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Aston Martin Ferrari Jaguar Mercedes-Benz

> **BARY M5 vs.** Mercedes-Benz E55

See pg 40





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Is there a new champion?

BY PATRICK HONG



N FRONT OF PHOTOGRAPHER GUY Spangenberg's large-format camera sit the BMW M5 and the Mercedes-Benz E55 on a vast, desolate Southern California dry lakebed. It's just a couple of hours before the sun finally dips into the horizon. And amazingly, the wind isn't howling this late afternoon like it normally does at this time of the year. It's calm and extremely quiet. Perhaps Mother Nature has decided to take a break so she can witness an extraordinary battle between two of the world's most powerful, technically sophisticated and exciting sports sedans.

In 1999, when we matched the E55 against the Jaguar XJR, the Mercedes took the honors as the best sports sedan. And now a year later, the E55 has to step into the ring once again and defend its crown against the BMW M5. This time, in addition to our usual Road & Track road test and subjective evaluations from Feature Editor Sam Mitani and me, we upped the challenge by taking these two cars to the Streets of Willow raceway in Rosamond, California. We recruited our resident racer. Online Services Editor Kim Wolfkill, to properly wring out both

of these cars on the track. You'll find Wolfkill's track impressions in his sidebar later in this story.

The players

THROUGH THE CAMERA LENS. there is nothing obvious on the exteriors of these two German cars to show that they are more than the standard BMW 540i and Mercedes-Benz E430 sedans. The M5's styling is understated, especially with a dark blue-metallic exterior color scheme. In front, the kidney-shape grille is widened and flared outward a bit, with a blackened diagonal mesh hiding the air intake beneath the bumper, flanked by two outboard openings housing the oval foglamps. In profile, only the massive 18-in. shadow-finish chrome wheels and a small lip atop the edge of the trunklid stand out. At the rear, an M5 badge, clear turnsignal/parking-light lenses with a lower valance wrapping around a pair of stainless-steel exhaust tips give hints to this specially tuned version of the 5 Series.

Turn to the E55 and you'll have to look even harder to find exterior design cues to differentiate this AMG from other silver Mercedes E-Class models. Other than the super-wide 18-in. wheels alongside lower side skirts ending with a pair of chrometipped exhaust pipes at the rear, and the "E55" and the "AMG" badge on the decklid, it looks nearly identical to the E430 Sport.

Inside, our M5 sports two-tone blue-and-black leather upholstery, special chrome-ringed instrumentation, an M sport steering wheel and an illuminated shift knob. Also included in the M package are the GPS navigation system and the 14speaker premium sound system with a CD changer. The E55 comes in a red-and-black combination for the interior leather upholstery, with black bird's-eye maple wood trim. The only options available with the E55 are the portable cellular phone and the trunk-mounted CD changer. All in all, both of these cars offer the same opulence, amenities and safety features you would normally associate with a well-equipped BMW 5 Series or a Mercedes-Benz E-Class luxury sedan.

Weighing almost 400 lb. more than the E55, the 4000-lb. BMW M5 comes well equipped to challenge the reign-



In My Opinion...

PATRICK HONG, Road Test Editor

I must admit that before entering into this comparison test my heart had already swayed toward the BMW a bit. I thought the M5 was going to smoke the E55 in every category. Well, I hate to say it, but I was wrong. Both of these cars are exceptionally competent sports sedans, if not sports cars with four doors and two extra seats. So my pick basically comes down to which one offers the most fun driving. That would be the M5. It looks cool, sounds great, and the 6-speed manual and the lightning-fast throttle response allow me to be more active in driving, which is the best part about enjoying a sports sedan.



ing champion. Based on the 540i Sport, BMW's Motorsport division bumped the stock M62 4398-cc 282-bhp unit to 4941 cc, enabling the new S62 M5 powerplant to pump out 400 bhp and 369 lb.-ft. of torque. This bumped displacement is accomplished by lengthening the stroke from 82.7 mm to 89.0, and increasing the bore from 92.0 mm to 94.0. Other modifications to the engine include a heavy-duty double-roller timing chain and hollow camshafts for long life and reduced inertia, enlarged intake ports and larger-capacity cooling system to meet the stringent demands of the powerplant. A double VANOS system (variable valve timing) designed specifically for the M5 is also adopted to enhance low- to medium-speed torque delivery, as well as optimizing combustion for reducing harmful emissions.

