

CorkSport Coilover Kit

2007-2013 Mazdaspeed 3 & 2004-2013 Mazda 3



Thank you for purchasing the **CorkSport Mazda 3 and Mazdaspeed 3 Coilover Kit**. This suspension system features 15-way adjustable dampening settings and full length adjustment to meet every driver's handling desires. Pillowball mounts and adjustable front camber plates are included to further improve steering response. Please let us know your feedback by submitting a review at: <http://www.corksport.com/corksport-mazdaspeed-3-mazda-3-coilover-suspension-kit.html>

Pre-Installation Notes:



You will be removing the suspension of your vehicle. If you are not comfortable with this or do not have the proper tools, please do not proceed.



Thoroughly read the precautions and instructions that come with your Floor Jack and Jack Stands as well as your vehicle's owners manual for appropriate jacking methods and jacking/support points. Always double up support on a vehicle – Jack Stands and Floor Jack etc.



When under your car, you should always wear mechanics gloves or other form of hand protection as well as ANSI Approved Safety Glasses



How our instructions work: To best cover all of our customers experience levels, we have included an overview checklist for the more technically advanced users along with step-by-step instructions for customers that require additional detail.



These instructions were written for reference only and the use of a factory service manual is recommended. Please read these instructions thoroughly prior to starting installation

Materials and Time:



General Info.

Part #: Axl-3-304

Time Est: 3.5 hr

Wrench Rating: 3/5



Tooling List

Lift or Floor Jack & Jackstands
Transmission Jack or Floor Jack
3/8" or 1/2" Drive Ratchet or Air gun
14mm Long Socket
17mm Long Socket
Penetrating Fluid
Hammer, Mallet (2lb or Similar)
Flat Head Screwdriver



Parts List

Pliers
19mm Socket
Torque Wrench
4mm Allen Wrench
10mm Allen Wrench
Prybar
Thread Lock

Two (2) Front Coilovers
Two (2) Front Camber Plates
Two (2) Rear Springs
Two (2) Rear Adjusters
Two (2) Rear Shocks
One (1) Spanner Wrench

Need Help With Your Installation?

Call (360) 260-CORK

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Detailed Instructions

1. Support the Car on Floor Jack/Jackstands or Lift

- a) Use a floor jack and jackstands to gain access to the underside of the vehicle. You will need access to the front and the rear of the vehicle.



Always refer to the floor jack and jack stand manufacturers instructions as well as the factory owners manual for your vehicle to determine jacking points and support points. Alternately, use an automotive lift to gain access to the underside of the vehicle. Redundant support mechanisms are recommended.

2. Remove the Front Factory Struts and Springs

- a) Remove the front passenger wheel from the vehicle using an impact wrench or 1/2" drive ratcheting wrench (or breaker bar) and 21mm socket (or other if using locking lug nuts).
- b) Start with the passenger side of the vehicle and remove the one (1) 14mm nut (shown in Figure 2a by the green circle) that holds the front end link to the factory sway bar using a 14 mm wrench. If the stud spins, insert a 5mm Allen Wrench into the center of the stud.
- c) Free the brake line using pliers or a flathead screw driver, remove the shim from the brake line mount (shown by the red circle in Figure 2b).



Figure 2a

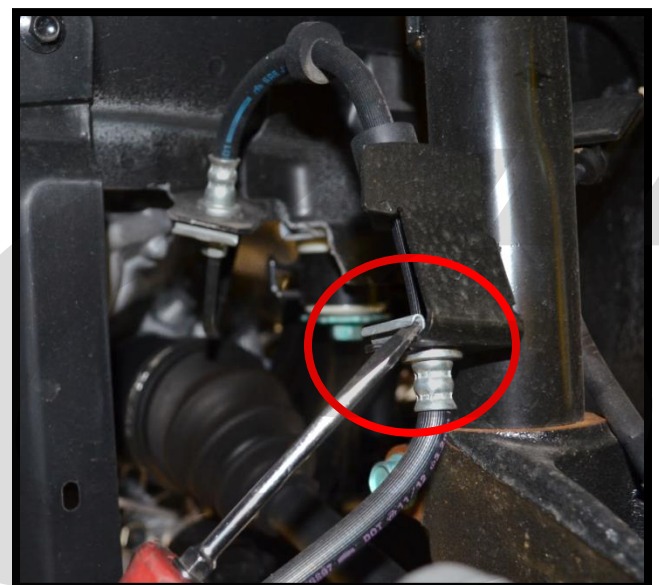


Figure 2b

2. Remove the Front Factory Struts and Springs Continued...

- d) Remove the ABS sensor wire from knuckle (green circle Figure 2c)



Figure 2c

- e) Remove the one (1) 17mm lower strut pinch bolt using a 17mm socket and ratcheting wrench (shown in Figure 2d by the red circle).

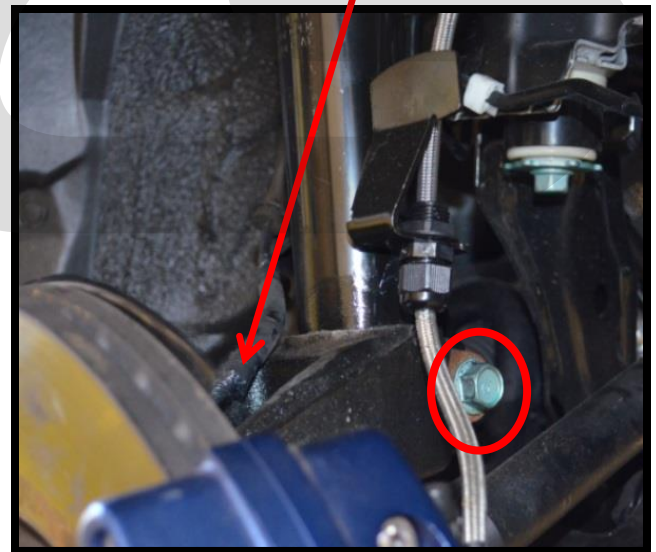


Figure 2d

- f) Spray penetrating fluid on the suspension upright knuckle (as shown in Figure 2e by the red circle).



