AMAC

THE CARBURETTER OF RECORDS AND SUCCESSES.

Catalogue and Hints and Tips

LIST No. 203

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Amalgamated Carburetters Ltd.,
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INDEX.

THE 1928 MODEL AMAC CARBURETTER TYPE M

PATENTED

This model marks a decided advance in "AMAC" Carburetter construction, and is notable for sweet running, progressive action, economy and acceleration.

The carburetter is a development of the 1926-27 T.T. type and incorporates a shaped adapter giving a straight through bore ; atomisation is provided for by the admission of primary air immediately above the jet, and on the two lever model the mixture is controlled by regulating the quantity of primary air admitted. The additional features mainly responsible for the improved performance are the use of a tapered needle adjustably attached to the throttle valve and working in a calibrated jet in conjunction with a submerged jet which governs the mixture strength on full throttle. Owing to the extreme flexibility we can confidently recommend this carburetter for both touring and sporting machines.

SECTION 2 :

THE 1928 MODEL AMAC CARBURETTER TYPE M

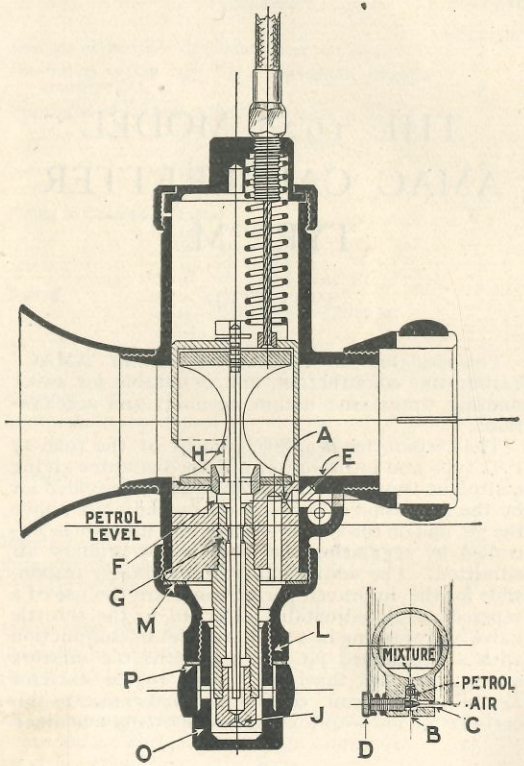


ILLUSTRATION SHOWING CONSTRUCTION OF MIXING CHAMBER

SECTION 3 : TYPE M CARBURETTER

The construction of the instrument is indicated in the illustration.

There are five items which govern the mixture strength and which are capable of adjustment or regulation, viz :

(*a*) PILOT JET. Petrol passes through the calibrated orifice "A" and mixes with air entering through the leak hole "B" and the annular orifice "C" adjustable by means of the needle valve "D"; the mixture thus formed passes into the carburetter outlet through the small hole "E." The pilot jet adjustment is used to obtain the best slow running; an opening of the needle valve "D" of about $\frac{1}{2}$ to $\frac{3}{4}$ of a turn is usually required.

(*b*) MAIN AIR VALVE. This is fitted to the two lever model only, and controls the supply of primary air, which enters through holes "F" and mixes with the petrol on its emergence from the needle jet. A fixed quantity of primary air is admitted on the single lever model, corresponding to full-air conditions on the two lever. The air lever need only be closed for starting from cold (a strangler is supplied with the single lever for this purpose).

Under normal conditions all tuning and ordinary running is carried out with full air. To meet changes of temperature and atmospheric conditions use should be made of the air lever; closing this will be found to have a progressive richening effect.

(*c*) NEEDLE. This is suspended by a clip from the top of the throttle valve, and grooves in the needle provide a variety of positions. Lifting the needle increases the area of the annulus between needle and needle jet "G," *i.e.* richens the mixture;

lowering the needle has the opposite effect. The needle position affects the mixture strength from about $\frac{1}{4}$ throttle opening up to about $\frac{3}{4}$ throttle.

(*d*) THROTTLE VALVE. The amount of cut-away on the air-intake side of the valve is the main factor controlling mixture strength at small throttle openings, its effect diminishing after about $\frac{1}{4}$ throttle and ceasing when the top of the cut-away passes above the bore. Valves are supplied with various degrees of cut-away, the number stamped on the top indicating the dimension " H " in sixteenths of an inch.

(*e*) MAIN JET. (Marked " J " in illustration). In conjunction with the needle orifice this governs the quantity of fuel passing into the main choke. The needle orifice is the controlling factor up to about $\frac{1}{2}$ throttle, after which the main jet begins to exert an influence and controls the mixture strength entirely at full throttle.

SECTION 4 : FIXING TO MACHINE.

