

TEE-ONE TOPICS

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<http://rrtechnical.info/>

I hope most if not all readers will recognise the above as the address for the Technical Library. After a slight hiatus, production of material for the site has swung into top gear. The main worker is Richard Treacy who manages to convert the material he receives, into language the computer comprehends. It is then he who arranges the stuff and makes sure you can download it as needed. Our object is to make whatever technical material is available, readily accessible to anyone in the world. It is sometimes forgotten by enthusiasts that the objects of our interests are the cars. Without them it would seem odd to have owners' clubs.



No no, it cannot be, but it is! The iconic AX201 itself snapped by some lousy photographer at the moment when proceeding was NOT on the agenda. It happened I believe in 1997 in Hong Kong – at least it wasn't raining. It would be interesting to have a transcript of the conversation between the three hapless occupants in the rear seat!

For this reason our quest is to provide every facility to anyone who is fortunate enough to have one of them no matter what the condition in the hope that they may better understand them and hopefully repair and/or restore them. Sadly, the aura surrounding the old cars wards off the average mechanic who understandably avoids cars that are likely to be complex or require considerable research to fix a problem. He has of course experienced the owner who regrets paying for 'voyages of discovery'.

We suggest that as the manual and spares parts come on to the website that you download them onto your hard drive for quicker reference, Richard and I have spent an great deal of time, having scanned the publications, breaking them down into 'downloadable' size files and believe this will be of considerable help to users. You might consider when you next upgrade

your computer, if it is of suitable specification, putting it in your garage and loading the material there. It seems that the modern mechanic is incomplete without his own terminal!!!



Now if the driver had a laptop computer and a radio link he could dial our library and get the latest writings on early Ghosts. Actually these have yet to come, but at least he could read up on later models while he waited for the covered wagon to come and recover the old dear! In fairness we should be a little tolerant of the foibles of a 100 year old car!

We of course have Tee One Topics and its index kindly compiled by a Swiss owner Jonas Trachsel together with that folksee compilation of the activities of the only functioning self help group in the Club, Crewed Jottings. Full credit must go to Victoria Branch member Robert Wort for this enterprise. There are patches of opinion in the Club to the effect that any information produced within a Branch is to be kept there. This is a mini version of course of the attitude of our sister Clubs who almost castigated David Gore some years ago when he suggested we pool our technical and data resources for the benefit of the preservation of the cars. The rejection was based on the resources being needed for the maintenance of the Clubs rather than preserving the cars. Personally I have really wondered why Branches don't take advantage of the offer by our web administrator to place their newsletter on the site particularly as the area is restricted to Club members!



