FRONT DRIVE

The Magazine of the Citroën Classic Owners Club of Australia Inc.

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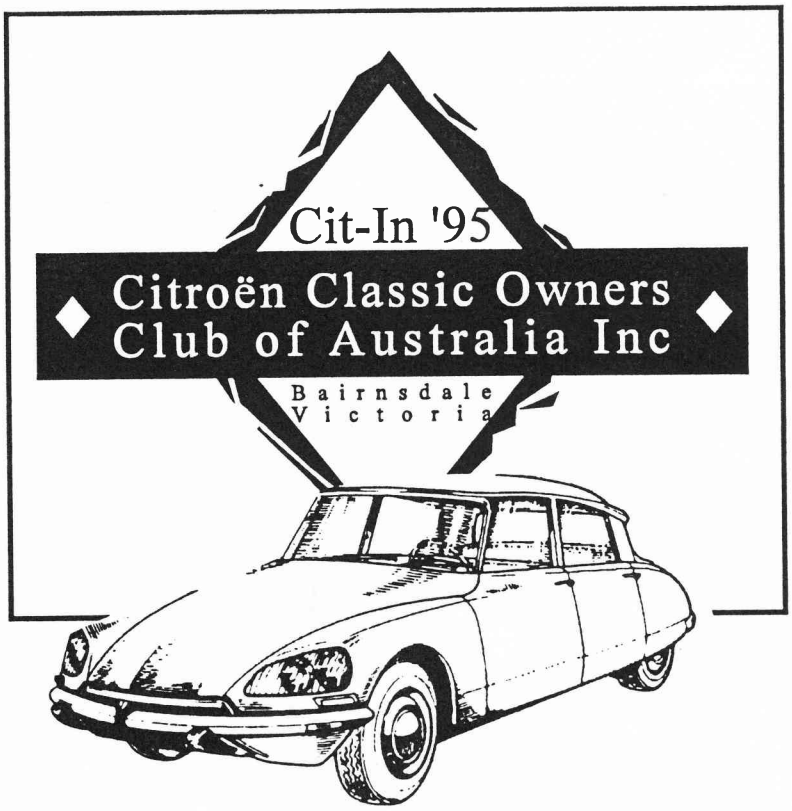


Celebrating 40 Years of the D-Series

In This Issue:
Everything You Ever Needed to Know About the D-Series - From Design to Rustfinding

April/May, 1995 Volume 19 Issue 1

PRESIDENT:
Leigh Miles
16 Harrow St, Blackburn South
Victoria, 3130
Phone [03] 888 7506 - AH, 794 3351 - BH

SECRETARY:
Peter Hore
46 College Parade, Kew
Victoria, 3101
Phone [03] 818 5409

TREASURER:
Ian Forster
RMB 4575, Kongwak
Victoria, 3951
Phone [056] 57 4324

SPARE PARTS OFFICER:
Peter Boyle
35 Newman Street, Thornbury
Victoria, 3071
Phone [03] 480 3560

ACTIVITIES OFFICER:
John Couche
31 Broadway, Belgrave
Victoria, 3160
Phone [03] 754 3583

PUBLIC OFFICER:
John Couche
31 Broadway, Belgrave
Victoria, 3160
Phone [03] 754 3583

COMMITTEE MEMBER
Ted Cross
197 Power St, Hawthorn
Victoria, 3122
Phone [03] 819 2208

EDITOR:
Bill Graham
87 Rosemary Cres, Frankston North
Victoria, 3200
Phone [03] 786 2710

LIBRARIAN:
Robin Smith
9 St Aubins Avenue, North Caulfield
Victoria, 3161
Phone [03] 527 5429

CLUB SHOP:
Leigh Miles
16 Harrow St, Blackburn South
Victoria, 3130

FROM *the Desk*

Given that 1995 marks the passage of 40 years since the launch of the DS (Goddess) Citroen at the Paris Motor Show, and that the D Series vehicles are to be the feature of emphasis at the annual Cit-In Rally near Bairnsdale this Easter, not surprisingly, we've made a feature of these vehicles in this issue.

The launch of the DS hit the motoring world like a bomb-shell, and as the initial shock diminished, the orders rolled in!

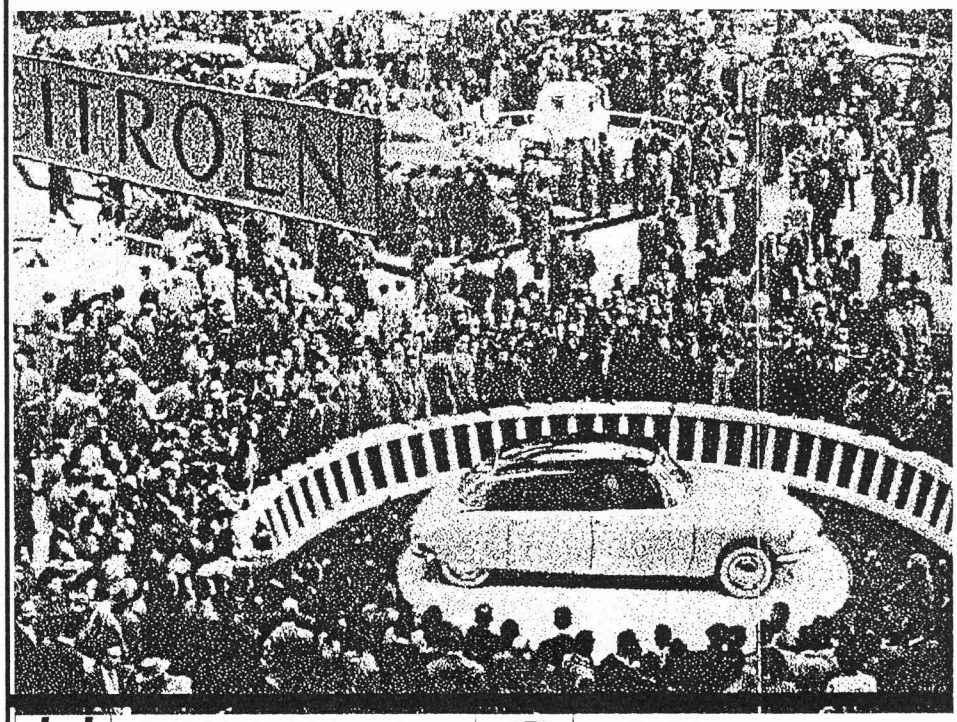
The scene has a DS in champagne body and aubergine roof in the centre of a milling crowd. The day is Thursday, 5 October, 1955, and the time is nine o'clock that morning. Within 45 minutes, 749 orders were in, by the end of the day - 12 000 ordered, and by the end of the Show, 80,000 had been sold!

Taking account of all the other milestones of automotive development (in which of course we must include the launch of the Traction Avant series), never the less one could be confident of avoiding a charge of excessive bias even if one were to claim that the launch of the DS was the greatest incremental step in the progression of automobile evolution.

This issue of Front Drive honours that event and the superb series of D-type Citroens which followed.

May you be bathed in the warm aura of association with these wonderful cars, and especially at Bairnsdale, may your eyes be rewarded with an assembly to gladden your heart and fire your imagination.

Bill Graham, Editor.



HONORARY LIFE MEMBERS

Nance Clarke	**1984**
Jack Weaver	**1991**

CCOCA MEMBERSHIP

Annual Membership	$30
Overseas Postage	Add $9

CCOCA MEETINGS

Every fourth Wednesday of the month, except December, Canterbury Sports Ground Pavilion Room, cnr Chatham and Guilford Roads, Canterbury, Victoria. Melway Ref 46 F 10, or the Anchor & Hope Tavern, Church St, Richmond.

Citroën Classic Owners Club of Australia Inc. and Front Drive postal address is PO Box 52, Balwyn, Victoria, 3103.

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

Prez Sez - A Welcome to Cit-In '95

It gives me a great pleasure to welcome members of the Citroën Clubs from around Australia, and overseas to Cit-In '95. It is eleven years since CCOCA hosted the National Easter Rally - and whilst in 1984 we ran the Event alone, this year we have fortunate enough to secure the able assistance of the Citroën Car Club of Victoria to run the Motorkhana.

In your Presentation Bag you will find what we hope will be items of interest - both motoring and non-motoring related. The Company's that have supplied these products to us are interested in supporting our Clubs -and as a result deserve your support, when you shop.

A full planner for the Weekend is also in your "Goodie Bag". You will note that in addition to the usual Cit-In events - Observation Run, Motorkhana etc other events have been arranged for those of you who may not wish to participate in these challages. Guided trips through the local wineries or to the delights of the Gippsland Lakes have been scheduled for Saturday afternoon. On Sunday afternoon, a trip to the Caves at Buchan is also available. [The cost of entry to the caves is additional to your Rally fee.] Naturally, you can also take yourselve off on your own and the Presentation Pack includes a good deal of information on the tourist destinations in the area. Further information can also be gathered from the Bairnsdale Tourist Office in the main street, near McDonalds.

It gives me a great pleasure to welcome members of the Citroën Clubs from around Australia, and overseas to Cit-In '95

The emphasis for the weekend is on informality - a relaxed time away with other Citroën enthusiasts - so have a great time on Victoria's Riviera.

Leigh F Miles
President - CCOCA

inside...

Past Events -Annual General Meeting

A vastly better than usual collection of members arrived at the Annual General Meeting, in March, this year. [No, I am not suggesting that this year's collection was of a better quality than has been the case previously, only that there were more than usual!]

Some had not realised that it was AGM time, but once in the building no-one was allowed to leave until the formalities of the evening were completed and the bottle of Vintage Port supplied by Ted Cross opened, and drunk.

We will not bore you with the formal part of the evening, except to note that Ian Forster [Treasurer] announced that the surplus for the year was of the order of $3,600, not including the surplus from CCOCASHOP.

You will note that all retiring Committee members were re-elected and Ted Cross has filled the position of Committee Member, without portfolio.

All members of the Committee welcome Ted back to the fold and look forward to a co-operative and productive year.

Leigh F Miles

Past Events -Geelong Day Run

The day dawned bright and cheery and crawling out of bed early on a Sunday morning is never so bad when the weather is good. This was the first opportunity for me to launch the newly acquired Light 15 on a Club outing and so there was no way that I was going to miss this day trip to Geelong - with the promise of a visit to David Malkin's Restorations. and a BBQ lunch with Jack and Kari Hawke.

However, being rather inexperienced with the vagaries of a Light 15 I had no intention of embarking on this journey alone. Mel and Colleen Carey, with James Henwood were on board to provide not only moral but mechanical support.

It was quite a small group that gathered at the Shell Garage before the Westgate Bridge - John Couche and Susan Langford [avec children], Darien Pullen, and David Hancox [also in company of the underage] and us. It did not look like the makings of a large convoy.

Part way down the Light 15 began to misbehave and I was pleased to have Mel's presence. More about this later.

On the way down the Princes Freeway we were passed by Helen and Ted Cross - Ted pretending to sleep and Helen driving like a woman possessed!

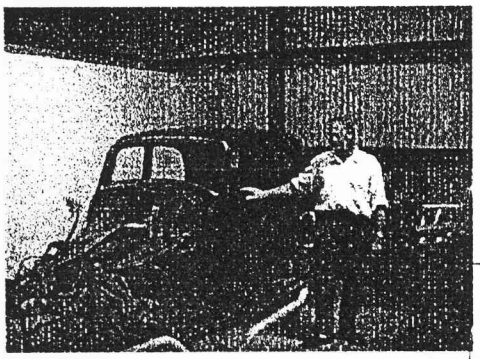
Once at David Malkin's we were joined by Jack Hawke and Robin Smith - how had driven down from Melbourne the previous day. Graeme and Mona McDonald also joined us in their stunning, bright yellow Light 15 [I always have had a attraction for yellow cars!] Editor Bill Graham also turned up - running rather late - with his aged mother. So, it turned out to be a good gathering of Club members.

There was a fine selection of vehicles being worked on at David's - a post-war Jaguar and an E-Type, an Aston Martin, Morris Minor, Morgan, sundry Datsun 2000 Roadsters [someone actually wants three of them!], a Ford Mustang...the list of desirable motor vehicles seemed never ending.

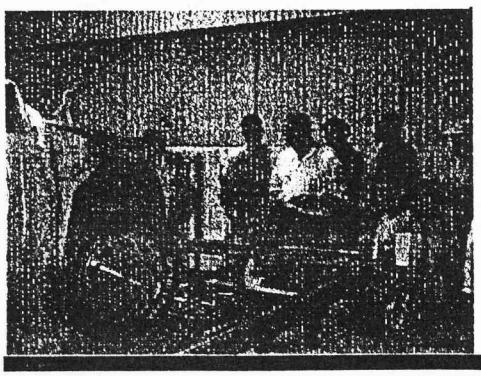
We also visited Club member Rob Willet - who runs a more mainstream panel shop. He demonstrated excellent, modern equipment for checking the "straightness" of any motor car, without the need for special jigs. It uses laser beams to accurately determine that all body measurements, after a repair, are back to original manufacturer's specification. I was certainly impressed.

Off to lunch at Jack and Kari's. Whilst Bill's mother seemed to prefer dozing in Bill's Falcon, everybody else enjoyed a great BBQ in the sun. Well, not quite everybody. The mechanically astute appeared to spend a good deal of their day under the bonnet and in the petrol tank of my car. After a good deal of to-ing and fro-ing it was determined that the petrol pump was sucking more air than petrol out of the tank. So with a running repair to the pipe in question we were able to make the journey home without any further mishap. I must than all those who worked diligently on the car - Mel, Bill, Jack, Darien, Ted and Robin. And to those who indicated some disbelief at my ability to confirm that I had indeed not run out of petrol....well it will be better if my lips are sealed on that.

