

# fast times

the newsletter of **Bavarian Autosport**

Summer 2012

**NEW!** Want to achieve greater control and more precise handling? Upgrade to Bavarian Autosport performance urethane bushings.



Our performance urethane bushings are available for most 3 series 99 thru 05, 5 series 82 thru 03, 6 series 82 thru 87, 7 series 94 thru 01, X5 thru 06, Z3, Z4 thru 08.

**Automotive Bushings 101.** 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. Stock bushings (and some heavy-duty bushings) are made from rubber compounds that break down with use and exposure to oils, road heat, etc. The rubber also has a tendency to feel “spongy.” And when a bushing finally fails on a BMW or MINI, it can cause all kinds of problems including chassis shake, front end shimmy and more.

**For better response, think urethane.** Polyurethane bushings have a higher durometer than rubber bushings. (Durometer is a measurement of hardness.) They don’t have that spongy feeling so they provide more direct feedback than rubber bushings, giving you greater control over handling.

The result of this enhanced control is greater road-holding ability – the car’s proper suspension geometry is maintained under stress, keeping the tire in better contact with the road. This increases both your safety and the life of your tires (not as much bouncing and chattering). On top of this,

*continued on page 2...*

**D.I.Y.: Repair those paint chips!**



Have some paint chips in your hood, fenders, nose panel, etc.? Learn how to fix them yourself for about \$60. See the easy-to-follow article on page 7.

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Bavarian Autosport  
275 Constitution Ave.  
Portsmouth, NH 03801

phone 800.535.2002 • fax 800.507.2002 • www.BavAuto.com

## Performance bushings *continued from page 1...*

advancements in engineering have allowed manufacturers to produce a urethane that is just as strong and durable as older formulas, yet more forgiving. This means when you upgrade to urethane bushings, the comfort of your ride is similar to stock.

And finally, because urethane bushings last longer than rubber bushings, you won't have to replace them as often, saving you both time and money. Other benefits include optimized braking capabilities, more precise wheel alignments and enhanced stability in corners and during spirited driving.

Our new line of performance urethane bushings is made here in the U.S. using the highest-quality polyurethane, in molds that have been engineered to provide a perfect fit. Prices for our performance bushings range from \$64.95–129.95 pair. And since the labor is the same to install these as it is to install stock bushings, it only makes sense to upgrade – for a few dollars more, you achieve the greater control and more precise handling you crave.

**for** more details on our new performance urethane bushings, ask your phone rep or visit our online store at [www.BavAuto.com](http://www.BavAuto.com).



Above: 1 series convertible. Top right: 3 series 00 thru 06 convertible. Right: 3 series 92 thru 99 convertible. Not shown: 3 series 87 thru 92 convertible (see it at [BavAuto.com](http://BavAuto.com)).



**Finally, a lower-priced alternative to Genuine BMW windscreens.** Driving with the top down is much more enjoyable without the wind muffling your conversations, overpowering the stereo and messing up your hair. These high-quality windscreens let you converse without yelling and listen to music/news/sports without blasting. And since windscreens redirect air over the back of your car, in colder weather you stay more comfortable in the cockpit, extending your top-down driving season on both ends. The sleek, streamlined design won't detract from the beauty of your convertible. It fits your BMW seamlessly without any modifications and goes in or out of your car in 30 seconds or less. It does not interfere with lowering or raising your top. And if you ever need to use the back seat, it stores neatly in your trunk or garage in an included storage bag. These windscreens are available for 3 series 87 thru 06 and 1 series, and they're backed by a full one-year warranty. Prices range from \$359.95 to \$394.95. For more details, ask your phone rep or visit our online store at [www.BavAuto.com](http://www.BavAuto.com).

## Product Focus: **NEW!** Kelleners Sport power modules



Kelleners Sport power modules are available for most turbo BMWs, including 1 series, 3 series, 5 series, 6 series, 7 series, X5, X5M, X6, X6M and Z4. For model-specific applications and power gains, ask your phone rep or visit our online store at [BavAuto.com](http://BavAuto.com).



