



**B. & B.**  
**MOTOR CYCLE**  
**CARBURETTORS**  
**1915**

3

**HINTS & TIPS**  
**TO**  
**MOTOR**  
**CYCLISTS**

Green & Welburn,  
Birmingham.

TRADE *B & B* MARK

# MOTOR CYCLE CARBURETTORS

For 1915

MANUFACTURED BY

**BROWN & BARLOW,**  
LIMITED,

WESTWOOD ROAD,  
**WITTON, BIRMINGHAM,**  
ENGLAND.

Telegrams: "CARBURET," Birmingham.  
Telephone ... .. 301 East  
Code: As List. and A.B.C. 5th Edition.

TERMS OF BUSINESS:

Trade References or Cash with Order.  
All Goods Free on Rail, Birmingham only

Owing to increase in cost of  
Material all prices are advanced  
25% from August 12th, 1915.



Catalogue of Car  
Carburettors and  
Float Chambers on  
application.



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**Brown & Barlow Ltd.**  
CARBURETTER MANUFACTURERS.  
**Witton, Birmingham.**



SEASON, 1915

Dear Sir,

We wish to bring to your notice our 1915 Model Carburetters, and especially the Semi-Automatic Variable Jet Model which is fitted with a tapered needle, which varies the size of the Jet, and an easy starting device, which can be used as a pilot jet if desired. All the Models are extremely simple—simplicity being the keynote of their construction.

**ALL "B & B" CARBURETTERS ARE BRITISH MADE**

being manufactured throughout in our Works in Birmingham, and, excepting the small screws and springs, are constructed throughout of copper alloy, so as to make them rust-proof.

We make no attempt to cheapen the Carburetter at the expense of durability and workmanship.

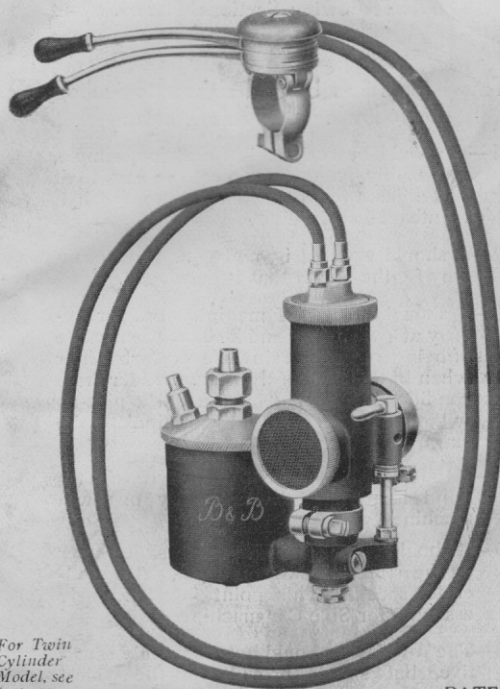
All parts are interchangeable one with another, and our confidence in the articles we manufacture is such that we are prepared to exchange, free of charge, any part (with the exception of the Cabling, which is not our make) at any time within twelve months, if purchased through our accredited Agents. All parts should be sent to our works carriage paid, with full particulars of the date and place of purchase.

We are constantly working for real progress, and shall be only too pleased to receive suggestions at any time from users of the B & B Carburetters.

Yours faithfully,  
**BROWN & BARLOW LIMITED.**

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**The 1915 Semi-Automatic Variable Jet Model.**



*For Twin Cylinder Model, see page 11*

PATENT

Extra length of Cable can be supplied at the rate of 1/- per double foot.

COMPLETE AS ILLUSTRATED.

Type	Outlet	Cabling	Code	PRICE
BSV.	1 1/8 in.	3ft. 6in.	NEWLY	36/-
LSV.	* 1/8 in.	3ft. 3in.	NICE	33/6

\* 3/8 in. Liners can be supplied if required.

*For Connections to suit above Carburetters, see page 20.*

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### Description of B.S.V. (and L.S.V.) Models

Also showing Sectional Views.

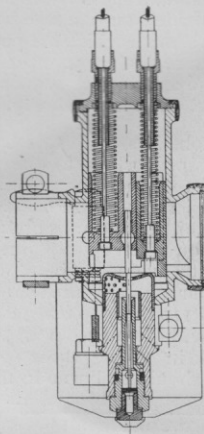
This Model has been designed to embody the following desirable points :—

- 1—It should be reliable in its action, simple, not readily put out of order, and easy to fit and adjust to suit the machine to which it is intended to be fitted.
- 2—It should start easily and give good economy for the power that is developed.
- 3—It should be easy of manipulation, particularly at low speeds, and it should be capable of being treated as a single lever Carburetter when in the thick of traffic, and under these conditions it should have a quick pick-up without any necessity to manipulate the extra air lever.
- 4—It should run slowly when free. This point is particularly necessary on twin machines.
- 5—It should give the maximum possible power on the stiffest hill when pulling at a moderate speed. This point is particularly essential for Side Car machines.
- 6—The Air Valve should not be unduly sensitive, but should provide for the widest possible requirements, ranging from dead slow running in the cold weather to full speed on the level on a hot day.
- 7—It should effectually break up the petrol to give a uniform mixture for ingoing air.
- 8—It should be capable of running the machine for long periods at full speed without any undue overheating and consequent knocking.

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TRADE *B & B* MARK

FOR THE PURPOSE OF EXPLANATION A SECTIONAL VIEW IS GIVEN OF THE CARBURETTER



Referring to the illustration, it will be seen that this Carburetter is adapted for a double lever control, one lever of which controls the Throttle, and the other the Air Valve. The construction of the Throttle is such that when opening it, it also opens 60 per cent. of the total available amount of air, so that the maximum amount of extra air that is under control by the air valve only amounts to 40 per cent. instead of the usual 100 per cent. This 40 per cent. is the amount of variation in the air actually required to provide for the extreme conditions met with during the running. To the Throttle Valve is attached a Needle, which works in the Jet so that as the Throttle is raised or lowered, the Needle is likewise raised or lowered to the same amount in the Jet.

The Needle is compound in shape, namely, the first portion being parallel and after a certain distance becomes tapered, which taper continues to the end of the needle. The Jet in which the needle slides is situated

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in a small Choke Tube, so that a certain amount of air is taken sufficient to break up the petrol as it issues from the orifice. Fitted in the Throttle and completely enclosing the top of the Choke Tube is a Cap into which the petrol spray and air pass from the Jet and Choke. This Cap is provided on one side with many holes of small diameter, through which the petrol and air have to pass and thus ensure perfect vaporisation. The Throttle is provided on the engine side with a small slot to give ease of control when running slowly.

The economy obtained with this Carburetter is good, and is in strict proportion to the amount of power developed, that is, when running on light loads along the level a small jet only is used, and when running on heavy loads up a hill a large jet is brought into operation.

