

# E4-WM5-Y650A00 MOUNTING INSTRUCTION



This instruction is for both left front (driver) 41-284667 and right front (passenger) 41-284674 B8 8112 shocks. A bill of materials of the included mounting part kit is shown on the next page.

## IMPORTANT! READ THIS FIRST!

Installation of shock absorbers requires special tools and expert knowledge. Accordingly, installation of all BILSTEIN products must be performed by a qualified suspension specialist.

When replacing other brands, BILSTEIN shock absorbers 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 choose to install any BILSTEIN product without the necessary special tools, expertise or chassis hoist, you may subject yourself to the risk of serious bodily injury or death.** If you elect not to use a chassis hoist, at least make sure the vehicle is on level ground, that all tires on the ground during installation are blocked to prevent movement, that at least two tires are on the ground at all times, and that adequately secured safety stands (jack stands) are used to support the chassis. **NEVER** get under the vehicle until you have checked to make sure all of these steps are performed.

BILSTEIN suspension products are gas-filled and are highly pressurized.

- Never place any BILSTEIN product in a vise or use a clamp on any BILSTEIN product.
- Never apply heat near any BILSTEIN product.
- 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 piston rod and seal.
- All mounting fasteners for shocks and struts must be securely tightened before operating the vehicle.

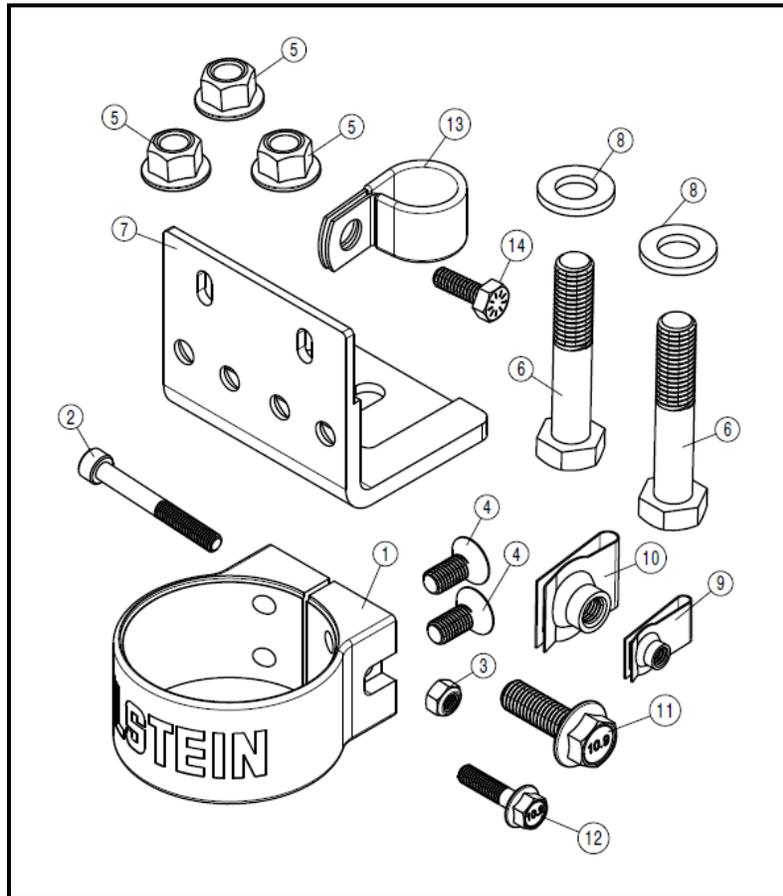
After installing any BILSTEIN product:

