



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.

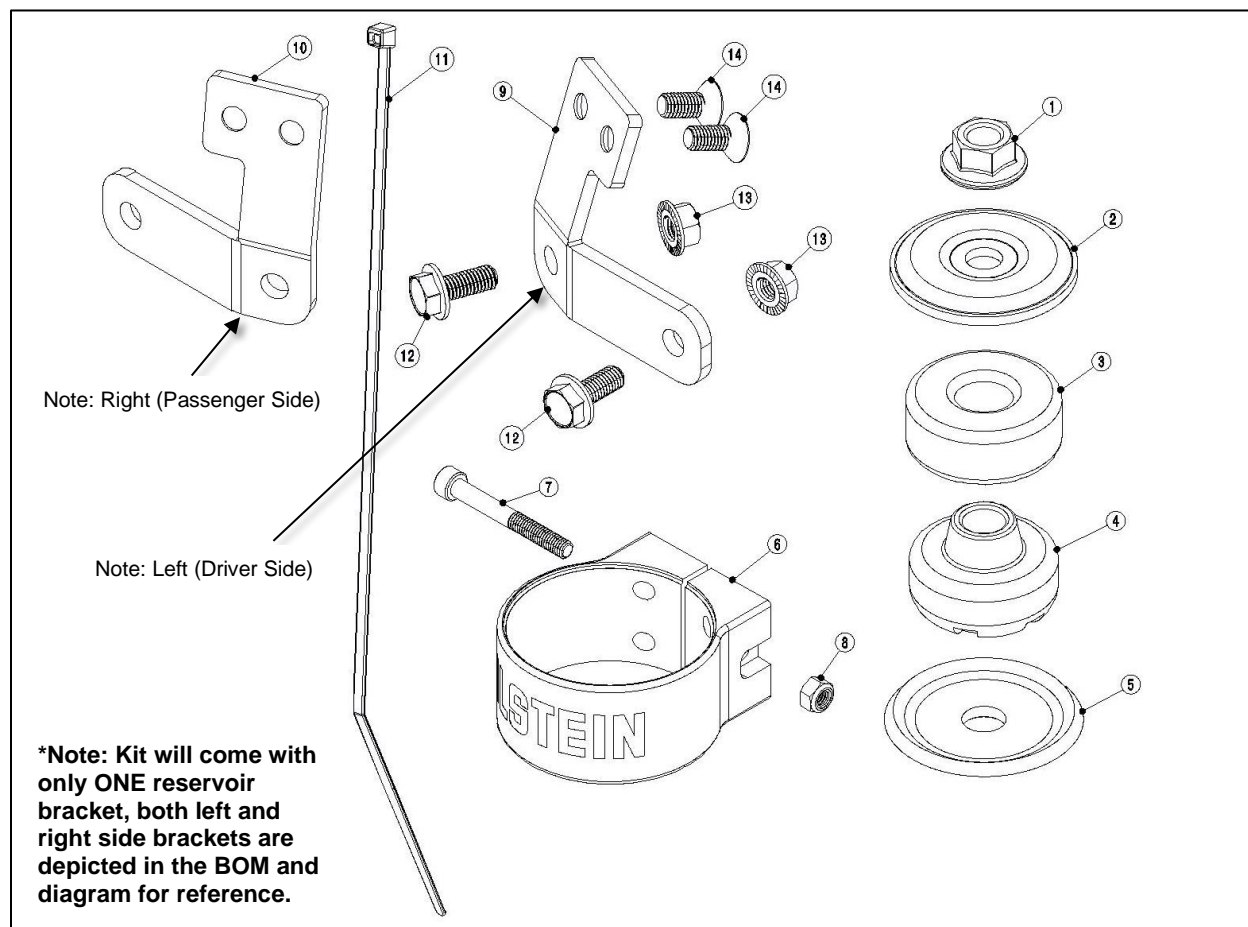
CAUTION for COILOVER TYPE SUSPENSIONS!!!

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.

Mounting Kit Components



Bill of Materials		
Item #	Description	Qty.
1	Flange Locknut; M12x1.25	1
2	Upper Washer	1
3	Upper Bushing	1
4	Lower Bushing	1
5	Lower Washer	1
6	Reservoir Clamp	1
7	Socket Head Cap Screw; M6x1; L=50mm	1
8	Nylon Insert Locknut; M6x1	1
9	Reservoir Bracket, FL	1
10	Reservoir Bracket, FR	1
11	Zip tie	1
12	Flange Head Cap Screw; M8x1.25	2
13	Serrated Flange Nut, M8x1.25	2
14	Flat Head Screw, M8x1.25 L=18mm	2



Shock Installation Procedure

Axle: Front left (driver) and Front right (passenger)

Product: B8 8100 ZoneControl R DSA

B8 8100 shocks are corner specific. The step by step procedure is shown with pictures of the left side, and in some cases, pictures of the right. The right side is a mirror image of the left. Skip to page 9 to see the final result for both sides.

