

3.1 Model 129.061/066

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Diagnosis - Function Test

Component Locations

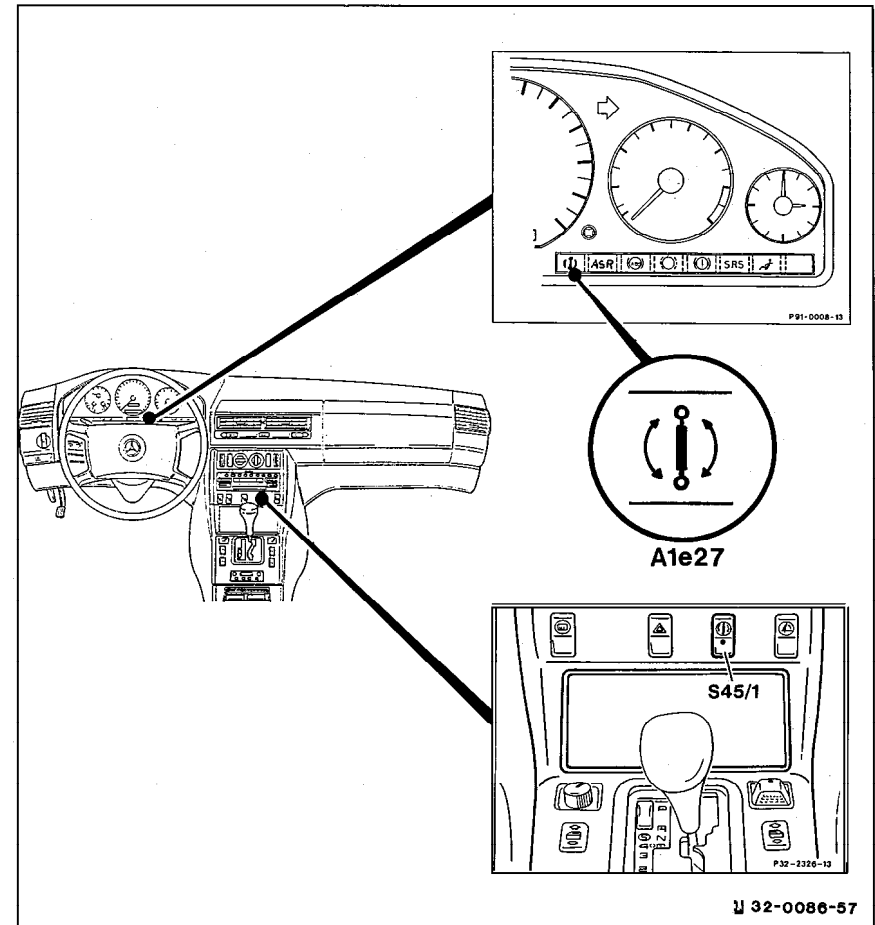


Figure 1

- A1e27 ADS MIL
- S45/1 Comfort/sport switch (ADS)

U32-0086-57

Diagnosis - Function Test

| Test step/Test sequence | Test condition | Nominal value | Possible cause/Remedy ¹⁾ |
|--------------------------------------|--|--|---|
| ⇒ 1.0 ADS MIL (A1e27) | Ignition: ON Engine: at Idle | A1e27 comes on. A1e27 goes out. | Wiring, A1e27 23 ⇒ 6.0, ADS control module (N51) 23⇒ 1.0 Steering angle sensor (N49) not initialized, turn steering wheel from right to left stop, DTC stored in memory, read out DTC 12, Wiring, ADS control module (N51), Circuit 61 23 ⇒ 2.0 |
| ⇒ 2.0 <i>Not for U.S.A. Vehicles</i> | | | |
| ⇒ 3.0 <i>Not for U.S.A. Vehicles</i> | | | |
| ⇒ 4.0 Comfort/sport switch (S45/1) | Switch (S45/1) set to: Sport Comfort | Indicator lamp in switch (S45/1): ON OFF | Wiring, S45/1 23 ⇒ 11.0. |

¹⁾ Observe Preparation for Test, see 22.

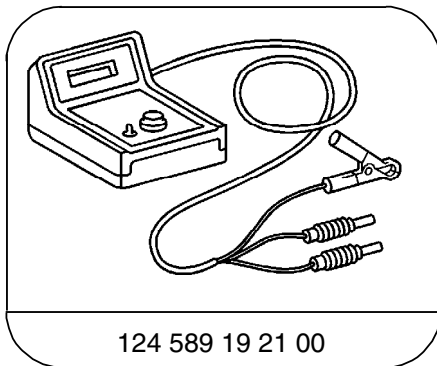
Diagnosis - Diagnostic Trouble Code (DTC) Memory

Test Preparation for DTC Readout

1. Connect impulse counter scan tool to the data link connector (X11/4) according to the connection diagram as shown in section 0.
2. Read out any stored DTC's from ADS control module (N51).

Note: Connect yellow wire from impulse counter scan tool to socket 9 of N51.

Special Tools



124 589 19 21 00

Pulse counter

Diagnosis - Diagnostic Trouble Code (DTC) Memory

| Diagnostic trouble code (DTC) | Possible cause | Test step/Remedy ¹⁾ |
|-------------------------------|---|---|
| 1 | No fault in system. | In case of complaint: 23 (entire test) and 33 |
| 2 | ADS control module (N51) | Replace N51 |
| 3 | Body acceleration sensor (B24) | 23 ⇒ 8.0 |
| 4 | Wheel acceleration sensor (B24/1) | 23 ⇒ 7.0 |
| 5 | Steering angle sensor (N49) | 23 ⇒ 9.0 |
| 6 | Left/right front axle damper valve assembly, front axle solenoid valve 1 (Y51y1, Y52y1) | 23 ⇒ 19.0, 20.0 |
| 7 | Left/right front axle damper valve assembly, front axle solenoid valve 2 (Y51y2, Y52y2) | 23 ⇒ 17.0, 18.0 |
| 8 | Left/right rear axle damper valve assembly, rear axle solenoid valve 1 (Y53y1, Y54y1) | 23 ⇒ 16.0 |
| 9 | Left/right rear axle damper valve assembly, rear axle solenoid valve 2 (Y53y2, Y54y2) | 23 ⇒ 15.0 |
| 10 | <i>Not for U.S.A. vehicles.</i> | |
| 11 | <i>Not for U.S.A. vehicles.</i> | |
| 12 | Vehicle speed signal (VSS) from ABS or ABS/ASR control module) | 23 ⇒ 4.0 |
| 13 | Oil level switch (S44) | 23 ⇒ 5.0 |
| 14 | Steering angle sensor (N49) not initialized | 23 ⇒ 10.0 |

¹⁾ Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

| Complaint/Problem | Possible cause | Remedy/Test step ¹⁾ |
|--|---|---|
| ADS MIL (A1e27) comes on with engine running | Steering angle sensor (N49) not initialized DTC stored | Turn steering wheel from right to left stop. 12 |
| Damping too hard/too soft Damping control not functioning | | 38 ⇒ 1.0 |
| Vehicle level too low (base level) | | 34 ⇒ 1.0 (SMS, Job No. 40-0302) |
| Vehicle lowers at rear axle | | Visually check for external leaks |
| Hydraulic oil level too low | | Visually check for external leaks |
| Vehicle lowers with engine off | | Visually check for external leaks 34 ⇒ 1.0 |
| Vehicle lowers with engine running | | 33 ⇒ 1.0 |
| Vehicle lowers at front axle | | Visually check for external leaks 34 ⇒ 1.0 36 ⇒ 1.0 |
| Vehicle does not lift at one or both axle | | 33 ⇒ 1.0 32 ⇒ 1.0 |

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program - Component Locations

