

UTOMOTIVE

Spring 2022

ENESIS Can South Korea's
Lexus take the fight to the
Germans



DIEN Audi
e-tron GTC
Taycan and more

HONDA How
does it fare outside
its comfort zone

LEWIS We
chat to the face of
CarThrottle

THE TEAM

Editor

Mike Bartholomew

Deputy Editor

Shafiq Abidin

Subeditor:

Dino Buratti

Design Directors:

James Bird

Peijun Hua

Public Relations:

Adam Hunt

Contributors:

Theo Georgiou

Maa Apadia

Muhammad Ali Khan

Harry Leahey

Joe Lewis

Yash Singh



WHAT IS AUTOMOTIVE

Each year, students on Coventry University's Masters degree course in Automotive Journalism course work together to create an automotive magazine.

See previous issues at www.magcloud.com/user/coventryjournalism. For more about the course, find us on Twitter @coautoj or visit www.coventry.ac.uk/course-structure/pg-fah-automotive-journalism-ma

MESSAGE FROM THE EDITOR

It's far too easy as a car enthusiast in the present day to be swept away by the currents of doom and gloom that increasingly flow through this little corner of the world. Electrification, autonomy, soaring fuel prices, the threat of road pricing – it all makes for grim reading for those of us with a love of cars, and the physical and mental sensations of driving them, and at the heart of it all is the notion that young people simply aren't interested in cars anymore. Well, as this magazine sets out to demonstrate, this is quite simply nonsense.

This is a magazine by and for the new generation of enthusiast those who are willing to embrace the brave new world the automobile is entering without shunning its glorious, shimmering past. Our team comes from myriad backgrounds and have interests that cover every pillar of the automotive world, and this is displayed in the sheer breadth of content they've created: we cover the latest EVs and sports cars, classics, race cars, 4x4s and incredible custom builds, all of them united under a singular notion – that of the collective joy that the car can bring.

I'd like to take the opportunity to personally thank every single member of the team listed below for their tireless, energetic work on this project, for often tolerating editorial talk at unsociable hours, and for all sharing the same vision of what we sought to create.

This magazine should be seen as a statement of intent – we are here to stay, and to continue to tell interesting, funny, poignant stories about the automobile, wherever its future may lie. Welcome to the 2022 issue of *Automotive* I hope you enjoy it.

Now if you'll excuse us, we're going to the pub.

MIKE BARTHOLOMEW EDITOR

Thanks to:

Genesis UK, Stellantis UK, Honda UK, Porsche Cars UK and Porsche Farmington Hills, Michigan for supplying us with press cars

Alex Bersten for kindly agreeing to be interviewed

Special thanks to Andrew Noakes and Fred Mudhai for all their support and guidance during the creation of this magazine

CONTENTS



4 NEWS

- 4 Alfa Romeo unveils crucial crossover
- Toyota and Yamaha's hydrogen V8
- Gran Turismo Sport preview
- Audi's Macan T and Skoda Fabia
- Monte Carlo revealed
- F1 season preview
- 9 Daytona 24 and Race of Champions recap

10 DRIVEN TESTS

- Audi's bold first step into the electric future
- Audi's consumer-pleasing electric e-tron
- 4 Citroën's comfy but confused C4
- Renault's safe bet Adjara

FEATURES

Can the Genesis G70 really succeed in Europe?

22 Does the cute but compromised Honda e work in the real world?

24 CarThrottle's Alex Kersten reveals his advice for success in the automotive media world

2 How Audi's range-extender racer shook up the natural order at the Dakar Rally

2 Solihull meets the Sahara in used 4x4 showdown

Rags to rust: the restoration process behind a rat-rodded air-cooled Beetle

4 How the electric revolution is changing the way cars are engineered on every level

Is the Porsche 911 Carrera really that good?

USED

Seat's left-field, utilitarian supermini

3 Porsche's three-pedal, 4.0-litre enthusiast darling

4 Abarth's tiny turbocharged tearaway

42 BUILD OF THE MONTH

Part classic Challenger, part Hellcat, part Viper - a glorious Frankenstein's monster of Mopar parts that fulfilled a late father's legacy





Tonale crossover leads Alfa Romeo's renaissance

Alfa Romeo has finally taken the wraps off its highly anticipated Tonale SUV, the brand's first electrified model, which goes on sale in April.

The entry level front-wheel drive mild-hybrid has a four-cylinder 1.5-litre petrol engine, paired with a seven-speed dual-clutch automatic gearbox and a 48V electric motor. Total power output is 128bhp.

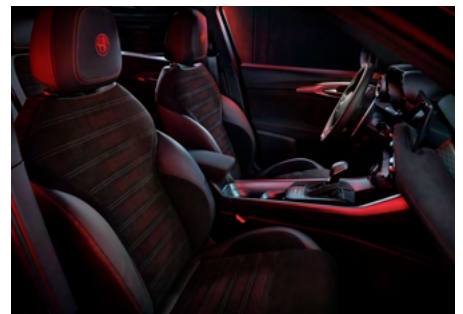
The most potent Tonale is the four-wheel drive plug-in hybrid model, which comes equipped with a 1.5-litre turbo petrol engine and a 15.5kWh battery.

With 272bhp on tap, the plug-in hybrid version will achieve the 0-100mph sprint in 5.2sec.

During the car's official launch event, Alfa Romeo's Chief Executive Officer, Jean-Pierre Plé said: "The Alfa Romeo future begins with Tonale. It's the safest, most comfortable and most pleasurable car to drive in its category."

In terms of design, it would be difficult to mistake the Tonale for anything but an Alfa Romeo, since all the brand's usual exterior traits are present. The car features the iconic triangular grille and slim LED headlights, while the new alloy wheels exhibit a new take on the traditional Alfa Romeo multi-spoke design.

As you would expect from a premium SUV, the Tonale features digital dials, plus a spacious 10.25-inch touchscreen display with the infotainment system supporting Apple CarPlay and Android Auto.





Toyota and Yamaha unveil hydrogen-powered engine

Toyota and motorcycle giant Yamaha have come together to develop a prototype hydrogen-powered internal combustion engine. Based on the 5-litre, naturally-aspirated V8 used in the Lexus RC F and LC500, in hydrogen form the engine produces a claimed 450hp and 98lb ft of torque representing a 27hp loss but a 7lb ft gain respectively.

The development of the hydrogen V8 follows the announcement in November 2021 of a joint venture between Toyota, Yamaha, Mazda, Subaru and Kawasaki for research into alternative fuelling solutions for internal combustion engines. Then, in December, a prototype Toyota Raris was presented with its three-cylinder engine converted to run on hydrogen. That engine will now undergo rigorous testing in a Corolla in Japan's Super Taikyu race series.

Running an internal combustion engine on hydrogen is, unsurprisingly, not as easy as simply switching one fuel for the other – extensive modifications have had to be made to the fuelling system, cylinder heads, intake and exhaust to allow for the more volatile nature of liquid hydrogen.

Nonetheless, this remains a promising development for those of us who lament the impending death of the internal combustion engine, as the emissions from running one on hydrogen are almost zero, according to Toyota.

Yamaha president Shiro Hirohata said at the announcement of the joint venture between the five brands: "Hydrogen engines house the potential to be carbon-neutral while keeping our passion for the internal combustion engine alive at the same time."

Further encouraging words came from Takeshi Yamada, a member of Yamaha's Automotive Development Section, which has been working on hydrogen combustion engines for five years. He highlighted the engine's "fun, easy-to-use performance characteristics", before saying: "I personally want to pursue not just performance but also a new allure for the internal combustion engine that the world has yet to see."

The US 2020 ban on new internal combustion-powered cars only applies to 'conventional' petrol and diesel engines, so it's possible that this technology may be a viable alternative, if the infrastructure is there.

Toyota is keen to emphasise that this is just one pillar of its strategy for achieving carbon neutrality, and that it's still committed to widespread electrification in its range. However, this research, along with the investment in drop-in synthetic fuels by the likes of Porsche, provides enthusiasts with some hope that the internal combustion engine might have some life left in it yet, **MIKE THOLOMEW**

A row of physical buttons to operate the car's climate control features and heated seats run below the screen – a change from the on-screen buttons used by rivals such as the Volvo XC40 and Range Rover Evoque.

Alfa says software is really important for the new Tonale, which is why the brand has equipped it with level two autonomous driving tech, though this does not come as standard.

Should this feature be selected on the options list, the car will be able to adjust the steering to keep you in the middle of a lane.

Prices have yet been confirmed, but expect it to fall below the price of the larger Alfa Romeo Stelvio, which starts at £45,295.

ALFA ROMEO

ALFA ROMEO: Tonale maintains traditional Alfa styling cues with teardrop alloys and heart-shaped grille

LEFT, FROM LEFT TO RIGHT: rear end displays a contemporary approach with a fashionable lightbar; interior looks the business but can it match the Germans for quality?

Images: Alfa Romeo



Gran Turismo pre-iew old school meets new tech

Details of Gran Turismo 7 have been unveiled by the game's creators, Polyphony Digital, during a dedicated Sony State of Play event ahead of its launch on 4 March. The game will return to its pioneering format, which uses a simulation mode that allows players to experience a career in automotive racing, starting with minimal funds, completing licence tests, and progressing up the ladder onto more advanced vehicles and competition.

That also means a return to its traditional world map navigation system, as well as a combination of both real circuits, like the labyrinth-esque Nürburgring, and fictional ones, such as the much-missed Trial Mountain. Both of these locations will form a 4-strong track list, which can be enjoyed in an initial variety of 400 cars, with future updates incorporating more vehicles into the game.

Another throwback feature which will return is car customisation: remember when you could put a set of incongruous 20-inch

alloys on a Mazda 787? Or how you could coax an extra 10 horsepower from a used car by simply changing its oil? It's all back, which will be music to the ears of ardent GT fans. But those are where the similarities stop, and GT7 begins to look to the future and forge a personality of its own.

One interesting addition is the Gran Turismo Caf. Series creator

Yasunori Kamauchi says that the Caf is 'designed to deepen a player's understanding of the enormous world of Gran Turismo, and the automotive culture to which it's dedicated, via a series of driving challenges assigned by the Caf's Menu books.'

Kamauchi says: 'Each time a Menu book is completed, we'll be able to listen to the Caf owner explain the history and culture behind the cars highlighted in that Menu book.' Gran Turismo has always been a game which is long on history, but a bit short on personal memoirs. That changes with GT7, and its all-new Caf.

It will be supported by a mode called Music Rally – which is practically there to invoke your inner nine-year-old, whilst enjoying the music. You'll set off in a vehicle with a certain number of 'beats', and will need to pass through extension gates to extend your depleting beats – a time trial assessed by musical notes, and not time, if you will.

Factor in the inclusion of T Sport's revolutionary online racing advancements, and the penny drops: this is by far away the most complete Gran Turismo title yet, culminating in the perfect blend of past, present, and future. A fitting way to celebrate the 25th anniversary of Kamauchi's premier racing simulator, then.

The chequered flag awaits. [SH FI BIDIN](#)

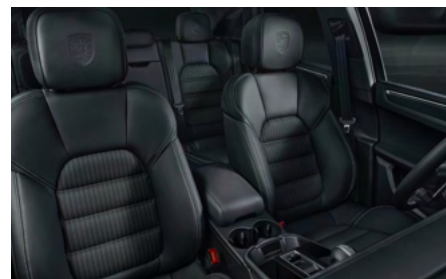


TO : 420-strong car list spans the decades and offers players an array of machinery from hybrid hatchbacks to group C monsters

LEFT: several classic Gran Turismo tracks return to the franchise emphasis on car collection marks a return to the series' roots

Images: Polyphony Digital

orsche reveals driver-focused' Macan T



orsche has unveiled a new driver-focused version of its Macan SUV, the Macan T. If you've ever driven any kind of orsche SUV, you'll realise it deserves a completely different acronym as it can't be compared to the majority of sporty SUVs on the road.

The 'T', first introduced on the 911T in the late sixties, represents orsche's trim level that bridges the gap between the best of base and the cream of the crop in the T division. Available only on the facelift, this is the first time an SUV in the range has worn the badge, and represents the firm's latest effort to imbue its SUVs with the sports car DNA for which it's famous.

This lightweight study is fitted with a sprightly 2.0-litre four-cylinder turbo engine with 220bhp and 295lb ft of torque. Down on power compared to the rest of range that are mostly equipped with a twin-turbo V6, the Macan T focuses on the authenticity of a dynamic driving experience. orsche claims better agility with the smaller engine relieving 58kg from the front axle. The bulbous SUV sprints from 0-100 in 6.2sec, and tops out at a handsome 144mph.

Where the Macan T falls short in blazing statistics, it recuperates in tremendous handling. As the only orsche model in the entire

range to feature steel suspension assisted by orsche's Active Suspension Management (ASM) as standard, the Macan T is engineered to compensate those "will it go round" moments of yobbish curiosity. With 15 mm or more of specially tuned chassis adjustability, its eagerness to send it through Ascari at Monza won't terrify you with distrust. More likely, the T might outfox even the most prepared coupes of the last decade.

The interior is updated to match orsche's sweeping new age design language, where neatly tucked screens pour through the cabin flanked by a central console for your most desired performance settings, accessible through the once common physical button. With deliveries expected to arrive in Europe by April 2022, build slots are available through order now. [MUH MM D LI H N](#)

Above, left to right: Macan is the first orsche SUV to get the T treatment grey and black highlights help distinguish it visually from the rest of the Macan range interior features track-inspired touches including embossed orsche crests
Images: orsche

Skoda launches new rally inspired Fabia Monte Carlo



Skoda has completed the fourth-generation Fabia lineup with the return of the motorsport-inspired, range-topping Monte Carlo trim level. Since 2011, the edition has paid tribute to Skoda's yesteryear successes in rallying at Monte Carlo. In 1977 the Skoda popular achieved second place, which was then followed with the 1-2 finish by the Skoda 100 RS in 1977. 40 years later this was repeated by the Skoda Fabia Rally2.

The variant exudes a dynamic character with an optional black roof and black Skoda lettering on the tailgate. In addition, the sharp LED-headlamps, and the option of upgrading the alloy wheels from a standard 17-inches to the beefy 18-inches, add to the sporty character of the model.

