Flyin' Miata INSTALLATION INSTRUCTIONS

KONI GTS COILOVERS (ND)
13-16440

Thanks for purchasing our Koni GTS Coilovers. If you have any questions during installation or suggestions for improvement to the product or the instructions - please don't hesitate to call or email.

WARNING: Not everyone can perform every installation. It is critical that you be honest with yourself in regards to your ability. We're more than happy to help, but there are only so many things we can do from the other end of a phone / computer. If in doubt, discuss the install with us before you dive in. Improper installation could cause injury and / or death!

Required tools:

- **Metric socket set**
- **Metric wrench set**
- **2.5mm Allen key**
- **Jack and jackstands or lift**

Alignment Specs

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: 8.0 degrees (as much as possible)

Camber: 1.8 degrees negative (again, as much as possible)

Toe-in: 1/16" total (1/32" per side)

Rear

Camber: 1.8 degrees negative (match the front)

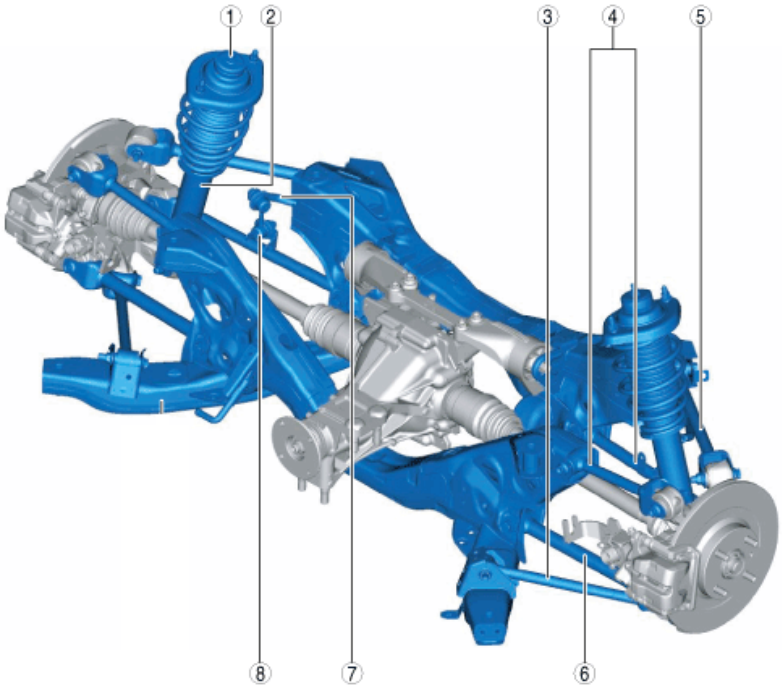
Toe-in: 1/16" total

Conversions

1/16" = .15° = 9 arcminutes

Torque specs (see diagram below for rear suspension nomenclature):

- **Top Locknut [1]: 10 lb-ft**
- **Front Lower Control Arm Bushings: 100-121 lb-ft**
- **Front Upper Control Arm Bushings: 40-47 lb-ft**
- **Front Lower Shock Mount: 40-47 lb-ft**
- **Front Upper Shock Mounts: 37-43 lb-ft**
- **Front Endlinks: 32-38 lb-ft**
- **Shock Tower Brace: 12-19 lb-ft**
- **Rear Lower Shock Mount [2]: 49-59 lb-ft**
- **Rear Upper Shock Mount [2]: 34-40 lb-ft**
- **Rear Trailing Link [3]: 48-57 lb-ft**
- **Rear Lower Lateral Link [4]: 63-75 lb-ft**
- **Rear Upper Lateral Link [4]: 49-57 lb-ft**
- **Rear Leading Link [5]: 49-59 lb-ft**
- **Rear Lower Link (outboard) [6]: 49-59 lb-ft**
- **Rear Lower Link (inboard) [6]: 63-75 lb-ft**
- **Rear Endlink [7/8]: 26-29 lb-ft**



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Front

1. Lift the front of the car (if not the whole thing), and remove the front wheels.
2. 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.
3. If your car has a shock tower brace, remove it now, as it provides better access to the top shock mounts. You should leave this removed until you finish the install, test drive the car, and are finished setting the damping, becuase you cannot adjust damping with the shock tower brace installed. If you need to adjust damping later, you will need to remove the shock tower brace again to get access to the adjuster.
4. Unbolt the shock mount (three nuts from the top) and the shock (one bolt on the bottom), and take the shock / spring 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.
5. Loosen the set screw on the lower spring perch using a 2.5mm allen key, and run the spring perch down so that the whole assembly can be compressed to be shorter. Using the original nuts and bolts, slip 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 or lower shock mount. Those must be tightened with the weight of the car on its wheels. Run the perch up to 10" from the base of the spring perch to the center of the mounting bolt (as shown). This may need to be tweaked later, but should be a good starting point. Don't forget to tighten the set screw on the spring perch after adjusting it. Repeat for the other side, and the front is done.

