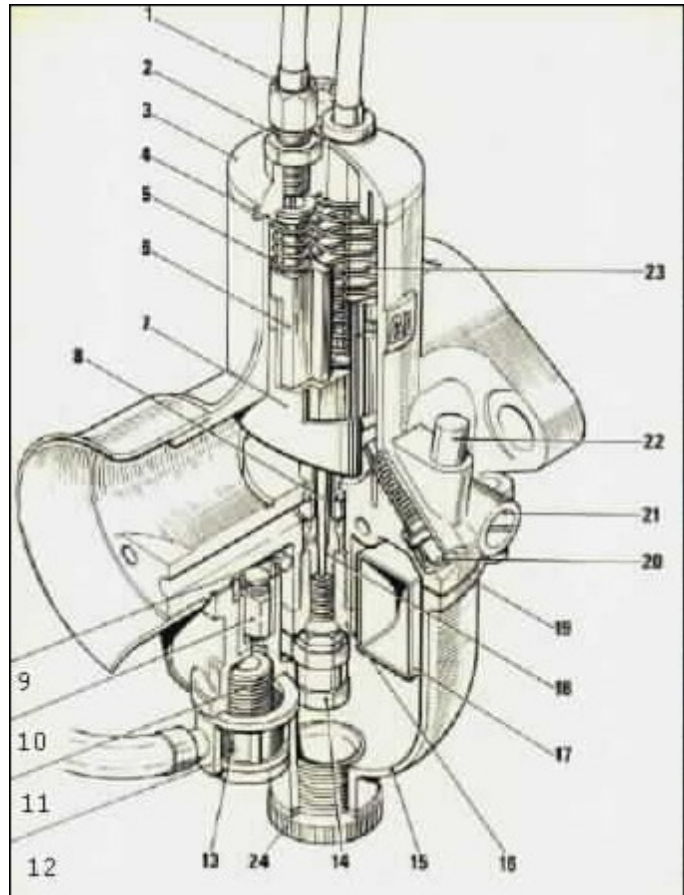


Amal Concentrics, how they work and tuning

The carburetor and part numbers

- 1 Cable adjuster (# 4/035)
- 2 Cable adjuster locknut (# 5/077)
- 3 Mixing chamber top (# 928/064)
- 4 Air valve guide tube(# 928/103)
- 5 Air valve spring (# 622/129)
- 6 Air valve (# 928/062)
- 7 Throttle valve (#928/060)
- 8 Jet needle
- 9 Float spindle (622/071)
- 10 Float needle (# 622/197)
- 11 Banjo bolt (# 622/078)
- 12 Banjo (# 376/097)
- 13 Filter gauze (# 376/093)
- 11 Main jet (# 376/100)
- 15 Float chamber body (# 622/055)
- 16 Jet holder (# 622/128)
- 17 Float (# 622/069)
- 18 Needle jet (# 622/122)
- 19 Float chamber washer (# 622/073)
- 20 Throttle adjusting screw (# 622/077)
- 21 Pilot air adjusting screw (# 622/076)
- 22 Tickler
- 23 Throttle spring (# 622/131)
- 24 Drain plug (# 622/147)



How tuning is done:

There are four adjustments that can be made to the concentric carburetor. The adjustments should be made in the following sequence with the engine at operating temperature. The bike should be in operating setup (i.e., exhaust system installed, air cleaners installed, etc.).

1. Adjust the main jet (Throttle at three-quarters to full open).
2. Adjust the pilot jet. (Throttle up to one-eighth open)
3. Adjust throttle cutaway. (Throttle one-eighth to one quarter open)
4. Adjust throttle needle. (Throttle one-quarter to three-quarters open)
5. Readjust the pilot jet.

The adjustments for each or the five steps are described in the next section.

