TEE ONE TOPICS

(An occasional bit of bumf distributed among owners and others interested in the maintenance and care of Proper Motor Cars)

Number 16 August 2002

Disclaimer

A COASTAL FLING

The penultimate weekend of August saw the ACT population of accessible Silver Spirits take off for Merimbula as guests of the SMART Group. Robin Hickman long time Secretary of the Victorian Branch and Registrar of the Smart Group reconnoitered Merimbula and surroundings to plan a weekend for its members.

In the event the weather was almost perfect, the attendees who came from Queensland New South Wales and Victoria got on very well together, we saw some delightful scenery as well as the Kameruka Estate, ate far too much delicious food and apparently enjoyed a Technical session despite threats from the ladies to boycott it.

My mate Peter and I drove Ken Glover and his sister Anne down in the unique (for the ACT) Silver Spur while Doug Bindon-Howell took a lonely trip in his Mercedes 450SE to Bateman's bay to collect his friend Grace Peleg and his very original Silver Spirit and trundle down to Merimbula. Accommodation at the Black Dolphin was very comfortable, the entire party numbered no more than 38 and by the time we had consumed the four course dinner everybody seemed to know everybody else.

Saturday morning involved a pleasant half hour drive to Kameruka Estate which dates from 1834. We were given an excellent morning tea and then let loose on the estate moving on for lunch at Candelo then to Pambula for a technical session which I volunteered to present. The venue for this activity was a quite amazing workshop and club rooms made available to us by the Sapphire Coast Historical Vehicle Club and their President Allan Johnson..

Before the technical session started however, in true RROC tradition one of the cars whilst not failing to proceed threatened to fail to stop proceeding emptying the entire contents of its number one system brake reservoir. Fortunately it was running on LHM and not RR363 as the latter can be a bit of a hazard to following cars. We couldn't have been made more welcome and indeed our ailing car was quickly hoisted into the air and an errant low pressure return pipe was quickly refitted by resident professional Robert Chapman, the reservoir filled and all was well again. I then got started on my presentation and as people were still awake at the end

Robin managed to have a meeting of the Group to plan the way ahead for future activities. And I should mention yet another nosh of tea and cakes!

Saturday night at a local seafood restaurant fortunately using a bus to get us all there and back for a good night's sleep.

Sunday morning a light breakfast, check out of our rooms and a short drive to the Grange a beautiful old home and a marvelous setting to photograph all the cars. Then as you might have guessed early lunch. What a lunch an absolutely top class smorgasbord. Surviving that we said our farewells and headed for home. An absolutely enjoyable weekend.

NOSTALGIA

The last ever Crewe built Rolls-Royce motor car is nearing completion and is being prepared for its permanent home at the Crewe factory, the acknowledged true home of Rolls-Royce motor cars. The unique, two-door convertible Rolls-Royce Corniche, has a specially designed interior, based on that of the 1907 Rolls-Royce Silver Ghost, which is owned and will continue to be owned by the Crewe factory. The production of the very last Rolls-Royce from Crewe heralds the end of an era, as from midnight on December 31st, 2002 Rolls-Royces will be produced elsewhere by BMW AG.

Displaying the high levels of craftsmanship and attention to detail, for which the Crewe factory is renowned, the interior of the Corniche features specially selected hide, wood veneers and intricate marquetry. The motor car follows a limited run of 45 Rolls-Royce Corniche and 170 Rolls-Royce Silver Seraph last-of-line series models produced at Crewe over the past 12 months.

The Crewe factory, which has been producing the world famous Bentley and Rolls-Royce cars since 1946, is currently benefiting from a £500 million investment in the site and the Bentley marque by its owners Volkswagen AG.

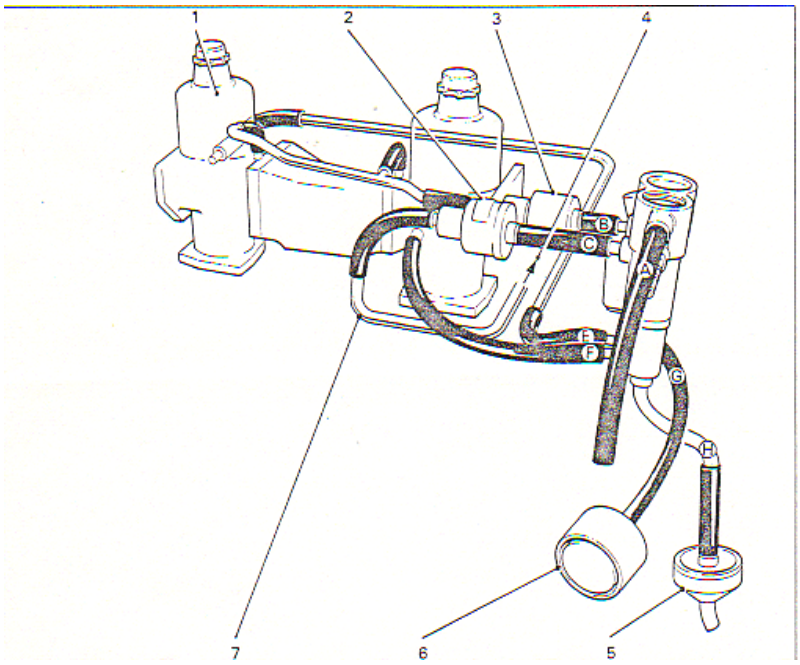
Crewe will continue to be home to Bentley, which is preparing officially to become Bentley Motors on September 16th 2002, and for the launch of its all-new GT coupé design concept at the Paris Motor Show on September 26th.

