TEE-ONE TOPICS

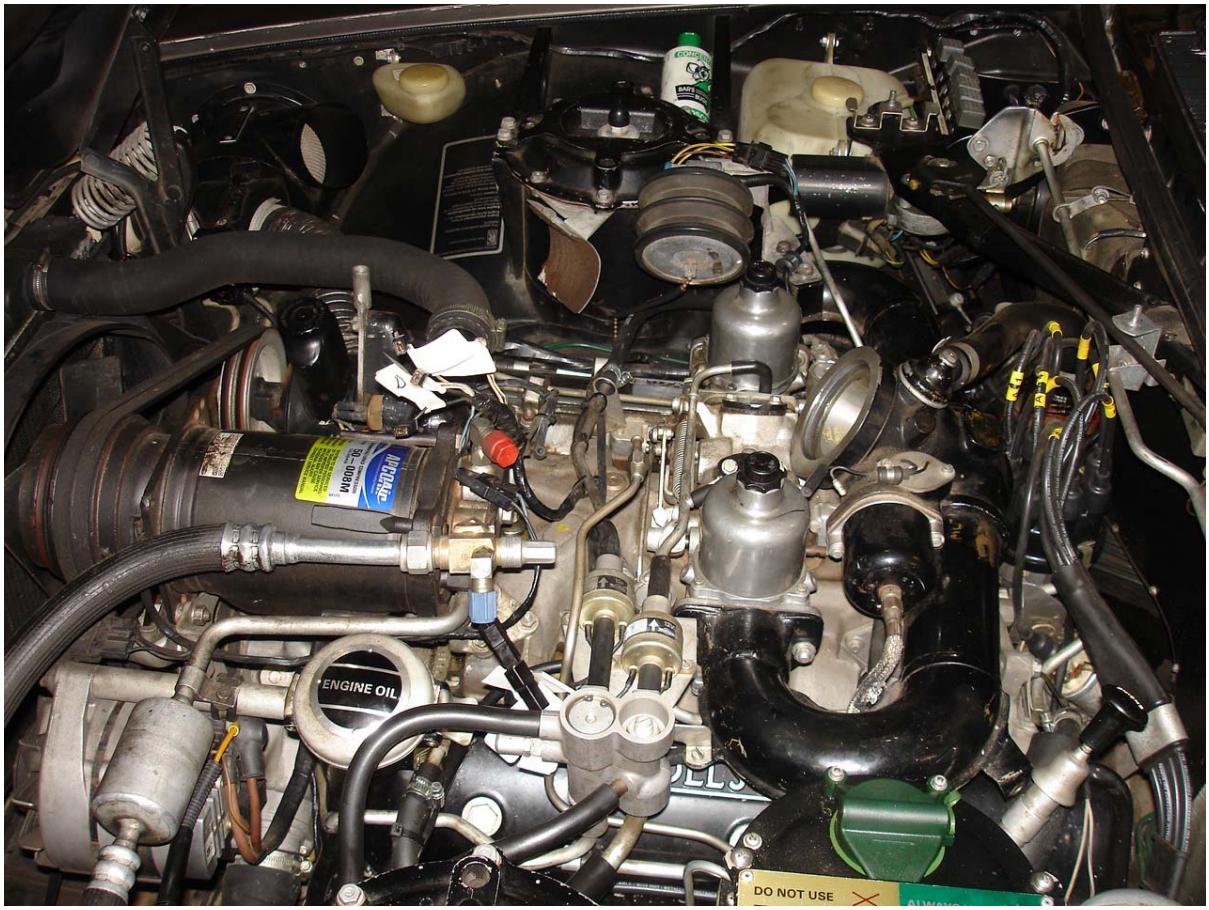
Number 67 September 2007

EXCITEMENT

Well Issue 66 had barely hit the ether and I had enquiries about the burning limo and the end-for-ended Bentley Turbo. Both pictures came from a remarkable website www.wreckedexotics.com which seems to hunt out just such calamities. I am glad to say the sections on our cars are relatively small. One correspondent lightly upbraided me for publishing 'such distressing' pictures but I did explain that I believe the Factory always took a considerable interest in wrecks of their vehicles to see how they stood up. I think they had nothing to be embarrassed about.

