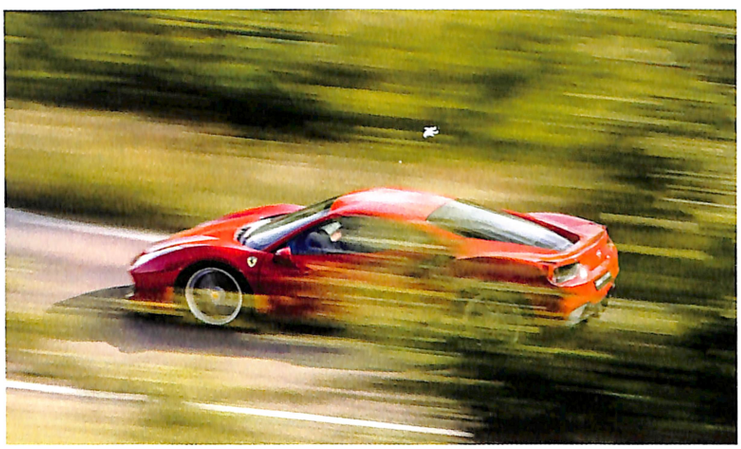


348TB
1989

BIG CHANGES

With Testarossa-style side strakes, the 348's styling is yet to return to fashion. Big change with the V8 longitudinally rather than transversely mounted. Also GTS, Spider, GT Competizione and Challenge.
ENGINE 3405cc 90° longitudinal V8, DOHC, Bosch Motronic fuel injection **POWER** 300bhp @ 7000rpm **TORQUE** 239lb ft @ 4200rpm **WEIGHT** 1393kg
PERFORMANCE Top speed 170mph. 0-62mph 5.6sec

F355
1994

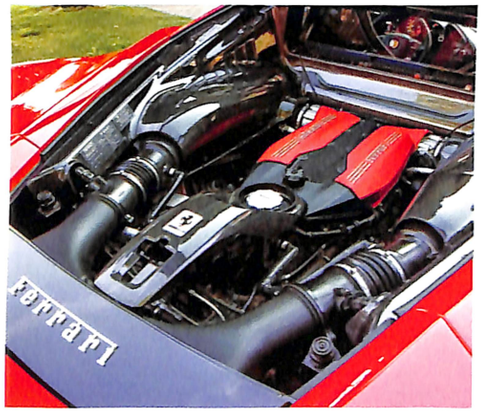
MODERN TECHNOLOGY

It doesn't look 21 years old, does it? A foray into flat-bottom aerodynamics and the option of paddleshift (the F355 F1) signalled future moves into high-tech. GTS, Spider and Challenge versions too.
ENGINE 3495cc 90° longitudinal V8, DOHC, Bosch Motronic fuel injection **POWER** 380bhp @ 8250rpm **TORQUE** 268lb ft @ 6000rpm **WEIGHT** 1350kg
PERFORMANCE Top speed 183mph. 0-62mph 4.7sec

360 MODENA
1999

ALL-ALLOY CONSTRUCTION

To keep weight down the 360's body was kept simple, even losing the trademark Ferrari front. Underneath is an alloy spaceframe, again reducing weight. Also Spider, Challenge, GT and Challenge Stradale, GTC.
ENGINE 3586cc 90° longitudinal V8, DOHC, Bosch Motronic fuel injection **POWER** 400bhp @ 8500rpm **TORQUE** 275lb ft @ 4750rpm **WEIGHT** 1290kg
PERFORMANCE Top speed 183mph. 0-62mph 4.5sec



Above and left
Editor Lillywhite heads out from Fiorano, with one little moan – objects in the carbonfibre centre console slide noisily from side to side; V8 turbo is visible from inside and outside the car; seats received mixed reactions in terms of comfort.

vortex generators that accelerate the air under the car, reducing pressure and so increasing downforce by 'sucking' it to the ground.

At the back, a diffuser is fitted with moveable flaps controlled by the central management system. Flaps closed increases downforce in corners and under braking, while flaps opened reduces drag for straightline acceleration and speed. A 'blown spoiler', only previously seen in cruder form on the FXX-K, directs air from the base of the rear screen out of the rear bumper, boosting downforce without the need for an unsightly wing. Vents at the side (and note that the shape of the doorhandles helps push air into these) are split so that some of the flow goes towards cooling; the rest heads out of the tail to literally push away the drag-causing turbulence that is always present at the rear of any object passing through the air. Simple but innovative.

This tech-fest could continue but let's get back to the drive because, after several hundred miles on the road, we were also able to try the 488GTB on Ferrari's famously tricky and technical Fiorano test track.

It's a big, fast car for what is a surprisingly narrow circuit but it soon becomes obvious that the 488GTB can be scythed through the corners with remarkable accuracy, the front washing out first unless a bootful of throttle is applied to send the rear out first. This isn't mere tracktester bravado because it takes no more than average skill to pilot the 488 in such dramatic style – though you'll quickly wave goodbye to those tyres if you get carried away.

More usefully, what was confirmed by the track test was how agile and alive the car feels, how mind-bogglingly fast it is and how phenomenal the brakes are, time after time.

There have been Ferraris that have left us cold over recent years but this isn't one of them. It's phenomenal. It proves just what the 308 proved 40 years ago: that a mid-engined V8 'baby' supercar can compete with the big boys, and is often more exciting to drive. Oct

F430
2004

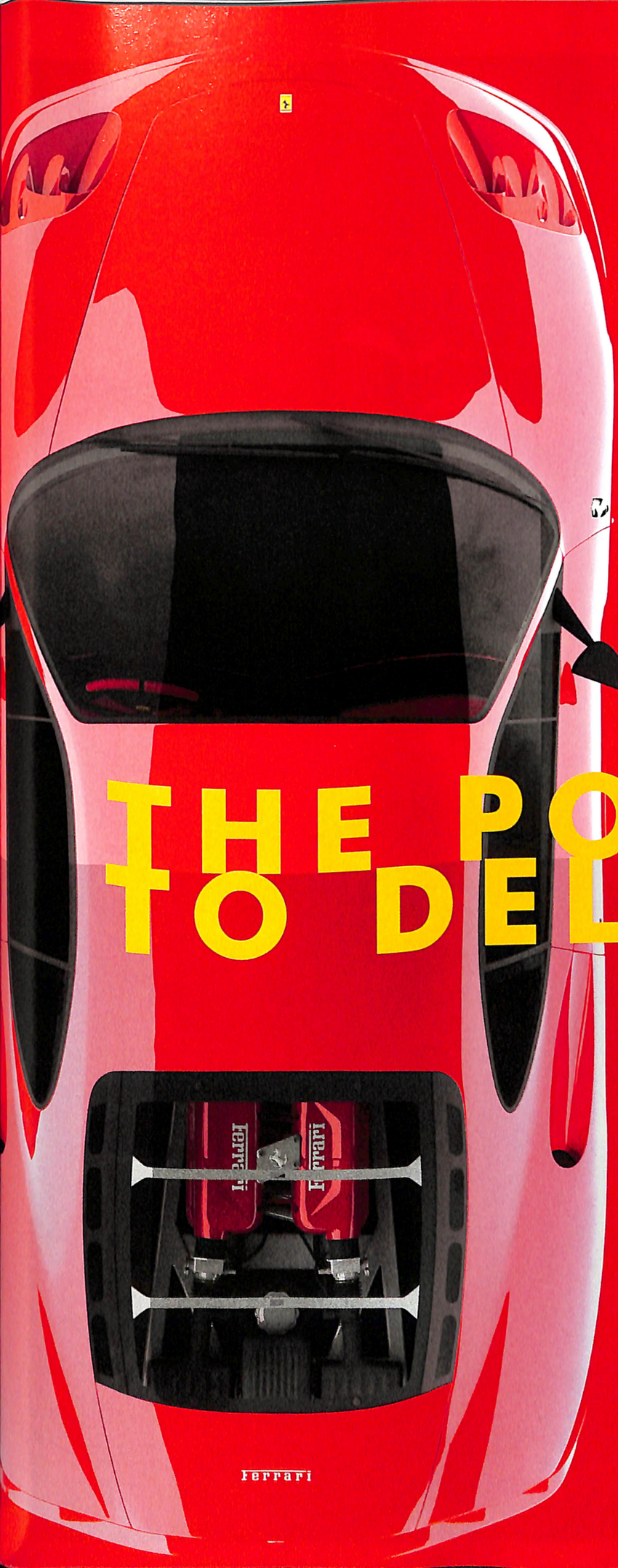
FORMULA 1 TECHNOLOGY
A 360 with added technology, inspired by F1. Electronically controlled differential and six-speed sequential paddleshift transmission, though manual was available. Also Spider, GTC, Challenge, Scuderia.
ENGINE 4308cc 90° longitudinal V8, DOHC, Bosch Motronic ME7 injection **POWER** 490bhp @ 8500rpm **TORQUE** 343lb ft @ 5250rpm **WEIGHT** 1350kg
PERFORMANCE Top speed 196mph. 0-62mph 4.0sec

