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Ed Speak

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FIRSTLY I WOULD LIKE TO APOLOGISE FOR THE AMOUNT OF features in Malaysian **evo** November with an SUV or a crossover in it. I honestly tried to spread the amount of features with an SUV over the course of a few months. Well that was the initial idea a few months ago anyway, but as it gradually panned out more and more SUVs and crossovers were rolled out in the intervening months, as though everybody had simultaneously forgotten how to build ordinary cars. Perhaps we are in the thick of the SUV season, and hopefully normal programming will resume soon enough. So if anything that is needlessly propped up high doesn't quite float your boat, I truly apologise that you might not find this issue to your complete liking.

But hey, at least we find out what everyday life is behind the wheel of Lamborghini's new Huracán, which says a lot about the state of cars today when you can live comfortably in a supercar, much less a Lamborghini. Of course supercars didn't need to be as cramped as a Guantanamo Bay interrogation cell, only with fewer creature comforts. Honda proved that with the NSX in 1990, which was reliable, easy to drive, and easy to live with. Some say that its V6 powerplant wasn't glorious enough to qualify it entry into supercar hierarchy, but it didn't matter, supercar makers were scrambling to learn just how you could you make a mid-engine supercar liveable. The NSX's practicality, and ride and handling, certainly caught the eye of the one Gordon Murray who was in the midst of penning what would become his seminal life's work, the McLaren F1. Murray, who was a man well known for lofty engineering standards, immediately replaced his benchmark of the big three (Ferrari, Lamborghini, and Porsche) with the NSX.

Supercars of the post-NSX era aren't all that difficult to live with on a daily basis, with the exception of worrying that someone will jack it in the middle of the night, or scratch it in the middle of the day, but that largely depends on the neighbourhood you left your car parked in. In fact, it is almost as easy to use in your daily commute as say, a Toyota Corolla. And yet people still dismiss a supercar or a sports car as being too impractical, but unless you are a salesperson or someone with a big family, the space of your average car often goes underutilised, as most of the time you use the car to ferry yourself around.

Someone once asked me for my opinion on public transportation, and whether if I fully supported measures to convince people to abandon their cars in favour of taking public transportation. Contrary to the answer many were expecting, I said that I was fully in support of a mass public transportation system that would be able to wean people off their dependence on cars. It sounds as though I might have foolishly shot my own foot off upon firing such a statement, like Gerald Ratner's infamous speech, but there is reason behind my madness.

Most people on the road settle for a car that suits what they need, instead of striving for the car that they have always dreamed of. But once all your daily commute can be settled by taking public transportation without having the need of driving a car, not only will we reduce traffic congestion, and cut our expenditure in fuel and parking, but we won't have to buy cars to meet a need, and can finally go back to buying cars to fulfil a want. This bodes well for the motorist of the 21st century, as supercars and sports cars are becoming so well-engineered that they can be enjoyed on a daily basis. And considering that the huge infrastructure that has been built to meet the demands of a burgeoning motorised population would be left largely deserted, the roads will be there to greet driving enthusiasts when that day comes.



Daniel Wong Editor

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It may have more than 600PS and it may look as outlandish as any other recent Lamborghini, but there are underlying concerns that the Huracán isn't quite as spectacular to drive as its design suggests. Meaden takes one to the North York Moors to decide once and for all, while Prosser spends a week in another, putting it to a longer test by driving it all over England. It's a dirty job, etc.

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SILENCE OF THE LAMBOS

Up close Under the skin of a future star car

This hybrid Lamborghini supercar can summon 910PS – or travel in all-electric silence **Words:** Sam Sheehan



L LAMBORGHINI PULLED the wraps off a stunning plug-in hybrid supercar at the Paris motor show.

Described as 'production-ready' but not yet confirmed for production, the Asterion LPI 910-4 packs a naturally aspirated 5.2-litre V10 and three electric motors for a combined power output of 910PS.

That gives the Asterion enough shove to race to 100kph in just 3sec and on to a top speed of 320kph, placing it just behind the V12 Aventador for outright straight-line pace. And yet, in tests, it can achieve CO2 emissions as low as 98g/km.

The mid-mounted FSI V10 has been borrowed directly from the Huracán – producing the same 610PS and 560Nm of torque – with the remaining grunt coming from the trio of electric motors. The first plays the role of starter motor and generator and

'IN FULL ELECTRIC MODE, THE ASTERION CAN COVER 50KM AND REACH A TOP SPEED OF 125KPH'

sends drive through the same dual-clutch seven-speed gearbox as the engine. The remaining two send drive to the front axle, making the Asterion a hybrid four-wheel drive.

Three driving modes are available: hybrid, thermal and full electric. The former unleashes the full 910PS to all four wheels, the second switches the electric assistance off, and the latter turns off the combustion engine and utilises power from the two motors driving the front axle. What you're left with in this mode is an electric front-wheel-drive Lamborghini. And no, we never thought we'd be saying that either.

In this eco-mode the Asterion can cover 50km without calling the V10 into use, and can even reach a top speed of 125kph. Though that's 25kph less than Porsche's hybrid 918, the Lamborghini will keep on going 18km further before the batteries die.

The Asterion's eco-credentials are also boosted by its light weight. Lamborghini remains tight-lipped on exact numbers, but an all-carbonfibre chassis should mean the added 250kg

of weight from the lithium batteries and electric motors will be largely offset. This helps the Asterion achieve an impressive 4.12L/100km combined, a figure more commonly associated with family saloons than supercars.

Locating the batteries in the car's spine, with the gearbox out back behind the engine, keeps the centre of gravity low and helps to distribute weight more evenly across the car.

Squeezing between the Huracán and Aventador in performance terms, the new model (a third mid-engined two-seater supercar) would fill a very narrow gap in the Lamborghini line-up. But rather than offering a mid-way point between the two other cars, Lamborghini claims the Asterion was created as a more practical daily car.

President and CEO Stephan Winkelmann said: 'The Asterion is a true Lamborghini: emotional and powerful with a stunning design.' But he added that outright performance wasn't a priority here: 'The Asterion was conceived more for comfortable luxury daily cruising than ultimate track performance.'

That luxurious, everyday-high-performance role is reinforced by the styling. Featuring fewer sharply aggressive lines than its stablemates, the Asterion instead exudes an air of grand tourer with a tall tail and long nose. The rear does borrow its thin tail-lights from the not-so-soft Veneno Roadster, however, and those angular headlights are typical Lamborghini.

Though the doors remain shut for now, we can expect a less hard-edged, more GT-themed approach to the interior, too, with plenty of leather, and carbonfibre, titanium and aluminium trim, along with a touchscreen portable tablet to control the car's infotainment systems. There should be more interior space, too, thanks to the car's more upright windscreen and higher roofline.

Lamborghini is yet to confirm production, describing the Asterion as a 'production-ready technology demonstrator'. So it's fingers crossed. With supercar performance, hybrid tech and a less hard-edged character, it's the most intriguing Lambo in years. Turn the page for more...

**Maurizio Reggiani
Head of R&D and design,
Lamborghini**



Interview: David Vivian

LAMBORGHINI'S INTRIGUING teaser for its Paris show-stopper – 'once perfection is achieved, you can just double it' – makes more sense now. The clue is in the name, too. Asterion recalls a minotaur from Greek mythology: part bull, part man. Perhaps the only real surprise, given the plethora of technical possibilities afforded by being part of the Volkswagen Group, is that Lamborghini hasn't made a plug-in hybrid supercar sooner.

We shouldn't ignore the mythical element in the name, though. According to Lamborghini's head of R&D and design, Maurizio Reggiani, the Asterion is purely a technical concept with no green light date. The first production hybrid from Sant'Agata will be the Urus SUV. After that, he shrugs somewhat non-committally, we'll see.

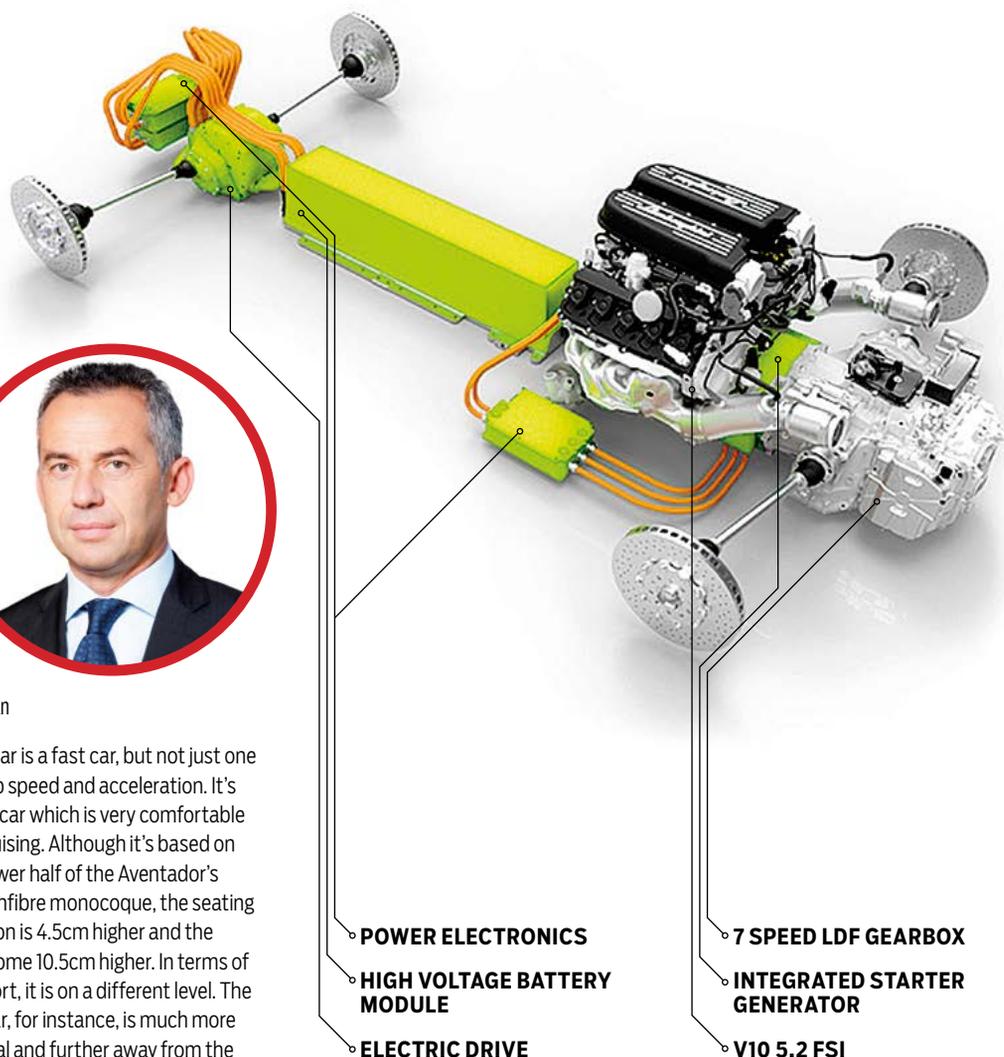
Even so, Reggiani confirms that the Asterion LPI 910-4 (LPI being short for *longitudinale posteriore ibrido*, referring to the longitudinal mid-mounted engine and hybrid tech) could be made tomorrow. It wouldn't be an obvious rival for the Porsche 918 Spyder, McLaren P1 and LaFerrari, but rather a superfast 'cruiser' with hypercar stats: chiefly that 910PS. The headline performance claims – 320kph and 0-100kph in 3sec – are equally stunning. And yet, were it to be made, the suggestion is that the price would be well within the mainstream production Lamborghini envelope.

'The project started approximately two years ago with prototype driving during the last year,' says Reggiani.

'This car is a fast car, but not just one for top speed and acceleration. It's also a car which is very comfortable for cruising. Although it's based on the lower half of the Aventador's carbonfibre monocoque, the seating position is 4.5cm higher and the roof some 10.5cm higher. In terms of comfort, it is on a different level. The A-pillar, for instance, is much more vertical and further away from the driver's head. It's still a pure two-seater but the luggage capacity is bigger than the Aventador's.'

The two lithium-ion batteries and three electric motors weigh 250kg, an additional load partly offset by the Asterion's carbon construction. 'We have not tried to reduce the weight more at this stage,' explains Reggiani. 'It's a car for cruising and not meant to be the fastest on the racetrack. We want a car that's very driveable. We also want to have a car with state-of-the-art technology. Everything is done in-house, everything is out of the Aventador or the Huracán, and the only thing which is not part of Lamborghini are the batteries.'

As for the design, Reggiani is happy to acknowledge that the Asterion pays some homage to classics of the past while looking to the future. 'Lamborghini started with cars like the 400, the Miura, the Espada. There are some influences apparent in the shape of the Asterion, but it's a complete new car. A completely new design. It's a shape that, for us, represents driving performance and passion but with attention to the environment.' ❌



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'WERE IT TO BE MADE, THE SUGGESTION IS THAT THE PRICE WOULD BE WELL WITHIN THE MAINSTREAM PRODUCTION LAMBORGHINI ENVELOPE'





Twin-turbo C63 is quickest C-class yet

510PS option enables new AMG saloon to hit 100kph in just 4.0sec

Words: Anthony Ingram

T HIS ISN'T THE new Mercedes-Benz C63 AMG. Instead, it's the Mercedes-AMG C63, named to better align the new V8-engined saloon and estate with the Mercedes-AMG GT coupe.

The other major change is that the C63 finally cedes natural aspiration to turbocharging. A pair of turbos nestle in the V of the new 3982cc M177 V8, which is both smaller and lighter than the old 6.2. Predictably, it's also

more efficient – by 32 per cent – and outpunches the old engine too.

The C63 now produces 476PS between 5500 and 6250rpm and 650Nm of torque in a 1750-4500rpm plateau. In the higher-output C63 S, those numbers climb to 510PS (3PS more than the outgoing Edition 507 range-topper) and 700Nm.

All this is sent to the rear wheels via a revised version of AMG's Speedshift MCT seven-speed automatic (now with quicker shifts) and a locking diff

– mechanical in the C63, electronic in the C63 S. The S also rolls on wider rubber to cope with the extra grunt.

Mercedes says it's the quickest AMG-fettled C-class yet – 62mph arrives in 4.1 seconds (one tenth quicker than the Edition 507), while the C63 S is a tenth quicker still. Estate versions of each are a tenth slower than their respective four-door counterparts, and all max out at a limited 250kph.

Dynamic engine mounts isolate

vibration in normal driving by remaining soft, then firm up when greater agility is required. There's a wider track front and rear and wider arches, along with an AMG grille, a deeper front airdam and AMG 'power domes' on the bonnet. Inside, deeper, contoured seats replace the usual pews and there's an AMG steering wheel with AMG dials behind.

The car remains unpriced as yet, but orders open this month and deliveries are expected to begin in spring 2015. ❧



'Speciale A' is open for business

Hottest Ferrari 458 gains retractable hard-top for new limited-edition version Words: Anthony Ingram



FERRARI WILL BUILD just 499 examples of its latest model, the 458 Speciale A. That's A for Aperta, Italian for 'open'. The Maranello firm expects every one to go to its dedicated 'collectors' – those who've previously owned Scuderias and Challenge Stradales.

The car is a celebration of the 'dazzling success' of the 458 line and its numerous on- and off-track awards, including two championship victories in the World Endurance Championship and class wins in prestigious races such as the 24 Hours of Le Mans, the 24 Hours of Daytona and the 12 Hours of Sebring.

The A shares its engine – a 605PS, 540Nm naturally aspirated V8 – with its fixed-roof Speciale counterpart. With power sent through the same seven-speed dual-clutch transmission, 100kph arrives in an unchanged three seconds dead.

The lightweight aluminium retractable hard-top results in a weight penalty of just 50kg over the

coupe, and a wait of only 14 seconds to expose occupants to the V8's wail. The only thing louder than the engine is the paint scheme chosen for the model's Paris motor show debut. As pictured here, it drapes a Blu Nart and Bianco Avus stripe over bright yellow paintwork. Grigio Corsa-coloured five-spoke forged wheels complete

'100KPH ARRIVES IN AN UNCHANGED THREE SECONDS DEAD'

the look, though it's fair to say owners will be able to select their own unique colour combinations.

Inside, Alcantara seats with contrast stitching and a '3D technical fabric' join a striking blue carbonfibre dashboard finish. Again, interior shades will likely vary with owner discretion. Pricing hasn't yet been announced. ❧



NEW MX-5

First look Inside story on fourth-generation roadster

Lighter, lower, leaner, with 50:50 weight distribution and a renewed focus on driving enjoyment, the Mk4 MX-5 promises to recapture the magic of the original **Words:** Sam Sheehan



T'HE BIGGEST challenge? Designing a car with such an iconic reputation, one that's been upheld for 25 years. I would say that made the job a lot harder.'

Kevin Rice knows a thing or two about designing cars that carry high expectations. Having recently worked on the 3- and 4-series during a long stint at BMW, the 50-year-old Brit has returned to his old stomping ground at Mazda Europe as design director.

Turns out he's joined at a pretty important time for the company, too, with the Japanese carmaker recently unveiling the next-gen version of the world's best-selling sports car. And although Rice himself joined too recently to have had a major influence on MX-5 Mk4, he is acutely aware of the challenges its designers faced.

Almost a million units have been sold over three generations, so expectations are incredibly high. 'The whole team was aware of the heritage that surrounds the name,' says Rice. 'Even at the late stage I joined, pressure was high. But all that pressure made seeing the finished product all the more rewarding.'

That finished product is quite different from the car it replaces. For starters, it's comparatively tiny. In fact it's the shortest MX-5 ever built – 105mm shorter overall than

its predecessor, though just 15mm of that has come from the wheelbase. Overhangs are therefore minimal, whilst the track is 10mm wider and the height 20mm lower. All this makes for a car that squats purposefully on its relatively small 16in wheels.

'The one thing that the design really had to bring across is the car's focus on being lightweight, affordable and fun,' says Rice. 'Focusing on our philosophy for *Jinba Ittai* [rough translation: car and driver as one], we believe we've found the perfect solution for driving fun.'

Tipping the scales at just over a ton, the Mk4 is 100kg lighter than the Mk3. Along with its smaller proportions, the use of aluminium for the bonnet, bootlid, wings and bumper supports has reduced weight at both ends of the car. Unsprung mass is reduced with the smaller wheels, while the main mechanical masses – the engine and gearbox – have been pulled closer to the car's centre, reducing yaw inertia and lowering the centre of gravity.

This has resulted in a perfect 50:50 front-rear weight distribution, which should give the front-mid-engined, rear-wheel-drive roadster ideal balance on the road. Combined with its skinny weight and double-wishbone front and multi-link rear suspension, the new car may just be the most agile MX-5 yet, though the introduction of electric steering won't be universally welcomed.



'The one thing that the design really had to bring across is the car's focus on being lightweight, affordable and fun'

– Kevin Rice

As for the engines that will be nestling up against the bulkhead, it seems Mazda rejected the option of turbocharged power and has chosen to stick with naturally aspirated units. A choice of 1.5-litre and 2-litre SkyActiv-G engines, producing no less than 130 and 165PS respectively, looks likely.

With clever cam timing tech and high compression ratios, these SkyActiv units are strong at low revs and rev-happy up top, which bodes well for the MX-5. With the Mk4's lower weight, performance should be usefully enhanced, as should economy and emissions.

As standard the MX-5 will be equipped with a manual six-speed gearbox but an optional six-speed auto with steering-wheel paddles is expected. There have been rumours of diesel engines, but due to their extra weight they seem unlikely.

At launch there will only be a soft-top model, but it's understood that a folding metal-roofed coupe will join the line-up: the hard-top currently accounts for 80 per cent of UK sales.

Detailed specifications were due to be released at the Paris motor show (October 4-19). As we went to press, prices for the new roadster were expected to start just above £20,000 – similar to the outgoing model. The first customer cars should arrive in the second quarter of 2015, happily just in time for summer.



Left and right: lines are much sharper than any previous MX-5; LED lights allowed designers more freedom; 16in wheels reduce unsprung weight





XE TECH LAID BARE

Aluminium construction, super-efficient engines, class-leading electronic systems... We look under the skin of Jaguar's 3-series rival **Words:** David Vivian

PUT STYLING, IMAGE and 'Jaguarness' to one side. If there's one area where the XE must at least

match the steely bravura of its German rivals, it's in technical reach. Arguably the toughest call of all, Jaguar reckons it has done just that and, in a few crucial areas, placed the XE ahead of the game.

Extensive use of aluminium in its platform, bodysell, suspension and component complement is cited as one obvious advantage. The XE is the first model developed from Jaguar Land Rover's new modular vehicle architecture and lays claim to being the lightest, stiffest and most aerodynamic saloon Jaguar has ever built. A drag coefficient of 0.26 beats even the F-type coupe's and, with the XE being some 20 per cent more rigid than the larger XF saloon, Jaguar's engineers have been gifted the scope to achieve what they believe is the best ride/handling

'It's the lightest, stiffest and most aerodynamic Jaguar saloon ever'

balance in the class by essentially mating the super-stiff platform with suspension solutions from the class size above. Eschewing the MacPherson struts used by many of its rivals, the XE has double wishbones at the front and a sophisticated 'integral link' rear set-up that claims to offer better lateral and longitudinal stiffness than conventional multi-link arrangements.

The XE is also the first Jaguar to be equipped with electric power steering, a decision based not solely on lower energy consumption but the opportunity to link it into the chassis loop with settings that can be tweaked according to the Jaguar Driver Control's Dynamic, Normal, Eco and Winter modes. Somewhat more old-school,

but welcome nonetheless, is an all-new six-speed manual gearbox to be offered alongside a revised version of the eight-speed ZF auto used in other Jaguars.

Four-wheel-drive models are slated for 2016, but rear-drivers get All Surface Programme Control, a development of Land Rover's Terrain Response, which takes control of engine output, braking and the differential to deliver optimum traction on slippery surfaces without the need for winter rubber.

More new tech is ushered in with the first outing for Jaguar's modular Ingenium engine family. The headline-grabber, and likely to be the XE's most popular power unit, is the 163PS 2-litre diesel. Claimed to have 17 per cent less internal friction than Jaguar's current

2.2-litre oil burner, it emits just 99g/km of CO₂ and has a combined figure of 3.8L/100km – impressive indeed for a motor that develops 380Nm of torque from just 1750rpm. Jaguar says that instead of the normal diesel clatter, the Ingenium engine sounds more typical of the brand, with a 'mellow growl' at low revs, changing to an 'edgy growl' when you put your foot down.

A more powerful version of the same diesel and two petrol 2-litre Ingenium engines with different outputs are also lined up. Topping the range is the XE S, powered by the 340PS 3-litre supercharged V6 from the F-type and capable of 0-100kph in 5.1sec.

Safety tech includes a forward-facing camera for traffic sign recognition, lane departure warning, blind spot monitoring, self-parking and adaptive cruise control. The head-up display steals a march on rival systems by using lasers to project a crisper line-of-sight image than the more usual LED set-ups.

Connectivity is a sector must-have, too. The XE uses an eight-inch touchscreen to control most functions, while Jaguar InControl apps for Apple or Android phones allow access to internet radio, traffic information, news and navigation. InControl can also be used to pre-heat or cool the car and unlock or lock the doors. It will even alert the driver and a call centre if the car is stolen. Options include on-board Wi-Fi that can connect to up to eight devices.



News in brief



Renaultsport R.S. 01 racing car revealed

Renaultsport pulled the covers off its new R.S. 01 racer at the Moscow motor show. The car gets a new carbonfibre monocoque from Dallara and a mid-mounted 3.8-litre twin-turbo V6 engine borrowed from the Nissan GT-R. Buy one and you can take part in a one-make race series next year supporting World Series by Renault.



Max Verstappen to set F1 age record

At 17 years of age, Max Verstappen will become F1's youngest-ever driver at the Australian Grand Prix next March. The Dutchman's inclusion in Toro Rosso's 2015 line-up comes after graduating from the Red Bull Junior Team programme. He will replace Jean-Eric Vergne and join Daniil Kvyat in the Italian team.



SEAT Leon Cupra 'Sub8' package

The SEAT Leon Cupra 280 was the first front-drive car to record a lap time under 8 minutes at the Nürburgring. Now SEAT is offering a 'Sub8 Performance Package' that mimics the record-setting car with bigger brakes, specially designed wheels (in orange or black) and new side skirts, all for £2025.



'Sport' model joins Discovery range

WELCOME TO THE future of Land Rover's Discovery Range. No longer confined to just a single model, this smaller and more stylish Discovery Sport will slot in below the full-fat model in much the same way as the Range Rover Sport does for its flagship larger brother.

If you think it looks familiar, that's because it was heavily previewed by the Discovery Vision concept car at the New York motor show back in April. Okay, it might have lost a few of the more outlandish features, such as the rear suicide doors, but the overall design has remained true to the concept. The stepped roof – a Discovery trademark – has made it through, as well as the

recognisable reverse-rake C-pillar.

At launch there will be a single engine option – the 190PS 2.2-litre SD4 diesel. This can be had with either a six-speed manual or a nine-speed ZF automatic gearbox. Initially, only four-wheel drive will be offered. However, Land Rover says that later in 2015 a front-drive option will be available, as well as a more economical eD4 engine.

A new multi-link rear suspension set-up plays a major part in the new model's clever packaging. Not only is it said to bring much improved on-road stability and class-leading axle articulation for off-roading, but it also means much less intrusion into the cabin. With a 'five plus two' seating arrangement, there's still space for seven occupants, although the rearward-facing

Smaller, more stylish Disco arrives next year with 190PS diesel

Words: Matthew Hayward

seats are best suited to small children.

With Jaguar Land Rover so committed to the widespread use of aluminium throughout its ranges, the Sport naturally contains a high proportion of the lightweight material. The bodysheet is largely aluminium, strengthened with high-tensile steel in key areas, while many of the suspension components are also alloy, reducing unsprung weight.

There's a high level of standard equipment and technology, too. Being a Land Rover, the car's primary function is still to do all-terrain driving better than anything else, and with Hill Descent Control, Gradient Release Control and Roll Stability Control – amongst others – it has a massive arsenal of systems to keep you safe. The inside is very much in keeping with the Range Rover Sport, although the Discovery retains a set of conventional dials rather than computer generated ones, although there is a large, eight-inch screen in the centre of the dash.

With a starting price of £32,395, the Discovery Sport will go on sale next January – alongside the current regular Discovery – with top-spec HSE Lux models topping out at £42,995.



The 750PS hybrid DB9

Developed by Bosch, this tech showcase is more powerful, more agile and more economical than the standard Aston it is based upon. We take a closer look

Words: Michael Whiteley



HYBRID CARS ARE finally getting recognised as something more than just an eco-warrior's choice of transport. With the recent release of a trio of hybrid hypercars (PI, 918 and LaFerrari), not to mention BMW's futuristic i8 sports coupe, we are starting to see how electric drivetrains can enhance the driving experience for people like us, rather than just satisfy emissions regulations.

Another example of this new breed of hybrid was presented by Bosch Engineering around a year ago, with its take on what can be achieved through adopting hybrid powertrains. We recently came across this car again and were shocked at how it hasn't had the exposure it deserves.

Bosch's brainboxes adapted an Aston Martin DB9 with electric motors and advanced control systems to vastly

improve not only the car's emissions, but also its performance.

So what's so good about it?

Powertrain layout

The Bosch DB9 uses the existing layout of a V12 engine at the front, sending power to the rear wheels. However, an 85kW electric motor has been added to each front wheel, providing a total power output of around 750PS, up from the standard DB9's 517PS. There is also a third motor connected to the engine that acts as a generator to charge the car's batteries.

Torque vectoring

We have recently taken a look into torque vectoring (*evo* 114), where either individual brake or electric motor intervention is used to sharpen the handling characteristics of a car. The Bosch DB9 combines both methods,

'Hybrid Race mode uses track data to optimise the electric boost strategy to reduce lap times'

with front electric motor modulation and rear brake intervention influencing the yaw movement of the car during cornering. Despite the 280kg weight penalty the hybrid powertrain incurs, this sophisticated torque vectoring system improves lateral acceleration (outright corner speed) by 21 per cent over the standard car.

Hybrid control

Bosch developed its own control system and even a TFT display for its DB9. Operating modes are comparable to those of other hybrids. However, Hybrid Race mode is all new. It is for

track use only and uses circuit data to optimise the electric boost strategy to reduce lap times.

Another development was to introduce a force-feedback accelerator pedal, which can send pulses through the pedal to tell the driver pertinent information, such as when electric output is at full capacity.

BOSCH ENGINEERING IS certainly pushing the boundaries with hybrid powertrains, with this showcase project proving so. We're eagerly awaiting our invitation to drive it, because on paper at least, this thing is special.

Aston revives Lagonda

Carbon-bodied luxury saloon gets 560PS V12 – but sales restricted to the Middle East



AFTER AN ABSENCE of a quarter of a century, the Lagonda badge is set to return to the nose of an Aston Martin. The new ultra-luxury saloon uses the 560PS 5.9-litre V12 from the Rapide S and Aston's highly rated new eight-speed automatic gearbox, but it will be sold exclusively to the Middle Eastern market.

With all carbonfibre bodywork, the

car weighs in at around two tons – a skinny figure considering its scale and the luxurious interior. Rear legroom looks generous (something that can't be said of the Rapide) and passengers even have a fridge-freezer to store all that carbonated rose water in – this is a car for the Middle East after all.

Speaking to *evo*, Aston design director Marek Reichman said: 'This car has really taken its spiritual roots from

the original William Towns-designed car [launched in 1976], although it's in no way a retrospective piece of design. The car is very low to the ground, very long and very elegant. It has a very distinctive face too. It's just jaw-dropping.'

Will that distinctive face point towards a new design direction for Aston Martin? Not necessarily. Reichman explained that the Lagonda design could develop independently:

'At the moment this is a special project to produce this one car. It is a Lagonda that has a teaspoon of Aston Martin in there. But Lagonda also has its own image; it is its own marque. Though it's part of Aston Martin, it will continue to develop in its own way.'

Prices remain unconfirmed, but around 100 cars are expected to be produced, with deliveries looking set to commence in the first quarter of 2015.

Efficiency = Performance

FROM F1 TO ROAD CAR

...and vice versa. How closely related is the fuel-saving tech of 2014's Formula 1 cars to that of the latest road-going performance cars? We find out

Words: Michael Whiteley, research scientist

T HIS YEAR'S F1 championship has been dominated by Mercedes AMG Petronas. The Silver Arrows have superior performance to their competitors, and mixed with the driving skills of Rosberg and Hamilton, the trophy cabinet at Brackley may soon need an extension. To find out more about the latest technology in Formula 1, and how it compares to what we're seeing in road cars, *evo* was invited for a unique look into the research and development at Mercedes F1.

The visit to Brackley started with Paddy Lowe, executive director (technical), setting the theme of the day: 'Efficiency = Performance'. The 2014 F1 regulations brought significant changes in the way the cars can operate, with fuel efficiency being one of the biggest. In previous years there were no fuel limits, and in 2013 Mercedes used approximately 155kg of fuel per race with the V8 engine. This year the limit is 100kg of fuel, and Mercedes sticks to this limit with similar power outputs to the cars of last year. This is achieved through advances in efficiency within the High Performance Powertrains (HPP) team in areas such as tribology, boosting, hybrid powertrains and aerodynamics.

TRIBOLOGY

Tribology is the science of friction in mechanical engineering, and Mercedes' F1 team has a specific research group to help reduce friction in the engine. Dr Paul Crofts, head of materials engineering at HPP, told us how his

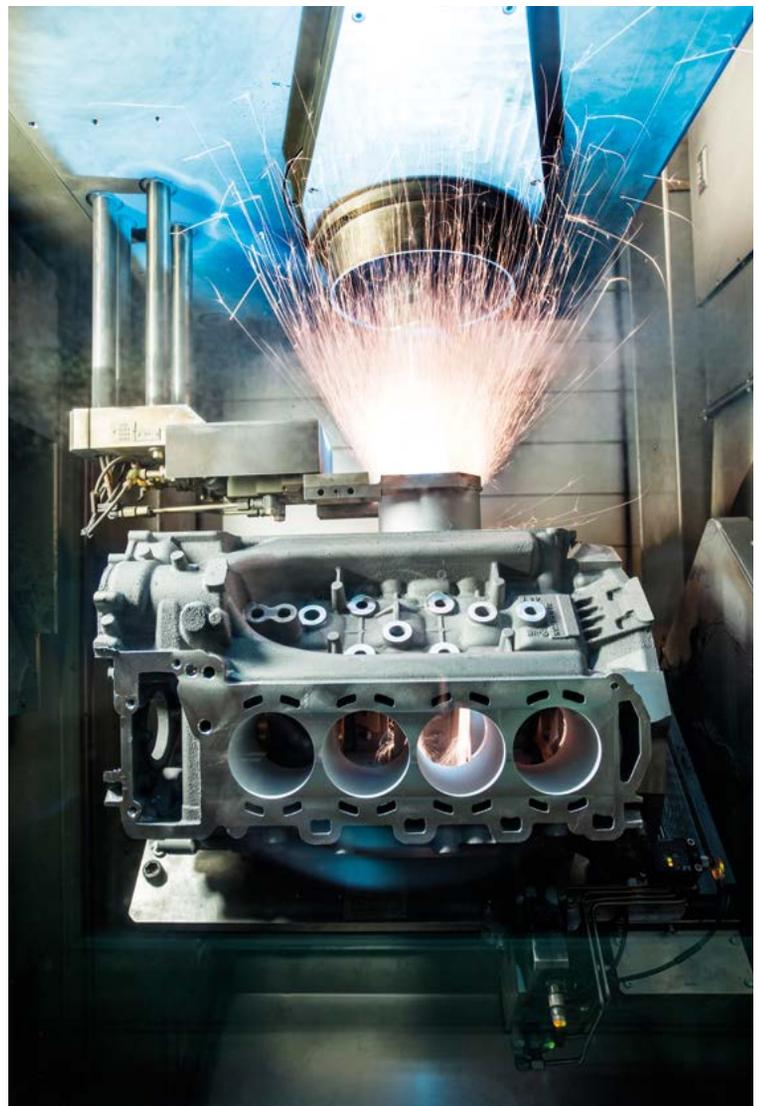
work with cylinder bore linings reduced the friction in the new V6 to 15 per cent from the 18 per cent figure experienced in the V8. This may not sound like a big deal, but less friction from the engine components means more of the energy in the fuel can be used to produce torque, which means better lap times. It's achieved using Mercedes' patented 'Nanoslide' technology, which was first developed for road cars. The heavy, iron cylinder-bore liners of a conventional engine block (pictured) can be removed and coated in a lightweight metal that reduces piston-to-bore friction. The technology is directly shared between the F1 and road car teams; the road car blocks and F1 blocks are even coated on the same production line.

BOOSTING

To increase the power outputs of the lower-capacity V6s of 2014, Mercedes AMG adopted a large turbo to increase air flow into the engine. There's a clear parallel with road cars here, of course, where downsized engines with a turbocharger (or two) have become increasingly common. Indeed, Mercedes recently announced that its SLS replacement, the AMG GT, will have a smaller engine – down from 6.2 litres to 4.0 (albeit still a V8) – with twin turbos, rather than being naturally aspirated.

HYBRID POWERTRAINS

Also helping make the power output of this year's F1 cars similar to the units of 2013 is the hybrid system. The synergy between F1 and road car technology here is obvious when considering the



forthcoming S500 Plug-In Hybrid. Last year's F1 cars ran V8s, as does the existing S500. The new F1 engine loses two pistons, is turbocharged and features a substantial hybrid element – just like the hybrid S500.

The S500 hybrid outputs 442PS and 650Nm of torque – figures close to the old S500, but with a 3-litre V6 as the car's largest source of power.

Uwe Keller, technical project manager for hybrid powertrains, explained that the next step for hybrid powertrains in Mercedes road cars is to develop wireless charging. Testing of the 'unplugged' technology is imminent, with 90 per cent efficiency promised.

AERODYNAMICS

Although aero is massively important for both F1 and road cars, it is important for opposing reasons. F1 cars need downforce to increase grip, whereas road cars need a low co-efficient of drag (Cd) to increase efficiency. Mercedes F1 is limited in scale and hours of operation for its wind-tunnel testing. However, a full-scale wind tunnel with a road belt is

available at all times for the road team. Wind tunnel runs and computational fluid dynamics are invaluable to achieving superior performance, and the Mercedes CLA's award for the world's lowest Cd on a production car is testament to the work that the engineers do.

SO THE DRIVE for efficiency in cars is no longer restricted to production models. Mercedes AMG Petronas has shown that hybrid technology is no longer just for the anorak devoid of a passion for speed. The W05 chassis has demonstrated that battery hybrids can be staggeringly fast on track, and Mercedes' latest forays into road-car hybrid (S500 Plug-In Hybrid) and fully electric (SLS Electric Drive) drivetrains will allow the public to sample similar tech with a performance bias.

Hopefully the technology exchange will continue – and who knows where it will lead next? We may start to see energy harvesting from turbo units, and even suspension travel, in the not too distant future. ☒

Outside Line

by RICHARD MEADEN



Meaden discovers the similarities between four wheels and two as he ventures back into the burgeoning world of cycling

WHEN I WAS A KID, I WAS OBSESSED with car specifications. Every week I'd take the latest copy of *Motor* (never *Autocar*, for some reason) and laboriously copy down the spec from the latest group test into a dog-eared old ledger.

Why I felt compelled to do this I have no idea, especially as the data was already there before me on a printed page. Looking back, I think the act of writing this information down was evidence of me committing it to memory: a hand-penned, pre-computer back-up of my organic hard drive. I must have been a weird kid.

I don't recall doing it for very long. Well, I say that, but it was probably a year or so. Let's call it the Rain Man era. Then I discovered *Car* magazine, with its exotic supercar adventures and altogether more engaging Giant Tests, from which point I decided my fledgling obsession with four wheels was all about the driving, not the numbers.

Magazines allowed me to live a vicarious life on four wheels, but it was a bicycle that provided me a means of transport through childhood and into adolescence. The feeling of freedom was special, but it was ready access to speed that proved addictive. My first bike was a bitsa, built by my dad from what he could find. Single-speed with a red hand-painted frame, it was the best thing I'd ever seen. I loved it, tearing around the housing estate with my mates and invariably winning the 'who could do the longest skid' competition. I can still see that poor abused rear tyre now, all frayed flat spots and prolapsed inner tube, and can even pull the same naively quizzical 'how did that happen?' face I used on my long-suffering dad. It's a skill I deploy to this day, mostly when handing back press cars.

The home-built red machine was followed by Raleigh Grifter – Mk1, pale metallic blue – which looked proper and had three gears(!), but was built around a frame hewn from something akin to depleted uranium, only heavier. From here I progressed to a Peugeot racer, on which I'd ride to college, head down, legs pumping and always five minutes late before I'd even left home. The speed was still a buzz, at least on reckless downhill runs, but by now the bike had become a means to an end rather than a route to pleasure: a painful reminder that my first car wasn't quite in reach. And then, 17 long years in the waiting but almost before I knew it, I was a driver. Immediately the bike began to gather dust in my parents' garage, literally never to be ridden again.

Twenty-five years later, having driven and raced more cars than I can count, I'm once again feeling that familiar fizz of excitement, only this time it's about bikes. There's a neat

symmetry to this, but at a much deeper level there's something refreshing and liberating to be a middle-aged bloke exploring a world I know little or nothing about. I've not started writing bicycle specifications into a scruffy ledger, but I am deriving a naive joy from discovering just how much there is to learn. Do I want a road bike? Or a mountain bike, downhill mountain bike, cyclocross or something in between? Should I go for Shimano Ultegra or SRAM Force gears? And what are the different ride characteristics of steel, alloy, titanium and carbon frames? At the moment, ignorance really is bliss.

As a born-again cyclist I'm far from alone, as the huge growth in the popularity of cycling in the UK attests. And while the wider media relishes the increasing friction between

'It's liberating to be a middle-aged bloke exploring a world I know little or nothing about'

the general populous of motorists and cyclists, if I've learnt anything so far it's that the centre of this huge and sometimes volatile group is a nucleus of kindred spirits with a genuine appreciation and often a shared experience that crosses the two/four-wheel divide.

An early and famous example of this is Chris Boardman's remarkable Lotus Type 108 carbon monocoque bike, on which he won Olympic gold in 1992. At a more geeky level, you might be interested to know that Jon Whyte, a former engineer at Benetton during the Schumacher years, is credited with being the father of the full-suspension MTB. Sir Chris Hoy – now racing a Nissan GT-R Nismo in British GTs and with his sights on Le Mans – was an *evo* reader long before his Olympic gold rush. Robert Egger, creative director for Specialized, has two motocross courses in the grounds of his home, a Shelby Daytona project build in his garage and a picture of a Porsche Carrera GT pinned to his workshop wall for inspiration. Perhaps most impressively, Fernando Alonso has advanced plans to form his own top-level pro cycling team.

There will always be an individual driver or cyclist who lets the side down, but personally I'm loving the fact that whether petrolhead or pedalhead, when it comes to indulging a passion for immaculately conceived, brilliantly designed, perfectly engineered machines, not to mention finding fun in going fast, we're all hooked on the same high. ☒

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Petrolhead

by RICHARD PORTER



In the 150th edition of his column, *Top Gear's* script editor celebrates an unlikely British motoring hero

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THE OFFICE TELLS ME THIS WILL BE MY 150th column for *evo*. As a result I thought I should make it somehow reflective and important. But that was before I saw the Montego estate.

We were in Kent, filming for *The Programme That Used To Be About Cars* in one of those spooky fake towns the army uses for training. To make the place look better on camera we'd ordered a lorry-load of scrappers from a local yard, most of which didn't look like scrap at all. First-gen Focuses, old-shape Lagunas and sundry Vauxhalls, they all appeared in perfectly decent nick. Clearly, however, they weren't because none of these clunkers would start. Except for one.

The Montego wasn't pretty. One of the front lights was smashed. There was evidence of some inept repair and touch-up work on the sills and arches. The interior smelled a bit. But it ran. In fact, it ran well. And on that basis, my colleague tasked with preparing the place for filming commandeered the Montego as his site runabout.

As a keen student of old British tat, I was all over the creaky Monty as soon as I arrived. Also, the site was quite big and I was too lazy to walk anywhere. I won't bore you with what a surprising joy the old knacker was to drive, from the slickness of its gearchange to the old-fashioned lustiness and response of its old-school O-series engine, because what I really liked about it was the sense that it had lived a life. And it's nice when things have a tangible sense of back story.

A few years ago I bought an old Omega watch which came with what the watch trade calls 'papers'. What they mean is paperwork, in this case the original guarantee booklet, signed and dated by the shop that sold it. And this told me that on December 24, 1973 someone went into an official dealer in Belgium and bought this Speedmaster. I imagined some chap, let's call him Denis van der Goot, deciding to give himself a little pre-Christmas treat. But why? What was wrong with poor Denis that he needed a pick-me-up during the festive season? Oh, Denis, were you OK? Maybe he was. Maybe it was actually Mrs van der Goot who bought the watch on Christmas Eve. 'You know my Denis,' she'd said to a friend (in Flemish). 'He's so hard to buy for.' At the last minute she decided to spend the money on that watch he likes. Imagine the joy in the van der Goot household on Christmas morning when Denis discovered what a generous gift his beloved wife had bestowed on him. And how he regretted getting her gloves. There was a slight frostiness over Christmas dinner because of this, but Denis cheered himself by looking at his new Omega and thinking... Sorry, I'm digressing.

Anyway, as I ragged the shagged Montego around a weird

fake town I tried to piece together its own rich history. For one thing, it was an L-reg, late in the model's life, around the time BMW turned up at Rover and was staggered to find it was still in production. Better yet, this car was a 2-litre petrol. By the mid-'90s most people wanted diesels, so this car would have been a special order, which in turn suggests a private sale. The fact that the number plate ended MON says that too. You can just imagine the first buyer politely asking the dealer if they could make a specific request for the plate. 'Yeah, whatever,' the dealer would reply, wondering why some nutter still wanted a Montego estate when he could have one of the Rover 400s round the back.

Finally, the day would come when the car arrived. Curtains

'I thought maybe I could keep it for myself. Then I realised that would mean I owned a Montego'

would twitch on Primrose Close. 'I see Nigel at number 14 has got a new car,' someone would say. 'British Racing Green, is that?' asked Clive from number 17. 'Very racy, Nigel, very racy.' And every Sunday Nigel would wash it. And every time he loaded something in the boot he would smile inwardly at the practicality. And sometimes when his wife Jean wasn't in the car he'd use a few more revs and almost hit 77mph on the bypass.

The paperwork in the passenger footwell told me that the first owner had the car serviced scrupulously at a main agent, but it seemed subsequent owners had been less caring. Maybe it was the second one who put on some cheap wheel trims, perhaps it was the third who botched that rust repair. And now here was this once-loved old bus being hammered about an army base by idiots before being sent back to the scrapyards.

I decided it deserved better. We confected a scheme to save the dear old thing and keep it as the official *Top Gear* crew car down at our studio. If our production manager wouldn't go for that, I thought maybe I could keep it for myself. Then I realised that would mean I owned a Montego. So the poor old thing was taken away with all the other scrappers, and by now a cubing machine has almost certainly made it look even less attractive. I'm rather sad about that. But at least I'm certain that it lived quite a life.

