

## HINTS AND TIPS

**STARTING from cold.** Turn on fuel supply, set ignition (if manually operated) for best slow running, depress tickler to flood float chamber, close air valve, open throttle slightly and start engine. When engine starts open air valve and close the throttle; if engine begins to falter, partially close the air valve until engine is warm, then set in fully open position.

**STARTING, engine hot.** Open throttle slightly and start engine. It should not normally be necessary to flood the float chamber or close the air valve when starting a warm engine.

**STARTING, general.** Experience will show when it is necessary to flood the carburettor or use the air valve and also the best setting of the throttle valve. If the carburettor has been over-flooded or strangled, which would result in a wet engine and over-rich starting mixture—fully open the throttle valve and air valve, give the engine several turns to clear the richness, then start again with the air valve fully open and the throttle valve slightly open.

**STARTING, SINGLE LEVER CARBURETTERS. OPEN THE THROTTLE VERY SLIGHTLY FROM THE IDLING POSITION AND FLOOD THE CARBURETTOR MORE OR LESS ACCORDING TO THE ENGINE BEING COLD OR HOT RESPECTIVELY.**

**CABLE CONTROLS.** See that there is a minimum of backlash when the controls are set back and that any movement of the handlebar does not cause the throttle to open; this is done by the adjusters on top of the carburettor, after releasing the adjuster locknuts. See that the throttle valve shuts down freely, then reset locknuts.

**PETROL FEED.** A filter gauze is fitted at the inlet to the float chamber, to remove this gauze unscrew the banjo bolt (9) the banjo and filter gauze can then be removed. Before replacement ensure that the filter gauze is both clean and undamaged and check fuel supply by momentarily turning on fuel tap. Vertical loops in petrol pipes must be avoided to prevent air locks. Float chamber flooding may be due to a worn float needle but nearly all flooding and blockage of the filter gauze with new machines is due to impurities from the tank. Periodically clean out filter gauze and float chamber until the trouble ceases or alternatively the tank may be drained and swilled out, etc.

**FIXING CARBURETTOR AND AIR LEAKS.** Erratic slow running is often caused by air leaks, so verify there are none at the point of attachment to the cylinder or inlet pipe. A sealing ring is fitted into the attachment flange of the carburettor. Also in old machines look out for air leaks caused by a worn throttle or worn inlet valve guide.

**BANGING IN EXHAUST** may be caused by too weak a pilot mixture when the throttle is closed or nearly closed—also it may be caused by too rich a pilot mixture and an air leak in the exhaust system; The reason in either case is that the mixture has not fired in the cylinder and has fired in the hot silencer. If the banging happens when the throttle is fairly wide open the trouble will be ignition—not carburation.

**BAD PETROL CONSUMPTION** of a new machine may be due to flooding, caused by impurities from the petrol tank lodging on the float needle seat and so prevent its valve from closing. Flooding may be caused by a worn float needle valve. Also bad petrol consumption will be apparent if the needle jet (24) has worn; it may be remedied or improved by lowering the needle in the throttle, but if it cannot be—then the only remedy is to get a new needle jet.

**AIR FILTERS.** These may affect the jet setting, so if one is fitted afterwards to the carburettor the main jet may have to be smaller. If a carburettor is set with an air filter and the engine is run without it, take care not to overheat the engine due to too weak a mixture; testing with the air valve (page 5), will indicate if a larger main jet and higher needle position are required.

**EFFECT OF ALTITUDE ON CARBURETTOR.** Increased altitude tends to produce a rich mixture. The greater the altitude, the smaller the main jet required. Carburettors ex-works are set suitable for altitudes up to 3,000 feet approximately. Carburettors used constantly at altitudes 3,000 to 6,000 feet should have a reduction in main jet size of 5 per cent. and thereafter for every 3,000 feet in excess of 6,000 feet altitude further reductions of 4 per cent., should be made.

## RE-ASSEMBLING

When replacing the valve assembly see that the jet needle goes into the holes in the choke tube, needle jet and main jet and that both the throttle and air valve spring locate correctly in the mixing chamber top.

When refitting the float, engage the float needle recess in the horseshoe section of the float and fit in float chamber. Check that the needle jet (24) jet holder (28) and main jet (29) are fully tightened together before screwing assembly into the body.

## HOW TO TRACE FAULTS

There are only two possible faults in carburation, either richness or weakness of mixture.

## INDICATIONS OF:—

## RICHNESS.

Black smoke in exhaust.  
Petrol spraying out of carburettor.  
Four strokes, eight-stroking.  
Two strokes, four-stroking.  
Heavy, lumpy running.  
Spark plug sooty.

## WEAKNESS.

Spitting back in carburettor.  
Erratic slow running.  
Overheating.  
Acceleration poor.  
Engine goes better if:—  
Throttle is not wide open or  
Air Valve is partially closed.

If richness or weakness is present, check if caused by:—

- |   |   |
|---|---|
| (1) Petrol feed.                        | Check that jets and passages are clear, that filter gauze in float chamber banjo connection is not choked with foreign matter, and that there is ample flow of fuel.<br>Check there is no flooding. |
| (2) Air leaks.                          | At the connection to the engine or due to leaky inlet valve stems.  |
| (3) Defective or worn parts.            | As a loose fitting throttle valve, worn needle jet, loose jets.   |
| (4) Air cleaner being choked up.        |   |
| (5) An air cleaner having been removed. |   |

Removing the silencer or running with a straight through pipe requires a richer setting.

Having verified the correctness of fuel feed and that there are no air leaks, check over ignition, valve operation and timing. Now at throttle position shown on page 7, fig. 5, test to see if mixtures are rich or weak. This is done by partially closing the air valve, and if engine runs better weakness is indicated, but if engine runs worse richness is indicated.

To remedy, proceed as follows:—

- |             | To cure richness,                            | To cure weakness.                             |
|-------------|--|---|
| Position 1. | Fit smaller main jet.                        | Fit larger main jet.                          |
| Position 2. | Screw out pilot air adjusting screw.         | Screw pilot air adjusting screw in.           |
| Position 3. | Fit a throttle with larger cutaway (page 6). | Fit a throttle with smaller cutaway (page 6). |
| Position 4. | Lower needle one or two grooves (page 6).    | Raise needle one or two grooves (page 6).     |

**NOTE.** It is not correct to cure a rich mixture at half throttle by fitting a smaller main jet because the main jet may be correct for power at full throttle: the proper thing to do is to lower the needle.