

2004 DRIVELINE/AXLE

Wheel Drive Shafts - SRX

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Intermediate Wheel Drive Shaft Bearing Housing-to-Oil Pan Bolt	60 N.m	44 lb ft
Wheel Drive Shaft Spindle Nut	160 N.m	118 lb ft

COMPONENT LOCATOR

WHEEL DRIVE SHAFTS DISASSEMBLED VIEWS - FRONT

2004 Cadillac SRX

2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

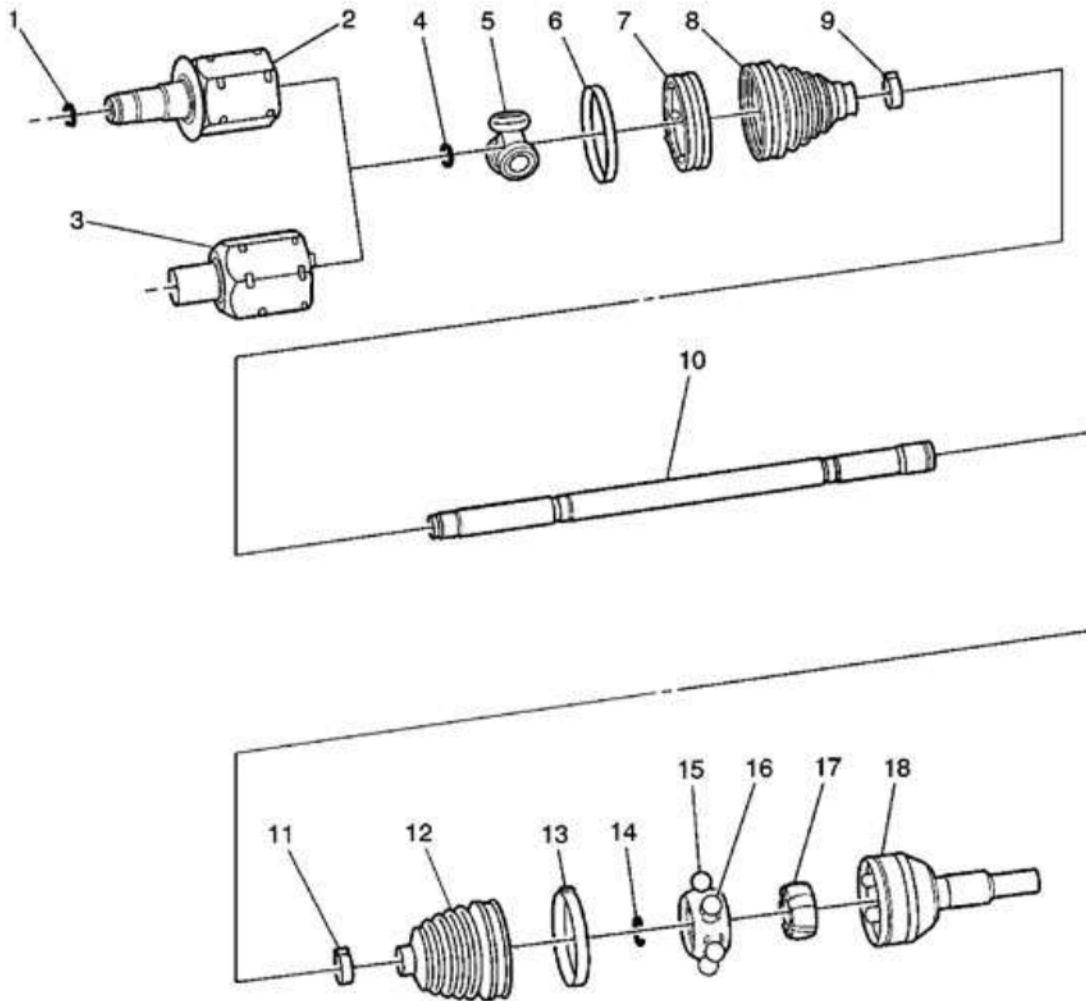


Fig. 1: Wheel Drive Shafts Disassembled Views
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 1

Callout	Component Name
1	Retaining Ring, Right Tripod Joint Race
2	Tripod Joint Race, Right Inner AWD
3	Tripod Joint Race, Left Inner AWD
4	Spacer Retaining Ring
5	Spider Assembly
6	Joint Clamp
7	Boot Trilobe Insert
8	Inner Joint Seal

2004 Cadillac SRX**2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX**

9	Shaft Clamp
10	Bar, Wheel Drive Shaft
11	Shaft Clamp
12	Outer Joint Seal
13	Race Clamp
14	Retaining Ring
15	CV Joint Balls
16	Fixed Cage
17	Fixed Inner Race
18	Fixed Outer Race

WHEEL DRIVE SHAFTS DISASSEMBLED VIEWS - REAR (AWD)

2004 Cadillac SRX

2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

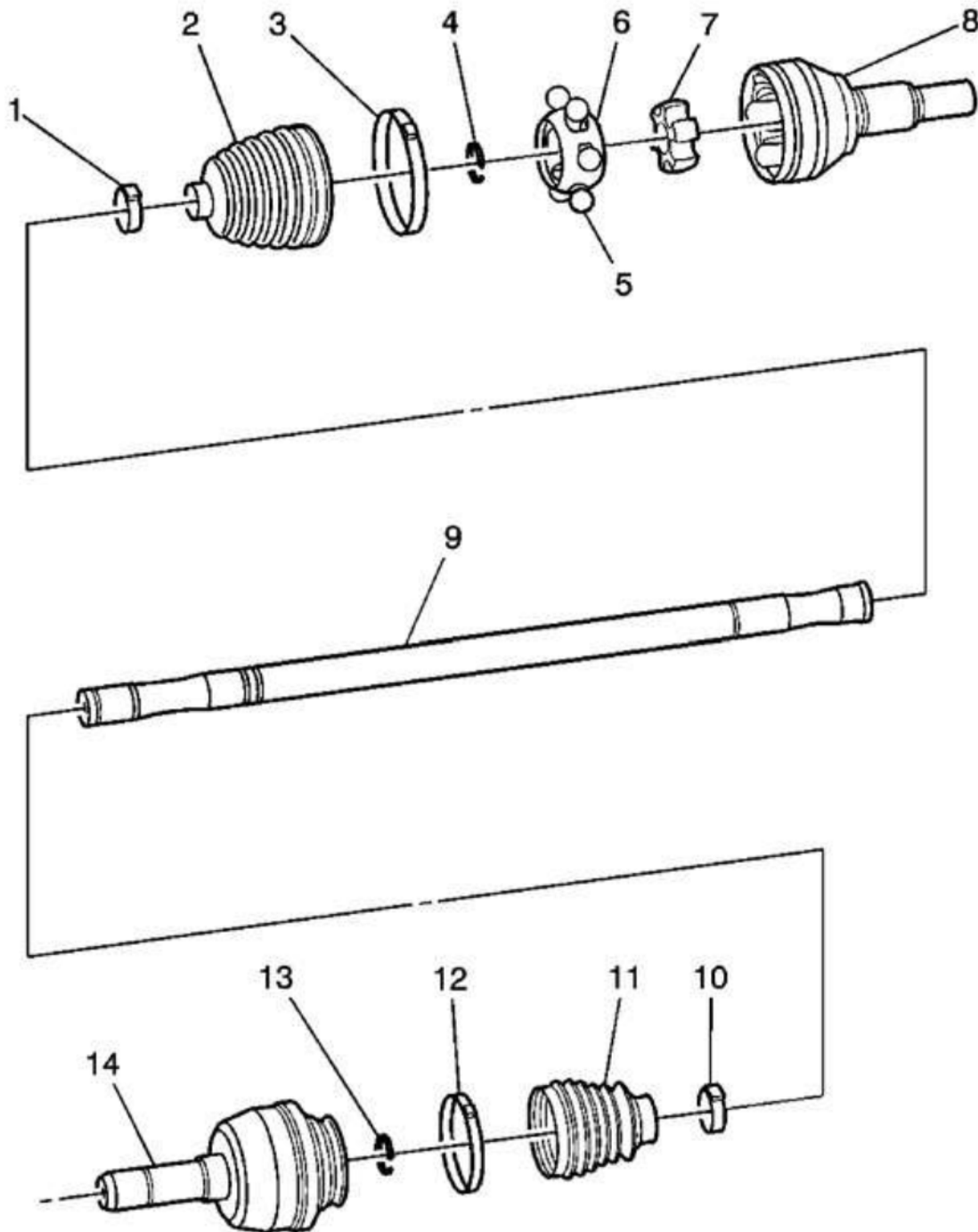


Fig. 2: Wheel Drive Shafts Disassembled Views
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 2

Callout	Component Name
1	Nut
2	Large Flange
3	Washer
4	Spacer
5	Cross
6	Nut
7	Washer
8	Large Flange
9	Shaft
10	Nut
11	Large Flange
12	Washer
13	Spacer
14	Nut

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1	Shaft Clamp
2	Outer Joint Seal
3	Joint Clamp
4	Retaining Ring
5	CV Joint Balls
6	Fixed Cage
7	Fixed Inner Race
8	Fixed Outer Race
9	Bar, Wheel Drive Shaft
10	Shaft Clamp
11	Inner Joint Seal
12	Joint Clamp
13	Retaining Ring
14	Inner Joint Assembly

WHEEL DRIVE SHAFTS DISASSEMBLED VIEWS - REAR (RWD)

2004 Cadillac SRX

2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

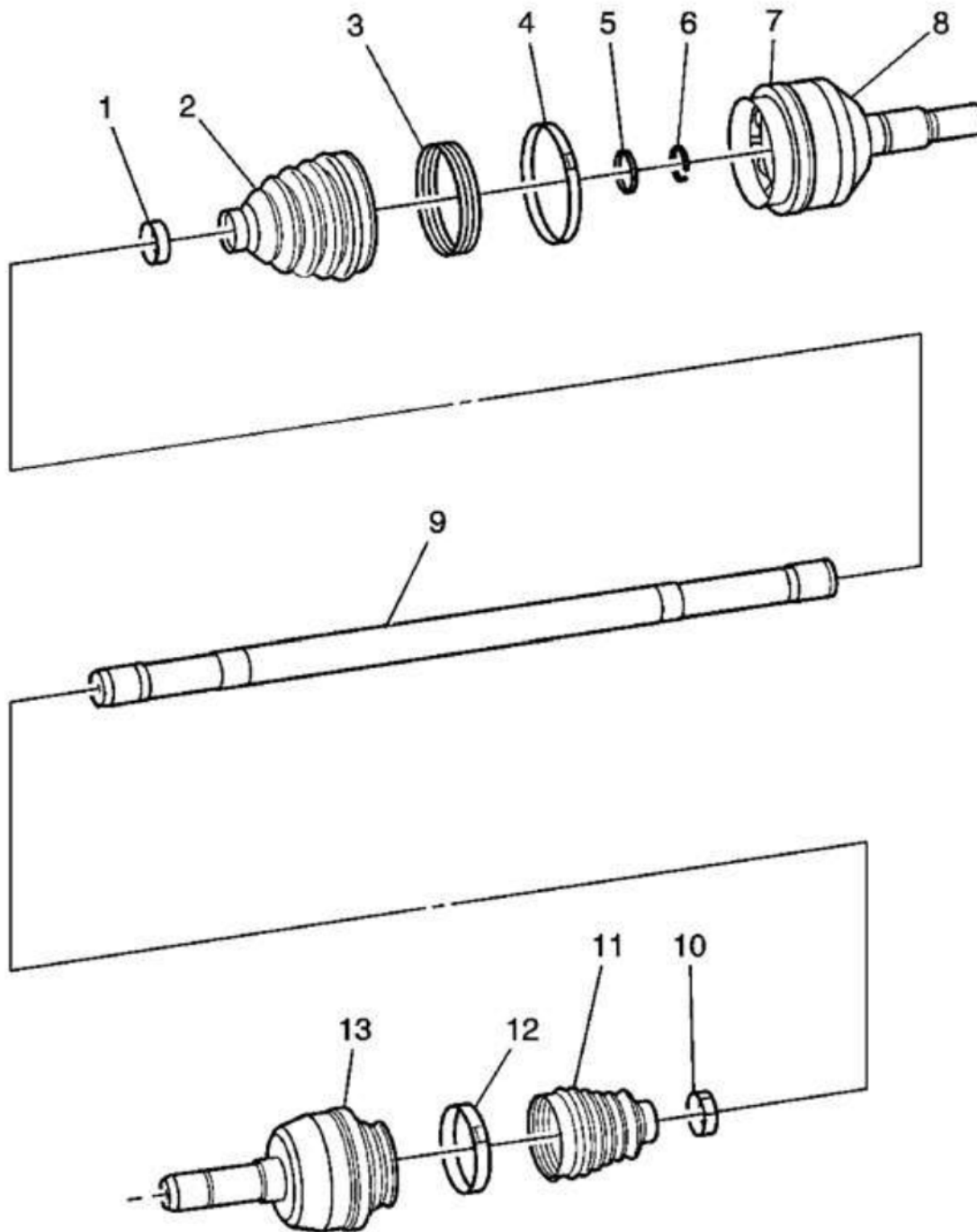


Fig. 3: Wheel Drive Shafts Disassembled Views
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 3

Callout	Component Name

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2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

1	Shaft Clamp
2	Outer Joint Seal
3	Boot Insert
4	Joint Clamp
5	Retaining Ring, Large
6	Retaining Ring, Small
7	Can, Joint
8	Outer Joint Assembly
9	Bar, Wheel Drive Shaft
10	Shaft Clamp
11	Inner Joint Seal
12	Joint Clamp
13	Inner Joint Assembly

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - WHEEL DRIVE SHAFTS

Begin the wheel drive shaft system diagnosis with **Diagnostic Starting Point - Vibration Diagnosis and Correction** in Vibration Diagnosis and Correction. The use of the Diagnostic Starting Point will lead to the identification of the correct procedure for diagnosing the system and where the procedure is located.

SYMPTOMS - WHEEL DRIVE SHAFTS

Before beginning diagnosis, review the system description and operation in order to familiarize yourself with the system function. Refer to **Wheel Drive Shafts Description and Operation**.

Classifying the Symptom

Wheel Drive Shaft symptoms can usually be classified into the following categories:

- Noises
- Vibrations

Noise related concerns are diagnosed within the Wheel Drive Shafts section. For vibration related symptoms, refer to **Diagnostic Starting Point - Vibration Diagnosis and Correction** in Vibration Diagnosis and Correction for diagnosis.

Visual/Physical Inspection

- Inspect the system for aftermarket devices which could affect the operation of the Wheel Drive Shafts.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Click Noise In Turns**
- **Clunk When Accelerating from Coast**
- **Clunk Noise When Accelerating During Turns**

CLICK NOISE IN TURNS

A worn or damaged front wheel drive shaft constant velocity joint may cause a clicking noise during turns.

If a clicking noise occurs, inspect for a cut or damaged front wheel drive shaft constant velocity joint boot.

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 inboard joint requires replacement.

CLUNK NOISE WHEN ACCELERATING DURING TURNS

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2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

If a clicking noise exists when turning, check for the following conditions:

- A worn or damaged outboard joint
- Cut or damaged seals

SHUDDER OR VIBRATION DURING ACCELERATION

In order to diagnose a shudder or vibration during acceleration, refer to **Diagnostic Starting Point - Vibration Diagnosis and Correction** in Vibration Diagnosis and Correction.

REPAIR INSTRUCTIONS

WHEEL DRIVE SHAFT REPLACEMENT - FRONT (LEFT)

Tools Required

- **J 2619-O1** Slide Hammer With Adapter. See **Special Tools and Equipment**.
- **J 29794** Extension. See **Special Tools and Equipment**.
- **J 45341** Axle Shaft Puller. See **Special Tools and Equipment**.
- **J 45859** Wheel Hub Remover. See **Special Tools and Equipment**.

Removal Procedure

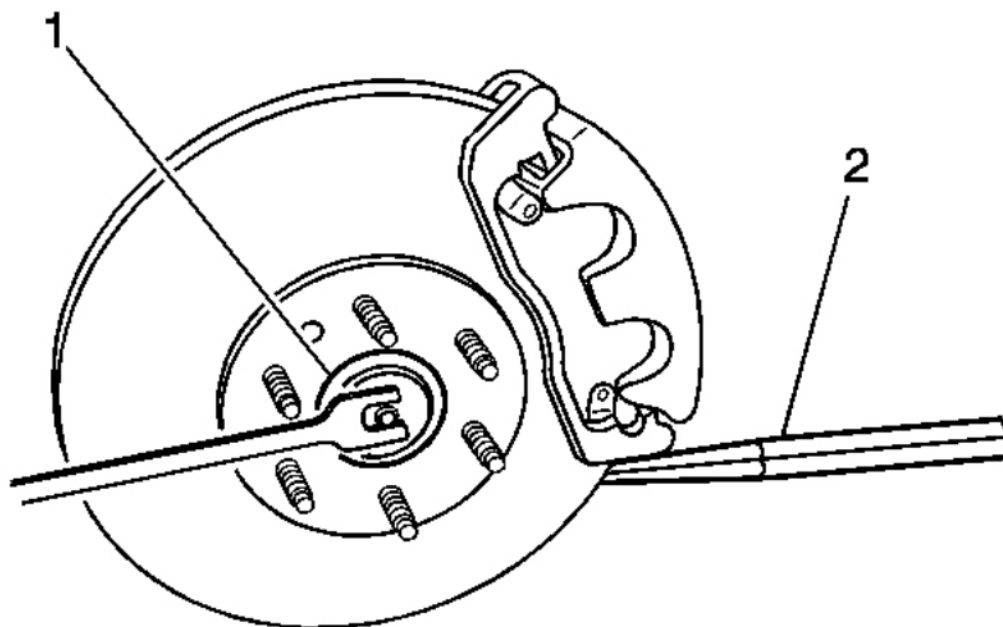


Fig. 4: View Of Wheel Drive Shaft Spindle Nut & Punch
Courtesy of GENERAL MOTORS CORP.

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the left front tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
3. Disconnect the left outer tie rod end from the steering knuckle. Do NOT loosen the tie rod end jam nut. Refer to **Rack and Pinion Outer Tie Rod End Replacement** in Power Steering System.
4. Insert a drift or punch (2) into the brake rotor and against the brake caliper mounting bracket in order to prevent the wheel hub and bearing from turning.

**IMPORTANT: The wheel drive shaft spindle nut must not be reused.
Replace the wheel drive shaft spindle nut with a new nut
whenever it is removed.**

5. Remove and discard the wheel drive shaft spindle nut (1) retaining the wheel drive shaft to

the hub.

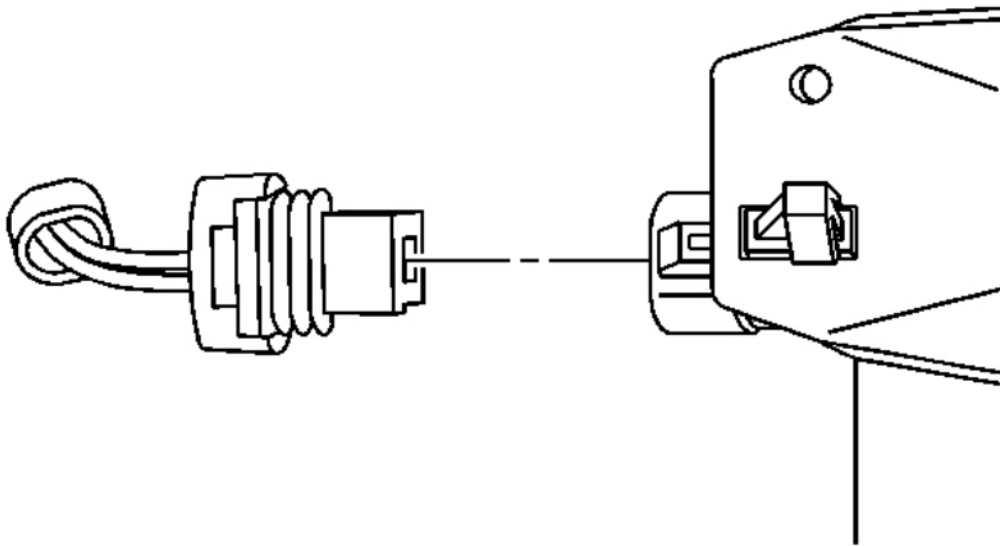


Fig. 5: View Of Wheel Speed Sensor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Be sure that the wheel speed sensor wiring harness is repositioned away from the ball joint after disconnecting the electrical connector from the sensor.

6. Disconnect the electrical connector from the wheel speed sensor and reposition the wiring harness away from the ball joint.
7. Disconnect the left upper ball joint from the steering knuckle. Refer to **Shock Module Replacement** in Front Suspension.

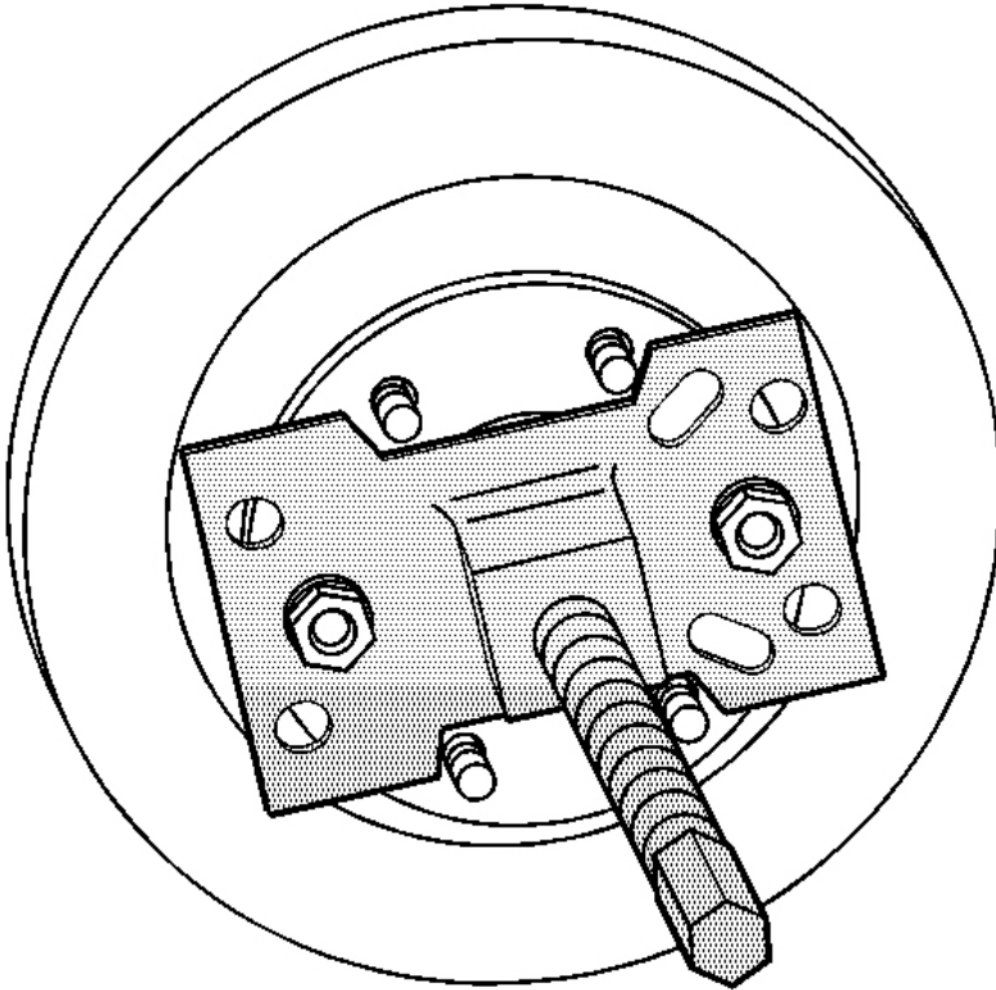


Fig. 6: View Of J 45859 Installed Onto The Wheel Hub
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Be sure to support the wheel drive shaft until it is fully removed from the vehicle.

8. Install the **J 45859** or equivalent onto the wheel hub and secure with wheel nuts.
9. Using the **J 45859** or equivalent, disengage the left front wheel drive shaft from the wheel hub and bearing and support the wheel drive shaft.

10. Remove **J 45859** or equivalent from the wheel hub.

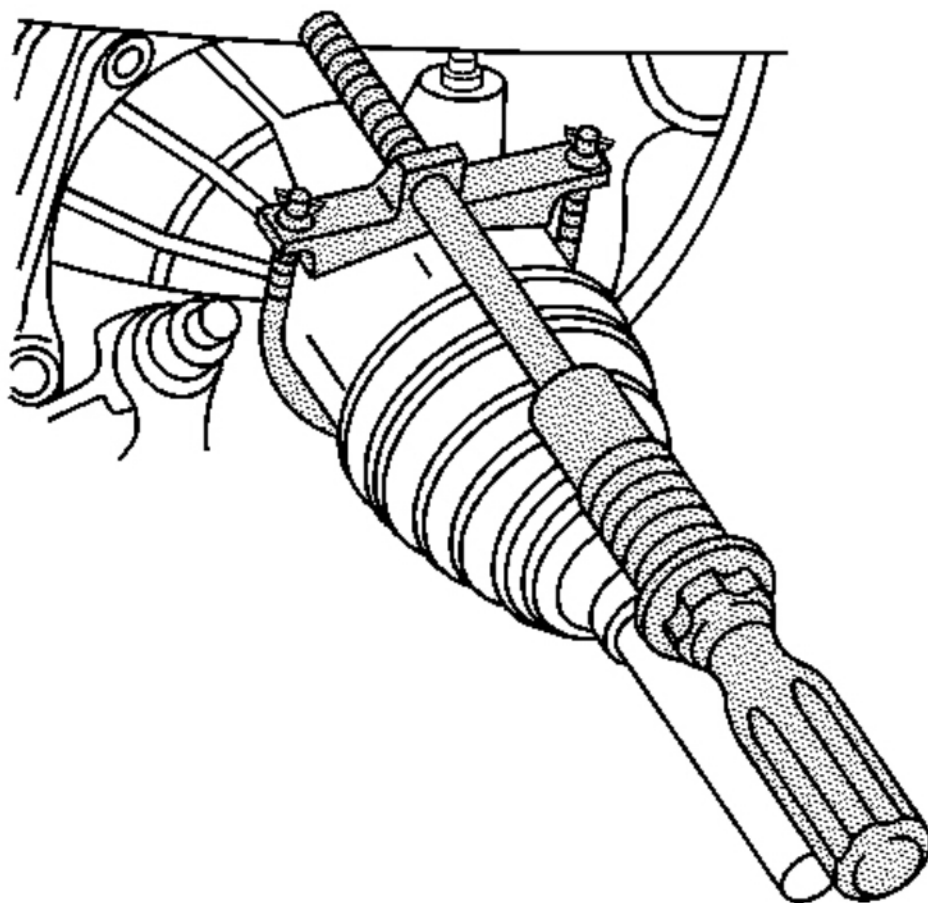


Fig. 7: Disengaging Wheel Drive Shaft From Intermediate Wheel Drive Shaft
Courtesy of GENERAL MOTORS CORP.

11. Assemble the **J 2619-O1** , the **J 29794** , and the **J 45341** .
12. Install **J 45341** to the wheel drive shaft inner joint pull groove. See **Special Tools and Equipment**.
13. Using the **J 2619-O1** , the **J 29794** , and the **J 45341** , or an equivalent tool disengage the wheel drive shaft from the intermediate wheel drive shaft. See **Special Tools and Equipment**.

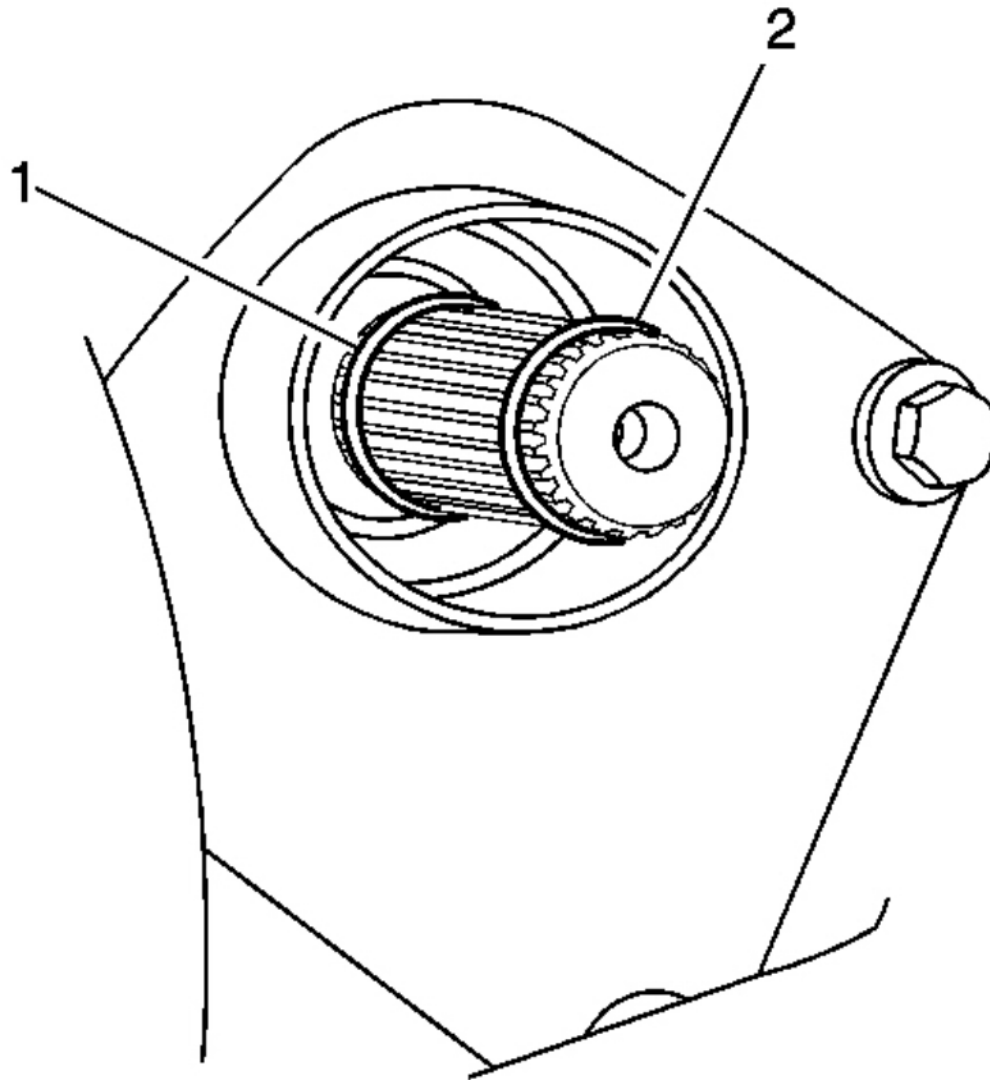


Fig. 8: View Of Wheel Drive Shaft O-Ring & Retaining Ring
Courtesy of GENERAL MOTORS CORP.