The points to watch are : That the carburetter is fixed vertically ; that the float chamber assumes a slightly higher position when climbing a hill, thus raising the level of the float chamber (raising the petrol level). In practice this is attained by placing the float chamber slightly in advance of the mixing chamber in the direction of the machine's travel. If flange fixings are used, give each nut a turn alternately. Do not screw one up tight and then afterwards the other, which will not give a good joint.

Avoid placing the carburetter in a direct cold draught. If impossible, then shield it, as it works best in as even an air stream as it is possible to obtain.

SECTION 4A : PETROL PIPES.

See that the pipe is formed so that it goes into position easily. A pipe strained into position is bound to break soon. The pipe should sometimes be detached and re-annealed by heating to bright red and plunged into cold water. Pipes curved and looped horizontally are less liable to cause air lock than those where the loop is vertical.

SECTION 4B : CONTROLS.

Lubricate levers with engine oil. The wires are treated with a special preparation before being fitted up, and should only be oiled at the control end.

Avoid sharp bends in cables, as they cause wires to work stiffly.

" AMAC " standard controls open inwards, but controls opening outwards may be had to special order.

Adjust the cables when the carburetter is fitted and all wires in their final position, as bends in the cable alter the adjustment between the cables and the wires. Put the levers in the closed position, then screw adjusters at the top of the carburetter in or out until all slackness in the cable is just taken up. When doing so, hold the cable to prevent it from twisting with the adjuster.

SECTION 4C : AIR-LEAKS.

It is most important to do everything possible to avoid air-leaks, as they affect Slow Running, Easy Starting, Pick Up, or Acceleration ; also, indirectly, Consumption.

Absolute freedom from air-leak on the engine side of the throttle is, in the case of poppet valve engines, practically impossible owing to leakage past

the valve guides, but air-leaks can be largely eliminated by observing the following points:

It is important that the induction pipe should be long enough to allow the shoulder in the carburetter outlet to come into contact with the end of the pipe.

If the carburetter is a slack fit on the induction pipe a little gold size or shellac varnish smeared over the pipe before fitting the carburetter will ensure an airtight joint being made. Consider, for all practical purposes, the mixing chamber as a part of the induction pipe, removing it only in the most extreme cases.

One of the greatest difficulties with air-leaks is on twin engines of the V type, owing to the difficulty the makers experience in getting the induction pipe faces to align, and also to the fact that the cylinders under variation of temperature tend to draw the port faces apart. Under these conditions it will be appreciated that to even the most careful manufacturers the problem is a difficult one. The private owner, if careful, may do a lot to minimise this trouble. In cases where large nuts are used to bring the faces together, compressed annular cork washers make a splendid joint. A point against them is that the use of benzol affects them badly. Copper and asbestos washers, if the right size can be obtained, are good. Asbestos, or even ordinary string, soaked in gold size and placed between the faces, forms a fairly satisfactory substitute. The width of the faces are usually too narrow to allow of a ring being made from any of the well-known packings. The manufacturers are, quite rightly, loth to rely upon artificial joints because owners occasionally forget to replace them or re-make them properly.

For flange joints use washers made of any good jointing, preferably of the graphite type. Thick brown paper soaked in gold size makes fair joints, though they are not to be strongly recommended on air-cooled engines, and the flange should be bolted up whilst the washer is wet.

Insulating tape is a good temporary measure for overcoming air-leaks, but should be replaced from time to time, as when dry it is of no value, and will not prevent air-leak.

Accurate machining and gold size make by far the best job.

Section 4d: Sticking Valves.

Sticking valves are practically unknown with the "AMAC," but may occur if the carburetter is fixed in such a position that an undue amount of mud and dust is thrown on the air-intake, and this point ought to be watched. If the valves do not work freely, it is generally due to their being bruised when dismantled, or to the Bowden wire being kinked, being fitted with a sharp bend or having rusted up. In exceptional circumstances in foggy weather, freezing might take place, but this only applies to machines on which the carburetter is very much exposed. The only cure for this is to fit a hot air pipe to the air-intake or shielding the carburetter. The valves should never be oiled, as this causes dust to collect on them. They may, however, be rubbed with graphite if desired.

Section 5: TUNING HINTS.

(*a*) Adjust pilot jet for slow running: the quality of the mixture issuing from the pilot jet outlet is controlled by means of the knurled cap on

the mixing chamber side which regulates the amount of air admitted to the pilot jet.

To weaken the mixture turn the knurled cap anti-clockwise, and vice versa to richen. This adjustment must be made gradually.

The approximate setting will be found between one-half and one complete turn open. Final adjustment should be made with the engine running. Open throttle one-quarter and air one-half. Gradually close throttle until the engine speed is reduced sufficiently. Turn the knurled cap until even firing is obtained and if necessary further shut the throttle lever ; then readjust the pilot jet until the desired idling is effected.

