

E-WM05-0000090

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.



Toyota Rav4 '19+; 1.5" Lift**

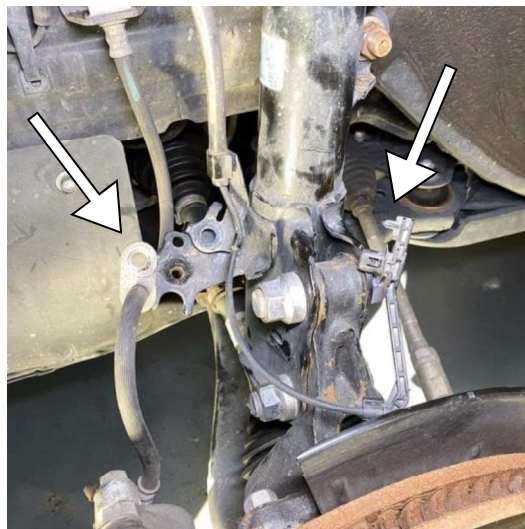
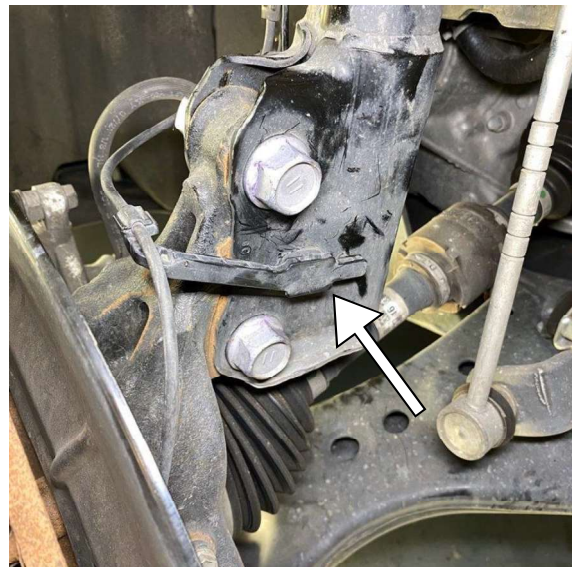
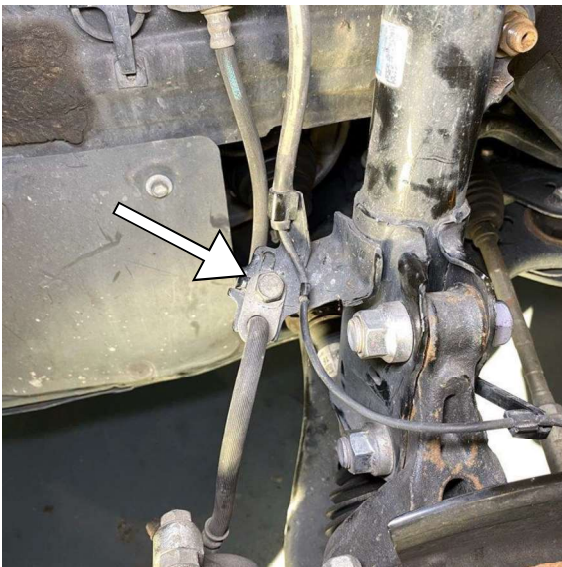
** Lift heights indicated are typical. Actual lift height is influenced by which factory suspension the vehicle is equipped with and its condition; optional equipment and accessories on your vehicle, and other vehicle modifications such as replacement coil springs, wheel and tire combinations, etc.

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.

Front B8 Terrasport Twin-Tube Strut (Driver side shown, passenger side is a mirror image and the same steps will be followed as shown below):

1. Disconnect brake hose and ABS wiring from strut assembly.
 - a. Using a 14mm socket, remove the hose and ABS bracket.
 - b. Using a clip tool, remove ABS plastic clip.



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

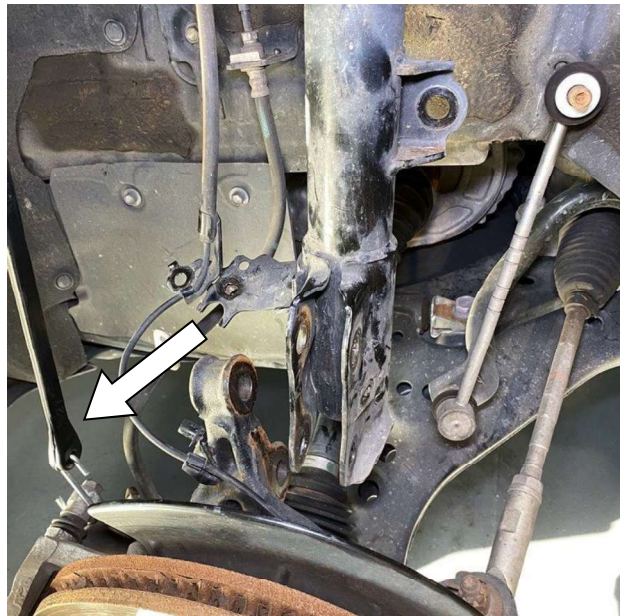
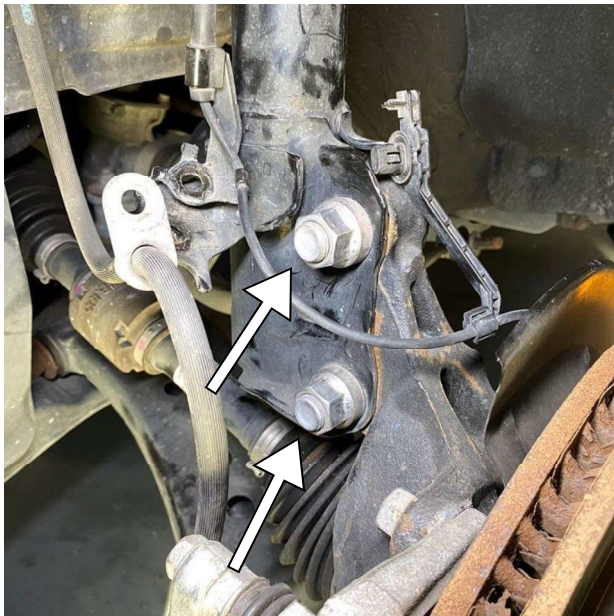
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2. Remove the sway bar link from the front strut assembly.
 - a. 6mm Allen wrench.
 - b. 17mm pass through socket or wrench.



