TEE ONE TOPICS

Number 21 February 2003

FIRING UP

The last half dozen weeks have been fairly busy. Christmas New year over we got ready for the 18th our first self help day of the year, 10 days later Peter and I were off to Taiwan to see my daughter then back here for Wheels a week after that! Taiwan was interesting although I wonder whether I would ever get used to the crowds. No wonder the Asian squats there is almost never anywhere to sit either publically or in shops. Before that however was the 18th our self help day or as we now know it Canberra Fire Day. Fifteen cars turned up including 2 from Sydney. We catered for over 20 people and once again our house looked like a mini version of Jack Barclay's car yard.

One of the attractions was my demonstration of re-charging accumulators but that was quickly dispensed with and everyone got into fixing something. Eric Hart and his wife Betty set off for Canberra the day before in their Shadow II and by the time they reached Canberra there appeared to be a coffe grinder operating at the front of the engine. The NRMA took one look and said it was the power steering and left. George was a bit more careful and located the noise in the viscostatic coupling for the fan. With this off and the pulley back in place, Eric drove the car back to Sydney when in his words it never ran better. For those of you monitoring the RROC of A web site forum http://rroc.org.au/newforum/messages/board-topics.html you will see some exchanges about the use of professional mechanics for our cars. It is relevant to the preceding.

The day got darker and darker until we all lost our nerve and put the cars out in the street. By 3.00 it was certainly too dark to read and everyone left. Twenty minutes later Peter and I were beating flames back beyond our back fence. An experience not to be re-experienced. No one was hurt and no property damage but I now wonder whether we will ever get those Sydney people back here???

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WHEELS GLORIOUS WHEELS!

George reading a certificate for presentation. On the right Stephen Crocker from Wamboin talking to his guest.

The annual gathering of most things automotive in Canberra was held at Rugby Park, Canberra on Sunday 16 February 2003. For those of you who don't live within a reasonable distance of the National Capital I can report that it was a huge success. The weather was overcast,

indeed it even tried to rain to no avail; there was an excellent attendance by a wide variety of Clubs, there were no accidents and the public turned up in droves. Once again we declined to be co-located with the local Branch of the RROC since we felt that our interests are inimical to one and other. The only negative aspect of the meet was that we barely had enough room to fit our 15 cars in the space allotted.

Extreme left Bill Fleming in his cloth cap and George, Warwick Grigg and Lorenzo admiring the local club display.

Last year we went to a fair bit of trouble in preparing a display including videos of the Group's activities, copies of back issues of these notes and various explanatory sheets outlining our interests. The first spanner in the planning works this year was the advice that there would be no power, further, with the space available Peter's Lexus which has carried all the goodies in the past would simply not fit in. As it was, three cars were declined for lack of room which was unfortunate.

The object of the display as we saw it was to let the public have as good a look at the cars as possible and provide as much information as practical. To this end George Shores hoisted the front of his Shadow II up on stands, put down some very comfortable mats on the grass and took quite a few startled members of the public for a guided tour of the front end workings of the car. In addition most cars were plastered with information sheets on the models which was a bonus judging by how many members of the public spent a long time in our midst reading the detail.

We were delighted to receive three new 'members' to the Group, Stephen Crocker and his family from Wamboin, who fronted up with a very early Shadow in very nice condition, Lorenzo Pastrello from Canberra driving a Shadow II and Harry Atkins again with a very early Shadow from Goulburn. In addition Martyn Stafford-Bell donated his Silver Cloud III, Ian Sykes his Silver Cloud II, Sid Drury his Silver Shadow and Eric Goudie the only Bentley a series 2. These cars were much appreciated as they gave the public a much better idea of the range of the cars in the city.

There was much cooking and munching and the soft drinks went down fairly quickly and overall the 30 odd people who attended thoroughly enjoyed themselves.

And as George saw it!

What a fine way to spend Sunday. A fantastic and eclectic collection of cars, a veritable horde of car enthusiasts, a great venue and a mild day. The Tee One group's involvement began at about 7.30 am when Laraine and I arrived with the concertina tent and some of the furniture. We

claimed a relatively large area (which later proved to be entirely inadequate) and were soon joined by Peter Smith who immediately went to work at the entry point, greeting incoming members with directions and a mandatory drip tray.

