

CorkSport Mazdaspeed 3 / Mazda 3 Adjustable Struts

2007-2013 Mazdaspeed 3 and 2004-2013 Mazda 3



Thank you for purchasing the CorkSport Mazdaspeed 3 and Mazda 3 Adjustable Struts and Shocks: With a front 20 way & rear 15 way adjustability you can customize your ride to your driving style and limit body roll to make your car more predictable and stable even without the addition of lowering springs. The variable tuning range on these struts and shocks makes them great for daily driving, autocross, and minimal track use.

Let us know your feedback by submitting a review at:

<http://www.corksport.com/corksport-mazdaspeed-3-mazda-3-adjustable-struts-and-shocks.html>

Pre-Installation Notes:



You will be removing the front 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-3-290-10

Time Est: 2-3 hours

Wrench Rating: 3/5



Tooling List

Floor Jack & Jackstands
3/8" and 1/2" Drive Ratchet
Pliers
Flat Head Screwdriver
Penetrating Fluid
Torque Wrench
Spring Compressor
5mm Allen Wrench
6mm Allen Wrench
Hammer, Mallet (2lb or Similar)



Parts List

12mm Deep Socket
14mm Deep Socket
17mm Deep Socket
21mm Deep Socket
12mm Wrench
14mm Wrench
17mm Wrench
Grease
2x CS Front adjustable struts
2x CS Rear adjustable shocks
2x 19mm bolts w/ washers
2x 19mm hex nuts
2x 12mm lock washers

Need Help With Your Installation?
Call (360) 260-CORK

Checklist

This is an overview of each step in the build. You can use this as a reference and a checklist as you button up the work on your car


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

Use a floor jack and jackstands to gain access to the underside 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. Install the Front CorkSport Adjustable Struts

- a) Remove the front passenger wheel.
 - b) Remove the 14mm nut (shown in Figure 2b by the green arrow) fastening the front end link to the factory strut.
 - c) Free the brake line (shown by the red arrow in Figure 2c).
 - d) Remove the 17mm lower strut pinch bolt using a 17mm socket and ratcheting wrench (shown in Figure 2d by the red arrow).
 - e) Spray penetrating fluid where the strut attaches to the knuckle (as shown in Figure 2e by the red circle).
 - f) Using the 2lb mallet (or similar) pound the knuckle until it comes free from the shock upright.
 - g) Remove the three (3) 14mm upper strut mount bolts fastening the strut to the strut tower (shown by the red circles in Figure 2g).
 - h) Remove the strut assembly from the vehicle.
 - i) Use a spring compression tool to compress the spring (as shown in Figure 2h).
 - j) Remove the 17mm nut (red arrow in Figure 2i) that fastens the upper strut mount to the strut.
 - k) Remove the upper strut mount and boot as one unit (shown in Figures 2j & 2k).
 - l) Set the Front Spring on the new CorkSport Adjustable Strut (shown in Figure 2h).
 - m) Line up the upper strut mount tabs with the lowest bracket on the strut (red lines in Figure 2k). Tighten the spring compressor.
 - n) Install the supplied 19mm nut and 12mm lock washer and tighten to 43ft lbs.
 - o) Remove the spring compressor (now ready to reinstall).
-  Be careful when removing the spring compressor. Make sure to double check all bolts before releasing, and release slowly. Failure to follow directions may result in possible injury or damage.
- p) Reinstall the strut and tighten to 30 ft-lbs.
 - q) Lubricate the strut and knuckle with penetrating fluid (as shown in Figure 2m).

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

- r) Line up the strut and knuckle by hand. Then with your floor jack, slowly raise the knuckle up and push the strut into the knuckle.
- s) Install the 17mm bolt and nut to secure the knuckle to the strut (Figure 2d). Tighten to 45ft. lbs.
- t) Re-secure the brake line using the shim (as shown in Figure 2c) bump side up.
- u) Attach the end link and reinstall the 14mm nut (shown in Figure 2b). Tighten to 27ft lbs.
- v) Reinstall the wheel and lug nuts.
- w) Repeat steps 2a-2v for the driver's side adjustable strut.

