

204-02 Rear Suspension Removal and Installation

2022 F-150

Procedure revision date: 08/6/2021

Spring


Special Tool(s) / General Equipment

Vehicle/Axle Stands

Materials

Name	Specification
Motorcraft® Metal Brake Parts Cleaner PM-4-A, PM-4-B, APM-4-C	-

Removal

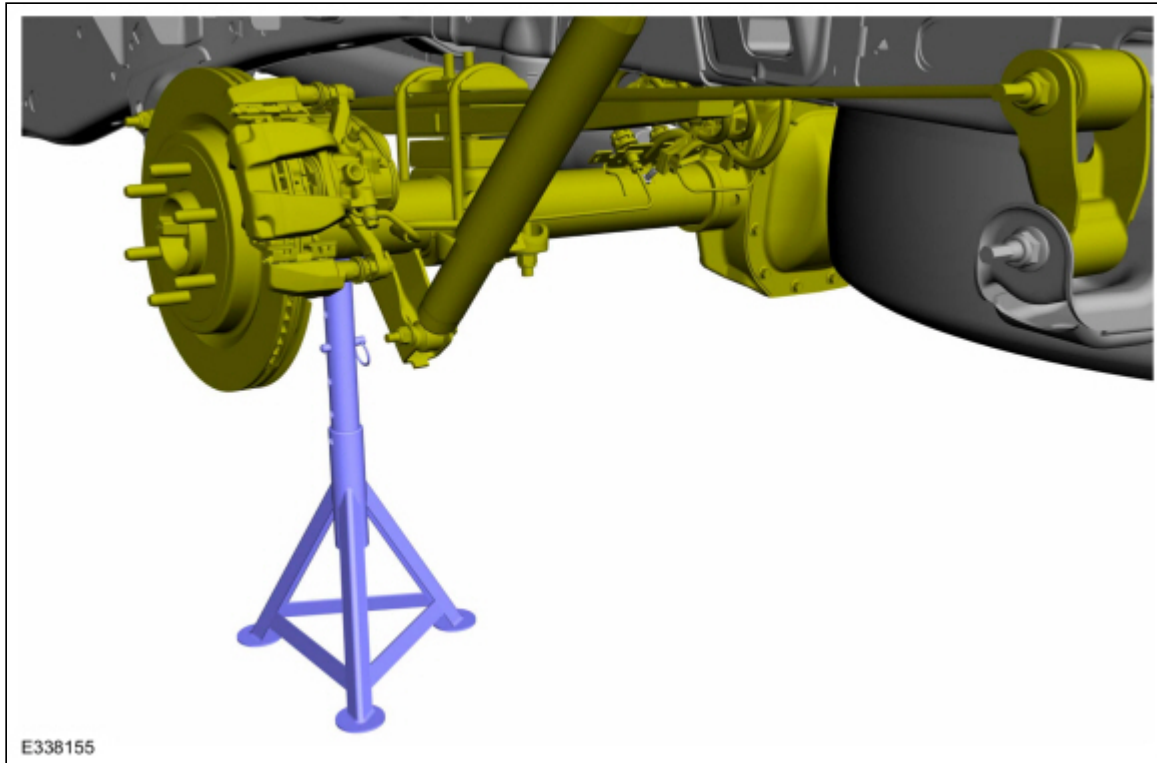
 **WARNING:** Do not apply heat or flame to the shock absorber or strut tube. The shock absorber and strut tube are gas pressurized and could explode if heated. Failure to follow this instruction may result in serious personal injury.

 **WARNING:** Keep all body parts clear of shock absorbers or strut rods. Shock absorbers or struts can extend unassisted. Failure to follow this instruction may result in serious personal injury.

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.

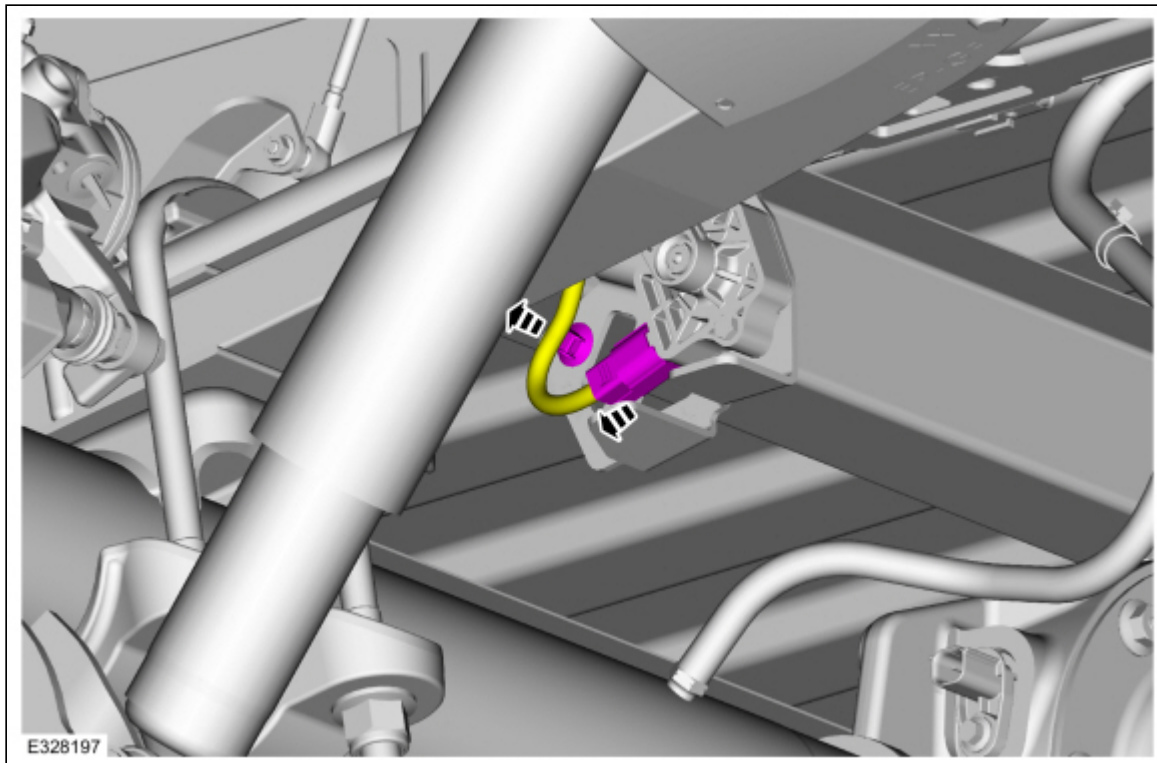
- For the LH spring.
Lower the fuel tank to gain access to the spring-to-frame bolt.
Refer to: [Fuel Tank](#) (310-01A Fuel Tank and Lines - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
Refer to: [Fuel Tank](#) (310-01B Fuel Tank and Lines - 3.3L Duratec-V6, Removal and Installation).
Refer to: [Fuel Tank](#) (310-01C Fuel Tank and Lines - 3.5L EcoBoost (BM), Removal and Installation).
Refer to: [Fuel Tank](#) (310-01E Fuel Tank and Lines - 5.0L 32V Ti-VCT, Removal and Installation).
Refer to: [Fuel Tank](#) (310-01D Fuel Tank and Lines - 3.5L V6 PowerBoost (CN), Removal and Installation).
- For the RH spring.
Remove the muffler to gain access to the spring-to-frame bolt.
Refer to: [Muffler and Tailpipe](#) (309-00A Exhaust System - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
Refer to: [Muffler and Tailpipe](#) (309-00B Exhaust System - 3.3L Duratec-V6, Removal and Installation).
Refer to: [Muffler and Tailpipe](#) (309-00E Exhaust System - 5.0L 32V Ti-VCT, Removal and Installation).
Refer to: [Muffler and Tailpipe](#) (309-00C Exhaust System - 3.5L EcoBoost (BM), Removal and Installation).
Refer to: [Muffler Inlet Pipe](#) (309-00D Exhaust System - 3.5L V6 PowerBoost (CN), Removal and Installation).
Refer to: [Muffler - Tremor](#) (309-00C Exhaust System - 3.5L EcoBoost (BM), Removal and Installation).
- Remove the wheel and tire.
Refer to: [Wheel and Tire](#) (204-04A Wheels and Tires, Removal and Installation).
- Support the rear axle assembly.
Use the General Equipment: Vehicle/Axle Stands





5. If equipped.

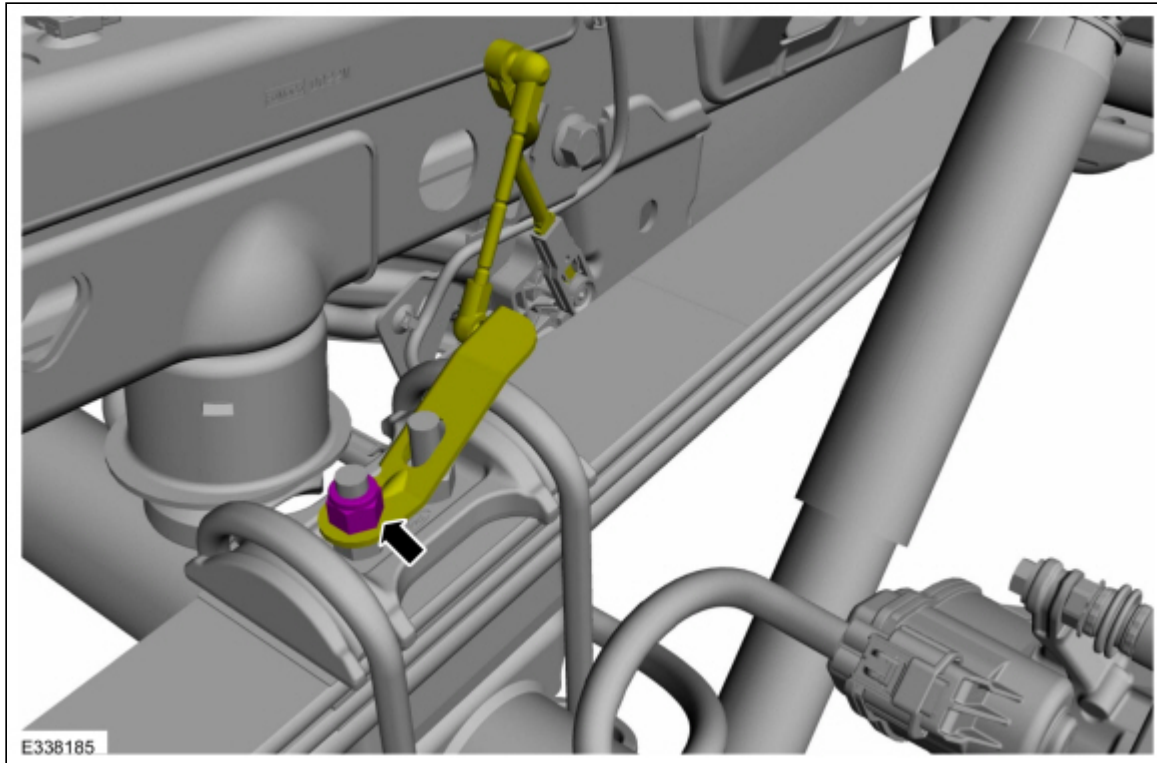
Disconnect the height sensor electrical connector and position the harness aside.