How the carburetor works

Throttle setting, full closed:

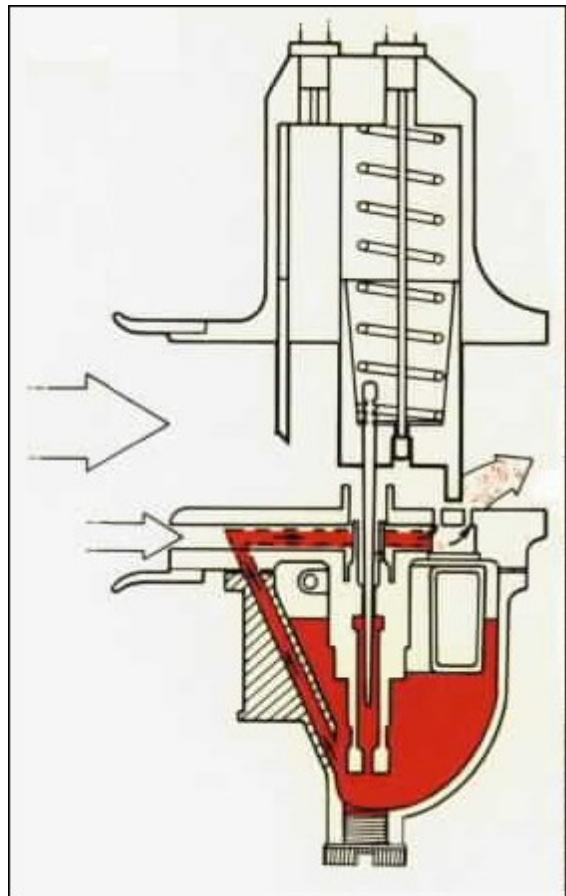
The carburetor proportions and atomizes the correct amount of petrol with the air that is drawn in by the engine. With the throttle slide in this position, the engine is idling, the needle valve is shut and the pilot jet and air adjusting screw control the mixture.

Tuning:

With the engine set at a fast idle, the twist grip shut off, the throttle valve down on the throttle adjusting screw, and the ignition timing correctly set:

1. Screw out the throttle adjusting screw until the engine runs slower and begins to falter.
2. Screw pilot air adjusting screw in or out until the engine runs regularly and faster.

Carefully repeat these two adjustments to obtain the best slow running.

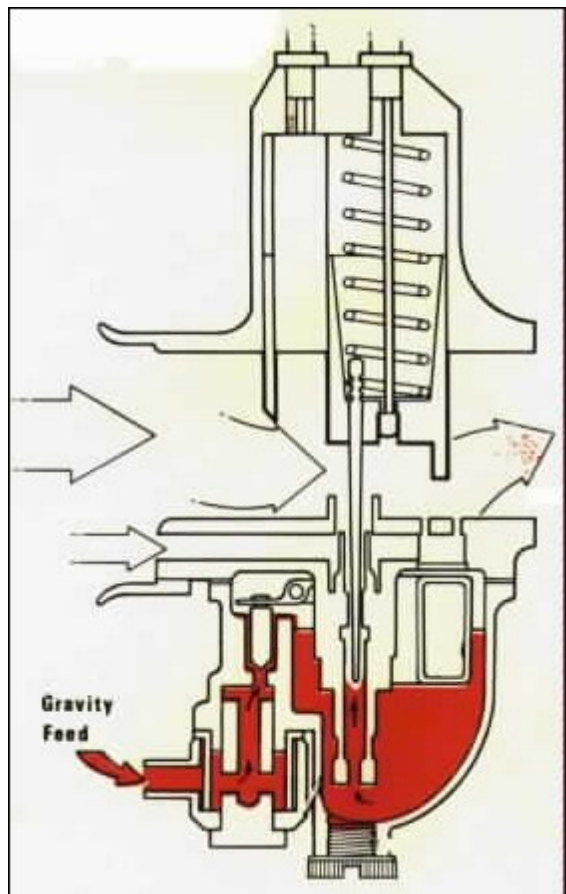


Throttle setting, one-eighth to one quarter open:

When the throttle is opened from the idling position, the throttle increases the amount of air in the mixing chamber and the needle valve begins to open, this proportionally increases the amount of petrol.

Tuning:

In this position the air is controlled by the throttle cutaway. If there is spitting from the carburetor, richen the mixture by fitting a valve with less cutaway. If there is no spitting but the engine jerks under load, then a larger cutaway is required to cure richness.

