

## How to obtain a BINKS Two Jet Semi-Automatic Carburettor

When ordering your new machine definitely request your agent to specify this Carburettor. Several firms of the best reputation are already using it as an alternative standard, and many firms have expressed their willingness to fit it

on request

**INSIST ON OBTAINING THE "BINKS."**

Retail prices:—

Carburettor for Morgan and T.B Cycle Cars ... ..	£3 7 6
Carburettor for Inlet Pipes $1\frac{1}{2}$ & 1 dia.	£3 5 0
Carburettor " " $\frac{3}{8}$ & $\frac{1}{2}$ dia.	£3 0 0
Carburettor for 2 $\frac{1}{2}$ Douglas ... ..	£3 0 0
Carburettor for Villiers, 150 & 250 c.c. engines ... ..	£3 0 0
Ultra Light-weight Carburettor for $\frac{3}{8}$ or $\frac{1}{2}$ pipes, with single lever control ...	£2 15 0

Plus 2/- Postage and Packing.

If you order a Carburettor independently of your machine, either through your agent or from us, please specify:—

- (1) Exact size of stump Carburettor is to fit on to.
  - (2) Name, power and year of machine.
  - (3) Top or bottom feed to float chamber.
  - (4) Dia. of handlebar and length of cable.
- Carburettors can be fitted and tuned at our works for 5/-.

**C. BINKS (1920) LTD., ECCLES, MANCHESTER**

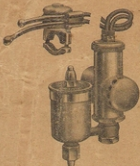
January, 1924

# 1924 Binks Carburettor

(ALMOST AUTOMATIC)

2 Jets with 2 Lever Control

For Two and Four Stroke Engines



PATENTERS AND MANUFACTURERS—

**C. BINKS (1920) LTD.**

Phoenix Works, Church Street

**ECCLES, MANCHESTER**

Phone 206 Eccles.

Telegrams: "Carburetted"

Price 5d. each, post paid.

## Reason Why we Make the Two-Jet Carburettor

For many years we have been manufacturing Carburettors, which are designed to give the very best possible results, and to-day we have a valuable business in supplying the Motor Cycle or Cycle-car owner with Carburettors either direct or through agents. Our Three-Jet damping system gives the most flexible running ever known, and an economy that on an average effects a 25 per cent. saving in fuel owing to the dampers eliminating waste.

Although manufacturers appreciate the "BINKS" Three-Jet Carburettor, the cost of this super article prohibits them from fitting it to their machines as standard, consequently there is still a demand for a really flexible Carburettor to suit all engines as they are turned out in quantities from the assembling shops. It must run slowly, accelerate, give speed and power, be fairly automatic and economical, and above all, it must be inexpensive. To meet this demand we have brought out a first-class Carburettor in several models and sizes, and at a price that is only slightly more expensive than other carburettors which are being made for this market. The construction is simplicity itself.

This Two-Jet model is therefore part of our works production, and will not interfere with the manufacture or sale of our famous specialities:—viz.: the Three-Jet Damping Carburettor and "Mossstrap" Racing and "Sports" models.

The name "BINKS" has always been synonymous with slow running, and still is. The Two-Jet Carburettor has outstanding qualities; it is flexible and economical, and will make any machine, even a V or Flat Twin tick over and be controllable in traffic. The two jets give a wide range of speed, as the pilot can be tuned up for slow running, and the main jet for power and speed, and these two jets working in harmony give a wide and flexible range of speed.

There are great possibilities with a Two-Jet Carburettor.

Insist on having it fitted to your new machine.

## Principle of the Carburettor

The Carburettor is an atomiser, and its object is to turn liquid petrol into a mixture of air saturated by the finest particles of fuel. This mixture has the appearance of a mist, and as soon as it comes into contact with the hot cylinder it is instantly vapourised. The more completely the petrol is atomised the more efficient and economical is the charge of gas.

The essential in carburation is to obtain the right proportion of air and of atomised petrol at varying speeds on days that may be cold or hot.