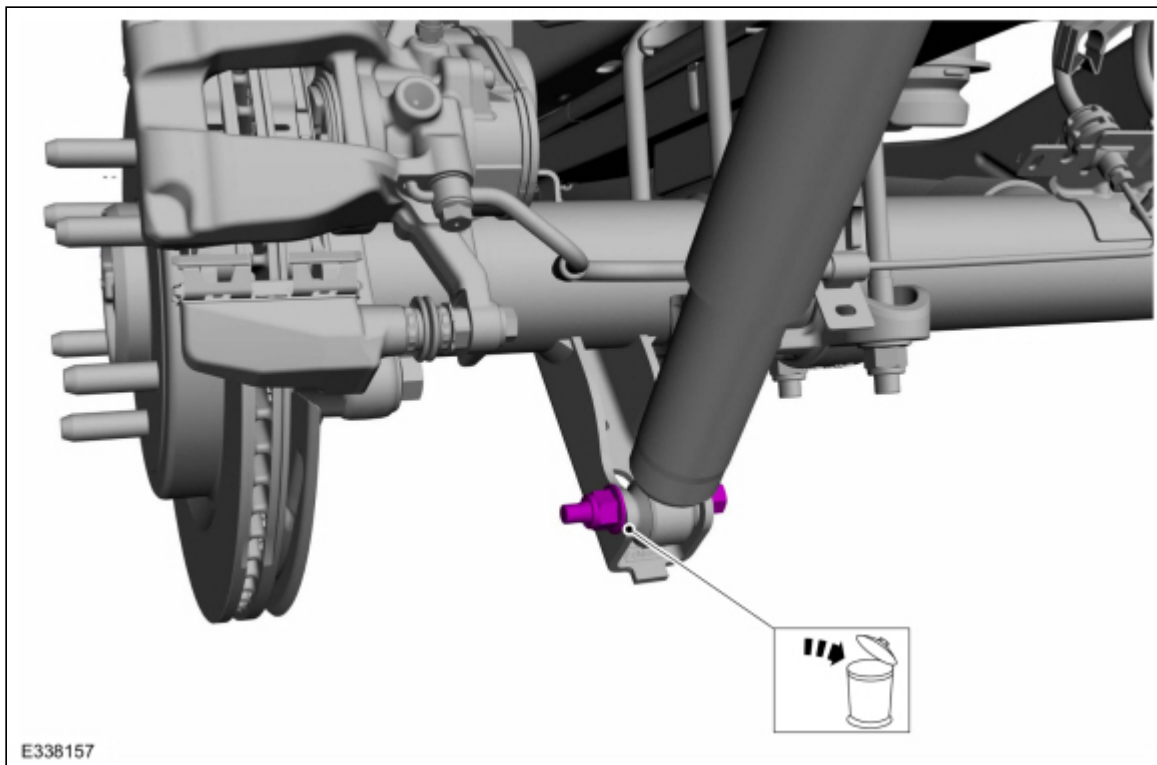
6. **NOTE:** Note the position of the components before removal.

If equipped.

Remove the nut and detach the height sensor arm from the leaf spring U-bolt and position aside.



7. Remove and discard the rear shock absorber lower nut and bolt.



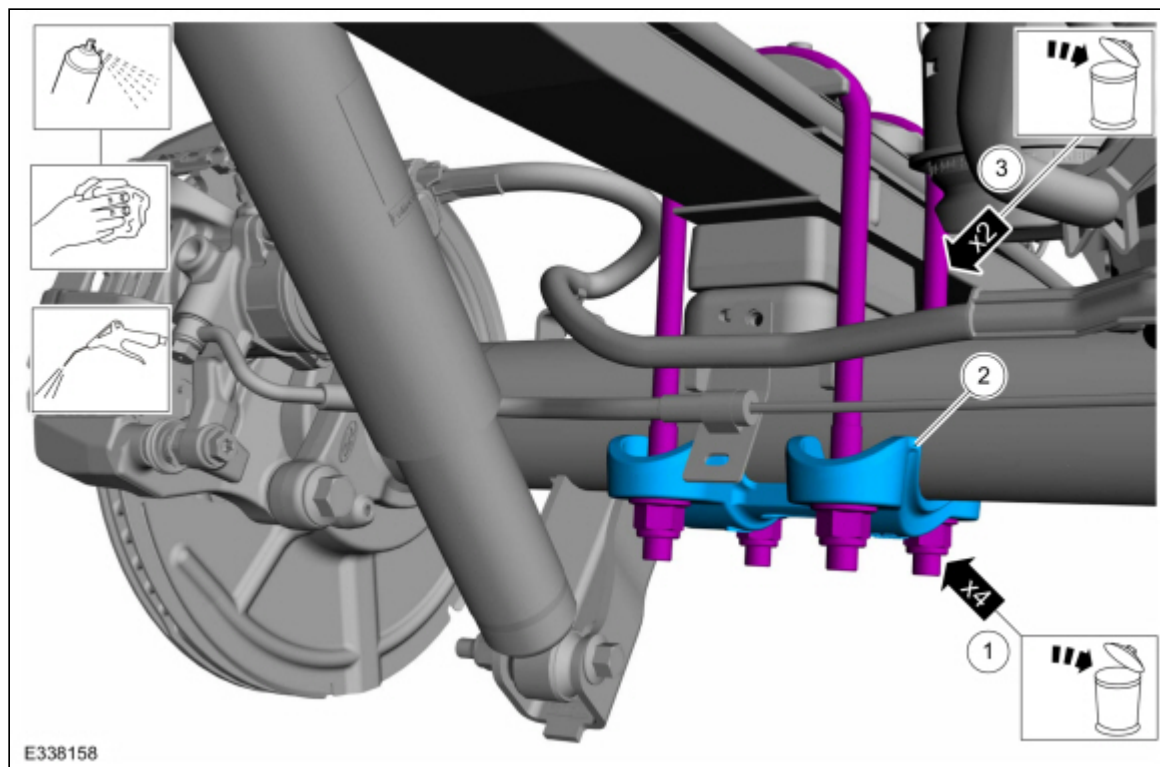
8. **NOTICE:** Make sure that the mating faces are clean and free of corrosion and foreign material.

1. Remove and discard the U-bolt nuts.

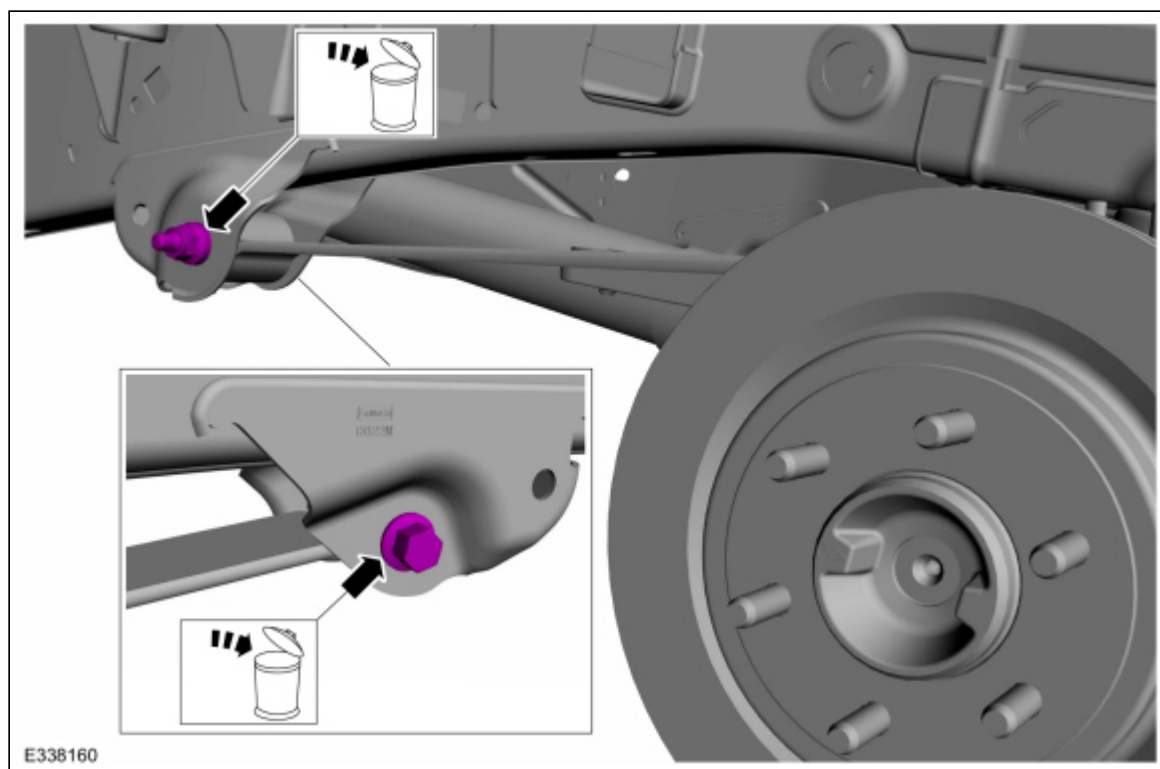
2. Remove the U-bolt plate.

Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B, APM-4-C

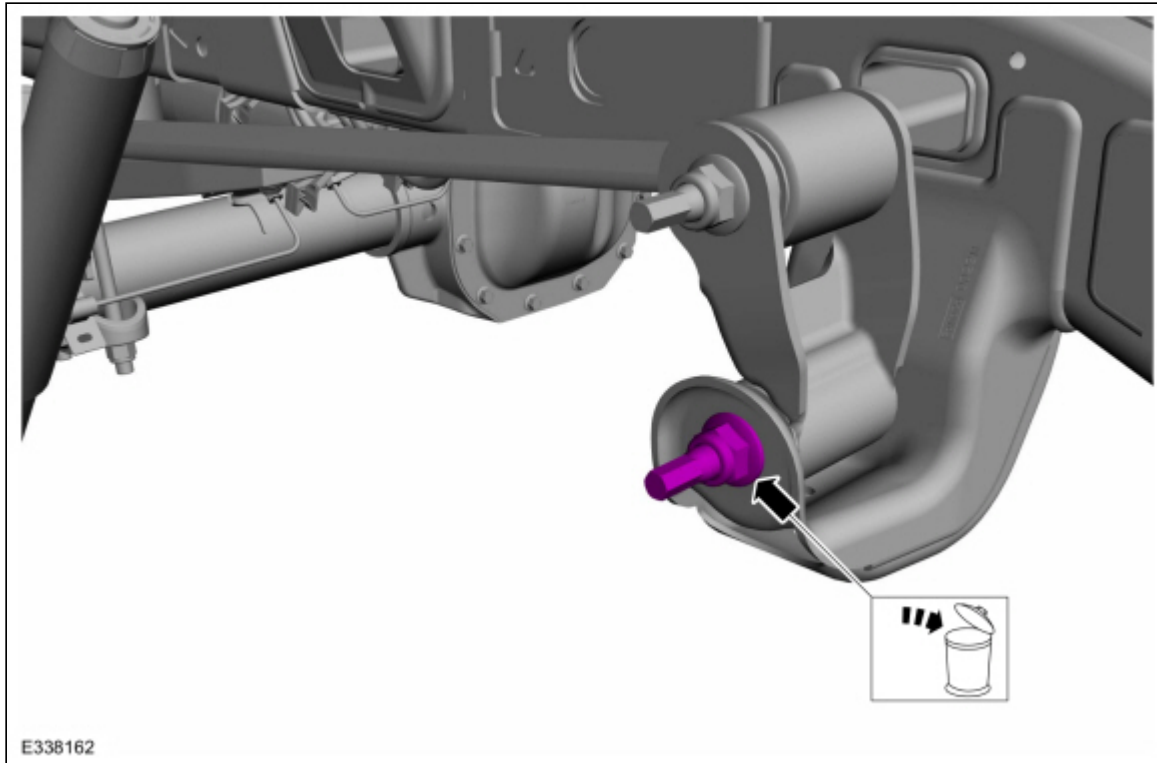
3. Remove and discard the U-bolts.



