

# Nitron Initial Setup Guide

Please read Nitron instructions regarding adjustment and maintenance included with your suspension package.

## 1. Setting up ride height

### 1a. Lower is better...to a point.

By lowering the ride height of the car, you lower the car's center of mass (weight). As such, when you go round a corner, there is less tendency to 'tip over' like a tall bus or truck would want to. This reduction in rolling force means that the tires are more evenly loaded, so you ultimately get more grip. Less roll has many other good side effects including the following: more ability to apply power, better wheel geometry constraints, more stable underbody gap for aero work (if relevant), and it better feel! If you go too low, however, the roll centre geometry will start to work against you.

### 1b. Ride height suggestions

120mm in the front and 130 in the rear is a good starting point. As a comparison, the Lotus Sport Suspension has a 130mm ride height. If road conditions are not a concern, then 110 / 120 can also be a good starting point. Nitron suggests going no lower than 100mm front and 110mm rear. There should always be a 10mm rake in the chassis front to back. As a guide on the Elise, 1 turn of front spring platform pre-load will raise the car by approx. 2.8mm or 1/10". At the rear it is about 2.2mm per turn.

### 1c. Do your springs rattle?

When you set a car down on its springs, they squash a given amount. A soft spring will squash a lot, and a hard spring will only squash a little. We call this 'sag'. No matter what spring rate you fit, a car will always squash the spring to a given loaded position, and this is defined by the load you are pushing down onto the spring. A hard spring will squash less than a soft spring, so fitting harder springs will raise the car's ride height up and up as you go harder and harder, until you reach the point where the car would hardly sag at all if you fitted extremely hard springs. So as you fit harder springs, you wind the spring platforms on the shocks to lower the car down again. The harder the springs, the more you have to unwind the spring 'pre-load', to get the same ride height. When the spring starts to rattle around, then you have no pre-load at all.

If you want the car lowered and want to run very stiff springs, you either run them rattling around (which we used to do all the time on racing cars until recently), shorten the shock's piston rod length, or fit helper springs. Helper springs are used in addition to main springs to stop any rattling around. These springs are much softer than the main springs and usually squash flat when the car is sat on the ground, but extend when the car is raised up and so stop any rattling. They also help by continuing to apply a load down on the tire when the shock extends past the point when the main spring is fully extended.

### 1d. Nitron Helper Springs for the Elise/Exige (sold separately)

Nitron only stocks one size of helper for the Lotus: these are 2" long and 150 lbs rate. However, this means that sometimes when you add the length of the helper spring onto the main spring, the total spring length can be too long for the shock body length. This will not be a problem on the back of your car, but could be on the front if you want to go very low (below recommended). If you want to run a lower ride height, please contact your Nitron dealer.

## 2. Setting up compression and rebound

### 2a. Nitron Sport - single adjustable

Nitron has pre-set recommended compression/rebound settings on your shocks. The dial should be set to 10 from full stiff. This is only a recommendation. Personal preference will dictate where you ultimately set your suspension. Always count clicks from the full stiff setting.

Your adjustable suspension also allows you to “dial out” under/over-steer that can vary based on tire and other suspension set-up conditions.

**Too much over-steer:** loosen the rear dial a couple of clicks, OR tighten the front a couple of clicks.

**Too much under-steer:** loosen the front dial a couple of clicks, OR tighten the rear a couple of clicks.

Always make your suspension adjustments in small steps. Making a large change in compression/rebound setting can dramatically change the handling dynamics of your car.

### 2b. Nitron Track - double adjustable

Nitron has pre-set compression and rebound settings on your shock. Rebound should be set to 9 clicks from full stiff. Compression should be set to 7 clicks from full stiff. These are only recommendations. Personal preference will dictate where you ultimately set your suspension. As a general rule of thumb, always set rebound less stiff than compression in order to maximize tire grip. Grip is most sensitive to rebound dampening, not compression. If you are having trouble with grip, try loosening rebound. Always count clicks from the full stiff setting when adjusting either compression or rebound.

Your adjustable suspension also allows you to “dial out” under/over-steer that can vary based on tire and other suspension set-up conditions:

**Too much over-steer:** loosen the compression/rebound on the rear a couple of clicks, OR tighten the front a couple of clicks.

**Too much under-steer:** loosen the compression/rebound on the front a couple of clicks, OR tighten the rear a couple of clicks.

Always make your suspension adjustments in small steps. Making a large change in compression or rebound setting can dramatically change the handling dynamics of your car.