E-WM05-0000131
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:

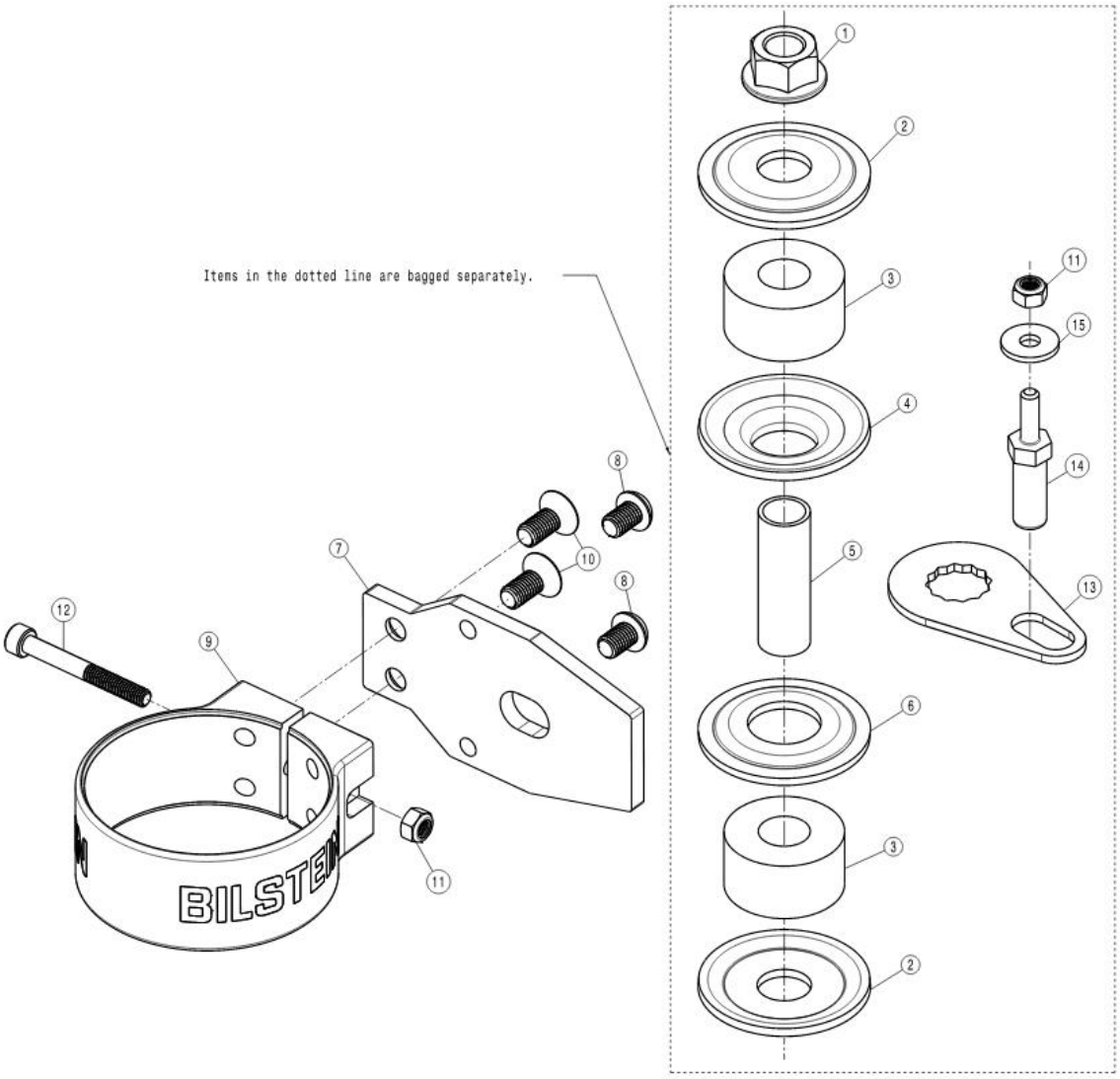
- The suspension caster and camber must be checked and/or adjusted to comply with the vehicle manufacturer's specifications.
- The (load dependent) brake compensator and the anti-lock brake system must be checked and/or reset to comply with the vehicle manufacturer's specifications.
- The headlight aim 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!!!

