

FRONT DRIVE

THE MAGAZINE OF THE CITROEN CLASSIC OWNERS CLUB OF AUSTRALIA Inc.

AUGUST-SEPTEMBER 1993





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From the desk

The club has been a very busy club in the past couple of months. Our activities officer - Leigh has been working overtime and running one successful event after another. All these events were exceptionally well attended. Which goes to show that we seem to have hit the right mix of fun, information and venues.

It is also gratifying to start to see those articles and bits and pieces rolling in. It all goes to make an interesting, informative and well rounded magazine... keep them coming. Also special thanks to Peter Holland who has offered his services in helping with the production of Front Drive. Its good to see some 'new' faces getting involved in the club organisation.

Mind you we are still looking for a 'new face' for the position of Treasurer, as you will notice on the left of this page. Come on guys, someone stick you hand up - honestly it will be a far more pleasant experience than going to the dentist.

In this issue of Front Drive take a close look at the coming events, as there are some major things coming up. Firstly the August Club Meeting will feature Jack Weaver, his talk will be on Traction engines and how to get the most out of them. This knowledge comes from many years of preparation of Traction motors for competition, and it is a must for anyone who owns a Traction either in restoration or completed. His last talk on Traction gearboxes was sensational - so this is a definite big mark in the diary.

Other events to look out for include the camping weekend in September (so far good response but everyone seems to want to rough it by camping in a motel), The Puffing Billy Old Time Festival on October the 10th, The Concours on the 17th of October (again to be held at the Scienceworks Museum), and of course the round of Chrissy things. One more event which did not make it in time to go into the calendar is an invitation from the Friends of Rob Roy to attend the British Hillclimb Day on the 12th of December at the famous, recently re-opened Rob Roy Hillclimb. They would like to display a couple of British built Tractions, but we are all invited to enjoy the day and have a boot picnic in the carpark. I attended the big historic event in Feb., and the European Hillclimb a month ago, and would not miss this one for the world. If you don't know where Rob Roy is, it is in the beautiful rolling Christmas Hills near Kangaroo Ground, next to a large population of Bellbirds that do their best to drown out the car engines. I may also be competing in my latest Citroën acquisition to show up the poms - but more on that in a later issue.

Graeme Mc Donald has supplied some fabulous photos of some of the Citroens his family has owned over the years. I have compiled an article on thinking suspension, which shows Citroën is still up there as a leading innovator. Mel Carey has written an article about his now famous Red Six. There is a report on Austraction '93 which almost tells all. Our highly successful Economy Run and Bastille Day Lunch rates a mention from Leigh Miles. We take a look behind those garage doors in Out and About. Members Forum hits the press again with a 'cool' article from Gerry Propsting. But the big new regular feature that kicks off in this issue is the Restorers Guide which lists businesses and services recommended by you to help others with a successful restoration or repair. Keep them coming in, especially from interstate as half our members are from outside Victoria.

Well thats about enough from me so read on and enjoy...

HONORARY LIFE MEMBERS

Nance Clarke	1984
Jack Weaver	1991

CCOCA MEMBERSHIP

Annual Membership	\$30
O/S Postage	add \$9

CCOCA MEETINGS

Every fourth Wednesday of the month except December. Canterbury Sports Ground Pavilion Room, cnr of Chatham and Guilford Road, Canterbury Victoria Melway ref. 46 F 10

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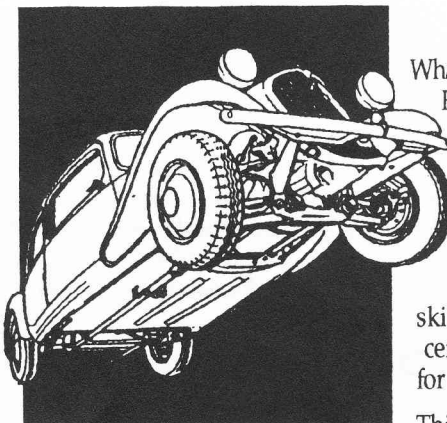
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PRESIDENT'S REPORT



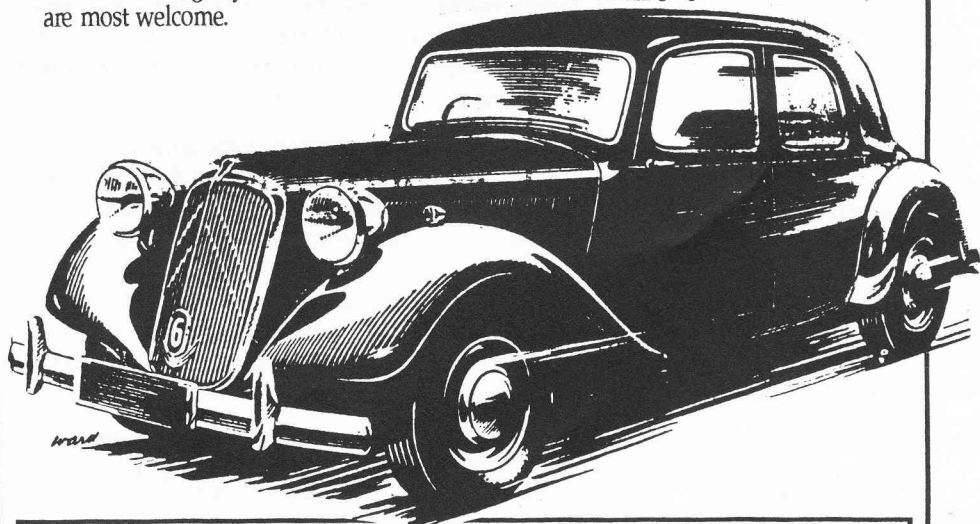
What a resounding success the 1993 Austraction Rally to Horsham turned out to be! Despite the snow, sleet, rain, extremely low temperatures and gaps in the walls of the motel room, all those who attended (after being defrosted) had a memorable time. My personal thanks to Leigh Miles for a great weekend. Superlative organisation skills that have not gone unnoticed - he's certainly not going to be allowed to get away for a while yet!

This Rally was the first at which the Iain Mackerras Memorial Trophy was presented. Graham and I were proud to be its first recipients. My thanks to Dick and Barbara Mackerras for donating the trophy in Iain's memory.

This report is being compiled on the eve of our departure to Canberra for the All French Day. We're taking the opportunity to have a look at how others do these events as we are again represented on the Planning Committee for All French Day 1994. The Peugeot Club are hosting next years event and are on the lookout for some feedback and ideas on how to make this event a significant part of the calendar.

As you may be aware, the Treasurer's Position has still got the 'VACANT' sign in place. It is most important that this position is filled - the Committee is designed to function with six people - perhaps you feel you could offer something to help, but not do that specific job - Please stand up and be counted! In the longer view, The organisation of the National Rally in '95 means a very efficient, fully 'filled' Committee is essential to support those club members who will be taking on that task. Give it some thought!

Meetings of the Committee take place on a regular basis on the Tuesday following the General Meeting. If you would like to attend one of these meetings, please contact me you are most welcome.



NEW MEMBERS

The Citroën Classic Owners Club of Australia would like to welcome the following new members an look forward to enjoying their company at future events.

Maura Croghan and Richard Rockmore of Kew - They are looking for a car to purchase

Ian Anderson of Williamstown - owns a 1951 Light 15

1993 CALENDAR COMING EVENTS

AUGUST

SUNDAY 8TH VOYAGE CITROEN

Event 2nd Annual Winter
Warmer Day Run

Meeting Point Nunawading Civic
Centre
Maroondah Highway,
Nunawading Melway
Map 48 G9

Time 9.00am

Destination Upper Yarra Dam

This event was a great success last year, despite the early start. Again the Club will supply a cooked brunch for a small charge.

WEDNESDAY 25TH CLUB MEETING

Event Jack Weaver on engines
Venue Canterbury Sports Oval
Time 8.00 pm

SEPTEMBER

WEDNESDAY 22ND CLUB MEETING

Event Preparing a Concours
winner
Venue Canterbury Sports Oval
Time 8.00pm

In preparation, with sufficient time to make use of the information, an experienced Concours judge will provide advice on preparing your car for the annual Combined Clubs Concours in October. Learn a few tricks and try to gain those few winning points

SUNDAY SEPTEMBER 24TH-26TH VOYAGE CITROEN

Event CCOCA Camping
Weekend
Venue Warnambool - Western
District of Victoria

A re-newed event on the CCOCA Calendar - the Club has previously run inexpensive camping weekends with great success. However, over recent years these have not been included on the calendar -

so now is your opportunity to show your prowess in erecting a tent, in the dark, and joining other intrepid idiots on a great weekend in the Western District of Victoria. More details to follow.

OCTOBER

SUNDAY 10TH VOYAGE CITROEN

Event Puffing Billy Old Time
Festival
Venue Belgrave - the Puffing Billy
Line to Lakeside
Time From 9.00am

The Puffing Billy Old Time Festival celebrates the motoring scene in the Dandenong Ranges from the foundation of the rail line to Gembrook in 1900, through to 1962 - when the line was closed by Victorian Railways, and the Puffing Billy Preservation society took over. Booking forms for the event will be available from Robbie Stockfeld soon. Booking for this event is essential.

SUNDAY 17TH VOYAGE CITROEN

Event Combined CCOCA and
CCCV Annual Concours
d'Elegance
Venue Scienceworks Museum.
Williamstown Melway
Map ref 56.B1
Time From 10.30 am

One of the major events in the Annual calendar, the Concours at Scienceworks last year proved itself to be a great day out for all the family. With a market atmosphere of both Club Shops (a chance to buy a Christmas present for your devoted Citroenthusiast), a great array of vehicles and something to keep the non enthusiast happy, it is bound to be a great day again this year.

WEDNESDAY 27TH CLUB MEETING

Event Film Night
Venue Canterbury Sports Oval
Time 8.00 pm

This is an opportunity for members to see - or see again - some of the excellent films

that have been made on behalf of both Citroen and Michelin. We do expect some new footage to be made available to us, so even if you think you have seen everything in the film archives, you may be in for a surprise.

