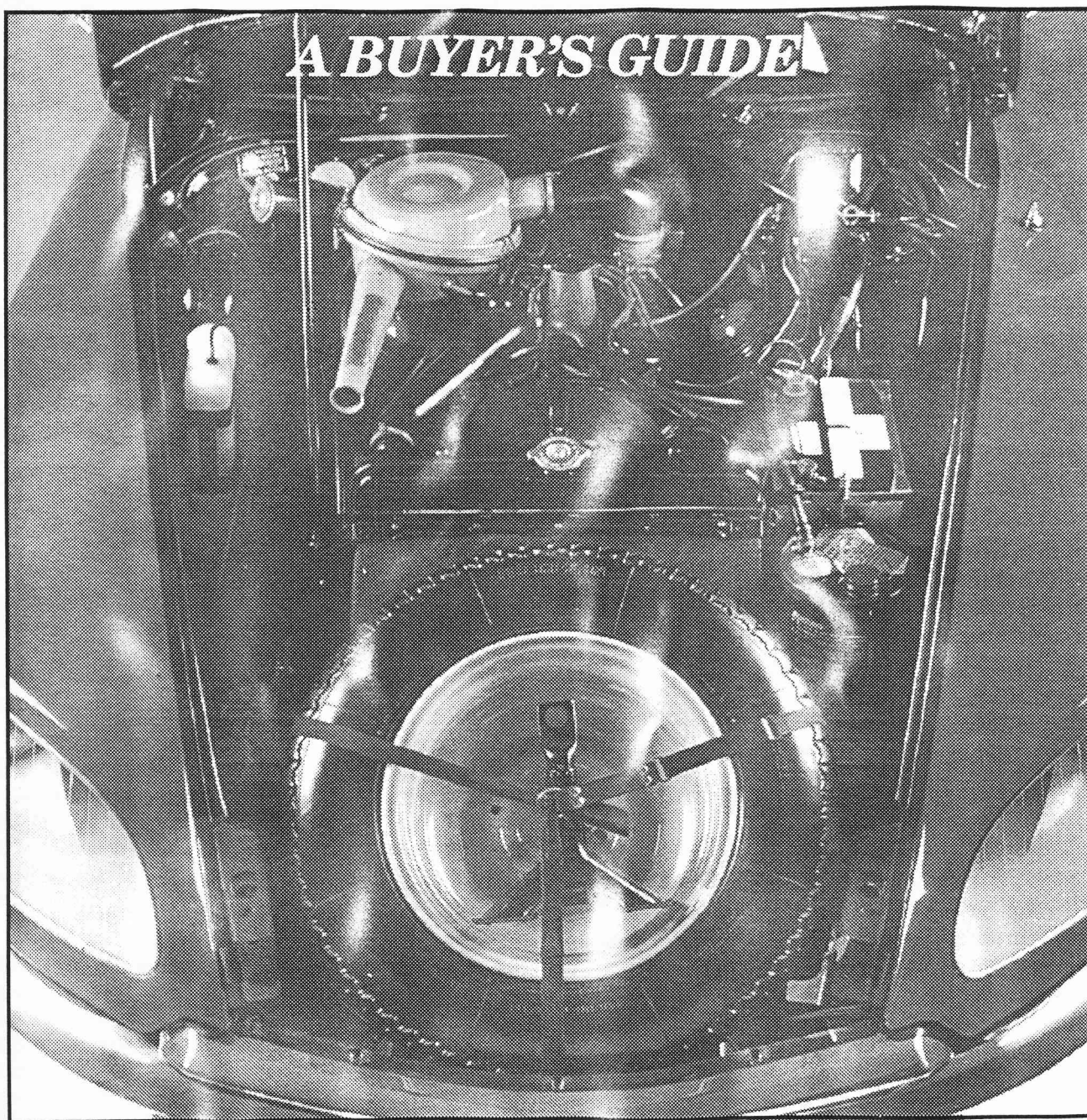


G O D D E S S *or God-damned*



In its time, the Citroën DS has been called everything from Goddess to God-damned, but how viable is one for today's do-it-yourself owner? The Practical Classics and Classic Sportscar magazines recently took an objective, in-depth look?

It's 1955. here, 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.