458 ITALIA
2009

DIRECT INJECTION
An all-new design, and the first mid-engined Ferrari to feature direct injection. This time only the seven-speed dual-clutch transmission was available. Also Spider, Speciale, Speciale A, and race versions.
ENGINE 4497cc 90° longitudinal V8, DOHC, direct fuel injection **POWER** 570bhp @ 9000rpm **TORQUE** 398lb ft @ 6000rpm **WEIGHT** 1350kg
PERFORMANCE Top speed 202mph. 0-60mph 3.4sec

488GTB
2015

FASTEST EVER
Based on the 458 but with turbo and more sophisticated electronics and aerodynamics – the latest in the line of the V8 mid-engined supercars, priced at £183,974 in the UK. Expect Spider version to follow next.
ENGINE 3902cc 90° longitudinal V8 turbo, DOHC, direct fuel injection **POWER** 670bhp @ 8000rpm **TORQUE** 560lb ft @ 3000rpm **WEIGHT** 1370kg
PERFORMANCE Top speed 206mph. 0-62mph 3.0sec



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The STEEPEST LEARNING CURVE

Possibly the dampest, too, and certainly the most slippery. ***Mark Hales*** *is schooled in the art of Historic Sporting Trials*

PHOTOGRAPHY Charlie Wooding

THE BRANDS HATCH Paddock might seem an odd place for a tale about trialling to begin, but bear with me. I was there to drive a Centaur Mk14 Classic Clubmans car, waiting out the interval between Saturday qualifying and Sunday race, when a man in a cloth cap asked the question: would I like to drive his Cannon Trials car in the last event of the season?

Well, other than the basic spec and what they looked like, I didn't know a great deal about Trials cars, but yes please. Good, said the man, I'll bring the car here tomorrow and you can try it for size. He turned out to be Martyn Halliday, co-founder of the Historic Sporting Trials Association, which caters for Trials specials built between 1952 and 1974, and not the same thing as Production Car Trials, or Classic Trials, or modern Trials. Halliday is also the owner of a Mallock Mk20 Clubmans racer that is currently in rebuild – hence the paddock visit – but, the following day, he and his Cannon trickled into the paddock as promised. Despite appearances, they can be road legal.

There's actually a deal of similarity between a Crosslé or Cannon or Dellow Trials car and a Clubmans racer of the 1960s – many of them performed in both disciplines – notable among them the Lotus Mk2 of 1950 built by a young Colin Chapman. Martyn also owns the Lotus Mk4 that was Chapman's first customer Trials car and will be on the hills again soon, but a moment's scrutiny reveals why the type might suit two apparently differing roles.

Competition car design, even at the professional level, had yet to become so rarefied and, in the years following the war, there was no ready supply of cheap race machinery; if you wanted something different you had to build it yourself. Racing had more to do with taking part than looking for the last percentage point of performance and the results of your handiwork would have less to do with the best technology and more with the hardware that was available. And since cars powered by a sidevalve Ford had been in production since before the war, by the early 1950s there were plenty of parts in the breakers' yards. Starting with the major mechanicals from a Ford Popular – or that other staple, the Austin 7 – rather dictates the layout of the car.

Trialling was also the first form of motorised sport to be revived after the conflict. All you needed was a piece of hilly farmland and a car – any car, but generally the lighter the better. The first event, held on 10 September 1945, attracted 50 cars, many with more than one driver. Soon enthusiastic amateurs, and professionals such as Chapman and Cannon, were building lightweight specials.

The Cannon is the eponymous creation of Tasmanian ex-pat Mike Cannon, who built them in the shed attached to his Tonbridge farm. His success on the hills – he won the championship six years running – was the best kind of promotion, and he went on to build more than 120 cars and kits of parts (which cost a princely £70), while branching out to make the trailers that transported them to the events.

Martyn's example dates back to the early '60s and is an exercise in minimalism. Simple welded steel-tube spaceframe, Ford Popular beam axle, transverse leaf spring and steering gear at the front, Austin 8 axle at the rear and an 1172cc Ford Pop E93A sidevalve engine and three-speed gearbox in-between. Or, to be precise, in a location whereby 'the centre of the foremost sparkplug is no more than one-fifth of the actual wheelbase aft of a line connecting the centre of the front wheelhubs'. No surprise to discover that, when this regulation came out in 1953, Chapman was obliged to move the engine forward by two feet.

The shallow, bare aluminium bodywork is as scanty as the rest of the Cannon and the whole lot is perched on a set of very skinny-looking 18in wire wheels. And that's about it. There are no lights, other than a pair of lenses for the brakes; no doors, no screen, wipers or instruments; seats are squabs laid like cushions on the bare aluminium floor, and the whole is so simple that it's hard to see from the outside what might make the difference between a good Trials car and an indifferent one.

Trouble was, there was little chance of my finding out because there was no way I could fit. My legs were splayed wide under the wheel and wedged firmly under the dash tube and I couldn't operate the pedals. No problem, said Martyn, he knew just the car and, perhaps more important, just the partner for a Trials virgin. As I would later discover, almost all the competitors share cars. One drives while the other passengers, and vice versa.

Come the day, that sunny afternoon in Kent seemed a long time ago. It was forecast to lash with rain all day, driven on icy gale-force winds. The venue was in the hills near Stroud, Gloucestershire. What time? Nobody seemed to know for sure, but a couple of phone calls established that it was when everybody got there. Probably about 10.30. And it seemed most important to realise that the pub was staying open all afternoon, and they were doing roast lunches. Fine. But what should a well-dressed trialler wear for the occasion?

That much turned out to be more of a problem than I had imagined. Someone had said you needed to feel the pedals, but not to wear your race boots because they would end up caked in mud. And you had to have a →

Left, far right and below right Mark Hales competes in the dark-red Cannon, with expert instruction from multiple Trials champion Monty Peters. Just like circuit racing, it's all about accuracy and concentration – but for the first time, Hales had to learn how to compete by going as slowly as possible...

waterproof jacket that still allowed you to move, which is not part of my wardrobe. I opted for mechanic's overalls (a bit tight over two sweaters), and a pair of race boots that were no longer scrutineer-proof. At least I had the regulation flat cap like everybody else.

The substitute Cannon had arrived on a similarly minimal two-wheeled trailer, crewed by multiple Trials champion Monty Peters, who in a long and sometimes professional career was co-driver to Tony Pond as well as works rally driver, Rallycross driver, and much else. He also had a waxed jacket somewhere in the bilge of his tow car, which was two sizes too small but gratefully received.

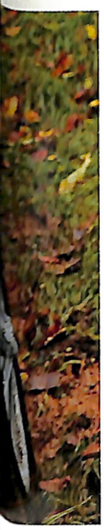
The car turned out to be a very famous one: campaigned extensively by Trialling doyen Rex Chappell, it has been massively successful for years, a tradition now ably maintained by Peters. The weather made detailed mechanical appraisal uninviting but the basics were obvious, like the axle located on a single central pivot so it stays on the ground whatever angle the body adopts, suspended by a very light spring – all that's needed to support light weight. It's a detail that seems obvious but which Cannon pioneered.

The brakes were another thing, in theory simple but in practice a design finely honed. The fronts are hydraulic, operated by the foot pedal – the one between the accelerator and the clutch. The rears are by cable, both connected to a lever outside the cockpit, but individually hooked up to a pair of levers between the seats. These are your master controls. You use them singly as a limit for the differential, to turn the car under power, to skid it round a marker; in fact most things other than retardation. They are known as fiddle brakes, and it's not because you need to play tunes on them.

The engine was from a small Ford of a type made anywhere between 1939 and 1959; 1172cc with valves on the side but equipped with a signature Aquaplane aluminium cylinder head and a pair of SU carburettors – essential wear for any Ford special of the 1950s. The last thing you need here, though, is more power. As I would see, what you need is something that delivers usable torque somewhere around the speed of the starter motor, or preferably less. A steam engine would be ideal. Almost all the 1172 club seemed to be similarly equipped, though, so it's clearly a bit of a '50s style statement.

The drivers' briefing was a huddle round the side door of a motorhome and was indeed brief, probably because of the rain, but perhaps because everyone knew the form. I also noticed a number of familiar faces sheltering beneath the flat caps. They had kept it quiet, but several of my fellow historic circuit racers are regulars, a theme that goes back a long way. Stirling Moss, Graham Hill, Ken Wharton and Tony Marsh were all Trials regulars in the 1960s. Having discovered that I could just about fit, Monty suggests I do a bit of pre-event practice on the grassy knoll. Yes, the one that looks far too steep even to walk up.

Momentum is an obvious requirement and, the more you can gather, the easier you will rise up the slope, but not only is that easier said than done, there's much more to it than just that. The grass is wet and for my first couple of attempts I barely manage to gain enough speed to get halfway up. Minimal revs is the key, even though I'm desperate to get on the gas, oh-so gradually increasing power as the car gathers pace, but then if I think it's safe and give it too much when I'm actually on the climb, the wheels break traction and the car just stops. Any wheelspin whatsoever on wet



grass, the tyre loses all grip and the car comes to an immediate halt.