THOMAS CRAPPER AND ROLLS-ROYCE
(or Failure of the anti-dieseling solenoid valve)

Some would say I was drawing a long bow but a principle which Thomas Crapper employed well over a hundred years ago is employed in a lot of our cars today. But first, who is T.Crapper I hear you ask. The gentleman was as quaintly described in his day, a sanitary engineer. By the time of Queen Victoria a lot of London was sewered, furthermore they used flush toilets! The idea of a cistern of water waiting to be released into the pan to wash away the produce was well developed except that the retention and release of the water was done by a plug which despite their best efforts never sealed properly and you had not one running

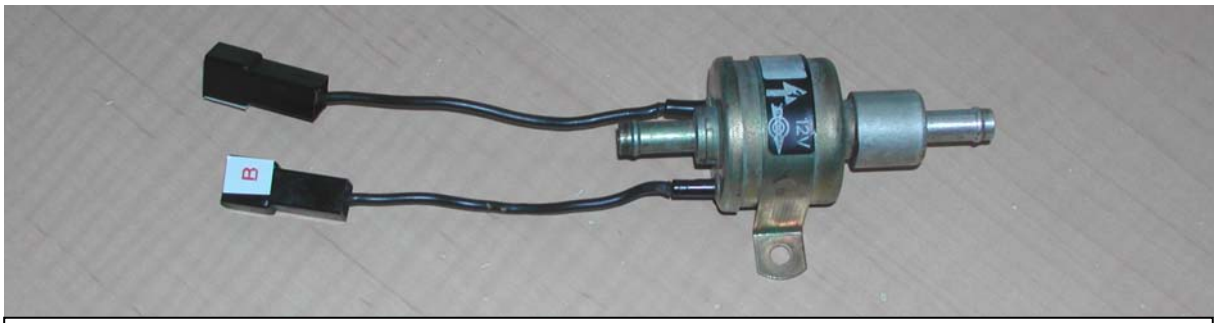
toilet but tens of thousands apparently. The problem was so serious that London's water supply was in serious difficulties.

Along comes young Thomas with the valveless cistern. He simply carried the 'stand pipe' connected to the bottom of the cistern, some inches into the water and placed a bell over it. The air in the bell pushed the water down below the level of the standpipe and no water could escape. When the bell was raised the water followed it, propelled by air pressure , a siphon was formed and the cistern emptied. Thomas Crapper was knighted by Queen Victoria for saving London's water supply.



The schematic on a Silver Spirit. The anti-run-on solenoid valve is labeled number 2 and is the nearest of two similar looking valves to. the front of the engine

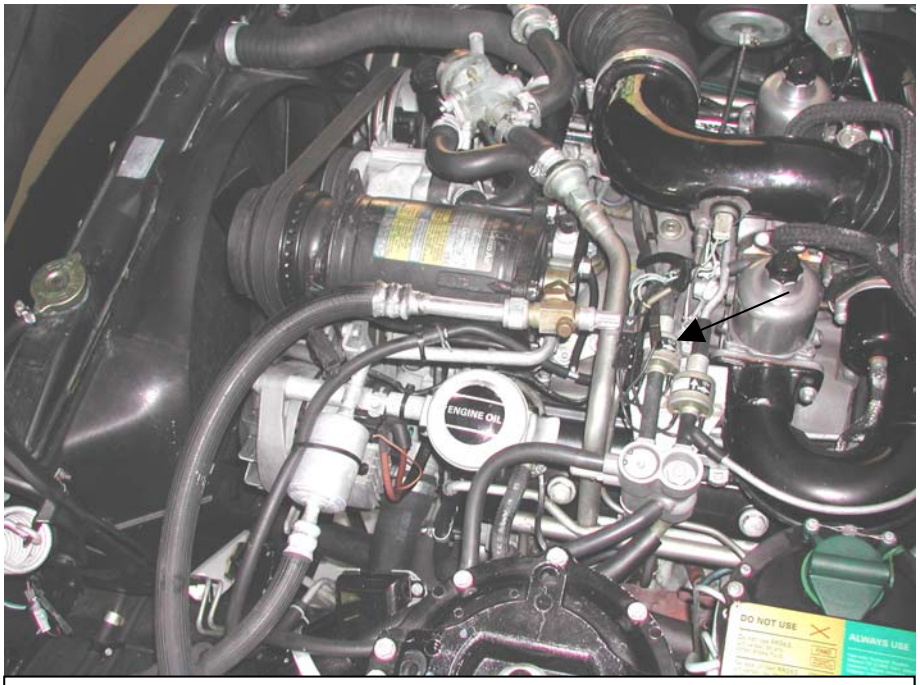
The London water supply connection with Rolls-Royce? The advent of the Silver Shadow with high compression ratios more sophisticated combustion chambers, ambitious valve and ignition timings but still having to suffer low grade petrol brought about a great deal of dieseling. The word diesel comes from Otto Diesel who invented the compression ignition engine. This as you know uses the principal of compressing air until it is red hot then squirting fuel in to explode and produce power. All this is done without the aid of spark plugs. Apart from the plugs and a small matter of compression ratio both engines are similarly constructed . So, you have poor fuel in your tank, a very hot engine and you turn it off. This stops the spark plugs