- 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!!!**

**Before disassembling the front 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.**

# E4-WM5-Y650A00 MOUNTING INSTRUCTION

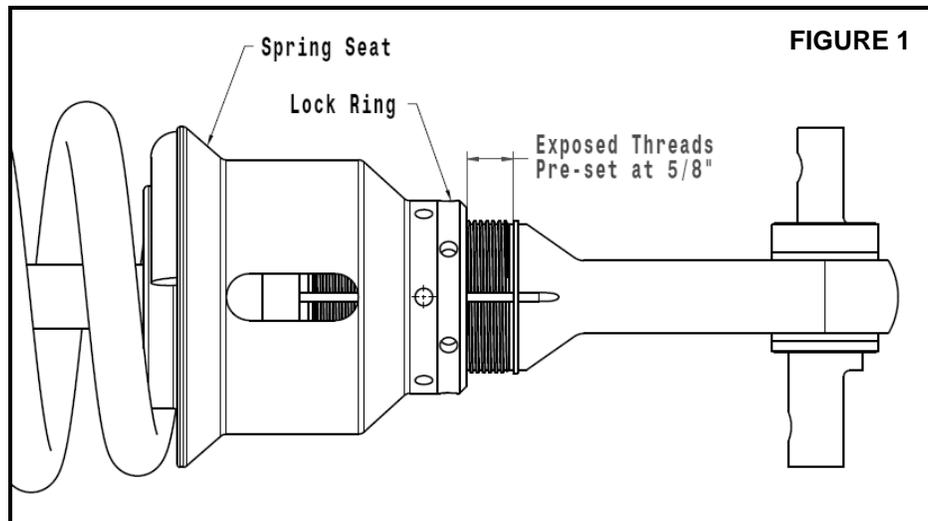


Bill of Materials – FRONT		
Item #	Description	Qty
1	Reservoir Clamp	1
2	Socket Head Cap Screw; M6x1; L = 50mm	1
3	Nylon-Insert Locknut; M6x1	1
4	Flat Head Cap Screw; M8x1.25; L=18mm	2
5	Flange Locknut; M10x1.5	3
6	Hex Head Cap Screw; M12x1.5; L = 65mm	2
7	Reservoir Mount Plate	1
8	Washer	2
9	U-Nut; M6x1	1
10	U-Nut; M10x1.5	1
11	Flange Head Cap Screw; M10x1.5; L = 30mm	1
12	Flange Head Cap Screw; M6x1; L = 25mm	1
13	Hose Clamp	1
14	Hex Head Cap Screw; ¼"-20; L = ¾"	1



## **B8 8112 Shock Installation Procedure:**

- A. Remove existing shock module from the vehicle following all procedures in the vehicle manufacturer's service manual.
- B. Before installing the B8 8112 shocks on the vehicle, check if they are set at the desired lift height. The pre-set lift height for 4WD is approximately 2.3" with adjustment up to 2.5" and down to 1.5". Do not set any higher than 3/4" (20mm) exposed thread as this will not allow enough down travel before rebound zone engagement. The additional thread is intended for heavy load applications only.
- C. If the above mentioned pre-set lift height is not what is desired, proceed to Step D. Otherwise, skip to Step J.
- D. Break the spring seat lock ring loose with the supplied spanner wrenches. Refer to Figure 1 below.
- E. Note the clocking of the lower mount relative to the studs on the upper mount (important for reassembly).
- F. Using an appropriate spring compressor, compress the spring until it can be rotated freely by hand. Then, spin the spring seat up or down depending on what the desired lift height is. See the lift height table below for a few points of reference between the amount of exposed thread and estimated lift height. They are listed for stock weight vehicles.



2015+ Ford F-150	
Exposed Threads	B8 8112 Typical Lift Heights**
	5.0 L V8, 2.7L and 3.5 L EcoBoost V6, 3.5 L V6 SuperCab and SuperCrew
0"	1.5" lift
3/16"	1.7" lift
5/16"	1.9" lift
1/2"	2.1" lift
5/8"	2.3" lift
3/4"	2.5" lift