9. Remove and discard the spring-to-frame nut and bolt.



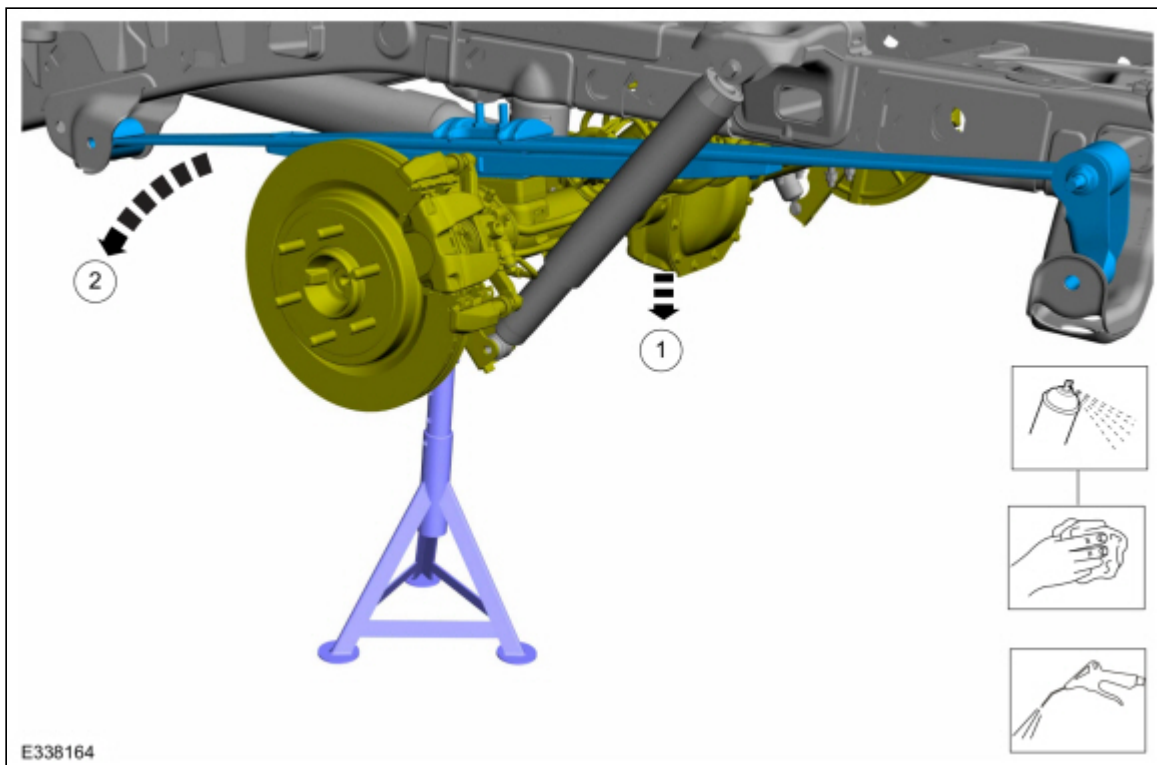
10. Remove and discard the spring shackle-to-frame nut and bolt.



11. **NOTICE:** Make sure that the mating faces are clean and free of corrosion and foreign material.

NOTE: Only lower the axle enough to gain access to remove the spring.

1. Lower the axle.
Use the General Equipment: Vehicle/Axle Stands
2. Remove the spring and shackle assembly.
Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B, APM-4-C

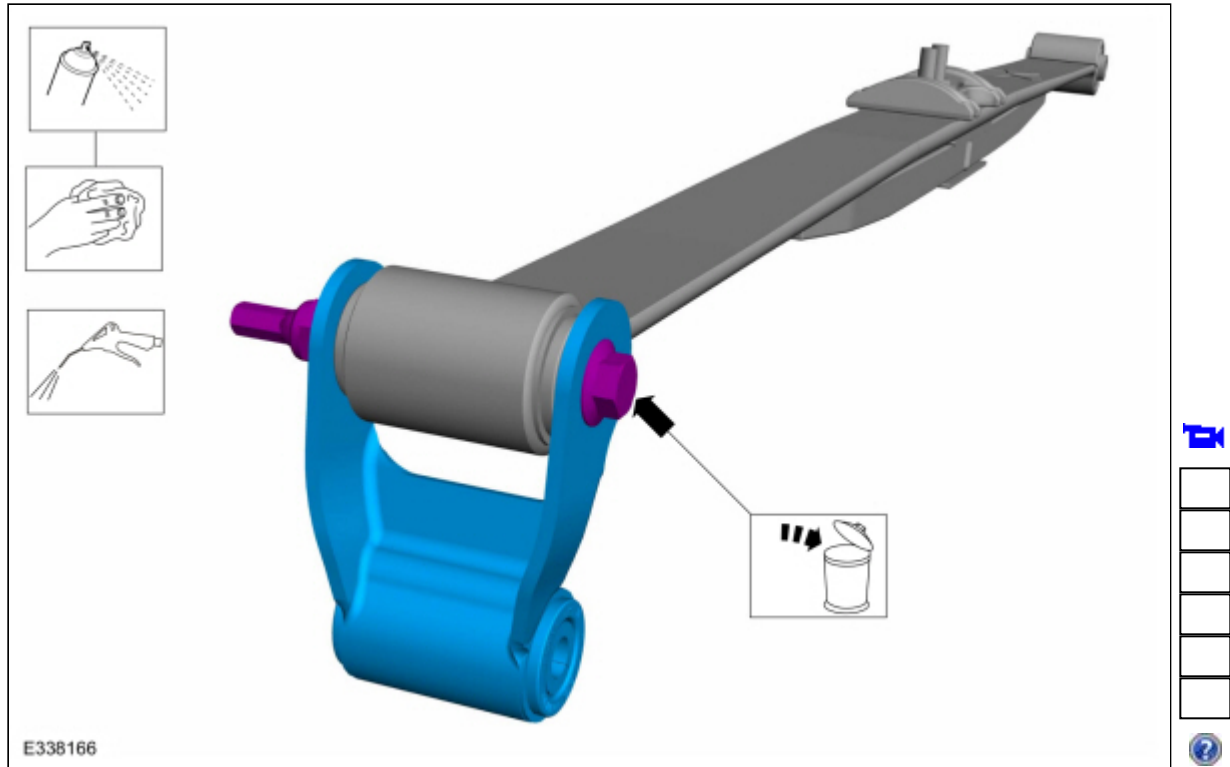


12. **NOTICE:** Make sure that the mating faces are clean and free of corrosion and foreign material.

If necessary.

Remove and discard the spring-to-shackle bolt and nut and remove the spring shackle.

Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B, APM-4-C

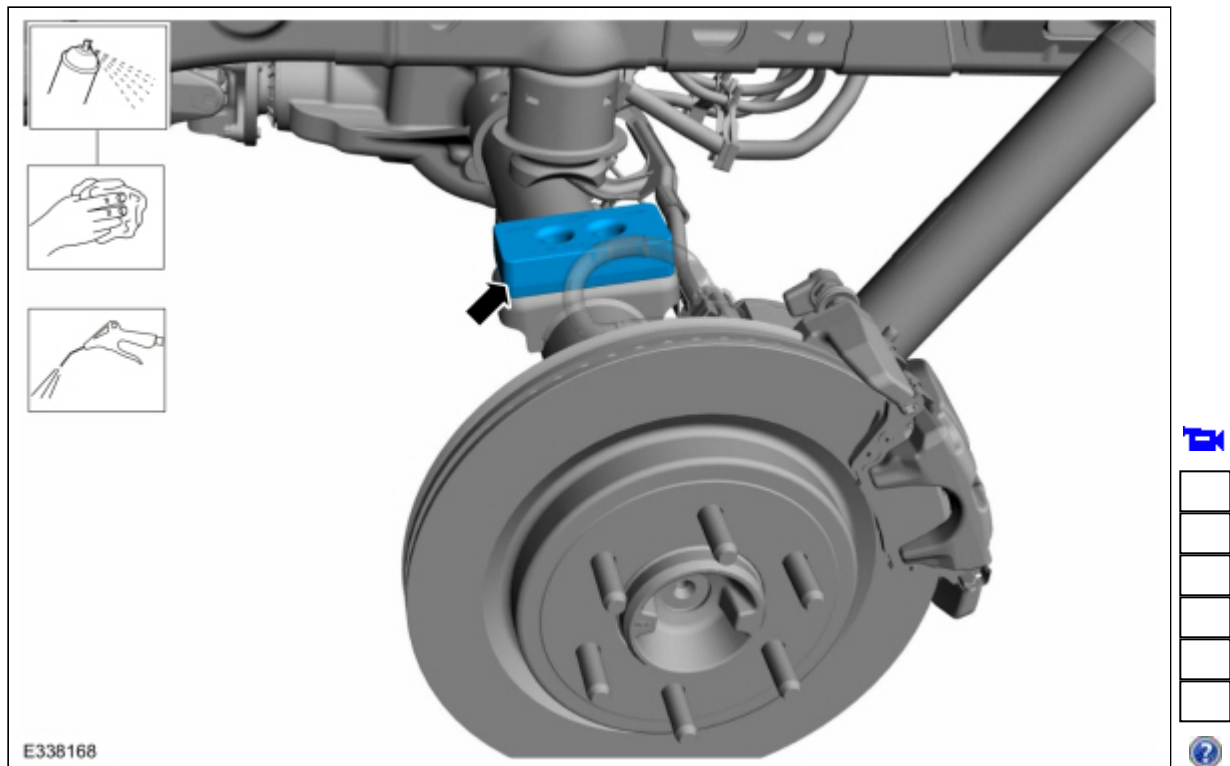


vehicles except Tremor

13. NOTICE: Make sure that the mating faces are clean and free of corrosion and foreign material.

Remove the 4WD spring spacer.

Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B, APM-4-C

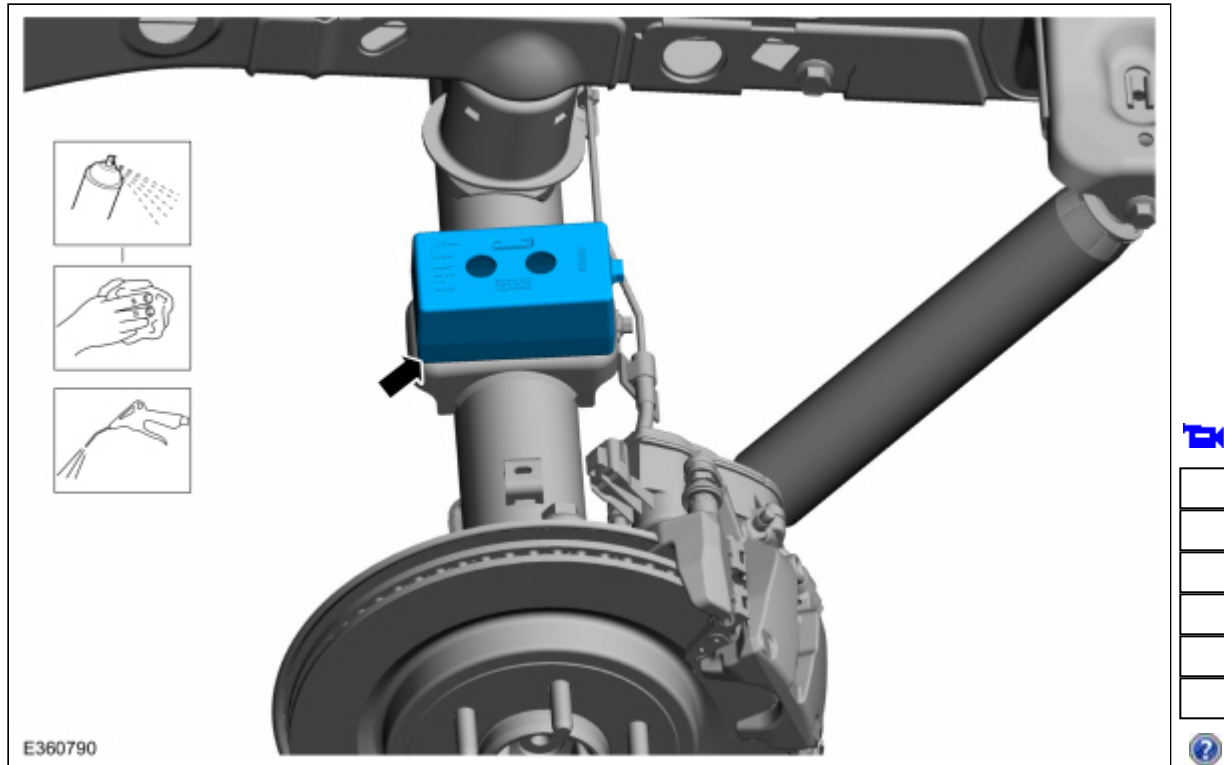


Tremor

14. **NOTICE: Make sure that the mating faces are clean and free of corrosion and foreign material.**

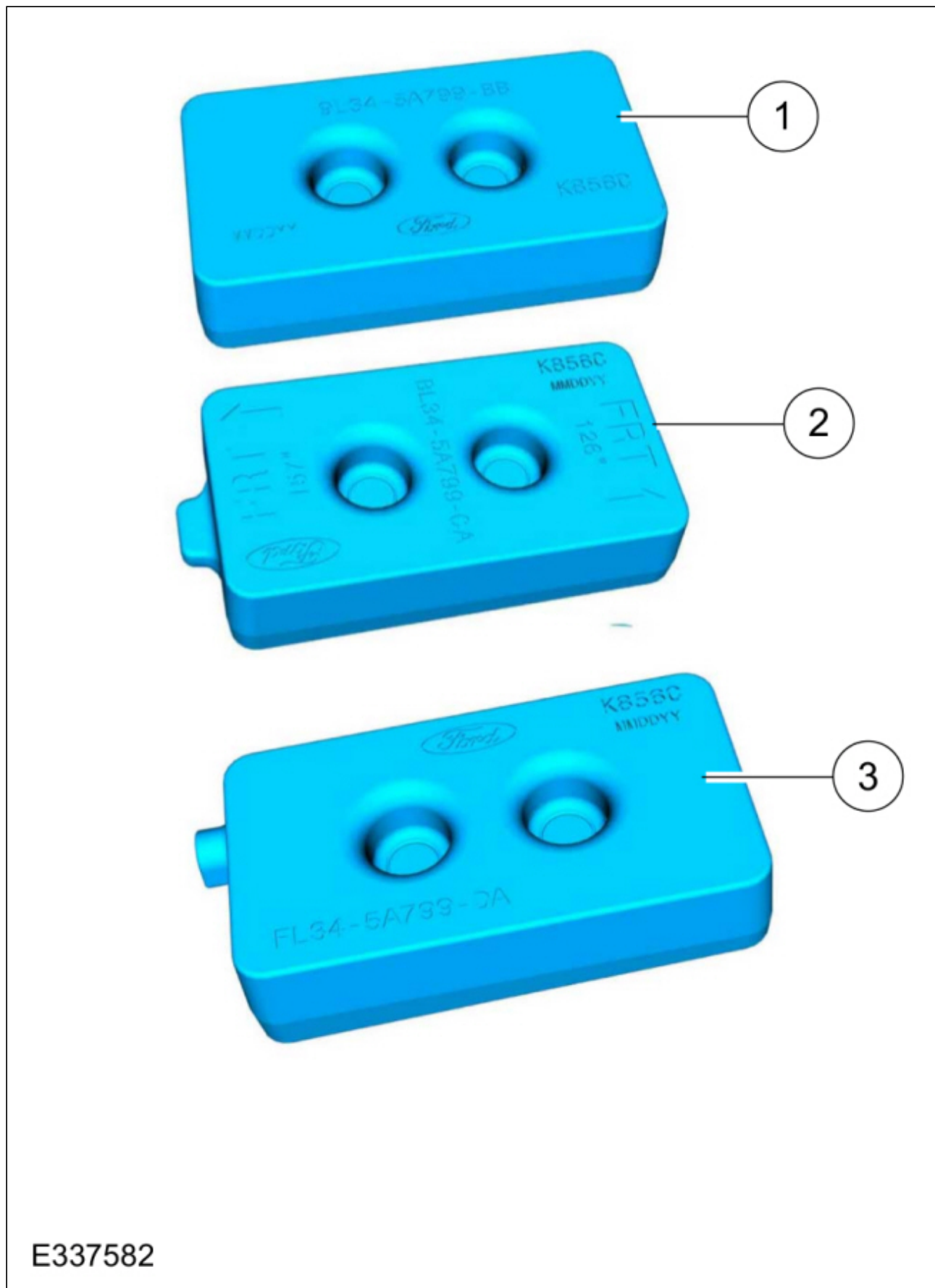
Remove the spring spacer.

Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B, APM-4-C

**Installation****vehicles except Tremor**

1. **NOTICE: Make sure that the mating faces are clean and free of corrosion and foreign material.**

1. Install on vehicles with 141 in, 145 in and 157 in wheelbase (all payload packages) and vehicles with 163 in wheelbase with heavy duty payload package only.
2. Install on vehicles with 163 in wheelbase with base payload package. The protrusion on the spring spacer should face toward the front of the vehicle.
3. Install on vehicles with 122 in wheelbase with base payload package. The protrusion on the spring spacer should face toward the rear of the vehicle.

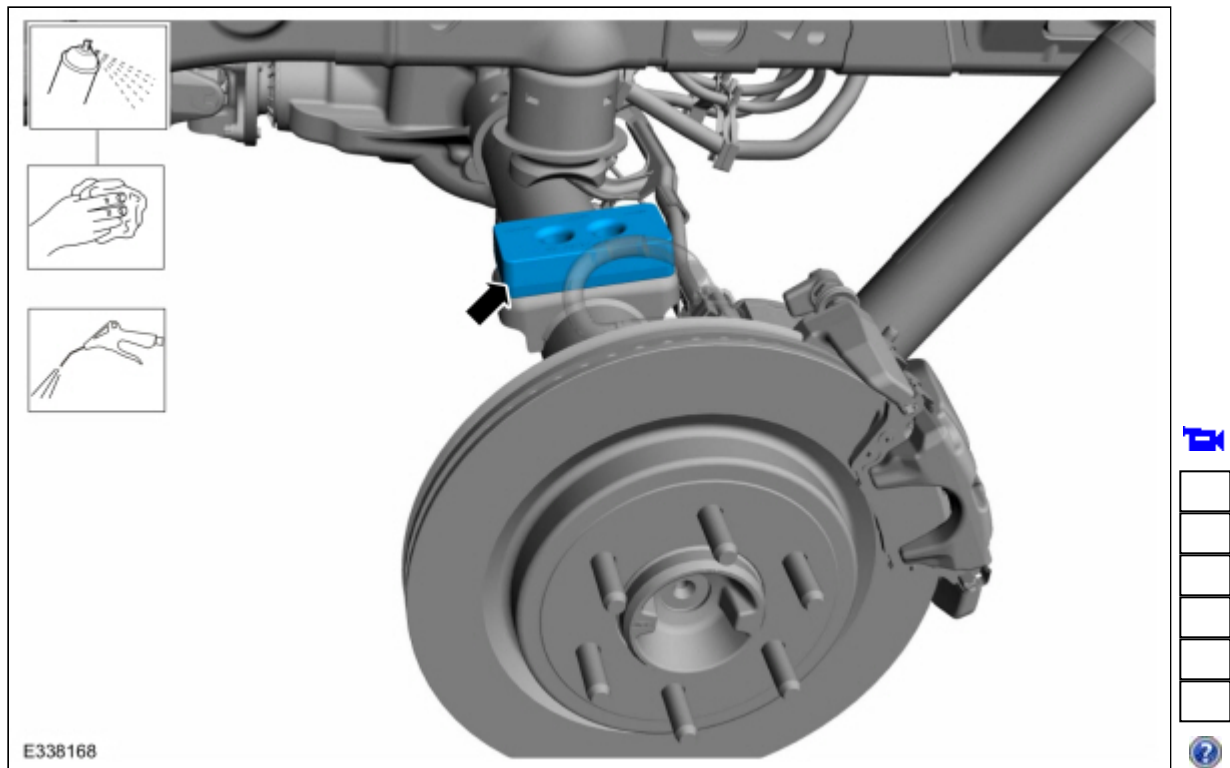


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2. NOTICE: Make sure that the mating faces are clean and free of corrosion and foreign material.

NOTE: Make sure the spring spacer is correctly seated between the axle and spring.

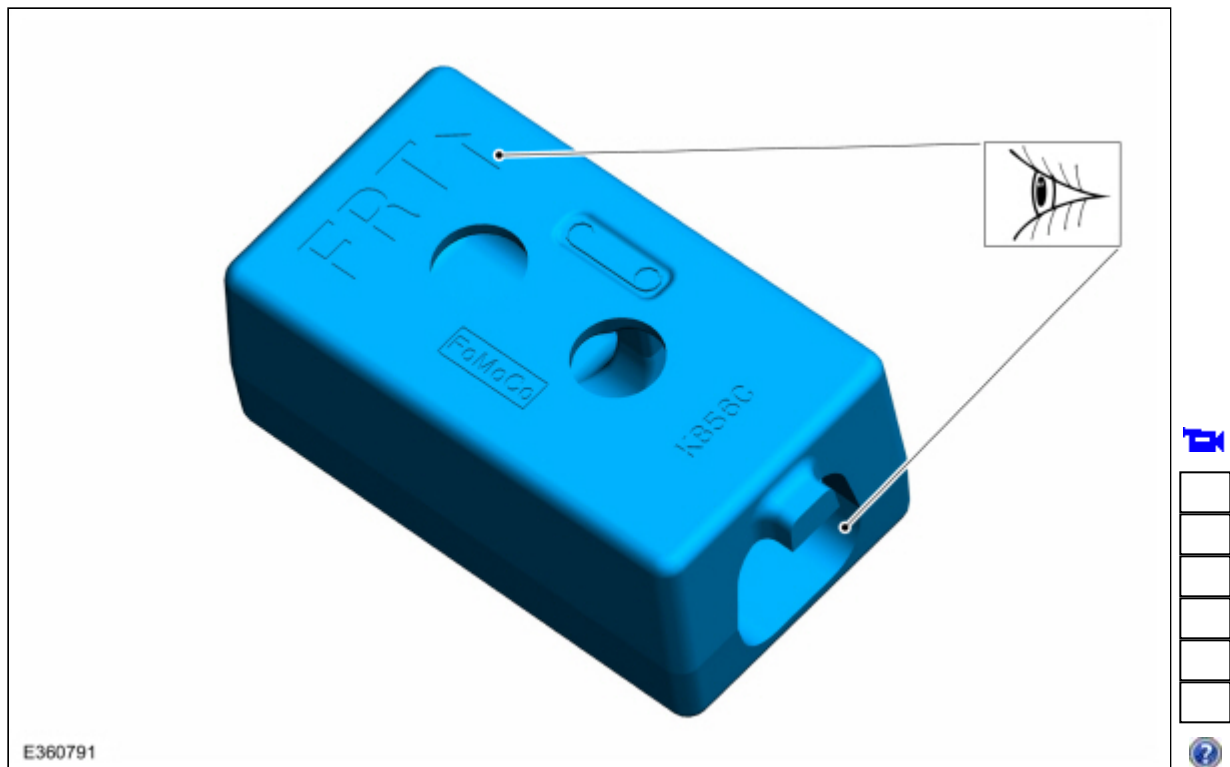
Install the 4WD spring spacer.



