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**WE DRIVE THE NEW FAMILY FLIERS  
THAT DOUBLE THE SPEED LIMIT**

and not Ford's '85 Aerocoupe



# SUPER SALOON

*The new breed super saloons are on the loose. They can crack 140m*





# NS BREAK OUT

*corner with Porsches – and turn their hands to toting families on holiday*







THERE WAS A TIME, NOT SO long ago, when the simple ability to attain 100mph decided whether a saloon car could be described as 'high performance' or not. Aerodynamic theory was at a stage where a four-place car with a big body needed quite a lot of power just to attain the ton; thus it had acceleration, too.

Those were days when only sports models had graduated to radial ply tyres. The M1 motorway, the country's premier public speedway, carried no 70mph speed limit because Barbara Castle was doing something other than administering Transport. North Sea Oil was a new phrase, and nobody breathed a word about world reserves of the stuff having a finite limit.

In that environment, tuned family four-doors became exceptional when they crept into the 90s, especially if their usually copious speedometer error *wasn't* included. Plutocrats who could afford Astons and Jags still felt a pride worth mentioning when they took their cars (some costing as much as £6000) onto the motorway and turned up three figures for a few miles.

It's very different now. We have a national speed limit to govern family cars, some of which have engine potential that would have done credit to very good competition cars of the early '60s. Any 1985 family chariot that won't do a ton is slow. The cream of the GTi brigade can now reach past 120mph, and even the other ranks can manage 115mph, with roadholding to match.

In fact, rather a lot of today's saloons, with engines bigger than 2.0litres and more cylinders than four, can approach 130mph, helped by designers' recent emphasis on giving them clean shapes. The BMW 528i is a

venerable example of this – and the Sierra XR4i and Audi 100 go as hard and are even more efficient.

Now, the old 'ton-up' barrier is erected at 140mph. Presently, it takes a purpose-built, cigar-shaped sports car or a saloon with the power and sophistication of a Jaguar XJ12 or Mercedes 500SE to shatter it. Cars which ordinary people can afford to run, and to leave in the street, can't convincingly beat it yet, though the chase is on.

BMW, predictably, are in the forefront of competition with their £17,950 M535i. Nothing less would be right for their 'faster than the rest' image. Citroen, who had a 140mph, four-place car in the idiosyncratic SM a decade ago, are knocking on the door with the CX GTi Turbo, remarkably well priced at £12,990.

And Britain's own Austin Rover, proponents for so many years of the cheap V8, have been prominent for the past couple of years with the meaty, £15,465 Rover Vitesse, so reminiscent of the more-than-meaty Group A racing saloons.

Audi might have been numbered in the select group, too, but their fwd Turbo model is now only available as an automatic, plainly slower than the manual five-speed versions of the three cheaper cars. Their new 200 Quattro, available with a manual gearbox, joins the lower ranks of the 'super saloons' at a basic price of £22,000. Likewise Saab might have had an entrant among 140mph four-doors, but for the fact that their four and five-door models that use their most powerful engine, the 16valve turbo four, lack the three-door coupe's speed-building aerodynamic body bits. They stop in the middle 120s. Which leaves us our three key contenders.

Any chase toward 140mph might seem frivolous (indeed, it will be seen that way by those with only a surface understanding of cars) were it not for the other strengths which the ability to attain higher speed brings to cars made by the greater car makers. Greater speed breeds greater cars. Always has. The extra power one needs to propel a 130mph car at 140mph, is far greater than a simple, linear 7.7percent – and since nothing but flexible power will do for today's car buyers, the extra push flows right through a car's speed range. What is more, the 140mph car is effortless indeed at 100mph, if for no other reason than the high top gearing it must run to attain such a high speed. But there are other reasons: it will have sophisticated aerodynamics (bringing stability and usually an absence of wind roar); it will have brakes, steering, tyres and roadholding which have been developed on a new, higher plane. And there will be peripheral benefits such as seats with improved side-support and body modifications which set the car apart from the herd. In short, extra speed should bring extra sophistication, extra agility, extra desirability.

