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Service Bulletin No. 11 (H)

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Free Service Scheme  
for

**Royal Enfield**

MOTOR CYCLES





12/46k

VERY  
RARE

~~£20~~  
£8

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**Service Bulletin No. 11 (H)**

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Free Service Scheme

for

**Royal Enfield**

Motor Cycles

MODELS R.E., G, J2,  
"350 BULLET" and "500 TWIN"

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MODELS R.E., G, J2,  
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**INTRODUCTION.**

The following is a list of the items which need inspection under the Free Service Scheme for Royal Enfield Motor Cycles :

1. Check and, if necessary, adjust:—
 

(a) Valve Clearances.*	(g) Wheel Bearings.
(b) Contact Breaker Points.	(h) Brakes.
(c) Magneto Timing.	(i) Forks and Steering Head.
(d) Sparking Plug.	(j) Alignment of Wheels.
(e) Clutch.	(k) Tyre Pressures.
(f) All Chains.	(l) Gear Rod (Model R.E.).
	(m) Rear Springing. †
2. Tighten all external Nuts and Bolts including Cylinder Bolts.
3. Top up Battery\* and check all Electrical Equipment and Horn.
4. Clean Carburettor and adjust mixture.
5. Adjust and lubricate all Cables.
6. Grease all Nipples.
7. Drain Oil System, Clean Filter and replenish.\*
8. Check oil level in front Chain Case.
9. Top up Gear Box.
10. Test machine on road.

\* Four-stroke models only.

† "350 Bullet" and "500 Twin" only.



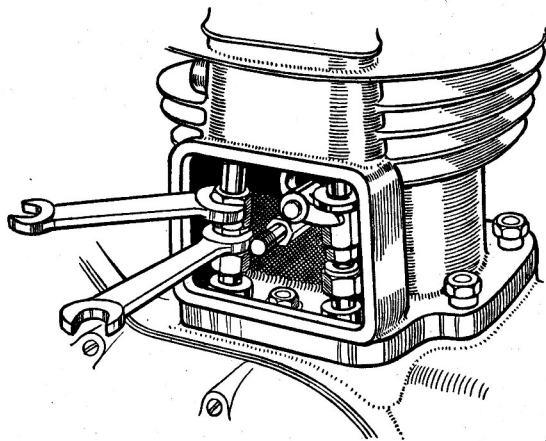
Details of the method of carrying out the inspection and adjustments are given below:—

**1 (a) Valve Clearances.**

**Models G and J2.** Remove the tappet inspection cover and check the valve clearances while the engine is cold. Owing to the ball ends at the bottom of the push rods it is not possible to use feeler gauges unless the petrol tank and valve rocker gear cover are removed. It is, however, quite possible for anyone with a little experience to ascertain whether or not the valve adjustment is correct. The inlet push rod should be free to spin but without perceptible up and down clearance, this corresponding to a valve clearance of .002in.

The exhaust valve must have a little more clearance (i.e., .004in.) and up and down play in the push rod should be just perceptible. If in any doubt as to the exhaust valve adjustment, run the machine for about five minutes on the road. This initial warming up period will tend to reduce the clearance, and if this is all taken up, more clearance must be provided by adjustment.

When checking clearances, remove the sparking plug and rotate the engine until the piston is at the top of the compression stroke. Both valves will then be fully closed. Make sure that the exhaust lifter is not interfering with the operation of the exhaust tappet.



ADJUSTING TAPPETS (Model G).

Fig. 1.

To make the adjustment, hold the push rod bottom end (top hexagon) and the lock nut (middle hexagon) (see Fig. 1). Unlock by turning the lock nut to the left and make the adjustment by screwing the push rod cup (bottom hexagon) to the left to take up clearance, or to the right to give more clearance, at the same time holding the push rod bottom end (top hexagon). Finally lock up the lock nut against the push rod end and check the clearance after finally tightening the lock nut.

When replacing the tappet inspection cover make sure that it is the right way up so that the exhaust lifter fulcrum pin fits in the recess in the cover. See also that the gasket beneath the cover is in good condition and that the correct washers are fitted beneath the dumb-bell nut. These consist of one fibre washer followed by one plain steel washer. Tighten the nut by means of a light tap with a hammer.

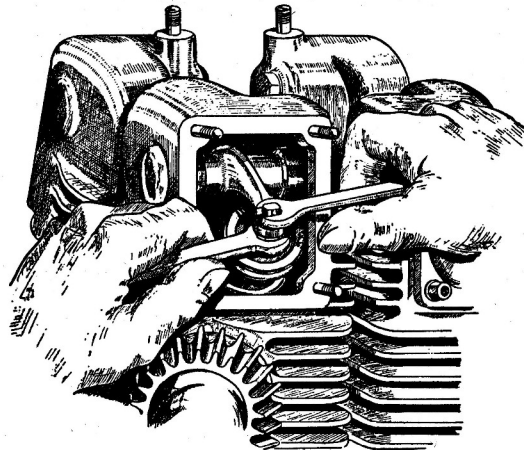
**“350 Bullet” Model.** Proceed as above, but remember that, on account of the light alloy cylinder head the valve clearances can be set slightly closer than on Models G. and J2. The inlet push rod should be just binding and the exhaust push rod just free when the engine is cold.

When making the adjustment on this model it is important to make sure that oil pressure is not holding the tappet hard against the push rod. To ensure this, push each tappet in turn firmly downwards and hold it there until it does not rise when released.

