

fast times

the newsletter of **Bavarian Autosport**

Winter 2009

New for '09: Find every BMW and MINI part – no matter how obscure – on our web site.



Enter almost any BMW part number into our search box and we'll find it for you.

You've always been able to get any part you need through our friendly phone reps. Now you can get everything online, too. We recently added the entire BMW and MINI parts lists – more than 150,000 part numbers – to our web site's database. (The only parts we didn't include are those that are too difficult to ship, such as complete engines and windshields.) Need to replace a leaking power steering line that nobody seems to have? You can find it on our web site – www.BavAuto.com. All you have to do is enter the part's 11-digit BMW or MINI part number into the search box (above). We'll tell you how much it costs and let you order it right then and there. So even when we're not here to answer the phones, you can get all the parts you need from Bavarian Autosport – your one-stop BMW store.

Shipping "Special Order" parts.

Our three-story warehouse contains thousands upon thousands of BMW and MINI parts. Unfortunately, we don't have room to stock every single part BMW ever made. Parts that we don't stock are called "Special Order." This means we need to get the part to our warehouse before we can ship it to you. Special Order items are typically shipped within 1-2 weeks; many are shipped sooner. Occasionally, it does take longer, (for example, if the item is coming from Germany). As soon as your order leaves our warehouse, you will receive an e-mail with a tracking number.

"Hey, that's not the part number I searched for!"

When BMW makes a part, it is given a unique part number. If, at some point, that part is updated, that new version is given a different part number. If you search our web site for a specific

Example:

Let's say you want to replace a wheel emblem on your 2001 325i. You know the part number is:

36 13 1 095 361

You enter that number in the search box on our web site. We show you:

36 13 6 783 536

This is wheel emblem you want, it just uses a newer part number.

part number and we show you a different part number, don't panic – we're just showing you one of the alternate part numbers. Rest assured, the part we show you is the newest version of the part number you entered into the search box.

Make sure it fits.

As you might expect, with 150,000 part numbers in the BMW system, there are some parts we've never sold. As a result, we may not have had an opportunity to verify that the Special Order part you searched for actually fits your particular year and model. If you're confident the number you entered in the search box is the right

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In this issue:

Inspect your BMW or MINI yourself and save a bundle!



Any driver can do these simple tasks. See page 4...

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BAVARIAN
autosport
PRODUCTS FOR BMW ENTHUSIASTS

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New search continued from page 1

one for your car, go ahead and order it.* If you would like us to verify that the part fits your car *before* you order it, call us at 800.535.2002 during our normal business hours (Mon–Thu 8am–9pm; Fri 8am–7pm; Sat 9am–4pm, Eastern time). One of our phone reps will be glad to help you figure it out. Or send an e-mail with the part number and the year and model of your car to info@BavAuto.com. We will let you know within one business day (usually sooner) whether the part fits your particular BMW or MINI.

** Fair warning: If you choose not to verify fitment with us and the part doesn't fit your car, you will be responsible for the cost of returning the item and we reserve the right to charge a restocking fee. If the error is ours, we will absorb the cost of the return and restocking.*

Product Focus: Plush mat “serges” ahead.

Want to add a little flair to your interior? Get our Plush mats serged with contrasting thread. Serge is the term for overcasting (wrap-stitching) the edge of a piece of fabric to prevent fraying. Our Plush floor mats are usually serged with a matching thread (black mats get black thread, silver mats get silver thread, etc.). What we've done here is to take the most popular mat color (black) and offer it serged in your choice of red or silver thread. We've also changed the Bavarian Autosport logo from the two-tone, red-and-silver look of our regular Plush mats, to a solid color that matches the serging. The result is a Plush floor mat set that adds new life to any BMW's or MINI's interior.

We didn't change the things that make our Plush mats a great value:

- A top layer of 32oz. carpet, with a “double-tuff” 50oz. heel section.
 - Mid-layers of insulation and a waterproof membrane.
 - A bottom layer of slip-resistant foam to help the mats stay put.
 - A precise cut that fits your specific BMW or MINI model.
 - A choice of with or without the Bavarian logo – for the same price.
 - A lifetime warranty – if they ever wear out, we'll replace them for free.
- Sets include front and rear mats (except roadsters – front mats only). Specify year, model, plain or with logo and serge color (red or silver). Please allow 3-4 weeks for delivery.

P.S. Oh, there's one other thing we changed – the price. Normally \$124.95 a set, they're now on sale at \$109.95 a set. Sale ends February 28, 2009.



