

# WHEEL BEARING ADJUSTMENT

*Front and Rear Wheels for Rigid and Spring-Frame Models  
with Light-Alloy Hubs*

THE wheels are carried on taper roller bearings, and the right-hand side bearing is adjustable for position. It is moved axially by a screwed sleeve which is threaded into the right-hand end of the spindle tunnel and is locked into position by a circular nut.

Unless the adjustment has been disturbed it is unlikely that readjustment will be necessary. If the bearing is tight it will be quickly ruined, therefore, a very small amount of end-float must exist. This float is just perceptible, 0.002 inch.

## Checking End-Float

The existence of end-float can be checked at the wheel rim. To make the check the machine must be supported with the wheel clear of the ground.

Grasp the wheel by the rim and attempt to move it from side-to-side. A slight movement will be felt if end-float exists.

## Special Tools

To slacken and tighten the circular locking nut and screwed adjusting sleeve, special spanners are required. These are a hook-spanner for the locking nut, Part No. 017250 (front hub) and Part No. 010438 (rear hub) price 1s. 4d. each; spanner for adjusting sleeve, front hub, Part No. B3334, price £1 11s. They can be obtained from the Service Department.

## Readjustment

The numbers shown thus: (2), refer to the numbered parts in the illustrations.

### Front Wheel

- (a) With the machine on the centre stand, disconnect the brake cable and remove the wheel.
- (b) Slacken the circular lock-nut (10).
- (c) Turn the adjusting sleeve (9) *clockwise* until all the slackness is just taken up.
- (d) Turn the adjusting sleeve (9) *anti-clockwise* one-half a turn.

It will now be necessary to drive the bearing back against the sleeve and this is done by:—

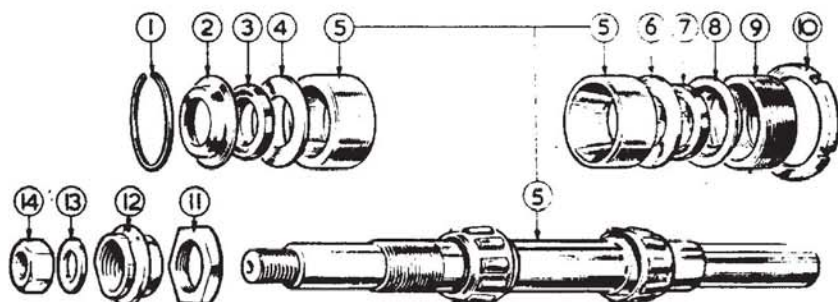
- (e) placing the wheel under a press and pressing the end of the spindle (on the brake-side) downwards.

or;

- (f) jarring the end of the spindle on the brake-side with a weighty lead hammer.

Whichever method is used the greatest of care must be exercised otherwise the bearing may be damaged.

- (g) Tighten the circular lock-nut (10). Hold the sleeve in position while this is being done otherwise the sleeve may move and the adjustment will be incorrect.
- (h) Refit the wheel and check for end-float.



Front Wheel Bearing Assembly



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### Removal of the Bearings

It is important that bearing parts are not mixed. The roller race and its associated cup must be replaced together and not interchanged with those of another bearing.

- (m) To facilitate removal of the bearing cups gently heat the hub shell.
- (n) Place on the outer face of the brake-side, oil-seal distance piece (6) a short rod of  $\frac{7}{8}$ -inch diameter — preferably a soft metal such as brass — and apply pressure so that the far bearing cup and the caged roller race are pushed out of the hub tunnel.

The distance piece (8) and the caged roller race of the near bearing will also be ejected.

**NOTE** This operation can be performed by jarring the soft metal rod with a hammer but the utmost care must be taken otherwise the bearings or hub shell may be damaged.

### Removal of the Brake-side Bearing Cup

The bearing cup (7) is located endwise by a circlip (11) and between the cup and circlip are a spacing collar (9), oil-seal retaining ring (10), oil seal (4), oil-seal cup (5) and oil-seal distance piece (6).

