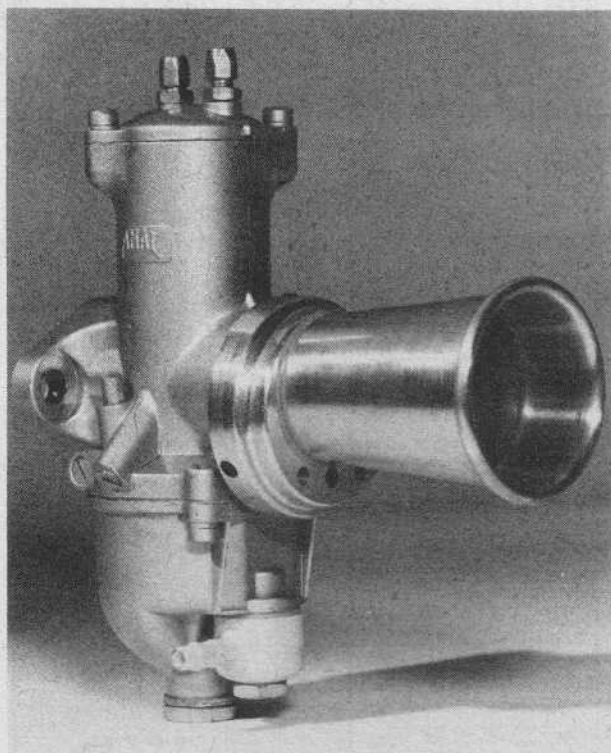


Amal Concentric Technical Manual



IF YOU TOOK the time to read the last section on the retired Monobloc carb, then you know that the newer Concentric (though basically a superior design) had its share of problems. Designed in bugs, as it were. Most of the hassle was caused by a lack of available information from abroad. The few tuners who knew what they were doing sure didn't go out of their way to let anyone else know.

The Concentric was a lighter, slimmer carb than the 'Bloc and featured a float bowl directly under the main jet. This feature allowed the bike to be leaned at severe angles without affecting the flow of fuel to the main jet. However, the Concentric dealt the four stroke riders a serious jolt by removing the normal pilot jet that the Monobloc had. In its place was an insidious little pressed in bushing that defied tuning. Two stroke riders didn't have this problem, as all the two-stroke carbs came with a removable pilot jet. However, they had their own problems with frothing and slide breakage. Later models of the Concentric cured many of these problems, but the four stroke carbs are still coming through as of this writing with a non-adjustable pilot cir-

New magnesium Amal Concentric carb is now on the market. It looks just like the old one, but only weighs 15 ounces—about half the weight of the standard model. The velocity stack adds to performance, bringing the effective venturi size up a few steps higher than indicated.

cuit. The Mark II promises to change all that.

One advantage that the Concentric did offer, though, was that it could pull more horsepower on the top end out of a given motor than other comparative carbs. Dyno tests have repeatedly backed this up. The bore of the Concentric is less interrupted than any other carb on the market as of this writing. Simply put, a 36mm Amal will flow more than a 36mm anything else. What it does to the low end response of the bike, is still open to hot debate, however.

Concentric carbs come in three series: The 600 Series goes 22mm, 24mm and 26mm. The 900 Series has 28mm, 30mm and 32mm and is probably the most common Amal in use today. The 1000 Series is generally found on racing machines and comes in 34mm, 36mm and 38mm.

A wide range of jets is available:

Pilot jets 15 to 70 in steps of 5.

Needle jets . . . 105 to 110 in one point jumps; special jets go to 135 in 5 point jumps.

Main jets 60 thru 500 in 5 point jumps and 500 thru 1000 in 40 point jumps. Alcohol jets go from 1000 to 1900 in 100 point jumps.

Like other Amals, all the jets are interchangeable from carb to carb. Even the new Mark II can use the same jets that were good decades ago.

The only big changes in jetting is in the four stroke to two stroke. Pilot jets and main jets are identical in both, but needle jets and spray tubes vary. And the jet holders are different. Here is where most tuners make their mistakes. Needle jets part number for four strokes is 622/122, while the two stroke number is 622/079. A four stroke spray tube is called by its proper Christian part number of 622/074 and the two stroker is 622/075. Look at the photos for a comparison. The four stroke needle jet has a hole drilled through it and meters

through the bottom hole, while the two stroke needle jet is solid on the sides and is metered through the top hole. You can easily convert one carb from the other, with the alarming exception of taking the cruddy fixed pilot circuit out of the four stroke carb. It can be done, but Jerry Burak assured us that it was most assuredly not worth the trouble.

Why should he know? Simply because he knows more about Amal carbs than anyone in the country. We got much information from Jerry and his partner Norm at their place of business,

BURAK BYE-PRODUCTS
15170 Raymer St.
Van Nuys, Calif. 91405
(213) 780-1768

If this sounds like a plug, it is. But a highly recommended one. Jerry sells all Amal parts and welcomes tough problems. Give him a call if you have any question regarding Amals. But not collect, OK?

One of Jerry's favorite tuning tricks is take the two stroke carb (with the

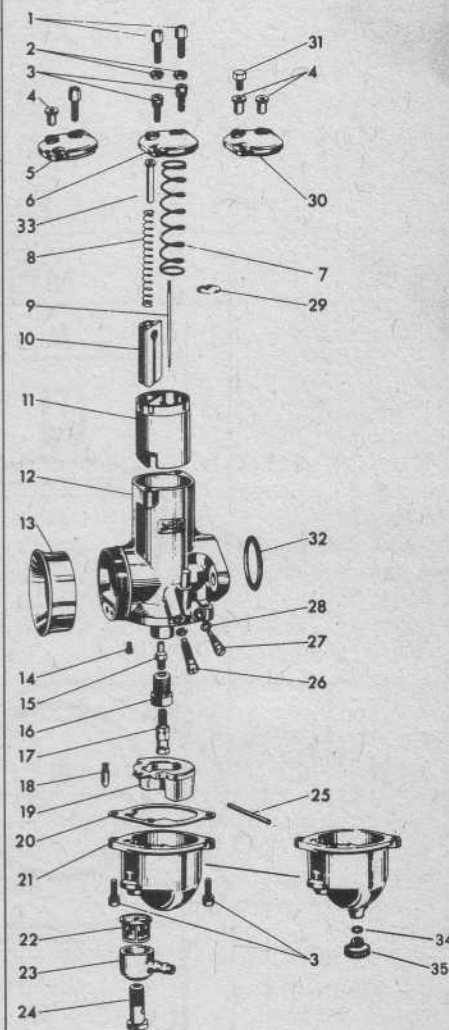
adjustable idle circuit) and convert it to four stroke parts and surprise people with the resultant performance gains.

He claims that most of the hassle that has been experienced with Concentrics is because people have never known how to tune them and set them up properly in the first place. Additionally, he recommends that a VITON tipped float needle be installed in *any* Amal and most of the loading up problems will go away. Apparently, the standard float needle allows gas to dribble in the motor at the oddest times. He sells this needle for a buck and a half and it fits

Parts List for Amal Concentric Carburetors

Key to illustration	Component	Carburetor Series 600	Carburetor Series 900	Carburetor Series 1000
1	Cable adjuster	4/035	4/035	4/035
2	Cable-adjuster locknut	5/077	5/077	5/077
3	Securing screw for float-bowl and mixing-chamber top	622/086	622/086	622/086
4	Cable ferrule for use with mid-cable adjuster	6/132A	6/132A	—
5	Mixing-chamber top for adjuster and ferrule	622/097	928/097	—
6	Mixing-chamber top (standard)	622/064	928/064	1034/064
7	Throttle-slide spring	622/131	622/131	1034/061
8	Choke-valve spring	622/129	622/129	—
9	Throttle needle (paired with needle jet 622/079)	622/063	928/063	1034/063
9	Throttle needle (paired with needle jet 622/122)	622/124	622/124	622/124
9	Throttle needle (for alcohol only)	622/099	928/099	1034/099
10	Choke valve	622/062	928/062	—
11	Throttle slide (specify cutaway)	622/060	928/060	1034/060
12	Carburetor body and tickler assembly	*	*	*
13	Velocity stack - standard	376/066	928/066	—
13	Velocity stack - 2 1/4 in. (70 mm) long	376/143	928/069	1034/070
13	Velocity stack - 2 3/8 in. (59 mm) long	—	928/070	—
14	Pilot jet	124/026	124/026	124/026
15	Needle jet (preferred for 2-cycle engines)	622/079	622/079	622/079
15	Needle jet (preferred for 4-cycle engines)	622/122	622/122	622/122
15	Needle jet (for alcohol only)	622/100	622/100	622/100
16	Jet holder	622/128	622/128	622/128
17	Main jet (specify size)	376/100	376/100	376/100
18	Float needle	622/068	622/068	622/068
18	Float needle (for alcohol only. Use with 622/054 float bowl)	622/149	622/149	622/149
19	Float	622/069	622/069	622/069
20	Float-bowl washer	622/073	622/073	622/073
21	Float bowl - 0.10 in. (2.5 mm) seating	622/050	622/050	622/050
21	Float bowl - 0.10 in. seating with drain plug	622/055	622/055	622/055
21	Float bowl - 0.062 in. (1.6 mm) seating	622/052	622/052	622/052
21	Float bowl - 0.062 in. seating with drain plug	622/057	622/057	622/057
21	Float bowl - 0.125 in. (3.2 mm) seating	622/051	622/051	622/051
21	Float bowl - 0.125 in. seating with drain plug	622/056	622/056	622/056
21	Float bowl - 0.156 in. (4.0 mm) seating (for alcohol only. Use with 622/149 float needle)	622/054	622/054	622/054
22	Filter	376/093	376/093	376/093
22	Filter (for alcohol only)	376/093B	376/093B	376/093B
23	Banjo, single, push-on (1/4 in. inside diameter tubing)	376/097	376/097	376/097
23	Banjo, single, threaded 1/4 in. BSP (3/8 in. tubing)	376/090	376/090	376/090
23	Banjo, single, push-on (3/8 in. tubing)	376/130	376/130	376/130
23	Banjo, double, 90°, push-on (3/8 in. tubing)	376/135	376/135	376/135
23	Banjo, double, 150°, push-on (3/8 in. tubing)	376/139	376/139	376/139
23	Banjo, double, 55°, push-on (3/8 in. tubing)	376/410	376/410	376/410
23	Banjo, double, 180°, push-on (1/2 in. tubing)	376/419	376/419	376/419
Not shown	Banjo washer (for alcohol only)	14/175	14/175	14/175
24	Banjo bolt	622/078	622/078	622/078
Not shown	Banjo bolt washer (for diecast banjos only)	13/163	13/163	13/163
25	Float spindle	622/071	622/071	622/071
26	Throttle stop adjusting screw	622/077	622/077	622/077
27	Pilot air adjusting screw	622/076	622/076	622/076
28	O-rings	622/082	622/082	622/082
29	Needle clip	622/067	622/067	1034/065
30	Mixing-chamber top for two ferrules	622/098	928/098	—
31	Plug for mixing-chamber top	4/137A	4/137A	—
32	O-ring for flange sealing	622/101	622/101	—
33	Choke valve guide	622/134	928/103	—
Not shown	Jet key and 'Poqidriv' screwdriver	622/104	622/104	622/104
34	Float-bowl drain-plug washer	622/151	622/151	622/151
35	Float-bowl drain plug	622/147	622/147	622/147
Not shown	Tickler stem	622/089	622/089	1034/067
Not shown	Tickler head	622/081	622/081	1034/068
Not shown	Tickler spring	14/032	14/032	1034/073
Not shown	Tickler body	—	—	1034/074
Not shown	Main-jet filter	928/071	928/071	928/071
Not shown	Cable sheath	—	—	316/083
Not shown	Air-intake adapter	—	—	1034/075

