

fast times

the newsletter of **Bavarian Autosport**

fall 2006

For better response and handling, think blue!

Bushings are basically the joints in between moving parts of the suspension system, like the tendons and cartilage in the human skeleton. They “give” a little when the parts move and absorb jolts and vibrations to provide a quieter, more comfortable ride while keeping everything securely together. When a bushing fails on a BMW, it can cause all kinds of annoyances and problems – chassis shake, engine vibration, front end shimmy and more. In the past when faced with replacing bushings, BMW enthusiasts were given a choice between rubber replacement bushings or ones made of hard urethane. Rubber provides excellent ride comfort, but it doesn't last very long. Hard urethane, on the other hand, provides more responsiveness, better handling and a longer useful life, but to accomplish this it sacrifices ride comfort (vehicle noise and vibration). Traditionally, rubber bushings



were for daily drivers, while hard urethane bushings were the choice for track and performance cars. And folks like us, who enjoy spirited street driving, were left out of the equation... until now.

Our blue urethane bushings, introduced last spring, strike a wonderful balance between the ride comfort of rubber and the improved handling characteristics of urethane. Developed by BMW enthusiasts, this polyester urethane has ratings of #75 and #85 durometer (measure of hardness), meaning it is up to 50% softer than traditional urethane, yet it provides more precise control than rubber. The result is a comfortable ride with crisper handling and prolonged life span. Other benefits include optimized braking capabilities, improved tire performance and wear, more precise wheel alignments and enhanced cornering stability.



Our street performance urethane bushings are available for a range of BMWs, including 2002, most 3 series 84 thru 05, 5 series 89 thru 03, Z3 and MINI.

We offer more than 60 different bushings, links and mounts in this new blue urethane. Ask your phone rep what's available for your BMW or visit www.BavAuto.com. Prices range from \$49.95 to \$249.95, but during the month of October, they are all 10% off.

[Editor's note: See the related DIY (do-it-yourself) article on page 6.]

A slick trick for more go in the snow

Most BMWs since 1994 came from the factory with some form of “traction control” system – either ASC+T (Anti-Slip Control plus Traction) or DSC (Dynamic Stability Control). When wheels slip or a loss of traction is detected, the traction control system automatically reduces engine throttle and applies the anti-lock brakes if traction isn't restored quickly. The system does this much faster than a driver can usually react. While this is great for reducing or avoiding skidding and sliding in snow, ice, or on sandy shoulders, it can make it virtually impossible

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to get to the top of a slippery hill. Here's what happens: the rear wheels begin to spin, engine throttle is reduced, the anti-lock braking system (ABS) kicks in and your BMW slows to a stop part-way up the incline. This can happen even if you give yourself a running start.

You can disable the traction control by pushing the button on your console (labeled either ASC or DSC). When you do, the traction control light illuminates on the dash. But disabling the traction control doesn't always help. On a slippery hill with no ABS in play and full power going to the rear wheels, they will spin like mad. In a few conditions (e.g. fluffy snow), the fast spinning will allow the tires to burrow down to a surface where they can get enough traction to inch the car forward... maybe. But on most slippery roads, all this does is cause the rear end of your BMW to slide sideways towards even bigger trouble. Wouldn't it be great if you could use the non-slip aspect of the ABS system without the reduction in power? Well... you can. Here's how:

Push and hold the ASC+T/DSC button; the traction control light will illuminate for several seconds (about 10), then go off. Once the light is off, release the button. Your BMW's traction control system is now in a mode where ABS will be applied to wheels that lose traction, but the engine throttle will not be reduced.

NOTE: Unlike normal traction control operation, where you can go from ON to OFF and back again just by pushing a button, once your BMW is in this "half-mode," the only way to deactivate it is to turn the engine off. The next time you start the engine, it will revert to normal mode (traction control ON).



Top: the DSC button in a 2001 540i.
Bottom: traction control indicator light.

Half-mode is just half the solution.

With your BMW in the traction control half-mode described in the article starting on page 1, it will be a little easier to make it up a slippery slope, but even this neat trick won't compensate for tires that can't handle the conditions. For maximum performance in snow and ice, we highly recommend a winter wheel/tire package with Hakkapeliitta winter performance tires by Nokian. (We've been using Hakkapeliitta winter tires for quite a few years now, and we can't get over how well our BMWs handle in the snow!) These tires feature an innovative, rubber blend that remains surprisingly sticky in cold weather, while numerous sipes (fine channels in the tread) guarantee a secure grip on slippery roads. And most Hakkapeliitta tires are



Shown with optional hubcap.