**“500 Twin” Model.** The adjusting screws are in the ends of the overhead valve rockers. Access to them is obtained by removing the four covers on the rocker boxes. The exhaust tappet should be adjusted so that the rocker has just perceptible up and down movement (.004in.) and the inlet so that the rocker is just free to move endways without perceptible up and down play (.002in.).

To make the adjustment unlock the locknut beneath the rocker arm and turn the adjusting screw by the flats above the rocker arm (see Fig. 2). Lock up the lock nut and check the clearance again.





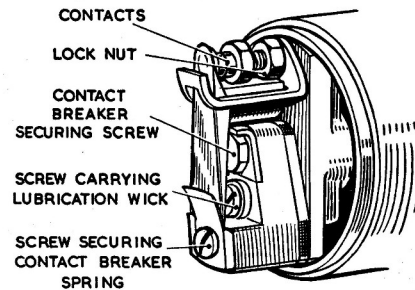
ADJUSTING TAPPETS, "500 TWIN."

Fig. 2

**1 (b) Contact Breaker Points.**

Check the gap between the contact breaker points when this is fully open. The recommended clearance is .012in. for all four stroke models and .015in. for Model R.E. It is very important to check the contact breaker setting **before** checking the ignition timing.

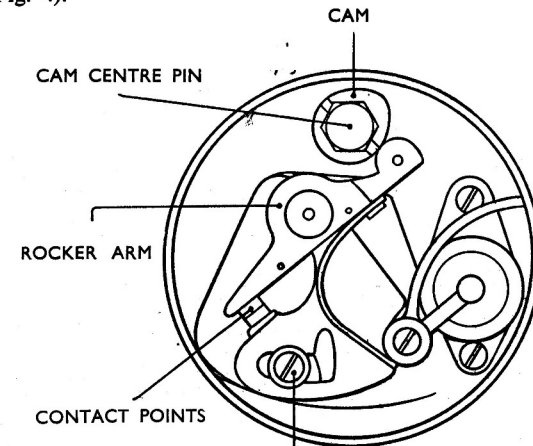
To adjust the points on the Lucas Magdyno, loosen the lock nut and turn the contact screw by its hexagon head (see Fig. 3). Finally tighten the lock nut.



CONTACT BREAKER MECHANISM, MODELS G, J2 and "350 BULLET."

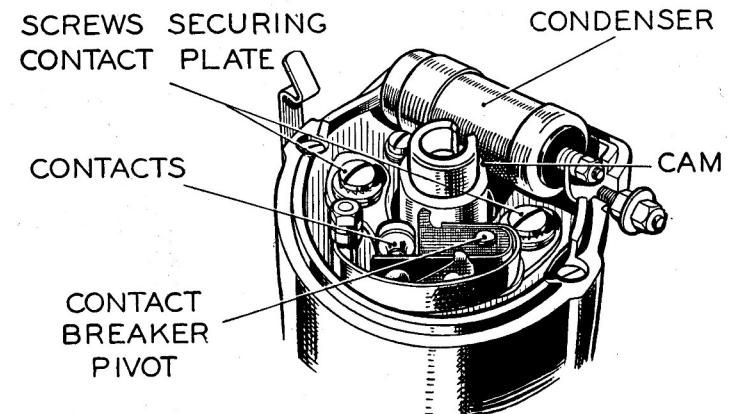
Fig. 3.

On the 125c.c. Model R.E. the plate carrying the fixed point can be adjusted after loosening the locking screw (see Fig. 4).



LOCKING SCREW FOR POINT ADJUSTMENT  
CONTACT BREAKER MECHANISM, MODEL R.E.

Fig. 4.



CONTACT BREAKER MECHANISM, "500 TWIN."

Fig. 5

On the "500 Twin" the plate carrying the fixed contact point can be adjusted after loosening the two screws securing it to the distributor housing (see Fig. 5).

**1 (c) Ignition Timing.**

The following are the recommended timing figures for the various models:—

R.E.	...	...	...	...	$\frac{5}{32}$ to $\frac{3}{16}$ in. before T.D.C.	} Control fully advanced
G	...	...	...	$\frac{3}{16}$ in. before T.D.C.		
J2	...	...	...	$\frac{5}{16}$ in. " "		
"350 Bullet"	...	...	...	$\frac{1}{2}$ in. " "		

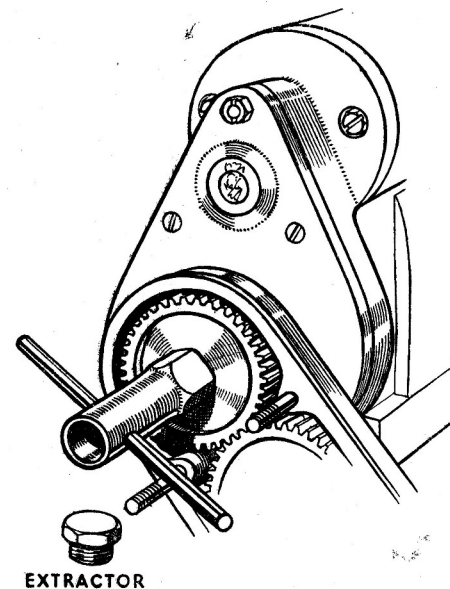
"500 Twin" at T.D.C. with control fully retarded.

The piston position can be gauged by means of a piece of rod about  $\frac{1}{4}$  in. diameter inserted vertically through the plug hole and marked in  $\frac{1}{16}$  in. The position when the contact points are just about to break can be judged by eye or with a piece of thin tissue paper. If judging by eye it is best to place the machine on the stand, engage top gear and turn the engine round slowly by means of the back wheel. When the points have broken, turn backwards a few degrees until they have just closed again. When using paper make sure that this is **thin** (e.g., cigarette paper) and adjust the engine position so that the paper can **just** be withdrawn from the points, **not** pulled out freely. The need for accurate timing at the **point of opening** is stressed since it is a very common fault to time contact breakers with the points well broken.

