

# Flyin' Miata

## FM FOX NA/NB suspension kit 13-161XX

Congratulations on your purchase of the best in suspension for the NA / NB Miata! The installation should be pretty straightforward, so you can follow the factory procedure with a couple of exceptions. Following are some general hints and some specific requirements for the FOX setup.

### Front

- Lift the front of the car (if not the whole thing), and remove the front wheels.
- Detach the end link from the sway bar or control arm, then remove the inner bolt holding the upper control arm in place. The upright will flop around, so don't put any undue stress on the brake line.
- Take the shock / spring / upright assembly out as one piece. On an NA, you'll reuse only the nuts holding the assembly into the car. The NB will reuse more pieces, so you'll need to take the assembly apart. Be sure to use a spring compressor on stock suspension and as needed on aftermarket suspension to safely disassemble it.
- Run the spring perch down on the shock body, then assemble the spring parts onto the shock as shown below. The order on the shock body should be (left being closer to the bottom of the shock / ground): locking spring perch (pre-installed on the shock, not shown), spring bearing (single vertical lip pointing up), main spring (last three digits of 550), spacer (vertical lip on both sides, only used with helper springs), helper spring, spring locator (vertical lip pointing down).



- Once you have the spring(s) on, it's time for the shock mount. The order on the shock shaft should be as shown (again, left = lower): bumpstop, bumpstop spacer (only used with 23.5" OD tires or bigger), large washer (concave face points up towards bushing), stepped bushing (shoulder points down, away from shock mount), shock mount, OE rubber bushing ("UP" label points down), large washer (concave face points down towards bushing), two nuts, adjuster. Torque the first nut to 10 ft-lbs, then tighten the second nut against the first nut, while holding the first nut stationary. Be sure to gently tighten the set screw in the adjuster once it's all together.



- We recommend an initial setting of the lower perch to 7" from the lower mounting bolt to get you close to the recommended ride height. You will likely need to make adjustments. Tighten the assembly into place, then reinstall the control arm and sway bar end link. You can tighten the end link on an NB (NOT on an NA), but do NOT fully tighten the control arm bolt. Those must be tightened with the weight of the car on its wheels. Run the perch up to the dimension shown to set the rough ride height (this will need to be fine-tuned later). Repeat for the other side, and the front is done.



## Rear

- Lift the rear of the car (if it's not up already), then remove the rear wheels.
- Detach the end links from the suspension or the sway bar.
- Unbolt the upright and the one bolt holding the bottom of the shock. Lever the upper control arm down, then weave the shock/spring assembly out of the car.
- On an NA, you'll reuse only the nuts holding the assembly into the car. The NB will reuse more pieces, so you'll need to take the assembly apart. Be sure to use a spring compressor on stock suspension and as needed on aftermarket suspension.
- The rear springs get slipped onto the rear shocks in the same order as the front (left-to-right in the picture). The main spring part number should end in 375.
- The shock mount assembly is the same as well, but do NOT use any of the pre-installed bump stop spacers. Again, tighten the nuts to 10 lb-ft.

- We recommend an initial setting of the lower perch to 4" from the lower mounting bolt to get you close to the recommended ride height. You will likely need to make adjustments. Tighten both ends of the shock assembly, where it mounts to the control arm and chassis. The end link can be tightened now on NBs, but not on NAs. Run the perch up to the dimension shown to set the rough ride height (this will need to be fine-tuned later). Repeat for the other side, and the rear is done.



- Loosen ALL rubber bushings in the suspension, put the car on its wheels, roll it back and forth a few times, then tighten all of the bushings. Failure to do this could result in an improper ride height and premature bushing failure.
- To set the damping, tighten the adjusters all the way down (don't force it), then count the number of clicks as you unscrew them. We recommend 19 clicks from full stiff on both the front and rear. These are recommended starting points, feel free to adjust from there as needed. Stiffening the front typically improves the turn-in, softening the rear typically improves the overall ride quality. Obviously there are limitations - all the way stiff on the front and all the way soft on the rear will NOT give you good turn-in and a good ride.
- Set the ride height as desired. We suggest starting with 12.5" front and 13" rear, as measured from the center of the wheel to the fender lip - i.e., the first bit of painted body that you hit. Due to the design of the shocks, they do allow for more freedom of ride height. There is a limit to how high you can go, as you'll eventually run into coil bind, but these can be run fairly high or fairly low. We don't have definite limits for either measurement, but you're welcome to experiment.
- We recommend the alignment specs below, but feel free to deviate as needed. If you call asking for the super-secret alignment specs that we keep to ourselves and don't give customers, they don't exist. We use these specs on 95% of the cars we drive and work on, typically only dedicated track cars will deviate.

### Front

Caster: 5.0 degrees

Camber: 1.0 degrees negative

Toe-in: 1/16" total

### Rear

Camber: 1.5 degrees negative

Toe-in: 1/16" total

### Conversions

1/16" = .15° = 9 arcminutes