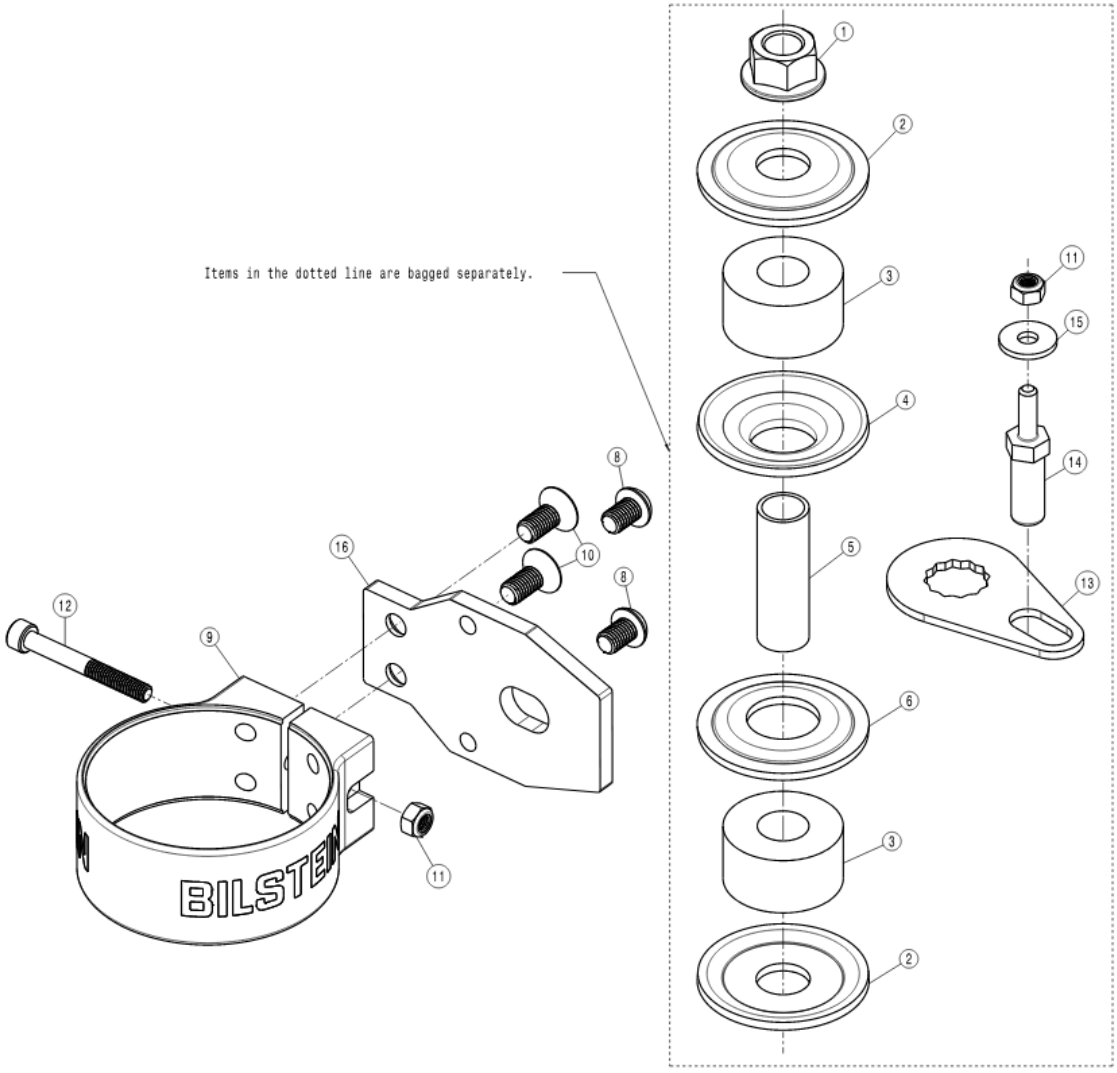
If disassembling a coilover type suspension, refer to the vehicle manufacturer's service manual for proper procedures. The coil spring is preloaded and must be compressed with a spring compressor to release load before the upper mount is disassembled. Failure to follow the vehicle manufacturer's procedures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



Bill of Materials – REAR LEFT		
Item #	**Description**	**Qty**
1	Flange Locknut; M14X1.25	1
2	Concave Washer	2
3	Bushing	2
4	Alignment Washer; Upper	1
5	Sleeve	1
6	Alignment Washer; Lower	1
7	Reservoir Mount Plate; Rear Left	1
8	Button Head Screw; M8x1.25	2
9	Reservoir Clamp	1
10	Flat Head Screw; M8x1.25; L=18	2
11	Nylock; M6x1	2
12	Socket Head Cap Screw; M6x1; L=50mm	1
13	Anti-Rotation Plate	1
14	Anti-Rotation Pin	1
15	Washer; 1/4" ID x 3/4" OD	1