SPARE PARTS LIST FOR SERIES 600, 900 & 1000 CARBURETTERS



all Amals, from the oldest to the newest. And it will be standard equipment on the new Mark II carb.

Burak used to do all the tuning for J. N. Roberts. You may have heard of him. One of the tricks he use to do on J. N.'s Husky, was to use the smallest capacity float (there are two available) and the biggest banjo fitting available. The 5/16" I.D. fitting flows like a ruined kidney. This gave less area in the float chamber and made J.N.'s bike far less susceptible to changes in alti-

tude. But don't try this unless you get a lot of gas flowing in the float chamber.

Slides in Concentric Series carbs are few, but apparently sufficient for tuning. Needle selection is limited. The 600 Series goes from 2.0 cutaway to 4.0 in .5 jumps. The 900 Series from 2.0 to 5.0 in the same jumps, and the 1000 Series from 2.0 to 3.5 likewise. The newer Mark II will go from 2.0 to 4.0.

Jerry feels that whatever shortcomings the Concentric may have, the performance gains are worth it. But, the

new Mark II is supposed to have all the benefits and none of the hassles.

Series 600 and 900 Carburetors

GENERAL INFORMATION

These carburetors are supplied right hand as standard with the tickler, throttle stop and pilot air adjustment positioned on the right hand side as viewed from the air intake end. Left hand instruments are available with tickler,

Amal Concentric Carburetor Dimensions

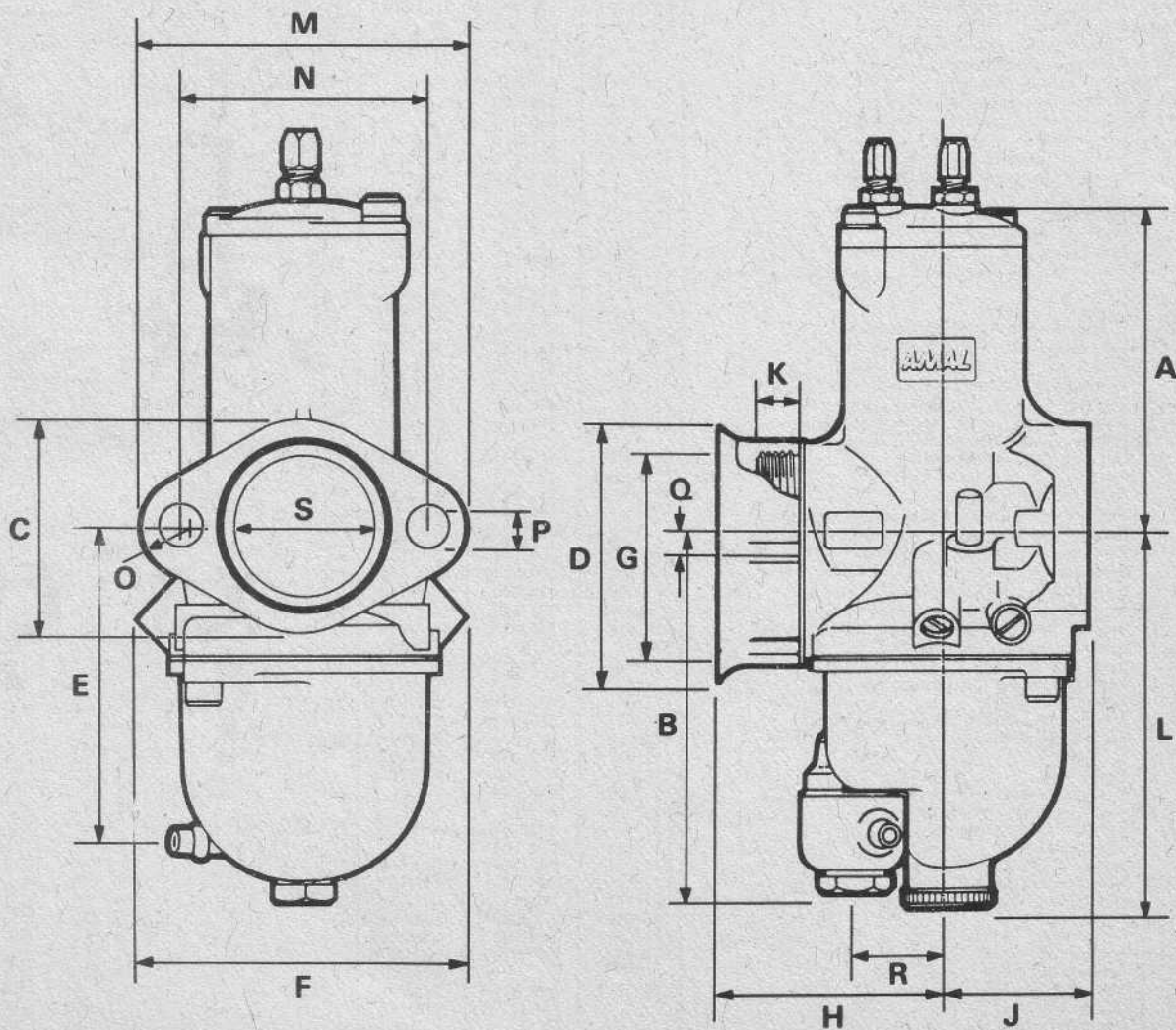
		A	B	C	D	E	F	G	H	J
Series 600	inches	2.41	2.90	1.63	1.94	2.43	2.56	1.63	1.84	1.30
	mm	61.2	73.6	41.3	49.2	61.7	65.0	41.2	46.4	33.0
Series 900	inches	2.74	3.02	1.69	2.13	2.55	2.75	1.81	1.84	1.30
	mm	69.6	76.6	42.9	53.9	64.7	69.8	46.0	46.4	33.0
Series 1000	inches	3.00	3.13	2.05	2.76	2.66	3.00	2.06	3.93	1.38
	mm	76.2	79.6	52.0	70.0	67.7	76.2	52.4	98.8	35.0

		K	L*	M	N	O†	P‡	Q	R	S
Series 600	inches	0.30	3.13	2.63	2.00	0.38	0.34	0.19	0.78	Bore
	mm	7.6	79.6	66.7	50.8	9.5	8.7	4.7	19.8	22, 24 or 26
Series 900	inches	0.30	3.23	2.63	2.00	0.38	0.34	0.19	0.78	Bore
	mm	7.6	82.1	66.7	50.8	9.5	8.7	4.7	19.8	28, 30 or 32
Series 1000	inches	0.32	3.35	3.35	2.56	0.52	0.34	0.18	0.78	Bore
	mm	8.0	85.1	85.0	65.0	13.2	8.7	4.5	19.8	34, 36 or 38

* This dimension only applies to carburetors fitted with drain plug (optional extra).

† Flange radius.

‡ Hole diameter.



throttle stop and pilot air adjustment on the opposite side.

Carburetors are normally supplied with an air valve which is cable operated from the handlebar position, if requested this valve can be omitted and the mixing chamber top sealed with a plug screw.

The standard range of float chamber connections available are as follows:

Banjo part No. 375/068 Single feed for 3/16" bore pipe.

Banjo Part No. 376/090 Single feed screwed 1/4" BSP complete with nut and nipple for copper pipe.

Banjo part No. 376/097 Single feed for 1/4" bore flexible pipe.