DSI indicates remaining tread.

T-rated (190km/hr = 118mph) meaning they perform very well on dry pavement as well as slippery surfaces. These tires also have unique driving safety indicator (DSI) that consists of numbers stamped in the tread that show the remaining groove depth in millimeters. The numbers fade one at a time as the tire wears. Winter wheel/tire packages start at \$739.95 for a set of four wheels with tires already mounted and balanced – all you have to do is swap the winter wheels for your summer wheels and drive.



Special offer: If you buy any winter wheel/tire package from us during the month of October, we'll include a free set of four TireCheck valve stem caps (*left*). These accurate pressure indicators from Europe show green when all's well, and red if tire pressure drops 2–3 psi, helping you get maximum performance and wear from your tires. (Plus you can easily transfer them to your summer tires next spring!)

I can see clearly now... best seller

PIAA Super Silicone wipers. ✎



We've been recommending PIAA Super Silicone wipers since 2004: we think they are the best performing wipers on the market. But don't just take our word for it – ask the BMW enthusiasts who shop with us. They prefer PIAA Super Silicone wipers 3 to 1 over

replacement blades. Why? As these blades wipe, they leave behind a microscopic layer of activated silicone (the same ingredient used in those rain treatments). With this layer of silicone on the windshield, at low speeds, water beads up on the glass so the blades can wipe it away completely. At high speeds, the water runs off the glass so you may not even need to turn the wipers on. And at all speeds, you get a clearer field of vision in inclement weather. Plus, the silicone coating virtually eliminates squeaks, drag and chatter, making the ride a lot more enjoyable. In addition, Super Silicone wipers offer exceptional resistance to harsh environments, including heat, cold, ozone, acid rain, ice and UV degradation.

PIAA Super Silicone wiper blades are available for the 2002, 3 series 5/79 thru 05, 5 series 82 thru 88, 7 series 95 thru 01 and Mini. You can choose regular or Sporza versions (with integral air foils). Both are available in black or carbon fiber-look. Prices range from \$16.95–\$28.95 each, but for the month of October, we're taking \$1 off the price of every Super Silicone wiper.

Custom protection for your BMWs.

These Hex-O-Mat mats are made using the same custom patterns we use to create our popular plush mats. They're cut with computer precision to fit your BMW or Mini precisely. (You can even get a custom-fit mat for your trunk or cargo area!) The unique, honeycomb design traps dirt and prevents water from sloshing over the sides during hard braking and cornering. A nibbed backing keeps the mats in place on your carpet or plush mats. They're crafted in the USA from a high-quality, non-cracking rubber compound. Cleaning is a simple matter of shaking them out and hosing them off. There's no extra charge for gray, tan or clear and they come with our unbeatable Lifetime Warranty – if they



ever fail, we'll replace them for free! Hex-O-Mats are available for almost every year and model. Plus, for the month of October, they're on sale – normally \$49.95–\$99.95, they're now \$44.95–\$89.95. (Buy now and be ready when the sloppy weather arrives.) When ordering, please specify mat color, BMW year and model, and 2 door, 4 door or wagon. Please allow 2–3 weeks for delivery.

Hex-O-Mats are available in clear (on plush mat above), gray (in car, above left), black and tan (left). Specify color when ordering.

from our tech team 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 yours 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.

And miles to go before I reset...

Dear Bavarian Otto,

I changed the oil in my 2001 325i but can't figure out how to reset the service mileage indicator. Do I need to go to a dealer for this?

Stan

Otto replies:

Absolutely not. You can reset the SI (Service Interval) indicator yourself using your BMW's key and the trip odometer button. This procedure applies to all 3 series 6/00 thru 05 and 5 series 6/00 thru 03. [Ed. note: The SI indicators on earlier BMWs can be reset using one of our reset tools. See page 72 of our Fall & Winter catalog or visit www.BavAuto.com.]

1. With key in OFF position, press and hold odometer reset button. Turn the key to the ACCESSORY position.
2. Keep button depressed for about 5 seconds, until either of the following appear in the display: OIL SERVICE or INSPECTION, with RESET or Re.
3. Press the button again and hold until RESET or Re flashes.
4. (5 series only) Service due is shown with RESET if the measured consumption limit has been reached and resetting is possible. If RESET is not shown, the minimum limit has not been reached and resetting is not possible at this time.
5. While display is flashing, press button briefly to reset the SI indicator.
6. After display has shown the new interval, the following will appear in the display for approximately 2 seconds: END SIA.