Talking of which, tyres and tyre types are – or have been – a category black secret. Cannon discovered an obsolete Goodyear pattern with blocks of tread on the edges that acted like gear teeth, had it remoulded onto new carcases and kept inflation pressure as low as possible, down to as little as 2psi – not enough to stop them turning on the rim, so they had to be bolted on. The HST organisers have mandated Blockley tyres and a minimum of 5psi pressure – which they will check. If you want to travel on the metalled road, you must remember to pump them back up to 16.

The course is a collection of gates, some of which look impossible for any kind of wheeled traffic, generally about 50 yards long, defined by posts and flags. You keep one always to the right, and score points for every one of the other you manage to place alongside your left front wheel. And you just turn up when you're ready, join the queue and tell the marshal your competition number. No suits, no helmets, no belts. Monty goes first and watching him from the cramped confines of the passenger space alongside is an education, the more so because I'm not sure what I should be looking for.

First surprise is how slowly he is prepared to go. There's no time element, only distance – as in past the post – and the main requirement is to keep going. If the wheels stop moving for more than a fraction of a second, your run is over. There is also no apparent definition of the track limits; you can go as wide as you like to set-up for a corner. In most cases going too far out will put you on the wrong part of a slope, or into a tree or a gully, but it's interesting to watch the good guys getting creative with space.

Like all experts, Monty made it look easy, sawing the steering, gently riding the clutch against the handbrake, walking the car almost by the inch with the wheels barely turning until he had it where he wanted for a better entry to the next gate. I could see that it's not just traction that matters; there's only about 20% of the total weight on the nose and, where the entry to a gate is across a slope, the slightest amount too much motion can easily find the front wheels refusing to point the car at all. Minimal momentum is the best defence here.

Beginner's luck fluked the first stage for me, after which it turned rather more challenging. Time after time I summoned enough patience to gauge the initial momentum somewhere about right, then either gassed it too much or too little when it got to the critical part. Either mistake meant I stopped, and it was always surprising how quickly the car lost motion. I noticed that everybody else was having problems too – including Monty, who would normally expect to clean most of the stages.

The torrential rain had reduced the grip to such an extent that the turns were too tight, but no matter, the organisers simply moved the posts and flags during the lunch interval.

The afternoon came and the rain stopped – if not the wind – and, following the inner comfort of industrial-size organic bacon-and-egg butties, everybody got ready for another go. Monty kindly offered to speed up my learning curve by fiddling the brake levers, which freed me to concentrate on steering and footwork. The steering is high-geared and heavy, despite the size of the wheel, which makes it hard to twirl with one hand – of course, you're not supposed to do that. Get the car lined up at the slowest speed, remember.

I did manage a couple of fiddle-brake momentum turns on my own, Monty prompting me to tweak just the outside lever →

'Beginner's luck fluked the first stage for me, after which it turned rather more challenging'

to slew the rear, and then, when we got to one of the many rutted stream beds, at least once I remembered to brake the spinning wheel, which keeps the car straight as well as maintaining drive. A sort of do-it-yourself limited-slip. Meanwhile I watched Monty and others occasionally bury the gas pedal and rev the engine to the max, spinning a rear wheel to a blur and filling the air with an unusual amount of noise and oil smoke. What was that about minimal wheelspin?

Turns out that's only on grass, which is the slipperiest surface. On mud the wheel is sometimes able to slice through the top layer and find grip beneath, or the edges of the tyres grab just enough to nibble and keep the car moving. It's knowing when that's the key, and it's usually accompanied by a passenger bouncing furiously in an attempt to add a bit of dynamic downforce.

Towards the end of the stages, there was a steep climb up a grassy slope, across a muddy road, then another even steeper climb up a scrubby bank, a 90 right and a bit of straight with the car leaning at 45°, then a left to go further up the incline, followed by another hairpin to finish. Monty trickled just above tickover up the grass, backed off as he approached the road, crested the hump at almost no speed, then gassed it flat out on the mud, launched the car across the road, backed off again just before the edge and allowed the car to rise up the bank, heading away from the right turn before skidding back on the fiddle, coming almost to a halt, then dribbling the car at less than walking pace across the slope, gently dragging at the inside fiddle while I leant out over the passenger-side wheel to shift some ballast where it might do some good. Starting high made sure he didn't need to steer left against the gradient, and that helped avoid breaking traction at the rear.

It was another effortless display of energy management, timing and patience, using the slowest intervals to check out the route ahead, the camber and everything else but also setting up for the final squirt of power, which gave the momentum to negotiate that last right turn. My effort was over rather more quickly; I didn't get enough momentum up the bank, started too low, steered left and lost traction. The Cannon drooped its tail down the slope and came to yet another premature halt.

I asked Monty about the clatter that accompanied the final burst. 'Big ends,' he replied. 'Happens every time the road slopes enough to the right and the oil drains away from the pump.' I might have been tempted to have a look at the bearings every now and then but apparently it's been like that for years.

My second goes were predictably better, partly because I had learnt a small amount, partly because the rain had abated and partly because the course had been eased. It was still frustrating, mind you, but in a pleasurable way. So many times I looked at the gate, worked out exactly how I was going to tackle it, and then simply didn't do it. It was as if my arms and legs had made other arrangements without reference to my head. But it was all tremendous entertainment. I don't think I've ever been forced to concentrate so hard to go so slow, or been challenged so much without being frightened. And if failure seemed an almost inevitable reward, there wasn't much of a wait before you had another go.

The event was also a great social. You compete mainly against yourself and nobody knows the results until everything is over and done. And you are likely to get splattered liberally with mud, which is nothing if not a leveller. The machinery is simple and the rules ensure it stays that way, and all the mechanicals possess a distinct vintage charm, which also means they're cheap to maintain.

It was easy to forget that this was supposed to be competitive. How did we do? Well, I'm not completely sure. There had been another huddle round the motorhome and I'm fairly sure Monty won his class, or maybe even outright. I think I was just inside the top ten but, for once, I didn't mind. It really was the taking part that mattered and only my own efforts that needed to be surpassed.

Only on the long drive home did I begin to realise that nobody had asked for a licence or a medical. I'm not sure whether that was an oversight due to the weather, or an unusual gap in any regulation that applies in 2015. It was a very pleasing detail though, which rather summed up the whole event. I will definitely be back. 2cvt

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TIM LAYZELL

When the future really was orange

The Mercedes-Benz C111 was one of the world's longest-lived automotive experiments. Octane pilots the last drivable example to its final quarters

WORDS Glen Waddington // PHOTOGRAPHY Steffen Jahn


D

IN THE FIRMAMENT of rare cars remembered from childhood, one star in particular has always, for me, shone a little brighter than most. Variously a safety car, a speed-record car and one that simply played with ideas about styling, engineering and aerodynamics, the acutely orange Mercedes-Benz C111 had me mesmerised at first sight. While all other Mercs of the era were resolutely saloon-shaped (even the more sporting ones), the C111 combined dartlike, show-car styling with a mid-engined structure, and looked – still looks – slick and futurist. It's difficult to believe that the chief pen-wielder was the same Bruno Sacco who so glacially evolved the company's house style during a career from 1958 to 1999 (he was in charge of design there from 1975), and whose portfolio includes no fewer than three generations of S-Class limo, the R129 SL and – in his view, the most significant of the lot – the W201 190 saloon.

Now, for the first time, nine survivors of the C111 test programme (14 were built; three prototypes scrapped, one car crashed in testing) are featuring in a special display at the Mercedes-Benz museum in Untertürkheim, Stuttgart. So far, those nine care are in captivity. This one is still on the loose…

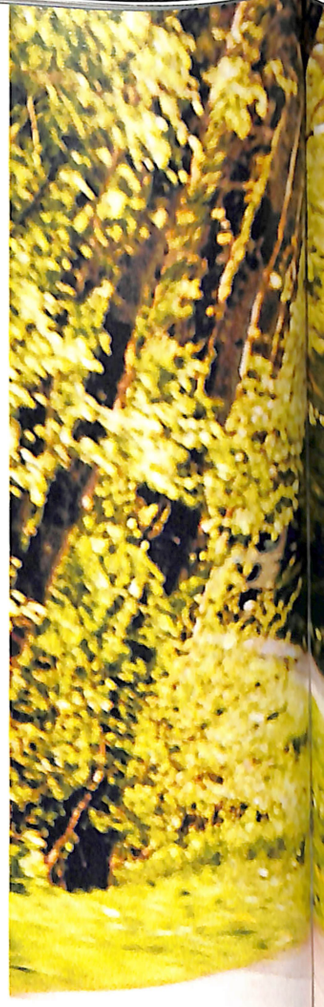
I arrive with Berthold Dörrich, editor of *Octane*'s German edition, at Mercedes-Benz Service and Parts (formerly Mercedes-Benz Classic). It's the hub of a huge and effective spares operation as well as a restoration workshop: who better to rebuild your classic Mercedes than Mercedes itself? And we're here a week or two before the Mille Miglia (see David Lillywhite's story on page 126), so the premises are packed with works 300SLs, even an open-wheel W196 GP car – though the SLRs of Moss, Fangio and Kling are elsewhere, as you might have read about in the last issue. It's a jaw-dropping environment yet still the C111 has the power to shock.

