

The ramblings of an amateur enthusiast to be shared with others who own, drive, mind or repair Rolls-Royce and Bentley cars, or those who simply love them.

## A NEW START

Well I have finally been driven into the 21<sup>st</sup> century , found out what Acrobat is and with the aid of most helpful and patient agents in the Victoria and New South Wales Branches of the Rolls-Royce Owners' Club, my outpourings are to be available to the World. These notes were started over four years ago to try and counter a fostered myth that only the technically anointed could do more than open the bonnet.

Contrary to popular belief, these days the majority of owners are not wealthy people and are not in a position to dump their car with a specialist with half a dozen signed cheques in the glove box. When trouble strikes as it will, the car if not repaired will be driven until it stops or else abandoned in the back of a garage and left to rot. Hopefully these notes may encourage the reader to have a go and fix their own cars or at least develop some understanding of what is wrong with the car and be able to give a coherent account to the hapless mechanic selected to do the job for them.

Lastly, in this litigious world I have to say that any advice contained in these pages is offered without authority, liability or guarantee. The material is a personal account of my experiences and that of some others and should be considered along with any other forms of advice or data that can be found. In short you are on your own.

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## NEW STARTERS FOR EARLY VEE EIGHTS



The American firm British Starters [www.BritishStarters.com](http://www.BritishStarters.com) who have been producing Nippondenso-based units for Silver Shadows and Spirits has now produced a version for earlier vee eight cars with four speed gearboxes. For those who came in late the Factory adopted Nippondenso starters for their cars in 1987 and as far as I am aware had no problem with them to the end of production. For what it is worth my various auto electrical gurus all think that it is the best starter on the market today.

The picture shows the startling difference between the genuine article and the newer fitting which greatly facilitates later removal (you still usually have to pull the exhaust to get the old one out) and of course a significant

weight saving. And the other good news is the price!

## AN OUNCE OF PREVENTION

The sharper eyed among you will immediately recognize the depending boot lock of a Silver Cloud I, II or



III. The crab claw seen at the bottom of the lock was spring loaded such that when it struck the peg like casting on the bottom of the boot aperture it would clutch it like there was no tomorrow. The ONLY way it would release the peg was to have the release plunger seen at the top of the lock pulled.!

Now history records that the dimensions of this mechanism did not quite meet physical requirements of the whole system to work on the very early cars. The result was that the owner having imperiously approached the boot, unlocked the lock, depressed the plunger, couldn't. Eventually he realized it was either a seriously injured thumb or leave the thing as it was and seek help. All these boot lids should now be modified or the car is dead but the occasion does recall the problem of opening a boot lid with non operative lock mechanisms.



At left is the mounting plate for the lock which is the bit you see most when you lift the lid. Note that all the rod/plunger joints have no means of lubrication other than from your fair hand . Not really rocket science I suggest!

Look closer my friends and observe the lock hanging on the rod. The rod is connected to the central lock plunger at one end and the other end is attached to the plunger. This fits inside the lock, a bit of which you can see at the end. When the boot is closed and locked the crab claw snicks around until in this picture it is pointing straight up, clutching the boot peg.

The lock as you are viewing it here normally lies horizontal to that shown so that the rod pulling the plunger does so in roughly a straight line. Pulling the plunger releases the crab

claw and the boot opens.

Unlike later cars the Cloud and derivatives have two locks to hold the lid shut so the above operation is duplicated. If you look closer you will notice that the rod is simply poked through the lock plunger and secured with a split pin. But an even closer look will reveal that there is a washer between the pin and the plunger. This particular car for whatever reason had been reassembled without the washer and the opening and closing of the lock had worn the pin to a mere figment of its former self. Soon the pin would have fallen out, what was left of it, one good pot hole and the rod would have bounced out of the plunger and all the pressing of the button would not have released that lock! As someone once said 'but for a hapneth of tar

the ship went down'. Not a bad idea to check and in any case lots of oil into the locks and joints would be a great treat. Do NOT however lubricate the keylock itself. That is a job for a locksmith.

Finally, so many Cloud and Bentley boot lids do not close properly. Have a close look at the 'pegs' on the bottom of the boot surround that the locks grasps. You will see that it is not central in its mounting plate. Remove the two screws and turn the whole assembly around and you will have a whole new range of adjustments.



## **KEEPING THE LID ON**

While few of us are into the perfect engine compartment class, this is an area that one can really make a little effort and get a lot of results. Under this bolted lid is the steam valve. In this particular case it belongs to a Cloud III but the same fitting appears on the header tank of every Cloud and Shadow. The function of the valve is to allow the pressure in the space above the coolant in the header tank to rise to a predetermined level which thanks to Mr Boyle and his law of thermodynamics raises the temperature at which the coolant will boil.

The valve also allows the system to blow off excess coolant if you have managed to overfill the system. By now you will have realized that the whole thing relies on things being water tight and steam tight. The assembly is quite simple with a valve housing sitting on a rubber seal and the cap seen above sealed to the header tank with a conventional gasket. If the valve is faulty and blows off too early the engine will lose coolant. If the above plate is not sealed properly it will have the same effect and make a mess as well.