NOTE: The SI can only be reset after the vehicle has been driven 50 to 75 miles (consumes at least 2.5 gallons of fuel). As noted above, if the display does not show RESET when attempting to do a reset, then the minimum driving distance has been fulfilled and the system can be reset. You should also know that changing the position of the key while performing an SI reset will abort the procedure.

What should I do with this piece of sheet... metal?

Dear Bavarian Otto,

The right rear shock on my 85 325e was making a lot of noise so I took a look at it. It appears the shock has broken away from where it was mounted. It also looks like it may have taken a small piece of metal with it when it broke. I'm not positive as to what everything is supposed to look like back there. If I replace the broken parts with your shock mounts, will that fix the problem? If not, what do you recommend I do?

Leo

Otto replies:

From your description of the carnage at your rear shock mount, I'm not sure whether you have just a broken shock mount, which is very common, or if the sheet metal that the mount is bolted to (with the two studs on the mount frame) has broken and torn. If the sheet metal has torn, this will have to be repaired by fabricating a patch and welding it in. Then you can install new shock mounts. We also offer reinforcement plates (between the shock mount and the sheet metal) for most 3 series 84 thru 05. However, if the center of the mount has just pushed through, you could simply install a new shock mount and hardware. We offer both the OE mount and a heavy duty mount that is far less prone to failure.

Reservoir dogs.

Dear Bavarian Otto,

I have a 99 540i that I think is low on brake fluid, but I can't find the #0x*# reservoir. Where did those dirty dogs at BMW hide it?

John

Otto replies:

You're not the first 5 series owner to ask this question. BMW sure didn't make it easy for do-it-yourselfers like us. Below are some photos that show the location of the brake fluid reservoir and how to access it.

1. Open the lid of the box that houses the cabin air microfilter (just behind driver-side strut tower).
2. Remove the retaining clip that holds the filter box on the strut tower.
3. Disconnect the air duct from the box.
4. Remove the rubber gasket/seal that runs around the filter box.
5. Lift the filter box – the brake fluid reservoir is now visible.

The reservoir is also "hidden" on the new 3 series 06 on. It's under a protective cover just in front of the driver-side firewall. To access, simply remove the two spring clips and lift the lid.



Bavarian Profile



Matthew Moore

Matt, a key member of our Customer Service team, joined Bavarian Autosport in 1998. Prior to that he worked for three years as an Assistant Store Manager for VIP Discount Auto, and for six years as an installer at Montgomery Ward's Auto Express. He studied automotive trades in high school and criminal justice in college. Matt's current ride is an 87 325e. He also owns two classic motorcycles – an

83 Honda Nighthawk 750 and a 72 Honda CL350. His favorite BMW to date is the 99 750il he piloted on a Drive for the Cure from Stratham, NH, to upstate NY. "It was love at first ride," says Matt. Not only is it a joy to drive, he adds, it can almost hold his entire family, which includes his wife (a former Bavarian employee), three daughters (the oldest of whom just started working at Bavarian in August) and 2-year-old son. (We have our eye on him, too.) In his spare time (Spare time?! With four kids, who has spare time?!), Matt enjoys model rocketry, video racing games, music and using his telescope to study astronomy.

Replacing control arms and bushings. 🛠️🛠️🛠️

We know that our BMWs are great handling machines. That's one of the main reasons we drive them. An important part of the excellent suspension geometry and design engineering on BMWs is the relatively low amount of unsprung weight. (Sprung weight is the amount of weight resting on the vehicle's suspension springs. Unsprung weight is the weight which is not suspended by the springs: wheels, tires, brake components, bearings, hubs, spindles and a portion of the control arms and the springs themselves.) Any suspension will perform better if the ratio of sprung weight to unsprung

While you're in there...



