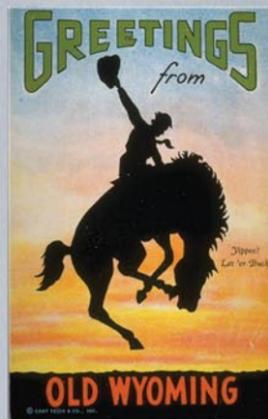


cool control

everyday road cars that can handle extraordinary conditions

by Joe Sage



The idea of a sedan which bears the attributes of all-wheel drive, from its no-slip grip at launch, to its soft-surface traction and control, is not new. There have been all-wheel-drive cars in the mainstream marketplace for a few decades now. Most everyone knows about the Audi quattro, and that for years (and until their one sporty new rear-drive exception) Subaru has made nothing but all-wheel-drivers. It's the kind of top-of-mind image otherwise attached to the likes of Jeep®. But the image of the 4x4 as a big truck or SUV is still hard to shake. There have been other four-

wheel-drive cars, after all, and plenty of them: Fords, Cadillacs, even a Pontiac in the '80s.

Mercedes-Benz has no big 4x4 pickup in its lineup, but it does have a strong range of SUVs: from the smallest GLK, through the M-Class, GL-Class and large crossover R-Class, to the near-military-grade G-Class. These are the people-and-gear-hauling 4MATIC on-and-off-roaders, but they are only half the story. Mercedes-Benz 4MATIC all-wheel-drive technology is also available on an ever-increasing range of their sedans, coupes and wagons—in fact it is available on everything now, other

than the SL and SLK roadsters.

All-wheel drive has its pros and cons, but we are bullish on the pros. Basically, it comes down to strength and efficiency: from the moment you step on the gas, all power is transmitted to all wheels, with no slip, no horsepower lost in the ether. And it comes down to control: when you corner hard in town, or when you sweep a mountain pass at highway speeds, your grip and balance are neutral, strong and predictable. Even if you never see a flake of snow, you can appreciate the attributes of all-wheel drive in every mile you drive. And if you

Wild Wyoming winter weather lifted a little while we were at the snow track, revealing foothills (at left) but never the Tetons. Good test conditions. Clockwise from top right: Jackson, Wyoming, is the town; Jackson Hole is the valley; this was our lodging valley view. The E350 Coupe 4MATIC slices through the ice. We had extensive county roads, normally closed for the winter, plowed open for our event, and the sheriff made sure they remained ours only. The S350 BlueTEC 4MATIC adds diesel efficiency to the mix. Video crews recorded our efforts on two closed courses carved into deep snowfields. And the beast that started it all: the 1907 Daimler Dernburg-Wagen.

hit a patch of water or sand or gravel, you will appreciate it all the moreso.

The downsides? Basically, some people prefer some slip. Think smokey burnout in a Mustang. And the system will add a little weight to the vehicle.

To a degree, the benefits of all-wheel drive can be delivered through electronics on a two-wheel-drive car. Electronic stability control and other high-tech adaptations of braking and suspension can mitigate issues of traction, cornering, slip and control. (And the 4MATIC series has all of this, too.) But think about it: would you rather have to mitigate issues? Or would you rather have the engineering get it right in the first place?

Despite the strengths of all-wheel drive even on flat, dry, smooth pavement, it's easy to associate these systems with snow and ice. Thus we found ourselves in Jackson, Wyoming in February, to drive the full lineup of Mercedes-Benz 4MATIC cars in those conditions.

a century of development

Paul Daimler, the son of Daimler-Benz's founder, came up with the company's first all-wheel-drive designs in 1903, and in 1907 the Dernburg-Wagen was built for driving in Africa. A passenger car built on a truck chassis, it was truly the forerunner of modern 4MATICS. The company's lineage and credentials also include the versatile Unimog, a tractor-derived roadworthy beast with mechanically locking differentials and flexible frame.

Evolution has been careful and deliberate. 4MATIC all-wheel drive was launched in 1985 (five years after the original Audi quattro). The current 4MATIC system is its fourth generation. The mid-'80s Mercedes-Benz 300E 4MATIC—the first—had a Generation 1 system with electro-hydraulic automatically locking differentials that directed 100 percent of power to the rear wheels until any slip was detected. Generation 2 arrived about ten years later on the W210 model series, with three differentials but a much simpler system overall. Gen 2 used a 4ETS (electronic traction system) to achieve permanent all-wheel drive via application of the ABS system. Differentials in front, driveshaft and

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rear provided a 35:65 front/rear bias, and auto-locking was deleted. This was an era of significant breakthrough, as the car could now maintain full traction even with, for example, the left wheels on ice and the right on dry pavement.