Leigh F Miles



Above: Rarely seen Club member Rob Willet and his part restored 11BL.
Below: Rob describes the intricacies of his hydraulic body aligner.



Coming Events

EASTER 1995

CIT-IN RALLY

Bookings for the Easter Rally close on Friday April 7th. It you want to come but have not contacted Leigh Miles, please do so immediately! [Bookings sent to the CCOCA PO Box cannot be guarantied immediate processing.]

26 APRIL, 1995

Canterbury Rooms

Club Meeting, Canterbury

Proposed Topic - Fitting LPG to Your Car.

An Australian-designed LPG carburettor and its merits. LPG has the potential to more than halve your fuel costs. How does that grab you? This Company specialises in installations tuned to performance - so the "petrol heads" amongst us will find this a real "gas". Be there!

NAME YOUR POISON

It has become almost routine for Traction guru, Jack Weaver to speak on some aspect of TA maintenance and improvement at our monthly meetings. He has covered engine, gearbox and brakes. Please advise through The Editor what topic you would like him to address later this year in the mechanical/bodywork areas. This is your big chance!

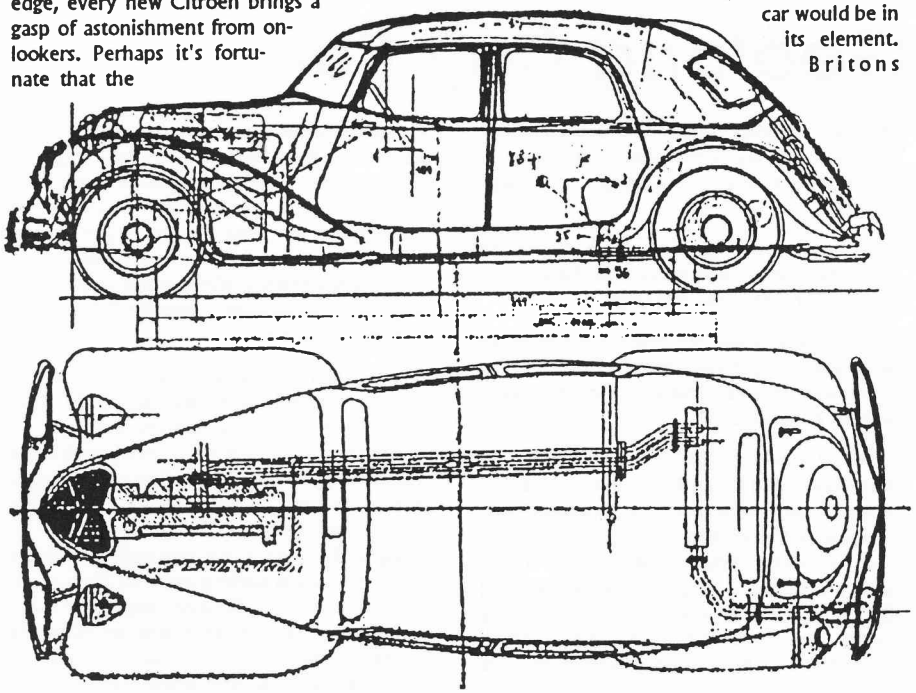
The Birth of the DS

As exponents of the motoring avant garde, there's no-one to beat Citroën; indeed there's no-one who even comes near their advanced technical thinking. For years the French company have scorned the idea of a car being pushed along by its rear wheels, favouring instead front wheel drive traction.

Over those years Citroën have built up a reputation for being able to produce something out of the ordinary. And yet even in that knowledge, every new Citroën brings a gasp of astonishment from onlookers. Perhaps it's fortunate that the company are not unveiling new models once a year! But that gasp could not have been bigger than in 1955 when S. A. André Citroën took the wraps off the DS19 ('DS' standing for Deese or 'Goddess'). For here was a car so futuristic and advanced that ten years later most of the opposition had not begun to catch up.

Following the tradition set by the Traction Avant, the DS naturally had front wheel drive, and had its gearbox mounted ahead of the engine. But new to the public was the extensive use of hydraulics which by the end of the line was being used for the suspension, brakes, steering and gearchange. Conventional the car was not; no wonder it has caused so many headaches and problems for mechanics new to the car.

Citroën can take a pat on the back for being one of the first volume manufacturers to recognise the importance of aerodynamics. All DS cars have shared the same wind-cheating shape, though only the later cars took the theme to its natural conclusion, when the earlier proud headlamps were neatly hidden away beneath glass cowls.



Design for a re-vamped Traction, 1938/39

Indeed it is astonishing to find that in a time of change for change's sake, the DS was able to stay basically the same for so long.

But then Citroën never did bow or compromise to fashion.

If there was one thing that hoisted the Citroën head and shoulders above the rest on the road, it was the car's supreme comfort. It was never a car for hurrying through a series of mountain hairpins, but show it a stretch of long, fast road and the car would be in its element. Britons have been fortunate that up until recent times anyway the roads have been the model of smoothness in comparison to the French pave and heavily pitted Route Nationales where a bad camber means the road is virtually triangular.

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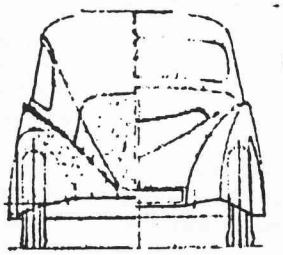
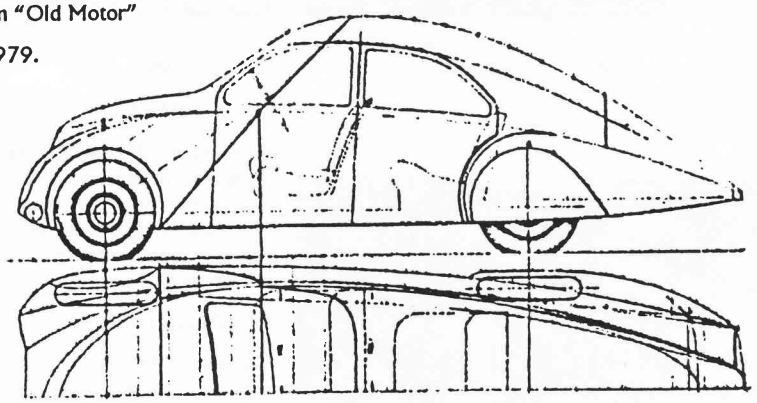
But as always with the avant garde, the car is an acquired taste.

Reprinted from "Old Motor"

November, 1979.





VGD design from 1939

The Birth of the DS

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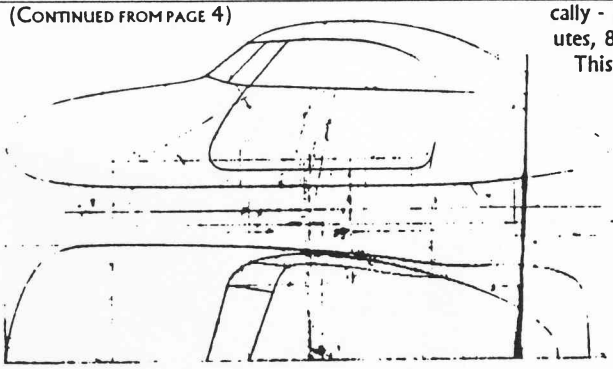

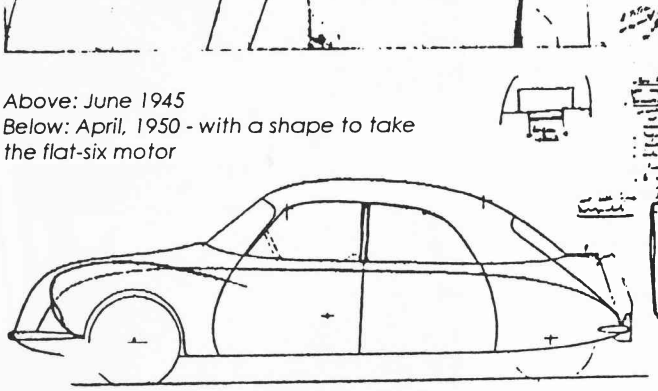

Above: June 1945
Below: April, 1950 - with a shape to take the flat-six motor

Old Motor" of 1979 put it so well. Citroën does epitomise the automotive avant garde for the majority of observers. It was true then and it still is today. The most audaciously avant garde of all the Citroën models is still for most people, the DS or Goddess released to the public at the Paris Motor Show at 9:00 am. on Thursday, October 5, 1955. Audacious for the sheer number and magnitude of its novel features; and the public responded enthusiastically - 749 orders in the first 40 minutes, 80 000 by the end of the Show. This year, the earliest Ds are 40 years old and still audaciously, unbelievably avant garde. Over 1.3 million were ultimately produced in various forms and models through to 1975.

The birth of the DS was based on valiant conceptions and followed an extended and difficult pregnancy which commenced soon after the birth of "older sister" the Traction Avant 15-6 and was not made easier by the intervention of war.

Some design effort went towards smoothing up the classic but not so aerodynamically efficient profile of the Traction Avant, with a view to releasing an improved interim model of the Traction in 1940. However, the real dream of Pierre Boulanger, head of the Citroën factory, was for a brilliant and prestigious successor to the Traction - his VGD [voiture à grande diffusion], capable of 125 km/h [VGD 125] or 135 km/h [VGD 135]. Proposed for release in 1940, the VGD became the "grandmother" of the DS.

Various motor configurations of motor were considered for the VGD, especially to satisfy a desire that the spare wheel should be fitted under the bonnet - the in-line 15-6 motor aligned transversely; three cylinders in star formation with the clutch and gearbox set vertically[!]; and a flat-six designed by Walter Becchia and inspired by the concept of three 475cc 2CV motors coupled in line. Eventually though, it was the tried-and-true 4-cylinder motor from the Traction Avant which in refined form, was to power the first DS.

The death of Pierre Boulanger at the wheel of a Traction Avant in 1950 could have also ended the development of the VGD project. In the custom of the time, he ruled alone and no one knew exactly what he had in mind. Only his cryptic concept notes survived in the little black notebooks which he kept. However, the development team soldiered on under the leadership of André Lefebvre, already renowned as the "Father of the Traction". Major refinements were added - the four-speed gearbox and the superb hydropneumatic suspension, already developed by Paul Magès. Overall, there was an obsession with lightness, aerodynamics and a low centre of gravity the hallmarks of Lefebvre. The enthusiastic Pierre Bercot, who was later to became head of the factory, chose to push the VGD project into the market-place as a vehicle far ahead of its time. The rest of course is well-known history.

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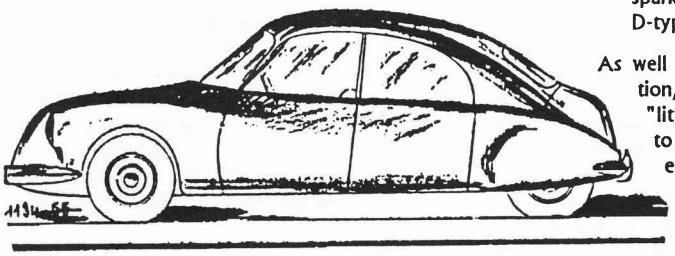
The Men Behind the Scenes No 2: Flaminio Bertoni - styling

The Birth of the DS

The Men Behind the Scenes No 3: Pierre Boulanger - conception and direction

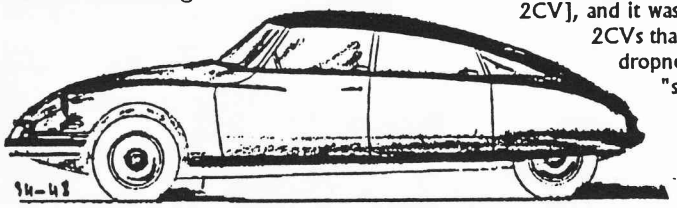
(CONTINUED FROM PAGE 5)

But there are some intriguing anecdotes and legends associated with the development of the D-series, and could be the topic of more research and writing. The use of the Traction 15-6H as a marketing and servicing exercise for the hydropneumatic suspension is well-known. Less widely appreciated is that the last of the four-cylinder Tractions (the 11D) served as a test-bed for some of the motor improvements intended for the DS, for example the use of slipper bearings. It is also rumoured that other features of the DS were incorporated into a few of the 11Ds, especially those coming from Slough [UK]. Some are said to have received the four-speed gearbox, alloy cross-flow heads and even "alligator-type" bonnets to provide easier access to the spark-plugs set centrally in the D-type head.

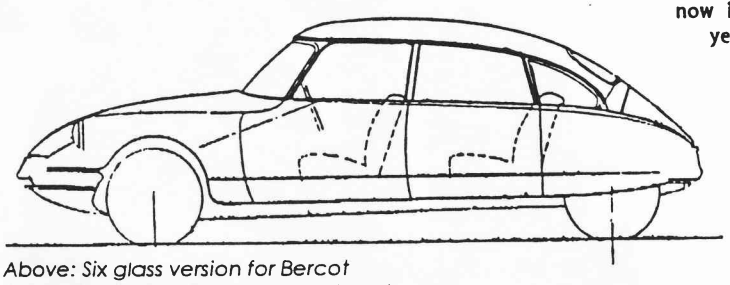


As well as its debts to the Traction, the DS owed much to its "little sister" the TPV [later to become the 2CV] - for example, the flat-six motor later abandoned (above), the rigid punt-type base carrying a light and largely removable body-work [the "four wheels under an umbrella" of the 2CV], and it was on one of the prototype 2CVs that Mages developed his hydropneumatic suspension and "sold" it to Boulanger.

