Front Wheel Drive Shaft Package Installation (Colorado ZR2 Instruction ID: 86820636)

Installation Instructions Part Number

86820636

Chevrolet Performance-Colorado ZR2 Off Road Half Shaft Kit

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It is not the intent of these specifications to replace the comprehensive and detailed service practices explained in the GM service manuals. For detailed installation instructions please look to the service manual for your specific vehicle.

GM service manuals are available from: Helm Incorporated PO Box 07130 Detroit, MI 48207

For information about warranty coverage, please contact your local Chevrolet Performance parts dealer.

Observe all safety precautions and warnings in the service manuals when installing this kit in any vehicle. Wear eye protection and appropriate protective clothing. Support the vehicle securely with jack stands when working under or around it. Use only the proper tools. Exercise extreme caution when working with flammable, corrosive, and hazardous liquids and materials. Some procedures require special equipment and skills. If you do not have the appropriate training, expertise, and tools to perform any part of this conversion safely, this work should be done by a professional.

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Kit Contents

Qty	Description
2	**Half Shaft Assembly**
2	**Wheel Nut**
1	**CHEVROLET PERFORMANCE EMBLEM**
1	Installation Instructions

Recommended Tools

- J-45859 Axle Remover
- CH-43631 Ball Joint Separator

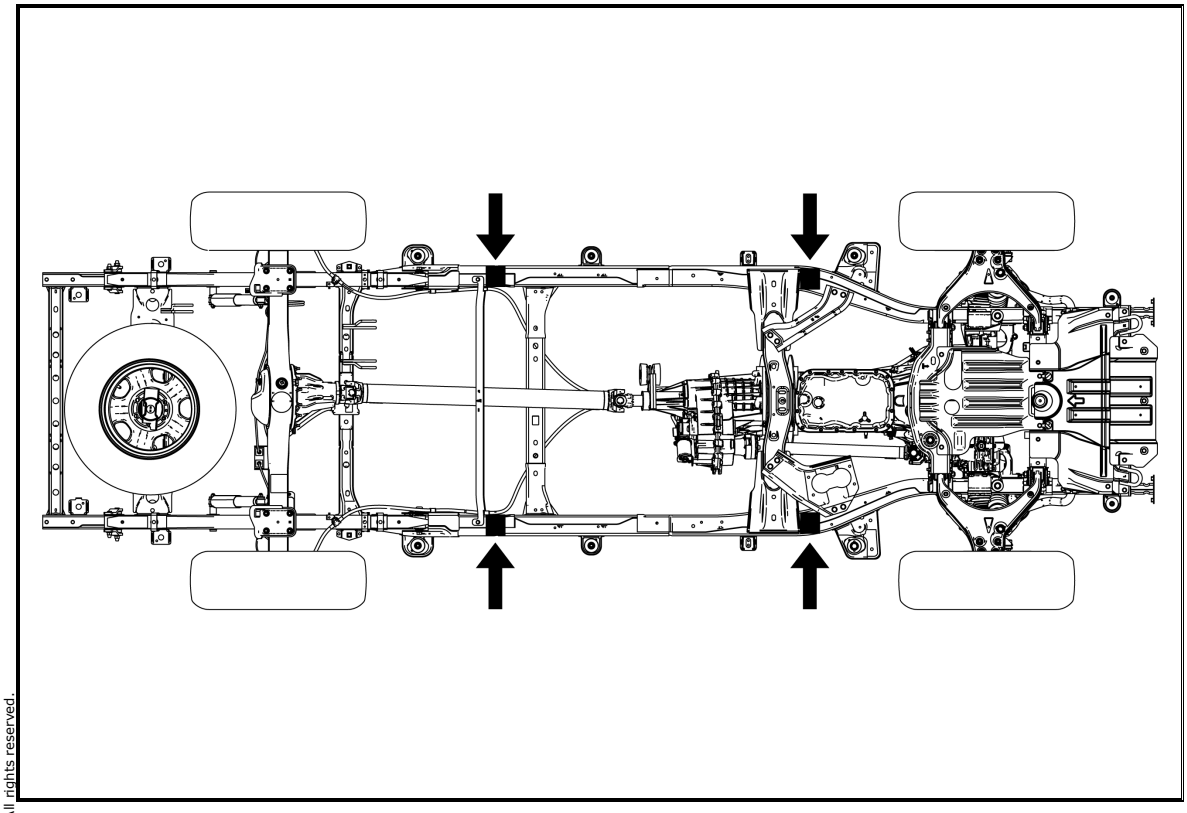
- EN-45059 Torque Angle Meter
- CH-24319–B Universal Steering Linkage and Tie Rod Puller
- CH-42450-A Wheel Hub Resurfacing Kit
- CH-41013 Rotor Resurfacing Kit

Warning:

Approved safety glasses and gloves should be worn when performing this procedure to reduce the chance of personal injury.

Competition Use / Off Road Use Only disclaimer in the catalog

- The parts listed in this installation sheet are intended for installation in competition vehicles for operation in Off Road racing applications only. By “competition vehicles," GM means vehicles (i) used exclusively for competitions organized and sanctioned by a local or private body and (ii) not designed for use on public streets or highways. Consumers are strongly advised not to install parts accompanied by this warning on vehicles that will be driven on public roads. They have not been designed or tested for crashworthiness or to meet the safety needs of the motoring public, and they may not meet the full durability requirements that Chevrolet validates for its street legal, production vehicle components.
- US. federal and state, and Canadian law prohibit an automobile manufacturer or dealer from removing, modifying or rendering inoperative any part installed on a motor vehicle in compliance with an applicable Federal Motor Vehicle Safety Standard. Further, US. federal and state, and Canadian law prohibit any person from knowingly removing, modifying, or making inoperative, or causing someone to remove or render inoperative, or otherwise tampering with, any part or element of design installed in compliance with motor vehicle emission standards on a motor vehicle or non-road vehicle, or otherwise modifying any required emission and noise control system.
- Unless specifically noted to the contrary herein, vehicles equipped with Chevrolet Off Road Racing Parts may not meet Federal Motor Vehicle Safety Standards and should not be operated on public roads. Installation or use of these parts on a vehicle operated on public streets or highways is also likely to violate U.S., Canadian, and state and provincial laws and regulations relating to motor vehicle emissions. US. federal and state, and Canadian provincial agencies have the authority to administer substantial monetary penalties against individuals and companies who do not comply with these laws. Chevrolet Performance customers are responsible for ensuring their use of Chevrolet Off Road Racing Parts complies with applicable federal, state/provincial and local laws, regulations and ordinances, and for ensuring that modified vehicles are operated in a manner that complies with applicable laws.
- The use of these components in a GM vehicle may adversely affect the original intended performance or handling characteristics of the vehicle. These parts are designed and intended to be used with experts supervising their installation and use, to help assure the proper and safe operation of the vehicle. Use of certain Chevrolet Off Road Racing Parts may result in the failure of other components or systems, which would not be covered under the New Vehicle Limited Warranty. For Off Road Racing Parts in this catalogue designated with an asterisk (*), installation of such parts may void part or all of the New Vehicle Limited Warranty; these components are warranted against defects in workmanship or materials for 12 months / unlimited miles for parts only. Otherwise, vehicles do retain their New Vehicle Limited Warranty coverage with Chevrolet Performance components installed by an authorized GM Dealer or qualified Independent Service Center.



Danger: To avoid any vehicle damage, serious personal injury or death:

- When major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.
- When performing work in the engine compartment or under the vehicle, ensure that the hood is fully open, or opened to its secondary latch. When the hood is opened to the secondary latch, the vehicle will disable the remote start features from the key fob and OnStar mobile app. Failure to open the hood, or open the hood to the secondary latch while doing a repair in the engine compartment or under the vehicle can result in inadvertent vehicle starting which could result in personal injury or damage to a vehicle.

Danger: To avoid any vehicle damage, serious personal injury or death, always use the jackstands to support the vehicle when lifting the vehicle with a jack.

Caution: Perform the following steps before beginning any vehicle lifting or jacking procedure:

- Remove or secure all of the vehicle contents in order to avoid any shifting or any movement that may occur during the vehicle lifting or jacking procedure.
- The lifting equipment or the jacking equipment weight rating must meet or exceed the weight of the vehicle and any vehicle contents.
- The lifting equipment or the jacking equipment must meet the operational standards of the lifting equipment or jacking equipment manufacturer.
- Perform the vehicle lifting or jacking procedure on a clean, hard, dry, level surface.
- Perform the vehicle lifting or jacking procedure only at the identified lift points. DO NOT allow the lifting equipment or jacking equipment to contact any other vehicle components.

Failure to perform the previous steps could result in damage to the lifting equipment or the jacking equipment, the vehicle, and/or the vehicle contents.

Vehicle Lifting

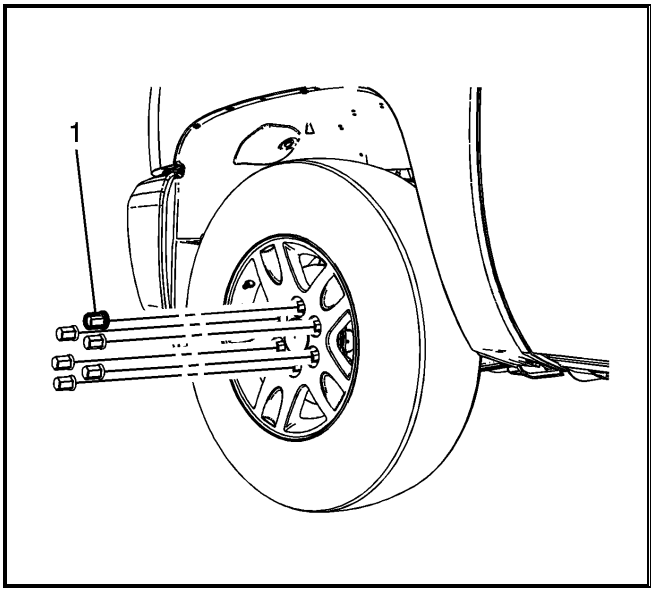
- Ensure that the lifting equipment meets weight requirements and is in good working order. Always follow the lift manufacturer's instructions.
- You may lift and support the front of the vehicle at the front suspension near the wheel assemblies. Ensure that the arms of the front cradle are extended as close to the steering knuckle as possible.
- Ensure that the vehicle is centered on the hoist before attempting to lift.
- When using a suspension-contact hoist, ensure that the rear cradle has adequate clearance for the rear stabilizer bar.
- When lifting or jacking a vehicle, be certain that the lift pads do not contact the exhaust system, brake pipes, cables, HVAC lines, wiring harnesses, fuel lines, or underbody. Such contact may result in damage or unsatisfactory vehicle performance.
- When using a frame-contact hoist, only place the pads on flat surfaces. Do not place pads within 50 mm (2 in) of any radius.
- Before lifting the vehicle, verify that the vehicle loads are secure and equally distributed.
- When major components are removed from the vehicle when supported on a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and secure the vehicle frame to the hoist pads nearest the component to be removed.