© Meyle Products Gaertner GmbH

On the 3 series 99 thru 05, worn ball joints are problematic. The OE (original equipment) ball joints use a rubber insert that fails prematurely, causing shimmying and poor handling. This would be no big deal if you could simply replace the ball joint. But because the OE ball joints are an integral piece of the control arm, you cannot simply replace the ball joint, you have to replace the entire control arm assembly, to the tune of \$130 each. For an extra \$20, you can upgrade to a Meyle reinforced aluminum control arm. Not only is it lighter and stronger than the stock con-



Meyle's all-metal ball joint is on left; BMW's OE ball joint is on the right.

control arm, it has replaceable ball joints. Plus, the ball joints it uses have an all-metal shell that performs better and lasts longer than the rubber-lined shell in the OE piece. You win three times: 1. a lighter, stronger control arm; 2. replaceable ball joints; and 3. metal ball joints... all for just \$20 more than the stock piece. And for the month of October, we're taking 10% off the Meyle control arm, bringing the cost down to \$134.95... just \$5 more than stock! Your 3 series will handle better for longer, and cost less to repair in the future.

weight is increased. The drawback to this is that BMW suspensions are very susceptible to vibrations induced through worn bushings, ball joints, wheel bearings and wheel/tire issues. Of these, the most common source of front-end vibration and/or shimmy is weak control arm bushings. These bushings absorb all of the vehicle's front end loading during braking, cornering and even steady highway driving. The original bushings become weak (although they may look just fine) with age and mileage and allow the control arms to oscillate, creating the vibration and/or shimmy.

Control arms and the bushings are relatively easy to install and for a modest price, you can have your Ultimate Driving Machine back to... well, ultimate! While all of the issues mentioned above apply to all BMW models (3, 5, 6, 7, 8, Z, X and MINI chassis), in this article we'll outline the procedure for control arm and bushing replacement on a 3 series 99 thru 05. We'll be using the upgraded Meyle aluminum control arm (left), which utilizes their heavy-duty full metal ball joints. Additionally, we'll install our new blue, street performance urethane control arm bushings (see page 1).

NOTES:

- This general outline for control arm and bushing replacement assumes that the appropriate Bentley repair manual is at hand.
- The following control arm and bushing replacement procedure requires the use of a hydraulic press after the parts are removed from the vehicle. If you do not have access to a press, you can take the parts to a local auto parts store or repair shop that does have a press and pay a small fee to have the press operations performed.

1 Lift and properly support the front of the vehicle, so that the front wheels are off the ground.

2 Remove the wheel/tire assembly (figure 1).

3 Release the outer control arm ball joint as follows; Loosen the nut on the top of the ball joint's tapered pin, but do not fully remove it (figure 2). Using a 2 to 3 lb. short handled sledgehammer, give the knuckle area a series of sharp, forceful blows (figure 3). If the ball joint's tapered pin does not release from the knuckle, try



Figure 1



Figure 2



Figure 3

using a pry-bar to provide downward pressure on the end of the control arm... while hitting the knuckle with the hammer. This can take a good series of multiple HARD blows with the hammer. If the tapered pin is still not releasing, you will have to use a "pickle fork" (figure 4). Insert the pickle fork between the ball joint and the knuckle and use the hammer to force the pickle fork between the two parts (figure 5). If you get the pickle fork as far as it will go and the joint is still not separating, try repeating the blows to the



Figure 4



Figure 5

knuckle (as in the first sequence), with the pickle fork in place.

NOTE: Never use a pickle fork to separate the ball joints if you intend to reuse the control arm (and ball joints); the fork can tear the ball joint's rubber boot.

4 Release the inner ball joint in a similar fashion to the outer ball joint. Note that it may be necessary to resort to the pickle fork due to a lack of area to use the hammer (figure 6).



Figure 6

5 Remove the rear control arm bushing mount bracket by removing the two bolts securing the bracket to the vehicle (figure 7). Note the position and overall relationship of the bracket and how it is mounted to the uni-body frame rail.



Figure 7

6 Fully remove the nuts on the ball joints and lower the control arm and bushing assembly from the vehicle.

7 If you intend to be only installing a new bushing (and re-using the control arm), you will now press the arm out of the bushing. Alternately, you can cut the center sleeve of the bushing (using a hack-saw blade or a reciprocating saw) and it can then be easily



8 Using the hydraulic press, press the new bushing into the mount bracket. Note if there are any alignment marks to contend with (figure 9). The new bushing will either install in the same manner as the old original bushing or it will come with an installation sheet outlining the proper installation.

9 Press the bushing/mount assembly onto the control arm (figure 10). Note that some urethane bushings may not require a press for this operation. Note that rubber bushings require a lubricant to allow them to be pressed onto the arm. BMW specifies a special lube that dries after assembly; we like to use diluted dish soap or hair spray as alternatives. Take note of any alignment marks, as well as the proper orientation (left/right and front/back) of the mount bracket. Most of the applications will install with the mounting arm being parallel and in-line (on the same plane) with the forward end of the control arm (figure 11).