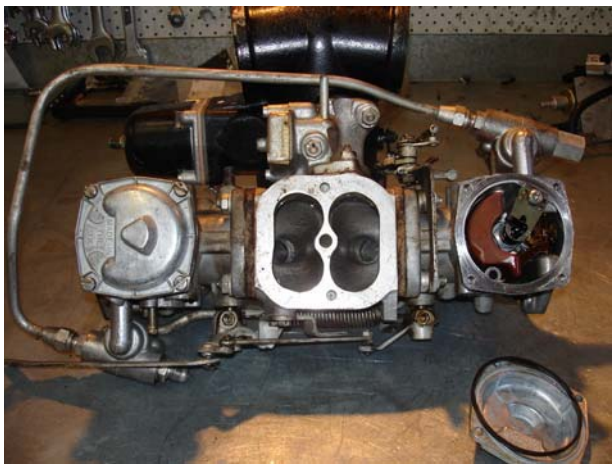
A long distance friend in the UK not only shares a love of Balveny Double Wood, but also owns some magnificent examples of the Marque. This includes a Phantom III, a Bentley Continental S and this extraordinary 20/25HP. I was fascinated by the body design. On enquiry I was told it was a Lamorna! Seems there was a one man band in a town of that name in Cornwall who specialised in re-bodying pre-war Rolls-Royces during the 1980's. Apparently his wife resented the amount of time his activities consumed, divorced him ruining his business and there were no more bodies made!!

I was in London in 1980 and saw a late Shadow II at the then service station getting ready for a repaint. Seems that the car, chauffeur driven with gentleman in the back was sandwiched between two double decker buses – a situation for which the Shadow was not designed! Apparently the passenger was able to open his door without difficulty. He stepped out, established that the chauffeur was unhurt, shared the latter's belief that the engine appeared to have moved under the car and leaving instructions to handle the matter, announced that he was walking to Jack Barclay to buy another. 'Any other car and we would have both been dead'. Accidents DO happen you see!



WORKING ON THE SU HIF7 CARBURETTERS

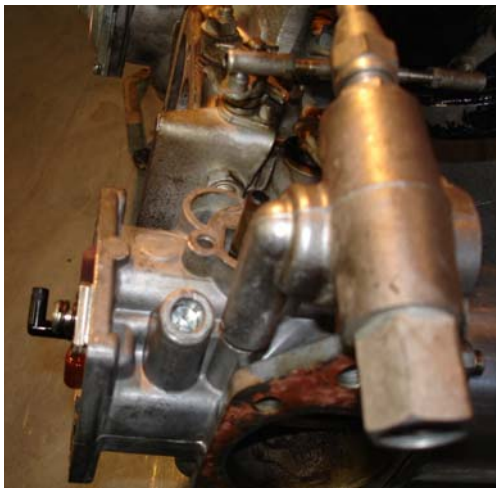
A friend just looked over my shoulder at the above picture and rather unkindly described the scene as a ‘mess’. Well when you look back at the dear old Mark VI engines or earlier models you would have to agree. The death knell for pretty engine bays died with the insertion of the vee eight. English engine rooms always seem to be much smaller than their American equivalents! Our vee eights always enjoyed twin SU carburettors except some chassis which sported the four barrel downdraft Solex only seen usually on Corniches and Turbo’s. Predictably by the late seventies the American market demanded tighter emission control, forcing the Shadow II into fuel injection which was the beginning of the end for carburettor installations.



The whole induction assembly off and inverted and the air horns removed – not really necessary but allowed a bit of painting and cleaning. The filter units can be seen stuck on the side of the carburettors and joined by the recirculatory fuel pipe.

The last instruments used were again of SU manufacture, the model HIF7. HIF – Horizontal Internal Float. The float bowl of the standard SU was moved from the side of the carburettor

to directly under the air valve piston thereby saving a lot of space. For some reason the workshop manual virtually warns against doing anything to the instruments on the grounds that they are carefully set at the Factory and presumably need not be touched during the life of the car. This would have to go down as the ultimate in optimism.



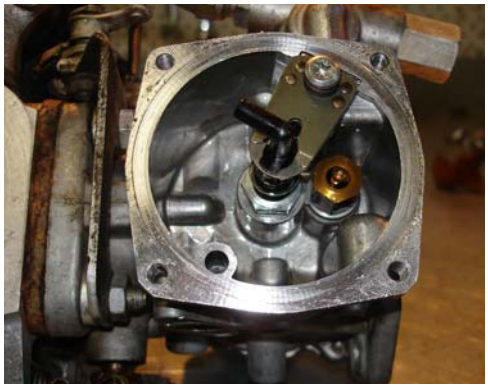
My first encounter that destroyed the Factory's claim was a pervasive smell of fuel around the engine of my '84 Spur. Careful use of a pencil beam torch revealed that the whole bottom of the carburettor was wet with fuel! This turned out to be the first of four places where these carburettors can leak!