Components in Passenger Compartment

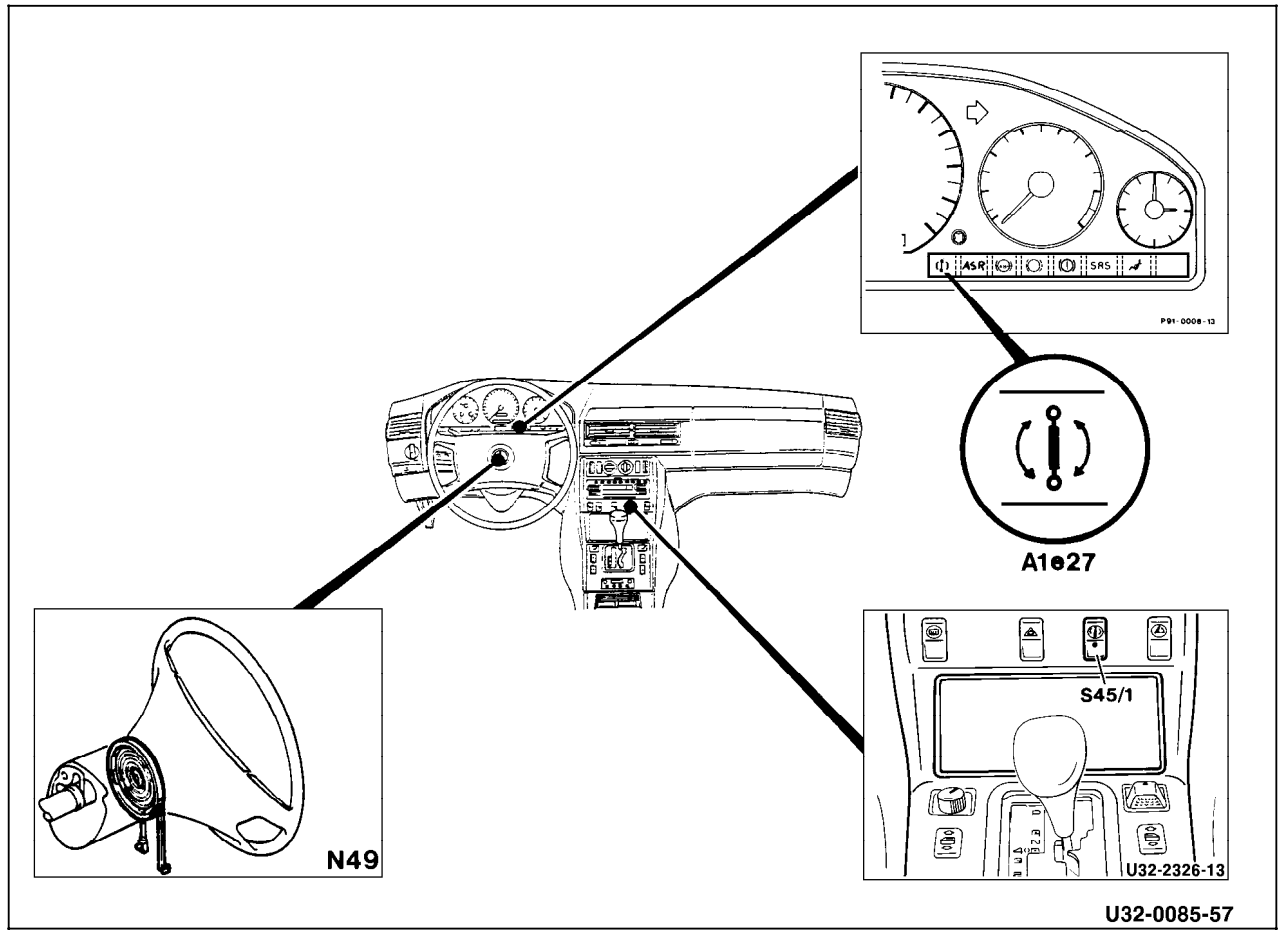


Figure 1

- A1e27 ADS MIL
- N49 Steering angle sensor
- S45/1 Comfort/sport switch

U32-0085-57

Electrical Test Program - Component Locations

Components on Front Axle and in Engine Compartment

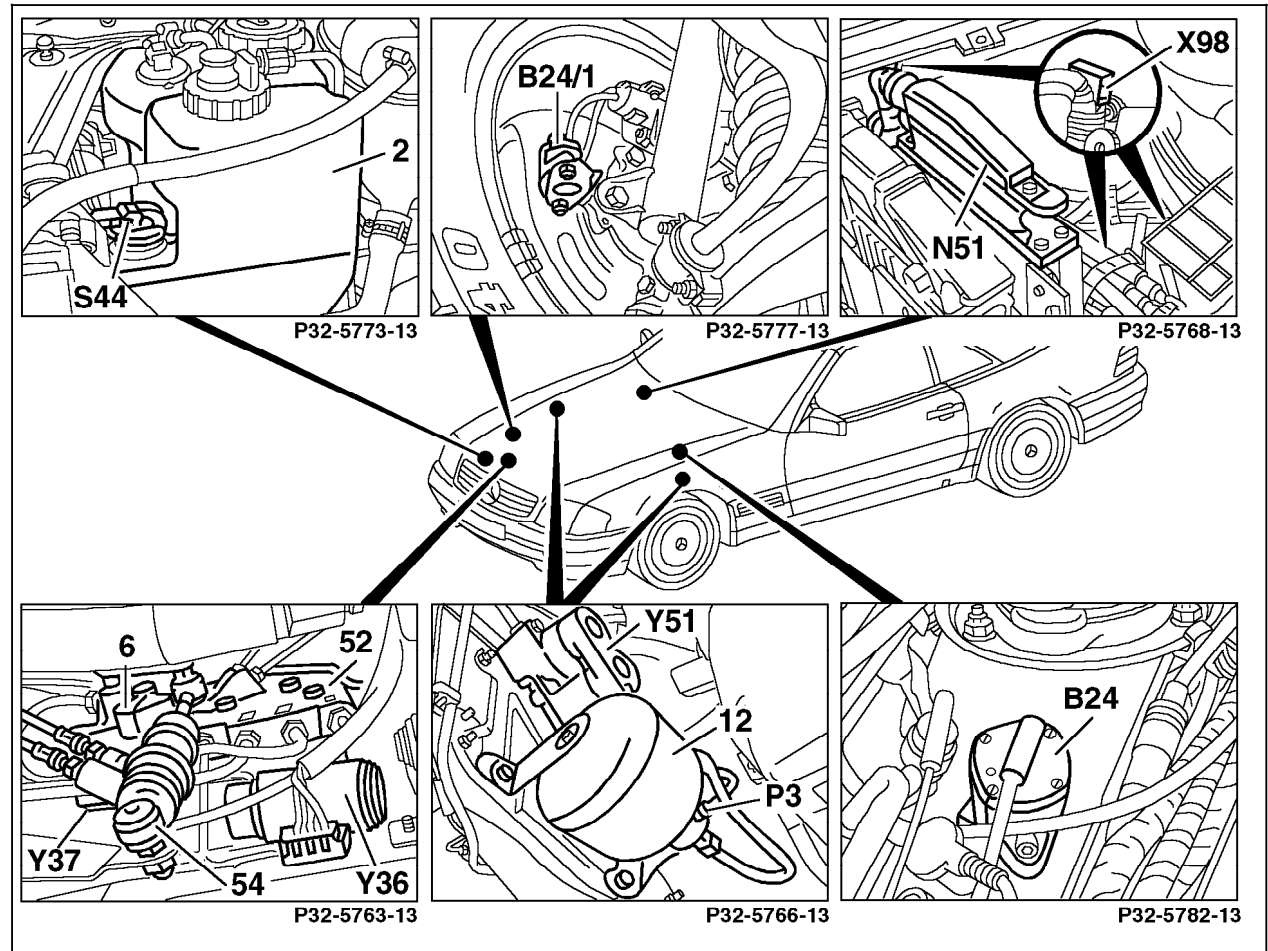


Figure 2

- B24 Body acceleration sensor
- B24/1 Wheel acceleration sensor
- N51 ADS control module
- S44 Oil level switch
- X98 Comfort/sport switchover test connector (2-pole)
- Y51 Left front axle damper valve assembly
- Y52 Right front axle damper valve assembly

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Electrical Test Program - Component Locations

Components in Rear of Vehicle

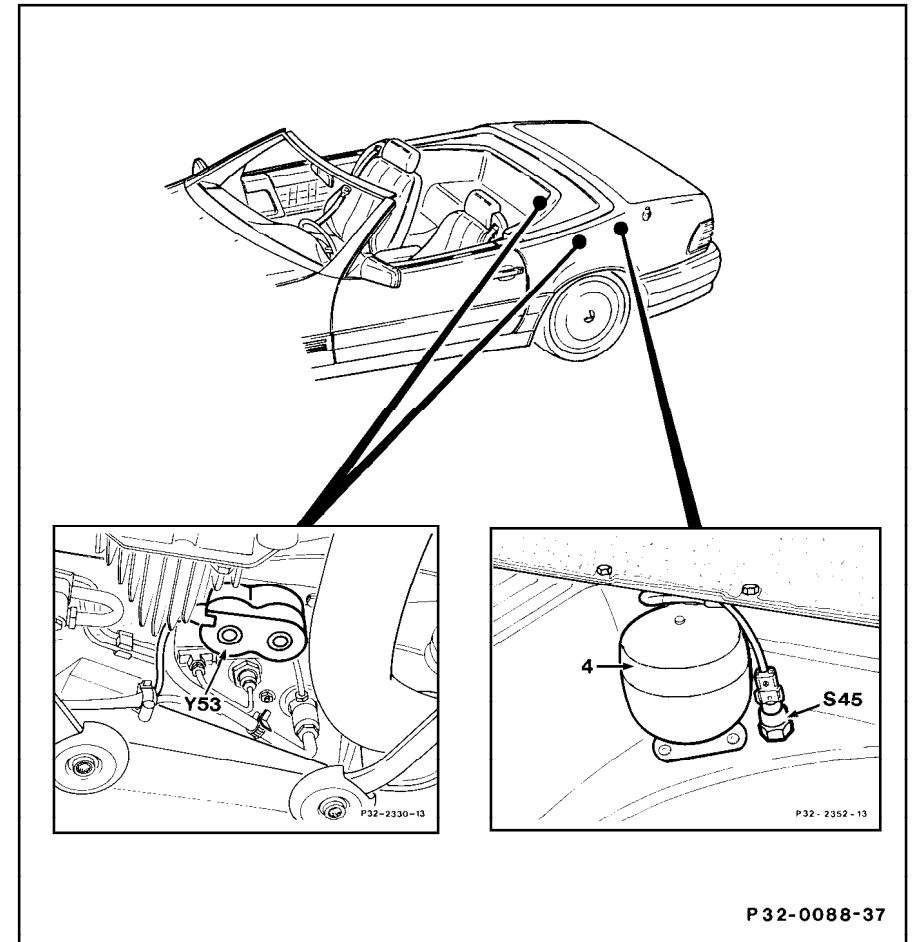


Figure 3

- S45 Load condition switch
- Y53 Left rear axle damper valve assembly
- Y54 Right rear axle damper valve assembly

P32-0088-37

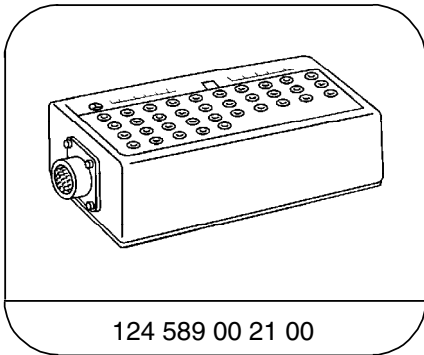
Electrical Test Program - Preparation for Test

1. Ignition: **OFF**
2. Disconnect ADS control module (N51).
3. Connect socket box and test cable to ADS control module (N51) according to connection diagram on following page.

Electrical wiring diagrams:

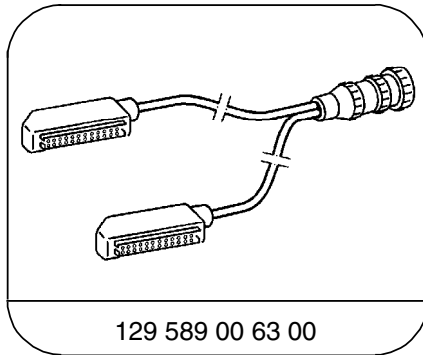
Electrical Troubleshooting Manual, Model 129.

