

TEE-ONE TOPICS

Number 75 May 2008

CUTTING ONE'S CLOTH

I am thinking that this should be the last issue of Tee One Topics at least issues written by me. I have enjoyed the task and have been flattered by the interest taken in my views and experiences by owner and enthusiast alike. I suppose a lot of my motivation in producing Topics stems from the avidity which I well remember with which I used to read up anything to do with our cars. Many readers will remember the days when the Age newspaper produced on Wednesdays and Saturdays almost always advertised Rolls-Royce and Bentley cars for sale. And finding a brochure on any of these cars was more exciting than the location of Lasseter's famous reef.

This past week I have been fiddling (tinkering as my detractors would have it) with a fairly late model Bentley Turbo. One of the tasks was to have a wheel alignment carried out but as I quickly found out, to do this requires exposing some of the car's components which have been shielded from the considerable heat generated by their incredible engines. These shields are simply bolted to various parts of the cars with a couple of washers and a nut. I could see them very clearly and could actually touch them but as to holding or moving them with a spanner, this was truly a challenge. Having not done the job before it was a task which I completed after considerable expenditure of energy, temper and skin, but I won. Whether they ever go back is another matter. I tell this story to explain as best I can, the great pleasure

I get working on these cars and indeed I actually feel slightly depressed when they leave me.



River fording should be approached with some discretion

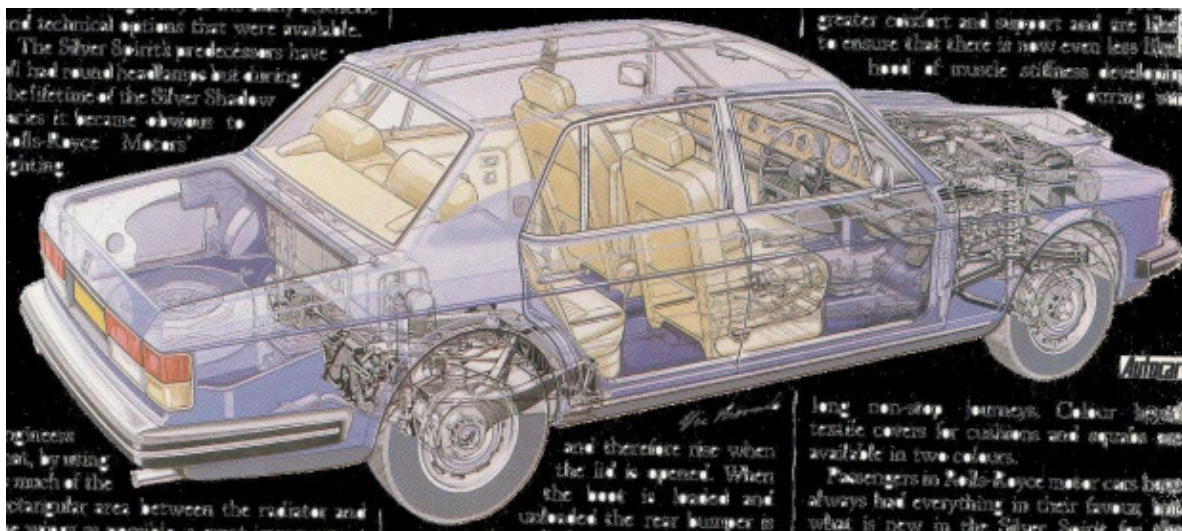
We all have our recurring nightmares some of which do not bear describing, but one of mine is having my Rolls-Royce stop involuntarily. The car is a 1984 Silver Spur, in excellent order and having moderate mileage. The first occasion for a no-go was in a car wash where I endeavoured to get my money's worth by driving very very slowly over floor mounted jets designed I imagine to hose off the accumulated muck under

the car. Eventually I arrived at the stop point and the madly gyrating arm which was actually a very elaborate water nozzle, paraded up down and around the car removing the top layer of muck. As it did so I noticed that the idling engine was getting rougher and rougher until it stopped. When the time came to exit, there was no sign of starting just a lot of cranking. With the aid of the following customer we pushed the car clear of the car wash and I called

the NRMA. As usual he diagnosed the problem very quickly in that that particular model apparently won't run on water!

What had happened was that the air intake on these cars which as you know is just beneath the front bumper bar had had a jolly good drink while I was driving in! But some injections of petrol into various orifii and the old dear was purring once more. Memo to readers be very careful with post 55 cars in water crossings etc for the above reasons.