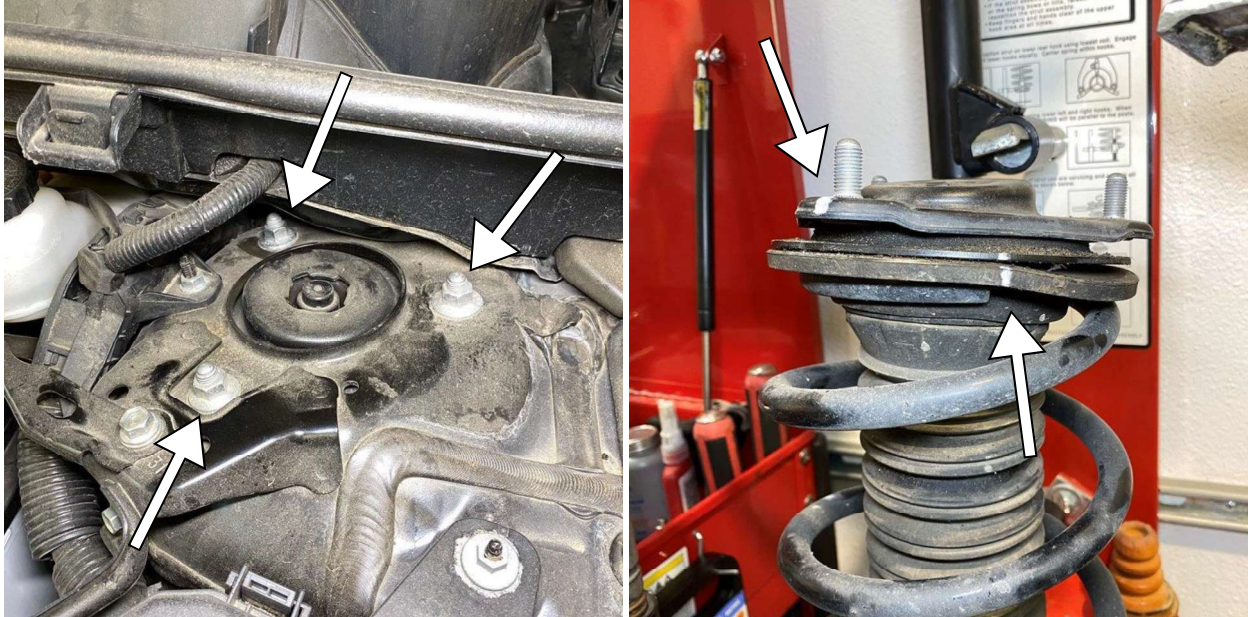
3. Remove the lower strut mounting bolts and support the knuckle assembly.
 - a. 22mm wrench or socket.
 - b. Secure the knuckle assembly with a bungee cord, or bailing wire, to prevent the assembly from swinging downward and pulling the CV shaft out from its housing.



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- 4. Remove Upper strut mounting nuts and remove strut assembly from vehicle. Note the top hat orientation from the housing during removal and mark springs upper coil orientation to the upper spring isolator.
 - a. 14mm wrench or socket.
 - b. Paint pen or marker.



- 5. Using a spring compressor, compress the spring until the spring is no longer seated on the lower isolator and remove the stem nut from the top hat.
 - a. Spring Compressor.
 - b. 19mm thin wall deep socket.