There are lots more items on sale during the month of February. You can see them all on the back of this newsletter...

Safety Sale: PIAA Super wipers and Xtreme White bulbs.

For maximum safety on the road, you need to see and be seen. It's February – one of the worst weather months for a large portion of the country. Hundreds of thousands of BMW and MINI drivers are dealing with snow, sleet, freezing rain and rain, and while the days are getting longer, it's still dark for more hours than it's light. Two of the best safety upgrades you can make are PIAA Xtreme White headlight and fog light bulbs, and PIAA Super Silicone/Super Sporza windshield wipers.



Why Xtreme White bulbs?

1. You get more lighting from fewer amps. For example, the light from PIAA's 51-watt Xtreme White 9006 bulb is equivalent to a 115-watt halogen bulb.
2. Xtreme White bulbs produce a whiter light than yellowish halogen bulbs.

Your eyes don't get as tired, plus oncoming drivers notice you sooner.

(Xtreme White high beam bulbs also more closely match the color of Xenon/HID low beams.)

Only the highest-grade materials are selected for use in PIAA bulbs, including:

- Heat-resistant glass tubes that don't crack or explode like some cheaper bulbs.

- A metal bond that holds the tube securely, preventing cracks and leaks.
- A welded focus ring that assures proper support and positioning.

In addition, PIAA Xtreme White headlight bulbs are DOT approved and street legal in all 50 states and Canada. To encourage you to upgrade your headlight bulbs, during the month of February we'll take \$5 off Xtreme White 9005, 9006, H1, H3, H4 and H7 bulbs – normally \$64.95-74.95 a pair, they're now \$59.95-69.95 a pair.

Why Super Silicone wipers?

PIAA Super Silicone/Super Sporza wipers are the most popular wiper upgrades we offer. As they wipe, they leave behind a microscopic layer of activated silicone (the same ingredient used in some windshield treatments), so water beads up and wipes away completely. You get a clearer view of the road ahead. The silicone coating also eliminates squeaks and reduces drag/chattering, making the ride a lot more enjoyable. Super Silicone wipers also offer better resistance to harsh conditions such as cold, ice and UV degradation, so they offer longer service life. Plus, refills are available, so you don't have to buy a whole new wiper when you want to replace the blade.



PIAA windshield wipers are offered in two styles: Super Sporza (with an integral air foil to prevent lifting at high speeds), and Super Silicone (without an air foil). Both are available in your choice of black or carbon fiber-look. During February, we'll take \$2 of every blade – normally \$19.95-28.95, they're now \$17.95-26.95. Sale prices end February 28, 2009.



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 MINIs – and helping people like you work on theirs – it totals well over 200 years. That's a lot of knowledge under one roof. And it's all yours for the asking. Have a question? Ask that savvy, BMW and MINI enthusiast, "Bavarian Otto" – just call 800.535.2002 or e-mail Otto@BavAuto.com.

Changing automatic transmission fluid.

Dear Bavarian Otto,

I own a 1997 528i BMW with 110,000 miles. When the odometer was at 60,000 miles, I asked my local BMW dealer to change the automatic transmission fluid. Their response was, "It doesn't need to be changed...it is in a sealed cylinder." I questioned this but they were positive that it was not necessary. I asked again at 95,000 miles because my friend suggested it really should be changed. Once again, BMW said not necessary. Well, this past November, the CHECK ENGINE light came on so I took my car into BMW. They said there were tiny metal shavings in the transmission fluid, and this was the first sign that the transmission was starting to go! They tried selling me a new transmission or a new car. I was fed up, so my friend said to contact BavAuto. I ordered Red Line D4ATF transmission fluid and the filter kit. What is the best way to go about changing the fluid since it is so old, and also, who should I have change it? I'm desperately seeking help! Thanks.

John B.

Otto replies:

As you have learned, "lifetime" to BMW means that the fluid will last for the lifetime of the transmission: if the transmission fails at 100,000 miles, it has completed its lifetime. We like to see much longer service life from transmissions. To achieve this, you need to change the fluid periodically. There is nothing "sealed" about the fluid or transmission. It's just like any other automatic transmission, except there's no dipstick. The fluid is checked and filled via a plug on the driver's side of the pan. I would recommend two fluid changes. This is because the pan only holds about 1/3 of the total fluid in the transmission. Performing a second fluid change ensures a higher concentration of fresh fluid. The first change requires dropping the pan and changing the filter. After reassembly, run the car for a few minutes, then perform a second change without dropping the pan.

