

# M3

WE DRIVE THE 407 HP DINAN 335i  
AND NEW **M3** BACK-TO-BACK.

STORY & PHOTOS TERRY SHEA



# AWTTER





**ALL OF THESE MODIFICATIONS TOGETHER CREATE 407 HP AT 5700 RPM AND 429 FT-LBS OF TORQUE AT 3700 RPM, A FULL 107 HP AND 129 FT-LBS OVER THE STOCK CAR.**

he sound resonates off the walls, echoing and amplifying in a way that scares the Prius-infested traffic of the San Francisco Bay Area. Just north of the Golden Gate Bridge on Highway 101, heading back toward San Francisco, the tunnel is short, but a few hundred yards nonetheless. I slow to a crawl, then I run through first gear, rapidly reaching the shift point just past 6000 rpm. I quickly dispatch second gear and before I can run through third, I have already caught up with traffic. With the windows down and the revs up in the Dinan S2-335i, the sound is incredible from the 407hp machine. Turbo cars aren't supposed to make noises like this.

Then again, Steve Dinan has a long history of making BMWs do things they don't normally do. Even when starting with the extremely capable 335i, Dinan's thorough engineering results in a transformed car. Less than a day after completing the project, Dinan tossed us the keys, giving us a chance to be the first to drive the car.

Although BMW had dabbled in turbo-charged gasoline cars only briefly before the 335i, Dinan has been force-feeding BMWs since 1979. Even with 14 full-time engineers on staff, transforming the 335i into the Dinan S2 was no easy task, as Dinan matches BMW's factory warranty and promises "performance without compromise." Dinan is more of a manufacturer than a tuner, investing great sums in R&D. As he says, "It's always frustrating to meet people who put parts in a box and then they put their name on the box." Rest assured, if Dinan's name goes on the box, there's a whole lot of quality inside.

Instead of following other tuners using so-called piggyback ECUs that send false signals of low boost to the primary ECU, Dinan's team—with up to four dedicated software engineers in-house and three outside consultants—spent 14 months carefully rewriting more than 2,000 bytes of code in the factory Siemens-Infineon MSD80 computer. While that may not sound like much, BMW's

## SPECIFICATIONS & DETAILS

'07 BMW 335i

### ENGINE

Twin-turbo, 3.0-liter inline-six

### ENGINE MODIFICATIONS

High-capacity oil cooler with improved inlet and outlet ducting, Dinan stainless steel exhaust, Dinan intercooler

### ECU MODIFICATIONS

Dinan S2 Software

### NUMBERS

Horsepower: 407 @ 5700 rpm  
Torque: 429 ft-lbs @ 3700 rpm

### WHEELS, TIRES AND BRAKES

(f) 19x9" Dinan forged wheels with 265/30/19 Michelin Pilot Sport PS2 tires; 6-piston calipers with 15" rotors; Goodridge stainless steel brake lines; (r) 19x9.5" Dinan forged wheels with 275/30/19 Michelin Pilot Sport PS2 tires; 4-piston calipers with 13.6" rotors; Goodridge stainless steel brake lines

### SUSPENSION

Dinan's Stage 3 Suspension System including springs, Koni adjustable shocks, larger 28mm front and 15mm rear sway bars and front camber plates

### INTERIOR

Dinan aluminum pedals



## DINAN S3-335i

ECU not only manages fuel, ignition and boost control, it is also responsible for protecting the catalyst, controlling emissions, managing the water pump and running other programs that take priority over boost. Dinan remains committed to creating a street-legal machine that maintains factory manners on public roads, so it was essential that he got it right. Likewise, the stock 335i engine internals, running at a 10.2:1 static compression ratio, needed protection from predetonation.

Temperature control was a major priority of the Dinan S2 project. When the first 335s arrived two years ago, track junkies found out right away that even just a few strenuous laps could drive the oil temperature north of 300 degrees Fahrenheit, which would send the car into engine-saving "limp mode." Hot laps, indeed: BMW now delivers some cars with an oil cooler, but the capacity is rather limited.

Dinan solved this problem like it solves everything: through thorough engineering. A work of art in aluminum and plastic, the Dinan unit resides in the factory location. Shrouded to corral air into a cooler twice the factory size and louvered on the back to direct lift-generating heat away from the wheelwell, the Dinan piece does a stellar job of keeping temps well under control. Dinan even remapped the electric water pump's speed to provide greater control over oil and water temperatures.

