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GET A GRIP



GoAuto Design & Tech heads to Queenstown to test Volkswagen's 4Motion AWD range

By JUSTIN HILLIARD

ALL-WHEEL drive is a term that gets thrown around a lot these days, especially with the shift away from traditional front- and rear-wheel-drive set-ups accelerating in the last two decades, but not all AWD systems are created equal.

Even automotive journalists like ourselves are often guilty of listing AWD as one of a model's features without really explaining what type of system is being used in that particular instance.

Some brands, such as Subaru, use only one type of AWD system, so it is pretty

straight forward, but others make use of several, so it all can get a little confusing.

One such example is Volkswagen, which recently invited *GoAuto Design & Tech* to experience its AWD systems, collectively dubbed 4Motion, on a drive program covering both ice and track in beautiful Queenstown, New Zealand.

Considering that 44 per cent of Volkswagen passenger cars and SUVs sold in Australia feature an AWD system – with the former double that of the industry average – it served as a good opportunity to work out what is what in environments where they are most noticeable.



Case in point: Volkswagen markets three AWD systems under the same 4Motion brand, so it is definitely not a case of apples for apples. Either way, it pays to know what degree of traction you can call upon when required.

The Polo hatch and Caddy van are the only Volkswagen models sold

Down Under without the option of some form of 4Motion, so it is definitely not the exception to the rule.

Want further proof? The Golf Alltrack 132TSI wagon, Golf R hatch and wagon, Passat 206TSI wagon, Passat Alltrack 162TSI wagon, Arteon 206TSI sedan, Tiguan 132TSI and

162TSI SUV, Tiguan Allspace 132TSI and 162TSI SUV, Transporter TDI450 van and dual-cab ute, Multivan TDI450 people-mover and Crafter TDI400 van – deep breath – all use a fifth-generation electronically controlled AWD system, which is formerly known as Haldex.

This set-up is on-demand, with

torque distributed to the required wheel or wheels in a split second when needed, depending on where the most amount of traction is on offer. Not only does this ensure maximum grip and stability, but it also reduces fuel consumption as drive is typically sent exclusively to the front axle.

Under hard acceleration, up to 100 per cent of torque is sent to the rear axle, but when cruising at speed, drive may not be sent there at all. This may become a definite, though, when braking.

While the aforementioned models might all be considered soft-roaders, Volkswagen believes they have genuine off-road chops – as evidenced by the 4Motion Active Control driving modes that some have to cover on-road, off-road and snow environments – but maybe not to the degree of difficulty you're now thinking of.

Conversely, the only manual version of the Amarok dual-cab ute, the TDI400 pick-up, is the lone Volkswagen model to make use of a traditional transfer case for its AWD system. This part-time set-up also provides low-range gearing, making it better suited to challenging off-road conditions like the ones now on your mind.

Alternatively, automatic Amaroks (TDI420 cab-chassis and pick-up, TDI550 pick-up and TDI580 pick-up) use a Torsen (torque-sensing) centre differential, which is another version of a mechanical AWD system.

This is a permanent set-up with a 40/60 front-to-rear torque distribution in regular conditions. It is, however, variable, so outputs can be shuffled between axles if need be. Either way, it is suitable for a decent level of off-road work.



Described by Volkswagen as a popular towing vehicle, the Touareg SUV also uses a similarly set-up Torsen centre differential, with up to 70 and 80 per cent of torque sent to its front and rear axles respectively.

“Whether you’re carrying passengers, parcels or pace, the 4Motion system in all its iterations is designed to maintain a predictable level of control and composure over the vehicle,” said Volkswagen Group Australia general manager of aftersales Andrew Duffy.

A question that we often ask ourselves on-road is can you actually feel the difference that AWD makes? Certainly, slippery conditions provide the answer, so what better environment to see how Volkswagen’s Haldex and Torsen 4Motion systems stack up than on a snow farm?

The first thing that we noticed in the vehicles with the Haldex set-up was the stupid amount of grip on offer at an instant. ABS (Anti-skid Braking System) or ESP (Electronic Stability Program) sensors quickly recognise slip and ensure that the AWD system rapidly responds in kind.

While higher-powered vehicles like the Golf R could break traction off the line, they typically recovered in quick order, whereas the more modest Passat Alltrack just oozed composure, even when provoked with plenty of steering lock applied, thanks to its longer wheelbase.



