



ROADSTER SHOP

**CHASSIS AND SUSPENSION
INSTALLATION GUIDE
AND SPECIFICATIONS**

**WWW.ROADSTERSHOP.COM
1-847-949-7637**



Congratulations on your purchase of the finest chassis and suspension package on the market today!

Every Roadster Shop chassis is designed and engineered to be at the forefront of performance, backed up with ease of serviceability and installation.

We greatly appreciate your business and the opportunity to work with you.

In this packet you will find an overview of important chassis information. Please review this carefully as it will help with installation safety and prevention of mistakes along the way. We have also included step by step instructions for installing your product along with your new customer ID card and chassis ID tag.

Your chassis ID tag is an easy service tool for anyone working on the chassis or subsequent vehicle. Once the tag is installed on the chassis, simply contact us with the unique chassis number and we will be able to provide you with any specific technical advice particular to your chassis or components.

Please contact us if you have any questions or if you would like to make any comments on your purchase.

Sincerely

Phil Gerber

Jeremy Gerber



Important information about your Roadster Shop chassis



Hardware

- All fasteners have only been hand tightened. All fasteners must be securely tightened using the proper tools as part of the final assembly to be preformed by the purchaser.
- Double check all nuts and bolts prior to, and after the first drive. Check again after 500 miles.
- Use Anti-seize on all stainless steel hardware.



Grease and Lubrication

- All bearings come with out grease. Control arm bushings and rear axle bearings will need to be inspected, greased, and install seals as part of final assembly to be completed by the purchaser.
- Grease all tie rod ends as part of final assembly to be completed by purchaser.
- Add gear lube to rear end if your chassis is purchased with a 3rd member. We recommend using friction modifier for Posi units. There will be no lube in the rear end when delivered.



Brakes

- Brake lines and brake fittings have only been hand tightened. Brake rod and proportioning valve will need to be adjusted when filling and bleeding your brake system.
- Do not over tighten brake line fittings. This will cause the flares to break and cause leakage.
- Despite the effort we take to make all brake line flairs perfect, there is occasional brake line leakage without over tightening. The use of silicon brake fluid will help seal these minor leaks. We also recommend using Earls -3 conical seals for an improved seal.
- Use Teflon tape on all brake line fittings.
- Loctite (or other thread lock) all caliper bolts.
- Properly align calipers and brake pads by installing shims/washers between caliper and caliper mount until desired brake pad gaps are achieved.
- Read manufacturers instruction manual and use Loctite (or other thread lock) and safety wire as stated.
- We strongly recommend the use of a silicon brake fluid.
- Always safety wire your brake rotors.

Upper Shock Mount

- 1/2-20 x 3.25" (2)
- 1/2-20 full nyloc nut (2)
- Spacer 1.375" .500 ID x .750 OD (2)

