

2018 DRIVELINE/AXLE
Wheel Drive Shafts - Traverse

SPECIFICATIONS

FASTENER SPECIFICATIONS

Single Use Non-Threaded Fasteners/Components

NOTE: <i>All fasteners/components listed in this table MUST BE DISCARDED and replaced with NEW after removal.</i>
Application
CV Boot Clamp
Front Wheel Drive Shaft Retaining Ring
Front Wheel Drive Shaft Washer
Power Transfer Unit Half Shaft Seal
Rear Wheel Drive Shaft Retaining Ring
Rear Wheel Drive Shaft Seal
Retaining Ring

Single Use Threaded Fastener/Component Tightening Specifications

NOTE: <i>All fasteners/components listed in this table MUST BE DISCARDED and replaced with NEW after removal.</i>	
Application	Specification
	Metric (English)
Front Wheel Drive Shaft Nut	
• First Pass:	330 N.m (244 lb ft)
• Second Pass:	loosen 45 degrees
• Final Pass:	270 N.m (199 lb ft)
Rear Wheel Drive Shaft Nut	
• First Pass:	330 N.m (244 lb ft)
• Second Pass:	loosen 45 degrees
• Final Pass:	270 N.m (199 lb ft)

Reusable Threaded Fastener Tightening Specifications

NOTE: <i>All fasteners listed in this table can be reused after removal.</i>	
Application	Specification

NOTE:	Metric (English)
All fasteners listed in this table can be reused after removal.	
Application	Specification
Front Wheel Drive Intermediate Shaft Bracket Bolt (With LFY without F48)	Metric (English) 22 N.m (16 lb ft)
Front Wheel Drive Intermediate Shaft Bracket Bolt (With LTG without F48)	58 N.m (43 lb ft)

ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

Application	Type of Material	GM Part Number	
		United States	Canada
Wheel Drive Shaft/Intermediate Shaft	Grease	1051344	993037
Output Shaft Splines	Grease	12345879	10953511

DIAGNOSTIC INFORMATION AND PROCEDURES

CLICK NOISE IN TURNS

A constant velocity joint which is worn or damaged may cause a click noise during turns. This may be more apparent while simultaneously turning and accelerating. This click is caused by wear and/or damage to the constant velocity joint bearings and/or races. Commonly, this damage or wear is caused by the loss of lubricating grease from the constant velocity joint and the entry of foreign material or contaminants.

Carefully inspect the wheel drive shaft seals (boots) for cuts, tears or other damage which may allow the lubricating grease to escape. The loss of this grease will cause damage to the wheel drive shaft constant velocity joint in a very short period of time. If the seals (boots) do not exhibit evidence of lubricant loss or damage, remove the wheel drive shaft from the vehicle and rotate the constant velocity joint by rotating in a circular motion. The action of the constant velocity joint should be smooth and even. If any binding and/or roughness is felt while performing this inspection, the constant velocity joint requires replacement.

CLUNK WHEN ACCELERATING FROM COAST

A clunk noise occurring when accelerating from coast or a standing start may be caused by a worn or damaged wheel drive shaft cross groove joint. The common cause of wheel drive shaft cross groove damage is the loss of lubricating grease and/or the presence of foreign material and contaminants in the joint. This usually occurs as a result of a torn or damaged cross groove joint seal boot.

Carefully inspect the wheel drive shaft cross groove seal boot for cuts, tears or other signs of damage that may allow the loss of the lubricating grease and/or the entry of contaminants. If the seals appear intact, remove the wheel drive shaft from the vehicle and inspect the cross groove joint. Rotate the cross groove joint in a circular motion. Do not allow the cross groove spider to become disengaged from the race housing, or damage to the cross groove joint will occur. The movement of the cross groove joint should be smooth and even. If any binding or impeded motion is felt, the cross groove joint requires replacement.

CLUNK NOISE WHEN ACCELERATING DURING TURNS

A clunk noise that occurs while accelerating during turning may be caused by wear and/or damage to the inboard and the outboard joints in combination. Carefully inspect the joint seals (boots) for cuts, tears or other damage. Joint seals that are damaged may allow lubricant leakage and the entry of foreign materials and contaminants. The loss of lubricant and/or the presence of contaminants can cause damage to the internal components of the joints.

If the seals (boots) are not damaged, remove the wheel drive shaft from the vehicle and rotate the joints in a circular motion. Do not allow the tripot spider to become disengaged from the housing (race). The movement of the joints should be smooth and even. If the joints exhibit any binding or inhibited movement, the joint requires replacement.

SHUDDER OR VIBRATION DURING ACCELERATION

In order to diagnose a shudder or vibration during acceleration, refer to [Diagnostic System Check - Vehicle](#).

REPAIR INSTRUCTIONS

FRONT WHEEL DRIVE SHAFT REPLACEMENT - RIGHT SIDE (LTG WITH FWD)

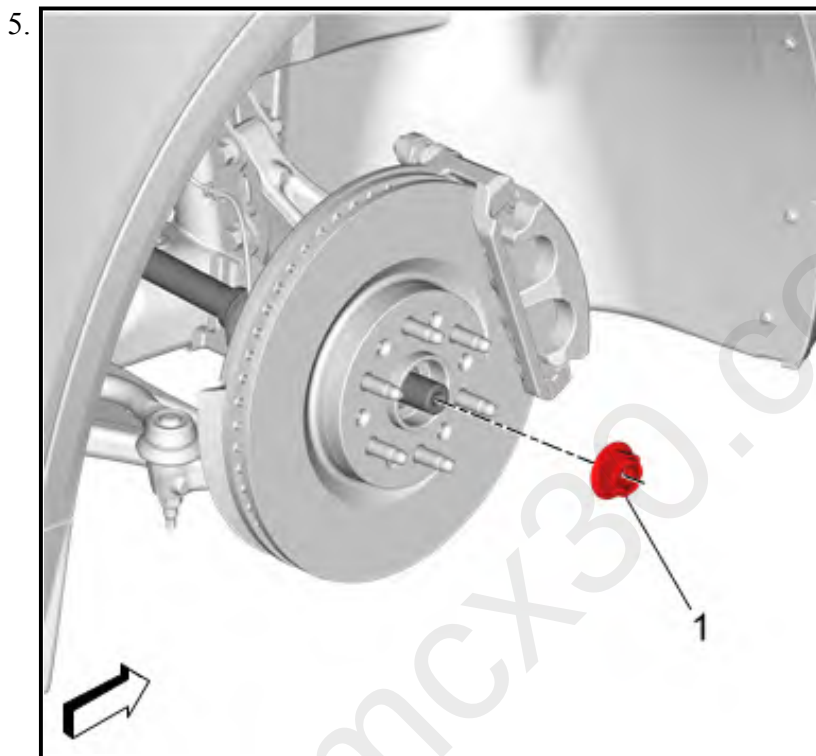
Special Tools

- **DT-45859** Axle Remover
- **DT-51504** Seal Protector

Equivalent regional tools: [Special Tools](#)

Removal Procedure

1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)
2. Place a drain pan under the vehicle.
3. Remove the right front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)
4. Have an assistant apply the brakes.



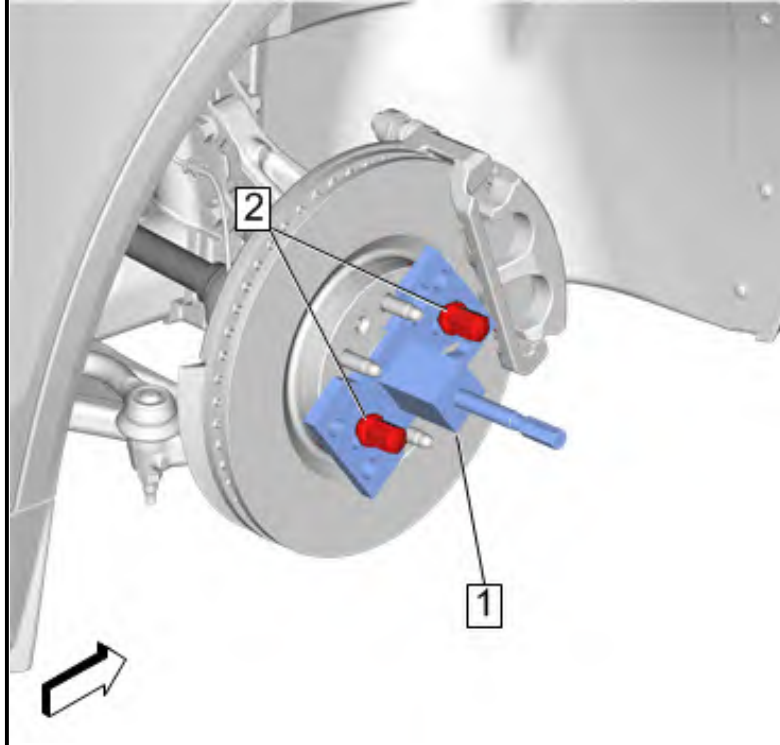
WARNING: To prevent personal injury and/or component damage, do not allow the weight of the vehicle to load the front wheels, or attempt to operate the vehicle, when the wheel drive shaft (s) or wheel drive shaft nut (s) are removed. To do so may cause the inner bearing race to separate, resulting in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

CAUTION: DO NOT use air tools to remove the wheel drive shaft nut. Damage to the wheel drive shaft threads could occur. Use hand tools only.

Front Wheel Drive Shaft Nut (1) - Remove and DISCARD

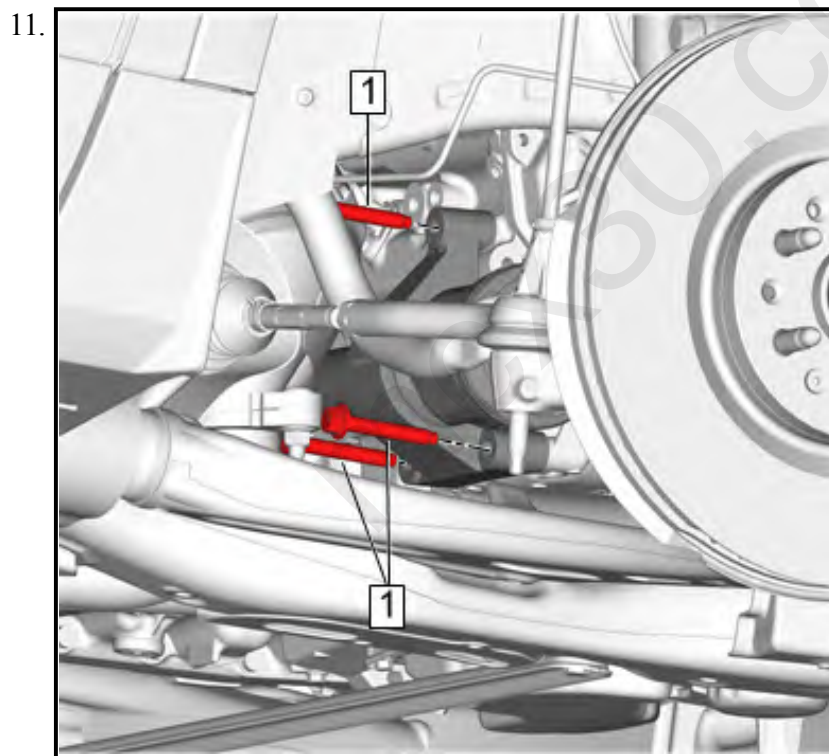
6. Steering Linkage Outer Tie Rod @ Steering Knuckle - Separate - [Steering Linkage Outer Tie Rod Replacement](#)
7. Lower Control Arm @ Steering Knuckle - Separate - [Lower Control Arm Replacement](#)



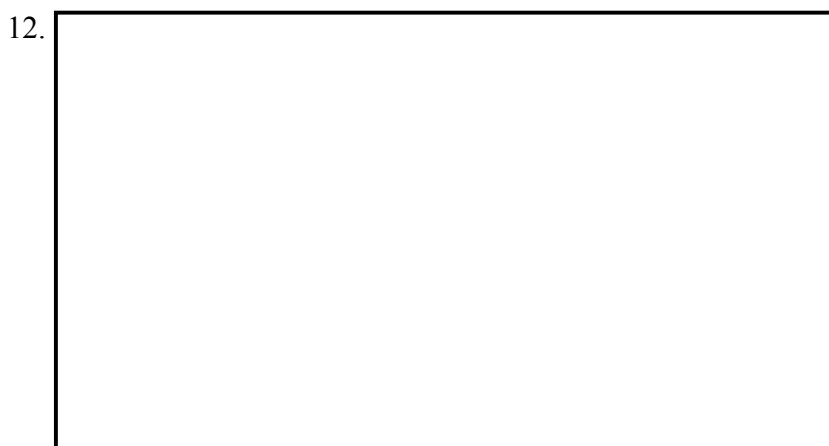


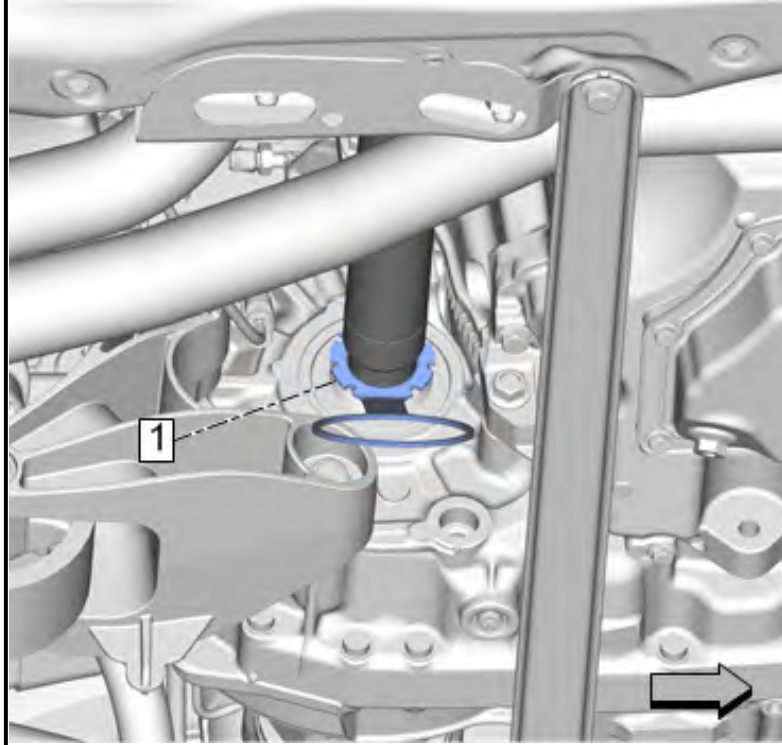
Attach the **DT-45859** Axle Remover (1) to the front wheel hub using the wheel nuts (2).

9. Using the **DT-45859** Axle Remover (1), separate the front wheel drive shaft from the front wheel hub.
10. Remove the wheel nuts (2) and the **DT-45859** Axle Remover (1) from the front wheel hub.



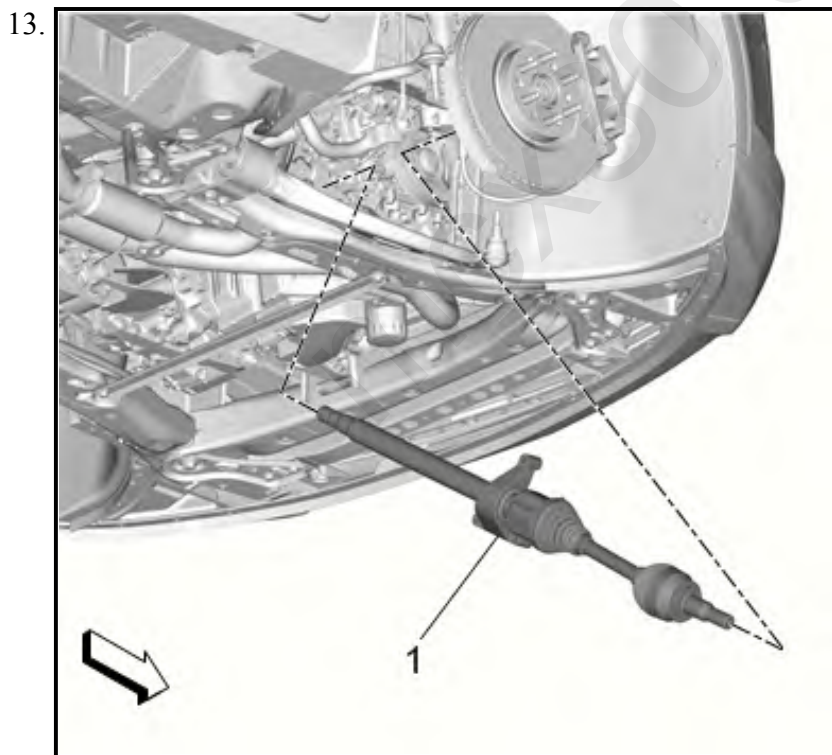
Front Wheel Drive Intermediate Shaft Bracket Bolt (1) - Remove [3x]





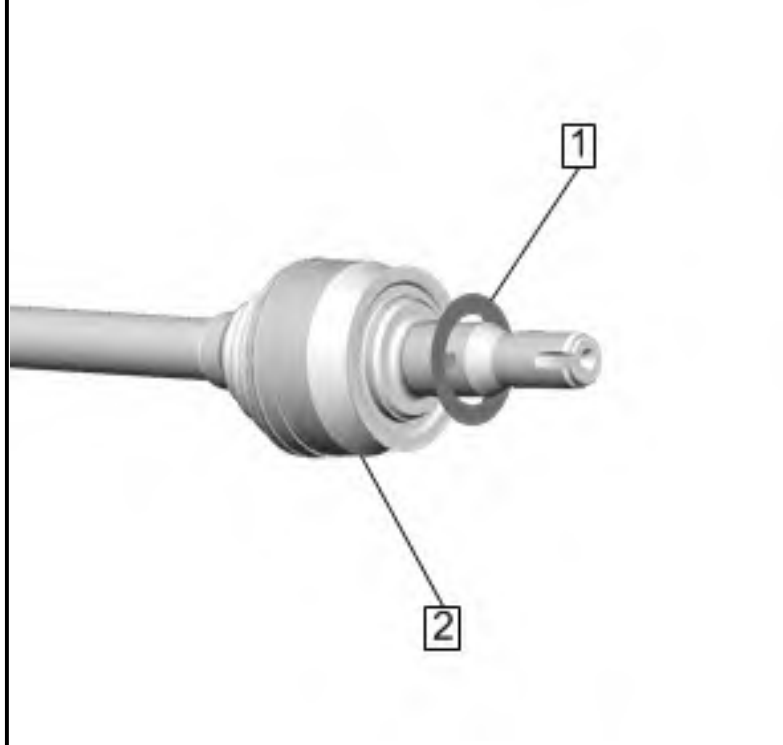
CAUTION: DT-51504 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install the DT-51504 as indicated may cause the splines of the wheel drive shaft to damage the differential output seal

Carefully install the **DT-51504** Seal Protector (1) over the front wheel drive shaft and slide into the transmission.



Front Wheel Drive Shaft (1) - Remove

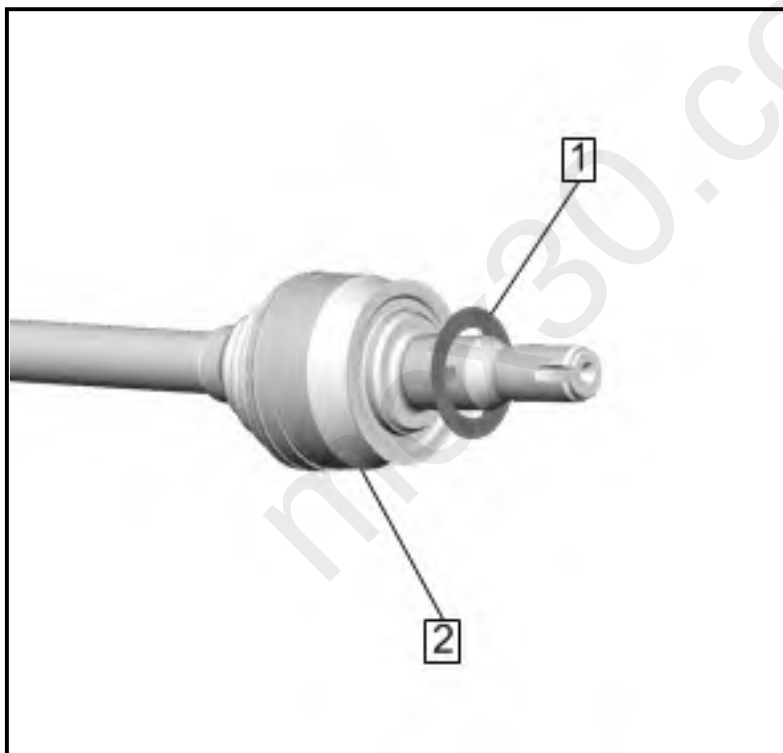




Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Shaft (2) - Remove and DISCARD

Installation Procedure

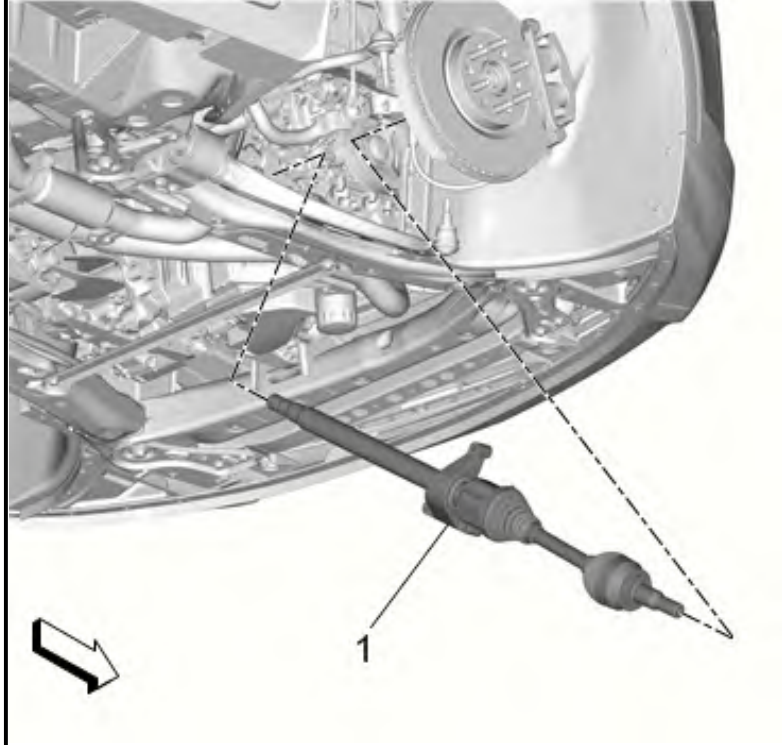
1.



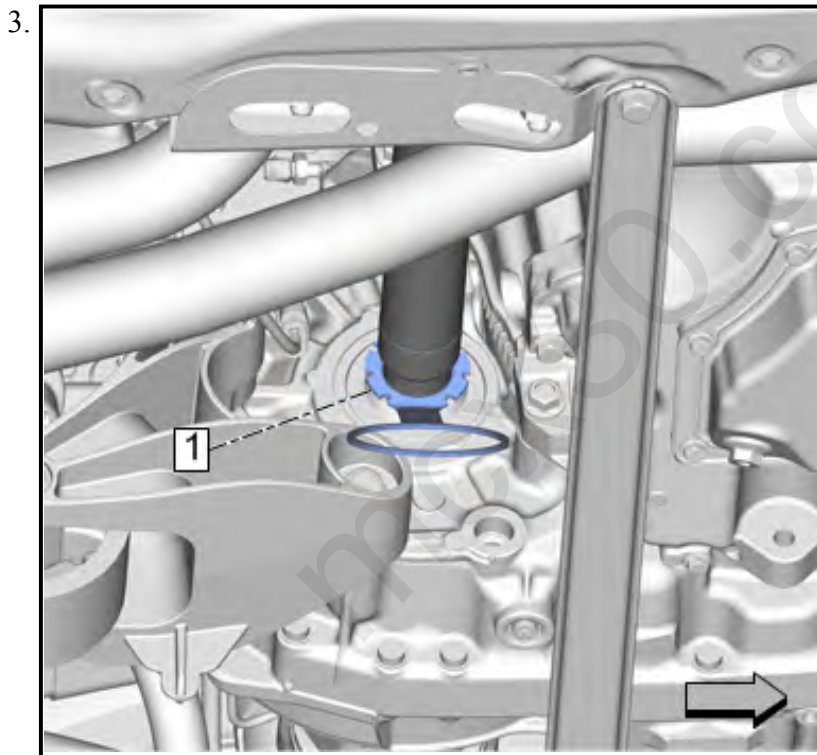
Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Shaft (2) - Install NEW

2.





Front Wheel Drive Shaft (1) - Install



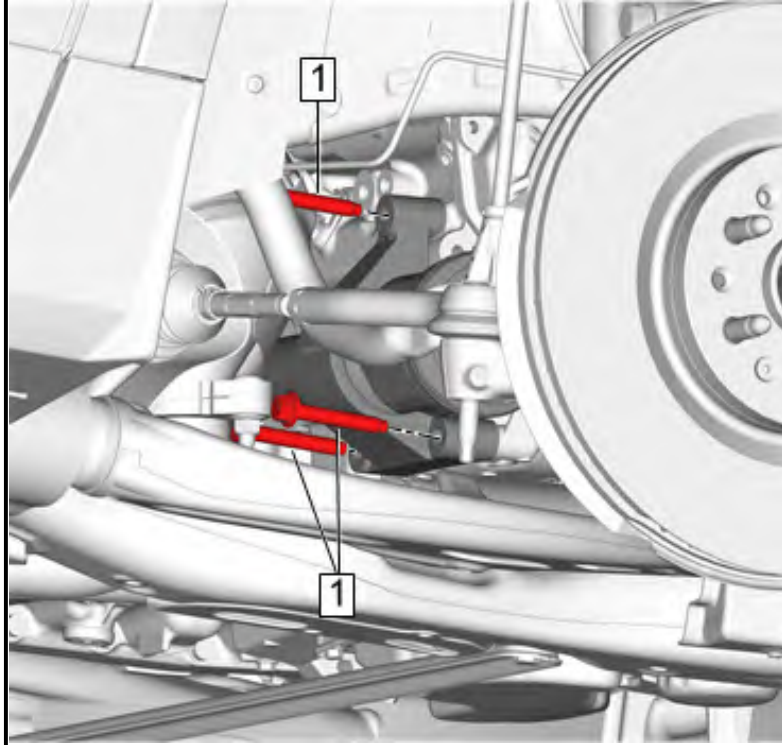
CAUTION: DT-51504 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install the DT-51504 as indicated may cause the splines of the wheel drive shaft to damage the differential output seal

NOTE: Ensure that the front wheel drive shaft is fully seated in the transmission.

Carefully install the front wheel drive shaft into the transmission until the splines are past the **DT-51504** Seal Protector (1).

4. Remove the **DT-51504** Seal Protector (1) from the transmission.

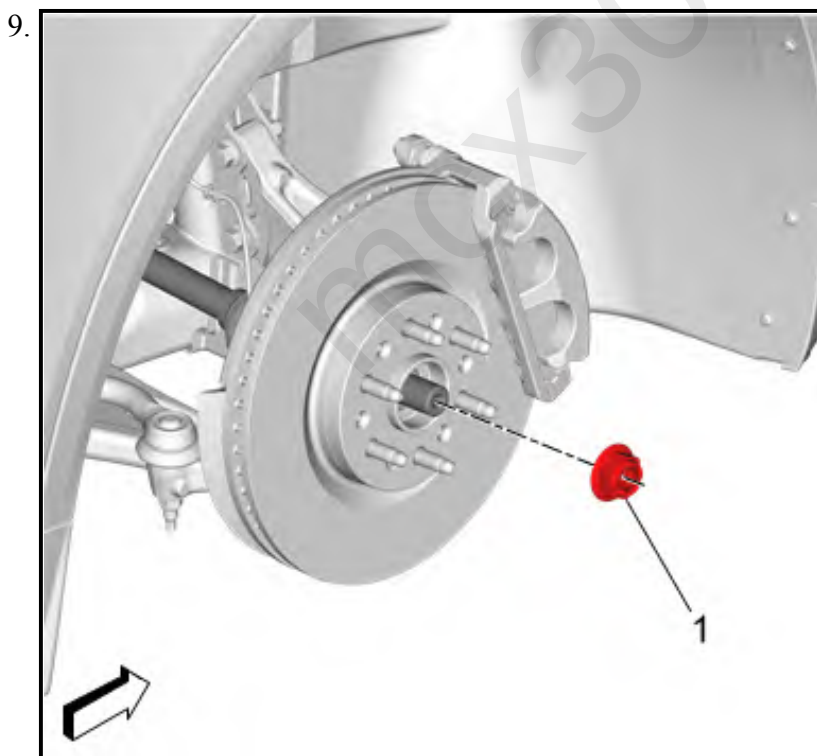




CAUTION: Refer to [Fastener Caution](#) .

Front Wheel Drive Intermediate Shaft Bracket Bolt (1) - Install and tighten [3x] 58 N.m (43 lb ft)

6. Install the front wheel drive shaft into the front wheel hub.
7. Lower Control Arm @ Steering Knuckle - Install - [Lower Control Arm Replacement](#)
8. Steering Linkage Outer Tie Rod @ Steering Knuckle - Install - [Steering Linkage Outer Tie Rod Replacement](#)



CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a **NEW** torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

Front Wheel Drive Shaft Nut (1) - Install NEW and hand tighten

10. Have an assistant apply the brakes.

NOTE:

Do NOT use air tools to tighten the front wheel drive shaft nut. Tighten the **NEW** front wheel drive shaft nut slowly to draw the wheel drive shaft into the front wheel hub prior to tightening to specifications.

11. Front Wheel Drive Shaft Nut (1) - Tighten
 1. First Pass: 330 N.m (244 lb ft)
 2. Second Pass: **loosen 45 degrees**
 3. Final Pass: 270 N.m (199 lb ft)
12. Install the right front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)
13. Fill and inspect the transmission fluid level. [Transmission Fluid Level and Condition Check](#)
14. Remove the drain pan.
15. Remove the support and lower the vehicle.