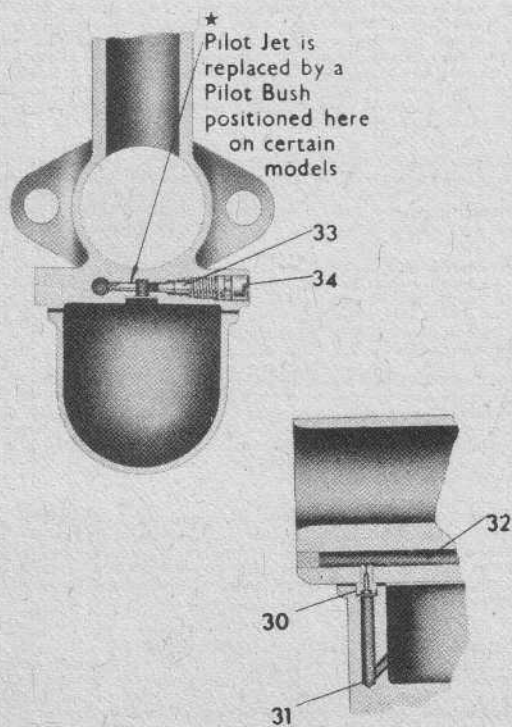
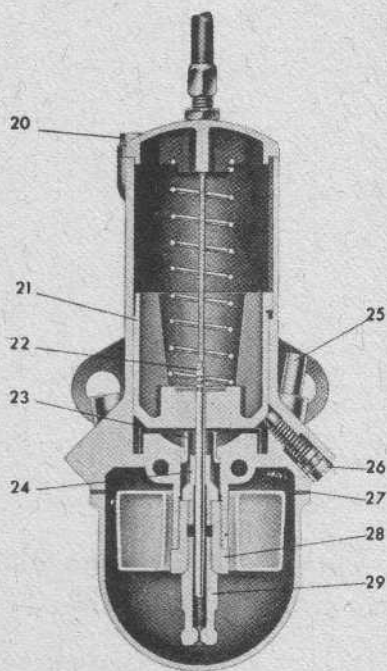
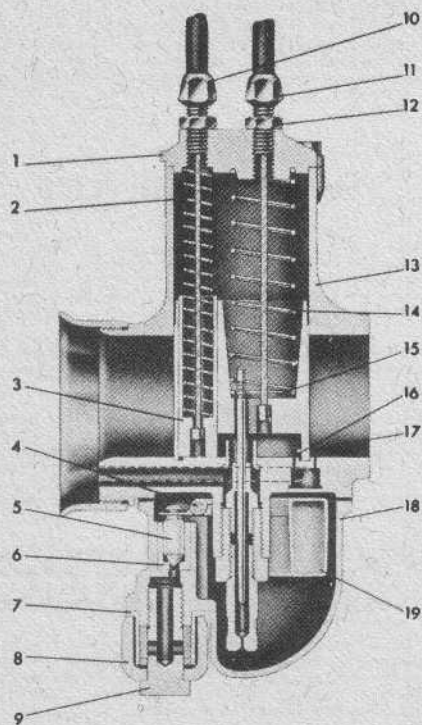
Banjo part No. 376/098 Double feed for 1/4" bore flexible pipe.

Banjo part No. 376/108 Double feed screwed 1/4" BSP complete with nuts and nipples for copper pipes.

Important

When incorporating the latest metering system the following three items must be fitted as a set: Throttle Needle 622/124, Needle Jet 622/122 and Jet Holder 622/128.

It is permissible to fit the latest Jet Holder 622/128 with the original Throttle Needle and Needle Jet, but not possible to fit the new Needle and Needle Jet with the original Jet Holder, obviously the Needle and Needle Jet must be paired. ●



- | | |
|---------------------------------|-----------------------------------|
| 1 - MIXING CHAMBER TOP. | 18 - FLOAT CHAMBER BODY. |
| 2 - AIR VALVE SPRING. | 19 - FLOAT. |
| 3 - AIR VALVE. | 20 - MIXING CHAMBER TOP SCREWS. |
| 4 - FLOAT SPINDLE. | 21 - THROTTLE VALVE. |
| 5 - FLOAT NEEDLE. | 22 - JET NEEDLE. |
| 6 - NEEDLE SEATING. | 23 - CHOKE TUBE. |
| 7 - FILTER GAUZE. | 24 - NEEDLE JET. |
| 8 - BANJO. | 25 - TICKLER. |
| 9 - BANJO BOLT. | 26 - THROTTLE ADJUSTING SCREW. |
| 10 - CABLE ADJUSTER (AIR). | 27 - FLOAT CHAMBER WASHER. |
| 11 - CABLE ADJUSTER (THROTTLE). | 28 - JET HOLDER. |
| 12 - CABLE ADJUSTER LOCKNUTS. | 29 - MAIN JET. |
| 13 - CARBURETTOR BODY. | * 30 - PILOT JET. |
| 14 - THROTTLE VALVE SPRING. | 31 - PILOT JET FEED PASSAGE. |
| 15 - JET NEEDLE CLIP. | 32 - FEED PASSAGE FROM PILOT JET. |
| 16 - PILOT BY-PASS. | 33 - PILOT AIR FEED PASSAGES. |
| 17 - PILOT OUTLET. | 34 - PILOT AIR ADJUSTING SCREW. |

Carburetor Settings List 1969, 1970

MACHINE	Carburetor No.		MACHINE	Carburetor No.	
	1969	1970		1969	1970
A-J.S.			GILERA (ARGENTINA)		
250 Scrambler Y4	R932/17	R932/17	8622/2	R622/2	
380 Scrambler Y3	R1034/3	R1034/3			
B.S.A.			GREEVES		
173 Bansman 175	R626/17	R626/17	250	R932/3	R932/3
173 Bushman 175	R626/17	R626/17			
247 Starline 305	R930/3	R930/3			
441 Shooting Star B41SS	R930/38	R930/38			
441 Victor Special B41CS	R930/38	R930/38	MONTESSA		
499 Royal Star A50	R626/19	R626/19	Costa TT	L627/411	L627/411
654 Firebird Scrambler A65SS A65FS	R930/34	R930/34			
	L930/35	L930/35			
	R930/34	R930/34			
	L930/35	L930/35			
654 Lightning AG1L	R626/45	R626/45	NORTON VILLIERS		
654 Thunderbolt AG1T	R626/45	R626/45	Commando	L930/30	R930/45
740 Rocket 3 A73R	L626/13	L626/13		L930/31	L930/47
			SANGLAS S.A.		
BULTACO			400	R930/445	R930/445
Lobito Mk. 3		R622/403			
Lobito Mk. 3		L622/406			
Lobito 125		L625/405	TRIUMPH		
Sherpa S100		R625/406	Tiger T100 100cc	R626/6	R626/25
Campera 12 Mk. 2		L625/407	100T & 100R	L626/10	L626/27
Campera 175 Mk. 2		R625/408	TR6, TR6R, TR6C,	R930/23	R930/23
Lobito 125		L625/410	T120, T120R	L930/9	R930/9
Lobito 125		R625/425	T150 Trident	L930/10	L930/10
Purang 175 Mk. 3 - Mk. 4		R930/409	TR25W	L626/14-16	R626/14-16
Purang 175 Mk. 3 - Mk. 4		L930/410		L626/15	L626/15
Matador Mk. 3		R932/413		R928/20	R928/20
Matador Mk. 3		L932/414			
Merrilla Mk. 2		R932/415			
Merrilla Mk. 2		L932/416	VELOCE		
El Monasterio El Bandido		R932/417	Thronox	R930/15	R1036/4
El Monasterio El Bandido		L932/418	Venom		R930/29
TS 350		R1036/5			
TS 350		L1036/6			

HOW THE CARBURETTER WORKS

The carburetter proportions and atomises the right amount of petrol with the air that is drawn in by the engine because of the correct proportions of jet sizes and the main choke bore. The float chamber maintains a constant level of fuel at the jets and cuts off the supply when the engine stops.

The throttle control from the handlebar controls the volume of mixture and therefore the power, and at all positions of the throttle the mixture is automatically correct. The opening of the throttle brings first into action the mixture supply from the pilot jet system for idling, then as it progressively opens, via the pilot by-pass the mixture is augmented from the main jet, the earlier stages of which action is controlled by the needle in the needle jet. The pilot jet system is supplied by the pilot jet (30) which is detachable on removal of the float chamber. On certain other models no pilot jet is fitted but a pilot bush is inserted in the continuation of the pilot air adjusting screw passage. The main jet does not spray directly into the mixing chamber, but discharges through the needle jet into the primary air chamber, and goes from there as a rich petrol-air mixture through the primary air choke into the main air choke.

The carburetters usually have a separately operated mixture control called an air valve, for use when starting from cold, and until the engine is warm; this control partially blocks the passage of air through the main choke.

HINTS AND TIPS

STARTING from cold. Turn on fuel supply, set ignition (if manually operated) for best slow running, depress tickler to flood float chamber, close air valve, open throttle slightly and start engine. When engine starts open air valve and close the throttle; if engine begins to falter, partially close the air valve until engine is warm, then set in fully open position.

STARTING, engine hot. Open throttle slightly and start engine. It should not normally be necessary to flood the float chamber or close the air valve when starting a warm engine.

STARTING, general. Experience will show when it is necessary to flood the carburetter or use the air valve and also the best setting of the throttle valve. If the carburetter has been over-flooded or strangled, which would result in a wet engine and over-rich starting mixture—fully open the throttle valve and air valve, give the engine several turns to clear the richness, then start again with the air valve fully open and the throttle valve slightly open.

STARTING, SINGLE LEVER CARBURETTERS. OPEN THE THROTTLE VERY SLIGHTLY FROM THE IDLING POSITION AND FLOOD THE CARBURETTER MORE OR LESS ACCORDING TO THE ENGINE BEING COLD OR HOT RESPECTIVELY.

CABLE CONTROLS. See that there is a minimum of backlash when the controls are set back and that any movement of the handlebar does not cause the throttle to open; this is done by the adjusters on top of the carburetter, after releasing the adjuster locknuts. See that the throttle valve shuts down freely, then reset locknuts.

PETROL FEED. A filter gauze is fitted at the inlet to the float chamber, to remove this gauze unscrew the banjo bolt (9) the banjo and filter gauze can then be removed. Before replacement ensure that the filter gauze is both clean and undamaged and check fuel supply by momentarily turning on fuel tap. Vertical loops in petrol pipes must be avoided to prevent air locks. Float chamber flooding may be due to a worn float needle but nearly all flooding and blockage of the filter gauze with new machines is due to impurities from the tank. Periodically clean out filter gauze and float chamber until the trouble ceases or alternatively the tank may be drained and swilled out, etc.

FIXING CARBURETTER AND AIR LEAKS. Erratic slow running is often caused by air leaks, so verify there are none at the point of attachment to the cylinder or inlet pipe. A sealing ring is fitted into the attachment flange of the carburetter. Also in old machines look out for air leaks caused by a worn throttle or worn inlet valve guide.

BANGING IN EXHAUST may be caused by too weak a pilot mixture when the throttle is closed or nearly closed—also it may be caused by too rich a pilot mixture and an air leak in the exhaust system; The reason in either case is that the mixture has not fired in the cylinder and has fired in the hot silencer. If the banging happens when the throttle is fairly wide open the trouble will be ignition—not carburation.

