



### 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.**

# E-WM05-0000144 MOUNTING INSTRUCTION



**NOTE: For the vehicle to have adequate clearances around the suspension components the following conditions need to be met:**

Trims	Engine	Lift	Tire Note	Wheel note
4xe Non-Rubicon	2.0L Hybrid	1.5"	Max 33" w/ stock fender	Compatible w/ factory 20" wheels. 17" or 18" wheels require max 4.75" backspacing.
4xe Rubicon	2.0L Hybrid	0.75"	Max 35"	17" or 18" wheels require maximum of 4.75" backspacing.
Non-Rubicon	2.0L or 3.6L	2.5"	Max 33" w/ stock fender	Compatible w/ factory 20" wheels. 17" or 18" wheels require max 4.75" backspacing.
Rubicon	2.0L or 3.6L	1.5"	Max 35"	Compatible w/ factory 17" wheels. Aftermarket wheels require max 6.25" backspacing.

Installing aftermarket wheels and tires may cause steering instability. It is highly recommended that an aftermarket steering stabilizer be installed to minimize the steering shake caused by aftermarket wheel/tire combinations. Bilstein does offer a steering stabilizer (33-292984 LEFT HAND DRIVE ONLY!), but it is sold separately from this kit. On Wranglers not equipped with an electronic sway bar disconnect, a sway bar disconnect should be installed and the disconnect should be utilized for moderate to advanced terrain.

<b>Component List</b>		
Item No.	Description	Qty.
<b>Standard Lift</b>		
1	Front B8 5100	2
2	Rear B8 5100	2
3	Front 1.5" Lift Springs	2
4	Rear 1.5" Lift Springs	2
5	Mount Part Kit	1
<b>Heavy Front Lift</b>		
1	Front B8 5100	2
2	Rear B8 5100	2
6	Front 1.5" Lift Springs; Heavy Load	2
4	Rear 1.5" Lift Springs	2
5	Mount Part Kit	1
<b>Mount Part Kit</b>		
7	Sway Bar End Links; Front Set	1
8	Sway Bar End Links; Rear Set	1
9	Front Lower Spring Isolators	2
10	Front Bump Stop Spacers	2
11	Rear Bump Stop Spacers	2
12	Sway Bar Spacers	2
13	Stud Caps	2
14	Flat Head Screw, M10X1.5, L=60mm	6
15	Washer, M10 20x2	6
16	Nyloc Nut, M10x1.5	6
17	Flanged Hex Head Cap Screw, M10x1.5, L=50	4

**IMPORTANT:** Prior to beginning installation, do a thorough inspection of all steering, suspension, brake, and driveline components. This includes but is not limited to control arms and bushings, stabilizer bars and bushings, pitman arm, tie rods, wheel bearings and ball joints. Inspect all frame mounting points for stress cracks. Vehicle must be in excellent working condition and all damaged or worn components should be properly repaired or replaced before beginning installation. Note or mark all hardware that will be loosened in the steps below. This will help track the hardware that needs to be retorqued in step 34.

**Front Suspension Removal:**

1. Using a chassis hoist lift the vehicle and support the front axle using jack stands while ensuring the vehicle is secure and properly supported.
2. To access upper control arm bolts, remove the 10mm bolts securing the heat shields over the upper control arm mounts at the frame.



Driver Side



Passenger Side

3. Loosen the 2 track bar bolts and the 8 front control arm bolts. Loosen them enough to allow the joints to swing freely.