NOVEMBER

13th - 14th

Event Bendigo Swap Meeting
Venue Showgrounds - Bendigo

SUNDAY 21ST VOYAGE SANTA

Event Annual CCOCA Parts
Auction and Children's
Christmas Party
Venue 16 Harrow Street
Blackburn South
Melway Map 61, H4
Time From 11.30

PLEASE NOTE THE CHANGE OF DATE
FROM YOUR LAST CALENDAR

Once again Santa is arriving early in 1993 to visit CCOCA, so bundle up the kids, and any other parts you are keen to get rid of, and your wallet, and help make this a great day in the sun. BBQ facilities will be supplied, bring your own food and refreshments.

WEDNESDAY 24TH

Event Club Meeting
Venue Canterbury Sports Oval
Time 8.00 pm

DECEMBER

SATURDAY 11TH

Event CCOCA Christmas
Meeting
Venue The Stockfeld/Bradshaws
119 Victoria Street
Flemington
Melway Map 2A B1
Time 8.00 pm

PLEASE NOTE THE CHANGE OF DATE
FOR THIS EVENT FROM YOUR LAST
CALENDAR

This is the final event in the CCOCA calendar. Your last chance for a drink and a chat with fellow members and their families for 1993.

Dates to keep in the diary

Sunday August 8th

Annual Winter Warmer Run to the Upper Yarra Dam. This event was a great success last year and the numbers are expected to swell this year. The Club will supply a sumptuous hot brunch for the price of a cup of coffee and a lump of dry toast A great day out for the family

Wednesday August 25th

NOT TO BE MISSED Jack Weaver talk on how to get the most out of your Traction motor. This is an absolute must for the restorer or the repairer,

Sunday September 24th 25th

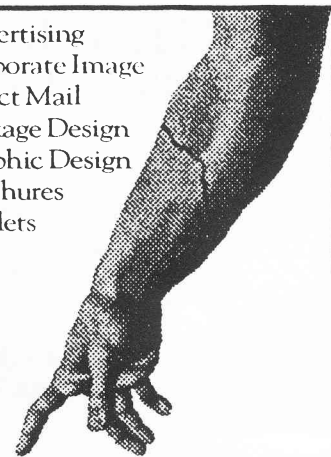
Bookings are filling fast so get those registrations in for Fun Frolics and Front Drive. What more could you ask for!

Sunday 17th October

Get those polishing cloths at the ready. Round it comes again. Heres a chance to show you pride and joy to the public at large and see the look of total inadequacy on their faces. A huge display of great Citroën machinery is expected in a market atmosphere. All people driving a Citroën will be given free admission to the Museum - One of Australia Premier Museums - the Scienceworks It will keep those kids enthralled for hours.

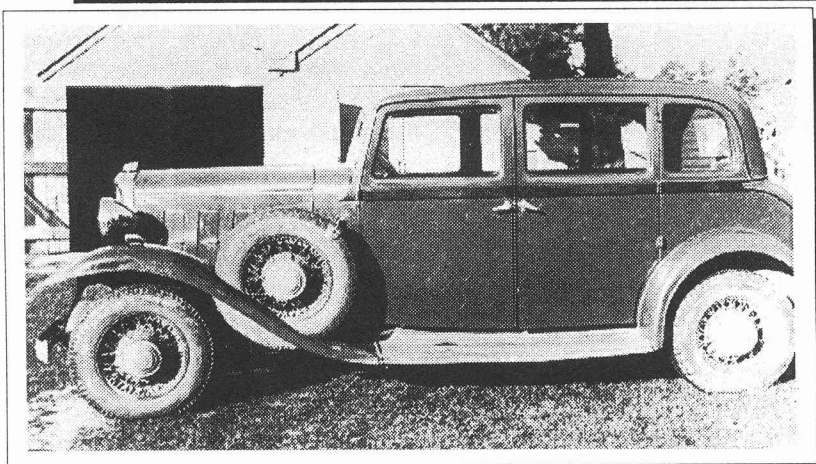
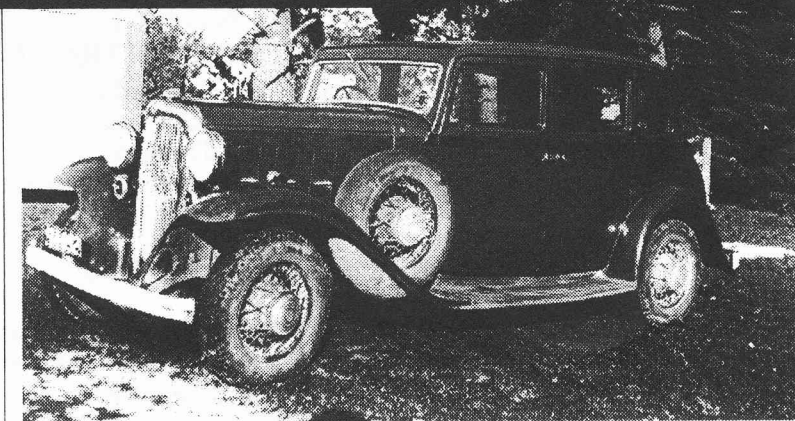
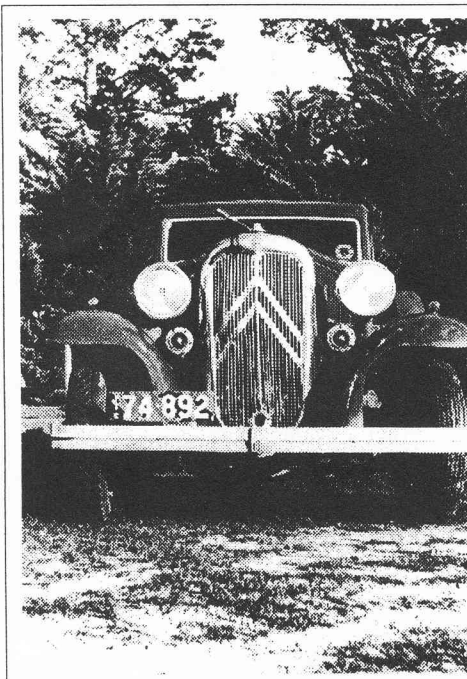
See you all there!

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ToThe Point
Contact Peter Fitzgerald
Phone (03) 528 45 49

MEMBERS ALBUM



The photos on these two pages were supplied by Graeme Mc Donald

They are of his family Citroëns in days gone by. Some cars were the family "hacks bought by his father from King and George Motors Crewick Street Ballarat

The vehicles shown are:

1949 (MY 940) Light 15 - Graeme's car he bought new for £940 new Maroon

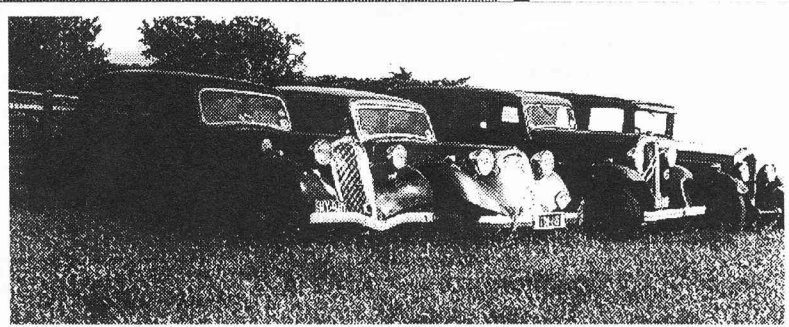
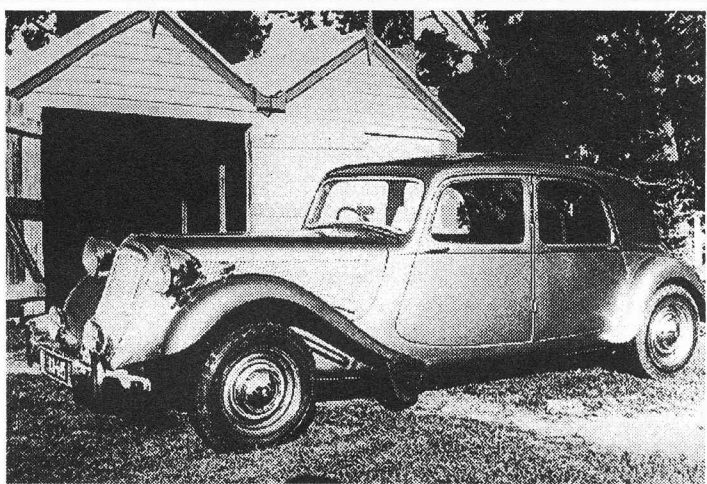
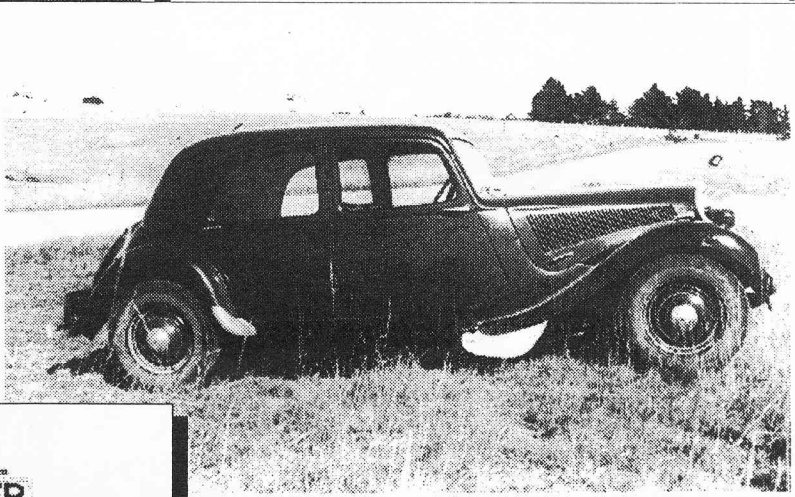
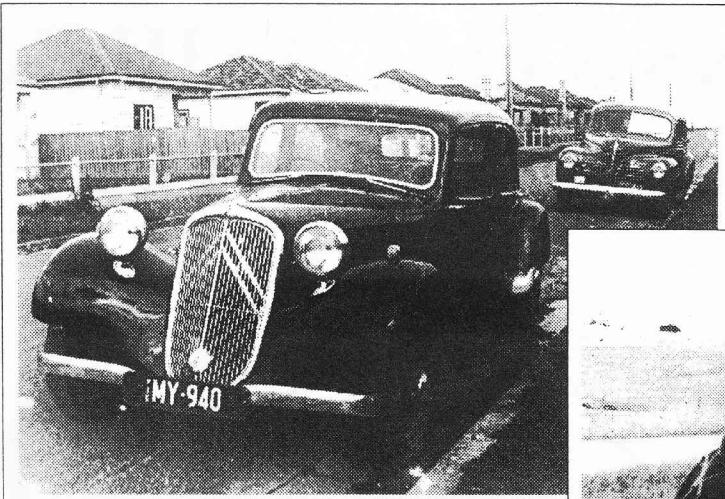
1950 (RA 695) Fathers '6' Silver

1934 (74 892) 4 cyl, 4 speed box. Originally Maroon with black guards but the shot was taken when it was brown.