Who should change the fluid? If you are at all handy, you can do it yourself and save some serious money. We published a step-by-step, do-it-yourself article in the Spring 2006 issue of Fast Times. You can find it at www.BavAuto.com/newsletter. If you're not comfortable doing it yourself, almost any shop can perform the filter and fluid change, there is nothing especially technical about it.

As for the Check Engine light, there is no fault code a BMW can generate that will tell whether the transmission fluid has metal shavings in it. If you want to be sure your service advisor isn't, er, exaggerating, I would suggest that you obtain our fault code reader tool and check the engine codes yourself. This tool will also reset the Service Interval and Oil Change reminders, saving you even more money over what a dealer charges for this service.

Replacing headlight bulbs.

Dear Bavarian Otto,

How do I change the halogen headlight bulbs on my 2002 325i? Are any special tools needed? Any safety precautions to follow?

Tom S.

Otto replies:

Both the high and low beam bulbs are removed by grasping the rear of the bulb socket and twisting counter-clockwise a quarter turn, then pulling the bulb and socket assembly out of the light housing. Next, disconnect the vehicle wiring harness plug from the bulb socket assembly. You can now remove the bulb from the socket. (Don't touch the bulb with your bare hands; oil on your skin can cause premature failure.) For the driver's side, you can gain better access to the bulbs by first removing the air filter box assembly. These full procedures are detailed in the Bentley repair manual.

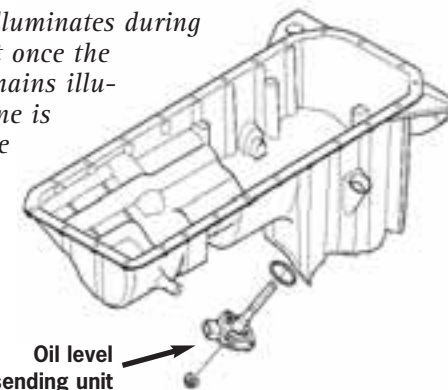
Why is my oil light on when I have plenty of oil?

Dear Bavarian Otto,

Every time I start my 2000 323i, I notice that the Engine Oil light comes on. I have checked and found that the engine oil is at the appropriate level, so why does this little yellow engine oil light keep coming on? Any suggestions? GSD

Otto replies:

The yellow Engine Oil light always illuminates during start-up, but then it usually goes out once the engine is running. If the oil light remains illuminated, or comes on while the engine is running, this would typically indicate a very low oil level. If the oil level is fine, you likely need to replace the oil level sending unit (see the diagram at right). It is mounted in the oil pan. Replacing this unit



continued on page 7...

Bavarian Profile



Jared J. Saulnier

Our newest phone rep, Jared joined us in the Summer of 2008. Before that he worked as the Manager of a Sprint/Nextel store in Florida, where he also went to college. (He earned a BS in Video Production/Digital Film from The Art Institute of Fort Lauderdale.) Other jobs include sales at NTB (National Tire & Battery), Marketing Manager for ASI Management Companies and Sales Manager for Mobile Solutions selling AT&T cell phones. Jared has

been working on cars since 1996 and has owned more than 20 cars (mostly German with some Hondas/Acuras thrown in). BMWs he has "wrenched" include an E30 318i, E36 M3 and E46 M3 and 330ci. When he moved from sunny Florida back to snowy New Hampshire, a more practical ride seemed in order, so Jared currently drives an '04 Nissan Pathfinder but has his eye on an E46 M3. "I really want to get into autocross and track racing when I can get the right car," says Jared. Once he does, given his training in digital video, you'll probably be able to see him "apex it" on YouTube.

How easy is this?! do-it-yourself

Preventive maintenance, part 1 – under the hood. ✂

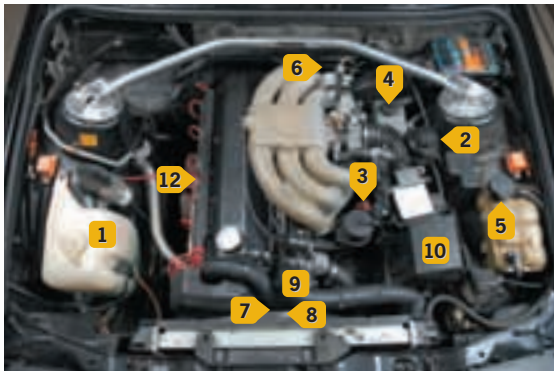
This is the first in a series of articles designed to help you save money by showing you how to perform some basic inspections yourself. Not only will you save by not paying someone to perform the inspection, you'll be able to identify potential issues/repairs before they become an expensive problem. In this article we address inspections you should perform under the hood. Future articles will cover brakes, exhaust, steering and suspension, etc..