There it is, more bronze than orange in the metal (or, rather, glassfibre – and the colour is known as *weissherbst*, or 'white autumn'), one of its gullwing doors raised coquettishly, invitingly – and, it has to be said, inevitably. Time to pore over it. Its daintiness comes as a surprise; think VW Scirocco for dimensions – but think DeLorean DMC-12 or even Isdera Imperator for chutzpah. Pop-up headlamps keep the nose low; the slotted engine cover keeps the tail visually light, as do simple round tail-lights and flying buttresses. Those doors are an obvious enough historical reference but they exist, as always, for good reason: deep sills make for structural rigidity (and hide the fuel tanks), and cutting into the roof makes more space for getting into and out of the cockpit.

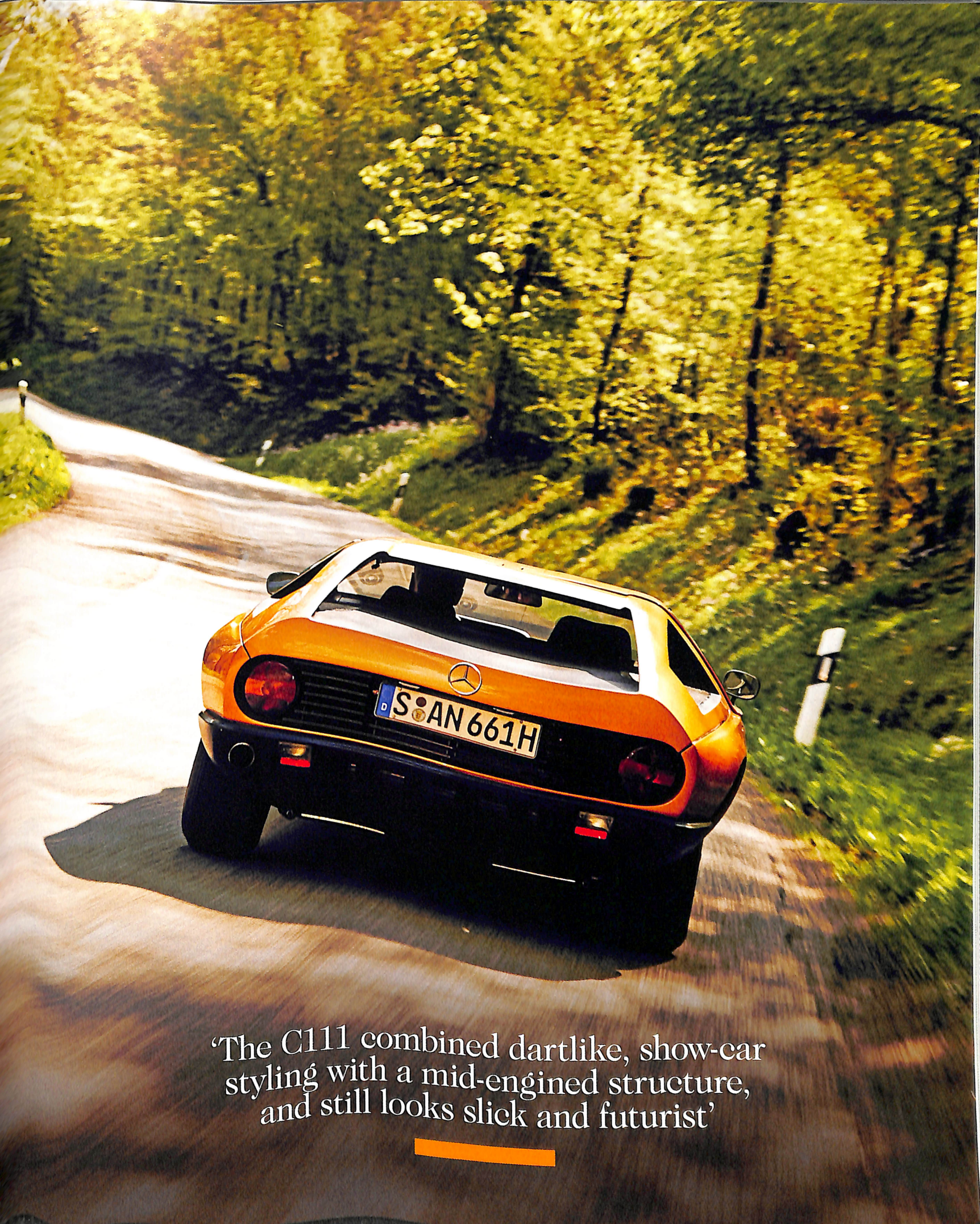
As for said cockpit, it's as black and rational as that of any Merc from the period, though unique in that its instrument binnacle stretches across to the centre of the dash and then down into the centre console. Slim bucket seats are trimmed in regulation saloon check tweed; black vinyl on dash, doors and transmission tunnel is thick and heavily grained, the dash is boxy and easy to navigate; even the steering wheel is a four-spoker, though it seems narrower in diameter than that of any S-Class or SL of the time, and its rim is moulded to mimic the taped surface of a racing car's. You know, the type that Moss and Fangio used to drive.

I take the passenger seat for now; Berthold gets acquainted with the controls (straightforward and easy to reach, a dogleg first for the gearbox the only slight detour from conventionality); we both struggle with the five-point harnesses – a clue to this car's experimental past and Mercedes-Benz's early commitment to safety. There's hardly an excess of space in here.

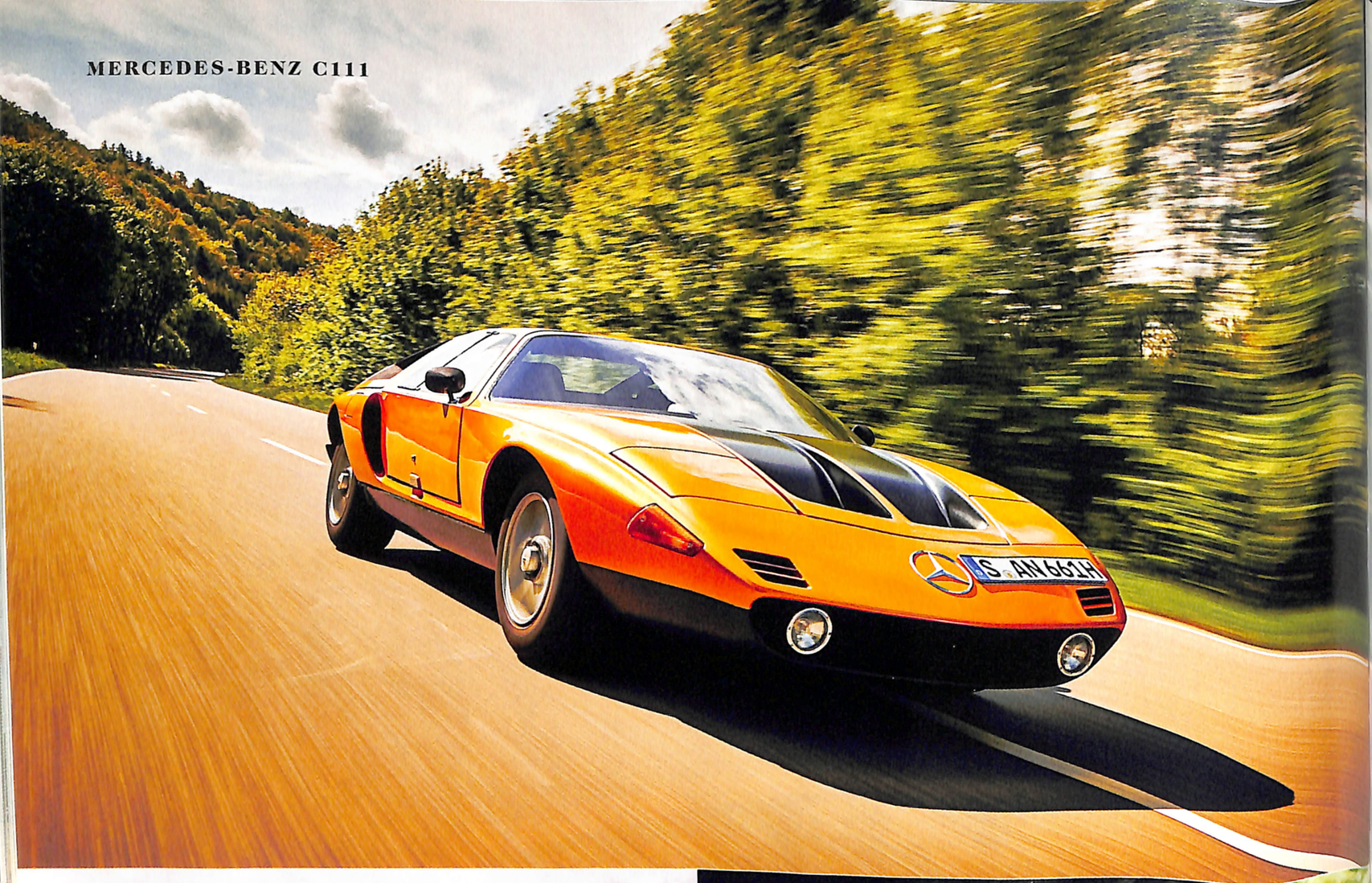
A twist of the key fires the engine. What do we expect to hear behind us? The C111 was famous for its triple- →



Left and right
The C111 looks like no other Mercedes before or since – until you open its gullwing doors. While it was never offered for sale, it pioneered the multi-link rear suspension that has been a feature of Mercedes production cars since the early 1980s.



