HINTS AND TIPS BOOKLET
No. 251.

CONTENTS.

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AMAL

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Amalgamated Carburetters Ltd.,

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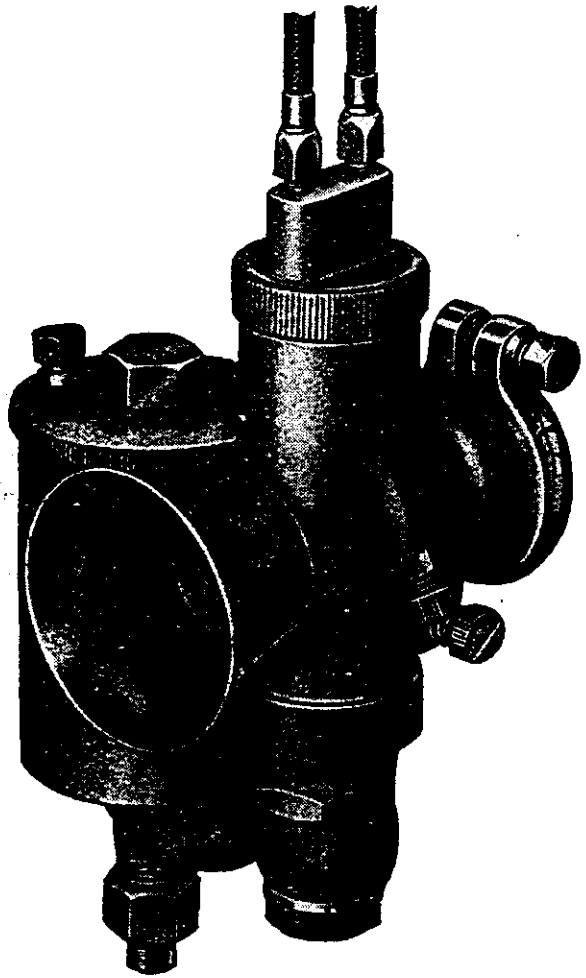


Outside view of AMAL Carburetter with Throttle Stop.

AMAL

CARBURETTERS for 1930

INTRODUCTION.

AMAL Carburetters for 1930 are being made in three distinct types, which will be as follows :

1—THE AMAL CARBURETTER.

This is an instrument with a needle controlled main jet similar to the 1928 AMAC Carburetter

2—THE BINKS CARBURETTER.

This is similar to the 1928 BINKS 2-jet Carburetter, but it has an improved form of construction.

3—THE AMAL TRACK RACING CARBURETTER.

It is the purpose of this Booklet to give Motor Cyclists general hints concerning Carburetter tuning, and full instructions with regard to the 1930 AMAL and BINKS Carburetters.

CARBURETTER TUNING (General).

1. **Select carburetter with correct choke size** by referring to our list of recommended sizes, which information covers all ordinary requirements (see pages 27 and 28).

Where a carburetter is required for exceptional conditions, such as Track Racing on alcohol fuels, or, to quote the other extreme, for stationary work, it is preferable to ask our advice.

2. **Determine Main Jet size.** Generally the sizes recommended in the list mentioned above will give satisfaction, but certain conditions necessitate a departure from standard; prominent among these we may mention excessive heat or cold, due to climatic conditions, or radical departures from standard practice in the design of the power unit.

In any case the correct size of main jet is readily determined. The air lever should be set three-quarters open, and a jet selected which gives the highest maximum speed or the most power on full throttle.

If maximum speed is the primary consideration, the jet size should be selected with the air lever fully open.

For touring conditions, to determine whether the jet is too large or too small, with throttle fully open, gradually close the air lever. If an increase in speed or power is noticeable, then the jet is on the small size. If, however, when the air lever is opened fully, a definite increase in speed or power is obtained, the jet is too large.

3. **Determine Pilot Jet Size and Set Throttle Stop for Slow Running.** On the AMAL Carburetter, the Pilot Jet is fixed, and it is unnecessary to attempt any alteration to this. The slow running or idling on the AMAL is regulated by the combined adjustment of the Throttle Stop Screw (T.S.) and the Pilot Air Adjusting Screw (*see illus.*).

On the BINKS Model a Pilot Jet must be selected which gives the desired "idling" of the engine when in "neutral," and at the same time enables a correct blend between the Pilot Jet and the Main Jet.

In connection with the foregoing, it is important to remember that the strength of the mixture can always be ascertained by the use of the Air Valve. With the Throttle in a definite position: if an increase in engine revolutions results from closing down the Air Valve, the mixture is weak; and if on opening the Air Valve the engine revolutions increase, then the mixture is rich.

Rich mixture."—General indications —heavy thumpy running, emission of black smoke from the exhaust, the inside of the carburetter becomes blackened, and as the throttle is opened, heavy "blow back" of fuel is observed from the carburetter air intake.

"*Weak mixture*"—difficult starting, tendency for the engine to fire back through the carburetter, indicated by blue flame from the carburetter air intake. Carburetter becomes sensitive to "drive," and constant use has to be made of the air lever, engine knocks readily and runs hot, with loss of power. The electrode of the sparking plugs shows indications of intense heat, and the mica insulation becomes white, polished exhaust pipes become rapidly blued.

(The above applies equally to the AMAL or the BINKS Carburetter).

FITTING CARBURETTER (General).

It is essential that the carburetter is fitted vertically, and with an air-tight union to the engine.

Petrol Pipes and Petrol Cocks. The Petrol Pipes and Cocks should have a minimum internal bore of $\frac{3}{16}$ in., and for racing purposes $\frac{1}{4}$ in. bore is necessary. Any bends in the petrol pipe must run in a downward direction.

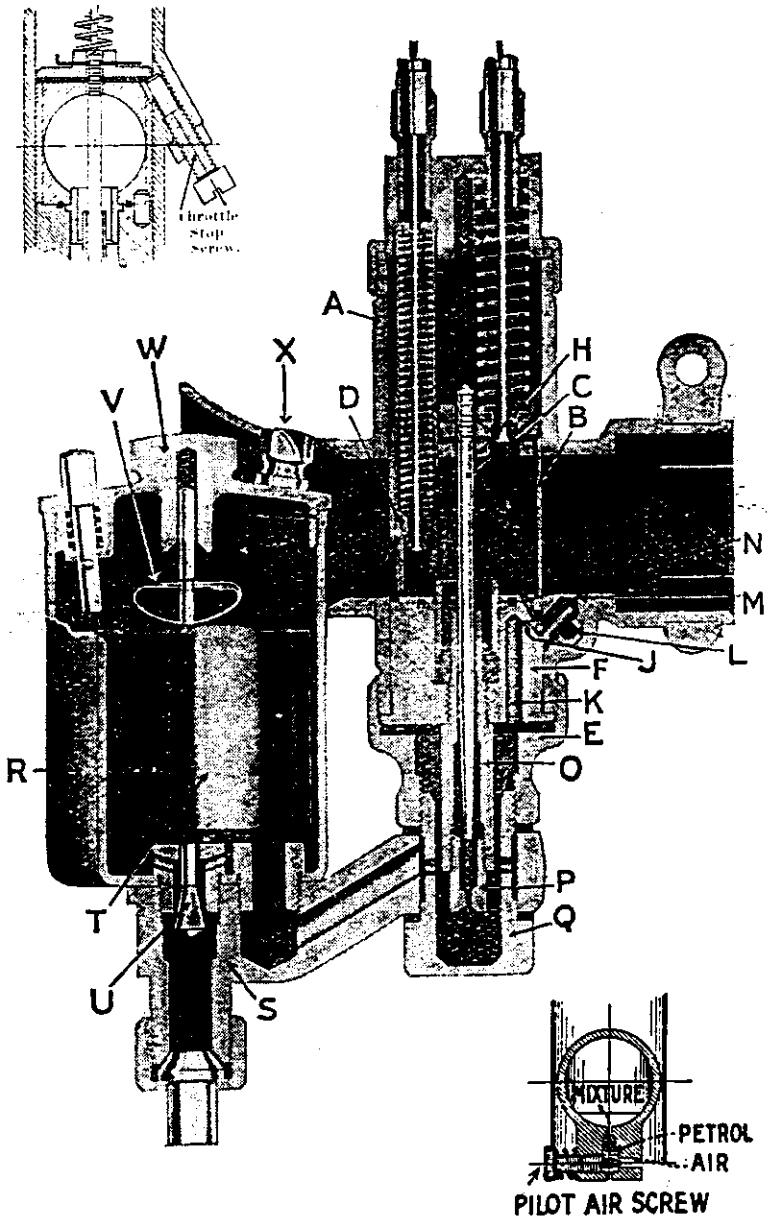
Controls. Cables must be fitted without acute bends, and care should be taken that the outer casing is not trapped between the moving parts of the spring fork mechanism, nor left loose to touch the sparking plug.

The Carburetter having been fitted and the cables *clipped in position*, any back-lash in the cables should be taken up by means of the adjusting screws on the mixing chamber top.

If the Throttle Valve fails to close completely, the Throttle Stop should be unscrewed until the valve seats, and again locked in position.

The final adjustment of the Stop Screw is dealt with in the instructions on tuning.

AMAL CARBURETTER (Section View).



THE AMAL CARBURETTEP 1930.

TYPES 4, 5 and 6.

General Description. The design of this instrument combines the well-known features of both AMAC and BROWN & BARLOW Carburetters. The shaped adaptor giving a clear gas passage of high volumetric efficiency is retained.

A constant mixture strength throughout the full range of the throttle valve is obtained by a well-known method of regulating the fuel supply by means of a suitably tapered needle adjustably attached to the throttle valve.

A metered jet is provided to regulate the maximum amount of fuel available at full throttle.

The idling system consists of Pilot Jet and By-pass, provision for adjusting the mixture being provided by the horizontal knurled screw on the mixing chamber side; the throttle stop screw providing a definite throttle opening for " idling " when the control lever is closed.

The Carburetter can be supplied with a Double or Single Lever Control, which may be cable operated, or for Stationary Engines attached direct to the Carburetter top. The Single Lever pattern is normally fitted with a hand-operated air valve for starting.

For standard Touring and Sports conditions, the Carburetter sizes in the tables on pages 27 and 28 will give every satisfaction, and for special conditions, such as racing, our advice is always available.

Construction of AMAL Carburetter. Referring to the Sectional Diagram, which shows the constructional arrangement, A is the Carburetter Body or Mixing Chamber, the upper part of which is fitted with Throttle Valve B, with Taper Needle C attached by Needle Clip.

The Throttle Valve regulates the quantity of mixture supplied to the Engine.

