



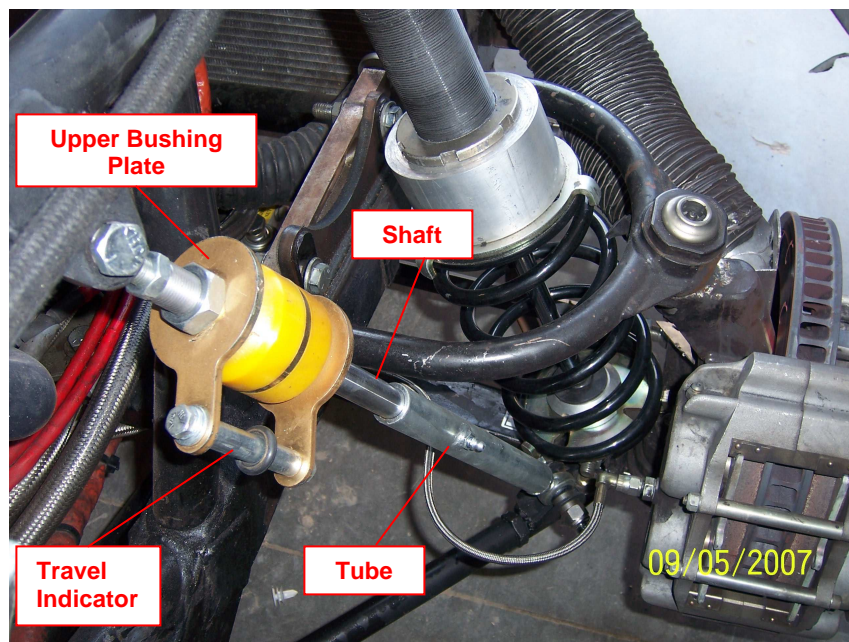
TECH SHEET

BUMP STOP INSTALLATION & TUNING

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Bump Stops control and limit downward suspension travel. They are being successfully used on the LF, RF and LR. Some customers have also done preliminary testing with bump stops installed on the RR. When used correctly bump stops will help a car turn in the middle of a corner and can have a significant effect on lap times. Bump stops are easy to install and tune if you follow the instructions provided in this tech sheet. Bump stops can be used with other Right Foot products such as the Accel/Decel 3rd Link System, One and Two Way Tracking Controllers and the Tracking Controller Travel Limiter.

Bump Stops can be raced with a conventional spring set up but best results have been obtained when racing a Big Bar / Soft Spring set up. When running bump stops with a BB/SS set up it is recommended to run 2-1/2" barrel type, 3" ID or 5" OD springs with wide coil spacing.



Installation On Front Of Car

1. Determine the best mounting location for the bump stop by holding the unit in position against the lower control arm strut and front hoop. While holding the unit in position check for tire swing clearance and interference with the headers, brake calipers and brake fittings.
2. Mount the unit as upright as possible. However, the bump stop will work properly if mounted at an angle.
3. The bump stop tube should be mounted to the control arm strut as close to the control arm as possible. If the car has aluminum struts, it is recommended the aluminum struts be replaced with steel struts fabricated from 1" OD x .156" wall DOM tube. Bump stops experience a "spike load" when the car drops. Because of this, the control arm strut mount should be substantial. Ideally, the strut should be attached to the lower control arm with double shear brackets.
4. The bump stop can be attached to the strut rod by welding a shock mount to the strut or can be mounted with a clamp-on mount.
5. The bump stop should be attached to the front hoop or an upright tube for the front hoop. The unit can be mounted by welding a shock mount to the hoop, by welding a "spud" thru the hoop or by using a clamp-on bracket.
6. Once the mounting brackets are attached place 2" high blocks under the front stub frame splice (both sides). Jack up the car, disconnect the coil overs and set the car on the blocks.
7. Hold the bump stop in position and verify the overall length is the correct for your car. When correctly installed there should not be any free play between the top of the tube and the bottom bushing plate. The length can be changed by adjusting the rod ends in or out, by shortening the tube and shaft, or lengthening the tube using a spacer such as Right Foot P/N 4532. Note: When adjusting the rod ends verify the rod end stud threaded into the tube does not limit the travel of the shaft. The end of the bump stop shaft should not bottom out in the bump stop tube. When adjusting rod ends out always leave a minimum of 1/2" thread engaged in the tube and shaft.