The adjustment for slow running is dependent on the position of the throttle and the opening of the pilot jet ; one cannot be altered without affecting the other. Finally, use this adjustment for obtaining slow running only, and beware of air-leaks at the joint between the carburetter and the induction pipe.

(*b*) Starting.

To ensure ease of starting, the throttle should only be opened slightly, so as to put a high depression on the pilot outlet. When cold, the air lever should be shut, but with a warm engine this is not necessary.

With the carburetter correctly set, easy starting is a matter of freedom of pistons and a hot spark at the plug. It is sometimes necessary to inject paraffin into the cylinder to free the piston from the thick oil, so that the engine can be revolved sufficiently fast to obtain a good spark at the plug.

(*c*) We do not advise modifications to our settings as supplied to manufacturers but for special circumstances the following will be found to apply.

For general purposes, where it is desired to alter the setting of a carburetter to obtain (A) greater economy or (B) better power and acceleration, adjustment should be made to the needle position, lowering it for (A) and raising it for (B). Slight weakness at small throttle openings can usually be improved by richening the pilot setting a little.

(*d*) Setting Carburetter for Two-Stroke Engines.

The same procedure should be adopted when setting carburetter for two-stroke engines as for four-stroke models except that the criterion for the correct adjustment of the pilot jet in this case is good slow pulling rather than idle tickover.

(*e*) Notes and Precautions.

In the event of faulty slow running and " patchiness " at small throttle openings, the various pilot orifices should be examined for obstruction. They may readily be cleared with a fine wire, but it is most important that this should not be tight in the holes, particularly in the case of orifices " A " and " E. "

When assembling the union nut " L " after dismantling, be sure and replace washer " M " and insert jet plug " O " loosely before tightening up to avoid the possibility of distorting the union nut. The washer " P " for the float chamber connection goes between the float chamber base and the union nut.

Section 6: ECONOMY.

Having set for maximum power and obtained good results, you will find the consumption bears favourable comparison with other carburetters. The point then to watch is that you are not robbed of the benefits the carburetter gives you by such power wasters as slipping clutches or belts—too tight chains or belts—excessive valve tappet clearances—poor sparks at plugs—brakes that are never really off—late ignition—too low a top gear—too high a top gear, leading to excessive call for second speed—weak valve springs—poor compression—choked silencers—sidecars out of line with motor cycle.

Heavy consumption caused through faulty carburation is generally due to too rich mixture, either through too large jet being fitted or through flooding.

Section 7: TWO-STROKE NOTES.

The carburation of these from a flexibility point of view is one of the greatest problems confronting the engine designer to-day. It lies primarily in the fact that though the conventional type of two-stroke motor cycle engine crankcase is really part of the carburetter, it is designed as a crankcase only. Its functions as a pump and vaporiser are disregarded. Despite these handicaps, our latest model will be found to be a revelation in slow running and pulling against load.

The same points are to be observed in setting as for a four-stroke. When using "Petroil" lubrication, a size or two larger jet is necessary, as the quantity of oil also passing through the jet naturally reduces the quantity of petrol, though we would again urge the rider to guard against using too big a jet.

With two-strokes as at present made, a certain amount of four-stroking is often observable going down hill, and sometimes when going fast down long gentle slopes. It should not be present at any speed above eight miles per hour on the flat, and if it is, something wrong with the carburetter is indicated, usually too rich a mixture.

Too weak a mixture is indicated by firing back through the carburetter, though on starting away on a cold morning, till the engine gets warm, a slight tendency to spit back may be noticed. If the machine, previously running well, starts suddenly to blow and spit through the carburetter and, upon examination, any evidence of weak mixture being caused by the carburetter, such as dirt in jet or sprayer holes, is absent, then the most probable cause of the trouble is a blown joint between either the induction port faces, the transfer port inspection door faces, or cylinder and crankcase register faces. In the dark these can be very quickly located by the flame coming through them, but by day the force of the explosions can be felt by passing one's hand round the engine whilst running on the stand. Another cause is that on crankcases with taps to release excess oil, these get accidentally turned on, and sometimes plugs fitted for the same purpose fall out, when symptoms develop.

Section 7A: LUBRICATION.

With engines lubricated by drip feed, great care should be taken to guard against excess of oil, as this, more than bad carburation, is the chief cause of four-stroking. Do not use too thick an oil. The "Summer" grade supplied by makers will give a good deal of trouble if used in cold weather with

drip feed. If " Winter " grade is not available, mix about 25% of good water-cooled oil with the " Summer " grade. It will save you a great deal of trouble, especially when getting away first thing in the morning.

With the " Petroil " system of lubrication, the oil is mixed with the petrol and fed through the carburetter, separating out later in the crankcase. The proportion should be about sixteen to one of petrol and oil respectively, but the maker of the machine should be approached.