The second no-go situation was a burnt out rotor arm which decided to effect failure just after I lunged off from the traffic lights at the bottom of the hill where we live. Fortunately I had enough way up to mount the kerb and get the car off the roadway. Again the NRMA came to the rescue. Seems that the spark from the centre electrode in the distributor cap was finding its way through the rotor to the shaft beneath it hence none got to the spark plugs. The solution here was novel. Having heard the diagnosis I gazed distractedly at the diagnosee to see him examining his fingernails in a very odd fashion given that he probably played full



It became quite apparent during the last Federal Rally, that more emphasis needs to be placed on Registrar events. These are of course smaller, easier to organise, much cheaper to run and bring together members who have something very definitely in common with each other – their cars.

back for the local team and had hands like small hams! By this time we had been joined by another NRMA operator whom I suspect was simply curious to see the intimate bits of the car! The first man examining his nails said 'What colour do you think I should use today Gerald?' this somewhat undid me as to relevance and concern that I had had a spatial shift into another world vide the Stargate environs! Well there was a little enactment for my benefit and they finally relented and rummaged in the back of a truck and indeed they did produce a bottle of bright pink nail polish. The distributor rotor was duly inverted and a dab of the beauty paint was planted in the recess. This I was surprised to learn was enough to insulate the rotor so that the leakage which had stopped the car was cured!

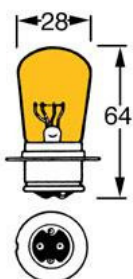
And lastly two years ago during the NSW Branch Federal Rally at Orange we decided to go see the dish at Parkes immortalised by the Australian Film of the same name. Some four kilometres from Parkes I realised that there was no 'go' coming from under my right foot. The following events were inspiring. I stopped (coasted) into a perfect off-road parking spot, there was perfect mobile phone reception, the NRMA man was there in 15 minutes and the car was on the back of a truck within an hour. The diagnosis turned out to be a failed fuel

pump! That night at dinner a young man beside me muttered that he might have a spare pump in his boot! I fitted it next morning and drove home!

So having started with resignation in mind I reckon I had better keep going. One nice surprise is that the illustrious Flying Lady, the bi-monthly magazine of the American Club and on which Praeclarvm was modelled is now including some of these ramblings. It is daunting to realise that I was contributing to the magazine nearly 35 years ago. You would think they would be wary after all this time. The Flying Lady was barely known in this country when I returned from a posting in the States in 1972. As I remember, there had not been an issue of Praeclarvm for nearly two years and most of the State efforts revolved about stapled sheets of recipes, poems, obituaries and the odd smutty joke. Praeclarvm had foundered through the rather imperious practice of simply allocating editorship to a State and telling them to do it. Well as most would appreciate that would be akin to nominating a committee to design a new mascot for our cars. The first edition of the 'new look' Praeclarvm was received by the membership as being somewhat radical but they agreed to accept it and fortunately through a succession of dedicated editors it has flourished!



Rummaging around I found this photo which must be 30 years old. It was taken in Australia but beyond that I know nothing. Most of us are profoundly shocked to see this neglectful destruction particularly with the older cars, yet it seems that there is a continuous procession of post war cars to the yards of wreckers. The only dividend here is a supply of parts but it is a self destructing exercise. Hopefully owners and enthusiasts are taking an increasing interest in the Marque beyond parading around in the cars. If anyone knows the story of this car please let me know.



12v Amber R-R Fog Flashers Picked this up somewhere. These amber globes were used in the fog lights which doubled as turning indicators on the post55 cars. The last recorded price from the Factory was \$98!!! These sell from Holdens (in the UK) for about twelve quid.

www.holden.co.uk



CATCHING THE BREEZE

I have never understood why some engines seem to keep cool under any conditions and others seem to need a mini typhoon blasting through the radiator core. Compare the grille here of an early Mark VI Bentley with one of the SZ cars and their chrome mesh mouthpieces. Most enthusiasts are aware that the Factory in immediate post-war years made great efforts to get their cars onto the market almost exclusively the export one. Australia brought a lot of these cars into the country largely paid for by the wool boom. I well remember Bert Ward then running the service side of York Motors in Sydney making the strongest recommendation that test cars be sent to Australia but the advice was ignored and testing continued in the historically hallowed lanes and byways of La Belle France. I suspect this was connected with Royce's love affair with the country.



The ultimate slap however was the labelling of our deliveries as 'colonial' cars. Token design changes were made to appease outraged customers particularly the farmers in the outback who were astounded that the best car in the world simply fell to pieces in our country. As to the colonial label I often wonder whether they dared apply it to North American deliveries. One of the bits which regularly broke was the support for the brake rods which you will recall are suspended from the rear axle casing! The original believe it or not was a moulded piece of rubber!!!! Anyway the Factory treated the matter as almost a joke. As if owners were secretly whipping under the car and hacking the rubber support in half. Eventually they produced a substantial metal replacement and the problem ceased.

The failed crankshafts though faulty filtration of the engine oil and the cracked chassis have been well discussed, but one area that was not quite so graphic was overheating. This as I remember was endemic to British cars at the time. The immediate post war B60 motors as they became known were 41/4 litres and were cast such that the water circulation in a new cylinder block just coped with most reasonable ambient temperatures. Anti-corrosive



coolants were still a novelty and largely ignored and these post-war rather poor quality cast iron blocks grew more rusticles that the Titanic. This of course restricted circulation. Bits of the rust and crud broke off and then clogged the radiator core further exacerbating the overheating.

