1962-72 MERCEDES-BENZ AIR SUSPENSION

280 SEL (1969-72)
300 SE (1962-67)
300 SEL/8, 300 SEL/8 6.3 (1967-72)
300 SEL (1966-67)
300 SEL/9 3.5 (1969-72)

DESCRIPTION

Air suspension vehicles use conventional control arm suspension except air suspension units are installed in place of coil springs. Air suspension consists of three systems: Air suspension units, compressed air system, and a control system. Air suspension units have an air chamber, bellows and a supporting piston. Compressed air system uses an air compressor, pressure tank and an anti-freeze device. Control system has a control valve, two level controls for front and one level control for rear.

ADJUSTMENTS

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications and Procedures in WHEEL ALIGNMENT Section.

FRONT WHEEL BEARING ADJUSTMENT

See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.

REMOVAL & INSTALLATION

FRONT SHOCK ABSORBER

Removal – Leave valve unit knob in drive position. Raise and support vehicle with safety stands, remove wheel. Disconnect lower shock mount from lower control arm. Disconnect upper shock mount from body. On early models remove battery to disconnect left upper shock mount, and air cleaner for right upper shock mount. Compress and remove shock absorber.

Installation – To install front shock absorbers, reverse removal procedure. Tighten nuts and bolts to specifications.

REAR SHOCK ABSORBERS

NOTE – Rear shock absorbers also serve as deflection stops for rear wheels. Shock absorber suspension is loosened only with suspension unit bellows empty.

Removal – Leave valve unit knob in drive position. Raise and support vehicle with safety stands. Place rear supports under axle housing. From inside of trunk, remove covering cap, nut, washers and bushings from shock top mount. *NOTE – On 280 SL/8 coupe, top must be removed for access to upper suspension.* Remove bolt from lower shock mount on axle housing, and remove shock absorber.

Installation – To install rear shock absorbers, reverse removal procedure and tighten to specifications.

FRONT STABILIZER BAR

Removal – 1) Leave valve unit knob in drive position. Disconnect stabilizer bar links from lower control arms, remove cup washers, bushings and space tubes. Remove clamp bolts securing stabilizer bar to chassis and remove stabilizer bar, bushings and brackets.

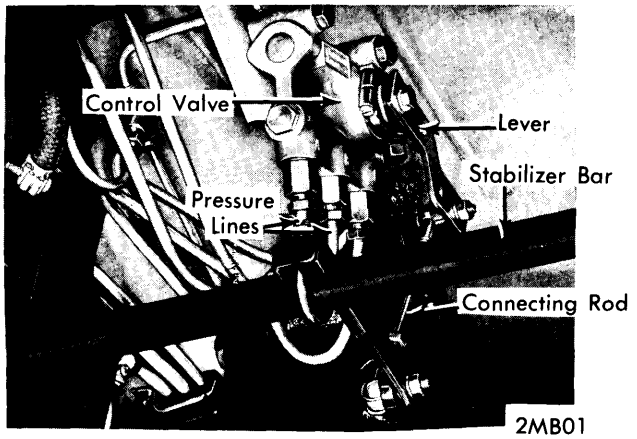
2) On models equipped with flat springs, mark position of flat springs on both sides of chassis. Remove flat springs and remove stabilizer bar.

Installation – To install front stabilizer bar, reverse removal procedure. On models equipped with flat springs, align springs with marks on chassis. Tighten nuts and bolts to specifications.

REAR STABILIZER BAR

Removal – Raise and support vehicle with safety stands. Loosen pressure line to air suspension units on rear control valve. Disconnect connecting rod for level control valve on lever of stabilizer bar (see illustration). Loosen clamp from bracket of stabilizer bar on both sides of vehicle. Disconnect lower shock absorber mounts on both sides of vehicle. Remove bolts securing right side bearing bracket to axle housing, remove connecting link. Force stabilizer bar from right side of axle housing. Remove stabilizer bar from vehicle by pulling left side from axle housing bracket.