In spirited driving up a narrow, twisting mountain road and then back down the other side more than a hundred miles, the temp never breached 250 degrees. Likewise, the needle barely exceeded 230 degrees, even in bumper-to-bumper Bay Area traffic.

Beyond software upgrades, the S2 also includes a Dinan intercooler that increases volume by 93 percent but still mounts in the factory location. A Dinan

We loved Dinan's S2 package for the 335i, so what better way to improve upon it than by adding more horsepower? Dinan is currently working on an S3 package that will include new turbochargers and yet another remapped ECU. Power is estimated to be roughly 450 hp.



stainless steel exhaust helps improve breathing and remains chiefly responsible for that sweet sound, which can be furious when you want it or every bit as civilized as any other luxury car when cruising around town.

At its peak, the Dinan ECU increases boost by 50 percent—from 8.8 psi to 13.3 psi. Given the quick-spooling nature of the small turbos, lag is all but absent, just as on the stock car. In the interest of maintaining long-term durability, boost pressure is tapered off gradually at higher engine speeds. If the boost is not dialed back, the intercooler simply can't cope with the volumes of air and temperatures are adversely affected. The factory redline of 7000 rpm is maintained, but Dinan recommend shifting at 6250 rpm because there is nothing to gain beyond that.

All of these modifications together create 407 hp at 5700 rpm and 429 ft-lbs of torque at 3700 rpm, a full 107 hp and 129 ft-lbs over the stock car. Like

the factory machine, torque is abundant across the entire rev range, but now with a lot more to go around. Throttle response is noticeably improved. Power delivery is linear and smooth, with no driveability issues. Triple-digit, license-revoking speeds are just a tip of the throttle away when cruising on the highway, even in sixth gear. But drop down a couple of cogs and the rush becomes electrifying.

While brewing up this beast of a motor, Dinan simultaneously engineered a revised suspension for the 335i. Stock BMWs generally handle well but suffer from excessive rebound damping and heavy, run-flat tires with stiff sidewalls that translate every annoying irregularity in the road.

In what Dinan calls its Stage 3 suspension, the company lowers the car by about an inch with Koni shocks, performance springs and thicker anti-rollbars. In the interest of maintaining ride quality, proper geometry is preserved. Front

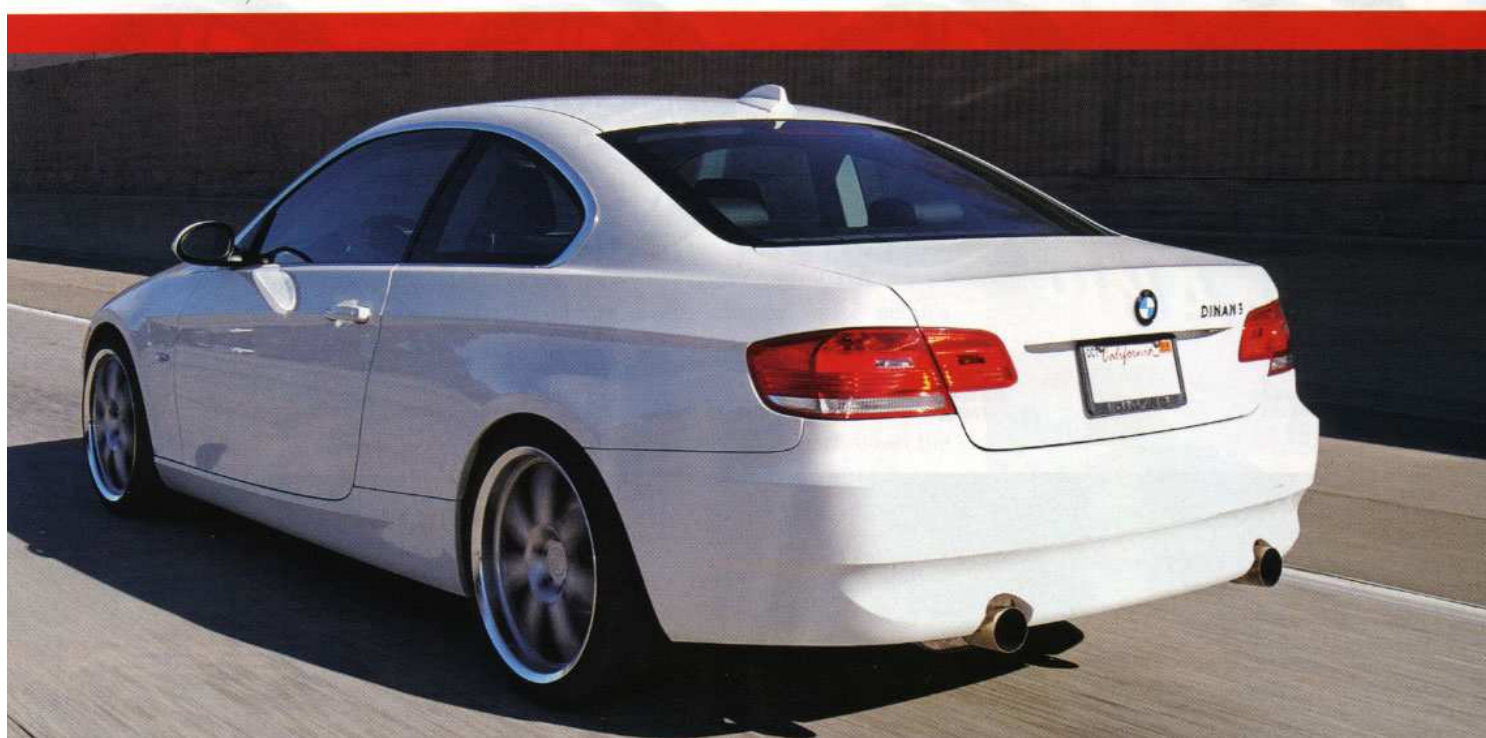
camber plates that give an extra negative half degree complete the hard parts.

