
TECHNICAL TIPS – ‘WENCH WITH A WRENCH’



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By Gail Wagner – Midstate Miata Club of NY

Hello, Miata Club Members.

You may remember that I wrote several articles in the past about tires. This is a topic I’m very passionate about and feel it is of utmost importance from a safety and comfort standpoint....*heavy on the safety part!*

I hope that you will go take a look at your Miata tires either now or this spring and determine if they need replacement. Just because they may have low mileage and visually good tread doesn’t mean they aren’t ready for replacement. For my own amusement, I occasionally ask folks if they know how old their tires are. Many have no clue. This is not a good answer.

Please read the good information below and decide if it’s time to fork over some of that stimulus check like I did to replace ALL FOUR of your Miata tires or for your daily winter driver, for that matter, if need be.

Not all the information below pertains to our Miatas but I thought it would be good info for any type of vehicle we may be driving, summer or winter.

Stay safe, well, and happy!,

Gail

[Yes, It’s Tires Again!](#)

[Tire Replacement: Why & When You Should Replace Your Tires](#)

Do you know when to replace your tires? The good news is gauging the health of your tires isn't as complicated as you might think. In most cases, figuring out when it's time for a tire replacement only requires a quick look with a keen eye and maybe the help of a copper penny. You need to know what portions of the tires to look at and what the key tire replacement indicators are. This guide will provide you with all the knowledge you need to accurately assess your tires, determine if they need to be replaced and when, as well as some tips for picking new ones!

Here are the three key concerns related to tire replacement:

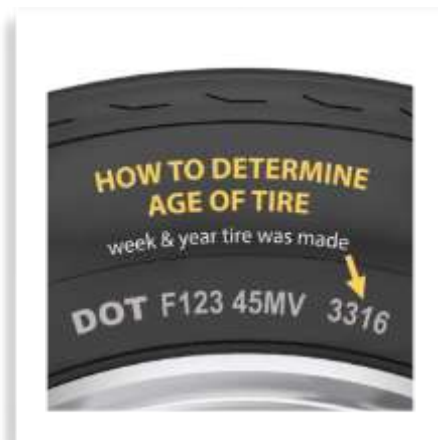
1. When should you replace your tires?
2. Why you should replace your tires?
3. What factors should you consider while choosing new tires for replacement?

When Should You Replace Your Tires?

The most common question people ask is "How often should you replace your tires?" Generally, there are two different factors that impact when to replace tires: wear and age.

Tire Wear: All tires eventually begin to experience wear. How the tire wears can be an indication of an issue with your alignment or tire pressure. Tire tread should wear evenly across the whole tire rather than on the inside or outside of the tire. The wear on your tires will happen regardless of how good of a driver you are although it can be accelerated if you don't take proper care of the tires.

Tire Age: Tire aging occurs when components of the tire, including the rubber, begin to change over time. This can happen due to environmental impacts and storage conditions, as well as the amount of usage the tire sees when being driven, or the tire sitting with no use.



Of course, unless you're a tire expert, it can be difficult to know exactly when tire wear and age indicate that a tire is no longer safe to drive and needs to be replaced. If you're wondering, "How do I know when my tires expire?" **A better question is "How old are my tires and when should I change them?"** To answer that question, it's time to learn how to read your tires!

Every tire has an indication that states when it was made, down to the week and year. This can help you answer the question: how often you should change your tires – even if you're not an expert on the subject. **The tire in the image above was made in the 33 week of 2016.**

Industry standards say you should replace passenger and truck/SUV tires on average at 6 years and before 10 years of age. AAA says in their Safe Driver Course replacement should be every five years. The timing depends greatly on how the tires have been used and the weather extremes it has been subjected

to. How a vehicle has been stored can also impact when a tire needs to be replaced. If your tire passes the penny test, and a visual inspection does not show any cracks or damage, but the tire is 6-10 years old, the wisest course of action is to have them replaced. Why take chances with your safety?

Why You Should Replace Your Tires

Knowing how often to replace tires isn't just about taking good care of your vehicle and preventing expensive mistakes. Tires are an extremely important part of your vehicle's safety.

Worn or old tires can lead to a variety of problems, including:

- Compromised road grip due to a worn-down tread.
- Blowouts that leave you stranded or even cause you to crash.
- Difficulty stopping and braking effectively.

