ridetech

INSTALLATION INSTRUCTIONS

Part # 15133110

Front Coil-Overs

2006-2015 Mazda Miata

www.ridetech.com
812.482.2932

Please Read And Understand All Instructions And Warnings Prior To The Installation Of This Product.

Congratulations on your new Ridetech product! It's an honor that you've selected the Ridetech brand to upgrade your ride. Our products are developed around quality and performance without compromise. We're confident you'll have many years (and miles) of pure driving enjoyment.
Thank you for choosing Ridetech!

Road Map

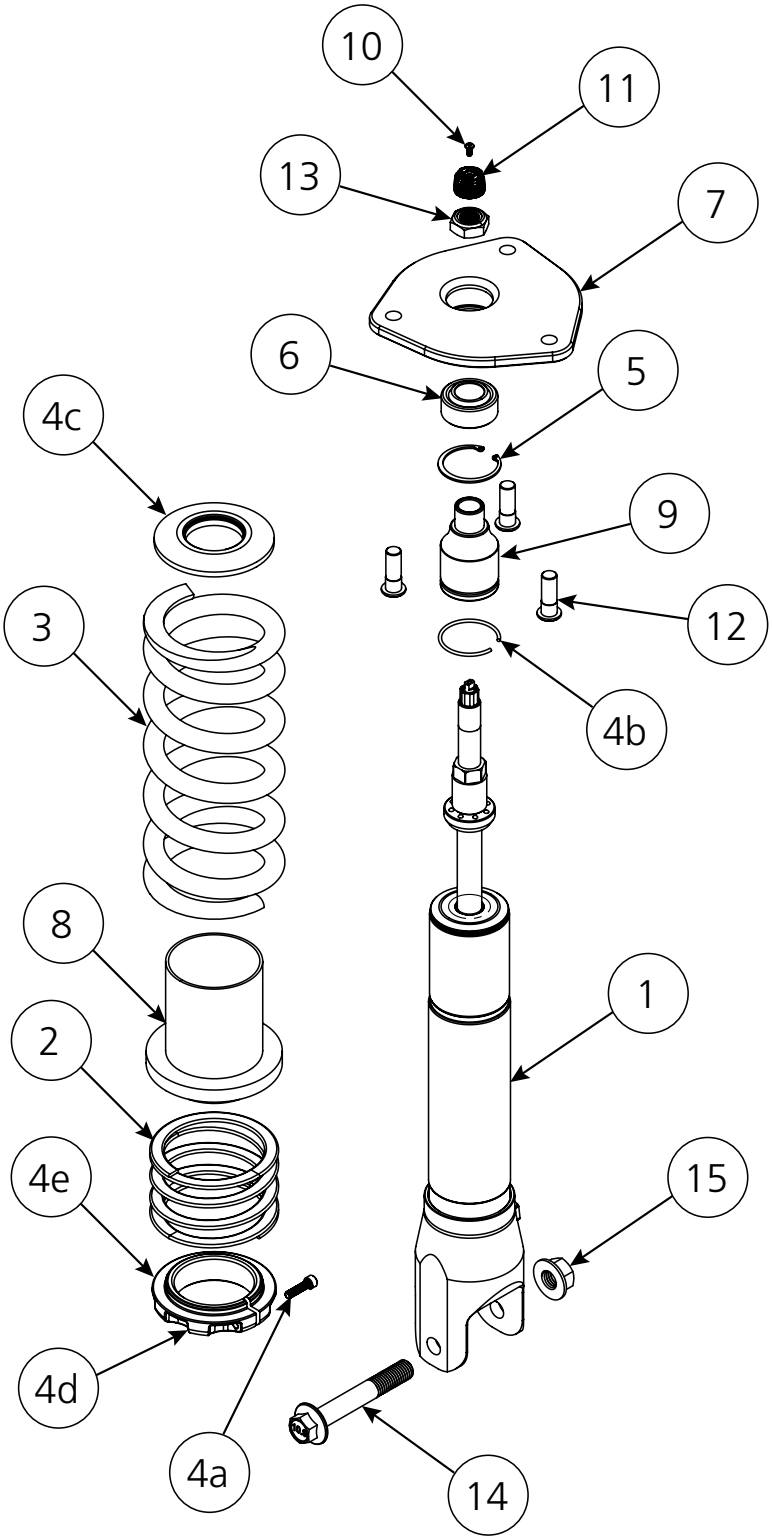
TORQUE SUMMARY	
LOCATION	**TORQUE SPEC**
Upper Control Arm Bolts	40-47 ft-lbs
Lower Coil-Over Mount Bolt/Nut	54-69 ft-lbs
Sway Bar End Links	27-40 ft-lbs
Coil-Over Upper Mount Nuts	23-34 ft-lbs

