

Diesel veteran Mercedes-Benz expands high-tech BlueTEC to SUVs

By Joe Sage
Photos by Greg Jarem



Mercedes-Benz ML320 BlueTEC

Mercedes-Benz is acutely aware of their timing in the announcement of a newly expanded BlueTEC lineup, now comprising three of their most popular SUV/crossover products, the ML320, GL320 and R320. The good news is that customers are hotly seeking alternatives to the gasoline pump. The tougher news is that diesel has been running about a dollar higher per gallon than gasoline, five-plus bucks against four-plus, or a good 25% higher.

We were presented with the new-lineup recently in Manchester Village, Vermont, and the Mercedes engineers got right to the point. Bottom line: these new diesels not only run cleaner and are a technological tour de force, but they use about 30% less fuel—advantage: BlueTEC diesel. Measured purely by that pump/MPG comparison, it's a net advantage of just about 5%, less than they would have expected during most of the lineup's development, when diesel fuel generally cost less. Fuel pricing is, of course, very volatile right now (as this issue goes to press, prices are dropping again, and the diesel-to-gas gap shows signs of narrowing).

Mercedes-Benz diesel heritage

Timing can be everything, of course, but the idea that timing is a deciding factor in these new models' rollouts is pretty well blown out of the water by the fact that Mercedes has been in the diesel game for decades.

We work hard to travel light to these events (somehow achieving carry-on status with computers, cameras, press materials, driving clothes and dinner clothes), but we are always impressed by just how "heavy" Mercedes travels. They wowed us with a museum of SL history at a remote lakeside park in California this spring (see *Arizona Driver Magazine*, May/June 2008). For the BlueTEC introduction in Vermont, they brought along a full museum of diesel production, race and rally cars spanning over seven decades.

Mercedes-Benz BlueTEC diesels trace their heritage back more than 70 years to the first diesel-powered passenger car, the 1936 Mercedes-Benz 260 D. Through 1940, almost 2000 of these were built, demonstrating the longevity and economy of the diesel engine.

In 1955, Mercedes won the diesel class in the famous Mille Miglia with their 180 D. The 40hp 180 D, introduced in 1954 in the new-for-'53 Mercedes Ponton body, was upped to 43hp as the 190 D during 1955.

Mercedes introduced the Fintail in 1961, keeping the 190 D designation for the diesel version. In 1965, the car became the 200 D, in sync with the gasoline model's number, though engine displacement remained unchanged, as did its 55 horsepower (propelling the car from 0 to 62 mph in 28 seconds), but the four-cylinder's crankshaft

received five main bearings. Smooth and quiet, the 200 D found almost 160,000 customers between 1965 and 1968. A station wagon and a long-wheelbase sedan are also added. For 1963, Mercedes diesels could be ordered with an automatic transmission.

In 1978, the Mercedes-Benz C111-III racer, a five-cylinder turbocharged diesel, set nine world speed records in just twelve hours, while also achieving a record 24 mpg, and all this at over 186 mph overall.

That was the basis for the 1978 300 SD—the world's first production turbodiesel passenger car and the first luxury diesel car. This 115hp five-cylinder sedan (along with a 300 CD coupe) achieved near-cult status in America and was the basis for a long line of diesel-powered S-Class cars. In 1985, the 300 SDL sported a new six-cylinder engine and (along with the midrange 300 D) was the world's first car with diesel particulate filters.

In 1997, Mercedes introduced the C 220 CDI, a common rail diesel with direct fuel injection and advanced engine electronics, providing 10% better fuel mileage and reduced exhaust emissions, with 30% more horsepower and twice the torque.

In 2005, the first-generation V6-powered 320 CDI produced 224 hp and thirteen new FIA records for speed and endurance.

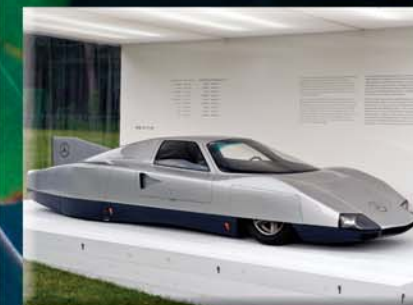
In 2006, Mercedes-Benz introduced the new E320 BlueTEC, coinciding with the introduction of ultra-low-sulfur diesel fuel. Three of these proved their mettle in the 8700-mile Paris-to-Beijing rally. The E320 BlueTEC was a success from the start, voted 2007 World Green Car of the Year (see *Arizona Driver Magazine*, September/October 2007) and comprising 13% of E-Class sales in the US.

BlueTEC engine and technology

Mercedes-Benz BlueTEC engines meet the demanding new targets both of the US BIN5 (50-state) standard and Europe's new EU6 legislation, putting BlueTEC vehicles within all diesel emissions standards worldwide.