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In fact, the most enjoyable vehicles to drive on ice were the SUVs and LCVs! Yes, we could hardly believe it ourselves, but their higher centre of gravity meant they were the most playful.

And for those naysayers that claim AWD vehicles cannot drift, we sure did a fine job of it in the Crafter of all things. It was crazy fun in the slalom exercise.

Despite the similarities of their Torsen set-ups, the Amarok and Touareg could not have been more different to drive on ice. With nothing in its tub, the former was more than

happy to wag its tail, while the latter's more even weight distribution made it a clinical but still entertaining drive.

So, other than discovering that ice driving is really, really fun, what did we learn out of all of this? Not only does the type of AWD system used by your vehicle matter, so does its engine and body style when you are trying to have a little fun.

And even if things do get a little out of hand, a good AWD system like 4Motion will likely be there to save the day... not that anyone would ever get themselves in such situations in the first place. //

TUNER TIMELINE

Take a look at the history of niche German tuner Alpina and its catalogue of hot BMWs



By ROBBIE WALLIS

2019 is a big year for BMW-based German tuner Alpina, with its first-ever SUV, the XD3 mid-size SUV, set to arrive in Australian showrooms.

The brand hopes that the XD3 will lift the profile of the brand to new heights, but ask an average Joe about Alpina and there's a good chance the question will

be met with confusion.

With that in mind, we thought we'd give a quick crash course on the history of the brand, which has been inextricably connected to BMW from day one.

The genesis of the Alpina story started in 1961, when Bukard Bovensiepen attended the Frankfurt motor show and set his eyes on the new BMW 1500.

According to Mr Bovensiepen, the 1500 didn't quite produce enough power from its 1.5-litre four-cylinder engine as should be expected from a BMW, and when seeing the ample room still left in the engine bay, he had a lightbulb moment.

Mr Bovensiepen wanted to be able to provide high-quality performance on a car designed for mass-market, middle-

class consumption and drew on the likes of niche tuners Abarth, Amadori and Nardi for inspiration.

By 1963, Alpina was ready to present its Weber-sourced dual carburettor for the 1500, which coincided with the release of the BMW 1800, a more powerful successor with 90hp that left 1500 owners longing for extra horses under the bonnet.



Consisting of two Weber 40 DCOE double-body horizontal-draught carburetors, twin short, straight double-intake pipes, a large wet-type air filter and throttle linkages, the upgrade package drew an extra 10hp from the 1500's 80hp engine and birthed the partnership between BMW and the Bovensiepen family that continues to this day.

The carburettor system was officially sanctioned by BMW, no doubt in part to appease disappointed 1500 owners, with the famous Bavarian company noting "no technical objections whatsoever" to the package, even promising to keep any engine, transmission or chassis faults associated with the upgrade under warranty.

The Alpina company was officially founded on the first day on 1965 with a team of eight employees, while units were soon being developed for the 1600, 1800 and 1800 TI models, which by 1966 offered up to 35 extra horsepower over the 1600.

By October 1967, Mr Bovensiepen penned a proposal for Alpina to participate in motorsport, and in

1968, he entered two tweaked BMW 1600-2 vehicles in the Group 5 touring car series, with driver Helmut Bein finishing runner-up in the 1968 German rally championship.

Highlights of Alpina's motorsport history include winning the European Touring Car Championship in 1970 as well as the Spa 24 Hours race in the same year.



Alpina withdrew from motorsport in 1988 after leaving the DTM championship but returned in 2009 with the 6 Series-based B6 GT3 for the European GT car championship.

Various sources give differing accounts as to what model was considered the first 'true' Alpina offering – some say it was the 1600-2 with its 165hp 2.0-litre engine, while others might tell you it was the 3.0

CSL Alpina, of which there exists just 13 examples worldwide.

One model thought of as being the first 'true' Alpina is the 1978 B6 2.8, based on the two-door B21 323i.

The B6 2.8 managed to crank out 200hp and 248Nm from its 2.8-litre six-cylinder engine, allowing for a zero-to-100km/h sprint time of 7.2 seconds while on the way to a top speed of more than 220km/h.