Track Bar Bolts



**Driver Side**

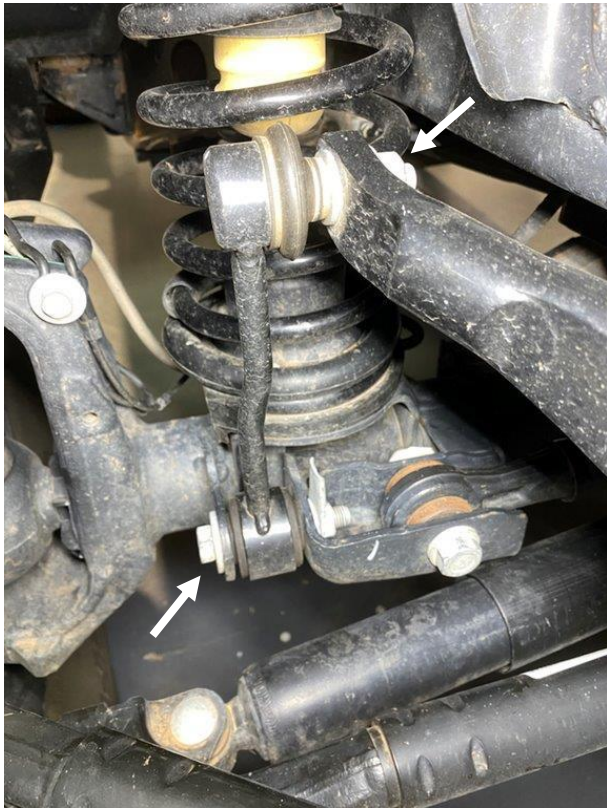


**Passenger Side**

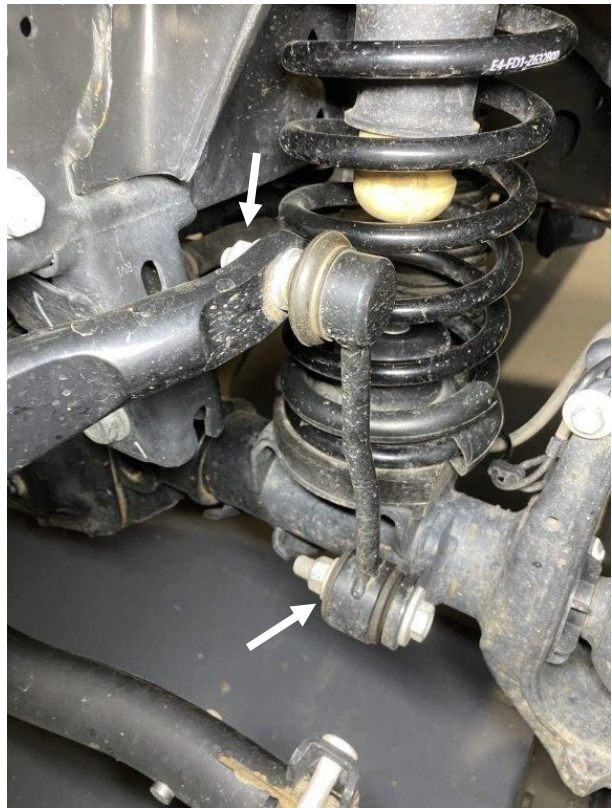
# E-WM05-0000144 MOUNTING INSTRUCTION



4. Remove both front stabilizer links. Retain the hardware for reuse.



**Driver Side**



**Passenger Side**

5. Disconnect the brake line brackets from the lower control arm and frame on both sides, as shown below, and retain all hardware.



