

The only points that require attention are the jaws and pins of the pull rods and intermediate levers (6, 7 and 17, Fig. 16, or 8, 9 and 20, Fig. 17). Oil should be applied to these points every 5,000 miles, as directed on page 33. The ball bearing cams which actuate the servo (as described earlier in this chapter) are filled with lubricant upon initial build, and require no attention between overhauls of the chassis.

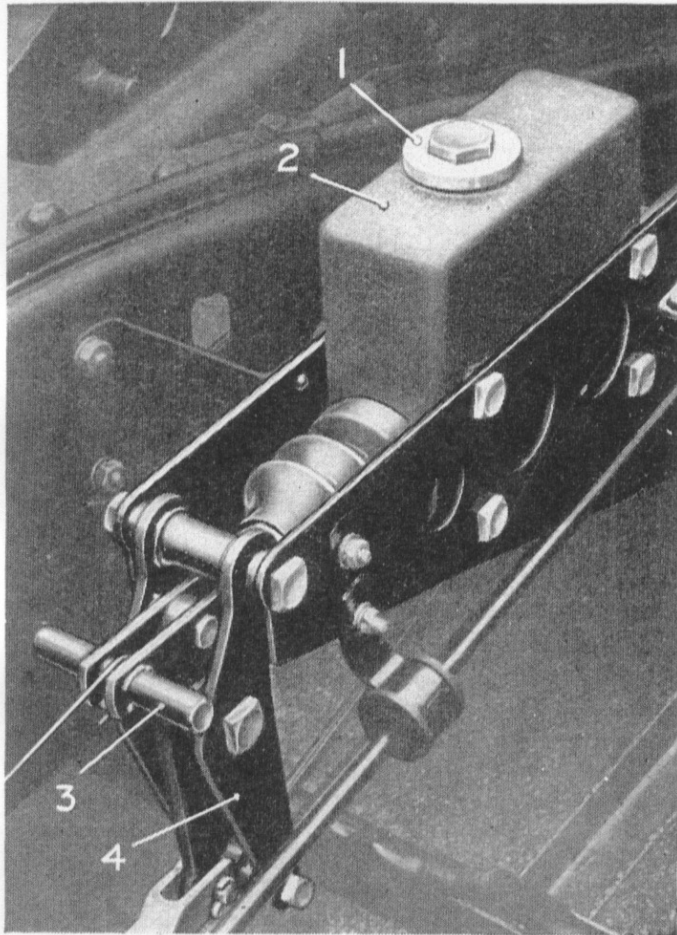


Fig. 20.—THE HYDRAULIC MASTER CYLINDER AND RESERVOIR.

- | | |
|-----------------------------------|---------------------|
| 1. Filler plug. | 3. Pin. |
| 2. Master cylinder and reservoir. | 4. Support bracket. |

2. Release the bleeder screw (3) half to one turn.
3. Remove the filler plug (1, Fig. 20) and fill the reservoir integral with the master cylinder, with the recommended fluid. (See page 30.)
4. Push the joint forward until the extended pin (3) abuts against the master cylinder support brackets (4).
5. Release, pause slightly, and repeat until the reservoir is nearly empty, but taking care not to empty it completely.
6. Tighten the bleeder screw and transfer drain tube to the other front brake.
7. Refill the reservoir and bleed this brake in a similar manner.
8. Finally, refill the reservoir and replace the filler plug.

Bleeding the Hydraulic System.

Bleeding, that is to say expelling air from the system, should only be necessary when completely recharging the system with fluid following the removal of a component or the disconnection of a pipe joint. Under normal conditions air does not enter the system as a result of brake application.

To bleed the system, proceed as follows:—

1. Attach a clean rubber drain tube to one front brake bleeder screw (3, Fig. 18), and immerse the other end in a clean glass jar in which there is sufficient hydraulic brake fluid to submerge the end of the tube.

Hydraulic Master Cylinder.

The fluid level in the master cylinder should be examined every 10,000 miles, as directed on page 35, and topped up if necessary so as to maintain the level at one inch below the filler cap.

A rapid fall in the fluid level indicates a leak at some point in the system, and must be traced and rectified.

CHAPTER VII

Gearbox, Propeller Shaft and Rear Axle

The Gearbox—Universal Joints—Rear Axle.

The Gearbox.