Add 49 to 111 horsepower and 51 to 100 lb-ft of torque to your BMW's turbo engine. German tuner Kelleners Sport has a strong and well-deserved reputation for innovative and exceptional engine tuning. Their new power modules are proof-positive of that fact. Essentially a second ECU (Engine Control Unit), a Kelleners power module allows your BMW to deliver more immediate pedal response (i.e. it eliminates throttle lag like a Sprint Booster), much more torque and significantly increased horsepower. It all adds up to better acceleration, greater safety when passing and a lot more of that famous BMW "Joy." Kelleners Sport power modules also deliver greater efficiency, which means lower fuel consumption when driven in the same fashion as you normally drive. And thanks to intensive development work and testing both in the lab and on the race track, all functions of the original ECU remain unchanged. It doesn't matter whether your BMW has a diesel or gasoline engine, a manual or automatic transmission, rear or four-wheel drive – installing the power module boosts the power output independently of the standard engine management system. Plus it will continue to work perfectly even if your original ECU gets a software update at the dealer.

The Kelleners Sport power modules use BMW's original connectors, so the installation is "plug-n-drive." (You may need to splice a wire or two, but no modification is required.) Installation takes anywhere from 30 minutes to two hours, depending on your level of experience. As with all Kelleners Sport products, these power modules are available only from Bavarian Autosport. Regular prices range from \$1959.95–2752.95, but now thru August 31 they're on sale for \$1594.95–2294.95.

**Now** thru August 31, save up to \$458 on Kelleners Sport power modules. For model-specific pricing, ask your phone rep or visit [BavAuto.com](http://BavAuto.com).



## Over 280 years of BMW/MINI experience is yours for the asking - free!



If you add up all the years the enthusiasts at Bavarian Autosport have been working on BMWs and MINIs – and helping people like you work on theirs – it totals well over 280 years. That's a lot of knowledge under one roof. And it's yours for the asking. Have a question about your BMW or MINI? Call 800.535.2002 or search Bavarian Otto's knowledge base of more than 1,000 tech Q&A at [blog.BavAuto.com](http://blog.BavAuto.com).

### The forecast: cloudy with a chance of becoming crystal clear. 🔧

Dear Bavarian Otto,

I bought a 2000 Z3. Is the front lens removable from the body of the headlight, to be able to clean it and get rid of the cloudiness?

Otto replies:

The outer headlight lenses on the Z3 models are not removable from the headlight assembly. If you have the common clouding of the lenses caused by sandblasting, you can use our Diamond Clear restoration kit to restore the lenses to a nice, clear, "like new" condition. We also have a D.I.Y. video showing how to use the kit – you can watch it at [blog.BavAuto.com/go/lens-restore](http://blog.BavAuto.com/go/lens-restore), or use your smartphone's code reader to scan the QR code at right. The only alternative to restoring the lenses is to replace the complete headlight assemblies. Whether you choose to restore your existing lenses or install new headlights, we highly recommend protecting them with our urethane headlight shields to keep them looking new.



[Ed. Note: both the headlight restoration kit and the urethane headlight shields are on sale during the month of August. See page 8...]

### Does this noise have any bearing on my problem? 🔧 🔧

Dear Bavarian Otto,

My 1988 M3 is making noise that sounds like the tires are wearing unevenly. I installed new tires and it still makes the same noise. I notice that when I steer to the right the noise will disappear and when I go straight or left, I hear the noise again. Could you tell me what that noise is?

Otto replies:

From your description, it sounds as if you have a worn wheel bearing. The telltale point here (besides the fact that you changed the tires) is that the sound can be manipulated by turning right or left. Typically, if we turn right and the sound goes away (or lessens), we are looking at the right side bearings (similarly, for left). This is not a 100% scenario but can be used with a high degree of success. As to whether it is a front or rear bearing, you can usually tell this by listening carefully. We do stock the front and the rear wheel bearings as well as the new nuts, clips and dust covers that may be required. Most front wheel bearings can be replaced with just a gear puller, however most rear bearings require a special bearing removal/installation tool, which we also offer. Replacement procedures are outlined in the Bentley repair manual. We also have a D.I.Y. blog post on the subject – go to [blog.BavAuto.com](http://blog.BavAuto.com) and search for "rear wheel bearing."

