HOW THE CARBURETTER WORKS

The carburetter atomises the correct amount of petrol with air which is drawn into the engine. A float chamber maintains a constant level of fuel at the jets and cuts off the fuel supply when the engine stops. The float chamber is fitted with a tickler (21) for depressing the float to give a greater supply of petrol for starting when the engine is cold. Air regulation (when starting from cold) is facilitated by a slide which operates, by means of a push/pull lever situated on the carburetter (1), in conjunction with the throttle slide. A throttle valve operated by a cable from the handlebar controls the volume of mixture and, therefore, the engine power. At all openings of the throttle, the mixture is automatically correct.

At small throttle openings, as for starting, idling and slow-running, a petrol/air mixture is drawn from the pilot jet system, fuel being fed via the main jet (29), through the pilot jet (40) where it mixes with air entering the pilot air passage, the resultant mixture then passing out of the pilot outlet and pilot by-pass where it mixes with air passing through the main air choke.

Further openings of the throttle then brings into action a petrol/air mixture from the primary air choke, fuel which has passed the main jet needle and needle jet mixing with air that enters via the primary air passage, and then discharging out of the primary air choke, where it is mixed with the main incoming air stream passing through the main air choke. The cutaway on the throttle valve influences the air passing through the main choke at this stage. In the earlier stages, that is up to $\frac{3}{4}$ of throttle opening, the fuel supply for the mixture from the primary air choke is governed by the taper of the jet needle working in the needle jet, at later stages, that is $\frac{3}{4}$ to full throttle it is solely the size of the main jet.

MAINTENANCE OF CARBURETTER

PETROL FEED, *verification.* To remove the filter gauze unscrew the banjo bolt (13) the banjo can then be removed and the filter gauze withdrawn from the needle seating. Ensure that the gauze is undamaged and free from all foreign matter. Before replacing banjo turn on petrol tap momentarily and see that fuel gushes out. *Flooding* may be due to a worn needle or a leaky float, but nearly all flooding with new machines is due to impurities (grit, fluff, etc.) in the tank, therefore it is advisable to clean out the float chamber periodically until the trouble ceases. This can be done quite easily by undoing cover screws (35) and removing items 34, 33, 32, 31. If the trouble persists, the tank should be drained, swilled out and allowed to dry.

Main Jet, Needle Jet and Pilot Jet (27, 29 and 40). Check that no foreign matter is obstructing their passageways. To extract the jets from the carburetter, first remove their cover nuts (30 and 42) the jets exposed can then be removed with the use of a spanner. The jets should be cleaned by washing them in clean petrol and blowing through their passageways (a tyre pump is quite useful for this purpose). Do not prod or reamer jets with any sharp implement as this might enlarge their passageways. When re-assembling the jets should be screwed in firmly but without excessive strain, if jets are loose on their seatings, incorrect flow of petrol occurs.

ADJUSTMENT OF CARBURETTER

Carburetters as supplied by the makers for fitting to specific machines should under normal condition only require adjustment of the throttle stop adjusting screw (25), pilot air adjusting screw (38), to ensure best starting, idling, slow and general running with maximum fuel economy.

First, if possible run engine until warm, then shut off. Screw in the pilot air adjusting screw (38) as far as it will go without strain, then unscrew it in an anti-clockwise direction approximately $1\frac{1}{2}$ turns. Unscrew the throttle stop adjusting screw (25) so that the throttle valve can fully close, then with the throttle slightly open start the engine and throttle down to a fast idling speed. Now, first set the throttle stop adjusting screw to hold this position, and then unscrew it to allow the throttle valve to be further

closed and the engine to slow down until it begins to falter, then screw the pilot air adjusting screw in or out until the engine runs regularly and faster. Then further unscrew the throttle stop adjusting screw until the closing of the throttle valve again makes the engine run slower and just begin to falter, then again adjust the pilot air adjusting screw to get best slow running. If, after this second adjustment, the engine is still running too fast, carry out the same procedure a third time. After each adjustment of the throttle stop adjusting screw and pilot air adjusting screw, test that the engine does not falter or cut out when the throttle is opened fairly quickly ; if the engine does falter or cut out, the adjustment has been set for too slow running resulting in an over-weak pilot mixture.

With the engine under load, or pulling, if acceleration is poor, or there is spitting back in the carburetter (indicating a too weak mixture), raise the needle by one groove at a time and leave in position where it functions best. If the engine runs heavily and lumpy, the mixture is too rich, causing heavy consumption. Remedy this by lowering the needle one groove at a time, until a satisfactory running position is reached. As previously mentioned, the carburetter supplied should, under normal conditions, only require adjustment of : the throttle stop adjusting screw, pilot air adjusting screw.

After the best position of the needle jet has been found again check over the slow running.

Cleaning

Make a practice of giving the machine a really good clean as often as possible, keeping a soft cloth specially for the purpose. By careful cleaning the original sheen of enamelled parts may be retained indefinitely.

Where mud is thickly caked on, do not attempt to brush it off ; abrasive particles will rapidly damage the enamel. Water from a small hose or a wet sponge should be used, taking care not to let water into the carburetter, magneto and brake linings.

Never garage a dripping machine after a wet run. Remove moisture by dabbing gently with a soft cloth, e.g., butter muslin.

Salt laid down in city streets during snowy winter periods has a corrosive effect on enamel and chromium plating. A useful tip is to smear the wheel rims and other exposed parts of the machine with a film of oil or grease. This can easily be removed with a petrol-soaked rag when the weather improves.

CHROMIUM PLATING. In damp weather, small spots of rust-like deposit may be observed on chromium plating. It is not rust but the action of certain salts used in the plating process. If attended to in good time such spots can easily be removed by rubbing with a good brand of chromium polish. NEVER USE HOUSEHOLD METAL POLISH ON CHROMIUM PLATING.

In summer, when wet conditions are less frequent, it is best to clean plating with a damp chamois leather cloth and soft rag.

ALUMINIUM ALLOY CASTINGS. A certain amount of road dirt and oil will inevitably gather on the cast alloy surfaces of the engine crankcase, primary chaincase, gearbox and carburetter, and regular cleaning will not only improve the appearance of the machine but will avoid dirt stains on trouser legs and shoes. A clean engine unit is also easier and more pleasant to maintain.

Such parts can be cleaned with a stiff brush dipped in petrol or trichoethylene or, alternately, we recommend a special detergent available from most motor cycle accessory retailers, i.e., GUNK. This product is simply brushed on to the alloy parts and hosed off with water. Gunk is sold in tins and full instructions are given by the makers.

If this method of cleaning is employed care should be taken to cover the carburetter to prevent the entry of water and consequent starting difficulties. Surplus water should always be wiped off with a clean rag.