

# Maintenance Handbook

FOR

# Royal Enfield

★ *'Made like a Gun'* ★

## BICYCLES



**THE ENFIELD CYCLE CO. LTD.**

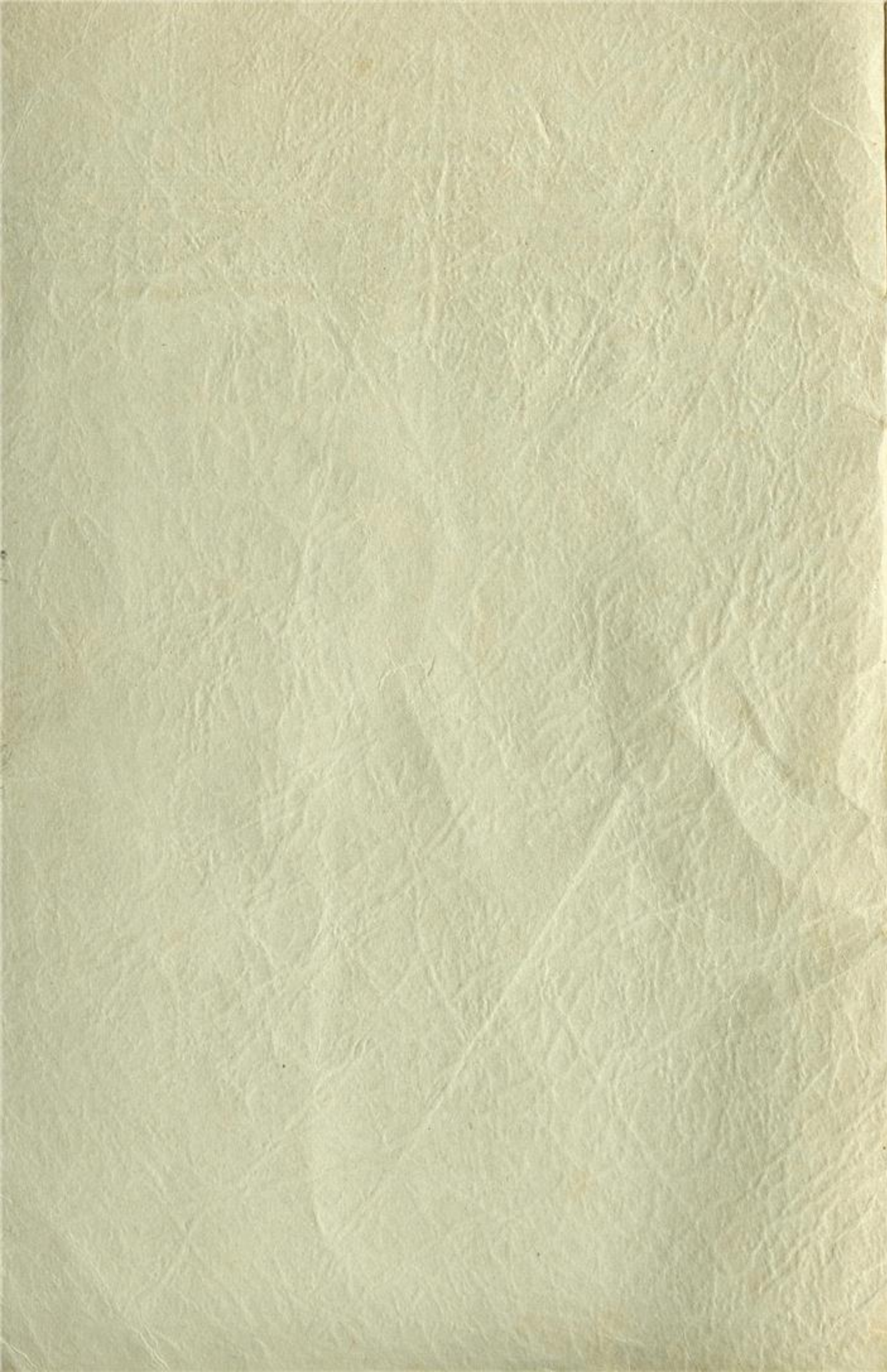
*Head Office and Works:*

**REDDITCH,**

**ENGLAND.**

JANUARY, 1957.

PRICE **2/-**



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"Cycles, Phone, Redditch."

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# MAINTENANCE OF ROYAL ENFIELD BICYCLES

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## FOREWORD

A bicycle can be one of two things—it can be either an easy running, comfortable machine, free from rattles and perfectly under control—a true “magic carpet” taking you, without effort or the use of fuel, to your work, shopping or into our glorious countryside—or it can be heavy running, uncomfortable and even dangerous to ride; a source of drudging labour which you use only because you must.

Which it is depends on two things; primarily on the design and construction of the bicycle but also to a considerable extent on the way it is looked after, adjusted and lubricated.

As the owner of a Royal Enfield bicycle you already possess a machine designed by a firm with over fifty years' experience in cycle building, made of the finest possible materials in one of the most up-to-date factories in the world. The purpose of this book is to help you maintain it in perfect condition throughout its long life.

## MAXIMUM COMFORT

- Riding Position.** When taking delivery of a new bicycle the first thing the owner should do is to see that the saddle and handlebars are adjusted to his or her requirements. It is impossible to give hard and fast rules as to the best position, since riders vary considerably in stature and in their ideas as to what constitutes the most comfortable posture.

In general, however, it can be stated that the rider, when seated normally in the saddle, should be able to place his heels on the pedals when they are in the lowest position and the leg is fully extended. This allows for a slight bend in the knee when the ball of the foot is placed on the pedal in the normal position. Ladies should avoid the use of high heeled shoes when carrying out this test.

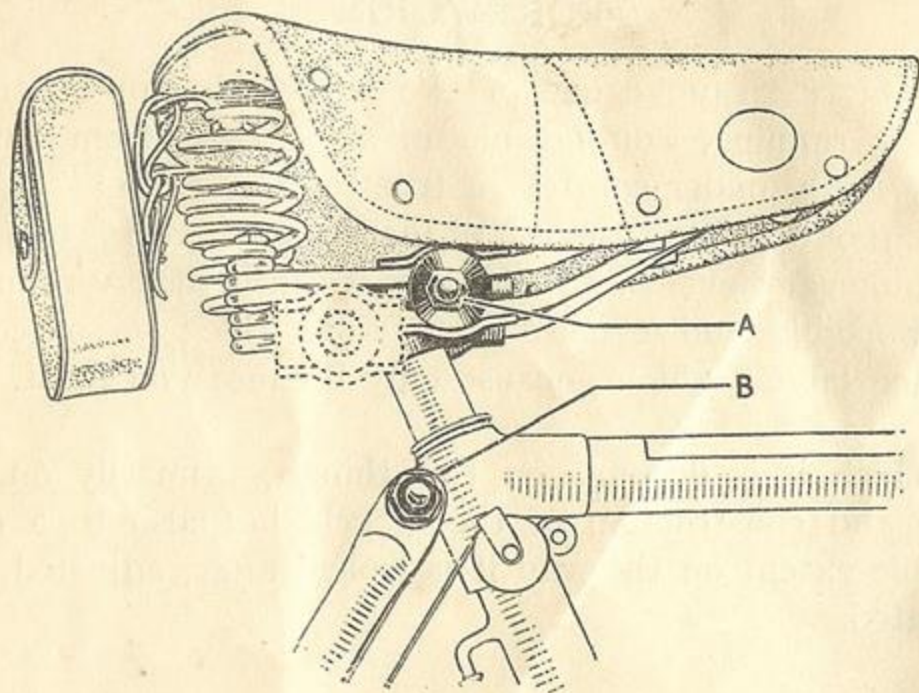


FIG. 1

For a normal touring position the handlebar grips should be approximately the same height as the saddle, so that the rider leans slightly forward and distributes his weight between the handlebars, pedals and saddle.

