



IMPORTANT! READ THIS FIRST!

Installation of shock absorbers or other suspension components requires special tools and expert knowledge. Accordingly, installation of all BILSTEIN products must be performed by a professional automotive suspension technician.

When replacing other brands, BILSTEIN shock absorbers or other suspension components should always be installed as a set. All BILSTEIN products must only be used for the specific, intended application as indicated in the application guide. **Any use of any BILSTEIN product other than for its intended use may result in serious bodily injury or death.**

Always use a chassis hoist for the installation of BILSTEIN products and make certain that the raised vehicle is securely attached to the hoist and/or supported to prevent the vehicle from slipping, falling, or moving during the installation process.

If you install any BILSTEIN product without the necessary special tools, expertise, and chassis hoist, you may subject yourself to the risk of serious bodily injury or death.

BILSTEIN shock absorbers are gas-filled and are highly pressurized.

- Never place any BILSTEIN shock absorbers in a vise or use a clamp on any BILSTEIN shock absorber.
- Never apply heat near any BILSTEIN shock absorber.
- Never attempt to open or repair any BILSTEIN product, in order to prevent **serious bodily injury or death.**

Any attempt to misuse, misapply, modify, or tamper with any BILSTEIN suspension product voids any warranty and **may result in serious bodily injury or death.**

While installing any BILSTEIN product:

- Do not use impact tools for loosening or tightening fasteners, because this may destroy the screw threads.
- Self-locking fasteners must only be used **once!**
- Reuse original equipment components only if they are in good condition, otherwise replace them with new components.
- Never remove the slight film of oil on the shock absorber piston rod and seal.
- All mounting fasteners for shock absorbers and other suspension components must be securely tightened before tension is placed on the suspension system, unless otherwise specified in the manufacturer's service manual or in this instruction.

After installing any BILSTEIN product:

- The suspension caster and camber must be checked and/or adjusted to comply with the vehicle manufacturer's specifications.
- The (load dependent) brake compensator and the anti-lock brake system must be checked and/or reset to comply with the vehicle manufacturer's specifications.
- The headlight aim must be checked and adjusted. Or, if applicable, adaptive headlights must be checked and recalibrated to comply with the vehicle manufacturer's specifications.
- If applicable, any/all Advanced Driver Assistance Systems (ADAS) must be checked and recalibrated to comply with the vehicle manufacturer's specifications.

CAUTION for COILOVER TYPE SUSPENSIONS!!!

If disassembling a coilover type suspension, refer to the vehicle manufacturer's service manual for proper procedures. The coil spring is preloaded and must be compressed with a spring compressor to release load before the upper mount is disassembled. Failure to follow the vehicle manufacturer's procedures may cause serious injury or death, and may damage the vehicle.

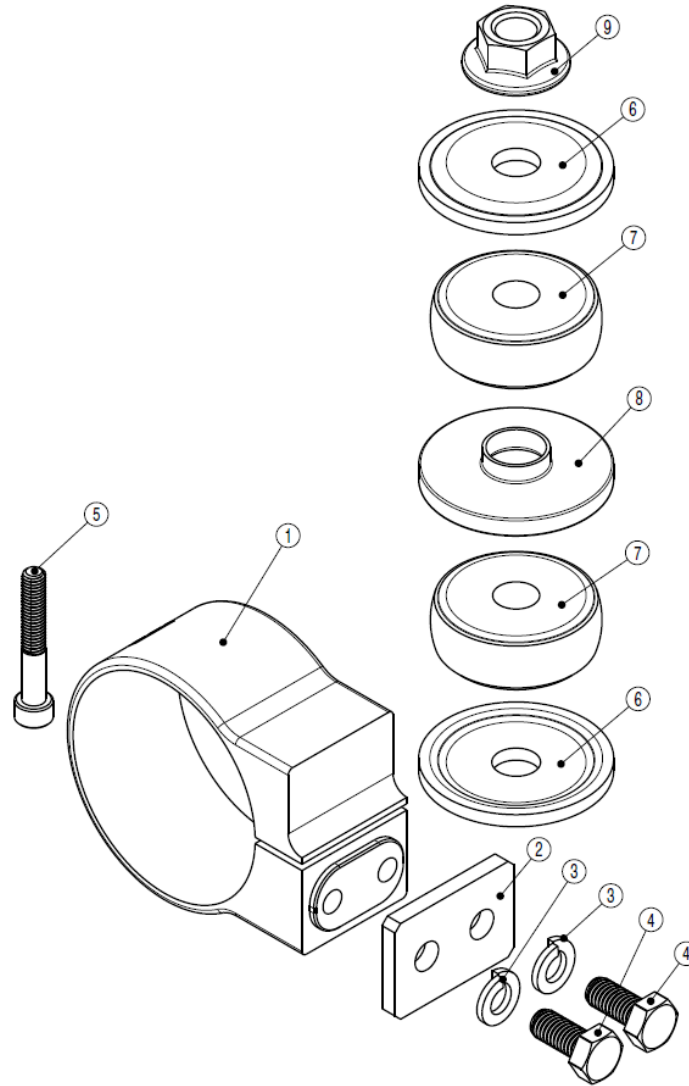
IMPORTANT!!!

