



M-BRONCO-WA, WB, WAD, WBD
2021-2024MY BRONCO 4 DOOR
Matte Black & Sinister Bronze Packages

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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



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Package contents:

<u>Description</u>	<u>Quantity</u>
35" Spare Tire Carrier	1
Rubber Bumper Stoppers	2
Rear Bronco Emblem/Overlay	1
Smoked Chrome Ford Oval	1
BRONCO Grille Lettering Overlay	1
"Bronco" Script Badges	2
Sasquatch Fender Flares	4
Off-Road Suspension Kit	1
TPM Sensors	5
Black Lug Nuts	30
Bronco Wheels	5
ProCal Tool	1

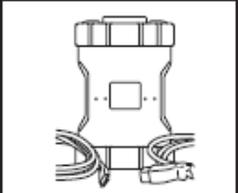
Installation Section:

1. [35" Spare Tire Carrier](#)
2. [Rear Bronco Emblem \(Black\)](#)
 - 2.1 [Rear Bronco Emblem Overlay \(Bronze\)](#)
3. [BRONCO Grille Lettering Overlay](#)
4. [Smoked Chrome Ford Oval](#)
5. ["Bronco" Script Badges](#)
6. [Sasquatch Fender Flares](#)
8. [Suspension - SORB Removal](#)
9. [Suspension Removal and Installation](#)
 - a. [Jacking and Lifting Points](#)
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 - c. [Rear Assembly Removal](#)
 - d. [Front Assembly Installation](#)
 - e. [Rear Assembly Installation](#)
 - f. [Tire and Wheel Installation](#)
 - g. [Wheel Alignment](#)
 - h. [Headlight and Fog Light Aim Adjustment](#)
 - i. [Cruise Control Radar Alignment](#)
 - j. [Front Bumper Removal \(For Cruise Control Radar\)](#)
 - k. [Fastener Torque Specifications](#)
10. [ProCal](#)

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Special Tool(s) / General Equipment

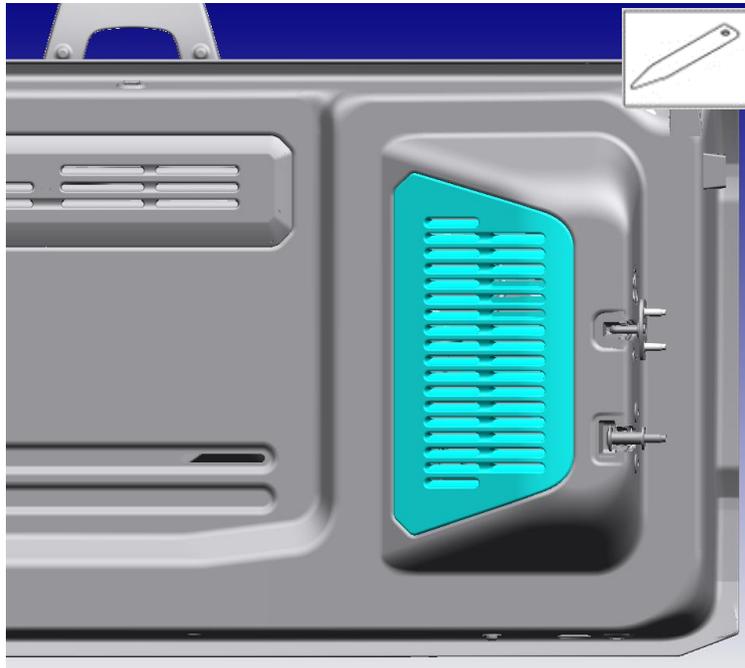
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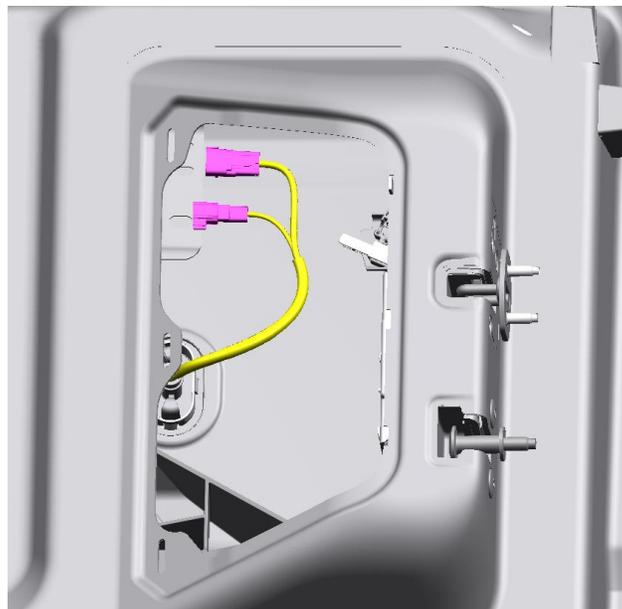
Removal – Spare Tire Carrier

NOTE: Removal steps in this procedure may contain installation details.

1. On the backside of the tailgate, remove the cover.



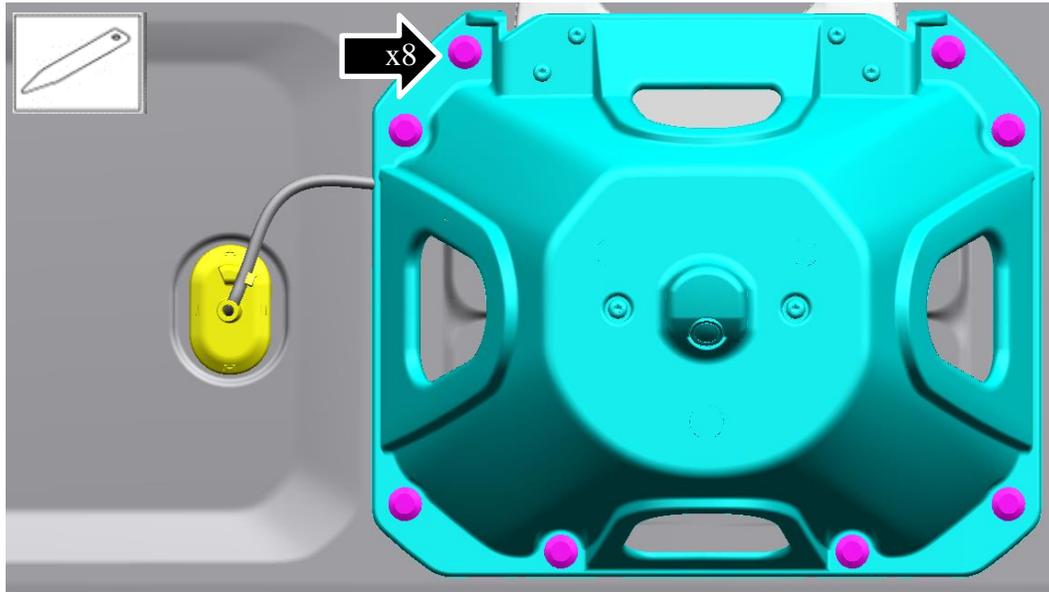
2. Disconnect the electrical connectors.



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3. Remove the electrical cover then remove the bolts and spare tire carrier from the tailgate.
Torque: 22 lb-ft (30 Nm)



4. Remove the fasteners and rubber bumper spacers.



Installation

1. To install, reverse the removal procedure.

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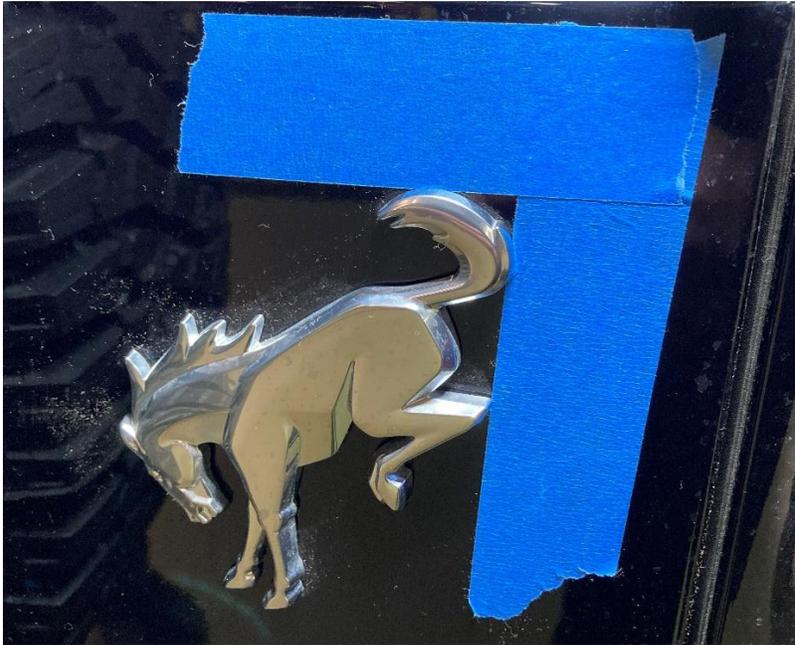
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Removal – Rear Bronco Emblem (Black Package)

1. Use painters tape to create a reference template for installing the new emblem. Make sure the tape is flush with the top of the tail and right hand side of the Bronco emblem.



2. Use a heat gun or hair dryer to loosen the adhesive on the back side of the emblem.



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3. While wearing gloves, use fishing line to cut through the back of the emblem and remove.



4. Remove the remaining foam and clean surface with alcohol wipes.



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Installation

1. To install new Bronco emblem, use the templete created with the painters tape to line up the top of the tail and right side of the new emblem. Apply new emblem and press firmly so the adhesive sticks.



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Installation – Rear Bronco Emblem (Bronze Package) & Grille Lettering Overlay (Bronze Package)

NOTE: Rear Bronco Emblem Overlay & Grill Lettering Overlay follow the same installation steps.

1. Prepare surface by thoroughly cleaning all the installation surfaces using an isopropyl alcohol mixture and a clean lint free cloth. Allow the surface to dry thoroughly.

NOTE: Emblem cap and vehicle surfaces must be between 70 °F and 110 °F at time of installation. A heat source may be used to reach minimum temperature if necessary.



2. Before removing the adhesive, check fitment of the overlays on the factory parts.

NOTE: Check orientation of the overlays. The first “O” has one notch on the bottom, the “N” has one notch on the bottom, and the last “O” has two notches on the bottom.



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- Using the pull tab(s), pull gently to remove the adhesive liner from the backside of the overlay.

NOTE: Do not touch the adhesive liner during installation.



- Position the overlays over the factory part starting from the top edge then downward, ensuring it is centered properly. Press lightly to adhere.



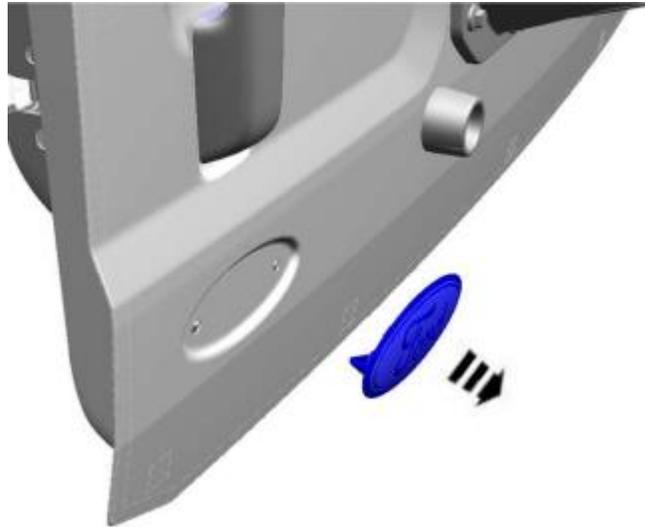
- Using a lint-free scratch resistant cloth, press firmly on the overlays from the center working outwards to the edges to ensure maximum adhesion contact.

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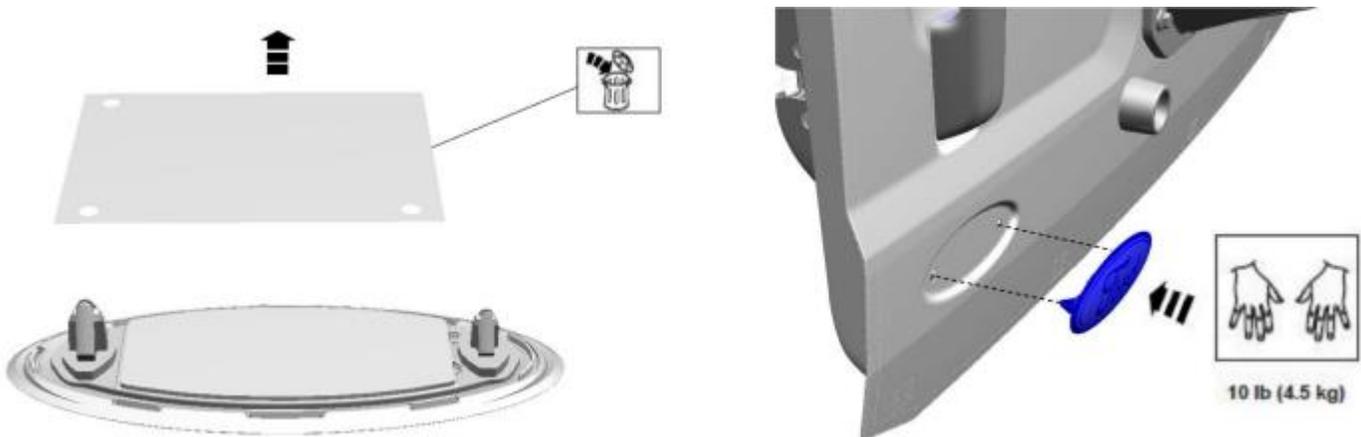
Removal – Ford Oval

1. Remove factory oval.



Installation

1. Remove the adhesive backing and firmly press onto the swing gate.



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Installation – “Bronco” Script Badges

1. Print out the templates at the end of this document on Legal sized paper (8.5”x14”) with a custom scale set at 100%.
2. Cut out the template along the outer solid line then cut out along the inside dotted line.
3. Clean the surface with an alcohol cleaning wipe.
4. On the left side fender, place the template that is labeled “LH” so it aligns with the edge of the fender and the top of the body line on the fender. For the right side fender, follow the same procedure using the template labeled “RH”.
5. Use painters tape to securely hold the template in position.
6. Apply emblem in the cut out area of the template and press firmly so the adhesive sticks.



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Removal – Fender Flares

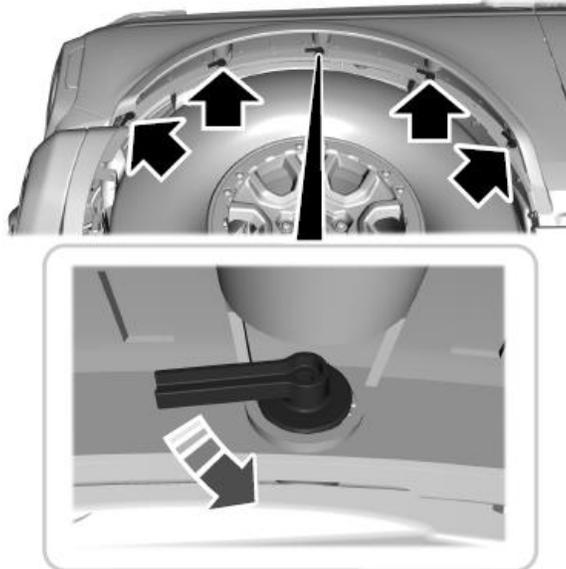
REMOVABLE FENDERS

REMOVABLE FENDER PRECAUTIONS



WARNING: Do not drive your vehicle on public roads with fenders removed as you will lose the protection they provide in a crash. Failure to follow this instruction could result in personal injury or death.

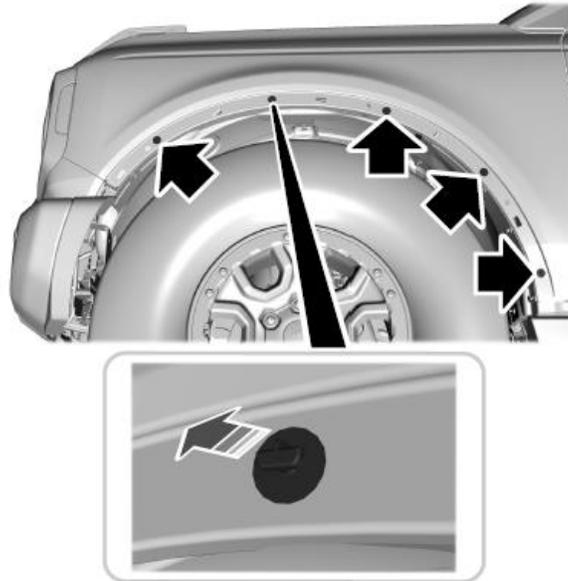
REMOVING THE FENDER FLARES



1. Unlock the five quarter turn clips by turning the clips counterclockwise.

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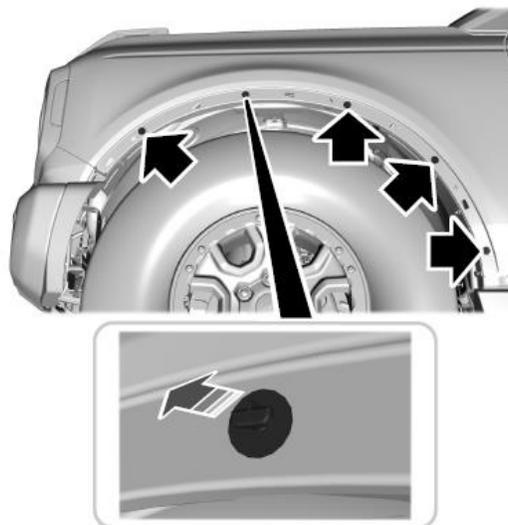


2. Pull outward on the fender flare with your hands to unseat the 5 push pin clips from the sheet metal.

Installation

Note: *Push pins and quarter pins should not be removed from fender flare.*

Installing the Fender Flares



1. Press the five push clips in until they are seated.

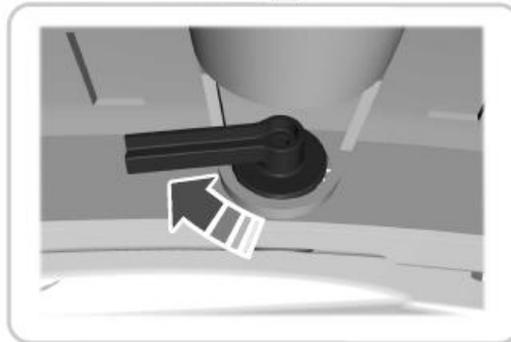
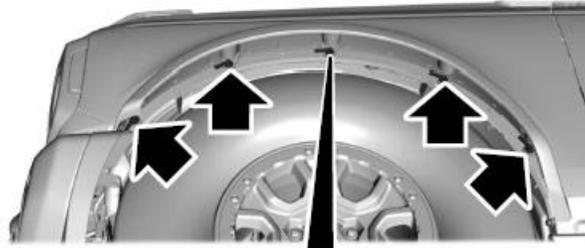
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2. Lock the five quarter turn clips by turning the clips clockwise.

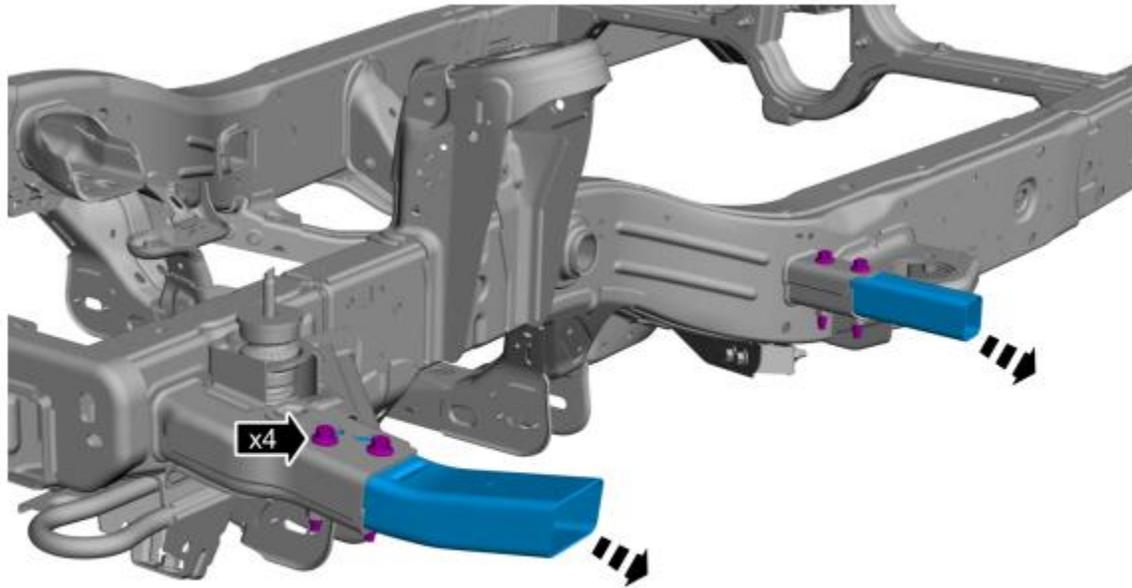
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Removal – Barrier Tubes (SORB)

NOTE: Bumper may need to be removed for front barrier tube installation and removal. See sections below for Plastic and Modular Bumper Installation and Removal. Carefully follow specified torque information.

