

HOW TO TRACE FAULTS

There are only **TWO** possible faults in carburation, either **RICHNESS** of mixture or **WEAKNESS** of mixture, so in case of trouble decide which is the cause, by :-

1. Examining the petrol feed. { Verify jets and passages are clear.
Verify ample flow.
Verify there is no flooding.
2. Looking for air leaks { At the connection to the engine.
Or due to leaky inlet valve stems.
3. Defective or worn parts. { As a slack throttle—worn needle jet.
The mixing chamber union nut not tightened up, or loose jets.
4. TESTING WITH THE AIR VALVE to see if by richening the mixture, the results are better or worse.

INDICATIONS OF :-

RICHNESS

Black smoke in exhaust.
Petrol spraying out of carb.
Four strokes, eight-stroking.
Two strokes, four-stroking.
Heavy, lumpy running.
Heavy petrol consumption.
! If the jet block F is not tightened up by washer and nut E, richness will be caused through leakage of petrol.
! Air-cleaner choked up.
! Needle jet worn large.
Sparkling plug sooty.

WEAKNESS

Spitting in carburetter.
Erratic slow running.
Overheating.
Acceleration poor.
Engine goes better if :-
Throttle not wide open, or
Air valve is partially closed.
! Has air cleaner been removed.
! Jets partially choked up.
REMOVING the silencer or running with a racing silencer requires a richer setting and large main jet.

NOTE :

Verify correctness of fuel feed, stop air leaks, check over ignition and valve operation and timing. **DECIDE BY TEST WHETHER RICHNESS OR WEAKNESS IS THE TROUBLE AND AT WHAT THROTTLE POSITION.** See throttle opening diagrams, page 7.

PROCEDURE

If at a particular throttle opening you partially close the air valve and the engine goes better, weakness is indicated ; or on the other hand the running is worse, richness is indicated. THEN YOU PROCEED TO ADJUST THE APPROPRIATE PART AS INDICATED AT THE TOP OF PAGE 7 FOR THAT THROTTLE POSITION.

FAULT AT THROTTLE POSITIONS INDICATED ON PAGE 7

TO CURE RICHNESS		TO CURE WEAKNESS
Fit smaller main jet.	1st	Fit larger main jet.
Screw out pilot air screw.	2nd	Screw pilot air screw in.
Fit a throttle with larger cut-away (§f, page 6).	3rd	Fit a throttle with smaller cut-away (§f, page 6).
Lower needle one or two grooves (§e, page 6).	4th	Raise needle one or two grooves (§e 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.

CHANGING FROM STANDARD PETROLS TO SPECIAL FUELS, such as alcohol mixtures will, with the same setting in the carburetter, certainly cause weakness of mixture and possible damage from overheating. See note on page 8

HOW IT WORKS AND PART NAMES

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|---------------------------------|---------------------------------|
| A. Mixing Chamber. | O. Needle Jet. |
| B. Throttle Valve (see page 6). | P. Main Jet (see page 6). |
| C. Jet Needle and Clip above. | Q. Float Chamber Holding Bolt. |
| D. Air Valve. | R. Float Chamber. |
| E. Mixing Chamber Union Nut. | S. Needle Valve Seating. |
| F. Jet Block. | T. Float. |
| G. Cable Adjuster (Throttle). | U. Float Needle Valve. |
| GI. Cable Adjuster (Air). | V. Float Needle Clip. |
| H. Jet Block Barrel. | W. Float Chamber Cover. |
| J. Pilot Orifice (see page 6). | X. Float Chamber Lock Screw. |
| K. Passage to Pilot. | Y. Tickler (to left of W). |
| L. Pilot Air Passage. | Z. Mixing Chamber Top Cap. |
| M. Pilot Mixture Outlet. | ZI. Mixing Chamber Lock Ring. |
| N. Pilot By-pass. | ZII. Security Spring for above. |

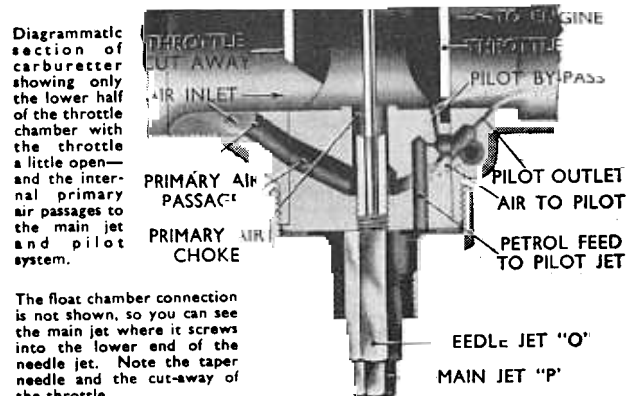
The carburetter proportions and atomises the right amount of petrol with the air that is sucked in by the engine because of the correct proportions of jet sizes and the main choke bore. The float chamber maintains a constant level of fuel at the jets and cuts off the supply when the engine stops.

The throttle control from the handlebar controls the volume of mixture and therefore the power, and at all positions of the throttle the mixture is automatically correct. The opening of the throttle brings first into action the mixture supply from the pilot jet system for idling, then as it progressively opens, via the pilot by-pass, the mixture is augmented from the main jet, the earlier stages of which action is controlled by the needle in the needle jet. The main jet does not spray directly into the mixing chamber, but discharges through the needle jet into the primary air chamber, and goes from there as a rich petrol-air mixture through the primary air choke into the main air choke. This primary air choke has a compensating action.

The carburetters usually have a separately-operated mixture control, called an air valve, for use when starting from cold, and until the engine is warm ; this control partially blocks the passage of air through the main choke.

This design of carburetter offers perfectly simple and effective tuning facilities.

This section view does NOT apply if your carburetter has **FOUR EXTERNAL** primary air holes at the base of the mixing chamber. It is for carburetters with the primary air inlet in the main air intake.



The float chamber connection is not shown, so you can see the main jet where it screws into the lower end of the needle jet. Note the taper needle and the cut-away of the throttle.

If the carburetter should flood whilst the engine is not running, the overflow from the main jet will run into the primary air passages and trickle out from there through a small hole seen at the side of the carburetter body