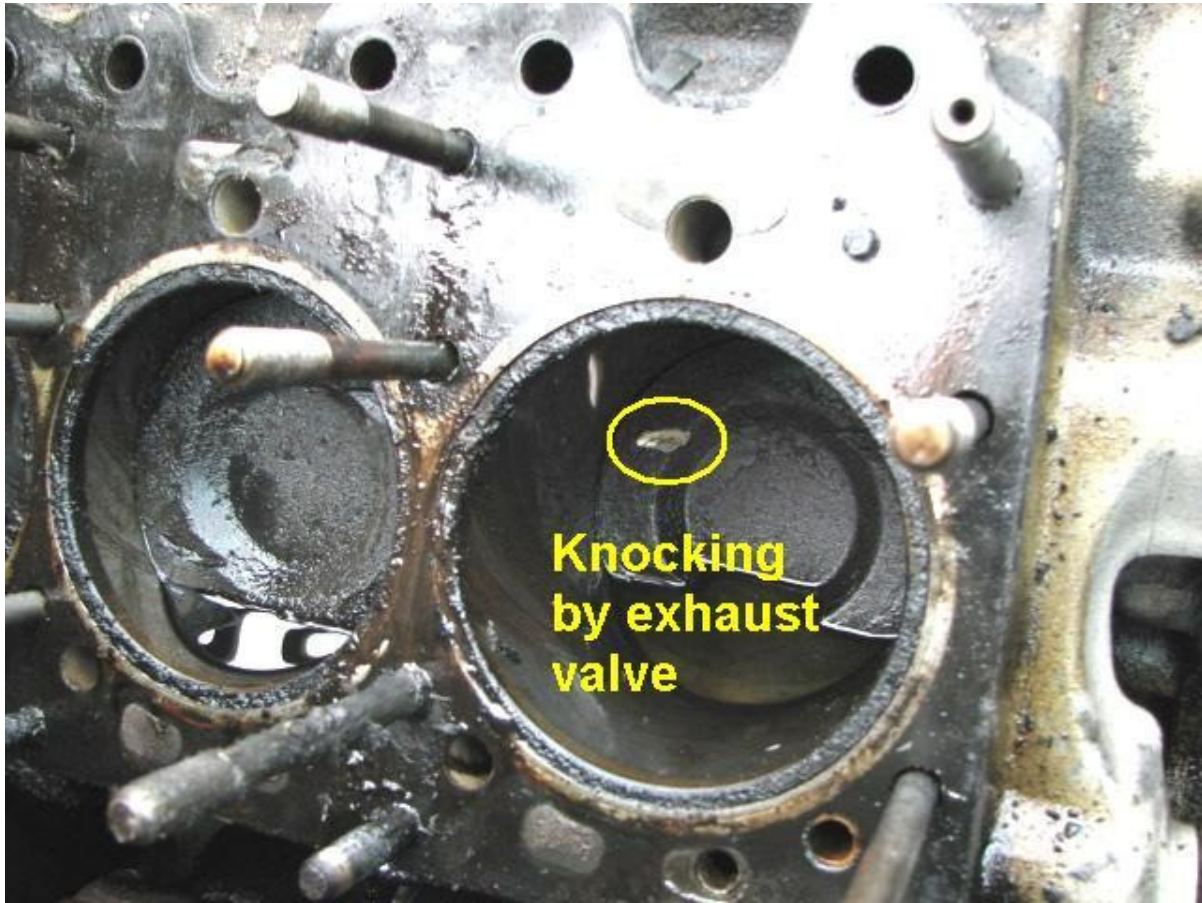
The owner of this engine was proceeding with the rest of his car at great speed when this strange miss and knocking occurred. Such things do little for the lower portion of the driver's alimentary canal! Apparently one of the exhaust valves had seized in its guide and stuck open.

But Richard and I soldier on and continue to amass whatever we can find and prepare it for the Library. Only last night a good friend from Hong Kong agreed to scan a complete set of build sheets for all the Phantoms IV complete with the trauma details associated with their production but kept very secure. Did you know that one of them had to be re-chassis'd as it simply could not cope with the body mounted on it? Such stuff makes fascinating reading for



Seen here is the valiant push rod that tried to force the valve open and bent itself in the process.

the true (in my opinion) enthusiast. And in that context I am always amused by many of those glorious coffee table books that present various models in magnificent colour and photographic excellence, implying to the uninformed reader that they are witnessing the revelation of something approaching a sacred icon!



A caption is not really needed is it? Unfortunately stories and pictures like this cause much incredulity among the coffee table book set, if you get my drift. The worst feature of Rolls-Royce motor cars is that they were made by men as were the materials that allowed their construction. Had God taken personal charge, none of these problems would arise. The first strangulating story I heard was of a Cloud II wending its way down the New Jersey turn pike at a perfectly respectable speed and it snapped a connecting rod! The owner when he recovered quietly approached the Factory with the details and they quietly pointed out that the guarantee did indeed expire sir some 2 months previous to the occasion!

The climate changed however with the injection of the Silver Shadow onto the American market. Bankruptcy was yet to reveal itself but even in the mid sixties it was clear, produce or perish! Apocrypha would have it that two new owners of this radical new Rolls-Royce, probably influenced I imagine by the coffee table mob, that the cars were so perfect they did not need water! The Factory apparently replaced the engines on these cars. The other gos was that some American owner, shocked at the price of a new filter cartridge decided to make one from a Cadillac filter augmented with the cone fitting on the top of the original. In the event the whole thing collapsed, blocked off the oil ways and the engine seized. That engine was also allegedly replaced. I mention both these events because of the curious conundrum the Factory got itself into, with stressing perfection to the point where the less intelligent took actions that were grossly deleterious to the car. To summarise I once again pass on the remarks of the Factory supervisor when I was there 'It is only a car you know' he said.

