

Carburation Faults

If the prospect of junking your Pierburg seems too drastic, help is at hand for your poorly carb thanks to ALAN and VANESSA White of tuning house Autotechnik

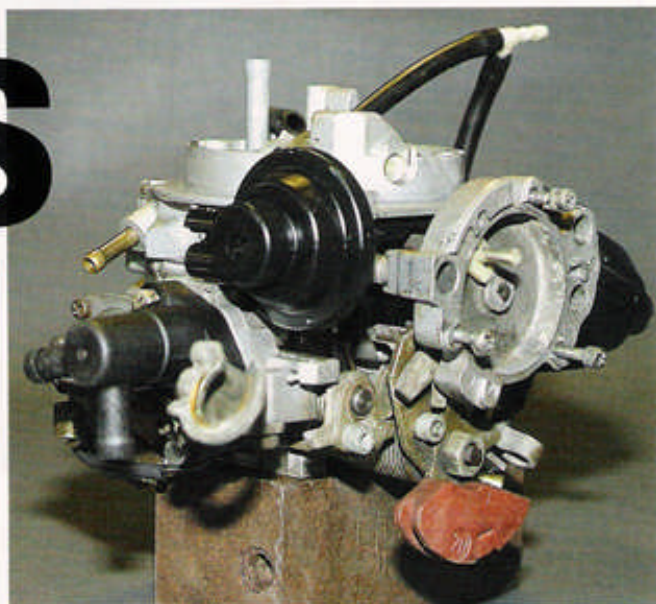
Some vehicle faults tend to be seasonal, and the start of some cooler autumn weather will bring about a little flurry of carb related faults. VWs are mostly fitted with good, reliable Pierburg carbs from the factory. They vary in configuration dependent on age and engine size, but the principals are the same. This feature will explain some of the more common faults they suffer from, with typical symptoms.

Repairing Pierburg carbs seems to be considered a black art by some. If only people would take the time to look sensibly at the fault – it's a bit like the spotty teenager saying 'but you just don't understand me'. The Pierburg carb feels the same, but doesn't have the acne!

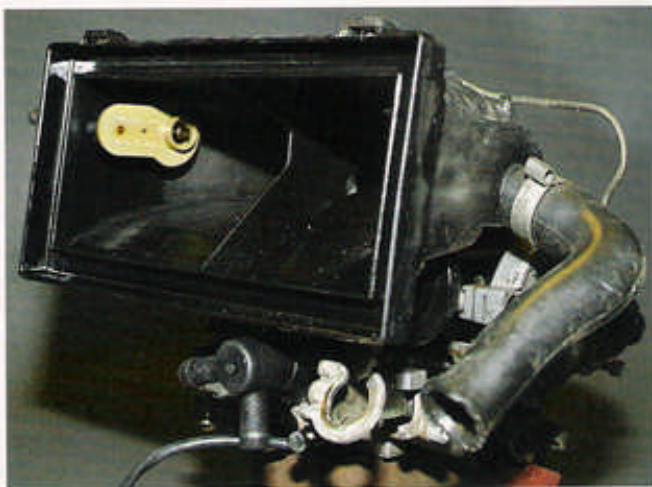
A cold start with a Pierburg carb requires the accelerator to be pushed fully down and then released to trigger the choke mechanism. When a car is bought

secondhand, this sort of information is not always passed on. Manual choke conversions are far too often fitted and any fault is masked not cured by doing so.

Many faults blamed on the carb are not actually down to the carb



The Pierburg is a complex piece of kit, but not as hard to work on as you'd think



Make sure the little hot and cold air intake flap is working properly...

itself, but to peripheral piping, wiring and ancillary components. When we get a carb problem in, we get as much information as we can: when does the fault occur? What revs is the engine running at? What weather conditions does it occur in? How does the car start from cold? Does it run on when you switch off? I'm sure the customer can sometimes wonder what the interrogation is all about, but by co-operating, things don't tend to be too painful, both physically or on the wallet!

