

TEE ONE TOPICS

Issue 50 January, 2006

WOW!

It is hard to believe that I am still doing this. I have asked a number of head doctors to analyse the impulse but they have politely declined. Who would have believed when I started this some 5 years ago that I would be writing about the old company as defunct, that SY and SZ cars are being neglected to destruction and that our mentors the new owners of the Bentley name are struggling to find manufacturers to make the bits we need to keep the remaining old cars on the road. In a way it has all been to the good. Seldom do we hear the bovine detritus of previous years lauding the cars as some sort of infallible celestial chariot.

The iconic nature of the name has to my observations all but disappeared and the current breed of would be enthusiasts are not quite clear as to what a Rolls-Royce or Bentley is or was. The new models bearing the name are fast proving the benefits of good and innovative management and the exploitation of modern technology. For the moment they may appear to be hanging on the coat tails of their ghostly forebears but I believe that in the near future they will have proved their metal purely by their own abilities and genius. The names will then become simple heritage.

At least we have successors. Cry for the Sunbeams, the Isotta Fraschinis, Marmon, Cord, Stutz and Pierce-Arrow. The Packards, the Hudson, Hispano Suiza - all memories kept alive by small bands of enthusiasts. We are at a turning point. Until recently we have been dictated to largely by faceless people to the effect that post-war models of the Marque are quite beyond the maintenance abilities of mere mortals. In time despite affluence and stable surroundings this has become impossible to accept simply on cost benefits alone. Many of those who could not physically meet this challenge have sold or are contemplating selling their cars and some are even effectively abandoning them.

Only last week I had to restrain myself from visiting physical violence on a Sydney resident attending a Canberra meet who advised me that he had a Shadow and that it was known as the shelf car since it was the favourite place on which to put things in the garage. It had not run in a year! But thanks to a small band of fanatics, people are actually being encouraged to foster the cars, if only to tend to their most basic needs and adjustments. But information is needed, the current owners of the Name are happy to have any information distributed to whomever wants it the only hiatus being some of the Club organs and cliques who openly state that information has a value and should be accessed only by dues paid members. This completely overlooks the simple objective of all the Clubs as far as I am aware, to preserve the cars, not the well being of the Clubs that have been formed and have prospered through the propagation of information gleaned from Company records or hapless owners who have bothered to record their experiences in the maintenance field!

And so it seems in the above environment these notes Tee One Topics have prospered, been feted, shared and elaborated around the world. It is indeed gratifying and how appropriate that the title should have been generated by the very obstructive attitude that prevailed before we managed to get these pages to print.

Every strength to you all and may every Rolls-Royce and Bentley chassis that you get your hands on benefit by the experience.



Adjusting the four speed Hydramatic.

We covered this topic way back in March last year (Issue 42 page 631) but very recently I answered a query about the front gear box band and its adjustment. Generally, automatic gearboxes seem to have generated their own coven of practitioners who guard their knowledge closer than Aunt Millie and her secret scone recipe. Sadly this knowledge often goes with them to the grave and hapless later owners have to learn the hard way how to keep their transmissions from self destructing.

The Hydramatic first used by the Factory had already been in production and use for almost 20 years in a variety of cars and at the time was probably the best unit available. It was robust, very positive and except when subjected to gross abuse would at least get you home. One unique feature which I think is quite foreign to the modern scene is the fact that the Hydramatic enjoys two pumps. The front one



is obviously driven by the engine and the rear one by the wheels. The latter allows you to demonstrate push starting – a feature unknown in today’s world of whizz-bang transmissions. The Factory were impressed by this feature as it guarantees that there will always be a connection between the wheels and the engine even if the latter expires! As you know with the later GM400 unit attached to Shadows et al, if the engine stops you are instantly in angel gear!!!