So there we go. That was my 150th column for *evo*. And it was about a Montego. I'm amazed I wasn't sacked years ago. ❏

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Champ

by DARIO FRANCHITTI



With the relationship between Nico Rosberg and Lewis Hamilton in the spotlight, Dario recalls the bonds he shared with his team-mates

THE OFT-REPEATED GOLDEN RULE OF racing is 'don't take your team-mate off', but actually, as a driver there are two golden rules. The other one is 'beat your team-mate'. This is tricky and in the light of Nico Rosberg's recent coming together with Lewis Hamilton at Les Combes at Spa, it's very easy to see how much of a dilemma this can present and how fine a line it can be to tread.

Team-mates have a very interesting relationship. You're racing in the same colours and you work for the same employer but it's not a traditional team relationship like players within Manchester United. I've been extremely lucky because I've always had quick team-mates and good team-mates, but I've always had great relationships with them off the track. My first team-mate was David Cuff, who was about five years older than me. We fought tooth and nail all season, and I eventually won the Formula Vauxhall Junior championship in the last race, so it probably didn't end on the best terms, but he was a great team-mate... principally because he had a 3.2 Carrera at the time and he used to let me drive around in it! He'd give me the keys and say: 'Here, look after that for a couple of weeks. I'll see you at the race at Inghelton.' I was 17 years old! David and I have become quite good pals again more recently and we laugh about the miles I put on his car.

Johnny Mowlem was my next team-mate, in Formula Vauxhall Lotus, and we had mighty battles on the track. I remember him trying to push me into the pitlane wall at Snetterton at the start of the race. (I was guilty of some forceful driving too!) In British F3, Jan Magnussen was a tough one, because I won the first race and then he proceeded to win 14 of the remaining 17 – that was a harsh lesson.

Scott Dixon in IndyCar was probably the most competitive of all my team-mates, though. He wanted to beat you more than anyone else I've had on the other side of the garage, yet we had, and continue to have, just the best relationship. It might seem odd, but we were always talking about the track, sharing information, saying: 'Hey, have you tried this at that corner?' Of course there was still a little bit that we each kept back. I've given him a couple of tips this year (now that I'm not racing and just advising the team) and he's been like: 'Why didn't you give me that before?!' I reply: 'Look, did you disclose everything?!'

Sadly, it looks as though there will be team orders at Mercedes now, which sucks for us fans. The only time there were really team orders in my career was when I was doing DTM (ironically, with Mercedes) and Bernd Schneider was going for the championship. Occasionally there were times in IndyCar

when one of us wasn't in a championship-winning position so you'd help the other one out. I was never asked to give up a win; it was just that if you were behind then you didn't take points away from your team-mate, and of course, if you could, you took points away from the opposition (fairly). I was asked to help Tony Kanaan when he was going for a championship because I was out of the running, but then later on he was asked to help me out and he more than paid me back. I'd like to say here and now, however, that I didn't crash at the end of the 2013 Indy 500 so Tony could win!

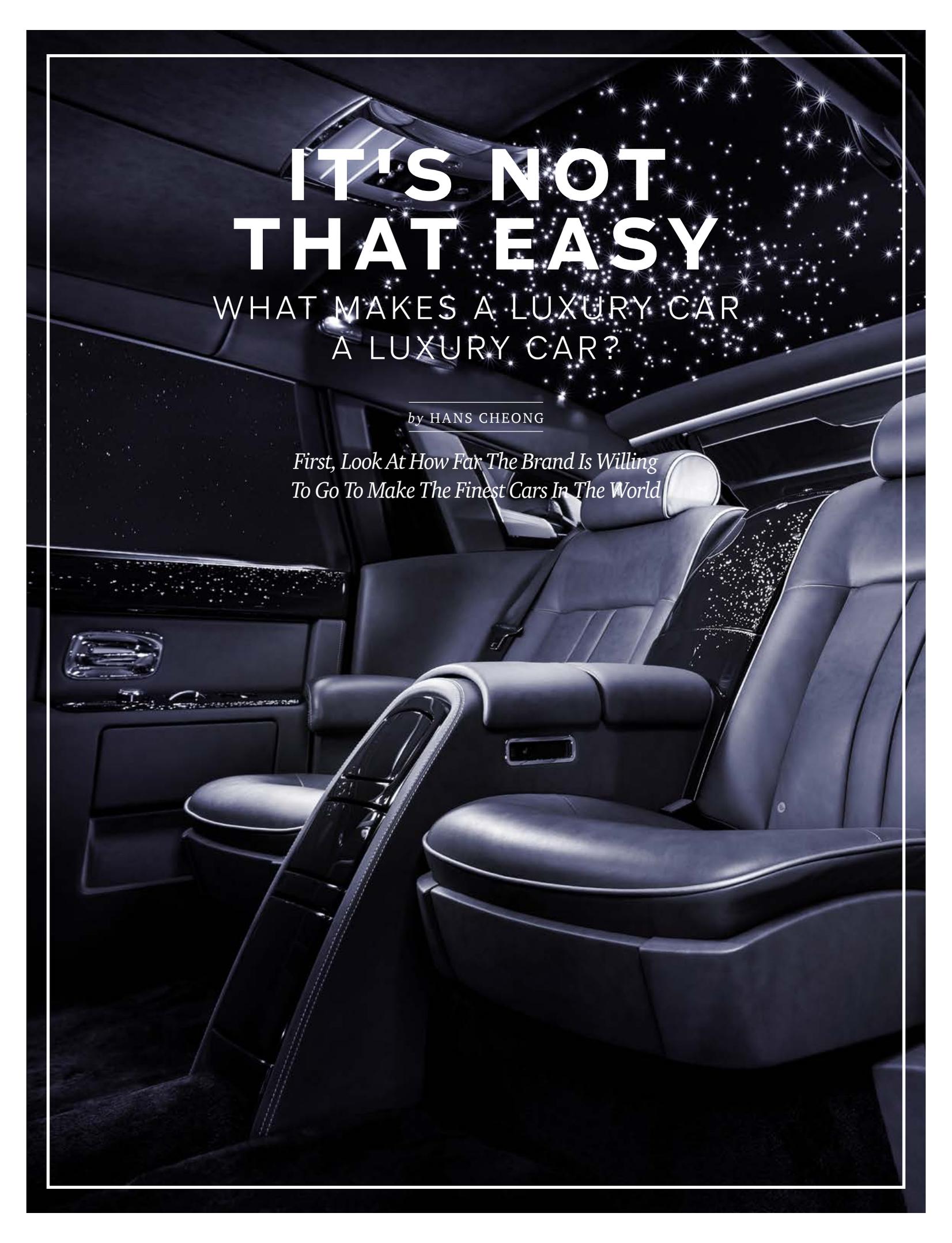
I have to hold my hands up and say that I did break the golden rule in my career. In fact at Team Kool Green in CART, Paul Tracy and I crashed into each other at least three times, just fighting for real estate. We got a bollocking for that. It

'I'd like to say here and now that I didn't crash at the end of the 2013 Indy 500 so Tony could win!'

never affected our relationship as team-mates but the boss was tearing his hair out. Tony and I also crashed into each other once but it was the exact opposite of what happened at Spa. We had been so intent on not crashing into each other that we drove right into each other! We were both apologising to each other afterwards, trying to take the blame for the same incident. 'I'm sorry!' 'No, I'm sorry...'

I think in America it's perhaps a slightly different relationship between team-mates compared to F1. I've never raced in F1 so I can't comment from the inside, but from the outside there seems to be a lot of distrust. With data logging so advanced, it's now very difficult to find an advantage on your team-mate too, so tactics and mind games come into it more. For instance, it seems you never show your full hand until qualifying and that last run in Q3, as the other guy can look and see where you're quicker.

It would be disingenuous for me to say that it was all great when I was racing and what Nico and Lewis are doing is wrong. I can completely understand their situation: Rosberg's never won a championship, while Lewis has realised how bloody difficult it is to do it after winning that first one. And this might be their only chance. When are you going to get an advantage of a car like that again? So the gloves are off. It's not the way that I went racing, but I wasn't in F1 and it doesn't mean that what they're doing is right or wrong. But they did break the golden rule! ❌

The image shows the interior of a luxury car, likely a limousine or a high-end sedan. The ceiling is illuminated with a pattern of small, bright lights, creating a starry effect. The seats are upholstered in dark leather with light-colored stitching. The overall atmosphere is one of elegance and high-end luxury.

IT'S NOT THAT EASY

WHAT MAKES A LUXURY CAR
A LUXURY CAR?

by HANS CHEONG

*First, Look At How Far The Brand Is Willing
To Go To Make The Finest Cars In The World*



I IN LAST MONTH'S issue of *Malaysian evo's* EVO Documentaries series, we've looked at 'How Lexus Shocked the World In 1989.' This month, we attempt to challenge conventional understanding of what constitutes a luxury car.

What defines luxury? Not too long ago, a luxury car is defined by its brand. In those days, when things were simpler, when apple refers to a fruit, tablet is something you buy from a pharmacy, and weed refers to undergrowth, if you want to know what the latest in automotive technology is, just look at what the big-name luxury brands are fitting into their cars.

ABS and airbags first debuted in the Mercedes-Benz S-Class, the W116 and W126 generation respectively, Xenon headlights first appeared in the E32 generation BMW 7-series, while the D2 generation Audi A8 was the first mass-market car to use an aluminum chassis.

However that simple demarcation between what is a luxury car and what is not became muddled sometime in the early 2000s.

Take for example Volkswagen's highly regarded Phaeton. It is the only handmade car in that segment, after a Bentley and a Rolls-Royce. It matches an S-Class, 7-series and A8 in all objective aspects, but it is a Volkswagen. So can a very well-engineered Volkswagen be considered a luxury car?

Drop a few notches down from the Phaeton and we have the Hyundai Equus and the Genesis. The former is engineered to match an S-Class, 7-series, A8 while latter is properly equipped to fend off the E-Class, 5-series and A6.

The typical brand snob will scoff at the suggestion of a Hyundai being better than a Mercedes-Benz, BMW or Audi but just as Lexus



Brand no longer defines luxury. Cars like the Hyundai Genesis (above), which matches a Mercedes-Benz E-Class (left) on nearly all objective aspects, are blurring the definitions of a luxury car.

shocked the German automotive royalties in 1989, there is no reason to think that the same cannot be repeated by another manufacturer.

Whatever your position is of Hyundai trumping the German competition, the numbers speak for themselves - 10 percent of Genesis buyers in the US had traded up from a typical luxury brand. In total, 55 percent of Genesis sales were conquest sales, sales that without the Genesis, buyers would've gone to other upscale brands. Not bad for a brand who didn't even bother establishing a separate brand before aiming its sights on the German competition.

There is another reason behind this blurring of lines between luxury brands and mainstream brands - the increase in technological competence of automotive parts manufacturers.

What many luxury brands don't want to tell their customers is that underneath that fancy badge, you will be surprised to find out how many of the vehicle's components are shared with a lesser brand.

After decades of playing second fiddle to the car manufacturers, many top-tier automotive

parts makers like Bosch and Continental have gotten so good at what they do that many luxury brands have opted to purchase solutions offered by them.

Why spend more time and money to develop your own blind spot warning system, 360 degree view camera, lane keeping assist, adaptive cruise control, autonomous emergency braking, high-end infotainment, or even a hybrid engine when a proven system can be purchased from these suppliers at a lower price?

However this also means that the same high-end features that are available in a Mercedes-Benz, BMW or Audi can also be available to someone like Hyundai, for the right price.

Apart from the badge, there really isn't much that separates a luxury car from a prestige brand and a luxury car from a mainstream brand, objectively speaking.

At the same time, luxury brands are under greater pressure than ever before to introduce lower range, cheaper models. In short, exclusivity, a prestigious badge and advanced features alone are no longer sufficient to define luxury brands.

THE TRUE MEANING OF LUXURY - (TRUE) ATTENTION TO DETAIL

Attention to detail is an often abused phrase in the automotive world. The phrase is used by everyone from the super-luxury echelons to mass-market brands peddling economy cars.

Having the logo etched on tiny parts of a headlamp, or tiny design details on the leather stitching of the seats or the steering wheel - that's not attention to detail, that's just frivolous styling and it brings no benefit to the customer.

True attention to detail involves solving problems that are difficult to solve, problems that others choose to accept as a natural characteristic, but if addressed, can significantly improve the driving or ownership experience.

The way Lexus sees it this means addressing problems at its source rather than tuning the problem out. For example, while other companies muffle out noise from the cabin by stuffing the car full of sound proofing materials, Lexus went to the source of the noise.

Sure, using more sound proofing materials would've work well too, but that's not being very 'genryu taisaku,' which as you've read from the last issue of *Malaysian evo*, means solving problems at their source. It means that before car's cabin can be made quiet, the car must first be quiet. Before a car can be fitted with sophisticated suspension to deliver a smooth ride, the engine must first be free from vibrations.

An obsessive attention to detail was practiced by Lexus since the first LS 400 debuted in 1989.

To reduce mechanical noise from the engine, every single component in a Lexus is machined to fit with nearly zero gap between them. Engineers had reduce the gap between adjoining engine parts of the Lexus LS 400's engine by a third compared to a contemporary Toyota model, With less gap between them, there is less vibration.

To achieve a quiet engine start-up, the starter motor, which is usually mounted outside the engine block, is placed within the LS 400's V8 engine's 'V' bank, thus containing the sound produced.

In most rear wheel drive cars, there is a faint mechanical noise produced by the propeller shaft, which transmits drive from the engine in front to the wheels behind. The source of the noise comes from kink in the universal joint which connects the two-halves, necessary due to packaging constraints within the cabin and the engine bay.

Chief engineer Ichiro Suzuki decided that while it could simply follow its German peers to insulate the noise away, Lexus should choose the harder path to eliminate the noise at the source, so Suzuki and his team made a perfectly



Left: A Lexus Takumi (Master Craftsman) prepares a body for assembly. **Right:** A Lexus Takumi working on the ES' dash pad. **Above:** Engine Takumis knows an engine is working when all 20 different sounds from the engine hum in harmony. **Below:** 1989 Lexus LS 400.

straight propeller shaft that didn't need any universal joint in the between. Producing this part on a large scale required a massive retooling of the plant.

To reduce weight, the engine's cooling fan was designed to operate using only oil pressure from the engine, this eliminating the need for a separate motor.

The brains controlling the LS 400's automatic transmission was also integrated so well with the engine's computer that in order to smoothen gear shifts, the engine computer actually stops the spark plugs from firing for a split second during gear changes.

Inside, materials were carefully chosen so that they resist fading better than Mercedes-Benz or BMW. The interior design team spent two years looking for the best leather source and used the California walnut wood for the trimmings, the same wood used by famed Japanese musical instrument maker Yamaha.

Suzuki was obsessed with creating a 'zero

panel gap' car. All adjoining panels, glass, taillights, headlights and door handles had to be flush with the rest of the car.

The man tasked to accomplish this exceedingly high level of built quality was Kousuke Shiramizu, the then General Manager of the Tahara plant. He was a lifelong body stop guy and it was said that he could work on the assembly line blind folded.

Building a one-off zero panel gap car is one thing. To produce it on a large scale would require a rethinking of nearly every single process, from stamping to welding to assembly. His efforts to come out with solutions to clone Suzuki's perfect car on a large scale earned him a seat at Toyota's executive board three years later.

To demonstrate the LS 400's excellence, Lexus ran a TV commercial in the US that showed a LS 400 with a pyramid of 15 champagne glasses set on the car's bonnet. With the rear wheels pushing down a pair of rolling





Left: The level of attention to detail in the LFA is mind bending. **Below:** An LCD is used not because of style, but because it is the only way to keep up with the engine's speed.



drums, the LS 400's engine was fired up and the car accelerated to over 230kph, with not a hint of jitter on the champagne glasses.

As expected, skeptics were quick to point out that this was a trick. A consumer advocate, David Horowitz challenged Lexus to prove its claim, and Lexus, having already anticipated this, replied by sending over a recording of the making of the commercial. It also invited Horitz to witness the stunt as it was demonstrated live.

Lexus would again repeat a similar outlandish stunt with the Lexus ES, this time using a ball bearing rolling down the panel gaps of an ES as the car is rotated on its axis on an articulating frame.

In 1995, a Lexus was put on display at the Science Museum in London. For the exhibit, the car was cross-sectioned to show its inner workings. The accompanying caption said that while the UK had invented the steam engine and sparked the Industrial Revolution, it had come to rely too heavily on machines and forgotten the spirit of craftsmanship. The Lexus, was developed with superb human judgment.

Fast forward twenty years later, attention to detail has now reached to a whole new level at Lexus.

The wheels on the LS 460 have a hollow chamber within that not only reduces unsprung weight, but also reduces tyre noise. When was the last time you hear of a manufacturer who worked to reduce tyre noise to redesigning the wheel itself?

The Advanced Illumination System (AIS) interior lights illuminate in a specific sequence that aims to guide the driver to the driver's seat.

The steering wheel in the current Lexus LS 460 is not just a steering wheel. It is a work of art that takes 38 days to complete. The Shimamoku

'WHEN WAS THE LAST TIME YOU HEAR OF A MANUFACTURER WHO WORKED TO REDUCE TYRE NOISE TO REDESIGNING THE WHEEL ITSELF?'

(stripped wood) steering wheel is crafted by Japanese artisans, requiring 67 manufacturing steps to complete.

Moving further up the echelons of automotive industry we have the Lexus LFA, only 500 in the world.

Steering-mounted paddle shifters are a common feature in many high performance cars these days, but in the Lexus LFA, the downshift paddle is intentionally made to feel heavier than the upshift paddle. Why? Because such attention to detail brings out a different sensation adds another degree of excitement to each gear change, and it is the only car with such a feature.

Then there is the LFA's TFT LCD instrument panel. While others use an LCD tachometer so they can display more information within the instrument cluster, the LFA needs an LCD tachometer simply because its 4.8-litre V10 engine revs from idle to 9000rpm in 0.6

seconds - no analogue gauge in the world can keep up with that speed.

Why go through all the trouble to build such a fast revving engine? Because Formula One. The LFA's chief engineer Haruhiko Tanahashi sought to replicate the characteristics of a Formula One engine which revs up to 20,000 rpm within a 560PS, 9000rpm Euro-5 emission standard compliant road car engine.

The connecting rods are made of titanium, its vee angle is 72 degrees, the optimum angle for a V10, and yet it weighs less than an average V6.

High capacity engines typically have their torque concentrated at the lower-end of the rev range but Tanahashi aimed to replicate, in his own words, "...delivers an awesome wave-like surge of power that doesn't back down as the revs climb."

When a typically humble Japanese engineer use words like 'awesome,' it is time to sit up and take notice.

Then there is the seating position. The McLaren F1 was famous for its centrally positioned driver's seat, mimicking an open-wheel Formula series racing car. However the way Lexus sees it, the McLaren's layout is just too odd for everyday use, plus Lexus thinks it would be better to make the driving experience enjoyable for both the driver and the passenger?

By the positioning both the driver and front passenger closer to the vehicle's centre gravity, both occupants are able to enjoy a better experience in the LFA.

A lot of effort was paid in designing an unconventional transmission tunnel that allows the occupants to sit closer to the vehicle's centre line, allowing each occupant to sit 30 mm closer to the centre than a similar size passenger car.

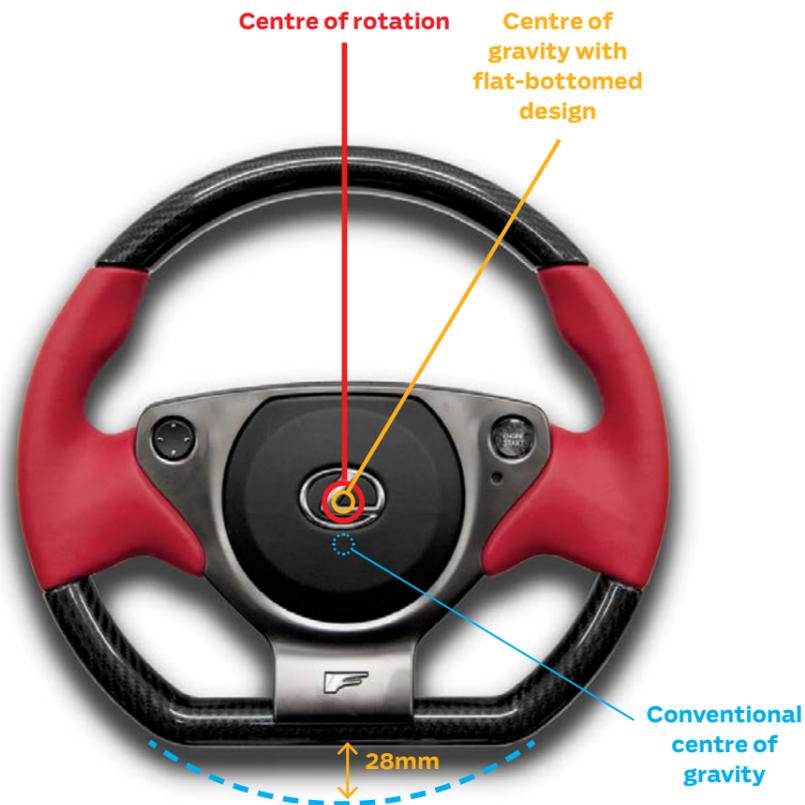
To achieve this, the LFA'S rigid carbon fibre propeller shaft, which Lexus describes as a



"WHILE THE UK HAD INVENTED THE STEAM ENGINE AND SPARKED THE INDUSTRIAL REVOLUTION, IT HAD COME TO RELY TOO HEAVILY ON MACHINES AND FORGOTTEN THE SPIRIT OF CRAFTSMANSHIP. THE LEXUS, WAS DEVELOPED WITH SUPERB HUMAN JUDGMENT."

SCIENCE MUSEUM, LONDON

Right: The LFA's steering wheel has a flat bottom not because it is a wannabe race car. Exactly 28 mm is looped off to achieve optimal balance.
Below: The downshift paddle is intentionally made to feel heavier than the upshift paddle, it's the only one of its kind.



Above: The Lexus LFA may not have the pedigree of a Ferrari, but it is more than capable of seeing off one. It will go down in history as one of Japan's all-time greats. **Below:** Lexus' showrooms are still the industry's benchmark.

‘THIS TEST ENDS WITH THREE UNEXPECTED, HARD-WON AND THOROUGHLY DESERVED WORDS: LEXUS BEATS FERRARI.’

'torque-tube' is stacked vertically with the exhaust pipes. It's the only one of its kind. A transaxle is fitted in the rear to minimise transmission tunnel intrusion and to achieve a 48/52 front/rear weight distribution.

Then there's the LFA's steering wheel. It has a flat bottom not because it wants to imitate a racing car's cockpit for the sake of looking like it. Precisely 28 mm of the lower half of the leather wrapped carbon fibre steering wheel is removed because this it is exactly what's required to make the raise the steering wheel's centre of gravity to match the steering wheel's centre of rotation.

This, our dear readers, is what you call attention to detail.

There's nothing frivolous about the many details in a Lexus. Lexus is willing to put itself through very difficult challenges for the sake of improving the finer details of the driving experience.

No surprises why our colleagues in the UK chose the LFA over a Ferrari 599 GTO (evo 83).

Contributing editor Richard Meaden said, "What marks out the LFA for particular praise is

its bravery and originality; for Lexus to create such a car from scratch, with no evolutionary engineering or existing basis from which to work, is a remarkable achievement. Innovative, extreme, immaculately executed and exquisite to drive, it's the greatest high-performance car Japan has ever produced.

"Get hung up on the badge and you'll be blind to its magic. Revel in its rarity, its rare abilities and the fact we're unlikely to see its like again and you'll understand why the LFA is one of the greats, and why this test ends with three unexpected, hard-won and thoroughly deserved words: Lexus beats Ferrari."

THE BENCHMARK IN CUSTOMER SERVICE

In the early days of the 'Maru F' project, which would later be called Lexus, the company conducted extensive market research in the US, the main market for Lexus to understand what ticks luxury car buyers.

Overall, Lexus found that there were generally two groups of luxury car buyers.

The first group were younger, had better academic backgrounds and faster track careers. They also associate luxury with superb engineering but were willing to tolerate some discomfort in their ownership experience. These groups of people were BMW owners.

"They had the sense, reinforced by the advertising for these cars that they were supposed to suffer a bit for their cars hyper-engineering," said a Toyota executive. "And many of them wished it wasn't so."

However, these group of people were also especially brand conscious, were keen to impress others in their social circle and also least likely to try a new brand, and thus, wasn't a logical group of buyers for Lexus to target.

The second group was richer and was more established. They were less concerned about impressing others but place greater importance on practical issues like maintenance and customer service. They felt that a luxury car should mean fewer repairs and better customer service, but this wasn't quite the experience

they had. More importantly, they were also more willing to try a new brand if it offer them a better ownership experience, never mind if the neighbours don't know what car it was. This was the deciding factor in Lexus aiming its sights at this group of people.

Lexus also found that this group of buyer was also more influenced by their experience in the showroom. They expected a higher level of service and a sense of privilege, something which they feel was not quite up to their expectations at the moment.

This revelation would sow the seeds of an all out effort by Lexus to establish a new standard for customer care.

THE LEXUS COVENANT

"Lexus will treat each customer as we would a guest in our home," reads the Lexus Covenant, and it is not an empty promise. Go ahead, try it for yourself. Go visit a Lexus showroom, and then proceed to visit any other luxury marque of your choice, or vice-versa. I know because I



have done so, and the difference can't be any more obvious.

The last time I dropped by a Mercedes-Benz showroom in Glenmarie with my wife, the security guard pointed us to drive to the far end to park. I got off my car, walked in to the showroom and was greeted by a receptionist. I walked towards an A-Class on display, the sales person standing behind it gave me a double take and then proceeded to ignore me.

"Let's go I don't feel welcomed here," said the missus. On our way out we came across another staff sitting on his desk, he was looking at his phone. He looked up and saw us, and then continued doing whatever he was doing on his phone.

The moment we drove into Lexus Mutiara Damansara, the security guard guided us to our car park, and I meant guide, not point. He greeted us when we got out of my car, walked us towards the entrance and opened the entrance door for us.

In less than 15 seconds a pleasant lady introduced herself as Shea Li. I said I was interested in the IS 250 and she proceeded to walk me to the test drive unit parked outside. I enquired about the IS 250 F Sport, which she politely apologised that there was no display unit, but told me there is one unit parked upstairs.

As we walk further in to the showroom and enter the elevator to go upstairs, one could immediately tell that this is not a typical luxury car showroom. Everything from the finishing,

'ALAN NG FROM LEXUS KUALA LUMPUR RUSHED TO HER AID IN DOWNTOWN KL DURING LUNCH TIME RUSH HOUR, WAITED WITH HER UNTIL THE TOW TRUCK CAME. HE SENT HER BACK TO HER HOME, AND IN THE FOLLOWING DAY, PICKED HER UP AGAIN FROM HER HOME TO ASSIST HER WITH THE NECESSARY POLICE REPORT AND INSURANCE CLAIMS.'

carpets, furniture tells us this brand truly understands the meaning of luxury. It's refined, it looks expensive but not overdone to the point that it intimidates. Think of walking into a very welcoming home rather than an opulent palace.

Needless to say, the missus, who staunchly believed in the superiority of the German trio, had to concede that Lexus is quite something.

A colleague's mother-in-law has recently bought an ES 250. Not many months after, she had the misfortune of being hit by another car. Prior to taking delivery of her ES, her sales consultant Alan Ng, had already told her 'If anything happens to your car, please call me.' So call him she did.

Alan Ng from Lexus Kuala Lumpur rushed to her aid in downtown KL during lunch time rush hour, waited with her until the tow truck came. He sent her back to her home, and in the following day, picked her up again from her home to assist her with the necessary police report and insurance claims.

Then there was another story of this lady who took delivery of a CT200h, with a Michael Buble CD in the glovebox. Why? Because when she was test driving the car, the Lexus consultant noted that she turned up the volume of the car's radio when a Michael Buble song came on. She mentioned she liked the song and the Lexus consultant took note of it.

This is how a true luxury car ownership experience should be like.

"Lexus will have the finest dealer network in the industry." We think they do. ❏



Above: Even Lexus' security guards work on a higher level of service standard.

THE LEXUS COVENANT

LEXUS WILL ENTER THE MOST COMPETITIVE, PRESTIGIOUS AUTOMOBILE RACE IN THE WORLD.
OVER 50 YEARS OF TOYOTA AUTOMOTIVE EXPERIENCE HAS CULMINATED IN THE CREATION OF LEXUS CARS.
THEY WILL BE THE FINEST CARS EVER BUILT.
LEXUS WILL WIN THE RACE BECAUSE:
Lexus will do it right from the start.
Lexus will have the finest dealer network in the industry.
Lexus will treat each customer as we would a guest in our home.
If you think you can't, you won't...
If you think you can, you will!
We can, we will.

KLX150L



Building on the strong KLX platform the new KLX150L model is fitted with full size wheels, (21" Front and 18" Rear) for ample ground clearance to make riding even more fun. The new 2014 KLX150L is the perfect bike for those who love adventure and challenges, with just the right level of power, light handling and fun attitude to deliver excellent riding pleasure.

THE NEW KAWASAKI **KLX150L**
BETTER POWER
FOR MORE FUN AND
PERFORMANCE



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Kawasaki

Every new evo car that matters, rated

This month

BENTLEY FLYING SPUR V8 p35
Smaller-engined four-door offers lighter, cheaper alternative to W12

VW SCIROCCO R p36
Styling tweaks and extra power revitalise VW's quickest coupe

MERCEDES-BENZ C250 BLUETEC ESTATE p37
New version of C-class wagon precedes likely AMG version

TWIN TEST: VW GOLF GTD v BMW 220d p38
German oil-burners with almost identical stats go head-to-head

BMW 320d GRAN TURISMO p41
Gran Turismo adds more space to the 3-Series package

FORD ECOSPORT 1.5L p44
Compact SUV seated on a Fiesta platform and running gear

The test team

Speed is part and parcel of the Thrill of Driving, the team recall the first time they took a car to 200mph (320kph) - or not, as the case may be:



NICK TROTT
Editor
'Rowan Atkinson's McLaren F1. He wrote me a note afterwards thanking evo for driving his car in the manner in which it was intended'



HENRY CATCHPOLE
Features editor
'Bentley Continental GT Speed. At night on the Autobahn. Took a bend at 320kph, topped out at 330kph. Massage seats on'



DAN PROSSER
Road tester
'Shamefully I'm yet to crack 320kph, but I've passed 305kph several times at Bruntingthorpe'



JETHRO BOVINGDON
Contributing editor
'MTM Bimoto - a twin-engined Audi TT - late at night on an Autobahn. Hit 329.75kph. Will never forget it'



RICHARD MEADEN
Contributing editor
'First time I exceeded 320kph was at a V-max event in a Noble M600. Hit faster in a Skoda two months later...'



DAVID VIVIAN
Contributing road tester
'Passing 320kph was the very first thing I did after jumping into a Bugatti Veyron for the first time'

Driven

Infiniti Q50 Eau Rouge



📍 **Test location:** Millbrook Proving Ground, Bedfordshire, UK **GPS:** 52.045200, -0.534200

Infiniti Q50 Eau Rouge

Prototype shows what Nissan's luxury offshoot could do with its entry-level saloon - namely install the twin-turbo engine from the GT-R and tune it to 568PS. 0-96kph in under 4sec... but will they make it?

T **TO ANYONE WITH EVEN** a hint of enthusiasm for all things four-wheeled, the Infiniti Q50 Eau Rouge is undoubtedly made of The Right Stuff. For a start it looks brilliantly pumped up and the neat carbonfibre aero flicks and turning vanes that nod towards F1 are a little bit geeky but wholly enticing. However, that perfectly judged tyre-to-wheelarch gap,

the F1-style rear fog light treatment, the sheer muscularity of the shape... they all fade into nothingness when you are told one simple fact: the Q50 Eau Rouge is powered by the Nissan GT-R's 3.8-litre twin-turbocharged V6 engine. That means this car - somewhere between an M3 and M5 in terms of dimensions - has the potential to vaporise the established competition from BMW, Mercedes and Audi just as the bruising R35 GT-R did to 911s, R8s

and Aston V8 Vantages when it arrived in 2007. For now the Eau Rouge is just a prototype, but Infiniti really wants to build this car. We know how they feel. Our taste of what might be comes on the fabulously challenging Hill Route at the Millbrook Proving Ground. This wicked stretch of two-lane (but one-way) tarmac climbs, banks, falls away mid-corner, has gradients of up to 26 per cent, has a massive yump and has



'This is a great deal more than just a GT-R chassis with a saloon body squeezed over the top of it'

the ability to unravel a shoddy chassis in one short loop. We can run continuously for three straight hours if we so wish. So as 'controlled environment' test drives go, this one should be genuinely revealing. The location also demonstrates a level of confidence from Infiniti that makes the Q50 Eau Rouge an even more intriguing and exciting proposition.

The prototype has been developed by the RML Group in Northamptonshire, the race and engineering outfit that designed and ran the four-time World Touring Car Championship-winning Chevrolet Cruze, that was recently involved in the DeltaWing and Nissan ZEOD RC Le Mans programme and which also created and produced a small production run of the wild and wonderful Juke R. However, unlike the Juke R, which was essentially a cut-down GT-R chassis under a pumped-up Juke body, the Eau Rouge has been developed with a real production run in mind. That means many of the parts utilised are from the Infiniti range and comply with durability and safety standards.

This is a great deal more than just a GT-R chassis with a saloon body squeezed over the top of it.

That mighty, industrial GT-R engine now drives through a seven-speed automatic gearbox borrowed from Infiniti's QX70 SUV and the four-wheel-drive system is also similar to the QX's, albeit with a much-strengthened and revised rear differential to take the power. The Eau Rouge rides on fixed-rate KW dampers, lifts the GT-R's braking system wholesale and sees the V6's outputs massaged up to 568PS and 600Nm. RML initially experimented with Infiniti's DAS steer-by-wire system but switched to a traditional power steering set-up around a week before our test drive, looking for a little more feel. The car rides on 20-inch wheels and the aggressive Dunlop SP SportMaxx GT 600 runflat tyres that contribute to the GT-R's startling agility. All up the prototype weighs a chunky 1826kg, which is around 300kg more than an M3 but 44kg lighter than an M5.

On a perfect English summer's day and with a pretty good approximation of the perfect

English country road all to ourselves, the Eau Rouge really does look enticing. The heave of the wheelarches to cover the gorgeous forged alloys, the deep gloss black of the carbonfibre splitter and roof, those funky turning vanes rising out of the carbonfibre sills and the pronounced flick of the boot spoiler all serve to give an awkward shape a real hit of menace. The GT-R intakes on the bonnet are also a cheeky clue as to what's hidden beneath. I'm hoping the aesthetic aggression is matched by the driving experience. I can't help but think that if Infiniti really wants to lure AMG or M division customers, it needs to offer something unique and outrageous. The GT-R has shown how loyal a fan base you can build if you can enter into a sector and decimate the established players' performance credentials...

First impression of this prototype, which I'm told is in a constant cycle of evolution and is really worked very hard indeed, is how together it feels. The damping is superbly controlled and quiet, the steering is a shade heavy but feels

beautifully located and the brake response is terrific. We'll call on the ultimate power of the six-piston 390mm front brakes soon, but their low-speed response is instantly reassuring and helps build a picture of real integrity. Of course, the hugely charismatic and shockingly brawny engine helps in that respect, too. Infiniti claims that the Eau Rouge is good for 96kph in less than 4 seconds and a top speed of 290kph.

So immediately the Eau Rouge has a polish to it that's at odds with its prototype status, but perhaps its politeness is slightly at odds with its M division-hunting swagger, too. The engine, which feels so alive and rampant in the GT-R, is actually very quiet indeed, and although it picks up the Eau Rouge well enough, the venom usually associated with this twin-turbocharged unit is lacking somehow. The slightly slow-witted seven-speed automatic gearbox doesn't help and Infiniti is well aware that a better solution needs to be found – probably in the shape of the Mercedes 7G-tronic MCT 'box through Infiniti's new tie-up with the Daimler

Above left: 3.8-litre V6 puts out 18PS more than in the 2014MY GT-R.
Above middle: 20-inch wheels scaled down from 21s on initial concept.
Above: seven-speed auto is sluggish



'It can be made to oversteer with a bit of brutality but it's the smaller gestures that we really miss'



Top: restyled exterior features conspicuous GT-R bonnet vents.
Above: interior is as luxurious as you'd expect from Infiniti

Group. Hopefully that will reinstate the killer bite so central to the GT-R's appeal.

As the loops of this amazing test facility unravel, it becomes clear that the Eau Rouge, despite its remarkable cohesiveness and quality, is still in search of its ultimate character and is still a compromise due to some of the hardware borrowed from less sporting relatives. For example, the four-wheel-drive system does an incredible job of getting 568PS to the road but it lacks a degree of precision and adjustability. Turn-in response is good but less aggressive than, say, an M3's, and although the Eau Rouge never washes into understeer it's not a car you really balance with the throttle, either. It can be made to oversteer with a bit of brutality but it's the smaller gestures that we really miss – the precise tightening of its line with a throttle lift, the rear axle gently pushing wide under hard power. Instead the Eau Rouge feels very secure and totally hooked up but rather leaden just when you want it to come alive.

Even so, there's obviously a vast amount of potential lurking underneath. A new and faster gearbox will transform the sense of immediacy, slightly lighter steering would increase the

sense of agility, and perhaps giving the engine its voice back could add to the sense of drama. However, to deliver a devastating blow to AMG and the M division it'll need all this and more – most importantly a thoroughly revised four-wheel-drive system to allow real engagement and adjustability. Of course the Eau Rouge shouldn't just be a four-door GT-R but it could do with channelling the big Nissan's fury and excitement. For the time being the Eau Rouge is tantalising, but if Infiniti chooses to unshackle it then it could be sensational. Come on guys, you know it makes sense. ❌

Jethro Bovington

Engine	V6, 3799cc, twin-turbo
Power	568PS @ n/a rpm
Torque	600Nm @ n/a rpm
Performance	sub-4sec (claimed 0-96kph), 290kph (claimed)
Weight	1826kg (311PS/tonne)
Consumption	N/A
Basic price	n/a (production TBC)

evo rating: ★★★★★

- ❌ Aggressive additions find tension in a frumpy shape
- ❌ Needs to be turned up to 12 to really unleash its potential



📍 **Test location:** near Dadford, Buckinghamshire, UK **GPS:** 52.047200, -1.031200

Bentley Flying Spur V8

Updated four-door gets 507PS twin-turbo V8 from our favourite Conti GT

I **I LIKE BENTLEYS. REALLY** like them. I thought I should say that up front because amongst genuine car enthusiasts I seem to be in a minority. Post a picture of one on Twitter and people pour forth bile and hatred. Maybe there are rational reasons for this. Bentleys are heavy and consume lots of fuel. But that's also true of Rolls-Royces and the reaction to them is the opposite – a collective swoon wherever you go.

No, the real hatred seems to stem from the fact that over the years, some people have painted Continental GTs in awful colours and fitted massive chrome wheels. And while that's indisputably true, it doesn't change the fact that the moment you drive or ride in a Bentley, all of that baggage seems to disappear and a sense of well-being washes over you. They're just lovely things to spend time in and, even better, usually pretty incredible dynamically considering their near-2.5 tons of bulk.

However, the new Flying Spur is a different proposition to the various Continental GTs now on offer and is also deliberately less 'sporty' than its predecessor. This is the new V8 version and despite downsizing from a 6-litre W12 to just 4 litres (with two turbochargers, naturally) it's still endowed with 507PS at 6000rpm and 660Nm. Although those numbers pale compared to the W12's 625PS and 800Nm, the claimed 0-100kph in 5.2sec and top speed of 295kph should be adequate. The Flying Spur V8 costs from £136,000, around £14,000 less than the W12, and is a bit lighter, too. Don't get too excited, it's still 2425kg.



With modest 19in wheels and a paint colour a million miles away from the brash schemes beloved of people who run around after a ball and fall over a lot at weekends, our test car is about as restrained as a 5.3-metre saloon with a huge wire mesh grille can be. Inside, the quality in every little detail, the tactility of the materials and the sense of opulence is shamefully pleasing. In terms of technology it's not a patch on, say, the new Mercedes S-class (and the satnav is still terrible), but there's a timelessness about it that is hard to beat.

Dynamically though, the Flying Spur is resolutely not sporting. At all. It's bloody fast, the V8 is a really sweet, progressive engine and the eight-speed automatic gearbox is just about quick enough – although it lacks the precision and speed of the same 'box in cars like the F-type R Coupe – but it's not a car to hustle or to carry speed into corners in. There are clues to its relaxed brief immediately: the elevated driving position, the gearshift paddles being a stretch too far to use comfortably and the light, slightly vague steering. These subtle messages

tell you not to expect the surprising agility and body control of a Continental GT.

Having said that, the ride quality from the air suspension is never as smooth as you might expect. You feel little surface ripples shudder up through the structure and there's a bit of steering kickback over bigger lumps and bumps, too. Dial the suspension to its stiffest of four settings and it feels more composed, and although there's plenty of body roll, vertical body movements are kept well in check and you can storm along at quite a pace. The engine doesn't quite have the ever-ready torque of the W12 but it sounds great and has a free-revving top-end delivery that's more enjoyable.

In terms of ultimate balance, the all-wheel-drive Flying Spur tends towards understeer but will exit a corner with a hint of oversteer if you get the V8 spinning hard. I dare you to try it... Most of the time you'll sit back, relax and be swept along. It's not the fastest or the most sophisticated car, but it's a glorious way to get around if you're not in a hurry. ☒

Jethro Bovingdon

Engine	V8, 3997cc, twin-turbo
Power	507PS @ 6000rpm
Torque	660Nm @ 1700rpm
Performance	5.2sec (claimed 0-100kph), 295kph (claimed)
Weight	2425kg (209PS/tonne)
Consumption	10.9L/100km (NEDC Combined)
Basic price	£136,000

evo rating: ★★★★★

- 👍 Quality; effortless performance with a real top-end kick
- 👎 Ride not as pillowy as you'd expect, determinedly unsporting



📍 **Test location:** Betzdorf, Germany **GPS:** 50.789200, 7.767200

Volkswagen Scirocco R

Sports coupe gets facelift and power boost to 280PS

I **IN TIME FOR THE** Scirocco's 40th birthday, Volkswagen has updated the current model with a raft of minor styling and technical revisions. Power is up across the range, and the R retains its position at the head of the table.

The third-gen Scirocco, a contemporary of the Mk5 Golf, isn't shaped to accommodate the 300PS EA888 engine that serves in the impressive Mk7 Golf R. VW therefore finds itself building two four-cylinder, 2-litre turbo units with similar outputs, the Scirocco R retaining the EA113 that served in the pre-facelift model – and the Mk5 Golf GTI before that – albeit with power up by 15PS to 280PS. The 0-100kph time has been cut from 6.0sec to 5.7 (5.5 with DSG), while stop/start technology has helped drag the EA113 towards EU6 compliancy, with Volkswagen claiming modest improvements in fuel consumption and emissions as a result.

This certainly isn't a thorough reworking. There was very little wrong, it must be said, with the aesthetic of the six-year-old Scirocco, but the new angular headlights do lend a certain menace to an otherwise timeless and confident shape. The R takes that sense of purpose one step further with aggressive bumper treatments front and rear, twin exhaust tips, LED daytime running lights and 19-inch 'Cadiz' wheels. And for a cabin that owes much to a Golf now two generations out of date, the Scirocco's feels remarkably fresh. The group's latest infotainment system helps, as does the new stack of auxiliary dials atop the dashboard that pay tribute to the original Scirocco.



With its spring and damper rates unchanged, the Scirocco R's driving dynamics are simply as they were. With the optional Dynamic Chassis Control system (£810) set to Comfort, the ride quality on the smooth roads between Cologne and Frankfurt is very impressive indeed. We accept that Britain's more lumpy roads might not flatter the R in quite the same way, but for a car of genuine super-hatch performance the level of comfort in this mode is noteworthy.

The quality of the ride does ring some distant alarm bells, though. In Comfort the chassis is woolly and imprecise when pushed, which is perfectly reasonable, but the Sport setting doesn't quite tighten the car's responses sufficiently. Throw the R into a sequence of corners and it always feels a bit baggy, rolling markedly in direction changes and eventually losing control of its own masses over undulations. Switching to Sport also adds weight to the steering, which simply corrupts the rack's otherwise quite detailed, grainy feel.

A step or two back from the limit, however, the R does show willing thanks to its abundant

grip, pointy front end and the strong traction afforded by the electronic XDS differential. The Scirocco R is said to be tuned to be slightly more focused than the Golf R, but initial impressions suggest the Golf is more responsive and enjoyable, perhaps as a result of its four-wheel-drive system.

The EA113 engine doesn't feel like a poor or outmoded relation. It's responsive and pulls hard throughout the rev range, and with more character than many other four-cylinder turbo engines. The six-speed manual gearbox is rather notchy and, at times, awkward to use, which comes as a surprise given that most of the group's manual 'boxes feel slick and well oiled. The optional (£1500) DSG transmission suits the R's refined nature very well, although the plastic paddles do feel cheap.

