

CYCLE *Maintenance* HANDBOOK



RALEIGH INDUSTRIES LIMITED

Makers of Fine Bicycles

NOTTINGHAM

ENGLAND

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FOREWORD

The instructions given in the following pages cover all points of adjustment and lubrication and will help you to maintain your bicycle in perfect condition. With its aid you will enjoy many miles of happy and trouble-free cycling.

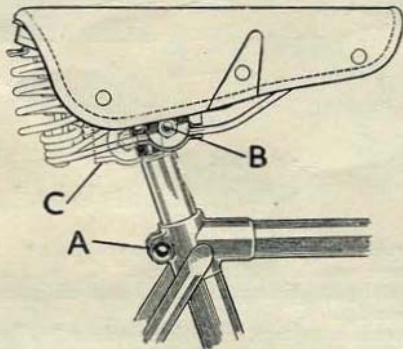
If you require any help with your cycling problems please write to
RALEIGH INDUSTRIES OF AMERICA INCORPORATED,
669, BOYLSTON STREET, BOSTON, 16, MASSACHUSETTS.

* * * * *

To adjust the

Height of Saddle

Slacken nut "A", move saddle to required height, then tighten nut "A". At least $2\frac{1}{2}$ " of the saddle pillar should remain in the frame. For the correct position of the saddle, see below. The lateral position of the saddle may be adjusted by slackening nuts "B" on each side and sliding saddle chassis forward or backward as desired. If saddle is still too far forward, remove saddle and reverse the clip so that nuts "B" are at position "C" at rear of saddle pillar, then slide saddle to the desired position. Tighten nuts "B" equally.

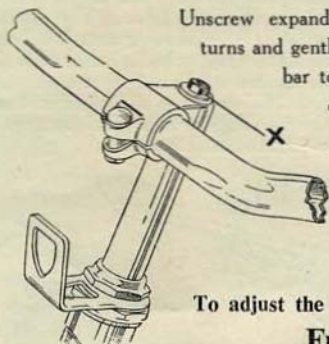


Riding Position

Correct saddle-height can be determined by the rider placing his heels on the pedals when at their lowest position, with the leg fully extended. This allows for a slight bend in the knee when pedalling with the ball of the foot on the pedal. The nose of the saddle should be about three inches behind a vertical line cutting through the centre of the crank hanger bracket; the nose of the saddle tilted slightly upwards. With the handlebar grips approximately in line with the top of the saddle, the rider should feel his weight so balanced that the hands rest lightly on the handlebars, thus preventing strain on the wrists and forearms. A sound general rule is to adjust the position so as to disperse the weight of the rider's body evenly over the three points of contact, i.e. handlebars, saddle and pedals.

To adjust the

Height of Handlebar



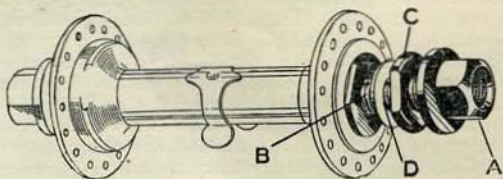
Unscrew expander bolt "X" two complete turns and gently tap it down. Move handlebar to desired position and tighten expander bolt. At least $2\frac{1}{2}$ " of handlebar stem must remain in the fork steering tube.

To adjust the

Front Wheel

Invert bicycle, slacken but do not remove axle nuts and washers "A"—remove wheel. Slacken locknut "C" on side where axle is grooved, and gently tighten cone "B" until all 'play' is removed—do not over-tighten.

Slacken the cone half a turn, and tighten locknut "C" on side where axle is grooved. Hold the wheel by the axle, spin slowly. It should revolve freely without 'play'. Replace wheel in forks with grooved end of axle on left-hand side (opposite side to gear wheel). Make sure the wheel rim is central in forks and tighten axle nuts "A".

