

FRONT DRIVE

FRONT DRIVE — AUSTRALIA'S NATIONAL CITROËN MAGAZINE

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FRONT DRIVE

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POSTAL ADDRESS

CITROËN CLASSIC OWNERS CLUB OF AUSTRALIA INC.

The Club's and Front Drive's postal address is P.O. Box 52, Deepdene Delivery Centre, Victoria, 3103.

Our e-mail address is ttp@tmx.com.au

CCOCA Inc. is a member of the Association of Motoring Clubs. G.P.O. Box 2374V, Melbourne, Victoria, 3000.

The views expressed in this publication are not necessarily those of CCOCA or its Committee. Neither CCOCA, nor its Committee can accept any responsibility for any mechanical advice printed in, or adopted from Front Drive.

CCOCA MEMBERSHIP

Annual Membership	\$30
Overseas Postage Add	\$9



CCOCA memberships are due on the 25th of March, each year and run until the following March.

CCOCA MEETINGS

Every fourth Wednesday of the month, except December, at 8pm
Venue:- Canterbury Sports Ground Pavilion, cnr Chatham and Guildford Roads, Canterbury, Victoria.
Melways Ref 46 F10.

HONORARY LIFE MEMBERS

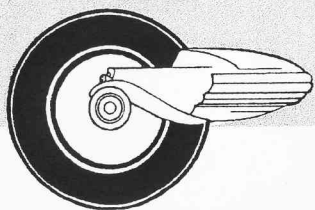
NANCE CLARK	1984
JACK WEAVER	1991

NEW MEMBERS

Michael & Peta Hose, Sale, Vic.
11 BL 1951, L 15 1954
Ferdi & Karen Saliba, Deer Park, Vic.
ID19 1962, CX 1982
Jason Glenn & Julie Darling, Thornbury, Vic.
ID19 1964, DS19 Pallas 1965
Julian & Jennifer Madeley, East Doncaster Vic
Xantia VSX Turbo 1997, BX16 TRS 1986
Charles Wantrup, Melbourne, Vic.
11 Normale 1953, ID19 1965
Martin & Glenys de Jong, Bairnsdale, Vic.
DS23 EFI 1974, DS23 EFI 1974
Max & Roz Lewis, Moonee Ponds, Vic.
Steve Owen, Club Terrace, Vic.
Mark & Julia Randall, Blackburn, Vic.
2CV6 1977
Ian Richardson, Ballarat, Vic.
Chris Ryan, Canterbury, NSW.
Keith & Margaret Radford, Burnie, Tas.

ID19





from the desk

1997 CCOCA COMMITTEE

PRESIDENT — Peter Fitzgerald
297 Moray Street, South Melbourne,
Victoria, 3205.
Phone [03] 9696 0866 [BH & AH]
e-mail: ttp@tmx.com.au

SECRETARY — Sue Bryant
59 Albion Road, Ashburton,
Victoria, 3147.
Phone [03] 9885 3179
e-mail: bryants@a1.com.au

TREASURER — Ted Cross
173 Power Street, Hawthorn,
Victoria, 3122.
Phone [03] 9819 2208.

SPARE PARTS OFFICER — Mel Carey
10 Omeo Highway, Lucknow,
PO Box 469, Bairnsdale,
Victoria, 3875.
Phone [03] 5152 1040
Mobile 0412 526 126
Fax [03] 5152 2615
e-mail: citroencarey@net-tec.com.au

ACTIVITIES OFFICER — Vacant

PUBLIC OFFICER — John Couche
31 Broadway, Belgrave, Victoria, 3160.
Phone [03] 9754 3583.

EDITOR — Leigh Miles
16 Harrow Street, Blackburn South,
Victoria, 3130.
Phone [03] 9888 7506 [AH]
[03] 9794 3351 [BH].
e-mail: leigh.miles@cussons.com.au
Business_Direct@msn.com.au

CLUB SHOP — Leigh Miles
See 'Editor' for details

LIBRARIAN — Robin Smith
9 St Aubins Avenue, North Caulfield,
Victoria, 3161.
Phone [03] 9527 5429.

ADVERTISING — Peter Fitzgerald
See 'President' for details.

STATE ACTIVITY CO-ORDINATORS
VICTORIA: PETER FITZGERALD
[03] 9696 0866 [BH & AH]

ACT: MIKE NEIL
[02] 6241 4556.

NSW: ALAIN ANTONIOUS
[02] 9958 6240.

WA: STUART PEKIN
[08] 9386 9283.

Welcome to 1999! This year promises to be packed for the Citroën community. For Ateco early in the year the 2litre automatic Xsara will arrive. This will be quickly followed by the coupé version of this great little car. I understand the delightful Xsara wagon will now be coming to our shores. Having seen this in France and New Zealand, and expressing a purely personal view, I think it looks better than the balance of the range. Ateco are still reviewing the option of the Berlingo. This small van has proved remarkably successful in Europe and in Australia would find itself without competitors. The new Picasso, a small people mover, based on the Xsara but building on the success of the Renault Megane Scenic and the Mercedes 100-series will see light of day in France, although we will have to wait until 2000.

Easter Cit-In is being hosted by CCCV in Shepparton. Whilst bookings are still open, you will have missed your early-bird booking discount. Get your skates on and book! Planning for the CCOCA event over the June, Queen's Birthday Weekend is underway and full details will be sent to you in February. As always, we have planned a busy weekend of activities — some Citroën related, some food related and given the proximity to a winery, or two, some will be wine related.

You will also note that a busy calendar of events has been put together by Peter Fitzgerald with the able assistance of Edward Cross [in the absence of both Sue Bryant and myself]. These are detailed in this issue.

Finally, I must thank Peter for all the work he did in preparing the last issue of 'Front Drive'. Without the knowledge that Peter would be there to cover, I would have thought harder about the decision to go away. [I still would have gone, I just would have thought about not going!] Thankyou Peter. Just one small point, The Volume/Issue number should have read Volume 22, Issue 4, not Volume 21, Issue 4.

Also in this issue pictures from the Combined Concours — which is also the source of our cover shot. I understand the day was great success and by the excellence of the class and overall winners shown, the cars were of an unusually high standard. On the picture front there are also shots from the Rob Roy Hill Climb and CCOCA Christmas function.

Finally, last issue we promised you the balance of the Tracbar Dundee article. Lack of space has overtaken me and it will have to wait for the next issue!

Leigh Miles
Editor



PREZ SEZ

Well 1998 was an interesting year in CCOCA. We had a great number of events capped off by the record breaking attendance at the Concours — we had around 21 Tractions on display [the most of any model], followed by a fantastic line up of 2CVs [around 14] Mel Carey is going great guns with spares and it is good to see many of you out there really getting stuck into your restorations or keeping your cars in good condition.

The Committee has laboured one man short for most of the year with Jay Leibowitz filling in briefly before an

untimely transfer with work to Sydney, but we have managed to keep things together. With the fine weather coming around again, we intend to make the most of it with our cars — so polish up, push her out and hit the road for the events coming up this summer and Autumn. See you in 1999,

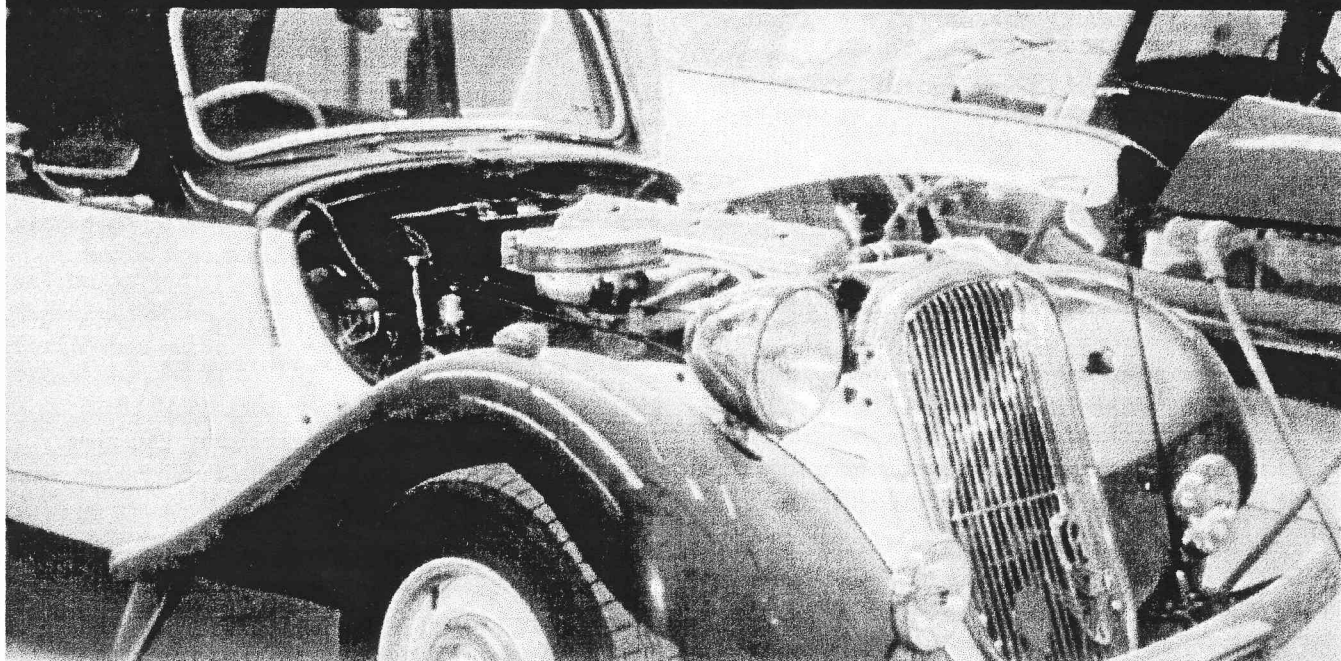
Peter Fitzgerald



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a-tractions

JANUARY 1999

SATURDAY, JANUARY 16 — ALL MAKES SWAP MEET
Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Thunderbirds and Fairlanes Big American Toys. Buyers admitted from 9:00am, entry fee \$4.