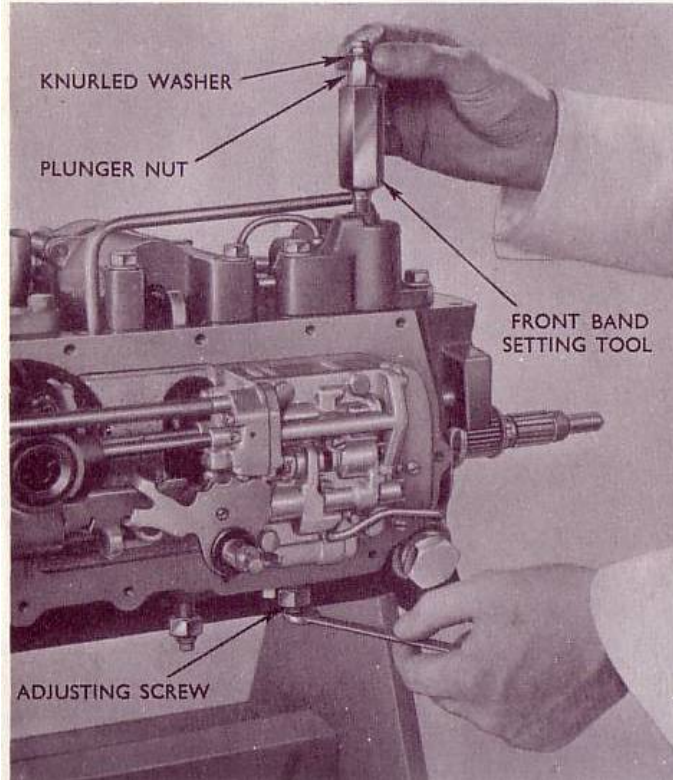
The Hydramatic has two bands that grip the drums and their adjustment is fairly critical to the unit’s operation. One of the bits of folklore in the Nation’s Capital is about the box on a fairly prominent vehicle that was considered a little rough in the changes! A couple of specialists not trained in these units decided a little experimentation was in order. The band adjusters as you know are readily accessible from within the car via a hole in the floor. So our intrepid pair adjusted the bands by feel. And indeed they did smooth the box down considerably. Unfortunately the net result internally was epitomised by that great Homeric epic ‘Horatio at the Gate’. The line that comes to mind was ‘those behind cried “forward” and those in front cried “back” ‘! And so it was inside that poor gearbox the two drums fighting each other until on a fairly long trip the whole unit exploded, legend has it that the only reusable bit was the dipstick but no doubt the story has improved over the years!!!

So the band adjustment needs to be done properly with the right tools. Fortunately once the gearboxes are set up they rarely need re-adjustment which is comforting to those with cars at Terra del Fuego and no adjusting tools! The actual tools for adjustment are basically a tube spanner with another tube spanner inside of it, the former to unlock the lock nut and the latter to turn the adjusting screw. They are not standard tools as they have to be fairly long to reach the bits through the floor. They can be made up as can be seen in the photo. Adjustment of the front band requires a special tool seen at the top of the page. As you can see it is fairly specialized, so much so that apparently the Factory supplied them with cars exported to Australia at least!

Elsewhere readers may recall my being fairly pointedly criticized for even suggesting that owners might actually overhaul their own unit. This was followed by an account of my critic’s own

experience with gearboxes and the satisfaction he had from having the unit overhauled by a 'professional'.

The point of my repeating this is that I had occasion ages ago to ask a very experienced 'professional' whether he had a rear band adjusting gauge for the box fitted to the first Silver Shadows. I explained that while I did not need one I would like a copy in case I did. He in turn assured me that the one gauge would serve both series of boxes. Being an amateur, I didn't argue although I did try a few 'are you sures' and went away scratching my head particularly as the Factory seemed to want two different gauges for the two model boxes!

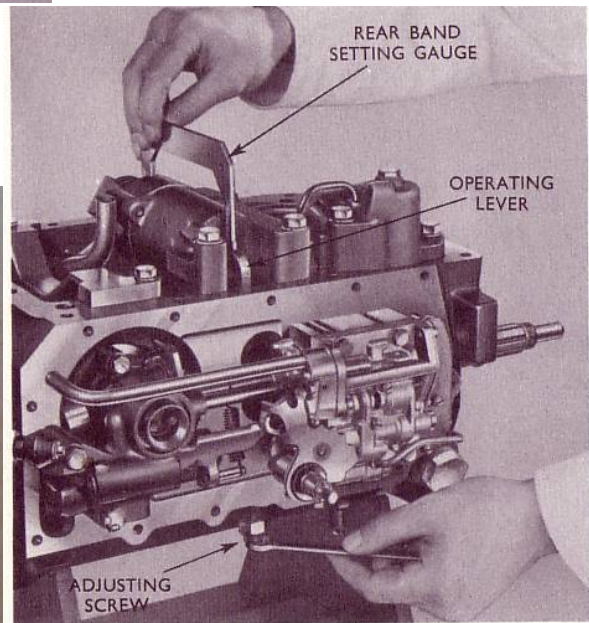


Subsequently one of my mentors let it slip that he had a genuine gauge for the later box. A surprisingly small amount of physical violence followed and the gauge was mine. A quick trip to George the machinist and I had my own.

As you will have seen the dimensions are now on Page 632 so if you happen to be in Bulawao you can find a machinist and have your own made. This last remark had meaning last week when I corresponded with an owner in the middle of the United States. Seems he was 600 miles from the nearest agent!!! And I thought we were isolated in

Canberra.

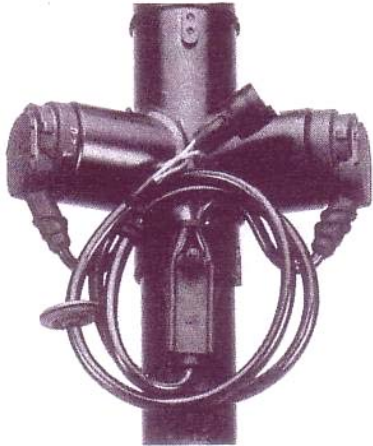
But the front band adjuster is another matter. If you don't have one you will need to research where to get access to one.



