

CREWE'D JOTTINGS

Issue 9

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The information contained in this Newsletter may contain technical inaccuracies and typographical errors. The information contains material submitted and created by third parties. We exclude all liability for any illegality arising from or error, omission or inaccuracy in such material" The purpose of these self-help gatherings is to gain a better understanding and a working knowledge of the vehicles in our charge.

It does not nor is it intended to imply that the work carried out on these vehicles will replace the expert knowledge of those that specialise in this field.

Each owner is strongly encouraged to keep his or her motorcar maintained by a qualified professional unless they have a thorough working knowledge of the vehicle themselves.

We have a little bit of a Bumper Issue for you this time as we will enjoy the wisdom of two contributors. Our very own Adrian Hill will extol the virtues of LPG gas conversion in his Silver Shadow (SRH 16633), and from overseas contributor, Clive Lungmuss with his Guide to SZ Distributor Drive Belt Replacement. I thank both of these gentlemen for their contributions and I wish to encourage others to do the same as your input can be of invaluable assistance to others.

Their very interesting pages will follow the report.

OCTOBER 9th. -2006 REPORT

Keeping Things Cool

They say that one should never work with animals or children. I could paraphrase this by saying that one should never organise a day that clashes with a major sporting event. In this case (For Aussie petrol heads-as we are), today clashes with the Bathurst 1000 touring car race. This one especially is it was dedicated to the recent demise of an Australian Icon of motor sport, Peter Brock.

Our day started with Mark's 1979 Camargue.

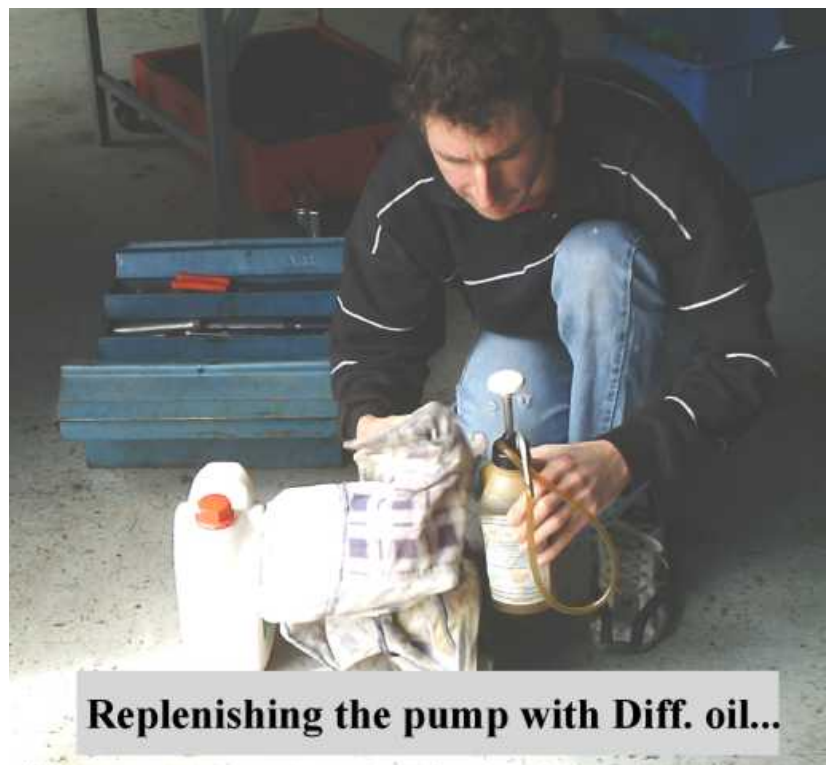
It was time to change the oil in the differential (Or as Crewe would have described it, the Final Drive). We were going to check the breather but we found this extremely difficult to get to and we will await the presence of Nick at a future event before we fiddle about with it.

The rest was a simple an uneventful exercise and we were delighted to see sparkling clean oil with no frothing (always a bad sign) and no bits of metal.