The consumption when running on an ordinary give-and-take road with average driving at between 20 and 25 miles per hour on a  $3\frac{1}{2}$  h.p. solo machine averages between 105 and 110 miles to the gallon. On a 6 h.p. twin machine, with two up, about 70 miles per gallon is obtained, but in taking these consumptions into consideration, it should be borne in mind that you have available the largest possible Jet that can be usefully employed, giving the maximum power on hills, yet at the same time you only have an average consumption on ordinary running of a small Jet equivalent to somewhere in the neighbourhood of 30 or 32.

On the side of the Throttle a small lever will be seen which operates the easy starting Jet. This is provided to enable the engine to be started up from dead cold without either flooding the Carburetter or priming the Cylinder.

The Carburetter (with the exception of the Pilot device) will be found to be correctly set for the majority of Engines, and we recommend that it should be fitted to the machine just as received from our works, and tested before it is interfered with in any way.

It will be found that the normal position of the air lever is about  $\frac{1}{2}$  in. open. If any "knocking" occurs with the throttle lever from  $\frac{1}{3}$  in. to  $\frac{1}{2}$  in. open, the needle should be raised  $\frac{1}{16}$  in. at a time, until an improvement is affected. (To raise or lower the Needle, slacken the

screw which lies in a hole drilled in the Throttle Slide, and move the Needle up or down as required; when adjusted, tighten the screw again).

The normal positions of the Needle are for singles,  $1\frac{13}{16}$  in. from face of Valve to end of Needle; for twins,  $1\frac{3}{8}$  in. from face of Valve to the end of the Needle. It should be borne in mind that raising or lowering the Needle, regulates the amount of petrol obtainable at any given throttle opening up to about  $\frac{2}{3}$  of its traverse, but does not affect the petrol used in the "all out" position as this is governed by a restriction at the base of the Jet. It should here be noted that the gear ratio used has an effect upon the Needle position. Generally speaking, the higher the gear the more the Needle should be raised and *vice versa*.

Restricted Jets of various sizes are obtainable either singly or in cases of four (see page 21), and can be used if desired to increase or decrease the amount of petrol available in the "all out" position as compared with our standard setting.

Standard settings are as follows—

Single Cylinder (500 c.c.)	.045 Jet.
Twin " (650 to 770 c.c.)	.055 Jet.
" " (770 to 1,000 c.c.)	.050 Jet.
Lightweights (032 to 038)	Jet.

NOTE.—That the Throttle member provides more than half of the total amount of air required. Therefore the Air Lever is not opened up to the same extent, as in the case of the Single Jet Carburetter. In fact, it should not be possible to use full air except at high engine speeds.

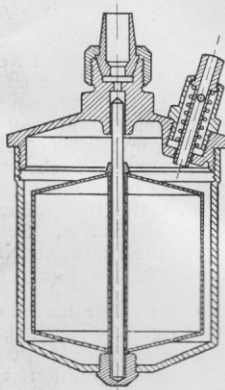
The Float Chambers of all our 1915 Carburetters have been entirely re-designed and in their present form have reached practically the limit of simplicity.

Balance weights are entirely dispensed with and the only working parts that remain are the needle and the float.

The petrol is now fed into the float chamber from the top instead of the bottom.

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A sectional illustration of the arrangement is appended which will shew its extreme simplicity.



Other advantages which we claim for this system are—

1. Long life of needle.
2. Cap cannot come unscrewed by vibration.
3. Carburettor is flooded without raising the petrol level in the float chamber, hence the petrol does not continue to drip after flooding as is usual—this is a great safeguard against fires caused by back-firing.
4. Interior mechanism entirely eliminated (no flooding due to sticking weights or bent weight pins).
5. Needle valve tends to clean itself of dirt owing to its inverted position.

After reading through the above, our claims for the good points on this Carburettor will be readily understood, they are—

1. Simplicity of action, and not readily put out of order, easy to fit and adjust.
2. It is very economical for the power developed, and although a big Jet is provided to give the maximum power, yet there is no waste of fuel owing to this fact, as the greater proportion of riding is done on a small jet.

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3. It is particularly easy of manipulation at low speeds, especially if treated as a Single Lever, with the Air Valve kept at normal position.
4. It runs quite slowly at no load, not only on single cylinder engines, but on twin cylinder engines as well.
5. Owing to the big Jet provided it is possible to take very heavy loads up the steepest of hills.
6. The Air Valve is not at all sensitive.
7. It effectually brings up and vaporises the petrol giving a good uniform mixture to the ingoing charge.
8. It runs the Engine for long periods at full loads without any overheating.
9. It is possible, at all ordinary speeds, to give an excess of air, thus making absolutely sure that it is possible for one to drive to the utmost nicety as regards consumption, if desired.
10. Absence of blow-back of petrol.

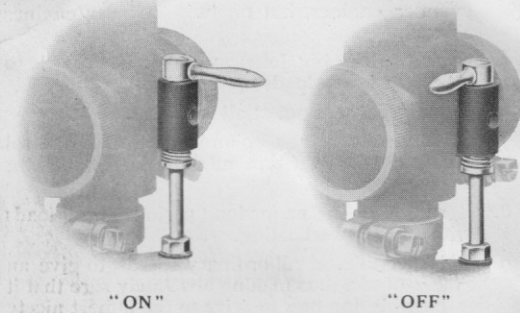
No other make of Carburettor can give these great advantages. If they give power, then they lose very badly in consumption owing to it being run on a large Jet at light loads. If they give the consumption, then it is impossible to develop the power when on steep hills. Generally speaking, other semi-automatic types of Carburettors necessitate throwing the Air Lever wide open as soon as the machine gets going and further control of the air is impossible even if desired, hence a heavy consumption is usually obtained.

NOTES *re* FITTING.—It is important to see that the Carburettor has been fitted to the machine with the Cables correctly adjusted. When the Throttle Lever is put into the fully closed position, the Throttle Valve should be just closed and no more. This can be readily adjusted by means of the Screwed Thimble on top of the Carburettor Cap. If this is not done, then when driving you get a false idea as to the relative positions of the Throttle and Air Levers, owing to the slack in the Cabling.

For starting from dead cold, the Air Lever should be quite closed and the Throttle Lever one quarter open.

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The easy Starting Lever should then be moved to the "on" position as shown in the illustration below. The engine can then be started with the utmost ease.



As soon as the Engine has started, the Easy Starting Lever should be moved to the "off" position as shown in the illustration. If the Engine is already warm, the same method should be employed, except that the Easy Starter need not be used. It is not necessary to flood the Carburetter, and the Cylinder should not be primed unless the Engine is too stiff to turn (owing to congealed oil) and needs freeing.