SATURDAY, JANUARY 23 — THE RACV GREAT AUSTRALIAN RALLY

This event takes the form of a one day rally featuring veteran, vintage, classic, late classic and modern classic cars and motorcycles. The drive is from Melbourne to Portsea and participants are asked to dress in clothes from the era and style of their mode of transport. Entry fee: \$25 per vehicle, which includes a rally pack. All proceeds will be donated to the Peninsula Health Care Network. For more information phone [03] 9801 3109

TUESDAY, JANUARY 26 — 1999 AUSTRALIA DAY HISTORIC VEHICLE DISPLAY

Entries for this event have closed, but it really makes a great day out on Australia Day. The vehicles will be driven from various marshalling points in suburban Melbourne to the Treasury and Fitzroy Gardens. Parking can be difficult at this event.

WEDNESDAY, JANUARY 27 — TWILIGHT BBQ

With hope in our hearts for good Australia Day weather the BBQ will be lit at 7pm for an outdoor feast! Bring some food, the family and some frascati...or whatever.

NOTE THE EARLY START TIME OF 7pm
Canterbury Sports Ground, 7pm

FEBRUARY 1999

SATURDAY AND SUNDAY, FEBRUARY 12, 13 & 14 — RAYMOND ISLAND WEEKEND, PAYNESVILLE

Full details of this great weekend away are in the attached leaflet. It sounds great value with two night's accommodation, plus breakfasts, lunches and dinners all for just \$85 per head — it's too cheap to miss. So take an island break and confirm your attendance with Peter direct on [03] 9696 0866 by month end,

SUNDAY, FEBRUARY 14 — PICNIC AT HANGING ROCK

For all veteran, vintage and classic cars. Your opportunity to enjoy a great day in the relaxing surrounds of Hanging Rock. There are no reserved areas, so if you want to park as a group, you need to arrive as a group. Entrance fee: \$8, gates open 8:00am. For further information phone 015 844 323

SATURDAY, FEBRUARY 20 — ALL MAKES SWAP MEET
Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Buick, Pontiac, Packard and Classic Speedsters. Buyers admitted from 9:00am, entry fee \$4.

WEDNESDAY, FEBRUARY 24 — MONTHLY MEETING
Canterbury Sports Ground, 8pm

SUNDAY, FEBRUARY 21 — MAROONDAH FESTIVAL MOTOR GATHERING

Join the Ford 8 and 10 Sidevalve Club of Victoria's 2nd Annual Vehicle Display at the Maroondah Festival. Entry is free and full range of family activities are scheduled, from 9:30am. Croydon Park Soccer Ground, Melways Map 50, J4. For further details call Bob [03] 9723 2173.

SUNDAY, FEBRUARY 28 — 1st ANNUAL CCOCA PETANQUE PTOURNAMENT & BBQ

Whether you are an expert or novice here is a great chance to play a great French game. Initial rounds of the Ptournament start late morning with a break for BBQ lunch with Iain Mather and Steve Bartlett amongst the treudoisé of Williamstown [BYO food and refreshments, and a chair may be handy, too]. Be sure to confirm your attendance with Leigh Miles by Sunday February 21.

MARCH 1999

SUNDAY, MARCH 14 — BRITISH AND EUROPEAN MOTORING SHOW

Flemington Racecourse, Melbourne. CCOCA will be in attendance at this great AOMC-sponsored event. So join the Club and see what trash the Brits have produced over the years. Broaden your horizons, and weep for the Poms! Entrance fee: \$5, gates open 10:00am.

SUNDAY, MARCH 14 — 5TH NATIONAL CONCOURS D'ELEGANCE AND CONCOURS ITALIANA

Note the new location: The Mansion, Werribee Park.

SATURDAY, MARCH 20 — ALL MAKES SWAP MEET
Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Holdens of all Ages. Buyers admitted from 9:00am, entry fee \$4.

SATURDAY & SUNDAY, MARCH 20 & 21.

Autumn Petanque Festival at Blue Pyrenees Estate, Avoca.

WEDNESDAY, MARCH 24 — ANNUAL GENERAL MEETING
Canterbury Sports Ground, 8pm. Nomination forms will be sent in February, but consider this as 'official notification of the AGM.'





1999 EASTER CITIN

Accommodation bookings: Sharlene Hasan,
Shepparton Information Centre: 1800 808 839. Other enquires: Bob King, [03] 9807 0223



APRIL 1999

NATIONAL EASTER RALLY, APRIL 2 TO 5.

Have you booked for the 1999 National Citroën Event in Shepparton, Vic. Hosted by Citroën Car Club of Victoria? You have missed the early bird booking discount, but this great event is still superb value. Full information and booking forms are with this issue of 'Front Drive'.

SATURDAY, APRIL 17 — ALL MAKES SWAP MEET

Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Austin, Rover, Peugeot, British and European Day. Buyers admitted from 9:00am, entry fee \$4.

WEDNESDAY, APRIL 28 — MONTHLY MEETING

Canterbury Sports Ground, 8pm

MAY 1999

SATURDAY, MAY 15 — ALL MAKES SWAP MEET

Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Vintage and Veteran Spectacular. Buyers admitted from 9:00am, entry fee \$4.

WEDNESDAY, MAY 26 — MONTHLY MEETING

Canterbury Sports Ground, 8pm

JUNE 1999

CCOCA OZTRACTION RALLY, JUNE 11 TO 14.

The Club's planning for this, the Premier Event in the CCOCA Calendar is well under way. Full details and booking forms will be issued in mid-February. Come and experience the delights to be had near the Upper Yarra Valley. As always this will be food and wine delight, an entertainment extravaganza and of course the chance to share experiences with other Citroën enthusiasts in general and Tractionists in particular.

SATURDAY, JUNE 19 — ALL MAKES SWAP MEET

Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Muscle Car and Modified. Buyers admitted from 9:00am, entry fee \$4.

WEDNESDAY, JUNE 23 — MONTHLY MEETING

Canterbury Sports Ground, 8pm

JULY 1999

SATURDAY, JULY 17 — BASTILLE NIGHT DINNER

Venue to be determined, but as always the food will be wonderful, so keep this date free.

SATURDAY, JULY 17 — ALL MAKES SWAP MEET

Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Combined Chrysler Club Day. Buyers admitted from 9:00am, entry fee \$4.

WEDNESDAY, JULY 28 — MONTHLY MEETING

Canterbury Sports Ground, 8pm

AUGUST 1999

SATURDAY, AUGUST 21 — ALL MAKES SWAP MEET

Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Classic and Historic Auto Club. Buyers admitted from 9:00am, entry fee \$4.

WEDNESDAY, AUGUST 25 — MONTHLY MEETING

Canterbury Sports Ground, 8pm

SEPTEMBER 1999

SATURDAY, SEPTEMBER 18 — ALL MAKES SWAP MEET

Melbourne Markets, Footscray Rd., Footscray. Displaying Club: Mustang Club. Buyers admitted from 9:00am, entry fee \$4.





The Subject

Today, over twenty five years since manufacturing ceased there, the story of Citroën's factory at Slough [in its hey-day one of the largest car assembly plants in the United Kingdom] is little appreciated by Citroën enthusiasts in both Britain, France and the Netherlands alike — and virtually unknown by the wider motoring book readership around the world. This carefully researched and lavishly illustrated book, the first officially approved and sponsored account of Citroën's right-hand-drive vehicles, should set the record straight!

In examining the first seventy five years of Automobiles Citroën's presence in Great Britain, Citroën from A to X reviews the history of Citroën Cars Ltd and Citroën UK Ltd at Slough, recalling the vehicles built at the Slough Works between 1926 and 1966 and all those subsequently imported from France from 1966 onwards until the present day.

For the benefit of readers unfamiliar with the marque, it begins with a short account of the founding of the Citroën firm in France and discusses the earliest imports of Citroën vehicles into the UK by the first concessionaires, Gaston Ltd. It then goes on to examine the complete span of activities that took place at the Slough factory between its opening in February 1926 and its closure in February 1966 — exactly forty years to the day — during which time it assembled vehicles to supply Citroën's export markets throughout the entire British Commonwealth as well as the home market in Great Britain and Northern Ireland. Finally, it records the Citroën models imported into the UK from Citroën's continental factories between 1966 and 1998, and gives a full account of the activities of Citroën UK Ltd up to the present day.

Pre-war, post-war and even wartime vehicle production is full illustrated by over 200 archive pictures [many previously unpublished] together with contemporary advertising and publicity material, and also by a new series of full-colour pictures showing some of the very best surviving historic cars photographed by the leading motoring photographer Neil Bruce.

The complete span of right-hand-drive vehicles featured and illustrated includes, amongst others, the conventional pre-war rear-wheel-drive models, the Light Fifteen and Six Cylinder Traction Avant, the 2CV and the Bijou, the DS and ID models and the Citroën Maserati SM, the GS & GSA and the CX, together with the full range of Citroën's recent and contemporary products.

The Author

John Reynolds is a life-long Citroën enthusiast with over 35 years experience of the marque, having owned or driven almost every type of Citroën car, ancient and modern. He made his first visit to Citroën's British premises at Slough as long ago as 1964 to collect a spare part for his first car, a Traction Avant — in those far-off days the company's replacement parts warehouse was open to the general public!

