
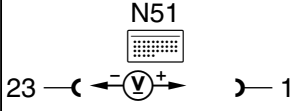
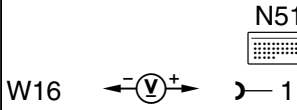
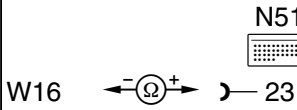
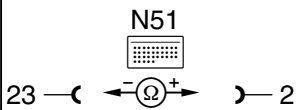
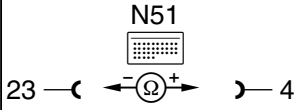



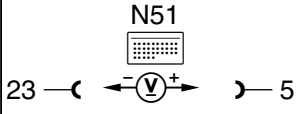

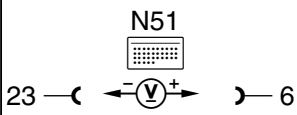
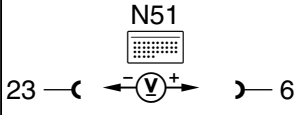
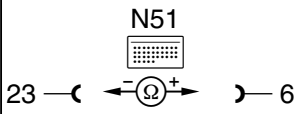
3.1 Adaptive Damping System (ADS)

Models 129.061/066

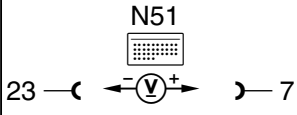
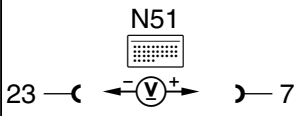
Electrical Test Program - Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0		ADS control module (N51) Voltage supply Circuit 87L		Ignition: ON	11 – 14 V	Wiring, ⇒ 1.1.
⇒ 1.1		Voltage supply from overvoltage protection relay module (K1/2)		Ignition: ON	11 – 14 V	Wiring, K1/2, ⇒ 1.2.
⇒ 1.2		Ground wire		Ignition: OFF	< 1 Ω	Wiring, Ground (component compartment) (W16).
⇒ 2.0		Circuit 61 voltage		Ignition: ON Engine: at Idle	< 1 V 11 – 14 V	Wiring, Generator (G2).
⇒ 3.0		Diagnosis output		Ignition: ON	10 – 14 V	Wiring, ADS control module (N51).

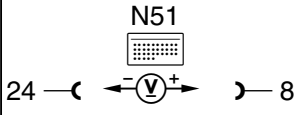
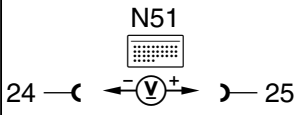
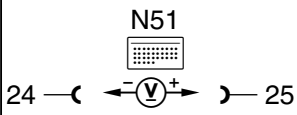
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 4.0	 Left front axle VSS (from ABS or ABS/ASR control module)		Raise front of vehicle. Ignition: ON Turn left front wheel by hand	> 0.1 V ~	5.1 23 or DM, Chassis & Drivetrain Vol. 2 section 6.1 23, Wiring, ADS control module (N51).
⇒ 5.0	 Oil level switch (S44) Activation		Oil level between "MAX" and "MIN" Ignition: ON	11 – 14 V	Determine cause of leak, refill if necessary. ⇒ 5.1, ADS control module (N51).
⇒ 5.1	Wiring		Disconnect S44. Bridge sockets 1 and 2 on connector.	< 1 V	Wiring, ⇒ 5.2.
⇒ 5.2	Internal resistance		Ignition: ON Disconnect N51.	> 20 kΩ	Wiring, S44.

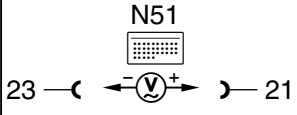
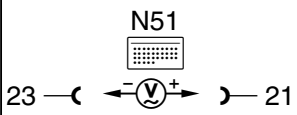
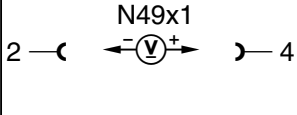
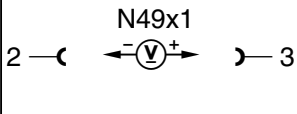
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.0	ADS MIL (A1e27)		Ignition: ON Engine: at Idle	< 1 V A1e27: ON 11 – 14 V A1e27: OFF	⇒ 6.1, Wiring, ADS control module (N51). 12, Wiring, N51.
⇒ 6.1	Wiring		Ignition: OFF Disconnect control module (N51). Ignition: ON	11 – 14 V	Wiring, A1e27.