BAD PETROL CONSUMPTION of a new machine may be due to flooding, caused by impurities from the petrol tank lodging on the float needle seat and so prevent its valve from closing. Flooding may be caused by a worn float needle valve. Also bad petrol consumption will be apparent if the needle jet (24) has worn; it may be remedied or improved by lowering the needle in the throttle, but if it cannot be—then the only remedy is to get a new needle jet.

AIR FILTERS. These may affect the jet setting, so if one is fitted afterwards to the carburetter the main jet may have to be smaller. If a carburetter is set with an air filter and the engine is run without it, take care not to overheat the engine due to too weak a mixture; testing with the air valve (page 5), will indicate if a larger main jet and higher needle position are required.

EFFECT OF ALTITUDE ON CARBURETTER. Increased altitude tends to produce a rich mixture. The greater the altitude, the smaller the main jet required. Carburetters ex-works are set suitable for altitudes, up to 3,000 feet approximately. Carburetters used constantly at altitudes 3,000 to 6,000 feet should have a reduction in main jet size of 5 per cent. and thereafter for every 3,000 feet in excess of 6,000 feet altitude further reductions of 4 per cent., should be made.

Carburetor Settings List 1971 and 1972

MACHINE	Carburetor No.		MACHINE	Carburetor No.	
	1971	1972		1971	1972
A-J.S.			GILERA (ARGENTINA)		
250 Scrambler Y4	R932/13		8622/2	R622/2	
380 Scrambler Y5	R1034/3	R1034/3			
B.S.A.			GREEVES		
247 Starline 305	R626/20	R928/20	250	R932/3	R932/3
654 Firebird A63SS A65-FS	R930/72		380 (U.S.B. Griffin)	R1034/3	R1034/3
	L930/73				
654 Lightning	R930/70	R930/70	HUSQVARNA		
654 Thunderbolt A65-T	R928/17	R928/17	125	L932/21	L932/21
740 Rocket 3 A73-R	R930/163	R930/163			
	L626/62	L626/62	K.T.M.		
			175	R930/75	R930/75
			MAICO		
BULTACO			R1036/2	R1036/2	
Lobito 175 Mk. 4	L930/403	L930/403			
Purang 175	R930/404	R930/404	MONTESSA		
Purang 175	L930/405	L930/405	Costa 247	R627/403	R627/403
Sherpa S	R930/406	R930/406	Costa 247	L627/407	L627/407
Sherpa S	R930/407	R930/407	Capra 125 MX	L627/410	L627/410
Sherpa S 15V 125 Mk. 3	R930/411	R930/411	Costa 247	L627/413	L627/413
Sherpa S 15V 125 Mk. 3	L930/412	L930/412	King Scorpion	L627/414	L627/414
Purang 125 Mk. 3	R930/413	R930/413	Costa TT	L627/411	L627/411
Purang 125 Mk. 3	L930/411	L930/411			
Purang 250 Mk. 3					
Bandido	R932/403	R932/403	MOTO GUZZI		
Bandido	L932/404	L932/404	750 Twin	L930/60	L930/61
Purang 250	R932/405	R932/405			
Purang 250	L932/406	L932/406			
Purang 250 Mk. 3	R932/408	R932/408			
Purang 250 Mk. 3	L932/409	L932/409	NORTON VILLIERS		
El Monasterio	R932/411	R932/411	Commando	L930/68	R930/68
El Monasterio	L932/412	L932/412		L930/69	L930/69
Purang Mk. 4	R932/416	R932/416	Combat	L932/19	L932/20
Purang Mk. 4	L932/409	L932/409			
Purang 250 Mk. 4 USA	R932/424	R932/424			
Purang 250 Mk. 4 USA	L932/425	L932/425			
Ski Merrilla Mk. 1	L932/426	L932/426	OSSA		
Matador	L932/427	L932/427	Trials	L627/416	L627/416
Bandido 360 USA Mk. 2	R932/428	R932/428			
Matador SD Mk. 2	R930/431	R930/431			
Matadero Mk. 2	L932/432	L932/432	TRIUMPH		
Purang 400	L932/433	L932/433	100C	R626/32	R626/32
Sherpa	L627/412	L627/412	100T 100R	R626/33	R626/33
			TR6R TR6C	L626/34	L626/34
			T120R	R930/66	R930/66
			T150R Trident	L930/67	L930/67
			TR25W	L932/47	R626/61
				48-49	L626/62
					R626/63
					R626/64
			WASSELL		
DALESMAN			Trials 125	R622/7	
Puch 125	R626/55				
DUCAITI					
750 GT	R930/76	R930/76			
250	L930/77	L930/77			

RE-ASSEMBLING

When replacing the valve assembly see that the jet needle goes into the holes in the choke tube, needle jet and main jet and that both the throttle and air valve spring locate correctly in the mixing chamber top.

When refitting the float, engage the float needle recess in the horseshoe section of the float and fit in float chamber. Check that the needle jet (24) jet holder (28) and main jet (29) are fully tightened together before screwing assembly into the body.

HOW TO TRACE FAULTS

There are only two possible faults in carburation, either richness or weakness of mixture.

INDICATIONS OF :-

RICHNESS.

Black smoke in exhaust.
Petrol spraying out of carburetter.
Four strokes, eight-stroking.
Two strokes, four-stroking.
Heavy, lumpy running.
Sparking plug sooty.

WEAKNESS.

Spitting back in carburetter.
Erratic slow running.
Overheating.
Acceleration poor.
Engine goes better if :-
Throttle is not wide open or
Air Valve is partially closed.

If richness or weakness is present, check if caused by :-

- | | |
|--|--|
| <p>(1) Petrol feed.</p> <p>(2) Air leaks.</p> <p>(3) Defective or worn parts.</p> <p>(4) Air cleaner being choked up.</p> <p>(5) An air cleaner having been removed.</p> | <p>Check that jets and passages are clear, that filter gauze in float chamber banjo connection is not choked with foreign matter, and that there is ample flow of fuel.
Check there is no flooding.</p> <p>At the connection to the engine or due to leaky inlet valve stems.</p> <p>As a loose fitting throttle valve, worn needle jet, loose jets.</p> |
|--|--|

Removing the silencer or running with a straight through pipe requires a richer setting.

Having verified the correctness of fuel feed and that there are no air leaks, check over ignition, valve operation and timing. Now at throttle position shown on page 7, fig. 5, test to see if mixtures are rich or weak. This is done by partially closing the air valve, and if engine runs better weakness is indicated, but if engine runs worse richness is indicated.

To remedy, proceed as follows :-

- | | |
|--|---|
| <p>To cure richness,
Position 1. Fit smaller main jet.</p> <p>Position 2. Screw out pilot air adjusting screw.</p> <p>Position 3. Fit a throttle with larger cutaway (page 6).</p> <p>Position 4. Lower needle one or two grooves (page 6).</p> | <p>To cure weakness.
Fit larger main jet.</p> <p>Screw pilot air adjusting screw in.</p> <p>Fit a throttle with smaller cutaway (page 6).</p> <p>Raise needle one or two grooves (page 6).</p> |
|--|---|

NOTE. It is not correct to cure a rich mixture at half throttle by fitting a smaller main jet because the main jet may be correct for power at full throttle: the proper thing to do is to lower the needle.

PARTS TO TUNE UP WITH

THROTTLE ADJUSTING SCREW (26). Set this screw to hold the throttle open sufficiently to keep the engine running when the twist grip is off. An "O" ring is fitted to the screw to hold this adjustment by friction.



MAIN JET (29). The main jet controls the petrol supply when the throttle is more than three-quarters open, but at smaller throttle openings although the supply of fuel goes through the main jet, the amount is diminished by the metering effect of the needle in the needle jet. Each jet is calibrated and numbered so that its exact discharge is known and two jets of the same number are alike. **NEVER REAMER A JET OUT, GET ANOTHER OF THE RIGHT SIZE. The bigger the number the bigger the jet.**

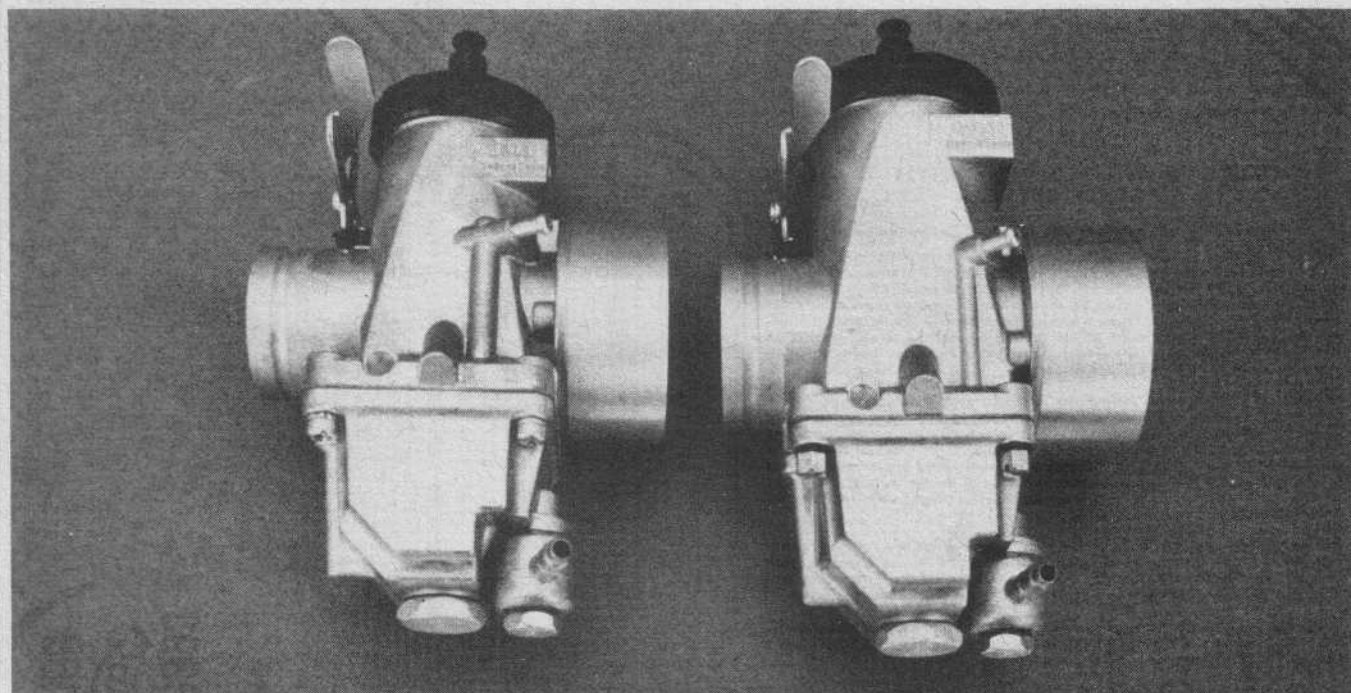
To remove the main jet, remove the float chamber, the exposed main jet can then be unscrewed from the jet holder (28).

