

# E4-WM5-Y710A00

## 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.

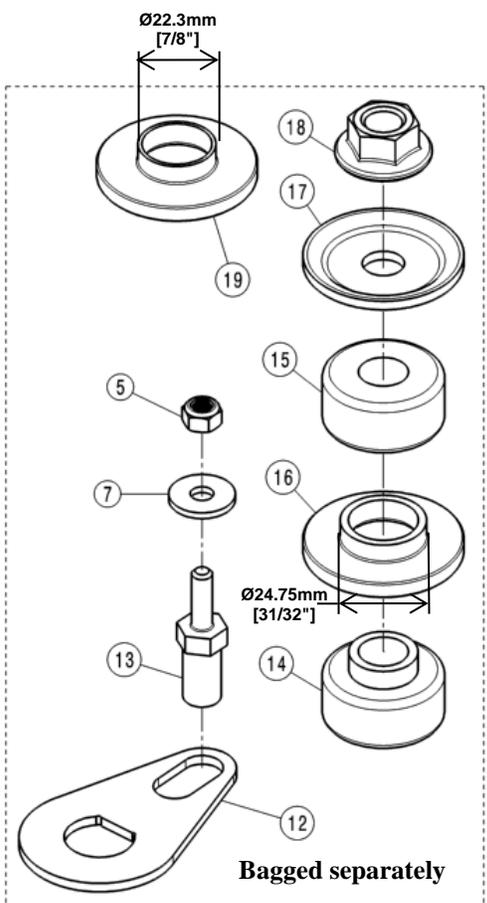
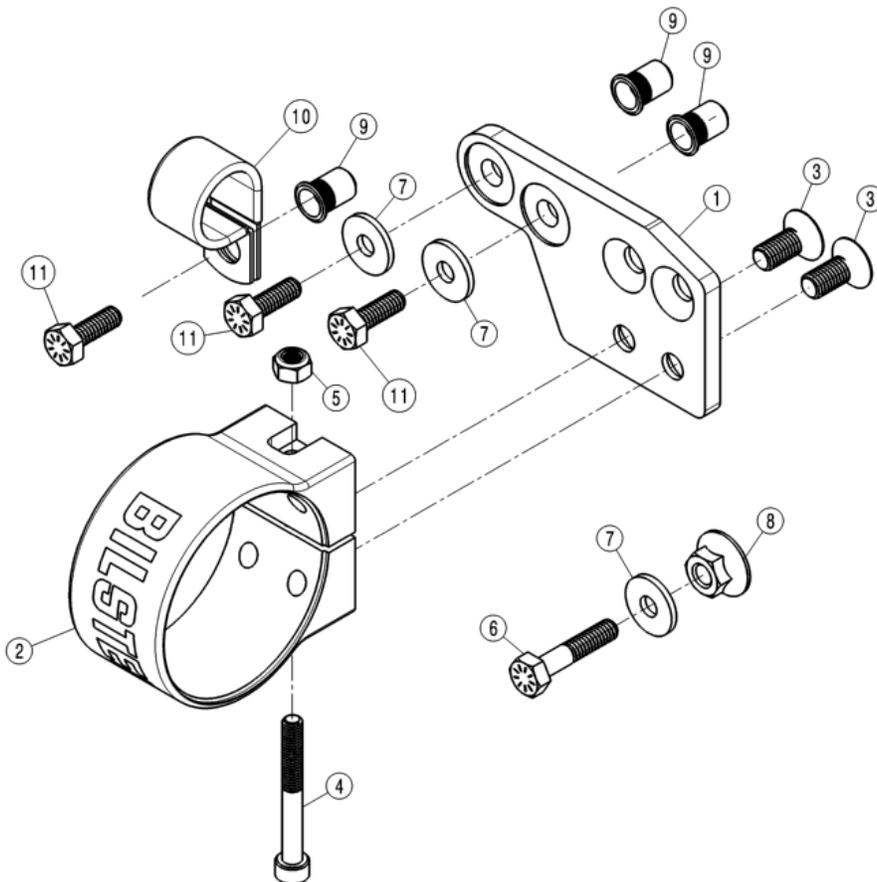
### **CAUTION for COILOVER TYPE SUSPENSIONS!!!**

