ROAD TEST

CITROEN GS CLUB

We could start off by saying that the Citroen GS Club is a £1088 four-seater saloon with front wheel drive, a 1015 cc air-cooled flat-four engine, and ample luggage space within its distinctively styled body. Yet the GS differs so fundamentally in character from its rivals that a "potted" assessment of this kind falls flat from the moment it starts.

The GS is not so much a typical French car as a typical Citroen. It is well known to the most casual of motoring enthusiasts that Societe Anonyme Automobiles Citroen prefer to ignore convention and rely instead on ingenuity and clear-cut objectivity. The Dyane, the Ami 8, the D-series, and the new SM are remarkable for their individuality in design and behaviour, yet the company has never produced a failure.

The GS slots into a crucial gap in the Citroen range, a worthy competitor in the coveted £1100 class. Citroen fans who have been waiting for this model, which bridges the gap between luxury cars for the well-to-do, and corrugated iron devices for the less well heeled, will not be disappointed. Once again, common sense has been the guiding force behind the company's apparently eccentric attitude. To the driver who laments the conformity of the modern box automobile the GS must represent a successful denial of the conformist attitude.

After all the ballyhoo surrounding its introduction we found the GS, in the cold light of objective analysis, to be a serious threat to its rivals. While its performance is geared to achieve maximum economy in relation to French tax regulations, it is by no means the slow-coach that a first impression might suggest. Roadholding and handling are remarkable, while the standard of comfort is most unlikely to be equalled in other cars at the same price. At the same time, the car is far from being above criticism on a number of detail matters, as we shall see later.

Performance and economy

In France, petrol is very expensive and road fund tax is levied according to a car's engine capacity. Compared with other countries in Europe, French roads tend to be straight, flat and bumpy. French cars as a rule, therefore, have small efficient engines, high gearing for prolonged high speed cruising, and soft suspension that can glide smoothly over bad roads.

The GS is no exception. The standing start acceleration may be better than that of most other cars of a similar engine displacement but at 15.9sec. to 60 mph it is below average for a car of its price. However, the top speed of 93.2 mph is good especially as the GS can be cruised continuously at around 90 mph without damage or danger.

The horizontally opposed flat-four air-cooled engine is extremely oversquare with bore and stroke figures of 74mm x 59mm. With a compound choke Solex carburetter and a compression ratio of 9:1 within its hemispherical combustion chambers, the G10 engine that goes into the GS produces no more than 55.5 bhp (DIN) at 6500 rpm and 52 ft.lb. (DIN) of torque at 3500 rpm. This explains the fairly leisurely standing start figures but not the high cruising speed of the car, which is largely due to exceptionally good aerodynamics.

As most people are aware, a car's drag is determined by frontal area and shape. As the air passes over the body it is important to maintain an even flow right to the back of the car. A sharply dropping tail permits this flow to separate from the body and this exacerbates the drag. As it is not practical to build road cars with long, sloping tails, the best answer is to maintain the ideal shape as far as possible and then cut it off flat. The GS fulfils this theory and is one of the most efficient aerodynamic shapes available amongst current saloons. Hence it can reach and hold its top speed with relative ease. The result is that in top gear above 50 mph the GS is a match for many more powerful saloon cars, and it is only on hills that its small engine reveals itself by demanding a downward change.

No doubt the ideally balanced cylinder configuration contributes to the smoothness of the engine, which is enhanced by the fact that it is as quiet as many water-cooled motors. Torque below 3000 rpm is adequate and the power increases right up to maximum revs: this is shown as 6500 rpm on the tachometer on the newly introduced right-hand-drive car we tested, although the lhd version we tried in the Spring was red-lined 6750 rpm. The engines on both cars were identical and Citroen offer no

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explanation beyond the fact that the engine can safely be revved to about 8000 rpm. Although the handbook states that the rev limit must not be exceeded the tachometer needle varied between 6300 rpm and 6700 rpm on our maximum speed test lap at MIRA. However, there is little point in exceeding 6500 rpm as a rule because the power curve goes into a decline at this point. Citroen's claim about the engine's robustness gains credence with the knowledge that the conrods are one-piece components fitted to a crankshaft that may be stripped into several separate parts. The engine certainly feels willing and unburstable. The only serious criticism was against its poor starting and slow warm-up.

We recorded an overall fuel consumption of 25.6 mpg. In the Petrometa tests the steady speed fuel consumption increased smoothly as speed rose to 70mph, although from then on the increases were markedly less severe for each 10 mph rise in speed. No doubt this is a result of the GS's excellent body shape.