14. Remove the left front wheel drive shaft from the vehicle.
15. Remove the **J 2619-O1** , the **J 29794** , and the **J 45341** from the wheel drive shaft inner joint. See **Special Tools and Equipment**.
16. If reusing the intermediate wheel drive shaft remove and discard the wheel drive shaft

retaining ring (2) from the intermediate shaft retaining ring groove. The wheel drive shaft retaining ring is on the splined end of the shaft.

17. If reusing the intermediate wheel drive shaft remove and discard the wheel drive shaft O-ring (1) from the O-ring groove. The O-ring is on the splined end of the shaft.

Installation Procedure

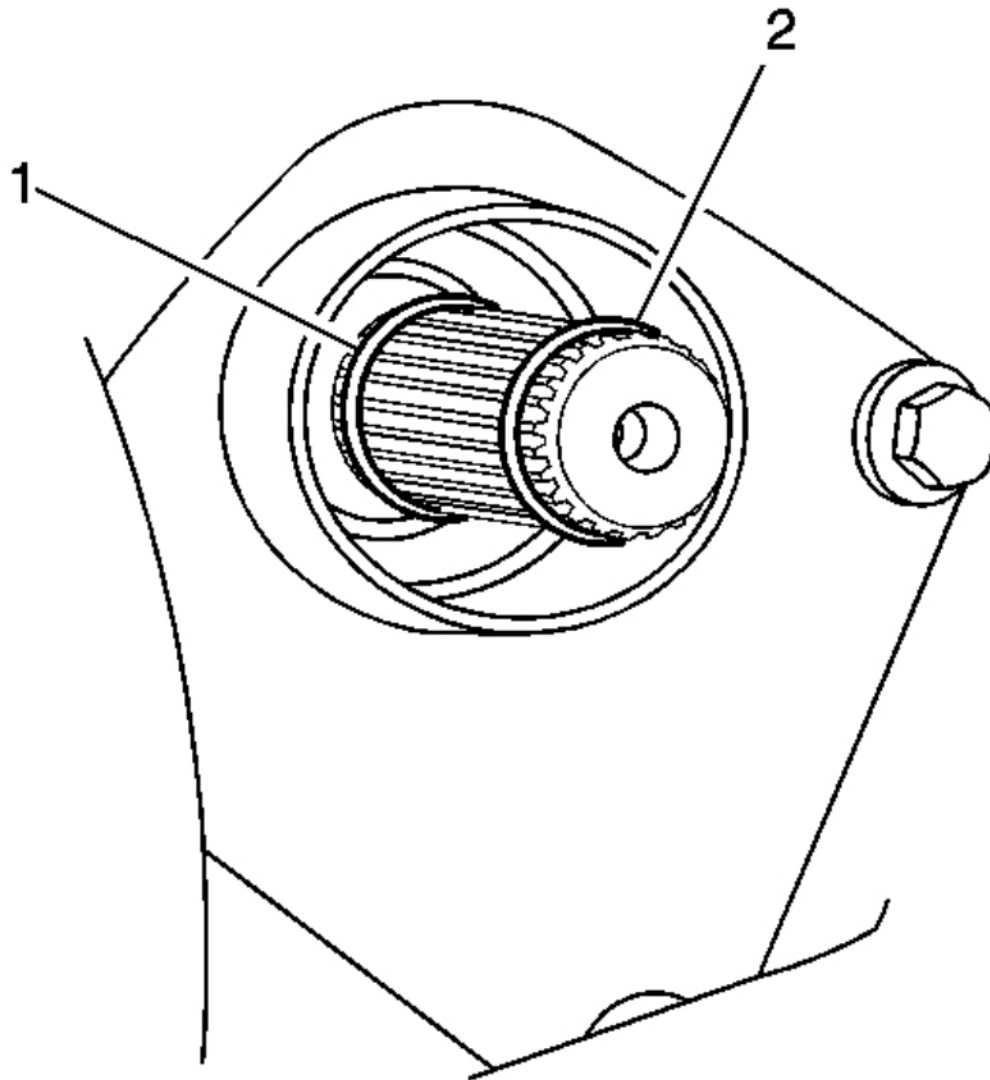


Fig. 9: View Of Wheel Drive Shaft O-Ring & Retaining Ring

Courtesy of GENERAL MOTORS CORP.

1. Install a new O-ring (1) to the intermediate wheel drive shaft O-ring groove.
2. Install the new wheel drive shaft retaining ring (2) to the retaining ring groove. The intermediate wheel drive shaft retaining ring groove is on the splined end of the shaft.
3. Apply a small amount of grease GM P/N 01051344 (Canadian P/N 993037) or equivalent to the intermediate wheel drive shaft splines.
4. Install the left front wheel drive shaft to the intermediate wheel drive shaft.
5. Verify that the left front wheel drive shaft is properly engaged to the intermediate wheel drive shaft by grasping the inner joint housing and pulling outward. Do not pull on the wheel drive shaft bar.

The wheel drive shaft will remain firmly in place when properly engaged.

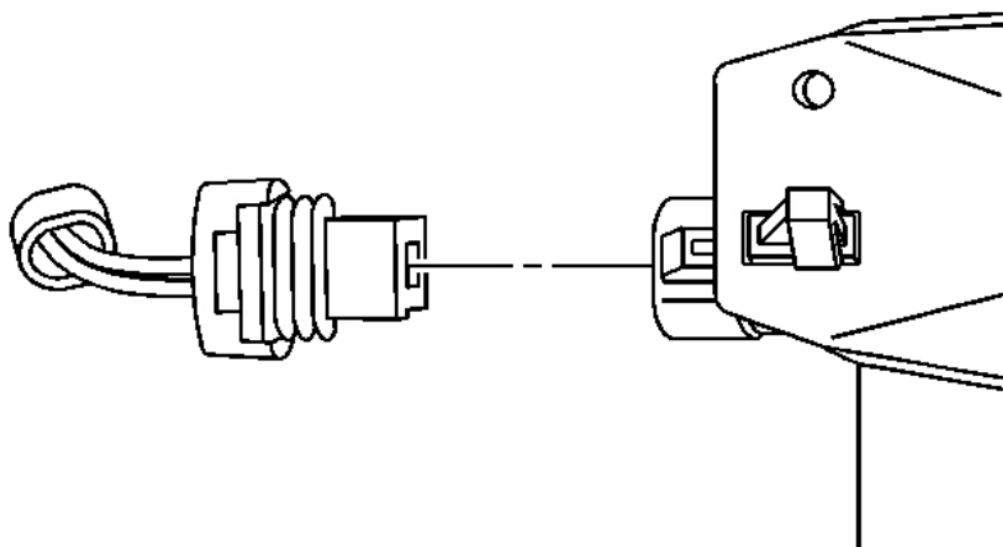


Fig. 10: View Of Wheel Speed Sensor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

6. Install the left wheel drive shaft to the hub and bearing.
7. Install the left upper ball joint to the steering knuckle. Refer to **Shock Module Replacement** in Front Suspension.

8. Connect the wheel speed sensor electrical connector.

IMPORTANT: Ensure that the drive shaft seals do not have any abrasions, cuts or punctures.

9. Loosely install the NEW wheel drive shaft spindle nut.

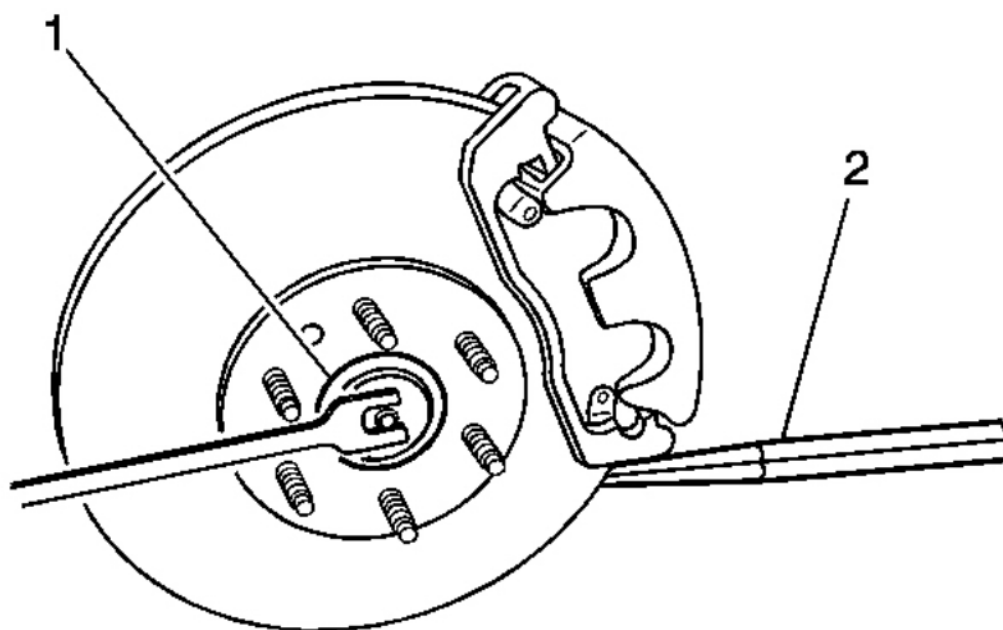


Fig. 11: View Of Wheel Drive Shaft Spindle Nut & Punch
Courtesy of GENERAL MOTORS CORP.

10. Insert a drift or punch (1) into the rotor and against the caliper mounting bracket in order to prevent the hub and bearing from turning.

NOTE: Refer to Fastener Notice in Cautions and Notices.

11. Use the New wheel drive shaft spindle nut to slowly pull the spindle to the wheel hub and bearing assembly.

Tighten: Tighten the wheel drive shaft spindle nut to 160 N.m (118 lb ft).

12. Connect the outer tie rod end to the steering knuckle. Refer to **Rack and Pinion Outer Tie Rod End Replacement** in Power Steering System.
13. Install the left tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
14. Lower the vehicle.

WHEEL DRIVE SHAFT REPLACEMENT - FRONT (RIGHT)

Tools Required

- J 2619-O1 Slide Hammer With Adapter. See **Special Tools and Equipment**.
- J 29794 Extension. See **Special Tools and Equipment**.
- J 44394 Seal Protector. See **Special Tools and Equipment**.
- J 45341 Axle Shaft Puller. See **Special Tools and Equipment**.
- J 45859 Wheel Hub Remover. See **Special Tools and Equipment**.

Removal Procedure

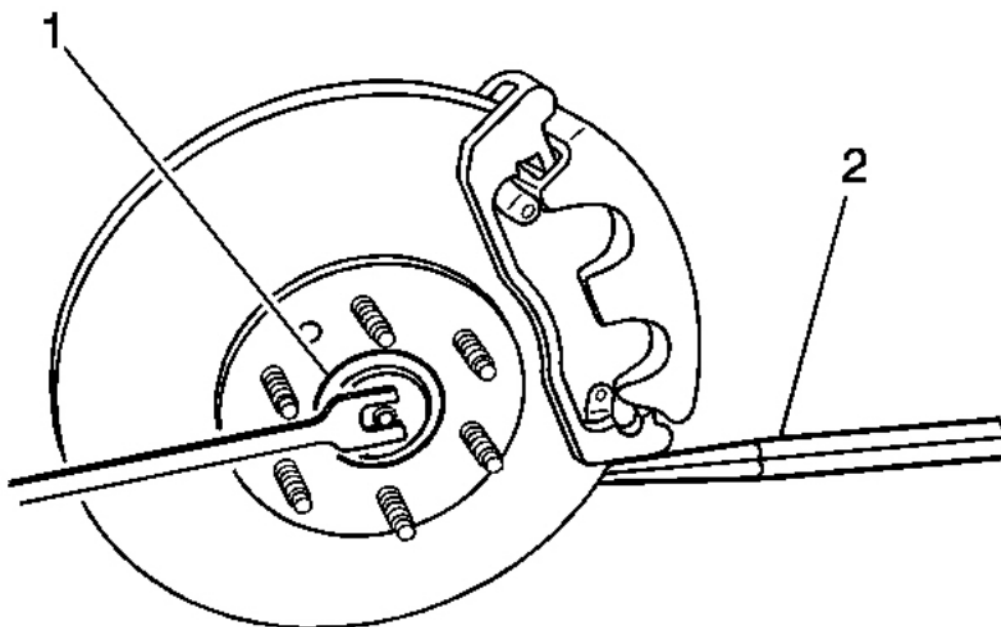


Fig. 12: View Of Wheel Drive Shaft Spindle Nut & Punch
Courtesy of GENERAL MOTORS CORP.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
2. Remove the right front tire and wheel assembly. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
3. Disconnect the right outer tie rod end from the steering knuckle. Do NOT loosen the tie rod end jam nut. Refer to Rack and Pinion Outer Tie Rod End Replacement in Power Steering System.
4. Insert a drift or punch (2) into the brake rotor and against the brake caliper mounting bracket, in order to prevent the wheel hub and bearing from turning.

**IMPORTANT: The wheel drive shaft spindle nut must not be reused.
Replace the wheel drive shaft spindle nut with a new nut
whenever it is removed.**

5. Remove and discard the right front wheel drive shaft spindle nut (1) retaining the wheel drive shaft to the hub.

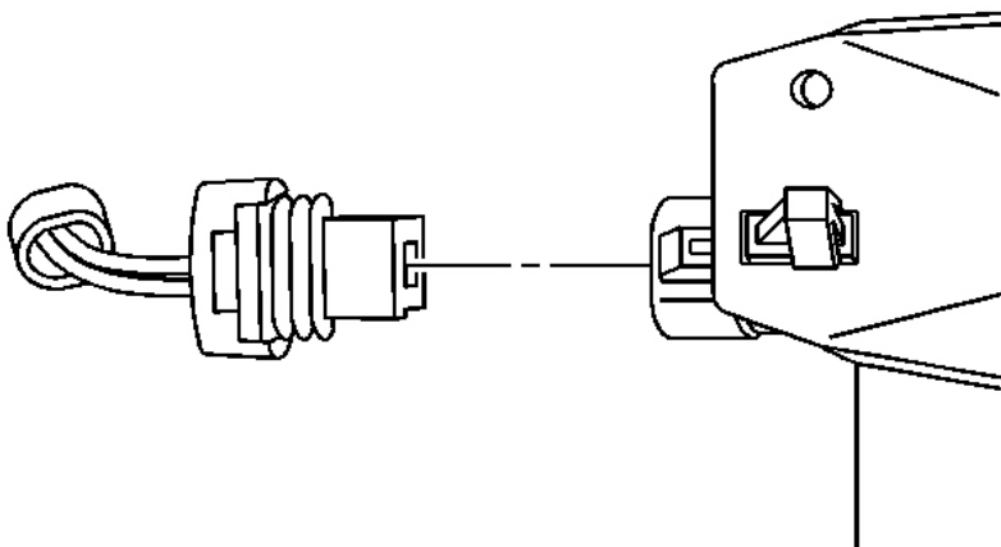


Fig. 13: View Of Wheel Speed Sensor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Be sure that the wheel speed sensor wiring harness is repositioned away from the ball joint, after disconnecting the electrical connector from the sensor.

6. Disconnect the electrical connector from the wheel speed sensor and reposition the wiring harness away from the ball joint.
7. Disconnect the right upper ball joint from the steering knuckle. Refer to **Shock Module Replacement** in Front Suspension.

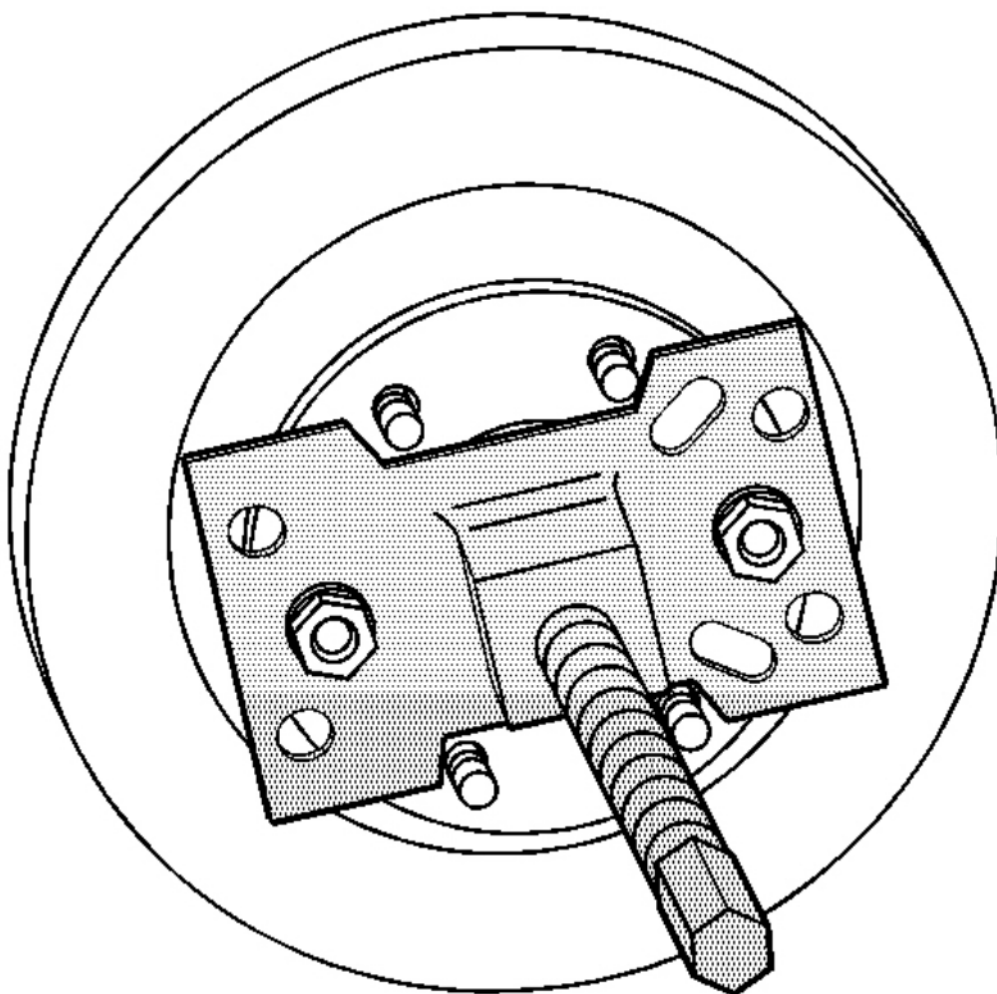


Fig. 14: View Of J 45859 Secured Onto Wheel Hub
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Be sure to support the wheel drive shaft until it is fully removed from the vehicle.

8. Install the **J 45859** or equivalent onto the wheel hub and secure with wheel nuts. See **Special Tools and Equipment**.
9. Using the **J 45859** or equivalent, disengage the right front wheel drive shaft from the wheel hub and bearing and support the wheel drive shaft. See **Special Tools and Equipment**.

10. Remove **J 45859** or equivalent from the wheel hub. See Special Tools and Equipment.
11. Assemble the **J 2619-O1** , the **J 29794** , and the **J 45341** .
12. Install **J 45341** to the wheel drive shaft inner joint pull groove. See Special Tools and Equipment.
13. Using the **J 2619-O1** , the **J 29794** , and the **J 45341** , disengage the wheel drive shaft from the differential enough to install **J 44394** . See Special Tools and Equipment.

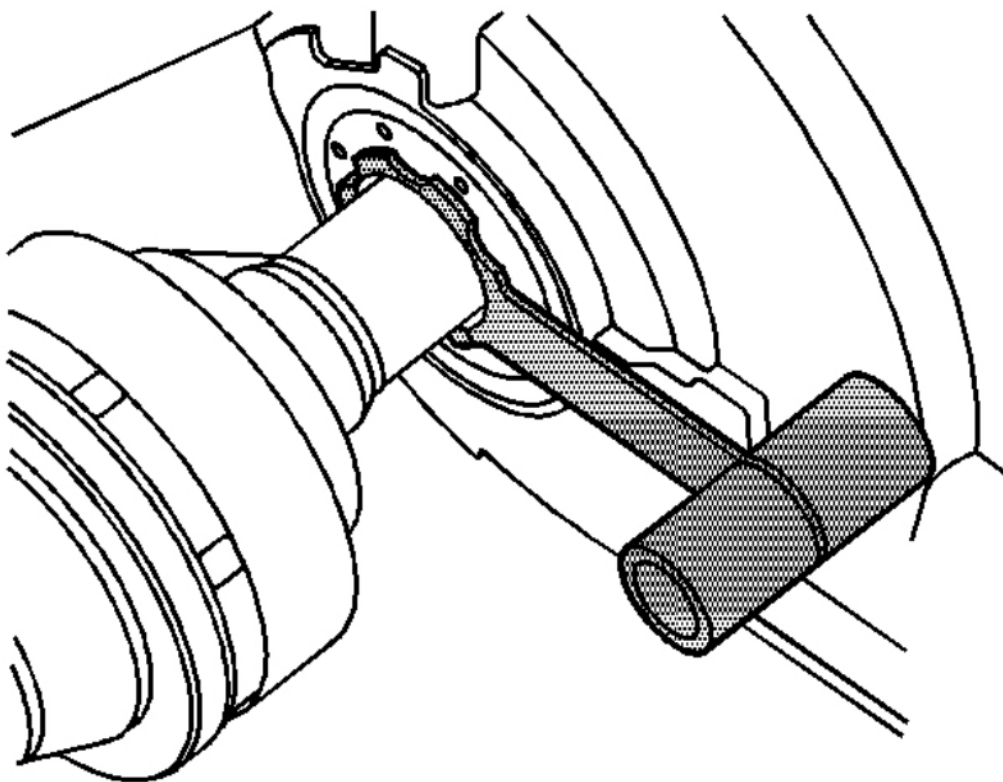


Fig. 15: View Of J 44394 Installed Into The Differential Output Shaft Seal
Courtesy of GENERAL MOTORS CORP.

NOTE: J-44394 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install J-44394 as indicated may cause the splines of the wheel drive shaft to cut the differential output seal.

14. Carefully install the **J 44394** over the wheel drive shaft. See **Special Tools and Equipment**.
15. Carefully slide the **J 44394** into the differential output shaft seal. See **Special Tools and Equipment**.
16. Remove the wheel drive shaft from the vehicle.
17. Remove the **J 2619-O1** , the **J 29794** , and the **J 45341** from the wheel drive shaft inner joint. See **Special Tools and Equipment**.
18. Remove and discard the wheel drive shaft retaining ring from the retaining ring groove. The wheel drive shaft retaining ring is on the splined shaft of the inner joint housing.

Installation Procedure

1. Install the new wheel drive shaft retaining ring to the retaining ring groove. The wheel drive shaft retaining ring is on the splined shaft of the inner joint housing.

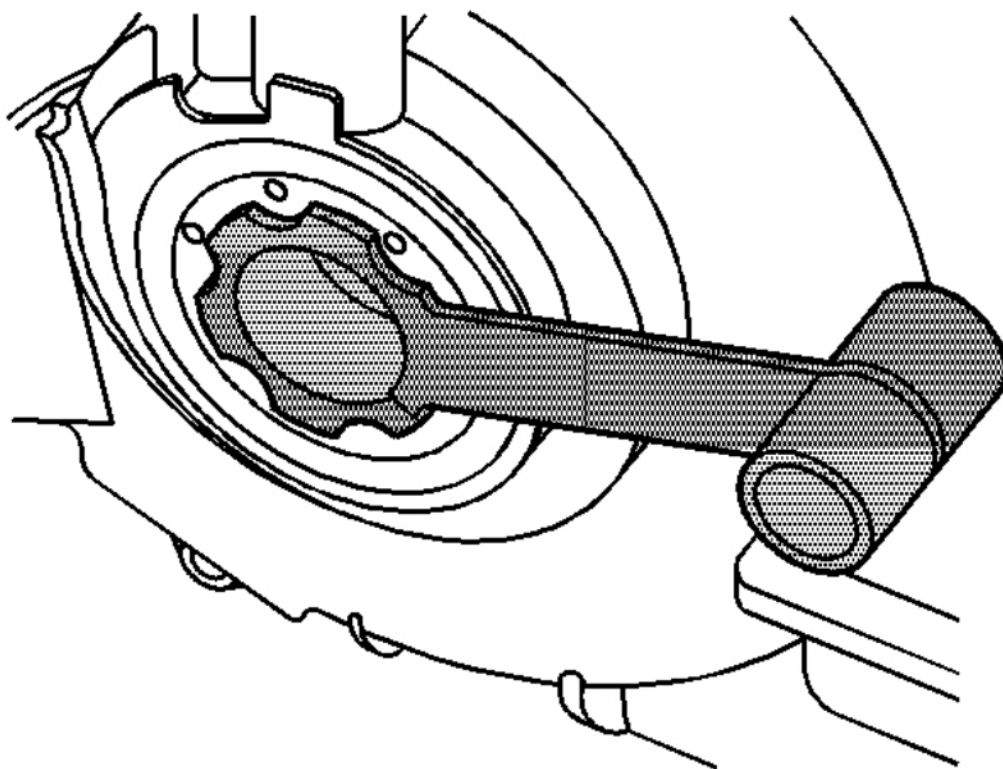


Fig. 16: Installing J 44394 Into Differential Output Shaft Seal
Courtesy of GENERAL MOTORS CORP.

NOTE: J-44394 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install J-44394 as indicated may cause the splines of the wheel drive shaft to cut the differential output seal.

2. If previously removed, carefully install J 44394 into the differential output shaft seal. See **Special Tools and Equipment**.

IMPORTANT: In order to prevent lubricant leaks, use care when installing the wheel drive shaft to the differential. Do not damage the oil seal. Replace the oil seal if it becomes nicked, distorted, or is otherwise damaged.

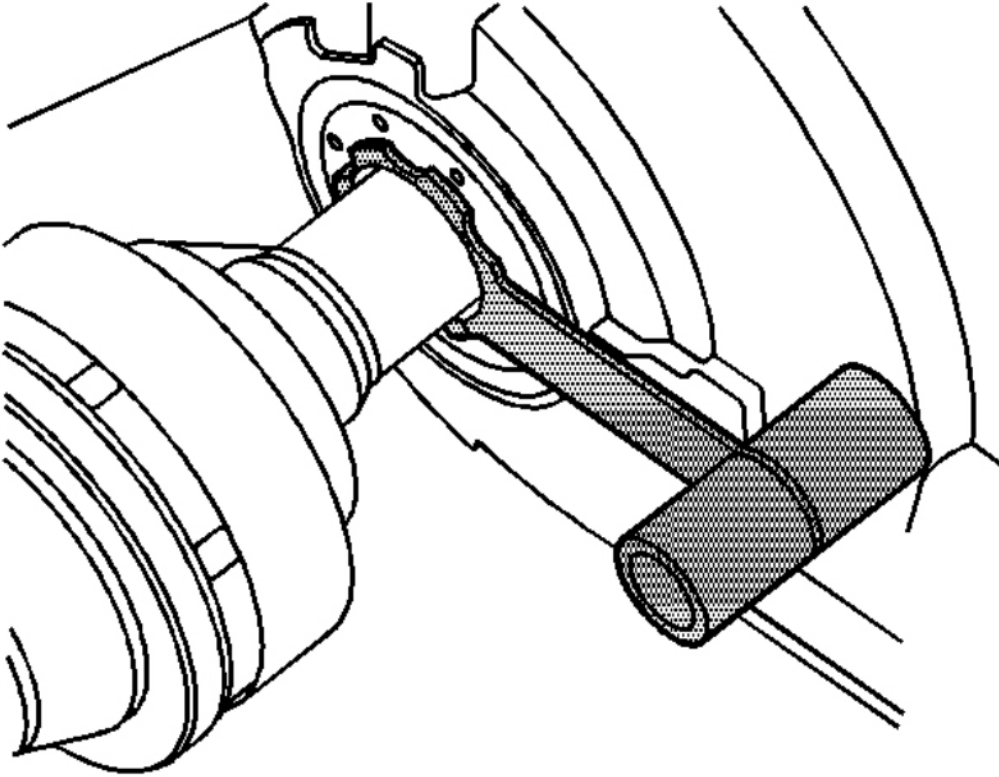


Fig. 17: View Of J 44394 Installed Into The Differential Output Shaft Seal
Courtesy of GENERAL MOTORS CORP.

3. Carefully install the wheel drive shaft into the differential until the splines are past the **J 44394** . See **Special Tools and Equipment**.

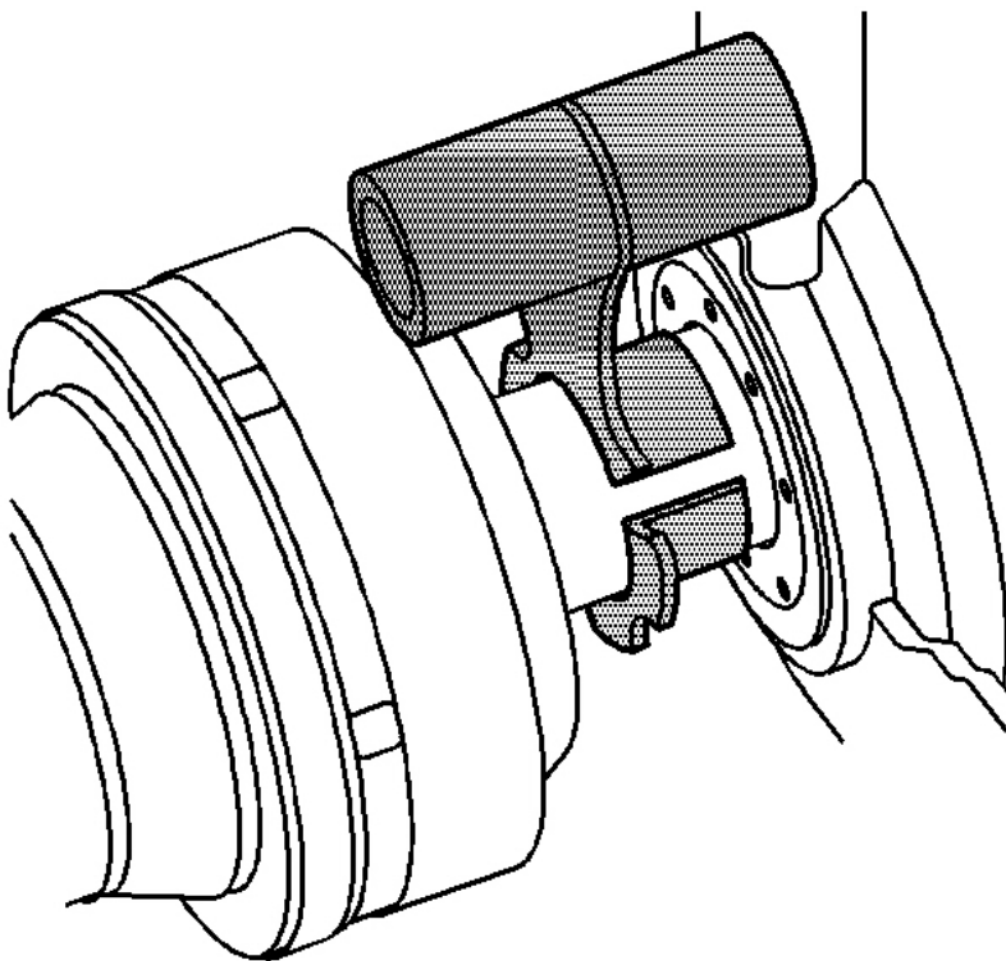


Fig. 18: Removing J 44394
Courtesy of GENERAL MOTORS CORP.