The valve removed. The one mounted adjacent to it is the mixture weakening valve and whilst similar in appearance actually works in the opposite way The above valve is open with the power OFF the other is open when the power is ON.

sparking but if the pistons are still going up and down the fuel will keep getting sucked in. The hot engine ignites the fuel and the engine, in a fashion, keeps going. We have all heard it, rough, dreadful knocks, shakes etc even to the engine running backwards. If you have a manual car the solution is to slam it into any gear and let the clutch out which stalls the thing.

Rolls-Royce motors are not above dieseling and the Factory hit upon the obvious solution; turn off the fuel. But you can hardly put a tap between the float chamber in the carburetor and the intake valve; certainly not one that will work quickly. And so they used Sir Thomas' idea and effectively turned the sealed float chamber into a bell. These gadgets appear on the later Shadows and Spirits. There is an air inlet to the float chamber which among other things has a solenoid operated valve on it. This is connected to the intake manifold where there is a considerable vacuum. Normally when the engine is running the valve is shut, the fuel flows through the main jet and all is well with the World. (There is another bleed that allows enough air through to function.). The instant you switch the engine off the solenoid opens, the vacuum line sucks the air out of the float chambers and the fuel stays where it is. Clever?



The offending solenoid with the weakening solenoid to the rear of it.

So my friend Doug invites me to start the engine of his very nice Spirit on a cold morning at Merimbula. Starts OK gets to normal high revs then almost dies and recovers. This is repeated a number of times until the engine warms up. Much puzzlement until it is realised that the anti-dieseling valve must be staying open. As soon as the engine got going it would effectively shut off the fuel until it nearly stopped then with no vacuum the thing would recover. Before you start the fan mail and letters of adoration, I didn't work it out, Rob Chapman one of our resident professionals did, but I share it with you in case there is a repeat performance.

The fright occurs here. The genuine part (UE40613) comes off the shelf at $382-45. It is clearly branded Tecalemit a well known manufacturer and as I found out through a good friend happens to be identical in function to the Jaguar non-return fuel valve at $85! Its bracketting and appearance however is different. The decision is yours.

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CANBERRA CARS AT MERIMBULA

Doug Bindon-Howell and Grace Peleg at the Grange

Ken Glover and his Sister Anne with our only Spur

The following is a distillation of a talk I gave at Merimbula during a function organised for the SMART Group. The talk was specifically directed to owners of Silver Spirits and derivatives but most of the content applies to all models. Several members of the audience asked me for a copy of my notes so I have produced the following which may fill the bill and may be of interest to those who weren't there.

KEEPING YOUR SPIRITS UP

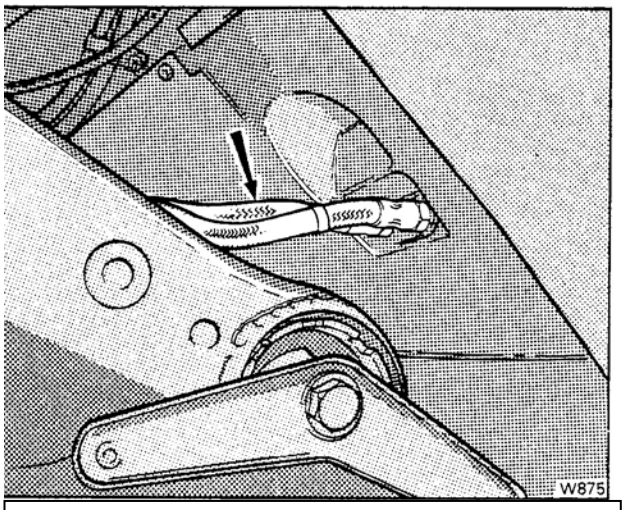
INTRODUCTION

There have been many discussions in the Club as a whole about the need for members to involve themselves in the technical welfare of their cars. Opinions range from vigorous aversion to rabid interest Perhaps if you haven't made up your mind you might like to ponder the following:-

- While most repair centres are reliable and trustworthy, it helps both parties if you have some idea of what the other is talking about particularly when labour estimates and costs have to be considered.