Bill of Materials – REAR RIGHT		
Item #	**Description**	**Qty**
1	Flange Locknut; M14X1.25	1
2	Concave Washer	2
3	Bushing	2
4	Alignment Washer; Upper	1
5	Sleeve	1
6	Alignment Washer; Lower	1
16	Reservoir Mount Plate; Rear Right	1
8	Button Head Screw; M8x1.25	2
9	Reservoir Clamp	1
10	Flat Head Screw; M8x1.25; L=18	2
11	Nylock; M6x1	2
12	Socket Head Cap Screw; M6x1; L=50mm	1
13	Anti-Rotation Plate	1
14	Anti-Rotation Pin	1
15	Washer; 1/4" ID x 3/4" OD	1

B8 8100 shock installation procedure:

This instruction applies to both the Rear Left (Driver) (P/N 25-332315) and Rear Right (Passenger) shocks (P/N 25-352016). The step-by-step installation procedure is shown in the following steps. Skip to pages 12 and 13 to see the final result for both sides. A bill of materials of the included mounting parts is shown on the previous 2 pages.

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 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 on any of these components, purchase the required replacement OE components.

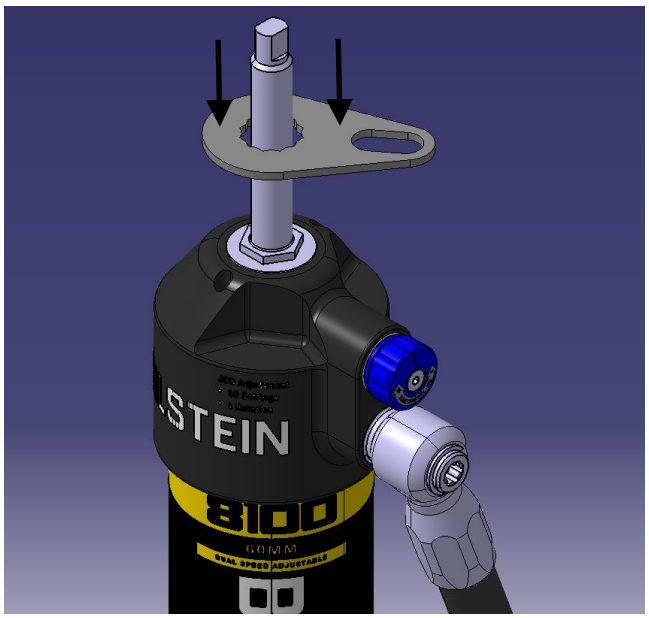
B. Place the Anti Rotation Pin (BOM item #14) into the frame hole circled in red below. This hole is towards the rear of the shock mount hole. Place a Washer (BOM item #15) over the threaded stem from the top side of the frame. Thread the Nylock (BOM item #11) onto the stem.

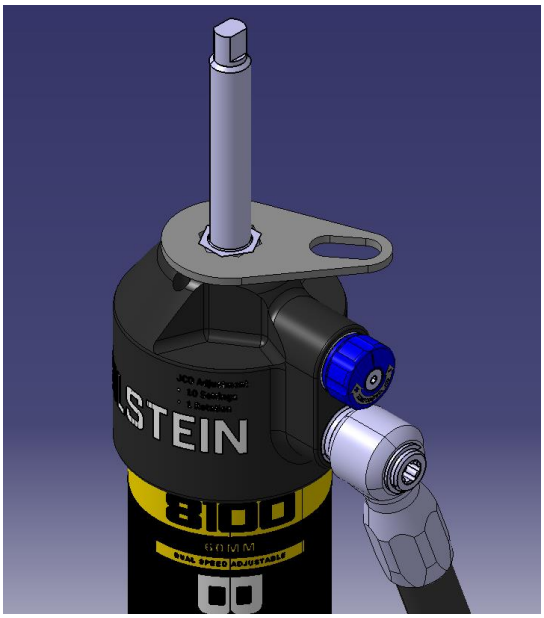
Left side depicted. Right side is a mirror image.

