When the device is operated, air is drawn from the atmosphere through the air intake into a chamber and is mixed with fuel as it passes the jet. The mixture then passes upwards past the shank of the needle, through a passage, and so past the aperture provided between the valve and its seating. From here it passes directly to the main induction manifold through the external feed pipe as shown in the diagram (top left).

The device is brought into action by energizing the solenoid. The iron core is thus raised carrying with it the ball-jointed disc valve against the load of the conical spring, thereby opening the aperture between valve and seating.

A cup washer is fitted against the solenoid face to centralise the conical spring. Any leakage between the valve and its seating would allow the device to operate and affect the idling setting of the main carburetter(s).

If the solenoid is energized while the engine is idling the valve will not normally lift owing to the high manifold depression; the act of opening the throttle will reduce manifold depression and allow the device to operate.

The fuel level in the auxiliary carburetter is controlled by the main carburetter float chamber. It can be seen from the illustration that this results in a reservoir of fuel remaining in the well of the auxiliary carburetter.

When starting with the device in operation, this fuel is drawn into the induction manifold to provide the rich mixture necessary for instant cold starting.

When the valve has lifted, the needle disc chamber is in direct communication with the inlet manifold and the depression, dependent on throttle opening, varies the position of the needle by exerting a downward force upon the suction disc and needle assembly. Thus:

a) At idling the relatively high depression will draw the needle into the jet until the needle head abuts against the adjustable stop.

b) At larger throttle openings a reduced depression is communicated to the needle disc chamber and the spring will tend to overcome the downward movement of the needle, thus increasing mixture strength.

ENGINE R.P.M.

CORRECT SETTING

WEAK ← | O | → RICH

MIXTURE STRENGTH
(adjusted by stop nut)
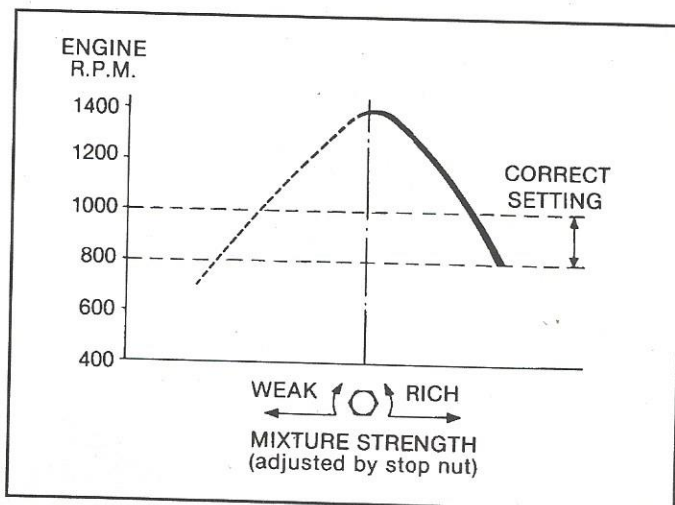
Tuning and Adjustment

Main Carburetter(s)

As both the main and auxiliary carburetters operate when starting from cold, the main carburetter(s) must be tuned correctly before attempting any adjustment to the auxiliary carburetter. Refer to the appropriate tuning guide in this manual, and to the following mixture adjustment instructions for type H carburetters.

Mixture Adjustment - Type H Carburetter

The procedure for mixture adjustment is the same as for normal type H carburetters except that a jet adjusting screw is used in place of the normal jet adjusting nut (see inset diagram) as follows:

(a) Remove the cap nut

(b) Adjust the jet as required, by turning the slotted screw up to weaken or down to enrich the mixture. The slight leakage of fuel through the jet during this operation can be ignored.

(c) Replace the cap nut with its sealing washer.

Auxiliary Carburetter

Tuning of the auxiliary carburetter is confined to adjustment of the stop nut which limits the downward movement of the needle, and is carried out with the engine running at normal temperature and the main carburetter(s) tuned. Proceed as follows:

1

(a) Switch on the auxiliary carburetter.

(b) Where the thermostat has automatically broken the circuit, energize the solenoid by short-circuiting the thermostat switch to earth, or if this is inaccessible, earth the appropriate terminal of the auxiliary carburetter with a separate wire.

(c) Where a manual switch is fitted, switch on.

2

Open the throttle momentarily to allow the valve to lift.

3

(a) Adjust the stop nut(s) with reference to the graph.

(b) Initially clockwise (to weaken) until the engine begins to run erratically.

(c) Then anti-clockwise (to enrich) through the phase where the engine speed has risen markedly to the point where overrichness results in the engine speed dropping to between 800 and 1,000 rpm with the exhaust gases noticeably black in colour.