1929 Six - Fawn with brown disc wheels

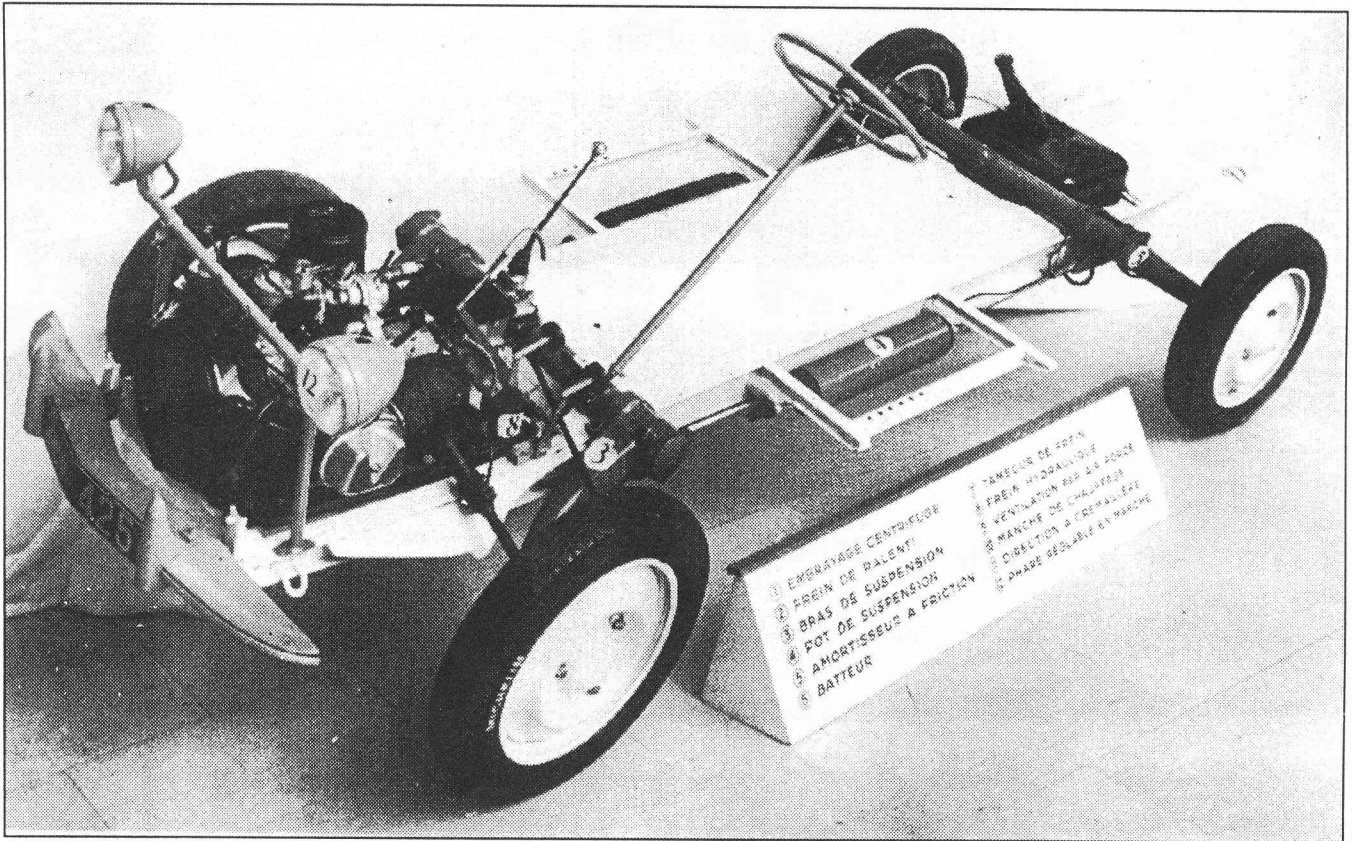
The family also owned a 1924 model and 1927/28 model (both tourers)

For those interested Graeme has original owners handbooks - Copies available from Robbie Stockfeld @ \$5.00 each



SUSPENSIONS THAT THINK

COMPILED BY PETER FITZGERALD



All modern active or adaptive suspensions says Geoffrey Howard are driven by control systems which react, process information, then operate fast responding systems.

It has always been the suspension engineer's unreachable goal to maintain simultaneously the highest standards of ride handling and body attitude control, under all conditions. The problems are huge and complex, but they stem, broadly speaking from the wide operating range created by the many possible combinations of road surface, speed and vehicle load. And as the relative weight of unsprung masses increases with reduced vehicle size, the problem is especially acute in smaller cars and growing more so.

Conventional suspension systems must always be designed as a compromise. Even with the aid of self levelling and interconnections between the wheels, any system that is soft enough to provide a very comfortable ride cannot also provide the stiff location a vehicles body needs to ensure the best possible handling. At the heart of the issue is the often overlooked but fundamental fact that ride is a measure of the

suspension's ability to handle vertical forces at ground level, while handling and attitude control are influenced mostly by horizontal forces acting on the centre of gravity and by ground level couples or moments.

The dynamic performance of car suspension systems has progressively improved over the years, as the science of wheel control has developed hand in glove with more advanced analysis techniques and refinement of the basic kinematics. The design of wheel geometry, springing media, location members, damping elements, insulating bushes and tyre characteristics can today achieve standards that are way beyond those even envisaged through complicated hydraulic systems 20 or 25 years ago.

The fundamental difference between an active and a passive suspension is that active systems provide independent treatment of the road induced (bump) forces from the body inertia (cornering) forces. In simple terms, that means you can have a car with very compliant bump-absorption behaviour, which is so stiff in resist-

ing roll, drive and squat, that the body stays more or less flat whatever you do.

While pure active suspensions are system-driven, it can be argued that there are some "less active" or "reactive" suspensions that are road-driven, and there are several examples where some of the performance of active systems can be simulated by internal processing of the direct road inputs. The two examples which come immediately to mind are the Citroën 2CV, which has interconnected mechanical springs, and the ill-fated Morris 1100, the first car to use Alex Moulton's Hydrolastic suspension.

Hydrolastic was one of the neatest and most underexploited reactive suspensions ever conceived. It was first patented in 1955 and launched commercially in 1962 in the Morris 1100. Although it worked very well in its original form, it suffered from long term durability problems in service and never made a successful transition to the mini, and on large models.

Hydrolastic was road-driven by the load inputs from the wheels and totally con-

trolled from within the system itself. It had some very clever features that effectively simulated an active system.

The integrated Hydrolastic system did four specific things: It absorbed vertical shock forces, it dampened the subsequent rebound motion without fade, it dissipated the energy of the induced motion and it fed front inputs to the rear in proportion to the vertical wheel velocity.

If the same spring is shared each side between front and rear suspension (as on the first 1936 conception of Citroën's 'people' car, later developed into the 2CV) any pitching moment caused by deflection of the front suspension is countered by an equal and opposite moment at the rear, cancelling disturbance.

The problems start because the centre of gravity is never on the line joining front and

rear suspension pivots so it causes additional moments usually described as dynamic weight transfer. These are totally freely mounted linked springs so the interconnection must be compromised some what to reduce the excessive squat and dive that would otherwise cause the car to hit its bump stops at the rear when moving off and at the front under braking.

Yet the advantages of interconnection endowed by the Morris 1100 with a most amazing ride and handling balance for a 1962 car of its class. Sadly, the considerable potential of the system was never fully developed.

The story at Citroën was much happier. Their adventurous hydropneumatic suspension, first introduced in 1953 on the rear of the Big Six Traction Avant, was carried over to the front and rear of the new DS 19

in 1955. It did not use interconnection other than to provide self levelling under load, however, and was only 'adaptive' in static terms under the influence of pressurised hydraulic controls which changed the spring rates and damping to provide a near constant ride frequency.

It probably stimulated Alex Moulton into filing his Hydrolastic patent and led directly to the design of many other hydropneumatic systems, notably from Mercedes Benz for the 600 in 1964 and later S Class models, and from a German component supplier called Langen AG of Dusseldorf in 1965.