Upper A-arm

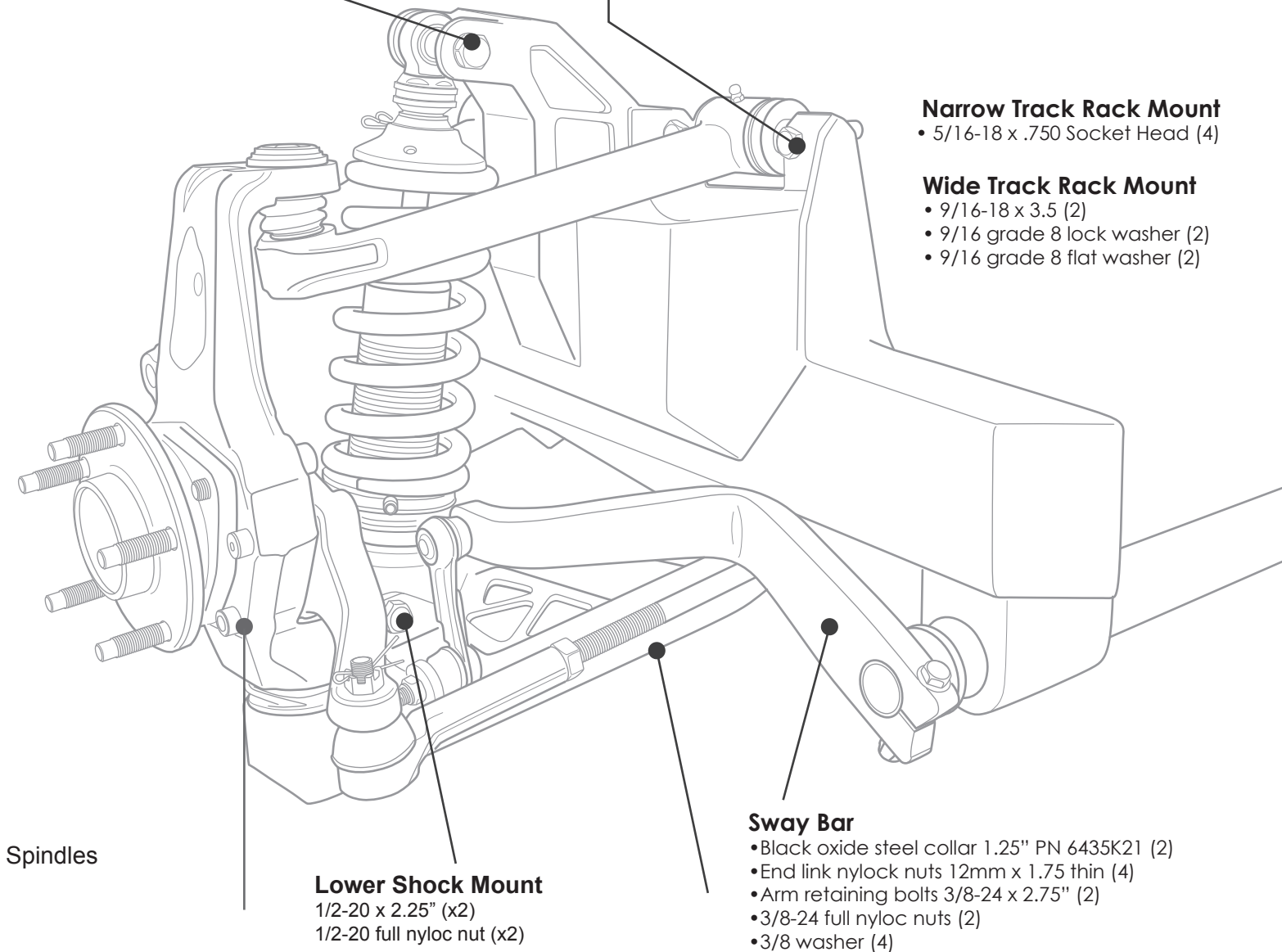
- 7/16-20 x 1.75" (8)
- 7/16-20 full nyloc nut (8)
- 8-32 Set Screws (8)
- Shaft Collar RS-2W (4)
- 35/64 tall 1/4-28 taper straight grease zerker MMC# 1095K41 (2)

Narrow Track Rack Mount

- 5/16-18 x .750 Socket Head (4)

Wide Track Rack Mount

- 9/16-18 x 3.5 (2)
- 9/16 grade 8 lock washer (2)
- 9/16 grade 8 flat washer (2)



Spindles

Lower Shock Mount

- 1/2-20 x 2.25" (x2)
- 1/2-20 full nyloc nut (x2)

Sway Bar

- Black oxide steel collar 1.25" PN 6435K21 (2)
- End link nylock nuts 12mm x 1.75 thin (4)
- Arm retaining bolts 3/8-24 x 2.75" (2)
- 3/8-24 full nyloc nuts (2)
- 3/8 washer (4)

Lower A-arm

- 5/8-18 x 3.75 (2) Rear bolt
- 5/8-18 x 5.5 (2) Front bolt
- 5/8-18 Full nyloc nut (4)
- 35/64 tall 1/4-28 taper straight grease zerker (MMC# 1095k41) (x2)

Motor Mounts

- 3/8-16 x 1.00 (6)
- 7/16-20 x 3.5 (2)
- 7/16-20 Full nyloc nut (2)