Oliver Stefani, Head of Skoda Design, says: "This latest Monte Carlo variant brings the significantly more emotive design of the new, fourth-generation Fabia sharply into focus. The body is longer, sleeker and wider, conveying a sense of dynamism. Lack details, such as those on the radiator grille or the wing mirrors, identify the new range-topping model at first glance and continue the tradition of the Monte Carlo variants."

The interior reinforces the sportiness with red accents and faux

carbon-fibre detailing on the armrests and the dashboard. It gets a three-spoke multifunction sports steering wheel and stainless steel pedals. The optional digital instrument cluster contains specific more dynamic background layouts, completing the Fabia Monte Carlo's interior enhancements.

Alongside the standard or turbocharged 1.0-litre three-cylinder engines, Skoda has rolled out a turbocharged 1.5-litre four-cylinder TSI engine with an output of 148bhp and 184lb ft of torque, coupled to a seven-speed DSG as standard. Skoda claims an 8.0 second 0-100 mph sprint and a top speed of 140 mph for this version. The entry-level 1.0-litre engine makes 79bhp, rising to 94 or 109bhp for the turbocharged version. The 1.5-litre power mill cements the distinction of the Fabia Monte Carlo edition from underlying models and establishes it as the range topper. [M](#) [DI](#)

Above, left to right: Lack accents and optional 18-inch rims help identify the warm-hatch Fabia Monte Carlo red flashes and chunky sports seats mark out the interior the range-topping trim level celebrates the marque's rallying heritage
Images: Skoda



Formula 1 2022 new regulations for better racing

TO DO LIST: The 2022 Aston Martin, Mercedes and Ferrari undergo shakedown tests. Images: Aston Martin, Mercedes, Ferrari

Formula 1 is seeing its biggest change in aerodynamic regulations in decades for the 2022 season, originally set to come in for 2021 but delayed by COVID-19. This is forcing teams to re-think how they design the cars. Many of the teams have been developing the car since late 2020 or the start of 2021.

The new design is claimed to reduce the loss of downforce in turbulent air from 47% to 18% at 10 metres (or one car length). This should mean that drivers can race closer together without needing to be at least 1.5 seconds faster than the car in front.

Having been developed in house at Formula 1 with motorsport teams and the FIA, one of the key points is there is an emphasis on creating downforce through ground effect (minus the skirts). Full ground effect, pioneered by Lotus in the seventies, was outlawed in 1982 but the new cars will use underfloor downforce tunnels which will be less sensitive to wakes and disturbed air.

This combination of the new regulations and a switch to 18 inch tyres has made the car launches more intriguing than normal. Haas were first, revealing a livery similar to that which they ran during the 2021 season.

Red Bull were next with a virtual launch stream by 5000 fans and announced a new title sponsorship with Oracle. This comes after they helped secure Max Verstappen's title using Oracle cloud to provide and analyse data. When looking forward to the season Max Verstappen explained "A lot is unknown about the car, but personally I feel good. I am very curious to see how the car is behaving on track."

There are rumours that Red Bull were the only team not to work on their 2022 car during 2021. However, 2021's constructors champions and Red Bull's biggest rivals, Mercedes have been developing their car all year.

Mercedes have gone back to a silver livery, hoping to bring Lewis Hamilton his eighth title. They're set to be the team to beat this year so it wouldn't be surprising if George Russell had many tight battles with his new teammate, something Mercedes have had plenty of experience with in the past.

Rumoured to be in the title battle this year is Ferrari. Charles

Leclerc said: "Expectations are high because we are Ferrari. We are expecting to win all the time." Having developed their 2022 car since almost the beginning of 2021, it's thought by insiders that they will be bringing the fight to Mercedes.

McLaren have been improving and are potentially the third in the title fight. Revealing all their motorsport liveries at the same time, they are only looking to improve in all areas.

Aston Martin, Alpha Tauri and Williams have also launched their cars. This brought on some discussion surrounding the difference in sidepods due to Aston Martin realising their actual car and seemingly having larger sidepods than any of the cars revealed so far.

The general consensus from all the launches was the unknown is exciting. No one knows how these cars will perform with many teams having to change their approach to designing the cars.

If the regulations deliver as promised, this will be an exciting season. [ESS BI D](#)



orsche sweep T classes at 10th running of the Daytona 24 Hours

The orsche 911 T Rs of aff Motorsport and Wright Motorsport won the inaugural TD ro class and TD class respectively in the 2022 Daytona 24 Hours. orsche stole the limelight away from MW Motorsport's 50th anniversary and the Daytona race debut of the M4 T .

At the top of the TD ro class, it became a orsche Carrera cup race when aff Motorsport's 911, being driven by Mathieu aminet, and CM 's 911 driven by Laurens Vanthoor, both orsche factory drivers, began fiercely swapping the lead and performing bump and runs for the last two hours of the race unable to escape each other. aminet said it was an "unbelievable duel".

It became a trio, when Wright Motorsport's TD class-leading orsche 911 T R with pro driver an Heylen behind the wheel began stalking the two battling TD ro orsches, despite the team being four laps behind.

On the final lap, aminet did a bump and run on Vanthoor at the International Horseshoe and was all over his rear before turning onto the speedway. They went side by side into the Le Mans Chicane and onto the grass before Vanthoor wildly spun out across the track,

giving aminet the win and promoting Risi Competizione's Ferrari 488 T to second place, with Vanthoor finishing in third.

ost-race, aminet said: "The CM colleague had a slightly faster car, but thanks to perfect teamwork and my teammates' outstanding drives, we ended up at the front."

oth of TD ro's Rahal Letterman Lanigan entries, were plagued with undertray issues one hour in, but still managed to finish seventh and ninth, while the TD Turner Motorsport M4 T 's entry succumbed to crash damage. Talking to IMSA Radio, RLL's resident ierce hillips said it was caused by "track specific issues with curbing and the Le Mans Chicane."

Aston Martin made history by finishing second in the TD class with RT Magnus's Vantage T , claiming Aston Martin's first podium at the event. [E OWIS](#)

ELOW, LEFT TO RI HT: The aff, CM and Wright 911s locked in battle (image: orsche) RLL MW M4 T with undertray hanging off the Magnus Racing Aston Martin Vantage T at sundown (images: Robert Noonan)



ace of Champions legendary Loeb emerges victorious in snowy Sweden

Sebastien Loeb beat Sebastian Vettel by less than a second to win the 1st Race of Champions in Sweden in February. Nine-time World Rally Champion Loeb took the final round by 0.78 sec as the pair raced around the icy winter arena in electric buggies.

Every year, world-class drivers join together for a rare opportunity to race in identical cars for the title of "Champion of Champions" and "Fastest Nation" in the ROC Nations Cup.

"Sebastien was just too fast today," Sebastian jested sportingly. "The conditions were tricky out there and it was getting more and more slippery, which I guess is normal for snow and ice. I don't have that much experience so it was a struggle to adapt in my day job getting sideways is what we try to avoid. ut I felt I was improving every time I drove. That's a good sign, but also a sign that I still have a lot to learn."

The two iconic drivers went head-to-head over four rounds after beating every other competitor in a simultaneous one-on-one time trial gauntlet. The competitors were comprised of motorsport royalty such as seven-time NASCAR Cup champion immie ohnson, two-time Formula 1 Champion Mika Hakkinen, two-time W Series Champion amie Chadwick, and former Formula and Formula 2 champion and current F1 driver Mick Schumacher, amongst many others.

Vettel beat W Series driver Emma imilainen, IndyCar star Colton Herta and nine-time Le Mans winner Tom ristensen to make the final, while Loeb got the better of two-time World rally Champion etter Solberg, his son and WRC driver Oliver Solberg and World Rallycross and two-time DTM Champion, Mattias Ekstrom.

"esterday was a short day because I let Team ermany down and we went out very quickly, but today I could get more into the groove," Vettel conceded. "I knew the final was a big stretch and I maybe pushed too hard, but I knew I had to go for it to be close to Seb Loeb. I made mistakes here and there, so in these conditions I have a bit of catching up to do."

Vettel impressed as he was able to win a round against the rallying titan but was unsuccessful in denying Loeb his fourth ROC title as the Frenchman won the other three rounds.

Loeb who, aged 5 , had already placed second in the Dakar Rally and won a record-breaking eighth Monte Carlo Rally since the start of 2022, has left racing fans asking: will he ever stop winning?

[SH SIN H](#)

LEFT TO RI HT: T4-spec orsche Cayman was one of the cars in this year's event Loeb and Vettel drove off on the ice but were in good spirits on the podium



OD

Taycan

THIS MONTH

OSCHET CN

UDIETON

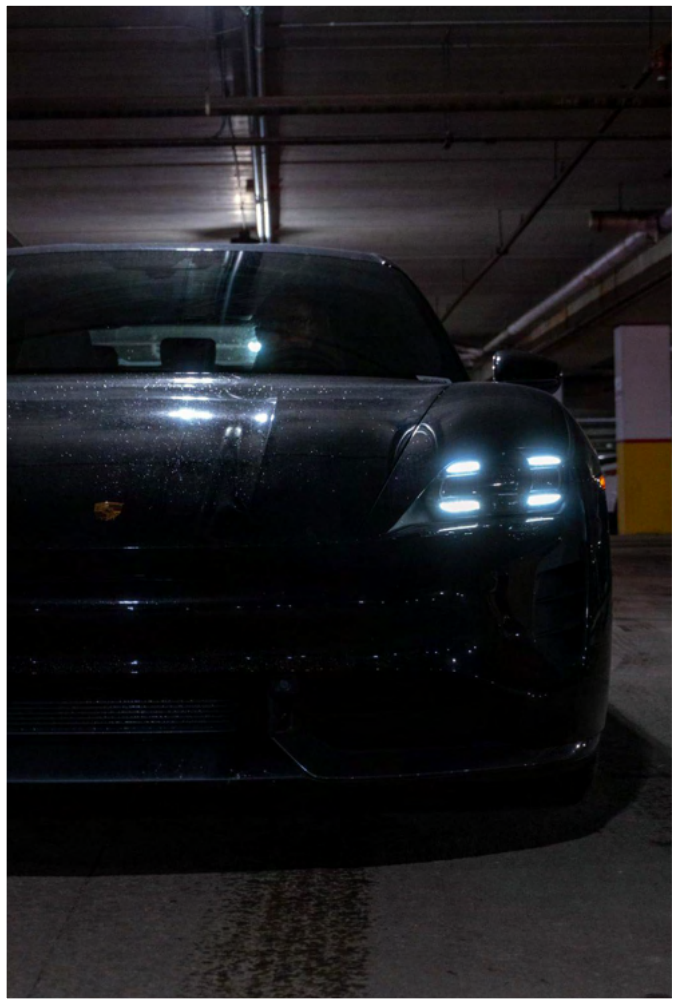
CITONC4

ENULTD

TESTS

TO SCHE T C N

By Muhammad Ali Khan
Photos by Dawson Brambrister



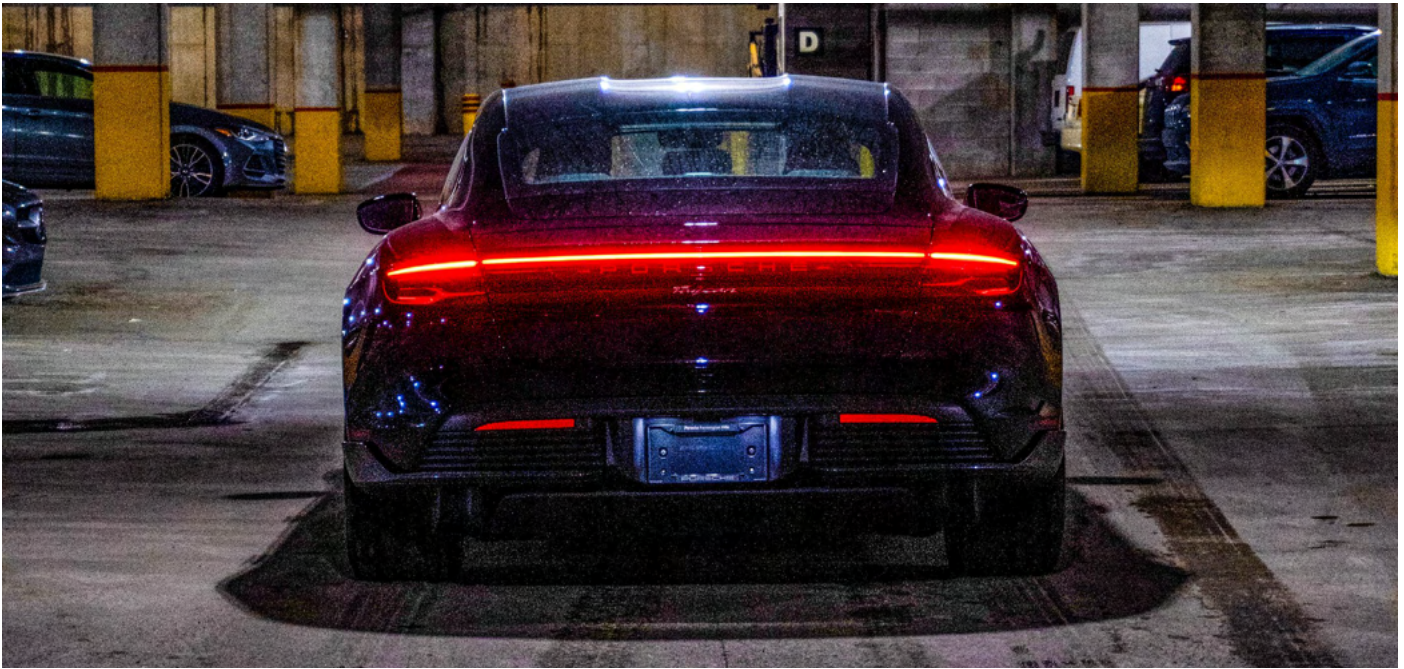
The term 'EV' has become such a robust acronym that in many cases it kills more than two birds with one stone. Few cars carry that sentiment truer than the Porsche Taycan, which assumes the role of an 'electric vehicle' as closely as it does an 'executive vehicle'. What it really has over its American rivals over at Tesla though, are those intrinsic details that accumulate to the wonderful package that we know as the 'enthusiast vehicle'. The package tested here is a scantily-trimmed base Taycan, that made it abundantly clear that even entry level Porsche products have set the bar for brilliance very, very high.

