

## **SECTION L**

### **THE HYDRAULIC DAMPERS**

**General description.**

**Maintenance.**

**Section No. L.1      Removal and replacement of the dampers.**

**Section No. L.2      Testing hydraulic dampers.**

**Section No. L.3      Topping up with fluid.**

**Section No. L.4      Extreme cold conditions.**

**Section No. L.5      Modified dampers.**

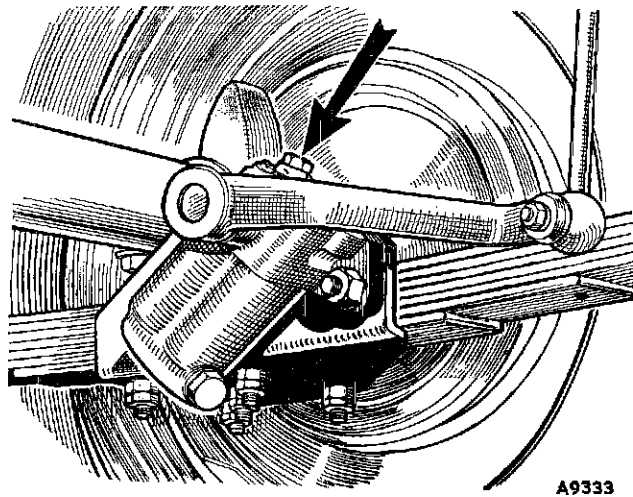


Fig. L.1

*The rear dampers should be removed from their brackets on the rear springs before being replenished*

### GENERAL DESCRIPTION

Hydraulic dampers are fitted to the front and rear suspensions. All the working parts are submerged in oil.

The hydraulic dampers are carefully set before dispatch and cannot be adjusted without special equipment. Their design is such that they are capable of giving long service without attention other than the periodical replenishment of the fluid.

### MAINTENANCE

The maintenance of the hydraulic dampers should include a periodical examination of their anchorage to the chassis and axle and tightening the fixing bolts up as required. For replenishing the fluid the tops must be thoroughly cleaned before the filler plug is unscrewed. While this can be achieved satisfactorily in the case of the front dampers, in view of their protected and accessible position, this is not satisfactory in the case of the rear dampers, which must be removed from the car for this attention.

The cheese-headed screws securing the cover-plate must be kept fully tightened to prevent leakage of the fluid.

No adjustment of the dampers is required or provided. Any attempt to dismantle them will seriously affect their operation and performance. Should this be necessary, they must be returned to their makers for attention.

L.2

### Section L.1

#### REMOVAL AND REPLACEMENT OF THE DAMPERS

To withdraw the rear dampers from their anchorage brackets remove the split pin and the  $\frac{5}{16}$  in. nut securing the damper arm link to the frame and extract the rubber bushes. Remove the link from its pivot bolt and the two  $\frac{1}{8}$  in. nuts, bolts, and spring washers securing the damper body to the spring bracket.

To disconnect the front suspension raise the front of the car and remove the hub cap and road wheel.

Place a jack beneath the outer end of the lower suspension arm and raise it until the damper arm at the top of the swivel pin is just clear of the rebound pad.

Extract the split pin and slacken the  $\frac{7}{8}$  in. slotted nut securing the swivel pin bolt to the damper arm. Tap the circumference of the eye and, placing a support behind the arm, use a copper hammer to drive the bolt from its tapered seat.

The damper may be withdrawn after removal of the nuts and bolts securing it to the bulkhead cross-member. Note that a protector shield between the exhaust pipe and the left-hand damper is attached to the damper securing bolts.

Replacement of the dampers is carried out in the reverse order to the removal procedure, but if the rubber bushes on the rear damper links are worn new ones must be fitted. After replacing and tightening the swivel pin bolt in the eye of the front damper arm check the clearance between the arm and the swivel pin link. There must be a clearance of .002 in. (.05 mm.).

If the clearance is not correct it must be adjusted as described in Section K.4.