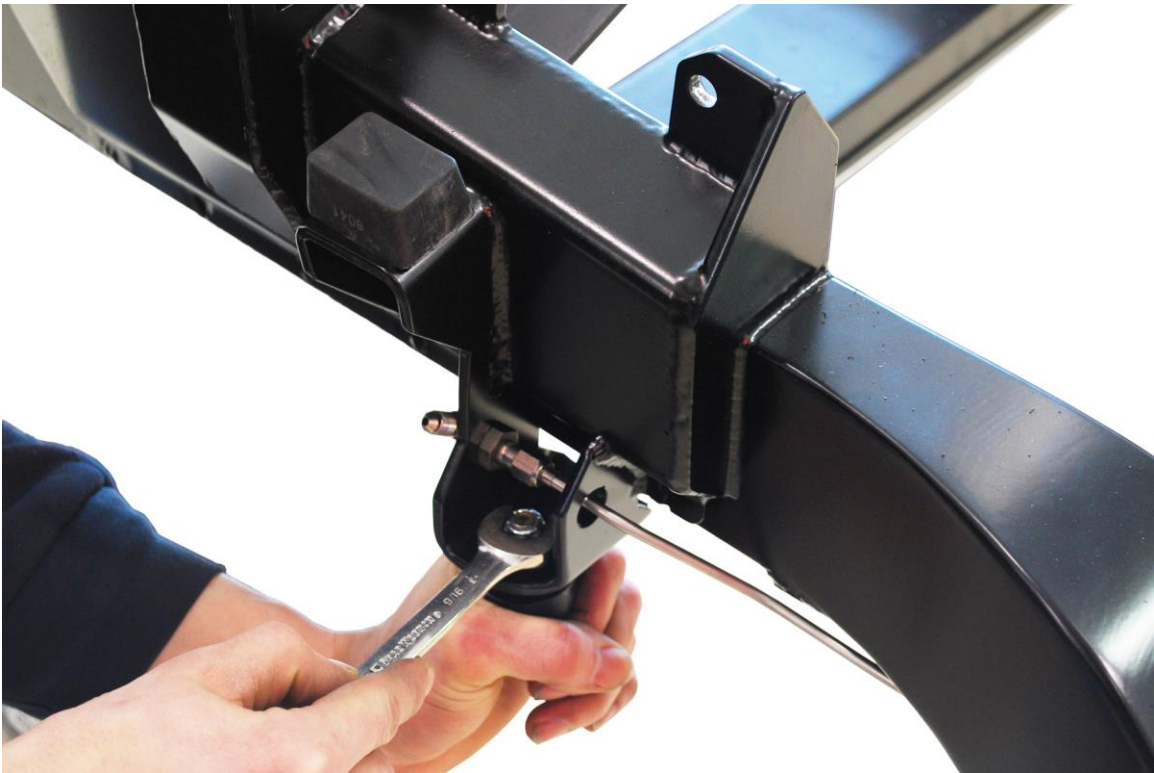
Roadster Shop Independent Front Suspension Assembly Instructions

The Roadster Shop would like to congratulate you on the purchase of your Fast Track chassis, the finest in high performance aftermarket chassis systems. To maintain a high level of quality control your Fast Track IFS has been initially assembled by Roadster Shop technicians, this will also assist you in the mock up process of your build.

Your Fast Track IFS will need to be disassembled prior to the paint/powdercoat process. To assist the ease of installation it is recommended that you check and clear all mounting holes and surfaces of excessive paint or powdercoat buildup. Please use a reamer to clear any buildup in mounting holes, use a tap or thread chaser to clear paint/powdercoat from the rack mounting holes. Once this is complete you are now ready to assemble your Fast Track front suspension, please follow the steps below.

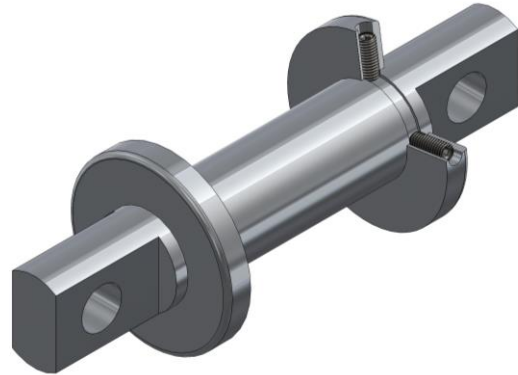
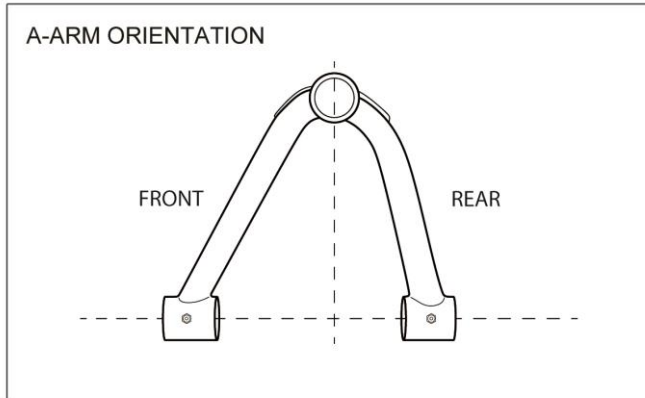
1. **Install the bump stops.**