Passing through the Throttle Valve is the Air Valve D, independently operated and serving the purpose of obstructing the main air passage for " starting " and " mixture regulation."

Attached to the underside of the Mixing Chamber, by the Union Nut E, is the Jet Block F, and interposed between them a fibre washer to ensure a petrol-tight joint.

On the upper part of the Jet Block is the Adaptor Body H, forming a clean through-way.

Integral with the Jet Block is the Pilot Jet J, supplied through the Passage K.

The adjustable Pilot Air Intake L communicates with a chamber, from which issues the Pilot Outlet M and the By-pass N.

An adjusting screw (T.S.) is provided on the Mixing Chamber wall, by which the position of the Throttle Valve for "idling" is regulated independent of the cable adjustment.

The Needle Jet O is screwed in the underside of the Jet Block, and carries at its bottom end the Main Jet P. Both these Jets are removable when the Jet Plug Q, which bolts the Mixing Chamber and the Float Chamber together, is removed.

The Float Chamber, which can be supplied either Top or Bottom Feed, consists of a Cup R suitably mounted on a Platform S, containing the Float T and the Needle Valve U attached by the Clip V.

The Float Chamber Cover W has a Lock Screw X for security on the large Float Chamber only.

HOW THE AMAL CARBURETTER WORKS.

The Petrol Tap having been turned on, petrol will flow past the Needle Valve U until the quantity of petrol in the Chamber R is sufficient to raise the Float T, when the Needle Valve U will prevent a further supply entering the Float Chamber.

The action of the Float can readily be understood, for, as the quantity of fuel in the Float Chamber is used, the Float T will drop, carrying with it the Needle U, and admitting a further supply. Thus, automatically, the petrol level is kept constant.

In connection with the Float Chamber, it must be clearly understood that any alteration to our Standard Level can only have detrimental results.

The Float Chamber having filled to its correct level, fuel passes along the passages, through the diagonal holes in the Jet Plug Q, when it will be in communication with the Main Jet P and the Pilot Feed Hole K; the level in these Jets being, obviously, the same as that maintained in the Float Chamber.

Imagine the Throttle Valve B very slightly open. As the piston descends, a partial vacuum is created in the Carburetter, causing a rush of air through the Pilot Air Hole L and drawing fuel from the Pilot Jet J.

The mixture of air and fuel is admitted to the Engine through the Pilot Outlet M.

The quantity of mixture capable of being passed by the Pilot Outlet M is insufficient to run the Engine. This mixture also carries excess of fuel. Consequently, before a combustible mixture is admitted, Throttle Valve B must be slightly raised, admitting a further supply of air from the main air intake.

The further the Throttle Valve is opened, the less will be the depression on the Outlet M, but, in turn, a higher depression will be created on the By-pass N, and the Pilot mixture will flow from this passage as well as from the Outlet M.

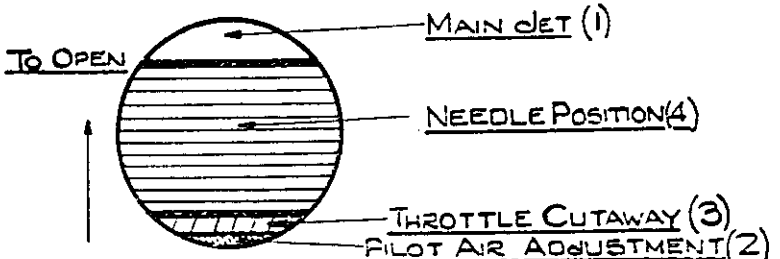
The mixture provided by the Pilot and By-pass system is supplemented at approximately $\frac{1}{8}$th throttle by fuel from the Main Jet system, the Throttle Valve cut-away governing the mixture strength from here to $\frac{1}{4}$-throttle. Proceeding up the throttle range, mixture control by the position of the needle takes place from $\frac{1}{4}$ to $\frac{3}{4}$-throttle, and thereafter the Main Jet is the only regulation.

The Air Valve D, which is cable-operated on the Two-Lever Carburetter and Hand-operated on the Single-Lever Carburetter, has the effect of obstructing the main through-way, and, in consequence, increasing the depression on the Main Jet, enriching the mixture.

TUNING THE AMAL CARBURETTER.

There are four ways in which the quality of the mixture supplied by an AMAL Carburetter can be varied, and these are given hereunder, in the order in which the adjustments should be made.

1. Main Jet ($\frac{3}{4}$ to full throttle).
2. Pilot Air Adjustment (closed to $\frac{1}{8}$th-throttle).
3. Throttle Valve Cut-away on the air intake side ($\frac{1}{8}$th to $\frac{1}{4}$-throttle).
4. Needle Position ($\frac{1}{4}$ to $\frac{3}{4}$-throttle).



RANGE & SEQUENCE OF ADJUSTMENTS
A.M.A.L. CARBURETTER.

The diagram on page . clearly indicates the part of the throttle range over which each adjustment is effective. The Carburetter having been carefully fitted as described on page 5, the general tuning can be carried out. The following sequence must be observed.

1. **Obtain Main Jet Size.** (see pages 27 and 28).
2. **Pilot Adjustment.**

To weaken slow running mixture screw pilot air adjuster outwards.
To enrich slow running mixture screw pilot air adjuster inwards.
Screw pilot air adjuster home in a clockwise direction.
Place gear lever in " neutral."
Slightly flood Float Chamber by gently depressing the Tickler until fuel can be observed overflowing from the Mixing Chamber.
Set Magneto half-advance, Throttle approximately $\frac{1}{8}$th open, close Air Lever, start the Engine and warm up.
After warming up, reduce the Engine revolutions by gently closing the Throttle. The slow running mixture will prove too rich unless air leaks are present.
Very gradually unscrew the Pilot Air adjuster.
The engine speed will increase and must be again reduced by gently closing the Throttle until, by a combination of Throttle positions and Air adjustment, the desired "idling" is secured.
It is sometimes necessary to retard fully the magneto before good " idling " results, particularly when the magneto runs at engine speed, or when excessive valve overlap and very early ignition timing is employed.
Throttle Stop. If it is desired that the engine should continue " idling " with the throttle lever closed, the position of the throttle valve must be set by means of the Throttle Stop Screw TS, the Throttle Lever being in the " closed position " during this adjustment. Alternatively, if the screw TS is adjusted clear of the Throttle Valve, the engine will shut off in the normal way by the control lever.
Do not take the Throttle Stop Screw out completely.
Failure to secure good " idling " will probably be traced to one of the following causes :—
Air Leaks at the junction of the Carburetter and Engine, or through the Valve Guide, due to worn inlet valve stem and guide.
Faulty Inlet and Exhaust Valve seatings.
Sparking Plug. Points too close. Try a gap .025 in.
Sparking Plug oily.
Too much Ignition Advance.
Magneto. Contacts dirty or too close.
Examine Contact Breaker.

Examine Slip Ring for oil.
Examine for Carbon Brush jamming in hold or glazed on contact face.
Examine for fractured Brush Holder.
Examine for High Tension Cables for shorting.
Magneto Insulation may be broken down, or the interior mechanism wet.

3. **Throttle Valve Cut-away.** (see diagram on page 9).
Given satisfactory " idling," set the Magneto Control at half-advance, Air Lever fully open.
Very slowly open the Throttle Valve, when, if the Engine responds regularly up to one-quarter throttle, the Valve Cut-away is correct.
A weak mixture is indicated by spitting back through the Air Intake, with blue flames, hesitation in picking up, which disappears when the Air Lever is closed down, and this can be remedied by fitting a Throttle Valve with less cut-away.
A rich mixture is shown by black smoke from the Exhaust. Engine stops, or nearly stops, when the Air Valve is closed. The remedy for this is a Throttle Valve with more cut-away.
Each AMAL Valve is stamped with two numbers, the first indicating the Type No. of the Carburetter, and the second figure the amount of cut-away on the intake side of the valve in sixteenths of an inch.
Thus :—6/4 is a Type 6 Valve with 4/16 in. or $\frac{1}{4}$ in. cut-away.
The standard valve for Single Cylinder Engines is No. 5, and for Multi-cylinder Engines, No. 4.

4. **Needle Position.**
Air full open.
Open the Throttle half-way.
Note if the Exhaust is crisp and the Engine lively.
Close Air Valve slightly below throttle, exhaust Note and Engine Speed should then remain practically unaltered.
Weak mixture. Raise needle in Throttle Valve, IF—Popping back and spitting occur with blue flames from Carburetter Intake.
Test by lowering Air Valve gently. Engine revolutions will rise when Air Valve is lowered slightly below the Throttle Valve.
Rich Mixture. Lower Needle in Throttle Valve, IF—Engine speed does not increase progressively as the Throttle is raised ; Smoky Exhaust and heavy laboured running ; On closing Air Valve slightly below Throttle Valve, tendency to mis-fire and eight-stroke is present.

The normal needle setting with the Needle Clip in No. 3 groove.

Having found the correct Needle position, the Carburetter Setting is now complete, and it will be found that the driving is practically automatic once the Engine is warmed up.

For a Semi-automatic Setting, where extreme economy is desired, lower the Needle one groove further after carrying out this range of tests.

For **Speed Work** the Main Jet may be increased by 10%, when the Air Lever should be fully open when on full Throttle.

AIR FILTERS.

For touring we strongly recommend the fitting of an AMAL Air Filter, when it will be found that the Main Jet size may be advantageously reduced by 10, 15 or 20%. The former figure applying to Type 4 Carburetters, the middle to Type 5, and the latter to Type 6 Carburetters. Exactly the same procedure for checking the mixture as detailed above can be carried out when the Air Filter is fitted, if any doubt exists in the customer's mind.

NOTE.—*Modification to Carburetter Settings as supplied to Manufacturers of Motor Cycles is inadvisable unless the Machine is required for some special purpose.*

SINGLE LEVER.

The Single Lever Automatic Carburetter is of exactly the same general design, but the Air Valve is operated by a Rod Control fitted in the Mixing Chamber Top.

There are two positions for this Valve: "Closed" for starting, and "Fully Open" for all general running.

Exactly the same tuning instructions apply for both the Single and Double-Lever Carburetter.

CONSUMPTIONS.

The following consumption figures should be readily obtained under *average touring conditions*, provided the power unit is in sound mechanical condition, the gear ratio normal and the cycle parts are without undue friction.

Engine Capacity	SOLO		SIDE-CA...	
	Gear Ratio	m.p.g.	Gear Ratio	m.p.g.
250 cc.	6/1	95-100	—	—
350 cc.	5.5/1	85-90	6/1	70
500 c.c	5/1	80-85	5.5/1	65-70
600 cc.	4.7/1	70-80	5.5/1	60-65
750 cc. Twin	—	—	5.5/1	55-60
1000 cc. Twin	4/1	55-60	5/1	50-55

These figures are approximately correct for an average road speed of 30 m.p.h.

