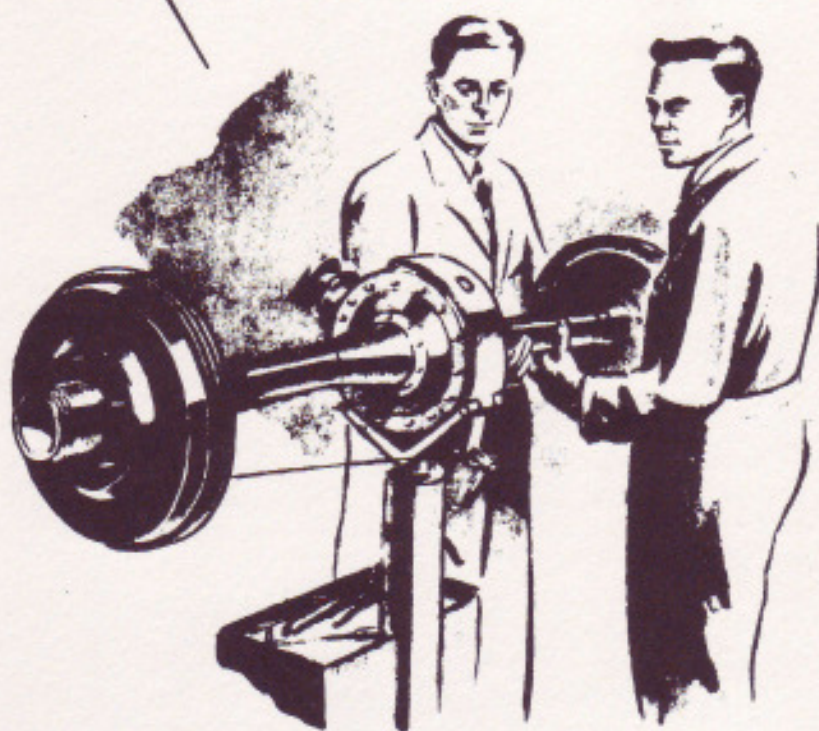




REAR

AXLE







REAR AXLE

ROAD WHEEL BALL BEARING.

The rear axle is of the semi-floating type, the load being taken by a large single row journal ball bearing at the outer extremity of the axle shaft. Each bearing is permanently lubricated and sealed.

Oil seals through which the axle shafts pass, are located on each side of the centre casing of the rear axle and prevent oil from the centre casing reaching the rear hubs.

The ball bearing (See Figs. 1 or 2), takes the axial load (thrust) and the radial load. The axial clearance (end-float) between the inner and outer races of the bearing, is from 0.010" to 0.012" (0.25 to 0.30 m/m), therefore a bearing must not be condemned unless the axial clearance is appreciably in excess of the above figure.

The axial clearance is introduced, so that under the influence of heavy side loads, the point of contact on the balls is shifted to a greater angle thus reducing the compressive stress.

It is necessary to emphasise the above explanation regarding the end clearance which is a feature of the design, as it may otherwise be mistaken for wear and a bearing therefore condemned as faulty, due to it being possible to detect movement or a light thud, when the car is rocked or the the axle jacked up and load applied to the tyre.

Should, however, it be found that a bearing needs replacing due to any abnormal conditions, then a complete axle shaft assembly, consisting of the following parts, would have to be fitted:-

	<u>Series 'A' &amp; 'B'</u>	<u>Series 'C'</u>
Spigot plate.	( 1. Fig. 1 ).	(12. Fig. 2 ).
Bearing housing.	( 2. " " ).	(13. " " ).
Adjusting piece.	( 3. " " ).	(14. " " ).
Ball bearing.	( 4. " " ).	(15. " " ).
Spring plate.	( 5. " " ).	(16. " " ).
Collar.	( 7. " " ).	(18. " " ).
Axle shaft.	(10. " " ).	(21. " " ).
Distance piece.	(11. " " ).	(22. " " ).