Very little of any real consequence has changed, then, which is to say the Scirocco R remains an appealing everyday four-seat sports coupe, but it still isn't a car that will drag you out of bed early on a Sunday morning. ❌

Dan Prosser

Engine	In-line 4-cyl, 1984cc, turbo
Power	280PS @ 6000rpm
Torque	350Nm @ 2500rpm
Performance	5.7sec (claimed 0-100kph), 250kph (limited)
Weight	1426kg (196PS/tonne)
Consumption	8L/100km (NEDC Combined)
Basic price	£32,295

evo rating: ★★★★★

- ➕ Ride quality, enduring engine and cabin
- ➖ The best hot hatches are more fun

📍 **Test location:** Deidesheim, Germany **GPS:** 49.403200, 8.186200

Mercedes-Benz C250 Bluetec Estate

204PS version of next-generation load-lugger is precursor to forthcoming AMG wagon



WHEN IT COMES TO combining performance and dynamic acuity with load space and practicality, nothing does it better than a wagon.

At **evo**, we'll take a muscular estate with a sorted chassis from the likes of Audi, Jaguar or Mercedes over a pumped-up SUV with wide wheels any old day of the week. So, along with other fast estate fans, we can't wait to get behind the wheel of the new Mercedes C-class Estate with an AMG badge on its tailgate. But we'll all have to – probably until November.

Truth is, we're a bit concerned as much as anything. As we've discovered already, the new 'W205' C-class saloon is a very different car from its predecessor – more of a scaled-down take on the S-class limo than a conscious rival to the inherently sporty BMW 3-series. It's encouraging to note that AMG has been involved with the development of the new C-class from day one and is therefore able to lay the foundations for a rubber-roasting charter but, then again, maybe those days are over.

The launch line-up is all four-cylinder, comprising Bluetec diesels (170PS C220, 204PS C250) and an entry-level C200 petrol, to be followed by a more economical C200 Bluetec diesel and a diesel-electric C300 Bluetec Hybrid (essentially the C250 with an additional 20kW or 27PS of electric urge and only 99g/km of CO2). Although the Hybrid boasts the best power, torque and economy stats, its battery pack and motor weigh 60kg and make an already supple and unmistakably air-sprung ride borderline floaty. The early onset of understeer in tighter



bends if you're determined to press on – even if you've selected Sport Plus from the so-called Agility menu – is a little disappointing, too. The Hybrid has its niche, but it's not a great advert for the new car's performance potential.

The C250 Bluetec, as well as being an entirely sensible choice, is better to drive and equally good to look at. Like the saloon, it benefits from the currently ongoing 'handsome' phase of Merc's design evolution. It's bigger than the old estate, too, with a longer and wider body (49 per cent aluminium content for reduced weight) and a wheelbase stretched by 80mm. Cargo capacity thus swells to 490 litres, or 1510 with the three-way 40:20:40 split folding rear seats down – respectable rather than remarkable.

The self-levelling air suspension is optional but on all the launch test cars, which is a pity because it imposes a very particular character on the chassis that, in concert with the accurate but utterly feel-less variable-ratio electro-mechanical steering, seems to rob the handling of life and subtlety. So while there can be no quibble with the C250's pace or composure through the twisty stuff – 'surefooted' would

be selling it short – it makes no concessions for anyone seeking involvement. You can switch some of the 'driver assist' aids off should you wish, but not the stability or traction electronics. All very safe and prescriptive. Instinct suggests steel-sprung cars will feel somewhat sharper.

That said, the C250 estate is civilised, sophisticated, whisper-quiet and for the most part superbly comfortable. The roomy cabin looks and feels like it belongs to an altogether more expensive car and the whole thing is extremely well built and finished. The 250's turbodiesel motor only has an appreciable aural presence in the cabin under hard acceleration (0-100kph takes 6.9sec) and is amply endowed with mid-range overtaking urge, of which the standard seven-speed auto makes efficient, if occasionally slightly thumpy, use. Merc's new nine-speed auto, which will debut on the S-class, is slated as a replacement in due course.

Not in the least bit sporty, where the C250 is good it's very good. But the world needs more performance estates. Over to you, AMG. ✕

David Vivian

Engine	In-line 4-cyl, 2143cc, twin-turbo diesel
Power	204PS @ 3800rpm
Torque	500Nm @ 1600-1800rpm
Performance	6.9sec (claimed 0-100kph), 241kph (claimed)
Weight	1585kg (129PS/tonne)
Consumption	4.3L/100km (NEDC Combined)
Basic price	£33,220

evo rating: ★★★★★

- ✚ Essentially a baby S-class with a big boot
- ✚ Despite good pace, an inert, uninvolved steer

📍 Test location: Harrold, Bedfordshire, UK GPS: 52.217200, -0.619200

Twin test: VW Golf GTD v BMW 220d

Two cooking German diesels go head-to-head. Their vital statistics and prices are almost identical, but can one edge out the other dynamically?



WITH A COMBINED torque output of 760Nm, the Volkswagen Golf GTD and BMW 220d could out-pull a McLaren 650S. There are benefits to drinking from the black pump – notably in torque output, fuel economy and CO2 emissions – and for buyers with even half an interest in the thrill of driving, the GTD and 220d are the two most appealing four-cylinder diesels on the market.

Volkswagen bills the GTD as one third of its hot-Golf triumvirate, alongside the petrol-powered GTI and R models. Apart from the grille accent being chrome rather than red and the different wheels, exhaust tips and badging, the GTD looks exactly like a GTI, which is to say handsome and purposeful. Its 2-litre engine falls 36PS short of its petrol stablemate, but it counters with an additional 30Nm of torque. The GTI remains the quicker car because of the narrow band in which the GTD – inevitably – returns the bulk of its torque, but there's no doubt the diesel model is a sprightly performer. According to VW's figures it should cover an extra 5km for each litre of fuel, too.

The BMW's power and torque outputs match the GTD's figures, but its rear-wheel-drive layout gives it a 0.3-second advantage in the 0-100kph sprint. The claimed top speed for both is 230kph, and just £100 separates the two in the favour of the Volkswagen. On paper, at least, the margins are almost non-existent.

In basic SE trim this 220d test car lacks the visual purpose of the more expensive M Sport version, and alongside the tough-looking GTD it therefore shrinks into the background a little. The 2-series shape is pretty enough, but the GTD is just that much more menacing. The BMW responds with a more sporting cabin. It may lack the Volkswagen's GTI-inspired flourishes, such as the tartan seat trim and golf ball gearknob, but its driver-centric, coupe-like dashboard architecture makes the 220d feel more like a sports car than the GTD. The seating position itself is also more redolent of a sports car, with the seat mounted low to the floor and the steering wheel offered towards the driver's chest.

The Golf's interior feels slightly lower-rent in places with some hard and scratchy plastics



Above: Golf is precise despite lack of steering feel. **Right:** rear-driven BMW allows for some cornering fun



away from the primary points of contact, while the 220d's cabin feels tougher with higher quality materials. BMW has also refined its iDrive interface to a point where it is more intuitive to navigate and easier to use on the go than the Golf's touchscreen system. With more rear legroom, a hatchback boot and the option of four doors, the Golf will be more practical in day-to-day use, though.

Once on the move the Golf quickly announces itself as the more focused of the pair. It rides with a sense of solidity and a distinct firmness, while the 220d is more fluid and pliant. In fact, the GTD's busy ride over smaller imperfections could well prove tiresome for those with more conservative tastes. That aside, the GTD

and 220d are both refined and long-legged motorway tools.

That taut ride pays off when the road becomes more interesting, though, for the Golf always feels like the better-supported and more precise of the two. Both have firmer suspension modes that do a good job of sharpening each car's responses, but the BMW's damping is always geared towards comfort rather than control. The 220d does get out of shape earlier than the GTD on an undulating road, but in truth both reach their limits much sooner than their more overtly sporting, petrol-powered counterparts would. Through sheer tyre grip and stability they carry impressive speed down a road, although both have remote steering that never really communicates.

While the Volkswagen feels more precise and agile because of its firmer set-up, the BMW soon reveals a fundamental cornering balance – a result of its rear-wheel-drive layout – that its rival can't replicate. If its driver is willing to be foolish it can be tipped into slight oversteer in medium-speed corners, but even with a more sensible approach you can still enjoy the eternal sensation of a well-balanced, rear-wheel-drive car. It's the artifice of a firm ride and supportive seats versus an inherent chassis balance.



Above: 2-litre turbodiesel engines in both the 220d and Golf GTD produce identical outputs of 184PS and 380Nm.



'Both cars feel impressively strong in the mid-range with enough roll-on performance to dismiss most traffic'

Below: BMW's Drive Performance Control affects the accelerator response and (if fitted) adaptive suspension.

Bottom: Driver Profile Selection does similar things in the Golf



With 380Nm of torque apiece, both cars feel impressively strong in the mid-range with enough roll-on performance to dismiss most traffic. There is no pleasure to be had from working either engine terribly hard, though, for both are just as gruff and uncultured as any four-cylinder diesel would be. The Golf seems to pull a little harder from lower in the rev range (despite the figures suggesting that the BMW reaches its torque peak sooner), the 220d revs a little freer through the mid-range, and both keel over into a flat, gutless top end. Some things will never change. The Golf's gearshift action is more mechanical than the slick, over-light VW Group manual gearboxes of recent times, while the BMW's is smoother and less notchy than some from the same stable.

If we're discussing this pair in sporting terms, the 220d does trail the GTD for styling and sense of purpose when on the move. Those criticisms are swiftly deflected by the M Sport version, though, which costs £2350 more than this SE model and comes with aggressive body styling and a firmer set-up. Combined with the 2-series' fundamental balance that would make for an overall package that holds more appeal than the GTD, if only by a small margin.

Ultimately, both cars are held back by lifeless steering and their unsatisfying diesel drivetrains. Nonetheless, of all the sporting four-cylinder diesel cars on the market, the Golf GTD and 220d are the most convincing of the bunch. ❌

Dan Prosser

VW GOLF GTD

Engine	In-line 4-cyl, 1968cc, turbodiesel
Power	184PS @ 3500rpm
Torque	380Nm @ 2500rpm
Performance	7.5sec (claimed 0-100kph), 230kph (claimed)
Weight	1377kg (134PS/tonne)
Consumption	4.5L/100km
Basic price	£25,765

evo rating: ★★★★★☆

- ⊕ Styling, economy, eager chassis
- ⊖ Uncultured diesel engine

BMW 220d

Engine	In-line 4-cyl, 1995cc, turbodiesel
Power	184PS @ 4000rpm
Torque	380Nm @ 1750-2750rpm
Performance	7.2sec (claimed 0-100kph), 230kph (claimed)
Weight	1375kg (134PS/tonne)
Consumption	4.5L/100km
Basic price	£25,865

evo rating: ★★★★★☆

- ⊕ Chassis balance, economy, interior
- ⊖ Bland styling, uncultured diesel engine



BMW 320d Gran Turismo

A 3-Series with BMW's Gran Turismo treatment brings added practicality to an already attractive package

Photography: Daniel Wong

O **OF ALL THE AUTOMOTIVE** news and events in Malaysia, the locally-assembled 3-Series Gran Turismo has to be the most surprising of the lot. A locally-assembled BMW crossover sounds like a plot that is destined to capsize itself in a market which strongly favours predictable and conventional cars. If BMW's staple range of sedans and SUVs is akin to the steady evolution of the species; like Darwin's finches which chart a natural evolution to their surroundings, then the 3-Series Gran Turismo is more like Gregor Mendel's peas, or Monsanto's maize, a freak of nature that was the result of cross breeding two different genres to create a curious hybrid variant. In this case the 3-Series Gran Turismo is the result of splicing a 3-Series with an SUV-like

body, coupled with design touches lifted from a coupe.

But BMW wouldn't be taking the plunge if they weren't confident that there would be takers of their new crossover, so there must be something that BMW sees in the 3-Series Gran Turismo, or 3GT to give it its short abbreviation, to build it here.

One thing is for certain though. The 3GT isn't going to woo many customers with its looks alone. Like the controversial 5-Series Gran Turismo that set the tone for the Gran Turismo moniker, the 3GT sports similar traits. Compared to the standard 3-Series sedan, the 3GT has a wheelbase that has been extended by 110mm, with a roofline that stands nearly 80mm higher. Round the back, the 3GT comes with an automated hatchback tailgate, though it isn't the tricky dual-lid

tailgate seen on the 5-Series Gran Turismo. Topping off the Gran Turismo formula are four pillarless doors, for aesthetic reasons. Looking at its enlarged nostrils and awkward proportions does bring to mind that old saying of, "Too many cooks spoil the broth", and despite having one or two good angles, the 3GT is far from being a head-turner.

All those physical changes don't merely affect the 3GT's chances in a beauty contest; it has also affected its handling. When compared to its equivalent standard 3-Series sedan, the 3GT felt unwieldy, like it is packing something particularly heavy in the roof, and lacked the keenness of the sedan. From the 320d sedan to the 320d Gran Turismo, around 155kg has been stapled on; somewhere in its back quarters, by the way it reacts to quick direction changes and leans on its tail. Not



helping matters is the seating position, which has been raised by 59mm, further distancing you from the feeling of connection to the road. By the lofty standards set by its sedan sibling, the 3GT feels blunt and has lost some of the sedan's effervescent character. It feels more stoic and less nippy, as though it has been designed for rear-seat occupants, and judging by the amount of room bestowed behind, I'm not surprised.

Of the 110mm extension in the wheelbase, rear-legroom has grown by 70mm, and thanks to the higher roofline, entry and exit proves to be far easier. Open the electrically-operated tailgate and you will find that it has a cargo capacity of 520-litres, 25 more than what you would get from a 3-Series Touring, which is impressive to say the least. And if you find that a little short on space, you can flip the 40/20/40 split folding rear seats down to easily boost cargo capacity all the way up to 1600-litres. Not bad for a hatchback.

'Examined from a crossover standpoint, the 3-Series Gran Turismo is actually rather good to drive'

But this isn't a hatchback in the conventional sense; after all, the 3GT was aimed at those who wanted the space of a 5-Series without its boring sedan appearance, or the raised ride height, without buying an SUV like the X3. Examined from a crossover standpoint, the 3-Series Gran Turismo is actually rather good to drive. It isn't as good as the sedan earlier mentioned, but it has some of the 3-Series' capabilities with its communicative and capable chassis underneath, and sharp electric power steering up front. Not to mention that the suspension strikes a rather excellent balance between resisting body lean in the corners, and delivering a supple ride quality over gnarled roads. Compared to all other crossovers in the market, the 3GT is actually quite entertaining and capable too, when you consider what it has under the hood.

The 2-litre diesel engine might still clatter like farmyard machinery at idle, but it is a trait that you soon forget once you open up

the taps and the engine starts humming at running speeds. With 380Nm served up from 1750rpm and its 8-speed automatic always delivering the right gear for the occasion, the 320d Gran Turismo can easily pick up the pace at a driver's simple whim and fancy, and cruise effortlessly at low-engine speeds. Complementing its effortless acceleration, the diesel engine is capable of returning an NEDC-rated combined fuel consumption figure of 4.9L/100km.

Despite its odd looks, the 3-Series Gran Turismo does have its charms. It isn't as honed or accomplished as the 3-Series sedan, but that is why you still have the 3-Series sedan. This, on the other hand, fits an older demographic and is more suited for those who want a 3-Series that is far more practical to use day in and day out. When you think about it, it's a rather appealing proposition. And after a few days with it, I certainly saw the appeal behind it. **✘ Daniel Wong**



Above right: 3GT sports the Air Breathers that first appeared on the 4-Series Coupe Concept, which cuts turbulence and improves aerodynamic efficiency, smart. **Below left:** BMW says that the 3GT is its first model with an active rear spoiler which deploys at 110kph onwards to improve high-speed stability.

Specification

Engine	In-line-4, 1995cc, turbocharged diesel
CO2	129g/km
Power	184PS @ 4000rpm
Torque	380Nm @ 1750-2750rpm
Transmission	8-speed automatic, rear-wheel drive
Performance	7.9sec (claimed 0-100kph), 226kph (claimed)
Weight	1650kg (112PS/tonne)
Consumption	4.9L/100km (NEDC Combined)
Price	RM298,800

evo rating: ★★★★★

- Great to drive as far as crossovers go
- Not as great to drive as a standard 3-series



Ford Ecosport 1.5L Titanium

On paper, the Ecosport is pretty much an elevated Fiesta that manages to retain everything we like about it

LOVE IT OR HATE IT, the SUV for all its criticisms on size and unwieldy behaviour is the *du jour* car of today. There is a steadily growing audience and everybody is rushing in to carve a piece of the SUV pie, casting new shapes and styles along the way, and even spinning off SUV offshoots from other existing models. Though it is a fresh face on Malaysian roads, Ford's new Ecosport is in its current second-iteration; the SUV-cousin to the Fiesta hatchback. It is hard to draw the lines between the Ecosport and the Fiesta from the outside, but once you step inside, it becomes all too familiar. You are greeted by the same switchgear and dashboard used in the Fiesta. Though more than half a decade old, the dashboard is still rather fascinating to look at with its protruding centre console, and futuristic dials and switches. Though the only part of the interior that betrays its age is the material fit and finishing, which

feels rather lacking, especially when compared to that of its immediate rivals, who have made headway in this particular respect. Besides the carry-over switchgear and dashboard, the Ecosport also inherits the Fiesta's suite of connective features such as Ford's SYNC mobile device connective feature and voice-activated functions. To differentiate itself as a step above the Fiesta, this top-of-the-range Titanium spec Ecosport comes with additional features such as a sunroof, and neat little cubby holders integrated into the sides of the rear seats which come with their own 12V charging port for mobile device dependent occupants. Ford certainly knows that they aren't aiming for the traditional buyer with the Ecosport. Like the interior, the Ecosport inherits the Fiesta's new drivetrain, the 1.5-litre 4-cylinder Ti-VCT engine coupled to a six-speed dual-clutch transmission, which as far as drivetrains go, isn't quite exemplary. With 142Nm served at

4400rpm, the engine needs to be worked, with its powerband only coming into effect from 2500rpm till 4000rpm, and its sound rather recalcitrant when pressed hard. The dual-clutch offers smooth shifts, but is often quite slow and clueless when it comes to dropping a gear from the moment a quick kick down is demanded of it. Like its hatchback brethren, the Ecosport gets the same rocker switch gearshift buttons on the gearknob, which is tricky to use on the move and also utterly pointless. Credit where credit is due, the Ecosport really gets into its element at cruising speeds. Beyond 100kph, the Ecosport's taller gearing allows the engine to hum quietly and smoothly along, complemented by the cabin's refinement and ride comfort. Toss the drivetrain aside for a moment, and the rest of the Ecosport is rather brilliant. Purists would argue that an SUV has to be prepared to tackle the rigours of off-road driving, and the Ecosport, with its front-

wheel drive drivetrain and smooth road-going tyres, isn't going to impress any wilderness adventuring types. Not that it needs to. The average SUV owner of today would rather use it to pop into the local Tesco parking lot than a national park. With its short overhangs, the Ecosport is fantastically well-suited for the job of zipping in between tight spots with ease. You can argue that a Fiesta or any other compact hatchback of similar dimensions is just as accomplished, but the Ecosport's elevated ride height gets you a better view of your surroundings, and allows you to see eye-to-eye with pickup trucks, something few compact sized SUVs have been able to achieve.

At 1675mm in height, the Ecosport is quite tall, but its dynamic traits aren't hobbled by its lanky dimensions. Press hard through a corner and the Ecosport has a tendency of leaning, but the chassis holds onto the line keenly and you can easily fine-tune its course. Even when faced with uneven surfaces through the corner, the suspension manages to maintain the car's composure. Furthermore, its electric power steering is still one of the best in its class, with a decent amount of weight to complement its accuracy. As it is with Ford's portfolio, its balance between ride and handling is excellent and without compromise. Rough roads are dealt with without so much of a shake or rattle to the occupants inside. For something that manages controlled amounts of body lean, the ride is fantastically compliant. If there is one disadvantage with the Ecosport's shape, it is its susceptibility to crosswinds.

As a concept, the Ecosport is a perfect embodiment of a city-going SUV, small enough to squeeze through tight inner city lanes, and elevated enough to give you that feeling of size and confidence. Though a concept is only as good as the card it is dealt with. In the case of its drivetrain, it needs a little something more capable and charismatic to complement its fine handling traits and win over some hearts. ❌

Daniel Wong



Above: Ford managed to remove some of the Fiesta's ergonomic problems. **Right:** external spare tyre cover reminds you of SUVs of the 1990s, improves cargo capacity greatly.



'Press hard through a corner and the Ecosport holds onto the line keenly and you can easily fine-tune its course'



Specification

Engine	Inline-4, 1498cc, petrol
Power	110PS @ 6300rpm
Torque	142Nm @ 4400rpm
Transmission	6-speed dual-clutch, front-wheel drive
Performance	N/A
Weight	N/A
Consumption	N/A
Price	RM103,888

evo rating: ★★★★★

- ❏ Feels big with small car dimensions, handles well
- ❏ Sluggish powertrain

Essentials

The Best Timepieces, Fashion, Scale Models, and Gadgets For The Discerning Enthusiast



IWC SCHAFFHAUSEN CELEBRATES OPENING OF CONCEPT BOUTIQUE IN PAVILION

Over 150 specially invited guests and media representatives were present at the opening of IWC's concept boutique in Pavilion in Kuala Lumpur recently. The newly renovated boutique covers an area of 63sq m and is recognised as the first store in South East Asia to incorporate IWC's new concept. Operated by the Valiram Group, the boutique was originally opened as the first IWC stand-alone boutique in Kuala Lumpur in 2007 and today it represents the continuation of a long-standing and successful partnership between IWC and the Valiram Group, one of South East Asia's leading luxury goods and specialist retailers.

Built to exemplify IWC's core values of innovation and engineering excellence, the boutique was designed by IWC's in-house team of architects and designers to provide a fittingly sophisticated setting to showcase the six watch families from Schaffhausen. Amongst the highlights on display was IWC's new 2014 Aquatimer collection. Guests to the boutique were welcomed by a comfortable lounge area complete with a fireplace and an intriguing library. To create an atmosphere of elegance, which

reflects the clean lines of IWC's fine watchmaking traditions, the boutique is designed with dark wood, chrome steel, and leather fittings. This unique architecture provides an ideal backdrop to suit IWC Schaffhausen's collection.



Above: (from left) Matthieu Dupont, Joyce Yap, and Sharan Valiram, at the ribbon cutting ceremony. **Below:** guests viewing IWC timepieces at the new boutique.

Work Begins on IWC's New Production Facility



Moving from a niche company into a global brand over the past 10 years, IWC is looking to further improve their competitiveness with the construction of a new production facility at its Schaffhausen home. The new facility, which is expected to be completed in October 2016 will be the new home of the Schaffhausen-based watchmaker's case and parts manufacturing departments along with its movement assembly, and will be equipped with new state-of-the-art workstations for a total of 250 employees.

The facility, which was built with an investment totalling around 40 million Swiss francs, features IWC's philosophy and its dedication to climate protection and ecological responsibility. It comes fitted with water heat recycling and recovery ventilated systems, insulation that meets the Minergie standard, LED lighting, a photovoltaic system fitted to large sections of the roof, and an intelligent waste and recycling management system. For all its modernity, the new production facility was designed with large expanses of green whereas its two-storey flat-roofed construction ensures that the staggered building complex blends seamlessly into the topography of the Merishausertal.



IWC Schaffhausen Pilot's Watch Chronograph Edition "The Last Flight"

On 31st July 1944, celebrated French aristocrat, writer, and avid aviator, Antoine de Saint-Exupéry climbed aboard his Lockheed P-38 Lightning to conduct a reconnaissance mission over a section of France that was occupied by the Nazis. Shortly after taking off from a military base in Corisca, Antoine's P-38 Lightning vanished without a trace. It was only in 1998 that the remains of his aircraft were finally located, likely to have been shot down by a German Luftwaffe.

Despite the recent discovery, the death of Antoine still remains in large a mystery to many, and as a commemoration of the 70th anniversary of the French national hero's last flight, IWC has introduced the Pilot's Watch Chronograph Edition "The Last Flight". This limited edition series comprises of three versions. Each piece of this limited edition series features a brown ceramic case made from silicon nitride, a brown dial, and a calfskin strap in the same colour, as a homage to the tobacco coloured flying suit he used to wear. Titanium push-buttons, crown, and case back provide a pleasing contrast to the 1700 pieces in the limited edition, whereas a further 170 watches will come with eye-catching red gold highlights. An exclusive 17 timepieces will have a crown, buttons, and case back forged from platinum. The ceramic case boasts several outstanding properties including, enormous heat resistance, unusual hardness, corrosion resistance, and very low wear and tear. Taking into consideration its robust qualities, the ceramic case serves as an ideal housing for the in-house developed and manufactured 89361 calibre. Etched onto every case back is a special image which commemorates the 70th anniversary of

Antoine de Saint-Exupéry's last flight.

This month, Sotheby's Geneva will auction one of the exclusive platinum models with the entire proceeds being donated to the Antoine de Saint-Exupéry Youth Foundation, which champions the Frenchman's humanitarian philosophy and is involved in projects aimed at improving literacy among children and young people across the world. On this occasion, the money is destined for the Hospital Pequeno Principe, one of the largest children's hospitals in Brazil.



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Two New Additions to Vacheron Constantin's Collection Excellence Platine

At an average abundance of just five millionth of a gram to every kilogram in the Earth's crust, platinum is one of the rarest metals in the world as well as one of the most valuable. Furthermore, due to its dense and imperishable qualities, platinum it seems is also an ideal metal for use in the most exclusive of timepieces.

Since 1820, Vacheron Constantin has been using platinum in a number of their creations, and since its introduction in 2006, their *Collection Excellence Platine* range of timepieces celebrates the distinctive qualities of platinum in the world of horology. Every timepiece from this collection distinguishes itself with a case and crown made from 950-platinum, and bears the discreet "PT950" inscription between the 4 and 5 o'clock markers on its sandblasted dial face. To complement the exquisite appearance of platinum, each timepiece features a stylish strap in dark blue alligator leather that is graced with a saddle-stitched finish that is hand-sewn with silk and 950 platinum thread. Thanks to the malleability of platinum, a single gram of the material is said to produce a thread that is almost two kilometres long. Produced in an individually numbered series that never exceeds 150, each timepiece of the *Collection Excellence Platine* is an exclusive creation that bears an enduring appeal amongst an elite circle of connoisseurs and collectors.

This year the Geneva-based Manufacture introduced two new timepieces to the *Collection Excellence Platine*, both of which stems from the Traditionnelle collection the Traditionnelle Date-Day and Power Reserve, and the Traditionnelle World Time. Following the timeless classicism of the collection, the *Collection Excellence Platine* timepieces feature a slender bezel with a knurled motif around the screw-down back, fitted with a sapphire crystal glass revealing the mechanical self-winding movement beneath. The dial face also bears the distinctive faceted trapeze-shaped hour-markers 'dauphine' hands.

Defined by its simple and uncluttered dial, the Traditionnelle Date-Day and Power Reserve has a central display of the hours, minutes, and seconds, as well as a pointer-type indication of the power reserve, the date, and the day of the week. Beneath its dial beats a mechanical self-winding movement developed and produced by Vacheron Constantin, the Calibre 2475 which bears the Hallmark of Geneva.

It was in 1932 that Vacheron Constantin made its first timepiece equipped with a world time mechanism, enabling a simultaneous reading of the time in 31 cities around the world, and the Traditionnelle World Time is a continual embodiment of that historic complication. Through consistent perfection from the Manufacture, the Calibre 2460WT of the Traditionnelle World Time is able to drive indications corresponding to the world's 37 time zones, including those offset from the Universal



Coordinated Time by a half-hour or a quarter hour, and complete with a day/night display via a central globe. Despite the intricate detail of the dial face, all indications are easily adjusted via its crown. As it is with the exclusivity of a timepiece from the *Collection Excellence Platine*, no more than 100 of each will be released. No exceptions.

Above: platinum gives the Traditionnelle Date-Day and Power Reserve an elegantly understated appeal. **Left:** the intricate dial face on the Traditionnelle World Time will keep its wearer up to speed on the time in 31 different cities.



Parmigiani Bugatti Aéroliethe flyback chronograph

It only appeared briefly at its debut in the 1935 Paris Motor Show, before mysteriously vanishing into the pages of history. Nevertheless Ettore Bugatti's Aéroliethe concept left a lasting impression and has captivated auto historians ever since. Till today, nobody knows of the Aéroliethe's fate, but its beauty has since been recaptured by the iconic Bugatti Type 57SC Atlantic coupe.

Drawing inspiration from the few photos and sketches that remain of the original Aéroliethe concept, Parmigiani Fleurier has reproduced the Bugatti's beautiful design cues on a remarkable timepiece, the Bugatti Aéroliethe flyback chronograph.

As it is with every exclusive timepiece from Parmigiani's Bugatti collection, the Aéroliethe timepiece draws its inspiration from the concept's most distinct characteristic, which in this case is the riveted magnesium body which runs from front to end. This feature has been reproduced on the case middle, with its four lugs and two chronograph push-buttons chamfered with an edge that evokes the riveted bodywork of the Aéroliethe

concept. These minute and precise details require a particularly noteworthy finishing work, with a number of specialist processes implemented by the craftsmen to carry out this meticulous task that no machine could ever achieve.

This timepiece is available with two dial options, one with a captivating "Abyss Blue" metallic lustre and the other being the enigmatic "Crème de Menthe" silvery sheen. Either one of these dials is carefully galvanised to achieve its striking appearance and unique hue. Accompanying the Aéroliethe chronograph, is a new pair of straps sporting a distinctive openworked "honeycomb" motif. Each honeycomb aperture in the top layer of leather is cut using a water jet to ensure the accuracy of its shape and preservation of the leather fibres. The two layers of leather are them assembled and hand sewn using a saddle stitch, adding a final touch of sophistication to the whole piece. The two-colour themes of the straps complement both the "Abyss Blue" and "Crème de Menthe" dial faces, further enhancing the sporty elegance of the Bugatti Aéroliethe chronograph.

Christophe Claret Maestro

With seven years of development behind the Maestro, Christophe Claret is ready to deliver unto the world their promise of a wristwatch equipped with a high-precision detent escapement: a mechanism generally found only on stabilised clocks. Unrivalled in terms of its performance and accuracy, the detent escapement is usually mounted on gimbals to provide a stable support. On a wristwatch however, the mechanism is prone to shocks.

The slightest shock to the mechanism can cause it to stop or even release the escape wheel and break. Furthermore, as is in the case of overbanking, in which an external shock can cause the balance wheel to oscillate with excess amplitude, this can cause a second impulse which will speed up the escapement wheel and disrupt timing. In the Maestro, Christophe Claret has found a solution to overcome the twin problems of overbanking and turning-over.

To ensure that the escapement functions with minimal risk of wear and damage, the Maestro incorporates additional protective and shock-absorbing systems. Its manual-winding movement on the other hand includes dual-mainspring barrels, a constant force mechanism, stop seconds, and a micrometric worm screw on the regulator to regulate the timing rate. Put together, the Maestro ensures that the precision

of the detent escapement can be retained on a wristwatch.

Three different versions of the Maestro are available, white gold and anthracite PVD-treated grade-5 titanium case, 5N red gold and anthracite PVD-treated grade 5 titanium case, and 5N red gold case, each version being limited to just 20 examples.



Above: watchmaker Christophe Claret combines both accuracy and reliability of a stabilised clock into a wristwatch with the Maestro.



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Commemorating 145 Years of Mühle-Glashütte

They say that a product from a particular region is often a reflection of their culture, and like the Swiss where many contributions to the horological world have been made, the Germans too are renowned for engineering precision. NautischelInstrumente Mühle-Glashütte is a fine example of German watchmaking, which continues its rich tradition of making fine mechanical precision measuring instruments since the company's founding by Robert Mühle in 1869. In the early 1920s the company established themselves as a supplier of tachometers, automobile clocks, rev counters, and gauges for the burgeoning automotive industry. The company, which was known as R. Mühle & Sohn, was also responsible for producing the on-board instrumentation for the Horch and Maybach, makers of some of the finest German luxury automobiles of that era.

Located in the Glashütte, East Germany, the company underwent major upheavals during World War 2 when it was expropriated by Soviet forces, broken up, and later converted into a state-owned company under communist rule of East Germany. However after the fall of the Berlin Wall in 1989, Hans-Jürgen Mühle, son of Robert Mühle, re-established the family business in 1994, to produce quartz marine chronometers as well as nautical timekeeping systems. Two years after its revival, the company applied their expertise and experience in fine precision instruments to the world of wristwatches with resounding success.

In celebration of the company's 145th anniversary, as well as the 20th year of the company's re-establishment, Mühle-Glashütte is producing an exclusive special edition range consisting of three models, the Robert Mühle Auf/Ab, the Robert Mühle Auf/Ab GOLD, and the Robert Mühle Kleine Sekunde. These special edition timepieces not only bear the name of the company's founder, but bears the RMK 01 and 02 calibres which represent the launch of the company's very own manufacture line, the "R. Mühle & Sohn".

Both the Robert Mühle Auf/Ab and Robert Mühle Auf/Ab GOLD recapture the classic elegance of Glashütte pocket watches, with fine etchings surrounding the minute track and its use of Roman numerals. Its 44mm case, which features finely notched bezels, and the large off-centred small second display, are reminiscent of the marine chronometers the company has been producing since 1994. The up/down complication is clearly displayed on the dial's 12 o'clock position, which indicates the RMK 01 movement's power reserves. When fully wound, the Robert Mühle calibre boasts a power reserve of 56 hours.

The simplicity and straightforward design of the Robert Mühle Kleine Sekunde on the other hand, is an ode to their pursuit of precision, right down to the finest detail. Its hand-wound RMK 02 movement is the second of the two calibres containing Mühle-



Glashütte's development of the swan neck fine regulation, the shockproof and patented woodpecker neck regulation, which ensure that they remain reliable and accurate in all conditions. Like the RMK 01 calibre, the RMK 02 are the first to include an engraved balance cock and screwed gold chaton as well as a three-fifth plate with a separate escape wheel cock. In commemoration of the company's 145th anniversary, Mühle-Glashütte will produce 145 examples of the Robert Mühle Auf/Ab and Robert Mühle Kleine Sekunde, while only 20 examples of the red gold cased Robert Mühle Auf/Ab GOLD will be produced in commemoration of the company's 20th year since it was re-established.

Both the Robert Mühle Auf/Ab (above) and Robert Mühle Kleine Sekunde (left) will be made in a limited run of 145 pieces each to commemorate the founding of the company, Mühle-Glashütte.

Girard-Perregaux 1966 – Enamel dial Limited edition

Prized for its rich finish and durability, enamel painting has become the choice of watchmakers who want to add a little bit of colour and intricate artwork into their creations. That being said, its beauty doesn't come easy, as painting in enamel requires skill and experience to achieve its desired appearance. The technique requires the right fixing of the enamel powder and ensuring its harmonious balance through heat during delicate firing stages. However once complete, the colours obtained remain unaffected by the passage of time or the effects of external factors.

It is of little surprise that Girard-Perregaux has resorted to using this traditional art to create a series of beautiful limited edition timepieces for their Girard-Perregaux 1966 collection. The Enamel dial Limited Edition features three unique dials, the 'Pur Sang', 'The Map', and 'The World', which showcase the watchmaker's exceptional watchmaking expertise and craftsmanship.

Inspired by one of the oldest horse breeds in the world, the 'Pur Sang' timepiece bears the imagery of the head of the Arabian horse through a meticulous miniature painting process. The process starts with a base plate enamelled in white. From there the artist painstakingly decorates the surface of the dial with the help of a microscope to ensure a precise finish. With every colour application, the dial is fired in the oven, starting from the most resilient colours to the most delicate ones. Once finished, the painting is sealed beneath a transparent layer of enamel.

Drawing out the world on the dial of 'The Map' and 'The World' might seem simple, but Girard-Perregaux's artisans went a step further and detailed

the beauty and diversity of the earth's landscape and varying climates. To achieve this detail, artists used the cloisonné technique, where the outline of the continents of Asia, Africa, Australasia, and Europe are laid out with a fine gold wire, in which enamel paint is carefully applied. Once the liquid enamel is applied, the dial is fired in the furnace at 800°C, after which once it is cooled; the excess enamel is removed through vigorous sanding using hard stone and water. As a finishing touch, the dial is manually polished with a diamond file and then fired to finally gilded.

Due to the difficulty in achieving its finish, especially on a canvas as small as the Girard-Perregaux 1966's 40mm diameter, the manufacture only plans to produce 50 examples of each series to maintain its exclusivity as unique pieces of art.



Above: "Pur Sang" mural was painstakingly painted with a microscope. **Left:** Girard-Perregaux's artists reproduced the terrain and climate of the world accurately on the dial face of "The World" timepiece.

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Panerai Radiomir 1940 3 Days Automatic Acciaio

Sporting the timeless simplicity that has defined Panerai's timepieces, the Radiomir 1940 3 Days Automatic Acciaio once again embodies the watchmaker's focus in making the dial even more visible in the most extreme usage conditions. On the Radiomir 1940 3 Days, the dial features a sandwich construction with two superimposed plates and features Swiss Grade-A Super-LumiNova to achieve optimum luminescence.

Beneath its understated appearance, the Radiomir 1940 3 Days features Panerai's P.4000 calibre, the first automatic movement with an off-centre micro-rotor, which was completely developed and created at the Officine Panerai manufacture in Neuchâtel. In order to maintain a thickness of just 3.95mm, the rotor itself is mounted off-centre and is smaller in diameter than the calibre itself, while a small oscillating weight is inserted within the movement, rather than superimposed

upon it. To maintain its accuracy, the movement itself uses twin supports for the balance cock for a more secure and stronger position. Its balance wheel which oscillates at 28,800 alternations per hour has variable inertia, enabling the rate to be adjusted precisely without altering the relationship of the balance spring and the bridge. Fitted with 31 jewels, the movement has a power reserve of at least three days, thanks to its two spring barrels connected in series.

For the steel case model, the P.4000 calibre in the Radiomir 1940 3 Days has its bridges in a horizontally brushed finish, blue engraving, and an oscillating weight of tungsten alloy, with relief decoration on its matt surface. As for the gold case model, the calibre's bridges have a circular brushed finish, gilded engraving, and a rotor of 22-carat gold topped off with a clous de Paris hobnail finish and polished decorations on the brushed surface.



Nomos Zurich Worldtimer

With its striking blue dial and contrasting fine white markers, the Nomos Zurich Worldtimer is effortlessly stylish with a cosmopolitan elegance. With the names of major cities listed on its inner dial, you can tell the exact time of each time zone of the world, be it in Bangkok, London, New York, or even Alaska. Highlighted in red is a subtle home icon, which reveals the time back home to the wearer at a click of a button. What makes the Zurich Worldtime of particular specialty is that it uses Nomos' own DUW 5201 calibre, the first automatic movement equipped with the in-house Nomos swing system. The Nomos Zurich Worldtimer is priced at USD6100 from www.nomos-store.com.



Greyhours Essential

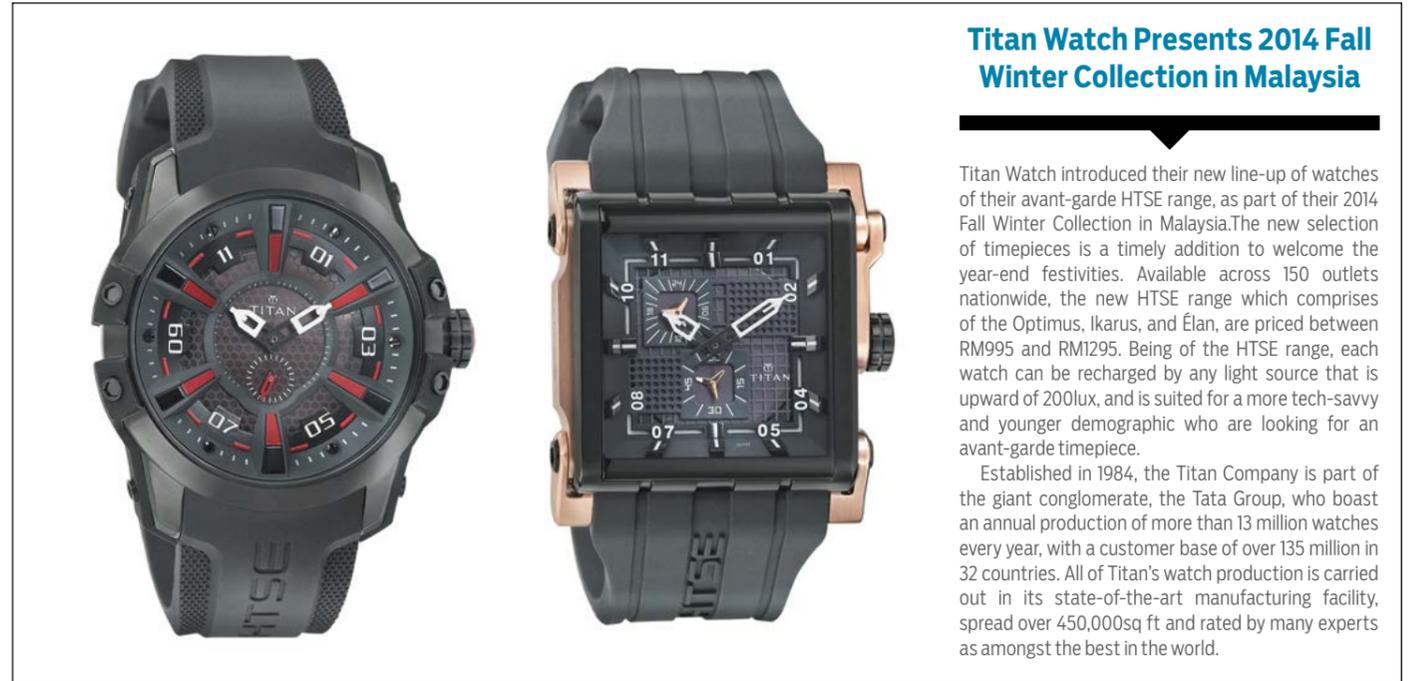
At the heart of every timepiece, regardless of the complication beneath or the intricacies of its design, it serves to measure time. That is the plain and simple purpose behind the Greyhours Essential, which managed to boil the art of horology down to its simplest, yet most elegant of forms. And yet, as a timepiece should be equally timeless in its operations, the Essential comes with a sturdy 316L brushed stainless steel case that is applied with an Iron Plating Hardened coating to house its Isaswiss quartz calibre 9232/1950, and fitted with a sapphire crystal with anti-reflective treatment on both faces. The Greyhours Essential retails for USD250 from <http://greyhours.com/>.



Titan Watch Presents 2014 Fall Winter Collection in Malaysia

Titan Watch introduced their new line-up of watches of their avant-garde HTSE range, as part of their 2014 Fall Winter Collection in Malaysia. The new selection of timepieces is a timely addition to welcome the year-end festivities. Available across 150 outlets nationwide, the new HTSE range which comprises of the Optimus, Ikarus, and Élan, are priced between RM995 and RM1295. Being of the HTSE range, each watch can be recharged by any light source that is upward of 200lux, and is suited for a more tech-savvy and younger demographic who are looking for an avant-garde timepiece.

Established in 1984, the Titan Company is part of the giant conglomerate, the Tata Group, who boast an annual production of more than 13 million watches every year, with a customer base of over 135 million in 32 countries. All of Titan's watch production is carried out in its state-of-the-art manufacturing facility, spread over 450,000sq ft and rated by many experts as amongst the best in the world.



Breitling Transocean 38

Elegance and class comes in the Transocean 38. It is a self-winding model with an elegant finish that has become one of Breitling's most stellar products.

Set with a steel case fitted with a slim beveled bezel and slender lugs features a 38 mm diameter that is ideal for all wrists. The dial bears applied hour-markers and the gold B initial that used to serve as the Breitling logo. The date appears in an extremely readable manner through a twin aperture at 12 o'clock, nicely counter-balancing the small seconds at 6 o'clock. The case back bears the historical Breitling symbol with its stylized embossed planes.

Turning to the mechanics, the Transocean 38 delivers an even better performance than its illustrious predecessor. With a case that is water-resistant to 100 m (330 ft), equipped with a sapphire crystal glare proofed on both sides, and houses a self-winding movement certified by the Swiss Official Chronometer Testing Institute (COSC) – the highest official benchmark in terms of precision and reliability.

The Transocean 38 also comes with a choice of a black or silver dial and is fitted with an original steel mesh bracelet in tribute to the original models, a perforated bracelet or a leather strap. For feminine wrists, Breitling also offers a mother-of-pearl dial (with or without diamond hour-markers) as well as an optional gemset bezel.



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Vertu for Bentley

It only seems fitting that a brand like Vertu, who has built their reputation as a maker of high-end luxury phones, would partner themselves with a brand that has become synonymous with high-end luxury performance cars. The 'Vertu for Bentley' handset represents the first of jointly released products to stem from a new five-year partnership of the two British luxury brands.