For Twin Cylinder Machines, the Easy Starting Lever is provided with a set screw and lock nut, which allows it to be so adjusted that it can never quite close, it then becomes a Pilot Jet for slow running, and is wonderfully effective in this respect. (See page 11).

It should be so set that the Engine when warmed up runs dead slow with the Air Lever one quarter open.

Single Cylinder Engines do not require a Pilot Jet to make them run dead slow with this Carburetter, and it is only necessary with Twins on the account of the slight air leaks which almost invariably occur in the induction pipe fittings of these engines.

Providing the Pilot Jet and the Cables are properly adjusted as mentioned above, the fact that twin cylinder engines will not run slowly, is conclusive evidence of an *excessive* air leak, which should be traced at once and rectified.

**NOTICE**—On all the semi-automatic Variable Jet Carburetters (Types BSV., BSV. long, LSV. and LSV. long), supplied from our works on and after July 1st, 1915, the adjustable pilot will be fitted to single and twin cylinder models alike. This will make the use of the pilot jet optional on single cylinder engines, and although we do not recommend this (as it is quite unnecessary), those of our customers who prefer to use a pilot may do so.

**Instructions for Setting Pilot Jet Carburetter and adjusting for Slow Running on Single or Twin Cylinder Engines.**

- 1.—Make all joints tight.
- 2.—Clip the control on to handle bar, and cables to front of machine, making sure there are no acute bends.
- 3.—Take up any slack in throttle wire by means of the adjusting bush on the throttle cap so that when the throttle control lever is closed, the valve in Carburetter is just closed and no more. This can be adjusted a little higher if desired, so that with throttle lever closed right off, the engine will just tick over.

**TO OBTAIN SLOW RUNNING.**

- 4.—Open throttle lever about  $\frac{1}{4}$ , close air lever right off, open pilot full, and start the engine. On the engine firing, open the air lever  $\frac{1}{4}$  and ignore it altogether, as for the purpose of slow running, the Carburetter is absolutely automatic. Close the throttle down slightly and the engine will run rich, missing slightly, which is a sign of richness. Close the pilot slightly, then the engine speed will increase as the mixture becomes weaker, then close the throttle a little more, and the engine will slow down and again run rich. This procedure should be repeated as many times as necessary, until the minimum position is found. If by chance it is over-done, and the engine stops altogether, do not attempt to open up, but go back and repeat the process again, as this is the quickest and easiest way of obtaining the desired result. Then the adjustment on the pilot jet should be locked, by means of the screw provided. When starting up from cold, shut air lever right off, open throttle about  $\frac{1}{4}$  and fully open the pilot jet, but as soon as the engine starts, close pilot immediately to the slow running position, and open the air lever about  $\frac{1}{4}$ . When correctly set the engine should accelerate right up with the air lever  $\frac{1}{4}$  open, which should never be closed right off except for starting up, and then it will be found that nine times out of ten, when the engine is warm, it will start with the air open, but a dead certain start is obtained by closing same, and without using easy starter.

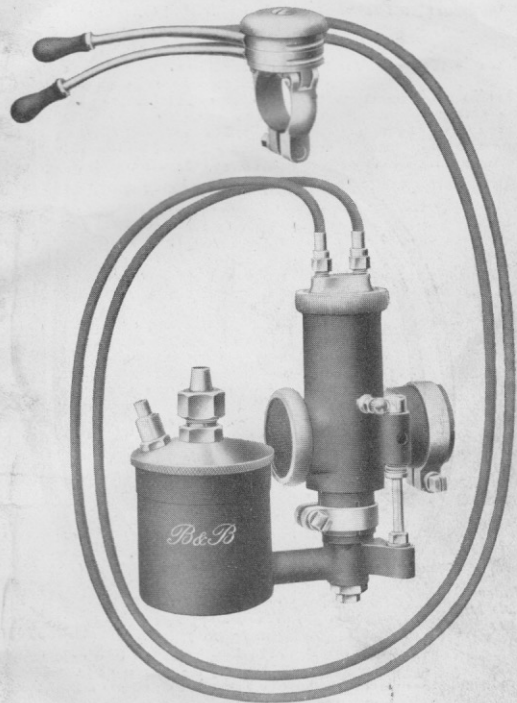
**POINTS TO BE REMEMBERED.**

- 1.—The air lever should be opened about  $\frac{1}{4}$  for slow running.
- 2.—The Carburetter is not designed to run on the pilot jet with the throttle valve fully closed off, but is designed to run on the pilot jet with a minute amount of air taken through the throttle valve, the amount which is taken being dependent upon the air-tightness of the inlet pipe joints and inlet valve guides.
- 3.—If it is desired to stop the engine by closing the throttle, and it is found that the engine still runs with the throttle right off—after making sure that the throttle valve in the carburetter is closed—it is a sure guide that air is leaking in somewhere, and allowing the engine to run on the pilot alone.
- 4.—Do not flood the float chamber, just feel that petrol is there.
- 5.—Always remember that firing on one cylinder only is never due to the carburetter, as whether the mixture supplied is correct or incorrect, it will be the same for both cylinders if the engine is in proper order. N.B.—Air leaks or plug points being too close are generally the cause.

Do not attempt to use a Single Cylinder Carburetter on a twin, or *vice versa*, as the needles and jets are different, and the results are likely to be disastrous.

TRADE *B & B* MARK

**For Twin Cylinder V Type Engines.**  
With Adjustable Pilot and Starting Jet.



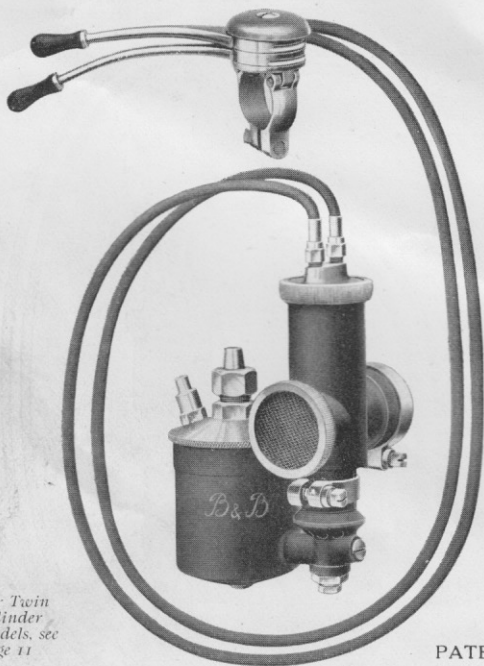
ALL model Carburettors are supplied on request with long platforms, to allow the Float Chamber to be fitted as shown.

When ordering, it is only necessary to add the word "LONG" to the type required (*i.e.* BOD. long, BSV. long, LUC. long, etc., etc.)