To adjust the timing in the case of the 125 c.c. Model R.E. unscrew the hexagon headed screw which secures the cam to the shaft and withdraw the cam by screwing into it a  $\frac{5}{16}$  in. B.S.F. bolt which will act as an extractor. Now set the engine in the firing position, and turn the cam forward until the contact points are just about to open. Tap the cam on the shaft to secure it, tighten up the centre screw and finally check the adjustment.

**Note.** Correct timing of the ignition is particularly important on the Model R.E. Incorrect timing not only affects the performance of the engine but the quality of the spark and, therefore, the ease of starting of the engine are dependent on correct timing.

To adjust the ignition timing in the case of Models G, J2 and "350 Bullet," the timing cover must be removed, after which the nut securing the driving pinion to the magneto shaft should be removed. This pinion is threaded for a small extractor which is included in the tool-kit of the motor cycle. The method of using this is shown in the accompanying illustration (Fig. 6).



EXTRACTOR

**LOOSENING MAGNETO PINION**

MODELS G, J2 and "350 BULLET."

Fig. 6.

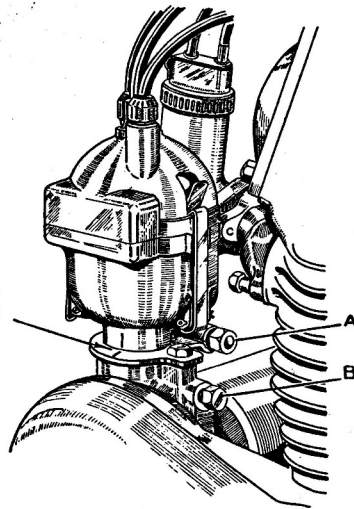
Having loosened the pinion on its shaft, set the engine in the firing position, turn the contact breaker forward until the points are just about to open with the magneto control fully advanced and secure the pinion to the magneto shaft in this position. Check the timing after finally tightening the nut.

The "500 Twin," being provided with automatic ignition advance must be timed on full retard. The approximate setting is such that the contact points are just about to open when the pistons are at T.D.C. To adjust the timing, turn the



distributor head after loosening the nut A (see Fig. 7). Turning the head clockwise retards the timing, anti-clockwise advances it. When checking make sure that the ignition is in fact, fully retarded by turning the rotor arm anti-clockwise.

Final adjustments should be made after running on the road and the timing should be such that there is just a slight tendency to "pinking" when the engine is hot and is pulling hard at low speeds. Heavy "pinking" indicates too much advance. Complete freedom from "pinking" together with sluggish acceleration and poor maximum speed indicates too little advance.



Mark top of clip and neck of distributor as shown before disturbing.

DISTRIBUTOR HOUSING, "500 TWIN."

Fig. 7.

Before loosening the nut A, be sure to mark the neck of the distributor housing and the top face of the clip with a pencil line as shown in Fig. 7. Move the distributor housing very little at a time. A movement of  $\frac{1}{32}$  in. at the diameter of the neck of the distributor housing alters the timing by nearly  $6^\circ$ , which will have a considerable effect on the running of the engine. **N.B.** The practice of correcting small errors in timing by altering the contact breaker gap is not recommended. In the case of Models G, J2 and the "350 Bullet," the electrical timing and, therefore, the strength of the spark is affected if the standard gap of  $\cdot 012$  in. is departed from. In the case of the flywheel magneto fitted to the Model R.E. and the coil ignition

system fitted to the "500 Twin," the electrical timing and strength of spark are not directly dependant on the gap, but even so, this should not differ greatly from the recommended figures of  $\cdot 015$  in. for the R.E. and  $\cdot 012$  in. for the "500 Twin."

**1 (d) Sparking Plugs.**

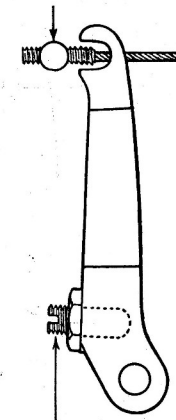
The gap between the plug points tends to get wider with use. The three point plug fitted to the O.H.V. engines should be set to  $\cdot 018$  in./ $\cdot 020$  in., taking care to set the side points and not the centre one. The single point plug fitted to the 125 c.c. engine should be set to  $\cdot 015$  in. so as to ensure a long period of use before the gap becomes too wide to permit easy starting.

**1 (e) Clutch.**

Check the Clutch to see that it lifts freely and has about  $\frac{1}{8}$  in. clearance in the control. If the adjustment is incorrect, proceed as follows:—

**Model R.E.** An adjustable nipple is provided at the gear box end of the clutch cable. To adjust this, press on the clutch lever on the gear box, disconnect the control wire, adjust the threaded nipple and couple up the wire again (see Fig. 8).

SCREWED NIPPLE FOR ADJUSTING WIRE



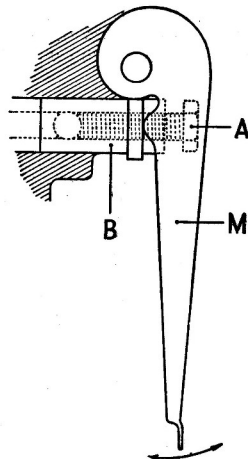
SET SCREW AND LOCKNUT FOR ADJUSTING POSITION OF LEVER

MODEL R.E.

