

fast times

the newsletter of **Bavarian Autosport**

spring 2004

Our project car: two upgrades for better handling.



To achieve better handling and a more dynamic look, we performed a "plus 3" wheel upgrade on our project car and replaced the shocks and springs with a Bilstein coil-over kit.

When it comes to upgrading a BMW's performance, there are several areas you can tackle – horsepower, braking, lighting, styling, comfort, sound system, safety and more. But for us, nothing brings out the best in a BMW and makes it more fun to drive than an upgrade in handling. So when we decided to build our project car, that's where we performed our first upgrades.

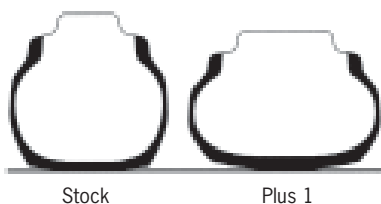


Figure 1: You can easily see that the "footprint" (the amount of tire compound touching the pavement) of the Plus 1 set-up is larger than the stock footprint. The more compound you have on the pavement, the better traction your BMW is able to achieve – on acceleration, in cornering and when braking.

Upgrade #1: "Plus-sizing" the wheels and tires.

If you're serious about really boosting your BMW's handling, you should consider "plus-sizing." The concept is simple: larger wheels with lower, wider tires put more rubber on the road (see figure 1) giving the car better traction. But even though plus-sizing increases the diameter of the rim and the width

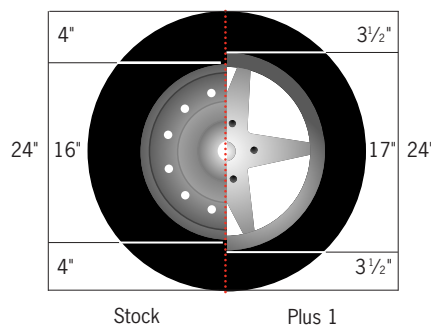



Figure 2: As you can see, even though the wheel and tire sizes are different, the overall diameter is the same for both the stock and Plus 1 set-ups.

of the tire, the overall diameter of the wheel/tire combination stays the same. In practice, it works like this: let's say your BMW came with 16" diameter wheels and its tires have a sidewall height of 4" (see Figure 2). The total diameter of this wheel/tire set-up would be 24" ($4" + 16" + 4" = 24$). If you wanted to upgrade to "plus 1" (stock wheel size plus one inch), you would use 17" diameter wheels and slightly wider tires with a $3\frac{1}{2}"$ sidewall ($3\frac{1}{2}" + 17" + 3\frac{1}{2}" = 24$). To "plus 2" the car, you would upgrade to 18" wheels and even wider tires with a 3" sidewall ($3" + 18" + 3" = 24$).

The concept of plus-sizing was developed for ultra high-performance sports cars. However, the tremendous improvement it provides in cornering, handling and safety make it a good idea for just about any BMW. Our project car came with 16" factory wheels with 205/55/16 tires. We replaced those with 19" G-Power Daytona II wheels with 235/35/19 tires.

There are limits as to how large a wheel you can put on your BMW (without modifying the fenders). Your phone rep can explain the options available for your BMW and help you choose which set-up would work best for your driving requirements and your budget. 

Upgrade #2: lowering the chassis.

Some people lower their BMWs just for looks. A BMW that's been lowered has a sportier, more aggressive appearance and no longer has that unsightly gap between the top of the tire and the fender. But for driving enthusiasts like

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Have a question about your BMW? Ask that savvy old BMW enthusiast, "Bavarian Otto".

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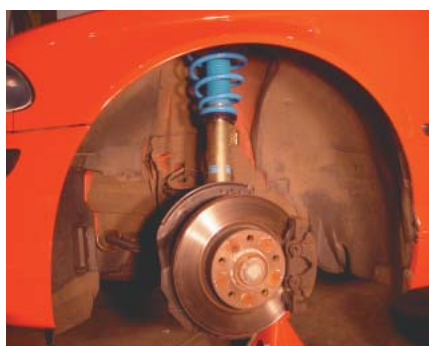
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PRODUCTS FOR BMW ENTHUSIASTS

Handling *continued from page 1*

us, lowering a BMW's chassis is a great way to raise its performance. With a lower center of gravity, there is less tendency for the body to lean in the corners or pitch forward during braking.



To lower your BMW, simply replace your stock springs and shocks with lowering springs and sport shocks. Sport shocks are designed specifically for lowering springs – proper length, valve rate, etc. They also provide better control over plus-sized wheels.