At left are the rear band adjusting tools the larger one is for the Shadow gearbox!

VARIABLE RIDE DAMPING

All 1990 model year four door Rolls-Royce and Bentley motor cars are fitted with an electronically controlled variable ride damping (VRD) system. This system provides automatic selection from a range of three modes (comfort, sport and normal) to ensure optimum suspension performance under all operating conditions.



At left, the nubbins introduced on the top of the front dampers from the 1990 models.

The VRD system utilizes essentially similar components and layout to the previous suspension damping system i.e. two hydraulic dampers to the front of the motor car and two hydraulic struts with gas springs at the rear.

However, the front dampers and rear gas spring adapter housings are now fitted with pairs of electrically controlled solenoid valves which are used to change the damping rate within the strut or damper .

Selection of the appropriate damping mode (comfort, sport or normal) is fully automatic being controlled by two electronic control units (ECU). The first of these ECU's is the 'System Controller' which is located above the front passengers feet and contains a micro-processor and three accelerometers to monitor vertical, longitudinal and lateral movement of the motor car.

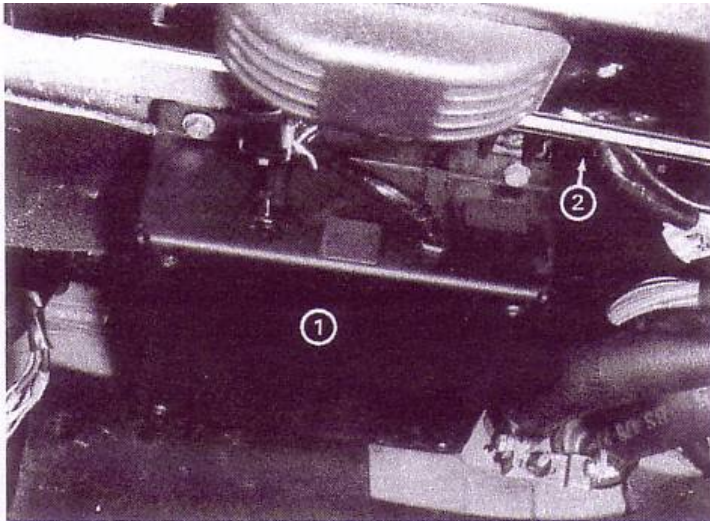
The second ECU is the 'Power' unit which is located behind the fuse board and is connected to the 'System Controller' ECU by a short loom and multi-pin connector. The 'Power' ECU provides the output signal to the damper/strut solenoids to activate the appropriate solenoids as dictated by the 'System' Controller' ECU.



And at the top end of your rear dampers, a similar setup controls the in and out hydraulic traffic to the gas spheres.

Other inputs to the 'System Controller' ECU include steering wheel rotational velocity via a belt driven transducer, a road speed signal from one of the anti-lock braking system road wheel sensors and switching signals from the throttle position switch and brake light switch.

In the event of the signal to the solenoids failing for any reason, the system will select 'sport' mode which provides the greatest vehicle stability and indicates a system fault to the driver via a warning mode lamp. Also, the suspension remains in 'sport' below 3 mph to maintain ground clearance when manoeuvring and to prevent excessive 'squatting' of the rear of the motor car under hard initial acceleration.



We have a Lexus LX470 fitted with probably similar dampers and there is a switch on the centre console with settings 'comfort, sport or normal'. You turn the switch and are instantly greeted with either coccyx shattering firmness or mattress floating comfort – well almost.

But the Factory went one better and fitted A 'Sytem' Controller' the little box (1) under the dashboard which we are told contains a micro-processor and three accelerometers to measure the vertical longitudinal and lateral movement of the car. For Silver

Ghost owners who may be confused, accelerometers were NOT fitted to their cars! A 'Power Unit (2) actually does the switching. The System Controller to avoid it being kept in the dark as what is happening outside also gets messages from the ABS, the throttle setting, the brake light switch and the rate of twirling the steering wheel! Under 3 mph the system hunkers down to Sport mode to stop rear end squat which occurs with lead foot drivers.

This mind boggling explanation was prompted by querulous owner asking on our web site why his car was suddenly riding like the proverbial board. The answer at least was simple – it was stuck on 'Sport' mode. The reason it was stuck it is written is that is anything goes wrong that is the fail safe setting. He should also have had a light come on somewhere to tell him of his plight. The bad news is this appears to be one of the tasks requiring test equipment to be found only at guess where!!!

CONFIDENCE IN THE OIL PRESSURE GAUGE

Dwindling oil pressure is one of the more worrying bits of data presented to you every time you start the engine of your car. Early Shadows dispensed with the gauge and gave you a light which I have found many owners believe is simply to tell you whether the engine is going or not. "It's so quiet you know"!!