One solution offered was to speed up the water pump which also speeded up the fan being on the same drive shaft. A smaller pulley was offered to achieve this. This of course produces more fan noise which conflicted with the image of the car! But one solution that had very little publicity was allowing more air to actually get through the radiator grille. The suggestion to de-rivet the grille vanes and swivel them to open the 'slots' was made in a passing Service bulletin. Many of the cars that have survived have either had this modification or the problem is largely ignored given that few owners would attempt high speed runs in century plus heat these days. Apart from the cars the owners would be hard pressed to survive! This little chutney of pictures covers a recent long overdue modification on a very well kept example.



As to how much to swivel the shutters the only advice the Factory offered was 'consistent with reasonable appearance. The Silver Dawn it seems did not have this problem and the Silver Wraith of course enjoyed the extraordinary Calorstat that opened the shutters as far as they could swivel. I remember seeing a picture of the front of the Queen's Phantom IV. The car was parked behind what appeared to be a marquee presumably being warmed up before collecting its owner. I remember being somewhat startled at the extent that the Calorstat had opened the grille shutters which clearly were at right angles to the radiator core.



A very rare photo of the unique Henri Chapron Phantom V chassis number 5 LAT 4 allegedly stored in an air conditioned vault in the United States.



A BIT OF HERITAGE

Recently I have been having antipodean conversations about the origin of the rather unique accumulators first seen in our balliwick on the Silver Shadow and derivatives! For the casual reader these are spheres in which there is a diaphragm. One end of the sphere has a one way valve and the other is fitted with a screwed outlet. Nitrogen gas is forced into the sphere through the one way valve until there is a pressure of 1000psi registered. This forces the diaphragm hard against the opposite end of the sphere. The sphere is then screwed into the braking system and hydraulic oil is pumped into from the side opposite the one way valve. Once the hydraulic pressure gets beyond 1000psi it displaces the diaphragm against the nitrogen. The greater the displacement the greater the pressure. This pressurised hydraulic oil which can build up to 2800 psi is used to apply brakes and adjust suspension heights.

Needless to say the spheres are of very robust construction and until the advent of the SZ cars were quite easily dismantled, reconditioned and recharged with nitrogen. We all know that Andre Citroën was the architect of the system and that it was applied to our cars under license. The first Shadow emerged in 1966 and it was not long after that, that the Factory reduced the size of the accumulators for reasons that are not clear. What has exercised few minds is where did the design of the accumulators come from in the first place? The answer came when I went Googling for Henri Chapron. The latter built not only the iconic Phantom V pictured on the previous page but also those magnificent Citroën Goddess as I knew them dropheads! One of these was listed on the internet for sale which produced the above picture and there emerging from the engine bay is one of our beloved accumulators albeit nicely painted black! Question answered. It did not take long for the French architects to spot the advantages of mineral oil. Disposable accumulators albeit of less capacity were found, together with 'O' rings and seals made of Nitrile 90 and a very reliable hydraulic system was established.





GETTING BELTED

Service schedule for distributor drive belt

Applicable to

All Rolls-Royce and Bentley motor cars fitted with twin distributors from vehicle identification number (VIN) * SCBZS0T03HCX20001 *

Description

To ensure continued reliability of the dual distributor, renewal of the internal drive belt has now been included in the service schedule of all cars equipped with dual distributors.

The drive belt, part number UE 46127 should now be renewed every 30000 miles (48000 km) or 36 months whichever is the sooner.

For all the Luddites among us modern technology and materials must be the bane of their lives. If you can hang on to the crank handle by all means use it but now they can build embuggerances into our cars which we simply can't ignore. The one innovation that comes to mind is the timing belt that connects the crankshaft to the camshaft(s) on most cars these days. These are a bit of fantastic chemical and mechanical design, able as they are to whirl around in a roasting engine not losing their tension, keeping the juxtaposition of bits constant and providing you renew them at pre-determined intervals they should never let you down. I suppose it is one blessing that these were never used in our engines. But in the quest for perfect ignition of our dwindling fuel supplies similar gadgetry has abounded.

With the introduction of fuel injection came electronic monitoring of our engine's performance and fine tuning of components that for generations we have taken for granted. One of the latter has been the replacement of our well tried distributor with a dual unit. This happened on SZ cars from the 20,000 series (say about 1987). The good old distributor with eight wires coming out of it to our spark plugs was replaced with two distributors each with four wires. I imagine that each distributor then only had to work half as hard and could take more care in getting the right spark to the right plug at the right time! This is not entirely without precedent in our back yard since the magnificent vee twelve Phantom III engines of immediate pre-war II fame, enjoyed two distributors. Here though the object was to ensure that a spark actually fired in the combustion chamber. Two spark plugs per cylinder were allocated, each belonging to a separate ignition system including separate distributors. Both of these however enjoyed the positive drive of gear and shaft from the camshaft at the front of the engine.