TRADE *B & B* MARK

**The 1915 Single Jet Model.**



*For Twin Cylinder Models, see page 11*

PATENT

Extra length of Cable can be supplied at the rate of 1/- per double foot

**COMPLETE AS ILLUSTRATED.**

Type	Outlet	Cabling	Code	PRICE
BOD.	1 1/8 in.	3ft. 6in.	BODILY	36/-
LOD.	*1 1/16 in.	3ft. 3in.	LODE	33/6

\* 1/8 in. Liners can be supplied if desired.

*For Connections to suit above Carburettors, see page 20*

TRADE *B & B* MARK

**1915 Single Jet Model—Semi-Automatic.**

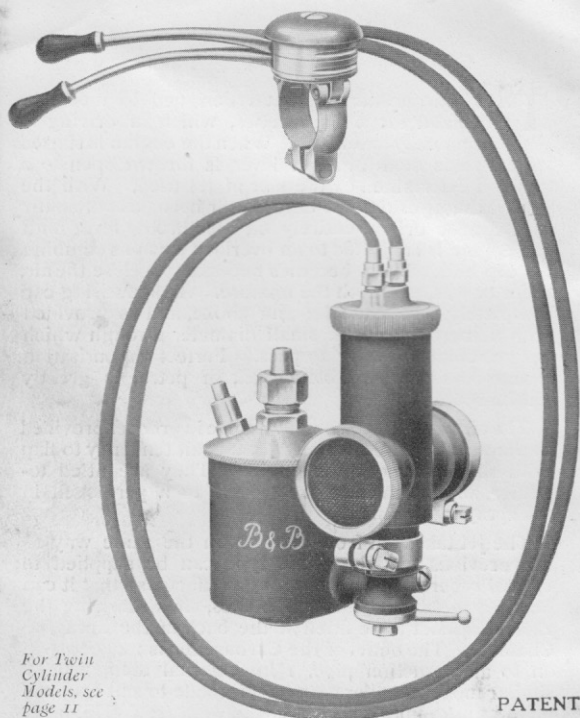
**T**HIS Carburettor has been designed to meet the demand for a Carburettor, which in driving is practically automatic. When the engine is started up with this model, the air lever is thrown open to a position determined by the size of jet used. With the lever in this position the Carburettor becomes automatic and can be driven entirely on the throttle lever until the engine is subjected to an overload (such as climbing a steep hill), when it becomes necessary to close the air, more or less, to enrich the mixture. A vapourising cap completely covers the jet and choke, and is provided with numerous holes of small diameter through which the petrol and air have to pass. Perfect vapourisation is thus ensured, and blow back of petrol is greatly minimised.

The air valve is constructed to slide in grooves provided in the throttle valve, which prevents all tendency to flap with the suction of the engine. They are fitted together, and the surfaces are ground to a perfect fit in the spraying chamber.

The Jet takes out from beneath, in the same way as the previous models. This type can be supplied to special order with an extra long platform, so that it can be fitted to twin Cylinder Engines, thus allowing the Float Chamber to be fitted at the back of the Spraying Chamber. The outlet of the Carburettor is made to grip on to an induction pipe, 1 1/8 in. external diameter. A similar model, smaller than this, is made to suit Engines up to 75 m/m bore, and is adapted to fit on a 1 1/16 in. pipe. These Carburettors are fitted with our new pattern Float Chamber, described on page 8, and are supplied, unless otherwise ordered, with 3ft. 6in. Cables and 1in. Clip for the handlebar. For the smaller type of Carburettor the Cables are 3ft. 3in. and are fitted with a 3/4 in. Clip. Extra lengths of Cables can be supplied if desired, also 1 1/8 in., 3/4 in., or 1in. Clips.

TRADE *B & B* MARK

**The 1915 Universal Model.**  
WITH VARIABLE JET.



*For their  
Cylinder  
Models, see  
page 11*

PATENT

Extra length of Cable can be supplied at the rate of 1/- per double foot.

COMPLETE AS ILLUSTRATION

Type	Outlet	Cabling	Code	PRICE
BUC.	1½ in.	3ft. 6in.	UNITE	36/-
LUC.	* 1⅛ in.	3ft. 3in.	SMALL	33/6

\* ⅜ in. Liners can be supplied if required.

*For Connections to suit above Carburettor, see page 20*

TRADE *B & B* MARK

**Description of Universal Model.**

THE Carburettor, which is very similar to our Single Jet Carburettor, is particularly suitable for export use, as it is provided with an infinitely variable jet which enables a correct mixture to be obtained in any climate. The Jet should be used quite on the small side for ordinary touring purposes, and can be opened out to a larger aperture when steep hills are encountered. On reaching the top, the Jet should be cut down to the original size for economy's sake.

We would point out that this is one of the big advantages of using a Carburettor of this type, and not to set the Jet and leave it there. Half the benefits are lost if it is used as a fixed Jet model.

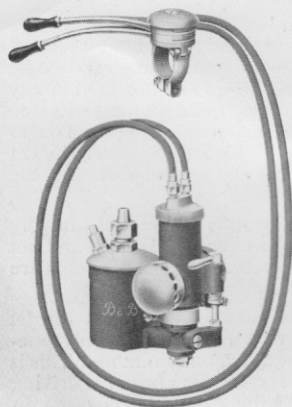
We recommend for ordinary driving, that the Jet should be opened so that with full Throttle only one-fourth of the extra air is required, and no more. This is where a Carburettor of this type differs from the driving of a single Jet model, where the Air Lever is often in advance of the Throttle. Of course, when the Jet is opened out for a hill or for a speed burst, the Air Lever will be required to be opened out at the same time, in order to get the correct mixture. The Jet aperture being very large is not so apt to get choked as the ordinary Jet, but if it does get choked, it is a very simple matter to clean it out, by the simple expedient of putting the machine on the stand, shutting the Air Valve completely, opening the Jet to the full, and pedalling the Engine round, when the strong suction of the Jet will, in nine cases out of ten, suck all foreign matter through.

When fixing the Carburettor in position, it is necessary to have the Jet orifice facing the outlet from the Carburettor to the Engine. This Carburettor does not require tickling to start.

These Carburettors are fitted with our new pattern float chamber as described on page 8, and are made in two sizes, the larger one fitted with 3ft. 6in. Cables and rin. clip, and the smaller one fitted with 3ft. 3in. Cables and ⅞ in. clip. Extra lengths of Cables can be supplied if desired, and also ⅞ in., 1⅛ in., or 1 in. clips.

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### Two Stroke 1915 Carburetters.



#### VARIABLE JET MODEL (With Easy Starter).

COMPLETE  
AS ILLUSTRATED.

With 3ft. 3in. Cabling.

\*Extra length of Cable can be supplied at the rate of 1/- per double foot.

Type. Outlet. Code. Price.  
T.S.V. \* $\frac{1}{16}$  TSAR, 33/6

\* Can be supplied with 1in. Outlet to special order, or with  $\frac{3}{8}$ in liner if required.