These days, any chance to save a few bucks is a welcome opportunity. One area where all of us can save is in general vehicle inspections. You can save hundreds, even thousands, of dollars on inspections and services by simply spending a little personal time with your BMW or MINI.

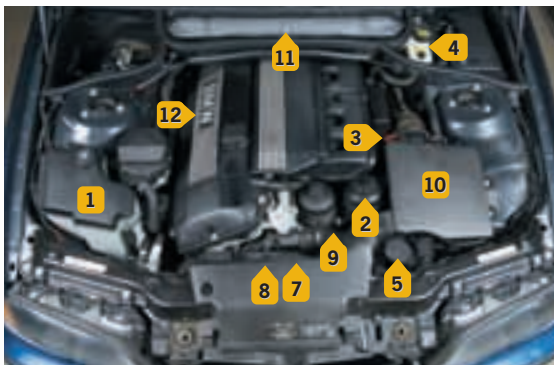
Contrary to what BMW and the local dealer may want you to believe, the service and inspection reminders that your BMW will display occasionally do not mean "you must see a BMW dealer now or face catastrophic consequences." These reminder lights are triggered by simple calculations using time, mileage, driving style and environmental inputs from the vehicle systems. We believe preventive maintenance should be performed more often than these reminders indicate. And we're not alone – many BMW experts (including some you probably read in automotive publications) are of the opinion that the BMW maintenance schedule is inadequate. You can read our reasons and see our recommend maintenance schedule in the Winter 2008 issue of *Fast Times* at www.BavAuto.com/newsletter.

Okay, let's get going on our inspection. You won't need any special tools for these under-the-hood checks, nor will you need to raise the car off the ground. (**Note:** the inspections outlined in future articles will require raising the vehicle off the ground. See the sidebar on hydraulic floor jacks and jack stands on page 7.) We'll start with the easiest tasks and work forward.

To illustrate the typical locations of components, we've included photos of two BMW engine bays. Your particular BMW or MINI may look different or have components in a different location. We have shots of many engine bays (with component locations) on our web site: www.BavAuto.com/techinfo. For demonstrating the inspection procedures, we are using a 1990 325i and a 2004 330xi.



1. Washer fluid reservoir
2. Power steering fluid reservoir
3. Engine oil dipstick
4. Brake fluid reservoir
5. Radiator filler cap
6. Automatic transmission dipstick
7. Accessory drive belts
8. Water pump and fan clutch
9. Coolant hoses
10. Engine air filter
11. Not applicable
12. Ignition system



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11. Cabin microfilter
12. Ignition system



1) Washer Fluid If the washer fluid tank is visible (right), the fluid level is checked by just looking at the translucent tank. Some models (such as 5 series 97 thru 03) have a remote tank. In these cases, we must rely on the dashboard warning from the fluid level sensor. Add fluid through the reservoir filler cap. Add P21S Windshield Washer Fluid Booster (left) for optimum windshield cleaning.

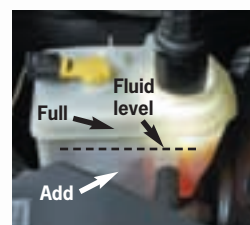


2) Power Steering Fluid

Check the fluid with the system warm. With engine off, remove the reservoir cap. If the cap has a dipstick, the fluid should be between the FULL and ADD marks on the dipstick. If the reservoir cap does not have a dipstick, the fluid should be 10mm below the rim of the reservoir. Add fluid as required. All BMW systems will use either Dexron-III fluid (or Redline D4ATF), or 7.1 or 11s hydraulic fluid. Take note of the condition of the fluid in the reservoir: it should be bright translucent red (Dexron III and Redline) or clear, with perhaps a bit of a dark honey coloring (7.1 and 11s hydraulic fluid). If the fluid is dark and/or heavy, it should be changed. When changing the fluid, the filter should also be changed. The plastic reservoirs that have the caps with dipsticks have integral filters and the complete reservoir is replaced (under \$40.00). Metal reservoirs have replaceable filters in the bottom of the reservoir. The power steering fluid and filter should be changed at 50,000 miles or 2 years.