C. Hold the Anti-Rotation Pin with a ½" or 13mm deep socket. Then, hold the Anti-Rotation Pin assembly towards the rear of the vehicle and tighten the Nylock with a 10mm ratcheting wrench.
Torque the Nylock to 7 ft-lb (10 Nm).


Left side depicted. Right side is a mirror image.

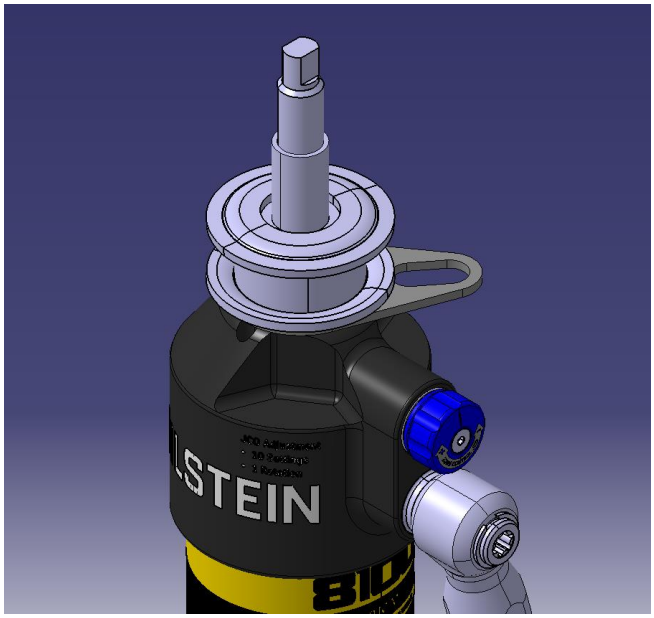
D. Slide the Anti-Rotation Plate (BOM item #13) over the threaded pin and onto the shock body (as shown below). The Anti-Rotation Plate should be clocked about 30 degrees counterclockwise from the hose port for the left side shock and 30 degrees clockwise for the right side. Verify the double hex/twelve-point hole in the plate seats over the hexagonal boss at the base of the pin. Failure to lock this double hex/twelve-point into place as shown below may cause your shock to rotate and contact components on the vehicle.

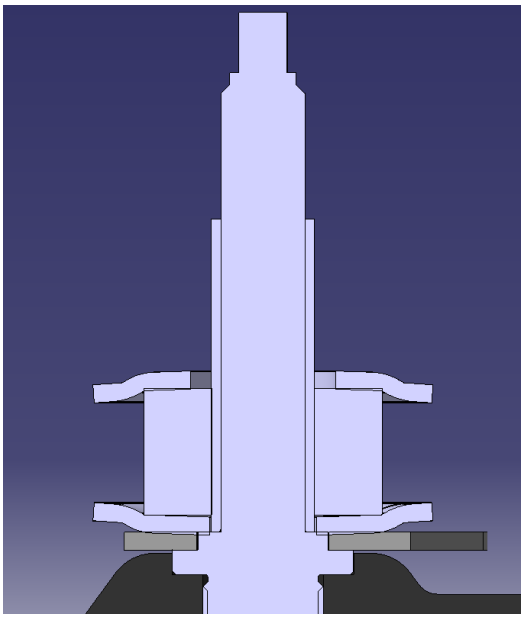




Left side depicted. Right side is a mirror image.

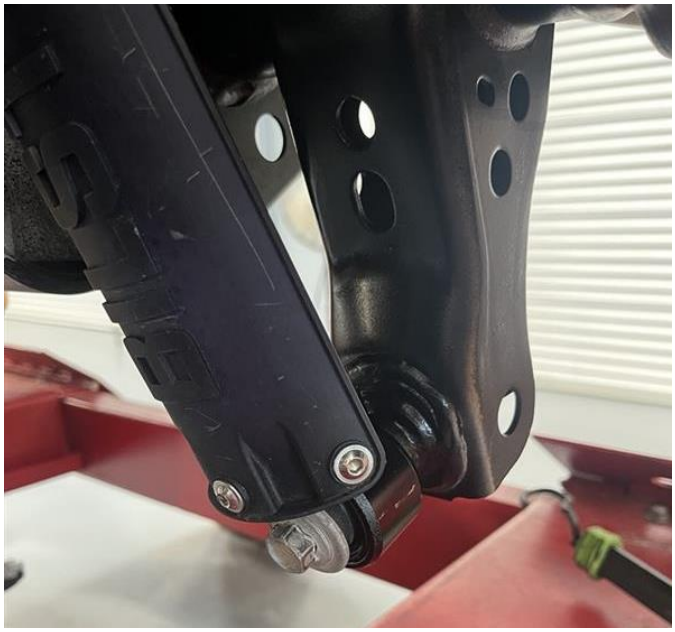
E. Slide the Concave Washer (BOM item #2) Bushing (BOM item #3) Lower Alignment Washer (BOM item #6) and Sleeve (BOM item #5) over the threaded pin on the shock body as shown below.





