



M-18000-RA
Model 2019 →
RANGER 4WD FOX Off-Road Leveling Kit

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PRIOR TO INSTALLATION READ THESE INSTRUCTION COMPETELY
For questions, Call the FORD PERFORMANCE Techline 1-800-367-3788

Please visit <https://www.performanceparts.ford.com> for warranty information

Kit Contents

- 2 - Front shock/spring assembly (includes 6 nuts and 4 bolts)
- 2 - Rear shock

Hardware

- 2 – W716936-S442 Stabilizer bar link nut 12mm
- 6 – W520214-S440 Upper ball joint nut/rear shock nut 12mm
- 2 – KB3Z-3B477-A Halfshaft nut
- 2 – W520213-S440 Tie rod end nut 10mm
- 4 – W719057-S439 Rear shock bolt 12mm X 70mm
- 6 – W720123-S440 Top mount to frame (3 per side)
- 4 – W719301-S439 Front Lower Bolts to Control arm (2 per side)

Kit Fitting Instructions

1. [Front Shock and Spring](#)
2. [Rear Shock](#)

Including Supplemental Fitting Instruction

1. [Cruise Control Module \(CCM\) Alignment](#) (If Equipped)
Notice: If factory equipped with Radar Speed Control, the Cruise Control Module Alignment procedure requires a Factory Software Tool to calibrate horizontal alignment
Includes: Bumper Cover Removal & Installation to access CCM adjustment screws
2. [Headlamp Adjustment and Fog Lamp Adjustment](#)

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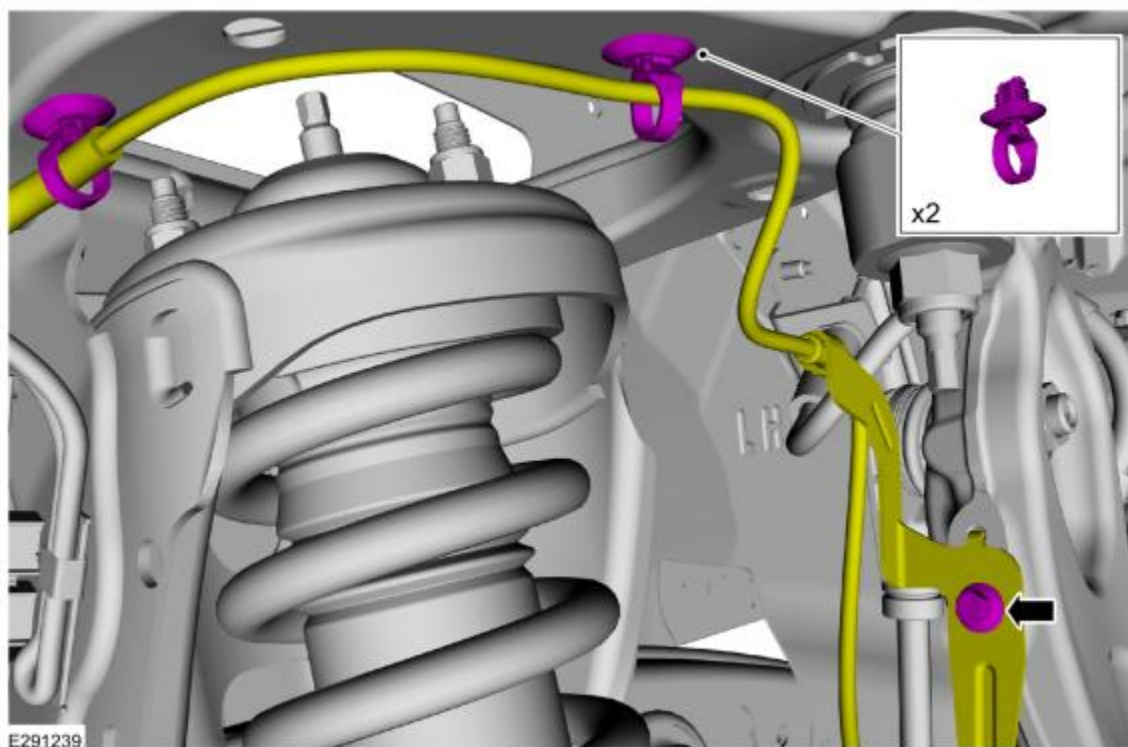
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Shock Absorber and Spring Assembly

Removal

NOTICE: Suspension fasteners are critical parts that affect the performance of vital components and systems. Failure of these fasteners may result in major service expense. Use the same or equivalent parts if replacement is necessary. Do not use a replacement part of lesser quality or substitute design. Tighten fasteners as specified.

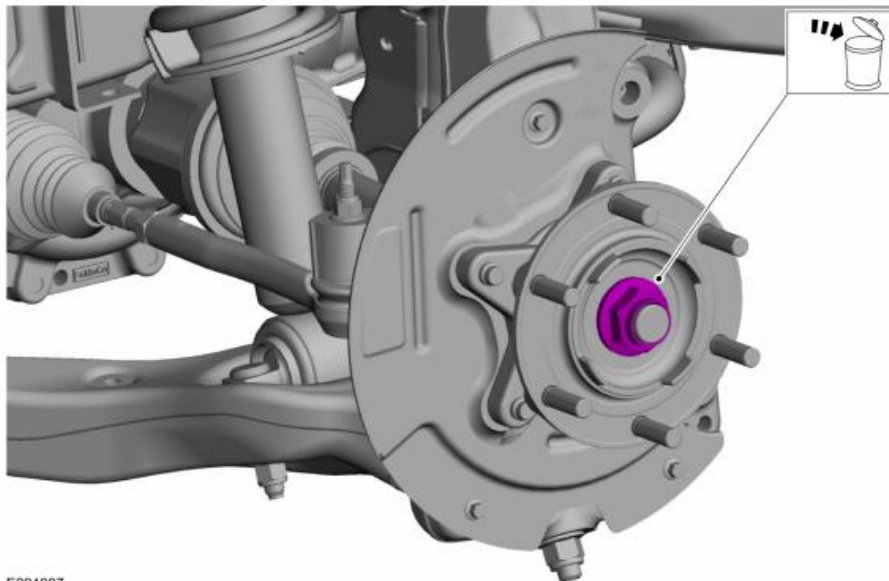
1. Support the front of the vehicle leaving the suspension unloaded
2. Remove the front wheels
3. Detach the harness pin-type retainers and remove the harness routing bracket bolt.



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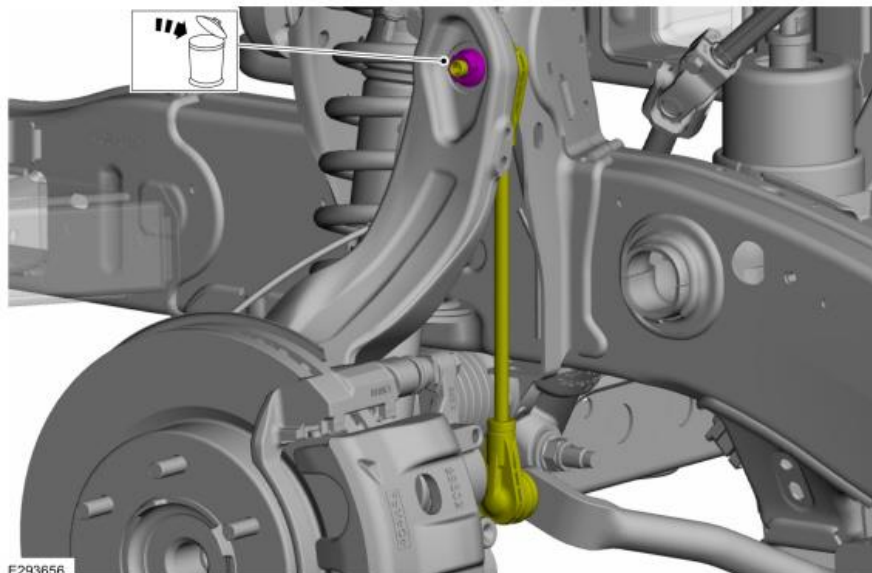
4. Remove and discard the wheel hub nut. (rotor and caliper removed for clarity)



NOTE: The stabilizer bar links are designed with low friction ball joints that have a low breakaway torque.

NOTE: Use the hex-holding feature to prevent the stud from turning while removing the nut.