MAINTENANCE OF THE AMAL CARBURETTER.

Periodical cleaning is necessary to maintain efficient functioning of the Carburetter, and should be carried out in the following sequence :—

1. Disconnect petrol pipe.
2. Unscrew holding bolt Q, and remove Float Chamber complete.
3. With box or set spanner slacken the Mixing Chamber Union Nut E.
4. Mixing Chamber complete may now be removed from Engine, either by unscrewing the clip pin, if outlet, or the bolts if flange fitting.
5. Unscrew Mixing Chamber Lock Ring, and pull out Throttle Valve Needle and Air Valve.
   Remove Main Jet P and Needle Jet O.
6. Mixing Chamber Union Nut E may then be removed and Jet Block complete pushed out. If this is obstinate tap gently, using a wooden stump inside the Mixing Chamber.
7. Unscrew Float Chamber Cover W and slacken Lock Screw X.
8. Withdraw the Float by pinching the Clip V inwards, and at the same time pull gently upwards.
9. Generally it is sufficient to wash all the parts in clean petrol, but if the Carburetter has had extended service, check the following :—

(*a*). Float Chamber Needle U. If a distinct shoulder is visible on the point of seating, renew this as soon as convenient.

(*b*) Throttle Valve. .est in Mixing Chamber, and if excessive play is present it is advisable to renew this without delay.

(*c*) Throttle Needle Clip. This part must securely grip needle. **Free rotation must not take place,** otherwise the needle groove will become worn and necessitate a new part being fitted.

Be sure to refit the clip in the same groove.

(*d*) Jet Block. If trouble has been experienced with erratic "idling," ascertain by means of a fine bristle that the Pilot Jet J is clear, and that the Pilot Outlet M in the Mixing Chamber is unobstructed.

To Re-assemble. 1. Re-fit Jet Block F with washer on underside, and screw on lightly Mixing Chamber Union Nut E. Screw in Needle Jet O and Main Jet P.

2. Open Air Lever $\frac{7}{8}$ in., Throttle Lever half-way, grasp the Air Slide between the thumb and the finger, *make sure that the needle enters the central hole in the adaptor top.*

Slightly twist the Throttle Valve until it enters the adaptor guide, when on pushing down the valves the Air Valve should enter its guide.

If not, slightly move the Mixing Chamber top, when the Air Valve will slide into place.

Screw on Mixing Chamber Lock-nut.

No brute force is necessary.

3. Attach Carburetter to the cylinder, pushing right home, and examine washer if flange fitting.

Insert Holding Bolt Q, and thoroughly tighten Union Nut E by means of a fixed spanner.

4. Re-fit Float and Needle, holding the needle head against its seating by means of a pencil until the Float and the Clip V are slipped into position.

Make sure that the Clip enters the groove provided. Screw on the Cover tightly and lock in position by means of the Lock Screw X.

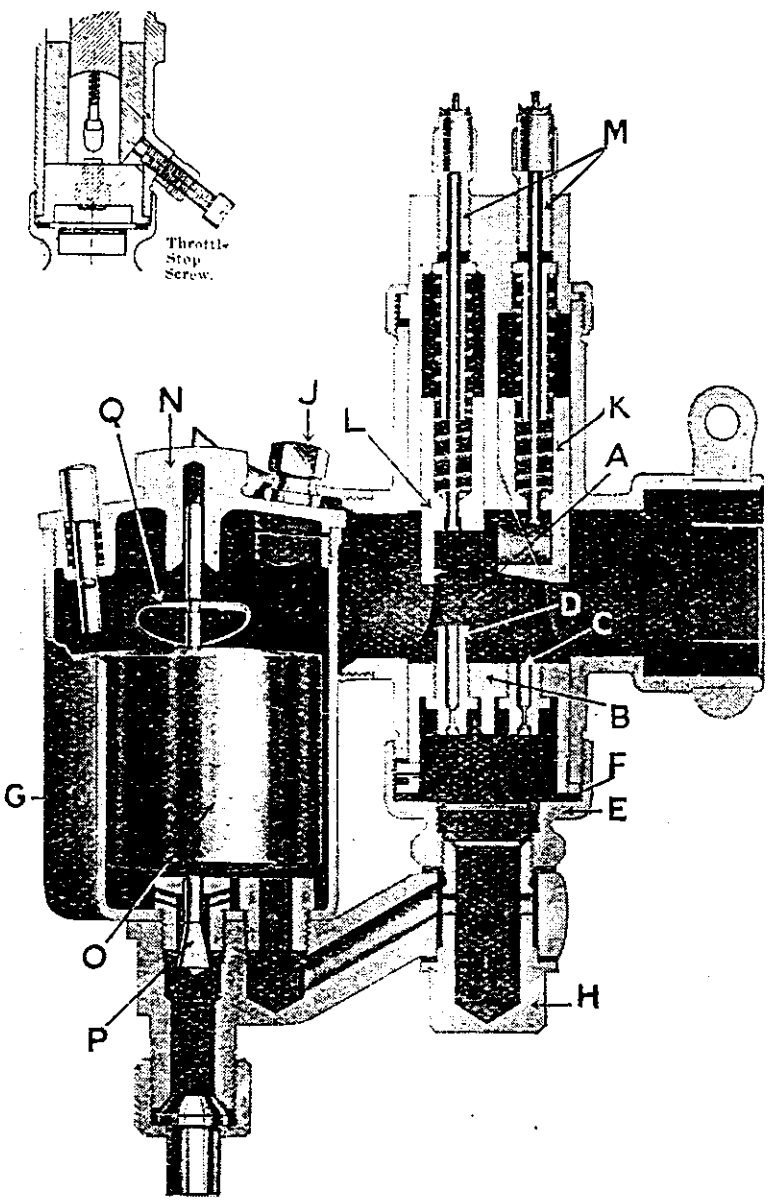
5. Fit holding bolt in Float Chamber with one washer above and one below the lug.

Screw holding bolt into Mixing Chamber and lock securely.

6. Clean Petrol Pipe and Filter if fitted, and replace.

7. It will be necessary to re-check the Pilot setting if this has been disturbed.

BINKS CARBURETTER (Section view).



THE BINKS CARBURETTER, 1930.
TYPES 47, 48 and 49.

The BINKS Carburetters, while modified in design for the 1930 season to improve the construction, still retain the original BINKS' characteristics. Prominent among these we may mention—simplicity, reliability, and ease of tuning. The Carburetter also combines the excellent qualities of being eminently suitable for touring, sports, and racing conditions.

The Carburetter is a Two-jet Pattern, as we have found all possible conditions can be met by a suitable arrangement of two jets only.

The **Pilot Jet** regulates the mixture strength for " idling " and slow running.

The Main Jet, which is the longer of the two, and situated on the Air Intake Side, comes into action when unmasked by the Throttle Valve, and in conjunction with the Throttle Valve cut-away regulates the mixture up to full throttle.

The Carburetter can be supplied with Double or Single Lever Control, which may be Cable operated, or, for Stationary Engines, attached direct to the Carburetter Top.

The Double Lever Carburetter is fitted with Handlebar Control to the Air Valve for starting and mixture regulation, and the Single Lever Pattern is normally fitted with an Air Valve controlled by a rod on the Mixing Chamber Top.

For standard touring and sports conditions the Carburetter Sizes in the tables on page 27 will give every satisfaction ; while for special conditions, such as racing, our advice is always available.

BINKS CONSTRUCTION.

Referring to the Sectional Diagram which illustrates the constructional arrangement, A is the Carburetter Body (or Mixing Chamber), to the underside of which is attached by the Union Nut E the Jet Block B, a Fibre Washer F being interposed between them to ensure a petrol-tight joint.

A fine gauze filter is fitted in the Union Nut E, effectively protecting the Jets from obstruction.

Screwed into the Jet Block are the Pilot Jet C and the Main Jet D.

The upper portion of the Mixing Chamber carries the Throttle Valve K, which regulates the quantity of mixture supplied to the Engine and the Air Valve L to give easy starting and mixture control.

A Throttle Stop Screw T.S. is fitted in the Mixing Chamber wall by which *the position of the Throttle Valve for "idling"* can be regulated, independent of the cable adjustment, so as to enable the engine to continue ticking over when the Throttle Lever is closed.

The Jet Plug H secures the Carburetter Body to the Float Chamber G, which can be supplied with either Top or Bottom Feed.

The Needle Valve P is positively attached to the Float O by means of the Clip Q.

The Float Chamber Cover N has a Lock Screw J for security on the large Float Chamber only.

BINKS CARBURETTER.
How it Works.

The petrol tap having been turned on, petrol will flow past the Needle Valve P until the quantity of petrol in the Float Chamber G is sufficient to raise the Float O, when the Needle Valve P will prevent a further supply entering the Float Chamber.

The action of the Float can readily be understood, for, as the quantity of fuel in the Float Chamber is used, the Float O will drop, carrying with it the Needle P, and admitting a further supply.

Thus, automatically, the petrol level is kept constant.

In connection with the Float Chamber, it must be clearly understood that any alteration to our standard level can only have detrimental results.

The Float Chamber having filled to its correct level, the fuel passes along the passages through the diagonal holes in the Jet Plug H, when it will be in communication with the Main Jet D and the Pilot Jet C, the level in these Jets being, obviously, the same as that maintained in the Float Chamber.

Imagine the Throttle Valve K very slightly open. As the piston descends, a partial vacuum is created in the Carburetter, causing a rush of air through the through-way A, and drawing fuel from the Pilot Jet C. The Pilot Jet, being situated immediately beneath the base of the Throttle Valve, is subjected to a heavy depression, so as to obtain the necessary mixture for " Idling " and small loads.

In the case of the Main Jet D, which is the longer of the two, and situated near the Carburetter Air Intake, at small throttle openings it is inoperative, and the mixture is governed entirely by the size of the Pilot Jet.

The Throttle K being almost closed, it will be seen that the Pilot Jet C is situated in an extremely restricted area.

In consequence, the passage of the air from the main through-way will be restricted, and at the same time a high depression will exist on the Pilot C. At this position of the Throttle, it will readily be seen that not only is the Main Jet D shrouded by the Throttle Valve, but also the area of the Mixing Chamber in which it is housed is infinitely bigger than the area of the through-way exposed to the suction of the Engine, in consequence of which no fuel is drawn from the Main Jet.

