To get started in first case—*continued.*

(6) Mount the machine and open up the throttle to about ¼ of its opening. If the machine gets away alright with the air shutter ¼ 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 ¼ 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.

(8) For normal running the carburettor should have the air valve about ¼ 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 ¼" below the top of the jet plate, therefore it 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 about the jet plate. This gives an initial rich mixture for starting.

(12) **The jets can be removed** by unscrewing 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 shorting one plug at a time with a wooden handled screw-driver.

Probable Jet Sizes.

Try one size above and below.

7.99 h.p. G1—				
Binks Carb. No. 269	Choke Bore 1⅛"	Pilot Jet 1	Main Jet 6	Spares 0, 2, 5.
7.99 h.p. G2 –				
Binks Carb. No. 269	Choke Bore 1⅛"	Pilot Jet 1	Main Jet 6	Spares 0, 2, 5.
3.49 h.p. S.V. G3—				
Binks Carb. No. 344	Choke Bore 1⅛"	Pilot Jet 1	Main Jet 6	Spares 0 & 5.
3.49 h.p. S.V. G4—				
Binks Carb. No. 344	Choke Bore 1⅛"	Pilot Jet 1	Main Jet 6	Spares 0 & 5.
3.49 h.p. S.V. G5—				
Binks Carb. No. 344	Choke Bore 1⅛"	Pilot Jet 1	Main Jet 6	Spares 0 & 5.
3.49 h.p. O.H.V. G6—				
Binks Carb. No. 338	Choke Bore 1"	Pilot Jet 2	Main Jet 8	Spares 1 & 7.

Other jets can be obtained upon application.

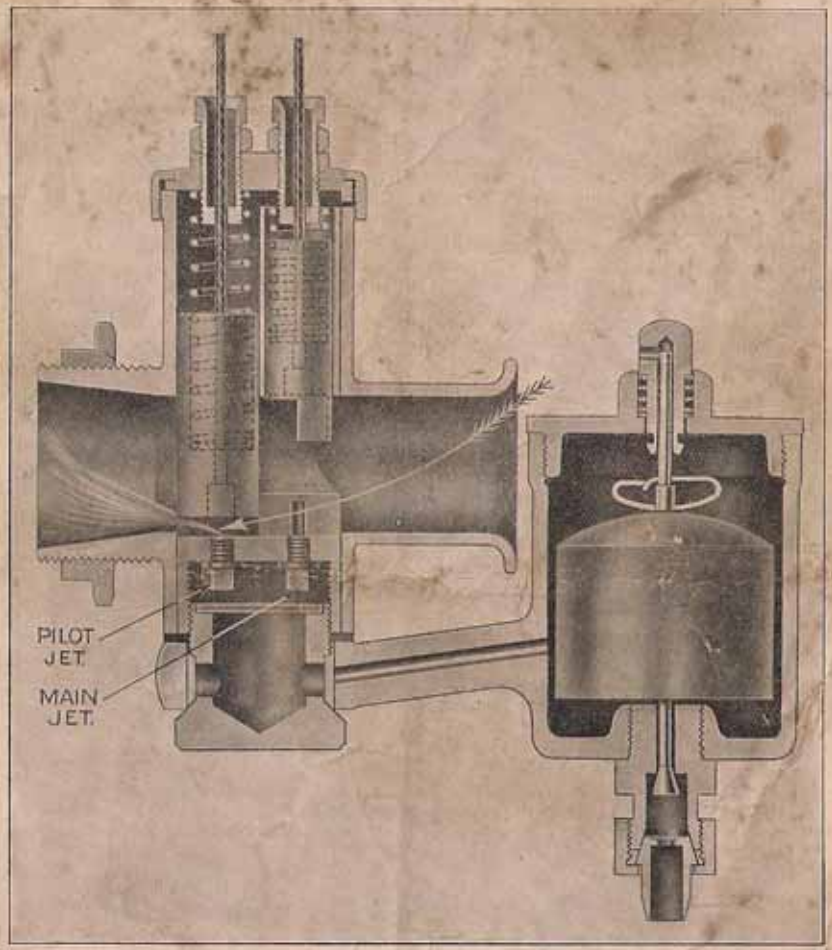
If there is a leak in the induction system use one size larger pilot jet—if you cannot stop the leak.

If Discol P.M.S. II is used on the G6 or G7 use Jets 2 and 18.

NOTE.—All float chambers now have bottom feed, and the lids can be tightened down with a spanner.

The carburettors on all machines except G1 & G2 7.99 h.p. screw direct into the cylinders, and are locked there by a nut. The float chamber can be removed without dismounting the carburettor, but if the body is to be removed first take out the controls by unscrewing the lock ring at the top of the barrel.

INSTRUCTIONS and DIAGRAM.



Binks —2 Jet— Semi-Automatic Carburettors

No. 269 for A.J.S. 7.99 h.p. Twin.
No. 344 „ „ 3.49 h.p. Side Valve.
No. 338 „ „ O.H.V.

Principle of the Carburettor.

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 a key-hole containing a plunger to vary its area, and this plunger is operated from the handlebar.

The two jets, having their orifices at the bottom instead of at the top, are of the non-spilling type and are very difficult to choke up. The outlet of the main jet is considerably above the petrol level, consequently its action is delayed until the pilot jet has effectually started the engine going.

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 slow 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. The pilot jet, however, is always in action if the engine is running.

Two suitable 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 atomized. 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 declutched.

Observations or Hints on Possible Faults.

(*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 same is petrol-logged.

See that the needle is not bent.

Never grind a needle into its seat with emery; run it in only with the finger and thumb.

To see the petrol level, unscrew the lid. The level should be just not up to the domed top of the float.

(*c*) **ENGINE WILL NOT START AFTER HAVING TRIED AIR LEVER SHUT AND HALF OPEN.**—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 ·028" 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 $\frac{1}{8}$", 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.

(*d*) **ENGINE STARTS AND WILL NOT RUN SLOWLY.**—Pilot jet may be too small, or there are air leaks in the 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 $\frac{1}{32}$" 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 $\frac{1}{4}$" 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 $\frac{1}{16}$", 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.

(*g*) **FUEL.**—Petrol, benzole, or any mixture of petrol and benzole may be used. Discol requires a main jet about six sizes larger.

Instructions for Tuning and Driving.

TO GET STARTED IN THE FIRST CASE:—

(1) Open the throttle about $\frac{1}{4}$" 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 $\frac{3}{4}$ wide open;** then get the engine to run as slowly as possible. If the engine runs on what is apparently too weak a 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 alone is about $\frac{1}{8}$" movement on the throttle. Whilst running with the throttle about $\frac{1}{4}$" 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 $\frac{1}{4}$ open, that is $\frac{3}{4}$ of its movement above the main jet, you can proceed to tune the main jet.