

The air suspension system works on a semi-closed circuit which means that when the car is under no load with the engine running the air exhausted from the bellows is for the most part returned to the air compressor and the air circuit via the valve unit and the vaporizer jar. Only the air escaping into the atmosphere is replaced by fresh air.

Depending on the load of the car the mechanically controlled leveling valves allow air to enter or leave the bellows and as a result the car level and the ground clearance always remain constant. The arrangement of the three leveling valves, two on the front axle and one on the rear axle, was chosen in order to provide compensation also for unsymmetrical loads. The leveling valves are designed as throttle valves in order to keep the air circulation low when the springs are fully depressed.

There is virtually no leveling action on bends. Although on the front axle the leveling valves are open, there is no leveling because of the slight two-sided pressure differential between the bellows and the valve unit. On the rear axle the leveling valve is not actuated on bends, since it is controlled from the center of the torsion bar.

B. Air Chambers with Bellows

Air chamber and bellows are screwed together as a unit (Figs. 32-10/2 to 4). The air chamber has a pipe union for the main air line. For details about the line system see Section D 'Control System'.

The bellows are of the 'rolling bellows' type (Figs. 32-10/3 and 4). This relatively low design produces sufficiently large spring travel. When the springs are fully depressed the bellows roll over the spring piston (23). The shape of the spring piston is essential for progressive springing, i. e. smooth initial springing with increasing hardening toward the end of the spring stroke.

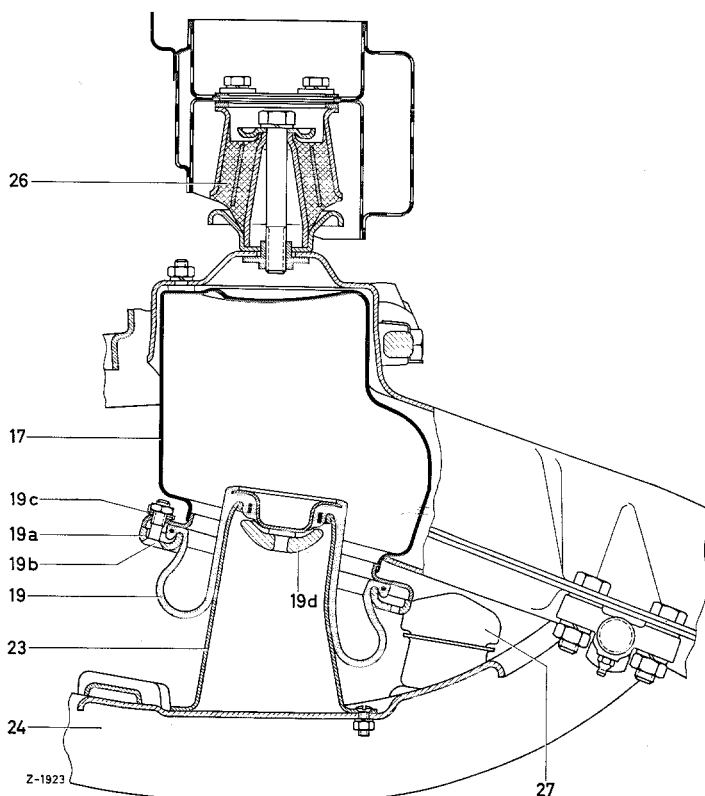


Fig. 32-10/3

Air chamber with bellows
on front axle

- 17 Air chamber
- 19 Bellows
- 19a Snap ring
- 19b Phillips head countersunk screw with hexagon nut and locking plate
- 19c Reinforcement plate
- 19d Centering piece on bellow
- 23 Spring piston
- 24 Lower control arm
- 26 Rubber mounting for front axle suspension
- 27 Rubber buffer