Electrical Test Program - Test

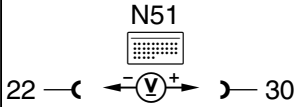
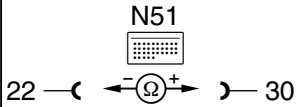
Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 7.0	4 Wheel acceleration sensor (B24/1) Voltage supply	 <p>N51 24 —(—(←(V)→ —(—()— 8</p>	Ignition: ON	4.75 – 5.25 V	Wiring, ADS control module (N51).
	Static sensor signal (off)	 <p>N51 24 —(—(←(V)→ —(—()— 25</p>		2.35 – 2.65 V	Wiring, B24/1.
	Dynamic sensor signal (on)	 <p>N51 24 —(—(←(V)→ —(—()— 25</p>	Vigorously move right front section of vehicle up and down by hand	> 1 mV ~ Note: The value changes with the movement of the vehicle. Nominal value can only be attained with digital multimeter set to mV ~.	B24/1.

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 9.0 5	Steering angle sensor (N49) Signal	 <p>N51 23 —(←(V)→)— 21</p>	Ignition: ON	> 3 V ~	Wiring, ADS control module (N51), ⇒ 9.1.
⇒ 9.1	Steering angle sensor	 <p>N51 23 —(←(V)→)— 21</p>	Ignition: OFF Disconnect control module (N51). Ignition: ON	> 3 V ~	Wiring, N49, ⇒ 9.2.
⇒ 9.2	Voltage supply Circuit 30a	 <p>N49x1 2 —(←(V)→)— 4</p>	Ignition: OFF Disconnect connector (N49x1).	11 – 14 V	Wiring, ⇒ 9.3.
⇒ 9.3	Voltage supply Circuit 87L	 <p>N49x1 2 —(←(V)→)— 3</p>	Ignition: ON	11 – 14 V	Wiring, Overvoltage protection relay module (K1/2).
⇒ 10.0 14 1)	Steering angle sensor (N49) Initialization		Engine: at Idle Turn steering wheel from right to left stop.	A1e27 goes out.	⇒ 9.0

1) DTC 14 will automatically erase from N51 after initialization.


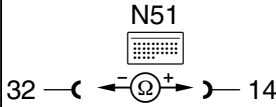
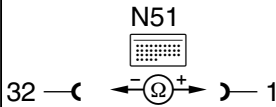
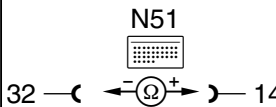

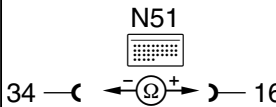
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 11.0	Comfort/sport switch (S45/1)	 <p>N51 22 —(—(←(V)→ —(—()— 30</p>	Ignition: ON Switch S45/1 in: Comfort setting Sport setting	4.75 – 5.25 V < 1 V Indicator lamp in switch: ON	Wiring, S45/1, ADS control module (N51), ⇒ 11.1.
⇒ 11.1	Internal resistance	 <p>N51 22 —(—(←(Ω)→ —(—()— 30</p>	Ignition: OFF Disconnect control module (N51). Switch S45/1 in: Comfort setting Sport setting	> 20 kΩ < 1 Ω	Wiring, S45/1.
⇒ 12.0	<i>Not for U.S.A. Vehicles</i>				
⇒ 13.0	<i>Not for U.S.A. Vehicles</i>				
⇒ 14.0	<i>Not for U.S.A. Vehicles</i>				

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.0	Left/right rear axle damper valve assembly, rear axle solenoid valve 2 (Y53y2, Y54y2)		Ignition: OFF Disconnect control module (N51).	5 – 8 Ω	Wiring, ⇒ 15.1.
⇒ 15.1	Rear axle solenoid valve 2 (Y54y2)		Disconnect control module (N51). Disconnect connector (Y54x1).	10 – 16 Ω	Wiring, Right rear axle damper valve assembly (Y54), ⇒ 15.2.
⇒ 15.2	Rear axle solenoid valve 2 (Y53y2)		Disconnect control module (N51). Disconnect connector (Y53x1).	10 – 16 Ω	Wiring, Left rear axle damper valve assembly (Y53).