With the automatic gearbox, no clutch or clutch pedal is necessary. Speed change ranges are effected automatically, the timing being controlled by the automatic control unit and is a function of the vehicle speed and the throttle opening.

Fluid is inserted into the gearbox by removing the dipstick shown at 2, Fig. 21. Recommended fluids are given on page 29.

The oil level should be inspected every month, as directed on page 32.

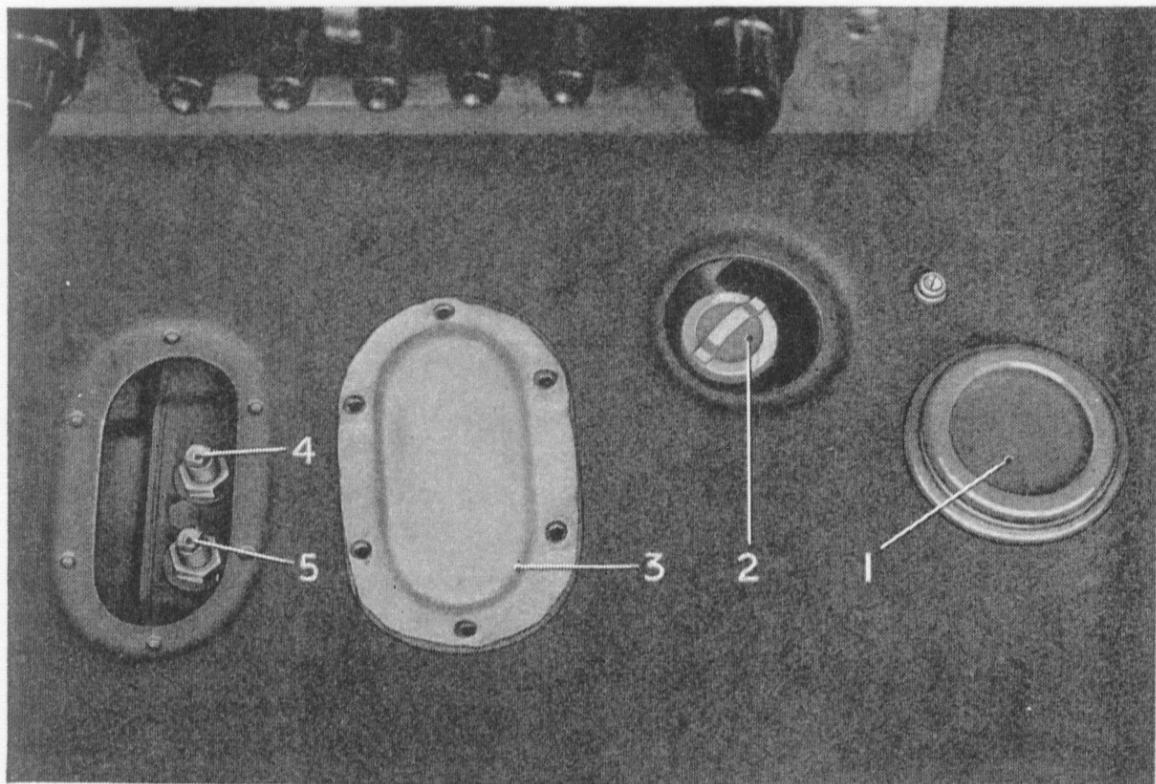


Fig. 21.—GEARBOX ACCESS POINTS.

- | | |
|---------------------------------|-------------------------|
| 1. Cover, Dipstick. | 4. Front Band Adjuster. |
| 2. Dipstick. | 5. Rear Band Adjuster. |
| 3. Cover, Brake Band Adjusters. | |

For topping up, the following procedure should be adopted:— With the control lever in neutral, the engine should be allowed to run for about three minutes before the fluid level is checked. This should be done while the engine is still running. Fluid should then be added until the level reaches the mark on the dipstick, taking care that the box is not overfull.

Every 20,000 miles, the oil should be drained from the gearbox and fluid coupling. The drain plug on the fluid coupling can be reached by removing the lower cover of the bell housing (3, Fig. 22), and turning the engine by means of the starter motor until the plug is at the bottom position. The gearbox can be drained by the plug in the sump shown in 2, Fig. 22.

After draining, both plugs should be replaced.

