

Miata Precision Alignment Numbers

Before I get into alignment number suggestions, I need to make a disclaimer. The numbers I am going to write do work well on the cars that these alignments have been done on. They “should” work well on yours too, as long as you have not heavily modified your suspension away from stock. My suggested settings below are not for racing or autocross, but will allow your Miata to track straight on the highway, and perform smoothly going around the corners for everyday and sporty driving. Try my suggested setting the next alignment, and experiment from there in the future.

One day I was discussing alignments with a couple Miata owners, and one said “I’d feel funny walking into a shop and telling them how to align my car”. Well, let me ask you when you order a Pizza, don’t you tell them what you want on it? When you have a roof put on your house, don’t you tell them what kind of roof you want put on? It is your money, and your car. You have the right to expect them to do it right, and along the guidelines you have written down for them. Don’t pay if it isn’t done right. Explain what you want before, and ask them before they start to do a print-out when done. This will show you what they did when they are done.

Another VERY important point is that the alignment numbers **MUST** be the same from one side to the other. If not your car can handle differently when turning left, or right.

My first suggestion is for the **CASTER**. The Caster setting works about the same for ALL year Miatas. More than +5 degrees positive caster makes the car more “heavy” to respond to steering input. Under +5 degrees will let it respond a little quicker and will not feel as “heavy” when turning the wheel. If you like Sporty Drives with the Club, I suggest you ask them to set it right at +5 degrees. I would not go much less for your first try. If you are only a highway cruiser, more than +5 degrees will work.

CAMBER (NA and NB): The earlier series up to 2005 seem to work very well with **-1.0 degrees** negative Camber in the front. This was a suggestion I got from Miata.net, and I proved it worked well on my first 2 Miatas. These years Miatas work well with a **-1.5 degrees** negative camber on the rear. The combination of -1.0 in the front and -1.5 in the rear is great for sporty street (Club) driving from the first Miata up to 2005. Note Negative Camber does not cause uneven tire wear. The sidewall gives during straight driving so the tread sits flat.

Toe-In, Combined left and right (NA & NB): The last alignment I had done on my previous 2002 Miata followed the caster and camber as above, The Toe-In was set the same front and rear. Having them both the same worked the best for this series Miata. The setting of **.30 degrees** (Point three zero degrees) front and rear had the car cornering like it was on a rail. (Just ask the new owner!) A little less front and rear could make it more touchy, a little more might make it harder to turn and cause weird “scraping” tire wear.

CAMBER (NC): The 2006 and newer have the same front suspension as earlier Miatas, but have a different rear suspension. From reading Miata.net I found for track or Autocross racing they set the front and rear negative camber heavy, and both front and rear Camber the same. But with the stock NC Miata, there is a limit as to how much

negative Camber you can get on the front. I have tried 3 alignments so far on my 2006 Miata, and here is what I found to work the best. (Love it!)

I have +5 degrees caster on the front. I have **-1.2 degrees** Negative Camber on the front (both sides), and **-1.6 degrees** negative Camber on the rear (Both sides). Note Negative Camber does not cause uneven tire wear. The sidewall gives during straight driving so the tread sits flat. The negative Camber keeps the tire flat on the road in a hard corner, and from rolling under.

Toe-In, Combined left and right (NC): The 2006 and newer Miata because of the different rear suspension like a slightly different Toe-In set up. This car seems to like about a 10 point spread between front and rear. The Mazda factory specs also show this spread. I had less than the suggested 10 point spread on my last alignment, and the car seemed squirrely in the corners. I didn't like it at all! Now it is rock solid since we changed that.

My Front combined Toe-In is set at **.26 Degrees**. (Point two six degrees). My rear combined Toe In is set at **.38 degrees**. (Point three eight degrees). This is a 12 point spread, but it works very well with the caster and Camber I have set. I am very happy with the results during the sporty drives with our club, and for commuting for work.

The challenge can be to find an alignment shop that will work with you. You have to go in with the specs you want written down, and ask them if they can give that to you. If not, give me a call and I will give you the phone number of the shop I use just south of Elizabethtown. They have evening hours too!

Zooming with a "Precision Alignment"!
Bill Latsha

Suggested 1989 to 2005 Alignment Quick Chart

Front Caster: +5 degrees	
Front Camber: -1.0 degree	Rear Camber: -1.5 degrees
Front Toe-In: .30 degrees	Rear Toe-In: .30 degrees

Suggested 2006+ Alignment Quick Chart

Front Caster: +5 degrees	
Front Camber: -1.2 degree	Rear Camber: -1.6 degrees
Front Toe-In: .26 degrees	Rear Toe-In: .38 degrees