Refinement feels lost in interiors of the EV age, with most manufacturers slapping on a 10 inch touch screen in the centre, a smaller one on the wheel and some novel ones on the doors. From Mercedes to Tesla, the cabin has been reduced to an environment designed to indulge a few seconds of fame on Instagram before the swipe down to the next post. Whilst the Taycan is chock-full of screens, they're designed thoughtfully, with simplicity in mind. The home app cluster is classic Porsche and the 8.4 inch central screen has responsive haptic feedback that feels like clicking a physical button. Apple CarPlay and Android Auto are finally integrated into the interface as standard, with wireless connection options over the cabled 'solution' of old. The steering wheel design made famous by the 918 hypercar is at the centre of focus finished in satin black, with electric adjustment available yet not necessary as almost every Porsche has absolutely bang on driving position for most builds, with the exception of Shaquell O'Neil or my three-year-old cousin. This car came equipped with the 14-way power adaptive bucket seats that are surprisingly comfortable for a bucket, if a touch odd

to look at from the rear seats. EV of course means that the Taycan is a poster child for practicality with 80 litres of space in the front-end 'frunk' and 5 litres of boot space, making space for the cooler of beer when you get bored at the golf course once you've stuffed all the clubs in the back.

The spirited power unit, energized either by a dropped bolt from Zeus, or more likely, by the electrification generated between a 79.2kWh battery pack fused with a synchronous electric motor, produces 402bhp and 254lb ft of torque. You can get a peppier 93.4 kWh configuration, although Porsche claims an estimated 5.1 second zero-to-100 and 141 mph top speed for both cars making the fruitier battery a sentiment of range over performance. Regardless, ample figures for a first shot EV that comes fitted with a looser, driver focused rear wheel drive setup as standard. Not abhorrently slow nor mind numbingly fast (you'll have to pay up for the latter), the immediate nature of the power delivery is albeit deceiving in the actual acceleration of the car, as the pull quickly tapers off the longer your foot stays flat. Highway driving has never felt more effortless as a quick squirt of the accelerator pops you nicely into any lane you choose - just pick a spot and bang, you're in. Would be a handy feature for musical chairs, eh?

As with almost all EVs, the Taycan features regenerative braking, a system which essentially reverses the direction of the electric motor when the driver lifts off the pedal. This allows energy that would otherwise be wasted in braking to instead be put back into the battery, giving it a small shot in the arm. The reversal of the motor's direction causes the car to start slowing down, a sensation that feels like a combustion car's engine braking turned up to 11. For the



most part, it's a more efficient use of otherwise wasted energy. In use though, most regenerative systems are as untrustworthy as my four-year-old cousin trying to sell a Facebook account to my nan. In this case, the lift off braking is extremely mild compared to the rest of the field with the majority of the energy saved consumed on the actuation of the brake pedal, allowing you to coast when you'd like and save the calipers any effort unless you see yourself imminently hitting a wall.

Compared to its actual competition in the American-made Model S, the Taycan's boost is more reliable as an overall package as it comes with a two-speed transmission fitted to the rear axle, a first for production EVs. What this means is over longer distances the Taycan will outpace an equivalently optioned Model S and win out the oh-so-popular 'CarWow'-style drag races, with proficient power delivery from zero to your shirtless mate frantically waving their t-shirt a quarter of a mile away. Similarly, the Taycan doesn't have to warm up for launches unlike the Model S and is quoted to be able to bang out 10 consecutive launches from a dig without battery degradation or significant transmission wear.

True to brand, this is second to none as far as driving experience goes in a saloon. The electric steering is heavy yet precise, notably competent on highway stretches yet fluid and eager on tighter, balls-to-the-wall back roads. The electric steering fits the character of the Taycan well and whilst hydraulic might be the answer for most purists, the new solution is on point for this luxury saloon. How they made it feel so up on its toes is the real question: weighing in at just under two and a half tons, it whips around like a juiced-up eel, throwing caution to the wind at the sight of potholes and bumps. This is a testament to the effortlessly compliant air suspension. It has the ride comfort of a BMW 7-Series yet the flatness of an M2. It's simply a magic trick. On-the-fly adjustability in the damper settings has eliminated compromise whilst providing significant improvements in comfort and handling, unlike other cars in the segment that offer damper changes with little feel on activation.

Guess what? There's a noise. I wanted a 00 option, but definitely a worthwhile one. Straight from a Star Wars Interceptor, it zings on acceleration and warbles on the way back, so alien to anything you'd expect to hear in a road car, still audibly tuned in such a way that you chase the noise as you would a V10. Accelerating

and braking endlessly to hear what can only be described as the becoming of Flash Gordon. The best part though? You can hear it from the outside and it's noticeable, and louder through a tunnel as all things of speed should be.

With the new Taycan, the preferential terms of being called a 'petrolhead' are shoved out the window as quickly as it can shove you into the back of your seat. It's eliminated that sense of wonderment of whether an electric car could ever live up to the temperament of an enthusiast driver. And that's saying a lot when Porsche's first attempt at the future is packaged in a four-door luxury saloon. **ICE TESTED 2**





UDI E T ON U TT O

Words and photography by **ess Bird**

With the rise in electric vehicles, it seems only right that businesses in the U now offer them as company cars, right? The Audi e-tron 55 quattro, launched in 2019, is now a part of the company car family.

Let's start with one of the major sticking points which effects both employees and employers, the range of EVs. The Audi e-tron 55 quattro from new is estimated to have a 225 mile range, but in reality it is often less than this. In cold winter weather a six month old e-tron has a maximum range of approximately 170 miles. For employees travelling across the country to reach offices or customers this is not enough. Before purchasing the e-tron the owner of our test car was asked if they had an ICE car available at home for them to use so that they didn't have to depend on the Audi.

The EV charging infrastructure doesn't keep up with current demand, and with the 55 quattro's main competitors, the Mercedes-Benz E C and Jaguar I-ace, reaching higher estimated ranges it seems companies may find other manufacturers more desirable for employees.

Despite this, if a company does decide to go with the e-tron, the employee will have to go on a waiting list to have the electric charger installed at home because whilst it is easy to order the car new, it is difficult to get hold of a charger in the same time period. Once fitted though the e-tron has a charging point on each side of the car, meaning both at the office and at home the car can be parked at any angle and be charged.

After fully charging on the now mounted charging point at home, the Audi itself is very smooth to drive with clean steering. Even though it's two tonnes, the weight is cleverly distributed meaning the body roll is limited when cornering. After making it to sport mode using the awkward selector, the 55 can be pushed to its

maximum. EVs are well known for their acceleration, but it was a surprise that even at 90mph on an airfield the Audi still had more to offer. However, for longer trips, eco or comfort mode utilises the air suspension, cushioning every bump in the road.

As SUVs go it has a classically sleek look which is unlikely to cause any controversy, just what professionals want. The interior is spacious with plenty of rear spaces for a family and boot space for a dog or holiday luggage, making it ideal for that work life balance.

Children or any passengers in the back of the e-tron may require an extra sick bag though. It is known that EVs are more likely to cause car sickness due to the lack of engine noise, the regenerative brakes and ease in which EVs change speed. Having had experience in the back of the 55 quattro, this theory seemed to be confirmed.

The extra costs of sick bags or cleaning won't be the only thing an employee will need to consider. To buy new, the car is now

£71,500, but for companies any EV offers a lower company car tax than petrol or diesel cars, increasing their appeal. However, for employees using the car, the app on their phones could come with extra expenses. Like all EVs and most modern cars, Audi have created an app to go with the car so that from the house the climate control can warm up or cool down the car before travelling and there is a theft alert anytime the alarm goes off. But to have unlimited access to different LED colours and patterns inside the car it will cost £125 from the app or an annual subscription fee of £875.

For a company car the e-tron will provide employees with a comfortable drive

and professional look. It could also be used as an everyday car. However, the range and EV infrastructure will always hold this car back compared with rivals. **ICE S TESTED 2**



CITROËN C4 . HDI SHINE

Words and photography by Mike Bartholomew



The first-generation Citroën C4 is remembered today for three things: its fixed hub steering wheel, its absolute domination of the World Rally Championship,

and, according to the adverts, occasionally transforming into a giant dancing robot. The bland, sterile second-generation C4 isn't really remembered today at all.

So, after a gap of a few years, here we are with the third-gen car, and it seems to be suffering from an identity crisis. Aiming to capitalise on the crossover-coup craze, it sits high on its springs and features plastic body cladding and a rakishly sloping roofline, but it's still being positioned as a family hatch, like a Golf or Focus.

The new C4, like many products of the Stellantis empire, offers a choice of petrol, diesel or fully electric drivetrains. The petrol is a 1.2-litre turbocharged three-cylinder with 100, 110 or 155bhp, and the diesel is a 1.5-litre four-pot producing 110 or 130bhp. The lower-powered diesel is tested here, in the mid-range Shine trim level.

The engine is easily the car's weakest point – gruff and uncouth around town, it does settle into the background when cruising. However, its sluggish response makes overtaking a laborious task, and requires the driver work the manual gearbox hard to make decent progress. This can hinder attempts to reach the C4's claimed 4.2mpg, although it's still generally as parsimonious as you'd expect a small diesel to be.

Thankfully, Citroën has looked to its past when setting up the C4's chassis, and have eschewed a needlessly firm setup, instead chasing a cossetting, laid-back ride. It absorbs speed bumps and

rutted country roads with aplomb, although the worst potholes still send a tremor through the body. This relaxing nature would

pair nicely with the petrol engine or, better yet, the fully electric –C4 version of the car.

Despite the wallowy chassis, the C4 clings on along twisty roads for longer than you'd expect before understeer sets in. The steering, however, is ultra-light and devoid of feel – it's certainly not a family car for the heel-and-toe brigade.

Inside, the C4 demonstrates the progress Citroën has made with its interior quality in recent years, with materials that feel worthy of the £20,000 entry price of a basic

C4, without troubling Volkswagen. Up front, the cabin is a pleasant place, with squishy, comfy seats in the best Citroën tradition, and mercifully, a row of physical buttons for major functions.

Those in the back won't have it as nicely, however, especially people on the taller side. Legroom is decent enough, but that sloping roof eats into headroom and boot space. The roofline also has a dramatic impact on rear visibility – to get a sense of what it's like, go kneel at your front door and peer out of the letterbox.

A likeable car by virtue of its overtly comfort-oriented setup, the diesel C4 is let down by its miserable engine, but even then, the whole package feels like a compromise. Less practical than a traditional C-segment hatch, it also doesn't do enough to coax crossover buyers out of their high-riding comfort zones. It's a car that feels stuck in the middle, and worse off for it.

ICE TESTED 2



RENAULT ADJAR . TESTED

Words and photography by Theo Georgiou

Renault's Adjar was late to the SUV market and unsurprisingly, it already feels old, as countless new models have been added to the segment. New SUVs are introduced so frequently that it's easy to lose count of what's going on.

For context, when Renault introduced the Adjar, it had 25 rivals, and now, at the point of its mid-life facelift, it has over 40. You get my point.

The good news is that the Adjar does not seem to have much of an issue keeping up with competitors. The car shares its platform with the very competent Nissan Qashqai but somehow manages to squeeze in some extra interior space.

Most of the engines are also used in the Nissan and the 1.6-litre four-cylinder turbo engine can also be found in the current Mercedes A-Class. Therefore, we can comfortably say that most parts of the Adjar are tried and tested.

The 1.6 seems like the most common choice; however, for buyers who need a bit more grunt, a diesel engine is still available. Renault offers the 1.5-litre four-pot that has been around for ages, offering either 111 bhp or 148bhp. Fuel economy seems good throughout all engines with 49.1 mpg for the 140bhp 1.6, 47.1 for the 110bhp 1.6, and 57.7 for the 1.5 diesel.

As you would imagine, driving the Adjar isn't the most exciting thing one can do. However, that's not really an issue. This is a Renault SUV, we never expected it to be all that much fun to drive. We do expect it to be comfortable – and comfortable it most certainly is.

The seating position gives the illusion that you are sitting higher up than you actually are, the armrest on the centre console gives your left arm somewhere to rest, power on tap is available thanks to the peppy turbo motor and the big windows keep you alert. The 19-inch wheels are best avoided as they make the ride a bit too harsh, but otherwise, the Adjar is a great mile churning.

Inside the vehicle you are greeted with soft-touch materials and a seven-inch touchscreen whose interface is not the best in the market. It is better than the one it replaces, but it is no match to the system used by VW. In some cases, the Adjar's

touchscreen can be slow to respond, and a bit confusing to navigate.

The rest of the cabin is no longer a Nissan Qashqai parts bin. There are bespoke pieces that give the interior a much nicer look than the one it replaces. Interior space is also great with plenty of head and legroom in all seats. Furthermore, boot space is rated at a satisfactory 1,478 litres with the rear seats folded – almost 1,000 litres more than it is in the five-seat configuration.

Overall, the Adjar offers comfort, reliability, and economy in an SUV package that at a starting price of £21,185 is hard to beat. **ICE TESTED 2**





Land of confusion

Can Hyundai's upmarket Genesis brand compete in a European premium market dominated by the German brands

By Shafiq Abidin Photos by Jae Powis





When a brand from the Eastern hemisphere ventures into the West, it often finds itself in a cauldron of competition from European brands, particularly from Germany. This is the exact predicament that Genesis has encountered with its now-facelifted G70, which is here to challenge the longstanding success of the Mercedes-AMG GT Series: a tall order for a marque that's been in the U.S. for under two years. So, does the G70 make a case for itself?

Here in the U.S., Genesis offers the G70 with two four-cylinder engines, both paired with a refined 8-speed automatic gearbox: a 2.2-litre diesel engine, and a 2.0-litre turbocharged petrol. The latter is the one we're dissecting here.

The engine is excellent at feeding temporary bursts of power through the car when pulling out of junctions, or building speed on slip-roads, whilst continuing to impress in low-range settings in and around town. When combined with the vast amounts of torque, the car's ability to navigate steep ascents at minimal revs, without becoming overly stressed, is impressive.