3) Engine Oil

With engine off (for two minutes or more), remove the oil dipstick and wipe the indicator end with a rag. Reinsert the dipstick until fully seated. Withdraw the dipstick and check the oil level on the indicator end. The oil level should be between the FULL and ADD marks (the difference between the FULL and ADD marks is typically about one liter). Add oil if required. Take note of the visual condition of the oil. If the oil is dark honey colored, but still translucent on the dipstick, it is still serviceable (assuming the use of a "top-shelf" synthetic oil, such as the Lubro Moly synthetic motor oils). If the oil is thick and/or opaque (i.e. you can not see the dipstick through the oil), it's time for a change. Note that while this is not a scientific method of determining oil change intervals, it is a good way to check for oil contamination.



4) Brake Fluid

Locate the brake fluid reservoir. Most models have the brake fluid reservoir openly accessible on the driver's side, rear area of the engine compartment. (A couple of models are a bit trickier. For example, on 5 series 97 thru 03, the reservoir is under the driver's side climate control/microfilter housing.) The brake fluid should be between

the FULL and ADD marks on the side of the translucent fluid reservoir. Add DOT-4 or ATE Super brake fluid as required. Take note of the color of the fluid. Fresh DOT-4 brake fluid is clear, with a very slight amber tint; ATE Super is either bright blue or golden. If your brake fluid is dark, it's time for a fluid flush and change. We recommend changing your brake fluid once a year.



5) Engine Coolant/Antifreeze Some models have translucent coolant expansion tanks that have markings for HOT and COLD. You can simply view the coolant level through the tank. In these cases, the coolant should be between the HOT and COLD marks depending on the engine temperature. Some earlier models will have the filler cap directly on the radiator. In these instances, the fluid level is checked by removing the cap and seeing if the fluid is near the top of the cap flange. Most later models have solid colored expansion tanks or tanks in remote locations. In these cases, there will be a floating indicator (red stick at right) that, if the fluid level is correct, rises up out of the filler neck a bit when the cap is removed.



In instances, where the cap must be removed, follow this procedure: (Note: For safety, the engine must be fully cold!) Locate and carefully open the coolant cap by slightly loosening the cap and listening for any release of pressure. (It would not hurt to wrap a heavy rag around the cap, just in case there is pressure and/or hot fluid inside.) Once you are sure there is no excessive pressure, remove the cap and look inside the filler neck for fluid level (early cars) or look for the float to rise up. If the level looks low or the top of the float stays below the top of the filler neck, add coolant as required.

Always add a mixture of 50% BMW coolant and 50% distilled water (unless you're using waterless NPG+, which is used at full strength). This will give the best anti-corrosion protection. The "radiator fluid," as it's commonly called, performs multiple functions. It raises the boiling point of the engine coolant mixture (over that of plain water), lowers the freezing point (again, compared to plain water) and provides anti-corrosion protection for the internal coolant passages in the engine, radiator and heater system. When all things are operating properly, the engine coolant can become a neglected vital fluid. And, vital it is! If the coolant is any color other than clean, bright blue-ish (BMW coolant... others are different colors such as; green, yellow, orange, etc.), it should be flushed and changed. BMW coolant should be changed every three years; NPG+ coolant never needs changing.



6) Automatic Transmission Fluid Most BMWs with automatic transmissions, up through the late '90s, have an under-hood transmission fluid dipstick. (If your BMW does not have an automatic transmission dipstick, we will cover the procedure when we get under the car for further inspections and services.)



Check the fluid level with the transmission warm and the engine running. Remove the dipstick, wipe it clean and leave it out. With the parking brake engaged and your foot firmly on



the brake pedal, run the shifter lever through the various positions from PARK, through all the gears, and back to PARK (hold in each position for a couple seconds). With the shifter in the PARK position and the engine still running, insert the dipstick all the way into the tube and then withdraw it. Read the fluid level and add if required. The difference between the FULL and ADD marks is typically about 1/2 liter. DO NOT OVER-FILL. On all models that have dipsticks, the fluid should be a bright and clear red color. If the fluid is cloudy or brownish, you should change both the fluid and the filter. We recommend fluid and filter changes at 50,000 miles or 2 years.

Valve Adjustment.

Most BMW models, through the early '90s (4-cylinder through 85, most 6-cylinder through 91, etc.) have mechanically actuated engine valves (intake and exhaust valves in the cylinder head). These valves require periodic adjustment. A proper valve adjustment not only keeps the engine quiet, it provides better performance and longer valve-train component life. We recommend valve adjustments at 15,000 to 30,000 miles (see Otto's Ultimate Maintenance Schedule in the Winter 2008 issue of Fast Times).

