

The *traction* zone

WORDS AND IMAGES
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Four-wheel drive makes all the difference with Kleemann's most powerful conversion for the E63 AMG, the Mercedes now able to deploy all 808 horses with staggering ease and hit 62mph in just 3.2 seconds



JUST THE FACTS

Kleemann E63 AMG 4Matic Estate (S212)

ENGINE M157 5.461cc V8 biturbo

POWER 808bhp@5500rpm

TORQUE 970lb ft@3400rpm

TRANSMISSION 7-speed auto, 4WD

0-62MPH 3.2sec

TOP SPEED 205mph (approx)

YEARS PRODUCED 2014-on

Figures for car as pictured; top speed electronically limited

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IRELLI WAS SPOT ON WITH ITS 'Power is nothing without control' advertising campaign. So a big vote of thanks to past AMG chief, Ola Källenius, for finally introducing 4Matic to the growing AMG model range. With the humungous power and torque outputs from the bombastic AMG V8 motors, first the M156, and now the even more torque rich M157 biturbo, you could argue that AMG's cars were becoming a little too powerful for their own good. They needed all-wheel drive to make further headway in a power race where the weather sometimes gets the better of man and machine.

However, four-wheel drive is not only useful in wet and snowy conditions, it is also a traction aid in the dry, helping a car to accelerate cleanly off the line and out of bends. You need only look at the difference in the 0-62mph times of a rear-wheel drive AMG model and its corresponding 4Matic version to see that. In the case of the E63 AMG saloon, those numbers are 4.2 seconds and 3.7 seconds respectively, the half-second gap representing over two car lengths.

I drove the first generation W212 E63 AMG with the M157 biturbo motor at Circuit Paul Ricard in July 2011 (see *Mercedes Enthusiast* September 2011), and the 4Matic version in March 2013 (see our April 2013 edition). While some 4WD variants of high performance cars are not as satisfying to drive as their rear-wheel drive only brethren, this was not the case with the 212-series E63. On a dry track, the RWD car exhibited noticeable understeer going into bends, and when I subsequently went out with guest professional driver David Coulthard at the wheel, I was amused to note that the former F1 ace had exactly the same problem.

I figured in the end that the new motor had so much oversteer inducing torque that the AMG engineers simply had to dial more stabilising understeer into the chassis than they would have liked, to keep their customers from having big tail happy moments.

POWER VERSUS TRACTION

Paul Ricard was slightly damp but drying fast when I tested the 4Matic version 20 months later. Without the spectre of power oversteer at the touch of the throttle, the whole balance of the car was better. Under trail braking, the nose arced straight for the apex of a bend, and you could feel the back end gently helping you round as you squeezed on the power.

The E63 AMG 4Matic stood tall as a proper driver's machine, and a revelation after the rear-wheel drive version. It is no surprise that

AMG sales are on target to almost double in the Scandinavian countries since 4Matic was introduced as an option across the board, except on the A45 and CLA45, and ML, GL and G-Wagen models where it is standard. Speaking of Scandinavia, Danish based Mercedes tuner Kleemann invited *Mercedes Enthusiast* to try a customer's 2010 E63 AMG saloon, with its supercharger upgrade for its M156 V8 motor. Equipped with Kleemann's supercharger and ECU remap, this car also has long tube headers, 200-cell metal catalytic converters and a hand built stainless steel exhaust system. It is now good for 690bhp and around 685lb ft of torque.

WILD ANIMAL

As the car started life with the AMG Performance Package, it came with the factory Drexler limited-slip differential, which helps traction and handling. The stock suspension is retained but the AMG wheels and tyres were swapped for 9.0Jx20 front and 10.0Jx20 rear Kleemann TS6 alloys shod with 245/30ZR20 and 285/25ZR20 Michelins respectively.

The story behind this car is particularly interesting as its owner, a dyed-in-the-wool petrolhead, had previously owned an Audi S4 and was about to buy an Audi RS6. But when he drove one he found it very fast but rather clinical, and so tried the E63 AMG. Deciding that it had the kind of character he was looking for, but not quite enough power, he bought it and took it to Kleemann.

It was a cold and dull when I drove the finished car. As I walked around it as a pilot

inspects an aeroplane before take off, I noted with amusement the E220 CDI badges on the bootlid. The owner quite obviously had a sense of humour, even if the four big tailpipes underneath gave the game away.

The supercharged motor starts with the typical AMG V8 explosion of sound as air and fuel are introduced to spark. I never tire of this bent crank V8 symphony and as we drove down some country roads, it was very apparent that the supercharger delivered the kind of low end grunt that the high revving stock motor can only dream of. This means you can be a gear higher for every situation, which is good for fuel economy in normal driving.

Full throttle on the other hand is just plain silly. Despite the best efforts of the LSD, the tyres light up, the ESP warning light burning itself out in sympathy, and all that power and torque just goes to waste. It's best to stay in a higher gear and let the wave of torque do your bidding.

Fast forward a few months and I am at Kleemann once again, but thankfully under blue skies. This time, the car I have come to test is the very latest spec E63 AMG Estate 4Matic uprated with Kleemann's most potent conversion for the M157 biturbo motor. I am not surprised to learn that the owner is the same person who went looking for more performance in the last Kleemann E63 I drove. Having acquired a taste for AMG cars, he is

pleased that the Danish company finally made the Audi RS6 Avant beater he wanted all along.