#### SINGLE JET MODEL. Simple Construction but very efficient.

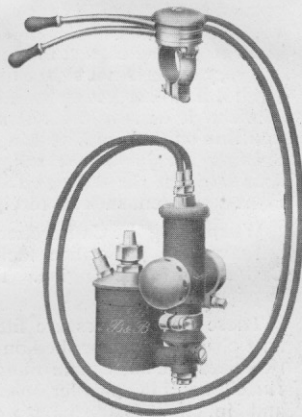
COMPLETE  
AS ILLUSTRATED.

With 3ft. 3in. Cabling.

Extra length of Cable can be supplied at the rate of 1/- per double foot.

Type. Outlet. Code. Price.  
T.O.D. \* $\frac{1}{16}$  TOTS 33/6

\* Can be supplied with 1in. Outlet to special order, or with  $\frac{3}{8}$ in. liner if required.



For Connections to suit above Carburetters, see page 20

TRADE *B & B* MARK

### Description of Two-Stroke Carburetter.

#### VARIABLE JET MODEL.

THIS Carburetter is very similar to the Carburetters described on pages 4 to 10, but is not quite so semi-automatic on two-stroke engines. The needle is set as standard at  $1\frac{1}{4}$ in. from the face of the valve, but can be varied to suit individual engines.

If lubrication is effected by the "PETROIL" method, it is usually necessary to raise the needle slightly.

#### SINGLE JET MODEL.

This Carburetter is identical with the Carburetters described on page 13, but is specially set to suit two-stroke engines.

If lubrication is effected by the "PETROIL" method, a larger jet should be used than with independent lubrication.

#### GENERAL REMARKS on TWO-STROKE ENGINES

Two engines of the same make may not behave exactly alike (unless the cylinder ports are accurate), and in this case, it is usually necessary to experiment with different sized jets (or needle setting) until satisfactory results are obtained.

Four-stroking at low speeds is primarily due to the position of the ports and the shape of the piston top, and is also due to the retention of exhaust gases in the cylinder, the cause of which is as follows—

Assume that the engine is being run with a fair amount of throttle opening, you will then have a charge being taken into the crank case and compressed. It is then transferred to the cylinder and again compressed and fired. The succeeding charge which is in the crank case being of the same volume as the previous one, is sufficient to displace the exhaust gases from the cylinder, consequently, the machine runs quite regularly. When these conditions are suddenly altered by closing down the throttle to a smaller opening, you then have a more

TRADE *B & B* MARK

or less full charge in the cylinder, which is fired, leaving the usual volume of exhaust gases, and the transfer from the crank case to the cylinder being a very much smaller charge than the previous one, does not displace the exhaust gases sufficiently, and consequently (although the charge itself is correct) it is mixed with a large volume of exhaust gas which immediately damps it out, and causes it to misfire.

Another small charge is taken and added to this in the next revolution, the two together then displace enough of the old exhaust gases to form a firing mixture in the cylinder, and it consequently ignites.

The next succeeding charge is again a small one and does not displace enough of the exhaust gases to cause a firing mixture, but the next one added to this again makes a firing mixture, with a result that with this small throttle opening you are apt to fire every other revolution instead of every revolution as intended. This is considerably modified by the speed at which the engine is running. If running quickly down a hill it is accentuated owing to the fact that the time which is given for the exhaust to clear away is very much less than if you are running slowly. When running slowly, it is comparatively easy to get perfectly regular firing, owing to the large amount of time given to clear away the exhaust gases. It is frequently found that when throttling down from the ordinary throttle opening to a small throttle opening, that by throwing the air wide open, two-stroking can be continued for a few revolutions, and after which there is a firing back into the Carburetter, the cause of this is that when excess of air is given, it partly compensates for the excess of the exhaust gases left in the cylinder, but these conditions only persist for one or two revolutions when the charge becomes too weak, and it becomes necessary to again close the air and so alter these conditions.

It should be remembered, that when opening the air valve to get the correct mixture, a certain amount of time should be allowed to elapse between the actual opening of the air valve and judging the result, as you have a gradually changing factor taking place between the compression of the crank case, and clearing out of the exhaust gases from the cylinder.

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TRADE *B & B* MARK

### The 1915 Lever Controlled Carburetters

THESE Models are particularly suitable for small Launch or Stationary Engines

(SINGLE JET),  
HORIZONTAL  
OUTLET.

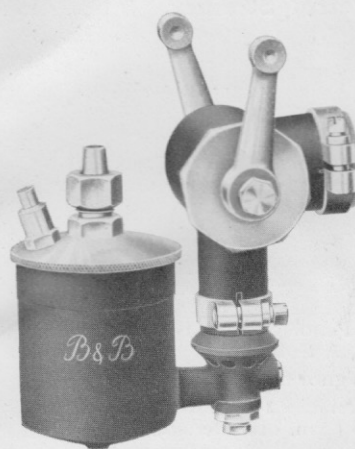
Registered No. 513,259

Type  
MU.

Effective Area of Outlet  
1 in. horizontal.

Code  
MUSIC.

PRICE  
29/-



(SINGLE JET),  
VERTICAL OUTLET

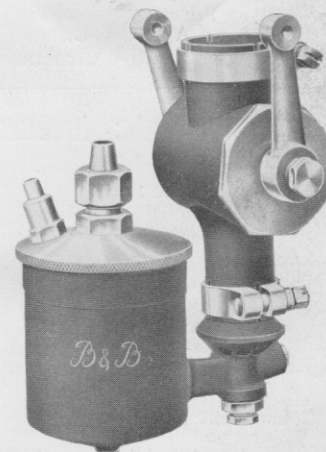
Registered No. 513,249

Type  
NU.

Effective Area of Outlet  
1 in. vertical.

Code  
NURSE.

PRICE  
29/-

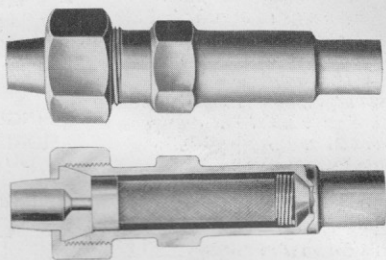


For Connections to suit above Carburetters, see page 20.

19

TRADE *B & B* MARK

**Petrol Strainer.**



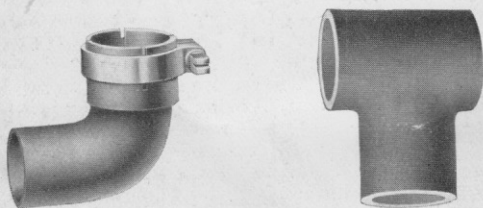
THE "B & B" Petrol Strainer is now supplied in two patterns, A & B

Pattern A is designed to solder into petrol pipe.