Carburetor Settings List 1973

MACHINE	Carburetor No. 1973	MACHINE	Carburetor No. 1973
A.J.S.			
380 Scrambler X5	R1034/3	BULTACO (continued)	
410 Scrambler	R1034/3	Pursang 250	R932/405
U.S.A.		Pursang 250	L932/406
200 T20 (French Army)	R622/10	Pursang 250 Mk. 3	R932/408
740 Rocket 3 A75-R	R626/65	Pursang 250 Mk. 3	L932/409
	L626/67	Montadero 360	R932/411
	R626/68	Montadero 360	L932/412
740 T150 Hurricane	L626/70	Matador Mk. 3	L932/413
	R626/71	Matador Mk. 3	L932/414
Moto-Cross 500	R932/28	Metralia Mk. 2	R932/415
		Metralia Mk. 2	L932/416
BOUDET		Bandido 350 and 360 Euro Mk. 2	R932/417
	L1036/9	Bandido 350 and 360 Euro Mk. 2	L932/418
		Montadero 360 USA	R932/417
		Montadero 360 USA	L932/418
		Pursang Mk. 4 Europa	R932/419
		Pursang Mk. 4 Europa	L932/420
		Pursang 250 Mk. 4 USA	R932/424
		Pursang 250 Mk. 4 USA	L932/425
		Kit Metralia Mk. 2	L932/426
		Matador Mk. 4 USA	L932/427
		National Mk. 4	L932/427
		Bandido 360 USA Mk. 2	L932/428
		Matador SD Mk. 4	R932/430
		Montadero Mk. 2	L932/431
		Bandido Mk. 2 Europa	L932/431
		Bandido Mk. 2 Europa	L932/432
		Pursang 250 Mk. 5	L932/433
		Pursang 125 and 200 Mk. 6	R932/434
		Astro 250	L932/435
		Matador SD Mk. 5	R932/437
		Tiger 250	L932/438
		Pursang 250 Mk. 5 and Mk. 6	L932/439
		Pursang 250 Mk. 6	L1036/8
		Pursang 250 Mk. 6	L1036/8
		Pursang Astro	L1038/7
		Astro 350	L1038/8
		DUCATI	
		250	R627/408
		750 GT	R930/76
		350	L930/77
			R930/417

MACHINE	Carburetor No. 1973	MACHINE	Carburetor No. 1973
GILERA (ARGENTINA)			
	R622/2	OSSA	
		Trials	L627/422
		Enduro	L932/436
GREEVES			
250	R932/3	RICKMANN	
380 Q.U.R. Griffin	R1034/4	125 Enduro	R627
HUSQVARNA			
125	L932/21	SANGLAS	
		Sanglas 40	R930/415
		Sanglas 400	R930/418
K.T.M.			
175	R930/75	MOTOTRANS	
		Deluxe 250	R627/417
		Italia 250	R627/419
		Road 250	R627/421
		24 Hours 250	R627/424
MAICO			
	R1036/2	SUNBEAM (Stewart Engineering)	
		57	R624/4
MONTESSA			
Cota 75 and 125	L625/413	TRIMAKAR	
Cota 247	R627/406		R622/407
Cota 247	L627/407	TRIUMPH	
Capra 125 MX	L627/410	T100 SS	R626/64
Cota 7 T	L627/411		L626/65
Cota 247	L627/415		R626/66
King Scorpion	L627/414		L626/67
			R626/68
			R626/69
			L626/70
			R626/71
			R626/72
			R626/73
			R626/74
			R626/75
			R626/76
			R626/77
			R626/78
			R626/79
			R626/80
			R626/81
			R626/82
			R626/83
			R626/84
			R626/85
			R626/86
			R626/87
			R626/88
			R626/89
			R626/90
			R626/91
			R626/92
			R626/93
			R626/94
			R626/95
			R626/96
			R626/97
			R626/98
			R626/99
		WASELL	
		Trials 125	R622/7 or R622/8

Amal Mark II Technical Manual



New Mark II carb. Right side, 38mm. Left, 30mm.

EVEN THOUGH THE Mark II is a breakthrough, it still has to be tuned the same way as the Concentric, or even the stately Monobloc. Refer to these sections for tuning procedures and jetting specifications. The same jets are used throughout, so you don't have to throw away your box of old jets. The only new jets you'll need, will be the new high speed air bleeds, and there are only three of these. •

Series numbers in the new Mark II will be similar to the Concentric numbering system. All they've done is add a "2" in front of the basic numbers. The 2600 Series Mark II will come in 22, 24 and 26mm bore. The 2900 Series in 28, 30, 32 and 34mm, while the 2000 Series will be 36, 38 and 40 millimeters across the throat. This 40 should be a highly sought after number.

Probably the single biggest change to the Mark II (other than spiffy looks) is the first ever "two pilot" system. Now

the tuner has a choice of not only what pilot jet to use, but *where* he can put it. It can be located near the front or the back of the carb, depending on the need of the motor. Two stroke motors (with poor pressure drops at very low rpm) will benefit from a location closest to the venturi. The pilot hole that isn't being used is simply blocked off. Naturally, standard pilot jets are used.

Other features of the Mark II include the following, in no particular order:

1. Plastic cap, so you don't have to fart around with screws.
2. 5 position needle, for finer tuning without changing the needle.
3. Thicker slide. That should eliminate the breakage problem of the past.
4. Cold start jet for choke. Uses a standard pilot jet. (larger)
5. A high flow bell that increases flow.
6. Removable high speed air bleed

jets for finer tuning.

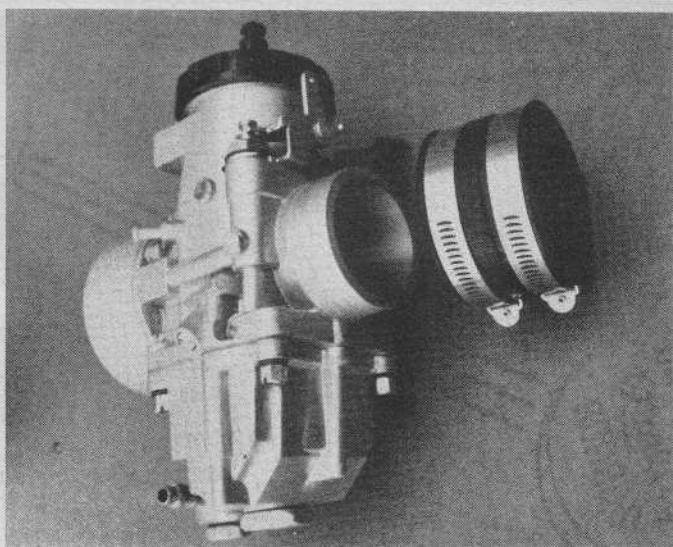
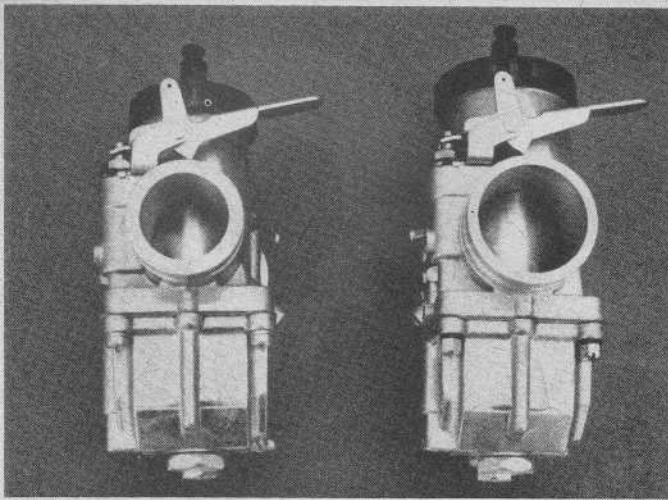
7. Choice of floats. (But, you've had this all along and didn't know it)

8. A stabilizer bar and mounting holes for multi-cylinder bikes. Keeps the carbs locked in line.

9. Two float tubes vented high up for cleaner carbs. If there is any leakage, it won't dribble all over the motor like in days of old.

10. Lighter weight. The new carb is aluminum and weighs 1¾ pounds, while the Concentric weighed 2¼ pounds.

Other than the above reasons, the whole carb looks like it was made much more carefully than Amals of old. We're going to be trying some of them soon and checking results on the dyno and on the track. We'll keep you posted. Oh yes, they'll be coming as standard equipment on several bikes, including Bultaco and Montesa. •



All Mark II carbs will be rubber mounted for protection against frothing from vibration.

