

1.3 Headlamp Range Adjustment (HRA)

Models 129, 140

Diagnosis – Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Function test	Low beam: ON Verify the light-dark border with the help of a headlamp adjustment tester Load or unload right front or right rear of vehicle as necessary.	With a time delay, the light-dark border must shift to the previously set parameter.	Test with HHT, 23 Test

¹⁾ Observe Preparation for Test, see 22.

Conventional tools, test equipment

Description	Brand, model, etc.
Headlamp adjustment tester ¹⁾	Bosch

¹⁾ Available through the MBUSA Standard Equipment Program.

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Models 129, 140

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Headlamp range adjustment does not function.	Model 129 without ADS and model 140 Rear axle sensor (A51) (headlamp range adjustment) Front axle sensor (A52) (headlamp range adjustment) Model 129 with ADS Front axle level sensor (B22/2) Rear axle level sensor (B22/3) Wiring Headlamp range adjustment motor (E1m1) Headlamp range adjustment motor (E2m1) Headlamp range adjustment control module (N71)	Test with HHT
Headlamprange adjustment can not be tested using the HHT: – No communication between HHT and headlamp range adjustment control module (N71).	Wiring Voltage supply	23 ⇒ 1.0

¹⁾ Observe Preparation for Test, see 22.

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Models 129, 140

Electrical Test Program – Component Locations

Model 129 without ADS Headlamp Range Adjustment

Note:

When equipped with ADS the front axle and rear axle level sensors (B22/2, B22/3) perform the same function as the front and rear axle sensors (A52 and A51).

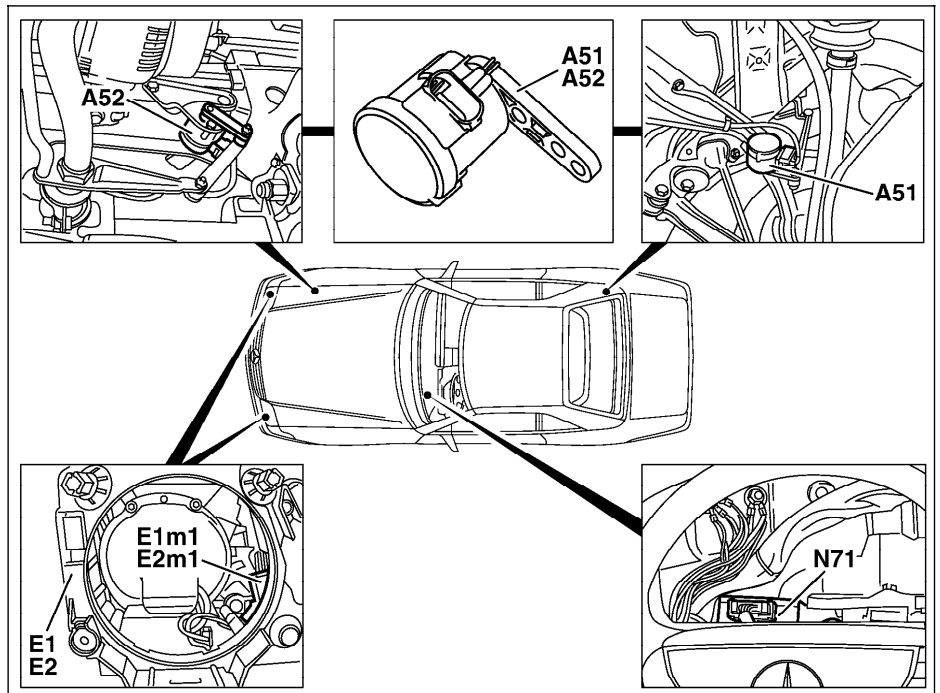


Figure 1

- | | |
|------|---|
| A51 | Rear axle sensor (headlamp range adjustment) |
| A52 | Front axle sensor (headlamp range adjustment) |
| E1 | Left headlamp unit |
| E1m1 | Headlamp range adjustment motor |
| E2 | Right headlamp unit |
| E2m1 | Headlamp range adjustment motor |
| N71 | Headlamp range adjustment control module |