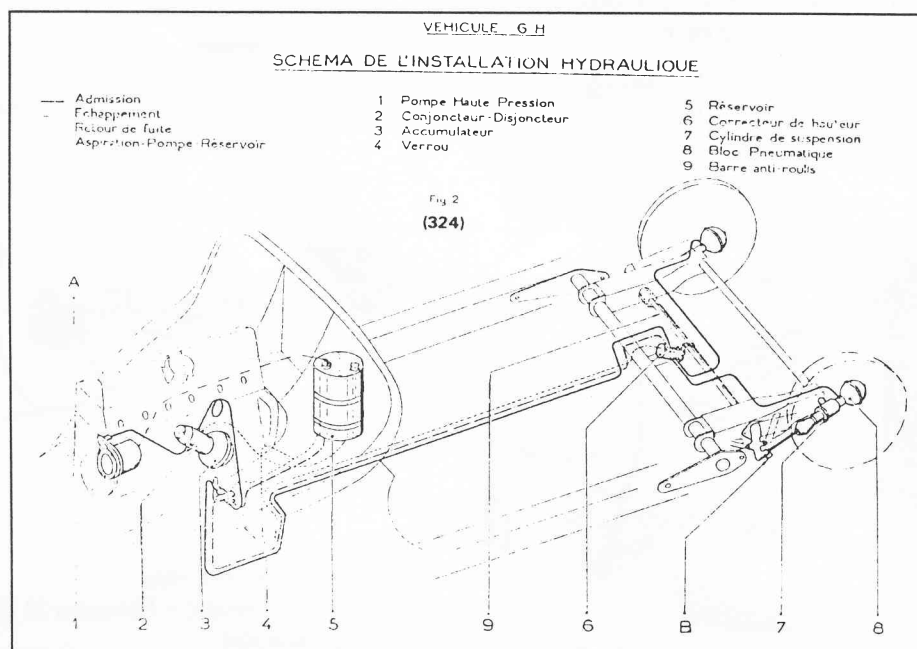
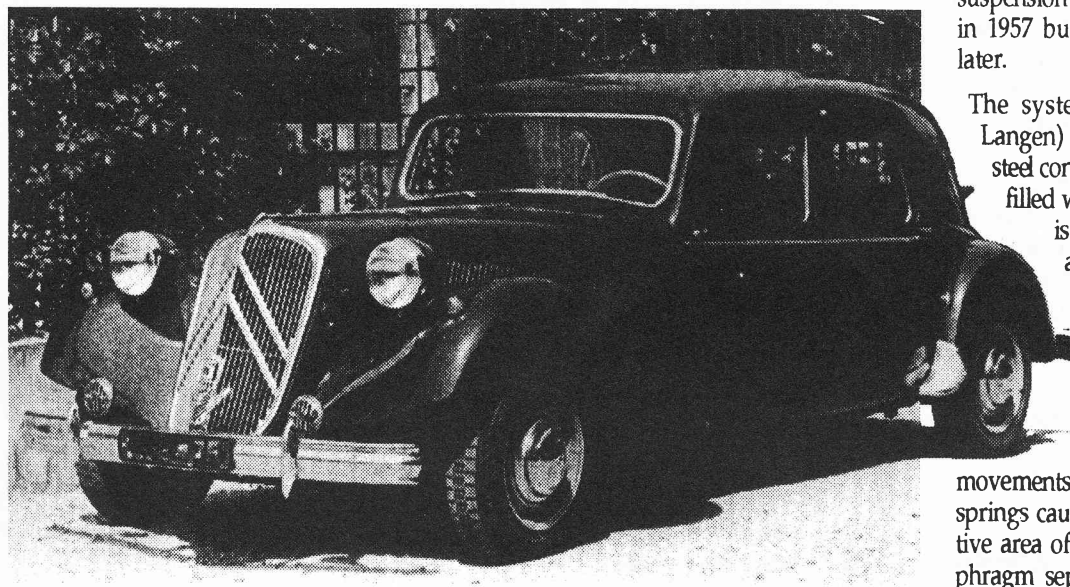
Non-adaptive but self levelling air suspension dates back even further, to Firestone experiments in the 1930's which eventually resulted in air springs being fitted to Greyhound buses in 1952. Air suspension was also adopted by Cadillac in 1957 but dropped only three years later.

The system used by Citroën (and Langen) employs spherical shaped steel containers in which a rubber bag filled with nitrogen under pressure is compressed by the action of a working fluid (mineral oil).

Various valves in the system control the flow and pressure of the fluid to provide a constant ride height regardless of load. They also provide damping of the wheel movements and a variable rate for the springs caused by changes to the effective area of the convoluted rubber diaphragm separating the fluid from the gas.

But the Citroën system is actually prevented from responding to rapid changes in wheel position in the way Hydrolastic can. The Langen system, on the other hand extended Citroën principles further towards true active suspension theory, by interconnecting the hydraulic line front and rear. Unlike Hydrolastic, the connections were made diagonally and both front and rear spring units were mounted at the rear.

The advantages of this approach was that although the stiffness of the springs roll was less than in a non-diagonal connection, the diagonal pitching moments were resisted better. Langen spent several years developing their system for production and fitted prototype units to several cars, including a Morris 1100, a





Ford Taunus 12M, a Citroën DS19 and a Mercedes Benz 220S. But it wasn't adopted as original equipment.

The first truly active suspension, stabilised to eliminate pitch and roll, was developed by Automotive Products in the early 1970's. A prototype Rover 3500 P6 was used for some very convincing demonstrations at the time and a similar system was fitted to a Ford Granada research vehicle for assessment in 1974. I was an extension of the Langen principles used in conjunction with a primary main system, several motion sensors and a very fast acting, high capacity hydraulic pump. Unlike the Citroën system, where time delays are built in to prevent fast reactions.

The early Automotive Products systems generated selflevelling under inertia loads to provide virtually zero roll and zero pitch.

But the system operated by generating a displacement error that was then corrected, and it took time to respond. It was a two edged sword which killed off the concept before production.

Lotus effectively removed all of these constraints in their active system by replacing the spring and damper units with irreversible double acting hydraulic actuators.

The first test car was an Esprit, followed by a Lotus 92 formula one car. Both used the most advanced suspension control ever tested, based on precision signal conditioning units designed by the elec-

tronics boffins at Cranfield who used digital control of analogue inputs to maintain hydraulic pressure, tailor the dynamic attitude of the car at speed and monitor the health of the system at all times.

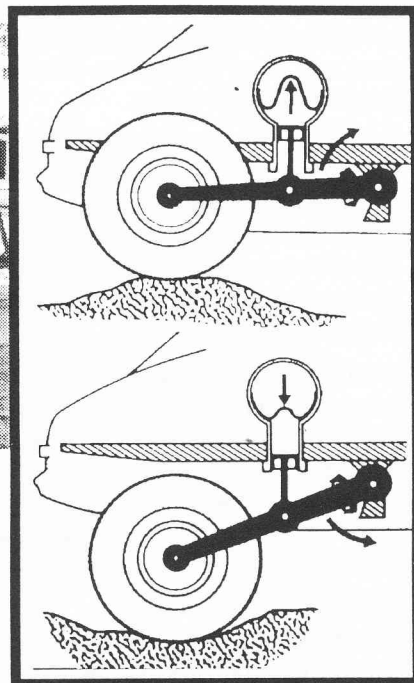
The result on the Esprit, as the systems were developed was dramatic. Control of body motion over bumps and complete absence of roll or pitch in transient manoeuvres provided security and precision which made a quantum leap from even today's high standard at Lotus.

Citroën in 1993...the XM

Citroën was the first manufacturer to apply active suspension technology to mass production car - the XM. Called Hydractive, the XM suspension was described by one British magazine as the finest suspension yet made.

Other suspensions simply react to road irregularities, but the Hydractive systems deals with them through the use of sensors and a powerful processor.

Sensors monitor vehicle speed, body movement, braking effort, accelerator pedal

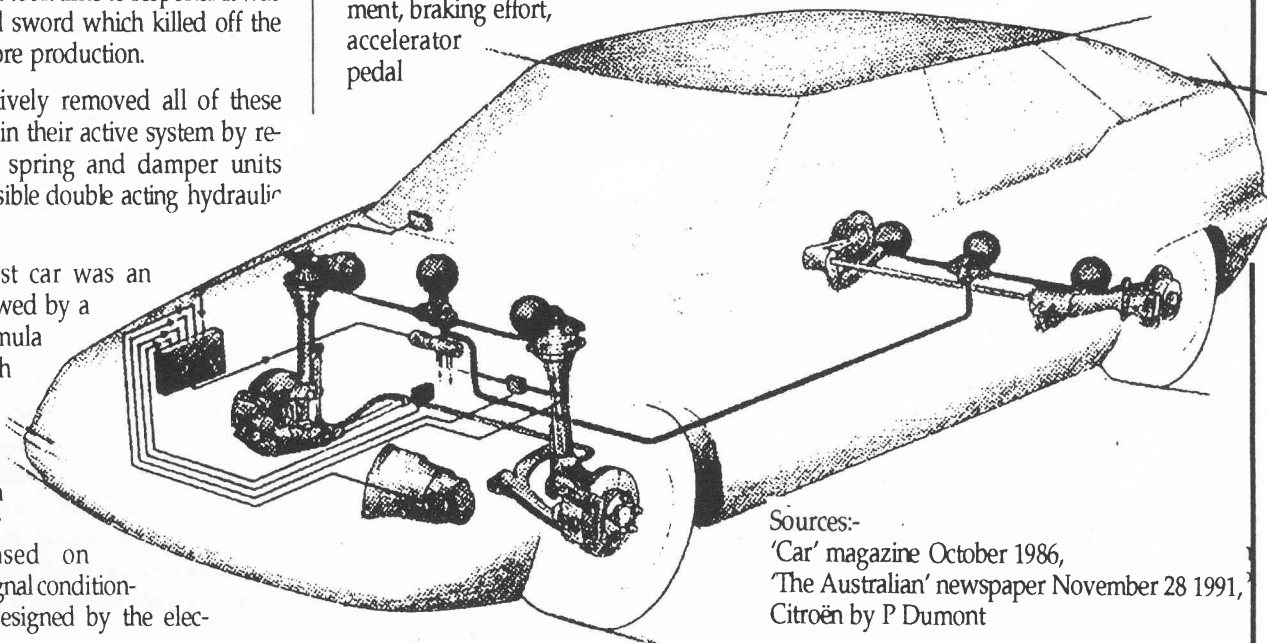


movement and steering input and this information is used to select the appropriate suspension setting.

What makes the Citroën system different to many other semi-active ride systems, which control only the shock absorbers, is that it also controls the springs.

The change from soft setting for cruising or coping with bumps to a hard one for high speed cornering or an emergency situation is made in just five hundredths of a second.

