

E-WM05-0000081

MOUNTING INSTRUCTION



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.

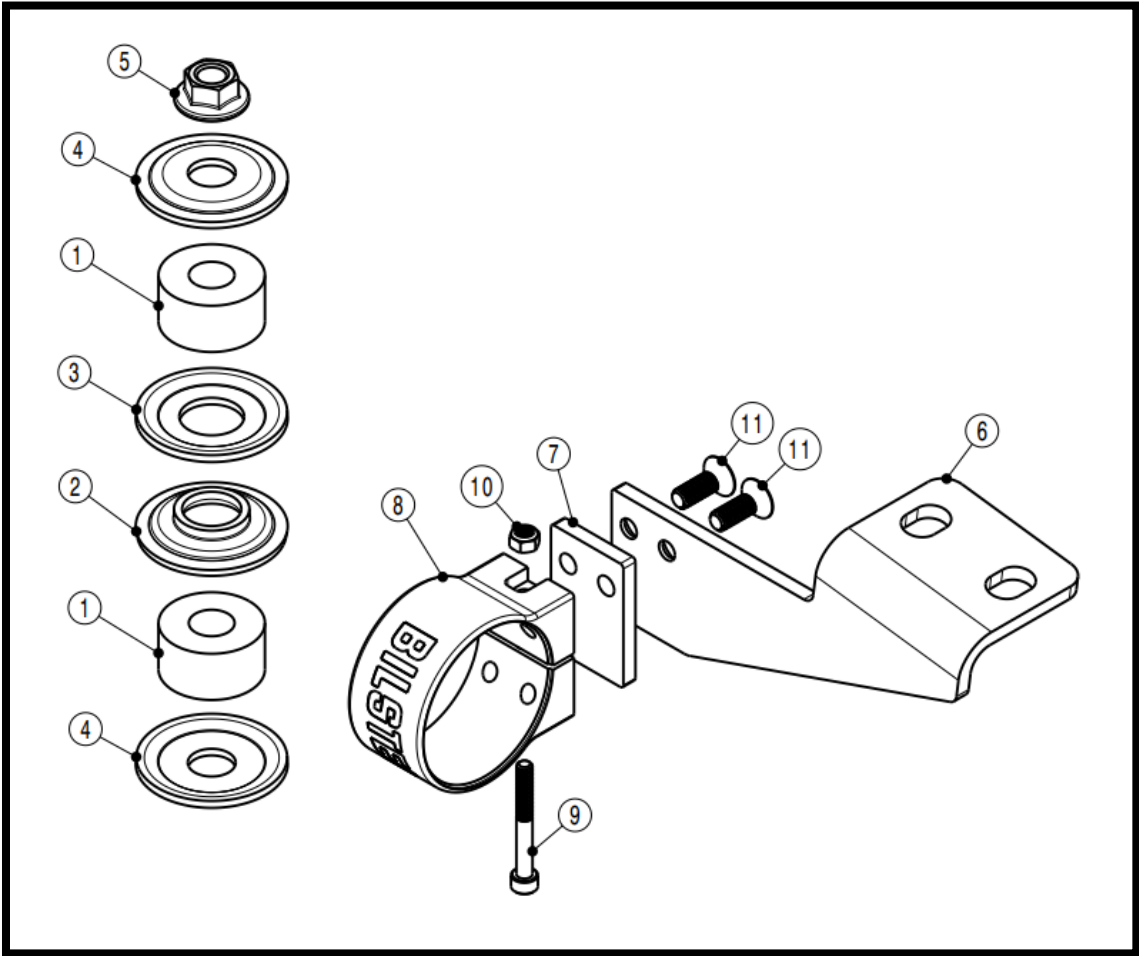
CAUTION for COILOVER TYPE SUSPENSIONS!!!

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!!!