Making sure all the cylinders in the S62 have access to all the fresh air they need is a top priority. Once the outside air is gobbled up at two points behind the front bumper, it then flows into a carbon-fiber plenum atop the engine. From there, 9.1-in. intake runners funnel the air to the entrance of the cylinders. But gaining access to the actual combustion chambers requires passage through a system of eight individual throttle valves. Usually, separate throttle butterflies are seen only on ultra-performance sports applications, including racing engines. And while previous M 6-cylinder powerplants had the same feature, the M5 V-8 is the first with electronically actuated individual throttles. By having a DC servomotor connected to separate throttle valves housed at each intake port, the engine is able to respond to gas-pedal movements in as little as 120 milliseconds.

The BMW M5 comes to battle with a 400-bhp powerplant, a sporty 6-speed manual transmission, 18-in. tires and shadow chrome wheels. Inside, the driver is treated to special M instrumentation and blue-andblack upholstery.



In My Opinion... SAM MITANI, Feature Editor

After spending more than a week in Germany driving that country's fastest road-going machines, I realized that the name of the game there is top speed. And both the BMW and Mercedes-Benz are Autobahn demons of the first order. The difference between the two becomes apparent around a twisty road course. Surprisingly, the BMW exhibited significant understeer through tight corners, while the Mercedes-Benz felt more neutral and precise. Also, the E55 felt noticeably more stable under hard braking. So, despite not having a manual gearbox, my nod in this test goes to the Mercedes-Benz.



Tipping the scale at 3620 lb., the E55 comes ready to defend its title armed with the familiar 5.4-liter V-8 that AMG prepares at the Affalterbach factory for Mercedes-Benz. It's a modified version of the 5.0-liter 8cylinder block that powers the SL500. The AMG engineers stroked the stock powerplant from 4966 to 5439 by installing a different crankshaft with connecting rod journals that are 4 mm farther from the centerline of the crankshaft. The offset increased the stroke by 8 mm to 92.0 mm, bringing it closer to the 97.0-mm bore and thus making the V-8 a nearly "square" engine. The crankshaft is dynamically balanced, with connecting rods and pistons selected specifically for each engine in equal weight-matched sets to ensure the 5.4-liter monster produces smooth power delivery of 349 bhp at 5500 rpm and 391 lb.-ft. of torque at 3000 rpm.

In addition to Mercedes' new generation of V-8s incorporating twinspark/3-valve, single-overhead-cam technology with low-friction cast-in silicon-aluminum cylinder sleeves, AMG added higher-tension valve springs and lighter camshafts. And to satisfy the E55's thirst for fresh air now with more cubic inches to fill, AMG engineers installed a new dualtube air cleaner assembly and modified the stock dual-resonance intake manifold with a wider cross-section to increase the airflow.

The road test

ON THE DRAG STRIP, THE TREMENdous power available to both of these sedans clearly showed in the performance numbers. Off the line, the BMW quickly grabs hold of the asphalt with

5506D2

The reigning champion Mercedes-Benz E55 defends its title with a new Touch Shift 5-speed automatic transmission mated to the familiar AMG-prepared 5.4-liter 349-bhp V-8 engine. The red-and-black leather upholstery adds a little flair to the otherwise serious-looking cockpit.

Hot lapping brings out the true "sport" in this speedy pair

To get a better feel for how the M5 and E55 behave outside the confines of day-today street driving, we took them out to the Streets of Willow raceway for some back-toback hot laps. With a varied assortment of short- and medium-radius corners, the Streets quickly put our two super sedans to the test. If either car had any distinguishing (or disquieting) behavioral traits, they'd reveal themselves here.

First car on the track was the M5. With a fast time of 1:06.96, the BMW lapped the short course nearly one second faster than the big Merc. As might be expected, some of this can be attributed to the M5's 6-speed manual gearbox versus the E55's 5-speed automatic. The 6-speed optimizes the BMW's power by always offering the right gear at the right time. As good as the E55 is at automatically adapting to different driving styles, it's no match for the instantaneous power afforded by the M5's manual. Using the E55's Touch Shift helps matters but still proves less effective than the manual.