To refill, first add 14 pints of the recommended fluid. With the hand brake on, start the engine and let it run for several minutes. Then add 5 or 6 more pints of fluid. Allow the engine to run for a short while and then check the level by means of the dipstick.

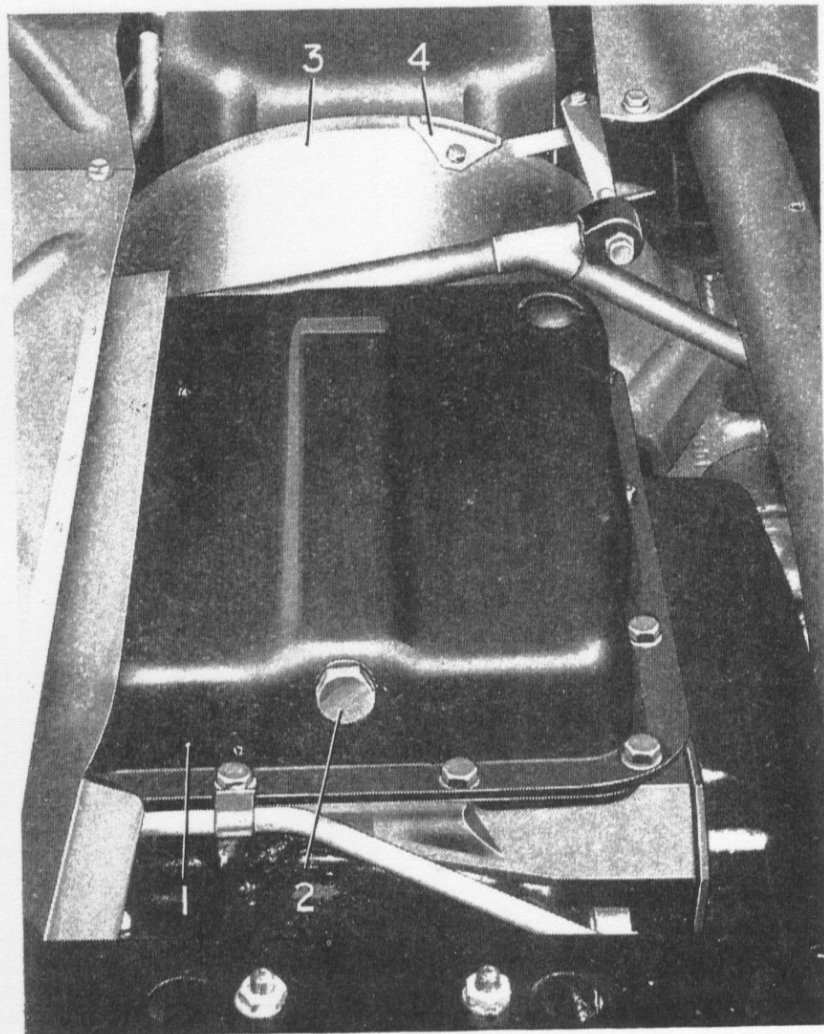


Fig. 22.—GEARBOX, UNDERNEATH VIEW.

- | | |
|------------------|----------------------------------|
| 1. Gearbox sump. | 3. Lower bell-housing cover. |
| 2. Drain plug. | 4. Timing inspection hole cover. |