We took our three test cars – BMW, Citroen and Rover – to a test track, new to us, at Bruntingthorpe, south of Leicester. The focal point of the place is a straight 60yards wide and exactly two miles long, a legacy from days when it was a US Air Force base, home for a gaggle of massive B52 bombers in the early '60s. Later it was taken over by Chrysler (pause for regulation question: Since when did Chrysler UK actually test cars?) until the middle '70s when they closed it in favour of doing all such work in Europe. A local farming family called Walton

decided to acquire the place with a view to tearing up the 10,000ft runway, supporting taxi-ways and buildings to farm the land, then realised the potential of the place as a test centre and sprint track. They're going ahead at full speed to develop the facility. 'We're only just beginning,' says Dave Walton, one of three brothers behind the project. We need to develop an image for the place; maybe that'll come from the sprint meetings. We don't want to run full-scale racing here, though. We prefer to keep it for club racers and serious testers . . .'

Serious testing was something which required a tinge of bravery on our two days at Bruntingthorpe. The superb runway wore a coating of packed snow, melting slowly on Day One. Only on Day Two were we able to wear a track in it, right beside the centreline. That would withstand 130mph-plus, as ice spattered against the bottom of the cars, but woe betide the driver who put a wheel outside the groove . . .

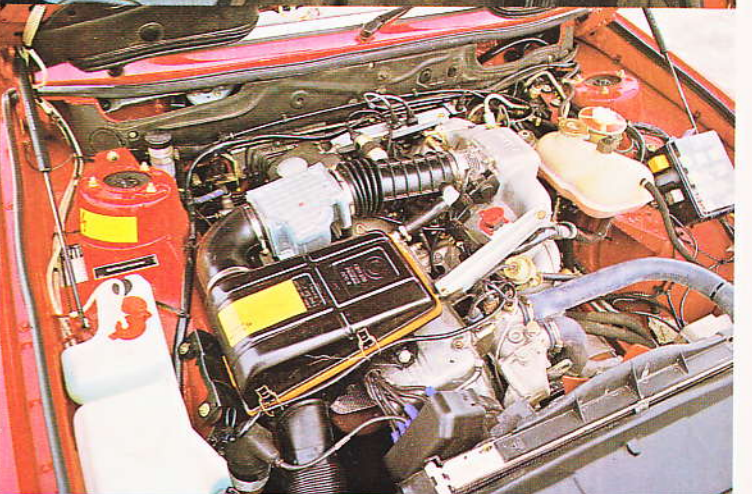
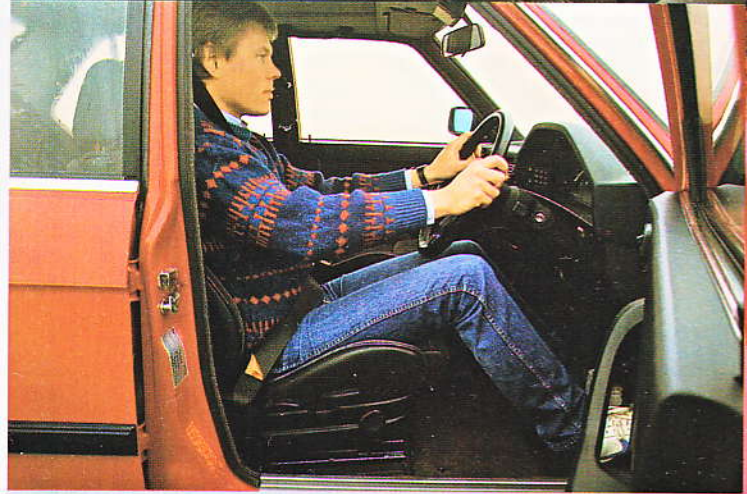


## BMW M535i

You could call the M535i a simple car for BMW to build; it's a surprise that they didn't do it before, to steal some of the Alpina thunder. There's been quite a lot of that about, lately (see story this issue). Broadly, they've taken the 218bhp 3.5litre six-cylinder engine used in both the 735i and 635CSI, and strapped it into the Five Series with a minimum of fuss. The supporting hardware includes specially recalibrated suspension, stiffer springs and Bilstein gas dampers, plus hefty roll-control bars, front and rear. ABS anti-lock brakes are standard, the car gets a set of 6.5in wide alloy wheels that run hefty 220/55VR390 Michelin TRXs. The steering is power assisted, the steering wheel itself is a small diameter, thick-rimmed affair and the seats are BMW's own supportive 'sports' variety.