**Brake Line Bracket on LCA**

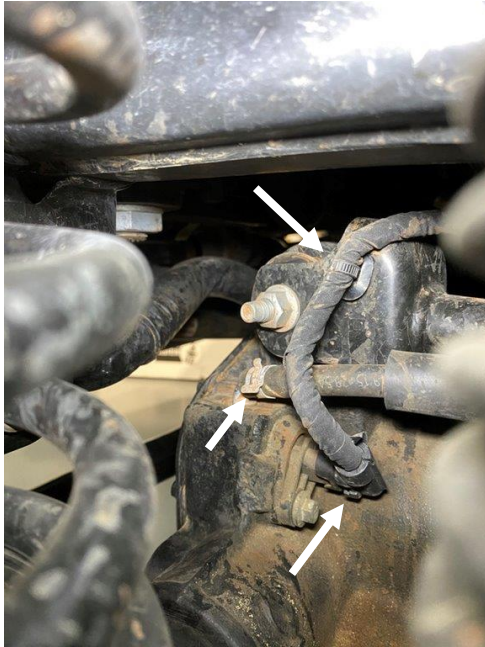


**Brake Line Bracket on Frame**

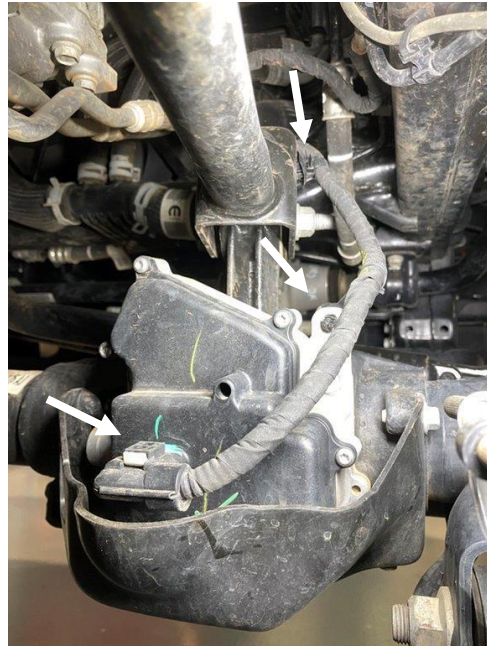
# E-WM05-0000144 MOUNTING INSTRUCTION



6. Disconnect the breather hose and both electrical connectors including harness from the axle and upper control arm shown below.



**Driver Side**



**Passenger Side**

7. With the axle supported securely, remove both front shock absorbers, and retain all hardware.



**Driver Side**



**Passenger Side**

# E-WM05-0000144 MOUNTING INSTRUCTION



8. At this time, note the orientation of the upper spring isolator on both sides to ensure they are reinstalled with the same orientation.
9. Lift the vehicle to extend the suspension until the spring can be removed. Pay close attention to the front driveline angle and brake lines. Only extend the suspension enough to allow spring removal. Discard the lower spring isolator after removing the springs.



Driver Side



Passenger Side



**Front Suspension Installation:**

- 10. Install the Bilstein supplied lower spring isolators (BOM item #9) onto the lower spring seats as shown. Install the front springs (BOM item #3 or #6) and front bump stop spacers (BOM item #10) at the same time, ensuring the upper spring isolator is still oriented the same as it was in step 8, and lower the vehicle until sufficient pressure is on the spring to keep it in position.



Driver Side

Driver Side

- 11. Install front bump stop bolt (BOM item #14), washer (BOM item #15), and nut (BOM item #16). Torque to 32.5 ft-lb(44Nm).
- 12. Install the Bilstein front shocks (BOM item #1) on the vehicle by attaching the upper mounts. All original fasteners can be reused. Do not install the lower mount at this point.