The new little doozy thanks to belt technology is able to enjoy one positive drive from the camshaft which has to spin two distributor shafts. To do this the standard input shaft spins round in a 'conventional' distributor and the makers have then cast on another four cylinder serving distributor at the side and driven the shaft for that integral unit with a notched belt! Somehow optimism prevailed in the design department and no mention was made of the little belt which clearly is not going to be mechanically immortal! Finally, someone realised this and out comes the above Bulletin ordering a belt change every 48,000K or 3 years! The one feature designed to minimise the load on one's own pacemaker however, is that if it breaks the car does not stop but simply runs on four cylinders so you can at least stagger home and recover from the shock over a couple of Balvenies!

I will take instruction in this matter and report back! In the meantime, thanks to the indefatigable Richard Treacy and one of his correspondents Clive Lungmuss I have received an account via a number of mediums detailing Clive's successful attempt at the procedure. Unfortunately the various iterations rendered them almost indecipherable when placed on these pages so you will simply have to wait until we overcome this problem!



MEANWHILE!!

Andrew Sait writing from the Mother Country, kindly recorded his experiences with the seminal speed control system on Rolls-Royce cars. This was a mechanical contrivance that appeared in the early seventies on the then Silver Shadow. Until fuel injection replaced carburettors the means of throttle operation by speed controllers involved a fairly simple fitment of a bellows. This was anchored strategically above the engine and the free end connected to the throttle shaft by a small chain. Sucking the air out of the bellows collapsed it, pulling the free end in, which being attached to the throttle shaft, pulled that and the engine got faster. When the engine was running fast enough air was allowed to bleed into the bellows which let the free end move back towards the throttle shaft and the engine slowed down. Usually there was not much to go wrong here other than leaking bellows.

The tricky bit is controlling the amount of suck!

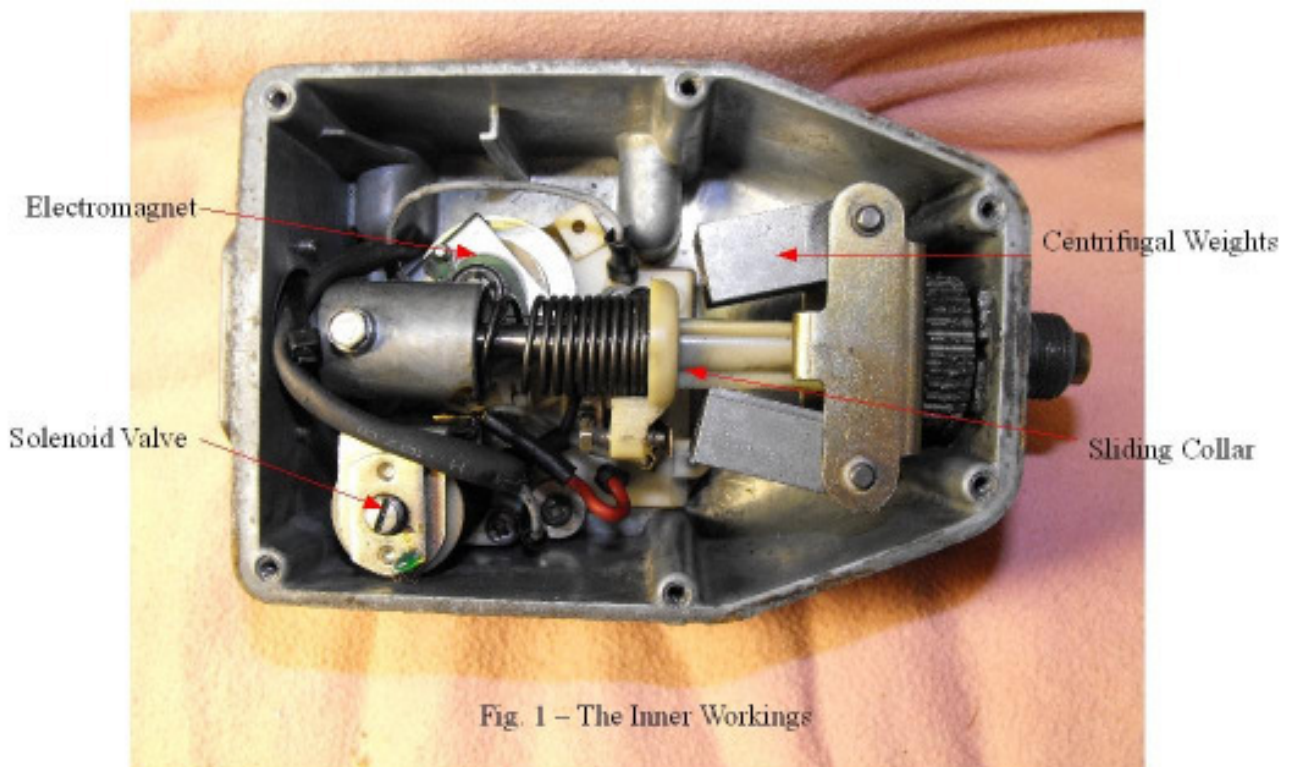
The early system about which Andrew writes was purely mechanical. The unit was driven by a cable from the transmission and the gubbins inside worked out how fast the car was going,

how fast you wanted it to go and adjusted the speed to suit by controlling the vacuum applied to the bellows. Over to Andrew!