In handling, the BMW feels surprisingly light on its feet (especially for a car that weighs 4000 lb.). Relatively flat cornering and good directional control allow the M5 to be pitched into turns at impressively high entry speeds. It reacts quickly to steering input and maintains chassis composure under both heavy braking and acceleration loads.

However, as competent as the M5's handling may be, it's not without fault. Considerable understeer from mid-turn to corner exit

modest wheelspin. Once on its way, the engine revs up so fast that it will hit the rev limiter in 1st gear before the tachometer reaches the 7000-rpm indicated redline. You have to shift to 2nd at the 6000 mark in anticipation of the fuel cutoff. The M's Getrag Type D 6stopped it from turning really quick laps. This consistent push makes it difficult to apply early throttle in medium- to high-speed turns. So while a little understeer is the best way to keep the M5 out of trouble on the street, at the track it prevents

the front end from hooking up and fully exploiting the car's otherwise excellent handling.

On the other side of the coin, the E55 carved through the Streets' course with little of the M5's front-end drama. Slightly softer suspension tuning gives the E55 better front bite, allowing power to be applied earlier in the turn. The Mercedes' nose goes where pointed and holds tenaciously in all but highspeed corner exits. Combined with the 5-speed automatic, this setup produces a car that doesn't accelerate as quickly out of turns, but carries more speed through them.

The E55's lap time of 1:07.77 bears this out—the M5 gets from turn to turn more quickly, but the E55 actually achieves higher speeds in the turns themselves. In the process, the Mercedes also manages to be just a touch more comfortable, and thanks to its automatic transmission, takes less work to hustle around the track.

From a power standpoint, the E55 feels faster, while the M5 feels quicker. The BMW

speed manual transmission is precise; it takes a few trial runs, however, to get used to the clutch takeup for proper launches. The M5 clocked a time of 5.0 seconds from zero to 60 mph, and 13.4 sec. at the quarter-mile marker with the speedometer showing 108 mph. literally leaps from corner to corner, whereas the Mercedes needs a fraction more time to gather up a head of steam. Once on a roll, however, the E55 seems to accumulate speed more rapidly. We didn't record top



speed at the track, but I believe the Mercedes may have reached a slightly higher velocity at the end of the pit straight.

Never before have two production sports sedans performed so impressively yet remained so civilized. Short of strapping a La-Z-Boy to the roof of your 911, these two hot rods may be the only way of sharing true sports-car performance with four of your bravest friends.—*Kim Wolfkill*

Catapulting the AMG Mercedes from a standstill is a breeze compared with the M5. New for 2000 is a Touch Shift 5-speed automatic transmission for the E55 adapted from the just introduced S-Class. This system allows the driver to manually select the desired

On the track, the M5 is hunkered down and grips the asphalt with confidence and composure. The instant-on electronic throttle response and the precise manual gearbox will bring a smile to any driver.

gear by pushing the gear lever slightly left to downshift, or slightly right to upshift. Best acceleration times of 5.1 sec. from zero to 60 mph, and quartermile times of 13.6 sec. at 106 mph, are recorded not by brake-hold launches or manually shifting, but by simply stomping on the gas pedal and watching the E55 come alive with little wheelspin. The shifting algorithm and the mechanical actuation of the automatic transmission are so smooth that you'll notice only a change in engine tone and a slight pause in forward motion as the car shifts to higher gears.

When it's time to hit the brakes before the end of the drag strip, both the M5 and the E55 are more than happy to accommodate with their impressive ABS braking power. Riding on 245/40ZR-18s coupled to 13.6-in. vented discs up front and 275/35ZR-18s mounted with 12.9-in. vented discs bringing up the rear, the Bimmer needed only 129 ft. to stop from 60 mph, and 220 ft. to come to a halt from 80. Not bad for a car that weighs two tons.