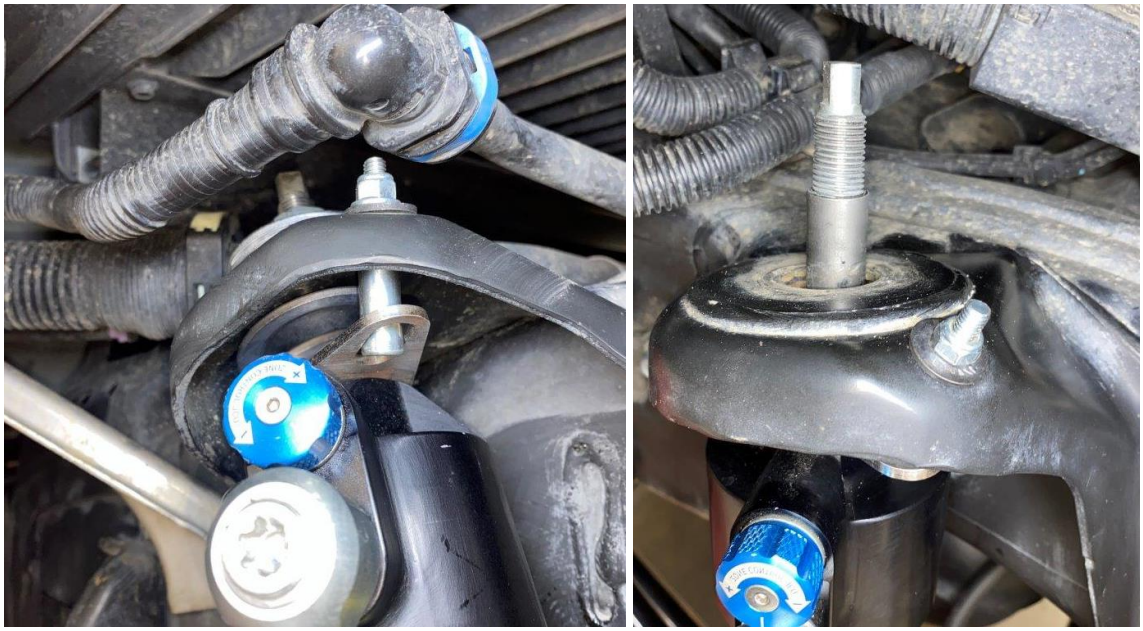
Left side depicted. Right side is a mirror image.

F. Install the lower shock mount and thread in the OE lower shock bolt/washer that was removed in step A. Thread in until the lower shock mount is almost snug, but don't fully tighten yet.



Left side depicted

G. Then, using some force, compress the shock and place the threaded pin on the shock body through the chassis mount. Guide the Anti-Rotation Plate (BOM item #13) so it captures the Anti-Rotation Pin (BOM item #14) and carefully center the Lower Alignment Washer (BOM item #6) in the chassis mount hole as shown below.



Left side depicted. Right side is a mirror image.

H. To ensure the hose spigot/shock body does not contact the chassis, it is essential to have proper clocking of the Anti-Rotation Plate in relation to the hexagonal boss at the base of the mount pin. Shown below is the optimal hose spigot placement on the vehicle. The hose spigot should be facing 45 degrees outboard and rearward of the vehicle once fully installed. An adjustment of the Anti-Rotation Plate on the mount pin will be necessary if the Anti-Rotation Plate is clocked too close to the chassis or too far away which could lead to hose routing issues. Each notch on the double hex/twelve-point hole will give a resultant angle of 30 degrees to assist with proper alignment of the shock body. If necessary, the plate can be flipped to achieve a finer, 15-degree adjustment.