Wayne and Greg and Gavin and Peter and Bill and Bill and Lorenzo and Harry and Graham and Stephen and Bridget and Warwick and Neil and, and..... Dang these ever more frequent

The centre of eating

senior's moments, my sincere apologies to those I forgot to list. I blame it on "old timer's disease". Enough of the roll call, we all had a quick breakfast of omelettes cooked on the famous one burner hotplate and got stuck into enthusing. New members Stephen (1967 Silver Shadow) and Harry (one of those too) and Lorenzo (Silver Shadow II) all slipped into the saddle with ease.Congratulations to all of the old hands for making them welcome.

One of the greatest pleasures I get from this group is to see the established members pointing out the intricacies of a particular system to the fresher members. It serves us well to remember how

The Club seemingly had more than enough room for its display

Wayne *W*ardman regaling a friend with Rolls talk ably supported by Warwick Grigg. To the rear in the shorts, Garry Skorgie from Yass on this occasion driving a very nice Wolseley SixEighty

we felt when we first purchased our cars and it appears that our group does that very well. Each of the new members cars has the potential to be much better with the attention we can lavish on it. By all accounts, they have the motivation so now it is up to us to show them how good it feels to drive a car set up right, by the owner for the owner.

We simply could not fit any more in! Martyn Stafford-Bell's Cloud II as usual stole the show

Interestingly, when I first joined the ACT branch of the RROC Australia club, I had an ambitious desire to play a significant part in the improvement of our local cars to the point that we would be recognised as a branch serious about our responsibility to the memory of the great Frederick Henry Royce. I listened to those who professed reverence for the "great man" and could spout a veritable fountain of facts and figures on the history of the "Company" and those who served it with distinction. That was all very well, however, if F.H. Royce could now see some of the sorry examples that bear his name, I am certain that he would recoil in horror.

I believe that each owner has the obligation to present his/her particular piece of mechanical history to the world at large in the best possible light. I was amazed and disappointed (and still am) to realise that some owners do not wish to improve their own cars ***at no other cost than parts and participation.*** I must be missing the point. What is the meaning of it all? Does the badge and mascot say it all? Or should we bear some of the responsibility to maintain the legendary Rolls-Royce reputation. I think we should. I think we will!

Enough of the emotional side of things. Back to the day. We settled in and took advantage of what was on offer. Peter Smith and I took a wander through the many marques and saw that most of the car clubs were well supported by owners who took special pains to show their treasures off to best advantage. More power to them, I say. We also sat back and enjoyed people having a good look at our own cars. Some of the positive comments I overheard were:

“Look, they have info sheets about the cars on the windows and they're all different."
A feather in the caps for Peter and Bill. Great idea boys.

"It's nice to see the underside of these cars without getting grass stains."
And the most gratifying of them all, Beautiful cars, but why are they so close together?" *Next year, we'll ask for much more space.*

Peter, Bill and Gavin supplied not only lunch, but the means to cook it as well. There must be provision for sausage sangers in the great menu in the sky, because the ones we had were... what else... Heavenly. The weather deteriorated and we all decided that discretion being the better part of valour, the time had come to pack up and leave. As I mentioned at the start, a great day.

See you at the next working bee.

CREDIT WHERE CREDIT IS DUE

Show me a successful group such as the Tee One people and I’ll find among them some unsung heros who keep the scheme ticking over. And so we took the opportunity to embarrass four of our Group, pointing out their efforts publically and hopefully to display our gratitude.

The bulk of lunch having been consumed George grabbed each of these people in turn and presented them with a certificate to the effect;

Bill Fleming

For cheerful and generous assistance during our Technical Sessions.
Willing hands are a great asset to our group
and
your example is an inspiration to all true enthusiasts.

Greg Whellum

For demonstrated excellence in technical aspects
of
preventative and corrective maintenance
and

for the many times your guidance, advice and practical help
have encouraged fellow enthusiasts.