Simply known as the 'Vertu for Bentley', the handset combines English handcraftsmanship and contemporary elegance, with outstanding performance and cutting-edge technology.

Following the standards of luxury expected of a timepiece, the 'Vertu for Bentley' is made from the finest handcrafted materials available. Grade-5 titanium is used for the construction of its case, whereas solid sapphire crystal is used to create a scratch-proof screen, while the whole body is swathed in quilted calf leather, dyed in the classic Bentley shade of Newmarket Tan. And it isn't only in its construction that Vertu customers get the very best. The acoustics of the phone are tuned

in collaboration with Bang & Olufsen, and feature Dolby Digital Plus virtual surround-sound processing. As for photo-taking, Vertu continued its work with professional photography experts, Hasselblad, to achieve perfect image-capturing capabilities for the camera.

Exquisite construction aside, the 'Vertu for Bentley' wouldn't be a proper Vertu without the access to its first-class services prepared with it. The mobile device comes loaded with Vertu's dedicated 'Vertu Concierge' service, curated events and experiences via 'Vertu Life', and access to security services from 'Vertu Certainty'. To highlight their collaboration with Bentley, the handset features a unique 'Vertu for Bentley app', which delivers exclusive Bentley content such as access to official Bentley articles, exclusive experiences, recommended routes, and dealer information directly to the device.

This inaugural model will be followed by four distinctive, luxury smartphones, and will be produced in a limited number of only 2000 pieces, each priced at a lofty €12,500.



Leica M-P

Left: increased buffer memory to 2GB, sapphire crystal LCD cover, the Leica M-P is built for serious photographers.

Based on the otherwise identical Leica M, the Leica M-P offers all the technical advantages of the Leica M-System, along with several additional features, such as a buffer memory that has been increased to 2GB.

The camera includes a frame selection lever with which bright-line frames for six different focal lengths can be projected into the viewfinder to simulate subject framing. The corresponding frames are shown in pairs for the focal lengths 28 and 90mm, 35 and 135mm, or 50 and 75mm.

On top of that, the Leica M-P uses a scratch-resistant sapphire crystal cover for its LCD monitor, which is almost unbreakable and is highly resistant to many kinds of wear and stresses, meaning that the camera is ideally equipped for many years of use.

Accessories for this camera include a battery, Charger with power cables, a 12V charging cable, a carrying strap, accessory port cover, and a body cap. The Leica M-P is available now from authorised Leica dealers in two different versions: a black-paint version and a traditional silver chrome version.



Bang & Olufsen BeoVision Avant 85

Setting a new standard of innovation in your living room, Bang & Olufsen introduces the BeoVision Avant 85. An 85-inch screen with a direct type LED and 2D local backlight dimming which gives you the result of a more refined picture quality, and making it feel as if your home has turned into a cinema.

The BeoVision Avant 85 is also offering both a motorised stand and a wall bracket option, the BeoVision Avant 85 will blend into your interior. Once you switch it on, it shows off its full optional through a choreographed unfolding system. Along with the touch one button on the BeoRemote One, the BeoVision Avant 85 will adjust itself to your liking by analysing your favourite position, your favourite channel, and even your favourite sound settings. When you switch it off, the BeoVision Avant 85 is carefully choreographed to fold itself back, the speakers fold back and returns to its discrete place, closed up against the wall.

Left: the BeoVision Avant 85 doesn't only remember your favourite channels, but also your favourite position and sound settings.

Valbray Celebrates 100 Years of Leica Photography with EL1 Chronograph

With a design and engineering philosophy centred on the world of photography, it is only customary to acknowledge the centenary of one of the most iconic names in photography, Leica. As the German maker of high-end cameras celebrates 100 years this year, Valbray has collaborated with Leica Camera AG to produce a limited edition timepiece to commemorate the occasion.

Central to the EL1 Chronograph's design is Valbray's unique Oculus diaphragm system that acts as a cover for the dial face. By twisting the watch's 46mm bezel, the mechanism's 16 individual blades retract to reveal the specially designed chronograph of the watch beneath. The design and appearance of the dials are reminiscent of Leica cameras as the date indicator, minute cursors, and hour dial recalls the layout settings on a Leica, whereas the seconds dial in the 9 o'clock position reproduces the design of the isometric button. As a final ode to the illustrious camera brand, the metallic engraving of 4.5 at the 4 o'clock position harks back to the aperture of the first Leica camera.

Only 100 pieces of this limited edition timepiece will be produced, of which 50 examples will be finished in sanded titanium and the remaining 50 coated with a diamond-like coating. The Valbray EL1 Chronograph is available from Leica Stores with a price tag of €17,999.



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AUTOArt 1/18 Aston Martin One-77 Diecast Model

No doubt Aston Martin's One-77 supercar was one of the most exciting models to have emerged from Gaydon in the company's long and illustrious history, and perhaps one of the most exciting supercars to be launched then. For the many who aren't fortunate enough to be able to afford one of the 77 planned examples ever made, the One-77 has remained a car of near mythical proportions as no test drives were ever warranted to those who aren't paying customers.

Nevertheless for most of us, the One-77 will be remembered as something that evokes awe and aggression, a quality which has been faithfully reproduced by diecast model makers AUTOArt. As it is expected from AUTOArt, the beauty of the One-77 1/18 diecast model isn't just its flamboyant body, but all the little details such as the quilted heat shielding on the bonnet that is propped up on miniature struts, the intricate inboard suspension system on both ends of the car, the four exhaust ports that sit flush with the rear diffuser, and the carbon fibre print on the seatbacks and internal structures.

The One-77 is available in four colour combinations; pearl black exterior with a tan interior, spirit grey body fitted with a white cabin, the iconic Villa D'Este Blue complemented by a tan interior, and the Morning Frost

white paintjob with a striking red cabin. All four are priced at RM640 each, from Diecast Empire, and at that price and with all that detail, there is little reason to be sore at not being able to afford the real deal.



Livescribe Notebooks by Moleskine

For all of technology's recent advances, handwriting remains a skill that allows for the quick and instantaneous transfer of ideas into a physical medium. Smartpen makers, Livescribe, have introduced a new series of notebooks with iconic notebook maker Moleskine.

The Livescribe Notebooks by Moleskine is a series of notebooks that has been designed to specifically work with Livescribe smartpens to capture and transfer notes and images from paper and digitise them on your computer or mobile device. Besides transferring written notes and images onto a digital medium, users can also use the Livescribe smartpens to record audio

files that are linked to their written notes, and can even tag and flag items by simply tapping the on-page icons located on the edge of every page with the tip of their smartpen. Thenotebooks are accompanied with two bookmarks, printed with the smartpen buttons and controls.

Aside from the graphics, which work with theLivescribe smartpen, the Livescribe Notebooks come with the same ivory-coloured and acid-free paper that has become the hallmark of the Moleskine name. The Livescribe Notebooks by Moleskine is available for order online at www.moleskine.com/livescribe, for USD29.95.



Panasonic Lumix CM1 Smart Camera

As seen with numerous phones such as Nokia's Lumia 1020 or the iPhone 6, phones with powerful and capable cameras are fast replacing dedicated cameras, as users prefer their portability and connectivity. Panasonic is the latest to take their Lumix range of cameras into the mobile devices territory with the CM1 Smart Camera.

The CM1 packs an impressively large 1-inch camera sensor and an f/2.8 Leica lens, which is said to deliver camera quality images in 20MP resolution. It will also be able to record 4K videos at 15 frames per second, and 1080p videos at 30 frames per second. Even with a 4.7-inch 1080p touchscreen, 16GB built-in memory, 2600mAh battery, and a 2.3GHz quad-core CPU for running Android's 4.4 KitKat OS, Panasonic says the CM1 will only be 21.1mm thick and weigh in at 204g. The only heft in the CM1 is its €899 pricetag.

Montblanc and Samsung Unveil Galaxy Note 4 Accessories

Montblanc makes its way into technology with this collaborative collection that features a variety of accessories specifically designed to suit the Galaxy Note 4; the new device which has elevated the iconic status of Samsung's successful Galaxy Note line. The collection features the union of Samsung's advanced S Pen technology with Montblanc's latest writing instruments, the Pix Pen and e-Starwalker Pen.

The Pix Pen features an e-refill in black and blue ink, while the e-Starwalker Pen has an e-refill and an analog ink refill. The StarWalker e-Refill will also be available separately for existing owners of the Montblanc Starwalker writing instrument.

Another accessory to go with the Samsung Galaxy Note 4 is the Montblanc Meisterstück Soft Grain Cover and Montblanc Extreme Cover, two luxurious flip cover cases specially designed by Montblanc Firenze Pelletteria leather artisans that feature a digital ID chip that when attached to the Galaxy Note 4, provides users access to exclusive downloadable Montblanc digital content.

Other add-ons include a Montblanc version of SNote featuring unique pen settings, cover and template, as well as a 3D-effect ink home screen wallpaper and unlock effect. The Samsung and Montblanc collection is available at Montblanc stores.



Add some style to your electronic gadgets with Montblanc's Pix Pen (top), e-Starwalker Pen (above), and Extreme Cover for the Galaxy Note 4

LG G Watch R

It is said to be the world's first watch-style wearable device to feature a circular Plastic OLED display. Despite its round shape, the new LG G Watch R is said to utilise 100 percent of its watch face display.

Powered by a powerful 1.2GHz Snapdragon 400 processor, the LG G Watch R offers 4GB of storage, 512MB of RAM, and a durable 410mAh battery. This Android wearable will effortlessly run all compatible apps available in the Google Play Store, and with an Ingress Protection Rating of IP67, it is designed to run for up to 30 minutes in one meter of water.

As well as a suite of LG health and fitness apps, users

can also monitor their heart rates with the support of the embedded photoplethysmography (PPG) sensor. The smartwatch also delivers notifications and reminders of missed calls and messages, upcoming meetings, events, and local weather forecasts.

This elegantly crafted Android wearable has classic curves encased in a strong, durable stainless steel frame and carries a range of watch faces that are accessible with a simple touch of the display. Its interchangeable 22mm calf skin leather strap also complements its overall aesthetic, giving it an air of modern prestige.



Gramovox Bluetooth Gramophone

If you have a sound system in your house, you can be pretty sure that it has the same features, buttons to activate its features, lights to indicate if it is on, most likely in a cylindrical shape, and perforated grille covering the speakers. American start-up company, Gramovox, aims to revive the long forgotten acoustic instruments of the 1920s with their charmingly retro-styled Bluetooth Gramophone.

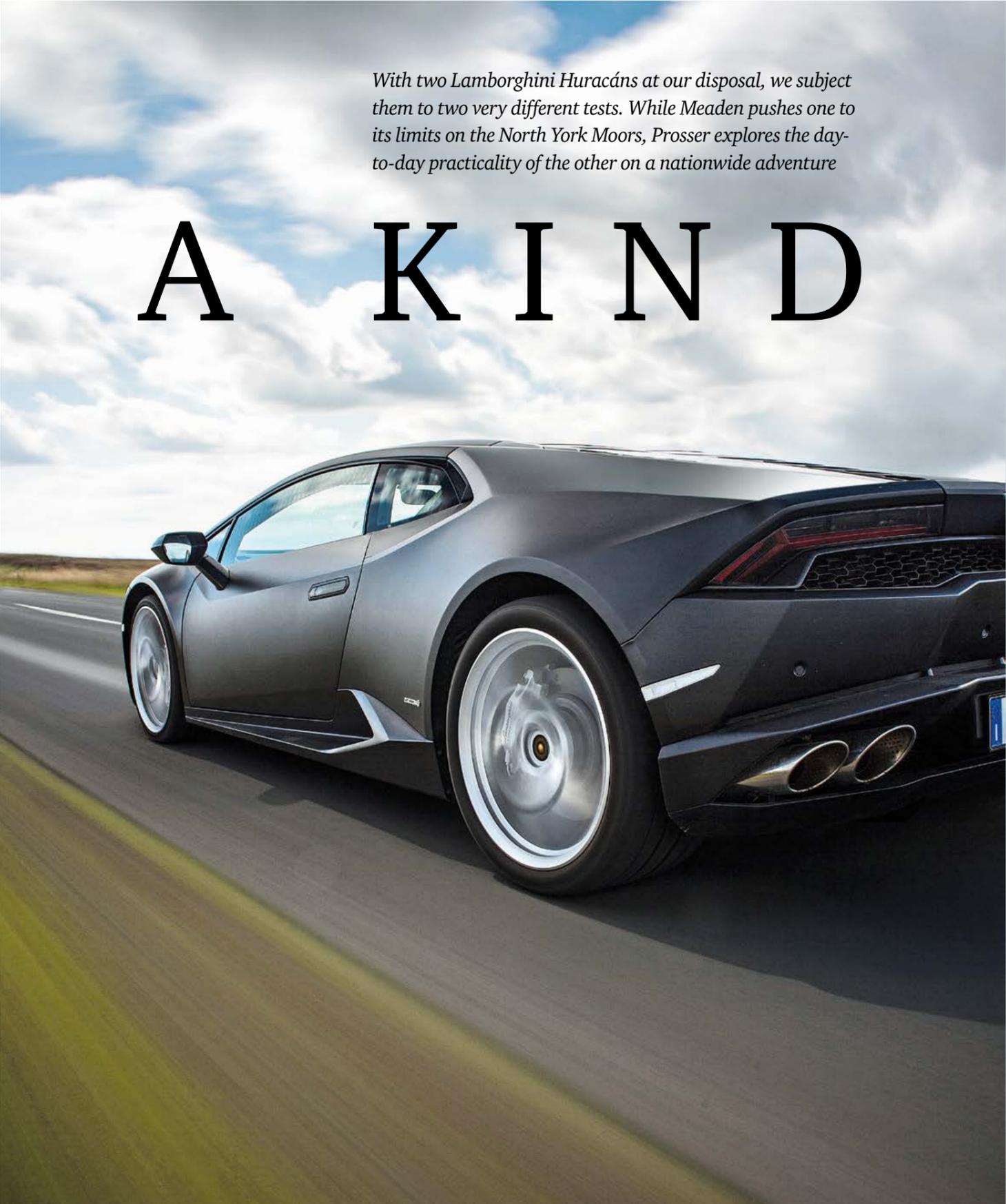
Measuring in 505mm in height, and mounted to a 216mm by 101mm wooden base, the Bluetooth Gramophone looks more like a silent standing sculpture than an audio player. Its S-Curve horn is a 3/4 scale reproduction of the radio horn speakers of the 1920s, from which it draws its inspiration from. The steel horn is manufactured from the same 1920s techniques, and is hand-welded together, polished and powder-coated in black to give it a vintage look. Beneath its minimalistic appearance, the Gramophone has a 38mm neodymium speaker and is powered by a 2W amplifier.

The Gramophone runs on a built-in 3300mAh Li-Ion battery capable of delivering a playback time of between 12 to 18 hours, with charging done through its micro USB slot neatly located behind. Users can either hook their mobile device up to the Gramophone with a 3.5mm audio jack or connect to it wirelessly via Bluetooth 4.0. The Gramovox Gramophone is available for order at <http://gramovox.com/> and is priced at USD399.99.





TWO OF



With two Lamborghini Huracáns at our disposal, we subject them to two very different tests. While Meaden pushes one to its limits on the North York Moors, Prosser explores the day-to-day practicality of the other on a nationwide adventure

A KIND

by RICHARD MEADEN | PHOTOGRAPHY by DEAN SMITH

THE UK ROAD TEST



060 EVO

THE HURACÁN MIGHT be an all-new Lamborghini, but the rituals remain the same. The thrill as you're handed the key. The urge to immediately pop round to see a mate. Setting a 3:45am alarm. The tingle of excitement as you quietly leave the house and swing open the driver's door. The cringe as you start the engine and inevitably wake your wife, your dogs and half the neighbourhood. The gentle few miles to let the car and your brain warm up, followed by the long motorway schlep to reach hallowed tarmac. The moment you first delve into its performance and feel your heart begin to pound like a hammer...

This is the first time I've driven a Huracán and the first time we've experienced it in the UK. Though it's a road tester's job to fight them, first impressions count for a lot, which is good news for Lamborghini because this car brings out the 12-year-old in everyone, including me. It's not as bonkers-looking as the Aventador – the shape is softer, the intent less explicit – but the tight curves, rakish angles and meticulous detailing combine to create a small car with big presence.

I'm not a lover of the satin black paint, though its name, Nero Nemesis, is gloriously OTT. Once you've torn yourself away from gawping at the bodywork and turn your attention to the interior, you discover a cockpit that's just as enthralling. The fabulous array of toggle switches look sensational and work well, too. The main TFT instrument display is equally influenced by aeronautics, though it's too small for all the information to be truly legible if you try to combine the car's vital signs with the tachometer and satnav map. A secondary TFT instrument cluster located in the centre stack of the dash is a nice nod to old-school Lambos, which all featured additional instruments ahead of the gearlever.

The childish glee with which your brain registers 'Temp. Acqua', 'Benzina', etc writ small on the gauges is surpassed only by the trigger guard that needs to be flipped up before you can start or stop the engine. It's silly, but never fails to tickle me. It's all high-octane theatre, so unabashed and impressively executed that you'd have to have a heart of stone, or your head rammed firmly up your own tailpipe, not to be caught up in the magic of it all.

Flick up the red guard, press the black button and from the moment the 5.2-litre, 610PS V10's combustion chambers ignite – cylinder 1 followed by 6, 5, 10, 2, 7, 3, 8, 4 and 9, in case you were wondering – you're sitting in the midst of a sensory maelstrom. The noise is gritty, textural, almost caustic in quality. It's not mellow or musical, but not industrial either. It sounds organic, respiratory and exultant. It sounds like a supercar should.



Top: TFT display covers all the vital numbers. **Middle:** fighter jet-style ignition switch adds to the sense of drama. **Above:** headlights continue Lambo's angular styling cues. **Left:** standard seats look good but are severely lacking in comfort

Shell
HELIX ULTRA
Motor oils



Left: matt black paintjob gives Huracán extra presence. **Below:** 5.2-litre V10 from the Gallardo is tuned to 610PS here. **Below left:** quartet of exhaust pipes emit a proper supercar rasp



So, of course, did the Gallardo: a car that became faster and more extreme with every iteration, defiant in the face of its advancing years. The Huracán can't compete with the drama of, say, a Squadra Corse, but the recently unveiled (rear-wheel drive...) Huracán Super Trofeo racer more than proves it will in time. What it does achieve straight off the bat is a level of finesse that always eluded the Gallardo. You notice it first in the quality of the DCT gearshifts, which are on a different level to those delivered by the old single-clutch transmission. Quick and clean, yet positive enough to make you feel connected, it takes the clunkiness out of the process of making progress, and makes the Huracán a pleasure to drive. And the gearshift paddles, which resemble the crescent blades of a Saracen war axe, are really great to use thanks to their sharpened leading edges that give your fingers something to hook on to. They provide precision-machined tactile metaphors for the so-sharp-you'll-cut-yourself gearshifts they promise to deliver in the more aggressive dynamic modes.

The damping also has a new level of control and additional layers of sophistication. Road noise is more intrusive than in something like an R8, and the body control feels tighter than a 458's, but whilst unarguably firm, even in the most pliant Normal mode there's genuine isolation from surface imperfections that smoothes the roughest edges from the low-speed ride. You can tighten things further via the steering wheel 'ANIMA' switch (that's Adaptive Network Intelligent Management,



and perhaps not coincidentally also Italian for 'soul'), but when you're going slowly or chugging down the motorway there's no need.

What about the steering? Hmm... Well, our test car is fitted with the dreaded Dynamic Steering, which has ruined many a potentially great Audi and threatens to do the same with the Huracán. It's a relief to find it's not totally horrid, at least not on normal roads at sane speeds, though I'll qualify that early by saying there's something not right about the rate of response versus steering input and angle. It's least noticeable in Normal mode, but a quick toggle through Sport and Corsa on the motorway and a quick wiggle of the wheel suggests it could get in the way of the driving experience when we get to challenging roads.

For now, as with any 600PS supercar, the remaining motorway mileage as we head towards the North York Moors is an exercise in self-control, punctuated by furtive exploration of the throttle's travel. Even when left in top

gear, one smooth squeeze reveals fabulous reserves of performance. Get your head in the right frame of mind and just knowing you've got it, rather than feeling compelled to use what's at the command of your right foot, brings a growing sense of satisfaction.

There's another reason you won't be continually working the throttle pedal, and that's the fact that the Huracán's seats (regular chairs too, not the fixed-back carbon buckets in the sister car Dan Prosser is testing) are so uncomfortable that your right leg will be numb in less than an hour. I'm not sure what it is that makes them so excruciating, but when you resort to operating the throttle with your left foot on the motorway so you can waggle your right leg about in an effort to restore some feeling, you know there's a problem. The passenger seat's not much better, at least according to Mrs Meaden, and I recall Jethro Bovingdon commenting that he'd experienced discomfort in his original launch drive. Lambo: sort your seats out!

IF THERE'S ONE THING GUARANTEED to take your mind off your sore back – and your pre-dawn alarm – it's the ragged scribble of tarmac that climbs from the picturesque village of Hutton le Hole up onto the North York Moors. It's still not yet 7am, the weather is perfect and the low-speed conga of caravans and day-trippers that can ruin the rhythm of this epic road is yet to assemble. In 20 years of coming here I can count on just two hands the times I've had a clear, uninterrupted run across the moor

to Blakey Ridge and beyond. All the indications are that this could be another, in which case the next 30 minutes are critical for the Huracán.

To be fair, we're giving it an appropriately epic stage on which to perform. Few roads in my experience will dig so deep into a car's capabilities, nor deliver such a rush in the process. It really is one where you draw breath and steady yourself before tackling it in a properly quick car. Endless sight-lines mean you can pick your moment, while relentless lumps, bumps and potholes make it feel like some kind of accelerated durability test road. The sense of space and scale allows the biggest players to hit their stride, yet enough tangles punctuate the fast straights and long, inviting arcs to tease out the flaws in feel and fluidity.

Pull the little red ANIMA control down once to engage Sport (Strada doesn't control vertical

movement tightly enough, but Corsa is way too stiff, for this road at least) and you feel the damping tense just enough, the gearshift become more alert and the engine more urgent in sound and deed. The V10 has plenty of guts low down and into its prodigious mid-range, but it's the last 2000rpm where it really bares its teeth. It's a bigger, ballsier engine than the 458's, but no less keen to rev. Then, with every downshift or release of the throttle, a rapid salvo of pops and bangs spits from the exhaust pipes. Yorkshire's hard winters have taken their toll on the road surface, which, combined with the nature of the terrain, means you're constantly encountering crests and compressions that interrogate a car's damping as thoroughly as any lap of the Nürburgring. It's a wild ride.

You know the Huracán has you when your heart rate feels hard-wired to the tacho, revs

and beats flaring as you breach yet another rise and all four wheels slip gravity's grasp for a delicious millisecond of zero-G. If you've ever jumped a car, you'll know it's not the leap but the landing that's critical. The Huracán flies true and lands like an Olympic long jumper, springs and dampers absorbing the landing as if touching down in a smoothly raked pit of soft sand. Even up here on this rollicking road, nothing seems to faze it.

If the unflappable damping is a surprise then so too is the welcome confirmation that the Huracán's carbon brakes are in a different league to the Gallardo's for feel, progression and ease of modulation. No more that horrid, grabby, impossible to finesse slam of initial retardation. Instead you have that reassuring firmness underfoot and just enough response from lightly covering the pedal to give you

'Even up here on this rollicking road, nothing seems to faze the Huracán'



confidence. Push harder and, as if controlled by a rheostat rather than a switch, the intensity of stopping power feels far more closely connected to the rate and insistence with which you press the pedal. Together with the gearbox and damping, it's a big step forward for the Huracán and addresses a fundamental failing that always blighted carbon-braked Gallardos.

So it goes like the clappers and stops like you've deployed a hook onto an unseen arrestor wire strung across the road, but how does it cope with corners? As you'd expect, the Huracán's all-wheel drive means traction is total. The steering remains a little disconnected, not so much from the road but in the relationship between the amount of lock you've applied and the angle of the front wheels. It's not awful, but it's always slightly at odds with your other sensory reference points. I can't put my finger on precisely why, but I think it magnifies the feeling of the Huracán's mild but ever-present understeer. To be honest, I'm not sure I've

experienced anything quite like the Huracán in maximum-attack cornering mode. Such is the level of stability, total traction and raw grip – all the while tinged with the feeling of the nose *just* pushing fractionally wide of your mark – it rarely feels totally keyed into the surface, but still it seems to dig deeper and deeper into an apparently bottomless reserve of road-holding.

The harder you try, the more the Huracán grips and the more absurd the process becomes. It's like a Nissan GT-R without the bulk and like a 650S with twice the driven wheels. I'm sure there are corners where you could poke and cajole it sufficiently to assume a neutral or maybe even an oversteer stance. But in the real world – and even in the world where you're required to try and throw a wholly unrepresentative shape for the benefit of a camera – the Huracán remains a steely-eyed corner assassin. To my mind (and taste) the sweet spot sits somewhere between this and that of the tyre-smoking show-boater. So,

while there's no arguing with how dizzyingly effective the Huracán is, I'm not sure the world needs a road car that requires you to show reckless commitment through a series of corners before you feel like you're beginning to test it or get something back from it.

All of this confirms the Huracán is a very different kind of Lamborghini. Superficially true to type, yes – it looks like a spaceship and sounds like the apocalypse – but I'm left feeling there's been a definite shift in its dynamic character. Its depth of ability is significantly greater than the Gallardo's, as you'd hope given the outgoing model's advancing years, but with that capability comes something that doesn't quite sit true, at least to me, and this time I'm not talking about the excruciating seats.

Yes, the horrid Dynamic Steering is a factor. We always feared it would ruin the car, so it's testament to Lamborghini's engineers that they've de-Audified it as much as they can. That brings some consolation that the driving

'It's a surprise that the perennial supercar wild child should be the one to pursue out-and-out cornering pace'

Below and right: combination of twists and turns, long, clear straights and varied surfaces make the North York Moors the ideal location to put the Huracán to a thorough test



experience isn't destroyed, but the fact it's offered at all is symptomatic of a greater, creeping malaise. The Gallardo was always a robust, boisterous, physical machine to drive. Not as delicate or highly strung as the equivalent Ferrari, but a more bullish (pardon the pun), punchy, in-ye-face experience. That could sometimes mean it also felt slightly yobbish, but it was always unapologetic and always exciting.

The Huracán retains that welcome attitude in its power delivery and engine note, but when you strip away the blood and thunder you're left with something that's defined by a steely self-control that's at odds with Lamborghini's lunatic legend. As the Ferrari 458 becomes more and more expressive, and McLaren reveals a slightly more approachable, fun-loving side with the 650S, it's a surprise that the perennial supercar wild child should be the one to pursue out-and-out cornering pace and an inert handling balance at the expense of accessible excitement.

When the Germans took control of

LAMBORGHINI HURACÁN LP610-4

Engine	V10, 5204cc
Power	610PS @ 8250rpm
Torque	560Nm @ 6500rpm
Transmission	Seven-speed dual-clutch, four-wheel drive
Front suspension	Double wishbones, coil springs, adaptive dampers, anti-roll bar
Rear suspension	Double wishbones, coil springs, adaptive dampers, anti-roll bar
Brakes	Carbon-ceramic discs, 380mm front, 356mm rear, ABS, EBD
Wheels	8.5 x 20in front, 11 x 20in rear
Tyres	245/30 R20 front, 305/30 R20 rear
Weight (kerb)	1532kg
Power-to-weight	398PS/tonne
0-100kph	3.2sec (claimed)
Top speed	325kph+ (claimed)
Consumption	12.5L/100km (NEDC Combined)
Basic price	£186,760
On sale	Now

evo rating: ★★★★★

Sant'Agata it's fair to say we all feared the cultural change they might bring, but the Murciélago, Gallardo and even the Aventador have done more than enough for us to keep the faith. With predecessors of that calibre, it's really saying something that the Huracán is the most capable and accomplished car Lamborghini has ever made. Still, I can't shake the sense that while it has gained much in terms of finesse, sophistication and sheer ability, it has also lost something vital in the process. We're not mourning the eradication of flaws for us to sentimentally dress up as character and charm; it's simply that even if you can ignore the failings of the (thankfully) optional Dynamic Steering, the Huracán bears a very different dynamic fingerprint to its forebears. It's evidence Lamborghini has got deadly serious, but in focusing so tightly on locked-down handling it seems the Huracán has failed to understand that the bigger picture includes fun to go with ferocious speed. ☒



by DAN PROSSER

PHOTOGRAPHY by ASTON PARROTT

LIVING WITH

THE HURACÁN

I **IF FAMILIARITY BREEDS CONTEMPT,** I should be about ready to give the new Lamborghini Huracán a damn good thrashing with a bit of tree by now. It's a Monday morning in August and I've just pulled into the office car park. Over the course of the last six days I've driven this pearly projectile to all four corners of England, on moorland road and motorway, on country lane and city street. It's been as constant a fixture in my life for the past week as my own right hand. This is my account of 2068km at the wheel of the supercar of the moment.



'There can be no doubt that the Huracán cuts quite a dash on the streets of London'



WEDNESDAY

621

KILOMETRES COVERED

Aston and I meet for breakfast at our St Albans hotel at 8:00am. We need to point the Huracán north ahead of tomorrow morning's cover shoot in Yorkshire, but we've nowhere to be until then. It's too early to aim for the moors, so I instead filter onto the M1 with England's north-west in my sights.

I have sat on uncushioned church pews and countless budget airliner seats. I've known what it is to suffer the tortuous embrace of a spine-twisting chair, but by Watford Gap services the Huracán's optional sports seats are causing my lower back so much trauma that I'm forced to pull in. Neither the seat nor I are blessed with much padding and there isn't enough lumbar support. I'd tear them out and sit on the carpet if they didn't look so cool.

Bravely, we press on. Seats aside, the Huracán is a pretty undemanding long-distance companion. It's a mid-engined supercar so there is naturally a large amount of road noise to talk over, but the ride in Strada mode is surprisingly pliant.

Over the din of P Zeros hitting tarmac and the screams of my lower back, Aston and I formulate a plan. The Huracán is baby Lambo number five, following in the wake of the original Urraco, the Silhouette, the Jalpa and, more recently, the Gallardo. Just as that thought develops, the editor sends through a text with a link to Amari Super Cars' website, specifically its advert for an immaculate green Urraco. We drop

Amari's head of operations, Ali Keyhani, a line and arrange to say hello.

Amari's showroom in Preston is a real treasure trove. Before allowing myself to be drawn towards the Urraco, I take a moment to wander around a bright orange Gallardo. It's a familiar shape now and as I peer back through the showroom's glass front towards the blade-like Huracán outside, I can't help but think the Gallardo looks a little tame in comparison.

On looks alone, the Urraco could be anything but a Lamborghini: a Maserati trident would sit more restfully on its rump than a Lamborghini bull. It's subtle, restrained and modest, a reminder that Sant'Agata once did more than shock and awe. After poking around the Urraco's cabin for a short time, it occurs to me that the Huracán has nothing whatsoever in common with the original baby Lamborghini. I'm beginning to wonder if the new car is anything more than an Aventador that's been scaled back by 15 or 20 per cent in all areas; the exact same experience, but with the volume turned down. Is Lamborghini as we know it today just a bit one-dimensional?

From Preston we cut across the M62 towards Pickering on the edge of the North York Moors. We check into a hotel, drop our bags and aim the Huracán's scalpel nose at Blakey Ridge to recce tomorrow's photography location and catch the last of the setting sun.

Left: Huracán turns (plastic) heads in Soho.

Below left: Bianco Canopus example is the first off the trailer at evo Towers, with just 1420km on the clock (below right).

Far right: Urraco was the first 'baby' Lambo

TUESDAY

198

KILOMETRES COVERED

A delivery truck arrives just after lunch. Whenever a car of note turns up at the office, it's necessary for the full editorial team to head outside and supervise its unloading from the truck. Should two examples of the same model arrive at once, said team must spend at least 15 minutes discussing the relative merits of Bianco Canopus white and Nero Nemesis black. This is not, in any way, an attempt to skive off.

So we now have a small herd of Huracáns in the car park. Dickie Meaden is to take the black car and concern himself with chassis balance and steering feel – or not, as it will turn out – while I nab the white one. With Dickie writing the dynamic assessment, my brief is a rather horny one. 'Get to know the Huracán inside out,' said the editor. 'And take a photo of it outside a strip club.'

The car needs to be back at the office on Monday morning. There are just two hard points in the week ahead: I need to

be on the North York Moors on Thursday morning, where I'll meet Dickie and Dean Smith to shoot the news-stand cover image, and on Friday I've got an unrelated work engagement in Bedfordshire. Otherwise, where staff snapper Aston Parrott and I go is entirely up to us. We don't have a plan, except to cover lots of ground in as many different settings as we can contemplate, but we do have a fuel card and, well, a brand-new Lamborghini, for heaven's sake. This will be no hardship.

Our first mistake is to head directly into central London. The logic was fairly sound – Knightsbridge is the natural habitat of the exotic supercar, after all – but as I find myself reversing the wrong way down a Soho side street, which I observe is almost precisely the same width as a Lamborghini Huracán, that logic seems terminally flawed. Hell hath no fury like a London minicab driver asked to reverse 50 metres.

In truth, the Huracán is an infinitely more manoeuvrable machine than its

V12 stablemate, the Aventador. Whereas the Huracán slips through the night-time traffic around Piccadilly Circus quite effortlessly – twin-clutch gearbox swapping cogs smoothly, steering light, visibility pretty good – the Aventador is a bit of a monster around town.

There can be no doubt that the Huracán cuts quite a dash on the streets of London. The shape is still unfamiliar and it pulses with aggression, so it turns heads like nothing else. Causing a scene wherever we go is fun for a little while, but we then make our second mistake by parking up outside a West End theatre. Aston leaps out to bag a few shots, looking to the untrained eye like one of those hateful celebrity paps. As gawping tourist after grinning idiot lines up to have their photograph taken with the Huracán's bewildered driver, it soon becomes clear to me that the ability to turn heads is not one to celebrate. To all those who thought they'd bagged a shot worth a few quid to *More* magazine, I sympathise.



THURSDAY

444

KILOMETRES COVERED

The North York Moors are quite chilly at 7:30am. We meet Dickie and Dean to get the two-car cover shot in the bag, but not before I've spent 30 minutes cursing our car's matt white paintwork. To my eye it looks superb, but try wiping 500km of road grime away from it with some Evian and a dirty microfibre cloth and you'll also think it the paintwork of Satan.

As luck would have it Dean's mate has popped along in his Aventador Roadster (Dean's a freelancer now so he mixes in higher circles), which gives me an opportunity to put my theory about

Lamborghini being one-dimensional to the test. Leading horologists are yet to agree on a term that describes the amount of time that passed between the Aventador rolling into the lay-by and my theory being jettisoned. Watch the scissor doors rise, see the inboard rear suspension through the glass engine cover and be reminded of its exotic carbonfibre tub, and the Aventador immediately seems a totally different animal to the Huracán. I would welcome a third Lamborghini model with a less manic mindset, but there's plenty of daylight between its existing cars.

FRIDAY

317
KILOMETRES COVERED

Having travelled home to Northampton the previous evening and with today's work duty in Bedfordshire done, I make for the West Country family seat. I've agreed to show the car to a friend near Gloucester before dropping down to Bristol, which means trading the M4 for the flowing A-roads of the Cotswolds. Dickie has said all you need to know about the way the Huracán drives, but what stands out to my mind is the speed it carries cross-country, the pliancy of the chassis and the sheer lamentability of Dynamic Steering. A

tick in that box on the options sheet is as offensive to me as a Jimmy Carr one-liner is to Germaine Greer.

Friday evenings should be spent in the pub, but when you have the key to a new Lambo in your pocket, more time is spent taking friends out for a ride. To a soul they all love the styling, the presence, the violence of the acceleration and the ripping noise of the V10. A million thanks, I should add, go to the inebriated but affable fellow who, after sitting in the Huracán, explains that I've 'made his day come true'.



SATURDAY

153
KILOMETRES COVERED

A day of giving friends and family rides in the Huracán. No bother. This is the kind of car that one should share. I also notice that we've been averaging 13.2L/100km. This serves as a reminder that I must try harder.

'A day of giving friends and family rides in the Huracán. This is the kind of car one should share...'



SUNDAY

311
KILOMETRES COVERED

It's all well and good some scruffy car journalist and his mates thinking the Huracán is a bit of alright, but if the guys who actually spend their own money on these things reckon otherwise, Lamborghini could have some bother. Today, *evo* and sister title *Octane* are exhibiting at the Classic Supercar show at Wilton House near Salisbury. The place will be more densely populated with supercar owners than a Harry Metcalfe dinner party, so I arrange to display the Huracán on our stand to canvass the thoughts of existing Lamborghini owners.

In the company of Miuras and F1s, a Huracán will still draw a crowd. Particularly if you sit there revving the nuts off it. Ahmed, newly an Aventador owner, wanders over for a peek. 'Amazing,' he says. 'It is a beautiful car, but I think it's feminine. I've had three Gallardos, which were nice, but I wouldn't have one of these because it is more feminine.'

'I like the fact that my car is quite aggressive,' says Gallardo Spyder owner John. 'The Huracán's styling is very good, particularly at the back of the car. I'd pick a more outrageous colour, though.'

Between Bath and Salisbury, enough rain falls to have Noah digging around for some two-by-fours – and enough to make me consider turning around and going back to bed – but even in these conditions the Huracán feels entirely sure-footed.

Having started the V10 and given the throttle a few stabs, Murciélago owner Martin is impressed: 'Yep, I'd definitely go back to a V10. I'll probably get one of these...' I promise myself on the long drive home that I will claim my commission.



1: thinly padded optional sports seats are friend of the eye but foe of the back; standard seats are no more comfortable. 2: the one Lambo that Prosser can actually afford. 3: oh-so-'70s slats on the Urraco. 4: threading a Huracán through Piccadilly Circus is easier than doing the same with an Aventador. 5: Huracán reaches Windy Hill near Saddleworth Moor on the M62, the highest point of the UK motorway network. 6: returning 13L/100km during our test, this Lambo doesn't necessarily need to be accompanied by a tanker. 7: Prosser looks hard for similarities between Urraco and Huracán. 8: drawing plenty of attention at the Wilton Classic Supercar show. 9: differences between Huracán and Aventador are laid bare as the two are parked side-by-side on the North York Moors



MONDAY

24
KILOMETRES COVERED

My week with the Huracán draws to a close. The delivery driver loads it onto his truck, and as I walk back to my desk and consider life without a supercar of my own, it occurs to me that my only two criticisms of the car relate to the steering and the seats. The hateful Dynamic Steering can be avoided by not ticking that option box, while the seats must surely be an easy fix

given the rest of the VW group is capable of designing comfortable chairs. With these problems cured, I'd be hard-pressed to find much wrong with the Huracán.

After six days and 2070km my lasting impression is one of theatre. That mightn't be enough to mark the Huracán out as a great supercar, but is, surely, the hallmark of a true Lamborghini. 🚗



2068

TOTAL KM

Oil industry revolutionised

The Texas Oil Boom started the petroleum revolution; it created an era of finding crude oil and refining it to make fuels and lubricants.

1901

Improved fluid catalytic cracking

Improved fluid catalytic cracking enables increased production of lighter, higher-value, petroleum products such as fuels and lubricants from crude oil.

1938

Breakthrough in engine cleansing technology

Shell pioneered the use of detergents in motor oils to help keep engines cleaner.

1970

A Revolution in Motor Oil

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THE TOUGHEST TEST

by DAN PROSSER

PHOTOGRAPHY by DAVID SHEPHERD

Just how good is BMW's new M4? We measure it against the sublime 911 Carrera and the crushingly quick GT-R. If it can impress in this company, it's touching greatness

FOR BMW'S NEW M4, THE next two days will be as tough as life gets. We'll waste neither your time nor ours by lining it up against its more apparent rivals from Audi and Mercedes; an RS5 would likely skip itself clean off the road as it strained to keep a view of the M4's quad tailpipes, while the charming C63 AMG is due to be replaced later this year. That contest would have been too predictable; too easy.

So it is that the M4 faces competition of a higher order. Between them, the Nissan GT-R and Porsche 911 are the benchmark by which four-seat performance coupes must be judged. Against the spectacular backdrop of the Snowdonia National Park on day one of our test and at the stunning Anglesey Circuit on day two, the GT-R and 911 will set the standard for performance and driver engagement to which the M4 must aspire.

With the three coupes sitting silent and motionless in a car park with far-reaching views towards Porthmadog and the Irish Sea beyond, the Austin Yellow BMW seems to flex with a visual muscle and kerbside menace that justifies its invitation to this bout. The M4, we must keep in mind, is a derivative model, available in lesser trim with a 118PS diesel engine between its front wheels. BMW's performance division has gone to extraordinary lengths to disguise the M4's origins – the rear subframe assembly is bespoke and bolted rigidly to the bodyshell, for instance – but its rivals on this occasion were designed from a clean sheet as sports cars. If the M4 is at a disadvantage as a result, the aggressive styling soon makes you forget it. In fact, right now it seems fully deserving of this company. If that's still true come tomorrow evening, we can only conclude that the M4 is a performance car of rare, transcendent talent.

The cheapest of the trio by some £18,500, the M4 splits the 911 and GT-R for power and torque output. Its twin-turbocharged straight-six sends 431PS and 550Nm to the rear wheels via, in this case, the optional seven-speed dual-clutch gearbox. The 911, an entry-level Carrera 2 with PDK, is the only normally aspirated car of the three and so makes do with 350PS and 390Nm. The titanic GT-R, meanwhile, comfortably outpunches both the BMW and Porsche with its thumping 550PS and 632Nm. The 911 might lack a heavyweight hit, but its advantage at the scales is significant; the M4 and GT-R carry 137kg and 340kg in additional weight respectively.

I've added 2400km to this box-fresh M4 over the past few days, but still I know so little about its dynamic make-up. Having collected it from a media event on the Continent, I pointed it back towards home on Europe's unenlightening multi-lane highways, learning of nothing more than its redoubtable GT credentials. The B4391 that sweeps past this car park and runs towards Bala will, corner by corner, peel back the layers and



tell us everything we need to know. Before firing it down this most engaging stretch of blacktop, though, I pass the M4's keys to a colleague and instead set out to remind myself of the enormity of the task we've set for Bavaria's new charger.

From the seating position alone there's no mistaking a 911 for anything else. With the wheel offered towards your chest, feet stretching far out ahead and the seat lowered to the floor, it just feels right. There's an inherent rightness to the way it moves slowly down the road, too, with firm support at each corner but enough suppleness to keep the worst of the road surface out of the cabin.

That support becomes control at speed. In fact, the 911's body control over the B4391's crests, twists and compressions is so complete that the driver can take liberties. No longer do allowances need to be made for the location of the engine; there's so little unwanted weight transfer in direction changes and such abundant grip that the driver can fling it this way and that without concern. There's so much pliancy over lumps and bumps and boundless control over undulations, too, which means the driver can attack this three-dimensional road as though it's a flat, almost two-dimensional one, throwing in new steering or throttle inputs even as the car is shrugging off a heavy compression. The 911 just isn't troubled by the imperfections and undulations that tie so many performance cars in knots. It's alive, agile and responsive.

The electrically assisted steering is crisp and direct, with a writhing, squirming quality that owners of earlier 911s will recognise. There is a spooky disconnect right at the point of breaching the limit that they won't be familiar with, but up until that point the 911's helm is intuitive. The PDK gearbox is quick and sharp both up and down the gears, too, and those whip-crack shifts help

'THIS ROAD WILL, CORNER BY CORNER, PEEL BACK THE LAYERS AND TELL US EVERYTHING WE NEED TO KNOW'

Above: instant access to prodigious torque and the M4's well-balanced chassis means slides can be triggered, held and gathered up with total confidence. **Right:** roads around Bala provide a fittingly exacting workout



to squeeze every drop of performance from the boxer engine. The 3.4-litre unit pulls well from its lower reaches, but its best work is done beyond 5000rpm, after which point the 911 feels properly urgent in a straight line.

The GT-R takes straight-line performance to a whole new level, though. The thump in the kidneys with each throttle application, regardless of the gear, never feels less than savage. As it slingshots you down the road, your eyes widen involuntarily and reactions become instinctive, your conscious mind incapacitated by the shock of the thrust.

It's a scale of performance that the driver must deploy wisely, waiting not only for the road ahead to clear but also for the car itself to settle out of each corner. The GT-R is soft in roll across the rear axle, which contributes to its vast cornering and accelerative grip, but with the outside rear wheel tucked into its arch like a child's head in a bowler hat, the weight is firmly over the rear end. That unloads the front axle and pulls it off line, so the driver must hesitate for a split second as the car straightens itself before standing on the power.

In contrast to the fluid, flowing 911, the GT-R responds to a point-and-squirt driving style. Nail that approach and it finds alarming cross-country pace, a level of on-road performance nothing short of a 911 Turbo can live with. For such a large, heavy brute, it also has exemplary body control and pliancy over bumps. Its steering is more delicate and communicative than the violent performance and sheer footprint might suggest, too.

