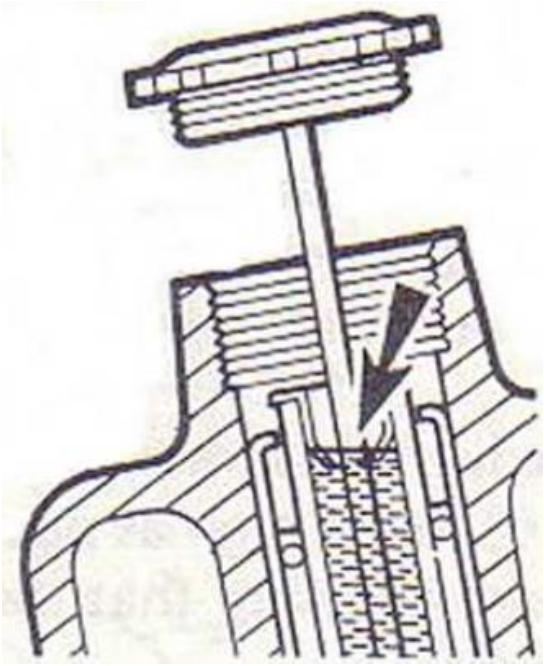

Topping up the carburettor damper on an SU

Topping up the dampers on the twin SU carburettors on an MGBGT is a very worthwhile simple service routine which can make driving the car so much more enjoyable with a smoother pick up and acceleration and a less frisky engine at slow speeds. Enthusiasts not familiar with SU carburettors may be unaware of the benefits of regularly topping-up the dampers or what to do, so this note is a straightforward guide.

Unscrew each piston damper cap and raise each piston and damper to the top of their travel. Fill the recess in the damper retainer with the new engine oil (preferably SAE 20), lower the damper until the cap contacts the suction chamber; repeat this procedure until the oil level is just visible at the bottom of the retainer recess. Then screw the black cap on firmly on the suction chamber.

The use of "gently" above is a caution when lifting the piston damper because care must be taken not to dislodge the damper retaining clip which is pressed into the top of the piston rod. So just lift the black cap very carefully and park it whilst you add oil.

A traditional small engineer's oil can with a moderately long flexible spout and convenient lever actuating a pump mounted in the handle is the ideal piece of equipment for leaning across from the wing and directing a gentle flow of oil into the damper. The pumping action on that type of oil can provides the ideal level of control for this operation.

What is the function of the damper?

The basic function of the carburettor dashpot is to lift the large diameter piston in the bell shaped suction chamber for a given pressure differential across the upper and lower faces of the piston. Underneath the piston is the airstream from the air cleaners through the butterfly valve and on to the engine. The underside of the piston is connected to a tapered needle extending down into the jet below which governs an accurate supply of fuel into that airstream. That fuel mixes with air and passes through the butterfly valve and on to the engine.

Above the piston in the dashpot assembly there is also a guide rod and piston damper. The function of the guide rod is to guide the piston accurately within the bore of the suction chamber. The damper damps or moderates the movements of the piston in the suction chamber and consequently the changes in fuel supply governed by the needle in the jet.

The function of the damper is twofold: first it prevents the piston from following the fluctuations of the air flow at low engine speeds thereby keeping the piston steady and second, when the throttle is opened rapidly, it prevents the piston from rising rapidly in unison with the throttle opening. When the piston rises rapidly, the fuel/air mixture becomes weak because the air has less inertia than petrol. By damping the movement of the piston when the throttle is opened rapidly, the piston movement is retarded to cause a momentary enrichment of the fuel/air mixture which gives the engine a prompt pickup.

The damper operates in a column of oil. Failure to maintain an adequate oil level in the damper will cause carburettor piston flutter and adversely affect pickup and acceleration. So there is a need to top up the carburettor dampers regularly using the simple service routine described in this note.

Useful reference
Tuning SU Carburettors including full needle charts
Published by Speedsport Motobooks
ISBN 85113-072-0

Clip on the damper

Burlen responded to a query about the clip saying “the clip was introduced to stop the damper being lost if the cap became unscrewed. The later damper caps have quite short lengths of thread. It also stops the piston falling out of the suction chamber if that is removed”. A useful caution for fellow members is “make sure they keep the damper caps tight.