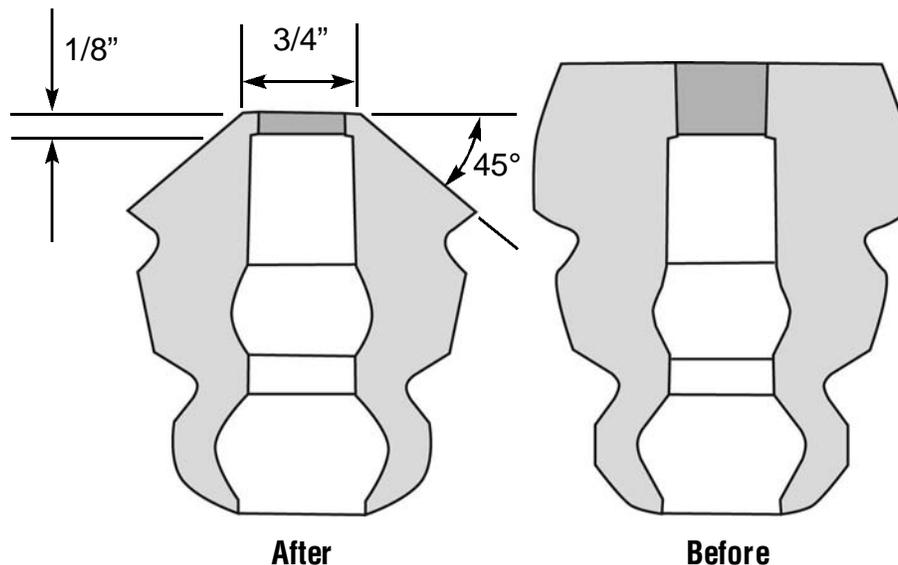


Shortening The “Bump Rubbers” on 1999+ Miata Applications

The subject of shock absorber bump rubbers is not simple. The following recommendations are the result of long-term experience with suspension tuning.

In general, anytime a car is lowered, the bump rubbers should be shortened. On a car equipped with struts, it is desirable to shorten the bump rubbers by an amount equal to the amount of lowering. On an A-frame car (Miata, 1993-95 RX-7, etc...) the bump rubbers should be shortened about 70% of the amount of lowering. Unfortunately, this can cause other problems. The most notable is that, assuming that you start cutting the bump rubber from the top (as we recommend), you more quickly lose the bump rubber's ability to grip the shock rod because you have removed the “reduced inside diameter” portion - which is at the top (shown in dark gray). This allows the bump rubber to fall down onto the top of the shock body where it may trap and hold dirt near the shock rod and seal.

Our recommendation is this: Cut off as much as possible from the top while still leaving 1/8” of the “reduced inside diameter” portion, then chamfer the outer shoulder at 45° extending down from a 3/4” diameter circle on the top of the bump rubber. In this way, the length of the bump rubber is reduced a bit, and the bump rubber's “spring rate” is reduced a considerable amount, and the bumper rubber retains the ability to grip the shock rod.



If you wish to see if the bump rubber is contacting the shock body under a particular set of conditions, try placing a small piece of modeling clay on top of the shock body. This can assist you in understanding the dynamics of your suspension. If the clay is quickly smashed flat, this suggests that bump rubber is coming into play too often and/or too much. The answer may be a stiffer sway bar, more “bump” (compression) setting on the shocks, stronger and/or longer springs - or remove more of the bump rubber.

One final caution: Most of the techniques you might use to shorten/reshape the bump rubber - sanders, grinders, saws and knives - are dangerous. Plan your actions carefully to avoid injury.