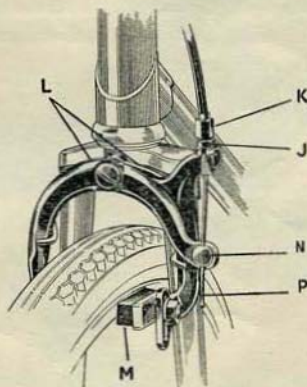


To adjust the

Front and Rear Brakes

Slacken the lock-nut "J". With the adjuster "K" set the brake blocks to just clear rim (if worn, fit new blocks). Re-tighten the lock-nut "J". If one brake block contacts the rim, lightly tap down the opposite side "L" of the brake spring, until clearance is equidistant. Set the brake blocks "M" to contact the centre of the sides of the rims so that they do not touch the tire walls when brake is applied.

When maximum adjustment of adjuster "K" has been reached, further adjustment can be obtained by means of clamp nut "N". To do this unscrew lock-nut "J" and screw down to lowest position adjuster "K". Hold brake blocks "M" firmly to the rim with the left hand, then unscrew clamp nut "N". Pull wire "P" through as far as possible and re-tighten clamp nut "N". Final adjustment should then be carried out as described in the first paragraph.



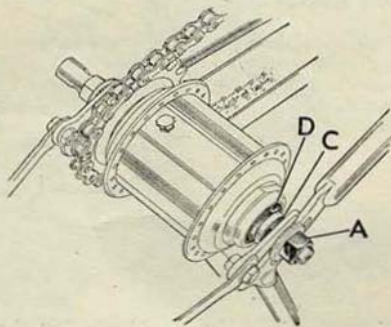
The above illustration is of the front brake, but the instructions apply to both front and rear caliper brakes.

To adjust the

Rear Wheel fitted with Sturmey-Archer Gear Hub, Bearing Adjustment for Sturmey-Archer AW Hub

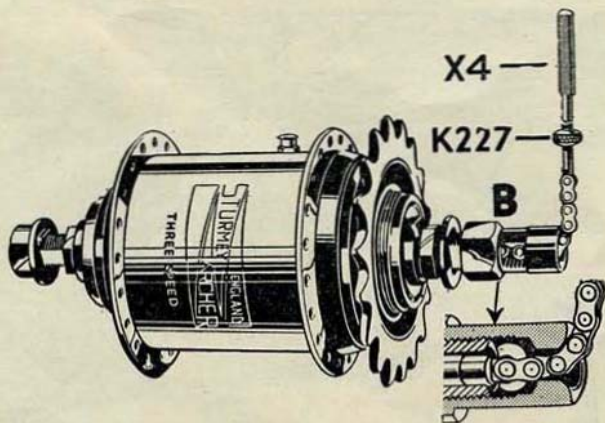
Invert bicycle, slacken axle nut "A", slacken locknut "C", and gently tighten cone "D" until all play is removed, do not over-tighten, then slacken cone half a turn and tighten locknut "C". Make sure the wheel rim is central between the chainstays and backstays then tighten axle nut "A". For adjusting the tension of the chain drive see pages 8 and 9.

N.B.—The cone on the sprocket side is correctly fixed by the manufacturer and should not be touched. A properly adjusted wheel with a Sturmey-Archer hub should have a trace of side play at the rim. The adjustment detailed above, automatically sets correctly all the bearings in the hub.