1. On both sides of the vehicle, remove 2 bolts for each tube as shown.



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Installation

1. Reverse the removal procedure. *Torque:* 66 lb.ft (90 Nm)

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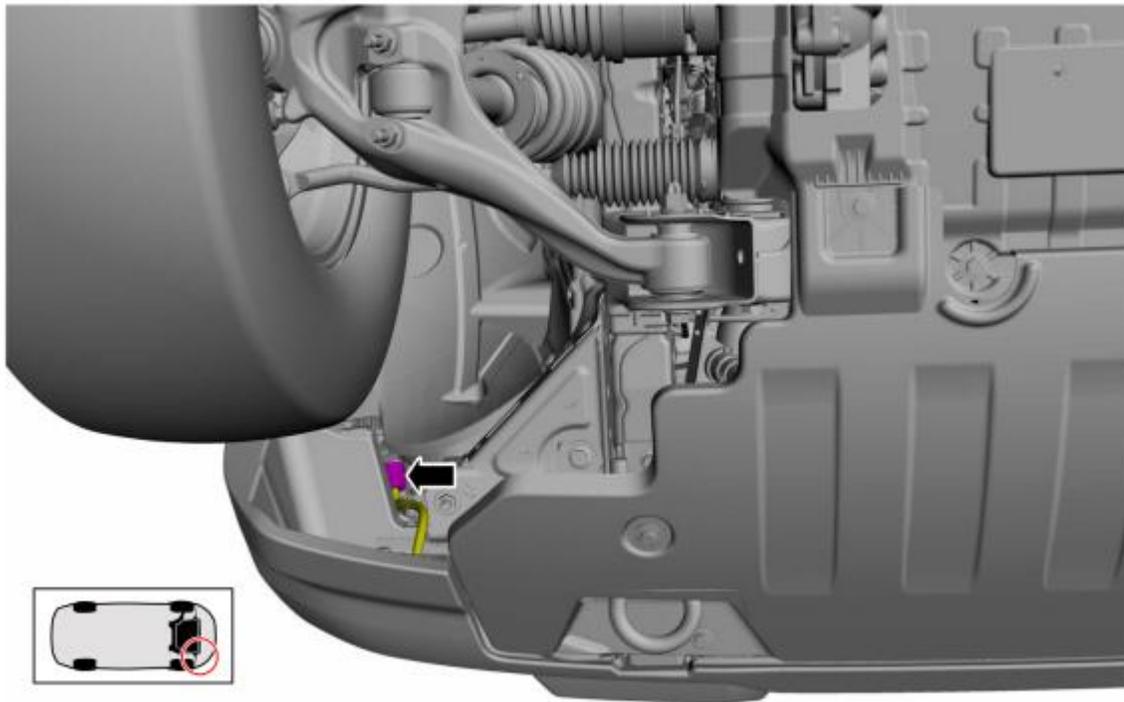
Removal – Front Bumper, Plastic

NOTE: Removal steps in this procedure may contain installation details.

1. With the vehicle in NEUTRAL, position it on a hoist.
Refer to: Jacking and Lifting (100-02 Jacking and Lifting, Description and Operation).

Vehicles With: Front Fog Lamps/Front Parking Aid

2. Disconnect the front bumper harness electrical connector.

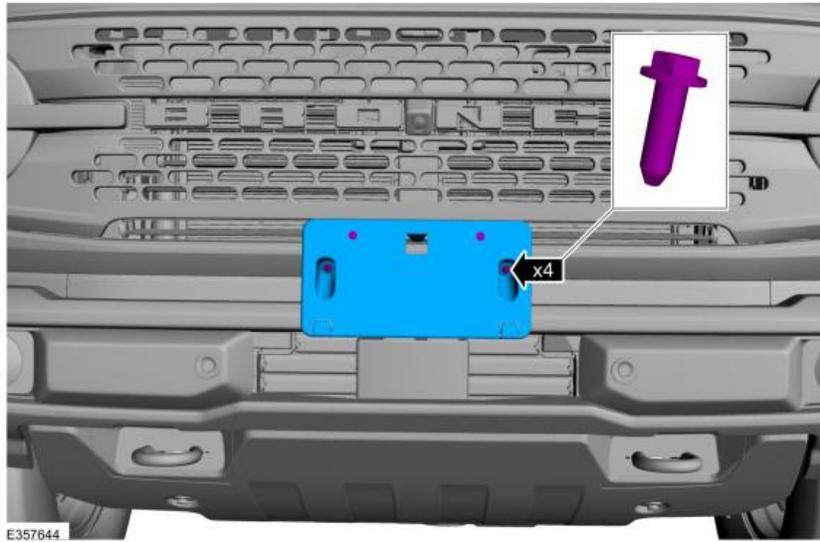


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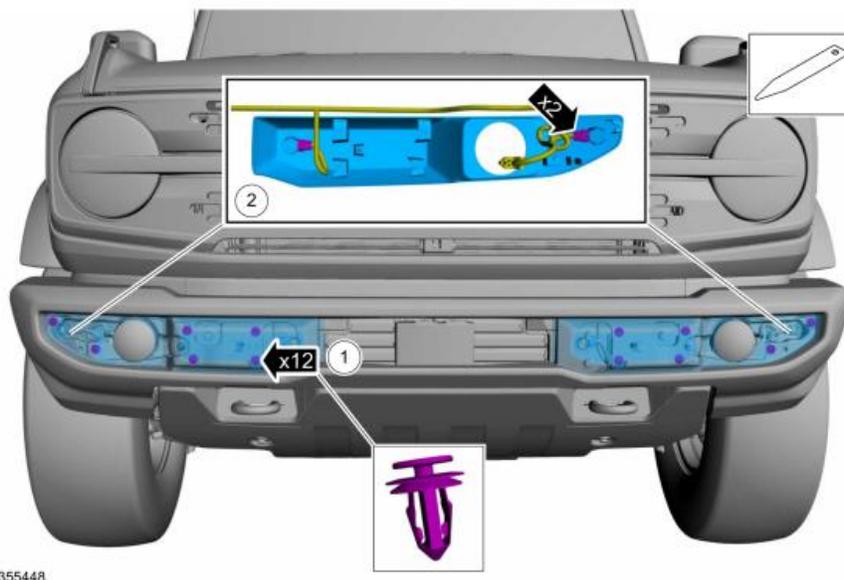
All vehicles

3. If equipped, remove the screws and the front license plate bracket.



Vehicles With: Front Parking Aid

4.
 1. Release the clips and remove the front bumper trim panel. Use the General Equipment: Interior Trim Remover
 2. Disconnect the front parking aid sensor electrical connectors.



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All vehicles

5. Release the clips and remove the front bumper trim panel. Use the General Equipment: Interior Trim Remover.



6. **NOTE:** This step requires the aid of another technician.

Remove the bolts and the front bumper. *Torque:* 81 lb.ft (110 Nm)



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Installation

All vehicles

1. To install, reverse the removal procedure.

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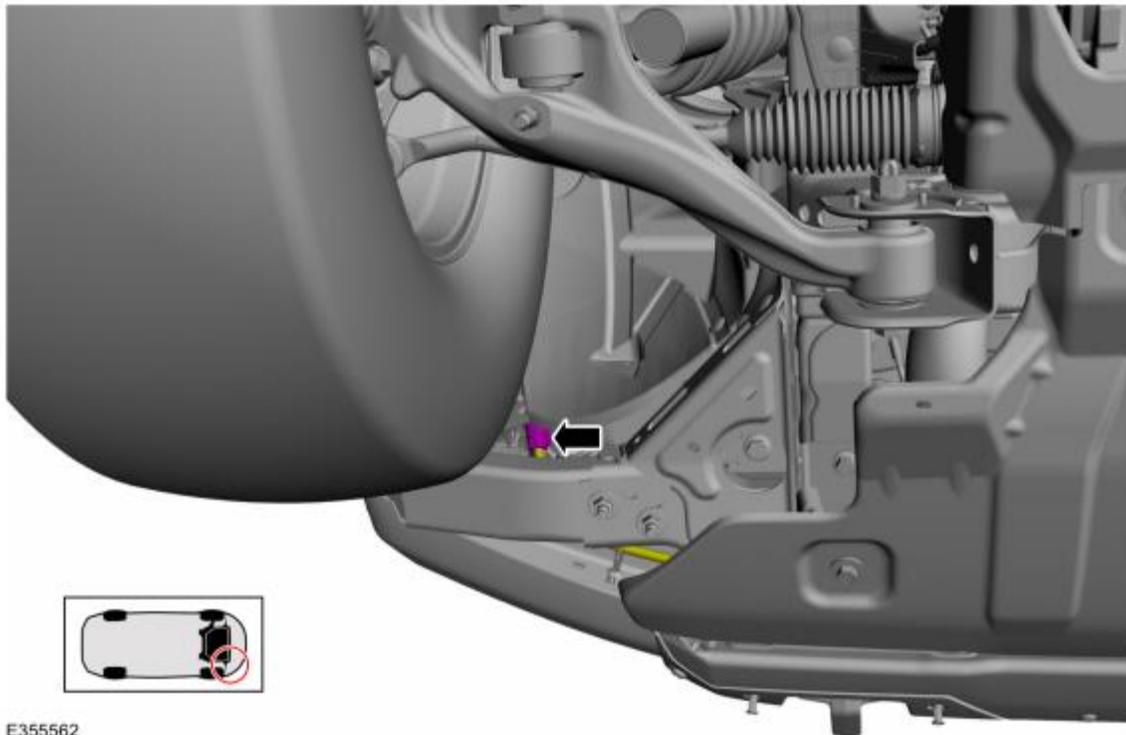
Removal – Front Bumper, Modular

NOTE: Removal steps in this procedure may contain installation details.

1. With the vehicle in NEUTRAL, position it on a hoist.
Refer to: Jacking and Lifting (100-02 Jacking and Lifting, Description and Operation).

Vehicles With: Front Parking Aid

2. Disconnect the front bumper harness electrical connector.



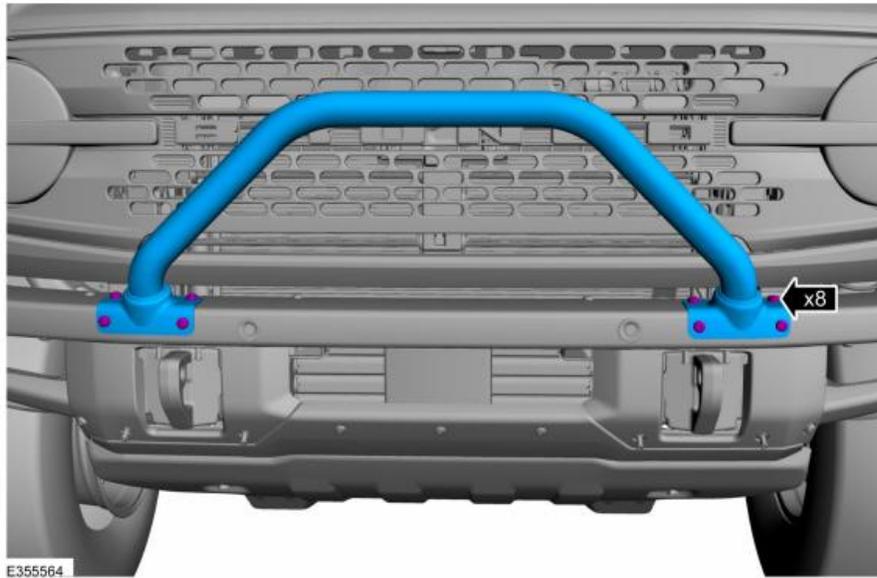
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All vehicles

3. If equipped.
Remove the bolts and front bumper bar.



4. Remove the push pins, release the clips and remove the front bumper trim panel.



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5. **NOTE:** *This step requires the aid of another technician.*

Remove the bolts and the front bumper.
Torque: 81 lb.ft (110 Nm)



Installation

All vehicles

1. To install, reverse the removal procedure.



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Suspension

Sections:

- a. Jacking and Lifting Points
- b. Front Assembly Removal
- c. Rear Assembly Removal
- d. Front Assembly Installation
- e. Rear Assembly Installation
- f. Tire and Wheel Installation
- g. Wheel Alignment
- h. Headlight and Fog Light Aim Adjustment
- i. Cruise Control Radar Alignment
- j. Front Bumper Removal (For Cruise Control Radar)
- k. Fastener Torque Specifications

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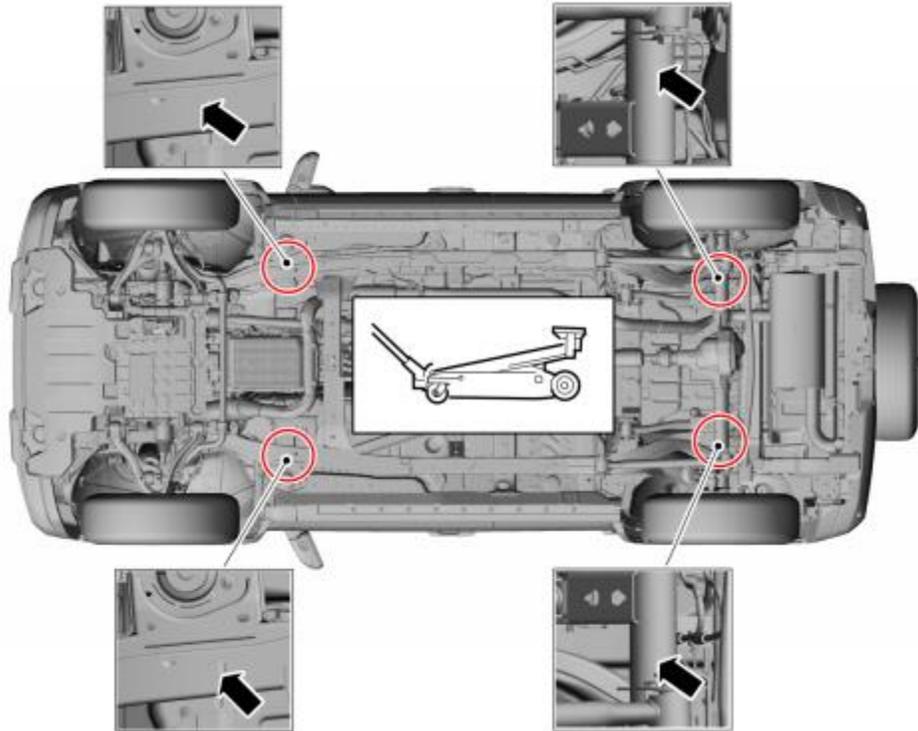
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Jacking and Lifting Points

Jacking Points



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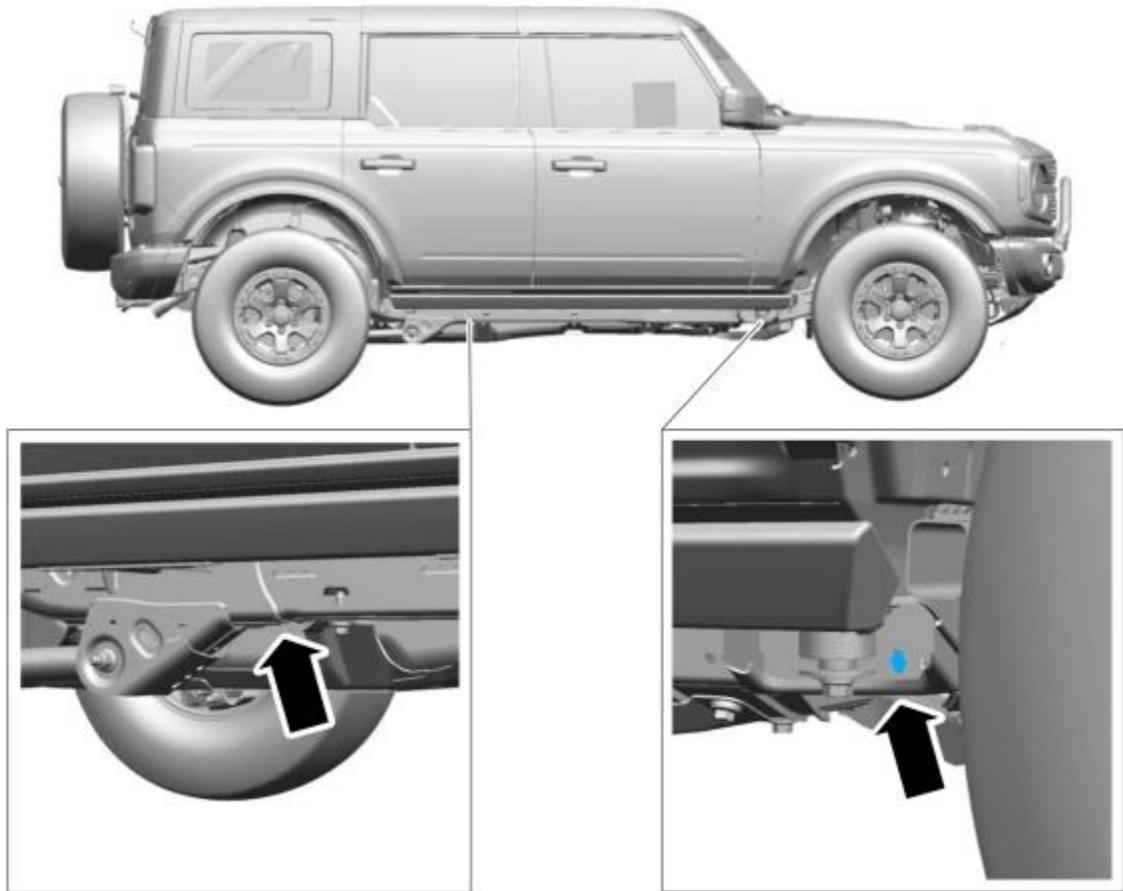
NOTE: 4-door shown, 2-door similar.

Only the specified jacking points may be used for jacking and supporting the vehicle.

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Lifting Points



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NOTE: 4-door shown, 2-door similar.

NOTE: RH side shown, LH side similar.

The lifting points for both the 2 and 4-door variants are aft of the front wheels on the chassis frame as indicated, and fore of the suspension rear trailing arm on the chassis frame.

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 **WARNING:** Before raising the vehicle on a hoist, make sure the hoist capacity is adequate for the vehicle weight, including any vehicle cargo or modifications. Always position the hoist lift arms as shown in section 100-02 of this manual. Do not use the engine to power the drive wheels unless all drive wheels are elevated off the ground. Incorrect hoist arm positioning or drive wheels in contact with the ground can cause unintended vehicle movement. Failure to follow these instructions may result in serious personal injury or death.

 **WARNING:** Position the hoist lift arms as shown in the illustration. Incorrect positioning could result in vehicle slipping or falling from the hoist. Failure to follow this instruction may result in serious personal injury.

 **WARNING:** Never get underneath a vehicle that is supported only by a jack. The jack could unintentionally lower. Always support vehicle with floor stands. Failure to follow these instructions may result in serious personal injury.

 **WARNING:** Identify the correct jacking points by locating the triangle stamped into the uni-body sheet metal or vehicle frame or molded into the body rocker moulding. Raising a vehicle in any other location may result in vehicle shifting or falling. Failure to follow this instruction may result in serious personal injury.

 **WARNING:** Only raise the vehicle when positioned on a hard, level surface. Attempting to raise the vehicle on an uneven or soft surface may result in vehicle slipping or falling from the jack or jackstand. Failure to follow this instruction may result in serious personal injury.

 **WARNING:** When jacking or lifting the vehicle, block all wheels remaining on the ground. Set the parking brake if the rear wheels will remain on the ground. These actions help prevent unintended vehicle movement. Failure to follow these instructions may result in serious personal injury.

NOTICE: The jack provided with the vehicle is intended to be used in an emergency for changing a deflated tire. To avoid damage to the vehicle, never use the jack to hoist the vehicle for any other purpose.

NOTICE: Do not attempt to jacking on the front bumper or the rear bumper on any vehicle. Damage to bumper covers will occur.

NOTICE: Do not attempt to jacking on the front control arm or rear control arm on any vehicle. Damage to control arms may occur.

NOTICE: Do not use the differential housing as a lift point. Leaks or damage to the rear axle cover and adjoining differential housing surface may occur if a floor jack or any lifting device is allowed to contact the cover at any point where the cover joins the housing.

NOTICE: Place blocks underneath the lifting points if a two-column hoist is used.

NOTICE: Damage to the suspension, exhaust or steering linkage components may occur if care is not exercised when positioning the hoist adapters prior to lifting the vehicle.

NOTICE: To prevent possible damage to the underbody, do not drive the vehicle onto the drive-on lift without first checking for possible interference.

NOTICE: When raising a vehicle on a two-column hoist, use care when positioning the vehicle so that the hoisting forks do not interfere with suspension components, mounting brackets or stabilizer mounting brackets, if equipped. In addition, use care in hoist positioning to avoid possible damage to the axle or rear cover.