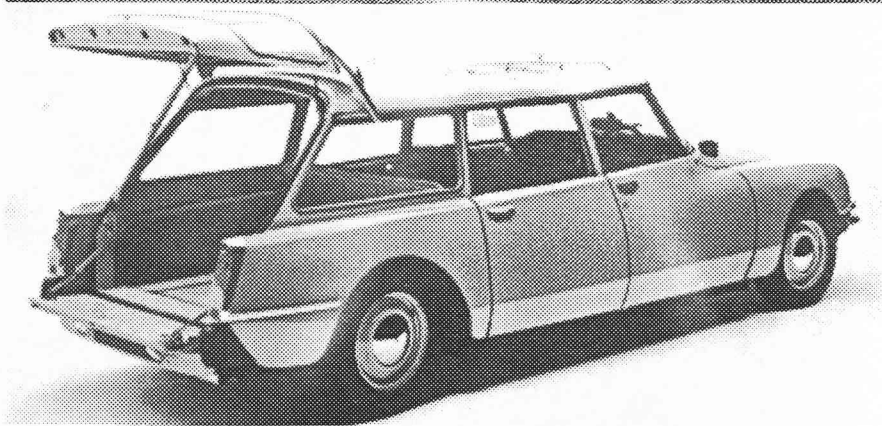
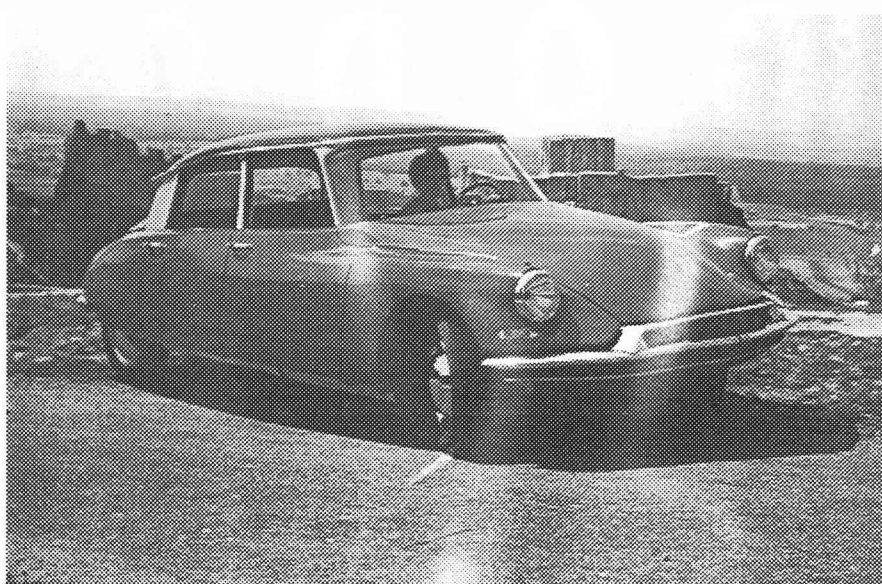
Across the channel though something very new has just emerged into this dark post-war world. Looking not unlike a sci-fi spaceship of the period, the latest offering from innovators Citroën (who, it should be remembered, had front-wheel drive as early as 1934) is - well what can you say other than it's the car of the future. It's available today to French motorists - and anyone 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 its 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 the 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 gearchange. 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's 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 cat 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 engine capacities, three transmissions and numerous trim levels from 'special (the lowest) to sumptuous Pallas trim. (Note to mention the variants that were assembled here in Australia.)

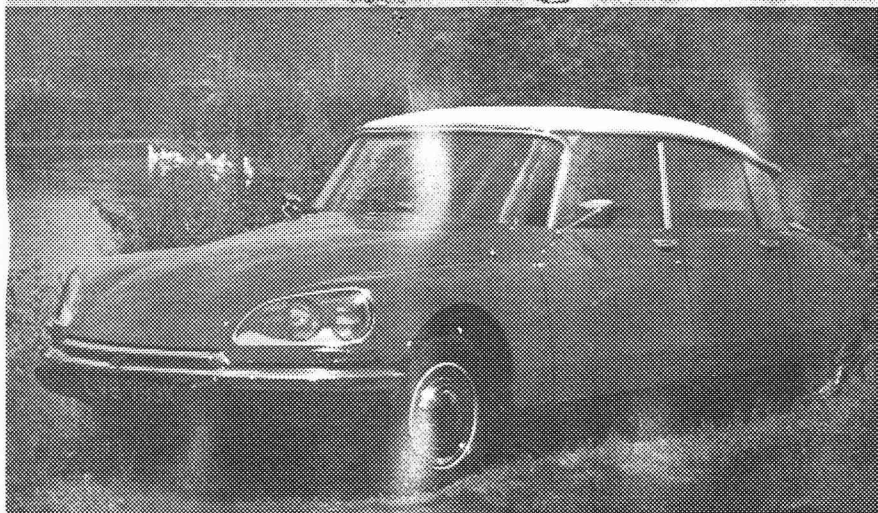
Broadly speaking there were two 'lines' - the DS, and ID. The ID was introduced in 1957 as a simplified version of the DS - already some people thought the DS too complicated for its own good. Gone were