A tendency will be noticed when the machine is stationary for the oil to sink to the bottom of the tank and float chamber. This can be overcome by shaking (rocking gently from side to side is sufficient) the machine, and agitating the liquid in the float chamber with the needle. It is also a good thing when finishing a run to turn the petrol off a little before stopping, and so ensure an empty float-chamber.

Section 7b: Two-Stroke Notes. Magneto Timing.

Magneto timing is a very important factor in successful two-stroke running. They will stand a very much earlier firing point than fours. This is not so widely known as it should be, and four-stroke methods of timing, by even those who should know better, are frequently employed. Then the carburetter gets blamed because the engine over-heats, and the petrol consumption is high.

When two-strokes are " revving " the point to which the ignition can be safely advanced seems out of all proportion compared to four-stroke practice, and is frequently disbelieved by those without experience.

There are two methods of treating the matter, and the reader can take his choice. One is to treat the magneto as a fixed ignition, setting it so that there shall be no knock even on the steepest hill. This is translated into practice by causing the platina on the contact breaker to commence to separate when the piston is about 4 m/m from the top on the " compression " stroke.

The other way is to recognise that ignition is capable of being advanced and retarded, and setting your timing for maximum speed to use the advance and retard lever with discretion. A fair setting for maximum speed would be :—Platina separates on fully advanced contact breaker when piston is from ten to twelve millimeters from the top on the " compression " stroke. Providing always that the firing angle allowed by the movement of the contact breaker will allow of a retard back to 3 m/m, should a steep hill with a head wind blowing down it call for it.

With this setting you will find you can start away on half advance, do most traffic work on five-eighths to three-quarters, and when the open country comes and the road opens long and straight before you, you can fully advance, and wipe out the oft-repeated slur " that two-strokes cannot move."

Though this booklet purports to deal with carburetters, we have written thus on lubrication and magneto timing because there is a tendency to presume these two items always perfect, whereas they are far more often to blame for bad running than the carburetter.

Section 8: TROUBLE.

Carburetter trouble divides itself into two forms —absolute, in which your engine completely stops,

indicating that the carburetter has ceased to make gas ; or conditional, in which it makes gas badly, the running depending on how badly.

SECTION 8A : LOCATION OF CARBURETTER TROUBLE —ABSOLUTE.

Your motor stops and you wish to verify quickly the carburetter. Work throttle lever to make sure cable is not broken, so allowing throttle to remain closed ; presume you find this in proper action—see that you have petrol in the tank and that the tap is turned on—take down jet, and if choked you have found your trouble. Clear out with fine wire or, by blowing through, replace, and proceed on your way. If you find jet clean remove float chamber top ; if full of petrol, then suspect passage between float chamber and mixing chamber, so take out float (LOOK for water at base of float chamber), and clean passage with piece of copper wire. If clear, take down petrol pipe, and verify clear passage by blowing through.

Water.—One of the most frequent causes of sudden stoppage and missing is water in petrol. In the damp moist English winter, especially where machines are stored in cold sheds, the moisture in the atmosphere condenses in the tank, passing through the filters in the form of very fine globules, and unfortunately accumulates in the float chamber. It only takes two minutes to clear it out, so it is well worth doing regularly in comfort, lest it should have to be done compulsorily on a wet, cold night.

If upon your examination petrol is passing through the jet, your throttle is opening, and there is no water, cease at once to suspect the carburetter, and examine other parts of the power unit.

SECTION 8B : LOCATION OF CARBURETTER TROUBLE. CONDITIONAL.

Motor runs hot through carburetter fault, therefore, gives too weak a mixture : try change of jet.

Very poor pulling.—If carburetter—mixture too weak owing to too small a jet, or constriction of fuel at some point. Excessive air-leak.

Heavy "thumpy" running.—If carburetter—mixture too rich ; if accompanied by occasional misfiring probably float needle sticks, and gives rise to intermittent flooding.

Knock.—If carburetter—too poor a mixture.

Misfiring.—(Intermittent). If carburetter—too weak a mixture, caused probably by dirt or water in float chamber or jet.

(Rhythmic). If carburetter—too rich a mixture, caused by flooding, or the air-intake being choked up with dust.

Eight Stroking.—Always carburetter, too rich a mixture ; intermittent flooding, owing to dirt on needle, or air-intake being choked with dust.

Flooding.—A certain amount of this over very bumpy roads is inevitable. Other causes are :—Dirt on needle valve seating, valve seating worn, distortion of gauze in union throwing needle to one side, punctured float. To remove dirt from needle valve seating, twist needle in fingers, pulling up at same time. Occasionally on new machines sawdust and dirt will be found in the petrol tank, and failing taking down tank and washing out, 100 miles or so must be covered before this washes out, and the flooding caused thereby stops.

Notice that the level of petrol is set above the main jet, and that the jet is always submerged in petrol. The level is carefully set and tested at the

works before carburetter is sent out, and ought not to be interfered with.

