

# 949 RACING

## Install Notes - Xida

2013+ Scion/Subaru/Toyota 86/BRZ

### Before you start..

- \* Use standard Factory Service Manual procedure for basic shock installation and torque specs. Digital copies are available on ebay.
- \* If your Xidas are shipped fully assembled, they ready to install. You only need to adjust preload to obtain desired ride height and adjust damping setting.
- \* Measure your front and rear pinch weld heights on current suspension before lifting or beginning work on car. Pinch weld is OEM jacking point, bottom of flange to ground.
- \* The 86 chassis will work best with a front Roll Center Correction like the Whiteline KCA435 kit.
- \* Car should be unloaded, no driver and around ½ tank fuel when setting ride heights.
- \* If OEM rubber suspension bushings, torque control arm bolts with wheels on ground, or suspension loaded with vehicle weight. This can be done by removing wheel and placing hub on floor jack. Failure to do so may preload control arm bushings at the wrong ride height. If urethane, Delrin, spherical bearing suspension bushings, OK to torque at full droop.
- \* Do not open the small port on the bottom of the shock. This is the nitrogen fill port. Do not attempt to change nitrogen pressure.
- \* Do not attempt to turn the black body collar on the bottom of the shock. That collar locks the tube to the mount cup.

### Strut flange bolts M14x2.0 10.9 zinc

100-120 ft-l bs / 136-162 Nm

### Flange clamp pinch bolts M8x1.25 12.9 SCHC zinc

31 ft-lbs/43 Nm

### Ride height and preload

Increasing preload raises the ride height. There is no downside to adding preload, that's a myth. Focus on getting a ride height that eliminates or controls bottoming for your set up and conditions. Lower tends to be faster until the car bottoms too frequently. Running the car too low in front can result in the car sitting on the bump stops which creates terminal understeer and sudden changes in grip. Experiment.

Typical pinch weld height adjustment range listed below, assuming a 24.6-25.2" tall tire. Exact range varies with weight of car and tire diameter.

Front 125mm - 150mm

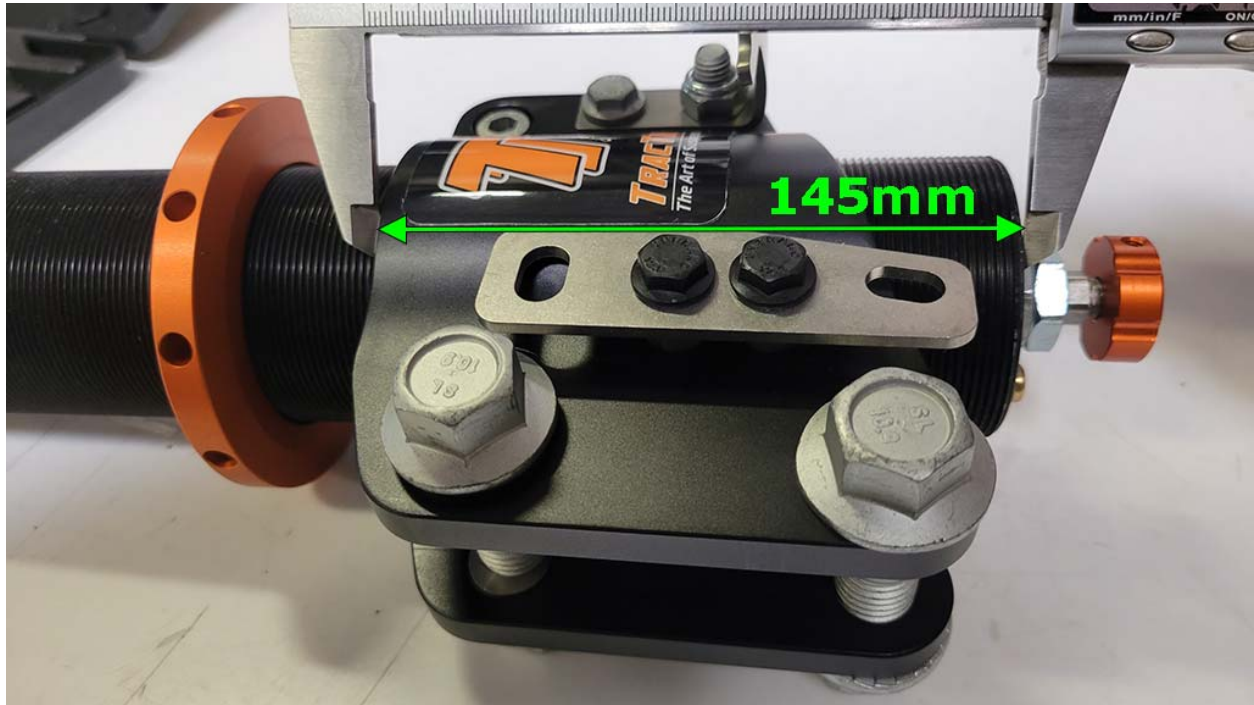
Rear 125mm - 155mm

The 86 chassis will work best with a front Roll Center Correction like the Whiteline KCA435 kit. 2.5mm set screw to lock preload collar in place Use 5mm hex key to rotate collar

One full rotation on rear preload collar is roughly 2mm change in pinch weld height. Make sure to rotate collar so 2.5mm set screw remains accessible. Aim for front pinch weld height 3-5mm lower than rear (rake). Chassis are never perfectly square so left and right side rake might not be the same. Just try to average it out.