Fig. 8.

If the adjustable nipple does not provide sufficient adjustment, loosen the lock nut and adjust the position of the set screw at the lower end of the lever. This set screw should also be adjusted if the position of the lever is incorrect, i.e., too far out, so that it is not approximately square with the control cable when the clutch is fully lifted, or too far in, so that the lever on the gear box reaches the end of its travel before the handlebar lever touches the bar.

**Models G and J2.** Disconnect the control cable from the clutch lever M on the gear box and hinge this lever back to expose the adjusting screw A and the sleeve B (see Fig. 9). Remember that turning this screw to the right takes up clearance in the control, turning it to the left gives more clearance. It is unlikely that the screw will require turning more than one or two flats after which the lever can be hinged back to lock the adjustment and the cable reconnected.



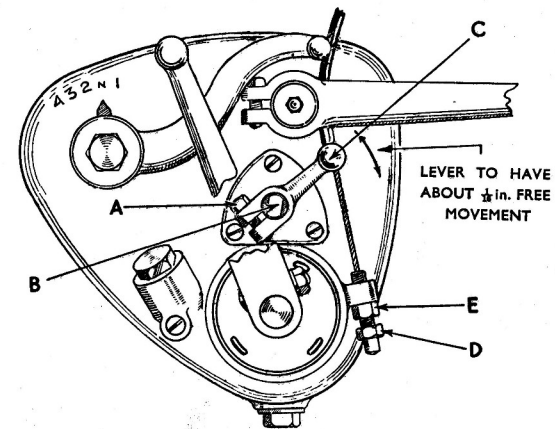
MODELS G and J2.

Fig. 9.

If adjustment as described above results in the clutch control lever on the gearbox being badly positioned (i.e., too far out so that it is likely to catch the rider's foot or too close in so that full movement of the clutch control is impossible) reset

the lever to its correct position (i.e., approximately square with the push rod when the clutch is fully lifted) and make the necessary adjustment to the clutch control by means of the adjusting bush and lock nut through which the control cable passes.

**"350 Bullet" and "500 Twin."** To adjust the control loosen the clamping screw A (see Fig. 10), hold the end of the operating worm B, turning it with a light pressure towards the right, and adjust the position of the lever C as required so that there is about  $\frac{1}{16}$  in. slack in the control cable after tightening the clamping screw A. The lever should be so positioned that it is approximately square with the cable when the clutch is fully lifted. This is regulated by the length of inner cable beneath the lever for which purpose an adjusting screw D and lock nut E are provided. The position of the lever C endways on the worm B is also important. Its inner face must be about  $\frac{1}{8}$  in. from the small triangular oil retaining cap, but should not be more or trouble may be experienced through the lever C fouling the kick starter crank.



"350 BULLET" and "500 TWIN."

Fig. 10.



1 (f) Chains.

*Primary Chain.*

The tension of the primary chain on Models G and J2 can be felt through the inspection hole after removal of the cap which is secured by a spring clip. There is no inspection cover on the Model R.E. and in view of the fact that this chain is not adjustable it is not considered necessary to remove the chain cover to inspect the tension of the chain unless the latter is running noisily.

To adjust the primary chain on Models G and J2 slacken the nut at one end of the bolt securing the top of the gearbox to the engine plates. If the chain requires slackening, loosen the lock nut on the adjusting screw which bears against the back of the top gear box attachment lug and turn this screw in a clockwise direction until the chain tension is correct. If the chain is already too slack, loosen the lock nut on the adjusting screw and turn this in an anti-clockwise direction for two or three turns. Now lever the gearbox backwards to tighten the chain. Tighten the nut on the end of the attachment bolt and then screw up the adjusting screw hard against the gearbox attachment lug. Finally, tighten the lock nut on the adjusting screw.

Note that the tendency is for the gearbox to work backwards in use, thus tightening the front chain and slackening the rear one. It is for this reason that the adjusting screw is placed behind the attachment lug on the gearbox and this is also the reason for tightening the nut on the attachment bolt and then locking the adjusting screw hard against the gearbox attachment lug. By this means any clearance between the attachment lug and the bolt is taken up and the possibility of the gearbox moving in use is obviated.

The primary chain on the "350 Bullet" and "500 Twin" is tensioned by means of a slipper type tensioner to which access is obtained by removing the front half of the primary chain case. On the "Bullet" this necessitates only the removal of one nut in the centre of the case (and the lowering of the brake pedal) but in the case of the "Twin" the nearside exhaust pipe must first be removed. To do this take off the nearside footrest,

remove the bolt securing the silencer to the frame, loosen the clip securing the pipe to the cylinder head, knock the clip off the pipe and remove the pipe and silencer together. The slipper tensioner is adjusted by means of the set screw and lock nut provided.

*Rear Chain.*

The rear chain on Models G and J2 is tensioned by loosening the nuts at the end of the rear wheel spindle and adjusting by means of the chain adjusting screws and lock nuts. The rear chain on the 125 c.c. Model R.E. is adjusted by loosening the rear spindle nuts and adjusting by means of the self-locking nuts on the ends of the chain adjusters.

The rear chain on the "350 Bullet" and "500 Twin" is adjusted by means of cam shaped adjusters on the rear wheel spindle which bear against pegs in the fork ends.

Take care to adjust both sides equally and do not forget to tighten the spindle nuts after making the adjustment.

The following are the correct adjustments for chains on all models:—

Front Chain—about  $\frac{1}{4}$  in. up and down movement.