"It feels considerably more potent than the numbers suggest"

With a power output of 245 bhp, and torque figures reaching 258 lb ft, it's capable of accelerating from 0-62 in just 6.1 seconds and will continue pushing on to a top speed of 149mph. However, it does feel considerably more potent than the numbers suggest, with a delicious sweet spot there to be explored between 2,500 and 4,000 rpm once the turbo system begins to gather its stride.

But that also typifies one of the main issues with the G70: it only provides you with a morsel of what you expect it to. It feels hesitant when you put your foot down if you're already travelling beyond

60mph, and needs a noticeable period of time before it decides to present you with the power you asked it to deliver. The G70 is a quick enough car, but it would be easier to appreciate it on long stretches of road if its aforementioned sweet spot had a wider rev margin.

Despite a kerb weight of 1,755kg, the G70 doesn't feel cumbersome, rather, it feels agile and responsive. The

minimal density is further aided by Michelin Pilot Sport 4S tyres – unquestionably some of the best all-round tyres you can buy.



Above: The GV70 tries to strike a balance between sportiness and comfort

When you look at a GV70, you don't expect it to be much of a pantomime through the corners, but the addition of the 4S tyres by Genesis has paid handsome dividends. Not only can you truly explore the limit, but a combination of its weight, and its trusty traction control system, means that it stays firm and planted in even the tightest of hairpins.

Upon closer inspection, you'll also find that the French rubber cocoons a set of Brembo premium performance brakes – which not only look particularly striking in red, but provides a stern defence to neutralize the more than sufficient power.

Before I could even attempt to create a fictional emergency braking scenario for myself, a few tight bends, paired with several jaywalkers, forced me into doing the real thing. And I'm happy to confirm that the GV70's claimed stopping distance of 151 feet, from 70mph, sounds very much valid. For some perspective, a 2021 Series takes an extra 14 feet to stop. See, the Brembo brakes are important. Especially if they're red.

Put all this together, and you find that the GV70 feels nimble and

forgiving when navigating a complex set of corners, and this instils you with faith to enter them at speed. This confidence also translates into every weather situation, with extreme rain and hazardous winds flummoxing myself and my entourage throughout this three-day test, but not the car. The GV70 truly is as equally good in any weather condition, which means that it offers a well-rounded driving experience across all possible avenues.

The GV70 can also be set in four different modes: Eco, Comfort, Sport, and Sport+. Having covered over half the 1,000 mile test in Eco Mode, it quickly occurs to you how wallet-friendly the GV70 is when you allow it to relax. The setting will quickly become a go-to when you realise it doesn't compromise too much by way of speed and comfort, either.

The GV70 also comes with adaptive suspension on the Sport Line models, and when it's used together with the Comfort Mode setting, the ride across almost any surface is as velvety smooth as walking across a newly cemented pavement. This is especially valid in the case of vehicles with the Comfort Seat pack option chosen. Rest assured, your buttocks will be thankful for it.

When you do scratch the Sport Mode itch, you'll find that the throttle response lag diminishes, whilst the firmed-up suspension will help to counter-react the body roll in corners, of which there is a fair amount. The experience becomes all-action, and the seat bolsters that begin to invert and tighten around your body give you a satisfyingly reassuring sensation, akin to receiving a gentle hug from an experienced racing driver who's whispering, 'go on, give it the beans,' to you. Instinctively, you will.

Aside from those characteristics, the only noticeable difference in the Sport+ mode is the traction control being turned off, which is something that doesn't really change a car with as much glue-like grip as the GV70. Even if it's activated in the pouring rain, you'd struggle to muster any comical oversteer, but you will notice the magnified wheelspin.

The GV70 tested also came with both the Convenience and Innovation packs, which aid an interior that's already filled with technology to help keep the driver focussed and safe. It's also worth noting that most of the equipment and dials on-board are also slightly angled towards the driver, to aid convenience.

The stand-out inclusion is the Evasive Steering Assist, which is there to pre-empt collisions with oncoming slow-moving traffic like pedestrians and cyclists. It's got the right amount of sensitivity to it, so it's not entirely annoying, and makes it near-impossible to have a collision with said groups of traffic on your end.

The Highway Driving Assist is another fabulous instalment, which warns the driver when they're straying away from their lane with haptic vibrations through the steering wheel. It means that you'll need to indicate every single time you want to move lanes and/or overtake, but it essentially promotes safe, legitimate driving.

A head-up display keeps you informed of the speed limit on the road you're currently on, whilst the lane indicator works in tandem with the vehicle's exceptional Highway Driving Assist system to keep you as close to the middle of the lane as possible. It also acts as the warning hub for the Forward Collision-Avoidance Assist, which automatically deploys the emergency brakes when its frontal sensors detect a vehicle or a person within an uncomfortable proximity, in keeping with the latest safety regulations.

Another fascinating feature is the blind spot view monitor, which uses cameras placed atop both mirrors to provide you with a video feed of your blind spots to help assist you when moving lanes. It also alerts you if it's unsafe to do so and indicates when it is. It's a nifty component when it's a sunny day, but not always as helpful when rain droplets begin to cover the cameras up, by which time you'll have to resort to using your mirrors, thus rendering the device only half-usable.

Everything is controlled from a 10.25-inch infotainment touchscreen, which is not only incredibly easy to use on the move (albeit slow at times), but also just the right size. Any smaller, and it wouldn't have fit the proportions of the rest of the interior. Any larger, and it would've started to compromise the accessibility of the all-important physical buttons.

The main issue with the infotainment system is the navigation mode, which can be dim-witted and lacks an unusual number of destinations. However, this is nullified by the Apple CarPlay and Android Auto options, which most people opt to use anyway, so it's not a huge hindrance.

The screen is also used as the primary control mechanism for the advanced safety features previously mentioned, so you can turn anything off if you feel they're unnecessary or hinder your journey in any way. But since one of the 70's standout party pieces is its near-conscious ability to avoid accidents, disabling the systems wouldn't be the most utilitarian decision.

"For a vehicle of this size, there's very little space"

The build quality of the plastics and rubbers used to decorate the interior look and feel expensive, and the seats themselves are extremely comfortable. At the end of a long car journey, you'd normally feel mentally and physically fatigued, but the 70 makes you feel otherwise.

If anything, the sophisticated feel of the interior makes you want to climb inside and drive even more, for no reason whatsoever. It's just a very nice place to be, especially with the Nappa Leather seat option selected, which makes the interior look equally as striking as it is tranquil and cossetting.

Along the centre console, you'll also find a host of creature comforts like buttons to activate the heated seats and steering wheel, set the climate control, and even a flat charging surface for your smartphone. The whole cabin feels simple, yet contemporary, and doesn't have an overload of dispensable features that some new saloons suffer from.

The rear legroom, however, is poor. For a vehicle of this size, there's very little space in any corner of the car for someone over six foot to comfortably manoeuvre. You'd expect that enesis have made this compromise in order to gain proportions elsewhere in the 70, and you'd be right: the deep depths of the boot are more than sufficient for huge travel loads, boasting a capacity of 10 litres.

If anything, the boot is too big. You can't help but feel that the 70 would've been better if enesis had sacrificed some more boot space for rear legroom, which is something that your passengers will remind you of on more than one occasion.

Alas, we arrive at the biggest problem with the enesis 70, which is its price. A base model saloon costs £24,400, but by the time you have any options on it, you're looking to pay north of £40,000. However, our test car, with practically every option selected, cost £44,900 when new in 2021. A top of the range MW Series 0d xDrive, with all the sporty stuff bolted on, will cost a similar amount. It has considerably more power, more space, more gadgets, and of course, has a badge that represents stern dependability in this country – something that enesis will still take a while to achieve.

It's difficult to justify the price tag of the 70, especially when enesis are trying to forge their reputation in a new market. But one thing does become apparent within the first few hours you spend in a 70: enesis have made a quite brilliant vehicle.

It has a certain presence and a swagger about it, and because it's still a relatively rare car in Britain, people give it an incredible

amount of attention. It's worth noting that the facelifted 70 was designed by Luc Donckerwolke, who previously worked for Bentley, which also explains why an overwhelming number of people asked me if it was indeed a Bentley.

So, at the end of this review, we arrive at a crossroad: the 70 is a fantastic vehicle, with a few glaring holes in it that are definitely dilated by its price tag. It represents a confident approach from enesis, who are building an impressive group of backroom staff in their ranks to solidify an already-glowing reputation in North America and Asia.

You could have a 2-Series or a C-Class for an equivalent sum of money, or even cheaper, it's true. It's a gamble, and is tailored for the type of person who prefers to mingle in a lounge for the quirky and the unique, and not the masses. But that's exactly why we adore the 70, and why you probably will too. enesis is here, and it's here to stay.

enis 2. T Sport Line

Price (as tested); £46,330

Performance (claimed): 0-62mph in 6.1secs, 149mph

Drivetrain: 1998cc turbocharged inline-4, 241bhp, 260lb/ft, RWD

Kerb weight: 1675kg

Efficiency (claimed): 35.4mpg, 181g/km CO2

ON SITE: The 70 tackles typical Welsh weather interior majors on comfort but lacks space

ELLOW: enesis hopes distinctive looks from ex-Bentley and Lambo stylist Luc Donckerwolke will be a selling point our man Shafiq settles in for the long haul





reen with en y

Sales of the retrofuturistic little Honda e don't seem to square with the public's enthusiasm for it – could it be just too compromised to be a real success

By Mike Bartholomew

Photos by Mike Bartholomew and Shafiq Abidin



What's green, very expensive and probably more popular with Londoners than anyone else in the country? Well, the Cotswolds for one thing, and for another, the Honda e. Near with me, there is a train of thought here – you see, out here in these genteel, bucolic hills and tourist-trap villages, this little electric runabout, aimed at wealthy, image-conscious urbanites, makes a lot more sense than you might expect.

The production e has been with us for almost two years now, and since it debuted in 2017 as the Urban EV Concept, Honda's statement of intent for its EV future has had the public absolutely hooked. And yet, since going on sale, most of us can probably count on both hands the number we've seen out in the wild.

This may have something to do with the fact that, in 2022, the e starts at a not-insignificant £4,150, and rises to an eye-watering £8,150 for the Advance model tested here.

Not only that, but both models have a WLTC Combined range of just 177 miles, dropping to 111 for the Advance fitted with the optional, but no-cost, 17-inch wheels.

For comparison, a top-of-the-range electric Fiat 500 Lancia, a car that fills the same niche of fashionably retro, guilt- and emissions-free urban transport, starts at just under £10,000, and boasts a claimed 199-mile range. The price of the e Advance is approaching that of second-hand Tesla Model 3s, an EV that could feasibly be all the car you'd ever need. Clearly, the figures make the e a difficult sell.

This doesn't seem to have dampened the public's enthusiasm for the car one bit, however. Those who don't know what it is stare intently as you whizz silently by, grappling with the fact that this motor show stand escapee is wearing a badge they're used to seeing on the noses of Civics and CR-Vs. Those who do know are completely enamoured and eager to play with the car and all of its whimsical, novel features – it gives you a sense of what it might be like driving around in a giant, luminous green Labrador puppy.

None of this, however, answers the question of whether such an

expensive and inherently compromised car can work outside of the marketing team's fantasy world. Should you be one of the select few whose travel takes place almost entirely in a city but still has access to off-street parking for overnight charging and nearly £40,000, or £500 a month, to spend on a car, then the simple answer is yes.

As a city car, the e is second to none. The outrageous turning circle afforded by its short wheelbase and rear-wheel-drive layout all but eliminates the need for three-point turns and puts London taxi drivers to shame. The aggressive regenerative braking allows you to cruise around using just the accelerator pedal all day, with each lift off giving the battery a small but vital boost.

The tall, glassy cabin and lack of wing mirrors give you the confidence to thread the car through narrow gaps and down tight backstreets that would flummox larger cars.

Then there's the fact that small EVs just make so much sense in cities – distances covered are smaller so range is less of a concern, the stop-start nature of traffic plays to the strength of the regenerative braking and, with many cities planning to crack down on or completely ban combustion engine vehicles, you can waft

penalty-free into city centres without the misery of boarding a crowded bus or underground train.

So why take the e out to the sticks, where amenities are fewer and farther between and Range Rovers and tractors rule the roads? Well, there's a certain case to be made for cars like this out here. In the Cotswolds, where the average house price is beginning to touch half a million, there are lots of people for whom a second car is a perfectly attainable prospect. These wealthy, image-conscious people could cruise into town on a silent wave of social responsibility on their way to pick up an artisan sourdough bloomer and bottle of organic prosecco.

There are more people in places like this with access to a driveway where they can install a home charging point than in, say, Mayfair, removing a significant barrier to stress-free EV ownership.

“As a city car the e is second to none”

And that point about the e's incredible manoeuvrability being a boon in city centres? It works just as well in the narrow, hemmed in streets of the villages dotted about in this part of the world.

Should you be driving to the next village along and find yourself coming over all Sparco-shoes-and-driving-gloves when a stretch of clear, twisty road presents itself, the e is even game for a bit of fun. The steering isn't exactly dripping with feedback and texture – if you were expecting Lotus-like feel from an electric city car, you may want to rethink your priorities – but it is more progressively weighted than a lot of bigger cars.

The e is keen on turn in, and a stab of the accelerator out of a particularly tight corner can even elicit a small amount of mobility from the rear end before the ESC steps in to stop anything from getting too silly. It clings on resolutely through corners until the rollopolys chassis and skinny Yokohama eco tyres reach their limit and it ploughs into predictable, safe understeer.

Power is reasonable at 152bhp, but torque is a not-insignificant 21lb ft, all of it available instantly, which allows the e to squirt rapidly between corners at the expense of a range that suddenly starts dropping faster than Tesla's stock value every time Elon Musk tweets. There's even a fairly redundant sport mode, which seems to do little besides artificially sharpening up how quickly the motor responds to pedal inputs – it's best left alone.

City or country, charging the e is a simple task. It uses a CCS charging port which allows it to utilise most rapid chargers, with which you can reliably bank on a 20-80 charge in around half an hour. One night, I found myself charging using a domestic three-pin plug for around seven hours, which provided around half a charge – this squares fairly well with the 11 hours Honda reckons for a full charge using this method.