Kleemann boss Claus Ankjær first showed me the engine dyno chart, which makes interesting reading, with 819.4hp (808.2bhp) at 5,500rpm and 1,315.4Nm (970.1lb ft) of torque at 3,400rpm! Given that the twisting force is constantly over 737lb ft from 2,400 to 4,500rpm, this Mercedes-Benz should pull with the strength of a proverbial train.

A key to its better breathing is the change of exhaust downpipe that Claus says is the nemesis of power on all the M157 engine

variants. Pulling the OE item from his collection of parts stripped off customer cars, he shows me just how convoluted and restrictive this part is. "The issue is available space in the engine

bay," he explains. "We had to be a bit clever in designing a less restrictive substitute that allows the exhaust gases to flow better while clearing every other hard point in the engine bay. The back pressure created by these two OE pipes that sit between the turbochargers and the downpipes is high, and just substituting our pipes immediately releases 70hp [69bhp]!"

However, the real key to big power is the Kleemann modified turbochargers. "We modify the factory ones because there are no aftermarket units that share the same water and oil lines, and the last thing we want is to risk durability with leaking lines that might lead

On the test bench, the uprated turbocharger shows half the back pressure of the standard unit



◁ Tinted rear windows add real menace.

△ The 4WDE63 is a fantastic all weather vehicle.

▽ Kleemann downpipe allows better breathing.



▽ The optional brakes are a must for this car.



Supercharged E63



▽ The E220 CDI badges are an amusing sight.



△ Cabin often consumed by AMG theatre.

▽ Select a higher gear to control the huge torque.

▽ Supercharger gives the M156 V8 690bhp.



▷ to an engine fire,” said Claus. “We machine the intake side for better flow and change the size and geometry of the compressor wheel.

“The exhaust turbine wheel comes as one piece with its shaft,” he continues. “In stock form, this is designed to develop its power low down in the rev band for good everyday driveability. The downside is that it runs out of puff at the top end, so we use a larger wheel to move the power curve upwards. But because of the flow work we do on the intake side, and the overall greater torque output, you don’t lose any driveability.”

On the test bench, the uprated turbocharger shows half the back pressure of the standard unit. In numerical terms, that is a measured reduction from 4bar to just 2bar, with the turbocharger boost pressure peaking at a fairly modest 4bar. The rest of the exhaust is Kleemann’s stainless steel system with an X-pipe that balances the pulses and gives a more even sound. This car has HJS race catalytic converters after the downpipes to further reduce back pressure.

LIKE NO OTHER

Keeping charge air temperature low is one of Kleemann’s mantras, and a supplementary water-cooled intercooler up front by the radiator supplements the factory one in the vee of the motor. Even 4WD cars benefit from a good limited-slip differential, and Kleemann uses its own Torsen diffs in the front and rear axle casings, making it the first tuned Mercedes estate in the world with 4WD and two differential locks! These clever diffs help the car deploy its power and torque so effectively that, despite its big and heavy wheels and tyres, this 1.9-tonne missile blasts to 37mph (60km/h) in 1.5 seconds, and passes 62mph (100km/h) in 3.2 seconds! In parenthesis, the standard E63 AMG S-Model 4Matic Estate hits 62mph in 3.7 seconds.



The hollow, hide topped lever is a nice touch.



△ Lower ride height and 20-inch alloys.



▷ Kleemann’s turbos have less back pressure.

This Kleemann car uses lowered conventional springs at the front and the Airmatic rear end is commensurately lowered via software. Overall, the ride height is 30mm lower than standard, and the arches are filled by 9.0Jx20 front and 10.5Jx20 rear Kleemann alloys shod with 255/30ZR20 and 295/25ZR20 rubber. The combination gives this load carrier a hunkered down and very purposeful look.

With the kind of traction I always thought an AMG car should have, this E63 AMG 4Matic Estate just digs in and rockets off the line as a boat load of g-force slams you back in your seat and pins you there while the motor and the close ratio seven-speed gearbox do their thing.

This car provides the kind of acceleration jet fighter pilots experience when they kick in the afterburners! Repeat this a couple of times and you cannot help but burst out laughing as this car makes it just so easy to go really, really fast. No wheelspin and no ESP light histrionics, just

big g-forces, big speeds and superglue traction. Coming out of bends is another thing, however. With steering angle applied, you can easily induce wheelslip at the rear, and you should not switch off the ESP on a public road unless you really know what you are doing. On a race track though, it would be huge fun to indulge in long drifts through fast bends, albeit at the expense of a set of tyres.

DANISH PASTING

Out of the box, the E63 AMG 4Matic Estate can keep up with junior league supercars in a straight line, and has a big traction advantage over a two-wheel drive car when the weather turns foul. Give it to Kleemann for few days and it will return with a decidedly more aggressive demeanour that lets you taunt some major league supercars before devouring them whole. Speed in an innocuous looking family sized package has never been so easy.

This car provides the kind of acceleration jet fighter pilots experience when they kick in the afterburners!