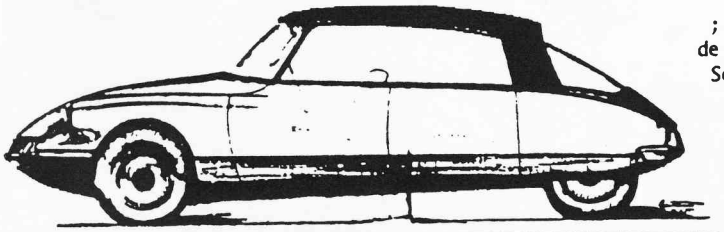
Above: 1950 design from Bertoni.
Below: 1954 design



Irrespective of such uncertainties and the difficulties of the DS's conception, gestation, birth and adolescence, the members of the D-series are now in mellow middle years and are assured of a unique place in automobile history.



Above: Six glass version for Bercot
Below: April, 1955. Bertoni's new hood

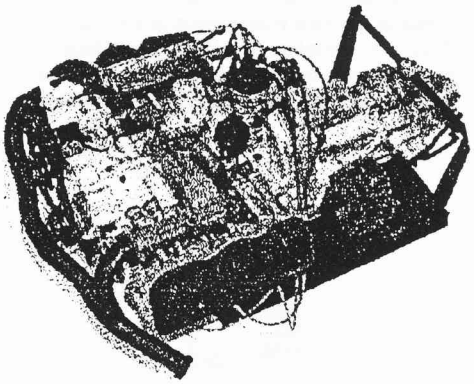


Sources etc: Front Drive 4 (2) June/July 1980; L'Album de la DS, Borge and Viasnoff, EPA, 1983; and La Grande Livre de la DS, Olivier de Serres, 1992.

Bill Graham.

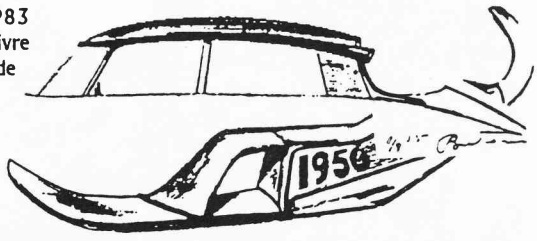
The Men Behind the Scenes No 4: André Lefebcre - engineering

The Men Behind the Scenes No 5: Paul Magès - hydropneumatics



Above: Walter Becchia's discarded flat six motor. In 1952 there was a reference to a water-cooled 1,806 cc version - three x 602cc? Again the 2CV connection - this time to the biggest, and final, 2CV motor, which did not appear in production until 20 years later.

Below: September 1955 - Final bumper and hood



An American in Paris

It was three o'clock on a cool autumn morning last October in Paris. A big trailer carrying what appeared to be a white-sheeted wraith, backed up to the huge entrance of the Grand Palais, the huge turn-of-the-century exhibition hall which plays host every year to the Paris Motor Show. Slowly, while the trailer's crew watched for prying eyes and cameras, the white phantom was smuggled into the Grand Palais.

The next morning, every newspaper in France dusted off headline type usually reserved for the declaration of war to scream: La Bombe Citroën!. The effect, to tell the truth, was no less startling than if a bomb had actually exploded under the glass roof of the old Grand Palais. For the first time in more than two decades, the Societe André Citroën had changed the lines of its front wheel drive sedan.

Although the Grand Palais boasted such creations as the Vega, France's latest entry into the high-powered sports car field, the Citroën stole the motor show. This was more than just a new car: a landmark on the French scene was changing.

During the early hours of the show, Citroën promised delivery within three months. Ten days later, after thousands had patiently waited for squad of policemen to allow them to glimpse the car, delivery delays had soared to 27 months.

The cause of this mass hysteria was the front wheel drive Citroën DS 19. In French DS is pronounced deese, which means goddess and it is doubtful whether Venus or Diana ever received such homage from their worshippers. French newspapers and magazines had offered as much as five million francs [US$14,000] for a sneak photograph of the car before the show. Reporters tried even to photograph it by helicopter and even managed to steal a set of plans [the wrong ones, though] from the Citroën factory. One paper actually published an exclusive photo - only to learn that it had bought a picture of an Oldsmobile sporting a hand-made radiator grill decorated with Citroën's double chevron trademark.

In point of fact, the DS doesn't look like any other car on the face of the earth. Its low sloping bonnet may bear a resemblance to Raymond Lowey's Studebaker, but there the kinship ends. Under a plastic roof, the DS tapers out to a flat, streamlined rear end, broken only by the two direction signal lights jutting out from both sides of the rear window, as big as the windshield.

This unconventional rear end has served as a rallying point for the anti-deessistes. In cars as well as everything else, there is always an opposition party in France and anti-deessisme was founded within half an hour after the opening of the motor show by a sweet young thing who squealed: "But it doesn't have any tail!" In 1934, when Citroën's previous model [still in production in 1956] was introduced, experts predicted that it would not last six months. The reason: no one would buy a car without running boards and with a strange gadget termed by the manufacturer as hydraulic brakes.

The revolution in the new Citroën does not end at its rear. The DS 19 is the first "automatic" car to be produced in Europe where designers have always been forced to shy away from such fuel-eating aids to driving as clutchless transmissions, power steering and power brakes. The French motorist pays the equivalent of US$0.65 a gallon when he stops at a pump, and he cannot afford a 200 hp engine to shift his gears for him.

Citroën's engineers kept this in mind as they worked behind an iron curtain of secrecy in the Company's rambling factory on the Quai do Javel out where the poetic Left Bank of the

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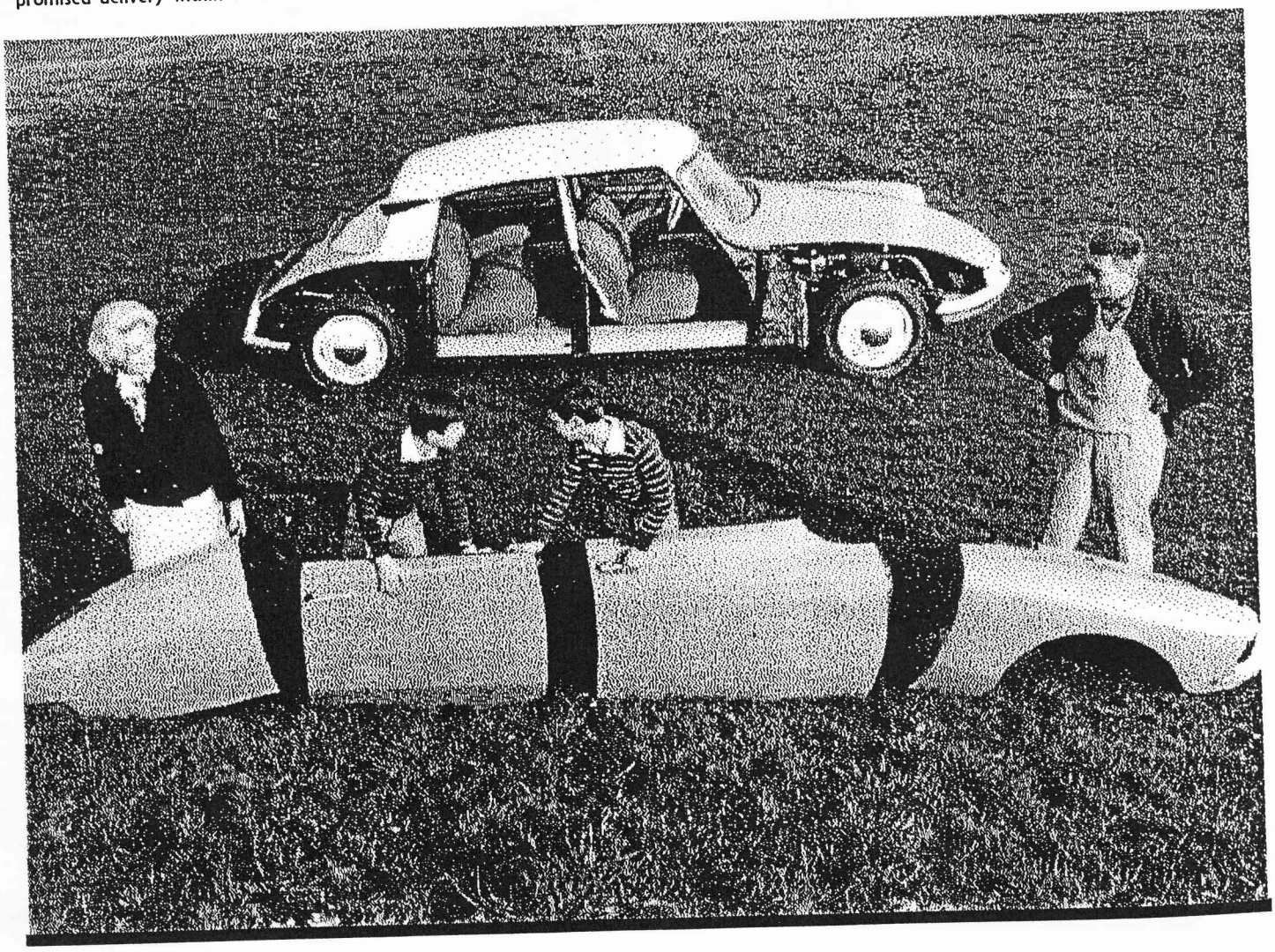

An American In Paris

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Seine suddenly begins to look like Birmingham, or Detroit. They came up with what is literally a hydraulic power station tucked under the snout of the DS 19. It consists of a pump - less than half the size of an ordinary starter - which compresses a mixture of liquids and gases into a series of seven reservoirs. When the pump is working, it draws less than one horsepower from the Citroën's 75 hp engine. But 90% of the time it does not work because the reservoirs do the job [unlike other automatic cars where the pump must work continually to maintain pressure needed to operate the driving aids]. This means that the DS 19, with a four cylinder engine, can carry five passengers at a top speed of 87 mph or cruise at an average of 45 mph and only eat fuel at the rate of 23 miles per US gallon [28 miles per Imperial gallon]. A big boon for thrifty drivers.

Meanwhile the reservoirs keep busy. First, they take nearly all the effort out of gear shifting. There is no clutch on the DS 19: instead, the driver changes gear by flicking a lever above the dashboard. A hydraulically operated clutch, which disengages automatically when the motor slows down to 500 rpm does the rest. The Citroën has four forward speeds and the driver selects his gear himself - which is as close as you can come to automatic gear shifting, Citroën's engineers believe, without sacrificing fuel economy.

Secondly the miniature power-house takes care of the braking - the driver merely pushes his toe on a small rubber button on the floor and pressure from the reservoirs stops the car. Disc brakes, hitherto the monopoly of sports and racing cars, have been mounted on the front wheels of the DS 19. Cooled by air intakes below the front bumpers, these brakes eliminate loss of stopping power through over-heating.

Citroëns have always been famous for the way a driver could spin them around a right angled turn with a flick of the wrist - but he required strong wrists. On the DS 19, the power-house comes into play and the driver needs only to caress his goddess's steering wheel. Citroën, by the way, has eliminated all the spokes from the steering wheel: the steering column bends as it comes out of the board to meet the rim of the wheel. The result is not only a flexible wheel in case of accidents, but also a virtually uninterrupted view of the dashboard.

But the major innovation of the DS 19 is its system of suspension, conceived by Citroën as the answer to the French motorist's eternal plea for a car that will hug the rod like a Le Mans winner and yet not shake his sensitive liver on bumps or cobblestones.

This "hydro-pneumatic" suspension system was first tried in April, 1954, on at the rear wheels of the six cylinder Citroën, a big sedan used principally by cabinet ministers and drivers who do not like to be passed. [This sounds like some members of CCOCA who today own Big 6 vehicles - Ed.] The DS, however, uses it on all four wheels. The independent "spring" of each wheel consists of one of the powerhouse's seven reservoirs and it resembles a large globe. The weight of the car compresses a liquid in the bottom of the reservoir which, in turn, pushes up against a rubber membrane to compress the gas. Ordinarily, the DS has the "hard" feel of a sports car, but when it hits a bump, the liquid flows out of the reservoir to give more play to the "spring", then flows right back in again. Automatic height correctors adjust the pressure in the reservoirs according to the car's load or changes in road conditions.

Here too, the hydraulic powerhouse and its little belt driven pump do the work. but what if the belt snaps? Theoretically, this should be as total a disaster as a dead battery on the normal "automatic" car which leaves its owner with two tons of chromium-plated machinery that he must push at 30 mph.

Not so with the DS. With fine Gallic distrust of the machine age, Citroën's engineers have pessimistically thought of everything that could happen to the car. The DS can be placed in gear and pushed - and they have even provided their goddess with a crank.

If the belt snaps and the pump stops, a red light flashes on the dashboard. The driver turns a button and locks the hydraulic system to keep the pressure up in the reservoirs. This reserve of pressure enables him to change gears and use his brakes from 30 to 40 times, which Citroën deems sufficient to enable him to reach a garage where a mechanic can fit his spare belt [a three minute operation if he decides to do it himself]. If he does manage to use up his reserve of pressure, there is a pedal-operated mechanical brake next to his left foot [ordinarily, this brake can be locked to serve as a parking brake]. In all, the DS has three independent braking systems - two hydraulic and one mechanical - in case of a leak in the brake line. As in other "automatic" cars, the steering gear immediately become hand powered in the case of a pressure failure.

Since the starter of the DS is operated by the gear shift lever from the neutral position, the car cannot be started in gear. However, a twist of the same emergency button enables a driver to leave his car locked in reverse while parking on a hill. On the road, the braking effect of the engine is the same as in any conventional car.

(CONTINUED ON PAGE 9)

The launch of the DS in Australia caused considerable interest too. Early press advertisements listed the many unique features of the car.

An American In Paris

(CONTINUED FROM PAGE 8)

If Citroën has overlooked any perils of motoring, it is only because they have yet to be invented by the French drivers. Flat tyre? Only one central nut [instead of five] need be turned to remove a wheel from the DS 19. Smashed fenders? A rear fender of the DS can be lifted off by loosening one bolt: loosen three and the front fender comes off. Hood flies open at 60 mph [even though it has three separate locks]? The back of the hood is almost a semi-circle; when it is open, the driver can still see the road through his windshield.