### **Strut flange height – bump travel (front only)**

The kit ships with strut flanges at 145mm which allows the biggest tires to clear the OEM liners



Adjusting the strut flange height does not change shock stroke. The goal is to have your strut flange height adjusted to allow the tire to move up as far as possible without contacting the fender liners excessively. The internal bump stop is 20mm which is why you will still see the shaft with the shock fully compressed. This internal stop will compress to about 3mm under the biggest bumps so allow for this extra 17mm of wheel movement. Xidas are shipped with a flange height of 145mm which is optimized for 255/40/17 on 17x9 and 4 to 5° negative camber. If your wheel/tire is smaller, you might gain useful bump travel by raising the flanges. The more bump travel you have, the lower you can run the car without bottoming. Some combinations of camber and aftermarket sway bar may cause contact between the end link and bottom of shock which may require limiting flange height to 135~140mm. So check that clearance before buttoning everything down.

### **Adjusting strut flange height**

Loosen the strut flange pinch bolts and rotate the strut casing to adjust up or down. This requires removing the spring, disconnecting the sway bar and cycling the suspension upward to check clearance to the liners. Push the control arm up with a floor jack so the tire can still spin. Keep adjusting flange up until the tire contacts the liner. From the flange height that allows tire

to liner contact (wheel won't spin), lower the flange back down 15mm to allow for deflection and ensure tire clearance. One full rotation on the shock body is 2mm.

### **Removing front fender liners**

You can increase bump travel by about 15mm by removing the front liners but that can allow road debris into the engine compartment. It also allows high pressure air from the wheel wells into the engine bay which will reduce cooling efficiency. Removing the front liners allows you raise the flange on the strut casing by about 15mm, but always double check your clearance without a spring, as described above.

### **Camber adjustments**

86 Xidas have two methods for adjusting camber: slots on the front camber plates (upper shock mounts) and offset inserts for the strut flange bolts. Maxing out both will deliver about  $-5.5^\circ$  negative camber in front. That may seem excessive but  $-5^\circ$  is generally what a competition focused set up will require on modern high performance radial tires.

There are two sets of camber inserts included with the kit. Centered and offset. You can use the offset inserts in either min or max offset position. Fine tune exact camber with the slots in the upper shock mounts.

### **Adjusting damping**

Xidas are shipped with damping set to full soft. Full stiff is full clockwise. The adjuster has 20 damping settings. We count settings from full stiff. "8 clicks" is 8 clicks from full clockwise, for example.

There is no one "best" setting for every possible situation. That's why they are adjustable. Softer springs and shocks always equals more mechanical grip, so try to run as soft as you can. Don't be fooled by too stiff settings that feel responsive but reduce overall grip, making it nervous or skittish. Adjust enough damping to get rid of the wallow or excess float.

As a general rule, the lower the tire grip or rougher the surface, the softer you might want the shocks. More grip or smoother surface might want firmer damping settings.

Do not try to dial in shocks on worn out, heat-cycled race tires. Do not tune your track settings for hot race tires on cold street tires.

Getting shocks dialed in means investing a little time learning how the adjustments affect the car. Start near full soft. In very cold temps, drive a few minutes to warm up the shocks. Add 1-2 clicks more damping on each shock and go back out. Keep doing that in steps. At some point the car should feel about right. Continue adjusting stiffer and note how the car feels. Then go back to what you feel like your favorite setting was. You can experiment changing just front or rear independently. Street and track/auto-x settings can be very different. Spending this time quickly learning the full damping adjustment range will give you a much better idea of what the effect of too much and too little damping has on handling. This makes it much easier to adapt to changing conditions in the future without it being such a guessing game. The goal is responsiveness, predictability and stability. When you have the whole suspension system dialed in, it should be neutral, stable, easy to drive at the limit. If the car is nervous or

skittish, start over. No one here, on forums or social media can determine exactly what set up is right for you. Experiment to become your own expert.

### [Our alignment and chassis setup recommendations](#)

#### **Service**

We recommend servicing your Xidas every 30,000 street miles or 25 hours in competition. Performance Shock in Sonoma, CA is our authorized service center. Inertia Laboratory in Plano, TX is an alternate. If you notice a sudden loss of damping or leakage, inspect all shocks and service any that exhibit those symptoms.

Follow us [YouTube /949racing](#) [Facebook /949 Racing](#) [Instagram @949racing](#)  
[info@949Racing.com](mailto:info@949Racing.com) 949-716-3111  
[www.949racing.com](http://www.949racing.com)