Flyin' Miata

FM FOX NC suspension kit
13-1616X

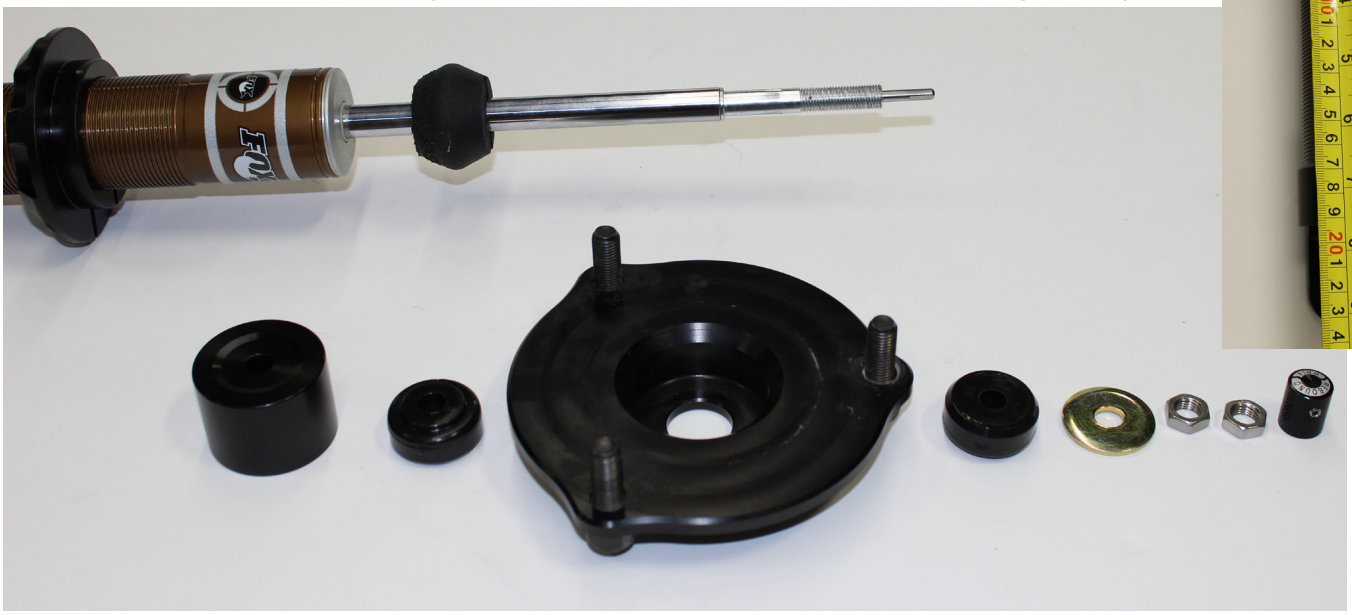
Congratulations on your purchase of the best in suspension for the NC Miata! The installation should be pretty straightforward, so you can follow the factory procedure with a couple of exceptions. Following are some general hints and some specific requirements for the FOX setup.

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 bolts 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. You'll reuse the hardware that holds this assembly to the car, but that's it - you won't reuse anything else from this assembly.
- 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, spacer (vertical lip on both sides), helper spring, spring bearing (vertical lip pointing down). Be sure you're using the appropriate main spring (last three digits of 375 for sport, 550 for track) and helper spring (shorter spring in front, as compared to the rear).
- Once you have the springs on, it's time for the shock mount. The order on the shock shaft should be: bumpstop (shown on shaft), bumpstop spacer (only used with 235/45R17 tires and bigger) or large washer (concave face points up towards

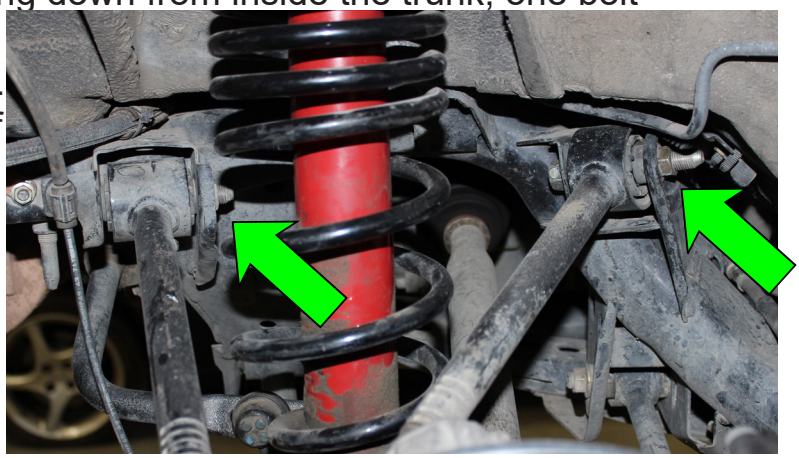
bushing, same as the gold one at the top), stepped bushing (shoulder points up towards shock mount), shock mount, stepped bushing (shoulder points down towards shock mount), large washer (concave face points down towards bushing), two nuts, adjuster. Torque the first nut to 10 ft-lbs, then tighten the second nut against the first nut, while holding the first nut stationary. Be sure to tighten the set screw in the adjuster once it's all together. Be sure the set screw is lined up with the flat on the shaft.