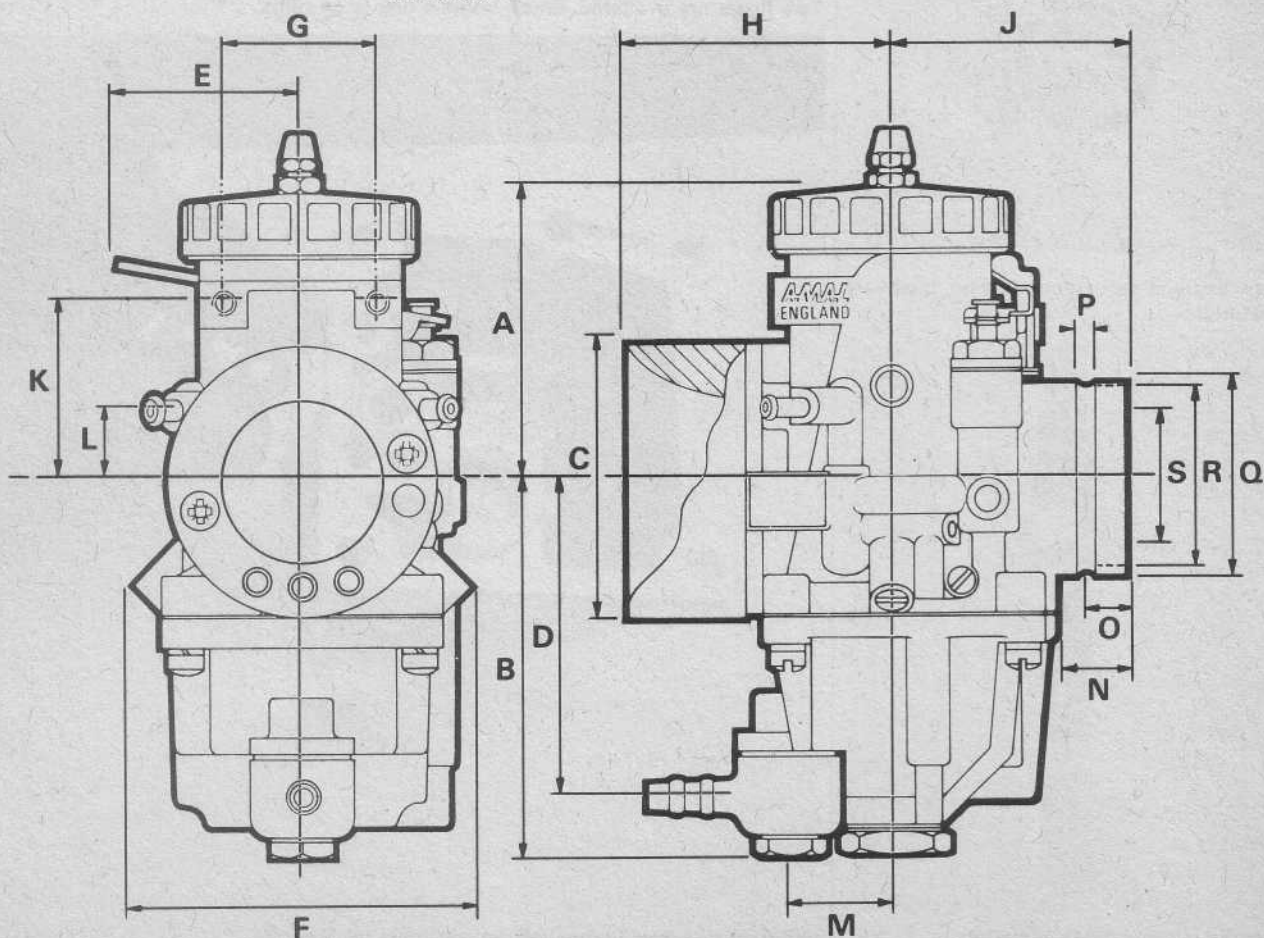
Dimensions

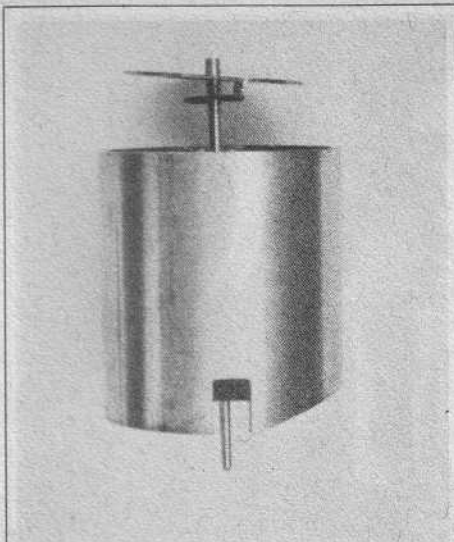
		A	B	C*	D	E	F	G†	H	J
Series 2600	mm	60	75	52	62	40	66	27	53.5	49.5
Series 2900	mm	62	79.5	58	66.5	40	72.5	32	56	49.5
Series 2000	mm	72	82	62	69	40	75.5	38	58.5	49.5
		K	L	M	N	O	P	Q*	R*	S‡
Series 2600	mm	33	19.5	22.5	15	10	4	35	33	22, 24 or 26
Series 2900	mm	38	15	22.5	15	8	4	40	38	28, 30, 32 or 34
Series 2000	mm	48	15	22.5	15	8	4	45	43	36, 38 or 40

* Diameter

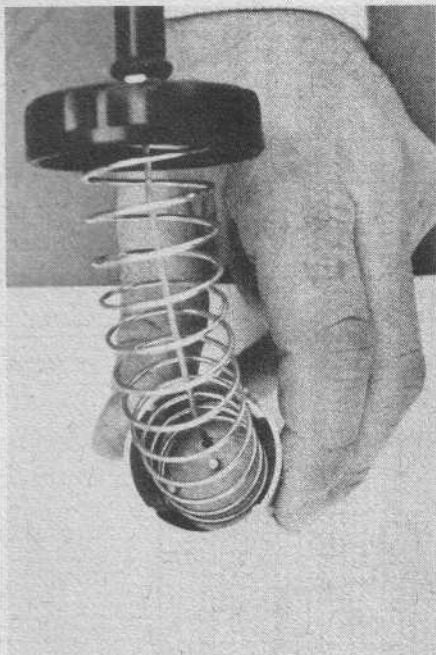
† Two holes, tapped M6-6H (Series 2600: M5-6H)

‡ Bore diameter

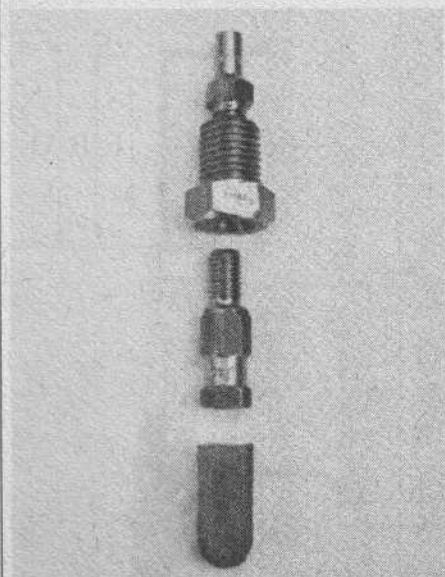




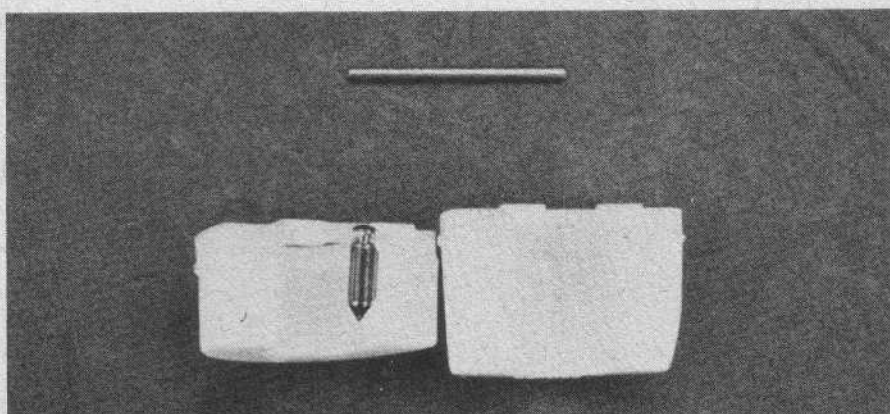
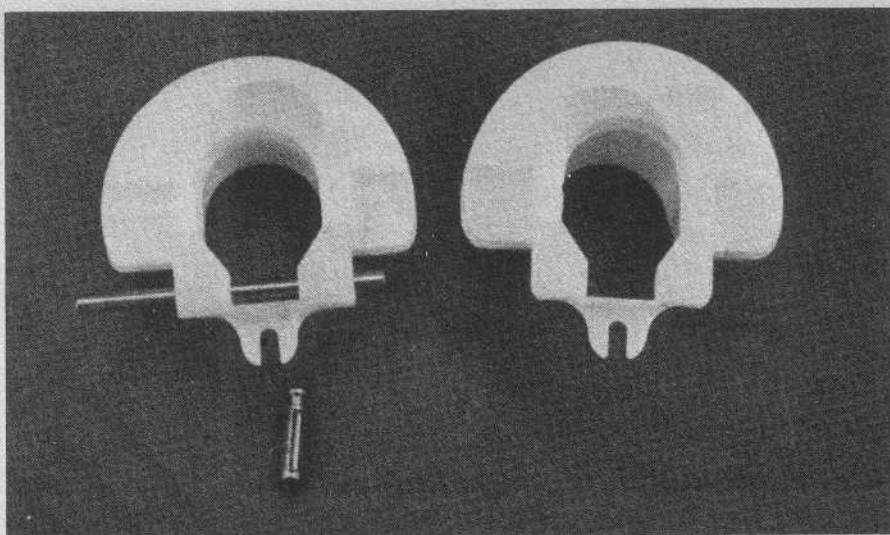
Needle, clip and slide from 36mm carb.



