

CAR AND DRIVER

TESTED: Three hot BMW 540s

FEBRUARY 1996



Fast Fives

BMW 540s in three new flavors:
sporty, naughty, and rorty.

BMW's 5-series car is seven years into its model life, and in a few months its replacement will appear on these shores. So it must be time to freshen the lame duck's appeal with a little added spice, right? *Ja, narrrlich.*

Thus the 540i Sport has appeared, a more athletic version of the mid-sized model. Having decided that the power from the 4.0-liter V-8 was adequate, BMW's engineers went to work on the car's chassis instead, evidently believing that the stock 540i was merely the *penultimate* driving machine, and it could stand some improvement.

We've never complained about the chassis manners of the standard 540i, but we admit the Sport package we test here further enhances the sporting flavor of the car. Is it worth an additional \$8360?

For about the same money, you could take your base 540i to Steve Dinan's shop near San Jose for a supercharger conversion. He can boost the power to 402 hp, outshining the 540i Sport in no uncertain fashion. But with that much performance, you'll be forced to consider some suspension, brake, and tire upgrades to harness the action. Choose the good stuff from Dinan's catalog and you're looking at another eight grand. Hey, it's money well spent.

The third car in our BMW 540i trilogy isn't for sale. At least, not in the conventional sense. It's Dinan's World Challenge race car. World Challenge is the SCCA's version of Le Mans-type sports-car racing. Yeah, we know the 540i isn't a sports car, but Dinan doesn't seem to care. He's been racing the car against Corvettes and factory-built Porsche GT2 race cars for two seasons. Brave? Certainly. Crazy?! Maybe. Successful? Read on for the answer to that one.



FAST: BMW 540i Sport

One look at the front spoiler proves that this car means business, simply reduce airflow under the car, this one on the BMW 540i Sport uses the air to increase braking performance. Specifically, a small duct directs cooling air squarely at the brakes, reducing fade. Not only did this 3770-pound car stop from 70 mph in a short 161 feet, but it was able to repeat such impressive performance again and again in rapid succession.

An engine as powerful as BMW's 4.0-liter aluminum V-8 needs strong brakes. Speed builds effortlessly; while driving in any of the four lower gears, flooring the throttle produces thrust instantly, right up to the redline. A muted shriek rising in pitch with the increasing revs is your best indication that it's time to shift. Not so much as a hint of vibration or harshness disturbs the occupants.

The 540i Sport represents the latest effort from BMW's special performance division. For \$8360 over the price of the standard 540i six-speed, BMW M adds a performance suspension system, larger front brake rotors, new wheels and tires, deeper front and rear



spoilers, rocker panels, and special M badging.

"So why not call it the M5?" you ask. Because M5 applies to the race-derived six-cylinder 5-series sedan sold only in Europe since 1993. This Sport model is basically an M5, because the Sport almost matches it in performance: 0 to 60 mph takes 5.8 seconds (the M5 does it in 5.s), and the quarter flashes by in 14.4 seconds at 98 mph (just one-tenth and 1 mph behind the M5).

Top speed is limited to a lofty 155 mph in both cars, well about the 540i's 129-mph limit.

An interesting 540i Sport upgrade is BMW's Electronic Damping Control (EDC), which automatically tailors the shock valving to suit driving conditions. EDC monitors the vertical motions of each wheel, vehicle speed, acceleration, braking, and the rate for the driver's steering inputs. The shocks automatically firm up for

hard driving, or you can manually select the stiffest setting via a dash-mounted switch.

Left to the EDC computer's discretion, a near perfect ride/handling compromise emerges. With the help of the Sport's 17-inch aluminum wheels and 235/45ZR-17 Michelin Pilot SX tires, grip climbs to 0.88 g from the standard 540i's 0.78 g and the M5's 0.82 g. Excellent controllability encourages probing of the high cornering limits. The 45-series tires deliver a bit more bump impact; otherwise, this car is comfortable.

Any \$64,000 sedan should be powerful, accommodating, and practical to a degree. This one excels in each of these tangible categories, but its real value lies in the intangibles: How easily it hurtles down a lonely country road at very naughty speeds. Or the urgency with which it tackles everyday driving, transforming the mundane grocery trip into a full-blown qualifying run.