3. Install the Rear CorkSport Adjustable Shocks

- a) Remove the passenger's side rear wheel from the vehicle.
- b) Place a jack under the rear control arm to keep the spring retained in the car, and remove the 17mm bolt that holds the shock to the spindle (see Figure 3a).
 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.
- c) Remove the two (2) 12mm nuts that hold the shock up in the fender well and remove the shock from the car (Figure 3b).
- d) Peel back the dust seal on top of the aluminum shock mount, and remove the 12mm nut (Figure 3c).
- e) Remove the shock mount from the shock. (Figure 3d)
- f) Swap the aluminum shock mount over to the CorkSport Adjustable Shock and fasten with the 12mm nut to 18ft lbs. (Figure 3e).
- g) Transfer the shock back into the car. Fasten the top shock mount first, with the two 12mm nuts. Torque to 18ft lbs.
- h) 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 3f). Gen1 Only: Reuse the stock hardware and torque to 50ft-lbs.
- i) Reinstall the wheel and lug nuts. Tighten lug nuts to factory specs (this may vary based upon wheel manufacturer).
- j) Repeat steps 3a-3h for the driver's side shock.

4. Adjusting the CorkSport Struts

- a) Adjust the damping in the front to desired level (front adjuster shown in Figure 4a).
- b) Adjust the damping in the rear to desired level. (Gold colored rear adjuster shown in Figure 4b)

 This completes the installation of your CorkSport Adjustable Struts. 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.**

Detailed Instructions

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

Use a floor jack and jackstands to gain access to the underside 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. Install the Front CorkSport Adjustable Struts

- 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). Your front wheel well should now look like **Figure 2a** to the right.
- Start with the passenger side** of the vehicle and remove the one (1) 14mm nut (shown in **Figure 2b** 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.
- 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 2c**).
- 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 2a



Figure 2b

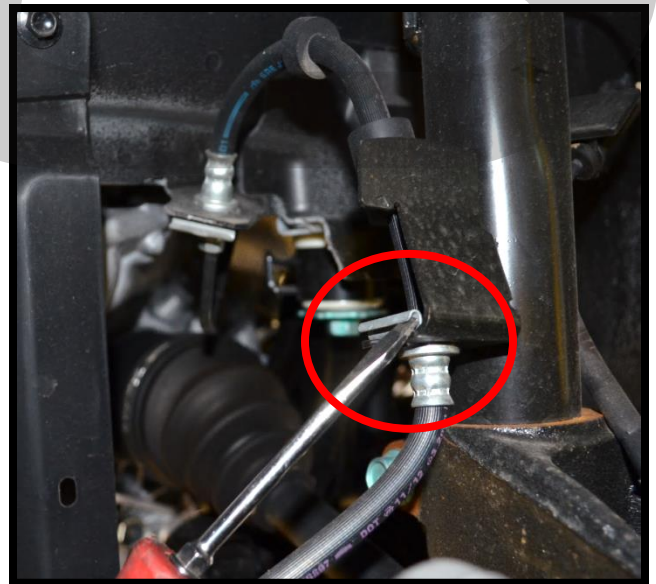


Figure 2c



Figure 2d



Figure 2e

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

2. Install the Front CorkSport Adjustable Struts (continued)

- f) 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**.



Please check our knowledgebase online for additional video on how to complete this step

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



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 strut assembly from the vehicle.

- i) Use a spring compression tool to compress the spring (evenly on both sides) until it is no longer tight against the upper mount as shown in **Figure 2h**.
- j) Remove the 17mm nut (red arrow in **Figure 2h**) that holds the upper strut mount to the strut. If the stud spins, use a 6mm Allen wrench to hold the stud in place.
- k) Remove the upper strut mount and boot as one unit The aim is to free the boot from the yellow part of the strut. Once that is complete, the assembly will come out together (shown in **Figures 2i & 2j**).