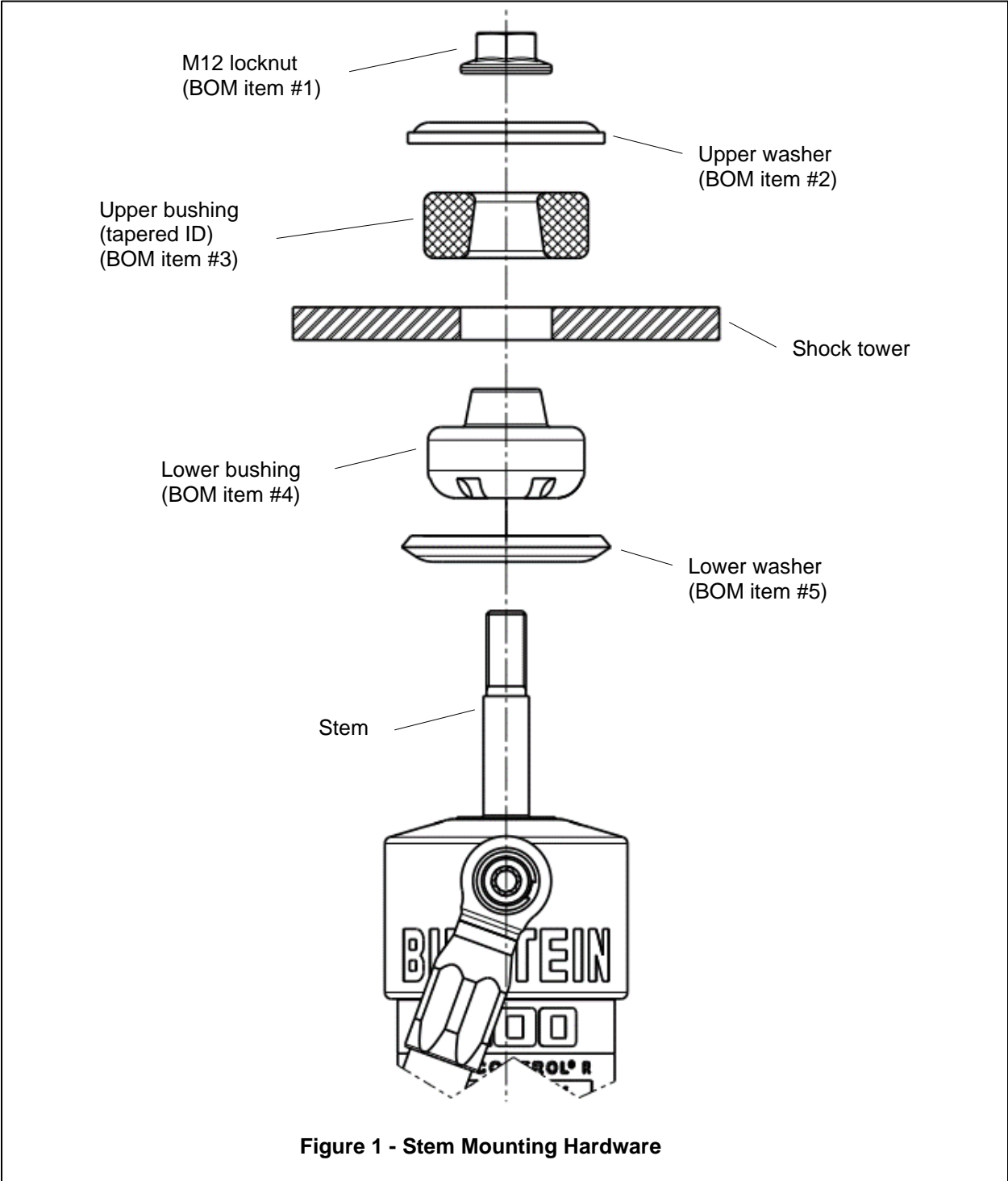
BILSTEIN B8 8100 Series Reservoir Shock Absorbers are designed to fit your vehicle's original shock mounts with no modifications. With the exception of reservoir placement, the B8 8100 Series shocks are installed in the same manner as a standard replacement shock. However, due to the extended down travel of the front shocks, 2-2.5" lift springs or 2-2.5" spring spacers are required. For optimum ride quality and performance, it's recommended to pair these shocks with the Bilstein specific B12 Spring kit (part # for GAS engine: 53-317322; part # for DIESEL engine: 53-317315). Alternatively, 2-2.5" lift springs or 2-2.5" spring spacers can be obtained from many lifted/off-road truck accessory retailers.

It is normal to hear a slight audible clicking noise during rebound strokes in the B8 8100 shocks, most notably during low velocity events. This is due to the internal pistons engaging each other creating the position sensitive rebound zone.

Note: The shocks and hardware depicted herein may differ slightly in appearance from the supplied components.