For a pair of performance coupes at the same price-point, the 911 and GT-R couldn't be more

different in their delivery of driving thrills. The M4 needn't replicate either style, nor must it necessarily keep pace down a winding road, but it does need to engage and reward its driver to the same degree if it's to keep its head held high.

As I lower myself into the M4, I'm confident it will. As prodigiously talented as the 911 and GT-R are, I have faith the M4 can hold its own. Perhaps it's my underlying belief in the M division; maybe the predatory styling has tricked me into thinking it more of a heavyweight than it really is. Whatever, as I roll out of the car park and onto the B4391, I just know it's going to deliver.

At normal speeds, for better or worse, the M4 is barely distinguishable from any other six-cylinder 4-series. The damping is cushioned and compliant so it rides comfortably, the engine is muted and there's no extra weight in the steering. For some that'll just be a fair corollary of its everyday useability, but others will regret that it's quite so understated in these moments. The 911 and GT-R feel special in a traffic jam.

So I wind the M4 up. The Efficient drivetrain mode kills the twin-turbo straight-six, so I flick it into Sport Plus and do the same with the dampers. The steering is at its best either in Comfort or Sport, depending on personal preference – the heaviest Sport Plus mode just gives the rack an unnatural weight and a nasty stickiness. I tap the stability control into M Dynamic Mode, too, which should allow me to explore the chassis balance without removing the safety net entirely.

This engine is something else. Even after the rabid GT-R it feels strong, responding sharply

'THE M4'S TWIN-TURBO STRAIGHT-SIX IS SOMETHING ELSE. EVEN AFTER THE RABID GT-R IT FEELS STRONG'



to throttle inputs and pulling hard from just 2000rpm. There's a level of instantly accessible performance that the previous V8 model could only dream of. It also rips around to the red line with real vigour, but after just a few hundred metres it seems smarter to short-shift and dip back into the swell of the torque curve. The booming, rumbling engine note isn't terribly convincing; it's being generated artificially and for a fleeting moment I miss the V8, but by the next gearshift that regret has been batted away by a fistful of turbocharged thrust.

The M4 turns in positively and feels neutral through corners, reaching its limits at both axles in unison. It's got balance. There's an edge to the ride quality over unseen bumps, but the body isn't thrown off course. Instead it stays flatter than the GT-R, rolling just a little more than the 911. The electric steering feels crisp and sharp, too, but there isn't a steady stream of feedback reaching my fingertips.

The instant torque-rush affects the whole car's attitude in the lower gears. Each time I stand on the power in second or third I can feel the rear tyres letting go and over-rotating. At corner exit that pivots the car just a touch without breaching the parameters of M Dynamic Mode, and the



Opposite page: GT-R now mightier than ever; its twin-turbo V6 (left) churns out a massive 550PS, while four-wheel drive translates that into stunning cross-country pace. **Below left:** Carrera was fitted with optional carbon-ceramic brakes, as was M4



‘THE 911 AND GT-R BOTH HAVE EPIC TRACTION AND GRIP, WHICH MEANS THEY’RE TOTALLY PLANTED AND SURE-FOOTED, BUT THE M4 IS MORE SHEER FUN’

M4 slithers onto the next straight. The car is so well balanced and so exploitable in this state. There’s crisp throttle response and, beyond that, transparent throttle feel, too, which means these slides can be triggered, held and gathered with total confidence. Neither the 911 nor GT-R can entertain in quite the same way.

First impressions are very positive, then, but to really get a complete picture of the M4’s dynamic performance I want to follow it at speed. I swap into the GT-R and wave the M4 ahead. It’s no surprise that the big Nissan keeps pace with the BMW at a canter, but as the road ahead rises and falls I can see the M4 heave and pogo. When the road bucks and turns at once, the weight transfer is exaggerated and the rear end seems to be fighting its own cause. There appears to be a lack of overall control that its rivals aren’t afflicted by.

I swap back into the M4 and wave the 911 ahead. There’s a short stretch of this road that opens out and straightens up, just weaving a little this way and that but with a demon crest and an evil compression halfway along. I follow the 911 through this difficult section and watch it gather itself in an instant. A moment later I feel the weight of the M4 rise and fall markedly and shift onto its outer wheels. I have to correct the slight yaw moment and allow the car to regain its composure before getting back on the power. The 911 pulls out a length or two.

In direct comparison to the best of the breed, the M4 lacks a layer of overall body control. It means the driver has to be patient with it at times and that’s what ultimately inhibits its cross-country pace. It’s as though it needs to get off its springs and sit itself on its dampers, which themselves need to be just a little less compliant to give the M4 the same solidity that the 911 and GT-R enjoy.

It is, for me, the only real manifestation of the M4’s mainstream heritage. Only at the very limit, and then only in direct comparison to a bespoke sports coupe, can you detect the M4’s humble lineage. It may lose ground to the 911 and GT-R in that respect, but it wins that ground back for being the most exploitable. Its rivals both have biblical traction and grip – one from hanging its engine over the driven wheels, the other from its four-wheel drive system – and that means they’re totally planted and sure-footed. The M4 can draw itself over the road surface in a way that the others just don’t want to. For my tastes, that makes it the most sheer fun of the three.

As the sun lowers itself towards the horizon, radiating a warm glow across the surrounding heathland and jagged peaks, we saddle up. In ultimate objective terms the M4 has been shown a thing or two today, but despite that I find it’s the one I want to drive back to our overnight rest. Tomorrow we’ll rise early and learn if the M4 can hold its own on a racetrack.





‘THE M4 IS FIGHTING ABOVE ITS WEIGHT HERE, BUT IT’S NOT OUT OF ITS COMFORT ZONE’



THE TRACK: ANGLESEY COASTAL

🕒 **Direction:** clockwise
Distance: 2.5km
📍 **Location:** Aberffraw, Anglesey, UK
📍 **GPS:** 53.18833, -4.49639



Top left: GT and sportscar racer Marino Franchitti relished lapping the three coupes at Anglesey. **Top:** GT-R was quickest but also most challenging. **Above:** M4 more than held its own. **Right:** 911 ‘an absolute ball’, said Marino



A **ANGLESEY CIRCUIT MAKES** a strong case for itself as the prettiest racetrack in Britain, and, with the mid-June sun shining down as we roll into the paddock, there’s nowhere else I’d rather be. We’re joined today by professional racing driver Marino Franchitti, who will offer his opinion on how our three coupes stack up.

We’ll strap on the timing gear, but the lap times won’t serve as a datum by which we award or subtract points in the final reckoning. More importantly we’re setting out to learn which of the three is the most rewarding and engaging on a circuit.

There is, of course, no surprise that the GT-R is the fastest of the trio around a lap, stopping the clock after 1min 16.9sec. The 911, down 200PS on the brutal Nissan, loses just 0.9sec, with the M4 a further 1.4sec behind.

‘The GT-R has a very specific style,’ reckons Marino. ‘You have to brake in a straight line,

do all your turning in one quick rotation, get the car straight and get on the power. Once you do it’s so explosive. In the slower corners the balance feels really good. You have to choose a point to get on the throttle, but if you pick it up too early it gets into an understeer slide that you can’t control. You just have to bail out of the corner completely.

‘In the high-speed stuff I got a lot of understeer that I just had to drive through. It’s a narrow performance band, but who cares? Once you’re in that band, it’s just savage. It’s incredible.

‘The 911 was a revelation,’ he continues. ‘The rear is so planted. I just couldn’t get the thing to slide, which allowed me to carry massive speed into corners with all the confidence in the world. In high-speed corners I found it so neutral. It’s got this lovely big window of balance. On my first couple of laps I found I had a car-and-a-half’s width more circuit at corner exit because I was expecting it to wash out more.

‘The gearbox was a bit lazy on upshifts, but

downshifts were fine and the engine revs all the way through. I had an absolute ball in the 911.

‘The M4 was really good fun, too. What I found incredible was the relationship between pedal movement and the reaction at the rear wheels. It’s just so reactive to throttle inputs.

‘I could carry lots of speed into corners; in fact, it was quite incredible how responsive the front end was, but what limited me then was the rear end. The front axle was carrying massive amounts of speed, but as it transferred to the rear the tyres were giving up quite early for me.

‘I also found it tricky to accelerate smoothly out of slower corners without breaking traction on the one hand, or not using all the traction available on the other. All that torque puts it on a knife-edge. The ceramic brakes were great and the upshift was very good, but the gearbox lacks a little bit of synchronisation as it re-engages.

‘The M4 is fighting above its weight here, but it’s not out of its comfort zone. It really does stack up.’

WITH THE ANGLESEY PITLANE GATES padlocked for the evening and a thousand pieces of photography equipment slowly packed back into a multitude of cases, the M4's toughest test has drawn to a close. We wanted to know if it could live with the very best performance coupes on road and track, despite its saloon car origins. Over the past two days its few dynamic weaknesses have been exposed, most notably a lack of body control when pushed hard on the road and, on circuit, a rear axle that can't quite make best use of a deeply impressive turbo engine.

In raw performance terms the M4 does lose ground to the 911 and GT-R as a result. But while it might not be as quick down the B4391 or around Anglesey Circuit, throughout this test it has matched its rivals for that elusive sense of engagement, for the manner in which it involves its driver in the process of deploying its performance. For the exploitability of its classic front engine/rear drive chassis balance, it was also the most fun at times.

With the setting sun on their backs, our three performance coupes slice along the A55 towards home. The M4 brings up the rear, but it's in the company of its peers. ☒

BMW M4

Engine	In-line 6-cyl, 2979cc, twin-turbo
Power	431PS @ 5500-7300rpm
Torque	550Nm @ 1850-5500rpm
Transmission	Seven-speed dual-clutch (option), rear-wheel drive, limited-slip differential, ESP
Front suspension	MacPherson struts, coil springs, adaptive dampers, anti-roll bar
Rear suspension	Multi-link, coil springs, adaptive dampers, anti-roll bar
Brakes	Carbon-ceramic discs (option), 400mm front, 380mm rear, ABS, EBD
Wheels	9 x 19in front, 10 x 19in rear (option)
Tyres	255/35 ZR19 front, 275/35 ZR19 rear
Weight	1537kg (DCT)
Power-to-weight	280PS/tonne
0-100kph	4.1sec (claimed, DCT)
Top speed	250kph (limited)
Consumption	8.3L/100km
Basic price	£56,650
On sale	Now
evo rating	★★★★★

NISSAN GT-R (2014MY)

Engine	V6, 3799cc, twin-turbo
Power	550PS @ 6400rpm
Torque	632Nm @ 3200-5800rpm
Transmission	Six-speed dual-clutch, four-wheel drive, rear limited-slip differential, ESP
Front suspension	Double wishbones, coil springs, adaptive dampers, anti-roll bar
Rear suspension	Multi-link, coil springs, adaptive dampers, anti-roll bar
Brakes	Ventilated cross-drilled discs, 390mm front, 380mm rear, ABS, EBD
Wheels	9.5 x 20in front, 10.5 x 20in rear (option)
Tyres	255/40 ZR20 front, 285/35 ZR20 rear
Weight	1740kg
Power-to-weight	316PS/tonne
0-100kph	2.8sec (claimed)
Top speed	315kph (claimed)
Consumption	11.8L/100km
Basic price	£78,020
On sale	Now
evo rating	★★★★★

PORSCHE 911 CARRERA (991)

Engine	Flat-six, 3436cc
Power	350PS @ 7400rpm
Torque	390Nm @ 5600rpm
Transmission	Seven-speed dual-clutch (option), rear-wheel drive, limited-slip differential, ESP
Front suspension	MacPherson struts, coil springs, adaptive dampers, anti-roll bar
Rear suspension	Multi-link, coil springs, adaptive dampers, anti-roll bar
Brakes	Carbon-ceramic discs (option), 340mm front and rear, ABS, EBD
Wheels	8.5 x 20in front, 10.5 x 20in rear (option)
Tyres	245/35 ZR20 front, 295/30 ZR20 rear
Weight	1400kg (PDK)
Power-to-weight	250PS/tonne
0-100kph	4.6sec (claimed, PDK)
Top speed	287kph (claimed, PDK)
Consumption	8.2L/100km
Basic price	£73,509
On sale	Now
evo rating	★★★★★





REDEFINING THE GENRE

It isn't a sports car, but Porsche's new Macan once again demonstrates its maker's reputation for creating cars that are good to drive

by DANIEL WONG | PHOTOGRAPHY by SIME DARBY AUTO PERFORMANCE

IT SEEMS SO LONG AGO THAT PORSCHE WAS only known for making the 911. Its line-up of small mid-engine roadsters, front-engine coupes, and the odd once-a-decade-supercar were seen as nothing more than a supporting cast to the main act. Oh how the tables have turned since then. Today the 911 might still be the brand's icon, but their bread-and-butter is their four-door model, which began with the Cayenne, followed by the Panamera, and now, the Macan.

Even before setting foot into Porsche's fifth model-range, expectations for the Macan are certainly flying high when you consider the precedence set by its four-door relatives. Both the Cayenne and Panamera turned out to be class acts when it came to handling, not to mention that the Cayenne's commendable off-road performance that came as a surprise to many who weren't expecting Porsche's talent to stretch beyond the tarmac. More than just being a highly profitable venture that opened the brand up to new customers, the Cayenne and Panamera duo couldn't have done a better job at convincing the world that if Porsche were to make a car in any shape or size, it would turn out to be the sportiest car in its class.

There is little to suggest that the Macan wouldn't be able to live up to the precedence set by its four-door forerunners. At least Porsche's designers have gotten the hang of penning good looking four-door models this time around. The Macan carries the familiar Porsche design cues that can trace its inspiration back to the 911, but here it looks athletic, like a 911 on a



‘THOUGH THE MACAN IS THE FIRST PORSCHE WITH A CYLINDER COUNT OF FOUR SINCE THE 1990S, ITS ENGINE IS ANYTHING BUT A WEAK EXCUSE’

diet of protein shakes rather than lard. On the inside, it is the textbook Porsche dashboard, with its rising centre console, a rev-counter mounted in the middle, higher-than-the-other dials, and seats that drop you right down to the floor. All the ingredients that define a Porsche are present, now it just needs to prove it is worthy of the badge.

Mere assumptions of its capabilities wouldn't be enough for the Macan, and Sime Darby Auto Performance, the custodians of the Porsche brand in Malaysia, was rather keen to show us just what Porsche's new SUV is capable of. The route picked for this test of the Macan's mettle was 225km worth of road between Kuala Lumpur and Ipoh, consisting of a generous mix of highways and narrow estate roads, whereas the models prepped for the trip was the Macan, Macan S, and Macan S Diesel. As is customary with any drive involving a selection of engines to pick from, I started-off the first leg of the drive with the entry-level model as to familiarise myself with the "junior-Cayenne".

Though the Macan is the first Porsche with a cylinder count of four since the 1990s, its 2-litre turbocharged engine is anything but a weak excuse of a performance engine. It might lack the inherent smoothness half a dozen cylinders bring with it, but with its peak power output of 237PS and 350Nm of torque delivered from 1500rpm, this four-cylinder mill has enough thrust to make the 1770kg Macan feel lively enough. 0 to 100kph is dealt with in 6.9 seconds, but even when pushed far beyond 120kph, the engine didn't feel short of breath nor did its urgent and immediate power deliver wane in the slightest. Shifts from the 7-speed PDK dual-clutch are immediate and lightning fast that the shift between cogs are quite literally imperceptible.

As the roads began to narrow and wind through the estates of Tanjung Malim, the Macan didn't feel the least bit imposing or unwieldy. It felt strange to be straddling high on its perch and then be met with an immediate and responsive helm with minimal amount of body roll. Even though the suspension was rather pliant with the suspension set to

Above: there is little between the Macan S (right) and Macan S Diesel's exterior appearance to tell them apart.

Porsche Macan

the stiffest of its settings, the Macan doesn't pitch uncontrollably or feel wayward when being pushed through the bends. Instead it feels in tune with your inputs, every millimetre of steering angle is met with a direct response from the front wheels. Though the estate roads were more suited for tiny kei-car traffic, the challenge of piloting this RM420,000 SUV through was a task far less daunting than it sounds. The accuracy and speed of the steering allowed me to easily thread the tyres right on the edge of the tarred road. It also helped to have the suspension set in its "Low Level", which brings the ride height down by 10mm for a touch more stability. There is a "High Level" which raises the height by 40mm should you find the need for an off-road excursion, an exercise to which I had neither the proper setting, nor the luxury of time to carry out. Not that I'm complaining, after all, there was still around 150km of road left to cover and a pair of Macans left to sample. Give the throttle a firm shove and the Macan slingshots itself as the tyres grip hard and fires you off into the next corner. As it is with every other Porsche, the brakes are easy to modulate and shrug off speed quickly. The rear-wheel drive biasness of the Macan's four-wheel drive system is clearly felt as its tail digs in and feels firmly rooted as power is applied. Its communicative chassis and quick reflexes from its steering and drivetrain make it unlike anything its contemporaries can match or deliver. Where most SUVs feel stodgy and divorced from the road as they ride elevated from its surface, the Macan feels involving. You don't feel its mass or its height. Instead, it feels very much like a well-balanced sports car being driven through a world that has shrunk around it.

With my exploratory drive in the Macan done, it was time to wean myself onto quicker things in the Macan's arsenal, with the RM560,000

'ITS COMMUNICATIVE CHASSIS AND QUICK REFLEXES MAKE IT UNLIKE ANYTHING ITS CONTEMPORARIES CAN DELIVER'

Macan S. Its petrol-fed 3-litre bi-turbo V6 is more of what you would expect of a Porsche, with its 340PS power output and 460Nm of torque capable of muscling the Macan to 100kph in 5.2 seconds with the optional Sport Chrono package that shaves 0.2 seconds off the 0 to 100kph acceleration times, and accompanying gruff engine note rewarding my lead foot. The added power and weight from that glorious V6 didn't detract from the Macan's finesse in the corners and the traction to be had beneath.

While the standard Macan has to make do with standard steel springs, the Macan S comes specified with Porsche's air suspension, which sits 15mm lower than it would if it were sitting on steel springs. As it is with most air suspension systems, the ride is well-cushioned and isolates the cabin from the roughest of surfaces. Unfortunately, like most suspensions of its type, there is still an ever present cushioning effect that seems to take the edginess off the Macan's steering and body control. It doesn't feel quite as intuitive as it did on standard springs, but ignore the softer edginess of the ride and the Macan's capabilities are no less affected by the suspension change. Over the rough patches of broken tarmac that course through the jungles North of Tapah, the self-adjusting air suspension was more confidence-inspiring, keeping the ride level and grounded, as all 340PS was deployed.

At its core, the Macan is a rear-wheel drive SUV and it feels so most of the time, but once the situation gets slippery, the Porsche Traction



Above: arguably the Macan is the prettiest of Porsche's four-door models. **Right:** even with its flamboyant red leather trim, the cabin is designed to be ergonomic rather than over-styled.



Porsche Macan

Management (PTM) system features an electronically-controlled multi-plate clutch which can divert as much as 100 per cent of the torque to the front axle. By juggling the power between the two axles, the system ensures that you have all available grip on-hand to utilise the engine's firepower.

When it comes to putting the power through the corners, the PTM system employs the Automatic Brake Differential system which applies the brakes to the relevant wheel, should it sense that it could be in danger of losing traction. This works remarkably well in the case of both the Macan and Macan S, in certain testing sections of the road. I could feel the car tightening its trajectory to my steering input as autonomous brake pressure is applied to the wheels. It is rather uncanny, but reassuring, especially on roads that are considered narrow even for the likes of a Boxster. Should you have a fascination to take the Macan even faster through corners, the Macan can be specified with the optional Porsche Torque Vectoring Plus feature which adds an electronically-controlled rear-axle differential lock that will respond to the driver's steering angle and speed, accelerator pedal position, yaw rate, and vehicle speed, to improve the Macan's steering precision and offer more grip and stability at high speeds. Plus, if you are feeling plush with cash, Porsche can also fit in a set of Porsche Carbon Ceramic Brakes for a fee. Not that these optional features are a necessity, considering that the Macan brakes, steers, and goes remarkably well without the optional extras.

From Ipoh, the return leg to Kuala Lumpur on the North-South Highway meant that it was time to slip into the RM545,000 Macan S Diesel. Like the Macan S, the S Diesel comes with a 3-litre biturbo V6, with a respectable power output of 245PS and a bucket load of 580Nm of torque. Amongst the Macans, this is the torqueiest of the lot, with the range-topping Macan Turbo only managing 550Nm. Contrary to its oil-burning image, the S Diesel's powerplant isn't what you might call industrial or lazy. It delivers a flare of revs at the prod of the throttle, and though peak power is achieved from 4000rpm, the engine sounds just as lusty as that in the petrol-driven Macan S.

With so much torque on hand, and the optional Sport Chrono package installed on-board, the Macan S Diesel is able to hit 100kph



Above: rear-light ape that of the 918 hybrid supercar. **Opposite:** four-cylinders it may only have, but Macan certainly delivers on expectations on country roads.

'IT IS MORE THAN JUST A JUNIOR-CAYENNE, IT HAS EXCEEDED EVEN THE LOFTY EXPECTATION SET BY ITS LARGER STABLEMATE.'

in 6.1 seconds. Not quite as quick as its petrol counterpart, but the urge to be had from 0 to 80kph feels more relentless and probably quicker. Nevertheless, you can't argue with the S Diesel's NEDC-combined fuel consumption figure of 6.3L/100km, which makes it the most economical of the lot, even trumping the standard Macan's 7.5L/100km figure. All gain with none of the pain here.

Not to sound like a broken record, but the Macan is another feather in Porsche's cap. It is more than just a junior-Cayenne, in fact I could go as far as to say that it has exceeded even the lofty expectation set by its larger stablemate. The Macan is more engaging, and certainly more capable than is expected of a Porsche SUV. It might not bear the sports car image that we all would like Porsche to once again uphold, but it certainly has all of its maker's fingerprints, and that makes it pretty special amongst its contemporaries. Certainly it is another class act. ☒

PORSCHE MACAN

Engine	Inline-4, 1984cc, turbocharged petrol
Power	237PS @ 5000-6800rpm
Torque	350Nm @ 1500-4500rpm
Transmission	Seven-speed dual-clutch, four-wheel drive, ESP
Front suspension	Double wishbone, coil springs, anti-roll bar
Rear suspension	Multi-link, coil springs, anti-roll bar
Brakes	4-piston front vented disc brakes, rear vented disc brakes, ABS, ABD
Wheels	8J x 18 (front), 9J x 18 (rear)
Tyres	235/60 R18 (front), 255/55 R18 (rear)
Weight (kerb)	1770kg
Power-to-weight	134PS/tonne
0-100kmph	6.9sec
Top speed	223kph
Consumption (NEDC Combined)	7.5L/100km
Price	RM420,000
evo rating	★★★★☆

PORSCHE MACAN S

Engine	V6, 2997cc, turbocharged petrol
Power	340PS @ 5500-6500rpm
Torque	460Nm @ 1450-5000rpm
Transmission	Seven-speed dual-clutch, four-wheel drive, ESP
Front suspension	Double wishbone, coil springs, air suspension, anti-roll bar
Rear suspension	Multi-link, coil springs, air suspension, anti-roll bar
Brakes	350mm front vented disc brakes, 330mm rear vented disc brakes, ABS, ABD
Wheels	8J x 18 (front), 9J x 18 (rear)
Tyres	235/60 R18 (front), 255/55 R18 (rear)
Weight (kerb)	1865kg
Power-to-weight	182PS/tonne
0-100kmph	5.4sec
Top speed	254kph
Consumption (NEDC Combined)	9L/100km
Price	RM560,000
evo rating	★★★★☆

PORSCHE MACAN S DIESEL

Engine	V6, 2967cc, turbocharged diesel
Power	245PS @ 4000-4500rpm
Torque	580Nm
Transmission	Seven-speed dual-clutch, four-wheel drive, ESP
Front suspension	Double wishbone, coil springs, air suspension, anti-roll bar
Rear suspension	Multi-link, coil springs, air suspension, anti-roll bar
Brakes	350mm front vented disc brakes, 330mm rear vented disc brakes, ABS, ABD
Wheels	8J x 18 (front), 9J x 18 (rear)
Tyres	235/60 R18 (front), 255/55 R18 (rear)
Weight (kerb)	1880kg
Power-to-weight	130PS/tonne
0-100kmph	6.3sec
Top speed	230kph
Consumption (NEDC Combined)	6.3L/100km
Price	RM545,000
evo rating	★★★★☆





A MERC IN PROGRESS

INSIGHT

The all-new AMG GT is laser-targeted at buyers of Porsche's 911 and Audi's R8. And from its twin-turbocharged V8 engine to its sleek aluminium bodywork, it's clearly deadly serious. We look under the skin of the most exciting new Mercedes in years

by RICHARD MEADEN

PHOTOGRAPHY by BARRY HAYDEN/AMG

W

WHAT IS IT ABOUT THE 911 THAT PROVIDES such inspiration to Porsche's rivals? That might seem like a strange way to introduce a feature on AMG's compelling new creation, but it does get straight to the point. Love it or loathe it, Porsche's anachronistic rear-engined icon has come to define the area of the market it inhabits, and there's no greater statement of intent than when another marque enters that territory with a car aimed squarely at the incumbent. Have a pop at the 911 and it shows you mean business.

With the all-new AMG GT, Mercedes-Benz really means business. This much is obvious when we arrive at Affalterbach – home of AMG – for the international presentation and our first chance to have a proper look at the car and the technology that underpins it. The scale of the event is extraordinary, with literally hundreds of journalists flown in

from all four corners of the world to be shown (but not drive) what is surely the most important car in AMG's history.

It's not the pyrotechnics or Nico Rosberg or the cheesy videos, booming music and endless canapés that impresses, it's the genuine excitement and deep pride shared by everyone involved in the AMG GT project that shines through. Yes, it's a press launch so you'd expect everyone to be on-message, but in my experience you can't fake this level of enthusiasm. It was the same at Aston Martin when we went to look at the V8 Vantage and the same at Audi prior to the introduction of the R8. Engineers want you to experience the car; designers want you to see it out on the road amongst other cars in natural light.

Whether AMG really has created a game-changer we'll find out later this month. Until then let us take you under the skin of what promises to be one of the most exciting and significant sports cars in recent years.



Left: world's press gets its first sight of Mercedes' new sports car. **Below:** first chance to look inside. **Bottom:** senior design manager Robert Lesnik and head of interior design Hartmut Sinkwitz



DESIGN

NO, IT HASN'T GOT GULLWING DOORS, but in looks and layout the GT is every inch a baby SLS. From photographs it's hard to get a sense of the GT's size, for it shares the SLS's long bonnet, broad shoulders and rear-set cockpit. Stand next to it and you appreciate how much more compact it is. That's great news, for the SLS always felt one size too big for most roads. The GT should be a much better fit for the kinds of roads on which you and I would want to drive it.

The shape and surfacing is surprisingly simple. Indeed at first glance you wonder if it's a bit too smooth. There's something about it, though: a presence and magnetism that marks it out as something special. So you walk around it and let your eyes rove the

long, lithe curves, and as you do you rapidly gain an appreciation for its proportions and confidence. If there was any danger that the designers would try too hard with the design, to add flourishes and accents in an attempt to create instant visual impact, the GT resists that urge brilliantly, shunning excess embellishment for immaculate tailoring.

The more expensive GT S model is marked out from the standard GT by a front splitter finished in gloss black (it's body-coloured on the GT) and a GT S badge on the rear. Buyers can customise their GT further with numerous carbonfibre exterior parts.

Style is that most subjective of qualities, but to my eye there's a timeless quality to the GT. Jaguar's F-type Coupe is arguably sexier, but

'STAND NEXT TO IT AND YOU APPRECIATE HOW MUCH MORE COMPACT IT IS THAN THE SLS'



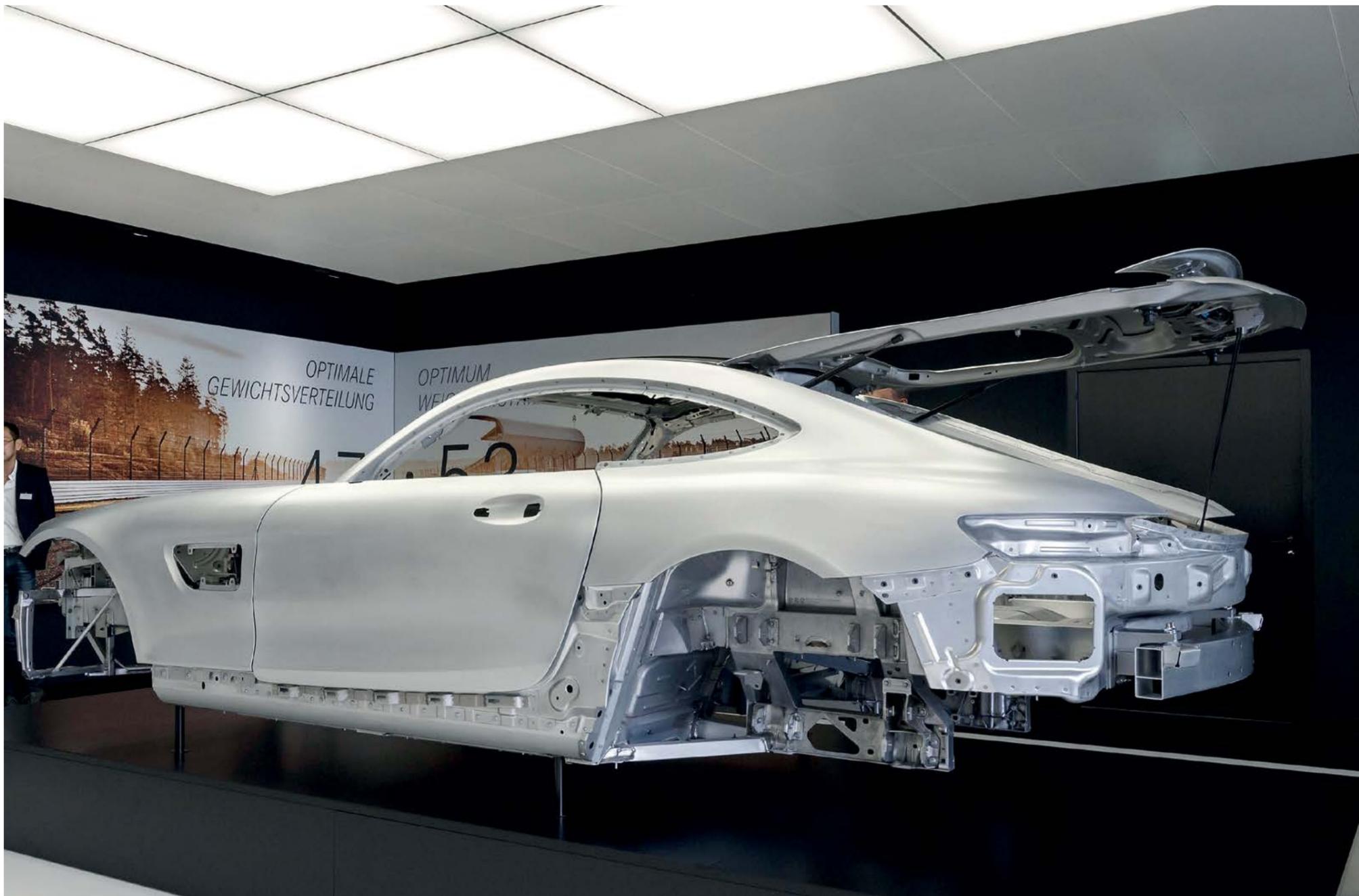
it tries harder. Time will tell which ages best, but my money's on the Merc.

Swing open the driver's door and you discover an interior that more than delivers on the promises made by the exterior. It really is an exceptionally inviting place to be. Dominated by the broad, wing-like dashboard, wide centre console (the design of which was inspired by the NACA duct), deeply recessed analogue dials and bold array of air vents, it's a much busier design than is the case with the exterior, but in fact the contrast works brilliantly.

Better still, when you drop into the driver's seat, you immediately feel part of the machine. Your view out through the windscreen is reminiscent of the SLS's, thanks

to the wide, flat bonnet that gently curves out of sight, but you don't have that disconcerting sense of being sat way back over the rear axle. Visibility is good and you have a reassuring sense of the GT's extremities, which is always such an important source of confidence because you can place the car accurately without thinking about it.

The GT has a sense of quality and solidity, too. The fit, finish and materials are all at the level you'd hope for a £100k car. Look over your shoulder and you'll see a reassuring amount of luggage space, so although it's a more compact car, the GT has greater real-world credentials and touring capabilities than the huge but rather cramped SLS. Inside and out, the GT looks and feels like a class act.



CHASSIS

ALUMINIUM IS THE DOMINANT material in the GT's construction, but it's by no means the only one. AMG describes the structure as an 'aluminium spaceframe with an intelligent material mix', which means 90 per cent of the overall structure – the main chassis including the pillars, plus the bodywork – is made from aluminium, but the tailgate is made from steel and a large structural section of the front end is made from magnesium.

Look at the naked spaceframe and its complexity is astounding. Assembled from a mix of flat sheets, extrusions and castings using a mix of welds, adhesive and screws, it's actually rather a mess aesthetically, but as with anything formed by function and efficiency this lends the spaceframe its own beauty. The magnesium component in particular is something akin to sculpture.

Likewise the aluminium body panels, which look even smoother and more artful when you see them in the raw. It almost seems a shame to paint them. Poke your head under the wheelarch of a finished car and you'll find more beautiful alloy components, such as the forged double wishbones and hub carriers.

With the engine set well back in the nose, the GT's weight distribution is 47:53 front to rear. At 231kg, the bodyshell sets a new benchmark in the sports car sector, says

AMG. With a kerb weight of 1570kg 'ready-to-drive' – that's to say fuel tank 90 per cent full, but without driver or luggage – it's certainly on a par with the 991 Turbo. We'll be sure to stick both on the scales when we get a chance.

The pursuit of weight savings is also evident in the options list, where you'll find ceramic composite brakes (402mm at the front and 360mm at the rear) and forged cross-spoke alloy wheels. Not that the GT is all about options. That's just as well given its punchy pricing, which starts at around £95,000 for the GT and rises to circa £115,000 for the flagship GT S, but AMG is confident the level of standard equipment ensures both cars are competitive on price compared with a typical 991 Carrera S or Turbo.

Three-mode AMG Ride Control electronic adaptive damping is standard fitment on the range-topping GT S, but an option on the GT. As is the fashion, the GT's steering is speed-sensitive with a variable steering ratio, the response of which alters according to road speed, lateral acceleration and whether you've selected Comfort, Sport or Sport Plus mode in the AMG Dynamic Select system. We always have misgivings about these kinds of steering systems, for they can – and often do – ruin the driving experience. You'd have to hope AMG have moved the game on, but until we've driven it the steering remains the one big question mark over the GT's dynamics.

One of the most interesting options is the AMG Dynamic Plus package, which is available only on the GT S. Supplementing the GT's standard drivetrain damping (which reduces the movement of the entire drivetrain within the car's structure for increased refinement and more precise handling) the Dynamic Plus package adds dynamic engine and transmission mounts, which continuously adjust their stiffness according to speed and load. In addition, the suspension settings are firmer, there's more negative camber for the front axle, there's a different tuning for the dreaded speed-sensitive steering and the drivetrain's Race mode is more aggressive.



Far left: Jörg Miska, manager of body development, explains how a combination of flat sheets, extrusions and castings were used to create the (nearly) all-aluminium chassis

'THE COMPLEXITY OF THE NAKED SPACEFRAME IS ASTOUNDING. THE MAGNESIUM SECTION IS AKIN TO SCULPTURE'



'WE VISIT THE DYNO FACILITY. EVEN SHUT IN A SOUNDPROOF ROOM, THE V8 IS SNORTING AND BELLOWING'

POWERTRAIN

THE HEART OF THE GT IS AMG'S new 4-litre biturbo V8, which is lighter, more compact, cleaner (Euro 6 compliant) and more potent than AMG's current 5.5-litre twin-turbo V8. Displacing 3982cc, the V8 is in layman's terms a pair of 2-litre four-cylinder engines, as found in the A45 AMG.

Instead of positioning the turbos on the outside of the engine, AMG has created a 'hot vee', which means the turbos nestle in the cleavage of the V8. Aside from the obvious packaging benefits, this means faster response from the turbos and optimum gas-flow through the close-coupled catalytic converters for better emission figures.

A dry-sump oil system means the engine can cope with sustained high-G cornering, and be mounted lower in the chassis for a snake-like centre of gravity. As such it's the first dry-sump 'hot vee' to make series production in a sports car. Like all AMG's engines, it's built by hand according to the 'one man, one engine' principle, each motor bearing the name of the person who assembled it from a pile of parts.

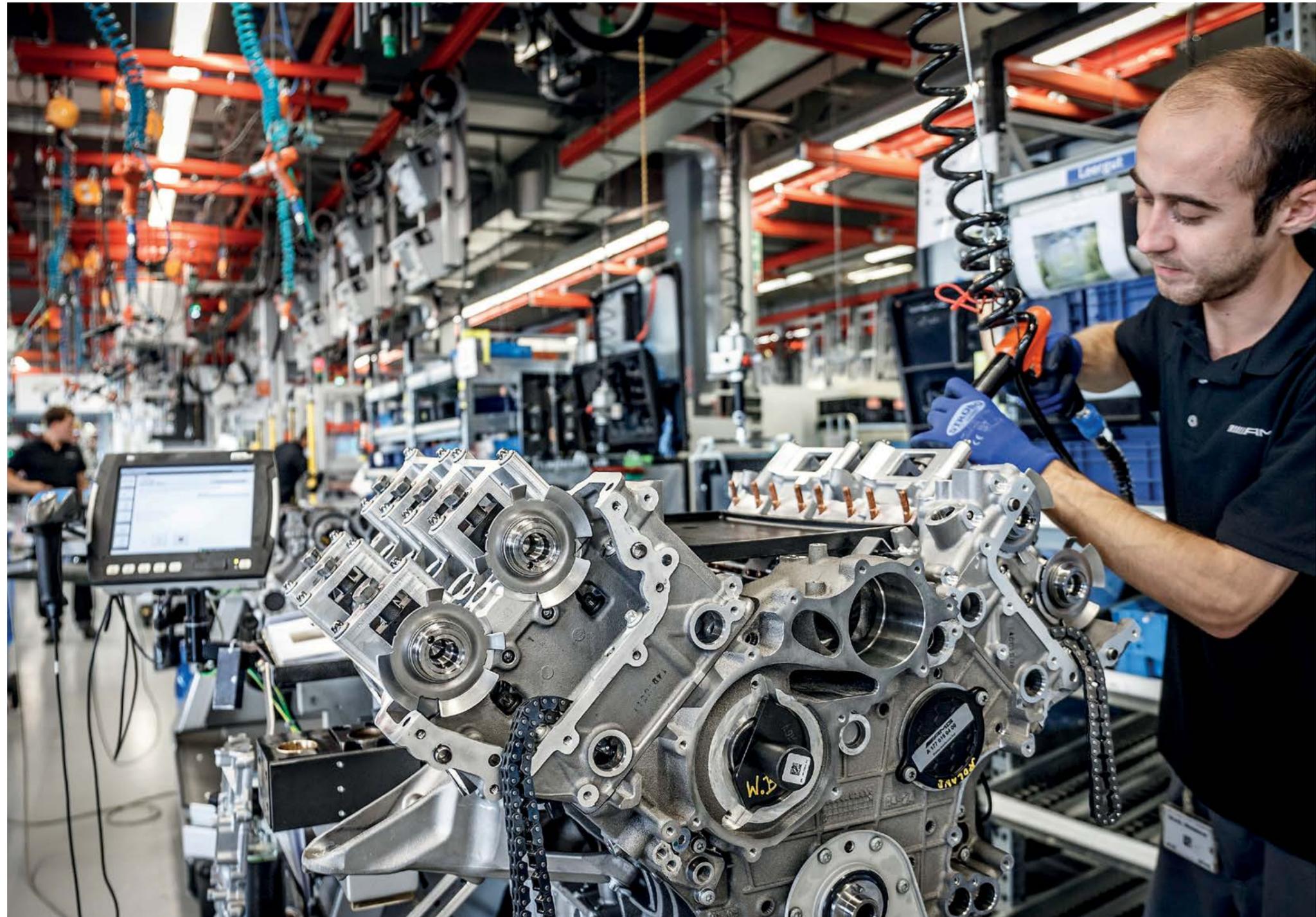
Available in two states of tune, the V8 develops 462PS at 6000rpm and 600Nm from 1600rpm in the GT, while in the GT S it gives 510PS at 6250rpm and 650Nm from 1750rpm. That's sufficient for 0-100kph in 4.0sec and 3.8sec respectively. Top speeds of 304 and 310kph are electronically limited, which suggests the 6kph difference is to protect the GT S buyer's ego on the Autobahn.

Both GT models mate their V8s to a Speedshift DCT seven-speed dual-clutch transaxle. A choice of modes controlled via the AMG Dynamic Select system means you can tailor the shift characteristics via C (Controlled Efficiency), S (Sport), S+ (Super Sport) and a new I (Individual) mode. There's also a manual Race mode, which delivers the fastest possible shifts.

With gear ratios spread to make the most of the biturbo V8's broad plateau of torque, the GT promises epic in-gear response and mighty mid-range shove. As you'd expect, both models also come with limited-slip differentials, the GT with a conventional mechanical diff, the GT S with an electronically controlled diff for more precise control and faster response. With all that torque, it'll oversteer for Affalterbach.

So we know it'll smoke its tyres, but what will it sound like? A quick visit to the AMG dyno facility suggests it'll be as bombastic as you'd hope. Even from behind a thick pane of glass and shut in a soundproof room it was snorting and bellowing, with plenty of pops and crackles on a closed throttle. The AMG engine dudes certainly didn't seem overly concerned when we asked if the turbos had muted their trademark soundtrack.

Just to make sure you're not disappointed, the GT S comes with a switchable active sports exhaust as standard (it's an option on the GT) so you can make as much or as little noise as you like.



Above: each 4-litre V8 is hand-assembled and bears the name of the man who constructed it. **Above left:** GT's powertrain and chassis laid bare. **Top left:** a V8 does its stuff on the dyno

RIVALS

IT'S NO SURPRISE THAT THE GT and GT S are aimed squarely at Porsche's 991 Carrera S and Turbo, but they will also need to shine in the company of Audi's all-new R8, expected to launch next year.

A less conventional but no less appealing foe comes in the radical form of BMW's hybrid-powered i8 (evo 113), though clearly the BMW's appeals lies largely in

its technology and not the kind of heart-pounding performance promised by AMG.

Aston Martin's much-improved V12 Vantage S is another heavy-hitter capable of tangling with the GT S, but it's fair to say that while the V8 Vantage S has charm, it's going to struggle against the GT. It's another British machine – the Jaguar F-type R Coupe – that potentially poses the biggest

threat. Obvious similarities in style and powertrain align them most closely, and the £85,000 Jag also usefully undercuts the £95,000 GT.

When we get them all together it's going to be fascinating to discover whether the GT marks AMG's arrival as a marque capable of setting a new benchmark. From what we've seen, it has every chance of doing just that.

by CHRIS AARON

PHOTOGRAPHY by CHRIS AARON & DAIMLER BENZ AG

FULL CHARGE AHEAD

Mercedes-Benz has big plans to introduce hybrid drivetrains in every model line-up, a plan which will start off with the flagship, the S500 Plug-In Hybrid





I **IN A MATTER OF 10 YEARS** from the point this article was written, nearly every one of Mercedes-Benz's passenger vehicles will offer a plug-in hybrid variant –

this even includes its newer range of compact front-wheel drive models. In short, what this means is that one day, you'll even be able buy the three-pointed star's most affordable model, the A-Class, plug it into your regular wall socket for a charge, and enjoy driving to work without using a drop of petrol. And if you want, drive it back home again with a bit more enthusiasm as that same electric motor will be used to boost the petrol engine's output.

For now, the hybridisation business starts at the very top with the S-Class flagship, which makes this review sort of an introduction to Mercedes-Benz's upcoming developments. evo has been told that next in line to adopt the modular technology will be the more affordable C-Class, with a C350 Plug-In Hybrid in the works and due to debut sometime next year. Then on, it'll be four months at a time that the German carmaker will launch its planned remaining plug-in vehicles, all the way into 2017.

Back to the S500 Plug-In Hybrid, and you wouldn't be reprimanded for expecting a V8 under the bonnet to match the badging on the outside. Instead, what you get is a 333PS 3.0-litre bi-turbo petrol engine – one that's even unlike the 3.5-litre you get from the current

S400 Hybrid. But it's not until you tally in the output of an 85kW electric motor, that you see the S500's V8 credentials matched. In full, the S500 Plug-In Hybrid here has a total system output of 442PS and 650Nm of torque from its V6 engine and electric motor, and against the V8 S500's un-electrified 449PS and 700Nm, you may see a little more sense in the name. The plug-in's 5.2-second century sprint isn't all that far off the regular S500's 4.8-second dash either.