He began his career as an automotive writer as an advertising copywriter producing marketing material for numerous manufacturers, including Citroën, but he now writes as a motoring author and journalist exclusively. As a journalist, he has contributed to a wide variety of British, French and Dutch car magazines, including *Classic Car*, *Classic & Sportscar*, *Retroviseur*, *Automobilia*, *Citroexpert* and the *Daily Telegraph Motoring Review*. As an author, he has published three other books on Citroën subjects, a study of the technical evolution of the DS, a life-story of the 2CV and a biography of the company's founder, André Citroën.

Buy this book and win a Bijou! Value £1,000!

Citroën enthusiasts will be familiar with the enormous variety in models Citroën has produced from 1919 until the present day.

But one of the most remarkable and least known of the little Citroën cars is the British-built Bijou. It was built by the Citroën factory at Slough and based on the 2CV. Its reinforced plastic bodywork was of typical British design although some influences of the DS can be seen.

The Bijou dates back to 1959 but was not very much appreciated by the British public and soon vanished from Citroën Cars Ltd's catalogue.

Only a little over 200 units were produced by the Slough factory. So the Bijou can be considered a very rare Citroën indeed!

The publishers have acquired a genuine Slough-built Citroën Bijou. It's not a showpiece concours example, but it certainly is rare, collectable and basically sound. Even in its present state it is worth £1,000, at least.

This little gem can be yours for free of you:

1. Buy the book
2. Fill out the form that's attached to the book's pastedown
3. Correctly answer the three questions on the form
4. Finish the slogan and
5. Enter before August 31, 1999.

HOW TO ORDER

Order this book direct from David Conway in the UK, using your Visa or Mastercard.

The price is just £29.95 plus p+p of ~£4.36 by sea or ~£12.16 by air.


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email at ConwayCV2@aol.com or

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1999 Historic Vehicle Display

Australia Day
Tuesday, 26 January 1999
Treasury and Fitzroy
Gardens

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Raymond Island. Nicholson River Winery...***

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[03] 9696 0866. Bookings close January 27.***

***Do not miss the 'cheapest weekend in the Citroën
Universe! February 13 & 14***



Heaven is going up and down

Classic cars are often noteworthy for their ride comfort, but the passing of time takes its toll on the suspension system. Geoff McAuley look at how the various components work and explains how to maintain a smooth ride.

Basic suspension principles have changed little in the past 70 years, but subtle improvements have enhanced handling and comfort by a considerable degree.

In many ways, the suspension design of older cars falls into the 'golden period' which lies between the crudity of very early types, and the need for cheapness found in many recent examples.

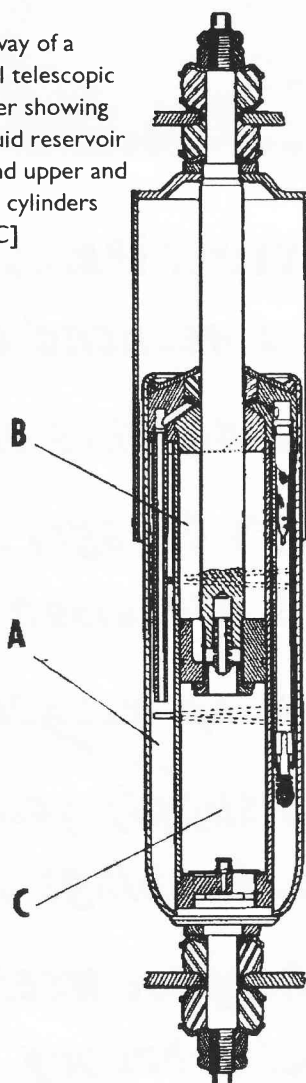
The perfect compromise between cost, simplicity, comfort, and handling is most elusive, the first two elements often giving grace to the later two on cars of character.

Basic Principles

Clearly, the primary function of a car's suspension is to insulate the occupants from noise and undulations of the road surface.

The theoretical requirement is to absorb road shocks in such a way that the energy therein can be spread out over a relatively long period of time. Rather like a bank loan, the pain of the cost of an item is spread out and so becomes less intense.

Cutaway of a typical telescopic damper showing the fluid reservoir [A] and upper and lower cylinders [B & C]



Of course, our bank loan lasts for a period of months [Well, years. Ed.], and that would hardly do for our car's suspension, because every few seconds another bump [or purchase] comes along, and, ideally the first bump needs to be paid off before the second arrives.

So we are talking in fractions of seconds here, but the principle is the same.

When a car hits a bump, the spring absorbs most of the shock, which it then dissipates gradually, either by lifting the car, or by forcing the wheels down the other side of the bump.

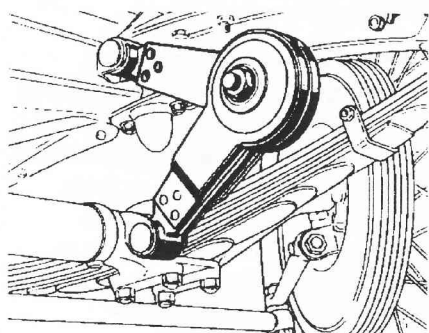
Over an indentation, the opposite occurs, ie the car body is gently lowered, or the spring is re-compressed as the wheel climbs out of the hole.

So what is complicated about designing a good suspension system? Well, for a start, after a spring has been released from being either compressed or extended, it will not immediately return to its original shape, but will tend to overshoot beyond its *status quo*.

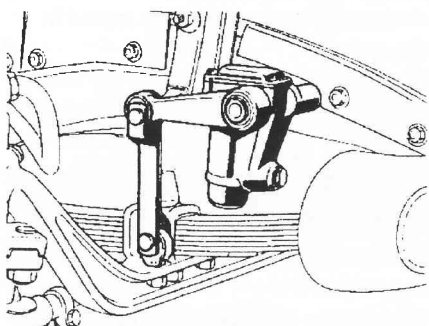
In fact, if left to its own devices, it will 'twang' several times before settling down, a condition known as hysteresis.

Furthermore, all springs have what is called a 'resonant frequency', that is, once excited, they tend to twang at a certain rate which is determined by their material of manufacture, size and design.

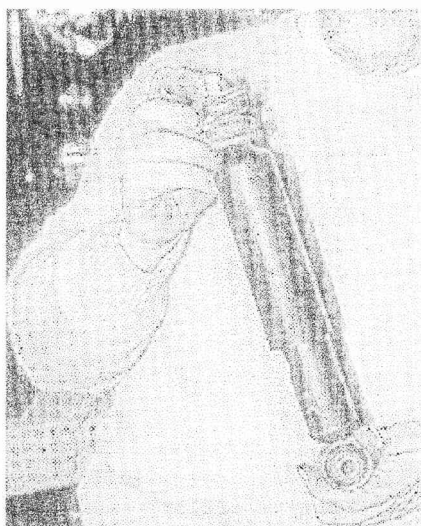




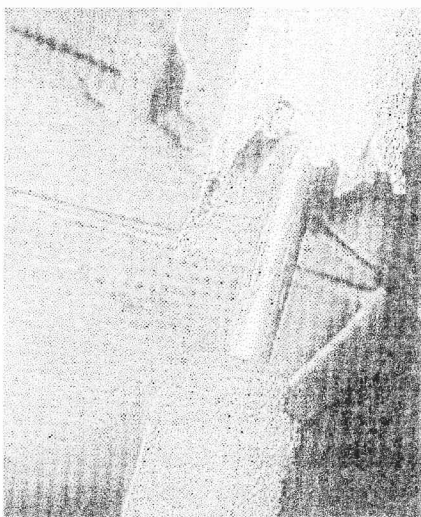
Friction shock absorbers are common on pre-war cars



Lever-arm shock absorbers can still be found on MGBs [Pathetic when you think about it! Ed.]



Telescopic shock absorbers are more efficient than other types...



...but can suffer from neglect like any other component

This in itself could cause a bouncy ride, but if the frequency of resonance happens to coincide with meeting a series of bumps in the road, the whole car may start to bounce uncontrollably, possibly lifting the wheels clear of the road. [This is getting better and better, and I had never realised the possibilities! Ed.]

Shock Absorbers

The cure for this resonant catastrophe is to fit a device known as a shock absorber, effectively between both ends of the spring. This controls the 'overshoot' and lowers the overall resonant frequency to a point where it is no longer a problem.

Today, dampers are often referred to as shock absorbers. Although, in fact, it is the spring which absorbs the shock, not the damper.

Shock absorbers fall into three categories: friction, lever and telescopic.

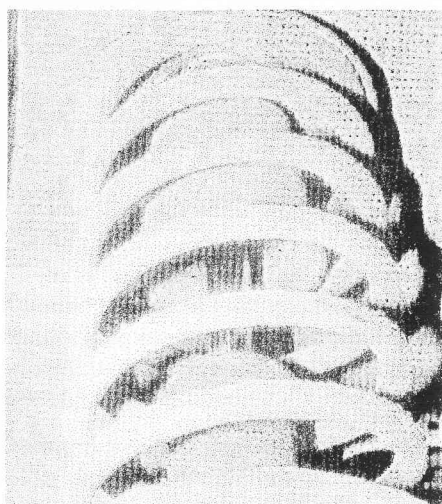
Friction Shock absorbers

These are essentially a pre-war design which relies on a series of friction material pads held together under pressure. As the suspension, and therefore the shock absorber arm, moves, the friction between adjacent pads provides a damping action.

Unfortunately, friction shock absorbers offer the greatest resistance when static and the least when in motion, which is



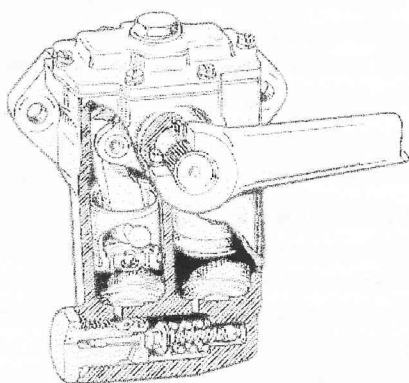
Heaven is going and down



Coil units are standard fare on many classics fitted with independent wishbone front suspension



An independent rear suspension system with coil springs



Cutaway of an Armstrong hydraulic shock absorber showing the twin piston arrangement and the arm connected to the suspension arm

the opposite to the ideal requirements. Their advantage lies in their simplicity and ease of overhaul.

