

TEE-ONE TOPICS

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A TRAP FOR BEGINNERS

By now everyone will be aware that the bronze drive gear for the brake servo shaft on the Cloud and earlier Phantom series, wears. Thirty years ago particularly with the weight of the Phantoms V & VI working in city traffic, these little gears worked until they eventually sheared. The problem was sufficiently serious for the Company to issue a bulletin detailing a method of testing for wear in the gear without having to remove it. A copy of the Bulletin is in the Technical Library. The procedure involves knocking up a device for holding a pointer on the head of the bolt and moving the pointer to and fro will give an indication of the amount of backlash between the driving and driven gear or if you are lazy simply hang a 9/16" AF spanner on the head of the retaining bolt and wobble it.. Since it is highly unlikely that the steel driving gear will wear, the result will refer only to the bronze driven gear.



This reconditioned shaft has new bearings and a used gear. Note that the assembly from the large bearing to the gear is pressed against the circlip restraining the latter. If there is need for expansion the large bearing cone can slide on the shaft. The other repair on this shaft is the installation of a 'Redisleeve' where the lip seal runs to overcome wear grooves.

Replacing it does not require a degree in rocket science. Just drop the under-diaper, remove the servo, open the drain plug on the servo housing, drain out the good oil and unbolt the servo shaft seal housing and slide it off catching the bearing spacer if fitted as you do! Wiggle the shaft and it should slide out. Do this gently because on the end of the shaft is a dinky little taper roller bearing all neatly held together by the usual cage. The latter wears to the point where with little difficulty the little rollers will simply drop out. If that occurs and the rollers drop out while you are withdrawing the shaft contact me for a glossary of invective. Finding them should not be too difficult with a magnet – at least you will know how many to look for!



The inevitable wear marks on the output shaft before sleeving. On this shaft an early adoption of a double lip seal shows in the groove pattern. Again note that the large bearing does NOT butt up against the greater diameter of the shaft.

Building up a new shaft is straight forward. You will need an appropriate puller to get the little bearing off the end and a press with suitable collar bits to push bearings on and off. Again follow the instructions in the Manual available in the Technical Library.

And the trap for beginners? Well if you need to replace the bronze drive gear, make absolutely sure you order the correct replacement. You see there are apparently three different sized gears used across the post-war cars to do this job, the difference being the number of external teeth – so you are warned!



NRMA, RACV, AAA – WHATEVER !

There will be few readers who would venture out on our roads wherever they may be, without insurance on their car. Only last week we had a nice nineties Bentley totalled by a red light runner! But it has been my luck to be right at the front line in the last month or so when the 'Fail to proceed syndrome' has exercised itself three times with different cars! On one occasion I managed to blow the plastic top off one of these new fangled modern radiators – well I did prompt a crack in the top that produced a jet of water they could have used in the Fountains of Versailles!

Fortunately, I was in a good mobile phone footprint and the NRMA man was on the spot before I had grown noticeably older, but in the meantime I discovered that the owner of the car whom I did not know, had only basic NRMA cover which meant a tow of some small number of kilometres. To get the car to my home required quite a few more 'K's so I finished up forking out some '\$'s to get

there. That wasn't going to break me but had I been halfway to Sydney I would have been in a fairly expensive position.

The next scene was one of our old Club Troopers with his Concours car that decided its original



Well I had to put it to the test didn't I??? This is the scene last rally 12 miles from Parkes. All was well with the world when suddenly no go from the right pedal. Fuel pump failed! Car was trucked back to Orange some 100 miles, a brand new hire car was presented and extra accommodation offered. I was very smug about my membership from there on!

fuel pumps should pump no more. His model car enjoys a fuel pump placement which is about as accessible as your rear molar via your lower colon! There was no way my fat old colon was going to squeeze under that car to effect the replacement so we called the NRMA to shift the old girl to a not too distant car hospital where there was a hoist and tools and most importantly, a new pump!