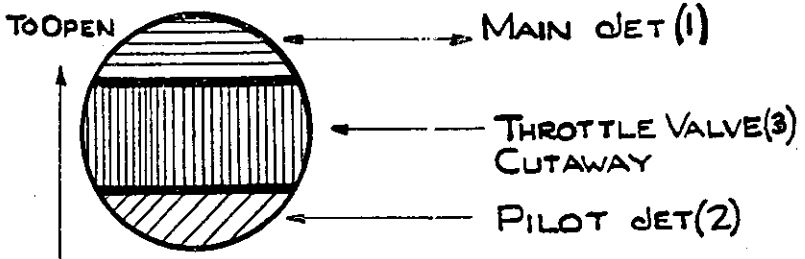
As the Throttle Valve K is raised, the area immediately above the Pilot Jet C is increased, and in consequence the suction or depression on this Jet diminishes, and at the same time increases on the Main Jet, so a balance between the two Jets is obtained throughout the whole range.

TUNING THE BINKS CARBURETTER.

Assuming the correct size of Carburetter has been fitted according to instructions on page 4, there are three ways in which the quality of the mixture can be varied on the 1930 BINKS Carburetter, and these are given hereunder in the order in which the adjustments should be made.

1. Main Jet (affects the mixture from ⅛ in. to full throttle).
2. Pilot Jet (affects the mixture from closed to ¼ throttle).
3. Throttle Valve Cut-away (affects mixture from ¼ to ⅛-throttle).

The following diagram clearly indicates the part of the throttle range over which each adjustment is effective.



RANGE & SEQUENCE OF ADJUSTMENTS BINKS CARBURETTER.

1. **Main Jet.** The selection of the correct Main Jet is dealt with on the opening page of our Booklet under "General Carburetter Tuning," and it will be noted that for touring conditions we advise this to be obtained with the Air Lever three-quarter open.

2. **Pilot Jet.** This affects "slow running" and slow pulling only, and the smallest size should be selected which gives the best "Idling." At the same time, care must be taken not to reduce the size of the Pilot Jet unduly, otherwise difficulty will be experienced in obtaining a correct blend with the Main Jet.

Blend of Main and Pilot. If any trouble is experienced due to a weak spot between the Pilot and Main Jet, it can usually be cured by increasing the Pilot Jet one size.

3. **Throttle Valve Cut-away.** Richness at ⅜ to ½ throttle can be rectified by fitting a Throttle Valve Cut-away on the Air Intake side. The standard cut-aways are from "O," which is flat bottom, to No. 5, which is cut away 5/16in.

Starting Up. With a *cold Engine*, depress the Carburetter Tickler, close Air Valve, open Throttle about one-eighth, ignition about three-quarter advanced, when, if the ignition system is in good order, no difficulty should be experienced in obtaining an "easy start."

With a *warm Engine* it is unnecessary to flood Carburetter, but the Air Lever should be closed.

If the Float Chamber is unduly flooded, excessive richness of mixture will prevent the Engine starting. Open Throttle fully and revolve Engine smartly until excess of fuel is exhausted; then proceed as before, without again flooding.

MAINTENANCE OF THE BINKS CARBURETTER.

The Float Chamber should be periodically cleaned out, having previously been detached from the Carburetter by unscrewing the Jet Plug H.

Unscrew the Locknut J, when the Float Chamber Cover N will be detached. By pressing the Bow Clip Q gently inwards, at the same time pulling upwards, the Float can be withdrawn from the Chamber.

Any sediment which may have collected in the bottom of the Chamber should be removed, and the Float Needle P and its seating carefully cleaned. On replacing the Float, make sure that the Clip Q is fitted in the groove in the Needle provided for it.

Obstruction of the Jets is not likely to occur, as a Filter is fitted on the upper side of the Union Nut E, which can be readily removed. The Filter should then be detached and thoroughly swilled out in petrol.

The Jet Block B is a push fit in the Carburetter Body, and can be removed, as well as both the Pilot Jet C and the Main Jet D, which are screwed into the latter.

The Throttle and Air Valves K and L are removable on unscrewing the knurled ring holding the Mixing Chamber Top into position.

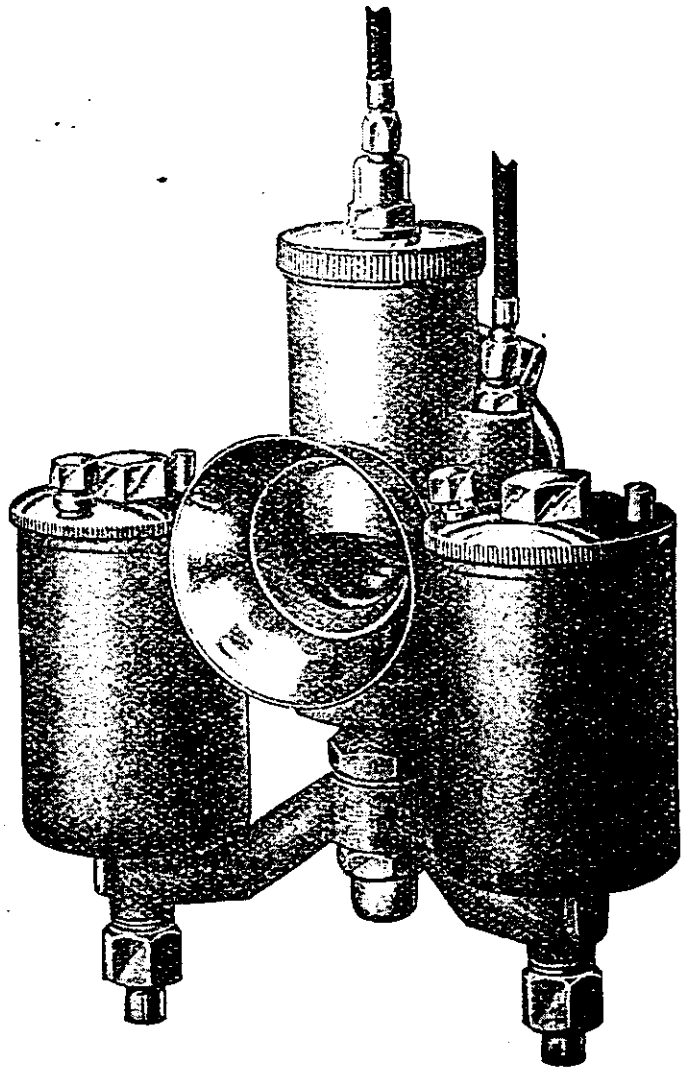
Apart from keeping these Valves clean, no further attention should be necessary to this part of the Carburetter.

NOTE.—It is important, when ordering Spare Parts, that the number stamped on the Mixing Chamber side is quoted. 1929 BINKS Jets are not interchangeable with those of other years.

1930 *BINKS parts are not interchangeable with* 1929 *pattern, with the following exceptions* :—

Jets, Float Chambers, Holding Bolts, all Fibre Washers, Mixing Chamber Cap, Throttle Valve Springs.

THE AMAL TRACK RACING CARBURETTER.



AMAL TRACK RACING CARBURETTER.

General Description. This Carburetter has been primarily designed to meet the conditions imposed by track racing and the use of alcohol fuels, but it will at the same time give very excellent results when used with petrol and petrol-benzole mixtures. It is of the plain jet pattern, and incorporates a pilot and by-pass to ensure easy starting.
The through-way is unobstructed, and designed to allow the highest possible volumetric efficiency.
An air valve situated on the side of the Carburetter Body affords ample means of regulating the mixture strength without causing any obstruction to the main gas passage, and will be found invaluable for tuning and for correcting the mixture strength due to variations in altitude or climatic conditions.
A table of approximate choke sizes for engines of varying capacities and of jet sizes for petrol and alcohol fuels is shewn on page 23.

TUNING THE AMAL TRACK RACING CARBURETTER.

1. **Select Main Jet Size** which gives maximum power and speed with the air and throttle full open. The correct size is readily found by the use of the air lever.
If when this is closed half-way an increase in power is obtained, the jet is too small.
Loss of power on closing the air slightly is an indication of too large a jet.
The condition of the sparking plug should be carefully observed each time a trial is made: A dry baked appearance is an indication of weak mixture, or, alternatively, of an unsuitable grade of plug.
Fifty per cent. increase in mixture strength is obtainable by means of the air control, thus—if intelligent use is made of this, there is no chance of " cooking " the engine due to weak mixture.

2. **"Idling" and Slow Running** is governed by a knurled screw on the mixing chamber side, which regulates the amount of air supplied to the pilot and by-pass jet. Normally, for petrol fuel it should be unscrewed two and a half turns, and for alcohol, half a turn.
If the " idling " is weakened unduly, it is possible a weak spot on the by-pass will be experienced.
This will make a clean pick up and good acceleration impossible, therefore, set the " idling " as rich as possible but maintaining good even four-stroking of the engine.

Intermediate Running. From one-eighth to three-quarter throttle is governed by the throttle cut-away, which is indicated by a number stamped on the valve top.
A No. 9 valve has $\frac{9}{16}$ in. cut-away, and a No. 11 $\frac{11}{16}$ in., and so on. The greater the valve cut-away, the weaker will the mixture be, but remember this has no effect on full throttle.
A No. 12 valve is the normal size for all types of carburetters, but due to variation in valve timing and engine design, this can sometimes be varied, giving improved acceleration.
Any hesitation and tendency to fire back through the carburetter is an indication that less cut-away should be used.
Heavy thumpy running indicates that more cut-away is necessary.
It is unnecessary to alter the valve cut-away when changing from petrol to discol.
We recommend the use of twin float chambers with alcohol fuels on engines of 350 c.c. and upwards. Fuel pipes should not be less than $\frac{1}{4}$ in. inside diameter.
Care should be taken to see that the pipe line runs in a downward direction, as if continued in a horizontal plane air locks will be formed.

APPROX. CHOKES AND SETTINGS. FOUR-STROKE O.H.V.

Engine.	Carb. Type No.	Type No. denoting Bore Size	Bore	Valve	JET. P.M.S.2 Petrol	JET. P.M.S.2 R.D.2	JET. P.M.S.2 R.D.1
150	26	36	.81"	12	140	220	260
175	26	42	.875"	12	160	260	300
250	26	43	.937"	12	200	325	350
350	26	55	1.0"	12	240	400	450
	27	62	1.06"	12	280	450	500
500	27	67	1.12"	12	325	500	600
	27	75	1.18"	12	350	550	650
600	27	83	1.25"	12	400	650	700

In the case of Multi-cylinder Engines, take capacity of one cylinder.

TWO-STROKE NOTES.