The GM400 Transmission

Literally millions of these transmission were made with all sorts of applications. Rolls-Royce chose the transmission for the Silver Shadow after a stop gap use of a modified Hydramatic originally used on the 'R' type cars. The modification involved squashing the profile of the box for the Shadow to fit it under the car without it dragging on the ground seeing that the car had no chassis! The Shadow also brought the electric gear change to the marque – apparently a bold step with which the Directors had some concerns. For this reason the famous get-you-home lever was supplied which when applied to the selector lever on the side of the gearbox through a provided aperture, the hapless driver could manually select the range he required, I have to confess I have never heard of the feature having to be used and of course the electric change continued to the end of production of the Crewe cars.



The 1989 models featured a deeper sump but fortunately the standard filter kit available from any auto store still fits the unit. The transmission is extraordinarily reliable and robust provided you keep clean fluid in it and keep that at the right level.



Because the sump is much deeper in the '89 models the filter which hangs loosely from the main casing has to be suspended lower. This is achieved by a spacer and longer bolt for the filter retainer.

The early transmissions on the shadow and spirits had a 'standard sump' which had a



drilling in the right hand side to admit a pipe for filling purposes and checking the level. To change the oil involved draining some by loosening the filler tube at the side of the gearbox. This still left quite a bit of oil sitting in the sump.

The Factory decided to adopt a theory that has been around the traps since the last war and provide powerful magnets as collectors of the odd steel bits that get worn or broken off.

To remove the latter involved dropping the rear end and lifting the front end clear of a couple of redundant lugs on the torus cover housing. Best you have a large tray underneath as the oil cascades out over the end of the sump.



The last bastion for foreign material, a magnetic drain plug complimented by a modern day version of the doughty washer. Fortunately the latter can be used several times. This is probably the best practical feature of the later version of the transmission in that you can drain all the fluid from the main casing without drowning yourself in the stuff as with the old arrangement.



DISPOSAL OF A LARGE COLLECTION

John McGlynn of RREC fame writes “I have about 500 handbooks for R-R and Bentley as well as many brochures, hardback books and Spirit mascots for disposal. I will be listing about 25 - 30 each week Friday to Mondays inclusive. A progressive list will be appearing on eBay at the following address

<http://cgi6.ebay.co.uk/ws/eBayISAPI.dll?ViewSellersOtherItems&userid=royce22&include=0&sort=3&rows=25&since=-1&rd=1>

John can be contacted direct at

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173 Newton Drive,
BLACKPOOL
FY3 8ND
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Tel: 44 (0) 1253 300100 / 206271
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Included are :-

CONFIDENTIAL chassis detail for all R-R & Bentley models 1904 to 1975.

Brochure for all standard AND coachbuilt models c.1960

PAIR of bronze busts of Rolls & Royce from a dealer showroom

Rolls-Royce wicker hamper with bone China etc

Wheel discs (4) Silver Dawn / Wraith

Bentley Motors cool bag

Touring CONTINENTAL spares kit for Shadow & derivatives

Literature case in silk and hide

Pigskin cig case from MPW

Wooden toolroom boxes

DUNHILL leather BENTLEY suitcase, unused

Tool kit for SCII / S1

and of course brochures, key fobs, tools, mascots, handbooks etc.

✂ BITS AND PIECES

I am seldom without my amazing little Sony digital camera when working on our cars. Enthusiasts apart from the coffee table set are always keen to see what makes our cars tick and owners who want to get in and fix something are much comforted by a picture of what they are likely to encounter. So I often have quite disjointed pictures and often some that I haven't the faintest idea what I have photographed but in themselves they can be worth a look. So here goes.



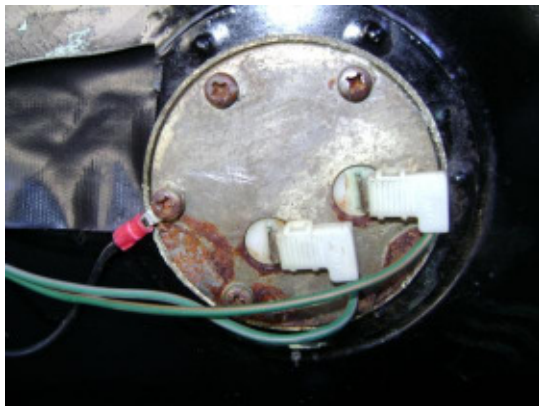
I found this nifty little funnel in Bunnings which makes for adding fluid to the transmission through that elusive pipe very easy. In the old days this would have been snapped up by the Factory given a part number and sold as a very exclusive special tool! While we are here the three bolts holding the wiper motor to its mount seen here at 4.00 o'clock to the funnel still come loose even with serrated washers and bolts. The solution seems to me a particularly tenacious dose of Locktite!