Removing the plate is not always straight forward. The five small bolts have a 2BA thread which if poorly fitted will, if handled carelessly, seize and snap off. The first step therefore is much soaking in WD40 or similar and frequent gentle tries at removal. The threaded holes into which these bolts screw are blind. If

you can get a quarter of a turn, leave it there and soak it and screw it back in and repeat the process. If you manage to break a bolt your only recourse is to drill the broken bit out, rethread the hole and start again. If you are not confident in this department look up the yellow pages and find a thread repair/broken bolt expert and he will come to you and solve your problem.

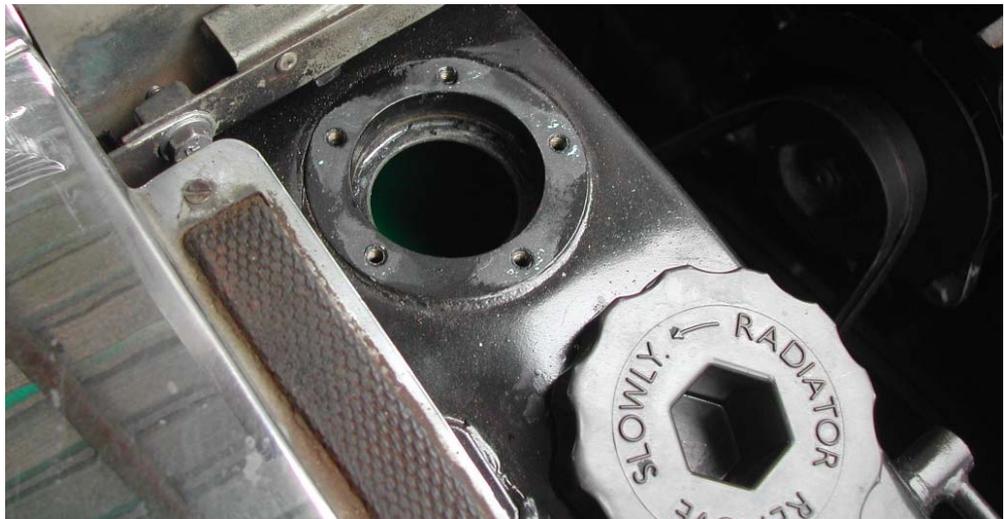


The steam valve seen here is not designed to be opened but the more adept among you will be able to prise the two bits of the body apart to find out why the thing has jammed open. It is usually a failed spring. If you do go down that route and fit another spring be very cautious and err on the lighter side in choosing a spring lest you set off a small Hiroshima under the nether end of the Lady!!

Extracting the steam valve is simple. The rubber seal thereunder probably is perished and needs to be replaced. If there is any doubt about the valve replace it as well. Note that Shadows had two different sized (in diameter) valves. The smaller diameter was the one the Factory finally settled on. If your early car has the larger valve you will need to get your fitter man to make up an annulus to drop in the hole and secure it with a good super glue. The valve pushing down on the new seal in the annulus will hold all together.

Glue the gasket for the cover in place and refit it with preferably new 2BA bolts. Note that the two holding the label on the cover are longer than the others having spacers under them to keep the label above the dome of the cover. If these have been lost make some up. Lastly so that the next poor bloke who pulls the thing off can do so without trauma, replace the bolts using an anti-corrosive paste!

Lastly, position the label so that as you would stand to release the radiator filler cap, you can read the label – a small point but one that has engaged greater minds than ours on occasion!!!!



## HAVE YOU GOT A LOOSE ESCUTCHEON?



By now you will and managed to pick from him. 'sharpened' and for practice. They easing off the gubbins that you



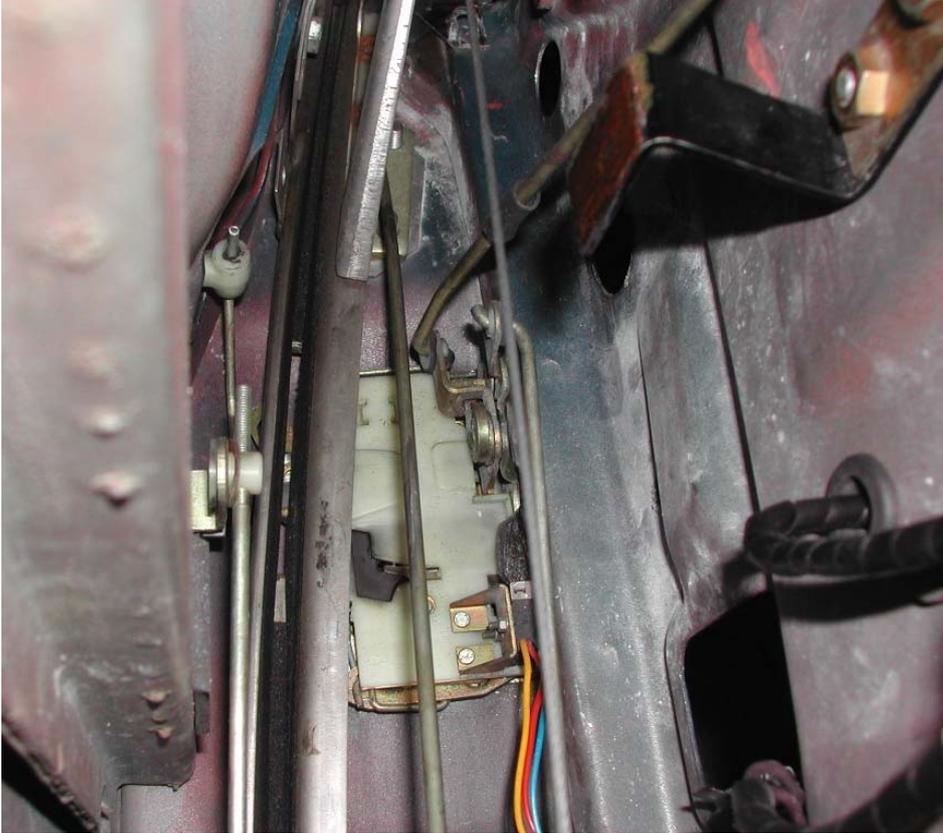
know that you have to ease the plate out evenly or break off the legs on the back of the escutcheon plate. These actually plug into very small plastic sleeves that fall out and are so easily replaced. Here you seen the mounting