The AMAL and BINKS ranges comprise a wide selection of Carburetters suitable for Two-stroke Engines.

While the needle type will generally give every satisfaction, in some instances the BINKS Two-jet pattern has proved preferable, and many two-stroke riders prefer this pattern in view of the simplicity of tuning.

Classification. Classification of settings is impossible in the case of Two-stroke Engines, due to variations in design affecting efficiency. Generally, the more efficient the engine, the larger the bore required. We are always willing to advise on the choice of a suitable instrument, but we must have details of : Number of cylinders, bore, stroke, maximum r.p.m., inside and outside diameter of induction stub, if clip fitting, and, if flange-profile, bolt centres and diameters and port size.

Tuning. The principles of carburetter tuning as detailed for Four-strokes apply also to carburetter regulation for Two-stroke Engines. Particular attention must, however, be given to the following points :

1. **Consumption.** This is generally slightly inferior to that obtained on a four-stroke of equivalent capacity, but depends entirely on engine efficiency.

2. **Jet Size.** Compared with the four-stroke, the two-stroke engine of similar capacity requires a reduction of from 10 to 20 per cent in jet size when using the same bore carburetter. In the case of the AMAL this applies to the Main Jet only, but to both Main and Pilots on the BINKS.

3. **Touring Conditions.** The use of a back cap on the air intake is advisable, as this obviates some of the fuel waste due to blow-back.

Where maximum speed is desired an air funnel should be used, as this gives the highest volumetric efficiency.

4. **Four-stroking.** This is invariably caused either by rich mixture or excess of oil. If the latter is present it is impossible to obtain good two-stroking.

The sparking plug points must not be set too close, a .025 in. is a good average gap.

5. When **Petroil Lubrication** is used, it is advisable to turn off the petrol tap 100 yards or so before the machine is stopped, in order to empty the float chamber. If this is not done, when the machine is left standing, evaporation of the petrol takes place, leaving a heavy oil deposit, which tends to clog the jets and cause difficult starting.

The size of the jet must obviously be increased when petroil lubrication is used.

The normal petrol proportion is from 10 to 1 to 15 to 1, but this to a large extent depends upon the purpose for which the machine is used and the speed at which it is driven.

6. A Two-stroke Engine necessitates the use of a first-class sparking plug. Frequently so-called " overheating " is due to pre-ignition caused by incandescent plug points.

7. With a **Cold Engine** the carburetter should be driven with the air lever partially closed and maintained in this position until the engine is thoroughly warmed up. This is due to condensation of fuels which occurs when the crank case is cold.

8. **Starting.** Remember when starting from cold that the crank case must first be charged, and to do this it is necessary to revolve the engine several times. Do not confuse difficult starting due to faulty or oiled plugs and defective magneto, with " carburetter trouble."

LOCATION OF TROUBLE.

ENGINE STOPS SUDDENLY.

As far as the Carburetter is concerned, this can only be caused by :—

(1). Shortage of fuel.
(2). Broken or obstructed petrol pipes.
(3). Tank cock inadvertently closed.
(4). Obstructed jets.
(5). Broken or detached throttle valve cable.

All these points are readily checked by depressing the Float Chamber Tickler, when, if the Carburetter is in order, petrol will be seen to emerge from the Main Jet ; at the same time ascertain that the Throttle Valve is working.

If no petrol issues from the Carburetter when the Tickler is depressed, ascertain that there is fuel in the tank. Remove petrol pipe union from Float Chamber ; if no flow, either pipe or petrol cock is obstructed, the cure for either being obvious.

If this is in order, remove Float Chamber Cover and see that the Float Needle is not bent and is working smoothly. Withdraw the Float and inspect Float Chamber for water or foreign matter.

The passage in the Float Chamber neck may also be tested for obstruction.

If the foregoing are in order, it will be necessary to remove the Main Jet as described in our previous paragraph on "Maintenance."

It is very seldom that the Carburetter is the cause of an Engine stopping suddenly, unless due to fuel shortage.

MIS-FIRING DUE TO EXCESS OR LACK OF FUEL.

Excess of Fuel. Punctured Float, foreign matter between Needle Valve and Seating, Needle Clip out of position, Main Jet or Needle Jet unscrewed, Mixing Chamber Union Nut loose, causing a leakage of petrol round jet block.

The remedies for above are self-explanatory.

Lack of Fuel. Partial obstruction of Fuel Supply; obstruction in Carburetter Passages or in Jets. If the obstruction is only due to water or small foreign bodies in the Jets, this can frequently be cured by placing the palm of the hand over the Air Intake of the Carburetter when the Engine is running, at the same time opening the Throttle Lever.

The Engine will cease to fire for a few seconds, and then, if the obstruction is cleared, will resume firing regularly. If this is of no avail, the fuel line and Float Chamber must then be inspected, as directed in the paragraph dealing with "Engine Stops Suddenly."

If this is unavailing, the only procedure is to remove the Jets and clear the obstruction.

AMAL CARBURETTERS, 1930.

Standard Settings 4 Stroke Single Cylinder Engines.

ENGINE	AMAL					BINKS				
	Carb. Type No.	Bore Size No.	Jet.	Needle Position.	Model Valve	Carb. Type No.	Bore Size No.	Pilot Jet.	Main Jet.	Valve.
50–75 c.c.—	—	—	—	—	—	46	2B	20	—	2/2
75 to 100 c.c.	—	—	—	—	—	46	3B	20	20	3/2
	—	—	—	—	—	46	7B	20	25	7/2
100 to 125 c.c.—	—	—	—	—	—	46	10B	25	30	10/2
150 to 175 c.c.—	—	—	—	—	—	46	14B	25	40	14/2
175 c.c.—										
S.V. Touring	4	17A	60	3	4/5	46	14B	25	40	14/2
O.H.V. Touring	4	17A	60	3	4/5	47	17B	30	50	47/2
O.H.V. Sports	4	21A	70	3	4/5	47	21B	30	60	47/2
O.H.V. Racing	4	25A	90	3	4/4	47	25B	30	80	47/2
250 c.c.—										
S.V. Touring	4	21A	70	3	4/5	47	21B	30	60	47/2
O.H.V. Touring	4	25A	80	3	4/5	47	25B	30	70	47/2
O.H.V. Sports	4	25A	80	3	4/5	47	25B	30	70	47/2
O.H.V. Racing	5	28A	100	3	4/4	48	28B	35	90	48/2
O.H.V. Racing	5	33A	120	3	4/4	48	33B	35	100	48/2
300 c.c.—										
S.V. Touring	4	21A	70	3	4/5	47	21B	30	60	47/2
350 c.c.—										
S.V. Touring	4	25A	80	3	4/5	47	25B	30	70	47/2
O.H.V. Touring	4	25A	80	3	4/5	47	25B	30	70	47/2
O.H.V. Touring	5	28A	95	3	5/5	48	28B	35	80	48/2
O.H.V. Sports	5	33A	110	3	5/5	48	33B	35	90	48/2
O.H.V. Sports	6	39A	130	3	6/5	49	39B	40	110	49/2
O.H.V. Racing	6	45A	160	3	6/4	49	45B	40	130	49/2
500 c.c.—										
S.V. Touring	5	33A	110	3	5/5	48	33B	35	100	48/2
S.V. Touring	6	39A	130	3	6/5	49	39B	40	110	49/2
O.H.V. Touring	6	45A	140	3	6/5	49	45B	40	130	49/2
O.H.V. Sports	6	45A	140	3	6/5	49	45B	40	130	49/2
O.H.V. Sports	6	51A	160	3	6/5	49	51B	40	140	49/2
O.H.V. Racing	6	51A	180	3	6/4	49	51B	40	150	49/2
O.H.V. Racing	29	54A	200	3	29/4	LR	$1\frac{3}{32}$"	40	160	—
600 c.c.—										
S.V. Touring	6	39A	130	3	6/5	49	39B	40	110	49/2
S.V. Touring	6	45A	140	3	6/5	49	45B	40	130	49/2
O.H.V. Touring	6	45A	140	3	6/5	49	45B	40	130	49/2
O.H.V. Sports	6	51A	160	3	6/4	49	51B	40	140	49/2
O.H.V. Racing	29	58A	200	3	29/4	LR	$1\frac{1}{8}$"	40	190	—
O.H.V. Racing	29	65A	220	3	29/4	—	—	—	—	—

NOTE.—Racing refers to Road Racing.
For Track Racing Settings, see page 23.
For Multi-cylinder Engines take the Capacity of one Cylinder only to select Carburetter and use a Throttle Valve with one Cutaway smaller.

JET EQUIVALENTS LIST.

1930 AMAL and BINKS Jet Numbers—Flow in C.C.'s.

All Jets are now known by their actual flow when measured by B.E.S.A. standards, and for the sake of clearness for those who are used to think of them in sized holes, the approximate equivalent sizes are given below :

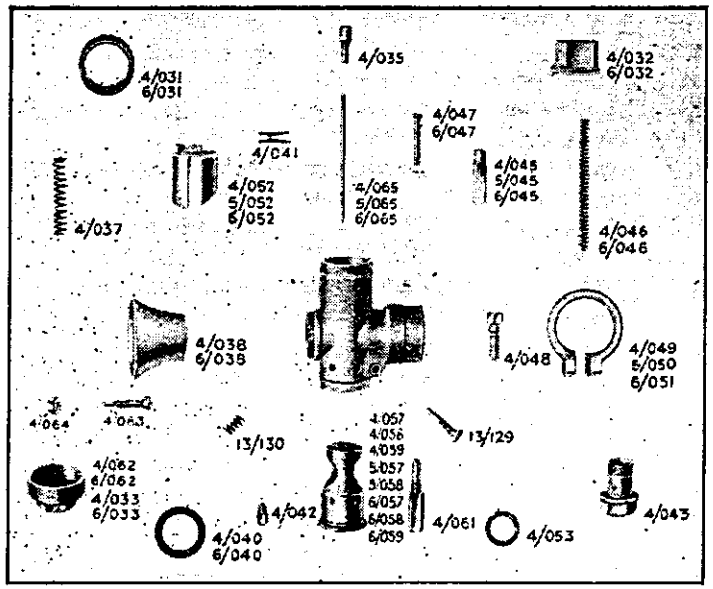
AMAL, B. & B. AMAL BINKS. Flow in C.C.'s	Jet Dia.	AMAC No.	OLD BINKS No.
15	—	—	0
20	.015″	—	1
25	—	16	2
30	.018″	18	3
35	—	19	4
40	.021″	20	—
45	—	21	—
50	.024″	23	5
55	—	24	—
60	.026″	25	6
65	—	26	—
70	.028″	27	7
75	—	28	—
80	.030″	29	8
85	—	—	—
90	.032″	30	9
95	—	31	—
100	.034″	32	11
110	.035″	33	13
120	.037″	35	14
130	.038″	36	15
140	.040″	38	16
150	.041″	39	17
160	.043″	40	18
170	.044″	41	19
180	.045″	43	20
200	.048″	45	21
220	.050″	47	22
240	.052″	49	23
260	.055″	51	24
280	.057″	53	25
300	.059″	55	26
325	—	57	—
350	—	59	—

NOTE.—1929 and 1930 AMAL and BINKS Jets are not interchangeable with those of other years' manufacture.