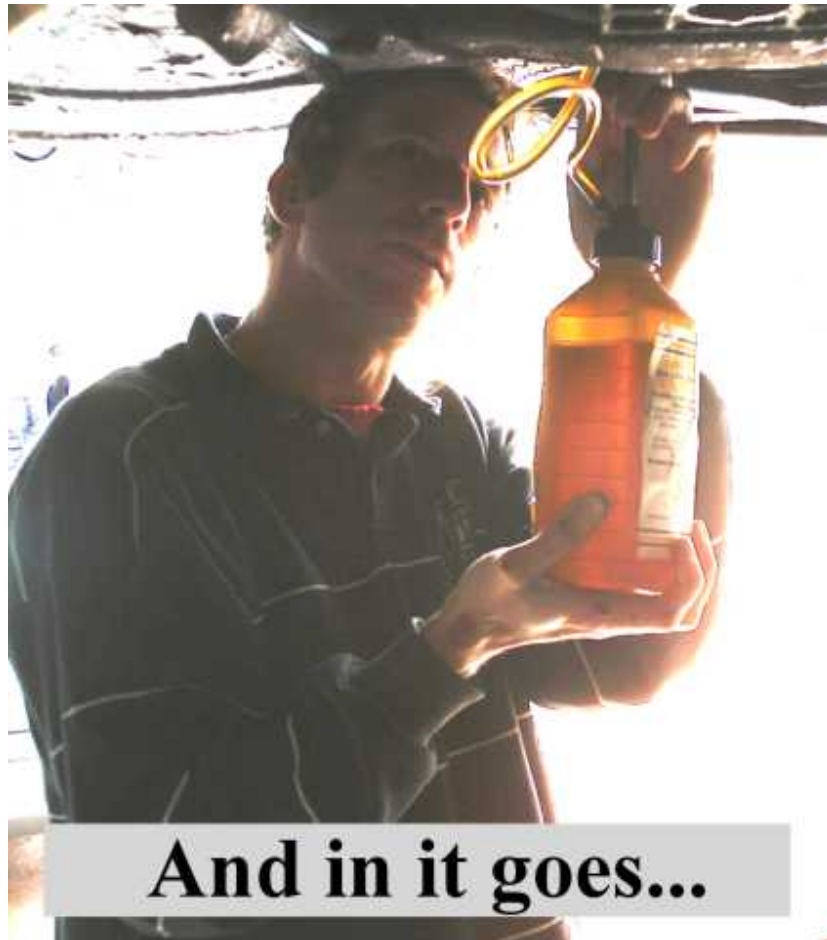


Mark H. Removing the drain plug from the diff. (Oops! Rear Transmission)

It was then just a matter of getting the fresh stuff back in and the pictures will tell the story.



Replenishing the pump with Diff. oil...



Mark then had to drive his Camargue back to his home (About 20Kms.) and return with his Shadow 11 for his next job.

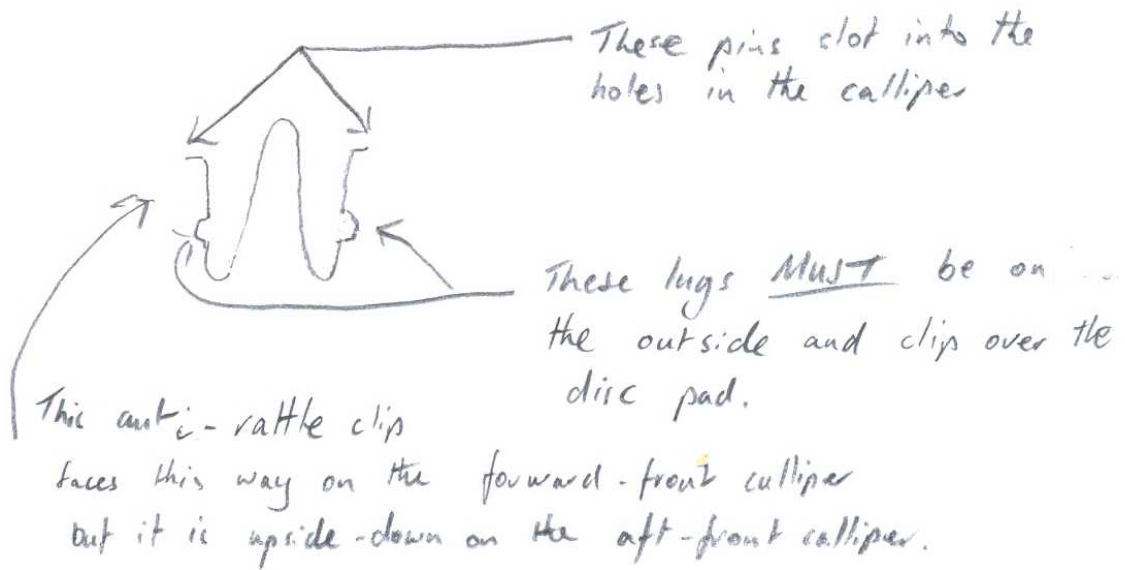
While this was in progress, it was time for my Spur to commandeer the hoist for a brake pad replacement. I knew that they were well due for replacement, but there was enough ‘meat’ on the pads to wait for the next self-help gathering so we could all get stuck into it.

This is basically a simple procedure but, **it is very important to put everything back the way it came off.** For instance, the anti-rattle springs that hold the pads in place will break if put back in the wrong way so please ensure that you take special note of how the parts are placed before you remove anything (See diagram on next page).

Terry F. brought his brake hose clamps along for the job and these proved to be very handy. These clamps block the flow of hydraulic fluid to the callipers so that you can attach a hose and bottle to the bleed nipple. You are then able to open the nipple to release a minimal amount of oil into a bottle, thus facilitating ease in pushing the pistons back for removal of the old pads and replacement of the new ones. It also gives you an excellent indication of whether any sediment has built up in the pistons. In my case, there was none.



The straight part
of the pin goes
in this hole.



These pins slot into the
holes in the calliper

These lugs MUST be on
the outside and clip over the
disc pad.

This anti-rattle clip
faces this way on the forward-front calliper
but it is upside-down on the aft-front calliper.