'The C111 combined dartlike, show-car styling with a mid-engined structure, and still looks slick and futurist'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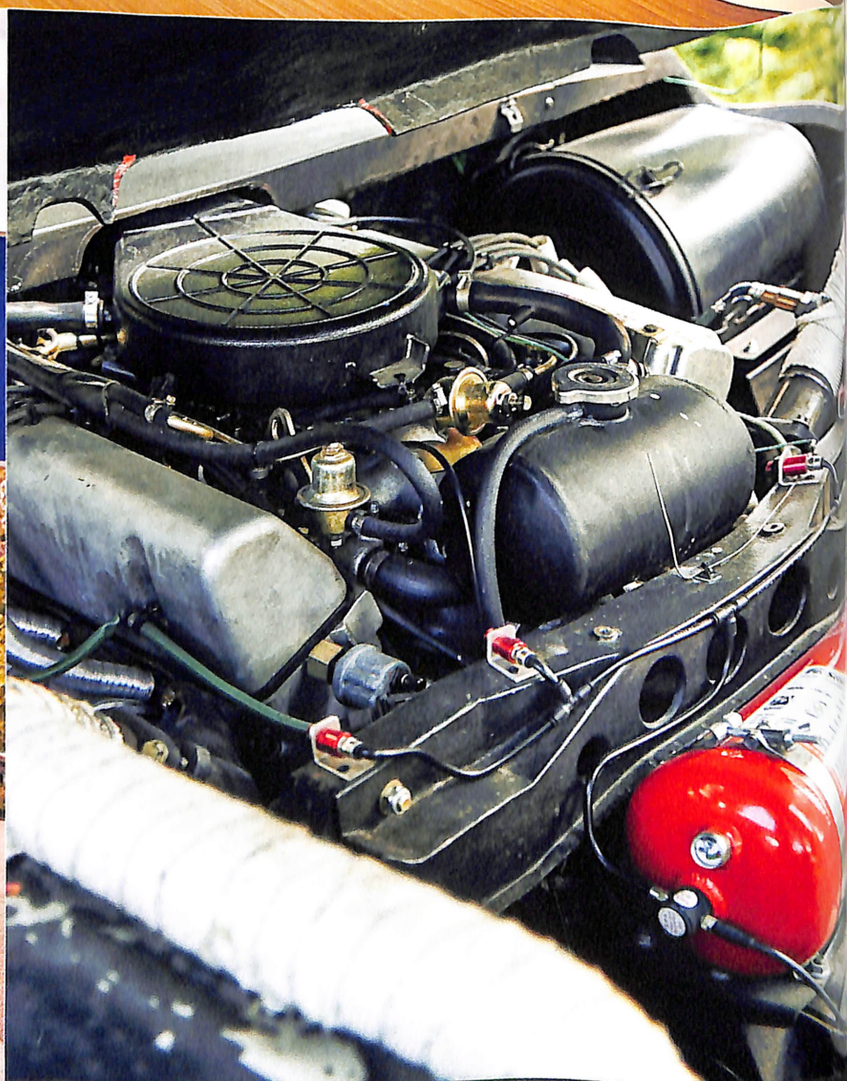


Left and right
No experimental four-rotor Wankel engine in this C111 but a trusty 3.5-litre V8 instead – it's the only running C111 left; associate editor Glen Waddington drives it on Mercedes' favoured public-road test circuit.

and even quad-chamber Wankel rotaries and, as the former owner of an NSU Ro80 (two engines during my ten-year ownership, since you ask; respectively its third and fourth from new) I'm a little disappointed, if intrigued, to hear the rumble and beat of a V8 back there.

Mercedes engineer Dr Kurt Obländer, head of engine testing in the C111 project, has described the problem with the Wankel engine: 'Our four-rotor engine with gasoline injection represented the optimum of what could be reached with this engine concept. The multi-rotor design called for peripheral ports for the intake-air and exhaust-gas ducts. We were able to solve the difficult problems in engine cooling and engine mechanics by technical means. But the main problem of the concept, its low thermodynamic degree of efficiency, remained. Due to the elongated, not exactly compact combustion chambers, fuel economy was poor, resulting in high fuel consumption and unacceptably high pollutant emissions. These drawbacks were inherent in the design principle.' Therefore, in spite of the rotary's impressively smooth running characteristics and compact size, Mercedes left this technology behind.

Well, perhaps sensibly, those fragile history-making Wankels are now ensconced within the museum – they've earned an easier life by now – and Mercedes has concentrated on making this car its sole dynamic demonstrator. It's still authentic: the C111s ran all manner of engines, including V8s (see panel on page 165), and the 3.5-litre in this car has even been treated to modern electronic management to make it run as reliably as possible and reduce its emissions. Which surely means that, while today's destination is the museum, this car isn't about to be mothballed.

AND SO WE HEAD OUT into the remains of Stuttgart's morning rush hour. Our destination is Öhringen, about 40 miles north-east from Untertürkheim, where a loop of roads winds, twists and soars through and between villages in the scenic Baden-Württemberg countryside. Pretty though it is, that's not why we're headed there: this was the test loop for Mercedes-Benz's own engineers, offering (now, as it did then) a perfect combination of long- and short-radius corners, long straights, gradients, different surfaces, open roads and autobahn. In short, in 45 minutes of driving, you can learn a hell of a lot about a car. I'll leave Berthold to tell you much more about the route itself on page 166.

For now, the traffic is thinning as is the urban backdrop: the cityscape is becoming less dense, more human in scale as we wind out onto an autobahn, then head out into lush forests and begin to climb. Drivers in other cars point and indicate their recognition of one of Stuttgart's legends: while the C111 was never intended for sale, chequebooks were opened and their pages signed at the 1970 Geneva motor show when the second-generation car (the C111-II, of which this, chassis number 35, is an example) went on show. This interior feels production-ready, there's even a radio; at the show, Mercedes even offered a fitted luggage set! But it was not to be.

Why? Well, the C111 was designed around the lightweight, compact Wankel engine so, when that disappeared, so did much of the car's original raison d'être. But it wasn't the only reason. Mercedes-Benz has long held safety sacrosanct and, while it accepted that the C111 was the perfect image rejuvenator, by the 1970s passive safety was beginning to enter the automotive pantheon. The company knew it was disappointing supercar fans – especially those who'd signed fat cheques – who'd been hoping for a successor to the 300SL Gullwing, but it also felt that the glassfibre-bodied C111 just wasn't strong enough structurally to withstand impact in testing or by accident. That would have been an image rejuvenation too far.

WE'RE CLIMBING NOW. The road carves its way up a wooded hillside and Berthold settles into an easy stride, the C111 content to haul against the long gears or equally happy to sprint up through the ratios. The V8 barks its consent, yet there's no lack of refinement here, no sense that this car was lashed together in a workshop to last just long enough to get it through its testing programme. Berthold pulls over into a layby. It's my turn.

Even after acclimatisation, the harnesses are no easier to deploy, and the fascination of lowering that gullwing door and clunking it shut – yes, it clunks, just like a proper Merc door should – doesn't cease. You wouldn't guess that this isn't a production car: everything is logically laid out and there's an air of precision and permanence to the finish, as there would be in, say, a 200 saloon of the same year. That said, there's all the design flair of an old Merc saloon in here too: it seems that while Bruno Sacco's imagination ran wild outside, he felt a bit more constrained by traditional Mercedes policy in here.

We have a few kilometres to go before Öhringen, enough time to get used to the dogleg five-speed gearbox (there's a push-button detent for first – down to the left, towards your thigh – as well as reverse, which is above

1971 MERCEDES-BENZ C111-II
ENGINE
3499cc V8, SOHC per bank, electronic fuel injection and engine management
POWER
230bhp @ 6500rpm (approx)
TRANSMISSION
Five-speed manual, rear-wheel drive
STEERING
Recirculating ball
SUSPENSION
Front: double wishbones, coil springs, telescopic dampers, anti-roll bar. Rear: multi-link, coil springs, telescopic dampers, anti-roll bar
BRAKES
Discs
WEIGHT
1300kg (approx)
PERFORMANCE
Top speed 130mph (est)

→


max. 120 km/h

Above
It's rational rather than exotic within the C111 cockpit, with a well-ordered and well-stocked dashboard, proper air-conditioning, even a radio. There can't be many other mobile test-beds as properly finished as this one.


S AN 661H

first) and the typically Mercedes long throttle-pedal travel. But really, that's it. For a car that scored so many world records at Nardo, the C111 is an easy car to come to terms with on the road.

After Öhringen the going becomes twistier, almost like a mini-Nürburgring. The test route climbs out of the sprawling suburbs, leaving behind grey industrial estates in favour of pointy-roofed villages and glowing yellow fields, as well as tunnel-like sections through trees as the twists give way to long, sweeping bends with high-speed straights between them.