EXPLODED VIEWS AND PARTS LISTING

COMPONENTS			
Item #	**Part #**	**Description**	**Qty**
1	24169998	6.3" TRAVEL SA THREADED SHOCK	2
2	59040000	Take Up Spring, 4'' 2.5'' ID	2
3	59080575	Coil Spring, 8'' 575 lbs/in	2
4a	803-00-199	M5-.8 x 18mm SHCS (99050001)	2
4b	803-00-199	Retaining Ring; Wire (038-01-006-A)	2
4c	803-00-199	Upper Spring Retainer (234-14-200)	2
4d	803-00-199	Preload Adjustment Nut (234-15-200)	2
4e	803-00-199	Delrin Spring Washer (70010828)	4
5	90000805	FOX STRUT BEARING SNAP RING	2
6	90001042	BEA002 Spherical bearing	2
7	90001471	FRONT UPPER COILOVER MOUNT	2
8	90002529	Spring Divider; Use w/Take Up Spring 59040000	2
9	90003605	Chrysler LX Coilspring Cap To Bearing Adapter	2
10	90009969	Fastener, Standard: Screw #4-40 X 1/4	2
11	210-35-120-0	Rebound Knob	2
12	99115013	M10-1.25 X 29mm STUD	6
13	99562003	9/16-18 NYLOK JAM NUT ZINC	2
-	85000000	Spanner Wrench	1

HARDWARE KIT: 99010287			
Item #	**Part #**	**Description**	**Qty**
14	99121021	M12-1.75 X 80mm FLANGE HEAD HEX SCREW	2
15	99122010	M12-1.75 SERRATED FLANGE HEX NUT	2

EXPLODED VIEWS AND PARTS LISTING



NOTE: The coil-over ships pre-assembled with initial preload set.

Disassembly

1. Remove the small bolt from the wiring harness bracket on end of the intake tube near the brake fluid reservoir as shown in Figure 1.