Installation – Check rubber mount, replace if necessary. *NOTE – During installation make sure separating slot in rubber mount faces toward front or toward rear of vehicle. Never up or down.* To install stabilizer bar, reverse removal procedure and tighten to specifications.



REAR CONTROL VALVE & CONNECTING ROD

FRONT AIR SUSPENSION UNITS

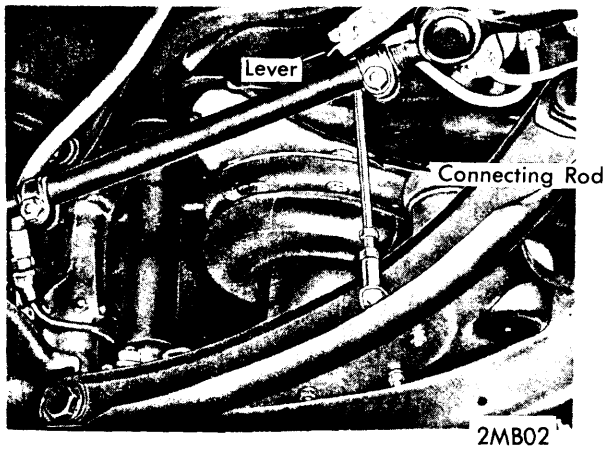
Removal – 1) Raise and support vehicle on safety stands, remove wheel. Leave valve unit knob in drive position. Drain pressure tank of air and be sure suspension unit bellows are completely empty of air.

2) Detach connecting rod from lever (see illustration). Disconnect pressure line on air chamber and loosen bellows from supporting piston with a hammer handle.

3) Loosen tie rod from steering arm at steering knuckle. Unscrew and remove supporting piston from lower control arm. Remove nuts attaching air chamber to crossmember and remove air chamber.

Installation – Coat top of supporting piston with glycerine to facilitate installation. *NOTE – When installing supporting piston, be sure that the two surfaces on fasting flange are aligned with recess in control arm.* To install air suspension units, reverse removal procedure. Tighten nuts and bolts to specifications. Recharge system.

1962-72 MERCEDES-BENZ AIR SUSPENSION (Cont.)



CONNECTING ROD

REAR AIR SUSPENSION UNITS

Removal – 1) Raise and support vehicle with safety stands, remove wheel. Leave valve unit in drive position and completely evacuate system of compressed air.

2) Detach level control connecting rod from lever. Disconnect pressure lines from air chambers. Loosen bellows from supporting piston with a hammer handle. Unscrew supporting piston from strut rod and remove piston.

3) Remove the three nuts, on each side, securing air chamber to chassis. Two nuts are accessible when rear seat is removed, the third nut is accessible from trunk compartment. Remove air suspension unit(s).

Installation – Coat top of supporting piston with glycerine. *NOTE – Supporting piston is located in relation to strut rod by means of a set pin. Left hand and right hand pistons are of different design.* To install rear air suspension units, reverse removal procedure. Tighten nuts and bolts to specifications. Recharge system.

COMPENSATING SPRING

Removal – *NOTE – When removing compensating spring, axle housings should not be subject to loads.* Using suitable spring compressor (111 589 00 31) compress spring until load is off right hand supporting bracket. Remove bracket and compensating spring. If equipped with a hydropneumatic compensating spring, unscrew Allen bolts on right hand ball joint. Remove nut on left hand ball joint, compress spring and remove spring.

Installation – To install compensating spring, reverse removal procedure. Tighten nuts to specifications.

FRONT SUSPENSION ASSEMBLY

Removal – 1) Leave valve unit in drive position. Raise and support vehicle with safety stands, remove wheels. Evacuate air from pressure system. Close the three compressed air lines on left level control valve.

2) Remove stabilizer bar and shock absorber as previously outlined. Remove parking brake adjusting wing nut at parking brake lever. Remove brake cable from crossmember. Disconnect and plug brake lines at chassis.

3) Disconnect lateral support strut from crossmember. Disconnect tie rods from steering arms. Remove battery and air cleaner.