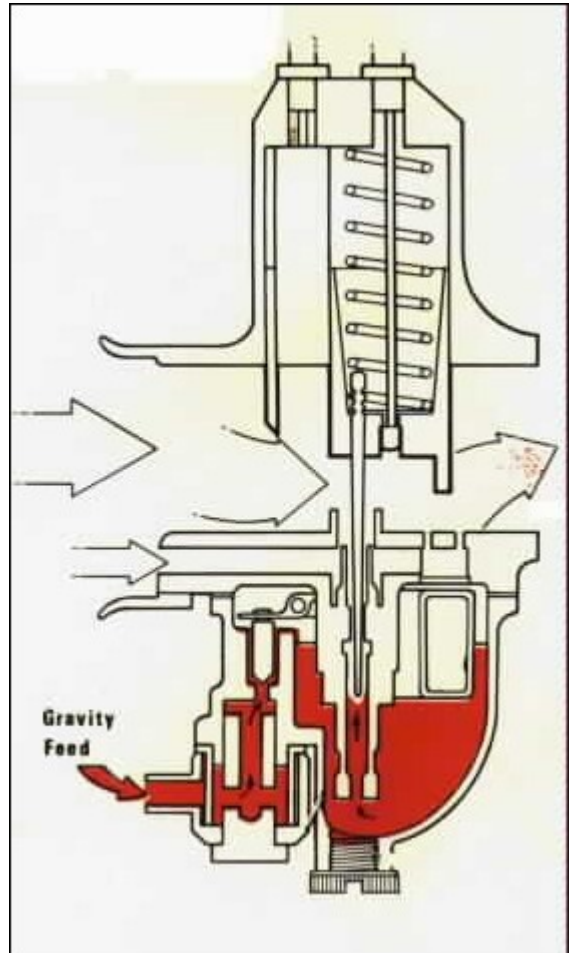


Throttle setting, one-quarter to three-quarters open:

The jet needle controls the amount of petrol through a wide range of throttle opening during acceleration. In this position the throttle cutaway is no longer controlling the air.

Tuning:

If acceleration is poor but improves with the partial closure of the air valve, raise the needle. If it becomes worse try the effect of lowering the needle. Experiment to find the most effective position.

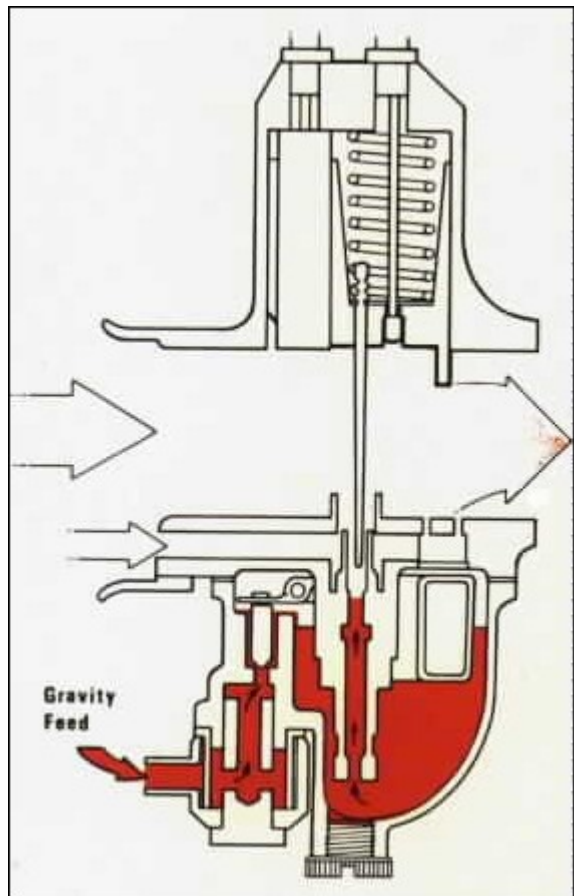


Throttle setting, three-quarters to full open:

The throttle valve is now fully open, the petrol is no longer controlled by the needle jet but by the main jet. and maximum power is developed.