Inside, the e feels like very little else on the market. The choice of fabric seats in even the most expensive model is bold, but the material is of a high quality, and it fits well with the interior's overall pared back, minimalist vibe. The cabin-wide bank of screens looks intimidating but is ultimately user friendly and highly configurable, if somewhat laggy in its response. The inboard cameras that replace the wingmirrors are far easier to adjust to than some have feared, but the option of a digital rear-view mirror, accessible by flicking the switch that would dim it in most cars, is best ignored, as it's hopelessly low-res and easily obscured by grime.

Oldly going against industry trends, especially in the EV market, Honda have mercifully elected to fit a bank of actual, physical

buttons beneath the screens to control functions such as screen demisters (very useful, as the e has a bad habit of quickly fogging up) and seat heaters (which anyone around six feet or over will often find themselves accidentally knocking on with their knees).

Of course, it wouldn't be an EV without a few gimmicks – one of the most asked-about features by anyone who saw the car was the aquarium app, which fills the entire bank of screens with virtual tropical fish (thankfully, only when the car is stationary). There's also an onboard HDMI port and three-pin plug, theoretically allowing you to turn the e into a mobile esports studio.

The usual caveats of city car ownership, electric or not, apply – legroom and boot space are both limited, the latter more so in the e as the batteries sit directly beneath the boot floor. Both are perfectly acceptable, though, for short runs or shopping trips.

The e is a flawed, but still extremely likeable car. It's the sort of car lots of people want, but few appear willing to actually take the plunge on, a phenomenon I call Alfa Romeo Syndrome. For those that can justify the astronomical price for a car of this size, and can live with the severely limited range, it's in a

class of one, a more distinctive, premium, and charming proposition than its biggest rivals. For everyone else wanting to make the switch or pick up an electric runabout, that price-to-range ratio makes it difficult to recommend.

In the right circumstances, though, it can at least handle itself outside of the city – Honda made their intentions pretty clear when they debuted it as the Urban EV concept, but Honda Rural EV has a decent ring to it too.

"The e is game for a bit of fun"

Honda e d'ance "alloys
rice as tested

performance claimed 21mph in . secs mph
Dri etrain kW single motor 21bhp 21lb ft WD
erb weight 2 kg
ange claimed miles

OSITE: Compact size is ideal for narrow village streets

ELOW, CLOC WISE FROM LEFT: Interior with door-to-door screens and rear-view cameras sets the e apart from rivals cyberpunk styling captures attention the e proves surprisingly good fun on a spirited drive





i as to orsches CarThrottle's le ersten on how to be a motoring ournalist

By ash Singh

Hey you es, you ou, who's likely a motoring enthusiast and enjoy motoring media. ou've probably also wondered how your favourite automotive journalists and presenters landed their shot in the limelight.

In order to answer all of your potential questions about the job, amongst many others, we sat down with CarThrottle's Alex ersten. As the face of one of the most popular automotive ouTube channels around, he's likely to know a thing or two about the industry.

Where did your lo e of cars stem from

I grew up here in Ealing with my mum and she's always liked cars. I remember being a kid driving around in her old clapped out E21 MW with rust holes in the footwells and for whatever reason I used to really love cars and would point out cars and tell what a car was from its taillights and she'd tell me if I was right or wrong. My love for cars has just always been there and I've never been into football. I find you're either into cars or football and rarely both. I've always enjoyed being around cars and car people, who've I've always felt were my kinda family.

How and when did you decide to do this for a li ing

When I finished my undergraduate degree from Exeter after four years, I didn't know what to do and my friends and I were all

working at Dominos izza. We all used to drive our own cars, we had some awesome cars like my MW E 28i Sport, a M 2 MR2 Turbo, an M -5 Turbo etc. After about a year and a half of working at Dominos someone asked me 'when are you actually going to do something proper with your life?' as they knew how passionate I was about cars so I contacted the local newspaper, the *Exeter Echo*, to see if I could I get some work experience. I knew they had a motoring section so I spoke to the editor and told him 'Look I'm young, I can write a little bit and I love cars, can I do some writing for the column?' so I did that for a couple of weeks and then he told me about the automotive journalism master's course in Coventry. So, I applied, got in and the rest, as they say, is history

What was your first serious journalistic job after doing the course?

When you're doing the course at Coventry, there's about a month where you do work experience and the easy way is to just do *Autocar* for that month but I'm not an *Autocar* reader even though I

A OVE: Alex gets to grips with the Skoda Enyaq

O OSITE A E: osing with hil the M -5

Images: Skoda, Alex ersten

did end up working there for a couple of years after that. However, for the work experience period, I decided to do one week at *Autocar*, one week at *performance MW*, one week at *Total MW* and one week at *ractical performance Car*. I actually got offered a job at all of them after the work experience period was done but obviously *Autocar* was huge and the then-editor, Chas Hallett phoned me up and said 'Hey, we like what you do, do you want a job?' and I had the phone in my hand and thought to myself 'Oof, not really, I don't really want to work for *Autocar* but I probably should' so I accepted the job. I spent about two years learning what it really meant to be a traditional motoring journalist and I'll be honest I didn't like it.

How did you get started at CarThrottle and what were your responsibilities

I had met Adnan Ebrahim, who is the founder of CarThrottle, who told me about this website no-one had ever heard of and after talking for a while he offered me the job of editor and since I was bored at *Autocar*, I handed in my notice and joined him. At the time, my focus was purely on the website, organizing and writing content, getting new writers on board, chatting and meeting important people who would give out cars to journalists and showing them the numbers. As well as day to day running of the website and making sure everything was running smoothly. I spent the first three to four years working seven days a week for CarThrottle. I would go to the office, work, come home, work. It was relentless. I was in my mid to late twenties with a girlfriend at home that I didn't really care about much so I could afford to put my career first.

you seem to know a lot about the internal workings of cars and you love working on cars. As an automotive journalist those skills must be invaluable where did you learn that

When I was doing my undergraduate in Exeter, I had a friend called Gareth who I've now known for almost 15-20 years and he's always been very mechanically minded. We had a big alleyway where I used to live and he used to always drive his car down there and we'd mess about and change tyres, wheels, brakes and suspension parts. I just sort of learned by doing, you're bound to mess things up but it's about the learning process and you'll know what to never do again. Watching people like ChrisFix on YouTube also helped, but mainly Gareth who was incredibly patient.

What would you recommend to people who want to understand how to work on cars but don't have the courage to try their hand at an actual car

I would recommend starting off as small as possible, just buy a basic petrol lawnmower and start taking it apart and understand how to put a cylinder head together and taking out a sparkplug. Working on a car immediately can be quite daunting. Even if you know the theory of how a car works, your hands just aren't accustomed to those types of movements, it can feel quite alien and if you mess something up you can lose a lot of confidence. With a lawnmower, if it works, it works and if not, you can

always just throw it away and you won't lose much.

you seem to be the best driver of the three main presenters is that something you learned on your own or were you trained

Without blowing smoke up my own arse, I feel like I've always been a competent driver. I've never had a crash that was my own fault and when you enjoy something you want to push your boundaries and limits and expand your own knowledge, so to learn the essentials of car control I'd recommend starting off basic in a lightweight front wheel drive car, not rear wheel drive as that could go very wrong, very fast.

Putting yourself out there on the internet in the way you have can open the floodgates for a lot of hate comments and imposter syndrome, how do you deal with that

Well, I've never really cared what people think about me, I genuinely don't especially when it comes to things I love doing. I get to do what I love every day and I get to be myself every day. One of the

most common comments you'd see was 'Oh he's just trying to be like Clarkson' when I'm not really anything like him. I'm just loud. But I've always backed myself, I've never tried to copy anyone's style and I'm comfortable with that.

you make road tests look very easy but in actual practice driving fast presenting and sounding smart is extremely difficult. Do you have any tips

for improving your confidence while presenting?

I've tried scripting and non-scripting. With scripting, yes you can remember the lines and spout them out but when you look back at the footage, it does look and sound extremely scripted. It doesn't sound like you, you sound like everyone else. Just make notes on your phone or whatever and pretend you're chatting to your mate while talking to the camera. I think people watch these videos, not just for the car but also for us and our personality. Just try not to regurgitate lines and think of original angles when talking about the car. One more thing I will add is to just practice, practice, practice, you don't have to use any of the footage. My biggest advice would be to not script and just be yourself.

Also, another thing, yes you can talk about how a car feels through the corners or whatever but one of the most important aspects of presenting a car review is talking about how that car actually makes you feel. Everyone can read off the spec sheet but it's about humanising the act of driving a bit more.

Alex has come a long way since his very humble beginnings working in Domino's, and even though he is now the proud owner

of a Porsche 944, a Vauxhall Astra G, and a Technoviolet Mini E4 Touring amongst countless other great cars, he insisted that he will never let his roots go. Alex didn't seem too keen on the constant flow of new super hypercars and reckons he'll always prefer tinkering with old rust boxes instead. Despite currently being one of the biggest motoring journalists on the planet, he was massively encouraging towards the new crop of aspiring journalists as he modestly claimed, "If I can do it, so can you"



audi's electric gamble

By **Wei un Hua** and **Less Bird**

Audi's first Dakar, amazingly using a range extender hybrid: the ultimate challenge for an electric drivetrain

Rolling sands, harsh climates, rugged roads, Audi's racing vehicles had to traverse tens of thousands of kilometres across the vast desert in the Dakar Rally.

Audi has competed in many automotive events throughout its history. After winning the 24 Heures du Mans with its electric drive system, Audi set its sights on the 2022 Dakar Rally. This year also marked Audi's first appearance in this Dakar competition, amazingly using an EV, Audi RS e-tron.

Around 80 support staff from Audi and Motorsport teams were stationed in Saudi Arabia for two weeks to guarantee the smooth running of these EVs and drivers in this event. All three Audi RS e-tron cars finished the 2022 Dakar Rally with impressive performances.

Audi described this Dakar trip as an "exciting high-tech test laboratory". "For those who compete, it's a challenge for those who don't, it's a dream," Said Helge Sabin, founder of the Dakar Rally, in 1977. Dakar Rally, the game of the brave, is the toughest rally in the world. Audi must overcome complex terrain and harsh climates, such as soft sand that causes big driving resistance and high external temperatures.

Audi announced the idea of an electrically driven SUV conquering the Dakar in 2021 with few supporters, and many people thought they were crazy. Less than a year after the presented concept, Audi started testing the new RS e-tron and took it to the Dakar Rally in January 2022.

The RS e-tron is the most sophisticated racing car in Audi's history and is a collection of Audi racing technology. As its name suggests, the RS e-tron is an extended-range electric vehicle combining the high performance of the RS, the off-road capability of the G-Tron, and the electric drive of the e-tron.

EV technology has developed at an exceptional rate over the last decade or so, but the range still isn't there for a car to complete an event like the Dakar using solely electric power.

As a result, the Audi RS e-tron has an extended hybrid powertrain. The electric part of the car is equipped with a total of three electric motors. Two of the motors drive the front and rear axles. The two motors working together can produce a maximum of 500kW (716hp).

MAIN IMAGE: RS e-tron is the maiden attempt at the Dakar with a hybrid powertrain

Image: Audi Communications Motorsport

DAKAR



The third motor works with a 2.0 TFSI engine to charge the battery, including recovering braking energy, to ensure the vehicle can travel hundreds of kilometres every day. The power cell section weighs 70kg and has a total capacity of 50kWh. The three electric motors were all from the Audi e-tron Formula E car for the 2021 season. This Formula E race technology gives the motors an excellent thermal performance for a consistently high-power output. The range extender of the Audi RS e-tron comes from the racing-grade 2.0-litre TFSI fuel engine used by Audi in the DTM German Touring Car race. It operates most efficiently in the range between 4,500 and 5,000 rpm so that unit consumption is well below 200g/kWh. Acceleration from 0 to 100 km/h (2 mph) is completed in less than 4.5 seconds.

The Audi RS e-tron has a single-stage gearbox and two completely independent electric drive systems for the front and rear axles to form a full-time electric four-wheel drive, achieving a faster response than a four-wheel mechanical movement. And it

“The outcome exceeded Audi’s expectations for their rally debut”

has a virtual central differential, which can freely and intelligently distribute the output of the front and rear motors. It helps eliminate structures such as drive shafts and differentials, and software taking over the task of distributing axle torque saves the vehicle weight and space required for drive shafts and mechanical differentials. This results in a very lightweight vehicle.

The drivers of Audi RS e-tron in the 2022 Dakar Rally were Stéphane Peterhansel (a six-time motorcycle winner and eight-time car winner at Dakar), Carlos Sainz Senior (two-time World Rally Champion and three-time Dakar winner) and Matthias Ekström (double DTM winner and 2011 World Rally Champion).

The Dakar Rally concluded with the final stage of the competition on 14 January 2022. Toyota’s South African driver Henk Lategan won in the car category, with Audi’s Peterhansel second and South African driver Brian Deegan third. In terms of overall results, Nasser Al-Attiyah won the race, Sébastien Loeb was second, and Ghaith Al-Rajhi of Saudi Arabia took third place.

In the rally, the Audi team won four stages and accumulated 14 stage podium finishes. This outcome exceeded Audi’s expectations for their rally debut with an electric drive vehicle.

In this Dakar Rally, Audi has demonstrated that swift, powerful and precise power output of the electric drive system will have a more apparent competitive advantage when used in a racing car, making a significant contribution to Dakar’s energy transition.

In 2021, the Dakar Rally organisers announced the launch of a far-reaching energy transition programme called Dakar Future. Tasked with researching ways for the travelling camp and the vehicles competing in the rally to be powered with renewable fuels, it is expected that by 2030, all categories will feature low-emission prototypes.

Perhaps some people will express their disappointment. How can Audi, as a traditional powerhouse with such a strong history of winning ways in motorsport, be satisfied with the result of this year’s Dakar Rally race? But Audi has made significant contributions to new energy transformation projects, and have made history by becoming the first large car manufacturer to compete with an electric vehicle at Dakar.

Hats off to them.