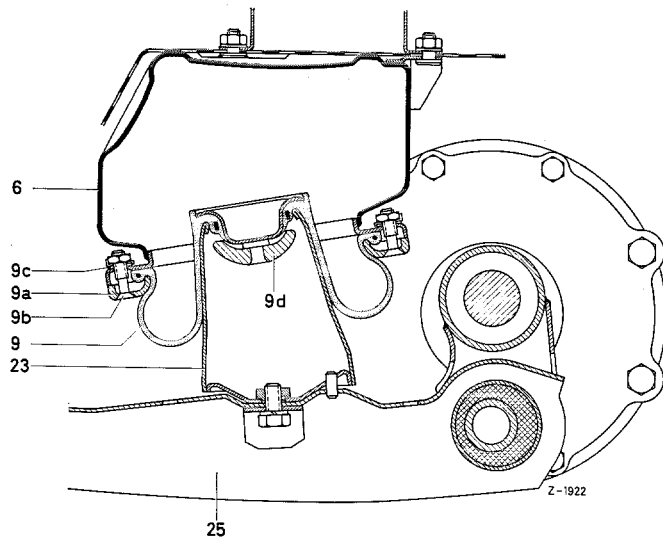


Fig. 32-10/4

Air chamber with bellows on rear axle

- 6 Air chamber
- 9 Bellows
- 9a Snap ring
- 9b Phillips head countersunk screw with hexagon nut and locking plate
- 9c Reinforcement plate
- 9d Centering piece on bellows
- 23 Spring piston
- 25 Torque arm

On the front axle the spring piston (23) is attached to the lower control arm, whereas the air chamber bears against the front axle support (Fig. 32-10/3). The air chamber is connected to the associated leveling valve via the line (E₁) (Fig. 32-10/1).

On the rear axle the spring piston (23) is screwed to the torque arm and to the air chamber (6) on the chassis base panel (Fig. 32-10/4). The left air chamber is connected to the leveling valve via the line (E₂), whereas the compensating line (F) connects the two air chambers (Fig. 32-10/1).

C. Compressed-Air System

Air Compressor

The air compressor is attached to the housing for the injection pump drive by means of the bracket (31) (Fig. 32-10/5).

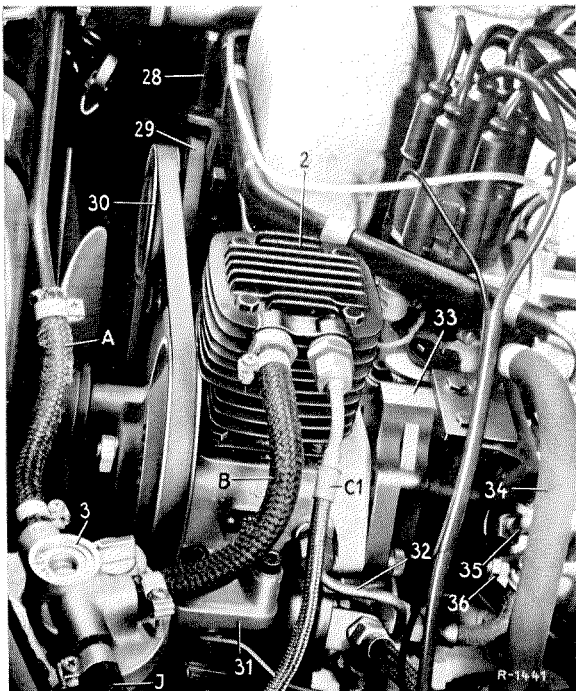


Fig. 32-10/5

Air compressor in vehicle

- A Intake and exhaust line from air intake silencer to vaporizer jar
- B Intake line from vaporizer jar to air compressor
- C1 Pressure line from air compressor to reservoir
- J Exhaust line from valve unit to vaporizer jar
- 2 Air compressor
- 3 Vaporizer jar
- 28 Clamping screw
- 29 Bracket
- 30 Tension sprocket
- 31 Bracket for air compressor
- 32 Pressure oil line for air compressor lubrication
- 33 High-pressure oil pump for power steering
- 34 Intake line
- 35 Pressure line
- 36 Strut