“You can save hundreds, even thousands of dollars on inspections and services by simply spending a little personal time with your BMW or MINI.”



7) Accessory Drive Belts

The accessory drive belts operate the water pump, alternator, power steering pump and A/C compressor for most BMW models. Our BMWs can have two basic different accessory drive belt configurations; V-belt (not shown) and Serpentine belt (above). In a very general sense, most older models (early '90s and prior) have V-belt systems and most later models (early '90s and on) have serpentine belt systems. BMWs that use V-belts have a separate belt for each accessory (with the water pump and alternator on the same belt). Therefore, most BMWs that have V-belts will have three of them. On most BMWs with serpentine belt systems, the water pump, alternator, and power steering are run from one belt and the A/C compressor is run from another smaller belt. Inspect belts for visible fraying or cracking, on both the inside and outside surfaces of the belts. Listen to the belts as the engine is running. The belts should be quiet – there should be no squealing or squeaking. If you have a squeal or squeak noise, this may be due to a loose belt, a worn belt that has lost its original profile or a glazed belt that is slipping. Additionally, there may be a pulley with a worn bearing or one of the driven accessories may have failing bearings. With the engine off, check the belt tension by pushing down or pulling up in the middle. On a V-belt system, the belts should have about 1/2" of total play. Each driven accessory will have a mechanical provision for tensioning the belt. (Refer to a repair manual for tensioning procedures.) On serpentine systems, the belt should be quite taut. If it is not, the belt tensioner might need to be replaced (there is no adjustment you can do). If the belts are taut and you still have squealing, use a mechanic's stethoscope (part #52750, \$21.95) with a megaphone end to localize the source of the sound. All accessory drive belts (and tensioners and pulleys on serpentine systems) should be replaced at 60,000 miles or 4 years.



8) Water Pump and Fan Clutch

With the engine off, grasp the engine fan (or water pump pulley, if there is no engine driven fan) and try to wobble it side-to-side or front to rear. Other than slight deflection of the blades, there should be no movement. If a wobble is detected, look closely to see if the movement is between the fan (and fan clutch) and the water pump pulley, or between the water pump pulley and the pump housing (behind the pulley). If there is movement between the fan/clutch assembly and the pulley, the fan clutch must be replaced. If there is movement between the pulley and the water pump housing, replace the water pump. Failure to replace a worn fan clutch or water pump can result in breakage of the shaft or bearings and collateral damage of belts, hoses, fan, radiator, etc.. It could leave you stranded, too. We strongly recommend preventative maintenance replacement of the water pump and the fan clutch at 60,000–100,000 miles, depending on your model (See Otto's Ultimate Maintenance Schedule in the Winter 2008 of Fast Times issue at www.BavAuto.com/newsletter. While you're there, also see the Spring 2007 issue, in which we tell you how to replace a water pump.)



Below: replacement water pump. Right: Stewart high-performance water pump.

continued on page 6...

How easy is this?! do-it-yourself

(continued from page 5)



We sell every hose for BMW and MINI – clamps, too!

9) Coolant Hoses Before checking these, the engine and coolant system should be cool to the touch. Inspect coolant hoses for bulges, especially at hose clamps or quick-connect fittings. Also check for soft sections (they



will be very easy to squeeze), cuts in the hoses at hose clamps/fittings and any evidence of a current or past coolant leak. Additionally, if you choose to, you can disconnect one of the upper main hoses and inspect the interior of the hose. Look for corrosion deposits, cuts, swelling or any other issues. Replace any hoses that are



suspect. If your car uses hose clamps, do not re-use the existing ones – get fresh hose clamps with curled edges that won't cut the rubber like the straight, sharp edges on ordinary clamps

(see below). Later-model BMWs use quick-connect fittings instead of hose clamps. Replace all hoses and clamps at 60,000 miles or 4 years.



10) Engine Air Filter Remove the filter and inspect both sides. The inlet side will likely be loaded with dirt, twigs, insects, etc. (depending on how recently it was changed). If its heavily loaded with contaminants, replace it. You should also inspect the air filter's perimeter sealing lip. If cracked, torn or otherwise damaged, replace the filter. You can also remove the air filter housing (typically very easy) and clean it out. We recommend air filter replacement at 15,000 miles or once a year (more often in dirtier conditions).



“The dealer wanted \$521 to replace the spark plugs and connector boots on my 540i. I did it myself for \$183 in parts from BavAuto.”

Rolled hose clamps are your best choice.