The essential aid to atomisation is high air velocity across the jet, whether the engine speed be high or low.

Fifteen years of experience have proved conclusively to our minds that—

- (1) No powerful Carburettor can work well unless it has a Pilot Jet.
- (2) Any moving part that regulates the petrol orifice is a complication better done without.
- (3) Petrol must be filtered properly in the Carburettor.

This Carburettor has been designed with these points in view, and its simplicity in construction enables us to keep the selling price low without sacrificing quality.

The Carburettor consists of a vertical barrel divided into two vertical chambers. The main air way through the Carburettor passes at right angles through these two chambers, first through the main jet chamber and then through the pilot jet chamber, and onwards into the engine. The pilot jet chamber contains a "D" shaped throttle working up and down, the main jet chamber is like an archway containing a plunger to vary its area, and this is operated from the handlebar.

The two jets are of a non-spilling type, containing the orifice at the bottom instead of the top of the jet. The main jet is much higher than the pilot jet, and consequently the petrol level is much below the top of the main jet.

The pilot jet is situated underneath the "D"

shaped throttle so that as the throttle is closed the area in which the jet is placed is reduced. A ribbon of air passes under the throttle and across the jet, so it is easy to see that as the throttle is closed the rush of air across the jet, instead of being lessened in intensity, it is maintained. The volume is, however, reduced. The more the throttle is opened the bigger is the area in which the pilot jet finds itself, and consequently the suction is lessened, because the throttle has receded from the jet plate.

The air proceeding to the pilot jet goes through the main choke tube, but at small throttle openings the velocity of air around the main jet is so low that the jet is scarcely affected. However, as the throttle is opened wider and the suction is increased, the main jet comes into operation automatically. Again the wider the throttle is opened the bigger is the air blast on the main jet, yet the intensity of the suction on the pilot jet is lessened.

A see-saw action takes place on the two jets, because the closing of the throttle lessens the suction on the main jet and increases it on the smaller pilot jet, and vice-versa.

Two adjustable jets in the Carburettor, the pilot jet being much the smaller, give a practically automatic range of mixture.

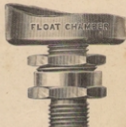
The air lever operating the plunger in the main choke tube rectifies the mixture as necessity arises.

A few minutes' thought about the functioning of the Carburettor reveals the secret of slow running; namely, the fact that a minute quantity of air is drawn at a very high velocity across a tiny jet, thus ensuring that the petrol supplied is properly atomised. Power is obtained independently by having a big jet in the large choke tube, so that there is no sacrifice in having obtained good slow running.

One of the many convenient features of this Carburettor is that when closing the throttle to run in traffic the mixture is practically automatic, and there is no need to fiddle about with the air lever to keep the engine running evenly and quietly when decelerated.

Fifteen years' experience is behind this Carburettor, and you can specify it for your new mount with confidence and pleasurable anticipation.

## Note on Filtering to Prevent Flooding.



The Binks' Float Chamber is made with great care; the needle is properly seated and is tested to hold air at 4lb. to the square inch, and finally after assembling the petrol level is tested. Nothing but a perfect article leaves the works. However, sometimes flooding occurs, and in practically every case the trouble can be traced to impurities in the petrol, fluff, green paint, flakes of rust and dirt which prevent the seating of the needle.

A small filter is sent out with each Carburettor, fitted in the union, but this is intended to supplement a filter in the tank. If there is no good filter in the tank a better arrangement is needed, and we can supply one at 2s. 6d., post paid, on request. It is easy to take apart for cleaning by unscrewing, and can be fitted without cutting the petrol pipe. Simply undo the petrol pipe connection and insert the Binks' filter, screwing it on to the float chamber and attaching the petrol pipe to it.

Note.—There is an excellent filter in the Carburettor between the float chamber and the jets.

