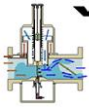
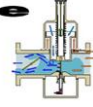


BALANCING ACT Part 1



working in two Carburettors at once can appear to be a dark art. This will show you how it doesn't have to be that way.



The SU carburettor is found under the bonnet of many classics - mainly those hailing from the British Motor Corporation/British Leyland stable as SU had been owned by William Morris since 1918. While a single carburettor is good enough for an ordinary saloon car one of the easiest ways to boost the performance of an engine is to fit multiple carburettors. Why not simply fit a larger single one? Well a big carb (even a variable venturi type like the SU) will only be at its most efficient when operating at full throttle and high engine speeds - great for racing, but not good for road use. Having a pair of smaller carburettors means that each can still provide good throttle response and efficiency at low-and mid-range speeds while being able to feed more fuel mixture into the engine than a single unit. Twin SU carburettors are the definitive fuel system for most classic British sports car - virtually every MG from 1954 to 1980 used them, as did many Austin-Healeys and Triumphs plus dozens of low-volume specialist models. Sports saloons such as the Jaguar Mk2 and luxury motors like the Rover P5B and the Rolls-Royce Shadow also utilised a pair of SUs.

Any engine will not perform at its best if the carburettor is not set up right or if parts are worn and twin carburettors bring further challenges, as not only does each carb have to be tuned correctly but it also has to be set up to match its partner if the engine is to run correctly. This is what is meant by 'balancing' carburettors and it can seem to be as much an art (or, at times, a type of black magic) rather than a mechanical skill. While it's true that this is one of those jobs where experienced eyes, ears and even noses are a big advantage, it is still a task well within the scope of the home mechanic if they have a step-by-step guide.

BEFORE YOU START

- 1. Is it the carburettor? There is an old adage that 'nine out of ten carburettor problems are of an electrical nature'. What this means is that many owners have a tendency to diagnose any starting or running problems as carburettor problems, but this is rarely ever the case. SU carbs hardly ever just go wrong, although parts do gradually wear over time. If your car has suddenly become hard to start, lost power or developed a misfire it is very unlikely to be a carburettor problem.*
- 2. On a similar note, there's no point tuning the carbs on a sick engine. Is the compression good? Is the ignition timing right? Is the points gap correct? Are the air filters clean or new? When did you last check the valve clearances? Are the spark plugs gapped correctly? Is the petrol fresh? If any of these things aren't right then trying to set up the carburettors will not only be pointless but immensely frustrating.*
- 3. One step at a time. Carburettor tuning is all about making small adjustments to find a sweet spot that has the engine running the way you want it to . If you make one adjustment to one thing at a time you can always undo you last move. If you start changing the mixture, the idle speed, the choke and the air screw setting in between each test run you'll never get everything in the right spot and you can find yourself going round in circles just trying to get back to where you started.*

WHERE TO START

1. If the issue is erratic idling, take a can of starting fluid or penetration oil and spray it liberally over the carburetors and the intake manifold while the engine is running (*if it gets anywhere warm it will create smoke and smell but don't worry, it will burn off very quickly*). Make sure you get the fluid over every throttle spindle, gasket, hose and other joint in the entire intake system. The SU carburettor works on differences in air pressure and any leaks in the intake will have a big effect on how the engine runs. If the engine idle speed rises while you're spraying them you've found a leak. Check things like the hose for the ignition vacuum advance as well as those for the engine breather system and a brake servo (if fitted) as leaks here can all affect how the car runs.



2. When the problem is misfiring or hesitating when running, simply take the car for a test drive. When the symptoms present themselves pull the choke out about half way. If the engine picks up and runs better then you know that the issue is a weak mixture - but you still have to find out exactly what's causing that.



3. Your car's tailpipe can tell you a lot about how the carbs are set up. Thick black deposits and soot in the exhaust mean the engine is running too rich. A clean pipe and an exhaust note that sounds irregular and 'splasy' means it's too weak. The spark plugs can do the same - sooty plugs mean the mixture is too rich, while clean or glazed-looking plug tips show it's too weak. The plugs should have an even grey/brown coating on the insulator but clean surfaces on the actual electrodes.



4. Before opening up the toolbox just make a final check that all the cables and linkages are operating as they should. Do the throttles on both carbs open fully when the accelerator pedal is on the floor? Is the throttle cable adjusted and seated correctly? The same goes for the choke - many problems with starting from cold can be cured simply by adjusting the cable tension so the choke actually operates when the knob is pulled.



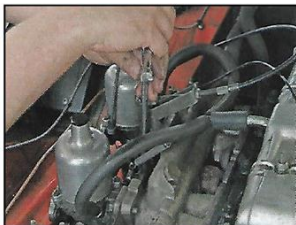
TUNING



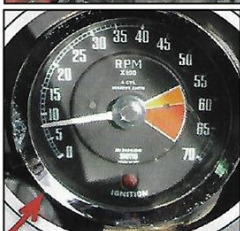
1. The first step is to remove the air cleaners and any associated parts from the 'air' side of the carburetors so you can look straight into the venturis.



2. Run the engine until it is up to normal temperature and make sure the choke is fully released.



3. Slacken the adjuster nuts on the linkages that connect the throttles and chokes of the two carbs; you must be able to tweak each carb without affecting the other one.



4. If the idle speed is incorrect (it's usually about 800rpm for most MGs) then use a narrow bladed screwdriver to adjust the idle screws on both carburetors by the same amount until it's close to being correct. For now this is just a baseline.



5. Lifting the piston of each carb by a small amount (1/32-inch or about 0.8mm) will give an indication of the mixture. Some SU carbs have a spring-loaded pin you can press to do this while on others use a small screwdriver to tweak the piston up. If the engine slows or stalls when you do this, the mixture is too weak. If the engine speeds up it's too rich. If the mixture is correct the engine will briefly speed up then settle to a steady but slightly higher idle speed. Do this for each carburettor in turn.



6. If the mixture needs adjusting, screw in the jet adjusting nut (raising the jet assembly) on one carburettor at a time. Do this until the engine speed just begins to decrease and then unscrew the nut until the speed rises. Then screw it in again by just one flat of the nut. Repeat for the other carb, even if the initial mixture test showed it was correct.



7. Now readjust the idle speed screws as you did at the start, by equal amounts for each carb. Get it as close to the factory setting as you can.

Carburettor Balancing, Choke Adjustment and
Damper Oil
in the next Newsletter.

I'm sorry it will not be until
April 2017