But of course, there's more than a badge to boast here. Claimed fuel efficiency figures for the two-tonne S500 Plug-In Hybrid is a bold 2.8L/100km, also to comply with coming European legislations, it's listed with a tree-hugging CO2 emission of 65g/km – achieved on the current NEDC test cycle. The high-voltage 8.7kWh lithium-ion battery is said to pack 10 times more power than what's available to S400 Hybrid and S300 BlueTEC Hybrid, and can drive the 2.2-tonne car on pure electricity for up to 33km – to give you a bit more of a perspective of that, the Toyota Prius Plug-In Hybrid has a range of 50km, and weighs 1.5 tonnes.

The secret of the S500 Plug-In Hybrid's impressively low fuel consumption and CO2 figures is that you can plug it into any ol' conventional wall socket and charge its batteries before setting off. Based on the 240v, 13A power supply of the average Malaysian household, recharging the batteries from empty to full charge takes around two hours and 45 minutes. Of course, with an internal

'IN FULL, THE S500 PLUG-IN HYBRID HERE HAS 442PS AND 650NM OF TORQUE FROM ITS V6 ENGINE AND ELECTRIC MOTOR, AGAINST THE V8 S500'S UN-ELECTRIFIED 449PS AND 700NM.'



Below: button to switch between the drive modes is next to the Comand dial. **Left:** bi-turbo V6 is only part of the S500's powertrain. **Right:** batteries are charged up via a plug located just below the rear lights.



Mercedes-Benz S500 Plug-In Hybrid

combustion engine and various energy regeneration methods, you don't ever have to plug it in for a charge if you insist as such.

The 85kW electric motor is located within the 7G-TRONIC seven-speed automatic transmission and displaces the torque converter, while the lithium-ion battery sits above the rear axle. If you're the sort of rare S-Class owner that actually intends to make full use of the boot space, you'll find considerably less room back there in light of the battery's placement – some 395 litres remain from the original 510 litres.

Moving on towards what the eyes first see, and there's an immediately noticeable problem beyond all the regular charms of an S-Class. Stepping around to the rear to assess things, and you may notice something a bit peculiar about the charging socket's location – it's smack in the mid-section of the bumper, over to the right side where we imagine there being too much potential for minor scuffs or worse.

Mercedes-Benz gave us two reasons in particular for this, one being that designers didn't want to dangerously place the socket too close to the fuel-filler (an obvious reason), and secondly, that they didn't want to inconvenience left-hand drive drivers with having to step over or around the charging cables when getting to and from the driver's door should the socket have been placed on the opposing side of the fuel-filler.

In all fairness, we should keep in mind that Mercedes-Benz needed to come up with a solution that would be easily transferable to the entire range of its vehicles, which include hatchbacks, SUVs and smaller sedans alike. The company also mentioned that in the case of the S-Class specifically, up to 85% of its customers come from left-hand drive markets; hence the decision to provide a more Euro-friendly solution that keeps the socket on the side of the sidewalk. In any case, the best that we can hope for from the more approachable models like the C-Class, or the smaller compact range (A-, CLA-, GLA-Class), is that Mercedes-Benz offers a right-hand drive solution, where the charging socket, while inevitably on the rear bumper, is swapped to the left.

In a sort of measure to take heed for any concerns, Mercedes-Benz does offer a six-year performance guarantee on all its electronic systems, covering everything from the battery, motor and wiring. So at least affluent customers will be well taken care of...

If you needed a brief summary of driving an S-Class, it typically consists of a very luxurious and cushy ride, a lump of acceleration without too much of the forward forces affecting your stay, and class-defining features to keep you busy and entertained

well into your years of ownership.

Given its gargantuan size, and tasked with the job of navigating the narrow city streets of Denmark and Sweden while trying not to make a scene with any one of the insane number of cyclists I seem to encounter, the S-Class is surprisingly easy to manoeuvre with its superb all-round visibility. For a car which many would expect to be driven in, the S-Class is rather relaxing for those on the driver's perch.

'Completely seamless', is how I'd best describe Mercedes-Benz's electrifying of the S500. There are four electric driving modes and three transmission habits you could choose from, but leaving everything in auto mode (HYBRID) doesn't make driving the Benz feel any way out of the ordinary.

The four modes include HYBRID (effectively the auto mode), E-MODE (pure electric driving), E-SAVE (full petrol driving), and CHARGE (prioritising charging the batteries). You could keep it in its HYBRID mode, and let the car largely decide where and when to best deploy its petrol or electric power. To best utilise its power reserves, the hybrid system uses GPS-based decision-making processes, as well as employs its various radar sensors to decide when and where to use its electric motor.

For example, if you use your car's navigation to get you out from a city, onto the highways, and back into another city – the S-Class will resort to using its electric power in the city to save fuel where stop/go driving is predominant, switch the engine on and charge itself back up along the highway via regenerative coasting or braking, and make sure you have enough electric power again for the next spot of stop/go city driving, all on its own. Likewise, this sort of decision-making is used for negotiating hills and slopes (terrain) too. Should GPS data indicate that you are heading up an incline, the electric motor will aid the engine with a boost of torque to get it up the hill whereas the motor can also be used to charge the batteries on the way down on any downhill sections. Where applicable, traffic conditions are another influencing factor of when the car decides to use between combustion and electric power.

Of course, this is all easily overridden by you at any point, with the car clearly relaying any changes to you: The S500 Plug-In Hybrid is fitted with a haptic-feedback throttle pedal – in the same sense your touchscreen phone gives you a bit of a tap every time you key in an alphabet. In the case of the S500 here, the pedal issues a bit of a buzz on a few different occasions, but mostly when it thinks you should start coasting to save fuel and charge up its battery. For one, every time the front radar system detects a slowing car ahead, a double



Above: centre screen allows you to keep track of what is powering you along. **Right:** rear charging port will be a feature on all Mercedes-Benz's plug-in hybrids.



'SHOULD GPS DATA INDICATE THAT YOU ARE HEADING UP AN INCLINE, THE ELECTRIC MOTOR WILL AID THE ENGINE WITH A BOOST OF TORQUE TO GET IT UP THE HILL'

‘EVEN WITH ITS CLEAN HYBRID IMAGE, THE S500 PLUG-IN HYBRID ISN’T WHAT YOU MIGHT DESCRIBE AS RIDING ON BARE NECESSITIES.’

Opposite below: placement of rear charging port was to prevent owners tripping over the power cord. **Left:** hybrid or not, the S-Class’ interior is a paradigm of opulence and technology. **Below:** the engine with the battery pack, electric motor is housed within the transmission case.

buzz is issued to suggest that you should start coasting – these notifications happen even sooner than you think you can anticipate it.

Secondly, when you are in EV mode and step the pedal too far ahead, a single buzz to your foot indicates that you are about to have the petrol engine fired up for more power – giving you the option to pull your foot back a bit if you didn’t mean to do so.

Even the result of depressing the brake pedal is tweaked to make it so that lightly stepping on the brakes doesn’t immediately involve any use of the brake pads, instead relying on the electric motor’s reducing rotation (energy regeneration) to slow the car. You can clearly feel your way to using this method of braking intuitively. With this in mind and the discipline to test the claims, I drove from Copenhagen, Denmark to Malmo in Sweden with fuel consumption averages nearing the claimed 2.8L/100km – set in HYBRID (auto) mode and largely depending on the car to do all the thinking. It wasn’t until we decided to test the 3.0-litre Plug-In Hybrid’s claim of having the performance to match a full on 4.7-litre V8 that fuel efficiency went out the window, taking what electric charge there was with it.

Even with its clean hybrid image, the S500 Plug-In Hybrid isn’t what you might describe as riding on bare necessities. It is still a proper S-Class, and stopping for coffee amidst

Denmark’s freezing weather gave us one more reason to think so. Unique for now to the S500 Plug-In Hybrid is a feature called Pre-Entry Climate Control – using a Mercedes-Benz app called Connect Me on your smartphone, you could pre-set the car’s cabin temperatures before ever getting inside the car. Needless to say, Europe’s cold winds and weather at the time made having the ability to warm the cabin’s climate, seats, armrests of the doors and center console before ever getting in, a welcomed party trick.

LOOKING TO THE FUTURE

With hydrogen filling stations proving a bit of a challenge to offer on large volumes for now, Mercedes-Benz is keener to push forward its plug-in hybrid solutions – and as mentioned, you’ll soon be able to buy such a solution for every model in the brand’s range. The cost of

these transferable modular hybrid systems aren’t all that much more expensive either, says Mercedes-Benz – in Germany, the regular V8-powered S500 and its plug-in hybrid counterpart are priced exactly the same.

Another highlight of the Plug-In Hybrid’s future includes wireless charging, something that was even demonstrated to us at the drive event. By simply driving over a flat console placed in the ground of your garage, the S-Class will charge itself. While the technology appears to be ready for mass use, there are still some complications tied to it, such as how these wireless charging platforms affect other electric devices – one scary example being a human’s pacemaker. So when could we see wireless charging come to play? Not so soon, says Mercedes officials, who can only confirm that it will be sometime within the current W222 S-Class’s life cycle. ☒



Specification

MERCEDES-BENZ S500 PLUG-IN HYBRID

Engine V6, 2996cc, turbocharged petrol
Power (engine) 333PS @ 5250-6000rpm
Torque (engine) 480Nm @ 1600-4000rpm
Electric Motor Output 85kW/340Nm
Total System Output 442PS/650Nm
Transmission Seven-speed automatic, rear-wheel drive, ESP
Front suspension Double wishbone, air springs, anti-roll bar
Rear suspension Multi-link, air springs, anti-roll bar
Brakes Vented front & rear disc brakes, ABS, brake assist
Wheels 8J x18 front, 9.5J x 18 rear
Tyres 245/50 R18 front, 275/45 R18 rear
Weight (kerb) 2215kg
Power-to-weight 200PS/tonne
0-100kph 5.2sec
Top speed 250kph
Consumption (NEDC Combined) 2.8L/100km
Price N/A





A CHANGED WORLD

Always the source of derision amongst driving enthusiasts, SUVs might not be the last word in driving excitement, but they are a source of driving pleasure, as Daniel Wong finds out.



Top right: unlike its exterior looks, the new X5 has a brand new cabin that looks different from its predecessor. **Above:** X5 sports minor improvements such as moving the door lock switches to the door.

THERE IS A RUNNING joke that for all their engineering clout they boast for putting a man on the moon and harvesting the power of the atom, the United States' most celebrated contribution to the automotive world is the cup holder. Never mind all their other achievements such as pioneering turbocharging or even traction control systems for cars. In a rather tongue-in-cheek commentary on the perceived inferiority of American cars in the 1990s, that plastic hole or ring made to hold your extra-large soft drink in place while driving was deemed America's greatest automotive invention.

Strangely though, for all that derision, like their movies, it is one export that has found its way into every car and become a fixture that we have all come to expect our next car to come

‘WITH THE DIESEL ENGINE’S LOW-END POWER DELIVERY IT HAS ENOUGH POWER ON-HAND, TO MAKE A QUICK CHARGE OFF THE LINE.’

with, along with other American creature comforts that have become staples such as air-conditioning, automatic transmission, and power steering. In many ways, America has made our motoring lives much easier, and so too have they reinvented preferences with their other contribution to the automotive world; the SUV.

Originally designed as a more occupant-friendly pick-up truck, the SUV genre began its life as what essentially was a station wagon body bolted onto a truck chassis. Yes, you have probably heard it all before. Huge, ugly, and heavy vehicles that doesn't quite boast the same off-road capabilities of the off-road machines that inspire it, nor was it as good to drive as the cars that it tried to emulate. To many motoring pundits, especially those outside of the States, the SUV became a symbol of excess and decadence. But despite all negative

connotations levelled against it, like many of their inventions of convenience, they are fantastically popular these days.

One SUV that has become a success story is BMW's X5 SUV. Now in its third-generation, it has become a runaway success for the Bavarian brand. Last I checked, BMW had sold more than 3.3 million of its X models since the first X5's introduction in 1999, of which the X5's last two predecessors alone managed to rack up a combined sales figure of 1.3 million. And today BMW claims that almost every third newly registered model is now an X model. Not bad at all for a model, which many critics initially saw as a travesty coming from a brand which once wore the tagline - "The Ultimate Driving Machine". Then again, it certainly was a different time back when the X5 made its debut onto the world stage. Back then, the idea of an SUV hadn't really caught

on outside the likes of Jeep and Land Rover, and diesel was seen as the fuel of peasants in the eyes of the European drivers.

Now the proliferation of SUVs like the X5 is making the ordinary sedan almost redundant, and not to mention that diesel is becoming the preferred choice of engines amongst European buyers. Then again, engine technology has grown leaps and bounds with BMW's current 3-litre inline-6 diesel engine humming away beneath its rippled bonnet, barely a clatter of noise reminiscent of farmyard machinery to be heard. It isn't just the refinement that has improved since. With 560Nm to toy around with from 1500rpm, the X5's diesel engine is a perfect complement to its bulk and power distribution through all four wheels. Its 0 to 100kph capability of 6.9 seconds isn't what anyone would describe as slow for something that tips the scales at 2070kg.

Unfortunately for me, gunning the throttle is a practice best left out here as this is Australia, where speed limits are strictly enforced with no excuses taken. What's more is that the Yarra Valley region, north of Melbourne does boast a collection of interesting and rather scenic roads, but alas, when in Rome, do as the Romans, so speed limit-confined driving it is then. Not that the speed limits dampened the mood, with the diesel engine's low-end power delivery and eight-speed automatic transmission meaning that it has enough power on-hand, regardless of the situation to make a quick charge off the line. With the best part of the engine's power served up by 3000rpm, there really wasn't much of a point to gun for the engine's 258PS peak power output at 4000rpm. For its potential and charismatic rumble, the diesel engine is best enjoyed at low speeds and sauntering pace, if you like.



‘SAUNTERING FOR ONE IS WHAT THIS X5 DOES BETTER THAN ITS PREDECESSOR, BMW HAS WORKED WONDERS WITH THE THIRD-GENERATION’S SUSPENSION’

Sauntering for one is what this X5 does better than its predecessor, which was criticised for its rather harsh ride. As such, BMW has worked wonders with the third-generation’s suspension. Over gravel roads around these parts, the X5 rides remarkably smoothly and yet this new found comfort hasn’t hobbled its prized dynamic qualities.

Hurry the X5 into a corner and it handles its bulk and height pretty well. There is pliancy in its ride, with a degree of lean present. However, it doesn’t deter the X5’s excellent balance and ample grip from its xDrive four-wheel drive system. Its new electric-power steering system on the other hand might not give have the heft nor feedback of the old hydraulic systems, but instead it reinforces a sense of liveness in the way it allows for quick and fine course corrections. There is however something rather appealing about driving a big car fast. To a certain extent, it reminds me of a time when cars weren’t so perfect at fast corner exits or extracting gecko-like grip. Instead the X5, with all inherent handicaps by its physical dimensions, is reminiscent of old-school cars where you have to put in effort to get it going

quickly. That said, with speeds around this region limited to the limits of 80 to 100kph, this wasn’t the place to test the upper limits of the X5’s capabilities, but not that it is advisable or particularly rewarding to do so in a car like the X5.

And that is the thing with the X5 and its modern SUV kin. Ultimate off-road capabilities and on-road excitement might not be ever present on the SUV’s palette, but it isn’t as though the general buying public cares about that. Instead, like all of America’s contributions to the cause of improving creature comfort, the SUV in itself is fast becoming not just a status symbol, but a comfortable and capable alternative to your run-of-the-mill car. Its higher ground clearance and elevated ride height offer drivers a sense of security and peace of mind that normal cars can’t quite deliver. Exuberance and speed are traits often lauded, but out in the real world of speed limits and unpredictable roads, the confidence that an SUV offers with a better field of vision and ability to tackle any on-road conditions is the better offering.

As is the case of my road trip through the

Yarra Valley and towards the scenic town of Macedon, the X5 proved to be an excellent companion on the road as well as the motorway. It is comfortable, quiet, and thanks to its NEDC rated fuel consumption figure of 6.2 litres of diesel per 100km, it is also very easy on my travel budget. Furthermore, perched high on its plush leather seats, the X5 offers an unassailable view of the idyllic countryside of the Yarra Valley’s wine region, as well as the riot of colours around Macedon and its surrounding forest reserves. You certainly can’t get as good a view in an ordinary ground-hugging car, and this isn’t surprising coming from a country which has ultimately romanticised the car and cross-country travel.

Has the SUV of today come of age? If the X5 and its kindred spirits, like the new Porsche Macan (on p83), are any indication, then this genre might have found its place in the world to be appreciated for what it is. It doesn’t address the all too common criticism of not being able to combine the best of both the off-road and on-road worlds together, but as it stands now, it doesn’t have to do so to get people to open up their wallets to snap them up. ☒



Specification

BMW X5 xDRIVE30d

Engine Inline-6, 2993cc, turbocharged diesel
Power 258PS @ 4000rpm
Torque 560Nm @ 1500-3000rpm
Transmission Eight-speed automatic, four-wheel drive, ESP
Front suspension Double wishbone, coil springs, anti-roll bar
Rear suspension Multi-link, coil springs, anti-roll bar
Brakes 332mm front disc brakes, 320mm rear disc brakes, ABS, brake assist
Wheels 9 x 19in front & rear
Tyres 255/50 R19 front & rear
Weight (kerb) 2070kg
Power-to-weight 125PS/tonne
0-100kph 6.9sec
Top speed 230kph
Consumption 6.2L/100km (NEDC Combined)
Price RM558,800





Left: though an X3 with a coupe body, the X4 felt more road-focused. **Below:** all X models from the X5 to the X1 displays good wheel articulation.

‘BMW HAS APPLIED WHAT THEY LEARNT ABOUT FOUR WHEEL DRIVE MECHANICS AND TAILORED IT TO BETTER SUIT ON-ROAD DRIVING CONDITIONS’



X HITS THE SPOT

by DANIEL WONG

There have been much scepticism behind the capabilities of BMW's xDrive four-wheel drive system. Daniel Wong drops in on the xDrive Experience Day to see what it can really do.

N **NO LOW-RANGE GEARBOX,** no knobby extrusions on the tyre, not even a switch that lets you crawl over ravines or loose boulders. You certainly won't find those components on the list of ingredients in BMW's X models. If you are of the adventurous disposition, the X models don't have what it takes for you to dive straight into the thick of the jungle on one end and out the other. Does it matter? Not really. BMW is pretty clear on the type of customers they would like to pitch their X models to, certainly not the type who would think that ploughing through ankle-deep mud is their idea of a perfect weekend. Despite learning a great deal from Land Rover, whom they acquired in 1994 and sold to Ford in 2000, a year after the first X model was introduced; BMW has applied what they learnt about

four-wheel drive mechanics and tailored it to better suit on-road driving conditions. After all, why not capitalise on their long-standing reputation for building models with a strong disposition towards on-road driving. Has it worked? To demonstrate the capabilities of their X models, BMW gathered a selection of X models from their line-up and put together the xDrive Experience Day in the vicinity of the Sepang International Circuit. With the promise of sampling BMW's new RM438,800 X4 xDrive28i on the road, I opted to start the exercise with the facelifted X3 CKD. Sporting the new X model corporate grille from the third-generation X5, the facelift work on the X3 with its upright and engorged front kidney grilles is certainly going to divide opinion. When it comes to the on-road experience, the RM328,800 X3 xDrive20i feels like a mixed bag. The steering speed does give it quick reflexes

and agility around the bends, but on long high-speed corners, its stature becomes more apparent as it tiptoes around with its elevation and rather soft springs. This softer-edge to its ride and handling however is tempered with the grip and stability doled out by its xDrive four-wheel drive system beneath. Coupled to the Dynamic Stability Control system, the xDrive ensures that all 184PS from its 2-litre turbocharged engine is distributed between both front and rear axles where necessary. Though the X4's sloping rear roofline and narrow glasshouse might seem like a new suit to hide the same old X3 mechanics that lie beneath, the X4 turns out to be rather different from the X3. It isn't the added firepower of the xDrive28i 245PS/350Nm tune from the same 2-litre turbocharged engine, as that in the X3 xDrive20i, which elevates the driving experience. On the same



fast high-speed bends, the X4 feels more focused and better grounded to the road surface. Its body doesn't tip and neither does its poise through the corners sway as you pile on the speed, giving you the confidence to really push it. It isn't just the slightly lower seating position or the lower centre of gravity that contributes to this change in character. The X4 also comes equipped with the Performance Control system, which will apply the brakes to individual wheels during cornering to give you more grip and better stability. It is tough to justify the X4's RM110,000 premium over the X3, but if you fall into that narrow gap in the Venn Diagram of SUV-fans and driving-fanatics, then you will be glad to know that the X4 has just the right fit to fill that niche.

That quandary settled, the keys to the X3 were handed back to me and it was off to a specially-prepared off-road course to test the xDrive's capabilities in handling the unpaved world outside. Despite BMW's focus on on-road performance and driving pleasure, the X3 handled itself remarkably well when tackling embankments, climbing steep mound, traversing rutted terrains, and forging through flooded pits. Granted however the obstacles prepared weren't quite as monumentally challenging as that you might experience out there in the wilderness.

By the standards of proper explorers and adventurers, I suspect that the X models might



Opposite left: BMW demonstrates the rigidity of the X3 chassis by opening its doors while it is balancing on two wheels. **Below:** even the X1 faced no issues fording a flooded path.



'THE X MODELS ARE MORE THAN TALENTED ENOUGH FOR NOT-TOO-DIFFICULT OFF-ROAD EXCURSIONS THAT CITY-DWELLERS WILL APPRECIATE'



not have the properly prepared mechanics underneath to tackle seriously challenging off-road terrains or get you out of sticky and tricky situations. But with its decent wheel articulation and the fast response of its four-wheel drive system, the X models are more than talented enough for not-too-difficult off-road excursions, at the level of ability that city-dwellers will appreciate when it comes to facing perils in cities such as floods and derelict road conditions.

It isn't quite the jack of all trades on and off the road as some would expect of a four-wheel drive SUV, but considering its mastery of the roads, the xDrive's adequate range of capabilities off the tarmac is more than what an average city-dweller could ask for. And that, by in large, makes it a complete all-round package for most of its target audience. ☒



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THERE ARE FEW CERTAINTIES IN LIFE, but when you've got a circuit booked and a roofless, doorless and windscreen-less sports car to test, you can guarantee it will rain like there's no tomorrow. Which brings us neatly to Bedford Autodrome and our first taste of the Ariel Atom 3.5R.

It may sound like a software update for your laptop, but the Atom 3.5R is actually one of the most comprehensive upgrade packages since Ariel switched to Honda power. Much of what you see, and plenty of what you can't, has come courtesy of the insane Atom V8, one of the wilder chapters in Ariel's brief but impressive history. This, then, is the new flagship of the Somerset carmaker's range; an already extraordinary recipe intensified to deliver an even bigger hit of adrenalin.

The specification and execution of the 3.5R is enough to make you go weak at the knees. The skeletal and uniquely distinctive lattice-frame tubular chassis looks identical, but benefits from changes made to increase strength, as well as new mounting points for the optional Sadev six-speed pneumatic paddleshift sequential gearbox, originally seen on the Atom V8 and which costs £20,000 alone!

This brilliant 'box of tricks is hooked up to Honda's familiar 2-litre four-cylinder engine, which Ariel supercharges to glorious effect. In the 3.5R power leaps to 335PS (up from the non-R 3.5 Supercharged's

RAIN STARTS PLAY

by RICHARD MEADEN

PHOTOGRAPHY by DREW GIBSON

A soaked circuit isn't the ideal setting for a first drive in a lightweight sports car with 645PS per tonne. But when that car is the new Ariel Atom 3.5R, it's a different story...



Far left: Meaden exploits 355PS on a cold Bedford track. **Left:** paddleshift 'box makes changing gear easier. **Below:** optional Öhlins dampers greatly aid 3.5R's balance



'NO CAR GIVES YOU A SENSE OF EXPOSURE LIKE AN

314PS) and torque to 330Nm (up from 230). Those are big numbers for a small car weighing just 550kg. As we know from previous Atom experience, the acceleration figures – 0-96kph in 2.6sec, 0-160kph in 6.0sec – barely do the head-scrambling experience justice.

Other changes are more obvious, especially on this fully loaded press car. Beautiful gold anodised Öhlins TTX spring/damper units shine from each corner of the car. With a massive amount of adjustment for bump and rebound it's possible to quickly change settings to suit road or track use without compromising either. Larger wheels (made from magnesium) shod with Kumho Ecsta tyres are taken from the V8, as are the bigger Alcon discs and calipers. The (optional) front and rear aero kit also comes from the V8, and is made from carbonfibre. The sidepods are also optional,

housing a chargecooler on one side and an oil cooler on the other, giving the 3.5R a beefier, broader-shouldered look that's appropriate considering its increased performance.

In total this Atom 3.5R costs £95,000, but as we've already mentioned, the Sadev gearbox accounts for a £20k chunk of that. As standard – that's to say without the sequential 'box, Öhlins suspension, sidepods, carbon aero kit, etc – a 3.5R is £65,000. That's a great deal of money, but the car looks worth every penny. Besides which, Ariel is finding many of its customers are coming from the top end of the trackday market, perhaps coming out of a 911 GT3 or similar. Ariel and the Atom have certainly come a long way since the early days of the original car and its standard Rover K-series engine.

There's never been much ceremony to climbing into an Atom and the 3.5R is no

different. Swing your left leg over the fat tubing that forms the side structure of the chassis, while holding the roll bar for balance. Then pop your right leg in and drop down into the moulded seat. I appreciate the efficiency and neatness of the one-piece seat's design, but there's too much flex in its structure, and it's not supportive enough for the Atom's braking and cornering capabilities. I'd have to fit a pair of proper seats if this was my car.

No car gives you a sense of exposure like an Atom, yet few deliver such a sense of strength and security, either. The skeletal structure has an inherent visual and physical strength, and because you're tucked down low in the car you don't feel vulnerable. Consequently, it's one of the great driving environments.

One ergonomic glitch with the manual Atom is the location of the gearlever, which is tucked

ATOM, YET FEW DELIVER SUCH A SENSE OF SECURITY'

a little too far back to be entirely comfortable. With the Sadev gearbox's paddles mounted on the steering wheel, you don't even need to remove your hands from the wheel to shift. Flick a few toggles, push the starter button and the 355PS Honda motor kicks into life. Mounted just behind your shoulders, it sends vibrations through the car, but whereas older Atoms used to feel a bit resonant, the unpleasant frequencies appear to have been tuned out, so you don't rattle around like a pea in a whistle.

You need to use the clutch pedal to pull away and for downshifts, but once you're on it, upshifts are clutchless. The Sadev 'box has a pneumatic shift, so it makes a delicious *hiss-thwack* when you engage a gear. The clutch is smooth and light and the engine devoid of truculence despite the potent state of tune. Ariel doesn't meddle with the internals, and has

never had any issues. These motors are tough in the finest Honda tradition.

The weather is atrocious, so I've donned a one-piece dry suit. For some reason I decide against wearing gloves, the folly of which is apparent halfway round the first lap as ice-cold water rockets up my right sleeve then slowly begins to flow up my arm and over my shoulder, before trickling down my back and chest and settling in a puddle beneath my shivering butt cheeks. Do I consider pulling in? Not a chance!

It always takes a while to dial your head into how an Atom drives. At first it feels jumpy and overly urgent, but if you can relax your shoulders, arms and wrists and let the car talk to you, the sense of edginess fades, replaced by the revelation that this car is every bit as willing and driveable as that paragon of playfulness, the Caterham Seven. Still, you struggle to

imagine it will be able to put anywhere near all of its 355PS and 330Nm into the cold, sodden tarmac, yet as your right foot explores more and more of the ultra-precise throttle's travel, you find a ton of traction to call upon.

Big throttle openings elicit the most sensational noise from the supercharged engine: a kind of sped-up, serrated whine that sounds like a bench saw cutting through steel. There's a great induction roar too, which resonates around in the airbox by your ears, and with each 40-millisecond downshift, a solitary high-velocity gunshot report leaves the tailpipes. As the rear wheels break traction and the revs rise, the exhaust note, supercharger whine and induction noise all rise an octave or two. It's as if the Atom is whooping with delight from apex to corner exit.

The shock and awe of the 3.5R's performance



Left: optional sidepods aid cooling; wing increases front grip.
Below: Atom's 'naked' look remains its hallmark

ARIEL ATOM 3.5R

Engine In-line 4-cyl, 1998cc, supercharger

Power 355PS @ 8400rpm

Torque 330Nm @ 6100rpm

Transmission Six-speed sequential manual (option), rear-wheel drive

Front suspension Double wishbones, coil springs, dampers

Rear suspension Double wishbones, coil springs, dampers

Brakes Ventilated discs, 290mm front and rear

Wheels 6 x 15in front and rear

Tyres 195/50 R15 front and rear

Weight (kerb) 550kg

Power-to-weight 645PS/tonne

0-96kph 2.6sec (claimed)

Top speed 250kph (claimed)

Consumption N/A

Basic price £64,800

On sale Now

evo rating: ★★★★★

and aural pyrotechnics is something truly remarkable, but so too is the balance and poise of its chassis. Ariel has learned a great deal from the Atom Cup race series, both in terms of camber and castor settings, but also from the quality of the Öhlins TTX36 dampers, which have such a range of adjustment that Ariel has been able to come down on spring rates and support the car through damper settings. Though we don't get to try the 3.5R on the road, there's no reason to doubt Ariel's assertion that once you've wound a few clicks off the damper settings, these softer springs mean it works as well on the road as it does on track.

To say the 3.5R revels in these conditions is a huge understatement. There's so much feel and progression from both ends of the car, so much

precision in the power delivery and just the right rate of response from the steering, you're always prepared for what the car is doing. And if you like to drift, well, the Atom will do it to your heart's content. The big brakes also have great feel (not something earlier Atoms were noted for), so you never get that horrible sensation of a numb pedal and grabby lock-ups. The final element is the excellent Kumho Ecsta tyres, which are available in a multitude of compounds and work outrageously well.

The weather should have ruined this test, but instead it made it. Not because you'd necessarily want to drive an Atom in weather more suited to filming *Noah*, but because even in these conditions it shone like the sun. Understandably some of you may struggle to get your heads around the price (heavily optioned or not), but like any car at this level it can only justify the figure if it delivers a unique, intense experience, engineering of the utmost integrity and off-the-scale desirability. Whether you're stood admiring it, or in the eye of the storm driving it, the Atom 3.5R is worth every penny. ☒

'THERE'S SO MUCH FEEL AND PROGRESSION FROM BOTH ENDS OF THE CAR, SO MUCH PRECISION IN THE POWER DELIVERY'



by DAVID VIVIAN

PHOTOGRAPHY by GUS GREGORY

Monsters' Ball

*The revived Goodwood Members' Meeting
is a showcase for famous race and rally
cars of decades past. We meet
their owners*



D **DAFFODILS. LORD MARCH** clearly has a thing about Morrissey's one-time back-pocket accessory. Even adding together the two-day headcount for the 'inaugural' 72nd Members' Meeting, they outnumber humans ten to one:

300,000 versus 30,000. It's late Sunday morning and, just as yesterday, the 3.86km Goodwood race circuit, artfully daubed with strips of gently swaying yellowness and random blooms of tyre smoke, has probably never looked more telegenic. It helps, of course, that the late March sun is shining hard and, away from the paddock's own unique brand of dark-roasted high-octane aromas, spring is in the air. Along with the odd vibration-battered butterfly.

There are nine hours to go before the firework finale, but Lord March's good humour perhaps says more about the preceding day and a half than his slightly hushed serial-interview voice does. Goodwood's latest gig for those addicted to motor racing's past glories certainly seems to have the ingredients and proportions measured and mixed, even by Lord March's meticulous standards, to a hitherto unrealised pitch of fine-tuned 'just right'.

In many ways, the first members' meet since 1966 is a world removed from the sell-out blockbuster the Festival of Speed has become or the mannered, retro-dress-code Revival. The only drawback is also its biggest delight. Unless you're a member of the Goodwood Road Racing Club, or one of the four guests each member is allowed to invite, you can't attend. Which means that, for the time being, the admittance of 15,000 per day gives everyone

that most precious of all commodities at a race meeting: space. The irony, of course, is that with the Members' Meeting as a recruitment tool for GRRC membership, numbers will inevitably swell year-on-year – but to nothing like those experienced at the FoS or the Revival. It's what allows the informality and the relaxed atmosphere. 'Real luxury is about simplicity,' says Lord March. 'So the drivers and the members socialise, eat together and so on. There are no blocked-off areas, there's no branding, no corporate hospitality. I'm really pleased that, already, people "get" what we're trying to do.'

Immaculately choreographed as it is, and two years in the planning, it's a canny steer by His Lordship because for the most part it takes over where the 71st Members' Meeting left off in 1966. And it means that, for the first time ever, cars produced after 1966 are dicing at Goodwood – not least Group 1 touring cars from the '70s and '80s. There's full-noise tin-top action taking place as I leave Lord March to his next interview. A lone, screaming, pale green Mini is steadily pulling away from the chasing pack of Mk1 Lotus Cortinas, slightly less fleet Minis and a straggling assortment of saloons, including one heroically piloted Vauxhall VX4/90. Slow down the straight but sideways at every turn, the Mini eventually laps a third of the field.

Later there'll be high-speed demos with 1500PS turbo F1 cars, long-tail Le Mans racers and, best of all, a timed sprint for a dozen ridiculously intimidating Group B rally cars. In search of the backstories to some of these Goodwood newbies and their owner-drivers, it's to the Group B cars that photographer Gus Gregory and I head first.

ENDA
GARVEY

1986
CITROËN
BX 4TC

BOTH PREVIOUS OWNERS OF 16-valve Citroën BX GTIs, Gus and I walk straight past the Metro 6R4s, Lancia Delta S4s and Ford RS200s lined up in the paddock to stare, mouths agape, at the rarest and most unlikely Group B car ever to participate in the World Rally Championship. It's absolutely huge and rather magnificent. 'There are only five that I know of that are still complete,' says Enda Garvey, pleased but slightly bemused that we've homed in on his car, which makes even the Audi Sport Quattro parked next to it look positively petite.

'It's almost a forgotten car,' Garvey laments. 'It only took part in three WRC events. If you read the history magazines, it didn't do very well, but look more closely and it certainly wasn't uncompetitive. Two cars went to Monte Carlo. Both crashed. It wasn't really the car's fault. One car went to Sweden and finished sixth, about seven or eight minutes behind the winner. If you were seven or eight minutes behind Loeb today you'd be a hero. At one stage on the Acropolis Rally, they were actually beating the Peugeot 205 T16s, but then the suspension broke and both cars were out.'

He walks me around the BX 4TC and explains why the proportions are so wacky. 'The engine, good for about

400PS, is completely in front of the four wheels with the radiators at the back of the car. As you can see, it still has its aluminium roll-cage, which isn't really good for anything, but they were the regulations at the time. It's four-wheel drive and had a carbonfibre propshaft at a time when other manufacturers hardly knew what carbonfibre was. In some ways it was quite ahead of its time and probably, with a little more development, it could have been a semi-successful car had Group B continued. In the end, it was all about crowd control. It wasn't that the cars were too powerful because the cars today are just as fast.'

Born and still living in Northern Ireland, Garvey has owned the Citroën for seven years. He's got some other rally cars, too. When I ask how many, he simply replies: 'Too many.' In the sprint he finishes sixth out of 11 in practice and, perhaps channelling his car's international rallying career, retires before the main event. But the man can clearly drive.

He's an avid spectator, too. 'For my age group, early 40s, the Revival doesn't interest me as much. I love watching the Capris, the Opel Asconas, the Group C cars. Historic racing's all pre-'66, and then you've got the modern stuff, but nothing in between. This is fantastic.'



DAVE
KEDWARD

1984 AUDI
SPORT
QUATTRO
S1 E2

SERIAL EX-WORKS RALLY CAR

collector and driver Dave Kedward has brought a Peugeot 205 T16 and a Ford RS200 to Goodwood, but is tackling the sprint in the Sport Quattro built by his late close friend and fellow competitor Gary Midwinter. It's a car Kedward part-owns but he admits to being relatively unfamiliar with it when used in anger.

'After Gary passed away in 2007 I took on the Quattro to look after it, use it and promote it,' explains Kedward. 'I've only driven it properly once before, at a rally in Italy. Gary and I used to go to Italy regularly. They did a memorial for him at the Rally Valpantena and invited his wife. And they asked me if, instead of taking my car, I'd bring his Quattro to drive on the event, which I did. That was 18 months ago and was the last time I drove it competitively until I jumped in it yesterday.'

Not that this should prove too much of a drawback. Kedward's rallying exploits stretch back 41 years, during which time he's competed on several continents in countless different cars: 'I've done the Safari three times, been to Australia,

driven a lot in lots of different cars, and managed to keep a fair few of them.

I've got two Lancia 037s, works Escorts, a works Chevette. And I've just bought an ex-works Group A Sierra Cosworth, a Russell Brookes car.' Some garage. And then some.

So when he says, with a degree of trepidation in his voice, that the stubby Sport Quattro is 'bloody quick', I don't feel inclined to doubt him. 'It's an awesome car, a real credit to Gary,' he adds. That being the case, I wonder if there's anything else in the paddock that will give the 550PS Audi a hard time in the sprint. Kedward is quick to play down his chances. 'Yeah, the Ford RS200 definitely,' he says. 'If Gary had been driving the Quattro he'd be the quickest here, but I've not had enough time in the seat yet. We definitely won't be last but, to be honest, the 205 T16 is just about as quick. It's a lot lighter and chucking out around 500PS.'

Come the sprint, he finishes a creditable fourth, behind two Metro 6R4s and the predictably untouchable RS200 but, in a fitting reversal of the old Group B WRC days, ahead of a Lancia Delta S4.

'WHAT'S THAT?' THERE ARE AN embarrassing number of 'what's that?' moments as Gus and I stroll round the paddock (Lotus 11 Breadvan, anyone?), but a Ferrari that doesn't look remotely like a Ferrari yet might plausibly be described by Will.i.am as 'super-mega-dope'? We simply have to wheel it out into the sunshine and ask its owner the question of the day.

'It's a 512BB LM,' replies Paul Knapfield, perhaps sensing that we're looking little the wiser. 'Or, in other words, a silhouette-bodied Ferrari Berlinetta Boxer that competed at Le Mans in 1980 and finished tenth overall. And it's just a really amazing car.'

From just about any angle it looks supersonic, though things are a little more prosaic underneath. Thing is, you can see most of the innards through the fine mesh grille that stretches across the impossibly wide tail. 'The engine's the 5-litre flat-12 that started off in the Boxer and lived on in the Testarossa,' Knapfield explains. 'It makes about 500PS and is mated to a five-speed gearbox that's mounted under the engine. Amazingly, it's got really good balance. I've got a BB road car as well and it's great. I don't think the higher centre of

gravity caused by having the transmission beneath is a problem, they handle so well. And this car handles really well. Five hundred horsepower might not sound that much but it only weighs about 1100kg.'

It's enough for Knapfield, who's owned the car since 2002, to have won the Ferrari Challenge with it twice. But the car's history is more illustrious still. And as unlikely as the plot in a Wes Anderson film. Apparently there was a student at the European University in Antwerp, Belgium, who somehow managed to raise sponsorship from the university to run two 512BB LMs at Le Mans in 1980. A Parisian Ferrari dealer, a racer himself, provided the cars and the drivers.

Around 30 512BB LMs were homologated to comply with the racing regulations. 'But they didn't all race,' explains Knapfield. 'A lot went to America. There were probably about half a dozen that did really serious racing. I've done numerous historic challenge races and Classic Le Mans with the LM. Really, with cars like this, you enter them for whatever they're eligible for.' No racing today for the BB but, in the demonstration run, it looks even more stunning in motion than it does at rest.

PAUL
KNAPFIELD
1980
FERRARI
512BB LM



JOAQUIN
FOLCH
1985
LOTUS
97T

SEEING A LINE-UP OF

Formula 1 cars from a time when F1 cars were beautiful is special enough. Knowing they have turbocharged engines that could deliver up to 1500PS re-ignites a deep respect for their drivers, past and present. But reading the words 'Ayrton Senna' on the tub of the F1 car in which he won his first Grand Prix, gold letters gleaming out from a black background, truly stirs the soul. Especially when you're standing next to it.

Driving this car today is 2012 Historic Formula One champion Joaquin Folch. He's just back from the parade lap in Senna's JPS Lotus and, obvious frustrations apart, looks just a little bit elated. We try to find a quieter part of the paddock so he can tell me why.

'Personally,' he begins, 'I was overwhelmed. I was there at the Portuguese Grand Prix in Estoril the year it all happened [1985], the year Senna won for the first time. Won in this car, in the rain. It now belongs to Clive Chapman [Colin's son] and he was kind enough to lend it to me for the parade. I own a sister car which is in the workshop, but it

wasn't ready in time, so he said, "Drive mine," one of the most iconic GP cars in motoring history.'

It isn't as if Folch is strapped for famous steers. He also owns an ex-Keke Rosberg Williams FW08, an ex-Elio de Angelis Lotus 91 and an ex-Carlos Reutemann Ferrari T3, which, being a Spaniard, Folch has something of a soft spot for.

'My sister car was an earlier JPS Lotus driven by Nigel Mansell. Those were the years of Mansell and de Angelis. Senna came into the team two years later. Mine has the first evolution of the Renault engine. I'm still very proud to own a car of Nigel Mansell, of course. I've had it about four years.'

A parade lap sounds a bit pedestrian, I suggest. What was the pace car? 'A Ferrari F40,' Folch says with a smile. 'It's a very quick car, but you cannot compare it with these single-seaters. We used a little bit of boost, but only on the straights.' Must have been a pain. A hint of a frown wrinkles Joaquin's brow. 'Some people tend to believe that we are not racing as hard as we can in Historic F1. When I sit in the car, I don't think about the history. I just want to be as quick as possible.' ☒

by HENRY CATCHPOLE

PHOTOGRAPHY by DEAN SMITH

EDGE OF HEAVEN

*Equipped with the new 330PS
Porsche Boxster GTS, the deserted
mountain roads of Majorca and a
cloudless sky, we go in search of a
day of driving perfection*

SOMEWHERE IN MAGALUF A tattooist is no doubt just finishing up the last inappropriate inking of the night. In eight hours' time, the drunken human canvas will wake up and wonder who Geraldine is and more to the point why her name is now indelibly circling his belly button. It's a tableau that no doubt sums up what many people imagine when they think of Majorca. And yet... right now, despite standing in the dark on the same Balearic island as Geraldine's beau, it feels like we're in a totally different world.

I'm standing under a picturesque white lighthouse watching a pastel sunrise slowly materialise over the inky sea. The view and the quiet isolation are enough by themselves to make it the sort of moment that you want to bottle and keep, but add in the fact that I've just driven one of the most brilliant roads in the world to get here and life really does seem exceptionally good.

I'm sure that preconceptions about 'Brit-abroad Majorca' are what keep most people from discovering the incredible roads that I know we are going to drive today. I came here on holiday a couple of years ago full of just such prejudices,

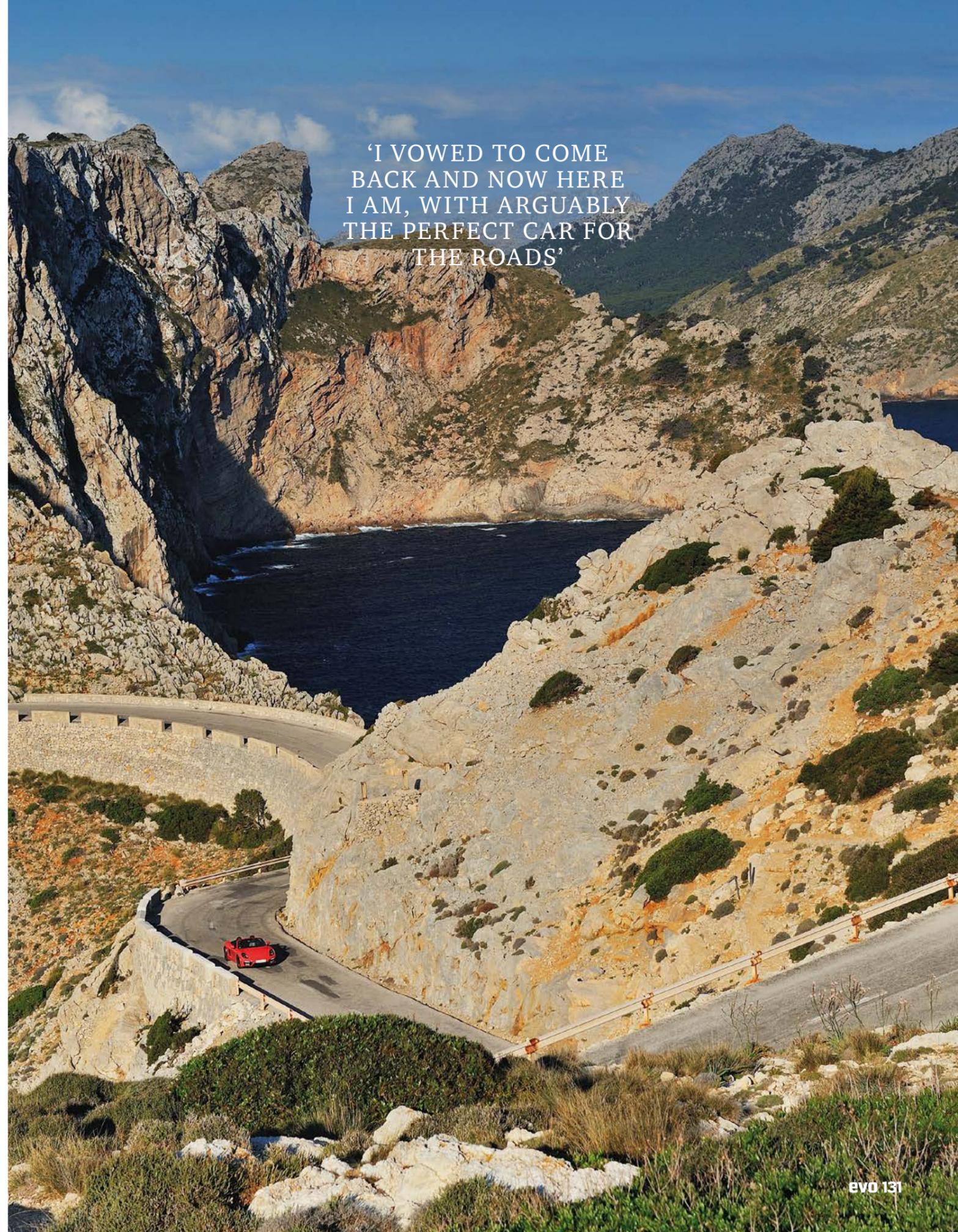
but also lured by stories of warm-weather cycling. The roads and the scenery that I found over the subsequent week left me slack-jawed in amazement and wishing that I had something more than a Pinarello (lovely though it was) and a Renault Scénic at my disposal. I vowed to come back and now here I am, with arguably the perfect car for the roads.