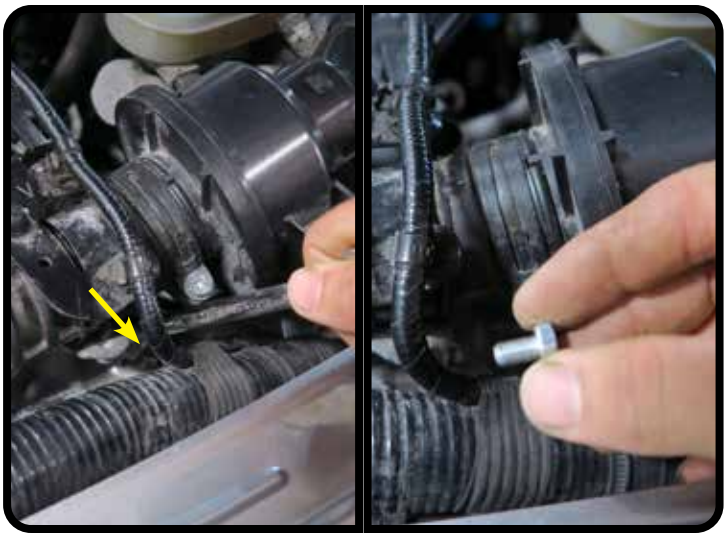


Figure 1

2. Remove the clamp at each end of the intake tube as shown in Figures 2 & 3.

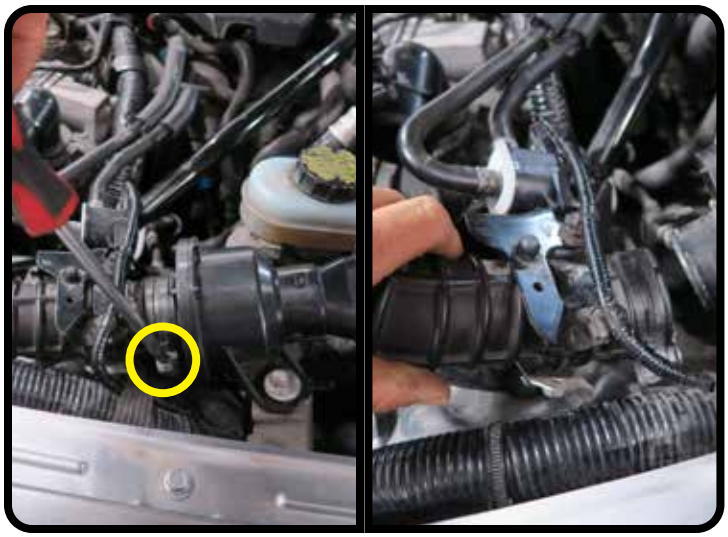


Figure 2

3. Remove the intake tube (Figure 4).

Figure 4

Figure 3

Disassembly

NOTE: Not all cars have strut tower braces. If yours does not, you may skip to step 8 on the next page.

4. Remove the two nuts for the strut tower brace shown in Figure 5. Repeat on the opposite side.

5. Remove the brace nut shown in Figure 6 on each side of the center brace.

6. Remove both nuts at the center section of the strut-tower brace shown in Figure 7 and remove the center brace section.

7. Remove the strut-tower brace on each side (Figure 8).

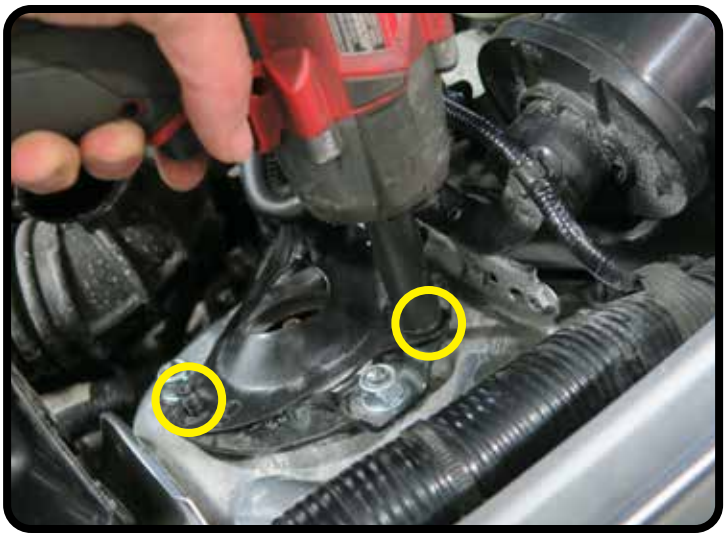


Figure 5

Figure 6

Figure 8

Figure 7

Strut Removal

8. Remove the three nuts on the strut studs at the top of the strut tower (Figure 9).

DO NOT DISCARD THESE NUTS. THEY WILL BE REUSED.