The tow truck man dumped the car very professionally in place and put out his hand! The owner a man with the most admirable business acumen was instantly on the verge of a seizure, pointing out in unambiguous terms that he had been a member of the Association since Henry made his first Royce! The word 'Gold' kept dotting the invective but all this was to no avail. He paid.

The 'Gold' bit he did not know refers to your status in the club vis-à-vis the length of membership and cuts no mustard on the side of the road with two tons of glittering junk broken down some miles from Gulargambone! What all owners of these increasingly unpredictable cars need is 'full' cover for road service, It costs less than a tank of fuel and is worth every penny for the peace of mind it brings you!



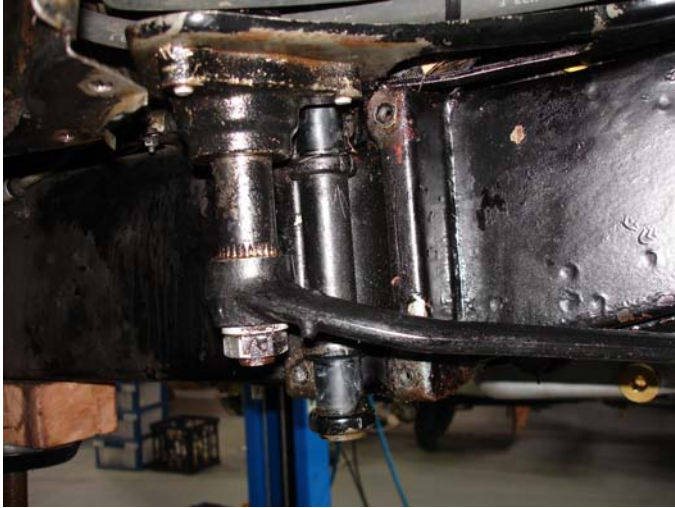
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STEERING BOX MOUNTS

That never to be forgotten steering box devised by the Factory for the S2 & 3 cars so that they could

shoehorn in the vee eight engine, sits in nice soft rubber mounts.

The box is held top and bottom by brackets onto the chassis and the torque reaction arm which lies along the top of the chassis member has a further bush where it is bolted down.



At left the old bushes have been removed and the whole assembly pulled away from the chassis. I find dishwashing detergent the best lubricant to slide the new bushes up the holding fixture.

Replacement is easy and well indicated usually by shards of bush hanging down in full sight behind the front wheel. Four bolts hold the box to the chassis via clamps. These removed, the whole assembly can be judiciously sprung away from the chassis, the bushes cut off and the new ones after liberal coatings of detergent can be slid up into position. The front bush which enjoys a spacer is

easily replaced.

Below is the re-bushed reaction bracket.. When disconnecting this note the placement of washers. Extras are often fitted to cope with the vagaries of the individual chassis frames.



At right is the rebushed assembly. Note in this case the newly fitted replacement hoses. Since these are usually incredible to access, if there is any sign of deterioration and you have temporarily better than normal access – change the pipes. They are readily made up by high pressure pipe repair firms.





A MATTER OF ACADEMIC INTEREST

This is a picture of a not uncommon problem of the coachbuilder not talking to the chassis builder. For those that have not been down there what you see through the inspection hole in the floor of a Phantom VI from top to bottom is the front band adjuster the take off for the oil cooler and the rear band adjuster. As the lock nut requires a fairly hefty tube spanner it requires a fair bit of access, clearly apparently, not available under the original juxtaposition of front band adjuster and the front edge of the hole. It appears that the above modification with a dolly and sledge hammer met the requirement. What is more interesting is the oil cooler take off for the heat exchanger. This is normally where pressure tests are taken and the hole bunged up with a suitable grub screw. There is a school of thought that although this takeoff is constricted, because it taps into the pressure side of the pump circuit it deprives the servos of some oomph they could well use.