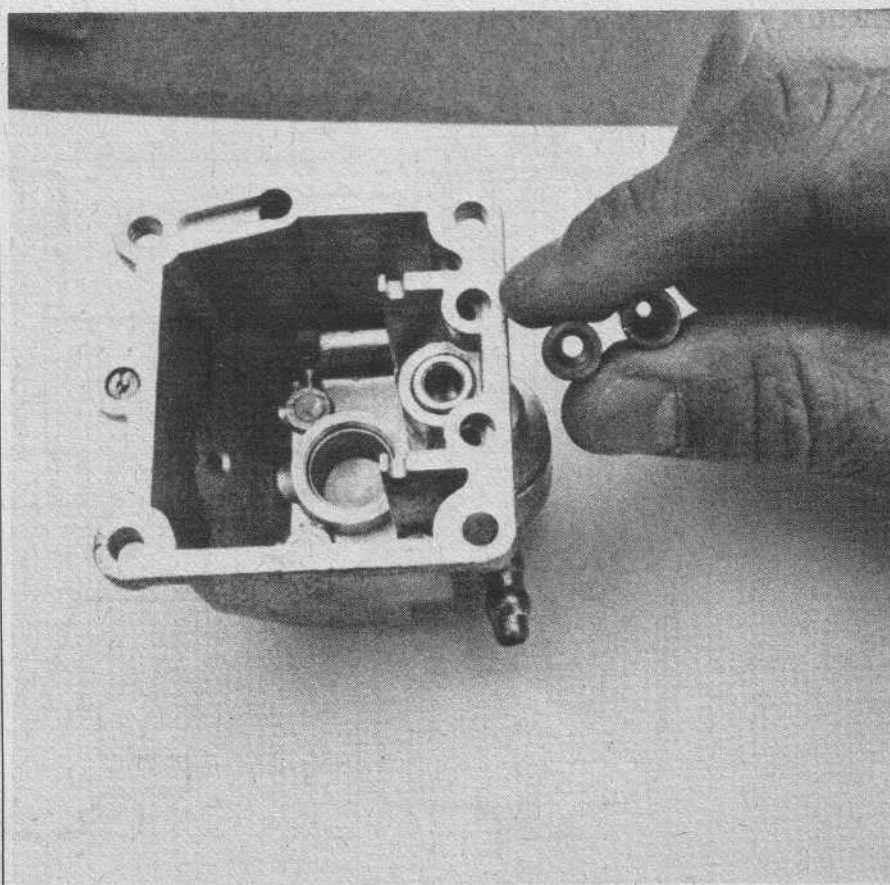
New cap and spring/clip combo look very Mikuni-ish.



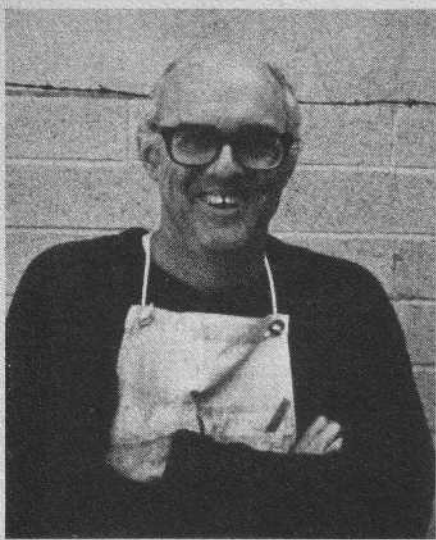
Needle jet, jet holder, main jet and screen—in order.



Two floats are available. Small volume one is on right.



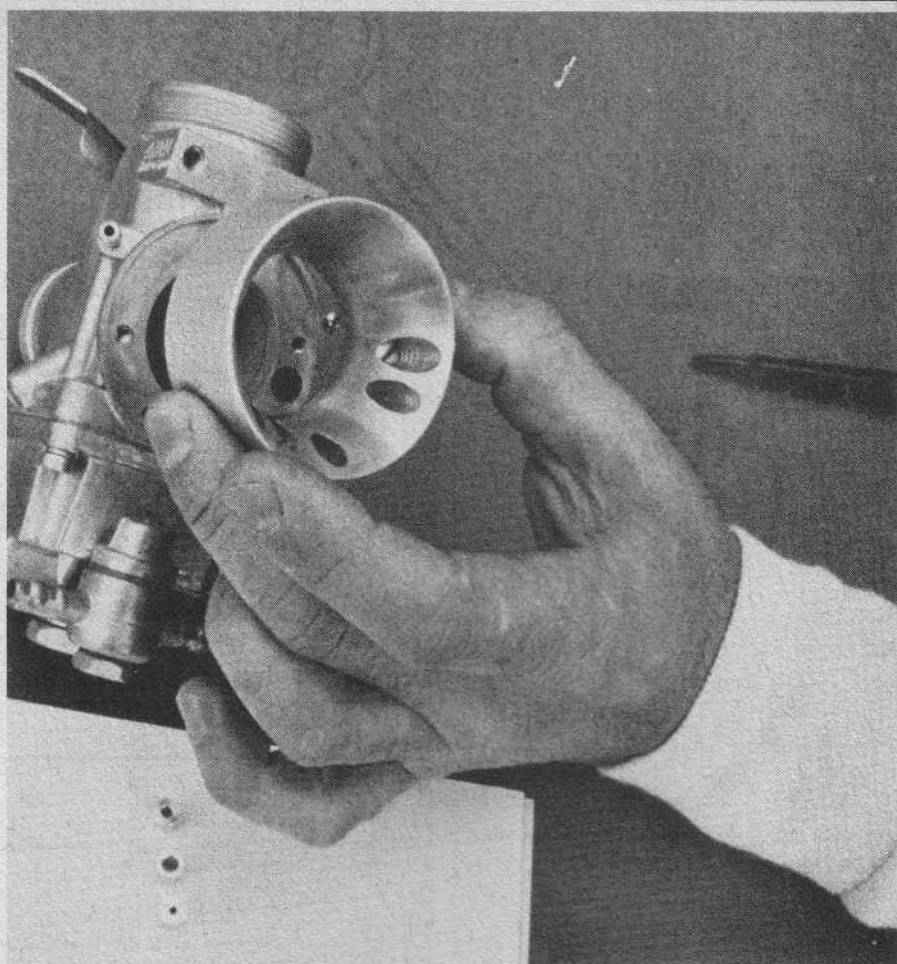
Different size flow fittings will be available for Mark II.



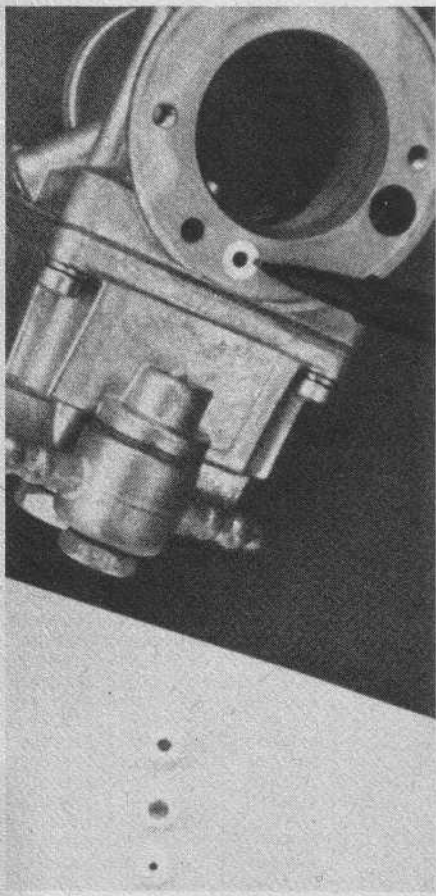
Norm.



Jerry.



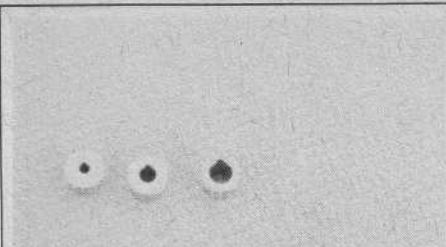
New bell holds the high speed air bleeds in place.



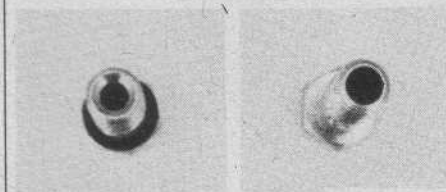
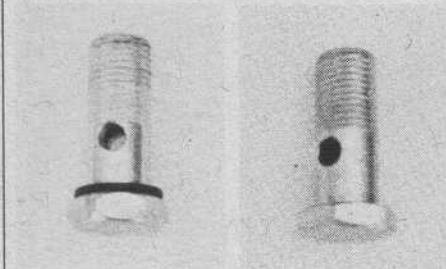
Removable high speed air bleeds.



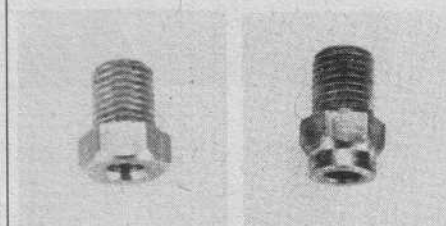
Burak-Bye offers this racing bell as an accessory for the Mark II as well as the Concentric.



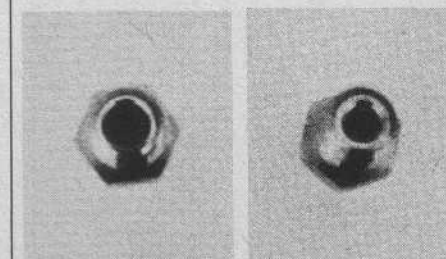
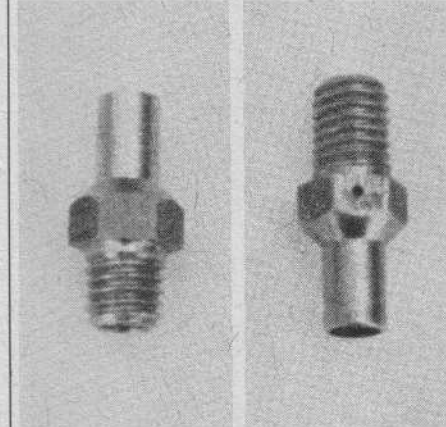
High speed air bleeds. Richest on the left, leanest on the right.



Old style small flow banjo fittings are on the left. High flow one is at right.



Two stroke main jet holder on left; four stroke on right.



Two stroke needle jet on left; four strokes on right.