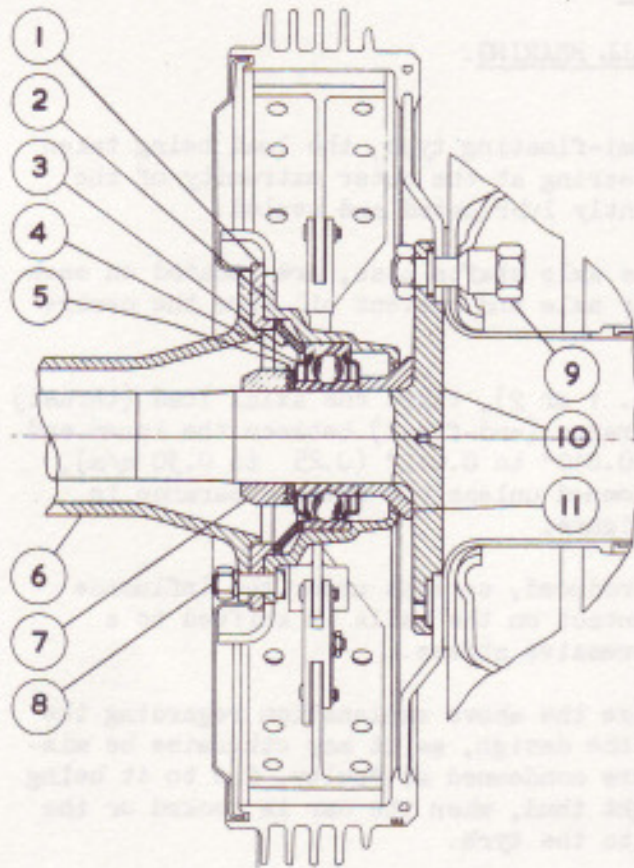
Fig. 1. shows a sectional view through the rear axle shaft and road wheel ball bearing for series 'AK', 'AJ', 'BH' and 'BG, and Fig. 2. shows a sectional view through the rear axle shaft and road wheel ball bearing for series 'CF', 'CD' and onwards. It should be noted that the latter type is interchangeable with the early type and the former may be supplied as a replacement for all series.

The parts comprising an axle shaft assembly, are the same for both the right-hand and left-hand side, with the exception of the length of the axle shafts and the handing of the threads of the wheel studs. The right-hand side shaft is longer by 3.950" (100.3 m/m) than the left-hand side shaft, therefore, should it be necessary at any time to order an axle shaft assembly, it must





Notation List for Figs.1 & 2.



- 1 & 12. Spigot plate.
- 2 & 13. Bearing housing.
- 3 & 14. Adjusting piece.
- 4 & 15. Ball bearing.
- 5 & 16. Spring plate.
- 6 & 17. Axle Tube.
- 7 & 18. Collar.
- 8 & 19. Bolt.
- 9 & 20. Nut-wheel studs.
- 10 & 21. Axle shaft.
- 11 & 22. Distance piece.

Fig. 1. Section through rear axle shaft and road wheel ball bearing for 'A' & 'B' series.

be stated whether it is required for the right-hand or left-hand side of the car, together with the chassis number.

NOTE: For ease of description in the following context, reference will be made only to Fig. 1 (For 'A' & 'B' series) for dismantling and re-assembling procedure. Where the axle concerned is in accordance with Fig. 2 ('C' series), the information given is equally applicable.

The existing axle shaft assembly including the spigot plate (1, Fig.1) should be returned to the London Service Depot for reconditioning. No attempt must be made to remove a bearing from a shaft. The bearing is held in position by the collar (7), which is shrunk on to the shaft under high pressure and necessitates the use of special tackle.

It will be observed on reference to Figs. 1 or 2 that the brake drum is also controlled by the road wheel ball bearing, therefore in the unlikely event of a bearing failure, the brake mechanism (i.e. Brake shoe linings, expander unit and adjuster unit) should be examined for signs of overheating, this depending upon whether the car has been driven for some long distance with a failed bearing.