For post-war standard steel bodies with sun-roofs be aware that they are designed to let water get down between the sun roof and the body. It drips into a channel that extends a fair way back into the body, the left front corner of it can be seen in the picture. The channel is then supposed to drain to its four corners and down pipes to which it is connected by short lengths of rubber hose. The top of one pipe can also be seen in the picture. The corner drains block, rust and leak and the hoses perish and leak. Here the corner has been cut away to be remade.



Be aware of of this little gadget seen jammed in the side of a transmission of a car fitted with an electronic speedo. It is called a transducer and generates a pulse which when transmitted by wire to the speedo causes the latter to give a speed reading. This one was fitted to an '85 Spirit and failed. For the moment they can't be repaired nor are they available so its off to the nearest wrecker and hopefully you will find a replacement. Be aware that the transducer for the Shadow II the first car to use the system is different from that used in the Spirit. The mounting threads are very different.



When American legislators realised that their motoring voters were not happy with being frequently immolated after a major rear end smash, they directed that petrol tanks be moved forward to minimise the risk of fire. The Shadow II was the first car to get the treatment. Australians apparently were more expendable as the modification did not reach our shores until the arrival of the Spirit. All this and the photo to point out a common insidious leak from the fuel gauge sender unit which thoughtfully rots the screws into the tank. The sender units are far from immortal and usually give up when the internal wiper gets into the half way area. Then you get a nil reading. But then you are all so careful you will reset your odometer each time you fill the tank and as you know you are getting 400 plus kilometres to a tank regardless of what the gauge says you know roughly whether you are going to get home!



Isn't this sad and quite unnecessary. The carpets in case you haven't noticed are trimmed with leather to match the furnishings. All leather needs feeding including these little bits. Here the stuff has dried out shrunk, cracked and pulled apart. Whenever you pull your carpets to give them a good Hoovering get a good leather dressing on a cloth and rub some of the stuff into the binding. On carpets, I remember one of our very wealthy transport magnates having bought a new Shadow, liked the carpets so much he asked that his helicopter be fitted out with the same floor covering! On hearing that the carpet (allegedly Super Wilton) was \$1000 per yard he opted for the standard helicopter nylon!



The Factory took a deep breath during early production of the Spirit and replaced the long used constant velocity and universal joints on the rear axles with Lobro joints seen here. Note the convoluted rubber boot which does a sterling job keeping the dirt and water out. Their life seems largely unpredictable but eventually they will crack and have to be replaced. It is a job that you can do yourself but be warned that there is some variation in the axle assemblies and for certain models of SZ cars the boots are not available. Some of the more comedic spares people will tell you that the solution is to replace the entire assemblies! The easiest solution is to send the axles to people who specialise in these units. They have boots that will fit anything and will clean the joints out re-grease them and you will have peace of mind for a lot more time.



Owners often ask how low do you allow the brake pads to wear down? Well the best rule of thumb is when the pads are thinner than the backing plate. Here we see a worn pad sitting on top of a new pad and the difference is quite apparent. Some people hunt around to find 'non genuine' pads since they are cheaper. Well consider that in the event of an accident where emergency services are used, the police inspectors have a very close look at such things as brake pads. If you have had fitted non genuine items they might just claim that this choice precipitated or at the least contributed to the accident. Insurance is then void and you could well find yourself in the dock answering so very salient questions!

With the plethora of mufflers of various shapes and sizes the Factory had the task of shielding the floor of the car from the radiated heat of the units. Aluminium seems to be the favoured material an example of which is seen here. They are very light and don't require much fixing but it pays to keep an eye on the few bolts and bits used. Here is one that has vacated the car and provided an excellent source for a major rattle!