Ignorance is bliss until you discover you have no oil pressure, a seized engine and a repair bill that will feature in the next National Budget.

I realise that I beat this subject to death a couple of issues ago but now I have some pics of a sender I cut open which I thought were of interest.

The shiny brass pot like thing seen in the middle top of the pic is the sender on an '87 Spirit. These senders which I am told are the same as those fitted to a Shadow II, got shunted around to accommodate a separate engine oil cooler.

As an engine wears more oil is able to escape through the bearings so the pressure drops. The oil pump has a limited capacity so revving the Hell out of the poor thing is not going to improve the reading on your gauge if you have one. If you drive a pre-Cloud car your oil pressure

gauge is driven by a physical column of oil pushing up a fine copper tube into the back of your oil gauge. This historic setup rarely gives trouble and is usually quite accurate. Not sure why they

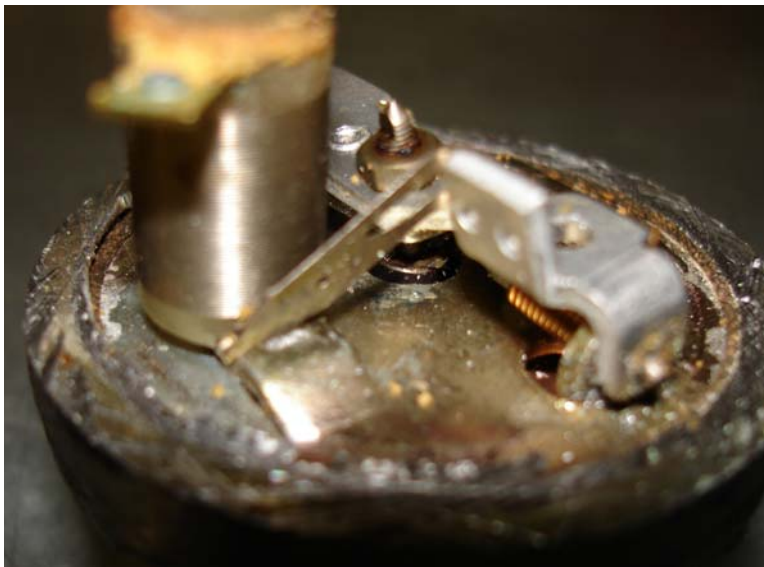


stopped using them except that avoiding breaking the oil tube when working on the engine and threading it through various labyrinths to get to the back of the gauge may have had something to do with it.

And this is what is inside. The heavy bar across the middle rocks under pressure from the centre plunger which in turn is pushed by a diaphragm from beneath. The riveted bracket on the left has a contact that rubs up and down the coil under the terminal to generate the signal for the gauge.

So come the Silver Cloud the factory fitted an oil pressure sender and an electric gauge connected to each other by a single wire. Power is fed into the gauge when you turn the ignition on it goes through a little coil which operated the needle that you see and then tears down the wire to the sender which is screwed into the main oil gallery of the engine on top of the oil filter. The reason the power has come down here to find out what is going on is that there is a circuit, through the sender and thence to earth via the engine. But it is not open doors down there since there is a resistance in the sender that changes

with the oil pressure. More pressure, less resistance more power can get through and the more the needle swings on the dashboard. So it doesn't take Einstein to work out a scale and put it behind the needle and presto you have a reading reflecting the current pressure of oil coursing through the engine.



But unlike our copper tube that seldom gave trouble, there are a few things that can go wrong in the newer system. A broken wire is an obvious one – usually at the terminal on the engine where the wire has been shaking around for the past 30 years!

A side view of the wiper arm and the resistance windings. The long wondered-at positioning instructions may be understood here since 'those that knew' must worked out that for the unit to give the most accurate readings the 'rocking beam' should be as near to horizontal as practical.

Very occasionally the gauge will expire which is a job for an instrument maker. But the most common symptom which you observe with dismay is the needle on your gauge reading lower and lower as time goes on. Unless you run out of oil, engines do not wear out THAT quickly! The culprit in this case is usually a failing sender. But before rushing down to your dealer and buying a new one, check the oil pressure with a simple gauge and pipe. They can be made up by your nearby hydraulics man for a nominal figure. Unscrew the sender and let him have it to get the right thread for the adapter.

MORE ON SORE BUMS

from : **Richard Treacy**
in Switzerland

Have You Had a Rough Ride ?

Do you have the impression that your SZ Rolls-Royce or Bentley should provide a smoother ride than it presently does ?