Before any parts can be removed the bearing cup must be moved inwards for a very short distance so that the circlip can be removed.

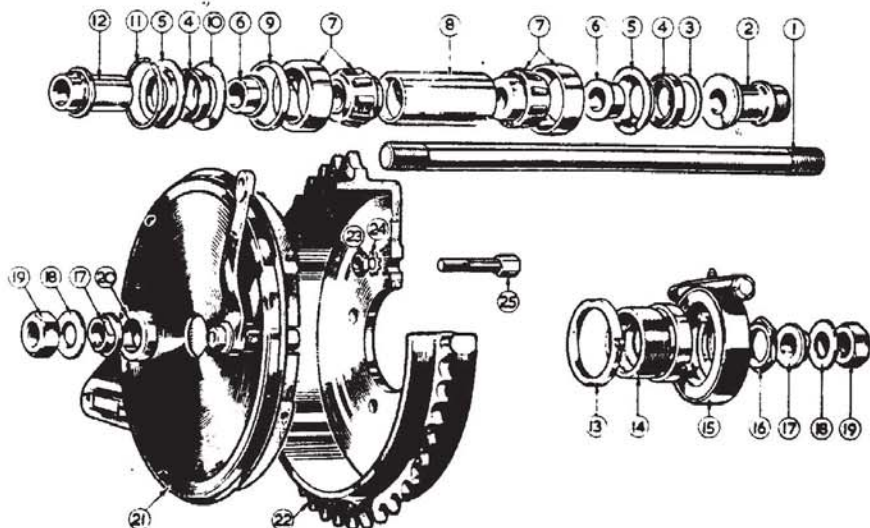
- (o) If the hub shell has cooled during the previous operations gently reheat it.
- (p) Place a soft metal rod (e.g. brass) against the oil-seal cup (5) and apply pressure. It is only necessary to move the bearing cup (7) inwards about  $\frac{1}{16}$ -inch.

- (q) Extract the circlip by inserting a narrow pen-knife blade under one end of the circlip; lift it upwards and outwards and prise the clip out of its groove.
- (r) Remove the oil-seal cup (5), the oil seal (4), oil-seal retaining ring (10), bearing spacing collar (9) and the oil-seal distance piece (6). They can be hooked out with the shank of a small and narrow screw-driver.
- (s) The bearing cup can now be ejected by placing a suitable rod of soft metal (e.g. brass) in the hub tunnel from the right-hand side and pressing it against the bearing cup until the cup is forced out of its housing.

### Reassembly

To facilitate replacement of the bearing cups gently heat the hub shell. If the existing bearings, oil seals, etc., are to be refitted it is preferable that they should occupy their original positions.

- (a) Place the brake-side bearing cup squarely in the hub shell — the open end faces inwards — and press it into position. A short length of brass rod, slightly less in diameter than the outside diameter of the cup, should be interposed between the cup and ram of the press or hammer head. Press the cup in until the outer face is approximately half-an-inch below the mouth of the hub tunnel. This will allow sufficient room for the circlip to be inserted into its groove.
- (b) Refit in the following order: oil-seal distance piece (6) (the shoulder abuts against the roller race), bearing spacing collar (9), oil-seal cup (5).





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**Removal of the Brake-side Bearing Cup**

The bearing cup (5) is located endwise by a circlip (1), and between the cup and circlip are an oil-seal retaining washer (4), oil seal (3), and oil-seal cup washer (2)

Before these parts can be removed from the hub the bearing cup must be moved inwards for a very short distance (1/16-inch) so that the circlip can be withdrawn.