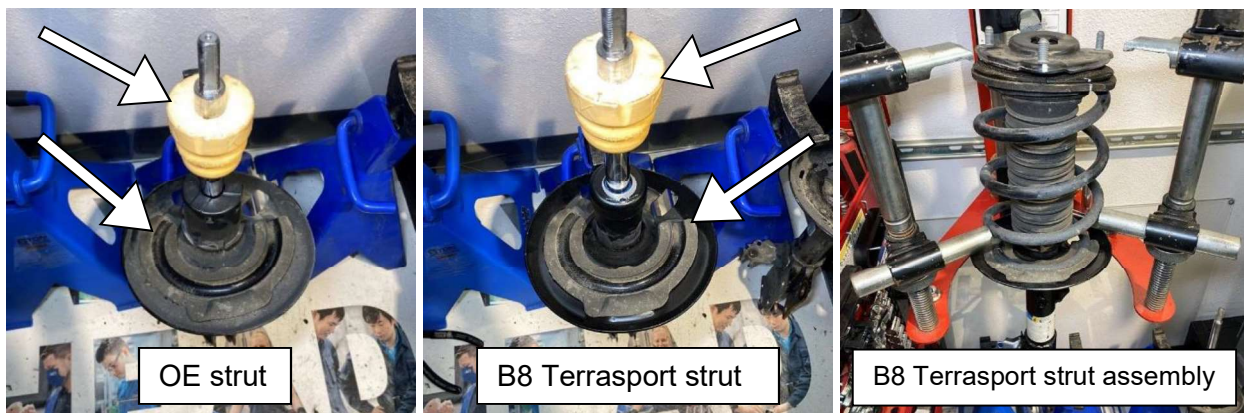
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- 6. Priming the BILSTEIN B8 Terrasport twin tubes.
 - a. To prime, hold the strut assembly vertical and fully compress the shock until it bottoms and allow to return to fully extended.
 - b. Repeat this process 4-5 times until the movement is smooth and consistent.
 - c. Keep the B8 strut vertical at all times after priming and during installation, or repeat the priming process.



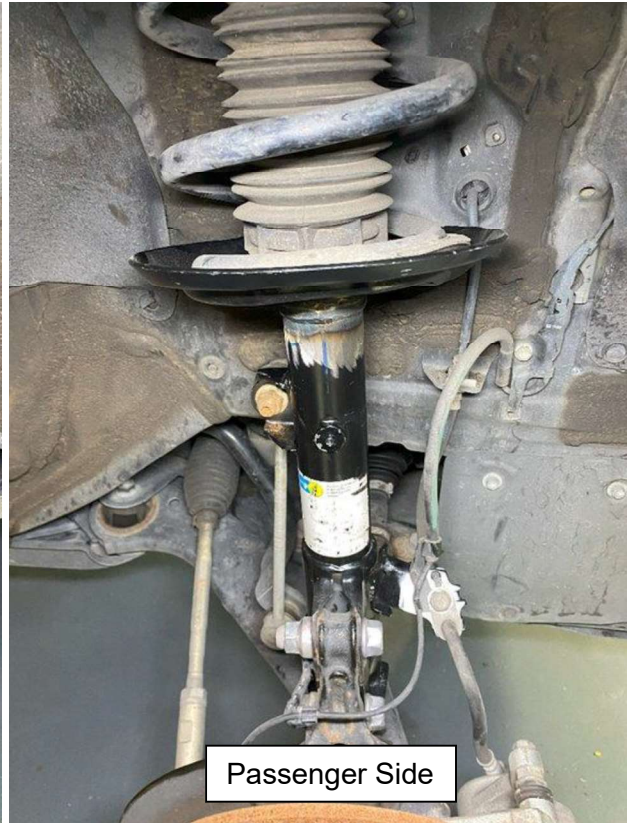
- 7. Transfer the lower spring isolator and jounce bumper to the B8 Terrasport strut and reinstall in the spring assembly and top hat using the BILSTEIN supplied stem nut ensuring the correct orientation noted in step 4.
 - a. 22mm thin wall deep socket.



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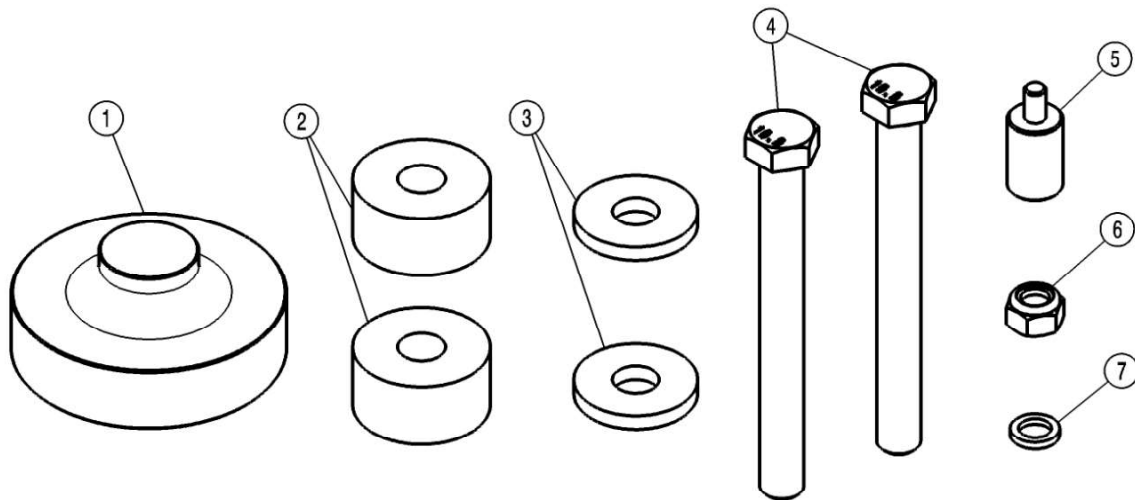


8. Install the assembled B8 Terrasport strut in the reverse order, using all the original fasteners, and torque to the manufacturer's suggested torque specifications. (Driver and passenger sides pictured below.)