## ROYAL ENFIELD BICYCLES

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The distance from the saddle to the handlebars is also important. On all models the saddle can be moved backwards or forwards by loosening the nut A (see Fig. 1), and sliding the saddle frame through the clip. If this does not provide sufficient range of adjustment, remove the clip completely from the saddle pillar and reverse it as shown in Figure 1. On some sports models

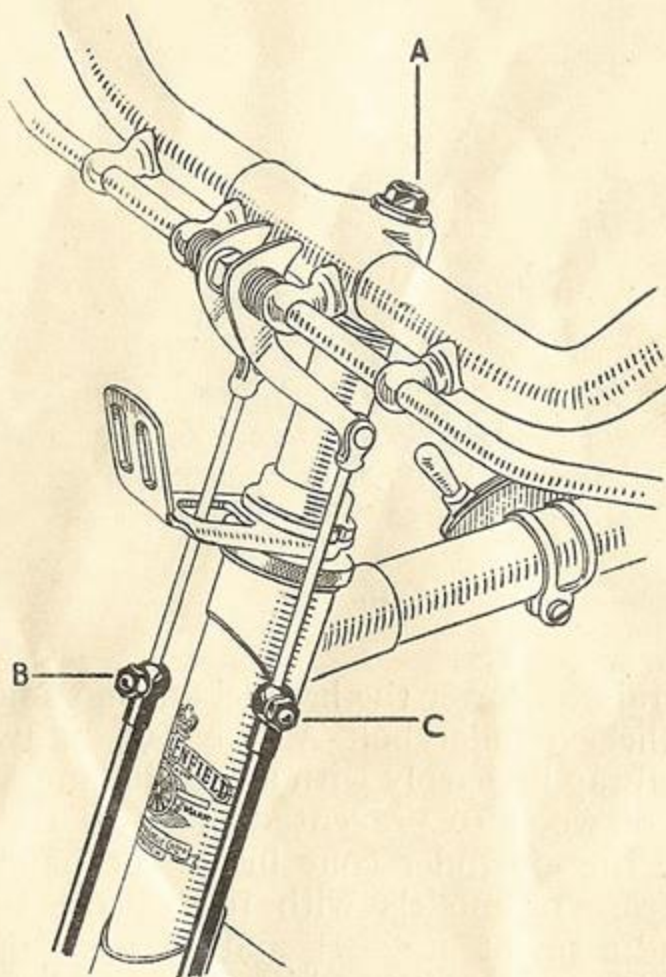


FIG. 2

the handlebars are provided with an adjustable forward extension lug which enables further adjustment to be made in the reach from saddle to handlebar. Loosening the nut A also enables the tilt of the saddle to be varied. It is desirable to set the saddle tilted up very slightly in front so as to prevent any tendency to slip forward.

## ROYAL ENFIELD BICYCLES

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To adjust the height of the saddle loosen nut B (Fig. 1), and raise or lower the seat pillar as required. Make sure, however, that at least  $2\frac{1}{2}$ " of the pillar remains inside the frame tube.

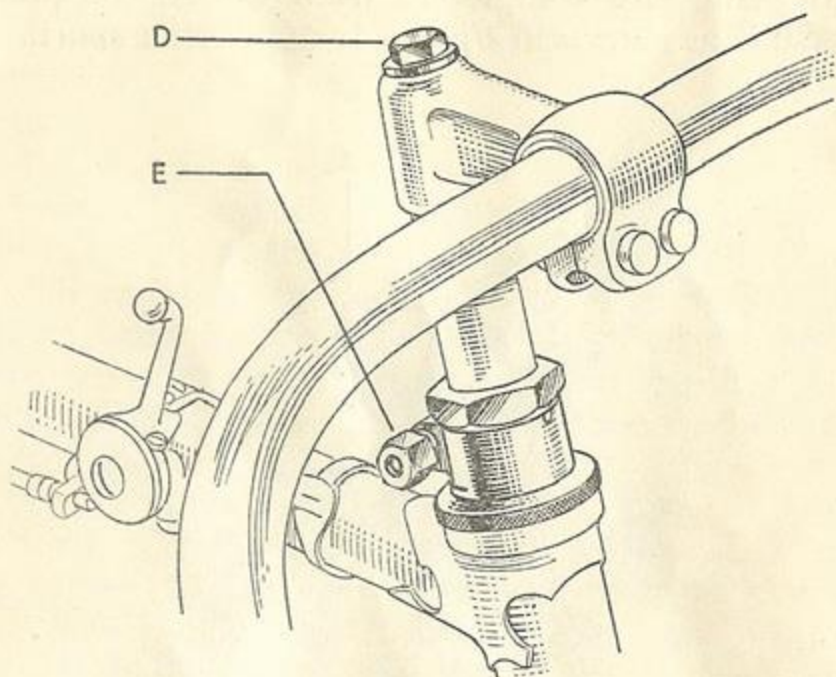


FIG. 3

To raise or lower the handlebars on standard models loosen the expander bolt A (see Fig. 2) two complete turns and tap it sharply with a light hammer, interposing a piece of wood to prevent damage to the nut. This will free the expander cone inside the handlebar stem. In the case of models with rod operated brakes the brake adjustment nuts B and C (see Fig. 2) must also be loosened, after which the handlebars can be raised or lowered as required. Make sure, however, that at least  $2\frac{1}{2}$ " of the handlebar stem remains in the steering tube.

In the case of the "Bullet" model the ball-head clip nut E (see Fig. 3) must be loosened before the bars can be raised or lowered. Do not loosen the expander bolt D which only secures the light alloy lug to the handlebar stem.



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After making these adjustments make sure that the expander bolt or ball head clip nut, seat pillar nut and saddle clip nut are correctly tightened, and, in the case of machines with rod operated brakes, see that the brakes are correctly adjusted (see paragraph 8) and the brake adjustment nuts are tightened.

### CLEANING

- 2 **General.** By keeping your machine clean you not only add to its appearance and value but actually prevent damage to the enamelled and plated surfaces which will occur if dry mud is left on them for long periods. Moreover, when cleaning your machine you will see when adjustments are required.

To clean the enamelled parts of the machine wipe off the dirt with a wet rag, finally polishing with a dry cloth. We recommend occasional application of a good wax polish.

To clean the chromium-plated parts of the machine wipe over with a soft rag. If very dirty, use soap and water, wipe dry and then polish with a clean rag bearing just a trace of oil. On no account use metal polish on chromium-plated parts.

- 3 **Chain.** If the chain is not enclosed in a gearcase it should be occasionally washed in paraffin and then thoroughly oiled. (See paragraph 13 for method of removal of chain).
- 4 **Freewheel.** This should occasionally be cleaned by injecting paraffin and subsequently lubricated with light cycle oil. These instructions also apply to variable gear hubs.

