TECHNICAL TIPS – "WENCH WITH A WRENCH"

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MORE ON MIATA MAINTENANCE

Hello, Miata Folks,

This month's column will ratchet down maintenance a bit more specifically for your Miata no matter what series/year you may have. These tips have been gleaned from Miata manuals, Miata user-groups, common sense and my own humble (good, bad and ugly) experiences. Firstly, I hope that you have referred to my past column "Taking Your Car Out of Storage" which is archived on our http://midstatemiata.net club webpage: http://midstatemiata.net under the "Tech" section of the homepage and then read my additional suggestions below.

As always, I welcome your comments and suggestions at gwagner@ithaca.edu.

WELCOME TO THE HOOD (CAR HOOD THAT IS…..)

I can't emphasize strongly enough the importance of regular routine maintenance. Whether you do it yourself or use a competent mechanic, consider the following suggestions to keep your Miata running smoothly and efficiently, protect your automotive investment and most importantly, to keep you and your co-pilot safe while *zoom-zooming*. Assuming you have readied your Miata for the road this spring, take some time to open the hood (you know where the hood latch is, right?), spend some time and take a serious look around in there. Don't forget: no smoking and remember to wear your eye protection and latex or mechanic's gloves if you're adding fluids, working on the battery, etc.

Easy Stuff First:

Hoses, Clamps, Belts, & Wires Check – checked for rodent-chewed damage, cracks, cuts, disconnects, or just plain old rot. Replace as necessary. Tighten any loose hose clamps.

Battery Check – Look for obvious problems such as low electrolyte levels, a dirty or wet battery top, corroded or swollen cables, corroded terminal surfaces or battery posts, loose hold-down clamps, loose cable terminals, or a leaking or damaged battery case. Repair or replace as required. Distilled water should be used to top off the battery fluid level. Consider having your battery tested. I discovered mine needed replacement last summer during a free check by my mechanic.

Windshield Washer Fluid Reservoir Check – If low, refill with windshield washer fluid.

Engine Oil and Filter Change – If you haven't already done this for regular spring prep, do it now! Why? We don't want any moisture due to condensation in your engine oil. As you know from previous columns, I heartily recommend using OEM genuine Mazda oil filters with their anti-drain back valve. Use good quality brand-name oil too, i.e., Castrol GTX, Mobil 1, etc. If you don't want to DIY, you can buy your own oil and filter and have a mechanic change for you and then you'll know exactly what you have in there. Use either regular dino oil (as in fossil fuel "dinosaur") or 100% synthetic oil if you're feeling flush with cash but note the oil weight required per your owner's manual (my NC requires 5W20). NOTE: Mr. Mazda recommends oil changes every 5 months/5,000 miles but many Miata sites recommend conventional dino oil changes at 3,000/3 month intervals. There's debate about change intervals for syn oil but in both cases, clean oil is likely to decrease circulating contaminants and certainly won't harm anything.

Brake and Clutch Fluid/Lines, & Hoses Check – Of course, you are checking your brake/clutch (for manual transmissions) fluid reservoir levels at least monthly along with your engine oil level dipstick, right? Mr. Mazda recommends only that brake lines, hoses and connections be inspected at 30,000 mile/30 month intervals for possible replacement. The Miata Club of America recommends replacement every two years. Those of us who wish to obtain maximum brake performance (you wanna' stop when you wanna' stop, don't you?) suggest at least yearly brake fluid replacement with new, fresh fluid. Brake fluids are "hygroscopic" and will absorb water from the atmosphere which degrades the fluid's performance over time.
Note: if you're topping up brake fluid to the reservoir, be careful not to spill any on your paintwork as it will eat it (it's an excellent solvent) and don't let any dirt fall into the reservoir either. Make sure your fluid is not old or you will be introducing moisture into your braking system. New and fresh is best. Your manual recommends DOT 3 type fluid but if you engage in, shall we say, "spirited" driving☺, autocross, or performance driving classes, etc., DOT 4 brake fluid has a higher boiling temp (the DOT number denotes specified ranges of fluid boiling point; the higher the number, the higher the boiling point) especially if you are working those brakes hard.