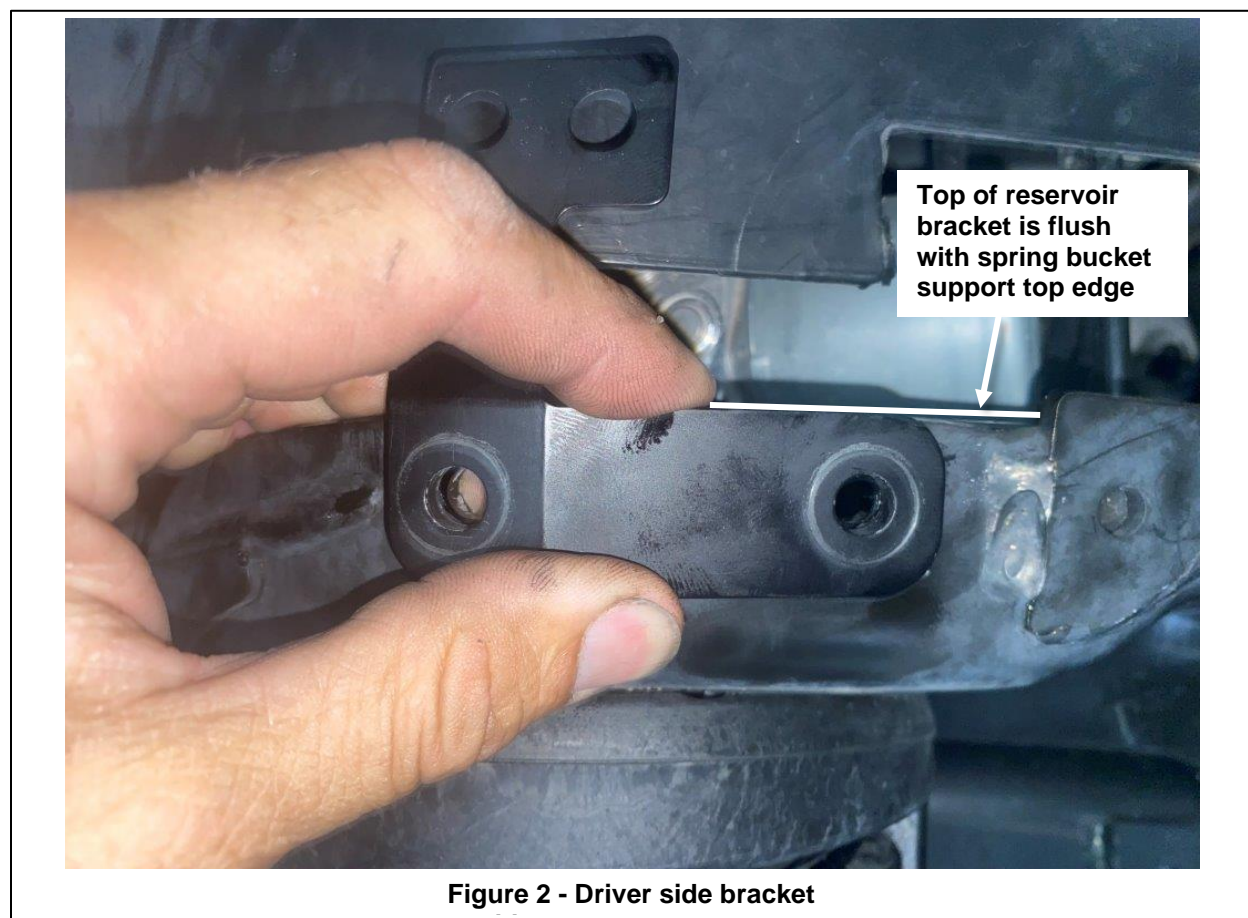
In order to complete the installation, the following tools in addition to common hand tools will be required:

- Drill
 - Size 3/8" drill bit (~9mm)
 - Centerpunch and/or marker
- A. Remove the existing front shocks from the vehicle following all procedures in the vehicle manufacturer's service manual. Depending on your vehicle, removing inner fender wells may simplify installation.
 - B. Install the front shock in the original location and attach the lower mount. Orient the shock body so the hose port is facing directly outboard. Refer to Figure 7 and 8 for correct hose port orientation.
 - C. Using the supplied stem mounting hardware, install the lower washer (BOM item #5) and lower bushing (BOM item #4) over the threaded mount pin on the shock body as shown in Figure 1. Verify the lower washer is installed concave side up.
 - D. With the above step complete, slide the threaded pin on the shock body through the chassis mount and carefully center the lower bushing (BOM item #4) in the mount hole. Slide the upper bushing (BOM item #3) over the threaded mount pin, followed by the upper washer (BOM item #2). The upper bushing has a tapered ID. Install it with the larger diameter on the bottom. Verify the upper washer is installed concave side down. Thread the M12x1.25 flange nut (BOM item #1) 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 bushing and cushion is taken up. Do not torque the nut yet. If the nut does not thread on fully, check orientation of the upper bushing (BOM item #3) Refer to Figure 1 for the correct order and orientation of the upper stem hardware.



