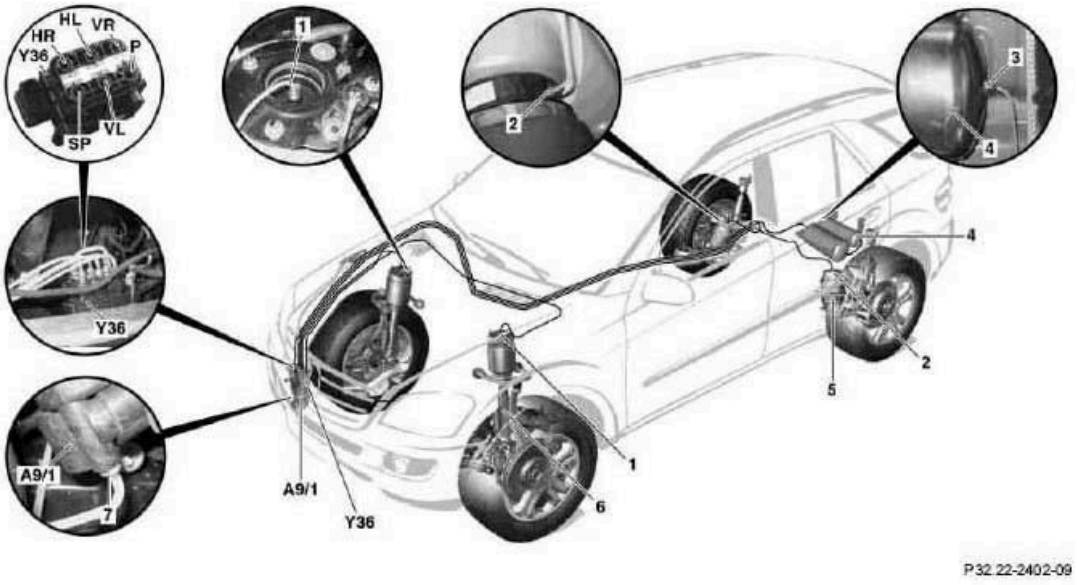
GENERAL INFORMATION

SPECIAL INFORMATION ON AIRMATIC - AH32.22-P-1000-02GZ

Overview of AIRmatic suspension, shown on model 164.1 with AIRmatic (air suspension with level adjustment and adaptive damping system ADS), code 489



1	Pressure line connections	A9/1	AIRmatic compressor unit	P	to AIRmatic compressor unit
2	Pressure line connections	Y36	AIRmatic valve unit	SP	to central reservoir
3	Pressure line connection			FL	to left front suspension strut
4	Central reservoir	RL	to left rear air spring	FR	to right front suspension strut
5	Air suspensions	RR	to right rear air spring		
6	Air suspension struts				
7	Pressure line connection				

Fig. 1: Overview Of AIRmatic Suspension (Shown On Model 164.1 With AIRmatic)
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

Model 164.1: Possible equipment variant with front steel suspension and rear air suspension: The air suspension struts (6) and central reservoir (4) not used anymore The AIRmatic valve unit (Y36) is a different design.

- The components or the entire system must not be discharged by unscrewing pressure lines! Depressurize components of AIRmatic (suspension struts, damping valve units, central reservoir) with STAR DIAGNOSIS before removal.
- Dirty pressure line connections must be cleaned before unscrewing. Do not use any cleaning or solvent agent, as this can damage the pressure lines.
- Seal pressure lines as well as connections on the components with blind plugs.
- To unscrew the pressure lines only use flare nut wrench or a special tool.

- Air suspension struts which have been removed or have not been screwed on securely (6) must not be filled with compressed air and not pushed together as this leads to destruction of the air suspension strut (6).
- Air suspension struts (6) must not be twisted as this leads to fold formation in the air spring and thus leads to destruction of the air suspension strut (6).
- If the vehicle is idle for a longer time, position the wheels straight-ahead, as any pressure loss occurring in the system can lead to lowering of the vehicle.

BASIC KNOWLEDGE

AIRMATIC, FUNCTION - GF32.22-P-0003

AIRmatic, function - GF32.22-P-0003GZ

MODEL 164.1 /8 with CODE (489) Airmatic (air suspension with level adjustment and adaptive damping system ADS)