A CURIOUS MODIFICATION



This is nominally the crossover pipe that connects the two exhaust manifolds on a Bentley Turbo so that the combined output can be directed to the turbo turbine. The first observation is don't use the pipe as a jacking point. The reduced diameter in this case brought one side exhaust down to about 30%.

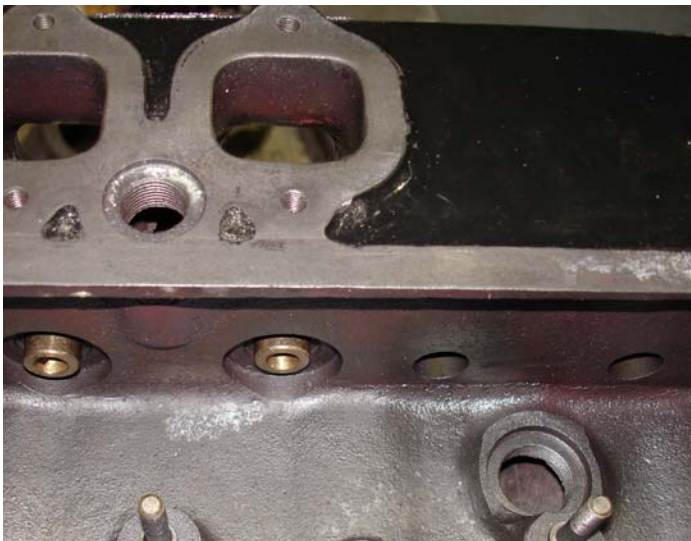
The bulge is of interest – a small catalytic muffler – apparently installed by the Factory to get down to the required emission standard for this car!





WHEEL MOUNTING – PRE-WAR CARS

I talked about this elsewhere but it is amazing how little is known about the old centre locking wheel retaining systems. The nub is that while it is desirable to lightly grease threads and splines it is highly undesirable to lubricate the conical section behind the spline. It is on this area that the interior of the wheel hub is pressed, the resulting friction being the means that holds the wheel tight on the axle hub.



CORE PLUGS

Somebody called these things Welsh Plugs in my day. The original arrangement was a bowl shaped heavy steel pressing that was jammed into a smoothed out hole in the cylinder block or head. These have worked very well for nearly a century with just the odd one popping out or in later times holes rusting through them. Rolls-Royce went one better, threaded the block and screwed in plugs with aluminium washers under the heads. Their purpose is to allow the casting sand to be removed after the foundry had finished

their bit of the job. During overhaul they should be removed when the block is cleaned, the threads cleaned and preferably new plugs fitted with new washers and sealant.