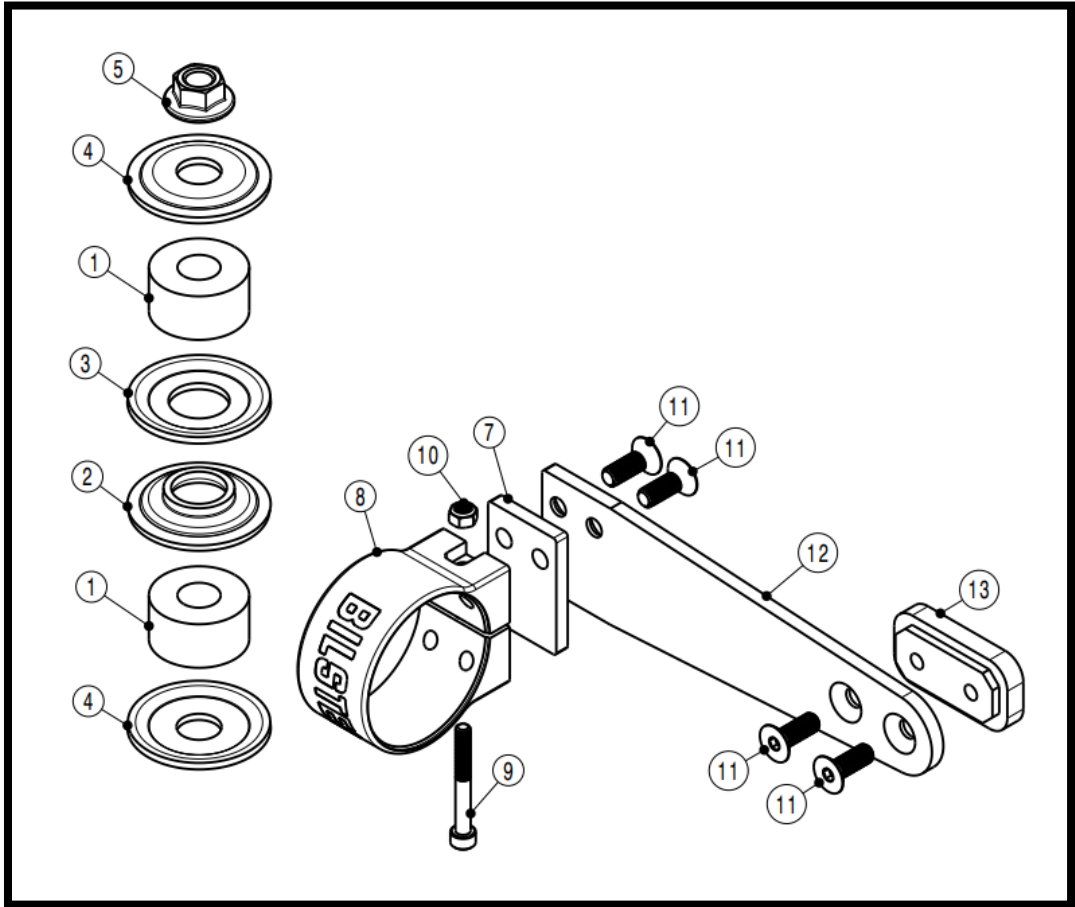
This BILSTEIN product may or may not be compatible with non-BILSTEIN aftermarket products and/or vehicle modifications. It is the responsibility of the professional automotive suspension technician performing the installation to identify any non-OEM components and/or modifications on the vehicle that 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.

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BILL OF MATERIALS – REAR LEFT		
Item #	Description	Qty
1	Bushing	2
2	Alignment Washer	1
3	Retaining Washer, 24.3mm ID	1
4	Retaining Washer, 17.8mm ID	2
5	Flange Nut, M12x1.25, 18mm Hex Head	1
6	Reservoir Support Plate	1
7	Reservoir Spacer	1
8	Reservoir Clamp	1
9	Stainless Steel Socket Cap Screw; M6x1; L = 50mm	1
10	Nylon-Insert Locknut; M6x1	1
11	Flat Head Screw; M8x1.25; L=22mm	2