Driving into a pothole, the system senses the front wheel dropping and can adjust the suspension before the rear wheel hits the hole.



Sources:-
'Car' magazine October 1986,
'The Australian' newspaper November 28 1991,
Citroën by P Dumont

THE RED CAR

MEMBERS CARS



It was bought in 1980 from Diane Walton in Hawthorn, Ms Walton had bought the car in 1976 from Peter MacGregor of Box Hill.

The car was registered and RWC, but we never continued the registration on, letting it lapse. CT 054 being the last registered number.

This red car as it became known to us, as Distinct from the Grey Car (which is another story) was bought for spare parts as it was rather tired mechanically and very rough in the bodywork. We just kept it running and complete.

It was around 1987/88, I decided it should be saved and used, so another engine was fitted which made it go alright, but the brakes weren't too good and the wiring was falling to pieces.

We used it occasionally, just to give it a run using the number plates of the grey car which remained registered (WG 477)

In 1991 when we moved to our present address, Colleen encouraged me to sort out some of the problems with this "red" car so we could enjoy it and perhaps get to some CCOCA functions.

Our first big outing with the car was to the National Meeting in Goolwa South Aus-

tralia in 1991. As a form of insurance we took the car on the tandem trailer behind the F100. We had a great time in Goolwa and it paved the way for subsequent trips, Daylesford - Austraction '91, Canberra - National Meeting '92, Yarrawonga, Austraction '92.

In between Canberra and Yarrawonga, with help from Graham Bradshaw the motor and transmission was removed for replacement of silent blocs. Other jobs were undertaken at that time E.G. - Engine bay rewired, turning indicators fitted, driving lights fitted, complete stainless exhaust fitted, new windscreen seal, New/reconditioned drive shafts

Manually operated dipstick fitted to enable easier checking of oil condition and quality, brakes totally refurbished, windscreen washers fitted, cooling system overhauled, generator overhauled.

We didn't have time to check the alignment of the front end until after Yarrawonga, after setting it up properly the car started to feel pretty good, we were gaining confidence, perhaps it could undertake a trip under its own steam?

Those of you who have read the account in Front Drive of the "Gourmet Deli Run" will appreciate that trip and running a big

end bearing before reaching the destination.

So the motor came out again, this time for big end repairs and rings while we were on the job, a few extras as well! - Fit water Temperature gauge, New extra heavy duty battery, New mudguard piping, CB Radio, New Carpet throughout, a battery operated clock to replace the original unreliable unit.

After a run-in to Melbourne, a round trip of some 300km without incident, we decided Horsham was the go, tandem to Melbourne, then under her own power Melbourne to Horsham return.

And what a successful trip, she ran like a bird. Not missing a beat. I really enjoyed driving the car over this longer distance, at times, quite fast. Colleen also had a good drive on the observation run during the weekend and not to be outdone drove more than once at an indicated 80 MPH.

The car is by no means in top mechanical condition, but it is useable and until the grey car is complete the "red" car will do the job.

It will soon be graced with its very own legal number plate - ct 051 (Citroën 1951) which will be its permanent number.



THE BIG WEEKEND AWAY

AUSTRACTION '93

Believe it or not, this is on the Melbourne/Ballarat Road. It was closed when this shot was taken.

Well another Austraction rally has come and gone, and all the Rallyists are now safely home trying to pick up the thread of normality again.

The rally organisation was again flawless and many thanks must go to Leigh Miles and the Late Iain Mackerras for the planning and execution of Austraction '93.

Friday was a day of expectation of the great event to come. Fortunately I headed off from Melbourne mid-afternoon. This was because the weather was absolutely atrocious, bitterly cold with horizontal torrential rain that obviously was not going to get any better. The rain was so heavy that the wiring under the bonnet of my 'Mobile Monastery' (Renault 16 - in virgin white with flying buttress roof - original owners a convent) [I knew I should have been in a Citroën] got very wet and was in danger of losing its ignition. Basically after five and a half hours (it should have been three and a half), a can of CRC, 3 blown headlights, and seemingly endless miles of road works, Horsham loomed out of the wet night and we turned into the welcome sight of the Majestic Motel.

I was not alone in having a rough trip. I think everybody found it hard going. The Cross's did not arrive until 1 am.

Mind you, the way the day dawned the next morning I still thought I was wise to come up Friday night. The weather was overcast and the wind bitterly cold. The Smiths in the black Traction (pictured) struck snow and ice on the Melbourne - Ballarat road. That road was closed for a short period. The snow continued to fall in Ballarat until lunchtime. John Couch made a heroic journey through the ice and snow to make it to Horsham - on a motor bike.

Back to Friday night. The parties were in full swing. And once my room was re-decorated (if you have been to an Austraction recently, you'll know what I mean) I invited the 12 or so early arrivals over for a pleasant little 3 course dinner party. Yes... in my motel room.

After avocado vinaigrette, Chicken Galantine with Ginger and Cranberry Chutney and salad, we were joined by more arrivals to share in the wheel of King Island Brie stuffed with Raspberries served with fruit bread. The happy throng compare travelling horror stories, generally caught up, and of course talked about all manner of things Citroën until around 2am.

Up bright and bubbly (I think not) on Saturday morning and over to Sawyer Park by 10am. This was the official registration, photo session and rally pack hand-

ing out morning. The wind was like ice and after an hour or so, so were we. We made a rapid retreat to the 'Round about Lunchtime' coffee shop for a thawing hot cup of coffee and a spot of brekky.

The gang regrouped around 2 pm at Sawyer Park for the start of the Observation Run. I fortunately was involved in the planning of this event and so was ineligible to compete. I retired to the Motel for a little Snoozette.

Meanwhile the avid Citrofiles were careering all over the countryside discovering such delights as the Dooen Pub, The Longeranong Agricultural College, the Jung Jung Swamp and of course Murtoa. All made it back safely with enough time to rest, recover, dress for dinner and make an appearance at the PreDinnerCocktailParty, in whereelse... my room.

46 Happy Citrofiles crammed into one room with still room for the extra plants, statues and assorted candelabra - what an ugly sight!

Dinner was at the Commercial Hotel in Horsham, which was very pleasant, and the best Fillet Mignon I have had in years!

Late in the night the intrepid Les Tapping arrived, a little dishevelled and

grubby after a 'small' problem with his DS21. Just something simple like his dashboard catching on fire. Fortunately he stopped it before it caused any major damage, and found a local auto electrician who gave up his Saturday night to repair the damage. Apparently Les had got an auto electrician to do some work in the preceding week in Adelaide, and the auto electrician not so much fixed the problem, more fitted a time bomb.

Anyway after dinner everyone bundled themselves into their respective pieces of Auto History and back to the motel, where a good proportion ended up in... you guessed it... my motel room. Another 2 am finish.

By this time we all came to the conclusion that we not so much had a weekend away on our hands, but a living, breathing and growing animal that we seemed powerless to control.

Sunday was a little harder to crawl out from under the doona, but we all made it to the start of the Day at 10am ish.

We started with breakfast at the 'Round about Lunchtime' which provided a pleasant start to the day's travelling.

I bundled myself into the 2CV Sahara owned by Phil Ward. And off to the 2nd stop - Mount Arapiles - world renown for its abseiling.

So off we headed at near warp speed passing everything in sight. As a long time 2CV owner this was quite an experience - two by 602s instead of one. I must admit one of the car's we passed was Ted Cross's with a thrown generator belt and Mel Carey and his Six, were there ably lending a hand. Gosh haven't they learnt yet that they don't need six cylinder just two with a spare in the boot!

Mount Arapiles is an amazing sight. A little like Ayers Rock, it rises vertically out of the flat plain. When we arrived we clambered to the top to be greeted by the most magnificent view of the surrounding countryside and the Grampians in the distance - our next stop.

Also at Mount Arapiles were a swarm of those little Austin 7 things. Yes, I know they are quite quick - especially the racer versions. But really, all those big people squeezing into something the size of a pedal car. How the hell do they fit all the essentials in when they go away for the weekend... like concrete statues and maiden hair ferns... silly cars.

So after a further bit of peering under Ted Cross's bonnet and head scratching we headed off to the Wartook Pottery at the foot of the Grampians for a sausage sizzle lunch and Club wine tasting.

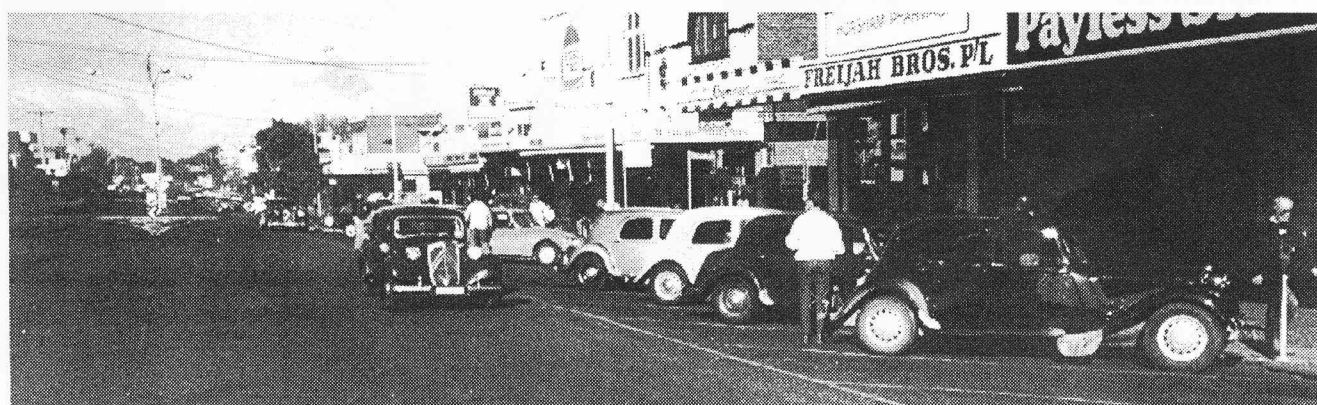
We were then due to drive over Halls Gap, though the Grampians, and back to Horsham. Unfortunately or was it fortunately we were all having such a good time we stayed put, and just went straight back to Horsham.