The test car we used also included Dinan's custom-forged, lightweight 19x9-inch front wheels and 19x9.5-inch rears. Running on Michelin Pilot Sport 2 tires in lieu of the run flats, total weight savings is in the neighborhood of 60 lbs—and that's rotating, unsprung mass. The Michelins are nearly the same cross section at 265/30/19 in the front and 275/30/19 in the rear, further reducing understeer. The Michelins don't transmit nearly the same vibration from the road as do the stock tires, and the ride improves dramatically.

In the same real world where Steve Dinan personally does all final suspension tuning, the S2 is a dream. By banishing the harshness of the stock 335i, the car is more enjoyable in everyday driving. But when the curves come at you, it responds spectacularly to your every whim. With the camber plates and the reassurance of Michelin's stickiest and most communicative rubber, turn-in is spot on, the car tends toward neutral with reduced understeer, and high-speed transitions are tackled with aplomb. Except for a bit of road noise from those 30-series sidewalls, Dinan has created a suspension seemingly without sin.

We had the good fortune to drive the S2 back-to-back with the new E92 M3,

**DESPITE HAVING A MORE COMPLIANT AND STREETABLE SUSPENSION THAN THE M3, THE DINAN CAR SEEMS TO GIVE UP NOTHING IN THE HANDLING DEPARTMENT AND IS ALSO LESS PRONE TO UNDERSTEER.**



and we think Dinan may be on to something. Despite having a more compliant and streetable suspension than the M3, the Dinan car seems to give up nothing in the handling department and is also less prone to understeer. We did not have the chance to drive the S2 on the track as we did the M3, but we found the M car to be extremely forgiving for a car with such high capability—perhaps its most notable trait. With far less margin of error on the street, we did not push the Dinan to its absolute limits, but if history is any indication, we suspect the S2 is just as well sorted for track-day assaults, especially with a 200-lb advantage over the 3,700-lb M3.

Most M3s will likely be equipped with optional electronically adjustable shocks, but even in the comfort setting, the M3 offers a harsher ride than the S2. With the sport mode engaged, the M3 is racetrack stiff. Dinan has successfully debunked the myth that you can't have precise, competent handling and ride comfort in the same setup.