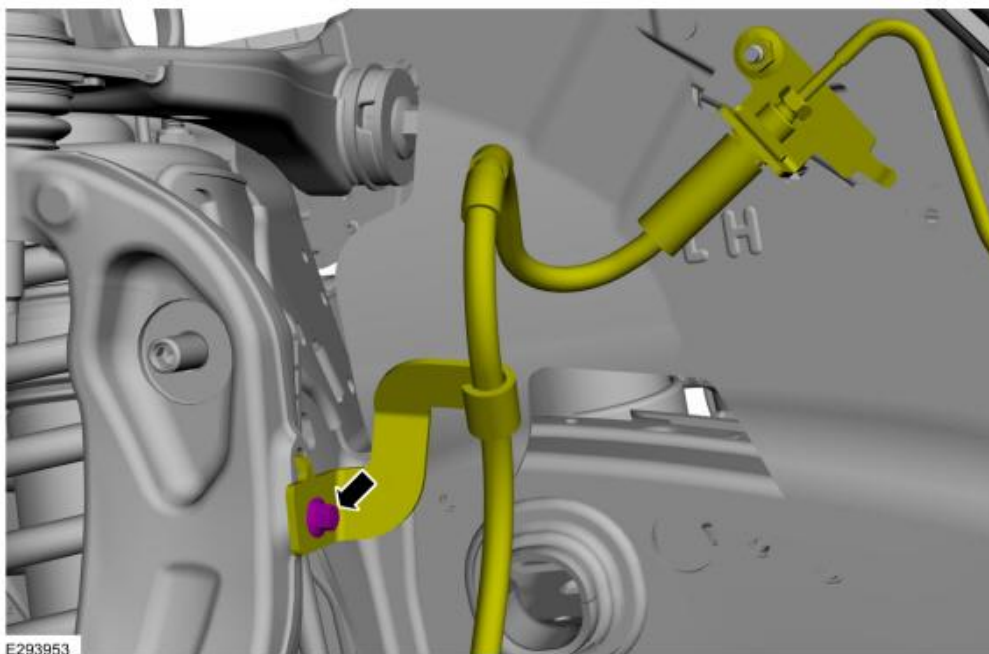
5. Remove and discard the stabilizer bar link upper nut.



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6. Remove the brake hose bracket bolt and position the hose aside.



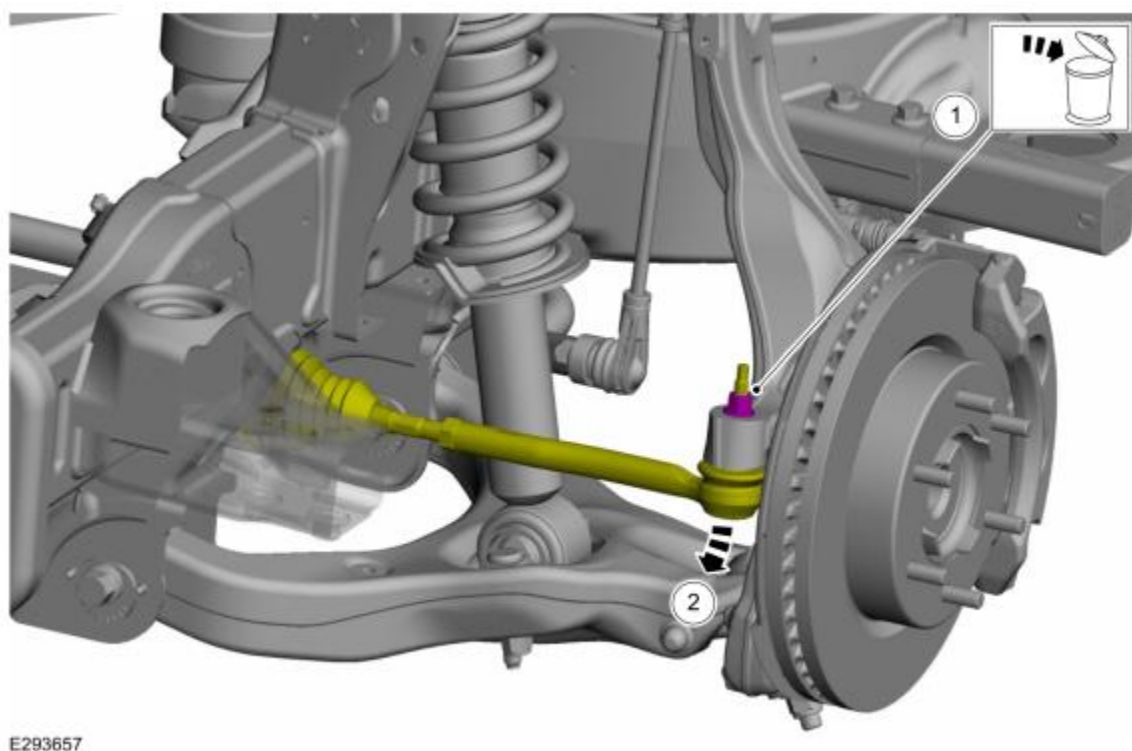
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NOTICE: Do not use a hammer to separate the outer tie-rod end from the wheel knuckle or damage to the wheel knuckle may result.

NOTICE: Use care when installing the tie rod separator or damage to the outer tie-rod end boot may occur.

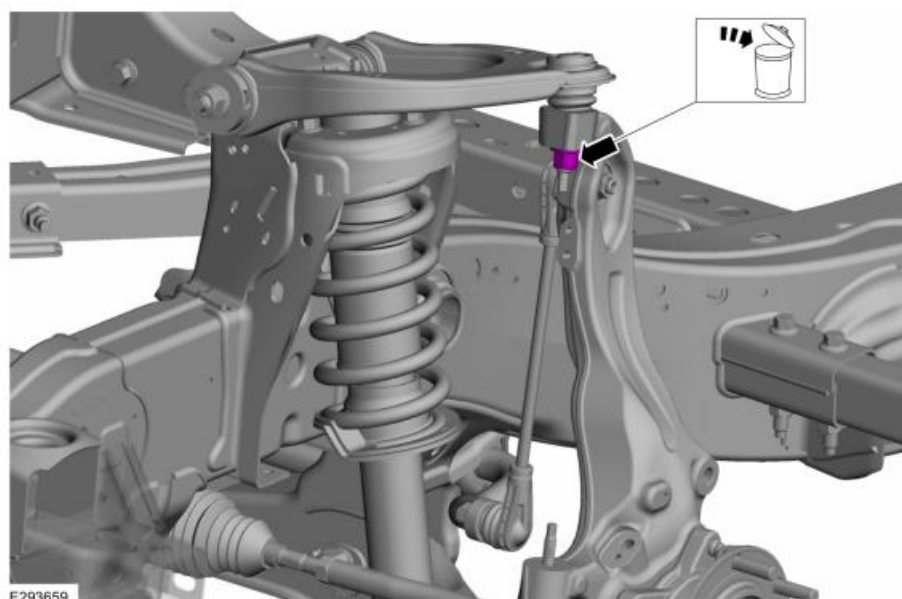
NOTE: Use the hex-holding feature to prevent the stud from turning while removing the nut.

7. Remove and discard the tie rod end nut and separate the tie rod end from the wheel knuckle. Use Tie Rod End Remover.



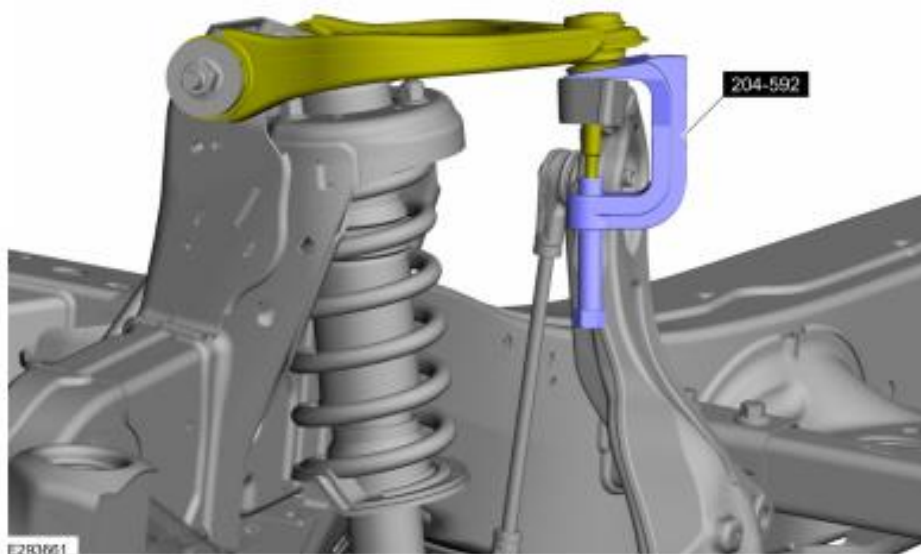
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8. Loosen the upper arm ball joint nut, do not remove nut completely.