Additionally, uneven wheel alignments and balance problems will not only cause irregular and premature tire wear, they can cause expensive problems for your vehicle, leaving you dealing with a hefty car repair bill in the future.

Don't blow off tire maintenance as something only "car people" do. Every driver on the road should be aware about the health and safety of their passengers and vehicles.

What Factors Can Cause Damage to the Tires?

How long do tires last on average?

The problem is, there's not a set answer to that question – due to the variety of factors that can lead to a necessary tire replacement. These factors include:

- Tire design from the manufacture (some tires are built to last 70,000 miles and other are 40,000 miles or less such as sticky high performance summer tires, so they will have very different time in use)
- A lack of attention to basic tire maintenance (checking the air pressure, tire rotations, alignment, visible wear, etc.).
- Not using the right tires for different seasons and terrains.
- Potholes, obstacles, curbs, sharp objects, and speed bumps.
- Climate conditions (extreme hot or extreme cold can accelerate wear and tear).
- Excessive braking or acceleration.
- Driving for long periods at high speeds.

Every driver faces different conditions and cares for their cars differently. The bottom line is that you need to be aware of your own driving habits, environment, and tires to ensure you're replacing your tires when necessary.

Signs That Your Tires Need to Be Replaced

The following tips will show you how to tell if tires are worn and need to be replaced soon. Although it is always best to seek professional help with tires, these signs will indicate that you should begin researching new tires for your car.

- **Tread Wear.** A tire's tread depth is measured in 32nds of an inch. New tires have from 9/32" to 11/32" of tread material. Manufacturers, NYS and AAA recommend replacement at 4/32" of tread left. You can identify the tread depth to replace tires by using **the penny test method** or a tread depth gauge. For the most part, the penny test is very reliable. At least it's a starting point.
- **Bubbles and Bulges.** A bulge on your tire usually indicates that the rigid internal frame of the tires has been damaged, allowing air pressure to reach the flexible outer layers of the tire. Any tires with sidewall bulges or bubbles should be replaced immediately, even if the tread status is acceptable.
- **Vibration.** If your tires have been worn down unevenly, you may feel a vibration in the steering wheel when driving. Vibration can also be caused by poor alignment so it is important to have a tire professional determine the cause of the vibration.
- **Sidewall Cuts or Cracks.** Tire age is a common cause of tire sidewall cracking. All tires are subjected to different harsh conditions, and as a result, **the rubber in the tires naturally degrades over time.** Imagine an old rubber band that's brittle and easily broken. The same effect happens to tires, even if the tires aren't in use and are being stored in a place where cracking can occur. Typically, cracking is caused by sunlight, excessive heat, road surfactants and ozone exposure. Cuts, on the other hand, are typically caused by force – like hitting a rock or something sharp.
- **Embedded nails or stones.** Obviously, if something is lodged in the tire, the issue needs to be addressed immediately. Even if the hole isn't causing excessive leaking, ignoring a hole from something like a nail can lead to problems for the driver later on. Moisture can leak into the tire, causing the steel parts to rust. Lodged items can weaken the area of the tire and possibly lead to dangerous blowouts if not dealt with in a timely manner.
- **Visible damage.** Abnormal wear patterns could indicate wheel misalignment, improper inflation pressure, a need for a tire rotation, or perhaps all of the above.
- **Damaged valve caps.** If the cap can't be tightened enough, it will continuously loosen. If it's too tight, the thread on the stem may become stripped. A damaged valve cap can leak air and also allow dirt, moisture and debris to enter the tire.

How to Select New Tires for Replacement

After you have figured out when to change tires, you'll find that selecting replacement tires a bit of a process. You'll need to start by assessing your driving habits, the types of terrain and seasons you will be driving in, to determine what you need in a tire. You should also evaluate how well you feel your current tires performed in longevity, handling, ride, noise and any other category you have noticed. An on-line tire store, The Tire Rack, (www.tirerack.com) is an excellent source for tire information and assistance. (Good prices too!)

After that, you'll be able to match your driving style to the perfect tire type. To help your research, here are a handful of the most popular tire categories, seasonal applications, and features for a particular drivers' needs. These categories aren't all for Miatas but it's interesting information just the same.