Peter Smith

for always being available whenever a helping hand is required.
Your attitude epitomises the ethos to which the Tee One group aspires
and
the members recognise and acknowledge those qualities.

Wayne Wardman

for unstinting assistance
to fellow enthusiasts in matters technical
and
for the recording of many of our endeavours.

Congratulations to all of you from all of us.

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TOPPING UP THE ACCUMULATORS

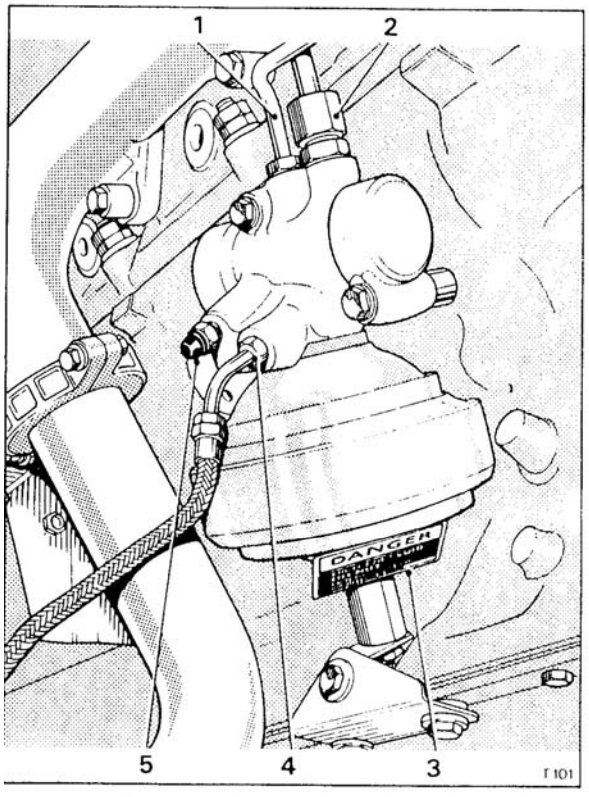

Fig. G10 Front hydraulic accumulator
1 Low pressure return to reservoir
2 High pressure inlet from pump
3 Warning plate
4 High pressure outlet to upper distribution valve
5 Bleed screw

For the record this is a reproduction of a handout passed to those attending the self help day on 18 January 2003.

General

We all know that the Factory used features of the Citröen hydraulic system in building the Silver Shadow. The principal difference is

The advent of the Silver Shadow II resulted in the accumulators being relocated one each side of the engine. The difficulty of re-charging the right one shown here is gaining access to the charging valve at the base, Unbolting the whole assembly from the engine block and swinging it away does not appear to overcome this problem.

that the Factory used springs and did not rely on hydraulic pressure to keep the car off the ground (everyone will have seen a beautiful Citröen Goddess lying on the asphalt). Common hydraulic braking systems apply brake linings to drums or rotors by pushing oil along little pipes with the aid of a simple piston, in turn pushed by the brake pedal. The harder you push that pedal the more pressure is applied to the drums or rotors and the quicker they stop.

The system used on the Shadow accumulates and stores oil under pressure. To apply these brakes involves simply opening a 'tap' through the medium of the brake pedal and letting the accumulated oil under pressure, pass into the brake lines to move the brake linings to the rotors. Releasing the brake pedal switches off the 'tap' and allows the oil to return to the reservoirs. Today we are going to talk about the accumulators where the oil is forced in under pressure and stored for later use.

The System

For our purposes there are four basic assemblies that we need concern ourselves with.

- The hydraulic pumps
- The control valves
- The accumulators
- The brake actuators

(For the moment we will ignore the levelling system)

The Pumps

These are simply slender rods sliding in cylinders. There are no seals, the clearances between the piston and cylinder are so small, little oil can escape between them. The pump actually sits in an external bath of

oil that fills by gravity from the reservoir. On top of the pump is a valve that allows the oil to be forced out but stops it returning. The pumps are driven by separate cams on the camshaft. Riding on these are hardened cups in which there are waisted pushrods. The waist is a safety feature; if the regulators on the accumulators fail to cut out the oil being pumped into them the waist will shatter and pumping will stop.

