**Rear Shocks Replacement**

Shock absorbers and springs are the suspension components that maintain the mass of the vehicle suspended above the rolling gear at the wheels. Springs hold the weight up and shock absorbers dampen suspension movements so that passengers inside the vehicle experience a smooth ride.

The BMW E46 is equipped with separate shocks absorbers and coil spring in the rear. For the front suspension, BMW utilizes a combined shock absorber and coil spring assembly referred to as a MacPherson strut.

When shock absorbers begin to wear, ride quality and vehicle handling suffer. You may notice your vehicle is not smooth over bumps or feels soft when cornering. This could be an indicator of worn shock absorbers. To check the shock absorbers, push down on the corner of your vehicle (the corner you want to diagnose). When you give the corner one good push down, it should bounce up, then slightly down and stop. If it continues to bounce, the shock absorber is worn out. You have the choice to replace your shock absorbers with a factory spec set or a performance set. Performance shock absorbers can greatly improve the handling of your E46. You can also replace all four coil springs on your E46 with performance springs, giving it a slightly lower stance and stiffer handling.

It's important to replace your shock absorbers as a pair in order to avoid an uneven suspension.  I suggest replacing the upper shock mounts as well. The shock mounts tend to wear and fall apart over time. It's better to replace them while you are servicing the shocks than to have to go back later. I am going to describe how to replace your E46 rear shocks with the rear tires on; however you can remove them if you want. I personally like to leave the wheels on the vehicle because when I am reinstalling the shock and have to jack the suspension; it is nice have the tire to use as a jacking point surface. When replacing, do one side at a time. It's helpful to have an assembled shock to use as a reference point if needed during reassembly.

Keep in mind that when your car was serviced before, parts may have been replaced with different size fasteners used in the replacement. The sizes of the nuts and bolts we give may be different from what you have, so be prepared with different size sockets and wrenches.

Protect your eyes, hands and body from fluids, dust and debris while working on your vehicle. If you are working with the electrical system, disconnect the battery before beginning. Always catch fluids in appropriate containers and properly dispose of any fluid waste. Recycle parts, packaging and fluids when possible. Do not work on your vehicle if you feel the task is beyond your ability.

Vehicle models change and evolve, as they grow older, so the vehicle shown in our illustrations may vary slightly from yours. If something seems different, let us know and share your info to help other users. Do you have questions or want to add to the article? Leave a comment below. When leaving a comment, please leave your vehicle information.

Start by loosening the rear wheel studs, but do not remove (only loosen wheel studs if you plan to remove rear wheel when replacing rear shocks).

Raise the rear of the vehicle and support it safely on jack stands. [See our Pelican Parts technical article on Jacking Up Your BMW.](http://www.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/01-BASICS-Jacking_Up_Your_BMW/01-BASICS-Jacking_Up_Your_BMW.htm" \t ")When raising your vehicle, try and get it as high as possible since you will have to be able to fit a hydraulic jack under the rear trailing arm.

Remove the rear wheels, or leave them on if you prefer to jack on the tire.

**Sedan:** While working in the trunk, remove the rear trim liner clips and pull the trim liner away from the body (steps highlighted below).