Figure 2e

2. Install the Front CorkSport Adjustable Struts Continued...

- g) Using the 2lb mallet (or similar) carefully, but forcefully pound the knuckle until it comes free from the shock upright. You will need to be patient as the knuckle will need to slide down roughly 2-3" before it releases from the shock. You can see your progress by the rear alignment tab **Figure 2f**.

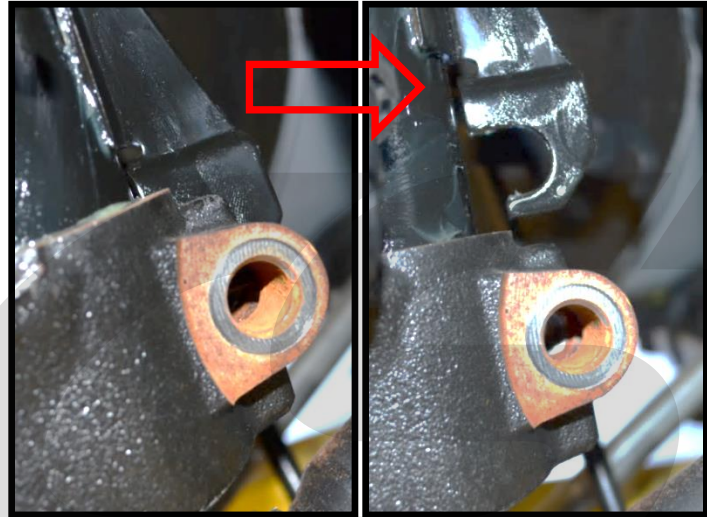


Figure 2f



Be sure to only use a ratcheting wrench or end wrench, or you could shear off the bolt head. Also, be sure to brace the strut as the last bolt is removed or it will fall.

- h) Remove the three (3) 14mm upper strut mount bolts fastening the strut to the strut tower (shown by the **red circles** in **Figure 2g**).



Figure 2g

- i) Repeat Section 2 for the passenger side of the car.

3. (OPTIONAL) Cut Strut Tower for Easy Camber Adjustment



In order to adjust camber without pulling the strut assembly, Cutting of the strut tower is required.

a) **Skip to Step 4 if you don't want to cut your strut towers.**

b) **Drill out the center of the strut tower.** Use a 3-1/8 bi-Metal hole saw and use the factory strut tower brace as a guide. Take your time as you do this step to make sure you make the hole as clean as possible. (Figure 3a shows an uncut strut tower. Figure 3b shows how the strut tower should look once it has been cut)

c) **Clean the burs on the edge of the cut** to smooth it out with a round file or similar

d) **Prepare the surface for proper paint adhesion** and surface finish with sand paper.

e) **Mask off the strut tower and spray paint the exposed bare metal** to help prevent corrosion.



Figure 3a



Figure 3b

4. Assembling the Front CorkSport Coilovers

a) **Unbolt the top 19mm bolt on the front coilover.** Start by winding down the spring to release pressure on the assembly. The bolt should then come out by hand (shown circled in **Figure 1a** and **Figure 1b**).



Figure 1a

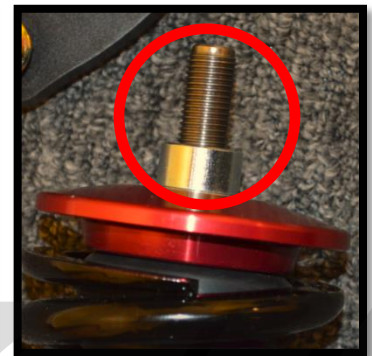


Figure 1b

b) **Adjust camber plate to be at the center adjustment and tighten all 3mm button head screws.** This will allow for an easier installation later. **Green circles** in **Figure 1c**.

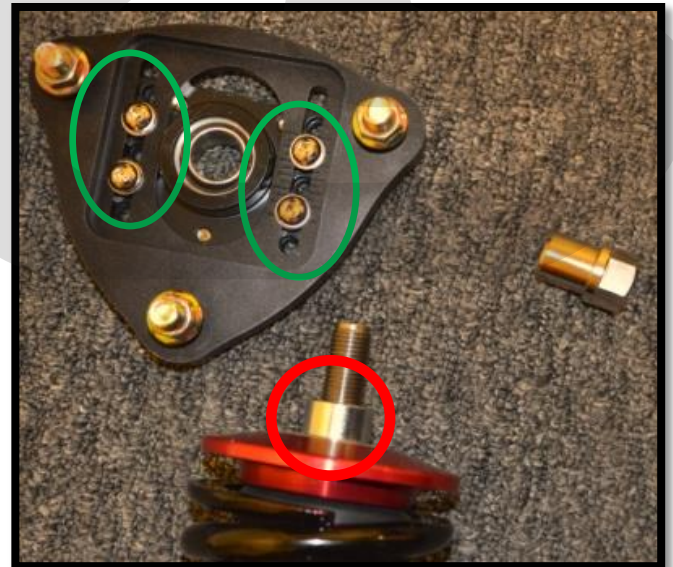


Figure 1c

c) **Place the CorkSport camber plates on the top of the assembly.** Make sure that stainless steel ring is under the camber plate (circled in **Figure 1c**).

d) **Tighten down the bolt removed in step 1a.** Hand tighten the bolt. You will torque it down at the end of step 2. Final assembly is shown in **Figure 1d**.

