WARNING — READ ENTIRE SHEET BEFORE STARTING

1 PARTS LIST

Qty		Description
2	x	Front Locking Ring
2	x	Rear Locking Ring
4	x	Alignment Locking Gear Cam plates
4	x	W711959-S439 Extended Lower Control Arm Bolts
4	x	W711310-S440 Nylock Nuts for Lower Control Arm Bolts.

CHECK CONTENTS BEFORE BEGINNING INSTALLATION. REPORT ANY SHORTAGES TO THE FORD PERFORMANCE PARTS TECHLINE – See www.performanceparts.ford.com/support for more information.

2 TOOLS & EQUIPMENT REQUIRED

- Vehicle hoist or 4-post alignment rack
- 18 mm, 21 mm, 24 mm, 27 mm box-end and socket wrenches (6-point preferred)
- Breaker bar (recommended; steering-gear bolts can be tight)
- Torque wrench: 30 - 300 lb·ft (40 - 400 N·m) range
- Paint marker or scribe
- Blue Loctite 242
- Safety stands, eye protection, gloves

3 TORQUE SPECIFICATIONS

Component	Ford Spec (F-150)
Front lower control-arm cam-bolt nut	258 lb·ft / 350 N·m
Rear lower control-arm cam-bolt nut	258 lb·ft / 350 N·m
Steering-gear (rack) mounting bolts	129 lb·ft / 175 N·m + 30-45° turn
Front stabilizer-bar bracket nuts	46 lb·ft / 63 N·m
Front cam-lock ring screws (if used)	Hand-tight + Loctite

4 PRE-INSTALLATION NOTES & CAUTIONS

• Vehicle must be at curb weight with the steering wheel held straight for the last 10 ft as you drive onto the rack.
• ONLY REMOVE ONE SUSPENSION NUT AT A TIME to prevent alignment shift.
• Install each Adjustment Cam with its multiple through-holes ABOVE the control-arm nut to maximize ground clearance.
• Blue Loctite 242 is recommended on all fasteners unless otherwise specified.

Alignment Directions and Tips:

Adjustment	Front of Lower Arm	Rear of Lower Arm
Increase caster	In	Out
Decrease caster	Out	In
Increase camber	In	In
Decrease camber	Out	Out
Increase caster and camber simultaneously	In	—
Decrease caster and camber simultaneously	Out	—

5 INSTALLATION PROCEDURE

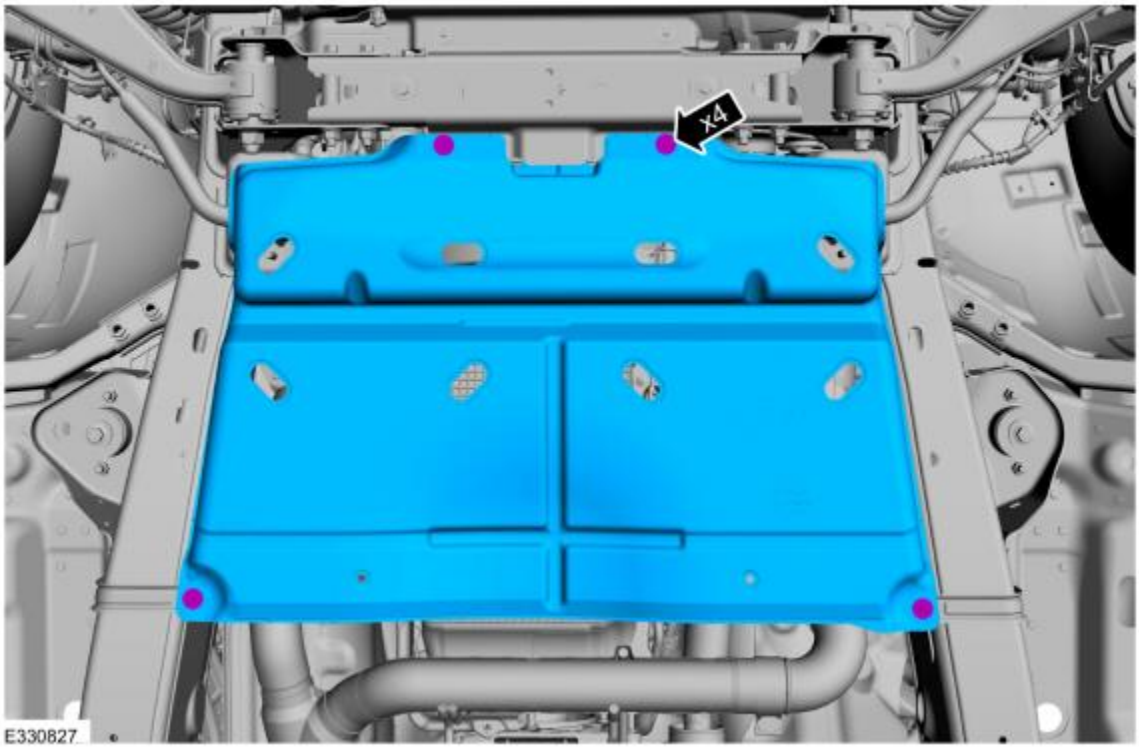
[Insert flow-chart style “exploded view” overview photo here – IMG-OVR]

