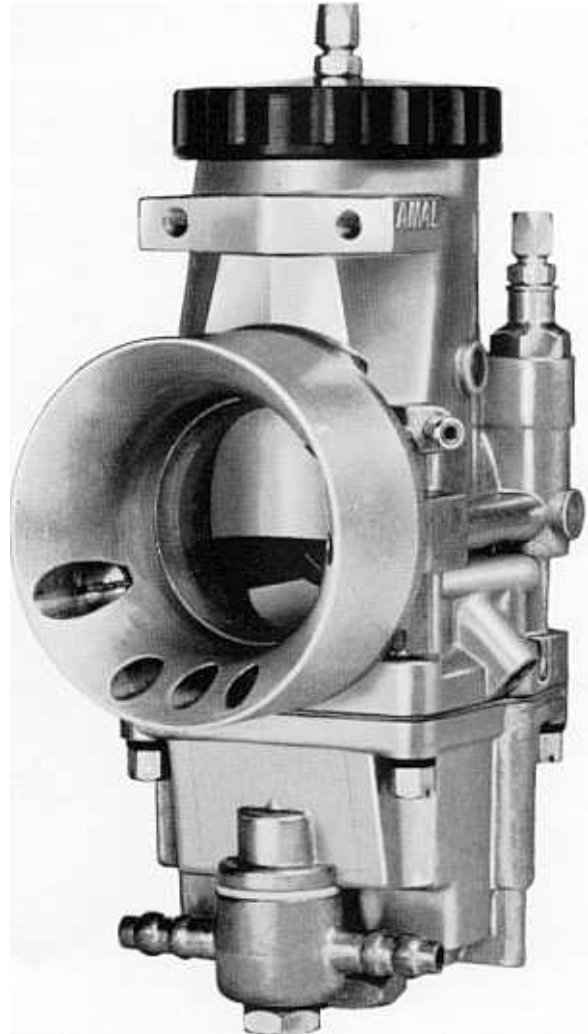


Mark 2 Range of Amal Concentric Carburetors

Developed from the well-known Mark 1 Amal Concentric, the Mark 2 range has been designed to meet the exacting performance requirements of modern motorcycles. It has also been given the functional styling currently popular among riders world-wide.

The Mark 2 range is available in three body sizes, giving an option of ten bore diameters from 22 to 40 mm. A number of extra features are incorporated:

- ★ The smoothly contoured tract shape of the air intake tube tapers concentrically straight into the carburetor bore, giving improved air flow and greater engine power output.
- ★ The cold-starting mixture-enrichment device is operated by a lever mounted directly on the carburetor body. An alternative arrangement with cable control from the handlebar, or elsewhere on the machine is also available (as illustrated on this page).
- ★ The carburetor is designed for flexible mounting, giving excellent insulation from vibration on modern high-speed high-performance engines.
- ★ The screw-off top to the mixing chamber allows quick and easy servicing and tuning.
- ★ Two float-chamber vent tubes mounted high up on the carburetor body prevent fuel spillage under extreme conditions.
- ★ To achieve a truly light-weight carburetor, the body and other component parts are precision diecast in aluminium alloy.



Obtainable from

dealer

Amal Ltd Holdford Road Birmingham England B6 7ES

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Telegrams: 'Amalcarb Phone Birmingham' Telex: Chamcom Bham 338024—Prefix all messages 'Amal'

a subsidiary company of Imperial Metal Industries Limited



MK 2 Amal concentric carburetters

Fitting and tuning instructions

When fitting the Mk 2 Amal Concentric Carburetter to your engine, check the following points:

- 1** The rubber flange adaptor fits correctly with no air leaks. Do not overtighten the clips, which could split the rubber.
- 2** The throttle cable is of adequate length and there is adequate movement of the inner wire for the throttle valve to close completely.
- 3** Petrol pipes must be connected tightly to the banjo to prevent leaks and in such a way that the carburetter is not prevented from moving on its rubber mounting adaptor.
- 4** There must be a good connection to the air cleaner if one is used.

Starting from cold

Depress lever, or if cable operated, open the handlebar lever. This will introduce the cold start jet system which is completely separate from the main jet system. It will introduce over-rich mixture on the engine side of the throttle valve. Do not open the throttle valve more than one quarter or the cold starting system will not work so well. The jet normally fitted is number 50. This can be changed for alternative sizes if extreme conditions are experienced.

Tuning sequence

To obtain correct carburation for any stated fuel, assuming that the correct size carburetter is fitted, the sequence is as follows:

- 1** main jet for power at full throttle
- 2** pilot air adjuster for idling speed
- 3** cutaway for take-off from the pilot jet
- 4** needle jet and needle position for clean carburation between one quarter and three quarters

1st: Main jet

If at full throttle the engine runs 'heavily' and does not pull at full power, the main jet is generally too large. If the engine fades and perhaps deteriorates with possible detonation, then the jet is too small. With the correct size the engine should run freely at maximum rpm giving good power. When testing for the correct main jet, give careful attention to sparking plug readings; the correct colour will be light brown or chocolate colour surrounding the central electrode.

2nd: Pilot jet

The pilot system governs engine tickover and can affect pickup and transmission to the main system. Choose a jet that when the engine is set for steady idling, the pilot screw is one to one-and-a half turns from its seat. If the adjuster is further on its seat, a larger jet is needed, conversely if the adjuster is screwed out a long way a smaller jet is needed. There are two alternative pilot jet locations; the one in the float bowl is generally considered best for four stroke engines, that located in the body beneath the air tube usually best for two stroke engines. This is not a hard and fast rule and the reverse may sometimes be the case. Irrespective of engine type, when the carburetter is mounted in a down draught attitude, the pilot jet should be placed in the mixing chamber body.