- There is surely a need for basic awareness of any car that you drive. The odd noise, the peculiar motion, the foreign smell; recognition of any of these may not only save you a lot of money, but more importantly save your life and possibly that of the car.

- Service Schedules are drawn up by the factory to protect their product, protect you and protect them in the event of a serious failure and the quest to direct blame for the damage. The Schedules tend to over-insure but this can only be for the benefit of you and the car.



These two hoses lead from the 'rattrap' under the driver's seat to all the pipes reticulating hydraulic pressure to rest of the vehicle. They have been known to burst particularly in cars using mineral oil. A very good reason to follow the Factory recommended replacement interval of 8 years.

- Be careful of avoiding expensive safety precautions such as changing brake hoses. Ignoring softened coolant hoses which subsequently blow at high speed is a passport to the nearest wrecker!

- Given the upheaval of the parent company and the development of new manufacturing sites coupled with the limited market for the new cars, dealers and/or their representatives are few and far between.

- Cars produced to the end of 2002 will be unique. For that reason alone owners have a fairly heavy onus to keep the survivors on the road.

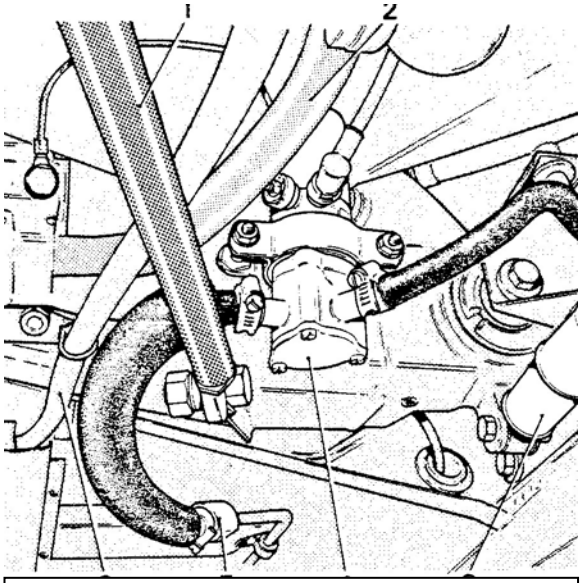
THE FUNDAMENTALS

All cars require four things to keep them functioning; fuel, air, oil, coolant and tyres.

FUEL

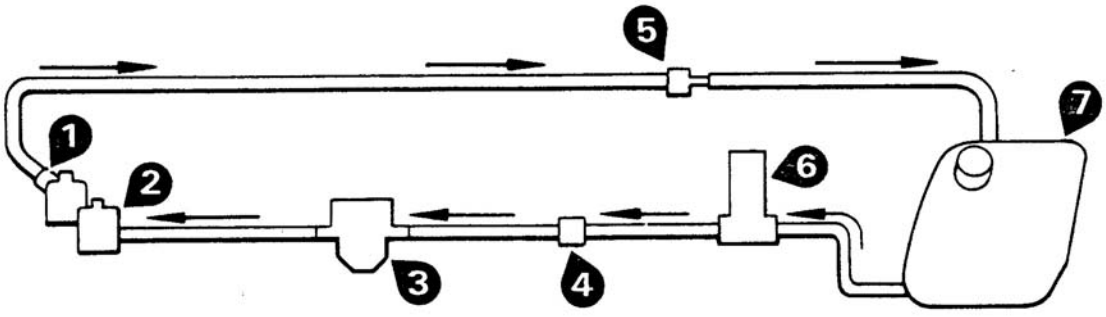
Australian refineries are not over proud of their petrol but given the lack of capital and the aversion of the Australian public to price increases in fuel they do their best. Nevertheless in fuelling your cars the following may be worthy of consideration:-

- All petrol gets contaminated to some extent with water and dirt despite the best efforts of specialists to avoid this.
- Shortly there will be no Lead Replacement Petrol.
- Avoid little used and 'private' pumps where possible.
- Rolls-Royce engines seem to have no difficulty in running on unleaded fuel.



The Pier berg pump

- Filters on Rolls-Royce vehicles are very efficient but they need changing regularly.



