RACING CARBURATION CONSIDERED

The " choke " or effective bore of the carburetter is of great importance for maximum speed. The design in this carburetter is such that the maximum volume of air may flow through to charge the cylinder also causing the maximum depression or suction on the jet to supply the fuel and atomise it.

THE CHOKE of the T.T. model may have its smallest diameter between the throttle barrel and the outlet of the carburetter, and not immediately over the jet, as in previous designs. This has been done to minimise any restriction caused by the needle and has increased the power at full throttle to the level of the famous Amal Track Racing Carburetter whilst retaining the quality of mixture at small throttle openings. *Thus* when measuring a T.T. choke size measure the bore diameter at the back of the throttle.

Another thing, when deciding on a choke size for your engine do not simply accept a carburetter because it is for an engine of a certain size. The peak revs. of the engine should be ascertained. For example—leaving out all considerations of valve opening and bore stroke ratio, etc.—a 500 c.c. engine with peak revs. of

5,000 r.p.m. would require a T.T. carburetter bore of $1\frac{1}{16}$".
6,000 r.p.m. would require a T.T. carburetter bore of $1\frac{5}{32}$".

We shall be pleased to advise you on this matter when you give us this information, obtained either from the engine manufacturer or by yourself by calculation from road speed and gear ratio ; other factors governing the size of bore come in, and the chart on page 4 will be a guide to you.

A word about fitting the **CARBURETTER.** Generally speaking, it is well to have a distance of about 7" between the inlet valve and the centre of the mixing chamber, also that the outlet bore of the carburetter matches up smoothly with the inlet port. Flange fitting is recommended to overcome the possibility of air leaks.

These T.T. carburetters can be supplied for *vertical and inclined fittings*—the last named are sometimes called " Down-draught." No doubt a falling mixture is more likely to charge the cylinder effectively, but the important fact to realise is that when the fitting is inclined, the shape of the induction port is straightened out, and this is where the efficiency lies. A vertical carburetter may be inclined to a maximum of 15° and have a special float chamber.
On a twin cylinder engine a carburetter to each cylinder is an advantage for maximum power.

Now about the **NEEDLE** control to the jet ; don't go away with the idea that all you require in a racing carburetter is that it will give you greatest power at full bore, and that in racing you are always on full throttle. Remember there are " Governor's Bridges," and also that you have to " get up " to full bore. Perfect carburation throughout the range of the opening of the throttle means ACCELERATION clean and snappy. This is where the needle control plays its part ; you have a large main jet for power and for cooling the engine, and unless it is controlled it may give you a woolly rich mixture at small throttle openings—bad for acceleration and plugs. The needle reduces the flow of petrol above the main jet, and being taper, it reduces it most at small throttle openings, and as the throttle is opened, so the taper allows a bigger flow until the throttle is about three-quarters open, when the needle ceases to have any effect, and the main jet is fully in play. The needle is attached to the throttle by a clip, the clip embracing one of seven grooves. This enables you to tune on the needle once you have set the main jet for power, by lowering the needle to get less petrol and *vice versa*, in its relation to the throttle opening. The needle is controlling the fuel flow in a needle jet, which has an accurately made bore, and this screws into the bolt that holds the float chamber to the mixing chamber. The standard needle jet bores are numbered ·107 for carburetter bore sizes up to 1.1/32" and ·109 for bore sizes over 1.1/32".

THE THROTTLE valve surrounds the choke block in the carburetter, and when it is open leaves a perfectly shaped passage : Apart from controlling the main jet outlet, it is also used to control the supply of air to the main jet supply at low throttle openings—this actual control is by means of the cut-away on the lower edge of the intake side of the throttle valve—a smaller cut-away increasing the mixture strength at smaller throttle openings and a larger cut-away a weakening effect.

Throttles with different cut-aways can be supplied, the number of the cut-away being the height of the cut-away from the bottom edge measured in sixteenths of an inch.

JETS. The pilot jet, for starting off with, is unlike the standard Amal touring pilot jet because the adjustment regulates the fuel flow and not the air. This adjustment gives a wider range for any fuel which is mixed with air coming through a small hole under the carburetter—this mixture for idling and " starting off " passes through into the carburetter outlet just behind the throttle, and is again mixed with air coming under the throttle through the main bore

The main jet can be got at easily without disturbing the float chamber by removing the hexagon cap under the bolt that holds the float chamber to the mixing chamber.