STEP 1: Raise and Support Vehicle

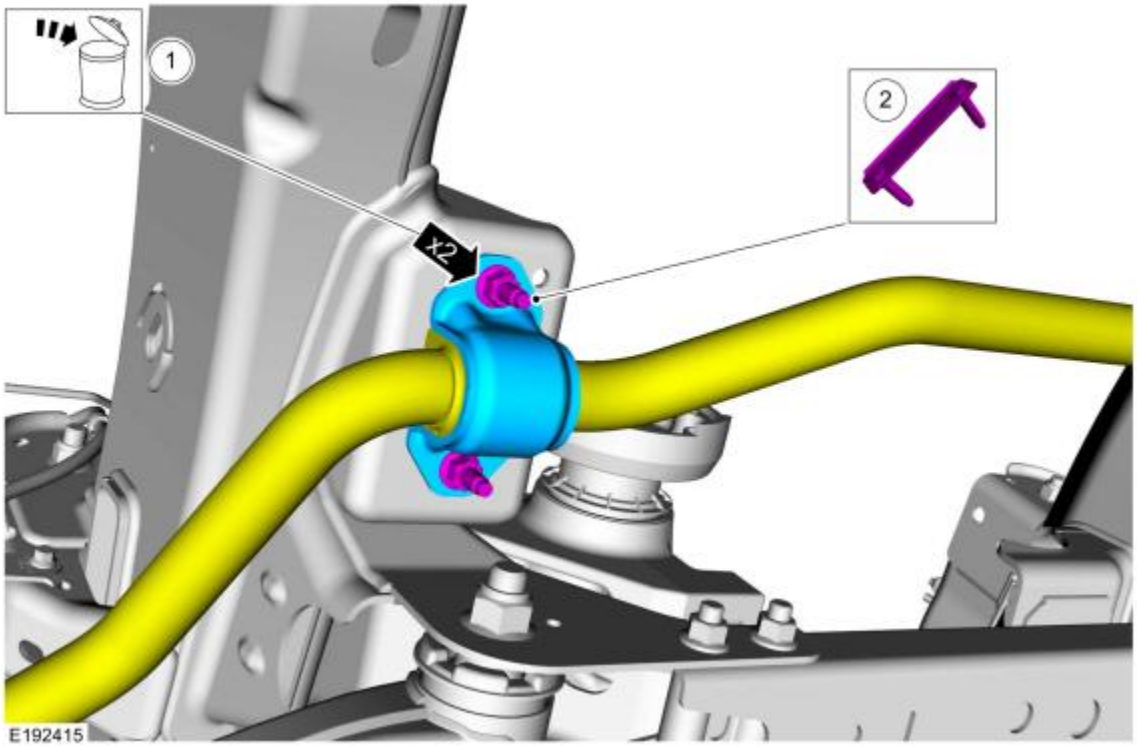
a. Position the F-150 on a 4-post alignment rack or twin-post hoist.

b. Set the parking brake and place wheel chocks behind rear tires.

c. Remove the following panels, to access the steering arms and lower control arm bolts:



D. Remove front sway bar mounting brackets, to be able to properly access the bolt (if needed). For this purpose the sway bar mounting bracket bolts can remain in place.



STEP 2: Retaining Alignment:

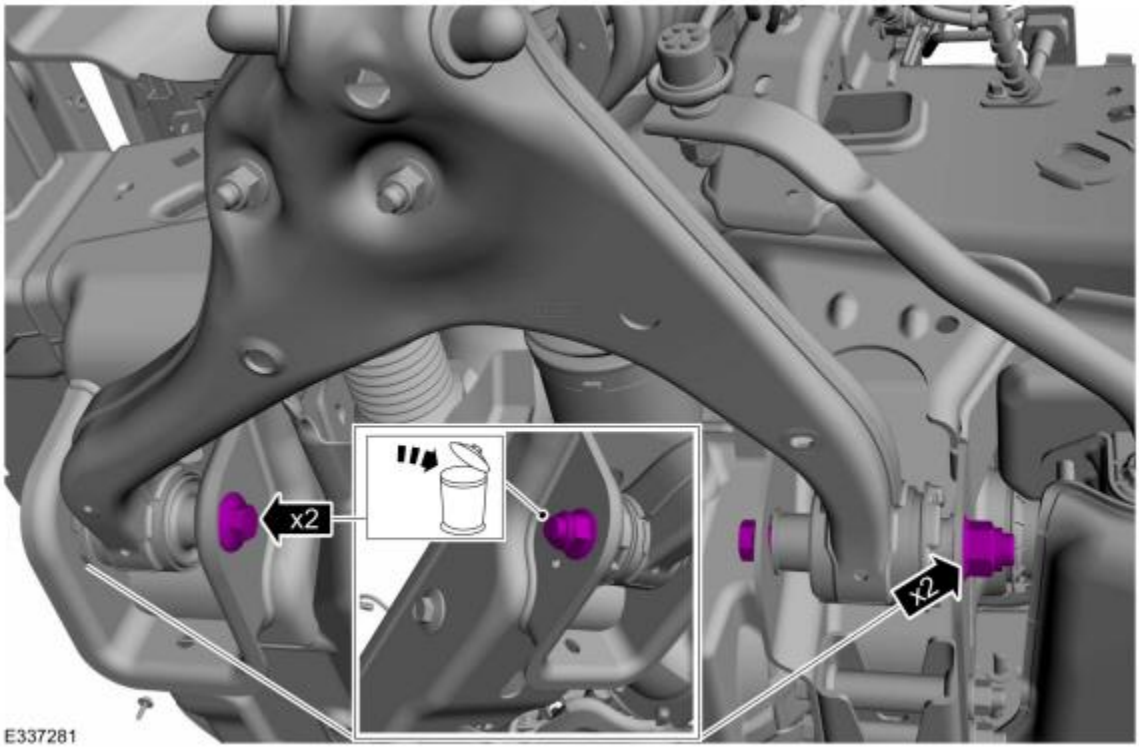
a. During development one method that was used to ensure alignment did not slip was to use a lever chain winch and tie the center of the lower control arm to the opposite side frame to hold the wheel in place on the slip plates of the alignment rack.

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.

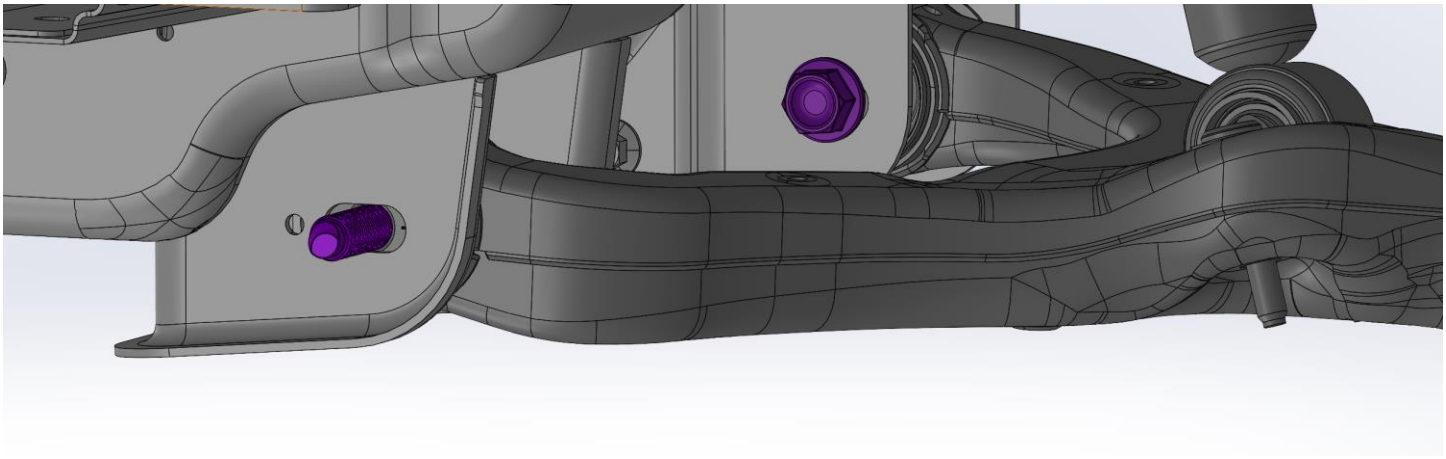
Note: The AlignLock Device requires extended length fasteners to engage with the alignment control locking rings. These new longer bolts are included in the kit for this purpose. PN# W711959-S439

STEP 2: Position vehicle onto slip plates on 4 wheel alignment rack.

