BSA

SERVICE SHEETS

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Models D1, D3 and C10L

DISMANTLING AND RE-ASSEMBLY OF THE HUBS AND BRAKES

FRONT WHEEL

To remove the front wheel from the forks, disconnect the brake cable at the brake arm on the cover plate, by removing the $\frac{1}{4}$ in. dia. round head bolt and nut holding the 'U' shaped cable clip. Unscrew the cable adjuster, withdraw the cable and place it out of the way.

Unscrew the two spindle nuts, using the plug spanner, and remove the three mudguard stay bolts on the left-hand fork end bracket. (The latter is not necessary on earlier models, where the mudguard is attached to the outer fork tubes). Lift the left-hand lower fork leg away from the spindle, and pull the wheel away from the right-hand leg, so that the brake anchor plate clears it. The wheel will then drop out.

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FRONT BRAKE

Unscrew and remove the spindle nut securing the cover plate. The plate can now be withdrawn and the brake shoes examined. It is not advisable to remove the shoes from the cover plate unless the linings require renewal.

If it is necessary to remove the shoes, first take off the brake lever A, Fig. D.22, and tap in the cam B until the cam plate clears the shoes. Insert a screwdriver between the brake shoes adjacent to the fulcrum pin C and twist the screwdriver. Place a small lever, D between the shoe and the anchor plate and lever the shoe upwards until the spring tension is released. The shoes can then be lifted from the cover plate.

If the shoes require relining, see Service Sheet No. 612.

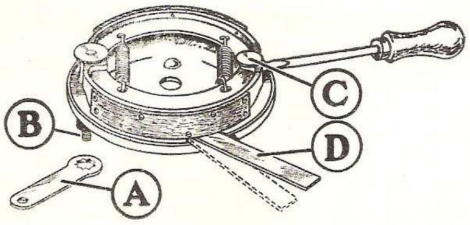

Fig. D22.

FRONT WHEEL BEARINGS. (STANDARD MODEL)

If it is necessary to remove the bearings for examination or cleaning, unscrew the locknut L and spindle nut A, Fig. D.23 and tap the spindle right through, using a hide mallet and soft drift to prevent damage to the threads.

The dust caps B can be prised off with the aid of a screwdriver between the cap and the edge of the spoke flange. Care should be taken to work the caps off a little at a time, to avoid distortion. Next unscrew the lock ring G securing the outer ring of the ball journal on the brake side. This ring has a left-hand thread.

Take out the felt washers C and H and the plain steel washers D.

The ball journals can now be inspected, but they should not be removed unless new ones are required.

If it is necessary to renew the journals the hub should be supported at the brake drum end. With the aid of a suitable soft drift applied to the inner ring of the ball journal, E, Fig. D23, drive the journal in towards the centre of the hub. This will cause the brake drum side journal to be driven out. When it is clear of the hub, take out the distance piece F and pass a drift through the hub until contact is made with the other journal, in order to drive it out.

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NOTE :

This procedure is possible only on machines after Engine No. YD-2850. Earlier models have no deep counterbore in the hub and the journals must be driven out from opposite ends after the distance piece F has been displaced slightly to allow a soft drift to be applied to the inner ring of the race.

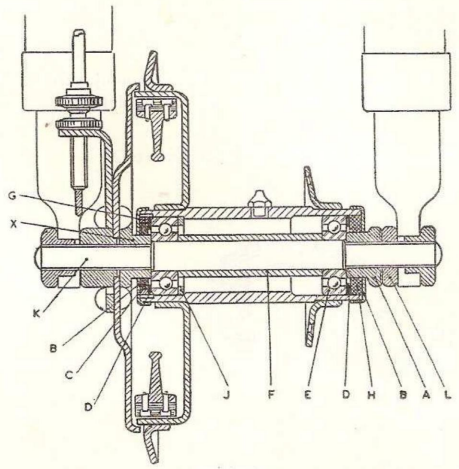

Fig. D.23

COMPETITION MODELS

The front hubs are fitted with adjustable taper-roller bearings as illustrated in Fig. D23A, but instructions for removing the wheel and dismantling the brake are identical with those for standard machines.