And the C111 excels at all. It's an easy car to place confidently on the road, not over-endowed with feedback through the steering wheel but generous with the feeling of security it engenders. The steering is high-geared though not nervous, turn-in is progressive rather than snappy, and the mid-engined layout means the car feels neutral even through sharp bends taken at speed.

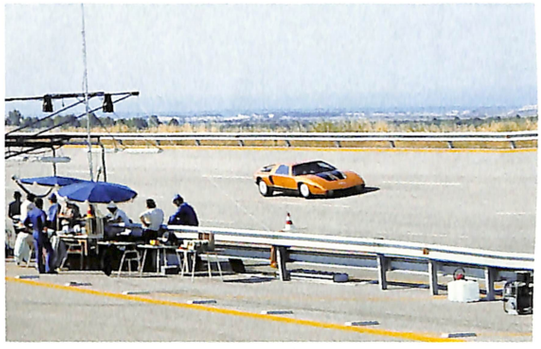
There's lolling torque from the V8, which is rather lazier in character than a high-revving Wankel would be, though still apt to have you travelling at a greater speed than you might have anticipated. And the gearshift, long and precise rather than snappy, suits the somewhat languid feel of this high-speed experimental test car. Would I fancy 12 hours lapping Nardo flat-out? To be honest, I don't think it would be as dramatic as it sounds. This is no flighty glitzmobile with more power than it can safely manage. Instead it's more like a laboratory on wheels: swift, measured, capable.

Quiet too, especially as we reach a cruise along a stretch of autobahn from Neuenstein back towards the beginning

Left and below
Gullwing doors are an obvious reference to the Mercedes supercar that preceded this one, yet they're a technical necessity as much as a styling conceit, making way for safety fuel tanks located within the deep sills.

Mercedes' multiple record-breaker

Quad-rotor Wankels made way for five-cylinder diesels – and a 500bhp turbo V8. World records followed…



EXPLOITS ON THE TEST TRACK assured the C111's place in history. The original C111 of 1969 was powered by a 280bhp triple-rotor Wankel engine and achieved a top speed of 162mph. In 1970, the more aerodynamic 350bhp quad-rotor C111-II reached a top speed of 187mph and raced from nought to 62mph in just 4.8 seconds – but stringent emissions legislation and the 1973 oil crisis killed Mercedes' thirsty, dirty Wankels.

So the engineers turned to diesel, and the 300D saloon's 230bhp turbocharged 3.0-litre five-cylinder. In June 1976 on the Nardo test track (above), the C111-IID set 16 records over a 60-hour period with an average speed of 156mph. The design team then created the C111-III, with a drag co-efficient of just 0.183 – the lowest ever achieved at that time. On 30 April 1978, the C111-III test drivers set off on a gruelling driving marathon. It was almost interrupted thanks to an errant hedgehog, and halted when a rear tyre burst, causing major damage to the car's bodywork. Game over for that car.

Yet the reserve car proved to be even faster and more economical. During 12 hours of driving without any further hitches, the C111-III set nine world records, surpassing 200mph and achieving nearly 18mpg at an *average* speed of 186 mph.

A later petrol version – the C111-IV – was powered by a 500bhp 4.8-litre twin-turbocharged V8 and set the world circuit record on 5 May 1979, with an average lap-speed of almost 251mph.

In 1971, two C111s were fitted with conventional 3.5-litre Type M116 V8s from the 280SE 3.5 saloon. The car in these pages is one of them.

Above
After all day driving to, around and back from Mercedes' own test route, the C111 arrives at its new home: the Mercedes-Benz Museum. It deserves a break, though we'd wager that it will be out of captivity again soon.

of our loop at Öhringen. It's a combination of talents that was noted by the press back in the day. In April 1970, racing driver and journalist Paul Frère wrote in *Motor*: 'This car provides an unequalled combination of comfort and handling, the latter being quite definitely in the racing car class.'

STUTTGART BECKONS. We have a deadline: the car must be back at the Mercedes-Benz Museum before the staff leave, and Untertürkheim is gridlocked. With minutes to spare we crawl through sticky traffic, the C111 as unruffled at low speed as it was at a cruise.

The iconic shape of the museum presents itself, a modernist beacon amid the technical architecture of a district dominated by the three-pointed star. And, in front of it, another icon. I clamber out and take a look back, notice that the line that curves up from the front wheelarch and runs back along the shoulderline of the C111 has been replicated in the latest-generation C-Class saloon. Seems that, nearly five decades on, the impact of this groundbreaking car is still being felt.

THE MERCEDES-BENZ C111 exhibition is being held at the Mercedes-Benz Museum in Stuttgart until 15 November this year. Visit https://museum-ticket.mercedes-benz.com for details.

The road route

Sometimes a private factory test track just isn't enough, says ***Berthold Dörrich***

THE UNTERTÜRKHEIM FACTORY boasts more than 15km of test track, including a banked section built in 1967 for high-speed testing and a crosswind generator, so that complex powertrain and handling tests could be carried out privately. Yet the C111 team couldn't dispense with real-world testing altogether, and inspected the roads around a sleepy little place called Friedrichsruhe.

The idyllic roads and lanes along the rivers Kocher and Jagst are a reminder that, in the 1960s, this region – an hour from Stuttgart – was the poorhouse of the South-West. Today there are gourmet restaurants; then there was only agricultural traffic. And the roads were correspondingly challenging. It is easy to imagine what impression the UFO-like C111 made here all those years ago. When a portion of the A6 autobahn was opened the Daimler test drivers could let the C111 off the leash for a few de-restricted kilometres too. Today traffic on this section of autobahn is limited to 120km/h.

With almost every kilometre the road surface changes. There are lumps and bumps in the tarmac that cause rolling and pitching – and provide a sense of the glassfibre body's build quality. The country road proceeds in long bends from the hills down to the autobahn; our first impressions of the C111 at high speed arrive in the eight kilometres of autobahn, where once the C111 must have got close to its top speed.

We exit towards Öhringen and the route winds northwards along a small river. Long, drawn-out loops combine with short-radius corners to form a demanding series of bends, and the road book announces succinctly: 'Good road surface – test steering precision.'

Shortly after the route's most northerly point it leaves the Kocher Valley and swings up a wooded incline. In the shadows of the trees the tarmac becomes slippery, the wheels fidget as the tyres fight for grip and the car zips through bend after bend. Then it's time, after 35km, to turn into the car park of Schloss Friedrichsruhe and, as the engineers must have, process our thoughts.

PEBBLE BEACH

Photo: Rebmann

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BIG THING, SMALL PACKAGE

It might look as if it's about to lose its doors in the Big Top, but the tiny Siata-Fiat Spider Corsa is a veteran of three Mille Miglias. Richard Heseltine traces its extraordinary history

PHOTOGRAPHY Lyndon McNeil

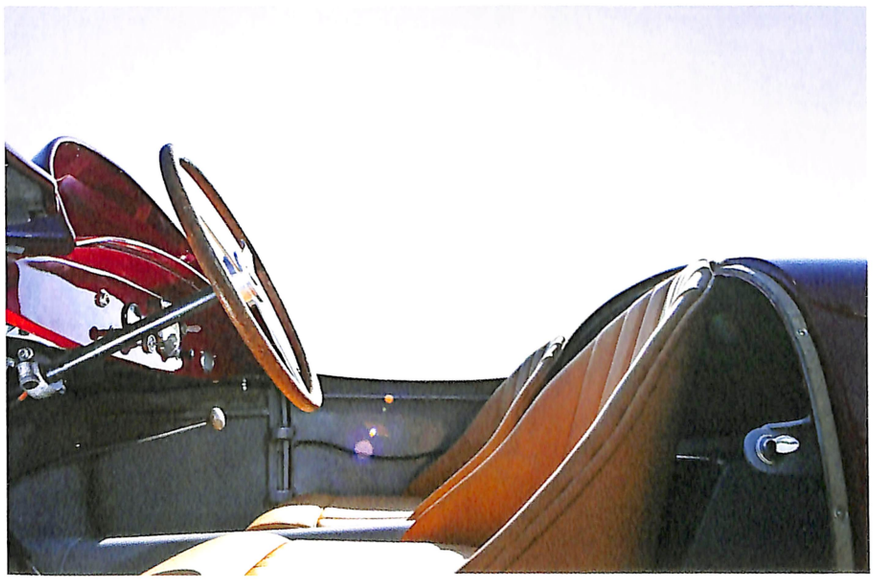
SHE HOLDS HER CHEST with one hand while pointing with the other. Her friend, meanwhile, looks on in disbelief before cracking up. Needless to say, both women cannot resist shouting words of encouragement. The gist is clear. Who knew that nuns could heckle? Maybe it's the cap; whatever, it's hard to pull off nonchalant cool when you look like you're wearing your car. It's also hard not to draw attention to yourself when you're driving an *etceterino* packing an unsilenced 742cc race engine, the frenzied backbeat ricocheting off the walls of a police station and a courthouse nearby. Whose idea was it to do driving shots here, anyway?