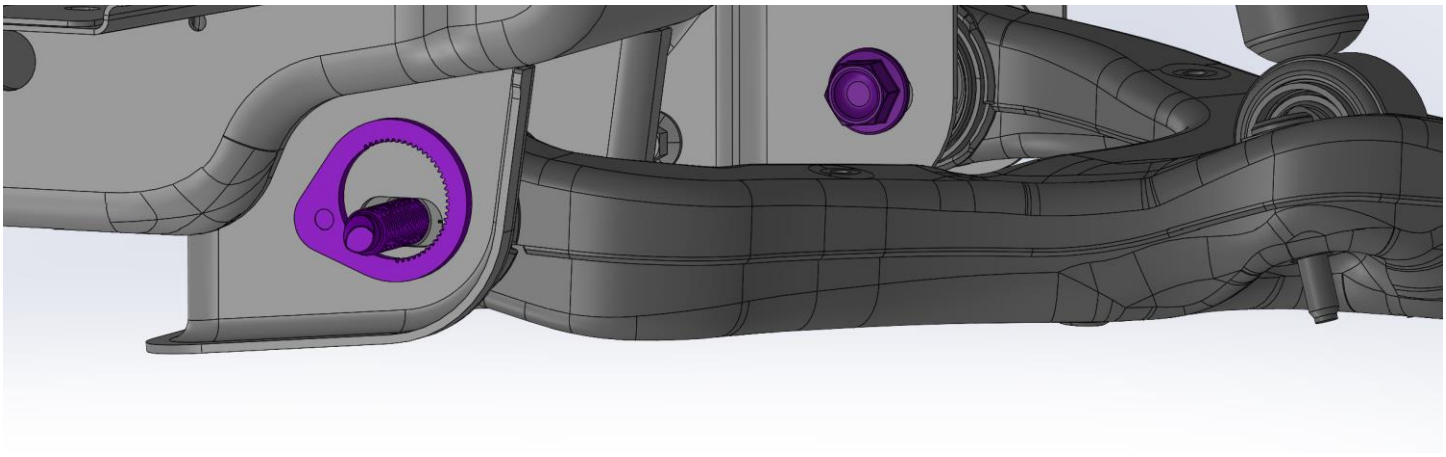
STEP 3: With vehicle located in position on 4 wheel alignment rack, loosen one control arm at a time to remove the bolt and install the Align Lock Cam ring onto the bolt into the front frame.



STEP 4: Install new longer control arm bolt PN# W711959-S439

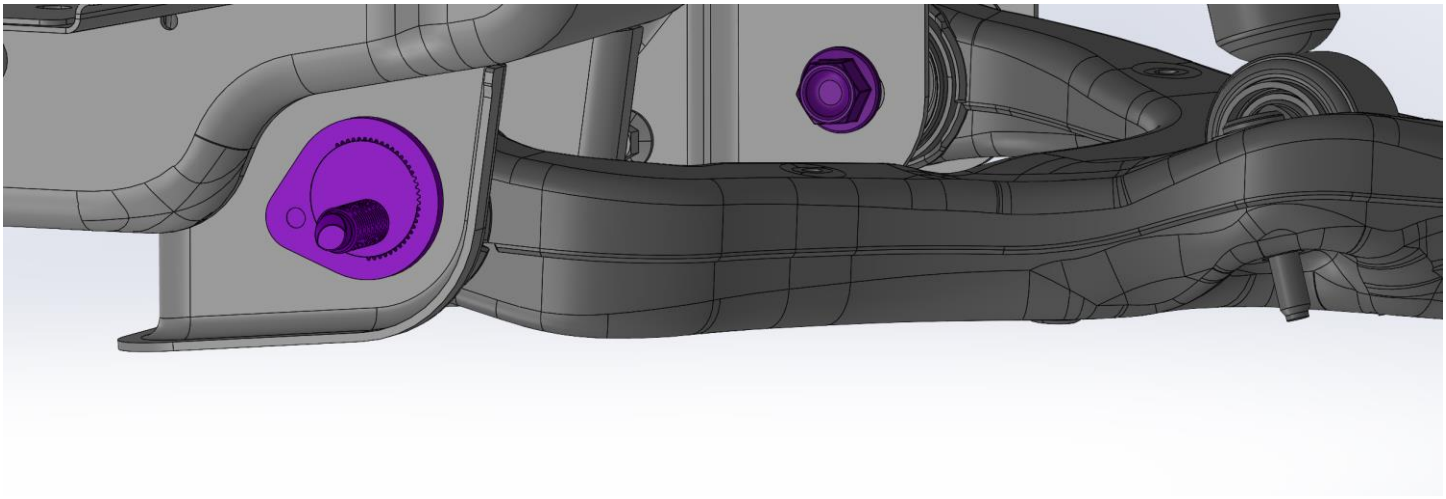


STEP 5: Install Lock Ring (outer). This will be the same on all 4 positions, the lock ring has a welded on boss feature that inserts into the open hole on the front cross member near all 4 positions of the lower control arm bolts.