FRONT WHEEL DRIVE SHAFT REPLACEMENT - RIGHT SIDE (LFY WITH FWD)

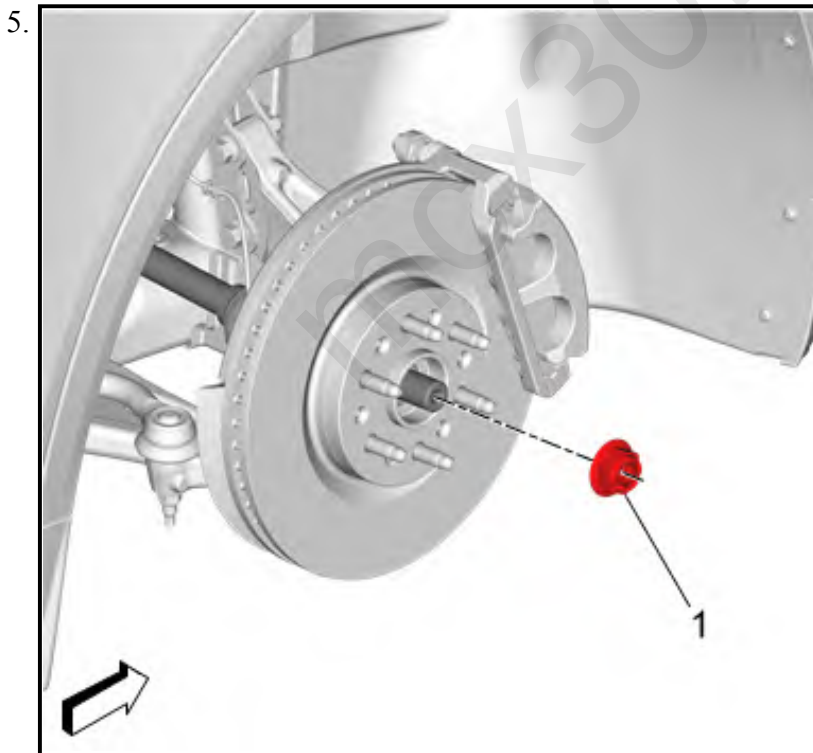
Special Tools

- **DT-45859** Axle Remover
- **DT-51504** Seal Protector

Equivalent regional tools: [Special Tools](#)

Removal Procedure

1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)
2. Place a drain pan under the vehicle.
3. Remove the right front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)
4. Have an assistant apply the brakes.

**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.

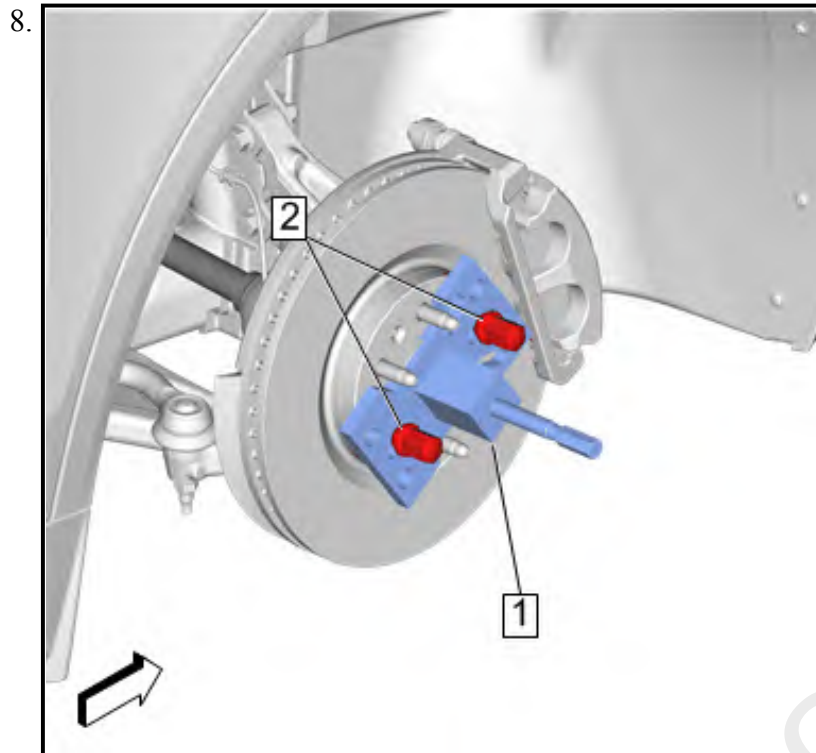
CAUTION:

DO NOT use air tools to remove the wheel drive shaft nut. Damage to the wheel drive shaft threads could occur. Use hand tools only.

Wheel Drive Shaft Nut (1) - Remove and DISCARD

6. Steering Linkage Outer Tie Rod @ Steering Knuckle - Separate - [Steering Linkage Outer Tie Rod Replacement](#)

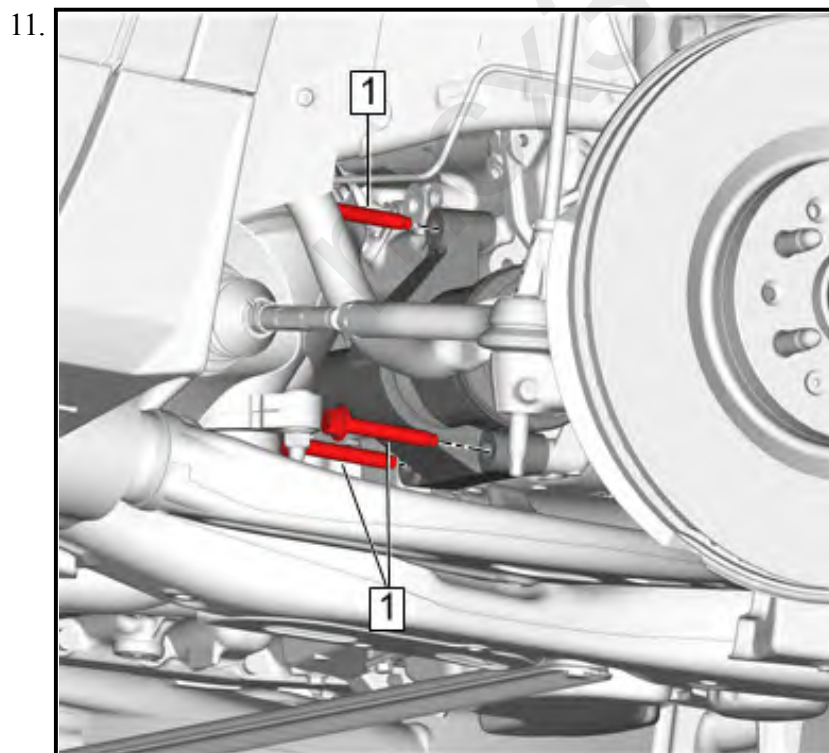
7. Lower Control Arm @ Steering Knuckle - Separate - [Lower Control Arm Replacement](#)



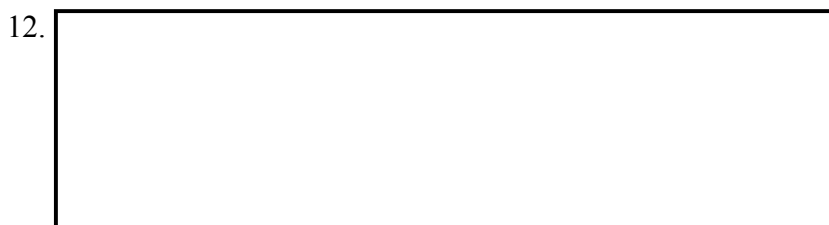
Attach the **DT-45859** Axle Remover (1) to the front wheel hub using the wheel nuts (2).

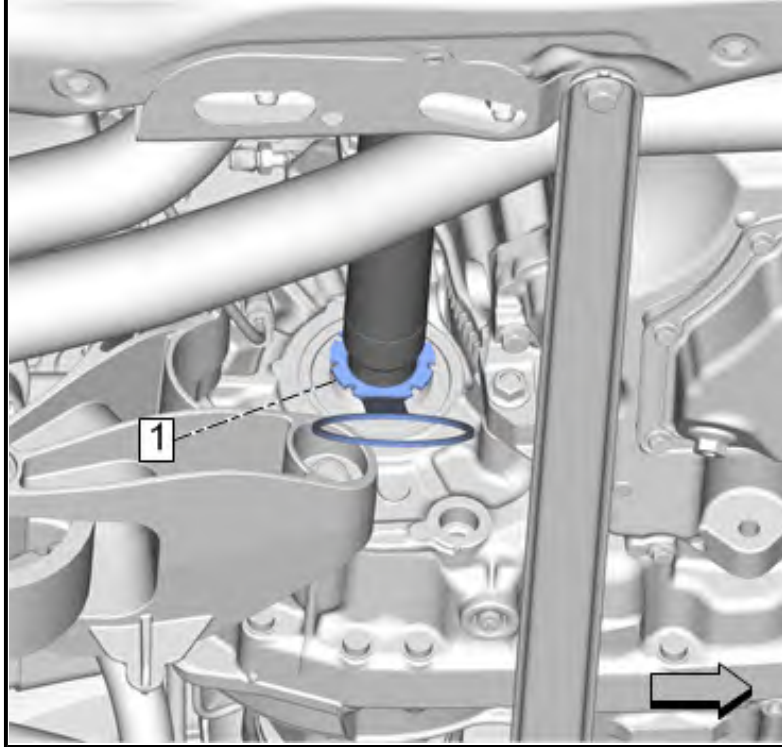
9. Using the **DT-45859** Axle Remover (1), separate the front wheel drive shaft from the front wheel hub.

10. Remove the wheel nuts (2) and the **DT-45859** Axle Remover (1) from the front wheel hub.



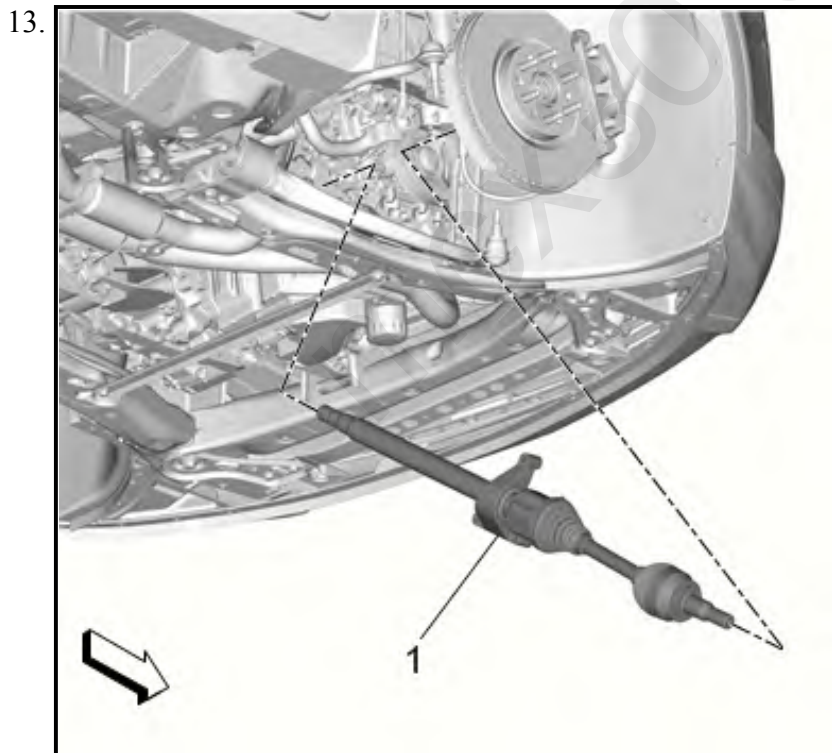
Front Wheel Drive Intermediate Shaft Bracket Bolt (1) - Remove [3x]





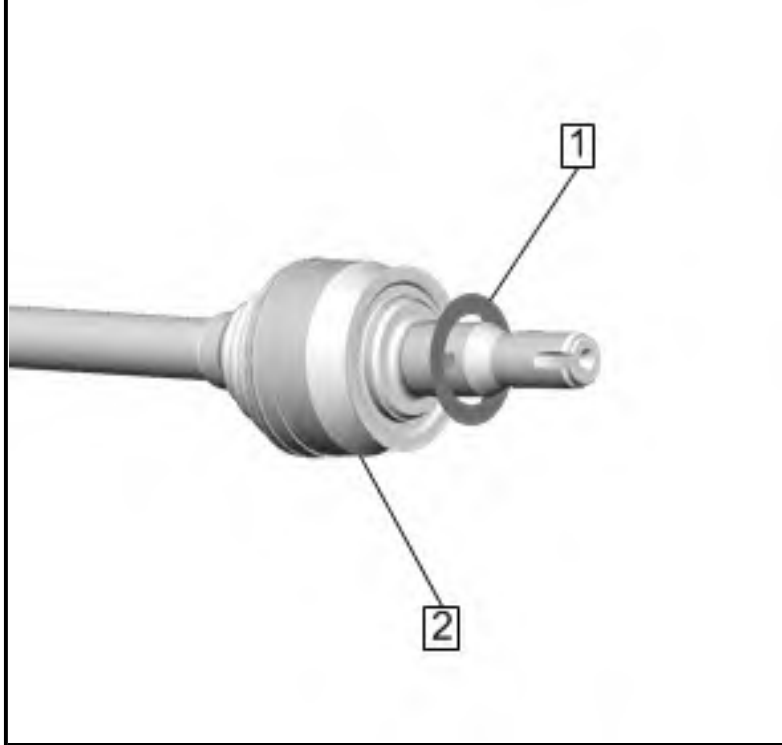
CAUTION: DT-51504 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install the DT-51504 as indicated may cause the splines of the wheel drive shaft to damage the differential output seal

Carefully install the **DT-51504** Seal Protector (1) over the front wheel drive shaft and slide into the transmission.



Front Wheel Drive Shaft (1) - Remove

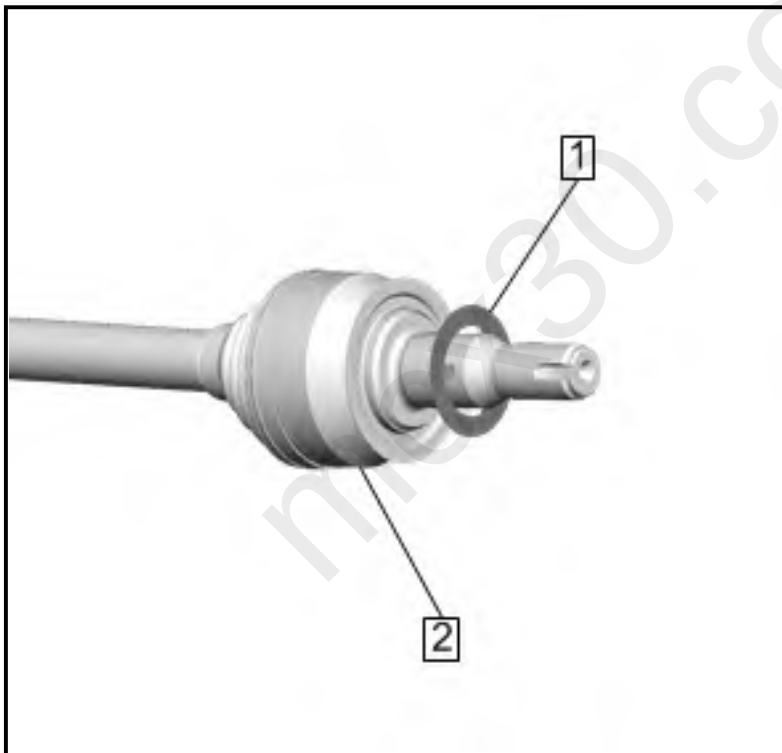




Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Shaft (2) - Remove and DISCARD

Installation Procedure

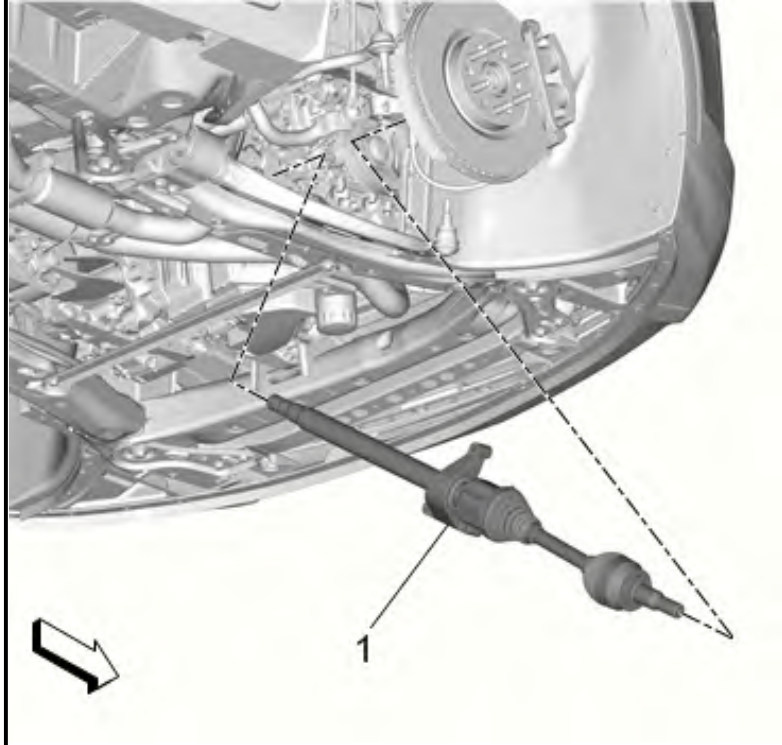
1.



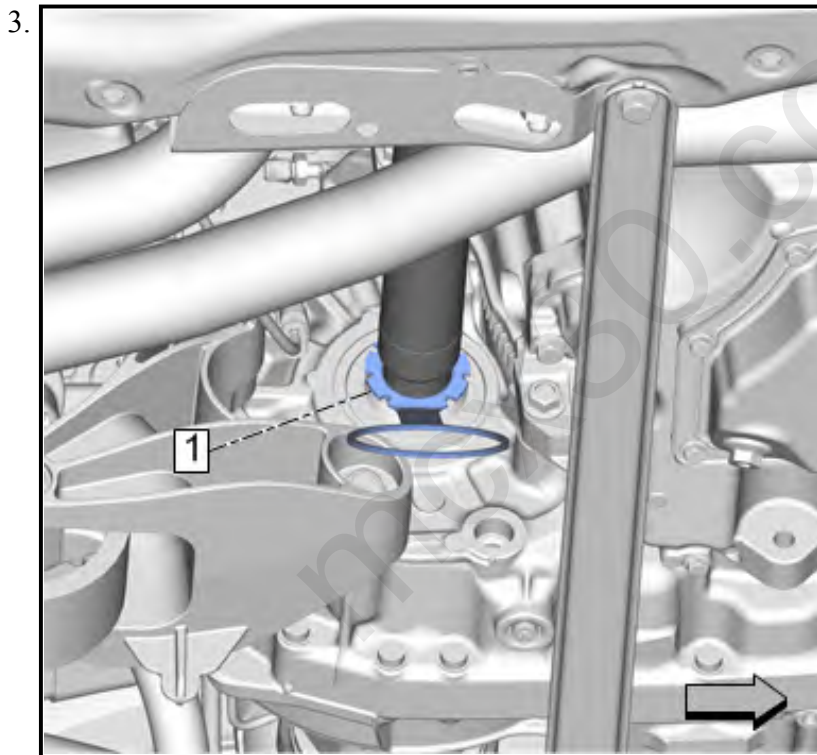
Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Shaft (2) - Install NEW

2.





Front Wheel Drive Shaft (1) - Install



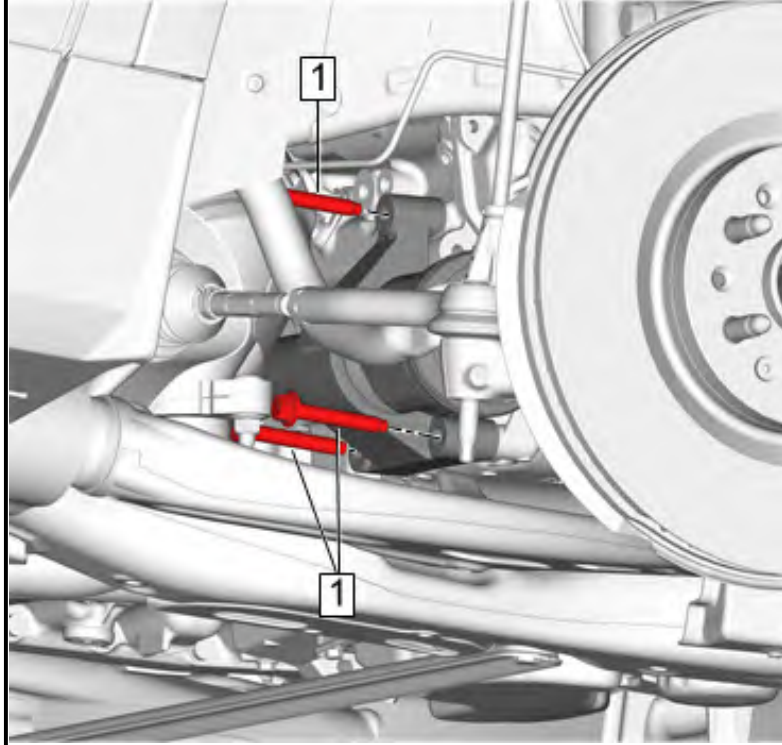
CAUTION: DT-51504 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install the DT-51504 as indicated may cause the splines of the wheel drive shaft to damage the differential output seal

NOTE: Ensure that the front wheel drive shaft is fully seated in the transmission.

Carefully install the front wheel drive shaft into the transmission until the splines are past the **DT-51504** Seal Protector (1).

4. Remove the **DT-51504** Seal Protector from the transmission.

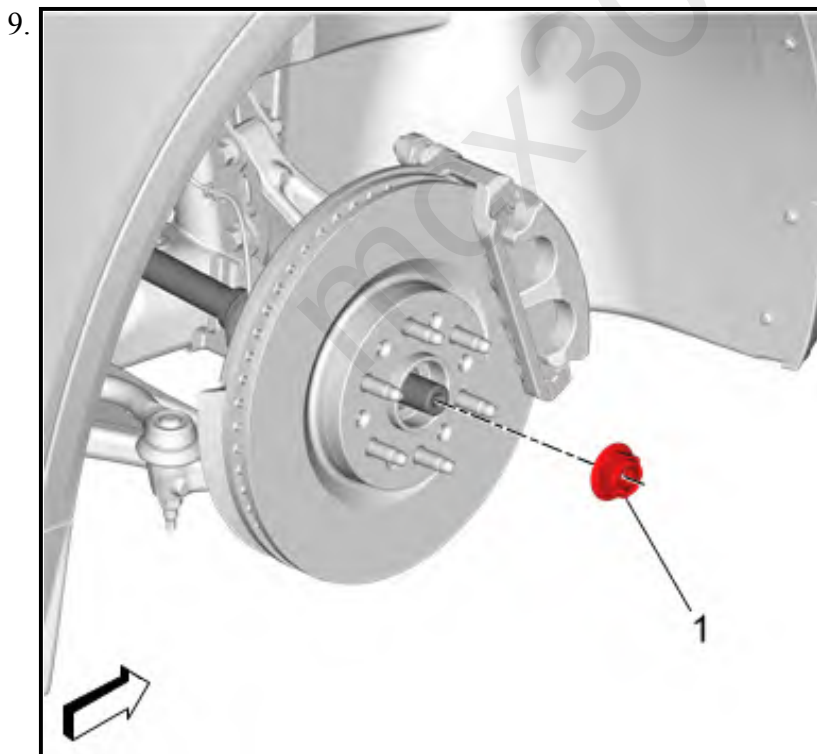




CAUTION: Refer to [Fastener Caution](#) .

Front Wheel Drive Intermediate Shaft Bracket Bolt (1) - Install and tighten [3x] 22 N.m (16 lb ft)

6. Install the front wheel drive shaft into the front wheel hub.
7. Lower Control Arm @ Steering Knuckle - Install - [Lower Control Arm Replacement](#)
8. Steering Linkage Outer Tie Rod @ Steering Knuckle - Install - [Steering Linkage Outer Tie Rod Replacement](#)



CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a **NEW** torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

Front Wheel Drive Shaft Nut (1) - Install NEW and hand tighten

10. Have an assistant apply the brakes.

NOTE:

Do NOT use air tools to tighten the front wheel drive shaft nut. Tighten the NEW front wheel drive shaft nut slowly to draw the wheel drive shaft into the front wheel hub prior to tightening to specifications.

11. Front Wheel Drive Shaft Nut (1) - Tighten
 1. First Pass: 330 N.m (244 lb ft)
 2. Second Pass: **loosen 45 degrees**
 3. Final Pass: 270 N.m (199 lb ft)
12. Install the right front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)
13. Fill and inspect the transmission fluid level. [Transmission Fluid Level and Condition Check](#)
14. Remove the drain pan.
15. Remove the support and lower the vehicle.

FRONT WHEEL DRIVE HALF SHAFT REPLACEMENT - LEFT SIDE

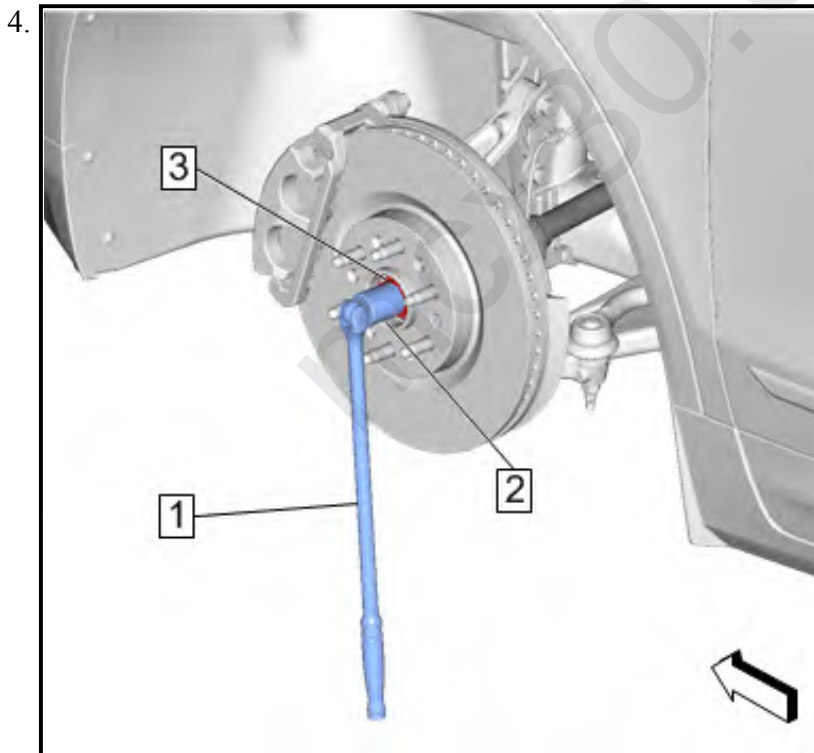
Special Tools

- DT-45859 Axle Remover
- DT-51504 Seal Protector

Equivalent regional tools: [Special Tools](#)

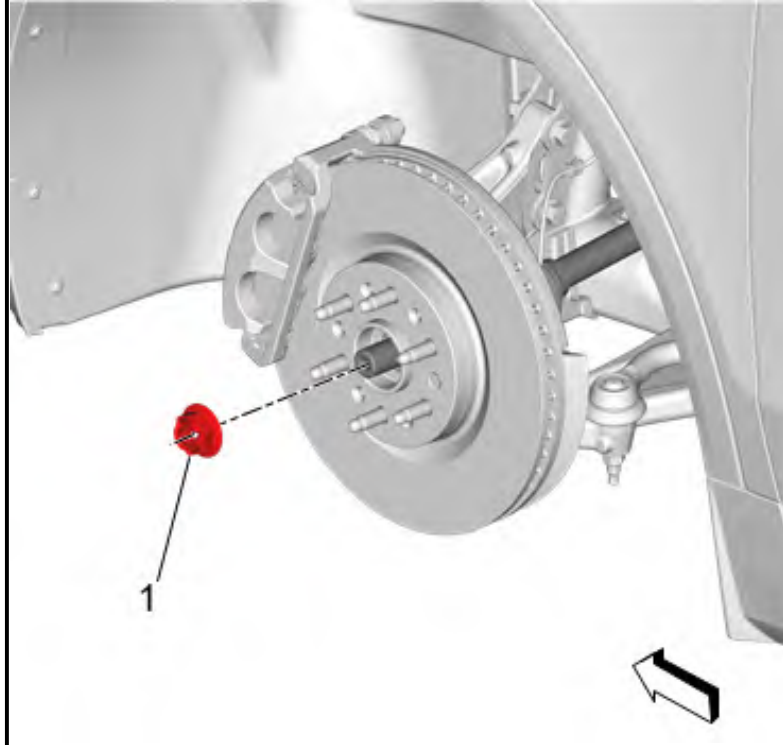
Removal Procedure

1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)
2. Place a drain pan under the vehicle.
3. Remove the left front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)



With the aid of an assistant holding the brake pedal down, use a breaker bar (1) and the proper size socket (2) to loosen the wheel drive shaft nut (3).



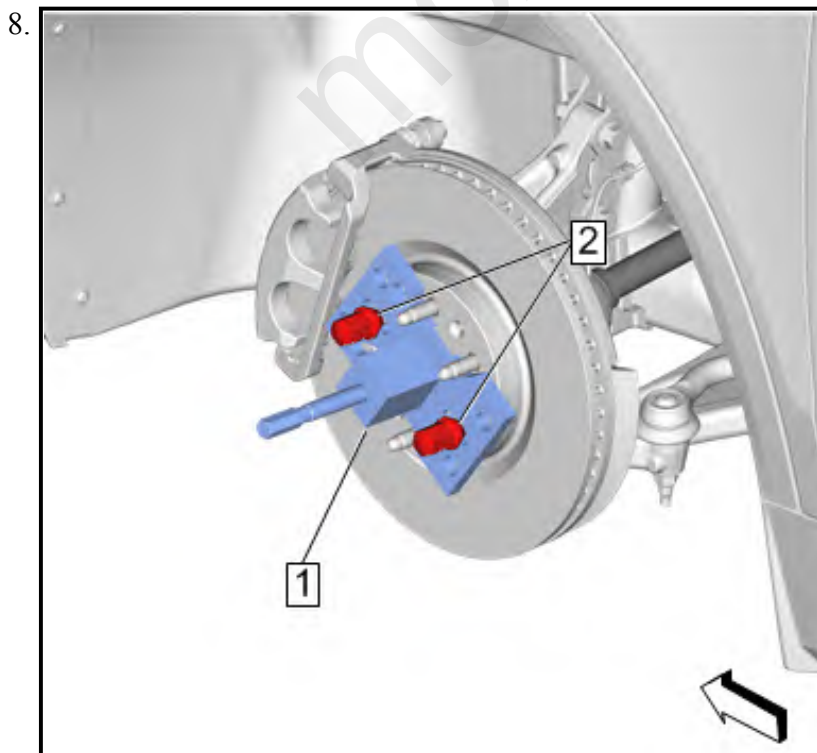


WARNING: To prevent personal injury and/or component damage, do not allow the weight of the vehicle to load the front wheels, or attempt to operate the vehicle, when the wheel drive shaft (s) or wheel drive shaft nut (s) are removed. To do so may cause the inner bearing race to separate, resulting in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

CAUTION: DO NOT use air tools to remove the wheel drive shaft nut. Damage to the wheel drive shaft threads could occur. Use hand tools only.