- Run the spring perch down so that the whole assembly can be compressed to be shorter, then weave it into place. Run the perch up to 8.75" from the base of the spring perch to the center of the mounting bolt (as shown). This will need to be tweaked later, but should be a good starting point. Tighten the assembly into place, then reinstall the control arm and sway bar end link. You can tighten the end link, but do NOT fully tighten the control arm bolts. Those must be tightened with the weight of the car on its wheels. 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.
- Unbolt the upper links (indicated by the arrows) from the subframe and pull the link out of its hole. Detach the end links.
- Unbolt the shock mount (two bolts pointing down from inside the trunk, one bolt pointing up from the wheelwell) and the one bolt holding the bottom of the shock. Weave the shock/spring assembly out of the car.

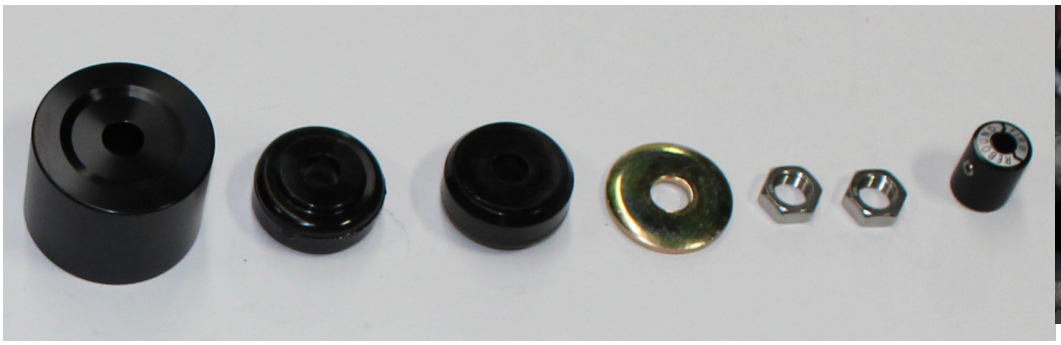


- Use a spring compressor to remove tension from the large aluminum shock mount (which will be reused), then remove the nut(s) on the top of the shock

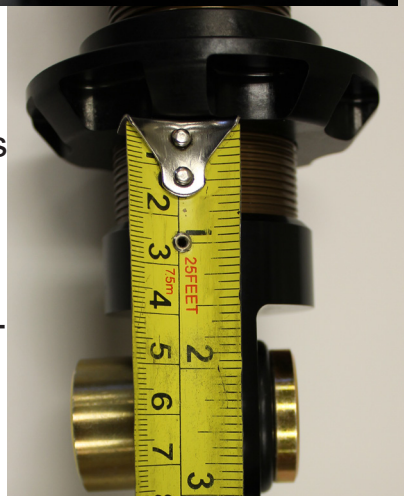
shaft. Remove the bushings and washers, then carefully release the spring compressor.

- The rear springs get slipped onto the rear shocks in the same order as the front (left-to-right in the picture): locking spring perch (pre-installed on the shock, not shown), spring bearing, main spring, spacer, helper spring, spring locator. Ensure the pieces are oriented as they were on the front. Be sure you're using the correct springs - the helper should be the longer one, the main spring should be 300 for the sport setup and 450 for the track.

- The shock mount assembly is the same as well. Again, from left to right: bump stop (not shown) bump stop spacer (only used with 235/45R17 tires and bigger) or large washer (concave face points up towards bushing), stepped bushing (shoulder points up towards shock mounts), stock shock mounts (large aluminum piece, not shown, specific to left and right), stepped bushing (shoulder points down towards shock mount), 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. Tighten the set screw in the adjuster once it's all together. Be sure the set screw is lined up with the flat on the shaft.



- Slip the assembly into place, paying attention to the fact that there is a specific left and right, due to the shock mount. On the bottom of the shock, be sure that the large spacer points towards the wheel (as shown). Once the shock assembly is in place, the lower shock bolt can be tightened down - there are no rubber bushings to worry about, unlike in the front. Run the perch up to 2.5" from the base of the spring perch to the center of the mounting bolt (as shown).



- Drill out the top of the shock tower brace to 7/8” to allow room for the adjustment knob.
- 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 (with the car still on its wheels). Failure to do this could result in an improper ride height and premature bushings 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. For the sport setup, we recommend 13 clicks from full stiff on the front and 12 on the rear. For the track setup, we recommend 2 clicks from full stiff on the front and 6 on the 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 14” front and 13.5” 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.
- This setup uses a higher rear spring rate (in terms of front:rear ratio) than the stock setup and our FM spring setup. Therefore, you typically want to use less rear sway bar. You can soften the bar (move the end link away from the transverse portion of the bar) if possible, or you can disconnect the sway bar altogether. Work up to it, as this setup with the same sway bars as your previous setup will most likely equate to more oversteer.
- 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. That having been said, if you’re trying to cure specific issues or have a truly special situation, we’re happy to discuss options with you.

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