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BILL OF MATERIALS – REAR RIGHT		
Item #	Description	Qty
1	Bushing	2
2	Alignment Washer	1
3	Retaining Washer, 24.3mm ID	1
4	Retaining Washer, 17.8mm ID	2
5	Flange Nut, M12x1.25, 18mm Hex Head	1
7	Reservoir Spacer	1
8	Reservoir Clamp	1
9	Stainless Steel Socket Cap Screw; M6x1; L = 50mm	1
10	Nylon-Insert Locknut; M6x1	1
11	Flat Head Screw; M8x1.25; L=22mm	4
12	Reservoir Support Plate	1
13	Reservoir Slot Bracket	1

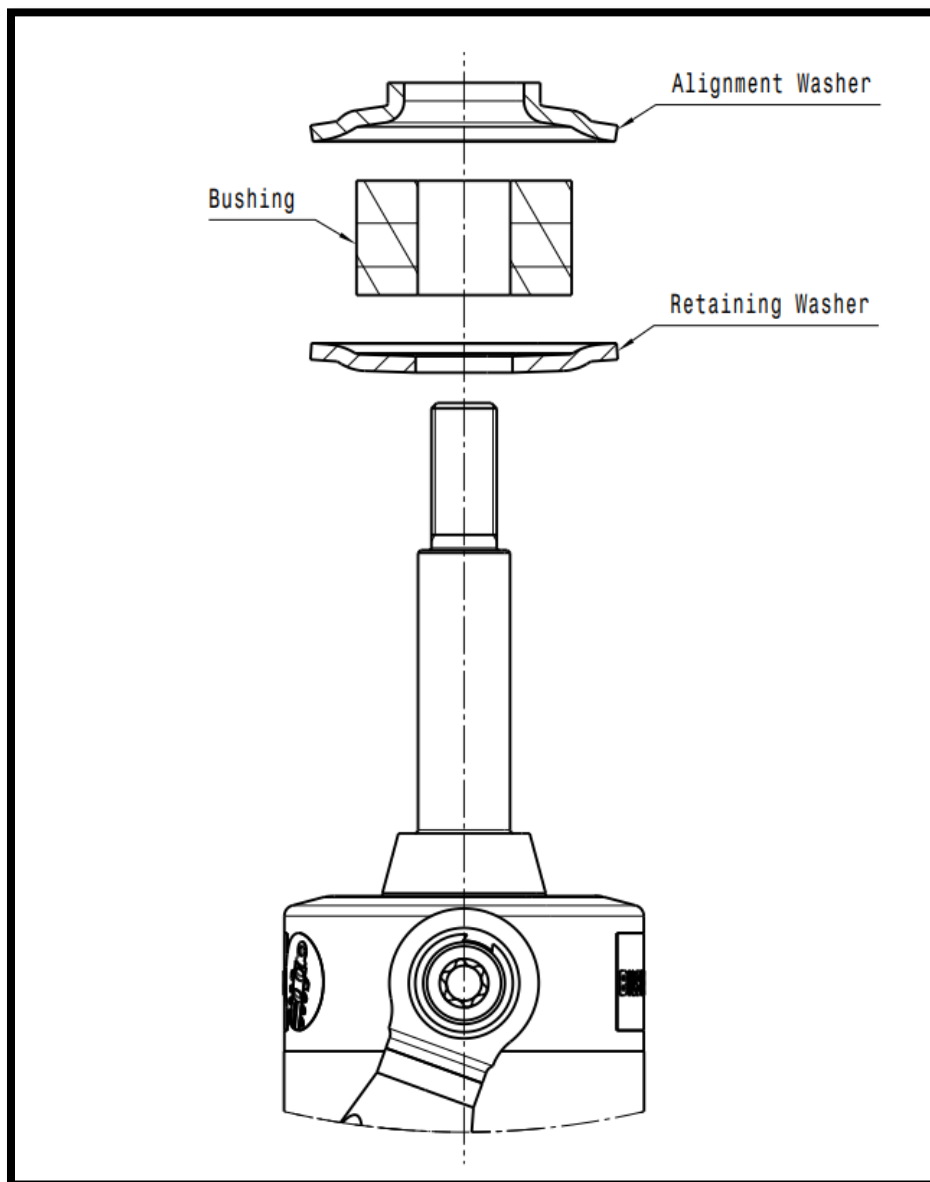
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B8 8100 shock installation procedure:

Installation of B8 8100 shocks requires the use of wheels with a maximum of 6" of backspacing to ensure clearance between the tire and the hose fittings

- 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. Slide one of the retaining washers (BOM item #4), one of the bushings (BOM item #1), and the alignment washer (BOM item #2) over the threaded pin on the shock body as shown below.



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C. Slide the threaded pin on the shock body through the chassis mount, and carefully center the alignment washer (BOM item #2) in the mount hole. Slide the second Retaining Washer (BOM item #3) over the threaded pin concave up, followed by the second upper bushing (BOM item #1). Then slide the third Retaining Washer (BOM item #4) over the threaded pin concave down. Thread the M12x1.25 flange nut (BOM item #5) 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 bushings is taken up as shown below. Do not thread the flange nut all the way to the stop point at this time.



Left (Driver) Rear



Right (Passenger) Rear

D. For both the left and right rear, orient the banjo spigot on the main tube body so it's facing directly outboard towards the tire as shown above. Allow the reservoir to hang for now.

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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 outside of the vehicle. Slide the OE washer over the bolt threads, 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.)



Rear Left Reservoir Mounting

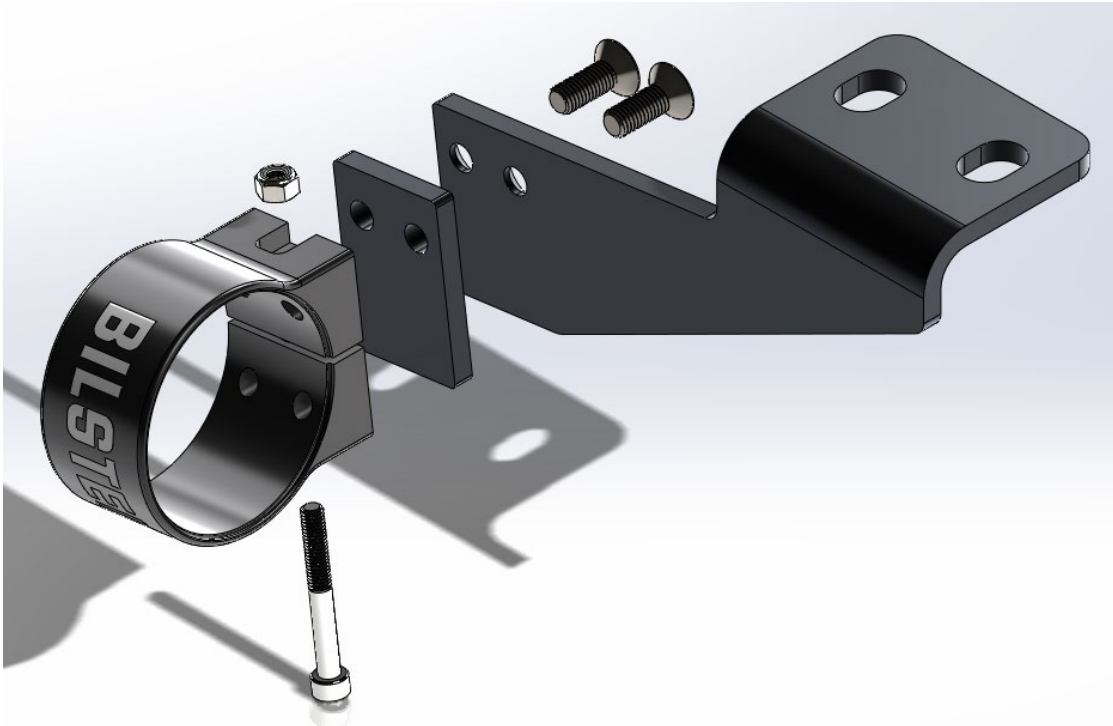
- F. Locate the two flanged hex head screws on the top of the frame behind the left rear wheel well (see circle in image below). Remove these two screws and set aside.