Rear Chain—about  $\frac{1}{2}$  in. up and down movement.

Turn the engine by means of the kickstarter and the rear wheel by hand and check the chain tension in several positions. If it varies, adjust to the above figures at the tightest point.

*Timing Chain.*

To adjust the timing chain on the "500 Twin" the timing cover must be removed after first removing the oil filler which is held on to the crankcase by three screws.

The timing chain is tensioned by moving the quadrant after slackening the lock nut which secures it (see Fig. 11). When assembled as shown in the top illustration the chain is tightened by turning the quadrant to the right. When the end of the slot is reached the quadrant can be removed, turned over and replaced the other way round, thus giving a further 90° of

movement before the point of maximum tension is reached. To remove the quadrant the lock nut and its stud must be removed and the quadrant lifted slightly to disengage the slots in it from the flats formed on the spindle of the eccentric. It is also possible to turn the spindle of the eccentric through 180° in which case the range of movement of its maximum radius will centre around the 4-30 o'clock instead of the 10-30 o'clock position, and the chain will be tightened by moving the quadrant to the left instead of to the right (see lower illus-

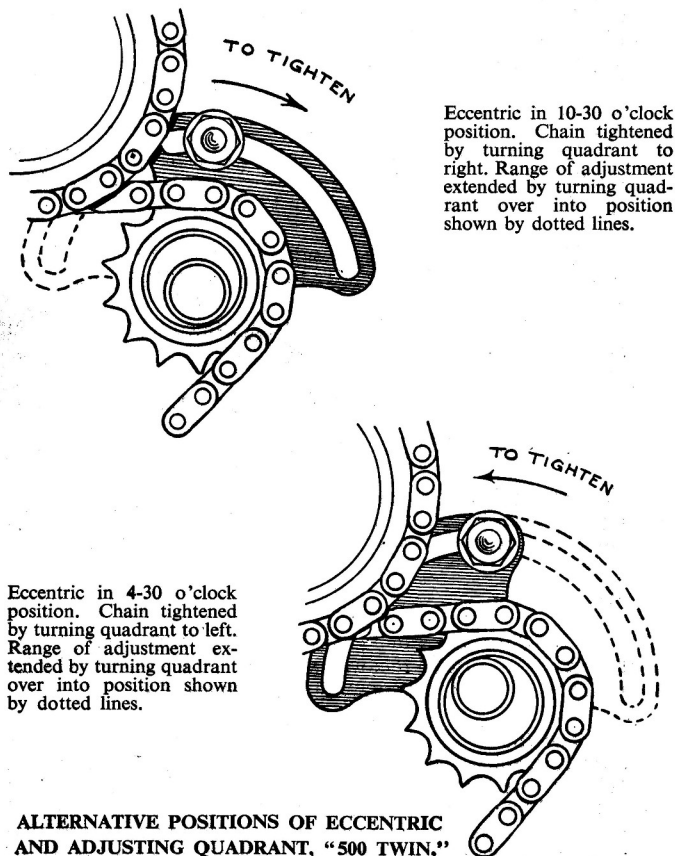


Fig. 11.

tration). The chain should be adjusted to the minimum of slackness and it is important that the last movement of the quadrant before tightening the locking nut should be in the direction which tightens the chain.

1 (g) Wheel Bearings.

These are non-adjustable and it is only necessary to make sure that the wheels spin freely and that there is no play in the bearings.

1 (h) Brakes.

Make any necessary adjustment to the brakes by means of the finger nuts provided.

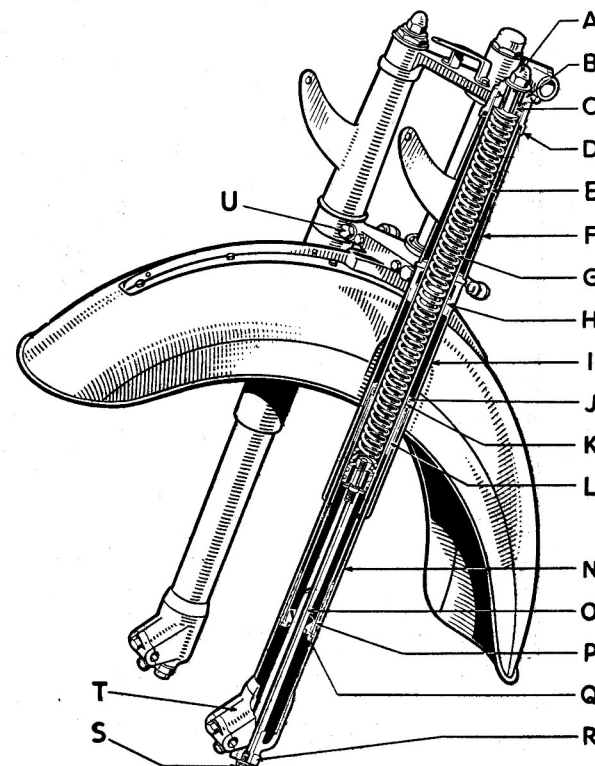


Fig. 12.



1 (i) Forks and Steering Head.

Test for play in the steering head by placing a box under the engine or by putting the machine on the central stand so as to take the weight off the front wheel and then lift the fork ends, at the same time placing one finger over the joint between the two halves of the top steering head race.

If there is excessive play in the steering head, loosen the clamp bolt through the ball head clip, also the two nuts at A (Fig. 13) on Model R.E., or the two clamp pins at U (Fig. 12) on Models G and J2 (without facia panel) or the two nuts W (Fig. 14) on the "350 Bullet" and "500 Twin" (with facia panel).