ABSENT LADIES

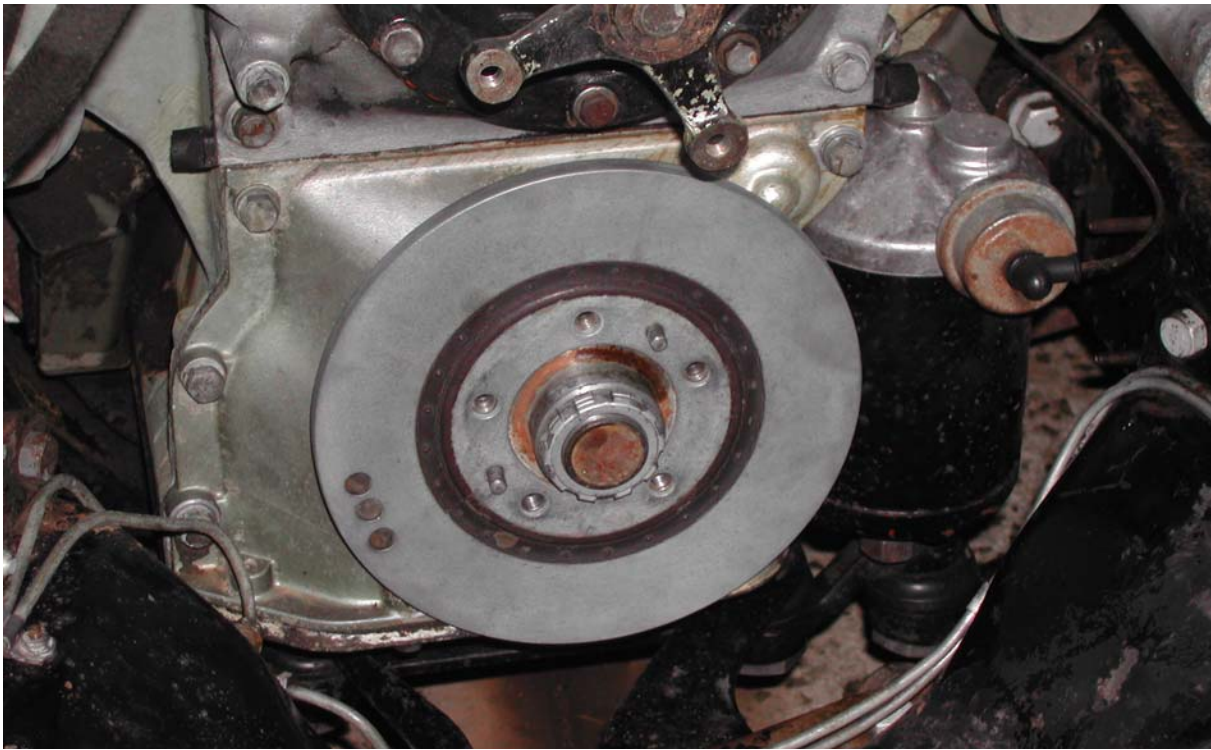
This is a sight most owners dread, the summary removal of the Spirit of Ecstasy. This is not terribly difficult for a strong person and it is probably preferable to one extraction of which I saw the aftermath where an exceptionally strong person actually managed to tear the top off the grille on a Cloud while extracting the Lady!



The Shadow produced a very nice little insert which approximated to a parking cap used previously on earlier models. These were dropped into the mounting hole after the mascot was removed and secured with an Allen Head grub screw seen at left

The alarm switch at right is a simple adaptation of the plunger switch used on the Clouds at the base of the steering column to isolate the starting circuit and switch on the reverse lights. This installation operated a separate loud horn installed under the bonnet. The assembly was an option for the Shadows.





OIL PRESSURE SENDERS

That dinky little round thing sitting on top of the oil filter with its single wire snaking away from it used to be a common sight on many engines. Apparently they either can no longer be manufactured in economical numbers, or perhaps simply can no longer be manufactured, the obsolete machine that used to make them having been destroyed.



They seldom gave trouble and gave a good enough reading for many years. A replacement has been found consisting of a metal base crimped around a 'Bakelite' core that presumably contains the mechanism. The old and the new are pictured left. Unfortunately the new item is prone to leaking between the 'Bakelite' core and the metal base. Cases have also

been known where the reading obtained from the new units is too low. Fortunately the faulty units have been replaced so far by the dealerships. Note that the sender units are specific to the gauges. If there appears to be a problem you should remove the gauge and the sender and have an instrument fitter attend to them.

In any case buy a suitable standard gauge with adapters and a hose extension which can be screwed into the hole vacated by the sender. Starting the engine, you will get an accurate picture of the engine condition as far as the oil galleries are concerned.





A SOURCE OF SHAKE

Post Cloud models were notorious for breeding the most obscure vibrations in their running gear. This stems from the flexible mounting of both front and rear sub-frames, compliant suspension, adjustable rear engine mounts and in some chassis of the SZ cars the use of flexible rubber joints on the propeller shaft in lieu of the good old Hardy Spicer universals. Most enthusiasts would know

that the Factory's quest for quiet rear axles was not always successful particularly from the introduction of the Shadow. To compound the problem, the whine produced by the axle was amplified by the hollow tube of the propeller shaft. This was overcome to some extent by filling the tube with Styrofoam before it was sealed up.