To dismantle the bearings, unscrew the two locknuts M and N, remove the brake plate washer P and bearing distance piece R, prise off the dust caps S, and take out the felt washers T. The spindle may now be withdrawn from the brake drum side, leaving only the bearings, felt retaining cups U and bearing abutment rings V and W in the hub. With

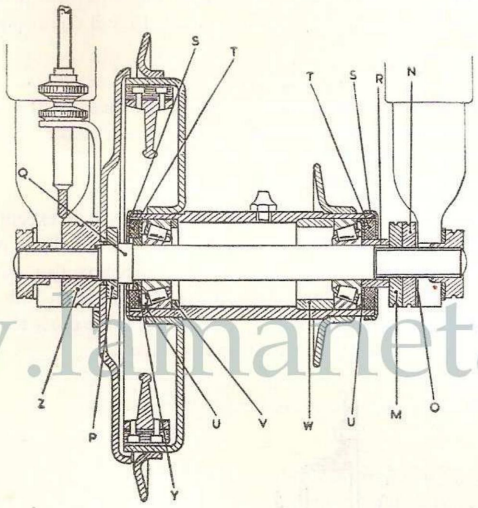

Fig. D23A

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the hub suitably supported at the brake drum end and a soft drift applied against the abutment ring V, the ring itself, the bearing and the retaining cup U may be driven out in one operation, during which the drift should be moved around the circumference of the abutment ring to ensure even extraction. The hub may now be turned over and the same procedure adopted for removal of the corresponding parts in the other side of the hub.

NOTE:

The front spindle assembly of the early competition models differed slightly in that the spindle itself had no fixed collar Q, brake plate washer P or bearing thrust washer Y. These parts replace a shaped nut which was screwed along the brake drum side threaded end of the spindle, tight against the spindle shoulder. Also, a shaped nut was used in the place of the existing distance piece R and nut M. These points should be borne in mind when dismantling and re-assembling, but the procedure otherwise is the same as for the current type hub described.

REAR WHEEL

To remove the rear wheel from the frame, disconnect the brake rod by unscrewing the knurled adjusting nut and lift the rod out of the way.

Uncouple the chain at the connecting link, and run the chain off the sprockets after first placing a clean piece of paper or other suitable material underneath the machine to protect the chain from road or floor grit.

Disconnect the speedometer drive by unscrewing the locknut on the speedometer gearbox.

Slacken off the spindle nuts sufficiently to draw the wheel out of the fork ends. Lean the machine over and draw the wheel out under the left-hand chainstay.

REAR BRAKE

The brake cover plate and shoes are identical with those of the front wheel, and the instructions given for removal will apply equally to the rear brake.

REAR BEARINGS

The rear wheel hub is identical with that in the front wheel except that a speedometer drive gearbox is fitted to the offside. This is held in position by a plain washer and an additional locknut; after removing the locknut the gearbox can be drawn straight off the hub barrel. The instructions given for removal of the front hub bearings will apply equally to the rear hub, except that on spring frame models the inner locknut (corresponding to L on Fig. D23) is replaced with a plain distance collar.

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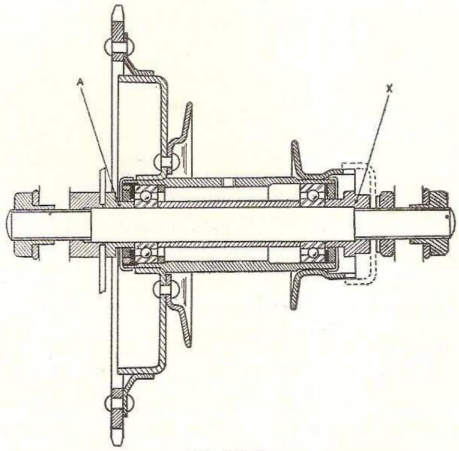

Fig. D23B

NOTE:

On later spring frame models (1953 onwards) the distance collar is omitted; correct positioning of the speedometer gearbox being allowed for by the shape of the spindle nut X, Fig. D23b.