10 Install the control arm and bushing assembly on the vehicle. Insert the ball joint spindles into the knuckles and start the nuts onto the threads. Install the bolts for the bushing mount bracket and torque to specs (refer to appropriate Bentley manual). Tap the bottom of each ball joint to secure the tapered pin into the knuckle and tighten the nuts to the proper torque spec.

11 Replace the wheel/tire assembly and torque the lug bolts to the proper spec. Lower the vehicle. Repeat on other side if necessary.

This winter, put yourself in the hot seat.



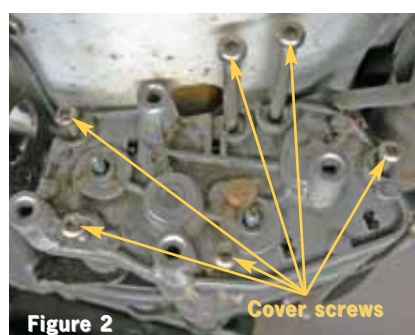
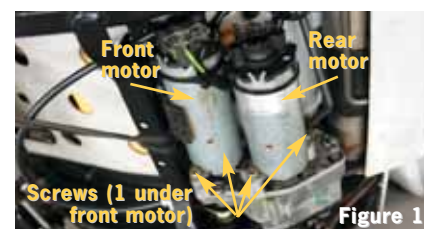
We import these heated seat covers direct from Germany. They use the same carbon heating elements used by BMW in their heated seats. Custom patterns have been created for regular and sport front seats for 3 series 84 thru 05 and 5 series 89 thru 03. They come with a wiring harness, Hi/Lo/Off switch and detailed installation instructions. Plus, they're on sale until October 31 – originally \$319.95 for one or \$599.95 a pair, they're now \$294.95 and \$549.95. **🔧🔧**

How easy is this?! do-it-yourself

3 series 92 thru 98 electric seat repair. **🔧🔧**

Are you having troubles with the power seats in your 3 series 92 thru 98? Are the seat back recline and or the seat bottom up-down functions not functioning? You're not alone. While these problems could be due to a number of things (including faulty motors), the most common cause is failure of some small plastic gears inside the motor gearbox assemblies. One gear is for the recline function of the seat back; the other gear is for the up-down function at the rear of the seat bottom. Previously, the only fix was to replace the complete gearbox/seat frame assembly (for about \$400-600!). But now we are offering inexpensive replacement gears (part #SG 1000, \$39.95 each) so you can once more have a fully functional seat. Following are the basic steps for replacing the faulty seat gears:

1 Raise the seat to the full upright position. Remove the four hex-head bolts securing the seat to the floor (move the seat forward and back, to access the four bolts). Disconnect the battery's negative cable to prevent any SRS codes from being generated. Tilt the seat assembly up and back and unplug the electrical connector plugs. Remove the seat from the car.



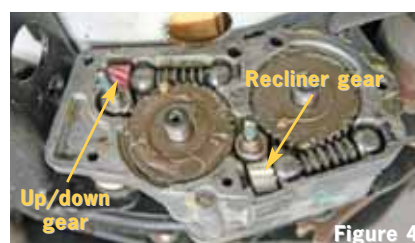
2 Set the seat on the floor, upside-down. Remove the plastic cover from the rear motor/gearbox assembly. Position the seat on its side, with the gearbox toward the floor and the motors upward (figure 1).

3 Remove the four Torx-head screws securing the motors to the gearbox. Remove the motors from the gearbox, noting the position of each motor. Note that three screws are readily accessible; the fourth can be accessed after the rearward motor has been removed (figure 1).



4 Remove the six Torx-head screws securing the cover to the gearbox, noting the positions of the different length screws (figure 2).

5 Remove the gearbox cover by gently tapping it with a mallet and prying with a screwdriver or similar tool (figure 3).



6 The gear closest to the seat bottom is for the up/down function at the rear of the seat bottom. The other gear (closest to the vehicle floor, when installed) is for the seat back recline function (figure 4). Relieve the pressure on the gears by gently moving the seat back as required. Remove the broken plastic gear and shaft assembly. Clean out all broken pieces and grease from the gearbox.

7 Remove the circlip securing the plastic gear to the shaft. Remove the gear and install the new gear (figure 5). Replace the circlip. Re-grease the gearbox and install the gear and shaft assembly into the gearbox. Reassemble the gearbox cover, motors and plastic cover. Install the seat into the vehicle and reconnect the battery cable. Now climb in, adjust the seat to your preferred position and drive in total comfort once more.