The scene is set for some real horsepower to be put on the ground, especially since the M535i runs a limited slip differential. The M535i runs what is rapidly becoming known as a 'body kit', an under-bumper air dam in front, sill extensions at the body sides





**MATRONLY LINES OF M351 BELIE SPORTY CHARACTER OF CAR. CABIN APPOINTMENTS ARE THOSE OF LUXURY FIVE SERIES, WITH SMALL WHEEL AND SPORTS SEATS THROWN IN. ENGINE IS 218BHP UNIT FROM 735I AND 635CSI. IT'S SMOOTH, PUNCHY, FLEXIBLE. OVERSTEER IS EASILY CONTROLLED**



and a body colour bootlid spoiler. The usual claims about stability and reduction of drag factor are made for these; BMW say the Cd goes down from 0.38 to 0.37, an improvement barely worth having for the comical look they bring to what is essentially an 'upright' and matronly motor car. Something like The Dowager Queen with thigh-high boots and gold lame G-string Badges that shouted a little louder and somewhat less of the body plastic would have been more welcome.

Our test car was fitted with what turned out to be a crucial option, the Getrag close ratio gearbox with direct drive top gear instead of the standard wide-ratio ZF box's 0.81 to one overdriven top. The Getrag gives the Five a top gearing of 23.9mph/1000rpm, just enough to provide a theoretical 140mph at a 6000rpm limit, but it gives peaceful ton-up cruising at a whisker over 4000, the engine's torque peak, where 229lb ft is smoothly and effortlessly delivered. There is thus oomph in buckets to push the car on into the 120s and 130s, whereas the ZF box's 28-odd mph/1000rpm does not (according to tests elsewhere) provide anything of the instant 100mph response.

The engine/gearbox combination makes the car. It sings. It surges away from the line as the firm clutch is popped, without wheelspin unless you dump it aggressively with 4000rpm or so showing. There is a brilliant progression through the gears - 40mph, 60mph, 80mph - with the engine never off song. The smoothness of the BMW is there, the typical engine whine-whir with an edge of aggression from over your shoulder.

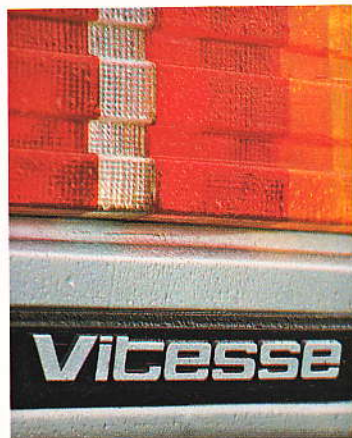
You change out of fourth at 114mph and there is still strong acceleration which doesn't really peter out until past 130mph. After that the engine, well past both its power and torque peaks and with a housebrick shape to propel, has a job to make way rapidly. Eventually, though not on a two-mile straight, the remarkably accurate speedo will show 144mph, a whisker under 140 true. Our test car's tach would hardly show 6000rpm, let alone reach the 6100-6200 red sector, before the rev limiter built into the engine's Bosch Motronic II engine management system stopped further progress.

The M535i chassis is a brilliant piece of development. The car corners at all speeds up to the limit with no discernable understeer. Its turn-in is as crisp as many a track car's, and the violent wheel movements in mid-bend or abrupt throttling-off won't much affect line or attitude. Under heavy engine braking, the nose just tightens a whisker to provide a gentle throttle steering facility.

The main adjustment to cornering is made with the power. The brilliant partnership of power

spread and close gear ratios makes real punch available whenever the demand comes. Press the throttle decisively, and the car will poke its tail with superb stability and predictability. Power slides come easily in this car, because the slippery diff prevents power from being spun away and wasted on the inside rear wheel. You can hold them, too, effortlessly through the 80mph bends of the Bruntingthorpe sprint track, and when you want to stop because the car's heading is just right, you either flick it straight with a single, quick move, or you feather the power a little - not too much - and just ease the opposite lock as the car straightens itself.