**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.**

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



<b>Bill of Materials</b>		
<b>Item #</b>	<b>Description</b>	<b>Qty</b>
1	Reservoir Bracket	1
2	Clamp, Reservoir	1
3	Flat Head Screw, M8x1.25 L=18mm	2
4	SHCS, M6x1, SS, 50mm	1
5	Nylock M6x1, Class 8	2
6	Hex Head Cap Screw, 1/4"-20, L=1.25"	1
7	Washer; 1/4" ID x 3/4" OD	4
8	Serrated Flange Nut; 5/16"-18	1
9	Threaded Insert; 1/4"-20 Internal Thread	3
10	Loop Clamp; Hose; 7/8" Dia.	1
11	Hex Head Cap Screw, 1/4"-20, L=3/4"	3
12	Anti Rotation Plate	1
13	Anti Rotation Pin	1
14	Bushing; Lower	1
15	Bushing; Upper	1
16	Alignment washer	1
17	Concave Washer	1
18	Flange Locknut; M12X1.25	1
19	Alignment Washer	1

### **B8 8100 bypass shock installation procedure:**

This instruction is for both rear left (driver) 25-288155 and rear right (passenger) 25-288162 B8 8100 shocks. A bill of materials of the included mounting part kits is shown on the previous page. It is normal to hear a slight audible clicking noise during compression and rebound strokes in the B8 8100 bypass shocks, most notably during low velocity events. This is due to the internal check pistons opening and closing to create the externally adjustable compression and rebound zones. B8 8100 bypass shocks are corner specific. See pages 16 and 17 for the end result.

- 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 #13) into the frame hole circled in red below. This hole is towards the front of the shock mount hole.



Right side depicted. Left side is a mirror image.

- C. Hold the Anti Rotation Pin with a 1/2" or 13mm deep socket. Place a Washer (BOM item #7) over the threaded stem from the top side of the frame. Thread the Nylock (BOM item #5) onto the stem. 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).**

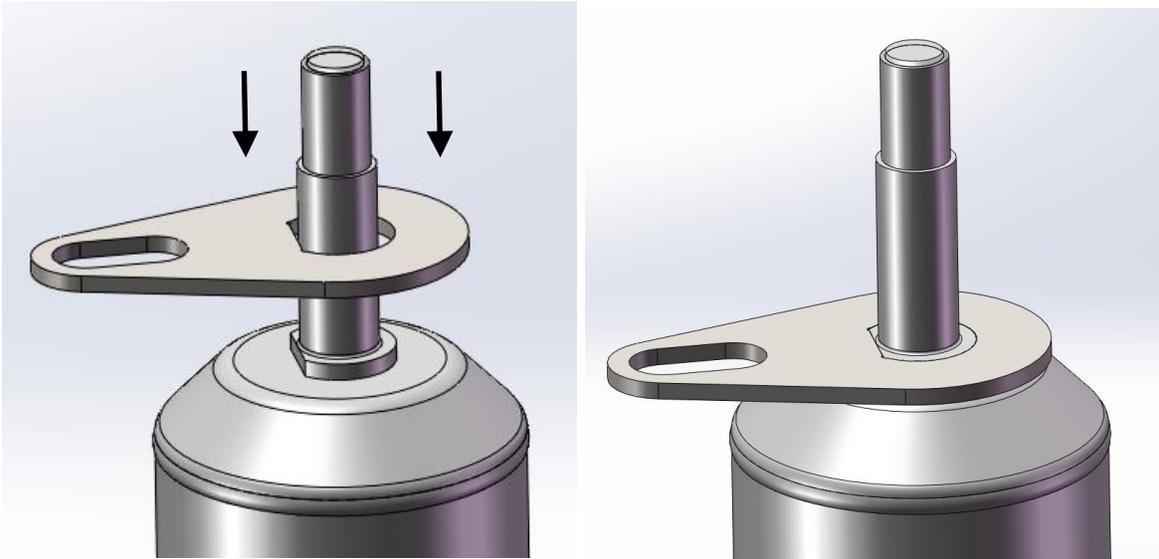


Right side depicted. Left side is a mirror image.