In the same year, Alpina released the B7 Turbo, based on the E12 528i sedan and packing a 300hp/462Nm 3.0-litre turbocharged six-cylinder powerplant, easily outshining BMW's just-released 635CSi. A coupe version appeared in the same year, based on the aforementioned 635CSi and featuring the same 300hp six-pot engine.

A more powerful B7 S Turbo was

released in 1981, using a larger 3.5-litre motor that increased outputs to 330hp and a considerable 500Nm.

Alpina's standing as an automotive manufacturer was made official in 1983, when it was formally recognised by the German Federal Ministry of Transport.

Other models joined the line-up as the years went on, such as the 1987 E32 7 Series-based B11 3.5 with a 250hp aspirated 3.5-litre engine.



New generations of the 3 Series (E30) and 5 Series (E28) birthed new Alpina models, the C1 and B7/B9/B10 respectively.

As the 1990s rolled around, the arrival of a couple of new BMW models saw Alpina develop new offerings, such as the short-lived Z1-based Alpina Roadster, featuring a 2.7-litre six-cylinder engine.

BMW's new-fangled 8 Series coupe was developed as the Alpina B12 5.0, which saw the debut of a 5.0-litre V12 engine to the range, pumping out 350hp and 470Nm, and enabling a top speed of over 280km/h.

A 5.7-litre V12 was also introduced in 1992 with 416hp and 570Nm, and a dizzying top speed of 300km/h.

The turn of the century saw the arrival of one of the rarest and most sought-after Alpinas, the Roadster V8 Limited Edition, based on the short-lived Z8 Roadster and using a 4.8-litre V8 outputting 381hp and 520Nm.

A Z3-based Roadster S was also created around the same time, employing a 3.3-litre six-cylinder unit.

All the while, Alpina had been continuously releasing models based on the 3, 5 and 7 Series, and as a precursor to its return to motorsport, the mid-2000s saw the return of the 6 Series, with the B6 and B6 S arriving in 2006 and 2007 respectively.

Both employed the now-familiar 4.4-litre twin-turbo V8, which in S guise outputted a healthy 530hp and 725Nm.



The first 4 Series-based B4 S Coupe and Convertible arrived in 2014 and spearheaded the brand's Australian launch in late 2017.

The Australian range now consists of the B3 sedan and Touring, B4 Coupe and Convertible, B5 sedan and Touring, B7 limousine and the XD3 mid-size SUV – the first local Alpina to feature diesel

power, in the form of a 245kW/700Nm 3.0-litre twin-turbo six-cylinder engine.

In modern times, Alpina serves as an alternative to BMW's M high-performance division, with a greater focus on ride and interior comfort, low-down engine torque, top speed, and a day-to-day driving proposition that is more manageable than the

brutal M cars.

Alpinas are also easily distinguishable by their distinctive design elements, namely the 'snow plough' front grille, striped livery down the side of the car and the signature 20-spoke alloy wheels.

Strangely enough, Alpina also has a wine division, which makes up 10 per cent of its overall business turnover, at

\$US10 million.

The brand is set to release new models in coming years, including a new-generation B3, an X7-based petrol SUV, and possibly even a model based on the new 8 Series.

In any case, after more than 50 years, Alpina looks like it's here to stay. Just don't call it a BMW. 

SEASONED VETTE

Chevrolet surprises and delights with mid-engined C8 Corvette as GM enters new era



By NEIL DOWLING

IN ITS design, its target marketing and especially its unorthodox mechanical architecture, the Chevrolet's C8 Corvette is a mobile reflection of a radically new corporate General Motors. Without relying on convention,

the C8 puts its engine in the middle, immediately branding it as a two-seater. No apologies – GM is no longer going for Ford's Mustang, instead pushing the Chevrolet's envelope to Europe.

GM itself has similarly changed. It has diminished its global footprint by pulling out

of South Africa, ending production in Australia, closing a major factory in South Korea, selling its European assets (Opel and Vauxhall), reducing manufacturing brand names to four (Cadillac, Chevrolet, Buick and GMC) and shaving fat from its Detroit headquarters including substantial property sales.

Lean and potentially mean, GM knows the new C8 will not be a mass seller but recognises it as a halo model that will put it and the Chevrolet brand back in the minds of motorists, particularly in Europe where it could establish an export market for a range of bowtie-badged vehicles.