## PERIODICAL ATTENTIONS

- 5     **Lubrication.** Lubricate both wheel hubs, bottom bracket bearing, pedals and steering head once a fortnight, using a good quality light cycle oil ; Fig. 8 shows the position of the various lubricating points. At the same time place a spot of oil on the brake lever pivots, brake guides and swivels, and in the case of three-speed and four-speed models on the gear lever and pulley and on the gear control chain where it enters the hub spindle.
  
- 6     **Care of Tyres.** Examine your tyres carefully once a week and remove any pieces of sharp flint or other objects which may have become embedded in the tread. If not removed the small pieces of flint will gradually work their way through the casing of the tyre and the result will be a puncture, at the same time weakening the casing and allowing wet to penetrate, which will cause further trouble.
  
- 7     **Tyre Pressures.** Always keep your tyres inflated hard ; under-inflation causes dented rims and rapid wear besides making the machine much harder to pedal. Tyres do not hold their pressure indefinitely and should be inflated at least once a week.

## ADJUSTMENTS.

- 8     **Brakes.** Rod operated brakes are adjusted by loosening the nuts A, B and C on the pinch bolts (see Figs. 4 and 5) then pulling the brake stirrup until the brake blocks are as close as possible to the rim without causing it to bind, at the same time pushing down on the brake lever and tightening the pinch bolt. In the case of the rear brake note that two points of adjustment are provided, one in front of the steering head B (Fig. 4) and the other beneath the bottom bracket C (Fig. 5). Adjustment of the brake to take up wear of the blocks, or after movement of the rear wheel to tension of the

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chain, should be made at point C. If the handlebars have to be raised or lowered, correct the brake adjustment at point B in front of the steering head. In the

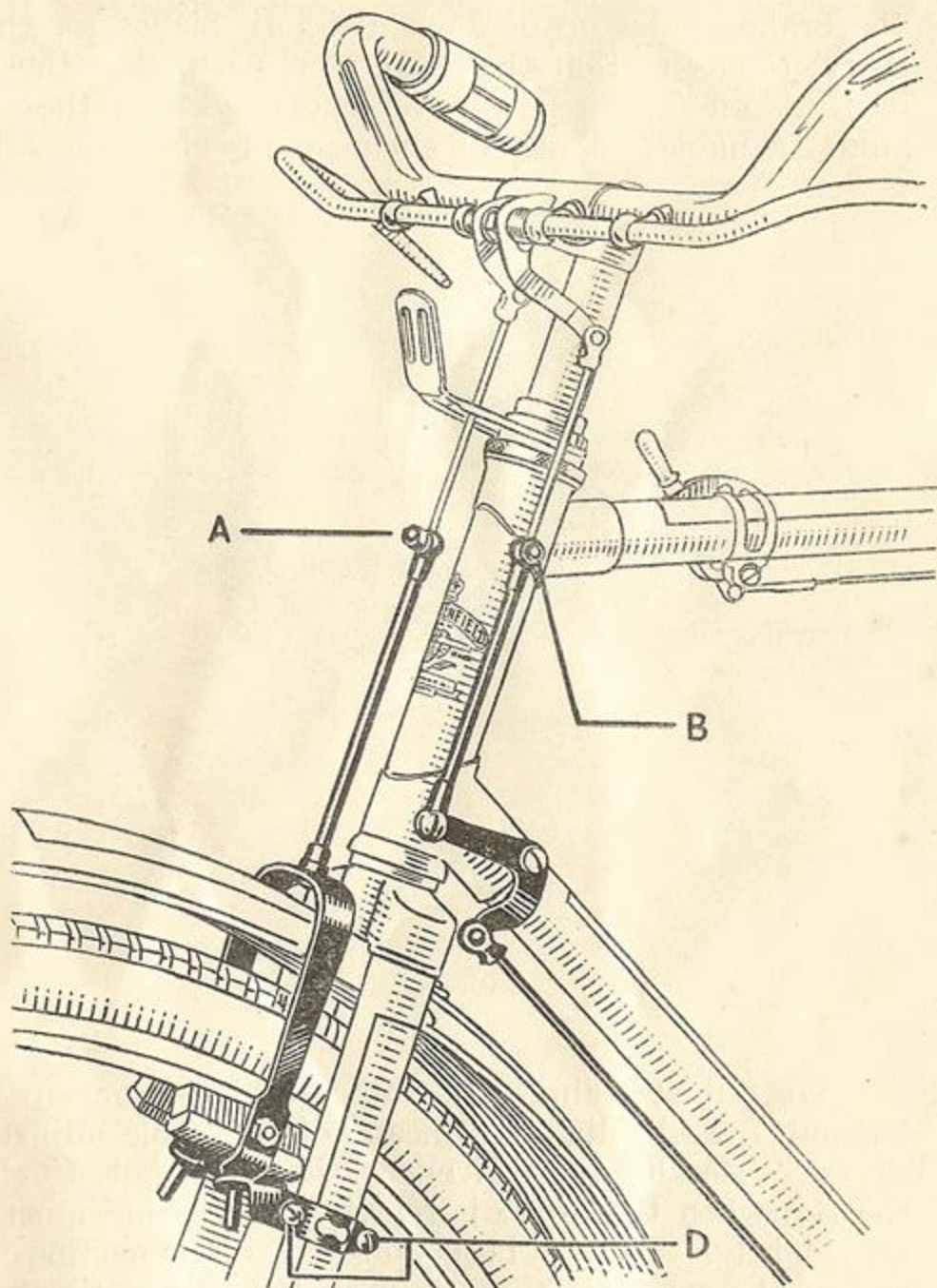


FIG. 4

case of the front brake there is only one point of adjustment, i.e. that in front of the steering head

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A (Fig. 4). If the brake blocks are much worn or the rear wheel has been moved a considerable distance for chain adjustment it may be necessary to loosen the screws D (Figs. 4 and 5) and slide the clips carrying the brake guides up or down the fork blades (or chain stays) to ensure that the brake blocks will clear the rim in the "off" position on the one hand and that the guides cannot pull out of engagement when the brake is "on."

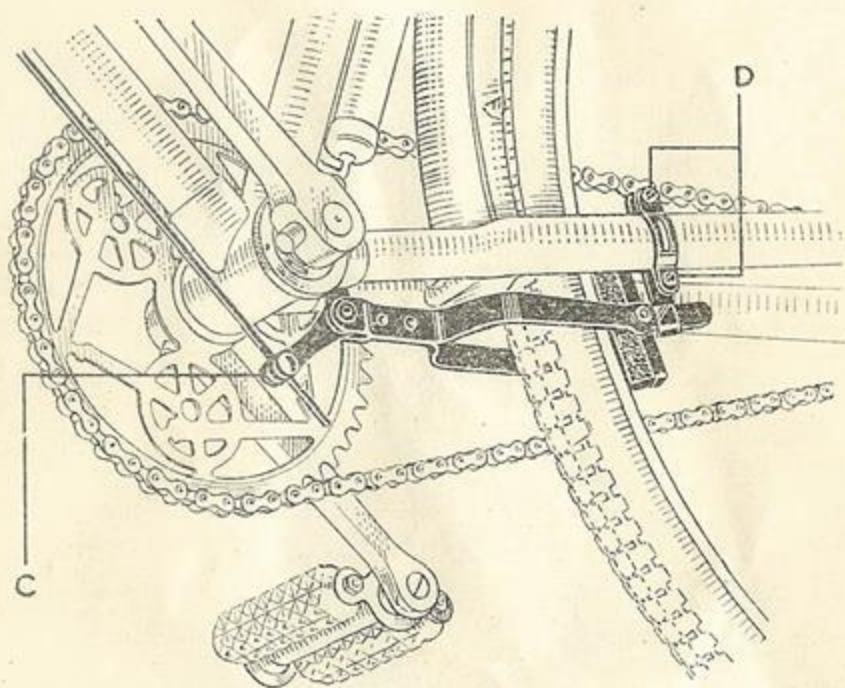


FIG. 5

To adjust caliper operated brakes slacken the locknut B and adjust by means of the cable adjusting sleeve A (see Fig. 6). If one brake block fails to clear the rim when the brake is released, the spring must be set slightly. This is best done by disconnecting the end of the spring C (Fig. 6) from the brake stirrup on the opposite side of the brake to that which is fouling. Then set the spring by pushing it towards the wheel and reconnect.