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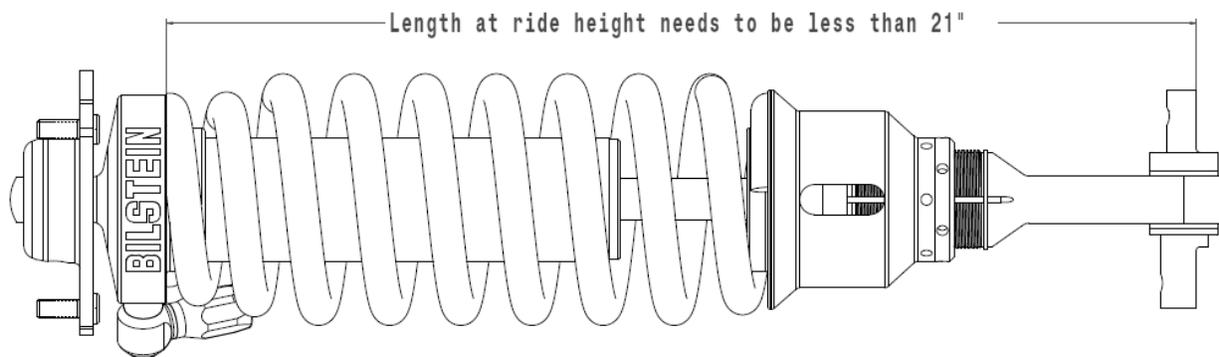
## MOUNTING INSTRUCTION



\*\* Lift heights indicated are typical. Actual lift height is influenced by which factory suspension the vehicle is equipped with and its condition; optional equipment and accessories on your vehicle, and other vehicle modifications such as replacement coil springs, wheel and tire combinations, etc.

Modifying/lifting the suspension to your vehicle may raise its center of gravity and may make it more susceptible to loss of control and/or rollover, which may result in death or serious injury. We strongly recommend that you offset the loss of rollover resistance as much as possible by increasing tire track width, and that you equip the vehicle with a functional roll bar and cage system. Wear seat belts and shoulder harnesses at all times, and avoid situations where a side rollover may occur.

**NOTE:** If you exceed the recommended spring seat adjustment range (exposed thread dimension) for your vehicle (needed for added front end weight from steel bumpers and armor), make sure to measure the shock at ride height as shown below after install. This is needed to ensure there is at least 1.5" of droop travel from static ride height and so the stiffer rebound zone is not being engaged at ride height.



### **Front Module Installation Procedure**

**G.** Once the desired lift height is set, tighten the lock ring against the spring seat using supplied spanner wrench.

**Torque lock ring to spring seat 37 ft-lb (50 Nm).**

**H.** Rotate the lower shock mount so it is aligned with the upper mount studs as noted in Step E. Ensure the set screw located on the lower heim spacer is facing inboard on the vehicle.

**I.** Slowly release the spring compressor.

**J.** Install the shock onto the vehicle as shown below, ensure the Bilstein lettering on the cap is facing outboard. Use the three Flange Locknuts (BOM item #5) and a 15mm socket to attach the upper mount. Leave reservoir hanging temporarily towards the front of the vehicle (Note: below image is of the right (passenger) side of the vehicle).

**Torque Flange Locknuts to 33 ft-lb (45 Nm).**

# E4-WM5-Y650A00 MOUNTING INSTRUCTION



- K. Attach the lower shock mount with the M12x1.5 Hex Head Cap Screws (BOM item #6) and Washers (BOM item #8) from the bottom of the lower control arm threading up into the lower shock mount. Apply non-permanent thread locker and **torque Hex Head Cap Screws to 69 ft-lb (94 Nm)**.



# E4-WM5-Y650A00 MOUNTING INSTRUCTION



- L. Prepare the reservoir support plates as shown below. Attach the Reservoir Clamp (BOM item #1) to the Support Plate (BOM item #7) using the two M8x1.25 Flat Head Cap Screws (BOM item #4). Apply a non-permanent thread locker and **torque Flat Head Cap Screws to 18 ft-lb (25 Nm)**.

