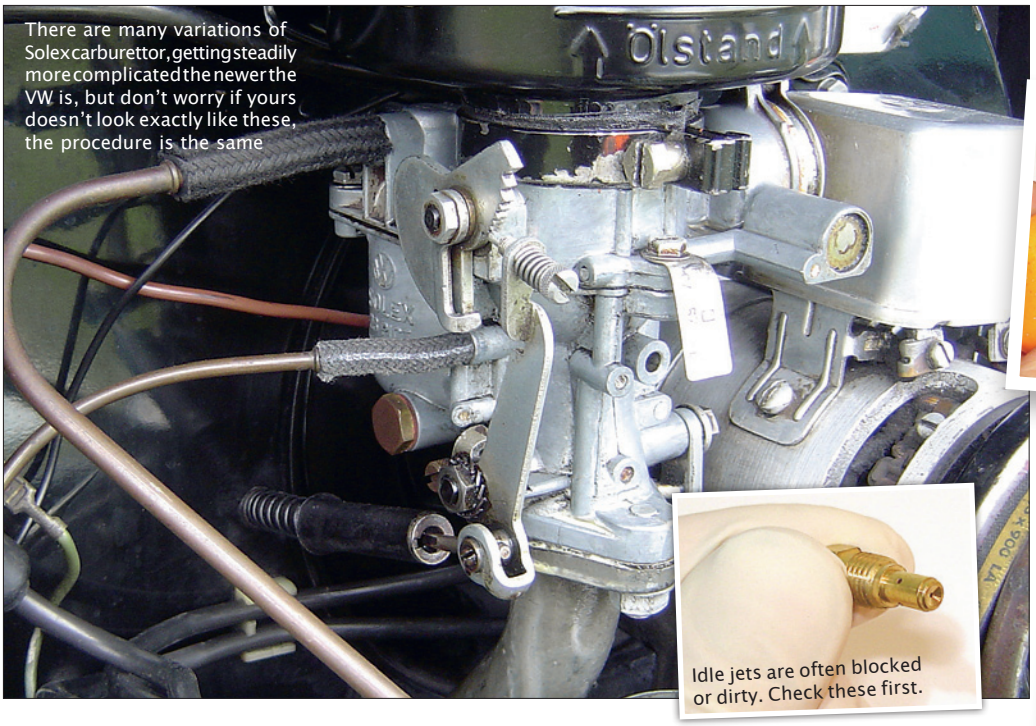
Tuning a carburettor

THE SOLEX RANGE of VW carburettors are very simple to tune, so follow this guide and keep yours adjusted to factory specs



There are many variations of Solex carburettor, getting steadily more complicated the newer the VW is, but don't worry if yours doesn't look exactly like these, the procedure is the same

Idle jets are often blocked or dirty. Check these first.

Carburettor adjustment is sometimes referred to as a 'black art', and perhaps there is an element of truth to this when dealing with multiple carburettor installations, but not a single carb on the humble little flat four in your Bus. So cast all the myths you my have heard aside for, armed with this handy little guide you – yes, you – are finally going to sort out that erratic tickover and lumpy idle.

Carburettors, like any mechanical component, wear with age. Jets inside the carburettor actually enlarge over time as the fuel passing through them is minutely abrasive and wears the soft metal away. Similarly, the throttle spindles rotate directly in the body of the carb, so eventually wear into the carburettor body itself. This allows air to leak through, which affects the slow running of the engine, manifesting itself in 'hunting' – the situation where the engine rpm at idle rises and falls, and no matter how much you adjust the idle speed, it just won't go away.

You are finally going to sort out that erratic tickover

Checking for spindle wear is simple – grab the throttle lever arm and wobble it up and down. If there is play in the spindle it will be felt immediately. A small amount of wear is normal, but lots of play will render the carburettor out of the realms of adjustment. The remedy? Either have the throttle spindle bores bushed by an engineer or replace the carburettor with a new item.

Assuming your carburettor throttle spindle is okay, the next step is to remove the idle jet and give it a good clean, ideally with compressed air. The idle jet has very small orifices and they can block, again causing running problems. Do this task before trying any other adjustments. Trust us on this.

You don't need any clever tools for doing this job, but a stroboscopic timing light with a tachometer is handy for setting both idle speed and CO. And why not help your carb out by fitting at least one fuel filter, and regularly checking your fuel lines.

TOOLBOX

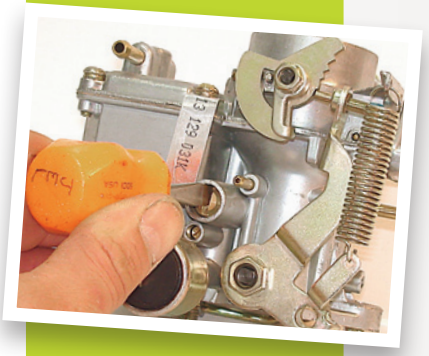
TOOLS USED:
A selection of flat blade screwdrivers – make sure they are all the right size for the job, okay?