1	2	3	4	5	6	7
Recirculation valve Fitted adjacent to 'A' bank carburetter	**Carburetters** Two SU HIF7	**Filter** Mounted on the rear face of the centre crossmember	**Check valve** In the fuel feed line just forward of the rear suspension crossmember	**Non-return valve** Mounted in return fuel line	**Pump** Pierburg mounted vertically on rear suspension crossmember	**Tank** Mounted behind the rear seat

W92

Fuel flow diagram in the Silver Spirit. Continuous circulation minimises the chance of vapour lock.

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- Fuel pumps are too important to ignore, check them frequently for operation particularly the older impulse SU units. The Spirits' Pierburg pumps are very reliable even if noisy.

- Keep a rough check on the consumption by setting your trip meter to zero each time you fill up.

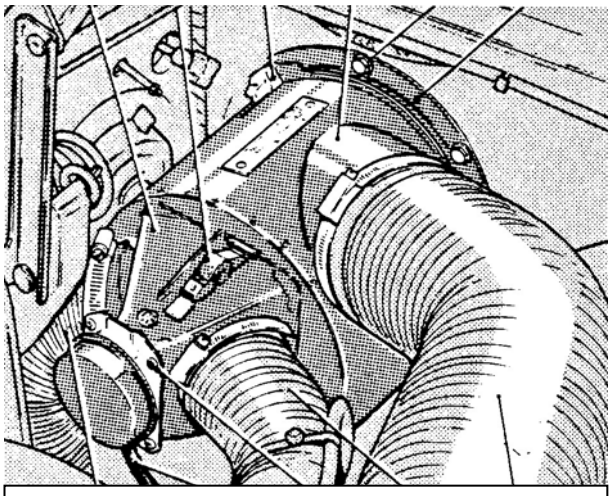
- Use your nose to check for leaks. Petrol fumes at the right concentration can be lethal and very destructive.

AIR

In the 'good old days' air cleaners were often taken off in the belief that they 'inhibited' the performance of the engine. Not only did this leave the engine open to the ravages of dust and grit but as the intake system was designed to have the measured constriction of an air cleaner to achieve the correct mixture, the lack of a filter threw this adjustment out of the window. There is an additional function, the suppression of flame in the event of a backfire.

The owner is well advised to:-

- Ensure that the principal air intake filter is changed as per the service schedule. In the event of a lot of dusty running consider changing the filter more frequently. A clogged filter wastes fuel and inhibits engine performance.



Pay particular attention to the condition of the trunking hose to the carburetor

- Keep an eye on the air trunking from the air cleaner housing to the intake horn on the carburetor intake assembly. These have been known to wear through as a result of vibration and permit dust to get into the engine with very expensive results.

OIL

It is quite subjective as to which cause will destroy an engine quickest lack of coolant or lack of oil. A catastrophic failure of the lubrication system is rare but certainly not unknown. The most common problem is a mechanical failure of the oil pump. For some reason the Factory did not see fit to provide an alarm to warn of oil pressure failure.

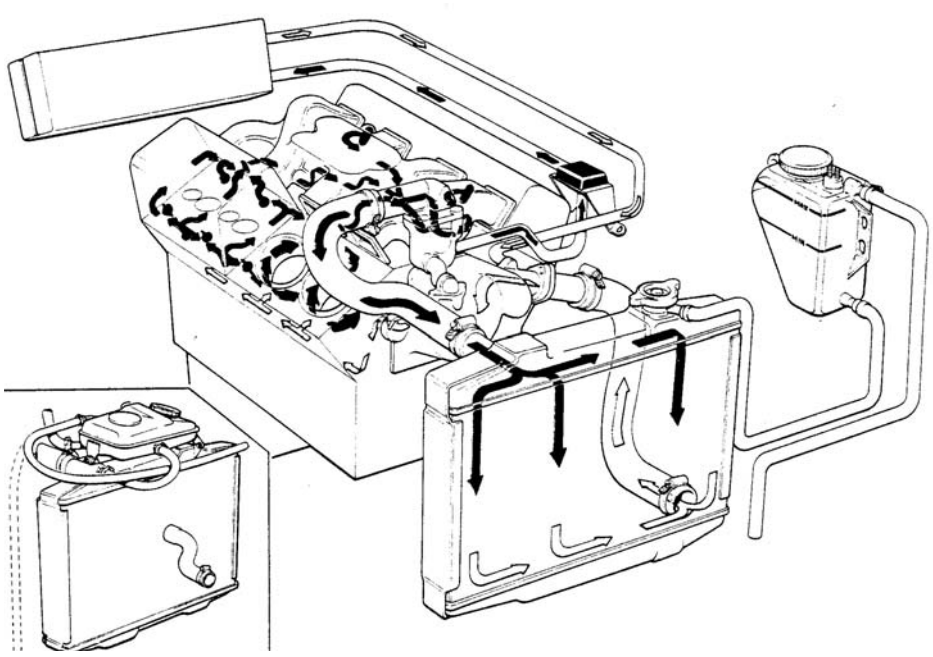
The driver has a few precautions he can observe:-

- Do a rough check of the oil level through the sump unit every time the engine is started and say every 100 kilometres on a journey.