After some exchanges by email and his actions, I read the following message from an American, who has owned an SZ, NAC-06113, for some time:

“If this was the true feel of a Rolls Royce, then I was most disappointed. Along with the bad ride, there was a small vibration that started at about 50 MPH and never changed in frequency or amplitude. The vibration could be felt in the chassis and the steering wheel. Using suggestions from this site and other sources, anything that could be done to the wheels and tires was accomplished. You name it, mass balance, static balance, dynamic balance, both wheels, tires, and brake rotors, even new tires. Nothing helped. The next item to be replace was the universal joints and balance the drive shaft. Fortunately, I had not undertaken the task yet. Yesterday, I took the car for a drive after performing some major surgery on her late last week. This was not my car I thought. What has happened? She drives and handles like we were on a cloud. What, no vibration, not even at 80 MPH. A miracle has happened. Oh Lord don't let my weak heart stop now. This is just GRAND! I pulled into a rest area and got out to make sure that I was in MY Car and was not dreaming. So what had I unknowingly done to fix a four year old frustration.... Well, last week I replaced the suspension gas spring accumulators (spheres). The left sphere had a ruptured diaphragm. “.

This is a typical example, and the main reason that rumours are spread that the ride of these cars is poor. People think that just because there are no leaks and the car levels OK statically, nothing is wrong and that I am mad. In almost every case, the owners are stunned with the improvement brought about by simply fitting new rear suspension spheres.



ACCUMULATORS AND GAS SPRINGS

Noting that the dash board lit up like Luna Park whenever I planted my foot on the brake I decided that a change of accumulators was warranted. The Spirit and all cars using mineral oil systems use sealed accumulators which are ostensibly not rechargeable. They are cheaper to maintain than the old dismantable units and much easier to maintain. So I call up my friendly dealer man and ask for a pair of accumulators. They arrive and one of them is seen to the right of the picture above. As I have had little experience in this field I happily screwed on the first unit and found there was simply no room for the second. I immediately decided that someone had modified the car to take smaller spheres (accumulators). The enquiry that followed rivalled any Royal Commission but the answer was simple, the Factory had packed gas springs in accumulator boxes. Lest you have the same problem I share the above photo with you. At left is an old gas spring I dug out of the garbage, in the centre is the correct accumulator and the right hand unit was another new gas spring that arrived in the right box!!!

The spheres should be ideally be replaced, in my opinion, at the latest with the scheduled change of all hoses and calliper seals, every 8 years/96,000 miles/160,000km. They are not a scheduled change, but a test is specified at each 6 month service. I never bother with the test and just replace all four about every 5 years as the spheres are so cheap.

The vibration on the American SZ was the height control valve joggling the strut up and down, frantically fighting to keep the car instantly level as it drove along. With a split diaphragm there is practically no suspension travel possible (try compressing an air balloon half filled with oil like a



good sphere: put the balloon in a saucepan, then try it with oil alone as with a ruptured diaphragm).

With oil only and no gas, the height control becomes unstable and vibrates as it continually tries to fill then empty the strut with no cushion from the gas. Left uncorrected, the strut will fail very early through massive overwork and the incompressibility of oil with no accumulator. From a control system perspective, with no

gas the loop gain goes sky-high and the system becomes wildly unstable.

Just to emphasise the importance of good spheres, I had the periodic roadworthiness test last Thursday on my Turbo R, done at a government testing station . They test everything you can imagine at my local motor registry. I always have to explain that the heated rear window is automatic, and had to produce the schematic today to prove it.

One test is a computerised "shock absorber" test on each wheel individually. The difference between the rears was just over the 20% limit in travel, although the damping was fine. Last time they were within 5% of each other. This indicates that one sphere is low on gas, so ho hum, I must change them after just over five years. The trouble is that a deterioration in ride develops so slowly that it is easily overlooked. Fortunately, I had purchased a full set of spheres before Christmas from a UK outlet on special at about A\$56 each, and lo and behold I needed them immediately. Accumulator spheres are safe to ship worldwide by any method.

I changed all the spheres this evening. I can't tell any difference in ride this time mind you, but that may be because the Turbo R is rather stiff in the suspension department. I think that the road authorities reject your damping here long before it is noticeable.

I used the chain wrench on the left hand side sphere. The sphere was not tight, so I simply used a sturdy oil filter tool on the right hand side.

By the way, 20,000-series cars have a single height control valve. There is only one bleed valve which serves both rear spheres combined, and it is in front of the rear guard on the inner sill. Cinch. As I had changed the LHM a few months ago, I simply bled it until all the green milkshake and air had gone, then another 1/2 litre. The longest part of the job was refitting the trim and isolator switch surround.