Machines ought not to be left standing for long periods without turning off petrol cock.

Section 9: FUELS.

Petrol.—At present, it is sold in four qualities:—Aviation spirit; Nos. 1, 2 and 3. Petrol Nos. 2 and 3 appear to be of very poor quality. The specific gravity of aviation spirit is 680, and some brands of present-day petrol go as far as 800.

These differences of petrol quality give a great deal of variation in the running of engines, and should always be taken into consideration.

Benzol.—When running on benzol, use a smaller jet. Spark lever must be further advanced. Benzol is specially good to run on when your engine knocks, owing to combustion chamber being carbonized, and you haven't got time to clean same. For heavy work, one-third petrol and two-thirds benzol makes a splendid pulling mixture. Benzol gives slightly more miles to the gallon.

Paraffin.—If from any cause you are compelled to run on paraffin, lower your compression as far as possible, set the spark later (about 4 m/m at full advance on a four-stroke, and 7 m/m on a two-stroke), and use as low a top gear ratio as possible.

Mixtures.—Half aviation spirit and half paraffin is quite good. Two-thirds No. 1 and one-third paraffin is a passable mixture for long runs, but is not to be recommended for traffic work with a side-car. Half No. 3 and half paraffin can be run on, but starting is very difficult. Two-thirds benzol and one-third paraffin is fairly satisfactory, but difficult to start from cold. Shake all mixtures up well before starting, as they have a tendency to separate whilst at rest.

Alcohol Fuels.—When using "Discol" or other alcohol fuels, a special needle jet is necessary and the following increase of main jet size should be made:

P.M.S.	2.	Approximately	25%
R.D.	2.	,,	25%
R.D.	1.	,,	35%

Section 10: "DODGES" TO GET HOME.

Rubber tubing can be safely used temporarily to repair a fractured fuel pipe. Failing this, bind with insulating tape or soaped ordinary tape. Soap (household yellow preferred) is a fine stopper of petrol leaks.

If your throttle wire breaks on the two-lever model, change over the wires, fasten the air slide, if possible, so that it remains in the position for average running, or take it away altogether, and get home like that.

If you puncture your float badly or from any cause get bad flooding, adjust your petrol tap that it feeds just sufficient to keep your machine running at average speed.

Remember that the magneto is far more often the cause of erratic firing at very slow speed than the carburetter. An intelligent use of the magneto advance and retard lever will help in this direction. Other faults besides carburation causing bad, slow running are:—Weak exhaust valve springs, which would allow the exhaust valves to open during the suction stroke when the throttle is nearly closed; faulty plugs; sparking points in plug too far apart or too near; slight leakage from high tension cable to frame; weak magneto, dirty or untrue contact breaker points; cable sticking, etc.

ENGINE REVS. AT DIFFERENT SPEEDS—MILES PER HOUR.

SECTION 11. Diam. of Driving Wheel, 26 in.

Gear Ratio	4	4¼	4½	4¾	5	5¼	5½	5¾	6
Speed in Miles p.hr.									
5	260	276	292	309	325	346	358	374	390
10	520	552	584	618	650	692	716	748	780
15	780	828	876	927	975	1038	1074	1122	1170
20	1040	1104	1168	1236	1300	1384	1432	1496	1560
25	1300	1380	1460	1545	1625	1730	1790	1870	1950
30	1560	1656	1752	1854	1950	2076	2148	2244	2340
35	1820	1932	2044	2163	2275	2422	2506	2618	2730
40	2080	2208	2336	2472	2600	2768	2864	2992	3120
45	2430	2484	2628	2781	2925	3114	3222	3366	3510
50	2600	2760	2920	3090	3250	3460	3500	3740	3900
55	2860	3036	3212	3399	3575	3806	3938	4114	4290
60	3120	3312	3504	3708	3900	4152	4296	4488	4680
65	3380	3588	3796	4017	4225	4498	4654	4862	5070
70	3640	3864	4088	4326	4550	4844	5012	5236	5460
75	3900	4140	4380	4635	4875	5190	5370	5610	5850
80	4160	4416	4672	4944	5200	5536	5728	5984	6240

For 28 in. Wheels, multiply Revs. by 0.93. For 24 in. Wheels, multiply by 1.08.

SECTION 11 (*continued*) : CUBIC CAPACITY OF STANDARD SIZE OF ENGINES AT PRESENT ON THE ROAD.

Millimetres	C.C.	Millimetres	C.C.
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 No. of cylinders.

Section 12: How to Order Spare Parts.

When ordering spare parts it is always advisable to give the make, date and horse power of the machine for which they are required.