Take up play by adjusting the large plated nut on the top of the steering stem.

(Note. In the case of Model R.E., the adjusting nut is the large one through which the handlebar stem passes. Do not confuse this with the head of the expander bolt on top of the handlebar stem). Take up all play but do not adjust so tightly that the steering will not fall to full lock on either side when giving the handlebars a light tap in either direction. After making this adjustment do not forget to tighten the clamp pins U (Fig. 12) or the nuts A (Fig. 13) or W (Fig. 14) as the case may be.

The level of oil in the forks on Models G, J2, "350 Bullet" and "500 Twin" can be checked by removing the small drain plug (S on Fig. 12, T on Fig. 14) at the bottom of each fork leg. If the forks are over full, oil will run out until it has reached the correct level. If no oil runs out (or if only a few drops do so) remove the domed covers which are sprung

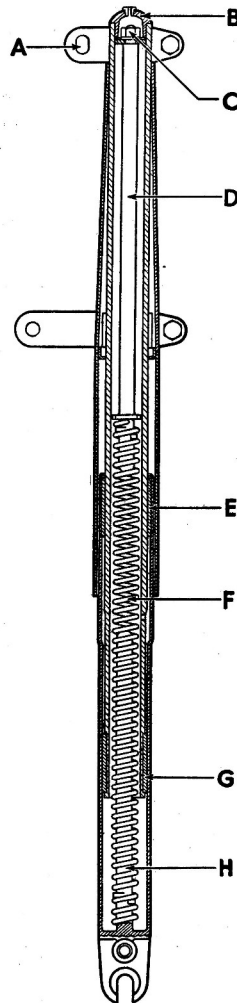


Fig. 13.

over the nuts at the top end of the fork on Models G and J2 and remove the two cap nuts A (Fig. 12), then pour oil in slowly until it commences to run out at the drain plug at the bottom of the fork. In the case of models with a facia panel remove the bolts B (Fig. 14) from the top of each leg and pour the oil in through the holes thus exposed. Allow the oil to reach its level and then replace the drain plugs, cap nuts A and domed covers or bolts B as the case may be.

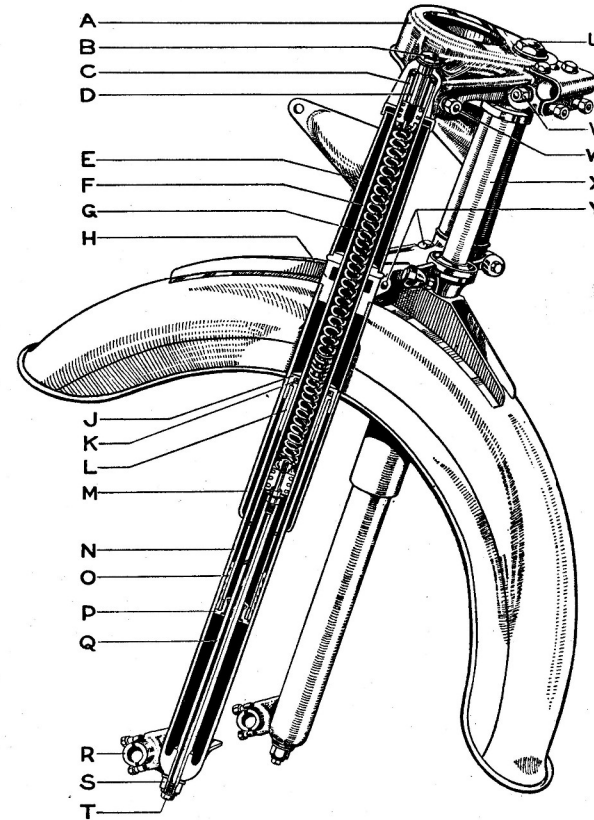


Fig. 14

There is no means of checking the level of oil in the light-weight telescopic forks fitted to Model R.E. In case of doubt, however, it is a simple matter to dismantle each leg to check the amount of oil in them. This can be done as described in the instruction book, or even more simply by removing the front wheel and giving each sliding member a twist to the left. This will unscrew one end of the spring from its scroll and enable the sliding member to be withdrawn. Each leg should contain one fluid ounce (28 c.c.) of oil.

Use only the following light engine oils in all types of Royal Enfield telescopic forks.

- |                    |                |
|--------------------|----------------|
| Castrolite;        | Vacuum Arctic; |
| Essolube 20;       | Single Shell;  |
| Energol S.A.E. 20. |                |

**1 (j) Alignment of Wheels.**

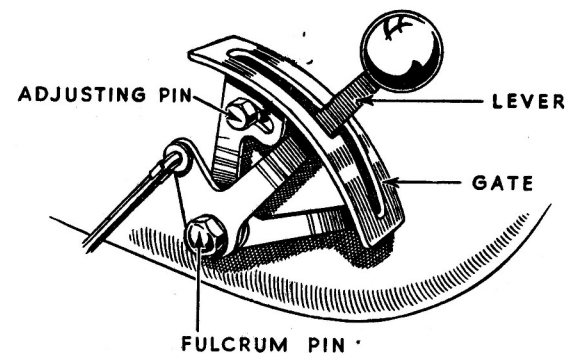
The only satisfactory way to check alignment is by means of a straight edge or a length of taut string. On Models R.E., G and the "350 Bullet" (in standard form) the front and rear tyres are the same size so that it should be possible for the straight edge or string to touch both front and rear tyres at two points. In the case of Model J2, the "500 Twin" and "350 Bullet" to Trials or Scramble specifications the rear-tyre is larger than the front and due allowance must be made for this.