The Mercedes comes with the exact same tire package as the BMW. Armed with 13.2-in. vented discs at the front and 11.8-in. vented discs at the rear, the E55's innovative Brake Assist, which recognizes emergency braking and automatically applies full-power ABS brake force, turned in stopping distances seen only on high-performance sports cars. From 60 mph, the AMG accomplishes zero momentum in 122 ft. And from 80 mph, a remarkable 208 ft. is all the Mercedes needed to come to a complete stop.

It's obvious that keeping the M5's 400 bhp and the E55's 349 bhp in

check requires more skills than you can acquire from a summer's worth of driver education, especially when you are traveling on unfamiliar or slippery roads. Just tell your parents that BMW's Dynamic Stability Control (DSC) and Mercedes' Electronic Stability Program (ESP) can save you from running out of talent. Both systems, with their electronic control unit actuating ABS, traction and yaw control, will help the driver maintain directional stability, preventing extreme understeer or oversteer situations. As for the parents, if and when they decide to risk their own money to test their own driving skills, both of the stability-control systems can be turned off with a button in the cockpit. However, it should be noted that the Mercedes' ESP can not be completely turned off; it only allows for a higher threshold of yaw movements.

Bear in mind that although the fancy electronics can help you keep the M5 and the E55 on the road, you can't defy the laws of physics. A competent chassis design is needed to keep cars on the road. For the BMW, it starts with the standard 5 Series aluminum suspension with anti-roll bars; MacPherson struts and split lower A-arms control the front tires, and a 4-link system is on duty at the rear. Upgrades for the M5 include a limited-slip differential, firmer springs and shocks, with auxiliary polyurethane springs all around that stiffen under hard cornering. The Mercedes' underpinnings feature upper and lower A-arms for the front, and a 5-link configuration at the rear. AMG specified 35-percent higher spring rates, thicker anti-roll bars and Bilstein digressive gas-pressurized shocks for the E55. "Digressive" means that the Mercedes will ride softer over smaller bumps at lower speeds, but the shocks firm up as the car is tossed around.

Through our slalom course, the M5's suspension is able to hold the line better and averages a higher speed of 64.7 mph versus the E55's 63.5 mph. The Bimmer exhibits better balance, threading through the cones like a single unit. In contrast, the Mercedes feels a little disjointed, with the rear showing a tendency to dance around a bit before settling down. However, the E55 feels more nimble when it's tossed from side to side. And while the 0.90g skidpad numbers for both sports sedans are identical, the BMW's moderate to heavy understeer surprised everyone. The Mercedes, displaying less understeer, is better at keeping its front tires on track around the 200-ft.diameter circle than the M.

The track test

WITH A STOPWATCH IN ONE HAND and a notepad in the other, I record Kim Wolfkill's lap times as he alternates between the M5 and the E55. And after two 5-lap sessions, Wolfkill is able to hustle the BMW across the finish line in a best time of 1:06.96, just beating the 1:07.77 sec. turned in by the AMG.

We all agree that both the BMW and the Mercedes have tremendous amounts of power to scoot you up to speed. The delivery of horsepower and torque is evenly distributed and comes on smoothly throughout the different gears. But the nod goes to the M5 for its deep-throated engine growl as it

The E55 is a real surprise on the racetrack. Its automatic transmission is ready to adapt to driver needs, and its chassis is more balanced, exhibiting less understeer than the M5.



List price/Price as tested: \$69,400/\$73,774

Price as tested includes std equip. (dual airbags, sideimpact airbags, head-protection system, ABS, stability control, navigation system, auto. climate control, cruise control, 18-in. wheels, leather upholstery, AM/FM stereo/cassette with 6-CD changer, security, headlamp washer, heated seats, sunroof; pwr seats, windows, mirrors, door locks), gas-guzzler tax (\$2100), luxury tax (\$1704), dest charge (\$570).

2000 **Mercedes-Benz E55** CALE: 10 in. (254mm) DIVISIONS DRAWING BY TIM BARKER

List price/Price as tested: \$69,800/\$73,065 Price as tested includes std equip. (dual airbags, sideimpact airbags, ABS, stability control, auto. climate control, cruise control, 18-in. wheels, leather upholstery, AM/FM stereo/cassette, security, headlamp washer, heated seats, sunroof; pwr seats, windows, mirrors, door locks), luxury tax (\$1670), gas-guzzler tax (\$1000), dest charge (\$595).

