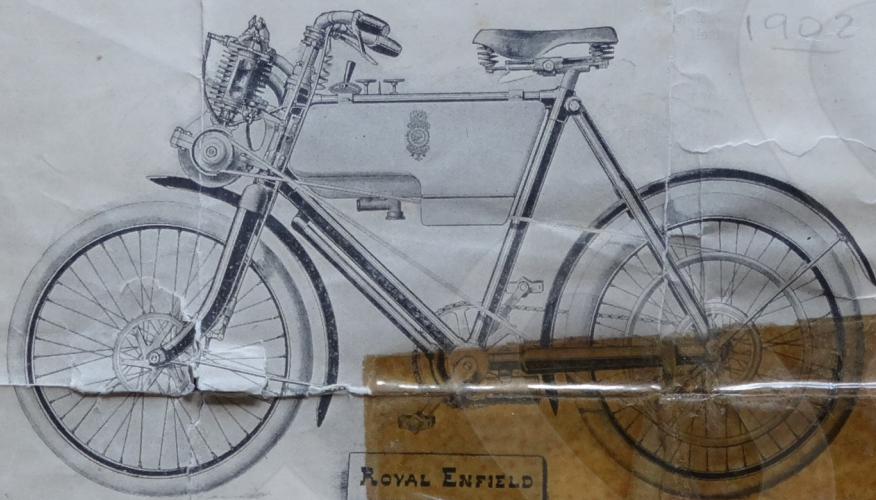


The

# Royal Enfield

"Made like a Gun"

MOTOR BICYCLE.



... SPECIFICATION. ...

**Frame.**—Specially constructed, 23 in. high.

**Wheels.**—26 in., high tension, tangent spokes.

**Tyres.**—Clipper Motor Bicycle, 2 in. x 2 in.

**Cranks.**—Specially toughened,  $6\frac{1}{2}$  in. throw.

**Brakes.**—Band Brakes to front and back wheels.

**Motor.**—Enfield  $1\frac{3}{4}$  h.p., spray carburettor, induction coil, accumulator, valve lifter worked by lever on right handlebar, switch on left handlebar.

**Gearing.**—40 x 16—60, Eadie  $\frac{1}{2}$ -in. pitch roller chain.

**Free Wheel.**—"Enfield" Frictionless (Hyde Patents), with ball bearings.

**Handlebar.**—Raised.

**Mudguards.**—Specially wide,  $2\frac{3}{4}$  in.

**Saddle.**—Lycett "La Grande."

**Finish.**—Usual plated parts; frame, &c., enamelled black; plated tank; rims, dark green with plated edges.

PRICE = £50 : 0 : 0 net.

**CONDITIONS OF PAYMENT.**—One-third of the amount with order, and the balance on delivery. By delivery is understood intimation to the purchaser that his order is completed, and at his disposal in our works. After delivery is accepted no charge is made for putting on railway truck at Redditch Station. Packing in crate, not returnable, 5/-. All machines are guaranteed to be in perfect working order on leaving the factory. No other guarantee is given or implied.

THE ENFIELD CYCLE CO., LTD., REDDITCH, ENGLAND.

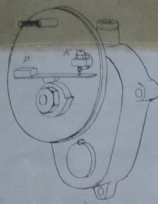
## INSTRUCTIONS TO RIDER.