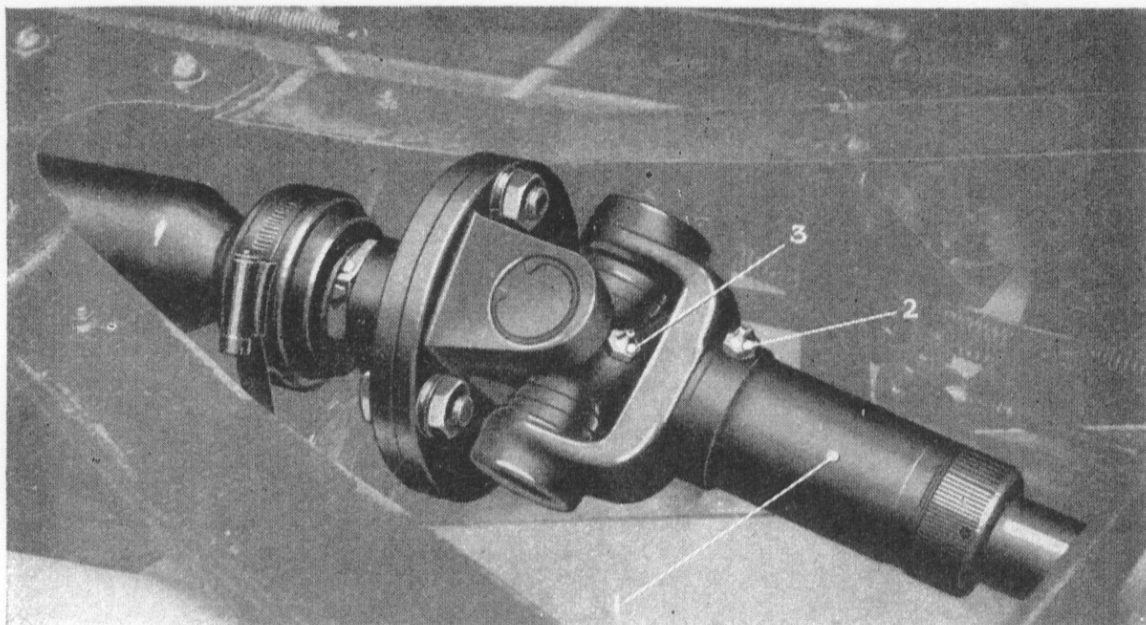


Fig. 23.—PROPELLER SHAFT.

1. Sliding joint. 2. Grease nipple sliding joint. 3. Grease nipple universal joint.

Universal Joints.

The propeller shaft universal joints are fitted with needle roller bearings, and each joint is provided with a grease-gun lubricator (3, Fig. 23), located at the centre of the cross-piece.

The driven portion of the centre joint is provided with serrations which engage similar serrations within the propeller shaft to permit the necessary degree of telescoping movement.

This sliding joint is also lubricated by means of a grease-gun lubricator, shown at (2, Fig. 23). Every 10,000 miles, as directed on page 35, the correct grease should be injected by means of the grease-gun into all the four lubricators.

Rear Axle.

The rear axle is of the semi-floating type.

The final drive is by offset hypoid bevel gears, which possess the advantages of being silent in running, and, owing to the offset disposition of the pinion, of enabling a lower body position to be obtained without decreasing the ground clearance.

It is important that no other oil than that recommended should be used in the rear axle. (See page 30.)

Every 5,000 miles, as directed on page 33, the level of the oil should be inspected, and topped-up if necessary.

Every 20,000 miles, as directed on page 36, the casing must be drained, and refilled with fresh oil to the correct level.

The drain plug (2, Fig. 24) should be removed, with the special spanner provided, preferably when the casing is warm; and all the oil allowed to drain out.

Plug (1) may then be removed for filling purposes. One-and-three-quarter ($1\frac{3}{4}$) pints of fresh oil should be inserted, using a syringe. This quantity should just cause oil to overflow from the filling orifice.

Care must be taken to see that the washer is in position when replacing the plug.