1 2 3 4 5

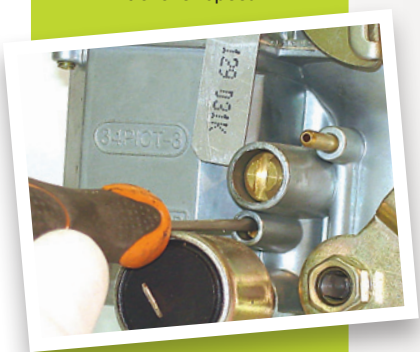
COST:
DIY: nothing
Pro: £45 (labour)

TIME TAKEN:

This picture shows the location of the idle jet in the carb, just above the accelerator pump diaphragm



This picture shows the idle speed adjusting screw. This adjusts tickover speed



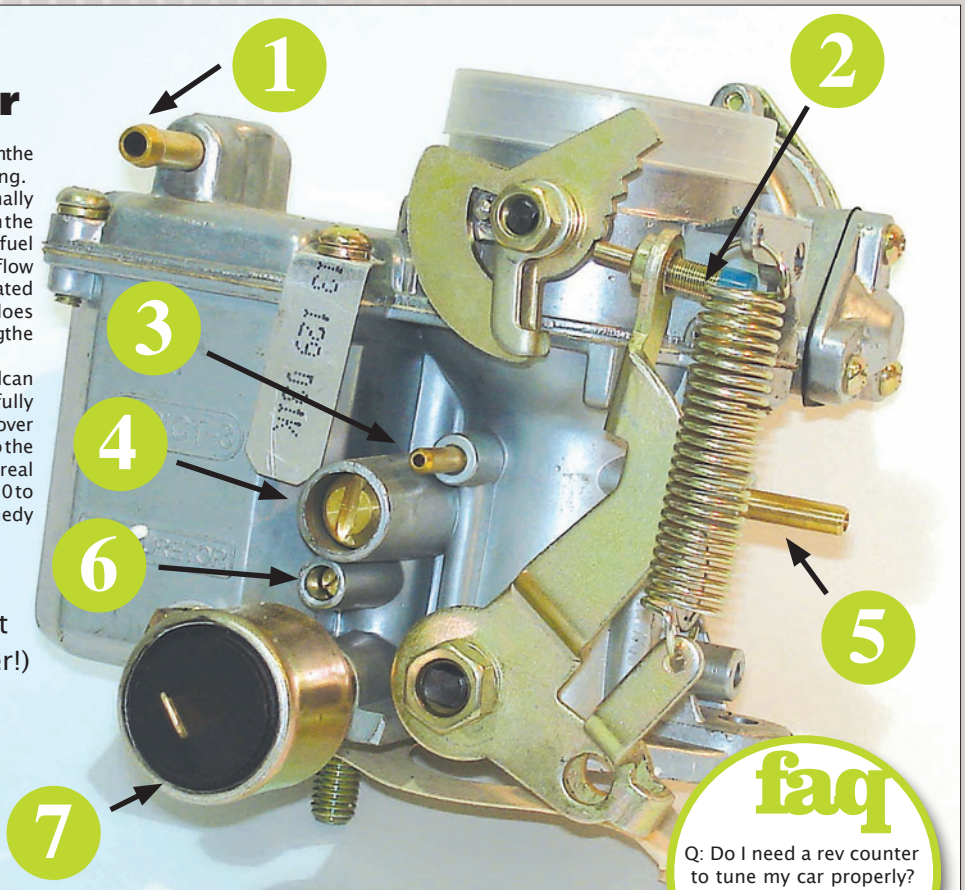
Lastly, this one shows the idle mixture screw. Note the different sized screwdrivers used

The Solex PICT series carburettor

The 30, 31 and 34 PICT 3 carburettors require little in the way of maintenance, other than periodic tuning.

Shown here as an example is a 34 PICT 3 as normally found on late 1600 Bays. Fuel travels in through the top of the carburettor, fed via the fuel pump, to the fuel inlet needle sited at the top of the float bowl. Fuel flow is governed by this needle, which, in turn, is operated by the float. As fuel rises in the float chamber so does the float, causing the inlet needle to close, slowing the flow of fuel or stopping it completely.

From time to time the inlet needle wears out and can cause fuel to seep past the needle, even when fully closed. This causes a 'rich' condition as fuel 'spills' over the float chamber into the venturi and then into the engine, which can make 'hot starting' your Bus a real pain. See the carburettor overhaul article on p50 to find out how to replace the needle valve and remedy this situation.