Above: tackling the Saudi desert’s fearsome sand dunes a jubilant Audi team welcomes the history-making RS e-tron at the rally finish in Medinah

Below: the sci-fi profile of the RS e-tron is a stark contrast to the time-ravaged landscape of the Empty Quarter the team receives the e-tron back at base at day’s end

Images: Audi Communications Motorsport



o ing cruising

ust how different can two 4 4s that set
out to do the same ob actually be

Words and photos by Theo ergiou



I am obsessed with 4x4s. At the age of 2 and with the means to barely maintain one, I have two. And no, they are not a couple of Suzukis that are cheap to run and repair. These are big diesel chuggers from the 1990s, specifically, a Land Rover Discovery 1 and a Toyota Land Cruiser Prado 90.

How do the two compare? I do not know how two 4x4s focusing on such similar buying groups could be so different.

We should start with a quick overview of the two vehicles.

My Land Rover Discovery 1 was made in 1994 in Solihull, England and is equipped with the 2.5-litre turbodiesel 00TDI engine dubbed by me as the lung killer. Stand behind that thing for a minute and you get the lungs of an 80-year-old smoker.

Equipped with a manual transmission, a 2.5-inch suspension lift, F oodrich all-terrain tyres, a two-speed transfer box with a lockable centre differential, and coil sprung solid axles, there are few places this thing can't go.

I haven't owned this vehicle for long, but it's quickly wormed its way into my affections.

The Land Cruiser rolled out the apanese factory in 1998 and comes equipped with the .0-litre 1 turbodiesel engine. Surprisingly, this one runs much cleaner than the one in the Land Rover. Maybe that's because it wasn't built in the West Midlands – that would explain.

The rado features a solid rear axle with independent front suspension (IFS), low range with a lockable centre diff and rear diff, and stock height suspension. In my ownership for nearly six years, the running gear has been dead reliable. However, the suspension has been costly to maintain.

To many, buying an old Land Rover while owning a Land Cruiser is utter madness. However, there is reasoning behind my

questionable choices, and it comes down to the differences in the suspension of these two cars.

In the case of IFS, the two front wheels work independently of each other. Therefore, if one goes up the other is not forced to come down. This system provides great on-road manners. However, it is limiting off-road because it is not as robust and does not give as much suspension travel as a solid axle.

Suspension travel is the most important factor in an off roader as it helps keep all the wheels on the ground over rough terrain, which provides more grip and can prevent a rollover. Vehicles with IFS tend to lift wheels when the going gets difficult. Wheels in the air provide no grip therefore, in that specific moment they are useless.

A solid front axle is, as the name suggests, a solid beam with all the axle components inside it. The shocks and coils mount on each end. As the wheels are connected to one another, when one moves in a certain direction the other moves in the opposite. This leads to worse handling manners and ride quality than those of IFS vehicles.

However, this suspension setup is more robust than IFS. Furthermore, it provides a lot more suspension travel

which as mentioned above helps keep all the wheels on the ground. Exactly what off-roaders want.

Now that all of that is out the way, the reason I have bought the Land Rover is obvious – it has a solid front axle.

So, how do these vehicles compare? Well, this is where two trucks that on paper fulfil very similar briefs are, in the real world, completely different.

On-road, the Land Cruiser is quieter, more powerful, and cruises better on the motorway. It also rides slightly better but with the upgraded suspension the Land Rover may be superior.

**“E en going to the
supermarket in the Disco ery
makes you feel like you're
on a safari”**



When getting into the Land Cruiser after driving the Land Rover for a couple of days you get the feeling that you're driving a car and not a truck. The clutch and steering are light, and the gears engage without issues.

You can also tell that the Land Cruiser was built by skilled craftsmen as the bonding methods of the steel and general design of the car follow the principles of most cars you see on the road. Whereas in the Land Rover, you can tell it was made by a couple of blokes in Solihull. But in this way - in an accident, you would want to be in the Land Cruiser.

However, the most impressive thing of all is that the Land Rover has managed to develop a fist-sized rust hole in the driver's floor while spending all its life in Cyprus.

On this dry, balmy Mediterranean island, rust is something no one has ever heard of. That's a problem because no one really knows how to fix it either. I guess that's a design feature. When the thing breaks down just use your feet to propel it forwards like the Flintstones did.

As of now, my comments regarding the Land Rover are not the best. However, the above are things we all expect when buying an old Land Rover. To be honest, these issues do not bother me one bit.

I actually like its imperfections. In fact, I have fallen in love with the thing. The way you sit in it is unlike any other 4x4 I have ever driven. Furthermore, the laid back, never-in-a-rush approach means all the mechanicals make you enjoy the journey rather than rush to your destination.

All that while sitting in one of the most recognizable cabins ever made. Turn your head to the rear and you are greeted with a massive space full of windows and rear stadium seating. As a kid, I

am pretty sure there is no other car I'd rather be sitting in the back seat of. Even going to the supermarket in the Discovery makes you feel like you're going on a safari.

However, the place this car comes alive is off-road. As soon as you hit the hard stuff everything seems to work together so nicely. The axles are so plush they follow the terrain perfectly providing you with the grip to climb any obstacle in your way. The low-range transmission has the lowest gearing I have ever experienced out of any 4x4, and the high driving position provides a great view of potential issues on the road ahead.

The Land Cruiser may be better on-road, but when it comes to off-roading the Discovery has the upper hand. Of course, there are older Land Cruisers that have solid axles and even diff locks on the front and rear which will be just as good, and in some cases, even better than the Discovery.

However, for now all you should know is that the Land Cruiser pleases the mind. The way it is engineered is unbeatable. However, the Discovery pleases the soul. It pleases the soul because every drive in it is special. Partly because it started and it is actually driving, and also because it is a vehicle full of character – an invaluable ingredient missing from almost all modern-day cars.

On-site A E: Disco's off-road ability is matched by very few, and the diverse climate of Cyprus provides the perfect playground for it

This A E: Land Cruiser is better built, more refined on the road but lacks the Land Rover's character and ability on the rough stuff

**“The Land Cruiser is
quietly more powerful and
cruises better on the
motorway”**



From Wolfsburg to North Carolina

Abandoned Volkswagen Beetle gets a new lease of life

By Andrew Owens Photos by Corey Biggs and Bill Biggs

Once a critic of the Beetle, Corey Biggs has turned an abandoned '71 VW bug into a work of rat rod art.

Corey was just 17 and in high school when he acquired a red 1971 Volkswagen Beetle for \$900 from a hippie in Charlotte in his home state of North Carolina.

Today, it is a fine example of a VW bug rat rod that has been restored and upgraded inside out with more work still to be done. It is a far cry from the condition he originally found it in 2014.

Corey was having a regular day in high school when his dad David texted him saying he found a deal for a VW Beetle on Facebook Marketplace and it was about an hour and 20 minutes away.

"When I arrived there, the car was in, let's just say very poor shape. All four brakes were locked up on it and we had to literally drag it on the trailer with a winch. The motor was taken apart. There were rock chips all down the side of it."

"It was beside of a lean-to shed which is just like a roofed shed with no walls. It was out there in the rain, in the weather with no cover over it."

"It was a good deal. Yeah it was taken apart into a million pieces, yeah it was going to have some problems but I was 17 at the time

and it was a good starter project for me." In fact, it was Corey's daily driver for two years.

Today, Corey's family own a plethora of VWs. Corey owns three Beetles, two '80s and the '71. His parents own two Beetles, two Volkswagen Passats and a VW Bus.

However, back in 2014, Corey's affair with the Volkswagen Beetle was not one of love but distaste.

"My dad had purchased my mom a '71 Beetle. She still has it to this day. But when we got riding in it at first, I hated it, I could not stand her car. I was like 'this car is

slow, this car is terrible, you have to grind up until you find gears.' I thought it was a piece of junk."

Things became to change, however. "The more I rode in it, the more I drove it, that's the car I learned how to drive a straight four-speed manual, I thought 'man, this car is kind of cool' and it got so much attention because it was pretty white. So, because of that, I said I have to have my own Beetle. This was my first car, period, and it didn't even run."

"When I arrived the car was in very poor shape"

ON SITE AT THE TIME OF THE PHOTOGRAPH: Enhanced with smooth steel wheels parked up with an old friend from Wolfsburg



His beetle was originally sold in California and then was eventually sold again to a person in Arizona where it sat for five years. It was reconditioned before moving on to Missouri. However, the car has a tragic and troubled history during its time there.

While it sat in Missouri, it was involved in a flood. "There was a dirt line across the bottom of the car, inside and outside, and the floor pans on both sides were completely eaten out of it. Where you put your right foot for the gas pedal right at your heel, there was a softball sized hole. The bottom of the motor was kind of eaten away by the water."

Once the restoration began, Corey discovered something that unsettled him. "We were cleaning it out and right behind the back seat there's a parcel tray. Underneath there, there was a wadded-up T-shirt and a pair of worn-out gloves and there was a Missouri State penitentiary visitation paper underneath it." This was a maximum-security prison two states away that ceased operation in 2004. "To this day right now there is a Missouri State inspection sticker on the front window of the car. I'll never take it off."

The bug's paintwork is a subject of debate for Corey. "There's a very weird thing about this car. If you look at some of the pictures of the frunk, you can see there's blotches of green in it, and blotches of brown in it underneath the red. This car has probably been painted 15 or 20 times."

"To this day I've seen red, white, orange, green, and blue in places all over this car."

The condition of the car gets more problematic. "If you look right behind the driver's side front fender, there's a massive crack. That's straight upondo, that's body filler."

Corey and his dad have done a lot to improve the bug. "All these fenders have been replaced. All the doors have been replaced. All the windows have been replaced." The little pop out windows are original '70 beetle windows.

The taped headlights that the bug has, including the one with the lazy eye, have become a good luck charm. "I did that 100 as a joke because you know, it's a race car obviously." The bug was unfortunately involved in a T-bone accident. "The headlight filament, the bulb itself on the inside was broken but the actual lens was not broken, and I swear it's because of that tape."

Corey upgraded the 1.6 litre stock magnesium block by using the largest interchangeable jugs and pistons. It was now a 1.41cc engine. With other upgrades, Corey had increased the power from 100 to 180hp. It puts out 75lb ft and weighs 200lb.

When Corey decided it was going to be a rat rod build, he sanded the paint off, accentuating the blemishes on the car. Following the damaged fender from the accident and staying true to the rat rod build, Corey made the driver's side front fender rust by rubbing it



down with Epsom salt and spraying it with hydrogen peroxide.

Originally in 2018, Corey had taken the car in a completely different direction in what he called the death metal build.

"I had a 10-inch subwoofer in the back with politically incorrect sayings all over the rear window. I had little push buttons on my seat belts." Corey's favourite push button was one that said, 'If I gave you a nice big straw, would you go and suck the fun out of someone else's day?' What remains of this build is a 'septum piercing' on the centre of the frunk given to him by his cousin as a joke. One Christmas, Corey and his friend got into the festive spirit by wrapping the frunk in candy cane wrapping paper. It had a stinger straight pipe installed on it too. "It had a stock cam in it, so it was loud and raspy. It sounded like garbage."

Back to the rat rod build. The camber on the rear wheels was created by lowering the stock transaxle. "The axles are connected to the transmission so when you lower it the transmission goes lower than the axles and it forces it to have camber."

"I got seven-inch wide smoothie wheels on the back which is all you can fit in a bug without modifying it in the back. It's as fat as you can go, and I still had to roll the lip of the fender."

"We've rolled my fenders the redneck way, and that is with a baseball bat and a shoe." When Corey was setting the jack back down, the fender sat on top of the tyre and quickly needed assistance. His dad placed the handle of a baseball bat inside the front of the wheel well. The fender lip was getting flattened as Corey drove forward slowly, but it wasn't enough. They still needed something to hit the fender without denting it. So, his dad, well-

versed in do-it-yourself car modification methods, asked for a shoe.

"I get back in the car and I'm pulling it forward and backwards and he's rolling this bat with his left hand and swinging and smacking this fender with the heel of my shoe as hard as he can and he's flattening this fender out and it worked." With the help of a two-inch narrowed beam, all the torsion was taken out of the bug. Ironically,

the bug also blew its motor once when coming back from a baseball game.

Corey installed two-and-a-half-inch drop spindles on it to move the wheels higher and fitted Gabriel-made replica shocks from a 4 Willys Jeep. He also took the bumpers off. The

interior charts the changes made to the beetle over its decades in production, with short back seats from the '50s - '40s beetle era and a steering wheel from a '40s - '50s model.

Corey loves to take the bug out to North Carolina's iconic scenic road, the Blue Ridge Parkway, as much as he can. "I'll take it right through the mountains, through the little tunnels and on the steep inclines and declines."

Corey also takes it to car shows. In fact, the bug came seventh out of 75 cars in 'VWs in the Valley' in 2019. In the future, Corey hopes to enter the bug into Slammedenuff in Gatlinburg, Tennessee. "I want to go to that show with my bug so bad."

To follow Corey's progress with the beetle, check out his Instagram, [bug a saurus rex](#)

ELOW, CLOC WISE FROM TO LEFT: The beetle in a sorrier state during the restoration process the outcome of years of hard work the tweaked air-cooled engine on display a festive enhancement



The Midland Group of Motoring Writers John Connor Prize

Presented to the student who produces the best
Coventry University Automotive Journalism Masters final project.
The prize is named in memory of John Connor, a long-standing
Midland Group of Motoring Writers member and official,
who died in 2014.

Winners of the John Connor Prize have gone on to automotive media
careers with *Evo*, *Autocar*, *Pistonheads*, *Road & Track*,
The Week, UKI Media, SEAT PR and more.