Pattern B is designed to screw directly on to the standard petrol tap ( $\frac{1}{8}$  in. diameter, 19 threads to the inch), as used on almost all the modern machines.

Pattern	Code	PRICE
A	CLEAN	2/6
B	STRAIN	2/6

**Connections.**



Connections to suit any type of Carburetter, 2/- each.

*When ordering, the type of Carburetter should be mentioned*

TRADE *B & B* MARK

**Jets in Cases.**

Suitable for  
1908, 1909, 1910, 1911,  
1912, 1913, and 1914  
SINGLE JET  
CARBURETTERS.

Complete Case with  
four sizes, 32, 33, 35  
36 Jets, 2/6 each.

Postage extra.

All other sizes to  
order.

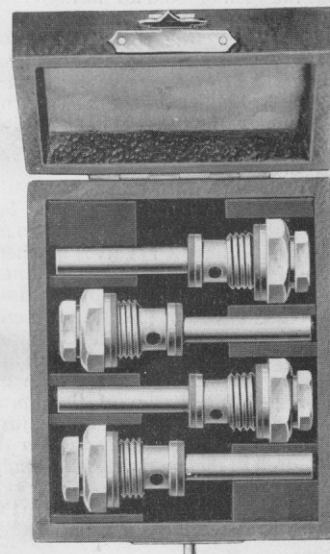


**Jets for 1915**

BOD., LOD., and  
TOD. TYPES,

OR RESTRICTED  
JETS  
FOR 1915 BSV.,  
LSV. and TSV.

3/6 per case.  
Postage extra.



### Hints and Tips for the Users of the B & B Carburetter.

WE submit the following suggestions which are primarily intended for a 4-cycle engine (as opposed to the two stroke) and we trust they will be found useful when checking over the Engine and Carburetter.

In the first place, the Carburetter should be placed as near to the Cylinder as possible. Where it is possible, for a twin engine, fix the Carburetter between the cylinders. This position has the advantage of simplicity and at the same time, the position recommended, provides the necessary warm air to run the engine at full power. All inlet pipe joints as well as the slots in the the Carburetter should be air tight, otherwise slow running will not be so good as it might be. It also prevents an accumulation of petrol which is apt to take place in an inlet pipe of any length, as the Carburetter is shielded from the rush of cold air at high speeds, which causes partial freezing and erratic running.

When fitting the Handle Bar Control, it should be arranged that there are no sharp bends in the cables from the top of the spraying chamber cap. Sharp bends are liable to fray the outer member of the cabling, and also render the inner cabling stiff in working.

The Petrol Pipe should be  $\frac{1}{4}$  in. diameter, as if smaller air locks are apt to take place.

The Control Cabling should not be any longer than is necessary, for if an excessive length is fitted, the loose cable is apt to sway, and so alter the position of the Throttle and Air Valves independent of the movement of the levers. The outer member of the cable should be clamped firmly to the frame wherever possible, so as to prevent this. It sometimes happens that although the Cables on a Carburetter are perfectly adjusted when sent out, that when fitted to the machine, probably the valves do not open or close fully. An adjusting bush on top of the Spraying Chamber is provided for the purposes of adjusting the valves in relation to the control levers *after* the Carburetter has been fitted to the machine. This adjustment is necessary when first fitting the Carburetter, owing to the fact that if many bends are placed in the cables, the valves

are apt to open independent of the movement of the levers. On the other hand, a perfectly straight cable allows the valves to go straight down, and will not allow them to open fully. The correct adjustment should be so that when the Throttle Lever and the Air Lever are in the closed position, the valves should be just closed and no more. If desired, a variation can be made from this, viz: the Throttle Valve can be adjusted so that it never quite closes, but just allows the engine to run slowly under no load.

It will sometimes be found that the Carburetter on a new machine stops or floods after the first few miles. This is generally caused by dirt, sawdust, brass filings, etc., running from the tank and connections down the pipe and into the float chamber, where it rests in the seating, and either chokes it up or keeps the needle from closing.

We recommend a Petrol Strainer between the tank and Carburetter (see page 20), but the gauze must be of ample area and not too fine, otherwise the slightest trace of dirt or lubricating oil in the petrol will immediately stop the flow.

Providing the Engine is in good order and the Carburetter correctly set, the results should be as follows—

With the Engine free and the extra air valve fully closed, and the Throttle a quarter open, the engine should start easily, and when running at full speed on a warm day should take three-quarters of the extra air. On a cold or wet day, a little less will be necessary. If the petrol level is tested (which can readily be done by removing the spray chamber), the petrol should appear level with the top of the Jet. No alteration from this should be attempted, as this is the only real position which will give good results at all speeds. Any variation from this only leads to erratic running.

#### Single and Twin Cylinder Machines.

NOTE—These notes should be read as being applied to Single Jet Carburetter, when Universal Type or Semi-Automatic Type is used, to fit smaller Jet signifies to close the Jet slightly or lower needle.

The following are a few questions we have been asked from time to time—

**Erratic Running.** 1. Engine runs all right slowly, but when put on full power, it falls off in speed after running for half-a-minute, gradually slow-

ing down, and then picks up again, no alteration being made either in the Carburetter or in the Engine.

This is probably due to partial freezing caused by the Carburetter being in an exposed position. The cure is to fit the Carburetter in such a position that warm air is drawn through it from the Cylinder. Other causes for this is dirt either in the tank, the petrol pipe, or in the Carburetter, or the tank being almost empty, causing an air lock in the petrol pipe, either of which cause erratic feeding of the petrol to the Carburetter. Partial freezing of the Carburetter is often indicated by the formation of moisture on the outside of the inlet pipe.

**Cannot take Full Throttle.** 2. Engine starts well but cannot get best results with the throttle fully open.

To get the Engine to respond to the full movement of the Throttle Valve, it is of course obvious that the area of the Inlet Pipe and the area exposed by the opening of the Inlet Valve should at least equal the area of the opening of the Carburetter. Otherwise the Carburetter will only respond up to such time as the two areas become equal. Any further movement is checked by the choking at the Inlet Valve.

**Difficult Starting with Single Jet Carburetter** 3. The Engine is difficult to start and will not take any extra air, and will not run slowly. If attributable to the Carburetter, this is due to the Jet being too small, fit a larger Jet. But it may also be due to (a)—The carbon brush in the Magneto fixed behind the Contact Breaker being stuck in its bush. (b)—(Most important). The gap between the contact points being too wide, caused by wear and want of adjustment. This gap should be kept at the minimum distance advised by the maker of the Magneto, generally about .02in. A wide gap almost invariably causes difficult starting. (c)—The points of the Contact Breaker itself becoming burnt or dirty. (d)—The accumulation of wet or dirt on the high tension terminal, causing shorting. This, of course, would mean erratic running at all speeds. (e)—Points of Sparking Plugs being too close. (f)—Absence of compression through leakage, in which case the remedy is obvious.

