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

1) Check oil level in reservoir, fill if necessary. Disconnect pressure hose from pressure line (to level control valve) at rear connection. Connect special 3-way valve (Mercedes-Benz tool 038o) with pressure gauge (Mercedes-Benz tool 038a) to pressure hose. Place a graduated container under 3-way valve.

2) Run engine at 1000 RPM and check pressure gauge reading. Reading should be 2900 psi (204 kg/cm²). After engine has run for 1 minute at 1000 RPM, check cup for fluid volume which should be .74 qts. (.70 liters). Reconnect pressure hose to pressure line, check reservoir fluid level.

LEVELING VALVE

1) Disconnect leveling lever from connecting rod (attached to torsion bar). Start engine and move lever to filling position. Vehicle should raise. Move lever to return flow, vehicle should lower.

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

2) While performing this test, check for leaks at control valve, special shock absorbers, pressure reservoirs and all line connections. Repair or replace as necessary.

PRESSURE RELIEF VALVE

1) Shut engine off and relieve pressure from system by opening bleed screw. Remove bleed screw and connect tester to leveling valve.

2) Start engine and move leveling valve lever up to filling position. When relief valve opening pressure is reached, noted by a

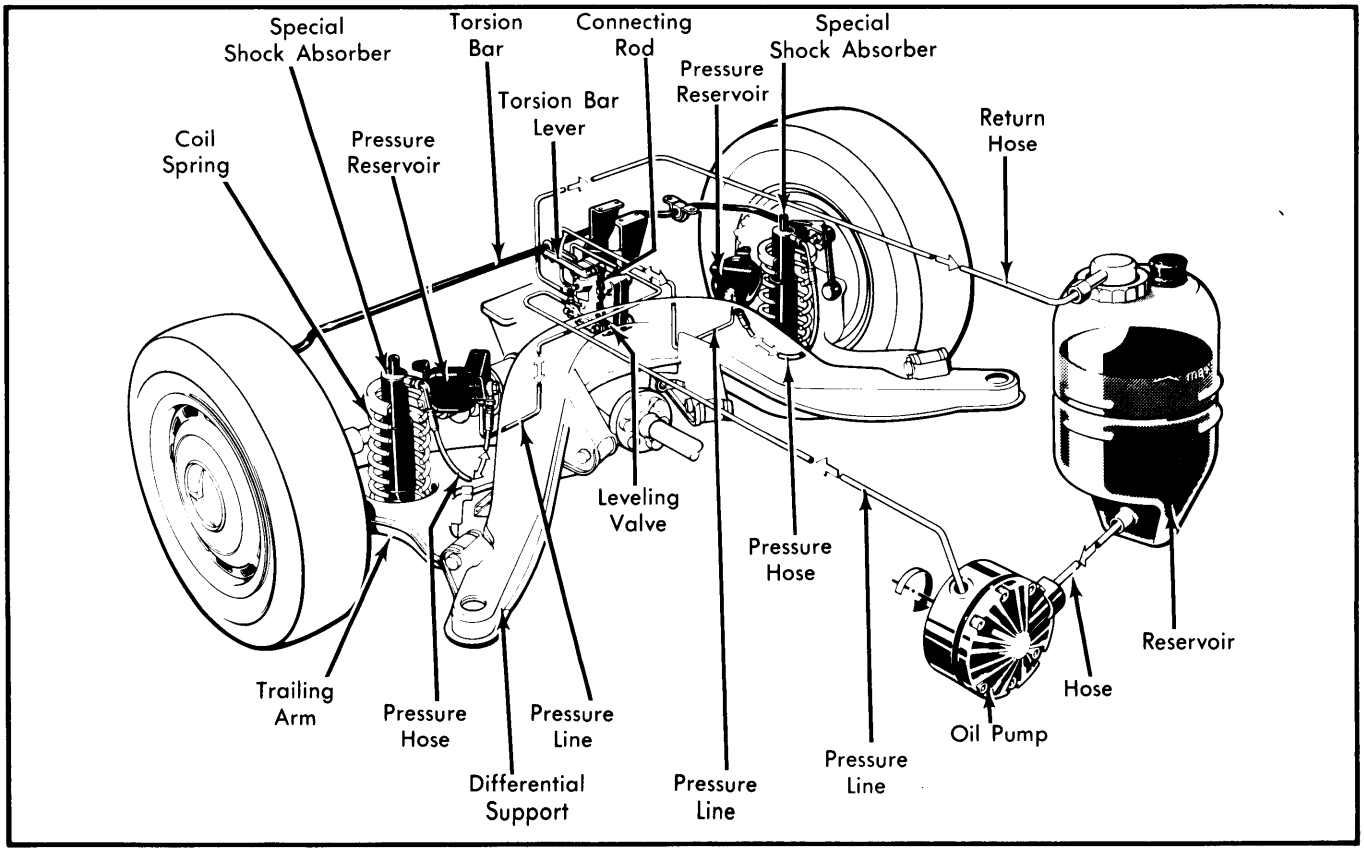

Fig. 1 Mercedes-Benz 300TD Level Control Rear Suspension System

MERCEDES-BENZ 300TD (Cont.)

hissing or knocking noise, read pressure on gauge. Pressure should be 1740-2320 psi (122-163 kg/cm²). After test, return lever to neutral position.

BASE PRESSURE

After performing pressure Relief Valve test and with leveling valve lever in neutral position, turn engine off. Note pressure on gauge. After about 5 minutes note pressure on gauge. Leave gauge connected for approximately 12 hours and again note reading on pressure gauge. All pressure readings should be the same. Remove gauge and replace bleed screw. Fill level control system by starting engine and moving leveling lever to fill position. Make sure that reservoir is filled to proper level.

PRESSURE RESERVOIR

1) Disconnect rod between torsion bar and leveling valve lever. Push leveling lever down to return flow position; then bleed pressure by opening bleed screw.

2) Disconnect pressure line from left and right pressure reservoirs (near special shock absorbers). Install bleeder screws to both left and right pressure lines. Remove bleed screw on leveling valve and install pressure gauge. Attach pressure hose to gauge from either left or right pressure reservoir.

3) Briefly run engine and push leveling lever up to filling position until approximately 435 psi (32.7 kg/cm²) is reached. Slightly open bleed screw (on pressure hose attached to gauge). Pressure will gradually drop until gas pressure is gone then drop rapidly. Note pressure reading where pressure starts to drop rapidly.

4) Pressure reading should be a minimum of 217.5 psi (15.3 kg/cm²) for used pressure reservoir or up to 333 psi (23.4 kg/cm²) for a new pressure reservoir. Repeat this test for the other pressure reservoir.

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)