- 1.—**Petrol.**—Fill the reservoir with petrol. To do this unscrew the filler; after filling through a funnel with **fine gauze strainer**, screw down filler tightly. Petrol must be from a tightly-sealed vessel; one that has been badly sealed will be found to contain bad spirit.
  - 2.—**Lubrication.**—Fill the lubricating oil pump with Price's Motorine **A** or equal quality. With the plunger right down at the bottom of its stroke. To lubricate engine, draw plunger of pump upwards with tap handle at right angles to engine, then with plunger raised turn tap parallel to engine, and push plunger **gently** downwards. When plunger is down do not forget to turn handle of tap back ready for the next charge. The pump holds four charges sufficient for 100 miles. A little more liberal use of the lubricator may be advised for the first 100 miles, but avoid flooding. Every 50 miles or so empty crank chamber of dirty oil. **Ordinary gas engine oil must not be used.**
  - 3.—**Adjustment of Valve C.**—Make sure that this valve works properly by lifting the fine wire attached to the stalk, the distance between the top of valve stalk, and under side of valve rod **D** should be about  $\frac{1}{16}$  to  $\frac{3}{32}$  of an inch. This is set when Bicycle is d/d, and should not be altered.
  - 4.—**Inlet Valve of Motor E.**—Press on stalk of this before mounting, to ensure that it is not sticking on the seat.
  - 5.—**Adjustment of Contact Breaker.**—This will be sent out adjusted ready for use. It should, however, be so adjusted that when spring is lifted by the cam, there is only a slight contact.
  - 6.—**Milled Top to Petrol Valve A.**—This should be opened by giving it from  $\frac{1}{4}$  to  $\frac{1}{2}$  a turn to the left, varying according to temperature.
  - 7.—**Starting.**—Inject a few drops of paraffin through compression tap; an oiler fitted in seat pillar is sent with each machine specially for the purpose. Put the contact plug in interrupter on handle-bar, turn switch to left, open compression tap **H**, and put ignition lever back, now mount and press right-hand lever on handle-bar—this lifts exhaust valve, give a few vigorous turns of the pedals, let go lever on handle-bar and if all is in order motor will start; shut compression tap. To increase speed, draw ignition lever forward towards you, going uphill push ignition lever gently back. Remove interrupter from handle-bar when stopping, and close valve **A**.
- In conclusion, we strongly advise purchasers to have a lesson either from one of our duly-appointed agents, or by visiting the **Works Dept. End, Redditch**. We shall be glad to send you a list of agents, and in the event of a sale not being effected, a small charge only will be made to cover loss of time.

## Price List of Spare Parts for Royal Enfield Motor Bicycle.

	£	s.	d.		£	s.	d.
1. Accumulator .. .. .	2	10	0	18. Inlet Valve Seating .. .. .	0	6	0
2. Axle of Timing Gear .. .. .	0	4	3	19. Inlet Valve Spring .. .. .	0	0	4
3. Brass and Ebonite Plug for Interrupter .. .. .	0	1	0	20. Leather Belt, ten feet .. .. .	0	5	0
4. Bush Main Axle .. .. .	0	3	4	21. Piston .. .. .	1	12	6
5. Bush Timing Axle .. .. .	0	3	4	22. Piston Rings, each .. .. .	0	1	8
6. Combustion Head .. .. .	2	0	0	23. Pinion, 18 Teeth for Timing Gear .. .. .	0	5	0
7. Cylinder .. .. .	1	6	0	24. Pinion, 36 " " " " .. .. .	0	6	8
8. Connecting Rod .. .. .	0	6	8	25. Platinum Pointed Screw .. .. .	0	6	0
9. Connecting Rod Pin .. .. .	0	5	0	26. Platinum Tip Spring .. .. .	0	5	0
10. Cam for Ignition .. .. .	0	6	8	27. Sparking Plug .. .. .	0	6	0
11. Cam for Exhaust .. .. .	0	6	8	28. Sparking Plug Washer .. .. .	0	0	4
12. Contact Breaker Cover .. .. .	0	4	3	29. Screw Fixing Contact Spring .. .. .	0	0	10
13. Exhaust Valve .. .. .	0	6	0	30. Terminal for Contact Screw .. .. .	0	3	4
14. Exhaust Valve Spring .. .. .	0	1	0	31. Terminal for Spring .. .. .	0	3	0
15. Fastener for Belt .. .. .	0	0	3	32. Terminal Screw on Handle Bar .. .. .	0	0	3
16. Induction Coil .. .. .	2	0	0	33. Test Lamps for Accumulator .. .. .	0	15	0
17. Inlet Valve and Washer .. .. .	0	5	0	34. Valve for Carburettor .. .. .	0	6	0

**THE ENFIELD CYCLE CO., LTD., REDDITCH, ENGLAND.**

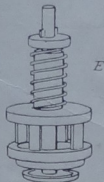


Contact Breaker.

