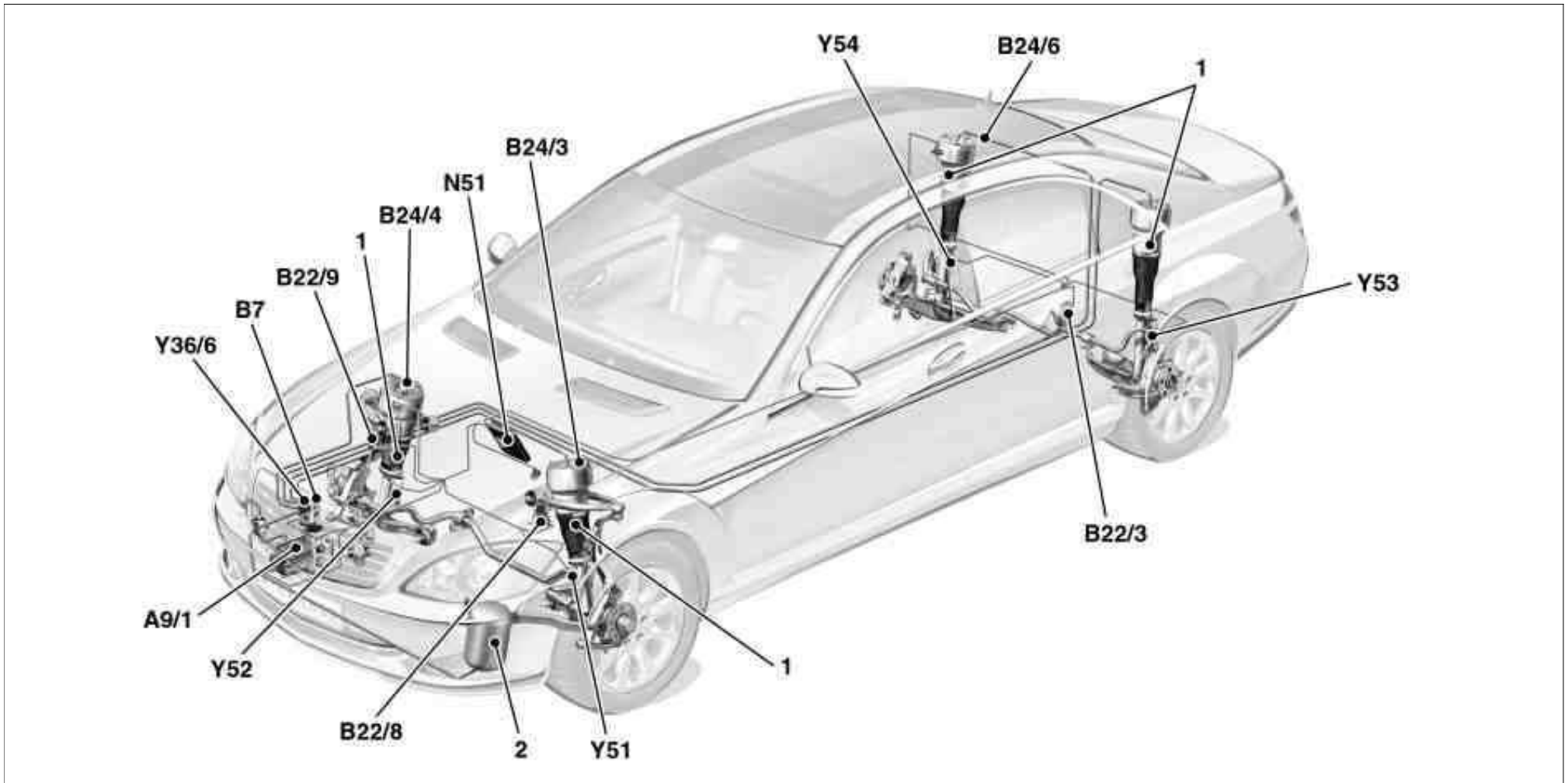


Document title AIRmatic, function

Document number gf3222p0003sx