Driver Side

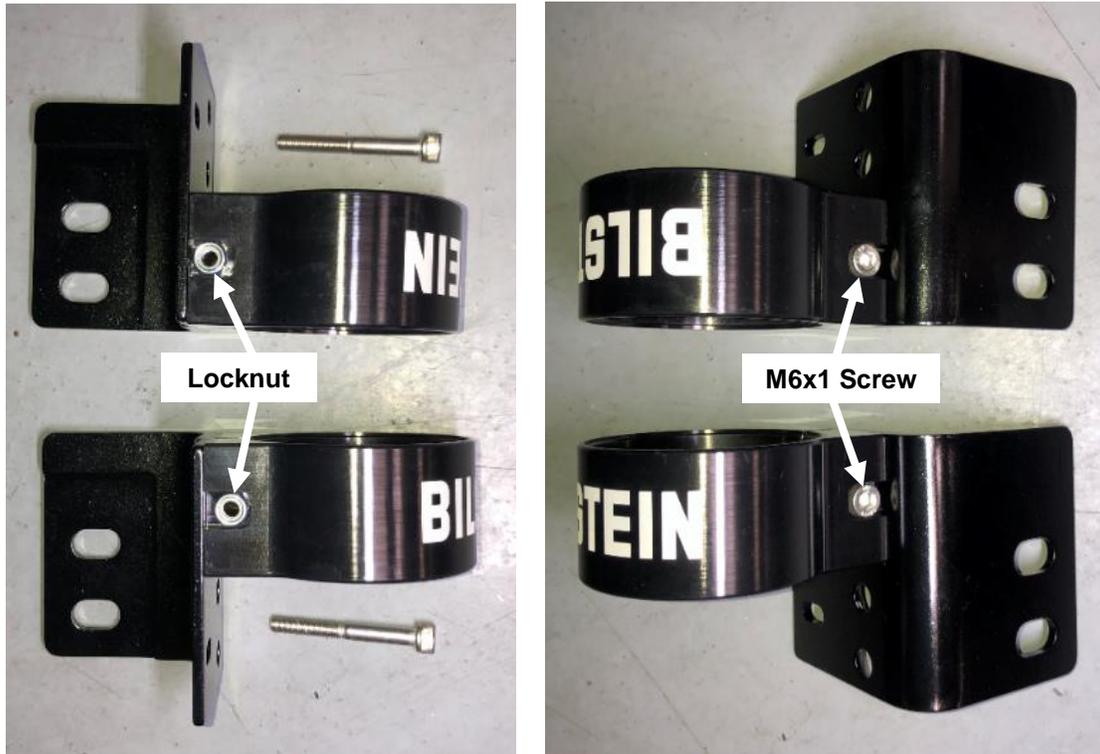
Passenger Side



# E4-WM5-Y650A00 MOUNTING INSTRUCTION



- M. Install the M6x1 Socket Head Cap Screw (BOM item #2) and the M6 locknut (BOM item #3) on the Reservoir Clamp (BOM item #1) as shown below. Ensure the nut is located on the top of the assembly as this side will not be accessible after installation on the vehicle. Hand tighten for now allowing the reservoir to slide freely in and out of the Reservoir Clamp.



- N. Locate the frame rail section in front of the wheel well and install the two U-Nuts provided as shown below. The M6 U-Nut (BOM item #9) is placed on the side of the frame rail and the M10 U-Nut (BOM item #10) is placed on the bottom of the frame rail (circled below). Ensure the threaded side of the U-Nut is inserted on the inside of the frame rail.

Driver Side



Passenger Side



# E4-WM5-Y650A00 MOUNTING INSTRUCTION



- O. For the turbo charged ECOBOOST models, you will need to remove the Inter-cooler Bracket bolt shown below. For these models, you will not need the M10 U-Nut (BOM item #10) and the M10x1.5 Flange Head Cap Screw (BOM item #11).

**Driver Side**



**Passenger Side**



- P. Install the Reservoir Support Assembly onto the frame rail as shown below using the M10x1.5 Flange Head Cap Screw (BOM item #11) and the M6x1 Flange Head Cap Screw (BOM item #12). For the turbo charged ECOBOOST models the Reservoir Support Assembly gets sandwiched between the Inter-cooler bracket and the frame rail. Apply non-permanent thread locker and while holding the Reservoir Support Assembly tight to the frame rail, **torque Flange Head Cap Screws to 16 ft-lb (22 Nm)**.