Wheel Drive Shaft Nut (1) - Remove and DISCARD

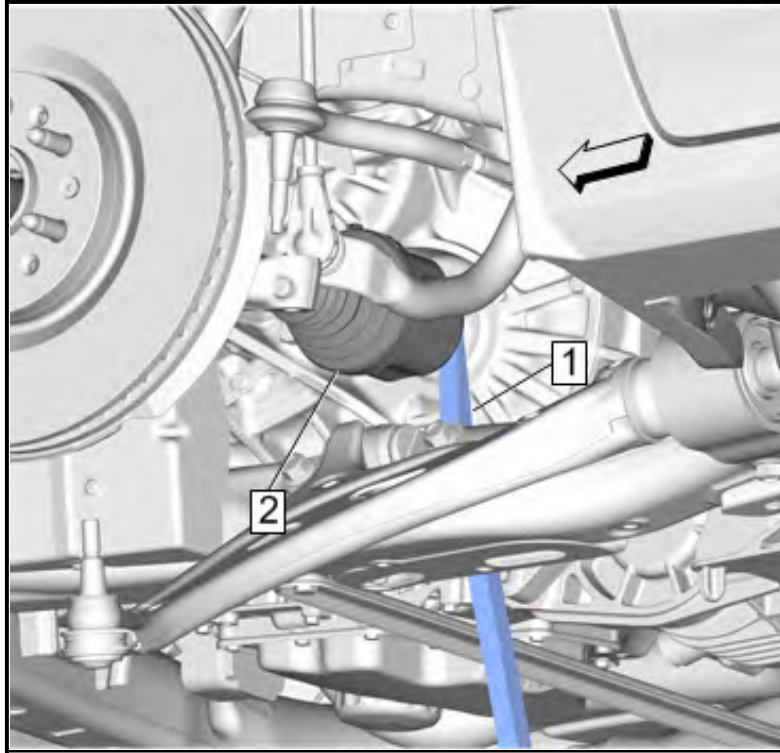
6. Steering Linkage Outer Tie Rod @ Steering Knuckle - Separate - [Steering Linkage Outer Tie Rod Replacement](#)
7. Lower Control Arm @ Steering Knuckle - Separate - [Lower Control Arm Replacement](#)



Attach the **DT-45859** Axle Remover (1) to the front wheel hub using the wheel nuts (2).

9. Using the **DT-45859** Axle Remover (1), separate the front wheel drive half shaft from the front wheel hub.

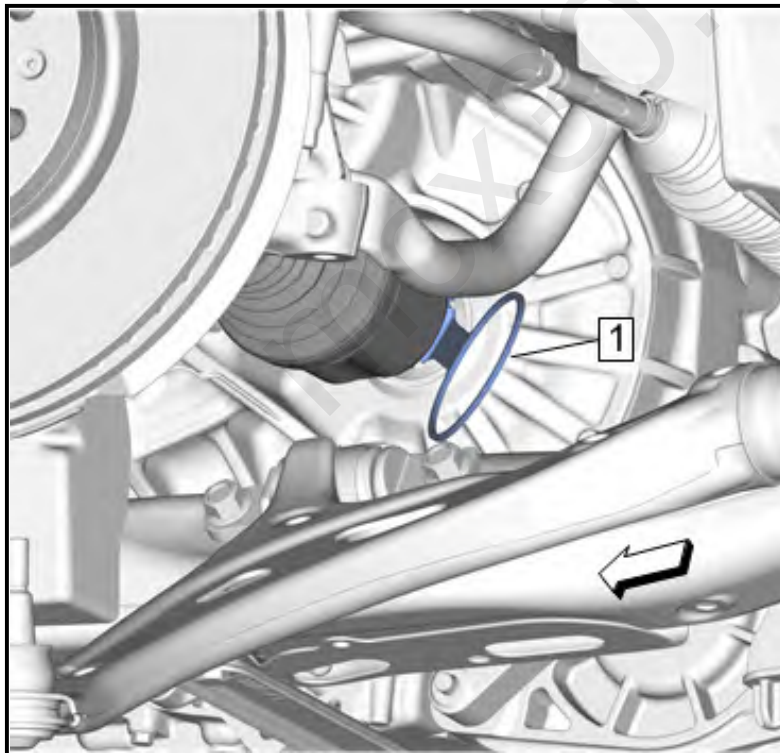
10.



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.

Use a suitable flat bladed tool (1) to dislodge the front wheel drive half shaft (2) from the transmission.

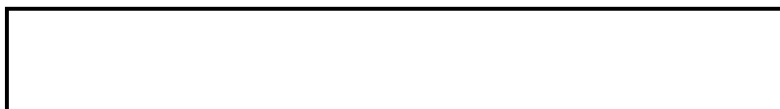
11.

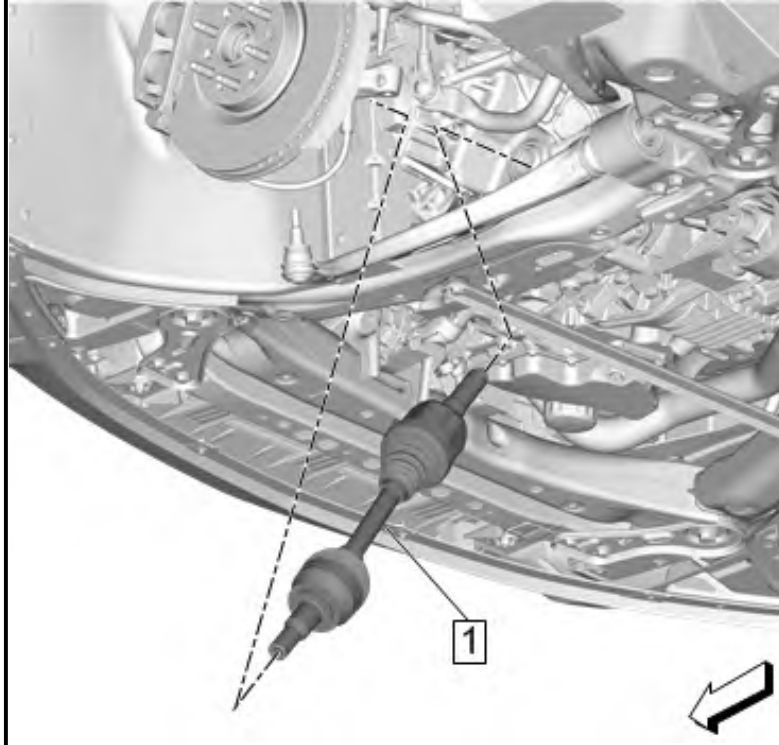


CAUTION: DT-51504 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install the DT-51504 as indicated may cause the splines of the wheel drive shaft to damage the differential output seal

Carefully install the **DT-51504** Seal Protector (1) over the front wheel drive half shaft and slide into the transmission.

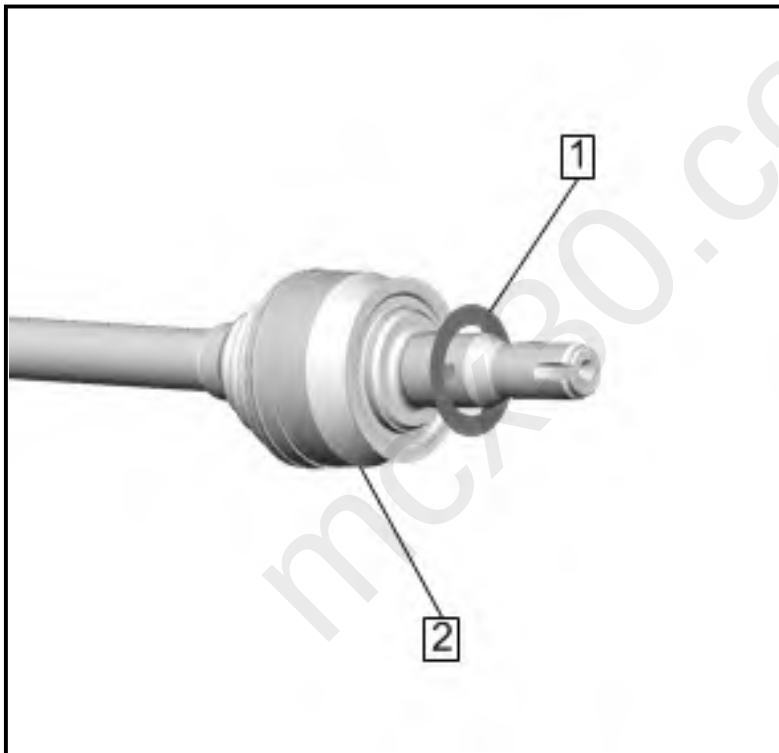
12.





Front Wheel Drive Half Shaft (1) - Remove

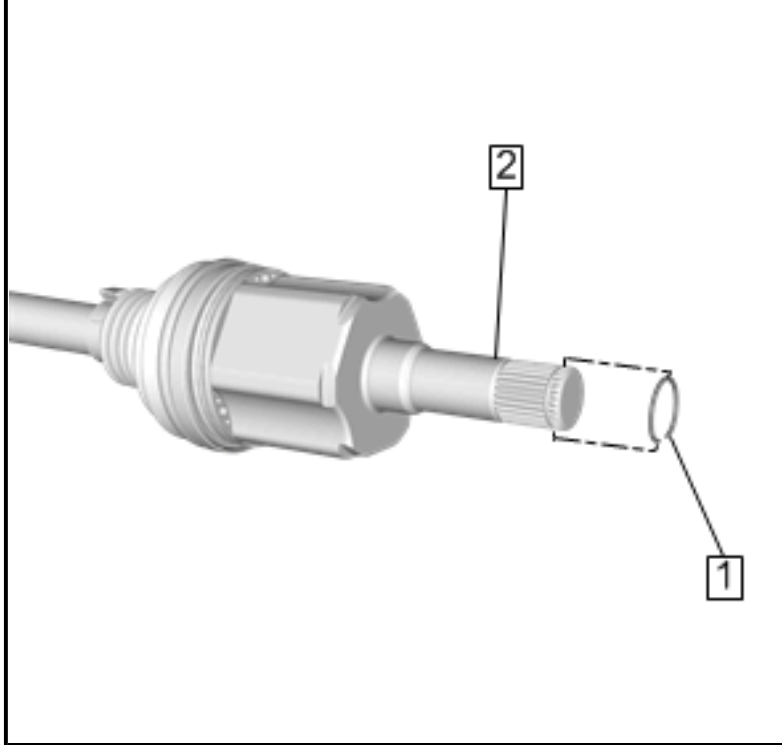
13.



Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Half Shaft (2) - Remove and DISCARD

14.

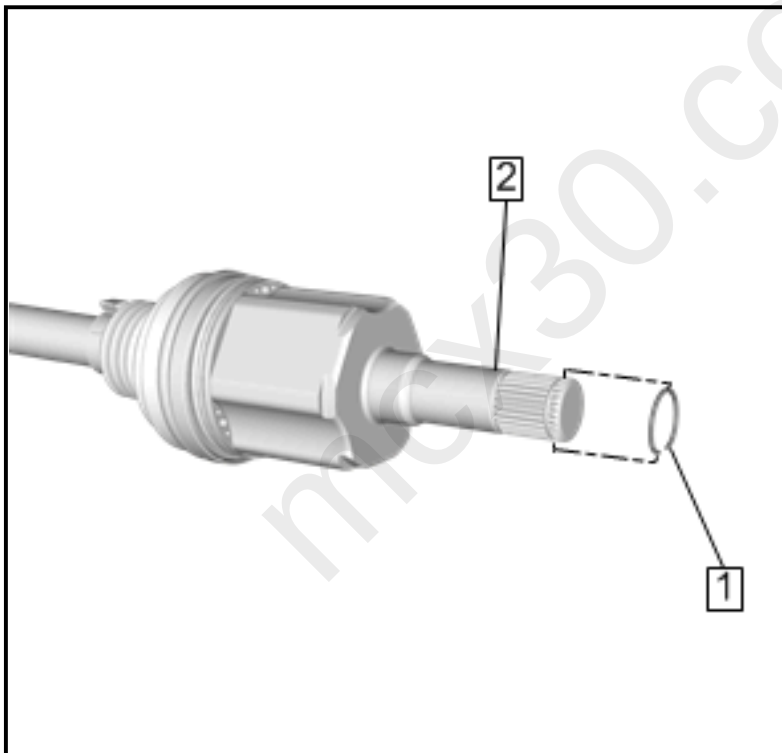




Front Wheel Drive Shaft Retaining Ring (1) @ Front Wheel Drive Half Shaft (2) - Remove and DISCARD

Installation Procedure

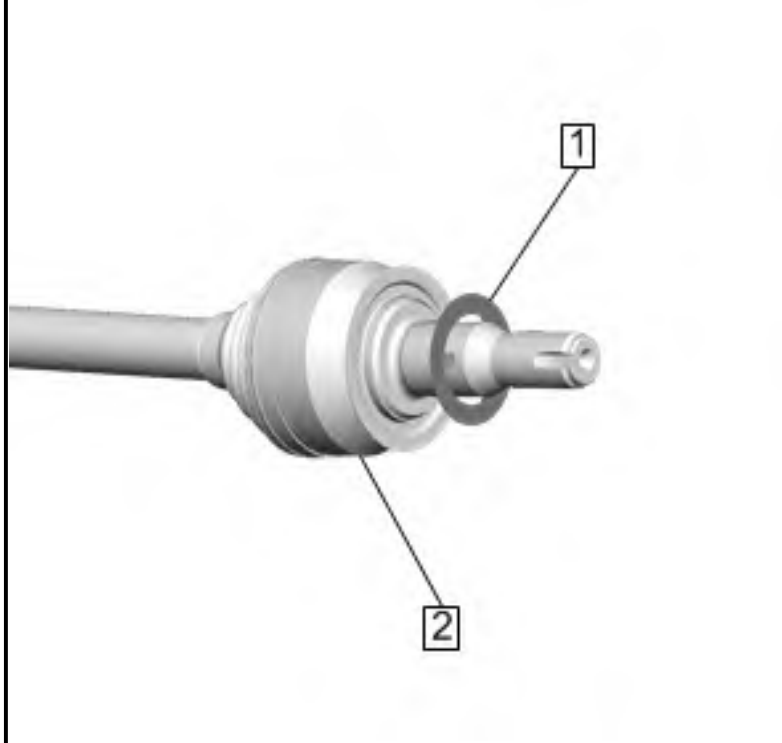
1.



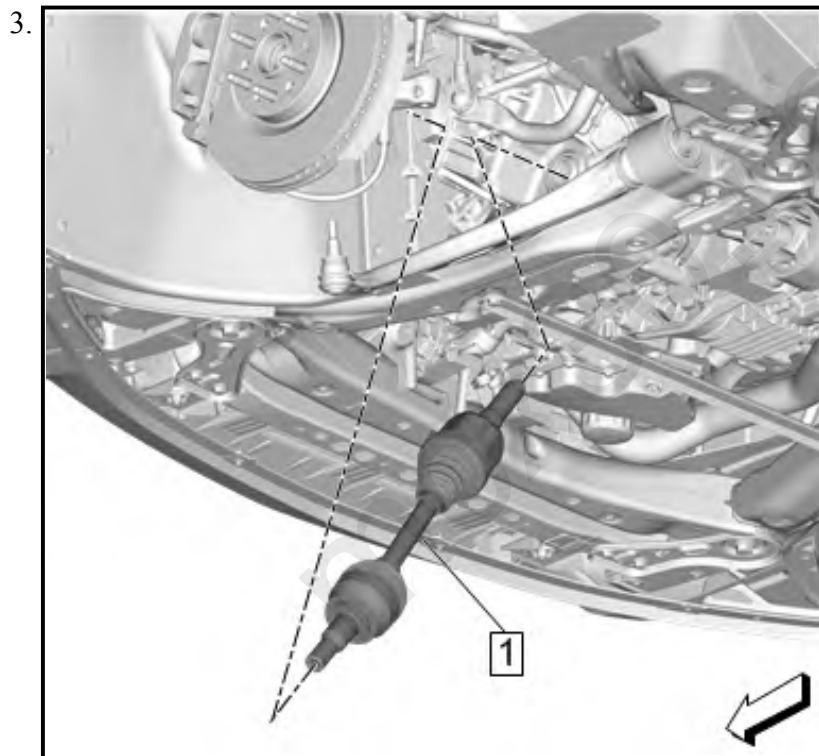
Front Wheel Drive Shaft Retaining Ring (1) @ Front Wheel Drive Half Shaft (2) - Install NEW

2.



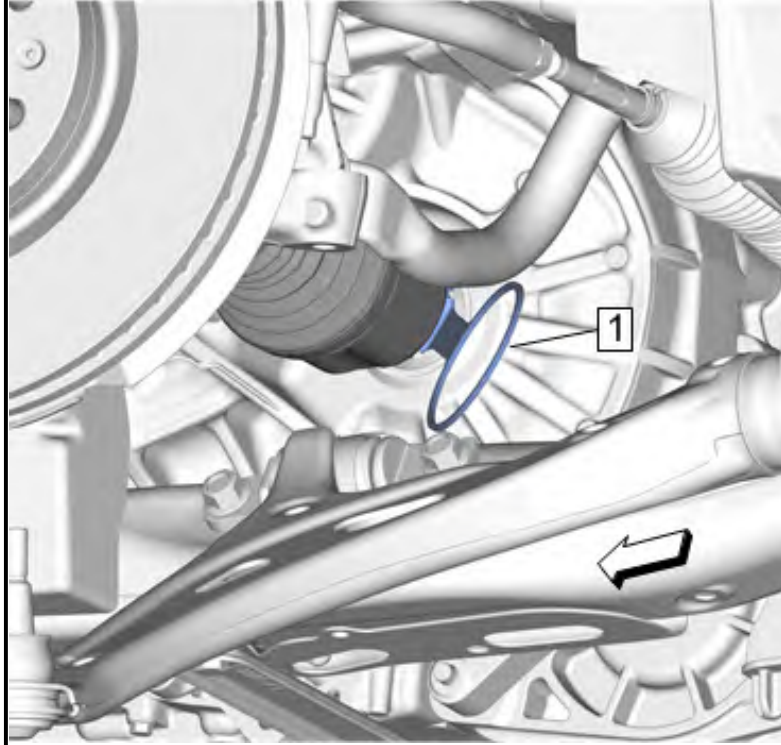


Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Half Shaft (2) - Install NEW



Front Wheel Drive Half Shaft (1) - Install



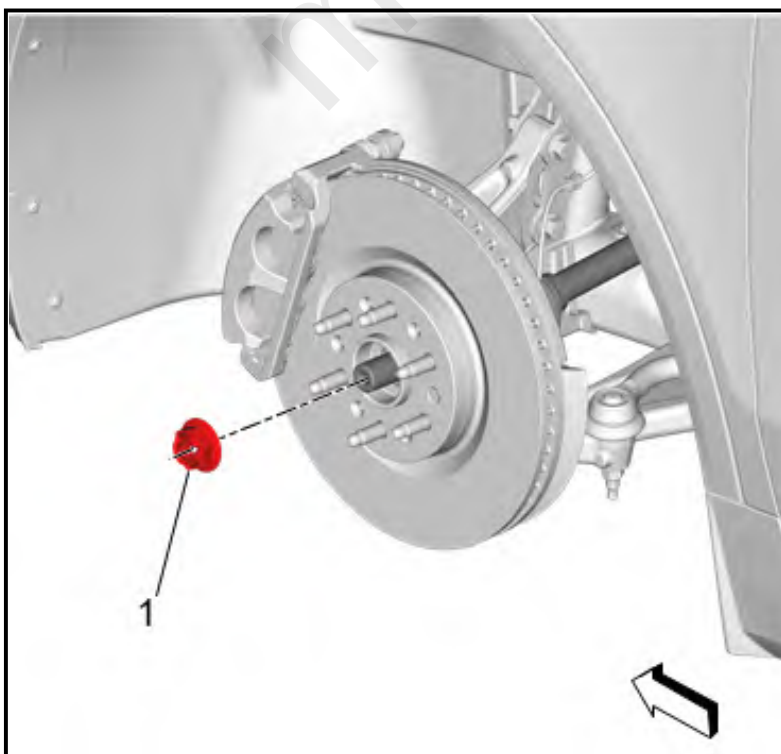


CAUTION: DT-51504 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install the DT-51504 as indicated may cause the splines of the wheel drive shaft to damage the differential output seal

NOTE: Ensure that the front wheel drive half shaft is fully seated in the transmission.

Carefully install the front wheel drive half shaft into the transmission until the splines are past the **DT-51504** Seal Protector (1).

5. Remove the **DT-51504** Seal Protector (1) from the transmission.
6. Install the front wheel drive half shaft (1) into the front wheel hub.
7. Lower Control Arm @ Steering Knuckle - Install - [Lower Control Arm Replacement](#)
8. Steering Linkage Outer Tie Rod @ Steering Knuckle - Install - [Steering Linkage Outer Tie Rod Replacement](#)
- 9.



CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a **NEW** torque-to-yield or single use fastener when installing this component.

Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

Front Wheel Drive Shaft Nut (1) - Install NEW and hand tighten

10. Have an assistant apply the brakes.

CAUTION: Refer to [Fastener Caution](#) .

NOTE: Do NOT use air tools to tighten the wheel drive shaft nut. Tighten the NEW wheel drive shaft nut slowly to draw the wheel drive shaft into the hub assembly prior to tightening to specifications.

11. Front Wheel Drive Shaft Nut (1) - Tighten

1. First Pass: 330 N.m (244 lb ft)
2. Second Pass: **loosen 45 degrees**
3. Final Pass: 270 N.m (199 lb ft)

12. Install the left front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)

13. Fill and inspect the transmission fluid level. [Transmission Fluid Level and Condition Check](#)

14. Remove the drain pan.

15. Remove the support and lower the vehicle.

FRONT WHEEL DRIVE HALF SHAFT REPLACEMENT - RIGHT SIDE (AWD)

Special Tools

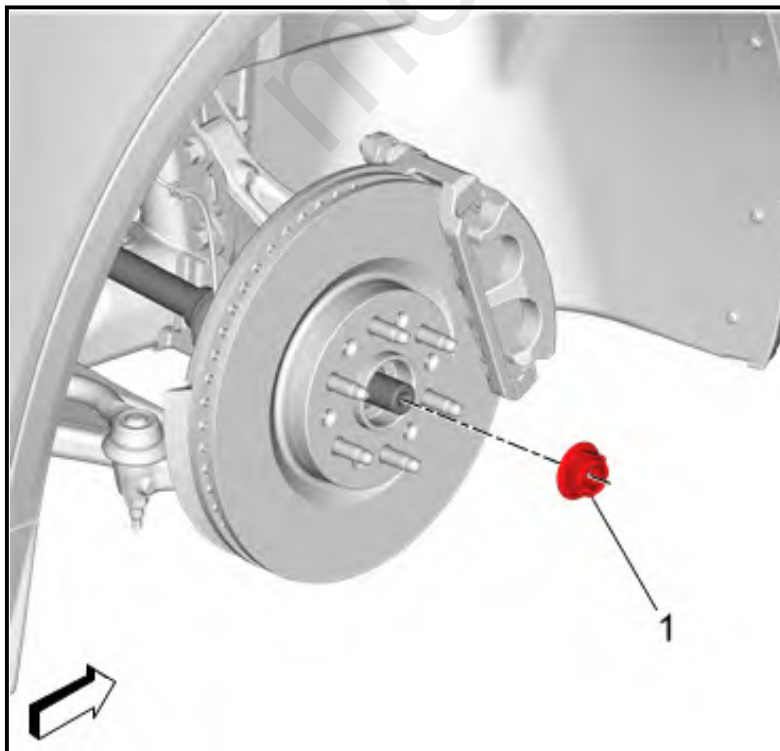
- **DT-45859** Axle Remover

Equivalent regional tools: [Special Tools](#)

Removal Procedure

1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)
2. Remove the right front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)
3. Have an assistant apply the brakes.

4.



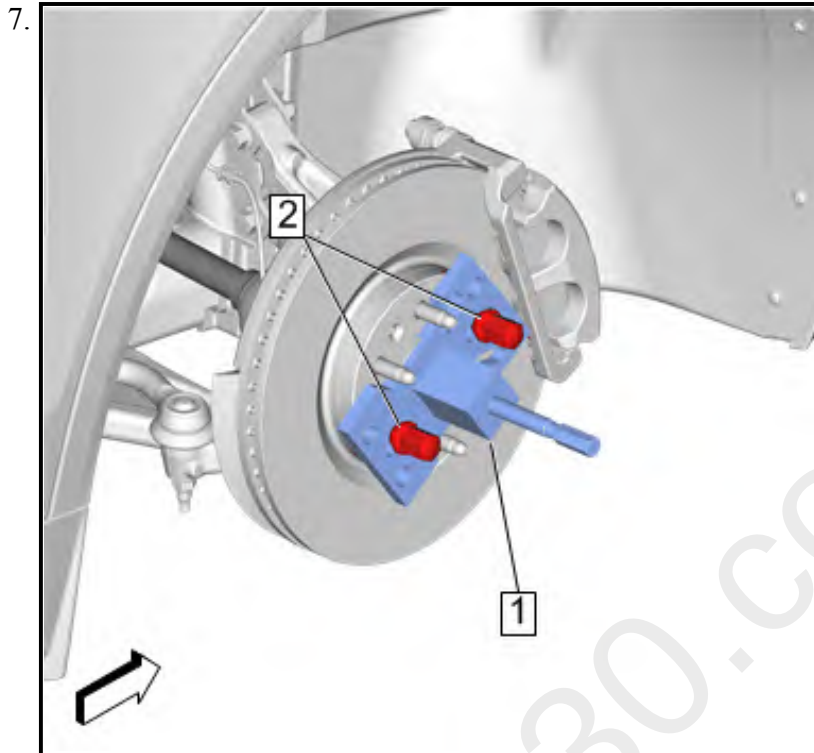
WARNING: To prevent personal injury and/or component damage, do not allow the weight of the vehicle to load the front wheels, or attempt to operate the vehicle, when the wheel drive shaft (s) or wheel drive shaft nut (s) are removed. To do so

may cause the inner bearing race to separate, resulting in damage to brake and suspension components and loss of vehicle control.

CAUTION: DO NOT use air tools to remove the wheel drive shaft nut. Damage to the wheel drive shaft threads could occur. Use hand tools only.

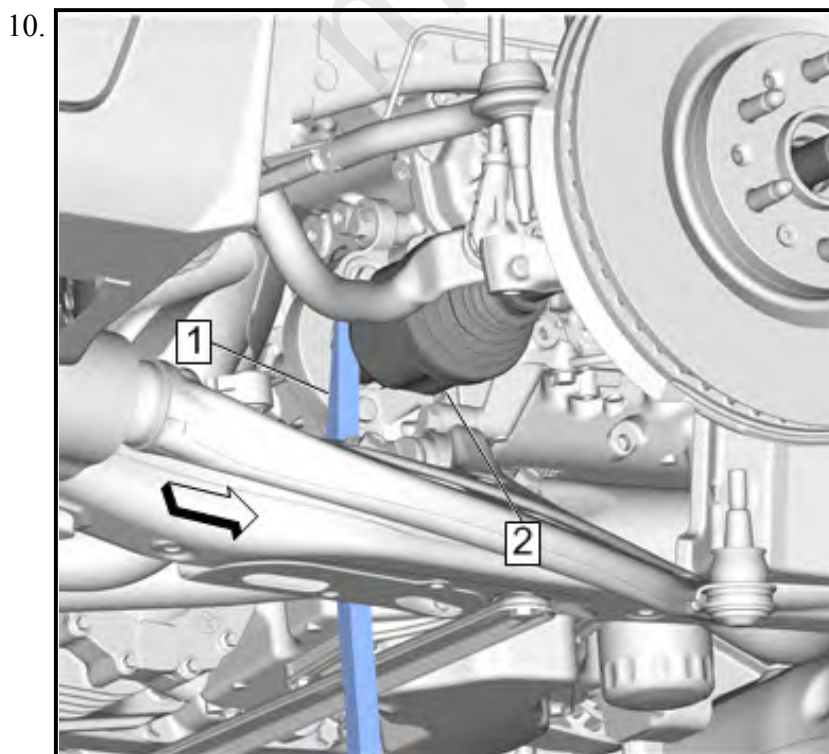
Front Wheel Drive Shaft Nut (1) - Remove and DISCARD

5. Steering Linkage Outer Tie Rod @ Steering Knuckle - Separate - [Steering Linkage Outer Tie Rod Replacement](#)
6. Lower Control Arm @ Steering Knuckle - Separate - [Lower Control Arm Replacement](#)



Attach the **DT-45859** Axle Remover (1) to the front wheel hub using the wheel nuts (2).

8. Using the **DT-45859** Axle Remover (1), separate the front wheel drive half shaft from the front wheel hub.
9. Remove the wheel nuts (2) and the **DT-45859** Axle Remover (1) from the front wheel hub.

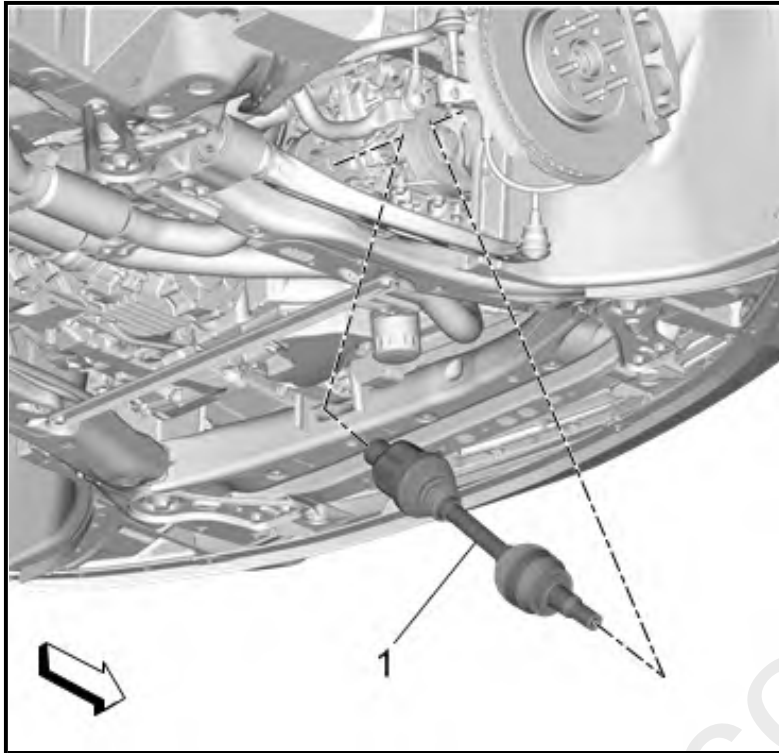


CAUTION: Wheel drive shaft boots, seals and clamps should be protected from sharp

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.