Tremor

3. **NOTICE:** Make sure that the mating faces are clean and free of corrosion and foreign material.

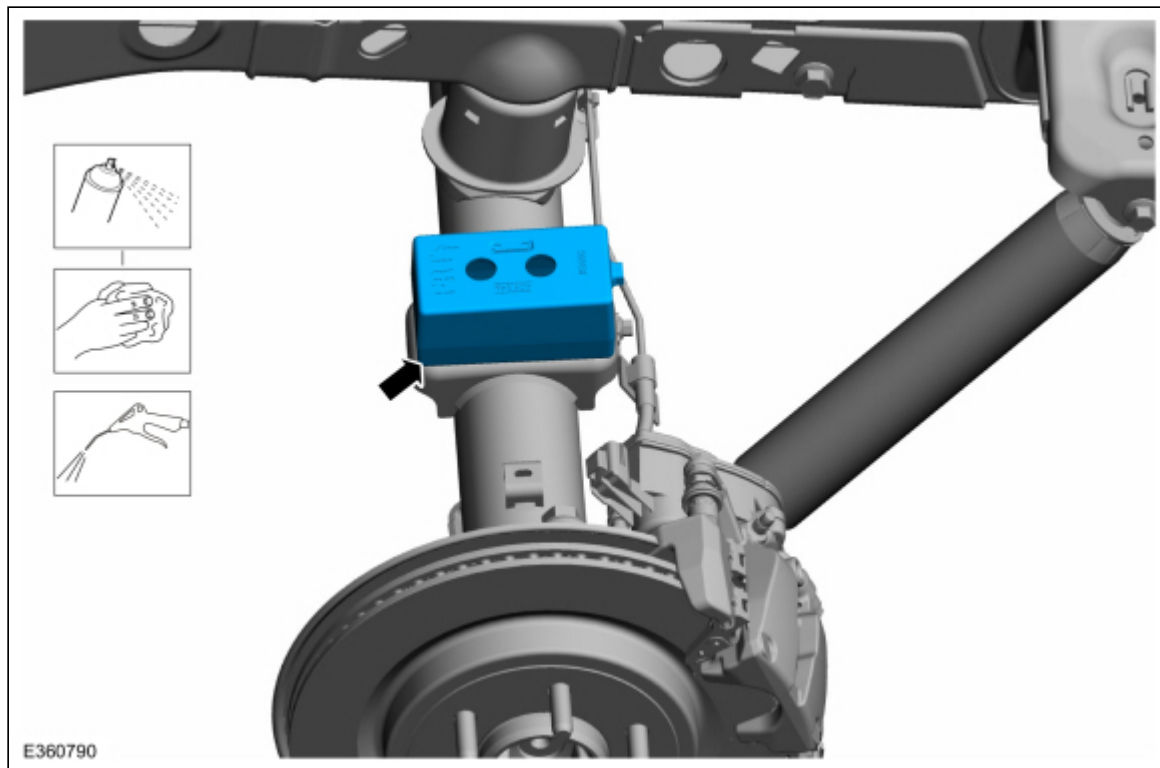
The window on the spring spacer should face toward the rear of the vehicle.



4. **NOTICE:** Make sure that the mating faces are clean and free of corrosion and foreign material.

NOTE: Make sure the spring spacer is correctly seated between the axle and spring.

Install the spring spacer.



All vehicles

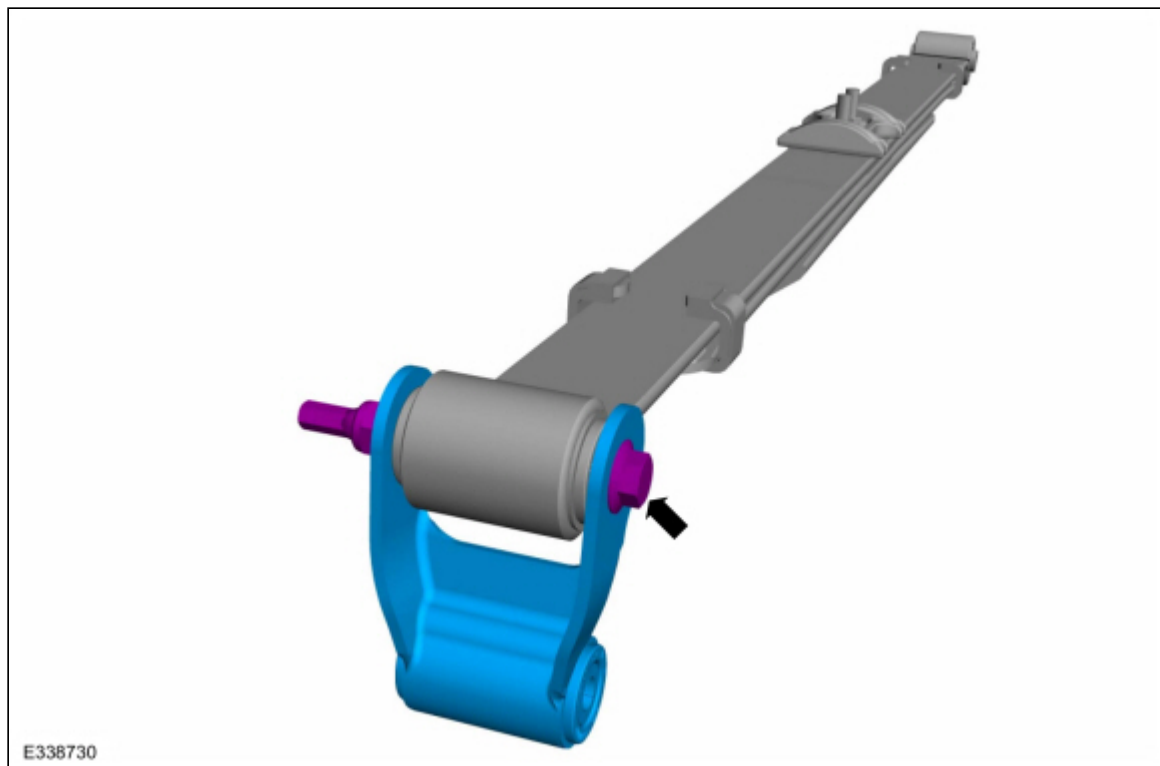
5. **NOTICE:** Tighten the fasteners with the suspension loaded or with the weight of the vehicle resting on the wheels and tires, otherwise incorrect clamp load and bushing damage may occur.

NOTICE: Make sure that the mating faces are clean and free of corrosion and foreign material.

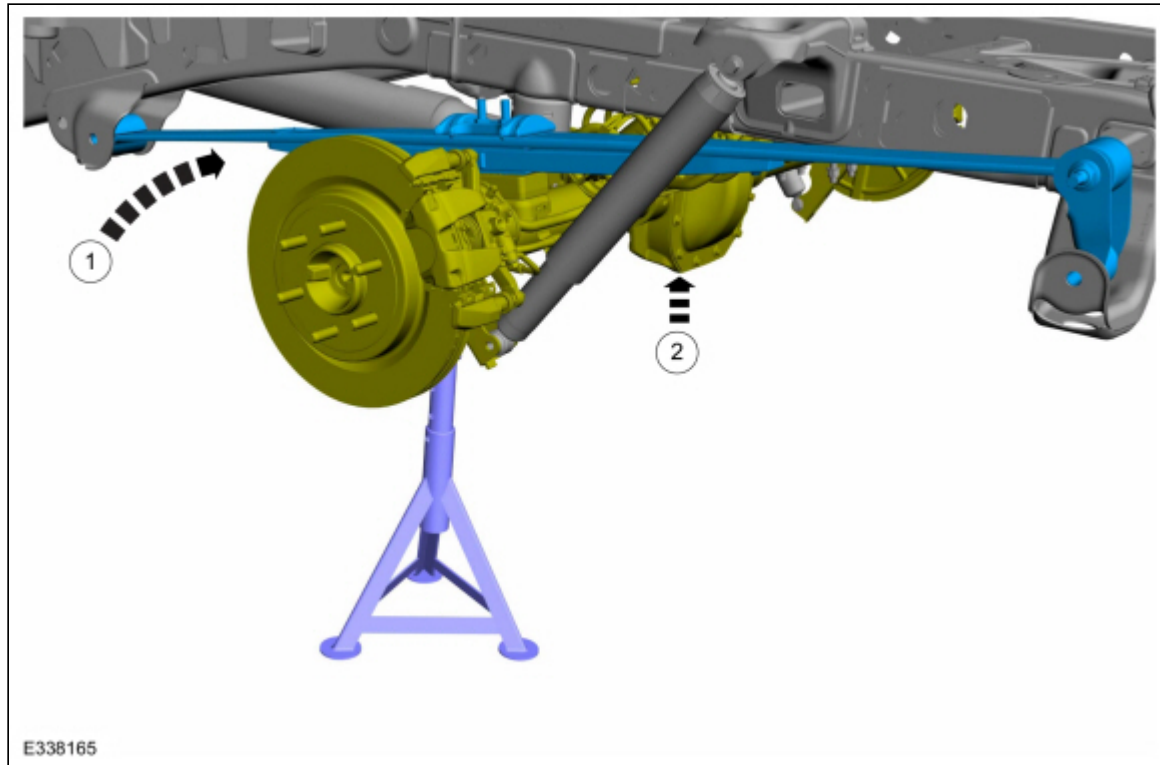
NOTE: Only tighten the nut and bolt to snug at this stage.

If necessary.

Install a new shackle-to-spring bolt and nut.