Figure 9

9. Disconnect the brake line tab shown in Figure 10.

Figure 10

10. Disconnect the ABS sensor bracket (Figure 11).

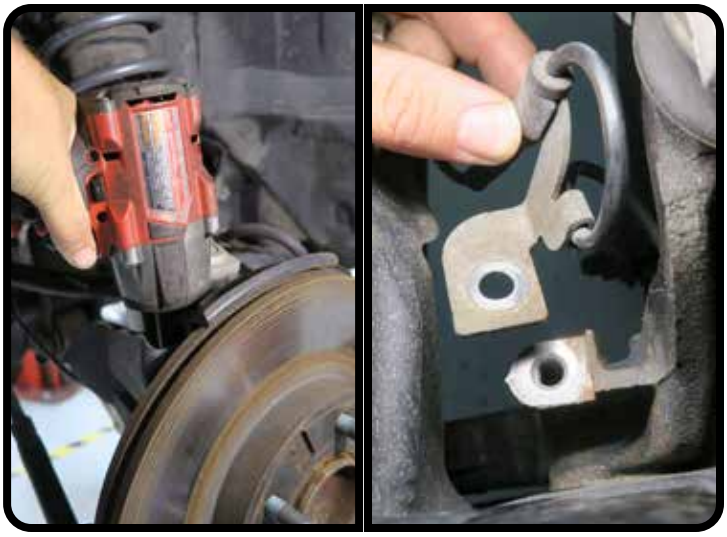


Figure 11

Strut Removal

11. Remove the front and rear mounting bolts from the upper control arm (Figure 12).

Removing the arm from its mounts and rotating slightly will allow for easier removal of the strut.

12. Disconnect the front sway bar end link from the lower control arm (Figure 13).

13. Remove the lower strut mount bolt (Figure 14).

14. Remove the existing strut from the vehicle (Figure 15). A prybar might be required to unseat the strut from the lower control arm.

⚠ DO NOT REMOVE THE CENTER NUT ON THE TOP OF YOUR EXISTING STRUTS. DEATH OR SERIOUS INJURY MAY OCCUR.

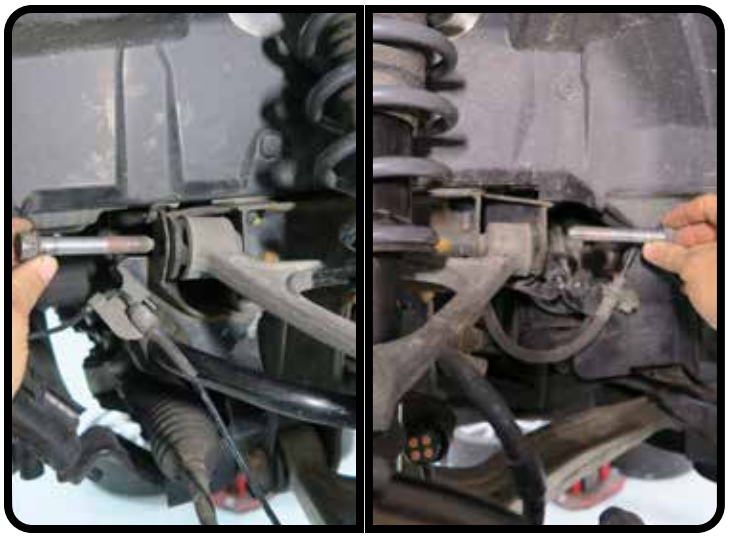


Figure 12

Figure 13

Figure 15

Figure 14

Coil-Over Installation

15. Position the new coil-over in the original strut location (Figure 16). The hole in the upper mounting plate through which the shock protrudes is offset. When oriented correctly, this hole should be offset towards the engine.

Align the clevis with the original mounting location on the lower control arm.

Figure 16

16. Align the 3 studs in the upper mount with the original mounting holes in the strut tower (Figure 17).

You may rotate the upper mounting plate to align the studs with the holes.

Figure 17

17. Realign the upper control arm in the mounts and reinstall the front and rear mounting bolts (Figure 18).

DO NOT TIGHTEN THESE BOLTS UNTIL THE CAR IS BACK ON THE GROUND AND AT RIDE HEIGHT.

Torque the bolts to **40-47 ft-lbs** once the vehicle is at ride height.

Figure 18

Coil-Over Installation

18. Use the provided M12 bolt and nut to mount the new coil-over to the lower control arm (Figure 19).

Torque to **54-69 ft-lbs**.

Figure 19

19. Reattach the ABS sensor bracket (Figure 20).

Figure 20

20. Reattach the brake line tab (Figure 21).

Figure 21

Coil-Over Installation

21. Reattach the sway bar end link to the lower control arm (Figure 22).

Torque to **27-40 ft-lbs**.