Optimal Hose Spigot Angle (Left Side)

Optimal Hose Spigot Angle (Right Side)

I. Slide the Upper Alignment Washer (BOM item #4), Bushing (BOM item #3) and Concave Washer (BOM item #2) over the threaded pin. (See **Figure 1** below for the proper orientation of these components.) Then thread the Flange Locknut (BOM item #1) onto the threaded pin on the shock body. Tighten the Flange Locknut using an 18mm ratcheting wrench.
Torque the Flange Locknut to 20 ft-lb (27 Nm).

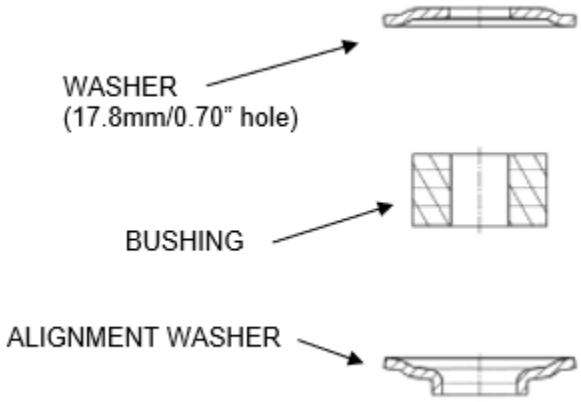
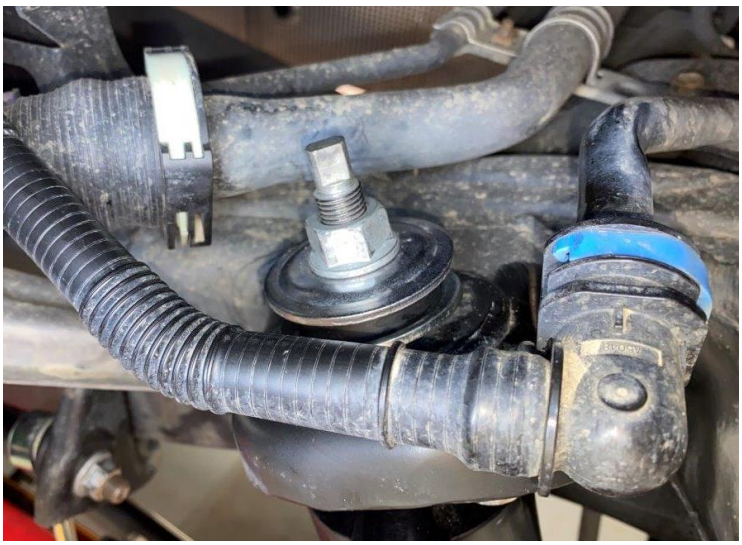


Figure 1

You should now have the following:



Left Side

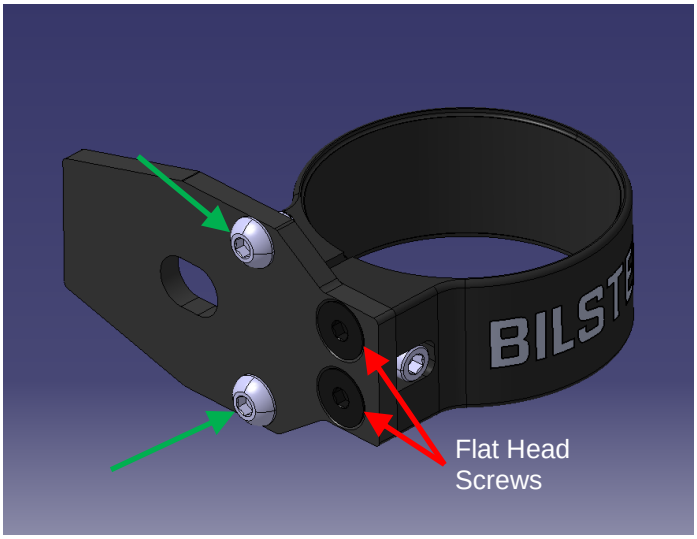
Right Side

J. With both upper and lower shock mounts secured, and with the rear suspension drooped out, make sure the Anti-Rotation Pin (BOM item #14) is not contacting the Anti-Rotation Plate (BOM item #13) or shock body. If it is contacting, loosen the Nylock (BOM item #11) and slide the Anti-Rotation Pin forward slightly until there is a small gap (~1/16”). Re-torque Nylock according to step C.