If the wheels prove to be out of line, set the rear wheel over in the forks by adjusting one chain adjuster more than the other. As this will probably upset the chain adjustment this must then be re-checked.

**1 (k) Tyre Pressures.**

Check pressures with a gauge and inflate to the following figures :—

Model	Pressure—Lbs. per sq. in.		
	Front	Rear	Sidecar
R.E. ... ..	16	18	—
G ... ..	18	23	—
"350 Bullet" (Std.) ...	18	22	—
"350 Bullet" (Trials) ...	21	16	—
J2 (Solo) ... ..	18	19	—
J2 (S'car) ... ..	22	24	16
"500 Twin" ... ..	18	20	—



GEAR CONTROL QUADRANT, MODEL R.E.

Fig. 15.

**1 (l) Gear Control Rod (Model R.E. only).**

See that the gear control on Model R.E. is correctly adjusted. When in second gear the lever should lie freely in the notch in the centre of the gate. It should, however, be set so as to lie against the back of the slot in the gate, i.e., the side nearest the tank. This effectively prevents any possibility of the gear jumping out of engagement when using second. When in top or bottom gear the lever should not quite reach the end of the slot in the gate. Adjustment is made by moving the gear quadrant after slackening the adjusting pin which secures it to the tank (see Fig. 15).

**1 (m) Rear Suspension.**

Check the level of oil in the rear spring boxes on the "350 Bullet" and the "500 Twin" by removing the drain plug (see Fig. 16). If the level is too high oil will run out till it has reached the correct level. If no oil runs out (or if only a few drops do so) remove the filler plug and add oil until it runs out at the drain plug. Allow the oil to reach its level, then replace drain and filler plugs.

Use one of the following light engine oils :—

- |                    |                |
|--------------------|----------------|
| Castrolite;        | Vacuum Arctic; |
| Essolube 20;       | Single Shell;  |
| Energol S.A.E. 20. |                |

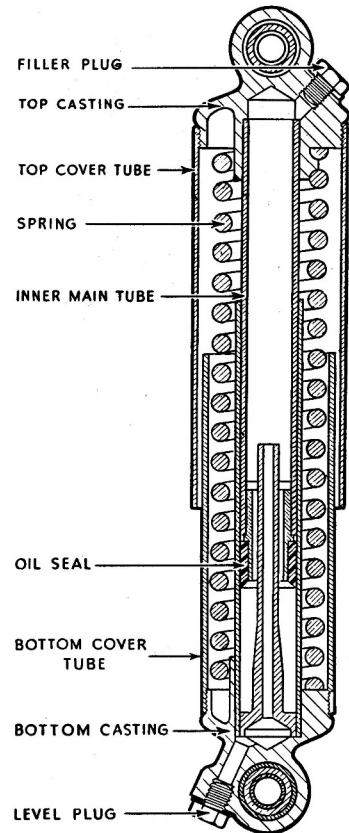


Fig. 16.

## 2. Security of Nuts and Bolts.

Tighten all external nuts and bolts working systematically from one end of the machine to the other and not forgetting the cylinder base nuts, cylinder head nuts, and the nuts securing the sprocket to the rear wheel.

## 3. Electrical Equipment.

Check the electrical equipment and make sure that there are no loose or chafed leads. Start the engine and make sure that the lights work correctly and in the case of

four-stroke models see that the dynamo will balance the lamp load. The ammeter should show a small charge with all lights on and the engine running at a fair speed. In the case of four-stroke models top up the battery with distilled water to  $\frac{1}{4}$  in. above the plates and make sure that the electric horn functions correctly and that the lights work while the engine is not running. (The lights on Model R.E. will work only when the engine is running unless a dry battery has been fitted in the clip provided inside the headlamp.)

## 4. Carburettor.

Remove the float chamber top and float from the carburettor, also the screwed plug at the bottom of the mixing chamber and clean out any sediment from this and the bottom of the float chamber. When reassembling make sure that the spring clip on the float engages correctly with the groove in the fuel needle.

In the case of four-stroke models, adjust the slow running by means of the air screw on the side of the carburettor which should be set to give the **maximum** R.P.M. for a given small throttle opening with the ignition about half retarded. If the tick-over is too fast it can then be slowed down by unscrewing the throttle stop slightly, afterwards locking this with the lock nut provided.

In the case of the 125 c.c. two-stroke model, if the Customer has complained of excessive four-stroking set the taper needle one notch lower in the throttle slide. To do this unscrew the knurled ring at the top of the mixing chamber, remove the throttle slide and disconnect it from the control wire. The needle with its clip can then be withdrawn from the slide, the clip removed and replaced one notch higher on the needle.

## 5. Cables and Controls.

Adjust and lubricate all cables and controls. The front brake and clutch controls will already have been adjusted (see above) but the exhaust lifter\* (or decompressor), ignition,\*† throttle and air† controls should be checked for correct adjustment. All these should have a little slack when in the "closed" position. Adjusting bushes are provided for these on the cylinder, magneto and carburettor respectively. See that all control levers are tight on the handlebar and make sure that the twist grip is not in a position such that any part of it, or the throttle wire, interferes with the correct action of the front

\* Not applicable in the case of the "500 Twin."

† Not applicable in the case of the Model R.E.



brake lever. Make sure that the twist grip works freely, but does not shake closed from any position. On four-stroke models this is provided with a set screw which passes through the flange at the inner end of the grip. To tighten the friction in the grip, loosen the lock nut and tighten the screw, finally tightening the lock nut. In the case of the 125 c.c. Model R.E. the twist grip is adjusted by loosening the clip which secures it to the handlebar and pushing the grip on to the bar as far as the brake lever will allow. This will expose the adjusting screw at the outer end of the bar.