NOTE: Be sure not to damage the ball joint boot when installing the Ball Joint Separator.

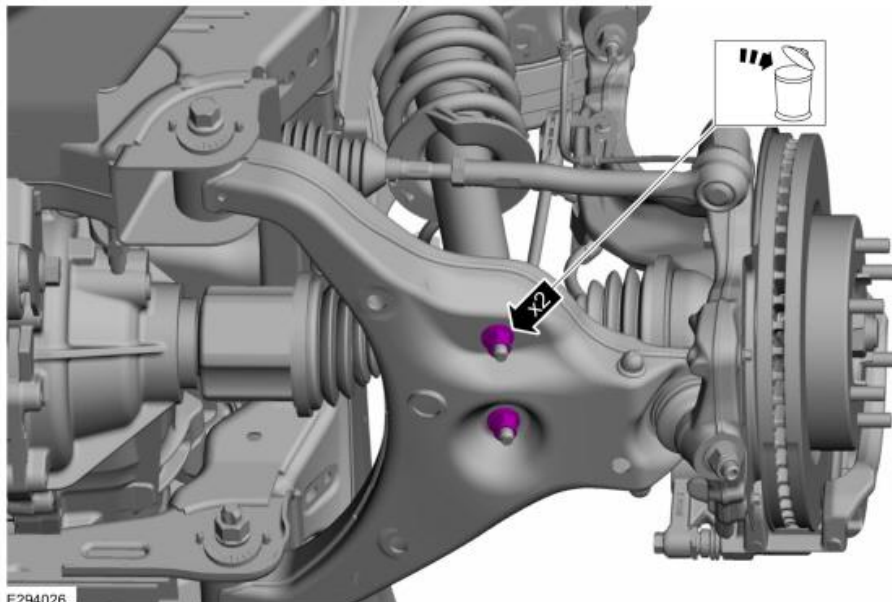
9. Separate the upper ball joint from the wheel knuckle. Use Ball Joint Separator tool.



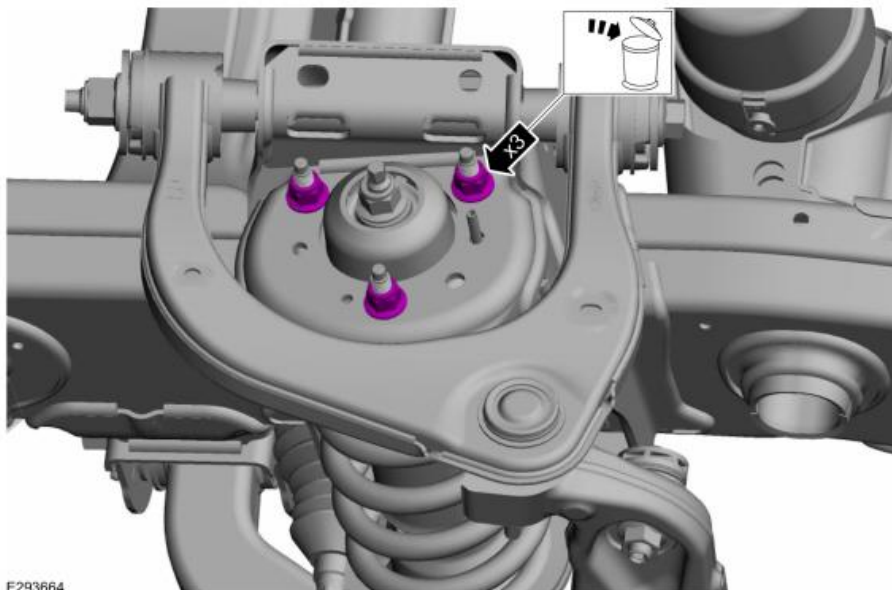
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10. Remove and discard the shock absorber and spring assembly lower nuts.



11. Remove and discard the shock absorber and spring assembly upper nuts.



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12. Push the axle out of the hub to prevent the axle from popping out of the inner cv joint.

Prior to releasing the nut from the upper control arm ball joint completely, be sure to support the wheel knuckle so that it does not fall and cause damage. Disconnect upper control arm from the wheel knuckle.

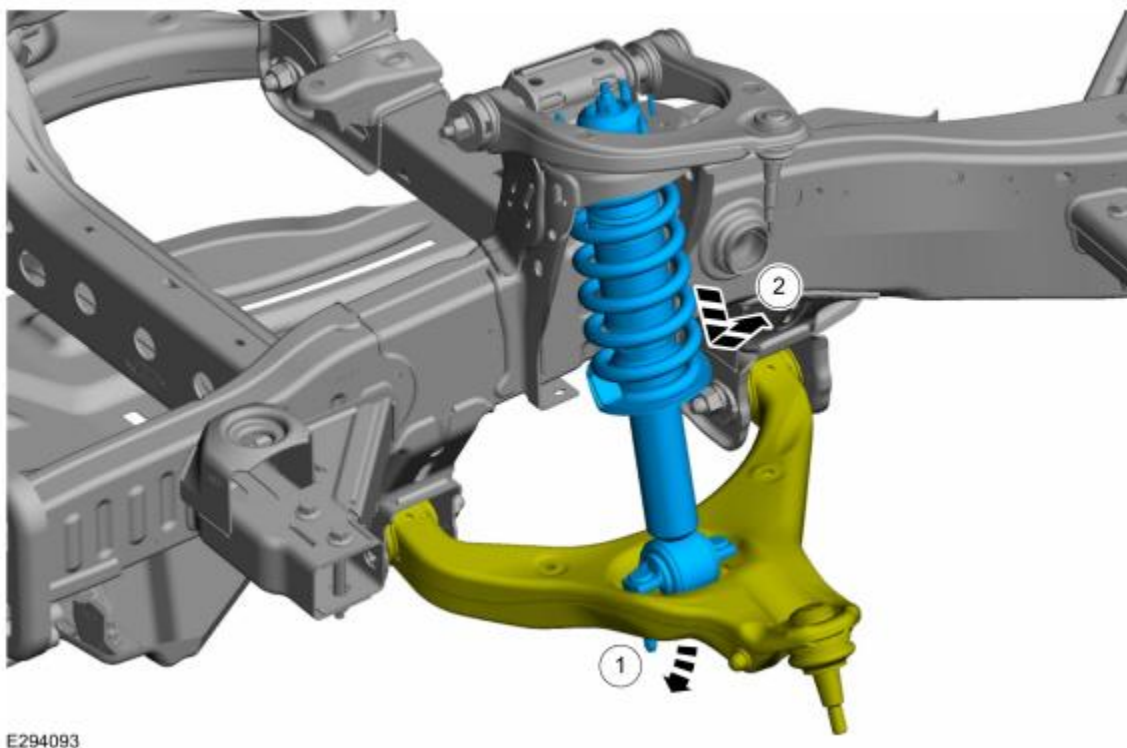
Position the lower arm down to gain clearance for removing the shock absorber and spring assembly



(2WD shown)

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13. Remove the shock absorber and spring assembly. (wheel knuckle removed for clarity)