have befriended your dentist get at least one worn dental They cannot easily be are usually passed to students make wonderful tools for little plates that hide all the see to the left. You of course

know that you have to ease the plate out evenly or break off the legs on the back of the escutcheon plate. These actually plug into very small plastic sleeves that fall out and are so easily replaced. Here you seen the mounting

plate with two gaping holes sans plastic inserts and at the top left one of two bits of blue tac used to hold the escutcheon plate in place!

## YOU WONDERED WHERE THE SWITCHES WENT???



One of the delightful little fittings our cars had for many many years were switches neatly planted in the door pillar. These worked well until they dried out the button jammed or was bent or common grunge worked its way into the switches innards. When the SZ cars were put together they were incorporated in the actual lock assembly inside the door. And here thanks to flash lights and digital cameras and a door de-lined is a picture of the switch which is at the top end of the dangling wires.



## CHOKING THE ENGINE

One of the sad losses to advancing technology in my opinion has been the loss of the choke to the driver. Most chokes of yesteryear involved a button on the dashboard which was pulled right out to start the cold engine and eased in as the engine gathered its wits to run for the rest of the day. And of course there was the companion button, the throttle, to control the speed of the engine during warm up. These two adjustments, mixture strength and idle speed while vital to getting the car going were just two more things to train a new driver in using. Women traditionally observed the choke button as a knob of mystery and in my misspent youth I actually witnessed a woman taking delivery of her 1948 Chevrolet Fleetmaster after a service. Talking to the mechanic she climbed in shut the door pulled out the choke button and promptly hung her handbag on it! Which was fortunate as the mechanic then had the answer to the woman's complaint that the car seemed to use a lot of petrol.

With carburetted cars the usual way to richen or strengthen the mixture was to restrict the air flow with a butterfly valve across the air intake. It was this valve that was operated by the choke button and attached cable. The fuel jets remained the same so with less air able to get through, the cold engine was able to run on the richer mixture.

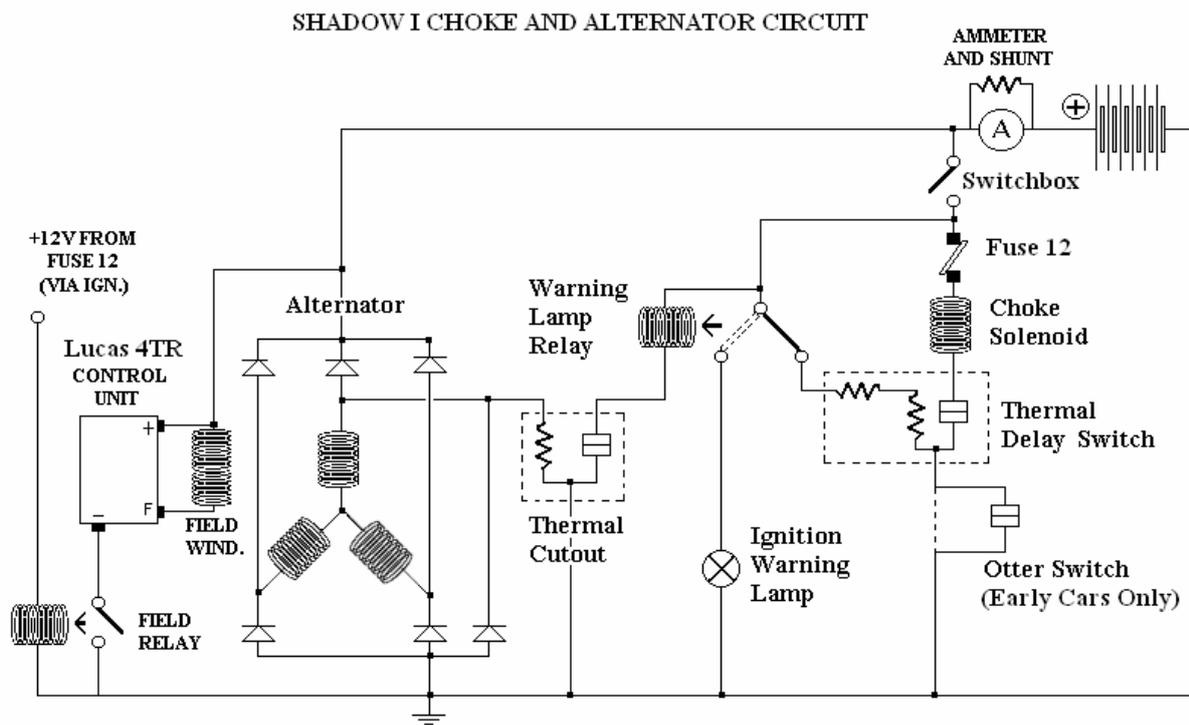
British manufacturers however favoured the SU carburetter which approached the problem from the other direction and increased the jet size allowing more fuel into the engine for the same volume of air. This involved levering the jet away from the metering needle something that required some effort. The Factory used a fascinating set of linkages that started at the steering wheel boss to achieve the required movement.