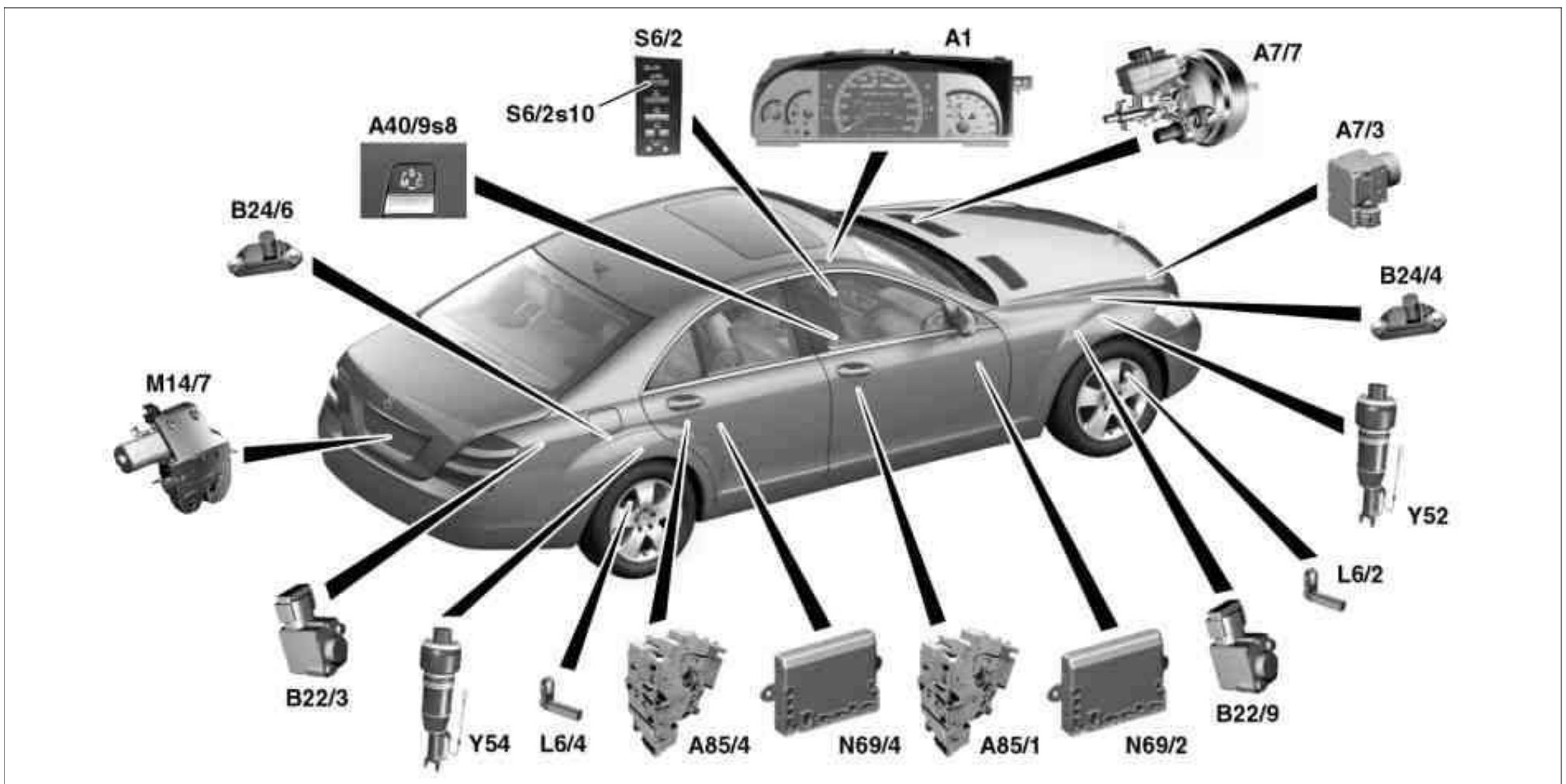
MODEL 221
with CODE (489) Airmatic (semi-active air suspension)
up to Model Year 8