0	—	50	PLUS	AND	MINUS	3/4 CC
55	—	150	*	*	*	1 3/4 CC
160	—	600	*	*	*	3 CC
620	—	1000	*	*	*	5 CC
1100	—	1500	*	*	*	7 1/2 CC
1600	—	2000	*	*	*	7 1/2 CC

* 0	—	50	IN	2 1/2 CC INCREMENTS
55	—	150	IN	5 CC
160	—	600	IN	10 CC
620	—	1000	IN	20 CC
1100	—	2000	IN	100 CC

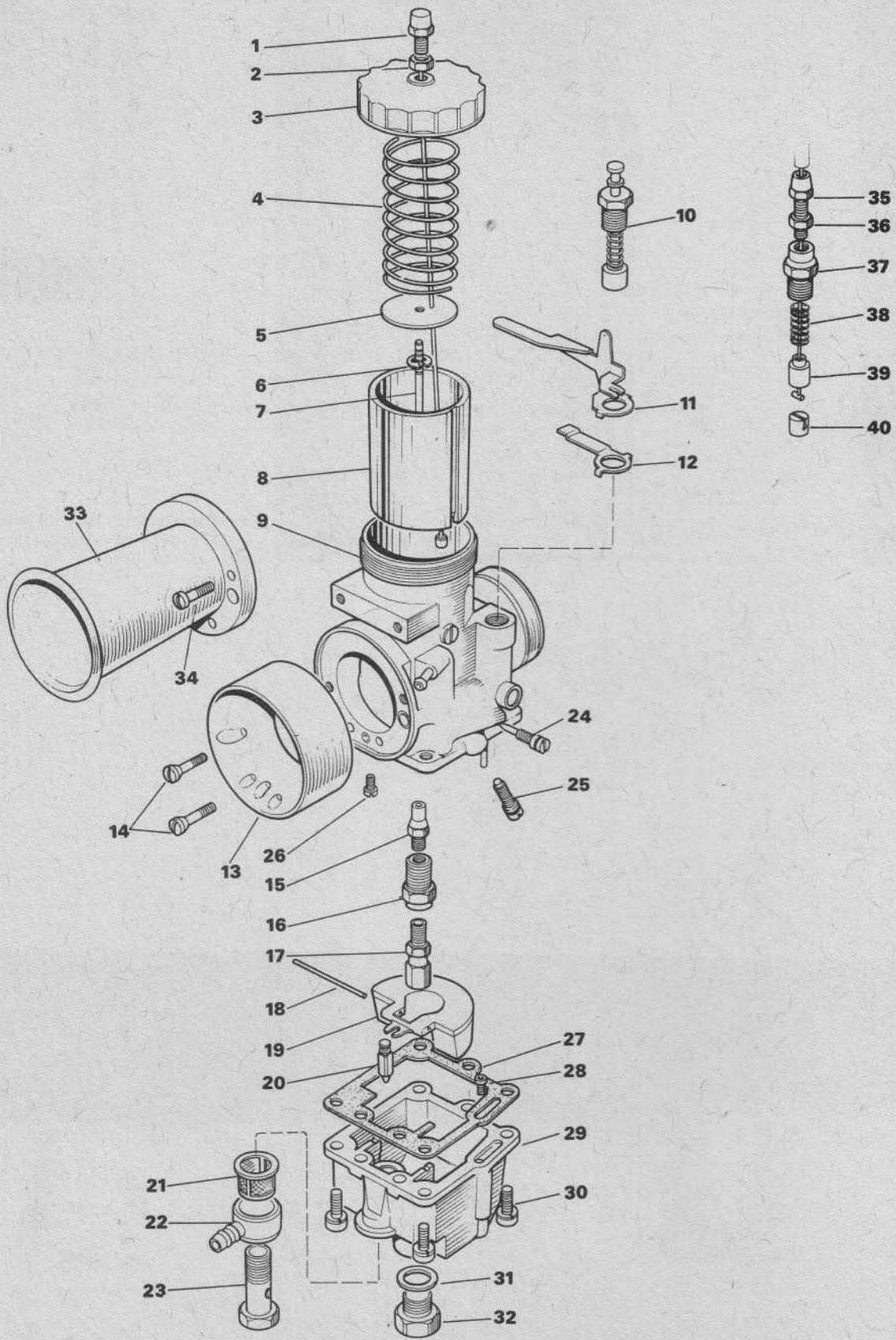
* NOTE: FOR EXAMPLE 22 1/2 CC. JET WILL BE MARKED 22 BUT CALIBRATED BETWEEN 22 1/2 ± 3/4 CC.

New line of jets is bench flowed for markings.

Service Parts for Mark 2 Amal Concentric Carburetors

Key to illustration	Component	Carburetor Series 2600	Carburetor Series 2900	Carburetor Series 2000
1	Cable adjuster	4/035	4/035	4/035
2	Cable-adjuster locknut	5/077	5/077	5/077
3	Mixing-chamber top (standard)	2622/064	2928/064	2036/064
Not shown	Cable ferrule for use with mid-cable adjuster	6/132A	6/132A	6/132A
Not shown	Mixing-chamber top for ferrule	2622/120	2928/120	2036/120
4	Throttle-slide spring	2622/061	2928/061	2036/061
5	Needle retaining disc	2622/071	2928/071	2036/071
6	Needle clip	2622/067	2622/067	2622/067
7	Throttle needle (paired with 2-cycle needle jet below)	2622/063	2928/063	2036/063
7	Throttle needle (paired with 4-cycle needle jet below)	2622/124	2622/124	2622/124
7	Throttle needle (for alcohol only)	2622/125	2928/125	2036/125
8	Throttle slide (specify cutaway)	2622/060	2928/060	2036/060
9	Carburetor body assembly	*	*	*
10	Cold start plunger assembly (lever operated)	2622/079	2622/079	2622/079
11	Cold start lever and bracket assembly	2622/075	2622/075	2622/075
12	Cold start click spring	2622/087	2622/087	2622/087
13	Air intake adaptor	2622/062	2928/062	2036/062
14	Air intake adaptor securing screws	2622/073	2622/073	2622/073
15	Needle jet (preferred for 2-cycle engines)	622/079	2928/079	622/079
15	Needle jet (preferred for 4-cycle engines)	622/122	2928/122	622/122
15	Needle jet (for alcohol only)	622/100	2928/100	622/100
16	Jet Holder	622/128	622/128	622/128
17	Main jet (specify size)	376/100	376/100	376/100
18	Float spindle	2622/069	2622/069	2622/069
19	Float (standard)	622/069	622/069	622/069
19	Float	622/196	622/196	622/196
20	Float needle	622/149	622/149	622/149
21	Filter	376/093	376/093	376/093
21	Filter (for alcohol only)	376/093B	376/093B	376/093B
22	Banjo, single, push-on (1/4 in. inside diameter tubing)	376/097	376/097	376/097
22	Banjo, single, threaded 1/4 in. BSP (3/8 in. tubing)	376/090	376/090	376/090
22	Banjo, single, push-on (3/8 in. tubing)	376/130	376/130	376/130
22	Banjo, double, 90°, push-on (3/8 in. tubing)	376/135	376/135	376/135
22	Banjo, double, 150°, push-on (3/8 in. tubing)	376/139	376/139	376/139
22	Banjo, double, 55°, push-on (3/8 in. tubing)	376/410	376/410	376/410
22	Banjo, double, 180°, push-on (1/4 in. tubing)	376/419	376/419	376/419
Not shown	Banjo washer (for alcohol only)	14/175	14/175	14/175
23	Banjo bolt	622/078	622/078	622/078
24	Pilot-air adjusting-screw assembly	2622/128	2622/128	2622/128
25	Throttle-stop adjusting-screw assembly	2622/129	2622/129	1222/129
26	Pilot jet	124/026	124/026	124/026
27	Float bowl washer	2622/070	2622/070	2622/070
28	Cold start jet	124/026	124/026	124/026
29	Float bowl — 0-10 in. seating (2.5 mm)	2622/055	2622/055	2622/055
29	Float bowl — 0-062 in. seating (1.6 mm)	2622/056	2622/056	2622/056
29	Float bowl — 0-125 in. seating (3.2 mm)	2622/057	2622/057	2622/057
29	Float bowl — 0-156 in. seating (4.0 mm)	2622/058	2622/058	2622/058
30	Float-bowl securing screws	622/086	622/086	622/086
31	Float-bowl drain-plug washer	2622/066	2622/066	2622/066
32	Float-bowl drain-plug	2622/065	2622/065	2622/065
33	Velocity stack	2622/126	2928/126	2036/126
34	Velocity stack securing screws	2036/073	2036/073	2036/073
35	Adjuster	4/035	4/035	4/035
36	Adjuster locknut	5/077	5/077	5/077
37	Screw	2622/091	2622/091	2622/091
38	Spring	2622/084	2622/084	2622/084
39	Plunger cap	2622/092	2622/092	2622/092
40	Plunger assembly	2622/094	2622/094	2622/094

Alternative cable-operated cold start

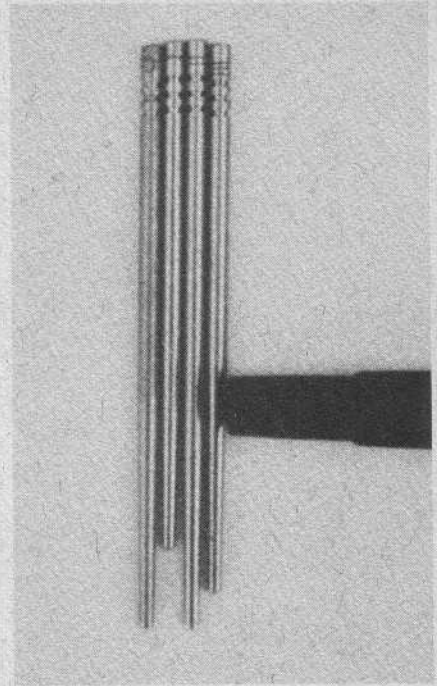


THROTTLE NEEDLE MARKINGS

PART NO.	MARKING	PART NO.	MARKING
4/065	4	622/088	Y
5/065	5	622/124	2 V GROOVES X SPANISH
6/065	6	622/028	3 V GROOVES
28-075	28	928/088	Z
185-118	2N	1031/065	O
310/027	GP	1031/089	P
316/028	SGP	223/104	4 V GROOVES
316/020	SPG	410/067	R
316/116	SGP		
316/108	SGP		
316/105	SGP		
316/502	TT2		
3971 TT	10		
BRAIN GR.	D1		
363/013	A		
370/013	E		
375/063	B		
375/105	B2		
376/063	C		
376/080	C1		
376/110	CC		
388/063	D		
388/088	D2		
622/065	U SPANISH 1 V GROOVE		

SEE OVER

Needle markings chart.
Needles are marked with grooves.



Four stroke spray tube on left, part no. 622/074. Two stoker on right, part no. 622/075.