8. The upper bushing plate is threaded. To adjust the position of the bushing plates up or down loosen the jam nut and then rotate the bushing plates on the shaft. Before bolting the bump stop to the car, position the bushing plate in the center of the threads on the shaft. This will allow the bushing plate to be adjusted up and down.
9. Bolt the bump stop to the mounts, reattach the coil overs, remove the 2" spacer blocks and set the car on the ground.

ADJUSTMENT ON FRONT OF CAR

Suspension drop can be controlled by adjusting the bushing plates up and down or by changing the poly bushings to harder or softer durometer bushings. Bump stop travel is measured using the travel indicator. Optimum settings will vary from car to car and track to track and can only be determined by on-track testing.

1. Prior to testing or running the bump stops we recommend the bottom of the front crossmember be painted in a contrasting color or be covered in duct tape. This will allow you to see if the crossmember is contacting the track.
2. Adjusting the bushing plate up will engage the poly bushings later, will increase suspension drop and decrease ground clearance. Adjusting the bushing plate downward will have the opposite effect and will decrease the possibility of the crossmember contacting the track surface.
3. The rate at which the car drops and the amount of drop are controlled by the two poly bushings. Typical bump stop travel on the front end is $\frac{3}{4}$ ". Two yellow (75 Durometer) poly bushings are provided with the bump stop. This combination works well most of the time. It is not unusual to need harder or softer bushing combinations. Right Foot has eight Durometers of poly bushings available. If the car is dropping too quickly, or is bottoming out the bushing durometer should be increased. If the car is not dropping fast enough or the front end is "chattering" the bushing durometer should be decreased. If additional travel is needed a third bushing can be added using Right Foot P/N 6010.
4. Test the car by increasing the drop until the car bottoms out in the middle of the corner. Then adjust the bushing plate down two turns and repeat the test. Complete this step until the car is not bottoming out.

INSTALLATION ON REAR OF CAR

1. Before installing the bump stop set the car at racing ride height.
2. At the rear we recommend the bump stop be mounted to the LR trailing arm bracket at a location approximately 4" down and 4" in front of the center line of the axle tube. Typically this will place the lower rod end of the bump stop on the same plane as the rear rod end of the trailing arm. To do this you will have to weld or bolt a fabricated bracket or spud to the trailing arm bracket. As an alternate location the bump stop can be attached to the top of the axle tube using a weld on shock absorber mount.
3. The top of the bump stop should be attached to the roll cage where space permits. Typically it is possible to mount the bump stop to the roll cage with a clamp-on bracket. Position the bump stop so it is as vertical as possible. Be careful to position the bump stop to clear brake lines, the frame and etc. as the rear end articulates. Bump Stops experience high "spike loads" so all mounts should be as sturdy as possible.
4. With the car at ride height the bump stop should be mounted so it has approximately 0" of free play between the tube and lower bushing plate. When mounting a bump stop to the rear it is often necessary to cut some material off of the bump stop tube and shaft.

ADJUSTMENT ON REAR OF CAR

1. Even though you are installing a bump stop on the rear of the car read the installation and adjustment sections for the front of the car. The information concerning adjustment and bushing durometers for the front also applies to the rear.
2. Installing a bump stop on the LR should help the car rotate in the middle of the corner. Begin testing with the car in a balanced neutral condition. Gradually preload the poly bushings until the front end of the car pushes coming out of the corner. Then decrease bushing preload two turns at a time until the car stops pushing. At the rear normal bump stop travel for a 2 bushing stack is $\frac{1}{4}$ " to $\frac{3}{8}$ ".
3. To maintain consistency on long runs, as the tires wear and fuel burns off, you may want to run a 3 or 4 bushing stack. Running more than 2 bushings will typically require the bump stop tube to be shortened.

BUMP STOP MAINTENANCE

1. Periodically clean the bump stop and spray some WD40 (or a similar product) on the bump stop shaft.
2. Periodically check the poly bushings for wear, cracking and/or noticeable color changes. If any problems are found replace the bushings.
3. Periodically inspect the rod ends and fasteners for tightness, wear or damage.
4. All bump stop parts can be purchased separately from our dealers.

Feel free to call Right Foot Performance Products with questions at (920) 788-0356 or email us at rightfootpp@sbcglobal.net.

Thanks for Racing with our Products!