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- G. Assemble the reservoir bracket assembly as shown below. Apply non-permanent thread locker to the M8x1.25 Flat Head Screws (BOM item #11) and **torque to 16 ft-lb (22 Nm)**. Hand-tighten the Stainless Steel M6x1 Socket Cap Screw (BOM item #9) only. You will need this to be loose in order to slide the reservoir into the Reservoir Clamp. Also, make sure the nut is on the top as this will make it easier to tighten when installed on the vehicle.



- H. Using the two flanged hex head screws removed in Step G, install the bracket assembly back as shown in the image below.
Torque Flanged Hex Head Screws to 18 ft-lb (25 Nm).



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- I. Now take the reservoir and slide it through the Reservoir Clamp (BOM item #8). If it does not slide in easily, loosen the M6x1 Socket Head Cap Screw (BOM item #9) slightly to allow the clamp to open a little.
- J. Position the reservoir with approximately 110mm (4-3/8") between the cap and Reservoir Clamp as shown below. This will allow some slack in the hose. Rotate the reservoir tube in the clamp until the banjo spigot is facing directly outboard towards the tire. Tighten the M6x1 Socket Head Cap Screw (BOM item #9).

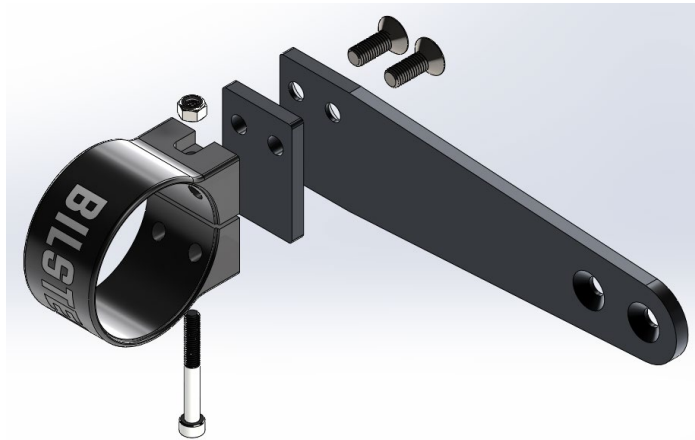
Torque the Socket Head Cap Screw to 6 ft-lb (8 Nm).



Rear Right Reservoir Mounting

- K. Assemble the reservoir bracket assembly as shown below. Apply non-permanent thread locker to the M8x1.25 Flat Head Screws (BOM item #11) and **torque to 16 ft-lb (22 Nm)**. Hand-tighten the Stainless Steel M6x1 Socket Cap Screw (BOM item #9) only. You will need this to be loose in order to slide the reservoir into the Reservoir Clamp. Also, make sure the nut is on the top as this will make it easier to tighten when installed on the vehicle.

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L. Locate the rectangular slot on the frame in front of the right rear wheel well (see circle in image below).



M. Insert the Reservoir Slot Bracket (BOM item #13) into the slot from the inside of the vehicle frame as shown below.



N. Using the other two M8x1.25 Flat Head Cap Screws (BOM item #11), apply non-permanent thread locker and fasten the Reservoir Bracket assembly to the Reservoir Slot Bracket as shown below.
Torque to 16 ft-lb (22 Nm).