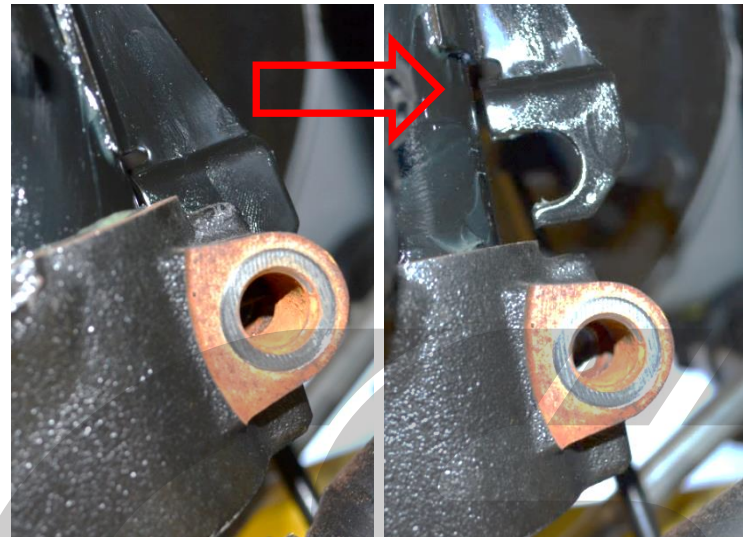


Figure 2f



Figure 2g



Figure 2i



Figure 2j

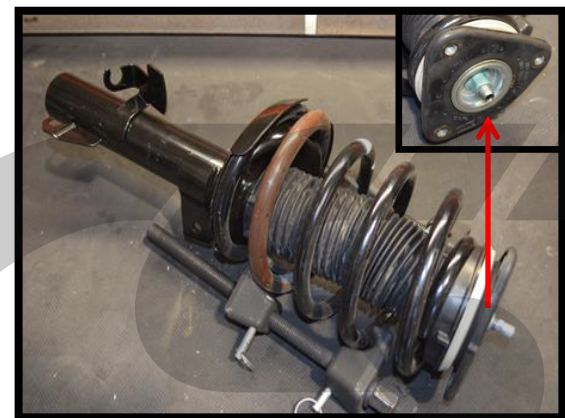


Figure 2h

- l) Set the Front Spring on the new CorkSport Adjustable Strut. Reinstall the upper mount & boot assembly (shown in **Figure 2h**).

2. Install the Front CorkSport Adjustable Struts (continued)

m) Line up the upper strut mount tabs with the lowest bracket on the strut (the two tabs are shown in [Figure 2k](#) circled and aligned to one another). Make sure the bottom of the spring (biggest coil) is seated fully in its perch as shown circled in [Figure 2l](#).

n) Install the supplied 19mm nut and 12mm lock washer and tighten to 43ft-lbs. ([Figure 2h](#)).

o) Remove the spring compressor (now ready to reinstall).



Be careful when removing the spring compressor. Make sure to double check all bolts before releasing, and release slowly. Failure to follow directions may result in possible injury or damage.

p) Reinstall the strut and hand tighten the three (3) 14mm strut mount bolts. Using a torque wrench and 14mm socket, tighten bolts to 30ft-lbs. ([Figure 2g](#)).

q) Lubricate the strut and knuckle with penetrating fluid as shown in [Figure 2m](#) to the right.

r) Line up the strut and knuckle by hand as best you can. Then with your floor jack, slowly raise the knuckle up and push the strut into the knuckle.



This process can be rather difficult if you have not done it before. Take your time and make sure the two parts are lined up correctly. Use [Figure 2f](#) as a reference to align the tab.

s) Install the 17mm pinch bolt and nut to secure the knuckle to the strut ([Figure 2d](#)). Tighten to 45ft-lbs.



The bolt will not install unless the strut is properly inserted into the knuckle.

t) Re-secure the brake line using the shim as shown in [Figure 2c](#) (bump side up).

u) Attach the end link to the strut and reinstall the 14mm nut (shown in [Figure 2b](#)). Tighten to 27ft-lbs.

v) Reinstall the wheel and lug nuts. Tighten lug nuts to factory specs (this may vary based upon wheel manufacturer).

w) Repeat steps 2a-2v for the driver's side adjustable strut.