Transmission

The transaxle gearbox, which drives the front wheels, sits behind the engine and just ahead of the passenger compartment. Despite this apparently ideal situation for a floor-mounted gear shift, movement of the lever through the conventional H-pattern shift is not particularly easy. In heavy traffic, the notchy feel to the change becomes rather irritating despite the light, easy clutch. The

No matter how you throw it around, the GS clings to the road with remarkable tenacity, and the handling is excellent

The cloth-upholstered seats are very comfortable and back seat passengers are not cramped. The headrests are extras.

gears never fail to engage, and the synchromesh is effective, but the 'box does not take well to quick changes. Reverse gear is obtained by depressing the lever while moving it right and forward.

There is some transmission snatch at low speeds on the overrun and a more annoying jerky pick-up when the throttle is opened in these conditions. It is perhaps this movement of the complete engine and transmission assembly that spoils the gearchange feel.

None of the gears is direct and all of them whine noticeably. The ratios, however, could hardly be better: with speeds in the intermediate gears of around 31, 46, and 73 mph the engine is kept within its ideal power band all the time when driven hard. The slightly smaller jump to top from third is well-judged, too, and in top gear maximum speed corresponds almost exactly to maximum power and maximum permissible revs.

Handling and brakes

Citroen are rightly proud of their hydraulic system which serves both the suspension and braking systems. A high pressure pump feeds an accumulator with hydraulic fluid via a regulator which prevents the pressure from rising above 2600 psi. Fluid is fed to front and rear height correctors in the self-levelling, all independent suspension. Return lines pass the fluid back into a reservoir. A third delivery line supplies the braking force so that pedal pressure merely opens a valve against spring pressure.

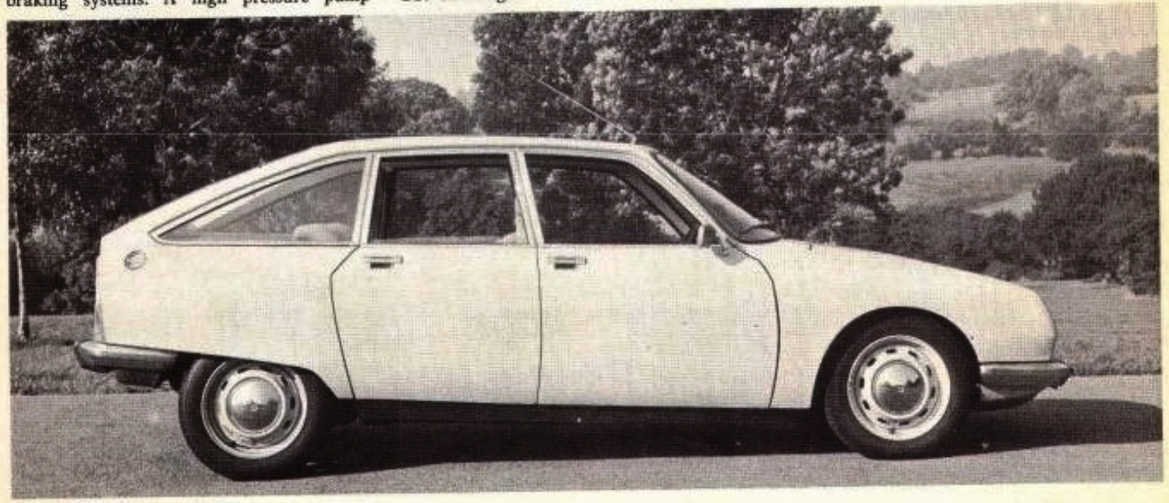
Between the seats is a lever for raising the ride height of the car. There are three positions: fully forward for all normal use, a central notch for slow driving along rutted roads or through floods and fords, or fully back to assist in wheel changing or negotiating extraordinary ramps. The car should never be driven for any distance in the rearward notch as this raises the suspension to its absolute limit. There is, of course, no need to use this lever when the car is laden as it will automatically find its normal ride height.

After starting up, you must wait perhaps five seconds to allow the car to "blow itself up". On the move, it did not take us long to appreciate the incredible roadholding of the GS. Although it does not look the part, largely because it rolls a bit, it can keep up with most expensive sports cars on corners and its limits exceed those of most other cars with ease.