Bentleys initially enjoyed these fittings but post-war Rolls-Royces wore the simpler downdraft carburetter complete with choke butterfly. Moving the latter was quite simple. The butterfly was linked via a rod and small lever to a bimetal coil which was housed in a water heated cavity in the intake manifold. As the coil was heated it ‘uncoiled’, turned a shaft and opened the choke.

This was not a great setup since the water jacket that heated the system took a fair while to heat up and meanwhile the engine was running on a choked intake which is not good. The debut of the R Type Bentley and derivative ‘E’ series Silver Dawn finally confirmed that the Company had adopted badge engineering. These cars, the last with a cast iron straight six cylinder block both used SU ‘s’ but dispensed with trying to move the main jet and concentrated on good old fashioned choking. Exhaust gas was used to heat the bi-metal coil which was much more responsive. This system continued through all engines until the advent of fuel injection.

Fortunately you can readily see whether your choking system is working by looking at the lever on the side of the butterfly housing. There is little to go wrong. Occasionally the butterfly will stick open which can be fixed with a little oil at the pivots as can the fast idle cam if it will not drop away when the engine heats up. An initial push with a pencil clears that problem followed up with a good bath of WD40 later.

**John Kilkenny** kindly extracted the circuitry for the later choke control systems used on the Shadow, which I reproduce below together with an explanation of his penmanship.



### Operation of the Choke Solenoid

- The purpose of the Choke Solenoid is to hold the choke butterfly valve almost closed on startup to ensure a rich fuel mixture. If this was not done the suction of the engine would pull the butterfly open and weaken the mixture, making starting difficult in low temperatures.
- Referring to the diagram ; when the ignition switch is turned on, the Ignition Warning Lamp is lit due to the Warning Lamp Relay being energised.
- The Choke Solenoid is energised via the Thermal Delay Switch and the Otter Switch (provided that the ambient temperature is low enough to make the Otter Switch contacts).

- When the ignition key is turned further to start the engine, current from an internal alternator winding operates the Thermal Cutout which drops out the Warning Lamp Relay and extinguishes the Ignition Warning Lamp.
- The other contact set in the Warning Lamp Relay allows current to the heater coil of the Thermal Delay initiating the delay time..
- At the end of the delay time the Choke Solenoid is de-energised.
- The Choke Butterfly Valve will then gradually open as warm air enters the Choke Stove Assembly.
- The circuit remains in this state until the warmth of the engine opens the Otter Switch contacts, removing current to the Thermal Delay coil.
- This will close the Thermal Delay contacts but the Choke Solenoid will not be energised due to the open Otter Switch which prevents energising of the Choke Solenoid until the Otter Switch cools and resets.
- On later cars no Otter Switch is fitted and the Thermal Delay Switch goes directly to Earth.
- This means that current continues to flow through the heater coil, maintaining the Choke Solenoid de-energised.
- Early non-refrigerated Shadow 1's were fitted with a generator rather than an alternator, and the Thermal Cutout and Warning Lamp Relay were not used.
- The Thermal Cutout, Warning Lamp Relay, Thermal Delay Switch and Otter Switch are all mounted in the Relay Box.

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## KEEPING THE DAMN DAMP OUT

Having worked out how to get the lining off your door without damaging it, you will often find that



the vapour barrier seen here, is torn and crumpled like yesterday's lunch wrap. This is quite vital to stop the inevitable damp that gets into the interior of the door from rotting the wooden backing and perhaps even the leather of your door liner. Make up a new one in builders' plastic which will be better than the original and use spray on adhesive (only one coat on one side so that you can get it off again!).





## GETTING THE RIGHT ANGLE

Getting at the accumulators on the side of a Shadow engine would have to be one of the more awkward tasks. Jacking the car up to about a 20 degree list and sitting on a short stool allows you to look straight at the contraptions without incurring the services of an orthopedist the following day.



Using the conventional car jack is perfectly satisfactory although a large trolley jack should give you a higher lift. Of course whichever method you use, place stands under both ends of the car before getting in there. We don't want to prematurely reduce our readership do we?

Note the shaped wooden blocks used to support the car by the sills. These are essential to avoid serious damage to the car. If you use a trolley jack get yourself a 6" square of 1" thick industrial rubber to put on the head of the jack. This will stop damage and prevent slipping.