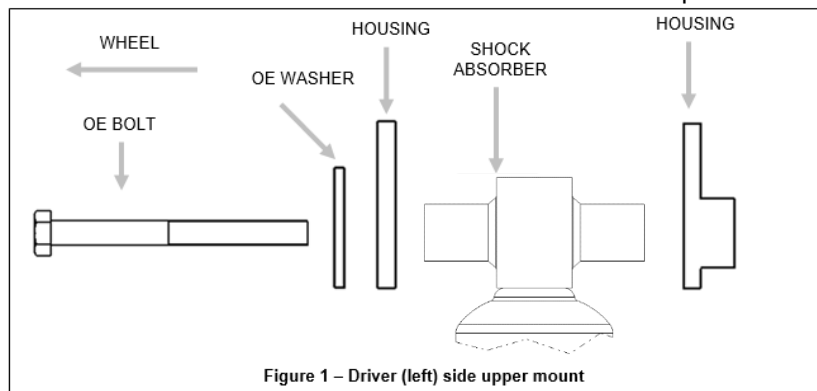


Figure 1 – Driver (left) side upper mount

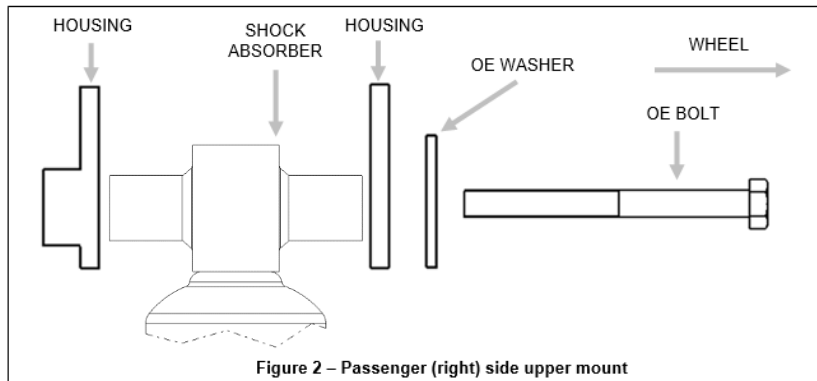


Figure 2 – Passenger (right) side upper mount

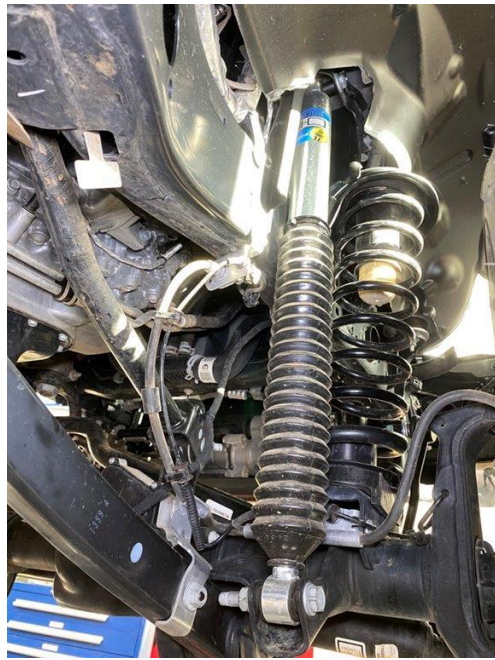
# E-WM05-0000144 MOUNTING INSTRUCTION



13. Lower the vehicle to compress the suspension until the lower shock mount can be installed on the axle.



**Driver Side**



**Passenger Side**

14. Install Bilstein supplied front sway bar links (BOM item #7) reusing the OE hardware. Apply high strength thread locker before installing the nut on the sway bar link upper stud. Do not torque down at this time.



**Driver Side**



**Passenger Side**

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15. Reconnect driver side axle harness connector and the axle breather hose. Follow the driver side harness up to the frame, remove the first frame clip to allow enough slack.



Driver Side



Driver Side



Driver Side (Frame clip removed)

16. Reconnect the passenger side harness to axle in reverse order of removal. Follow the passenger side harness up to the frame and carefully cut the zip tie holding the harnesses together. This will allow enough slack in the line at full droop.



Passenger Side



Passenger Side



Passenger Side (Zip tie cut)

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17. Lift the vehicle to fully extend the suspension. Reconnect brake line brackets to the frame, then install the brake line brackets to the lower control arm and bend this bracket enough to have sufficient slack at full suspension droop. Reconnect the breather hose to the axle. Remove the breather hose clip from the frame's brake line bracket and adjust breather hose clip on the driver side shock bucket to allow enough slack at full suspension droop. Torque the bolts down to manufacturer's specification.



**Driver Side**



**Driver Side (Breather hose clip removed)**



**Passenger Side**

**Rear Suspension Removal:**

18. Using a chassis hoist lift the vehicle and support the rear axle using jack stands while ensuring the vehicle is secure and properly supported.
19. Loosen the 2 track bar bolts and all 8 control arm bolts at both the frame and axle enough to allow the joints to swing freely.