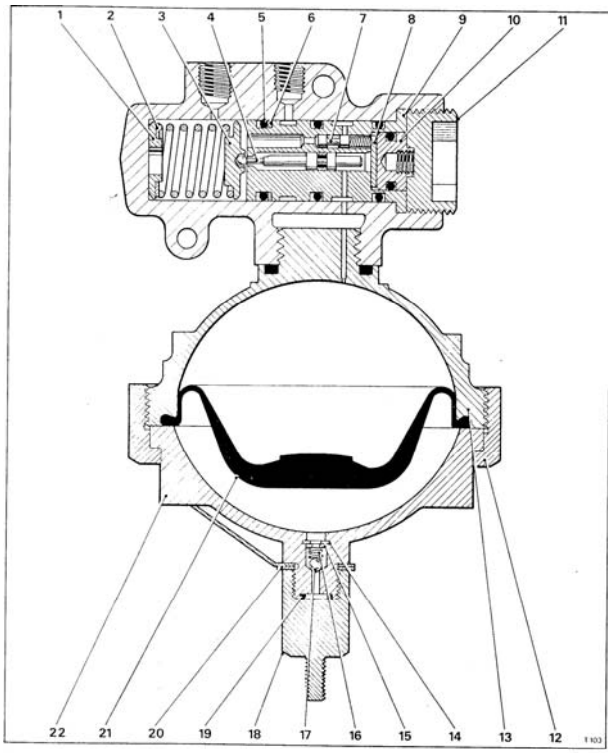

Fig. G12 Hydraulic accumulator

1 Seating washer
2 Adjusting washer(s)
3 Regulator valve
4 Piston and sealing ring
5 Bobbin sealing rings
6 Fluon washer
7 Non-return valve
8 Sealing disc
9 Valve bobbin
10 Valve sealing plug
11 End plug
12 Clamping ring
13 Sphere upper half
14 Circlip
15 Washer
16 Spring
17 Ball
18 Charging valve cap
19 Sealing ring
20 Washer and warning plate
21 Diaphragm
22 Sphere lower half

The Control Valves

These bolt onto the side of the engine and are basically a complex valve that allows oil under pressure to pass though them to the accumulators and prevent that pressure from escaping other than through the brake actuators. Primarily they control the pressure in the accumulators. The accumulators are screwed into the control valves. When the accumulators

are full the control valves allow the output from the pump to return to the reservoir. The pressures being handled here are of the order of 2,500 lbs/sq/in.

The Brake Actuators

These are the 'taps' referred to previously. The spin merchants promote the name 'rat trap' to describe this fascinating mechanism. Located under the driver the assembly consists of two valves, one for each braking system, a device for reducing the pressure to the back wheels to minimise rear wheel skidding under heavy braking, a switch to operate the stop lights and in cars made in 1975 and earlier, a small master cylinder to give the driver some feel to the pedal.

The Accumulators

These consist of two hemispheres held together by a screwed ring. Sandwiched between them is a very thick flexible diaphragm. The top of the accumulator screws into the control valve and receives the oil through a port. The bottom of the accumulator has a charging point with a non return valve that allows nitrogen to be forced into the lower half of the vessel.

Nitrogen is passed into the accumulator upon initial assembly forcing the diaphram to the top of the sphere. The pressure installed is 1000 psi. It is this pressure that applies your brakes. As the oil is pumped in the diaphragm is forced down and the nitrogen further compressed. When the maximum operating pressure approximately 2,600 psi is reached the regulator cuts off the oil input and the charged sphere waits until there is a demand for the application of brakes or the extention of the rams to lift the rear of the car.