This BMW displays rare benefits of strong roll stiffness. As the tail recovers itself from a power slide there is none of the body lurch that can so easily, in a lesser car, lead to a loss of adhesion the other way. The BM just stops sliding, grips straight and goes. The fact that this adhesion and balance, this power and poise, is allied to a superbly weighted and direct (2.75 turns lock to lock) steering system only heightens your enjoyment.



## ROVER VITESSE

There's a simple specification here. Hefty fuel injection lump, pumping out 190bhp and 220lb ft of torque, is levered into relatively crude but essentially good handling and well developed Brit chassis to provide Blighty's closest thing to a US-bred muscle car. The Vitesse's all-alloy V8 of 3528cc is fed by Lucas L electronic fuel injection and punches out its maximum power up around the 5300rpm mark, and its torque high up for a V8 at 4000rpm. The power is fed through a widely arrayed set of five ratios, the first of which is no higher than the BMW's, the fifth of which is a radical 0.79 to one overdrive with a theoretical maximum at the engine's 5500rpm redline of 160mph-plus.

The Vitesse stands up quite well to the competition. The body is lacking in interior leg and headroom now, and the footwells seem surprisingly confined for a big car, but the dashboard, tarted

a couple of years ago, works well enough (not everyone likes its style though) and those nicely weighted controls give the car a well-thought-out, cohesive quality. The slight stiffness of the rifle-bolt gearchange works well within the firm clutch and brakes, and it would suit the weighting of the power steering system if it wasn't for the fact that the wheel is at least a couple of sizes too big, and irritating with it because of its Allegro-esque 'quartic' shape. I'll bet Steve Soper doesn't have to make do with this ludicrous item when he's hefting the sweet-handling, superb-sounding racing Rover around Brands.

The Vitesse is still a surprisingly handsome old thing. It doesn't have the sheer, enduring style of the CX, that's certain, but there's a broad-shouldered hunkiness about it which the big rear rubber dam, the low stance and the multi-spoke alloy wheels (echoing the racing look again) only enhance. The front spoiler, new for '85, is a spin-off from the track cars, too; though Rover engineers make half-hearted claims about its benefitting stability at speed. The true benefit is obvious, though, before the car turns a wheel.

This Rover power train is the least complicated, most docile of the three. There's an equal willingness to woofle along at 800rpm in second or third, or to crack up to five-and-a-bit in fourth, the other side of 120mph. The engine doesn't have quite the bite which those used to V8s of a really big capacity might expect; it really needs to be turning 3500rpm or so to deliver a real V8 kick, and even then it lacks the bass thunder that Mustang appreciators might expect. Still, it's smooth and the sensational relationship between engine, clutch and gearchange mean that almost undetectable smooth changes can be made, up or

down, as a matter of course. The car is very nearly a match for the BM, especially in the indirects, missing out only for its lack of a strong top-end. It sounds strained and shows a surprising lack of torque near its 5500rpm redline.

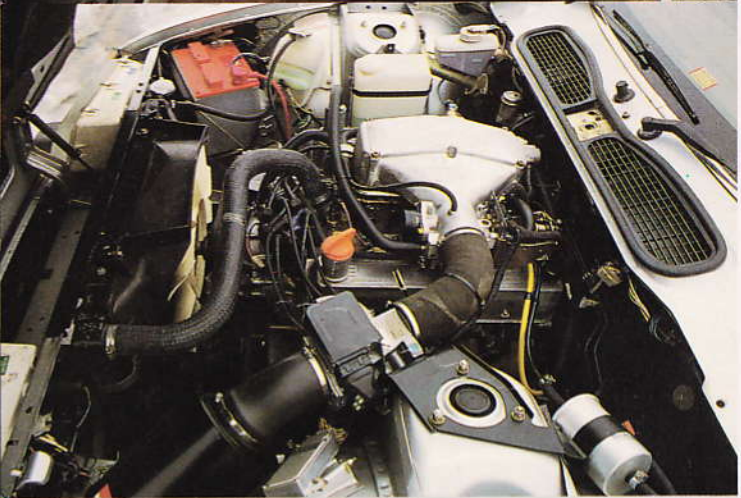
The Rover is well tied down. The firmness of the damping is particularly obvious as you rumble it through town, on your way to do some big speeds. Yet the ride is always flat and it's quiet over most surface, too; more so than the BMW. Certainly the family user should have no trouble with any lack of refinement, provided he's prepared to give a little for the sake of near-limit stability.