4. Carefully remove the **J 44394** from the differential output shaft seal. See **Special Tools and Equipment**.
5. Carefully continue installing the wheel drive shaft into the differential until the retaining ring is fully seated.
6. Verify that the wheel drive shaft is properly engaged to the differential by grasping the inner joint housing and pulling outward. Do not pull on the wheel drive shaft bar.

The wheel drive shaft will remain firmly in place when properly engaged.

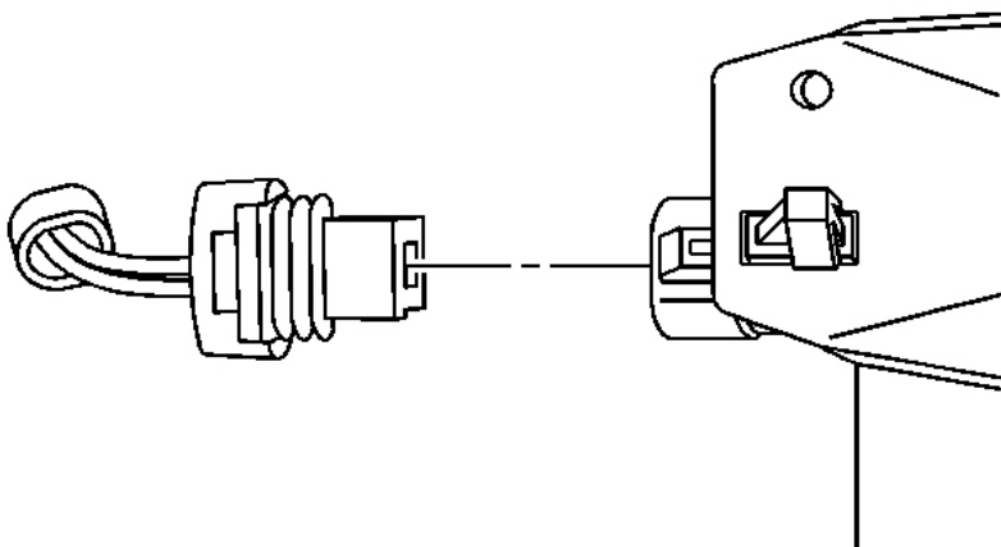


Fig. 19: View Of Wheel Speed Sensor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

7. Install the right front wheel drive shaft to the hub and bearing.
8. Connect the right upper ball joint to the steering knuckle. Refer to **Shock Module Replacement** in Front Suspension.
9. Connect the wheel speed sensor electrical connector.

IMPORTANT: Ensure that the drive shaft seals do not have any abrasions, cuts or punctures.

10. Loosely install the NEW wheel drive shaft spindle nut.

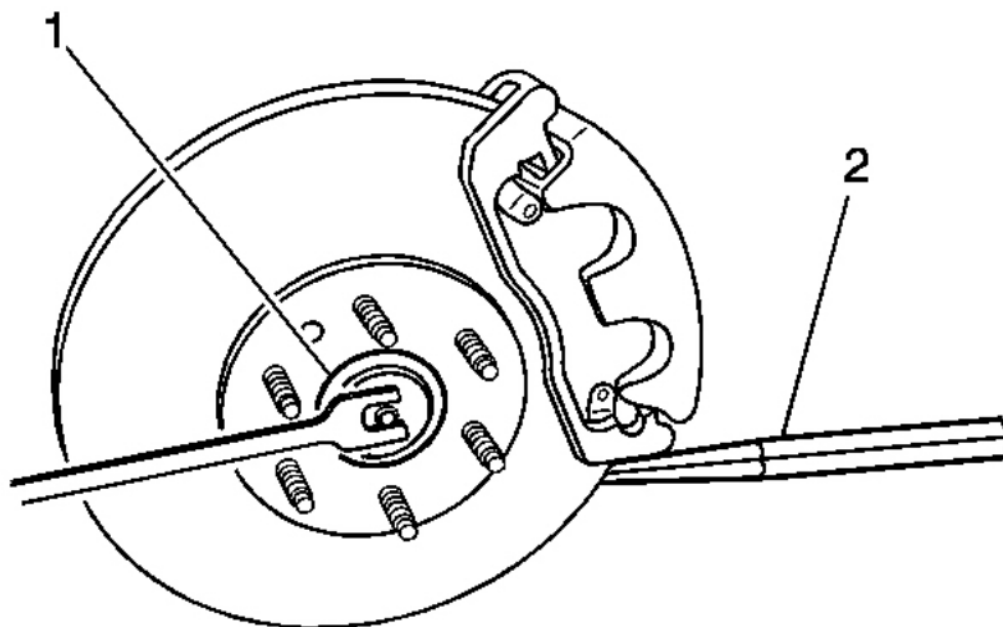


Fig. 20: View Of Wheel Drive Shaft Spindle Nut & Punch
Courtesy of GENERAL MOTORS CORP.

11. Insert a drift or punch (1) into the rotor and against the caliper mounting bracket in order to prevent the hub and bearing from turning.

NOTE: Refer to Fastener Notice in Cautions and Notices.

12. Use the New wheel drive shaft spindle nut to slowly pull the spindle to the wheel hub and bearing assembly.

Tighten: Tighten the wheel drive shaft spindle nut to 160 N.m (118 lb ft).

13. Remove the drift or punch from the rotor.
14. Connect the outer tie rod end to the steering knuckle. Refer to Rack and Pinion Outer Tie Rod End Replacement in Power Steering System.
15. Install the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
16. Lower the vehicle.

WHEEL DRIVE SHAFT REPLACEMENT - REAR**Tools Required**

J 44394 Seal Protector. See Special Tools and Equipment.

Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
2. Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.

IMPORTANT: The wheel drive shaft spindle nut must not be reused.
Replace the wheel drive shaft spindle nut with a new nut
whenever it is removed.

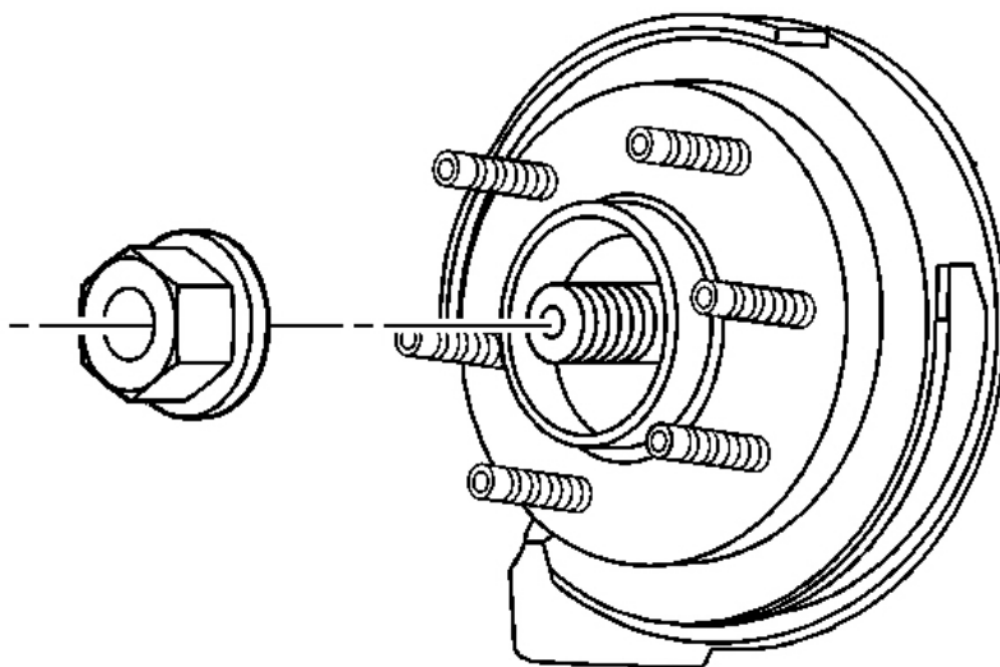


Fig. 21: View Of Wheel Drive Spindle Nut
Courtesy of GENERAL MOTORS CORP.

3. Insert a drift or punch into the brake rotor and against the caliper in order to prevent the wheel hub and bearing from turning.
4. Remove and discard the wheel drive shaft spindle nut.
5. Remove the drift or punch from the rotor.
6. Remove the rear knuckle assembly. Refer to **Knuckle Replacement** in Rear Suspension.

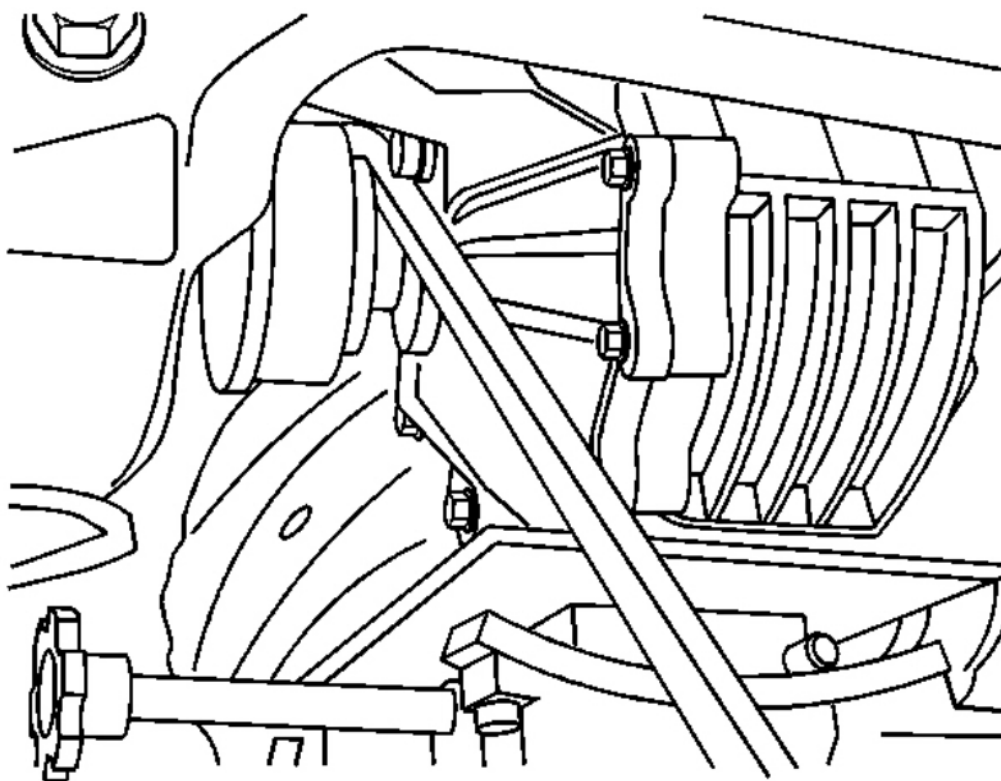


Fig. 22: Releasing Wheel Drive Shaft From Rear Differential
Courtesy of GENERAL MOTORS CORP.

7. Using a suitable tool, carefully release the wheel drive shaft from the rear differential enough to install the **J 44394** . See **Special Tools and Equipment**.

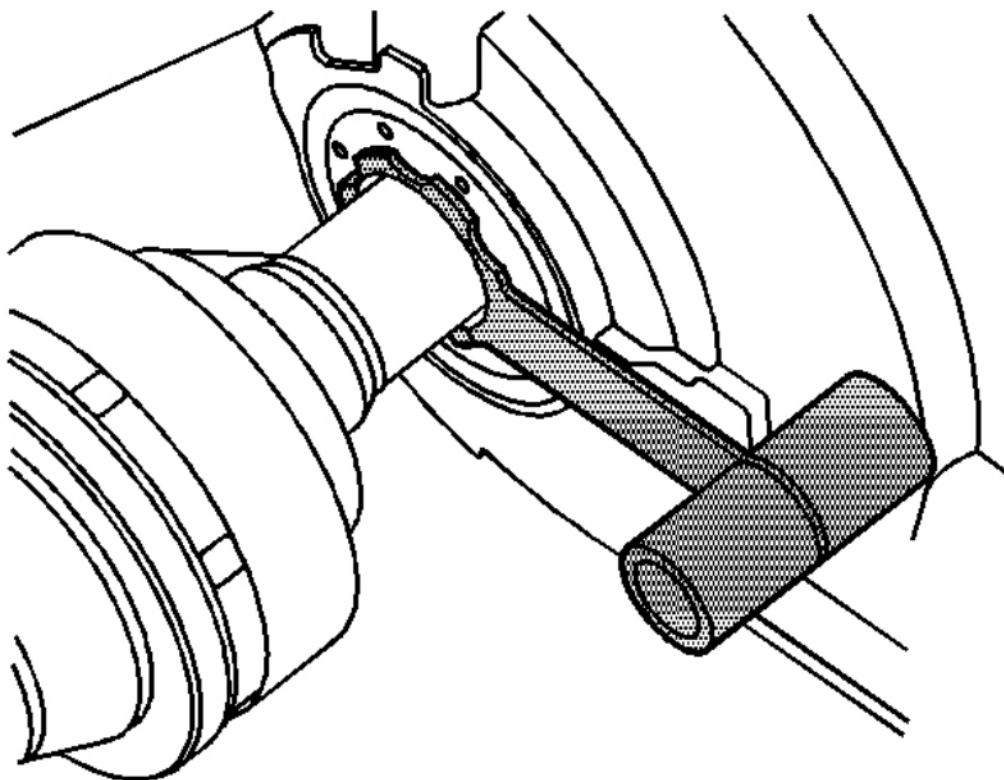


Fig. 23: View Of J 44394 Installed Into The Differential Output Shaft Seal
Courtesy of GENERAL MOTORS CORP.

NOTE: J-44394 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install J-44394 as indicated may cause the splines of the wheel drive shaft to cut the differential output seal.

8. Carefully install the J 44394 over the wheel drive shaft. See Special Tools and Equipment.
9. Carefully slide the J 44394 into the differential output shaft seal.
10. Remove the wheel drive shaft from the vehicle.
11. Remove and discard the wheel drive shaft retaining ring. The wheel drive shaft retaining ring is on the splined shaft of the inner joint housing.

Installation Procedure

1. Install the new wheel drive shaft retaining ring. The wheel drive shaft retaining ring is on the splined shaft of the inner joint housing.

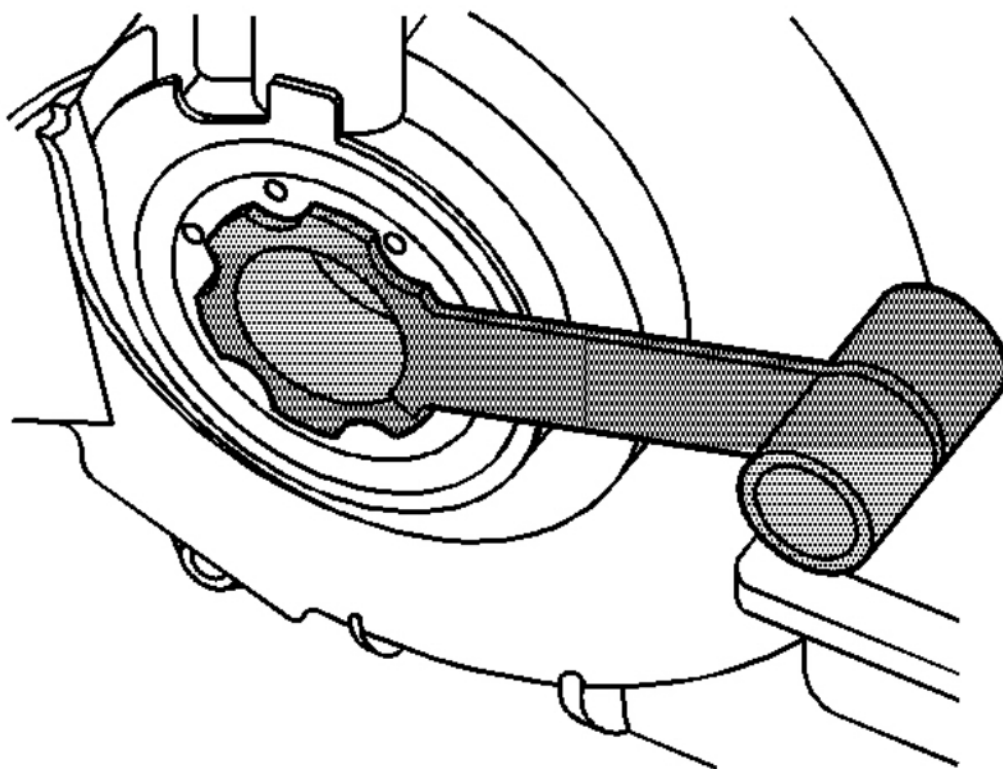


Fig. 24: Installing J 44394

Courtesy of GENERAL MOTORS CORP.

NOTE: J-44394 must be installed into the differential output shaft seal prior to removing and installing the wheel drive shaft. Failure to install J-44394 as indicated may cause the splines of the wheel drive shaft to cut the differential output seal.

2. If previously removed carefully install **J 44394** into the differential output shaft seal. See **Special Tools and Equipment**.

IMPORTANT: In order to prevent lubricant leaks, use care when installing the wheel drive shaft to the differential. Do not damage the oil seal. Replace the oil seal if it becomes nicked, distorted, or is otherwise damaged.

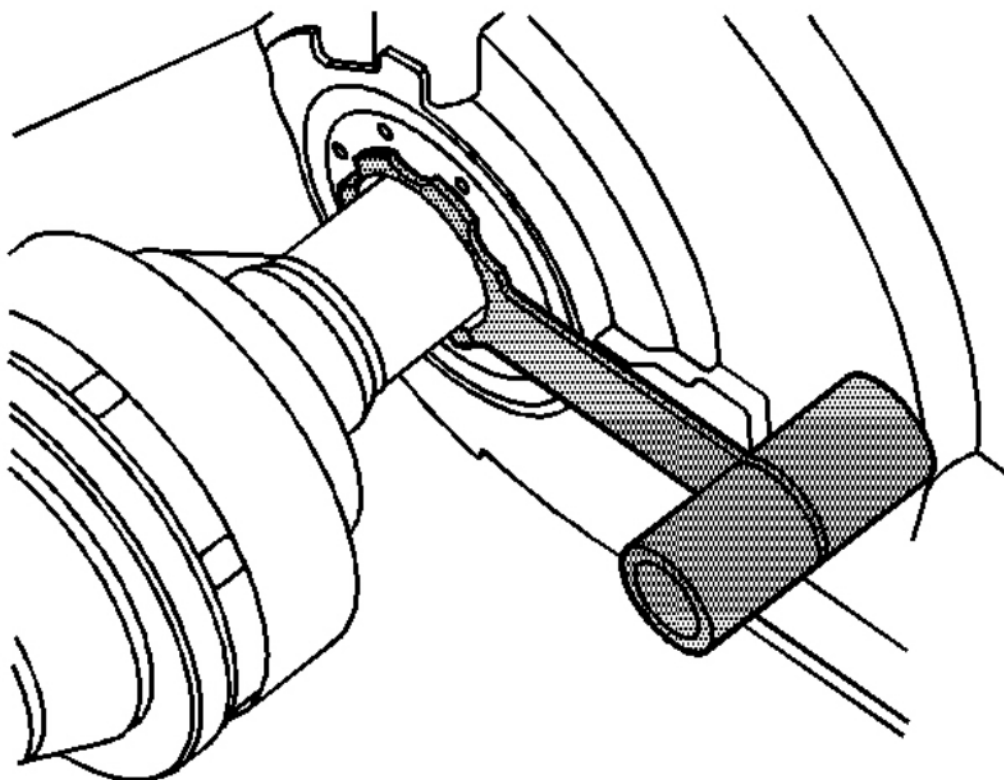


Fig. 25: View Of J 44394 Installed Into The Differential Output Shaft Seal
Courtesy of GENERAL MOTORS CORP.

3. Carefully install the wheel drive shaft into the differential until the splines are past the J 44394 . See Special Tools and Equipment.

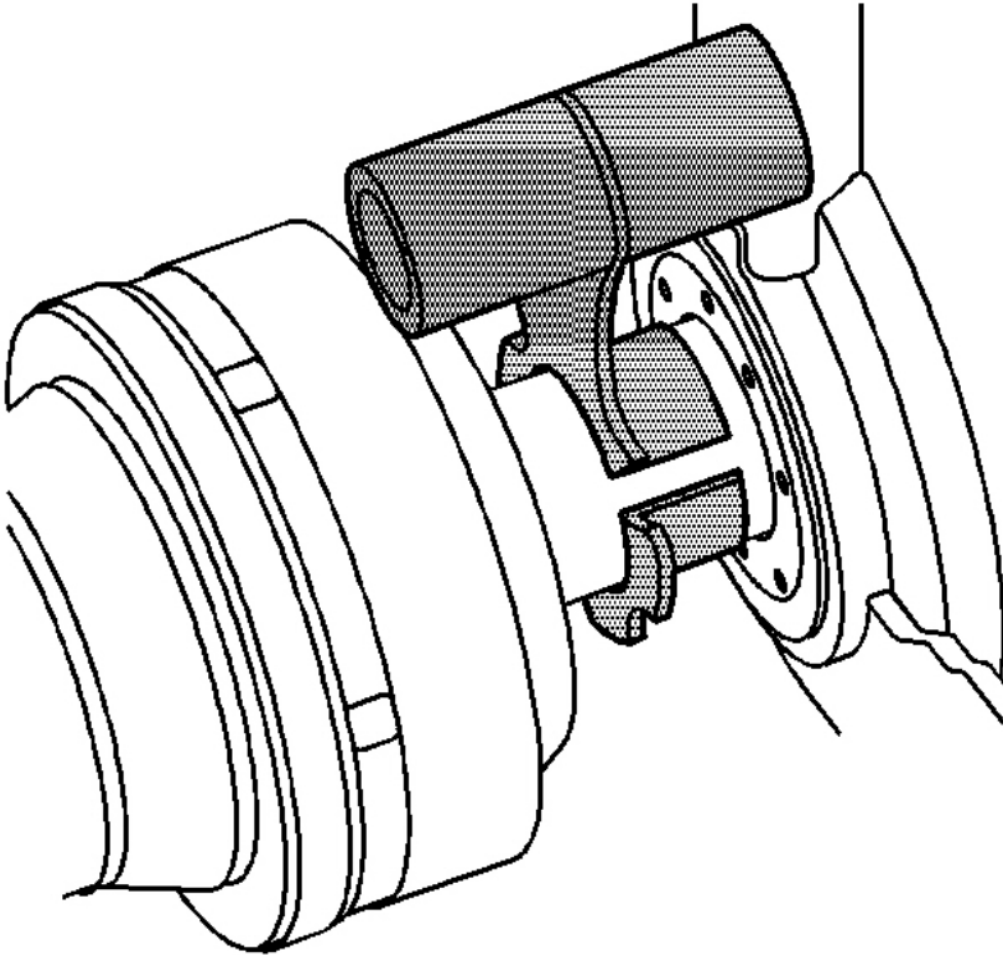


Fig. 26: Removing J 44394 From The Differential Output Shaft Seal
Courtesy of GENERAL MOTORS CORP.

4. Carefully remove the **J 44394** from the differential output shaft seal.

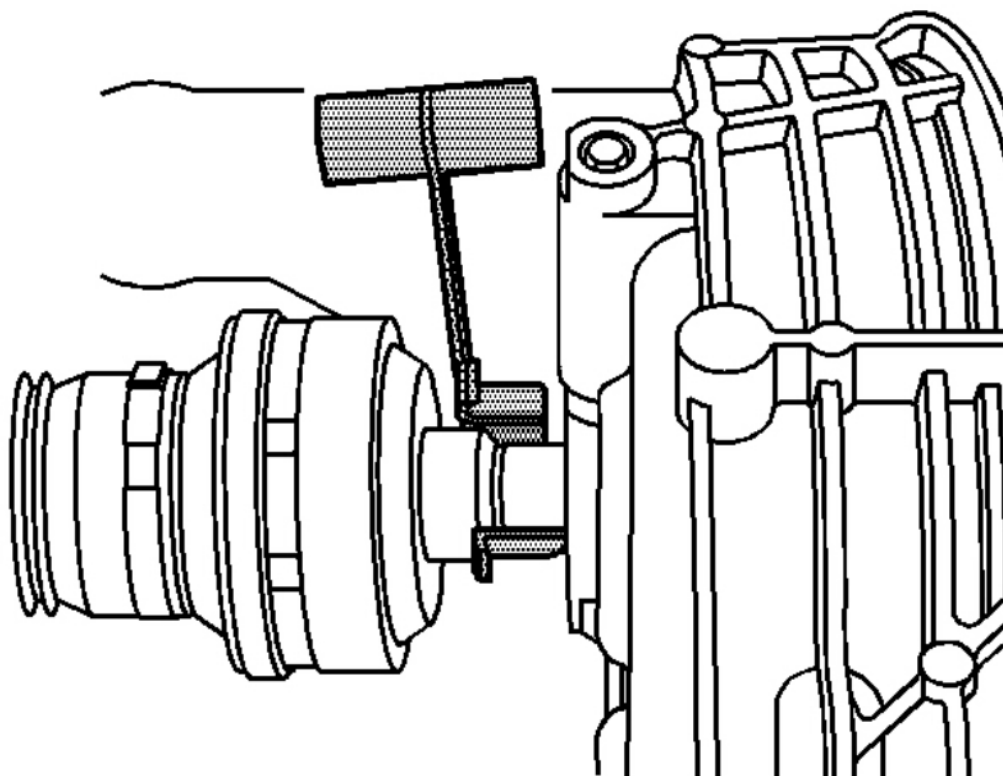


Fig. 27: Removing J 44394 From Wheel Drive Shaft
 Courtesy of GENERAL MOTORS CORP.

5. Carefully remove **J 44394** from the wheel drive shaft.
6. Carefully install the wheel drive shaft into the differential until the retaining ring is engaged.
7. Ensure the wheel drive shaft retaining ring is fully engaged to the differential by grasping the inner joint housing and pulling outward. The wheel drive shaft will stay positively engaged if properly installed to the differential.
8. Install the rear knuckle. Refer to **Knuckle Replacement** in Rear Suspension.

IMPORTANT: Ensure that the drive shaft seals do not have any abrasions, cuts or punctures.

9. Loosely install the NEW wheel drive shaft spindle nut.
10. Insert a drift or punch into the brake rotor and against the caliper in order to prevent the

wheel hub and bearing from turning.

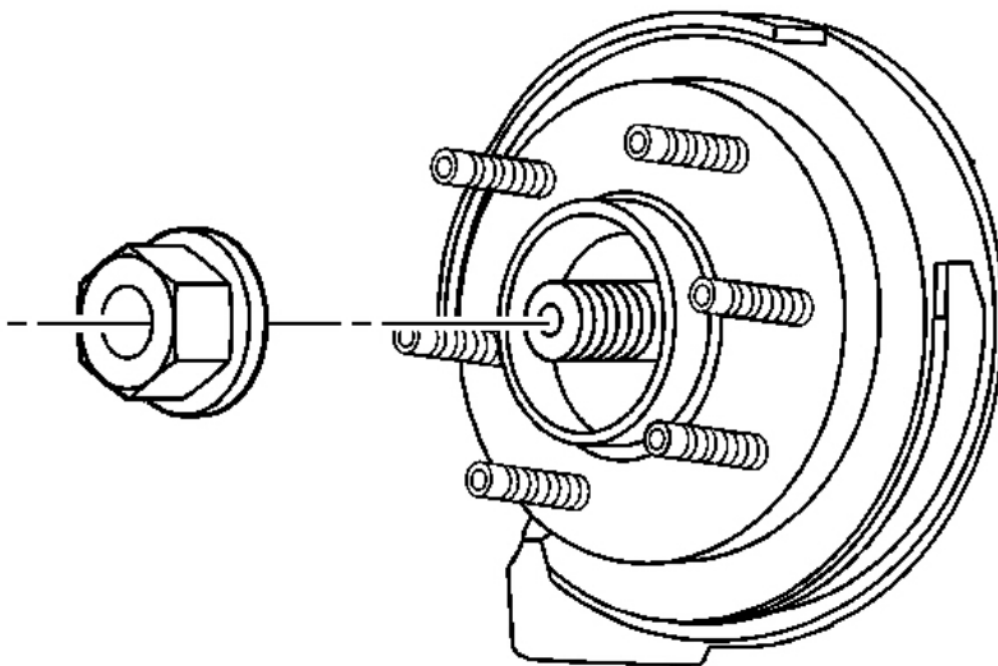


Fig. 28: View Of Wheel Drive Spindle Nut
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

11. Use the New wheel drive shaft spindle nut to slowly pull the spindle to the wheel hub and bearing assembly.

Tighten: Tighten the wheel drive shaft spindle nut to 160 N.m (118 lb ft).

12. Remove the drift or punch from the rotor.
13. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
14. Inspect the differential lubricant level. Refer to **Lubricant Level Inspection - Rear Drive Axle** in Rear Drive Axle.

15. Lower the vehicle.

WHEEL DRIVE SHAFT INNER JOINT AND SEAL REPLACEMENT - FRONT (LEFT)

Tools Required

- **J 8059** Snap Ring Pliers. See **Special Tools and Equipment**.
- **J 35566** Drive Axle Seal Clamp Pliers. See **Special Tools and Equipment**.
- **J 42572** Drive Shaft Seal Clamp Pliers. See **Special Tools and Equipment**.

Disassembly Procedure

This procedure is to be performed only after the wheel drive shaft has been removed from the vehicle. Refer to **Wheel Drive Shaft Replacement - Front (Left)** or **Wheel Drive Shaft Replacement - Front (Right)**.