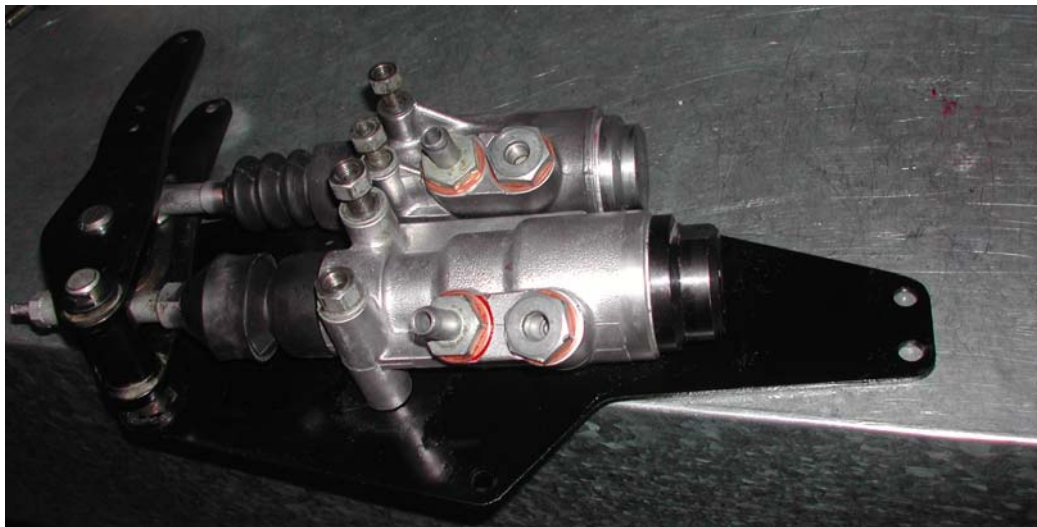
Another initiative was the use of rubber flexible joints, pictures of one preparing to fail, appear above. To calm your paranoia even if the joint completely came to pieces there is a safety spike through the whole assembly that prevents the tail shaft from dropping off either the rear axle or the back of the transmission. In any case the failure of these things always tends to be gradual. The cracks seen in the above examples produced the merest fine vibration at certain speeds which did not seem to be like unbalanced wheels due to the frequency. The cause was discovered by simple examination.



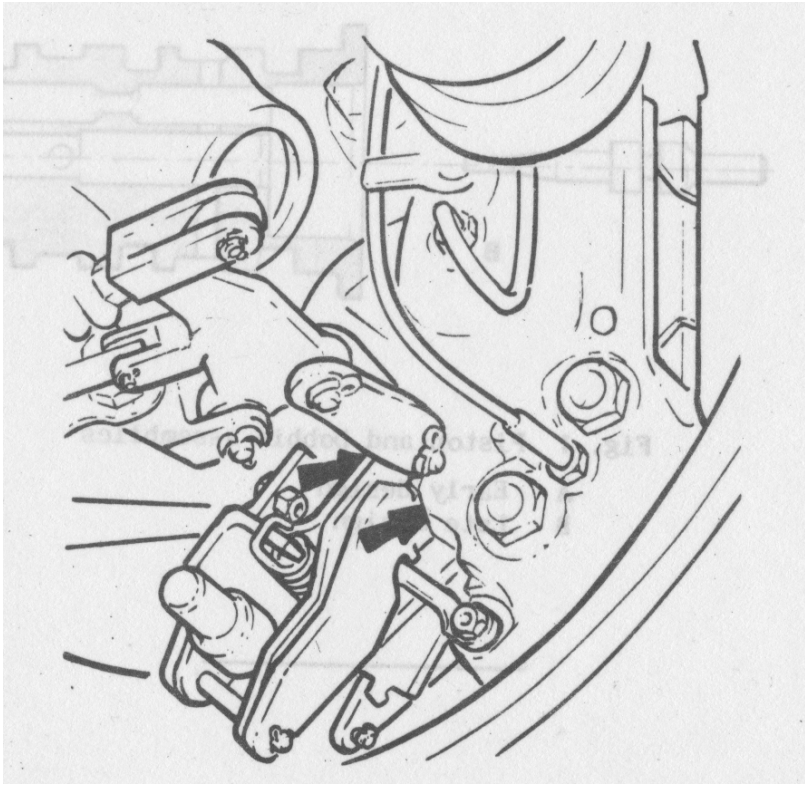
The joints are held together by special bolts and nuts which have heavily serrated undersides to grip. These are done up very very tightly. Even so it is good practice to periodically check that the bolts and nuts remain very very tight!