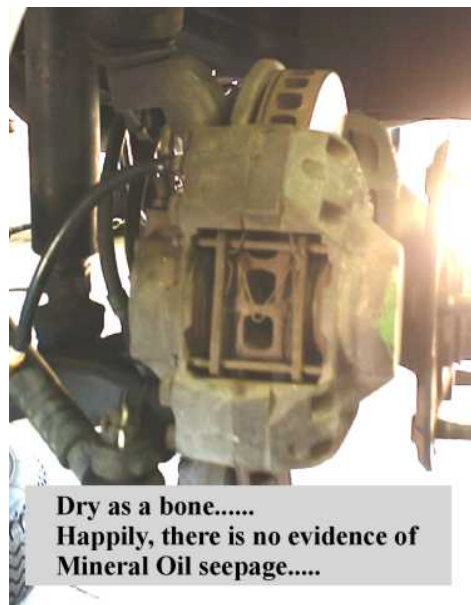
Don't use ordinary clamps however, as these may cause damage to the brake hoses. These ones are rounded and are designed to apply just enough pressure to stop any flow of liquids without crushing the hoses.



**This tool is a Brake Hose Clamp
It is specially designed to close off the flow of brake/hydraulic fluids
and it has rounded clamp ends to avoid damage to the hoses.**



**Yes! They were definitely
due for replacement.**



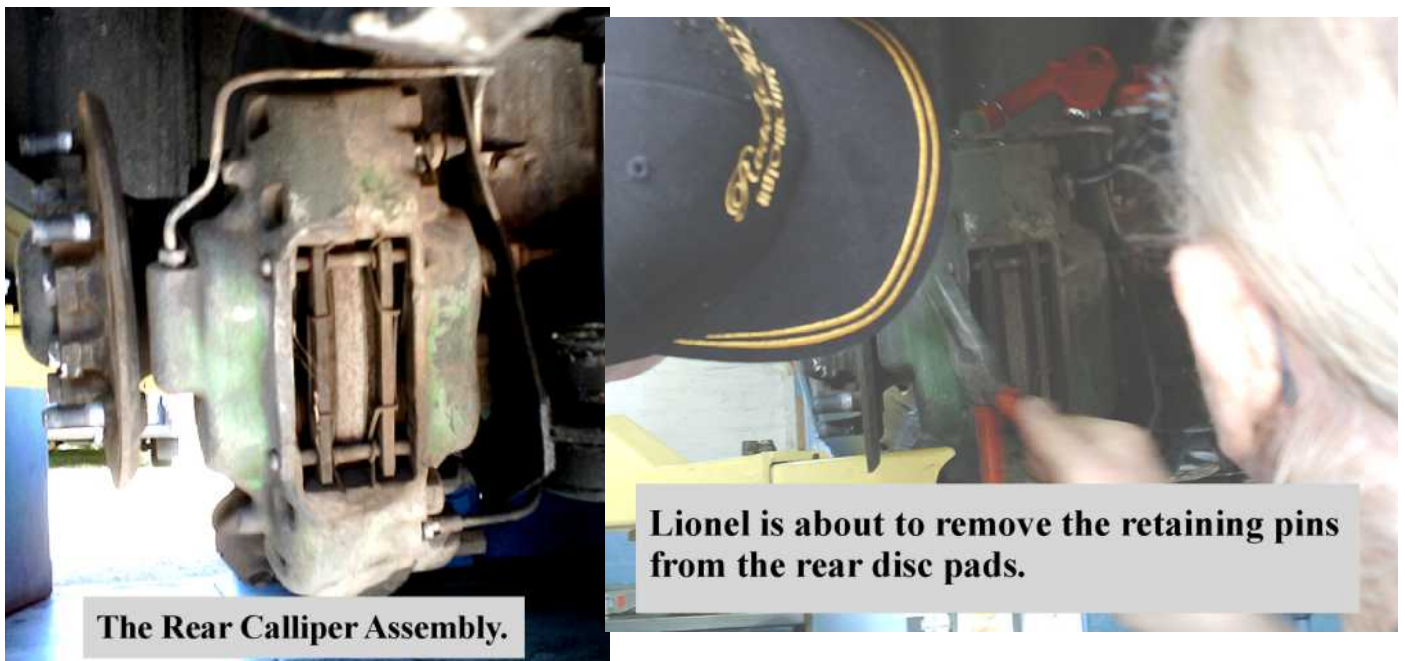
**Dry as a bone.....
Happily, there is no evidence of
Mineral Oil seepage.....**

It is fairly common with systems running on mineral oil to find evidence of seepage around the callipers. This may not be a huge problem but if you do detect it, then it would be prudent to keep a constant check on it. Happily for me, everything was a dry as a bone. Also check the disc rotor for scoring, particularly if the pads were extensively worn. You may need to get them machined or even replaced. Another thing to watch for is rust around the inner part of the rotor. Not a real problem for Australian delivered cars but it can be particularly hazardous to your health if rusting has occurred around the crimped area that joins the two parts of the rotor together. If there is ANY sign of this, ***Get it checked by a specialist immediately.*** I cannot emphasise the importance of this enough as your very life may depend on it. Replacement rotors are expensive but at least they are replaceable, you and your passengers are not.

Pads are not overly expensive and are easily purchased from your dealer. Just for the exercise though, I decided I would see if it was possible to order them from an auto accessories outlet. In this case, my local Autobarn outlet. They had to order them in but I only had to wait for two days and they were very reasonably priced. As I stated, I only did it as an exercise and I would normally buy them from my local dealer, in this case Chapman Automotive (Who by the way sells them for about the same price that I paid for these ones).