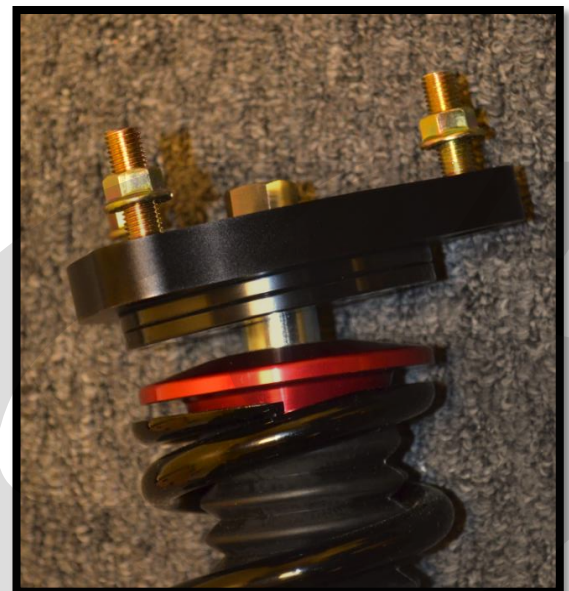


Figure 1d

5. Install the Front CorkSport Coilover Assembly

a) Install the front CorkSport Coilover assembly into the car. Push it up from the bottom being careful not to hit the fender. Verify Driver's side and Passenger's side. Figure 5a shows the passenger's side front coilover.

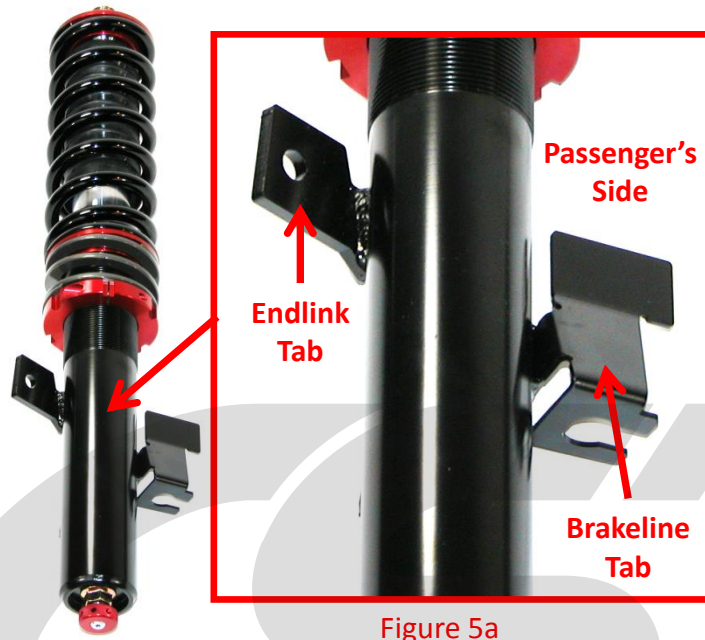


Figure 5a

b) Install the provided 14mm nuts. Shown with red circles in Figure 5b. Torque to 30ft-lbs.

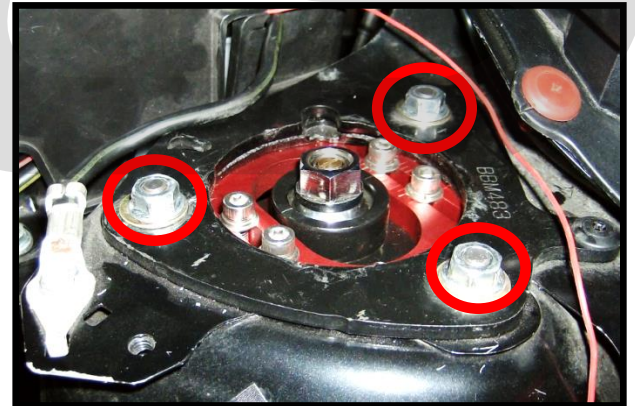


Figure 5b

c) Generously lubricate the strut and knuckle with lithium grease (see Figure 5c).

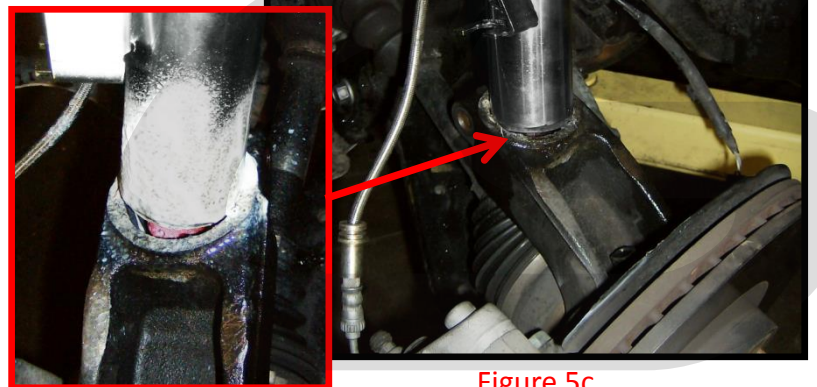


Figure 5c

5. Install the Front CorkSport Coilover Assembly Continued...

- d) **Line up the strut knuckle by hand**, then using a jack from under the lower control arm compress the suspension to get the coilover to seat back into the knuckle (shown in [Figure 5d](#)).