Special Tools



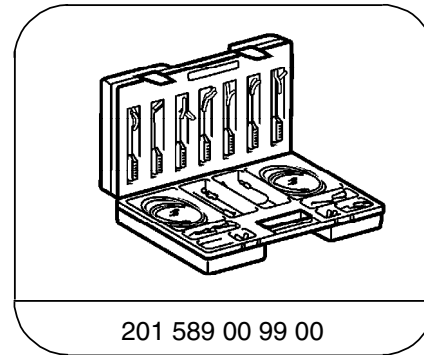
124 589 00 21 00

35-pin socket box



129 589 00 63 00

35-pin test cable



201 589 00 99 00

Electrical connecting set

Equipment

Digital multimeter ¹⁾

Fluke models 23, 83, 85, 87

¹⁾ Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Preparation for Test

Connection Diagram - Socket Box

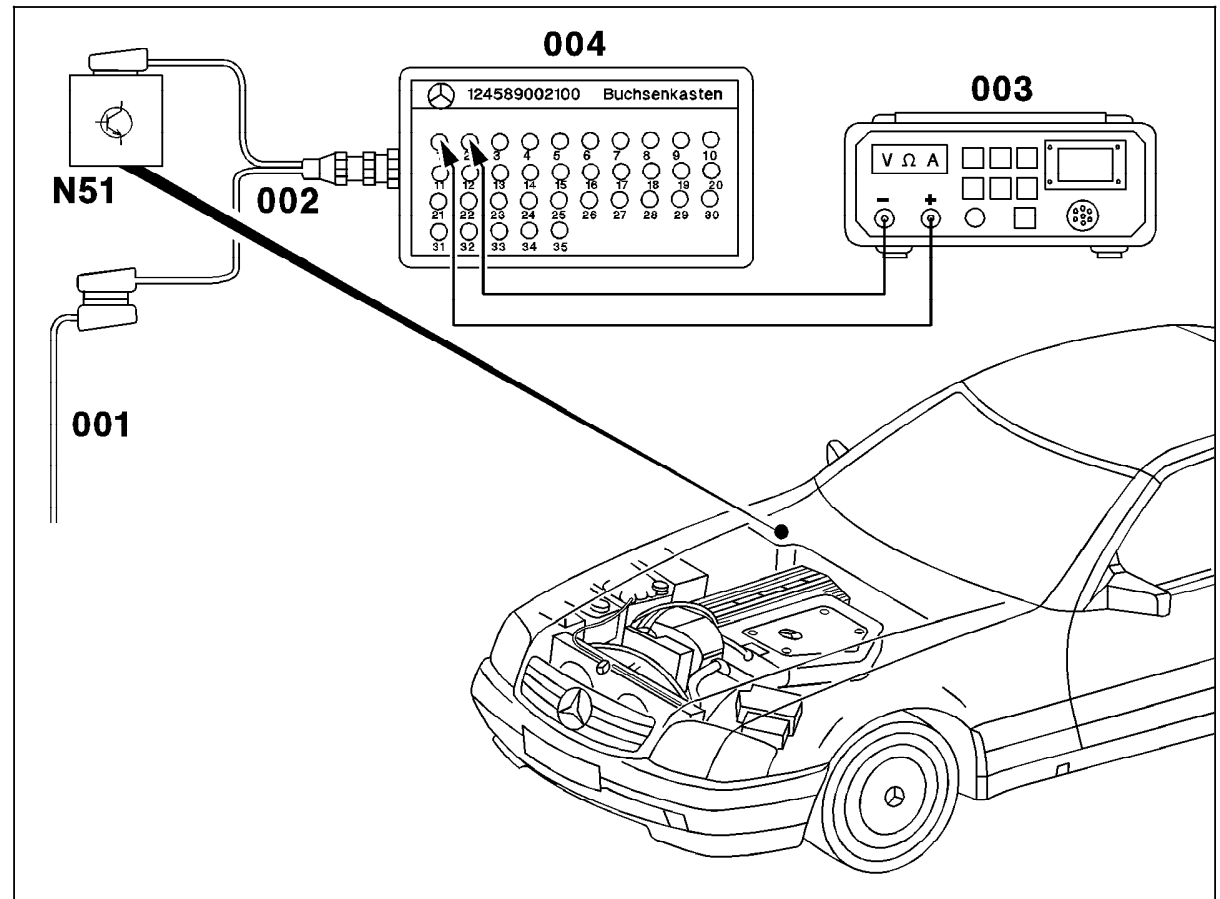


Figure 1

- 001 ADS control module connector
- 002 Test cable
- 003 Digital multimeter
- 004 Socket box (35-pole)
- N51 ADS control module

P32-5300-57

Electrical Test Program - Preparation for Test

Connection Diagram - Signal Generator

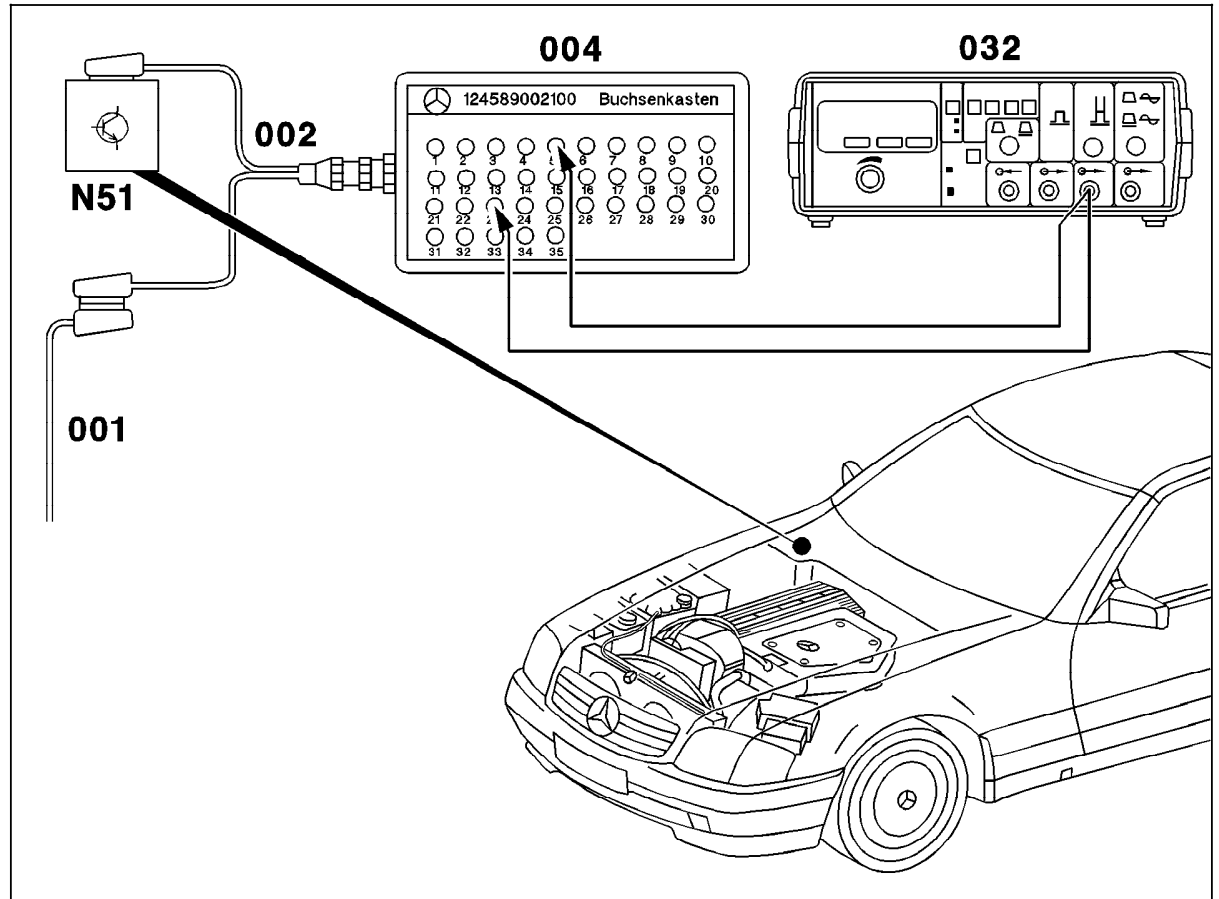


Figure 2


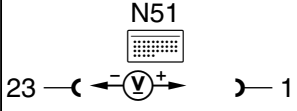
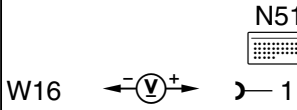
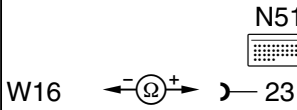
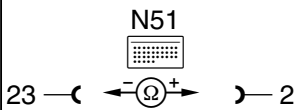
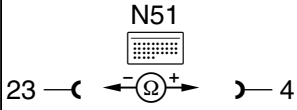
- 001 ADS control module connector
- 002 Test cable
- 003 Digital multimeter
- 004 Socket box (35-pole)
- 032 Signal generator
- N51 ADS control module

P32-5299-57


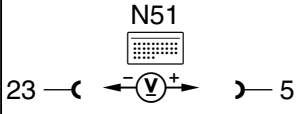

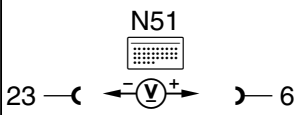
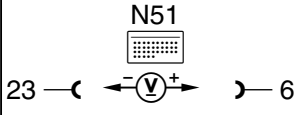
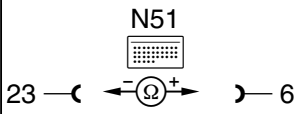
3.1 Adaptive Damping System (ADS)

Models 129.061/066

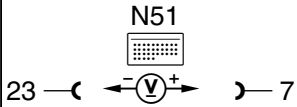
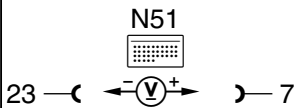
Electrical Test Program - Test

| ⇒ |  | 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). |

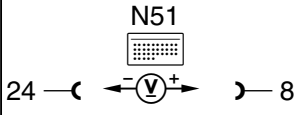
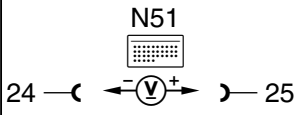
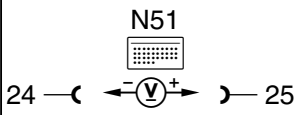
Electrical Test Program - Test

| 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. |

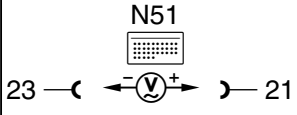
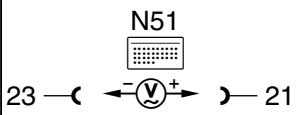
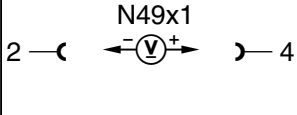
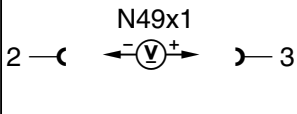
Electrical Test Program - Test

| 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

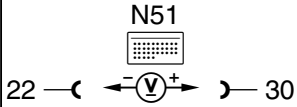
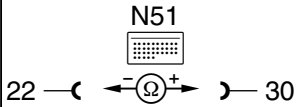
| Test step DTC | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy |
|------------------|--|---|--|---|--------------------------------------|
| ⇒ 7.0 | 4 Wheel acceleration sensor (B24/1) Voltage supply |  | Ignition: ON | 4.75 – 5.25 V | Wiring, ADS control module (N51). |
| | Static sensor signal (off) |  | | 2.35 – 2.65 V | Wiring, B24/1. |
| | Dynamic sensor signal (on) |  | 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 |  | Ignition: ON | > 3 V ~ | Wiring, ADS control module (N51), ⇒ 9.1. |
| ⇒ 9.1 | Steering angle sensor |  | Ignition: OFF Disconnect control module (N51). Ignition: ON | > 3 V ~ | Wiring, N49, ⇒ 9.2. |
| ⇒ 9.2 | Voltage supply Circuit 30a |  | Ignition: OFF Disconnect connector (N49x1). | 11 – 14 V | Wiring, ⇒ 9.3. |
| ⇒ 9.3 | Voltage supply Circuit 87L |  | 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.