- Always check the oil level with the dip stick when ever the car is refueled.
- Never let the oil level get below the Minimum level.
- Don't overfill the sump.
- Keep an eye on the oil pressure gauge. As the engine warms up the pressure will drop but the driver will get used to the normal position of the needle with a hot engine at road speed. A significant drop from there should be investigated.
- A hot engine idling will exhibit very low pressure and is not a cause for concern as long as the pressure comes up when engine speed increases.
- Remember the oil warning light on the switch box. Ensure that it lights when the ignition is first switched on.
- Always change the engine oil filter when the oil is changed.
- Keep an eye on the garage floor. Investigate new leaks.
- Keep up to date with oil technology. Be wary of dosing the engine with high detergent oils which can bring old engines to their knees.

COOLANT

A Rolls-Royce engine does not take kindly to strange coolant mixtures. The main engine block is fundamentally aluminium which is very susceptible to corrosion. The steel liners used as cylinders also have needs as far as protection from corrosion. Above all the engine must never run out of coolant since sufficient heat in these circumstances can irreparably destroy the entire engine.



- To minimise the risk of a coolant based catastrophe the owner should:-

- Maintain the correct coolant level.

- Never mix antifreeze and inhibitor chemicals. The Factory now produce a coolant concentrate which is reasonably priced and is purposely designed for the vee eight engine.

- Ensure that the top and bottom radiator hoses are changed at least every two years along with the hose on the pressure side of the heater tap. Other hoses should be changed if their age is unknown and subsequently monitored to avoid rupture.

- Coolant must be changed at least every two years, preferably every year just before Winter.

- Monitor the temperature gauge, a low reading usually signals a failed thermostat.

- Periodically test the overheat alarm on the 'A' bank head.

TYRES

All owners usually keep an eye on tread wear. The cars being heavy tend to wear the shoulders of the tyres with hard cornering. The recommended tyres for the car made by AVON seem to wear more quickly than other tyres such as the Japanese Bridgestone.

Owners should:-

- Keep inflation pressures up to factory recommendations or more to maximise tyre wear.

- There should always be a pressure differential of four pounds per square inch between front and back tyres with the higher pressure to the rear.

- Seek advice from specialists on the latest tyre recommendations when tyre changing is indicated.

VISUAL WATCHPOINTS

- Gauges are not for decoration. Understand their purpose and get used to their 'usual' reading.

- The 'electric' gauge is either an ammeter which will show whether the battery is being charged or a voltmeter which tells you the state of charge of the battery.

- The sump level unit is only an approximate measure.

- Avoid letting your fuel tank get below ¼ full.

- Note the usual coolant temperature and never let the needle get above the high side of the gauge, if it does reduce the load on the engine until it cools down.

- Be alert for strange smells particularly burning oil or the rather antiseptic smell of boiling coolant.

NOISES

- Note the noise of the overtemperature alarm. If this ever sounds while driving switch off the engine immediately.

- Listen for changes in ambient noises.

- Tyre disintegration will usually be signaled by noise before failure.

- Excess squealing of tyres on corners usually means you have bashed a curb and thrown the wheel alignment out. Get it fixed before you scrub out your precious tyres.

FEELIES

- Note lumpy or heavy steering and screaming power steering belts when you pull the wheel onto full lock.

- Be aware of a harsh ride which in a Silver Spirit means you have exhausted your gas springs.

- Watch for the transmission changing too late or too early compared with your normal expectations of change points.

UNDERBONNET INSPECTION

- If the dipstick becomes stained, polish it with steel wool to make it easier to read.

- Coolant leaks can usually be smelt.

- Check that belts have only little movement between pulleys.

- Hydraulic reservoirs should be checked when the respective systems are fully pumped up and the engine running.

- Power steering pumps have fussy oil levels. Follow the instructions on the dip stick.

- Washer reservoir/s. Use additives where recommended. Ensure pump/s work well look for semi blocked filters inside tanks.

STARTING UP

- If car is fitted with SU pumps wait until clicking stops after ignition turned on. Always depress accelerator before a cold start to set choke.

- Later cars if left standing for a long time, move gear selector away from either Park or Neutral turn key to start and hold for about ten seconds then move selector to Park or Neutral and start normally. This will prime the carburetors and save the battery.

- While using starter ensure all lights come on in array.

- Ensure oil light goes out shortly after engine starts.

- Alternator light should extinguish when engine is speeded up.

- Brake pressure lights should extinguish in seconds with engine running.

BRAKES

Many owners do not realise that they do not directly move the brake fluid to the wheel cylinders to apply the brake pads as in most production cars.