This chassis mirrors the BMW's characteristics. It understeers little (perhaps a whiff more than the Bavarian) and stays stable on the over-run, even when it has been pushed close to breakaway. It will flick into shallow oversteer if deliberately unbalanced with wheel and no throttle, but it's the gentle kind, which practically peters out by itself. With a manageable steering wheel, there would be the same kind of effortless flick-straight corrections available in this car as the BMW. But the glorious power-slides aren't really on the menu, mostly because the Vitesse's power spins uselessly away through the inside rear wheel in really hard corners, for the lack of a limited slip diff. If any fast car ever needed better traction, this gutsy old Rover is the one.

As far as outright performance goes, the Rover slows dramatically after 92mph, its third gear limit. Fourth and fifth are high, too high for rapid acceleration to a top speed. But given time and patience - and the forbearance of the law - the car will show 135 and 4600rpm without much trouble; 140 might just be possible with a five-mile run in. It's an honest old truck, the Rover.







**BIG, STABLE ROVER STILL LOOKS AGGRESSIVE; VITESSE HAS SOME OVERTONES OF RACERS. CABIN ISN'T ROOMY FOR SIZE BUT SMOOTH, TORQUEY ENGINE AND SLICK GEARBOX MAKE IT A TRUE DRIVER'S CAR. LONG TOP RATIOS SAP URGE. ON LIMIT HANDLING CAN'T QUITE MATCH BMW, HOWEVER**





## CITROEN CX GTi TURBO

The French make a play about not having changed the chassis and running gear specification much for their new car over that of the former, non-turbo GTi which, you will remember, is a 138bhp, 125mph car also of sporting mein. The Turbo has the same ancient 2.5litre four-cylinder engine of unsophisticated design (iron block; eight pushrod-operated valves), but its compression ratio is lowered from 8.75 to 7.75 to one (still fairly high for a turbo engine) and fitted with a Garrett T3 turbocharger which pressurises the induction system to a maximum of just over 10lb in<sup>2</sup>. The puffer feeds the engine through Bosch L Jetronic fuel injection and ignition is provided by a solid state electronic system, already seen on the 'ordinary' GTi, but now with a knock sensor to

retard the timing in case of pre-ignition.

By these means, Citroen have produced a car with a 22percent power boost (168bhp at 5000rpm) and 40percent more torque (217lb ft at 3250rpm) compared with the GTi's solid figures. But what is also important, and may account for the lack of an intercooler, is the refinement which has been poured into the engine to take it beyond the traditional turbo problems of lag and poor low-speed performance. To complement the work the car gets revisions to parts of its suspension (damper rates have been revised in some modes; front and rear anti-roll bar diameters are greater) and Citroen's fattest tyres yet, a set of 210/55VR390 Michelin TRXs, go onto a new set of 'aerodynamic' wheels, each of which is distinguished by a flattened 'T for Turbo', which looks much more like a recently-flattened seagull than a letter of the alphabet. The GTi had an unfortunate motif for years; now it's the Turbo's turn.

The car's other distinguishing feature is a large, rear-mounted rubber spoiler, much more prominent than the GTi's. The French engineers are refreshingly reticent about making any great claims for dramatic stability or Cd improvements; the thing is there first and foremost to distinguish this fast car from the others of the CX persuasion. The only striking claim for the car, one chock-full of serious intent, is that this machine has been built with 200km/h – 125mph – all-day serious

motorway cruising in mind.