This BILSTEIN product may or may not be compatible with non-BILSTEIN aftermarket products and/or vehicle modifications. It is the responsibility of the professional automotive suspension technician performing the installation to identify any non-OEM components and/or modifications on the vehicle that may interact with the suspension system. These must be evaluated for any potential physical static or dynamic interference with and/or effect on the function of this BILSTEIN product.

E-WM05-0000029 MOUNTING INSTRUCTION



This instruction applies to both the left and right rear shocks (P/N 25-294071). The step by step procedure is shown with images of the right side only. Skip to page 9 and 10 to see the final result for both sides. A bill of materials of the included mounting parts is shown below.



Bill of Materials		
Item #	Description	Qty.
1	Reservoir Bracket, 60mm	1
2	Mount Plate	1
3	Stainless Steel Split Washer, 8mm	2
4	Stainless Steel Cap Screw, M8x1.25, L=18mm, 13mm Hex Head	2
5	Stainless Steel Socket Head Cap Screw, M6x1, L=40mm, 5mm Hex	1
6	Retainer Washer	2
7	Cushion	2
8	Alignment Washer	1
9	Flange Nut, M12x1.25, 18mm Hex Head	1

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IMPORTANT!!!

This BILSTEIN product is NOT compatible with OE wheel backspacing. You must use wheels with a maximum of 4.75" backspacing. The largest tire size that will clear with a 4.75" backspaced wheel is a 285 width. Final installation must be evaluated for any potential physical static or dynamic interference between the shock body, hose, or reservoir and the chassis shock tower/tire.

B8 8100 shock installation procedure:

- A. Remove the existing shock from the vehicle following all procedures in the vehicle manufacturer's service manual. Inspect the OE lower shock bolt, washer, and flange nut for any damage or excessive wear. If these components are in good condition, save them for reuse later. If damage or excessive wear is present in any of these components, purchase the required replacement OE components.



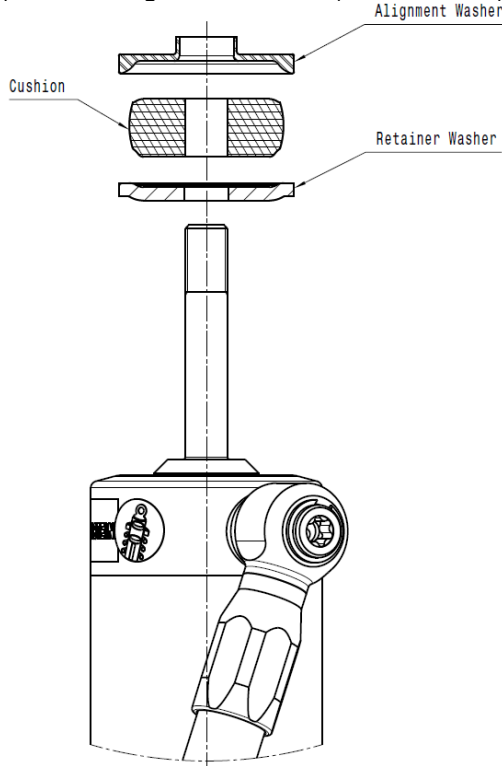
- B. Carefully slide the reservoir bracket (BOM item #1) over the reservoir as shown below. Apply nonpermanent thread locker to the M6x1 socket head cap screw (BOM item #5) and slide it through the counter-bored hole in the reservoir bracket. Thread the socket head cap screw in enough so it won't fall out, but loose enough so you can still slide the reservoir in the bracket for adjustment.