## FIDDLING WITH THE ACCUMULATORS

I suppose if we had to choose between having an engine to get going and brakes to get stopping most of us would elect the second. And with the Silver Shadow unless you have working pumps and accumulators you certainly won't have brakes. And the hand brake is certainly never to be regarded as an 'emergency brake'. The accumulators hold our reserve of braking power. The amount of reserve depends on the accumulator fitted and most importantly their condition.

We all know that the 'accumulation' is achieved by pumping against a diaphragm pre-pressurised with nitrogen. No nitrogen – no accumulation. If the nitrogen pressure is allowed to drop very low say to about 200 psi the oil pressure will be so great it will force the diaphragm into the gas charging hole at the bottom of the accumulator and puncture it. Goodbye diaphragm. Surely they can be re-charged owners ask and the answer is yes but only if the diaphragm is intact.

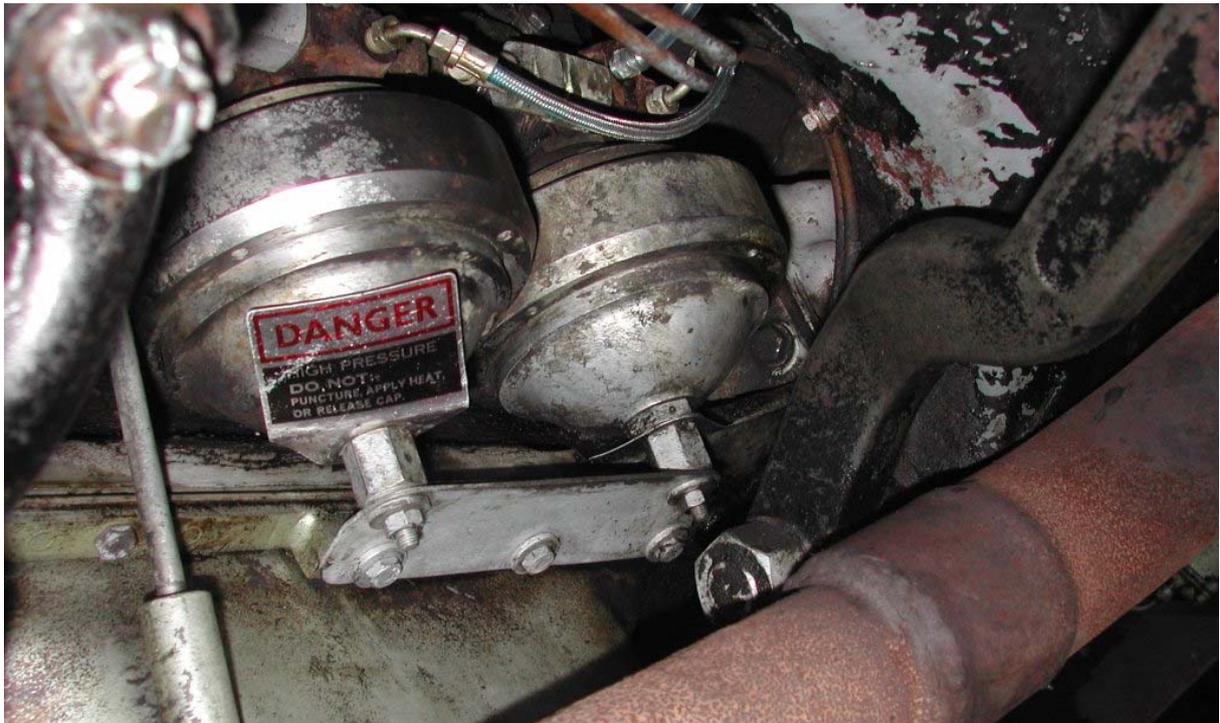
The re-charging can be done in situ on a Shadow I (sic) but not on the later Shadows II's.



Here is a bird's eye view of the front or number 1 system accumulator on a Shadow I. The bleed nipple can be seen centrally with the pressure switch to its immediately left and the actual accumulator beneath it. The hose running along under the valance is one of the low pressure return lines carrying fluid back to the reservoir after the accumulator is fully charged.. The braided line to the right is the flexible high pressure line from the accumulator to the body of the car and thence to the brake actuation box under the driver's seat.