1. Wrap a shop towel around the wheel drive shaft bar.
2. Place the wheel drive shaft horizontally in a bench vise.

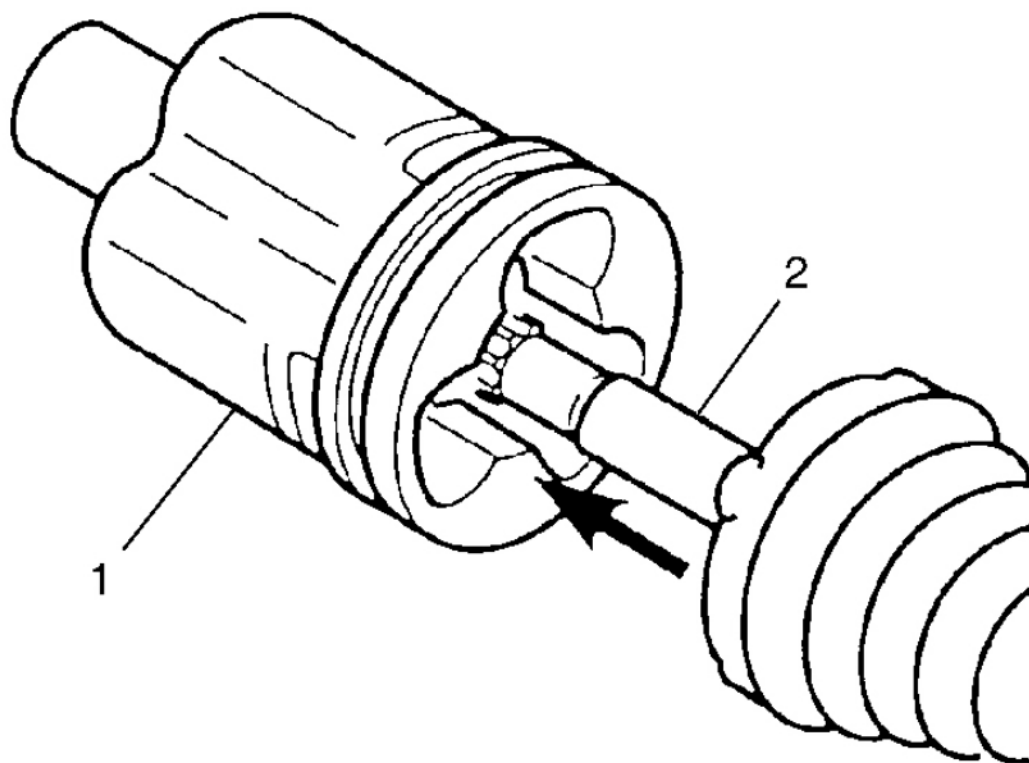


Fig. 29: View Of Housing, Tripot Joint Spider & Halfshaft Bar
Courtesy of GENERAL MOTORS CORP.

3. Remove the small seal clamp from the wheel drive shaft bar using side cutters and discard the clamp.
4. Using the **J 35566** , or equivalent, unlatch the large seal retaining clamp. See **Special Tools and Equipment**.
5. Remove the large seal clamp from the tripot joint and the clamp.
6. Separate the wheel drive shaft inboard seal from the trilobal tripot bushing.
7. Slide the seal away from the joint along the wheel drive shaft bar.
8. Remove the housing (1) from the tripot joint spider and the wheel drive shaft bar (2).

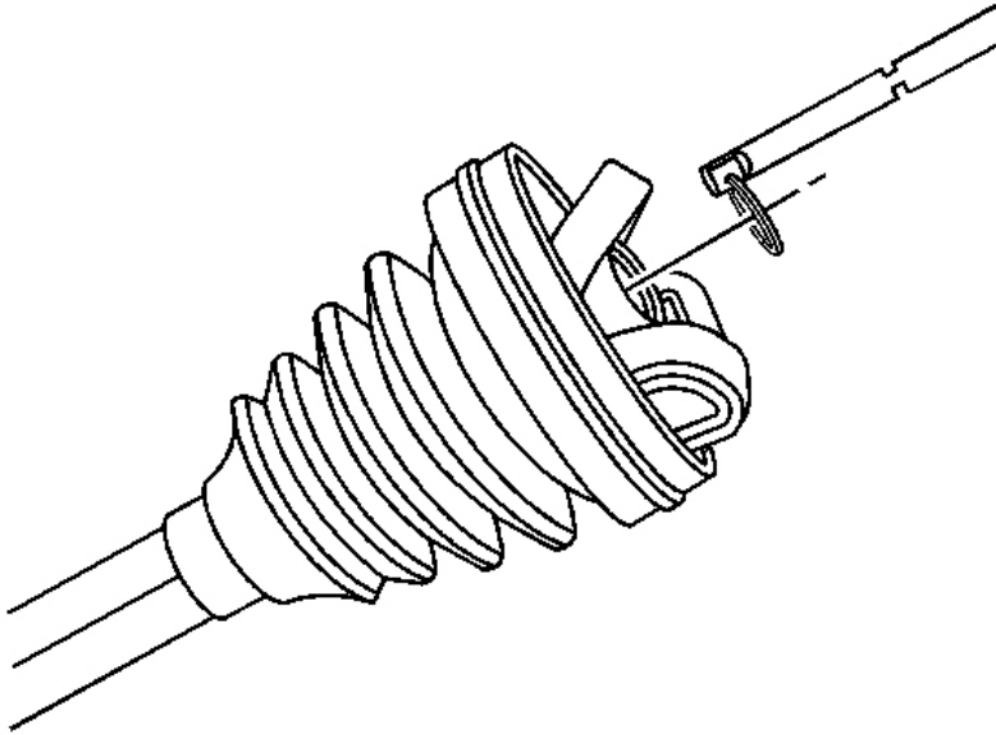


Fig. 30: View Of Wheel Drive Shaft Bar Retaining Ring
Courtesy of GENERAL MOTORS CORP.

9. Remove the retaining ring using **J 8059** or equivalent, and discard the old retaining ring. See **Special Tools and Equipment**.

IMPORTANT: Accurately reference mark the tripot spider position on the wheel drive shaft bar before disassembly.

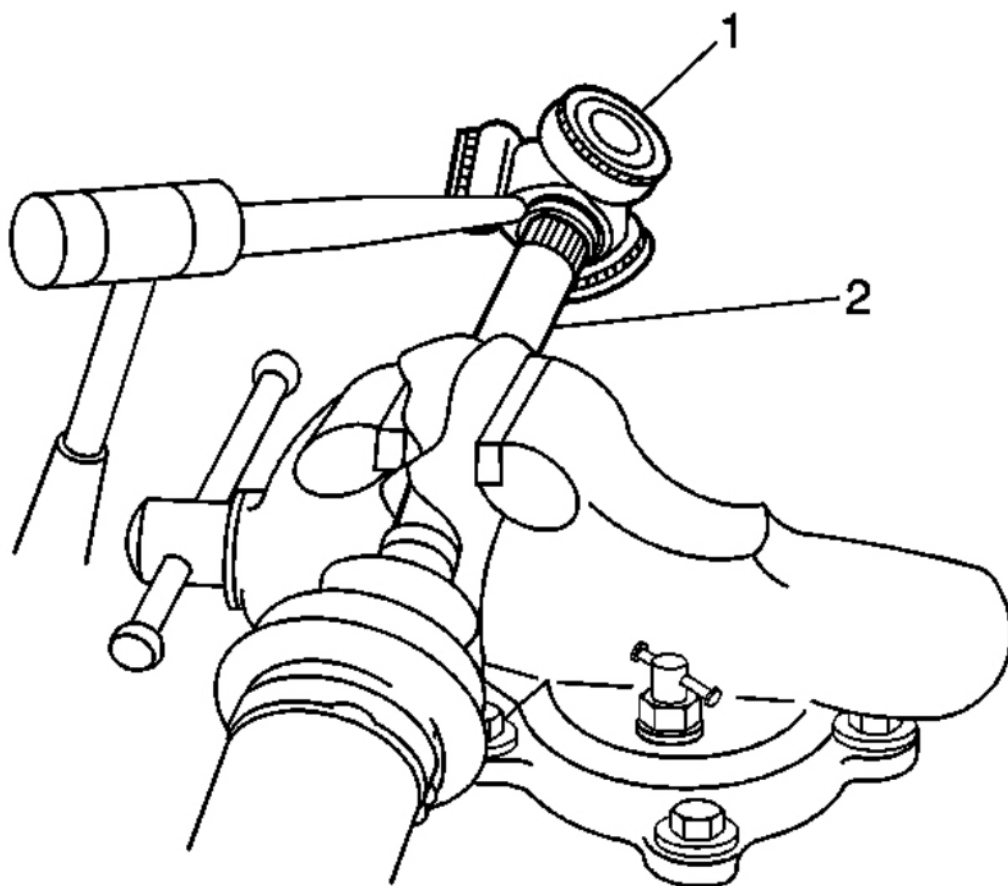


Fig. 31: View Of Tripot Spider & Wheel Drive Shaft Bar
Courtesy of GENERAL MOTORS CORP.

10. Reference mark the position of the tripot spider (1) on the wheel drive shaft bar (2).
11. Using a brass drift and hammer, carefully tap around the tripot spider face to remove the tripot spider (1) from the wheel drive shaft bar.
12. Remove the joint seal from the wheel drive shaft bar.
13. Inspect the following parts for damage and/or wear:
 - The wheel drive shaft inboard seal
 - The tripot joint spider assembly
 - The housing
 - The trilobal tripot bushing

Assembly Procedure

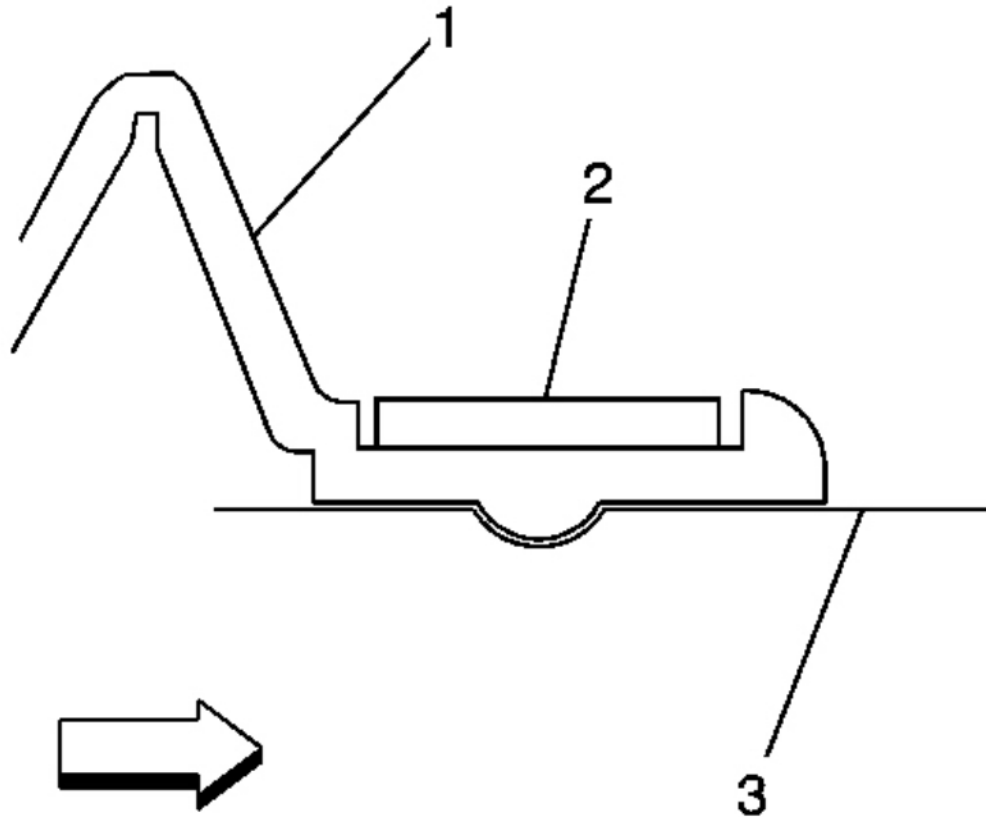


Fig. 32: Inner Joint Seal, Small Seal Clamp, & Inner Joint Seal Groove
Courtesy of GENERAL MOTORS CORP.

1. Place the new small seal clamp (2) onto the small end of the inner joint seal (1).
2. Slide the inner joint seal and the small seal clamp into the boot groove on the wheel drive shaft bar.
3. Position the small end of the inner joint seal into the inner joint seal groove (3) on the wheel drive shaft bar.

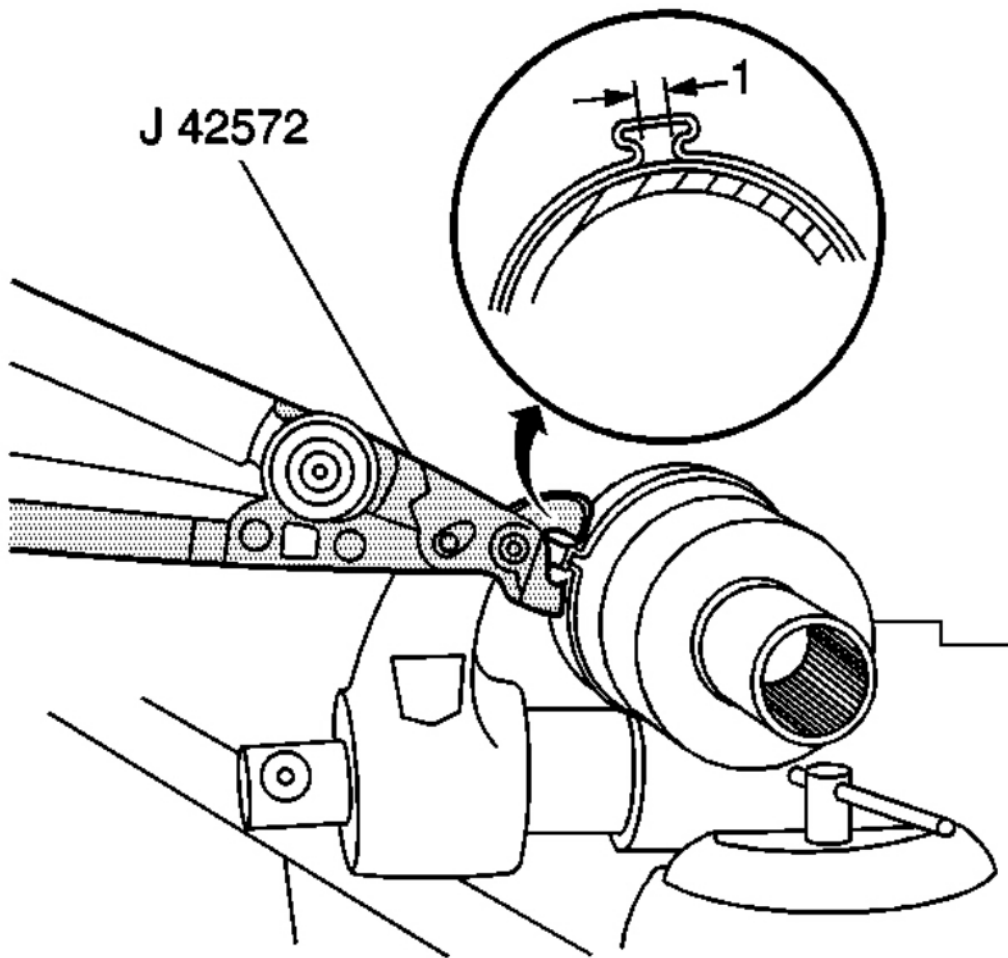


Fig. 33: Crimping Seal Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

4. Using the **J 42572** , or equivalent, crimp the small seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the small seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

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The clamping hold time must be no less than 2 seconds.

IMPORTANT: If reusing the old tripot spider, align the reference mark on the tripot spider to the wheel drive shaft bar.

IMPORTANT: Ensure that the beveled edge of the tripot spider faces the wheel drive shaft bar during reassembly.

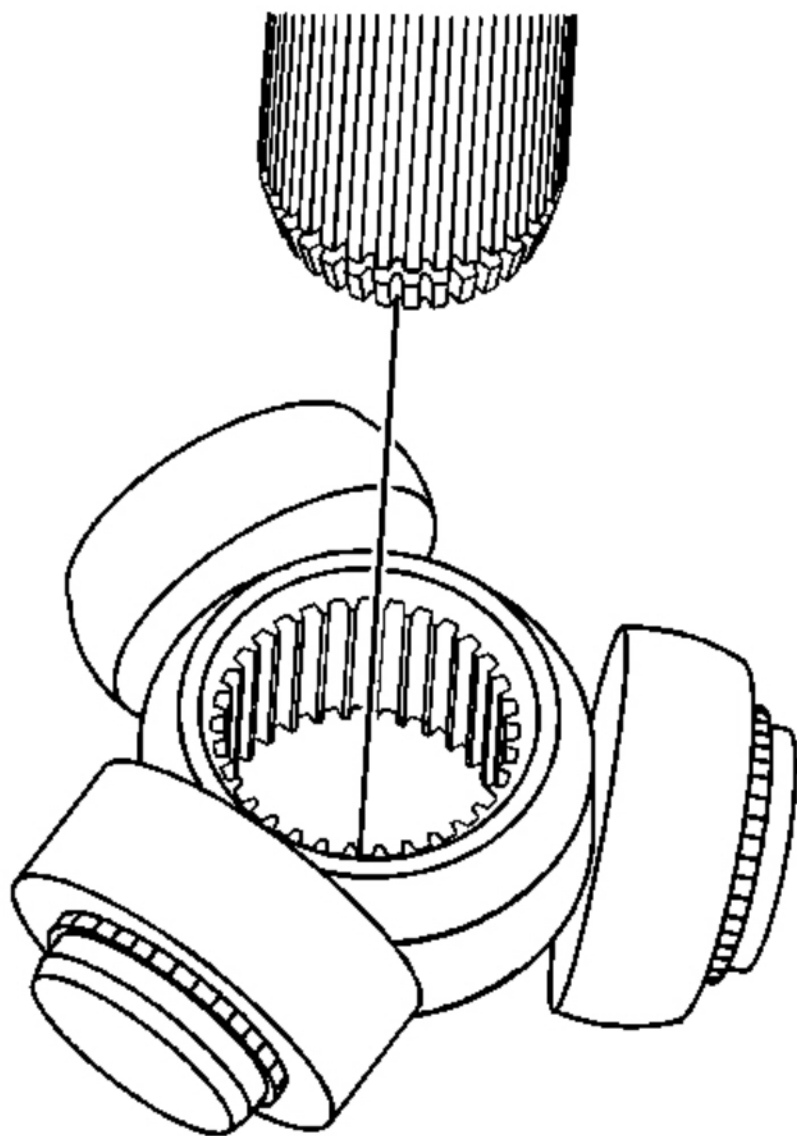


Fig. 34: View Of Tripot Spider
Courtesy of GENERAL MOTORS CORP.

5. Install the tripot spider to the wheel drive shaft bar.

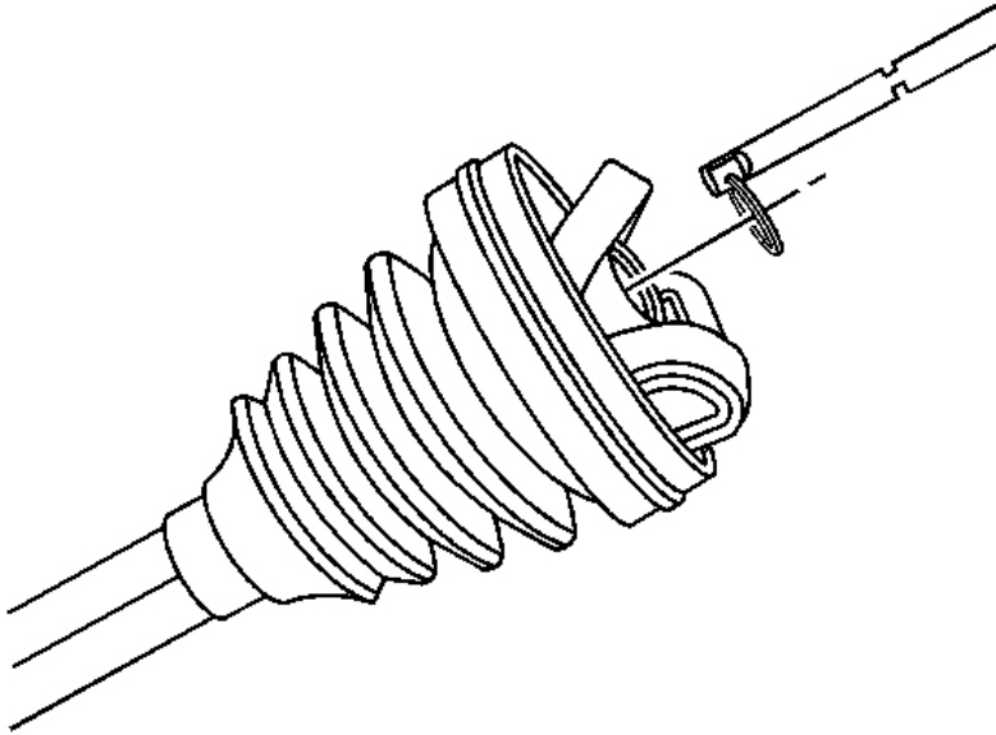


Fig. 35: View Of Wheel Drive Shaft Bar Retaining Ring
Courtesy of GENERAL MOTORS CORP.

6. Using **J 8059** , or equivalent, install a NEW retaining ring to the wheel drive shaft bar. See **Special Tools and Equipment**.
7. Verify positive engagement of the tripot spider to the wheel drive shaft bar by grasping the tripot spider and attempting to pull it free from the wheel drive shaft bar.

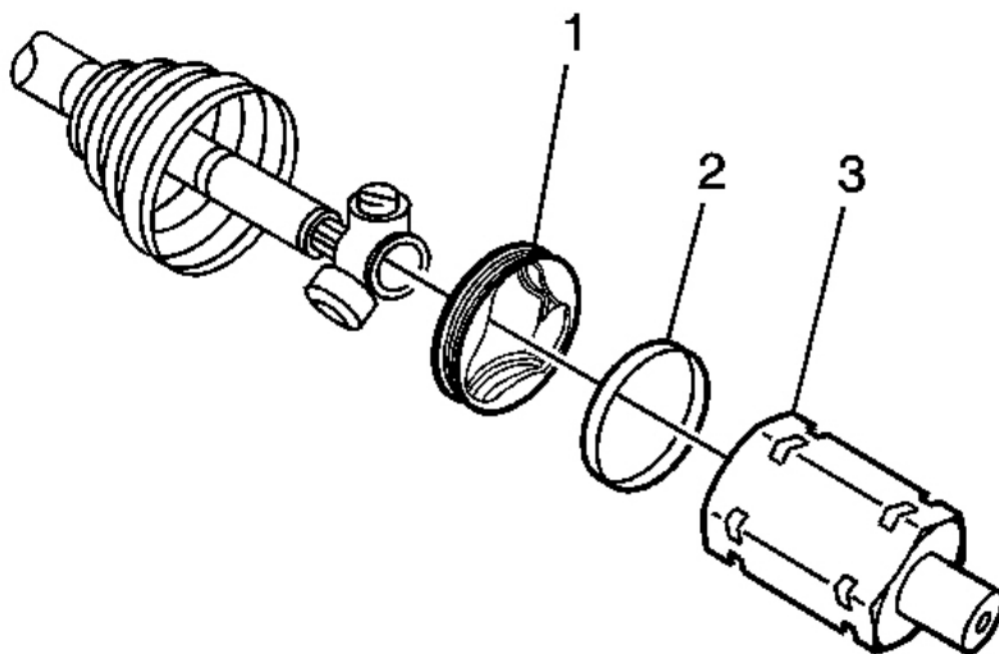


Fig. 36: View Of Trilobal Tripot Bushing & Seal Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

8. Place approximately half of the grease from the service kit in the wheel drive shaft inboard seal. Use the remainder of the grease to repack the housing.
9. Install the trilobal tripot bushing (1) to the housing.
10. Position the larger new seal retaining clamp (2) on the wheel drive shaft inboard seal.
11. Slide the housing over the tripot joint spider assembly on the wheel drive shaft bar.

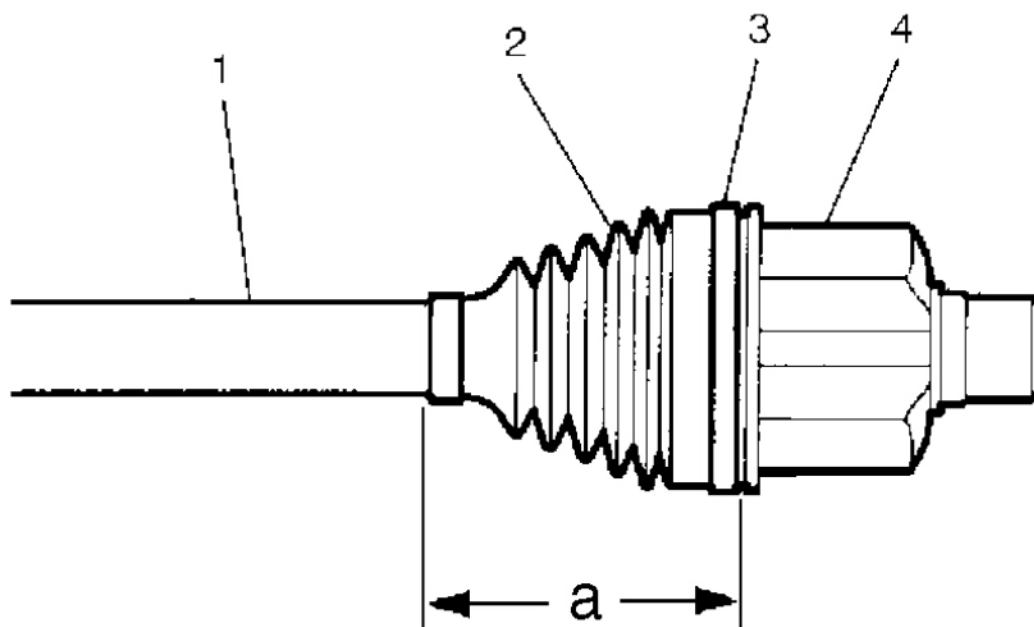


Fig. 37: Identifying Axle Shaft/CV Joint Assembly Components And Installed Boot Measurement Dimension

Courtesy of GENERAL MOTORS CORP.

12. Slide the large diameter of the wheel drive shaft inboard seal (2), with the larger clamp (3) in place, over the outside of the trilobal tripot bushing and locate the lip of the seal in the groove.

IMPORTANT: The seal must not be dimpled, stretched or otherwise deformed.

13. Inspect the seal for proper shape.

If the seal is not shaped correctly, equalize the pressure in the seal by lifting the seal edge slightly and shape the seal properly by hand.

14. Position the joint assembly to the proper vehicle dimension.
15. Measure the distance (a) between the seal edges.

Specification: 104.7 mm (4.12 in).

IMPORTANT: Burp the air from the inner joint seal.

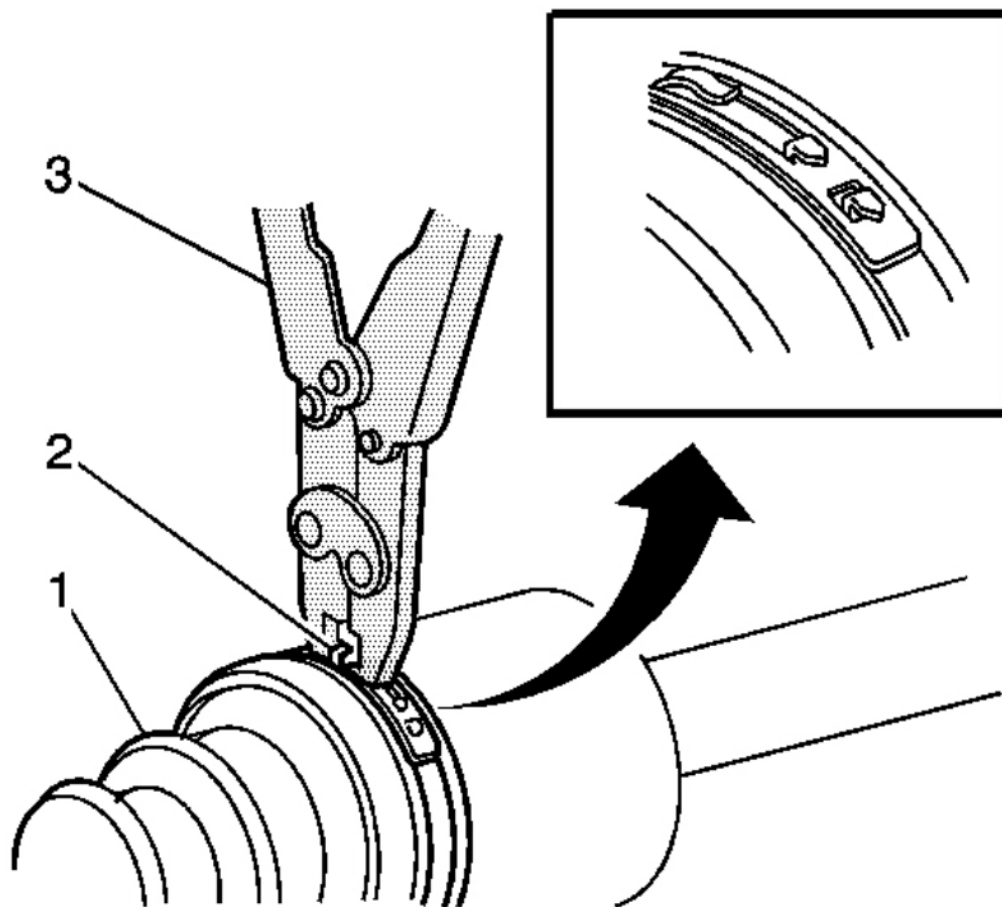


Fig. 38: Latching Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

16. Align the following items while latching the retaining clamp:
 - The wheel drive shaft inboard seal (1)
 - The tripot housing
 - The large seal retaining clamp (2)
17. Using the **J 35566** (3), or equivalent, latch the large seal retaining clamp. See **Special Tools and Equipment**.

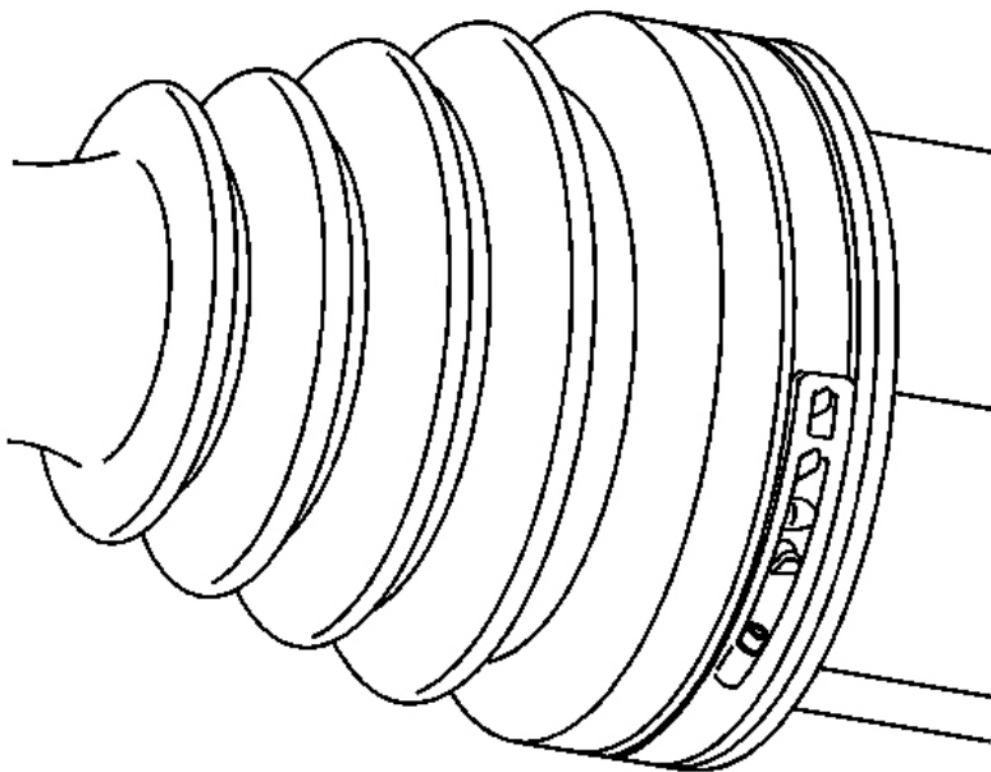


Fig. 39: View Of Large Clamp Band
Courtesy of GENERAL MOTORS CORP.