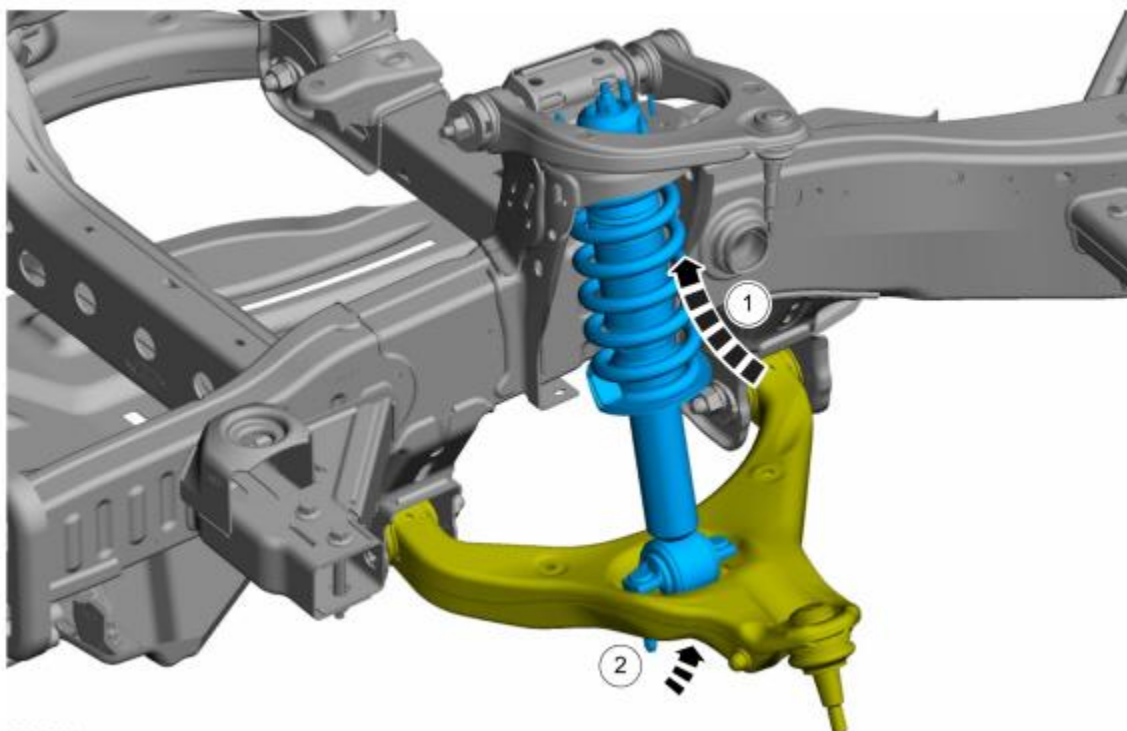


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Installation

14. Install the shock absorber and spring assembly. (wheel knuckle removed for clarity)

Position the lower arm up.

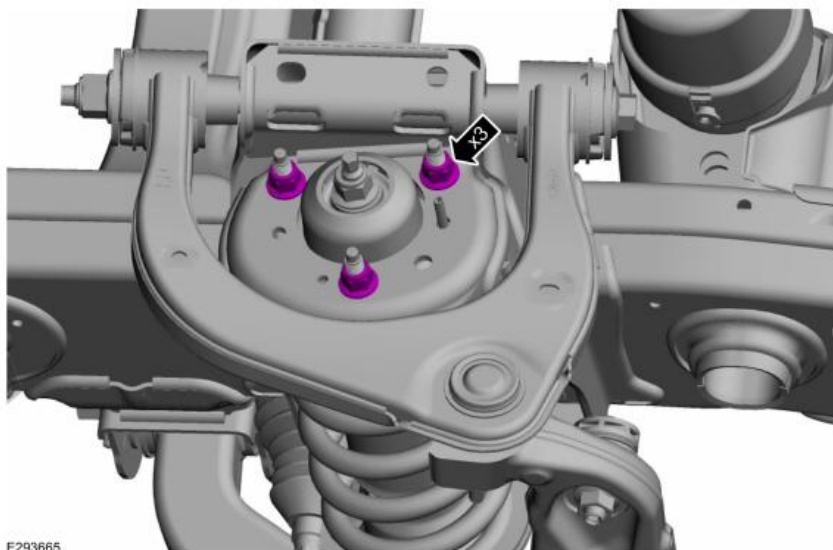


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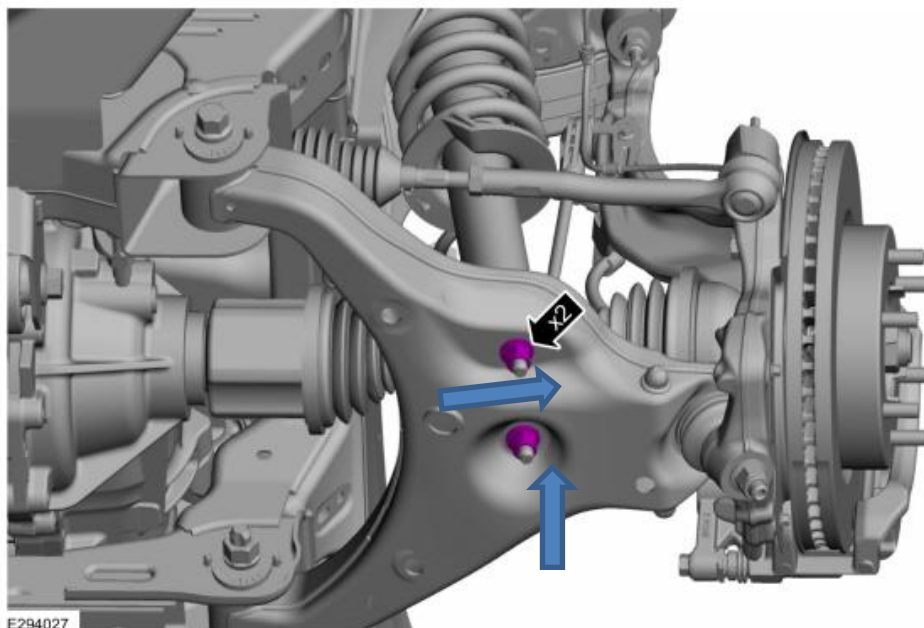
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15. Remove and discard the 3 nuts and 3 washers currently on the shock kits.
Install the 3 provided (W720123-S440) new shock absorber and spring assembly upper nuts.
Torque: 52 ft-lb (70 Nm)



16. Remove and discard the 2 lower bolts currently on shock kit.
Install the new shock absorber and spring assembly using the 2 (W719301-S439) supplied bolts. Apply blue medium strength thread locking compound, install bolts from below through control arm into shock assembly.
Torque: 66 ft-lb (90 Nm)

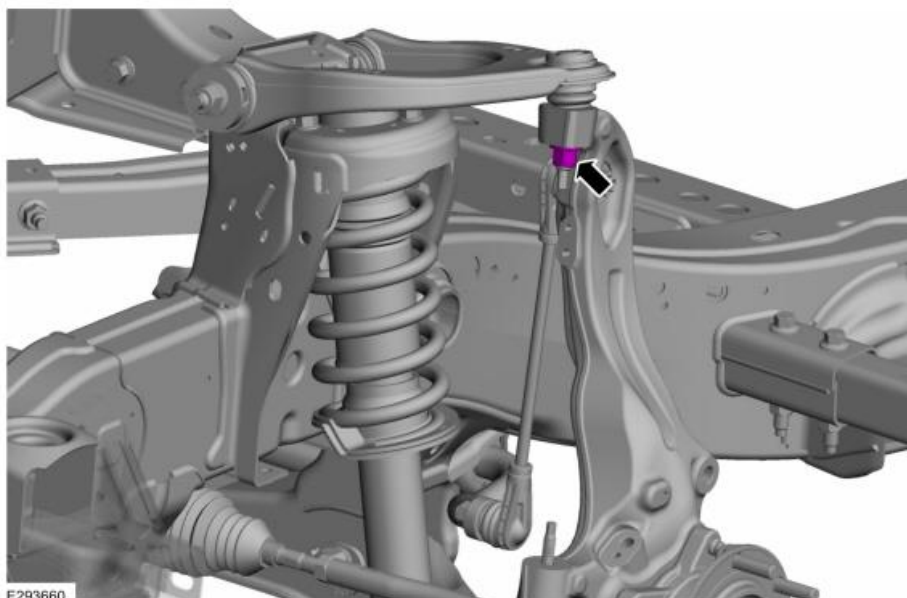


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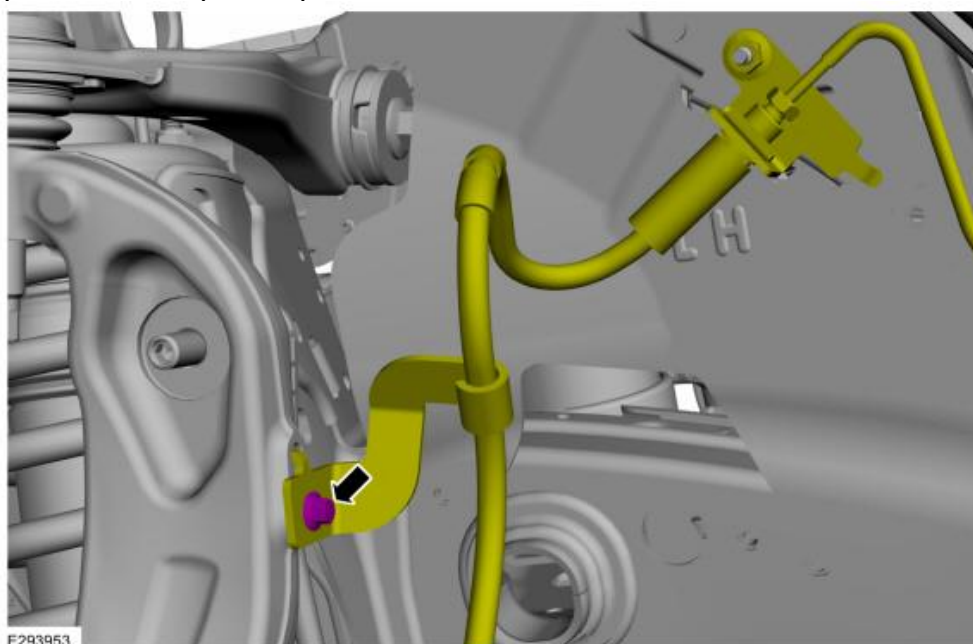
17. Install the new upper ball joint nut.