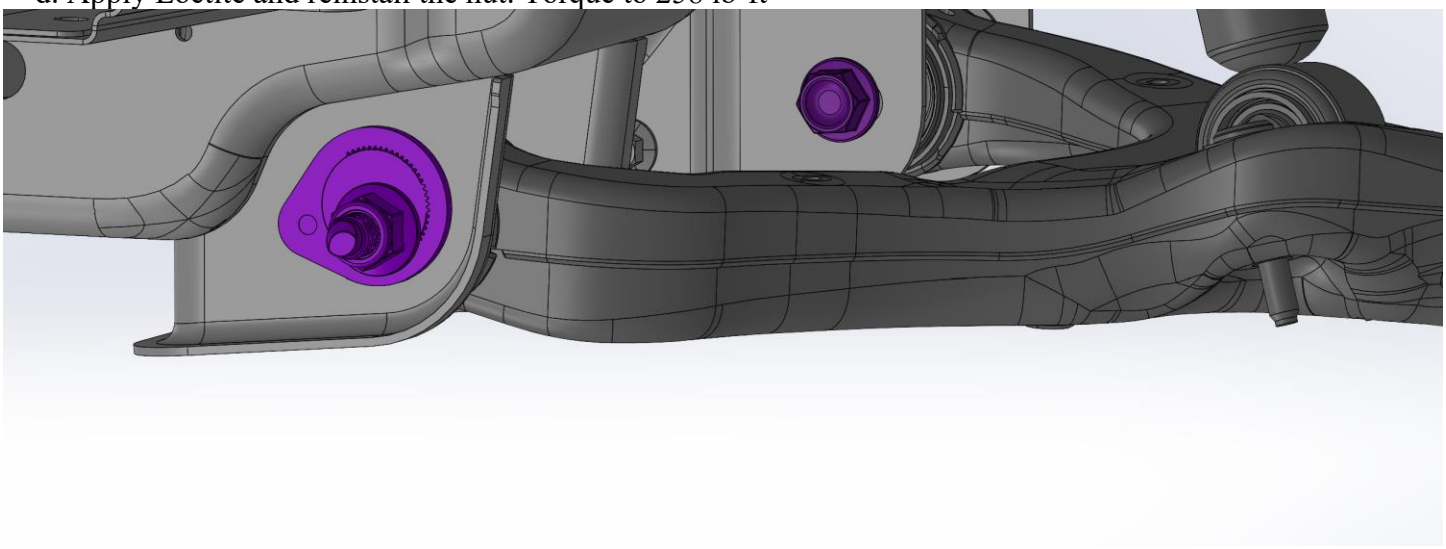


STEP 6: One Side at a Time – Front Pivot

a. Support the lower control arm with a jack stand or similar device to restrain movement.
b. Hold the bolt head (27 mm) and remove ONLY the front lower control-arm nut (27 mm). Do NOT allow the bolt or arm to shift.
c. Slide an Adjustment Cam over the exposed threads, knurled face outward. Rotate Locking Ring until the Cam teeth fully engage.



d. Apply Loctite and reinstall the nut. Torque to 258 lb·ft



STEP 7. Repeat Step 5 on Opposite Front Pivot

STEP 8. One Side at a Time – Rear Pivot

a. Repeat removal of lower-arm nut, install Adjustment Cam, rotate Rear Locking Ring to mesh, apply Loctite, torque to spec.

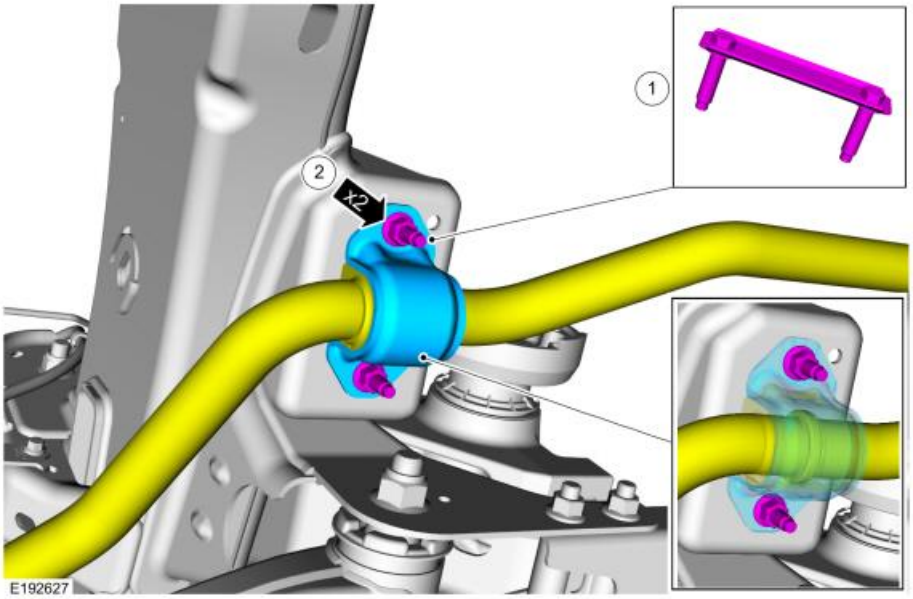
STEP 8 Repeat Step 8 on Opposite Rear Pivot

STEP 9 Re-check All Torques & Clearances

a. Verify Locking Rings sit flush and cannot rotate by hand.