Incidentally, when you push the pistons back into the calliper, use the existing pads as a platform. This will ensure that no damage is done to the rubber dust boots that protect the pistons and always check that these boots are in good order before putting in the new pads. If they are ruptured or frayed, replace them. If you don't, road grime and moisture will very quickly caused irreparable damage to your pistons. Again I was lucky and mine were in perfect order.

The rear pads were a little bit fiddlier when putting the anti-rattle springs back, but it also was no major exercise.



There was something that was a little disconcerting however.

I noticed mineral oil extricating itself out of the bottom of the rear suspension strut. Up until now, there were no discernable leaks from this area.

Apparently, this happens frequently when the car is up on a hoist as the struts have been extended beyond their normal operating distances.

Make sure that you thoroughly clean the whole area before you put the car back on Terra Firma, otherwise grit can get past the seals and cause damage.

I was assured that this usually reseals itself when it's back on the ground and driven around a bit. This seems to be the case as I have since checked the area for seepage and none seem to be forthcoming. I'll be keeping a close watch on this just the same. Indeed, it has been suggested that it does the hydraulics some good for the chassis to be jacked periodically to be sure that those unused portions of the struts are exercised.

Once everything was assembled and before we put the wheels back on (and removed the hose clamps), I started up the engine and depressed the brake pedal to seat the pads in. I then let the engine run for a further four minutes and checked the brake reservoirs and topped them up with LHM as necessary. With wheels back on, wheelnuts checked and hubcaps replaced, I checked the brakes as I reversed out to ensure that the car did indeed stop and then gently drove it around the block to properly bed in the pads (No problems). I will, of course need to brake gently over the next few hundred Kms. To let them settle in.

Job done.

Mark and Peter are now ready for their cooling systems to be flushed.

Oh but wait a minute! Peter is also replacing the oil in his Bijur system.

Peter has just returned from a Silver Dawn Mk V1 Register Run (The Dawn Patrol) in Victor Harbour in South Australia and heeded the instructions from a technical seminar regarding the One-shot lubrication system.

The lecturer informed them that, as the originally specified lubricant for the system is no longer available, Barr's Chain and Machine Oil is more than up to the task.

Curious. When I had my six cylinder Cloud, I always used 90 grade diff oil as was specified in my handbook at the time and was readily available.

Anyway, this has apparently been tested and apparently works a treat. If I get more information on this subject, I will include it in the next issue.

Back to the coolant flushing.



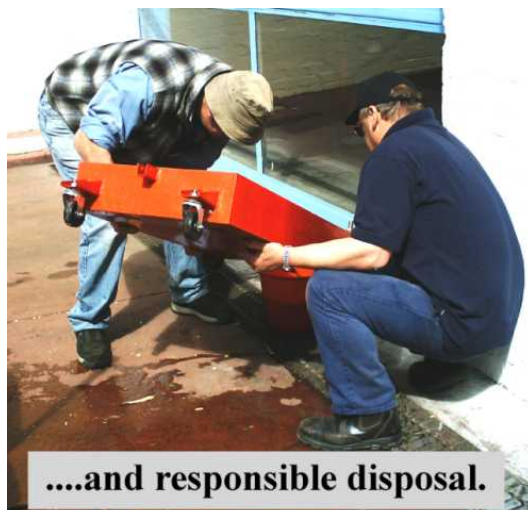
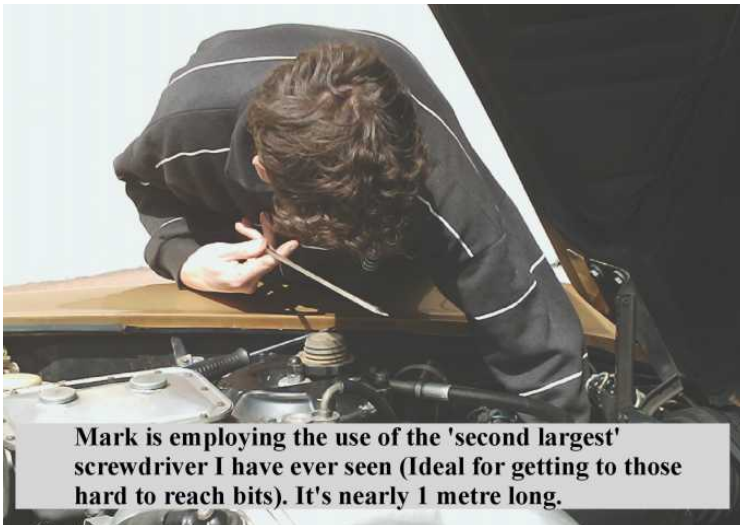
Reverse Flushing the cooling system

Mark is quite adamant that cooling systems should be flushed every two years. This is especially important with the aluminium V8's as the inhibitor tends to lose its effectiveness shortly after this period. Old coolant, or worse still a concentration of glycol which is too low, can actually be corrosive, so it's vital that this exercise be carried out as a normal service procedure. Use a pure concentrate rather than a pre-mix when purchasing anti-freeze/inhibitor and mix it to a true 50/50 glycol/water concentration (It actually recommended this on the container that Mark purchased as well). Note that most premixed coolants have only a 35% concentration, and many concentrated coolants have only a 70% concentration, so a little calculation is required to reach the desired 50/50 result.

Mark disconnected the hoses to the header tank first and back flushed that unit individually.