The rear hub spindle assembly is also different in other respects, but removal of the wheel and dismantling of the brake is the same as for earlier models, as also is the procedure for removing the speedometer gearbox. After these operations have been carried out, the spindle can be tapped through from the brake drum side, as the part A, Fig. 23b, is merely a distance piece; which will then fall away. From this stage, dismantling is again the same as for earlier models.

RE-ASSEMBLY OF THE HUBS

The following applies to all hubs, except the front hub on competition models, and refers to the illustration Fig. D23, unless otherwise stated. If new ball journals are to be fitted, first place the distance piece J in position in the hub barrel, brake drum side, and press in the hub journal, taking care to see that it is square to the housing. Insert one plain steel washer D and then screw in the lock ring G. This has a left-hand thread. Reverse the hub, insert the inner distance sleeve F, and push the spindle K through the bearing and distance sleeve. At this stage, if the hub has been cleaned out, it should be repacked with grease. Place the second journal in position and press it into the housing until the inner distance sleeve is firmly gripped, and remove the spindle. Replace the other plain washer D, felt washers C and dust caps B, and re-insert the spindle so that the 'fixed' nut is on the brake-drum side, except on the rear hubs of the later spring frame models; where it should be on the opposite side.

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The 'fixed' nut is marked X on both illustrations, Figs. D23 and D23b, and has been left undisturbed on the spindle throughout all the previously mentioned operations. If, for any reason, it has been slackened; it should be retightened firmly against the shoulder of the spindle. The 'fixed' nut is located on the longer-threaded end of the spindles fitted to all front wheels and the later type spring frame rear wheel. On the rear wheels fitted to pre-1953 spring frame models and all rigid-frame rear wheels the 'fixed' nut is located on the shorter-threaded end of the spindle.

The spindle nut A may now be replaced and thoroughly tightened, except on the later spring frame rear hub where it is necessary to replace the distance collar A, Fig. D23b, and the brake cover plate complete with shoes, before finally tightening down with the brake cover plate nut. In each case the tightening of the nut will lock together the spindle, the inner rings of the journals, and the sleeve F. This assembly should rotate freely in the ball races if the journals have been pressed in squarely. On the other wheels, the brake cover plate and its nut should now be replaced, and the nut securely tightened. It should be noted that in each case the brake cover plate nut has a spigot which must be correctly located in the centre hole of the brake plate before the nut is tightened. The locknut L should now be replaced and tightened against the spindle nut A (front hub and rigid frame rear hub only).

Re-fitting of the speedometer drive gearbox will now complete the re-assembly. This may be placed straight over the wheel spindle on the rigid frame models and on the later spring frame models, making sure that the driving dogs are located correctly in the recesses in the end of the hub barrel. The plain washer and the outer locknut should then be replaced and tightened securely. On earlier spring frame models the plain distance collar must be replaced before the speedometer drive gearbox is re-fitted.

Where a speedometer is not fitted, a plain hub-end cap (Part No. 90-6029) should be fitted in place of the speedo gearbox.

RE-ASSEMBLY. (COMPETITION FRONT HUB)

All references will be to Fig. D23A.

Place the distance piece V in position in the brake drum side of the hub barrel and press the outer ring only of the taper-roller race firmly and squarely up to it. Reverse the hub, place in the distance piece W and press in the outer ring of the other race in the same manner.