A side view. The little black proboscis at left actually draws up the fuel from the bottom of the fuel bowl. The mixture adjusting screw can be seen to the left of the filter holder mount.

The four places occur because the bits involved, i.e.

1. The bottom plate and 'O' ring
2. The mixture adjusting screw and 'O' ring
3. The carburettor feed pipe and two 'O' rings and
4. The float pivot pin and annealed metal ring seal

All operate submerged in the fuel!

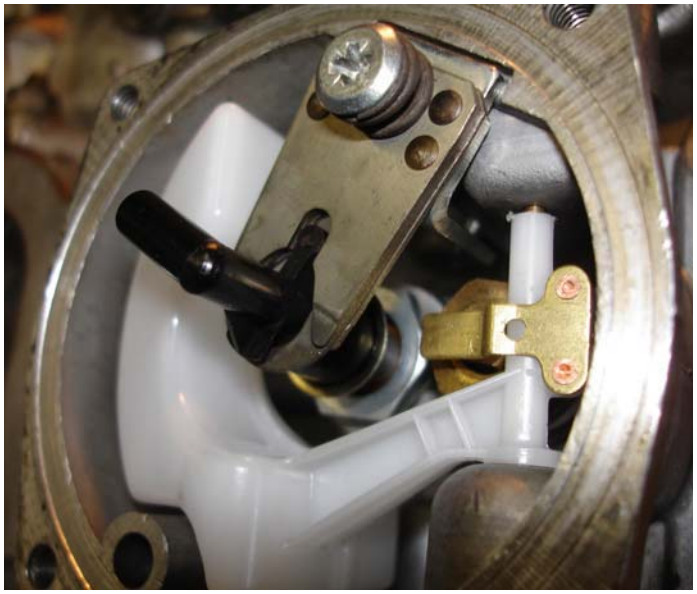


The 'internal float chamber' opened and the float itself removed. At right can be seen the needle valve. Spirits it should be noted use a large valve and not the usual small one. The change occurred very early in the series.

Unless you have a secret desire to perfect your hand at keyhole surgery, the first step is to remove both carburettors with their respective air horns and central 'T' piece. This involves unplugging a few wires undoing a couple of fuel pipes, clipping lots of plastic ties and unbolting the engine oil breather. Then, there is only one single bolt through the 'T' piece that holds all those bits in place! I have often thought the designers erred here since it is so accessible but then they counter-attacked when fuel injection went in! The initial leak in the case of the Spur was quite simple and apparently quite common. The base of the internal float chamber is closed by a plate with an 'O' ring and four screws. Sitting as it does immediately over the valley of the engine block, it gets quite hot and warps, hence the leak. The plate is replaced with a new 'O' ring and it's all put back together again. Do NOT over tighten the screws!

So a friend drives in in another Spirit and lo we have the smell of fuel again. Off comes the assembly, bottom plates changed and all back together. First mistake was assuming this was the problem! All on with the ignition pump whirring, what do I smell? torch out -steady drip!!!!!!!!!!!

The mixture adjusting screw complete with 'O' ring. These carburettors have cunningly concealed mixture screws. They are nicely recessed and actually screw into the body of the fuel in the float chamber.



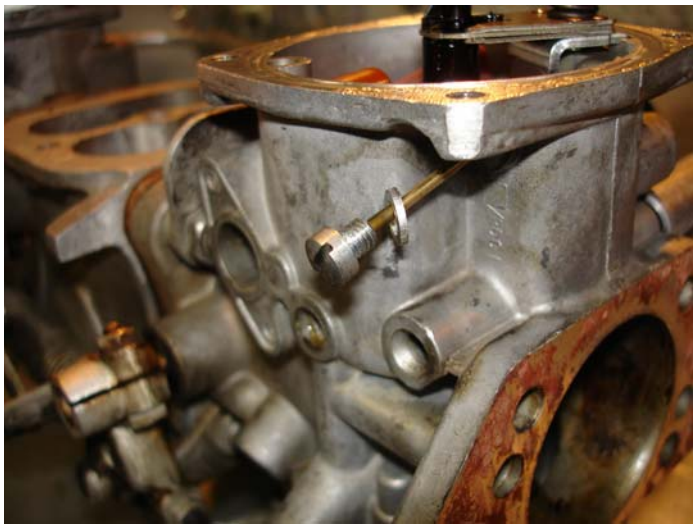
You guessed it, the second leak point. The ‘O’ ring goes hard and the first turn of the screw breaks any remaining seal and we have the leak.

New needle valve and seat screwed in and new float fitted. The latter are acetate and can leak.