	General Data		Acceleration	
	BMW M5	Mercedes-Benz E55	BMW M5	Mercedes-Benz E5
Curb weight	. 4000 lb	3620 lb	Time to speed, sec	
Test weight		3760 lb	0-20 mph1.2	10
Weight dist (with		5100 10		1.2
driver), f/r, %	54/46	EE /AE	0-40 mph	2.8
unver), 1/1, 70		55/45	0-60 mph5.0	5.1
Wheelbase		111.5 in.	0-80 mph 7.9	8.2
rack, f/r		60.2 in./59.9 in.	0-100 mph 11.7	12.2
ength	188.3 in.	189.4 in.	Time to distance	HATTER: Hutsteller.
Vidth	70.9 in.	70.8 in.	0-1320 ft (¼ mile) 13.4 @ 107.8 mph	13.6 @ 106.0 mph
leight	56.6 in.	56.7 in.	period and a statistic period in the second state and the second state and second states and	NASTANI CONTRACTOR
	Engine		Braking	
ype	New York and the second se	soho 2 valvo (avi	Minimum stopping distance	100.0
Jpc		sohc 3-valve/cyl	From 60 mph 129 ft	122 ft
Vicelagement	V-8	V-8	From 80 mph 220 ft	208 ft
Displacement		5439 cc	Control excellent	excellent
Bore x stroke		97.0 x 92.0 mm	Brake feel excellent	excellent
Compression ratio		10.5:1	Overall brake rating excellent	excellent
lorsepower (SAE)	400 bhp@ 6600 rpm	349 bhp @ 5500 rpm		
	369 lb-ft @ 3800 rpm	391 lb-ft @ 3000 rpm	Handling	
Maximum engine speed		6000 rpm	Lateral accel (200-ft skidpad):0.90g	0.90g
	elect. sequential port	elect. sequential port	Balance moderate understeer	mild understeer
Rec. fuel	prem unleaded,	prem unleaded,	Speed thru 700-ft slalom: 64.7 mph	63.5 mph
	91 pump oct	91 pump oct	Balance mild understeer	mild understeer
	Chassis & Bod	y	Interior Noise	
_ayout	. front engine/rear drive	front engine/rear drive	Idle in neutral	47 dBA
Body/frame	. unit steel	unit steel	Maximum, 1st gear 72 dBA	70 dBA
Brakes, f/r	. 13.6-in. vented discs/	13.2-in. vented discs/	70 mph	69 dBA
	12.9-in. vented discs;	11.8-in. vented discs;	10 mpn	05 004
	vacuum assist, ABS	vacuum assist, ABS	Fuel Economy	
Vheels	. castalloy; 18 x 8 f, 18 x 9½ r			10.7
Fires		cast alloy; 18 x 8J f, 18 x 9J r	Normal driving 15.1 mpg	18.7 mpg
1165		Michelin Pilot Sport;	EPA city/highway13/21 mpg	16/23 mpg
	245/40ZR-18 f,	245/40ZR-18 f,	Fuel capacity 18.5 gal.	21.1 gal.
teering	275/35ZR-18 r	275/35ZR-18 r rack & pinion,	Drivetrain	
	vari power asst	vari power assist	Transmission 6-speed manual	5-speed automatic
Overall ratio		15.2:1	Gear/Ratio/Overall/(Rpm) Mph	o opoci automatic
Turns lock to lock		3.3	1st, :1	2 50/10 12//5000 40
Suspension, f/r	MacPherson struts,	upper & lower A-arms, coil		3.59/10.12/(5800) 40
	coil & polyurethane		2nd, :1 2.53/7.11/(7000) 67	2.19/6.18/(5800) 66
		springs, tube shocks, anti-roll	3rd, :1	1.41/3.98/(5800) 102
	springs, tube shocks,	bar/multilink, dual lower	4th, :1	1.00/2.82/(5800) 144
	anti-roll bar/4-link, coil	links, coil springs, tube shocks,	5th, :1 1.00/2.81/est (6460) 155*	0.83/2.11/est (5150) 155
	& polyurethane springs,	anti-roll bar	6th,: 1 0.83/2.33/est (5170) 155*	
	tube shocks, anti-roll bar		Final drive ratio 2.81:1	2.82:1
	Accommodation		Engine rpm @ 60 mph in top gear 2000	2000
Conting conceller	Accommodation		*Electronically limited.	
eating capacity		5	and the second second second	
lead room, f/r		37.8 in./34.5 in.		
ront-seat leg room		44.8 in.	and the second second second second	
Rear-seat knee room		26.0 in.	Subjective ratings consist of excellent, very good, g	
	. 17.3 + 8.1 cu ft	17.9 cu ft	na means information is not availab	A REAL PROPERTY AND A REAL