SPEEDOSTAT SPEED CONTROL UNIT

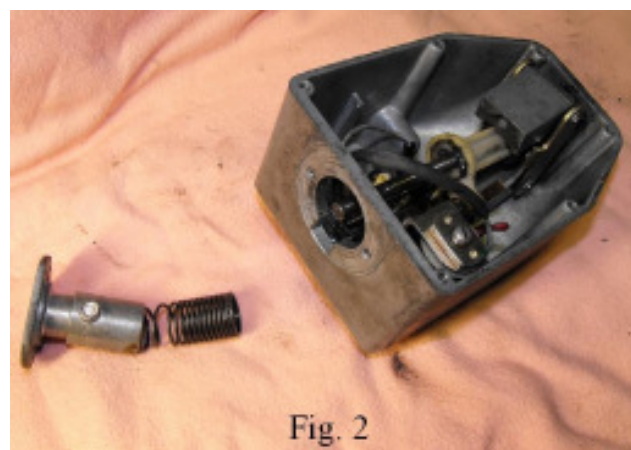
Andrew Sait

The dismantling and overhaul of the unit was prompted after I discovered that the rough idling on my car was caused by air leaking into the inlet manifold via the rubber pipe from the speed control unit; whatever component was meant to close off the pipe was clearly not working. Removing the unit is easy enough; unscrew the two speedo cables, pull the two rubber pipes off the back, pull off the multiplug unit and single wire and undo the two mounting bolts on the back. The unit can then be removed from the car. Removing the windscreen washer bottle facilitated access.



Once on the workbench remove the six screws securing the top cover which lifts off to reveal the inner workings (Fig.1).

Dismantling starts by removing the two screws securing the end cap supporting the end of the spindle holding the centrifugal weights and sliding collar. The end cap is in two parts: the end cap itself and a collar that is fixed in position by a hexagon headed screw that locks the compression of the spring.

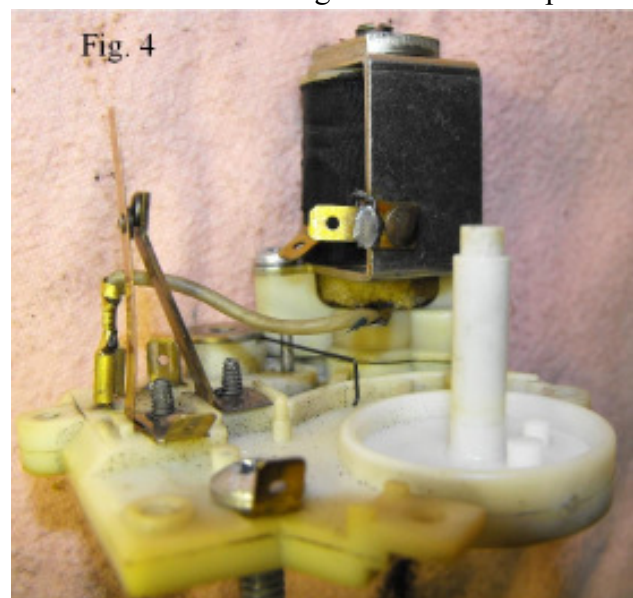


There is a cut-out in the casing so that once the two fixing screws are undone the whole end-cap assembly can be rotated through 180 enabling the it to be removed without undoing the locking screw (Fig 2).