### Looking for a little XOXO for my xi.

Dear Bavarian Otto,

I recently bought a 2005 325xi. While I love almost everything about this car, it has a tendency to understeer during "spirited" driving. I've been told that's because all-wheel drive BMWs ride higher than the rear-wheel drive models so they're not as well balanced and put additional stress on the suspension geometry. I've also been told that, short of having some custom suspension work done (ka-ching!), there's not much I can do about it. Are there any bolt-on suspension upgrades for xi models?

Otto replies:

In our neck of the woods, almost every new BMW sold by the dealers has all-wheel drive. While suspension products for xi models were scarce a few years ago, many manufacturers have responded to our requests for upgrades for cars like yours. As a result, there are now several products you can install on your xi to improve its handling. Here is a list of what we currently offer for suspension upgrades for 3 series xi models:

3 series 99 thru 05 (E46):

Lowering springs – Bavarian Autosport; Eibach  
Sport shocks & struts – Bilstein  
Stress bars – Bavarian Autosport; Genuine BMW  
Camber kits – Bavarian Autosport  
Short-shift kit – UUC Motorworks

3 series 06 thru 12 (E90/91/92):

Sport shocks & struts – Bilstein  
Sway bars – UUC Motorworks sway bars (front & rear)  
Stress bars – Genuine BMW  
Short-shift kit – UUC Motorworks

For even better handling and appearance on either of these chassis (E46 and E90), you can use staggered wheel fitments (where the wheels and tires are wider in the rear than in the front). Or you can achieve a staggered look by adding wheel spacers. Another suspension upgrade you might want to consider is replacing the stock rubber bushings with firmer urethane bushings for better control and more precise handling. [Ed note: see page 1.] Ask your phone rep about the options for your 325xi.

[Ed note: we also offer suspension upgrades for other popular, all-wheel drive BMWs, including 5 series 04 on, X3 and X5 – ask your phone rep what is available for your year and model or visit us online at [www.BavAuto.com](http://www.BavAuto.com).

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Winner! 3 series 99 thru 05: Jamie Thole of Florida, and his 2004 M3. For details on our photo contest, visit [www.BavAuto.com/photocontest](http://www.BavAuto.com/photocontest).

## DIY: Replacing a self-adjusting clutch & dual-mass flywheel. 🔧🔧🔧

Most late-model BMWs (mid-90s on – some as early as 1986) use a multi-piece flywheel that is very heavy and is intended to absorb engine and drivetrain vibration and shock-loads via an internal spring or damping mechanism. These flywheels do indeed dampen the driveline vibrations while underway. However, they can make it difficult to achieve smooth take-offs and gear changes, even



Bottom row: old, worn SAC and dual-mass flywheel. Top row: new UUC performance clutch and lightweight flywheel.

when they are working properly. We have found that the damping mechanisms within these dual-mass flywheels fail with as little as 80,000 miles of use. In fact, early symptoms of failure, or wear out, can start to show with less than 50,000 miles of use. Once a dual-mass flywheel starts to wear out, the sensation of a springy feeling in the drivetrain (the technical term is “oingy-boingy”) becomes more prevalent, and the vehicle begins to jerk as if an on-off switch were being flipped. On top of this, as the damping mechanism wears out, the friction surface of the flywheel begins to move in a non-parallel (slightly angled) plane to the clutch, accelerating clutch disc wear.

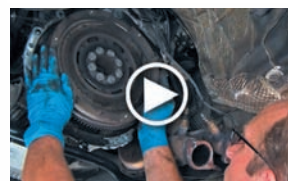
The self-adjusting clutch (SAC) has been in use in BMWs since the early 2000s. These clutches employ a mechanical adjustment unit within the pressure plate that is intended to keep the clutch pedal at a pre-determined engagement point over the life of the clutch. As with the dual-mass flywheel, the SAC has caused more problems than it solved. It wears out prematurely due to the adjustment mechanism failing (mostly

“So how do I get a reliable, long life, clutch and flywheel in my BMW?”

due to clutch material contamination but also mechanical failure). Additionally, poor installation techniques result in a clutch that does not function properly, or fails early due to excessive slippage.