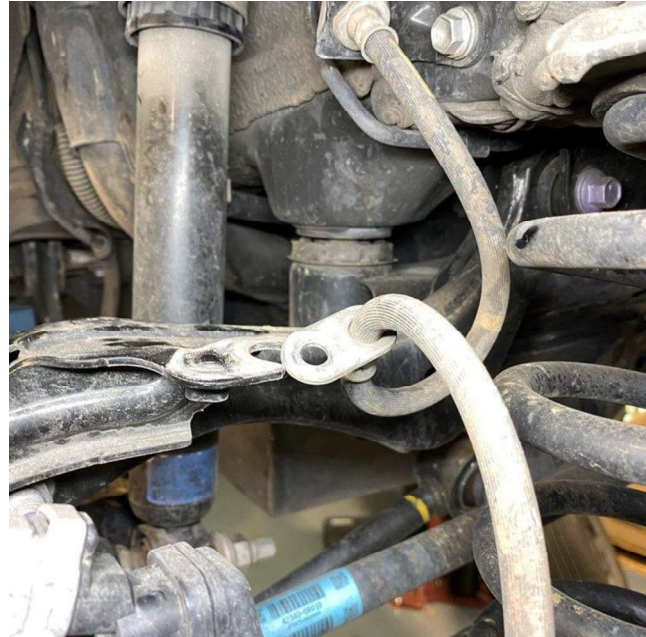
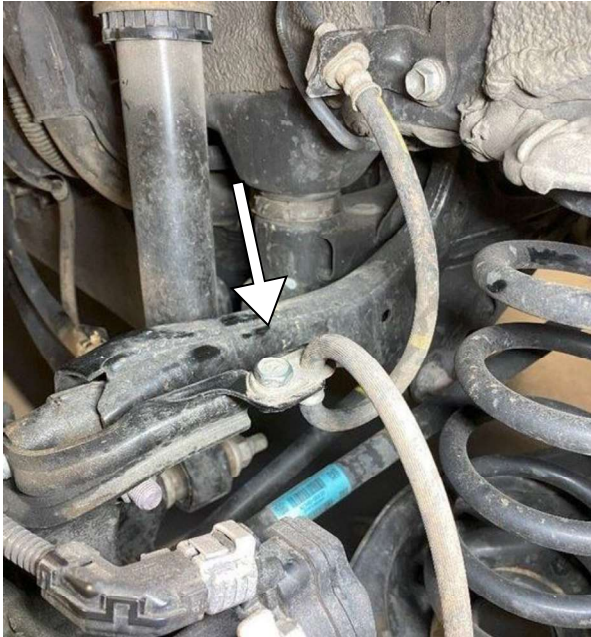
B8 Terrasport Rear Parts Kit:

Bill of Materials		
Item #	Description	Qty.
1	Spring Spacer	1
2	Cradle Drop Spacer	2
3	Cradle Washer	2
4	Hex Head Cap Screw; M16x1.5	2
5	Cradle Bracket Spacer	1
6	Nyloc Nut; M12x1.25	1
7	Support Disc	1



Rear B8 Terrasport cradle spacers (Driver side shown, passenger side is a mirror image and the same steps will be followed as shown below);

9. Remove the brake hose from the bracket at the upper control arm.
 - a. 14mm socket.



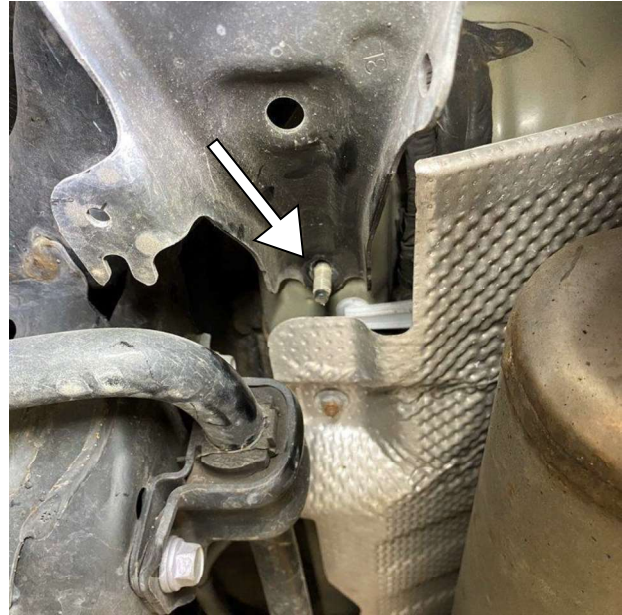
10. Support the rear cradle in the center with a jack.