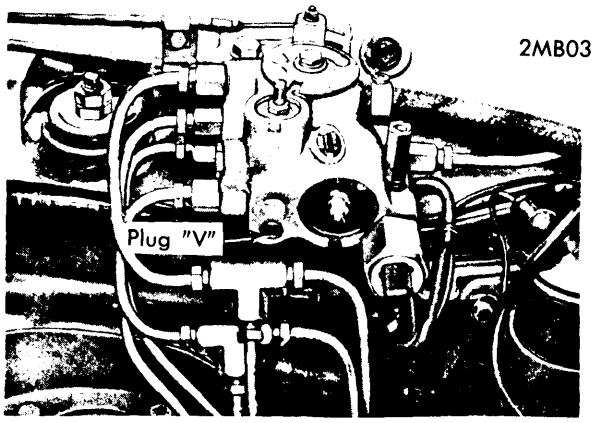
4) Loosen engine mount bolts, using suitable engine support bracket (111 589 03 31), raise engine slightly and support. Place a jack under crossmember and remove crossmember mount bolts, lower jack and remove suspension.

Installation – Check rubber bushings and brake lines, replace as necessary. To install front suspension assembly, reverse removal procedure. Tighten nuts and bolts to specifications. *NOTE – Tighten clamp on lateral support strut with weight of vehicle on wheels.*

STEERING KNUCKLE

Removal – 1) Leave valve unit knob in drive position. Raise and support vehicle on safety stands, remove wheel. Evacuate air pressure tank. Open plug "V", and close after evacuating air from control valve (see illustration). Remove front shock absorber as previously outlined, detach connecting rod from lever.

2) Remove brake caliper. *NOTE – See appropriate story in BRAKE Section for removal procedure.* Disconnect tie rod from steering arm. Support lower control arm at lower shock absorber mounts. Remove upper cam bolt at outer end of upper control arm, and unscrew threaded bolt at outer end of lower control arm. Remove steering knuckle.



PLUG "V"

Installation – To install steering knuckle, reverse removal procedure. Tighten nuts and bolts to specifications. Recharge system.

REAR AXLE

Removal – 1) Leave valve unit knob in drive postion. Raise and support vehicle with safety stands, remove wheels. Evacuate air from pressure system.

2) Remove rear stabilizer bar as previously outlined. Remove exhaust pipe. Remove heat shield plate, if equipped. Disconnect brake cable controls from chassis and compensating spring.

3) Loosen (do not remove) bolts securing universal shaft intermediate bearing to body/frame and compensating lever. *NOTE – On three part universal shaft, loosen front clamping nut only.* Detach universal shaft from axle flange and push shaft from centered position.

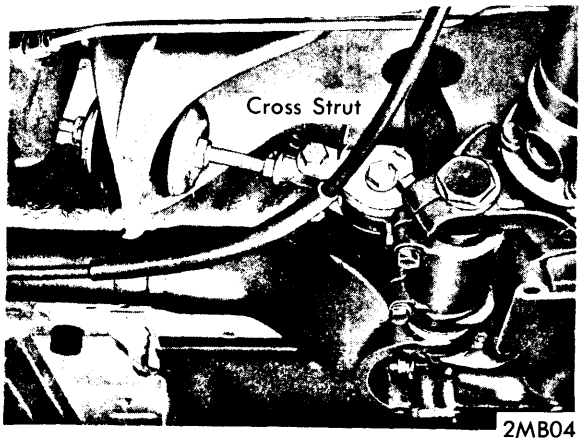
4) Remove compensating spring as previously outlined. Disconnect air suspension supporting piston from strut rod, supporting piston and bellows remain attached to body. Disconnect and plug brake lines from calipers.

1962-72 MERCEDES-BENZ AIR SUSPENSION (Cont.)