Even when a layman - or his wife - looks under the hood of a DS 19, he can see that something has been changed. It would be impossible not to: the spare tyre is tucked in front of the radiator, which is cooled by air intakes under the bumpers and by a multi-bladed plastic fan. This leaves 17 cubic feet of clear space in DS's luggage compartment.

Shortly after the Paris Motor Show, I turned up one day at the Citroën plant where an automatic elevator deposited me outside the public relations department of France's third largest manufacturer. [Until recently Citroën was in second place after Renault; however since Simca and Ford amalgamated their new Company has taken second place.] It consisted of an office about the size of a modest hotel room, and a staff of two, an engineer and a pleasant woman executive who took care of the press.

Suddenly a horn blared and a black Citroën 11 loomed up in the rear view mirror. Clutching his steering wheel like grim death, the driver howled behind me at 55 mph in second gear with his two left wheels off the road.

"We advertise on the road," said Citroën's one and only spokesman, who insisted on remaining anonymous. "When a front wheel drive Citroën passes you on a wet winding road, that's all the publicity we need."

The Citroën man sounded like a voice out of the past when a man only needed to build his better mouse trap without describing it in lush prose or poetry set to music.

"We received more space than any other make during the Paris Motor Show and we didn't spend a franc on advertising," said our spokesman. Then he suddenly corrected himself with a smile: "Oh, yes. We bought a bouquet of flowers for a French film actress who posed with the DS."

Citroën used the same hush-hush policy in 1949 when it launched its two cylinder 2CV Deux Chevaux [Two Horses], rated at only two French fiscal horsepower as compared to eleven on the DS and 21 for a light American car. Not only that, but it exhibited the car in the Paris Motor Show without its motor.

"They told us we wouldn't sell a single one," recalled our spokesman comfortably. Citroën did not try very hard to sell the 2CV, either. Instead it doled out cars only to doctors, nurses, farmers, travelling salesmen and other drivers who could be counted on to use them hard.

"When a driver rolled up 35,000 miles in a year without any repairs, he talked about it," the Citroën man went on. The delivery delay of the canvas backed 2CV - whose suspension system was recently copied by one of America's highest-priced cars - has now risen to nearly three years.

Both the 2CV and the DS 19 are now being sold in the United States in Citroën's first venture into the American market since 1937. Citroën has its own assembly plant in England at Slough, where it turns out Anglicised versions of its cars complete with right hand drive, leather upholstery and sedate mahogany coloured dashboards. Needless to say, it does advertise in Britain and in the United States.

As for the Citroën 11 - the front wheel drive traction avant used by all French gangsters because of its prowess on turns - it's still being produced in 1956. Except for a rear trunk, new wheels and a changed hood design, it has the same lines as its 1934 ancestor [which introduced torsion bar suspension, now being adopted in the United States]. Only one part from the old 11, the cylinder block, has been used in the DS 19.

"Suppose we take a ride in the DS," the spokesman suggested. "Then you can see why we don't have to advertise it." He led the way out of his office and down to a vast basement where a blue and gray goddess was parked next to a rack filled with bicycles. Two colours were a surprise to the majority of Frenchmen who are familiar only with the dark toned models of the last twenty years.

"We've eliminated the window frames on the doors," said our Citroën man. "This means that the width of the windshield support is less than the distance between your eyes, and you don't have any blind spot." Conventional deflectors on the front windows have also disappeared and are replaced by adjustable interior vents on both sides of the dashboard.

I asked him about the complaint that the DS had no tail. He laughed: "When we designed the body of the DS, we started out with five passengers and built a car around them. It's not our fault that passenger's don't have tails!"

Just then a young test-driver turned up. He slid behind the wheel, started the engine and we rolled out of the basement. It was raining and the axle-crunching cobblestones on the Quai de Javel glistened.

At the first intersection, a policeman smiles broadly and stopped traffic to let the DS go by. Now we were running along the Seine out towards the Meudon Forest in the south-western suburbs. The speedometer read 50 mph, but the "spring" ironed out the paving stones. We might have been riding on air - and we were.

"This is nothing," said the spokesman contentedly. "Wait until we get into the woods." He was right. To demonstrate the DS, Citroën uses a road in the Meudon Forest which consists principally of curves and pot-holes, all on a hump-backed surface.

Our driver put the DS up to 65 mph in third gear and shifted into high [although it has four speeds, its top gear is not an overdrive - Citroën has always shied away from the overdrive for safety reasons]. A few yards away a small Renault had backed out into the middle of the road. Our driver calmly ran the DS up onto the shoulder of the road at 60 and without even a jar, came back onto the highway. At a touch of his toe, the speedometer slid down to 30 mph, without the trace of a skid on the wet, treacherous surface.

"Could I take the wheel?" I asked, remembering that I had been told that only three living mortals [all Belgian journalists] not employed by Citroën had driven a DS. The spokesman hesitated, looked out of the rear window and nodded to the driver. I slid behind the wheel and discovered that someone had finally built a car for a driver six feet two inches tall.

Near the Villacoublay Air Base, I put the DS through its paces as a family car: that is, starting, stopping and cutting the wheels to turn around handily at a narrow crossroads. Then I cruised along over potholes at 50 mph. The DS rode as steadily as an airliner in the stratosphere. I could hear the noise of wheels hitting the holes, but that was all.

Suddenly a horn blared and a black Citroën 11 loomed up in the rear view mirror. Clutching his steering wheel like grim death, the driver howled behind me at 55 mph in second gear with his two left wheels off the road.

"Wait until he gets home," said my Citroën man. "He'll be able to tell his wife that he passed a DS."

Daniel Behrman

Reprinted from "Realities", Le Magazine de France

Member's Car - Une Belle Idee

Well, I couldn't help myself, could I ?

Over ten years ago I found myself giving some thought to the restoration of an early D. I had believed for some time (and still do) that the D offers more engineering bang for your buck than any other car, with the possible exception of the SM. The early D is a real sleeper in terms of value for money. OK, so they aren't Ferraris, but the prices being reported for sales of Ds in Europe were encouraging, and there finally seemed to be a growing recognition both overseas and in Australia that the D is one of the true landmarks of automotive design, and that preservation of early examples should be encouraged.

At the time I had been working erratically on my 2CV/GS project, but changes in housing and priorities had reduced progress to a virtual standstill. What was needed was a car which could quickly be pressed into service as a "club" car without a lengthy restoration and then renovated on the run. Well, that was the theory.

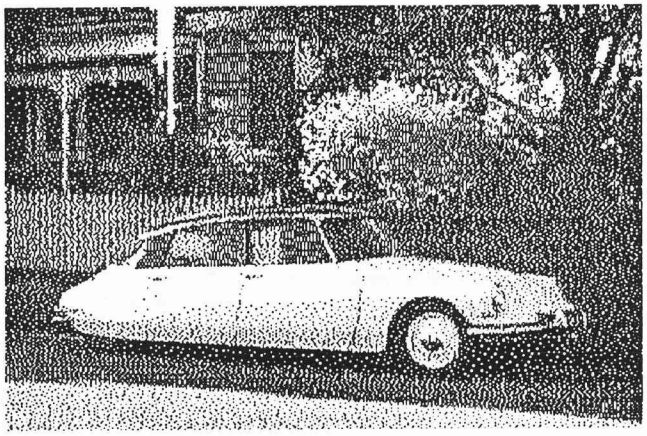
Having been down the Citroen restoration path already with KSE 442, the '53 Light 15 now owned by Brian Grant, an early D was an attractive proposition, probably more so as I was running a '74 D Special at the time as daily transport.

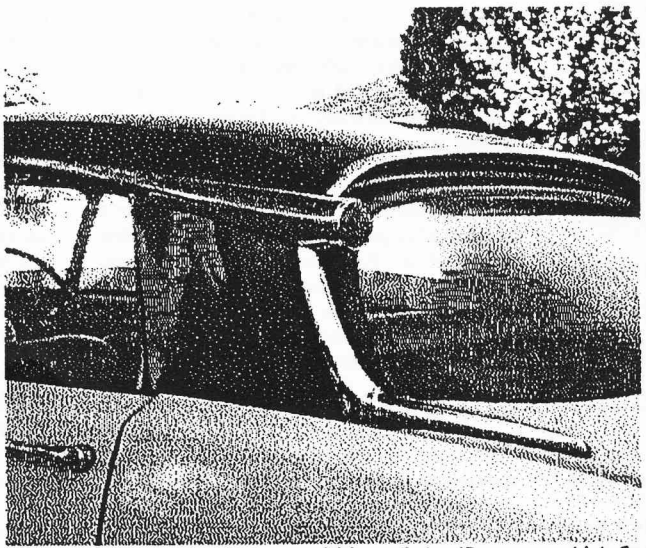
Early in '85 the Saturday Age classified revealed a 'fifties DS19 for sale at Mount Eliza, a bayside suburb south of Melbourne. A cursory inspection determined that the car was well past it's use by date and I lost interest. However, Henry Couchman, the owner was a persistent individual and, having nursed this car through 25 years and innumerable kilometres, was determined that it should go to as good a home as possible. Which is how I became the somewhat bemused owner of a 1958 Slough built DS19, chassis number 9/58 1278, registered KDP 086.

Henry drove the DS19 from Mt. Eliza to where I was living at the time in Armadale, a distance of around 50 km, to deliver the car. The enormity of this task was lost on me at the time as I hadn't yet driven it. I realised it some time later when I had to drive it at night across Melbourne to Brunswick. It went well enough, but the brakes were dodgy, the power steering weird, and the chassis was ah, ...flexible. A more careful examination confirmed that the rust was terminal and KDP 086 was quietly parked at the end of the drive.

The unique feature of Henry's DS was the hideous FB Holden dashboard which was grafted on in the early 'sixties, probably as a result of the original resin dash wilting in the Oz sunshine. The upside of this automotive vandalism was that Henry had ferreted out a virtually new dash moulding from somewhere and this came with the car. Yes, I still have it and no, it's not for sale.

Some time later, I heard that John Couche had an early ID 19 languishing in his driveway which was in grave danger of life support termination by his (then) young daughter. This car certainly had a history, previously being owned by none other than Peter Boyle and had once won a CCOCA night rally in the hands of Peter and Mark McKibbon. What, all this and history too? How could I resist?





The story of my acquisition of the ID was briefly described by John in Front Drive Vol. 13, No. 4. What John didn't mention was that he charged me $175 to take away what he had bought from Peter for $50 - the price of a set of new brake pads. Would you buy a used car from this man?

When I stripped the front brakes the pads didn't look particularly new - would you buy a used car from either of them?

John did describe in his article the absurdity of my towing away the ID with my tow car of the time, a tiny front wheel drive Nissan ET Pulsar Turbo. Rev- limited to 182 kph in fifth, but not with 16 feet of ID 19 filling the back window. Those readers who have not felt the need to trailer Ds will probably not appreciate that they don't fit a normal 12' 6" tandem trailer. You need the large economy 14' 0" version. Something to do with a wheel at each corner. The poor little Pulsar was hard-pressed to pull the bloody trailer, let alone trailer plus 24 cwt of André's finest. With only occasional contact of the front wheels with the road, steering and braking became abstract concepts. The journey across Melbourne required fine judgement of traffic light sequencing - if we had had to stop on a upgrade we would still be there.

The ID ended up in the driveway, just to the rear of Henry's DS.

It's a strange beast - a '58 Slough built car carrying the chassis number 9/58 5338. As was the Slough custom, the interior was seriously upgraded over the French cars, the English obviously believing that a car wasn't suitable for domestic or colonial consumption unless it was afflicted with leather seats and a slab of timber for the dashboard even if it was the simplified economy model. Consequently, this ID was fitted with a polished wooden dash, red DS type carpets with foam rubber underlays, red and black leather seat facings and was probably externally indistinguishable (apart from the front wheel trims?) from Slough built DS 19s of the period.

There are other strange touches, such as the aluminium roof panel rather than fibreglass, steel boot panel (sadly replaced by a later aluminium item due to extensive rust in the original), and the hideous English front bumper bar with a platform for the number plate. It was originally painted one of the early wimpy French pastel shades, an egg shell blue, but the Poms had added a red roof for good measure. By the time I bought it, it had been sprayed all white. Being a very early ID it has the upside down gear shift gate which I keep telling myself I will get used to, and the relatively high final drive gearing.

"Thoroughbred and Classic Cars" ran an article in their August 1994 edition, in which they compared the "first and last" Ds in the UK. To quote, "the earliest surviving example of a DS left on the road in Britain is a Slough-built car. Registered in 1961, 57 EKX was once Citroen's own car. It's a basic ID model....". It appears that we have much earlier cars surviving in the colonies. Does anyone know of a running registered early DS 19?