Throttle valve cutaway

The throttle valve governs transition from idling to the main system and also influences response at small throttle openings. When opening the throttle, if the engine fades or spits back through weakness, a smaller cutaway is needed. If the engine runs unevenly and heavily, a larger cutaway is needed. The main influence of the throttle valve takes effect up to one third throttle opening.

Needle jet and needle position

These influence the range from one quarter to three quarters throttle: the needle jet, mainly the lower half of the range and the needle the upper part of this range. It is important to get the right combination. Usually the needle jet supplied with the carburetter is the correct one for that instrument. Raising the needle produces a richer mixture and lowering, conversely, a weaker mixture. If it is necessary to go to the extreme of the adjustment in either direction, then probably the next sized needle jet, up or down, could be utilised usefully with some further re-adjustment of the needle position. There are two different systems for four stroke and two stroke engines; refer to the parts list to ensure that the correct type is used. Always use the correct combination of needle and needle jet as a set.

Air jet

This controls the amount of air which pre-atomises the fuel before it enters the mixing chamber body. Normally the air jet fitted as standard for the particular size of carburetter should be correct, but it is a component that can be changed should the depression on the main jet need to be influenced. Fitting a smaller jet will increase the depression while a larger jet will reduce the depression.

All of these adjustments overlap to some extent and in order to obtain the optimum setting it may be necessary to go through this procedure more than once to get the final degree of accuracy.

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 over-heat the engine due to too weak a mixture.

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 for altitudes up to 3,000 feet approximately. Carburetters used constantly at altitudes 3,000 feet 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.

Tuning twin engines with twin carburetters

(Where each cylinder has its own carburetter)
First slacken the throttle stop screws and put the twist grip into the shut position to allow the throttles to close: there should be a slight backlash in the cables which backlash can be obtained, if necessary, by screwing in the cable adjusting screws on the top of the carburetter. Then, with the handlebars in the normal position, and with the throttles closed, adjust the cable adjusting screws so that on the slightest opening of the twist grip both throttles begin to open simultaneously.

To set the carburetters, follow the tuning sequence given previously, and bear in mind these 'hints' which may be useful: main jet sizes are selected by checking the effect of the mixture on the sparking plugs after running at full throttle on a straight road:

the smallest pair of jets that gives the maximum speed is usually correct provided that the plugs do not show any signs of excessive heat. It might be that for critical tuning, one carburetter might require a slightly different jet size from the other.

For slow running, set the twist grip to make the engine run slowly but just faster than 'tickover': then gently screw in the throttle stops to just hold the throttles in that position, and return the twist grip into the shut position, leaving the engine running on the throttle stops.

Next set each carburetter, according to instructions already given for pilot jet settings, to obtain the idling by screwing down the throttle stop screws and adjusting the pilot air screws accordingly.

For setting the pilot, a fairly satisfactory method is to detach one sparking plug lead, and set the pilot adjusting screw on the other cylinder as a single unit, and then reversing the process to the other cylinder. When both leads are connected to the sparking plugs, the engine may run slightly quicker than desirable; a slight adjustment of the throttle stop screws will put this right. It is essential that the speed of idling on both cylinders is approximately the same, as this will either make or mar the smoothness of the get-away on the initial opening of the throttle.

It is essential with twin carburetters that the throttle slides are a good fit in the bodies, and also that there is no suspicion of air leaks at either of the flange attachments to the cylinder.

For the lower end of the throttle range, which is always the more difficult to set, one can only take great pains to ensure that the control cables are perfectly adjusted without any excessive backlash, or difference in the amount of backlash between one carburetter and another: otherwise one throttle slide will be out of phase and so result in lumpy running.

To check the opening of the throttle simultaneously, shut the twist grip so that the throttles are resting on the throttle stop screws in their final position of adjustment: then insert the fingers into the air intakes and press them on the throttles and with the other hand gently open by the twist grip and feel the throttles lift off their stops at the same time.

Alcohol fuels

When using alcohol fuels it is important to use a carburetter intended for this purpose.

Recommended settings

The following chart indicates approximate settings for each bore size of carburetter intended for 2 stroke and 4 stroke engines:

2 stroke

4 stroke

bore size	main jet	needle jet	needle position	throttle valve	pilot jet	air jet	main jet	needle jet	needle position	throttle valve	pilot jet	air jet
2622	120	-106	3	3	25	2.5	120	-105	3	3	25	3.5
2624	140	-106	3	3	25	2.5	140	-105	3	3	25	3.5
2626	160	-106	3	3	25	2.5	160	-105	3	3	25	3.5
2627	180	-106	3	3	25	2.5	180	-105	3	3	25	3.5
2928	200	-107	3	3	25	2.5	200	-106	3	3	25	3.5
2930	240	-107	3	3	25	2.5	220	-106	3	3	25	3.5
2932	280	-107	3	3	25	2.5	240	-106	3	3	25	3.5
2034	320	-107	3	3	25	2.5	260	-106	3	3	25	3.5
2036	360	-108	3	3	25	2.5	300	-106	3	3	25	3.5
2038	400	-108	3	3	25	2.5	320	-106	3	3	25	3.5
2040	440	-108	3	3	25	2.5	340	-106	3	3	25	3.5

Please refer to Amal sales Announcement No 11 for explanatory assembly diagram and parts list

AMAL

The very breath of motor-cycling

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