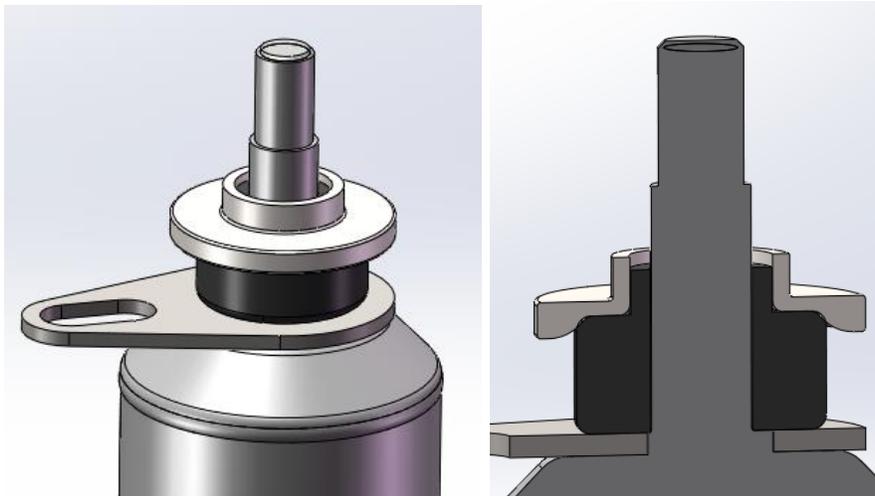
# E4-WM5-Y710A00 MOUNTING INSTRUCTION



- D. Slide the Anti Rotation Plate (BOM item #12) over the threaded pin and onto the shock body as shown below. Verify the D-ring hole in the plate seats over the D-ring boss at the base of the pin. Failure to lock this D-ring into place as shown below may cause your shock to rotate and contact the E-Brake cable as well as other components on the vehicle.



- E. Slide the Lower Bushing (BOM item #14) and the appropriate Alignment Washer for your vehicle (BOM item #16 or #19 depending on year; see BOM on page 2) over the threaded pin on the shock body as shown below.



- 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 tighten yet.

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



- 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 #12) so it captures the Anti Rotation Pin (BOM item #13) and carefully center the Alignment Washer (BOM item #16 or #19) in the chassis mount hole as shown below.



Right side depicted. Left side is a mirror image.

- H. Slide the Upper Bushing (BOM item #15) over the threaded pin, followed by the Concave Washer (BOM item #17). Verify the Concave Washer is installed concave side up as shown below. Then thread the Flange Locknut (BOM item #18) 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).**

You should now have the following:



Right side

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



Left side

- I. With both upper and lower shock mounts secured, and with the rear suspension drooped out, make sure the Anti Rotation Pin is not contacting the Anti Rotation Plate or shock body. If it is contacting, loosen the Nylock (BOM item #5) and slide the Anti Rotation Pin forward slightly until there is a small gap (~1/16"). Re-torque Nylock according to step C.