Plans were rapidly hatched to convert this almost structurally rust-free ID 19 to a full

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Member's Car - Une Belle Idee

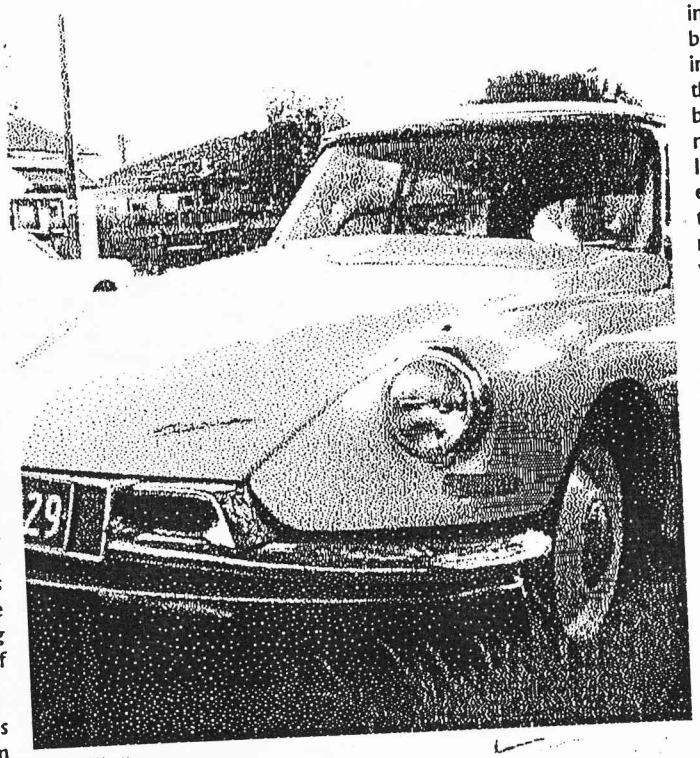
(CONTINUED FROM PAGE 10)
hydraulic car using the mechanical bits from Henry's DS 19. However, the difficulty of doing this conversion in the open at the end of the driveway soon became apparent, and the lesser target of restoring the ID to a "runner" had to be accepted.

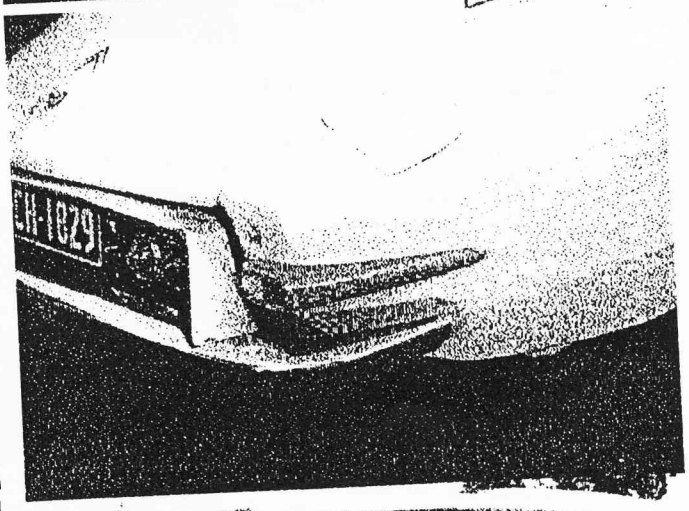
The rust in the left hand front footwell was tackled first, followed by steering rack overhaul and some work on the brakes. This developed into a full rebuild of the external panels and a bare metal respray.

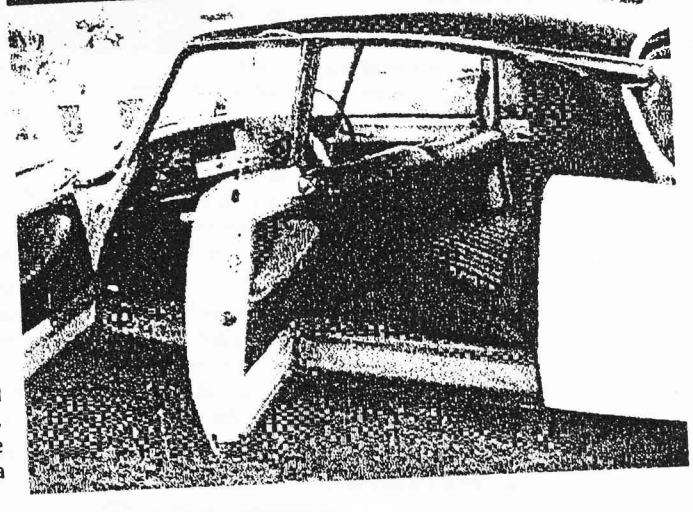
The doors were a major problem as the lower inner frames including the bottom hinge mounting points were totally rotten. I have since observed that this is not uncommon, but that the external door skins seem to survive well as the metal gauge is quite thick. The door frames were rebuilt by letting in new folded sections and a lot of careful welding.

The other major panel problem was the roof. It consists of an aluminium pressing with a steel perimeter frame - an ideal recipe for electrolytic corrosion. There wasn't a lot of aluminium left around the base so 16 standard wire gauge aluminium strips were formed to fit the profile of the roof panel and were Araldited to the inside of the panel and riveted to the steel frame. While the roof was out a new head lining was glued into place, and the roof was then bolted onto a new sealing rubber. The head lining subsequently fell out.

The remaining panels were straightened where necessary and small patches of rust cut out. Recognising my limitations as a panel beater/spray painter, I decided to paint the bulk of the car in white, as this covers up many sins. The colour, Angora White, is listed by Dulux as a Citroen colour of the era but there was no formulation available for acrylic lacquer. Dulux came up with an estimate of the formulation which has proven to be quite acceptable. I wanted to reproduce the original red roof concept and decided to use a Jaguar shade, Regal Red, which I had previously used on the Light 15 restoration and was very close to the original. The red paint was extended to the "B" and "C" pillars, which, judging from some favourable comments, seems to have been a good idea.







The ID's first outing was CCOCA Concours at Stud in 1990 (I think) when it brakes to speak of, and un interior and under-bonne then the engine and gearb been removed, the engi repainted and all ancillaries I decided to replace the engine with Henry's DS this was rebuilt with new reground crank, new piston valves, valve guides, o gears, clutch, rebuilt wat and so on. The guts of pressure hydraulic pum removed and a spacer ma get the water pump in position. The DS mu hydraulic pump was plu and the regulator shifted location. The ID c originally had a cable accelerator and this was c the DS rod operated Altogether not a terrib conversion, and quite with the era. I still have engine, if originality eve an issue.

The DS engine brings wi breathing, more powe capacity hydraulic pum ability to add hydraulic the future. The down poor accessibility of the and difficulty in findin the twin point distributo

The brakes proved to be Pre-1961 IDs use a c master cylinder with a grafted on through pressure hydraulic fluic to be admitted under h to augment the bra Hmm. I have a bo master cylinders an which the high pressur been blocked off an valves removed. A problem I had (wh inability to get a con one, errr..., pedal) w fault. I had decided t away with just honi cylinder bore and fit Eventually this was sleeving the mas extensive bleeding adjustment of the p They're still not brilli I know why - it's th Boyle brake pads!

Talking of hydraulic the hydraulic fluid. cars, of course, ru [Liquide Hydrauliq or something like t

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Member's Car - Une Belle Idee

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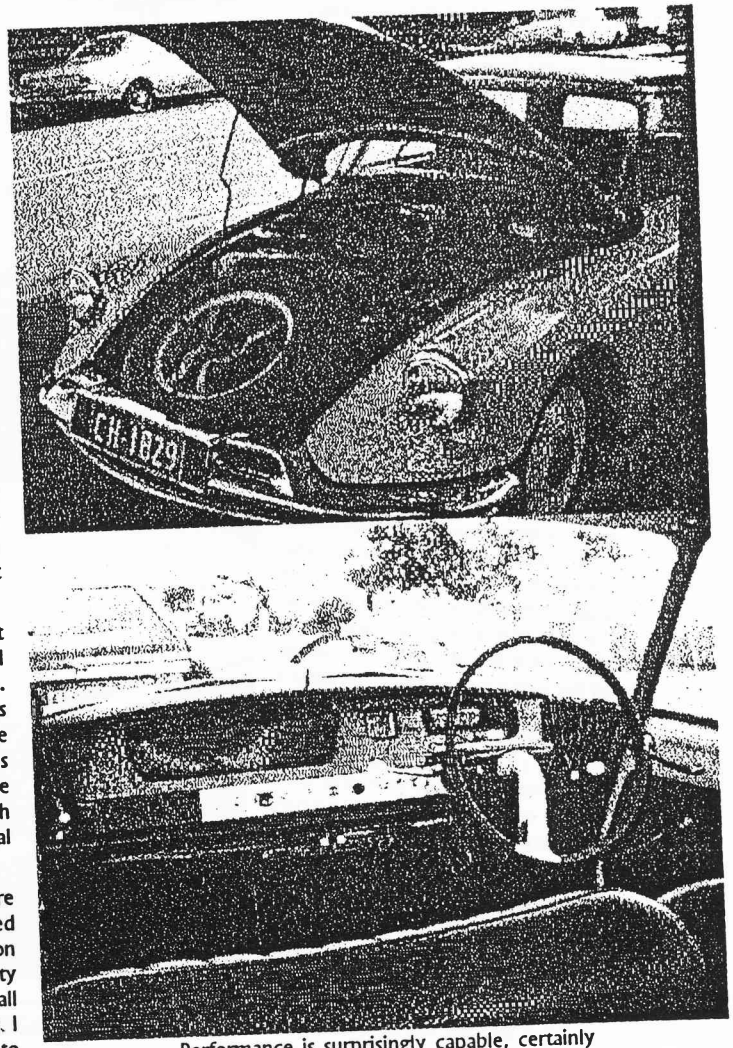
conventional brake fluid plus blown castor oil (for lubricity) and a red/purple dye. Like all early D owners I had squirreled away a supply of "red fluid", but eventually this ran out. This was probably not a bad thing as this fluid is very hygroscopic ie it absorbs water, which lowers the boiling point, but probably more importantly, promotes corrosion of the hydraulic system components. I had kept a watching brief on LHS fluid availability and had tracked down a supply ex-Germany. However, to land this in Australia would have been a very expensive exercise - the fluid may have been worth more than the car! A chance discussion with fellow early D owner Russel Wade revealed that Russel had just bought some Castrol RR 363 brake fluid to use in his fleet. The background to this fluid is that Citroen licensed their hydraulic suspension technology to Rolls-Royce back in the 'sixties and it is used in the self-levelling rear suspension of some R-R models of the time. Castrol were the only approved supplier of the hydraulic fluid and it is still available. My contacts at Castrol are confident that this fluid is also suitable for early Citroens - get in quick while Castrol still stock it, it won't last for ever.



When the under-bonnet area was finished I started on the interior. The innumerable holes that had been inflicted over the years to accommodate various switches, warning lights etc were filled in and the wooden dash panel sent off to a professional furniture restorer.

Although the seat facings were originally finished in black and red leather, I wasn't keen on reproducing this somewhat tarty arrangement and I opted for all black in Connolly leather. As I write this, the head lining is yet to be redone, and the carpets are still very much temporary.

The car was put onto the Victorian "red plate" limited use permit scheme in late '93, and I'm still building up confidence in the car. The early brake problems are now understood, and some carburetion problems are currently being addressed.

At the 1994 CCOCA/CCCV Concours I was delighted that the punters awarded it winner of the ID/DS category, and more importantly, decided that it was the most popular vehicle. Not bad for an "end of the driveway" restoration.

So, what's it like to drive?

Well, if you've been brought up on a '90s Toyonissamitsu 4WD AWS ELB EFI 16V Turbo, you'd be shell-shocked.

However, if you have a more rounded vision, it's not too bad .

Yes, it's noisy. NVH wasn't a big science in the '40s and '50s and the inevitable wear since hasn't helped .

The ride is great, even by 1990s standards. Handling is so-so, not helped by the ancient Michelin Xs, but quite adequate to do battle with the commuters.

Performance is surprisingly capable, certainly adequate to keep up with any law-abiding competition. It's interesting to note that contemporary reports referred to fourth gear as an overdrive - it certainly is high geared, but is quite usable if not essential in Melbourne urban driving .

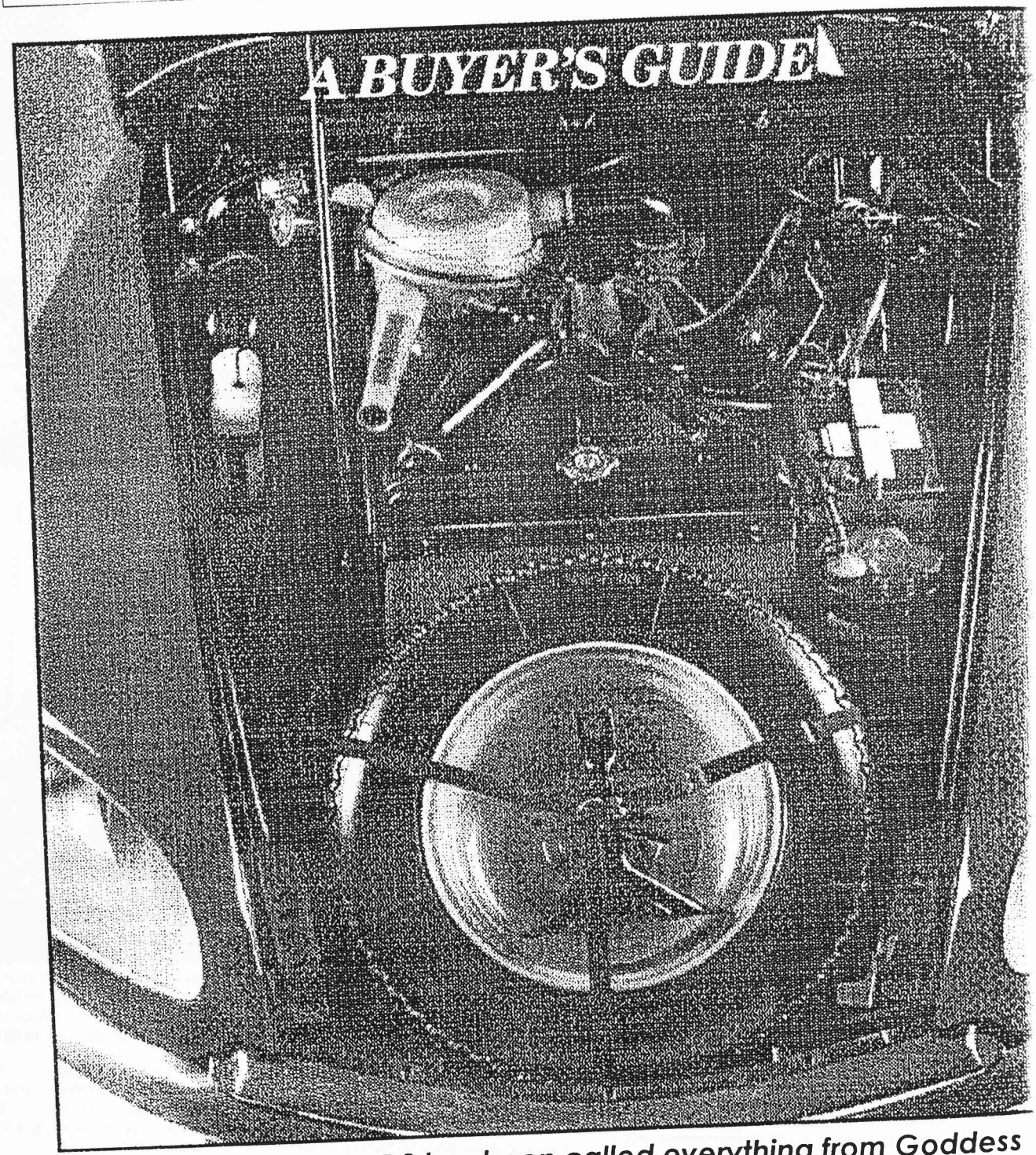
OK, so what's the bottom line?