Now consider a BMW that is in need of a replacement clutch: If all we do is install a new clutch assembly\*, we still have the worn dual-mass flywheel with the springy feeling in the drivetrain, and we will likely

have premature clutch wear-out due to the flywheel's friction surface being out of alignment (non-parallel). Add high-performance or aggressive driving and the failure accelerates exponentially. (Many M5 clutches need replacement at under 30,000 miles.)



To read the rest of this article and watch our DIY video, go to [blog.BavAuto.com/go/clutchrepair](http://blog.BavAuto.com/go/clutchrepair)

\* **Note:** If you are installing another self-adjusting clutch, there is a special procedure that must be followed precisely or the clutch will not function properly. We show you how to do this procedure in a separate video at [blog.BavAuto.com/go/self-adjusting](http://blog.BavAuto.com/go/self-adjusting).

## Product Focus: UUC Motorwerks performance clutch

Over the past 12+ years, owners of manual transmission BMWs have been experiencing mushy clutch feel, premature clutch wear, difficulty achieving smooth clutch engagement and gear changes, and to top it off, a springy drivetrain sensation. The causes of all these issues are the the BMW self-adjusting clutch (SAC) and dual-mass flywheel. As noted in the article above, the SAC was designed to maintain a consistent clutch pedal engagement point as the clutch wears, while the dual-mass flywheel was intended to dampen and isolate drivetrain shock and vibration. Even under normal use, these designs tend to fail prematurely (details above) and often result in a less-than-ultimate driving experience.

After trying (and being disappointed by) all the commonly-available performance clutches for BMWs, the folks at UUC Motorwerks established a relationship with the country's best street and race clutch manufacturer and started collaborating. The result is a line of clutches and flywheels that exhibit a level of quality and performance beyond anything else on the market. (At prices that are lower than others, too!) The UUC performance clutch and lightweight flywheel eliminate the problems caused by the SAC and dual-mass designs. The UUC performance clutch can be installed on the original BMW flywheel to provide crisper clutch engagement. Or you can use the UUC lightweight flywheel to also get rid of that springy driveline sensation noted earlier. Plus, UUC performance clutches and lightweight flywheels will provide longer useful life than stock ones.

Other benefits include:

- **Lower cost** – Not only do the UUC performance clutches cost less than others (\$544.95–949.95), the greater clamping force and upgraded materials of the UUC performance clutch assures much longer life, even in high-performance use. The UUC lightweight flywheel (\$599.95–1599.95) has no dual-mass mechanism to fail, and its friction surface is replaceable if it ever wears out, saving you even more time and money.
- **Direct-fit** – both the clutch and flywheel are “bolt-on” replacements.

For more details, ask your phone rep or visit [BavAuto.com](http://BavAuto.com).

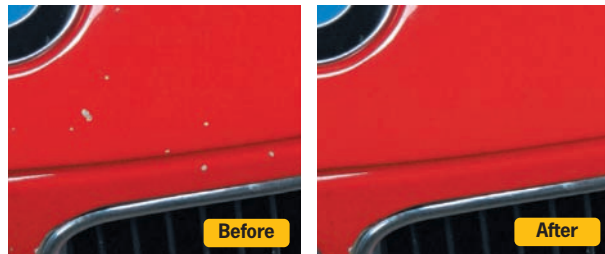




## D.I.Y.: Repairing paint chips.

When we hand-wash and detail our BMWs and MINIs, we notice the graceful curves of the quarter panels transitioning into the tail, or the way the belt line works into the front wheel arches. We also notice all the little imperfections such as paint chips and scratches in the hood, fenders, etc. The cost to have a body shop repair these imperfections can easily run into four figures.

While a full body shop repair is indeed the best way to fully eliminate these paint chips and imperfections, we offer two repair kits that can make the damage nearly invisible to most viewers for about \$60. And while you may have seen hoods that look like they have a bad case of poison ivy after someone blobbed on touch-up paint, you don't have to



worry about that with these repair kits. They use what amounts to a chemical sandpaper that eliminates blobs before the paint completely dries.