Dinan 540i Supercharged: front-engine, rear wheel-drive, 5-passenger, 4-door sedan

Price as tested: \$63,997 (base price: \$61,907)

Engine type: DOHC 32-valve V-8, aluminum block and heads, Dinan/Bosch Motronic HFM engine-control system with port fuel injection

Displacement.....	243 cu in, 3982cc
Power (SAE net).....	282 bhp @ 5800 rpm
Torque (SAE net).....	295 bhp @ 4000 rpm
Transmission.....	6-speed
Wheelbase.....	108.7 in
Length.....	185.8 in
Curb weight.....	3770 lb
Zero to 60 mph.....	5.8 sec
Zero to 100 mph.....	15.0 sec
Zero to 130 mph.....	29.1 sec
Street start, 5 to 60 mph.....	6.6 sec
Standing 1/4-quarter mile.....	14.4 sec @ 98 mph
Top speed (governor limited).....	155 mph
Braking, 70-0 mph.....	161 ft
Road holding, 300-ft-dia skidpad.....	0.88 g
EPA Fuel economy, city driving.....	14 mpg
C/D observed fuel economy.....	17 mpg



An extra \$8360—nearly \$64,000 total—is a lot to spend on a car that will soon look seven years old. But as swan songs go, this is a sweet one.

—Larry Webster

FASTER:

Dinan Supercharged 540i

Steve Dinan has been modifying and racing BMWs for years, and we think of his company as the stateside equivalent of the German BMW master-tuning firm Alpina. That's because Dinan manages to add loads of extra power and performance while retaining the refinement, look, and feel of the original cars.

Many of Dinan's recent offerings were turbocharged, but Steve realized that

turbo conversions were steadily increasing in price because of the extensive engine rebuilding that accompanied them. His answer has been to switch to supercharging—a bolt-on technique requiring relatively few additional components and engine-management revisions.

The base \$6995 supercharger system includes a belt-driven Powerdyne centrifugal-type supercharger (with ceramic bearings that require no oil), a compressor-by-pass assembly, engine-control software, a low-restriction air-filter system, high-flow fuel injectors, a Turbotronics-10 module (which piggybacks onto the stock airflow meter to calibrate it for forced induction), and a dual fuel-pump assembly. Out test car had the Stage 2 setup that adds a freer-flowing exhaust system for another grand.

This \$7995 set of performance upgrades adds 120 horsepower (at 6000 rpm),

and the car certainly feels that strong out on the open road. At low engine speeds, you can hear a barely audible whiz from the supercharger, but any amount of throttle buries that sound under nicely modulated V-8 noises.

Throttle response is smooth and

Dinan 540i Supercharged: front-engine, rear wheel-drive, 5-passenger, 4-door sedan

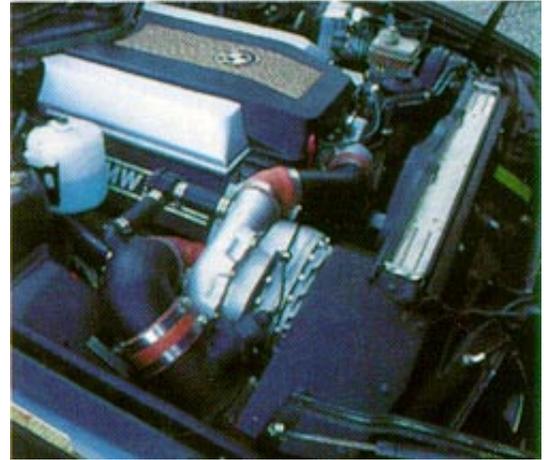
Price as tested: \$68,554

Engine type: supercharged and intercooled DOHC 32-valve V-8, aluminum block and heads, Dinan/Bosch Motronic HFM engine-control system with port fuel injection

Displacement.....	243 cu in, 3982cc
Power (SAE net).....	402 bhp @ 5800 rpm
Torque (SAE net).....	363 bhp @ 4000 rpm
Transmission.....	6-speed
Wheelbase.....	108.7 in
Length.....	185.8 in
Curb weight.....	3690 lb
Zero to 60 mph.....	5.2 sec
Zero to 100 mph.....	12.4 sec
Standing ¼-quarter mile.....	12.2 sec @ 128 mph
Top speed (mfr's estimate).....	180 mph
EPA Fuel economy, city driving.....	13 mpg



Along with the tidy supercharger installation, Dinan adds a row of gauges for boost pressure, engine-oil temp, and differential-oil temp.





emphatic, wafting the car away with elastic ease. And the urgency builds steadily with engine revolutions, until the car is rocketing along on five pounds of boost ahead of a pleasant baritone tailpipe tune. It feels, well, like an extra-strong BMW 540i, with more of the same eager throttle response, more effortless acceleration, and even more flexibility.

Launching the car for the best acceleration times proved a bit difficult on the Sears Point Dragstrip in northern California because of wheelspin and fairly pronounced axle hop, resulting in a less than spectacular 0-to-60 time of 5.2 seconds—0.6 second quicker than the 540i Sport. But the markedly quicker quarter-mile showcased the car's increased power, with a time 0.6 second shorter and a speed advantage of 8 mph.