After all we had the big Presentation Dinner to make ourselves beautiful for.

And what a grand dinner it was. The venue was a mansion built in 1926, and has remained substantially unchanged since then. The new owners only made small changes to a couple of doors etc and of course added the commercial kitchen.

After a sumptuous dinner in front of the massive fireplace, Leigh Miles and Robbie Stockfeld launched into the official part of the evening - handing out all the trophies that we had all competed for over the course of the weekend.

A new perpetual trophy was introduced this year. This was awarded to the winner of the observation run. The trophy named the Iain Mackerras Memorial Trophy was presented to CCOCA by Iain's parents as a thank you for the acceptance and enjoyment Iain received from our Club. We thank Dick and Barbara for this wonderful gesture. Unfortunately they were unable to come to Horsham to present this trophy, but they asked Leigh Miles to present it on their behalf. Well done Leigh!



TOP: A trio of Sixes out the front of Glen Logan Restaurant

BELOW: Horsham's streets seemed full of Citroens and especially Tractions.

The winners of these trophies and raffle prizes are listed below.

Well after the presentations, the frivolity, deserts, coffee etc started anew.

The bus that delivered us there arrived all too soon, and we were all joyfully (in full voice) on our way back to the Majestic Motel, and guess what... my room.

I had put on a spread of after dinner cheeses and every one arrived with their favourite after dinner drink. Mind you not that too many of us need another drink, but nothing succeeds like excess!

All the partying and racing around took its toll and by the early hour of 2.30 am we cleared the room of guests and hit the sack.

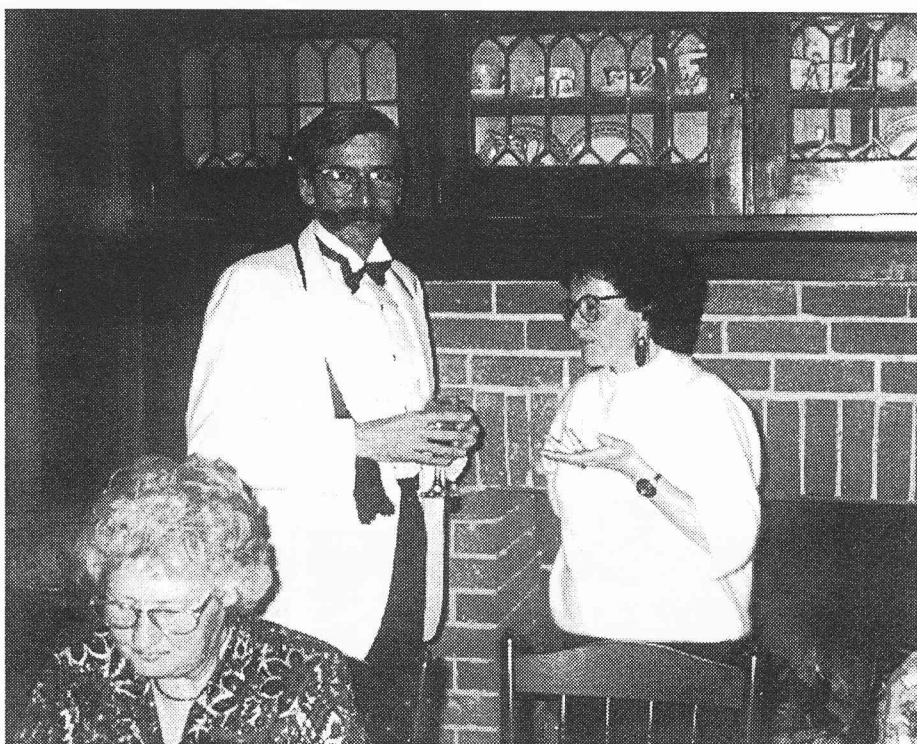
The next morning, feeling a lot second hand we headed off to the final event of the weekend... the traditional Chicken and Champagne send off - god not more booze. But being true troopers in the face of absolute exhaustion we hit party mode and dined one last time before the sad fair well. It is a bit sad really. Some people we only get the chance to see once or maybe twice a year, and it is a bit like one big happy family going their own way.

The trip home was far easier and almost pleasant, even allowing for the road works. You know I think it is a plot against Citroens by the road works planners, that seem to follow us around.

Well it is off again next June to Bairnsdale for Austraction '94. I am already working on the menus for the parties...yes you guessed it in my room!

The Citroen Classic Owners Club of Australia would like to thank the following sponsors for their support of Austraction 1993. We encourage our members to support them as they have supported us.

**Tupperware Australia
Cussons Pty Limited
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J & J Cash
Michelin Tyres**



TOP: most of the group with the exception of those we could not drag away from the fire

MIDDLE: Lunch at the Pottery

BOTTOM: Bev Bennet giving Leigh Miles a few pointers on how to dress



Stuart Pekin (WA) trying to ignore Bob Koster and Phil Ward fight over the last bread roll, or perhaps it was the young maiden Gay.

CCOCA ECONOMY RUN AND BASTILLE DAY LUNCH

11th July, 1993

by Leigh Miles

It has often been suggested irreverently, in these pages that God must drive a Citroën. Well it is equally clear that God is also French, for the weather that was turned-on by the Almighty for the Club's Economy Run and Bastille Day Lunch was quite superb - especially when you, dear reader, remember that we are talking Melbourne, in Winter! (I also trust that the feminists amongst the readership have noted that I have avoided any indication regarding the gender of God in this paragraph.) Whilst members north of the border may not regard 16 degrees and sunny as anything about which to write home, those of us in Southern climes found it a welcome change from the bleak weather of recent times.

The response to this run was excellent with members planning on coming from far and wide. Not only were there members from Melbourne, who participated in the Economy Run part of the day, but we were joined by members and friends from Geelong and Ballarat for lunch. The non-existent prize for longest distance travelled did not on this occasion go to Stuart Pekin. Instead it went to the grateful hands of Phillipe Mortier, from South Australia. Some have suggested there were other reasons behind Phillipe's arrival in Melbourne for the weekend, but, I want to

assure you Phillipe, your secret is safe with me. (That of course is one of the four great lies, which include 'the cheques is in the mail', 'the ever popular Dulcie Boling' and the other I will refrain from mentioning, as this is a family magazine.

The Melbourne end of the crew gathered at the petrol station on the city side of the Westgate Bridge. The official start time for the event was 10.30, but it was 11 before we got under way. In fact by the time we officially started, the Wade equipe (Russell, Ann and a flock of juveniles) had already headed off with the avowed intention of letting the children loose on the beach at Portarlington before we gathered for lunch. The Wade's decided not to participate in the Economy Run, as the risks of being forced to buy Aladdin figures at the Mobil garage at the end of the run was more than they were prepared to endure. Friends of Peter Fitzgerald's - Beverly and Athol decided their 4 litre Fairmont did not even know the meaning of fuel economy and it was therefore not worth entering the Economy Run. That was probably a wise move on their part. All other Melbourne entrants participated in the Economy Run, except Robin and Sue Smith, who left Melbourne very early to collect Sue's Dad and his friend on the way south.

WINNERS

- Most Popular Car**
Graeme & Mona McDonald (L15)
Ballarat, Victoria
- Longest Distance Travelled in a Citroen**
Keith & June James (L15)
Largs, New South Wales
- Hard Luck Award**
Les Tapping
Adelaide, South Australia
- Observation Run**
(Iain Mackerras Memorial Trophy)
Driver:- Grahame Bradshaw (Vic)
Navigator:- Robbie Stockfeld (Vic)
- Special Presentation**
'Tour de Eiffel' Port
The 40th Birthday girls:- Jan Rice Bev Bennet and Gaye Harris (All S.A.)
- Raffle winners**
Rolf Breyer(S.A.), Phillipe Mortier (SA)

The results of the Economy Run were:

- 1st Fred and Cathy Kidd Ford Laser 43.9 mpg
- 2nd Leigh Miles and Peter Fitzgerald Visa GTi 34.5 mpg
- 3rd Peter, Hazel and Rickie Hore Peugeot 505 34.3 mpg
- 4th Robbie Stockfeld and Jacki Couche Triumph Dolomite 33.5 mpg
- 5th David and Bronwyn Hancox and children Big 15 26.8 mpg
- 6th Ted, Helen and Tim Cross with Phillipe Mortier and Louise McFarland Big 6 25.8 mpg
- 7th Bryan and Joan Grant Light 15 24.7 mpg

It was great to welcome Fred and Cath Kidd back to a Club event. We did a little calculation and decided this was the first event they have attended in five years. Whilst both Fred and Cath live very active and full lives - I get the feeling they are busier now than when Fred was with the Bank - I am sure we will see them both at more events in the future. Welcome back to the fold, despite the fact that you were driving a Ford. The feeble excuse about the Traction being in Bendigo will have to be remedied at some stage, though, Fred.

13

As you can see from the figures, nobody in the group took this part of the Run with any seriousness - thankfully. I had expected the truly enthusiastic amongst the group to dawdle down the Geelong Road with a keen eye on the speed to ensure they maximised their fuel economy, but that was not the case.

We were welcomed to Geelong by Jack and Kari Hawke and Mel and Colleen Carey in their respective Big 6's. So, once again we had three 6's present for the day. Graham and Mona MacDonald had driven their yellow Light 15 from Ballarat and were also awaiting our arrival. Graham and Mona seem to have decided that a Club outing is a great way to spend the day, as their first Club event was Austraction at Horsham and there they were again for this run. We headed off in convoy, with Jack in the lead to the Grand Hotel and Portarlington for lunch.

At the pub we were also joined by Jack and Kari's friends John and Leah Abbot, and members of their family. John was basking in the reflected glory of his son's rather nicely restored PB Vauxhall Cresta. The \$1,400 two tone paint job looked particularly appealing and the whole presentation was well wet off by the white wall tyres. The wades, with children in tow, returned from the beach and lunch was next on the list.