Vehicle Jacking

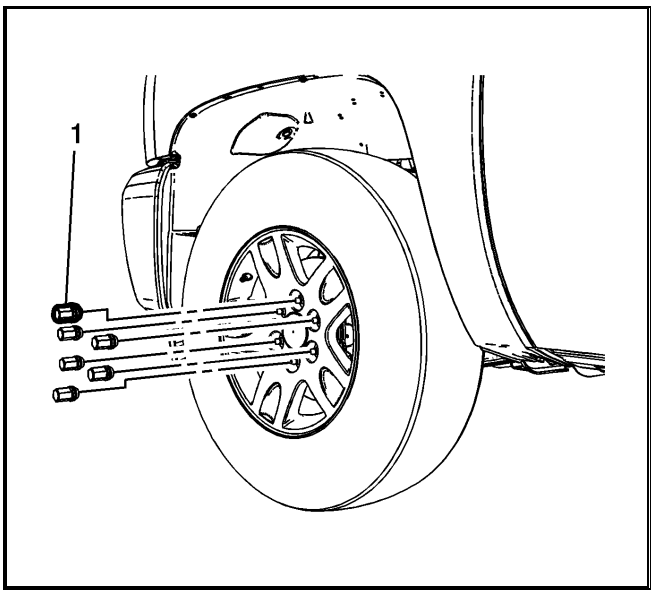
- Park the vehicle on a clean, hard, level surface before jacking the vehicle.
- Any time you lift the vehicle on one end, chock the wheels at the opposite end.
- Use jack stands in order to provide support.
- When supporting the vehicle using jack stands, place the jack stands under the side rails or the axle.
- When lifting under the rear differential, do not allow the jack pad to contact the rear stabilizer bar or mounting hardware.

Tire and Wheel Removal Procedure

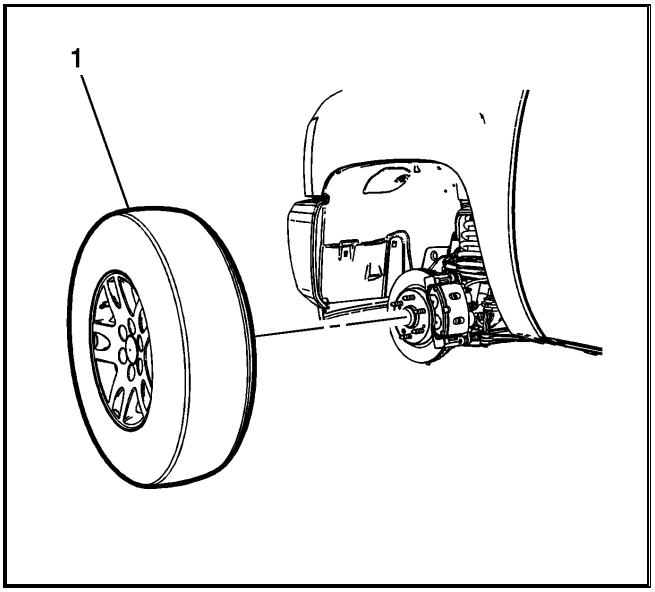
1. Raise and support the vehicle.
2. Remove the wheel center cap, if equipped.



3. Remove the wheel nut caps (1), if equipped.



4. Remove the wheel nuts (1).



5. Remove the tire and wheel assembly (1).

Warning: If penetrating oil gets on the vertical surfaces between the wheel and the rotor or drum it could cause the wheel to work loose as the vehicle is driven, resulting in loss of control and an injury accident.

Caution: Removing the wheel may be difficult because of foreign materials or a tight fit between the wheel and the hub/rotor. Slightly tap the tire side wall with a rubber mallet in order to remove the wheel. Failure to follow these instructions may result in damage to the wheel.

Caution: Never use heat to loosen a tight wheel bolt or nut. This can shorten the life of wheel and damage wheel bearings.

6. If the tire and wheel assembly is difficult to remove or cannot be removed, perform the following steps:
   - Hand install the wheel nuts.
   - Loosen the wheel nuts 2 complete turns.
   - Lower the vehicle.
   - Rock the vehicle from side to side.

- Repeat the procedure if necessary.

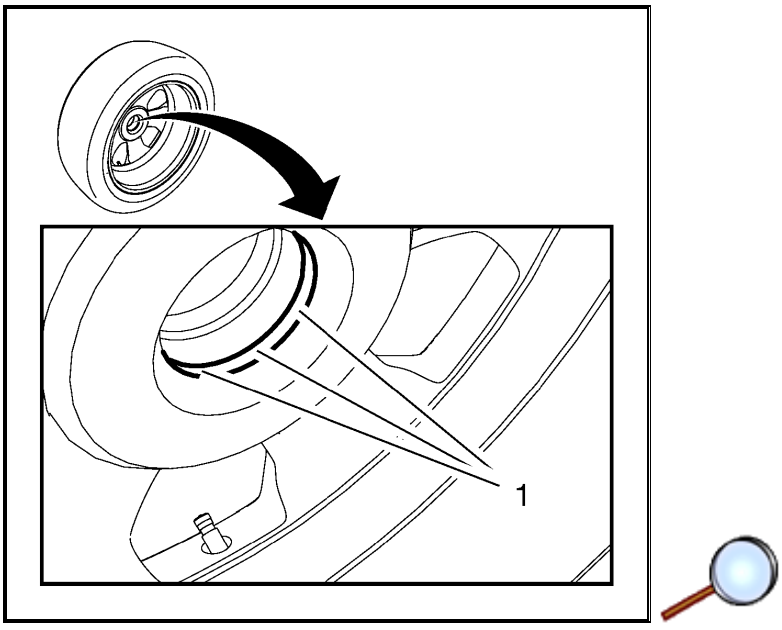
7. When the tire and wheel assembly loosens, raise and support the vehicle.
8. Remove the wheel nuts.
9. Remove the tire and wheel assembly.

Tire and Wheel Installation Procedure

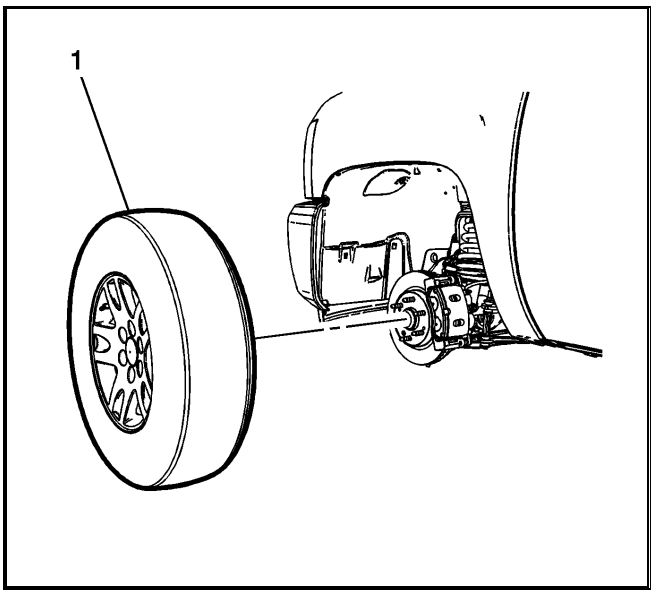
Warning: Before installing the wheels, remove any buildup of corrosion on the wheel mounting surface and brake drum or disc mounting surface. Installing wheels with poor metal-to-metal contact at the mounting surfaces can cause wheel nuts to loosen. This can cause a wheel to come off when the vehicle is moving, causing loss of control and possibly personal injury.

Note: Do not use power grinding tools to clean the brake rotor or drum to wheel mating surfaces.

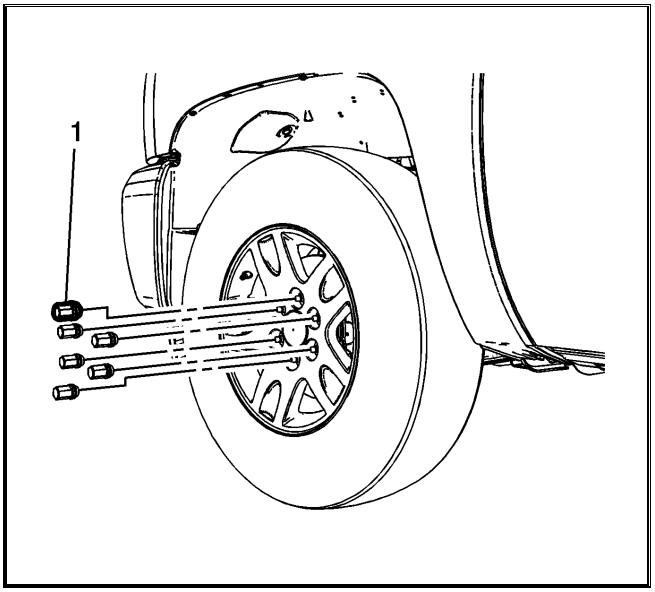
1. Using a wire brush or wire wheel, clean the wheel to brake rotor or drum mating surface.
2. Using the *CH-41013* Rotor Resurfacing Kit, clean the rotor or drum to wheel contact area.
3. Using the *CH-42450-A* Wheel Hub Resurfacing Kit, clean the surfaces around the wheel studs.
4. Clean the threads of the wheel studs.
5. After cleaning all of the wheel and brake rotor or drum contact areas, use brake cleaner or denatured alcohol to remove any dirt and debris from the wheel nuts and the brake rotor or drum.
6. Inspect and clean the contact areas of the wheel. Refer to Wheel Mounting Surface Check in Vehicle Service Manual.



7. Apply a small amount of lubricant to the inner diameter of the wheel hub pilot hole (1) where it contacts the wheel hub flange. Refer to Adhesives, Fluids, Lubricants, and Sealers in Vehicle Service Manual.