To get fuel into these carburettors there is a simple pipe poked into the body of the float chamber. The pipe is brass and has two circumferential grooves into which yet more ‘O’ rings are placed.

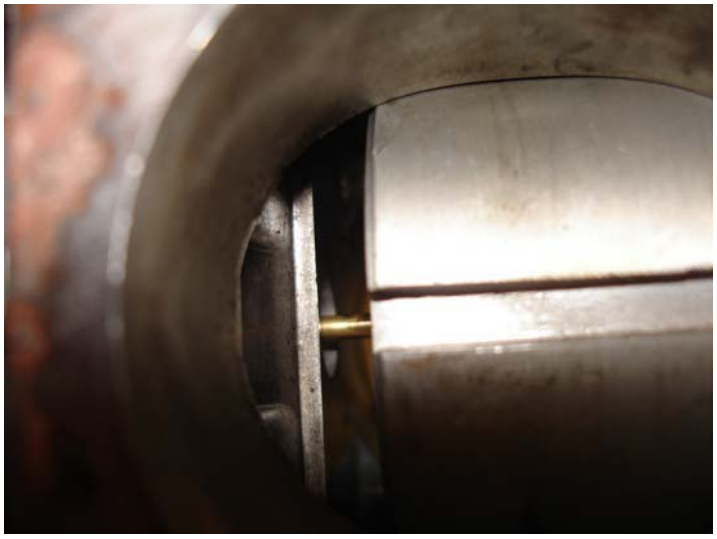
A separate device containing a paper filter and adapters to handle in and out pipes is pushed onto the brass pipe. The ‘O’ rings do the sealing. The location of this filter holder can be moved towards or away from the carburettors for some distance which allows brackets to be fastened to it to hold it in place. Again the ‘O’ rings get hard. Pulling the filter holder off and replacing it does nothing for the sealing properties and there you have the third leak point.

In the event I encountered all four probably because the engine had done 150,000K and been used well at high speed. Probably a heads up for a maintenance call at 20 years of that mileage!



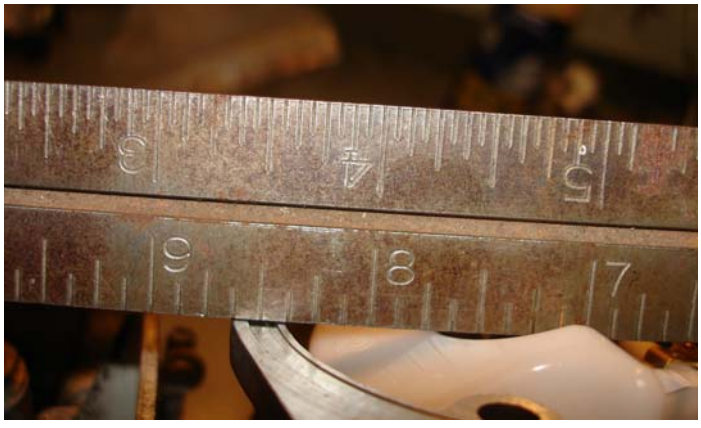
This sagging screw is the axle on which the float pivots. Most importantly the little ‘washer’ on the screw must be replaced. It is made of soft metal and seals the joint between the screw head and the body of the carburettor.

Well the carburettors, despite the foreboding conveyed in the workshop manual all went back together with new needle valves and floats and seals. All back on the engine and she sang like a bird.



There is actually a misprint in the workshop manual. For the initial adjustment of the main jet screw the adjusting screw in until the end of the jet seen here just levels with the base of the carburettor. Then give the screw two more turns out lowering the jet. This will give you enough mixture to get the engine started.

The brass transfer pipe with two new ‘O’ rings and a little Vaseline. The filter holder to be slid over it. This fitting is not particularly robust and should be treated with care. It is not a spare. If you break it off, extract the remains with an Ezyout and take them to your friendly fitter for a remanufacture. Note the mixture adjusting screw above it.



If you replace the floats the levels will have to be adjusted. The object is to have the lowest part of the float, seen here,just below the level of the rim of the float chamber.

FLEXIBLE BRAKE HOSE PROTECTION

I have asked in many quarters for answers to the above problem. The old Factory for hopefully worthwhile reasons decided to provide some protection to the front hoses in the form of a plastic spring wound around the body of the hose and capped by a green ferrule. I have fitted many of these hoses but early last year the springs which had notably lightened up in material, started unwinding and eventually falling off. They of course do not come as a spare and my only recourse to date has been to remove the old springs where they are of the heavier construction and wind them on the new hoses. Surely someone has had this problem apart from me. The left lower photo shows the two grades of spring and right lower photo the original spring fitted and remaining in place!