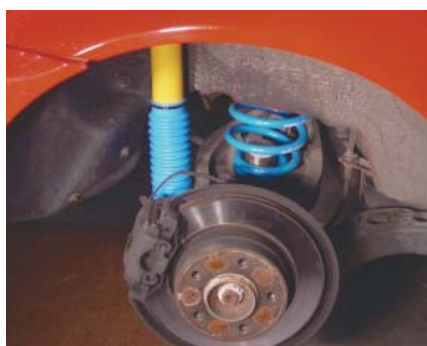
Another option for lowering your BMW is to install one of Bilstein's adjustable PSS or PSS9 coil-over kits, as we did



Bilstein PSS9 coil-over kit installed on the front of our 3 series project car.

on our project car. These kits have spring perches that adjust up or down by as much as 2". You can literally dial in the height you want or change it as desired (e.g. going from street height to track-tight). The PSS9 kit adds adjustable sport shocks with nine different rebound settings: you can choose the setting that gives you your ideal balance between comfort and competition.

Whether you choose lowering springs and sport shocks or a coil-over kit, you'll notice a tremendous improvement in handling. If you have any questions, ask one of our phone reps.  



Bilstein PSS9 coil-over kit installed on the rear of our 3 series project car.

Here at Bavarian, we're cuckoo for coco mats.

Coco mats are made from coir (a.k.a. cocos), a rugged, natural fibre extracted from the husk of coconuts. Years ago, coco mats were popular in cars that had no factory floor mats (e.g. early BMWs and Porsches). Those original coco mats had no backing, so they let dirt filter through the woven coco fibers to the floor. But the mats wore like iron and hid the dirt until you were ready to vacuum. Plus, they added some much-needed warmth to a rather austere interior.

These days, letting dirt filter through to your BMW's carpeting doesn't seem like such a good idea. Our new coco mats have a rubber backing that catches the dirt before it hits your carpet. (To clean, just take 'em out and shake 'em out.) They also have nibs on the bottom of the backing to dig into the carpeting so the mats won't slide around underfoot.



Natural
Heavy-duty vinyl trim prevents the mats from fraying the way the old coco mats did.



Nat/Tan/Brown Black/Gray Black

On top of all that, our coco mats are custom-cut to fit your year and model precisely. Normally \$119.95 for a set of 4 (set of 2 for roadsters), they're on sale now thru April 30 for \$109.95.

Product Focus: Remus Exhaust.



In 1990, Remus was founded in Austria with ten employees. Today, Remus has more than 620 employees and is the #1 selling sport exhaust in the world. What drove this incredible growth?



Research and development are a major part of the Remus philosophy. Every system is tested not only on the track but in the company's state-of-the-art Sound and Design Room. This room prevents reflections, echoes and hall effects, allowing Remus to obtain precise acoustic measurements under standardized conditions. In addition, Remus has its own heated pass-by test section for measuring the noise reflected from accelerating road vehicles.

The result of all this testing is an exhaust that sounds deeper and richer than the BMW factory exhaust while giving you a 3% to 5% power gain (a gain you can feel in the seat of your pants). Remus sport exhausts also feature:

Improved construction – Remus sport exhausts are now 100% stainless steel with black endurance paint on the exterior of the muffer. And starting this year, every Remus comes with a limited lifetime warranty.


European manufacturing – Remus is 100% made in Austria in state-of-the-art manufacturing facilities.

Simple installation – Remus exhaust systems are very easy to install: mounting is to factory attachment points on most models.

Remus exhaust systems normally sell for \$384.95–1299.95, but they're on sale now through April 30 for \$346.45–1169.95 – a savings of 10%. Plus, with every system purchased by April 30, you get a free Remus hat.  



Too new for the catalog!

We now offer B&M sport shifters! These kits reduce BMW or Mini shift throws by as much as 35%. They're made of billet aluminum and stainless steel; they work with your BMW shift knob and boot; and they come with a One Million Mile Warranty. Prices range from \$159.95 to \$399.95. For more details, ask your phone rep or visit www.bavauto.com.   

Thanks, Otto, you saved me!

Dear Bavarian Otto,

Thank you so much! I'd been going crazy without my radio (I have a 40 minute commute). The dealer was no help – they wanted me to “bring it in” of course, and I'm sure would have charged me. The procedure you [Jon Broome] gave me did the trick [see “Ask Otto” below] and now I have tunes again. You saved me – not just my sanity but some cash, too!