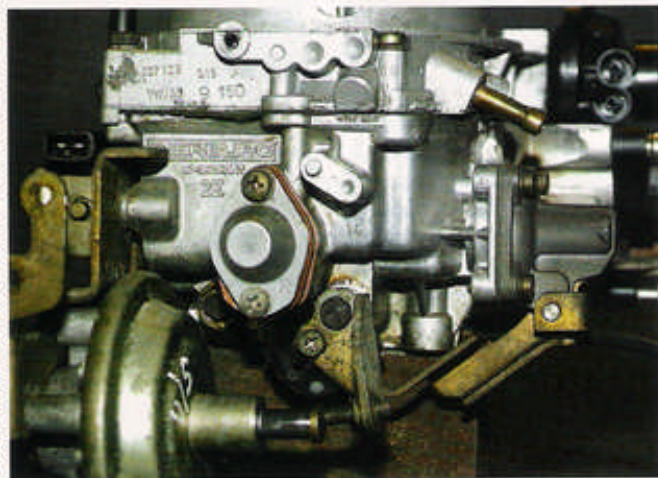
We will run through some of the more common faults that we

address regularly, with symptoms and remedies. Every case can vary, and there is always that odd little critter that defies the rules, but perseverance sorts them all out eventually.

PROBLEM 1. *The car starts and runs fine from cold, but in cooler weather will loose power at higher speeds, and possibly even cut out. By the time you pull over, and take a look under the bonnet, and then try to restart, the car starts and runs perfectly again. The fault may repeat itself on a longer journey. Black smoke may be apparent on restarting the car, or whilst it is losing power.*

So, this sounds like a typical case of the favourite carb icing syndrome. For some reason insufficient heat is getting to the carb, and in temperatures from 12 degrees and lower this can happen. Damp weather can exaggerate the problem. There is the wind chill factor of running at higher speeds, and fuel can freeze at far higher temperatures than water.

The first thing to check is the pre heat pipe from the manifold to the air cleaner assembly. The manifold has a metal plate fixed to it to collect hot air, which reaches the carb via a corrugated pipe to the air cleaner assembly. If the collector plate or the corrugated pipe are misplaced, split, or in some cases



The mixture adjustment screw is easy to find (top right of pic)

Words: Alan and Vanessa White / Pictures: Studio 5 (01489 577569)

missing, then that is where the fault lies. Simple, and easily rectified. One customer, a VAT inspector, did not believe my diagnosis and quick remedy that even a girly could do, that we wagered a £5 bet that this would cure his fault. A week later he came back with my fiver.

If all the pipework is in place and intact, and the vacuum pipes around the carb, the other place that can cause the same fault is in the air cleaner snout itself. Inside the snout is a flap which controls the hot and cold air intake to the carb. The flap is controlled by vacuum pipes which receive their information from a temperature switch in the air cleaner assembly. The flap may just be jammed, the fixing wire for the flap may have failed, or the temperature switch may have failed. If the latter two are the case, then rig the flap in the position to allow maximum hot air to the carb, in very hot weather this may mean fuel evaporation can occur and therefore hot starting can be difficult, but a permanent repair of the failed component is long overdue anyway.

If the temperature switch has failed, then a quick fix is to bypass the flap control, by linking the vacuum pies together which should otherwise plug onto the flap control unit.

PROBLEM 2. *The car starts fine in the morning, but running is then quite poor, chuggy, bit of black smoke maybe, and tries to cut out at junctions. After warming up the car runs fine for the rest of the journey.*

This is a pull open or pull down unit typical fault. This unit looks like a spaceship on its side with one or two small pipes going to it. Check the pipes are fitted correctly, and are not holed. Free up the end of the pipe away from the pull open unit and suck on it. If there is no resistance, the diaphragm in the unit has failed, and needs to be replaced. When replacing the pull open unit always measure the length of the stalk against the new one and make sure they are the same, or further problems can occur.

PROBLEM 3. *The revs seem to hang up on the engine, anything from 1000 to 2000rpm, but this can be intermittent. When switching the engine off it runs on.*

This sounds like a waxstat type fault. The waxstat is reliant upon coolant flowing through it, which as it gets hotter allows the waxstat function, which is to give a faster cold idle, to switch off. If the coolant is not getting to it-who put rad weld in when there was a

coolant leak recently? Or the coolant level is very low and needs topping up, these causes are not allowing sufficient coolant to get to the waxstat. The waxstat itself may have become tired and needs replacing, a straight forward repair.