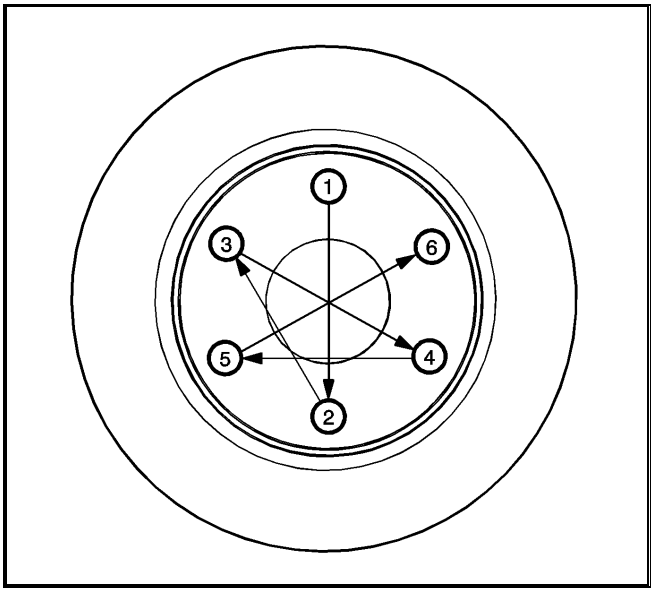


8. Install the tire and wheel assembly (1).



Warning: Never grease or lubricate wheel nuts, studs and mounting surfaces. Wheel nuts, studs, and mounting surfaces must be clean and dry. Tightening the lubricated parts can cause damage to the wheel studs. This can cause a wheel to come off when the vehicle is moving, causing loss of control and possibly personal injury.

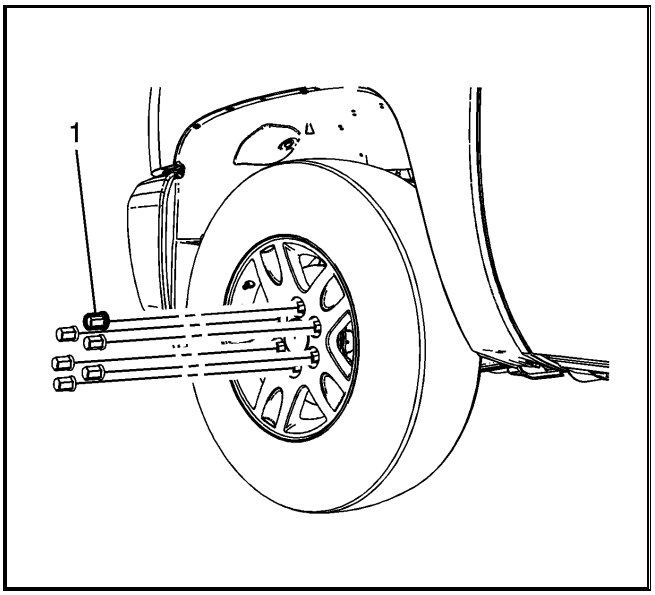
9. Hand install the wheel nuts (1).



Caution: Improperly tightened wheel bolts or nuts can lead to brake pulsation and rotor damage. In order to avoid expensive brake repairs, evenly tighten the wheel bolts or nuts to the proper torque specification.

Caution: Refer to Fastener Caution.

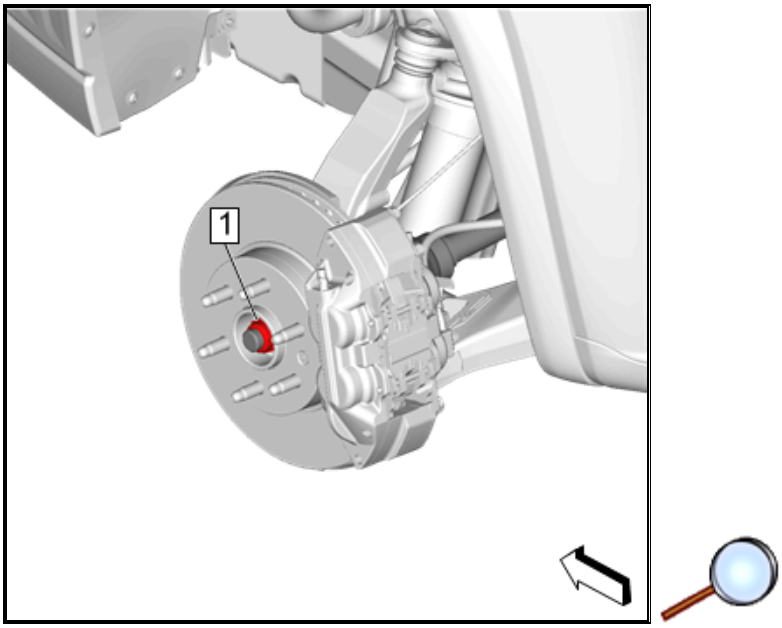
10. Using a torque wrench and the appropriate socket, alternately and evenly tighten the wheel nuts to **190 N.m (140 lb ft)** in the sequence illustrated.



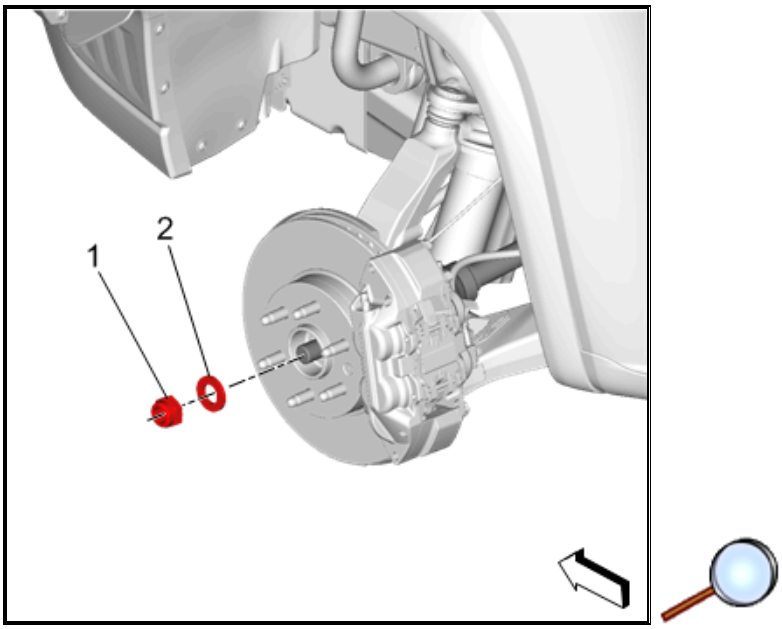
11. Install the wheel nut caps (1), if equipped.
12. Install the wheel center cap, if equipped.

Production Half Shaft Removal Procedure

1. Remove the left front tire and wheel assembly.

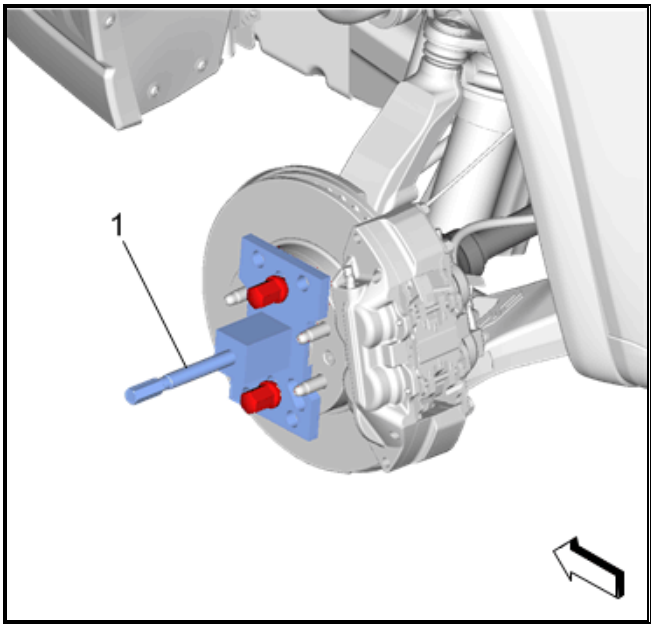


2. With the aid of an assistant holding the brake pedal down, use a breaker bar and the proper size socket to loosen the wheel drive shaft nut (1).

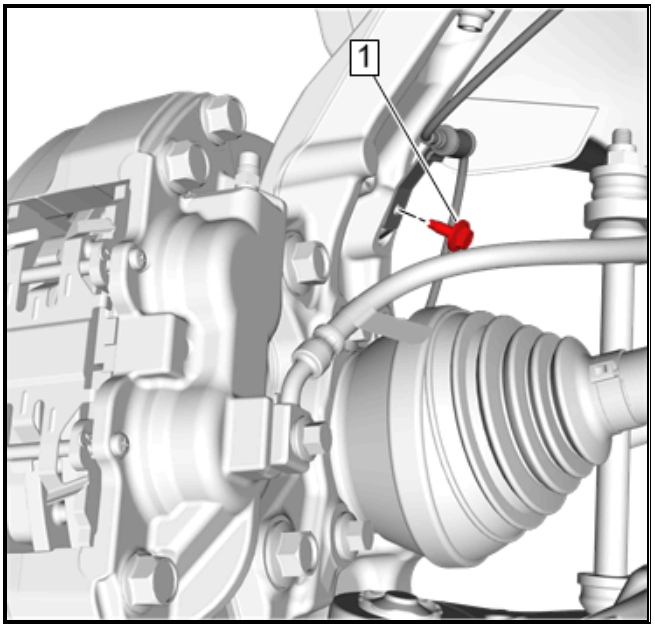


Warning: To prevent personal injury and/or component damage, do not allow the weight of the vehicle to load the front wheels, or attempt to operate the vehicle, when the wheel drive shaft(s) or wheel drive shaft nut(s) are removed. To do so may cause the inner bearing race to separate, resulting in damage to brake and suspension components and loss of vehicle control.