**Convertible:** Open the convertible top storage compartment to access the upper shock mount fasteners.

**Wagon:** Remove the trim panel next to the rear seat backrests to access the upper shock mount fasteners.

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| [Start in the trunk and locate the four interior trim clips (green arrows).](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic01.jpg)  **Figure 1** | Start in the trunk and locate the four interior trim clips (green arrows).  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic01.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic01.jpg) |
| [Remove the side trim clip by prying out the center rivet and pulling the clip out of the body.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic02.jpg)  **Figure 2** | Remove the side trim clip by prying out the center rivet and pulling the clip out of the body. You can use an interior trim panel tool or a small flathead screwdriver with needle nose pliers (green arrows).  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic02.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic02.jpg) |
| [Next you will have to remove trim clips (green arrows) at the seatback area in trunk.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic03.jpg)  **Figure 3** | Next you will have to remove trim clips (green arrows) at the seatback area in trunk. The center clip (yellow arrow) pulls out later when you pull carpet away from the body.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic03.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic03.jpg) |
| [Using a flathead screwdriver, remove the trim clips by them rotating 90 degrees counterclockwise and pulling them away from the body (yellow arrows).](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic04.jpg)  **Figure 4** | Using a flathead screwdriver, remove the trim clips by them rotating 90 degrees counterclockwise and pulling them away from the body (yellow arrows).  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic04.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic04.jpg) |
| [Once all trim clips have been removed, pull the carpet away from the body, start where the carpet at the trunk side meets the carpet at the seatback.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic05.jpg)  **Figure 5** | Once all trim clips have been removed, pull the carpet away from the body, start where the carpet at the trunk side meets the carpet at the seatback. Pull it away until you see the shock tower sound insulation (green arrow). Once you have access to shock tower sound insulation, you have to open it to gain access to shock mount nuts. The insulation is designed to open and has a perforated area that can be pulled away (green arrow).  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic05.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic05.jpg) |
| [Most of the time when attempting to open the sound insulation it tears or breaks - the sound insulation becomes brittle and hard over time.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic06.jpg)  **Figure 6** | Most of the time when attempting to open the sound insulation it tears or breaks - the sound insulation becomes brittle and hard over time. If it breaks you can replace it or deal with the minimal extra road noise from the lacking sound insulation. In this photo, you can see how the sound insulation tore and is not reusable.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic06.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic06.jpg) |
| [Remove two 13mm shock mount fasteners (green arrows).](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic07.jpg)  **Figure 7** | Remove two 13mm shock mount fasteners (green arrows).  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic07.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic07.jpg) |
| [Next place the hydraulic jack under the trailing arm or under rear tire (green arrow).](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic08.jpg)  **Figure 8** | Next place the hydraulic jack under the trailing arm or under rear tire (green arrow).  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic08.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic08.jpg) |
| [Remove rear shock 18mm mounting fastener (green arrow) and carefully lower shock out of vehicle.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic9.jpg)  **Figure 9** | Remove rear shock 18mm mounting fastener (green arrow) and carefully lower shock out of vehicle.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic9.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic9.jpg) |
| [Using a 6mm wrench and a 16mm wrench, remove the shock mount from the shock.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic10.jpg)  **Figure 10** | Using a 6mm wrench and a 16mm wrench, remove the shock mount from the shock. If you are replacing the shock mount, still do this part. You need the small parts to go with new shock and shock mount. Pay close attention to the order and orientation of the washers.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic10.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic10.jpg) |
| [First, install the shock bump stop (green arrow) onto the new shock.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic11.jpg)  **Figure 11** | First, install the shock bump stop (green arrow) onto the new shock.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic11.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic11.jpg) |
| [Next, install the small washer (green arrow) onto the shock shaft.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic12.jpg)  **Figure 12** | Next, install the small washer (green arrow) onto the shock shaft.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic12.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic12.jpg) |
| [Next, install the large washer (green arrow) onto the shock shaft.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic13.jpg)  **Figure 13** | Next, install the large washer (green arrow) onto the shock shaft.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic13.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic13.jpg) |
| [Next, install the shock mount and the large washer (green arrow) onto the shock shaft.](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_small/pic14.jpg)  **Figure 14** | Next, install the shock mount and the large washer (green arrow) onto the shock shaft. Pay attention to the shock mount top washer orientation. Be sure the convex points toward the shock mount. Then install the new shock mount nut and tighten.  [Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_med/pic14.jpg) | [Extra-Large Image](https://cdn4.pelicanparts.com/BMW/techarticles/BMW-3-Series-E46/47-SUSPEN-Replacing_Your_Rear_Shocks/images_large/pic14.jpg) |
| Now you can install the shock back into the vehicle. Once you get the upper mount studs aligned, install the lower fastener. Make sure the rectangular washer is between the shock bushing and the mounting bolt (do not tighten bolt yet). Install the upper shock mount fasteners and tighten. Install the rear wheel and lower the vehicle to ground. Tighten the lower shock fastener with the vehicle suspension fully compressed. Reinstall trunk trim carpet and test drive the vehicle. Then recheck the lower shock fasteners tightening torque. | |