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Shock Absorber and Spring Assembly

Special Tool(s) / General Equipment

Vehicle/Axle Stands

Front Shock Absorber and Spring Assembly Removal

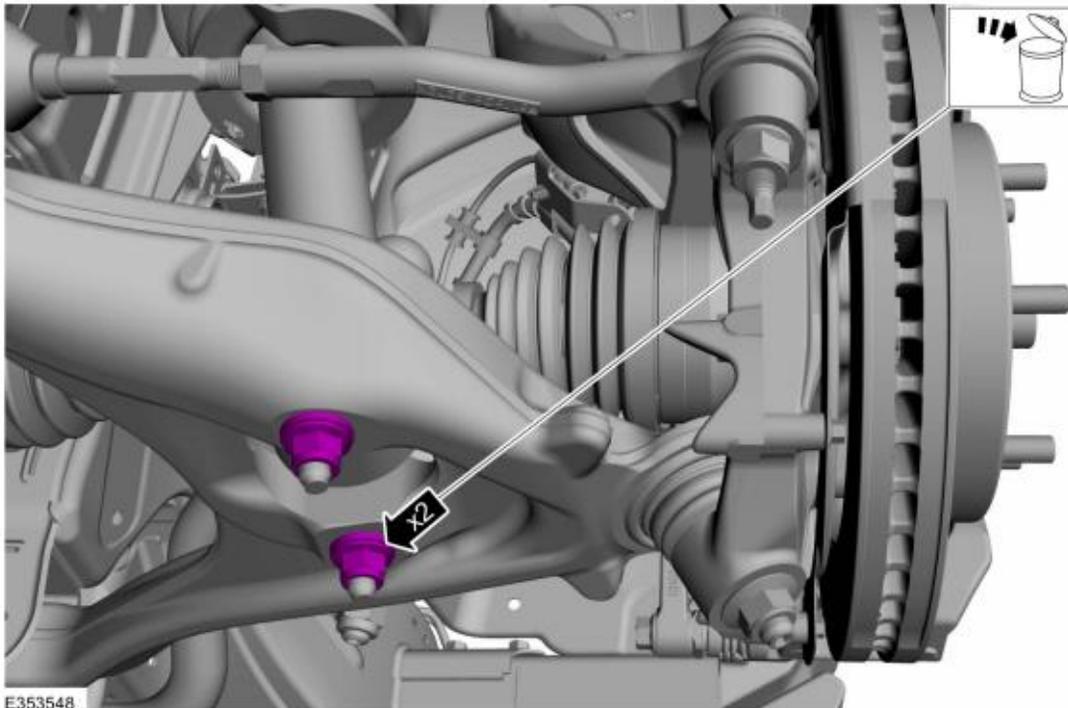
NOTICE: Suspension fasteners are critical parts that affect the performance of vital components and systems. Failure of these fasteners may result in major service expense. Use the same or equivalent parts if replacement is necessary. Do not use a replacement part of lesser quality or substitute design.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

NOTE: Removal steps in this procedure may contain installation details.

Measure and record the distance from the center of the hub to the lip of the fender with the vehicle in a level, static ground position (curb height).

Remove the wheel and tire.
Refer to: Wheel and Tire Removal and Installation.

Remove and discard the shock absorber assembly lower nuts.



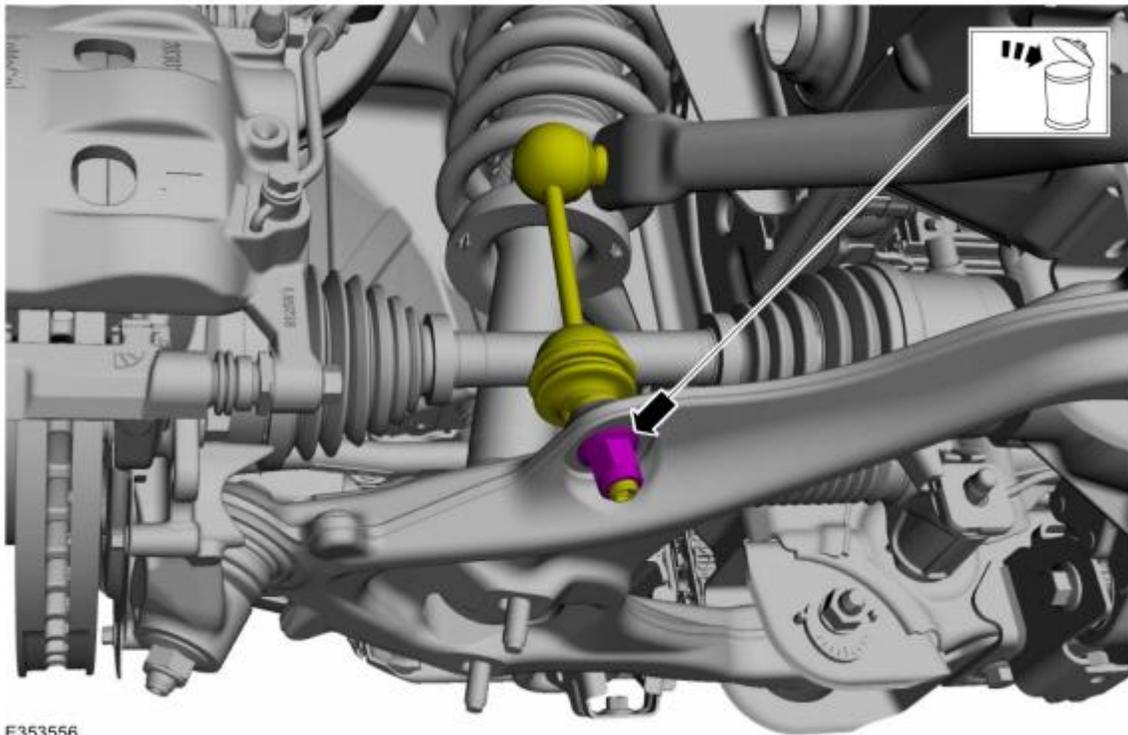
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NOTE: The stabilizer bar links are designed with low friction ball joints that have a low breakaway torque.

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

Remove and discard the stabilizer bar link lower nut.



Remove the wheel knuckle.

Refer to: Front Wheel Bearing and Hub Removal

Refer to: Wheel Knuckle Removal

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Front Wheel Bearing and Wheel Hub Removal

Special Tool(s) / General Equipment

Puller

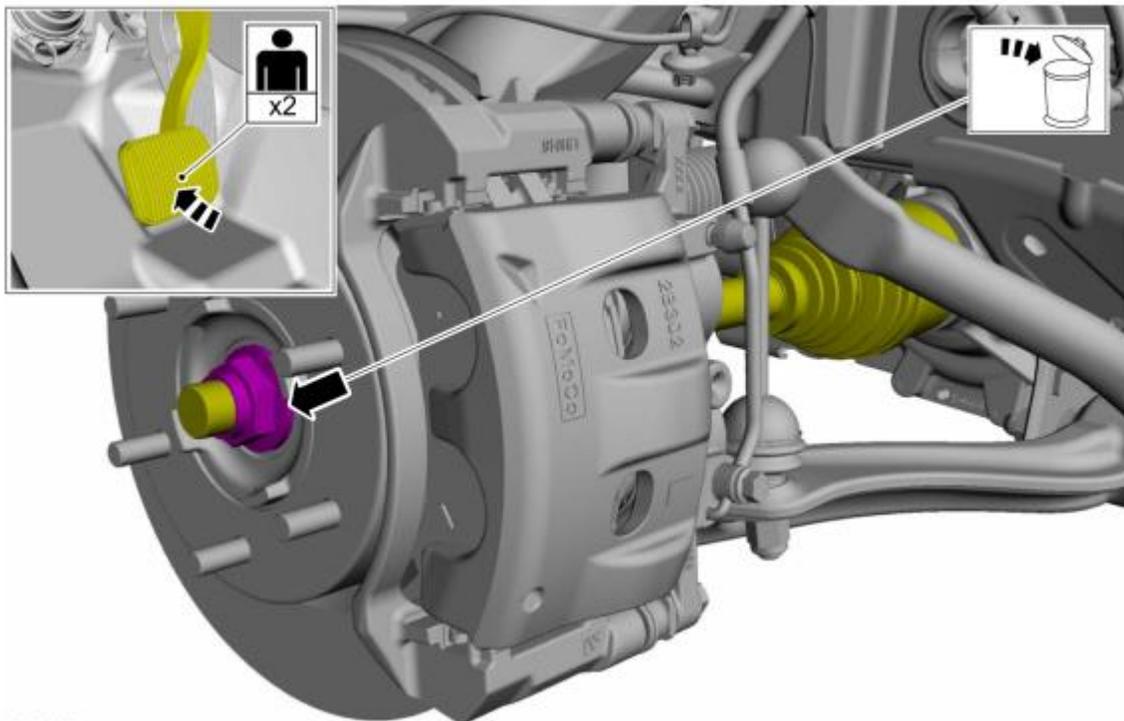
Removal

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.

NOTE: This step requires the aid of another technician.

NOTE: Apply the brake to prevent the halfshaft from rotating while loosening the wheel hub nut.

Remove and discard the wheel hub nut.



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Remove and discard the front wheel bearing and wheel hub bolts.

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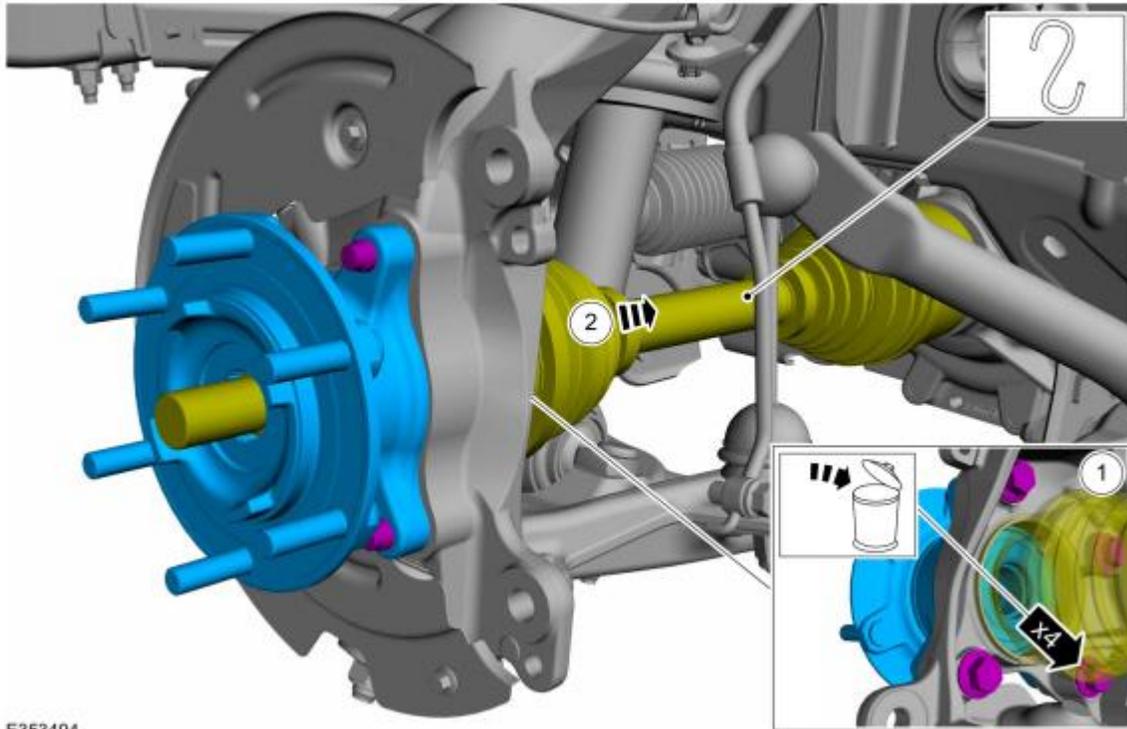


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Using a general equipment puller, press the halfshaft and remove the front wheel bearing and wheel hub.
Use the General Equipment: Puller



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Wheel Knuckle Removal

Special Tool(s) / General Equipment

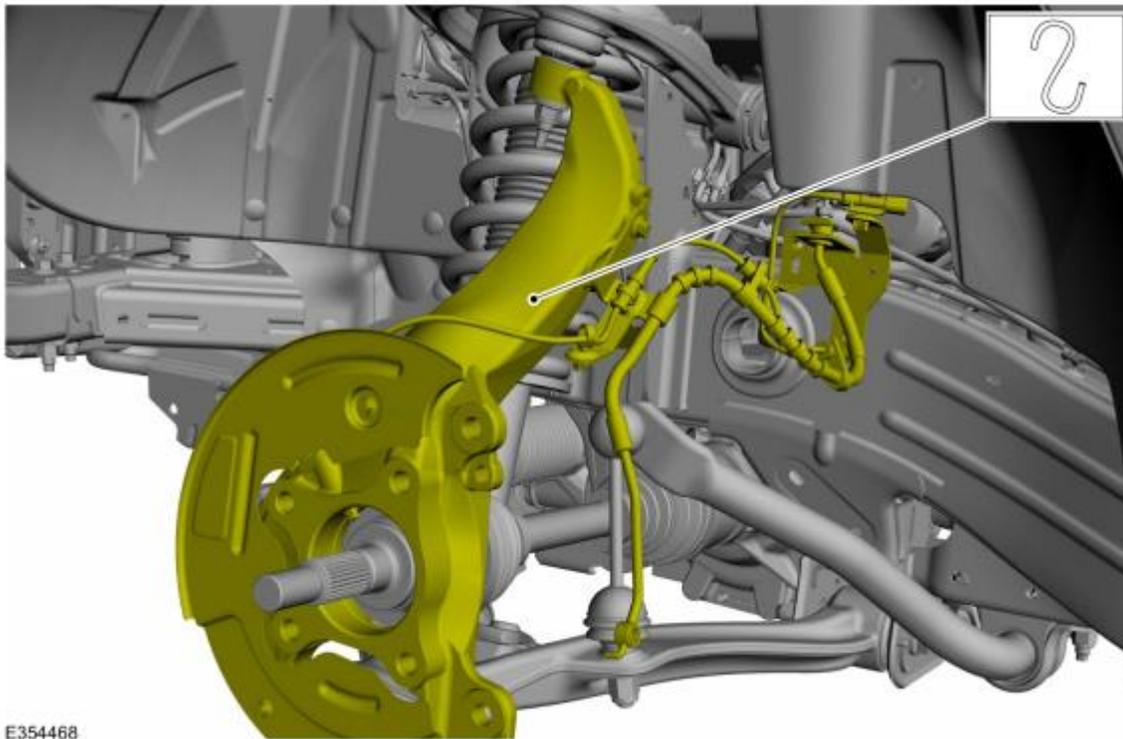
	<p>204-592 Separator, Lower Arm Ball Joint TKIT-2006C-FFMFLM TKIT-2006C-LM TKIT-2006C-ROW</p>
<p>Tie Rod End Remover</p>	

Removal

NOTICE: Never allow the knuckle to hang from the upper and lower control arms or damage to the ball joints can occur.

NOTE: Take care not to damage coating on suspension components.

Support the wheel knuckle assembly using mechanic's wire.

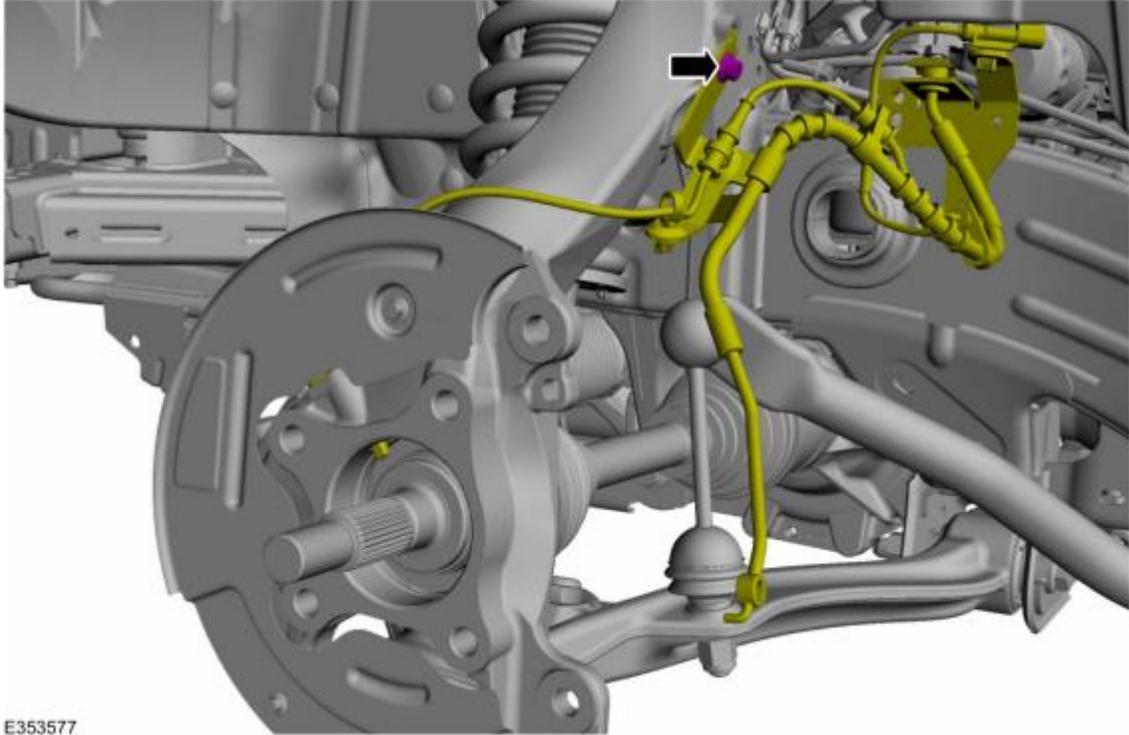


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Remove the brake hose bracket bolt and position the brake hose aside.



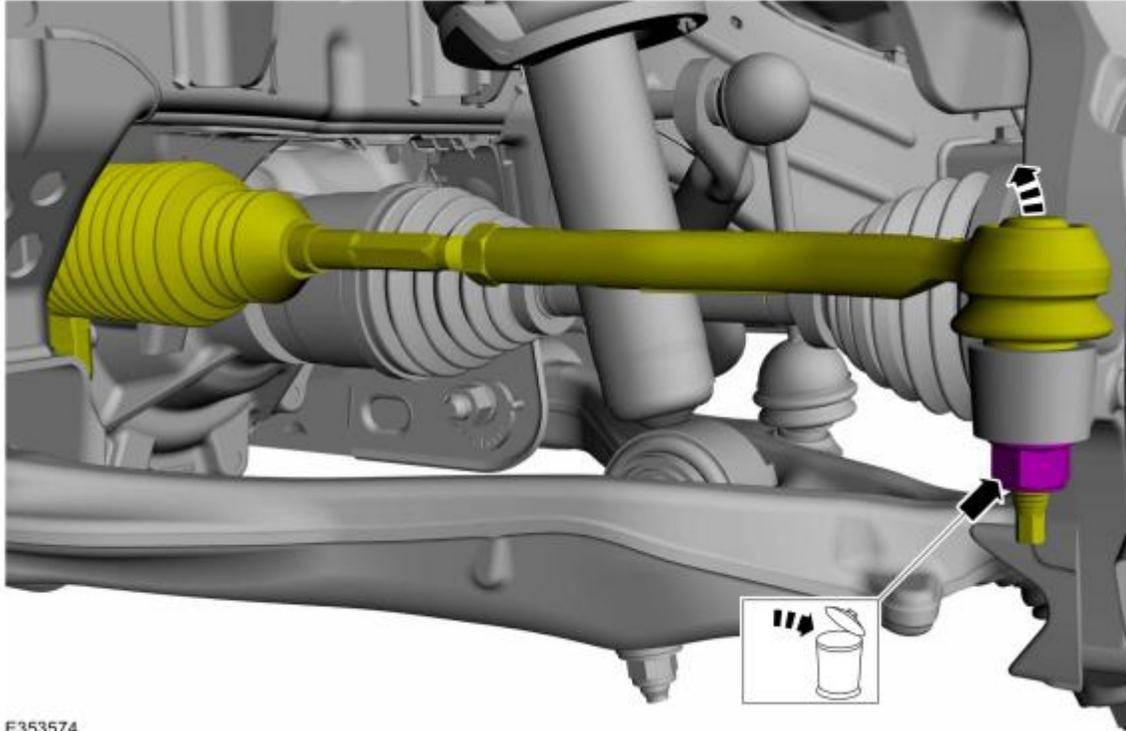
NOTICE: Do not use a hammer to separate the outer tie-rod end from the wheel knuckle or damage to the wheel knuckle may result.

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.