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Models 129, 140

Electrical Test Program – Component Locations

Model 140
Headlamp Range Adjustment

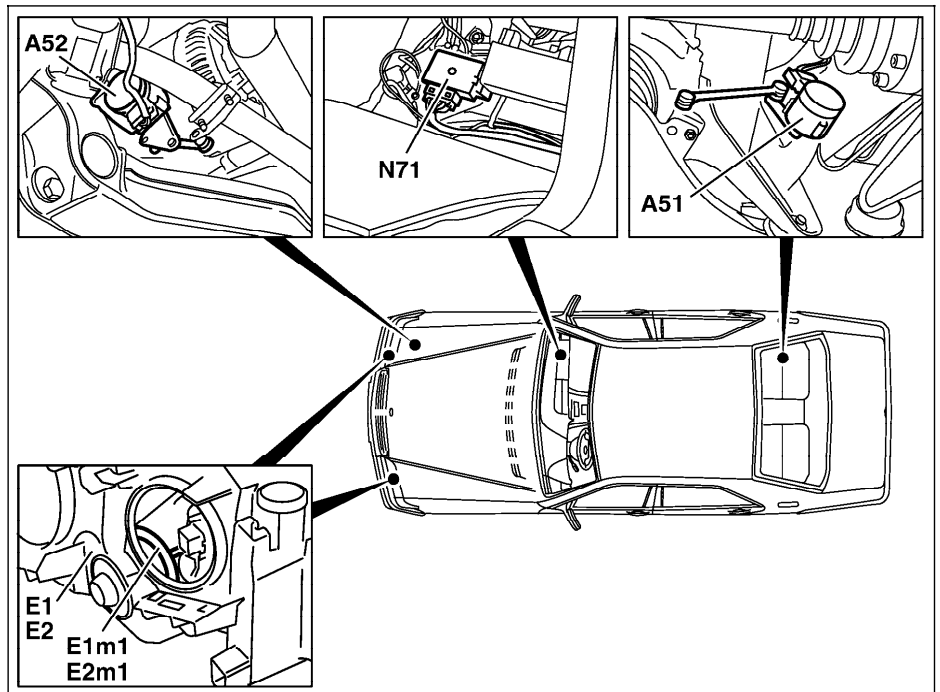


Figure 2

- A51 Rear axle sensor (headlamp range adjustment)
- A52 Front axle sensor (headlamp range adjustment)
- E1 Left headlamp unit
- E1m1 Headlamp range adjustment motor
- E2 Right headlamp unit
- E2m1 Headlamp range adjustment motor
- N71 Headlamp range adjustment control module

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1.3 Headlamp Range Adjustment (HRA)

Models 129, 140

Electrical Test Program – Preparation for Test

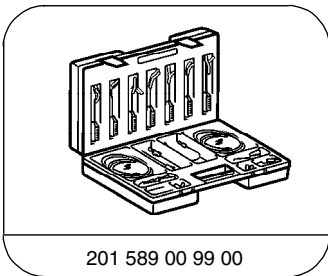
Preparation for Test:

1. Vehicle battery must be sufficiently charged (electrolyte specific gravity: 1:3.6)
2. Check fuses OK.
3. **Model 129 without ADS and model 140:**
Rear axle sensor (headlamp range adjustment) (A51) and front axle sensor (headlamp range adjustment) (A52) are mechanically ok.
4. **Model 129 with ADS:**
5. Front axle level sensor (B22/2) and rear axle level sensor (B22/3) are mechanically 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



Electrical connecting set

Conventional tools, test equipment





Description	Brand, model, etc.
Multimeter ¹⁾	Fluke models 23, 83, 85, 87

¹⁾ Available through the MBUSA Standard Equipment Program,

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Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		Headlamp range adjustment control module (N71) Voltage supply	18 —(—  —) 16	Disconnect connector from N71. Ignition: ON	11 – 14 V	Model 129 Fuse F1–10 in fuse and relay box (F1). Model 140 Fuse F4–4 in fuse box in trunk (F4). Wiring, ⇒ 1.1
1.1		Activation voltage from illumination control module (N7-1)	18 —(—  —) 10	Disconnect connector from N71. Low beam: ON	11 – 14 V	Model 129 Fuse F1–6 in fuse and relay box (F1). Model 140 Fuse F3–7 in fuse box (35-Fuse) (F3) in fuse and relay box (F1). Wiring, ⇒ 1.2
1.2		Check diagnostic line for interruption, open circuit or high resistance.	N71 9 —(—  —) X11/4 35	Disconnect connector from N71.	< 5 Ω	Wiring.