

DISMANTLING AND REBUILDING FULL-WIDTH REAR WHEEL HUBS

Rigid Frame Models

THE wheels are carried on adjustable, taper roller bearings.. The bearing cups are a press fit in the spindle tunnel; the left-hand side bearing is located in the hub by a circlip lying in a groove at the end of the tunnel, 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 located in position by a circular nut.

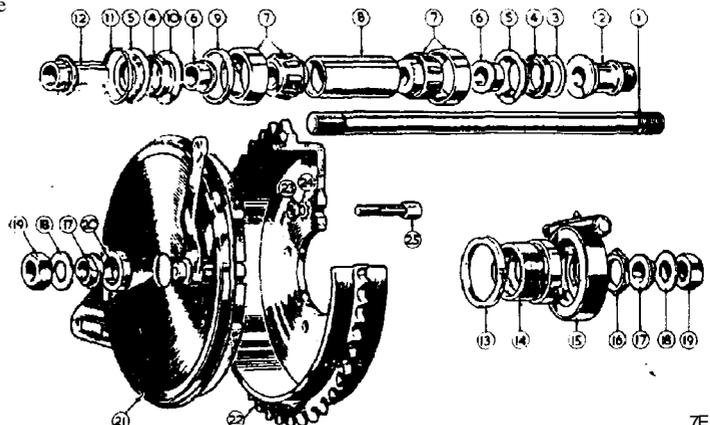
Dismantling

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

- (a) Disconnect the speedometer driving cable.
- (b) Remove the lock-nut (16) which secures the speedometer-drive gearbox in position.
- (c) Remove the wheel from the frame.
- (d) Grasp the speedometer-drive gearbox with the fingers and firmly pull it away from the hub.
- (e) Slacken the circlip lock-nut (13).
- (f) Unscrew and remove the adjusting sleeve (14). With it will come: the sleeve (2) upon which

gearbox is mounted; the lock-nut (13) and the hub cover disc.

- (g) From the brake side of the wheel remove the spindle nut (19) and washer (18), the spacer for the fork end (17), and the outer spacer (20)
- (h) Withdraw the brake cover plate complete with the brake shoes from the brake drum.
- (i) Remove the inner spacer (12).
- (j) If it is desired to remove the brake drum, take off the nuts (23) and washers (24), and pull the drum away from the hub. It is located on a spigot in the hub. The bolts (25) will remain in the hub and can be pushed out.
- (k) Press out the spindle (1). It can be withdrawn from either side and pushed out with a press and a suitable brass or copper rod of slightly less diameter than the spindle, or driven out with a hammer and a copper or brass drift.
- (l) Remove the oil-seal retaining washer (3), the oil seal (4), the oil-seal cup (5), and oil-seal distance piece (6). These can be hooked out with the shank of a small and narrow screw-driver.





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.

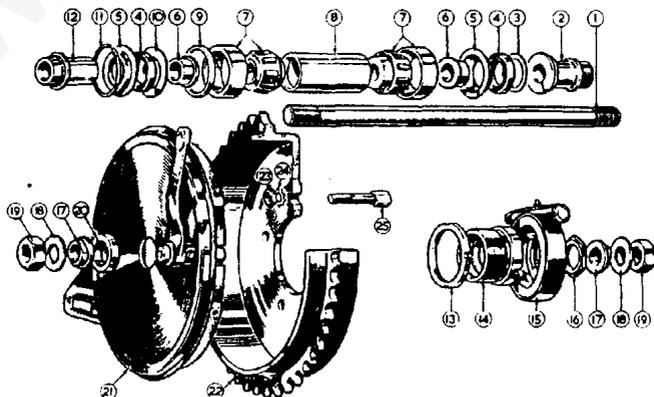
- (o) If the hub shell has cooled during the previous operations gently reheat it.
- (p) Place a soft metal rod (e.g. brass) against the oil-seal cup (5) and apply pressure. It is only necessary to move the bearing cup (7) inwards about $\frac{1}{16}$ -inch.

- (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).





- (c) The circlip can now be replaced. In the interests of reliability a new circlip should be fitted, for it is possible that the existing clip was strained when it was removed.
- (d) With the aid of a brass rod of suitable length, inserted in the hub tunnel from the right-hand side, press the bearing cup firmly against the circlip.
- (e) Before inserting 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 into the hub the wheel spindle; this will facilitate the task of re-assembling the remainder of the parts.
- (g) Over the spindle slide the roller race associated with the brake-side bearing cup and the distance piece (8), and make absolutely certain that the race seats squarely into the inner recess of the distance piece.
- (h) Slide the right-hand side roller race on to the spindle and seat it squarely into the inner recess of the distance piece (8).
- (i) Refit the bearing cup with the open end facing inwards. It may be necessary to reheat the hub to allow the cup to go into position without difficulty. Press the cup into position, *but do not crush the bearings together*, leave some end-play.
- (j) If the brake drum has been removed, refit it at this stage of re-assembly.
- (k) Refit the inner spacer (12).
- (l) Refit brake cover plate complete with brake shoes.
- (m) Refit the outer spacer (2), the spacer for the fork end (17), washer (18), and spindle nut (19).
- (n) Refit: oil-seal distance piece (6), oil-seal cup (5), oil seal (4), and the small oil-seal retaining ring (3).
- (o) Thread the speedometer gearbox sleeve (2) through the bearing adjusting sleeve (14) and insert the sleeve into the hub cover disc. Now screw the sleeve into the hub until it comes into contact with the bearing.
- (p) Before completing the assembly of the hub, the bearings must be adjusted. For details see:
Maintenance Instruction 502.

NOTE After adjusting the bearing and before tightening the circular lock nut (13), the hub cover disc must be placed in the correct position, that is, the hole in the disc face must be in line with the grease nipple located in the hub shell so that a grease-gun nozzle can be inserted through the hole and engaged with the nipple.

When the correct position has been found, tighten the lock nut (13)

- (q) Push the speedometer gearbox on to its sleeve (2) and ensure that the dogs engage with the slots in the adjusting sleeve (14).
- (r) Refit the lock-nut (16) but leave it slack.
- (s) Refit the wheel in the frame and check that the bearing adjustment is correct. Readjust if it is incorrect.
- (t) Position the speedometer gearbox with the cross-piece uppermost and lying approximately horizontal.
Tighten the lock nut (16) and refit the speedometer driving cable.