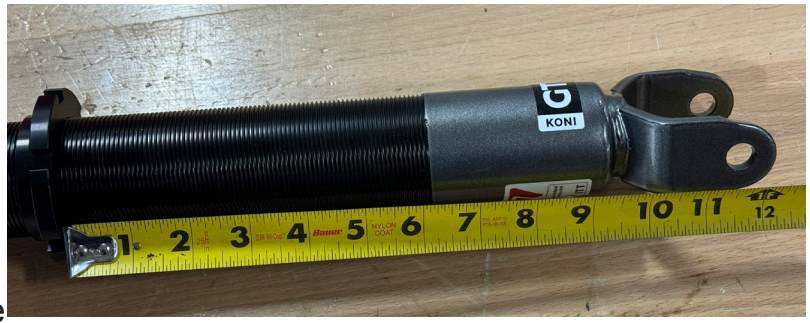
Rear

1. Lift the rear of the car (if it's not up already), then remove the rear wheels.

2. Remove the trunk lining that blocks access to the shock tops. There are a number of black plastic fasteners - pull the center out roughly 1/4", then pull the entire fastener out.

3. Detach the end links.

4. Unbolt the shock mount (two nuts inside the trunk) and the one bolt holding the bottom of the shock. Weave the shock/spring assembly out of the car.



5. Just like the fronts, loosen the set screw on the lower spring perch using a 2.5mm allen key, and 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 11.5" from the base of the spring perch to the center of the mounting bolt (as shown). Bolt the shock into place, being sure to use the included new lower locknuts, as the OEM shocks have captive nuts. Repeat for the opposite side, and the rear is done.

Final Steps

1. 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). When using our hubstands, rolling the car is unessary, but the bushings still need to be tightened with the car on its own weight. Failure to do this could result in an improper ride height and premature bushing failures.

2. To set the damping, tighten the adjusters all the way clockwise (don't force them). This is the softest setting, as indicated on the adjuster knobs, and you can turn them counter-clockwise for firmer damping. We recommend setting them to fully soft in both the front and rear. This is a recommended starting point, feel free to adjust from there as needed. Track setups should be set stiffer. 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.

3. Set the ride height as desired. We suggest starting with 13” 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. Make sure to remember to tighten the set screw on the lower spring perch once your ride height is set, before driving the vehicle.

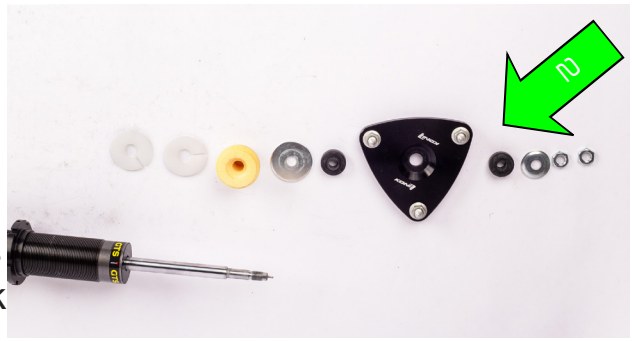
Bumpstop Spacers

The spacers are there to adjust maximum travel to suit your wheel/tire setup. Tires of stock diameter should use two in the front, four in the rear, as they come preconfigured. Tall tires such as a 245/40-17 may need more spacers. You can confirm the correct number for your setup by installing the shocks without springs along with a wheel, then fully compressing the suspension with a jack and checking to make sure it cannot rub, making sure to turn the wheel fully to each side to ensure it will not rub at full lock.

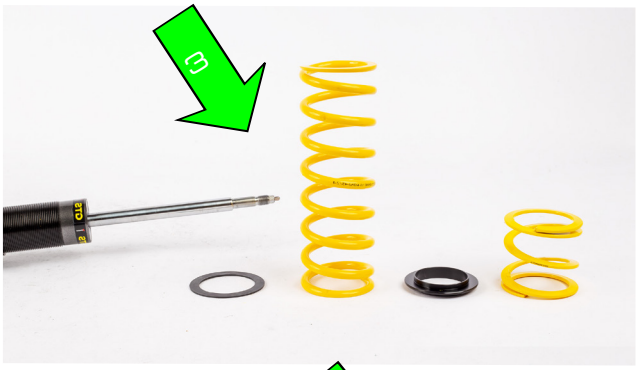
Disassembly and Reassembly

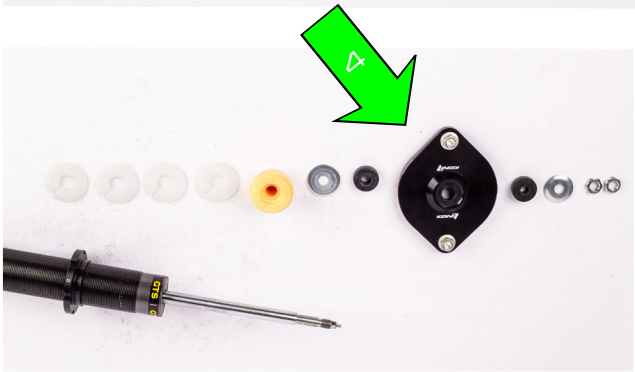
1. The Konis GTS Shocks can be diassembled to reconfigure your setup, change springs or bumpstop spacers, check clearances, or replace worn parts. This is unnessecary for use, but these steps show the process.