He then drained the system of old coolant into a specially made receptacle which in turn was drained into a container and disposed of responsibly. Don't put this stuff down the drain. Apart from being environmentally irresponsible, you could attract quite a hefty fine.

Mark did come up to a minor obstacle. He wanted to remove and replace the thermostat (Which should also be replaced during flushing), but one of the studs looked a little dubious. Now you normally need to remove the thermostat to reverse flush the system anyway and he will be doing this next month at our last gathering for the year when he has a suitable tool to replace the stud if necessary. He managed to bypass it for today's exercise however and was pleased to see that there were no nasties that came out with the old fluids. Mark is taking a sample of the old fluid to the lab where he works to get it analysed. This is just out of curiosity to see how effective the old inhibitor was (and other things-see the last page).





Peter thought he'd take advantage of the situation and flush the system on his Mk V1. There were a number of taps that needed undoing and he managed to undo all but one.

Again, we used the coolant catcher and we found the system to be remarkably clean (As it should be if you do it regularly).

The system was flushed and the correct and recommended coolant was added.

To avoid airlocks in the system when refilling, ensure that you have the heater taps turned on; run the engine for a few minutes, then check the coolant level again. Take the car for a short drive and then (after allowing enough time for the engine to cool down sufficiently to safely remove the radiator cap), check the level once more.

I asked Peter if the thermostat was in good working order and he confirmed that it was, adding that his car warms up relatively quickly to operating temperature and it always runs cool, even in midsummer. Just goes to show you how important it is to keep your cooling system well maintained.

With all jobs done, we then proceeded to have a well-earned lunch, which now brings up another subject.

I received a telephone call from a reader, who neither owns a Rolls-Royce (yet), nor is a Club Member (yet). His name is George Sokol. His job is to test prototype barbeques before they are released onto the market. Now George had just finished testing a prototype and instead of scrapping it, as is the usual practice I understand; he offered to donate it to our group. I popped down to see it last week and was, quite frankly stunned. It's not just a barbeque, it's a outdoor cooking centre complete with seven

burners, rotisserie, hood and storage cabinets. All we basically need is to paint the hood and supply a gas bottle (both already organised), Oh! And one more thing; to pick it up. That's been organised too. Our next meeting, an the final one for the year will be next month at Terry F: 's to do some more work on his Shadow, so the new barbeque will be more than ready for next year's first meeting.

Isn't fantastic that there are so many generous people out there willing to just give things like this to help us along? You can be sure that it will be put to good use.

Thank you very much George. Your generosity knows no bounds and it is very much appreciated by us all. In fact, it has generated quite a bit of excitement from all of those that have been informed.



We now come to our Readers' contributions.

Thank you Adrian and Clive for taking the time to put pen to paper for the sake of us all.
(All the usual disclaimers apply)

A Guide to SZ Distributor Drive Belt Replacement

"When did you last replace the drive belt in your distributor" the unwelcome RREC Forum message asked. "What belt is that" I replied suspiciously and with the feeling of an impending disaster was about due.

Known to some owners but not all, all Turbo cars from the 1987 model year 20,000-series with injection and digital ignition have a pair of 4-cylinder distributors in tandem. This applies to all naturally aspirated cars from the 1998 30,000-series too. They are located in a tandem housing in the same place as the conventional ones, and the two rotors are mechanically connected by a rubber notched drive belt, a miniature of an overhead cam drive belt on many other brands. This was news to me!

What's more, a little research revealed service bulletin M 084: it must be changed at 30,000 miles, or (sic) 48,000 Km !

Faced with the prospect that the distributor drive belt in my 1988 Bentley Turbo at 55,000 miles was possibly in urgent need of replacement, I began to look into doing the job myself. Slowly I gathered information and more importantly courage to begin opening up the inner workings of this important area. Initially the information given seemed easy to follow and the time given for the job was 3 hours. Great! A morning job and out in the car by the afternoon, **wrong!**

The first part seemed quite normal, turn the engine over and get top dead centre. I was fortunate to have a socket that fitted the bolt in the centre of the bottom pulley and could just get enough room to fit the appropriate tool to the socket and turn the engine. Now I don't think anyone had ever looked for TDC engraved on the pulley since the car was built. So with a bit of emery paper I cleaned every inch of that pulley to find TDC, time taken till now about 30 minutes.

The next step was to remove the distributor caps and leads. Now up to this point on the information given there had been no mention or use of the word **accessibility**. You cannot reach the distributors from the side of the car as they are at the rear of the engine below the rear brake pump. The only solution was that somehow I had got to get this ageing body on top of the engine area. Scouted round found a suitable box (small steps would be as useful) and old towels to cover where I was going to kneel. By now I realised another 30 minutes had now passed by, never to be retrieved and with only two hours remaining for this job. These old knees were not built for prolonged periods in a static position kneeling on the road spring housing under the bonnet of a Bentley. Therefore you may also wish to consider as I did obtaining or buying some knee protectors as the problem I encountered later made these items a necessity. Also a head torch was a useful device for lighting the area and leaving your hands free if only to assist securing your position.

Before you move to the next stage give the knees a rest, climb or fall off and get some feeling back in the joints.