By this time it was 1 pm. Lunch was a leisurely and some what noisy affair, with a large section of the dining room given to the Club and its attendant followers. By my rough count there were 41 in the group - making it a very successful run. After lunch some people went for a wander through the village, others sat on chatting, so it was almost 4 o'clock before we got under way. Jack and Kari had kindly offered afternoon tea to the hordes of us. So we descended on Brinsmead Lane to attack an enormous spread that Kari, with some assistance, I believe from her son, had prepared. We stood around and chatted some more. Joan Grant decided to tell stories about SNAC PAC Awards from the past. She seemed to believe that I had been unfair in some years on the choice of recipient of the Tacky Dresser Award. I

remain unsure whether she believes she should have won it more often or less often, but the pale blue wind cheater with the olive green gum leaf design she sported for the outing would certainly put her in the running for the next Awards. But seriously, I should like to take this opportunity to thank the Hawkes for their generosity in opening their home for us and for the delightful afternoon tea we all enjoyed.

As the afternoon wore on into early evening people started to head off in their various directions. We were the last to leave at well after 6pm. To all members who did not come on this great day, you missed an event that brought much pleasure to all those who attended and I trust that we will see you all at the forthcoming Winter Warmer Run on August 8th.

PHOTO FIND



Recently found by club members Robin and Sue Smith when they purchased some old French magazines from a library clearance sale. The Magazine - Madame. It pictures two actresses who were some of the "Belles de Cannes" of that year - try to ignore the girls look whats in the background - yes a Commerciale. If you have any such finds send them in and we will publish them



Help celebrate our club's 15th Anniversary in suitable style with a little something from the wide selection on offer. Just \$6 per bottle or \$60 per dozen (mixed dozens - not a problem)

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\$15 per half page

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OUT & ABOUT

BEHIND THE GARAGE DOORS

There's a gap in the collection of Steven Wedell (NSW) Steve reports having decided that the beautiful 11BL, seen most recently in Victoria at the "All French Day", was collecting too much dust. Feeling that it was not getting enough use - too many other cars to choose from - the time had come to let the car go to a new enthusiastic owner - in Perth! These Western Australians are such keen enthusiasts - they'll go to any lengths to increase the numbers "over there".

Steve won't have much opportunity to mourn the leaving of the Traction as he jetted off to London to visit the rellies on 2nd July. Not content with checking out the British Citroën scene - he has secured a seat with the English Lady Raiders and is going to Finland for the 10th 2CV Friends Rally - quite a drive to get there in the first place. At the end of the rally, they plan to head off on the Raid to North Cape - hope he's packed the thermal undies!

We're hoping to see Steve back some time in August with lots of photos and reports for mags etc. etc. The promises to join our camping weekend in September - tall tales and true around the campfire! Looking forward to this, Steve.

Great progress has been made over the past few months on the well known 11BL 'Smellie' of John Couche. Recently seen almost completely reassembled, it has been reported that test drives have been managed with success. (Test stops were not quite so successful, though) The refitting of the interior is still to take place, but Smellie should soon be seen back on the road!

Walter Burkhardt reports 'not much has changed' on the Big 6H restoration. What do we need to motivate more action here, Wal? Is there any truth in the rumour that the Aston Martin is much more fun?

Moving house certainly sets restoration projects back on their heels. Mike Neil reports that first you need a garage/carport/anywhere to put the car before you can actually start work. Mike's recent relocation has meant that everything has been put back much further than he had planned - and the partly restored Safari and the Big 6 have to wait a little longer still. Yet to face this dilemma are Ted and Helen Cross who report having successfully bought and sold just last month. The settlement date is a little way off - but the problem of just what to keep has now arisen. The new house has very little car storage and ted has no plans to divest himself of any of the vehicles (...yet!)

Peter Holland reports that a change in nature of his employment will finally allow him the time to put in some work on his Light 15 at last. Perhaps some helpful visits might also prompt some action. Last time someone made a like suggestion everyone turned up on a garage crawl.

SWAP MEETS

The VDC Swap meet held at the Melbourne Showgrounds recently was showing signs of the recession - nowhere near the numbers of sites as usual and the numbers seemed to be quite down compared to past events. Has the Swap meet had it's day? This event has had something more to offer the restorer by having the Friday "Trade Night" - demonstrations of restoration skills etc. Is this no longer enough to attract the public? Are the sites too expensive? Is the entry fee for buyers too high? Has the Swap Meet no longer any appeal for car enthusiast/restorer?

For most Citroën enthusiasts, Swap Meets have always seemed a bit of a waste of time as there was never anything for sale for Citrophiles. A number of members have, over the years, proved this theory wrong, having successfully gained lots of treasures at various meets across the country. The treasures are harder to find these days, but it still worth the effort to go along. Many stall holders learn their clients interests and offer occasional 'finds' if they know you'll be at the next event. For vintage restorers, this network would otherwise not exist to the same extent.

WINNING NUMBERS

April, May and June Meetings have all had a bit of competition happening. April's photographic competition saw lots of shots of Tractions, 2CV etc doing their thing - and members doing their things to them too. Bryan Grant was asked to cast his eye over entries in order to dispose of, I mean award the Champagne to the winning shot - Congrats to David Hancox!

May was preparation for the 'on road' Observation Run - with Mr. (Melways) Miles having dreamed up a brain teaser around the Street Directories. Lots of clues challenged even the most pedantic, but quiet perseverance won the day - Graham Bradshaw successfully made to home base.

June's meeting was a Concours in miniature and some splendid examples of the marque and some liberal interpretations of the rules were presented

3 Classes of prizes were awarded to:
Tractions - Gerry Propsting
2CV & Derivatives - Peter Simmenauer
Vintages and others - Robbie Stockfeld



From original Citroën Press release photo of the 2CV SPOT

RESTORERS GUIDE-TRADE DIRECTORY

If you a recently discovered a supplier/service that can be of use to other restorers let us know at CCOCA and we will publish it in this free Directory. Half our membership is out of Victoria so please forward those interstate recommendations. These will be invaluable for restorers in that state, or for members driving interstate and needing assistance. Listing is at no charge for the recommended supplier/service. The organisations and services listed in this Trade Directory are recommendations from members of CCOCA Inc. and as such the club accepts no responsibility for quality or workmanship

BIG SIX FRONT END CRADLE

Changeover with reconditions silent blocs fitted to top and bottm wishbones
Mel Carey 018 516 126 Victoria

FRONT AND REAR SILENT BLOCS

Supplied and fitted to suit L15, B15 and Big 6 on changeover basis.
Mel Carey 018 516 126 Victoria

FOR SALE

1952 Light 15 with 11D motor - not running
Body okay, little rust, needs interior, headlining okay not reg.
\$5,000 David Coffen
(03) 890 2019

WANTED

Car emblems and Badges - single items or collections especially from early models. Contact A. Mackenzie P.O. Box 535 Lilydale Vic. 3140 (AH) (03) 457 2507

WANTED

Big Six
by David McMurray
18 Prince Edward Parade
Hunters Hill NSW 2110

GEARBOX ASSEMBLY

All Traction models reconditioned considerable experience Gerry Propsting 18 Bellara Drive Mooroolbark Victoria (03) 727 1890

DRIVE SHAFTS

Reconditioned for all Traction models Gerry Propsting 18 Bellara Drive Mooroolbark Victoria (03) 727 1890

STEERING RACKS

Reconditioned for all Traction models Gerry Propsting 18 Bellara Drive Mooroolbark Victoria (03) 727 1890

STEERING ALIGNMENT

Traction Gerry Propsting 18 Bellara Drive Mooroolbark Victoria (03) 727 1890

MUFFLERS & TAILPIPES

To suit Early Ds/ID to 1962 in stainless steel Russell Wade Victoria (03) 570 3486

ENGINEERING

White metal bearings poured to suit Traction Col Rothwell 25 Tannock Street North Balwyn Victoria 3103 (03) 857 4201

Reconditioning of 2CV Cranks - Pascosvale Victoria

Engine rebuilds vintage and Classic Specialists - white metal repourers etc. AS Broad 68 Tope St. South Melbourne Victoria

TRIMMERS

Village Vintage Auto Supplies - Trimming supplies etc, i.e. bonnet lacing, window (bailey) channel, door draft excluder, trim clips etc. 148 Maroondah Hwy Ringwood Victoria 870 1728

J7L Auto Trade Carpets Manufacturer - sells direct. 74 stubbs St. Kensington Victoria

WANTED

Donations of unwanted photos of past club events... to go into a photographic collection profiling the history of the Club over the past 15 years. If you have any photos spare that you are willing to donate to a collection being put together, please forward them to Robbie Stockfeld etc.

Please note on the photo all relevant details - identities of the cars, owners, club members, location and event date and of course the name of the photographer for credits.

WANTED

Big Six
by John Humphries
P.O. Box 886
Palmerston NT

WANTED

Traction (Big 15?)
Preferable going and reg.
Contact Maura Croghan
(03) 853 7540

UNIQUE OPPORTUNITY

1973 DS Pallas LHD
Black with Original Green velour interior.

Complete with glass division.

Ex French Embassy vehicle

One owner travelled only 130,000 kilometres

Best offer over \$4,500 as is.

Contact
Francois Parsons
(06) 288 9510
Canberra

WANTED

For 11BL
Rear Number Plate Stand,
Tail Light Assembly,
4 Dashboard Bars - aluminium, x 2 Front and Rear Bumper Over-riders
John Gratton-Wilson
(055) 99 2499 (AH)

R EADER'S WRITE

We have printed Mel's Members Cars article in this issue of the magazine. Maybe a few out there would also like to have a go at making your car famous in this magazine. Thanks again Mel for your contributions to the club and the mag. - Ed.

Dear Peter

Trust you can do something with this for the magazine, perhaps under Members Cars

Colleen and I felt the Horsham weekend was a great success and we really enjoyed all of it, your additional catering efforts were certainly appreciated.

Congratulations on a great magazine, the last issue was all exactly to our taste, namely Big 6!

Hope to catch up on the Economy Run weekendD.