### The two products are:

- **Paint Chip repair kit** – Use this kit (plus your touch-up paint) to repair chips and scratches that are larger than about 1/16" and are not clustered closely together.
- **Road Rash repair kit** – Use this kit (which includes touch-up paint) for repairing multiple chips that are clustered closely together and are generally smaller than 1/16" in size, as well as scratches. With the Road Rash kit, you can repair complete areas – front of the hood, nose panel, bumper, leading edges of fender flares, etc. – without needing to work on each chip individually.

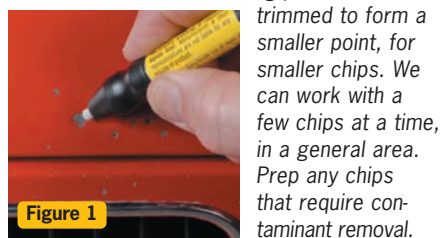
Let's take a look at each of the kits and their use.

### Paint Chip Repair Kit:

#### Products Used:

Paint Chip Repair Kit – PCR KIT  
BMW/MINI touch-up paint – 51 91 0 XX XX  
Würth Sanding Pen – 158501  
Smart Wax SmartPolish – 20101  
Smart Wax SmartWax – 20102

**1** If the chip is older and has oxidation or rust on the base metal, use the Würth Sanding Pen to clean out the contaminants (Fig. 1). Note that the fibers of the sanding pen can be



trimmed to form a smaller point, for smaller chips. We can work with a few chips at a time, in a general area. Prep any chips that require contaminant removal.

### Road Rash Repair Kit:

#### Products Used:

Road Rash Kit (Small/Medium/Large) –  
RRK50/75/100  
Würth Clean-Solve pre-cleaner – 08909381  
Smart Wax SmartPolish – 20101  
Smart Wax SmartWax – 20102

**1** Typically, these chips will be too small and/or too plentiful for cleaning with the Würth Sanding Pen, so use the Würth Clean-Solve to clean the area to be repaired. Wipe dry.



To read the rest of this article  
and watch our DIY video, go to  
[blog.BavAuto.com/go/paintchip](http://blog.BavAuto.com/go/paintchip).

Both paint repair kits are on sale  
thru August 31st! See page 8...

Specific tools needed; repair experience recommended. Experienced technicians only.

## Product Focus: The Ultimate folding sunshade



Every Ultimate Reflector comes in its own handsome, leatherette storage bag.

Bavarian Autosport was the first company in the world to offer the Ultimate Reflector, a custom-fit, folding sunshade that keeps cars cooler in summer and warmer in winter. It has six layers of material that, combined, provide you with the ultimate in reflection, protection and insulation. This hi-tech sandwich – cut to fit your windshield precisely – can reduce heat build-up inside your BMW/MINI by as much as 40° F. It prevents ugly, costly cracks and/or fading on your dashboard, steering wheel, console, shifter, etc. It unfolds in seconds and is held neatly in place by your sun visors. In winter, reverse it so the mylar side is facing inward (to reflect residual heat back in) and the dark felt is facing outward (so the sun's energy is absorbed, not reflected). The Ultimate Reflector is normally \$59.95, but now thru August 31st it's just \$53.95 – you save \$6.00! Backed by a Lifetime Warranty.

Ask Otto continued from page 3:

### A different kind of oil change.

Dear Bavarian Otto,

Sir, I own a 1987 325is. Is it possible to change my oil from Liqui Moly MoS2 10w40 to a full synthetic oil?

Otto replies:

Short answer is YES! You and your older BMW can indeed start reaping the benefits of synthetic oils, including: reduced engine wear; better fuel economy; a smoother running engine; and longer intervals between oil changes (to a point). You can certainly start running a full synthetic motor oil at any time, regardless of what oil has historically been used. This not only applies to your 325is, but to any vehicle, including all BMWs and MINIs. We offer "top-shelf" synthetic oils from two of the best brands in the world – Germany's Liqui Moly and America's Red Line. These oils are superior because they have been given higher-quality additive packages, plus they undergo a more intense refining process than non-synthetic (mineral) oils. We use Liqui Moly and Red Line oils in our BMWs and MINIs (as well as in our "other" vehicles) and have for years.