## 2-Jet 2-Lever "Binks" Carburettor Ensures Flexibility with Speed and Power

(PATENTED)

MA—Throttle wire

XA—Throttle spring

A—Carburettor body

VA—Throttle

B—Pinch Bolt

Y—Jet Seat

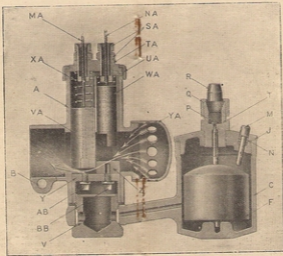
AB—Pilot Jet, shown working at low engine speeds under a high velocity of air, say at 15 m.p.h.

BB—Main jet, inactive, but ready to work if the throttle is opened further.

V—Float chamber holding screw, containing main filter

NA—Air Plunger wire

SA—Adjusting screw and lock nut.



TA—Adjusting screw plate.

VA—Lock ring to hold throttle and air plunger springs.

WA—Air Plunger.

YA—Blow back cap.

Z—Choke tube around main jet the area of which is regulated by plunger WA.

R—Petrol pipe, nipple

Q—Nut for above.

P—First filter.

T—Float needle seat.

M—Tickler to raise Petrol Level for starting from cold.

J—Float chamber lid.

N—Tickler spring.

C—Float chamber (swivelling).

F—Float with stainless steel needle fixed.

Section showing action on pilot jet at small throttle opening. main jet inoperative

## OBSERVATIONS or HINTS on Possible Faults

In case of difficulty, write to our Works—

### BINKS, ECCLES, Manchester

(Carburettors can be Repaired and Spares Supplied at Fixed Prices).

- (a) **Jets Choked.**—This is always most unlikely, as a good filter is fitted right under the jets and the latter are designed not to choke easily.
- (b) **Flooding** is nearly always due to impurities in petrol getting into the valve seat. See that there is a filter in the petrol pipe union, and in good order.  
See that needle clip has not come out of the groove in the needle.  
Rattle float to see if float is petrol-logged.  
See that needle is not bent.  
Never grind a needle into its seat with emery; rub it in only with the finger and thumb.

- (c) **Engine will not start.**—Make certain there is a spark at the Plug points when kick starting by taking the Plug out and laying it on the cylinder head for inspection. The gap at the plug points should be about  $\frac{1}{16}$  in. across. If correct replace the plug and tickle the float chamber so that petrol comes over the top of the Pilot Jet and wets the jet plate; open the throttle  $\frac{1}{2}$ -in., no more, and try again. It is possible to glut the engine with petrol and if no start is due to this, turn the petrol off, open the throttle wide and turn the engine over a dozen times, then try again.

**Bad starting on Two-Stroke**s is very often due to the crank case being glutted with petrol and to consequent mis-firing, which is caused by the plug oiling up. Remedy: Take out the plug, turn off the petrol, open the throttle and air wide, and kick over a dozen times; then turn on the petrol and just tickle the float, clean the Plug (in winter warm it) before replacing, and try again. If the engine does not start after half-a-dozen kicks, and you

know there is the right amount of petrol take out the plug and reclean it.

- (d) **Engine starts and will not run slowly.**—Pilot jet may be too small, or there are air leaks in induction system or in slack inlet-valve stems. Remedy: Bigger pilot jet or stop air leaks. See there is a wide gap at plug points just under  $1/32$  in. wide.
- (e) **Not enough power.**—If engine runs slowly do not alter the pilot jet, but fit a bigger main jet.
- (f) **Engine spits back into Carburettor when Throttle is opened gradually.**—General remedy is to close the air valve a little. However:
- (1) Make sure there is a good supply of petrol.
  - (2) See there is no obstruction in the main jet.
  - (3) See that the level of the petrol is not more than  $1/4$ in. below the top surface of the jet plate.
  - (4) If the above conditions are correct and spitting still obtains at one particular throttle opening it may indicate a weak phase in the mixture. If the engine runs slowly on the pilot jet, and also gives good power on the main jet this particular weak spot can be absolutely eliminated by fitting a special main jet perforated by side holes, the effective area of which is less than the main sizing hole of the jet. This particular weakness of mixture is caused by the main jet coming into operation too late. An alternative remedy is to shorten the main jet by  $1/16$ in., but it is better to fit a main jet with side holes which allow a small supply of petrol to add to the mixture before the main jet comes fully into operation. These jets can be obtained from our works at the cost of 1/6 each. State size wanted.
- (g) **Four or eight stroking on two-strokes** at low speeds.—Pilot jet too big.
- (h) **Fuel.**—Petrol, Benzol, or any mixture of petrol may be used.