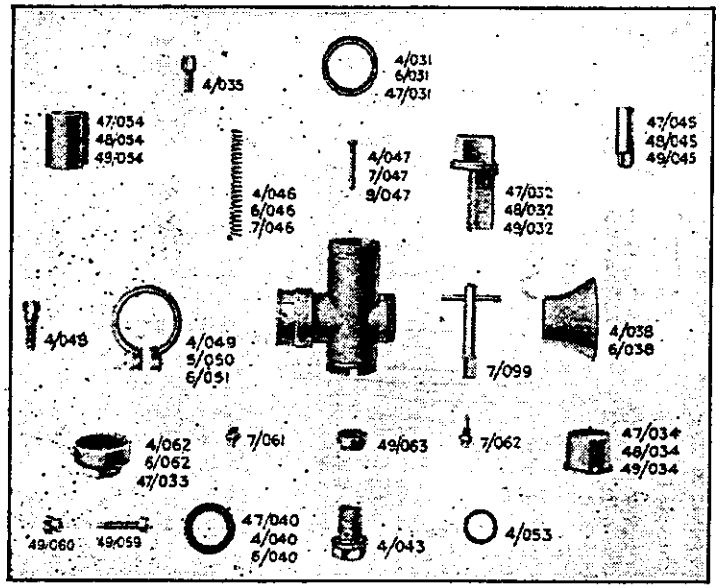
CUBIC CAPACITY of Standard Size of Engines at present on the road :

Millimetres.	C.C.'s.	Millimetres.	C.C.'s.
44 × 44	69	72 × 85.5	349
51 × 51	104	72 × 91	370
51 × 57	116	73 × 70	293
52 × 52	110	74 × 81	349
54 × 75	172	74 × 93	400
55 × 56	133	74.5 × 68	295
55 × 60	142	75 × 79	349
55 × 62	147	76 × 65.5	298
55 × 90	214	76 × 77	348
56 × 61	150	76 × 82	372
59 × 98	268	76 × 85	386
59 × 100	273	77 × 105	489
60 × 60	170	79 × 100	490
60 × 61	172	80 × 98	493
60 × 70	198	82 × 94	496
60 × 74	209	82 × 112	592
60 × 75	212	82 × 120	633
60 × 76	215	82.5 × 93	497
60 × 88	249	84 × 89	493
60 × 90	254	84 × 90	499
62 × 70	211	84 × 100	555
62 × 90	272	84.5 × 88.9	499
63 × 80	249	85 × 65	370
63 × 88	274	85 × 85	482
64 × 70	225	85 × 88	499
64 × 77	248	85 × 97	550
65 × 75	249	86 × 96	558
67 × 70	247	86.4 × 85	499
68 × 76	276	87 × 100	594
69 × 80	299	87 × 110	654
69 × 93	348	87.3 × 101	604
70 × 64.5	248	88 × 85	516
70 × 70	269	88 × 95	578
70 × 76	293	89 × 89	554
70 × 90	346	89 × 96	597
71 × 88	348	89 × 120	746
72 × 72	293	90 × 77.5	493
72 × 76	309	90 × 85	543

In the case of Multi-cylinder Engines, multiply by the number of cylinders.



AMAL Mixing Chamber Parts



BINKS Mixing Chamber Parts

MIXING CHAMBER PARTS FOR 1930 AMAL & BINKS CARBURETTERS

NAME OF PART	PART NUMBERS												PRICE	
	AMAL CARBURETTERS						BINKS CARBURETTERS							
	Type 4	Type 5		Type 6		Type 29	Type 46		Type 47		Type 48	Type 49		
	According to Engine	According to Engine		According to Engine		According to Engine	According to Engine		According to Engine		According to Engine	According to Engine	s.	d.
Mixing Chamber ..	—	—		—		—	—		—		—	—	8	0
Ditto	—	—		—		—	—		—		—	—	10	0
Ditto	—	—		—		—	—		—		—	—	12	0
Ditto	—	—		—		—	—		—		—	—	14	0
Jet Block and Barrel complete, size 17	4/057	—		—		—	—		—		—	—	5	0
Ditto 21	4/058	—		—		—	—		—		—	—	5	0
Ditto 25	4/059	—		—		—	—		—		—	—	5	0
Ditto 28	—	5/057		—		—	—		—		—	—	5	0
Ditto 33	—	5/058		—		—	—		—		—	—	5	0
Ditto 39	—	—		6/057		—	—		—		—	—	5	0
Ditto 45	—	—		6/058		—	—		—		—	—	5	0
Ditto 51	—	—		6/059		—	—		—		—	—	5	0
Ditto	—	—		—		29/068	—		—		—	—	6	6
Ditto	—	—		—		29/069	—		—		—	—	6	6
Ditto	—	—		—		29/070	—		—		—	—	6	6
Ditto	—	—		—		29/071	—		—		—	—	6	6
Mixing Chamber Union Nut	4/062	4/062		6/062		—	—		47/033		4/062	6/062	1	6
Ditto	—	—		—		29/072	—		—		—	—	1	11
Mixing Chamber Cap ..	4/031	4/031		6/031		29/041	—		47/031		4/031	6/031	1	9
Ditto Ditto ..	—	—		—		—	—		—		—	—	2	0
Ditto Ditto ..	—	—		—		—	46/031		—		—	—	1	6
Mixing Chamber Top ..	4/032	4/032		6/032		29/042	—		47/032		48/032	49/032	1	9
Ditto Ditto ..	—	—		—		—	—		—		—	—	2	3
Cable, per length com'te. Midway Cable Adjusters	—	—		—		—	—		—		—	—	1	0

MIXING CHAMBER PARTS—cont'd.

NAME OF PART	PART NUMBERS								PRICE
	AMAL CARBURETTERS				BINKS CARBURETTERS				
	Type 4	Type 5	Type 6	Type 29	Type 46	Type 47	Type 48	Type 49	s. d.
Cable Stop, top hat shape	6/132	6/132	6/132	—	—	6/132	6/132	6/132	2
Cable Adjuster ..	4/035	4/035	4/035	4/035	4/035	4/035	4/035	4/035	4
Cable Nipples	4/036	4/036	4/036	4/036	4/036	4/036	4/036	4/036	2
Throttle Valve Spring	4/037	4/037	4/037	29/047	4/037	4/046	4/046	6/046	3
Air Funnel	4/038	4/038	6/038	—	—	4/038	4/038	6/038	2 6
	—	—	—	29/048	—	—	—	—	3 0
Washer for Jet Block	4/040	4/040	6/040	29/050	—	47/040	4/040	6/040	2
Spring Clip for Needle	4/041	4/041	4/041	4/041	—	—	—	—	4
Holding Bolt	4/043	4/043	4/043	4/043	4/043	4/043	4/043	4/043	2 0
Air Valve	4/045	5/045	6/045	—	—	47/045	48/045	9/045	2 6
	—	—	—	29/055	—	—	—	—	2 9
Air Valve Spring ..	4/046	4/046	6/046	4/046	—	4/046	4/046	6/046	3
Air or Throttle Valve Guide	4/047	4/047	6/047	—	—	7/047	4/047	9/047	2
Ditto	—	—	—	29/057	—	—	—	—	4
Outlet Clip Screw ..	4/048	4/048	4/048	4/048	4/048	4/048	4/048	4/048	6
Outlet Clip, 1" ..	4/049	4/049	4/049	—	—	4/049	4/049	—	1 9
Ditto 1⅛" ..	—	5/050	5/050	—	—	—	5/050	5/050	1 9
Ditto 1¼" ..	—	—	—	27/058	—	—	—	—	2 3
Ditto 1⅜" ..	—	—	6/051	6/051	—	—	—	6/051	1 9
Ditto 1½" ..	—	—	—	27/059	—	—	—	—	2 0
Ditto ¾" ..	—	—	—	—	46/040	—	—	—	1 4
Ditto ⅞" ..	—	—	—	—	46/041	—	—	—	1 4
Throttle Valve ..	4/052	5/052	6/052	—	—	47/054	48/054	49/054	3 10
Ditto	—	—	—	29/062	—	—	—	—	4 0
Ditto .35 bore ..	—	—	—	—	46/032	—	—	—	2 6
Ditto .41 bore ..	—	—	—	—	46/033	—	—	—	2 9

MIXING CHAMBER PARTS—cont'd.

NAME OF PART	PART NUMBERS								PRICE
	AMAL CARBURETTERS				BINKS CARBURETTERS				
	Type 4	Type 5	Type 6	Type 29	Type 46	Type 47	Type 48	Type 49	s. d.
Throttle Valve .468 bore	—	—	—	—	46/034	—	—	—	3 0
Ditto .531 bore ..	—	—	—	—	46/035	—	—	—	3 0
Ditto .60 bore ..	—	—	—	—	46/036	—	—	—	3 0
Holding Bolt Washer	4/053	4/053	4/053	4/053	4/053	4/053	4/053	4/053	2
Needle Jet	4/061	4/061	4/061	29/076	—	—	—	—	1 9
Needle for Jet	4/065	5/065	6/065	—	—	—	—	—	1 3
Air Adjusting Screw ..	13/129	13/129	13/129	13/129	—	—	—	—	6
Spring for ditto ..	13/130	13/130	13/130	4/070	—	—	—	—	2
Filter	—	—	—	—	—	49/063	49/063	49/063	1 6
Filter complete ..	—	—	—	—	7/073	—	—	—	6
Jet Key	—	—	—	—	7/099	7/099	7/099	7/099	1 0
Main Jet	4/042	4/042	4/042	4,042	—	—	—	—	5
Ditto	—	—	—	—	7/062	7/062	7/062	7/062	5
Pilot Jet	—	—	—	—	7/061	7/061	7/061	7/061	5
Throttle Stop Screw ..	4/063	4/063	4/063	4/063	—	47/059	49/059	49/059	6
Ditto ditto Lock Nut	4/064	4/064	4/064	4/064	—	49/060	49/060	49/060	2
Split Cotter Pin for Throttle Valve ..	—	—	—	4/060	—	—	—	—	2
Needle	—	—	—	29/075	—	—	—	—	1 4
Strangler Thimble ..	—	—	—	—	46/037	—	—	—	1 0
Strangler Inner Sleeve	—	—	—	—	46/038	—	—	—	1 0
Strangler Lever ..	—	—	—	—	46/039	—	—	—	6
Valve Location Peg ..	—	—	—	—	49/066	—	—	—	3
Strangler Spring ..	—	—	—	—	46,042	—	—	—	3

FLOAT CHAMBER PARTS.