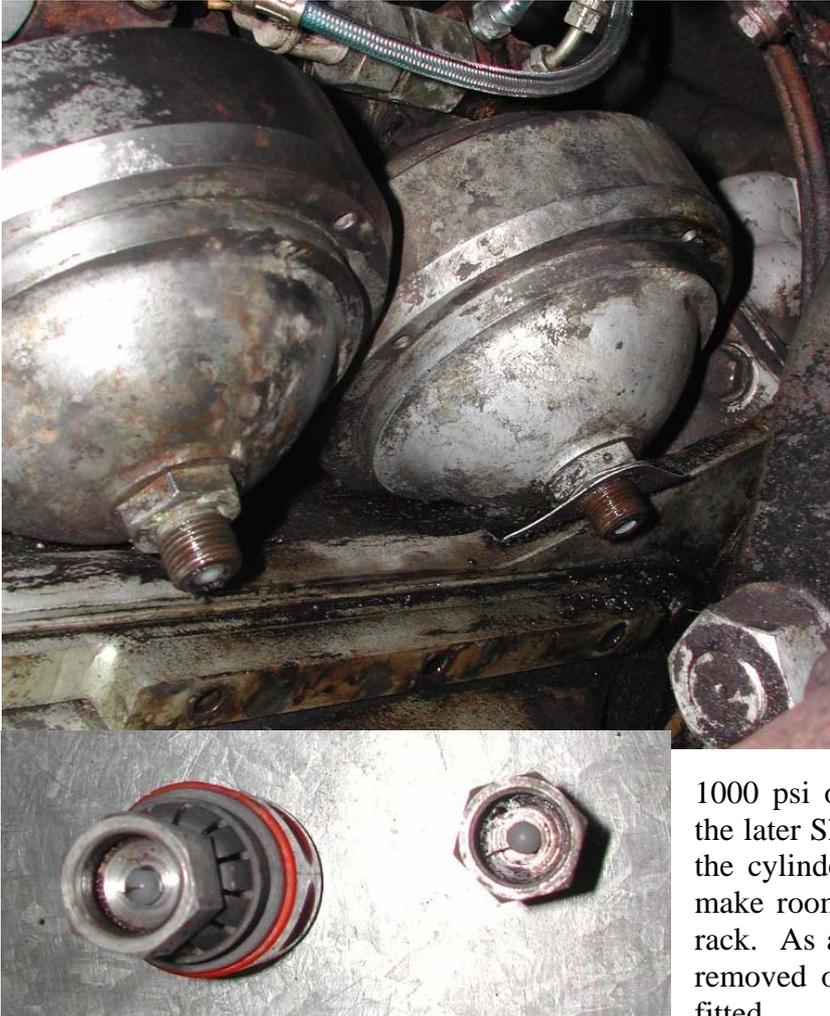


The rear or number 2 accumulator and its bleed nipple. The rear accumulator cannot be removed without first removing the front unit.



A worm's eye view of the two accumulators. These screw into the control valves which are bolted to the engine block. The plate between the charging caps and the sump is sometimes left off which does little for the structure given their weight. The heavy rings around the units hold the two halves together and are unscrewed by a special spanner using the holes seen in the lower side of the ring. The sloping pipe to the left is the dip stick tube and whilst going through cervical dislocation with the accumulators you may as well remove the tube and fit a new 'O' ring where it goes into the sump adapter.

Below the lower support plate has been removed along with the charging caps. Note that the front accumulator has a nylon sealing ball still jammed in it which has to be prised out. It is at this stage that a perforated diaphragm will be apparent evidenced by oil coming out of the charging hole.



Before fitting the charging hose the warning plate and anti-rattle wave washer are cleaned and threaded back onto the valve body. This is to minimize the time between shutting the gas off, unscrewing the hose and refitting the charging caps.. Below are the charging caps fitted with new nylon sealing balls ready to be quickly refitted when charging is complete. Lastly at the bottom is the accumulator being charged with

1000 psi of nitrogen. The accumulators on the later Shadow IIs were sharply angled into the cylinder block and placed either side to make room for the then new power steering rack. As a result either the cap could not be removed or the charging hose could not be fitted.



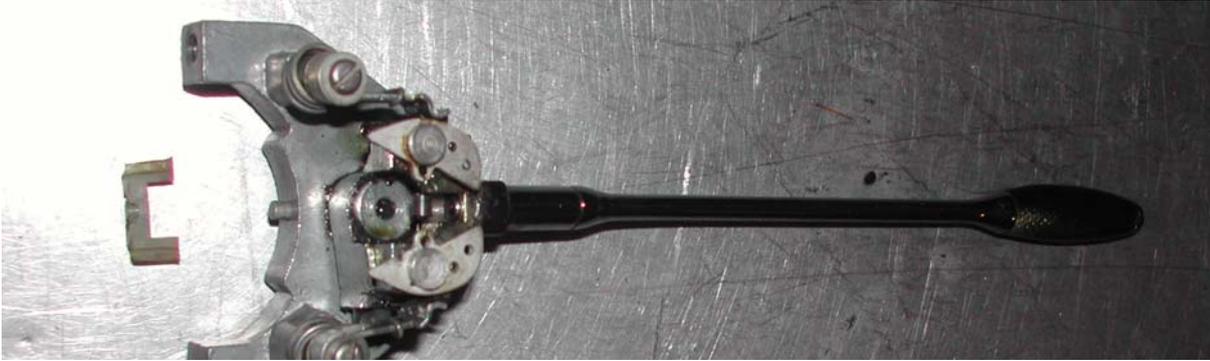
As I have explained ad nauseum this is a procedure few would attempt if only because of the need for special tooling. The high pressure regulator to get the nitrogen into place now costs over \$800 and there is the problem of renting a cylinder of nitrogen. They don't give you credit for gas unused. Mind you if you have got that far you might like to wheel the car down to your local pub and chat up the publican. He uses the same nitrogen to pressurise his barrels but not quite to the

same pressure otherwise the bar tender would have a lethal weapon in his hands when he poured you a beer!!!