The M5 and the E55 are nearly equally matched in this battle of sports sedans, with the BMW taking a razor-thin victory here.

builds its pace toward the end of the straight. However, when it's time to dial in steering for the corner, the M5 falls behind the E55 by exhibiting too much understeer. The Mercedes is more balanced, enabling you to step on the throttle sooner out of mid-turn. "The E55 has a quicker and tighter turn-in feel than the M5. I had more fun in the Mercedes than the BMW on this track," Sam Mitani noted. For me, I prefer the more tied-down feel and cohesive movement of the M5 on the track, even if it means living with its understeering nature. Besides, the BMW's 6-speed manual transmission combined with the instant-on throttle response captures more of my enthusiasm than the Mercedes' 5-speed automatic.

And the winner is...

AT THE END OF THE DAY WHEN ALL the points are assigned and totaled, the BMW M5 barely squeezes past the Mercedes-Benz E55 by a mere 0.7 points to take the crown. In the performance category alone, the E55 has a slight lead because its braking and fuel economy numbers beat the M5's by a greater margin. But in the subjective ratings, the M5 comes out ahead because it offers a more enthusiastic feel to the driver. As for the price, even though the BMW is more expensive (about \$700) than the Mercedes, the difference is so small in comparison to the total price that both cars receive the same score.

What does all this mean? It means that both the M5 and the E55 are extremely competent and equally matched in the "sports" and the "sedan" categories. You can compare their performance numbers against the likes of Porsches, Corvettes, or even Ferraris, and you'll find the BMW and the Mercedes easily keep pace with these purebred sports cars. And better still, you can enjoy all that and yet be pampered in a spacious and luxurious environment offered by a 4-door sedan. So, trust me, you can't go wrong with either one of them. 9

The Results...

Performance		BMW M5	Mercedes-Benz E55	
Lap Times	50 pts.	50.0	49.4	
0–60 mph	25 pts.	25.0	24.5	
Braking, 60–0 mph	25 pts.	23.6	25.0	
Slalom	20 pts.	20.0	19.6	
Skidpad	20 pts.	20.0	20.0	
Fuel economy	y 10 pts.	8.1	10.0	
TOTAL	150 pts.	146.7	148.5	
and the second	based on proportion	al scale.	M MMR	
Subjective				
Engine	10 pts.	9.5	8.5	
Gearbox	10 pts.	9,0	8.0	
Steering	10 pts.	9.0	8.5	
Brakes	10 pts.	8.0	9.0	
Ride	10 pts.	9.0	8.0	
Handling	10 pts.	8.0	8.5	
Controls	10 pts.	8.0	8.5	
Build quality		9.0	9.0	
Exterior styli	ng 10 pts.	8.5	8.5	
Interior stylin	ng 10 pts.	9.0	8.0	
Front-seat sp	ace10 pts.	9.0	9.0	
Rear-seat spa	ace 10 pts.	9.0	9.0	
Trunk space	10 pts.	8.5	8.5	
Noise	10 pts.	8.5	8.5	
Driving excite	10 pts.	9.0	9.0	
TOTAL	150 pts.	131.0	. 128.5	
ibjective ratings b	Concerns of the local division of the local	ded in each of 15 categories, b	by two editors.	
List price	100 pts.	100.0	100.0	
		ints-range of other categories,		
Resul	Its	en suiten sauva. Altradust auror	den 4 luci Storester	
Total points	400 pts.	377.7	377.0	
(Total points ÷ 4.0)		94.4	94.3	
STAND		1	2	
STANDINGS		BMW M5	Mercedes-Benz E55	