N51 Airmatic control unit

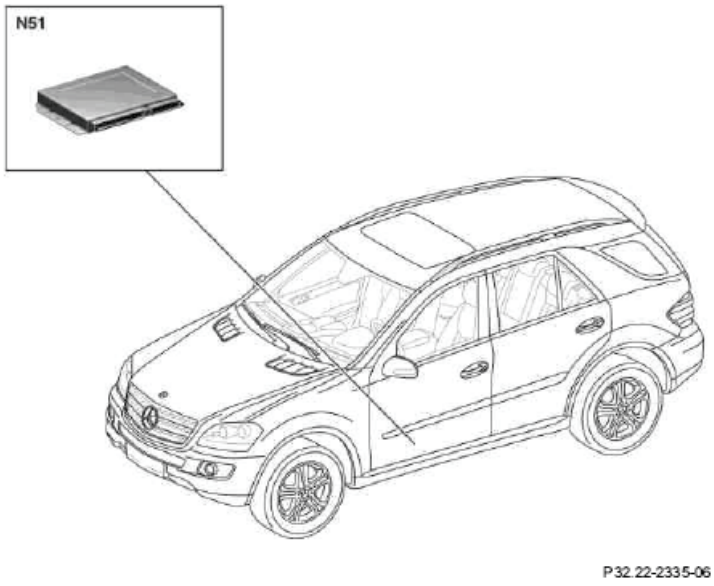


Fig. 2: Identifying Airmatic Control Unit (Model 164.1 /8 With AIRmatic)

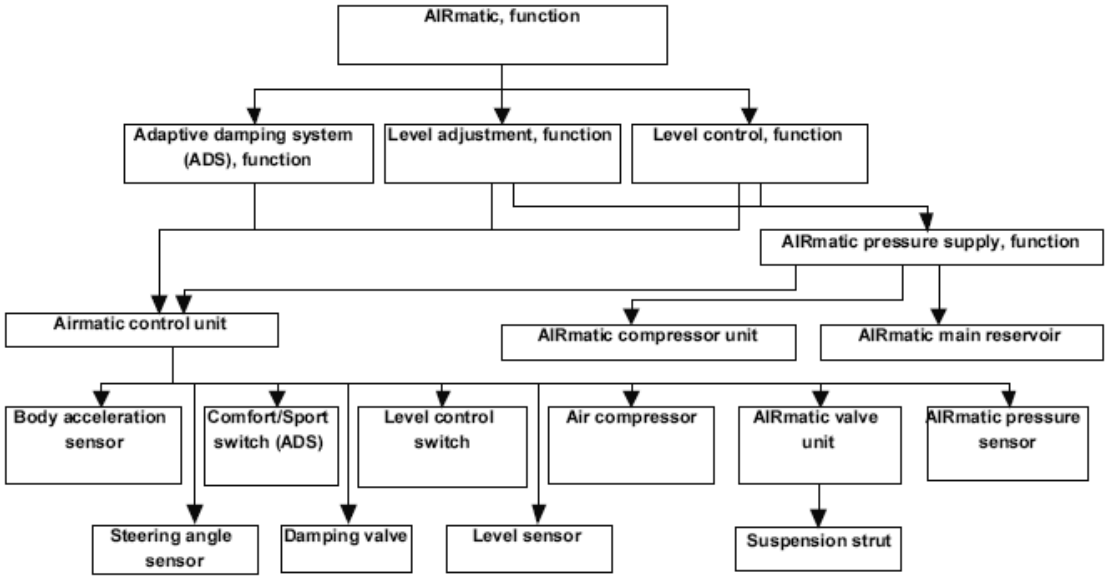


Fig. 3: AIRmatic Function Diagram (Model 164.1 /8 With AIRmatic)
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

"AIRmatic with ADS" is a fully supporting air suspension system.

This means that both the suspension and damping can be adjusted Apart from this the automatic level control and selectable level adjustment are performed. The adaptive damping system (ADS) is available with a 3-stage optional damper setting, which operates according to the skyhook algorithm. The ADS regulates the vehicle damping system to match the driver's commands, vehicle body acceleration and additional parameters.

Base function

When the air compressor delivers air to a bellows, the vehicle level increases at the wheel concerned. Conversely, the vehicle level decreases if air escapes into the atmosphere through the pressure release valve of the AIRmatic compressor unit (A9/1). The system is equipped with a central reservoir as a compressed-air reservoir. This increases the adjustment speed when raising the vehicle and permits regulation in the sleep and run-on mode. In addition AIRmatic is combined with an automatic electronically controlled damper adjustment.

The complete function of AIRmatic can be subdivide d into 3 subfunctions:

- **Level control** enables a manual, as well as a speed-dependent automatic raising or lowering of the vehicle level.
- **The electronic level control system** controls the vehicle level at the front and rear axles and ensures the vehicle level remains constant according to the driving and vehicle loading conditions.
- **The "adaptive damping system" (ADS)** adapts the damping forces to the road surface condition and driving style or driver's wishes. The road conditions are determined by vertical acceleration pickups at the body of the vehicle. The driving style is calculated from the vehicle speed and the steering angle. As the speed increases and the driving style becomes sportier the damping is automatically adjusted to a harder damping characteristic. Compared to a passive system with conventional dampers the vehicle body motion is cut down noticeably.