- (h) Gently heat the hub shell.
- (i) Place a soft metal rod (e.g. brass) against the oil-seal cup washer (2) and apply pressure with a hand press or hammer blows. It is only necessary to move the bearing cup (5) inwards about 1/16-inch.
- (j) Extract the circlip by inserting a narrow pen-knife blade under one end of the circlip; lift it upwards and outwards and prise the clip out of its groove.
- (k) Remove the oil-seal cup washer (2), oil seal (3) and oil-seal retaining washer (4). They can be hooked out with the shank of a small and narrow screw-driver.
- (l) The bearing cup can now be ejected by placing a suitable rod of soft metal (e.g. brass) in the hub tunnel from the right-hand side and pressing it — with a press or hammer blows — against the bearing cup until the cup is forced out of the bearing. This must be done with care so that the cup remains square with the housing.

**Reassembly**

To facilitate replacement of the bearing cups gently heat the hub shell. Just too hot to hold is about the right temperature.

- (a) Place the brake-side bearing cup squarely in the hub shell — the open end faces inwards — and press it into the hub tunnel. A short length of brass

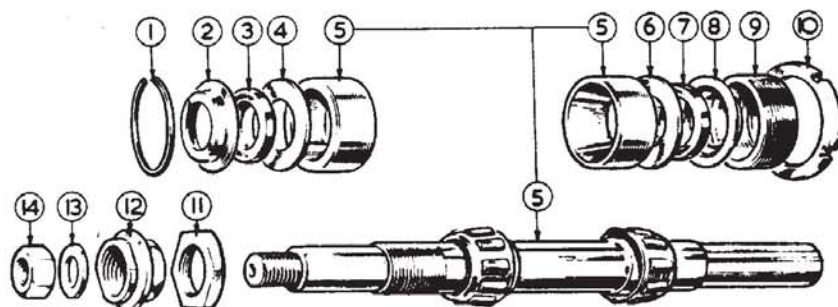
rod, slightly less than the outside diameter of the cup, should be interposed between the cup and ram of the press, or hammer head.

Press the cup in until the outer face is approximately half-an-inch below the mouth of the hub tunnel. This will allow sufficient room to allow the circlip to be inserted into its groove.

- (b) Refit in the following order: oil-seal retaining washer (4), oil seal (3), oil-seal cup washer (2).
- (c) The circlip can now be replaced. In the interest of reliability use a new circlip, for it is possible that the existing circlip was strained when it was removed.
- (d) Insert into the hub tunnel from the right-hand side a brass rod of suitable length, and press the bearing cup firmly against the circlip.
- (e) Before inserting the spindle complete with the roller races, pack them with clean and fresh grease of a suitable grade (*Mobilgrease No. 4, Castrolase heavy, Energrease C3, Esso Pressure Gun Grease, Shell Retinax Grease CD or A*).
- (f) Insert the spindle into the hub.
- (g) Place the right-hand side bearing cup in the hub tunnel; the open end faces inwards.

It may be necessary to re-heat the hub to allow the cup to go into position without difficulty.

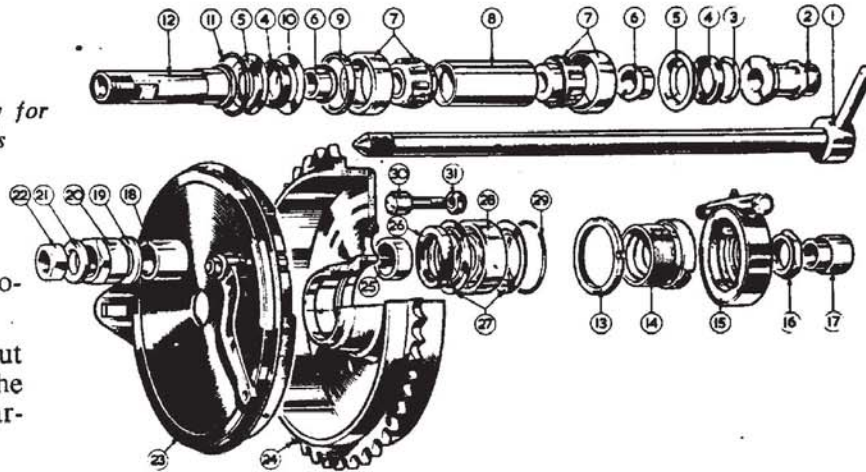
- (h) Press the cup into position, but do not force it fully home, leave some end play on the spindle.
- (i) Refit in the following order: oil-seal retaining washer (6), oil-seal (7) and oil-seal cup washer (8).
- (j) Screw into the hub the adjusting sleeve (9) until it comes into contact with the bearing cup (5).
- (k) Thread the hub cover plate over the adjusting sleeve, and refit the circular lock nut (10) but do not tighten.