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



J. You should now have both shocks installed as shown below.



Rear Left



Rear Right

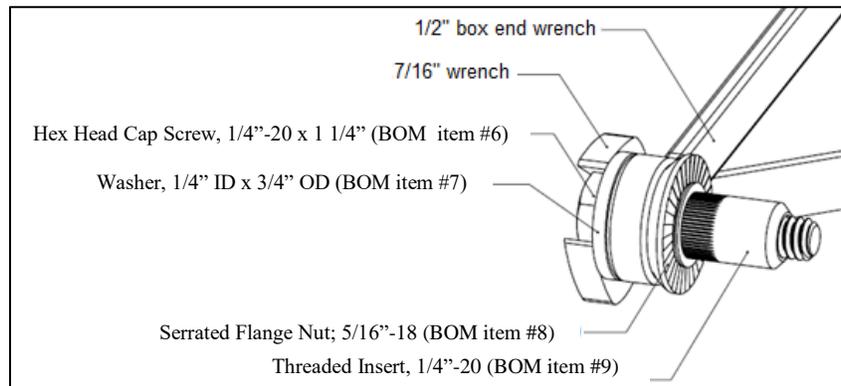
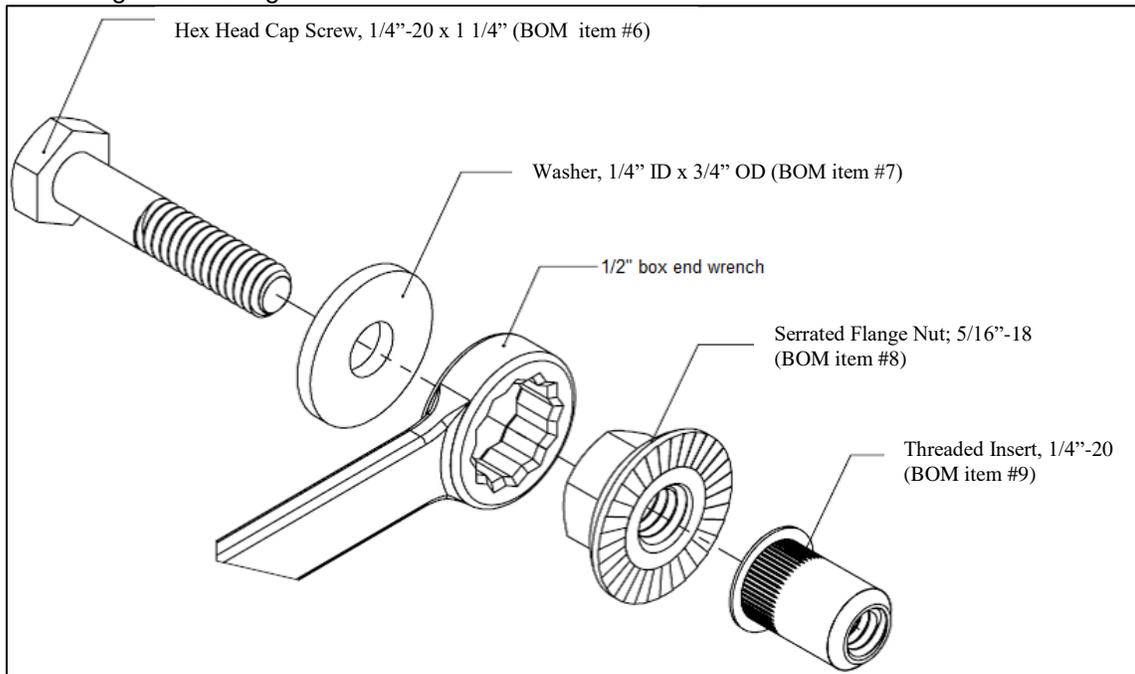




## Threaded Inserts Installation Procedure (complete this procedure for all Threaded Inserts)

- K. If you have access to a Threaded Insert gun or pliers, that may be preferable to set the provided Threaded Inserts. Otherwise, using the BOM items shown below and a 1/2" box end wrench, arrange them as shown and turn the 1/4"-20 hex head cap screw by hand until it is snug.

Note that the screw will pass through the serrated flange nut without engaging the threads. The threads will instead engage the Threaded Insert. The serrations on the flange nut prevent the Threaded Insert from rotating while setting it.



# E4-WM5-Y710A00 MOUNTING INSTRUCTION



- L. Place the threaded insert (BOM item #9) into the hole.



- M. While keeping the Threaded Insert flange firm and parallel against the frame rail, tighten the hex head cap screw (BOM item #6) using a 7/16" box end wrench or socket. Turn it 2.5 rotations to set the Threaded Insert. Tightening in 1/4 turn increments tends to work well.