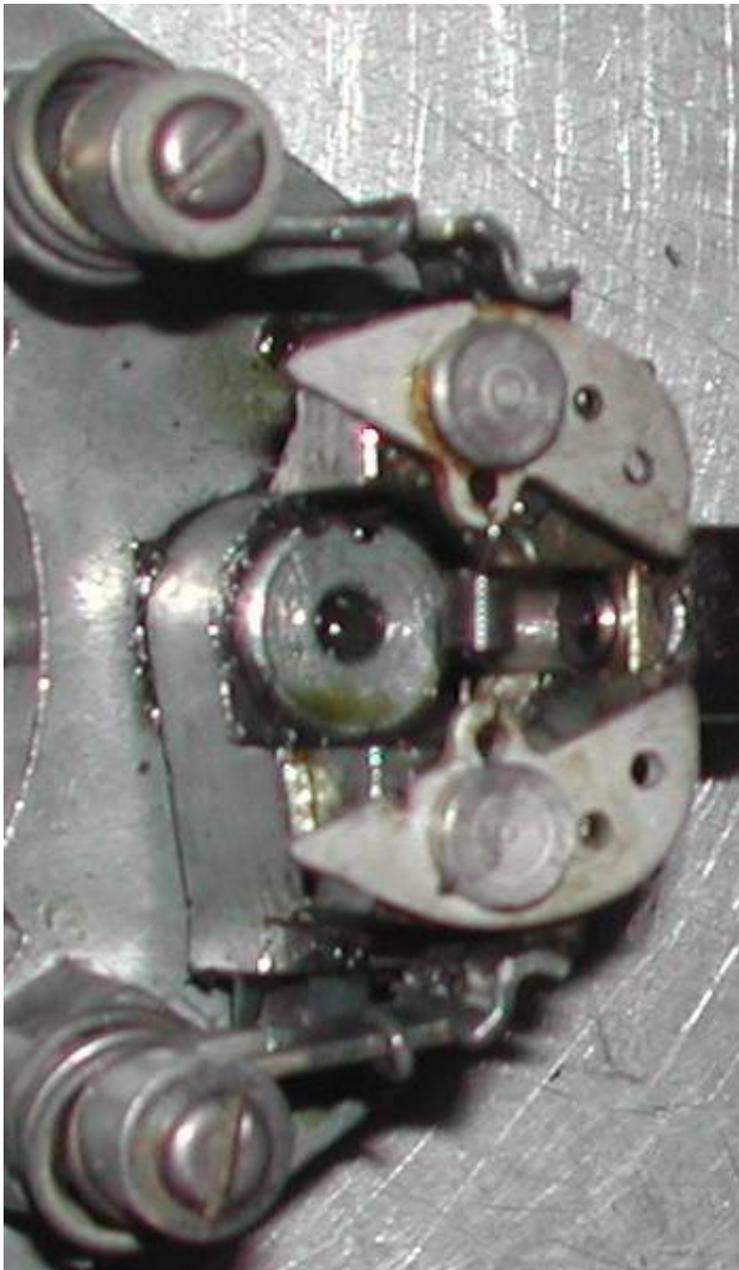


## **SORTING OUT WHICH DIRECTION YOU ARE TO GO**

As far as I know this was the factory's first foray into steering column mounted trafficator switches which they fitted to the first vee eights, the Cloud II's and the S2. They were not a success and



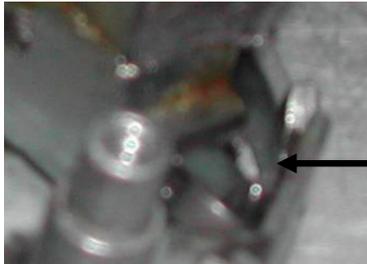
today it is quite a surprise to drive one of these cars with the switches cancelling satisfactorily. All