A NOT UNCOMMON ASSEMBLY BOO-BOO ON A POST55 BRAKE SERVO

Well the oldies among you will recognise that extraordinary contraption that pulled the brakes on in the post55 cars. The disc that you see is the main working bit, co-axially mounted with the friction surface drive plate behind it. The two levers depending from the central sgaft (you can only see the outer one here) are the ones that force the main plate you can see aginst the driving plate. The most important bit is the substantial peg seen top left. Here the servo is in full forward braking mode pulling the rods snaking off to the left that are connected to the trapeze that applies the master cylinders.

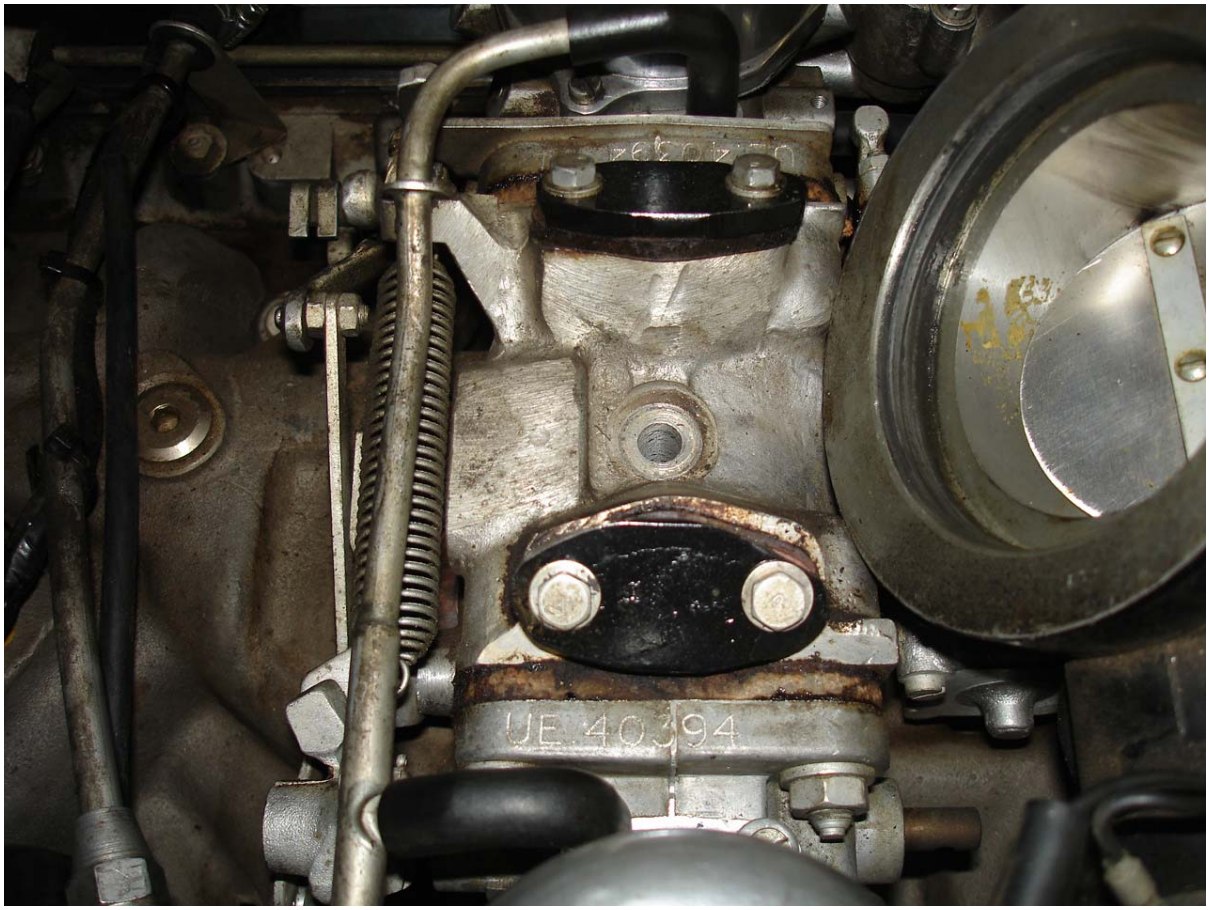
The picture at upper right shows the servo in extremis. This usually occurs when one or more master cylinders fail allowing the whole assembly to wind to the limit of travel of the master

cylinder pistons. By this time the rear mechanical brakes should be working hard to stop the car – as designed. The peculiar articulated linkage between the rod and the cam lever allows this rotation to occur without bending the brake rod. The linkage however can be fitted the wrong way around as can be seen in the left lower picture. Note the small area of contact between the toe of the cam and linkage (arrowed).