- N. Remove the screw, washer, and flange nut. The Threaded Insert should now be rigidly fixed in the hole as shown below.





## Reservoir Installation Procedure

For this instruction, 08-14 Toyota FJ's will vary between years on the rear left side as some will have a fuel pump control module. It should not affect installation, but be aware as you use the pictures for reference. 08' Toyota FJ will not have a fuel pump control module. 09-14' will have one but will vary between year as shown below for reference. The images used in this instruction are from a 2014 Toyota FJ



09-13 Toyota FJ Fuel Pump Control Module



2014 Toyota FJ Fuel Pump Control Module

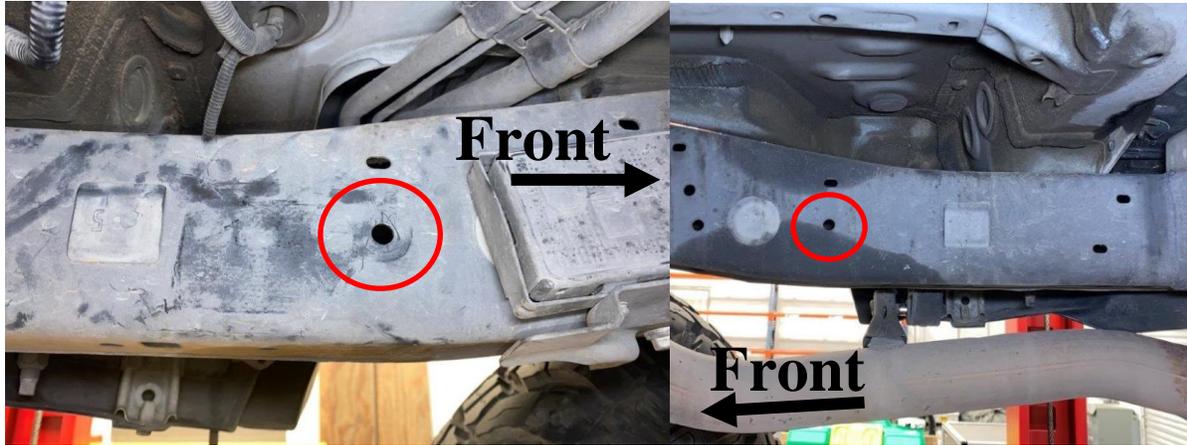
- O. On the rear, left side of the vehicle near the tow hook there is a wire harness for towing. Relocate the wire harness mount (circled in red) to the new location indicated below.



# E4-WM5-Y710A00 MOUNTING INSTRUCTION



P. Continuing on the same side, locate the frame hole circled in red. Below is a 2014 Toyota FJ model shown.



2014 Toyota FJ depicted on this image; rear left side

Rear right side depicted

Q. Install the 1/4-20 Threaded Inserts (BOM item #9) provided into those holes. Refer to step K-N on how to install them.



# E4-WM5-Y710A00 MOUNTING INSTRUCTION



- R. Then mount the Reservoir Bracket (BOM item #1) on to the ¼-20 Threaded Inserts by using the Hex Head Cap Screw (BOM item #11) and ¼ ID Washer (BOM item #7). Do not tighten. Rotate the bracket to level it with the bottom of the frame and hand tighten the bolt to keep in place. Use the hole circled in red to mark the location to drill. Apply for both sides.



- S. Remove the Reservoir Bracket (BOM item #1) and drill a 25/64" (10mm) hole at the marked locations. Install the ¼-20 Threaded Inserts (BOM item #9) provided into those holes. Refer to step K-N on how to install them. Apply for both sides.