That's just the drag strip. In every other way, the Dinan car rewards its driver by gulping huge chunks of space in response to digs at the throttle, then turning obediently and holding the road with remarkable tenacity for such a large car. That's because Dinan fits suspension and brake conversions, too. Our car wore a Stage 4 suspension, including adjustable Koni shocks, beefier springs, adjustable anti-roll bars, camber plates for the front wheels, and a camber-adjustable rear

subframe. The cost: \$1739. But there are more affordable kits available—the Stage 1 shock-and-spring package runs just \$789.

Nine-inch-wide 17-inch Dinan wheels and hub extenders add \$1078, not counting the 40-series Toyo Proxes FIS tires fitted to our test car. Most impressive of all were the brakes, which were lifted directly from the BMW M division catalog. Intended

for 850CSi, the 13.6-inch rotors and four-pot calipers annul speed like a drag chute, and we deeply regret not having had time to run brake test. Another time, perhaps. After all, with a car like this you need an excuse for another drive.

—Barry Winfield

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FASTER:

Dinan 540i Turbo World Challenge

From the outside, Dinan's BMW 540i World Challenge race car looks for all the world like a stock Bimmer that has been lowered, with a chin spoiler up front and a big wing stuck on the back. But as you get closer, you notice that the side window surround is a carbon-fiber dummy. Tap on the bodywork and you discover that most of the bodywork and you discover that most of the body panels are made of the same material. Even the dashboard—the same shape as the original—is a lightweight carbon-fiber replacement.

All four doors are still on the car, but they're now composed of just the exterior steel skin of the originals, held in place with Dzus fasteners. The exception is the driver's door, which opens. Under this amazingly true-to-life bodywork is a roll cage whose skeleton of tubes brace everything in the BMW's unibody and turn the car into a spaceframe/monocoque hybrid.

Under the hood lives a surprisingly stock 4.0 liter BMW V-8, which is force-fed by a Garrett AiResearch T04 turbocharger at boost levels between 12 and 19 psi, cramming the air through an obligatory World Challenge S1 inlet restrictor (which conforms basically to 1996 Le Mans GT1 specs). This arrangement, as I discover while hurtling around the Sears Point track in the passenger's seat, will produce wheelspin in the third ratio of Dinan's NASCAR-style Jerico four-speed transmission.

It also beams the 540 race car from corner to corner with such violence that I wonder if I could drive a machine like this at speed without a lot of practice. The aerodynamic foils begin working in earnest as the speed rises, and there is one long right-hand sweep at Sears Point that has the tendons in my neck working hard to keep my head upright. This, obviously, is the kind of performance you need to be competitive in the World Challenge Sports 1 events.

It's remarkable then that the races are on street tires, mostly Goodyear Eagle GSCs. Dinan would prefer even stickier rub-



The Dinan 540i World Challenge racer uses a surprisingly stock V-8(plus turbo). That big wing on the back, however...



ber because “the things that make the 540i such a great street car often hinder the performance of a race car,” Weight distribution is one of the problems. Dinan's car has lot of weight on the front axle, making the car push in turns, and it doesn't drive out of corners that well either. The Porsche GT2 of Dinan's big rival in World Challenge racing, David Murry, has its engine right over the rear wheels. Next year, Dinan plans to move the powertrain back about a foot inside the engine bay to alter the weight distribution.

As it is, Dinan's racing enterprise hasn't been doing badly this year: so far, he's had two seconds, one third, one fourth, and one fifth. This is, remember, from a privateer of limited resources campaigning a big four-door luxury sedan against some well-funded teams and their race-bred Porsches, Corvettes, and Mustangs.

Thus far, the BMW distributors have offered only contingency money for high-placed race finishes, and Dinan has had to foot the whole bill for his racing program. Consequently, his racing team is a model of leanness, with one transporter and just two or three guys for fabrication and pit-crew duties. It makes you wonder what Dinan might achieve with some factory money behind him.

—Barry Winfield

Dinan 540i Turbo World Challenge: front-engine, rear wheel-drive, 2-passenger, 4-door sedan
Price as tested: \$200,000 (estimated)
Engine type: turbocharged and intercooled DOHC 32-valve V-8, aluminum block and heads, Dinan/Bosch Motronic HFM engine-control system with port fuel injection

Displacement.....	243 cu in, 3982cc
Power (SAE net).....	650 bhp @ 5800 rpm
Torque (SAE net).....	700 lb-ft @ 4000 rpm
Transmission.....	4-speed
Wheelbase.....	108.7 in
Length.....	185.8 in
Curb weight.....	2825 lb
Standing ¼-quarter mile.....	12.2 sec @ 128 mph
Fuel economy, typical WCS1 race.....	4 mpg