P32.22-2370-09

System overview

1	Suspension struts with air springs	B24/3	Left front body lateral acceleration sensor	Y51	Left front axle damping valve unit
2	Central reservoir (pressure reservoir)	B24/4	Right front body lateral acceleration sensor	Y52	Right front axle damping valve unit
A9/1	AIRmatic compressor unit	B24/6	Right rear body lateral acceleration sensor	Y53	Left rear axle damping valve unit
B7	AIRmatic pressure sensor	N51	AIRmatic with ADS control unit	Y54	Right rear axle damping valve unit
B22/3	Rear axle level sensor	Y36/6	Level control valve unit		
B22/8	Left front level sensor				
B22/9	Right front level sensor				

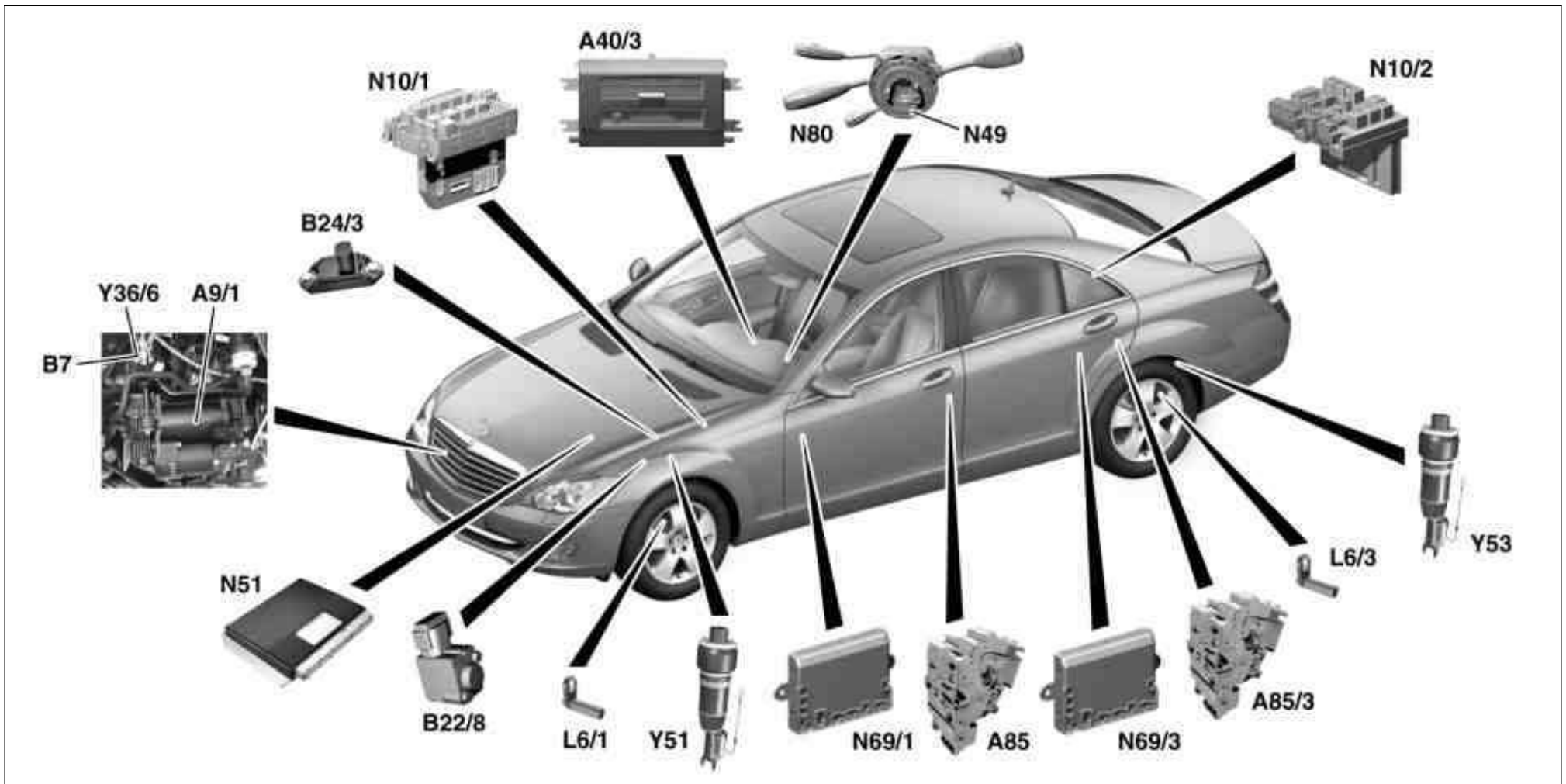


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Systemübersicht Elektrik/Elektronik