Marjorie N., NH – 1990 325i

Bavarian Profile

Jon J. Broome



Jon (or J.J.B. as he is known around here) has been involved in the automotive parts industry since he was 18. How many years is that? He'd rather not say, but he did tell us he became a Bavarian Autosport phone rep in 1996. Over the years, Jon has owned and worked on a wide variety of BMWs: a 1984 533i, a 1987 535is (that one was really sweet!), a 1972

2002 and a 1985 325e. His current ride is a 1988 325e. Jon is also an avid collector of 1/18 scale BMW die-cast models. His collection contains about 15 cars, including the famous Alex Calder 3.0 CSL Art Car and a Euro 320d STW (super-touring wagon) signed by Hans Stuck, who was driving that model when he won the 24-hour event at Nürburgring.



Too new for the catalog!

Here's a high performance driving lamp kit with styling that complements the new Mini's design. Hella's FF200 lamp kit uses 55W H3 bulbs and precision glass lenses to produce a long-range beam for greater safety at high speeds. It also features durable, lightweight chrome plated polymer housings.



In addition, no drilling or modifications are necessary for mounting – Hella's brackets are custom fit specifically to the Mini for easy installation. The complete kit includes wiring harness and all mounting hardware. The cost is just \$399.95. 🔧

ask "bavarian otto"



Over 200 years of BMW experience is just a phone call or e-mail away.

If you add up all the years the enthusiasts at Bavarian Autosport have been working on BMWs – and helping people like you work on theirs – it totals well over 200 years. That's a lot of BMW knowledge. And it's all yours just for the asking. Have a BMW question? Ask that savvy old BMW enthusiast, “Bavarian Otto” – just call 800.535.2002 or e-mail otto@bavauto.com. Here are a couple of examples of the hundreds of questions Otto answers each week:

Oh where, oh where, did my radio go...?

Dear Bavarian Otto,

I recently purchased my first BMW and inadvertently interrupted the power to the sound system. Now the radio no longer works. I've been told I need to enter an anti-theft code to get the radio to work, but I don't have the code and even if I did, I wouldn't know how to enter it since there was no owner's manual in the car when I bought it. I have contacted the previous owner but have had no luck so far.

Any ideas on how to get the code? (And what to do once I get it?)

Thank you!

Bill M.

Hello Bill,

Getting the radio code is a pretty simple procedure. Remove the radio from the car and get the serial number from it. Give this and your VIN number to your local BMW dealership parts department. They will look it up their system and give you a 4- or 5-digit code. Once you have the code and the radio is reinstalled, turn the radio on and, using the radio key pad, enter the code the dealer gave you. If this doesn't work, you may have to reset the radio. Turn it off, put your key in the ignition, turn it to the accessory or ignition position and leave it on for a full hour. After the hour is up, turn the radio on (without changing the position of the ignition key) and enter the code. That should do it. If you need further assistance, feel free to contact me.

Otto

Idle-wild

Dear Otto,

When I start my 1986 325es, the motor revs steady at about 3200 rpm for quite a while before dropping down to idle (about 900-1000 rpm). Then it revs up and down between 1000 and 2500 rpm. It does this constantly until I shut the motor off. This happens day or night, hot or cold. Do you know the cause?

John H.

Dear John,

The first thing to do is check for vacuum leaks. Look at the intake bellows (the black elbow between the airflow meter and throttle body/intake manifold) as well as all of the hoses coming off of this bellows and all of the places these hoses go. There should be no cracks or loose connections.

continued on page 4

How easy is this?!

do-it-yourself

Replacing a computer illumination light.

Can't see the readout of your BMW's On Board Computer (OBC)? Think your computer is toast? Before you spend \$1,000 on a new OBC, you should know that the most common cause of this condition is a burned-out illumination light, (a.k.a. light bar) which costs about \$25. To determine if your computer is okay, shine a light at the display. If you can see the readout, the computer is working. Below are the basic steps for replacing the illumination light. (Note: In this instance, we're working on a 3 series 84 thru 91. The procedure for 5 series 82 thru 88, 6 series, 7 series thru 87 and models with a clock only are a bit different, but generally just as straightforward. We include complete instructions with the light bars for all of these applications listed above.)