The Porsche Boxster GTS, like the Cayman GTS that we reviewed last month, is essentially a Boxster S with a value pack of the greatest hits from the options list. Amongst other things, you get a sports exhaust, Sport Chrono (complete with dynamic transmission mounts), 20-inch wheels, PASM adaptive dampers (or a no-cost optional sport chassis), Sport Plus seats and an Alcantara-covered Sport Design steering wheel. However, to distinguish it as a GTS you also get a few visual tweaks around the nose and bum, largely wrought in matt black, plus an extra 15PS and 10Nm from the 3.4-litre flat-six, which produces 330PS and 370Nm. Complete with wonderful six-speed manual, it is a truly lovely thing and very close to the Boxster S that was my personal favourite at eCoty 2012. No matter what the roads bring, it should be a pretty good place to spend the day, roof down, bathed in sunlight or moonlight.

Standing directly below the lighthouse we're too close to see its four flashes every 20 seconds, but eerily I can see them reflected in the white cliff opposite. There still isn't a soul about, except for a friendly ginger tomcat who pads out to investigate the Boxster GTS and then purrs round my legs hoping for some fuss and food. We watch the first curve of sun glint into view above the horizon and then, with the road now bathed in a warm glow, I decide it's time to go for another drive. Cap de Formentor is a peninsula jutting out from the north-east corner of Majorca towards Menorca, and one of the great advantages of the road that weaves out to its lighthouse at the end is that it's a dead end with no houses. I know that there's no one at the lighthouse apart from Tiddles, so as long as I don't meet anyone coming the other way as I retrace my steps inland, I know that I'll have a clear run at the road on the way back to the lighthouse.

The whole road from beginning to end is 11 miles long, but for the moment I'm just sticking to the last four miles or so. The road is wide enough to have a dotted white line down the middle, but only just. It's bumpy (unlike the first few miles which are billiard-table smooth) and begins amongst pine trees at the end of a long straight. You climb up through a couple of tight turns and quite abruptly the pines recede, opening up the sky above. Tufty clumps of marram grass replace the tree trunks and then you see the sea far below. Almost miraculously you seem to have arrived high up on the side of a beautiful coastal inlet.

Below: Catchpole makes the most of the light traffic at dawn. **Right:** Cap de Formentor has everything: high cliffs, challenging twisty roads, and stunning sea views



'I VOWED TO COME BACK AND NOW HERE I AM, WITH ARGUABLY THE PERFECT CAR FOR THE ROADS'

‘AS THE BOXSTER’S NOSE HOOKS IN, THE REAR BRIEFLY CUTS LOOSE, LEAVING ME WITH A SLIDE TO GATHER UP ON THE EXIT’

Crane your neck to look over the edge of the road and you’ll see turquoise water crashing into white foam as it hits the rocks on the beach.

To the right is a huge, vertical rock face towering above you, the pale stone seeming to crowd you towards the drop on the other side of the road. A couple of blind right-handers and then the cliffs actually begin to overhang the Boxster’s open roof until the road gives up the fight and is consumed by the island, the tarmac disappearing into the black mouth of a small tunnel. The xenons automatically flicker into life as you peer round the curved entry, then the road straightens so you can see the shining exit floating in the darkness dead ahead – and there is only one thing to do.

I could spend most of this article eulogising about the sound of the Boxster GTS, and no doubt I’ll be moved to mention it again, but throttle pinned in this tight tunnel, it’s something close to an aural elixir. The hollow howl, condensed, amplified and reverberating, makes my whole body tingle and there’s something wonderful knowing that it’s your right foot orchestrating it. Halfway through I wonder what it must sound like for anyone outside the tunnel and then imagine the tube of rock acting like a trumpet and

projecting the sound out, waking up the rest of the slumbering island like some automotive reveille.

Once you’re back into the light, the road carries on straight for a few hundred metres, still climbing, then it dives right through a couple of well-sighted turns. There’s a bit of positive camber and as the Boxster’s nose hooks in towards the apex, the rear briefly cuts loose, leaving me with a bit of a slide to gather up on the exit. Then it’s a long left and you emerge above another small valley, this time filled with brown-green vegetation. Ahead you can see the long 160-degree corner that doubles back just before you reach the sea and then the road striking a clean line up the far side of the valley.

The tarmac is pocked and broken in places here, but not so much that you have to slow down, and after sprinting along the opposite straight it’s back down to second or even first gear as the road contorts back and forth once more. There’s a bit of shade as the pines have returned, although they’re smaller out here, stunted by the greater exposure to the winds. Chocolate brown goats wander among the trees and rocks, occasionally pottering onto the road or just dislodging chunks of stone from above, so you still need to drive with care here, keeping your eyes peeled and trying not to



get distracted by the vista across the bay to Alcúdia and the mountains beyond. It’s hard to remember where you are on the road and what comes next. Armco appears and disappears like a silver thread leading you tantalisingly through the landscape. Then there’s another valley, rockier and treeless this time, with the road again scribing a big U down one side and back up the other.

The final mile is arguably the best of the lot. You rise up over a blind crest so that all you can see is blue sky, then the road plunges downhill, cutting a corridor between two rock faces that frame the sea beyond. The Armco reappears just in time to guide you round a precipitous hairpin and then as you turn back on yourself, you see the final bit of empty road stretching out towards the lighthouse. Fast corners unfurl with cliffs to your left and nothing to your right, the rising howl and falling crackle of the exhaust rending the silence and the slipstream dancing in your eyebrows. Just as the waves are nearly lapping at the sidewalls, the road turns hard right, jinks left around an outcrop, then scrabbles up through a few frantic hairpins to the finish line at the lighthouse. It’s breathless, beautiful stuff and we spend the next three hours getting photos and video and occasionally stopping just to marvel.

AT ABOUT 9AM THE METAMORPHOSIS begins. It seems hard to believe really, but what at 7am is one of the best roads in the world has by 10am become one of the worst roads in the world. The hordes of hire cars begin crawling along the peninsula, like ants along a log. It begins as a dribble, then becomes a steady flow and it only

Opposite page: Boxster’s accurate handling is a joy to exploit on Formentor’s many hairpins. **Above:** GTS gets lunchtime breather at the Gorg Blau. **Above right:** exclusive test of the new baby 911. **Right:** Coll dels Reis is the official name of the peak commonly known as Sa Calobra, which is frequently used on Majorcan classic car rallies. **Below:** monument on the Formentor peninsula commemorates Italian engineer Antonio Paretti, who devised the Formentor and Sa Calobra roads



‘THE TARMAc TUMBLES DOWN THE ROCKY VALLEY IN AN ALMOST CARTOONISH JUMBLE OF HAIRPINS AND CURVES’

gets worse once the first few reach the lighthouse and then start battling back the other way. Mix in some cyclists that no one seems quite sure how to overtake and you have hell on a highroad. Oh, and to top it all there is the occasional coach, which squeezes down the narrow road like a rhino down a snake’s digestive tract.

Heading away from the advancing masses, we stop briefly at a lookout point where there is a small monument. Hewn from a jagged lump of white rock, it is a tribute to Antonio Paretti. Why, you might be thinking, should Majorca pay homage to ‘Tony the Shoemaker’, the New York gangster sent to the chair in 1927? Well, it isn’t. This Antonio Paretti is the Italian engineer who in the 1930s designed the road we’ve been driving this morning and the one we will drive this evening.

Continuing down towards Port de Pollença (pronounced ‘poyensa’), the bright white buildings stand out box-fresh in the morning sunlight, but brooding behind them are the dark grey and green peaks of the Tramuntana mountains. Declared a UNESCO World Heritage Site in 2011, the range stretches right along the northern coast of the island and there are miles and miles of spectacular roads running through them. The most obvious way to climb up into them from Pollença is the Coll de Femenia, but as we’re staying in Alcúdia I know we’ll come back that way tonight, so instead we skirt around the southern boundary of the mountains. We could go up the Coll de sa Batalla but instead decide to go over the Coll d’Orient into Bunyola and then (ignoring the more-direct toll tunnel route) tackle the 53 hairpins (24 up, 29 down) of the Coll de Sóller. Once in the town of Sóller itself, you can head up Puig Major, the island’s highest mountain at 1445m, on a slightly wider and more flowing road. There is a tunnel at the top which then leads down to our resting point for a few hours – the Gorg Blau (Blue Gorge).

All this has to be tackled with a certain amount of circumspection, because it’s not only Formentor that attracts the cyclists and tourists. It’s still worth doing, because the roads and views are wonderful, but you just need a bit of patience. The evening will come soon enough. Of course, if you can’t beat them then you could join them – ditch the car, don some Lycra for the middle part of the day – but perhaps that’s just me.

I haven’t got a bicycle with me this time, so instead I opt to join photographer Dean Smith and film-maker Sam Riley in sandwiches and a siesta by the artificial shores of the Gorg Blau reservoir. Slowly the hours pass. We potter down to the petrol station and café near Lluc to fill up on unleaded and ice cream. Another hour or two slips lazily by. Dean and I ponder that the Boxster in its exclusively two-tone red and black colour scheme looks vastly better than the blue, black and silver Cayman GTS we photographed in Germany. More time trickles by. Eventually, the traffic begins to

thin and the stupefying heat of the middle of the day begins to cool, so we head off towards our second Paretti road of the day.

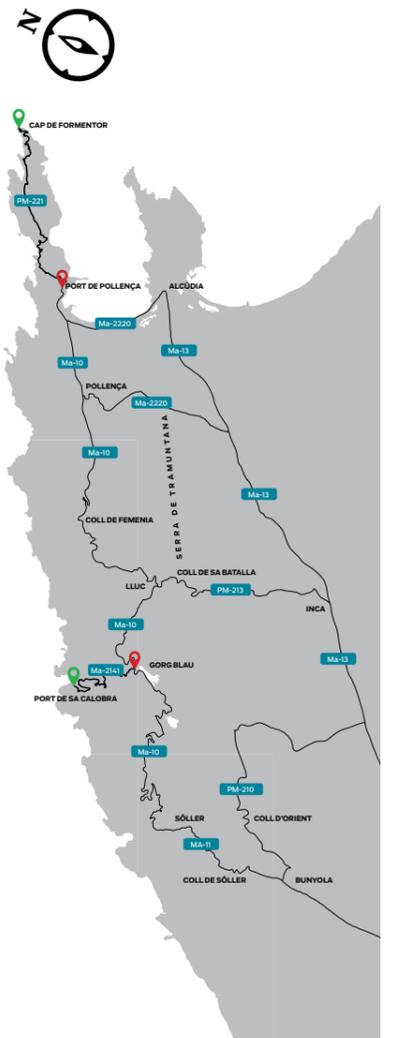
From Lluc, you take the turning right just after passing under the three arches of what I assume is a disused aqueduct. From here you’ve got a couple of kilometres on a beautiful little road that leads you up to a summit with an obvious cutting through the rock. Then the fun really begins. Descending the ridge you’ll instinctively look left over the low strip of Armcó and what you’ll see will take your breath away. The tarmac tumbles down the rocky valley in an almost cartoonish jumble of hairpins and curves, weaving in and out of the landscape so that you only see snippets of switchbacks and straights. It looks like a theme park ride for cars and as if to confirm this vibe, you then approach a corner that turns 270 degrees right, back and underneath itself. Welcome to Sa Calobra.

Like Formentor, it is a dead-end road and as I descend for the first time, the last few dribs and drabs of traffic are heading in the opposite direction, leaving the spectacular bay below. The road drops almost 700m in its 10km length and much of that seems to be done in the first half, where the corners cascade down the side of cliffs. Built in 1932, the road was constructed almost entirely by hand and the reason for its serpentine nature is that Paretti disliked tunnels and wanted to avoid blasting away too much of the mountainside. Where rock had to be extracted, it was used again elsewhere to build the road up and as a result they only needed to bring in tar to bind the surface together.

Today, climbing Sa Calobra is a must-do for any cyclist that comes to Majorca. Plenty of professional teams use the island as a base for winter training and as I turn around at the bottom, I know that I’m about to do something that many of the pros have dreamed about while pedalling up.

The road starts out quietly, wending its narrow way through the bottom of the steep valley but climbing steadily all the time. Stumpy, densely planted trees initially obscure your view of what’s to come, but this changes after a long left-hand bend. First you squeeze between two towering slabs of rock that almost form a tunnel (cue trailing throttle for amplified overrun crackles), then you head into a couple of gentle hairpins that seem like nursery slopes preparing you for the big ones above. Up next is a boulder garden that looks like giants have been playing marbles among the trees, followed by a rare straight section that allows you to open the car up a bit as the trees recede.

Now things really get interesting as the road loops round an outcrop and suddenly you become aware of the height you’ve gained and the climbing still to come. There’s just an inadequate-looking low stone wall for protection on the outside; if you get it wrong it looks like you’d barely kerb an alloy before plummeting off the edge. From here on up







‘THROUGH THE FINAL LADDER OF HAIRPINS THE BOXSTER SOUNDS INCREDIBLE FROM THE DRIVER’S SEAT’

the landscape is largely the same grey rock, speckled with green grass (Formentor’s marram having been replaced by the waving fronds of pampas).

The Boxster GTS really is perfect for the road. I certainly can’t imagine wanting any more power and the drivetrain is so precise in terms of gearshift and throttle response that you can even change satisfyingly smoothly back down to first for the steeper hairpins. Although the road surface still has the heat of the sun on it when we first arrive, it’s surprisingly slippery, almost like it’s been polished. Helping the Boxster’s tail round the hairpins with the throttle is easy, while things even get a bit loose through the odd quicker corner if you stay committed. I’d been worried that Sa Calobra would feel too narrow to be able to enjoy driving it, but it feels wider than I remember, perhaps because the Boxster feels so accurate and easy to place. Despite the writhing nature of the tarmac, the road also offers really good sightlines: look ahead and above you and you can frequently spot any upcoming traffic quite a long way off.

They’ll probably hear you coming, of course. Through the final ladder of hairpins the Boxster sounds incredible from the driver’s seat, repeatedly ripping through first and a brief moment of second before blipping back down as you turn back on yourself again. I just can’t imagine getting bored

of it. Arguably though, it sounds even better from Dean and Sam’s vantage point on the cliff above, where they can hear the exhaust note bouncing off one rock face onto the opposing one, filling the valley with yowling echoes.

After a couple of hours going back and forth for photographs and video, we all stop at the top. The sun is setting and shadows are chasing the golden light uphill towards us like the tide coming inexorably in. There’s no one around and with the Boxster parked up it is utterly peaceful and silent in this remote part of Majorca’s mountains. Much as I revel in driving the road, it feels good to spend a while just sitting and gazing at it, drinking it all in. It would never fit in a gallery, but there is true artistry in Antonio Paretto’s design.

Eventually the first stars begin to glint in the heavens and I decide to go for one last drive down and back up the final few kilometres. You might have to restrict yourself to the very ends of the day to enjoy driving in Majorca, but that in itself has its benefits in terms of atmosphere. As the flat-six cuts through the silence once more, it seems strange that right about now in Shagaluf, the human canvas is probably thinking he’s just about sober enough to get on it again. And his friends are all pointing out that when his beer belly sags, the tattoo around his navel just reads ‘Gerald’. ☒

PORSCHE BOXSTER GTS

Engine Flat-six, 3436cc

Power 330PS @ 6700rpm

Torque 370Nm @ 4500-5800rpm

Transmission Six-speed manual, rear-wheel drive, limited-slip diff

Front suspension MacPherson struts, coil springs, PASM dampers

Rear suspension MacPherson struts, coil springs, PASM dampers, anti-roll bar

Brakes Ventilated discs, 330mm front, 299mm rear, PSM

Wheels 8 x 20in front, 9.5 x 20in rear

Tyres 235/35 ZR20 front, 265/35 ZR20 rear

Weight (kerb) 1345kg

Power-to-weight 245PS/tonne

0-100kph 5.0sec (claimed)

Top speed 281kph (claimed)

Consumption 9L/100km (NEDC Combined)

Basic price £52,879

On sale Now





by RICHARD MEADEN

PHOTOGRAPHY by DEAN SMITH

DOWN FORCE DEMYSTIFIED

Armed with a Lotus Exige V6 Cup R, a track and a team of technicians, we study exactly how downforce keeps cars glued to the road at seemingly impossible speeds

T

TO THOSE OF US GROUNDED IN THE WORLD of mechanical grip, downforce is that most magical and mysterious of things. Strap yourself into a bewinged racing car, or any of the modern breed of road-going hypercars, and you quickly find downforce can be the unsettling vanishing point where science and philosophy meet. Just because science tells you it exists doesn't mean your brain and right foot are ready to believe it. Right?

It's the ultimate Catch 22. Without the belief, you'll never summon the commitment, without the commitment you'll never go quick enough to generate the downforce, and without the downforce you'll remain trapped in a loop of doubt and trepidation. However, if you can force yourself to make that leap of faith you enter a driving realm of untold corner speed and neck-straining G-forces. At least that's what we're told by those who've been there.

To understand more about it and feel it in action for ourselves, we've enlisted the help of our friends at Lotus Motorsport. With an Exige V6 Cup R fitted with a full data acquisition system and the Hethel test track at our disposal, we'll systematically work through every conceivable combination of the standard aero package's settings, plus some more extreme settings for greater contrast.

With Stephane Cottin making the set-up changes, Gavan Kershaw offering advice and Louis Kerr interrogating the data, we'll see what effects each setting has on lap time, and more intriguingly how the interplay between drag and grip can be used to tailor the car's dynamics to specific circuits and driving styles. Together with subjective feedback from yours truly, we'll attempt to discover which settings generate the best balance of confidence, pace and feel. If only science lessons had been this much fun when I was at school...

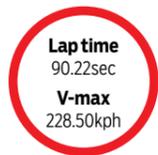


THE CAR: LOTUS V6 CUP R



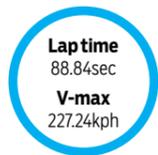
DEVELOPED BY LOTUS Motorsport as a top-level car for the burgeoning Lotus Cup race series, the Exige V6 Cup R is a track-only evolution of the Exige Cup road car. While its supercharged 366PS V6 remains unchanged, it has a race-spec six-speed paddleshift transmission, track suspension, uprated brakes (which retain the road ABS), motorsport traction control and, of course, an extensive aerodynamic package. As such, the V6 Cup R has the perfect blend of strong mechanical grip and modest-yet-meaningful downforce, making it the perfect basis for our test.

THE DOWNFORCE CONFIGURATIONS



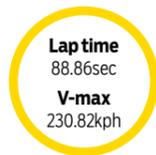
Lap time
90.22sec
V-max
228.50kph

Splitter on
Wing off
No gurney



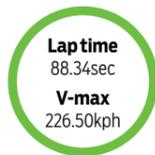
Lap time
88.84sec
V-max
227.24kph

Splitter off
Standard wing
No gurney



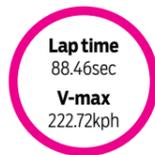
Lap time
88.86sec
V-max
230.82kph

Splitter on
Standard wing
No gurney



Lap time
88.34sec
V-max
226.50kph

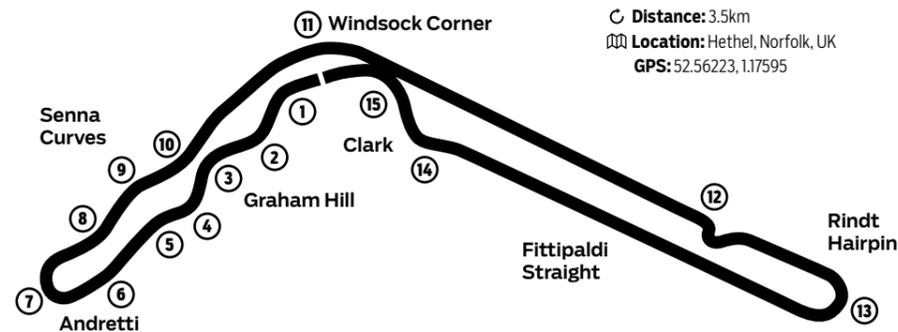
Splitter on
Minimum wing
20mm gurney



Lap time
88.46sec
V-max
222.72kph

Splitter on
Maximum wing
20mm gurney

THE TRACK



HETHEL WAS CREATED TO CHALLENGE all major aspects of vehicle dynamics, with a varied mix of low-speed, high-speed and tricky transient corners linked by long straights. Recently resurfaced and upgraded to FIA safety standards, it's more than a match for the legendary Fiorano and Weissach test facilities in driving challenge and rich history. Here we're using the full 3.5km circuit, including the fearsome Windsock Corner and the demanding sequence named after illustrious Lotus F1 world champions Jim Clark and Graham Hill.

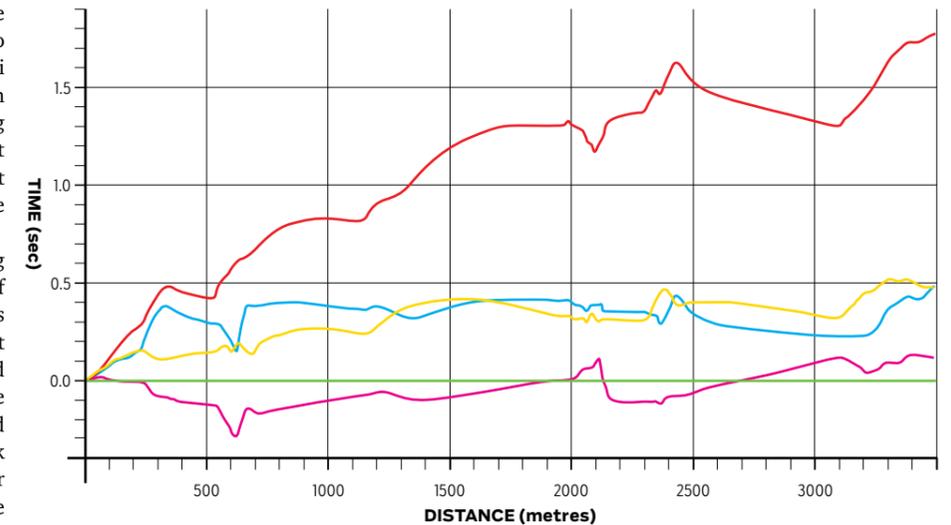
THE LAP

HETHEL IS A CHALLENGING PLACE TO try and master, but the Exige V6 Cup R is a fast, physical and forgiving car in which to try. The early section of the lap (turns one to five) is the most technical, rewarding a clean, accurate line and punishing greedy attempts at carrying too much speed too soon. The approach to Andretti is tricky, being slightly angled to the right, with a bump right in the heart of the heavy braking zone. Patience is the key here, so go deep, get the car stopped and turned, then try to punch it out cleanly for the flat-out shimmy through the left-right-left-right Senna Curves.

By now you're really motoring, approaching the daunting Windsock kink at upwards of 200kph. You want to carry as much speed as you can through here, but spotting the right place to dab the brakes is difficult. Too early and you lose your momentum, too late and you'll be fighting for control all the way through. And most likely soil your trousers. Survive Windsock and you've got half a mile of straight to power along, before trying to nail your braking for the

LAP TIME COMPARISON

Differences in time over the course of a lap of Hethel, in comparison to the time recorded by the fastest set-up combination (green line)



rear wing set to its standard angle (yellow), the same rear wing with no front splitter (blue) and a third option featuring the front splitter and the rear wing at its minimum setting but fitted with that 20mm Gurney (green).

It's the last of these aero configurations that achieves the fastest lap time. In the graph above it is represented by the horizontal green line, which forms the datum by which the remaining four set-ups can be compared. Basically, any trace that dips below the datum is faster at that particular moment in the lap. Any line that sits above the datum shows time being lost.

The red trace charts the 'widowmaker' set-up, i.e. no rear wing. It makes for a slow but lively lap, the Exige struggling for traction, inspiring less confidence under braking and requiring corrective lock to control oversteer through the high-speed Senna Curves and Windsock.

By contrast, the maximum downforce set-up makes meaningful time on the optimum set-up through the technical medium-speed sections, but loses time down the straights. It's actually 0.7sec up at one stage in the lap, but that advantage gradually bleeds away over the remainder of the lap to finish 0.12sec slower. The yellow and blue traces are most intriguing, for they show how different set-ups can achieve almost identical times by gaining and losing time in different areas of the lap. I certainly wouldn't have predicted a difference of just 0.02sec between front splitter on and off as subjectively they felt totally different, but as we'll see over the following pages, downforce isn't just about raw grip.



Above: running no rear wing costs 1.88sec per lap; removing front splitter makes little difference to overall lap time, but has a perceptible change to front-end's rate of response

very tight second-gear chicane. From here it's a squirt to the Rindt Hairpin, then a charge down the Fittipaldi Straight before another awkward the Clark to complete the lap.

We completed a structured test running with five different aero set-ups. The same number of timed laps were done in each set-up with the best lap taken from each. Of these set-ups, two represent the upper and lower extremes. The highest downforce setting (pink in our data) is achieved with a front splitter, the rear wing at its maximum angle of attack plus a 20mm Gurney flap on its trailing edge. At the opposite end of the scale (red) we left the front splitter on but removed the rear wing completely! In between we have three intermediate set-ups: a baseline combination of front splitter and

DRAG



IF DOWNFORCE IS THE DRIVER'S friend, then drag is the enemy. The best illustration of this comes from the run between Windsock and the chicane three-quarters of the way down the main straight. In a car with no aerodynamic devices, your minimum speed through Windsock would be the deciding factor in your V-max immediately prior to braking for the chicane, but once wings – and drag – enter the equation, things aren't quite so simple.

With the rear wing removed, you can feel the Exige accelerate harder down the straight, as the steepness of the red trace below shows. It gains almost 66kph from the minimum speed (164.5kph) at Windsock (just off the left of the graph) to the point I hit the brakes for the chicane. Compare this with the pink trace representing the maximum-downforce setting and while my speed out of Windsock is higher (170.8kph), it gains less speed down the straight and attains a slower V-max, adding 53kph to peak at 224kph.

Above: the rear wing that improves corner speed increases drag and therefore inhibits the Exige's acceleration down the straights

One thing to emerge from this test is the effectiveness of the Gurney flap. An apparently crude device, it has an enormous effect on the amount of downforce produced. Originally devised and used by American racer Dan Gurney, the simple right-angled spoiler works by generating more downforce from a given size of wing, because it enables them to be run at higher angles of attack. In race series with tightly regulated wing sizes, the benefits far outweigh the additional drag the Gurney generates. Trivia geeks amongst you will also like the fact that the Gurney flap was the first aerodynamic development made in racing to be transferred to aircraft design.

BRAKING

LOOK CLOSELY AT THE BRAKING results and you can also see the effects of downforce and drag. I consistently braked later and spent the least amount of time on the brakes when running the higher downforce set-ups featuring the additional Gurney flap (green and pink). Of course, some of this is due to braking from a lower V-max, but it's also due to the added stability downforce brings and the simple additional braking effect of drag. You have the confidence to hit the brakes later, and the car stops better when you do.

With the rear wing removed (red), there was no sense of braking through lifting off alone and the Exige felt as though it was working its ABS system harder to control the car. It really did feel a struggle to get it slowed, and the margin for error was smaller. There's very little to choose between the intermediate set-ups.

As an aside, the data tells us I was braking 16.5m later with the highest-downforce set-up than the lowest setting. That sounds like a lot, and is in terms of creating an overtaking opportunity. It also distinctly felt like I was consciously braking later, but at the speed the Exige was travelling, that extra 16.5m equates to braking just 0.26sec later!



RACERS' STORIES



ANDY WALLACE

Driving the Toyota TS010 through Signes corner at Paul Ricard, I knew it should be flat (at c300kph), so I arrived flat-out in top gear, fully intent on not lifting. Just before turning in, my foot moved 10mm off the throttle stop. Bigger! Shouldn't have lifted! Next lap: I'll do it this time... Damn it! Lifted again! Next lap: YES! FLAT! I couldn't hold my head up all the way through the corner, but I did it! Next lap I was sweating on the run down the Mistral Straight and I lifted again. Eventually I did it flat every lap, but I'll never forget the feeling of grip in that car around that corner.



DARIO FRANCHITTI

The biggest example of downforce I've ever felt was in my IndyCar at New Hampshire a few years ago. It's a 1.6km oval, with no real banking and essentially a hairpin at each end. We managed to run *just* flat-out round it in practice. Then in qualifying I persuaded my engineer to take some wing out as I reasoned that if I could go faster with less drag, I'd produce more downforce than before. After an hour or so of psyching up, I managed it and it all worked as planned! Sustaining 5.5G mid-corner was almost beyond belief.



TIFF NEEDELL

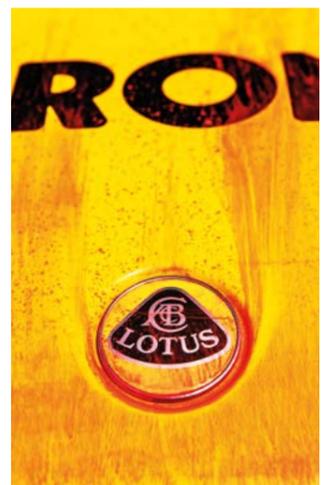
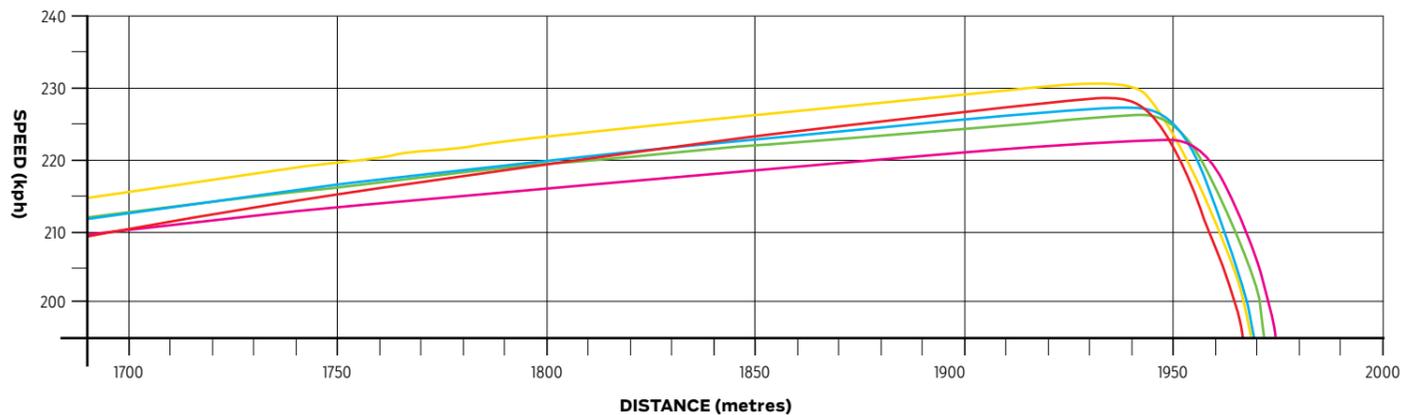
Downforce made commitment more important than feel. In my ground-effect Ensign F1 car, you just turned in and hoped you had the strength to hold on. I also remember racing a Porsche 962 in Mexico City. The last corner – Peraltada – was a monster, with a bump before the exit. It was fourth gear in the Porsche and the steering was unbelievably heavy at high speed. So you'd be clinging on for dear life, and it'd be all you could do just to hold the required lock. Then you'd hit that effing bump! At the end of a stint, your arms would be hanging off. It'd get to the point where it was tempting to crash just so the pain would stop!



Above: Exige V6 Cup R exceeded 225kph down the main straight at Hethel in its minimum-downforce trim. **Left:** rear wing angle is easy to adjust with simple tools. **Below left:** Gurney flap is held in place with industrial tape. **Below:** flo-viz paint gives visual evidence of the airflow across the Exige's body

BRAKING INTO CHICANE

Speeds down Hethel's main straight and through the braking zone into the chicane



BALANCE

THIS IS THE MOST SUBJECTIVE AREA of downforce, because it's where aero is used to build driver confidence by adjusting the handling to suit a driving style, or compensate for a car's inherent dynamic behaviour.

Without the rear wing attached the Exige feels incredibly edgy through high-speed corners. Windsock in particular needs continual small, nervous nudges of lock to float it through the corner. It's knife-edge stuff and costs bundles of time. Conversely, the high downforce settings have the greatest sense of grip through the heart of the corner, but it's hard to feel you've made the best use of that grip because it's easy to over-brake and not carry enough speed, or to be too confident and throw the car into the corner, which de-stabilises it as you turn in.

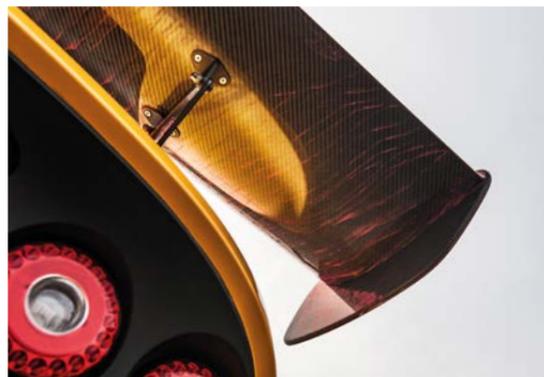
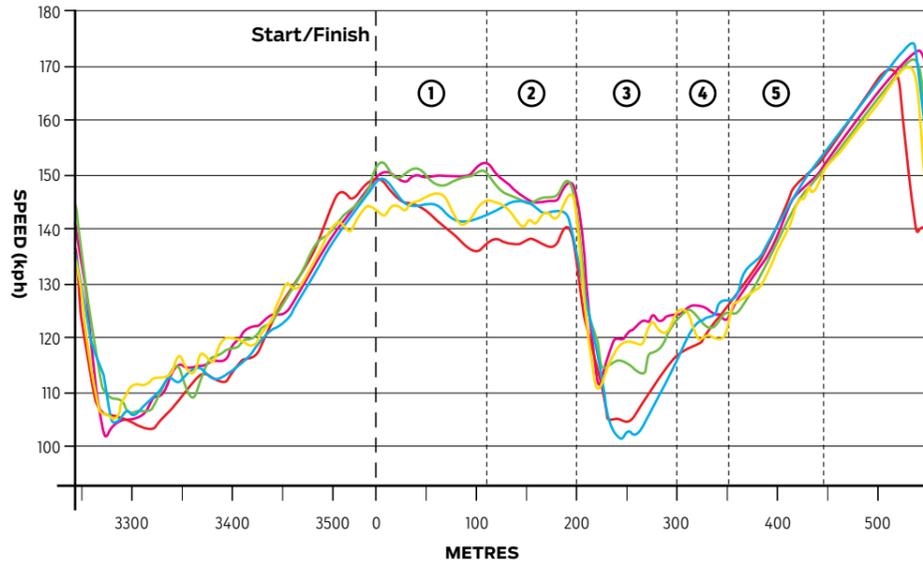
The big surprise is when running a standard rear wing with, and then without, the front splitter. With the splitter on, the front end is very responsive, which combined with my driving style (one the Lotus Motorsport boys judge to be a bit too aggressive for a car with aero) translates into a darty corner entry. This upsets the rear, which means I then waste time letting the car settle before getting on the power. Removing the splitter seems like a recipe for disaster, or at least terminal understeer and a grassy excursion or two, but it feels fabulous on the entry to Windsock. With less downforce on the front end it can't react as rapidly to my initial steering input, and this calming effect on the rate of the front end's response ultimately asks less of the rear, so the car feels more balanced and 'as one' from the moment I turn in. The result is that I carry more speed in and get on the throttle sooner than with the splitter on.

It's a different story through the more technical turns one to five (shown in the graph above). These require successive direction changes, the later corners needing greater steering angle for a more sustained period of time. That 'splitter off' set-up (the blue trace) that feels so good through Windsock works reasonably well through turns one and two. But as the front end is asked to work harder for longer, with that loading punctuated by quick direction changes, the lack of front-end bite and fast-twitch agility translates into not being able to get the nose tucked in, so I run wider and wider of my desired line.

For confidence through the transient sections you can't beat the maximum downforce set-up (pink), which feels totally hooked up through the direction changes and gives you a tremendous sense of stability and confidence. The difference is marked: 153kph versus 143 with no splitter and a less aggressive wing (blue) at the transition from turn one to turn two.

SPEED THROUGH TURNS ONE TO FIVE

The speeds of each individual set-up, as tested on the twisty first section of the Hethel track



Left: more flo-viz... **Below:** front splitter provides more stability and therefore greater speed through trickier direction changes. **Far right:** Meaden examines the data with the experts from Lotus Motorsport



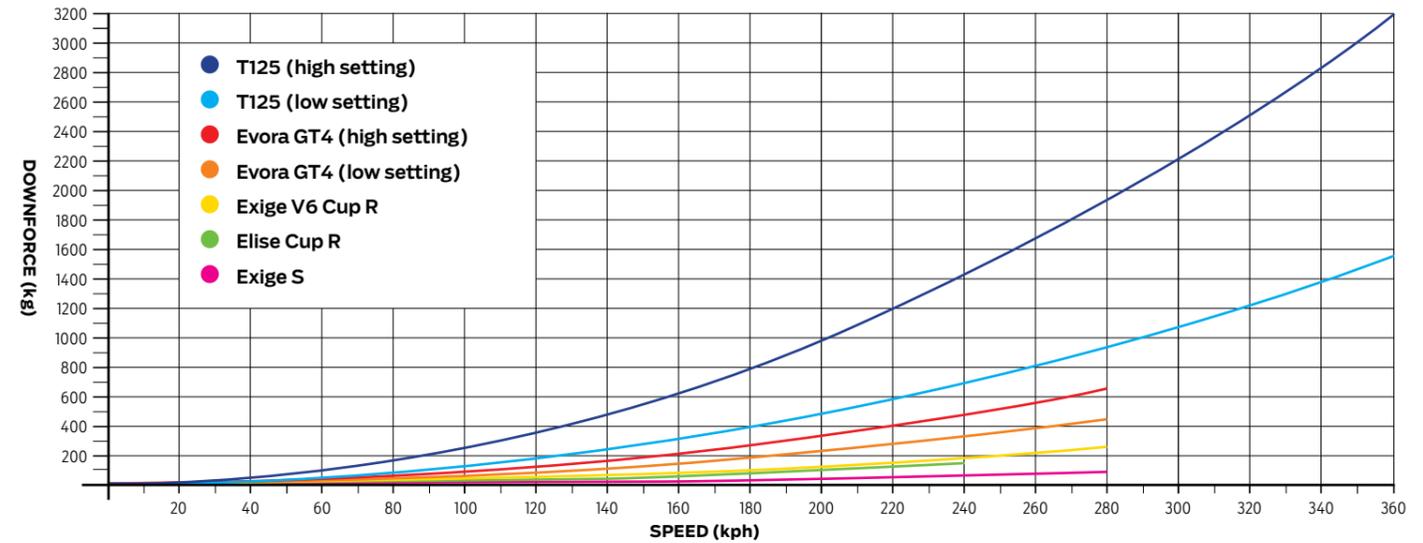
RELATIVE DOWNFORCE

There's been a lot of talk recently about the amount of downforce the McLaren P1 generates in its most aggressive Race mode. At roughly 600kg, it's firmly in purpose-built race car territory, but what does that mean in the grand scheme of things? This graph illustrates the relative downforce between everything from the Lotus Exige S road car to the F1-style Lotus T125 single-seater. As you can see, the Exige road car generates enough positive downforce to cancel lift and provide stability, but not enough to feel. The

track-only Exige V6 Cup R more than doubles the maximum downforce, with meaningful levels of aerodynamic assistance arriving at lower speeds and an ability to tweak your neck muscles through high speed corners.

The next step up is the Evora GT4, which manages to pluck more downforce from the air at 130kph than the Exige S finds at 270, and then goes on to deliver P1-rivalling aero at higher speeds. However, all these cars are just playing at downforce compared to the T125. One look at

this extraordinary machine's high downforce curve tells you all you need to know about what it must be like to drive it through a high-speed corner. Indeed, the trace could also illustrate commitment, such is the extraordinary amount of aero grip it generates. When travelling at the Exige S's V-max, it delivers 20 times more downforce (roughly 2000kg), the curve continuing to skyrocket as speed increases. It really is true what they say about downforce: the faster you can go, the faster you will go...



CONCLUSION

THIS EXERCISE WAS ALWAYS GOING to be a measured and tentative foray onto the nursery slopes of downforce, rather than a gung-ho attempt to throw myself down the equivalent of a black run. Nevertheless, a day spent pounding round Hethel in the Exige V6 Cup R has provided some insight into the complexity, subtlety and almost infinite flexibility of this blackest of black arts.

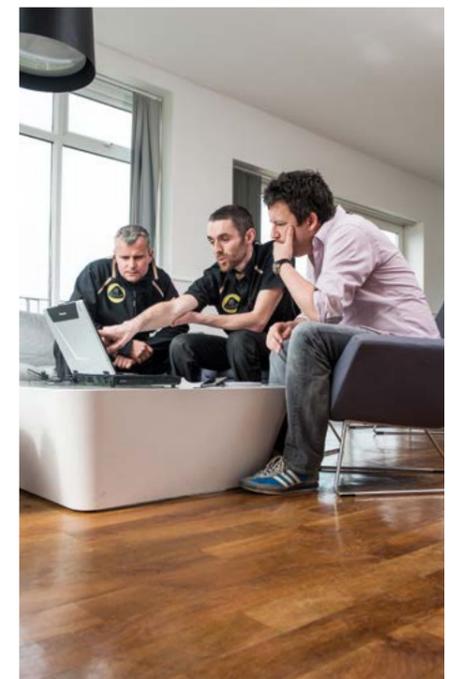
Even at this basic level, downforce is that most generous of entities; one that demands a certain level of commitment, yet immediately rewards with a level of confidence that exceeds your upfront investment. Beyond that, it's a tool that can be used to tune everything, from the responsiveness of the front and stability of the rear, to straight-line speed and braking stability. It can also provide tactical set-ups that optimise pace in the sector of a lap most likely to yield an overtaking manoeuvre in another.

When taken to extremes you can immediately feel the difference – the black and white, if you like. Yet when you explore the intermediate settings – the subtle shades of grey – you can't necessarily put your finger on precisely what

has changed, or why you feel so much happier to carry more speed through a certain part of the lap. But the data doesn't lie.

We tend to think of aerodynamic downforce as a neat trick that exists only to augment mechanical grip and reduce lap times, yet it's surely no coincidence the latest breed of hybrid hypercars – complete with sophisticated active aerodynamics – are so sweetly balanced and exploitable to drive to their limits on track. You only have to watch video footage of the P1 and LaFerrari's rear wings continuously dancing in the slipstream to appreciate the positive effect they have on traction, stability and consistency.

If advances in brake and tyre technology were the game-changers towards the end of the 20th century and electronic traction control and stability management the defining dynamic advances of the 2000s, then the manipulation and mastery of active aerodynamics looks set to be the key to unlocking an unprecedented breadth of handling balance that spans all speed ranges. When it comes to road car aerodynamics, the downforce story has only just begun.



by RICHARD MEADEN

PHOTOGRAPHY by MALCOLM GRIFFITHS

ULTIMATE FORCE

Having experienced downforce in a mild form, Meaden now gets strapped into a championship-winning sports car to find out what it's really capable of – if he dares push hard enough...

WINGS. EVERYWHERE YOU LOOK ON this Alpine A450 LMP2 car there are wings. And flips and flaps and fences and dive planes and Gurneys and diffusers and venturis and every kind of aerodynamic device you can think of.