**Track Bar Bolts**



**Driver Side**



Passenger Side

20. Remove both rear sway bar links and disconnect the brake line bracket from the frame on both sides. Retain all hardware. (Driver side shown, passenger side is a mirror image)



Driver Side Sway Bar Link



Brake Line Bracket

# E-WM05-0000144 MOUNTING INSTRUCTION



21. Disconnect the breather hose and wiring harness from the axle. There are two versions of the e-brake cable guide based on the vehicle package. Remove the guide from the bottom of the body just above the frame crossmember to allow slack in the e-brake cable. E-brake guide can be discarded.



**Axle Breather & Wiring Harness**



**E-brake Cable Guide Version A**



**E-brake Cable Guide Version B**

22. Remove the splash shields from the rear of the wheel well to allow access to the rear shock by removing three screws on each side.



**Driver Side**

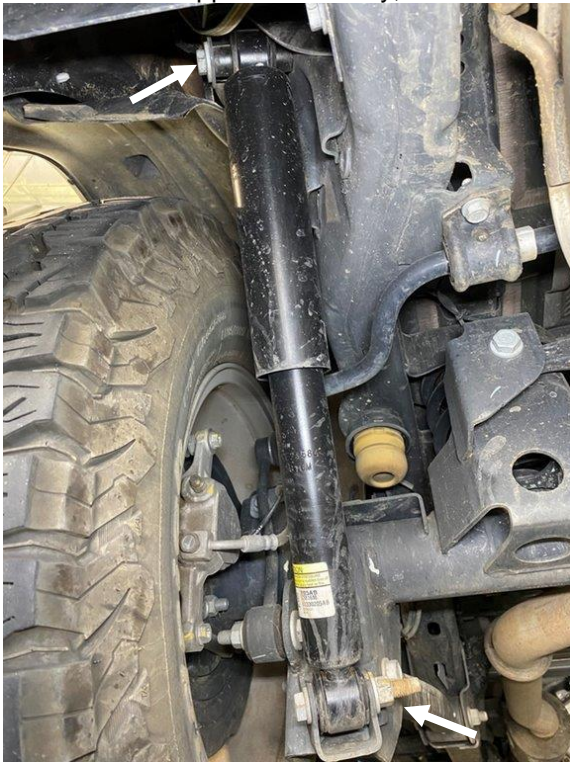


**Passenger Side**

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23. With the axle supported securely, remove both rear shock absorbers, and retain all hardware.



**Driver Side**



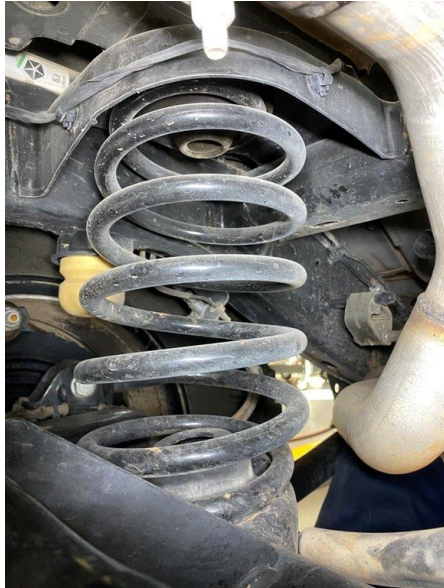
**Passenger Side**

- 24. At this time, note the orientation of the upper spring isolator on both sides to ensure they are reinstalled with the same orientation.
- 25. Lift the vehicle to extend the suspension until the spring can be removed. Pay close attention to the rear driveline angle and e-brake lines. Only extend the suspension enough to allow for spring removal.



**Rear Suspension Installation:**

26. Install the Bilstein rear springs (BOM item #4) ensuring the upper spring isolator is still oriented the same as it was in step 24 and lower the vehicle until sufficient pressure is on the spring to keep it in position.