**No Extra Air.** 4. Engine runs and starts easily, but will not take any extra air, possibly also firing back into the Carburetter.

This is due to too small a Jet. The cure is to fit a Jet so large that at least half the available amount of extra air can be taken at full speed. In rare cases this may also be caused by a choked silencer, or by the Inlet Valve sticking in its guide.

**Want More Air.** 5. The Carburetter takes full air at moderate speeds and would take more if it were possible. This should not be confused by trying the Carburetter with the Throttle only partly open. The amount of extra air should always be gauged with the Throttle fully open, owing to the fact that the Throttle when partly closed, acts to some extent as an air valve as well. Otherwise this is due to too large a Jet or a dirty gauze screen.

**Mis-Firing.** 6. Engine missing fire when running—cannot take full air. Due to fault in ignition. The points on ignition are:—Wrong adjustment of the contact breaker on the magneto by opening too far or not opening enough, or the points being burnt. Contact breaker arm sticking. Defective Plug. Cracked Porcelain. Defective high tension wire. Shorting at some point between the Plug and Magneto. The machine having been stored in a damp place. The dampness having worked into the magneto. Sparking Plug points too close.

NOTE—With one exception only, no rapid changes can take place which are due to the Carburetter. Changes due to the Carburetter are only comparatively slow, when compared with the Engine speed. The only exception is a piece of grit floating about in the nozzle being sucked up, thus temporarily stopping the supply of petrol. If the Carburetter floods, this will cause mis-firing due to too rich a mixture, but in this case the air can be fully open.

**Over-Heating.** 7. Overheating of the Engine can be caused by having too large a Jet or by the Gauze Screen becoming choked with dirt. Either of these will give excess of petrol to the Engine

and cause overheating. If, however, the Engine gets hot, and when running full speed it will not take the whole of the extra air, it is not due to the Carburetter under these conditions. It may be due to any of the following points:—

Wrong timing of the Inlet or Exhaust Valve, or insufficient lift on the Valve. Late ignition. Pocketing of the Exhaust Valve. Partial choking the Exhaust Pipe or Silencer. Loss of compression. Too high compression, or the Engine being shielded from the air current. Too high a gear, making it necessary to have the Throttle well open and so give a rich mixture to get the power necessary (and incidentally to stop knocking), and last but not least, to the use of unsuitable lubricating oil.

**Knocking.** 8. Knocking of Engine on hills.

Probably occurs when overheating takes place, but this is aggravated by several other causes. (1)—Very high compression. (2)—Carbon deposit, either on top of the Piston or Combustion Chamber. (3)—Running with too high a gear. In 3-Speed Gear Machines the mistake is frequently made of keeping on top gear too long. The lower gears are there to be used and should be. (4)—Ignition too early. (5)—Sometimes caused by having the Sparking Plug Points too thin, which becomes incandescent and causes Automatic Ignition. (6)—Using unsuitable Lubricating Oil. Can generally be overcome by closing the Air Valve, if not, retard the spark. Fitting a larger Jet will sometimes cure it.

**Hunting.** 9. Irregular running (sometimes called hunting), when driving at high speeds.

This is sometimes attributable to the Valves not following the contour of the cams. If this is so, stronger or livelier springs will effect an improvement. This may also be caused by a weak spring on the Rocking Arm of the Magneto Contact Breaker, or in newer models by the Rocking Arm sticking in its Fibre Bush.

**Slow Running.** 10. To set the Carburetter to allow the Engine to tick over whilst free or whilst on the stand, the adjusting screw belonging to the Throttle on top of the Spraying Chamber

should be unscrewed, so that the Throttle Valve does not quite close. This allows one to set the Engine to run at its minimum speed with the Throttle in the fully closed position. The advantage of setting the Throttle like this is obvious, as once it is set one can always obtain the minimum opening of the Throttle at which the Engine will run, by simply moving both levers back to the fully closed position.

**Flooding.** 11. By this we mean continuous dripping of petrol from the Carburetter after the tap is turned on, and not that flooding which takes place when the Tickler has been depressed and the Float Chamber filled. In this latter case, it is obvious that the petrol has been allowed to flow in the Chamber up to a height greater than that in the Jet and consequently petrol will flow away from the Jet until such time as the petrol resumes its normal level, when it should cease. This sometimes takes two to three minutes. Flooding of the Carburetter can be caused by any of the following—

(a)—Leaky Float—a new one should be obtained as soon as possible. Do not attempt to solder up the old one, as to do so adds to its weight and upsets the petrol level, and results in increasing the petrol consumption. (b)—Dirt having accumulated in the Needle Seating preventing it closing—the Float Chamber should be occasionally cleaned out. (c)—Washers on Jet having cracked or perished, or Jet not tightened up. (d)—The Needle point having had excessive wear.

If the flooding is due to wear on the Needle Point, no attempt should be made to grind this in, as needles cannot be ground in. If an attempt is made to grind it in, it will only deepen the groove already formed around the point, which will make it impossible to stop the flooding. A new needle should be substituted, as these can always be obtained by return of post.

**Blowing Back.** 12. Blowing back of petrol through the extra air port of the Carburetter. (This should not be confused with the "rebound" which cannot be avoided).

This is generally due to late closing of the Inlet Valve,

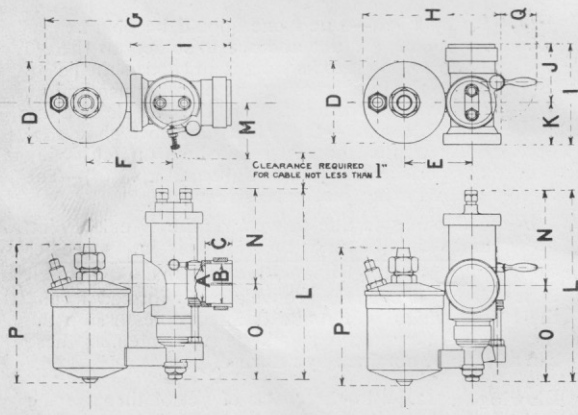


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which in the case of A.O.I.V. is either caused by too weak a spring or too much lift, or perhaps both. In the case of M.O.I.V. it is due to being timed slightly late, or valve sticking in its guide.

If an engine is very stiff when cold (usually due to the use of thick lubricating oil) and a difficulty is experienced in getting the engine over compression, a good tip is to inject a few drops of paraffin in the compression tap immediately at the end of a run. It will then be found, that when the engine has become cold, the piston is quite free and easy.

PRINCIPAL DIMENSIONS OF (1915)  
B & B CARBURETTORS.



See Table on opposite Page.