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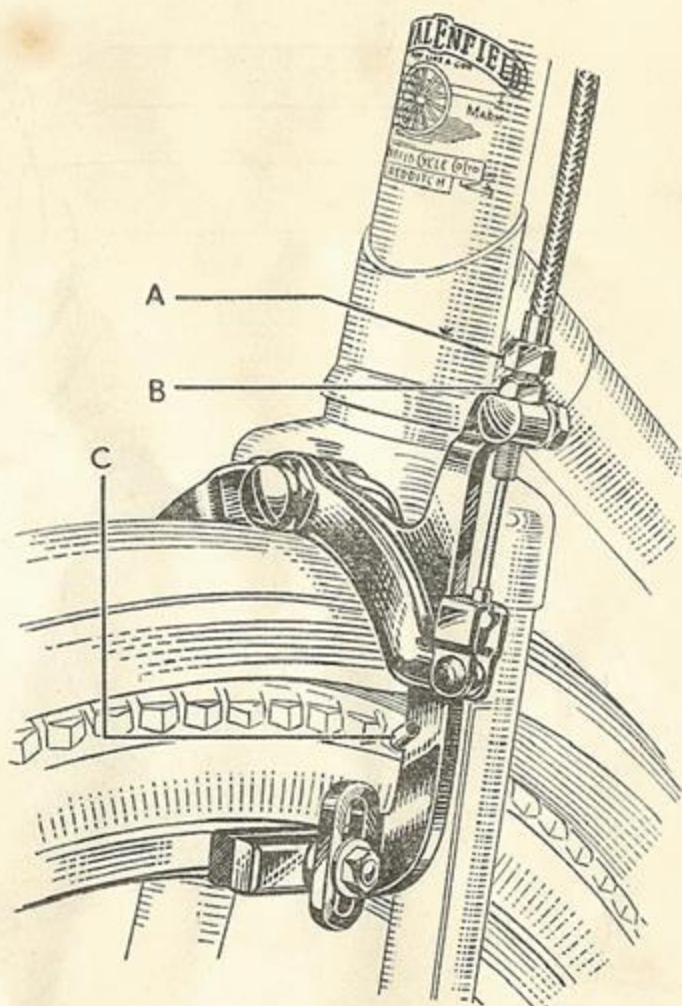


FIG. 6

In the case of the "Bullet" model the adjustment of the caliper brakes is by means of a finger operated nut A at the handlebar end of the control cable (see Fig. 7).

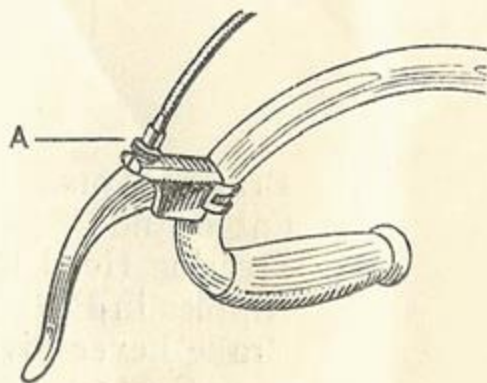
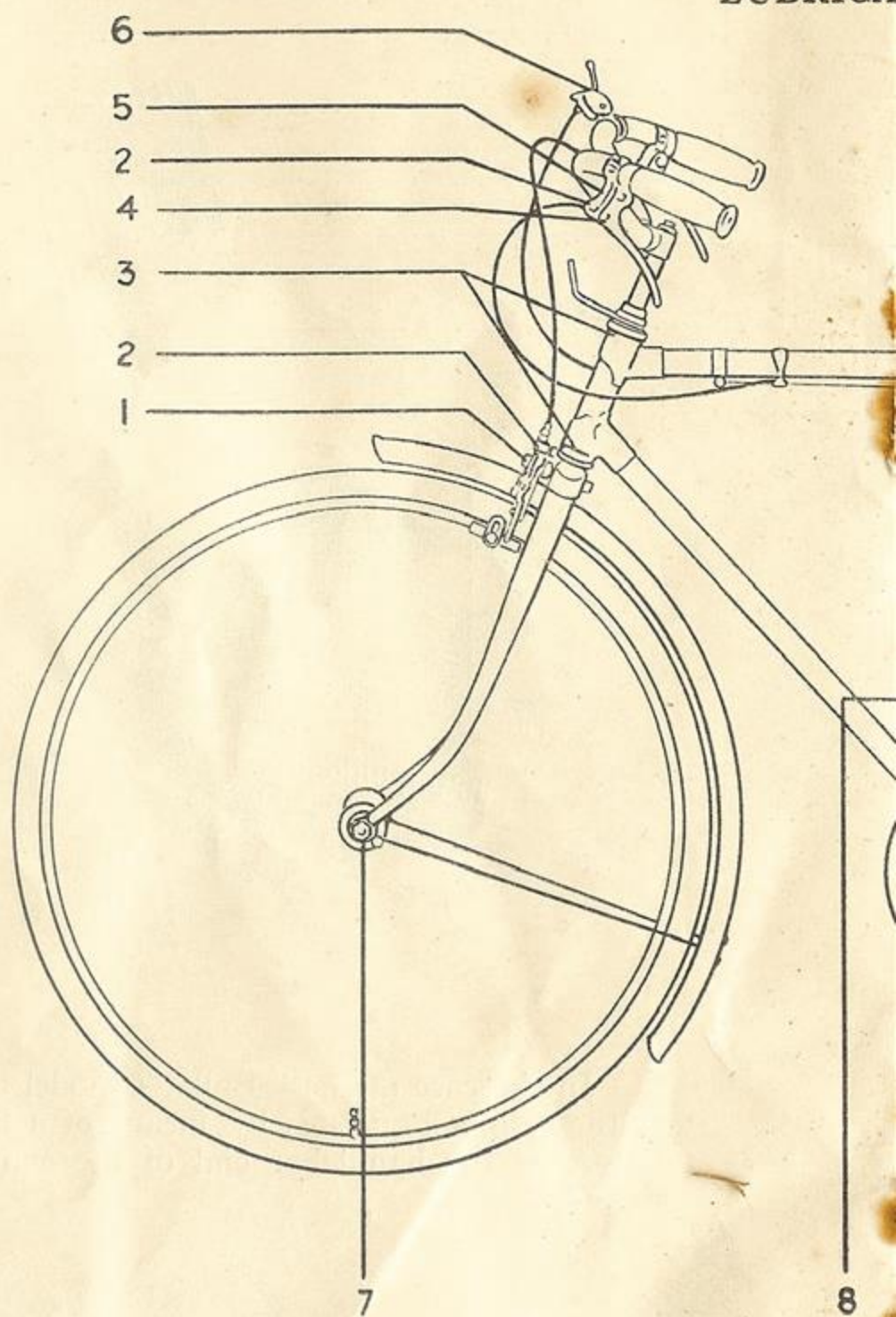


FIG. 7



1. Brake Pivots.
2. Cable Ends.
3. Steering Head Races.
4. Nipples in Brake Levers.
5. Brake Lever Pivots.
6. Gear Control.