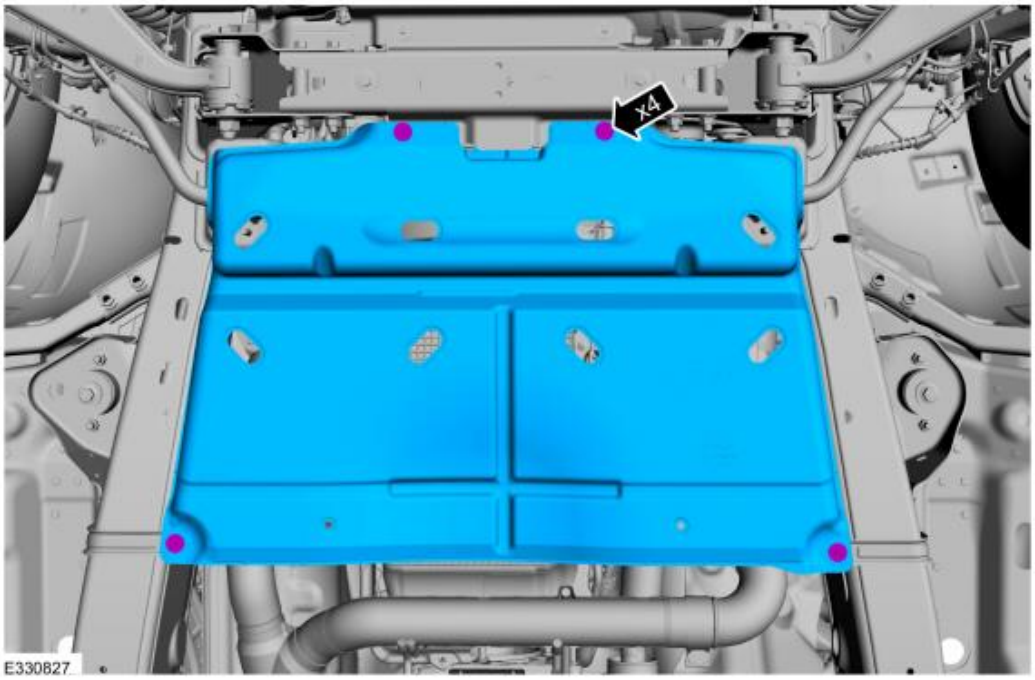
b. Cycle steering lock-to-lock with suspension at ride height. Confirm zero contact between cams, rings, or other chassis parts.

STEP 10: Reinstall Sway Bar brackets and sway bar



A. Torque sway bar bracket bolts to 46 ftlbs

B. Reinstall Underbody Shields (if equipped): Tightening torque of 8Nm



6. POST-INSTALLATION / ALIGNMENT

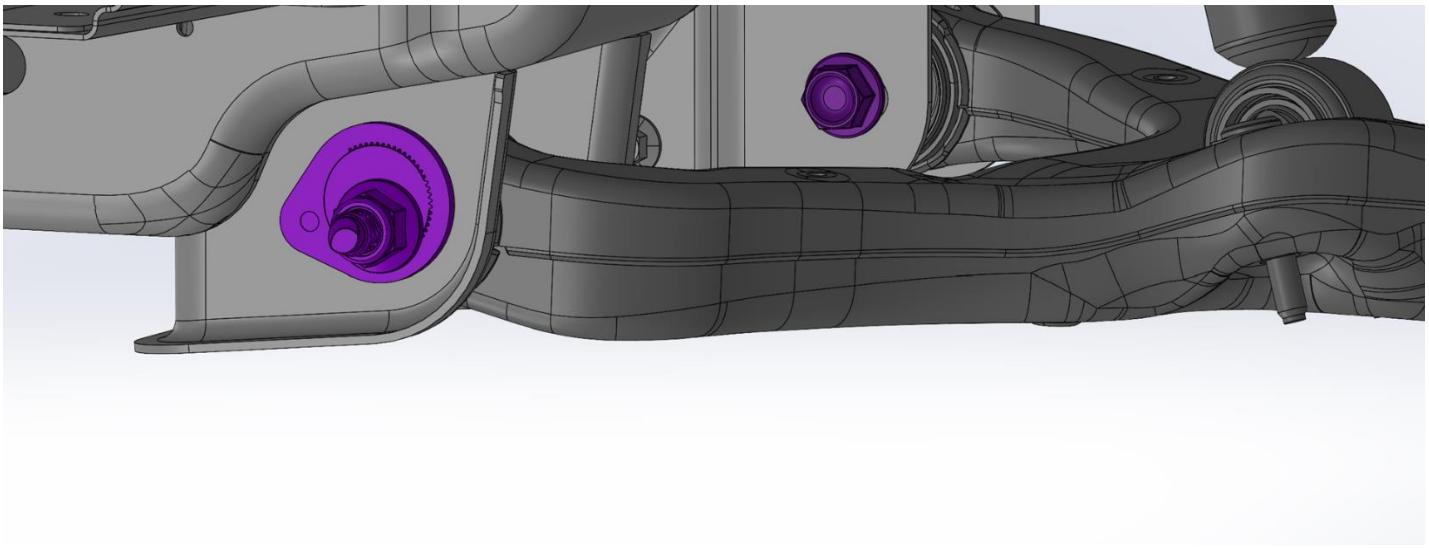
Align Camber/Caster before setting final toe, use the following procedure:

Perform front toe adjustment per the following:

1. **NOTE:** ***Make sure that the vehicle is positioned on a flat, level surface.*** **Steering wheel in straight ahead position.**
2. To adjust the caster and camber, refer to the following chart.