Generation 3 was seven years in development. It still used 4ETS, but with faster activation (for both braking and transfer of power), worked well at all speeds and changed the bias to 40:60 front/rear, for improved driving dynamics, comfort and traction.

Generation 4 was launched in model V221, the S550 4MATIC. Unique in the industry, this evolution integrated the transfer case with the transmission, reducing friction while improving NVH (noise-vibration-hardness) measures and improving fuel economy. The system is the lightest in the industry, at about 150 pounds (early Mercedes-Benz systems were about 350 pounds, and some early competitors weighed in at closer to 600). The torque bias was also brought to 45:55 front/rear. Transfer/transmission integration allowed front axle engagement with just one gear—and no parasitic loss.

Mercedes-Benz is especially proud of the fact that their 4MATIC systems are 100 percent in-house design—including testing, development and manufacturing. “Every tooth of every gear is cut by Mercedes-Benz,” says assistant product manager Eric Linder, which he says is unique within the industry.

forty-wheel drive

Two million 4MATIC vehicles have been sold worldwide, with over half of them in the US. And the lineup is now growing exponentially.

Mercedes-Benz now offers 4MATIC all-wheel drive in ten model lines (21 models in all): C-Class, CL-Class, CLS-Class, E-Class and S-Class cars; and the five SUV lines mentioned already. This lineup-wide approach is more than enough to put Mercedes-Benz at the forefront of people’s thinking when it comes to all-wheel drive, as well it should, since the company has been producing such vehicles for over 100 years.

For 2012, new models include an S350 BlueTEC 4MATIC and CLS550 4MATIC (both available since last fall), and the E-Class and C-Class both add coupes—an E350 Coupe 4MATIC and C350 Coupe 4MATIC (both available by the time you read this, starting in April). These additions cover a wide price range, illustrating the availability of this game-changing technology. Prices start at \$44,370 for the C-Class, \$53,675 for the E-Class,

\$74,675 for the CLS and \$93,425 for the S-Class, all with 4MATIC. At the pinnacle remains the CL-Class, with the CL550 4MATIC starting at \$114,975.

The C350 Coupe 4MATIC is powered by the same 3.5-liter V6 as its rear-drive version, with 302 hp and 273 lb-ft of torque. Fuel economy is unchanged by the addition of the 4MATIC system’s cleverly minimized weight and friction, staying at 19 MPG city, 28 highway. Even at C-Class level, your buck delivers plenty of bang—not just all-wheel-drive confidence, but also high-tech control systems including Attention Assist, a HOLD feature for the Adaptive Brake system, up to nine airbags, active head restraints, automatic climate control and alloy rims, and a breakthrough seven-speed automatic transmission introduced on the last generation of the SL-Class. Optional technology includes Blind Spot Assist, Lane Keeping Assist and the Parktronic parking guidance system.

The E350 Coupe 4MATIC is powered by the same 3.5-liter V6 as the C350 Coupe 4MATIC and delivers the same 19/28 MPG city/highway. The E-Class adds Agility Control suspension to its standard equipment list, along with the PRE-SAFE® collision preemptive system introduced to the S-Class in 2006 and E-Class in 2010. These two technologies are geared toward adding impressive handling and a huge margin of safety to the inherent benefits of 4MATIC.

The third new 4MATIC coupe—the luxurious, powerful CLS550 4MATIC—has a 402-hp 4.6-liter V8 with 443 lb-ft of torque. Fuel mileage is 16/25 MPG city/highway. Standard equipment on the CLS 4MATIC includes PRE-SAFE, ABS with Brake Assist, ATTENTION ASSIST, traction control and ESP electronic stability control. Since its introduction last fall, some 35 to 40 percent of CLS sales are 4MATICs, which has helped the CLS-Class grow its markets in the Northeast and Pacific Northwest.

The S350 BlueTEC 4MATIC’s 3.0-liter clean diesel V6 puts out 240 hp and low-band torque (1600-2400 rpm) of 455 lb-ft. Fuel mileage is 21/31 MPG city/highway for the 4MATIC S-Class, delivering an incredible package of power, handling, luxury and fuel economy—and all still for under \$100,000. (Carried over from 2011 is a gasoline-powered S550 4MATIC; over 50 percent of S550 buyers go with the 4MATIC option.)