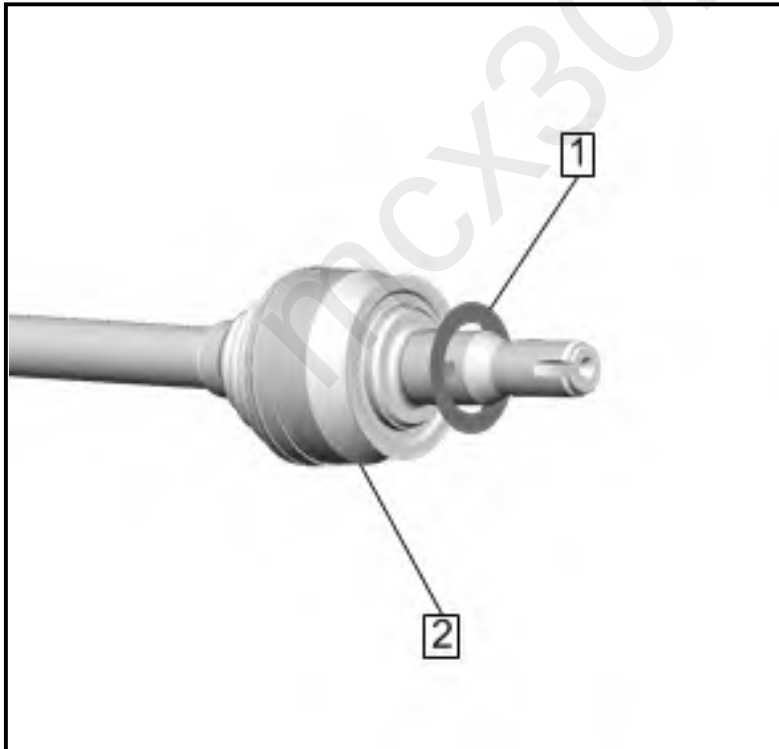
Use a suitable flat bladed tool (1) to dislodge the front wheel drive half shaft (2) from the power transfer unit.

11.



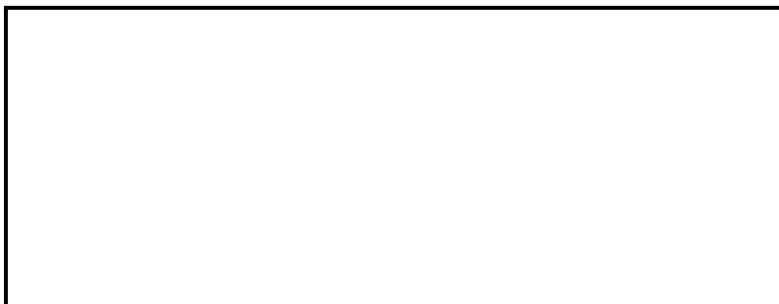
Front Wheel Drive Half Shaft (1) - Remove

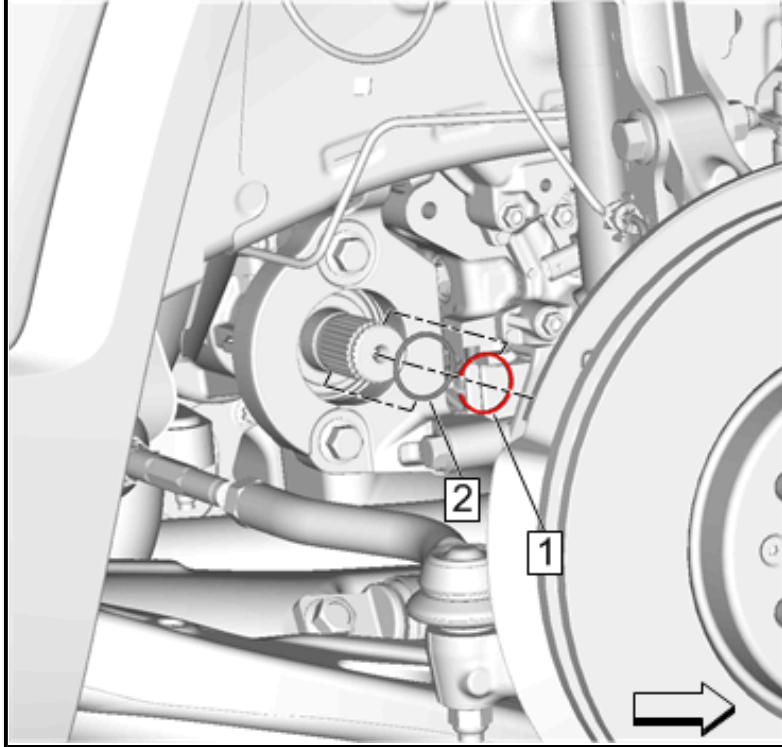
12.



Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Half Shaft (2) - Remove and DISCARD

13.



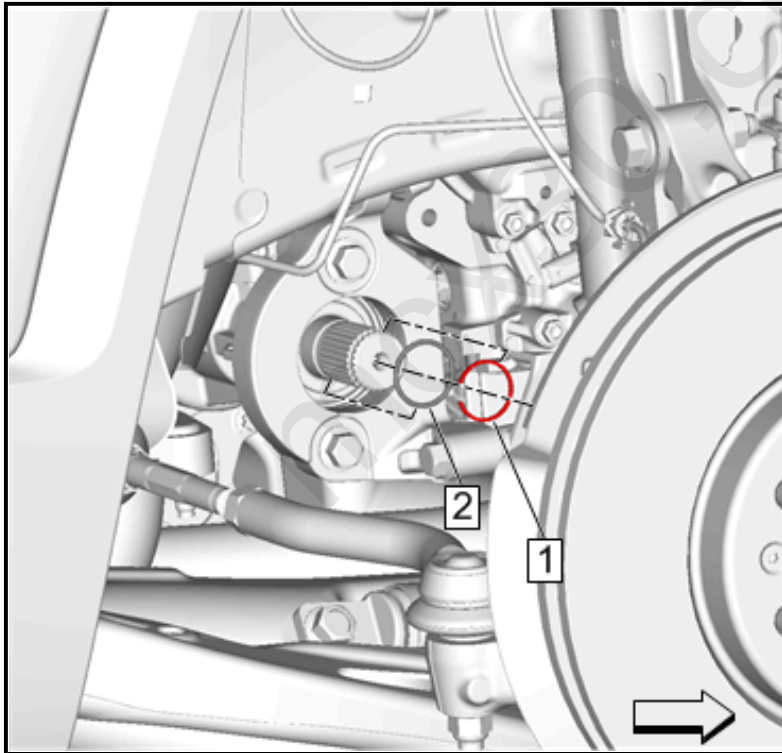


Front Wheel Drive Shaft Retaining Ring (1) - Remove and DISCARD

14. Power Transfer Unit Half Shaft Seal (2) - Remove and DISCARD

Installation Procedure

1.



Clean the splines of the power transfer unit output shaft and apply a light coat of high temperature grease.
[Adhesives, Fluids, Lubricants, and Sealers](#)

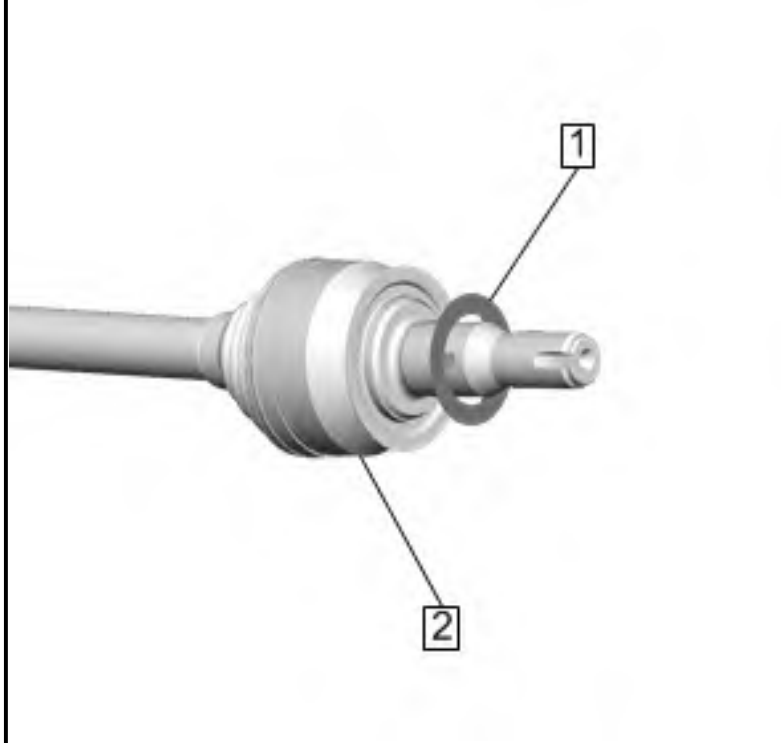
2. Power Transfer Unit Half Shaft Seal (2) - Install NEW

3. Front Wheel Drive Shaft Retaining Ring (1) - Install NEW

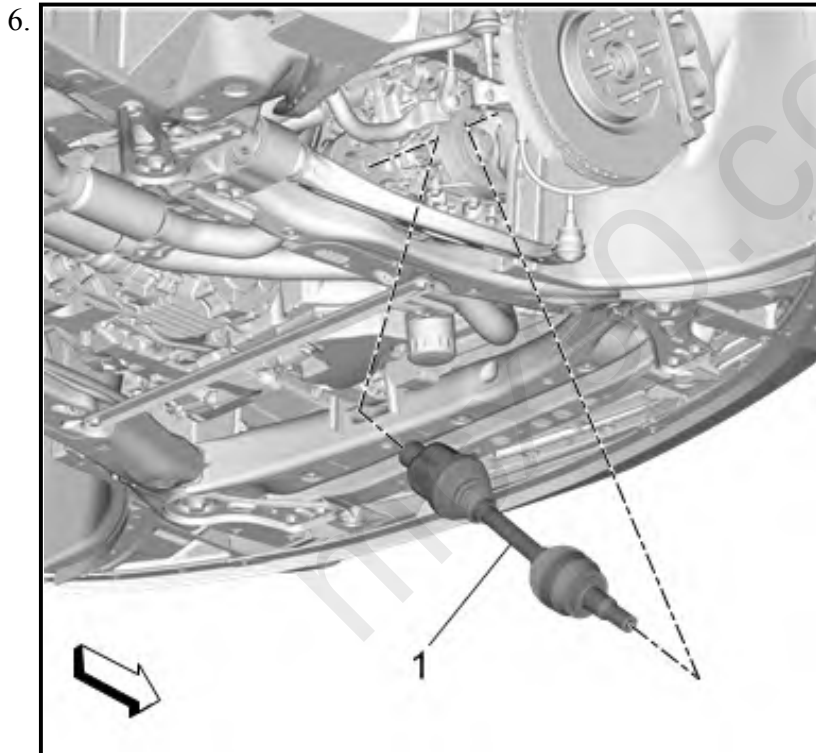
4. Prior to installation, clean the splines of the wheel drive shaft constant velocity inner joint and apply a light coating of high temperature grease. [Adhesives, Fluids, Lubricants, and Sealers](#)

5.





Front Wheel Drive Shaft Washer (1) @ Front Wheel Drive Half Shaft (2) - Install NEW

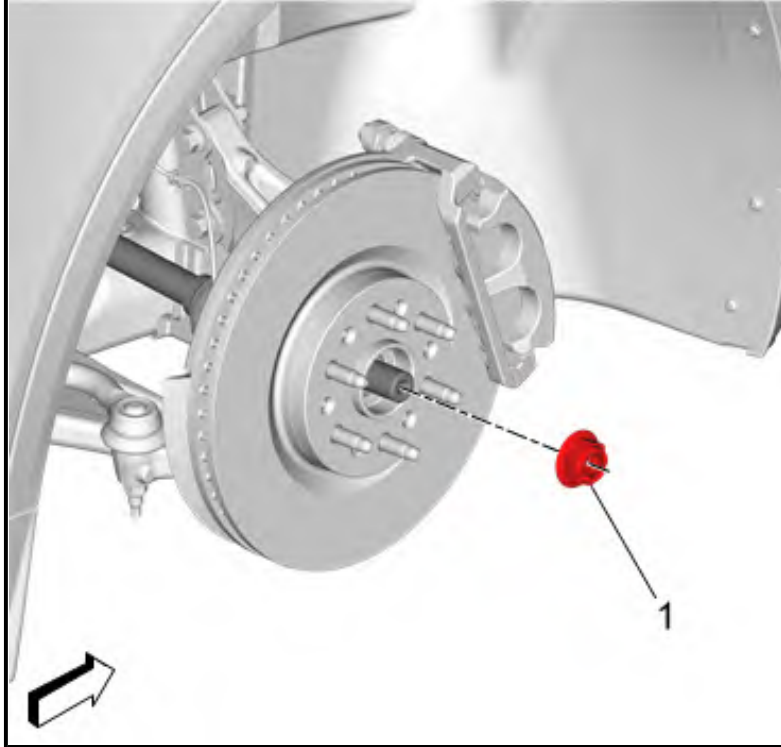


NOTE: Ensure that the front wheel drive half shaft is fully seated onto the power transfer unit.

Front Wheel Drive Half Shaft (1) - Install

7. Install the front wheel drive half shaft (1) into the front wheel hub.
8. Lower Control Arm @ Steering Knuckle - Install - [Lower Control Arm Replacement](#)
9. Steering Linkage Outer Tie Rod @ Steering Knuckle - Install - [Steering Linkage Outer Tie Rod Replacement](#)





CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a **NEW** torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

Front Wheel Drive Shaft Nut (1) - Install NEW and hand tighten

11. Have an assistant apply the brakes.

CAUTION: Refer to [Fastener Caution](#) .

NOTE: Do NOT use air tools to tighten the front wheel drive shaft nut. Tighten the **NEW** front wheel drive shaft nut slowly to draw the front wheel drive half shaft into the front wheel hub prior to tightening to specifications.

12. Front Wheel Drive Shaft Nut (1) - Tighten

1. First Pass: 330 N.m (244 lb ft)
2. Second Pass: **loosen 45 degrees**
3. Final Pass: 270 N.m (199 lb ft)

13. Install the right front tire and wheel assembly. [Tire and Wheel Removal and Installation](#)

14. Remove the support and lower the vehicle.

REAR WHEEL DRIVE SHAFT REPLACEMENT - LEFT SIDE

Special Tools

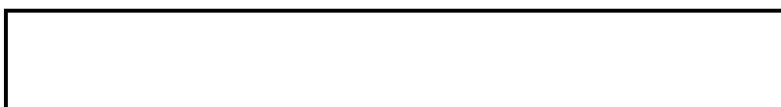
- **GE-02619-A** Slide Hammer
- **DT-45341** Rear Wheel Drive Shaft Removal Tool
- **DT-45859** Axle Remover

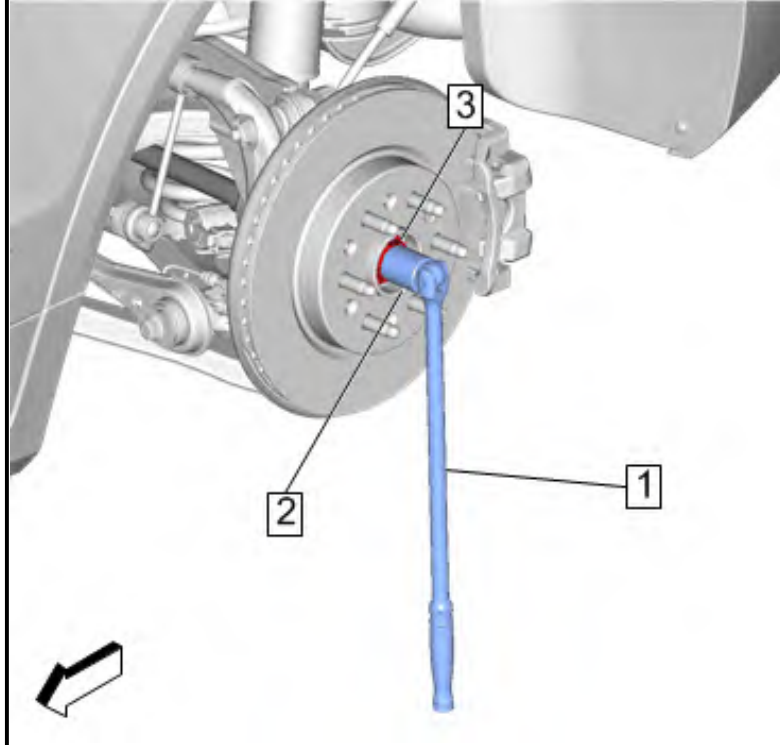
Equivalent regional tools: [Special Tools](#)

Removal Procedure

1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)
2. Remove the left rear tire and wheel assembly. [Tire and Wheel Removal and Installation](#)

3.

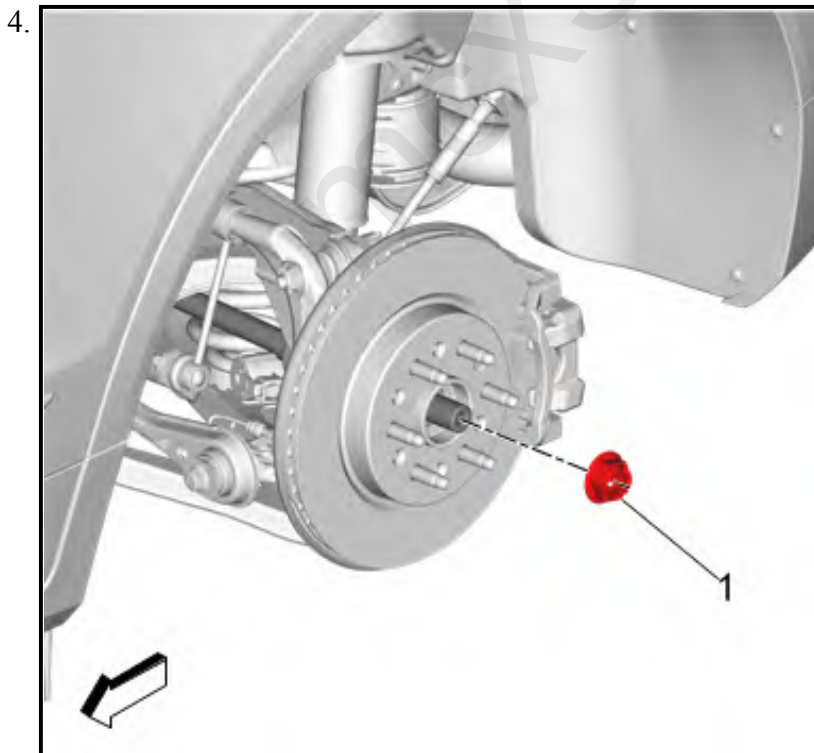




WARNING: To prevent personal injury and/or component damage, do not allow the weight of the vehicle to load the front wheels, or attempt to operate the vehicle, when the wheel drive shaft (s) or wheel drive shaft nut (s) are removed. To do so may cause the inner bearing race to separate, resulting in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

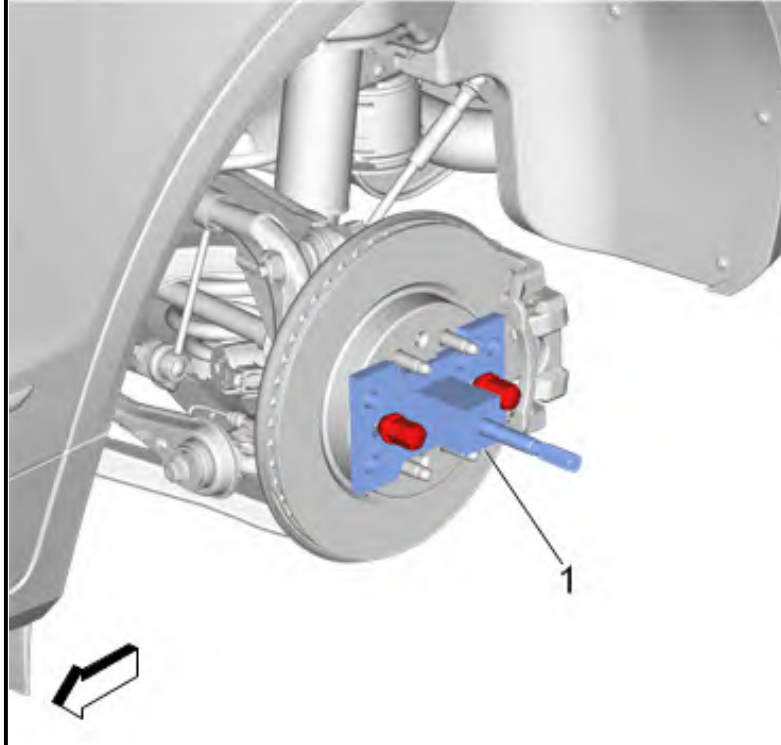
CAUTION: DO NOT use air tools to remove the wheel drive shaft nut. Damage to the wheel drive shaft threads could occur. Use hand tools only.

With the aid of an assistant holding the brake pedal down, use a breaker bar (1) and the proper size socket (2) to loosen the rear wheel drive shaft nut (3).



Rear Wheel Drive Shaft Nut (1) - Remove and DISCARD

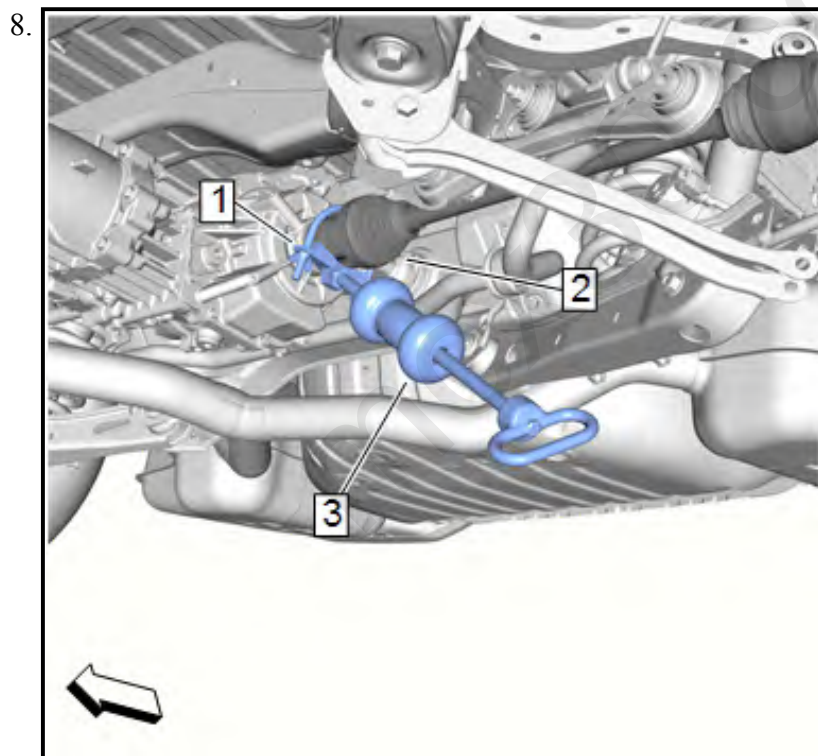




Using the **DT-45859** Axle Remover (1) as shown, separate the rear wheel drive shaft from the rear wheel hub.

6. Remove the **DT-45859** Axle Remover (1) from the rear wheel hub.

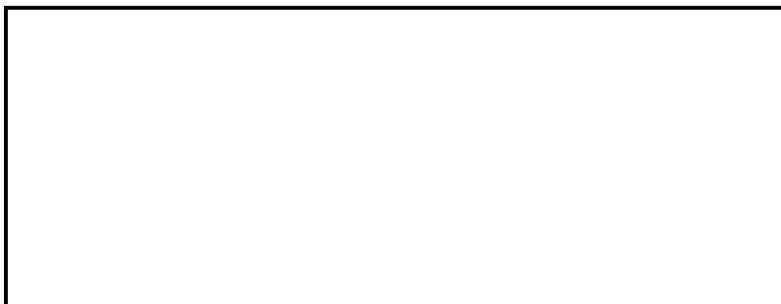
7. Rear Knuckle - Remove - [Knuckle Replacement](#)

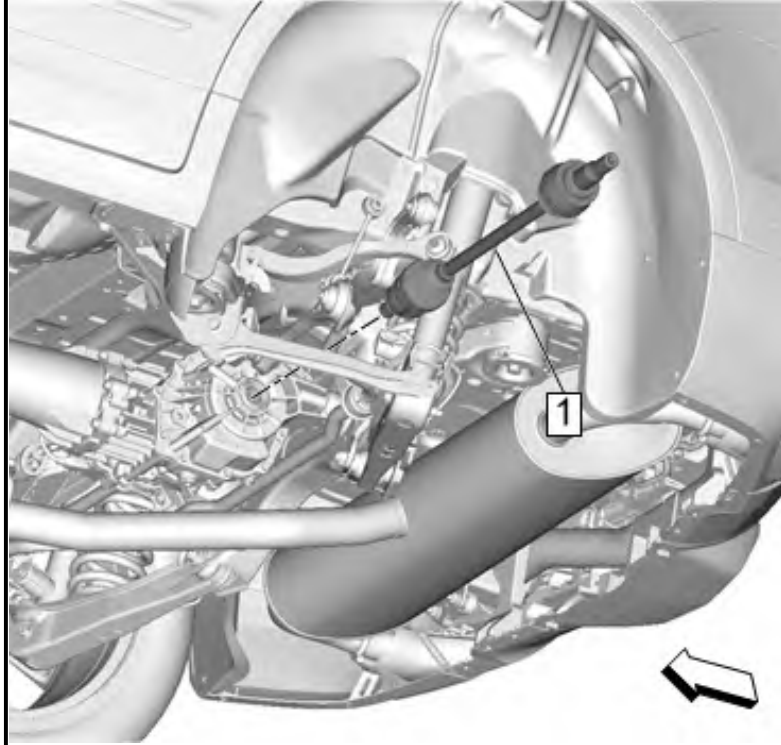


Using the **GE-02619-A** Slide Hammer (3) and the **DT-45341** Rear Wheel Drive Shaft Removal Tool (1) installed as shown, release the rear wheel drive shaft (2) from the differential carrier assembly.

9. Remove the **DT-45859** Axle Remover (3) and the **DT-45341** Rear Wheel Drive Shaft Removal Tool (1) from the rear wheel drive shaft (2).

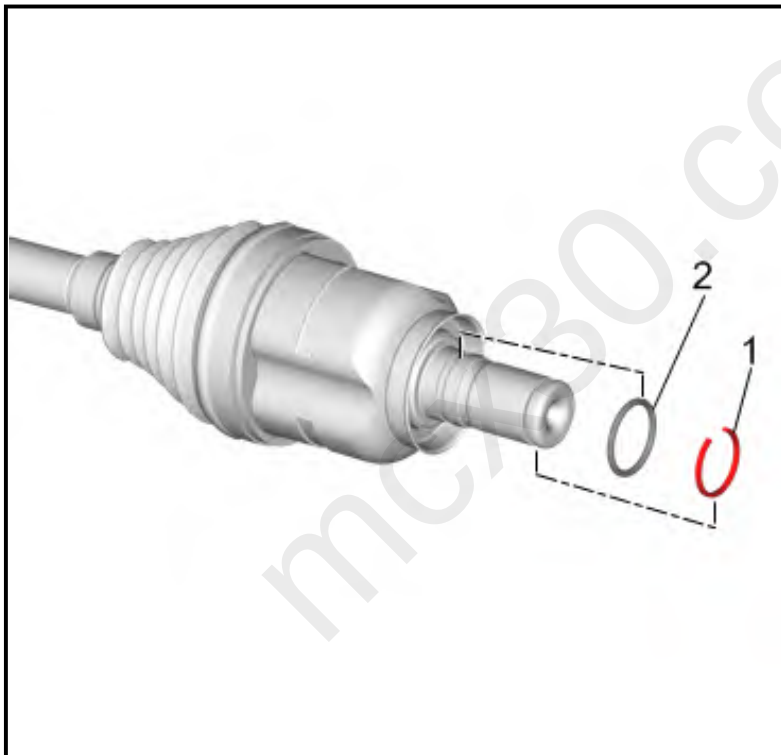
10.





Rear Wheel Drive Shaft (1) - Remove

11.

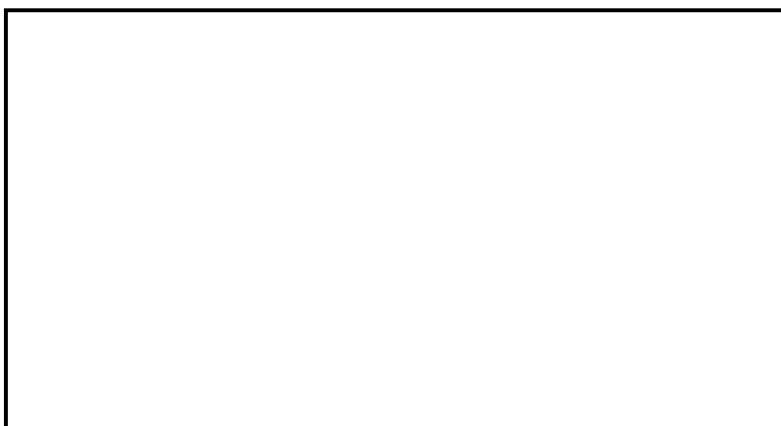


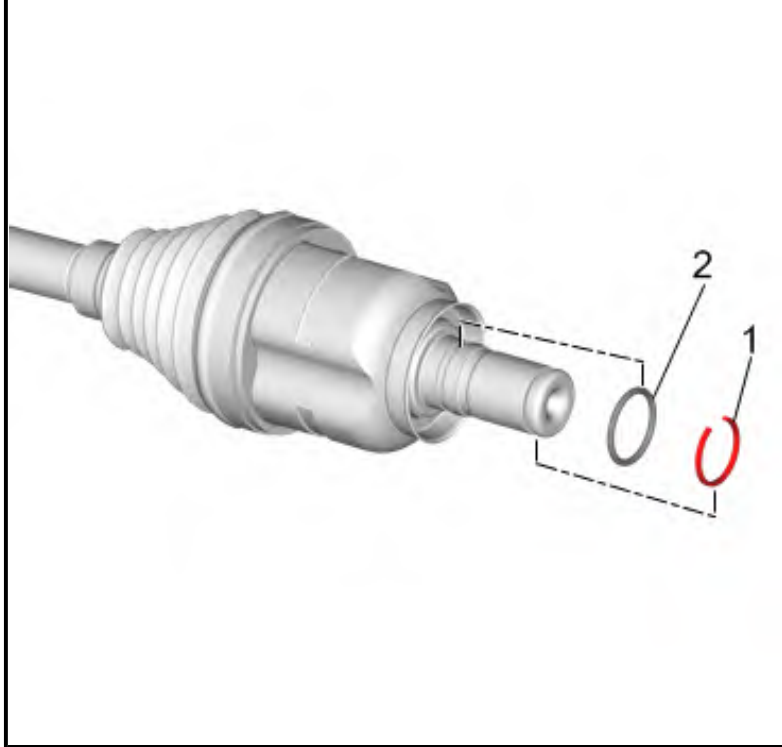
Rear Wheel Drive Shaft Retaining Ring (1) @ Rear Wheel Drive Shaft - Remove and DISCARD

12. Rear Wheel Drive Shaft Seal (2) @ Rear Wheel Drive Shaft - Remove and DISCARD

Installation Procedure

1.