TO BE WATCHED



Examples are still turning up of master cylinders that have only been partially sleeved. The problem only shows up when the car is being held stationary with the footbrake on a steep slope.

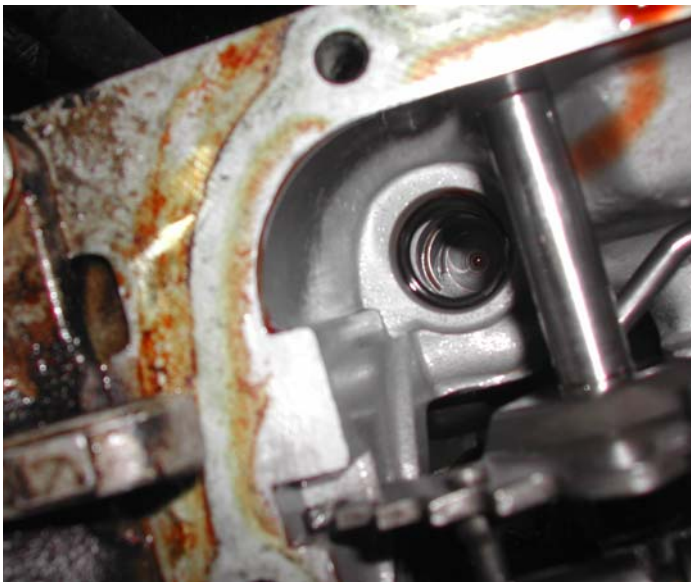


LUBRICATING THE PARKING BRAKE MECHANISM

This little diagram turned up in a 1970 Service bulletin. The mechanism to squeeze those rear brake rotors is an exercise in lever proliferation and bearing points. The latter of course need lubricating. The ones you can see present no problem but the ones you can't, if neglected can bind up, shear their fasteners and render the whole system useless.

The Bulletin recommended using WD40 the good old penetrating spray with the precaution of avoiding spraying the friction pads or

the rotor itself.