NAME OF PART	PART NUMBERS. LARGE FLOAT CHAMBER Bottom Feed	LARGE FLOAT CHAMBER Top Feed	SMALL FLOAT CHAMBER Bottom Feed	SMALL FLOAT CHAMBER Top Feed	PRICE s.	PRICE d.
Float Chamber Body (Std. Base)	14/001	14/002	—	—	12	0
Float Chamber Body (Long Base)	14/003	14/004	—	—	12	0
Float Chamber Body (Double) ..	14/009	14/010	—	—	20	0
Float Chamber Body (Std. Base)	—	—	22/001	22/002	8	6
Float Chamber Cover	14/011	14/012	22/011	22/012	4	3
Float	14/015	14/017	22/016	22/016	2	6
Cover Lock Screw	14/021	—	—	—		6
Needle	14/024	14/030	22/013	22/014		11
Petrol Union Nut	14/025	14/025	14/025	14/025		6
Petrol Union Nipple	14/026	14/026	14/026	14/026		3
Tickler	14/031	14/031	22/021	22/021		7
Tickler Spring	14/032	14/032	14/032	14/032		2
Cotter for Tickler	14/033	14/033	14/033	14/033		1
Double Float Chamber complete					33	0
Large Float Chamber complete					23	0
Small Float Chamber complete					17	0

PARTS SPECIAL FOR OVERHEAD ROD CONTROLLED CARBURETTERS.

	Type 4/LD	Type 5/LD	Type 6/LD	Type 47/LD	Type 48/LD	Type 49/LD	PRICE s.	PRICE d.
Lever Control Body ..	4/088	4/088	6/088	4/088	4/088	6/088	4	6
Throttle Valve	4/074	5/074	6/074	Type 25	Type 33	Type 51	3	10
Throttle Valve	—	—	—	Type 21	Type 28	Type 45	3	10
Throttle Valve	—	—	—	Type 17	—	Type 39	3	10
Eye Piece	4/089	4/089	6/089	4/089	4/089	6/089		8
Link for Throttle ..	4/097	4/097	4/097	4/097	4/097	4/097		3
Internal Lever	4/081	4/081	4/081	4/081	4/081	4/081	1	6
External Lever ..	4/082	4/082	4/082	4/082	4/082	4/082	2	0
Lever Bolt	4/090	4/090	4/090	4/090	4/090	4/090		9
Stop Pin	4/084	4/084	4/084	4/084	4/084	4/084		3
Swivel Cotter Pin ..	4/086	4/086	4/086	4/086	4/086	4/086		1
Split Cotter Pins for do.	4/087	4/087	4/087	4/087	4/087	4/087		1
Nut for Lever Bolt ..	4/091	4/091	4/091	4/091	4/091	4/091		2
Spring Washer	4/085	4/085	4/085	4/085	4/085	4/085		2
Screwed Ring	4/092	4/092	—	4/092	4/092	—	2	0
Screwed Ring	—	—	6/092	—	—	6/092	2	3
Air Valve	4/093	5/093	6/093	7/093	8/093	9/093	2	6
Rivet for Air Valve ..	4/094	4/094	6/094	—	—	—		1
Air Valve Extension Plate	4/096	4/096	4/096	—	—	—		3
Split Cotter Pin for Bolt	4/060	4/060	4/060	4/060	4/060	4/060		1
Screw for Body	13/177	13/177	13/177	13/177	13/177	13/177		3

PARTS SPECIAL FOR OVERHEAD ROD CONTROLLED CARBURETTERS.

	Type 4/LS	Type 5/LS	Type 6/LS	Type 47/LS	Type 48/LS	Type 49/LS	PRICE
							s. d.
Lever Control Body ..	4/075	4/075	6/075	4/075	8/075	6/075	4 6
Throttle Valve	4/078	5/078	6/078	Type 25	Type 33	Type 51	3 10
Throttle Valve	—	—	—	Type 21	Type 28	Type 45	3 10
Throttle Valve	—	—	—	Type 17	—	Type 39	3 10
Eye Piece	4/077	4/077	4/077	4/077	4/077	4/077	3
Link	4/097	4/097	4/097	4/097	4/097	4/097	3
Eye Piece Nut	4/079	4/079	4/079	4/079	4/079	4/079	3
Eye Piece Bush	4/080	4/080	4/080	4/080	4/080	4/080	3
Internal Lever	4/081	4/081	4/081	4/081	4/081	4/081	1 6
External Lever	4/082	4/082	4/082	4/082	4/082	4/082	2 0
Lever Bolt	4/083	4/083	4/083	4/083	4/083	4/083	2 9
Stop Pin	4/084	4/084	4/084	4/084	4/084	4/084	3
Swivel Cotter Pin ..	4/086	4/086	4/086	4/086	4/086	4/086	1
Split Cotter Pins for do.	4/087	4/087	4/087	4/087	4/087	4/087	1
Nut for Lever Bolt ..	12/021	12/021	12/021	12/021	12/021	12/021	2
Spring Washer	4/085	4/085	4/085	4/085	4/085	4/085	2
Clip Pin for Body ..	11/013	11/013	11/013	11/013	11/013	11/013	3
Strangler Inner Plate ..	4/098	4/098	4/098	4/098	4/098	6/098	1 3
Strangler Outer Plate ..	4/099	4/099	4/099	4/099	4/099	6/099	1 3
Strangler Rivet	4/100	4/100	4/100	4/100	4/100	6/100	3

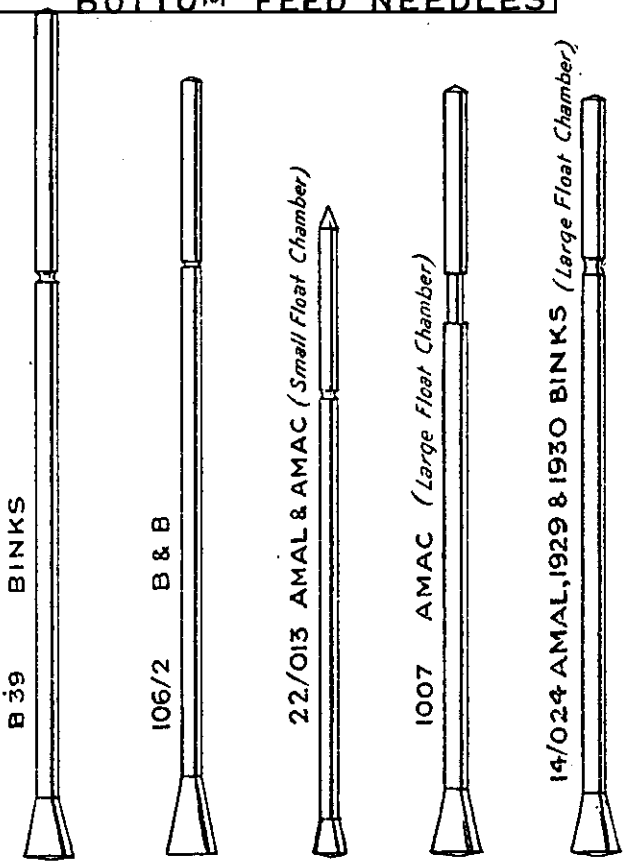
SPARE PARTS FOR 1930 AMAL TRACK RACING CARBURETTERS.

	Type 26	Price	Type 27	Price	Type 28	Price
		s. d.		s. d.		s. d.
Mixing Chamber Body	According to Engine	18 0	According to Engine	20 0	According to Engine	22 0
Ditto Top ..	26/041	2 0	27/041	2 3	28/041	2 6
Ditto Union Nut	26/042	2 3	27/042	3 0	28/042	3 6
Cable Adjusters ..	4/035	4	4/035	4	4/035	4
Cable Nipples ..	26/046	2	26/046	2	26/046	2
Throttle Valve Spring	4/037	3	4/037	3	29/047	3
Air Funnel	26/048	2 6	27/048	3 0	27/048	3 0
Washer for Jet Block	6/040	2	27/049	2	28/049	2
Jet	26/052	1 9	26/052	1 9	26/052	1 9
Holding Bolt ..	4/043	2 0	4/043	2 0	4/043	2 0
Air Valve	26/055	1 0	26/055	1 0	26/055	1 0
Ditto Spring ..	26/056	3	26/056	3	26/056	3
Ditto Nipple Sleeves	26/057	2	26/057	2	26/057	2
Outlet Clip Screw ..	4/048	6	4/048	6	4/048	6
Outlet Clip, 1⅛" ..	5/050	1 9	—	—	—	—
Ditto 1¼" ..	6/051	1 9	6/051	1 9	—	—
Ditto 1⅜" ..	—	—	27/059	1 9	—	—
Ditto 1½" ..	—	—	—	—	27/058	2 3
Ditto 1⅝" ..	—	—	—	—	28/060	2 6
Throttle Valve ..	26/062	4 2	27/062	4 2	28/062	4 2
Holding Bolt Washer	4/053	2	4/053	2	4/053	2
Jet Block Barrel Complete ..		8 0		10 0		12 0
(Specify Carb. type when ordering)						
Air Barrel Top ..	26/072	7	26/072	7	26/072	7
Spring for Air Adj. Screw	4/080	2	4/080	2	4/080	2
Air Adj. Screw ..	13/129	6	13/129	6	13/129	6

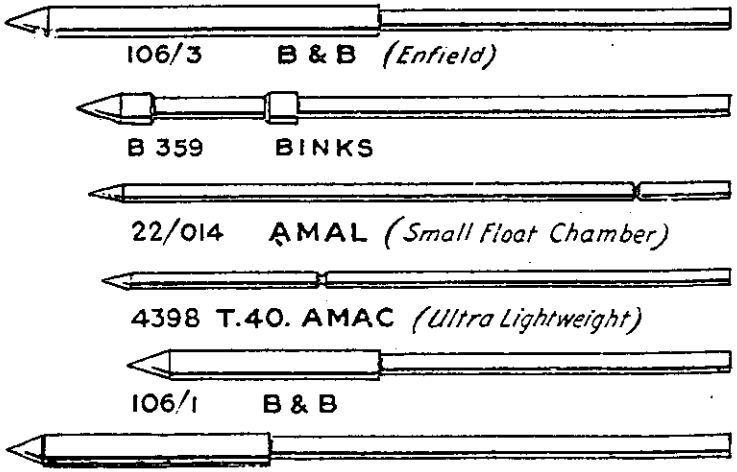
SPARES LIST OF TRIGGER LEVER.