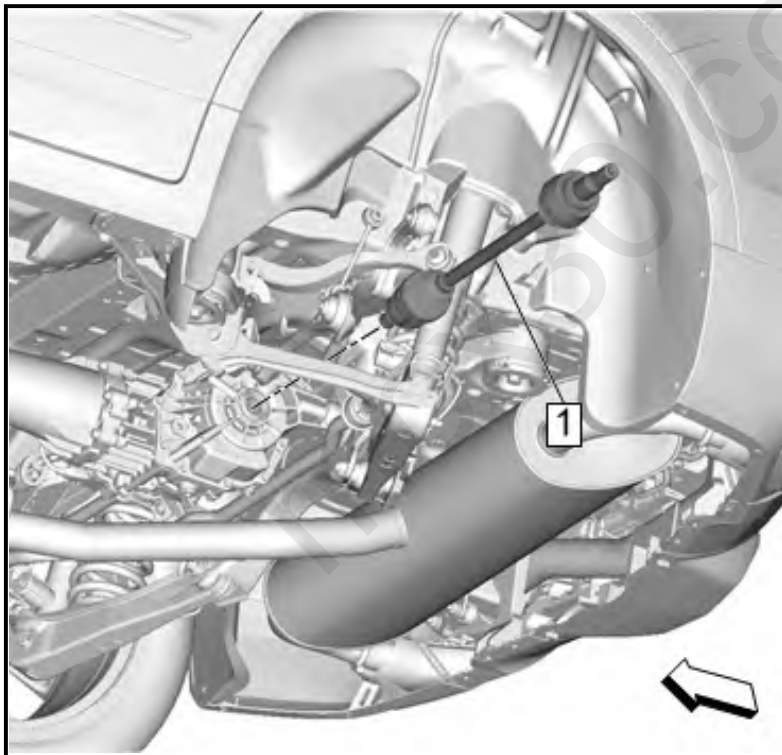




Rear Wheel Drive Shaft Seal (2) @ Rear Wheel Drive Shaft - Install NEW

2. Rear Wheel Drive Shaft Retaining Ring (1) @ Rear Wheel Drive Shaft - Install NEW

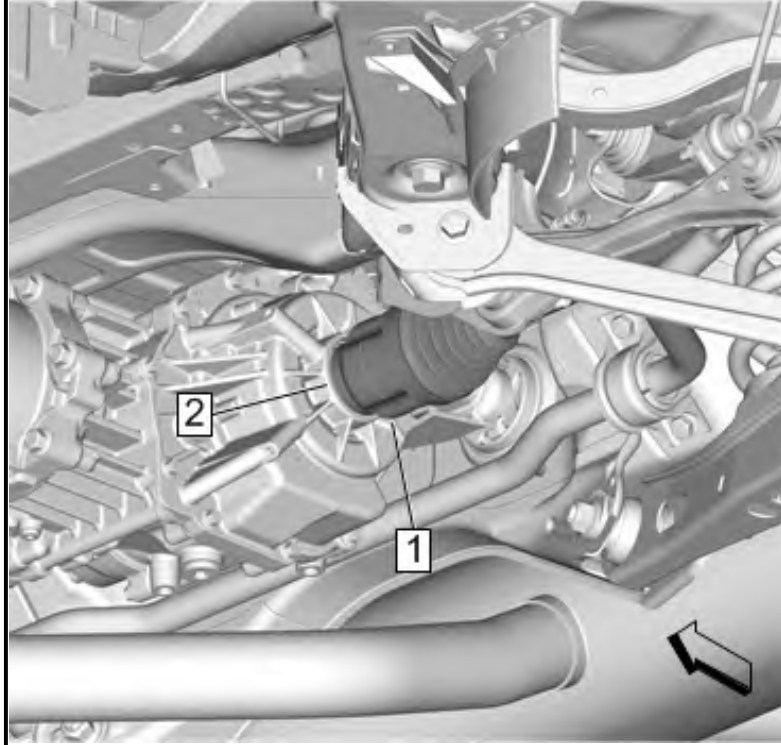
3.



Rear Wheel Drive Shaft (1) - Install

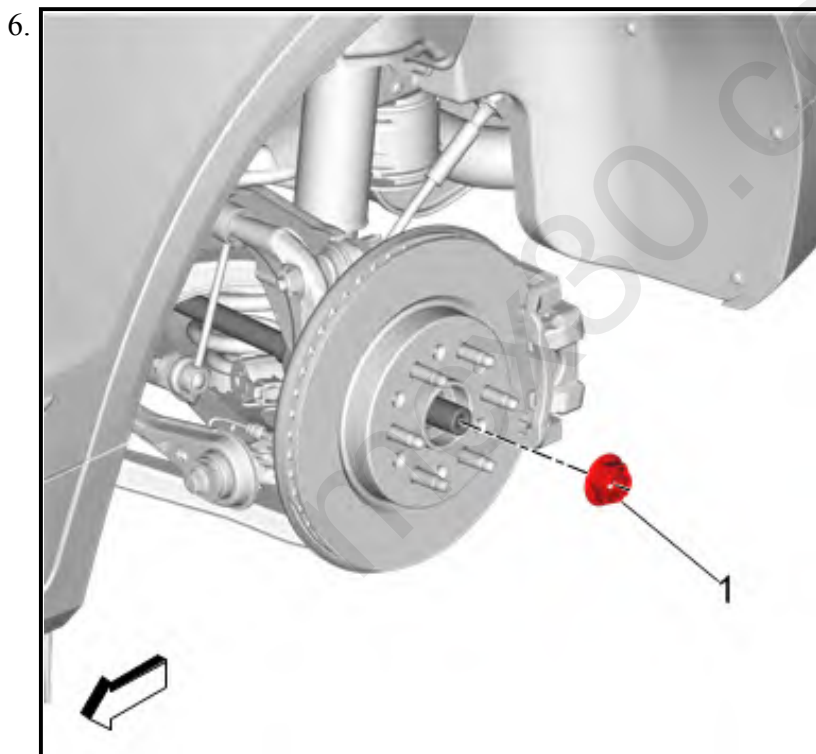
4.





Install the rear wheel drive shaft (1) until it is fully seated into the differential carrier assembly (2).

5. Rear Knuckle - Install - [Knuckle Replacement](#)



CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a **NEW** torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

Rear Wheel Drive Shaft Nut (1) - Install NEW and hand tighten

7. Have an assistant apply the brakes.

CAUTION: Refer to [Fastener Caution](#) .

NOTE: Tighten the **NEW** rear wheel drive shaft nut slowly to draw the rear wheel drive shaft into the rear wheel hub prior to tightening to specifications.

8. Rear Wheel Drive Shaft Nut (1) - Tighten

1. First Pass: 330 N.m (244 lb ft)
2. Second Pass: loosen 45 degrees
3. Final Pass: 270 N.m (199 lb ft)
9. Install the left rear tire and wheel assembly. [Tire and Wheel Removal and Installation](#)
10. Remove the support and lower the vehicle.

REAR WHEEL DRIVE SHAFT REPLACEMENT - RIGHT SIDE

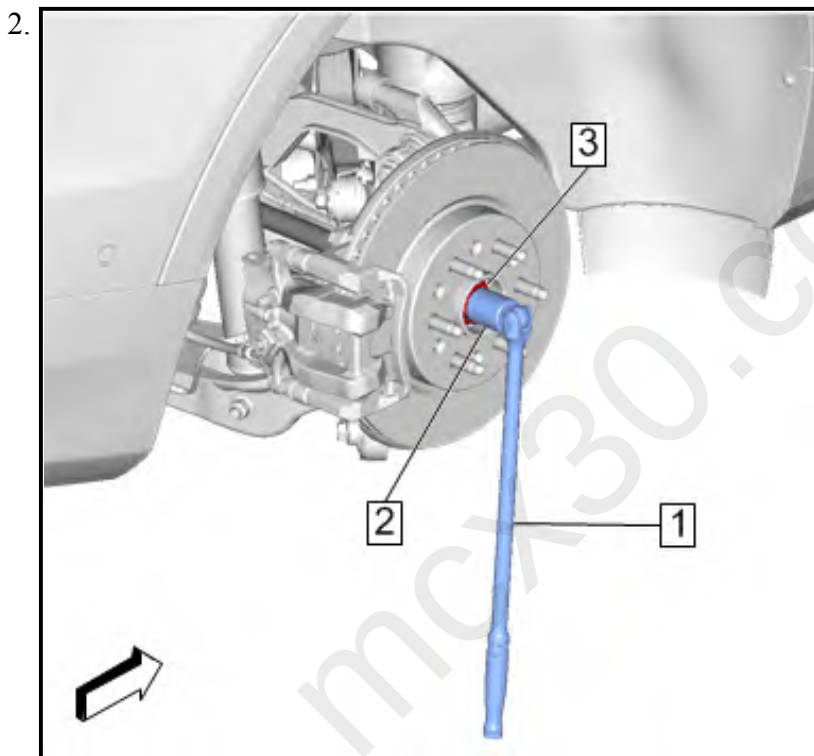
Special Tools

- **GE-02619-A** Slide Hammer
- **DT-45341** Rear Wheel Drive Shaft Removal Tool
- **DT-45859** Axle Remover

Equivalent regional tools: [Special Tools](#)

Removal Procedure

1. Remove the right rear tire and wheel assembly. [Tire and Wheel Removal and Installation](#)

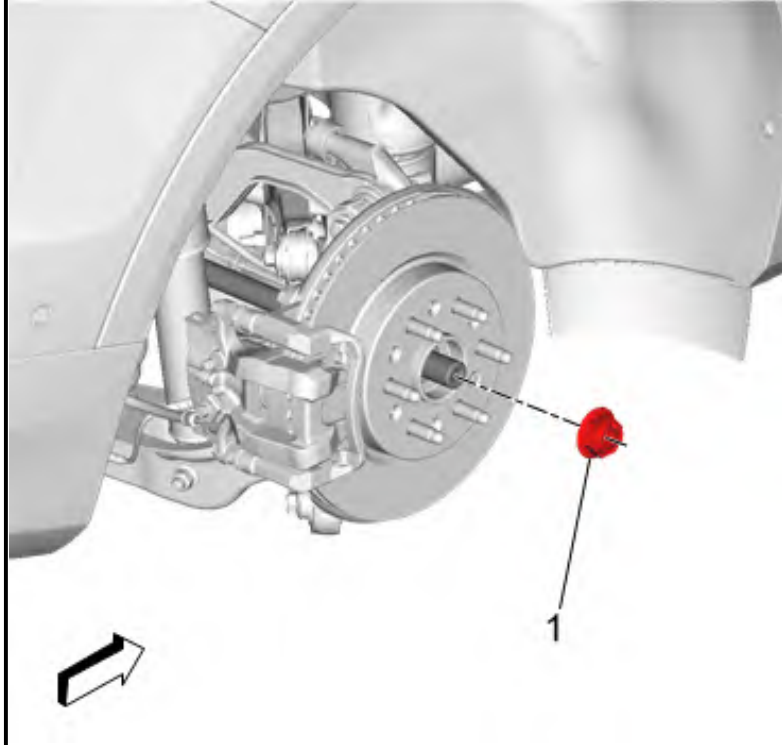


WARNING: To prevent personal injury and/or component damage, do not allow the weight of the vehicle to load the front wheels, or attempt to operate the vehicle, when the wheel drive shaft (s) or wheel drive shaft nut (s) are removed. To do so may cause the inner bearing race to separate, resulting in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

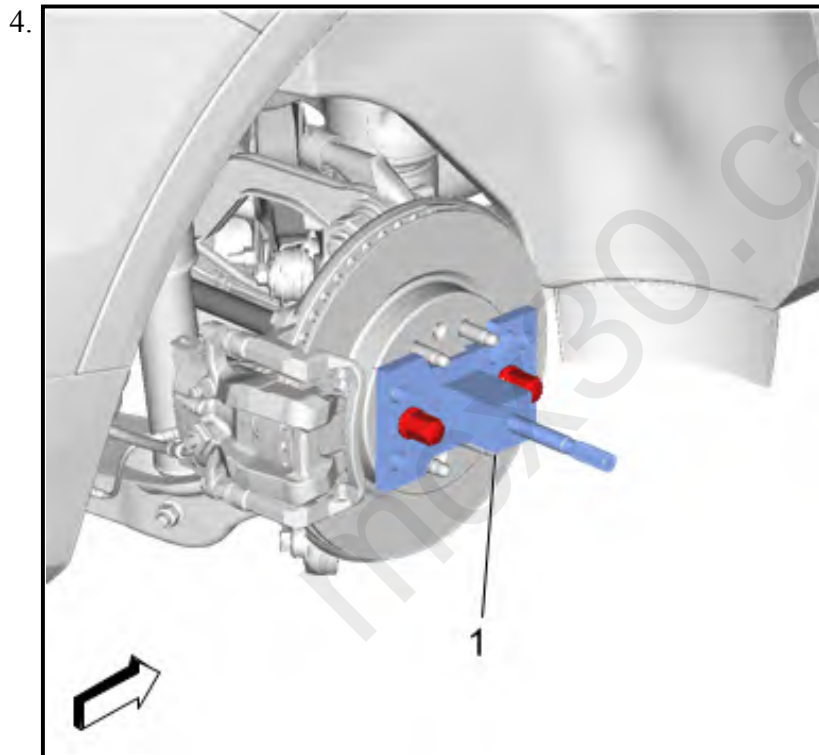
CAUTION: DO NOT use air tools to remove the wheel drive shaft nut. Damage to the wheel drive shaft threads could occur. Use hand tools only.

With the aid of an assistant holding the brake pedal down, use a breaker bar (1) and the proper size socket (2) to loosen the rear wheel drive shaft nut (3).





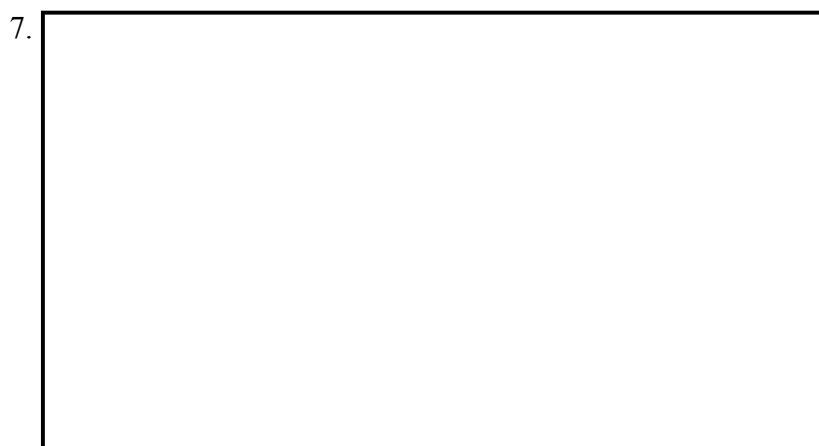
Rear Wheel Drive Shaft Nut (1) - Remove and DISCARD

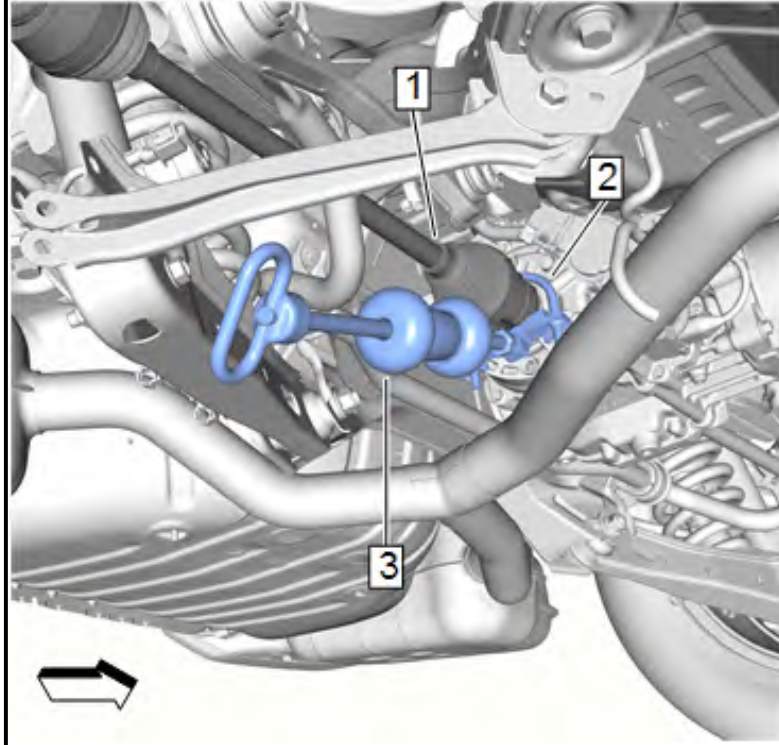


Using the **DT-45859** Axle Remover (1) as shown, separate the rear wheel drive shaft from the rear wheel hub.

5. Remove the **DT-45859** Axle Remover (1) from the rear wheel hub.

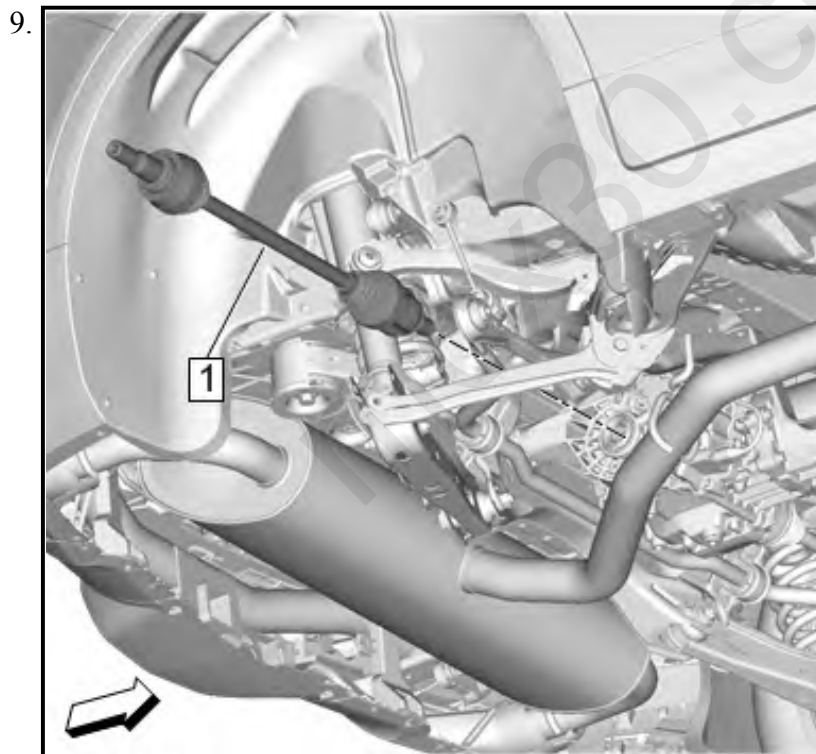
6. Rear Knuckle - Remove - [Knuckle Replacement](#)





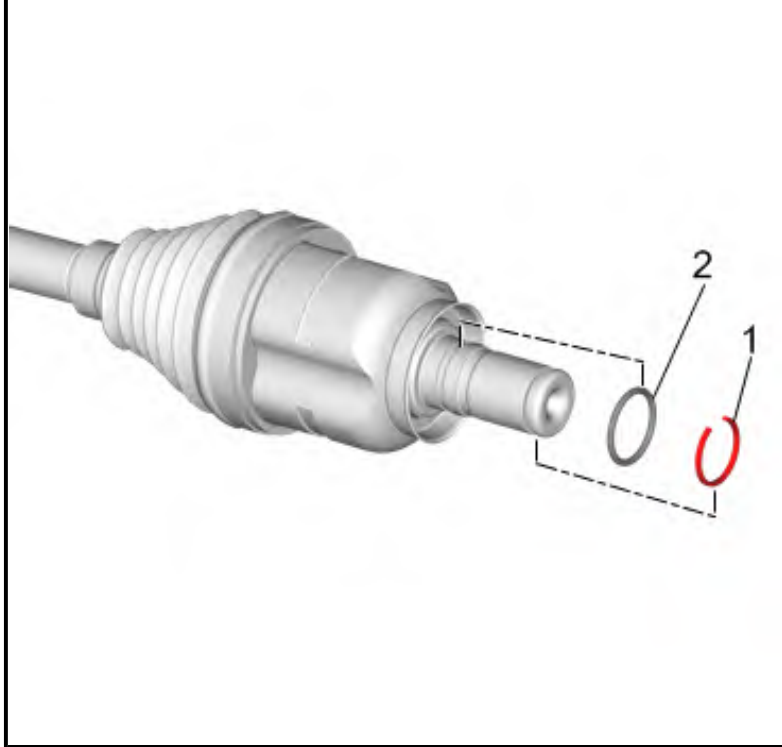
Using the **GE-02619-A** Slide Hammer (3) and the **DT-45341** Rear Wheel Drive Shaft Removal Tool (1) installed as shown, release the rear wheel drive shaft (2) from the differential carrier assembly.

8. Remove the **DT-45859** Axle Remover (3) and the **DT-45341** Rear Wheel Drive Shaft Removal Tool (1) from the rear wheel drive shaft (2).



Rear Wheel Drive Shaft (1) - Remove

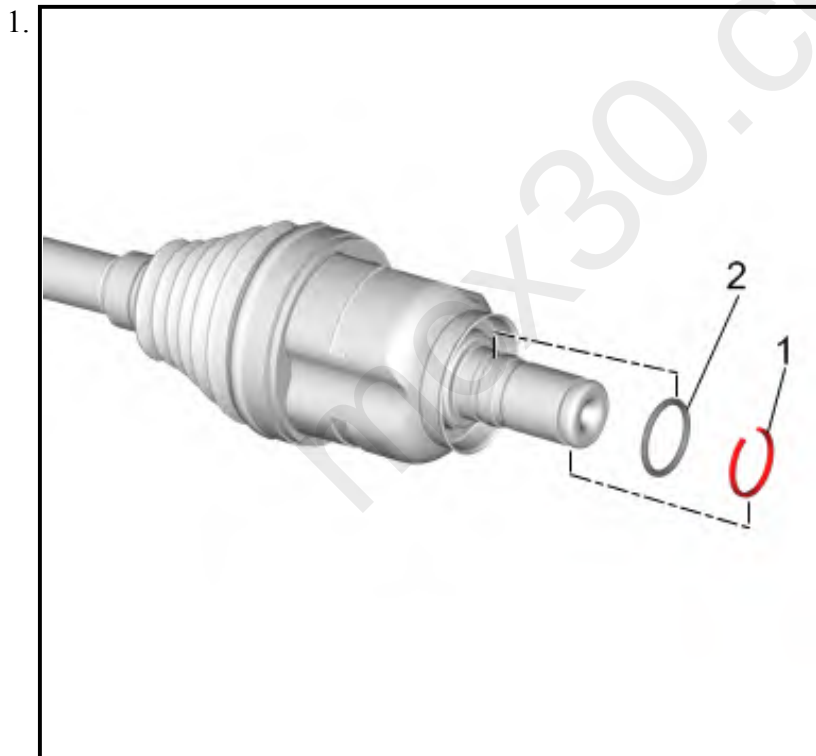




Rear Wheel Drive Shaft Retaining Ring (1) @ Rear Wheel Drive Shaft - Remove and DISCARD

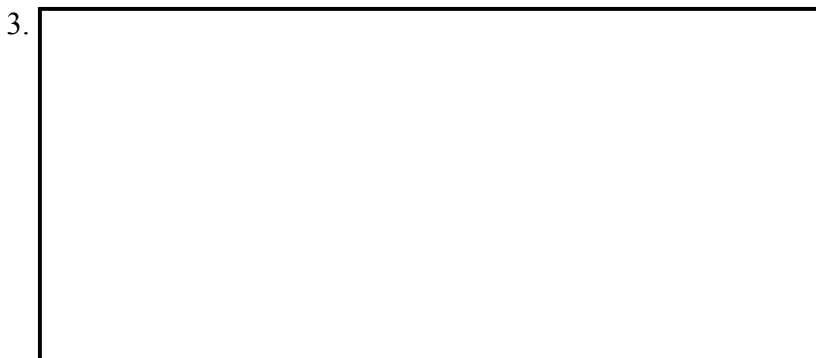
11. Rear Wheel Drive Shaft Seal (2) @ Rear Wheel Drive Shaft - Remove and DISCARD

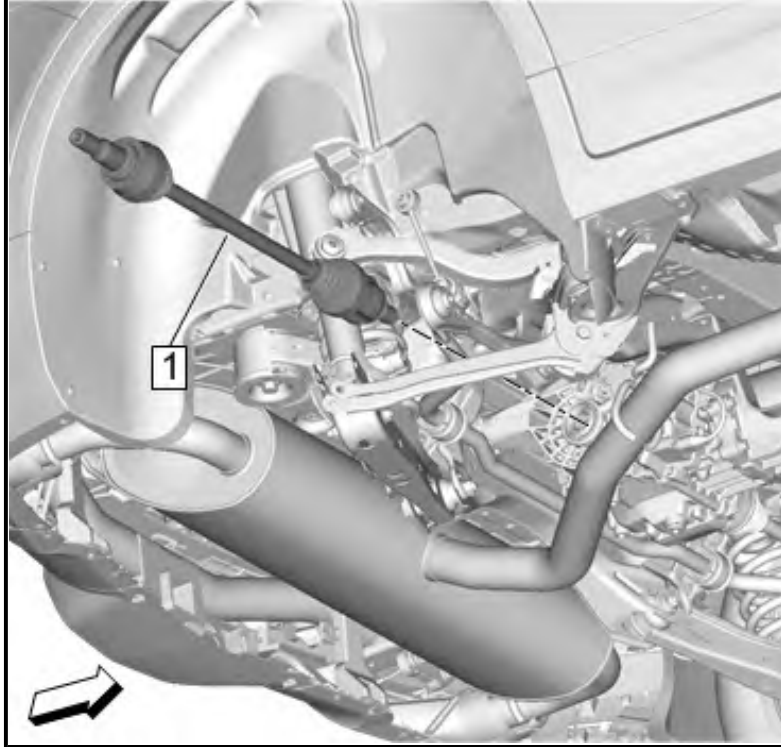
Installation Procedure



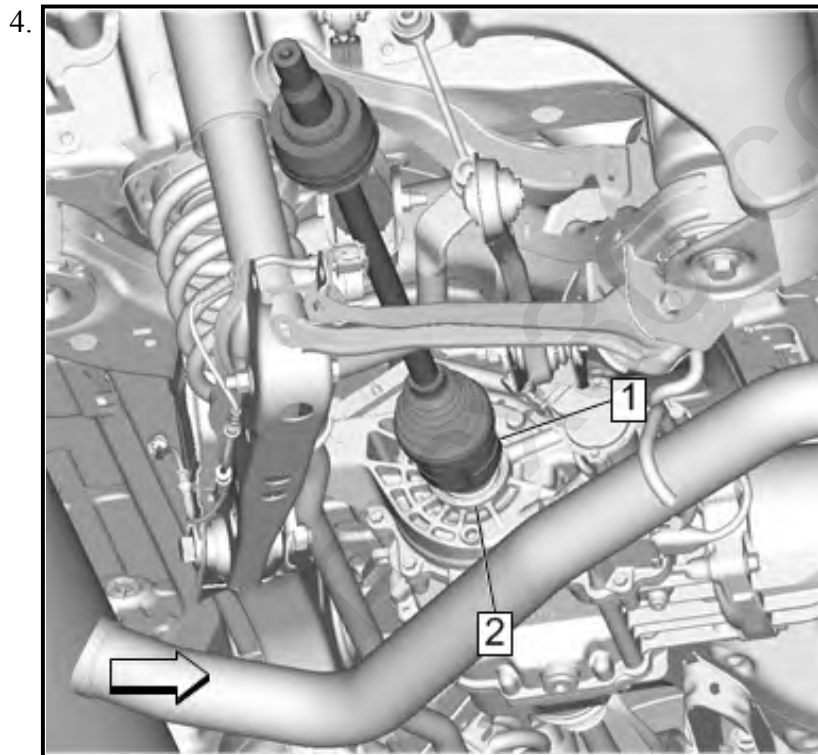
Rear Wheel Drive Shaft Seal (2) @ Rear Wheel Drive Shaft - Install NEW

2. Rear Wheel Drive Shaft Retaining Ring (1) @ Rear Wheel Drive Shaft - Install NEW





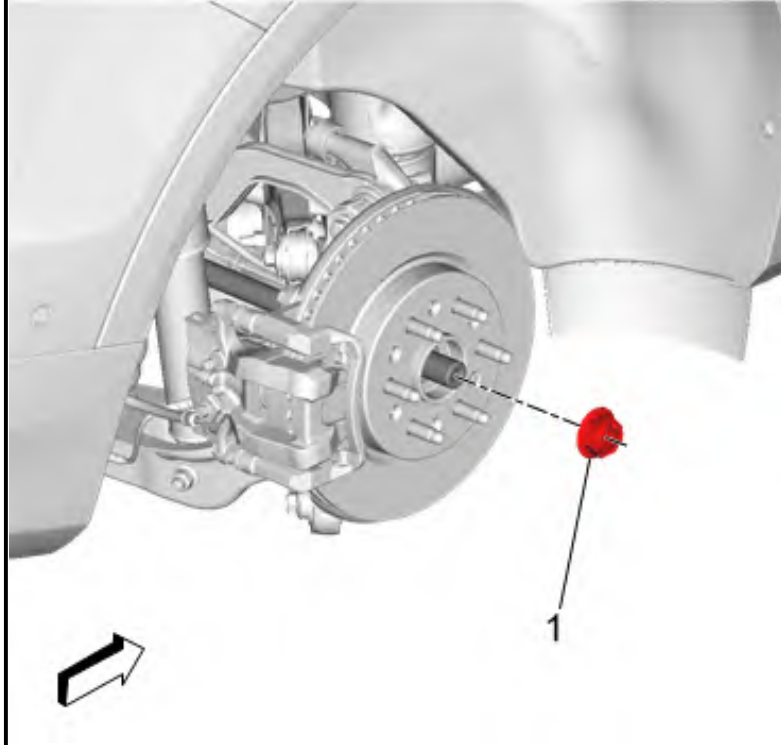
Rear Wheel Drive Shaft (1) - Install



Install the rear wheel drive shaft (1) until it is fully seated into the differential carrier assembly (2).