Front Reservoir Bracket Installation Procedure

- E. The front reservoir brackets are recommended to be installed above the spring bucket. Each front shock includes a hardware kit containing the reservoir bracket and hardware. Brackets are sided, note the orientation of each.
- F. Each hardware kit includes two M8x1.25 flange head cap screws (BOM item #12) and two serrated flange nuts (BOM item #13) which are needed to secure the reservoir bracket (BOM item #9 or #10). The spring bucket support must be drilled in order to install the bolts.
- G. Figure 2 depicts the recommended bracket position. The bracket should sit between the two welds on the spring bucket support, not contacting either weld. The driver side is shown.



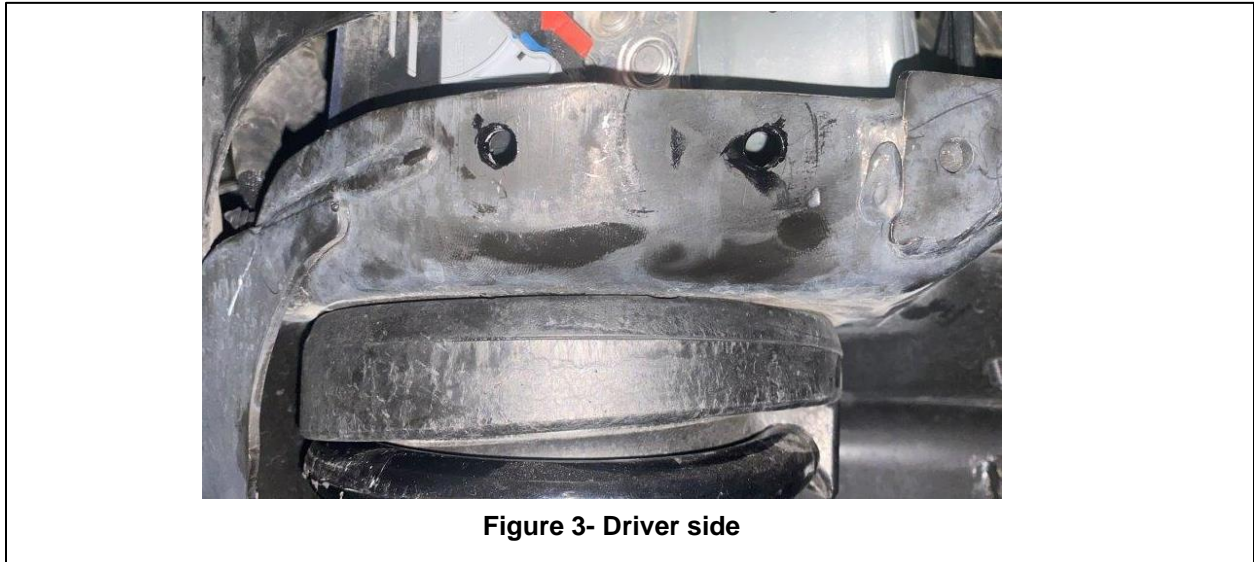
- H. While holding the reservoir bracket (BOM item #9 or #10) in place and ensuring the bracket is level/flush with the spring bucket support top edge, use a marker and/or centerpunch to mark a point through one of the reservoir bracket holes onto the spring bucket support.
- I. Using a 3/8" drill bit, drill the first hole through the spring bucket support at the point marked. Drill a smaller pilot hole first to prevent the larger bit from wandering. Keep the drill bit as perpendicular as possible to the side of the spring bucket support. It is also recommended to use cutting oil to drill the reservoir bracket hole.
- J. Put the reservoir bracket (BOM item #9 or #10) up to the spring bucket support and install one of the M8x1.25 flange head cap screws (BOM item #12) and a serrated flange nut (BOM item #13) to hold