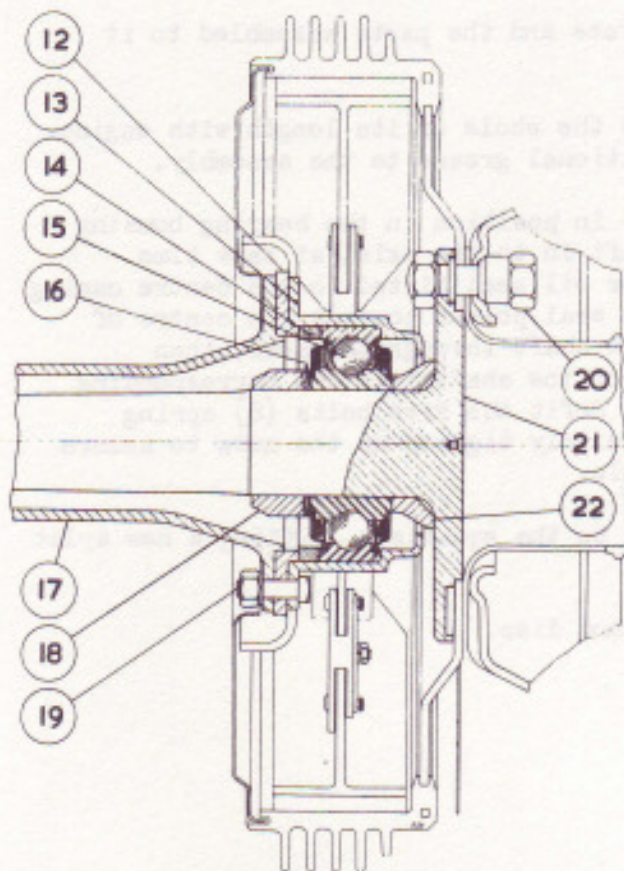


Fig.2. Section through rear axle shaft and road wheel ball bearing for 'C' series and onwards.

To Remove an Axle Shaft:

- (i) Place a jack under and in the centre of the centre casing of the rear axle. Jack up and then place a suitable block of wood or trestle under the centre of the appropriate rear spring, care being taken not to damage the spring gaiter.
- (ii) Remove the wheel disc, wheel and brake drum. Refer to Sub-Section BJ-3, paragraph, "To Remove Wheel Discs, Wheels and Brake Drums".
- (iii) Uncouple the appropriate brake rod from the brake shoe expander to the equaliser lever situated at the rear of the rear axle by removing the pin from the jaw of the rod and the equaliser lever.
- (iv) Remove the five bolts (8) and carefully withdraw the shaft assembly by hand until it is clear of the oil seal fitted to the centre casing of the axle, and then fully withdraw

the assembly.

- (v) Withdraw from the axle, the brake carrier plate complete with the brake shoe assembly, dust cover and spigot plate etc.
- (vi) Remove the four nuts and spring washers (situated at the rear of the dust cover) securing the dust cover and the spigot plate (1) to the brake carrier plate and remove the spigot plate and attach it to the original axle shaft assembly.

To Fit a New Axle Shaft Assembly:

- (i) Assemble the dust cover and the new spigot plate (1) to the brake carrier plate by fitting the four bolts, spring washers and nuts.  
**NOTE:** It is important that the original spigot plate is not used, as each spigot plate and each adjusting piece (3) of an assembly are intimately locked up with one another in order to give the required preload to the outer race of the ball bearing (4).





- (ii) Replace the brake carrier plate and the parts assembled to it on to the rear axle.
- (iii) Lightly smear the axle shaft the whole of its length with engine oil, but do not add any additional grease to the assembly.
- (iv) With the adjusting piece (3) in position in the bearing housing (2), carefully enter the shaft in to the axle, at same time feeling for the centre of the oil seal fitted to the centre casing of the axle. The tip of the seal points towards the centre of the axle. Having entered the shaft through the seal, then carefully enter the splines of the shaft into the corresponding splines of the bevel wheel. Refit the five bolts (8) spring washers and nuts and progressively tighten up the nuts to secure the shaft assembly to the axle.
- (v) Reconnect the rear brake rod to the equaliser, fitting a new split pin to the pin.
- (vi) Refit the brake drum, wheel and disc.





## THE REAR AXLE

### REMOVAL AND REPLACEMENT.

#### 1. TO REMOVE THE REAR AXLE:

- (i) Chock the front wheels. Jack up the car from beneath the centre of the main casing of the rear axle and remove the rear wheels.
- (ii) Disconnect the forked link from the main lever of each shock damper.
- (iii) Disconnect the flexible oil feed pipe from each inner shackle at rear end of the rear springs to avoid fracturing the pipe when the axle is lowered.
- (iv) Place a suitable trestle firmly under and near the rear end of each rear spring and lower the axle until it is supported by the rear springs only.
- (v) Disconnect the two brake shoe pull rods from the upper end of the equaliser lever situated on the rear axle. Remove the support of the tubular equaliser bar from the bolt on the right-hand side axle tube.
- (vi) Uncouple the rear propellor shaft from the driving flange of the axle by removing the four bolts.
- (vii) Remove the two rubber buffers (rear axle stops) from beneath the frame to allow removal of the axle.
- (viii) Remove the four 'U' bolts attaching the axle to the springs.
- (ix) With one operator beneath the axle, and one at each end of it, remove the axle by manoeuvring it over the springs and towards the right-hand side of the car.  
**NOTE:** It is not necessary to disconnect the rear end of the springs from the shackles in order to remove the axle.