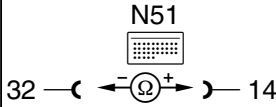
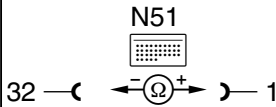
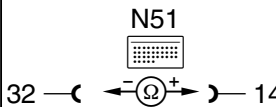

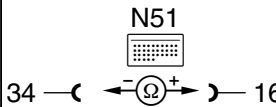
Electrical Test Program - Test

| 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). |

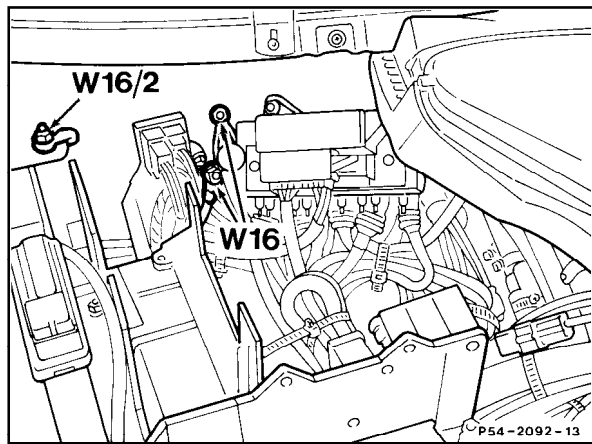
Electrical Test Program - Test

| 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. |

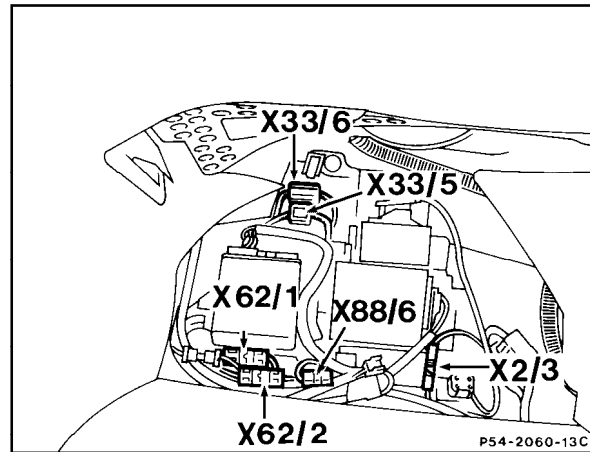
Electrical Test Program - Test



P54-2092-13

Figure 1

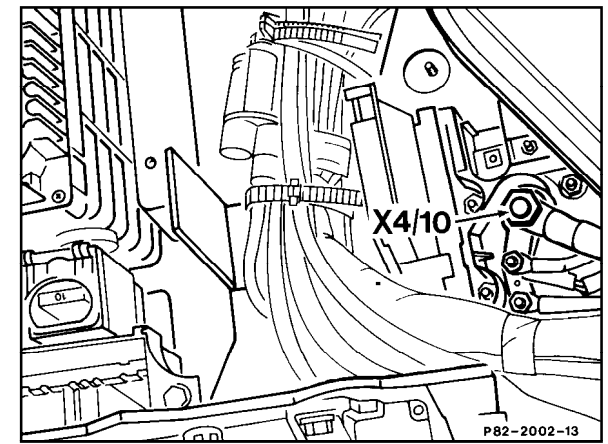
W16 Ground (component compartment)



P54-2060-13C

Figure 2

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

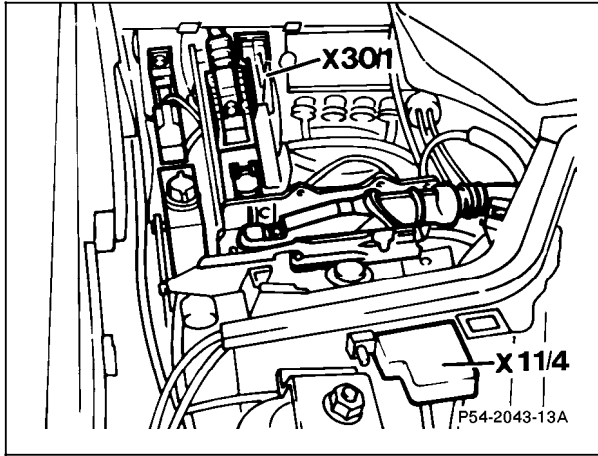


P82-2002-13

Figure 3

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

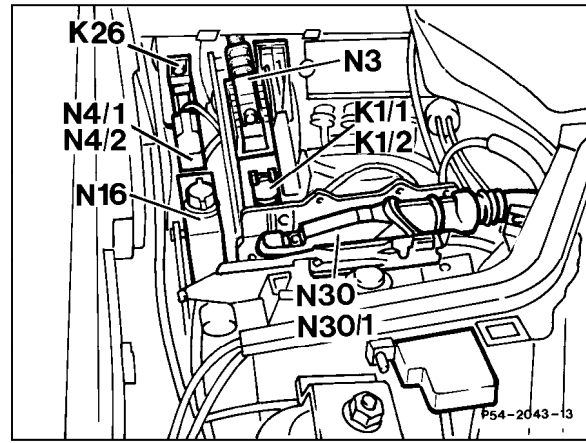
Electrical Test Program - Test



P54-2043-13A

Figure 4

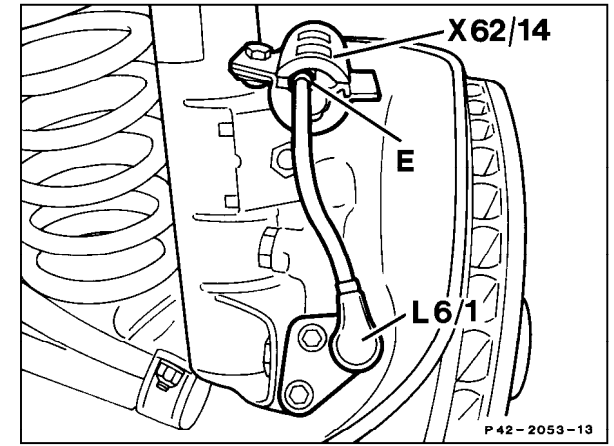
X11/4 Data link connector (DTC readout)
 X30/1 Multi-function connector block



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

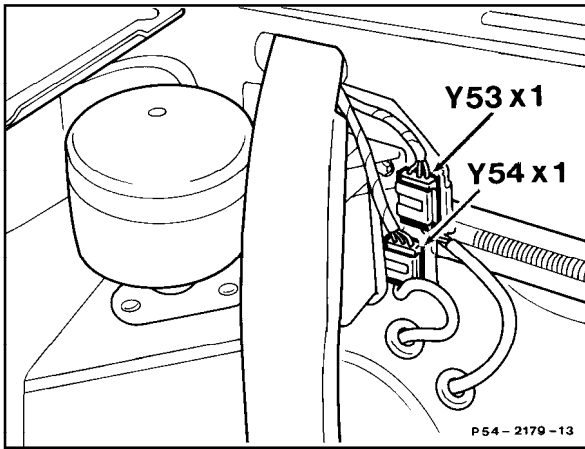


P42-2053-13

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

Hydraulic Test Program - Component Locations

Hydraulic Components on Front Axle and in Engine Compartment

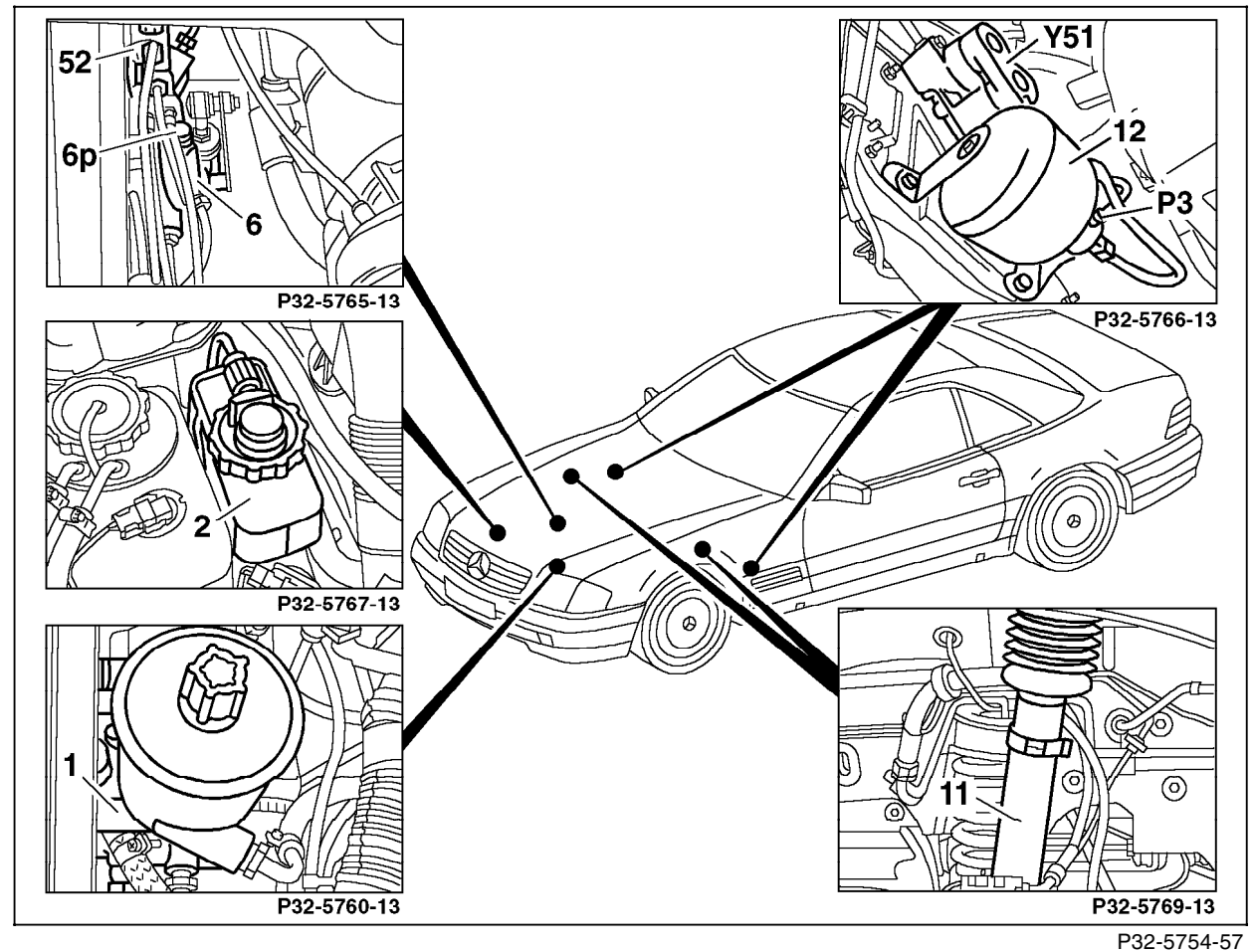


Figure 1

- 1 Hydraulic oil pump
- 2 Hydraulic oil reservoir
- 6 Front axle leveling valve
- 11 Front suspension strut
- 12 Front pressure reservoir
- 52 Distributor