On Models with Rod Operated Brakes

# TION CHART

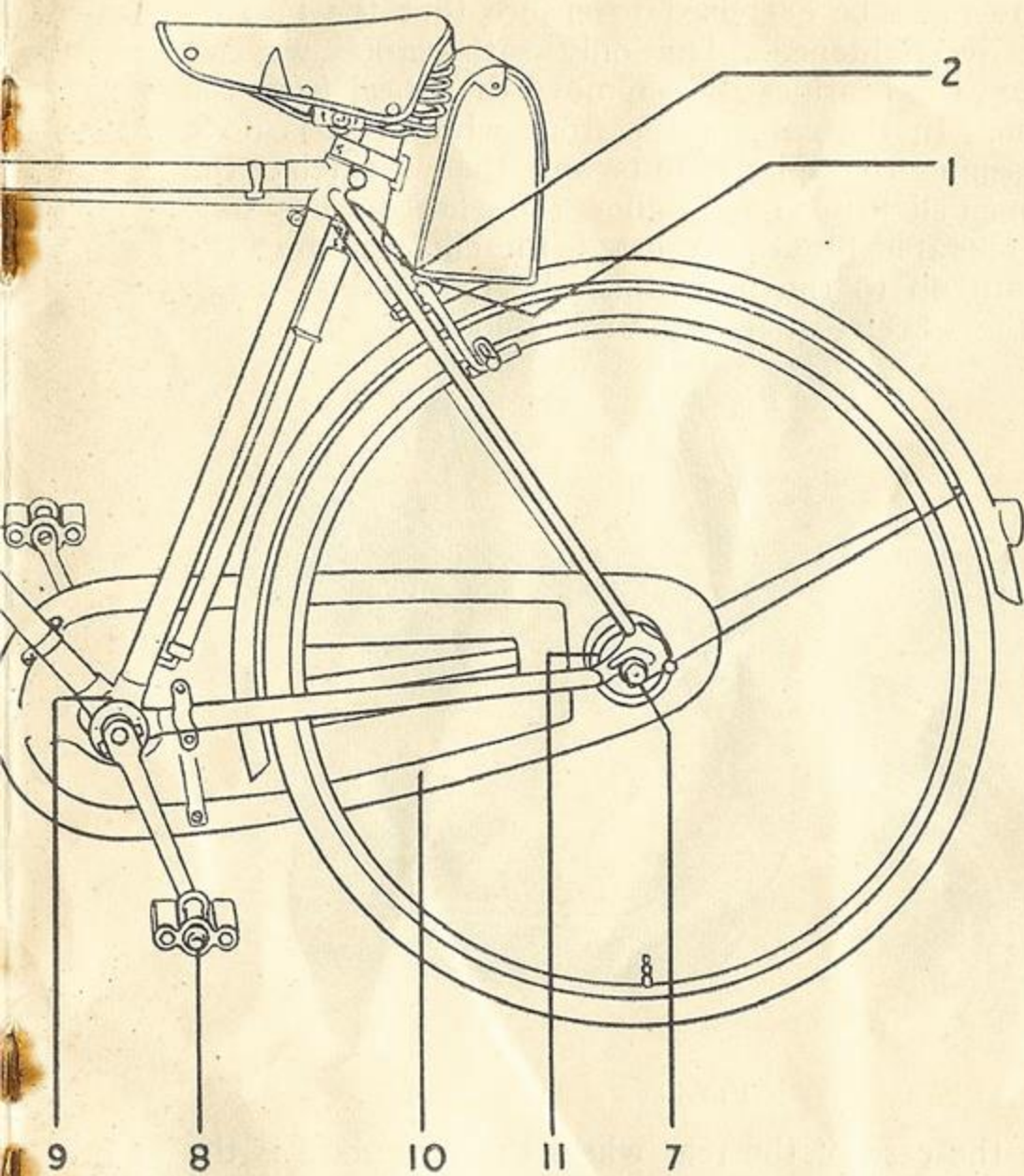


FIG. 8

7. Wheel Hubs.
8. Pedals.
9. Bottom Bracket.
10. Chain.
11. Free Wheel (Single Speed Models).  
Gear Control Chain (3 and 4 Speed Models).

lubricate the Brake Swivels and Guides.

- 9 **Wheel Bearings.** Both front and rear wheels run on adjustable cup and cone ball bearings. These enable adjustments to be made to take up play in the wheels, but care must be exercised to ensure that the bearing is not overtightened. The only satisfactory way of adjusting the bearings is to remove the wheel from the machine. In the case of the front wheel this is done by loosening the spindle nuts and then springing the forks open slightly so as to allow the wheel to drop out. If rod operated brakes are fitted, the clips securing the brake stirrup to the forks must be removed so as to allow the wheel to pass the brake blocks.

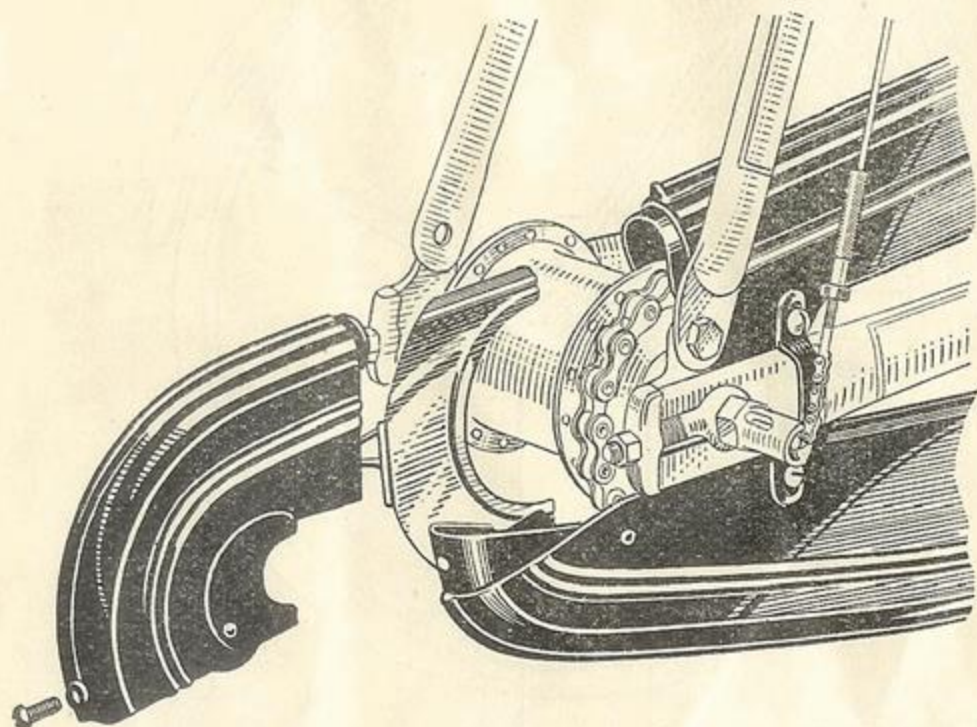


FIG. 9

In the case of the rear wheel the procedure is the same, except that rod operated rear brakes are fitted with a special type of stirrup and clip which enables the stirrup to be sprung out of the clip without removing the latter from the chain stays. In the case of "Ensign" models it is necessary to disconnect the chain by loosening the spring connecting link before the wheel can be removed from the fork ends. In the case of all other models, which are fitted with forward-drop fork ends, this is not necessary.