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- O. Now take the reservoir and slide it through the Reservoir Clamp (BOM item #8). If it does not slide in easily, loosen the M6x1 Socket Head Cap Screw (BOM item #9) slightly to allow the clamp to open a little.
- P. Position the reservoir with approximately 110mm (4-3/8") between the cap and Reservoir Clamp as shown below. This will allow some slack in the hose. Rotate the reservoir tube in the clamp until the banjo spigot is facing directly outboard towards the tire. Tighten the M6x1 Socket Head Cap Screw. **Torque the Socket Head Cap Screw to 6 ft-lb (8 Nm).**



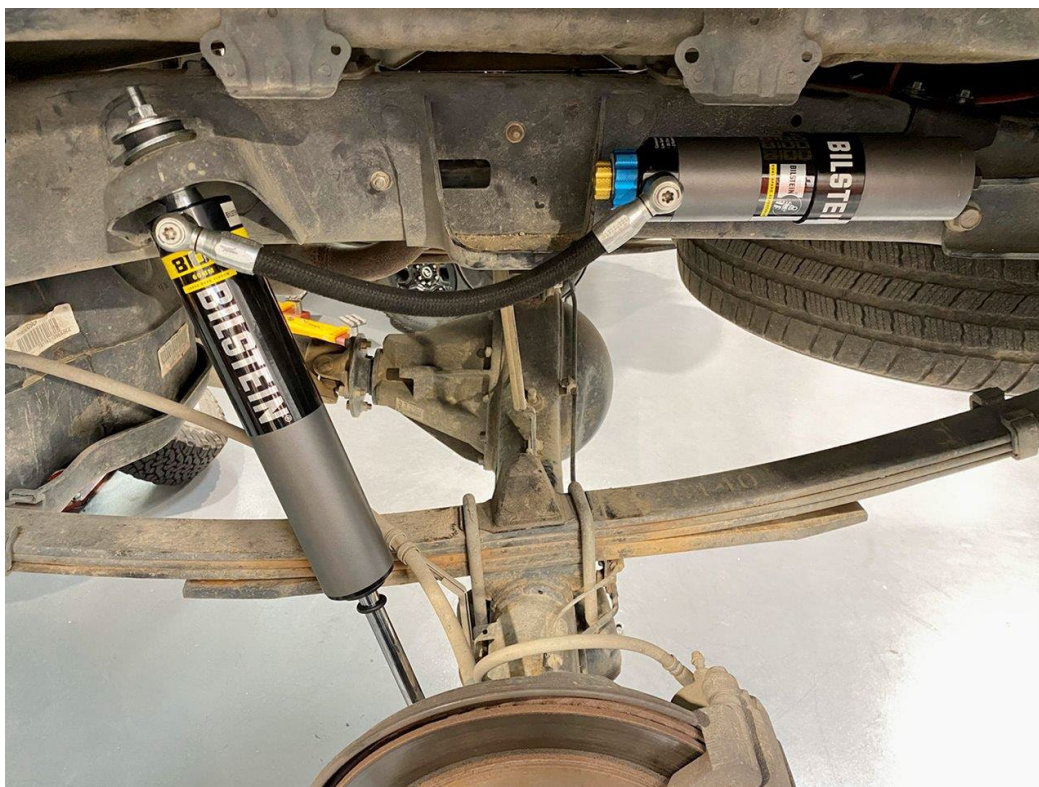
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Final Shock Mounting

- Q. After mounting the reservoirs, ensure the main shock body is still oriented in the position described in Step D.
- R. Once the shock body is oriented properly, tighten the Flanged Locknut that was installed onto the threaded pin on the shock body in Step C. Use a 6mm Allen key to keep the threaded pin from rotating while torquing the locknut.
Torque the Flanged Locknut to 20 ft-lb (27Nm).
****** DO NOT USE AN IMPACT WRENCH TO TIGHTEN THE LOCKNUT! ******
- S. Fully tighten the lower shock bolt to the torque specified in the manufacturer's 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.
- T. 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.

Final left rear (driver) 25-294125 B8 8100 shock installed on vehicle:



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Final right rear (passenger) 25-328929 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) – 7 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-XS01-0000004. 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
Toll Free: 1-800-537-1085
bilsteinus.com