Gear Adjustment for Sturmey-Archer AW

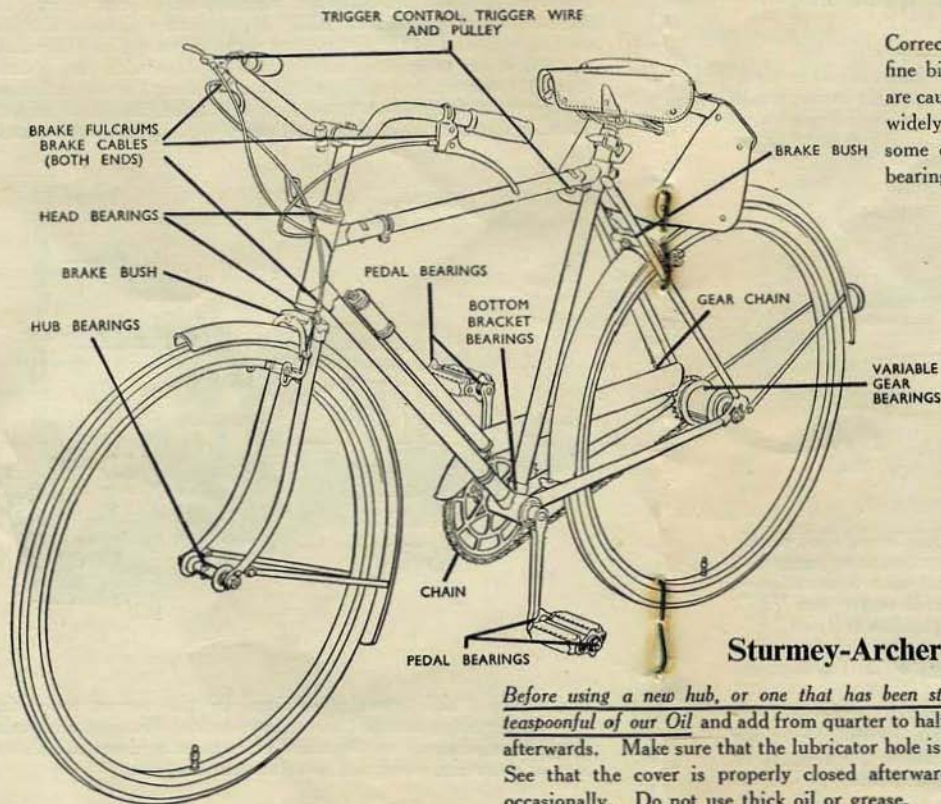
Place control lever in middle gear position, i.e. Normal Gear. To adjust, loosen small locknut (K227) above chain and rotate knurled wire connection (X4) until the outer shoulder on indicator attached to small chain at sprocket side is level or flush with end of axle (See B). Afterwards re-tighten locknut. If at any time the indicator itself is unscrewed, do not over-tighten. If the chain fails to line up with the cable when tight back off—a maximum of half a turn.



If insufficient adjustment is obtained by this means, move the fulcrum clip along the top tube in the required direction, and make the final adjustment on the chain connection as described above. Should gears slip, check and re-adjust immediately.

Where to Lubricate

To ensure sweet running and long life of wearing parts lubricate once a fortnight if used daily, or every 250 miles, at all points shown on diagram.



Correct lubrication is just as essential for a fine bicycle as for an automobile. Riders are cautioned against the use of some of the widely advertised "multi-purpose" oils, some of which are positively injurious to bearings and gear parts.

Our own oil is specially prepared for correct body and lubricating properties and for use over the wide range of operating temperatures experienced in the U.S.A.

It should be employed on all parts of the cycle and gears according to the instructions given.

Sturmey-Archer Hubs

Before using a new hub, or one that has been stored away for some time, inject one teaspoonful of our Oil and add from quarter to half of this quantity once every fortnight afterwards. Make sure that the lubricator hole is clear and that oil sinks into the hub. See that the cover is properly closed afterwards. Oil trigger control inner wire occasionally. Do not use thick oil or grease.

To adjust the

Crank, Crank Hanger Bracket and Chain Drive

Invert bicycle, slacken rear axle nuts "A". Move wheel forward to allow chain to slacken. Take off "C" spring link on the chain, by forcing the ends of the "C" forward, remove the link plate and half link, finally remove the chain. Clean and oil as detailed on

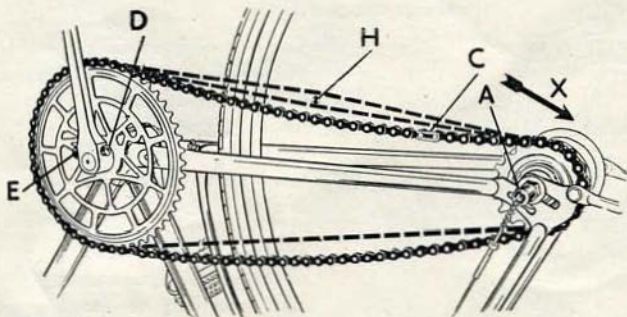


Fig. 1

page 12. Hold pedal cranks in each hand; if loose, slack cotters "D" are apparent; drive them tight with a hammer, using hard wood as a punch, supporting the crank and bracket on a firm surface—damage will result otherwise. Re-tighten crank cotter nuts "E". To adjust crank hanger bracket bearing (Fig. 2) slacken lock ring "F". Firmly screw up the cup "G" without excessive pressure, then slacken about $\frac{1}{8}$ of a turn and tighten lock ring "F". Test bearings for free running.