5. Rear Knuckle - Install - [Knuckle Replacement](#)





CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a **NEW** torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

Rear Wheel Drive Shaft Nut (1) - Install NEW and hand tighten

7. Have an assistant apply the brakes.

CAUTION: Refer to [Fastener Caution](#) .

NOTE: Tighten the **NEW** rear wheel drive shaft nut slowly to draw the rear wheel drive shaft into the rear wheel hub prior to tightening to specifications.

8. Rear Wheel Drive Shaft Nut (1) - Tighten

1. First Pass: 330 N.m (244 lb ft)
2. Second Pass: loosen 45 degrees
3. Final Pass: 270 N.m (199 lb ft)

9. Install the right rear tire and wheel assembly. [Tire and Wheel Removal and Installation](#)

10. Remove the support and lower the vehicle.

FRONT WHEEL DRIVE SHAFT INNER JOINT AND BOOT REPLACEMENT

Special Tools

J-42572 Drive Shaft Seal Clamp Pliers

Disassembly Procedure

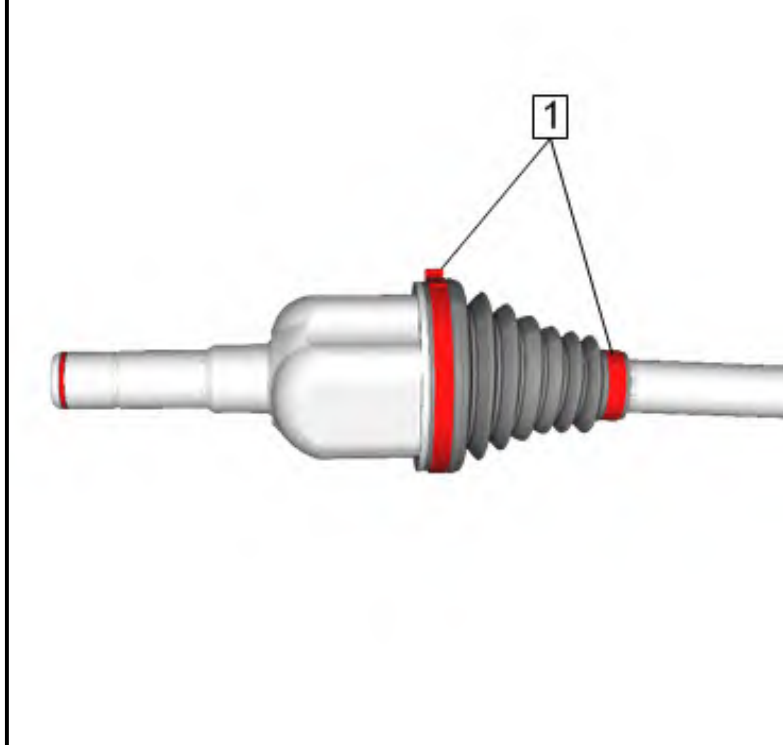
1. Front Wheel Drive Half Shaft - Remove

- [Front Wheel Drive Half Shaft Replacement - Left Side](#)
- [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#)

2. Place the wheel drive shaft horizontally in a bench vise.

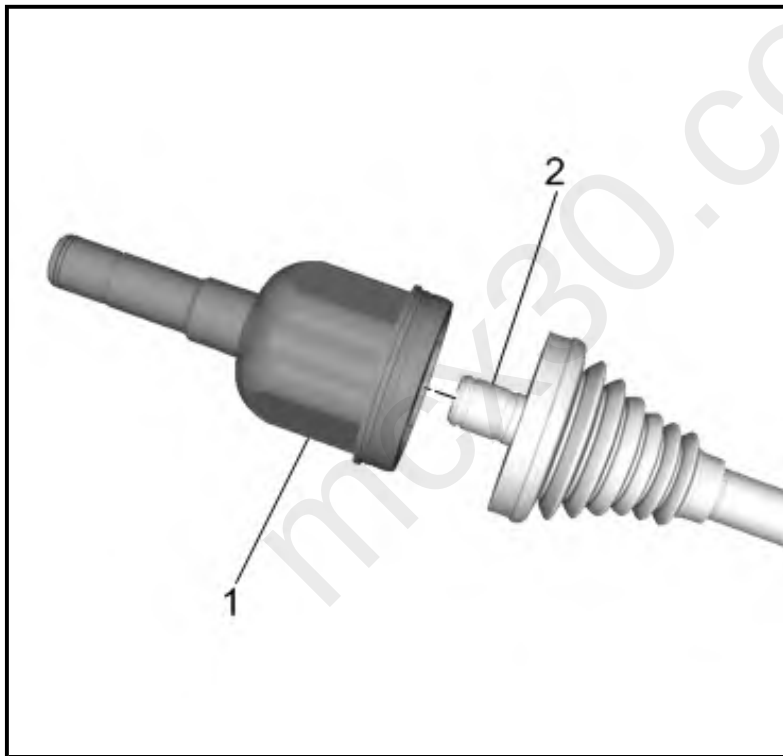
3.





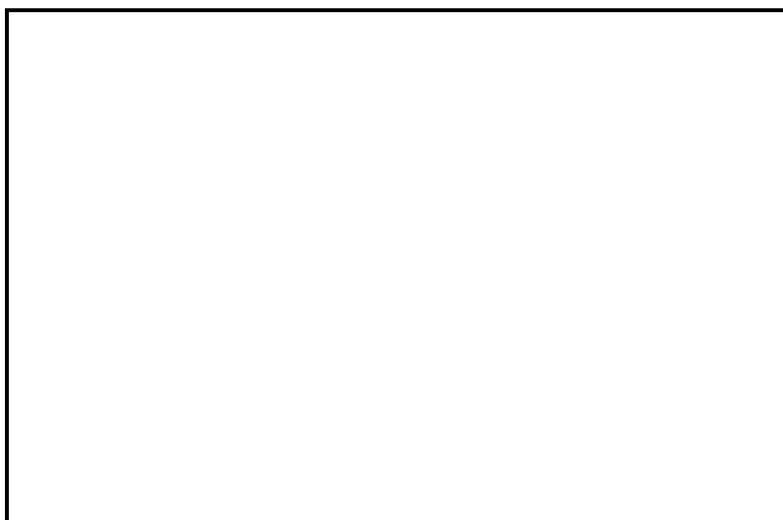
Using a side cutter or other suitable tool, remove and DISCARD the CV boot clamps (1) from the inner CV boot.

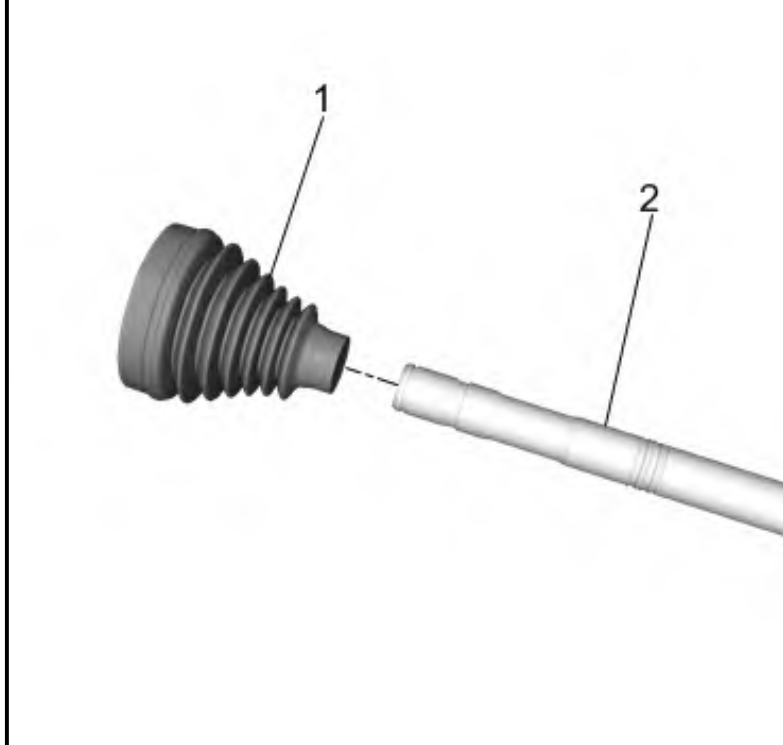
4.



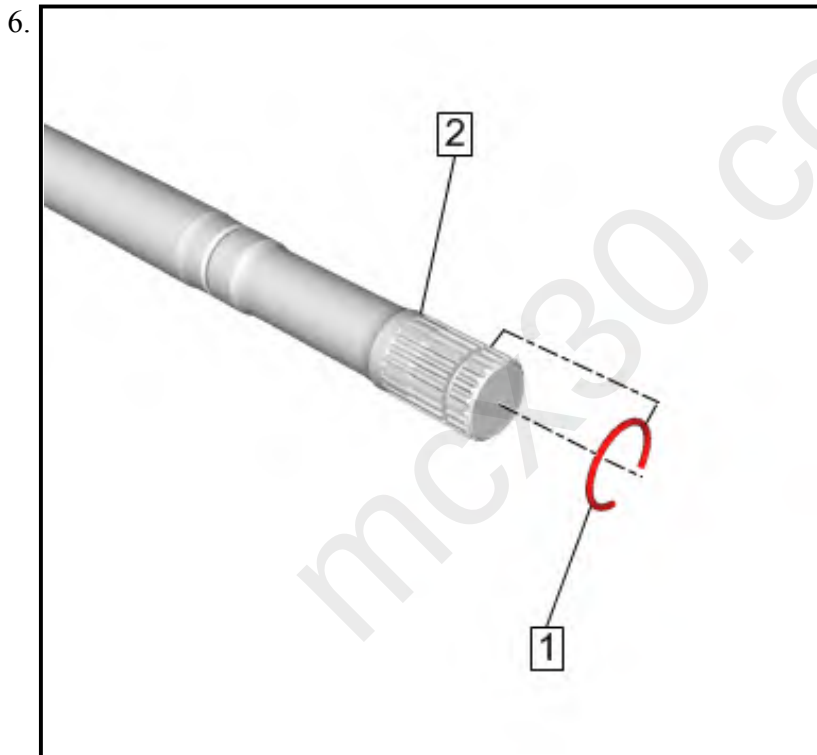
Using a suitable driver and a hammer, remove the CV joint (1) from the front wheel drive half shaft (2).

5.



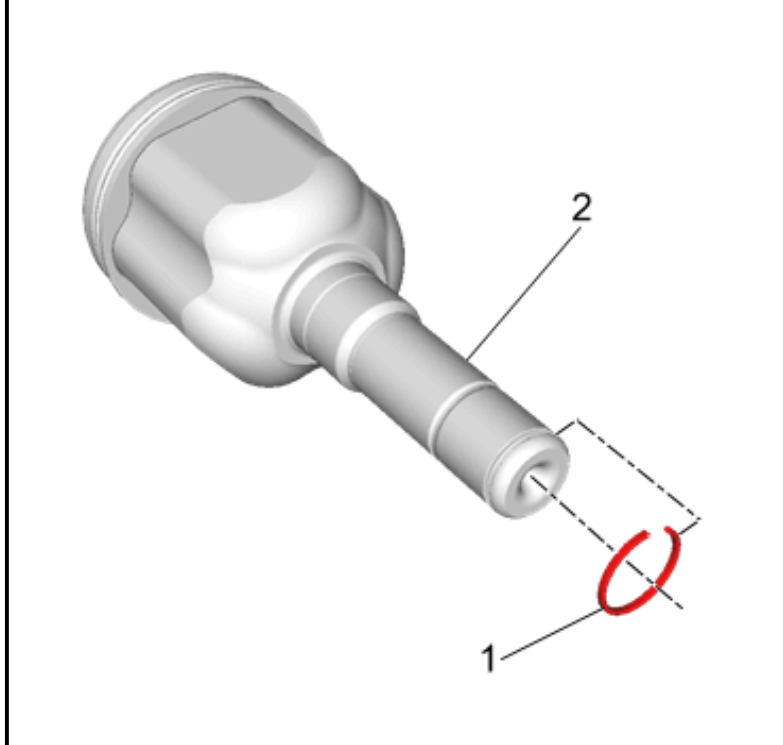


Remove and DISCARD the CV boot (1) from the front wheel drive half shaft (2).



Retaining Ring (1) @ Front Wheel Drive Half Shaft (2) - Remove and DISCARD

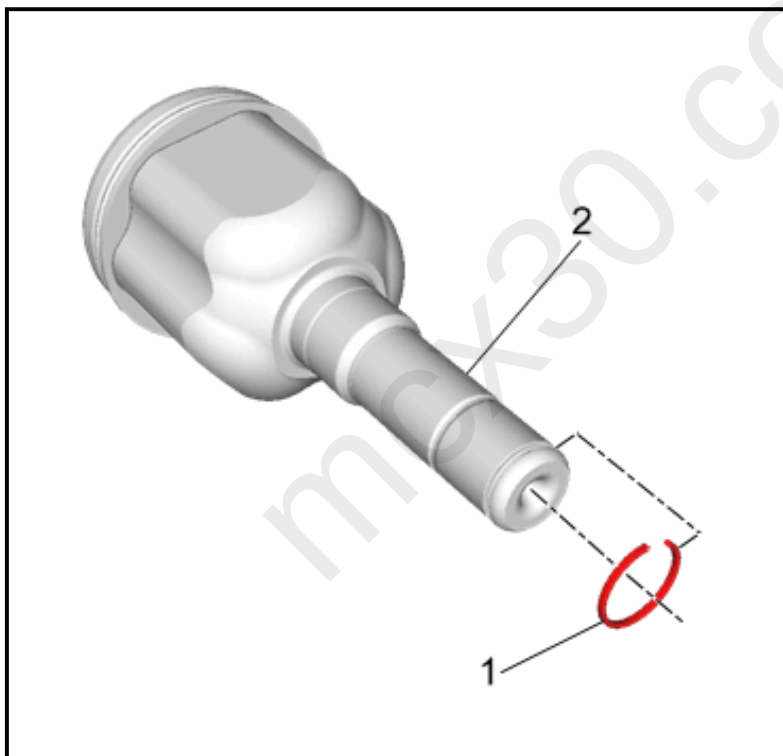




Retaining Ring (1) @ Inner Joint (2) - Remove and DISCARD

Assembly Procedure

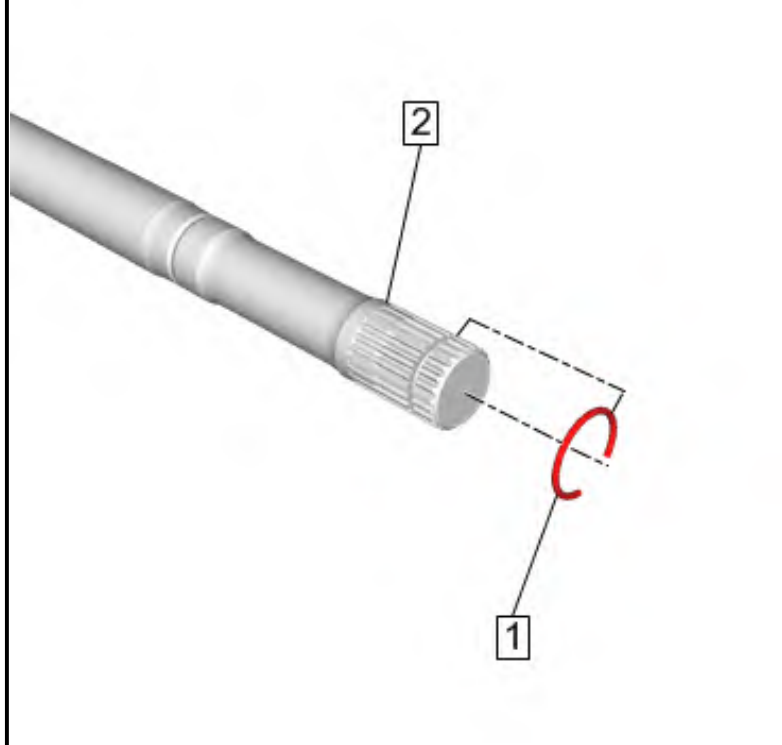
1.



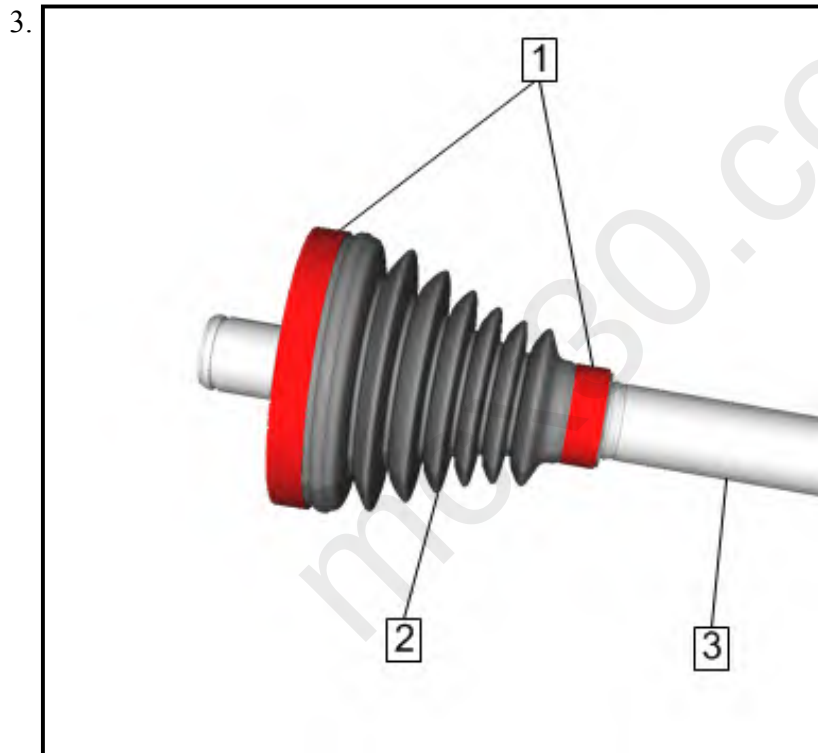
Retaining Ring (1)@ Inner Joint (2) - Install NEW

2.



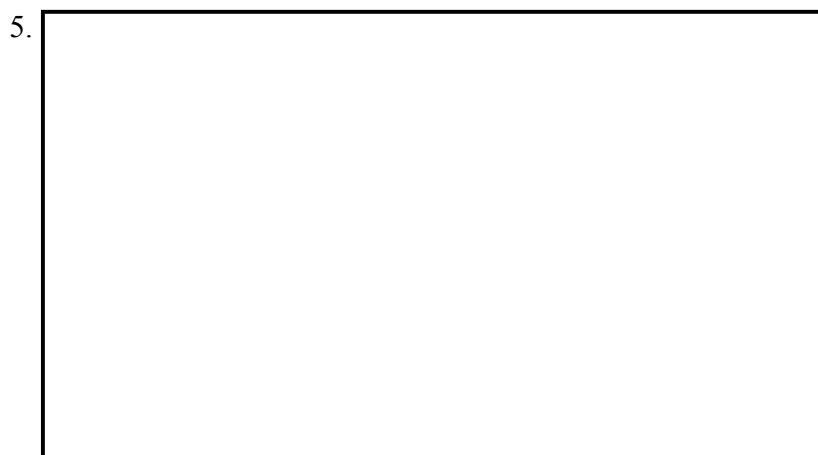


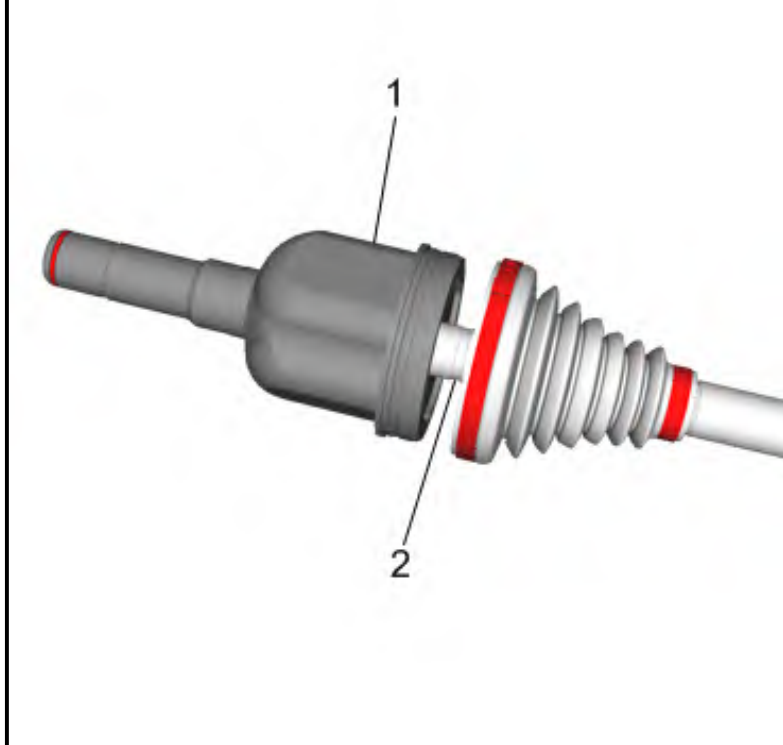
Retaining Ring (1) @ Front Wheel Drive Half Shaft (2) - Install NEW



Install the NEW CV boot clamps (1) and the NEW CV boot (2) onto the front wheel drive half shaft (3).

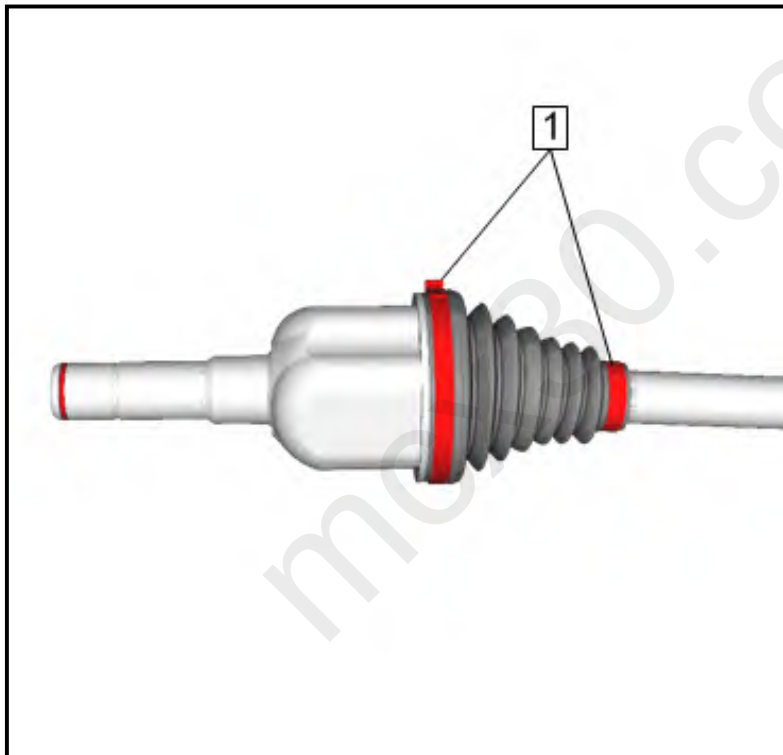
4. Pack the CV joint with grease prior to installation. Insert grease into the NEW inner boot prior to connecting the boot to the joint. [Adhesives, Fluids, Lubricants, and Sealers](#)





Using a block of wood and a hammer, install the CV Joint (1) onto the front wheel drive half shaft (2).

6.



Compress both CV boot clamps (1) using the **J-42572** Drive Shaft Seal Clamp Pliers.

7. Front Wheel Drive Half Shaft - Install

- [Front Wheel Drive Half Shaft Replacement - Left Side](#)
- [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#)

REAR WHEEL DRIVE SHAFT INNER JOINT AND BOOT REPLACEMENT

Special Tools

J-42572 Drive Shaft Seal Clamp Pliers

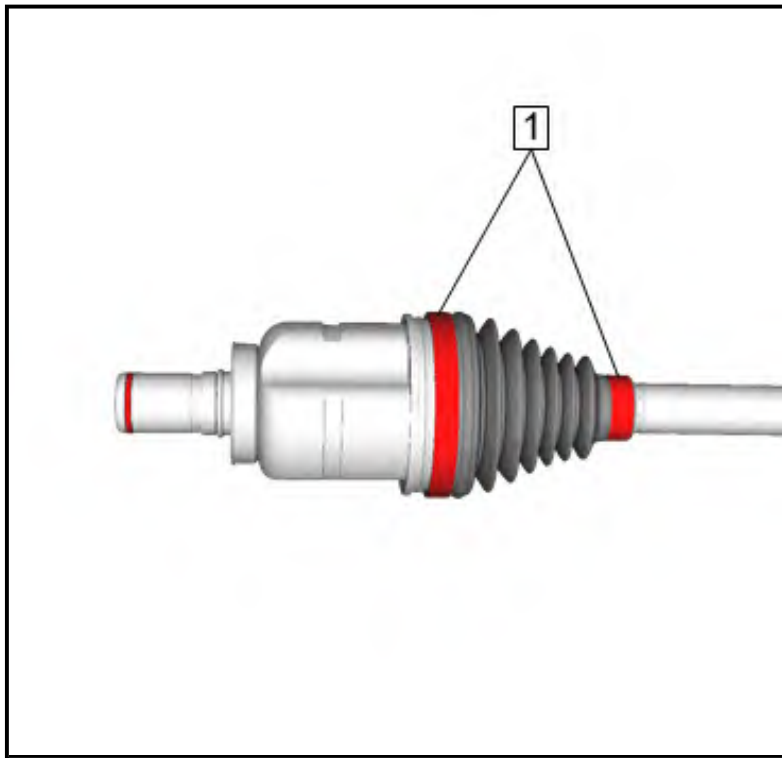
Disassembly Procedure

1. Rear Wheel Drive Shaft - Remove

- [Rear Wheel Drive Shaft Replacement - Left Side](#)
- [Rear Wheel Drive Shaft Replacement - Right Side](#)

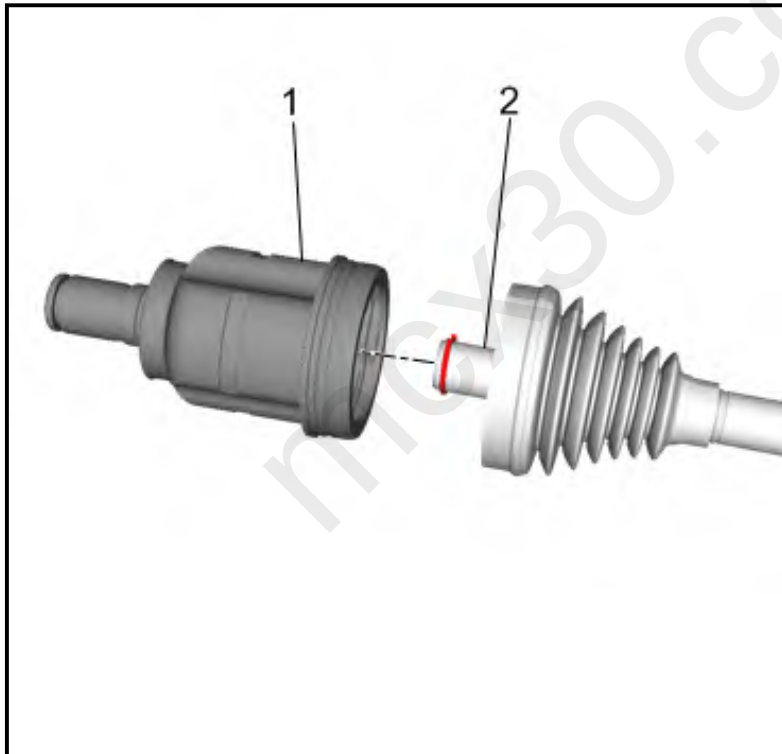
2. Place the wheel drive shaft horizontally in a bench vise.

3.



Using a side cutter or other suitable tool, remove and DISCARD the CV boot clamps (1) from the inner CV boot.

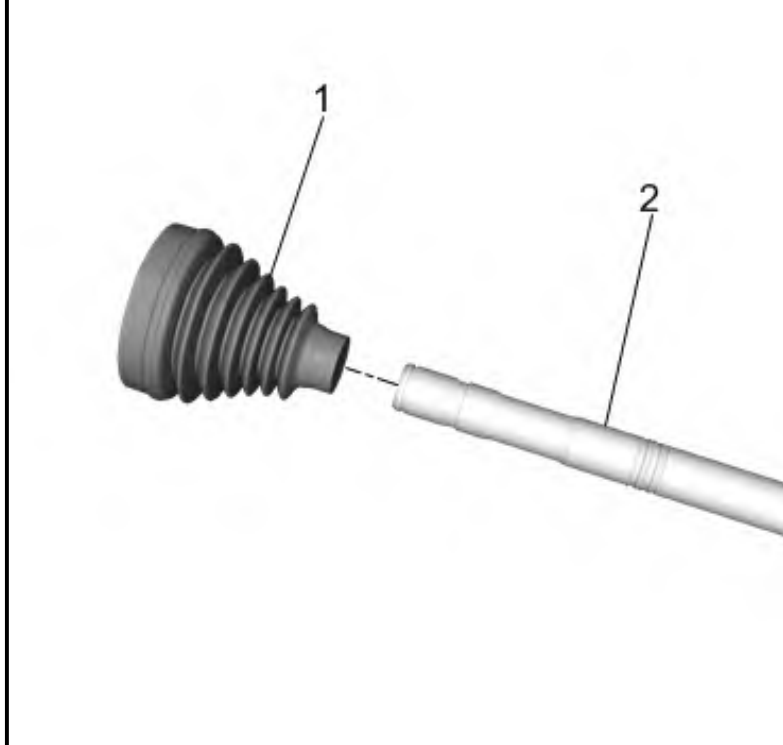
4.