Categories:

- **Highway/Touring Tires:** Highway and touring tires are built for trucks and passenger cars to travel primarily on paved roads. These tires are designed to provide great mileage, a smooth ride, and last a long time.
- **Sport Tires:** These tires are built to provide cars with a balance of style and performance. Designed for excellent handling and quiet rides, sport tires generally are wider and have low profiles for on-pavement driving.

- **All-Terrain Tires:** These are the most versatile kinds of tires on the market. They provide excellent traction on any kind of road, from main city streets and highways to back roads. These tires can only be used by trucks and SUVs.
- **Mud Terrain Tires:** These are tires specifically built for maximum traction in off road conditions. They can be driven on daily but often have a rougher, noisier ride, and typically reduce gas mileage.
- **Run Flat Tires:** They are built to allow for driving a short distance after a tire pressure loss event. They are typically found on luxury cars, CUVs and SUVs.
- **Snow/Winter Tires:** Tires designed specifically for winter only use. They stay flexible in freezing temperatures and have specially designed tread designs and compounds for maximum traction and safety on winter roads.

Seasons:

- **All-Season Tires:** These offer versatile performance in a variety of conditions, including wet roads or even in snow. They can be driven in both the summertime and the wintertime.
- **All-Weather Tires:** This is a new category of tires that manufacturers are building and are distinguished by more advanced winter performance than most All Season tires. They can be used all year round and offer excellent traction and performance in all weather.
- **Snow/Winter Tires:** Tires designed specifically for winter only use. They stay flexible in freezing temperatures and have specially designed tread designs and compounds for maximum traction and safety on winter roads.
- **Summer Tires:** These tires have zero cold weather traction but they do have good wet and dry traction and top handling and performance capabilities. Tread life is not as robust as all-season tires due to the soft, sticky rubber compound.

Before you decide which tire you need, think about what kind of driving you do. If you drive primarily on the highway and city streets, you may need a highway or touring tire. On the other hand, if you typically drive on back roads AND need on-pavement capability, an all-terrain might be your best bet.

How Tires Are Rated: The Uniform Tire Quality Grading Standards (UTQG)

The National Highway Traffic Safety Association (NHTSA) has rated more than 2,400 tire lines. You can use the official NHTSA website to check out the details on specific tires.

Tread Wear

The tread wear grade rates how well a tire compares to others in a specific test. A tire with a grade of 3,000 wears three times as long as a tire that only has a grade of 1,000. However, you should keep in mind that different driving styles, road conditions, and levels of maintenance can also impact tread wear.

Traction

This refers to the tire's ability to stop on different kinds of surfaces, including asphalt and concrete. AA is the best rating a tire can receive, followed by A, B, and then C.

Temperature

The temperature rating indicates the tire's resistance to heat. A is the highest rating, followed by B and then C.

New vs Second-Hand Tires

Some people, in an effort to save money upfront on the tire replacement cost, turn to old (used) tires as replacements. However, this can be a risky strategy, even if it does save money initially.

Here are some of the issues you can face when buying second-hand tires as replacements.

- There's no guarantee that the tires have been deemed safe for resale.
- Not all damage to old tires is visible, so you can't inspect them by eye.
- The tire's stopping abilities might be compromised, leading to dangerous skidding.
- Blowouts might be more likely with a used tire.

Replacing Spare Tires

Last but not least, people generally don't pay attention to their spares as they decide when to get tires replaced. Because the spare isn't used much, people assume that it doesn't experience wear or tear and that it doesn't need to be replaced.

However, even spare tires need to be replaced after a certain amount of time. Be sure to check the date of production on the spare before deciding not to replace it. If you're not sure how to check the date of your tire, have a professional help you.

Don't forget to pay attention to visible kinds of age as well. **Just because a tire hasn't really been used doesn't necessarily mean it stays protected from cracks or cuts, as well as other problems that come with age including:**

- Degraded rubber – cracks and cuts in the sidewalls.
- Loss of flexibility and road grip.
- Compromised structural integrity.

Whether a tire has been driven or not, its lifespan can be affected by its storage condition and treatment. **If you know you will be parking your vehicle for a period of time, it is a good idea to protect the tires from sun and freezing temperatures.** If you are storing winter or summer tires, it is best to store them in a cool, dry location away from sun and other weather elements.