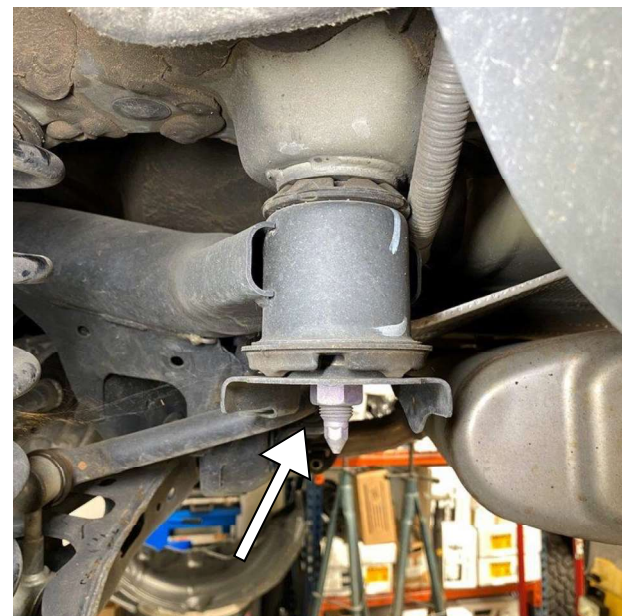
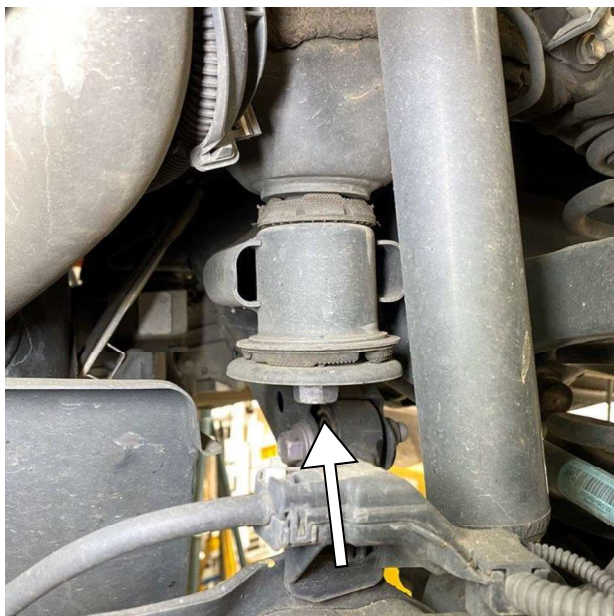
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11. Remove the small nut from the rear cradle support bracket.
 - a. 12mm Socket and extension.



12. With the rear cradle supported on the jack, loosen both front cradle bolts 5 turns and back off both rear cradle nuts to the end of the stud threads. (If cradle bolt comes out, reinstall bolts so there are at least four or five threads engaged.)
 - a. 22mm deep socket and extension.



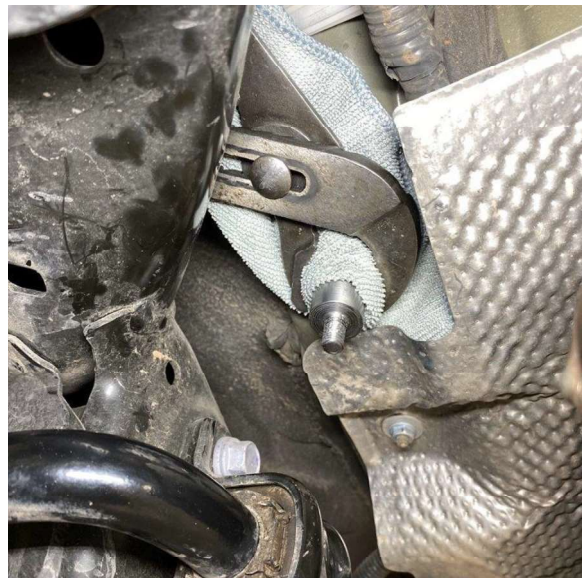
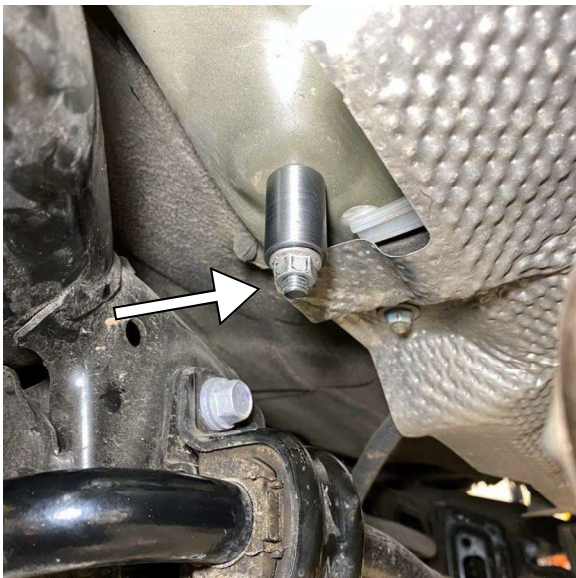
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13. For rear spacer installation, only remove one stud at a time with the nut still in place to insure the cradle will remain aligned. It may be necessary to loosen the three remaining bolts to allow the cradle to hang enough to allow cradle spacer installation.
- a. 10mm socket.



14. Hand tighten the OE nut, from step 11, onto the BILSTEIN rear cradle bracket spacer (item #5) until it bottoms out. Then use the OE nut to install the rear cradle bracket spacer over the stud on the body using a socket or wrench. Remove the OE nut from the spacer by holding the spacer in place with a set of channel lock pliers and a rag, to prevent marring.
- a. 12mm deep socket and extension.
 - b. Channel lock pliers and towel/rag (to prevent marring).