If a part is ordered by telegram the part number could be given and this number can be found by the following method:—

1. Note type number of carburetter, which will be found stamped on the mixing chamber.
2. Look for part required on the spares illustration in this booklet and note number against it. You may find several numbers against the part, which is due to the fact that it is made in several sizes.
3. Glance down spares price list until the part is found and look for its price under the column which is headed with the type number of the carburetter you have.

NOTE that in the latest Amac Spares List for 1928 carburetters in booklet No. 203, all parts bearing the same number are interchangeable.

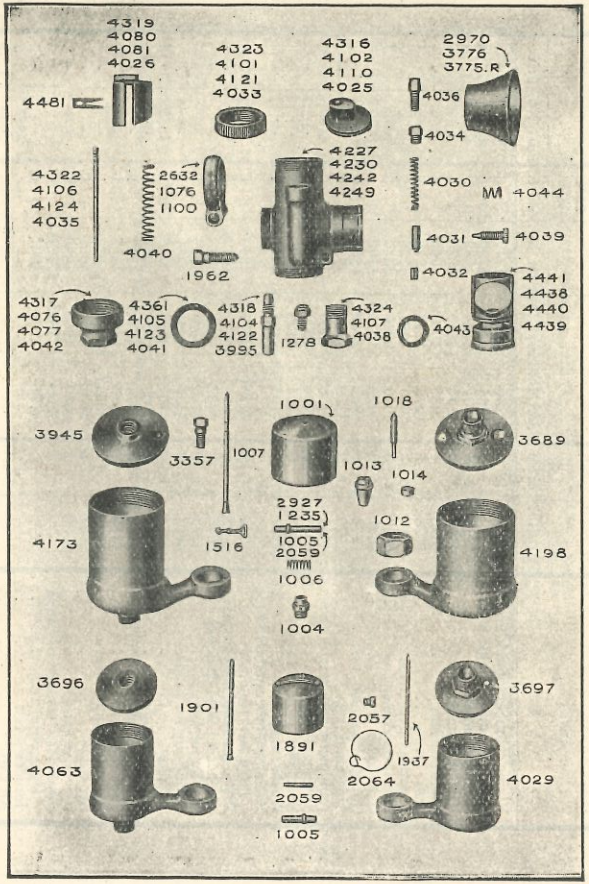
This is not the case, however, with the old 1927 spare part lists.

Throttle Valve and Jets.—Care should be taken when these parts are being ordered, as in addition to the part numbers of the jet or throttle valve, the type number, which is stamped on the part itself, must also be given.

Mixing Chambers.—When ordering Mixing Chambers particulars of the machine must always be given so that the correct bore mixing chamber can be sent.

Control Spares.—A separate leaflet, No. 200, can be supplied which deals fully with all Amal Controls, Twist Grips and spare parts for them.

Section 12A: AMAC CARBURETTER SPARE PARTS, TYPE M (1928).



MIXING CHAMBER PARTS.

PART	TYPE: 10M		TYPE: 15M	TYPE: 25M	TYPE: 30M	TYPE: 15M, 25M, 30M	TYPE: 40M	
	Part No.	Price	Part No.	Part No.	Part No.	Price.	Part No.	Price.
Mixing chamber (double lever)	4227	12 6	4230	4242	4249	8 6	—	—
Mixing chamber (single lever)	—	—	4254	4263	4266	8 6	4382	7 0
Mixing chamber cap ..	4323	2 2	4101	4121	4033	1 9	4387	1 6
Mixing chamber top ..	4316	2 2	4102	4110	4025	1 9	—	—
Cable adjuster	4036	4	4036	4036	4036	4	4036	4
Jet	1278	5	1278	1278	1278	5	4392	5
Throttle valves (Nos. 2, 3, 4, 5)	4319	4 3	4080	4081	4026	3 10	4399	3 0
Throttle valve spring ..	4040	3	4040	4040	4040	3	4040	3
Outlet clip	2632	2 2	1076	1076	1100	1 9	1100	1 9
Outlet clip screw	1962	6	1962	1962	1962	6	1962	6
Air funnel	2970	3 0	3776	3775R	3775R	2 6	—	—
Jet block complete with choke	4441	5 0	4438	4440	4439	5 0	4400	2 0
Air barrel top	4034	7	4034	4034	4034	7	—	—
Needle jet	4318	1 9	4104	4122	3995	1 9	—	—
Washer for jet block ..	4361	2	4105	4123	4041	2	—	—
Mixing chamber union nut for large float chamber ..	4317	1 11	4076	4077	4046	1 6	—	—
Ditto, for small float chamber	—	—	—	—	4042	1 6	—	—
Washer for float chamber lug	4043	2	4043	4043	4043	2	—	—
Needle for jet	4322	1 3	4106	4124	4035	1 3	—	—
Spring clip for needle ..	4481	4	4481	4481	4481	4	—	—
Jet plug	4324	1 9	4107	4038	4038	1 9	4390	1 6
Air adjusting screw	4039	6	4039	4039	4039	6	4389	6
Spring for air adjusting screw	4044	2	4044	4044	4044	2	—	—
Cable nipple	1482	2	1482	1482	1482	2	4404	2
Air valve nipple sleeve ..	4032	2	4032	4032	4032	2	—	—
Air valve	4031	1 0	4031	4031	4031	1 0	—	—
Air valve spring	4030	3	4030	4030	4030	3	—	—
Strangler, complete (single lever only)	—	—	3776-4196	3775R-4201	3775R-4201	3 0	—	—
Jet lock screw	—	—	—	—	—	—	4391	7
Air cap	—	—	—	—	—	—	2044	1 9
Jet washer	—	—	—	—	—	—	4405	1