You may need to tap on the knuckle as you are compressing the Suspension to get the strut to fully seat. [Figure 5e](#) shows the strut fully seated. Make sure the alignment tab is seated to the knuckle.

- e) **With the strut fully seated in the knuckle** reinstall the 17mm bolt and tighten to 45ft.lbs. (See [Figure 2d](#))

- f) **Reinstall the brake line** and reinstall the metal shim retainer to secure the brake line in place. (See [Figure 2b](#))

- g) **Plug the ABS sensor back in at the knuckle.** (See [Figure 2d](#))

- h) **Reinstall the endlink** with the ABS sensor line bracket and install the 14mm nut. (See [Figure 2a](#)) Tighten to 27ft-lbs.

- i) **Tighten the top coilover nut** that was hand tightened in step 4d to 50ft.lbs. The nut might spin before it reaches 50ft.lbs. If this is the case, you may have to torque the nut after the car has be lowered of jack stands.

- j) **Repeat Section 5 for the other side of the car.**



Figure 5d

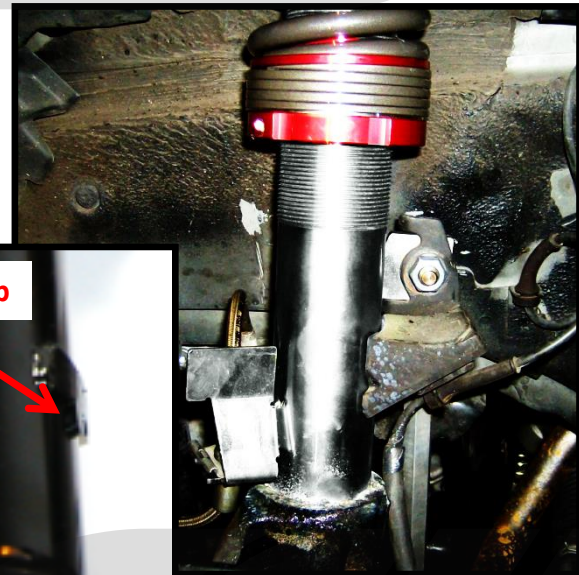


Figure 5e



6. Remove the Rear Factory Shocks and Springs

- a) Remove the lower sway bar end link nuts using the 17mm box wrench and 5mm Allen wrench. **Figure 6a** shows the passenger's side end link.



Figure 6a



- b) Remove the upper sway bar end link nuts using the 14mm box wrench and 5mm Allen wrench. **Figure 6b** shows the passenger's side end link.



Figure 6b

- c) Remove the endlinks. They will be reinstalled later.

6. Remove the Rear Factory Shocks and Springs Continued...

d) **Remove the rear wheels from the vehicle.** Most of the work can be done without removing the wheels but it will be much easier with them off.

e) **Place a jack under the rear control arm** and remove the 17mm bolt that holds the shock to the spindle (see **Figure 6c**).

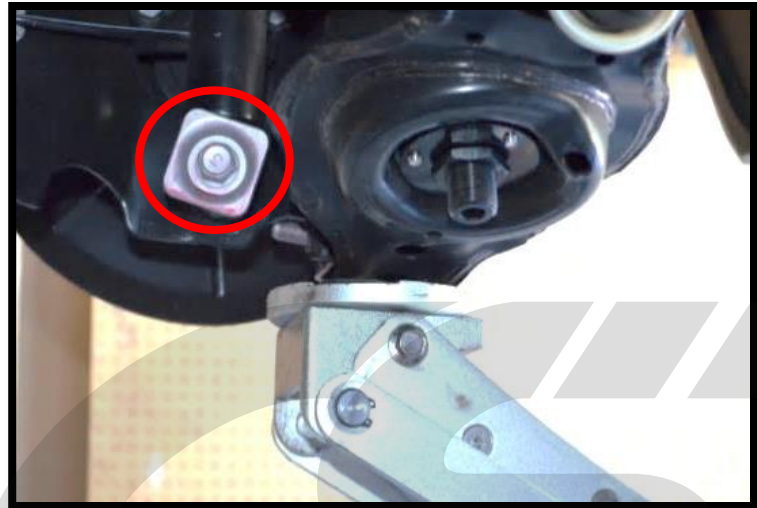


Figure 6c



Failure to hold the lower control arm in place while removing the lower shock bolt will result in the spring releasing and possible injury or damage.

f) **Remove the 17mm bolt that holds the spindle to the control arm** (**Red circle in Figure 6d**) using a 17mm socket and ratcheting wrench

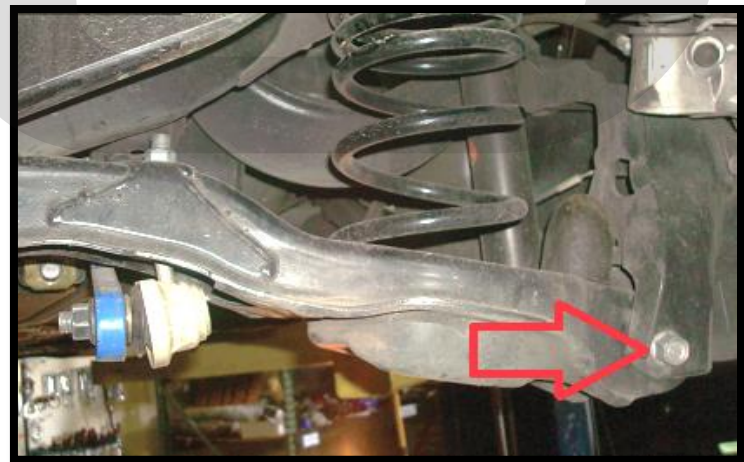


Figure 6d

g) **Free control arm from the spindle** as shown in **Figure 6e**. Slowly lower the jack under the control arm watching for binding.