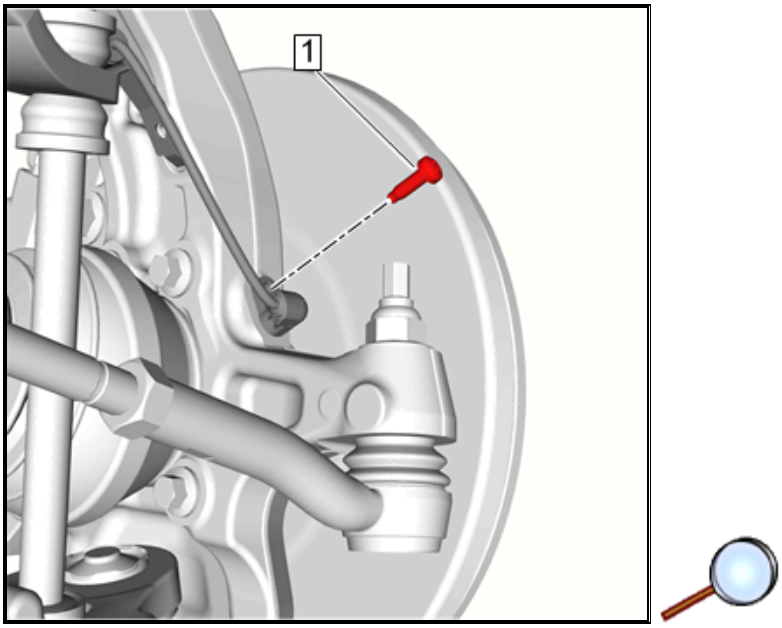
3. Wheel Drive Shaft Nut (1) » Remove and DISCARD
4. Washer (2) » Remove and Save



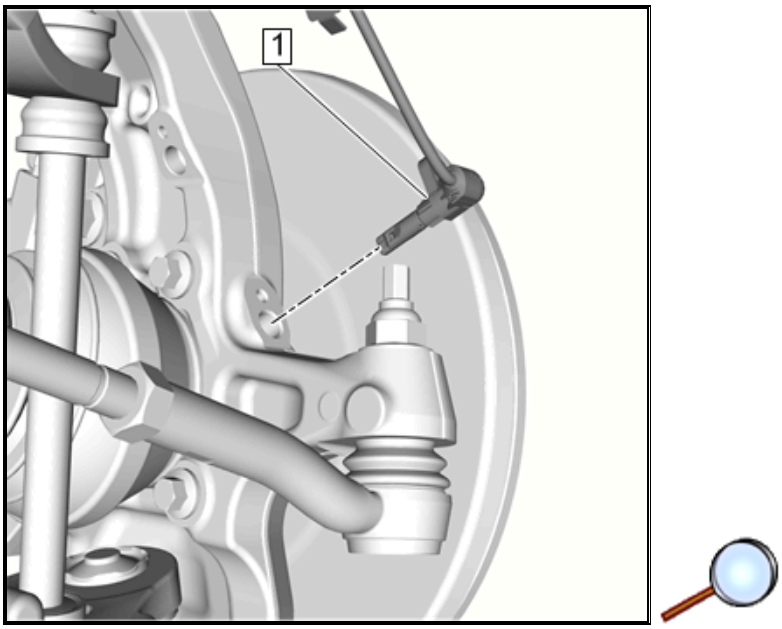
5. Attach the *J-45859* remover (1) to the wheel hub using the wheel lug nuts.
6. Using the *J-45859* remover (1), separate the wheel drive shaft from the wheel bearing/hub.



7. Front Wheel Speed Sensor Bracket Bolt (1) » Remove

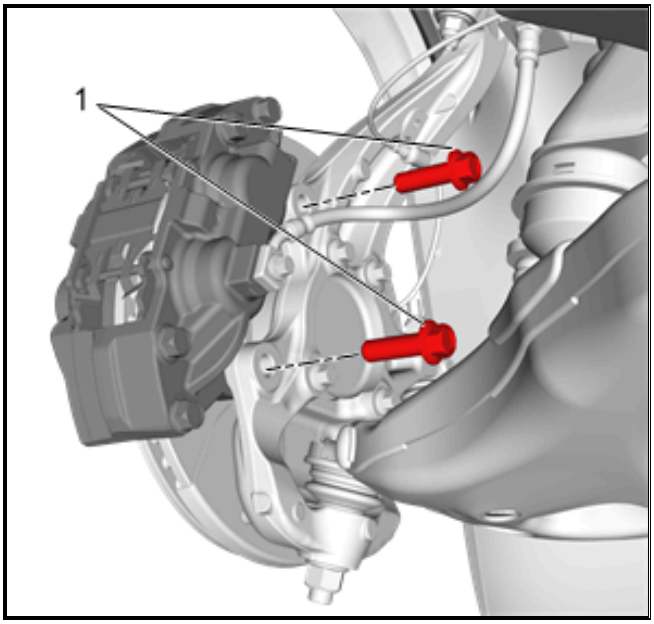


8. Front Wheel Speed Sensor Bolt (1) » Remove



Note: Do NOT pry or lever against the wheel speed sensor to remove.

9. Front Wheel Speed Sensor (1) » Remove



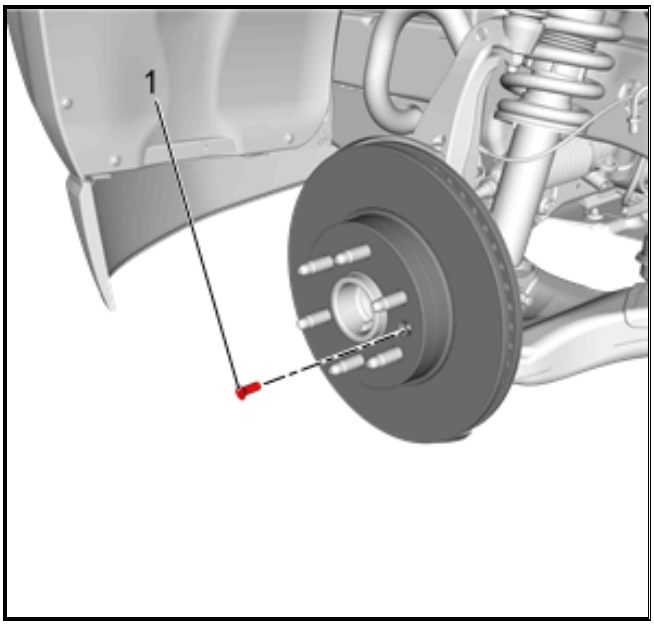
Warning: Refer to Brake Dust Warning.

Note: Do not loosen or remove the 4 bolts securing the brake caliper halves. The components are not serviceable.

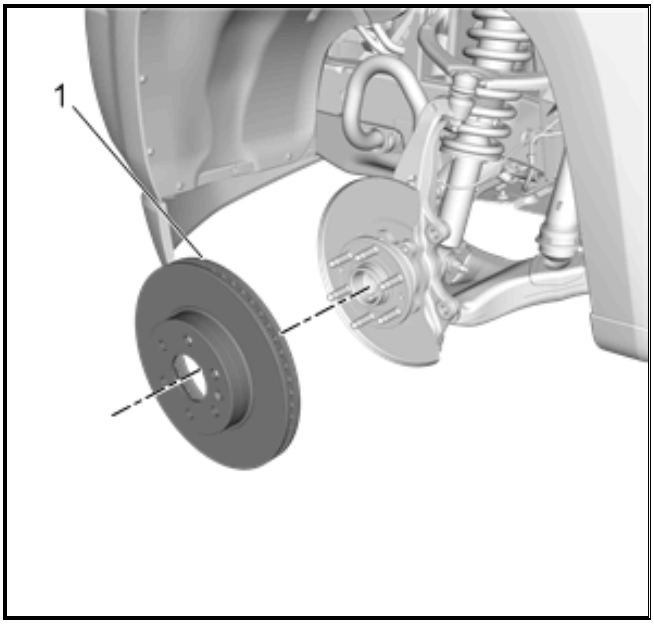
10. Remove the brake caliper bolts (1).

Caution: Support the brake caliper with heavy mechanic wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

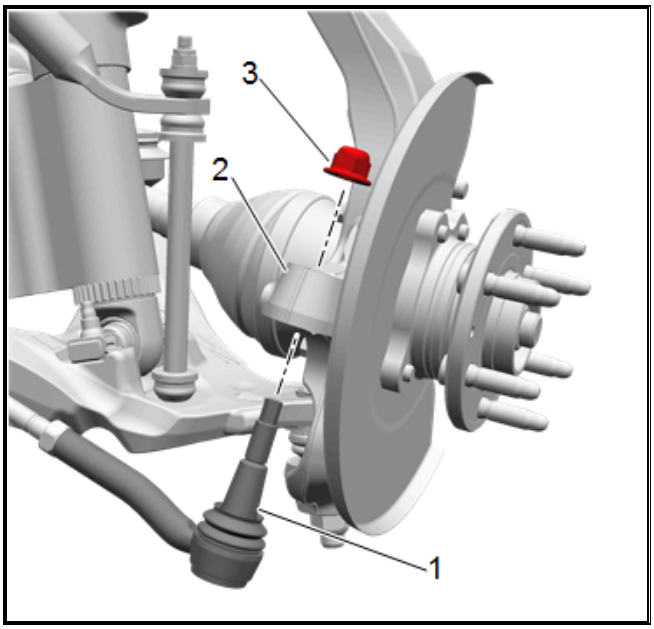
11. Remove the brake caliper assembly and support with heavy mechanics wire.



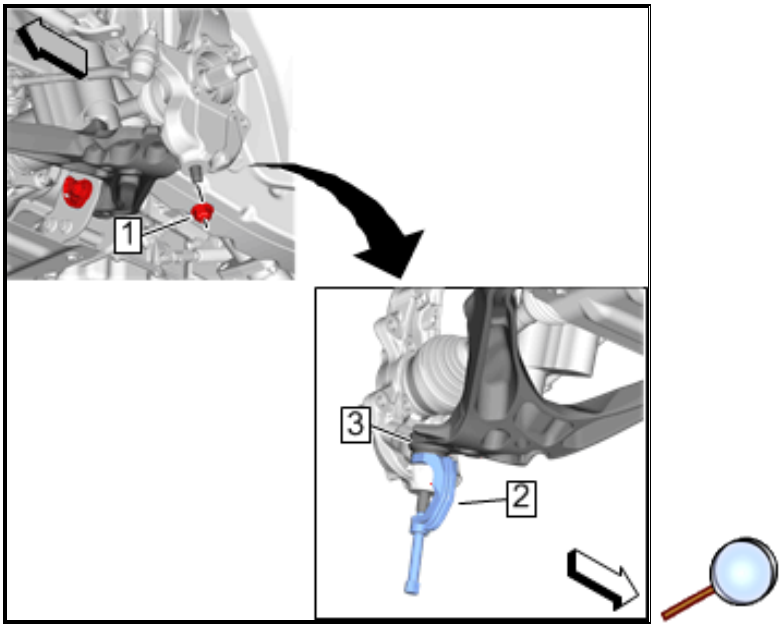
12. Remove the brake rotor bolt (1).