FLOAT CHAMBER PARTS.

	NY FLOAT CHAMBER		NX FLOAT CHAMBER		30HY FLOAT CHAMBER		30HX FLOAT CHAMBER		40MX FLOAT CHAMBER	
Float chamber only for M type Carburetters 1928	4173	12 0	4198	12 0	4063	8 6	4029	8 6	4397	8 6
Float	1001	2 6	1001	2 6	1891	2 6	1891	2 6	1891	2 6
Float chamber cover complete	3945 etc.	4 3	3689 etc.	4 3	3696 etc.	4 3	3697 etc.	4 3	4403	4 3
Float chamber cover only	3945	2 11	3689	2 11	3696	2 11	3697	2 11	4403	2 11
Needle	1007	11	1018	11	1901	11	1937	11	4398	11
Needle clip	1516	3	—	—	3692	3	3692	3	3692	3
Petrol union nut ..	1012	6	1012	6	1012	6	1012	6	1012	6
Petrol union nipple	1013	3	1013	3	1013	3	1013	3	1013	3
Petrol filter ..	1014	5	1014	5	1014	5	1014	5	1014	5
Locking screw for float chamber cover	3357	6	—	—	—	—	—	—	—	—
Tickler body ..	1004	7	1004	7	1004	7	2057	7	4395	7
Tickler spring ..	1006	2	1006	2	1006	2	2064	2	F555B	2
Tickler ..	2927	7	1235	7	1005	7	2059	7	4394	7
Tickler cotter pin ..	—	—	—	—	—	—	—	—	4401	1

NY=Large bottom feed float chamber.
NX= „ top „ „ „
30HY=Small bottom „ „ „
30HX= „ top „ „ „

SECTION 13 :

AMAL CONTROL LEVERS, SPARES LIST. TYPES AID, AOD, AIS, AOS.

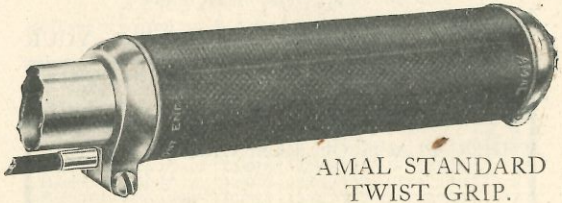
A—Type of control. I—Opening inwards. D—Double lever.
S—Single lever. O—Opening outwards.

PART	NUMBER. AID.	AOD.	AIS.	AOS.	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
Handlebar 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
Cable (inner & outer) per length ..					2 3
Cables (inner & outer) per pair					4 6

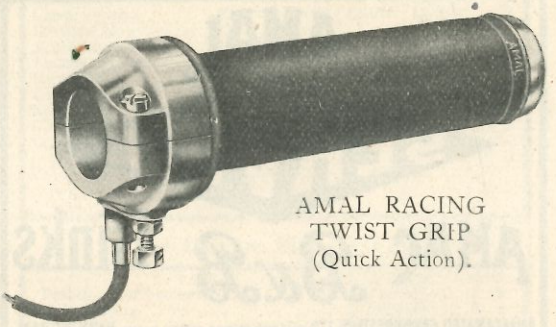
SPARES LIST OF PULL-UP LEVER.

PART	NUMBER	PRICE
Pull up lever bracket	12/035	2 8
Pull up lever	12/036	3 5
Cable end	12/037	10
Fulcrum pin	12/038	3
Clip screws	12/039	3
Clip	12/040 (A 1", B ⅞")	6
Fulcrum pin nut	12/041	3
Adjusting bush	12/042	5

IT WILL SAVE YOU TIME TO BUY YOUR SPARES FROM AN AMAL SERVICE STOCKIST, ALL OF WHOM EXHIBIT THIS SIGN OUTSIDE THEIR PLACE OF BUSINESS.



AMAL STANDARD TWIST GRIP.



AMAL RACING TWIST GRIP (Quick Action).

These two new Amal controls take the place of the old Amac twist grip control. The standard Amal twist grip is of the straight pull type, but the cable can easily be detached without dismantling the control.