Factory Spring

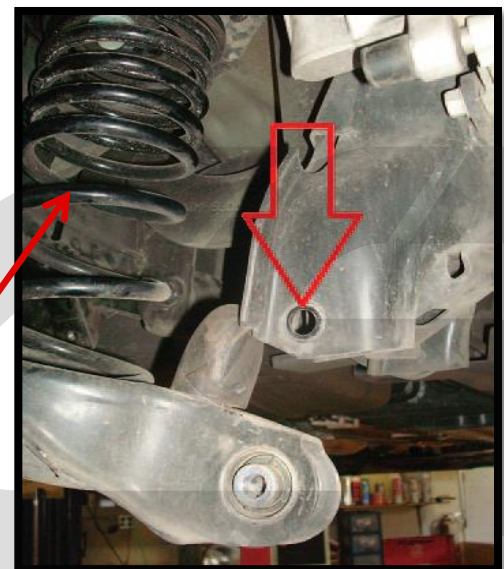


Figure 6e

h) **Remove the factory spring from the vehicle.**

6. Remove the Rear Factory Shocks and Springs Continued...

- i) Remove the two (2) 12mm nuts that hold the shock up in the fender well and remove the shock from the car (Figure 6f).



Figure 6f

- j) Peel back the dust seal on top of the aluminum shock mount, and remove the 12mm nut (Figure 6g). If the strut spins you can use pliers to hold the top and a wrench to loosen the nut.

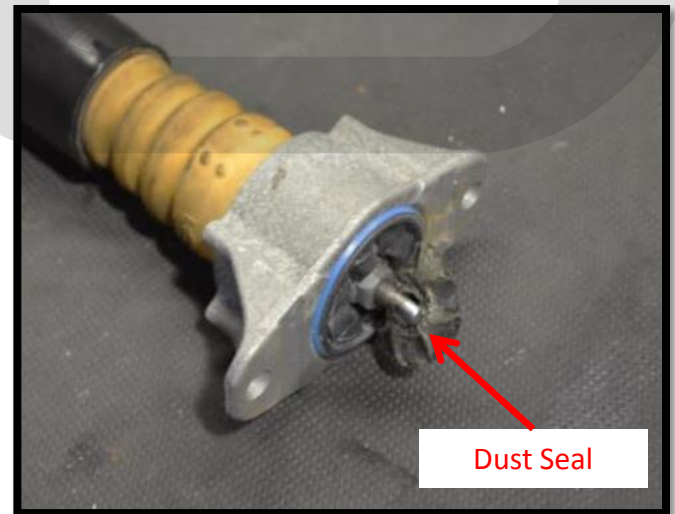


Figure 6g

- k) Remove the aluminum shock mount from the shock, and separate the bump stop and dust boot from the shock mount (Figure 6h).

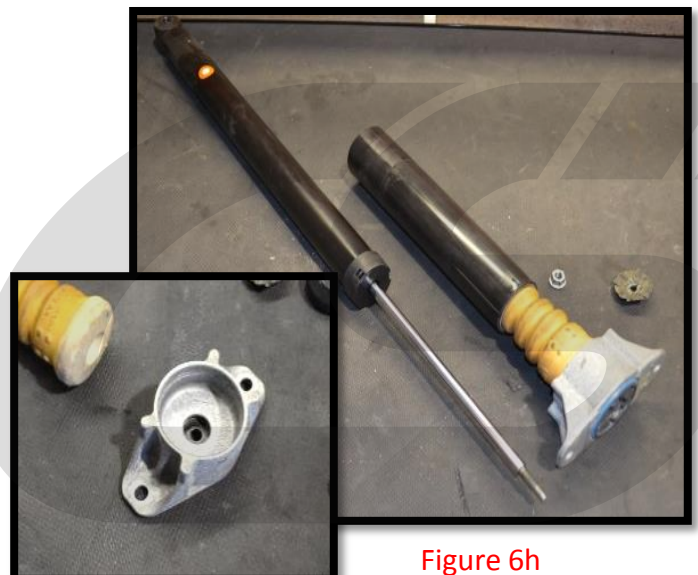


Figure 6h

- l) Repeat Section 6 for the driver's side of car.

7. Install the Rear CorkSport Shocks

a) **Swap the aluminum shock mount over to the CorkSport Adjustable Shock** and fasten with the 12mm nut torqued to 18ft-lbs. (Figure 7a).