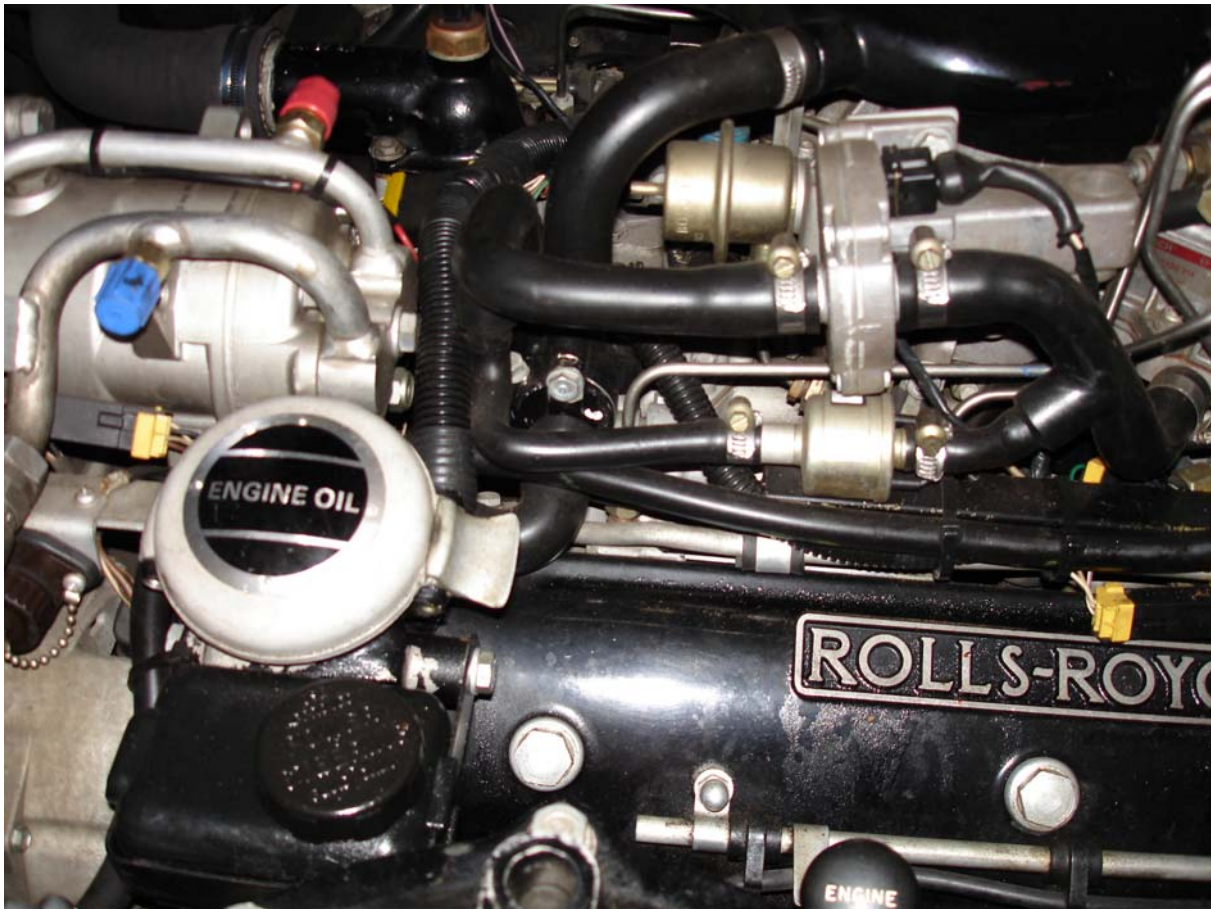
The two tools shown are entirely suitable for undoing spheres, but I suggest anyone try the strap wrench first. Only use the chain wrench for a stubborn sphere. The whole job for all four accumulator spheres took less than two hours including a leisurely cleaning up. The sphere on the

garage floor is a rear suspension sphere; the one in-situ is a main system sphere mounted on the engine crankcase.

If you are having a bumpy ride, change those accumulator spheres now.