Lever Shock absorbers

This version relies on the reluctance of a fluid to be squeezed through a small orifice. The shock absorber is mounted solidly on the car's chassis or body, while a lever is connected from a moving part of the suspension to an internal piston which forces oil through one or more small holes.

The effort of forcing the oil through these holes creates heat, and so dissipates unwanted energy stored in the spring.

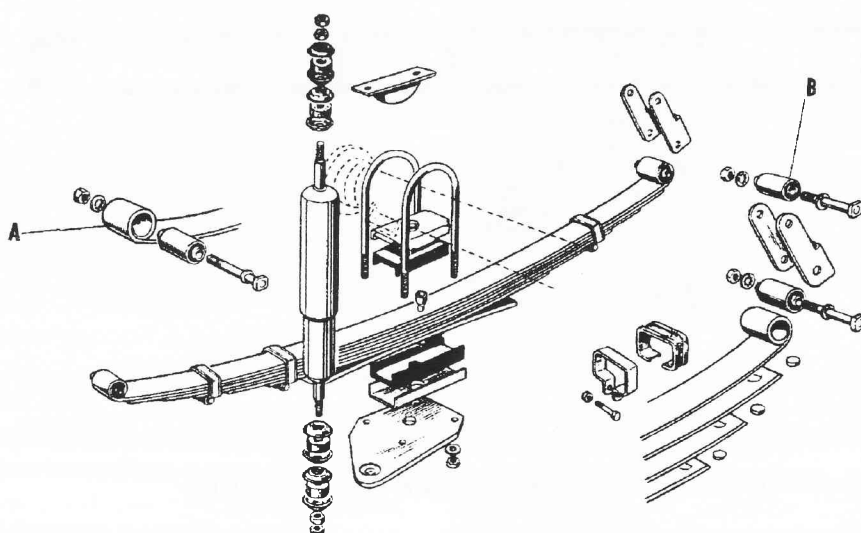
Telescopic Shock absorbers

Using much the same principles as the lever type, telescopic versions are 'direct acting', and are therefore rather more accurate in their control of the springs, because the amount of spring movement is more or less faithfully followed by the internal components of the shock absorber.

Most telescopic shock absorbers these days are 'variable double acting': that is to say, they present resistance to bounce and rebound direction [ie when they are extended].

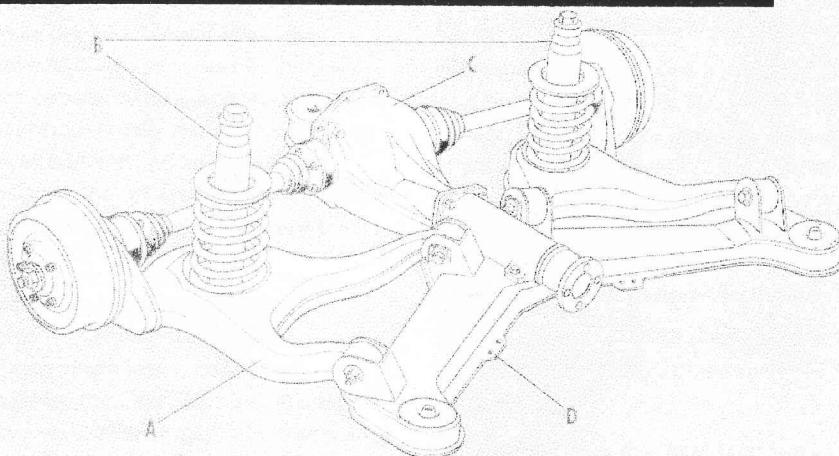
Modern gas shock absorbers still use the 'squeezed fluid' principle, but merely have a gas chamber between the pressure faces and the fluid chamber.





Typical leaf spring layout showing the spring, damper mounts, fixed shackle [A] and swinging shackle [B]. Both lateral and longitudinal driving forces can be absorbed by this simple arrangement.

SEMI-TRAILING ARM AND COIL SPRING SUSPENSION



Independent rear suspension set-up with semi-trailing arms [A], coil over damper units [B] and fixed differential [C] bolted to subframe [D]

Faults

Friction shock absorbers are amenable to overhaul because of their simplicity, and repair is usually limited to stripping and thorough cleaning. But they do tend to suffer from dirt, rust and corrosion and performance suffers quite rapidly if they are neglected.

Many types of lever shock absorber can be overhauled, which is just as well, because they can be unreliable.

Leading seals can cause loss of fluid and the fluid itself can deteriorate with time, although it can usually be replenished. Also, physical wear can cause sloppiness in the units.

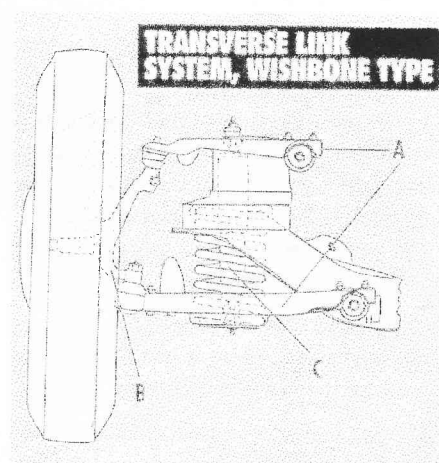
Telescopic shock absorbers are completely sealed, so do not suffer from dirt ingress. Their direct action means the fluid is subjected to less stress than the lever type, and so longevity is far better, however only a few early models can be stripped for overhaul.

Wear of the internal seals and valves will show up as a gradual sponginess, and will signal the need for replacement. The eyes of the shock absorber usually house rubber bushes which, although very durable, will soften or wear with age. Replacement bushes are cheap.

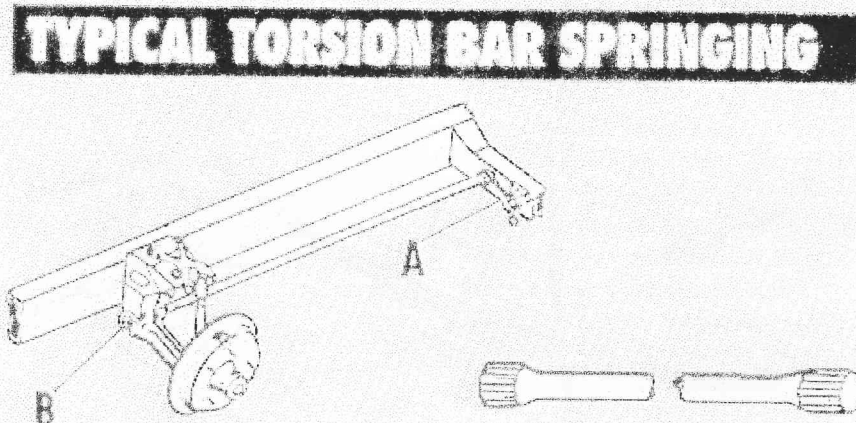
Fluid shock absorbers, whether lever or telescopic, will rapidly lose their efficiency if the fluid overheats during exceedingly heavy use. For this reason, lever types are rarely used for competition motoring and telescopic versions are often replaced with uprated models.



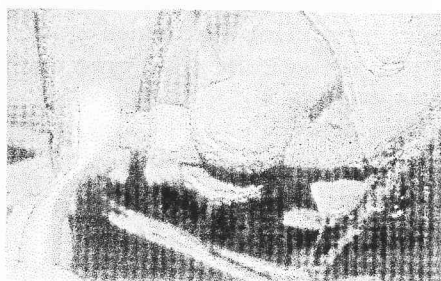
Heaven is going up and down



Independent front suspension unit with unequal length wishbones [A], stub axle [B] and coil over damper units [C].



Adjustable torsion bar frame mounting [A] and suspension arm [B].

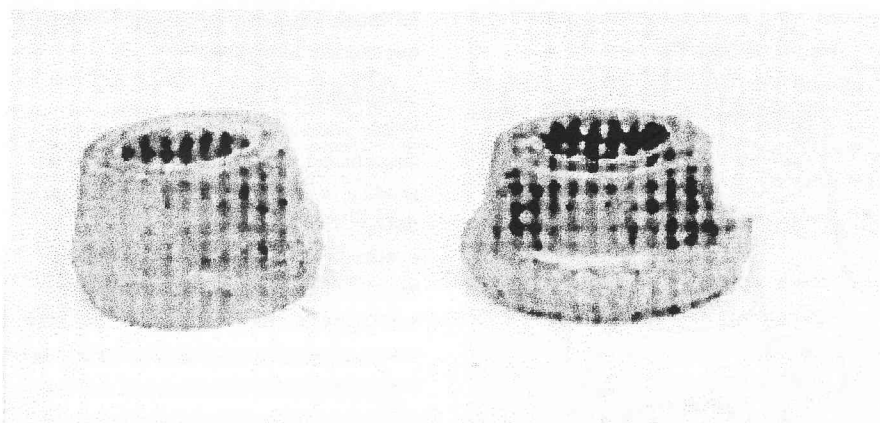


Above: Torsion bar tension can usually be adjusted by a screw to vary the car's ride height

Top Right: Regular greasing is a must for early suspension components. Properly maintained they can outlast modern 'sealed units'.

Bottom Right: Anti-roll bars come in all shapes and sizes, but are essentially transverse torsion bars





Although they are extremely durable, rubber suspension bushes eventually deteriorate. Here, a worn damper bush, left, is compared with a brand new one.