Most hose clamps are simply flat pieces of punched metal with sharp edges (top right). When the clamp is tightened, those edges and punch-outs tend to dig into the hose, eventually cutting through and creating a leak. We sell only 100% stainless steel hose clamps with rolled edges and grooves, not punch-outs, so they don't cut through the rubber (bottom right). Your hoses last longer, saving you money, time and labor.



11) Cabin Climate System Microfilter

Remove and inspect the microfilter(s). (We show you how to do this in the Summer 2003 issue, which you can find at www.BavAuto.com/newsletter.) Note that the microfilters for 3 series 92 through 98, 5 series 89 through 96 and 7 series 88 through 94 are accessed from the interior passenger compartment. All others are accessed under the hood. Some models have two microfilters. Inspect the filter(s) for contaminants. If heavily loaded, replace the filter(s). We recommend microfilter replacement once a year (more often if inspection shows heavy contamination).



The gray-looking cabin air microfilter on top was just removed from a 2007 335i. You can easily see the buildup of dirt, dust, pollen and leaves. (No, we did not place them there.) Not too long ago it looked like the new cabin air microfilter pictured on the bottom – fresh and clean. Stop breathing dirty air and start breathing cleaner air... order your replacement cabin air microfilter today.

12) Ignition System

Older BMWs have coils, distributor caps, spark plug wires, etc.. Newer BMWs have “coil-on-plug” ignition systems, which have spark plugs, coils, and spark plug connectors. Let's consider the older BMW models first:



Remove the distributor cap to inspect the electrical contacts for excessive pitting and burning, as well as any signs of cracking or carbon tracking (thin lines that look like cracks, leading to the edge of the cap). Any of these conditions indicate replacement is needed. While the cap is off, inspect the rotor in the same way. Visually inspect the spark plug wires for cracking at the connector boots or in the wires themselves. Additionally, a heavy coating of grime can induce misfires. Replace the spark plug wire set if you find the boots or wires are cracked or deteriorating. Inspect the ignition coil for

cracks or carbon tracking at the connector end of the coil (remove the high tension lead to inspect fully). Replace the coil if any of these conditions are found.

On newer models with coil-on-plug ignition systems, remove the plastic trim cover(s) to expose the individual coils. Unbolt the coils and pull them and the rubber connector boots out. Inspect the coils for any signs of overheating or cracking. Replace any coils that show these signs. (This would be a great time to upgrade to our high-performance ignition coils. See them at www.BavAuto.com.) Inspect the rubber connector boots for signs of deterioration, cracking or burning (arcing). Replace the boots as required. If the boots show any oil, the valve cover gaskets are leaking and should be replaced, as well as the boots.



Now let's turn our attention to the spark plugs. Remove at least one spark plug and inspect the “business end.” If the base of the spark plug body (the metal area below the insulator) is covered in oil, this indicates the valve cover gasket needs replacing. When inspecting the actual electrode end of the plug, excessive deposits of any type are a sign that the plugs should be replaced. Normal plug condition will show a bit of tan/white coloring with the electrodes being fairly sharp (not rounded). If the plug shows black deposits, this indicates the engine is using excessive fuel (firm, dry



We have all the parts you need to do a tune-up, plus the manuals that tell you how to do it yourself and save!

deposits) or oil (looser, shiny or wet deposits). The plugs should be replaced. If the spark plug electrode gap (if applicable) is wider than specified, this is typically due to normal wear and the plugs should be replaced. For replacement intervals for ignition system components, see Bavarian Otto's Ultimate Maintenance Schedule in the Winter 2008 Fast Times at www.BavAuto.com/newsletter.)

As always, if you have any questions about any of the procedures shown here, e-mail Otto@BavAuto.com, or call him at 800.535.2002.

The well-equipped garage: Buying hydraulic floor jacks and jack stands.



Some of the procedures we will outline in the coming months – and a few that we have presented in previous issues – require that your vehicle be lifted off the ground. We recommend that you get a good hydraulic floor jack and a pair of jack stands or ramps. This can be a wise investment that pays for itself the first time you use it (e.g. when do your own brake job and save hundreds of dollars). We don't sell hydraulic floor jacks or jack stands simply because they're heavy and, thus, very expensive to ship. (Who's going to pay an extra \$60 to buy a jack from us when you can get one at your local Sears or auto supply store?) In the case of hydraulic floor jacks, you have three basic choices: 1) compact jacks that stow in plastic carrying cases; 2) heavy, steel units; and 3) light-weight aluminum floor jacks (*left*). While all will work, each has its pluses and minuses. The compact units are less expensive, easy to handle and easier to store,

but they're not as strong or secure as the larger units. The heavy, steel units are sturdy, strong and comparatively inexpensive but they are, well... heavy and can be hard to maneuver and store. The lighter aluminum units are sturdy like the steel units but easier to handle and store, plus they have "express" saddle raising (the jack saddle rises quickly to meet the chassis so you don't have to pump as much). As you can imagine, we prefer the aluminum floor jacks even though they are a little more expensive.