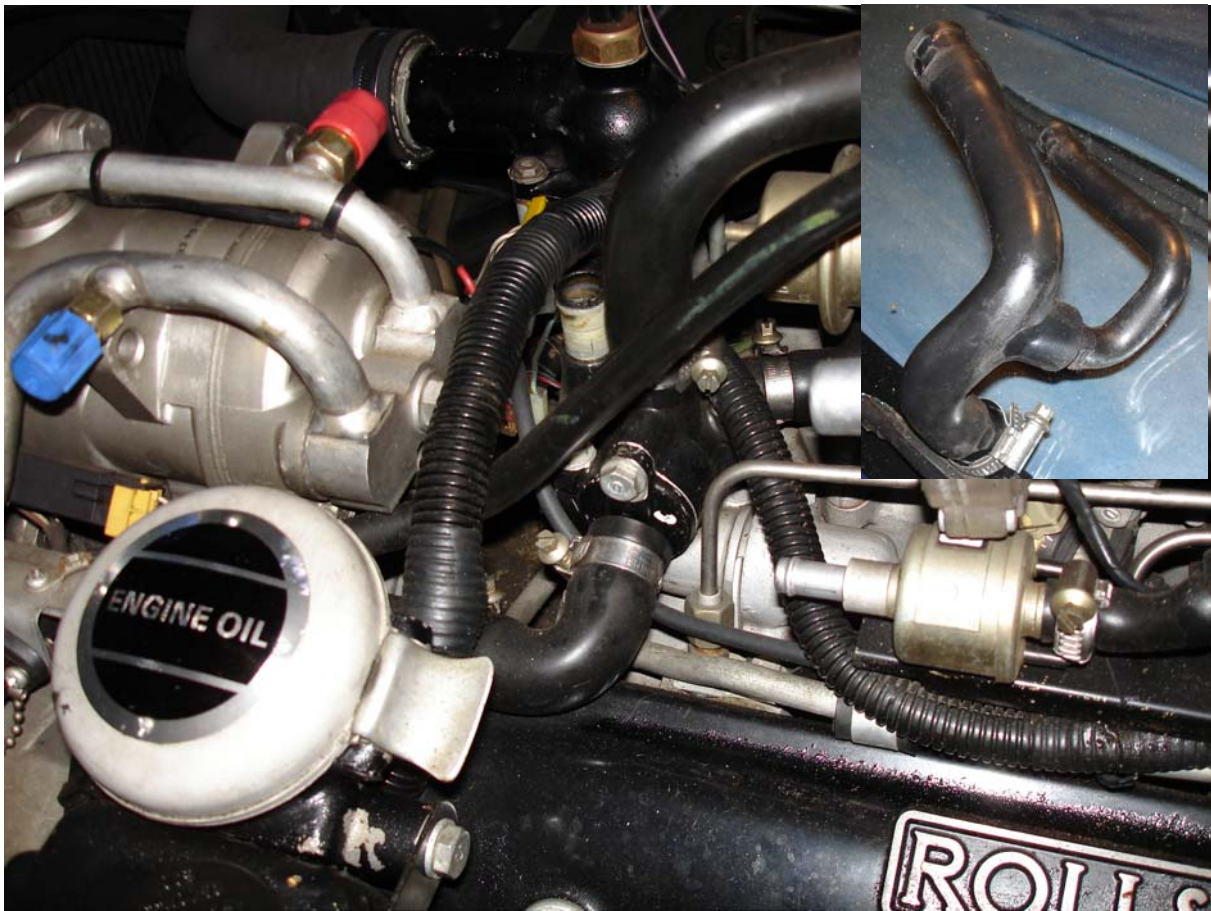
CLEANING THE ENGINE BREATHER ON A FUEL INJECTED CAR



Can you see it? The clue was that maybe they stuck to the idea of the sucker remaining with the oil filler. And sure enough there is a nicely moulded curved pipe coming away from the filler neck under the cap release lever! Follow that back to its end and lo there is a gadget that looks suspiciously like the old housing for the flame trap.

Incidentally you will be wondering what the capped reservoir is below the oil filler. This is where the power steering oil goes since the power steering pump in turn sits under the reservoir as there is no room for it on top of the engine. You will also see why they went for a smaller capacity air conditioning compressor seen in its silver glory in the top left corner of the picture. They simply needed the room. The plug cover with the bath chain on it is the first fitment of the engine maintenance outlet which if you have the right gear you can plug in and tell whether the ash trays are full!!!

Thumbing through the owner's manual of an '87 Silver Spirit I was interested to note a special instruction exhorting the owner to have the flame trap on the engine breather cleaned at regular intervals. For those of you who just came in the engine breather is simply a sucker tube poked in somewhere at the top of the engine and preferably connected to the intake system for the fuel supply so that the fumes from inside the engine are sucked up and burnt in the engine with the fuel.



Well here we have removed the Pterodactyl's intestines (see inset) and the flame trap housing can now be clearly seen. Note the use on this model of the flexible plastic wiring sheaths. They are so practical, easily removed and replaced and don't unravel and collect dirt like the blasted insulation tape from previous years.



They have been around as long as engines. The earliest ones you may recall had some sort of vent on the top of the engine – often a modified oil filler cap – remember the Darth Vader-like gadget on top of the old Holden engines where you put the oil?

And here is the flame trap in its housing. Gone are the neat little rings with mesh, this is simply a bit of pot scrubber jammed in the hole. But it does the job. The housing simply sits on top of the engine block held there by one bolt. The intake has been twisted around to get access.

Down the side of the same engine a pipe emerged and drooped down to slightly below the bottom of the engine sump. The ram air coming through the radiator went straight down the Darth Vader mouth through the engine and blew out the pipe below the sump. Well I am no environmentalist even I blush thinking about that. It was not long before the Holden people jammed a limiting valve into the top of the tappet cover and hooked a hose up from the valve to the intake manifold closing the system to the atmosphere.



The gauze/pot scrubber removed for cleaning. Reassembly is no problem but be mindful that these connections are rubber pipes and become brittle particularly the one mounted onto the oil filler. They would need to be replaced with genuine given the sharp bends involved so check for hardness before you start the job and have the new bits on hand before you start.