Torque: 46 lb.ft (63 Nm)



18. Position the brake hose and install the brake hose bracket bolt.

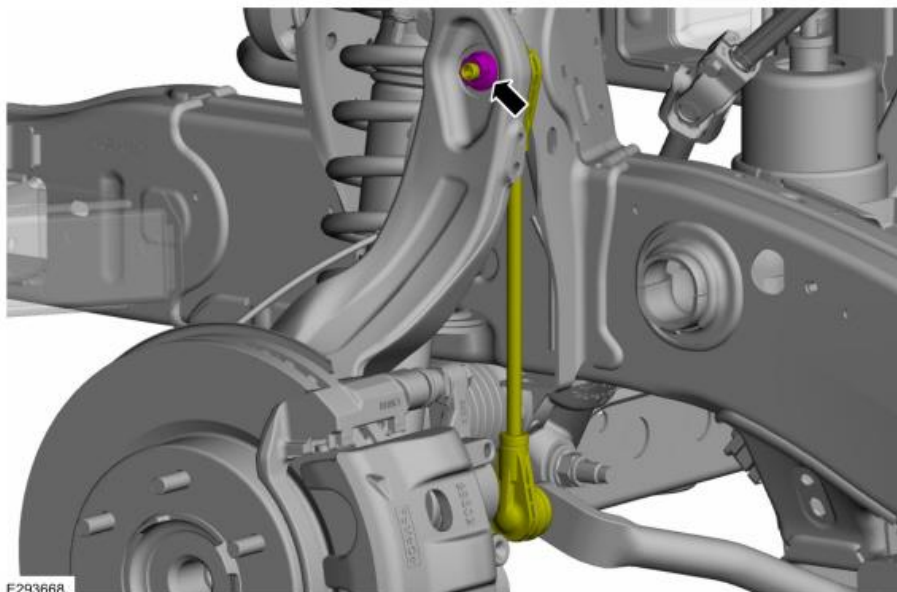
Torque: 159 lb.in (18 Nm)



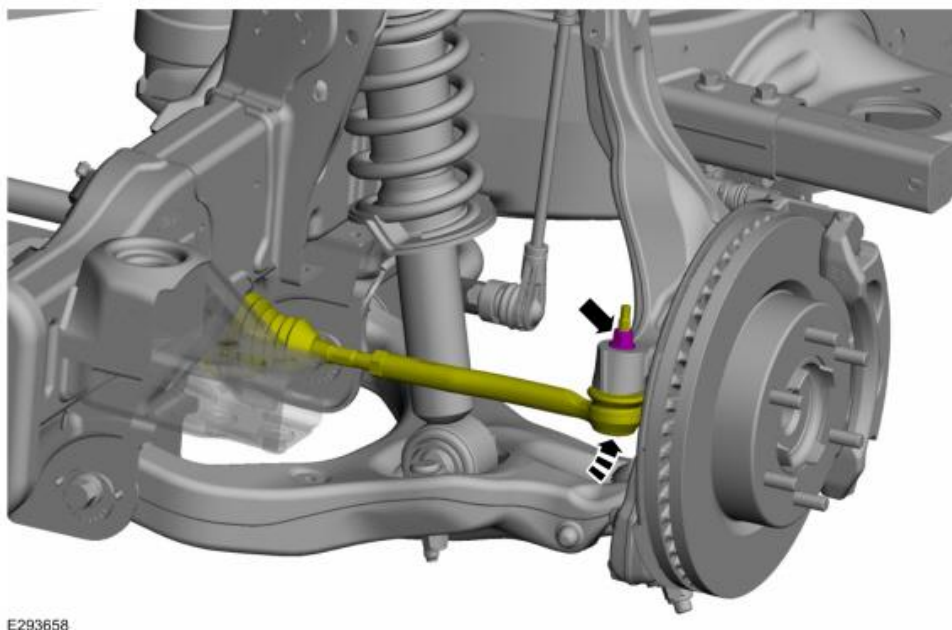
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NOTE: Use the hex-holding feature to prevent the stud from turning while installing the nut.

19. Install the new front stabilizer link upper nut.
Torque: 85 lb.ft (115 Nm)



20. Position the tie rod end and install the new tie rod end nut.
Torque: 35 lb.ft (48 Nm)



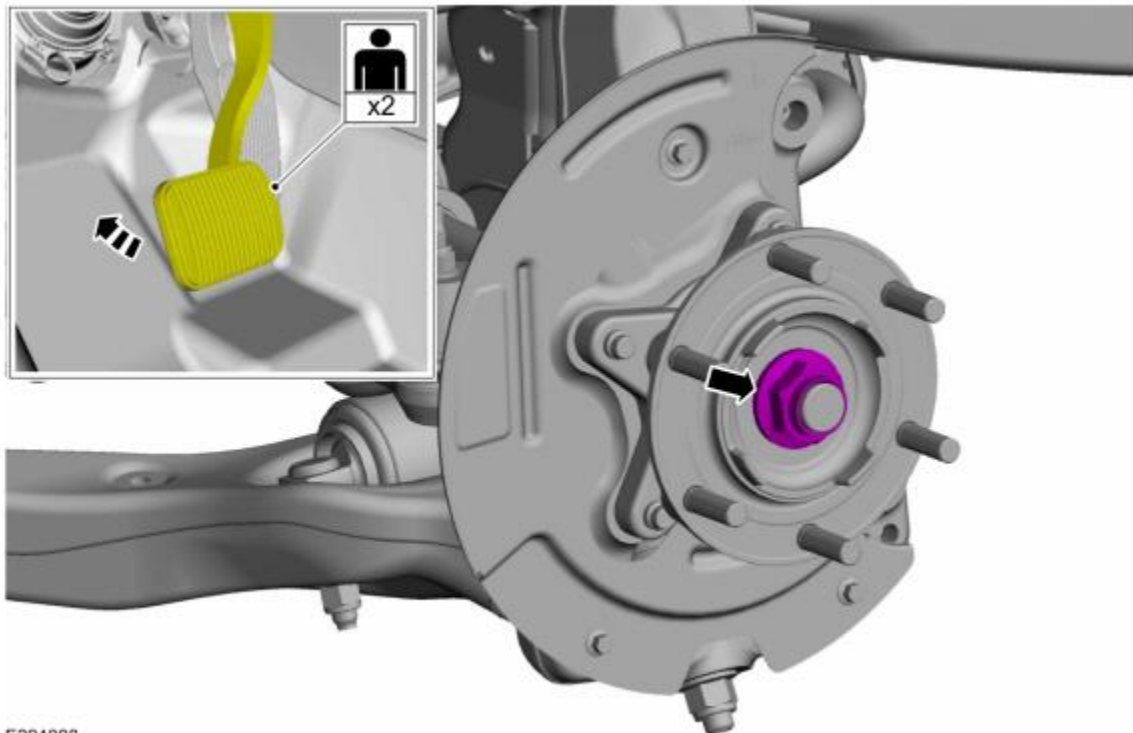
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NOTICE: Install and tighten the new wheel hub nut to specification in a continuous rotation. Always install a new wheel hub nut after loosening or when not tightened to specification in a continuous rotation or damage to the components may occur.

NOTE: Apply the brake to keep the halfshaft from rotating.