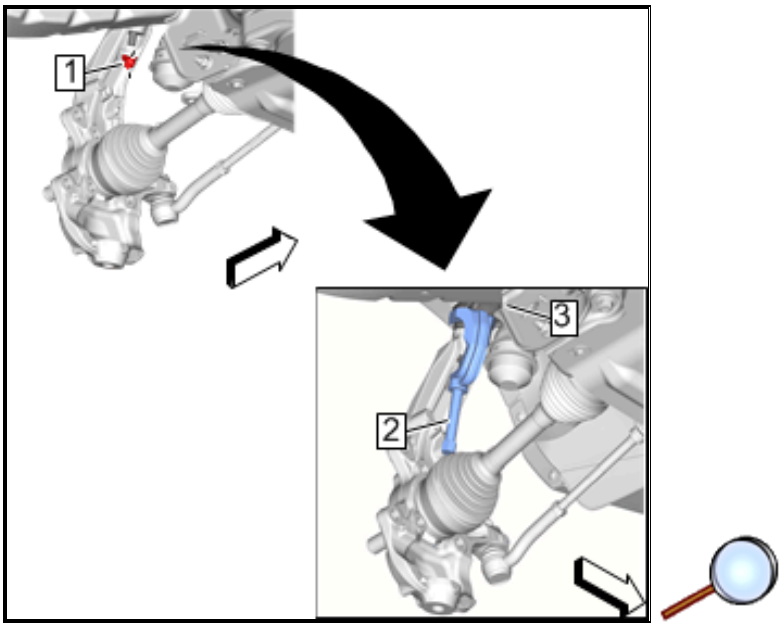
13. Remove the brake rotor (1).



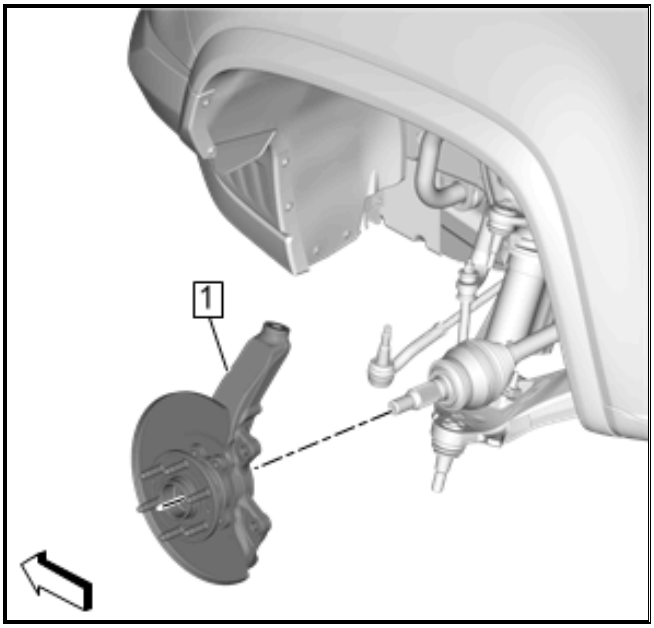
14. Remove and retain the nut (3) from outer tie rod (1).
15. Use the *CH-24319–B* puller to separate the outer tie rod (1) from the steering knuckle (2).



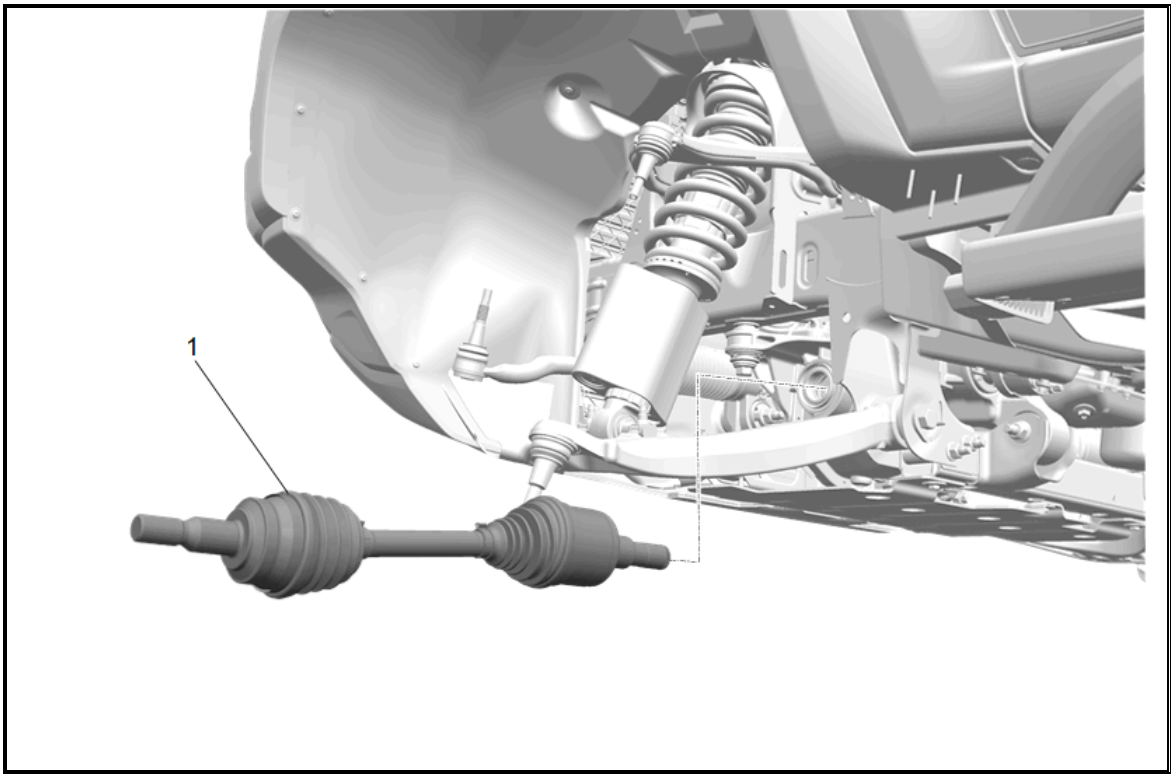
16. Front Lower Control Arm Ball Stud Nut (1) » Remove
17. Use the *CH-43631* Ball Joint Separator (2) to separate the front lower control arm (3) from the steering knuckle.



18. Front Upper Control Arm Ball Stud Nut (1) » Remove
19. Use the *CH-43631* separator (2) to separate the front upper control arm (3) from the steering knuckle.