Regard Mel and Colleen

Dear Editor

My apologies for not being very active with CCOCA lately as my responsibilities have been directed elsewhere.

As with many car club there is the silent majority that only have contact through the club newsletter.

I really shouldn't use the term newsletter for "Front Drive" as it really is Magazine production level, especially when funds and voluntary labour are considered.

As past Editor of another car club I appreciate the effort that goes into Front Drive. I especially enjoyed reading the issue based on Big sixes and a special

thank you should go to your contributors who without them we would not have a magazine.

Keep up the great workLeon Sims

You hit the nail right on the head Leon - This magazine is only as good as the contributors - that means you. Keep those articles and tid-bits rolling in. - Ed

Dear Editor

As a person who has never participated in any car club social events (although I have owned a Deux Cheveux) I would like to say what a great time I had on the Austraction weekend.

Instead of being bored to tears by people constantly with their heads under bonnets, or talk of those cown wheel and pinion things, I discovered that the club members were actually a lot of fun. In fact the whole weekend was one great party that took me a considerable amount of time to recouperate from

Thank you.

Louise McFarland

Louise's old 2CV (Claudette) is currently owned by club member Jon Faine

MEMBERS FORUM

AN OCCASIONAL COLUMN FOR
INDIVIDUAL MEMBERS OPINIONS AND IDEAS

I couldn't help notice the slur upon the mechanical efficiency of the cooling system of Light fifteens and all others of that race.

Light fifteens, big fifteens, sixes and their Paris built counterparts maintained in proper working order do not exhibit tendencies towards boiling.

If your Light Fifteen "Effie" has boiled during the run across to W.A. then it is probable that any of the following may be wrong with her.

A - Radiator core blocked - The water distribution tube in the cylinder head is probably non existent having converted to flakes of ferrous oxide and lodged in the radiator core or settled around the base of the barrels in the water jacket.

Cure remove head - replace distribution tube - (water holes point directly at valve seats) Drain block - use a wire to allow drain to operate - it gets blocked over the years.

B - Cylinder barrels have settled - This happens with motors still in original condition. The barrel base gaskets were much thicker than those in ID/DS blocks. This allows the head basket to blow. Citroën

used to sell "figure 8" copper shims to put on top of the barrels under the head gasket to cure this condition, although it may be necessary to replace the barrel base gaskets to restore the proper "crush" on the barrels before the head is tightened. (Refer workshop manual Page 25, Para 25, Diag 18, Fig 1 and 2)

C. Vacuum advance curves must be correct to maintain proper timing at higher revolutions. Check the diaphragm for leaks; linkage for wear, base plate for wear and stickiness (particularly earlier external vacuum units pre - '52)

Check centrifugal advance for worn bobweights and loose springs.

Check for correct static timing - on modern petrol time with points just opening when 6mm pin is inserted in flywheel. Forget about the manual section where it is recommended to increase to 12 degrees Advance 8 degrees is adequate. (Page 11, Operation 101, para 24)

D Finally a problem I came across after having a carburettor rebuilt by "experts". Check to see that the emulsification tube that is housed under, the air correction jet on 32 PBIC carburettors is in place. To do

this remove air correction jet which can be seen down the carburettor throat on top of the main jet assembly. The air correction jet is a small brass tube with cross drilled holes that fits inside the main jet housing; remove it clean it and replace it. When replacing air correction jet use only moderate pressure to avoid breaking the die cast main jet.

The absence of the piece caused me numerous cooling problems and took quite a while to trace.

I would like to add that I have owned and driven six different tractions 4 and 6, French and British. I have covered well over half a million miles in them in most terrain and weather conditions. On days when temperatures were 100 degrees + Holdens and Valiants would be passed with bonnets up and steam issuing from asunder, but the good old girl I was driving would sail merrily past with disdain. Upon arriving home needing no radiator top up I would be able to place my hand on the top tank and find it quite bearable.

Long live the Traction

"A Cool Machine"

Regards Gerry Propsting

CCOCA SPARES

T R A C T I O N E A R L Y 2 C V

NEW OIL PUMP GEARS	\$55.00
WISHBONE SHAFT, UPPER, RECO	\$180.00
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BUSHING, SECOND GEAR	\$12.50
BRONZE BUSH - BRAKE SHOES	\$4.00
BIG BOOT TOP RUBBER	N/A
BIG BOOT BOTTOM RUBBER	\$20.00
RUBBER DOOR SEAL	OOS
SCUTTLE VENT RUBBER	\$30.00
PEDAL RUBBER	\$10.00
RUBBER GROMMET - PETROL	\$10.00
FILLER (2 SIZES)	
DOOR V BLOCK RUBBERS	\$35.00
BONNET RUBBERS	\$0.35
BIG AND SMALL BOOT PAINT PROTECTORS (UNDER HANDLES AND LIGHTS)	\$30.00
STEERING RACK BOOTS (PAIR)	\$44.00
GEARBOX GASKET SET	\$18.00
GASKET SET, VRS (BIG 6)	\$180.00
GASKET SET, VRS (L15,11BL)	\$90.00
EXHAUST MUFFLER (AND TAIL PIPE)	
L15	\$190.00
BIG 15	\$150.00
BIG 6	\$140.00
EXHAUST HANGER - RUBBER	\$2.50
GEARBOX OUTPUT SHAFT SEAL	N/A
FRONT HUB - OUTER SEAL	\$8.00
- INNER SEAL	\$8.00
REAR HUB SEAL	N/A
DOOR LOCK (FRENCH) BIG BOOT	\$22.00
SMALL BOOT	\$22.00
FRONT WHEEL BEARINGS	\$26.00
(STATE WIDTH WHEN ORDERING)	
VALVE GUIDES	\$12.00
RADIATOR HOSE UPPER / LOWER	N/A
FAN BELT	\$13.00
DOOR LOCK SPRINGS	\$3.00
INLET VALVES	\$20.00
CLUTCH PLATE	\$125.00
FUEL PUMP	\$50.00
ID/DS MAIN BEARING O/S	\$85.00
ID/DS CONROD BEARING	\$85.00
78 MM PISTON RINGS	\$85.00
BIG 15 DRIVE SHAFTS (EACH)	\$480.00
(LESS INNER CARDEN SHAFTS)	
BRAKE MASTER CYLINDER (NEW)	\$85.00
BRAKE MASTER CYLINDER KIT	\$15.00
TIE ROD BALL JOINT KIT	\$70.00
BALL JOINT BOOT (LEATHER)	N/A
(UPPER AND LOWER)	
BRAKE HOSE (FRENCH) FRONT	\$28.00
REAR	\$24.00
TROTTLER SHAFT 32PBIC SOLEX	\$20.00
(0.5 MM OVERSIZE)	
HUB AND BEARING PULLER	N/A
LOWER BALL JOINT PULLER	N/A
BONNET STRIP CLAMP (INTERNAL)	\$1.50

D Y A N E / 2 C V

BRAKE HOSE	\$22.00
SEAT RUBBERS	\$1.00
WIPER BLADES (PAIR)	OOS

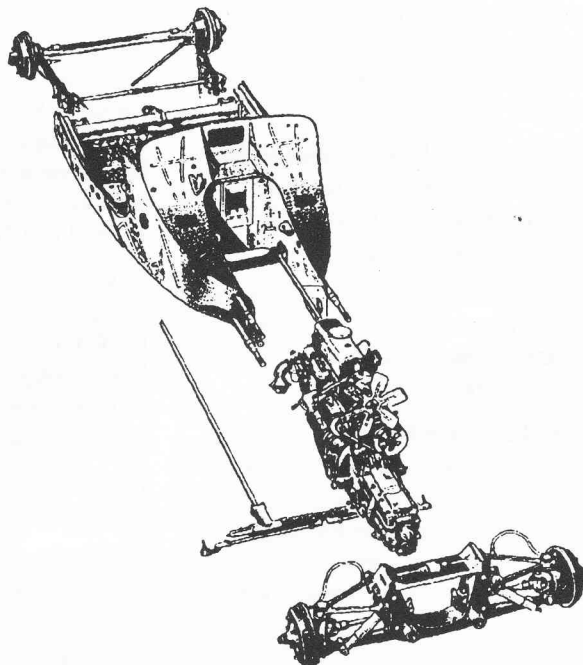
ALL PARTS ARE NEW, UNLESS OTHERWISE STATED.

CLUTCH LININGS	\$15.00
TIE ROD COVERS (METAL)	\$3.00
STARTER MOTOR (RECO)	\$40.00
CROWN WHEEL AND PINION	\$200.00
FRONT BRAKE DRUM	\$15.00
REAR BRAKE DRUM	\$15.00
STARTER BENDIX UNIT	\$10.00
WINDSCREEN WIPER SPEEDO	
WORM AND DRIVE	\$8.00
FRONT OVER-RIDERS	\$5.00
HEAD GASKET 375cc	\$2.00
LOCK AND KEY SET (2 BARRELS AND 2 KEYS)	\$15.00
OIL PUMP BODIES - BRONZE (NO GEARS)	\$10.00
VALVE SPRINGS	\$1.00
STEERING PINION AND BEARING	\$15.00
DOOR CATCH RIGHT FRONT	\$6.00
LEFT FRONT	\$6.00
ACCELERATOR PEDALS	\$1.00

A large selection of old and recent 2CV parts are available through the Club over and above those listed above at very reasonable prices. These are not held in stock buy the club, but we can arrange delivery quite quickly in most cases.

W A N T E D

CHANGE OVER SILENT BLOCS. (FRONT) \$56.00, EACH PROVIDED
YOUR SILENT BLOC SPLINES ARE SERVICABLE



**NOTE: ORDER FORMS TAKE PRECEDENCE OVER
TELEPHONE CALLS**

OOS = OUT OF STOCK N/A = NOT AVAILABLE

BY THE WAY, I CAN'T JUSTIFY THE TIME TO CHASE UP SECOND
HAND PARTS. IF YOU NEED THEM - ADVERTISE IN THE MAGAZINE

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

CONTACT THE CLUB SPARE PARTS OFFICER PETER BOYEL