Every car has its limit, of course, and for the GS this is marked by understeer under power. Should a corner be entered too fast, and the degree of understeer begins to be alarming, the situation is easily retrieved by backing off the throttle, whereupon a neutral attitude is quickly adopted. Should this be insufficient a degree of oversteer can be induced by applying the brakes momentarily. It is quite easy to turn into corners on the overrun, braking to pull the back round a little, and then floor the throttle and drive out of the corner. We never came near to losing control while investigating these techniques at the test track. It is a remarkably stable car, far more predictable and responsive than almost any other front-wheel-drive car we have tried. Wet weather roadholding and handling are no less impressive.

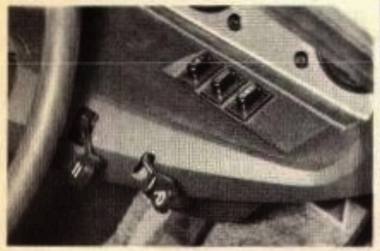
The brakes feel reassuring and powerful and did not fade during our 20-stop fade test. There is only about ¼in. of movement in the pedal and it took a few miles to acquire the necessary sensitivity to use the brakes smoothly. Even so, we found in the fade test that the braking force is prone to slight variations at constant pedal pressures. Other criticisms were the strong smell of burning from the inboard discs from the eighth stop onwards and failure to achieve a better stop than 0.95g. This was recorded with a pedal pressure of 75lb. Applying 100lb. to the pedal only produced 0.86g retardation limited by wheel locking and judder. The brakes were unaffected by the watersplash.

The handbrake is an impressive arrangement which operates a second set of calipers on the front disc brakes. A strong pull on the lever at 30 mph produced a 0.36g stop as the lever went to the full extent of its travel; had the handbrake been better adjusted we might have achieved a better result.



Left: profile view emphasises large window area and sharply cut-off Kamm tail. The ride height is kept constant by self-levelling suspension

Above: the curious spade-handle handbrake has a trigger release (hidden) and works surprisingly well. Two of the heater knobs to the left fell off, suggesting skimpy finish. Below: fingertip stalks and push-button fan switches

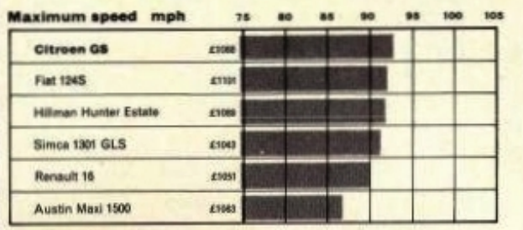


Comfort and controls

All Citroens are renowned for their ride and the ease with which the suspension soaks up

Motor Brief Test No 45/71 Citroen GS Club

Make: Citroen. **Model:** GS Club. **Makers:** S. A. Andre Citroen, 133 Quai Andre Citroen, Paris 15e. France. **Concessionaires:** Citroen Cars Ltd, Trading Estate, Slough, Bucks. **Price:** £869 plus £219.12 equals £1088.12. Headrests £22.50. Heated rear window £22.50. Radio £45. Total as tested £1178.12



Performance tests carried out by *Motor*'s staff at the Motor Industry Research Association proving ground, Lindley. Test Data: World copyright reserved; no unauthorised reproduction in whole or in part.

Conditions

Weather: Dry with light wind to 10mph
Temperature: 66-72°F
Barometer: 30.0 in. Hg.
Surface: Dry tarmacadam
Fuel: Premium 98 octane (RM) 4-Star rating

Maximum Speeds

	mph	kph
Mean lap banked circuit	93.2	150
Best one-way ¼-mile	96.9	156
3rd gear } at 6500 rpm	69	111
2nd gear } at 6500 rpm	43	70
1st gear } at 6500 rpm	27	43

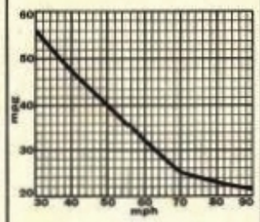
"Maximile" speed: (Timed quarter mile after 1 mile accelerating from rest)

Mean	90.0
Best	91.1

Acceleration Times

mph	sec.
0-30	4.6
0-40	7.2
0-50	11.2
0-60	15.9
0-70	22.7
0-80	34.7
Standing quarter mile	20.1
Standing kilometre	38.2

mph	Top sec.	3rd sec.
10-30	—	9.7
20-40	12.7	8.6
30-50	12.6	8.2
40-60	13.3	8.9
50-70	16.0	—
60-80	21.3	—



Fuel Consumption

Touring (consumption midway between 30 mph and maximum less 5% allowance for acceleration) . . . . 29.6 mpg
Overall . . . . . 25.6 mpg
(=11.0 Litres/100km)
Total test distance . . . 870 miles