On four-stroke models the ignition\* and air levers are adjustable for friction. See that these are adjusted so that they move freely, but do not close under vibration. On all models the clutch and brake levers are adjustable for "shake." If these are too loose unscrew the lock nut on the pivot pin, tighten the pivot and lock up the nut.

Put a few drops of engine oil on the exposed ends of all control cables, also on the clutch and brake lever pivots and, in the case of four-stroke models, into the joint between the two halves of the flange at the inner end of the twist grip.

#### 6. Grease Nipples.

Grease all nipples with one of the recommended grades of medium grease, i.e., Castrolase (Heavy); Mobilgrease No. 4; Shell Retinax R.B.; Belmoline C; Esso Grease.

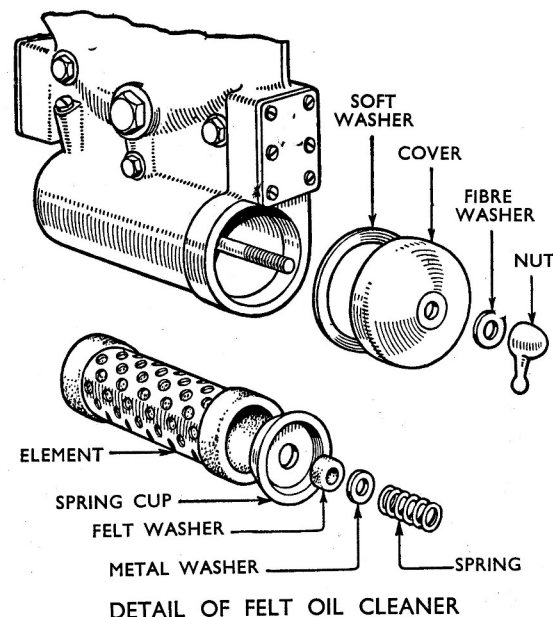
We do not advise greasing the hub nipples at this stage so that there remain three nipples on four-stroke models and three on Model R.E.

#### 7. Draining Oil System.

In the case of four-stroke engines, drain the oil tank and sump by removing the two drain plugs which in the case of Models G, J2 and the "500 Twin" are beneath the crankcase. In the case of the "350 Bullet" the drain plug for the oil tank is on the right-hand side of the case while the drain plug for the sump is at the bottom of the case towards the front. There is no need to remove the second drain plug in the bottom of the case towards the back.

Remove also the felt oil filter (see Figs. 17 and 18), and drain the timing case by removing the oil feed plug (plated hexagon in timing cover) and leaning the machine to the right.

\* Not applicable in the case of the "500 Twin."



DETAIL OF FELT OIL CLEANER

MODELS G, J2 and "350 BULLET."

Fig. 17.

Wash all filters in petrol, replace them and the drain plugs and oil feed plug, and replenish the crankcase with one of the recommended grades of oil, i.e. :—

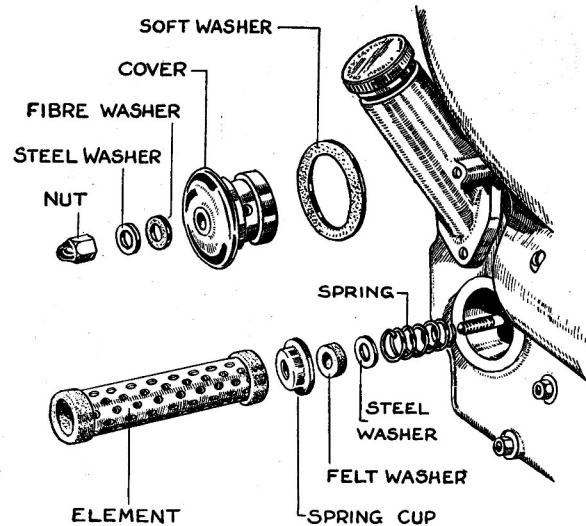
Castrol Grand Prix;	Golden Shell;
Essolube Racer;	Energol S.A.E. 60;
Mobiloil D.	

Note. To ensure easy starting in very cold weather use one of the following oils:—

Castrol XXL;	Triple Shell;
Essolube 50;	Energol S.A.E. 40;
Mobiloil B.B.	

or in the case of the "500 Twin," one of the following:—

Castrol XL;	Double Shell;
Essolube 30;	Energol S.A.E. 30;
Mobiloil A.	



DETAIL OF FELT OIL FILTER.  
"500 TWIN."

Fig. 18.

Start engine and allow it to tick-over for about 5 to 10 minutes to replenish the oil in the felt filter chamber and in the timing case. This will result in a reduction in the level of oil in the tank which should then be replenished to within lin. of the top.

#### 8. Lubrication of Chains.

Check the oil level in primary chain case. This should be up to the level of the drain plug, which in the "350 Bullet" and "500 Twin" is the small plug in the side of the case at a lower level than the filling orifice. Add engine oil if necessary. If the rear chain is dry, apply engine oil or soft grease.

#### 9. Lubrication of Gear Box.

Check the oil level in the gearbox. In the case of four-stroke models this should be filled up to the level of the filler plug. In the case of Model R.E. the oil level should be about halfway up the box and can be gauged by inserting a piece of wire through the filling orifice. Use engine oil for topping-up.

#### 10. Final Test.

Test machine on road and make any further adjustment which may be necessary.