Adjustment is possible on some telescopic types such as Koni and Spax so that allowance can be made for wear, or stiffening up can be effected for racing, etc.

Types of Spring

Before the First World War, the elliptical [cart] spring was by far the most popular choice, a narrow spring steel blade, usually mounted on a pivot bolt at one end and an articulated shackle at the other, with the car chassis fastened somewhere in between the two.

There were many varieties on this theme — semi-elliptical, quarter elliptics, single leaf, multiple leaf, cantilever mounted, etc. But the basic spring was, quite simply, a bendable strip of steel.

Most cars had opposite pairs of wheels mounted on solid beam axles, but during

the thirties, many manufacturers began to appreciate the advantages of isolating each wheel from its opposite partner, particularly at the front of the car where undesirable wheel movements could adversely affect the cars' steering. And so was born 'independent suspension'.

Independently suspended wheels did not lend themselves well to the use of leaf springs, because there was now no axle to act as a mounting point, and although a few manufacturers such as BSA with their Scout employed a complex multiple leaf arrangement, most car makers turned to torsional springs.

Torsion Bar

The purest form of torsional spring is the torsion bar.

Quite simply, this is a steel bar with a radius arm attached to each end. One arm is permanently secured against the car chassis and the other is attached via

locating components to the wheel. As the wheel rises or falls, so the bar twists.

A popular variation of the torsion bar is the so-called coil spring, a strong steel coil located between the chassis/body and the wheel locating components. As a wheel is deflected, the coils of the spring TWIST, so the coil spring is in reality a compact form of torsion bar!

To prove the point, cut out a long thin strip of paper and form it into a coil around a pencil, taking one end in each hand, remove it from the pencil and squeeze it like a concertina. You will see how the paper actually twists, rather than bends.

Other Types

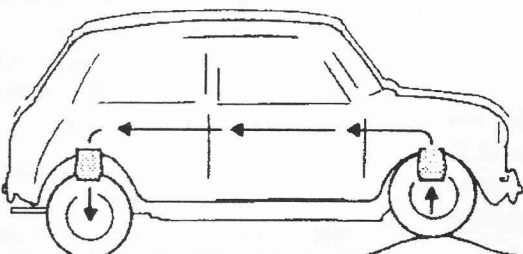
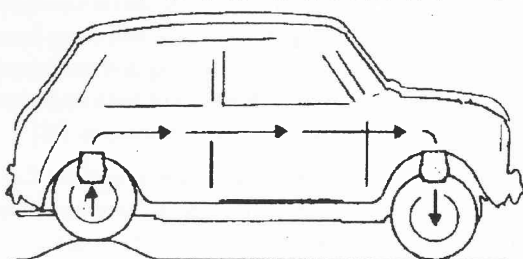
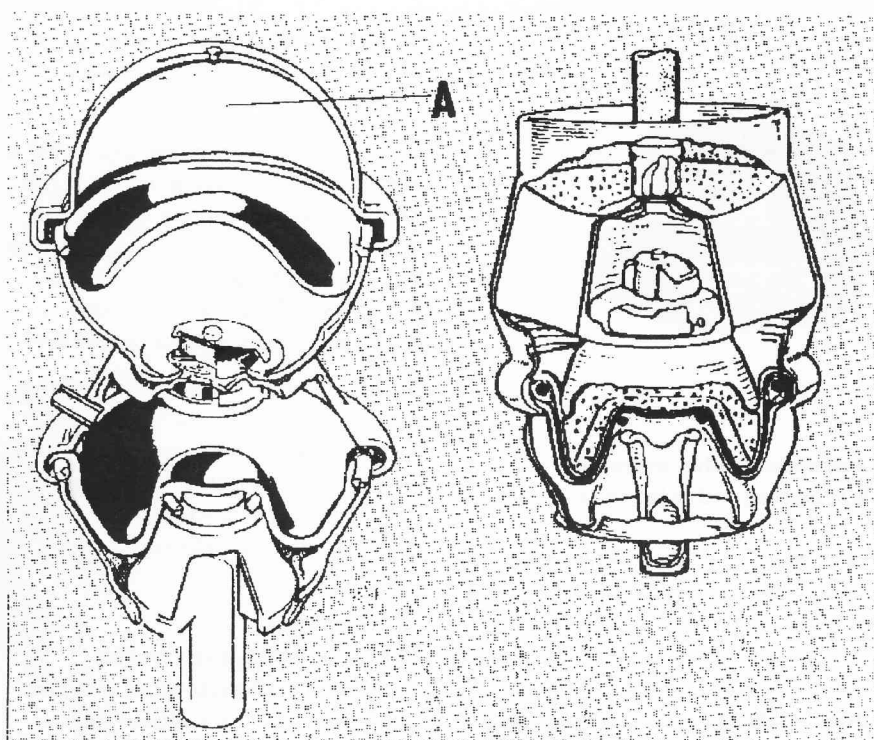
Most other designs rely on the compressible characteristics of rubber, but despite some very elaborate versions the good old torsion bar/coil spring systems are difficult to beat for reliability, simplicity and performance. [A neat dismissal of both hydrolastic and hydropneumatic concepts. Ed.]

Some manufacturers, notably Citroën and British Leyland, have introduced the interconnection of the wheels' suspension by means of fluid lines, with varying degrees of success. [For the really knowledgeable, Citroën introduced the interconnection of front and rear suspension in 1948 with the 2CV — without fluid line. Ed.]

The results have produced mixed reactions and it is fair to say that interconnected suspension systems,



Heaven is going up and down



Above: Hydrgas, left, and hydrolastic suspension units. The sphere [A] accommodates the gas suspending medium.

Left: The compensating effect front to rear of hydrolastic suspension units: linking pipes connect the units longitudinally.

although eloquent by design, are not to everyone's liking.

Suspension Faults

Wear will slowly take its toll of any suspension system and because of its gradual nature, may be quite difficult to detect. Coil and leaf springs will eventually become 'set' under the weight of the car, while worn bushes will cause 'clonks' and rattles and may cause a lack of steering directness and excessive tyre wear.

Coil springs can sometimes break, but the effect may not be immediately obvious, so periodic visual checks should be made.

A broken torsion bar will cause a total suspension collapse and may be due to minor surface damage to the bar such as might be caused by careless welding — a MIG welder should never be earthed through a torsion bar.

Pneumatic suspension can suffer from fluid loss because of corroded pipework or faulty seals in the suspension units, but the rubber components are quite durable.

Reprinted from 'Popular Classics', May 1991.



ONEway

I'll feel simply awful about it if it turns out that I'm wronging the honest fellows but it does sometimes seem that the traffic authorities in France, facing up unflinchingly to the sad truth that there's no way of sorting things out, have decided that, this being so, they might as well derive whatever entertainment they can from the whole sorry business.

It is, I take it, this sportive attitude which has determined their planning of one-way streets. 'Mon cher collègue,' I imagine one giggling official saying to another, 'consider the risible situation which will arise if we make *this* a one-way street. It will bring them directly to the roundabout; then we close off all means of egress except this little lane on the left, that will take them to the intersection where we can block off a right-hand turn so that they have to take the left-hand, thus ending up with no alternative but to abandon their cars completely or drive straight into the river.'

'Mon cher,' says his colleague admiringly, 'you think of everything,' and they settle down to see if they can't devise a network of one-way streets which will channel the rest of the traffic into the abattoirs.

Where these whimsical creatures display their humour at its very best, however, is in continually changing the arrangements. They're haunted by the thought that some more than

ordinarily astute motorist may find his way out of what seemed to be an impasse. Accordingly, streets which could only be negotiated in this direction on Monday, can, on Tuesday, only be negotiated in *that*; there is no way of knowing, in short, at what point a new one-way street will suddenly spring at you with open claws and still less of knowing into what dark congeries you will end up if you take it.

Strange and terrible stories are whispered in the cafés of what might be termed 'Flying Frenchmen', doomed vehicles that have been roaming the capital for years past trying to find a one-way street that goes their way. And those who have come close to these ghostly wanderers swear that the thing at the wheel is neither man nor woman but a grinning skeleton ...

This grim background will serve, I trust, as an introduction to a heart-warming little anecdote which has just filtered into Paris from the provinces. A young man resident in a provincial town of some size had long been exasperated, it seems, by the difficulty he experienced in getting from his home to that of his girlfriend. What with the traffic jams and the one-way streets there were times when the poor lad barely had time to give his betrothed a hurried peck on the cheek before starting the weary

process of getting home again.

But they are made of stouter stuff in the provinces. Where the effete Parisian would have simply resigned himself to remaining a bachelor, this stalwart youth took direct action. Having selected a suitable route to the loved one's home, he merely prepared a number of one-way street signs, placed them strategically so as to fend off all traffic and for the next few days was able to make his way to and fro without so much as sighting another car. The local constabulary didn't seem to notice anything out of the ordinary—probably as bewildered as everyone else even at the best of times—but, just to be on the safe side, the young man would regularly switch his signs around so as to vary his private route. Of course, since one-way streets never remain one-way for more than a week at a time, as I've already explained, this made everything look completely official and the resourceful youth was able to drive along utterly deserted roads for weeks: he's now been collared, however-picked up while actually engaged in placing his signs. And I doubt not that it will go hard with him: there's nothing that officials hate as much as some outsider trying to share the fun.

Alister Kershaw.
'A Word From Paris'



marque's meanderings

THE WAGON WITH STYLE ARRIVES IN AUSTRALIA

Citroën is set to change the Australian view of small wagons with the debut of the Citroën Xsara wagon at the Sydney International Motor Show (October 1998), with its refreshing blend of chic French style, the versatility of a five door wagon and Citroën's unique reputation for ride quality and handling.

cent per annum for the past three years, driven by a requirement for the greater versatility offered by a wagon and met by the supply of vehicles such as the Citroën Xsara, which offer that versatility, without losing the essential qualities that make small car ownership so pleasurable.