It is an every-day proposition, certainly more so than a Traction, but it's a question of what you're prepared to cope with. If a automotive statement is what you're after, then a '70s D is no doubt a better bet.

But if purity of design, originality, maintaining the breed, and fun are what drives you, then find an early D and do something with it.

Roger Brundle

Goddess or God-damned



In its time, the Citroën DS has been called everything from Goddess damned, but how viable is one for today's do-it-yourself owne Practical Classics and Classic Sportscar magazines recently too objective, in-depth look.

Goddess or God-damned

It's 1955 here and motorists are still coping with vacuum-operated wipers, heaters are usually an optional extra, hydraulic brakes aren't universal, a reliable automatic transmission isn't yet available on a mass-produced car, and the three speed side valve Ford still has another six years to go.

Across the channel though something very new has just emerged into this dark post-war world. Looking not unlike a sci-fi spaceship of the period, the latest offering from innovators, Citroën [who it should be remembered, had front-wheel drive as early as 1934] is well, what can you say other than it's the Car of the Future. It's available today to French motorists and any one in Britain who can afford the import duty.

At rest, the car's belly is just a few centimetres from the floor. When the engine is started however, after a few seconds the car rises to it's normal driving height. Power for this comes from a hydraulic pump which pushes fluid into an accumulator - a sphere with a rubber membrane in it. The fluid, under pressure, goes one side of the membrane. The other contains nitrogen gas, which is pressurised by the fluid. Pressurised fluid also flows to each wheel where there is a similar sphere/cylinder combination that provides springing effect. The driver has a choice of three ride heights, for coping with different types of terrain.

The same hydraulic system provides power-assistance for the brakes, steering and gear change. There's no clutch - it operates automatically when the gear selector is moved. The brakes have virtually no pedal travel and require about the same pressure as British motorists at the time would apply to their floor mounted dip switches! Steering too is finger-light. The revolutionary DS requires a totally different driving technique.

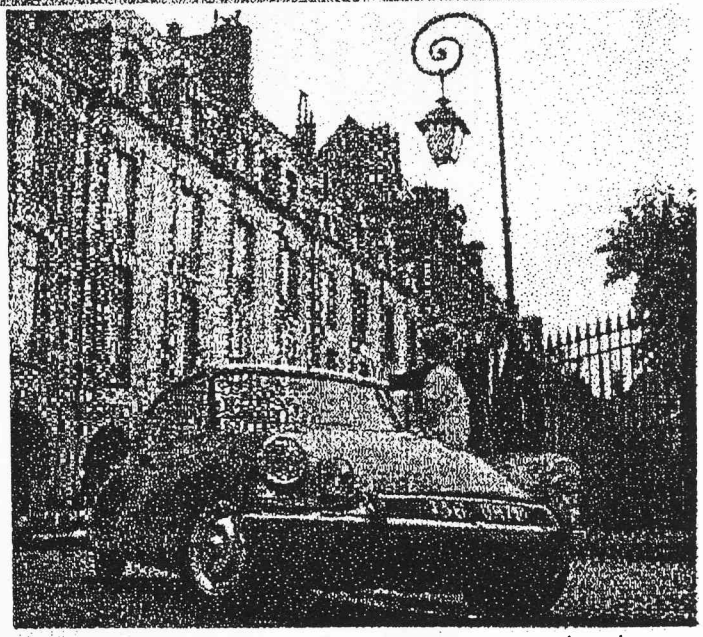
There is no doubt, even today, a good well-maintained DS is like nothing else on earth. It's a fact that once someone has taken the plunge and bought a decent DS, they rarely want to go back to a 'conventional' car. I've also yet to meet anyone who hasn't come away from a test-drive in a DS pleasantly surprised, however sceptical they were at the start.

But as anyone who has been involved with old cars for a few years will testify, innovation and complexity are usually bad news when a car gets old. Repair bills can be horrendous, and if servicing is difficult it tends to be neglected and even the best car in the world will break down if it isn't serviced.

So what's the reality of owning. maintaining and restoring a Citroën DS today? Is it an experience not to be missed, or one to be avoided at all costs? And most Important of all, is a tired DS [or for that matter, any DS] a practical proposition for the home restorer with limited facilities and experience, but a lot of enthusiasm.

THE MODELS

First though, a look at the range. This is a little complex as the DS was in production for 20 years, with four engines capacities, three transmissions and numerous trim levels from 'special' to the sumptuous Pallas trim. [Note there is no mention of the variants that were assembled here in Australia.]



Broadly speaking there were two lines - DS, and ID. The ID was introduced in 1957 as a simpler version of the DS - already some people thought that the DS was too complicated for its own good. Gone were all the powered hydraulic controls apart from the suspension, and the engine was a straight lift from the light Fifteen. [The DS unit was similar but with an improved cylinder head incorporating two rocker shafts].

This distinction became blurred as time went on though and the ID gradually became more complex. By the end, the D Super 5 [the ID was redesignated D in September 1969] lacked only the hydraulic gear change though there were trim differences.

The Safari estate car was introduced in 1959 and offered unbeatable accommodation and. with self-levelling suspension, could take a lot of weight. The long load area also incorporated two fold-down side-ways facing seats. The two-piece tailgate was designed so that the car could be driven with the gate open. There were two rear number plates - one facing upwards, visible with the gate down. Mind you it's hard to think of much that would be too long to fit the safari...

The Safari remained in production until the saloon was discontinued and broadly followed the DS and ID family trees - though most were to ID/D specifications, and Pallas trim was not offered.

Safaris were popular as ambulances in France, and used throughout Europe as television camera-cars. Even the BBC has some - it usually bought British, but could find nothing here that did the job.

A number of DS specials were also made by various outside concerns. The best-known of these was Henri Chapron, whose coach-building concern produced a DS convertible -

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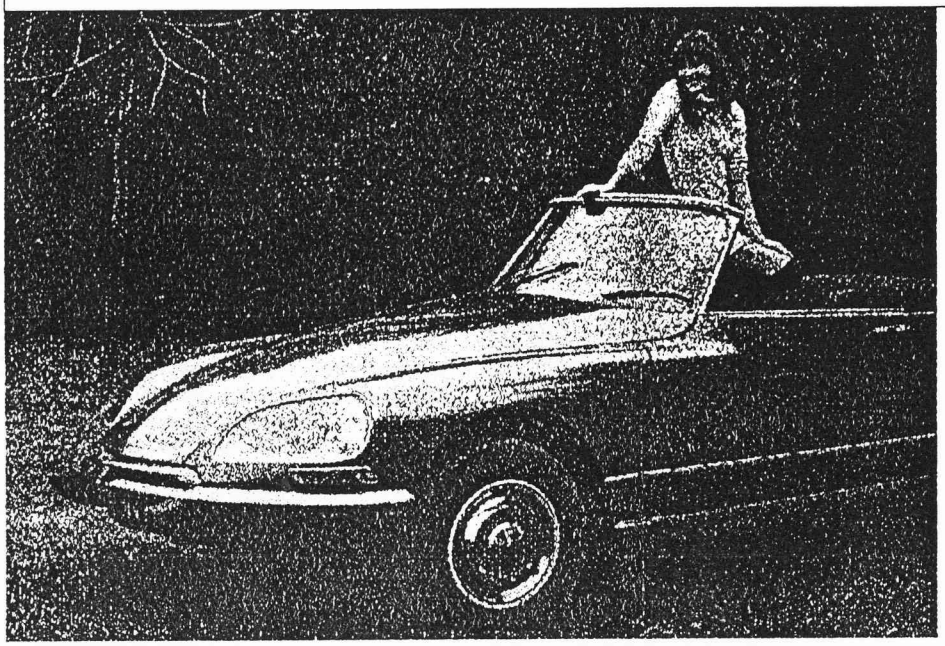
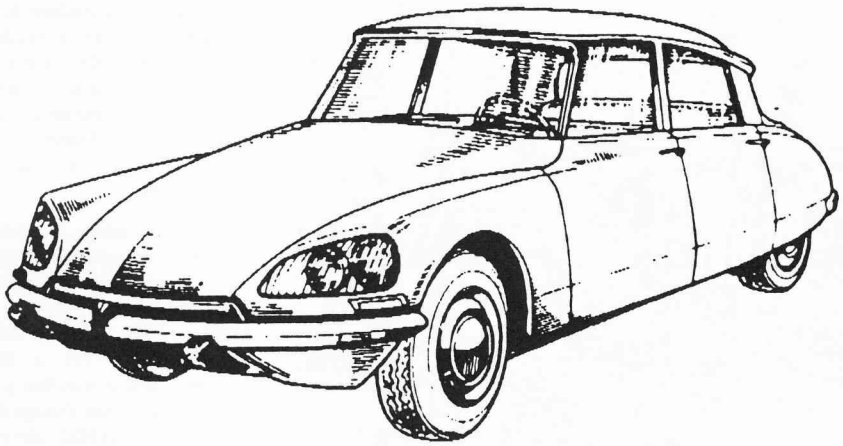
Goddess or God-damned





This page and opposite: The four basic body styles. Top left:- The unmistakable Safari. Bottom left:- The early, single head light design. Top:- A real dream machine by Chapron - the Cabriolet. Bottom:- The DS Sedan in its final double head light form

(CONTINUED FROM PAGE 14)

or Decapotable - between 1960 and 1971. It's thought that around 1,300 were made. The Decapotable was available in Britain until 1967 [though some were privately imported after that date] but few survive. Those that do are, however, very sought-after and priced accordingly - a very good one was on offer at £25,000. [In Australia the handful here, are much coveted and can bring up to the $100,000 mark.] Chapron also produced a series of special coupes, but his best-known DS in France, at least - has to be the magnificent large, black limousine produced for General do Gaulle.

Most surviving DS's in Britain toady are post-1970 saloons - really these are the best choice for newcomers to DS motoring. In Australia we are fortunate enough to have a good selection of IDs and DSs available, but as with Britain the double headlight models are more common. IDs were assembled here in Melbourne for a short period in the 60's and there are still a few examples around, and the double headlight models sold very well in the early 70s.

As well as the differing levels of trim, there's a choice of 2175 cc or 2347 cc engines, carburettors or Bosch fuel injection, four or five speed transmissions and D or DS specifications. As usual, though, condition is more important at the end of the day.

MAINTENANCE COUNTS

As you'll realise already, the DS is, even by modern standards a complicated car. Beneath that distinctive exterior there's a great deal to go wrong / be neglected and a lot to check.

It is conventional in one respect though - it rusts! The box sections that give the car its structural strength were given no internal protection at the factory apart from paint This is fine for the dry climate of central/south France or Australia, but definitely not a good idea in the UK. A point to look out for if your looking at a privately imported D brought in from the UK.

Later UK cars were undersealed, which helps, with rubber-based sealant, which remains solid. The trouble is that it cracks in time, and once the coat is broken the underseal traps moisture rather than repels it.

The least painful, and ideal, route into ownership is to buy a car that has a full service history from new, and which has been fully rustproofed by the original owner.[This rustproofing may be overlooked in Australian cars] A lesser car can be OK, but you must expect to spend some time and/or money making up for other people's neglect.

"The first year might be painful but after that you'll start enjoying yourself" as Peter Raffels of Citroën specialists Pliedes told the author.

What about a complete basket case? Actually, a full DS restoration isn't quite as difficult as you might think, though I wouldn't recommend one as a first project. With the external panels off access to much of the shell is good - and most of the structure is made from flat sheets - so repair sections are relatively easy to make.

The mechanical work involved shouldn't be underestimated but as our 'how to do it' table shows, many jobs are easier with the car part dismantled. If you plan the work carefully and put right everything you come across that isn't perfect, you will end up with a good car.

You should attach no importance to what a DS looks like - it's easy to attach good outer panels to a terminally rotten shell. All the areas in our 'rustfinder' section should be examined carefully and do insist on removing the rear wings. If the seller objects, explain that you are interested but won't buy without a proper examination. If he still says no, look elsewhere. One important thing to bear in mind is that the front panels, ie. the guards, bonnet and lower front panel are very hard to find, even in Europe and as a result are expensive little numbers to purchase. When looking for a D make sure these are in either good condition or at the very least repairable.

The major mechanical components - engine, gearbox, clutch last well.

THE ENGINE'

The engine may be unrefined compared to the rest of the car, but if the oil is changed every 3,000 miles, it'll do 200,000 miles with no trouble. One tip - if a DS engine is running well, please leave it alone - these units do not take kindly to 'tinkering'.