Take the hub bearing thrust washer Y and slide it along almost the full length of the spindle, up to the spindle shoulder. Place the remainder of the brake drum side bearing (inner ring complete with cage and rollers) in position, backing it up to the thrust washer. Insert the spindle into the hub from the brake drum side, re-pack the hub with grease and slide into position the remainder of the other bearing. Press in the felt retainers U, followed by the felt grease seals T, and press on the dust caps S. Owing to the 'fixed' nut used on early spindles, the brake side bearing and oil seal assembly must be positioned in the hub before the spindle is inserted. Re-fit the bearing distance piece R and screw on to the spindle the nuts M and N, locking them together when the correct bearing adjustment is obtained. Over-tightening of the hub bearings will cause rapid wear and when the wheel is re-fitted into the forks, just perceptible play (about $\frac{1}{32}$ in.) should be felt at the rim.

Replace the brake plate washer P and the brake cover plate and its nut Z, the spigot of which must be correctly located through the hole in the centre of the brake cover plate, before tightening securely.

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SPECIAL NOTE. (ALL FRONT WHEELS)

The dimension over the front hub locknuts, inside the fork ends, must be maintained between 4.910 ins.—4.920 ins. To adjust, use shims Part No. 90-5545 as required, between locknut and bearing abutment nut. On competition models the shims can be interposed at point O, Fig. D23A, to avoid disturbing the bearing adjustment. It will be necessary to add shims periodically, as bearing wear progresses, and after each re-adjustment.

REPLACING THE WHEELS

Re-assembly of the wheels is the reverse procedure to removal, except that care must be taken to locate the brake plate anchorages correctly, over the lower fork sliding member in the case of the front wheel, and over the fork end stud in the case of the rear wheel. Care must also be taken to see that the speedometer gearbox is lined up to the cable. Sharp bends in the cable will result in fracture of the inner wire.

Couple up the brakes and chain, adjust the wheels in the fork ends, lock securely, and finally adjust the brakes by means of their respective knurled thumb screws.

REAR CHAIN ADJUSTMENT

The rear chain is adjusted by means of screw adjusters in the fork ends behind the wheel spindle. Slacken off the nuts ('A', Fig. D23C) and screw the adjusters ('B') in or out until the chain tension is correct with an up and down movement of three-quarters of an inch (2 cm.). Make sure that the adjustment is equal on both sides of the wheel so that the latter is in correct alignment in the frame. This can be done either by glancng along the line of both wheels when the front wheel is set straight, or by means of a long

straight-edge or the edge of a plank placed along the sides of the wheels. The straight-edge should touch both walls of both tyres.

After adjusting retighten the nuts ('A').

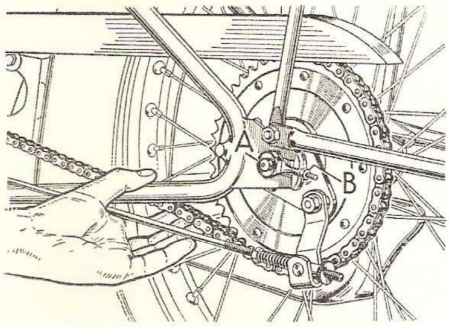

Fig. D23C

On spring frame machines the rear chain should be adjusted when the machine is on its stand and the rear wheel in its lowest position. The adjustment should then be made so that the chain has a total up and down movement of $\frac{1}{2}$ in. in the centre of the chain run at its tightest point.

In the case of the D.3 swinging arm models, the movement should be $\frac{3}{4}$ in. (2 c.m.) again with the machine on its stand.

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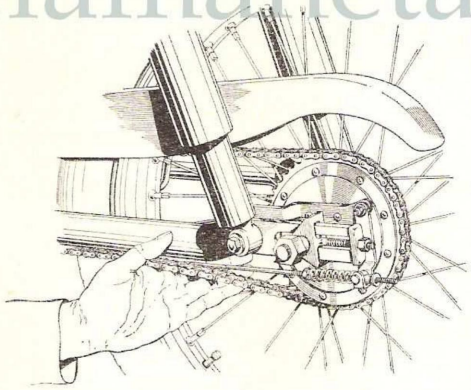

Fig. D23D

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