

## **“Bracing for the Corners” Front Shock Tower Braces**

The Mazda Miata endures many strains and stresses as you push the limits hard around a corner. The weight of the car pulls it down onto the road, and centrifugal force, along with the cars weight tries to pull it off the road to the outside of the corner. The Sway Bar works to keep the car from leaning to the outside of the corner, and your suspension alignment, along with the shocks, help keep the tires planted on the road. But the real weak link is the sheet metal at the front of the car. As the forces acting upon the car in the corner work on the car body, the light weight Miata sheet metal twists, warps and distorts from the stresses of the cornering. The suspension under the engine helps hold the underside of the car body in place, but there really isn't much on the top because of the hood opening.

Starting in 2003 (I believe), Miata came out with the “Shinsen Special”. This Miata had a special handling package which included an under hood brace across the front shock towers, and some added bracing under the car and at the rear suspension. Mazda finally did something to minimize the twisting of the car body under the strain of hard cornering.

Imagine the front end of the Miata to be like a Tuning Fork, or a large hot dog fork. Since the two prongs are not connected together, they can act independently. If you put a piece of something across the bottom of the tuning fork to tie them together, then the top edges could still twist or distort. Putting a cross piece on the Top and Bottom of the prongs of the tuning fork join them together causing them to either move together, or stay stiff together. The important thing to note here is that they are tied together adding stiffness to the assembly.

This is where the “Front Shock Tower Brace” comes into place in the Miata. This brace ties the left and right shock towers together to keep the body and suspension from distorting under the stress of hard cornering. Mazda put a front shock tower brace on the “Shinsen Special” as it helped improve the handling. Also around that time Mazda started putting these braces on all of the upper models as they proved these really helped.

From that point, the after market companies started to come out with either more effective braces, or just shinier braces to add to the “Bling” effect. Some mimic the Mazda brace, and some have extra cross members. Picture #1 below is an example of the stock brace that comes on the sportier Miatas from 2006 and newer. To me, these are weak as they only brace back to the firewall. Picture #2 below is the “MazdaSpeed” brace styled after the stock Mazda brace, but is made from heavier material, and is nice and shiny. But it only really braces back to the firewall. A little more “Bling”, but I question how much more effective it is.



The next picture for you is the “Cobalt Brace” sold by Moss, G0-Miata, and RavenWing Performance. See picture #3 below. These are made for many year Miatas. This could in my opinion be a little better than the #2 above, but the front most cross bar is still way back near the firewall. There really isn’t any strength more to the front to keep the shock towers tied together.

The one I feel would be the most effective is the “Kansai Brace” in Picture #4. This has somewhat massive oval shaped tubing with the cross piece well forward. Plus the brackets attaching it to the shock towers are made short, and sturdy. Therefore there will be less flexing in the bracket itself. The Kansai Brace is designed by race enthusiasts for racing. It is designed to do the job well, not just to look good. I recently put one of these on my Miata and took the OEM brace off. I really was not expecting to feel as much improvement as I do. It keeps the front end rock solid on rough roads or in a hard corner. I now feel my 06 Miata handles as well (maybe better) and as solid as the 2002 which I previously owned.



3.



4.

Below are 3 links to web pages where you can see these and read more information. All 3 can easily be ordered thru the internet and come right to your door in a couple of days. A GOOD brace on the front Shock Towers do make a noticeable difference. It keeps the suspension and alignment working together as it should. They are also Not difficult to install either.

Feel free to ask if you have any questions.

Zoom-Zoom (With Care)..... Bill Latsha

Kansai: <http://www.nengun.com/kansai-service/tower-bar-mazda-roadster>

Cobalt: <http://www.miatamania.com/Shop/ViewProducts.aspx?PlateIndexID=92298>

MazdaSpeed: <http://www.miatamania.com/Shop/ViewProducts.aspx?PlateIndexID=75085>