#### 2. TO REPLACE THE REAR AXLE:

- (i) From the right-hand side of the car, manoeuvre the axle into position.  
Place the upper and lower rubber pad shields (complete with rubber pads) in position, followed by the packing plate and shock damper link attachment plate.
- (ii) Fit the 'U' bolts, tighten up the nuts and secure with new split pins.  
**NOTE:** As rubber pads (having a total thickness of  $\frac{1}{2}$ " 12.7 mm when new) are fitted below and above the centre portion of the rear springs, it is recommended that a Torque Wrench set to break at 325-lbs/inch and fitted with a 7/16" B.S.F. adaptor be used to tighten the nuts of the 'U' bolts. After tightening, check alignment of the split pin hole, if necessary, further tighten to align nuts with holes.





If a Torque Wrench is not available, then the nuts should be tightened up by a skilled fitter using a jaw or box spanner. The nuts should be tightened up until by experienced "feel", they are as tight as is wise, thus avoiding the crushing of the rubber pads.

- (iii) Refit the two rubber buffers to the frame.
- (iv) Refit the support of the equaliser bar to its bolt on the right-hand side axle tube and re-connect the two brake shoe pull rods to the equaliser lever.  
If the support is of the type shown in Fig.1, check that the rear face of the main boss of the support is 2.275" (57.8 mm) distant from the centre of the equaliser pivot pin as shown. Re-position if necessary. If it is of the type shown in Fig.2, check that the rear face of the Silentbloc bush is 2.125" (54 mm) distant from the centre of the same pin. Re-position if necessary.
- (v) Re-couple the rear propeller shaft to the driving flange of the axle.
- (vi) Jack up the axle. While jacking up, ascertain that the rear ends of the rear springs correctly position themselves, i.e. above the shackle bracket and not beneath it.
- (vii) Re-connect the flexible oil pipe to the rear shackles.
- (viii) Refit the rear wheels, lower the car to the ground and then re-connect the forked links to the levers of the rear dampers.
- (ix) Inspect that no split pins have been omitted.

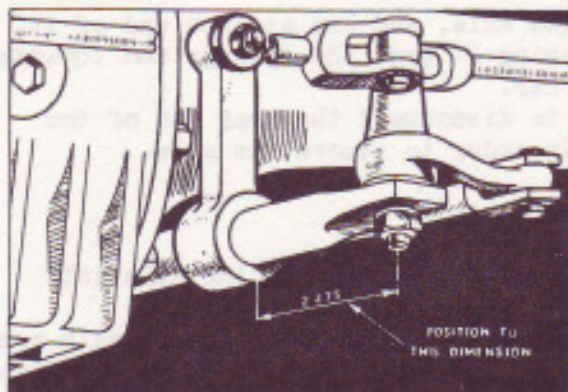


FIG. 1.

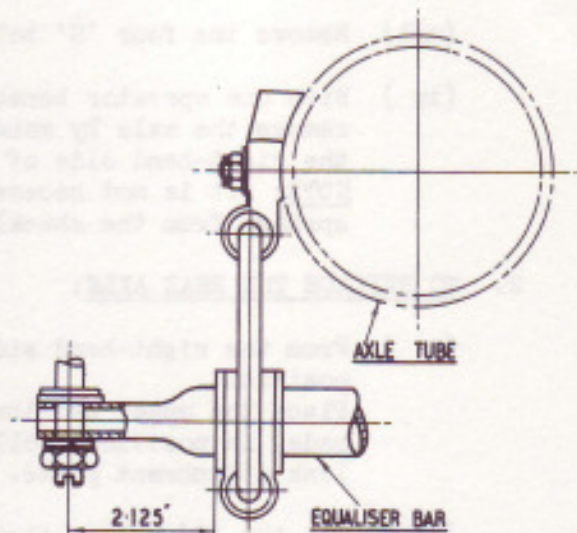


FIG. 2.