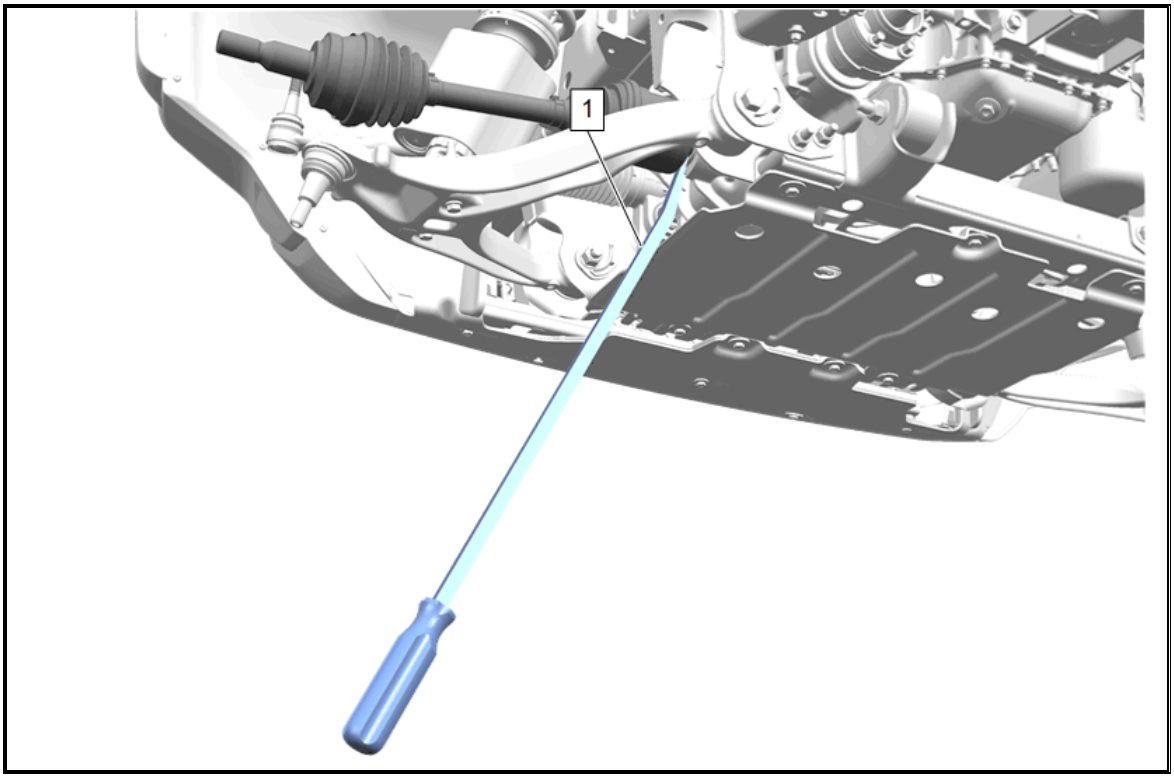


20. Remove the steering knuckle (1) from the vehicle.

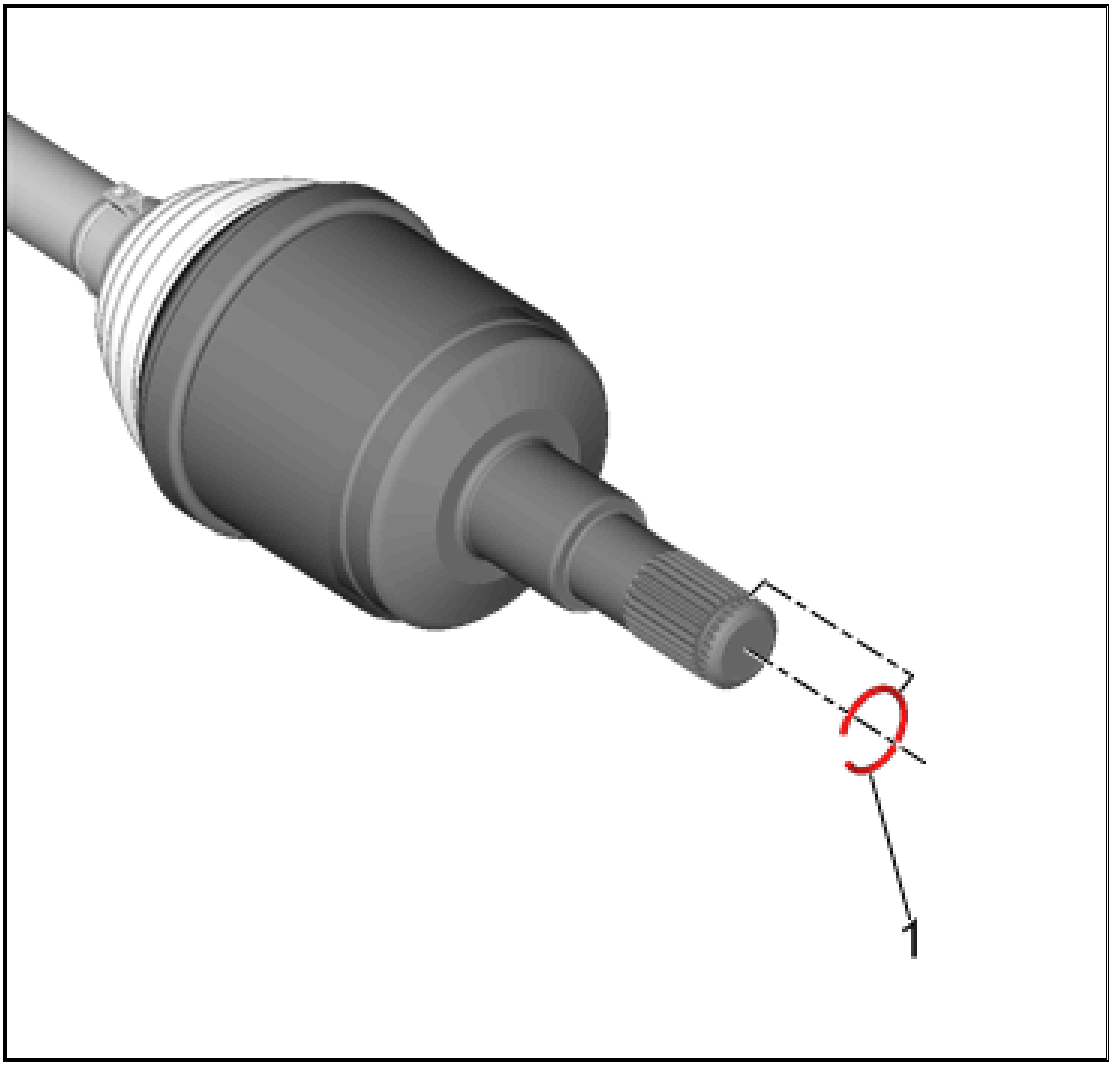


Caution: Wheel drive shaft boots, seals and clamps should be protected from sharp objects any time service is performed on or near the wheel drive shaft(s). Damage to the boot(s), the seal(s) or the clamp(s) may cause lubricant to leak from the joint and lead to increased noise and possible failure of the wheel drive shaft.

21. Use a suitable flat bladed tool (1) to dislodge the wheel drive shaft (2) from the front differential carrier assembly.