It is a good idea to label the distributor leads and coil leads this will save time later. If the distributor belt is broken it would be a good idea to mark on the distributor case (belt driven distributor) where the A1 distributor lead is positioned, this should enable you later on to align the rotor arm with the A1 mark on the case when fitting the new belt. Now carefully remove the leads, one of the first problems is that they seem quite attached to the distributor cap and resist strongly, removal. I found that twisting them from side to side loosened their grip on the distributor cap that they seemed so attached to. Resist the temptation to just pull on them, frustration can get the better of you but you do run the risk of separating the cable from its socket.

With the leads removed and tucked away safely you can now look to the Phillips screw heads that hold the distributor caps to the distributor.



Looking down on the direct driven distributor with two leads removed and the two Phillips screw heads can be seen. The belt driven distributor will also have two Phillips screw holding the distributor cap to the distributor body

Phillips Screws

With the appropriate tool loosen them by pushing down slightly and twisting as they are held by springs then the distributor caps can be removed. Now with a drop of white paint or correction fluid mark the centre line position of the two rotor arms on both the covers and on the body of the distributor. This twin marking will become apparent a bit later (If the belt is broken then only mark the centre line of the rotor on the direct driven distributor as you will have already marked the position for A1 on the belt driven distributor case).

For the next step have a socket set easily at hand as you are about to undo the ½ AF bolt that will allow you to release distributor and pull the assembly and shaft from the engine. It is at this point that the 2 hours remaining to complete this job really went of the window for my attempt. The unit did not just pull out! The truth is that after nearly two days I eventually devised a way to release its vice like grip. It is at this stage the knee pads came into use. I placed the curved end of a small crowbar under the distributor and resting the outer edge of the curve on the rear of the engine. Then by gently tapping with a hammer on the other end, the unit gradually lifted up-hooray!! The unit seems to have been held by thick grease that had incredible adhesive properties.



Twin Distributor with rotors still attached

Rotor holding screw

Rotors ½ AF Holding Bolt

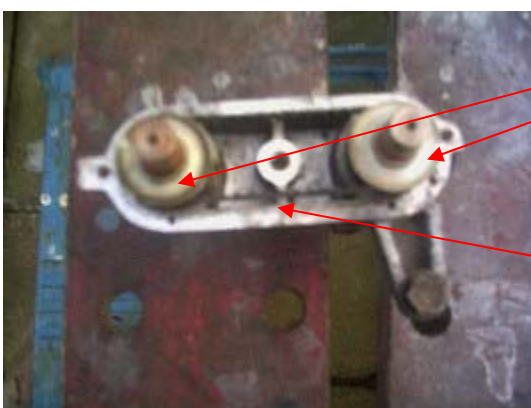
Taking the unit to a safe place prepare for the next stage, I took the precaution of holding the unit in a vice. A selection of Allen keys will be needed and in my case a short length of tube to give an extension and additional leverage. I applied considerable pressure and with an audible crack the Allen nuts on the rotor arms came loose and they can be removed along with the covers. Apply the same brute force to the larger Allen nut in the centre and the pieces separate.



Distributor with Rotors and covers removed

Allen nut holding the two halves of the Distributor together.

Now you will see the belt that is to be replaced.



Metal Covers

Belt

I removed one metal cover by tapping gently from beneath using a screwdriver and small hammer. Taking the new belt and placed it over the two shafts, I then replaced the rotors putting in the small screws and aligned the direct driven rotor with the white mark on the outside of the case. At the same time align the belt driven rotor with its white mark and position the new belt. Remove the rotors and put in position the metal cover. Now replace the top cover and tightened the Allen nut followed by the two covers, rotor arms and retaining screws.

Back on top of the engine with the aid of the small box or steps, positioned the distributor, checking again that all the white position markings align with the rotors then tighten the ½ AF holding bolt.

If you are lucky and replace the various HT leads in the correct sequence (I wasn't!!) remove yourself from the top of the engine and you will be ready to enjoy worry free motoring until you read about something else that requires attention!

Clive Lungmuss
With thanks to Richard Treacey

WHY I DID NOT HESITATE TO CONVERT
MY SILVER SHADOW TO LPG
Adrian Hill

Recently, I was approached by Robert Wort to write an article on LPG., as he knew that I had been using it in both my business and private vehicles for about the last 15 years – and drive around 80,000Km. Per year.

For about 5 years I was discouraged from using this fuel because I had been “Brainwashed” by the usual myths circulated by the ill-informed. Even in a recent talk-back radio show I heard the same old myths being expounded – and believed; Logic alone would dispel most of them.

So let us look at the advantages and the myths and arrive at conclusions based on logic.

LPG Burns our valves.

- Generally only on **some** older vehicles- Check with your competent installer.
- All Proper Motor Cars as far back as Silver Cloud/S1 can be changed over without any problem.

You lose too much power.

- Optimax (The only fuel you should be using in your Proper Motor Car) is a similar Octane Rating to LPG.
- Refer to the ‘Dyno’ printouts on my car and you shall see there is only a difference of a mere 2.2 Kw at 83 k.p.h.

You must use Special oil.

- Why?

LPG is dangerous.**(Apply a simple commonsense exercise here).**

- Only get your vehicle converted by a qualified installer.
- Your LPG tank will usually be about 60 cm., further into most cars than the petrol tank – so which is going to explode first?
- How many Gas or Petrol tanks explode? Consider that filling a spare metal tank in your boot can explode due to unearthed static electricity – this cannot occur with LPG.
- Tank manufacturing technology is very much advanced. They are very strong and I have never heard of one rupturing. If they are installed under the car, they must comply with ground clearance regulations by law.
- Don't smoke when refuelling. This may be hazardous to the complexion.
- LPG tanks are designed to fill to 80% capacity and are also fitted with pressure release valves.