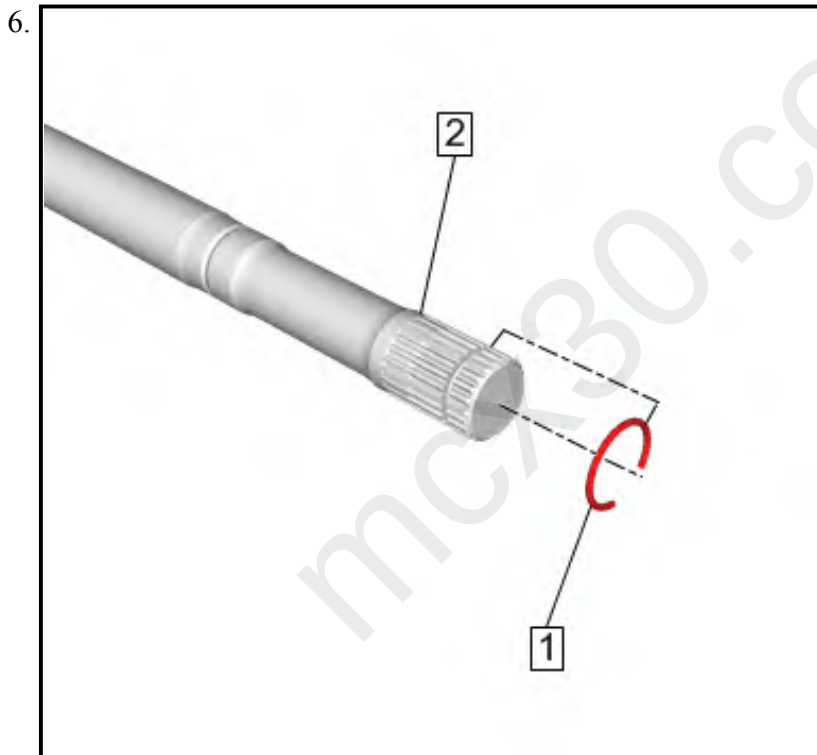
Using a suitable driver and a hammer, remove the CV joint (1) from the rear wheel drive shaft (2).

5.



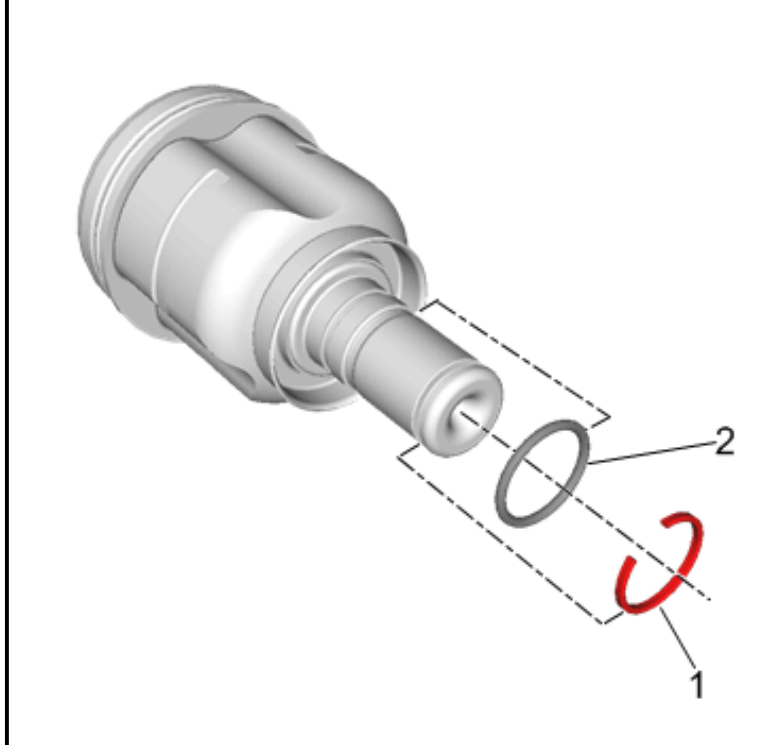


Remove and DISCARD the CV boot (1) from the rear wheel drive shaft (2).



Retaining Ring (1) @ Rear Wheel Drive Shaft (2) - Remove and DISCARD



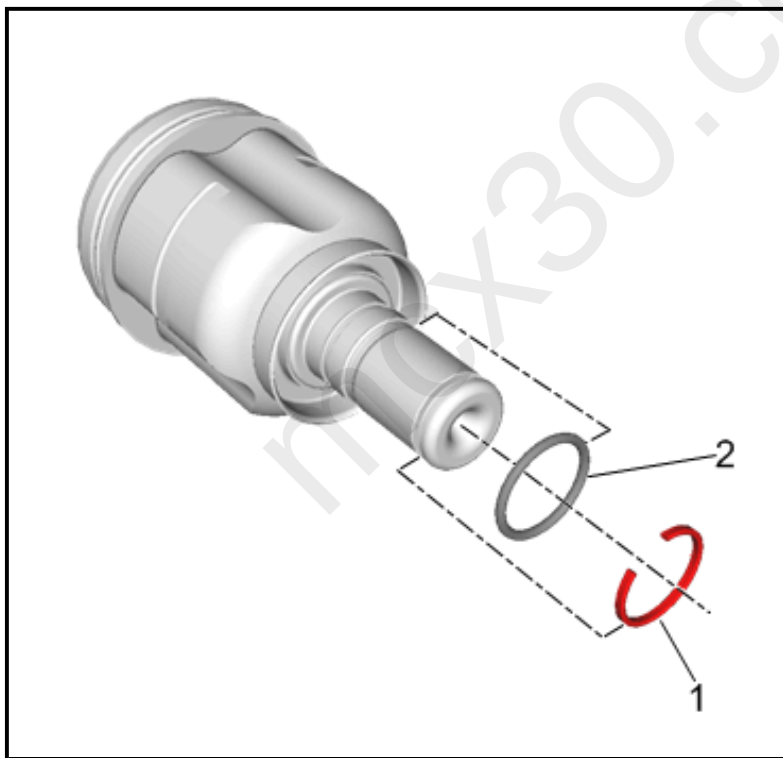


Retaining Ring (1) - Remove and DISCARD

8. O-Ring (2) - Remove and DISCARD

Assembly Procedure

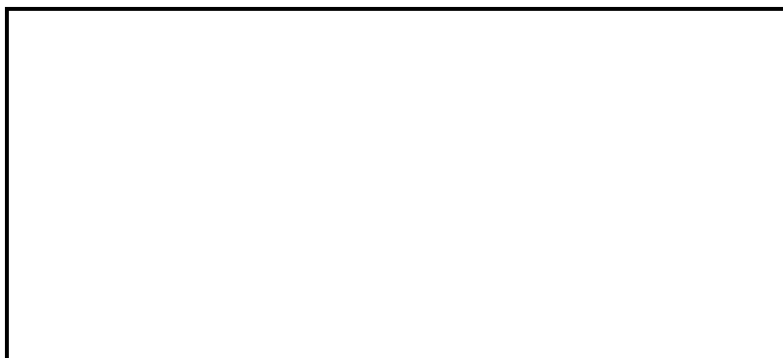
1.

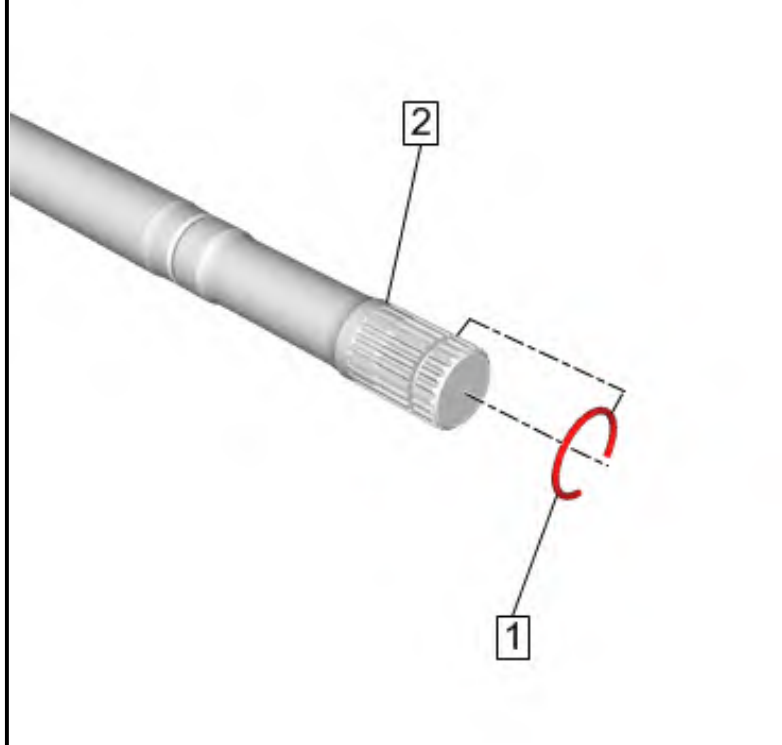


O-Ring (2) - Install NEW

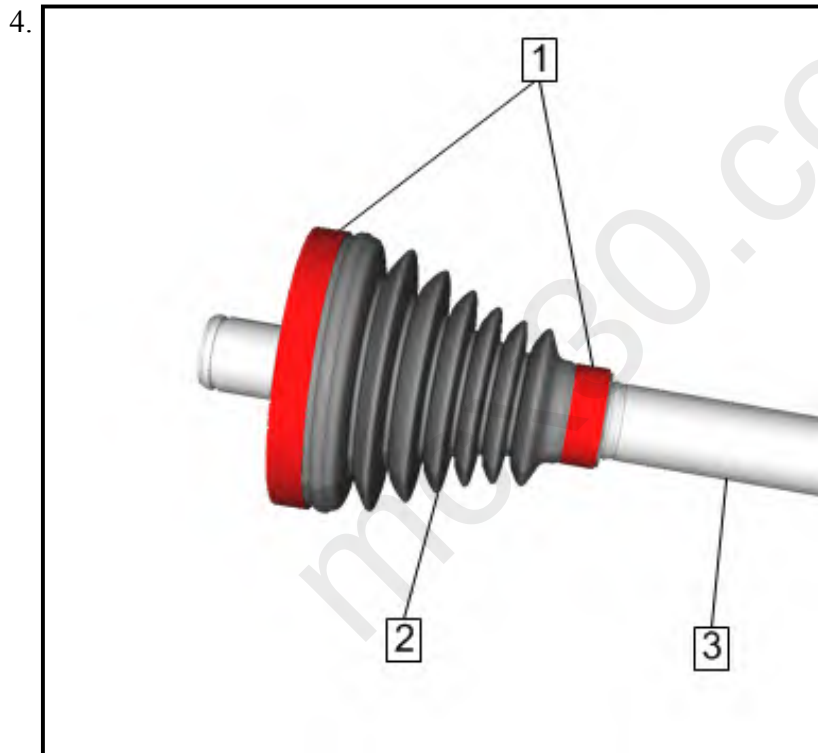
2. Retaining Ring (1) - Install NEW

3.



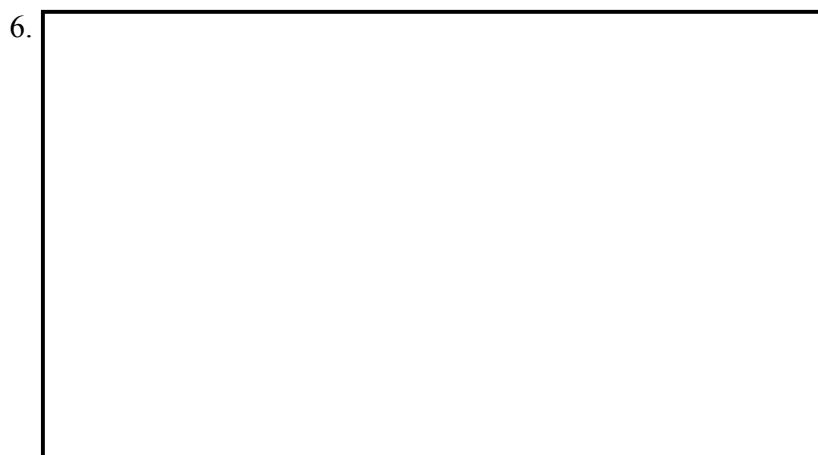


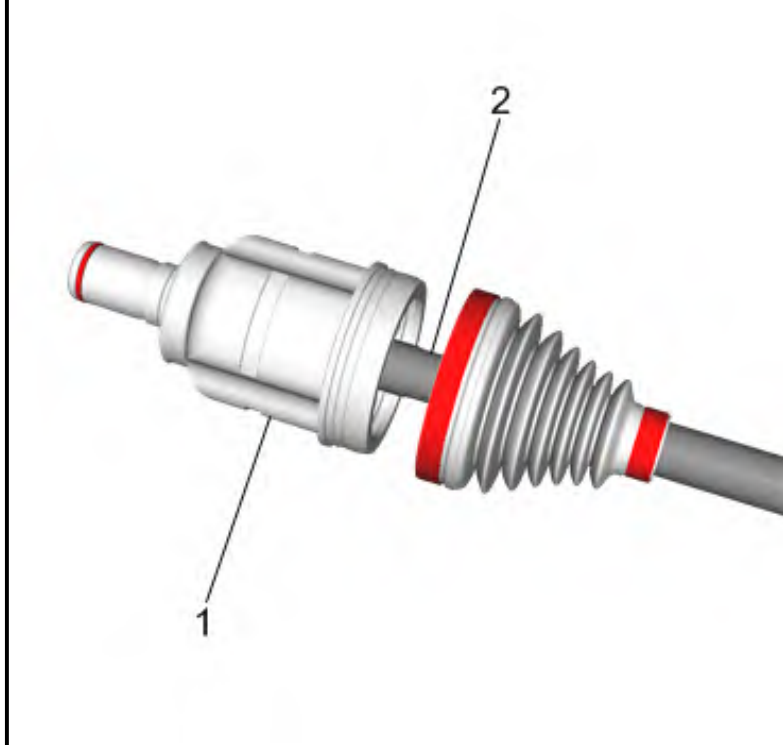
Retaining Ring (1) @ Rear Wheel Drive Shaft (2) - Install NEW



Install the NEW CV boot clamps (1) and the NEW CV boot (2) onto the rear wheel drive shaft (3).

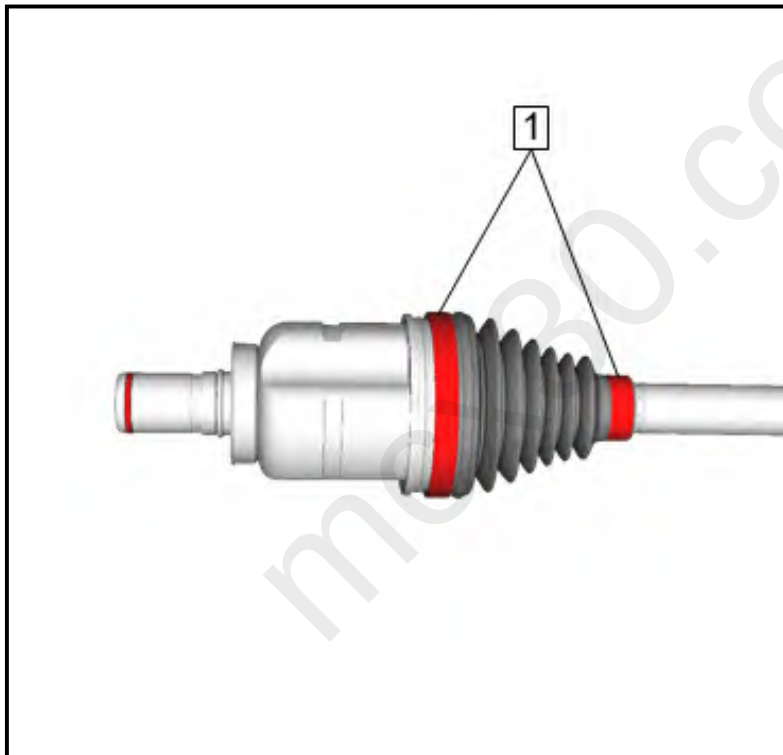
5. Pack the CV joint with grease prior to installation. Insert grease into the NEW inner boot prior to connecting the boot to the joint. [Adhesives, Fluids, Lubricants, and Sealers](#)





Using a block of wood and a hammer, install the CV Joint (1) onto the rear wheel drive shaft (2).

7.



Compress both CV boot clamps (1) using the **J-42572** Drive Shaft Seal Clamp Pliers.

8. Rear Wheel Drive Shaft - Install

- [Rear Wheel Drive Shaft Replacement - Left Side](#)
- [Rear Wheel Drive Shaft Replacement - Right Side](#)

FRONT WHEEL DRIVE SHAFT OUTER JOINT AND BOOT REPLACEMENT

Special Tools

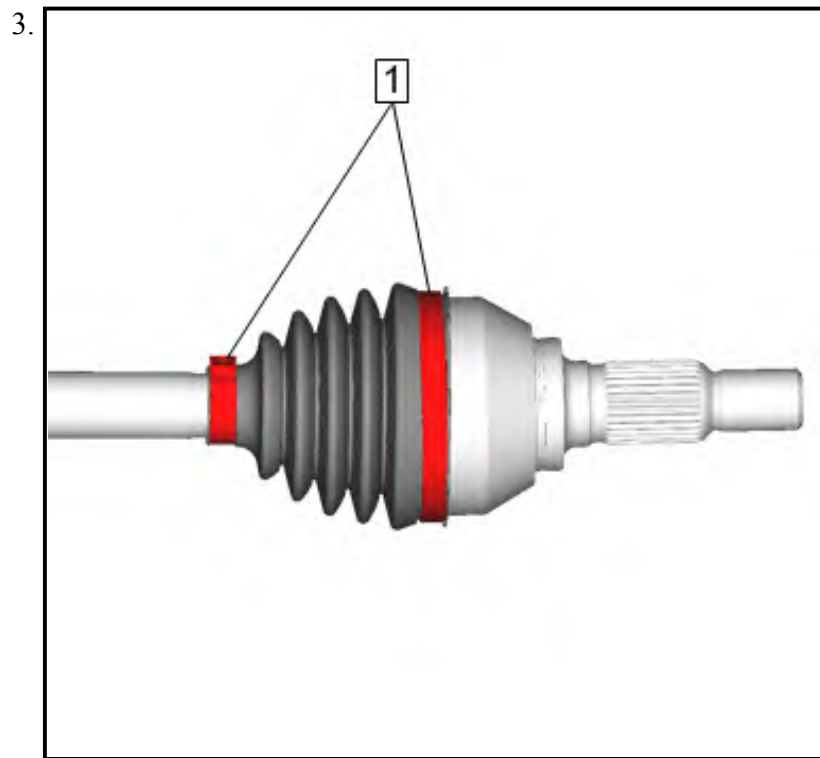
J-42572 Drive Shaft Seal Clamp Pliers

Disassembly Procedure

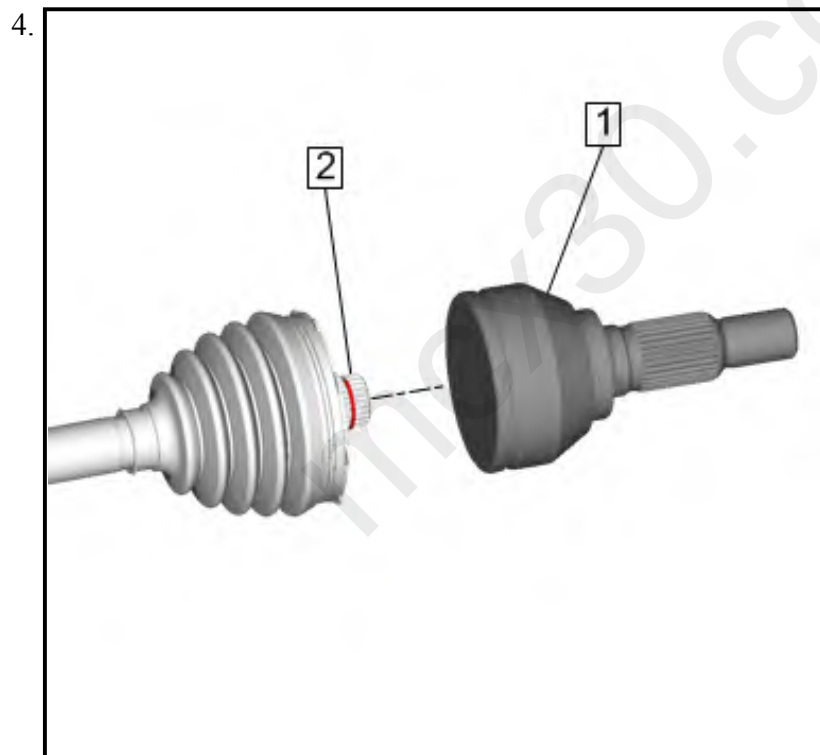
1. Front Wheel Drive Half Shaft - Remove

- [Front Wheel Drive Half Shaft Replacement - Left Side](#)
- [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#)

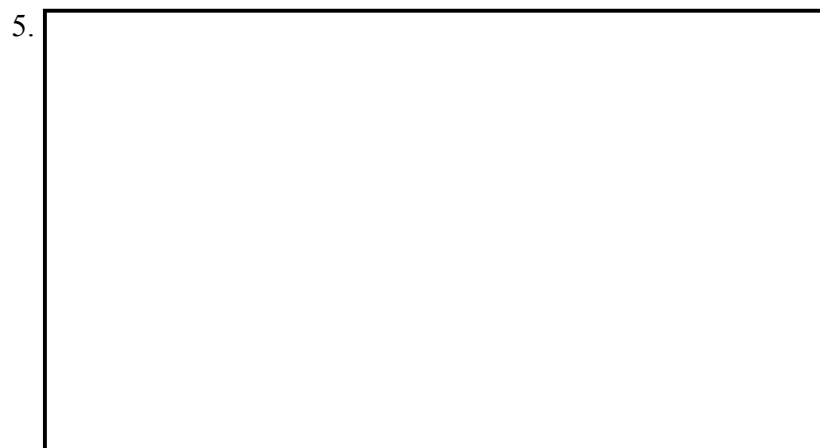
2. Place the wheel drive shaft horizontally in a bench vise.

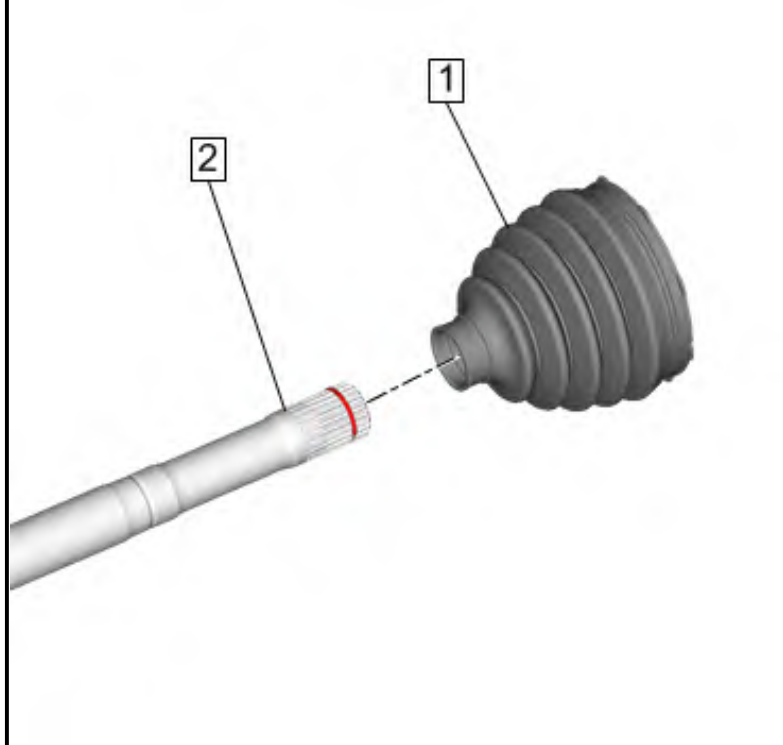


Using a side cutter or other suitable tool, remove and DISCARD the CV boot clamps (1) from the outer CV boot.

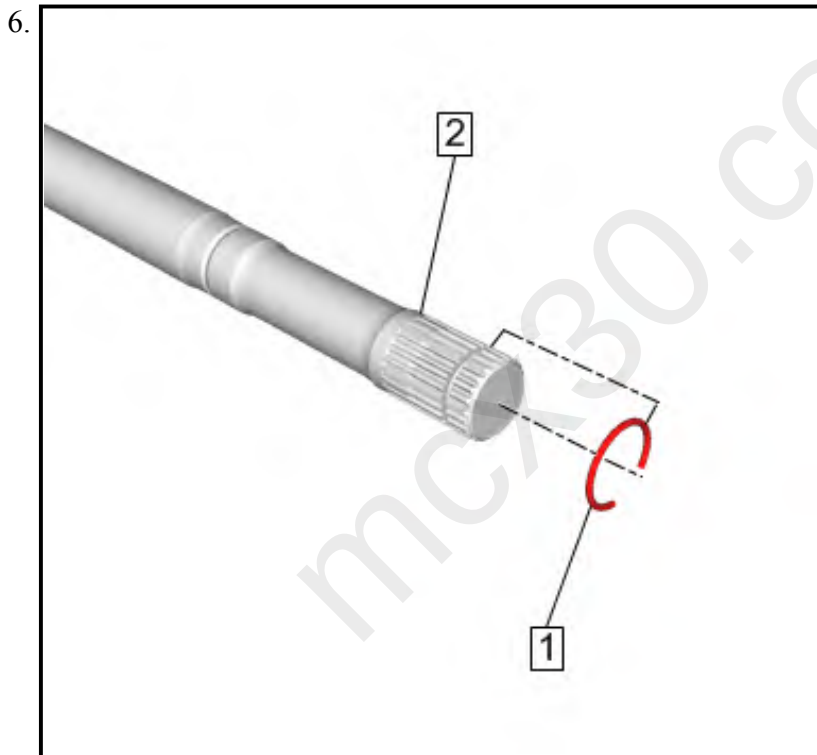


Using a suitable driver and a hammer, remove the CV joint (1) from the front wheel drive half shaft (2).





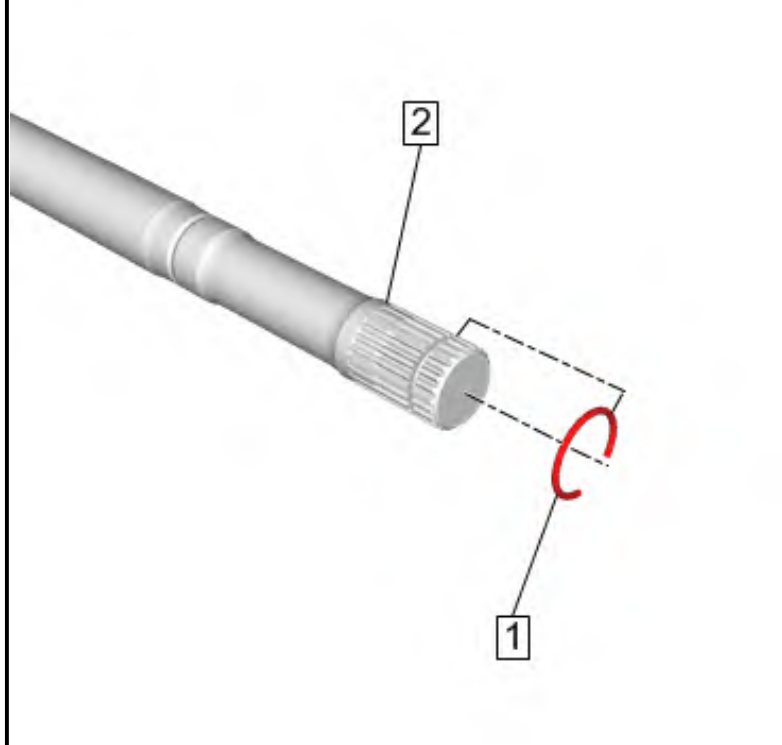
Remove and DISCARD the CV boot (1) from the front wheel drive half shaft (2).



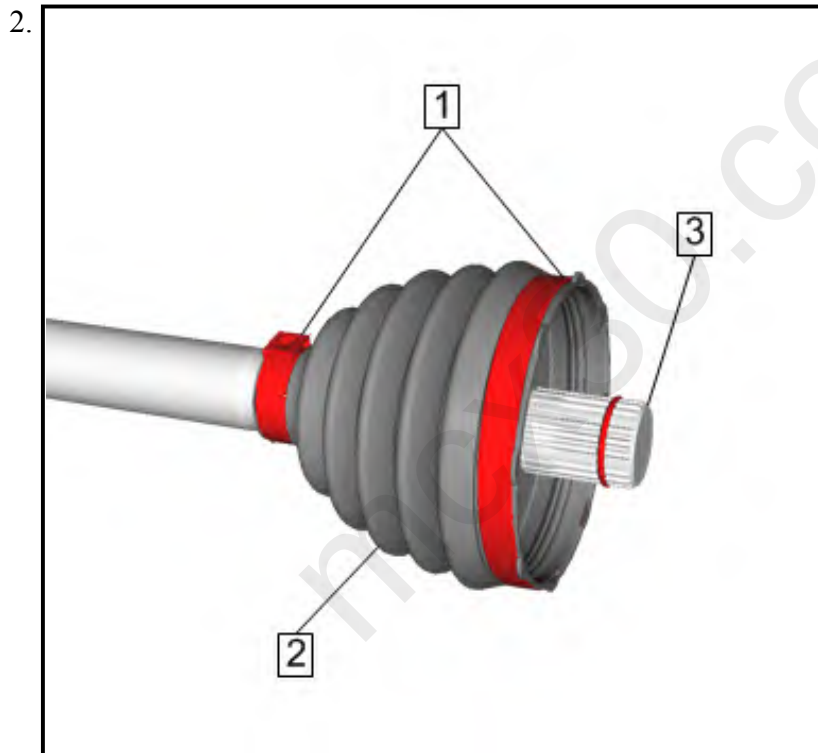
Retaining Ring (1) @ Front Wheel Drive Half Shaft (2) - Remove and DISCARD

Assembly Procedure



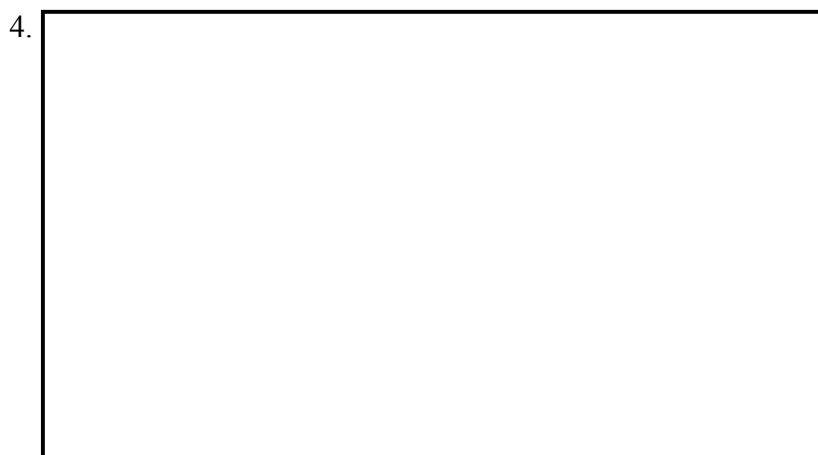


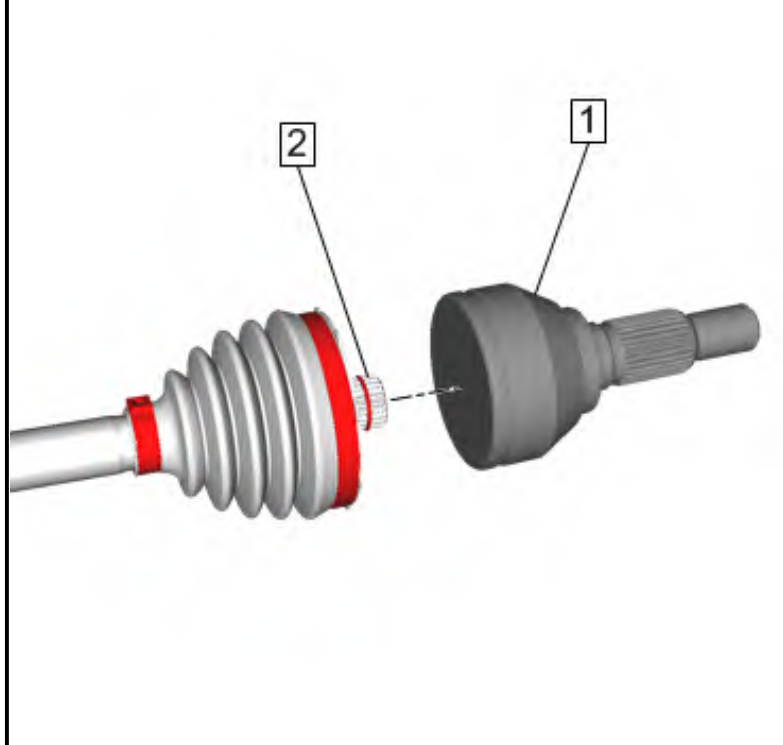
Retaining Ring (1) @ Front Wheel Drive Half Shaft (2) - Install NEW



Install the NEW CV boot clamps (1) and the NEW CV boot (2) onto the front wheel drive half shaft (3).