PROBLEM 4. *Revs go up to 3000rpm intermittently.*

This isn't a carb fault at all. The thermo time switch wires are likely to have broken, and are making and breaking contact. Replace the wires and fit new connectors and the problem is solved. Rarely is it the time switch itself.

PROBLEM 5. *The idle control valve failing can give rise to a number of symptoms, which can be confused with waxstat faults. The idle can hang up, but also the car can produce black smoke and loose power, similar to carb icing symptoms.*

So a tricky one this but the test is an easy one. The valve has a small hole in it, put your finger over the hole, if the rod moves out, the valve has failed. This is bad news, these valves are expensive, not as expensive as a replacement carb, but we are talking over £100.

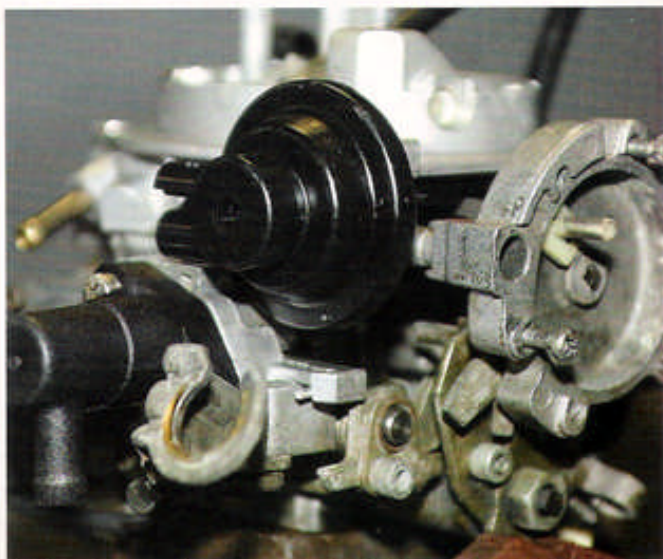
PROBLEM 6. *Lack of cold idle can be tricky too to identify the cause. The choke housing on the side of the carb has a bi-metallic spring wound inside it, and this spring sometimes can fail. Also, the choke flap in the top of the carb can fail to operate if the little plastic cam breaks that it operates on.*

Much against popular belief, this little cam is available separately, you do not need a whole carb top as was always thought to be the case!

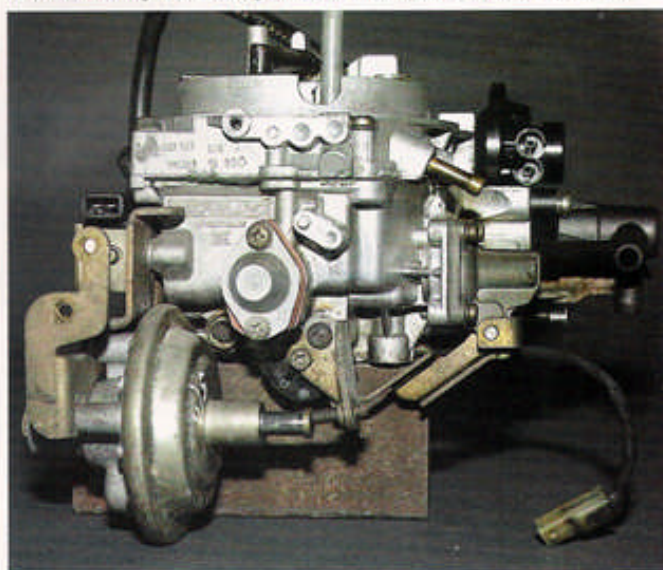
PROBLEM 7. *The base block gasket that the carb sits on is made of a hard rubber compound that seems less capable of coping with the use of unleaded fuels, and we are seeing regular failing of these.*

Typical symptoms are erratic running and cutting out. As the vehicle accelerates away the movement on the engine causes further reflective movement in the carb, the split in the base block gasket opens, gulping in air, messing up the fuel and air mixture. Replacement is straightforward.

SO, THESE ARE some of the more common, simply resolved carb related problems. Don't decide on a replacement carb without some sensible and effective diagnosis being carried out first, the fault may still be there even when you have just paid out large sums of money,



Autotechnik are good at solving carburettor faults, so never fear, help is near!



Looking like something from the moon landings of 1969, the Pierburg is complex!