The right hand lower picture shows the correct installation of the linkage. The 'tear' mark on the linkage was caused by the linkage when incorrectly fitted, sliding off the cam when under full pressure!

GETTING ALL THAT GARBAGE OUT OF THE WAY

It's all a bit unnerving when first contemplating an invasion of the top of one our vee eights. As I said earlier the great feature of this induction assembly is that it is held on the engine by one bolt, right through the centre of the 'T' piece! The most likely need you will find to move the assembly will be to service the rear hydraulic pump. Undoing the magic centre bolt and lifting the assembly to clear the locating dowels under it will often allow the whole thing to be moved forward enough to get at the pump. This assumes of course that you have a serrated tube spanner to unscrew the pump. If you don't you are up for removing the whole assembly as well as the intake manifold which allows you to us a 'C' spanner on the pump.



And here above the centre bolt has been removed. The metal line with black rubber tubes in the centre of the picture are vacuum take off lines for the anti-dieseling system on later engines. These pipes connect to the engine side of the throttle butterflies where the vacuum is the greatest when the engine is running. When the engine is switched off the anti-dieseling solenoid opens and connects this source of vacuum to the float chambers sucking the fuel back and stopping the engine.

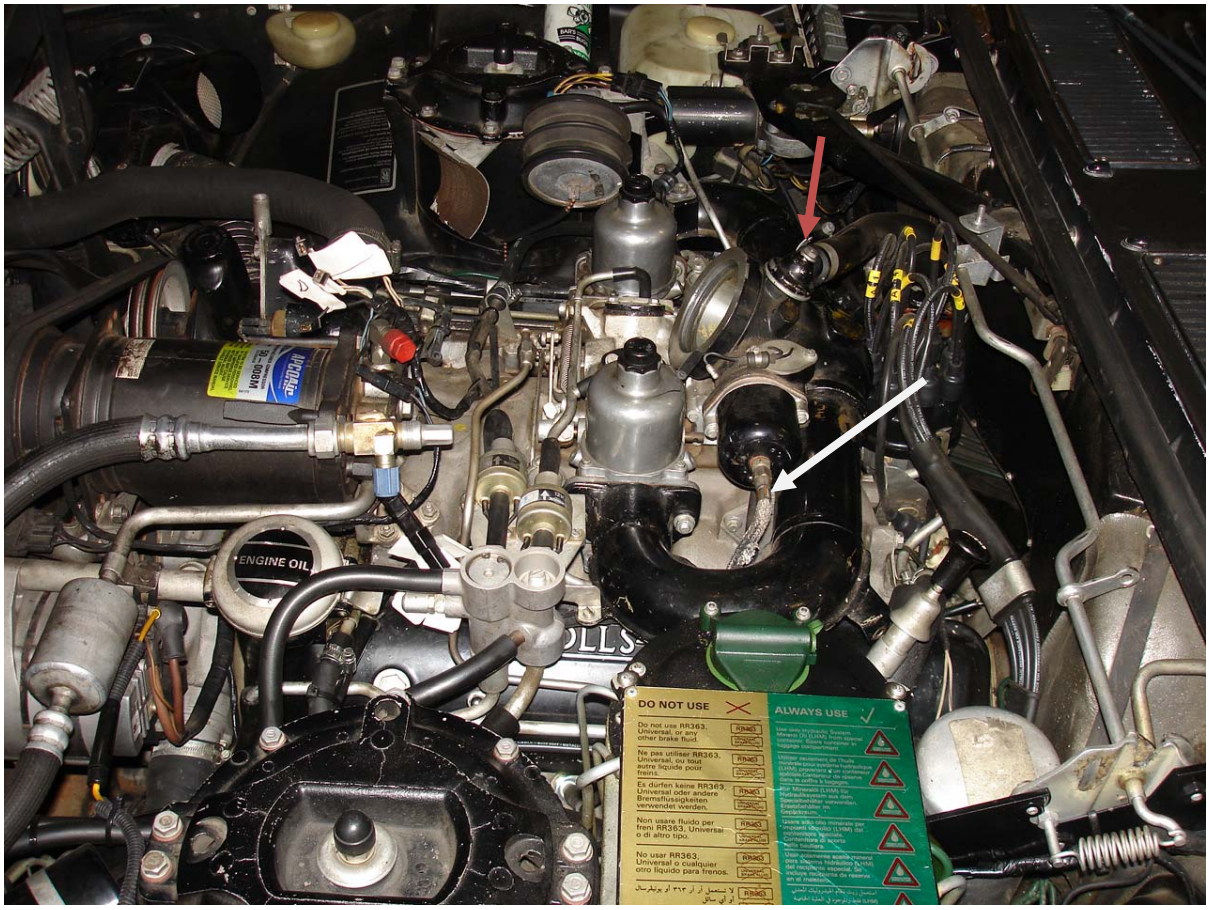
The thick pipe to the left is the return pipe for the recirculating fuel system and is one of the disconnects if you are removing the whole assembly. Note the heavy insulating 'heat blocks' between the carburettors and the central 'T' piece. There is another one between the whole assembly and the intake manifold. These were not used until the Shadow II. Their finction is simply to minimise the heat transfer from the engine block to the carburettors.