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*Rear Wheel Bearing Assembly for Quickly Detachable Wheels*



**Rear Wheel**

- (a) Disconnect the speedometer driving cable.
- (b) Remove the lock-nut (16) which secures the speedometer-drive gearbox in position.
- (c) Remove the wheel.
- (d) Grasp the speedometer-drive gearbox (15) with the fingers and firmly pull it away from the hub.
- (e) Proceed as described in the instructions for the front wheel (b) to (d).
- Note that in the illustrations for the rear wheel the circular lock-nut is (13) and the adjusting sleeve is (14).

It will now be necessary to drive the bearing back against the sleeve and this is done in the following manner:

**Quickly Detachable Wheels**

- (f) place the wheel under a press, brake-side uppermost, and apply pressure to the oil-seal distance piece (6),
- or;
- (g) jarr the end of the oil-seal distance piece (6) with a weighty lead hammer.

Whichever method is used the greatest of care must be exercised otherwise the bearing may be damaged.

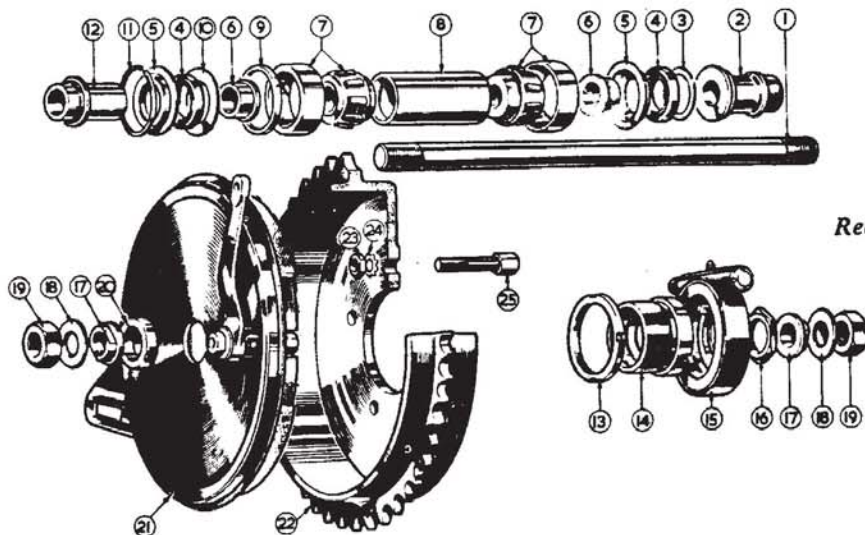
**Wheels for Rigid-Frame Models**

- (h) Remove the brake-side spindle nut (19), washer (18), fork-end spacer (17), outer spacer (20), and the brake plate (21).
- (i) Place the wheel, brake-side uppermost, under a press and apply pressure to the oil-seal distance piece (6).
- or;
- (j) jarr the end of the oil-seal distance piece (6) with a weighty lead hammer.

Whichever method is used the greatest of care must be exercised otherwise the bearing may be damaged.

**All Rear Wheels**

- (k) Refit the speedometer-drive gearbox. It is pushed on. The two dogs must engage with the slots in the end-face of the adjusting sleeve.
- (l) Refit the lock nut (16).
- (m) Refit the wheel into the frame and check for end-float.
- (n) Tighten the lock-nut (16) and refit the speedometer driving cable.



*Rear Wheel Bearing Assembly for Rigid-Frame Models*