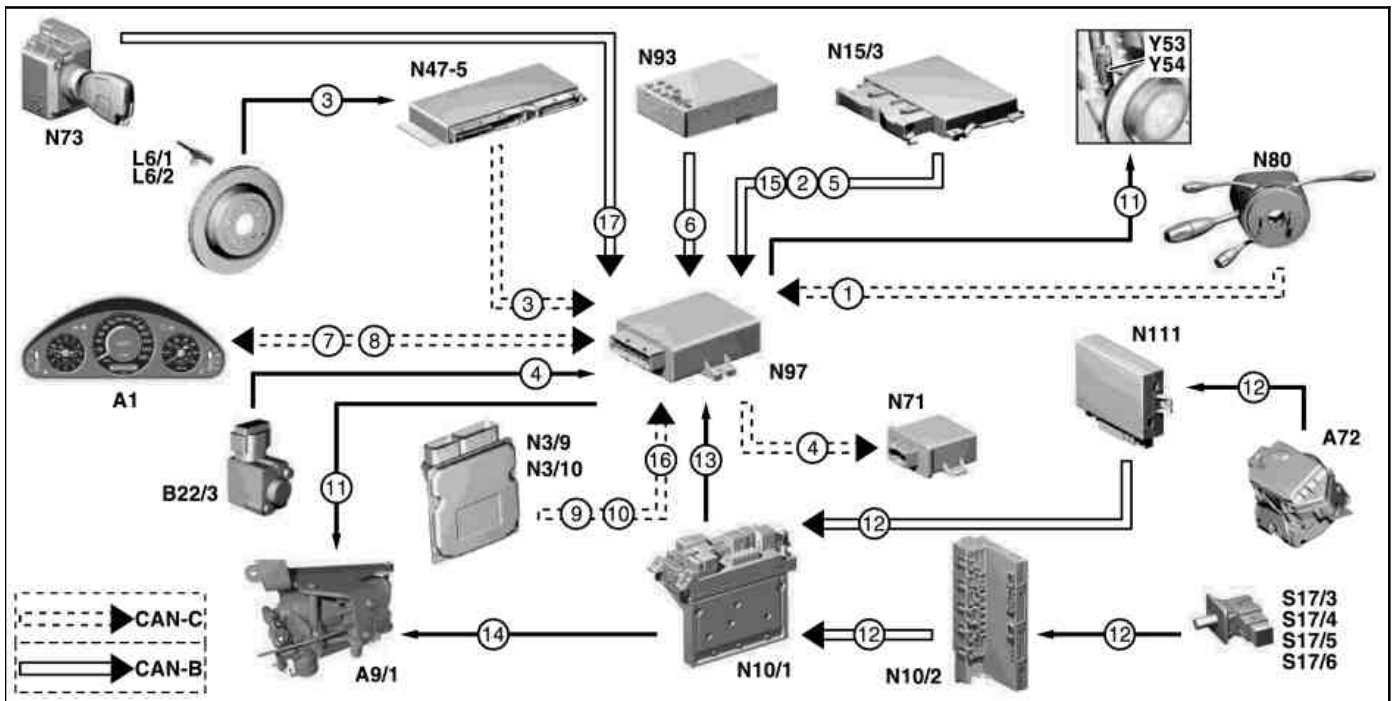


MODEL 211.2 except CODE (489a) Airmatic (semi-active air suspension)