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If a gear case is fitted the detachable rear segment must be removed before the wheel can be taken out of the machine. This segment is at the top in the case of "Ensign" models and at the bottom in the case of other Models. (See Figs. 9 and 10).

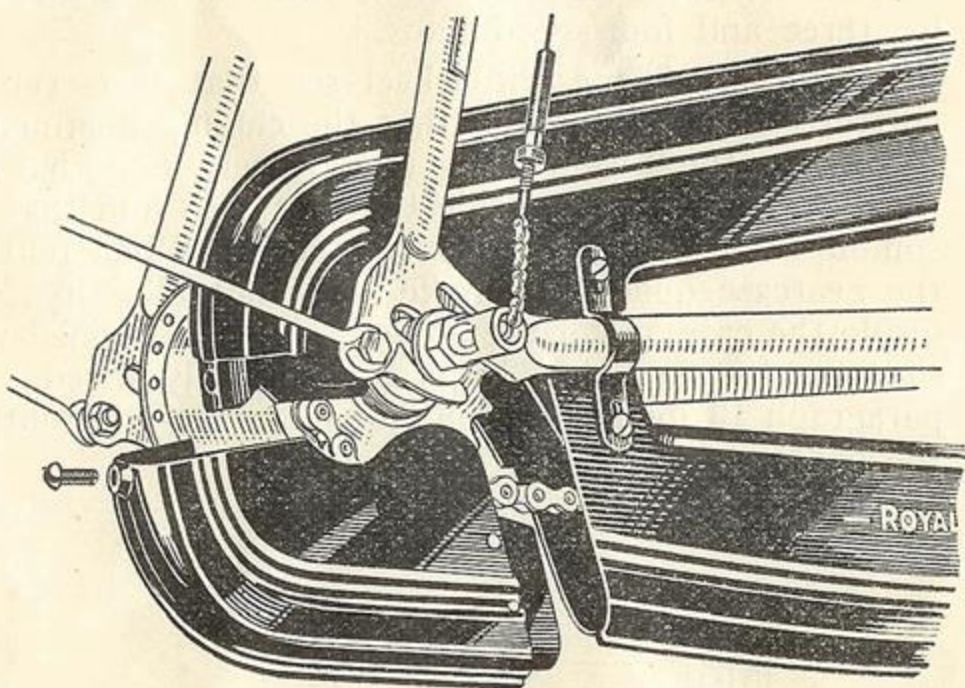


FIG. 10

Having removed the wheel, loosen the locknut B (Fig. 11) on the outside of the adjusting cone A at the left hand side of the spindle. Turn the adjusting cone until side play has been taken up, but do not adjust so

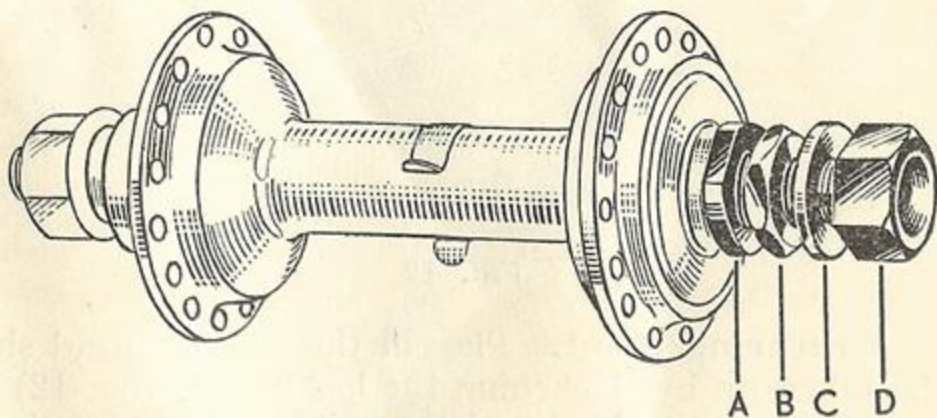


FIG. 11

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tightly that the wheel spindle cannot be spun freely with the finger and thumb without any tight places being apparent. It is much better to leave a trace of side play in the wheel than to adjust the bearings too tightly. Lock up the locknut and check the adjustment of the cone after this has been done. The method of adjustment is the same for front and rear hubs and also for three and four-speed hubs.

When replacing the wheel see that it is centred correctly in the forks and that the chain adjustment is correct in the case of the rear wheel. See that the washers C are fitted outside the fork ends and that the spindle nuts D are securely tightened. When refitting the gearcase quadrants make sure that all "lips" fit inside the case and if the gearcase is one provided with slides make sure that these are correctly fitted. See paragraph 13 for instructions for removing and refitting the chain.

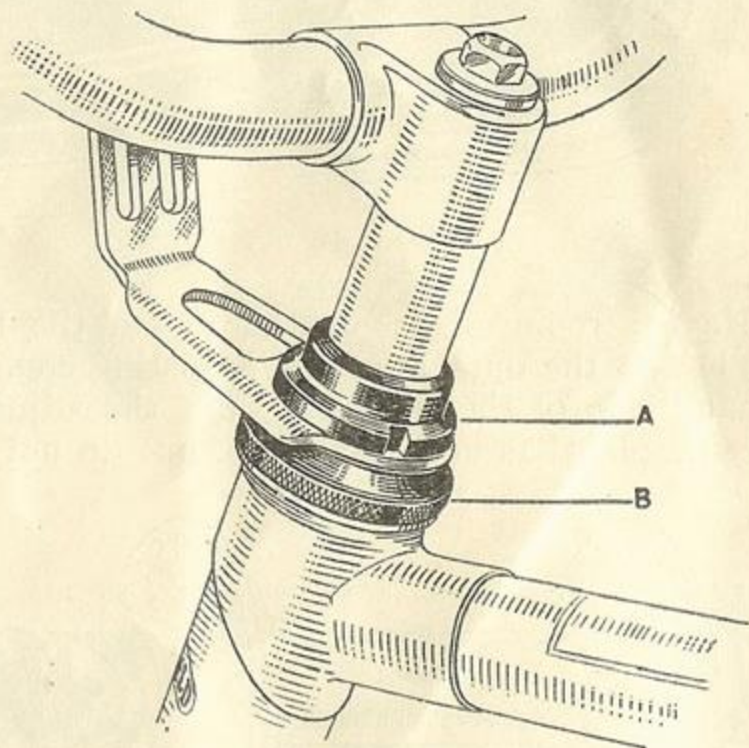


FIG. 12

- 10 **Steering Head.** Play in the steering head should be taken up by slackening the locknut A (Fig. 12) with the spanner provided and then tightening the adjusting nut B until all play has been taken up.

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In the case of the "Bullet" model loosen the pinch bolt nut B and tighten the adjusting nut A. (See Fig. 13).