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- C. Slide one of the retaining washers (BOM item #6) concave side up, one of the cushions (BOM item #7) and the alignment washer (BOM item #8) over the threaded pin on the shock body.



- D. Slide the threaded pin on the shock body through the chassis mount and carefully center the alignment washer (BOM item #8) in the mount hole. Slide the second cushion (BOM item #7) over the threaded pin, followed by the retainer washer concave side down (BOM item #6). Thread the M12x1.25 flange nut (BOM item #9) onto the threaded pin on the shock body. Using an open end or box end wrench, thread the flange nut down the threaded pin until all the gap in the cushions is taken up as shown below. Do not thread the flange nut all the way to the stop point at this time.



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- E. Align the lower shock mount in the rear axle attachment point using the OE lower shock bolt that was removed in step A (1 per side). Make sure the hex head of the bolt is facing the inside of the vehicle. Install the lower mount the same way it was removed and tighten the OE flange nut until the gap between the components and the rear axle attachment point is taken up as shown below. Do not torque the bolt and flange nut at this time. (The lower shock mount should still be free to rotate.)



- F. Locate the rectangular hole in the side of the frame rail. Below is a picture from the back side of the frame rail.



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- G. With the shock attached to the chassis and rear axle, the reservoir can be checked for any clearance issues by keying the reservoir bracket (BOM item #1) into the rectangular hole in the frame rail. Make sure the head of the socket head cap screw (BOM item #5) is facing down. It may be required to remove some of the inner fender-liner material to ensure it doesn't wear on the reservoir surface. Once the fender-liner material has been removed, double check the clearance, this time moving the fender-liner back and forth. An example of this material removal is shown below.

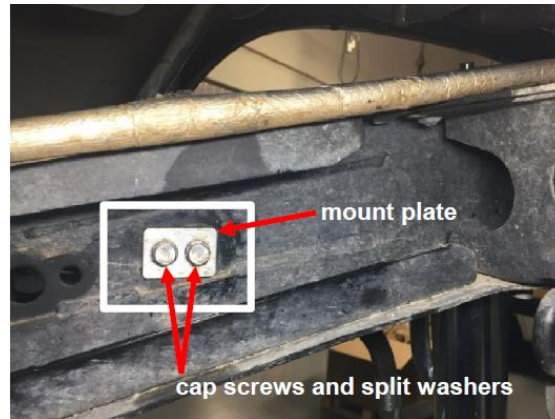


Inner fender liner clearance

E-WM05-000029 MOUNTING INSTRUCTION



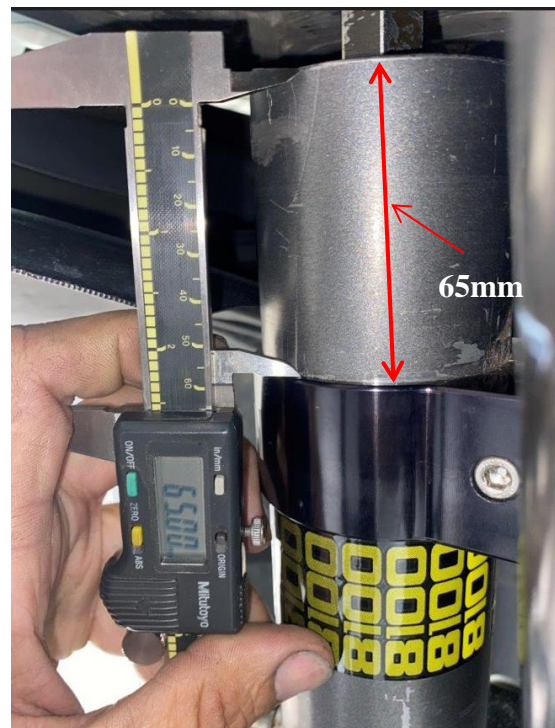
- H. Apply non-permanent thread locker to the M8x1.25 cap screws (BOM item #4). From the interior of the frame rail, secure the reservoir bracket (BOM item #1) using the mount plate (BOM item #2), two 8mm split washers (BOM item #3), and two M8x1.25 cap screws as shown below. **Torque the two cap screws to 27 N•m (275 kgf•cm, 20ft•lbf).**