Engine Coolant (Antifreeze) – Mr. Mazda recommends coolant drain and replacement at 30,000 mile intervals. If you're a neat-freak, you can unbolt the overflow reservoir, remove, drain, wash and reinstall. If you're truly obsessive, ask your mechanic to flush the system with water before adding new coolant. A single gallon of antifreeze should be good but check your manual for capacity and type and if 50:50 coolant/water is required. Note: if you are driving your car hard in autocross, high performance driving school, or super-hot weather, you might consider an additive of "water wetter" (Redline is good) which reputedly doubles the water-wetting ability, provides longer-term corrosion protection, improves heat transfer and other good stuff.

Air Filter – If you took my advice and wrapped your air filter in aluminum foil to prevent a rodent condo over winter storage, hopefully, you have noticed if it's particularly dirty or dusty between the paper folds. These really don't clean up very well. Go for a new one. An OEM is about $40. K&N makes a cleanable air filter that reputably never needs replacement. Just so you know, air filters allow just the right amount of (clean) air down the engine's gullet trapping grit that could harm the engine. Modern engines rely on a precise ratio of air to fuel. When the engine is starved of air due to a dirty air filter, the fuel mix will run too "rich" putting added strain on the engine.

<u>Stuff You Probably Never Really Thought About:</u>

Transmission Oil Change – Did you know this needs to be changed at regular intervals as well? Yup. Check your owner's manual maintenance schedule; Mazda recommends changing at 30,000 mile intervals. My NC requires 75w-90 weight. You can have Mazda put in their stuff or you can try a better suggestion I keep reading about on Mazda owner's forums: use Ford Motorcraft synthetic transmission fluid part # XT-M5-QS. Go ahead and smirk but Ford and Mazda do historically share some common DNA from 1979-2010. Check your manual for the correct weight oil. It's not cheap (I paid $24/qt. x 3 qts. + shipping) and you'll probably need to buy it on the Internet BUT if you have "notchy" or difficulty shifting (I understand NC 6-speeds are really prone), this is a great fix and will improve smoother shifting overall for all Miatas. I'll report back later this summer with my experience when I change mine. Oh, yeah, don't forget have your mechanic use anti-seize compound to decrease the likelihood of having the steel filler plug seize in the aluminum transmission housing.
Note: If you have an automatic transmission (non-manual shift), check your owner's manual for the correct fluid replacement.

Differential (Gear) Oil Change – Yup, this stuff too. Mr. Mazda also recommends 30,000 mile change intervals. Synthetic (Redline brand synthetic has been especially recommended by Miata users) or conventional gear oil can be used. Again, I'm a fan of synthetic but your choice. I paid $16.49/qt. Just don't mix both together. Be sure to add a new washer and be sure to wipe any metal contaminants bound to the magnetic insert on the drain plug with a clean shop rag. *Important: If your Miata has an <u>optional limited slip differential</u> check to see if you need to add a friction modifier additive to keep the diff from clattering around corners. Some diffs

types require additive and some don't. The additive increases the "slipperiness" of the oil as applied to the friction disks of the differential and allows the disks to slip past each other with reduced friction and bind and that makes the diff quieter. You can check with your Mazda dealer if you don't know if your car has optional LSD and what kind of diff (several brands have been used over the years) or better yet, call Mazda Corp. Customer Experience Center direct at **(800) 222-5500** with your VIN and they can tell you.
Note: If too much additive is used the friction is reduced too much and the disks will slide past each other without performing their function of limiting wheel spin. This increase in the amount of slip wears the disks faster and will wear out the differential faster. Be aware.

Fuel Filter Replacement – Wondering why you're chugging up a long hill with reduced power and don't seem to have that old "get up and go"? How about a dirty, gunk-plugged fuel filter? Yes, it happened to me. There are two fuel filters, one in the fuel tank that shouldn't need replacement and the "regular one" underneath the car near the fuel tank. Again, check your manual. Mr. Mazda says 60 months or 60,000 miles for replacement.

Power Steering Fluid Check – Although this fluid doesn't need to ever be replaced, the fluid level should be checked when the engine oil is changed and made sure it is between the min-max mark in the reservoir. My NC uses ATF MIII but check your owner's manual for the correct fluid type.

Hope you enjoyed these tips and don't forget to wave to your fellow Miatas when you pass them on the highway!

Zoom-Zoom and Drive Safely,
Gail