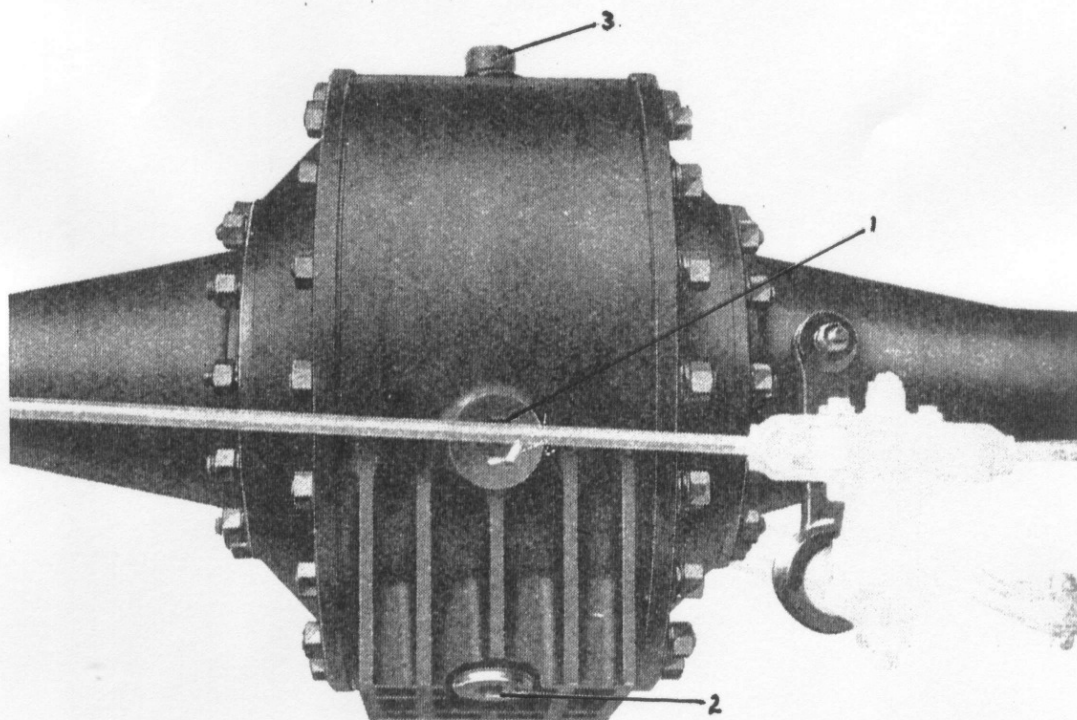


Fig. 24. - REAR AXLE CASING.

- | | |
|---------------------------|--------------|
| 1. Filler and level plug. | 3. Breather. |
| 2. Drain plug. | |

CHAPTER VIII

Steering, Shock Dampers, Road Springs, Wheels and Tyres

Steering Box and Column—Steering—Front Suspension—Warning, Front Suspension Springs—Steering Arms and Joints—Front Stabiliser—Rear Hydraulic Shock Dampers—Rear Road Springs—Wheels—Wheel Discs—Lubrication of Wheel Bearings—Tyres—The Jacking System—Wheel Changing—Fitting and Removing Tyres—Inflation of Tyres—Balancing Road Wheels.

Steering Box and Column.

The steering mechanism is of the cam-and-roller type, and requires no attention beyond inspection of the oil level.

The cover of the box is provided with a filling plug (2, Fig. 25). Every 5,000 miles, as directed on page 33, this plug should be removed, preferably when the box is warm, and the level of the oil inspected. If necessary, oil should be poured in until it is on the point of overflowing from the plug orifice.

For correct oils, see page 30.

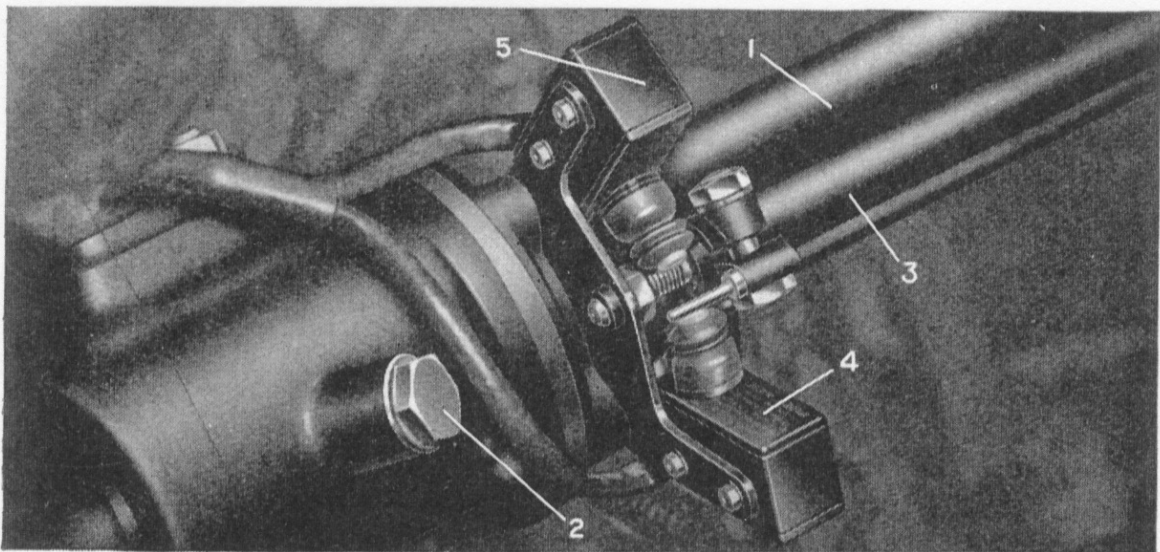


Fig. 25.—STEERING COLUMN.