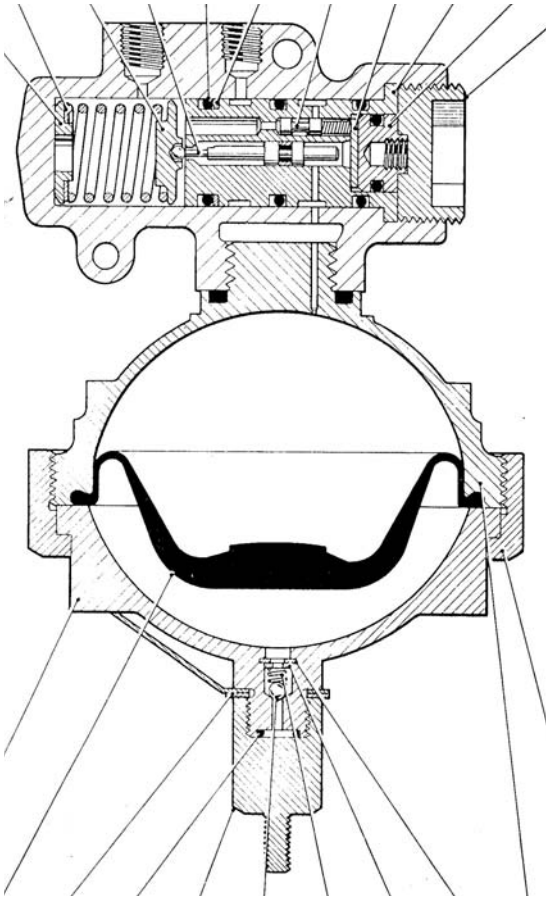
Depressing the brake pedal merely opens a valve and allows fluid stored under considerable pressure in the accumulators to apply the brake pads.

It follows that if the stored fluid is not under pressure there will be no application of the brakes regardless of how much you press the pedal! The two Brake Pressure lights when lit tell you there is not enough pressure to stop the car. Do NOT drive until they are extinguished.

It is advisable to monitor the accumulators and not wait until you find one or both Brake Pressure lights coming on when you apply the brakes.

The accumulators are spheres through the middle of which is a very strong diaphragm. The top side of the accumulator is able to receive hydraulic oil pumped into it through a regulating valve. The lower side of the sphere is charged with some 1000 psi of nitrogen.
As the oil is pumped in at the top of the sphere it pushes the diaphragm down further compressing the nitrogen which cannot escape. Similarly the hydraulic oil in the top of the sphere can only escape when valves allow it. The oil is therefore under very considerable pressure (up to 2600 psi). It is this pressure that applies the brakes and levels the car.
With time the nitrogen escapes and there is less reserve pressure available. It is this condition that should be monitored. This is done as follows:- Chose a time when the car has been

running for some time say when you get home. Stop the car, leaving the engine running apply the parking brake and engage Park. Switch off the engine wait until it stops then turn on the ignition. Pump the brake pedal counting the number of pumps until one then the other Brake Pressure lights come on. Note the number of pumps for each light to come on. This is a measure of the amount of nitrogen left in the respective accumulators. You should get a minimum of 25 pumps for either system. Depending on the car you may get many more which is all the better. Much less and you should seek advice.



This is a diagrammatic view of the accumulator as fitted to the Silver Shadow series of cars. The gadget above the sphere is the control valve that tells the pump when to stop and start charging . The dark membrane is the diaphragm and the area below it is charged with nitrogen through the valve at the bottom. At the bottom you will notice a recess where a non return valve seals in the gas. If the latter is allowed to run out completely the diaphragm is forced onto this hole and eventually a hole is chopped through. The only recovery in these cases is to rebuild the whole unit with among other bits a new diaphragm. Otherwise it is possible to add more gas to the sphere and the unit should function for a further period.

The Silver Spirit using LHM or mineral oil has been able to utilise the accumulators fitted to the Citroen which are sealed and non re-chargeable.

Bentley GT coupé - Supercar performance in a Grand Touring package

Crewe, August 17th 2002…. The brief issued to those who would define the package of the new Bentley GT coupé was one of the most challenging of the entire project.

It is true that today some dedicated supercars are capable of producing performance similar to that of the GT coupé; likewise there is a small number of large coupés capable of carrying four people in comfort. The design specification for the GT coupé was that it must not only house the hardware safely to realise 180mph plus performance - including a 6-litre, twin-turbocharged, 12-cylinder engine - but that it must also carry four people. The design specification of the GT coupé allowed that a family of four and their luggage should be able to cross a continent in comfort, style and luxury.

Of course, it could have been achieved through the simple expedient of making the GT coupé bigger. But the team at Crewe was determined to ensure the car stayed compact, agile and fully capable of delivering on its promise to the driver.