E-WM05-0000121 MOUNTING INSTRUCTION

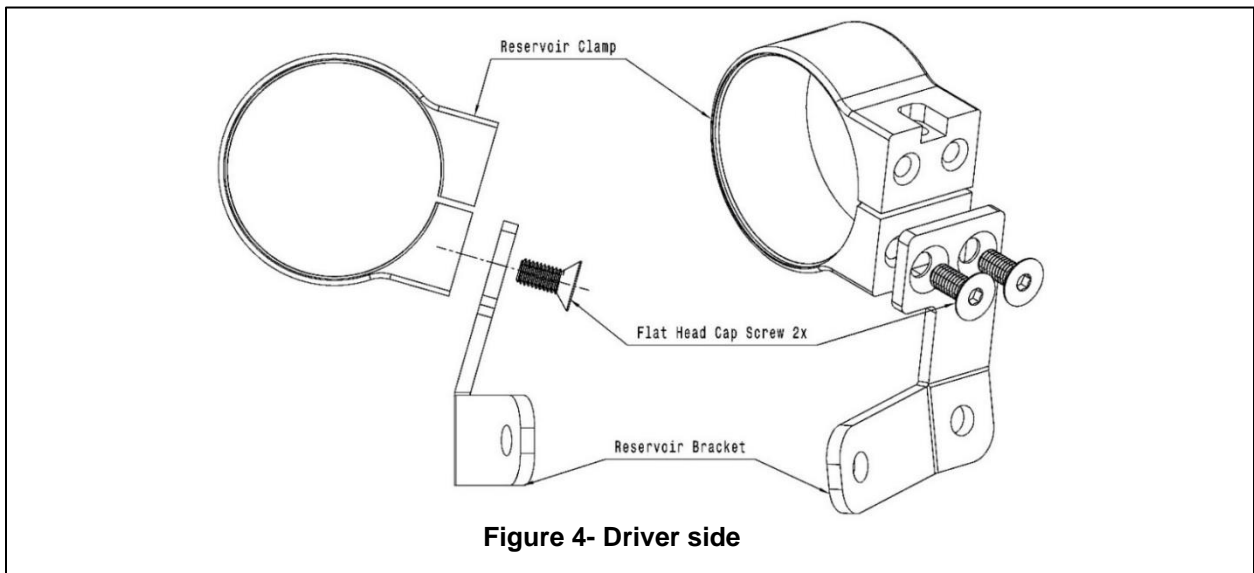


the bracket in place. While in place, ensure the bracket is level and use a marker and/or centerpunch to mark a point through the remaining hole of the bracket onto the spring bucket support. Remove the bracket and hardware.

- K. Using a 3/8" drill bit, drill the second hole in the side of the spring bucket support at the point marked. It is recommended to drill a pilot hole, use cutting fluid, and keep the drill perpendicular to the spring bucket as mentioned previously.
- L. Once both holes are drilled, deburr the holes and apply paint or rust preventative to any exposed steel from the drilling process. Refer to Figure 3 below.



- M. Prepare the reservoir support brackets as shown below in Figure 4. Attach the reservoir clamp (BOM item #6) to the reservoir bracket (BOM item #9 or #10) using the two M8x1.25 flat head cap screws (BOM item #14). Apply a non-permanent thread locker and **torque the Flat Head Cap Screws to 18 ft-lb (25 Nm)**.



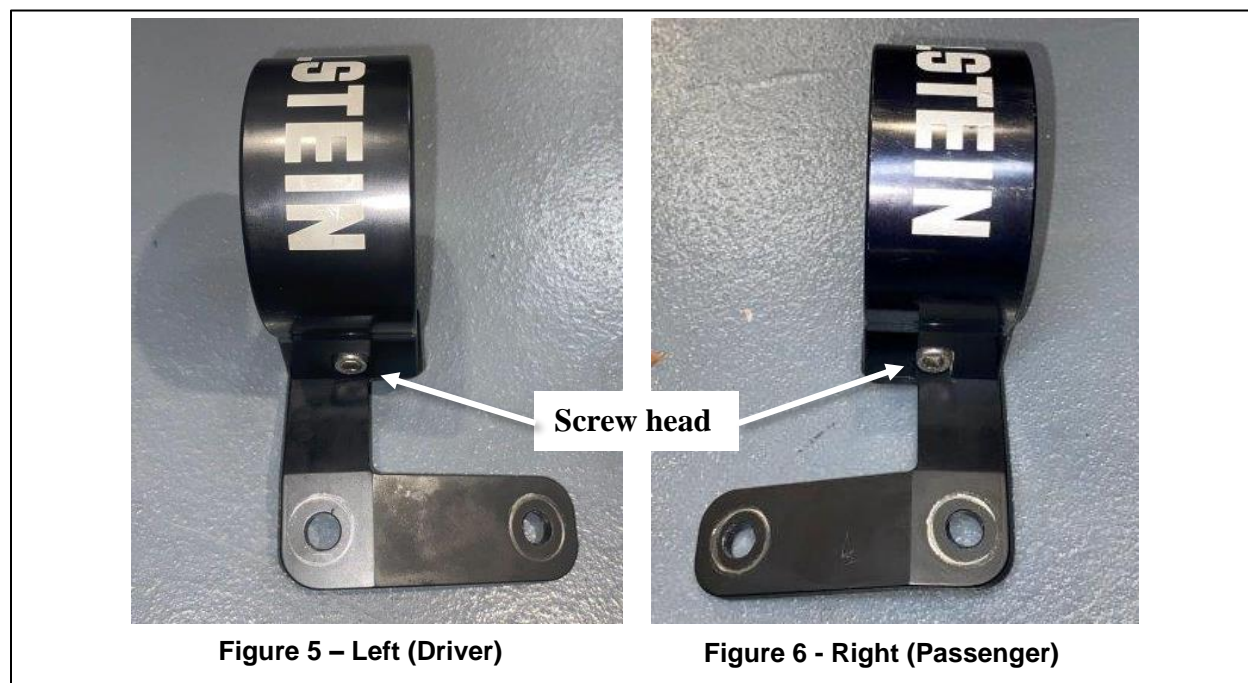
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MOUNTING INSTRUCTION