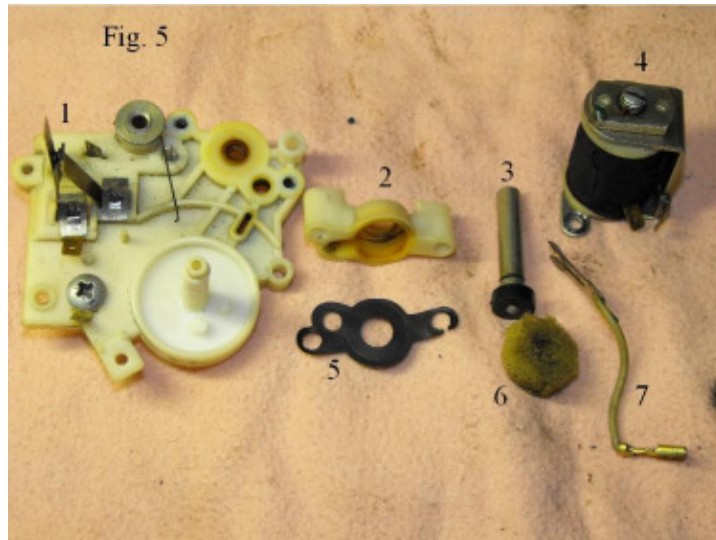
If the locking screw is removed it will have left a mark on the barrel of the end cap making re-assembly in the same position possible by completely removing the locking screw and lining the mark up with the screw-hole in the collar. The spindle/centrifugal weight/sliding collar assembly is connected by a sliding spring mechanism to a pin on the electromagnet. To remove the whole spindle assembly from the casing it is therefore necessary to unhook the spring mechanism from the electromagnet. Once this is done it is possible to carefully manoeuvre the spindle assembly to the left (best done with the weights in the vertical plane) until the speedometer cable union is free of its bush; the whole assembly can then be lifted up and out of the casing.

Now the base plate holding the solenoid valve and electromagnet can be unscrewed. There are three screws inside the casing plus one screw on the back of the casing adjacent to the multiplug connector. The base plate has a paper gasket to seal it to the casing. I found that this had become almost welded to the base plate and casing and it tore as the two parts were separated. It was, however, straightforward to cut a new one out of gasket paper using the base plate as a template. We have now separated all of the main components (Fig 3). It is unlikely the casing, end-cap or spindle will need any servicing other than a clean and a small amount of grease on the bushes and bearings. It is the base plate assembly that in this instance has caused the problems and needed to be taken apart for cleaning and repair.

Figure 4 is a close up of the solenoid valve mounted on the base plate. It can be dismantled once the two screws securing it to the base plate are undone. The valve can then be fully taken apart. Figure 5 below shows the constituent parts of the valve. The problem I experienced was that the foam spring that returns the solenoid plunger to the closed position had disintegrated away to

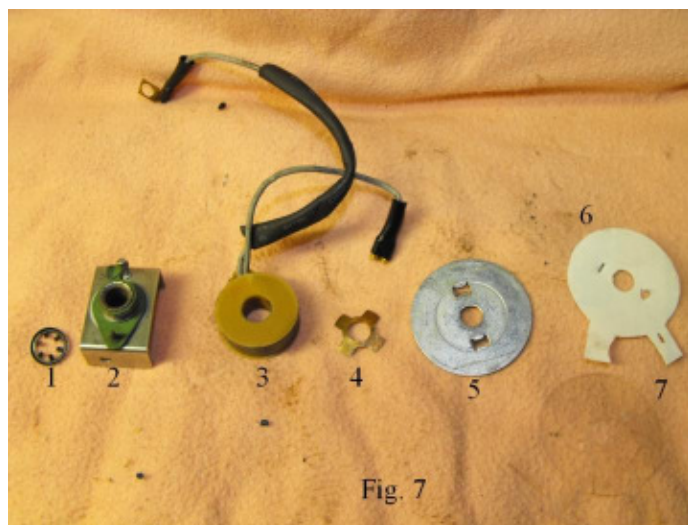
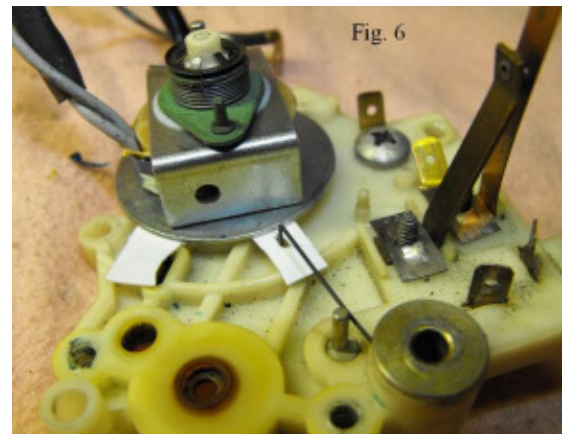


dust. The one in the photo is a piece I cut from a block of foam I keep in the garage for kneeling on. It was the dust from the foam that had been sucked into valve and was caked around the plunger seal stopping it seating properly and thereby leaking air into the system



Key	Fig. 5 - Solenoid Valve
1	Base plate
2	Valve housing
3	Solenoid valve plunger
4	Solenoid winding
5	Gasket
6	Foam collar for plunger
7	Wire for loop circuit

To remove the electromagnet it is necessary to carefully prise off the crown washer. Once this is removed the spindle connector and coil can be removed. Before the bottom plate and air bleed valve can be removed the return spring needs to be carefully disconnected from the cut-out in the air bleed valve. Figure 6 is a close up of the electromagnet and Figure 7 the unit fully dismantled. The flap of the original air bleed valve had become scared and would not seal properly. Being made of transparent plastic it does not photograph very clearly. A replacement was made from suitably thin plastic.