## Instructions for Tuning and Driving

To get started in the first case:—

(1) Open the throttle about 1/8 in. so that when the engine is turning over you can hear a hiss of the air rushing through.

(2) Lower the air shutter over the main jet.

(3) Flood the Carburettor and get the engine started.

(4) When the engine has run two or three minutes on what may be a rich mixture, **open the air lever to about 1/4 wide open**; then get the engine to run as slowly as possible. If the engine runs on what is apparently a too weak mixture, increase the size of the pilot jet by one size. If the engine hunts and does not run better try one size smaller. The range of the pilot jet is about 3/16 in. movement on the throttle. Whilst running with the throttle about 1/8 in. open you can tell if the mixture is weak or strong by lowering or raising the air shutter over the main jet; if the engine runs better in the closed position it shows that the pilot jet is too small.

(5) When you have found the pilot jet that will run steadily with the air valve 1/2 open, that is 1/2 of its movement above the main jet, you can proceed to tune the main jet.

(6) Mount the machine and open up the throttle to about 1/2 of its opening. If the machine gets away all right with the air shutter 1/4 open, and runs better as you proceed to open the air valve wide, the main jet is probably too large, and you should try one jet smaller.

(7) If, on the other hand, when the throttle is opened 1 you cannot get away without a lot of spitting and back-firing, which disappears if you close the shutter, this shows that the main jet is too small and you should try a larger one. (See Note F, Page 9.)

(8) For normal running the Carburettor should have the air valve about 1/2 open, so that if you open the throttle reasonably quickly when on the road the pick-up should be good.

(9) If, however, you wish to pick-up quickly from dead-slow speed on top gear, you should close the air shutter, open the throttle, and gradually open the air lever until the engine is "revving" properly.

(10) When running in town and for general purposes, the air shutter should be closed down to about half-way; when running in the country it should be very nearly wide open, and then for extreme speeds down hill it may be opened wide.

(11) The petrol level is about 1/4 in. below the top of the jet plate, therefore it is very much below the top of the main jet. This is arranged so as to retard the working of the main jet until its proper time, and to prevent petrol spilling from the main jet, which ensures economy. To start when cold the tickler in the float chamber lid should be depressed until the petrol level comes up just above the jet plate. This gives an initial rich mixture for starting.

(12) The jets can be removed by undoing the large square or hexagon adaptor, which is also a filter underneath the barrel. The jet key supplied with the spares will remove the jets.

(13) Twin cylinder owners should make sure that both cylinders are firing. Try running the engine on each cylinder separately by starting one plug at a time with a wooden handled screw driver.

## PROBABLE JET SIZES.

Try one size above and below.

Engine.	Choke dia.	Pilot jet.	Main jet.
250cc. Singles, 4 stroke	11/16 or 1/2	0	5
350 cc. Singles, 4 stroke	1/2 or 13/16	1	6
500 to 600 cc. Singles, 4 stroke	1 in.	2	8
350 cc. Twins, 4 stroke	11/16 or 1/2	1	5
500 to 750 cc. Twins, 4 stroke	13/16	2	6
800 to 1,000 cc. Twins, 4 stroke	1 in.	2	8
2-strokes, 100/300cc. Villiers, 14.	11/16 or 1/2	0	5
" 200/300cc.	1/2	1	6
" 300/350cc.	3/4	1	8
Scott Twin, 2 stroke	1 in.	1	7

If there is a leak in the induction system use one size larger pilot jet—if you cannot stop the leak.

Sizes of jets: Smaller, 00; larger, 00, 0, 1, etc. The bigger the number the larger the jet.