Install both upper and lower bump stops by securing the 3/8" Nyloc nut. Refer to picture below

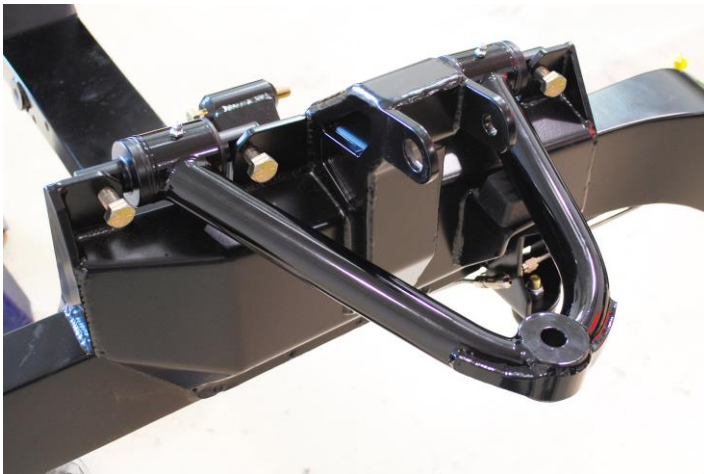


2. Install the upper control arm assemblies.

Prior to installation, you will need to assemble the upper a-arm. Start by sliding the delrin bushings into place followed by the a-arm mounting shafts; refer to picture below for proper orientation of a-arm shafts.



Secure a-arm shaft by using the provided collar and 8-32 set screws as shown above.



Position upper A-arm.

Identify the front of the A-arm by holding the assembly to the chassis for reference. The front sweeps toward the rear of the chassis at a more aggressive angle than the rear. The top of the A-arm ball joint receiver will be machined flush; the lower has a small recess. (Refer to orientation diagram above)

- a. Slide the 7/16"x 1 $\frac{3}{4}$ " bolts through A-arm. Bolts may be positioned in either direction. For serviceability and header clearance, we recommend positioning so the head faces to the outside of the chassis.
- b. No alignment shims are required for initial assembly. Secure 7/16" Nyloc nuts and keep supplied shims for professional alignment shop use when vehicle is complete.

3. Spindle assembly.

Spindles are shipped pre-assembled and torqued. If you need to disassemble them for paint, please refer to these instructions for re-assembly.

- a. Use red Loctite on all hub and steering arm hardware
- b. Install steering arm first by installing (2) 10mm socket head bolts from the outside of the spindle assembly into the steering arm with red Loctite. Apply red Loctite and slide top 12mm x 80mm bolt through the steering arm as shown in to keep hole alignment while torquing. (Torque to 65 ft. /lbs.)



- c. Install hub – using red Loctite install 12mm x 65mm socket head bolt through the forward most hole in the spindle and into the hub. Next install the 12mm x 45mm socket head bolt into the lower recessed hole in the spindle and into the hub. Torque all hub bolts to 95 ft. /lbs.



4. Install spindle assembly

- a. With steering arms facing forward slide upper ball joint into upper control arm, then lower the assembly down onto the lower a-arm ball joint (make sure lower ball joint dust cap is still in place).



- Torque upper ball joint stud nut to 40 ft-lbs
- b. Before installing castle nut on lower ball joint stud make sure that cotter pin hole in the ball joint stud is positioned to allow the cotter pin to be installed with ease. You can rotate the stud by inserting a pin punch into the hole and turning the ball joint stud.
 - c. Now secure the lower castle nut and align the slots with the hole in the stud, insert cotter pin and fold

5. Install lower control arm assemblies.

Once you have installed the bushings, sleeves, ball joint boot, and grease zerks you are now ready to install the lower a-arm assembly.

Locate the correct lower control arm [driver or passenger side]. This is referenced by visually identifying the offset bend and facing it toward the rear of the vehicle – see picture.



