

# Tuning the Amal Track Racing Type Carburetter.

**THE TUNING** of the Track Racing Carburetter is carried out in three stages of throttle opening :—

- 1.—The Main Jet (three-quarter to full throttle).  
*Spare jets required for tuning.*
- 2.—The Pilot Screw (closed to one-eighth throttle).
- 3.—Throttle Valve Cut-away (one-eighth to three-quarter throttle). *Spare throttles with different cut-aways may be required for tuning.*

*The tuning should be carried out in the order mentioned.*

The condition of the sparking plug should be carefully observed each time a trial is made, this being used as an indication of the full throttle mixture strength, or, in other words, whether the main jet is weak, or rich : A dry baked appearance being an indication of weak mixture, and, of course, a sooty appearance denoting rich mixture or too large a main jet, but attention would be drawn especially to the fact that the condition of the sparking plug can only be used to indicate the mixture strength at full throttle, and it should not be assumed that the main jet is too big if, after normal running, the sparking plug is found to be sooty, as this may quite easily have accumulated from too rich a slow-running mixture.

## 1. TO OBTAIN MAIN JET SIZE :—

Select a size of jet which gives maximum power and speed, bearing in mind that a powerful mixture may be the cause of overheating if it is too weak to keep the engine cool. A larger jet may be necessary than the minimum size for power, for this purpose of cooling and if the sparking plug should look dry and burnt a larger jet must be used which will not of necessity reduce the power.

If the primary mixture control is operated by hand control it should be set three quarters open during tests.

## 2. PILOT ADJUSTMENT.

To weaken slow-running mixture, screw pilot air adjuster anti-clockwise.

To richen slow-running mixture, screw pilot air adjuster clockwise.

**TO START**, slightly flood float chamber by gently depressing the tickler until fuel can be observed overflowing from the mixing chamber.

Set magneto half-advance; throttle slightly open; close air lever and start up the engine. After having warmed up the engine, the pilot can now be adjusted. It will be found that as the pilot air screw is screwed out, or weakened, the engine revs. will increase, necessitating the throttle being closed slightly, and it is a combination of throttle position and air adjustment which will give the desired idling or tick-over.

It is sometimes necessary to fully retard the magneto before good idling is obtained, this being usually the case when excessive valve overlap

or an early ignition timing is employed. Failure to secure good idling will probably be traced to one of the following causes :—

Air leaks at junction of carburetter and engine, or due to worn inlet valve stem or guide.

Faulty inlet or exhaust valve seatings.

Oily sparking plug.

Too much ignition advance.

Magneto contact breaker points dirty or too closely adjusted.

Short on high tension cable.

Sparking plug points too closely set.

## 3. THROTTLE VALVE CUT-AWAY.

After having set the slow running as explained above, slowly open the throttle valve, when, if the engine responds regularly, the valve cut-away is correct.

A **weak mixture** is indicated by spitting back through the air intake, and as a second check on this weak flat spot it will be found that if the air lever is closed the flatness will disappear, this pointing to the fact that a throttle valve with less cut-away is required.

A **rich mixture**, which is shown by black smoke from the exhaust, coupled with erratic running or eight-stroking, and which again is accentuated when the air valve is closed, points to the fact that a throttle valve with more cut-away is required. The number of cut-away is stamped on the top of the throttle valve, the higher the number the greater the cut-away.

The standard valve for single cylinder engines is a No. 12.

Having obtained correct "idling," Throttle Valve Number and Main Jet Size, the setting should be now in order.

A general Carburetter setting cannot be given for any particular machine because of the variety of alcohol mixtures and conditions under which they are used. Each Carburetter can be tuned according to the foregoing instructions for the actual conditions under which the machine is to be used. As an indication, for example, of starting to tune up J.A.P. Track Racing Engines on J.A.P. Racing Fuel, the following settings may be taken as a guide but not necessarily final :—

350 O.H.V. Single Control, type 27/002.

Throttle valve cut-away, 12.

Main jet No. 700 c.c.

500 O.H.V. Single Control, type 27/013.

Throttle valve cut-away, 12.

Main jet No. 860 c.c.

The Float Chamber provides ample feed under all conditions, therefore, see that there is no restriction in the flow from the tank to float chamber. We recommend that fuel pipes should not be less than  $\frac{1}{4}$ " inside diameter and fuel cocks should have large bores.