With advantages in low-end torque, fuel economy and performance, the diesel engine has already proven itself an attractive alternative to gasoline engines in the US, a land of larger vehicles, consistent highway speeds and long cross-country distances. But in the face of increasing fuel prices and growing sensitivity towards CO₂ emissions, the US has set extremely stringent emissions legisla-

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Mercedes-Benz GL320 BlueTEC

tion for diesel drivetrains. For all these reasons, Mercedes-Benz chose the US for the worldwide debut of BlueTEC technology in the E320 BlueTEC, as well as the launch of its latest BlueTEC system with AdBlue injection.

The powerful V6 turbodiesel engine under the hood of the new M-, GL- and R-Class BlueTEC models demonstrates that excellent fuel economy and the lowest emissions are within the grasp of large SUVs. This engine has an output of 210 bhp and 398 lb.ft. of torque, while boasting an estimated 23 mpg (highway) for the GL320 BlueTEC, a fuel consumption benefit of 20 to 40 percent over a comparable gasoline engine, making the Mercedes-Benz GL320 BlueTEC the most fuel-efficient full-size SUV in the US.

The six-cylinder diesel received a few modifications in the new SUVs. The piston cavity profile was reworked for an improved fuel/air mix, while its compression ratio was reduced from 17.7 to 16.5. The VNT turbocharger was optimized and reconfigured, as was the ECU. All three are all equipped with the seven-speed 7G-TRONIC automatic transmission.

An important goal was the drastic reduction of NOx emissions—the single component of diesel exhaust that remains higher than that of a gasoline engine. In the E320 BlueTEC, oxidation catalysts and particulate filters are combined with a long-life NOx storage catalyst and an additional SCR catalyst. In the new GL320 BlueTEC, ML320 BlueTEC and R320 BlueTEC, AdBlue—a harmless liquid urea solution—is injected into the exhaust. This releases ammonia, and the SCR catalyst then converts up to 88 percent of NOx emissions into harmless nitrogen gas and water.

The V6 BLUETEC engine is the only diesel powerplant among the winners of *Ward's Auto World's* Ten Best Engines, which involves two months of evaluation by six *Ward's* editors. This year, they nominated 33 engines, each powering a production vehicle with a base price of no more than \$54,000, on sale in the US no later than the first quarter of the year. The group considers power and torque output, noise, vibration and harshness (NVH) levels, technical relevance and basic comparative numbers. Mercedes powerplants have won seven times in the award's 13 years, including the previous-generation turbodiesel—the 3.2-liter in-line six.

AdBlue injection technology means that the engine no longer needs to run periodically on a rich combustion cycle to purge the NOx storage catalyst. Large sedans and SUVs with higher fuel consumption would require frequent purging, ultimately leading to more fuel consumption.

AdBlue is an aqueous urea solution, which is stored in a small, separate tank. Upon injection into the hot, pre-treated exhaust gas, the AdBlue solution breaks down into its compo-

ML320 BlueTEC rear view and interior; the BlueTEC 320 turbodiesel engine; the spacious GL320 BlueTEC rear seat; and the R320 BlueTEC interior and rear.

nent parts, water and urea. Above around 338° Fahrenheit, the urea is converted into anhydrous ammonia (NH₃), the active agent in this process. This is stored within the catalyst and reduces nitrogen oxides into harmless nitrogen gas as soon as NOx-bearing exhaust gases pass through the catalyst. The ECU manages the AdBlue injection to ensure that there is always sufficient ammonia stored.

A refill of the AdBlue tank is needed only at regular 10,000-mile maintenance intervals, even under higher consumption conditions such as towing. The customer plays no direct role in refilling the AdBlue.

Meet the new BlueTEC SUVs

Mercedes-Benz unveiled three new sport utility vehicles powered by the world's newest and cleanest diesel engines at the New York International Auto Show last winter—the ML320 BlueTEC, GL320 BlueTEC and R320 BlueTEC. All were brought to Vermont this summer for the world's press to drive. Mercedes-Benz wanted to not only demonstrate the diesel drivetrains, but also is proud of tailoring them to an extensive range in the premium SUV segment.

The M-Class has been recently restyled, more closely matching the original concept vehicle, with its curves and strong wheel arches. This is the most successful Mercedes-Benz sports utility vehicle and claims to have started the trend toward premium SUVs, quickly picked up by Lexus, BMW, Porsche and others. The M-Class is still noticeably dominant on the road in Arizona.

The GL-Class is the most conventional of the three, a solid, traditional design that's less likely to stand out in the freeway crowd, but that still fills its mainstream niche with power, style and interior appointments that run well above the segment average.