As for which jack stands to get, we recommend the heavier-duty, 6-ton units (*right*). These are far sturdier and can raise the car higher than the standard 3-ton versions. You can find these in almost any store that sells automotive supplies.



Ask Bavarian Otto continued from page 3

is not a difficult job – if you can do an oil change, you can handle this. The procedure is outlined in the Bentley repair manual for the 3 series 99 thru 05 (#B305).

X5 smoke signals?

Dear Bavarian Otto,

I have an '02 X5 3.0i. When I start the vehicle, white smoke comes out of the exhaust. Is it just moisture? Is it from a bad oxygen/fuel mixture? If so, do I need a new oxygen sensor? I've also recently had to add about 3 quarts of oil every 2-3 months in between oil changes. Any help would be appreciated.

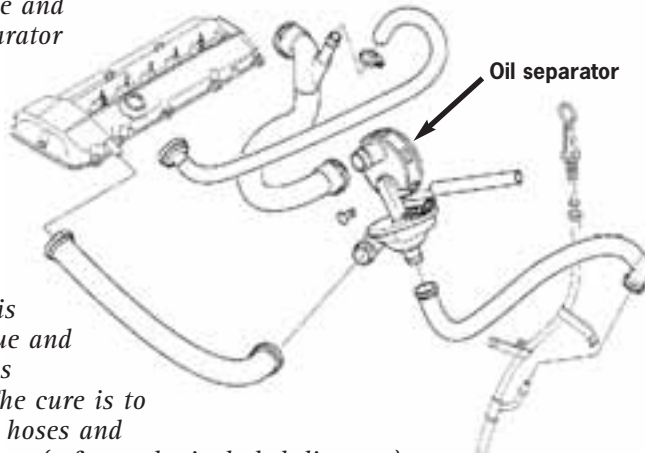
Jon

Otto replies:

The amount of oil usage that you've noted is on the excessive side. You may have a clogged crankcase ventilation system. These late model, 6-cylinder engines have a problem with the crankcase ventilation system getting clogged with oil sludge and moisture. The oil separator and hoses commonly

get clogged up due to the long time between the BMW-recommended intervals for oil changes, plus the build up of moisture due to normal condensation. This is a very common issue and the typical symptom is increased oil usage. The cure is to disassemble all of the hoses and replace the oil separator (refer to the included diagram).

Also, we have found that the hoses are usually hardened and tend to crack when removed. It is therefore a good idea to replace all of the hoses as well. The hoses and oil separator are found under the intake manifold (see diagram) so the manifold must be removed for service. This procedure is covered in the Bentley repair manual for the X5 00 thru 06 (#BX56).



Product Focus: Engine Renewal Kit for 2009.



Clean your engine on the inside! Over time, any car that is driven will develop residue on the piston rings, gunk on the tips of the fuel injectors and deposits on the backs of the valves. Our Lubro Moly Engine Renewal Kit from Germany removes the residue, gunk and deposits. Since we introduced the kit 18 months ago, we've sold thousands of them to BMW and MINI owners in North America. We recommend it for any car with 60,000+ miles. And it's a great way to clean a "just bought" car and get it back to baseline.

The original kit included a product called Motor Clean that freed harmful residues from piston rings and reduced sludge throughout the engine. If you order one of these kits today, you'll get Engine Flush instead of Motor Clean. Don't worry, it's the same product – Lubro Moly just changed the name to more accurately reflect its purpose.

Our renewal kit also includes: Motor Protect (improves fuel economy and lowers pollutants by reducing wear 35% or more); six cans of Jectron (cleans injectors to eliminate hard starting, rough idling and poor throttle response); and six cans of Ventil Sauber (removes deposits on valves and in the combustion chamber). If purchased separately, these items would cost \$102; the kit price is \$94.95. And now through February 28th, it's on sale for \$89.95. You can read more about how the Engine Renewal Kit works in the Summer 2007 issue of *Fast Times* at www.BavAuto.com/newsletter...