Hydraulic Test Program - Component Locations

Hydraulic Component on Rear Axle and in Rear of Vehicle

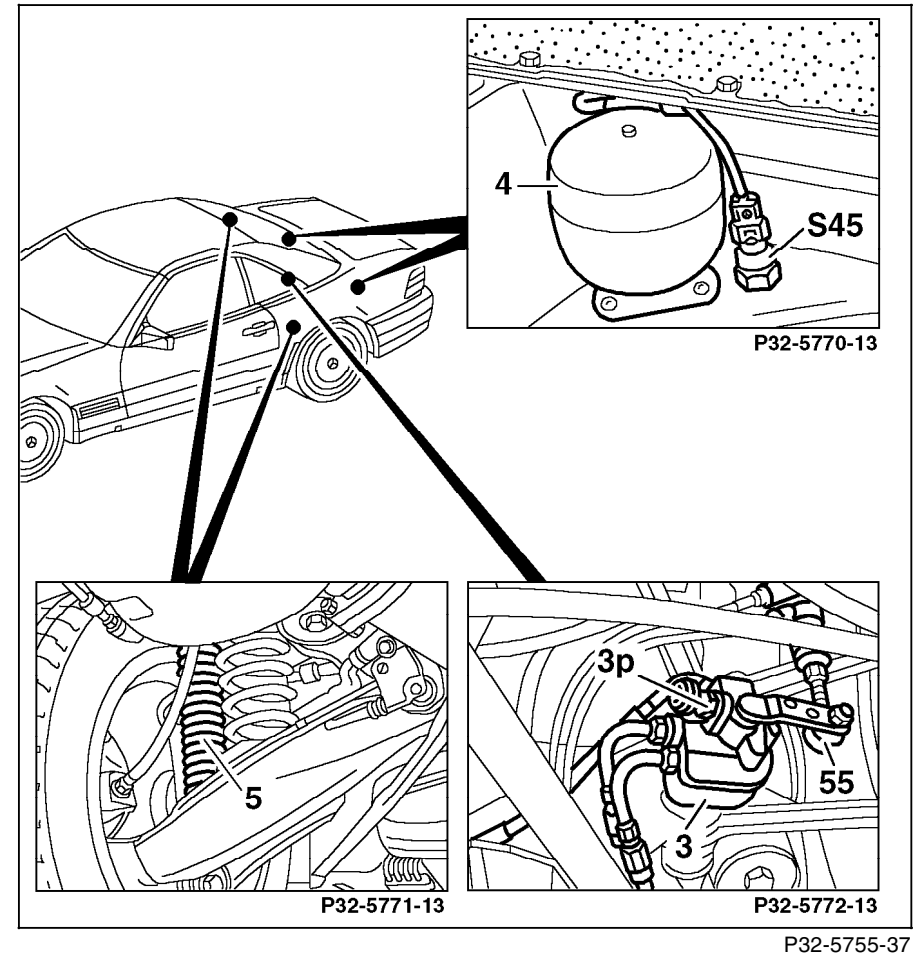


Figure 2

- 3 Rear axle leveling valve
- 4 Rear pressure reservoir
- 5 Rear suspension strut
- 55 Rear axle connecting rod

Hydraulic Test Program - Hydraulic Oil Pump Test

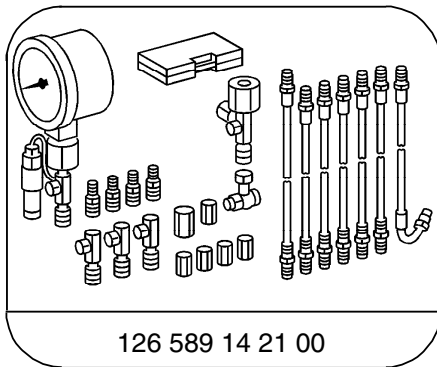
Preparation for Test

1. Check oil level in oil reservoir, correct if necessary.
2. Unscrew connecting rods (54, 55) at front and rear leveling valve levers (set levers to neutral position).
3. Depressurize rear axle hydraulic system by slowly opening bleeder screw (3p). Connect drain hose and place into container.
4. Connect test gauge to rear axle leveling valve bleeder screw (S2).
5. Set both leveling valve levers to position "F" (fill).
6. Open pressure supply screw (50a) by maximum of 1 turn.
7. Disconnect return line (T) at oil reservoir (2) and using a suitable hose, hold it in a measuring glass.

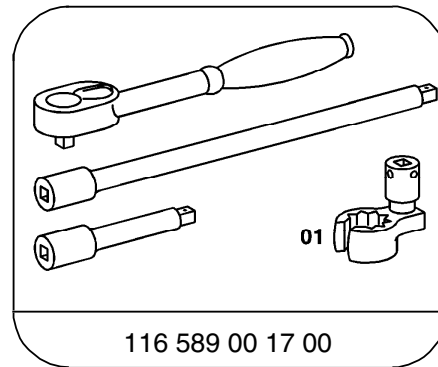


To perform this test, the oil fill quantity must be increased by 0.5 liters. If the oil reservoir was empty, the hydraulic oil pump must first be bled by disconnecting the high pressure flexible hose at the steel line. Run the engine and hold the hose into a container until the oil exits free of bubbles.

Special Tools



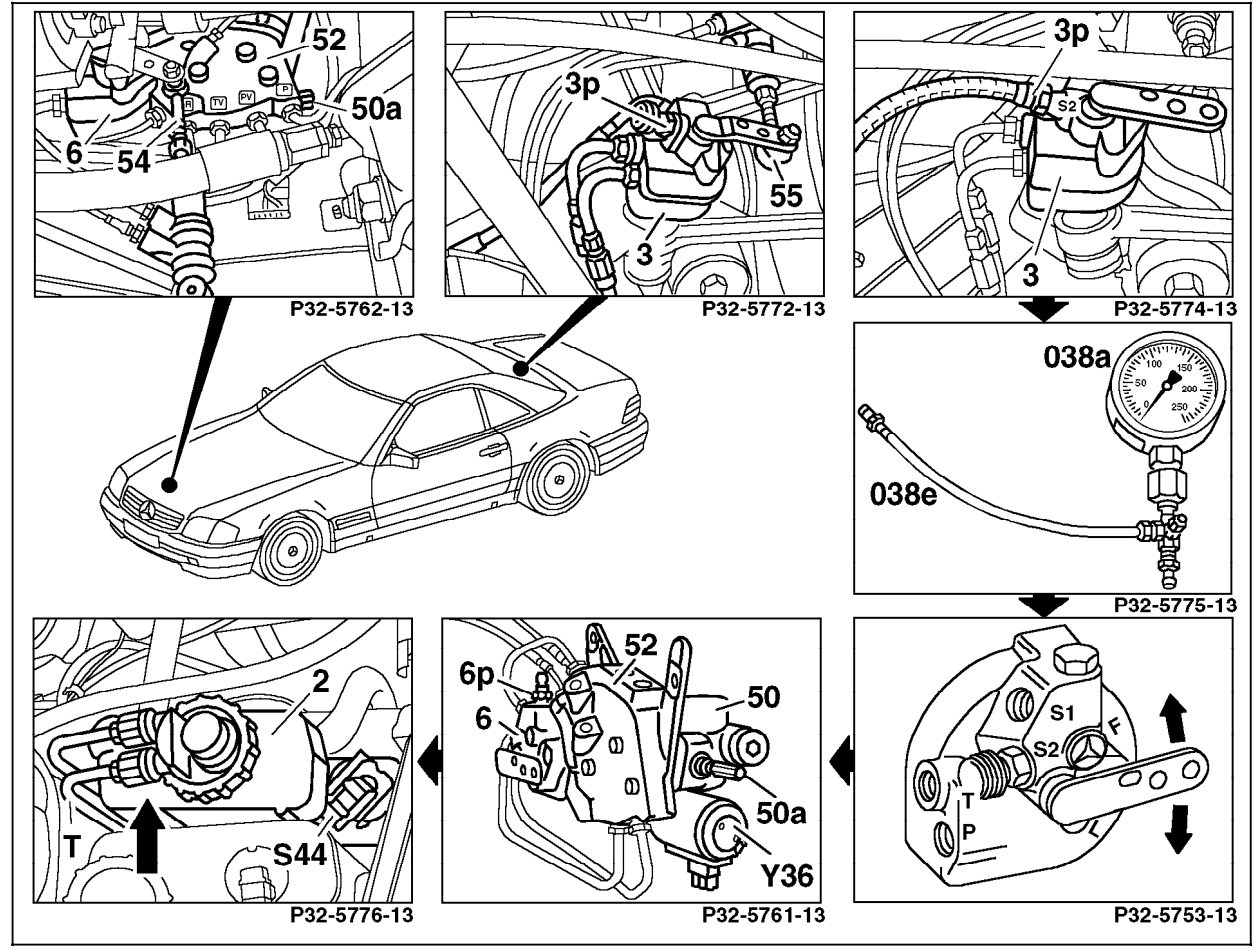
Tester



Box wrench

Hydraulic Test Program - Hydraulic Oil Pump Test

Component Locations
Model 129



P32-5756-57

Figure 1

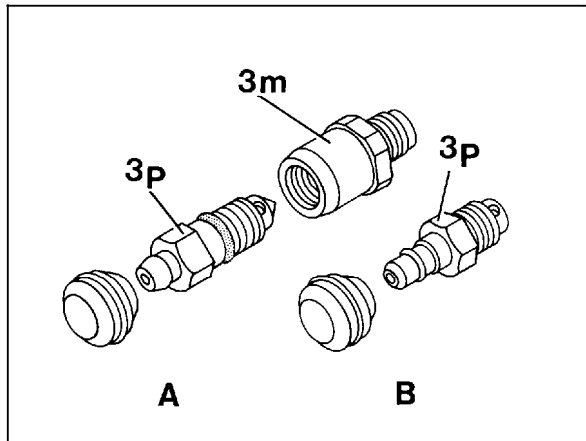
- 2 Hydraulic oil reservoir
- 3 Rear axle leveling valve
- 3p Bleeder screw
- 6 Front axle leveling valve
- 6p Bleeder screw
- 50a Pressure supply screw
- 54 Front axle connecting rod
- 55 Rear axle connecting rod
- T Return line - oil reservoir distributor/valve unit

Hydraulic Test Program - Hydraulic Oil Pump Test

| Test step | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy ¹⁾ |
|-----------|--|---|--|---|---|
| ⇒ 1.0 | Delivery pressure ⚠ WARNING! High pressure | ∃ 250 bar Connect test gague to rear axle leveling valve connection S2 | Engine: at Idle Set leveling valve lever(s) to position "F" (fill). Observe test gauge needle until pressure no longer increases. | > 133 bar Delivery capacity at idle > 0.2 l/min. | Delivery pressure < 133 bar, Delivery capacity < 0.2 l/min: Replace hydraulic oil pressure pump (SMS, Job No. 32-640) Delivery pressure < 133 bar, Delivery capacity > 0.2 l/min: see 34 |

¹⁾ Observe Preparation for Test, see 22.