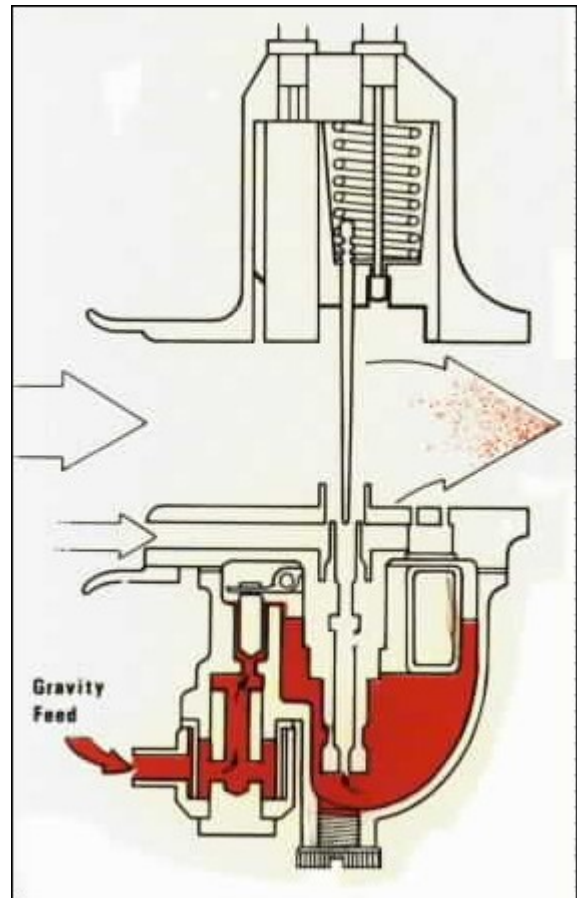
Tuning:

If the engine runs heavily' at full throttle the main jet is too large. If the engine appears to have better power when the throttle or air valve is slightly closed, the main jet is too small.

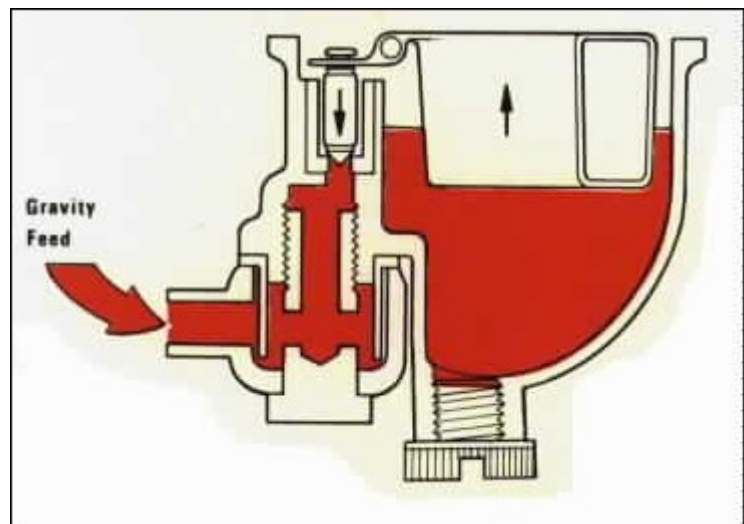


How the float chamber works

The level of petrol in the float chamber is at maximum level, the float has risen and the needle is located on its seat, stopping petrol from flowing into the chamber.



When the level of petrol in the float chamber is low, the float drops and the needle is lifted from its seat, allowing petrol to flow into the chamber, petrol being gravity fed from the tank.



Several articles have been published about setting the float level on Concentric Carburetors and this is a summary of the important points from people in the know:

- The actual specification, from the engineer who designed the Concentric, Barry Johnston, gives a gas level of between .170" to .240" below the top edge of the float bow, .170" being rich and .240" being lean. This level has a dramatic effect on the running of a properly tuned motorcycle. It pays testaments to the design of this carburetor that the range of miss-adjustment it can tolerate and still have the motorcycle run, if only poorly. It is suggested that you set the float level first before doing any carb adjustment.

- The level can be estimated by placing the round edge of the plastic float between .060" and .090" below the edge of the bowl when the needle is depressed by a slight force on one of the float's needle tangs. You can turn the bowl upside down to establish this. With the float above the top of the bowl, as described in the Norton Tech manual, the float can contact the bottom of the body and not allow the float needle to seat firmly. It also makes the carb rich through the jetting range. With the float, level with the top of the bowl, although not as rich as when it is above the top, it is still out of the specified range.
- The brass needle seats are installed and adjusted cold by the factory. Using a proper sized drift, you can adjust the brass seat on a solid surface.

This page is basically a reprint of a shop poster produced by Norton Triumph in the 70's. Several comments and part numbers have been added.

It comes from the technical articles of the website of Old Britts (<http://www.oldbritts.com/>). The page was written and designed by F. H. Eaton & associates; if you have any questions or comments, please contact eaton@oldbritts.com.

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