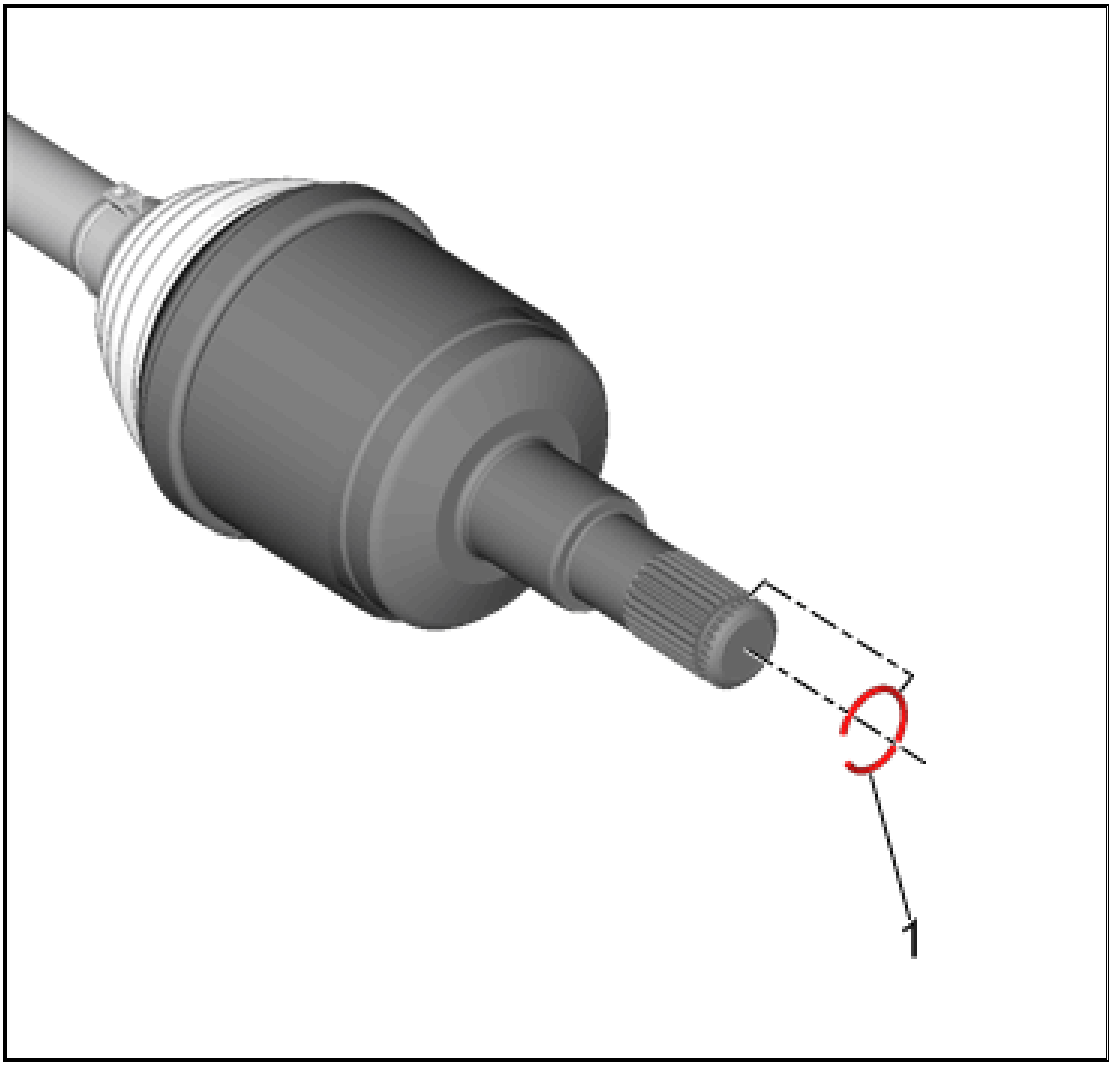


22. Wheel Drive Shaft (1) » Remove

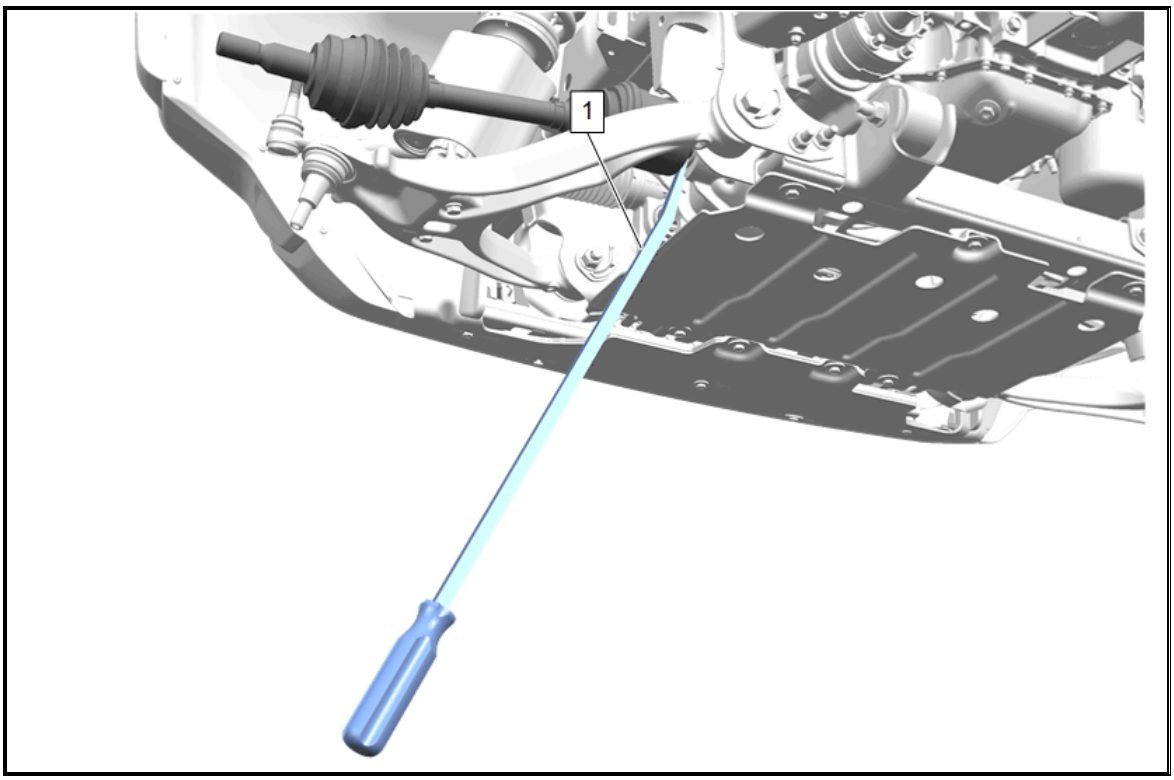


23. Retaining Ring (1) » Remove and DISCARD

Accessory Performance Half Shaft Installation Procedure

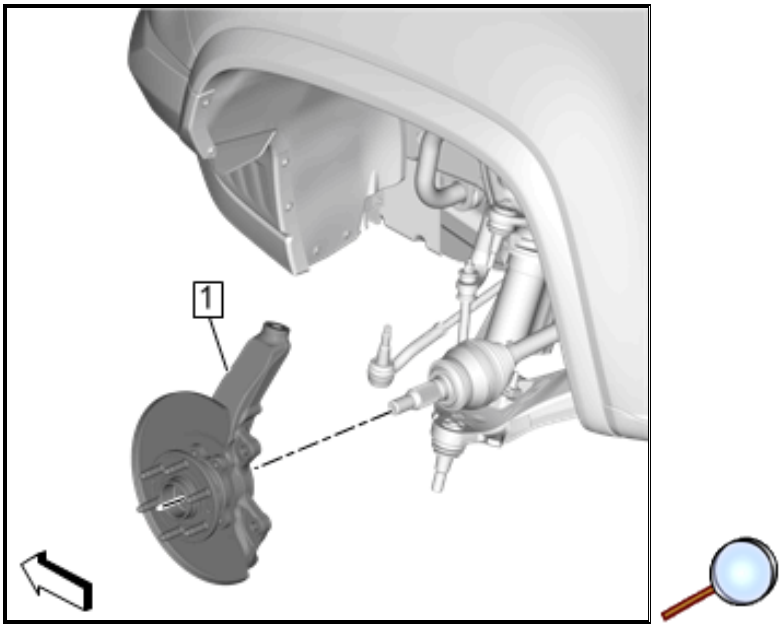


1. Retaining Ring (1) » Install a NEW retaining ring.

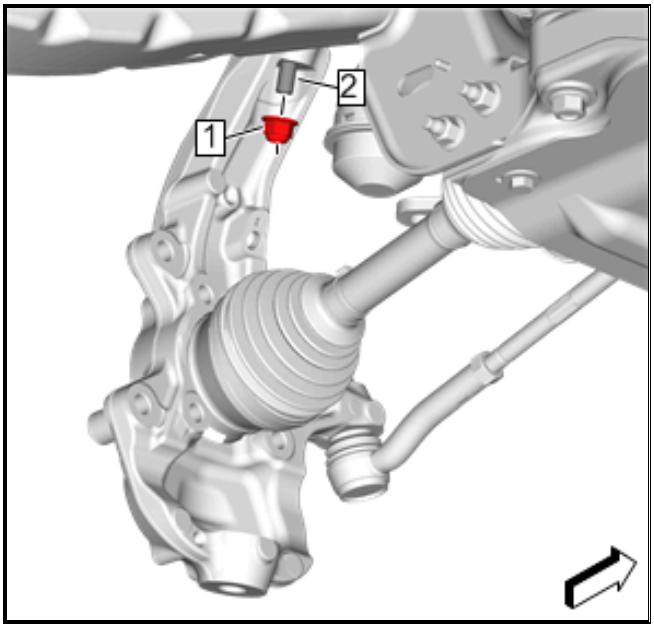


Note: Ensure that the wheel drive shaft is fully seated into the front differential carrier assembly.

2. Wheel Drive Shaft (1) » Install



3. Position the steering knuckle (1) on the vehicle.



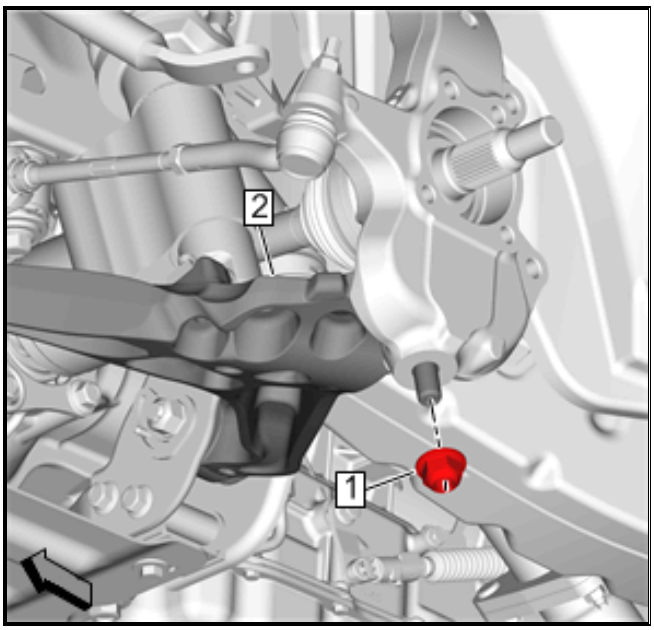
Caution: Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

4. Front Upper Control Arm Ball Stud Nut (1) » Install
5. Use the *EN-45059* meter to tighten the front upper control arm ball stud nut (1).

   Tighten

   5.1. First Pass: **50 N.m (37 lb ft)**

   5.2. Final Pass: **(90–110 degrees)**

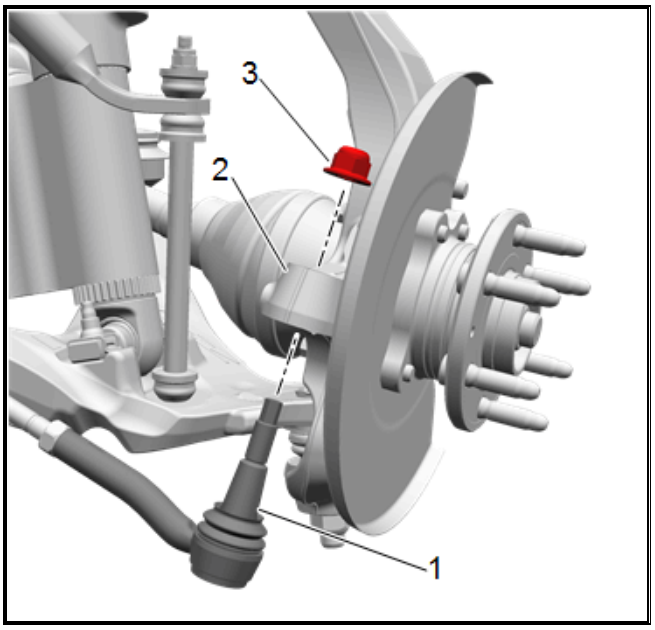


6. Use the *EN-45059* Torque Angle Meter to tighten the front lower control arm ball stud nut (1).

   Tighten

6.1. First Pass: **75 N.m (55 lb ft)**

6.2. Final Pass: **(90–105 degrees)**



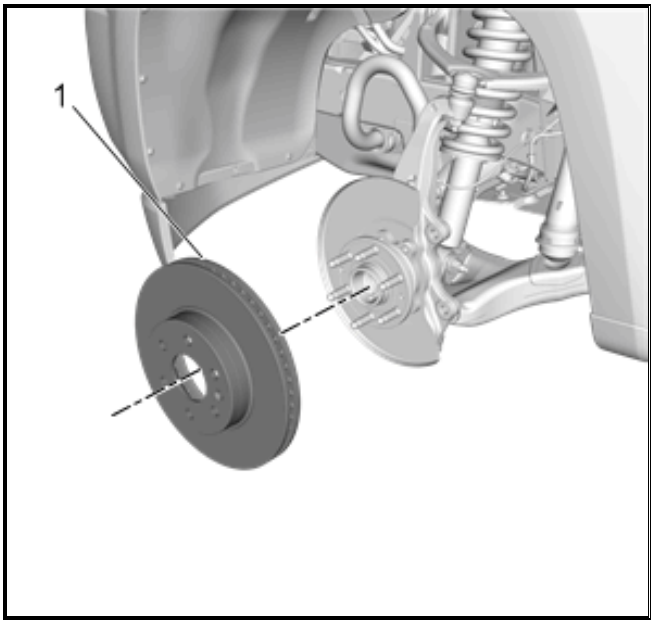
7. Clean the tapered surface of the steering knuckle (2).
8. Install the outer tie rod (1) to the steering knuckle (2).
9. Install the nut (3) to the outer tie rod (1). Use the *EN-45059* meter to tighten the outer tie rod nut.

   Tighten

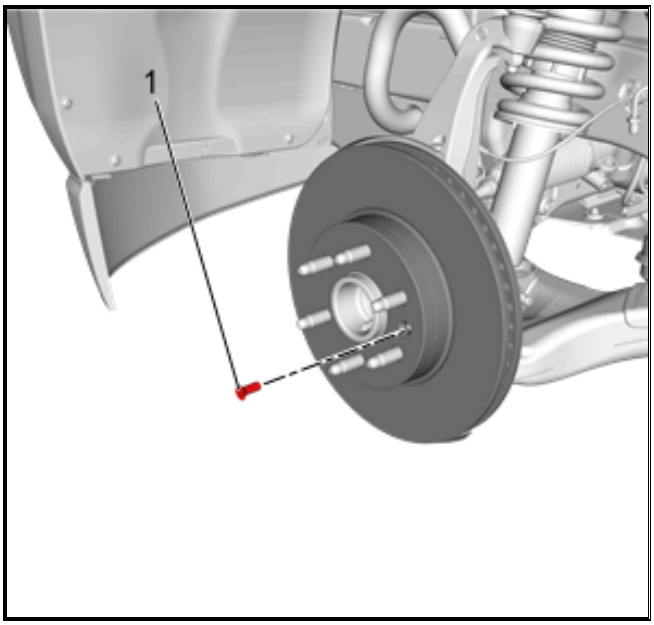
   9.1. First Pass: 35 N.m (26 lb ft)

   9.2. Final Pass: (85–95 degrees)

   Note: Whenever the brake rotor has been separated from the hub/axle flange, any rust or contaminants should be cleaned from the hub/axle flange and the brake rotor mating surfaces. Failure to do this may result in excessive assembled lateral runout (LRO) of the brake rotor, which could lead to brake pulsation.
10. Using the *CH-42450-A* Wheel Hub Resurfacing Kit, thoroughly clean any rust or corrosion from the mating surface of the hub/axle flange.
11. Using the *CH-41013* Rotor Resurfacing Kit, thoroughly clean any rust or corrosion from the mating surface and mounting surface of the brake rotor.