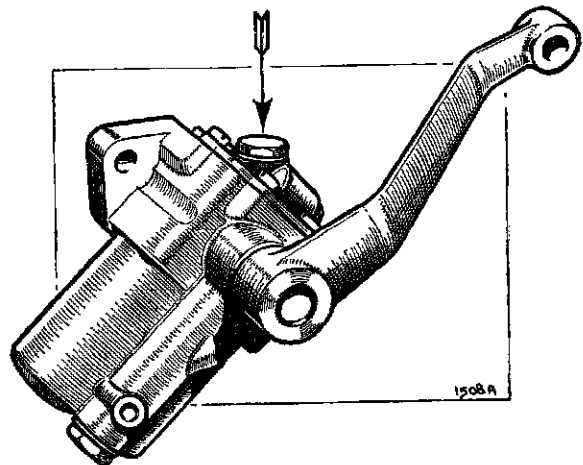


Fig. L.2

*The filler plugs must be carefully cleaned before removal*

When handling dampers that have been removed from the car for any purpose it is important to keep the assemblies upright as far as possible, otherwise air may enter the operating chamber, resulting in free movement.

**NOTE.**—Before fitting the link to the attachment on the axle or swivel pin it is advisable to work the lever arm a few times through its full range of movement to expel any air which has found its way into the operating chamber.

**Section L.2**

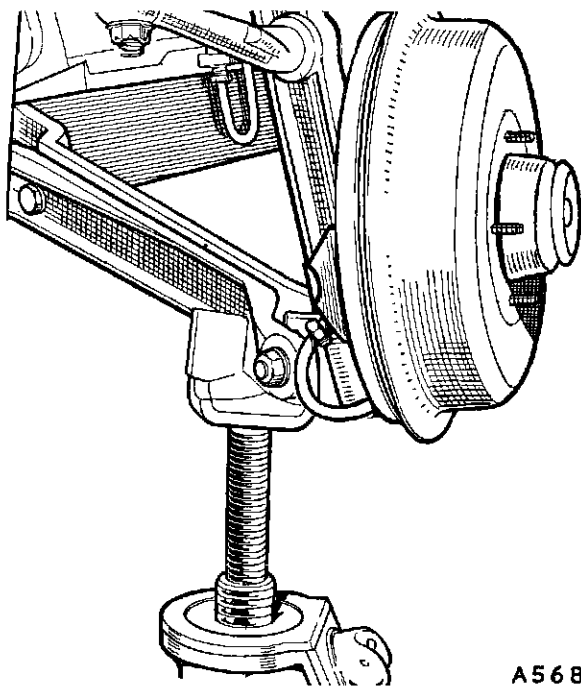
**TESTING HYDRAULIC DAMPERS**

If there is any doubt that the road springs are adequately damped the condition of the springs and the tyre pressures should also be considered as these have an appreciable bearing on the results obtained.

If the hydraulic dampers do not appear to function satisfactorily an indication of their resistance can be obtained by carrying out the following check.

Remove the dampers from the car.

Hold them in a vice and move the lever arm up and down through its complete stroke. A moderate



A5681B

Fig. L.3

*How the jack is used to raise the damper arm just clear of the rebound pad. Note the use of a special jack pad to prevent slipping*

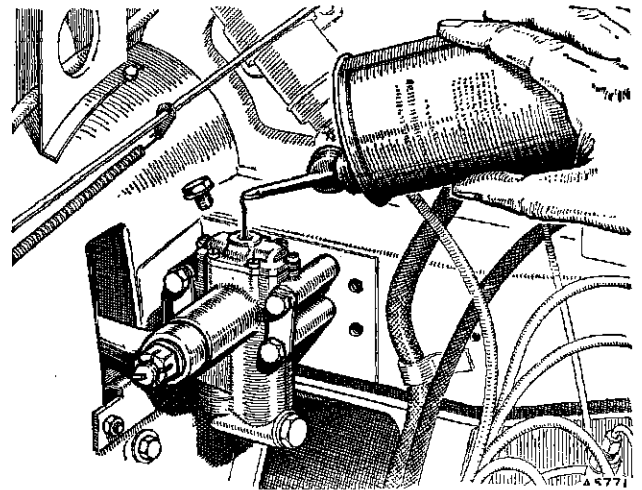


Fig. L.4

*Replenishing the front dampers can be carried out in position, but they must be well cleaned first*

resistance throughout the full stroke should be felt; if, however, the resistance is erratic, or free movement in the lever is noted, lack of fluid is indicated or there may be air in front of the piston. The free movement should not exceed  $\frac{1}{8}$  in. (3 mm.) at the outer end of the arm.