- | | |
|-------------------------|--------------------------|
| 1. Steering column. | 4. Micro-switch. |
| 2. Oil filler plug. | 5. Reverse light switch. |
| 3. Gear change control. | |

With the steering wheel in its normal central position, a hole will be found in its boss, adjacent to the upper arm, into which the nozzle of the oil-can should be inserted to reach an oil hole provided in the control carrier. This operation should be included when lubricating the controls every 5,000 miles, as directed on page 33.

Steering.

Experience has shown that too much importance cannot be attached to proper balance of the front wheels and tyres.

As it is only possible to balance the wheels and tyres statically, this does not eliminate the effect of slight out-of-balance forces which can only be detected dynamically. Such a condition may be caused by the normal wear of the tyres on the front wheels; as is inevitable with independent front suspension, tyre wear will be slightly less regular than on the rear wheels.

Therefore, it is recommended that the front wheels should be periodically changed to the rear wheels and vice versa to even out the wear on the tyres.

Front Suspension.

Each wheel is independently sprung, the suspension consisting of the two upper and two lower radius arms of different lengths set at a leading angle, between which a vertical yoke is carried, and on this the stub axles are pivoted.

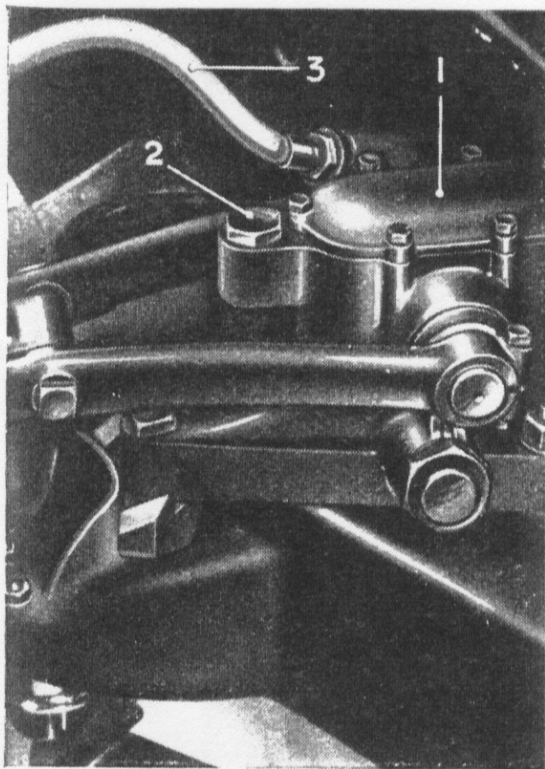


Fig. 26.—FRONT SHOCK DAMPER.

1. Shock damper.
2. Filler plug.
3. Hydraulic brake pipe.

The upper radius arms are connected to and operate the special Bentley shock dampers, which effectively dampen excessive spring action.

The main helical coil spring is mounted between the forward lower radius arm and a seat formed as an integral part of the chassis frame.

The ball joints and the steering pivot bearings are lubricated from the central chassis system. (See Fig. 5.)

The shock damper consists of two pistons operating in cylinders full of oil, the oil being displaced from one cylinder to the other through drilled passages, the degree of damping being controlled by spring-loaded valves.

Until it is obvious that the effectiveness of the shock damper has become reduced, or undue leakage is apparent, no attention whatever will be necessary for 10,000 miles, when the level of the oil in the shock damper should be inspected, as directed on page 34.

It is of vital importance that only perfectly clean oil of the correct grade should be used, and this should be strained through a fine gauze before using.

Straining is facilitated if the oil be first warmed to about 75°C.

The importance of the above cannot be over-emphasised, as a very small particle of foreign matter in the oil may lodge under one of the valves and impair the effectiveness of the shock damper.

WARNING.

Front Suspension Springs.

No attempt must be made to remove the coil springs of the front suspension.

Special appliances are required because the powerful springs are compressed even when in the rebound position.

Any necessary dismantling or adjustment of the suspension must be effected by Messrs. Bentley Motors (1931) Ltd., or one of their "Special Retailers". (See page 16.)

Steering Arms and Joints.

The steering gear should be examined occasionally to see that all bolts are tight and joints well lubricated.