Remember that not only the brake pads wear but so do the rotors or discs as they are popularly known. Here can be seen the result of about 130,000K of reasonable wear and the disc has a pronounced lip on the periphery. Although appearances deceive, discs do not wear evenly especially if they are subjected to violent use. It is for this reason that periodically they need to be re-ground flat. This is a job for a machinist with specialised equipment. Ideally the front calliper is removed on the front wheel and a mobile grinder fitted to the hub. Alternatively the whole assembly needs to be removed and ground. The lip in itself is of little importance except that it does give an indication of wear. There is a minimum thickness permitted for these units which is stamped on the outer edge. Be aware that R A Chapman manufactures discs

for our cars at a very competitive price. Furthermore the discs are to all accounts a better design than the genuine and when they need replacing only the friction area which is detachable needs changing. An added feature is that the discs have been manufactured some .002" thicker than standard. This allows the discs to be ground on the car when new, thereby ensuring perfect concentricity with the stub axle.



MEMORIES

My almost 40 year old son sent me a pseudo-shocked email one morning to say that decency had prompted him to instantly close the screen of his computer at work when he was reviewing yet another bit of gimmicky software, this one to collate any pictures on the web relating to any particular named individual. Ever the loving son with the interests of his father in mind, he typed in my name and there confronting him was a screen full of naked Bill!! For those that have immediately vacated this read to go hunt for the picture, understand I am shocked, for the rest, relax in the knowledge that the interesting bits (well for some people surely) are covered with water since I was lying supine in a bubbling spa (thank God for the bubbles) with a glass of a particularly fine Double Wood Balveney on my chest.

So I put this far more appropriate picture here in the hope that search engines seize on it rather than the other. The latter occasion was prompted by the need to replace the sump of the Spur which I had unfortunately managed to ventilate by some rocks concealed in a sandy road extension. Having found a replacement sump I set out to research removal techniques. Turns out the installation was pure Roycery! The best sump I have ever removed was on the illustrious Phantom VI which I pulled out of curiosity. That car with basically the same engine as the Spur, has a very forward placed front engine mount and as all of them have well spaced rear mounts and as the Phantom had no subframe, umpteen bolts later and the thing fell off!



Not so with the spur. The first obstacle was the steering rack, then sundry pipes, the entire front engine suspension system and the bolts that hold the sump on. The latter were the really exciting challenge. First down to the local Autopro and bought me an engine suspension kit which hopefully I will never use again.

Firstly this is not a Salvadore Dali impressionist picture, but it is the damage done to the sump with a small hole punched to allow the oil dribble. Apparently crushed sumps are not uncommon since some garage people insist on jacking the car up by the sump sufficiently to dent it. The latter dent if deep enough partially blocks the intake strainer for the oil pump and disaster follows!

These consist of an adjustable beam that sits in the drain channels of the mudguards either side of the engine compartment and a simple large bolt and stout chain with which to sling the engine. The front mount and support piece are then removed. Next you need to detach the rear engine mounts and literally slide the engine to and fro so that you can get at a few sump bolts that are above the rear cross member of the sub-frame. There are concerns from time to time that you are going to suddenly have a face full of engine but I survived. Here we go on an ant's voyage of the task!



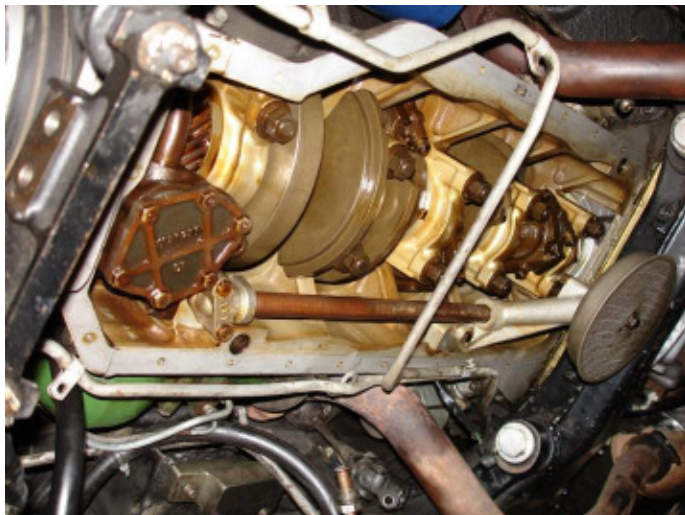
Here the steering rack has been removed. The peculiar block with the bolt poked through it is an adapter used for fitting the latest rack to the earlier cars. Accessing the main bolts holding the block to the sub frame does call for some ingenuity. Some can be reached from above using all the extensions you have as well as a couple borrowed from the neighbour otherwise one buys a very long extension and fashions it into a question mark. Using an appropriate socket with this adapter bar will allow you to undo bolts that you can only feel! Note the little two holed bracket on the subframe originally used on the Shadows for holding brake pipes. No wonder they call these cars Shadow III's.