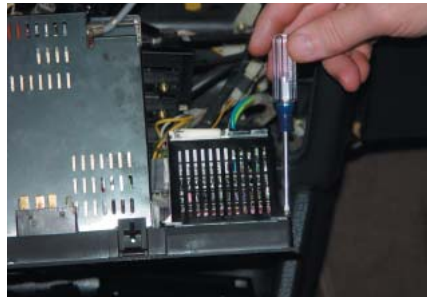
1 Remove the 2 Phillips screws from the lower faceplate.



2 Pull off the left heat control knob and the three slider control knobs. Use a small screwdriver to pry up and remove the slider cover plate. Remove the 4 screws behind the plate.



3 Using a pair of pliers, gently pull out the second and fourth switches from the left, above the radio. (In this example, these are the window circuit breaker and hazard switches.) Disconnect the plugs from the switches. Remove the 2 upper faceplate Phillips screws.



4 Gently pull the faceplate out (the heater controls will stay behind), pulling from the right side first. As the top of the faceplate panel comes out, disconnect the wiring plugs from the remaining switches above the radio. Once the faceplate is out, remove the 4 Phillips screws securing the OBC to the faceplate.



5 Remove the OBC and use a pair of needle nose pliers to pull out the light bar.

6 Insert the new light bar and re-install everything in the reverse order, being careful to position the wiring harnesses, heater controls and tab on the left of the faceplate.

The entire procedure will take about an hour. Remember, if you have any questions about this or any installation procedure, don't hesitate to contact us. You can speak with one of our friendly phone reps or e-mail us at otto@bavauto.com.

Product Focus: Power Flow kits.

We've teamed up with AFE (Advanced Flow Engineering) to bring you some new Power Flow kits designed to give you more horsepower and torque. The new AFE kits are "cold-air" kits which use a steel housing to prevent the air around

Right: kit for 330i/ci/cic adds 20 hp and 27 ftlbs of torque.




The AFE Power Flow kit for the 540i 97 thru 03 adds 10 hp and 14 ftlbs of torque.



The same 540i Power Flow kit pictured at left with the filter removed to show the billet aluminum adapter.

Other features of these new kits include:

- Reusable filters with the deepest pleats in the industry for increased air flow and filtration.
- Powder-coated steel housings for longer life.
- Correctly positioned emissions connections for compliance and OE-style installation.
- Three-angle, billet aluminum velocity stack adapter for improved performance.

No assembly is required and installation is a bolt-on procedure. And right now, all Power Flow kits are on sale for 10% off! 



Power Flow kit for 3 series 92 thru 98 6-cylinder adds up to 31 hp and 25 ftlbs of torque.



"Ask Bavarian Otto"
continued from page 3

If all of that is OK, the likely culprit is either the idle control valve or idle control module. The valve is located above the engine valve cover and the module is above the glove box, next to the engine control computer. The Bentley repair manual for the 3 series 84 thru 91 outlines how you should go about checking these parts as well as replacement procedures. [Ed. note: Bentley manuals are on sale thru April 30!]

If you need further assistance once you've isolated the problem, feel free to send a follow-up e-mail.

Otto

Hooray for Fast (just in) Times!

Dear Otto,

The other day my power windows stopped working. I tried all afternoon to get them going. Well, my wife needed the car so I had to give up the fight. As I went into my garage, I saw a copy of your latest FastTimes. There, on page 3, is a guy having a problem with his windows! You tell him to look for a breaker on or under the dash. I run like mad to catch my wife as she's driving off, reach in, push the breaker and Bam! – down come the windows!!! So thanks to you, my wife got to enjoy a nice Florida day with windows down and sunroof open. Thanks Otto!
Mic W.

How easy is this?! do-it-yourself

Replacing shock absorbers. 🛠️🛠️🛠️

Does your BMW have over 50,000 miles? If so, you are likely a candidate for a fresh set of shock absorbers. Unlike older domestic vehicles, BMWs do not typically start to act like a jack-in-the-box when the shocks are worn out. The degradation is a gradual loss of dampening that may not be noticeable because you've gotten used to it. Installing new shocks will restore your BMW's ride and handling to its past glory.

Replacing shocks is not terribly difficult and the only specialized tool required is a spring compressor (which can be purchased for under \$50 or rented). During the replacement process, you may also find that the compression absorbers, dust boots, spring isolators and upper mounts need to be replaced. All of these parts are included in the various shock installation kits we offer.



Front and rear shock installation kits.

What follows is NOT a detailed, step-by-step guide but rather an outline of the major steps involved in replacing shocks. We highly recommend getting the appropriate Bentley repair manual (on sale now). For this article, we use a 3 series 92 thru 98. The specifics for other models will vary somewhat, but the procedures are basically the same.