P32.32-2046-09

Illustration of data flow

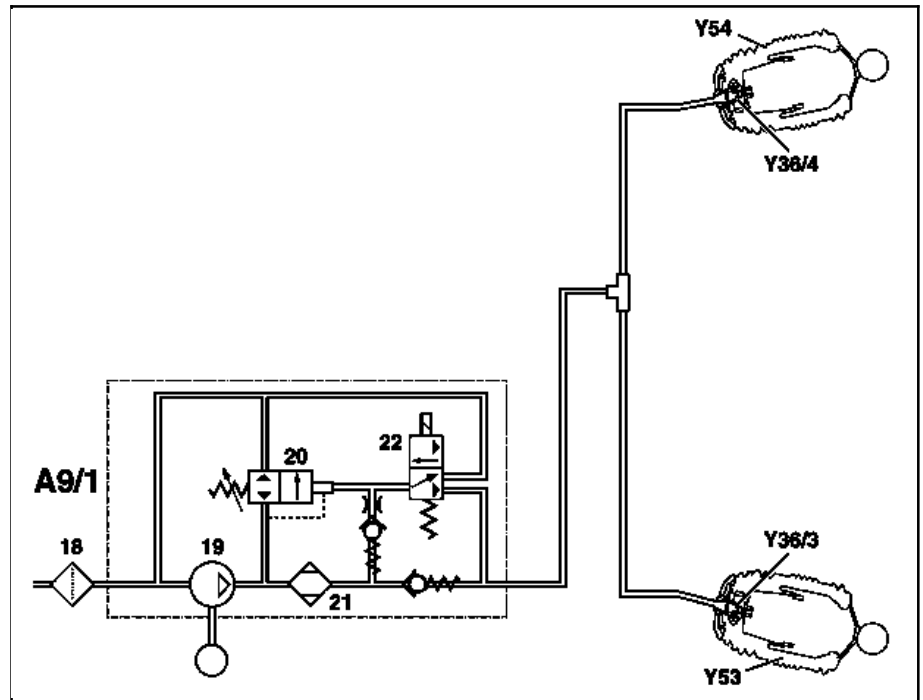
- 1 Steering angle sensor signal
- 2 All-wheel signal
- 3 Wheel speed signals
- 4 Level sensor signals
- 5 Type of drive information
- 6 Country code
- 7 System/error messages
- 8 Outside temperature
- 9 Atmospheric pressure
- 10 Vehicle data
- 11 Change vehicle level
- 12 Status of door rear-end door contact
- 13 Wake-up signal for door / rear-end door contact
- 14 Load current of AIRmatic compressor unit motor
- 15 Gear information
- 16 Intake air temperature for AIRmatic compressor unit control
- 17 Circuit status

- A1 Instrument cluster
- A9/1 AIRmatic compressor unit
- A72 Rear-end door locking unit
- B22/3 Rear axle level sensor
- L6/1 Left front rpm sensor
- L6/2 Right front rpm sensor
- N3/9 CDI control unit (diesel engines)
- N3/10 Motor electronics control unit (gasoline engines)
- N10/1 Driver-side SAM control unit with fuse and relay module
- N10/2 Rear SAM control unit with fuse and relay module
- N15/3 ETC [EGS] control unit (with transmission 722)
- N47-5 ESP, SPS and BAS [ESP, PML and BAS] control unit
- N71 Headlamp range adjustment control unit

- N73 Electronic ignition switch control unit
- N80 Steering column module
- N93 Central gateway control unit
- N97 Level control system control unit
- N111 Rear-end door control unit
- S17/3 Left front door contact switch
- S17/4 Right front door contact switch
- S17/5 Left rear door contact switch
- S17/6 Right rear door contact switch
- Y53 Left rear axle damping valve unit
- Y54 Right rear axle damping valve unit
- CAN-B CAN class B
- CAN-C CAN class C

Pneumatics function diagram

18	Air cleaner
19	Air compressor
20	Over pressure / residual pressure valve
21	Air drier
22	Relief valve
A9/1	AIRmatic compressor unit
Y36/3	Left rear level control valve
Y36/4	Right rear level control valve
Y53	Left rear axle damping valve unit
Y54	Right rear axle damping valve unit



P32.33-2010-06

Function prerequisites

- Ignition ON or
- Engine running

Function

The electronic rear axle level control system changes the vehicle level at the rear axle when the vehicle is loaded or unloaded. To do this, the system features the left rear axle damping valve unit (Y53) and the right rear axle damping valve unit (Y54) at the rear axle, which are used to counteract both the static and dynamic load components. The vehicle level is adjusted at the rear axle via the left rear axle damping valve unit (Y53) and the right rear axle damping valve unit (Y54).

If the AIRmatic compressor unit (A9/1) supplies air to the left rear axle damping valve unit (Y53) or the right rear axle damping valve unit via the left rear level control valve (Y36/3) or via the right rear level control valve (Y36/4)

(Y54) the vehicle level is raised. The vehicle level is lowered if air is released from the left rear axle damping valve unit (Y53) or from the right rear axle damping valve unit (Y54) via the relief valve (22) in the AIRmatic compressor unit (A9/1).

i During normal operation, the AIRmatic compressor unit (A9/1) operates with a pressure of between 6 and 10 bar depending on the vehicle load.