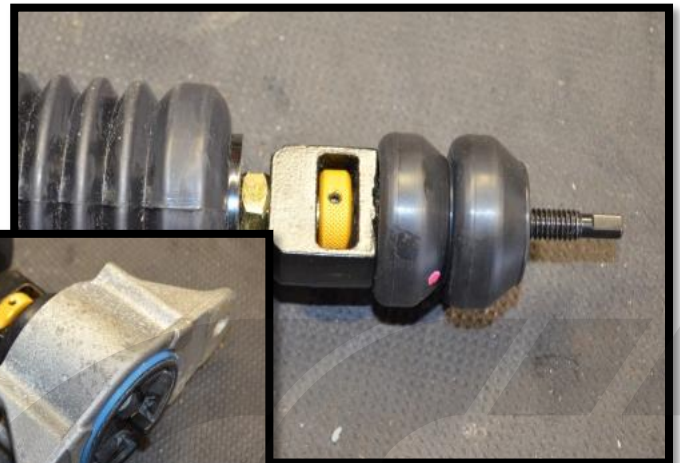


Figure 7a

b) **Transfer the shock back into the car.** Fasten the top shock mount first, with the two 12mm nuts. Torque to 18ft-lbs.



c) **For Gen2 Only: Using the supplied 19mm bolt and washer,** attach the bottom of the shock to the spindle and torque to 50ft-lbs. (Figure 7b). **Gen1 Only: Reuse the stock hardware and torque to 50ft-lbs.**

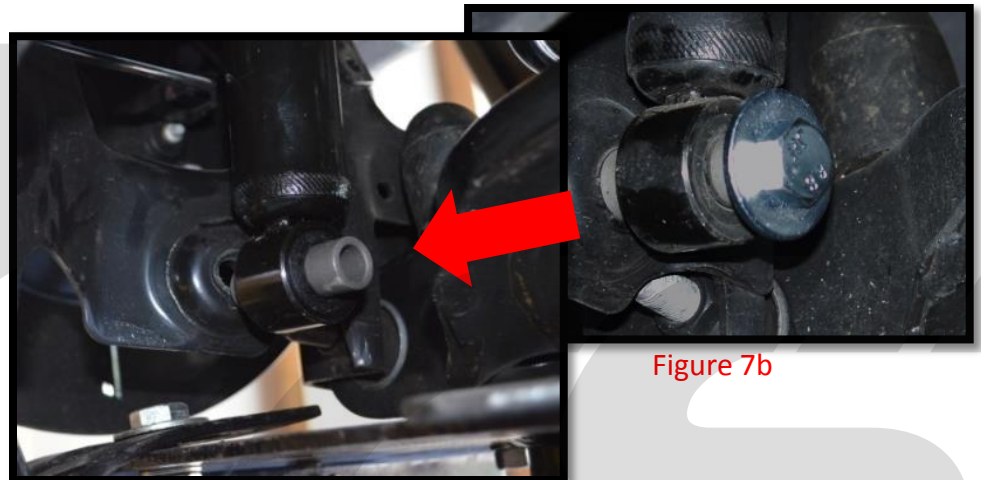


Figure 7b

d) **Repeat Section 7 for the driver's side shock.**

8. Install the Rear CorkSport Coilover Springs

- a) **Disassemble the rear coilover bottom adjusters.**
The assembly is shown in **Figure 8a**.



Make sure the adjuster is not all the way down or the Allen bolts will hit the back side of them.

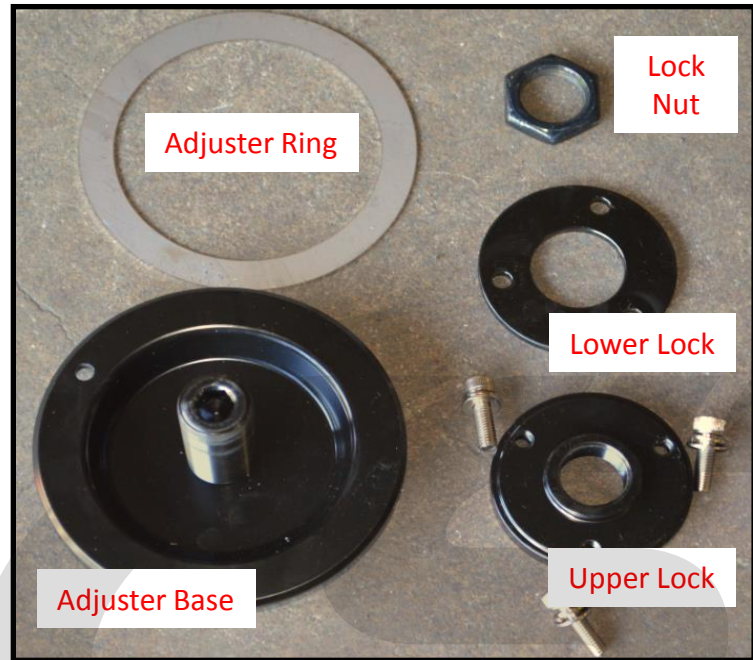


Figure 8a

- b) **Thread the upper lock onto the adjuster base as shown in Figure 8b.** Place the assembly from the top onto the spring perch. **Figure 8b** shows how this will be oriented in the car. You will not be able to see the Upper lock when installed. Shown below in **Figure 8b** to show direction.



Figure 8b

- c) **Place the lower lock from underneath up to the control arm. Install the 3 Allen bolts.** Shown in **Figure 8c**. Tighten Allen bolts to 10ft-lbs.




Make sure the adjuster is not all the way down or the Allen bolts will hit the back side of them.



Figure 8c


8. Install the Rear CorkSport Coilover Springs

- a) **Install the rubber insulator from the factory spring onto the CorkSport Rear Springs.** Place the insulator on the side that is not machined flat as shown in **Figure 8d**.

 Make sure the machined flat side of the spring is up against the adjuster and that the ring is on top of the adjuster as shown in **Figure 8e**.

- b) **Install the spring onto the adjuster.** Make sure the adjuster is almost all the way down. This will make it much easier to install the spring as you jack it up in the next step. (See **Figure 8f**)

- c) **Jack up the control arm using a floor jack and reinstall the 17mm bolt into the control arm and spindle.** Shown with **red circle** in **Figure 8f**.