Loop chain over rear sprocket and gear wheel. Fit the half link with the link plate and the "C" spring link on the outside—taking care to position the closed end of the spring link in the direction of rotation. The chain tension is correct when at point "H" it can be moved about $\frac{1}{2}$ " (See Fig. 1).

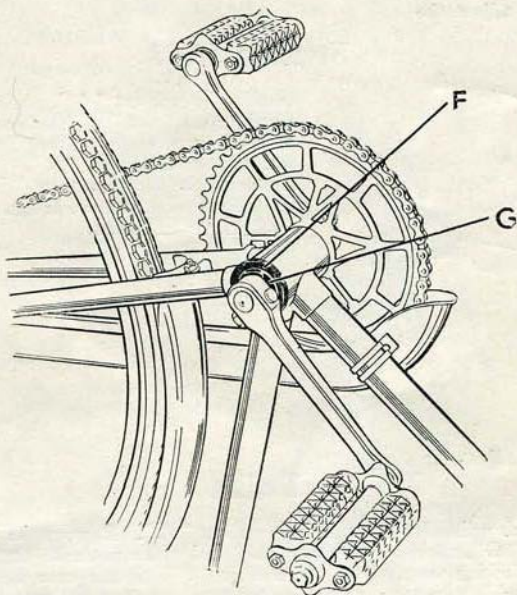
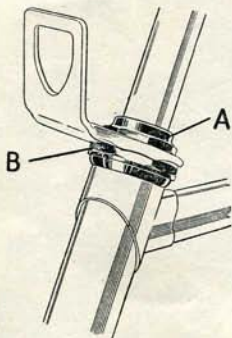


Fig. 2

Move wheel in direction of "X" (Fig. 1) by hand until the chain tension is correct. Tighten axle nut "A" on chain side only, set wheel central in chainstays and backstays, then tighten remaining axle nut. Re-adjust the rear brake (for details see page 3).

To adjust the

Steering Head

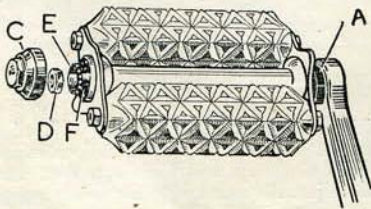


Slacken the lock nut "A", gently turn the adjustment nut "B" clockwise until head turns freely without 'play', and tighten lock nut "A". When tightening the adjustment nut "B" do not use excessive pressure as damage to the ballraces will result.

To adjust the

Pedals

Check pedals for tightness in cranks at "A". Remove the dust-cap "C", slacken spindle nut "D" and with a penknife disengage the locking washer "E" from cone "F", tighten cone until all 'play' is removed; do not over-tighten. Slacken the cone half a turn, re-fit locking washer "E" and tighten spindle nut "D". Pedal should spin freely after adjustment. Refit the dust-cap "C".



Sturmey-Archer Patent Handlebar Trigger 'Flick' Control

To remove control wire.

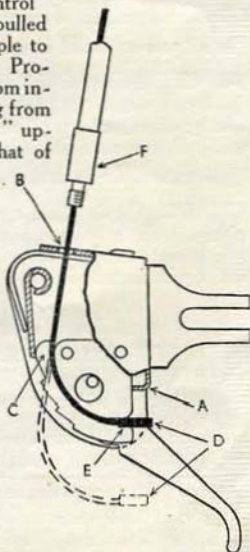
It is not necessary to remove control from handlebar if the lever can be pulled back far enough to allow cable nipple to pass between pawl and ratchet plate. Procedure is :—Detach (1) inner wire from indicator chain at hub ; (2) outer casing from fulcrum clip. Pull cable ferrule "F" upwards until screw thread engages that of control casing at "B", then unscrew ferrule. Pull lever right back beyond bottom gear position to stop "A", push inner wire through to detach nipple from ratchet plate, then pull wire out between pawl and ratchet at "C" and finally through threaded hole "B".