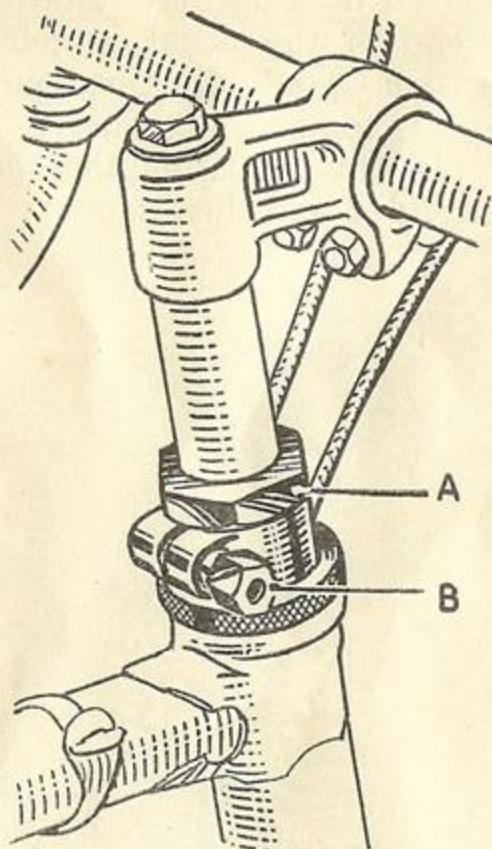


FIG. 13

- 11 **Bottom Bracket.** Before checking the adjustment of the bottom bracket bearings the chain should be removed as described in paragraph 13.

The bottom bracket spindle is carried on adjustable ball bearings. To take up play loosen the locking ring A (see Fig. 14), then adjust by means of the adjusting cup B until all play has been taken out of the bearing which, however, must still spin freely. Lock up the ring A tightly after making the adjustment.

When checking the adjustment of the bottom bracket bearings make sure that the cranks are securely held on the axle. If they show any signs of looseness drive the cotters home with a hammer and a drift made of hard wood or brass, then tighten the nuts C (Fig. 14).

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- 12 **Pedals.** Do not forget that the pedal bearings are just as important as the wheel and bottom bracket axle bearings. To take up play remove the dust cap A at the outer end of the pedal, which will expose the nut B, lock washer C and adjusting cone D (see Fig. 15). Unscrew the nut completely, remove the lock washer and take up play by adjusting the cone, then replace the lock washer, nut and dust cap.

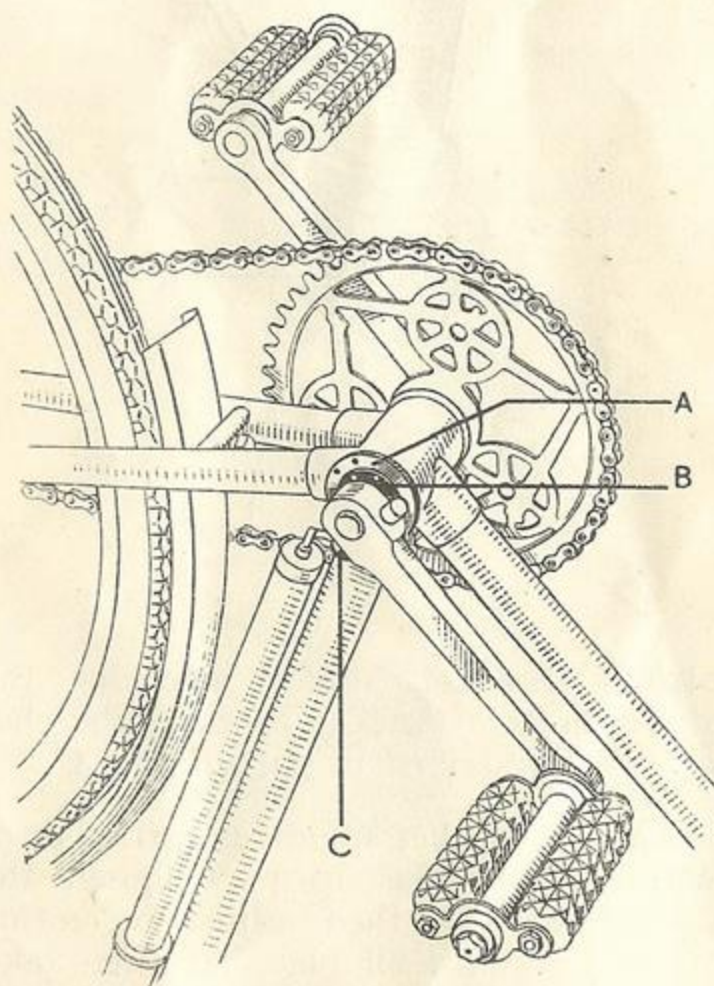


FIG. 14

**N.B.** The adjusting cone on the pedals, wheel spindles, bottom bracket and steering head all have right hand threads and must be turned to the right to take up play.

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Make sure that the pedals are screwed tightly into the cranks and if necessary tighten them with a thin spanner (supplied in the tool kit) operating on the flat on the spindle between the pedal and the crank. Note that the pedal on the chain wheel side has a right hand screw thread while the other pedal has a **left hand thread**.

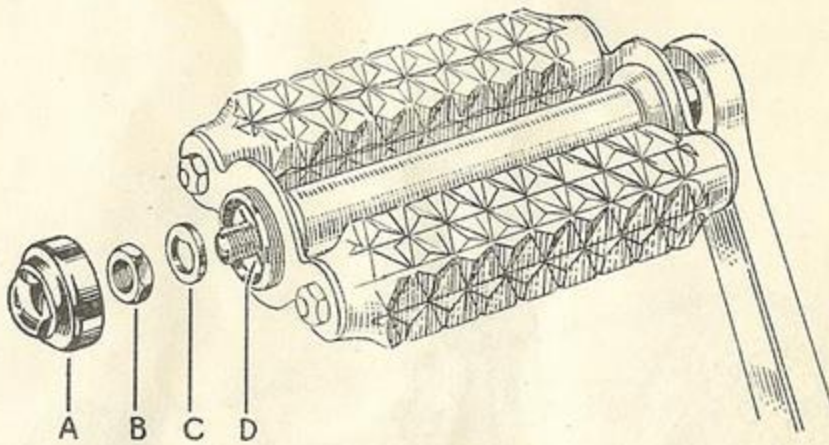


FIG. 15

To remove the chain for cleaning or for adjustment of the bottom bracket bearings remove the spring fastener A by forcing the open ends in the direction of the arrow (see Fig. 16). Now remove the link plate and half link after which the chain can be removed. When replacing the chain make sure that the spring fastener is fitted with the open ends pointing away from the direction in which the chain moves when pedalling forward.

- 13 **Chain.** Correct chain tension is very important. If the chain is too loose it will rattle and may jump off the sprockets. If it is too tight the machine will be very hard to pedal and rapid wear of the bottom bracket and rear wheel bearings may be expected.

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The correct tension of the chain is such that there is about  $\frac{1}{2}$ " of up and down movement at the centre of the run (see Fig. 16). To adjust the chain slacken the rear wheel spindle nuts and move the wheel in its slots. In the case of "Ensign" models chain adjusters are set equidistant to ensure that the wheel remains central in the frame. In the case of sports models the wheel must be arranged to lie central in the frame before tightening the spindle nuts.