Looking at inside of frame rail

- I. With the reservoir bracket secured to the chassis, adjust the end of the reservoir such that the label is adjacent to the reservoir bracket as shown in the figure below. (End of the reservoir will be about 65mm from the reservoir bracket.) Also rotate the reservoir body so the swivel banjo hose spigot is pointing directly outboard as shown on the next page. Once the reservoir is adjusted to the correct position, **torque the socket head cap screw to 8 N•m (80 kgf•cm, 69in•lbf).**

Make sure the swivel banjo hose fitting, as well as the end of the reservoir has a minimum of 6mm clearance from contacting any part of the chassis.



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- J. With the reservoir now secured to the chassis, position the working tube so the swivel banjo hose spigot is pointing directly outboard as shown below.



Left Side View

Right Side View

- K. With the shock bodies aligned, tighten the flanged nuts until the threads bottom out. If you are having trouble preventing the shock bodies from rotating while tightening the flange nut, a 6mm hex key can be used to prevent rotation as shown below. Tighten the provided new locknut to 27 *N·m* (20 *lb·ft*) ***Do not use an impact wrench and be careful not to over tighten or torque the flange nut as this may result in permanently damaging or breaking the threaded pin on the shock.***



- L. Fully tighten the lower shock bolt to the torque specified in the manufactures service manual.

Be sure to lower the vehicle such that it's full weight is on the suspension prior to fully tightening the lower shock bolt.

- M. Once the vehicle's full weight is back on the ground, check the clearance between the tire and the swivel banjo hose spigot on both sides and ensure there is at least 6mm (1/4") clearance.
- N. Carefully check for any possible dynamic interference the shock bodies, reservoir hoses, and reservoirs may have with any other components on the vehicle. Make any necessary adjustments to the shock alignment and/or reservoir position. The mounting locations depicted are appropriate for this application; however, some aftermarket components such as tires and/or lift kit combinations may create interference problems. It is the responsibility of the installer to determine if there is a potential for interference.
- O. Installation is now complete.

Final left rear (driver) B8 8100 shock installed on vehicle:



Final right rear (passenger) B8 8100 shock installed on vehicle





Dual Speed Reservoir Adjustment

These dampers come equipped with independent high and low speed compression damping adjusters located on the reservoir. The high speed is the blue knob and is labeled as such, and the low speed is the gold knob and is labeled as such. The **FULL FIRM** setting for each adjuster knob is achieved when the knob is turned all the way **CLOCKWISE**. The **FULL SOFT** setting for each adjuster knob is achieved when the knob is turned all the way **COUNTER-CLOCKWISE**. To make high or low speed adjustments, simply turn each knob individually until the desired level of control is achieved. To stiffen the ride, turn the knobs clockwise. To soften the ride, turn the knobs counter-clockwise.

The factory setting of these adjusters are as follows:

- High Speed (blue knob) – 6 clicks counter-clockwise from fully firm.
(10 total settings are available which translates to 9 clicks; 1 rotation)
- Low Speed (gold knob) – 13 clicks counter-clockwise from fully firm.
(20 total settings are available which translates to 19 clicks; 2 rotations)

Please note: It's normal for the high speed (blue) knob to become significantly more difficult to turn when progressing to the firmer end of the adjustment range; particularly during the last 3 to 4 settings/clicks. This increased difficulty is a result of the increasing preload of the high speed valve stack shims. To aid in ease of adjustment at the firmest end of the high speed range, it's optional to use Bilstein wrench part # E-XS01-000004. This is included in most kits and if not, available separately. Additionally, it's normal for the clicks on the high speed (blue) knob to become less pronounced at the firmer end of the adjustment range.



Dual Speed Reservoir Adjuster

B8 8100 service:

For service of your B8 8100 shocks, please contact:

THYSSENKRUPP BILSTEIN OF AMERICA
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