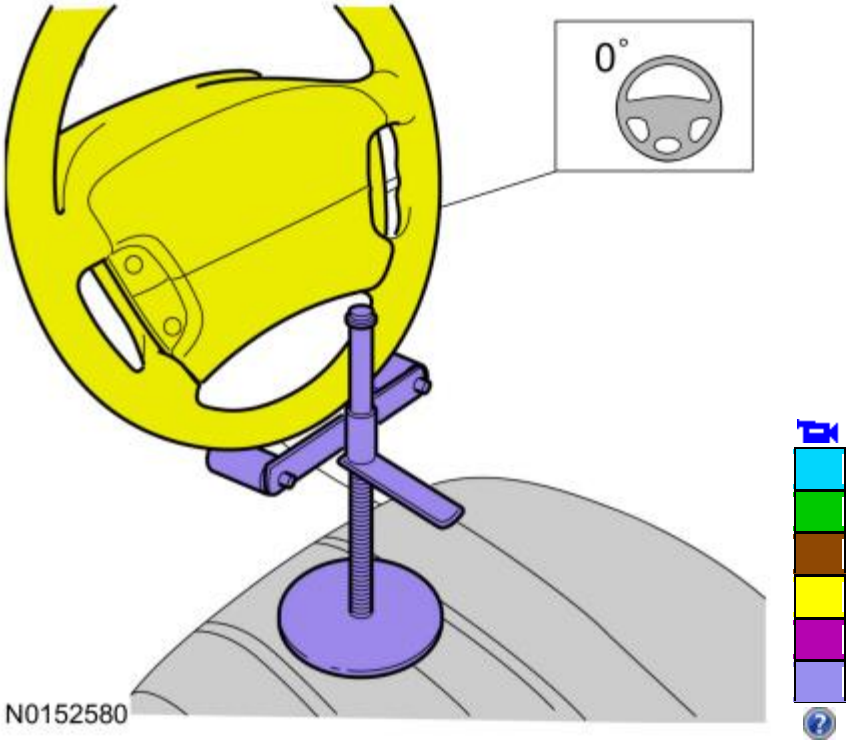
Adjustment	Front of Lower Arm	Rear of Lower Arm
Increase caster	In	Out
Decrease caster	Out	In
Increase camber	In	In
Decrease camber	Out	Out
Increase caster and camber simultaneously	In	—
Decrease caster and camber simultaneously	Out	—

3. On both sides. With the weight of the vehicle resting on the wheel and tire assemblies, hold the cam bolts and tighten the nuts.
   Torque: 258 lb.ft (350 Nm)



1. **NOTE:** *Make sure that the vehicle is positioned on a flat, level surface.*

   Steering wheel in straight ahead position.



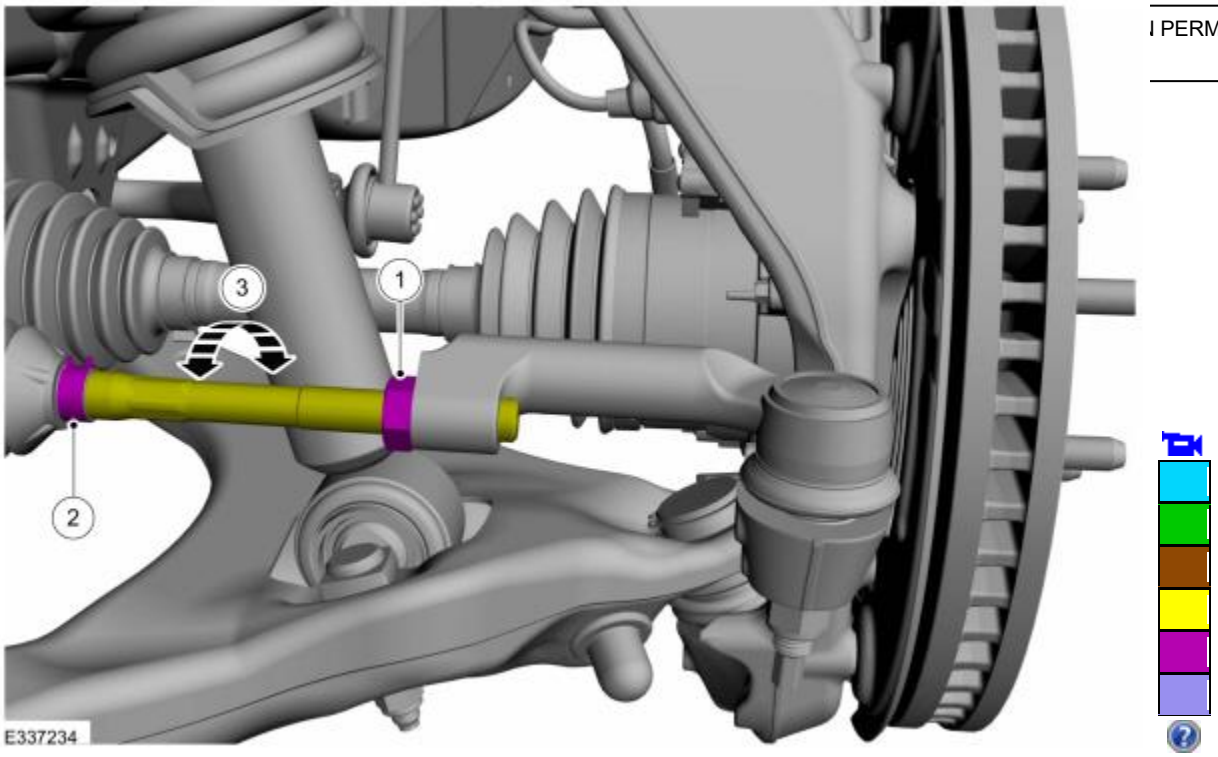
2. Using alignment equipment and the manufacturer's instructions, check the front toe setting on both sides. Use the General Equipment: Wheel Alignment System