Genuine Two Plus Two

Providing more than adequate space in the rear was an imperative design hard point of the GT coupé. In recent years many effectively two seat sportscars have been brought to market with tiny hollowed out shells behind the front seats, allowing their makers to describe the car as a 'two plus two'. When Bentley refers to the GT coupé as a two plus two, it uses the phrase in its original context which implies a car capable of carrying two adults and two children in comfort for unlimited distances.

Powertrain Packaging

Surprisingly, the first big challenge for the designers of the GT coupé concerned neither passenger nor luggage space. It concerned the installation of its 6-litre, twin-turbo Bentley engine, its all-wheel drive hardware and a new six speed automatic transmission. This job was made especially difficult by the prerequisite that one of the key Bentley styling cues, a very short front overhang, was retained.

Once the problem of creating an effective crash structure in the small area in front of the front wheels had been solved, attention turned to the engine and gearbox. Firstly, the new transmission was modified by moving the differential forward, which allowed the drive shafts to be as far forward as possible, thus enabling the wheels to be close to front of the car.

The second requirement was to package not only a large displacement engine, but also its turbochargers, and to create enough space around the whole for it to operate efficiently, and keep under-bonnet temperatures low.

Casting the engine block in a 'W' rather than a 'V' formation has made the engine much more space efficient than a conventional twelve cylinder motor of similar capacity. The configuration is best understood as two very narrow angle (15deg) V6 engines joined on a common crankshaft. So because the cylinders of each bank are staggered rather than in line, the result is an engine that's shorter and easier to package. And, as we shall see, this not only helped with the packaging of the engine bay, it also liberated more room in the passenger area too.

Cabin Comfort

Turning to the cabin, the next challenge for Bentley's packaging experts was to achieve a low, rakish roofline and still provide a new level of comfort and space for such a car. The opposing interests of space and sportiness were resolved by simple, clear thought and an idea borrowed, of all things, from off-road vehicles.

Off-roaders may have many on-road limitations, but there is much to be learned from the driving position of the best of them. Jim Shaw, head of packaging for the GT coupé, explains: "Ask most people what they like most about their off-roaders and they'll talk about the elevated driving position. However if you apply science to what they are saying it becomes clear that a relatively upright seating position places your lower limbs in harmony. Drive a car a very long way, as we intend this car to be driven, and you'll find the full benefits of comfort and relaxation that have been achieved through this seating concept."

But finding the correct basic seat position for those in the front was only the start. Mindful of the fact that drivers do not all come in the same convenient size, Bentley's packaging team resolved to ensure that the GT coupé fitted a wider range of potential Bentley customers than any other coupé in its history. And job one in this quest was to travel to New York and measure some professional basketball players. This led to exhaustive adjustment and extension of the seat runners until the car was capable of accommodating people for whom supercars could hitherto not even be considered.

Crewe Craftsmanship

Perhaps just as importantly, typical Bentley aficionados will also discover that for all the change the GT coupé has brought, some things remain the same. This may be a 21st century car but it would not be a Bentley unless the cabin had been appointed in wood and leather using skills handed down from generation to generation at Crewe. Using the finest veneers and hides, Bentley's craftsmen have created a cabin ambience that marries modern design and traditional materials with rare harmony.

Where appropriate, state of the art manufacturing techniques have been used to create a thoroughly modern feel - and you'll notice it most in the extraordinary curves and shapes the team has been able to fashion from wood - but the labour-intensive hand finishing that's a hallmark of all Bentley cars is as crucial to the GT coupé as any to have been built at Crewe.

Luggage Space

Because touring requires comfort and space for occupants and commensurate space in the boot, Bentley applied similarly exacting standards to luggage stowage. The first decision to be made was to site the fuel tank in the floor of the car and not, as convention dictates in this class, between the rear seat and the boot. This was not an easy task, given the tank's 90-litre capacity, but it was worth it for not only does this allow an exceptional 355-litre boot volume, but also it permits a through-loading facility. For GT coupé customers, particularly those looking to take advantage of its all-wheel drive traction on winter sports holidays, this facility has vast appeal in allowing two sets of skis as well as two snowboards to be carried and renders redundant unsightly and unsecure roof-racks.

Those looking to house more conventional loads will find space for two large and one medium suitcase - more than enough to cope with a fortnight's holiday - while golf fans will find room for two full sized golf bags with still enough room left over for a suitcase.

"The Bentley GT coupé design brief posed questions that I had hitherto never encountered." said Jim Shaw. "Just how do you fit a 6-litre, twin-turbo engine complete with four-wheel drive system into a car capable of carrying four people and their luggage in comfort, whilst retaining all the classic Bentley styling cues? I believe we have more than succeeded, exceeding even our own expectations, and that we have created the only bona fide supercar capable of being enjoyed by more than two people at any one time."