LPG destroys engines.

- The opposite is true.
- I heard this little gem on 3AW recently. How could this be true? LPG only operates in the combustion chamber.

**You must start your car
on petrol before switching
to LPG., to lubricate your valves.**

- Why?
- Taxis run up to 1,500,000 kms., on straight gas between rebuilds.
- Valve stems still receive lubrication through normal oil circulation.

Having dispensed with the myths, let us move on to the advantages to you of running on LPG.

ADVANTAGES

Less engine wear.

- There is no choke to richen the mixture.
- Less oil pollution.
- No fuel wash in cylinders.

Spark plugs

- Spark plug life is greatly increased.

Exhaust systems.

- LPG., greatly increases the life of exhaust systems.

Economy

- Almost identical to petrol.

Power.

- Almost identical to petrol (Refer Dyno print-out on my vehicle).

Valves.

- Valves remain clean – therefore increasing engine efficiency.

Savings.

- Between \$100 - \$110 per full tank (Based on Optimax at \$1.45 per Ltr., and LPG., at \$0.45 per Ltr.)

Healthier for the environment.

- Refer next point below.

Engines run cleaner.

- Especially with cars that are mainly run in the suburbs with stop-start running. Using petrol, carbon builds up:
- Polluting oil.
- Increasing compressions.
- Increasing omissions. My car was producing 260 hydrocarbons at 80 K.p.h., on petrol. On LPG., it produces 25 hydrocarbons.
- Automatic fuel weakening at cruise for those cars not fitted with fuel weakening devices: E.g., Early Silver Shadows, Silver Clouds.

Engine bay.

- If installed properly, there is minimal disruption to the engine bay and access for maintenance.



Look Hard. Can you see anything different?



Another view. Snuggled behind the suspension tower is the converter (Driver's side)

Easier resale.

- It is my belief that in the near future, cars (Especially larger ones), will be more attractive to a purchaser if they are fuelled by LPG.
- Our cars may have trouble meeting future emission control tests for roadworthy certificates.

No need for any Engine modifications.

- Rolls-Royce have been suitable for modification since the Series 1 Silver Cloud.

Smoother running.

- A certain mechanical engineer I know (Just having converted his own Shadow 1 to LPG), thought his engine had cut out at traffic lights and hit the starter motor. Oops, Rob. Your engine will really run so much smoother.

No fuel pumps or filters.

- 2 less reasons for your Proper Motor Car 'Failing to proceed'.
- Less to service and maintain.
- Reduces your conversion cost by \$2,000.

Rebate.

In conclusion, I have now had five vehicles converted to LPG, covering nearly 1,500,000 kms., without incident, saving thousands of dollars, running cleaner engines and with less maintenance.

I seriously encourage you to weigh up the facts and avail yourself of the opportunities that LPG can offer.

Happy motoring,

Adrian Hill.



The Author's car. A 1973 Silver Shadow SRH 16633. You will see how neatly the tank has been incorporated into the boot on page 4 of the last issue...



Chapman Automotive Rolls-Royce Bentley

DynoLog Chassis Dyno Report

6 Havelock Rd
Bayswater, Vic, 3153
Ph: 03 9720 3997
Fax: 03 9720 3844

Test ID: Baseline Test

Customer: **ADRIAN HILL**
Test Date: **17-Aug-2006, 14:50**
Test #: **93** Operator: **N Chapman**
Rego No: **LOJ599**
Engine: **ROLLS-ROYCE SS1**
Capacity: **0.0 cl**
Correction: **No**

