MERCEDES-BENZ 300TD

DESCRIPTION

The 300TD rear suspension uses an automatic leveling system. The system contains a hydraulic pump, reservoir, leveling valve, pressure reservoir and special combination shock absorber/suspension struts. The leveling valve lever, which is connected to the torsion bar, has 3 positions: neutral, filling and return flow. This positioning of the leveling valve lever, due to the load in vehicle, controls amount of fluid in the special shock absorber which raises or lowers rear of vehicle to maintain a level attitude.

OPERATION

As rear of vehicle is lowered due to added weight, the leveling valve lever raises to the filling position. This allows fluid to flow from pump to pressure reservoir then to special shock absorber, through check valves. This added fluid will raise the rear of the vehicle until the leveling valve lever is moved back to the neutral position. When the added weight is removed, rear of vehicle raises which moves the leveling lever to the return flow position. This allows the fluid in the special shock absorber to drain back into the reservoir until the leveling lever is back in the neutral position and the vehicle is level.

TESTING

HYDRAULIC OIL PUMP & LEVELING VALVE

NOTE – *These tests can only be performed on a ready-to-drive vehicle. Check leveling valve for leaks during test. In case of leaks on valve housing parting surface, install O-ring (006 997 69 45).*

NOTE – *Make sure hydraulic oil is not hot before starting test.*

1) Disconnect connecting bar at leveling valve lever. Tighten 4 leveling valve housing screws.

CAUTION – *Do not loosen clamping screw securing lever on valve control shaft.*

2) Attach an oil drain line to bleed screw and release pressure in system by opening bleed screw. Remove bleed screw and attach pressure tester (Mercedes-Benz No. 038a) directly to leveling valve via 3 or 4-way distribution fitting.

3) Push leveling valve lever up into filling position. Run engine at idle (800-1000 RPM) for a short time and observe pressure reading on tester. Pressure should read 1885 psi (132.5 kg/cm^2) minimum.

NOTE – *Perform this test quickly to avoid damage to components.*

4) Turn off engine. Move leveling valve lever down to return flow position and observe base pressure reading. After a stabilization period of 5 minutes, repeat test procedure. Leave pressure tester connected at least 4 hours and observe.

NOTE – *Base pressure must not drop after the stabilization period. This also applies to extended periods, such as overnight.*

5) Bleed base pressure at bleed screw, disconnect tester and install bleed screw. Fill level control system by running engine at medium RPM's and pushing leveling valve lever up into filling position for approximately 30 seconds.

6) Turn off engine. Reconnect connecting bar at leveling valve lever. Check reservoir oil level. Oil level should be between "Max." and "Min." for unloaded vehicle, "Min." for loaded vehicle.