21. While an assistant applies the brake, install the new wheel hub nut.
Torque: 221 lb.ft (300 Nm)

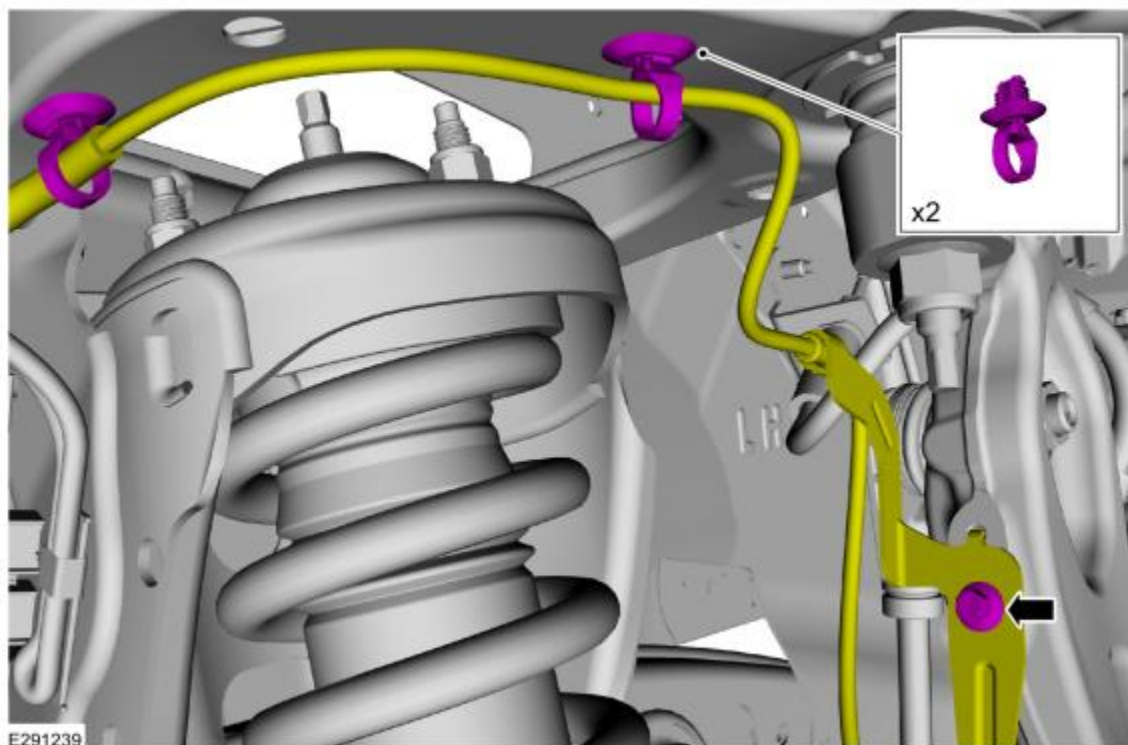


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(rotor and caliper removed for clarity)

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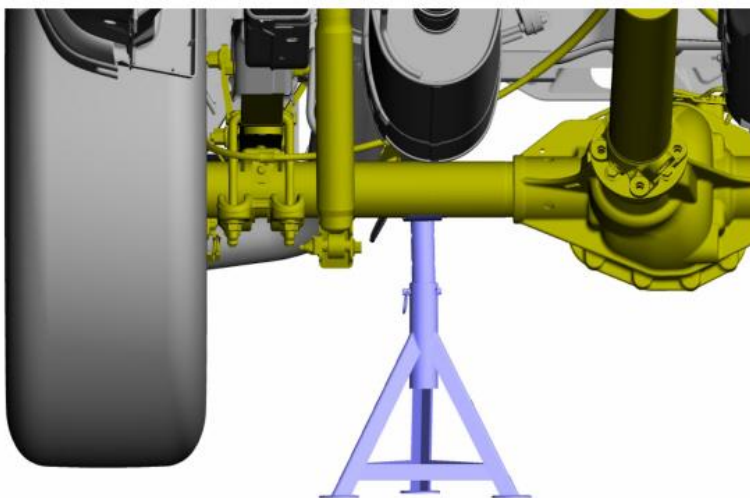
22. Install the harness pin-type retainers and install the harness routing bracket bolt.
Torque: 53 lb.in (6 Nm)



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Rear Shock Absorber

23. Support the rear axle assembly.

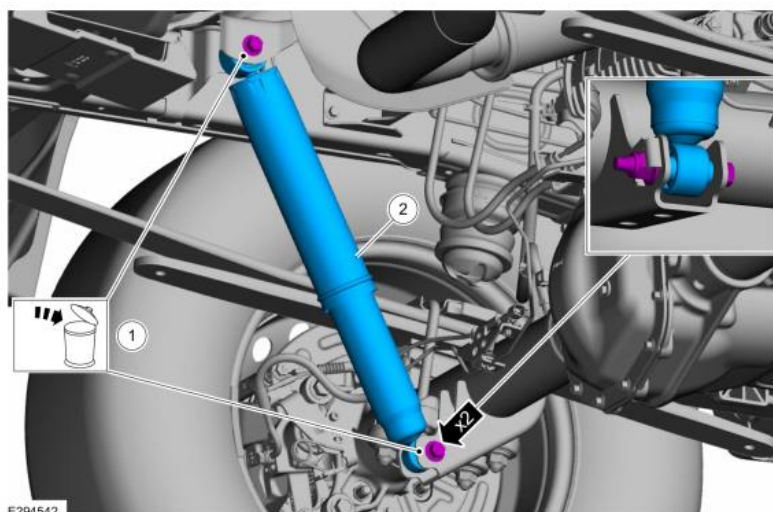


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24. Remove and discard the rear shock absorber upper and lower bolts and nuts.

Torque: 52 lb.ft (70 Nm)

Remove the rear shock absorber.



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Rear Shock Installation

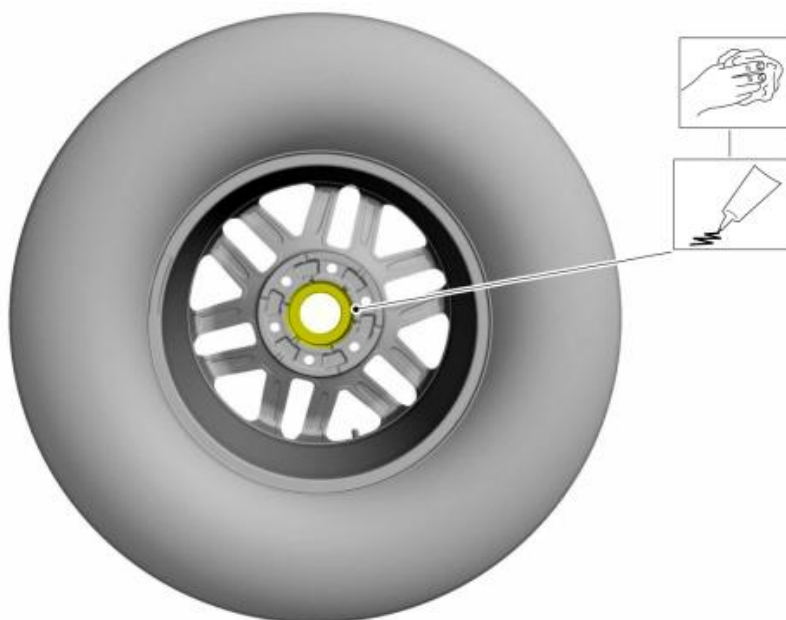
25. To install, reverse the removal procedure.

26. Install wheels and tires

⚠ WARNING: When a wheel is installed, always remove any corrosion, dirt or foreign material present on the mounting surface of the wheel and the mounting surface of the wheel hub, brake drum or brake disc. Make sure that any fasteners that attach the rotor to the hub are secured so they do not interfere with the mounting surfaces of the wheel. Failure to follow these instructions when installing wheels may result in the wheel nuts loosening and the wheel coming off while the vehicle is in motion, which could result in loss of control, leading to serious injury or death to vehicle occupant(s).

NOTICE: Make sure to apply a thin coat of anti-seize lubrication only to the interface between the wheel pilot bore and the hub pilot. Do not allow the anti-seize to make contact with the wheel-to-brake disc/drum mounting surface, wheel studs, wheel nuts, brake pads or brake disc friction surfaces or damage to components may occur.

Clean the mounting surfaces. Apply anti-seize lubrication. Anti-Seize Lubricant (-;XL-2)



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NOTE: *Only tighten the nuts finger tight at this stage.*

Install the wheel and tire and install the wheel nuts.



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 **WARNING:** Retighten wheel nuts within 160 km (100 mi) after a wheel is reinstalled. Wheels can loosen after initial tightening. Failure to follow this instruction may result in serious injury to vehicle occupant(s).

NOTICE: Failure to tighten the wheel nuts in a star/cross pattern can result in high brake disc runout, which accelerates the development of brake roughness, shudder and vibration.