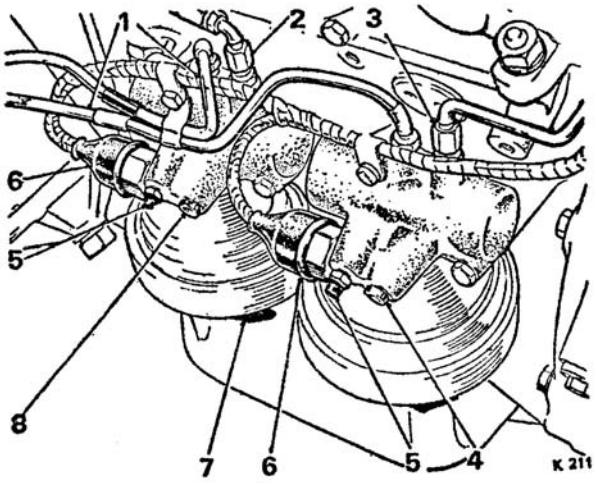

FIG. G12 HYDRAULIC ACCUMULATORS IN POSITION

1 Return pipes to reservoir
2 Inlet from front pump
3 Inlet from rear pump
4 Outlet to distribution valve
5 Bleed screw
6 Warning lamp (pressure) switch
7 Warning plate
8 Outlet to distribution valve and height control

This is the setup for pre-Shadow II's with both accumulators on the left hand rear side of the engine. Access for re-charging is reasonable although the rear unit can be a bit close!

Maintenance

Apart from checking that the brake light switches are working and changing the oil regularly, no other maintenance is required. The failure of the units is invariably the depletion of the nitrogen charge. This presumably leaks out through and around the diaphragm. The indicator is the number of pumps you can subject a fully pumped up accumulator to stand before the brake

warning lights come on. In the worst case the light/s will come on while you are driving and applying the brakes. At this stage the nitrogen will be completely exhausted and the only pressure the brakes can receive is that direct from the pumps. If the engine should stall you will have no way of stopping!

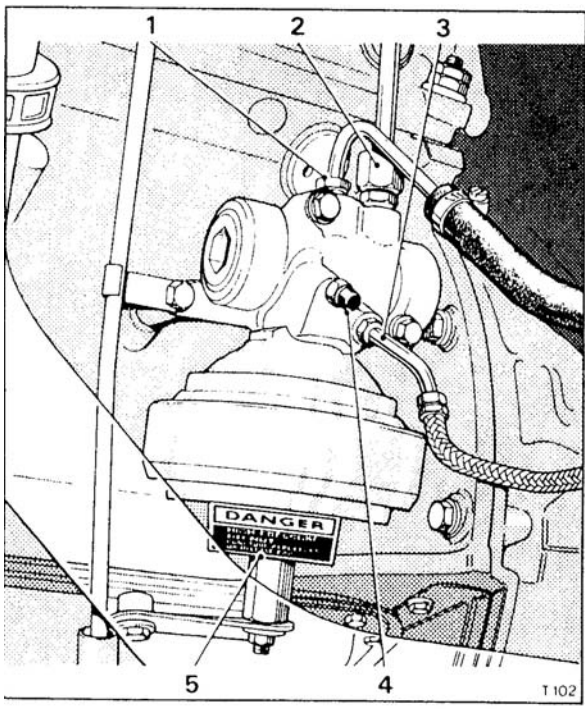

Fig. G11 Rear hydraulic accumulator
1 Low pressure return to reservoir
2 High pressure inlet from pump
3 High pressure outlet to lower distribution valve and levelling valves
4 Bleed screw
5 Warning plate

With no nitrogen present the pumps forcing oil into the accumulators push the diaphragm hard into the charging point hole which has sharp edges. The result is a punctured diaphragm. At this stage there is only one recourse, remove the units and completely overhaul them.

The left hand accumulator on the Shadow II

Recharging

If the control valves and the rest of the system appear to be functioning correctly and the spheres still retain some nitrogen pressure it may be possible to recharge them. It is emphasised that this is a suggested remedy and is offered without any guarantee. It requires special equipment that needs to be bought or borrowed. As far as is known no dealer or repair shop uses this technique and it is certainly not recommended by the Factory. The procedure however is followed by many Citröen enthusiasts on their cars. Basically the procedure involves raising the car to a working height, completely exhausting the accumulators, removing the caps on the re-charging points, removing the plastic sealing balls, screwing on the supply hose and using a high pressure gas regulator and cylinder of nitrogen to gradually admit nitrogen to the accumulator. When the 1000 psi registers, the gas is turned off the supply pipe unscrewed, a new plastic sealing ball inserted and the cap replaced. The last actions need to be done swiftly as the non return valve retaining the gas in the sphere is a steel ball in a steel seat and the seal is not very effective hence the plastic sealing ball.