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

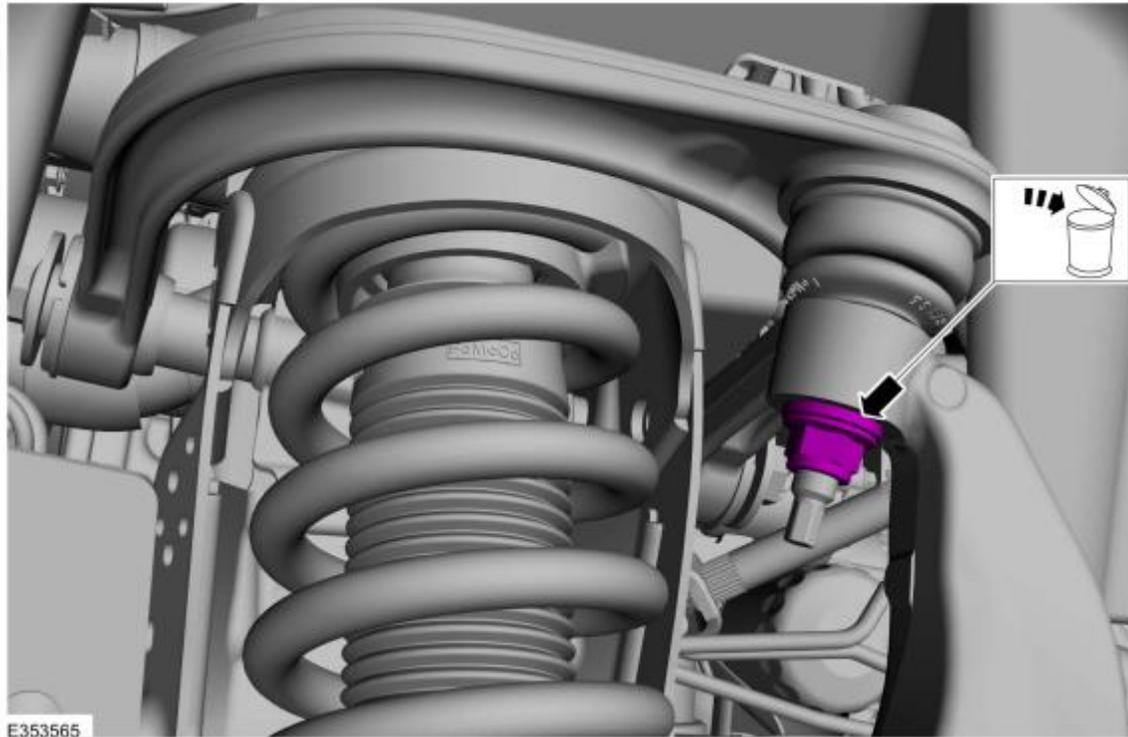


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NOTE: Use the hex-holding feature to prevent the stud from turning while removing the nut.

Remove and discard the upper ball joint nut.





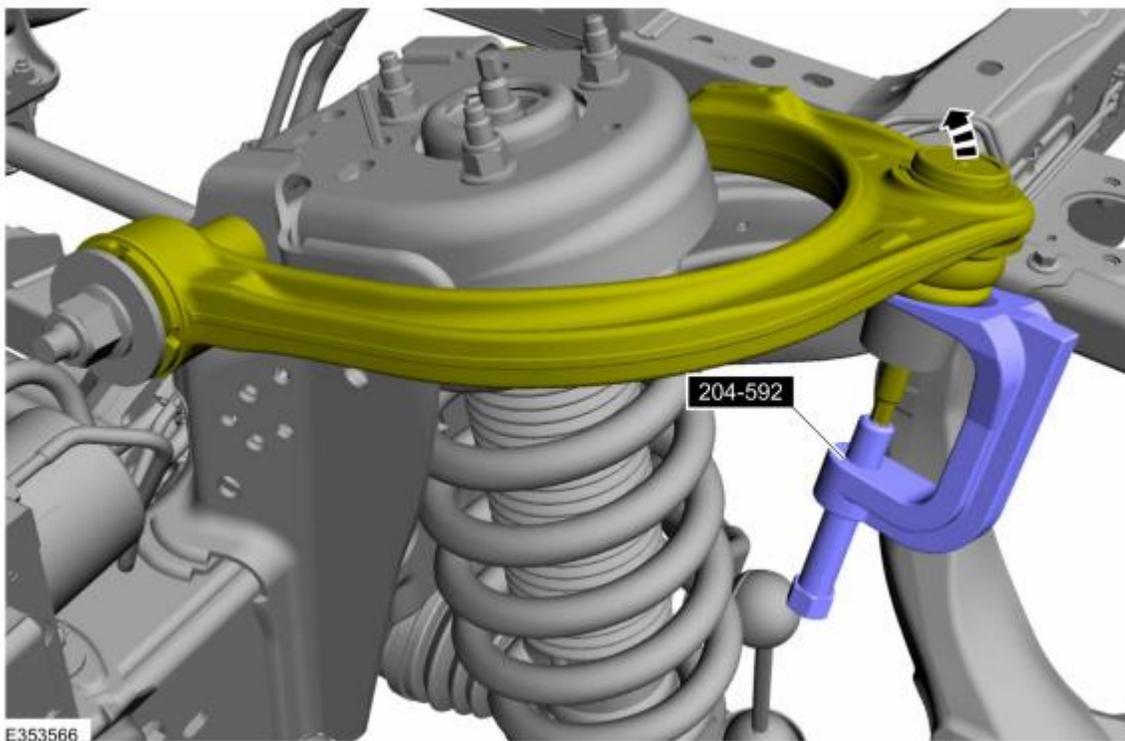
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NOTE: *Be sure not to damage the ball joint boot when installing the Ball Joint Separator.*

Separate the upper ball joint from the wheel knuckle.
Use Special Service Tool: 204-592 Separator, Lower Arm Ball Joint.



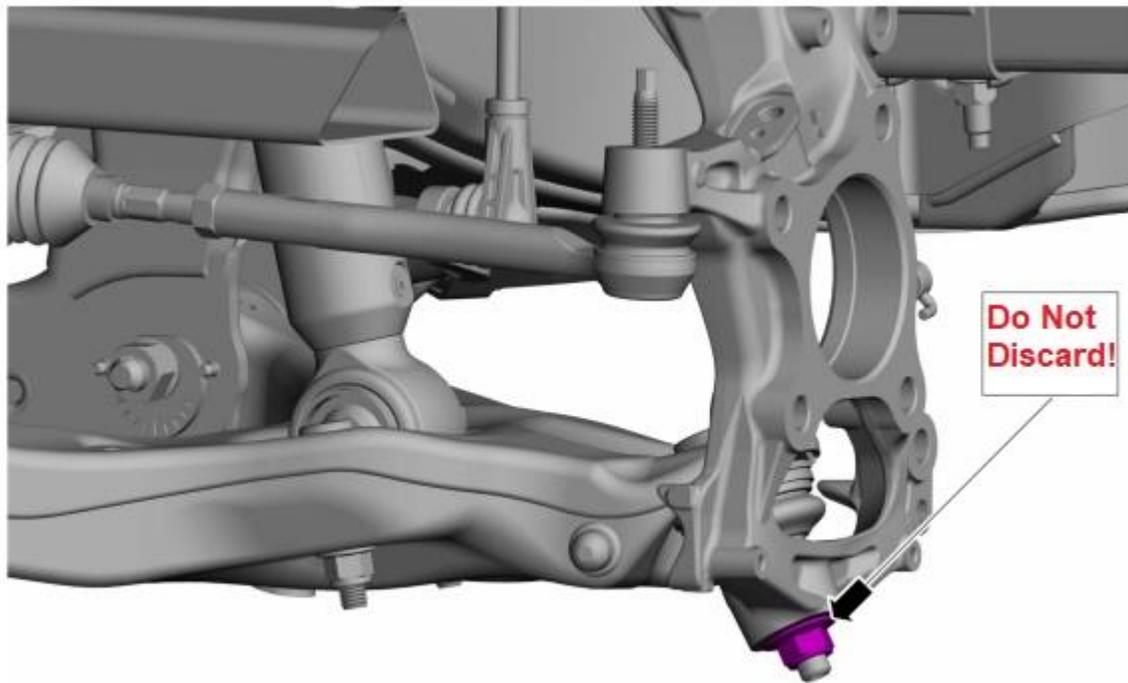
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NOTICE: Never allow the knuckle to hang from the upper and lower control arms or damage to the ball joints can occur.

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

NOTE: Do not discard the lower ball joint nut. It will be Re-Used.



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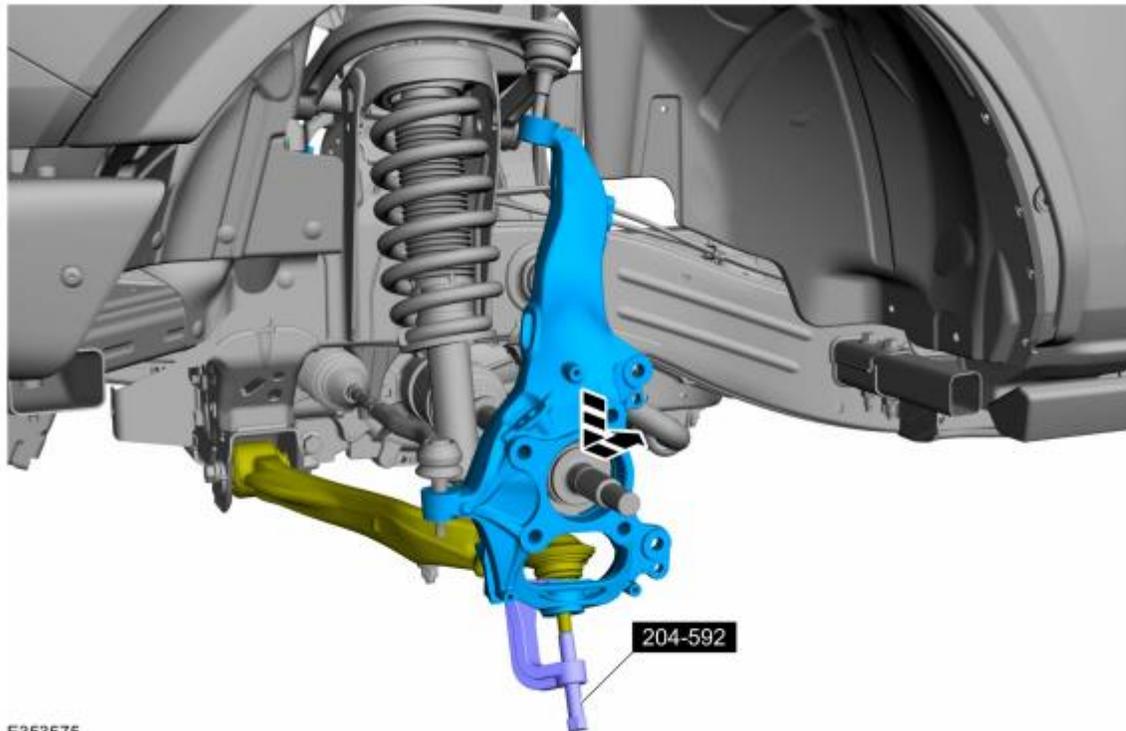
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NOTICE: Do not use a prying device or separator fork between the ball joint and the wheel knuckle. Damage to the ball joint or ball joint seal may result.

NOTICE: Use care when releasing the lower arm and wheel knuckle into the resting position or damage to the ball joint seal may occur.

NOTICE: Do not damage the ball joint boot while installing the special tool.

Separate the wheel knuckle from the lower ball joint and remove the wheel knuckle.
Use Special Service Tool: 204-592 Separator, Lower Arm Ball Joint.



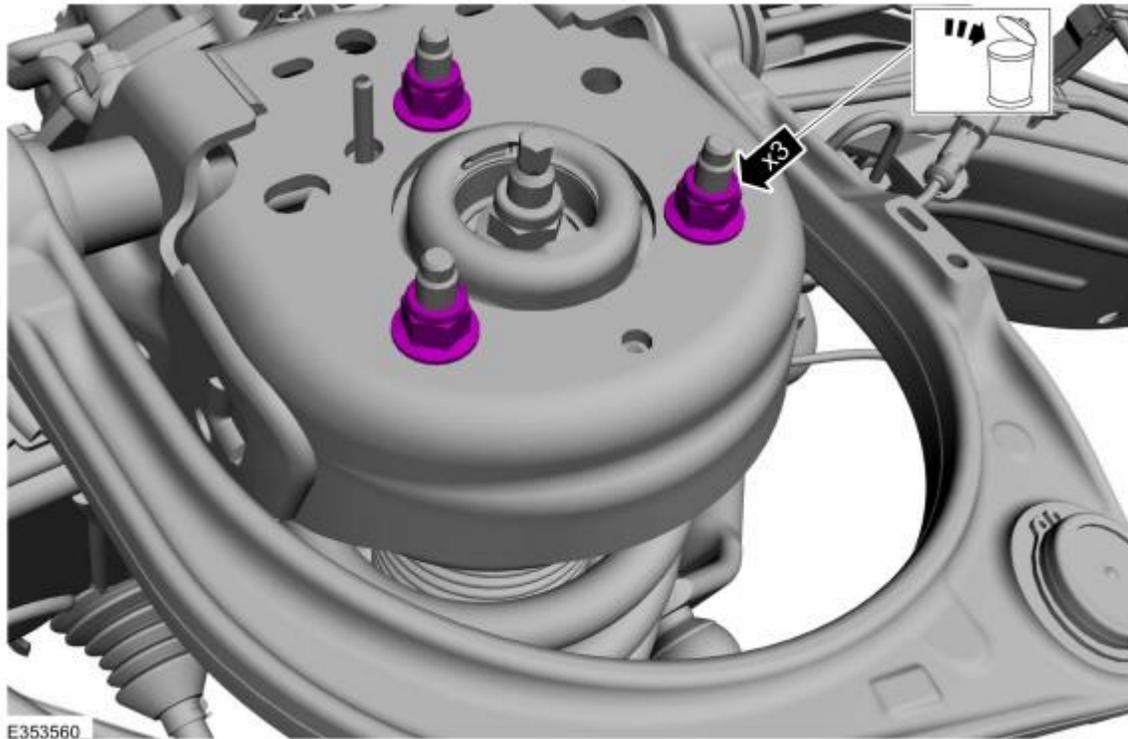
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NOTE: *Note the position of the components before removal.*

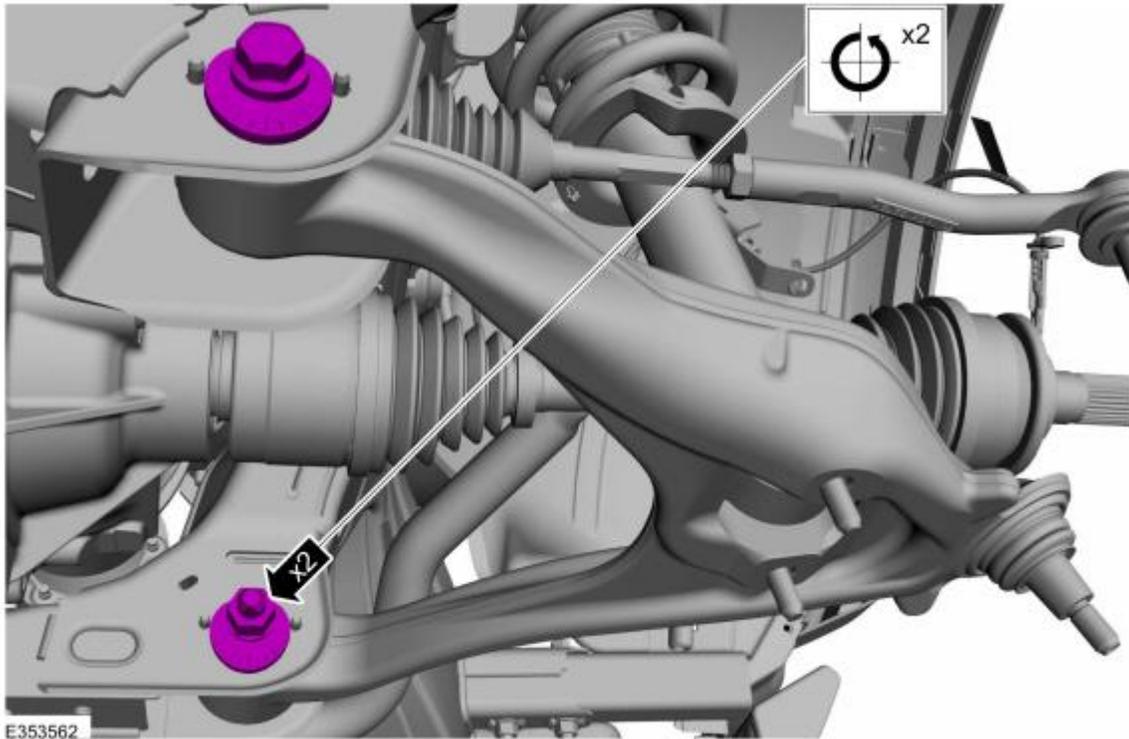
Remove and discard the shock absorber and spring assembly upper nuts.



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Loosen the lower control arm mounting bolts.



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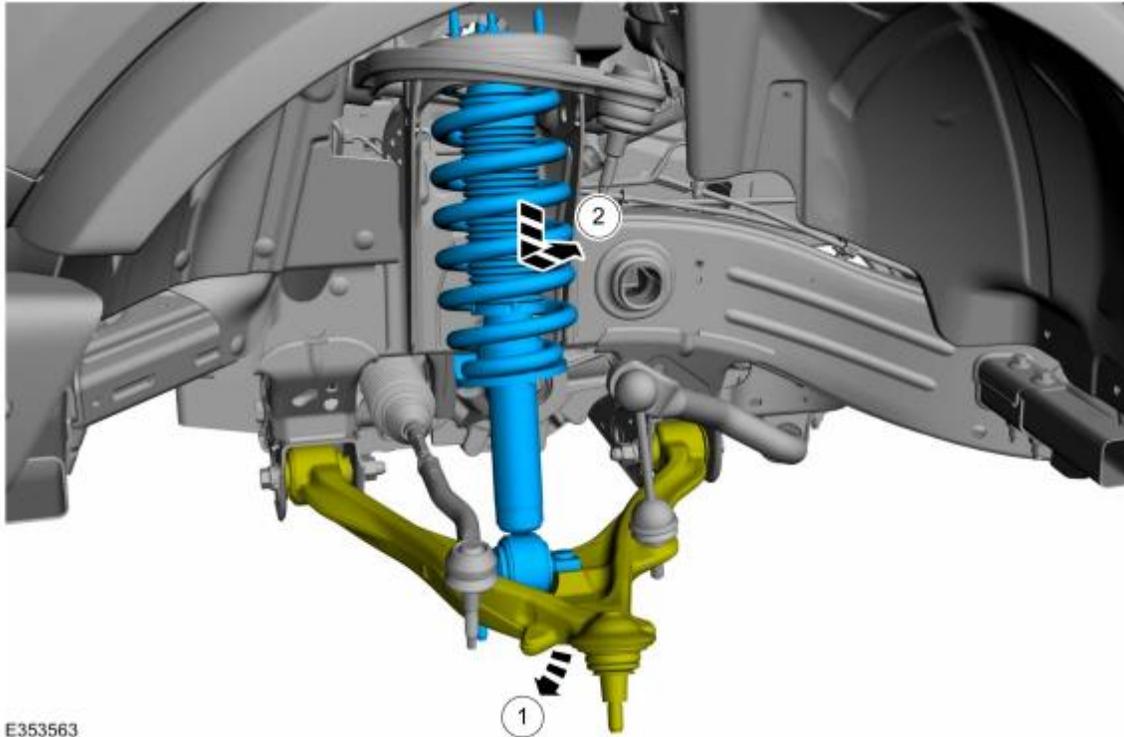
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Position the lower arm down to gain clearance for removing the shock absorber and spring assembly.

Remove the shock absorber and spring assembly.



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Rear Shock Absorber and Spring Assembly Removal

Special Tool(s) / General Equipment

Vehicle/Axle Stands

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.

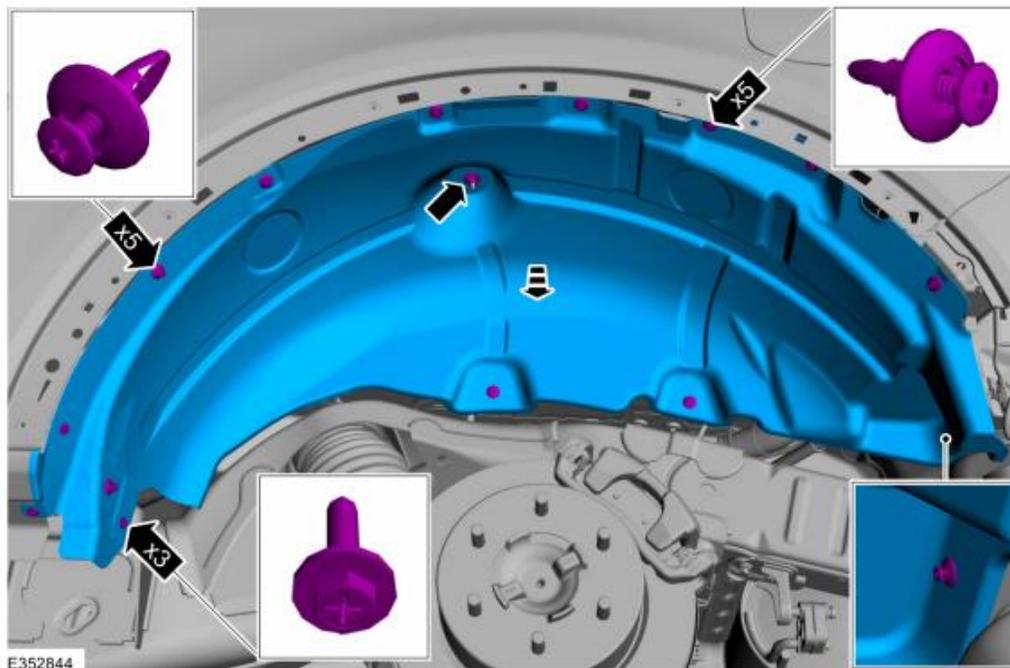
NOTE: Removal steps in this procedure may contain installation details.

NOTE: LH side shown, RH side similar.

Remove the wheel and tire.
Refer to: Wheel and Tire Removal and Installation

Remove the rear quarter panel moulding.