At just 19 cm longer than the hatch back Xsara, the wagon offers a load volume of 517 litres, which expands to a commodious 1512 litres with the rear

seats folded.

With a tailgate that is 1094 mm wide and 787 mm high, the load area is easily accessible and with a load by length of up to 1552 mm and a maximum width of 1146 mm, it is also very versatile. Rear passengers also benefit from increased rear headroom.

With fully independent suspension, passive rear wheel steering, disk brakes and a range of responsive and potent engines, the Citroën Xsara Wagon gives nothing way to its hatchback and coupe Xsara brothers in terms of handling, ride quality and driving pleasure. Equipment levels are also equally comprehensive, with the wagon expected to match the Xsara hatchback versions when it is launched in Australia in 1999.

"The Citroën reputation is for doing things differently," explains Miles Williams. "But it is with a purpose, and



"Other car makers seem to have a rather poor view of people whose lifestyle demands a compact wagon," says Miles Williams, General Manager for Citroën in Australia. "Either their small wagons are dull to look at and dull to drive, or they demand premium prices in all but the luxury car class. Not so at Citroën. The Xsara Wagon has all the French style of the Xsara hatchback launched earlier this year, along with its performance and comfort, to which has been added the versatility of a wagon body. It is a unique combination."

In Europe the sales of compact wagons have been growing by more than 40 per



this is exemplified by the Citroën Xsara Wagon. The versatility of the wagon's extra interior space has not dispatched style and performance to oblivion. Indeed, the versatility of the Xsara Wagon gives it a new style of its own and we are sure that it will appeal to Australian car buyers."

CITROËN XSARA WINS THE FRENCH RALLY CHAMPIONSHIP

Citroën has won the 1998 French Rally Championship with the Xsara Coupe, which will make its Australian debut in 1999, after clinching the title with six wins in the nine round series.

The Citroën team of Philippe Bugalski and Jean Paul Chironi took the driver's title on the last round of the series, the Rally du Var, in a thrilling fight to the finish. Despite winter weather conditions favouring the four wheel

drive Subaru team; Bugalski took his front wheel drive Citroën Xsara to the winner's podium to take the title.

Since its launch in September 1997, the Citroën has sold more than 400,000 Citroën Xsaras and the new model is responsible boosting Citroën sales in all the markets in which it is sold, including a 30 per cent increase in Australia. Citroën plan to add the potent Xsara Coupe VTS, on which the rally car is based, to its Australian range in 1999.

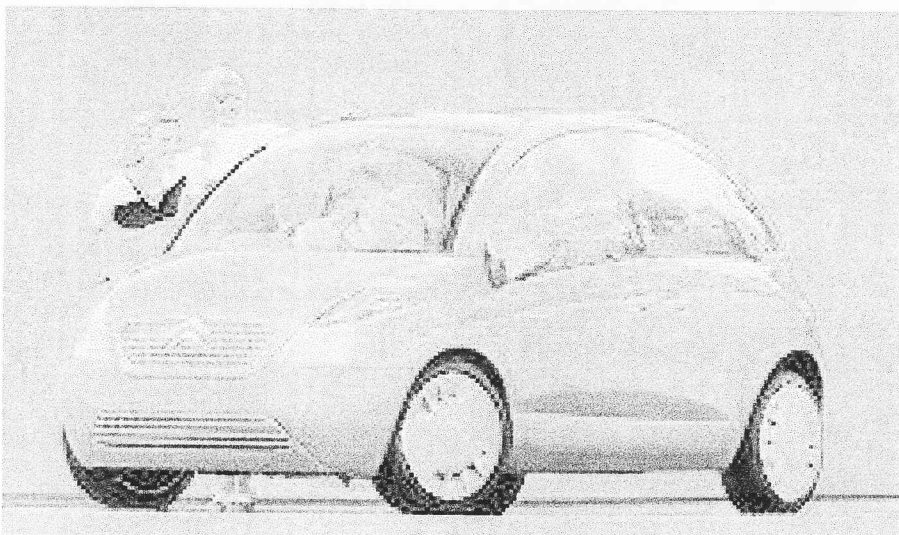
THE 21ST CENTURY CAR TAKES SHAPE WITH CITROËN

Few other manufacturers can lay claim to having set as many benchmarks for automotive design as Citroën, from the front wheel drive trend-setter, the Traction Avant, the hydraulic systems and aerodynamic shape of the Citroën DS and the car that defined economy

motoring, the Citroën 2CV.

With the millennium approaching and a clear need for a radical new approach to motoring, Citroën has displayed at the Paris Motor Show (October 1998) what it believes will meet the personal transport needs in 21st century: The Citroën C3. Needless to say it is small, economical and socially responsible. But these demands have not sacrificed style, comfort or driving performance. It boasts a full four-seat interior and a useful boot, in a length of just 3.67 metres.

There is plenty of storage space for even the most ambitious family trip and clever swivelling seats means the interior can be transformed into a lounge area in seconds. Front wheel drive, a 65 kW engine and fully independent suspension and comfort and driving pleasure and the Citroën C3 is as happy on the open road as it is in the city centre.



concoours

at Como Park

The 1998 annual combines CCOCA and CCCV Concoours D'ELEGANCE was a fabulous success with around 65 Citroens on display and quite a lot parked on the streets around the event.

The venue was at Como Park along the Yarra River in south Yarra, Melbourne, and turned out to be a great choice. many people walking along the Yarra popped in for a peak and many more had seen ads or had heard about the event on radio.

A record 21 Traction Avants were on display including a rare 1935 big body model recently arrived from New Zealand. Traction's were in fact the largest class on display — A line up that brought a little tear to the corner of your eyes. the growth in this class is proof of the accelerating interest in this model in Australia. I still remember 25 years ago when you would be lucky to get a handful for tatty examples along to an event, and most people thought

they were Rileys anyway.

The 2CV's were also out in force with around 14 examples strutting their stuff. A wide range of other Models were on display including a new Xsara. Melbourne Citroen kindly lent me the car for most of the weekend, and I have to say, even allowing for the lack of hydraulic suspension, it was a damn fine car and very pleasant to drive. All the interior ergonomics were very well thought out. Even with the smaller motor, it was definitely no slouch.

I parked it at one stage beside a friends new 306. (They share similar routes.) Apart from the Xsara being larger, it was better finished off with a more solid feel. And all this in a car that is actually lighter.

The Xsara caused quite a deal of interest and I am sure a sale or two resulted from the event.

I must admit to not getting around to

see all the cars due to a rather nasty chest infection that kept me in the administration tent most of the time.

The day's raffle was an 8 boule petanque set and was won by Bernie and Clare Hadaway

The winners on the day are all depicted on the cover of 'Front Drive'. Concoours results were:

Best 2CV — sponsored by Duttons — Robin Smith

Best Traction — sponsored by Traction Restorations Australasia — Gerry Propsting

Best DS — sponsored by Le Ville Motors — Fred Hall

Best CX, GS, Visa — sponsored by Carey Motors — Charles Wantrup

Best BX Modern — sponsored by Melbourne Citroën — Julian Madley

Most Popular Car — sponsored by Shannons — Mel Carey

Outright Winner — sponsored by Citroën Australia — Robin Smith



Illustrations:

Left: A drove of Ds, with Ferdi Saliba's closest to the camera.

Opposite page, clockwise from top left: Melbourne Citroën's display with the new Xsara.

Peter Fitzgerald and Robin Smith discuss the finer points of judging.