**Driver Side**



**Passenger Side**

27. Install Bilstein rear sway bar links (BOM item #8) reusing the OE lower hardware. Do not torque down at this time.



**Driver Side**



**Passenger Side**

# E-WM05-0000144 MOUNTING INSTRUCTION



28. Install the Bilstein rear bump stop spacers using the supplied bolts (BOM item #14), washer (BOM item #15), and nut (BOM item #16). Torque to 32.5 ft-lb(44Nm).



**Driver Side**



**Passenger Side**

29. Install the rear Bilstein shocks (BOM item #2) using original hardware. Do not tighten at this point. Lift vehicle to fully extend the suspension.



**Driver Side**

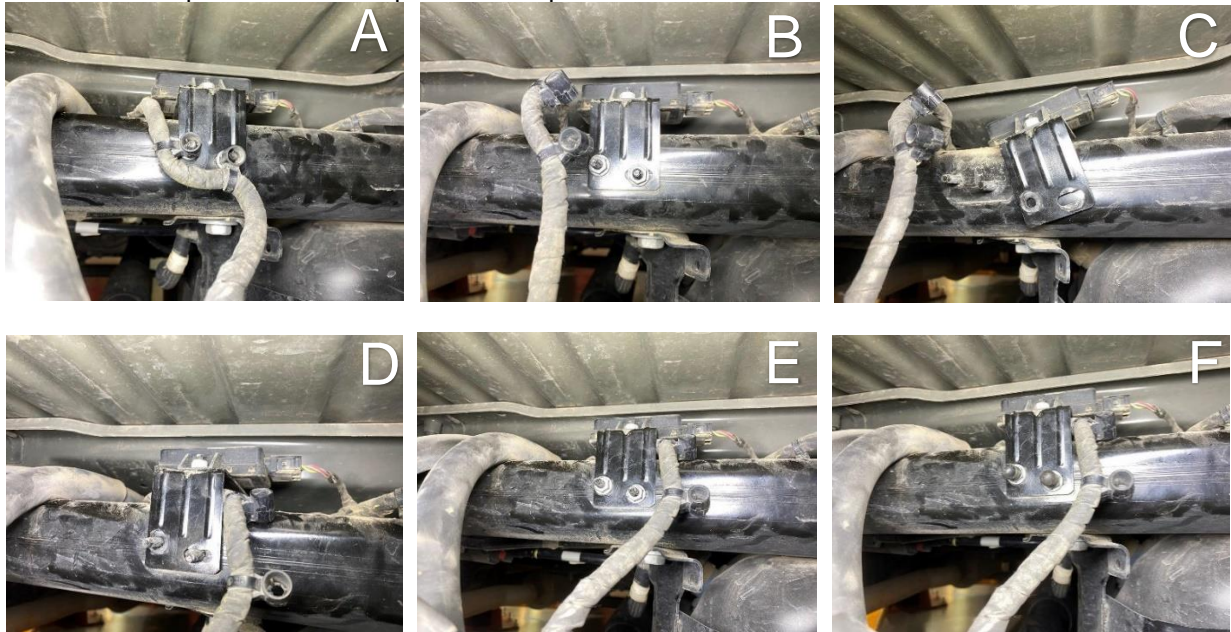


**Passenger Side**

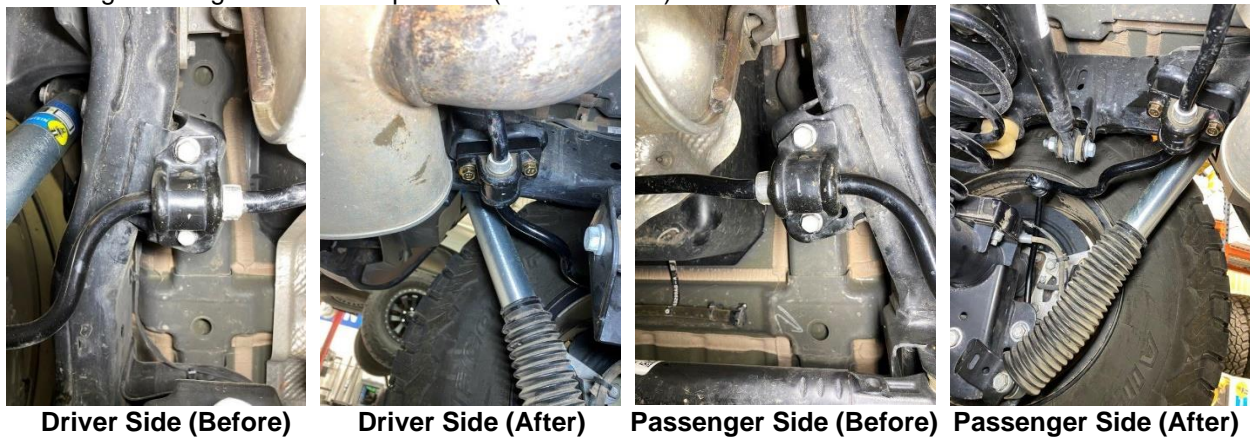
# E-WM05-0000144 MOUNTING INSTRUCTION



- 30. Reinstall the brake line brackets to the frame on both sides and torque to manufacturer's specification.
- 31. If equipped with a rear locker, the wiring harness to the axle will need to be rerouted.
  - a. Disconnect the harness clips from the studs on the frame.
  - b. Remove the nuts from the studs freeing the module bracket from the frame.
  - c. Route the harness to the opposite side of the module bracket
  - d. Reinstall the module bracket to frame. Torque down to manufacturer's specification.
  - e. Install the Bilstein stud caps (BOM item #13) over the studs as shown below.