Reservoir Installation Procedure

(Note: the reservoirs are installed as mirror images so, step-by-step instructions for only the left side are shown unless otherwise indicated):

K. Prepare the assembly as shown below. First, apply non-permanent thread locker and screw in the two Button Head Screws (BOM item #8) as indicated by the green arrows. Their function is to act as an anti-rotation feature for the Reservoir Mount Plate. **Torque both Button Head Screws to 7 ft-lb (10 Nm).** Now, apply non-permanent thread locker to the two Flat Head Screws (BOM item #10). Mount the Reservoir Clamp (BOM item #9) to the Rear Left Reservoir Mount Plate (BOM item #7) as shown below using the two Flat Head Screws. (BOM item #16 for Rear Right) Tighten using a 5mm hex.
Torque both Flat Head Screws to 16 ft-lb (22 Nm).



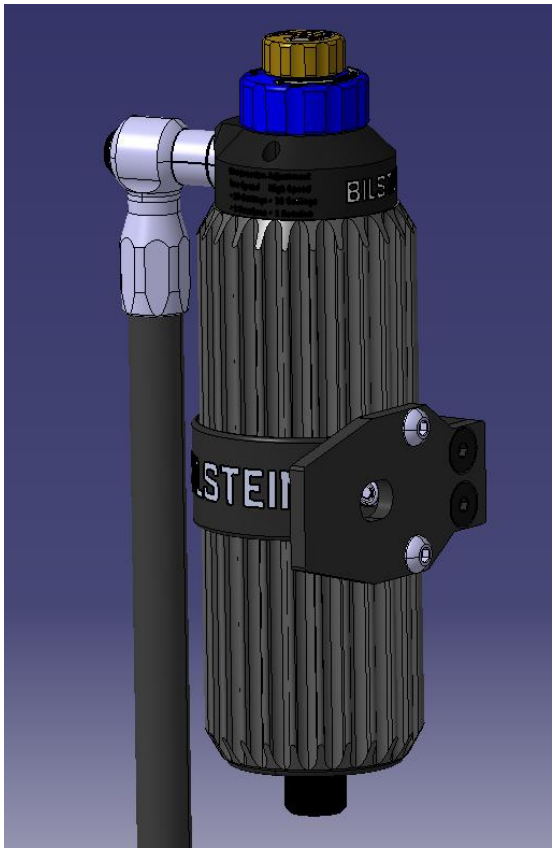
Front side

L. Place the Nylock (BOM item #11) in the upper slot of the Reservoir Clamp (as shown below) then place the Socket Head Cap Screw (BOM item #12) through the hole in the Reservoir Clamp, threading it into the Nylock. Thread in a few turns for now with a 5mm hex but leave loose enough so the reservoir can be installed in the next step.

Back side

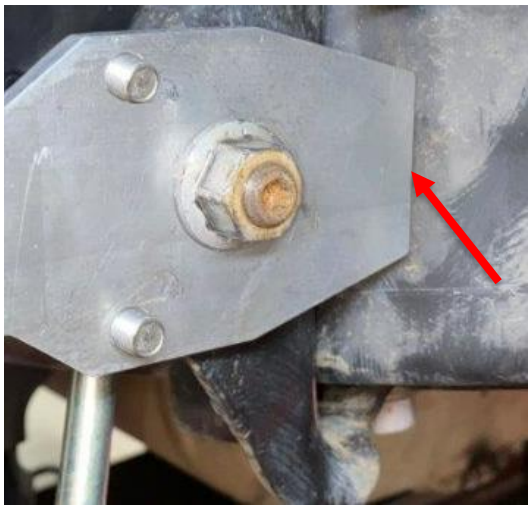
M. Slide the reservoir through the Reservoir Clamp (as shown below) and snug up the Socket Head Cap Screw (BOM item #12) so that the reservoir bracket assembly doesn't fall off the reservoir. But leave loose enough to be able to slide the reservoir back and forth in the Reservoir Clamp.