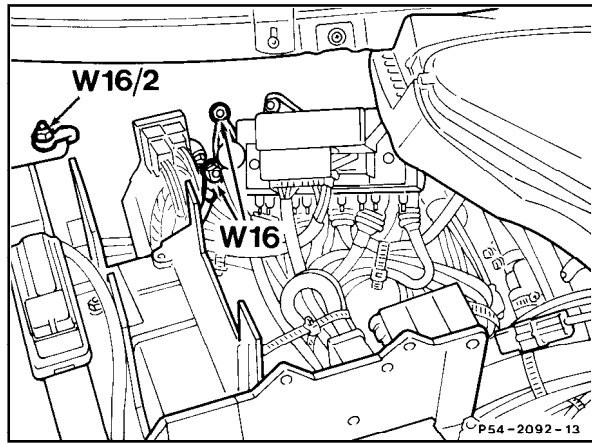
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 16.0	 Left/right rear axle damper valve assembly, rear axle solenoid valve 1 (Y53y1, Y54y1)		Ignition: OFF Disconnect control module (N51).	5 – 8 Ω	Wiring, ⇒ 16.1.
⇒ 16.1	Rear axle solenoid valve 1 (Y54y1)		Disconnect control module (N51). Disconnect connector (Y54x1).	10 – 16 Ω	Wiring, Right rear axle damper valve assembly (Y54), ⇒ 16.2.
⇒ 16.2	Rear axle solenoid valve 1 (Y53y1)		Disconnect control module (N51). Disconnect connector (Y53x1) (Figure 7).	10 – 16 Ω	Wiring, Left rear axle damper valve assembly (Y53).
⇒ 17.0	 Right front axle damper valve assembly, front axle solenoid valve 2 (Y52y2)		Ignition: OFF Disconnect control module (N51).	10 – 16 Ω	Wiring, Y52.

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.0	Left front axle damper valve assembly, front axle solenoid valve 2 (Y51y2)		Ignition: OFF Disconnect control module (N51).	10 – 16 Ω	Wiring, Y51.
⇒ 19.0	Right front axle damper valve assembly, front axle solenoid valve 1 (Y52y1)		Ignition: OFF Disconnect control module (N51).	10 – 16 Ω	Wiring, Y52.
⇒ 20.0	Left front axle damper valve assembly, front axle solenoid valve 1 (Y51y1)		Ignition: OFF Disconnect control module (N51).	10 – 16 Ω	Wiring, Y51.
⇒ 21.0	Level adjustment check valve (Y37) Activation		Unplug connector from Y37 Ignition: ON	11 – 14 V	⇒ 21.1 Wiring, K1/2, (Figure 5).
⇒ 21.1	Level adjustment check valve (Y37) Internal resistance		Ignition: OFF	10 – 25 Ω	Wiring, Y37.

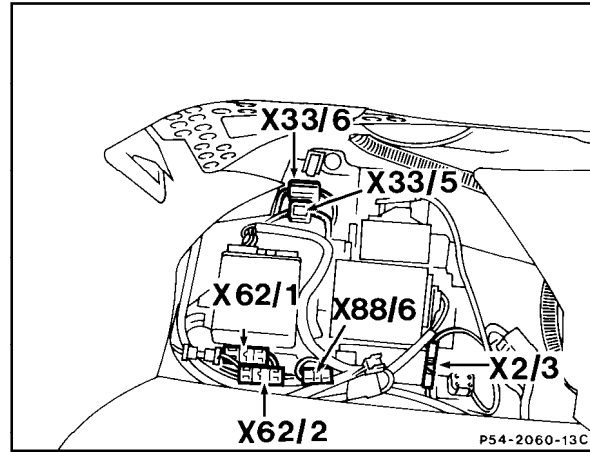
Electrical Test Program - Test



P54-2092-13

Figure 1

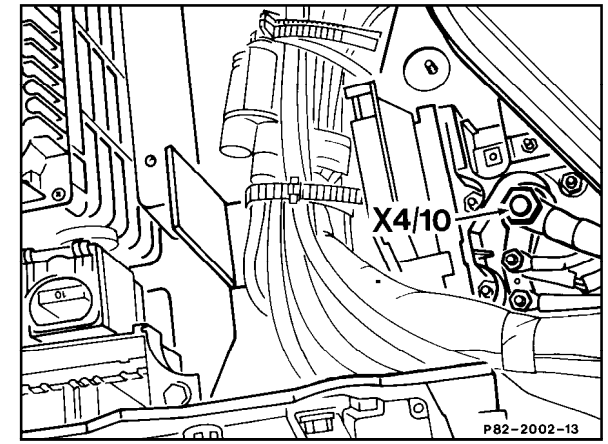
W16 Ground (component compartment)