The C8 is also the second model to showcase GM's technology-focused future, following the all-electric Chevrolet Bolt. The Bolt was the techno-rich rival to the Tesla Model 3 but though similar, the GM product couldn't penetrate Tesla's marketing appeal.

Now the Corvette is tasked with exactly that: Putting GM back in front of a global audience.

One of those steps is the fact that the C8 is the first Corvette to be factory built in right-hand drive.

The two-seater is new in body, production technique and electronic technology but doesn't stray too far from time-honoured US mechanical practice. The engine, for example, now sits behind the two occupants and ahead of the rear axle line but is a pushrod V8 with two valves per cylinder and the same bore spacings used since 1955.

The 6.2-litre LT2 is also the first to have a dry sump, allowing the engine to sit a bit lower but more importantly able to maintain oil supply throughout the engine regardless of lateral movements.

The engine design could be considered quaint but it's also a 365kW/630Nm powerhouse in a 1533kg package that GM claims sprints from standstill to 60mph (97km/h) in less than three seconds when fitted with the Z51 Performance Pack. This package – comprising exhaust, brakes, suspension and body-kit upgrades – lifts output to 369kW/637Nm.





Drivers have access to six drive-mode presets – Weather, Tour, Sport, Track, MyMode (individual) and Z Mode, the latter allowing further customisation of the engine, transmission and chassis, including stability control. There is an additional traction management program for different levels of intervention when the vehicle is on the track.

Cooling is by two radiators at the front and a third behind the right-side door. The coolant flows from the front to this third radiator before being channelled to the engine and also to cool the transmission.

The gearbox is a dual-clutch, eight-speed unit made by Tremec, a company that has traditionally been a supplier of manual transmissions to US car-makers.

Despite Tremec's history, there is no manual option on the C8, harking back to the Corvette's first model in 1953 that came only as an auto but added a clutch pedal in 1955.

The C8 is the first Corvette without a leaf spring in its suspension. Previous models used leaf springs either in the traditional longitudinal position or, since the C2 of 1963, a transverse rear leaf. The C4 (1984)

to C7 (2014) used a composite leaf spring front and rear in a transverse position that gave better rigidity to the suspension's coil and wishbone components, much like a roll bar.

GM says the C8 will come optionally with Magnetic Ride Control 4.0, which is the latest version of the magnetorheological dampers that react to road and driving conditions.



Suspension surprises include a standard front-lift function that will avoid damage to the splitter over rough roads, kerbs, steep driveways or speed humps. It will lift the nose by 40mm at speeds of up to 38km/h and owners can program up to 1000 locations into the car's GPS to ensure the lift job is automatic.

The C8 continues the model's extensive use of aluminium. The previous C7 had aluminium structural parts – including frame – along with composite plastic body panels, while many earlier Corvettes had fibreglass panels.

Unlike the C7, the C8 has six major aluminium castings and a larger central spine to increase body rigidity – it's up 10 per cent on the C7 – and reduce the need for bulky sills.

Smaller and lower sills mean easier ingress and egress for occupants, while the increased body rigidity allows for the lightweight removable roof panel.

Chevrolet says no convertible version is planned but the stronger body may mean a roadster could be viable in the future.

It uses carbon-fibre for the rear bumper structure and an underbody panel beneath the centre spine (because of cost, these are the only two carbon-fibre pieces in the car), and lightweight fibreglass tubs for the front and rear luggage compartments, while the removable roof is made of composite plastic and fits into the boot. The rear boot can fit two golf bags, according to GM, which uses the US standard of luggage volume.

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GM says the C8 has a dry weight of 1533kg, which is about a 1630kg kerb weight and up about 40kg on the equivalent C7.

The car will start production and will be available in three grades. The base will be the Stingray with the FE1 suspension for general driving and best comfort, followed by the tighter FE3 with the Z51 pack, and then the FE4 that adds the magnetorheological dampers.

It is expected in Australia until late 2020. Holden reports strong interest already in the new model despite not announcing trim or prices.

As for pricing, GM president and former Holden boss Mark Reuss said the C8 would be available for less than \$US60,000 (\$A88,500) in its home market, but a figure between \$120,000 to \$150,000 is expected once local taxes are factored in, among other charges. 🇺🇸