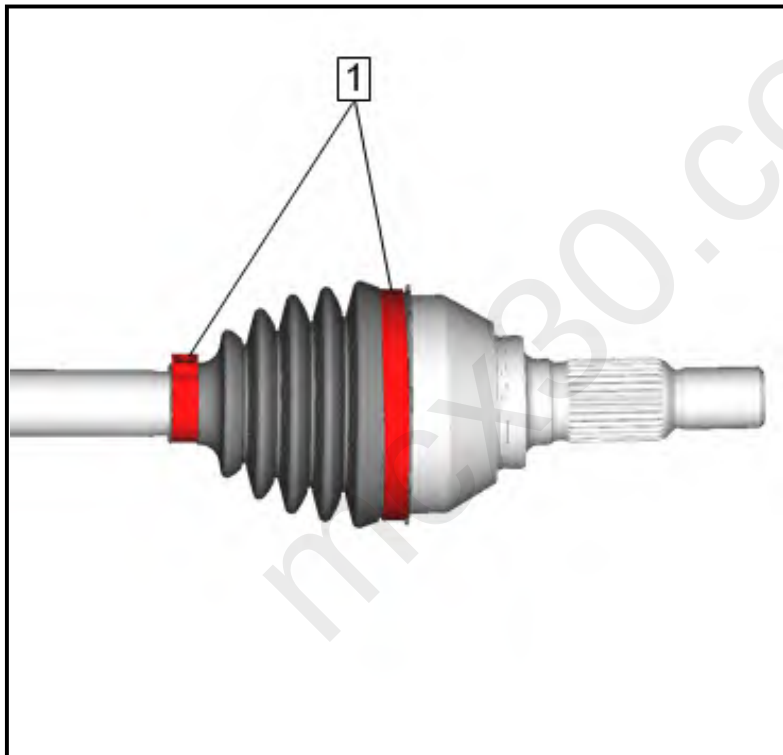
3. Pack the CV joint with grease prior to installation. Insert grease into the NEW outer boot prior to connecting the boot to the joint. [Adhesives, Fluids, Lubricants, and Sealers](#)





Using a block of wood and a hammer, install the CV Joint (1) onto the front wheel drive half shaft (2).

5.



Compress both CV boot clamps (1) using the **J-42572** Drive Shaft Seal Clamp Pliers.

6. Front Wheel Drive Half Shaft - Install

- [Front Wheel Drive Half Shaft Replacement - Left Side](#)
- [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#)

REAR WHEEL DRIVE SHAFT OUTER JOINT AND BOOT REPLACEMENT

Special Tools

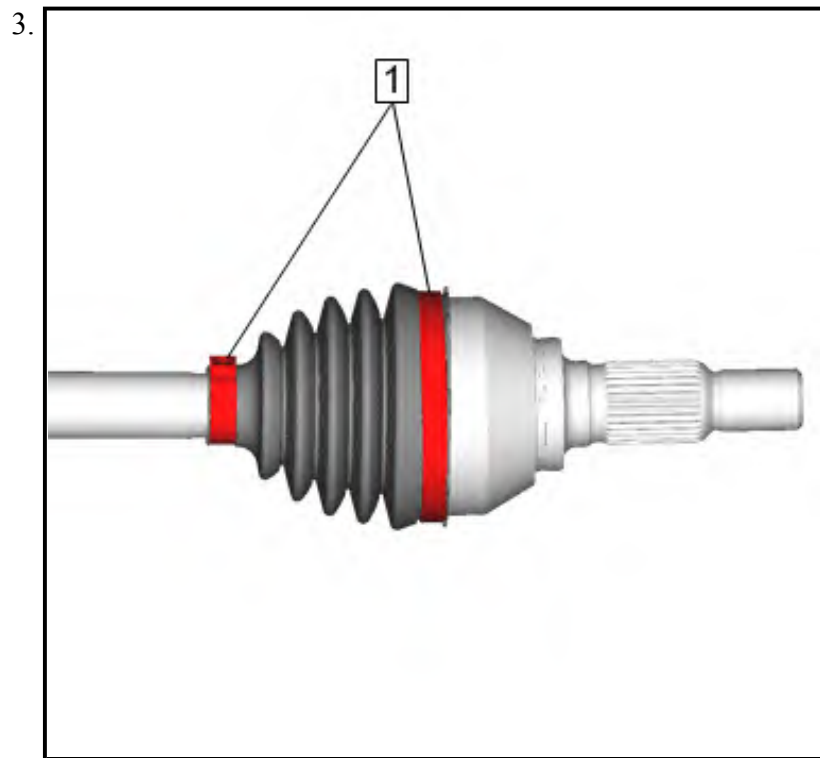
J-42572 Drive Shaft Seal Clamp Pliers

Disassembly Procedure

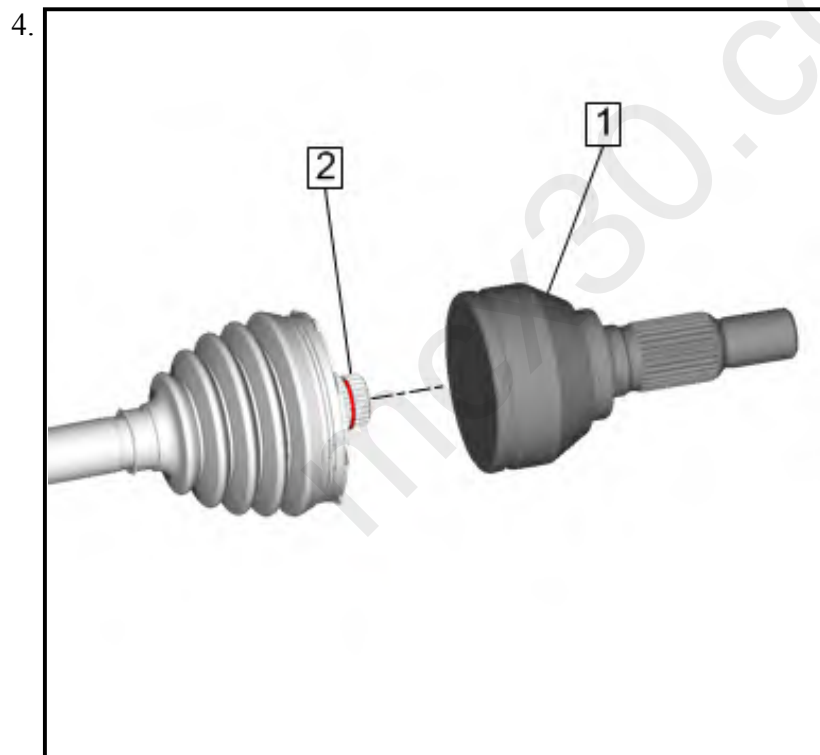
1. Rear Wheel Drive Shaft - Remove

- [Rear Wheel Drive Shaft Replacement - Left Side](#)
- [Rear Wheel Drive Shaft Replacement - Right Side](#)

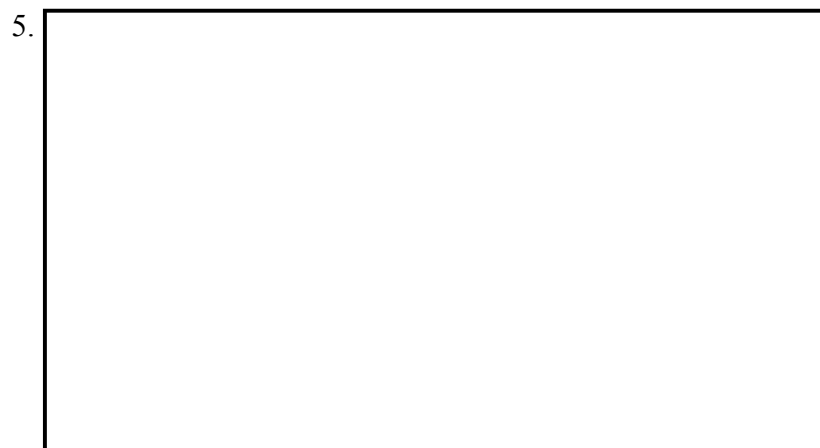
2. Place the wheel drive shaft horizontally in a bench vise.

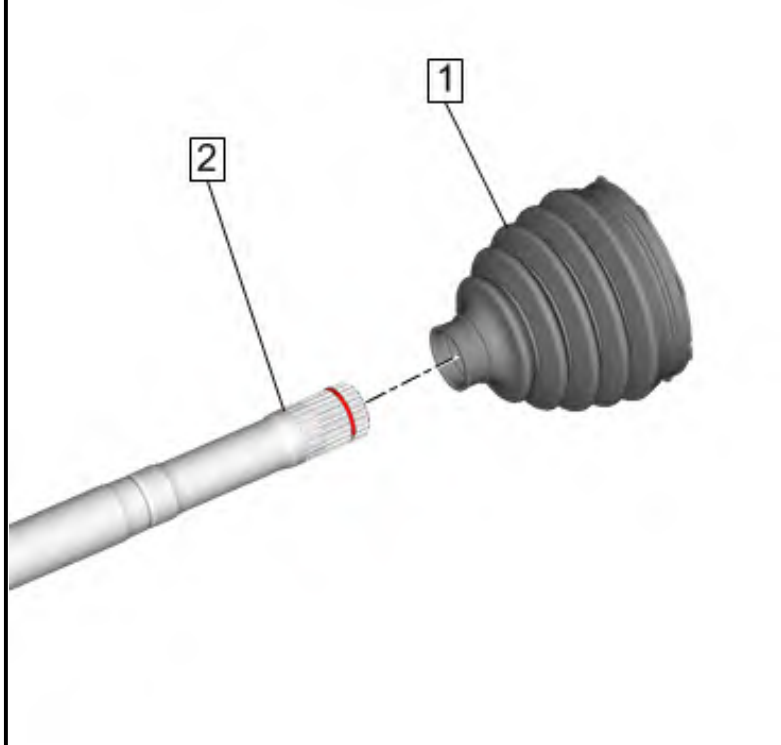


Using a side cutter or other suitable tool, remove and DISCARD the CV boot clamps (1) from the outer CV boot.

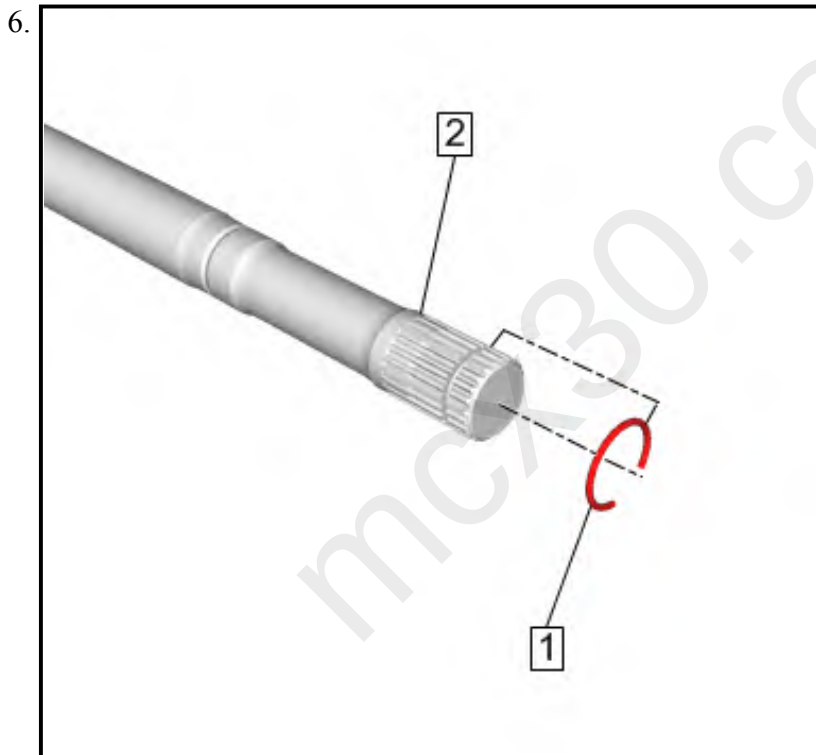


Using a suitable driver and a hammer, remove the CV joint (1) from the rear wheel drive shaft (2).





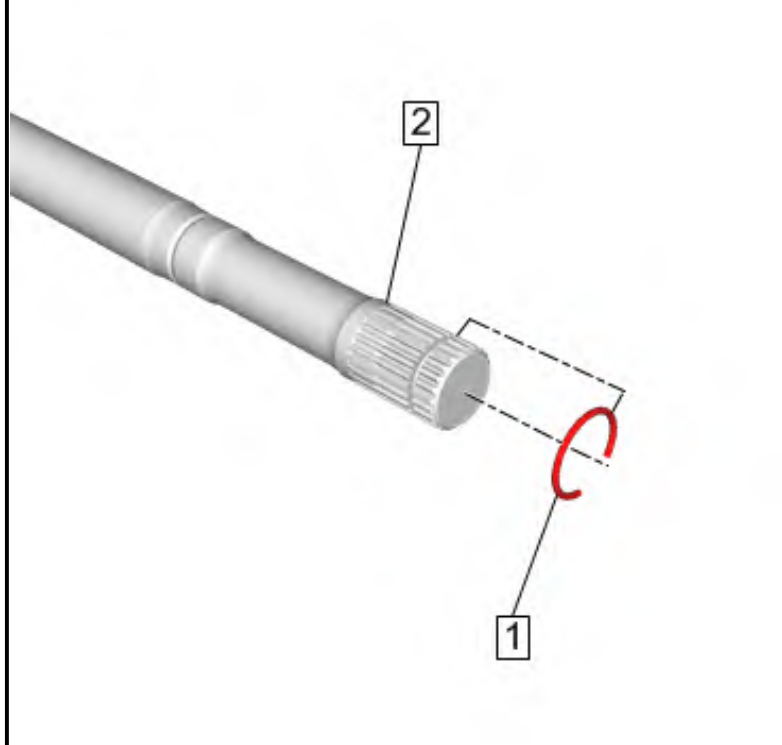
Remove and DISCARD the CV boot (1) from the rear wheel drive shaft (2).



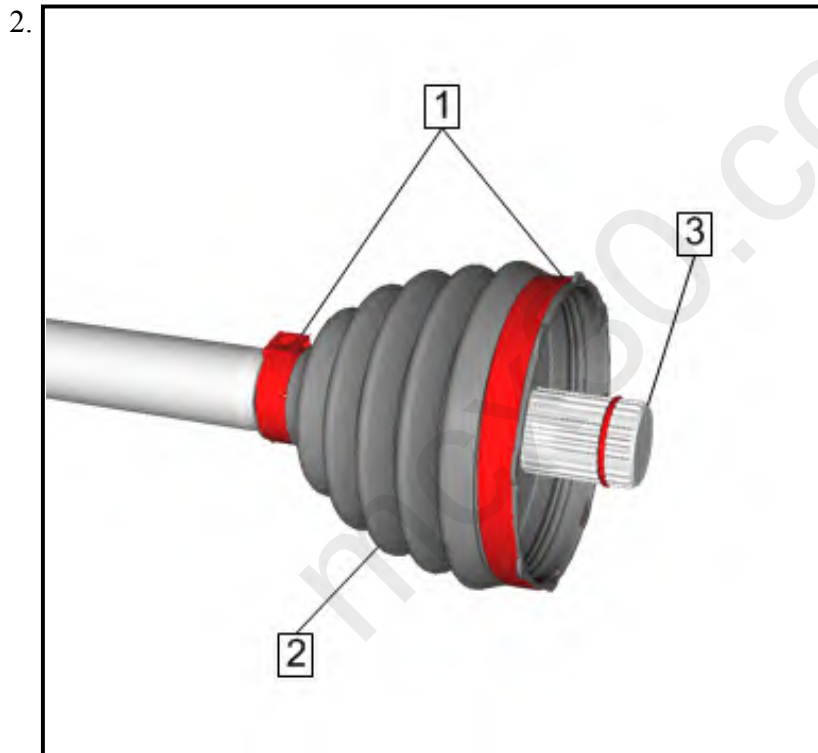
Retaining Ring (1) @ Rear Wheel Drive Shaft (2) - Remove and DISCARD

Assembly Procedure



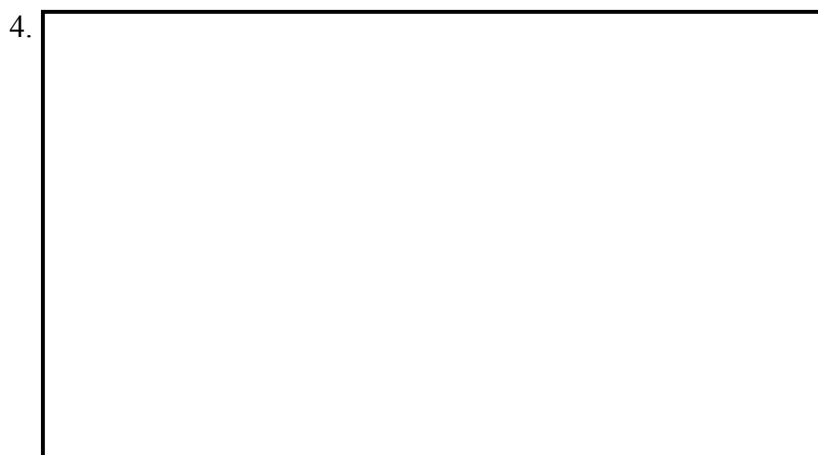


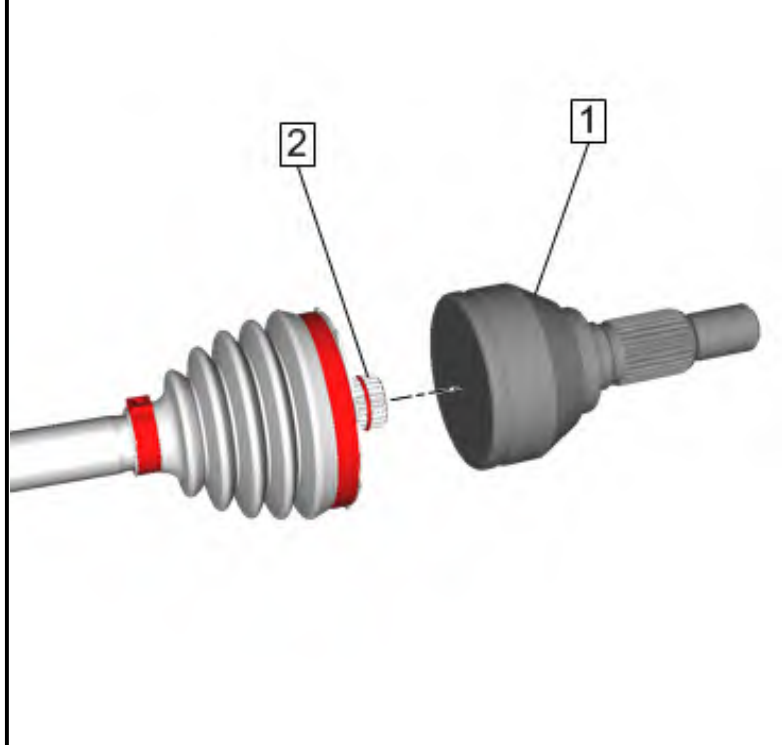
Retaining Ring (1) @ Rear Wheel Drive Shaft (2) - Install NEW



Install the NEW CV boot clamps (1) and the NEW CV boot (2) onto the rear wheel drive shaft (3).

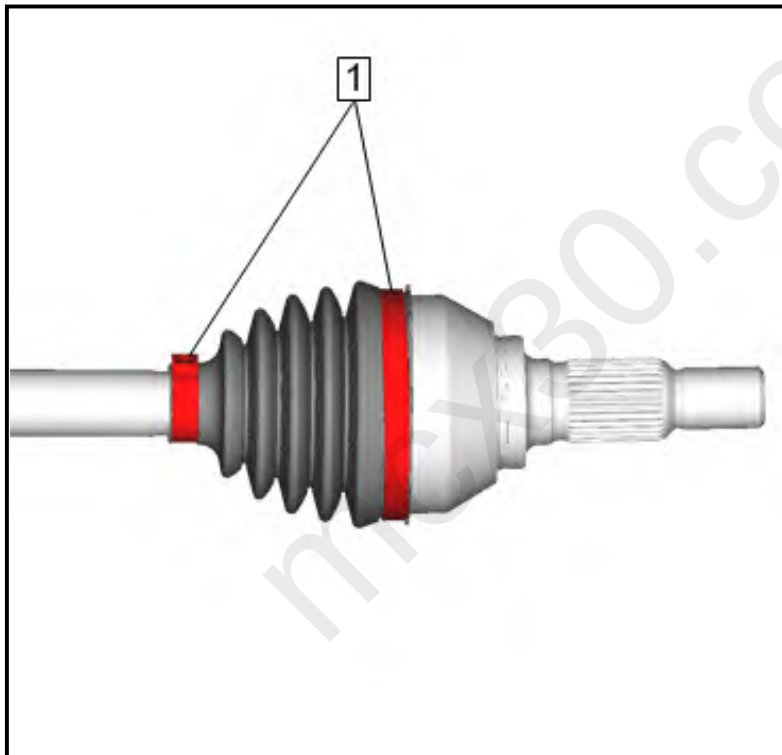
3. Pack the CV joint with grease prior to installation. Insert grease into the NEW outer boot prior to connecting the boot to the joint. [Adhesives, Fluids, Lubricants, and Sealers](#)





Using a block of wood and a hammer, install the CV Joint (1) onto the rear wheel drive shaft (2).

5.



Compress both CV boot clamps (1) using the **J-42572** Drive Shaft Seal Clamp Pliers.

6. Rear Wheel Drive Shaft - Install

- [Rear Wheel Drive Shaft Replacement - Left Side](#)
- [Rear Wheel Drive Shaft Replacement - Right Side](#)

DESCRIPTION AND OPERATION

WHEEL DRIVE SHAFTS DESCRIPTION AND OPERATION

Wheel drive shaft assemblies are flexible assemblies consisting of an inner and outer constant velocity joint connected by an axle shaft. The inner joint is completely flexible and can move in and out. The outer joint is also flexible, but cannot move in and out.

Boots And Clamps

Wheel drive shaft assemblies use inboard and outboard joint boots made of thermoplastic material and boot clamps made of stainless steel. The thermoplastic material performs well against normal handling and operational wear and conditions. However, it is not strong enough to withstand abusive handling or damage due to objects such as sharp tools or the sharp edge of any other surrounding component in the vehicle.

The boots should be protected from sharp tools and from the sharp edges of surrounding components. Any damage to the boots or clamps will result in leakage. Leakage will allow grease to leak out of the inboard and outboard joints. Leakage will allow water to leak into the inboard and outboard joints. This leads to noisy wheel drive shaft operation, and eventually, failure of the internal components.

The functions of the boot are as follows:

- To protect the internal parts of the inboard and outboard joint by protecting the grease from surrounding detrimental atmospheric conditions such as extreme temperatures, ozone gas, etc.
- To protect the internal parts of the inboard and outboard joint by protecting the grease from foreign materials such as stones, dirt, water, salt, etc.
- Facilitate angular and axial movement of the inboard joint.
- Facilitate angular movement of the outboard joint.

Inner Joint

The inner joints use the cross-groove joint design with an adapter for the inboard seal. The wheel drive shafts incorporate a male spline and interlock with the differential gears using barrel type snap rings.

Outer Joint

The outer joints use the constant velocity (CV) joint design. The shaft end mating with the knuckle/hub, incorporates a helical spline to assure a tight, press type fit. The design provides a no end play condition between the hub bearing and the wheel drive shaft.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/Description

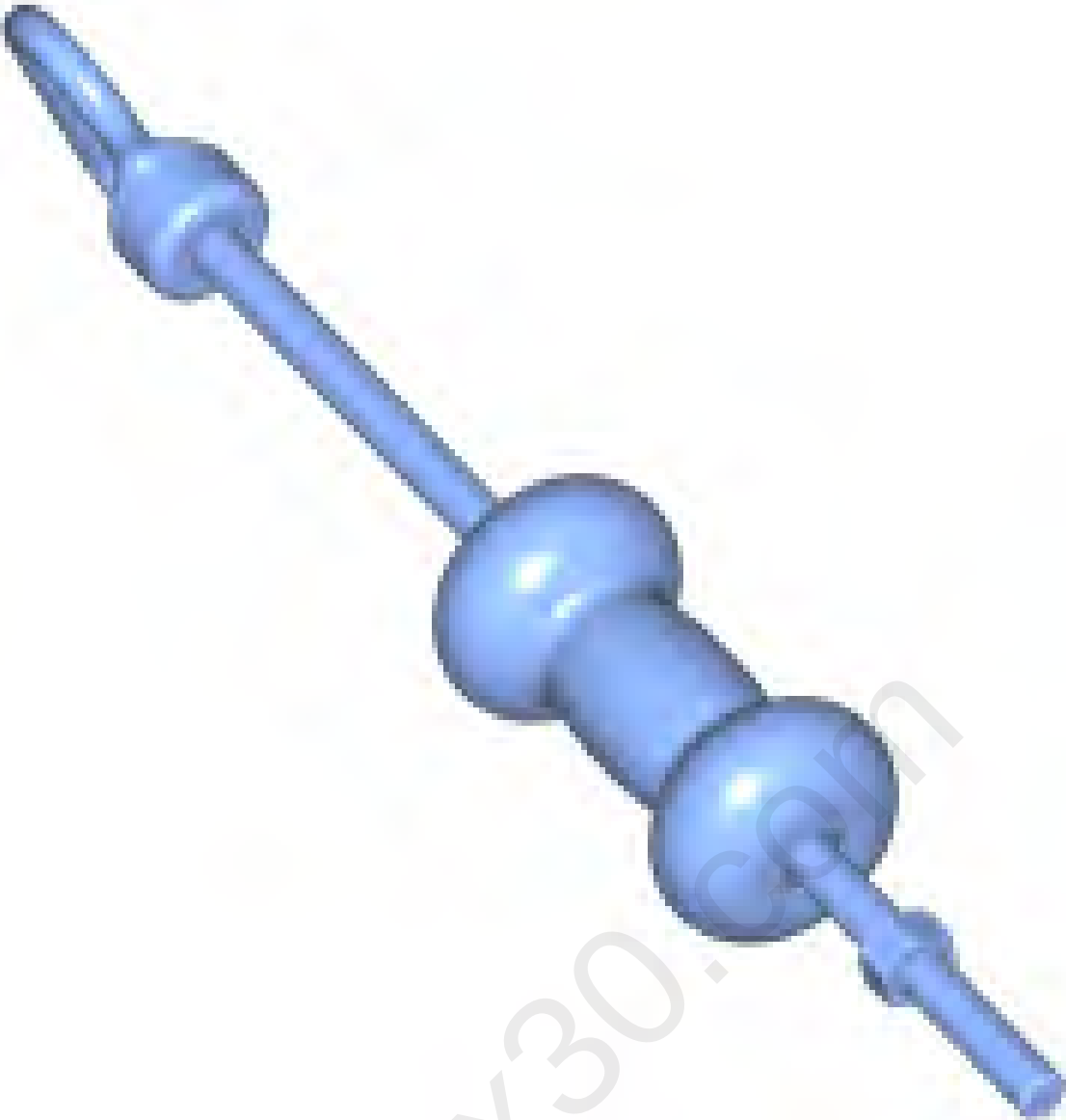
Illustration	Tool Number/Description
	CH-313 DT-51355 GE-02619-A J-02619-A J-2619-A J-2619-01 KM-313 Slide Hammer

Illustration	Tool Number/Description
	CH-460-B DT-45341 J-45341 KM-460-B KM-902 KM-6003 Rear Wheel Drive Shaft Removal Tool

Illustration	Tool Number/Description
 A blue, heavy-duty metal clamp with two long, tapered jaws and a central locking mechanism. The tool is shown against a white background with a faint watermark 'mcx30.com' diagonally across it.	J-42572 Drive Shaft Seal Clamp Pliers

Illustration	Tool Number/Description
	CH-49400 DT-45859 J-45859 Axle Remover

Illustration	Tool Number/Description
 A blue plastic seal protector tool. It features a large, oval-shaped loop at the top, connected by a narrow stem to a circular flange at the bottom. The flange has a slightly raised, flared edge. The tool is shown against a white background with a faint watermark 'mcx30.com' diagonally across it.	DT-51504 Seal Protector