2. Disassembly is straightforward. Remove the top locknut, run the spring perch to the bottom of the shock to relieve tension, and unscrew the top nut. Use hand tools only to remove these nuts, do NOT use an impact gun. An impact gun can cause the adjusters seize in the piston rod, and this is not covered under warranty. After the shock mount is removed, all components slide off the end. Pay attention to how they come apart, but the order is shown here.



3. To reassemble, assemble the spring parts onto the shock as shown to the right and below. The fronts are shown top right (1), the rears are shown below left (3). Install the parts in the order shown, from left to right: locking spring perch (pre-installed on the shock, not shown), spring bearing (flat ring), main spring, spacer (vertical lip on both sides), helper spring.

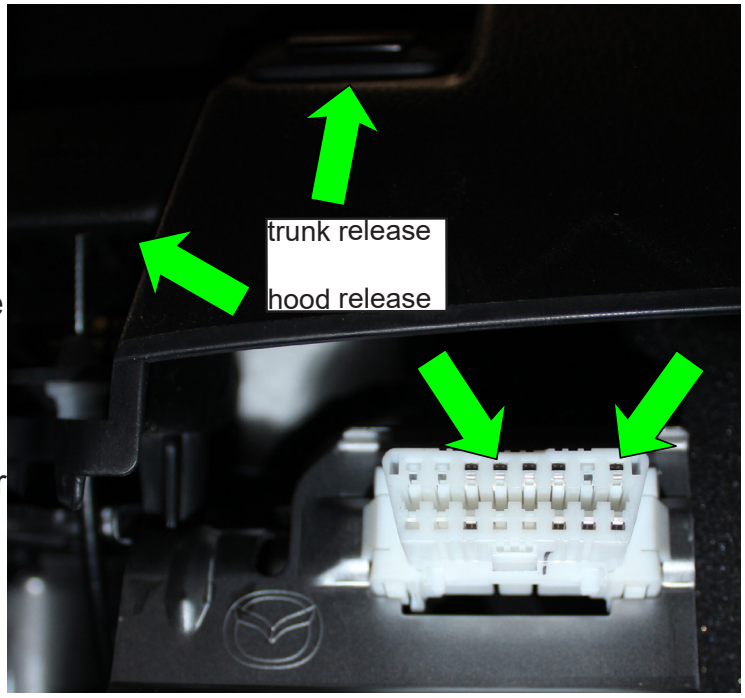




4. Once you have the springs on, it's time for the shock mount. The fronts are shown top right (2), the rears are shown below left (4). Install the parts in the order shown, from left to right: spacers (see information on the next page), bumpstop, large washer (concave face points up towards bushing), 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. Torque the first nut to 10 lb-ft, then tighten the second nut against the first nut while holding the first nut stationary.

Headlight leveling procedure

2016-2018 Miatas can use the procedure below or they can use our headlight Levelizer (13-89100). Our Levelizer is a mechanical item that bolts on and is adjustable, the procedure below is more of a programming thing. You must do one or the other or your headlights will point down dramatically. 2019+ Miatas (any Miata or Fiat 124 without a mechanical sensor on the left (driver's side) rear suspension) use a different method and don't need any adjustment. If you're unsure, look up our "Levelizer" online and check its instructions to see if you have that part.



1. Be sure the car is on its wheels, not raised on jack stands or a lift.
2. Get two scrap pieces of wire and strip both ends of both wires.
3. Find the OBD-II plug - it's in the driver's footwell, to the right of the hood release and just behind the lower edge of the dash plastic.
4. Insert one piece of wire into the terminal that's closest to the lower edge of the dash and all the way to the right (towards the center console). The other wire should be inserted into the fifth terminal from the right and in the same row (closest to the lower edge of the dash). Be sure these two wires aren't touching. ***BE ABSOLUTELY SURE ABOUT YOUR WIRE CONNECTIONS, INCORRECT CONNECTIONS CAN CAUSE DAMAGE.***
5. Turn the ignition on. This requires two pushes of the start-stop button *without* the clutch (or brake in an auto) pedal depressed. The engine can be running, but there's no reason for it to be. ***This procedure must be performed within 30 seconds of turning the ignition on.***
6. Connect the two wires to each other three times, holding the connection for roughly .5 seconds then leaving the connection open for roughly .5 seconds each time. It's picky about timing, so if you don't find success try holding the connection longer or shorter until it works.
7. Check the gauge cluster. The LED headlight warning light should illuminate three times every .25 seconds then turn off. You should also be able to hear the headlight motors (if it's quiet enough). If the light doesn't turn off on its own, the procedure may have been performed incorrectly. Check your connections and repeat step five.
8. Once the light turns itself off, remove the wires. You're done!