Cruising is very much this car's metier. It will, of course, chase quite well along the back-roads. But its bulk and the concentration required of its driver to place it accurately with that ultra-direct, low effort and somewhat insensitive steering, make it a more difficult business than in a car like the BMW, whose superb small wheel and steering system – with its high seating position – make its placement in tight going far easier. The Citroen has grip, all right; stacks of it. The car usually corners always in mild understeer, most of it postponed beyond the old GTi's limits by the new, excellent fat tyres. Towards the new limit there's a good deal of body roll, but the car's low seating position and soft fabric-covered seats hold front occupants against it well.

But the Turbo, perhaps because of the greater cornering speeds it will accept before breakaway at the front, will move into surprising, shallow oversteer when the driver throttles off brutally in mid-bend. It is not an upsetting characteristic – a tinge of opposite lock corrects the condition instantly – but it's a bit of a shock for those of us who have grown used to one certainty in life being that the CX's long wheelbase and low CG always prevents the tail from poking out.

The car has simply sensational dead ahead stability, functions of its wheelbase, its equal-length wishbone front suspension (which prevents the gyroscopic effects which other systems generate that defect the car off-line) and its

front weight bias. The car will track, hands-off, at 120mph. Sadly, at that speed there's more wind noise than in either Rover or BMW. Winds of those velocities put real loads on door sealing and the Citroen's can well stand improvement. So can the car's general finish. It's poor which for a flagship is a disappointment.

But the French have scored a notable success in both spreading their engine's turbo puff, and endowing the gutsy old four with quite good off-boost performance. The 7.75 to one compression is high for an exhaust-blown engine; the car pulls from 1500rpm, even in its higher gears. There's real turbo urge available from about 2200rpm, plenty low enough to cover gaps left by the gear ratios. Actually, the first four ratios are stacked fairly closely together, on the low side, but fifth is geared for just about 139mph at the 5500rpm redline (and a whisker above 150mph where the fuel injection's cut-out works at 6000rpm).

In the event, the car won't do 139mph, with less than a four mile run-up. It will show 133mph (with the speedo hovering around the 140) but that takes some achieving.

## CONCLUSION

The BMW, as befits its price, is the best of these cars. As well as achieving the 140mph target, it begs to be driven hard; the driver pays just a little in sacrificed refinement.

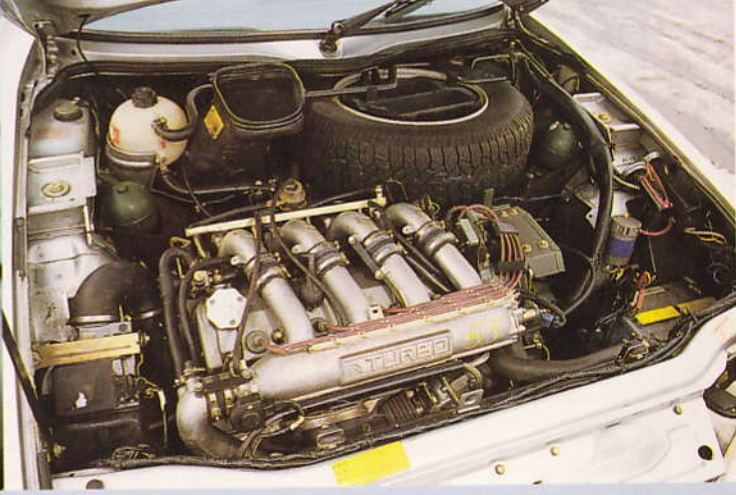
The Citroen, without great fanfare, presents the '85 state of the turbo engine art. Cruising stability is its other terrific feature. This is a car which truly offers all-day 125mph cruising potential, something not necessarily available even in a Ferrari 400i.

The Rover, the big, stable, familiar old tank, packs real performance, even when measured against the best. A slippery diff and shockers a grade better might well give its handling the inspiration of the BMW's. And its extension of the Rover SD1 theme provides further justification for the car's creators. They'll be calling this a classic before we're all too much older.

In sum, this trio makes up one of the car market's most important, though this is not commonly recognised. The cars deliver true high performance in a place where it's harder to engineer, where buyers are more discerning, than in any sports car category yet devised. They are the inspiration for the cheaper performance cars that are coming – the 16valve Golfs, the Escort Turbos and their successors. Their prices aren't in the bargain basement, yet they offer unrivalled power-for-the-money. The test is simple: there are plenty of cars costing twice as much as these which, if a flag were dropped, wouldn't see which way they went.