(CONTINUED ON PAGE 16)

Goddess or God-damned

(CONTINUED FROM PAGE 15)

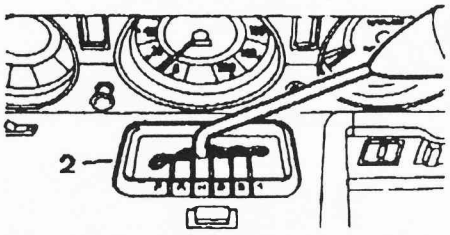
As a result the engine in a well-maintained D just isn't a cause for concern. Even on the rare occasions when a re-build does become necessary, it's usually only a partial one that can be accomplished without removing the engine from the car because bottom-end wear is almost non-existent. New valve guides, reseating the valves and maybe fitting a set of liners and pistons is generally all that's required. Parts can expensive though, so using a second-hand engine can be a cheaper solution.

The two commonest reasons for the demise of a D engine are both owner-inflicted. First, cracks in the alloy head between the rockers can occur if the cooling system lacks anti-freeze. Second, amateurs have been known to fit the oil filter incorrectly: if the arrow on the filter casing isn't aligned with the matching arrow on the sump, oil flow to the pump is cut off and the engine will seize soon after it's fired up. Another occasional problem, but not terminal, is that lug threads in the head can be stripped by a careless mechanic: it has been known for a plug to be fired clean through the bonnet as a result.

There is a flip side to this picture, for the engine's far-back installation creates some maintenance headaches. The worst is that the engine has to be removed to change the timing chain and, on later cars, the clutch. The task is merely time consuming if you can accomplish it yourself, but to pay a professional for 12-14 hours' labour would be expensive. Both components can last 100,000 miles, but a car with a weak clutch or a tinkering timing chain might best be avoided unless it's excellent in every other way. Needless to say, a loose timing chain will eventually slip, with disastrous consequences for valves and pistons. Accepted D wisdom is to replace other inaccessible components, such as the starter motor, while the engine is out.

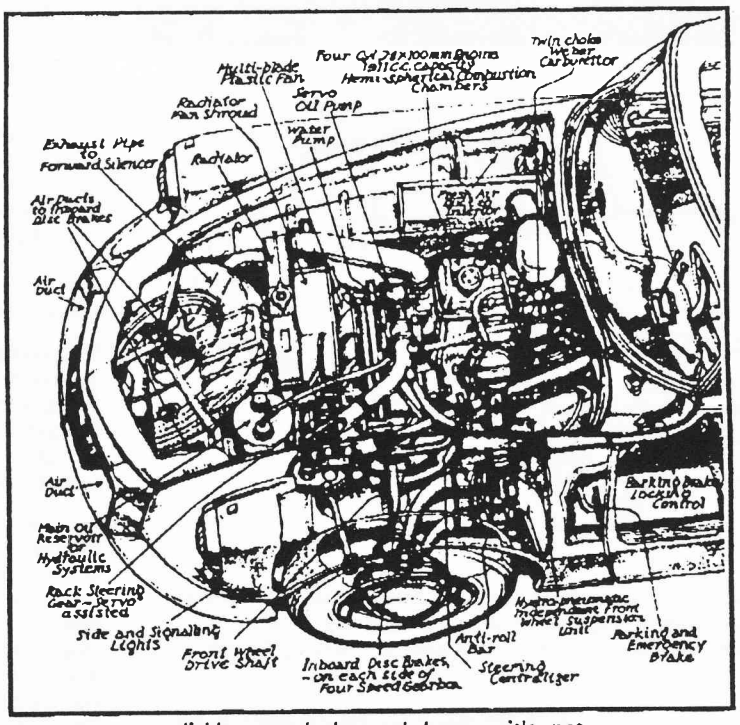
As well as timing chain noise, listen for a deeper rattle that sometimes occur on engines that have suffered infrequent oil changes. A loud tappety sound is probably caused by the exhaust rockers, which can wear badly if starved of oil as a result of the rocker post drilling becoming blocked.

The only other significant factor on the engine side is the fuel system. Although the performance of a fuel-injected model may be appealing, the cost of replacing components is high - injectors are quite expensive. There are no special reliability worries, but a single Weber carburettor is inherently simpler. If you are tempted by an EFI, watch the rubber pipes on the injectors: fuel leaks as a result of it perishing have been know to cause engine fires.



THE TRANSMISSION

The gearboxes are trouble-free, though bearings do sometimes get noisy on five - speeds. The semi-automatic system is also



reliable enough by and large - it's not unknown for rough engagement to be caused by engine idling speed being set too high. A five-speed gearbox can be fitted to a four speed car. The five speed boxes on late cars allow more relaxed cruising along with better fuel economy, although fifth can become noisy at a high mileage. Few people have ever rebuilt a D gearbox, it's much simpler to buy a second-hand one on the rare occasion problems occur.

Another buying decision with a D is whether you want a hydraulic or conventional gear change, the later being more common on the latter cars. The hydraulic change offers powered gear selection and clutch operation, so that all you do is move the column mounted lever. The system is undoubtedly part of the Citroën mystique, but do you want the extra complexity? In general it works efficiently, but all the additional components - clutch operating cylinder, centrifugal regulator, clutch re-engagement control, gear brain and gear selection cylinders - create added potential for problems and if a fault does occur, you're well and truely stranded because you can't select a gear. The system has its followers and it is really up to the individual owner, but it is a joy to use and again reliable.

THE SUSPENSION

The suspension too is trouble free if kept supplied with LHM [post September 1966] or mineral-based LHS2 [earlier cars] fluid. Under no circumstances must these be substituted for each other, or conventional brake fluid be used in an LHM DS - do so and you'll ruin every rubber seal in the car, which will mean a four figure bill for parts alone. Fluid cleanliness should be checked regularly. Take a sample from the fluid reservoir in a jam jar, or similar, and compare it with some new fluid. If it's dirtier, the fluid should be changed. The draining procedure isn't to difficult. LHM is readily available, too. LHS2 is scarce but Castrol have cleared RR363 , the hydraulic fluid made for Rolls Royce Silver Shadows, as a direct replacement.

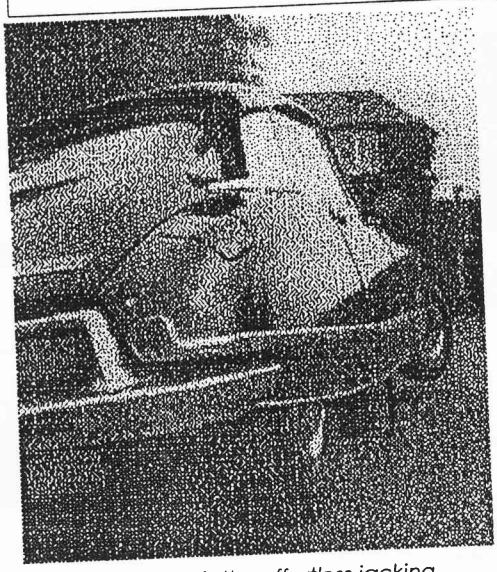
LHS2 is, in effect a thicker version of conventional brake fluid. Some people advise updating an LHS2 car to LHM, but this isn't recommended. It's a big, involved and expensive job, and as long as you change the fluid annually [LHS2 absorbs water] there's nothing wrong with the LHS2 system. Basically, the same stuff is used in the RAF Nimrod.

On LHS2 and LHM cars, the suspension spheres need changing from time to time - one that's been on a car for more than five years is due for replacement. The symptoms are hard, 'bouncy' suspension, continual clicking for the pressure regulator area [left hand side under the carburettor or, EFI cars, beside the gearbox.].

Reconditioned spheres are available, as is regassing, in Australia . But for a sphere to be successfully regassed the diaphragm must be is good condition. Apart from the accumulator sphere on carburettor cars access for replacement is relatively easy. Use a chain wrench to undo old spheres - not under any circumstances, a hammer and chisel! The spheres aren't fitted tightly, but the threads rust which makes removal a muscle-building exercise!

(CONTINUED ON PAGE 17)

Goddess or God-damned



A great feature is the effortless jacking system. If only all cars had this!

(CONTINUED FROM PAGE 16)

The one significant problem that does occur is corrosion of the hydraulic pipework as with the braking systems on normal cars. The pipe loom, with three or four pipes depending on age and specification, is located at the front of the near-side rear wheelarch, where it's best seen with the rear wing removed. Remove the cover plate if you can examine the car with the wing off, otherwise put the suspension on its high setting with the engine running and shine a torch into the aperture at the bottom.

Since the piping is exposed to road dirt thrown up by the wheel, this is invariably where the system which carries a pressure of about 1,800 psi will rupture first. It's not a case of gradual decline: the suspension just suddenly falls, the car slumps and a tell tale pool of fluid forms on the ground in front of the rear wheel. Preventive medicine with pipework overhaul is obviously the answer, preferably by a company specialising in Citroën hydraulics.

A fluid leakage onto the top of the gearbox casing indicates an ailing pump.

The only other typical suspension problems are revealed by a strange noise coming from front or rear. A crack from the back as the suspension goes up and down suggests that the pushrods are worn while a clunk from the front when a wheel goes over a pothole indicates that a worn bearing in the bottom arm is creating knotty suspension movement. In each case, second hand suspension components are a relatively inexpensive solution.

THE BRAKING SYSTEM.

The commonest problem with braking occurs with the handbrake, which plenty of people mistakenly adjust on the cable. This facility is to compensate for slack developing in the cable, whereas the proper adjusters are actually on the handbrake mechanism arms.

Changing the handbrake pads, which involves removing the steering rack and radiator is another of those jobs wisely done if the engine has to come out for another reason. Citroën used to advise its agents to change handbrake pads at the same time as the clutch, as life expectancy is similar.

THE STEERING

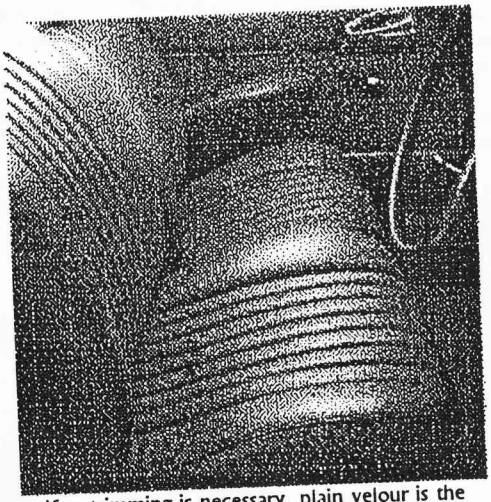
Few problems occur on the steering side except for a well-known weakness in the linkrods caused by the neoprene washers in the ball assembly breaking up, allowing vertical play to develop. Improved remanufactured link rods promise a longer life because they use a spring instead of a neoprene washer.

THE INTERIOR

D interiors varied enormously over the years, but there are three basic types depending on age and model: velour, vinyl or leather.

Condition is important because there are no trim kits to offer easy solutions, and some of the materials have long since disappeared.

Australia was particularly hard on the velour interiors and they shredded very quickly.



If re-trimming is necessary, plain velour is the least troublesome to replace. Most colours can be matched reasonably closely with modern velours, but their reduced nylon content means they look slightly different. The velour for the Pallas seats, however, does present problems if you want to retain originality, because it features an embossed pattern on the centre panels. There's a solution if you feel inclined to persevere: since rear seats rarely become worn, it's possible to use the material from a donor car to cobble together a presentable set of front seats.

Leather, available only on Pallas models, creates a truely sumptuous interior for budding boulevardiers, but it's fearfully expensive to replace because there's so much of it.

Citroën's Targa vinyl is also problemat because no-one today makes a substitute r comes anywhere near replicating its distinc diamond holed pattern. Again, the c solution it to present a highly compet trimmer with a couple of seats from wh one serviceable interior can be made.

Recreating authentic bound edged carpe less difficult because Wilton looks very sir to the original style. Having loose carpet mat in the driver's footwell is extrem unwise; it can drift forward and bec lodged beneath the brake button, potentially dangerous consequences.

Few other interior components c difficulty because once again, wreck provide a useful source. Perhaps the two p problems are firstly, the door-handles, w for some bizarre reason are made of chr plated aluminium. The chrome tends to off and getting a fresh layer to adhe difficult. Secondly, the steering wheel i Australian sun can loose its grip on the of the wheel. One solution is to use a sy filled with an appropriate glue and through the covering at evenly s intervals to re-affix the outer.

THE CONCLUSION

Although there's undoubtedly some tr the D's difficult-to-service reputation extraordinary machine continues to unfairly under the perception th incredibly fickle.

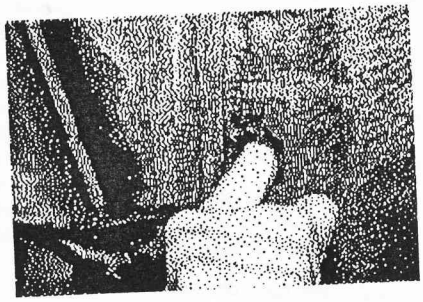
It isn't. Buy mass produced standard offers exceptional engineering qualit stands it in good stead as time goes by most of their saloon contemporaries sur tiny numbers, Ds keep on going, in the of devoted followers who treasure th their individuality, style, technical wi character and engineering excellence.

The D is one of the great landm automotive history. Ownership does commitment and passion, to be sure, pleasure should far outweigh the pain but wisely. Study, choose carefully, the experts and enjoy.

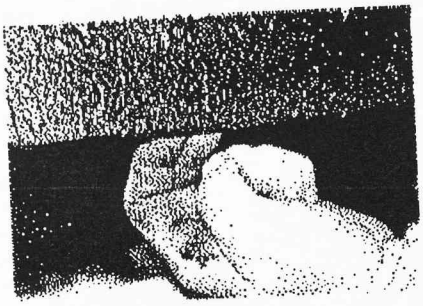
DS Rustfinder

The DS is built on a rectangular chassis frame, with two box section 'sill' members running down each side, two other box sections running across the car, and the main floor 'underslung'. This gives the car strength - none of the upper outer panels are stressed. As explained in the accompanying article, there was little or no rustproofing, so inside corrosion of the box sections can occur.