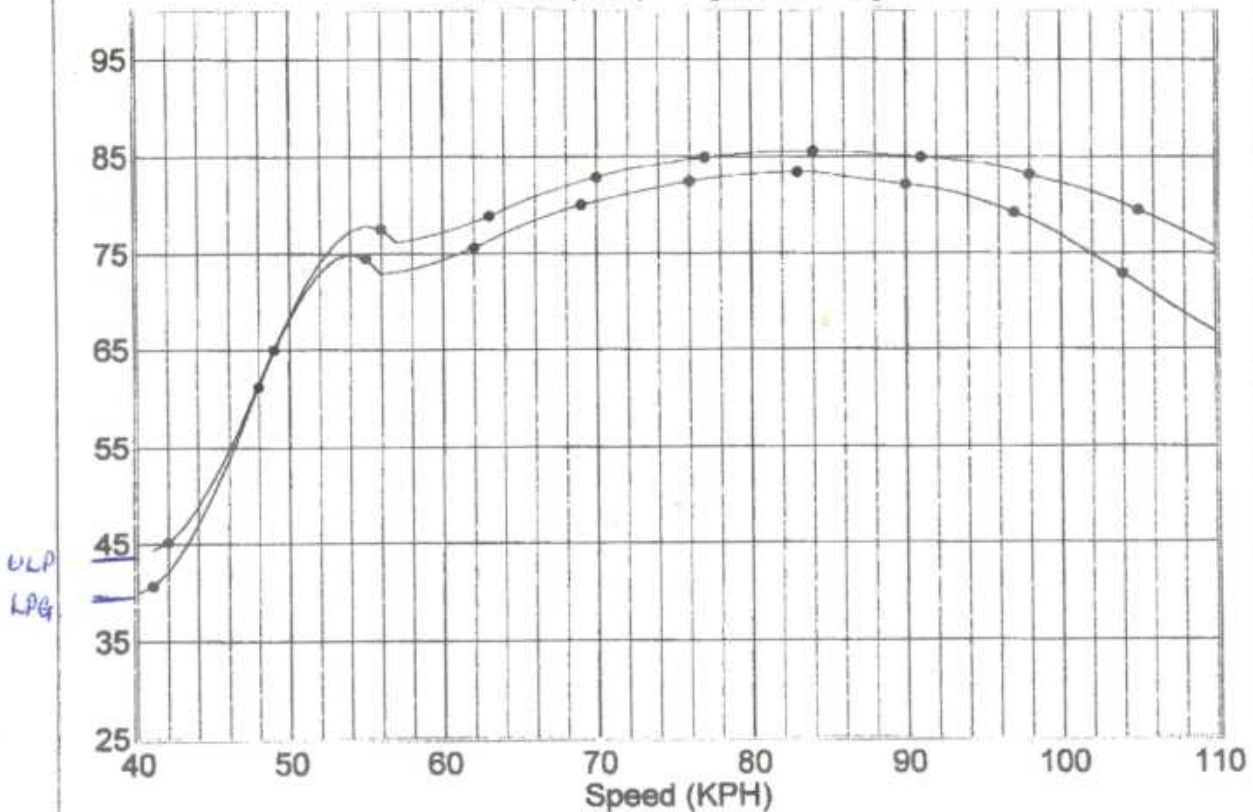
Heads: **STD**
Camshaft: **STD**
Manifolds: **STD**
Induction: **STD SU**
Exhaust: **STD**
Odometer: **0**
Cylinders: **8 (1-2-3-4-5-6-7-8)**
Gear/Ratio: **0**
Fuel: **DUAL FUEL**

Test ID: Baseline Test

Customer: **ADRIAN HILL**
Test Date: **17-Aug-2006, 14:54**
Test #: **94** Operator: **N Chapman**
Rego No: **LOJ599**
Engine: **ROLLS-ROYCE SS1**
Capacity: **0.0 cl**
Correction: **No**

Heads: **STD**
Camshaft: **STD**
Manifolds: **STD**
Induction: **STD SU**
Exhaust: **STD**
Odometer: **0**
Cylinders: **8 (1-2-3-4-5-6-7-8)**
Gear/Ratio: **0**
Fuel: **DUAL FUEL**

Power(KW) [UnCor'd]



ULP
LPG
LPG Max: ■ Torque=550.1N.M @52KPH ● Power=83.4KW @83KPH ▲ Motive Force=1137.2Lb @52KPH
LPG Max: ■ Torque=562.2N.M @53KPH ● Power=85.6KW @83KPH ▲ Motive Force=1162.1Lb @53KPH

Well once again gentlemen, thank you for your submissions. Articles presented by readers' experiences are always welcome. If you have done some of your own self-helping, please share it with us. Likewise, if you have any experiences in alternative fuel sources like Adrian, please share that as well.

As a little footnote to the LPG article and for the benefit of international readers who access Crewe'd Jottings from the website; the Howard Government in Australia, in an effort to curb ever spiralling fuel prices and to encourage eco-friendly fuels, as well as enhance our already record-breaking employment levels, has now subsidised the installation of LPG systems to private vehicles. This is to the tune of \$2,000 to convert existing vehicles and \$1,000 to install on new vehicles.

God I love this country.

Earlier in this issue, I made mention that Mark took a sample of the coolant away for analysing. Well, I have just received the results as I type and I will copy and paste Mark's message below.

Hi Robert,

I just did a quick semiquantative metals scan of the coolant I took out of the Shadow yesterday. My main concern was the water that had been used after the radiator leak on the Darwin trip. I had topped up in Eridunda and Kings Canyon and some of this may have been bore water. Although flushed in Alice Springs it is not always possible to be sure the heater etc. has been fully flushed. The components can be broken down into 1. Coolant components. 2 contaminants in the water you add to the coolant and 3. The things that have dissolved from components in your engine (with luck you don't see too many of these!)

The excel spreadsheet (**Not included owing to technical problems with downloading it here**), shows a check standard at the top expressed in % recovery and duplicate runs of my coolant expressed in parts per million (ppm).

- 1 The coolant components are Boron (B) and Molybdenum (Mo) (About 200 and 3 ppm respectively). Other coolants I have tested also have Potassium (K) and Phosphorus (P).
- 2. The Sodium (Na) level was higher than I would have liked (600ppm) but seems to be common in other used coolants I have tested.
- 3. The dissolved metals from the engine room are low (that's a relief!) Aluminium less than 1ppm Copper (Cu) and Zinc (Zn) low so the radiator appears not be being eaten, Iron (Fe) low. The lead at 1.2-1.5 ppm is probably from the solder used in the radiator repair. The remaining metals in the scan are of no real significance.

'Til next time folks,

Happy and safe motoring.

Robert Wert

***** * *****