All are precisely positioned to nudge, tease, cajole and persuade the air to flow under, around and over the car with maximum effect. Paint it in camouflage and it could pass as a weapon, such is its obvious – and intimidating – singularity of purpose.

Last year, this very car won the European Le Mans Series (ELMS), taking the Alpine name back to the forefront of endurance racing. The LMP2 class is somewhat overshadowed by the mighty LMP1 factory efforts from Audi, Toyota and Porsche, but be in no doubt that the cars are fabulous, (relatively) affordable and foster intense battles. The driver line-ups often feature wealthy amateurs, which makes it the most accessible route to top-end racing and major-league downforce.

Constructed by Oreca, the A450 is built around a strong, lightweight carbonfibre tub and requires ballast to hit the minimum class weight of 900kg. Propelled by a Nismo-built VK45 4.5-litre V8 race engine – the motor to beat in LMP2 – it has 550PS and 580Nm of torque. That makes for an impressive, but not head-scrambling power-to-weight ratio, at least in the context of road-legal hypercars like the LaFerrari and McLaren P1. However, where an LMP2 car gets really serious is in its emphasis on downforce and a deliberate surfeit of aerodynamic grip over grunt.

As a driver, if you can't make that critical leap of faith on which unlocking the secrets of downforce relies, you have no business sitting in an LMP2 car. Unless you're a journalist, in which case you simply have to commit as much of *The Racing Driver's Book of Excuses* to memory as humanly possible. At least that's what I keep telling myself as the Signatech mechanics pull down the shoulder straps of my harness and wave me out onto the featureless tarmac of the Lurcy-Lévis test track.





there are buttons and switches everywhere, though this being an endurance racer the labelling and ergonomics are spot-on. The most frequently used controls are located on the steering wheel, the rest within easy reach on the dashboard. The only hint to how much car you're sitting in comes when you glance in the big mirrors mounted aft of the front wheels.

The sun is shining but the weather is cold, meaning the wide Michelin slicks need a lap or two to warm to the task of delivering proper grip and traction. There's no ABS, but there is a finely adjustable traction control, though the team says it's still possible to spin the car on cold rubber so I can't just floor it and let the electronics take care of things. No matter, for I defy anyone new to a car like this not to want to spend the first few laps taking it steady and soaking up the experience, from the resonant noise and vibrations that tingle through the tub from that big Nismo V8 to the perfectly weighted power steering and rifle-shot pneumatic gearshifts delivered by the six-speed Xtrac transmission. It all feels so immediate, so precise and totally devoid of slack that the responses of any road car are a bit woolly by comparison.

Speak to any seasoned driver of LMP2 cars and they'll tell you there are three things you need to go quickly: commitment, commitment and commitment. That's fine if you're being paid – or as is more likely, paying – to race, but when you're invited to have a go for a magazine story the balance of risk versus reward is equally unappealing for race team and journalist. And so begins the uneasy battle between tickling it round for the allotted laps, or taking a deep breath and pushing beyond your comfort zone, which in this case means putting trust – and approaching £400k of carbonfibre and exotic alloys – in your ability to find and harness an invisible force plucked from thin air.

It's about now that I'm glad I had a session at Base Performance Simulators before flying to France. It's hard to explain how weird it is to arrive somewhere you've never been to drive a car you've never sat in, and for both car and circuit to look and feel familiar, but that's how good modern simulators are. As a result I feel prepared to push harder sooner than I ever have before at similar tests, but this confidence is tinged with the knowledge of how many times I fired the virtual Alpine into the turnpits.

It takes one full-blooded approach to the crazy corner at the end of the straight for me to know I lack the requisite testicular mass to even contemplate attempting for real what I tried and eventually succeeded at on the sim. Yet as soon as I brake (hard) and downshift (two gears) I can sense the car has so much left to give that I'm embarrassed for myself. Next time through, I try lifting earlier to use the aerodynamic drag as a brake, before having a confidence squeeze on the middle pedal, then downshifting one



Above: French test track is clear of obstacles to hit. **Right:** mounts for rear wing can be adjusted to alter its angle, and therefore downforce. **Far right:** A450 carries inboard spring/damper set-up on all four wheels



gear and gently getting back on the power. Just as you'd hope, but contrary to everything your brain is screaming at you, there's palpably more grip to lean on. Yet still there's the very real sense there's so much more to come.

And so it continues, each lap spent marvelling at the braking, traction, appetite for direction changes and sheer driveability through the technical bends, but all the while haunted by the spectre of that terrible, wonderful rush towards the corner I've come to call Courbe des Grosses Boules. Shouting at myself to be brave seems to help a little, but the absolute best I can manage is a quick dab on the brakes, downshift to fifth and the briefest of pauses before peeling into the corner and squeezing back on the throttle. My neck tells me it's the most committed effort yet and the Alpine concurs by feeling more hooked up than ever, which suggests – you guessed it – I could carry yet more speed...

I could give you a dozen carefully crafted excuses as to why I never manage to take the corner flat in sixth. Or fifth, for that matter. I could also tell you that immediately after the

test the Signatech data engineer tells me that in these temperatures on these well-used tyres even the car's regular driver didn't take the corner flat. That makes me feel a little better, but the tantalising, taunting truth is that even if I'd been on fresh rubber in perfect conditions, brimming with confidence and in possession of a signed damage waiver from Signatech, I'm not sure I could ever turn in without a lift. Yet I also learned enough to know that if I could summon the cojones to do it once, just once, I could do it again. Therein lies the high-speed, high-stakes dilemma that is downforce.

I always suspected it, but now I know for sure: if this challenging, humbling exercise has shone a light on anything, it's that the true wonder of big downforce isn't so much that it exists or what it enables a car to do, but that there are drivers who are prepared to swap feel for faith and power headlong into the void to find it. ❌

Thanks to Base Performance Simulators for the invaluable LMP2 training. For more information visit baseperformance.net

'CONTRARY TO EVERYTHING YOUR BRAIN IS SCREAMING AT YOU, THERE'S PALPABLY MORE GRIP TO LEAN ON'

Situated in a swampy field in central France, the track is defined by a long runway and a hair-raising, apparently endless right-hander that tightens until it coils back on itself, plus a tricky hairpin and some ballsy transient curves. There are no barriers to hit, which is good, but a wild ride (and the guillotine!) still awaits should turn-in speed exceed talent. So, while it's one of the better venues to boldly go in search of big downforce, it's not without risk. And as Excuse Number One concisely states: 'Journalists are not expected to go fast, just not to crash.'

At 4.6m long, 2m wide and a little over 1m high, the dazzling blue and orange A450 looks like a huge, flat tropical fish. Mercifully, once you climb over the sidepod, step onto the seat and wriggle your way down into the open cockpit, that intimidating sense of size diminishes with your peripheral vision. With your chin on your chest, shoulders and pelvis clamped into the moulded seat and your forward view dominated by the yoke steering wheel and exposed arcs of carbon bodywork, it's an utterly no-nonsense driving environment. As is the norm these days

Specification

ALPINE A450-NISSAN

Engine V8, 4494cc
Power 550PS
Torque 580Nm

Transmission Six-speed sequential gearbox, rear-wheel drive

Front suspension Double wishbones, inboard spring and damper unit, anti-roll bar

Rear suspension Double wishbones, inboard spring and damper unit, anti-roll bar

Brakes Ventilated carbon-ceramic discs, 380mm front, 355mm rear

Wheels 12.5 x 18in front, 13 x 18in rear

Tyres 30-65 R18 front, 31-71 R18 rear

Weight 900kg (with ballast)

Power-to-weight 611PS/tonne
0-100kph n/a

Top speed 330kph (claimed)

Basic price c£370,000 (estimated)

The Compact Proton Returns

PROTON HAS returned to the compact car game with the introduction of the new Iriz hatchback. Available in eight variants with three trim lines; Standard, Executive, and Premium, prices of the Iriz start at RM42,438 and top off at RM62,438. The Iriz comes with two engines to pick from, both of which are newly developed 1.3-litre and 1.6-litre 4-cylinder engines, which utilise the same block used in the Campro engine generation with the exception that it is now fitted with a new head with variable valve timing. As such, the new engine range boasts a power output of 95PS and 120Nm from the 1.3-litre, and 109PS

and 150Nm from the 1.6-litre. Both engines can be specified with a choice of either a CVT or a 5-speed manual transmission courtesy of Getrag. The top-spec 1.6 Premium comes brimmed with features such as leather upholstery, keyless ignition, a 6.2-inch touchscreen display, and WiFi router for on-board internet connectivity. Built to appeal to foreign markets, the Iriz was engineered with several fuel efficient measures and fitted with various safety features to achieve a high standard of safety. When it comes to fuel efficiency, the Iriz is the first Proton to utilise electric power steering, and uses a smart alternator unit to reduce engine load.

All variants of the Iriz get two airbags as standard, with stability control, ABS, EBD, and brake assist, and ISOFIX child anchor points. Only the range-topping 1.6 Premium receives a full complement of six airbags. ❌



Lexus NX300h Previewed, Order Taking Begins



LEXUS' CHALLENGER to the Audi Q5 and BMW X3 SUVs, the NX, made its quiet preview at the recent 5th International Greentech & Eco Products Exhibition and Conference Malaysia (IGEM2014) in Kuala Lumpur. While the model in question is the range-topping NX300h, the headlining feature of the NX range is its first model to feature Lexus' new 2-litre turbocharged 4-cylinder engine. Lexus Malaysia has plans to introduce the NX with five variants, starting off with the RM300,000

NX200t, with the Premium, Luxury, and F Sport derivatives priced at RM330,000, RM350,000, and RM370,000 respectively, each of which will come with the new turbocharged engine. The NX300h on the other hand sits atop the range at RM390,000, and sports Lexus's 2.5-litre naturally-aspirated petrol engine mated to an electric motor, similar to the powertrain used in the hybrid IS, GS, RX, and ES models. Though Lexus has yet to reveal the NX's official launch date, order books are now open for interested customers. ❌

Mercedes Tarts Up C250 with AMG



AMG dressed C250 now sits atop MBM's C-Class range.

IF THERE WAS something missing from Mercedes-Benz Malaysia's (MBM) new C-Class line-up, it was a sporty version of their range-topper, the C250. Previously only available in the traditional looking Exclusive trim, MBM has now introduced the

AMG trim for the C250. Priced at RM339,888, which is RM24,000 more than the C250 Exclusive, the C250 AMG stands out with its titular AMG bodykit and 18-inch 5-spoke AMG rims. And it isn't just a premium exterior appearance that the C250 brings to the table. The C250 AMG boasts additional features such as an LED intelligent light system, electric panoramic sunroof, AMG-specific leather upholstery, Burmester 13-speaker 590W surround sound system, and sports suspension to round off the package.

On a related note, MBM assures us that all C-Class sold in Malaysia aren't affected by the recent worldwide recall over minor issues related to the car's steering mechanism, which involved cars sold in Europe and the United States. According to MBM, all C-Class sold by their authorised distributors are checked and cleared prior to the launch and delivery of the vehicles to customers in Malaysia. ❌



Toyota Scores Double Achievement

UMW TOYOTA MOTOR was recently ranked top in both the Customer Service Index and Sales Satisfaction Index categories of the JD Power Asia Pacific 2014 Malaysia.

The 2014 Malaysia Customer Service Index (CSI) Study is based on responses from 2610 new-vehicle owners in the mass-market segment who purchased their vehicles between February 2012 and May 2013, and had them serviced at an authorised service centre between August 2013 and May 2014. This study measured the overall service satisfaction among owners whose car underwent a service maintenance, and/or repair work during the first 12 to 24 months of ownership.

On the other hand, the 2014 Malaysia Sales Satisfaction Index study is based on responses from 2601 new-vehicle owners in

the mass-market segment who purchased their vehicles between August 2013 and April 2014. The study was fielded between

February and June 2014. Besides that, Toyota also managed to rank highest in overall sales satisfaction for a second consecutive year,

performing particularly well in the sales initiation, dealer facility, deal, sales person, and delivery process factors. ❌



Left: Toyota ranked highest in overall sales satisfaction for a second consecutive year.

Isuzu Continues Support for Borneo Safari

E ENTERING ITS eighth successive year in supporting the Borneo Safari 2014, Isuzu

Malaysia retains its premium position as the Diamond Sponsor, once again reinforcing its alliance with the Sabah Four Wheel Drive Association in its quest to raise the profile of this annual event.

As they have been doing for the last eight years, Isuzu Malaysia provided official media cars for the event, enabling members of the media to follow the course of what is known as Asia's toughest



4x4 challenge. On top of that, Isuzu Malaysia also prepared a unit of the new D-Max V-Cross 3.0 with minor modifications done to adapt it to jungle trekking. These modifications include an air snorkel, off-road tyres, heavy duty side steps, and a winch.

This year's event is an eight-day event which began in Kota Kinabalu on 26th October, and will take participants on a challenging loop of central Sabah. The route will also include a stop at the diversely-challenging highland terrain in the Imbak Canyon Conservation Centre. ❌

BMW Criticises Car Price Reduction Speculation



W WITH RECENT rumours that car prices could face a reduction due to the introduction of GST next year, BMW Group Malaysia's managing director, Alan Harris, has stated that the rumours are merely speculative and is an 'injustice' to the industry as many customers are holding back their purchases and adopting a 'wait-and-see' strategy. Harris further clarified that the Malaysian duty and pricing framework in which all carmakers work in is complicated, and that while the Malaysian government's cause

of finding ways of reducing the price of passenger cars in the long term is noble, the industry should be realistic and careful about communicating this to the public as to not disrupt the current growth the industry is facing. This statement comes after BMW Group Malaysia ended its third quarter results on a high with a total of 6629 BMWs, MINIs, and Motorrads delivered in Malaysia as of the end of September 2014. The figure represents an increase of 18 per cent compared to the total of 5616 vehicles delivered during the same period last year. ❌

Naza Kia Opens Fifth Red Cube In Malaysia

T THE KIA RED CUBE Rawang 4S Centre is the fifth Red Cube flagship dealership in Malaysia, and the second one located within the Klang Valley. Built to the tune of RM11 million, the new 37,314sq ft dealership has a showroom big enough to display

six cars and boasts 21 service bays, enabling the service centre to service up to 50 cars per day. The dealership also incorporates Kia's new Global Space Identity, which is present in all upgraded Kia outlets.

During the launch of Red Cube Rawang, Naza Kia Malaysia also held a prize-giving ceremony to

award the winners of the "Kia Go-Xtra Campaign 2014" Customer Loyalty Program. The programme involved customers who serviced their Kia vehicle at authorised service centres from June 9 to August 15. The 50 shortlisted finalists were then required to send a creative photo of themselves

with their Kia vehicle to Naza Kia Malaysia. Three grand finalists of the campaign were awarded a 5D/4N all-expense paid trip to Seoul for two to tour Kia's manufacturing plant and R&D centre, along with RM1000 pocket money and RM1000 worth of Kia Service Vouchers. ❌



Left: Kia Red Cube Rawang is the fifth Red Cube dealership in Malaysia.

Bermaz Motor Opens New 3S Outlet in Setia Alam

B BERMAZ MOTOR has launched their 60th Mazda showroom nationwide in Setia Alam recently. Located along Jalan Setia Dagang U13/AK, and built on a land space of 15,600sq ft, Mazda Setia Alam 3S Centre boasts a showroom, service bays, and spare

parts centre. The new outlet is fully equipped with a lounge, WiFi access, and free flow of beverages for customers.

The new 3S Centre is part of Bermaz plans on expanding its after sales network to meet its growing customer base. From an annual sales figure of 600 units

since the company's inception in 2008, Bermaz Motor has recorded an annual sales figure of 10,000 units last year. As a show of their commitment to delivering the best ownership experience, Bermaz Motor is offering a "3+3 Years Free Warranty and Maintenance" programme for their cars. ❌



East Coast FuelSave Champion Crown 2014 Champion

Right: Muhammad Kamal Asyraf (center) at the prize giving ceremony.



M MUHAMMAD KAMAL ASYRAF, who was the East Coast champion of the Shell FuelSave Challenge 2014, emerged triumphant in the National Finals against three other regional winners. The National Finals, which was held at The Saujana, took place over a stipulated route of 92km, with the finalists driving the Hyundai Elantra 1.6 Sport that is

powered by Shell's FuelSave 95 fuel. Muhammad Kamal emerged with a fuel consumption figure of 20.64km/L. The Shell FuelSave Challenge 2014 started in July this year with the first regional challenge held in Johor, followed by Penang, then Kuala Lumpur, and finally in Kuantan. According to Shell Malaysia, the event attracted close to 10,000 registrations. ❌

	PRICE	ENGINE CY/CC	PS@RPM	TORQUE NM/RPM	0-100 KMPH	TOP SPEED (KMPH)
 ASTON MARTIN ASTON MARTIN KUALA LUMPUR TEL: 03 7958 8998						
Vantage V8 S	RM1.2 mil	8/4735	436/7300	490/5000	4.6	305
DB9	RM1.7 mil	12/5935	517/6500	620/5500	4.6	295
Rapide S	RM1.9 mil	12/5935	558/6750	620/5500	4.9	306
Vanquish	RM1.7 mil	12/5935	573/6750	620/5500	4.1	295


AUDI
 EUROMOBIL SDN. BHD. TEL: 03 7688 7688


Audi R8 V10 Coupe
 Who would have guessed that a V10 powered Audi supercar could match a Ferrari's point-to-point pace on challenging roads? And yet being a far more accomplished car to live with.

A1 1.4 TFSI	RM179,900	4/1390	122/5000	200/1500	8.9	203
A1 1.4 Sportback TFSI	RM185,000	4/1390	122/5000	200/1500	9.0	203
A3 Sedan 1.4 TFSI	RM179,900	4/1395	122/5000	200/1400	9.3	205
A3 Sedan 1.8 TFSI quattro	RM240,888	4/1798	180/5100	280/1350	6.7	228
A4 1.8 TFSI	RM235,000	4/1798	170/3800	320/1400	8.3	225
A4 2.0 TFSI quattro S-Line	RM309,800	4/1984	211/4300	350/1500	6.5	245
A5 2.0 TFSI quattro S-Line	RM399,900	4/1984	211/4300	350/1500	6.5	245
A5 Sportback 2.0 TFSI quattro S-Line	RM359,900	4/1984	225/4500	350/1500	6.5	245
A6 2.0 TFSI	RM345,000	4/1984	180/4000	320/1500	8.3	226
A6 3.0 TFSI quattro	RM515,000	6/2995	310/5500	440/2900	5.5	250
A7 3.0 TFSI quattro	RM599,000	6/2995	310/5500	440/2900	5.6	250
A8L 3.0 TFSI quattro	RM689,500	6/2995	310/5200	440/2900	5.9	250
Q3 2.0 TFSI quattro	RM258,000	4/1984	170/4300	280/1700	7.8	212
Q5 2.0 TFSI quattro	RM328,000	4/1984	225/4500	350/1500	7.1	222
Q7 3.0 TFSI quattro	RM550,000	6/2995	272/4750	400/2250	7.9	225
TT 2.0 TFSI S-Line	RM355,000	4/1984	211/4300	350/1600	6.0	245
R8 5.2 FSI quattro	RM1.25 mil	10/5204	525/8000	530/6500	3.6	314


BENTLEY
 BENTLEY KUALA LUMPUR TEL: 03 2162 2033

Continental GT	RM1.74mil	12/5998	575/6000	700/1700	4.5	318
Continental GTC	RM1.99mil	12/5998	575/6000	700/1700	4.8	314
Continental GT V8	RM1.35mil	8/3993	507/6000	660/1700	4.8	303
Continental GT V8 Convertible	POA	8/3993	507/6000	660/1700	5.0	301
Continental GT Speed	POA	12/5998	635/6000	820/1700	4.2	331
Continental GT Speed Convertible	POA	12/5998	635/6000	820/1700	4.4	327
Flying Spur	RM1.8mil	12/5998	625/6000	800/1700	4.6	320
Mulsanne	RM2.8mil	8/6752	512/4200	1020/1750	5.3	296


BMW
 BMW (M) SDN. BHD. TEL: 1 800 88 3000


BMW M5
 Turbocharged M5 breaks from its tradition of naturally-aspirated engines, but turns out to be a perfect fit and a fitting continuation to the breed. Brutally fast and cool looks to boot, the best big sedan is now even better.

116i	RM170,800	4/1598	136/4400	220/1350	8.7	210
118i	RM190,800	4/1598	170/4800	250/1500	7.2	222
125i	RM238,800	4/1997	218/5000	310/1350	6.2	243
220i	RM259,800	4/1997	184/5000	270/1250	7.0	230
316i	RM209,800	4/1598	136/4350	220/1350	9.2	210
320i	RM241,800	4/1997	184/5000	270/1250	7.3	235
320d Luxury	RM248,800	4/1995	184/4000	380/1750	7.4	230
328i M Sport	RM309,800	4/1997	245/5000	350/1250	5.9	250
335i	RM488,800	6/2979	306/5800	400/1200	5.5	250
M3	RM738,800	6/2979	431/5500	550/1850	4.1	250
320d Gran Turismo	RM298,800	4/1995	184/4000	380/1750	7.9	226
328i Gran Turismo	RM329,800	4/1997	245/5000	350/1250	6.1	250
420i	RM299,800	4/1997	184/5000	270/1250	7.3	236
428i	RM358,800	4/1997	245/5000	350/1250	5.8	250

	PRICE	ENGINE CY/CC	PS@RPM	TORQUE NM/RPM	0-100 KMPH	TOP SPEED (KMPH)
428i Convertible	RM428,800	4/1997	245/5000	350/1250	6.4	250
428i Gran Coupe M Sport	RM418,800	4/1997	245/5000	350/1250	6.1	250
435i M Sport	RM525,800	6/2979	306/5800	400/1200	5.1	250
M4	RM748,800	6/2979	431/5500	550/1850	4.1	250
520i	RM369,800	4/1997	184/5000	270/1250	7.9	233
520d	RM354,800	4/1995	184/4000	380/1750	7.9	231
528i M Sport	RM419,800	4/1997	245/5000	350/1250	6.2	250
M5	RM901,800	8/4395	560/6000	680/1500	4.3	250
640i	RM768,800	6/2979	320/5800	450/1300	5.4	250
640i Convertible	RM868,800	6/2979	320/5800	450/1300	5.7	250
640i Gran Coupe	RM788,800	6/2979	320/5800	450/1300	5.4	250
650i	RM888,800	8/4395	407/5500	600/1750	4.9	250
M6	RM988,800	8/4395	560/6000	680/1500	4.2	250
M6 Gran Coupe	RM999,800	8/4395	560/6000	680/1500	4.2	250
730Li	RM648,800	6/2996	258/6600	310/2600	7.5	250
740Li	RM818,800	6/2979	320/5800	450/1300	5.7	250
X1 sDrive20i	RM238,800	4/1997	184/5000	270/1250	7.7	205
X1 xDrive20d	RM268,800	4/1995	184/4000	380/1750	8.0	205
X3 xDrive20i	RM328,800	4/1997	184/5000	270/1250	8.6	210
X3 xDrive20d	RM348,800	4/1995	190/4000	400/1750	8.1	210
X4 xDrive28i M Sport	RM468,800	4/1997	245/5000	350/1250	6.4	232
X5 xDrive30d	RM539,800	6/2993	258/4000	560/1500	6.9	230
X5 xDrive35i	RM579,800	6/2979	306/5800	400/1200	6.5	235
X6 xDrive35i	RM698,800	6/2979	306/5800	400/1200	6.7	240
Z4 sDrive20i	RM359,800	4/1997	184/5000	270/1250	6.9	232
Z4 sDrive28i M Sport	RM489,800	4/1997	245/5000	350/1250	5.5	250


CHEVROLET
 NAZA QUEST TEL: 03 2694 8001

Sonic LTZ 1.4 Sedan	RM77,408	4/1398	101/6000	130/4000	12.9	175
Sonic LTZ 1.4 Hatchback	RM79,408	4/1398	101/6000	130/4000	12.9	175
Cruze LT 1.8	RM104,766	4/1796	140/6200	176/3800	11.5	190
Captiva LT 2.4 Gasoline	RM160,235	4/2384	162/6400	225/4800	N/A	N/A
Captiva LTZ 2.0 Diesel	RM169,927	4/1991	163/3800	360/2750	N/A	N/A
Colorado LT 2.5 MT	RM90,287	4/2449	150/3800	350/2000	12.2	N/A
Colorado LT 2.8 AT	RM105,769	4/2776	180/3800	470/2000	10.2	N/A


CITROËN
 NAZA EURO MOTORS TEL: 1 800 222 808

DS3	RM117,888	4/1598	120/6000	160/4250	10.9	190
DS4	RM149,888	4/1598	163/6000	240/1400	9.3	212
D55	RM188,888	4/1598	156/6000	240/1400	9.7	202


FERRARI
 NAZA ITALIA SDN. BHD. TEL: 03 7956 8599

458 Italia	RM1.99 mil	8/4497	570/9000	540/6000	3.4	325
458 Spider	RM2.24 mil	8/4497	570/9000	540/6000	3.4	320
458 Speciale	POA	8/4497	605/9000	540/6000	3.0	325
California T	POA	8/3855	560/7500	755/4750	3.6	316
FF	RM3.19 mil	12/6262	660/8000	683/6000	3.7	335
F12berlinetta	RM2.89 mil	12/6262	740/8250	690/6000	3.1	340


FORD
 SIME DARBY AUTO CONNEXION SDN. BHD. TEL: 1 800 88 3181

Fiesta 1.5L Sport Hatchback	RM87,001	4/1498	112/6300	140/4400	N/A	N/A
Fiesta 1.5L Titanium Sedan	RM87,001	4/1498	112/6300	140/4400	N/A	N/A
Fiesta 1.0L EcoBoost	RM93,888	3/998	125/6000	170/4500	N/A	N/A
Focus 2.0L Titanium+ Sedan	RM129,953	4/1999	170/6500	202/4550	N/A	207
Focus 2.0L Sport+ Hatchback	RM129,953	4/1999	170/6500	202/4550	N/A	207
Focus ST	RM208,903	4/1999	250/5500	340/1750	6.5	248
Kuga Titanium	RM161,051	4/1596	180/5700	240/2500	N/A	200
Ranger 2.2L XLT A/T	RM98,453	4/2198	150/3700	375/2500	N/A	N/A
Ranger 3.2L XLT A/T	RM101,506	5/3198	200/3000	470/2500	N/A	N/A
Everest 3.0L XLT A/T	RM176,842	4/2953	156/3200	380/1800	N/A	N/A
Mondeo EcoBoost	RM193,918	4/1999	240/6000	340/4500	7.8	246


HONDA
 HONDA (M) SDN. BHD. TEL: 1 800 88 2020

Jazz Grade V	RM87,800	4/1497	120/6600	145/4600	N/A	N/A
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	PRICE	ENGINE CY/CC	PS@RPM	TORQUE NM/RPM	0-100 KMPH	TOP SPEED (KMPH)
Jazz Hybrid	RM89,912	4/1339	88+10	121+78	N/A	N/A
CR-Z MT	RM119,013	4/1496	136/6600	190/1000	N/A	N/A
City Grade V	RM90,800	4/1497	120/6600	145/4600	10.8	190
Civic 1.8S	RM115,995	4/1798	141/6500	174/4300	N/A	N/A
Civic 2.0S	RM131,995	4/1997	155/6500	190/4300	N/A	N/A
Civic Hybrid	RM119,993	4/1497	110/5500	172/1000	N/A	N/A
Insight	RM99,812	4/1339	88+14	121+78	N/A	N/A
Accord 2.0VT-L	RM149,815	4/1997	155/6500	190/4300	N/A	N/A
Accord 2.4VT-L	RM172,817	4/2356	175/6200	225/4000	N/A	N/A
CR-V 2.0	RM148,815	4/1997	155/6500	190/4300	N/A	N/A
CR-V 2.4	RM169,817	4/2354	190/7000	222/4400	N/A	N/A


HYUNDAI
 SIME DARBY MOTORS SDN. BHD. TEL: 03 7627 0888

i10 Epsilon 1.1L	RM52,900	4/1086	69/5500	99/4500	N/A	N/A
i10 Kappa 1.25L	RM57,000	4/1248	87/6000	120/4000	N/A	N/A
Elantra Gamma 1.6L High Spec	RM98,915	4/1591	130/6300	157/4850	N/A	N/A
Elantra Nu 1.8L Premium	RM114,918	4/1797	150/6500	178/4700	N/A	N/A
I30 Sport	RM132,888	4/1797	150/6500	178/4700	N/A	N/A
Veloster Gamma 1.6L M/T	RM116,915	4/1591	132/6300	158/4850	N/A	N/A
Veloster Gamma 1.6L Premium	RM132,915	4/1591	132/6300	158/4850	N/A	N/A
Sonata Nu 2.0L Sport	RM151,903	4/1999	162/6500	194/4800	N/A	N/A
Sonata Theta II 2.4L Sport	RM176,405	4/2359	178/6000	228/4000	N/A	N/A
i40 Nu 2.0L GDI Sedan	RM159,903	4/1999	178/6500	214/4700	N/A	N/A
i40 Nu 2.0L GDI Tourer	RM178,903	4/1999	177/6500	213/4700	N/A	N/A
Tuscon Nu 2.0L Executive Plus	RM145,903	4/1999	158/6200	192/4000	N/A	N/A
Tuscon Theta II 2.4L Executive Plus	RM158,905	4/2359	177/6000	227/4000	N/A	N/A
Santa Fe Theta II 2.4L Executive Plus	RM177,905	4/2359	176/6000	227/3750	N/A	N/A
Santa Fe R 2.2 CRDi Executive Plus	RM189,903	4/2199	197/3800	436/1800	N/A	N/A


INFINITI
 INSPIRED MOTOR SDN. BHD. TEL: 03 2142 3332

Q70 2.5	RM320,000	6/2496	222/6400	253/4800	8.5	231
Q70 3.7	RM425,000	6/3696	320/7000	360/5200	6.2	250
Q60 Coupe	RM415,000	6/3696	320/7000	360/5200	5.9	250
QX50 2.5	RM311,000	6/2496</				

	PRICE	ENGINE CY/LCC	PS@RPM	TORQUE NM/RPM	0-100 KMPH	TOP SPEED (KMPH)
MASERATI NAZA ITALIA SDN. BHD. TEL: 03 7956 8599						
Ghibli	RM538,800	6/2979	330/5000	500/4500	5.6	263
Ghibli S	RM628,800	6/2979	410/5500	550/4500	5.0	285
Gran Turismo 4.2	RM798,800	8/4244	405/7100	460/4250	5.2	285
Gran Turismo Sport 4.7 Auto	RM968,800	8/4691	460/7000	520/4750	4.8	298
Gran Turismo Sport 4.7 Cambiocorsa	RM998,800	8/4691	460/7000	520/4750	4.7	300
Gran Turismo MC Stradale	RM1.13 mil	8/4691	460/7000	520/4750	4.5	303
GranCabrio	RM988,800	8/4691	440/7000	490/4750	5.3	283
GranCabrio Sport	RM1,068,800	8/4691	450/7000	510/4750	5.2	285
Quattroporte V6	RM928,800	6/2979	410/5500	550/1500	4.9	283
Quattroporte V8	RM1.17 mil	8/3798	530/6800	650/2000	4.7	307

MAZDA
BERMAZ MOTOR TRADING TEL: 03 5569 2797

EVO PICK



Mazda MX-5
Chefs would tell you that if you have found a recipe that works, it's best not to muddle it. The MX-5 is an example, even by sticking with a 25-year old formula few cars are as entertaining or life affirming as this little rear-drive roadster.

2.1.5L Sedan VR-Spec	RM78,157	4/1498	103/6000	135/4000	N/A	N/A
2.1.5L Hatchback VR-Spec	RM82,322	4/1498	103/6000	135/4000	N/A	N/A
3.2.0L Sedan	RM135,159	4/1998	162/6000	210/4000	N/A	N/A
6.2.0L Sedan	RM159,455	4/1998	153/6000	200/4000	N/A	N/A
6.2.5L Sedan	RM189,728	4/2488	185/5700	250/3250	N/A	N/A
6.2.5L Touring	RM193,832	4/2488	185/5700	250/3250	N/A	N/A
MX-5	RM220,000	4/1998	160/6700	188/5000	N/A	N/A
CX-5 2.0L 2WD High-Spec	RM144,125	4/1997	155/6000	200/4000	N/A	N/A
CX-5 2.0L 4WD High-Spec	RM154,385	4/1997	153/6000	198/4000	N/A	N/A
CX-5 2.5L 2WD High-Spec	RM163,058	4/2488	185/5700	250/3250	N/A	N/A
CX-5 2.5L 4WD High-Spec	RM173,058	4/2488	185/5700	250/3250	N/A	N/A
CX-9 2WD	RM296,166	6/3726	274/6250	367/4250	9.9	181
CX-9 4WD	RM337,206	6/3726	274/6250	367/4250	9.9	181

MCLAREN
SIME DARBY AUTO BRITANNIA TEL: 019 339 6888

650S	RM2.4 mil	8/3799	625/7500	600/5500	3.1	333
650S Spider	RM2.6 mil	8/3799	625/7500	600/5500	3.1	329

MERCEDES-BENZ
MERCEDES-BENZ MALAYSIA SDN. BHD. TEL: 03 2246 8888

A200	RM198,888	4/1595	156/5300	250/1250	8.3	224
A250 Sport	RM238,888	4/1991	211/5500	350/1200	6.6	240
A45 AMG 4MATIC	RM348,888	4/1991	360/6000	450/2250	4.6	250
CLA200	RM235,888	4/1595	156/5300	250/1250	8.5	230
CLA 45 AMG 4MATIC	RM392,888	4/1991	360/6000	450/2250	4.6	250
B200	RM220,888	4/1595	156/5300	250/1250	8.4	220
C200	RM254,888	4/1796	184/5250	270/1800	7.8	235
C250	RM295,888	4/1796	204/5500	310/2000	7.2	240
C300	RM325,888	6/2996	231/6000	300/2500	7.2	246
C180 Coupe	RM305,888	4/1796	156/5000	250/1600	8.9	223
C250 Coupe	RM388,888	4/1796	204/5500	310/2000	7.2	240
C63 AMG Coupe	RM781,888	8/6208	487/6800	600/5000	4.3	280
E200	RM366,888	4/1991	184/5500	300/1200	7.9	233
E250	RM405,888	4/1991	211/5500	350/1200	7.4	243
E400	RM493,888	6/2996	333/5250	480/1600	5.3	250
CLS350	RM760,888	6/3498	306/6500	370/3500	6.1	250
S400L Hybrid	TBC	6/3498	306+27	370+250	6.8	250
S500L	RM1.08 mil	8/4663	455/5250	700/1800	4.8	250
S63L AMG	RM1.6 mil	8/5461	585/5500	900/2250	4.4	250
SLK200	RM460,888	4/1796	184/5250	270/1800	7.0	237
SLK55 AMG	RM857,888	8/5461	421/6800	540/4500	4.6	250
SL350	RM898,888	6/3498	306/6500	370/3500	5.9	250
SLS AMG Coupe	RM2 mil	8/6208	571/6800	650/4750	3.8	317
SLS AMG Roadster	RM1.84 mil	8/6208	571/6800	650/4750	3.8	317
ML350 4MATIC	RM570,888	6/3498	306/6500	370/3500	N/A	235
GL500 4MATIC	RM912,888	8/4663	435/5250	700/1800	5.4	250

MINI
BMW (M) SDN. BHD. TEL: 1 800 88 6464

Cooper Chili	RM198,888	3/1499	136/4500	220/1250	7.9	210
Cooper S Wired	RM248,888	4/1998	192/4700	280/1250	6.7	233
John Cooper Works	RM278,888	4/1598	211/6000	280/1750	6.7	236
Cooper S Clubman	RM259,888	4/1598	184/5500	260/1700	7.5	227
Cooper Cabriolet	RM235,888	4/1598	120/6000	160/4250	11.1	191
Cooper S Coupe	RM249,888	4/1598	184/5500	260/1730	7.1	224
John Cooper Works Coupe	RM288,888	4/1598	211/6000	280/1750	6.4	240
Cooper Countryman	RM218,888	4/1598	120/6000	155/4250	11.6	182
Cooper S Countryman ALL4	RM258,888	4/1598	184/5500	260/1700	8.3	205
John Cooper Works Countryman	RM318,888	4/1598	218/6000	300/1900	7.0	223
Cooper S Paceman	RM288,888	4/1598	184/5500	260/1600	7.8	212
John Cooper Works Paceman	RM338,888	4/1598	218/6000	300/1900	6.9	224

MITSUBISHI
MITSUBISHI MOTORS (M) SDN. BHD. TEL: 03 7680 6688

i-MiEV	RM139,888	N/A	67/4000	196/0	15.9	130
Mirage GS	RM65,962	3/1193	78/6000	100/4000	N/A	N/A
Attrage SE	RM77,980	3/1193	80/6000	106/4000	N/A	N/A
Lancer 2.0 GT	RM129,010	4/1998	150/6000	197/4200	N/A	N/A
Lancer Sportback	RM135,034	4/2360	170/6000	226/4100	N/A	N/A
Lancer Evolution	RM338,918	4/1998	295/6500	366/3500	N/A	N/A
ASX 2WD	RM118,000	4/1998	150/6000	197/4200	N/A	N/A
ASX 4WD	RM132,500	4/1998	150/6000	197/4200	N/A	N/A
Pajero Sport GL 2WD	RM155,500	4/2477	136/3500	314/2000	N/A	N/A
Pajero Sport VGT 4WD	RM176,980	4/2477	178/4000	350/1800	N/A	N/A
Pajero	RM299,016	6/3828	250/6000	329/2750	N/A	N/A
Triton 2.5 AT	RM97,014	4/2477	136/4000	314/2000	N/A	N/A
Triton VGT GL	RM107,809	4/2477	178/4000	350/1800	N/A	N/A

NISSAN
EDARAN TAN CHONG MOTOR SDN. BHD. TEL: 1-800-88-8368

Almera 1.5L VL	RM79,827	4/1498	102/6000	139/4000	N/A	N/A
Sentra Sport Luxury 1.6L	RM93,840	4/1597	118/6000	143/4400	N/A	N/A
Latio Sedan 1.6L	RM89,840	4/1598	109/6000	153/4400	N/A	N/A
Latio Hatchback 1.8L	RM99,845	4/1798	126/5200	174/4800	N/A	N/A
Sylphy 1.8L VL CVT	RM125,354	4/1798	131/6000	174/3600	N/A	N/A
Teana 2.0XL	RM149,800	4/1997	136/5600	190/4400	N/A	N/A
Teana 2.5XV	RM169,900	4/2488	173/6000	234/4000	N/A	N/A
370Z Coupe	RM370,055	6/3696	333/7000	363/5200	N/A	N/A
370Z Roadster	RM399,955	6/3696	333/7000	363/5200	N/A	N/A
LEAF	RM168,813	N/A	109/3008	254/0	11.5	140
X-Gear 1.6L	RM89,800	4/1598	105/5200	150/4400	N/A	N/A
X-Trail 2WD 2.0L	RM148,815	4/1997	139/5200	198/4400	N/A	N/A
Murano 3.5L	RM330,663	6/3498	260/6000	336/4400	N/A	N/A
Frontier 2.5L Granrod	RM92,097	4/2488	133/4000	304/2000	N/A	N/A
Navara King Cab 4WD	RM82,834	4/2488	174/4000	403/2000	N/A	N/A
Navara Calibre 2WD	RM89,951	4/2488	144/4000	356/2000	N/A	N/A
Navara 4WD LE	RM105,851	4/2488	174/4000	403/2000	N/A	N/A

PEUGEOT
NASIM SDN. BHD. TEL: 1800 88 6292

208 5Dr	RM85,888	4/1598	122/6000	160/4250	10.7	190
208 3Dr	RM95,888	4/1598	122/6000	160/4250	10.7	190
208 GTi	RM139,888	4/1598	200/5800	275/1700	6.8	230
308 Turbo	RM121,888	4/1598	156/5800	240/1400	9.1	212
408 Turbo	RM128,888	4/1598	163/6000	240/1400	9.2	215
408 2.0	RM109,888	4/1997	145/6000	200/4000	12.5	195
508 Premium	RM169,888	4/1598	156/6000	240/1400	9.2	220
508 SVT	RM179,888	4/1598	156/6000	240/1400	9.2	220
508 GT	RM199,888	4/2179	204/3500	450/2000	8.4	235
508SW GT	RM209,888	4/2179	204/5500	450/2000	8.4	235
2008	RM119,888	4/1598	122/6000	160/4250	11.2	190
3008	RM153,888	4/1598	165/6000	240/1400	9.5	202
RCZ Auto	RM243,888	4/1598	156/6000	240/1400	8.4	213
RCZ Manual	RM248,888	4/1598	200/5500	275/1700	7.5	237

PORSCHE
SIME DARBY AUTO PERFORMANCE TEL: 03 5032 9911

Boxster	RM460,000	6/2706	265/6700	280/4500	5.7	262
Boxster S	RM560,000	6/3436	315/6700	360/4500	5.0	277

Cayman	RM500,000	6/2706	275/7400	290/4500	5.6	264
Cayman S	RM610,000	6/3436	325/7400	370/4500	4.9	281
911 Carrera	RM810,000	6/3436	350/7400	390/5600	4.6	287
911 Carrera Cabriolet	RM910,000	6/3436	350/7400	390/5600	4.8	284
911 Carrera S	RM920,000	6/3800	400/7400	440/5600	4.3	302
911 Carrera S Cabriolet	6/3800	400/7400	440/5600	4.5	299	
911 Carrera 4	RM870,000	6/3436	350/7400	390/5600	4.7	283
911 Carrera 4 Cabriolet	RM960,000	6/3436	350/7400	390/5600	4.9	280
911 Carrera 4S	RM980,000	6/3800	400/7400	440/5600	4.3	297
911 Carrera 4S Cabriolet	RM1.06 mil	6/3800	400/7400	440/5600	4.5	294
911 Turbo S	RM1.23 mil	6/3799	475/8250	440/6250	3.5	315
911 Turbo	RM1.48 mil	6/3800	520/6000	710/2100	3.4	315
Panamera	RM1.75 mil	6/3800	560/6500	750/2200	3.1	318
Panamera 4	RM740,000	6/3605	310/6200	400/3750	6.3	259
Panamera S	RM780,000	6/3605	310/6200	400/3750	6.1	257
Panamera S E-Hybrid	POA	6/2997	420/6000	520/1750	5.1	287
Panamera 4S	POA	6/2995	416/5500	590/1250	5.5	270
Panamera GTS	POA	6/2997	420/6000	520/1750	4.8	286
Panamera Turbo	POA	8/4806				

Art of speed

Camera: Nikon D3. Focal length: 70mm. Exposure: 1/20sec at f/11.0 (ISO 200)



Volkswagen Golf GTI Mk1 grille stripe

by DAVID VIVIAN | PHOTOGRAPHY by DEAN SMITH

THE MK1 VOLKSWAGEN GOLF GTI WAS FAR FROM THE immaculate concept it may have seemed at its 1975 Frankfurt show debut. A 'hot' version of the Giugiaro-penned front-drive replacement for the 35-year-old Beetle simply hadn't figured in the plans for a car introduced to answer public anxieties stirred up by the oil crisis. But two VW employees in Wolfsburg had other ideas.

A young engineer named Alfons Löwenberg and the company's then PR director, Anton Konrad, were convinced there was more to the Golf than family-friendly, post-Beetle practicality and pitched their idea for a 'Sport Golf' to the board. It was given short shrift and rejected. Undeterred, the pair developed the idea in their own time, building a parts-bin prototype using a Scirocco chassis with seriously stiffened suspension and a 1.6-litre engine breathing through twin Weber carburettors. If anything, the senior suits were even less impressed.

But it created a buzz that caught the attention of other VW employees. The enterprise went further underground and effectively became a skunkworks project – arguably the most clandestine ever as a number of heavy hitters from key departments became involved, participating under the management radar.

Hard to believe, but apparently true, the car that would become the Golf GTI took shape at a secret meeting fuelled by coffee and a cake baked by Konrad's wife.

By late 1974 the project had gained an almost unstoppable momentum and only the cosmetic details needed to be resolved before it would finally be given the green light. That the neat chin spoiler, black plastic wheelarches, twin black side stripes, tartan seat fabric and dimpled golf ball gearknob would essentially codify an aesthetic approach for all subsequent hot hatches was unknowable at the time. But the one signifier that defined the faster Golf's look most effectively and would go on to become the GTI's signature cosmetic feature was also the simplest: the thin Mars Red trim stripe framing the car's black radiator grille. It was the black/red colour combination that was seen as being thematically sporty as much as the notion of a pinstripe accent in itself.

Although Gunhild Liljequist, VW's trim designer from 1965 to 1992, is credited with the adoption of the golf ball gearknob and the tartan seat fabric, the red stripe seems to have emerged from the team's collective consciousness. Whatever else has happened to the Golf GTI in the ensuing 39 years, the red stripe remains to this day. 🚗

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*Figure quoted above is based on test results produced by the new BMW X3 xDrive20d versus the new BMW X3 xDrive20i. Results with other models may vary.

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