BILSTEIN

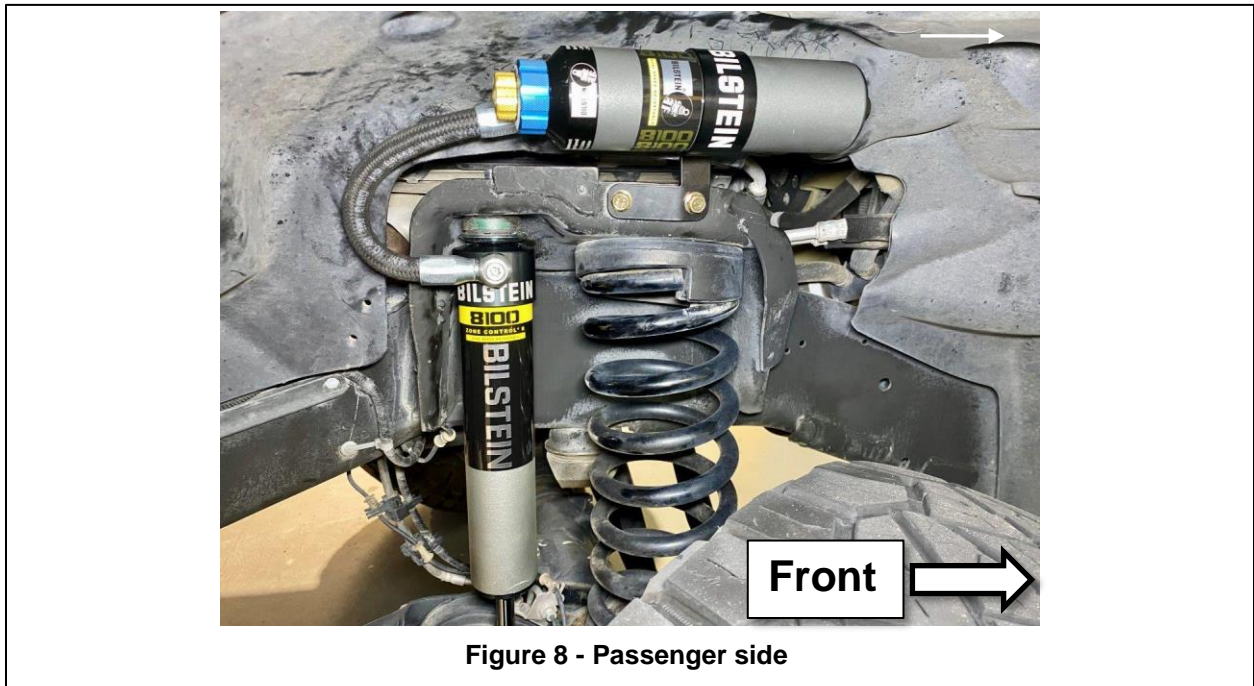
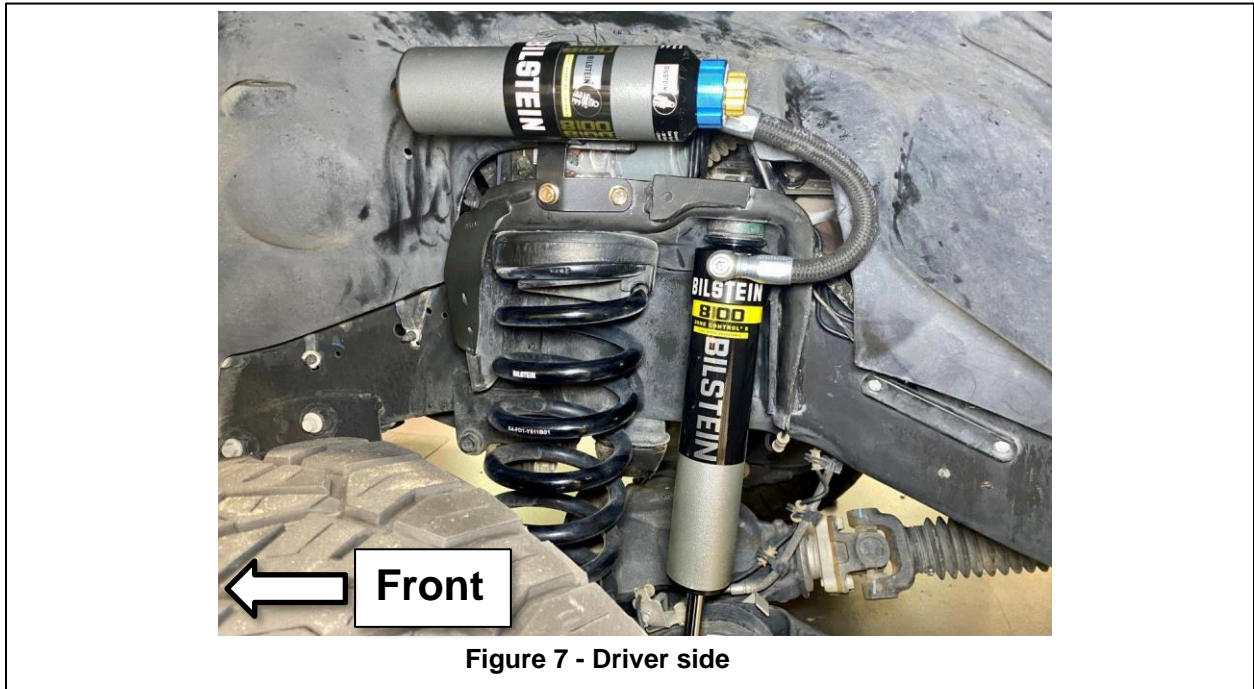