COMPONENT	PART NO.	PRICE
		s. d.
Trigger Lever Body, 1" ..	18/020	1 2
Trigger Lever Body, ⅞" ..	18/021	1 2
Clamp, 1"	12/044	6
Clamp, ⅞"	12/040	6
Trigger Lever	18/059	1 6
Pin for Lever and Clamp ..	11/014	3
Nut for ditto	18/060	3
Cable Nipple	18/054	2

BOTTOM FEED NEEDLES

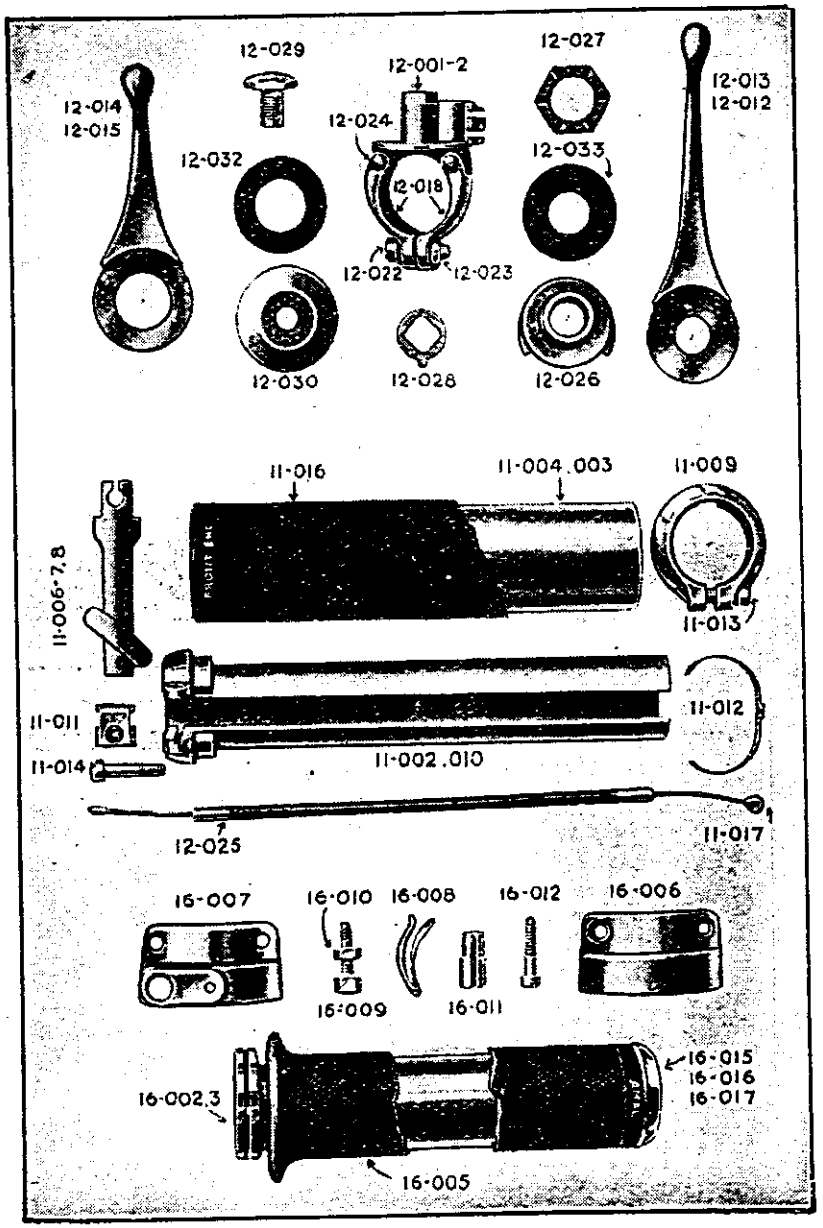


TOP FEED NEEDLES



Various AMAL Float Chamber Needles.

AMAL AND BINKS CONTROLS SPARE PARTS.



AMAL TWIST GRIP PARTS
(Standard Models).
STRAIGHT PULL TYPE.

PART	NUMBER	PRICE s. d.
Inner Sleeve and Rear Clip ..	(long 11/001 & 010 short 11/002 & 010)	3 3
Outer Sleeve complete	(long 11/004 & 003) (short 11/005)	3 3
Slide Strip, Key & Nipple Carrier	11/022	1 9
Rear Clip	11/009	1 9
Cable Stop	11/011	9
Spring	11/012	4
Pin for Rear Clip	11/013	3
Pin for Front Clip	11/014	3
Rubber Grip	(6½" long 11/015) (5" short 11/016)	1 6
Cable Nipple	11/017	2
Liner for Twist Grip (⅞" bar only)	(long 11/018) (short 11/019)	1 6
Dummy Grip, ⅞"	(6½" long 11/030) (5" short 11/031	1 6
Dummy Grip, 1"	(6½" long 11/033) (5" short 11/034)	1 6
Dummy Grip End Cap, 1" grip ..	11/032	4
Dummy Grip End Cap, ⅞" grip ..	11/035	4
Dummy Grip End Cap, closed end	11/036	4

BINKS TWIST GRIP PARTS
(Racing Type, Quick Action).

PART	NUMBER	PRICE
Inner Sleeve and Rotor (long) ..	16/001-3	3 6
Inner Sleeve and Rotor (short) ..	16/002-3	3 6
Grip	(long 16/004) (short 16/005)	1 6
Body (top half) R.H.	16/006	3 0
Body (bottom half) R.H.	16/007	3 0
Friction Spring	16/008	6
Screw for friction spring ..	16/009	4
Lock Nut for ditto	16/010	2
Cable Stop	16/011	4
Screw for Body (2)	16/012	3
Liner for Long Twist Grip ..	16/013	1 6
Liner for Short Twist Grip ..	16/014	1 6
End Cap (1" bar)	16/015	4
End Cap (⅞" bar)	16/016	4
End Cap with closed end ..	16/017	4
Dummy Grip	Same as for Standard type listed above	1 6

LEVER CONTROL PARTS.

PART.	Double Lever, Opening Inwards.	Double Lever, Opening Outwards.	Single Lever, Opening Inwards.	Single Lever, Opening Outwards.	PRICE.
Control Body ..	12/001	12/002	12/003	12/004	1 10
Control Lever (long)	12/013	12/012	—	—	2 6
Control Lever (short)	12/014	12/015	12/014	12/015	2 6
Handlebar clip, 1" ..	12/018	12/018	12/018	12/018	6
Handlebar clip, ⅞" ..	12/019	12/019	12/019	12/019	6
Handlebar Clip Screw	12/022	12/022	12/022	12/022	3
H'bar Clip Screw Nut	12/023	12/023	12/023	12/023	3
Handlebar Clip Rivet	12/024	12/024	12/024	12/024	2
Cable Ferrules ..	12/025	12/025	12/025	12/025	2
Division Plate ..	12/026	12/026	—	—	5
Adjusting Nut ..	12/027	12/027	—	—	6
Locking Washer ..	12/028	12/028	—	—	3
Control Bolt ..	12/029	12/029	12/029	12/029	3
Control Cap	12/030	12/030	12/031	12/031	5
Spring Washers ea. ..	12/032	12/032	12/033	12/033	2
Cable Nipple ..	12/034	12/034	12/034	12/034	2

SPARES LIST OF INVERTED LEVERS.

COMPONENT	Inverted Lever 18/007 for ⅞" H'bar.	Inverted Lever 18/004 for 1" H'bar.	Inverted Lever 18/001 for ⅞" & 1" H'bar.	Inverted Lever 18/013 for ⅞" D/Grip.	Inverted Lever 18/010 for 1" D/Grip	PRICE
						s. d.
Inverted Lever Body ..	18/007	18/004	18/001	18/013	18/010	2 9
Inverted Lever	18/051	18/051	18/051	18/051	18/051	3 0
Pin for Lever	18/052	18/052	18/052	18/052	18/052	3
Nut for Lever	18/053	18/053	18/053	18/053	18/053	3
Pinch Pin for Body ..	11/013	11/013	11/013	11/013	11/013	3
Cable Nipple	18/054	18/054	18/054	18/054	18/054	2

PARTS SPECIAL FOR SINGLE LEVER MODELS.

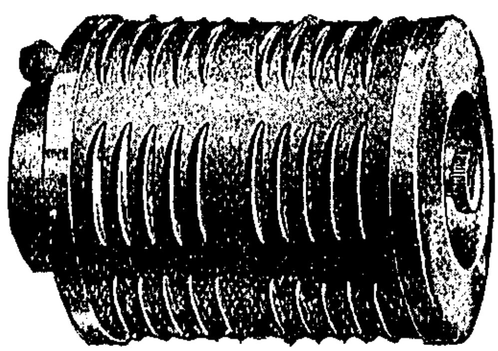
COMPONENT.	Type 4/- S	Type 5/- S	Type 6/- S	Type 47/- S	Type 48/- S	Type 49/- S	s. d.
Air Valve	30/089	30/090	30/091	30/115	30/113	30/114	2 6
Air Valve Operating Rod	30/005	30/006	30/007	30/052	30/009	30/010 }	1 3
Top for Rod	30/060	30/060	30/060	30/060	30/060	30/060 }	
Rod Nipple	30/061	30/061	30/061	30/061	30/061	30/061	2
Click Spring	30/064	30/064	30/064	30/064	30/064	30/064	2
Mixing Chamber Top ..	30/058	30/058	30/062	30/116	30/117	30/118	1 9
Domed Air Funnel ..	30/003	30/003	30/004	30/003	30/003	30/004	3 0

"AMAL"
SELF-CLEANING AIR FILTER

SIMPLE. EFFECTIVE.

PROLONGS ENGINE LIFE. REDUCES OIL WASTE.

EASY TO FIT. AUTOMATIC SELF-CLEANING.



SCREWS DIRECT ON TO INTAKE OF CARBURETTER

SHOULD THE DESIGN OF YOUR MACHINE BE SUCH THAT IT WILL NOT SCREW ON DIRECT AN ELBOW ADAPTOR CAN BE SUPPLIED.

SEND FOR DESCRIPTIVE LIST No. 248.