If the addition of fluid (added to the level given in Section L.3) and working the arm over its full range of travel a number of times give no improvement a new damper should be fitted.

Too much resistance, i.e. when it is not possible to move the lever arm slowly by hand, indicates a broken internal part or a seized piston; in such cases the damper should be changed for a new or reconditioned one.

**Section L.3**

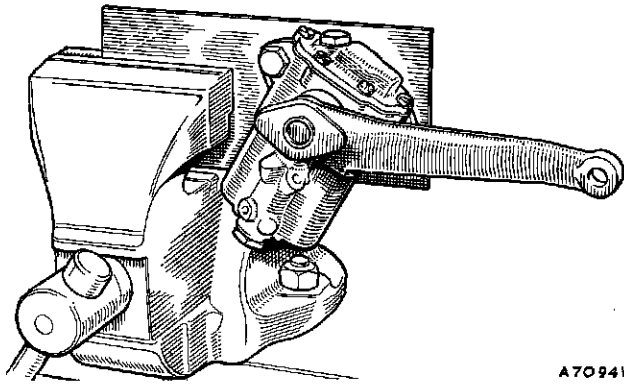
**TOPPING UP WITH FLUID**

The front dampers may be replenished in position, provided the tops have been thoroughly cleaned to ensure that when the filler plug is extracted no dirt falls into the filler orifice.

**This is most important as it is absolutely vital that no dirt or foreign matter should enter the operating chamber.**

The rear dampers **must** be removed from the car before they are given replenishment attention.

The use of Armstrong Super (Thin) Shock Absorber Fluid in the Armstrong dampers is recommended. (If this fluid is not available any good-quality mineral oil to



A7094W

Fig. L.5

*When holding a hydraulic damper in a vice do so by its normal attachments and use a supporting plate*

Specification S.A.E. 20/20W should be used, but this alternative is not suitable for low-temperature operation.)

When fluid has been added the lever arm should be worked throughout its full stroke to expel any air that might be present in the operating chamber before the filler plug is replaced.

The interior of the body should be filled with fluid to within  $\frac{3}{8}$  in. (10 mm.) from the top of the cover.

#### Section L.4

##### EXTREME COLD CONDITIONS

In cases where the vehicle is used in cold climates where temperatures in the region of  $-50^{\circ}$  F. ( $-45^{\circ}$  C.) are likely to be encountered the dampers should be

drained and refilled with a special oil suitable for these temperatures.

Special instructions for changing the oil and an indication of the correct oil to be used for these severe conditions are obtainable in the form of a leaflet from your Distributor or Dealer.

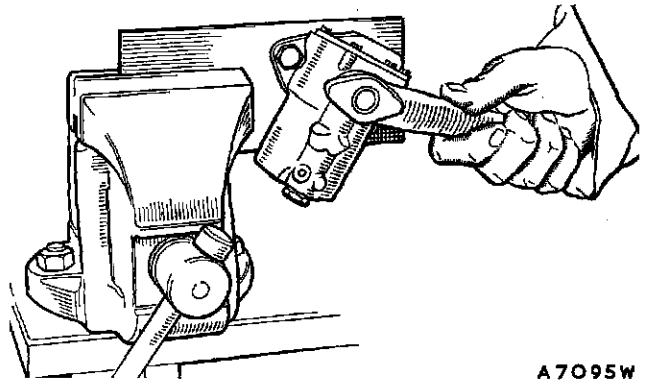
#### Section L.5

##### MODIFIED DAMPERS

At Car No. 24067 Armstrong DAS8/R dampers replace DAS8. The later-type dampers have a special seal fitted to the rebound piston to prevent high-temperature fade, and those fitted to the rear of the car also have thicker flanges which require longer mounting bolts.

The new dampers must be fitted in pairs only.

The new front dampers are identified by a spot of green paint and the rear ones by the valve, which is now horizontal below the bump piston.



A7095W

Fig. L.6

*When testing a damper it is essential to actuate the lever arms over their full range of travel*