**Driver Side**



**Passenger Side**



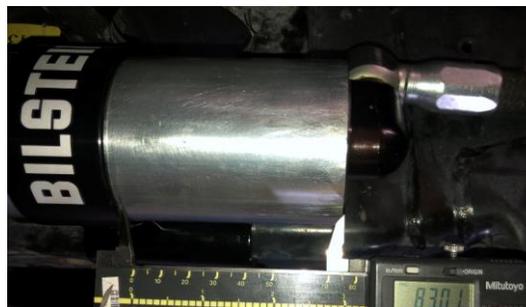
**Inter-cooler Bracket**

# E4-WM5-Y650A00 MOUNTING INSTRUCTION



- Q. Slide the reservoir through the Reservoir Clamp (BOM item #1) enough to take out most of the slack of the Reservoir Hose. For the driver side, the reservoir should measure approx. 3.25" (83mm) from the Reservoir Clamp to the hose side of the reservoir as shown below and the passenger side should measure approx. 4.125" (105mm).

## Driver Side



## Passenger Side



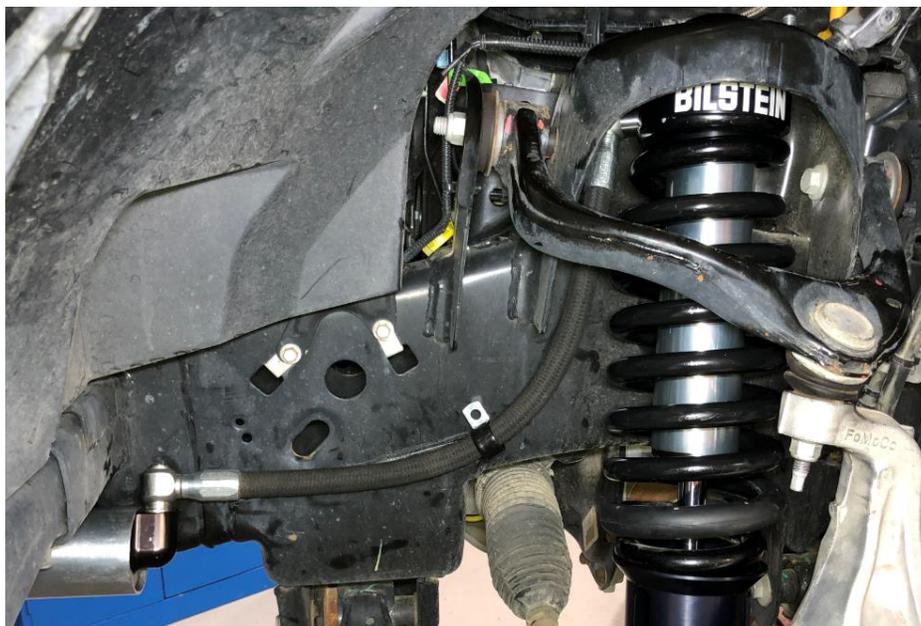
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- R. Clock each reservoir so that the hose fitting is no more than  $\frac{1}{4}$ " away from the frame rail but not touching as shown below.



- S. Now tighten the M6x1 Socket Head Cap Screw (BOM item #2), **torque to 6 ft-lb (8 Nm)**.
- T. To ensure the Reservoir Hose stays tight against the frame rail, a hose clamp (BOM item #13) is included in the mounting hardware. Find a good place on the frame rail where the hose clamp can be installed (see below).



## E4-WM5-Y650A00 MOUNTING INSTRUCTION



- U. In the location you have picked for the hose clamp, use a hammer and punch to mark the location of the hole to drill. In the punched location, use a #7 (0.201") drill bit to drill a hole in the frame. Using a ¼"-20 tap and cutting oil, tap the hole.
- V. Now install the ¼"-20 Hex Head Cap Screw (BOM item #14) in the hole securing the hose clamp and the hose to the frame as shown below. Apply a non-permanent thread locker and **torque the Hex Head Cap Screw to 16 ft-lb (22 Nm)**.



- W. Check wheel alignment and adjust to vehicle manufacturer's specifications. This completes the installation.

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Final left front (driver) 41-284667 B8 8112 shock installed on vehicle:



# E4-WM5-Y650A00 MOUNTING INSTRUCTION



**Final right front (passenger) 41-284674 B8 8112 shock installed on vehicle:**