22. Install the original locking nuts on each of the 3 upper shock mount studs protruding through the strut tower (Figure 23).

Torque each nut to **23-34 ft-lbs**.

23. Repeat steps 8-22 on the opposite side.

24. Reinstall the strut tower braces (if applicable, Figure 24).

25. Reinstall the intake tube (Figure 25).

26. Proceed to the Ride Height, and Shock Tuning guides on the following pages.

*** Do not forget to torque your upper control arm bolts once ride height is set.**

Figure 22

Figure 23

Figure 25

Figure 24

Brace Modification

If your vehicle is equipped with strut tower braces, you may have to modify them to allow access to the adjustment knob on your Ridetech coil-overs. See the steps below for the modification we made to the braces on our vehicle. The braces on your vehicle may be slightly different.

B1. Drill a small pilot hole in the center of the flat portion of the brace (Figure B-1).
We used an 1/8" bit.

B2. Use a hole-saw bit to create a hole large enough to easily access the adjustment knob on top of the coil-over (Figures B-2, B-3).

We cut a 1.5" hole in each of our braces.

Feel free to modify slightly for your particular application and preference.

Figure B-1

Figure B-2

Figure B-3

ADJUSTING RIDE HEIGHT

NOTE: Optimal ride quality and handling typically occurs when the shock absorber is sitting between 40-60% of its full travel at ride height. However, measuring the shock can be difficult on some applications. If you do not wish to measure your shocks, an easier method that is still quite effective is to measure wheel travel. See Steps 1-4 below for this alternate method. If you've determined that your shock travel is good, you may skip to Step 5 to jump straight to making any necessary ride-height adjustments.

1. With coilovers installed and the preload set, lower the vehicle to the ground. With the entire weight of the vehicle on the wheels, jounce the suspension and roll the vehicle forward and backward to release any suspension bind.

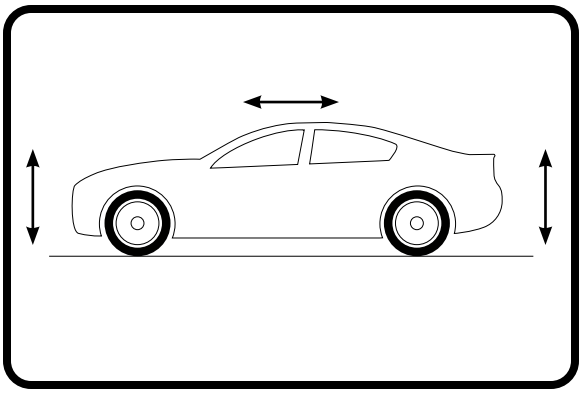


Figure 1

2. At the centerline of the wheel, take a measurement from the fender lip to the ground (Figure 2).

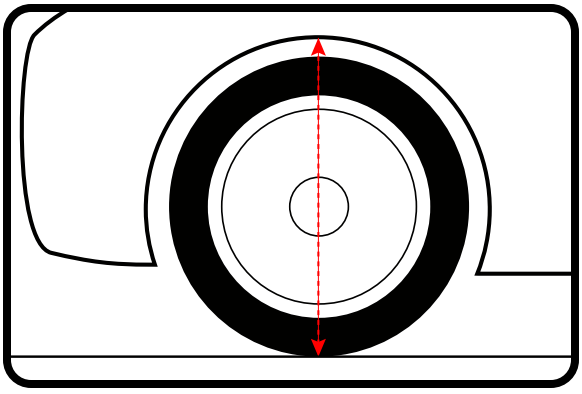


Figure 2

3. Lift the vehicle by the frame until the wheel is barely touching the ground. Take another measurement from the fender lip to the ground (Figure 3).

