

Many call it the best all-around car BMW (or anyone else) ever made...

By Jon Saperia

This question appeared at the end of an article I wrote in the October 1992 *Roundel* shortly after purchasing a new 1991 M5. About the same time, I was bitten by the driving school bug and since then have increased my annual attendance from a couple of days a year at the track to an expected dozen or so this year. As my driving skills improved, I learned 3 things:

1. The car was far better than anything I had expected, and the M5's initial capabilities far exceeded my abilities as a driver.
2. I wanted a track car that I would also enjoy driving on the street.
3. Point 2 is very hard to achieve.

A number of articles have appeared in these pages about optimizing cars for the track. Satch Carlson wrote one in the September 1992 edition called "The BMW M5 Ti: Building the Perfect Beast" in which he described modifications to an M5 that he, John Buffum and Tom Grimshaw used to take first place in the 1992

Can The M5 Be Made Even Better?

One Lap of America. I started with most of the modifications detailed in that article, so what follows is just a short history of these changes followed by the more "extreme" steps I took to make an even more capable track car that is also fun to drive to work.

About the time I added my first upgrade (a Dinan chip), I also learned that the real trick to getting around a track quickly was cornering effectively, so I replaced my now worn stock Michelin MXX2 tires with 235/45/ZR17 Yokohama A008G tires in the belief that they would be good tires to use on the track and street. The 008s were a good compromise and a definite step up from stock, but they were not race compound tires which meant they were not all I wanted for the track. About this time Yokohama discontinued all 008 choices in my size and I learned little was available in the way of track tires for my car. My only choice was to go up to 255/40/ZR17 B.F. Goodrich Comp TA-R/1 track tires. This meant an increase in rim size to 17x9 which became the catalyst for all my subsequent changes. I was not driving the car as a daily driver at this time and thought that I could get away with these tires and rims on the car all the time.

Allen Smith of Performance Consultants, 68-R Griggs St., Boston, MA 02134, 1/800/871-1441 (617/ 739-1441), will be happy to discuss the above or other performance upgrades for your BMW, Porsche or Mercedes.

After consulting with the folks at Dinan, I decided to make a major upgrade on all fronts by installing a stage 3 suspension (camber plates, springs and swaybar). I decided to keep the self-leveling rear suspension and stock shocks at least for a while. The stage 3 suspension made it possible to fit the 17x9 rims on all wheels through the use of spacers on the front hubs.

What I ended up with after the chip, suspension, wheel, and tire upgrades was a car that was outstanding for the track, but the track tires made the ride harsh on the road and bad in the rain.

About this time I also came across a weakness in larger BMWs (even the Ms): the brakes fade when driven hard on a track. I also thought a little more power would not hurt. By now, all the standard modifications that were easy to make had been completed and I needed some expert advice. Enter Allen Smith, owner of Performance Consultants in Boston, Massachusetts. Allen specializes in exactly the kind of modifications I was looking for. I first ran across him at a tech session the Boston Chapter had at his shop in the fall of 1993. He had done some work for me and I was quite pleased, so we talked about what changes could be made to improve the performance braking and handling of an already great track car, and make it civil on a trip to the grocery store over the broken streets of Cambridge and Boston.

After research and evaluation of the engine displacement and air flow requirements, he decided to address my desire for increased power by installing a very large K&N filter, replacing the stock airbox. In order to ensure proper airflow and to shield the intake air as much as possible from the warmer air in the engine compartment, he fabricated a shield which helps concentrate the cooler incoming air around the filter. To complement this increased intake air-flow capacity, he reworked the baffles in the exhaust system to produce a freer flowing system throughout. The changes enhance the intake and exhaust note from idle to full throttle without being overly intrusive. The result is an estimated increase from the 343 base horsepower rating of a stock M5 with a Dinan chip, to an estimated 375 - 380 HP with the

intake and exhaust system changes.

The most significant and radical change made was to the front brake system. After some experimentation we decided to use Brembo 4 piston calipers from the new Porsche C2 Turbo and modify them to fit on even larger rotors. The rotors are a custom Coleman two-piece system with a billet aluminum hat and are 13.5x1.25 inches wide with directional cooling vanes. The backing plates were modified and cooling ducts added to ensure good air flow. In addition, I now use ATE Super Blue brake fluid which has an increased boiling point which is especially helpful at high speed tracks. As strong as these brakes are, we decided to change to Cool Carbon pads for the track to help reduce possible fade. The result is a unique system with incredible stopping power. At Watkins Glen, the car reaches speeds in excess of 135 MPH on the back straight before slowing for the chicane. Very high speeds are reached in several other places on the track and sometimes braking must be accomplished while descending steep hills. These confidence-inspiring brakes take lap after lap without significant fade even on very hot days.

To round out the engine and brake modifications we added a Racing Dynamics strut brace and made some fine tuning adjustments to the front and rear Dinan sway bars. The weakness in the stock shocks became evident as my skills improved. Allen suggested an approach that would produce the handling improvement I desired without making the car ride like a buckboard. He installed Bilstein sport shocks in the front and Dinan shocks in the rear which include a kit to eliminate the self-leveling suspension. The rear shocks are valved to produce a ride in between the heavy-duty and sport shocks. This has produced handling improvements that are almost as

The huge, 13.5" brake disks with Brembo four-piston calipers, ready for installation by Allen Smith of Performance Consultants.



The large K & N air filter fits neatly, and is baffled to keep intake air cool.

great as the upgrade in swaybars and springs. What is more impressive is that this has been accomplished with little loss in daily driving comfort.

What I now have is a car that will more than keep up on the track with an E30 or E36 M3 but really needs a personality transplant to be fun on the street. This transformation is accomplished by changing from the Cool Carbon pads to "stock" pads for the Brembo calipers and Metal Masters for the rears. To complete this transformation, I had to invest in another set of Dinan Wheels since the custom brakes in the front were designed around the offset of these wheels. Instead of the 17x9 wheels for the track, I am using 17x8.5 rims on which are mounted 235/45/ZR17 Dunlop SP Sport 8000 tires. Now that I had taken the final step and have two sets of rims, I decided to go all the way on the track tires and switch to Goodyear GS-CS tires. They do not last as long, but driving around Lime Rock and Watkins Glen on these things is like being stuck to the road with a giant magnet.

So: can the M5 be made even better? The answer is a resounding yes. If you want to have your cake and eat it too, all it takes is good advice, a few tweaks, two sets of brake pads, 8 rims, and two sets of tires. What you end up with is a car about which people have said: "A car this big should not be able to do this, and this thing corners like a 2002 only twice as fast." What is more remarkable is that the car still looks like a BMW 5 series and behaves like one on the way to the grocery store.

