It will be noted that of the four points at which adjustments are normally made, i.e., pilot air screw, throttle cut-away, needle position and main jet size, the first and third do not require changing of any parts of the carburettor. Assuming that the carburettor has the standard setting to suit the particular type of engine any small adjustments occasioned by atmospheric conditions, changes in quality of fuel, etc., can usually be covered by adjustment of the pilot air screw and raising or lowering the taper needle one notch. If, however, the machine is used at very high altitudes or with a very restricted air cleaner a smaller main jet will be necessary. The following table gives the reduction in main jet size required at different altitudes:

Altitude, ft.	Reduction, %
3,000	5
6,000	9
9,000	13
12,000	17

When using alcohol fuels the following new components are necessary. A metallic double feed banjo, banjo bolt washer 13/163, needle jet 622/100, jet needle 928/099, filter gauze 376/093B and banjo washer 14/175 are required for each carburettor. The main jets must be increased for straight alcohol by approximately 150%. The final setting must be a question of trial and error according to the nature of fuel used. When using alcohol fuels it is advisable to err on the rich side to avoid engine overheating.

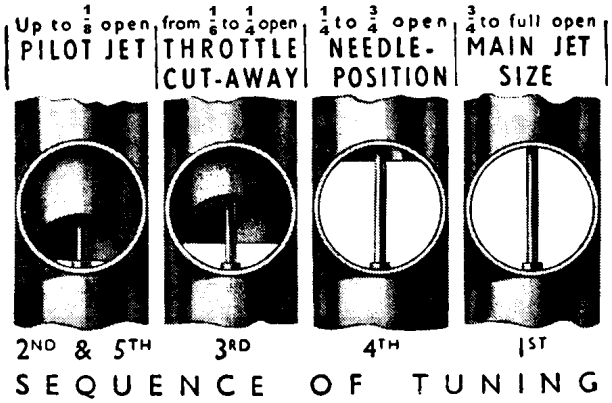
If the engine is run on fuel containing a small proportion of alcohol added to the petrol, a rough and ready guide is that the main jet should be increased by 1% for every 1% of alcohol in the fuel. In most cases alcohol blends available from petrol pumps do not contain sufficient alcohol to require any alteration to the carburettor setting.

The range of adjustment of the taper needle and the pilot air screw are determined by the size of the needle jet and of the pilot outlet respectively. Standard needle jets have a bore at the smallest point of .1065 in. and are marked 106. Alternative needle jets. 1055 in., .1075 in., .109 in. and .113 in. bore are availableand are marked 105, 107, 109 and 113 respectively.

The standard pilot outlet bore is .025 in. but in some cases larger size pilot outlets are used. Since the pilot outlet is actually drilled in the body of the carburettor it is necessary to have a carburettor with the correct size pilot outlet if the best results are to be obtained.

The accompanying table shows the standard settings for Amal Concentric Carburettors used on Royal Enfield "Interceptor" Series I & II motor cycles.

These may be taken as correct for all normal conditions and for practical purposes carburettor tuning consists only of setting the pilot air screw and throtle stop.



PHASES OF AMAL CONCENTRIC CARBURETTOR THROTTLE OPENINGS SEQUENCE OF TUNING

Fig. 21

71. Tuning Sequence with Two Carburettors

When setting the slow running on machines fitted with two carburettors the following procedure is recommended:—

(1) See that both throttle slides are open the same amount for any given position of the twist grip. This is most easily checked by looking into the air intakes while slowly opening and closing the throttles with the air slides wide open. Make sure that the highest point of the cut-away on the throttle valve reaches the top of the bore simultaneously in both carburettors. If necessary adjust one or both mid-cable adjusters in the throttle cables.

(2) Repeat this procedure for the air slides.

(3) Start the engine and let it run at a fast idle till thoroughly warm. Open the air slides fully and remove the H.T. lead and waterproof plug cap from the right-hand sparking plug, opening the throttle if necessary to keep the engine running on one cylinder.

(4) Adjust the throttle stop on the left-hand carburettor to hold the throttle just wide enough open to keep the engine running with the twist grip shut.

(5) Adjust the pilot air screw on the left-hand carburettor to give the maximum speed for this throttle position.

(6) Slow down the engine as far as possible by adjusting the throttle stop and reset the pilot air screw if necessary to give the maximum speed for the new throttle position. Repeat till the engine is running as fast as possible on the smallest possible throttle opening.

(7) Replace the right-hand plug cap and lead and remove the left-hand ones.

(8) Repeat (4), (5) and (6) on the right-hand carburettor.