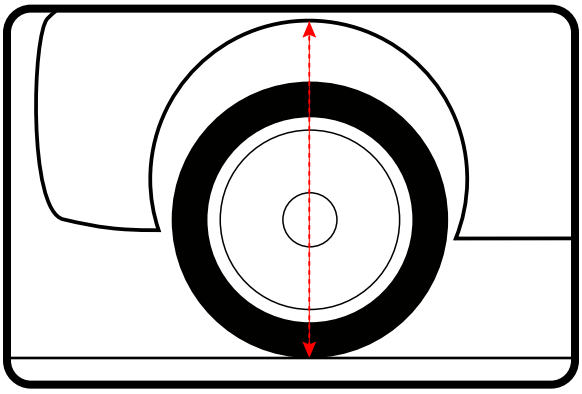


Figure 3

4. The difference between the measurements taken in Steps 2 and 3 is your **extension travel** at the wheel. A minimum of 1.5" of extension travel (at the wheel) is typically needed to prevent the shock from topping out. If you have more than 3" of extension travel, you may be at risk of bottoming out the shock and need to increase the ride height.

ADJUSTING RIDE HEIGHT

5. With coilovers installed and the preload set, lower the vehicle to the ground. With the entire weight of the vehicle on the wheels, jounce the suspension and roll the vehicle forward and backward to release any suspension bind. Evaluate your ride height.

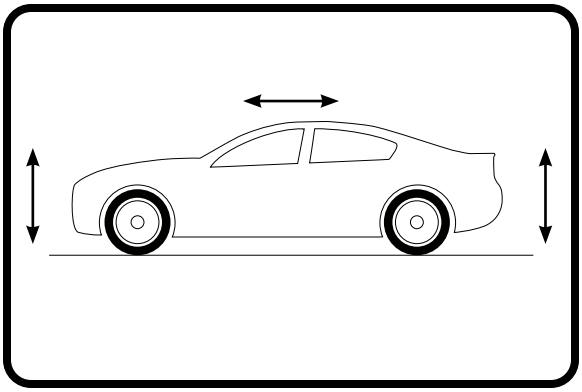


Figure 4

6. If you determine you need to adjust the ride height, raise the vehicle by the frame and allow the suspension to hang freely.

7. Loosen the locking screw on the coilover adjustment nut just enough to be able to turn the nut. **Do not remove the locking screw.** (Figure 5).

Figure 5

8. Measure the distance from the bottom of the adjustment nut to the flat of the shock body. We recommend recording this measurement for reference (Figure 6).

9. Using a spanner wrench, thread the nut up or down the shock body to achieve the desired ride height (Figure 7). Tighten the locking screw to secure the adjustment nut in place. Torque to **18 in-lbs**.

Figure 6

10. Lower the vehicle to the ground, jounce the suspension and roll the vehicle forward and backward to release any suspension bind.

11. Recheck your ride height. If you need to adjust, repeat Steps 6-10.

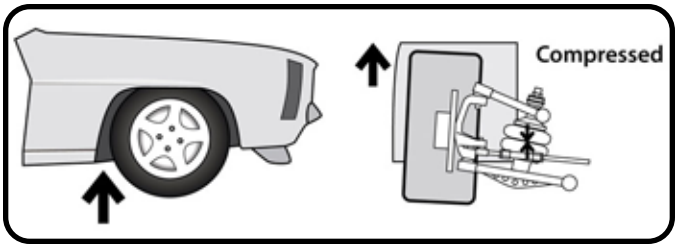
12. Once your desired ride height has been achieved, refer to the Shock Tuning Guide to dial in your shocks.

*** Do not forget to torque your upper control arm bolts once ride height is set.**

Figure 7

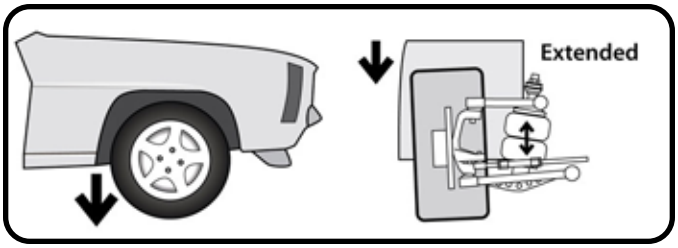
TUNING GUIDE
SINGLE-ADJUSTABLE SHOCKS

The Basics...