 This step is not easy if you have not done it before. Take your time and ask for an extra set of hands (one person jacks up the control arm and one person lines up the control arm and bolt).

- d) **Repeat Section 8 for the other side of the car.**



Figure 8d



Figure 8e



Figure 8f

9. Adjusting the Height of your CorkSport Coilovers

- a) The first thing you want to do is measure the cars height. Do this by measuring the ground to fender clearance (shown in [Figure 9a](#)).



Figure 9a

- b) Adjust the rear height of the CorkSport coilovers . You can adjust the rear with a 10mm Allen wrench (shown in [Figure 9b](#)) making sure that the adjustment nut is loose and turn the adjuster until you are at your desired height. Then hand tighten the locking nut down. Finally tighten the 10mm Allen to lock the locking nut in place. Match both sides so they are the same height.

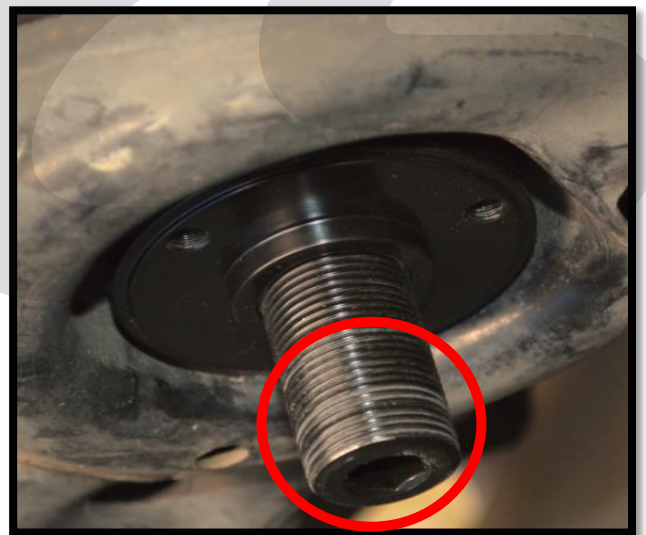


Figure 9b

- c) Again measure the cars height as shown in [Figure 9a](#).

- d) Adjust the height of the front coilover. Start by loosening the Allen bolt that stops the spring perch from spinning. Then adjust down or up the perch using the provided spanner wrench (Allen and Perch shown in [Figure 9c](#)). If you are unsure where to start, adjust the perch up 1.5-2.0" above the last thread. This will be a good starting point for most people.

- e) Again measure the height of the vehicle. If you are satisfied with the height you can adjust the dampening if not then adjust as needed. Match both sides so they are the same height.

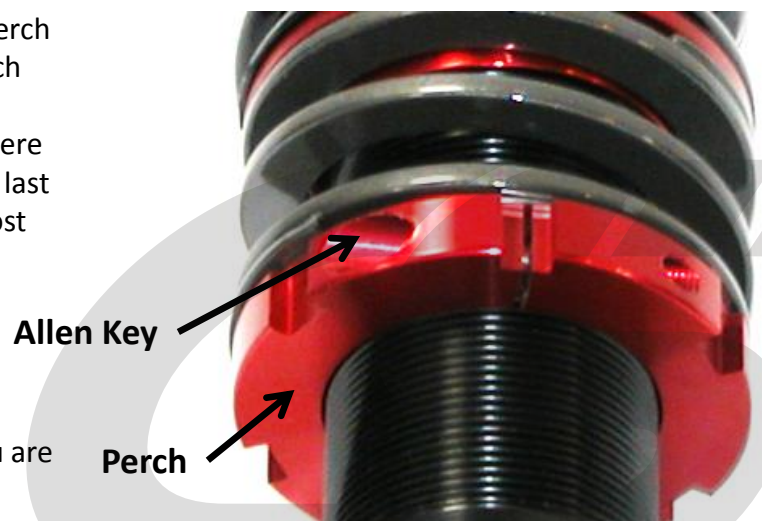


Figure 9c

10. Adjusting the Dampening of your CorkSport Coilovers

- a) **Adjust the dampening in the front to the desired level.** Starting soft and moving up is generally the easiest way to tell difference (front adjuster shown in **Figure 10a**).

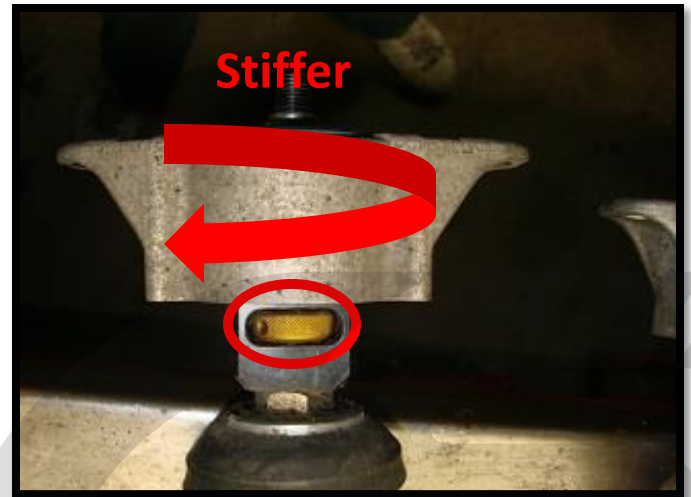


Figure 10a

- b) **Adjust the dampening in the rear to desired levels.** Starting soft and moving up is generally the easiest way to tell difference (rear shown in **Figure 10b**).