The Siata 750 isn't the sort of machine that has onlookers nodding at one another with gravitas. Not even close. Park just about anywhere and people jostle for position like puppies surrounding a food bowl. Everyone remarks on its size and passes comment on how 'cute' it is. But make no mistake, this is a competition tool. It was conceived with the intention of contesting the Mille Miglia. What's more, it enjoyed a lengthy career in motor sport. Its backstory is far from linear but that rather goes with the territory: it is to be expected, despite Siata being one of the more celebrated small-series constructors.

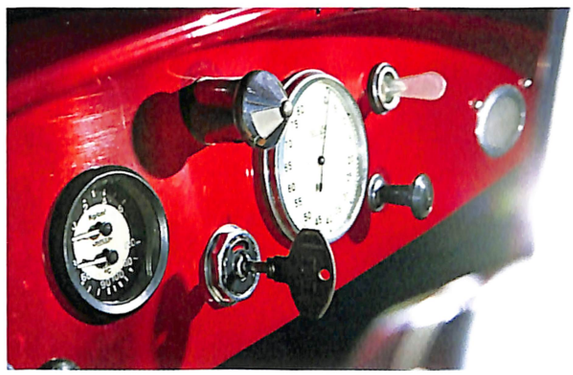
Marque instigator Giorgio Ambrosini was born in Fano, Pesaro, in 1890. Shortly thereafter, the family moved to Turin, where he became enamoured of the new-fangled automobile. So much so, he designed his first car while barely out of his teens. What's more, he began marketing his brave new world in 1913. He christened his new baby Victoria. Unfortunately, his timing couldn't have been much worse. Few cars, if any, were sold before Europe was plunged into conflict.

At the end of The Great War, Ambrosini began making bespoke tuning parts. Scroll forward to 1926 and he formalised his business arrangements under the Società Italiana Applicazioni Tecniche Automobilistiche banner. Siata would become inextricably linked with Fiat after Ambrosini and future Cisitalia founder Piero Dusio teamed up to field a specially prepared straight-six-engined 521 on the 1929 Mille Miglia. Theirs was the first Fiat home, in 25th place.

The arrival of the 508 Balilla in 1932, however, moved matters on apace. Ambrosini devised a raft of tuning gear, ranging from blowers and manifolds to special dampers and uprated brakes. These attracted the attention of Fiat engineers and with it began a symbiotic relationship that would flourish over subsequent decades. Not that there weren't a few bumps in the road. Ambrosini had ambitions to be more than just a tuning



Left and below
The Siata is a minimalist car in nearly every respect, from bodywork to engine and interior – but it maximises on being fun to drive.

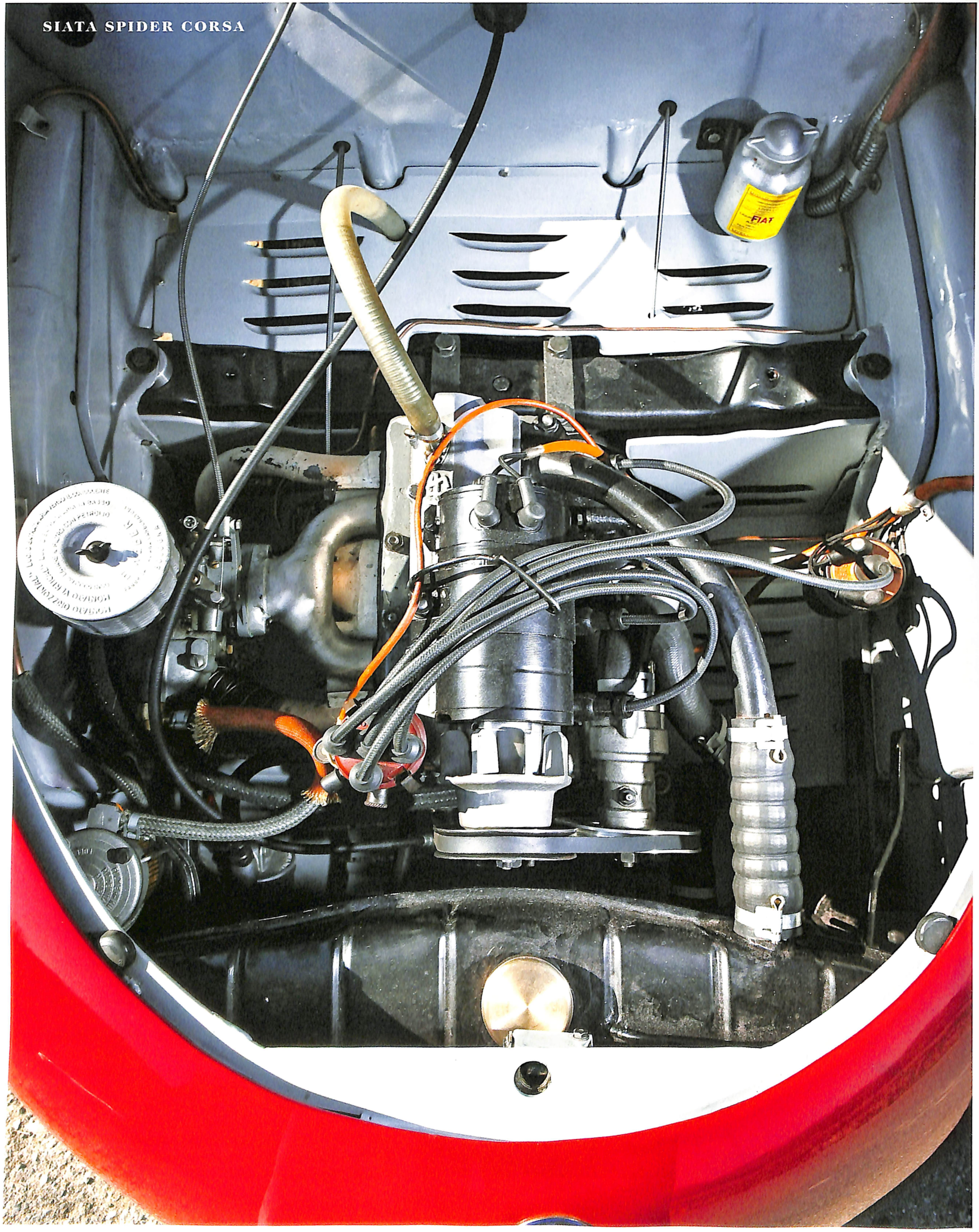


specialist, but was initially barred from opening his own *carrozzeria*. Protectionist laws prohibited new operators from entering industries that were already saturated. There was an overabundance of body shops in Turin but Ambrosini was persistent. He reasoned that, while there were plenty of *carrozzerie*, there were few aircraft manufacturers. So he came up with a cunning ruse: the acronym would henceforth stand for Società Italiana Applicazione Tecniche Aviatorie, with two aircraft being added to the Siata logo. In theory, though not in reality, it was now a player in the aviation industry.

Except this scheme to dodge the entry barriers didn't work. The badge remained, but the company name soon reverted back to its original alias and Ambrosini simply struck up an alliance with Andrea Mantelli's eponymous coachbuilding firm, which may, depending on who you ask, have amounted to a partial takeover.

One of the first stand-alone Siatas (as opposed to tuned Fiats) was the 508-based Berlinetta Aerodinamiche, designed by Roman aristocrat Mario Revelli de Beaumont. The real breakthrough, however, followed the introduction of the Fiat Topolino 500A in 1936. Siata produced a raft of go-quicker bits for the Dante Giacosa-designed *bambina* right up to and including larger-displacement engines with special heads. Siata-equipped Topolinos soon began making their presence felt in the tiddler class in races, rallies and hillclimbs, while also powering assorted recordbreakers.

These conversion kits brought in much-needed *lire* but this was only the start of it. In 1939, Cavalier Rocco, the former head of Fiat's engine division, joined the firm to head the technical department. This led to even closer ties with Fiat, which, by this time, had stretched to the supply of rolling chassis direct from the factory. And thus the 500A-based Amica convertible was born. But then World War Two ended production after only 50 or so had been made.


FIAT

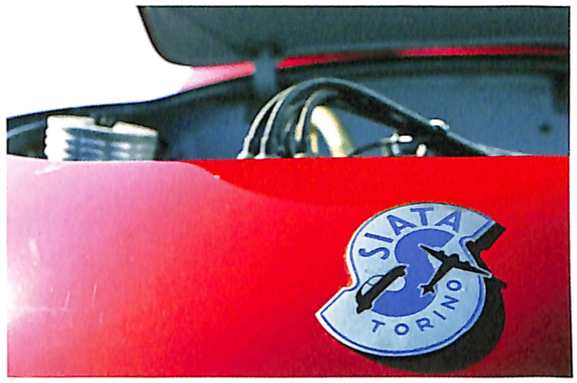
During the conflict, Siata made electric generators and parts for aeroplanes (hence the badge finally made sense). In 1941, Ambrosini and Revelli de Beaumont devised a small Fiat lorry, only for the Via Leonardo da Vinci factory to be razed by Allied bombing. Unbowed, he and engineer Aldo Leoni then conceived a 48cc four-stroke motorcycle engine dubbed Cucciolo (Puppy), which proved a huge hit in the immediate post-war period. The Agnelli family helped pay for a new manufacturing facility in which some 15,000 engines were produced. Ducati subsequently took on licensed production, which in turn helped pay for ever more ambitious motor-sport-orientated Siata projects.