And here is why you have to slide the engine. The rear bolts holding the sump on are just that bit inaccessible to get a socket on them.



The engine on the move. The rear mounts have been disconnected allowing the whole engine to be slid rearwards exposing the rear set of bolts of the sump seen bottom left. There are still more bolts above the sub frame but more sliding forward and a little lifting allows you to get at them. The orange daubed nut at the top of the picture is the bottom end of a little shock absorber between the engine and the sub frame. Some cars had them others didn't. Why? I can't help perhaps you can!



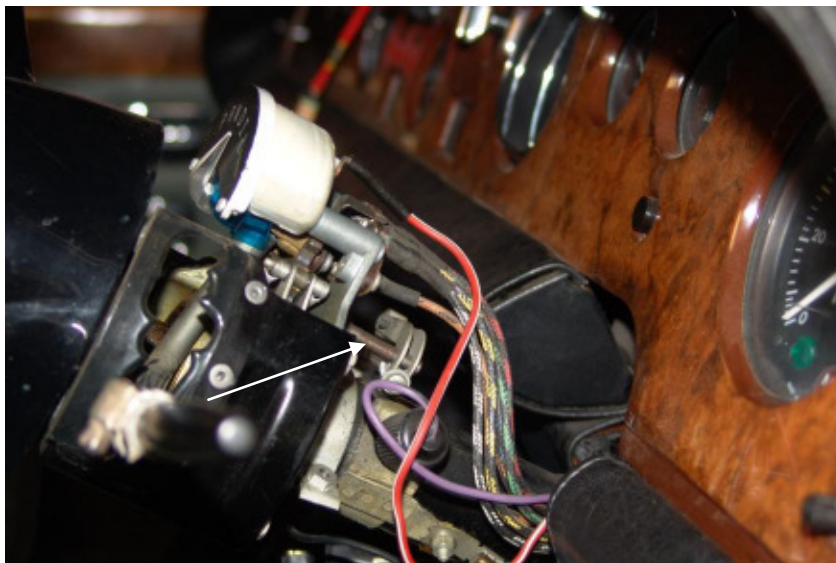
And this is where the go comes from. This engine has done about 100,000K and I am rather proud it is so clean. This comes from oil changes and not allowing the gunk to build up. While I keep an eye on the calendar and odometer I keep a closer eye on the dipstick. The moment the oil starts to darken, it gets changed. Oil is cheap engines aren't!

Seen here is the pickup strainer albeit a long way from the oil pump up front. This strainer sits in the drop down bit of the sump. If the car is jacked up at that point it is not difficult to see the possibility of cutting off or severely limiting the supply.