The CL550 4MATIC—top dog at some \$115k—has a twin-turbo iteration of the 4.0-liter V8, bringing horsepower up to 429 and torque up to 529 lb-ft. This impressive power is still less than the AMG version or either

V12 CL-Class (regular or AMG), but—it has 4MATIC all-wheel drive. It’s also a bargain among the CL lineup, as the other three range from about \$160,000-212,000.

winter roads of wyoming

It was a mild winter in the heart of the Rockies this year. Jackson, Wyoming, was no exception. What mild means here, though, is a ski season that ended with somewhere between 350-400 inches of snow, compared to a normal 459 inches. When you’re skiing at the Jackson Hole ski area, where snow covers boulders, creeks, stumps and whole trees in the winter, this makes a difference. When you’re driving, it still makes for quite a winter.

There are basically two kinds of roads in country like this: open, or closed for the winter. No amount of ground clearance or all-wheel drive will deal with a closed road. Nonetheless, all-wheel drive is very welcome on open roads—temperatures stay low all winter, the snow is relentless, and even clear roads are snow-packed more often than not.

Despite this being a drought winter by routinely extreme Rockies standards, we had so much weather during our stay that we never even saw the landmark Grand Teton Mountains.

Our drive consisted of several phases. We drove a variety of local roads and highways in the valley around Jackson (that valley being what actually bears the name Jackson Hole, along with the ski area). We drove a pair of carefully prepared ice tracks (packed snow with a variety of challenging shapes and surfaces). We were provided with many miles of county roads that would usually be closed in winter but had been plowed open, with great effort, to access our track and also allow for some wide-open snowpacked straightaways. And we took a two-and-a-half-hour highway loop around the Tetons, through Idaho and back to Jackson.

Every one of these cars is a winner in its own right (and we’ve covered them in other reviews). It doesn’t take a lot to explain to someone that any Mercedes-Benz is a great car. What does take a little explaining is that Mercedes-Benz is a great snow or rough-surface car. But it is. Your correspondent has lived in the northern Rockies in the past, for a number of years, and has driven in these conditions many times—in big 4x4 trucks, little rear-drive cars, performance all-wheel-drive sedans and more. We’ve also driven a number of all-wheel-drive cars in Arizona, also for a number of

Top to bottom: even in a low-snow year, standing depth was at hood level in the valley. Temperatures were near zero at night, but this C350 Coupe 4MATIC driver found some water to test, while the CLS550 4MATIC roars away in maximum luxe. This Unimog—a major source of Mercedes-Benz all-wheel-drive DNA (shown in Germany) would have been just the ticket in Jackson. The sun makes a brief appearance over the valley floor, while the highway to Idaho over Teton Pass is one hundred percent snowpacked, with no sign of recent thaw.

more recent years, though often without leaving the smooth, dry pavements of the Valley and surrounding below-Rim highways. Returning to northwest Wyoming for Mercedes-Benz 4MATIC immersion presented the best of both worlds.

The real miracle of a Mercedes-Benz sedan or coupe with 4MATIC all-wheel drive is this: if you are so inclined, you can largely shut out the world, enjoy the luxury and comfort of your Benz, and stay secure in the knowledge that you have a highly technical vehicle at hand to protect you from what the elements will throw at you. We were able to do this throughout the valley. You can dig in and wring out all the performance the system offers. We were able to do this on the challenging specialty tracks. Or you can do a bit of both—stay on your toes, enjoy the art of driving, but rest assured you have a great tool in hand—and we were able to do this on the challenging passes to and from Idaho.

a potent package

Every model in the 4MATIC series demonstrates the benefits of a technologically-advanced all-wheel-drive system: solid, predictable handling in all conditions (including normal ones), efficient application of power through all four wheels (providing an impressive ride even at lower horsepower), and via all that, an added degree of safety and fuel efficiency (fuel efficiency is virtually identical to two-wheel-drive models, with just two out of 16 figures dropping by just one point).

The very presence of 4MATIC in the Mercedes-Benz lineup has increased overall brand sales by 20 percent. The price premium for 4MATIC is generally in the \$2000-3000 range, depending upon model.

Every Mercedes-Benz 4MATIC model is available at dealers now. And remember—winter is right around the corner. Monsoon storms arrive even sooner. And firm cornering and solid cruising are for right now. ■