PRESSURE RESERVOIR

NOTE – *This test can be performed only on a ready-to-drive vehicle.*

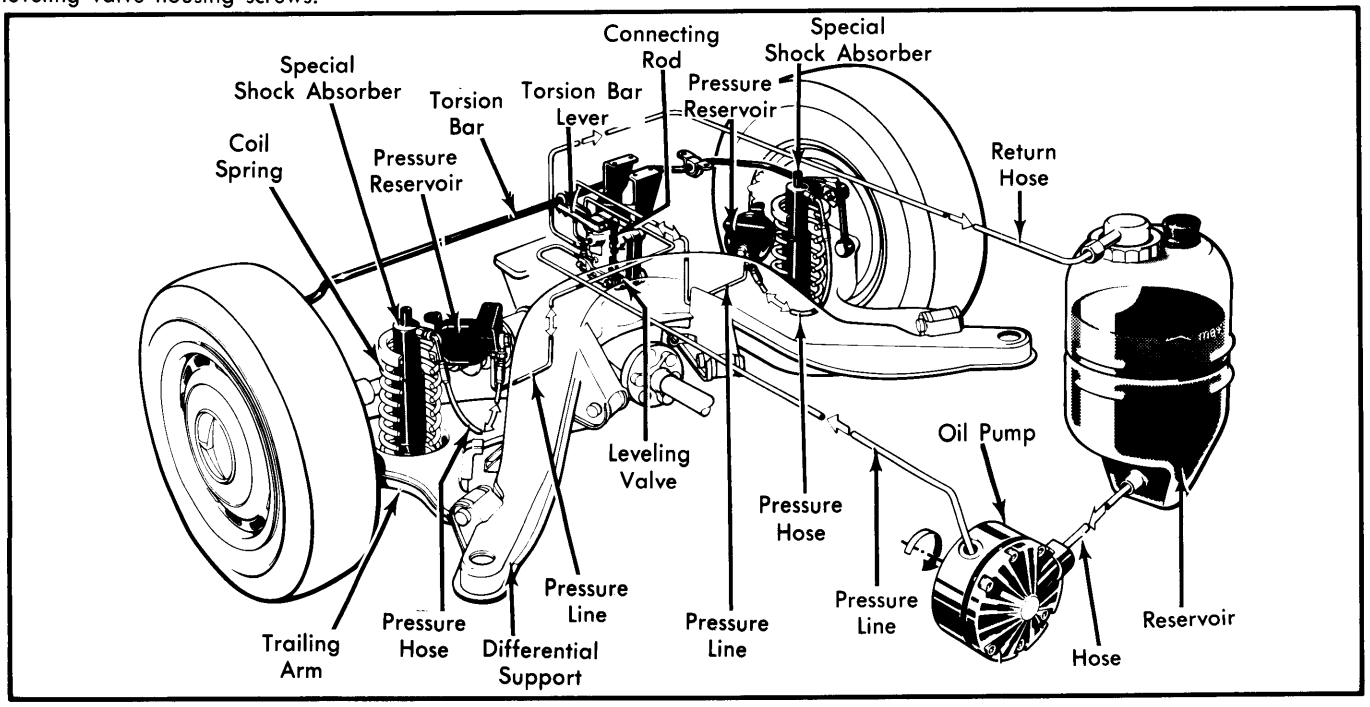

Fig. 1 Mercedes-Benz 300TD Level Control Rear Suspension System

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MERCEDES-BENZ 300TD (Cont.)

1) Disconnect connecting bar at leveling valve. Push leveling valve lever down to return flow position. Release pressure in system by opening bleed screw, and remove bleed screw.

2) Connect pressure tester (Mercedes-Benz No. 038a) to leveling valve. Disconnect pressure line from leveling valve to pressure reservoir from left and right pressure reservoirs (near special shock absorbers).

3) Plug lines with couplings and bleed screws. Attach pressure hose from gauge to either right or left pressure reservoir.

4) Push leveling valve lever down to return flow position. Run engine at idle speed. Push leveling valve lever up to filling position and observe pressure gauge.

5) Gas pressure in reservoir is indicated at point where pressure gauge needle changes from indication of a gradual pressure increase to an indication of rapid increase. This increase is caused when oil pressure exceeds gas pressure.

6) Gas pressure should be 304-363 psi (21.4-25.5 kg/cm^2) for new pressure reservoirs, and a minimum of 217 psi (15.2 kg/cm^2) for used pressure reservoirs. Repeat this test for the other reservoir.

7) Disconnect pressure tester, install bleed screw and reconnect pressure lines to pressure reservoirs. Run engine at medium RPM and push leveling valve lever up to filling position for approximately 30 seconds to fill control system.

8) Turn off engine.Reconnect connecting bar at leveling valve lever. With engine off, check oil reservoir oil level. Oil level should be between "Max." and "Min." for unloaded vehicle, "Min." for loaded vehicle.

REMOVAL & INSTALLATION

NOTE – *For removal and installation of components not covered in this Section, refer to Mercedes-Benz article in REAR SUSPENSION Section.*

SHOCK ABSORBER

Removal – 1) Drain leveling control hydraulic system by opening the bleed screw. From inside storage area of vehicle, remove floor covering by turning "T" lever and lifting up. Fold down rear seat back rest. Remove screws and then covering to frame crossmember. Remove cover plate from frame crossmember.

2) Disconnect pressure hose at special shock absorber. Disconnect connection fitting from shock absorber. Cap pressure hose and plug hole in shock absorber.

3) Loosen bolt of upper mount and remove with rubber bushing. Remove bolts securing bottom of shock absorber. Remove shock absorber from bottom; then remove lower rubber bushing of upper mount.

Installation – 1) To install, reverse removal procedure and note the following: Install bottom rubber bushing onto top of special shock absorber before installing into vehicle.

2) Plugged hole in shock absorber must point toward frame crossmember and mounting pin must protrude through bore in frame crossmember.

3) Make sure all bolts and fittings are tight and reservoir is full; then fill leveling valve by starting engine and moving leveling lever up to filling position. Check leveling suspension system for proper operation.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Upper Mount Bolt	22 (3.0)
Lower Mount Bolt	33 (4.6)
Pressure Hose-to-Shock Absorber Fitting	15 (2.0)
Pressure Hose-to-Fitting	15 (2.0)
Spherical Mount on Shock Absorber	48 (6.6)
Fitting at Pressure Reservoir	32 (4.4)

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