18. Ensure that the latching tangs are fully engaged in the large clamp band.
19. Rotate the inner tripot housing 4 or 5 times in order to distribute the grease throughout the tripot spider bearings.

WHEEL DRIVE SHAFT INNER JOINT AND SEAL REPLACEMENT - FRONT (RIGHT)

Tools Required

- **J 8059** Snap Ring Pliers. See **Special Tools and Equipment**.
- **J 35566** Drive Shaft Seal Clamp Pliers. See **Special Tools and Equipment**.
- **J 42572** Drive Shaft Seal Clamp Pliers. See **Special Tools and Equipment**.

Disassembly Procedure

This procedure is to be performed only after the wheel drive shaft has been removed from the vehicle. Refer to **Wheel Drive Shaft Replacement - Front (Left)** or **Wheel Drive Shaft Replacement - Front (Right)**.

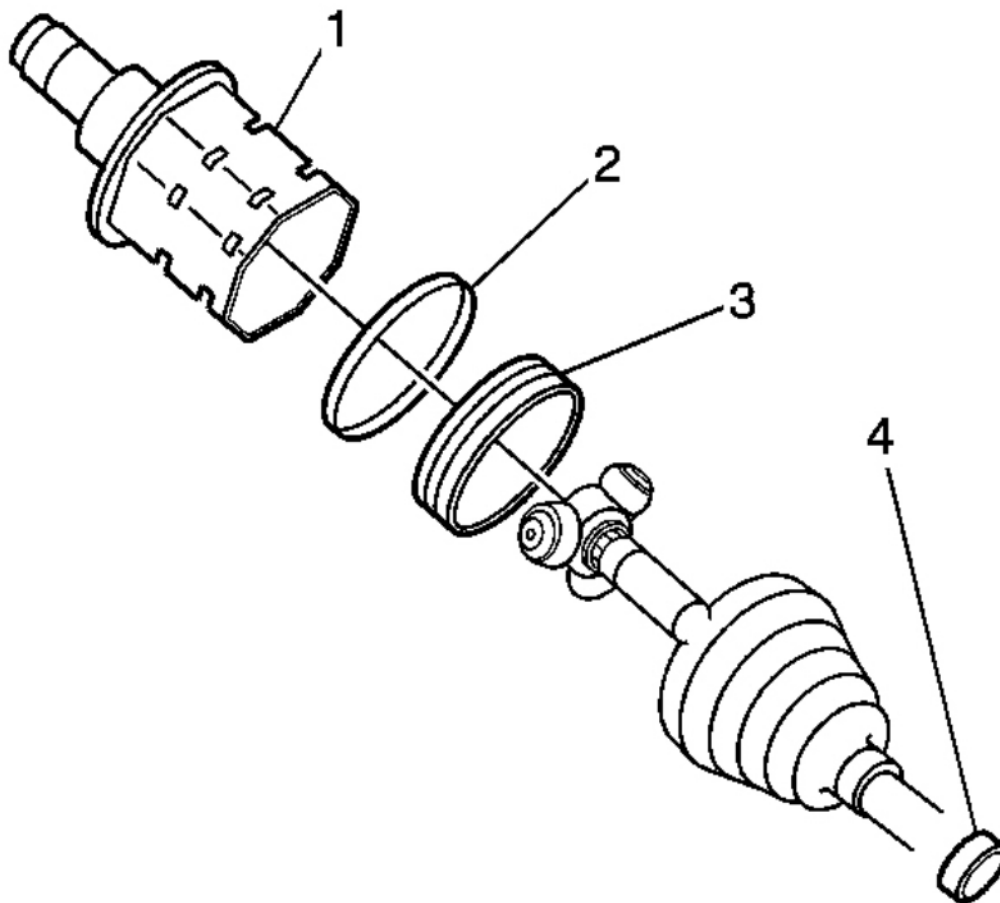


Fig. 40: Exploded View Of Wheel Drive Shaft Bar
Courtesy of GENERAL MOTORS CORP.

1. Wrap a shop towel around the wheel drive shaft bar.
2. Place the wheel drive shaft horizontally in a bench vise.
3. Using side cutters, remove the small seal clamp (4) from the wheel drive shaft bar and discard the clamp.

4. Using the **J 35566** , or equivalent, unlatch the large seal retaining clamp. See **Special Tools and Equipment**.
5. Remove the large seal clamp (2) from the tripot joint and discard the clamp.
6. Separate the wheel drive shaft inboard seal from the trilobal tripot bushing (3).
7. Slide the seal away from the joint along the wheel drive shaft bar.

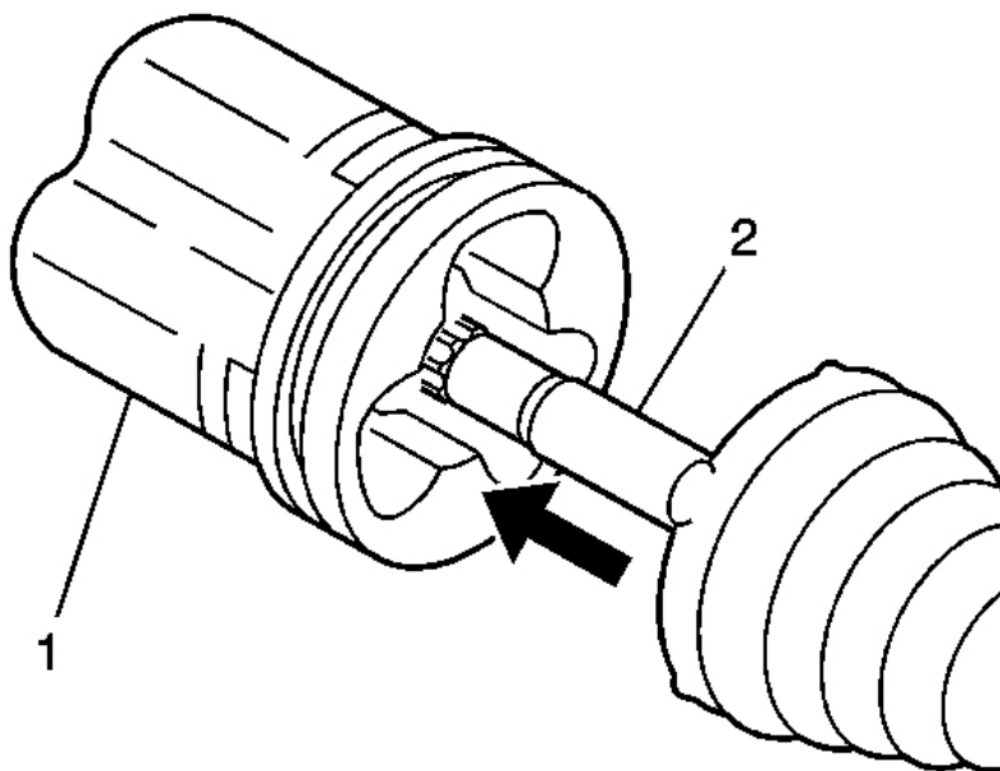


Fig. 41: View Of Tripot Joint Spider Housing & Wheel Drive Shaft Bar
Courtesy of GENERAL MOTORS CORP.

8. Remove the housing (1) from the tripot joint spider and the wheel drive shaft bar (2).

IMPORTANT: Accurately reference mark the tripot spider position on the wheel drive shaft bar before disassembly.

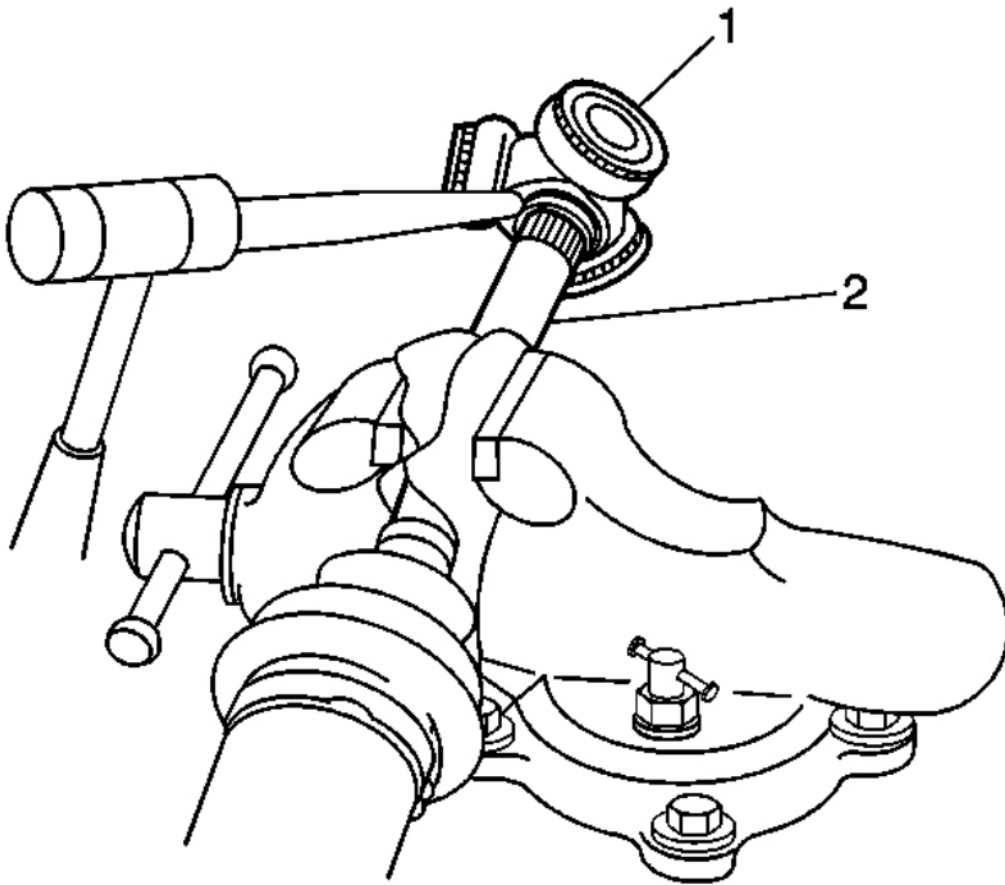


Fig. 42: View Of Tripot Spider & Wheel Drive Shaft Bar
Courtesy of GENERAL MOTORS CORP.

9. Reference mark the position of the tripot spider (1) on the wheel drive shaft bar (2).

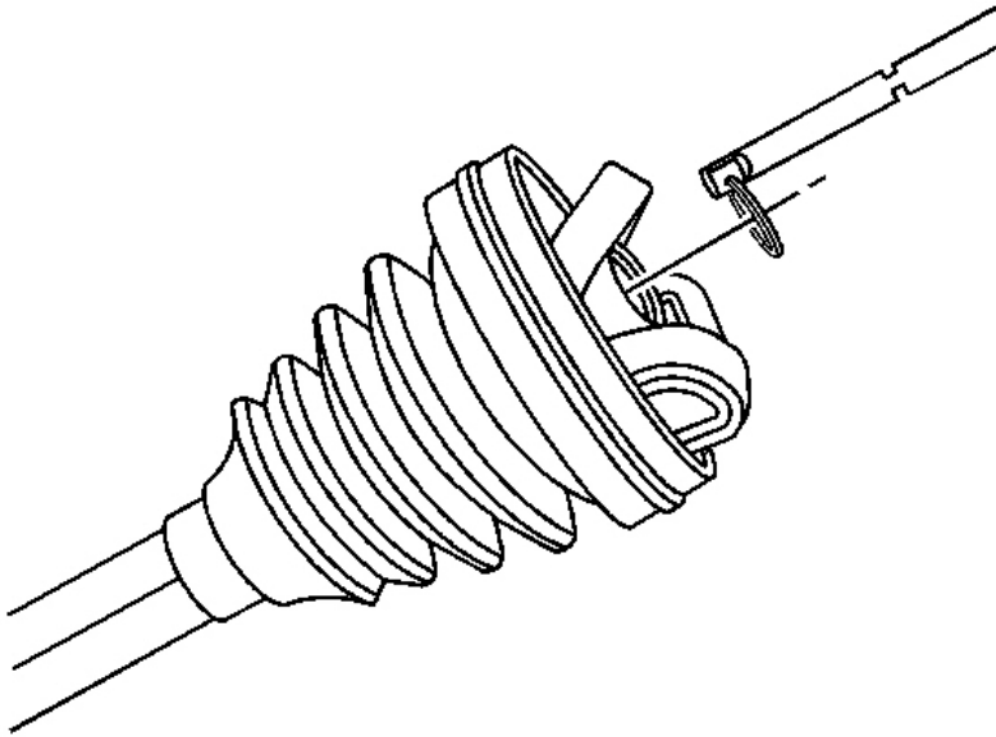


Fig. 43: View Of Wheel Drive Shaft Bar Retaining Ring
Courtesy of GENERAL MOTORS CORP.

10. Remove the retaining ring using **J 8059** , or equivalent, and discard the old retaining ring. See **Special Tools and Equipment**.

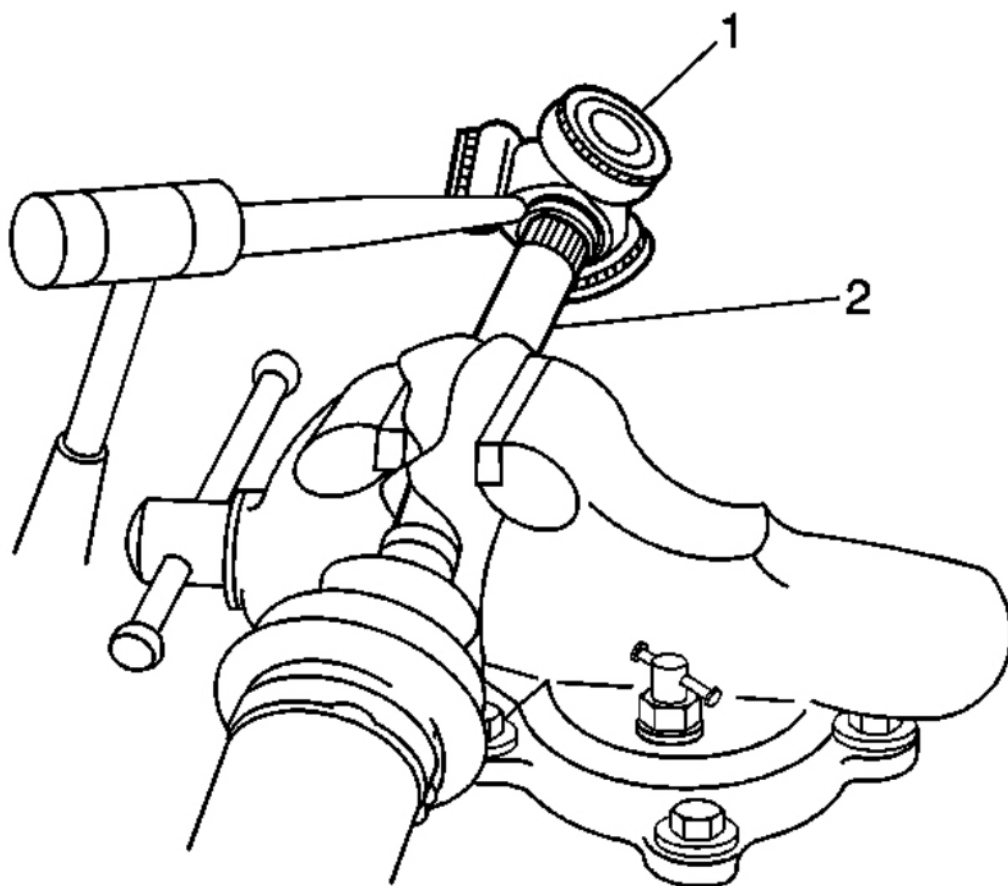


Fig. 44: View Of Tripot Spider & Wheel Drive Shaft Bar
Courtesy of GENERAL MOTORS CORP.

11. Using a brass drift and hammer, carefully tap around the tripot spider face to remove the tripot spider (1) from the wheel drive shaft bar.
12. Remove the joint seal from the wheel drive shaft bar.
13. Inspect the following parts for damage and/or wear:
 - The wheel drive shaft inboard seal
 - The tripot joint spider assembly
 - The housing
 - The trilobal tripot bushing

Assembly Procedure

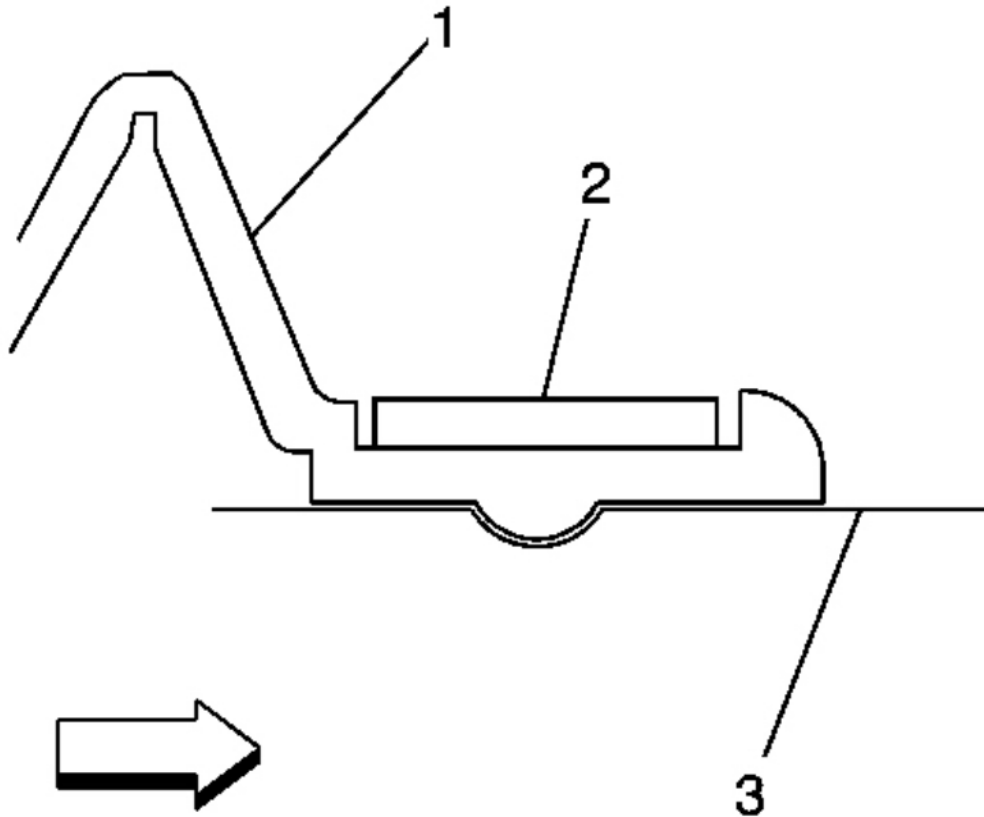


Fig. 45: Inner Joint Seal, Small Seal Clamp, & Inner Joint Seal Groove
Courtesy of GENERAL MOTORS CORP.

1. Place the new small seal clamp (2) onto the small end of the joint seal (1).
2. Slide the joint seal (1) and the small seal clamp (2) into the boot groove on the wheel drive shaft bar.
3. Position the small end of the joint seal (1) into the joint seal groove (3) on the wheel drive shaft bar.

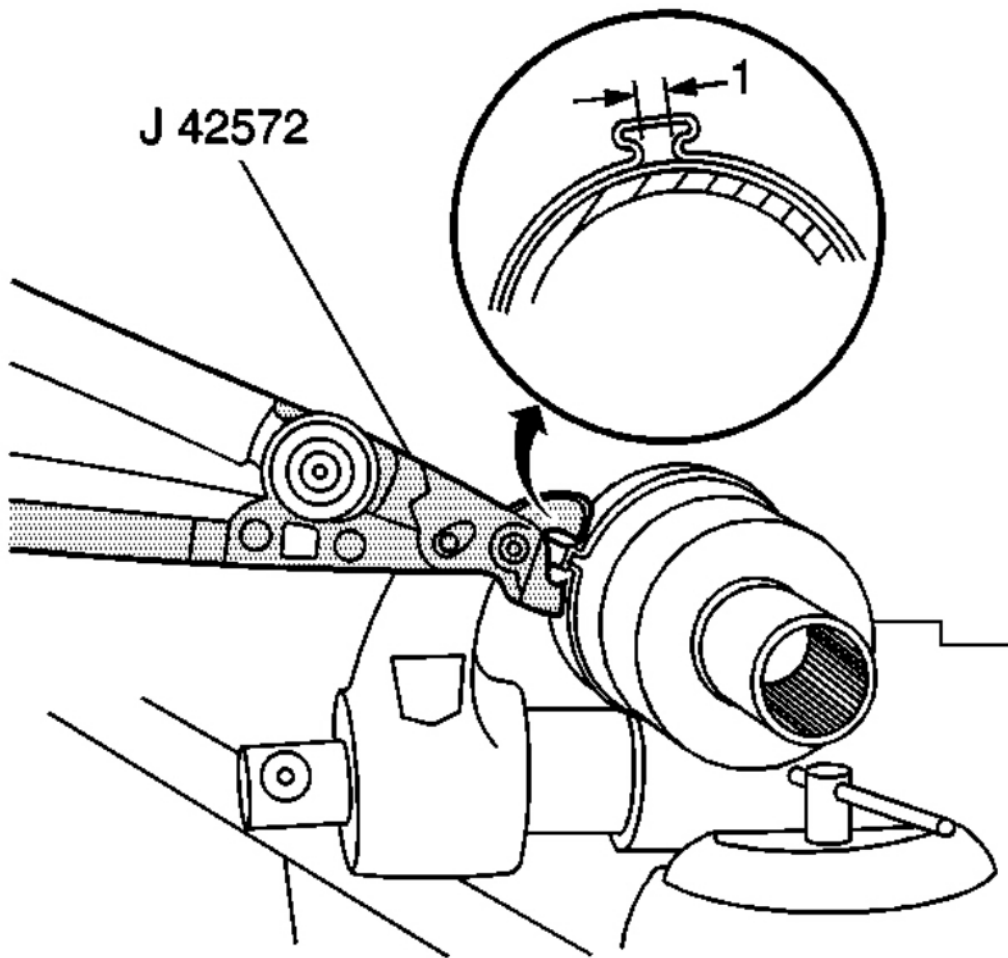


Fig. 46: Crimping Seal Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

4. Using the **J 42572** or equivalent, crimp the small seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the small seal clamp until the base of the omega shape has a gap of 1 mm (0.039 in).

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The clamping hold time must be no less than 2 seconds.

IMPORTANT: If reusing the old tripot spider, align the reference mark on the tripot spider to the wheel drive shaft bar.

IMPORTANT: Ensure that the beveled edge of the tripot spider faces the wheel drive shaft bar during reassembly.

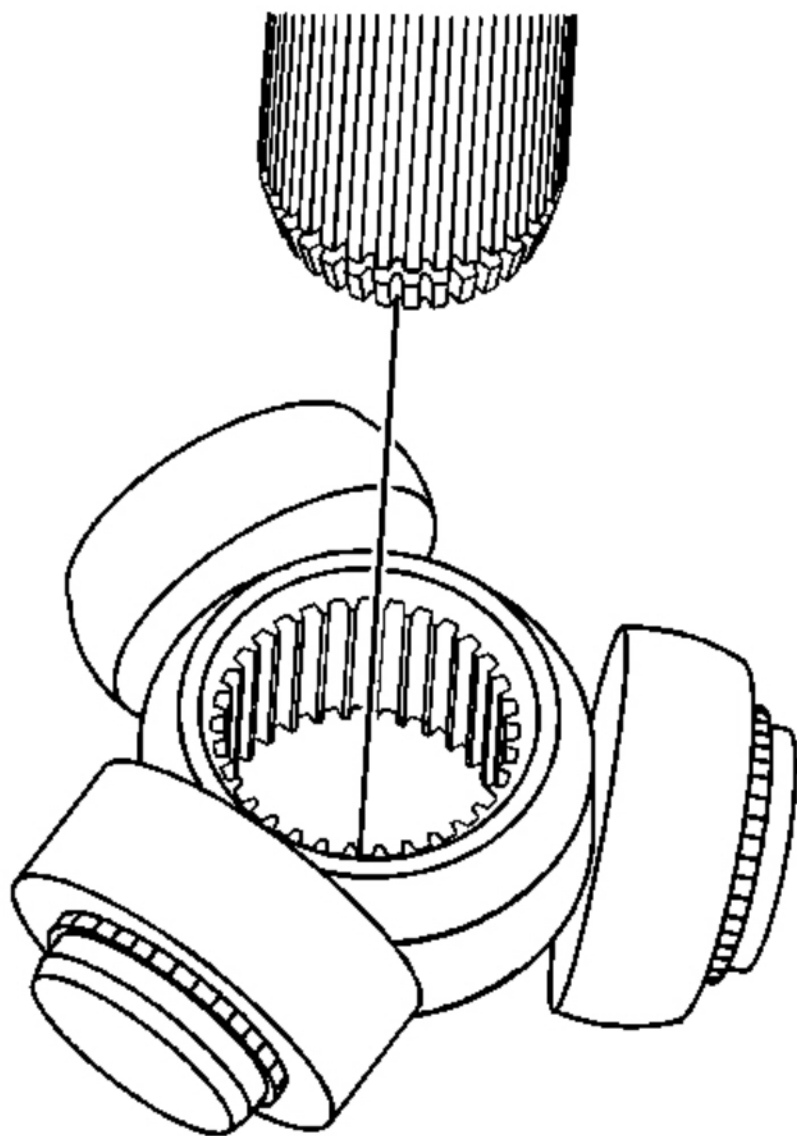


Fig. 47: View Of Tripot Spider
Courtesy of GENERAL MOTORS CORP.

5. Install the tripot spider to the wheel drive shaft bar.

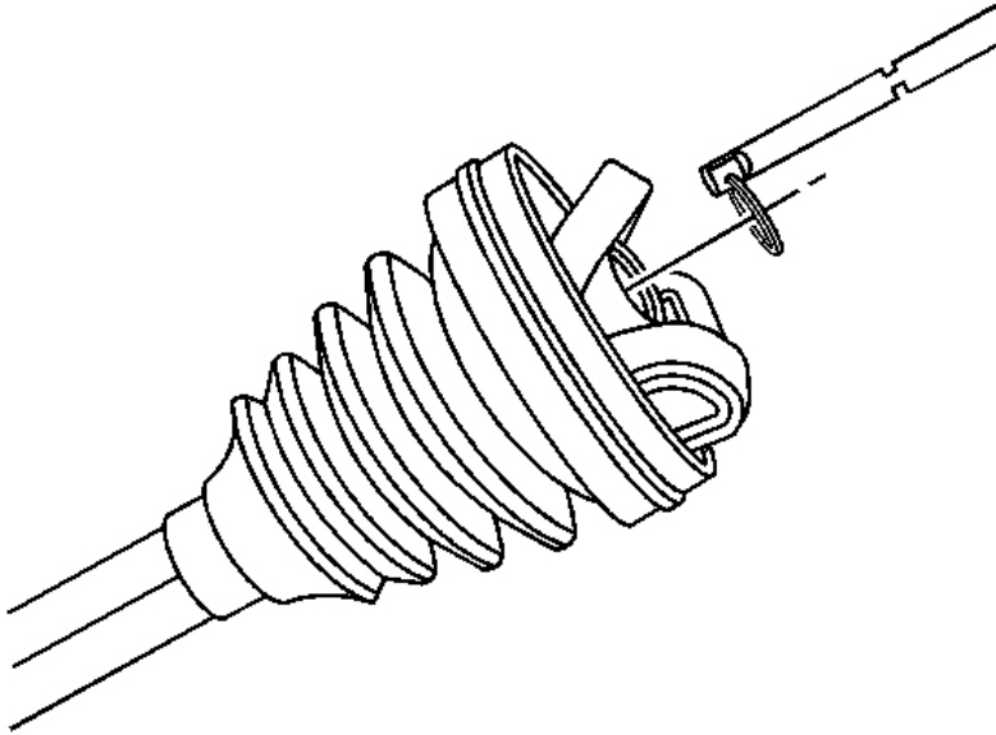


Fig. 48: View Of Wheel Drive Shaft Bar Retaining Ring
Courtesy of GENERAL MOTORS CORP.

6. Using **J 8059** , or equivalent, install a NEW retaining ring to the wheel drive shaft bar. See **Special Tools and Equipment**.
7. Verify positive engagement of the tripot spider to the wheel drive shaft bar by grasping the tripot spider and attempting to pull free from the wheel drive shaft bar.

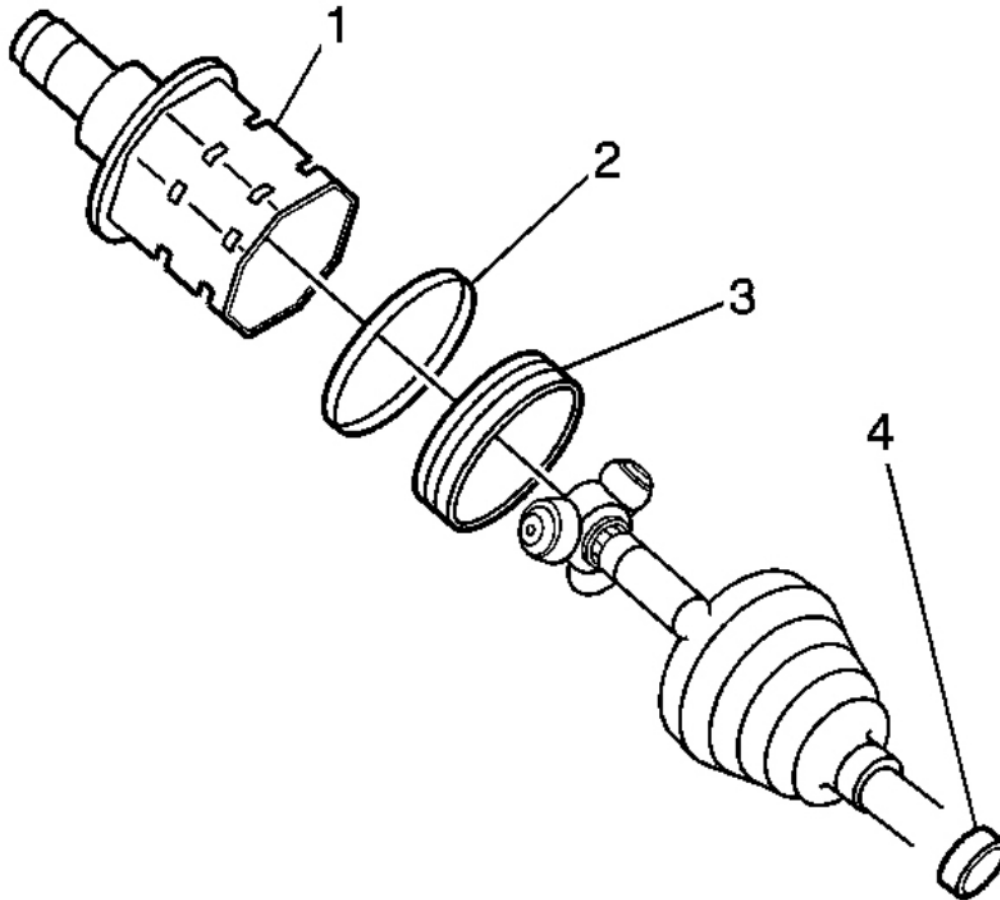


Fig. 49: Exploded View Of Wheel Drive Shaft Bar
Courtesy of GENERAL MOTORS CORP.