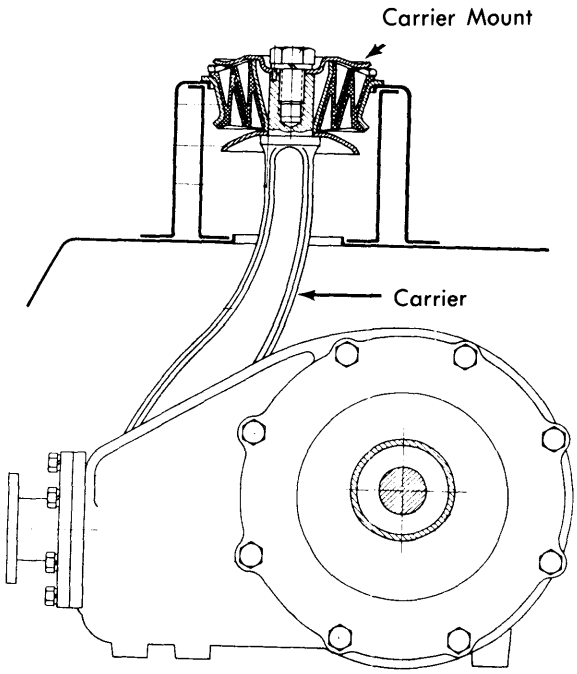
5) Disconnect strut rod from body. Remove cross strut bolts (see illustration). Disconnect brake hold-down on chassis by removing castle nut under rear seat.

6) Raise both axle housings slightly and disconnect lower shock absorber mounts on both sides of vehicle. Raise axle housings until they are approximately level and attach suitable holding clamp (111 589 07 61) to rear axle. Place jack under differential. Remove bolt securing differential carrier to body (bolt is in trunk compartment). Lower jack and remove rear axle (see illustration).

CAUTION — Attach holding clamp (111 589 07 61) when removing and installing, as well as moving rear axle, to prevent any dropping of axle housing.



CROSS STRUT



REAR AXLE CARRIER

AIR PRESSURE TANK

Removal — Place valve unit knob into locking positon. Raise and support front of vehicle with safety stands, remove left front wheel. Evacuate air from system and disconnect pressure lines from pressure tank. Remove attaching bolts and remove pressure tank.

Installation — To install pressure tank, reverse removal procedure. Tighten to specifications and recharge system.

AIR SUSPENSION SERVICE

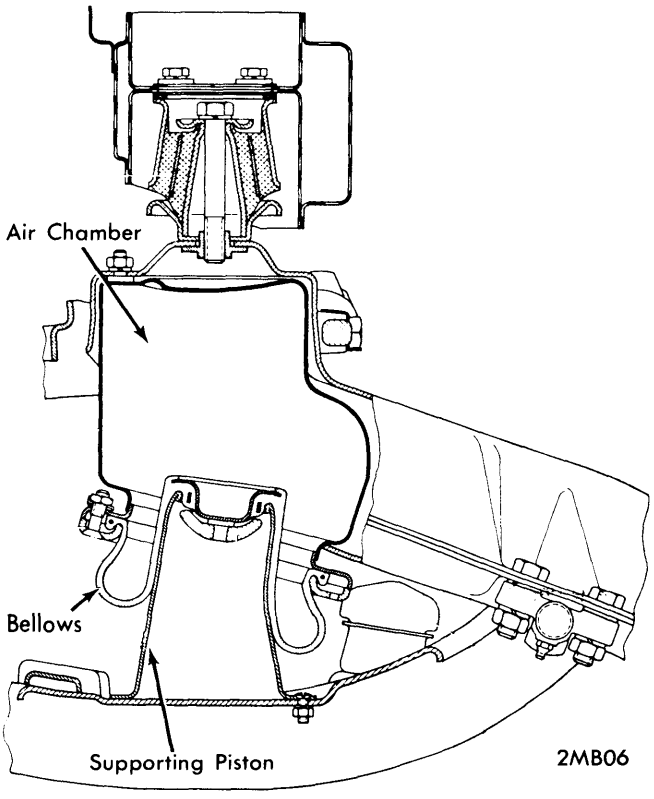
1) Periodically drain condensation from pressure tank by pulling drain valve and allowing all condensation to drain out. *NOTE — Yellow to light brown condensation is normal, check air compressor if condensation is dark brown.*

2) Check te sion and condition of air compressor "V" belt. In cold weathe fill anti-freeze device with denatured ethyl alcohol (96%) or spirit of alcohol.