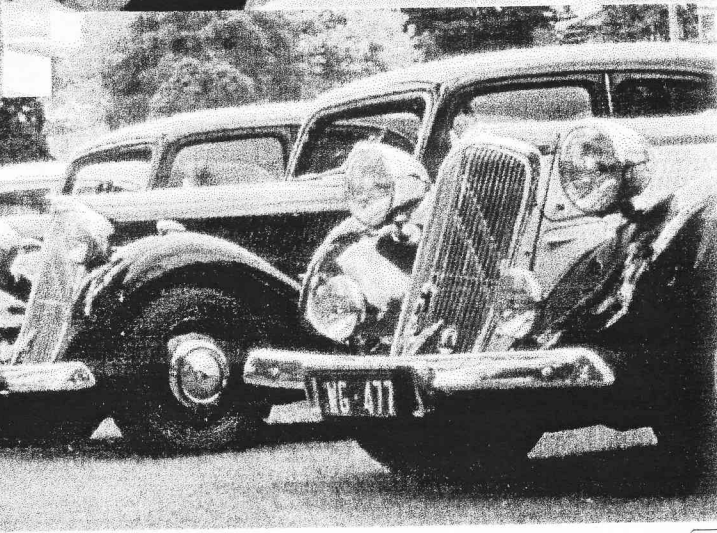
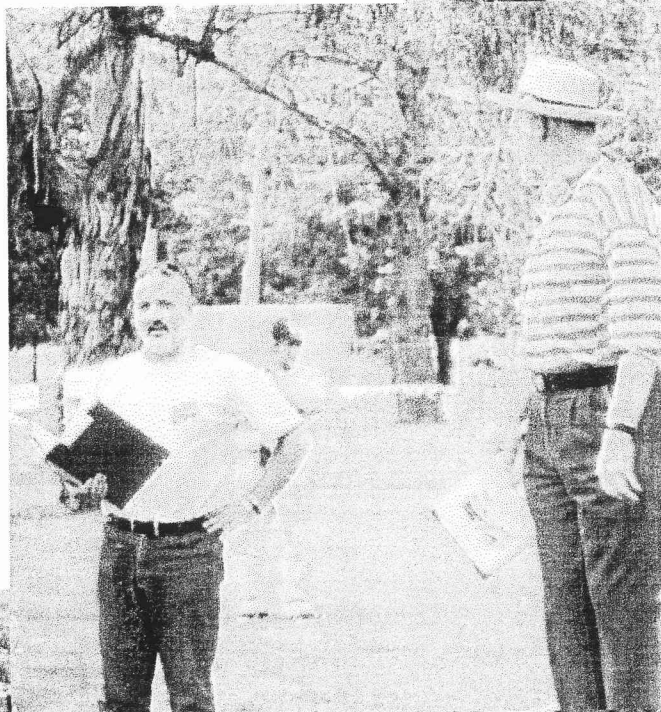
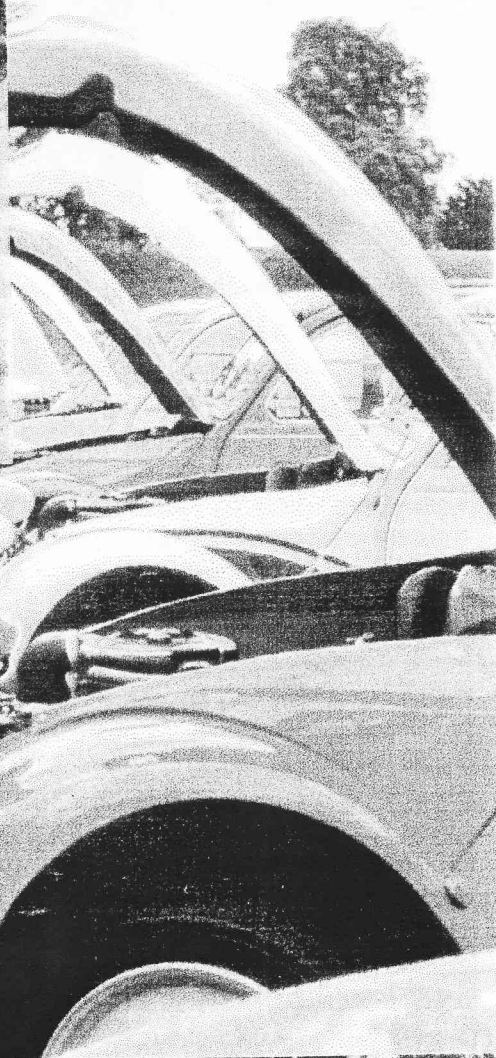
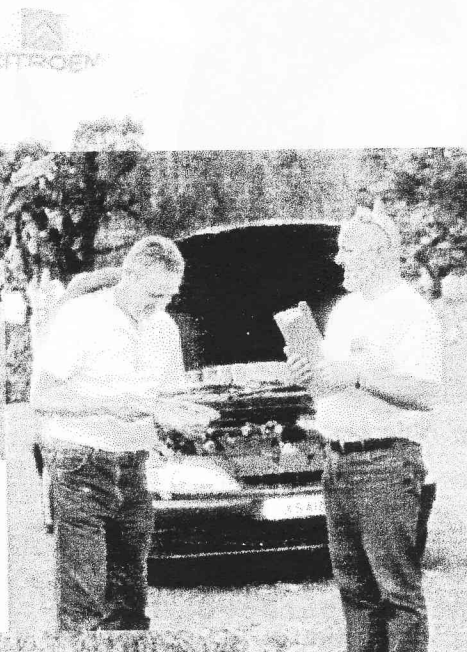
A treasure trove of 2CVs show their all.

The 1998 Concoours generated one of the largest displays of Traction's seen in Melbourne for many years.

Peter Fitzgerald and CCCV President, Don Scutt award the prizes.

Photos courtesy of Mel and Colleen Carey and Ferdi and Karen Saliba





MoDified

This article has been taken from the August 1998 edition of 'The Citroënian', the magazine of the Citroën Car Club of Great Britain. Whilst the activities undertaken may not be to everyone's liking, a certain petrol-head in the Club has rather taken to the idea.

The work was originally undertaken by Tony Mather of Whitely Bay in Tyne and Wear. At a time when most members are assiduously restoring and maintaining their D series largely as original, takes a mental stretch to realise that the car served as a base for countless modified versions in its heyday. Prominent amongst these were Ds specifically built for rallying by contrast, Tony has just built such a car - in the '90s!

Whilst this is in itself an unusual pursuit, Tony has taken things a stage further by not simply replicating a classic 'sixties rallying D. His version is more in the nature of a updated D logically revised for a specific purpose; over to Tony for the full story

Over the years I have owned several Citroëns [2CV, SM, BX 16 valve, Xantia] and have always found them intriguing vehicles, particularly the early ones. However I have always fancied a DS which seems to me particularly Citroën; and recently I decided to look for a DS with which to compete in long distance rallies. I wanted something comfortable, with plenty of room and a bit out of the ordinary. Also, as work was a bit quiet at the time, I wanted a bit of a challenge - hence the idea of a DS.

Last January ['97] I was told of a couple of Citroëns which had apparently been abandoned outside a

garage in the depths of the Durham countryside. I went down to see them and found two LHD cars, a Super 5 and ID 19.

After a great deal of detective work I eventually traced the owner and, after a bit of haggling, bought the Super 5 as seen. So the next weekend two of us drove down to collect it, armed with tools, petrol, battery, LHM fluid and a tow rope. Having had experience of dead Citroëns we expected a very slow tow back. However after a few attempts it started and everything appeared to work, so I actually drove it home and into my garage for a closer look. Initially it simply looked untidy with the only obvious fault a broken driver's window.

As seems to be usual with me, no sooner had I bought this one, than I was offered another — a RHD DS23 Pallas complete with terminal chassis rot. This time I got the engine started, but couldn't combine this with the selection of any gears, so this was a slow tow home.

The garage was now starting to look a bit crowded, so the first job was to completely strip the DS23 down to the bare shell and phone the local scrap man.

Everything was labelled and photographed and taken to work to be stored in any unused corner!



The Super 5 was then stripped down to reveal the full horrors of its corrosion; needing new sills, boot floor, petrol tank, floor, etc., etc! Lots of patching was needed and while it may not be the neatest way of doing things at least the structure is now solid.

The plan was now to prepare the car for rallying. Now much as I like and admire Citroëns, two things need sorting out:

1. The underbonnet appearance is untidy with wires and pipes everywhere.
2. Accessibility, especially at night, in the rain, on a rally is atrocious. So my plan was to tidy and simplify the engine compartment - although this was complicated by the fact that I fancied fitting the hydraulic gearchange from the RHD DS23 to the LHD Super 5!

Anyway as can be seen from the enclosed photos I have now completed the mechanics with the following modifications:

1. The engine was stripped and rebuilt with everything balanced and the flywheel lightened.
2. The standard radiator has been replaced by a lightweight horizontal unit mounted in front of the gearbox.

3. The front handbrake has been removed and replaced by a hydraulic handbrake operating on the rear wheels. [Handy for handbrake turns to get round hairpin bends!].

4. The spare wheel is mounted in the boot.

5. The battery is mounted in the boot.

6. An alternator with built-in regulator has been fitted.

7. The mechanical fuel pump has been replaced by twin electronic fuel pumps mounted under the rear anti-roll bar.

8. The hydraulic gearchange was fitted to the left of the steering column.

9. All the hydraulic pipes between the engine/gearbox and the chassis have been replaced by flexible stainless steel hoses, with specially made adapters.

10. A roll cage has been fitted, welded to the sills, the roof surround and the door pillars.

11. To give more feel to the steering, especially on slippery surfaces I decided to fit a BX power rack, which as it came from a RHD car had to be mounted upside down and a new steering column

made, complete with two universal joints. Rose joints were used to connect the rack to the standard steering arms. However what I had not appreciated was that you also have to use the BX pressure regulator and flow controller before the rack will work! So while I was on it I moved the regulator from the engine to the chassis where it was more accessible.

12. The car was rewired using plugs and sockets where necessary to allow for fast connections to the front wings and the engine harness.

Needless to say, as I have done all the work myself it hasn't cost that much, but it has taken a long time. I hope now to have it ready for painting by the end of the summer and hopefully on the road this year. Externally the car will look virtually standard but should allow much simpler maintenance while being thrashed around on rallies.

In reality if I hadn't been interested in the car as a project I don't think I would have considered it viable to restore it just for the road, so it would have quietly rotted away. At least this way, although I have probably upset the purists it means another DS is on the road.

Incidentally the initial idea was to fit a more modern engine — but that is on hold at the moment as the DS engine rotates anticlockwise, whereas every other engine is clockwise! Now that is typical Citroën!!

Thanks to Tony Mather for his intriguing account and photographs; I would only comment that this is one purist he has certainly not upset, not just because an 'unviable' D has survived but because I think we can all just about cope with an exotic flavouring of distinctly non-standard Ds!