- a. Be sure to use the correct bolts to mount the control arms. The 5 ½" - 5/8" bolt must be installed from the front side or the nut will interfere with the rack and pinion. The rear a-arm bolt 3 ¾" - 5/8" can be installed in either direction. Once all bolts are in place torque to 100 ft-lb

6. **Coil over assembly.**

Before installing each coil over, it is necessary to build each assembly. Refer to the instructions below for this procedure. Ensure shocks labeled with 'F' go on the front and 'R' on the rear.

1. Install the lower coil spring retaining nut first using anti-seize. Place the nut all the way to the bottom of the coil over shock.
2. Slide the coil spring over the shock
3. Install the upper spring seat. First place the metal retaining clip on the upper stop. Installing the retaining clip to make sure it is installed in the proper direction. After the clip is installed, place the upper spring seat on the coil over. Be sure the upper seat and the retaining clip go together as shown. Slide the O-ring tight against the hat to hold in place.



The coil over assembly is now complete and ready to be installed.

7. Install coil over assembly.

- a. Slide upper shock spacer onto the 3.25" – ½" mounting bolt and install from the front side of crossmember. Refer to picture below.



- b. Swing lower a-arm up and slip coilover into mounting tabs, slide 2.25" – ½" mounting bolt in from the rear of the lower shock mount. Torque all coil over hardware to 70 ft./lbs.

8. Install the sway bar.

- a. Ensure excess paint or powdercoat residue from inside of sway bar tube is removed
- b. Lubricate the inside surface of the bushing and install on one side. **Do not force bushings**; forcing bushings will impede installation of the sway bar.
- c. Before sliding the sway bar in place, clean the outside of the bar thoroughly with lacquer thinner to remove any foreign materials from the bar.
- d. Once the bar is clean, slide the bar in place starting on the side that has the Delrin bushing in place. After the bar is in place, install the Delrin bushing on the opposite side. After installing the bar, center the bar in the crossmember. Measure the portion protruding from the bushings on each side and adjust accordingly until the measurement is the same on both sides.

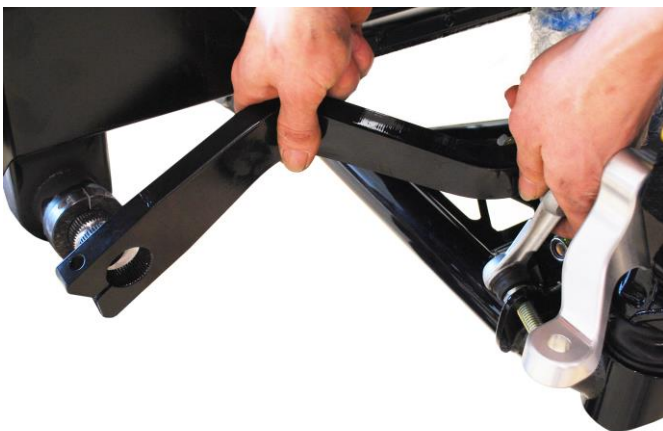
- e. Install sway bar collars, re-check that the sway bar is still centered now torque allen bolts in collar clamps to 10 ft-lbs.



9. Install driver's side sway bar arm.

You will need to align the recess in the spline and sway bar with the 3/8" hole in the sway bar arm. Install 3/8" sway bar bolts. These may need a slight tap from a soft mallet to align the slot.

- a. Install sway bar end link on sway bar arm as shown in the lower right picture. Rotate the arm downward until the end link aligns with the hole in the A-arm.
- b. Repeat steps for passenger side. Note – you will need to rotate the sway bar arm to match the driver's side. If this is not done, the sway bar link will not align properly.
- c. Torque sway bar arm bolts to 25 ft./lbs.
- d. Once sway bar arms are leveled side to side torque end link nuts to 45 ft./lbs.



10. Install the rack and pinion assembly.

- a.** Make sure all threads are clean. If needed, chase with a 9/16-18 fine tap.
- b.** Slide the 9/16 x 3.5" bolts through the rack brace then into the rack and loosely start threads. (Blue Loctite is recommended)
- c.** Next, install the (4) 3/8" bolts through the rack brace and into the crossmember. It is recommended to start all bolts prior to tightening.
- d.** Torque rack 9/16 bolts to 95 ft./lbs.