8. Place approximately half of the grease from the service kit in the wheel drive shaft inboard seal. Use the remainder of the grease to repack the housing.
9. Install the trilobal tripot bushing (3) to the housing (1).
10. Position the larger new seal retaining clamp (2) on the wheel drive shaft inboard seal.
11. Slide the housing over the tripot joint spider assembly on the wheel drive shaft bar.

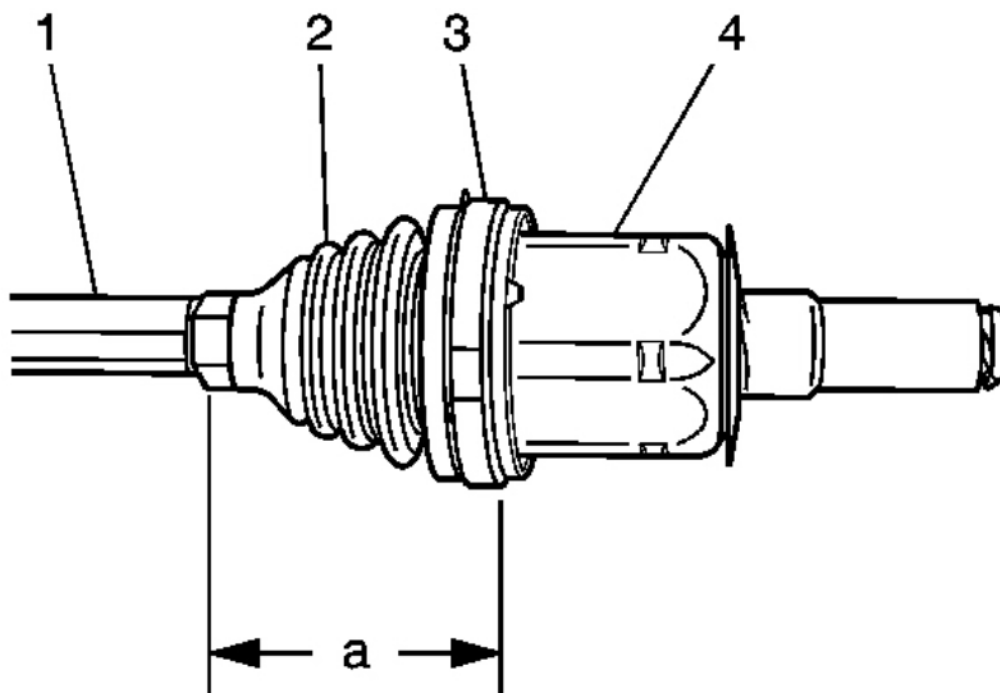


Fig. 50: Measuring Distance Between Seal Edges - Front
Courtesy of GENERAL MOTORS CORP.

12. Slide the large diameter of the wheel drive shaft inboard seal (2), with the large clamp (3) in place, over the outside of the trilobal tripot bushing and locate the lip of the seal in the groove.

IMPORTANT: The seal must not be dimpled, stretched or otherwise deformed.

13. Inspect the seal for proper shape.

If the seal is not shaped correctly, equalize the pressure in the seal by lifting the seal edge slightly and shape the seal properly by hand.

14. Position the seal to the proper vehicle dimension.
15. Measure the distance (a) between the seal edges.

Specification: 104.7 mm (4.12 in)

IMPORTANT: Burp the air from the inner joint seal.

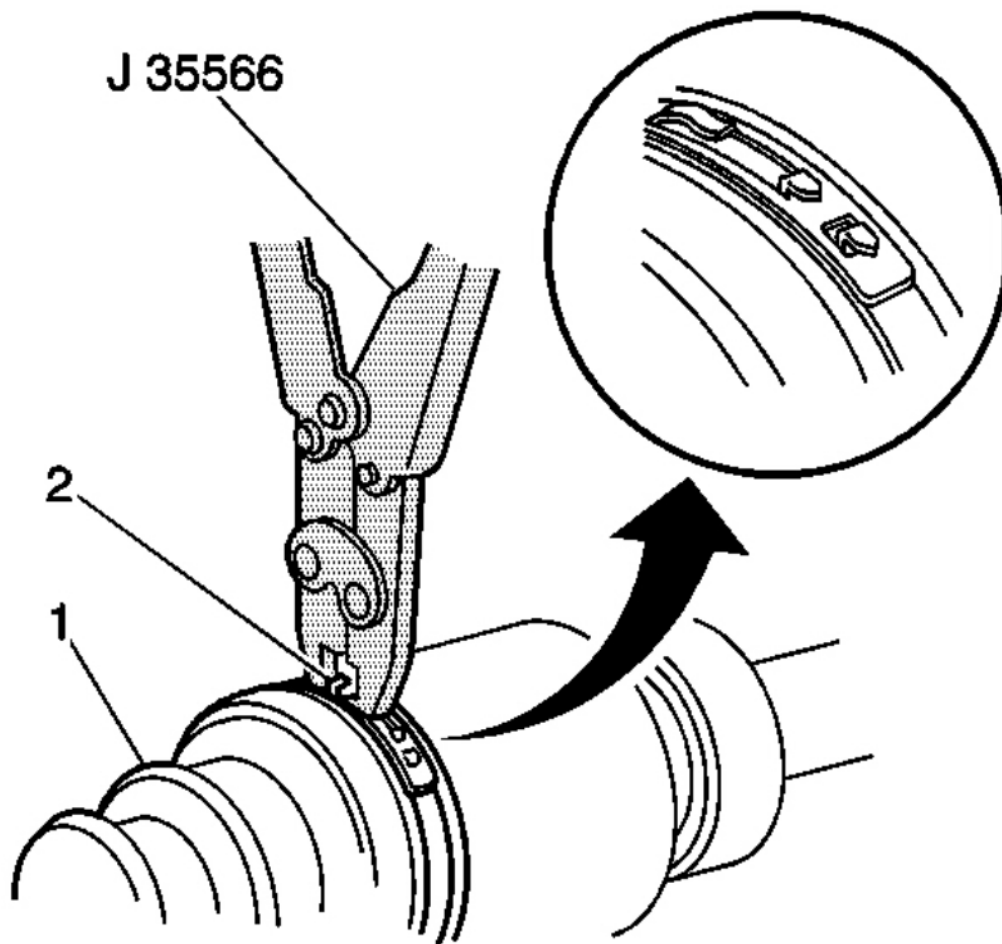


Fig. 51: View Of Wheel Drive Shaft Inboard Seal & Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

16. Align the following items while latching the retaining clamp:

- The wheel drive shaft inboard seal (1)
- The tripot housing
- The large seal retaining clamp (2)

17. Using the **J 35566** or equivalent, latch the large seal retaining clamp. See **Special Tools and Equipment**.

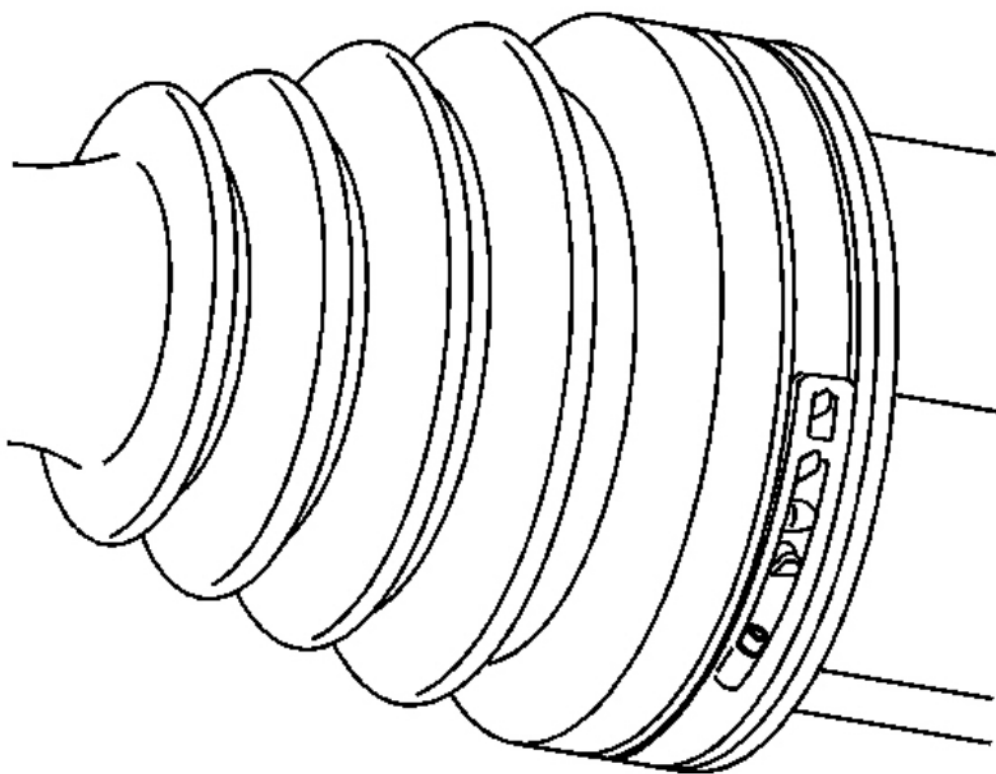


Fig. 52: View Of Large Clamp Band
Courtesy of GENERAL MOTORS CORP.

18. Ensure that the latching tangs are fully engaged in the large clamp band.
19. Rotate the inner tripot housing 4 or 5 times in order to distribute the grease throughout the tripot spider bearings.

WHEEL DRIVE SHAFT INNER JOINT AND SEAL REPLACEMENT - REAR (RWD)

Tools Required

- **J 8059** Snap Ring Pliers. See **Special Tools and Equipment**.

- **J 42572** Drive Shaft Seal Clamp Pliers. See Special Tools and Equipment.

Removal Procedure

This procedure is to be performed only after the wheel drive shaft has been removed from the vehicle. Refer to Wheel Drive Shaft Replacement - Rear.

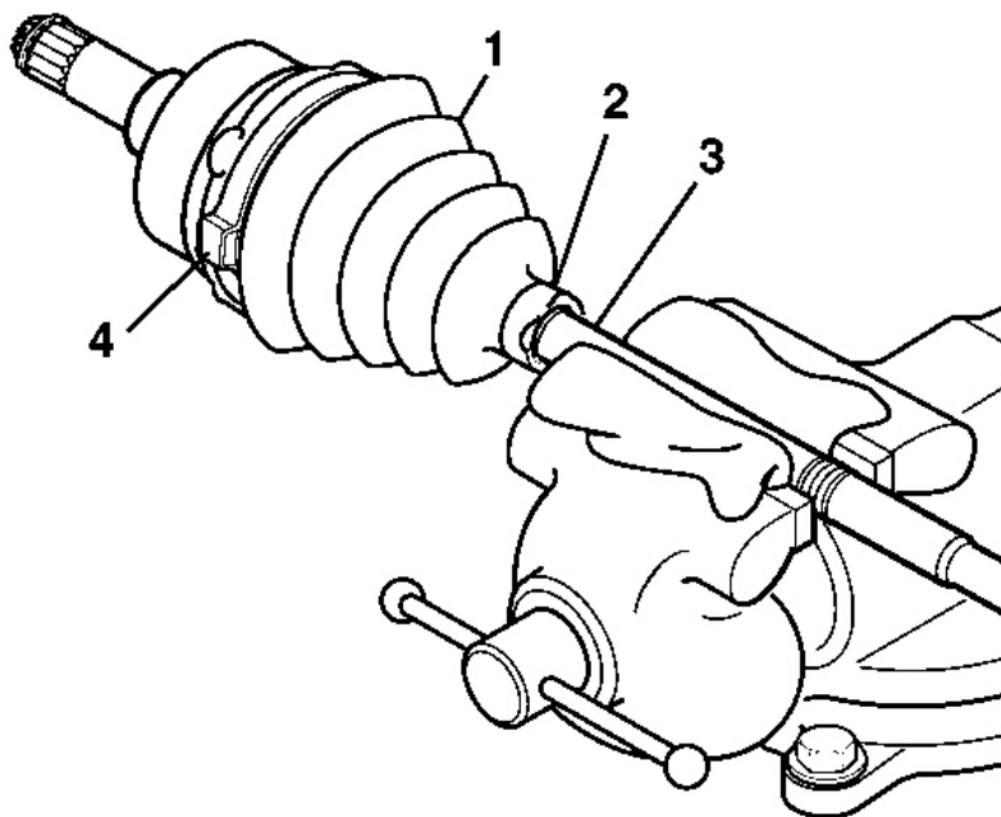


Fig. 53: View Of Wheel Drive Shaft In Bench Vise
Courtesy of GENERAL MOTORS CORP.

1. Wrap a shop towel around the half shaft bar (3).
2. Place the wheel drive shaft (3) horizontally in a bench vise.
3. Using a side cutter or other suitable tool, remove the large seal retaining clamp (4) from the inner joint seal (1) and discard the retaining clamp.

4. Using a side cutter or other suitable tool, remove the small seal retaining clamp (2) from the inner joint seal and discard the clamp.

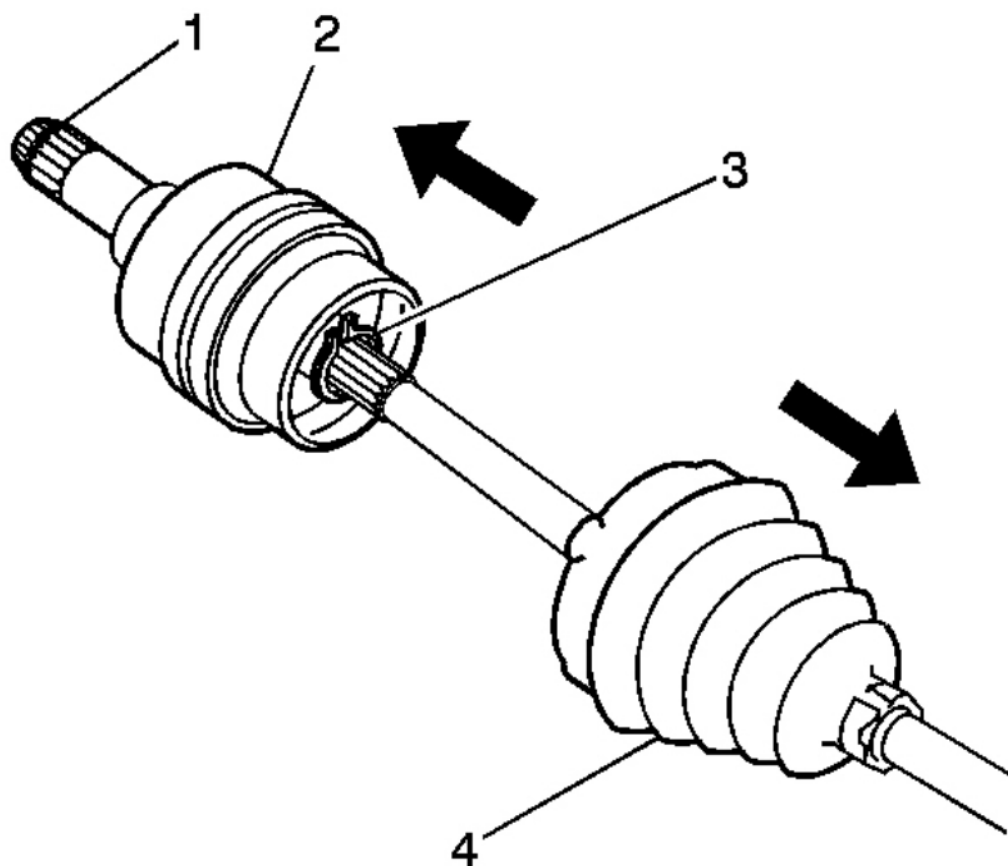


Fig. 54: View Of Inner Joint Assembly, Seal, Inner Race Retaining Ring & Joint Face

Courtesy of GENERAL MOTORS CORP.

5. Slide the seal (4) along the half shaft bar away from the joint face (2).
6. Wipe the grease from the face of the joint inner race, cage, balls, etc.
7. Using **J 8059** , spread the ears of the joints inner race retaining ring (3). See **Special Tools and Equipment**.

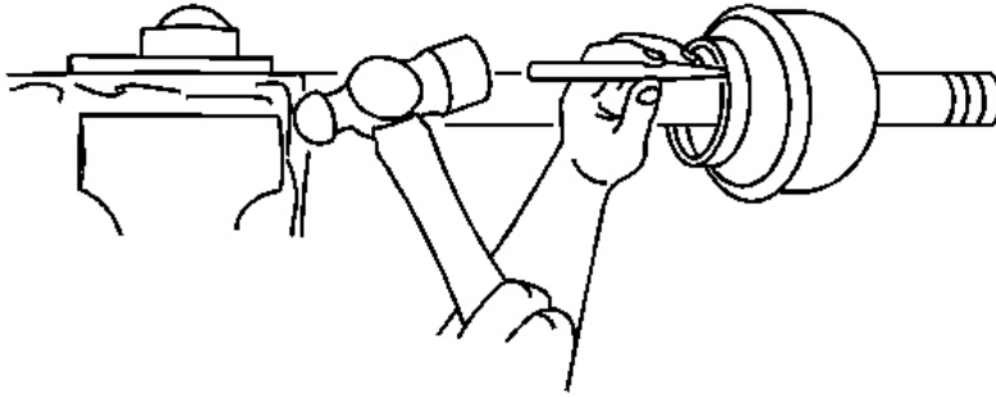


Fig. 55: Removing Inner Joint Assembly From Wheel Drive Shaft
Courtesy of GENERAL MOTORS CORP.

8. Hold the inner joint horizontally to the shaft.
9. Position a brass drift on the inner race.
10. Carefully strike the brass drift with a hammer to remove the inner joint assembly from the wheel drive shaft.
11. Remove and discard both wheel drive shaft retaining rings from the axle shaft.

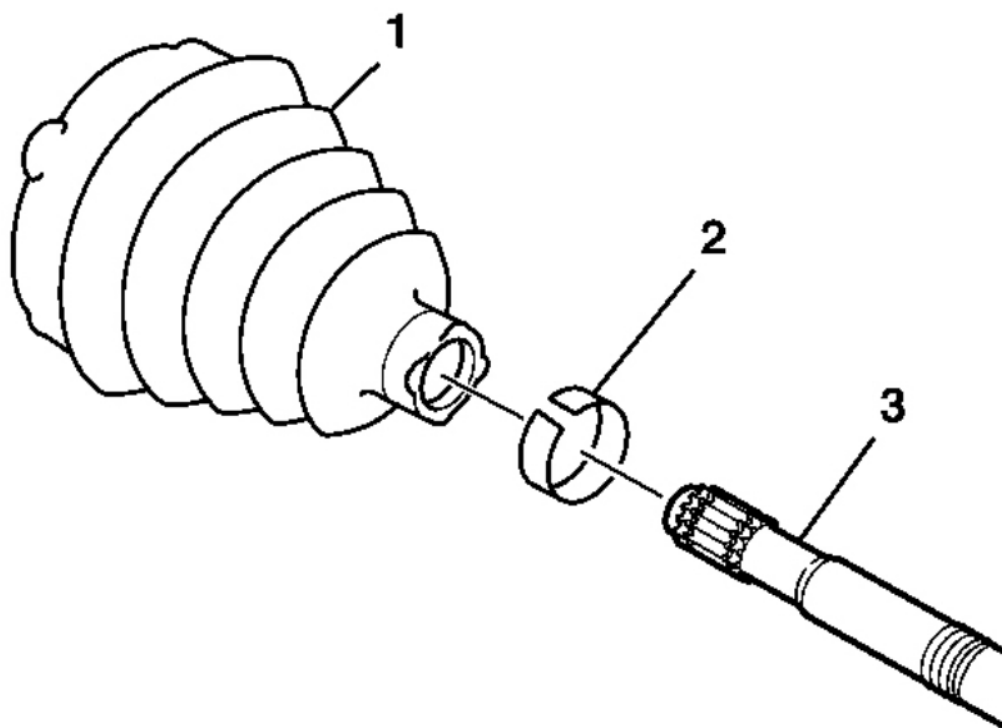


Fig. 56: View Of Wheel Drive Shaft, Seal & Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

12. Remove the seal (1) from the wheel drive shaft (3).
13. Remove the small seal retaining clamp (2) from the wheel drive shaft (3).
14. Remove the wheel drive shaft (3) from the vise.
15. Wrap a shop towel around the joint outer race splined shaft.
16. Place the outer race vertically in a bench vise.

IMPORTANT: All traces of old grease and any contaminates must be removed.

17. Clean the following parts thoroughly with clean solvent:
 - The inner race
 - The outer race

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- The cage
 - The balls
 - The axle shaft exposed end
18. Thoroughly air dry all of the parts.
19. Inspect the following parts for damage and/or wear:
- The inner race
 - The outer race
 - The cage
 - The balls
 - The axle shaft exposed end

Installation Procedure

1. Insert approximately 60 percent of the grease from the service kit into the inner joint.
 1. Spread 60 percent the grease onto the ball tracks, the balls, the cage and the inner race.
 2. Spread the remainder of the grease into the bottom of the outer race.
2. Remove the inner joint from the bench vise.
3. Wrap a shop towel around the wheel drive shaft.
4. Place the wheel drive shaft horizontally in a bench vise.

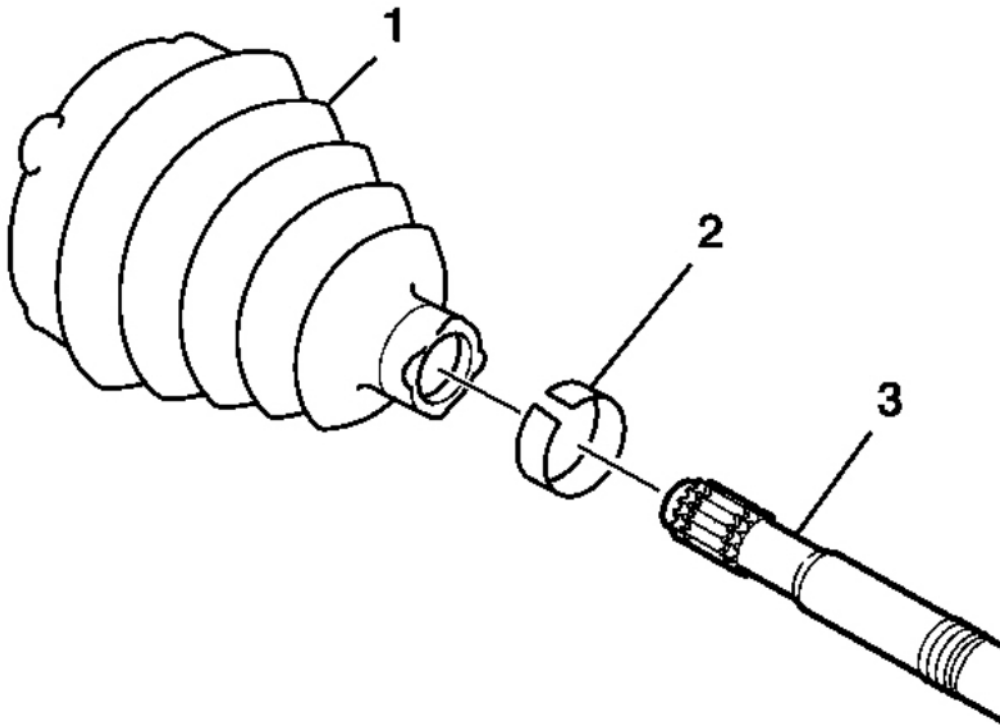


Fig. 57: View Of Wheel Drive Shaft, Seal & Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

5. Install a new small seal retaining clamp (2) onto the wheel drive shaft (3).
6. Slide the seal (1) onto the wheel drive shaft.

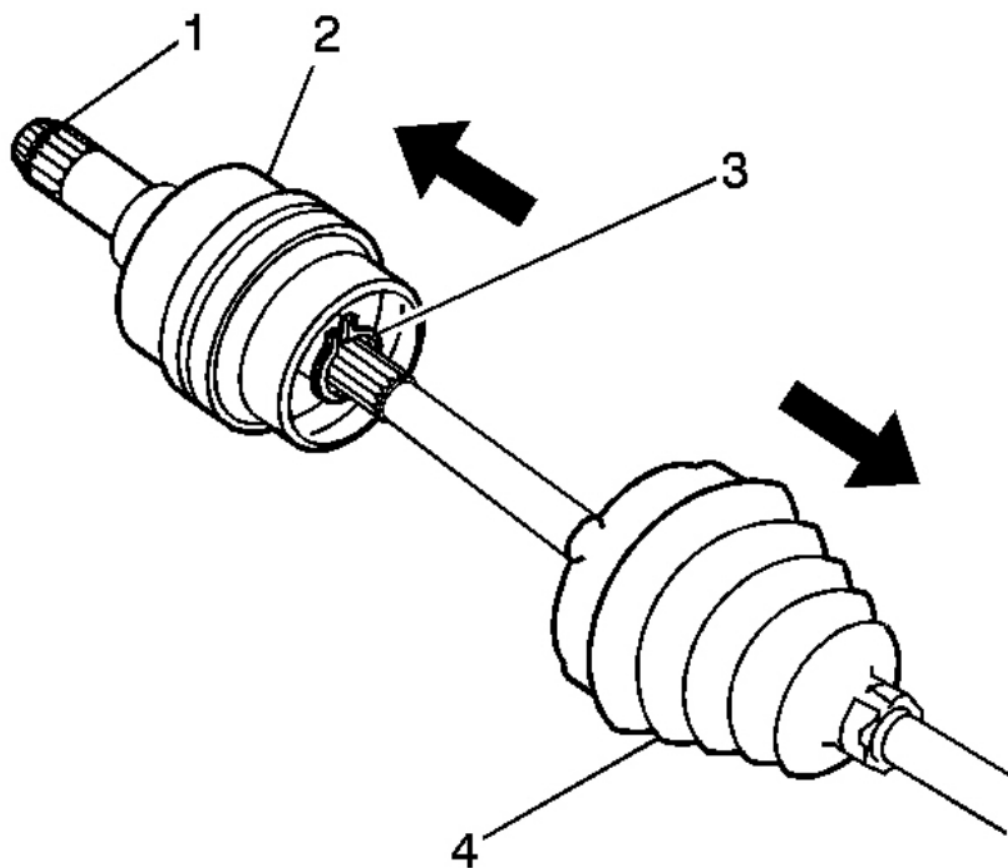


Fig. 58: View Of Inner Joint Assembly, Seal, Inner Race Retaining Ring & Joint Face

Courtesy of GENERAL MOTORS CORP.

7. Place the new large retaining clamp over the large end of the seal (3).
8. Install the new wheel drive shaft large retaining ring onto drive shaft.
9. Seat the new wheel drive shaft large retaining ring into the large ring groove.
10. Install the new wheel drive shaft small retaining ring onto drive shaft.
11. Seat the new wheel drive shaft small retaining ring into the small ring groove.
12. Push the inner joint assembly (2) onto the wheel drive shaft until the small retaining ring (3) seats itself in the retaining groove on the wheel drive shaft.

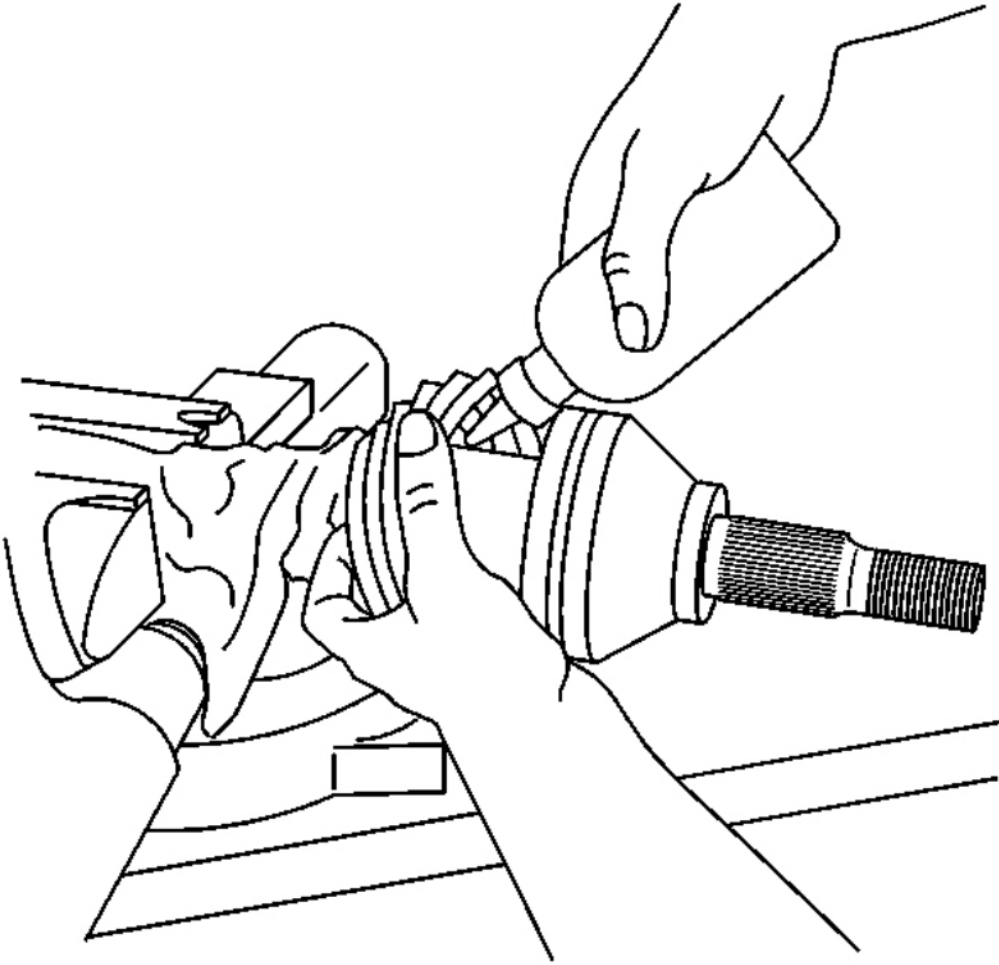


Fig. 59: Inserting Remaining Grease From Service Kit Into Seal
Courtesy of GENERAL MOTORS CORP.