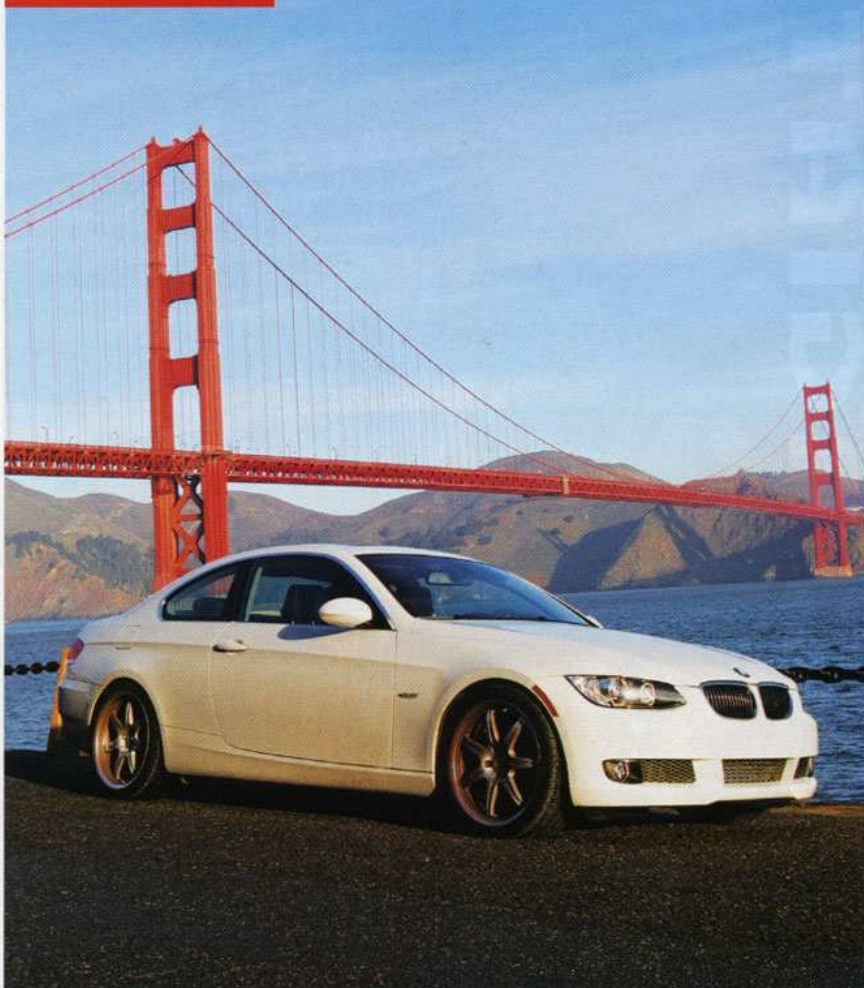
When hauling the two cars down from extra-legal speeds, both machines have very capable brakes, but the Brembo Dinan setup on the S2 measures a massive 15 inches under six-piston calipers up front and 13.6 inches under four-piston stoppers in the rear, ensuring consistent, fade-free stops through stainless Goodridge lines. The factory hot rod M3's binders present excellent stopping power with 14.2-inch discs up front and 13.8-inchers in the rear and that great initial bite BMW is famous for. But even M cars with factory brakes are far more prone to fading than the Dinan setup.

The horsepower number is not huge, so the 429 ft-lbs figure is a more accurate reflection of this car's capability. It presents a wallop of force that can be felt from 2000 to 6000 rpm before it tapers off. The M3's V-8 offers a few more horsepower, but the S2 twin-turbo six pulls stronger except at peak rpm.

It lacks the outrageous and intoxicating 8400-rpm rush of the latest M sensation—not to mention the menacing hood bulge and flared fenders—but the S2 makes power everywhere else in the rev range, creating a more enjoyable, everyday powerband. Coupled to a ride that absolutely shames the factory setup and forgoes the super-stiff rigidity

## SOURCEBOX

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of the M3, the S2 is a package that adds up to more than the sum of its parts.

One area where Dinan does not mess with success is BMW's exterior design. Steve Dinan says, "It's not that I don't want to do body modifications, but there never seems to be enough time or resources at the end of the day. Do we spend money on products or on cosmetics? The money goes to speed—it shows the real character of the company. We're serious car people."

It might not be an M car, but as a stealth weapon (visible only to those in the know who might recognize the minimal badging on the trunk or the unique wheels), the S2 takes a back seat to no one. Their characters are different, but the performance on the pavement tells the story that matters. **MLE**

## THE BREAKDOWN

Below is a list of all the components that make up the Dinan S2-335i Signature Series package. If you include the price of a base model 335i, the total is \$63,224—roughly \$7,000 more than the \$56,500 M3. For that extra seven grand, however, you do get much more torque, a better ride and vastly superior brakes. If you're just looking to add power to your 335, then we highly recommend just the engine enhancement, which, when added to the price of a new 335i, will total \$48,096—\$8,000 less than an M3.

**S2 PERFORMANCE PACKAGE:** \$7,296

**STAGE 3 SUSPENSION:** \$2,468

**WHEELS:** \$5,096

**BRAKES:** \$7,445

**ACCESSORIES:** \$119

**TOTAL:** \$22,424