fuse box (35-fuse) (F3) in fuse and relay box (F1)</p>	 	<p>Remove Fuse (F1–7) or Fuse (F3–12) and check voltage using rest current maintenance unit.</p> <p>Low beam: ON</p>	11 – 14 V	Wiring, ⇒ 2.1

- 1) To prevent damage to new installed Xenon lamps (D2R, 35W), be certain to check system output (watts) prior to lamp installation.
- 2) Replace complete headlamp unit as necessary.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.1		<p>Model 129 Voltage and amperage at fuse and relay box (F1)</p> <p>Model 140 Voltage and amperage at fuse box (35–fuse) (F3) in fuse and relay box (F1).</p>	<p></p> <p>F1-7 Inductive pickup</p> <p></p> <p>F3-12 Inductive pickup</p>	<p>Remove Fuse (F1–6) or fuse (F3–12). Review Figure 1 and attach multimeters and test cables as shown.</p> <p>CAUTION! Observe multimeter amp reading when switching on low beam.</p> <p>Low beam: ON After approx. 30 seconds measure voltage (U) and amps (I), then calculate wattage (P).</p>	<p>40±5W (P = U x I)</p>	<p>A brief amp flow is noted only when first switching on: Xenon headlamp (D2R, 35W)^{1) 2)}</p> <p>Wattage < 35W or > 45W: Xenon headlamp control module (E1n1) with Xenon headlamp ignition module (E1n2)²⁾.</p>

1) To prevent damage to new installed Xenon lamps (D2R, 35W), be certain to check system output (watts) prior to lamp installation.

2) Replace complete headlamp unit as necessary.

Electrical Test Program – Test

Connection diagram – Amperage and Voltage Measurement

⚠ CAUTION!

An inductive pickup must be used during amperage measurement, since high amps will be present when the Xenon headlamps are first switched on.

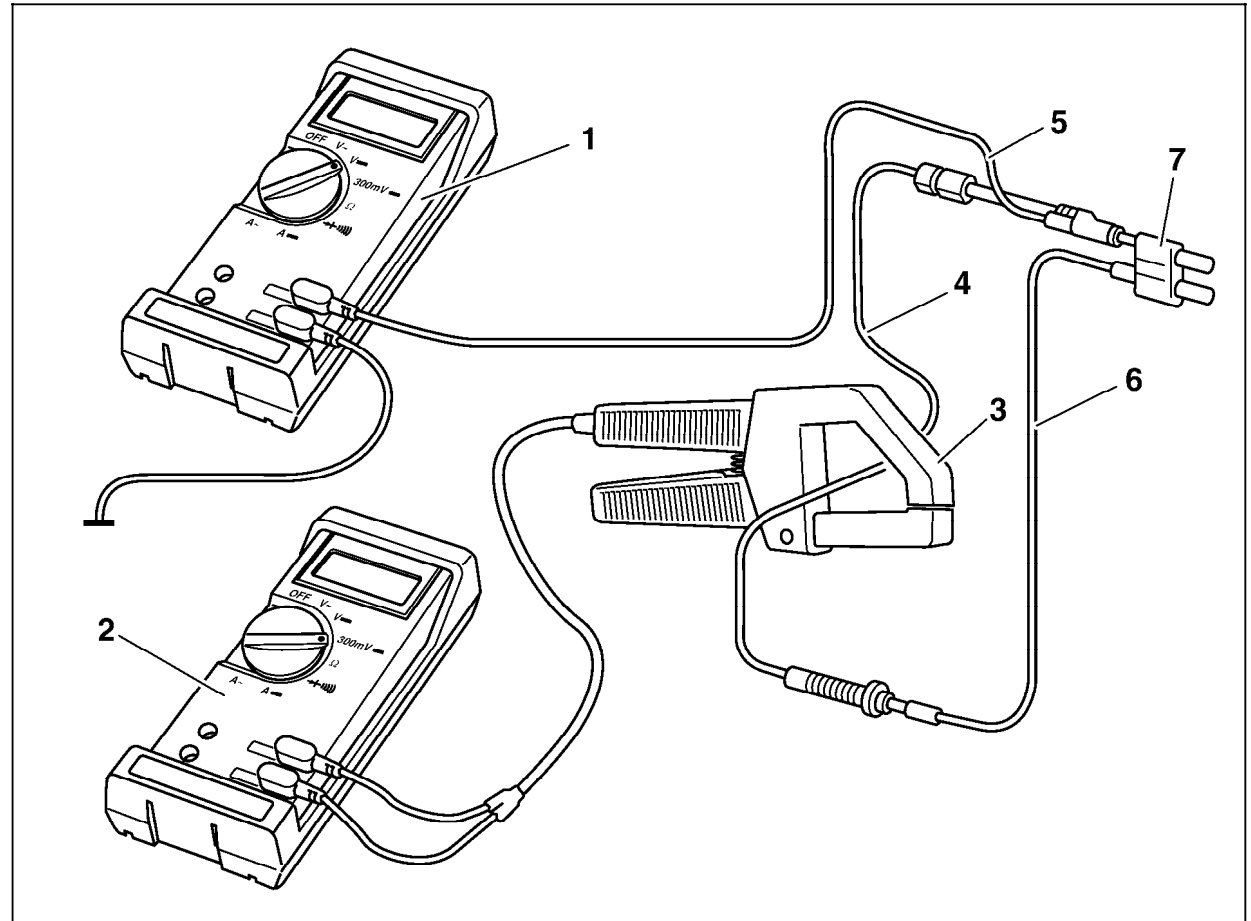


Figure 1

- 1 Multimeter (voltage measurement)
- 2 Multimeter (amperage measurement)
- 3 Inductive pickup
- 4 Fused test cable
- 5 Measurement test cable
- 6 Adaptor test cable
- 7 Rest current maintenance unit

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