3) Check and replace as necessary; anti-freeze device air cleaner, and rear level control valve. Check and lubricate joints of connecting rods for level control valves.

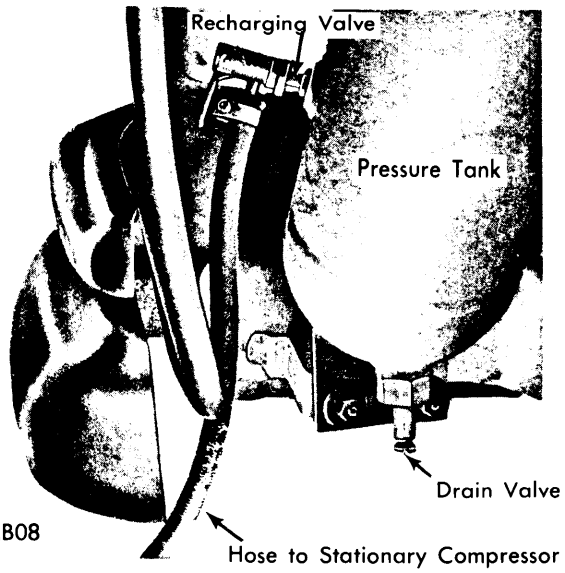
4) Check bellows for cracks, hair line cracks are not reasons to replace, they are just in outer layer of rubber.

5) To recharge system with air, connect pressure tank filler valve to a stationary air compressor and fill to 147 psi (see illustration).

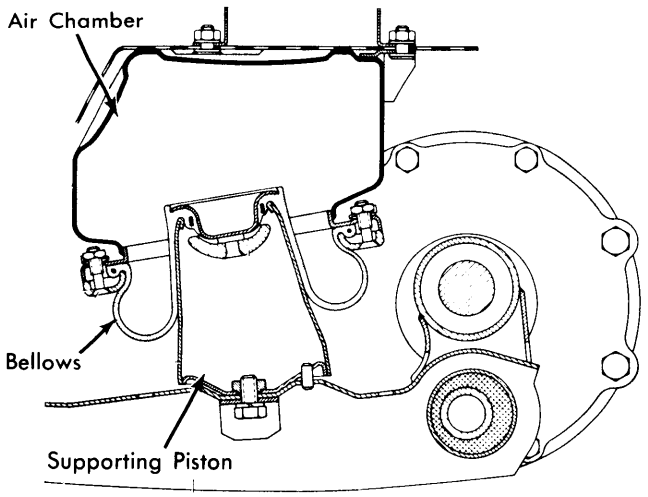


FRONT AIR SUSPENSION UNIT

1962-72 MERCEDES-BENZ AIR SUSPENSION (Cont.)



RECHARGING SYSTEM



REAR AIR SUSPENSION UNIT

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Lower Shock Absorber Mount	
Front	18
Rear	33
Compensating Spring Left Ball Joint Nut	59
Compensating Spring Right Ball Joint Bolt	88
Compensating Spring Right Carrier Bolts — 280 SL/8	88
Air Suspension Bellow Bolts	15
Pressure Tank Check Valve	22
Air Line Screw Connections	18
Air Line Coupling Nuts	11
Pressure Tank Water Drain Valve	51
Pressure Tank Closing Plug	72
Front Suspension-to-Body	72
Front Fulcrum Shaft Nuts	
Upper	72
Lower	94
Front Flat Spring-to-Chassis	87
Stabilizer Bar	
Front	18
Rear	18
Threaded Bushings in Front Control Arms	130
Steering Knuckle-to-Kingpin	65
Rear Wheel Bearing Nut	145
Rear Brake Carrier Plate-to-Axle Housing	18
Rubber Mount on Rear Suspension-to-Body	88
Strut Rod-to-Chassis	72
Strut Rod-to-Axle Housing	145