How often should you change your tires?

Although this answer does depend on a number of factors including the type of car, your driving style, etc., there is an average estimate for how often you should change your tire. In general, most vehicles travel about 15,000 miles per year, which equates to around 45,000 miles every three years. If you take into account the tire mileage warranty and amount you drive over the course of a year (over 15k miles), this will give you a good indication of how often you will need to replace your tires.

Which tires wear out first?

This is a topic of much debate. However you will find most vehicles, regardless of if they are front wheel drive or all-wheel drive, will wear the tires on the front more rapidly than the rear. The front tires are responsible for the steering, acceleration and braking, while the rear wheels typically just follow. Most vehicles also have most

of their weight on the front of the vehicle, causing the front tires to handle more load than the back tires. Since the wear and tear on the front and back wheels can be different, the answer to which tires wear faster, is typically the front tires.

If you are replacing your tires, all 4 tires must be replaced together. Do not mix different tires on your vehicle. This includes all-wheel drive vehicles as well as front and rear wheel drive vehicles.

Why do tires need to be rotated?

Because tires wear unevenly front to back, regular rotations will allow you to get longer use out of your set of tires by wearing the tread more evenly. Front tires will wear the outside edges down more quickly, so rotation allows you to always have the most tread on the outside of the tire. Not rotating will result in one set of tires wearing and likely needing to be replaced sooner than the other set. Be aware that some tires are “directional” and can only be placed on a wheel in a certain set way. The tire will be marked as non-rotational.

How often should tires be rotated?

First things first: check your vehicle’s owner’s manual to see if it has a recommended rotation scheme. Tires should be rotated roughly every six months or every 6,000 to 8,000 miles. A good rule of thumb is to rotate the tires every other time you get an oil change.

Is the penny test for tires accurate?

Placing a penny head into the grooves of your tire can help you determine if the tire needs to be replaced soon. If you can see the top of Lincoln’s head, your tires are likely shallow and worn. Use this as an indication of when you should have a tire professional examine the situation.

Is it OK to have different brand tires? Do they need to be replaced in pairs?

If you are replacing only one pair of the tires on your vehicle, these new tires will have a deeper tread depth. Be sure to install the new tires onto the rear axle for better control when driving on wet and winter roads.

Generally, it’s smart to replace all four tires. Although replacing all four at once is the easiest, if you need to save money, you can do one pair at a time. If you’re wondering “can I replace just one tire?” the answer is no. The difference in tread depth and stance can throw off your vehicle’s performance. That’s why it’s best to replace ALL four tires at once.

Do all four tires have to be of the same brand?

Generally, it is recommended that you do not mix different tire brands or categories.

Do you have to replace the tires with the same brand that the vehicle originally had?

Nope! Just make sure that all of the tires are evenly matched and appropriate size for your vehicle and your driving habits.

What can you do to make your tires last longer?

The best things to do to make your tires last as long as possible are:

- Check the tire pressure monthly and adjust according to the pressure recommended by your vehicle.
- Have the tires rotated every 6,000 to 8,000 miles.
- Check your vehicle's alignment twice a year.

What do you do after getting new tires?

Once you get your new tires installed, take it easy on the road for a while to break the tires in. New tires may feel different than the tires you replaced since they are likely performing better than a worn tire and have the latest technology.

Also, if you changed categories of tires, you might experience a big change in the feel of your drive. For example, switching from a highway to an all-terrain tire might change the roughness and noise of your drive, as well as your fuel consumption.

In Conclusion

Deciding when to replace your tires is an important decision both for the safety of your vehicle and that of others. Use the above guide to steer you in the right direction and help determine exactly when you should make the switch to brand new tires.

Additionally, deciding what to replace is important. You can increase (as well as decrease) the comfort, fuel efficiency, noise, tread wear, or other aspects based on the decisions you make with new tires.

DISCLAIMER

Please note these tips are not reviewed or approved by the Mazda Motor Corporation or any other corporation or entity other than the originator. The Midstate Miata Club of NY does not accept any liability for damage or injury as a result of utilizing these tips and pointers. Please use common sense and always remember safety first!