Brakes

Pedal pressure, deceleration and equivalent stopping distance from 30 mph

lb.	g.	ft.
25	0.49	61
50	0.89	34
75	0.95	31½
Handbrake	0.36	83

Fade Test

20 stops at ½g deceleration at 1 min. intervals from a speed midway between 40 mph and maximum speed (=67½ mph)

	lb.
Pedal force at beginning	26
Pedal force at 10th stop	29
Pedal force at 20th stop	30

Steering

Turning circle between kerbs:	ft.
Left	29.7
Right	28.8
Turns of steering wheel from lock to lock	3.75
Steering wheel deflection for 50 ft. diameter circle	1.1 turns

Clutch

Free pedal movement . . . = ⅝ in.
Additional movement to disengage clutch completely . . . = 3½ in.
Maximum pedal load . . . = 20 lb.

Speedometer

Indicated	30	40	50	60	70
True	30	39	48	57½	66½
Indicated	80	90			
True	76½	86½			

Distance recorder 1% fast

Weight

Kerb weight (unladen with fuel for approximately 50 miles) . . 17.0 cwt.
Front/rear distribution . . 64½/35½
Weight laden as tested . . 20.8 cwt.

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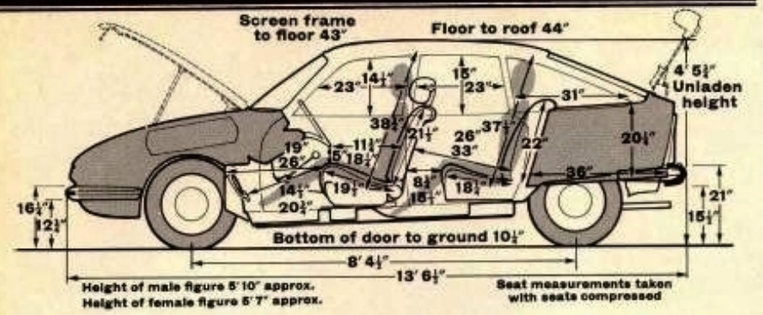


Engine

Block material	Light alloy
Head material	Light alloy
Cylinders	Flat-4
Cooling system	Air
Bore and stroke	74mm. (2.93in.) 59mm. (2.32in.)
Cubic capacity	1015 cc (158 cu.in.)
Main bearings	3
Valves	Single ohc per bank, toothed belt
Compression ratio	9.0:1
Carburettor	Solex 28CICM twin choke
Fuel pump	Mechanical
Oil filter	Disposable cartridge
Max. power (net)	55.5 bhp at 6500 rpm
Max. torque (net)	52 lb.ft. at 3500 rpm

Transmission

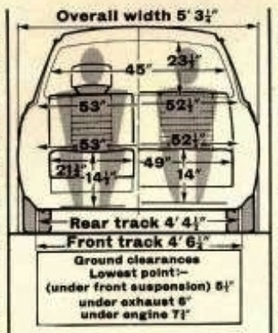
Clutch	7.06in. s.d.p. diaphragm sprung
Internal gearbox ratios	
Top gear	1.12
3rd gear	1.52
2nd gear	2.38
1st gear	3.82
Reverse	4.18
Synchromesh	On all forward ratios
Final drive	Spiral bevel 4.38:1
Mph at 1000 rpm in:	
top gear	14.3
third gear	10.6
second gear	6.7
first gear	4.2

Chassis and body

Construction	Unitary

Brakes

Type	Citroen hydraulic discs front and rear
Dimensions	10.6in. dia. front, 6.9in. dia. rear