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15. Install the rear cradle spacer (item #2) and using the supplied bolt/washer (items #3 & #4), reinstall the bracket to the rear cradle mount while locating the small hole in the bracket over the bracket spacer stud. Install the OE nut (step 11) over the rear bracket spacer stud (item #5). (Repeat on passenger side, leaving bolts loose but with four to five threads engaged.)
- a. 24mm socket and extension.
 - b. 12mm socket and extension.



16. For front spacer installation, only remove one bolt at a time. It may be necessary to loosen the three remaining bolts to allow the cradle to hang enough to allow cradle spacer installation. Install the front cradle spacer and OE bracket using the supplied bolt/washer. (Repeat on passenger side, leaving bolts loose but with sufficient threads engaged.)
- a. 22mm deep socket and extension.



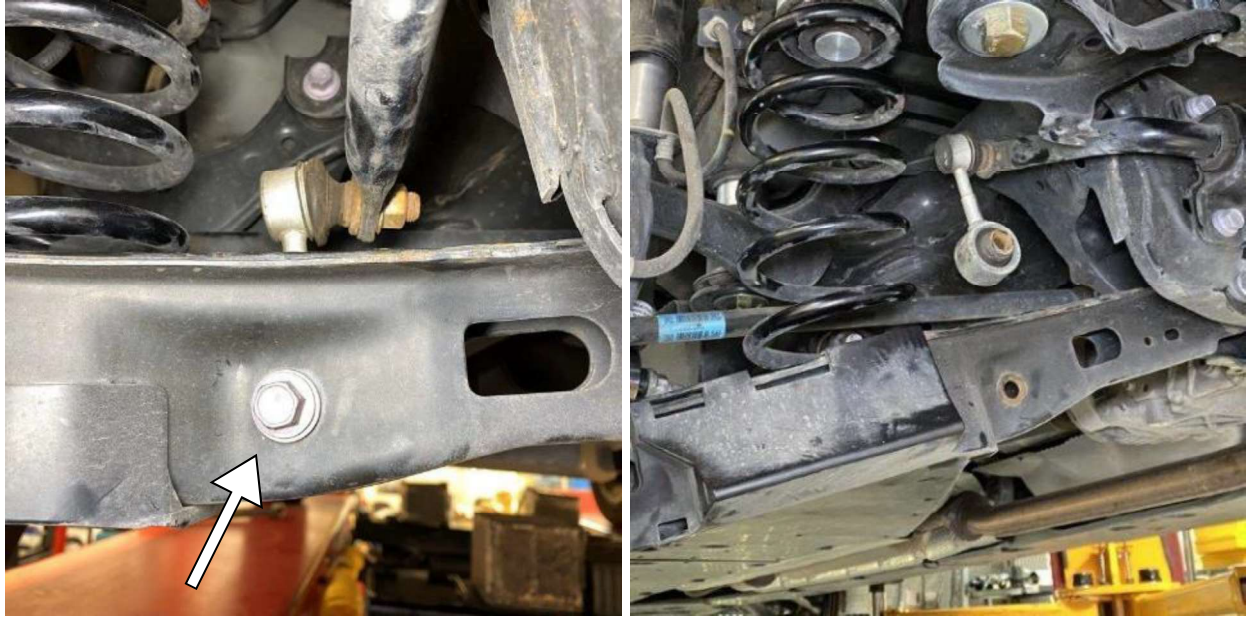
17. Following the factory service manual, torque all four bolts and both bracket nuts to OE torque specs.

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Rear B8 Terrasport Spring Spacers (Driver side shown, passenger side is a mirror image and the same steps will be followed as shown below):

18. Remove the rear sway bar lower link from the lower control arm on both sides and rotate the sway bar up and out of the way.
- a. 14mm socket.
 - b. 17mm wrench.



19. Note, or mark, the rear spring orientation at the upper and lower spring seats to ensure alignment for reassembly.



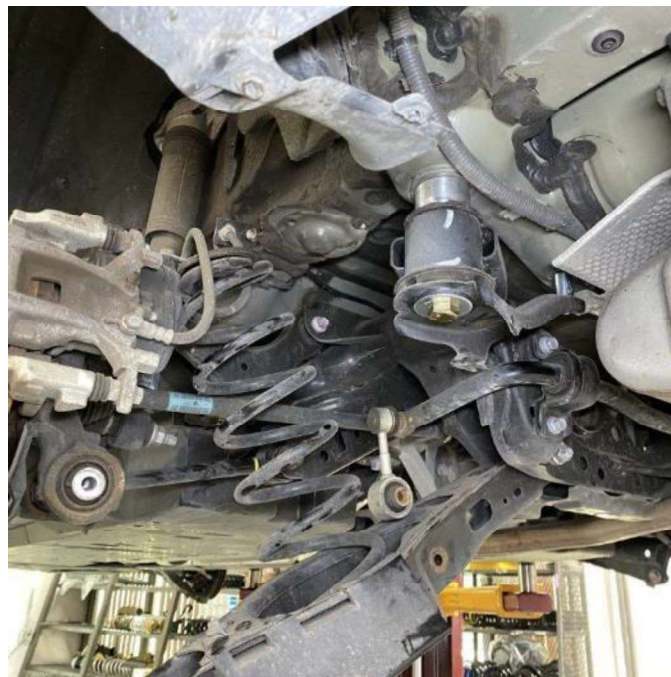
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20. Support the lower control arm with a jack and remove the bolt/nut securing the lower control arm to the rear knuckle. (It may be necessary to use the jack to compress the suspension until pressure on the bolt from the rear spring is relieved.)
- a. 14mm socket.
 - b. 17mm wrench.