One such was another special four-cylinder engine based on the Topolino 500B unit that, true to form, featured its own bespoke big-valve 'head, trick manifold and suchlike to the point that little more than the basic Fiat block remained. This led to racing cars such as the 750TC, the 750MM Berlinetta, the 750SC (which featured a tubular steel chassis and torsion-bar suspension), and the ambitious 75 Bersagliera, which had an aluminium twin-cam engine mounted behind the driver.

Siatas were hugely competitive in Italy's burgeoning 750cc class of circuit racing during the late '40s, with Ambrosini's son Renato becoming a national champion. The car pictured here, however, was not a catalogue model. It was something else entirely, largely the work of brothers Mario and Domenico Fenocchio of Brescia. Based on a regular Topolino chassis but featuring a full-house 742cc Siata-headed Fiat 'four', the body was created by Carrozzeria Bresciana. Unusually, it was formed from steel save for the bonnet and doors, which were made of aluminium.

Badged as a Siata-Fiat Spider Corsa, it was built to contest the 1948 Mille Miglia, Mario Fenocchio and co-driver Bruno Fachetti having failed to finish a year earlier aboard their tuned Topolino. Well, they failed to go the distance again in their new racer, though a return run in 1949 saw them classified in 175th place. The Fenocchio brothers subsequently turned their attention to fielding Stanguellinis and a Giannini in various events, the Siata being dusted off for the 1955 Mille Miglia; new pairing Giuliano Vielmi and Angelo Loda failed to reach Rome.

Which brings us to today. The Siata has covered only a few kilometres following a three-year restoration, which was initiated by current owner Riccardo Cristina. Photographs really don't do lend it a sense of scale. Even those of average height look like giants when seated behind the cork-rimmed 'wheel. With most cars of its ilk you tend to scrutinise the engineering, reluctant to commit your full weight to the structure, let alone drive it. Not so here. The Spider Corsa feels surprisingly robust, and nowhere near as pinched for space as you might imagine: the steering wheel doesn't rest in your lap and the pedals don't overlap. Instrumentation is sparse, as is to be expected, with the Jaeger revcounter being your main point of focus. It reads to 7000rpm. There's no red line.



Left and far left
The badge suggests an industrial interest in cars and aircraft, though that's not quite the real story; 742cc four-cylinder engine revs to a screaming 7000rpm.

'The tiny engine sounds inconceivably potent given that it's packing *maybe* 40bhp'

The tiny four-banger is vocal at idle, that's for sure. It crackles with energy, sounding inconceivably potent given that it's packing *maybe* 40bhp, though that minuscule power output counts for little as it romps off the line, the gearing being on the short side. The four-speed 'box has synchro (allegedly), but under advisement you double-declutch on up- *and* downshifts. Which is no great hardship, as you soon learn to override your caution.

The Siata is huge fun to drive, though. It pops and fizzes. It feels alive, but never edgy. Sure, you're aware of every zit in the asphalt, but it's a laugh a minute to drive once you have attuned to its foibles, which include steering that, at low speeds, is direct though not particularly communicative.

It may be a footnote in Siata lore, but this car was created at a time when the marque was a serious player. It didn't merely make up the numbers. Siata's star shone brightly during the early-to-mid-1950s, the company name having been changed once again, this time to Società Italiana Auto Trasformazioni Accessori. The Amica name was revived for a new and elegant Topolino 500B-based convertible, while ex-Cisitalia man Rudolf Hruska (who later gave the world the Alfasud) was brought in to engineer subsequent models.

That decade would witness a raft of new Siatas, ranging from variations of the Fiat 1400-based Daina coupé to the MG TD-lookalike Rallye, via a sports-racing car powered by all manner of engines including →

Right and below
The Siata is such a tiny car that even men of average height tower over it – amusing nuns in the process. Must have felt very exposed on the Mille Miglia.

Crossley, Jowett and Singer units in addition to homebrewed 'fours'. Then there were the 208CS Bertlinetta and BS roadster, which married more exotic Fiat *Otto Vu* running gear with achingly pretty outlines envisaged by Giovanni Michelotti.

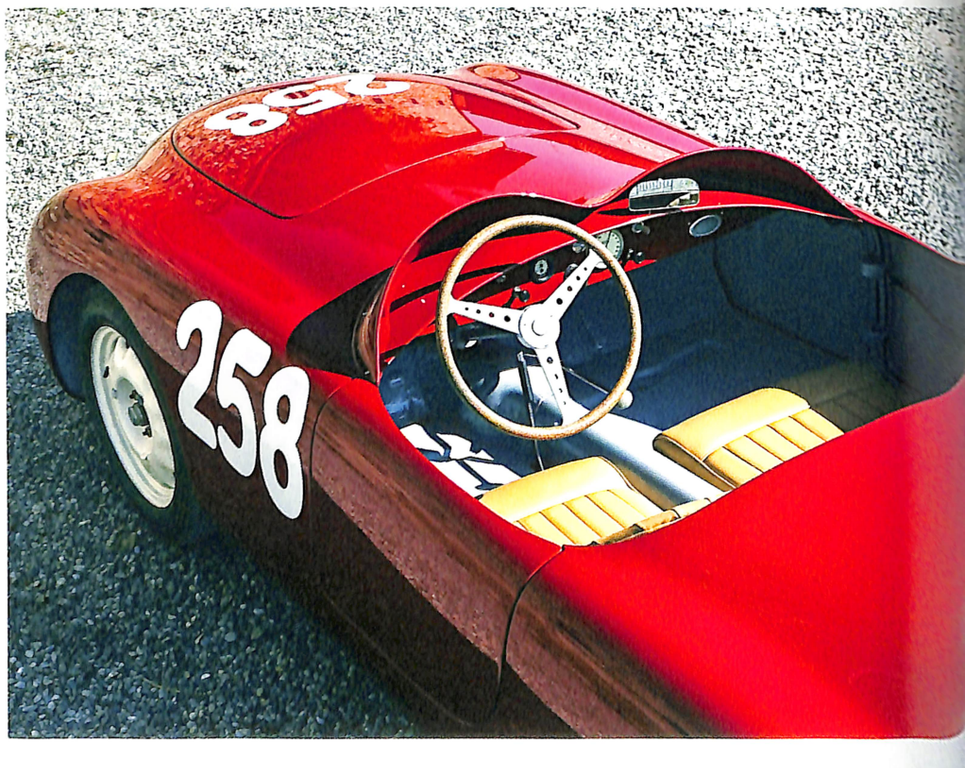
Rather less successful were another truck design and a 400cc microcar that, depending on whose version of history you believe, was nixed by the Agnelli clan out of fear that it might hurt sales of the Fiat 500 Nuova. Attempts to produce it in Argentina and then Czechoslovakia came to nought, as did efforts to bring to market a new 160cc motorcycle engine. The rest of the decade saw the firm produce a range of tuning kits but, by 1959, the company was haemorrhaging. Fiat stepped in and brokered a deal with Carlo Abarth, the two rivals forming a new standalone company – Siata-Abarth – to market a range of 600-based vehicles. Predictably, this shotgun union lasted all of two years.

No matter: Giorgio Ambrosini had also established sister firm Siata Española SA in Tarragona. Various Seat 600-based machines were offered in Spain, while his son reanimated the marque on the homefront via the reminted Siata Auto SpA concern. Michelotti was roped in to style coachbuilt Fiat 1500-based offerings, and tuning kits continued to sell in smaller numbers.

However, salvation appeared to be a mere step away after Siata unveiled the Spring 'neo-classic' in May 1967. Styled in part by future Pininfarina man Enrico Fumia, this unlikely machine married cartoonish 1930s looks with Fiat 850 running gear and proved a surprise hit. Some 6000 or so were made up to 1970. Nevertheless, it didn't return a profit, the company tanking that year. In 1971 a new firm was established to revive manufacture of the Spring in Sardinia. Sadly, ORSA (Officina Realizzazioni Sarde Automobili) never got into its stride, and the Siata adventure was over for good by 1975.

It had been quite a ride. Italian motoring lore is littered with fallen acronyms, but few were ever as sonorous as Siata. Fewer still continue to resonate. This most characterful of marques punched above its weight time and time again, despite the occasional pratfall. And while 'our' car may be one of the less celebrated examples, it added further colour and intrigue to an already expansive legacy. It's bloomin' marvellous. End

THANKS TO Riccardo Cristina and Daniele Turrisi, http://mondancars.jimdo.com.



1948 SIATA-FIAT 750 SPIDER CORSA

ENGINE 742cc four-cylinder, OHV, Weber 20 carburettor
POWER 40bhp @ 4400rpm
TRANSMISSION Four-speed manual, rear-wheel drive
STEERING Worm and sector
SUSPENSION Front: wishbones, transverse semi-elliptic leaf spring, telescopic dampers. Rear: live axle, semi-elliptic leaf springs, telescopic dampers
BRAKES Drums **WEIGHT** 425kg (est)
PERFORMANCE Top speed 80mph (est)

H AND H

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