### The Contact Breaker.

This will be noticed differs in pattern to others fitted to motor bicycle engines, and is of a thoroughly robust and strengthened form in all wearing parts. Properly adjusted, the spring seldom if ever breaks, and it will be remarked that the cam and other parts are not likely to wear out for some considerable time. The cover is firmly secured by one milled thumb screw.

The illustration is about one-third actual size.



Inlet Valve.

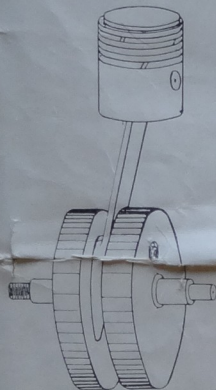
### Exhaust and Inlet Valves.

These, as will be seen on consulting the sketches herewith, are substantially made, and of a size which gives the best results, their surfaces are quite 3 times larger than valves fitted to other so called 1½ Horse Power engines. The stalk of inlet valve is large in diameter, which allows the spring to be securely held without the annoying trouble caused through the stalks breaking off at the cotter way.

Illustrations are about half size.



Exhaust Valve.



Piston and Fly Wheels.

### Crank Chamber and Main Bearings.

The crank case is made of aluminium alloy, the two halves are bolted together with the joint placed horizontally. This method stops oil leaking on to tyre. If necessary, the bearing bushes can be removed and new ones fitted in a very short time. We call particular attention to the diameter and width of the bearings (see illustration fly wheels and axle below), without these are of substantial design the engine cannot last.

### Connecting Rod and Fly Wheels.

The bore of this cylinder is 65 m/m = 2 9/16. The stroke is 72 m/m = 2 7/8. The connecting rod is entirely bronze, which obviates the necessity for making bronze liners. The explosion chamber is of rather a different shape to those usually fitted to small air-cooled motors. Instead of being dome formed it is practically square, and the space into which the gas is compressed is greatly reduced, consequently the explosion is more powerful and the motor gives better results.

### The Ignition.

This is the usual form of electric ignition adopted practically as standard for all petrol motors. The contact breaker we have already described. The Battery is of the accumulator form, and is carried in the compartment next to the petrol tank; its capacity is about 800 miles without recharging. To recharge, we recommend customers to place their battery in the hands of a good electrician, calling his attention to the following particulars: Charge at a rate not exceeding two amperes for about twelve hours, when battery should show about 4½ volts; do not use it when it shows less than 3.60 volts. It is better to keep battery well charged when possible, as it spoils the plates to leave unused when it has run down below the 3.60 volts mentioned above.

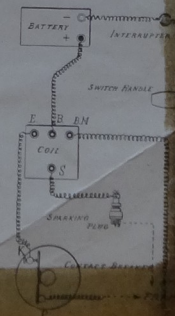
### The Induction Coil.

This is square in form, and is complete with condenser. We have selected a coil which takes very little current from the battery. Knowing the importance of a good coil to ensure a perfect spark, we have not fitted a cheap form, but have taken every precaution to obtain the best manufactured.

### Wiring.

The negative pole (black terminal on battery) is framed at handle bar switch, the positive pole (red terminal on battery) is connected to terminal B on induction coil, passes round the primary winding, and issues at terminal E of induction coil. From here it is connected to terminal K of the contact breaker, a wire from terminal P of contact breaker is framed. This completes primary circuit.

The secondary winding in the induction coil is connected to frame by terminal BM at one end and to the insulated end of sparking plug terminal S. This completes secondary circuit.



# 1902 Pattern

## Royal Enfield Motor Bicycle

### Points to be considered in an Air-Cooled Motor Bicycle.

Many of our customers having had motor bicycles of inferior manufacture, or deficient in power, have asked for two-horse power motors, not taking into consideration the fact that the so-called 1½-horse power motors previously sold, probably do not develop ½ a brake horse power. Now it is a foregone conclusion that to fit an actual 2-horse power motor would necessitate a very heavy frame, tyres, etc., which added to the weight of the motor itself would be a very heavy article to handle, or to pedal home in case of a breakdown—a most unlikely event, but possible with learners.