Wake-up input

When the ignition is switched off (circuit 87 off), the driver-side SAM control unit with fuse and relay module (N10/1) "wakes" the rear axle level control system control unit (N97) via a hardware line. The door contact switches (S17/3, S17/4, S17/5, S17/6), the rear-end door locking unit (A72) and opening/closing operations using the transmitter key are also involved in this process. The control unit is woken so that it can check the current vehicle level and lower the vehicle to the design level if necessary.

The AIRmatic compressor unit (A9/1) is not normally actuated in the wake-up mode when the engine is switched off as this would add a large load to the on-board electrical system. (A9/1)

The status of the door contact switches (S17/3, S17/4, S17/5, S17/6) and the status of the rear-end door locking unit (A72) are passed to the driver-side SAM control unit with fuse and relay module (N10/1) by the rear SAM control unit with fuse and relay module (N10/2) and rear-end door control unit (N111), respectively. The driver-side SAM control unit with fuse and relay module (N10/1) then wakes the rear axle level control system control unit (N97) using a signal passed via the hardware line.

When the ignition is switched off, the driver-side SAM control unit with fuse and relay module (N10/1) sends a wake-up signal for 5 seconds to the rear axle level control system control unit (N97) if a door or the load compartment is opened, or if the driver uses the transmitter key. The lock function of the rear axle level control system control unit (N97) is activated during this time.

When the ignition is switched on, the driver-side SAM control unit with fuse and relay module (N10/1) sends a wake-up signal to the rear axle level control system control unit (N97) provided at least one door or the load compartment is open or the driver has used the transmitter key to open or close a door/the load compartment. The rear axle level control system control unit (N97) is activated by a wake-up signal at the wake-up input. The unit remains in operation only throughout the duration of the wake-up procedure even if the wake-up signal at the wake-up input still remains after the wake-up procedure has been completed. The rear axle level control system control unit (N97) can only be woken again after switching off the wake-up signal and then switching it on again.

The wake-up mode is interrupted when circuit 61 is switched on (engine running). The rear axle level control system control unit (N97) then switches to the normal operating mode. The wake-up input is also used together with the vehicle speed signal to detect any change in load. The level control algorithm is changed accordingly.

The electronic rear axle level control system is actuated when:

Circuit 87 is ON

- The vehicle level is too high and is lowered to the specified level.
- The vehicle level is too low and is raised to the specified level.

Circuit 61 is on (rear axle level control system control unit (N97) not in diagnostic mode)

- The initial test is started.
- The algorithm for level control is active.

Lock position

It is important that the system automatically detects if the wheels of the vehicle are unloaded and that it sets a lock position. A lock position is required so that when the vehicle level is raised intentionally (e.g. using a jack) air is not continuously released from the left rear axle damping valve unit (Y53) or from the right rear axle damping valve unit (Y54) to lower the vehicle. The lock position prevents actuation of the left rear level control valve, the right rear level control valve and the AIRmatic compressor unit (A9/1).

If the rear axle level control system control unit (N97) has set the lock position, an error message is not displayed in the instrument cluster (A1) and an error is not stored. The rear axle level control system control unit (N97) automatically deletes the lock position under certain conditions (such as left front axle wheel rpm or right front axle wheel rpm > 0 km/h) and the level control functions are once again operational. The end limits are actuated via diagnosis irrespective of the lock position status, i.e. actuation is always possible.

	Electronic rear axle level control, driver information		GF32.33-P-0004-01A
	Electronic rear axle level control, networking of components		GF32.33-P-0004-05A
	Electronic rear axle level control, location of components		GF32.33-P-0004-06A
	Rear axle damping valve unit, location/task/design/function		GF32.25-P-2000A
	Compressor unit, location/task/design/function		GF32.22-P-4101B
	Level sensor, location/task/design/function		GF32.31-P-4400T
	Rear axle level control system control unit, location/task		GF32.33-P-3300A