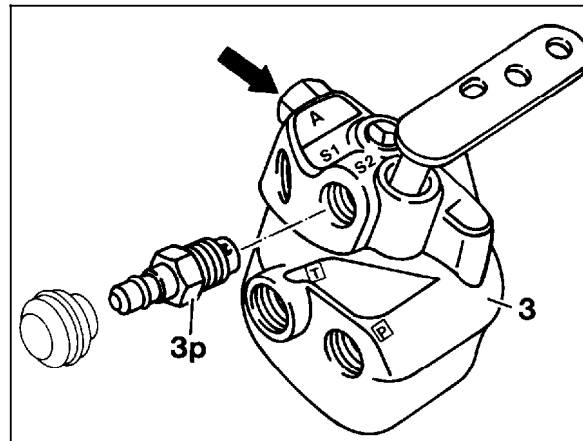
Hydraulic Test Program - Hydraulic Oil Pump Test



P32-5561-13

Figure 2

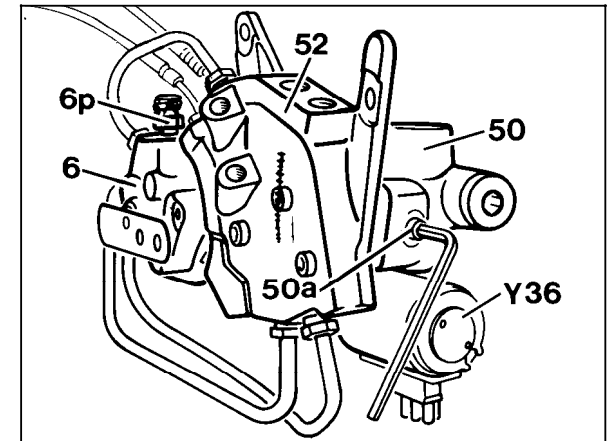
- A** **Version → 09/92**
 3m Connection fitting
 3p Bleeder screw
- B** **Version 10/92 →**
 3p Bleeder screw



P32-5568-13

Figure 3

- Version 10/92 →**
 3 Rear axle leveling valve
 3p Bleeder screw
 Arrow Closing screw



P32-2333-13a

Figure 4

- Version → 08/90**
 50a Pressure supply screw

Hydraulic Test Program - Leveling Valve Function Test

Preparation for Test

1. Check oil level in oil reservoir, correct if necessary.
2. Unscrew connecting rods (54, 55) at leveling valve levers (set lever to neutral position).



When the system is empty (i.e.: after repair work) the pressure supply screw (50a) must be loosened by approximately one turn to allow both leveling valves to fill.

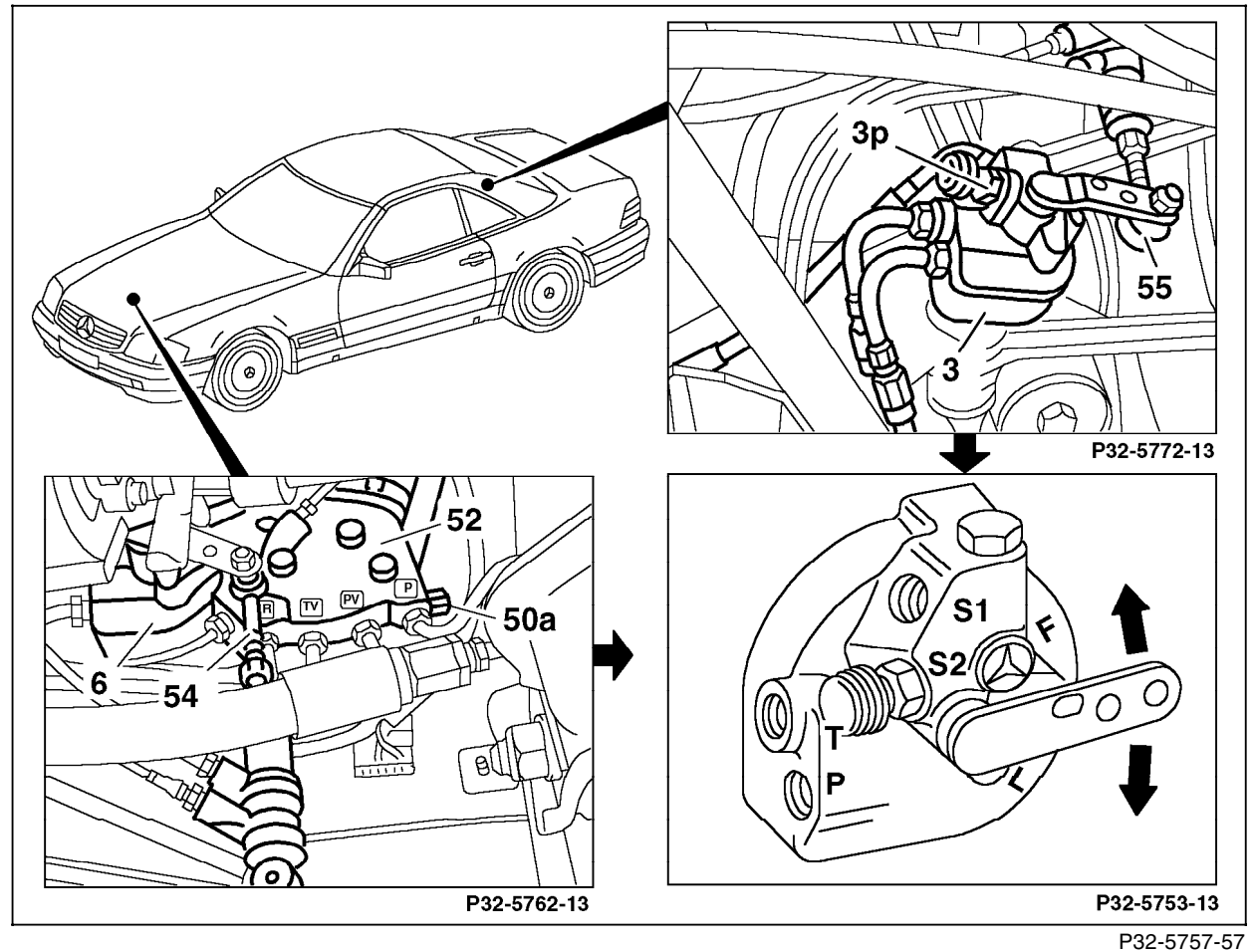


Figure 1

- 3 Rear axle leveling valve
- 6 Front axle leveling valve
- 50a Pressure supply screw
- 54 Front axle connecting rod
- 55 Rear axle connecting rod

Hydraulic Test Program - Leveling Valve Function Test

| Test step | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy |
|-----------|---|-----------------|--|--|-----------------------|
| ⇒ 1.0 | Control function Leveling valve | — | Engine: at Idle Set leveling valve lever to position "F" (fill). | Vehicle must raise at respective axle. | 34, 35 |

Hydraulic Test Program - Leveling Valve Pressure Test

Preparation for Test

1. Check oil level in oil reservoir, correct if necessary.
2. Unscrew connecting rod at front and rear leveling valve levers (set levers to neutral position).
3. Depressurize hydraulic system by slowly opening bleeder screw (3p or 6p). Connect drain hose and place into container.
4. Connect test gauge to leveling valve bleeder screw.

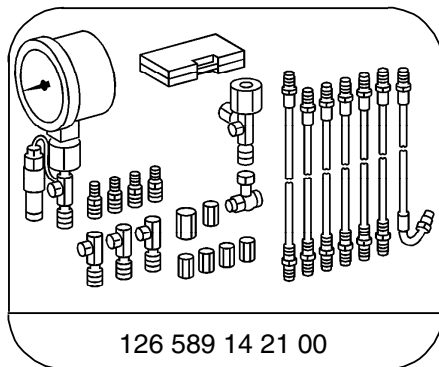
Front axle:

Connection "6p"

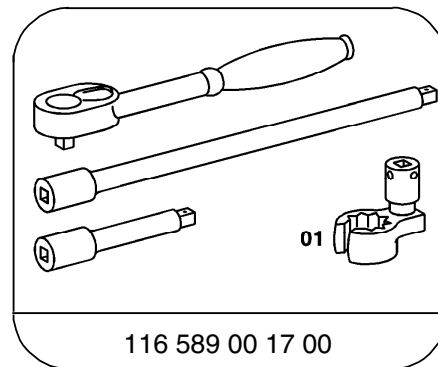
Rear axle:

Connection "3p" or leveling valve connection S2.