Suspension and steering

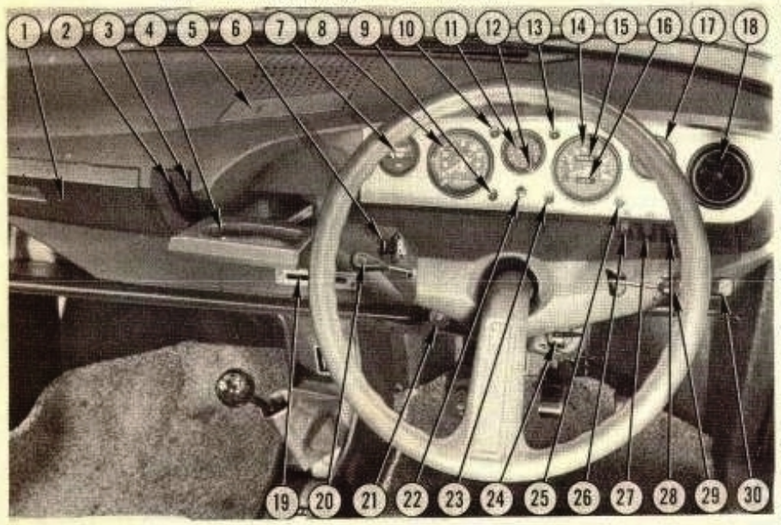
Front	Independent by double wishbones with hydropneumatic struts, self-levelling
Rear	Independent by trailing arms, hydropneumatic self-levelling
Shock absorbers:	
Front and rear	Integral with hydraulic suspension
Steering type	Rack and pinion
Tyres	145 x 15 Michelin ZX radials
Wheels	Pressed steel disc
Rim size	4.5 x 15

Coachwork and equipment

Starting handle	No
Tool kit contents	Jackstand, wheel-brace, screwdriver
Jack	Adjustable stand
Jacking points	Under sill
Battery	12 volt negative earth, 30 amp/hr capacity
Number of electrical fuses	8
Headlamps	SEV Marchal 40/45W
Indicators	Non self-cancelling flasher
Reversing lamp	Yes
Screen wipers	2-speed electric
Screen washers	Electric
Sun visors	Two, 1 vanity mirror
Locks:	
With ignition key	Steering lock
With other keys	Doors and boot
Interior heater	Fresh air
Upholstery	Cloth seats, pvc headlining
Floor covering	Carpet
Alternative body styles	None
Maximum load	915lb.
Major extras available	Radio, heated rear window

Maintenance

Fuel tank capacity	9.5 galls
Sump	7.5 pints SAE 20W/50
Gearbox transaxle	3 pints SAE 80EP
Steering gear	None
Coolant	Air
Chassis lubrication	None
Minimum service interval	6000 miles
Ignition timing	29°btdc at 2000 rpm
Contact breaker gap	0.016in.
Sparking plug gap	0.026in.
Sparking plug type	Marchal 34S
Valve clearance (cold)	Inlet 0.008in. Exhaust 0.008in.
Rear wheel toe-in	Parallel
Front wheel toe-in	0 to 0.08in.
Camber angle	0°
Castor angle	1° 30'
Tyre pressures:	
Front	26 psi
Rear	28 psi



1 glove locker. **2** heater control. **3** ventilation control. **4** handbrake. **5** ashtray. **6** cigar lighter. **7** battery indicator. **8** rev counter. **9** oil pressure warning light. **10** main beam tell-tale. **11** clock. **12** clock setting. **13** side light tell-tale. **14** speedometer. **15** total mileage recorder. **16** trip mileage recorder. **17** fuel gauge. **18** ventilator. **19** heater direction distributor. **20** lighting stalk. **21** choke. **22** panel light rheostat. **23** hydraulic pressure warning light. **24** ignition/starter/steering lock. **25** indicator tell-tale. **26** heater blower. **27** heated rear window. **28** cold air fan. **29** horn/flasher/indicator stalk. **30** washer/wiper stalk

the worst of surfaces so predictably the GS excels in this respect. With slightly firmer suspension than that of the D-series cars, it does not give quite the same magic carpet impression but it can travel over the most alarming potholes and sunken drain covers without jolting the occupants. What is particularly impressive is the lack of rock as you sweep from one lock to the other. Very good damping helps both this and the GS's ability to take humps and hollows in a better way than the larger cars can manage. Disappointingly, harsh thumps over sharp surface irregularities like cats' eyes excite several minor rattles and vibrations which we found surprising in a Citroen.

The exceptionally comfortable seats are covered in non-slip cloth and have firm padding around the edges, soft springing in the centre. They offer good lateral support on corners and were praised by all our drivers regardless of their size. There is ample room in the back for two adults, perhaps three for short distances, and legroom is good once you get your knees past the thick edges of the seat. With the front seat fairly well back the backrest hinders access and you have to wriggle through the gap between the front squab and back seat. The front seats recline through a large number of positions and the optional headrest can be adjusted or removed altogether.

Although the normal-looking brake pedal is used to operate the usual floor button it is still virtually impossible to make a heel and toe downchange—its advantage is that it is easier to hit in an emergency. The accelerator is rather high off the floor, dictating a rather uncomfortable ankle angle on part throttle—astute bending of the pedal rod should improve both.