If any of the nuts are found loose, and only retained by their split pins, the latter should be removed, the nuts screwed up tightly and new split pins fitted.

The ball joints of the cross and side steering tubes are lubricated from the centralised chassis system, as illustrated in Fig. 5.

The bearing pads of all joints are spring-loaded, being self-adjusting for wear. They should not normally require attention except when the car is undergoing a general overhaul.

Front Stabiliser.

In order to check any tendency of the car to "roll" on corners, a steel torsion-rod stabiliser is provided at the front end of the chassis.

The stabiliser is carried in rubber bearings, and is coupled to the wheel mountings by links with rubber pads.

No attention is necessary.

Rear Hydraulic Shock Dampers.

Hydraulic shock dampers of Bentley design and manufacture are fitted to the rear axle, one of the dampers being shown in Fig. 27.

Unless it is obvious that the effectiveness of the shock damper has become reduced, or undue leakage of oil is apparent, no attention will be necessary for 10,000 miles of running.

After 10,000 miles, it is necessary to inspect the oil level in the shock dampers as directed on page 34.

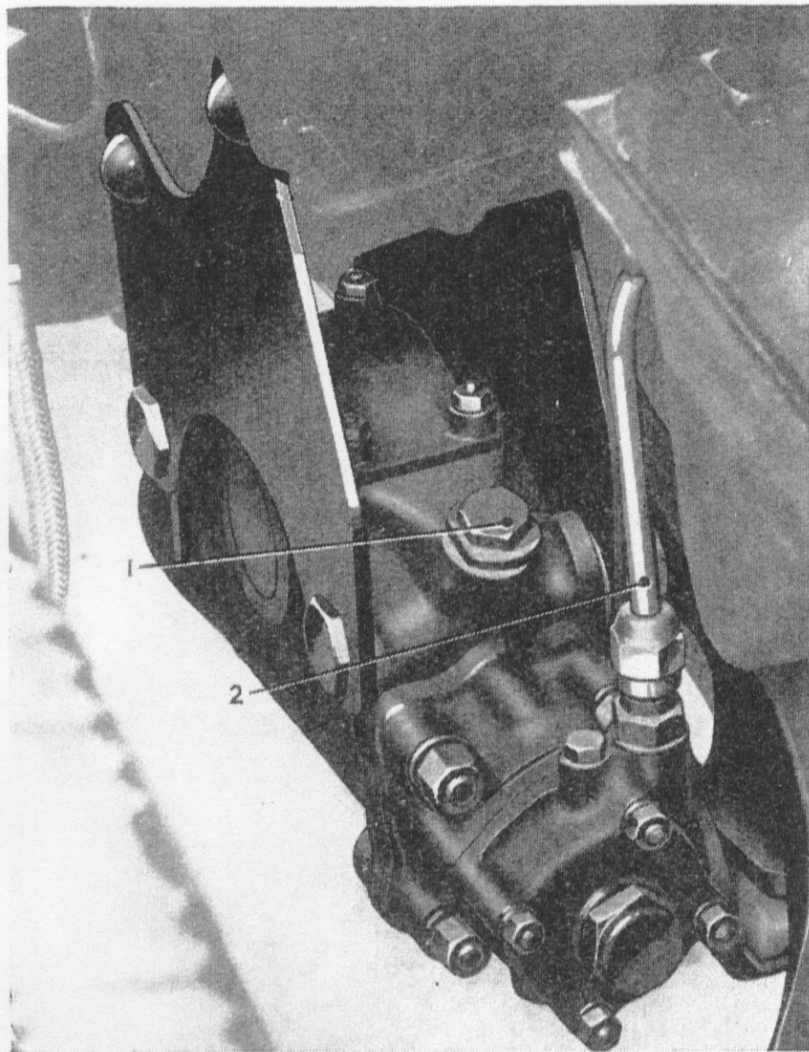


Fig. 27.—REAR HYDRAULIC SHOCK DAMPER.

1. Filler plug.

2. "Ride Control" oil pipe.

For this purpose a filling plug (1, Fig. 27) is provided, arranged at such a height in the casing as to control the maximum oil level.

It is of vital importance that only perfectly clean oil of the correct grade should be used. The following precautions must be observed:—

- i. Before attempting to remove the plug (1), both the plug and the shock damper casing adjacent to it must be cleaned very