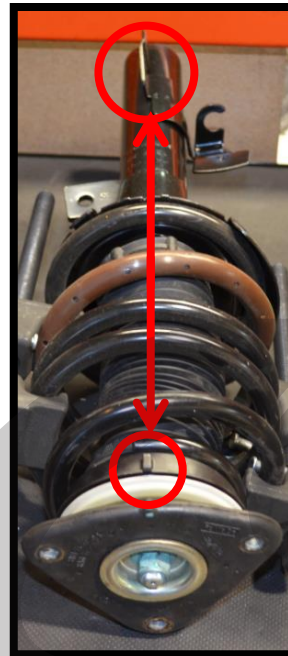


Figure 2k

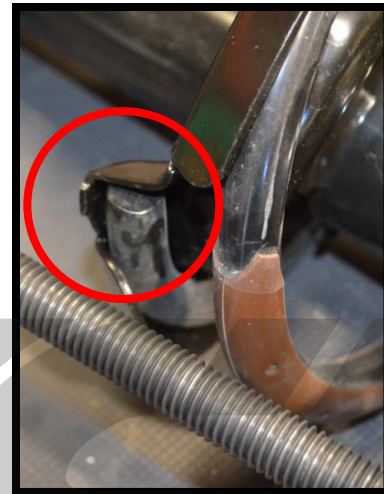


Figure 2l



Figure 2m

3. Install the Rear CorkSport Adjustable Shocks

- a) Remove the passenger's side rear wheel from the vehicle. Use the same method as you did for the front wheels.
- b) Place a jack under the rear control arm and remove the 17mm bolt that holds the shock to the spindle (see Figure 3a).

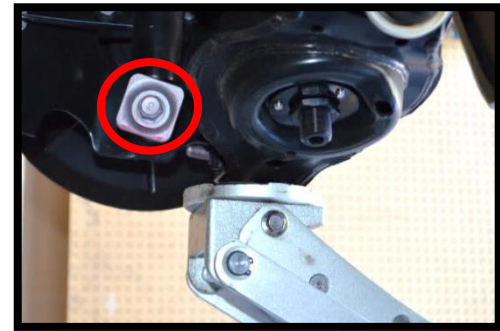


Figure 3a



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.

- c) Remove the two (2) 12mm nuts that hold the shock up in the fender well and remove the shock from the car (Figure 3b).

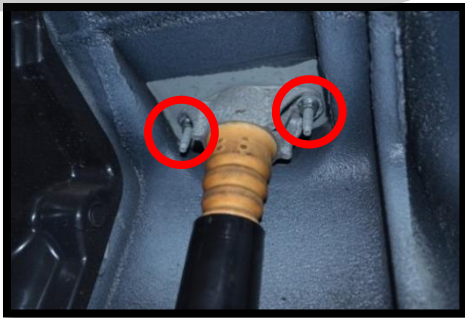


Figure 3b

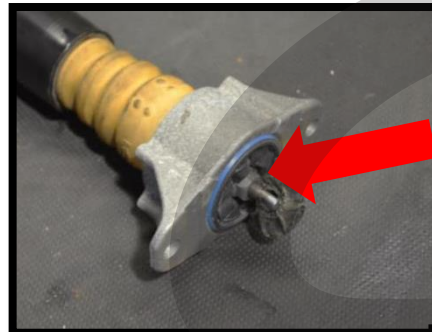


Figure 3c

- d) Peel back the dust seal on top of the aluminum shock mount, and remove the 12mm nut (Figure 3c). If the strut spins you can use pliers to hold the top and a wrench to loosen the nut.



Figure 3d

- e) Remove the aluminum shock mount from the shock, and separate the bump stop and dust boot from the shock mount (Figure 3d).

- f) Swap the aluminum shock mount over to the CorkSport Adjustable Shock and fasten with the 12mm nut torqued to 18ft-lbs. (Figure 3e).