THE OPTIONAL SMOKE SCREEN

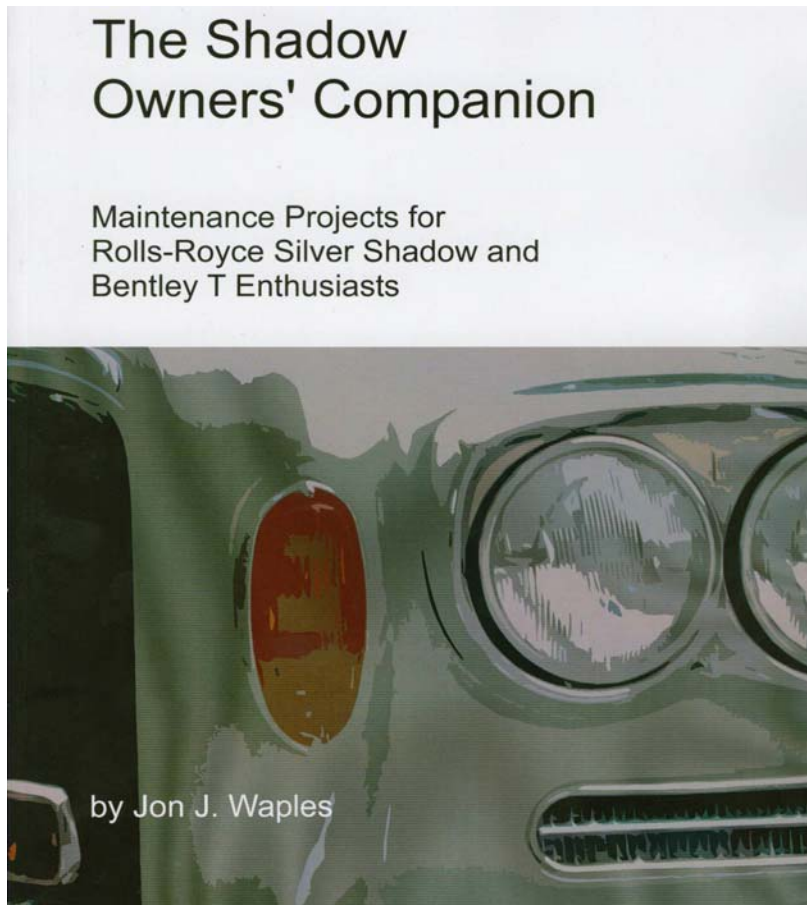
So you have been brave enough to drain your GM400 transmission on your post-Cloud car. Next step is to clean the floor, wipe your face, have a shower and put your clothes in the washer to soak. You drop the filter after removing the special retaining bolt then go back to the manual to reassure yourself that the filter should be a floppy fit. You clean everything in sight, poke the pickup tube up into the intake seen at right, put the whole thing together, fill up with oil and go for a

drive. The next event is the extraordinary sight of smoke billowing out from under the front mudguards – lots and lots of it. Stop, fling up the bonnet and wait until the air clears – nothing obvious unless being very observant you notice that the dipstick is partially out of its tube.

The answer is simple you left the 'O' ring out of the box where the pickup tube goes and seen nestling in the hole in the picture. The pump in the transmission picks up a lot of oil from the sump but also a lot of air from around the tube. This gets into the gubbins, is compressed somewhat then backfires into the sump blowing a large quantity of transmission fluid out the dip stick all over the hot exhaust manifold!!

HOT OFF THE PRESS!

This most welcome edition landed on my desk as I was closing off this issue of Topics. Jon Waples a denizen of Detroit seems to have sorted through the great chutney of information on the SY cars and distilled it down to the practical liquor that the average owner could possibly want. He avoids some of the more dangerous tasks such as suspension repairs or those requiring quite a bit of practice such as major engine overhauls which while interesting to read about are really quite beyond most amateurs. A couple of hundred pages of well laid out text and clear black and white



pictures make for a very readable book and a very handy reference.

I could not help but smile as I skimmed through the contents and thought of yesteryear when John would have brought significant calumny onto his head for publishing such a book. The lawyers would be bleating about liability if somebody shafted himself when following a suggested procedure. The poseurs and boy do we know a lot of them, would be disgusted that a mere mortal untrained by the Factory should dare to even publicise faults that just may occur with these gorgeous cars (I resisted the urge to parenthesize) and finally the owners who simply envy people who seem to be able to 'fix' these cars; all these people must be either

turning in their grave or retreating to the bottle!

I wonder how many cars we have left and who is to look after them. The last Shadow had been made, registered and was on the road by the time that many young mechanics today were born! There is also the aspect that with the enormous number of cars being produced, there are simply not sufficient facilities to maintain them so a quaint obsolescent old bomb sporting a cute little girl on top of the grille is not going to get much attention unless there is a lot of money to be paid! The salvation may be owners and enthusiasts getting in there and having a go. Armed with Jon Waples book they should get a long way before they run into trouble – if they ever do. An owner of a Rolls-Royce or Bentley can be a pretty determined customer!

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