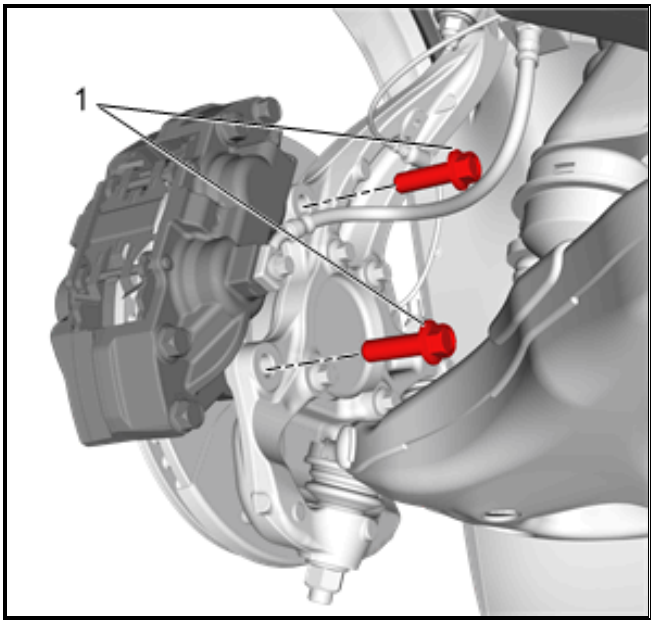


12. Install the brake rotor (1).

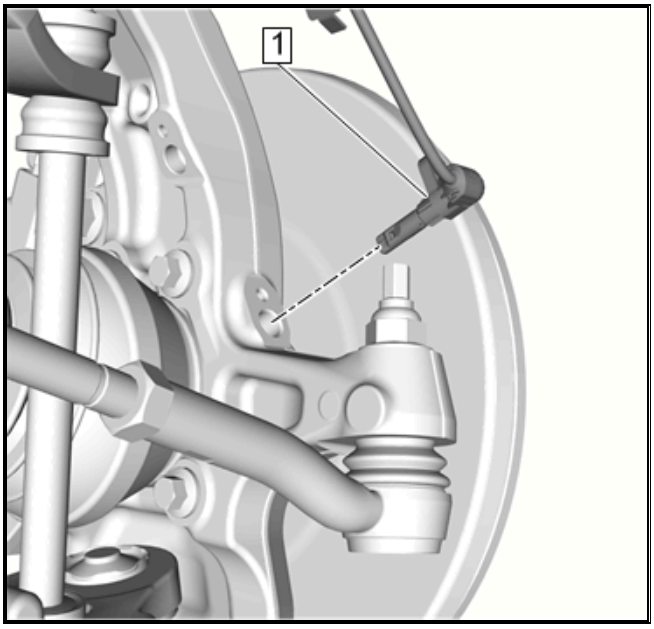


Caution: Refer to Fastener Caution.

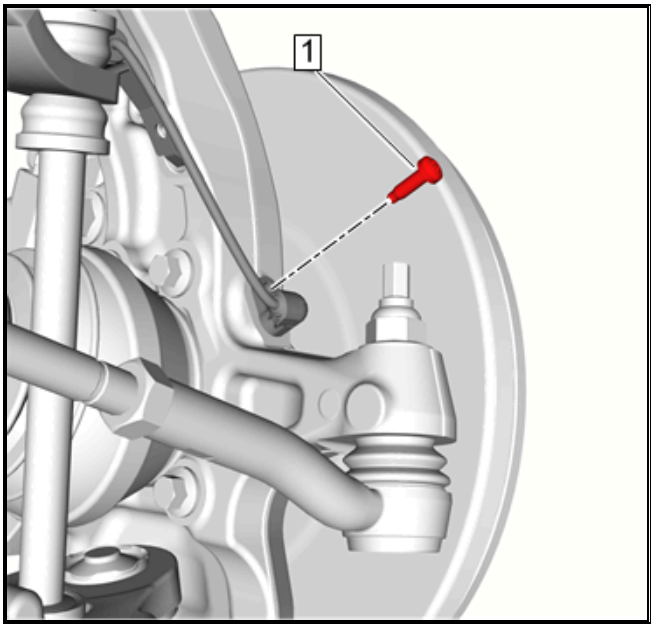
13. Install the brake rotor bolt (1) and tighten to **9 N.m (80 lb in)**.
14. Prepare the brake caliper bolts and caliper threaded holes for assembly:
    - Thoroughly clean the residue from the bolt threads with denatured alcohol or equivalent and allow to dry.
    - Thoroughly clean the residue from the threaded holes with denatured alcohol or equivalent and allow to dry.
    - Apply threadlocker to 2/3 of the threaded length of the bolts. Refer to Adhesives, Fluids, Lubricants, and Sealers in Vehicle Service Manual.
15. Position the brake caliper assembly to the steering knuckle.



16. Install the brake caliper bolts (1) and tighten to **180 N.m (133 lb ft)**.

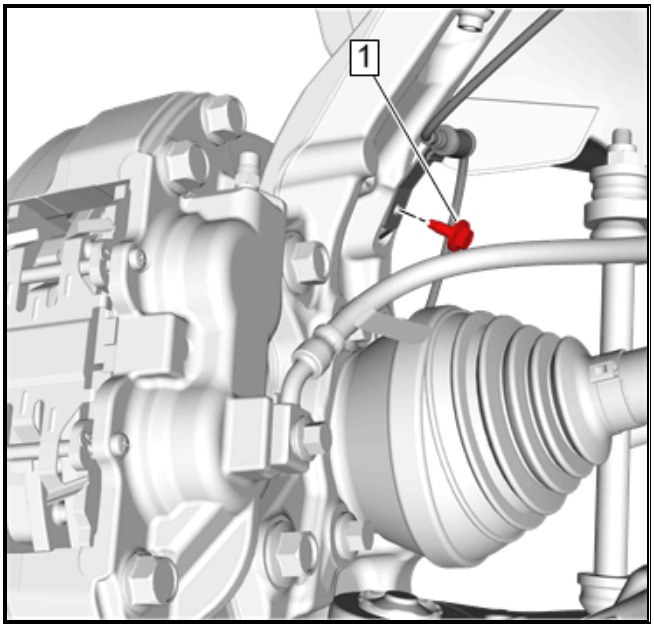


17. Front Wheel Speed Sensor (1) » Install

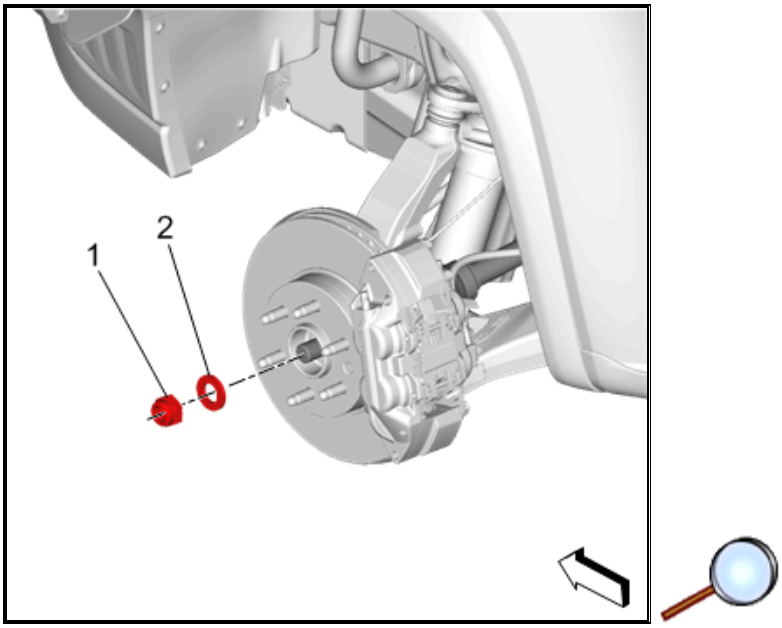


Caution: Refer to Fastener Caution.

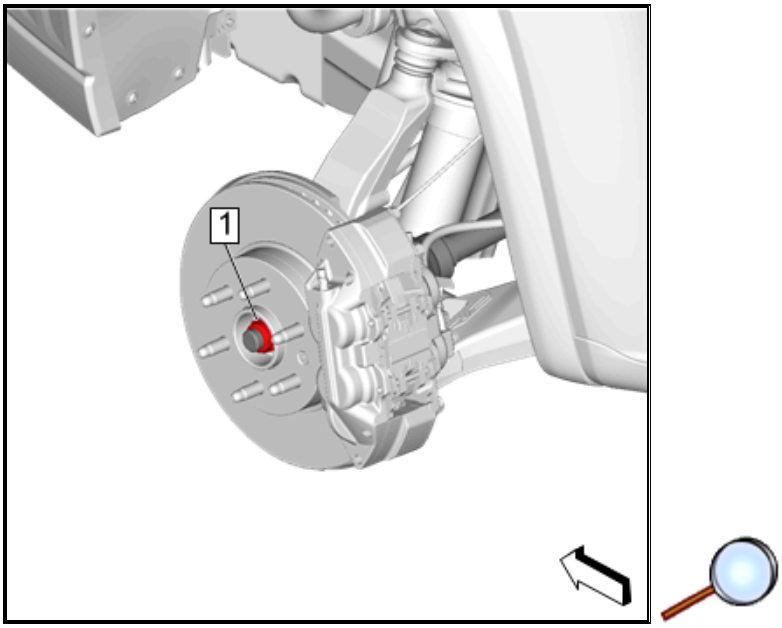
18. Front Wheel Speed Sensor Bolt (1) » Install and tighten **6 N.m (53 lb in)**



19. Front Wheel Speed Sensor Bracket Bolt (1) » Install and tighten **9 N.m (80 lb in)**



20. Washer (2) » Install washer.
21. Wheel Drive Shaft Nut (1) » Install a NEW nut.



Caution: Refer to Fastener Caution.

22. With the aid of an assistant holding the brake pedal down, use a breaker bar and the proper size socket to tighten the wheel drive shaft nut (1) to **250 N.m (185 lb ft)**.
23. Install the left front tire and wheel assembly.
24. Repeat removal and install procedure for right side.
25. Check the front differential carrier assembly fluid level. Refer to Front Axle Lubricant Level Inspection in Vehicle Service Manual.
26. Lower the vehicle.