13. Insert the remaining grease from the service kit into the seal.

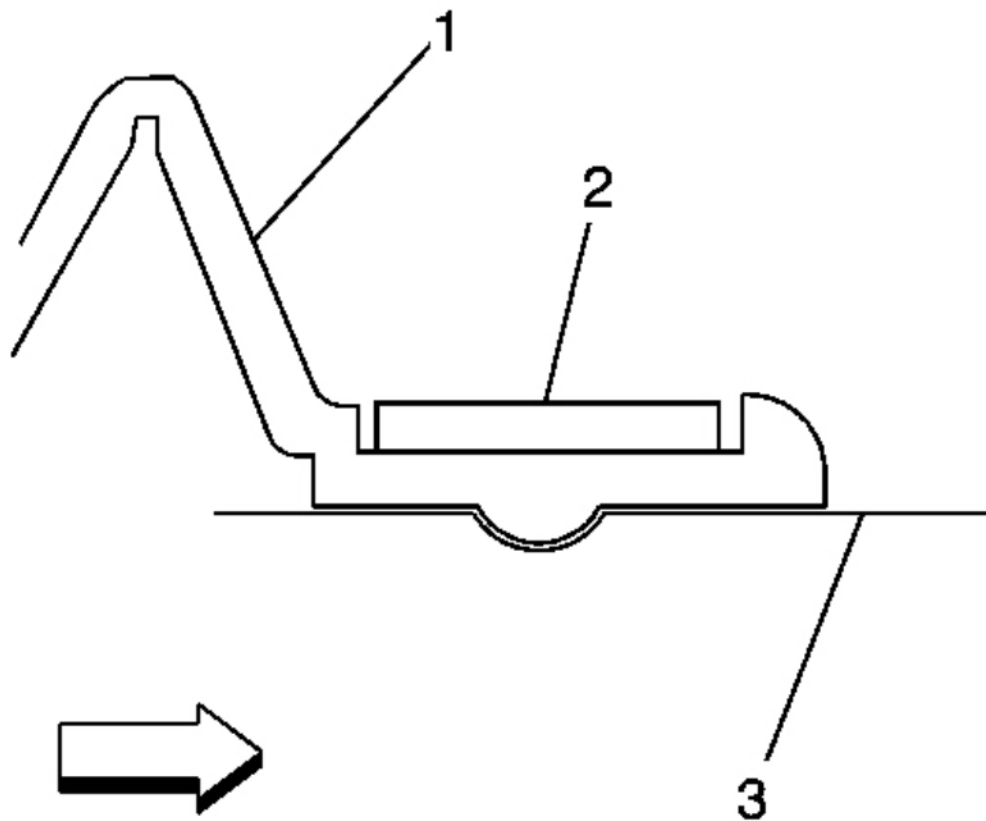


Fig. 60: Inner Joint Seal, Small Seal Clamp, & Inner Joint Seal Groove
Courtesy of GENERAL MOTORS CORP.

14. Position the small seal retaining clamp (2) onto the neck of the seal (1).
15. Position the seal and small retaining clamp to the axle shaft (3) as shown.

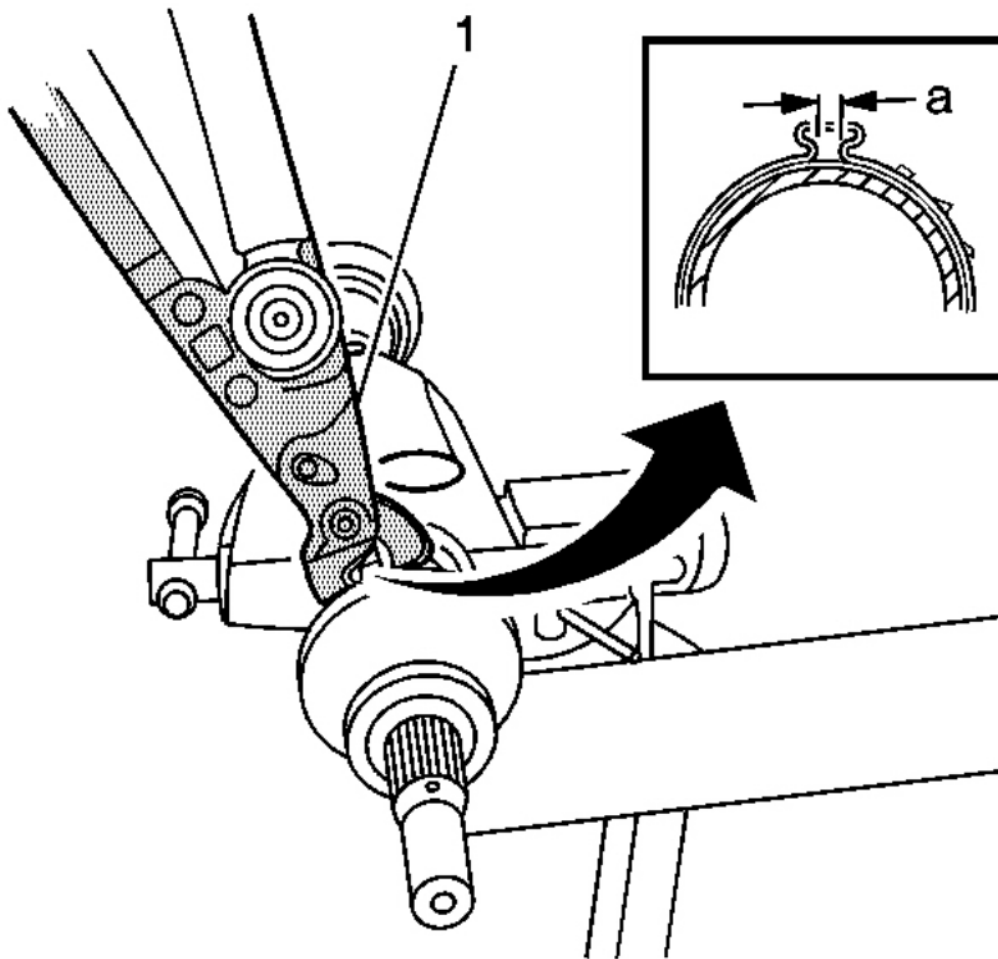


Fig. 61: Measuring Base Clamp Gap Width
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

16. Using the **J 42572** (1), crimp the small seal retaining clamp. See Special Tools and Equipment.

Tighten: Tighten the small seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

The clamping hold time must be no less than 2 seconds.

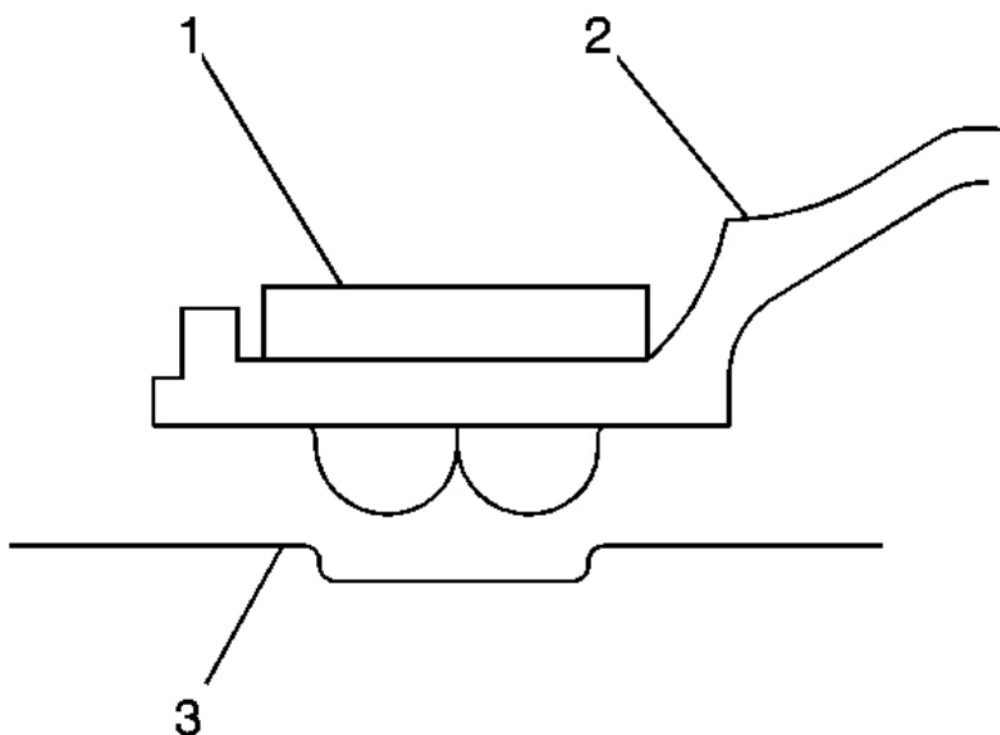


Fig. 62: View Of Large Seal Retaining Clamp, Seal & Boot Groove
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The inner boot must not be dimpled, stretched, or out of shape in any way. If necessary, equalize the air pressure in the inner boot and shape properly by hand.

17. Position the large seal retaining clamp (1) onto the seal (2).
18. Position the seal and large retaining clamp to the joints can boot groove (3) as shown.

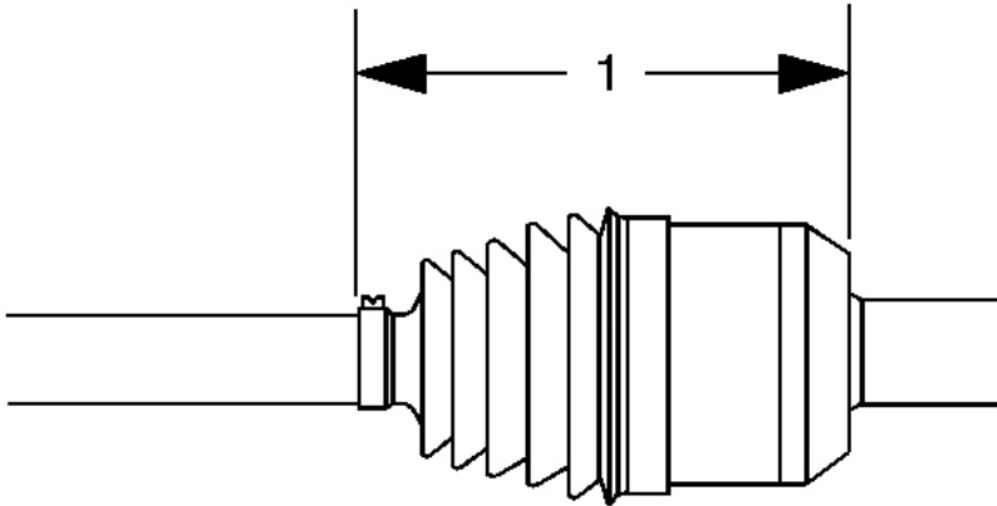


Fig. 63: Measuring Distance Between Seal Edges - Rear
Courtesy of GENERAL MOTORS CORP.

19. Measure the distance (1) between the seal edges.

Specification: 88.6 mm (3.50 in)

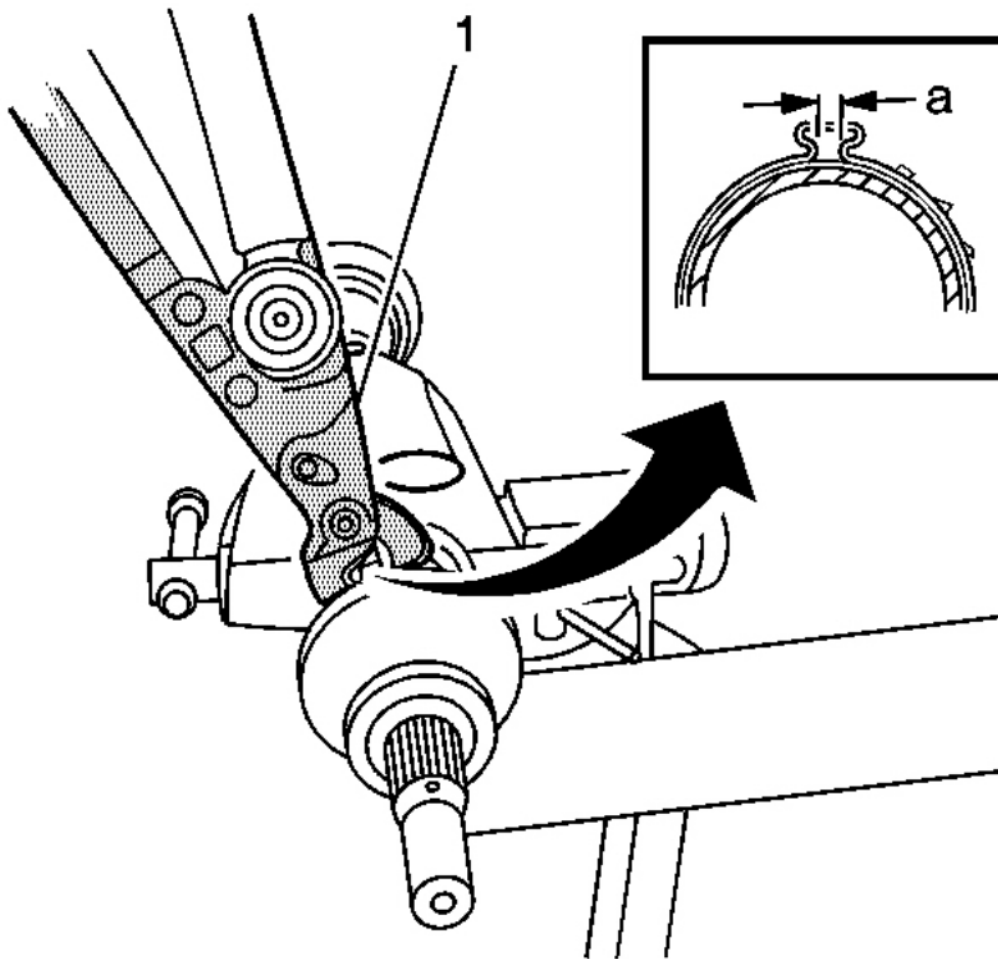


Fig. 64: Measuring Base Clamp Gap Width
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal must not be dimpled, stretched or otherwise deformed.

20. Inspect the seal for proper shape.

If the seal is not shaped correctly, equalize the pressure in the seal by lifting the seal edge slightly and shape the seal properly by hand.

21. Inspect the seal for damage.

If the seal has been cut or punctured during assembly, you must discard and replace the seal.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

22. Using the **J 42572** (1), crimp the large seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the large seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

23. Inspect the inner joint for smooth operation. This will also distribute the grease within the joint.
1. Hold the wheel drive shaft vertically, with the inner joint at the bottom.
 2. Rotate the wheel drive shaft 4 or 5 times in a circular motion.
 3. Install the wheel drive shaft. Refer to **Wheel Drive Shaft Replacement - Rear**.

WHEEL DRIVE SHAFT INNER JOINT AND SEAL REPLACEMENT - REAR (AWD)

Tools Required

J 42572 Drive Shaft Seal Clamp Pliers. See **Special Tools and Equipment**.

Disassembly Procedure

This procedure is to be performed only after the wheel drive shaft has been removed from the vehicle. Refer to **Wheel Drive Shaft Replacement - Rear**.

1. Wrap a shop towel around the axle shaft.
2. Place the wheel drive shaft horizontally in a bench vise.
3. Using a side cutter or other suitable tool, remove the large seal retaining clamp from the inner joint seal and discard the clamp.
4. Using a side cutter or other suitable tool, remove the small seal retaining clamp from the inner joint seal and discard the clamp.
5. Separate the seal from the inner joint outer race at the large diameter end.
6. Slide the seal away from the joint face.
7. Wipe the grease from the face of the joint inner race, cage, balls, etc.

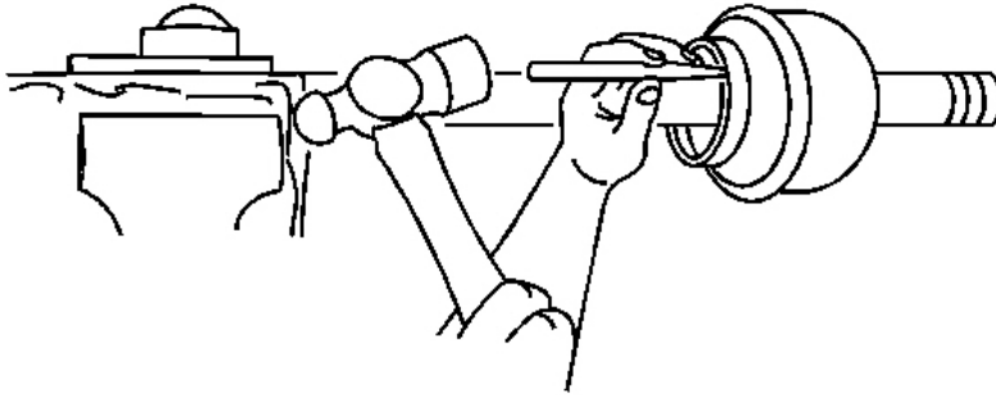


Fig. 65: Removing Inner Joint Assembly From Wheel Drive Shaft
Courtesy of GENERAL MOTORS CORP.

8. Remove the inner joint from the axle shaft using the following steps:
 1. Hold the inner joint housing horizontally to the shaft.
 2. Position a brass drift on the inner race.
 3. Carefully strike the brass drift with a hammer to compress the axle shaft retaining clip.
 4. Continue to carefully strike the brass drift in order to remove the inner joint from the axle shaft.

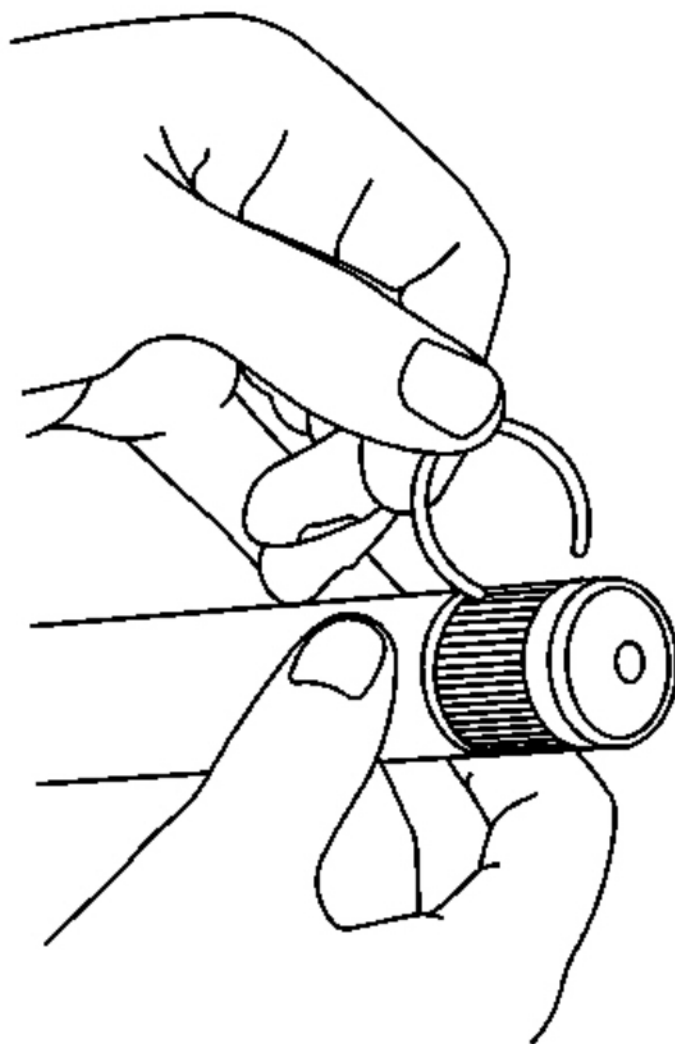


Fig. 66: View Of Axle Shaft Retaining Ring
Courtesy of GENERAL MOTORS CORP.

9. Remove and discard the axle shaft retaining ring from the axle shaft.

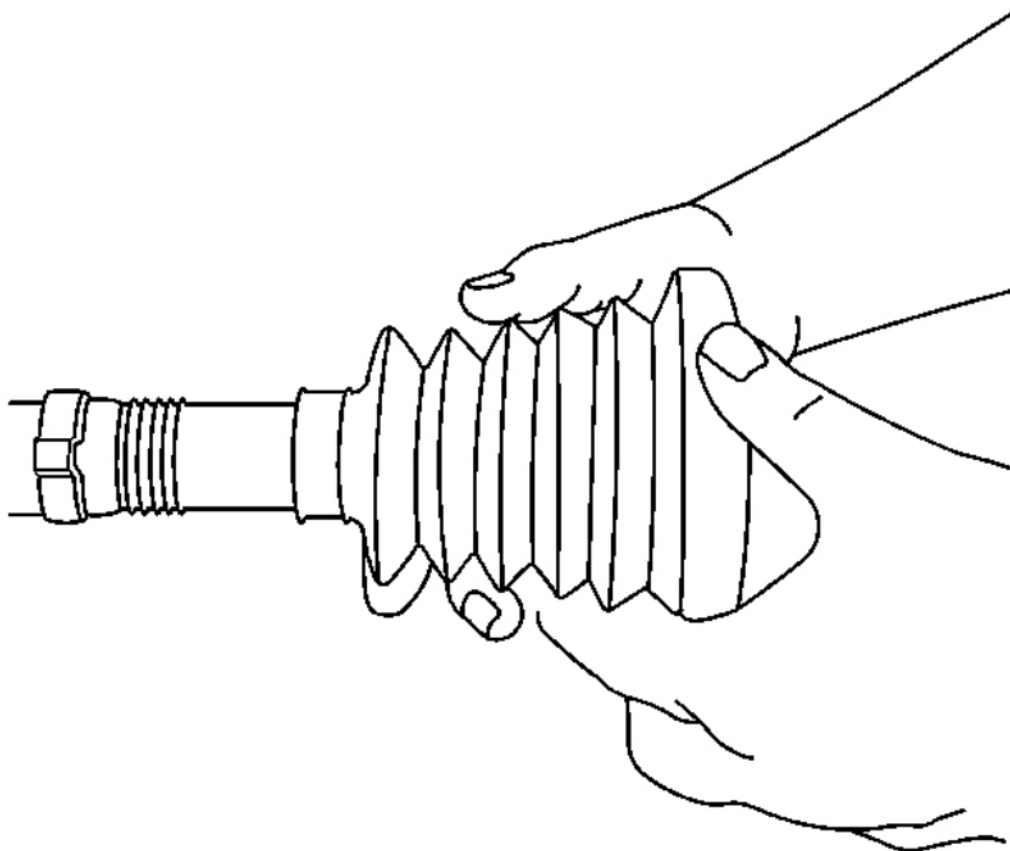


Fig. 67: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

10. Remove the seal from the axle shaft.
11. Remove the wheel drive shaft from the vise.
12. Wrap a shop towel around the joint outer race splined shaft.
13. Place the outer race vertically in a bench vise.

IMPORTANT: All traces of old grease and any contaminates must be removed.

14. Clean the following parts thoroughly with clean solvent:
 - The inner race

2004 Cadillac SRX

2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

- The outer race
- The cage
- The balls
- The axle shaft exposed end

15. Thoroughly air dry all of the parts.

16. Inspect the following parts for damage and/or wear:

- The inner race
- The outer race
- The cage
- The balls
- The axle shaft exposed end

Assembly Procedure

1. Insert approximately 60 percent of the grease from the service kit into the inner joint.
 1. Spread the grease onto the ball tracks, the balls, the cage and the inner race.
 2. Spread the remainder of the grease into the bottom of the outer race.
2. Remove the inner joint from the bench vise.

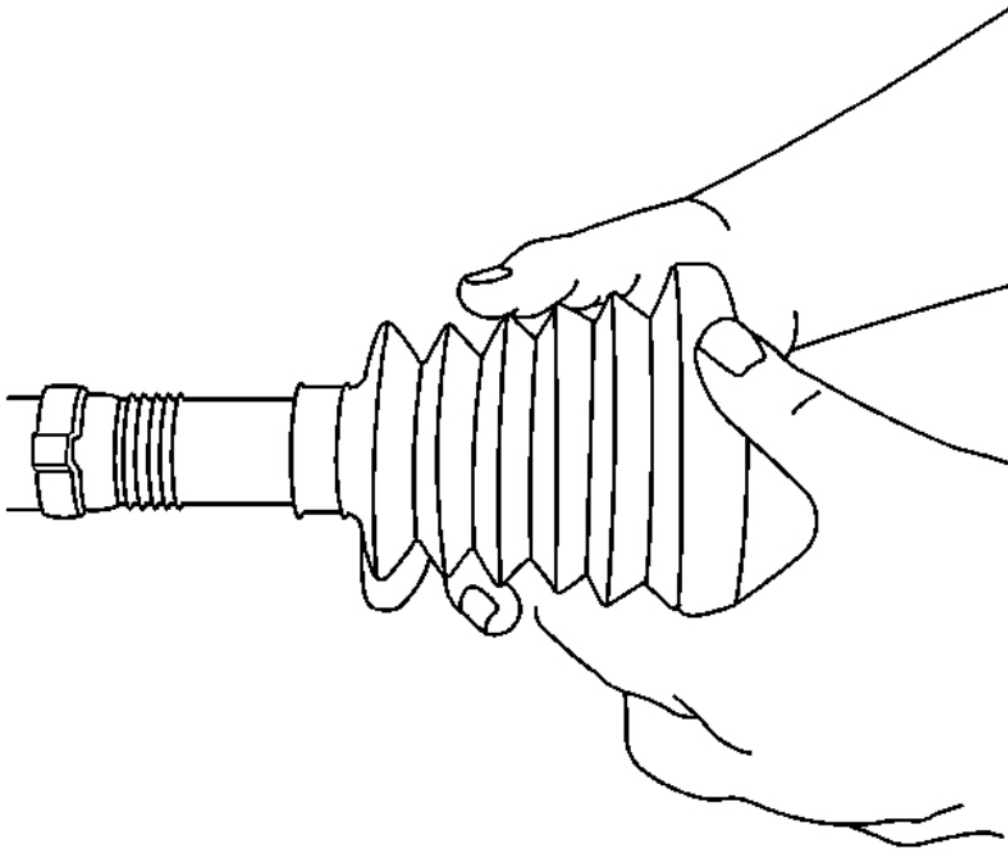


Fig. 68: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

3. Wrap a shop towel around the axle shaft.
4. Place the wheel drive shaft horizontally in a bench vise.
5. Install a new small seal retaining clamp onto the axle shaft.
6. Install the seal onto the axle shaft.

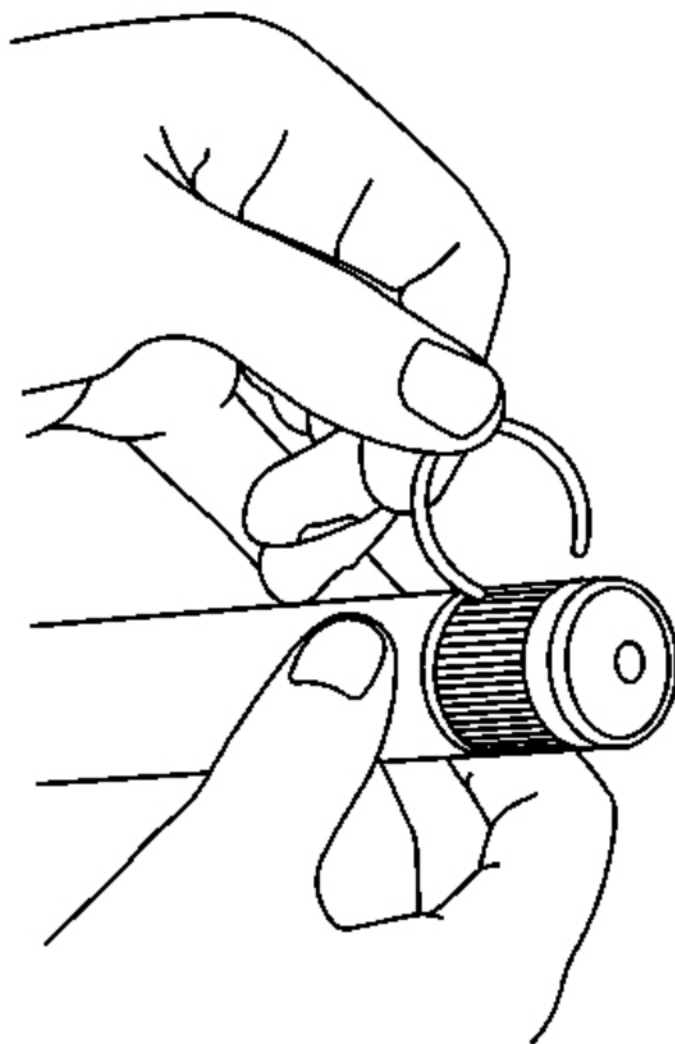


Fig. 69: View Of Axle Shaft Retaining Ring
Courtesy of GENERAL MOTORS CORP.

7. Install a new retaining ring to the axle shaft.

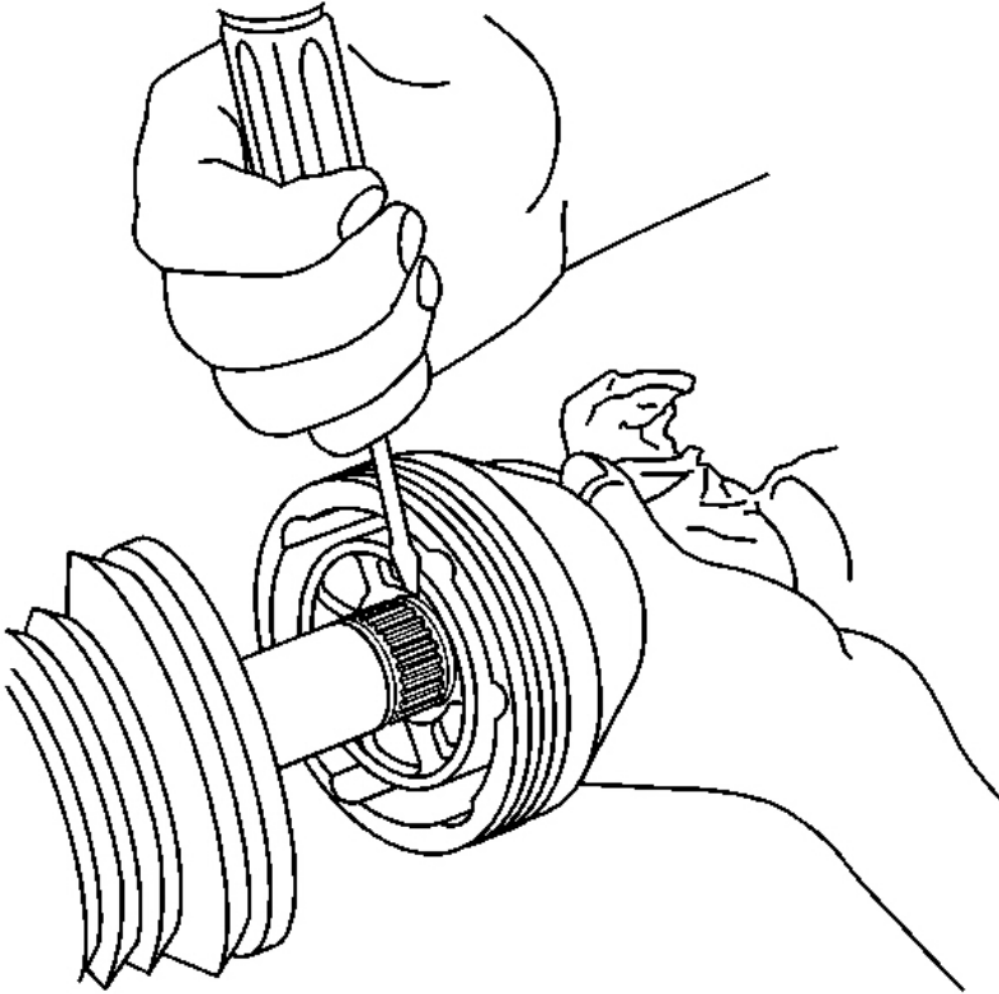


Fig. 70: Compressing Axle Shaft Ring Spacer
Courtesy of GENERAL MOTORS CORP.