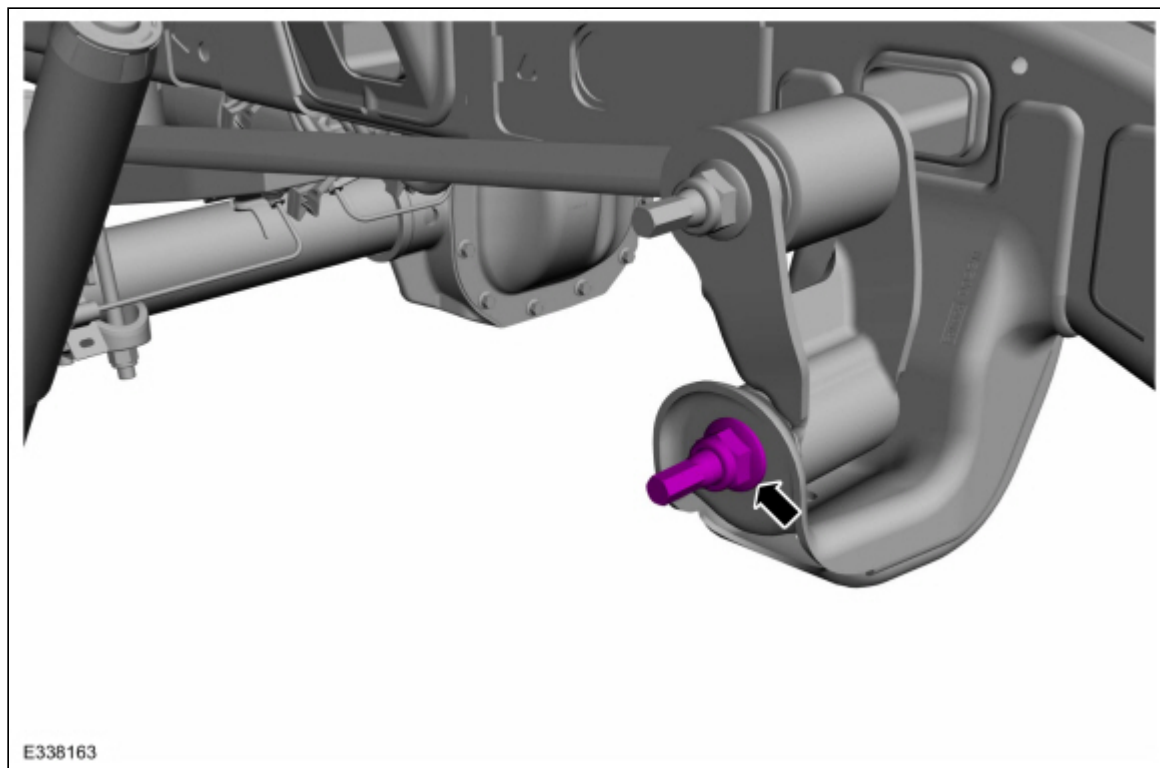


6.
 1. Position the spring and shackle assembly.
 2. Raise the axle.
- Use the General Equipment: Vehicle/Axle Stands



7. **NOTE:** Only tighten the nut and bolt to snug at this stage.

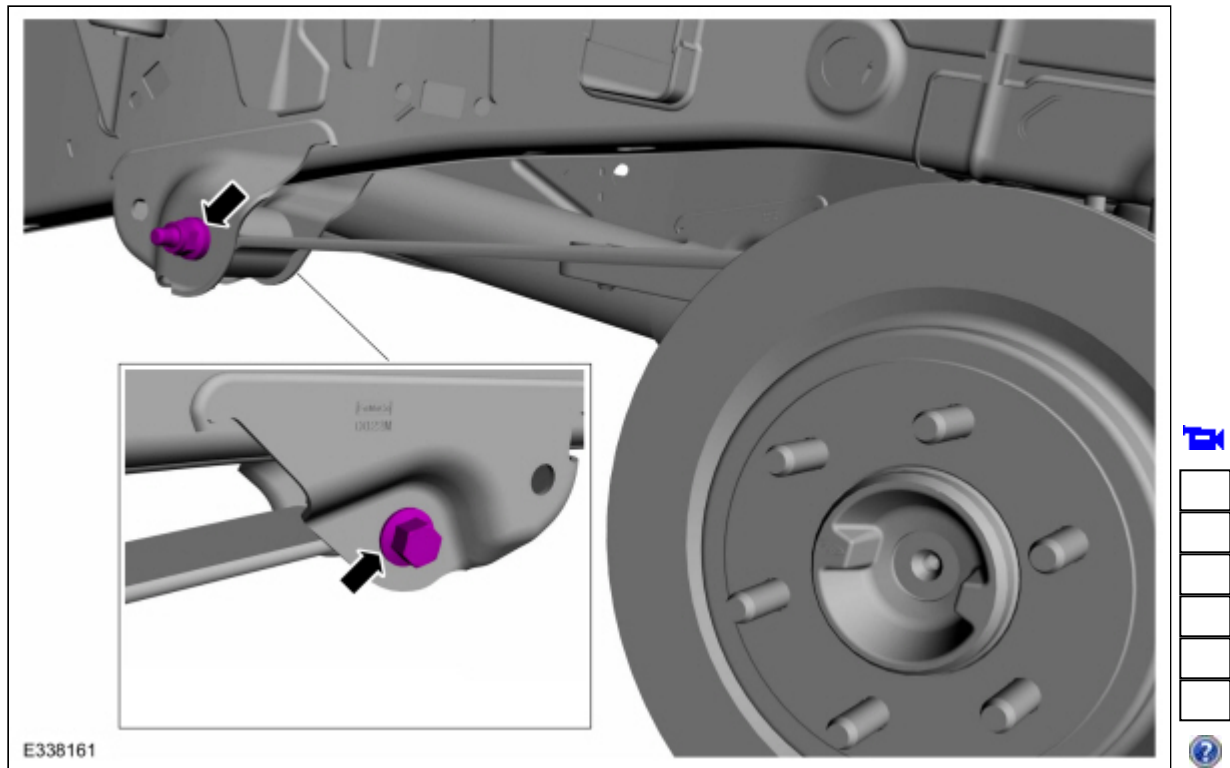
Install the new spring shackle-to-frame nut and bolt.



8. **NOTE:** Only tighten the nut and bolt to snug at this stage.

NOTE: Orient spring-to-frame bolt per workshop manual image.

Install the new spring-to-frame nut and bolt.



9. **NOTICE:** Make sure that the mating faces are clean and free of corrosion and foreign material.

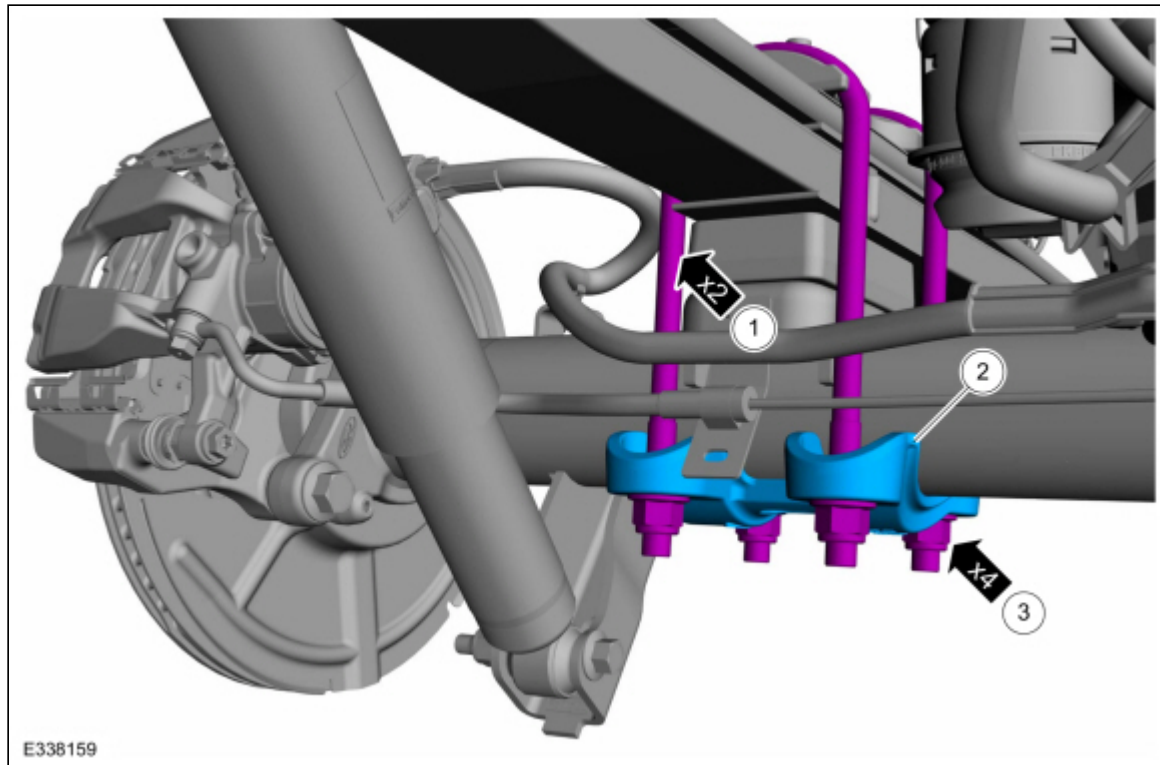
1. **NOTE:** Verify U-bolts are perpendicular and on center to leaf spring. Maintain equal side-to-side clearance to leaf spring stack when securing.

Install the new U-bolts.

2. Install the U-bolt plate.

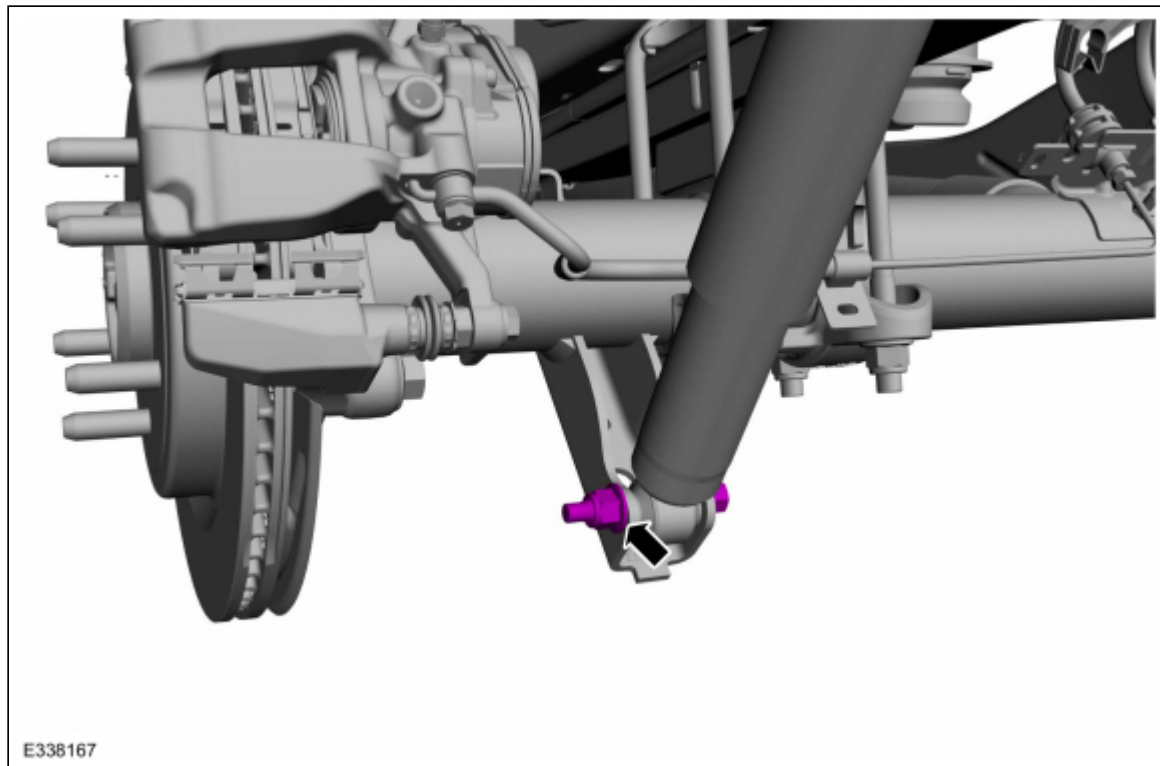
3. **NOTE:** Only tighten the nut and bolt to snug at this stage.

Install the new U-bolt nuts.



10. **NOTE:** Only tighten the nut and bolt to snug at this stage.

Install the new rear shock absorber lower nut and bolt.