Detach the retainers and remove the splash shield.
Torque: 18 lb.in (2 Nm)



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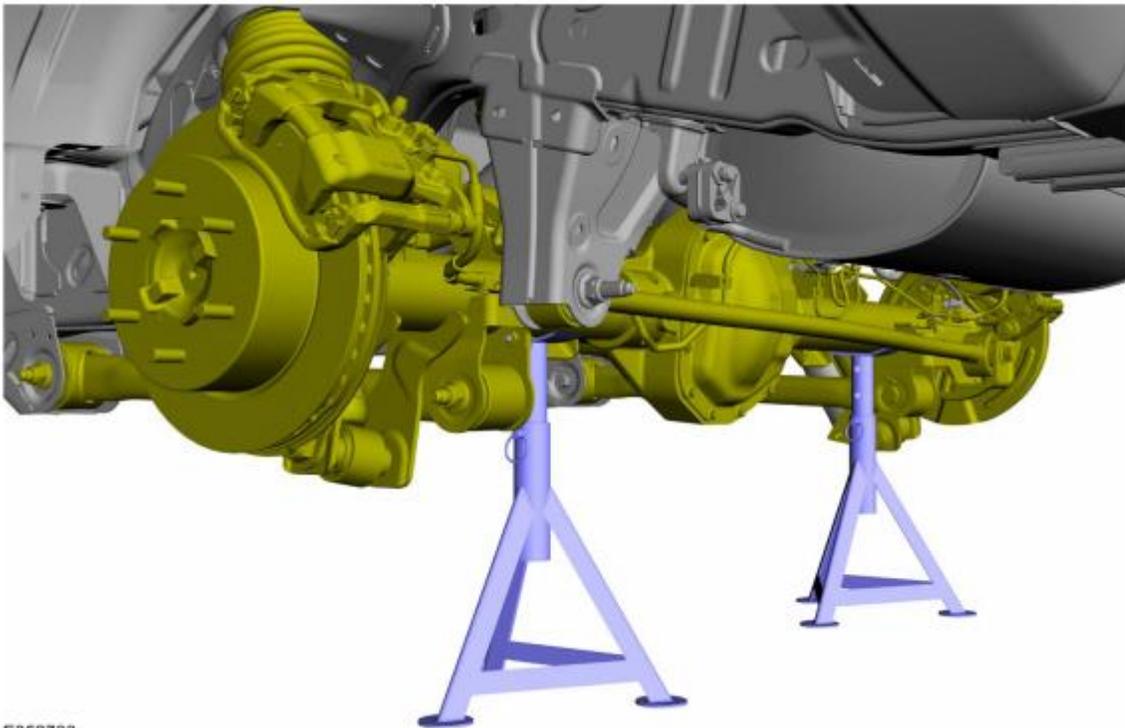
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NOTICE: Do not position the jack on the front control arm or rear control arm on any vehicle. Damage to control arms may occur.

NOTICE: Make sure that the jack insulator pads are correctly positioned to prevent direct contact with other components.

With the vehicle on hoist, place axle stands under the rear axle such that the axle stand insulator pads are in contact with the axle.

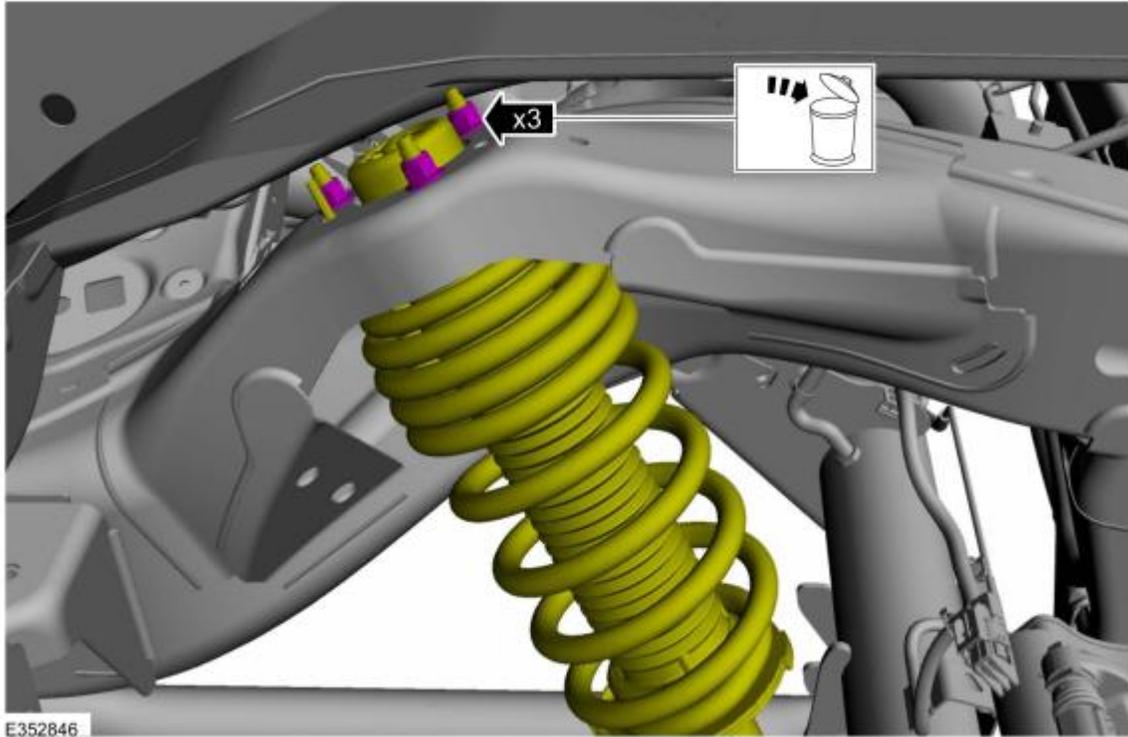
Use the General Equipment: Vehicle/Axle Stands



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Remove and discard the rear shock absorber upper nuts.



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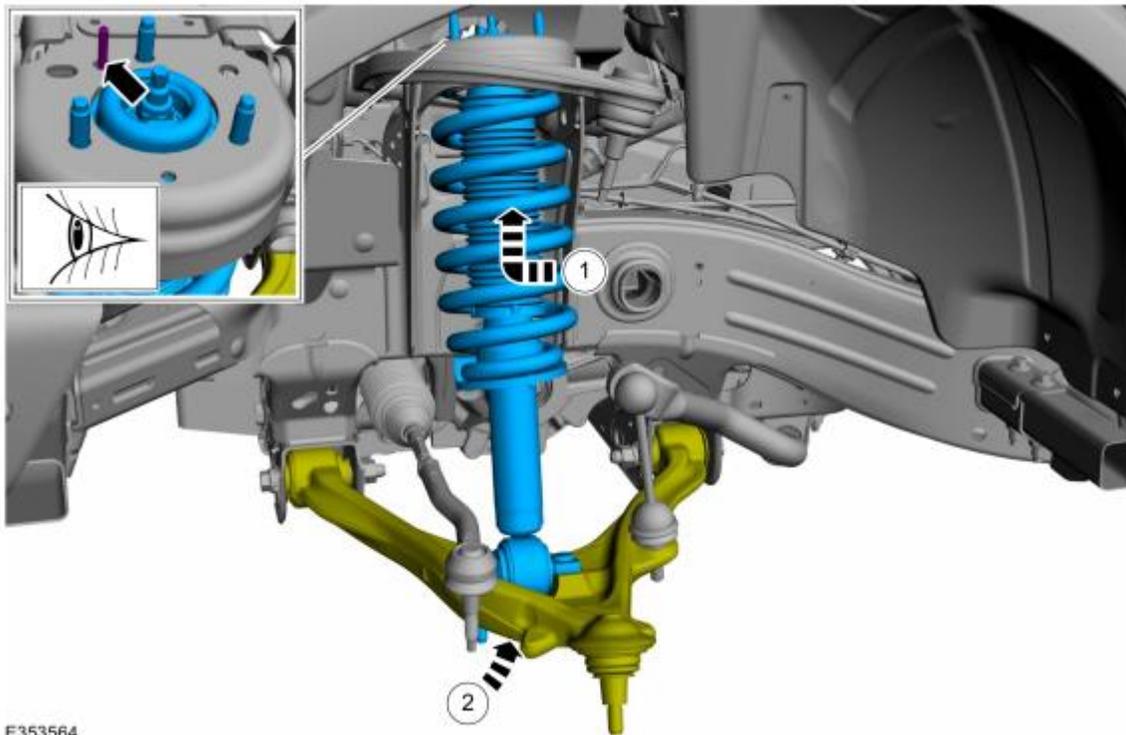
Front Shock Absorber and Spring Assembly Installation

NOTICE: Tighten the suspension bushing fasteners with the suspension raised by a jack to curb height or with the weight of the vehicle resting on the wheels and tires. Otherwise, damage to the bushings may occur.

All vehicles

Install the shock absorber and spring assembly.

Position the lower arm up.

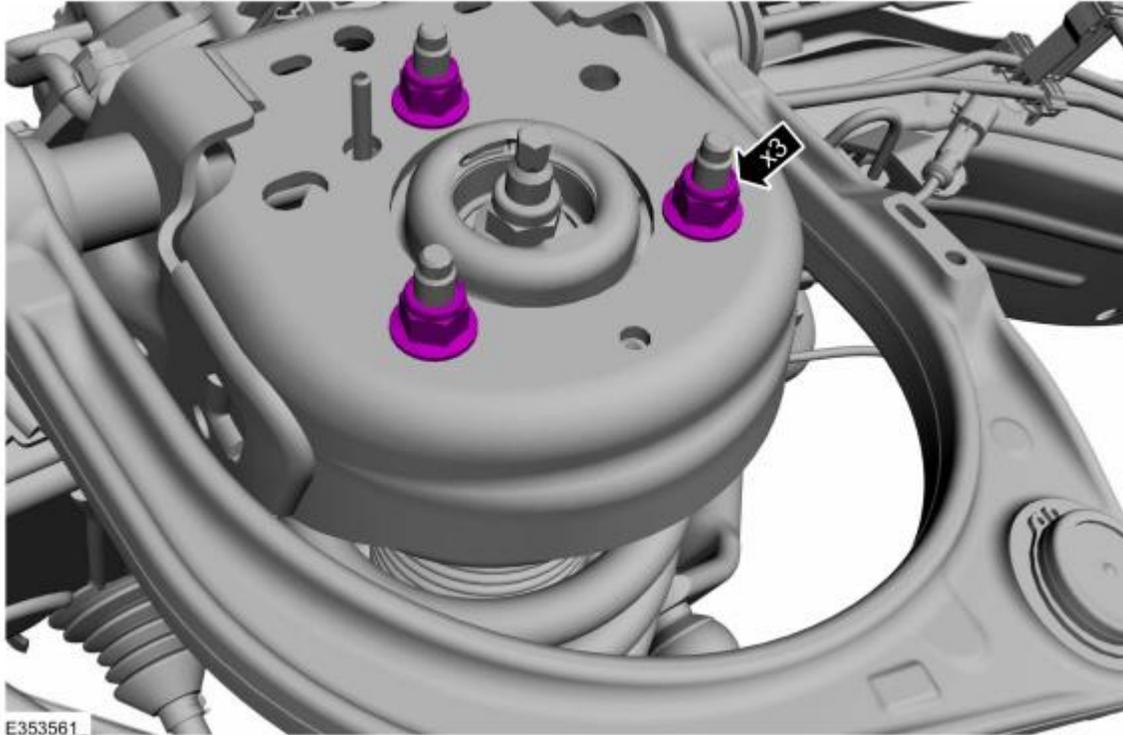


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Install the new shock absorber and spring assembly upper nuts.
Torque: 41 lb.ft (55 Nm)



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Install the wheel knuckle.

NOTICE: Tighten the suspension bushing fasteners with the suspension raised by a jack to curb height or with the weight of the vehicle resting on the wheels and tires. Otherwise, damage to the bushings may occur.

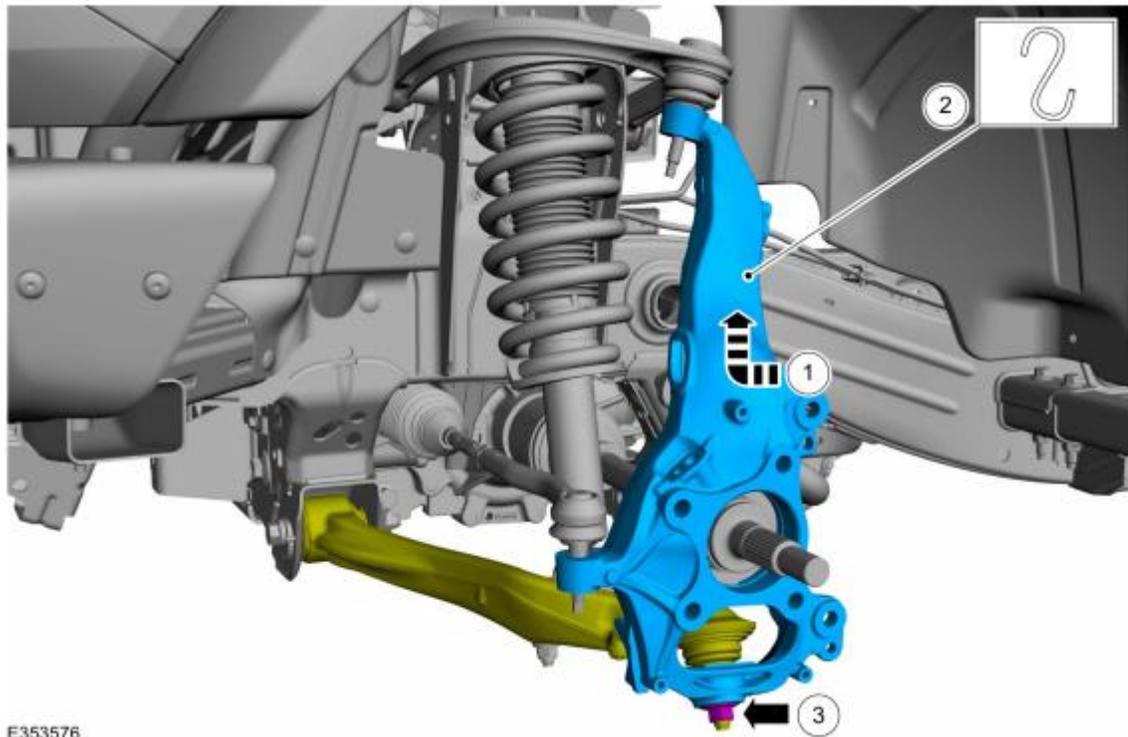
NOTICE: Never allow the knuckle to hang from the upper and lower control arms or damage to the ball joints can occur.

Install the wheel knuckle.

Support the wheel knuckle assembly using mechanic's wire.

Install the new lower ball joint nut.

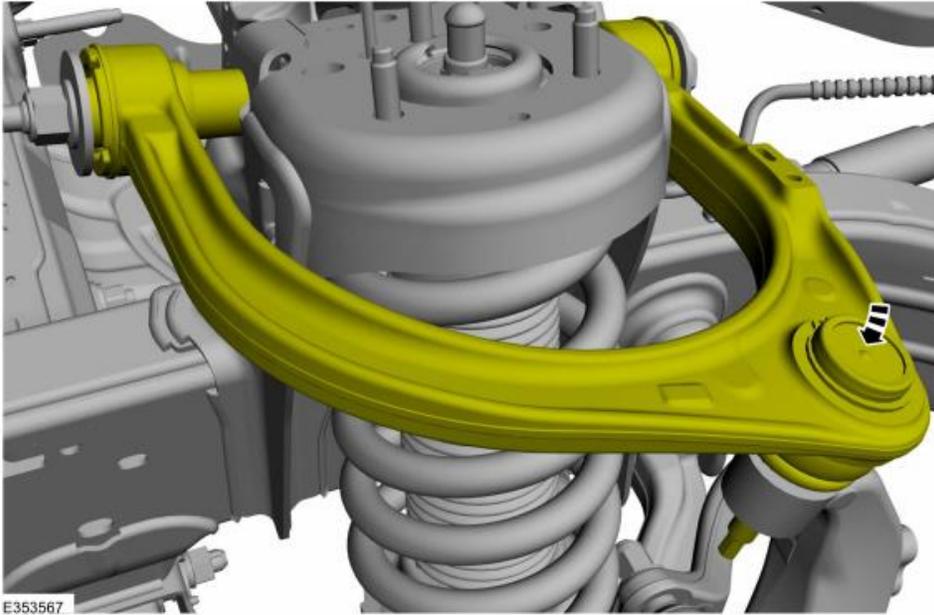
Torque: 85 lb.ft (115 Nm)



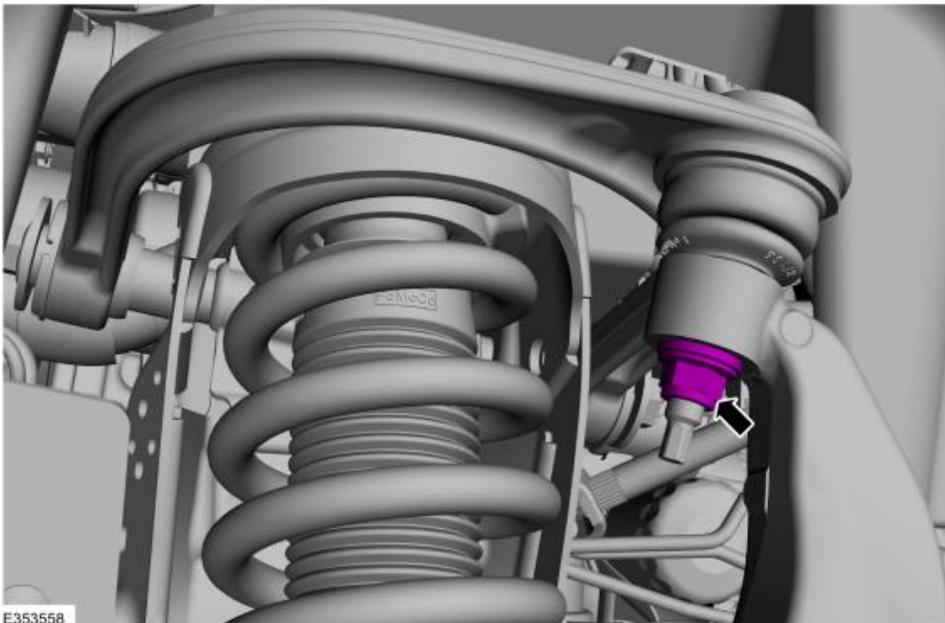
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Attach the upper ball joint to the wheel knuckle.