The PhantomVI along with its Shadow equivalent had nothing more than a thin paper gasket under the 'T' piece. Given the expectable long idling periods and slow running on hot days and two air conditioning systems pumping away the fuel in the carburettors was virtually boiling. When the engine was switched off, the carburettors got even hotter being deprived of their cooling air and the boiling fuel was blown out of the overflow which exits at the rear of the early engines, onto the ground. This explained a very long standing complaint about the smell of petrol from ceremonial cars!

The obvious modification can also be fitted to early Shadows as well as the Phantom. The latter heat block can be purchased, a longer centre bolt obtained from your local friendly bolt shop and longer dowels fitted in the intake manifold.

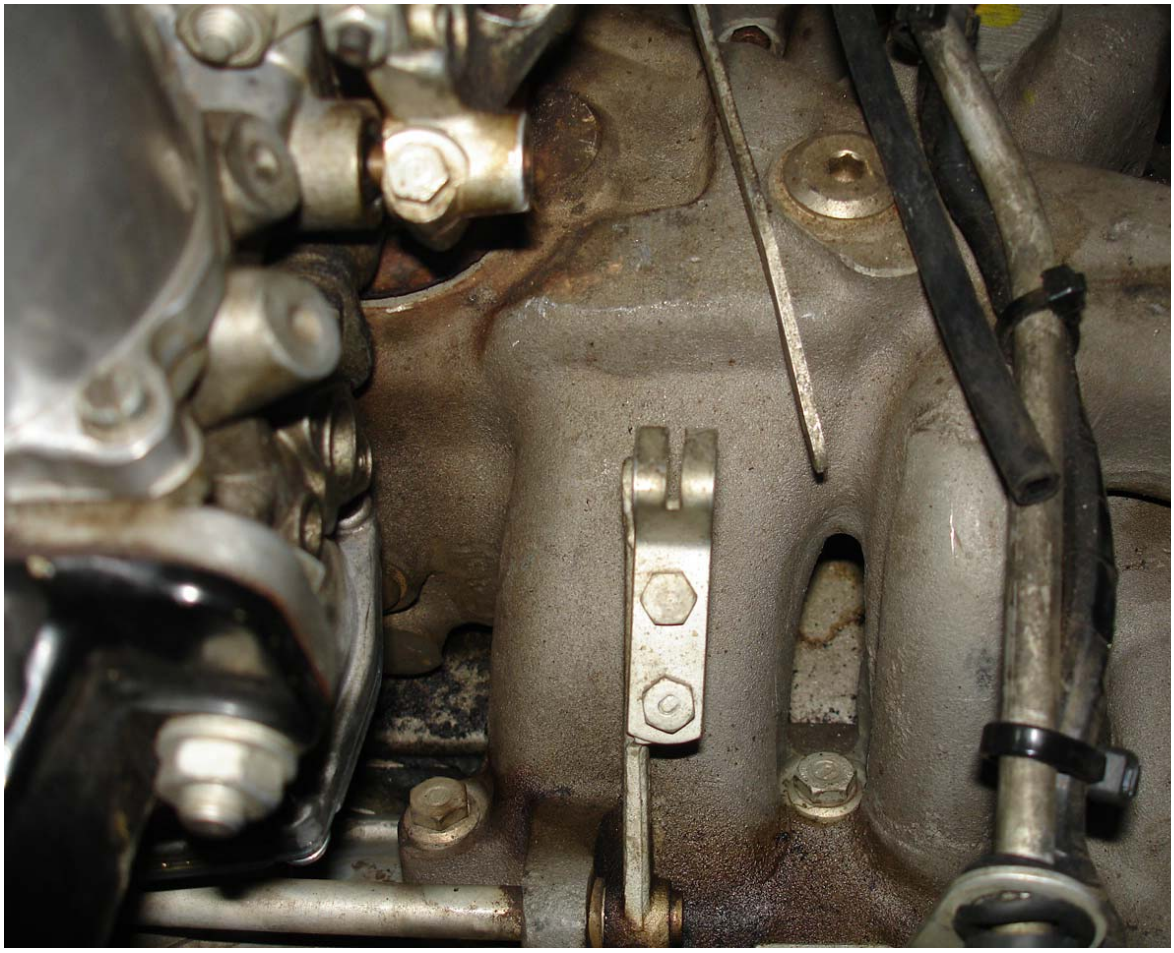
Note the tagging of the various wires connecting the solenoids to the engine looms. This really is step one. Use decent size labels and press the glued ends together firmly. The various pipes in the foreground on the fuel weakener device all pull off and virtually cannot be wrongly re-connected. Note that the chain to the speed control bellows had been unhooked. At the same time the small loom to the control solenoids needs to be unplugged. The stove pipe (white arrowed) is disconnect3ed but can be left in place although invariably the insulation gets torn trying to thread the air horn around it. Ideally, albeit awkwardly, remove the pipe completely.

