



Building Your Own Killer Sway Bar Links

When tracking or racing an E36 M3, many parts endure stress that most do not encounter with everyday street driving. One common failure seen with repetitive driver schools are the front factory sway bar links. Usually, the male portion of the ball joints will fail, leaving the front sway bar useless.

There are some aftermarket companies that sell upgraded sway bar links, and even some that are adjustable. However, upon closer inspection, the components used to make up these parts are not what would be considered the highest grade materials nor designed to be "overkill" (the way UUC Motorwerks likes to design and produce our parts). In addition, they market this "collection" or parts for over \$100 for the pair.

This guide is put together to show you how you can build your own sway bar links, much better than what is available, totally adjustable, for less money. A few phone calls and a few deliveries to your house and you'll be on your way. Note that these upgrade links are designed for the track-going enthusiast. Whereas they are overkill and very durable, they do sacrifice the way that sway bars will perform. Because they do not flex like factory links, some ride comfort may be compromised.

Qty	Part #	Description	Cost Each	Source
2	126-070	7" Long Shifter Rod, 5/8" OD, 3/8"-24 LH & RH Threaded	\$7.05	Coleman Racing Products
2	3060-6-L	3/8-24, LH, Aurora Male Carbon Steel Rod End, Teflon Lined	\$11.56	Pegasus Auto Racing
2	3060-6-R	3/8-24, RH, Aurora Male Carbon Steel Rod End, Teflon Lined	\$11.56	Pegasus Auto Racing
2	AN316-6-L	3/8-24, LH, Jam Nut	\$0.85	Pegasus Auto Racing
2	AN316-6-R	3/8-24, RH, Jam Nut	\$0.31	Pegasus Auto Racing
4	3068-06	3/8" Safety Retainer Washers	\$1.77	Pegasus Auto Racing
4		3/8"-24, 2", Grade 8, Steel Hex Head Cap Screw	\$1.00	Most Hardware Stores
4		3/8"-24, 18-8 SS Toplock Locknut	\$1.00	Most Hardware Stores
8		3/8" size, 0.625 OD, S 18-8 SS Flat Washer	\$0.25	Most Hardware Stores
Total Approximate Cost			\$72.66	

About the Parts

The 7" Long Shifter Rod from Coleman Racing Products is threaded L and R on either end making adjustments on the sway bar link easy. Just loosen the jam nuts and turn the rod and the



whole assembly with increase or decrease depending on the direction which you turn the rod. Tighten the jam nuts when the desired length is achieved.

Aurora is one of the leaders in rod ends and makes a large selection. The ones listed above are by no means their best rod ends, but better than what is being offered as aftermarket links. Speaking with Aurora tech support, the typical load on a sway bar link application generally does not exceed 1000 pounds. The static load rating of the rod ends listed above is 3915 pounds. Pegasus offers another level above the listed part, with a load rating of 8939 pounds, with the major difference being the use of heat treated alloy steel instead of the low carbon version. The alloy steel version in the same size cost approximately \$34 each, nearly three times the price of the ones listed.

The safety retainer washers allow full freedom of the movement for the rod end when used in this type of application.

The Grade 8 hardware can always be substituted with Grade 10.9 or even 12.9, depending on your tastes. Of course, it typically drives the price upwards. Note that the bolts are standard bolts (vs. fully threaded). Fully threaded bolts will not be as strong as the standard bolts as you want a smooth area in the ID of the spherical washer for greater strength.

Locknuts were specified to prevent loosening of the hardware.

Assembly of the Parts

First, assemble each rod end as pictured. Be sure that the tapered side of the retaining washer points towards the spherical bearing in the rod end. Do not tighten down the lock nut, but rather simply thread it on by hand, so that it holds all of the parts in the correct order.

Next, thread the rod ends into the aluminum shifter rod. Note that since the rod end is threaded on both sides, left hand threads on one and right hand threads on the other. Since the rod is not marked, test fit the rods until you can determine the correct side. Never force the rod end into the shifter rod. Chances are, you'll strip or cross thread the threads.

This guide does not cover how to properly adjust the links for proper preload or neutral sway bar settings. If you aren't sure, just set them to emulate the factory lengths. For the E36 M3, the factory length is 9.25" center-to-center. When removing the factory links, just duplicate the length as a starting point.

Adjustments

By simply unlocking the jam nuts, you can turn the shifter rod in either direction and lengthen or shorten the distance between the bolts. Lock down the jam nuts when you've achieved your desired length. Factory length on the E36 M3 is 9.25" center-to-center. This assembly of parts allows it to adjust as short as 8.75" center-to-center. It is not advisable to adjust the assembly any longer than 9.75". This max length still allows at least 1/2 of the treaded portion of the rod end to remain inserted within the shifter rod.

Since all of the hardware and threads are SAE (not Metric), don't forget to use SAE tools when you tighten/adjust these new sway bar links.

Final Notes

Before the flurry of emails come, this upgrade can be adapted to the following vehicles:

- E30 M3
- 5-Series (82-95)
- 6-Series (83-89)
- 7-Series (88-94)

The cars listed above use the same replacement BMW OE part #31 35 1 134 582. The length on this link is approximately 9.50" center-to-center. Therefore, for the same adjustability range (1/2" shorter and longer than stock) while maintaining at least 1/2" of the rod end engagement, substitute the 7" shifter rod with a 7-1/2" shifter rod (Coleman #126-075 @ \$7.15 each). E46 information will be posted once I have a chance to measure a stock sway bar link.

Sources

Coleman Racing Products

N-1597 US-41

Menominee, MI 49858

906-863-7883

800-221-1851

<http://shorttrack.com/coleman>

Pegasus Auto Racing Supplies

2475 S. 179th Street

New Berlin, WI 53146-2150

800-688-6946