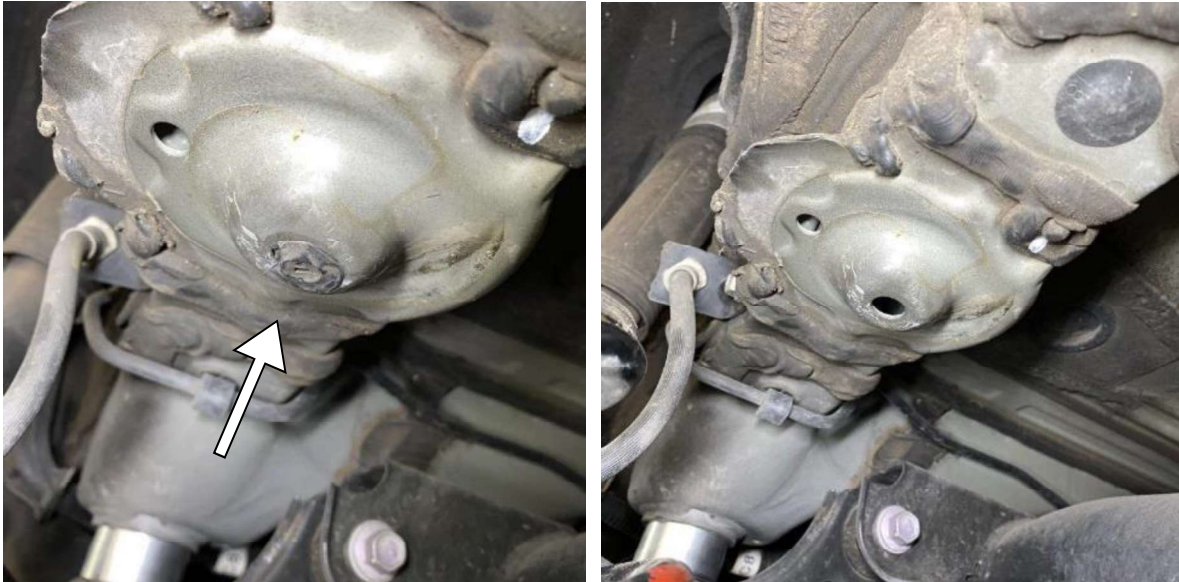
21. Lower the jack slowly to release the spring while preventing the spring from falling out.



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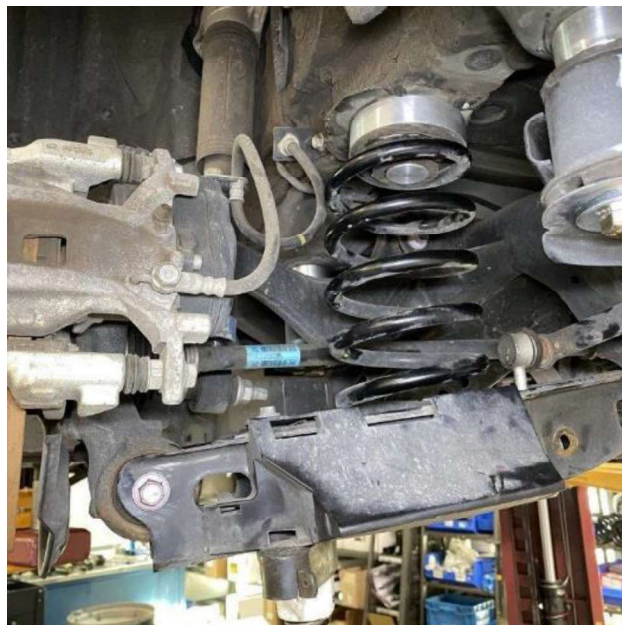


22. Remove the plastic plug from the center of the upper spring seat and discard plastic plug. The hole will be used to align and install the spring spacer (item#1).



23. Install the spring spacer (item #1) by locating the center pin and inserting into the upper spring seats center hole mentioned in the previous step. Position the spring with upper and lower isolators aligned, as previously noted (step 19). With the jack positioned under the lower control arm (as before), compress the spring until you can align the mount holes of the lower control arm and the knuckle to install the bolt. (The sway bar lower link will be reinstalled at a later step.)

- a. 14mm socket.
- b. 17mm wrench.