  - f. Reconnect the wire harness and breather hose from to the axle ensuring enough slack is present at full suspension droop.



- 32. Disconnect the sway bar bushings from the frame and install the sway bar spacer (BOM item #12) using the flange hex head cap screw (BOM item #17).



33. At this point all components should be installed and ready for final torque as shown below.



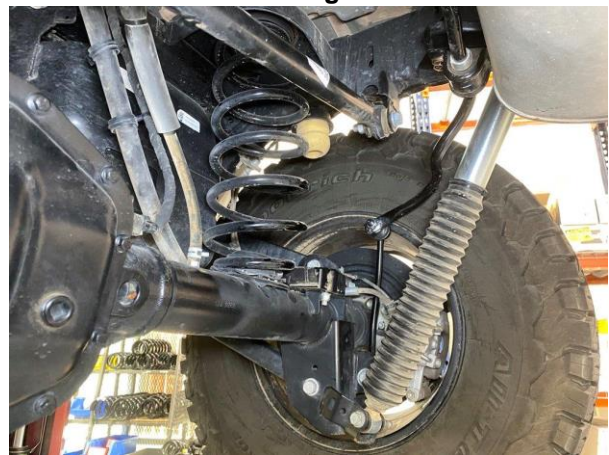
**Installed Driver Side Front**



**Installed Passenger Side Front**



**Installed Driver Side Rear**



**Installed Passenger Side Rear**

34. Remove all jack stands supporting the axles and lower the vehicle on to the ground so the full weight of the vehicle is supported by the suspension. Torque all the hardware that was noted/marked for loosening or removal as specified in page 3 in addition to the sway bar spacer, sway bar links and shocks to manufacturer's specification.
35. After all the suspension components are properly torqued down, reinstall the upper control arm heat shield that was removed in step 2. Torque the bolts down to the manufacturer's specification.
36. Reinstall the splash shield that was removed in step 22. Torque the screws down to the manufacturer's specification.
37. Following completion of the installation, the vehicle should be properly aligned, and headlamps should be adjusted to the manufacturer's specifications.