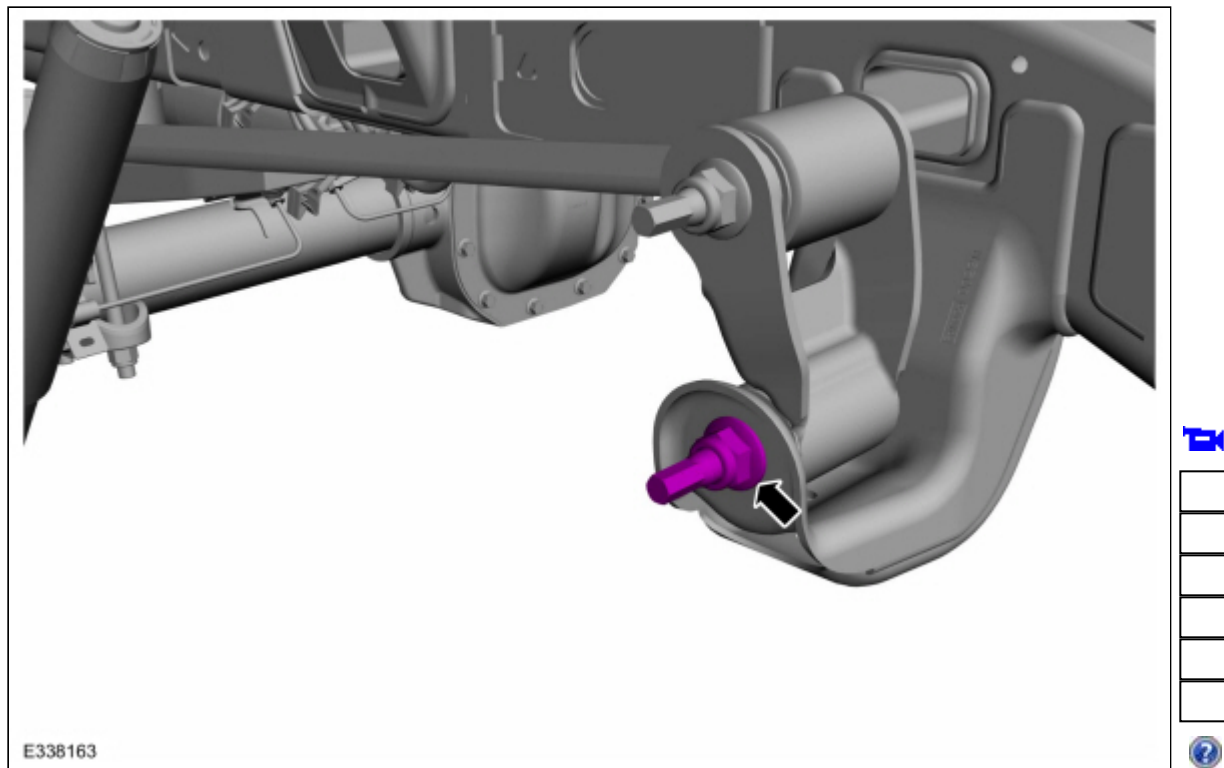
11. Install the wheel and tire.

Refer to: [Wheel and Tire](#) (204-04A Wheels and Tires, Removal and Installation).

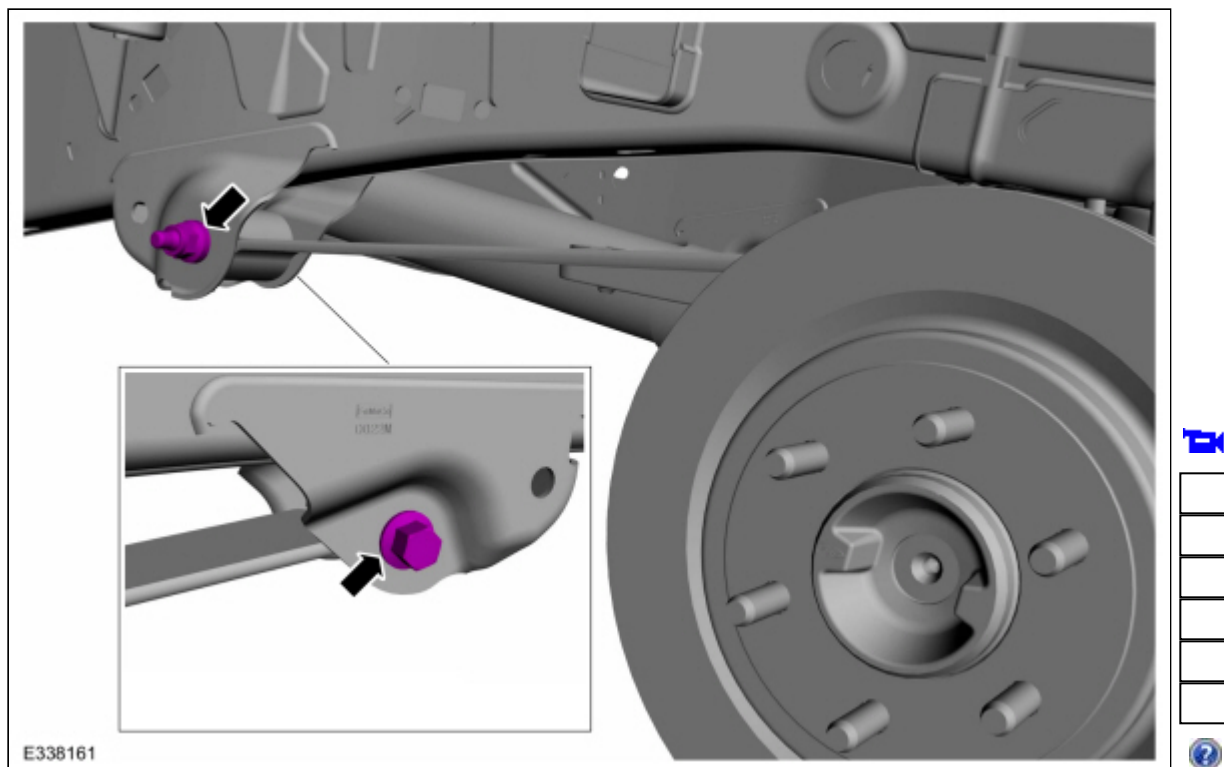
12. Lower the vehicle until the weight of the vehicle is resting on the wheels and tires (curb height).

13. Tighten the new spring shackle-to-frame nut and bolt.

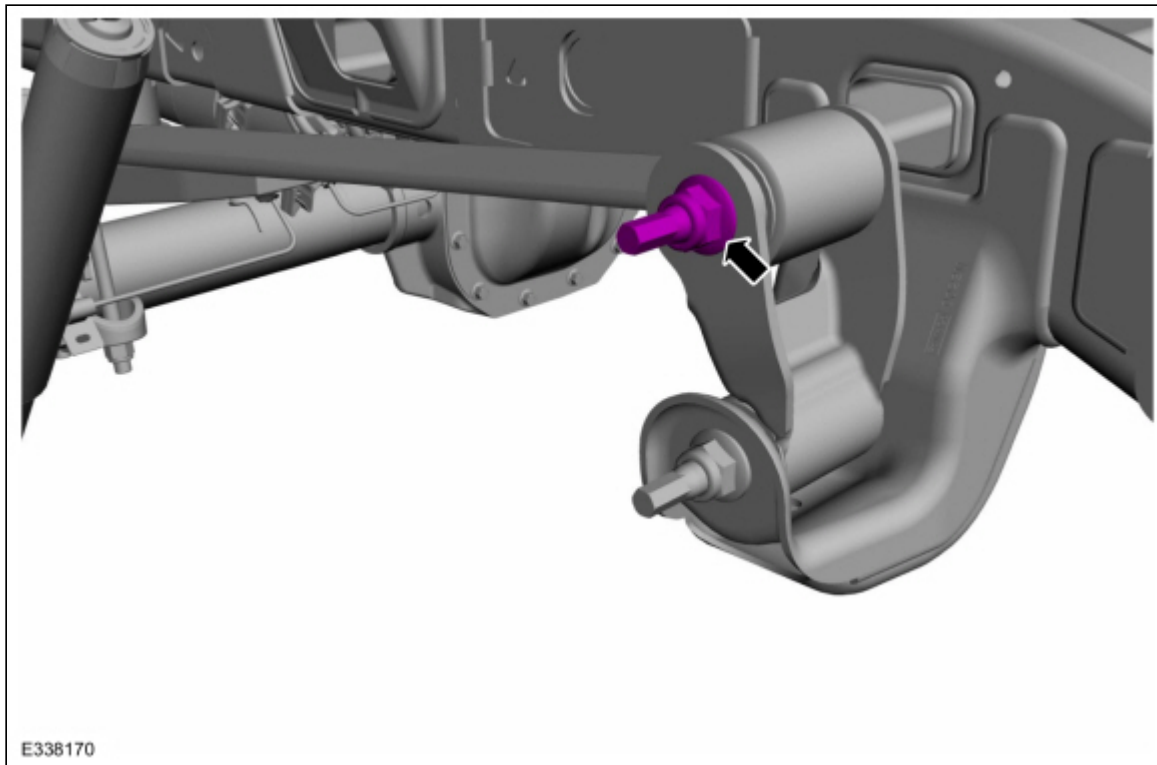
Torque: 173 lb.ft (235 Nm)



14. Tighten the new spring-to-frame nut and bolt.
Torque: 258 lb.ft (350 Nm)



15. If necessary.
Tighten the new shackle-to-spring bolt and nut.
Torque: 173 lb.ft (235 Nm)



16. Tighten the U-bolt nuts in a cross pattern in 4 stages.

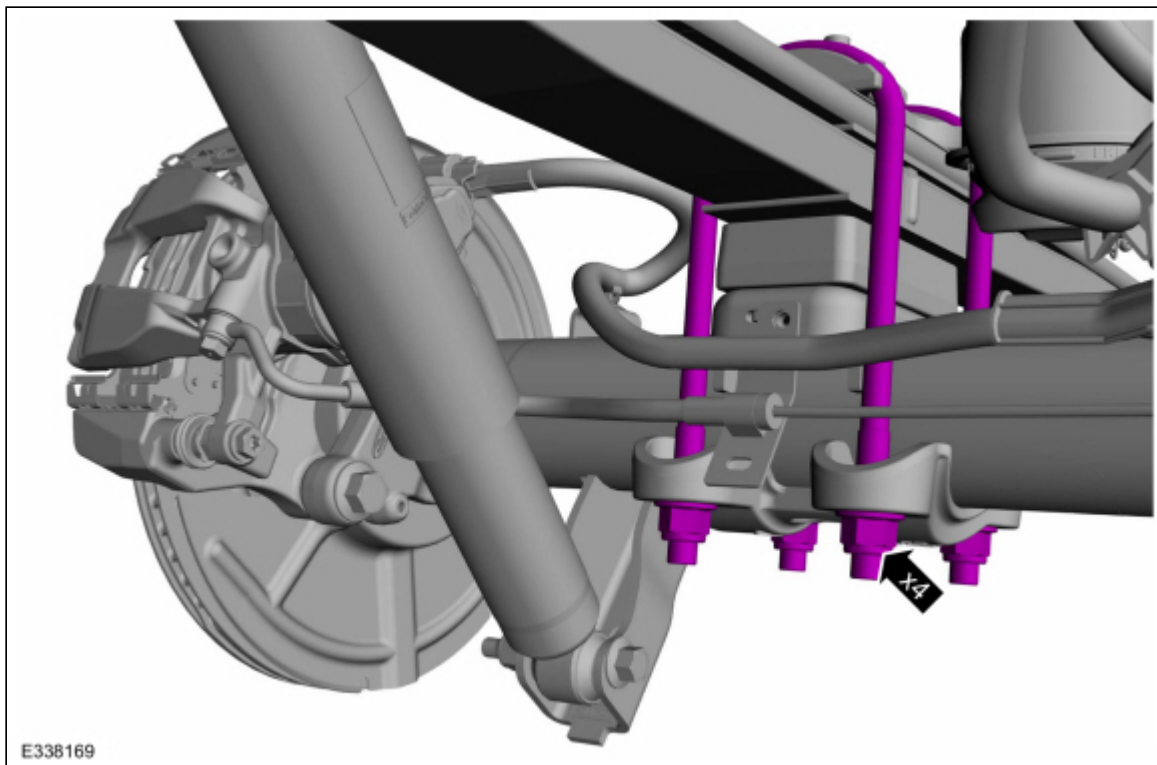
Torque:

Stage 1: 30 lb.ft (40 Nm)

Stage 2: 59 lb.ft (80 Nm)

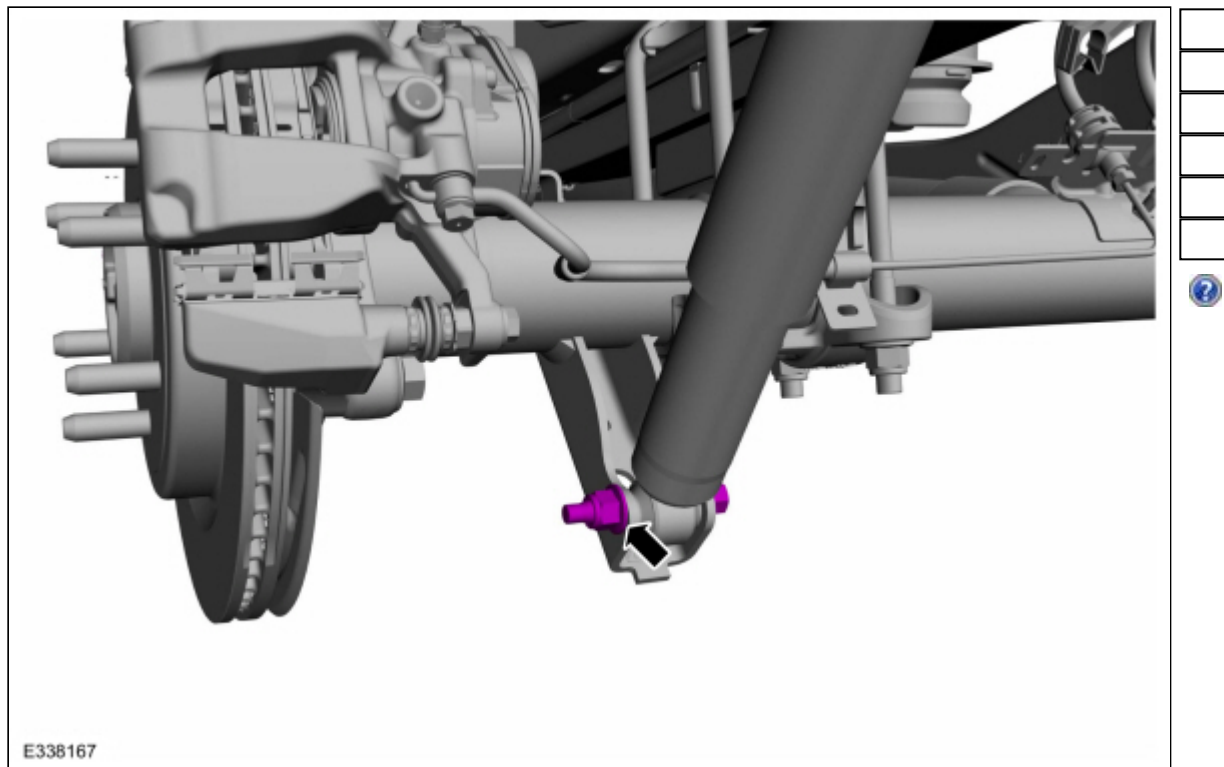
Stage 3: 89 lb.ft (120 Nm)

Stage 4: 111 lb.ft (150 Nm)



17. Tighten the new rear shock absorber lower nut and bolt.

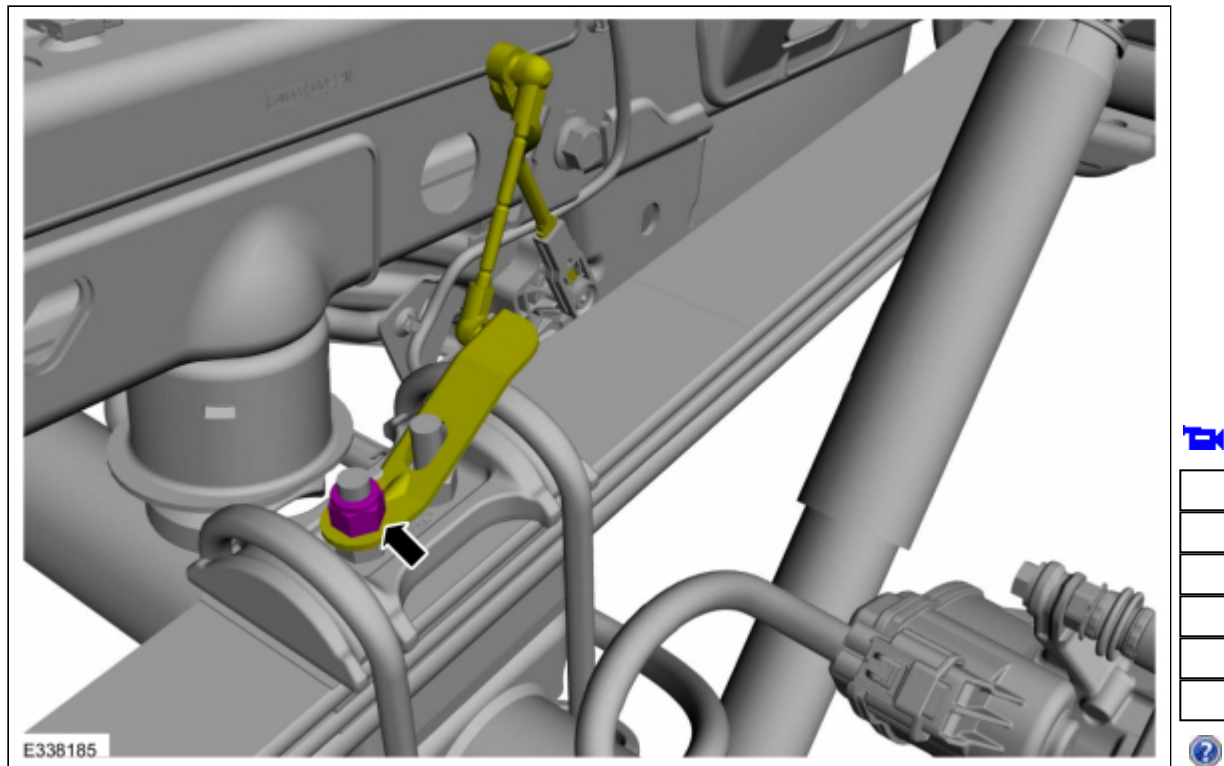
Torque: 66 lb.ft (90 Nm)



18. If equipped.

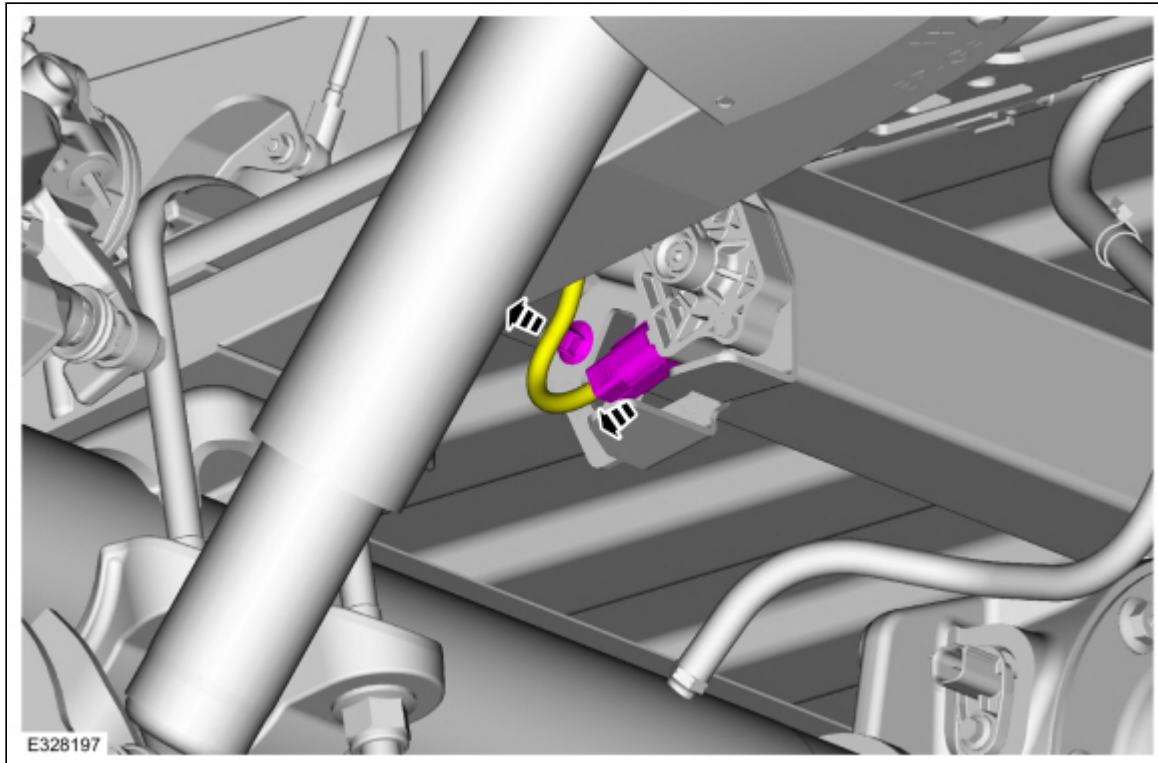
Attach the height sensor arm to the leaf spring U-bolt and tighten the nut.

Torque: 30 lb.ft (40 Nm)



19. If equipped.

Connect the height sensor electrical connector and the harness retainer.



20. For the RH spring.

Install the muffler.

Refer to: [Muffler and Tailpipe](#) (309-00A Exhaust System - 2.7L EcoBoost (238kW/324PS), Removal and Installation).

Refer to: [Muffler and Tailpipe](#) (309-00B Exhaust System - 3.3L Duratec-V6, Removal and Installation).

Refer to: [Muffler and Tailpipe](#) (309-00E Exhaust System - 5.0L 32V Ti-VCT, Removal and Installation).

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Refer to: [Muffler - Tremor](#) (309-00C Exhaust System - 3.5L EcoBoost (BM), Removal and Installation).

21. For the LH spring.

Raise the fuel tank.

Refer to: [Fuel Tank](#) (310-01A Fuel Tank and Lines - 2.7L EcoBoost (238kW/324PS), Removal and Installation).

Refer to: [Fuel Tank](#) (310-01B Fuel Tank and Lines - 3.3L Duratec-V6, Removal and Installation).

Refer to: [Fuel Tank](#) (310-01C Fuel Tank and Lines - 3.5L EcoBoost (BM), Removal and Installation).

Refer to: [Fuel Tank](#) (310-01E Fuel Tank and Lines - 5.0L 32V Ti-VCT, Removal and Installation).

Refer to: [Fuel Tank](#) (310-01D Fuel Tank and Lines - 3.5L V6 PowerBoost (CN), Removal and Installation).

22. If required, calibrate the suspension height sensor. Connect the scan tool and carry out the Ride Height Calibration routine. Follow the scan tool directions.

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