The R-Class tackles very conventional large-SUV requirements with unconventional style. By measures of capacity, power, access/egress and stowing volume, it holds its own against the largest SUVs, putting it within range of the Suburban. Anecdotal evidence suggests its capabilities are sometimes missed by potential buyers who think the R-Class has a bit of a minivan look, and that's unfortunate. They're missing a great solution. The R-Class offers exceptional comfort on long-distance journeys and a generously proportioned and flexible interior, with seating for up to seven.

Standard equipment has been expanded substantially across the M-, R- and GL-Class

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Mercedes-Benz R320 BlueTEC

ranges. All come with the PRE-SAFE predictive occupant protection system and Active Front Head Restraints. A new-gen telematics system boasts an improved user interface and a host of new functions. A hands-free system with integrated Bluetooth is standard, as is a port for your iPod or other device. An optional Universal Media Interface lets you connect an external music storage device to on-board electronics, so you can display and select track titles on the instrument cluster, center console screen and multi-function steering wheel (while charging the device's battery). Another package adds HD and SIR-IUS radio, plus optimized voice recognition.

An optional Harmon Kardon Logic7 sound system with 5.1 Dolby Digital Surround Sound and digital signal processor (DSP) promises outstanding clarity. A new rear entertainment system is available, complete with two large, dual-source, 8-inch screens and a DVD player, as well as two wireless headsets and two remote controls.

On and off the road

Our test routes included the drive from the Albany airport up to Manchester Village, through much of central and southern Vermont, and even into the northwest reaches of Massachusetts, with multi-lane highway time, smooth two-lane highways, and some unexpected two track dirt roads (comparing notes at the hotel, almost nobody trusted the GPS when it said to turn onto some of these, but after doubling back, we found great wooded rides, and the SUVs acquitted themselves very well on these).

There was a broad consensus that the GL320 BlueTEC was a favorite, offering all the amenities and comfort of the full lineup, in a very utilitarian package. This is not really at the expense of the M320 BlueTEC, as its high style and efficient layout are so attractive (and familiar), the GL was probably just more of a surprise. Our time in the R-Class was as a passenger, shuttling to a lakeside dinner, but that demonstrated its number one attribute: capacity. Although the three definitely do not share mama-papa-baby bear styling, this is the one to try first if you have a large family or other group to accommodate.

Past disadvantages of diesel were in certain emissions, primarily soot particulates and nitrogen oxides. Mercedes-Benz tackled the particulate issue in 2003, with the introduction of a maintenance-free particulate filter. NOx emissions had already been reduced by about 75 percent over the past 15 years in Mercedes diesels, and BlueTEC technology brings them down to near-negligible levels. AdBlue injection now makes the new ML320 BlueTEC, R320 BlueTEC and GL320 BlueTEC the world's cleanest diesel SUVs. ■

"It's okay; I'm a limo driver....!" The immortal words of Jim Carrey, in the classic, er, art film *Dumb and Dumber*, echo as we get picked up from our flight. Quiet, loyal, careful and diligent, event drivers are the invisible hand behind the wheel, ferrying dignitaries and press alike, from airport to hotel to dinner and back. We're here to drive, and so are they.

Life in the driver's seat: being a chauffer for Mercedes-Benz

By Justin Kupinski

Recently, someone handed me the keys to a brand new Mercedes and told me they would pay me to drive it. I've been living the dream, my friends, and it's been a crazy trip. These are some of the highlights of my time as a chauffer for Mercedes Benz!

On my first day, which was supposed to be an orientation day, I was picking up a VIP for Benz when my R350 almost was towed. Great first day, right? Well, at least that was the scariest moment of the event.

Among my favorite parts of the job was carting our customers home after a night at the open bar and buffet. Remember that spring break you took in Cancun? That was as close as you will ever get to the nightly routine of our guests. They like to have fun. From anything with wheels that goes fast, to late nights on the town, the people of Mercedes-Benz knew how best to spend their time away from work.

And my time at work? Ninety-hour weeks and little sleep became my daily routine. I had to spend that time in the driver's seat of a brand new R350, not bad. But better than that, I was able to get seat time in an S550, which was one of the fastest and most fun rides of my life.

With all the activity at the event, I was able to meet a broad spectrum of people. I met big VIP's like Dr. Thomas Weber. Others I met were a little out there, such as the guest who demanded the resort pay for the rim and tire HE curb-rashed on their curb while trying to park. And others were just incredible, like the members of the press from India who insisted on standing out the roof taking pictures as I drove through Times Square.

Did I really drive the brand new Benzes I was given? Well, one night, I was driving home and passed an abandoned dog track, with its pristinely paved parking lot and access roads. I thought about it, and what a tempting thought it was. Did I go for it? Well, I'll leave that to your imagination.

It was a fast two weeks, and I have more stories than room to tell them. All I can say is: if you ever have a shot at a job like this, do it. You won't have any regrets. ■

Photo courtesy Justin Kupinski