Front side



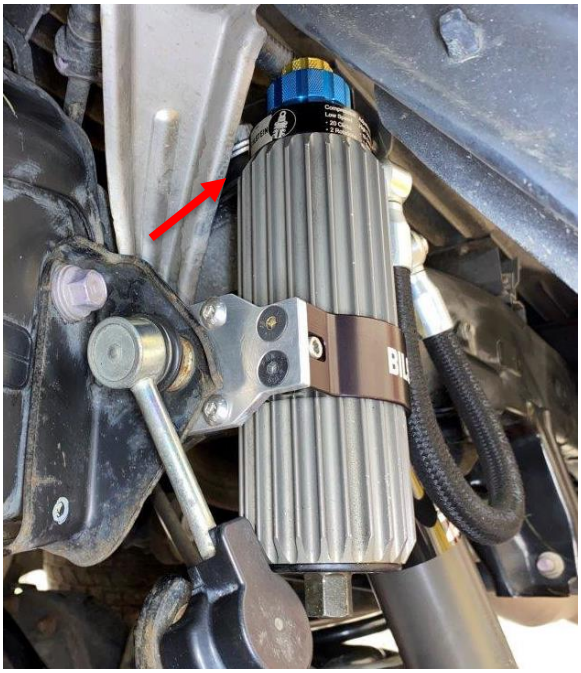
Back side

N. Remove the OE nut from the sway bar end link at the frame mount and place the reservoir assembly (as completed above in step M) over the OE sway bar end link bolt. Ensure the mount plate is flush with the frame as indicated by the red arrow. Torque the OE nut to the manufactured suggested specification.

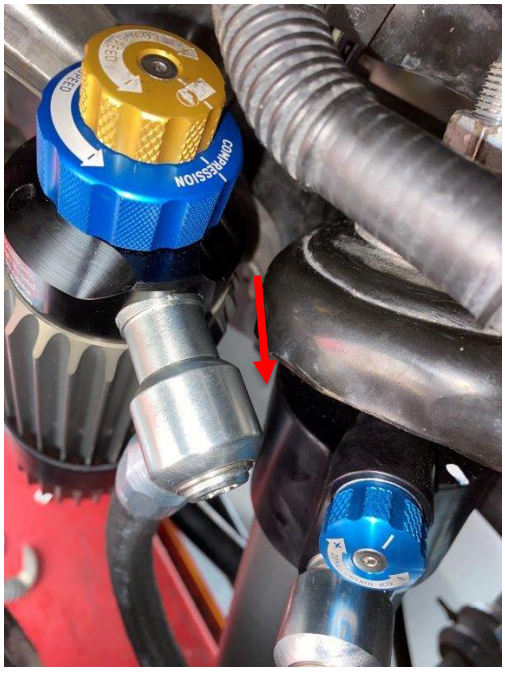


There should be minimal to no gap between the Button Head Screws (BOM Item #8) and the frame mount.

O. Position the Reservoir Tube in the Reservoir Clamp (BOM item #9) so that the top edge of the finned tube is approximately 4” (100mm) from the top edge of the Reservoir Clamp (as shown below). Ensure that there is approximately a finger gap between the top of the reservoir and the body pinch flange as marked by the arrow in red.



P. Clock the reservoir so the hose fitting is angled slightly outboard (as shown below) to ensure the reservoir hose has adequate clearance from all components along the frame. The critical pinch point between the reservoir fitting and the shock bucket is indicated by the red arrow below.



Q. Once the reservoir has been positioned as shown in the previous steps and confirmed to not be contacting anything on the vehicle, tighten the Socket Head Cap Screw (BOM item #12) on the reservoir clamp that was snugged down in step M.
Torque the Socket Head Cap Screw to 6 ft-lb (8 Nm).

R. With the vehicle back on the ground, tighten the OE lower shock bolt/washer that was installed in step F.
Torque OE lower shock bolt to factory specifications. This completes the installation.

Final rear left (driver) 25-332315 B8 8100 shock installed on vehicle:

Final rear right (passenger) 25-352016 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 the included Bilstein wrench part # E-XS01-0000004. 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

Zone Control JCO (Jounce Cut-off) Adjustment

These dampers also come equipped with an adjuster for the JCO (jounce cut-off) system. This blue adjuster knob is located on the mount cap above the coil spring. The **FULL FIRM** setting for the adjuster knob is achieved when the knob is turned all the way **CLOCKWISE.** The **FULL SOFT** setting for the adjuster knob is achieved when the knob is turned all the way **COUNTER-CLOCKWISE.** To make JCO adjustments, simply turn the adjuster knob clockwise for more bottom out control and counter-clockwise for less bottom out control. The adjustment will not affect the ride quality when the vehicle is in the main damping zone at regular ride height.

The JCO adjuster factory setting is:

- 6 clicks counter-clockwise from fully firm.
  (10 total settings are available which translates to 9 clicks; 1 rotation)

JCO (Jounce Cut-off) Adjuster