P54-2060-13C

Figure 2

X33/5 ADS connector (front/rear suspension) (4-pole)
 X33/6 ADS connector (front/rear suspension) (8-pole)

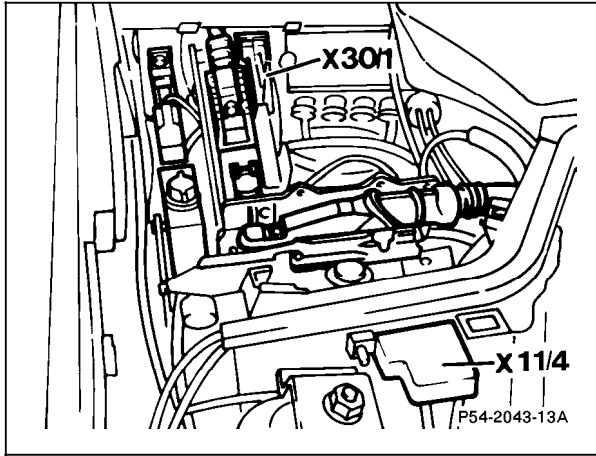


P82-2002-13

Figure 3

X4/10 Terminal block (circuit 30/circuit 61 battery) (3-pole)

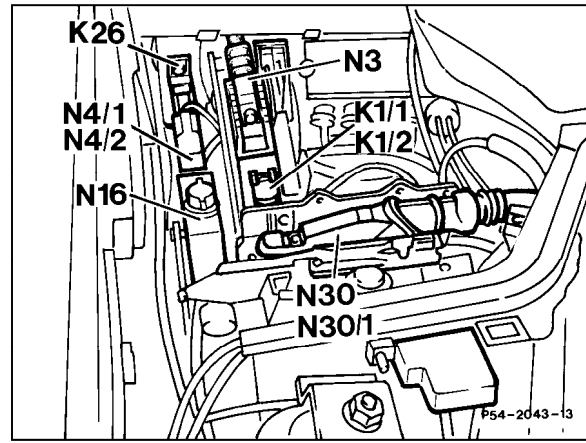
Electrical Test Program - Test



P54-2043-13A

Figure 4

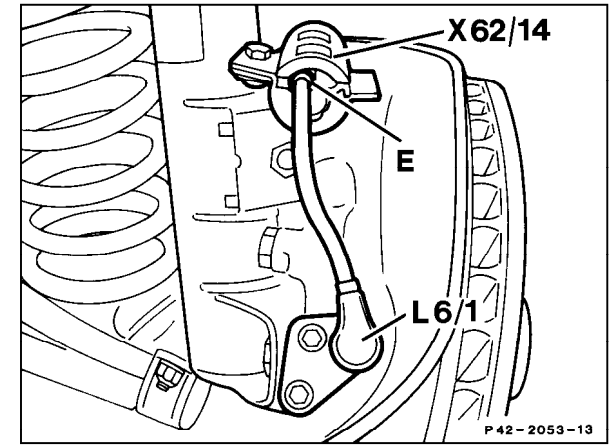
X11/4 Data link connector (DTC readout)
 X30/1 Multi-function connector block



P54-2043-13

Figure 5

K1/2 Overtoltage protection relay module
 (87E/87L/30a, 9-pole)
 N30 ABS control module
 N30/1 ABS/ASR control module

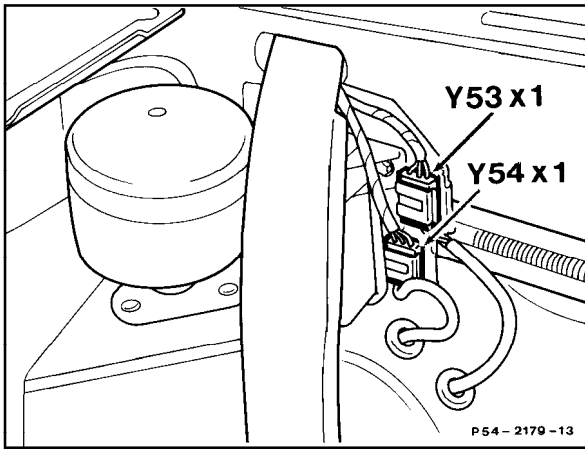


P42-2053-13

Figure 6

L6/1 Left front axle VSS sensor

Electrical Test Program - Test



P54-2179-13

Figure 7

- Y53x1 Left rear axle damper valve assembly connector
- Y54x1 Right rear axle damper valve assembly connector