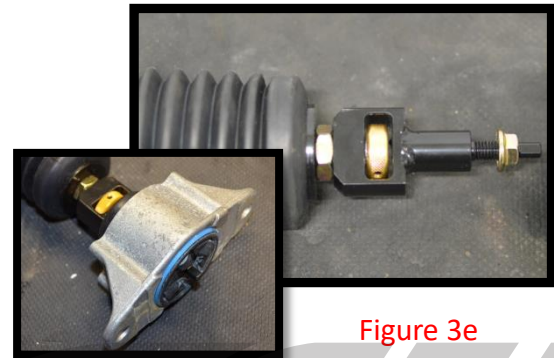


Figure 3e

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

- h) 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 3f). Gen1 Only: Reuse the stock hardware and torque to 50ft-lbs.

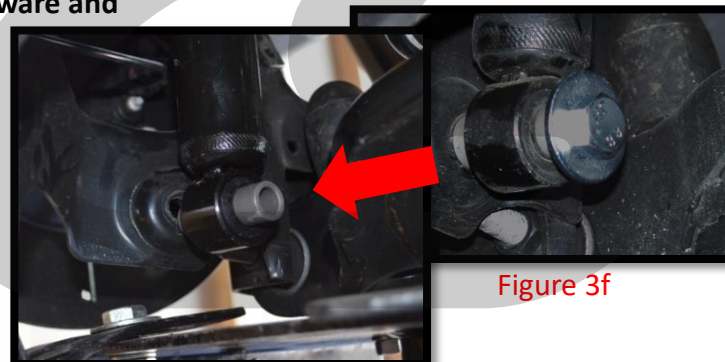


Figure 3f

- i) Reinstall the wheel and lug nuts. Tighten lug nuts to factory specs (this may vary based upon wheel manufacturer).

- j) Repeat steps 3a-3i for the driver's side shock.

4. Adjusting the CorkSport Struts

- a) **Adjust the damping in the front to desired level.**
Starting soft and moving up is generally the easiest way to tell difference (front adjuster shown in **Figure 4a**). The first and lowest setting is closest to the factory damping. Most aftermarket springs will perform better at the setting 8-10 clicks from the lowest setting. The higher settings are appropriate for track/autocross or more spirited driving conditions.
- b) **Adjust the damping in the rear to desired level.**
Starting soft and moving up is generally the easiest way to tell difference here as well (Gold colored rear adjuster shown in **Figure 4b**). The first setting is closest to the factory damping. Most aftermarket springs will perform better at the setting 7-9 clicks from the lowest setting. The higher settings are appropriate for track/autocross or more spirited driving conditions.



Figure 4a

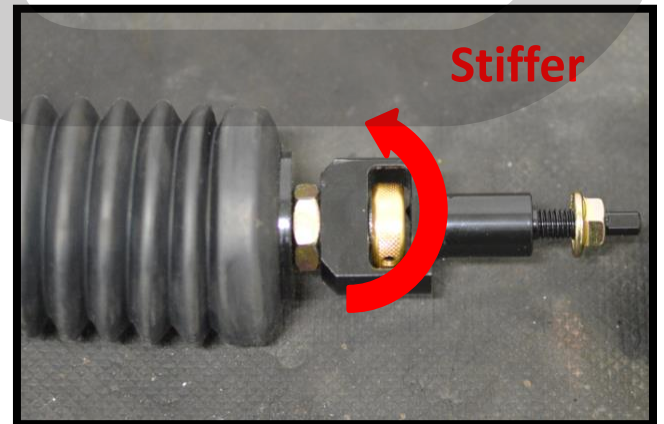


Figure 4b



This completes the installation of your CorkSport Adjustable Struts and Shocks. 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.**

What's Next:



Stage 2 Rear Motor Mount

The CorkSport Stage 2 Rear Motor Mount is the latest and greatest design for the car enthusiast. The “thinking-outside-the-box” design takes a new look of the RMM design for a no compromise goal of style, performance, and refinement. The CorkSport RMM significantly reduces wheel hop, torque steer, and improves throttle response by securely controlling your engine’s movement. The new design achieves this with a minimal increase in engine noise, vibration and harshness (NVH); seriously it’s impressive how smooth the CorkSport Stage 2 RMM is.