THE SAFETY SWITCH ON YOUR GEARCHANGE

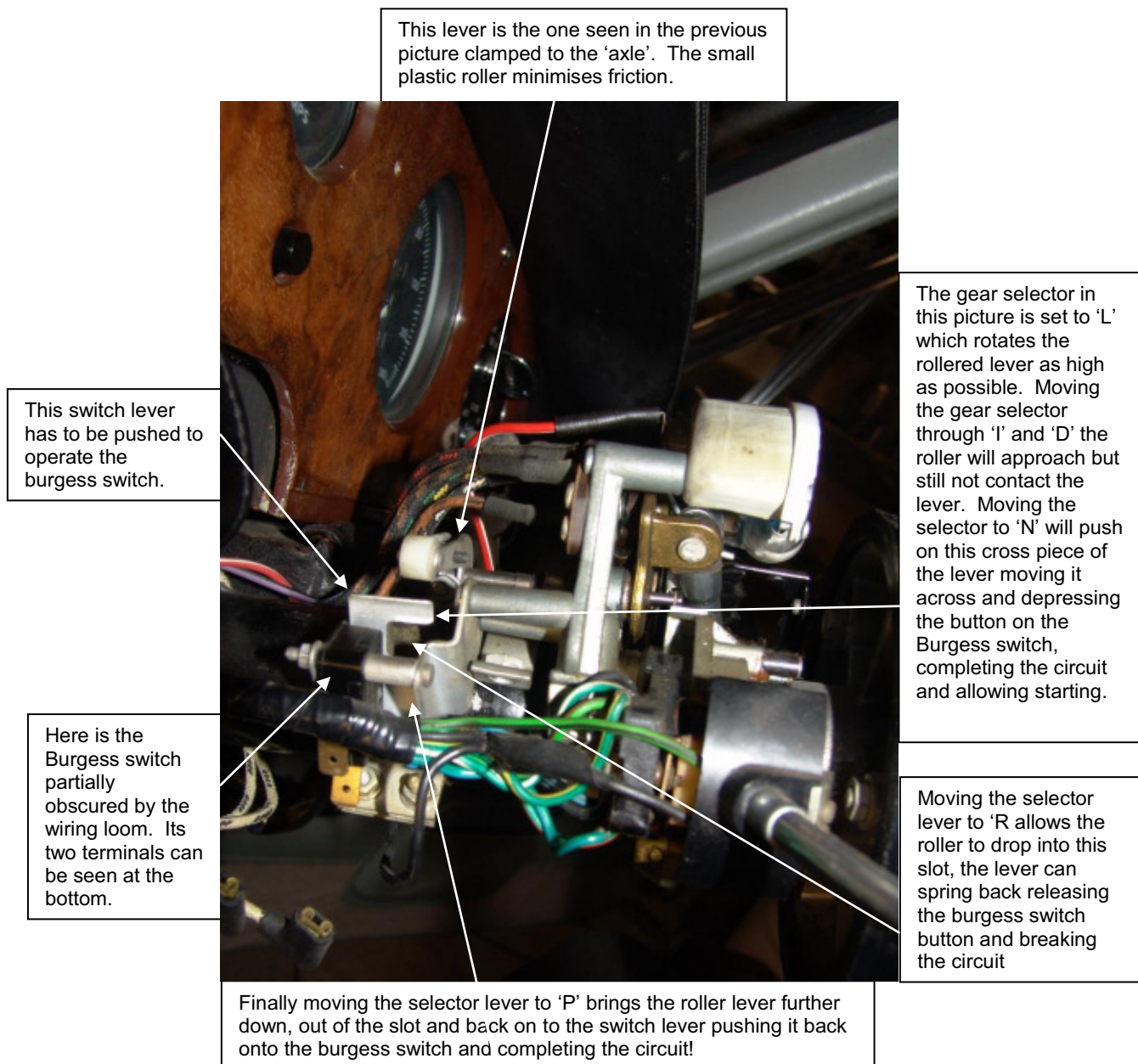
The electric gear change came in on our cars with the Silver Shadow, then still sporting the 4 speed Hydramatic with its selector positions of N,4,3,2,R. To avoid inadvertently charging through the back of the garage or ramming the parked car in front of you, an interlock was located in the steering column switching gear to prevent the starter being operated unless the selector was in 'N'. Later with the adoption of the GM400 box the switch gear had to cope with two starting positions, 'P' and 'N'.



The system is quite simple in that a standard Burgess switch which is normally open is placed between the starter switch in the main switch box and the starter relays.

The real item of interest in the mess at left is the small shaft with a lever clamped to it. This shaft is the 'axle' on which the gear lever assembly turns and which various bits are mounted to turn lights on and hold pointers.

Moving the gear selector moves a shaped lever that in turn depresses the little button on the Burgess switch. This latter action needs to be quite definite as there is little movement in the various parts. So if the button is not pushed quite far enough it's a case of no start.



All this is to explain that a fault that is becoming more common is wear in the casting in which the central gear lever axle rotates. This allows the end of the 'axle' to swing away from its centre line taking its lever with it. Moving gear lever to 'P' or 'N' doesn't move the switch lever far enough to trip the Burgess switch so the starter won't operate. The wear can easily be detected by gentle pushing on the end of the gear lever in the direction of the steering column. If it can be notably depressed then spring back on release, the casting is worn. The immediate solution is to hold the gear lever down while starting.