Key	Fig 7 - Electromagnet
1	Crown washer
2	Spring loaded locking plate
3	Winding
4	Spring washer
5	Base Plate
6	Replacement air bleed valve
7	Original air bleed valve

Key	Fig 8 - Spindle
1	Spring loaded slider
2	Low speed points adjusting screw
3	Sliding collar
4	Bearing
5	Centrifugal weights
6	Transfer gear to speedo cable
7	Input shaft for cable from gearbox

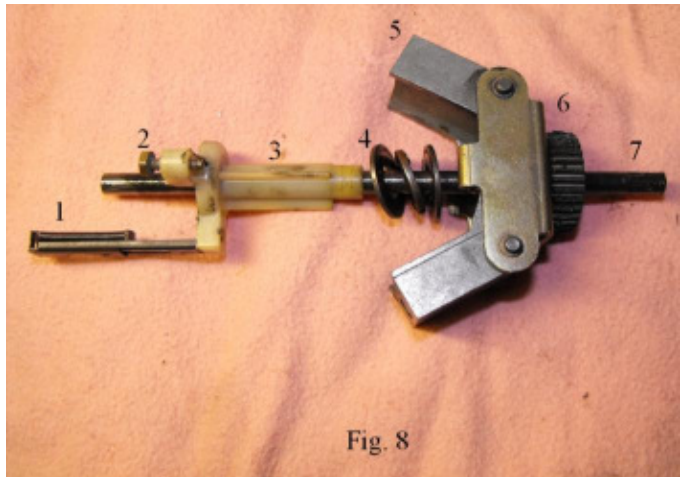
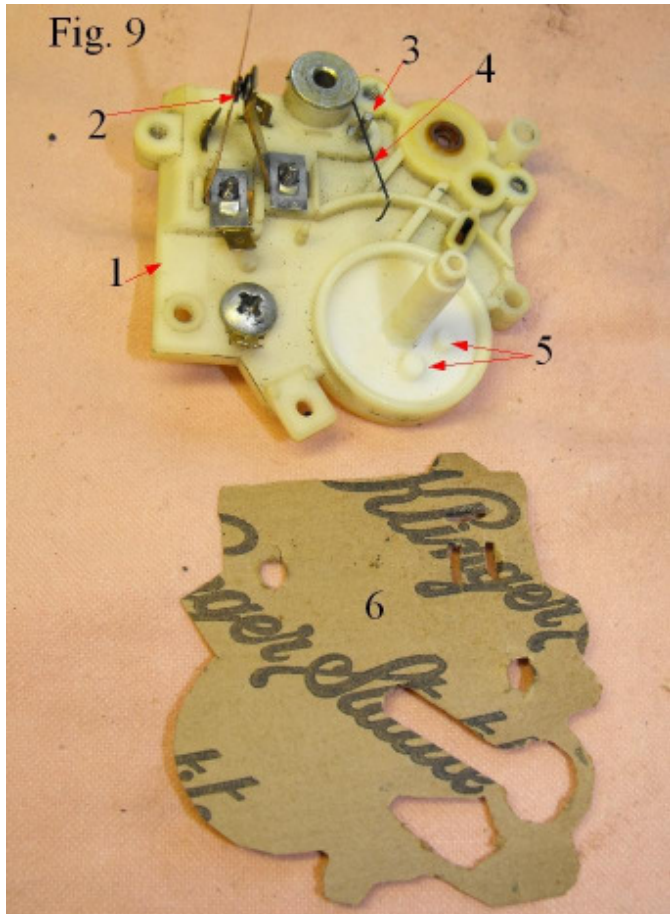


Figure 8 shows the components of the spindle assembly:

The final piece of the jigsaw is the base plate. The valve seat and other apertures need to be clean and check the low speed points are closing properly. It is unlikely the tension of the Bleed valve return spring will need adjusting, but if it does this is carried out by means of an Allen key inserted in the back of the eccentric

Key	Fig 9 – Base Plate
1	Base plate
2	Low speed points
3	Eccentric for adjusting bleed valve return spring
4	Bleed valve return spring
5	Lugs for tab on electromagnet base plate
6	New gasket cut from gasket paper



What Goes Wrong

Generally speaking the unit appears fairly robust and well made. However, its Achilles heel is the use of foam rubber to act as the return spring for the solenoid plunger. With age and heat from the exhaust manifold the foam rubber disintegrates to dust which is sucked into

the mechanism by the vacuum. Once this happens the plunger will not return to its closed position allowing air into the system which will upset the carburetion when the engine is idling. The dirt allowed into the system may also damage the plastic air bleed valve, as happened with my car.