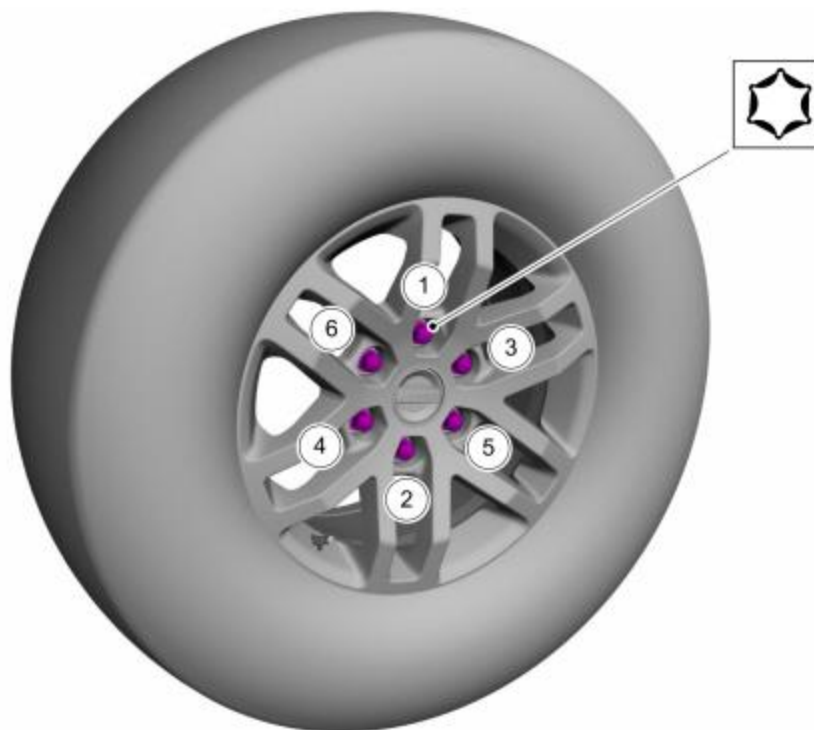
NOTE: *The wheel nut torque specification is for clean, dry wheel stud and wheel nut threads.*

NOTE: *Use metric hexagonal socket.*

NOTE: *Final tightening to be performed with vehicle resting on tires.*

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Tighten the wheel nuts. Torque: 135 Nm

26. Cruise Control Radar Module Alignment (CCM) (Optional Equipment)

 **WARNING:** Alignment must be performed.

27. END

28. Check wheel alignment, adjust as necessary



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Torque specifications

Harness routing bracket bolt *Torque*: 53 lb.in (6 Nm)

Shock/spring assembly upper nuts *Torque*: 24 lb.ft (33 Nm)

Shock/spring assembly lower bolts *Torque*: 50 lb.ft (68 Nm)

Brake hose bracket bolt *Torque*: 159 lb.in (18 Nm)

Stabilizer link upper nut *Torque*: 85 lb.ft (115 Nm)

Tie rod end nut *Torque*: 35 lb.ft (48 Nm)

Wheel hub nut *Torque*: 221 lb.ft (300 Nm)

Rear shock absorber bolts and nuts *Torque*: 52 lb.ft (70 Nm)

Upper ball joint nut. *Torque*: 46 lb.ft (63 Nm)

Wheel nuts. *Torque*: 135 Nm

Front shock upper nuts *Torque*: 52 ft-lb (70 Nm)

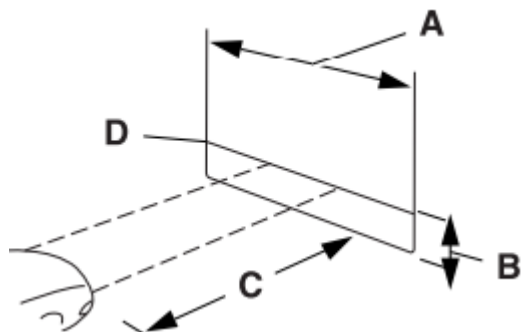
Front shock lower bolts *Torque*: 66 ft-lb (90 Nm)

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ADJUSTING THE HEADLAMPS

Vertical Aim Adjustment If your vehicle has been involved in a crash, have the aim of the headlamp beam checked by an authorized dealer.



- A. 8 ft (2.4 m)
- B. Ground to the center of the headlamp high beam bulb
- C. 25 ft (7.6 m)
- D. Horizontal reference line

1. Vertical Aim Adjustment Procedure

Park your vehicle on level ground approximately 25 ft (7.6 m) from a wall or screen.

2. Measure the distance from the ground to the center of the headlamp high beam bulb and mark an 8 ft (2.4 m) long horizontal reference line on the wall or screen at this height.

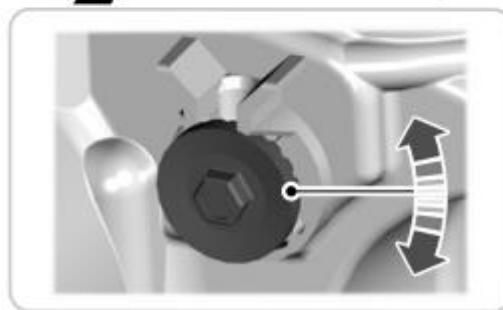
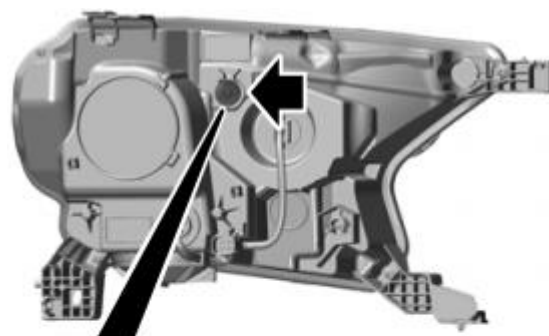
Note: There may be an identifying mark on the lens to help you locate the center line of the headlamp high beam bulb. Refer to the graphic below step.

Note: To see a clearer light pattern for adjusting, you may want to block the light from one headlamp while adjusting the other.

3. Switch on the low beam headlamps and open the hood.



4. On the wall or screen you will observe a flat zone of high intensity light located at the top of the beam pattern. If the top edge of the flat zone of high intensity light is not on the horizontal reference line, adjust the aim of the headlamp beam.



5. The horizontal edge of the brighter light should touch the horizontal reference line.

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FOG LAMP ADJUSTMENT

Fog lights should be mounted on the lower half of your front end. Somewhere on or below the bumper is ideal.

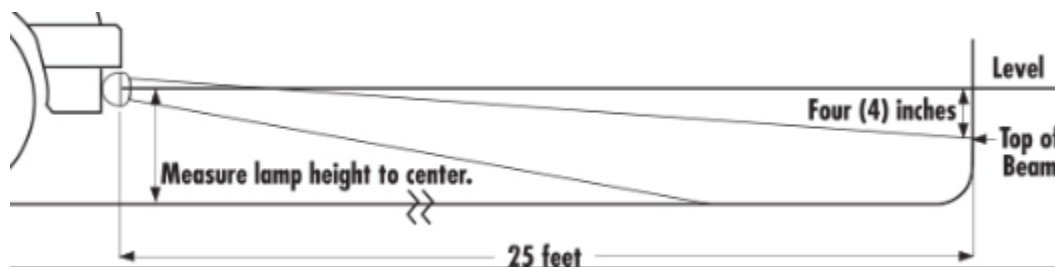
Mounting should be 10 to 24 inches above the ground, lower is better. Fog forms about 2 feet off the ground ideally a fog light is below the fog formation. A fog light mounted too high will cause a reflection of lights on the fog, reflected back to the driver.

Mount fog lights under the fog and to see the road ahead.

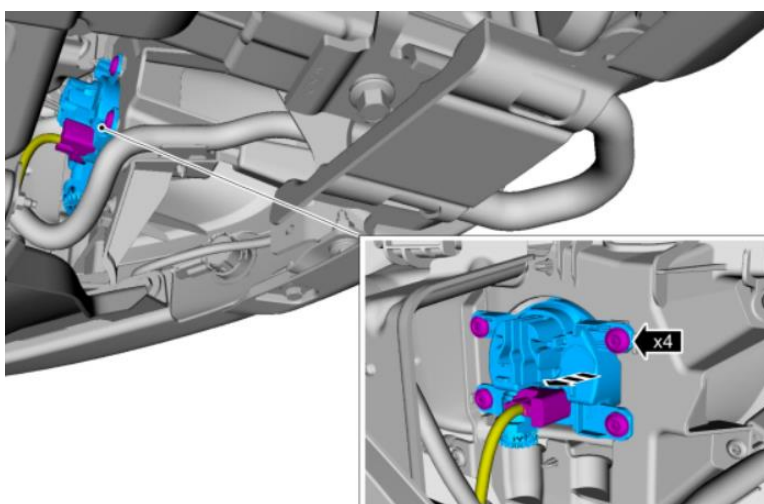
Park on a flat surface with the lights shining on a wall 25 feet away. Use a measuring tape.

On the vehicle, measure from the center of the fog light lens to the ground. Visibly mark on the wall at that exact height taken from the vehicle. Note: the optimal level is below the fog formation line.