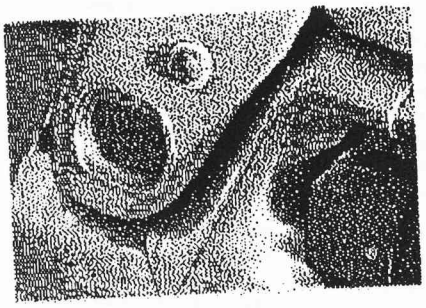
1. Rust can form where the sill and floor join. It is not unknown for the floor and sill to part company, completely. Poke the whole area - there should be no give in the floor or box section.

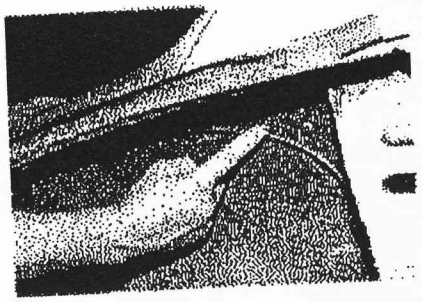


2. Examine the sides of the box sections too - corrosion up to about 2.5 cm from the bottom can occur. As well as rust you should look out for roughly welded patches - rot holes can easily be covered up, but the car's structural strength will be suspect. The hydraulic and fuel lines run inside the sills.



3. Wing removal is straightforward and once they're off, you can inspect the scuttle/bulkhead assembly. Access to some of the mechanicals is also easier.





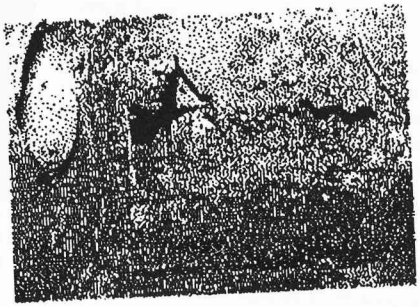
4. Start by looking in the front skirt wells - in front of the wheel on either side. Rot here isn't critical structurally - unless it affects the adjacent chassis legs.

5. Look at the front of the box sections beneath the front wing. With the wing off you can check the whole scuttle and A-post area right up the windscreen.

6. The top of the scuttle can be checked for rot with the bonnet open and the wing still on. Rust here can occur, but as welding jobs go, rectification is easy - lots of nice straight edges.

7. You must check the whole floor thoroughly - look out for loose underseal and rust underneath.

8. There's a long pipe under the offside rear wing from the filler cap. This is where it enters the tank. Water can get between the fuel pipe and the body. The ligerex clip on the fuel line often rusts - and breaks - resulting in petrol leakage.

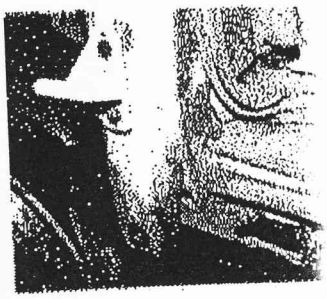


9. The inner wing area, and the whole back end must be examined carefully for rust.

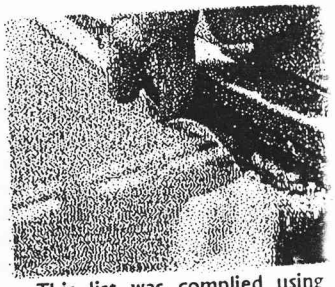
10. You must look along the inner wings too, particularly where they join the outer, and down the leading edge.

11. The rear suspension and rear sphere mounting points are vital, and must be checked carefully, along with the whole underbody between the rear wheels.

12. There's a crafty little cover under the nearside rear win it and much of the hydraulic pipew into sight. If these pipes are ru probable end up re-plumbing much



13. Have a good feel all the the windscreen too. As the seal age water can get in behind - a underneath rots.



This list was complied using Fortunately, Australian cars suffered as badly from corrosio But working through this list w all possible problem areas are purchase or restoration.

Letters to the Editor

PO Box 134
Sandy Bay 7005
Tasmania.
12/2/95.

Dear Bill,

A short note to accompany my CCOCA subs. renewal.

Firstly, I would like to thank Leigh Miles for his help in providing a workshop manual for my 2CVs. Even in distant Hobart, the [indecipherable !] of the President extends! Even though unable to attend club meets, I greatly appreciate the efforts of all in keeping the club going. Not all people who fail to attend meetings are apathetic!

Secondly, I would like to extend a welcome to club members visiting Tasmania. Please contact me when you know your travel plans. Work telephone: 002 241400. Home: 002 279 443. Frankly, the easiest way for people to tour the State is to fly down and pick up a hire car. In that way, you eliminate any risk of damaging your own car on the ferry or on the roads. It's also faster. However, if you do decide to bring your Citroen, I know a reasonable amount about the big cars, and a fair bit about the two cylinder models. I also have a well equipped workshop for running repairs or adjustments.

Finally, a question for someone into 2CVs who may be able to help. I am a fanatic for originality and keep my 2CVs absolutely standard. However, I would like to change the front seats for something less "saggy". In doing this, I would like to keep the original mount points, using an appropriate adaptor plate.

In the UK, they use GS seats, but the ones here are pretty rare and likely to be in a poor state anyway. Has any reader fitted Australian-sourced seats (preferably not Japanese)? Any suggestions would be gratefully acted upon.

Best wishes,

Trevor and Robyn Armstrong.

PS The Tasmanian state motor vehicle registration authorities are very understanding and tolerant. I had my 2CVs registered with absolutely no problems. This may not be something to shout to all and sundry, but if any owners are thinking of moving to Tassie for life in the slow lane (as we did from the mainland), give me a call. We love it and having lived all over the world - including many years in Melbourne - I am positive that Hobart's climate is far more temperate than Melbourne's. Yes folks, it's true! Also forget the bad press about the rednecks and other troglodytes here. There is an overwhelming majority of tolerant people. We have been warmly welcomed, and there are lots of tolerant people who have chosen to come here.

Restaurants are not up to Melbourne's standards (where else is?), but there are some very good ones nonetheless, and the seafood is sublime. Film and theatre are two areas that the state is weak on, but music is of a high standard.

Enough of the promo. Come and see for yourselves!

Trevor and Robyn.

The Traction Gearbox

We have received an excellent letter from Bill Slater of South Australia in which he asks some probing questions about the reliability of the Traction Avant gearbox, and the crown wheel and pinion pieces in particular. These questions have been bandied about for at least all the years that the present Editor has been in the club (something of the order of a quarter of the period of time that the TAs have been in existence) and almost certainly a lot longer.

Most of you will have heard the story of how the Traction box was cobbled together in a real hurry after Andre Citroen was persuaded at the last minute that his dreamed-of automatic gearbox was just not going to be made into a practical proposition in time for car's launch in 1934. The TA box has been regarded as a weak point of the design ever since, only made good by changes eventually incorporated in the D-series box.

We passed Bill's questions over to that evergreen team of experts, Jack Weaver and M/s Dorothy Fixx. No, not Dorothy Dix - advice to the lovelorn etc -, but Dorothy Fixx, the grease-stained and dust-encrusted old girl who ran the garage out in the Mallee somewhere south of Sea Lake for many years, who'd kept more John Deeres, Inters and Allises trundling over the sand hills than Peter Boyle's dog has had cans of Trusty, and who even now in semi-retirement gets called out to Tulla from time to time to kick start a jumbo jet or two on a cold morning. Yes, a truly formidable and knowledgable lady.

Anyway, the answers that have come back from our pair of experts bring great technical knowledge, experience and analytical ability to addressing Bill's detailed questions. As such, the answers will be of great interest to Traction owners who have had or have gearbox problems or are simply worried that they might (and that must include just about all of them!).

Since the present issue of Front Drive is rapidly filling up with D Series material, we will hold these TA gearbox answers over to the next issue, which will have more of a Traction focus. In the meantime, anyone who is sweating on an answer and is unable to wait that long could ask the Editor to pass on a comment on a specific point, pending the more detailed response later.

The Editor.

Our Slips are Showing

In the last issue in our ad for Carl Perrin's 2CV Charleston, we accidently listed his phone number incorrectly. Now everyone (well, Carl anyway) knows the correct number is 09 386 3268. The error was due to Leigh's computer!

Letter to the President

Alan Gray
Licensed aircraft maintenance engineer
PO Box 297
Clunes NSW 2480.

Tel. 066 291134.

8/3/95.

Dear Mr Miles,

I am an engineer about to retire here in Northern NSW.

I have always liked the Citroen Big Six of the '40s and '50s. Many years ago, a friend owned one in Kenya, which I helped to maintain [So, you're the guy who has been maintaining Kenya all these years - Ed.].

The purpose of this letter is to inquire if any of your members have or know of an abandoned restoration project or perhaps of a car that is surplus after cannibalisation. I cannot afford the high prices that I see in magazines for a restored car and am quite happy to accept the task of restoration.

If your club has a newsletter, I would be glad to defray the cost of advertising in it. I am looking for a Big Six suitable for restoration or Big Six parts, starting with a body shell.

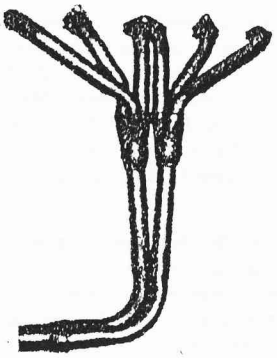
Thank you for your help in this matter.

Yours sincerely,
Alan Grey.

Classified Advertisements

NOW AVAILABLE FOR BIG 6 - EXTRACTORS

Professionally built exhaust extractors. No more worries with cracked exhaust manifolds. Bolts straight on using existing inlet manifold. With carby drip tray in place, these extractors are not obtrusive. And as a bonus, more power, economy and smoother running. At around $600, with single or double engine pipes, as required.



Contact Mel Carey on [051] 52 1040

PS: They look very impressive with the carby drip tray off!

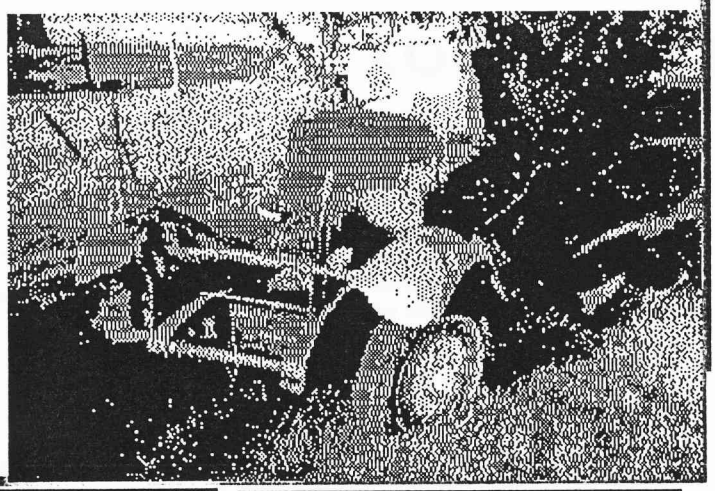
FOR SALE - REMNANTS OF HISTORY

Remnants of Early '30s Citroën

It owes me $100

Any offer considered as it HAS TO GO

Contact Dave Hancox [059]43 1029 [BH], [059]43 2485 [AH]



FOR SALE: TRACTION PARTS

For sale: Light 15 windscreen glass, brand new, cut by Pilkingtons, toughened, not laminated, will not crack in frame as laminated ones prone to do, to suit brass frame prior to 1952. $60. Gerry Propsting. Tel. 03 727 1890.

BIG 6 OWNERS!

Big 6 Owners/Restorers

Perhaps I can help you. Are you having trouble sourcing mechanical parts for your car? Over the years I have gathered an impressive list of suppliers and alternatives for our Big 6s. Everything from the correct A and B profile belts to driveline and engine parts. Free advice given.

Phone Mel Carey [051] 52 1040.

FOR SALE: REPAIR MANUALS

For sale: Factory repair manual for 2 CV, 1950s, good average condition, two volume version. Best offer over $30. Contact Peter Simmenauer on [03] 882 6539.

For sale: Factory repair manual for Light 15. Very good condition - why make do with photocopies when you can have the real thing! $65 each. Contact Jim Thompson Tel: [08] 379 3846.

2CV6FOR SALE

For Sale: FUN 000, 1984 2CV6 Charlston, Grey/grey, 52,00 miles. Always garaged & maintained. New clutch, battery, front & side mufflers & tailpipe. Reg. till July, 1995. Needs new upholstery. $13,750.

Featured in Easter Cit-In '93 gymkhana.

Contact: Carl Perrin, 39 Stanley St., Nedlands, 6009, WA.Ph: [09] 386 3268.

WANTED

Wanted: Four hubcaps for 1953 Light 15 (English), big boot model; new brake hoses. Have some 1949 parts to swap.

Ken Churchman, 1675 Coolgardie Street, Mundaring, WA 6073. Tel. [09] 295 2569.

Wanted: DS 21 sedan in good going condition.

Andrew Stewart, PO Box 146, Sea Lake, Vic 3533. Tel. [050] 70 1376.

ID Sedan. Must be runner, or better.

Carl Perrin, [09] 386 3268

Cit-In '95
Citroën Classic Owners Club of Australia Inc
Beirnsdale Victoria

TO BE CERTAIN OF YOUR BOOKING FOR CIT-IN '95, SEND YOUR BOOKING FORM PROMPTLY TO

CIT-IN BOOKINGS, 16 HARROW ST, BLACKBURN SOUTH, 3130