Install the new upper ball joint nut.
Torque: 46 lb.ft (63 Nm)



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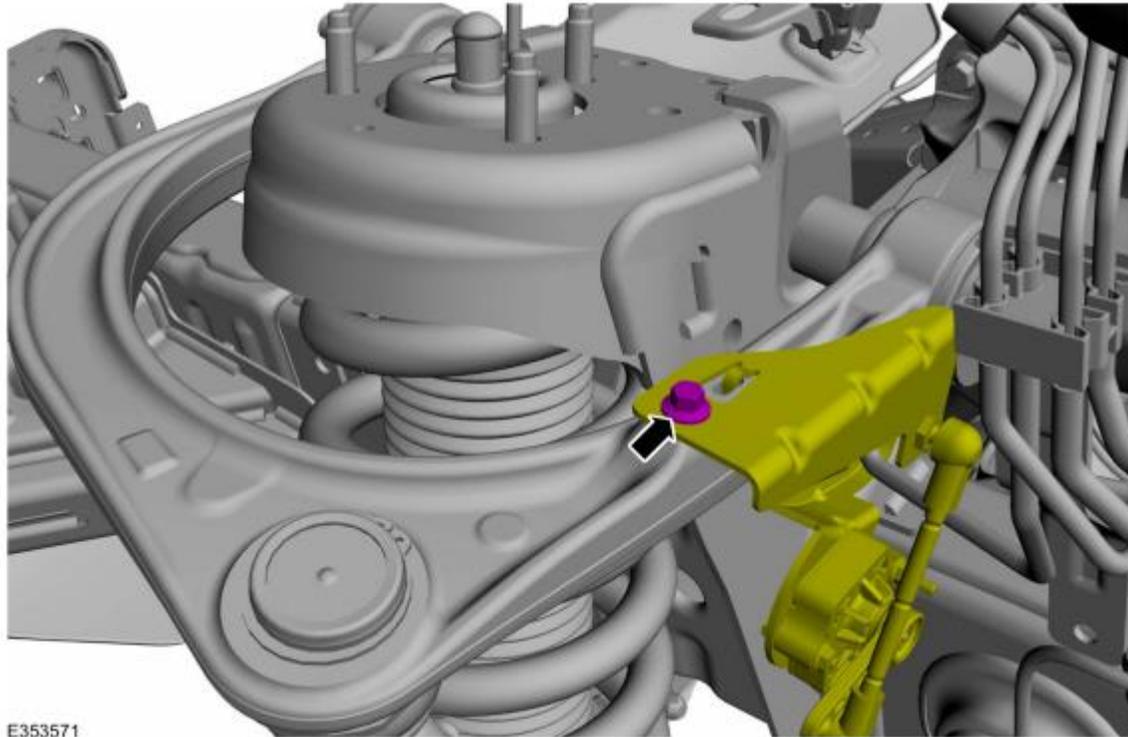


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If equipped.
Position the height sensor arm bracket and install the bolt.
Torque: 53 lb.in (6 Nm)

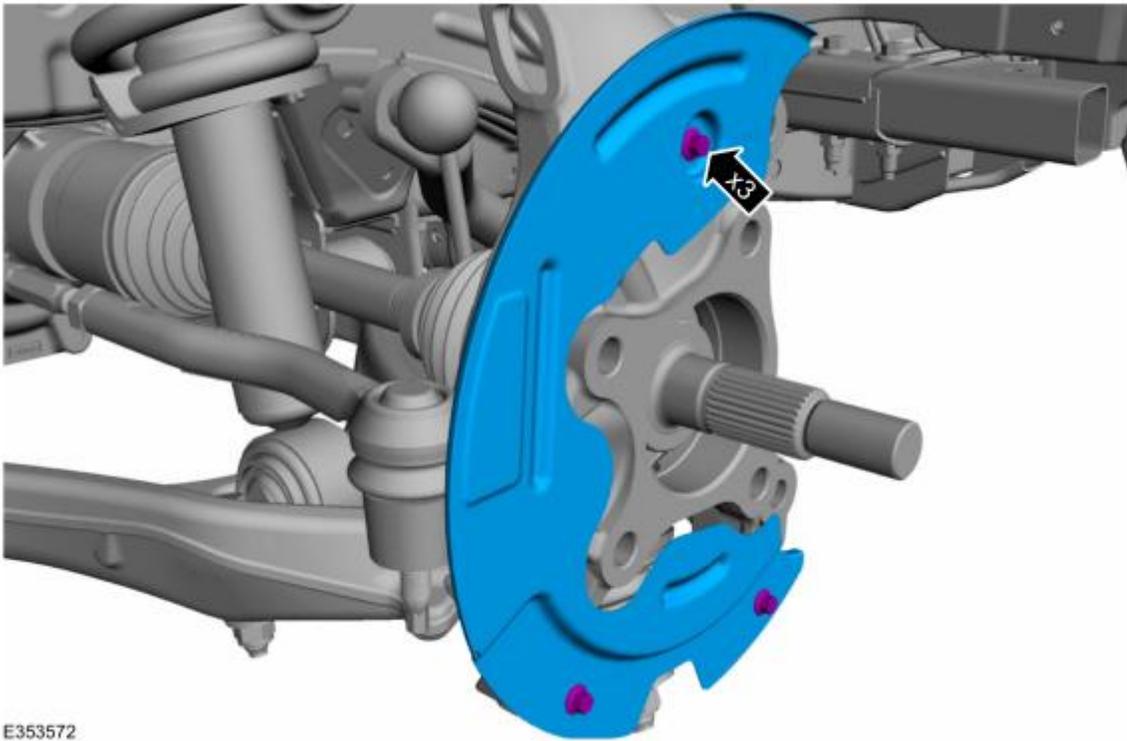


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Install the brake disc shield and the brake disc shield bolts.
Torque: 80 lb.in (9 Nm)

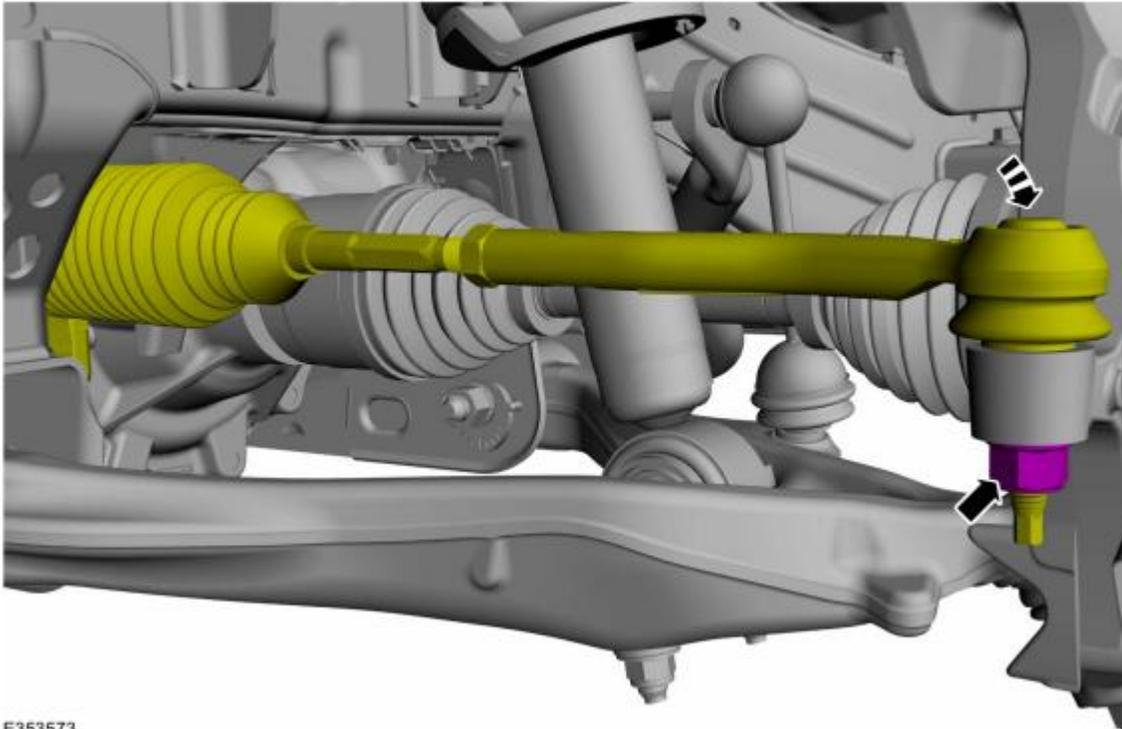


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NOTE: Use the hex-holding feature to prevent the stud from turning while removing the nut.

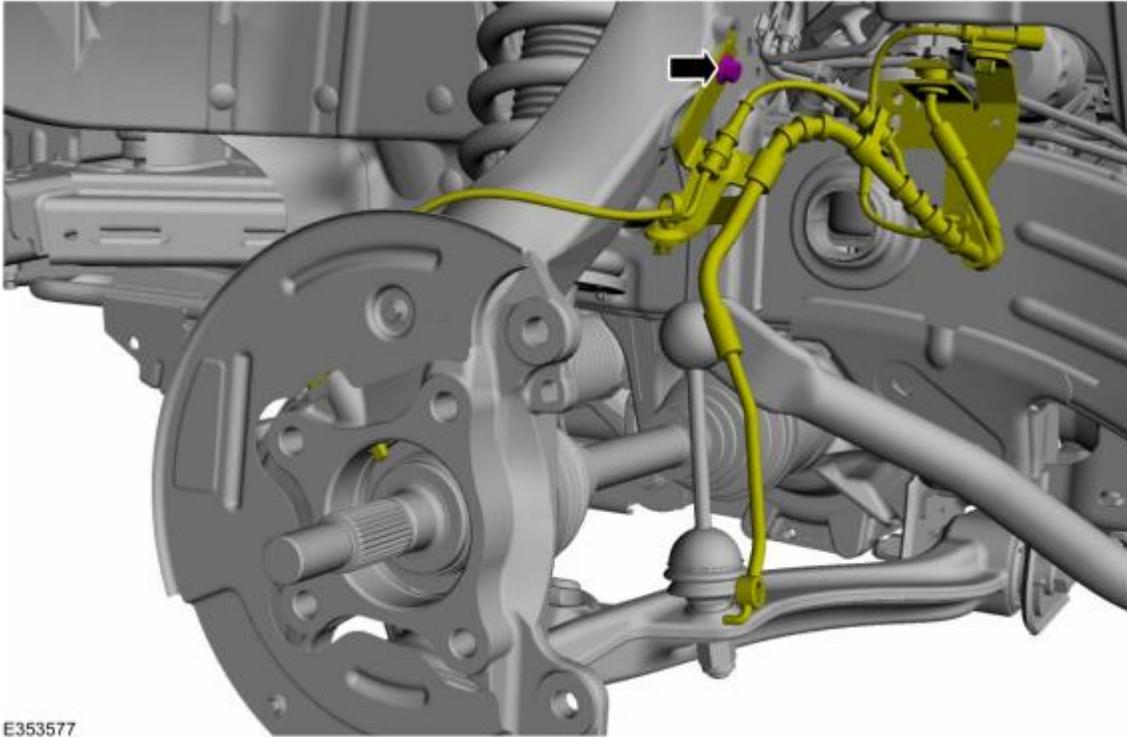
Position the tie rod end and install the new tie rod end nut.
Torque: 46 lb.ft (63 Nm)



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Position the brake hose and install the brake hose bracket bolt.
Torque: 17 lb.ft (23 Nm)



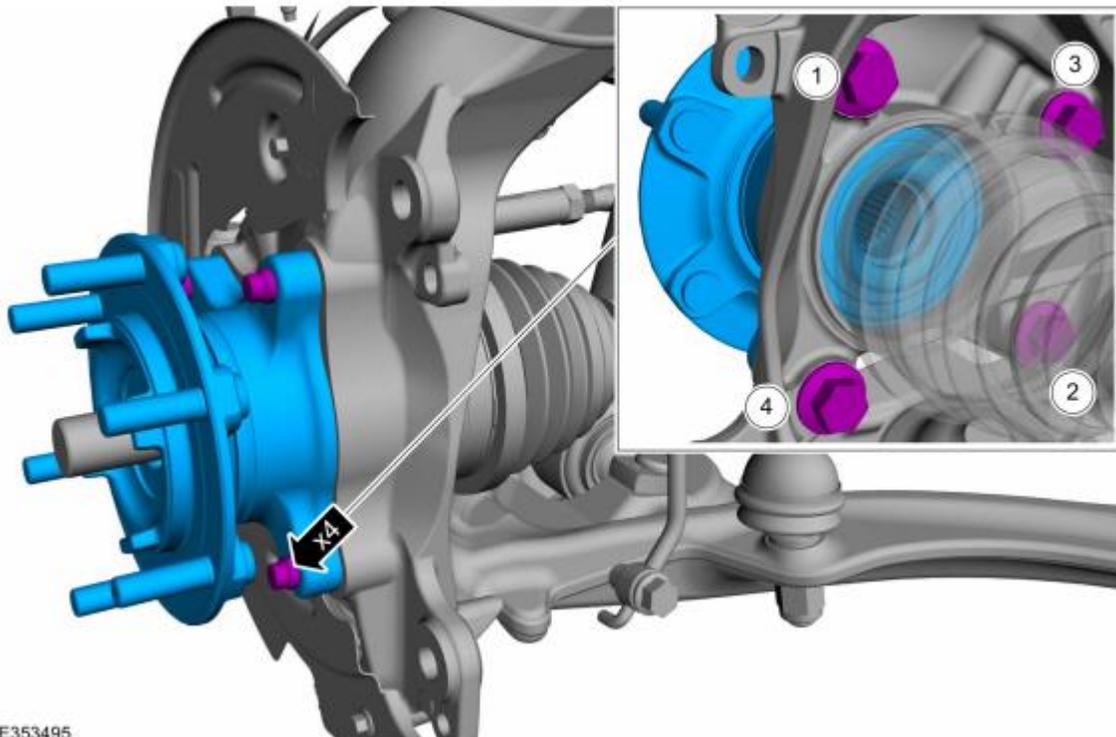
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Install the front wheel bearing and wheel hub.

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: Tighten the bolts in a cross pattern.

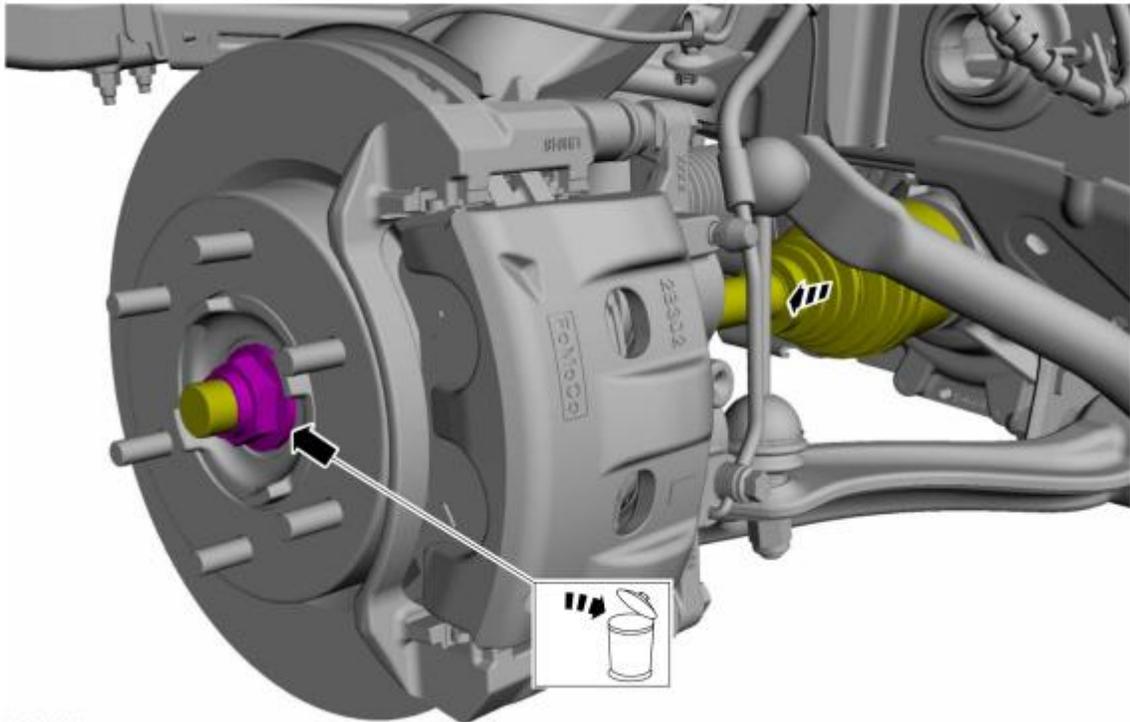
Position the front wheel bearing and wheel hub and install the 4 new front wheel bearing and wheel hub bolts.
Torque: 129 lb.ft (175 Nm)



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Install the brake disc.

With old hub nut pull the halfshaft into hub.



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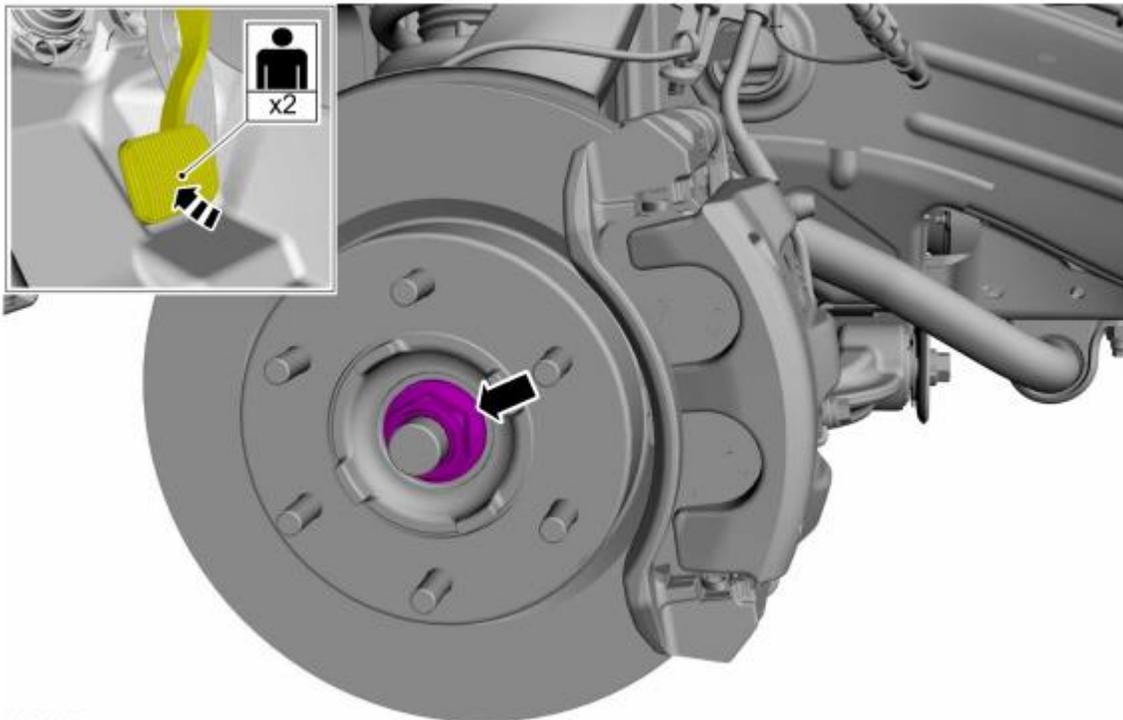
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NOTICE: Install and tighten the new wheel hub nut to specification in a continuous rotation. Always install a new wheel hub nut after loosening or when not tightened to specification in a continuous rotation or damage to the components may occur.

NOTE: *This step requires the aid of another technician.*

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

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



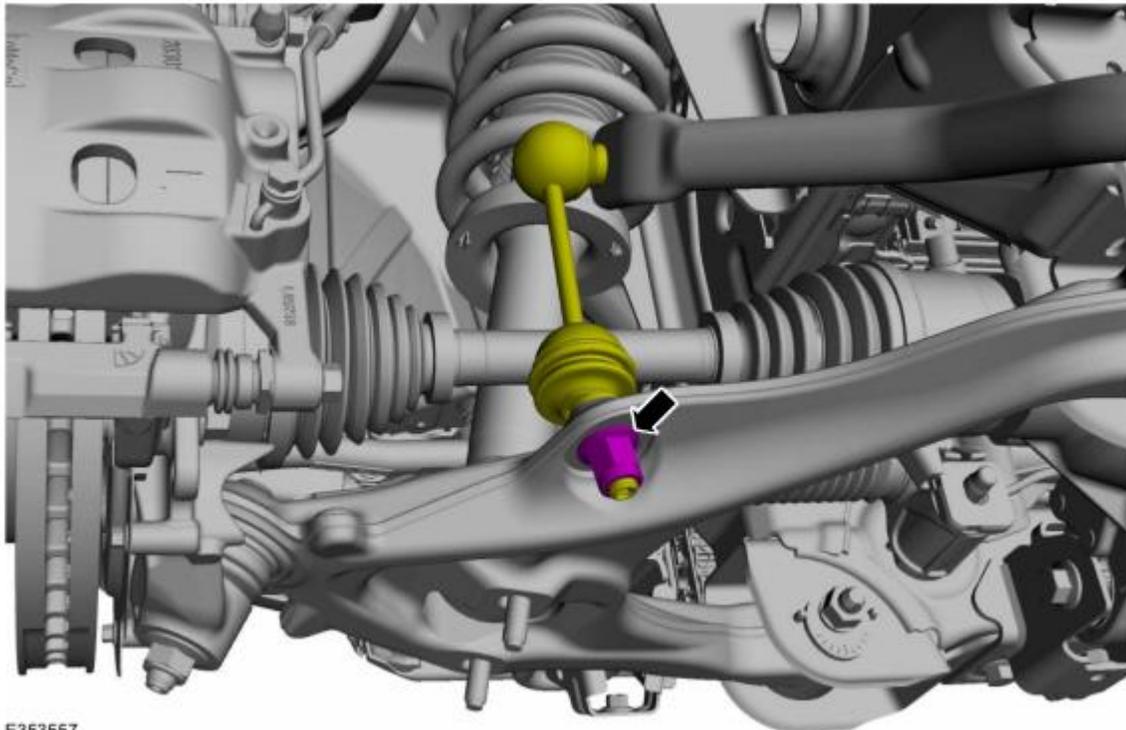
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NOTE: *The stabilizer bar links are designed with low friction ball joints that have a low breakaway torque.*

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

Install the new stabilizer bar link lower nut.
Torque: 122 lb.ft (165 Nm)



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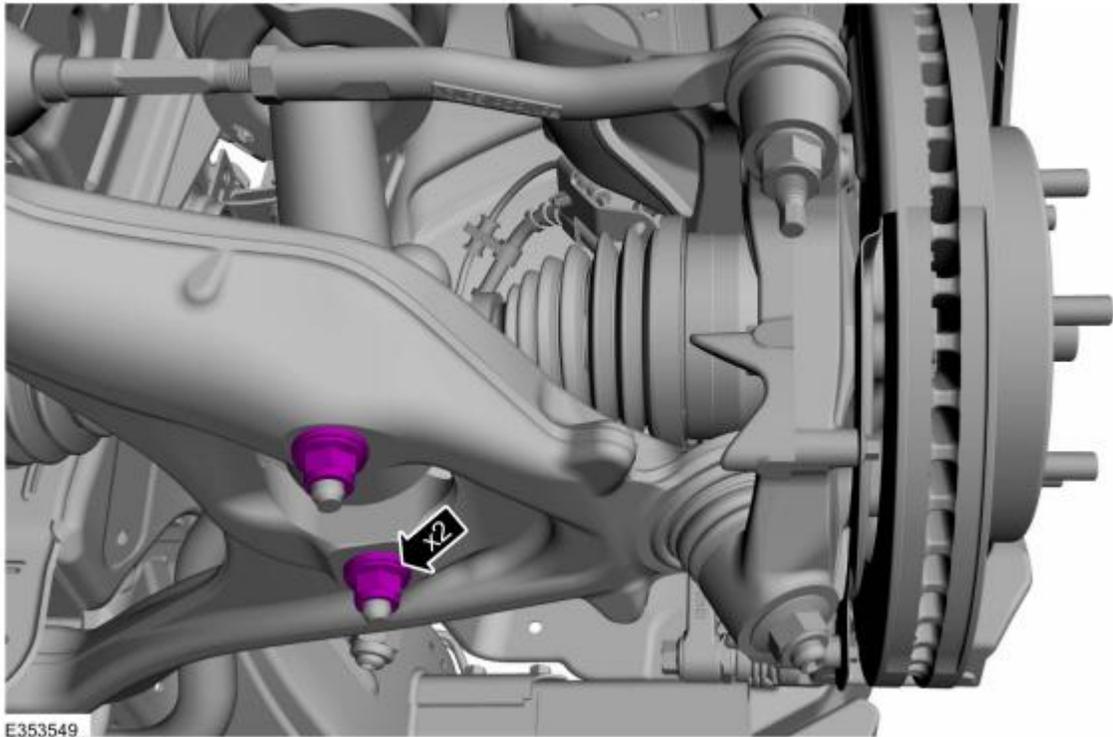