The red arrowed take off point for the engine breather is disconnected after removing one bolt and the pipe swung to the rear of the engine. These were fitted to all but the early 'S' series cars.

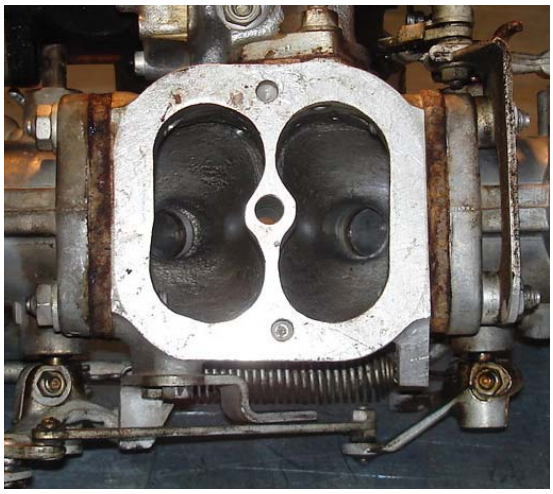


At left is the disconnected entry point for the fuel. The exit point under the 'A' bank induction horn has a restrictor to ensure that not only are the lines always full of fuel but that the pressure remains constant.

The pipe to the right is that connecting the carburettors to the anti-dieseling solenoid.



The central lever is directly operated by the accelerator. The forked attachment bolted to it receives the chain from the speed control bellows. At right the fuel delivery pipe. The angled lever connected to the carburettors lying on the intake manifold has been disconnected from the lever. The use of cable ties seen here is par for course for all the cars after the post55 series. Gone are the dinky little clips and conduits of yesteryear. Apart from mucking around cutting them off and reattaching them they seem to be very effective.



At left the underside of the 'T' piece. The centre hole accommodates the long fixing bolt. The two little holes top and bottom match dowels in the intake manifold to locate the assembly. Note that they are offset presumably to avoid putting the whole lot on back to front !???

If you are fitting a heat block to an early Shadow you will find that the dowels are NOT offset which simply means that you have to punch a hole in the heatblock to correspond! You will also need to make up longer dowels to accommodate the block!

NIGHTMARE STUFF

Another one of those awful pics - this time a 2006 Azure apparently undergoing a pre-delivery check. Captions are invited. The one that immediately comes to my mind is the brand name of clothing that seems to be infiltrating the market - PCUK!

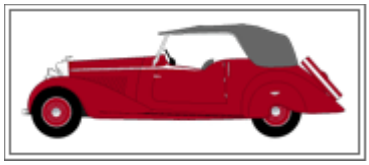
🛠

A LOOMING TASK

A friend with an S2 Bentley slightly older than my own asked me to help return the facia to his car which had been refurbished by his wife who apparently does not subscribe to the bare footed image in kitchen presentation! I have gone one better with my S2 and removed all looms for remaking. I have yet to re-install them. I have had them remade because all the wires in the engine compartment once when heated, rapidly lose their outer covering and look awful.

AND FOR THOSE WITH THOSE FUNNY CARS THAT DRIP!

Just when you thought getting drip plugs etc was impossible – here is a supplier
Courtesy of Stephe Boddice



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Chassis Lubrication System

- **Catalogue**
  - A: Chassis Frame, Fittings etc.
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