2013
Max Prince



2014
Sam Sheehan



2015
Jan Conesa Sagrera



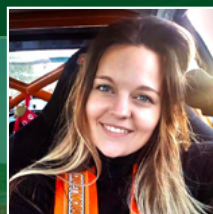
2016
Cameron Tait



2017
Illya Verpraet



2018
Khoi An Do



2019
Sophie Middleton



2020
Michael Lear



2021
Joe Pepper

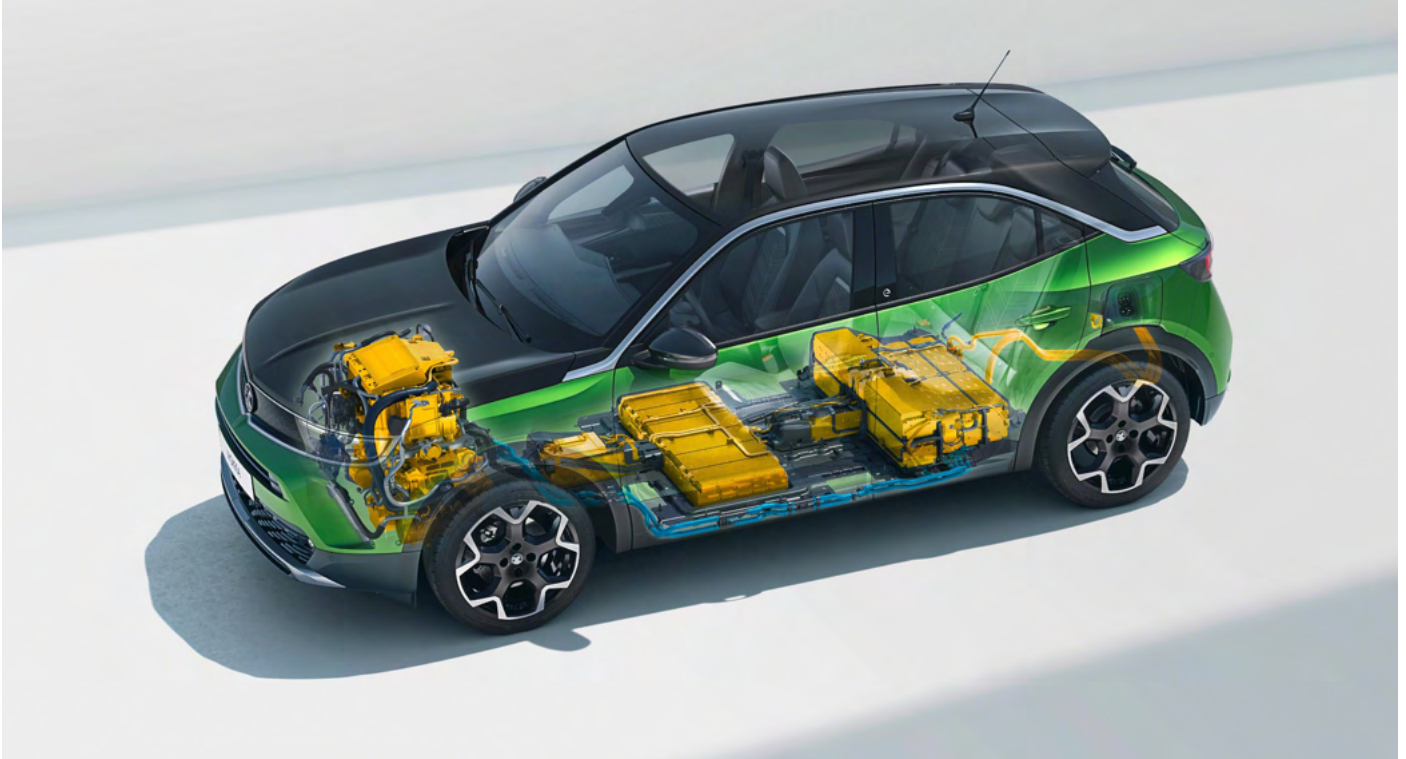
MGMW

www.mgmw.org.uk
@midlandmotoring

Electric vehicles naked

An in depth look at the opportunities and challenges presented by electric car development

By Maa apadia



Rip apart an electric vehicle and what you get is EV architecture. We have start-ups like Tesla and legacy car makers like Vauxhall, devising their own architectures. Some use internal combustion engine vehicle (ICEV) platforms and just throw in a set of batteries and motors, whilst some have disrupted the market with a ground-up approach.

Ranay Revankar is the founder and chief technology officer of Durchbruch, an EV start-up that will soon operate from California and collaborate with a leading British car maker for vehicle development. Since 2011 Revankar and co-founder Deepak Chandra, the chief of information technology, have worked on battery technology and in 2019, laid the foundations for an EV. Revankar says: "Design principles that currently underline automobiles are primarily mechanically driven, powered by internal combustion engines, energised by petroleum, controlled mechanically, and operated as stand-alone devices. They essentially have the same genetics. The automotive DNA for EVs is created through the marriage of electric drive and connected vehicle technologies. It is based purely on electric drive using electric motors for power and electronics for controls."

It's clear that EVs are most efficient when based on a purpose-designed platform. One of the first high-profile EVs, General Motors' 1991 EV1, broke the mould with an aerodynamic, lightweight composite body with a disruptive configuration. Lead-acid batteries sat within the spine of the car's chassis, thereby lowering the centre of gravity, and improving vehicle packaging.

Although the EV1 was disruptive, GM's ground-up architecture appears to be

simple. Revankar explains: "Essentially there are just batteries, wires, power and control electronics, and wheels. The complexity that remains might be encapsulated within a small zone of the vehicle. An integrated drive assembly is provided. It combines an electric motor, a battery pack or sheet comprised of supercapacitors or hybrid supercapacitors, or noncarbon, electrical double-layer supercapacitor, or graphene-based supercapacitors. The vehicle mainly comprises of an energy storage system and power electronic module (PEM)."

Revankar makes it sound simple however, the jargon may appear daunting. This is because we are more familiar with ICEVs, and many of the components were absent in ICEVs or very rarely used as a combination in hybrid vehicles. The reason for developing an EV ground-up is not just limited to the features and methods highlighted by Revankar. Driving range is crucial too.

"A skateboard architecture can accommodate a larger battery pack as firstly, the chassis provides a larger real estate and secondly it can be neatly packed flat into the entire floor," Chandra says. "This is not the case with an ICE vehicle's chassis due the limitation of space available on the platform. If you look at it from the customer's perspective, a skateboard architecture that has been developed from the ground up can provide extended driving range."

A large battery pack can persuade users however, long charging times might deter them. Therefore, the constant battle customers have before buying an EV is mostly due to range or charging anxiety. Chandra says: "Especially with our plan to use supercapacitors, it encourages us to use the skateboard frame, therefore emulating

"The argon may appear daunting"



LEFT: Hyundai's skateboard EV platform (images: Hyundai)



ON SITE: a cutaway view of Vauxhall's Mokka-e, a car developed from the ground up to carry both EV and ICE powertrains (image: Vauxhall)

fast charging times for our upcoming EV."

The possibility to add components like supercapacitors alongside a large battery pack, add to the modular capabilities of a skateboard architecture. The is becoming a norm for the EV industry. In 2011 it was Nissan that developed the Leaf, based on a bespoke and credible 'skateboard' architecture that most automakers mimic.

Purpose-built EV architecture can also open up new opportunities for car designers according to Aamer Mahmud, who has worked in senior design roles at Saab and Mercedes-Benz. "If you look at the evolution or the timeline of EVs up to now, the one that stands out for me is a BMW i, something that's really different, that actually has been designed from the ground up and that also confirms BMW is very advanced, a technologically focused company."

Designers can exploit the freedom inherent in a purpose-built EV, Mahmud says: "It's about the flexibility in the proportions, so how far apart or what's the wheelbase, how do you get in and out of it and if there are other components that you want to add that are needed and what's its purpose. If you have that flexibility, then it's very possible to read it and then it's like a clean sheet of paper that is available to the designers."

Using such platforms, there are more companies that have achieved breakthroughs in both exterior and interior design. Mahmud says: "I think Rivian probably have a modern design language in terms of the semantics of EVs and Tesla have made a huge leap in interior design, especially with the Model Y and the original sedan with the big screen in the middle. Everybody laughed and laughed and giggled and criticised and everybody is doing that now."

Rivian and Tesla have clearly got Mahmud's attention. It is worth noting that such designs are simple yet sophisticated. There must be something that makes designs tick. Mahmud says: "The challenge will always remain to create that iconic product and the designer's aims are always the same: to create a lot of character and those are the products that stand out."

So, there must be an attribute that validates for an outstanding design, Mahmud adds: "We can't explain it, but you somehow feel it, you recognise it, you react to it, there's no formula but it is that innate sense in ourselves that turns our heads and if you can do that then you've succeeded."

Although automotive designers create head-turning designs from a blank sheet and put in tireless hours for it, there might be some

challenges in their way. Mahmud says: "Legislation is something that designers always flag up as being very restrictive. That's why from a customer's point of view all the cars look the same. To an extent, I don't think it's wrong, but I think it's using this platform to develop new segments, that's the key thing. It's that breakaway that needs to happen I think and those are the freedoms. It's not completely happened, and I think it's something that will take time."

Let's hope for a future where laws could separately focus on EVs apart from ICE vehicles. That will bring in the development of newer body forms. In relation to legislation, there has recently been a focus with semi-autonomous vehicle technologies, where many automakers are offering systems like automatic braking and road-lane

assistance. In most countries, regulations for allowing such systems were passed as they appeared on ICE vehicles and designers worked around it. The bigger concern for designers might be full vehicle autonomy and the opportunities that lie ahead, as no countries yet allow the operation of fully autonomous vehicles.

Mahmud says: "The opportunities are definitely there. The technologies that are coming through from autonomy would be a promise. For so long it hasn't happened, but they have started to filter into that mix." From a designer's

perspective he adds: "That will give an additional freedom where you've got collision avoidance. Artificial intelligence and telematics will take responsibility from drivers and will be an aid in itself. It will create additional freedom for designers." We might see revolutionary designs unfold.

In a nutshell, ground up EVs offer far more flexibility and freedom. This is validated from not only an EV founders' perspective but also an experienced automotive designer. EVs are not just limited to architectures. There is design, connected technologies and vehicle autonomy that will encapsulate to complete a vehicle. An EV is always seen from the spectacle of a consumer, where driving range, performance and charging times are priorities when buying one. However, what lies beneath is seldom openly discussed and is limited to automakers and the industry. Therefore, the EV had to be ripped apart and looked at in its very naked state.

ABOVE: Car designer Aamer Mahmud considers 2015's BMW i one of the first EVs to flaunt a design that challenged the decades-old norms established by ICE vehicles (image: BMW)



Believe the hype

Why Porsche's most basic might just be its best

The roads are slick, and the weather conditions are less than desirable on this windy February morning. The winter sun is ricocheting off the cold tarmac blinding both passenger and driver. However, these conditions are no match for the exceptionally capable Porsche 911 Carrera.

The deification of the 911 by the motoring press is basically *de rigueur* at this point. For almost 60 years, Porsche has stubbornly maintained and refined the backwards-looking rear-engined layout that should really have been binned once the 5 ended production. They've developed it to the point where the 911 stands as one of the pillars of the automotive landscape - picturing a car industry without it is like trying to imagine the Louvre gallery without the *Mona Lisa*.

The barrages of awards and fervently positive reviews that accompany every new variant have reached the stage where keyboard warriors throw around accusations of bribes and cheating at every end-of-year performance car test that the 911 dominates. And it does raise a question - especially in basic, entry-level Carrera form, is the 911 really the complete sports car package that it's made out to be?

Fundamentally, yes. The 911 is exactly what you have read and

heard. The ultimate sports car package award may very well be held by Porsche. It's exactly as exciting and involving as you would imagine. The steering is direct, and the engine is full of character. You find yourself gaining speed with such ease you arrive at corners with so much more momentum than you would normally expect. This is no problem though, as the 911 simply points and turns. No -road was too challenging, and I found myself constantly pulling the left paddle to hear that twin-turbo flat-six purr.





Words and photography by **adam Hunt**

The 911 is every bit as thrilling and fulfilling as you're led to believe. The harder you push, the more it comes alive, eating up the harsh road conditions and gliding through the countryside like a bird of prey on a hunt. The 911 fills every nerve and muscle in your body with sheer driving pleasure. This truly was the ultimate driver's sports car. The low seats and fully adjustable driving position allows the driver to really become one with the car.

Driving the 911 Carrera does make you wonder what the benefits

of a more powerful model like Turbo or a TS are. Sure, you get added extras, more powerful engines, and more kit to play with. But is all that necessary? Does all that take away from the raw driving experience the Carrera so brilliantly delivers? I would argue less is more for the Carrera. The simplicity of the power delivery never gets old and the entire car can be utilised even by the most abrasive driver. It is such a competent package as standard, it makes you wonder if less, in this case, really is more.

Porsche Carrera

Price as tested

Performance claimed 0-100 in 4.2secs 124mph

Drivetrain: 2981cc twin-turbo flat-6, 380bhp, 331lb/ft, RWD, 8-speed DCT

curb weight 1550kg

Efficiency (claimed): 27.4mpg, 233g/km CO2



MAIN IMAGE AND OPPOSITE PAGE: Carrera may be the basic 911, but it's still supremely capable and luxurious

LEFT: thoughtfully laid out and high-quality interior puts a modern twist on the 911's traditional five dials

BUYER'S GUIDES

Seat Arosa

Buying advice for second hand enthusiast cars from people who did it themselves

The Seat Arosa city car was unveiled at the 1997 Geneva Motor Show to replace the ageing Marbella, a rebadged Fiat Panda built in conjunction with parent company Volkswagen, it was a way to test the platform and mechanicals of the upcoming Lupo, whose styling was very similar to the Arosa.

Introduced as a competitor to cars such as the Fiat Cinquecento, Ford Ka, and Daihatsu Cuore, it was available with various engines: 1.4-litre or 1.4-litre four-cylinder petrols, and 1.4-litre and 1.7-litre diesel engines.

On sale until 2005, with a facelift in 2001, it was outsold 25 to one by the Ka in the UK, despite being a better-quality car than the Ford. It was let down by comparatively high new prices, a lack of interior space and a dealer network that was small and scattered. Poor perception and knowledge of the Seat brand at the time meant few people knew about the Arosa, and today it's a rare car, with around 1000 licenced on UK roads. Now is the time to snap up an example of one of these dependable, characterful city cars.

MECHANICALS

The engines are usually reliable and can easily cover 200,000 miles.

The 1.0-litre petrol is the most common UK engine. It's the easiest to use in urban environments and is only slightly less powerful than the higher taxed and less economical 1.4-litre. It is surprisingly capable on longer journeys as well.

The 1.4-litre turbo diesel can do over 50mpg and costs £0 a year to tax. Due to high initial purchase costs, these are rare and desirable and are among the most expensive Arosa models you can buy today. The earlier 1.7-litre diesel is as economical but is much slower.