	BMW M535i			Citroen CX GTi Turbo			Rover Vitesse		
Engine	Six-cylinder, in-line			Four-cylinder, in-line			V8		
Capacity (cc)	3430			2500			3528		
Valves	12VV, overhead, sohc			8VV, overhead, pushrod			16VV, overhead, pushrod		
Bore/stroke (mm)	92/86			93/92			89/71		
Compression (to one)	10			7.75			9.35		
Aspiration	Bosch Motronic F1			Bosch L-Jetronic, turbo			Lucas L electronic injection		
Power/rpm (bhp)	218/5200			168/5200			190/5280		
Torque/rpm (lb ft)	229/4000			217/3250			220/4000		
Transmission	Five-speed, manual			Five-speed, manual			Five-speed, manual		
Top gear ratio/mph/1000rpm	Direct/23.9			0.67/25.2			0.79/29.2		
Final drive (to one)	3.07			4.2			3.08		
Body, type	Four door, saloon			Four door, saloon			Five door, hatchback		
Suspension, front	MacPherson struts, transverse links, anti-roll bar			Equal length wishbones, hydropneumatic self-levelling			MacPherson struts, transverse links, anti-roll bar		
Suspension, rear	Semi trailing arms, coil springs, anti-roll bar			Trailing arms, hydropneumatic self-levelling			Live axle, radius arms, Watt linkage, self-levelling units		
Steering	Recirculating ball, assisted			Rack and pinion, powered			Rack and pinion, assisted		
Brakes	ABS, discs front/rear			Discs front/rear, powered			Discs front, drums rear assisted		
Wheels	Alloy, 6.5in rims			Alloy, 5.5in rims			Alloy, 6.5in rims		
Tyres	220/55VR390 TRX			210/55VR390 TRX			205/60VR15 P6		
Dimensions (in)									
Wheelbase	103.4			112			110.8		
Track, front	56.3			59.9			59.3		
Track, rear	57.5			53.9			59.3		
Length	181.9			183.5			186.6		
Width	66.9			69.7			69.5		
Kerb weight (lb)	2890			3053			3170		
Price	£17,950			£12,990			£15,465		
Acceleration (sec)	0-30	0-40	0-50	0-60	0-70	0-80	0-90	0-100	0-120
BMW	2.8	4.3	5.7	7.1	9.8	12.1	15.4	18.8	29.0
Citroen	3.1	4.8	6.2	8.1	11.2	14.5	17.8	23.8	39.5
Rover	2.7	4.1	5.5	7.1	10.3	13.0	16.3	21.0	33.5
(In fourth)	20-40	30-50	40-60	50-70	60-80	70-80	80-90	90-100	100-120
BMW	7.1	7.1	7.0	7.1	7.2	7.1	7.1	7.2	7.2
Citroen	8.8	8.1	7.8	8.1	8.1	8.1	8.1	8.9	8.9
Rover	7.4	7.0	7.0	7.0	7.3	7.3	7.3	7.5	7.5
Maxima	First	Second	Third	Fourth	Fifth				
BMW (6000rpm)	39	60	81	114	139 (5800rpm)				
Citroen (5500rpm)	30	51	77	106	133 (5300rpm)				
Rover (5500rpm)	39	61	92	128	135 (4600rpm)				
Consumption	Test	Range	Urban	56mph	75mph				
BMW (wide ratio)	22.9	22-30	28.5	42.1	35.2				
Citroen	24.8	24-30	20.2	35.3	28.5				
Rover	23.0	18-26	18.5	37.7	30.1				





CITROEN'S CLASSIC SHAPE HASN'T DATED MUCH IN A DECADE, BUT CABIN IS OUTDATED AND WILL SOON BE REVISED. TURBO ENGINE HASN'T QUITE THE STUFF OF ROVER OR BMW, BUT CX IS STILL A FAST CAR. HANDLING IS FAIL-SAFE FWD, WITH UNDERSTEER AT LIMIT. STABILITY IS EXCELLENT