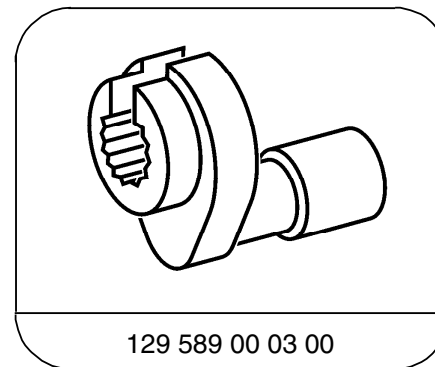
Special Tools



Tester



Box wrench



Box wrench

Hydraulic Test Program - Leveling Valve Pressure Test

Component Locations

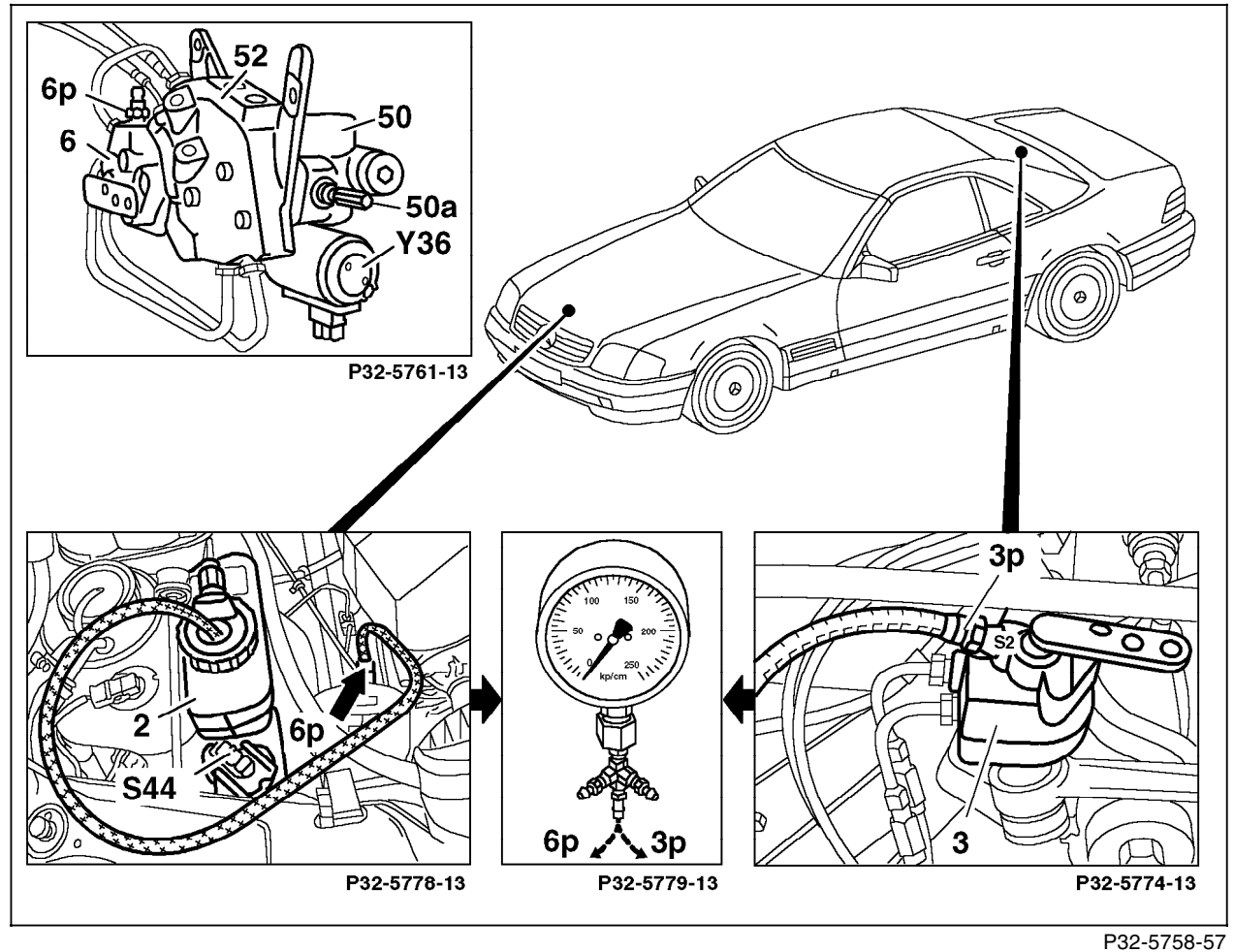





Figure 1

- 3 Rear axle leveling valve
- 3p Bleeder screw
- 6 Front axle leveling valve
- 6p Bleeder screw
- 50a Pressure supply screw

Hydraulic Test Program - Leveling Valve Pressure Test

| Test step | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy |
|-----------|---|---|--|---------------|--|
| ⇒ 1.0 | <p>Opening pressure of relief valve</p> <p> WARNING! High Pressure</p> | <p> 250</p> <p>Connect test gauge to front or rear axle leveling valve</p> | <p>Engine: at Idle</p> <p>Set leveling valve lever to "F" (fill).</p> | 133 – 153 bar | <p>> 153 bar Replace leveling valve.</p> <p>< 133 bar Set leveling valve on other axle to "F" (fill) and read pressure again.</p> <p>If new pressure reading is:</p> <p>> 133 bar Check pressure supply screw (50a) for proper seating, Replace valve assembly.</p> <p>< 133 bar 33 ⇒ 1.0</p> <p>Note: If delivery capacity > 0.2l/min., replace leveling valve.</p> |

Hydraulic Test Program - Leveling Valve Pressure Test

| Test step | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy |
|-----------|--------------------------------|--|---|---------------|---|
| ⇒ 2.0 | Overflow valve function |  250 Connect test gauge to front or rear axle leveling valve | Engine: at Idle Set leveling valve lever to "F" (fill) until gauge indicates approximately 80 bar. Set leveling valve lever to "L" (empty) | 30 – 36 bar | Rear axle: Replace leveling valve. Front axle: > 36 bar, replace leveling valve. < 30 bar, 36 ⇒ 1.0. Note: If front axle struts are not leaking, replace leveling valve. |

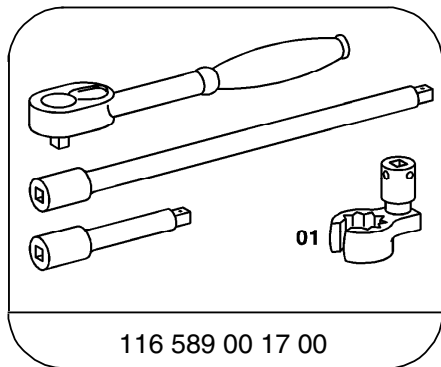
Hydraulic Test Program - Valve Assembly Internal Leakage Test

Preliminary work:
Leveling valve pressure test 34

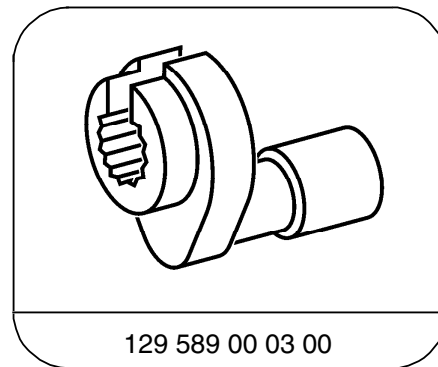
Preparation for Test

1. Check oil level in oil reservoir, correct if necessary.
2. Unscrew connecting rod at front and rear leveling valve levers (set levers to neutral position).
3. Disconnect leak oil line of suspension struts at front axle and close steel line.
4. Check pressure supply screw (50a) for proper seating.
5. Disconnect return line (T) at oil reservoir.

Special Tools



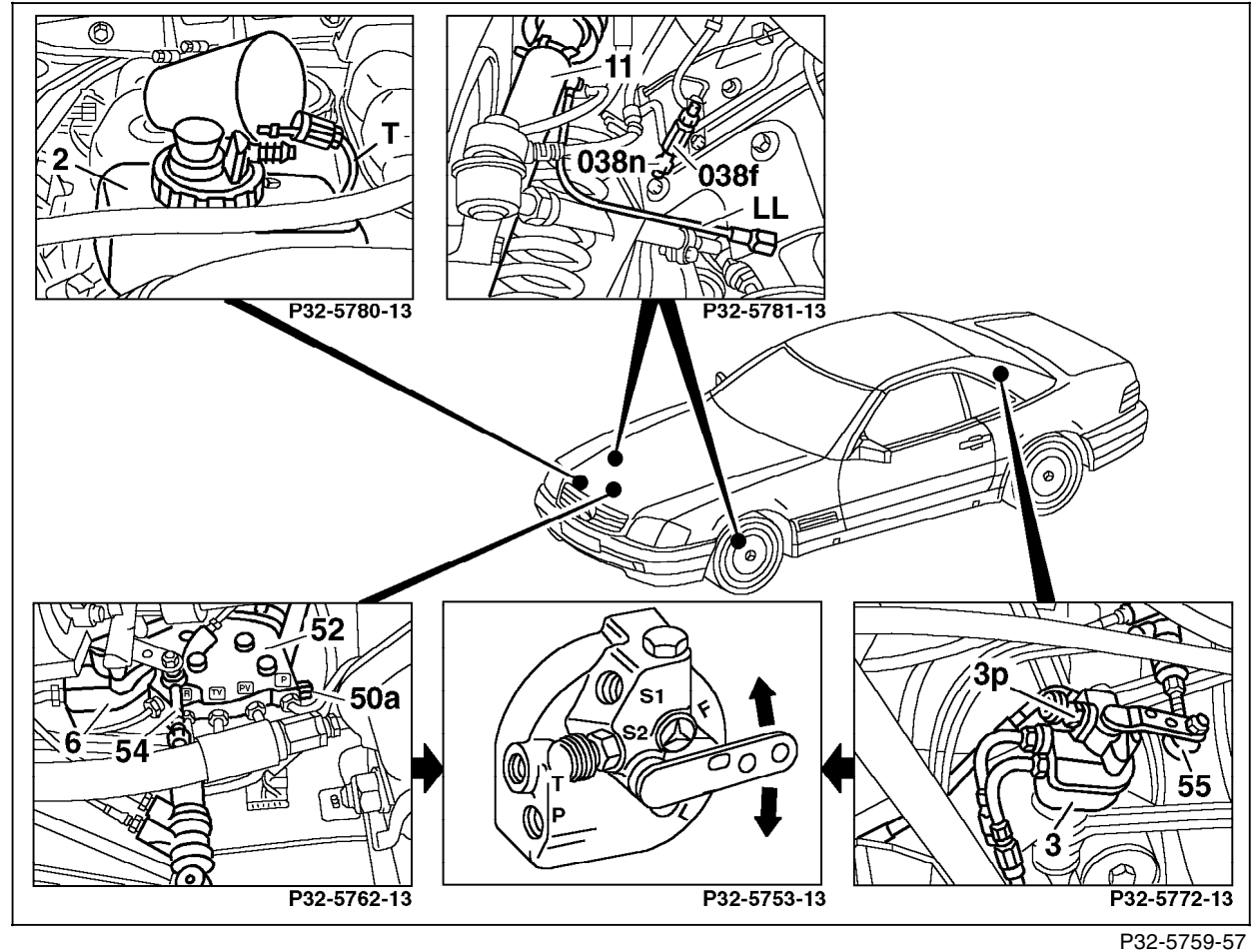
Box wrench



Box wrench

Hydraulic Test Program - Valve Assembly Internal Leakage Test

Component Locations



Hydraulic Test Program - Valve Assembly Internal Leakage Test

| Test step | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy |
|-----------|--|-----------------|--|---|---|
| ⇒ 1.0 | Valve assembly internal leakage | — | <p>Engine: at Idle Set front axle leveling valve lever to “F” (fill). Then move leveling valve lever to center position.</p> <p>Set rear axle leveling valve lever to “F” (fill). Then move leveling valve lever to center position.</p> <p>Engine: OFF Wait at least two minutes (allows valves to close).</p> <p>Move both leveling valve levers to “L” (empty).</p> | <p>Vehicle must raise at front axle.</p> <p>Vehicle must raise at rear axle.</p> <p>Vehicle must not lower.</p> | <p>Replace distributor valve or valve assembly.</p> <p>Replace distributor valve or valve assembly.</p> <p>36</p> |
| | Leak oil discharge | — | <p>Disconnect return line (T) at reservoir. Attach drain hose and place into measuring container.</p> | <p>Maximum of 2 cc oil discharge in four hours.</p> | <p>Replace distributor valve or valve assembly.</p> |

Hydraulic Test Program - Front Axle Strut Suspension Leak Test

Preparation for Test

- Weight of vehicle must rest on wheels.
- Vehicle must be in normal load/curb weight condition.