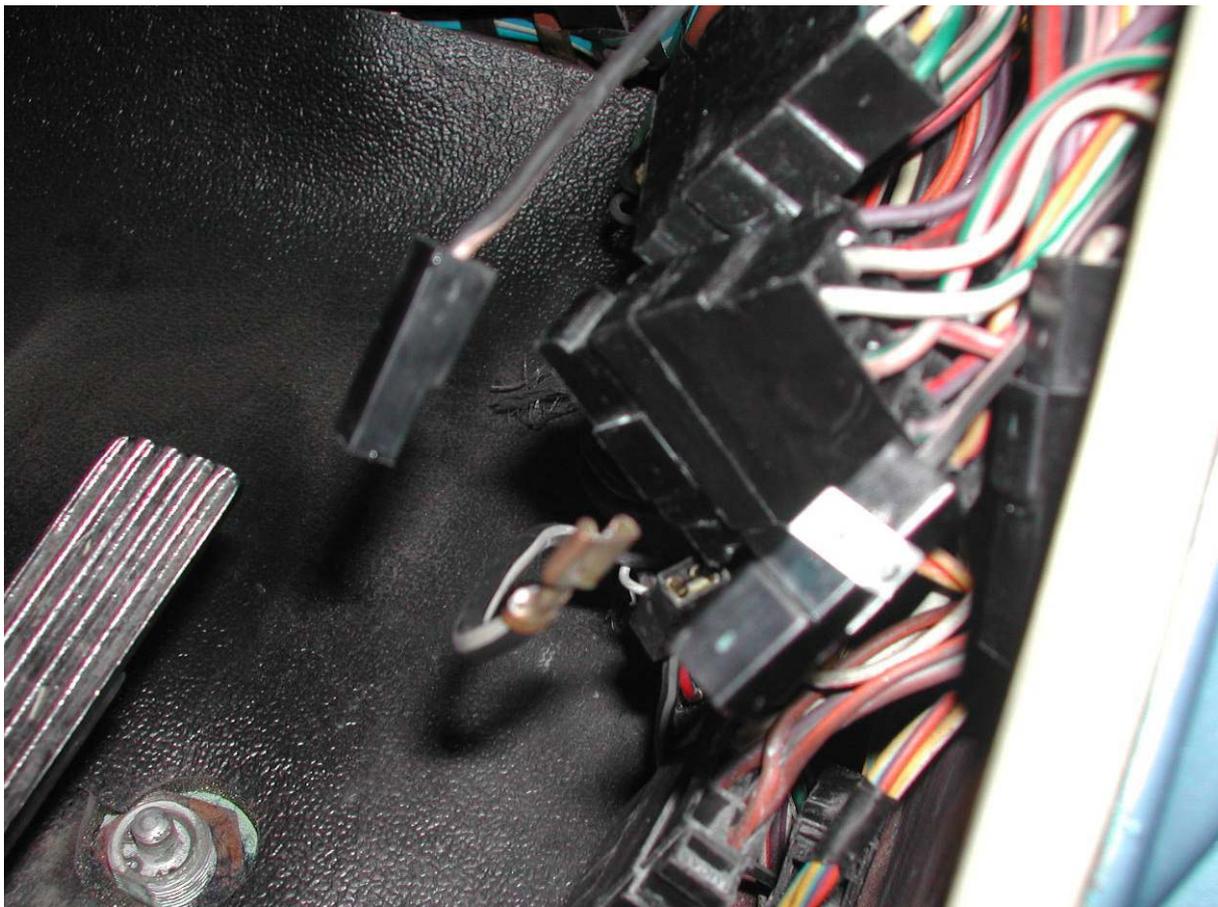
switches of this kind rely on a peg mounted on the steering column shaft or the back of the wheel to knock the switch mechanism back to the datum position when the steering wheel self centres. These switches appear to have been made with a poor selection of materials, the primary one being the large round pivot seen in the photo above. This has to take the various loads imposed on it through the switch lever and apparently wears prematurely. The result is that the 'cancelling peg' on the back of the steering wheel often pushes the whole lever and attached bits away from it rather than knocking it around to the mid way position.

Actually I lie in this case. The 'peg' in these switches was designed to push against one of the two half moon cams seen either side of the central pin at left. These cams in turn bear against spring loaded levers (arrowed) lifting them away from locating grooves and allowing the assembly to return to the central position. It is the mechanism to return the lever to the central position that is the other problem with switch operation.

Seen on the lower side of the switch and in the inset is a grooved abutment. Running in the groove is a spring loaded roller which sits in an aperture in the lever base. The groove is 'V' shaped and the sprung roller naturally returns to the bottom of the vee. Unfortunately the material that the base and therefore the abutment is made of is relatively soft and also wears quickly. This tends to inhibit the roller and the lever has difficulty finding the datum position. The solution appears to be to somehow face the roller track with shim steel to restore operation. As to the central pivot that is a relatively simple rebushing exercise for your local machinist.



## PLUGS



This mess normally resides behind the right hand kick panel of my Spur. Conspicuous is the myriad of plugs each with up to 7 terminals. Apparently humidity and electrolytic action at the contact points in these plugs causes local insulation and you have a broken circuit. The Factory recommended of all things liberal doses of WD40 to clean and remove the verdis gris.

The plugs are very accessible and easily parted and you might like to get a little more drastic with a popsicle and a strip of fine emery paper to thoroughly clean the terminals. The object of the plugs was to simplify the looms and facilitate their fitting. On pre'87 cars the plugging at the actual bulkhead is extensive and needs watching. Later cars threaded the looms straight through and sealed them.



## LEAKING HYDRAULICS



We spend so much time these days worrying about the problems of our high pressure Shadows et al. But the good old simple brake shoes and drums are not without their problems. This is the right rear brake on an S series car that has a significant leak in the wheel cylinder department. This will involve dismantling and fitting new cylinder seals and even possibly re-sleeving the cylinder itself if

it is scored or pitted.

These brakes on a concours standard car had front linings worn almost to the rivets - a condition that can only be ascertained by removing the wheels and drums, unlike their successors where a torch and an old bag can have you under the car to check the wear on your disc pads.



## WINDOW SWITCHES TO KILL FOR



For those that haven't seen them these little assemblies nestle in the doors of your Spirits Spurs et al. Known as Burgess switches the little red button is the one that has to be pressed to make or break contact and run the little motors. In the driver's door four of these are packed in very closely connected up with little bus bars. The keen eyed among you will spot at the top of the switch two protruding terminals

each is fitted with a terminal screw. The screws actually screw towards each other. If the screws are too long they will touch. If they touch they will short out the window circuit and trip the circuit breaker. No window up or down! We have now seen this happen twice. In both situations the switches were a new series with metric threads. For information – be aware!!