A1	Instrument cluster	B22/9	Right front level sensor	N69/2	Right front door control unit
A7/3	Traction system hydraulic unit	B24/4	Right front body lateral	N69/4	Right rear door control unit

A7/7	BAS brake booster		acceleration sensor	S6/2	Cockpit switch group
A40/9s8	Transmission modes button	B24/6	Right rear body lateral acceleration sensor	S6/2s10	Level adjustment switch
A85/1	Right front door lock switch	L6/2	Right front rpm sensor	Y52	Right front axle damping valve unit
A85/4	Right rear door lock unit	L6/4	right rear rpm sensor	Y54	Right rear axle damping valve unit
B22/3	Rear axle level sensor	M14/7	Trunk lid CL [ZV] motor		



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A9/1	AIRmatic compressor unit	L6/1	Left front rpm sensor	N69/3	Rear left door control unit
A40/3	COMAND control unit	L6/3	Left rear rpm sensor	N80	Steering column module
A85	Left front door lock unit	N10/1	Front SAM control unit with fuse and relay module	Y36/6	Level control valve unit
A85/3	Left rear door lock unit	N10/2	Rear SAM control unit with fuse and relay module	Y51	Left front axle damping valve unit
B7	AIRmatic pressure sensor	N49	Steering angle sensor	Y53	Left rear axle damping valve unit
B22/8	Left front level sensor	N51	AIRmatic with ADS control unit		
B24/3	Left front body lateral acceleration sensor	N69/1	Left front door control unit		

System control algorithm

The control algorithm for this system is also called skyhook algorithm. A deciding criterion for determining the suitable damping force stage (damper adjustment) for the respective driving situation is the direction of motion of the body. For an upwards motion, the damper must provide a hard rebound stage and a soft compression stage. For a downwards motion, a soft rebound stage and a hard compression stage is required.

System functions

The following always applies:

- Once the ignition is switched off and switched on again the level last selected as well as the damping stage last adjusted is active.
- The information on the damping force stage last adjusted comes from the instrument cluster via the central CAN, from the central gateway control unit (N93), via the chassis CAN to the AIRmatic with ADS control unit.

Wake-up signal

The AIRmatic with ADS control unit is activated (woken up) by the active chassis CAN in order to check the instantaneous vehicle level and to correct it if necessary.

If the AIRmatic with ADS control unit detects a fault the corresponding fault message is led to the central gateway control unit via the chassis CAN and on to the instrument cluster via the central CAN. Thereupon the instrument cluster displays a message in the multifunction display (A1p13).

A level is controlled in wake mode e.g. by loading and unloading the vehicle without the AIRmatic compressor unit cutting in.

A critical condition, such as too low a vehicle level at the front axle, for which the full wheel angle can no longer be guaranteed, is detected by the AIRmatic with ADS control unit as a fault.

If the AIRmatic with ADS control unit detects a fault, the corresponding fault message is transmitted to the central gateway control unit via the chassis CAN and on to the instrument cluster via the central CAN. The driver's attention is brought to the condition by the message "Please wait for a short time, vehicle lifting up". When the active chassis CAN wakes the AIRmatic with ADS control unit a time lead results which is used to correct the vehicle level. The waiting time for level correction is shortened as a result and the availability of the vehicle is increased.

Lifting up from the critical level takes place irrespective of the condition of the on-board electrical system which the vehicle power supply control unit (N82/1) determines. The battery network control unit continuously evaluates the on-board electrical system voltage and interrupts/prevents the lifting process if necessary. Current-intensive consumers are switched off according to a set sequence until a specified minimum voltage is reached.

	Pressure supply, function		GF32.22-P-4010SX
	AIRmatic suspension, function		GF32.22-P-4011SX