11. Install the outer tie rod ends.

- a.** Thread jamb nuts onto outer tie rods then thread the outer tie rod ends onto the rack and pinion.
- b.** When installing the tie rod ends, make sure they are equal distance on each side to center the steering. This measurement should be approximately 2 1/4" per side. Measure this from the end of the threads to the outer edge of the unit.
- c.** Install the grease fitting into the tie rod ends and make sure dust boots are in place.

Your Roadster Shop Fast Track suspension is now assembled, prior to driving it is recommended to take your vehicle to a professional alignment shop.

**** Make sure that your front coilovers are at proper ride height in order to get an accurate alignment****

Please provide your alignment shop with the supplied 1/16", 1/8", and 3/16" upper control arm shims and alignment specs below:

Toe: 0 +/- .125"

Caster: 5 - 6.5 degrees

Camber: -.75 to -1 street/performance -1 to -2 race applications

Shock ride height* 12.75"

*measured from mounting eye to mounting eye

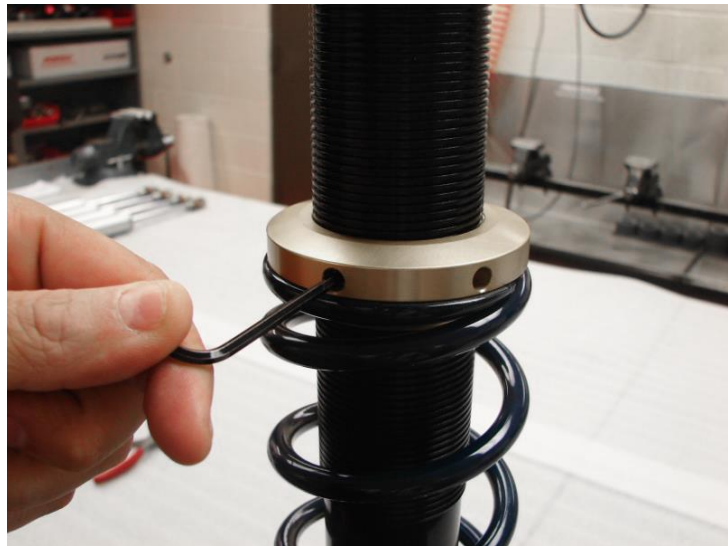
These are the baseline alignment specs for the Roadster Shop IFS. Different cars, tracks, and driving styles may require the driver to tailor these alignment specs to what suits them best.

The Roadster Shop has spent countless hours of design and testing to bring you the best suspension geometry and performance available. Shock tuning through compression / rebound settings and spring adjustments are the most crucial aspects in determining how your vehicle will perform. Feel free to contact the Roadster Shop technical department for any help you may need:
1-847-949-7637

Adjusting Shocks

To set ride height:

Penske Racing Shocks does not set the spring preload on shocks that include coil-over springs. You must set your ride height AFTER installing the shocks on the car. After your ride height is set, tighten the 2 Allen screws (3mm Allen) in the spring perch to prevent loosening. This does not need to be tightened too much – just nip up to prevent damage to the body threads.



To adjust compression and rebound: (Double adjustable shocks)

There are 2 external adjustments that can be made while on the car.

- **Compression Adjuster (5/32 ALLEN KEY)** - this is located in the body cap. This allows for **40** different positions of compression adjustment. The shock will be provided with the compression adjustment set in the middle of its range: 20 clicks.



Clockwise = Stiffer

- **Rebound Adjuster** - Sweep Style (standard) (PICK OR PIN TOOL) - 20 sweeps of adjustment. Rotating the adjuster screw clockwise makes the shock rebound stiffer (slower). Rotating the adjuster screw counterclockwise makes the shock rebound softer (faster). A sweep is one radial movement of a pick or pin engaged in the adjuster the full throw of the window.

Do not over-tighten the adjusters. When making adjustments, they will have a positive stop. In order to close off the bleed, you do not need to continue to turn the knob for it to seal.

To adjust, follow the procedure as follows (if this procedure is not followed in the recommended sequence, the intended settings may not be achieved in practice):

To Set Adjusters:

1. Turn knob or screw clockwise to full stiff.
2. Turn adjuster back “counter clockwise” to desired settings. Typically this is shown as a negative (-) setting. Example: Compression -5 clicks, Rebound -10 clicks/sweeps.
3. During discussions on handling, if you were to be instructed to “soften rebound by 5 clicks” it would mean to adjust your rebound counterclockwise by 5 clicks or sweeps, depending on your adjuster.