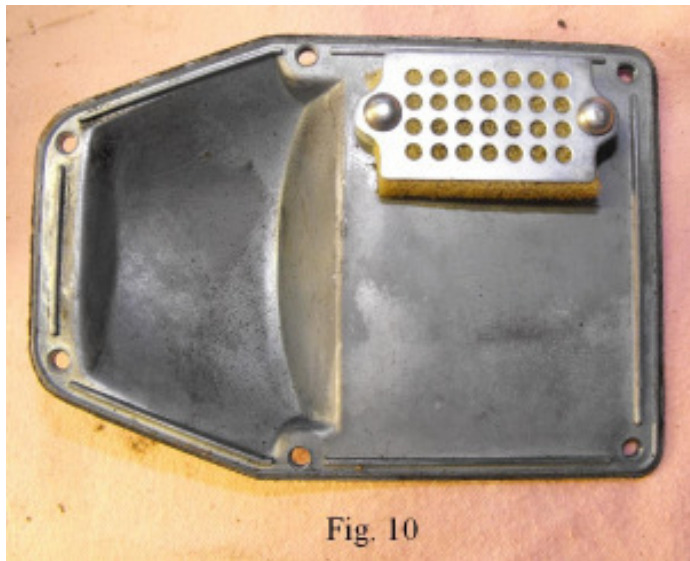


Fig. 10

If the plastic of the air bleed valve is damaged a replacement can be made from suitably this plastic; in fact I cut my replacement from the lid of a margarine tub. It is important to get its relationship to the electromagnet base plate, which I managed by roughly cutting it to size but then mounting both it and the original on the base plate. I then used a fine craft knife to sculpt the replacement to exactly the same dimensions as the

original.

The cover plate of the Speedostat has an air inlet which also has a piece of foam rubber to act as a filter (Fig. 10). This had suffered the same fate and had disintegrated, no doubt in turn being sucked into the mechanism. Once again a replacement was made from a piece cut from my kneeling cushion.

How it all operates (I think)

As it is not possible to observe the operation of the Speedostat the following description is my interpretation of its operation based on my observations of the various parts. Therefore, if any of this is wrong, my apologies and I am more than happy to include any corrections (e-mail to andrewsait@aol.com). When switched off the plunger of the solenoid valve is pushed onto its seat by the spring effect of the foam collar thereby closing off the bellows from the vacuum in the inlet manifold. When the car is stationary or travelling at less than approximately 30 mph the sliding collar on the spindle is held to the right of the unit by the spring. At this speed the slow speed points are held open by the set screw in the sliding collar breaking the circuit and preventing the speed control from being used. As the speed increase the centrifugal weights move the sliding collar to the left thereby closing the points and allowing the speed control to be engaged. The Speedostat and bellows in the engine bay

When the “Engage” button on the dashboard is pressed two things happen simultaneously (1) the solenoid valve is activated opening the bellows to the vacuum from the inlet manifold and (2) the electromagnet is energised causing the locking plate to lock to the base plate. The operation of the solenoid plunger not only opens the valve for the bellows. There is a wire clipped on to the plunger and when the plunger moves up it contacts with the screw located in the top of the solenoid winding. This completes what I have called a “Loop” circuit which keeps the solenoid and electromagnet activated once you take your finger off the “Engage” button.

Left to its own devices the manifold depression would suck the bellows flat accelerating the car to maximum speed and this is where the air bleed valve comes in. The whole electromagnet assembly is connected to the sliding collar by the spring slide but it has a small amount of rotational movement allowed by the lugs in the base-plate. Once locked, as the engine speeds up the sliding collar moves further to the left causing the electromagnet assembly to rotate clockwise by a small amount. This rotation opens the air bleed valve allowing a small amount of air into the system which releases the bellows which in turn release the accelerator linkage slowing the engine down. If the engine slows down too much the centrifugal weights move the sliding collar to the right which causes the electromagnet assembly to rotate anti-clockwise thereby closing the air bleed valve allowing the vacuum to compress the bellows and accelerating the engine. At whatever cruising speed has been selected the air bleed valve will hold the vacuum to the bellows in balance and will adjust the throttle opening as the car slows down or speeds up when going up or down hill. The air bleed valve will always be returned to its steady state by its return spring (Fig. 9- 4).



Touching the brake pedal causes the speed control to switch off. When this happens it is only the solenoid valve that is de-activated, the electromagnet stays locked to its base plate. As the car slows down so the centrifugal weights cause the sliding collar to move to the right. Once again this causes the whole electromagnet assembly to rotate anti-clockwise closing the air bleed valve. Once the air bleed valve has reached the limit of its movement the spring loaded slide takes up any further movement of the sliding collar. Pressing the “Resume” button re-activates the solenoid valve allowing the vacuum from the inlet manifold to collapse the bellows accelerating the car. The air bleed valve will remain in the closed position while it is still under tension from the sliding collar allowing the bellows to fully collapse under the influence of the vacuum. As the car reaches its previous cruising speed the sliding collar

moves to the same position as previously which releases the air bleed valve once more allowing air into the system which then balances the bellows and the speed.