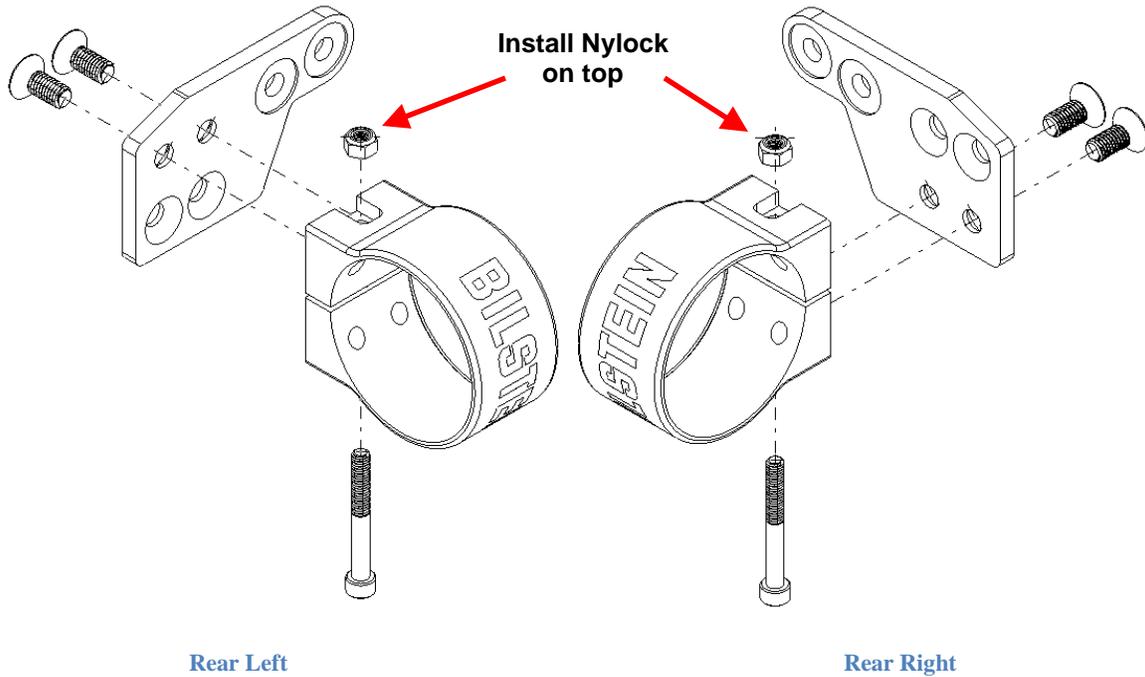


- T. Prepare the assembly below by applying non-permanent thread locker to two Flat Head Screws (BOM item #3). Mount the Reservoir Clamp (BOM item #2) to the Reservoir Bracket (BOM item #1) as shown below using the two Flat Head Screws (BOM item #3). Tighten using a 5mm hex.  
**Torque both Flat Head Screws to 16 ft-lb (22 Nm).**

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



- U. Place the Nylock (BOM item #5) in the upper slot of the Reservoir Clamp (BOM item #2) as shown below. Then place the Socket Head Cap Screw (BOM item #4) through the hole in the Reservoir Clamp (BOM item #2), threading it into the Nylock (BOM item #5). Thread in a few turns for now with a 5mm hex but leave loose enough so the reservoir can be installed later.



- V. Mount the reservoir bracket assembly for both sides, but this time use the threaded insert at the drilled hole to mount it. Apply non-permanent thread locker to the Hex Head Cap Screw (BOM item #11). Then screw in with both Hex Head Cap Screw with a Washer (BOM item #7) to that mounting hole. Do not tighten at this point, bracket should be able to rotate.



# E4-WM5-Y710A00 MOUNTING INSTRUCTION



- W. Pivot the bracket and slide the reservoir into the reservoir clamp to where you can access the 2<sup>nd</sup> bracket to frame mounting hole as shown below. Apply non-permanent thread locker to the Hex Head Cap Screw (BOM item #11). Then with a Washer (BOM item #7) secure the reservoir bracket assembly to the inside frame rail as depicted below. **Torque both Hex Head Cap Screws to 14 ft-lb (19 Nm).** Repeat step for the other side.