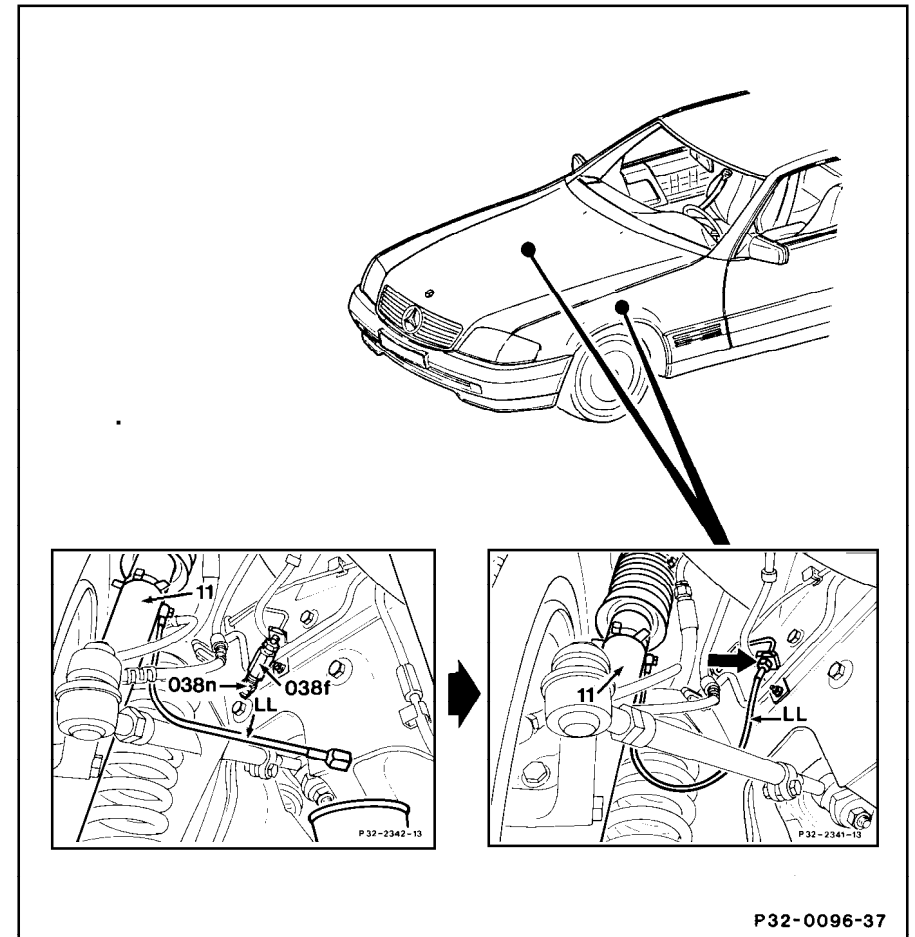


Figure 1

- 11 Front suspension strut
- LL Leak oil return line for left suspension strut, front axle distributor/valve unit
- LR Leak oil return line for right suspension strut, front axle distributor/valve unit (not shown)

P32-0096-37

P32-0096-37

Hydraulic Test Program - Front Axle Strut Suspension Leak Test

| Test step | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy |
|-----------|--------------------------|---------------------|--|---|---|
| ⇒ 1.0 | Leak oil quantity | Measuring container | Disconnect leak oil line from leak oil hoses (LL and LR) and place leak oil line in measuring container. | Maximum amount of leak oil : 2 cc in four hours. | Internal leak in strut, replace suspension strut. |

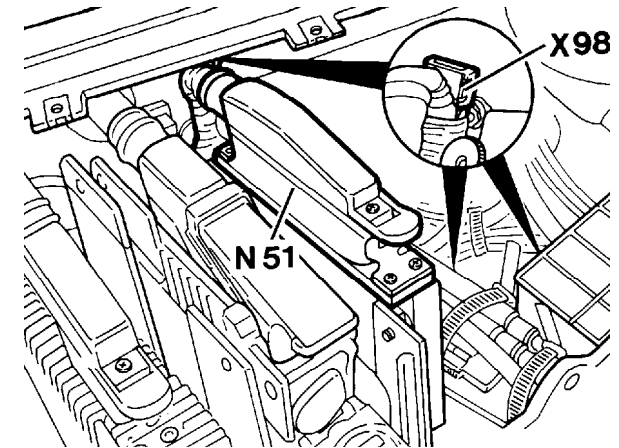
3.1 Adaptive Damping System (ADS)

Models 129.061/066

Hydraulic Test Program - Damping Test

Preparation for Test

1. Check oil level in reservoir, correct if necessary.
2. Connect Ω resistance substitution unit to comfort/sport switchover test connector (X98).

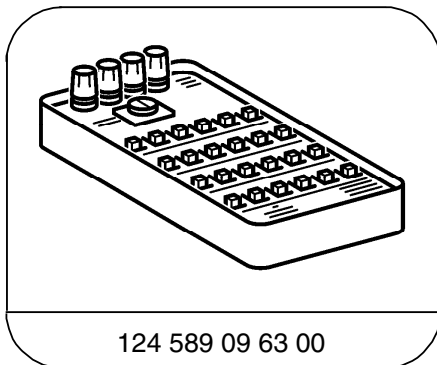


P32-2356-13A

Figure 1

| | |
|-----|--|
| N51 | ADS control module |
| X98 | Comfort/sport switchover test connector (2-pole) |







Special Tools



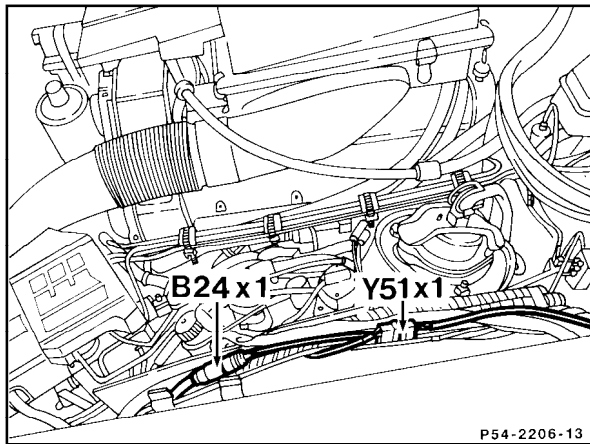
124 589 09 63 00

Ohm decade

Hydraulic Test Program - Damping Test

| Test step | Test scope | Test connection | Test condition | Nominal value | Possible cause/Remedy |
|-----------|---------------------------|--|---|--|--|
| ⇒ 1.0 | Damping adjustment |  on X98 | Set R=1200 Ω. Switch (S45/1) in: Comfort Engine: at Idle | | |
| | Hard damping | | Test all four damping valves by manually rocking vehicle. | Damping must be noticeably hard . | 23 Damper valves, Damper valve hydraulics, ADS control module (N51). |
| | Soft damping |  on X98 | Set R=420 Ω. Test all four damping valves by manually rocking vehicle.  First rock vehicle at each axle, then for comparison, disconnect the left/right front/rear axledamper valve assembly connector (Y51x1, Y52x1, Y53x1, Y54x1) while the engine is running. | Damping must be noticeably soft . | 23 Damper valves, Damper valve hydraulics, Hydraulic oil reservoir, ADS control module (N51).  If the ADS MLI (A1e27) comes on after completing this test, you must clear DTC's  and  . |

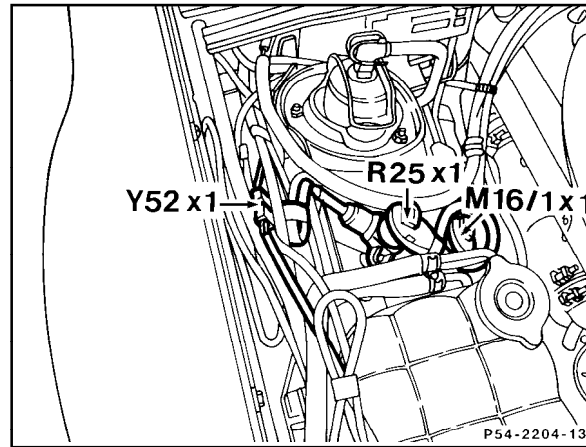
Hydraulic Test Program - Damping Test



P54-2206-13

Figure 2

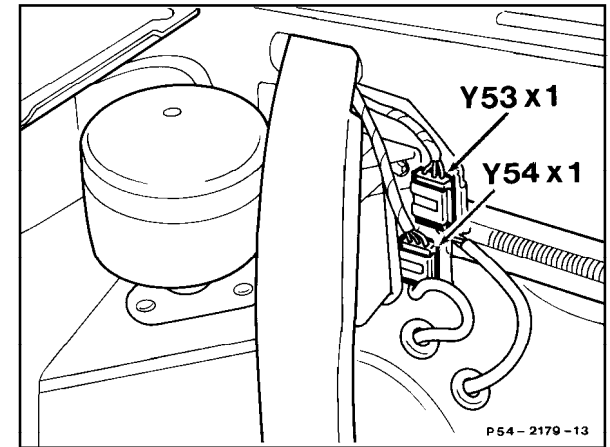
Y51x1 Left front axle damper valve assembly connector



P54-2204-13

Figure 3

Y52x1 Right front axle damper valve assembly connector



P54-2179-13

Figure 4

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