All this is by way of an interest event. Please do not charge into your garage man and ask him to re-charge your accumulators as he will politely decline.

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MONEY (Or lack thereof)

The 18th of January this year at our self help group saw a mob of determined people insist on my recovering some of my expenses in producing these pages. For those that came in late, the Tee One Topics were initally thrown together to keep a record of lessons learnt during the self help sessions of our little group. The ‘parent body’ then made it quite clear that our efforts were not wanted and that there was little or no interest in matters technical in the Club. I was determined

that this was not the case and set about producing these notes which are now mailed to nearly seventy owners and enthusiasts around the country. This issue will nudge the 300th page and I am, with the help of Malcolm Yell compiling an index that will help you find the reference to repairing the hinge lid in a Park Ward cocktail cabinet fitted to a Phantom IV!

The cost including toner, paper and postage has been of the order of $70 an issue which I have been happy to donate but it seems now that I am not allowed to and that the 'Topics' are required to continue. To that end, this renegade group decided on an annual subscription rate of $20 based on a calendar year. I can then add to the offer, a CD holding all the issues to date for $10 and you can print your own copies as you wish.

Canberra 'member' Neil Garvey has been co-opted as Treasurer so if you wish to partake of this extraordinary offer send your money to him.

Neil Garvey
1 Culgoa Circuit
O'MALLEY 2906

A few of you have given me money as a donation which I have spent on the drink! I will try to remember you all and make the appropriate mark on the list. And of course the members of the 'group' were carefully listed and given credit for their payments.

Another reason I have avoided this is that it formalises an ad hoc arrangement. I have freed myself of a bureaucratic indulgence and am watching carefully that I don't get caught up in another. Anyway over to you!!!

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KEEPING THAT AIR FLOWING

The 'S' series cars made a brave attempt to upgrade their air conditioning and started the now popular concept of upper and lower system control. In the 'S' series there is a separate blower and ducting system carried under the car on the right hand side between the chassis and the door sill. The whole assembly is protected by a cover, initally in fibreglass and later by steel.

Air is sucked in at floor level under the driver's seat passed through the under wing unit and blown out from a manifold that runs across the car under the dashboard and against the firewall. Sorting out the blower motor in the under-floor ducting I noticed that the intake under and to the right of the right hand seat appeared to have a lot of dirt and grit on it. Unfortunately the filter cannot be removed easily with the seat in place so the latter had to come out.

A dividend here. Given that it is the most used bit of furniture in the car I discovered half the various bolts in the unit were a bit loose to very loose. The top picture shows the hole in the floor and the inside of the under-floor duct and the other pic the cover and filter for the intake. It cleaned up perfectly with compressed air. The other problem that can occur is the interior of the underwing unit comes adrift and blocks off the air flow. The two speed fan gets up a good puff, it needs to be checked from time to time. It runs in a housing with about two thou clearance hence it takes little to jam the fan and burn out the motor. For this reason ensure that the fabric liner for the intake is in good condition. The filter and intake for the series II are a bit different from the series III but this is of no consequence.

SEAT REMOVAL IN A SILVER CLOUD III

No big deal. The whole assembly is bolted to the floor with four Allen head bolts through the runners. The bolt holes can be seen in the picture. The Cloud III you will remember reverted to bucket seats, its predecessor in the series having indulged in bench units. Also different on these units is the cover seen here on the left (actually the right of the seat) that hid the lower air conditioning air intake. This is a good time to give the runners a good clean with kerosine and re grease them with nice white lithium based grease. Note also that there should be a wooden block under the outer endge of each seat frame. This is to help with the load of fat bums flopping down on the seat when the same bums are getting into the car.

If your car has been fitted with inertia reel seat belts you may find that these will have to be removed (one bolt) to allow the seat to go back sufficiently to get at the seat securing bolts.

SIGH!