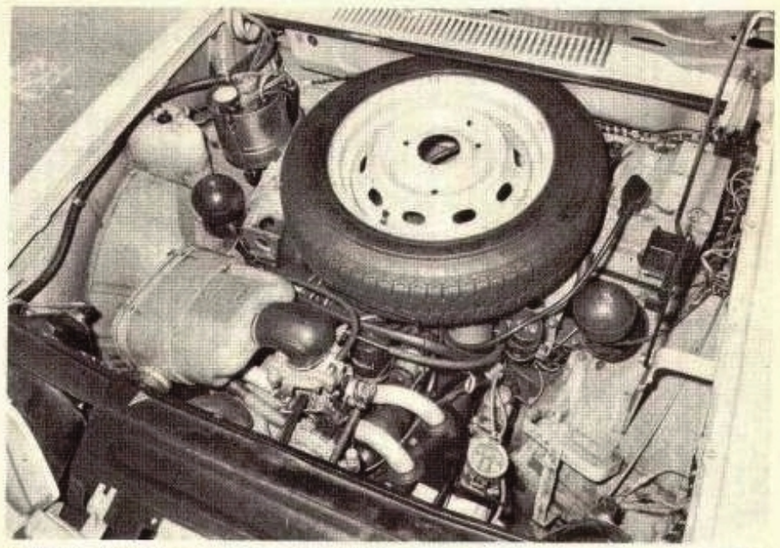
Some of our drivers disliked the neckrests for their intrusion on three-quarter rear visibility as well as for the claustrophobic effect on those in the rear, but for reversing they are low enough to clear the eyeline to the base of the rear window. Reversing is easy when you know that the chopped-off tail ends only 8in. beyond the back window. Visibility is generally good with large glass areas and the thick screen pillars subtending only a small angle at the driver's eye—the fallaway bonnet line isn't always easy to aim through gaps, though. With the rear view mirror at the top of the screen, and less body movement, you can see following distant traffic more easily than in the D-range cars.

Our initial sampling of the GS suggested that its gearing was far too fussily low for quiet high speed cruising. However, although the engine is turning over around 5000 rpm at 70 mph, it is only the rev counter that makes you aware of this—a good reason for not having one. The engine is still audible and fussy at high speed, and perhaps thrown into prominence by the almost complete absence of wind noise.

We didn't have much chance to assess the heater as levers for two of the three controls fell off, but from our earlier assessment it was judged effective and controllable, particularly for a car with an air-cooled engine, although ram effect is poor below about 50 mph. Two levers control hot and cold air flows which together adjust temperature and the third horizontal lever is for distribution. Face-level eye-ball vents give an adequate throughput.

The unusual boot is a large symmetrical oblong hole, above, reached through a high-lifting tailgate supported by struts. The boot swallowed a respectable 10.4 cu. ft. of our test luggage, left

The engine bay, below, also houses the spare wheel and battery, leaving the boot free of these space-consuming ancillaries. Little can be seen of the flat-four engine itself which is buried down on the floor



Fittings and furniture

To keep the price of such a sophisticated car down to a very keen figure, some of the fittings are perhaps rather cheap. The grey facia is flock sprayed, the heater outlet ducts still have slivers of plastic where the ducts have been cut, and the fit is generally poor. However the "British" facia layout is much better than that on the "French" cars. Nice round dials are easily seen through the single-spoke steering wheel and the warning lights and tell-tales are all intelligently labelled. Fingertip stalks control the lighting, flashing, washing and wiping, while switches are required for the two heater fans, one hot, one cold, and the optional rear window demister.

The neat door handles are separate from the armrests which can be used as grab handles. Oddment space is provided by shelves at each end of the facia, but the rather deeper, more useful one on the driver's side unfortunately has no lip. The glove pocket is awkwardly shaped for, say, paperbacks, but the overall space is adequate. The boot is extremely large by any standards and took 10.4 cu. ft. of our Revelation luggage; the lid hinges up easily, once you remember that the centre part of the bumper comes up with it, to give a nice low loading platform.

Cloth upholstery is never the easiest to keep clean but the handbook gives instructions on removing stains. The door trims and headlining are in pvc.

Servicing and maintenance

Servicing is required every 6000 miles and can be done by the average competent home mechanic, but it pays to get this type of vehicle seen regularly by experts as emergency repairs soon get beyond the scope of the average garage. The toolkit allows for the unique Citroen system of wheelchanging, but little more. Access to the various ancillaries is comparatively easy and complete once the spare wheel and air filter have been removed. ■