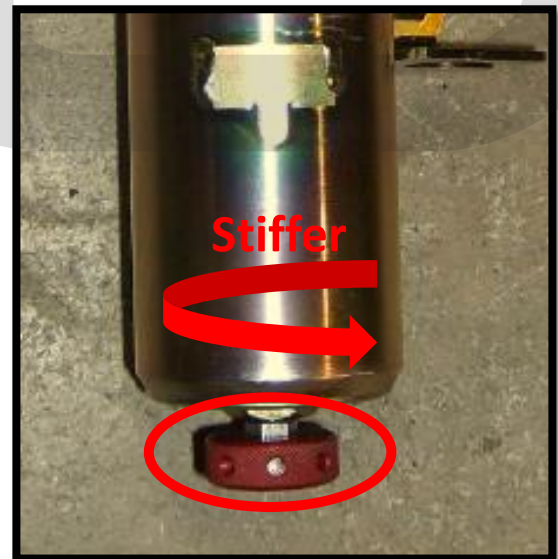





Figure 10b

11. Adjusting the Front Camber of you CorkSport Coilovers

-  If you opted to go without cutting the strut tower you will need to remove the strut in order to access the adjustment bolts each time you want to adjust the camber.
-  It is recommended that you have a alignment done during or shortly after this step to be sure you have your desired camber correct.
-  A simple low cost digital camber gauge (shown in **Figure 9a** on next page) can be built with the use of this how to. <http://www.tomhoppe.com/index.php/2009/02/cheap-digital-camber-gauge/>

11. Adjusting the Front Camber of you CorkSport Coilovers Continued...



Figure 9a

- a) Loosen the four (4) bolts on the top of the camber plate to adjust camber (See Figure 9b).
- b) Raise and support the vehicle on a jack stand.
- c) **Move the strut inward** for more negative camber and move it outward for more positive camber. Figure 7c shows the approximate location for various camber settings. Your installation will vary.
- d) **After camber is set** tighten the (4) Allan head bolts to 13 Ft lbs.

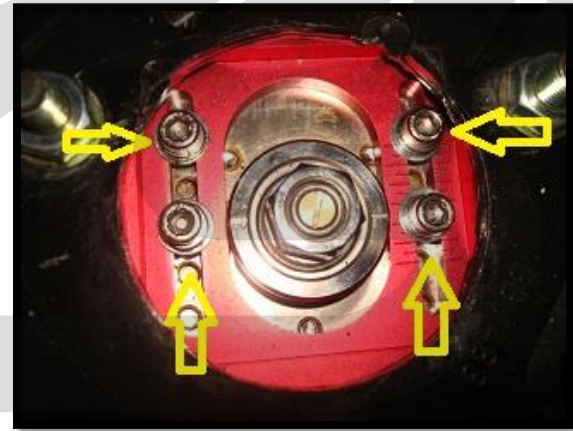


Figure 9b

 Without cutting the strut tower camber adjustment range is somewhat limited.

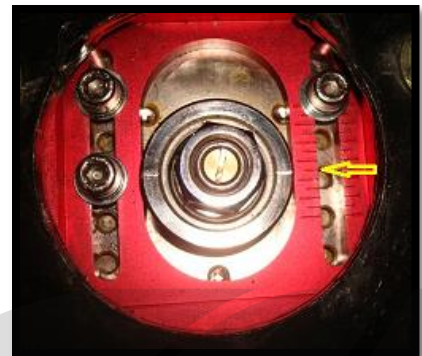
Figure 7c



-3 Camber



-.5 Camber



-1.5/Stock Camber



This completes the installation of your CorkSport Coilovers. Your vehicle will settle slightly over the next few days to achieve the final ride height. CorkSport recommends a wheel/tire alignment check once installation is complete. Failure to do so could result in premature tire wear. Check out our [knowledgebase](#) for additional install information, tips, and helpful video's

What's Next:

[CORKSPORT Mazdaspeed3 Rear Swaybar](#)

Remove the tendency to overpower the front tires under hard cornering and minimize traction robbing body lean with the CorkSport Mazdaspeed 3 Rear Adjustable Sway Bar. Compressing inside suspension, the CorkSport Mazdaspeed 3 Rear Sway Bar effectively increases the spring rate on side of the suspension which is compressed most and its adjustability allows you to fine tune the handling.



[CORKSPORT Mazdaspeed MZR Bypass Valve](#)

Add performance and style while protecting your turbo with the Patent Pending CorkSport Mazdaspeed MZR Bypass Valve. Using an innovative patent pending design utilizing a wave spring, we were able to reduce the spring height of the OEM Bypass Valve by 50%. This size reduction provides the same amount of force, while accelerating the speed of the valve. By increasing speed the Bypass Valve effectively increases the life of your turbo by preventing premature wear since the BPV can safely move at speeds 33% faster than stock or other valves.



[CorkSport Aluminum Oil Catch Can](#)

Enhance the reliability of your engine and improve performance and fuel economy with the CorkSport Oil Catch Can. By adding an oil catch can, you will increase the longevity of your engine by helping keep unclean crankcase vapors and oil out of the engines intake. Made of billet aluminum for strength, the CorkSport Oil Catch Can includes everything you need for a complete install. Don't let your Mazda get contaminated by sediment, crankcase vapors, or unclean oil. With the CorkSport Oil Catch Can you will remove unwanted debris that would normally contaminate the intake tract. This allows for cleaner air entering the engine, lower detonation rates and increases longevity.