- N. Place the M6 nylon insert locknut (BOM item #8) in the slot on the top side of the reservoir clamp (BOM item #6). Then, install the M6x1 socket head cap screw (BOM item #7) through the hole in the reservoir clamp and into the locknut. Ensure the locknut is located on the top side of the assembly with the screw head facing downward as you will need access to the screw head once assembled on the vehicle. Thread the socket head cap screw in a few turns for now but leave it loose enough so the reservoir can be installed in the next step. Refer to Figures 5 and 6 below.

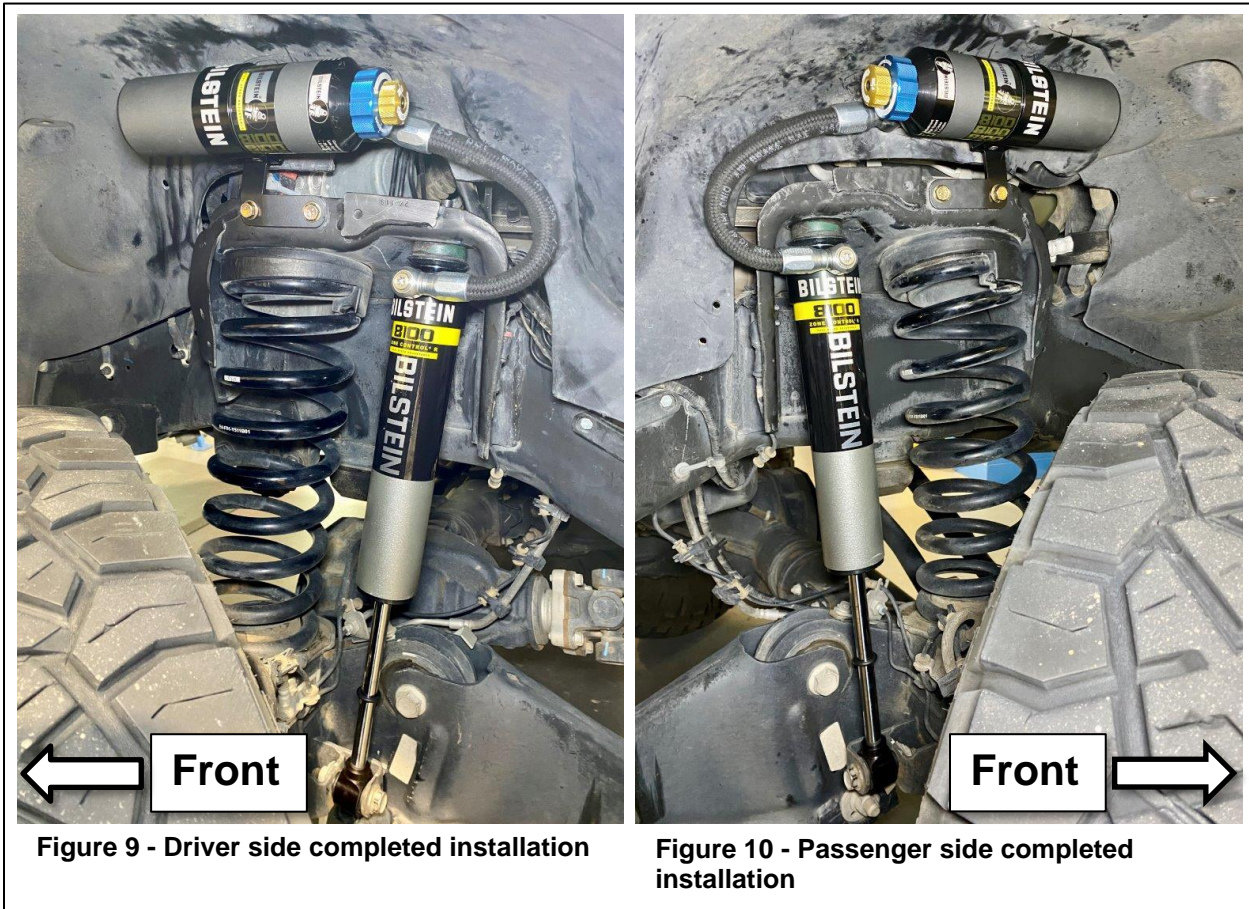


- O. Slide the reservoir into the reservoir clamp and gently tighten the socket head cap screw (BOM item #7) using a 5mm Allen wrench. Do not torque at this time, only tighten it enough to prevent slipping.
- P. Using the provided M8x1.25 flange head cap screws (BOM item #12) and serrated flange nuts (BOM item #13), install the reservoir bracket assembly (clamp and bracket) onto the spring bucket support. Apply a non-permanent thread locking compound on the threads before installing.
- Q. Torque both M8x1.25 flange head cap screws to **18 ft-lb (25 Nm)**.
- R. Adjust the reservoir so the reservoir label is flush with the reservoir clamp and the banjo hose fitting on the reservoir is pointed straight inward toward center of vehicle. Refer to Figures 7 and 8. The reservoir can be clocked as needed to keep hose tight to wheel liner, but it should not make contact. Tighten the clamp using a 5mm Allen wrench and **torque to 6 ft-lb (8 Nm)**.
- S. After mounting the reservoir, ensure the main shock body is still oriented in the position described in Step B.
