



raise THE BAR

Upgrading Our MX-5's Handling With Aftermarket Anti-Roll Bars

story by ed higginbotham • photos by the author unless otherwise credited

A year after its release, the latest Mazda MX-5 continues to rake in the accolades. There is one thing that most people complain about, though: too much body roll. Ours was no different, so we set out to do something about it.

Why is that extra body roll so bad? For one, it's a little distracting and unnerving for the driver.

That extra body roll is also limiting traction between the tires and the ground. As a car goes through a turn and the chassis leans, the tire's tread is also rolling and, as a result, losing grip with the ground.

Stiffer springs can limit body roll, but that can lead to a harsh ride that most people would find objectionable. That's where anti-roll bars shine: They're springs that link the opposite sides of the suspension together, forcing both wheels to follow one another during compression and rebound. This means better handling without making parking lot speed bumps uncomfortable.

Most modern passenger cars come with anti-roll bars from the factory, but going to stiffer bars can limit body roll with little tradeoff. Thus, it has become an easy performance upgrade. That's why, after setting some baseline times at the Florida International Rally

and Motorsports Park—where our MX-5 rolled about like a boat—we headed to the shop to swap our stock anti-roll bars for a set of stiffer, adjustable units.

The bars we chose are made by Progress Technologies, and we got ours through Miata tuning house Good-Win Racing. The upsized front and rear anti-roll bars, plus all required brackets and mounts, retail for \$394 complete.

Anti-roll bars operate according to a simple mathematical equation: $\text{twist} = (2 \times \text{torque} \times \text{length}) / (\pi \times \text{diam}^4 \times \text{material modulus})$. By crunching some numbers, we can see how adding just 1.5mm to the diameter of a 16mm bar, for example, increases its stiffness by a whopping 85 percent. The downside? Less traction over very bumpy surfaces, and a tiny bit of extra weight.

That math only accounts for the bar diameter, not the arms themselves, so the formula for torque also needs to be considered: $\text{force} \times \text{distance} = \text{torque}$. This is why many aftermarket anti-roll bars feature multiple end link mounts: Moving the end links closer to the bar's points of attachment stiffens the bar, while moving them further away softens the

In stock form, our MX-5 rolled a bit too much. So we put it on the lift and installed some thicker anti-roll bars.

bar. (To delve further into this fun math, check out “Lean Less” at grassrootsmotorsports.com/articles/lean-less.) Our new front bar features three holes, while the rear has two.

Going to the new bars also bumped our front anti-roll bar diameter from 23mm to 28.5mm. The rear bar diameter was increased from 11mm to 17.5mm. Added bonus: The new front bar is hollow, meaning it comes with less of a weight hit. Cutting to the chase, the Progress bars are considerably stiffer than the originals.

The anti-roll bars that we got from Good-Win Racing are not only thicker than the original pieces, but they feature multiple mounting positions for additional tuning.

O.E. front bar	
rate	102 lbs.-in.
Progress front bar	
soft position	300 lbs.-in.
medium position	342 lbs.-in.
firm position	385 lbs.-in.
O.E. rear bar	
rate	25 lbs.-in.
Progress rear bar	
soft position	115 lbs.-in.
firm position	146 lbs.-in.

We had heard that Mazda had retained the earlier Miata’s Lego-esque simplicity when it came to swapping out the rear bars, but that the front bar on the new MX-5 required more work—maybe even removing the radiator. But we marched into the shop with our heads held high. It’s a Mazda MX-5. How hard could it be?

Fortunately, the Progress bars come with very detailed instructions that outlined every step needed. So how hard was it? Not too bad, really. We had to disconnect the steering rack and a few electrical connectors, but we managed to worm the new front anti-roll bar into place without removing the radiator. We did need to whack the bar with the palm of our hand to swing the middle section past one of the radiator hoses, though.

The only real challenge to this swap involved the steering input shaft: It needed to go back at its original angle. A paint pen allowed us to mark the steering rack before we moved anything.

As for the rear bar, removal and installation were a piece of cake. This kit even comes with upgraded brackets. “You will see that not all four of the factory rear mount corners are actually connected/supported,” Good-Win Racing’s Brian Goodwin says in his online installation notes. “Because the factory rear ND sway mount is not actually connected at all four corners, we provide the brackets that fully box the mount.”

After installing our fancy new anti-roll bars, we headed back to the track. This was the only change made to the car. Weather conditions were very similar during both test sessions.



After a few laps on the new anti-roll bars, we came in for a small adjustment and stiffened the rear bar a tad, moving the end links to the holes farthest from the ends of the bar. We ran a few more laps and knew we had made the right adjustment—and were extremely pleased with the results.

Our MX-5 exhibited much less body roll. It felt better from behind the wheel. It looked better, too, as our sports car wasn't trying to corner on the door handles.

It certainly felt better, but what did the stopwatch say? The new anti-roll bars shaved our average lap time by 1.34 seconds.

Any downsides? Other than some time in the shop and the purchase price, zero.



The new bars are thicker than the originals. They also come with upgraded brackets as well as that all-important grease.



LAP TIMES

Stock suspension	
Best lap:	1:27.70
Average lap:	1:28.78
Upgraded suspension	
Best lap:	1:26.92
Average lap:	1:27.44



wayne presley photo



It's amazing what a simple set of anti-roll bars did to our MX-5: flatter cornering and lower lap times.

SOURCE

Good-Win Racing
good-win-racing.com
(858) 775-2810

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- Light Race Wheels
- Two Piece Brake Rotors
- Progress Sway Bars
- RoadsterSport Exhaust System
- Ohlins Coilovers



NC

- Hood vents
- Big Brakes
- Fender flares
- Ohlins Coilovers
- RoadsterSport Max Power Exhaust System
- Ultra Light 17x10 Race Fitment

NA

- RoadsterSport Exhaust
- Four Wheel Big Brake Kit
- 15 Inch Race Wheels
- Koni, Tokico Bilstein
- Sways & Springs
- Feal Coilovers



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