The point to aim at, therefore, is a motor sufficiently powerful to drive a bicycle up all but the severest gradients without pedal assistance; this we have accomplished; our new motor weighs about 24lbs and develops 1½-horse power at 1,500 revolutions, and 1¼-horse power at 1,750 revolutions.

### Position of Motor.

This received at our hands the most careful consideration before deciding on the present pattern. We have experimented on the road and in workshop with nearly every type of motor bicycle on the market, and have found out many of the defects of early patterns. It may not be generally known that it is a practical impossibility to fit a motor of sufficient durability to a bicycle frame unless the motor is attached at a point outside the path of travel of the rider's legs and feet when pedalling. The reasons for adopting the position illustrated for the Royal Enfield Motor Bicycle are many.

- 1.—The engine is in a vertical position, which is a necessity on small air-cooled motors, and prevents oil getting past piston and into combustion head; it is also the best position for valves to work in.
- 2.—The engine is in the very best position, possible on the bicycle, for meeting the cool current of air necessary to effectively radiate the heat from the cylinder, and keeps motor at its best working condition.
- 3.—The driving belt is the whole length of the machine, and being crossed, a greater portion of its surface is in contact with the small driving pulley. The pulleys being of special section, slip is reduced and owing to their length the belt is not liable to slip.
- 4.—Dirt and dust are enemies to motors, consequently a motor fitted to the front of a bicycle is more out of danger in this respect than in any other position; a forward extension to front guard keeps any oil from the tyre.
- 5.—Being fitted to the frame at a point where two lugs are closest together (viz., at the socket), it throws the least possible strain on the frame tubes.
- 6.—The whole of the open diamond frame is left free for fitting tank carburettor or battery case, etc.
- 7.—The item mentioned above, durability; this is the all-important question. We would especially caution intending purchasers against buying motors where the width of bearing is cut down to allow the engine to be fitted in the width of tread of an ordinary bicycle. The bearing on each side of the crank case of a Royal Enfield Motor is left full width (see illustration of axle and fly wheels), as owing to the position of the engine we do not have to study it. The contact breaker is also a substantial article, further on we give an illustration of this which will speak for itself.

### The Motor.

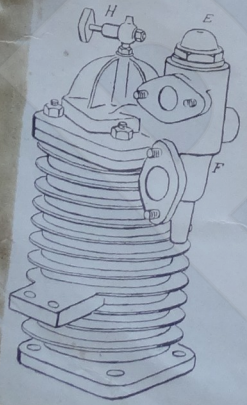
The Royal Enfield Motor is made on the usual four cycle movement, and is cooled by radiating ribs, shown above. It develops 1½ Horse Power at 1,500 revolutions per minute; at 1,750 revolutions power developed is 1¼ horse power. The Aluminium Crank Chamber, which contains the fly wheels, is absolutely closed, which ensures all the bearings being thoroughly oiled. The motor is fixed to the outside of the socket tube, and the steering is therefore not affected in any way, the centre of gravity remaining always in the line of the frame.

### The Carburettor.

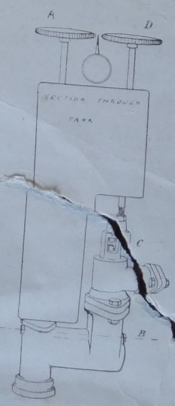
This Carburettor, patented in Great Britain and Colonies, is of the spray type, is very economical in working, and has few working parts to get out of order.

### To Start.

The top of valve stalk **A** must be turned from ¼ to ½ a turn to the left, this opens needle valve, petrol then flows along orifice **B**, until it arrives at the valve situated below **C**, this lifts at each suction stroke of the engine, the amount of lift being governed by adjustable rod **D**. The space between top of valve stalk and under side of adjusting stem should be from 1/16 to 3/32 of an inch. The stem is locked by an hexagon nut. Opening of stem **A** more or less regulates the supply of petrol according to temperature. Close valve **A** when motor is stopped.



Under and Combustion Head.



Carburettor.