To fit control wire.

Pull lever right back beyond bottom gear position to stop "A" and insert wire through threaded hole "B" and between pawl and ratchet plate at "C". Wire nipple "D" is then fitted into notch "E" and cable ferrule "F" screwed into "B" until it rotates freely. Keeping tension on wire, push lever forward into top gear position. Control is then ready for re-connection.

Pawl and Pawl Spring.

These two parts are designed so that they cannot drop out through breakage of control wire or during removal or replacement. They should not normally need renewal, therefore they are not readily detachable.



Hints and Tips

TO CLEAN CHROMIUM. Dip a piece of rag in a solution of soft soap and hot water, wipe over, then polish by rubbing lightly with a clean rag and just a trace of oil. Chromium plating requires no other attention. Heavy rubbing should be avoided.

Do not use any kind of metal polish on chromium-plated parts.

TO CLEAN ENAMEL. Remove all dirt with a wet rag, taking good care not to scratch the enamel. Apply a good polish of the wax type and polish with a clean dry cloth. We recommend that the wax polish be used about once in every three months.

Soda must never be used to clean any part.

CHAIN. Oil the chain once a fortnight. Occasionally thoroughly clean the chain. Remove it from the bicycle (see page 8) and wash in a kerosene bath. Dry with a clean rag and then thoroughly lubricate by immersing in oil.

Care of Tires

CORRECT RIM SIZES. Tires can only be fitted to the rim for which they are designed. All covers are marked with the size which is also stamped on the rim.

INFLATION PRESSURES. To obtain maximum mileage tires should be inflated to a minimum pressure of 55 lbs. per square inch at least. Running a tire in an under-inflated condition causes rapid tread wear and early failure of the casing. This is particularly important with the lightweight types. It is also harder to propel.

USE OF BRAKES. Hard braking causes excessive tire wear, therefore only use brakes fully in an emergency.

OIL AND KEROSENE. Oil and kerosene must not be allowed to come into contact with tires, or to run along the spokes and reach the tube through the spoke holes in the rim. Both have an immediate and adverse effect upon rubber.

FITTING. See that the rim tape is correctly positioned in the centre of the rim and is not loose. Slightly inflate the inner tube and place it within the cover. Pass the valve through the valve

Ball Bearings

The size and number of Ball Bearings used in this Bicycle.

Steering Head	..	5/32" dia.	..	25 in each race.
Crank Hanger Bracket	..	1/4" dia.	..	11 in each race.
Pedals	..	5/32" dia.	..	11 in each race.
Front Hub	..	3/16" dia.	..	10 in each race.

STURMEY-ARCHER HUB.

Axle Bearings	..	1/4" dia.	..	8 in each cage.
Driver Ball Race	..	3/16" dia.	..	24.

CARE OF TIRES—continued.

hole and push the first wire edge on to the rim. Now commence to fit the second wire edge at a point diametrically opposite the valve. Keep the wire down in the well of the rim and gradually place it in position, working a little on each side and keeping the wires in the rim well. The last few inches may be gently levered over with a small tire lever or preferably pushed over by hand. Next, inflate a little and make quite certain that the cover is correctly seated on the shoulders of the rim by pushing it away from the rim with the fingers. When released, the cover should spring back on to the rim shoulder. Fully inflate and tighten the rim nut. Finally, check for truth by rotating, if not, repeat instructions above.

REMOVAL. Completely deflate and remove all external valve parts. Push the two wire edges off the shoulder of the rim right down into the well. With a small tire lever, lift a portion of the wire edge near the valve over the side of the rim. The remainder will then come over quite easily. The inner tube and cover can then be removed without difficulty.

REMOVAL FOR REPAIR. After repairing a puncture examine inside of the cover and ensure that the cause of the trouble is removed. If the canvas is split it should be repaired. If the rear wheel is not removed from the machine during repair, see that the inner tube does not become smeared with oil from the chain.

For the best results . . .

*. . . Use only
Oil specially prepared
for*

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BICYCLES**

**AND STURMEY-ARCHER
3-speed Gear Hubs**



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