READERS RIGHT

The Editor, Front Drive,
Greetings from the land of the 'Bamboo Trac-
tion'. Saigon has to be one of the most exotic
travel destinations in the world. It is a city with a very
strong French influence, both in its architecture and the
cars on its streets. It is still a city in a time warp where
cars are concerned. Early model Citroëns, Peugeotts and
Renaults, from 30s models onwards are still in active
service, both in original and restored versions. It is al-
most certainly the only city in the world where one is
pretty well guaranteed to see at least one Traction, and
often two, three or more, on the road every day. These
are usually original sedans, Légères, Normales and Famili-
ales, although mostly restored 'Vietnamese style'.
Happy Tractioning,

The Editor, Front Drive
PO Box 52, Deepdene
Delivery Centre,
Victoria, 3103
AUSTRALIA

Alec Protos [Alec Protos]

French motor cars in Saigon with elegant buildings and lush vegetation. The Citroën Traction
and the Citroën Traction Avant are two of the many examples.



classifieds

CARS FOR SALE IN AUSTRALIA

5CV — 1922

Polished aluminium boat-tailed roadster. Well known VSCC car. Full, ground-up restoration. Engine and gearbox professionally rebuilt. Wire wheels rebuilt, inc new rimes and spokes. New 2.75 x 21 tyres and tubes. Dark green upholstery with matching carpet and trim. Handbook, road tests, parts book [en Français]. No expense spared. All receipts etc. Car starts, stops, steers as you would expect. Club registration. \$15,000. Featured in 'Front Drive', Vol 22, Issue 4. [M/J]

2CV6 CLUB — 1980

[see page 19 of Jan/Feb issue of 'Front Drive']. Yellow and black, VGC, very reliable and economical, 104,000 miles, heaps of spare parts and service parts, well maintained and serviced. Study reasons [PhD project] necessitate frequent, long distance travel and a modest lifestyle. Trade in of a new and small [Asian] car will therefore be considered. Car is \$10,500 and parts [new tyres, oil filters, points, belts, etc.] and books \$800. \$11,000 the lot. Reg: OAO 090
Contact Adrian Schoo, 29 Havering Lane, Strathfieldsaye, 3550 Vic. Tel: [03] 5439 3261 [A/h], [03] 5442 4044.
Email: proact@netcon.net.au [M/J]

2CV SAHARA

2 x 652cc Visa engines. Front wheel drive or 4x4. Jade green with mushroom trim. Ripple bonnet with spare wheel insert. Full Queensland registration [621 DME] as 2-seater, but has back seat [no seat belts]. Recent major rebuild. Very good condition all round. \$18,500.
Contact: Annie Tel: [07] 3369 8841 [M/J]

NORMALE — 1953

Left Hand drive. Club registration in Victoria [CH 3477 — Not transferable] Older restoration in Vietnam. Drive shafts and front end work to return to original recently. Black/creme paint. Vinyl interior. Mechanically in fair condition. A complete and unique car for use on club registration as is or for a rewarding restoration project. Comes with a spare ID19 motor and gearbox for four speed conversion if required. \$8,000 or near offer.
Contact the owner Ted Cross
Tel: [03] 98192208 [J/F]

CX 25 GTi — 1984

Excellent condition. Fully reconditioned. 5 speed manual. Black leather interior [fair], air con, power steering, Alpine CD, cruise, sun roof, Tow bar. new brake pads and disc rotors. Factory mags. Needs tyres for RWC Inspect at Paris Motors in Richmond Vic CBG 438, \$14,000
Contact Stephen Collett Tel: [03] 9531 6226 or mobile 0417301493. [J/F]

For more info on the five cars below contact Bert Houteppen.

Tel: [02] 9746 9920 or mob. 0412 141 668 [J/F]

2CV SPECIAL — 1988

White. Reg'd July 1999. Everyday car needs TLC and a good home. Reg. TUD 350 Fuss pots need not apply. \$6,500 [J/F]

D SPECIAL — 1974

White. 12 months reg. Mechanically very good. Has had a kiss in the rear and would benefit from replace/or repair of rear guards [I can supply two good rear guards] Reg. BJ O0Y It is a very good every day car as is. Chassis is rust free! \$2,700 [J/F]

2CV — 1958

Ripple Bonnet 2CV Body. Red. Very good condition LHD. Would make a good club car. Engine is a bit tired but it goes. Chas. 02448426 \$7,500 [J/F]

BX 19 GT — 1986

5-speed, velour, good condition. The last of the real Citroëns. ie, Dash, Single spoke wheel. Reg. OEY 169 Nov 1999 \$7,900 [J/F]

VAUXHALL CRESTA — 1962

White 6-cyl. Very good original car presently on club plates. Ideal for sons and daughters who hate Citroëns. Reg. 015 [Club] \$2,900.00 [J/F]

LIGHT 15 — 1953

Chassis No. 771692. 34,000 original miles only, Log books, workshop manuals, original registration plates on retention [NSW] Maroon. Immaculate condition

Contact Arthur Pike. Tel: [02] 4388 5851 [J/F]

D SPECIAL — 1974

2 owners & only 113,000km from new, very sound in engine and body [colour 6390C0] Reg. IGD 263. Well maintained with good history. To be sold with RWC \$6500.00

Contact: Mel Carey. Tel [0412] 526 126 or [03] 5152 1040 [S/O]

GSA MARK I — 1980

5-speed, in excellent condition. 1300cc. 4 door hatch back Very good condition, new velour to interior, rust spots professionally attended to. Metallic Blue, matching interior. Reg SKW 583 \$6,000

Contact Mel Carey. Tel: [0412] 526 126 or [03] 5152 1040. [J/F]

CX 2400

4-speed Pallas. New white paint, better than average interior with new door trims Reg. OVO 061 12 months reg. & RWC \$6,200.00

Contact Carey Motors. Tel: [03] 5152 1040 [J/F]

COLLECTIBLES & PARTS FOR SALE

TRACTION RESTORATIONS AUSTRALASIA

4 cyl & 6 cyl Traction reconditioned engines and gearboxes

Short or Long engines, standard or modified.

Reconditioned ID engines & gearbox, Short or Long.

Please Note:
By law all advertisements for second hand motor cars for sale in Australia must list the registration number. If the car is unregistered, the engine number must be listed. The full price being asked must be shown. Non-complying advertisements will not be run. Ed.

Reconditioned 4 & 6 cyl Traction Front Ends, complete.

Reconditioned 4 & 6 cyl Traction front Ends, Silentsblocs only.

Reconditioned 4 & 6 cyl Traction & ID Water Pumps

Reconditioned brake master/wheel cyl's

Relined brake shoes

Part engine rebuilds, to customer requirements

[Top or Bottom end]

Reconditioned Driveshafts, 4 & 6 cyl Traction with modern CV joints

All the above are offered on a changeover basis.

Carey Motors P/L

Phone Mel on [03] 5152 1040, Mob: 0412 526 126 or Fax [03] 5152 2615 [A/S]

VINTAGE PARTS.

Set of new Citroën "Rosalie" pistons. Inquires in the first instance to Carey Motors 0412 526 126 [J/F]

LIGHT 15 PARTS

Original Light 15 engine and gearbox

Light 15 complete grille, newly chromed

Light 15 bumper bar [narrow] and strand also

water pumps, generator and starters.

For full details call Howard Burrage,

[03] 5495 2094 [S/O]

LIGHT 15 PARTS

Pair of enamelled Citroën Chevron [white and yellow] and marque name [blue on white] Garage signs [c1960s?] \$500, or best close offer. Will separate.

Ball joint puller, nearly new and front bearing/hub puller and various bumper bars — flat strap and English pressed style. \$150 the lot.

Contact: Max Graham [03] 5367 4116. [S/O]

WANTED

DS 19 PARTS

Front panels — guards, underpan and bumper — preferably with Pallas auxiliary driving lights. Can exchange with Chapron-style auxiliary lights and some cash. Prefer second series [post-1966]

Contact Philippe Mortier.

Tel: [08] 8278 3775 or email at mortierp@ozemail.com.au [J/F]

DS 23 EFI 5-speed Pallas

Carey Motors Fax [03] 5152 2615 [J/F]



technical

SPARE PARTS OFFICER — MEL CAREY

LUCAS WINDTONE HORNS

If a horn fails to sound or its performance becomes uncertain, the fault may not necessarily be in the horn. First check that the trouble is not due to such defects as a loose or broken connection in the wiring of the horn circuit, or even a discharged battery as the horns do take quite a heavy current, short circuit in the horn wiring will cause a fuse, if fitted to blow. In this event, examine the wiring for the fault and rectify accordingly before renewing the fuse.

The poor performance may also be caused by a loosening of the fixing bolts, usually on top of the gearbox on Slough built 4 cylinder. cars. Check and tighten as necessary. If an examination of the above points to be in order, the horn may need adjusting, particularly if the unit has been in service for a long time.

Adjustment.

If two horns are fitted, disconnect one while adjusting the other, taking care to ensure that the supply [live] cable does not come in contact with the car, adjustment does not alter the pitch of the note but merely takes up wear of the moving parts. While adjusting, short out the fuse [if fitted], otherwise it may blow. If a horn does not sound after making an adjustment, release the horn button immediately otherwise serious

damage may occur. Remove the domed cover from the horn being adjusted by first removing the set screw on top of the dome then prising it off the horn body.

Slacken the locking nut on the fixed contact and rotate the adjusting the nut in a clockwise direction until the contacts are just separating, as indicated by the horn failing to sound when the horn button is pushed. Turn the adjusting nut half a turn in the opposite direction, and hold it while tightening down the locknut.

The aim of the adjustment is to is to obtain the best performance with the least current.

Check the current draw with the aid of an ammeter. This must not exceed the stated figures for the following Wind-tone horns;

WT28/9, 6-Volt, 11 Amps;
WT/28/9, 12-Volt, 5.5 Amps.

If the current is incorrect, further fine tuning should be done to the contact breaker until the correct current consumption is obtained. Turn the adjusting nut in a clockwise direction to decrease the current and vice versa.

SPECIAL OFFER TO SPARE PARTS FUND MEMBERS — RARE AS "ROCKING HORSE SHIT"

Brand New Stock.

Original hard to acquire equipment

Windscreen wiper blades for
DS, ID, Pallas 1961-68

Made in England by Trico
ORIGINAL EQUIPMENT

These may be the very last originals available, limited quantity

\$10.00 pair

BE QUICK!

Mel says 'I've haven't seen these since 1975'

HOW TO CONTACT MEL CAREY

PO BOX 469

Bairnsdale

Victoria, 3875

Australia

Fax: [03] 5152 2615

Mobile: 0412 526 126

E-mail address;

citroencarey@net-tec.com.au

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