- T. Once the shock body is oriented properly, tighten the Flange Locknut (BOM item #1) that was installed onto the threaded pin on the shock body in Step D. **Torque the Flange Locknut to 34 ft-lb (45 Nm)**.
- U. Fully tighten the lower shock bolt to the torque specified in the manufacturer's service manual.

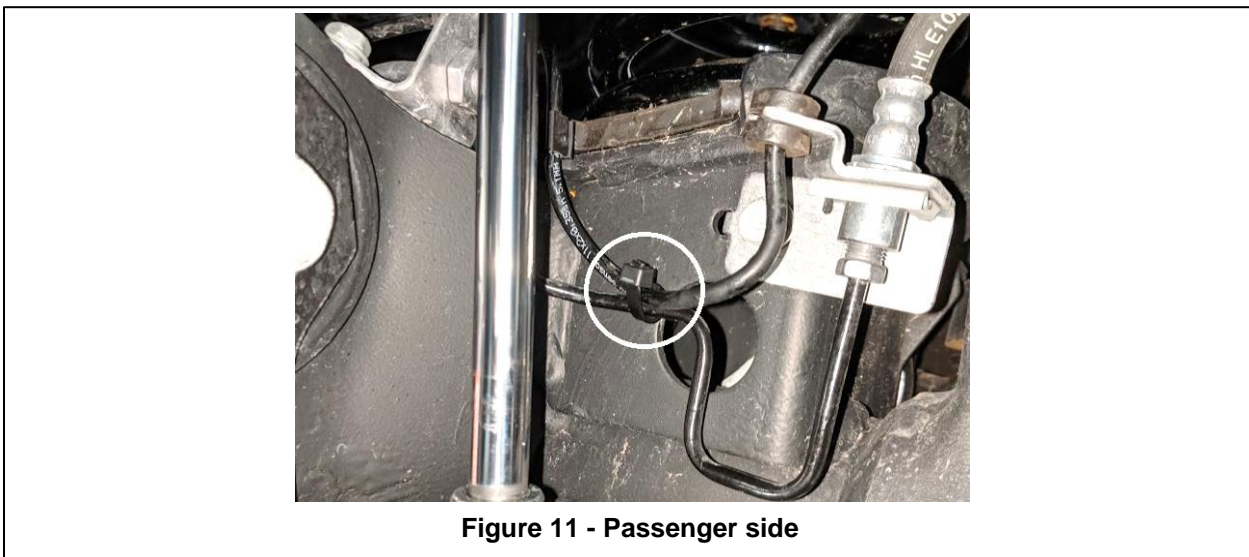
Be sure to lower the vehicle such that it's full weight is on the suspension prior to fully tightening the lower shock bolt.



- V. Carefully check for any possible interference between the reservoirs and any other components on the vehicle, then make any necessary adjustments to the reservoir positions. The reservoir mounting locations depicted are appropriate for most RAM trucks for which this kit is intended. However, some wheel/tire and/or lift kit combinations may create interference problems. It is the responsibility of the installer to determine if the reservoirs are mounted appropriately and if there is any potential for interference. See figures 9 and 10 for a reference of the completed installation.



W. If the factory clip securing the front ABS line to the hard brake line is missing as shown below, use the included zip tie (BOM item #11) to attach the lines together as shown in Figure 11. Do not pinch the ABS line, tighten just enough to hold the ABS line out of the way. Be careful to not damage the ABS line during this process. Trim the excess zip tie length after installation.





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-XS01-0000004. 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:

THYSENKRUPP BILSTEIN OF AMERICA
Toll Free: 1-800-537-1085
bilsteinus.com