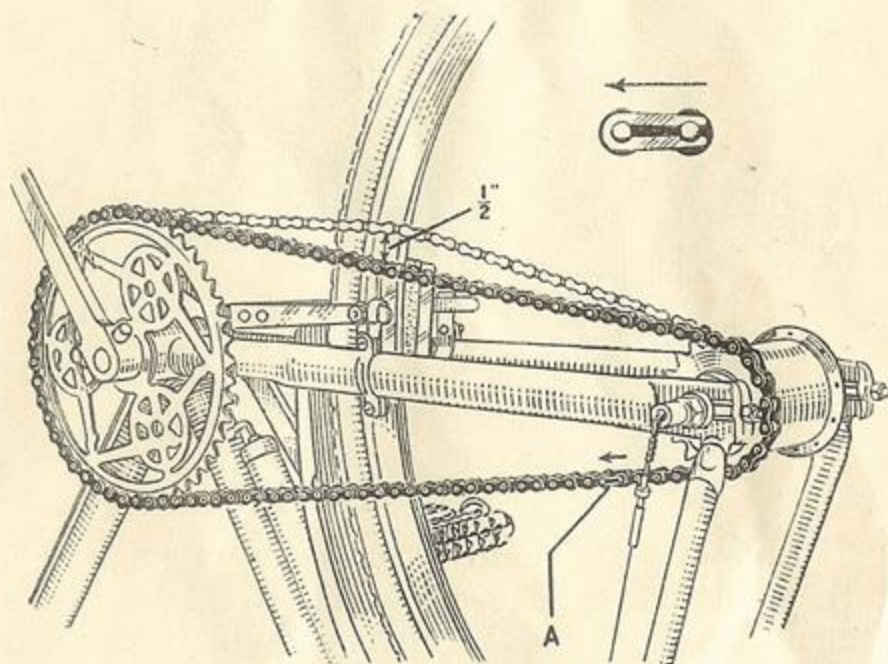


FIG. 16

- 14 **Nuts.** It is an excellent practice to check all the nuts on the machine occasionally and make sure that they are tight. Work systematically from front to rear of the machine and take care not to overtighten the nuts, particularly those on small diameter bolts. By this means annoying rattles and perhaps actual loss of nuts and other components will be avoided.

### GEAR RATIOS

- 15 **Method of Calculating.** Many cyclists appear to be puzzled by the method of calculating cycle gear ratios, which are usually quoted in so many inches, i.e. 70 ins., 56 ins. etc. These figures do not represent the distance the machine moves forward for one revolution of the cranks, neither do they represent the actual gear ratio between the bottom bracket axle and the rear wheel. What is actually quoted is the equivalent size of wheel which would give the same forward travel in one revolution of the cranks if the latter were attached directly to the wheel spindle, as was the case of the earliest bicycles of the "penny-farthing" type.

To calculate the gear ratio multiply the diameter of the rear tyre in inches by the number of teeth on the crank chain wheel and divide by the number of teeth on the hub sprocket.

### SAFETY HINTS.

Always drive with caution and be prepared for any emergency. Remember that there are always two parties to a collision, both of whom are usually to blame, and that most accidents occur through "showing off," senseless insistence on a supposed right of way and too much reliance on the other man doing the right thing.

If you have not got a copy of the Highway Code send a penny stamp and a stamped addressed envelope for one to H.M. Stationery Office, York House, Kingsway, London, W.C. 2., read it carefully and follow its recommendations always.

Make clear and definite signals before turning out of a stream of traffic but at the same time remember that these signals are a notification to others of your desire to cross their path—not a command to them to allow you to do so. A golden rule is never to do anything which calls for violent evasive action on the part of other traffic. It is therefore particularly important to give signals in plenty of time and to be prepared to stop rather than to force others to do so.

## ROYAL ENFIELD BICYCLES

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Keep your machine correctly adjusted, as described in this booklet. Use your brakes, particularly the front one, with care at all times but especially when the roads are wet. Drive always with care and consideration for other road users. In this way cycling will be a safe and pleasant means of transport for yourself and you will be helping to make the roads safer for other users. Remember that courtesy breeds courtesy, while inconsiderate riding leads to ruffled tempers which in turn mean bad road manners and then accidents.

### POSTSCRIPT.

If this book has succeeded in its purpose it will enable you to obtain many years of pleasurable cycling with your Royal Enfield. If you are already an experienced cyclist you may find some of the recommendations obvious and elementary. If so, please remember that there are others to whom a bicycle is something new and that we want them to obtain the pleasure and enjoyment which you have had from cycling.

If there is any point which we have not made clear, or if you are in doubt or difficulty at any time, remember that your Royal Enfield Dealer has been specially selected for his experience and knowledge of bicycles and cycling. He is at your service to help and advise you. Do not hesitate to consult him—you will find him experienced, courteous and efficient.





# CONDITIONS OF SALE AND GUARANTEE

— FOR —

## Royal Enfield Bicycles

### CONDITIONS OF GUARANTEE

**W**E guarantee, subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship.

We give this guarantee with our machines instead of the guarantee implied by statute or otherwise as to the quality or fitness for the purpose of cycling of goods supplied by us ; any such implied guarantee being in all cases excluded. In the case of machines which have been used for " hiring out " purposes, or in respect of which our Trade Mark or Manufacturing Number has been removed, no guarantee of any kind is given or is to be implied.

ALL ROYAL ENFIELD BICYCLES made and equipped in accordance with the specification in this Handbook ARE GUARANTEED FOR ONE YEAR. Parts of proprietary manufacture, such as tyres, saddles, chains, rims, variable gears, coaster hubs, etc., do not come within the terms of our guarantee. Such parts are, however, normally guaranteed by the respective manufacturers, to whom any claim should be made in the event of such parts proving defective. We undertake, subject to the conditions mentioned below, to make good at any time during the period mentioned defects in these respects to our Cycles, but the guarantee does not apply to defects caused by wear and tear, misuse or neglect. If a defective part should be found in any of our machines at the date of purchase, it must be sent to us carriage paid, and accompanied by an intimation from the sender that he desires to have it repaired free of charge under our guarantee, and he must also furnish us at the same time with the number of the machine, the name of the dealer from whom he purchased, and the date of purchase. Failing compliance with the above, no notice will be taken of anything which may arrive, but such articles will lie here at the risk of the senders, and this guarantee, or any implied guarantee, shall not be enforceable.

We guarantee only those machines which are bought either direct from us or from our duly authorised dealers, and under no other conditions.

This guarantee does not extend to Motor Cycles, for which a separate guarantee is issued.

### CONDITIONS OF SALE

All goods are sold subject to the conditions of guarantee given above.

All goods are to be considered as delivered to the customer when handed to Carrier at Redditch (Dublin in the case of Bicycles assembled in Eire) and all orders are accepted and executed upon this understanding.

Upon receipt of goods by the customer, it is essential that the Carrier's delivery sheet should in all cases be signed " not examined." The goods should then be carefully inspected, and in the event of damage, notice should at once be sent to the carriers, and claim made from them. Cases and crates for shipment abroad are charged at cost price. The specifications and prices in this list are subject to modification at any time without notice.

We do not appoint agents for the sale of our bicycles or other goods. We assign to bicycle dealers (styled " regional " dealers) who carry on business on their own account, areas in which they have an exclusive or other right to sell goods purchased from us. The regional dealer, purchasing from us, or a sub-dealer purchasing from him, may, on our behalf (as our agent for this purpose only), give the guarantee printed above. Any such dealer is not authorised to advertise, incur any debts, or transact any business whatever on our account, nor is he authorised, so as to bind us, to give any guarantee or make any representation on our behalf, or to sell subject to or with any condition other than those contained in such guarantee.