3.
   1. On both sides. Loosen the outer tie rod end jamb nut.
      Torque: 76 lb.ft (103 Nm)

   2. On both sides. Position aside the steering gear boot clamp.

   3. **NOTE:** *Do not allow the steering gear bellows to twist when the inner tie rod is rotated.*

      Rotate the inner tie rods until the toe reading is within specifications.



4. Recheck the toe settings and adjust as necessary.
5. Road test the vehicle.

1. **Re-torque all fasteners after 300 miles or first off-road event, whichever comes first.**

7. WARRANTY & CUSTOMER SERVICE

This product is warranted against defects in material and workmanship for 36 months / 36 000 miles from retail purchase, whichever occurs first. Full terms at performanceparts.ford.com
For technical assistance, call (800) 367-3788or email frpp@ford.com

Appendix A: Alignment Specifications

Item	LH	RH	Total/Split
Rear Wheel Drive (RWD) — Regular Cab			
Camber	-0.10° ± 0.75°	-0.10° ± 0.75°	0.0° ± 0.75°
Caster	5.1° ± 1.0°	5.3° ± 1.0°	-0.2° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.50°
Rear Wheel Drive (RWD) — Super Cab, Crew Cab			
Camber	-0.10° ± 0.75°	-0.10° ± 0.75°	0.0° ± 0.75°
Caster	5.6° ± 1.0°	5.8° ± 1.0°	-0.2° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.50°
Four-Wheel Drive (4WD) — Regular Cab			
Camber	-0.10° ± 0.75°	-0.10° ± 0.75°	0.0° ± 0.75°
Caster	4.7° ± 1.0°	4.9° ± 1.0°	-0.2° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.50°
Four-Wheel Drive (4WD) — Super Cab, Crew Cab			
Camber	-0.10° ± 0.75°	-0.10° ± 0.75°	0.0° ± 0.75°
Caster	5.1° ± 1.0°	5.3° ± 1.0°	-0.2° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.50°
Raptor — 35"			
Camber	-0.20° ± 0.75°	-0.20° ± 0.75°	0.0° ± 0.75°
Caster	4.0° ± 1.0°	4.0° ± 1.0°	0.0° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.45°
Raptor — 37"			
Camber	-0.20° ± 0.75°	-0.20° ± 0.75°	0.0° ± 0.75°
Caster	4.5° ± 1.0°	4.5° ± 1.0°	0.0° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.45°

Tremor			
Camber	-0.10° ± 0.75°	-0.10° ± 0.75°	0.0° ± 0.75°
Caster	4.5° ± 1.0°	4.7° ± 1.0°	-0.2° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.50°
BEV **Pro and XLT**			
Camber (front)	-0.10° ± 0.75°	-0.10° ± 0.75°	0.0° ± 0.75°
Camber (rear)	-0.70° ± 0.75°	-0.70° ± 0.75°	0.0° ± 0.75°
Caster (front)	5.2° ± 1.0°	5.4° ± 1.0°	-0.2° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Total toe (rear)	—	—	0.02° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.50°
BEV **Platinum and Lariat**			
Camber (front)	-0.10° ± 0.75°	-0.10° ± 0.75°	0.0° ± 0.75°
Camber (rear)	-1.00° ± 0.75°	-1.00° ± 0.75°	0.0° ± 0.75°
Caster	5.2° ± 1.0°	5.4° ± 1.0°	-0.2° ± 0.75°
Total toe (front)	—	—	0.20° ± 0.20°
Total toe (rear)	—	—	0.02° ± 0.20°
Thrust angle (rear)	—	—	0.0° ± 0.50°