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Install the new shock absorber assembly lower nuts.
Torque: 66 lb.ft (90 Nm)



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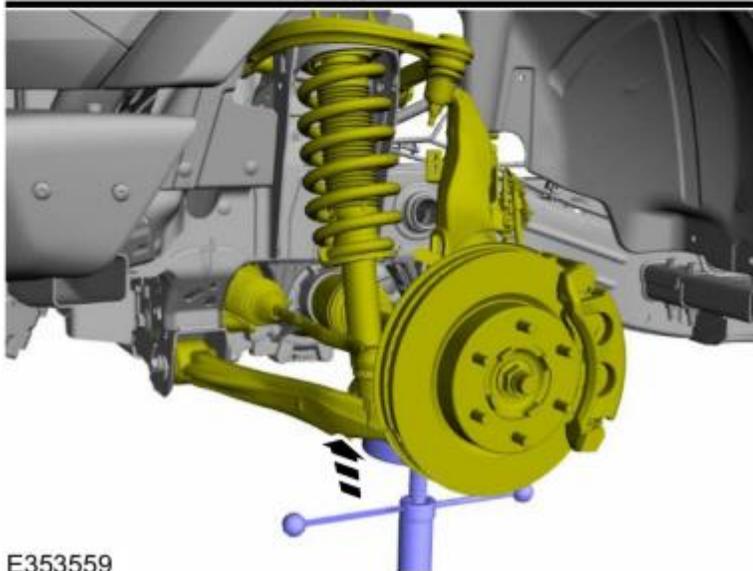
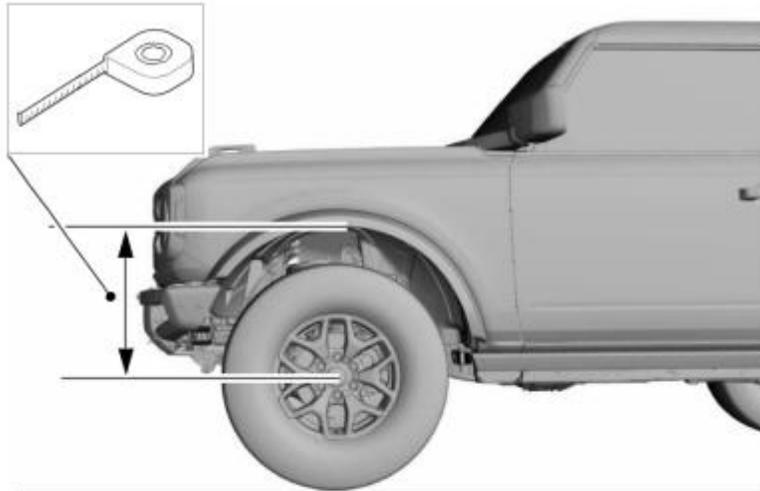


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Use a suitable jack to raise the suspension until the distance between the center of the hub and the lip of the fender is equal to the measurement taken during removal (curb height).
Use the General Equipment: Vehicle/Axle Stands



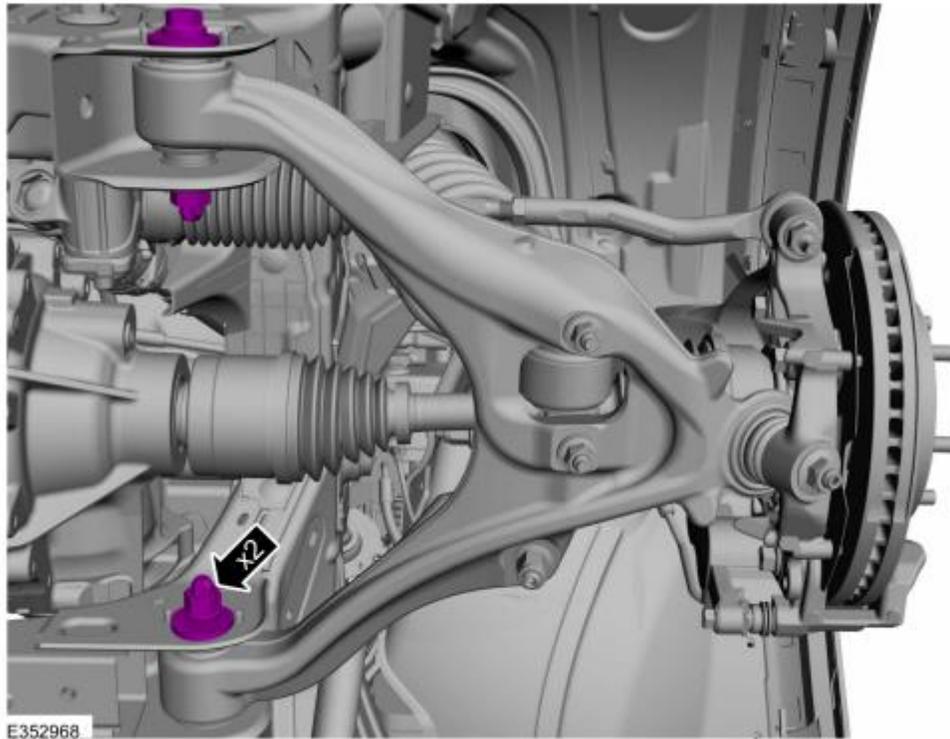
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NOTICE: Tighten the suspension bushing fasteners with the suspension raised by a jack to curb height or with the weight of the vehicle resting on the wheels and tires. Otherwise, damage to the bushings may occur.

Tighten the lower control arm nuts.
Torque: 210 lb.ft (285 Nm)



Install the wheel and tire.
Refer to: Wheel and Tire Removal and Installation.

Wheel Camber and Toe adjustment will be necessary.

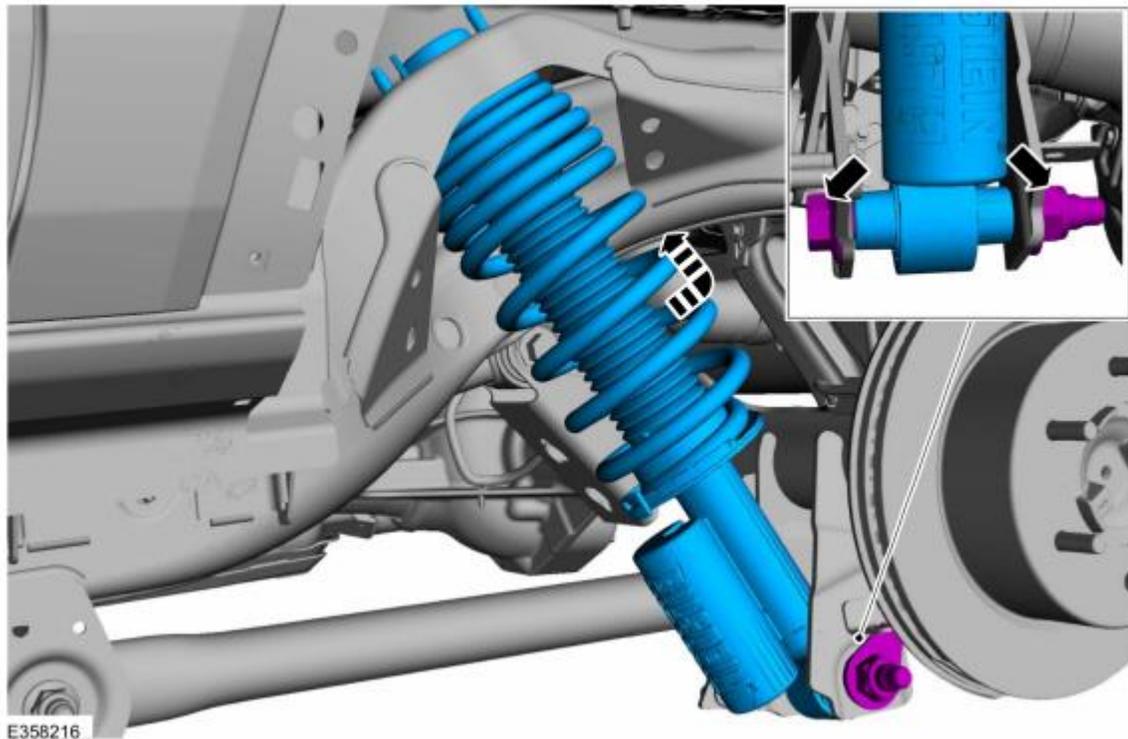
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Rear Shock Absorber and Spring Assembly Installation

NOTE: Do not fully tighten the shock absorber mounting bolts. Tighten the suspension bushing 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.

NOTE: Make sure a new nut and bolt is installed.

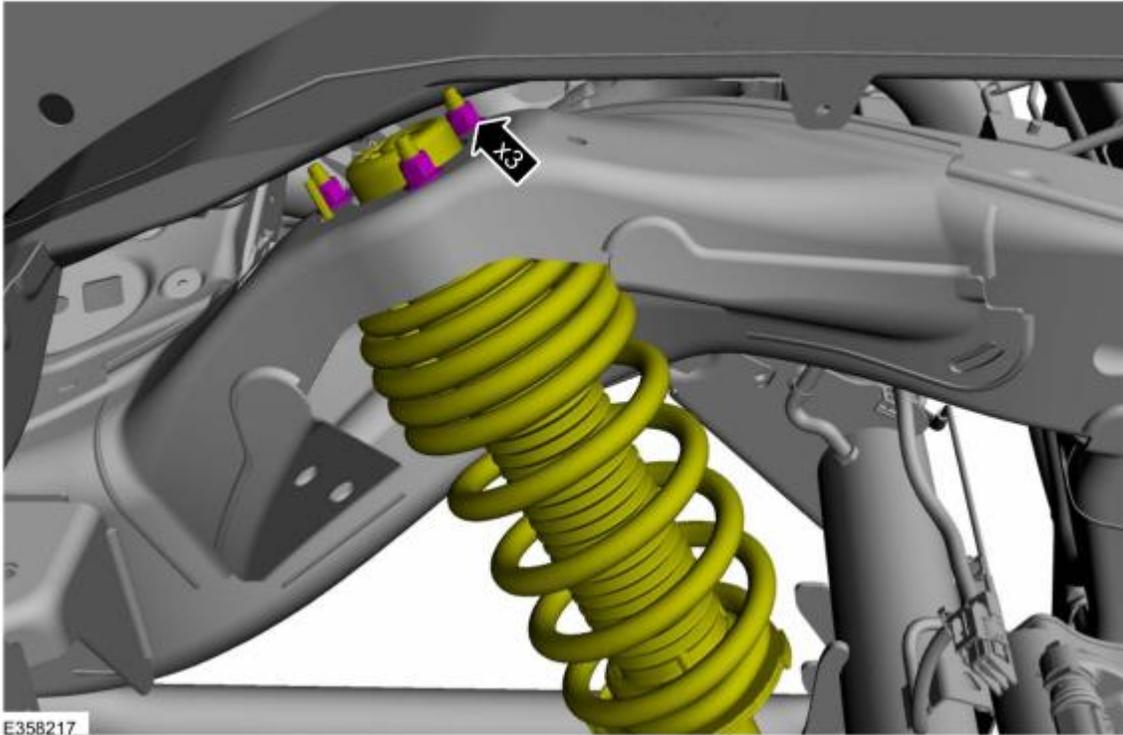
Install the new rear shock absorber and shock absorber lower bolt and nut.
Torque: 350 lb.ft (475 Nm)



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Install the new rear shock absorber upper nuts.
Torque: 41 lb.ft (55 Nm)



To install, reverse the removal procedure.

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Wheel and Tire

Removal

NOTICE: Do not use heat to loosen a seized wheel nut.

NOTICE: Do not use power tools on locking wheel nuts.

1. With the vehicle in NEUTRAL, position it on a hoist.
For additional information, refer to: Jacking and Lifting
2. **NOTICE:** Do not use heat to loosen a seized wheel nut or damage to the wheel and wheel bearing can occur.

NOTICE: If equipped with full wheel cover with exposed wheel nuts, the wheel nuts must be removed prior to removing the wheel cover or damage to the wheel cover will occur.

NOTE: Use metric hexagonal socket.

Remove the wheel nuts.



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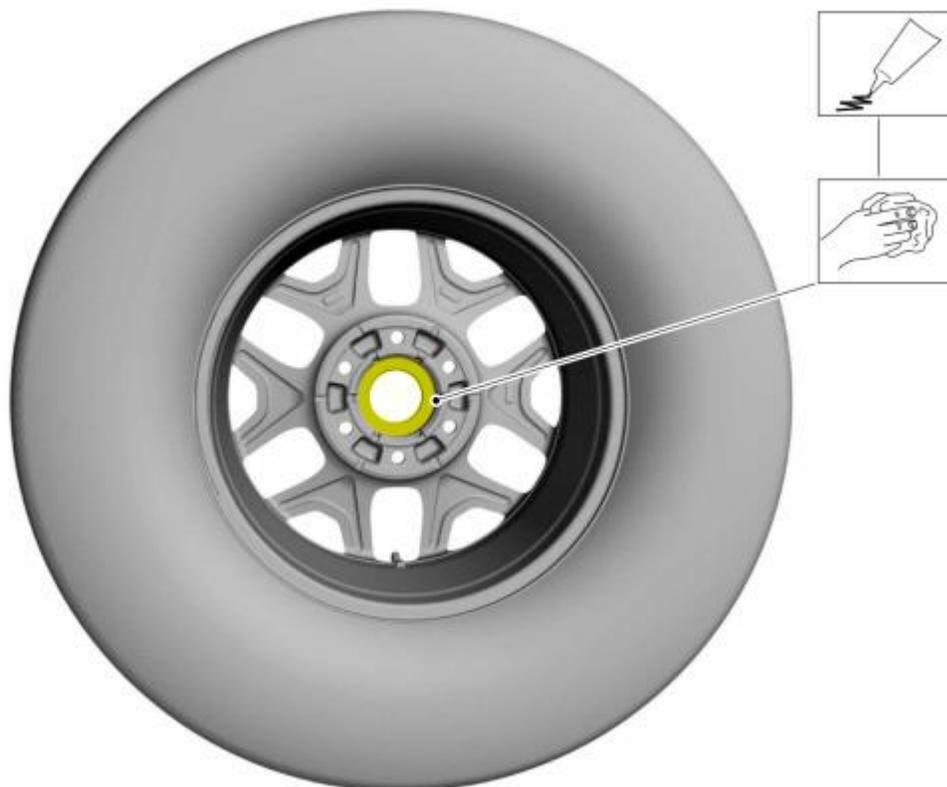
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 **WARNING:** When a wheel is installed, always remove any corrosion, dirt or foreign material present on the mounting surface of the wheel and the mounting surface of the wheel hub, brake drum or brake disc. Make sure that any fasteners that attach 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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Installation

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

Install the wheel and tire and install the wheel nuts.



E351489

2.  **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: 100 lb.ft (135 Nm)



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NOTE: Wheel alignment must be completed after installation of suspension kit.

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Headlight Aim Adjustment

All headlamp types

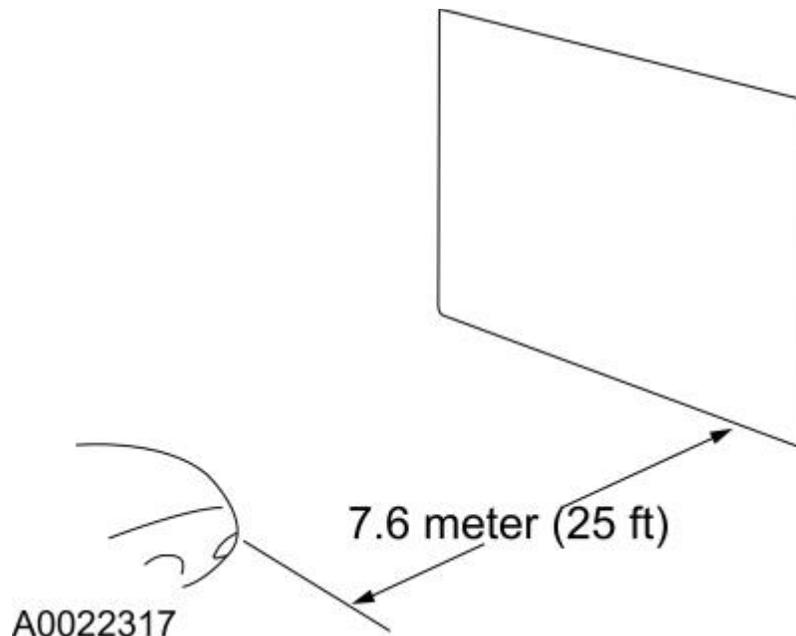
NOTE: Refer to the Owner's Literature for the headlamp adjustment screw location.

NOTE: Consult your state vehicle inspection manual for recommended tolerance ranges for visual aiming.

NOTE: Horizontal aim is not adjustable.

- Identify the headlamp type. Vehicles are equipped with Visually Optically Aligned Left (VOL) or Visually Optically Aligned Right (VOR) headlamps. Molded in small letters on the headlamp lens is one of the following: VOL and SAE or VOR and SAE.
- NOTE:** Before starting headlamp adjustment, entry conditions must be met.
 - Vehicle must be on level ground.
 - Tires must be correctly inflated.
 - Vehicle must be normally loaded.
 - Headlamps must be clean.
 - Headlamps must operate correctly.
 - Air suspension switch must be on (if equipped).
- NOTE:** The vertical wall or screen must be a minimum of 2.4 m (8ft) wide.

Park the vehicle on a level surface approximately 7.6 m (25 ft) from the vertical wall or screen directly in front of it.

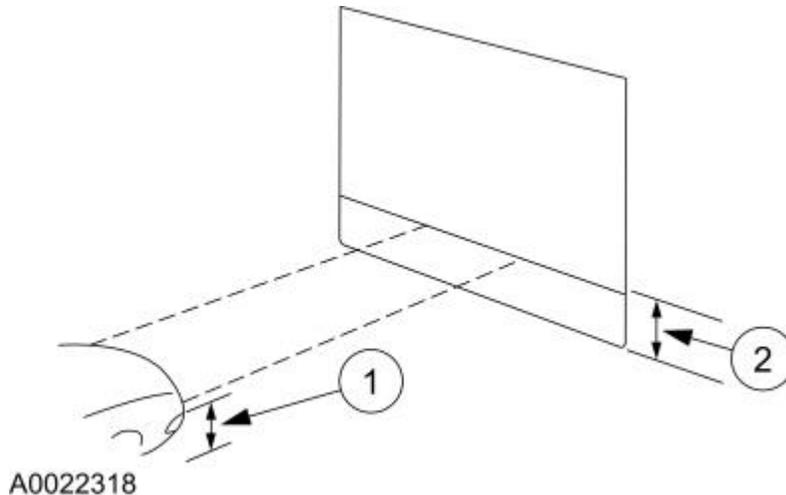


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NOTE: The bulb center of the low beam bulb is sometimes marked on the lens (circle, crosshair or other mark) or is the center of the low beam reflector, bulb shield or the low beam projector inner lens.

Measure the center of the headlamp height to ground and record the measurement.



6. **NOTE:** Use a 2.4 m (8 ft) section of masking tape for the horizontal reference line.
- For vehicles with headlamp bulb center heights below 95 cm (37.5 inches), place the horizontal reference line equal to the headlamp bulb center height.
 - For vehicles with headlamp bulb center heights between 95 cm - 105 cm (37.5 - 41.5 inches), place the horizontal reference line at the headlamp bulb center height minus 1.3 cm (0.5 inch).
 - For vehicles with headlamp bulb center heights above 105 cm (41.5 inches), place the horizontal reference line at the headlamp bulb center height minus 2.5 cm (1.0 inch).
7. **NOTE:** Carry out this procedure in a dark environment to effectively see the headlamp beam pattern.

Turn the low beam headlamps on to illuminate the wall or screen and open the hood.

8. **NOTE:** The cut off of the beam pattern is the horizontal line of the beam pattern where there is MAXIMUM change between light and dark.

On the wall or screen, locate the cut off of the beam pattern.