Adjust the fog lights so they are facing straight forward. The top of the beam is about 4 inches lower than that mark you made on the wall.



Factory Lamp Vertical Adjustment screw is visible below the lamp



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Cruise Control Radar Alignment

Activation

NOTE: Make sure that the tire pressures are to specification and that the vehicle is unladen.

Vertical Alignment

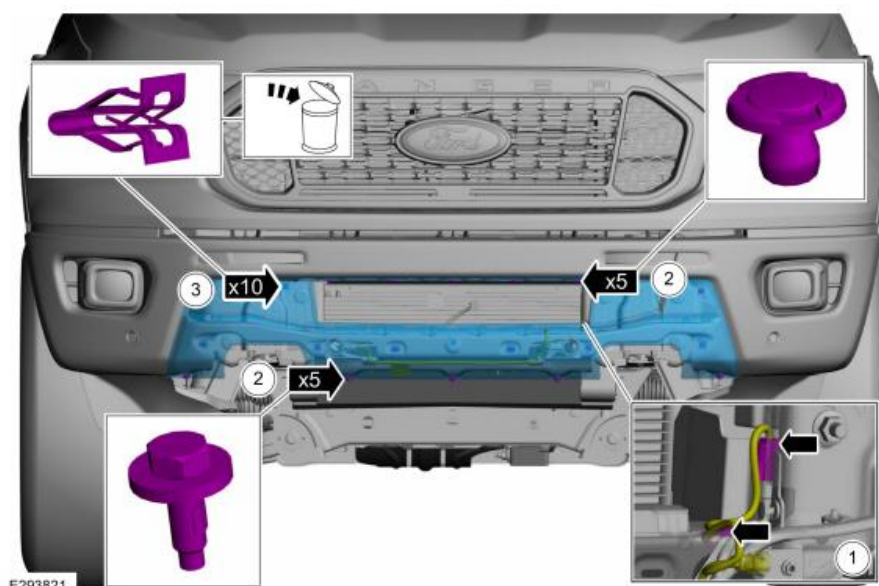
NOTE: In order to align the CCM, the front bumper cover must be removed to access the sensor and the vehicle must be in a wheel alignment bay station so that the vehicle is level.

NOTE: Damage to the CCM bracket may affect correct alignment. When aligning the CCM, inspect the CCM bracket for damage and repair as necessary before carrying out the alignment procedure.

NOTE: Damage to the lower grill may affect the performance of the CCM. When aligning the CCM, inspect the lower grill for damage and repair as necessary before carrying out the alignment procedure.

1. Remove the front bumper valence cover.
 1. Disconnect the electrical connector, the retainer and position the wiring harness aside.
 2. Remove the push pins and the bolts.
Torque: 36 lb.in (4.1 Nm)
 3. **NOTE:** Use a suitable tool to prevent damage to the component during removal.

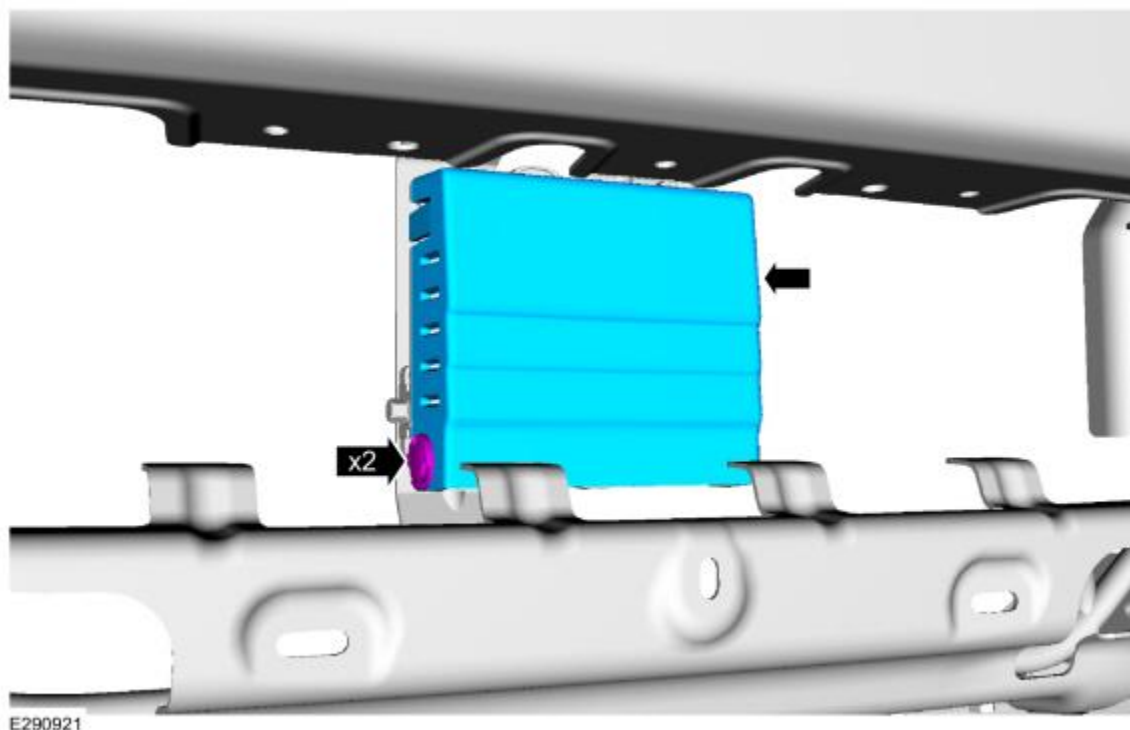
Remove and discard the clips. Remove the front bumper **valence** cover.



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2. Remove the retainers and the CCM cover.



3. **NOTE:** Make sure there is no physical damage to any component and if all components are fit correctly on to the vehicle. This will ensure correct operation of the CCM module.

Place the vehicle on a wheel alignment bay station.

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4. **NOTE:** *Similar application shown.*

Locate the CCM alignment screw.



5. **NOTE:** *Similar application shown.*

Place a combination square level on the face of the CCM and check the alignment.

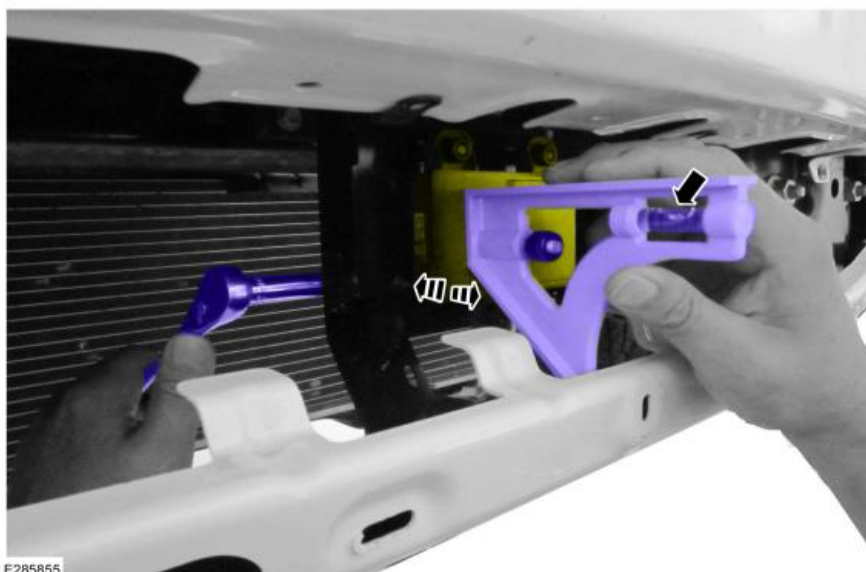


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6. **NOTE:** *Similar application shown.*

Keeping the combination square level on the face of the CCM, adjust the pitch by adjusting the screw until the CCM is vertical and level.



7. To install, reverse the removal procedure.

Horizontal Alignment

NOTE: *Prior to software calibration for horizontal alignment, make sure the CCM vertical alignment has been completed.*

NOTE: *The horizontal alignment for the CCM is a software calibration check that is performed by the scan tool to insure the CCM radar is pointed straight. No manual adjustment is needed for this procedure. The scan tool calibrates the CCM through the CCM procedure in programmable parameters. The Alignment Offset specification is +/- 3.0 degrees of offset.*

8. **NOTICE:** The vehicle's engine must be running during the horizontal alignment procedure. Failure to leave the engine running throughout the entire procedure results in the cancellation of the alignment procedure and the system remains non-functional.

Start the engine.

9. Follow the scan tool on-screen instructions to carry-out the CCM calibration procedure.

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