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 gearchange, 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 sideways-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, is 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



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

bourne 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 70's

There's still quite a range. As well as the differing levels of trim, there's a choice of 2175cc or 2347cc engines, carburettors or Bosch fuel injection, four or five speed transmission 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.

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 coachbuilding concern produced a DS convertible - or Decapotable - between 1960 and 1971. It's thought that around 1300 were made. The Decapotable was available in Britain until 1967 (though some were imported privately afterwards) but few survive here. Those that do are, however, very sought-after and priced accordingly - a very good original one is currently

on offer at £25,000. (In Australia the handful here are much coveted and can bring up to and around the \$100,000 mark). Chapron also produced a series of special coupés, but his best-known DS - in France at least - has to be the magnificent large black limousine produced for General de Gaulle. When Jonathan Hunt, owner of the superb black car in this article, took the car to France earlier this year, he lost count of how many people referred to 'le présidente' - that chapron limousine must have made an impact!

Most surviving DS's in Britain today are post-1970 saloons - and 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 Mel-

Later UK cars were undersealed, which helps - while 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 Plieades 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.

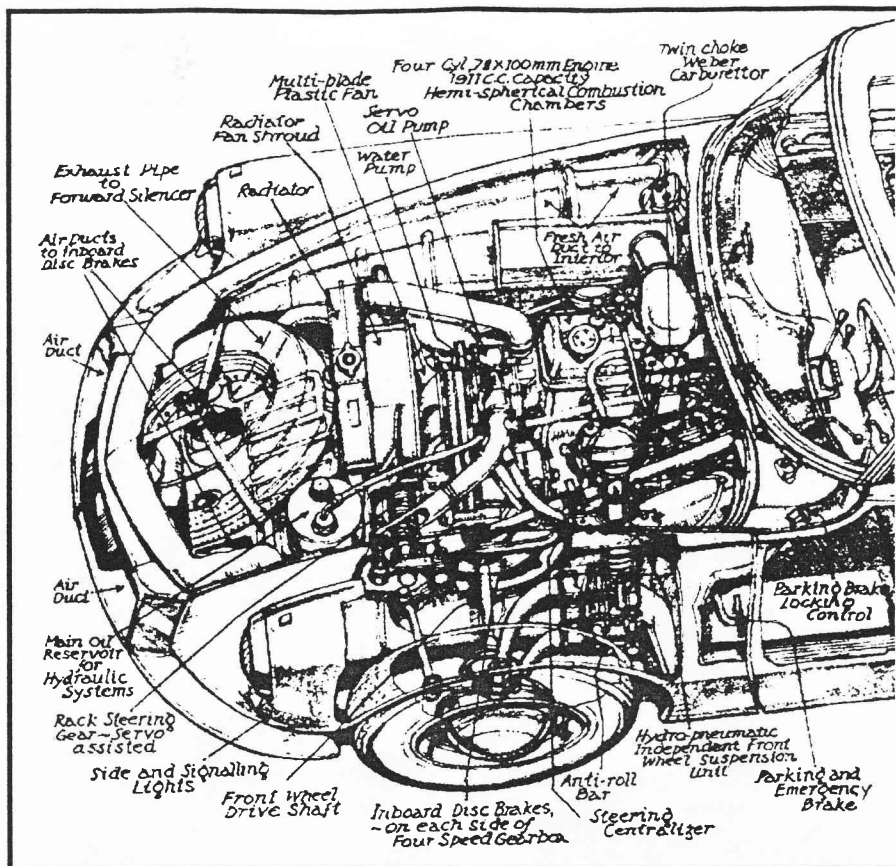
The mechanical work involved shouldn't be underestimated - but as our 'how to do it' table shows, many jobs are easier with the car part dismantled. If you plan the work carefully and put right everything you come across that isn't perfect, you will end up with a good car.