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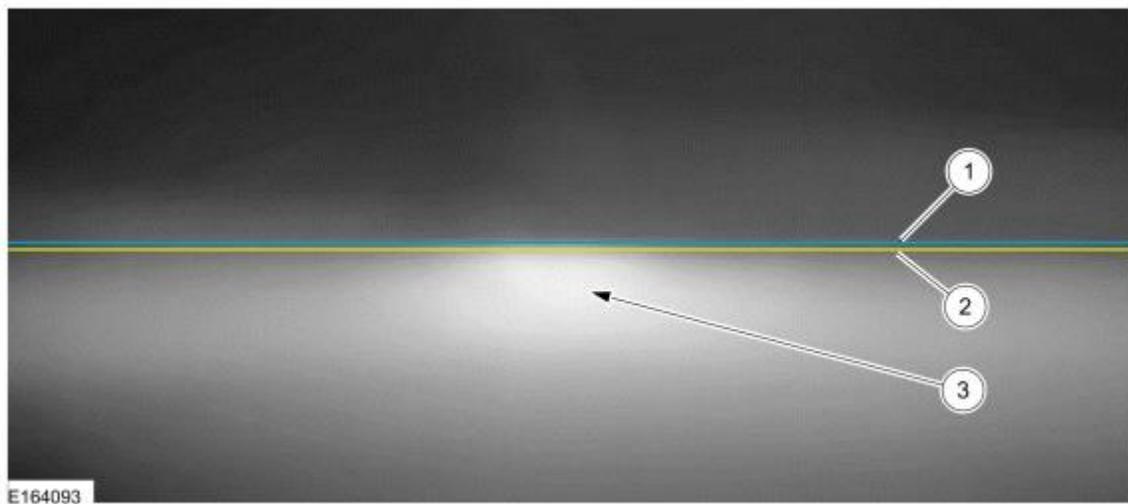
VOR-type headlamps

NOTE: Procedure applies to both left and right headlamps with VOR molded on lens.

9. **NOTE:** The appearance of the VOR beam pattern may vary between vehicles.

There is a distinct cutoff in the right portion of the beam pattern.

- 1 - Horizontal reference line
- 2 - Cut off
- 3 - High intensity zone



10. **NOTE:** Align one headlamp while covering the other headlamp.

Align the headlamps to the horizontal reference line. Adjust the headlamp as necessary using the headlamp adjusting screw.

11. Repeat the previous step for the remaining headlamp.

VOL-type headlamps

NOTE: Procedure applies to both left and right headlamps with VOL molded on lens.

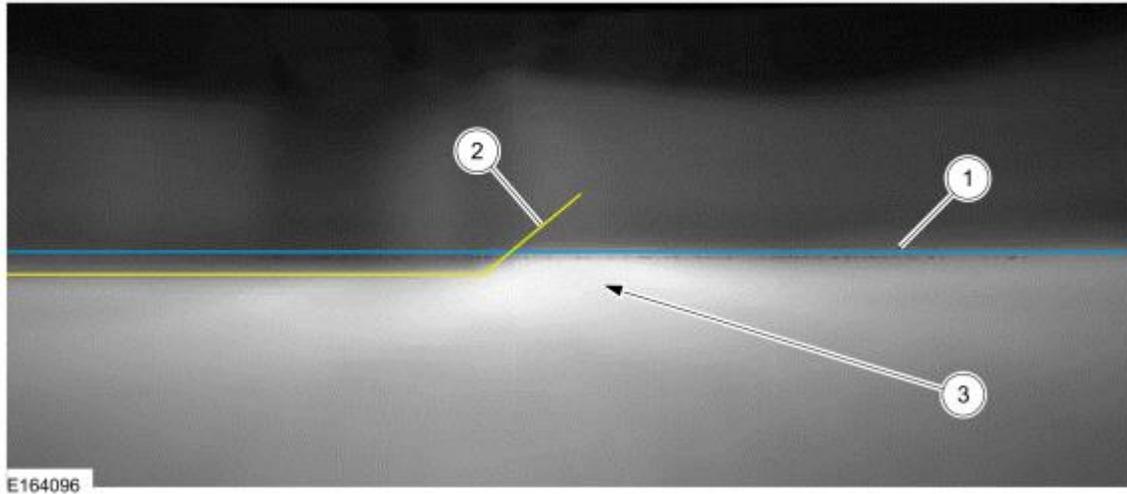
12. **NOTE:** The appearance of the VOL beam pattern may vary between vehicles.

For VOL-type headlamps, there is a distinct cutoff in the left portion of the beam pattern. The edge of this cutoff should be positioned 5 CM (2 in) below the horizontal reference line.

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- 1 - Horizontal reference line
- 2 - Cut off
- 3 - High intensity zone



13. **NOTE:** *Align one headlamp while covering the other headlamp.*

Align the headlamps to the horizontal reference line. Adjust the headlamp as necessary using the headlamp adjusting screw.

14. Repeat the previous step for the remaining headlamp.

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Cruise Control Radar Alignment

Adjustment

Vertical Alignment

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

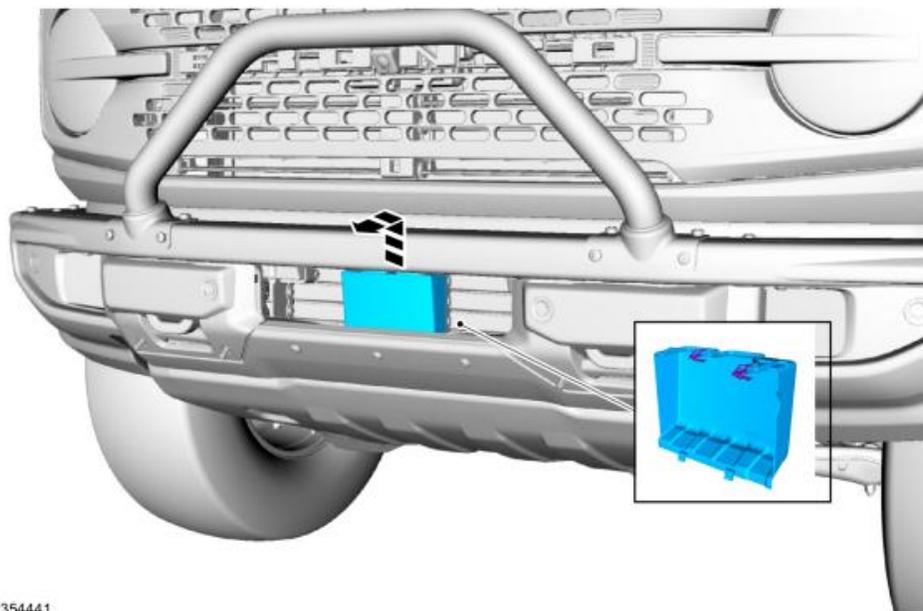
NOTE: In order to align the CCM (cruise control module), the front bumper must be removed to access the sensor and the vehicle must be in a wheel alignment bay station so that the vehicle is level.

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

NOTE: The CCM (cruise control module) bracket is part of the active grille shutter. If damage is found to the CCM (cruise control module) bracket during inspection, a new active grille shutter must be installed.

1. Remove the front bumper - plastic.
Refer to: Front Bumper - Plastic Removal and Installation.
2. **NOTE:** The front bumper needs to be removed on most vehicles to remove the CCM (cruise control module) cover.

Release the CCM cover top clips and remove the cover.

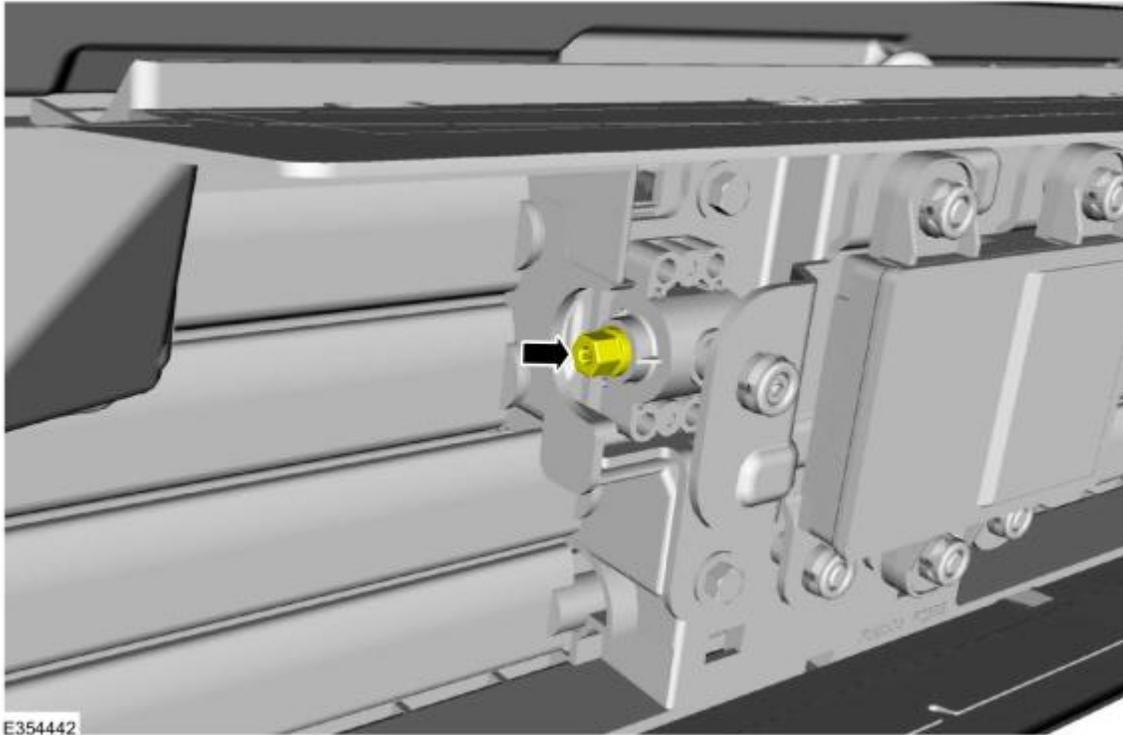


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3. Place the vehicle on a wheel alignment bay station.
4. Locate the CCM alignment screw.



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5. **NOTE:** *Measurement must be taken from the non-raised side of the CCM (cruise control module).*

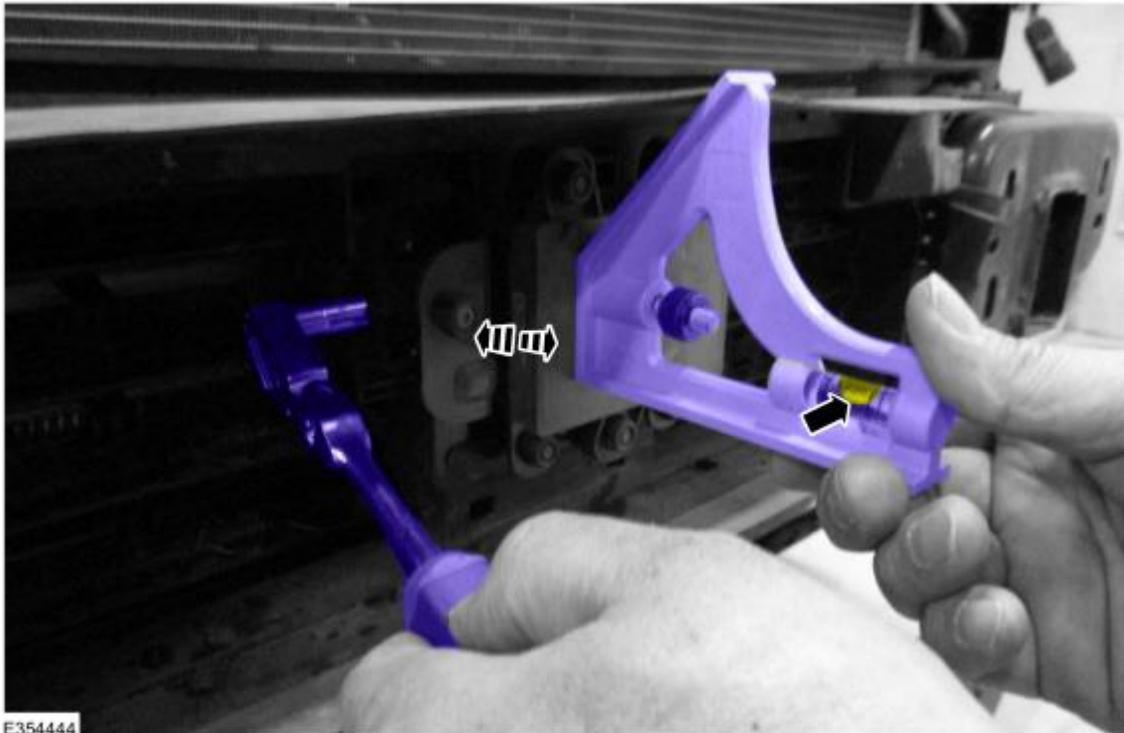
Place a combination square level on the face of the CCM and check the alignment.



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6. **NOTE:** *Measurement must be taken from the non-raised side of the CCM (cruise control module).*

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



7. Install the front bumper.
Refer to: Front Bumper - Modular (501-19 Bumpers, Removal and Installation).

Horizontal Alignment

NOTE: *The horizontal alignment for the CCM (cruise control module) is a software calibration check that is performed by the scan tool to insure the CCM (cruise control module) radar is pointed straight. No manual adjustment is needed for this procedure. The scan tool calibrates the CCM (cruise control module) through the CCM (cruise control module) 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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Front Bumper Removal and Installation (For CCM Alignment)

Special Tool(s) / General Equipment

Interior Trim Remover

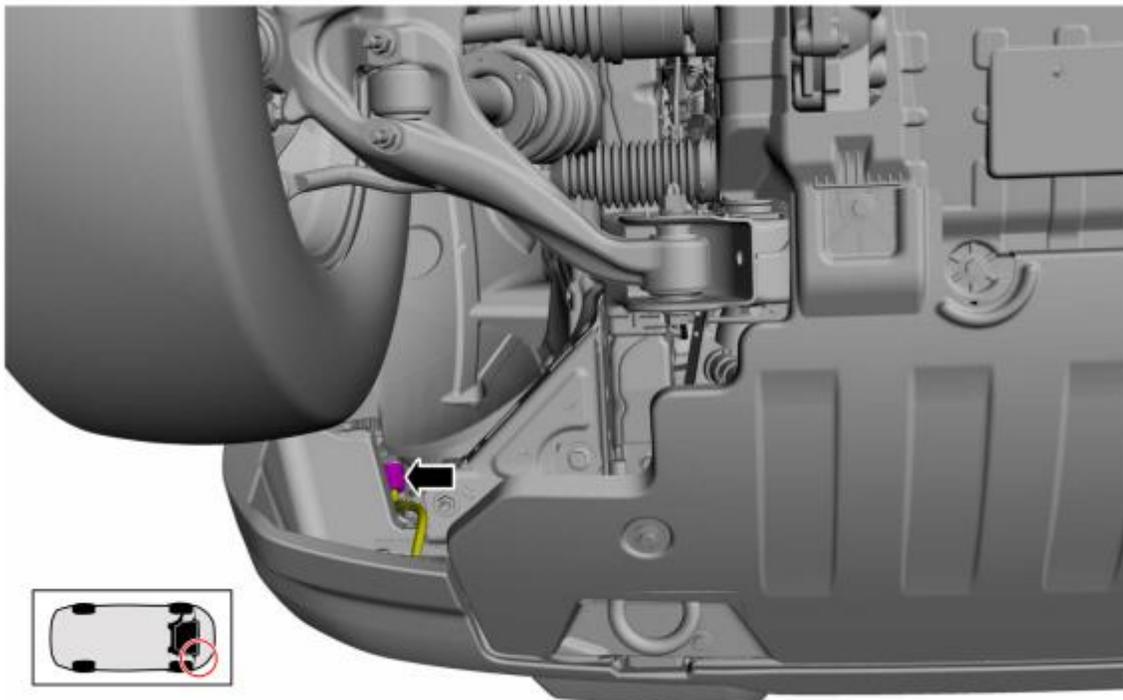
Removal

NOTE: Removal steps in this procedure may contain installation details.

1. With the vehicle in NEUTRAL, position it on a hoist.
Refer to: Jacking and Lifting (100-02 Jacking and Lifting, Description and Operation).

Vehicles With: Front Fog Lamps/Front Parking Aid

2. Disconnect the front bumper harness electrical connector.



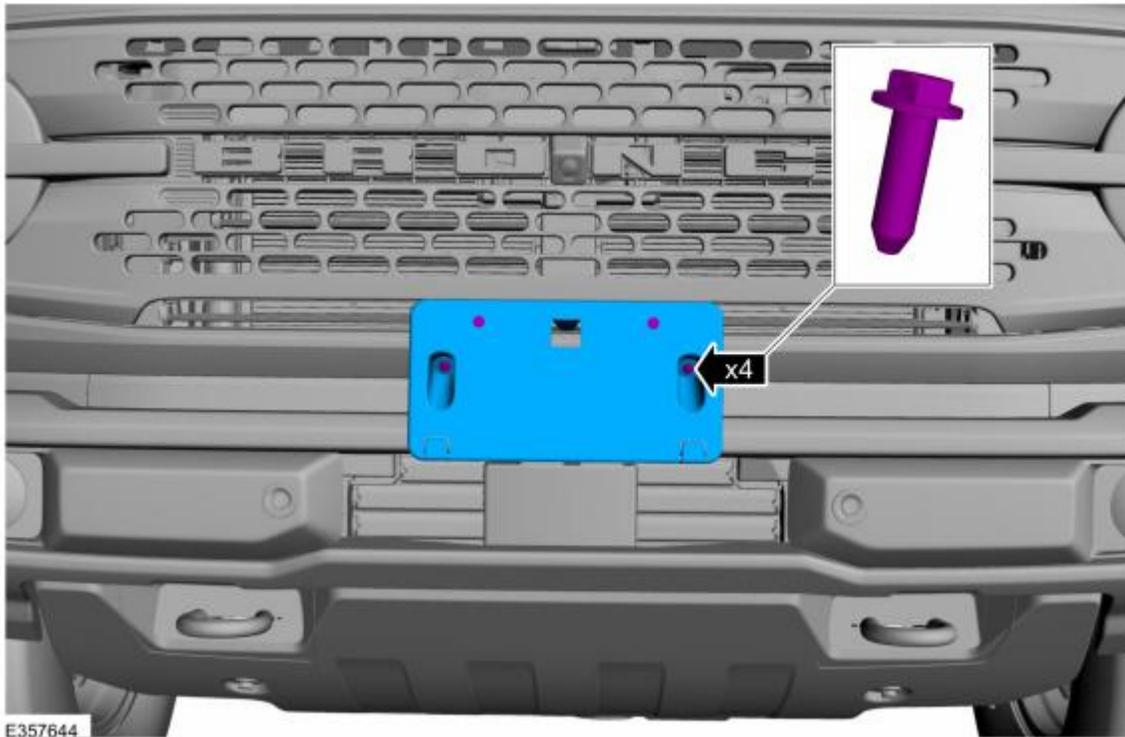
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All vehicles

3. If equipped.
Remove the screws and the front license plate bracket.



Vehicles With: Front Parking Aid

4.
 1. Release the clips and remove the front bumper trim panel.
Use the General Equipment: Interior Trim Remover
 2. Disconnect the front parking aid sensor electrical connectors.



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All vehicles

5. Release the clips and remove the front bumper trim panel.
Use the General Equipment: Interior Trim Remover

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6. **NOTE:** *This step requires the aid of another technician.*

Remove the bolts and the front bumper.
Torque: 81 lb.ft (110 Nm)



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Installation

All vehicles

1. To install, reverse the removal procedure.

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Torque specifications

Front stabilizer bar link upper nut *Torque:* 122 lb.ft (165 Nm)

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

Lower ball joint nut *Torque:* 85 lb.ft (115 Nm)

Brake hose bracket bolt *Torque:* 17 lb.ft (23 Nm)

Tie rod end nut *Torque:* 46 lb.ft (63 Nm)

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

Wheel bearing/hub nuts *Torque:* 129 lb.ft (175 Nm)

Height sensor arm bracket *Torque:* 53 lb.in (6 Nm)

Front shock absorber lower nuts *Torque:* 66 lb.ft (90 Nm)

Front and Rear shock absorber upper nuts *Torque:* 41 lb.ft (55 Nm)

Wheel nuts *Torque:* 100 lb.ft (135 Nm)

Rear shock absorber lower nuts *Torque:* 350 lb.ft (475 Nm)

Front Lower Control Arm nuts *Torque:* 210 lb.ft (285 Nm)

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ProCal

1. Connect Pro Cal 4 tool to the vehicle using the included cable.
2. Power vehicle on by pressing the start button, to full accessory mode (engine off).

It is recommended that you have the vehicle on a battery charger during these following operations. Loss of power during programming/configuration can cause corruption to the modules.

3. You will see this screen pop up once the Pro Cal 4 tool has finished loading.
4. Select Diagnostics & Tools
5. Select Tire/Gear Adjust
6. Notice this will VIN lock this Pro Cal 4 device to this vehicle.
7. On this screen there is 2 parameters that can be adjusted. For this package, only update the top parameter to Tire (Rev/mile) to “**606**”. This is the parameter to update to the new tire size recommended with this package for the 315/75R17.
8. Click Continue and then follow the on screen prompts as listed below.
9. It will now prompt for the vehicle’s ignition to be turned off, then turned back on to key on to accessory mode (engine off).
10. Follow the prompts on screen, and wait the displayed amount of time that the Pro-Cal 4 needs to configure the modules.
11. Turn the ignition off once again, then turn the vehicle back on to accessory mode (engine off).
12. Go to Diagnostics & Tools
13. Select Service Functions
14. Select CDP Learn
“CDP” = Configurable Data Parameters
15. Follow the prompts on screen.
16. Tire size learning is now complete.

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