

July 2010

The Miata Suspension, Part 2, Tires.

Last Month I wrote on how the Sway bars can help keep the tires on the road, so this month I thought I would touch on "Tires for the Miata". I have recently been asked about Miata tires, so here is some info that I hope will help you. Tires are the basic life line between your car and the road. Your life, and the car itself depends on a good connection between the road and the tire.

Dry road Traction: The tread on the tire is not what gives you dry road traction. The different rubber compounds "in" the tire is what grips the road. This is why you see racing tires for dry surfaces to have little or no tread. The rubber itself is what grips the road. Proper tire inflation helps the tire grip better too.

Wet traction in the rain: Here is where the tread pattern comes into play. You will see most tires have wide grooves running around the circumference of the tire. This helps channel water from the road surface out from under the tire. You will also see small grooves running somewhat sideways across the face of the tire. This helps channel water sideways out from under the tire. The wider the grooves the better they channel the rain out from under the tire. This means better wet road traction.

All Season Tires: These tires are made using rubber compounds that are designed for the outside temperatures they are driven in. "All Season" tires may have different rubber compounds across the face of the tire to accommodate varied temps. All Season tires also can have varied tread patterns across the tire, with some larger spaces between the tread blocks. You will have a combination of rain channels, and open spaces to help with light snow traction. This is why you see varied tread patterns on All Season tires.

Snow Tires: Snow tires are made from a softer rubber so they do not harden in the cold & snow. The spaces between the snow tire tread blocks are the important parts. These spaces have to be large enough to clear themselves out while the tire is turning. If the spaces don't clear, the tire tread can't grip.

There are several types of tires designed for cars like our Miatas. The basic three are High Performance Summer tires, All Season Performance tires, and Performance Snow Tires.

High performance summer tires are made of a rubber compound where traction is the utmost concern. Tread patterns vary, but you will see a lot of large blocks. This put more rubber on the road. The tread pattern is focused on moving water out from under the tire. A lot of these tires have tread patterns designed to be turned in only one direction, thus called "Directional tires". Note these cannot be rotated side to side, but must be rotated only front to back on the same side. When you look at the top of the tire on the car, the points the tread make should be pointed forward. If you run them "backwards", they can actually trap water under them and cause hydroplaning. At the end of this paragraph is a link to a directional tread tire. You can see how the tread patterns point in one direction.

Directional: <http://www.tirerack.com/tires/tires.jsp?tireMake=General&tireModel=Altimax+HP>

Here is an example of a Non-Directional Summer Performance tread, note the large blocks for traction: <http://www.tirerack.com/tires/tires.jsp?tireMake=Bridgestone&tireModel=Potenza+RE070>

All season tires come in “high performance” down to “touring” tires. The rubber compounds, and the tread patterns vary across the tire. Here is an example of an All Season Ultra High Performance tire with Non Directional tread. I have these on my car now: <http://www.tirerack.com/tires/tires.jsp?tireMake=Kumho&tireModel=Ecsta+ASX>

Here is an All Season High performance tire with Directional tread: <http://www.tirerack.com/tires/tires.jsp?tireMake=Kumho&tireModel=Ecsta+AST>

Here is an All Season regular performance touring tire. Note the small tread blocks which lessen dry road traction to get better wet and snow traction: <http://www.tirerack.com/tires/tires.jsp?tireMake=Kumho&tireModel=Solus+KH14>

Snow tires also come in directional and non directional treads. Here is an example of a winter tire with Directional Tread. Note the large spaces between the tread blocks so the snow clears out of them while the wheel is turning. <http://www.tirerack.com/tires/tires.jsp?tireMake=Goodyear&tireModel=Ultra+Grip+Ice>

Here s a Non-Directional tread Snow Tire: <http://www.tirerack.com/tires/tires.jsp?tireMake=Continental&tireModel=ExtremeWinterContact>

So when picking a tire for your Miata, you first need to decide what kind of driving you will do. Will it be summer only? Will it be 3-4 seasons? Do you want to run All Season high performance tires all year? Do you want to switch to Winter tires over the snowy months?

After you decide what kind of driving you want to do, then spend some time on the Tire Rack web pages. Even if you do not buy from them, you can learn a lot about what kind of tires are available for your style of driving. Then you can buy from wherever you like.

One last point I want to touch on is the weight of the tires. I will get into this weight situation later in more detail. But the lighter the weight of the tires (& Wheels), the better the Miata suspension can hold it on the road. Especially on a bumpy or washboard road surface. Remember you can only have traction when the tire is planted solidly on the road.