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, i.e. 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 3000 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'.

As a result the engine in a well-maintained D just isn't a cause for concern. Even on the rare occasions when a rebuild 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 be expensive though, so using a second-hand engine can be a cheaper solution.

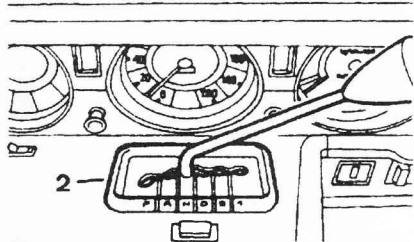
The two commonest reasons for the demise of a D engine are both owner-inflicted. First, cracks in the alloy head between the rockers can occur if the cooling system lacks anti-freeze. Second, amateurs have been known to fit the oil filter incorrectly: if the arrow on the filter casing isn't aligned with 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 or, 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 occurs 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 perishing have been known to cause engine fires.



THE TRANSMISSION

The gearboxes are trouble free, though bearings do sometimes get noisy on five speeders. 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 later cars allow more relaxed cruising and 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 secondhand one on the rare occasion problems occur.

An important buying decision with a D is whether you want a hydraulic or conventional gearchange, the latter being more common on the later 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 truly stranded because you can't select a gear. The system has its followers and 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 too difficult. LHM is readily available too. The 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 more than five years is due for replacement. The symptoms are hard, 'bouncy' suspension, continual clicking from the pressure regulator area (LH



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

side under carburettor or, EFI cars, beside the gearbox)

Reconditioned spheres are available, as is regasing in Australia. But for a sphere to be successfully regassed the diaphragm must be in 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!

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 1800lb psi - will rupture first. It's not a case of gradual decline: the suspension just suddenly fails, the car slumps and a telltale 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 rake 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 link rods 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

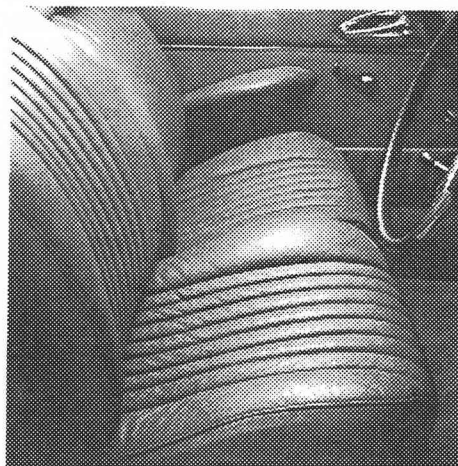
D interiors varied enormously over the years, but there are three basic types depending on age and model: velour, vinyl or leather.

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 shreaded very quickly.

If retrimming 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 slution if you feel inclined to persevere: since rear seats rarely become worn, it's possible to use material from a donor car to cobble together a presentable set of front seats.

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



Citroens Targa vinyl is also problematical because no-one today makes a substitute that come anywhere near replicating its distinctive diamond holed pattern. Again, the only solution of originality matter is to present a highly competent trimmer with a couple of sets of decent rear seats from which one servicable interior can be made up.

Recreating authentic bound edged carpets is less difficult because Wilton look very similar to the original style. Having loose carpet or a mat in the drivers footwell is extremely unwise; it can drift forward and become lodged beneath the brake button, with potential dangerous consequences.

Few other interior components cause difficulty because once again, wreck cars pro-

vide a useful source. Perhaps the two main problems are, firstly, the door-handles, which for some bizarre reason are made of chrome plated aluminium. The chrome tends to peel and getting a fresh layer to adhere is difficult. Secondly, the steering wheel in the Australian sun can loose its grip on the frame of the wheel. One solution is to use a syringe filled with an appropriate glue and inject through the covering at evenly spaced intervals to reattach the outer.

THE CONCLUSION

Although there's undoubtedly some truth in the D's difficult-to-service reputation, this extraordinary machine continues to labour unfairly under the perception that it's incredibly fickle.

It isn't. By mass-produced standards, a D offers exceptional engineering quality that stands it in good stead as time goes by. While most of their saloons contemporaries survive in tiny numbers. Ds keep on going in the hands of devoted followers who treasure them for their individuality, style, technical wizardry, character and engineering excellence.

The D is one of the great landmarks from automotive history. Ownership does require commitment and passion, to be sure, but the pleasure should far outweigh pain if you buy wisely. Study, choose carefully, consult experts and enjoy.