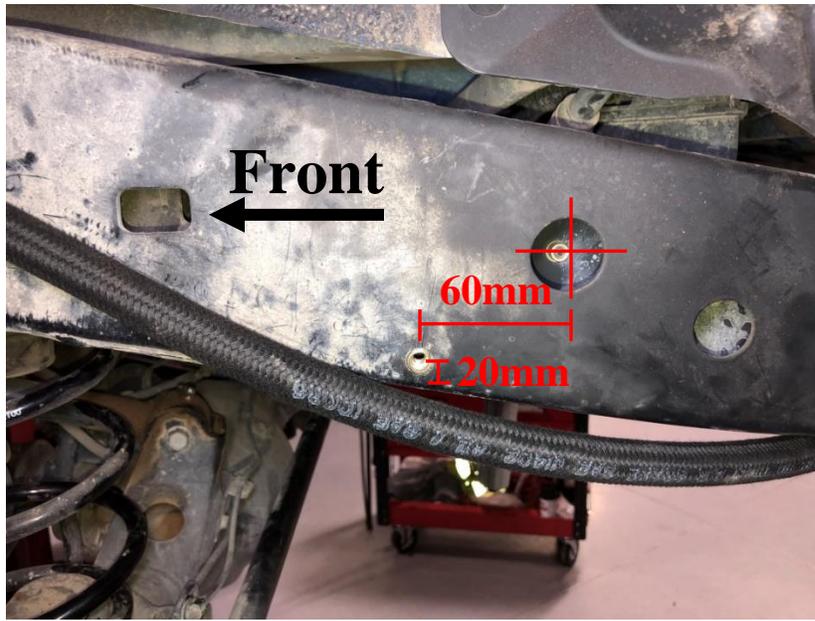
- X. Position the reservoirs on both sides as shown and confirm it is not contacting anything on the vehicle. Tighten the Socket Head Cap Screw (BOM item #4) to secure the reservoir in place. **Torque the Socket Head Cap Screw to 6 ft-lb (8 Nm).** Repeat for the other side.



Right side reservoir mount

**Hose Clamp Installation Procedure** (Left side shown, right side is mirror image)

- Y. From the outside of the frame drill a 25/64" (10mm) hole in the location depicted below. 60mm forward of the frame hole and 20mm from the bottom edge of the frame. Install one Threaded Insert (BOM item #9) following steps K-N.



Drill 25/64" (10mm) hole and install threaded insert

- Z. Place the Loop Clamp (BOM item #10) around the hose as shown below. Apply non-permanent thread locker to one of the Hex Head Cap Screws (BOM item #11) and use a 7/16" wrench to mount the hose to the frame.  
**Torque Cap Screw to 14 ft-lb (19 Nm).**



- AA. 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.

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



Final rear left (driver) 25-288155 B8 8100 shock installed on vehicle:



Note: the shocks depicted herein may differ in appearance from the supplied components.

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



Final rear right (passenger) 25-288162 B8 8100 shock installed on vehicle:



Note: the shocks depicted herein may differ in appearance from the supplied components.

# E4-WM5-Y710A00 MOUNTING INSTRUCTION



B8 8100 bypass shocks allow the user to tune the damping for the best possible ride quality and performance of their vehicle. The shocks offer multiple zones of compression and rebound damping, depending upon the bypass configuration. The factory setting is:

Rebound – 5 full turns **COUNTER-CLOCKWISE** from fully firm  
Compression – 6 full turns **COUNTER-CLOCKWISE** from fully firm  
*\*note: 4 clicks equals 1 full turn*

**Note: The bypass adjusters allow adjustment up to 10 full turns counter-clockwise from fully firm.**

## **B8 8100 bypass adjustment procedure:**

Rotate the blue and red adjuster knobs to make the desired adjustment.

Turn the adjuster knob **CLOCKWISE** to **INCREASE** damping

Turn the adjuster knob **COUNTER-CLOCKWISE** to **DECREASE** damping

## **B8 8100 bypass service:**

For service of your B8 8100 bypass shocks, please contact:

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