Seen for sale on eBay an 88 drophead. (Pauses to wipe drool from keyboard.) Noted the second door handle on the single door to let passengers in the rear seat exit. Panel at front of door (beyond armrest) houses the cocktail kit seen at right! Interestingly in some States in the Union it was illegal to carry alcohol anywhere in the cabin of the vehicle.

Wheels

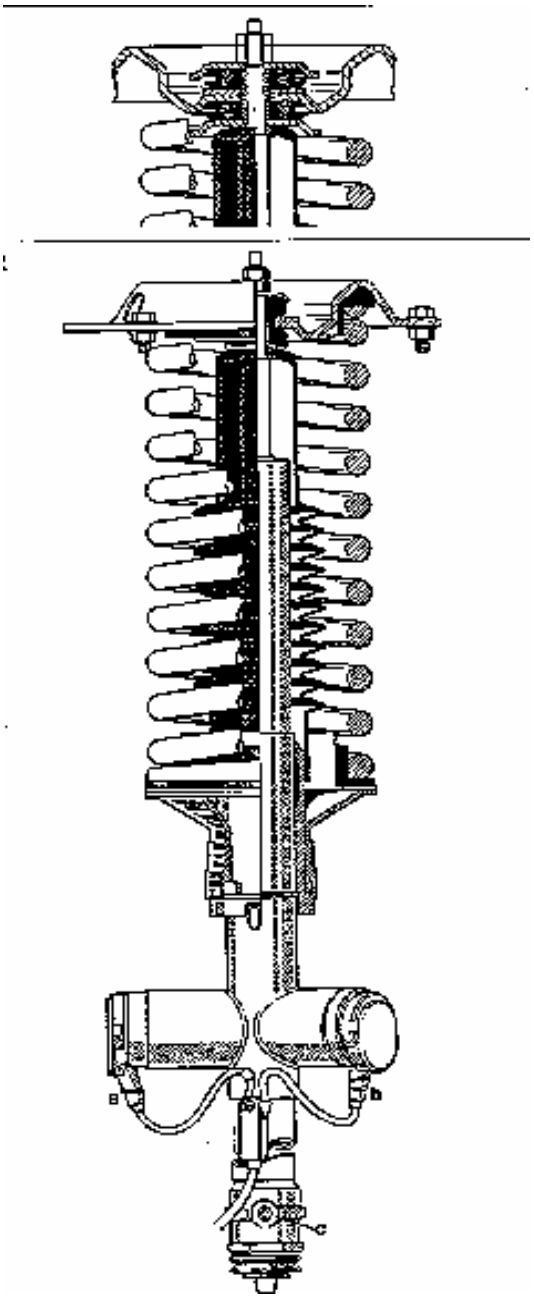
Before!

Probably the worst component on the Shadows were the wheels. Manufactured by a supplier, they were so often the cause of strange vibrations in an otherwise excellent car. York Motors used to have a set of carefully chosen examples with excellent well balanced tyres that they would install on a customer's car when complaints of vibration occurred. There was no question of safety – just inconsistencies.

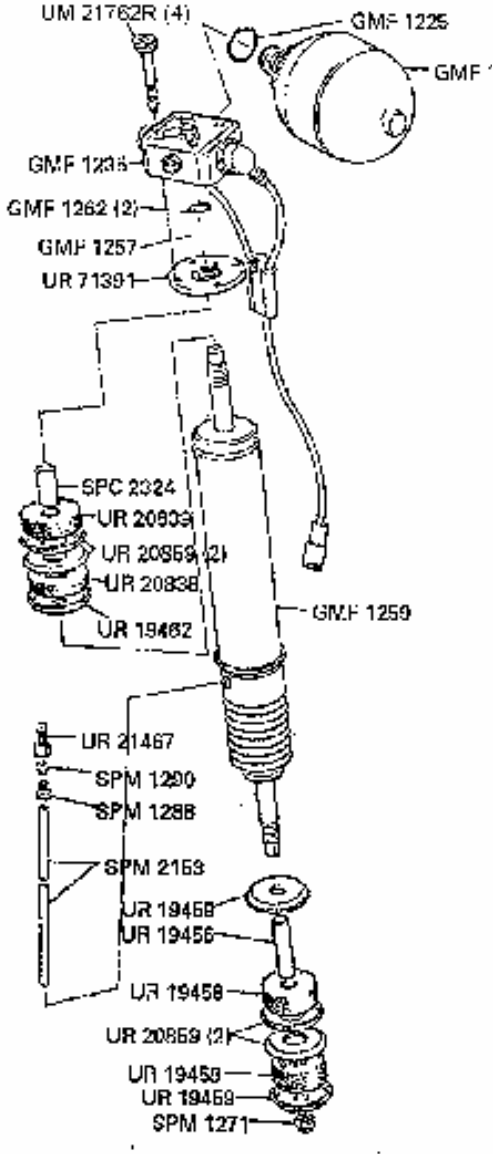
Warwick Grigg got fed up with his wheels' appearance, dosed liberally with the treatment of road salt. Tyres off and into the sand blaster, zinc coated and then poder coated. These wheels will undoubtedly outlast both the car and Warwick!