With our vee eight engines it did not take too much plumbing to run a pipe from the top of the oil filler to the top of the air intake. But taking a ridiculous set of circumstances, consider an engine that was worn and had been flooded through poor starting. The excess fuel had dribbled down the cylinders past the worn rings and into the sump. Here the heat of the engine vaporised the fuel and at the moment the engine started it back fired through one of the inlet valves, the red hot burning fuel/air mixture flashed back through the air intake and a bit went into the breather pipe, around to the oil filler and down the hole to crankcase which is full of fuel fumes and air and BANG!!!

It has happened. I have seen a four cylinder engine literally split lengthwise after such an explosion! An event I hope you would agree that would be detrimental to the upholstery! The solution has been simple to insert a gauze filter in the line and any nasties that get up that pipe do their thing at that point and leave the rest of the engine alone. But they need to be cleaned. The older the engine the more frequent the need for cleaning.

So I read about all this in the '87 model Spirit Manual! But where is it? No further information seems to be available. Well you were looking at it in the first picture and the others should be a good guide to complete the job.



LINES CURVES SCROLLS AND RINGS

The tradition of coach lines on cars is probably hundreds of years old. In the early part of the last century it was one of the very few ways you could tart your car up since accessories, fancy upholstery and even basic colours were very very limited. Coach lines to a practiced sign writer are a piece of cake as the modern analogy goes but to the likes of yours truly they are a night mare. The solution of course is use tape – the recourse employed by most manufacturers but cads (like me) will quietly finger your coachwork and sigh!

A more recent technique is to spray the lines having masked the area not to be sprayed. This can be done with tape and paper and seems to be very popular with repairers of our cars. But the 'giveaway' here is often the 'perfect' line and if not polished properly can feel like a definite ridge on the paintwork. Rings on hub caps in case you are wondering are a tricky skill. Hand painting from all accounts needs a turntable, a steady hand, the right brush and correct paint. You can also get your friendly sign writer to make you some patterns which are machine made, adhered to the hub cap and sprayed. The Factory actually supply a variety of these – at a price.

There is also the liner which is a paint bottle attached to a special brush which in the right hands apparently does a good job.

Well all this to tell that there is a firm in Sydney that specialises in this very skill

Signs, Lines 'N' Scrolls
Unit 1/ 20 McPherson Road
SMEATON GRANGE 2567

Phone 02 4647 6722



HAVE YOU EVER USED A QUILLEY WINDER?

If you have ever laid back in a Silver Cloud and gazed at the roof lining you should have been looking at one of the World's finest wool worsted cloths. Known generally as West of England Cloth it has probably a 400 year old manufacturing heritage. It comes in various colours and grades and certainly makes the nicest headlining in any car! There is an agent for this wonderful cloth in Sydney,

Classic British and German
1/247 West Street,
CARLTON 2218 NSW
Phone 02 9546 7593

And if you want to learn how to be a quilley winder go to
<http://www.trowbridgemuseum.co.uk/cloth/quilley.html>

WEB SITES YOU SHOULD HAVE ON YOUR COMPUTER

<http://www.rrocavictoria.org.au>

The Victoria Branch of the RROC of Australia

<http://www.rroc.org.au/>

Rolls-Royce Owners' Club of Australia

<http://web.rroc.org/>

Rolls-Royce Owners' Club of America

<http://www.kda132.com/>

A site dedicated immediate post war cars. The owner is a member of the RROC of A.

<http://www.BritishStarters.com>

An American site offering Nippondenso Starters for all Rolls-Royce vee eights.

<http://www.nzrrbc.co.nz/>

Our New Zealand enthusiasts web site

<http://www.rrec.co.uk/>

The British RREC.

barbarawestlake@rrec.org.uk

The address of the lady who will send you the build sheets for your car.

www.enginesaver.com.au

The sensor to warn you about the loss of coolant

<http://www.rachapmanautomotive.com.au/>

Supplier of after market manufactured parts as well as comprehensive service

<http://www.sumidel.com/>

The Australian home for all SU carburettors and parts

<http://www.magnecor.com.au/Default.html>

Thundercords who will make up your high tension leads.

<http://www.vinwire.com.au/>

A family business located in Bellingen NSW who will make up wiring harness for any car.

<http://www.natspring.com.au/>

A firm that will make virtually any spring needed on a car.

<http://www.classicfasteners.com.au/>

A South Australia concern that has a very wide range of fasteners detailed in a very comprehensive on-line catalogue

<http://www.ppc.au.com/>

Permanent Painted Coatings make probably the most durable and heat resistant paints this side of Cape Canaveral.

Should you wish advice or help on any RR or B mechanical matter feel free to write, if I do not have the information I will get it. Or better still share your own experiences and send an account hopefully with pics to me. Bill Coburn Post Office Box 827 FYSHWICK ACT 2609 Australia or spur84@bigpond.com.