Replacing front shocks.

1 Raise the front wheels off the ground by jacking up and supporting the front of the vehicle using appropriate jack stands. Remove the wheels.

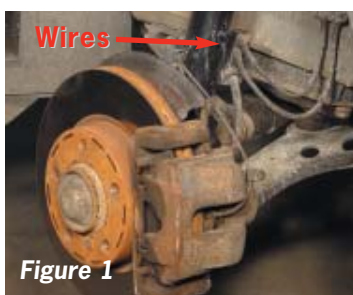


Figure 1

2 Disconnect and set aside the ABS sender and brake pad wear sensor wires (figure 1).

3 Loosen the 3 strut-to-spindle bolts (figure 2).

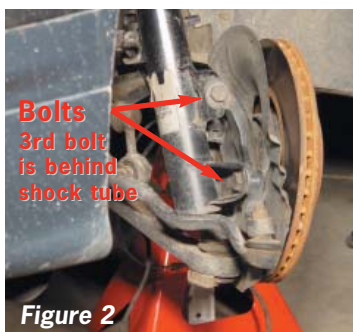


Figure 2

4 Place a floor jack under the strut & control arm assembly and raise it slightly. Remove the 3 upper strut mount nuts (figure 3).

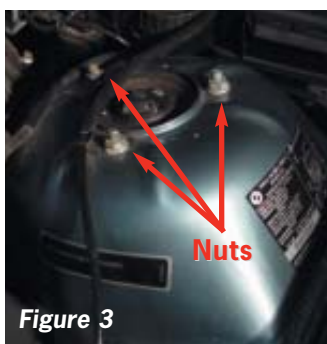


Figure 3



Figure 4

5 Lower the floor jack. Remove the three strut to spindle bolts that were loosened in step 3. Separate the strut from the spindle (figure 4) and lift the strut assembly out of the vehicle.

6 Using a spring compressor, compress the spring and remove the shock-to-mount nut (figures 5 & 5A).

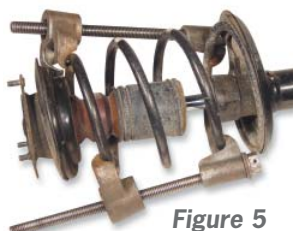


Figure 5

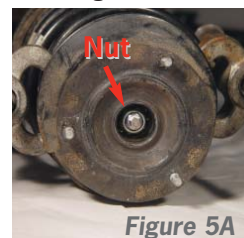


Figure 5A

7 Disassemble the upper mount, washers, spring perch, spring perch isolator, compressed spring, lower spring seat isolator, compression absorber and dust tube from the old shock (below).



8 Assemble all of the parts from step 7 onto the new shock. Replace any damaged or worn parts with the new parts from our shock installation kit (above left). Once the shock-to-mount nut is secured, remove the spring compressor, watching the alignment of the spring to the spring seats.

9 Install the strut assembly into the vehicle in the reverse procedure from removal. Reconnect the ABS and pad wear sensor wires. Install the wheels and lower the vehicle. And be sure to have the front-end alignment checked.

Replacing rear shocks.

1 Raise the rear wheels off the ground by jacking up and supporting the rear of the vehicle using appropriate jack stands. Remove the wheels.

2 Place a floor jack under the rear shock mount arm and raise slightly.

3 Access the upper shock mount by removing the side trunk trim panels (figure 6).



Figure 6

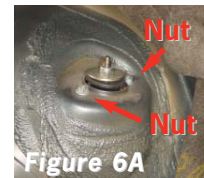


Figure 6A

4 Remove the 2 upper shock mount nuts (figure 6A).

5 Lower the floor jack and remove the lower shock mount bolt (figure 7), then remove the shock itself.



Figure 7

6 Remove the upper shock-to-mount nut and disassemble the mount gasket, upper mount washer, mount, lower mount washer, compression absorber and dust tube from the shock (see below).



7 Assemble all of the parts from step 6 on to the new shock. Replace any damaged or worn parts with the new parts from our shock installation kit (see photo in column one).

8 Install the shock assembly in the reverse procedure from removal. Install the trunk trim panels. Install the wheels and lower the vehicle.

All Boge replacement shocks are on sale now through April 30 at 10% off. If you have any questions about this or any other installation procedure, just ask - you can speak with one of our friendly, knowledgeable phone reps or e-mail us at otto@bavauto.com.