After!

MODERN BUMPS



To the casual observer the picture to the left is the suspension strut from any Shadow I, II, or III! But notice the protruberances at the bottom. Seems this is the gear fitted to the 90's cars and the gadgets at the bottom do the adjusting of the ride.



'Modern' cars of the better makes now have the equipment to control the antics of a thrashing wheel and by using hydraulic power the height of the car can also be controlled. About 1990 the Factory introduced Automatic Ride Control which effectively changes the damping rates of the front suspension dampers and and the rear suspension struts by electically controlled solenoid valves. The system is not unique to Rolls-Royce, Lexus for instance uses a similar set up. It uses three settings, Comfort, Normal and Firm. The right hand picture is of the rear strut where the modulation is exercised in the top assembly into which the gas spring is screwed.

An electronic control unit (ECU) gathers information from a variety of sources, including road speed, braking, acceleration, cornering forces, body vertical acceleration and the rate the

steering wheel is being rotated. The ECU makes up its ‘mind’ as to what is required and through another ECU the solenoids are energised to do their thing.

I am thinking of my great grand child getting hold of a very grotty partially dismantled 1999 Silver Spirit III and deciding to restore the suspension system. I just hope someone is still carrying on the ethos of these notes!!!

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Bentley Motors opens first dealer in Russia

Moscow, 20th February 2003... In preparation for the introduction of the new Continental GT in autumn this year, Bentley Motors is expanding its network into Russia with the launch of Bentley Moscow. Prompted by a growing interest in Bentley by Russian customers and growth in the luxury goods market, the newly established Bentley Moscow dealership in the exclusive area of Tretyakovskya proezd, near Red Square, hosts a VIP party this evening to celebrate its official opening and the launch of the new Continental GT in the Russian market.

Bentley Motors' new dealer partner is Moscow based Russian Mercury Group. Representing some of the world's most exclusive luxury goods brands in Russia, including Armani, Breitling, Chopard, Faberge and Tiffany, Russian Mercury Group will focus its Bentley efforts around Moscow, which is expected to account for 80 per cent of future Bentley sales and St Petersburg, where 15 per cent of future Bentley sales are anticipated.

Commenting on the new dealership, Stefan Brungs, managing director for Bentley Motors Europe said: "Selecting the right partner for Bentley in Moscow is crucial to our future success in this growing market for luxury goods. The experience and success Russian Mercury Group has achieved with leading luxury brands in Russia has impressed us and we look forward to a mutually successful partnership in the future."

"We are proud to welcome Bentley to Russia", says Ilja Berezin, managing director of Bentley Moscow. "The Bentley marque, together with its unique range of luxurious, performance cars are the perfect complement to the other exclusive brands we represent."

Bentley Moscow's showroom will feature a relaxed and stylish 600 square metre sales area where up to five Bentley's can be displayed and viewed. Initial models will include Bentley Arnage Series II, Arnage T & R models plus an Arnage RL limousine.

This latest addition to the Bentley network will support the existing Bentley technical service centre which was opened in Zenigordsky, Pereulok in 2002. Located not far from Moscow city centre and managed by Englishman Richard Starr, the service centre will support Bentley Moscow in offering the latest repair and diagnostic service and support.

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