1. Fuel inlet
2. Throttle adjusting screw (not used when adjusting tickover!)
3. Vacuum port to distributor
4. Idle adjustment screw
5. To air filter
6. Mixture screw (CO)
7. Fuel cut-off solenoid

faq

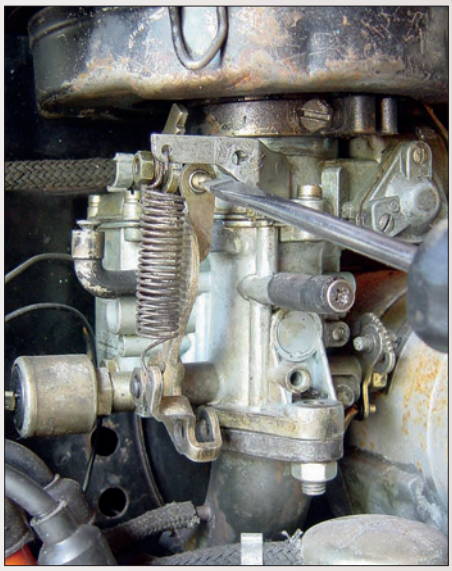
Q: Do I need a rev counter to tune my car properly?
A: Not if you have a digital timing light with a rev readout, but otherwise yes

Carburettor adjustment

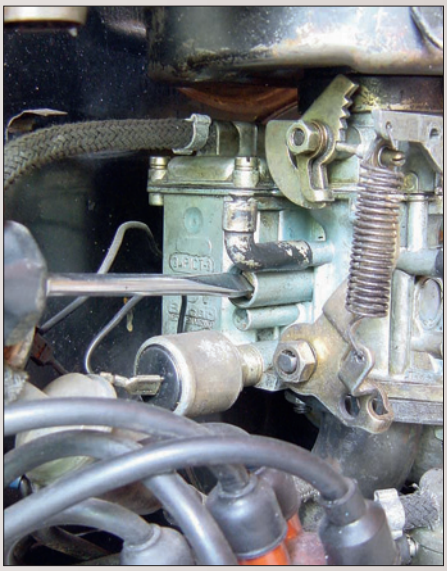
There are many different VW Bus carburettors so familiarise yourself first of all with the main adjustment components on your carb before you do anything. If you've worked through this manual from the front, you'll already have your plugs and points gapped correctly and your timing right but, if you haven't, you need to do these procedures first as adjusting your carb before doing all of this will be a waste of time as it could be one or more of these issues making your engine run poorly. And don't forget to clean out that pesky idle jet first either.

Assuming everything is good, here's how to go about adjusting your carburettor for perfect running. Firstly, warm the engine up so that the oil is above 60 deg C (a good spin round the block should suffice) then, with the engine still running and 'off choke', work through the processes below. Note: tickover should only ever be set on the idle speed screw, never by adjusting the throttle adjusting screw. Why? Adjusting tickover via the throttle screw will open the throttle plate, causing the idle bypass circuit to not function correctly. You should set tickover speed to approximately 800–900rpm, and you'll need either a rev counter or a strobe timing light to do this. There is no other way to do this accurately.

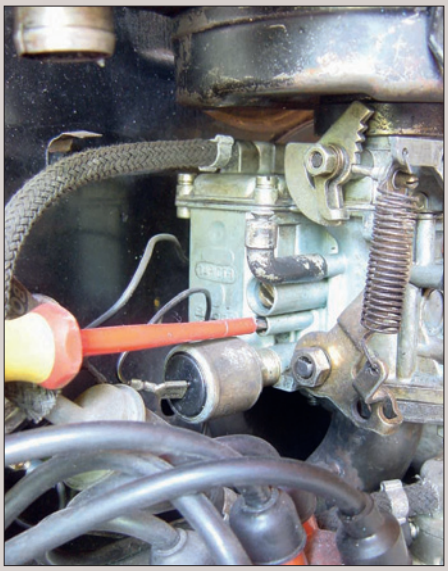
To do a 100% thorough adjustment of the idle mixture screw you really need to have a CO meter to hand as well but, as it is unlikely many of you will have that, follow our top tip in step 3 and you'll be pretty close. The only thing you may then have to do is to re-adjust your tickover speed once more, as detailed in step 2.



01 Ordinarily, you should not touch the throttle adjusting screw as it is factory set, but we're assuming someone may have tinkered with this in the past. So to begin, wind it anti-clockwise until its pointy bit no longer touches the stepped cam of the strangler (choke) set up. Then wind the screw in so it just touches the cam, then turn it a further quarter turn clockwise.



02 Next, you need to address the idle speed (the larger of the two brass screws on the left hand side of the carb). To increase rpm, wind the idle adjustment screw out (anti-clockwise) and to reduce rpm wind the screw in (clockwise). Always wind the screw in or out very slowly and be patient as it will take a little time for the engine speed to respond.



03 Finally, adjust the idle mixture screw. Wind it inwards (clockwise) slowly until the engine rpm begins to drop, then outwards (anti-clockwise) and watch your timing light tacho for the rpm to begin to increase again. Stop when it reaches its maximum increase and wind back in until you see a slight drop, then back it out quarter of a turn. Job done!