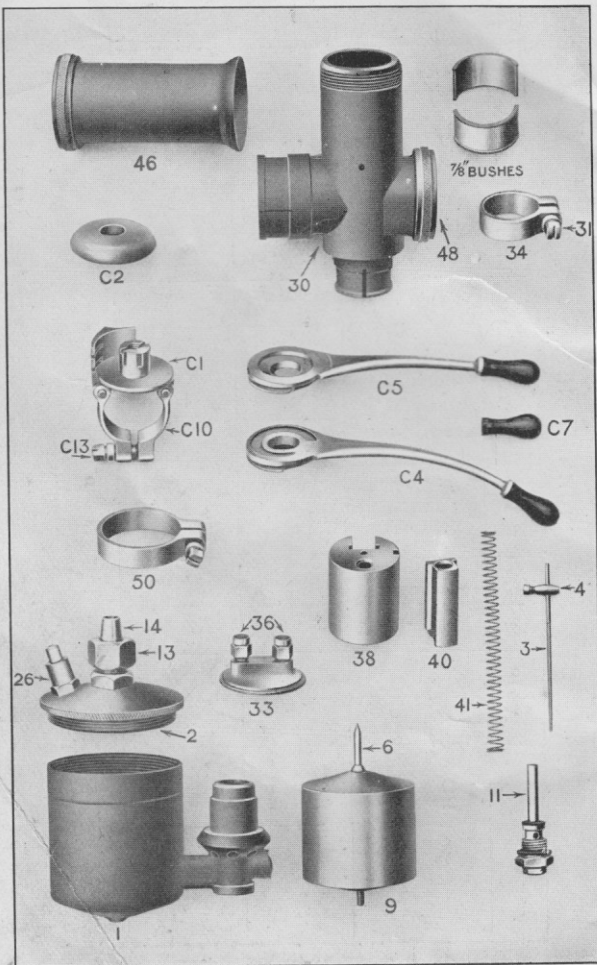
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Dimensions of B & B (1915) Carburetors.  
(INCHES ONLY).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Single Jet Models (BOD, LOD, TOD)	1	1 1/8	1	2 1/16	2	2 3/8	5 1/4	4	2 3/8	1 1/8	1 1/4	5 3/8	—	3	2 3/8	4	—
	2 3/8	1 1/8*	1	2	1 1/8	2 1/4	4 1/8	3 1/2	1 3/8	1 3/8	1 1/2	5 1/2	—	2 3/8	2 1/2	3 1/4	—
	1	1 1/8	1	2 1/16	2	2 3/8	5 1/4	4	2 3/8	1 1/8	1 1/4	5 3/8	—	3	2 3/8	4	1 1/8
Universal Models (BUC, LUC)	2 3/8	1 1/8*	1	2	1 1/8	2 1/4	4 1/8	3 1/2	1 3/8	1 3/8	1 1/2	5 1/2	—	2 3/8	2 1/2	3 1/4	—
	1	1 1/8	1	2 1/16	2	2 3/8	5 1/4	4	2 3/8	1 1/8	1 1/4	5 3/8	1 1/8	3	2 3/8	4	1 1/8
Semi-Automatic Variable Jet Models (BSV, LSV, TSV)	2 3/8	1 1/8*	1	2	1 1/8	2 1/4	4 1/8	3 1/2	1 3/8	1 3/8	1 1/2	5 1/2	1 1/8	2 3/8	2 1/2	3 1/4	1 1/8
	1	1 1/8	1	2 1/16	2	2 3/8	5 1/4	4	2 3/8	1 1/8	1 1/4	5 3/8	1 1/8	3	2 3/8	4	1 1/8
	2 3/8	1 1/8*	1	2	1 1/8	2 1/4	4 1/8	3 1/2	1 3/8	1 3/8	1 1/2	5 1/2	1 1/8	2 3/8	2 1/2	3 1/4	1 1/8

\* 3/16 in. Adapters can be supplied if required.  
† TSV, and TOD, Models can be supplied 1 in. to special order.

TRADE *B & B* MARK  
Spare Parts for B & B Carburettors.



TRADE *B & B* MARK

No.	PART	HEAVYWEIGHT AND LIGHTWEIGHT	
		s.	d.
1	Float Chamber Body	6	0
2	Float Chamber Cap	4	0
3	Taper Needles, BSV	1	0
4	Needle Holder, BSV	0	4
5	Needle and Collar	1	0
6	Float	1	6
11	Nozzle, 1915	1	0
12	Old Pattern Nozzle	0	9
13	Petrol Union Nut	0	6
14	Petrol Union	0	3
20	1/16 in. Stop Screw and Washer	0	2
26	Tickler complete	1	6
29	Spraying Chamber	5	0
30	Lock Pin	0	3
31	Adapters	0	6
32	Spraying Chamber Cap and Bushes	1	9
34	1/4 in. Lock Ring with Pin	1	3
36	Adjusting Bush (pair)	0	6
38	Throttle Valves, per pair	3	0
41	Valve Springs	1	0
47	Screw for Needle Holder, BSV	0	2
48	Dust Screen complete with Cap	2	0
49	Cap for Dust Screen (and Spraying Chamber Cap Ring)	1	6
50	Clip Ring, 1 1/4 in., and Bolt	1	6

CONTROL PARTS.

C1	Control Body, R.H., and Clip complete	2	6
C2	Control Cap	0	9
C3	Control Spring Washer	0	3
C4	Throttle Lever with Tip	2	0
C6	Air Lever with Tip...	2	0
C6	Division Plate	0	2
C7	Lever Tips	0	5
C8	Centre Screws	0	4
C10	Control Clips	0	8
C14	Roller for end of Cable, pair	0	2
C15	Nipple for end of Cable, pair	0	2

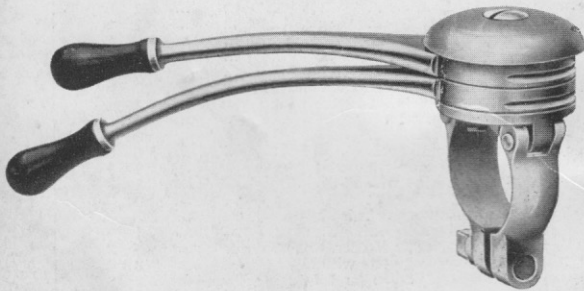
POSTAGE EXTRA.

When ordering Spare Parts, full particulars as to Type and Year of Make should be given, as the above prices only refer to 1915 makes unless otherwise stated.

TRADE *B & B* MARK

## HANDLE-BAR CONTROLS.

Right or Left Hand.



Two-Lever Control, as illustrated, complete with Clip (or Pin to go through Bar),  
8/- each.

One-Lever Control, complete with Clip (or Pin to go through Bar),  
6/- each.

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Cables can be fitted to either Control of any length desired, at the rate of 6d. per single foot extra.

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Is supplied to open to the right (our Standard Pattern), or can be supplied opening to the left, if desired.