Despite being the sportiest version, the 1.4-litre 16V version isn't particularly fast but is still fun to drive as the car is so light.

Cars with automatic gearboxes cost £275 a year to tax and are only slightly faster than the 1.0-litre petrol despite having the 1.4-litre engine. Many will have experienced heavy city driving conditions.

Cambelt and water pump changes, along with a comprehensive service history and work on the clutch, are signs of a well looked after Arosa.

ELECTRICALS

Very few electrical components exist in most cars, with headlight buzzer failures being a common problem.

Most examples have remote locking, making these the easiest examples for most people to use.

Electric wing mirrors were rarely

specified, making these cars highly desirable.

If originality is important, try to find examples with original Seat CD cassette players as most examples have aftermarket CD players or radios.

INTERIOR

Most UK Arosa buyers ordered their cars in S specification with electric windows, electric central locking, and alloy wheels. These versions do not command a premium over base models.

The Comfort package was also popular, which came with improved seat height adjustment, stronger rear seat access switches and stronger seat supports.

If safety is a concern, seek examples with passenger airbags - many original buyers specified only a driver's airbag.

Rear legroom isn't great, unsurprisingly given the car's urban runabout remit, but moving the front seats as far forward as possible improves this considerably and makes sitting in the back more comfortable.

EXTERIOR

Rust around the wheel arches is a common problem with these cars, so seek examples that have been stored in either garages or under a car cover.

Many learner drivers as well as older and urban drivers bought these cars, so check for scrapes on the wheel trims, bumpers, and prangs on the large doors.

Options such as additional trim, mudflaps and separate front headlights were rarely



chosen by UK buyers and are worth paying extra for if you can find a car that was specified with them.

WHAT TO

Up to 1000 will buy you high mileage examples of common petrol, manual S specification that are likely to have had several owners.

1000 - 2500 will buy you lower mileage manual and automatic examples of S specification with some high mileage diesel and base model examples available.

2500 - 5000 will buy you very low mileage, one owner examples of all specifications available including the 16V Sport and diesels. These cars are most likely in nearly new condition.

EXTRACT affordable, reliable, no-frills fun that adds a touch of Mediterranean flair to Volkswagen's sturdy Lupo.

DINOBUST

SPECIFICATIONS

Drivetrain: 999cc inline-4, 49bhp, 1100lb ft, FWD, 5-speed manual

Performance (claimed): 0-62mph in 17.4secs, 94mph

Efficiency (claimed): 48mpg, 119g/km CO2

curb weight: 880kg

Price when new: £4,110

orsche T .2

orsche, like most of its German counterparts, revel in code-based tongue twisters that adorn its creations, much like this 2018 911 T. Referred to as the 991.2 T by orschephiles, this car is representative of two fronts for orsche motorsport derivation and consumer-based peacemaking.

With a renewed confidence and robustness in endurance class racing, orsche had the tools to bring their street cars as close to the competitive bar as possible without compromising durability, reliability and all other remnants of comfort and ease of driving that

make a street car usable.

The second generation 991 T applied the lessons orsche had learned from the limited-edition 911 R. It was considered a mea culpa to the orsche faithful who felt let down by the gen one car that came littered with an understeer-prone front end, a paddle-only transmission and a series of engine issues that led to high-profile fires in a few early cars. Having had my T for a few months now, it's time to see if the second coming of orsche's street fighter was worth the wait.

MECH NIC LS

The 4.0-litre flat-six, derived from the 911 Cup racecar, produces all the high revving characteristics synonymous with a T, with turbo-rivalling waves of torque in the mid-range thanks to a new flapper system.

Whilst the bespoke orsche Active Suspension Management (ASM) setup favours elite precision over compliance, there is no trick double wishbone front end suspension like the 992.

Petrol engine particulate filters are amiss in the 991.2 T, unleashing the shriek of a beast that has otherwise been silenced amongst its competition.

Transmission options are back to normal with a reintroduction of the sorely-missed six-speed manual. Whilst the D is available, the manual comes courtesy of the 911R and is a perfect accompaniment to this enthusiast platform.

Steels and ceramics are offered in the brakes department though for 99% of usage, the steels do the job. If you're on the track every weekend though, the ceramics are your best shout. Do be warned though, as long as they last, they cost another car's worth in replacement fees.

ELI BILIT ND ISSUES

Renowned in the last five years as the benchmark in reliable performance, there are few places where the 991.2 T gets caught out. If you've opted for a manual

transmission, there is a robustness that lacks compared to the D. Make sure the transmission is in good nick before buying as the warranty doesn't cover it for as long as the engine.

The oil gauge screen in the digital displays are plug-in units from the Carrera and as a result a common complaint of excessive readings of pressure is prominent. The

T runs higher temps and pressures compared to the Carrera so make sure you clarify operating temperatures with your service centre before assuming the car's about to explode.

Apple CarPlay is still wired in this generation and often cuts out or freezes. Should this occur, unplug your iPhone and turn off the orsche touchscreen, then plug in your device and turn on the display.

The key fob has ridiculously poor range and only works within 10 metres of the car. The panic alarm at the back of the key holds the same fate.

ENTE IO

The door handles open upwards instead of towards and require a touch of finesse to get open.

On non-Touring models, the wing can be pushed back to access fluid and oil reserves, as well as to peek at the gaming C fans that moonlight as a flat-six engine.

orsche Dynamic Lighting System (DLS) and DLS have different designs as well as functionalities, with the base system

sporting quad daytime running lights similar to the 992, and the DLS favouring a dynamic LED ring light. Functionally the DLS is the better system but unless your streets are predominantly unlit, it's best to choose for the looks.

INTE IO

The 918 carbon buckets are more pieces of eye candy than comfortable chairs, but they're undoubtedly the ones to buy over the standard sports seats.

If practicality is not on your mind and a propensity for the occasional track day is, look for a car that comes with a full rear cage as aftermarket is incredibly expensive.

WH T TO

Prices of the 991.2 T have remained typically strong for a T-badged orsche - D's will be cheaper, starting at around 100,000 whilst manuals could reach the 200,000 mark in the right spec.

E DICT one of the all-time great performance packages

MUH MM D LI HN

IM ES D WSON MB USTE

S ECIFIC TIONS .2 T M NU L

Drivetrain: 99 cc flat-6, 49 bhp, 9lb ft, RWD, 6-speed manual

Performance (claimed): 0-200mph in 7.9secs, 199mph

Efficiency (claimed): 22mpg, 290g/km CO2

curb weight: 1410 kg

Price when new: 111,802



barth

The characterful Fiat 500 Abarth began the revival of the iconic Abarth name from 2008, boasting more performance and a sportier drive than the standard retro city car. It made its debut with a 1.4-litre turbocharged petrol engine making 155bhp, paired to either a 5-speed manual or 6-speed automatic transmission.

While 0-62mph in 7.8 seconds may not sound terribly thrilling, its compact size helped make it feel quicker than that off the line. Its top speed wasn't worth writing home about either – 127mph, though this Cinquecento with attitude was always more about nimbleness than outright speed.

With Sport Mode selected, the steering feels tighter, greater torque is made available at low revs, and you're encouraged to change up later by the car's gear shift indicator mounted on the dash.

When it was road tested by journalists, it was found to have a pretty firm ride, so it's recommended to try the car out on a variety of roads should you intend to have one as a daily driver.

The interior featured sportier seats, a flat bottom steering wheel and Abarth badges on the dash.

ENGINE AND TRANSMISSION

A service interval is 18,000 miles, but it is recommended by specialists to have the oil changed at 9,000 miles to better protect the engine and turbocharger.

A cambelt replacement is required at five years or after 75,000 miles, and will cost around £250 at an independent garage.

Don't be put off by examples making 170bhp following a simple remap. Its 1.4 litre engine is capable of producing the extra grunt without taking on any stress.

Both the manual and automatic transmissions are strong and reliable, as are the clutches, though these can be replaced with new ones for £200 plus labour.



SUSPENSION AND STEERING

Should you wish to remap an Abarth 500 beyond 170bhp, it is recommended to upgrade the car's brakes and suspension to it can cope with the extra power.

Make sure the correct parts are ordered since there are differences between standard, Esseeesse and limited-edition model versions.

BODYWORK AND INTERIOR

Inspect the car for rust, particularly around all four of the wheel arches, as this is a known problem area on less well-maintained Abarths.

Abarth badges which can be found to the rear end of the left and right-hand side of the car can be replaced by non-genuine ones. Peeling paint and incorrect font of the Abarth logo are giveaways.

Audiophiles should seek cars upgraded with the Interscope speaker system.

Cars with the electronic sunroof are rarer, and command an extra premium.



WHAT TO

Up to £5,000 – Expect to see very high mileage within this price bracket with worn interiors and limited optional extras.

£5,000-10,000 – Nicer-specced examples can be had at this price bracket. Expect to see ones fitted with the bespoke 17" turismo alloys and rare sunroof option. Reasonable mileage (20-70k).

10,000 and up – Facelift, sub 40k 595 models.

EXPECT a feisty Italian runabout with a huge sense of humour about the driving experience and looks to match

HIGH LEVEL

IMPROVE THE

SPECIFICATIONS BY THE 2

MANUAL

Drivetrain: 1.4 8cc inline-4, 155bhp, 152lb ft, FWD, 5-speed manual

Performance (claimed): 0-62mph in 7.8secs, 127mph

Efficiency (claimed): 48mpg, 149g/km CO2

kerb weight: 1045kg

price when new: £15,800

Driving motoring journalism, today and tomorrow

Raising standards has always been part of the Guild's mission. That's why we're pleased to work with Coventry University – supporting its Masters course in Automotive Journalism, and offering training workshops to Guild members.



The Guild of Motoring Writers

To find out more about the Guild contact the General Secretary, Melissa Chadderton:
Telephone: 01903 386423 • Email generalsec@gomw.co.uk
www.gomw.co.uk • twitter.com/gomw_uk • facebook.com/gomwuk

Registered office: Royal Automobile Club, 83-85 Pall Mall, London SW1Y 5HW

BUILD OF THE MONTH

How a ruined Dodge Challenger allowed a Wisconsin family to continue their father's legacy

By Shafiq Abidin

Hailing from a quaint farm in Wisconsin, the Ellsworths have never been the sort of family that enjoys the limelight. It's been over 40 years since the head of the brood, their father, decided to venture into the vehicle garage and workshop business - even opening up a hot rod shop in that time that specializes in Mopar.

Four years ago, Robert, the eldest of the Ellsworth siblings and heir to the family business, stumbled upon a 1971 Dodge Challenger that was destined for death row. At second glance, however, he realised that the semi-preserved frame may just be the final piece in the Ellsworth family's muscle car puzzle.

"My father had saved a first-generation Viper's chassis from a fire nearly a decade ago, and we had the HEMI V8 from a Hellcat lying around," says Robert. "When I saw the Challenger at the scrap yard, my brain really did have a lightbulb moment: why not save its skeleton and give it a new lease of life?"

"We as a family consider ourselves to be proper grease monkeys that love to race," says Robert. "We're currently running two Dodge Vipers at amateur competitions nationwide, but this is not where we intend to stay."

The Ellsworths had decided that, after decades of being in the shadows, it was time that they took their racing ventures up a gear and really made their mark: "We've long harboured dreams of building an all-American machine that could win us the Ultimate Streetcar Association" says Robert.

"It's a series that pits the best street legal cars in our region against each other - and ultimately, earns a showcase spot at SEMA." SEMA (Storage Equipment Manufacturers Association) is an annual event in Las Vegas, where renowned manufacturers and tuners, in addition to ambitious newbies, convene to show off their wildest automotive creations.

The reason that earning a spot at SEMA is so vital to the Ellsworths is because it also includes an invitation to compete in the Optima Ultimate Streetcar Series: a fearsome competition that would give them the exposure they need to further enhance their growing status in the custom car-building scene.

After refurbishing and placing the aforementioned '71 Challenger's frame onto the chassis of the fire-stricken Viper - which had to be extended in order to accommodate for the increased proportions - Robert and his family slotted the Hellcat's block in. The "Highway

"I feel like the Highway Star has grown into the perfect metaphor for what the idea was supposed to be."

Star" was born, and Robert truly believes it will be the car that gets them to SEMA.

"Since the beginning of the project, performance was one of the main concerns. We tried to avoid adding too much weight, and we didn't cut any corners retaining the Viper's suspension geometry and tyre size to ensure the Highway Star will handle well."

Robert clarifies the mechanical enhancements they made: "We've added new coil overs, spherical control arms, camber control studs, the list of new parts we've been lucky enough to acquire and use on the Highway Star has been immense. New six piston calipers and a pair of 14 inch brake rotors are giving us confidence with stopping distance, which will be further aided by an estimated race-ready weight of 1519kg."

What will really get your pulse racing, however, is the projected power outputs that the Highway Star will produce. The 717 horsepower HEMI V8 has been modified with a specialist-built supercharger, an E85 injector, and an updated pulley, all of which equate to a final harvest of just over 1,000 horsepower, and a top speed of close to 225mph depending on the gearing ratios.

A rolling compilation album of Mopar's greatest hits, the Highway Star is more than just a car for Robert and his siblings - it's a physical manifestation of a years-old family ambition.

"I feel like the Highway Star has grown into the perfect metaphor for what the idea was supposed to be. It was dreamt up by my father years ago as a potential barnyard project to pass the time on weekends, and the classic outer body recaptures that, but it's got sprinkles of his children's identities in it, too. We chose many of the updated parts and panels, and have worked together as a family on bringing it to life."

The Ellsworths expect that the Highway Star will be on track by August, and aim to win a few races before taking it to SEMA in

November. They are firm in the belief that they can achieve this, despite a tragedy they've recently had to come to terms with.

"Our father passed away with COVID a few months back, which very nearly made us quit the project entirely, but he was never an excuses man, and he wouldn't have wanted us to stop. It may just have been the fairytale of a Wisconsin ranch owner once upon a time, but now, we will make sure we honour his memory by making it his legacy."



LEFT: The completed Highway Star (image: Ellsworth Racing)

Back issues



Read for free at
automotivejournalism.uk/read



Stay on, go further

Go further with a master's
at Coventry University.

www.coventry.ac.uk/gofurther

Adolphus Duru (Jnr)
2017-18 (Jan entry)