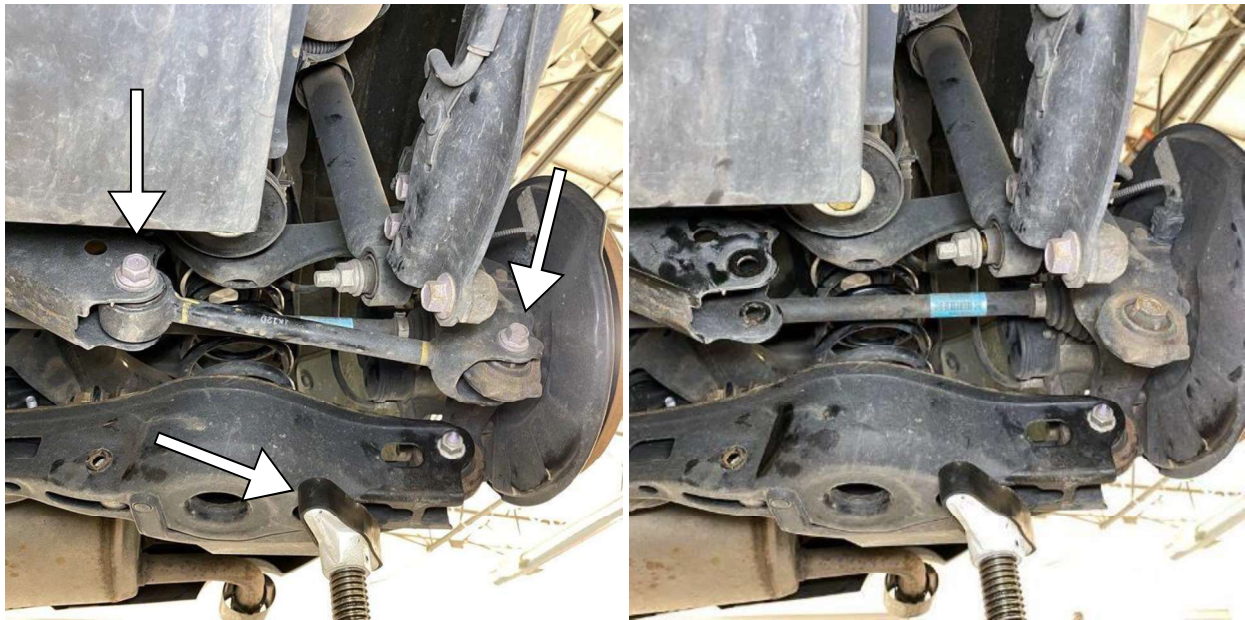


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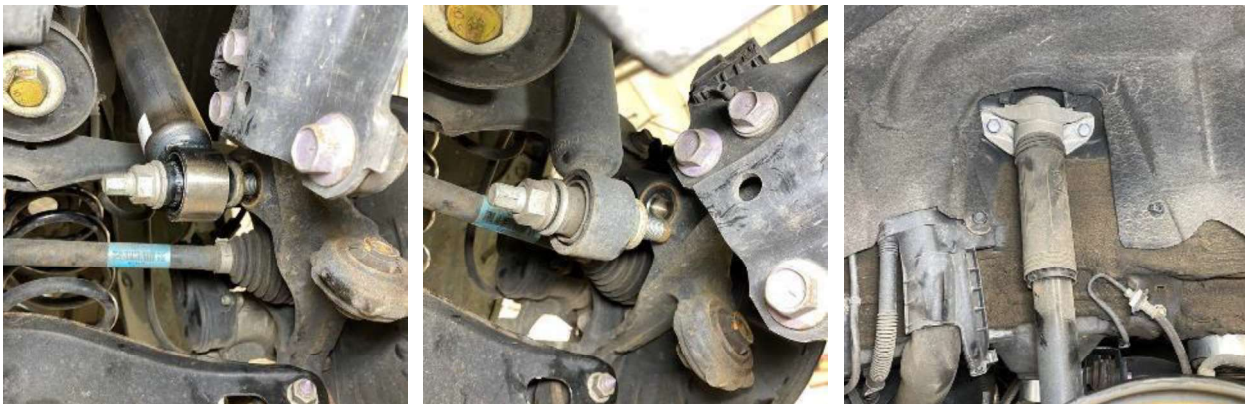
Rear B8 Terrasport Rear Shock Installation (Driver side shown, passenger side is a mirror image and the same steps will be followed as shown below);

24. With the jack positioned under the lower control arm (as before), compress the spring until you can remove both bolts connecting the lower strut rod to the knuckle.
- a. 14mm socket.
 - b. 17mm wrench.
 - c. 19mm wrench.
 - d. 19mm socket.



25. To remove the lower shock, support the lower control arm with a jack. Loosen the lower shock mounting nut and remove the lower shock mounting stud from the rear knuckle. Remove both upper shock mounting bolts and remove shock from the vehicle.

- a. 22mm wrench.
- b. 10mm socket.
- c. 17mm socket.



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26. Remove the plastic cap and disassemble the shock from the top mount.
- a. 6mm hex wrench.
 - b. 17mm passthrough socket.
 - c. 19mm passthrough socket.



27. From the BILSTEIN rear parts kit, locate the support disc (item #7) to place on the mount tenon of the piston rod. Reassemble the OE top mount with Bilstein B8 Terrasport rear shock using the BILSTEIN Nyloc nut (item #6).



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28. Install rear shock in reverse order of removal.



29. Repeat all installation procedures for the passenger side.

30. Loosen all rubber bushing hardware throughout the suspension. Install wheels and lower vehicle onto the ground. Then reconnect the rear sway bar in reverse order of removal and torque all suspension components to their respective factory torque specs.

Final Assembly of B8 Terrasport Rear Kit