AMAL

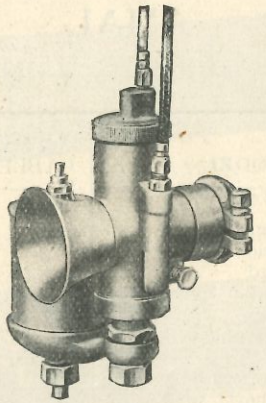
PRICES OF AMAL CONTROLS.

MODEL	WITH CABLE	LESS CABLE
	s. d.	s. d.
Amal single lever ..	8 3	6 0
Amal double lever, standard	11 6	7 0
Amal double lever with pull up	17 0	12 6
Amal double lever, racing	21 6	17 0
Amal standard twist grip (short, 5in.) ..	12 3	10 0
Amal standard twist grip (long, 6½in.) ..	13 3	11 0
Amal racing twist grip (short, 6in.)	14 3	12 0
Amal racing twist grip (long, 7in.)	15 3	13 0
Dummy grip with metal ends	—	1 6

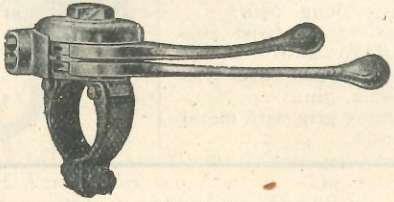
Leaflet containing full description and spare parts list of Amal controls will be sent free on application.

SECTION 15:

Catalogue of Amac Carburetters.



TYPE MDY



AMAL DOUBLE LEVER CONTROL.

Amalgamated Carburetters Ltd.,

HOLFORD WORKS, PERRY BARR,
BIRMINGHAM.

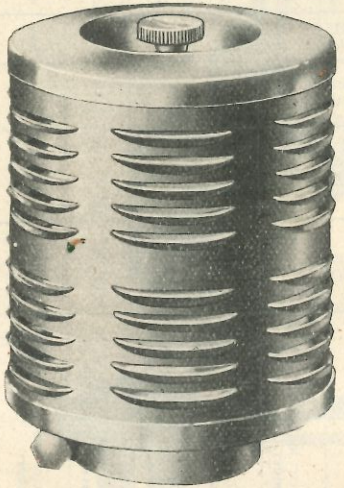
SECTION 15: PRICES OF AMAC CARBURETTERS.

Size	Type of Carburetter: Mixing Chamber	Control	Float Chamber	Cubic Capacity of Engine: Single Cylinder	Twin Cylinder	Outside diameter of inlet pipe	Internal bore of carburetter	Weight with control	Price complete (Double lever)	Price, less Control and cables (single or double)	Single Lever Models: Type	Price with control
40	M	S	X	150 c.c. and under	350 c.c. and under	$\frac{3}{4}$" $\frac{7}{8}$" 1"	$\frac{5}{8}$"	lb. oz. 1 3$\frac{1}{2}$		25/6	40MSX	32/9
30	M	D	Y	350 c.c. and under	700 c.c. and under	$\frac{7}{8}$" 1" 1$\frac{1}{8}$"	1$\frac{1}{16}$" $\frac{3}{4}$" $\frac{25}{32}$"	2 2	40/–	29/6	30MSY	36/9
25	M	D	Y	350 c.c. to 500 c.c.	700 c.c. to 1000 c.c.	1" 1$\frac{1}{8}$"	$\frac{25}{32}$" $\frac{13}{16}$" $\frac{7}{8}$"	2 8	44/–	33/6	25MSY	40/9
15	M	D	Y	500 c.c. and over	750 c.c. to 1000 c.c.	1$\frac{1}{8}$" 1$\frac{1}{4}$"	1$\frac{3}{16}$" 1" 1$\frac{1}{16}$"	2 13	48/–	37/6	15MSY	44/9
10	M	D	Y	500 c.c. and over	1000 cc. and over	1$\frac{1}{4}$" 1$\frac{3}{8}$" 1$\frac{1}{2}$"	1$\frac{3}{32}$" 1$\frac{1}{8}$"		55/–	44/6	All single lever carburetters are fitted with stranglers	

D = Double lever. S = Single lever. Y = Bottom feed float chamber. X = Top feed float chamber.
Flanged outlets and top feed float chambers can be supplied when required.
When ordering state name, date and horse-power of the machine and size of induction pipe and handlebar

SECTION 16 :

AMAL SELF-CLEANING AIR FILTER, for Touring Motor Cycles.



This fitting screws on to the air intake of the carburetter and ensures a supply of pure filtered air, free from all dust, dirt or abrasive matter.

It is easy to fit and the price is reasonable and at all ordinary touring speeds does not affect carburation.

For a modest outlay of a few shillings you can prolong the life of your engine and reduce your overhaul and upkeep expenses.

Price 8/- each.

Plus Postage and extra for Adaptor Elbow, when necessary.