COMPRESSION

This typically occurs when you hit a bump in the road. The bump forces the wheel/tire/suspension assembly to "compress" or move upwards into the car.



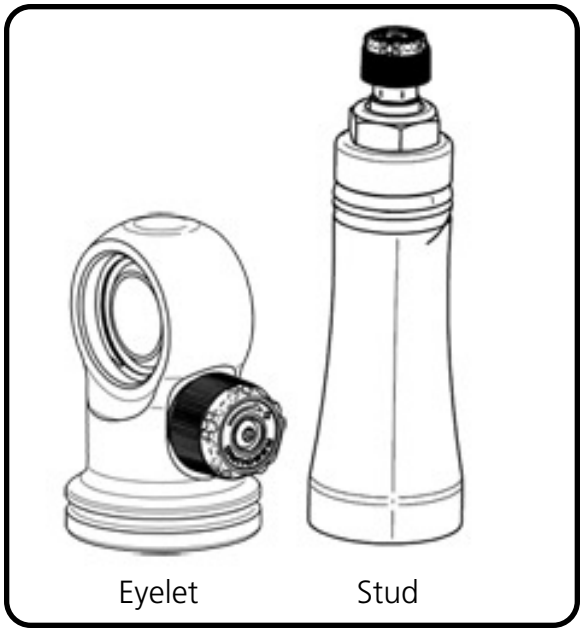
REBOUND

Rebound is the opposite of compression. This occurs when the wheel/tire/suspension assembly falls into a pothole, or simply "rebounds" from being compressed.

Where Are The Knobs?

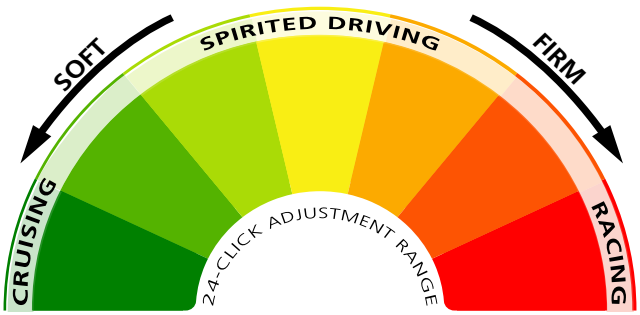
HQ Series Shocks

- **The adjustment knob is located on the top of the shock, either protruding from the side of the eyelet, or atop the stud.**
- **This knob provides rebound adjustment only.**



Knob Function

Counterclockwise = Softer



Clockwise = Firmer

TUNING GUIDE
SINGLE-ADJUSTABLE SHOCKS

Initial Rebound Setting

NOTE: Before jumping straight to a middle-of-the-road shock setting, we recommend you experience the full range of adjustment potential of your new shocks by first driving your vehicle at both the "full stiff" and "full soft" settings. Understanding how your shocks behave at these extremes will provide recognizable reference points as you attempt to dial in your settings.

1. Begin by setting your shocks to the "full stiff", or minimal rebound position. You do this by turning the adjustment knob clockwise until it stops.

2. Now turn the adjustment knob counterclockwise 12 clicks. This is the approximate center of the adjustment range.

3. Take the vehicle for a test drive. Try to determine if you are experiencing any of the unwanted behaviors found at the extremes of the adjustment range. If you are satisfied with the ride quality and handling, you're all set. Enjoy the ride!

4. If the vehicle feels too "floaty" or soft, turn the knob a few clicks clockwise to increase the damping effect.

If the ride quality is still too harsh or stiff, turn the knob a few more clicks counterclockwise to decrease the damping effect.

5. Take the vehicle for another test drive. If necessary, repeat the steps above until your desired optimal ride quality has been achieved.

General Guidelines

- The rear shocks typically have the most influence on ride quality. This is due to your seating position being closer to the rear than the front.
- Adjustments to the front shocks will generally require 3-4 clicks in any direction to be noticeable, while adjustments to the rear shocks may only require 1-2 clicks to be felt.
- Don't be afraid to turn the knobs and experience the full adjustment range. You are not going to hurt anything and you can always go back if you adjust too far one way or the other.