8. Position the inner joint horizontally.
9. Engage the inner race splines onto the axle shaft splines.
10. Compress the axle shaft ring spacer.
 1. Press the end of the retaining ring, using a flat-bladed tool, into the axle shaft groove while firmly pressing the inner joint onto the axle shaft.
 2. Continue to work around the retaining ring until it is compressed.

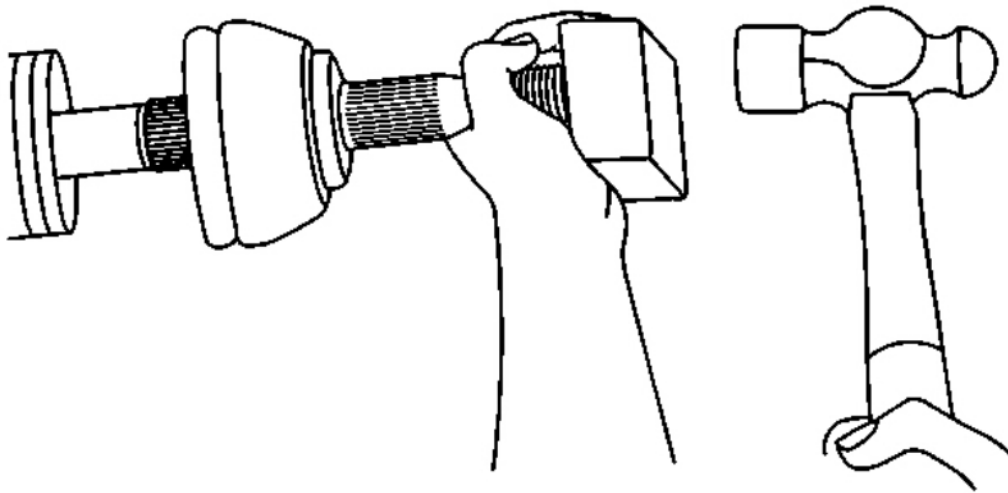


Fig. 71: Installing Joint To Axle Shaft
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The axle shaft and inner race must be fully seated to each other.

11. Install the inner joint to the axle shaft.
 1. Position a wood block over the end of the inner joint threaded shaft.
 2. Use a hammer to carefully drive the inner joint onto the shaft.
 3. Continue to drive the inner joint until the inner joint seats fully onto the axle shaft.

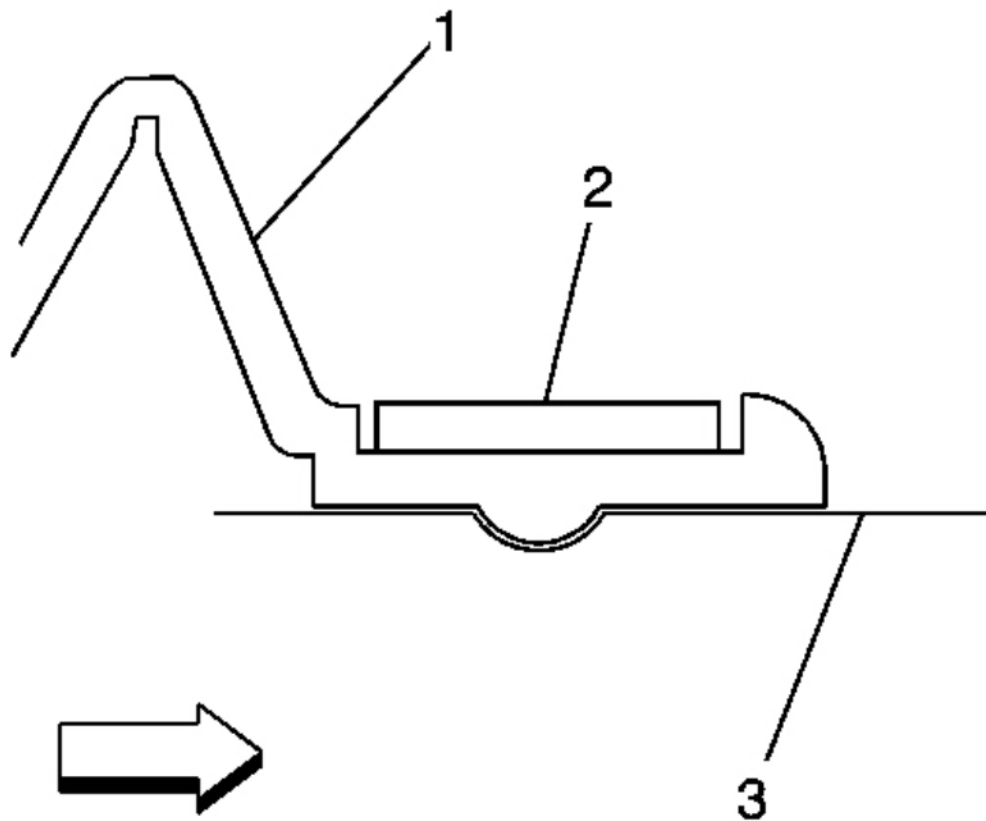


Fig. 72: Inner Joint Seal, Small Seal Clamp, & Inner Joint Seal Groove
Courtesy of GENERAL MOTORS CORP.

12. Position the small seal retaining clamp (2) into the boot (1).
13. Position the seal and small retaining clamp to the boot groove on the wheel axle shaft (3).

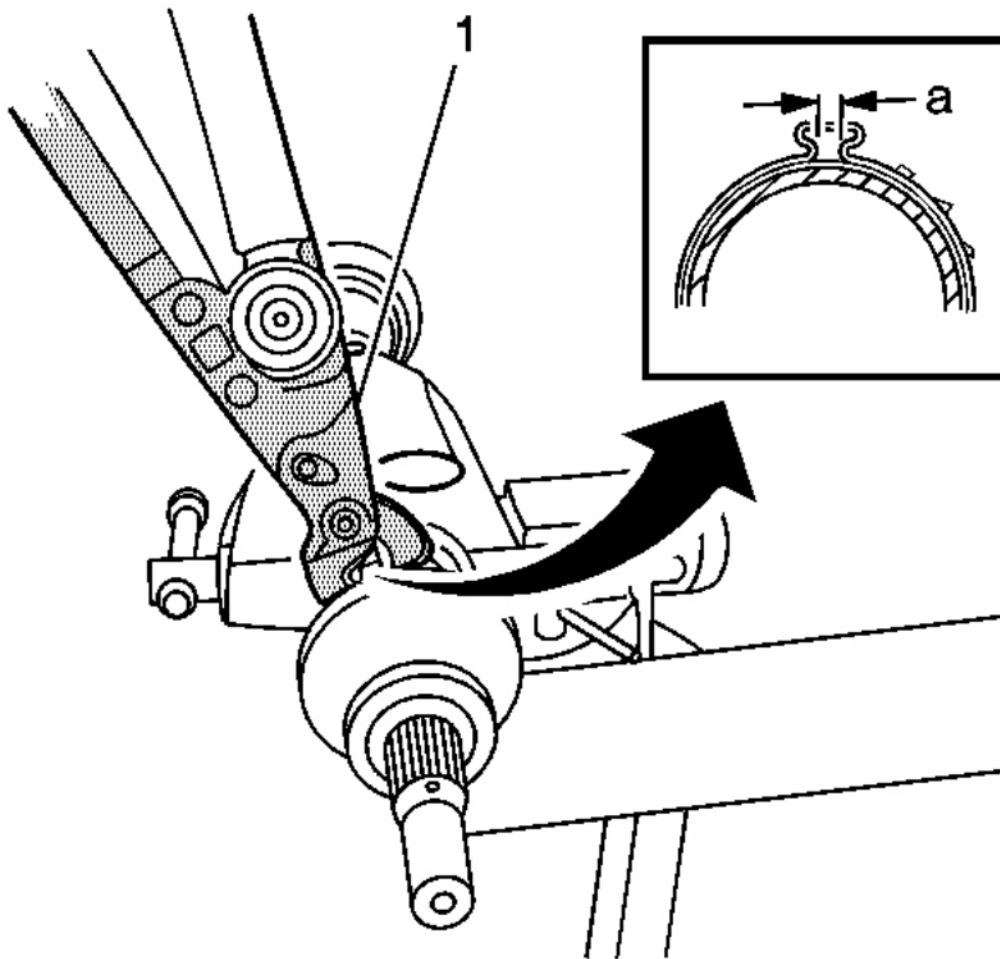


Fig. 73: Measuring Base Clamp Gap Width
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

14. Using the **J 42572** (1), crimp the small seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the small seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

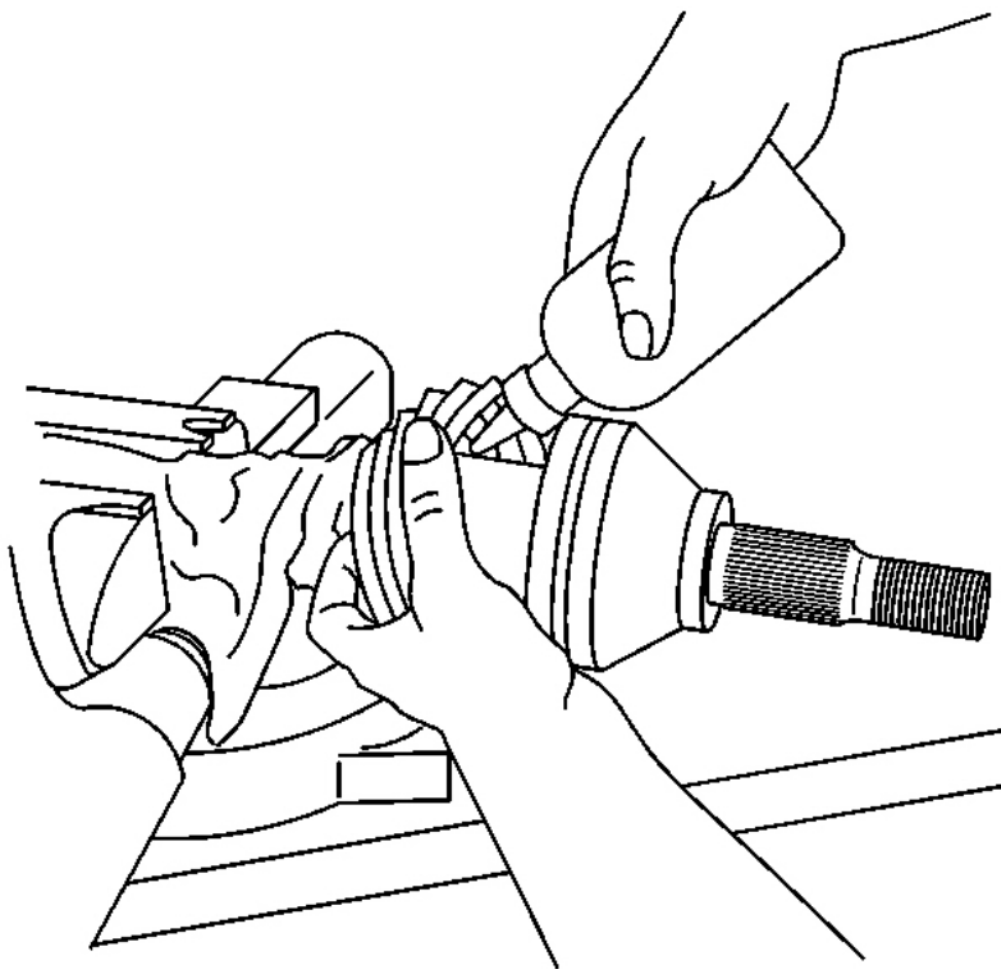


Fig. 74: Inserting Remaining Grease From Service Kit Into Seal
Courtesy of GENERAL MOTORS CORP.

15. Insert the remaining grease from the service kit into the seal.

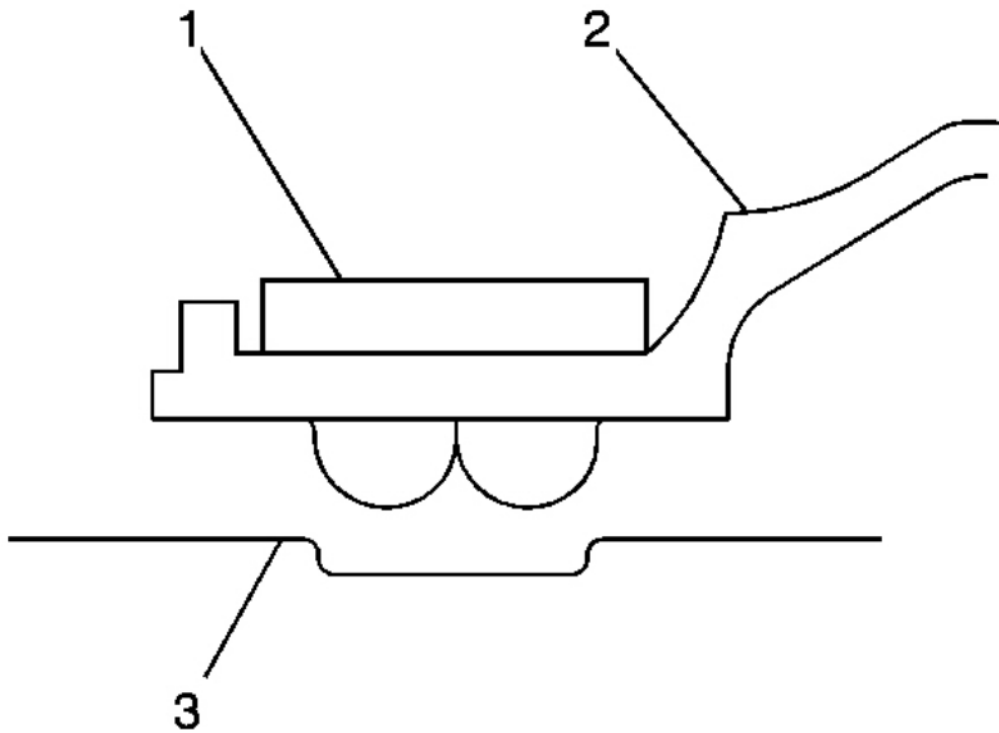


Fig. 75: View Of Large Seal Retaining Clamp, Seal & Boot Groove
Courtesy of GENERAL MOTORS CORP.

16. Position the large seal retaining clamp (1) onto the seal (2).
17. Position the seal and large retaining clamp to the joint outer race (3) as shown.

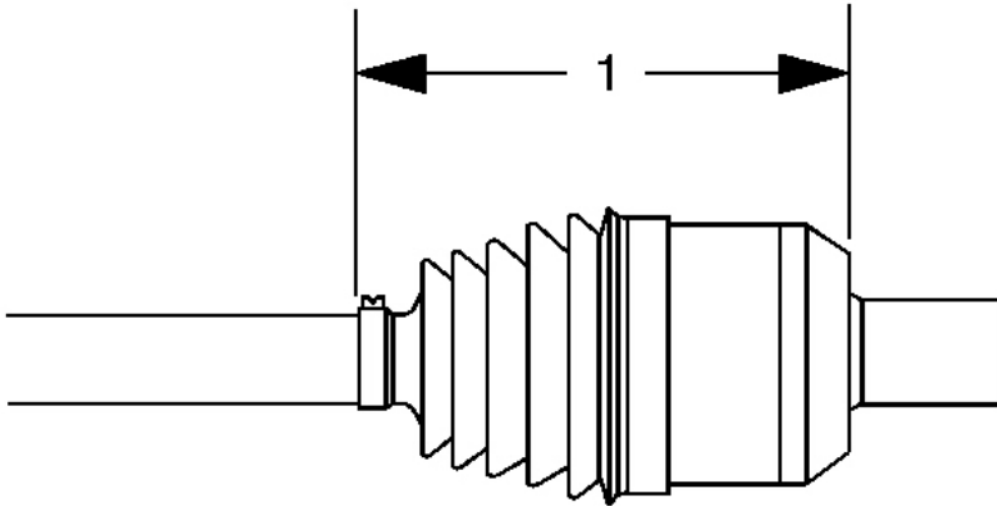


Fig. 76: Measuring Distance Between Seal Edges - Rear
Courtesy of GENERAL MOTORS CORP.

18. Position the joint assembly to the proper vehicle dimension.
19. Measure the distance (1) between the seal edges.

Specification: 86.85 mm (3.42 in).

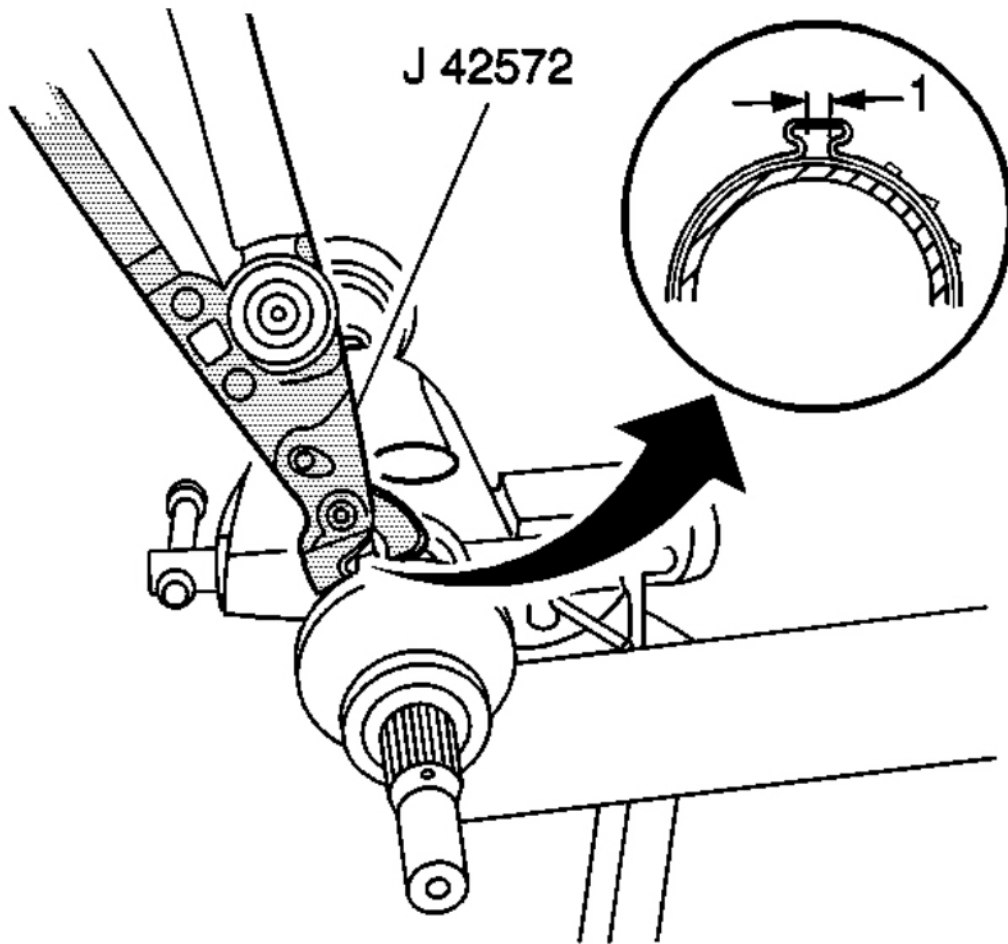


Fig. 77: Using J 42572 To Crimp Seal Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal must not be dimpled, stretched or otherwise deformed.

20. Inspect the seal for proper shape.

If the seal is not shaped correctly, equalize the pressure in the seal by lifting the seal edge slightly and shape the seal properly by hand.

21. Inspect the seal for damage.

If the seal has been cut or punctured during assembly, you must discard and replace the seal.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

22. Using the **J 42572** , crimp the large seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the large seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

23. Inspect the inner joint for smooth operation. This will also distribute the grease within the joint.
1. Hold the wheel drive shaft vertically, with the inner joint at the bottom.
 2. Rotate the wheel drive shaft 4 or 5 times in a circular motion.
 3. Install the wheel drive shaft. Refer to **Wheel Drive Shaft Replacement - Rear**.

WHEEL DRIVE SHAFT OUTER JOINT AND SEAL REPLACEMENT - FRONT

Tools Required

J 42572 Drive Shaft Seal Clamp Pliers. See **Special Tools and Equipment**.

Disassembly Procedure

This procedure is to be performed only after the wheel drive shaft has been removed from the vehicle. Refer to **Wheel Drive Shaft Replacement - Front (Left)** or **Wheel Drive Shaft Replacement - Front (Right)**.

1. Wrap a shop towel around the axle shaft.
2. Place the wheel drive shaft horizontally in a bench vise.
3. Using a side cutter or other suitable tool, remove the large seal retaining clamp from the outer joint seal and discard the clamp.
4. Using a side cutter or other suitable tool, remove the small seal retaining clamp from the joint seal and discard the clamp.
5. Separate the seal from the joint outer race at the large diameter end.
6. Slide the seal away from the joint face.
7. Wipe the grease from the face of the joint inner race, cage, balls, etc.
8. Remove the outer joint from the axle shaft using the following steps:

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2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

1. Hold the outer joint housing horizontally to the shaft.
2. Position a wood block between the seal and the joint, on the joint face.
3. Strike the wood block with a hammer to compress the axle shaft retaining clip. If the joint refuses to move, a brass drift can be used against the face of the inner race to compress the axle shaft retaining clip.
4. Continue to strike the wood block in order to remove the outer joint from the axle shaft.

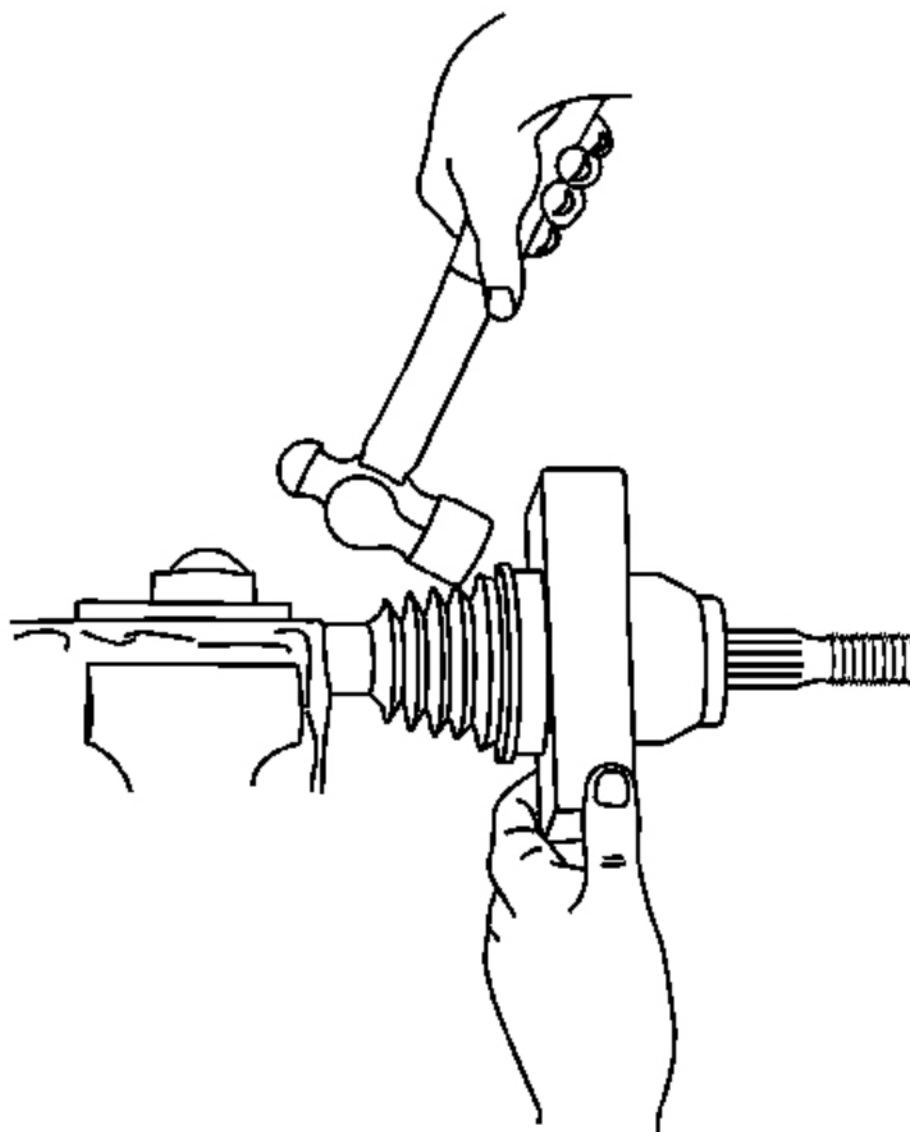


Fig. 78: Removing Outer Joint From Axle
Courtesy of GENERAL MOTORS CORP.

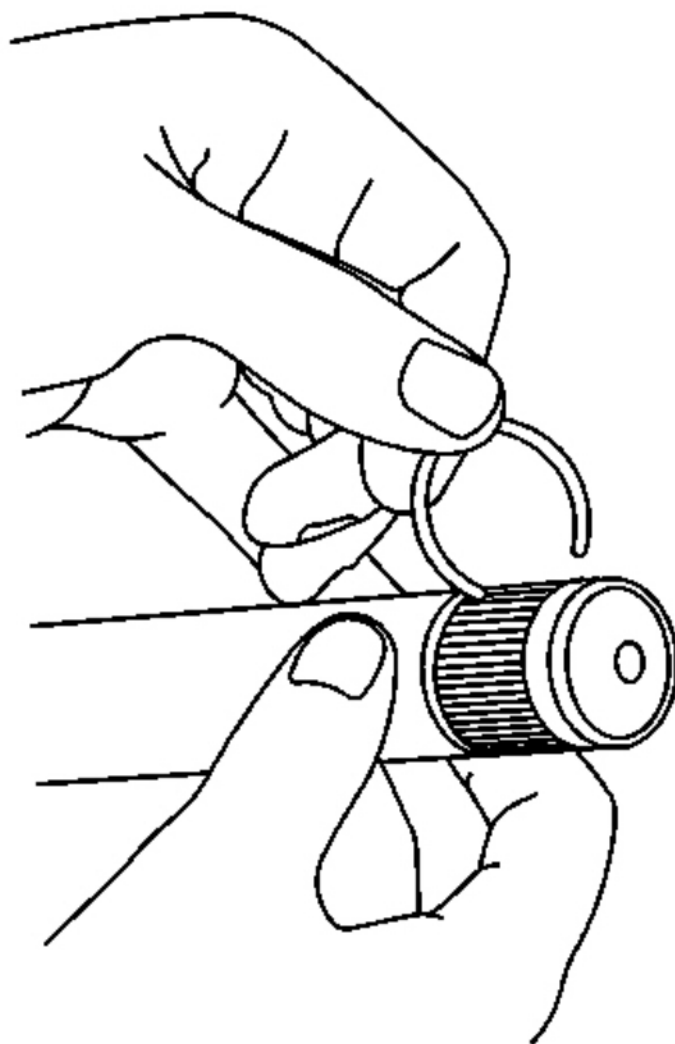


Fig. 79: View Of Axle Shaft Retaining Ring
Courtesy of GENERAL MOTORS CORP.

9. Remove and discard the axle shaft retaining ring from the axle shaft.

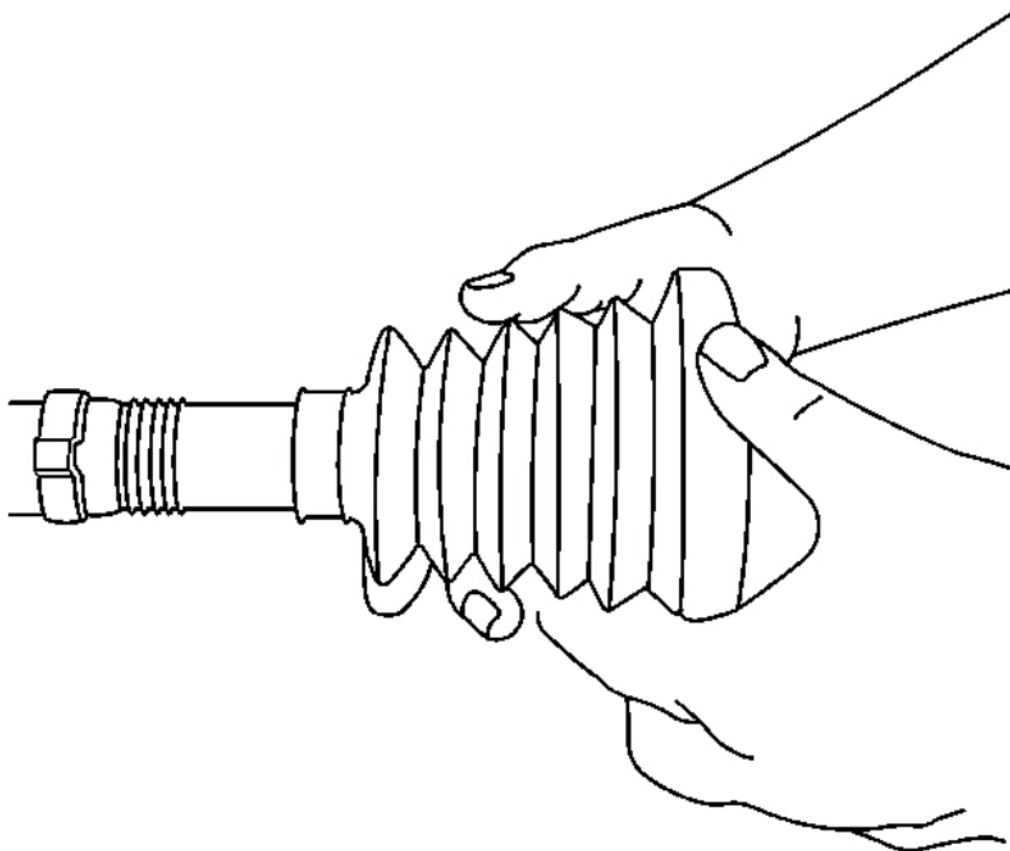


Fig. 80: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

10. Remove the seal from the axle shaft.
11. Remove the wheel drive shaft from the vise.

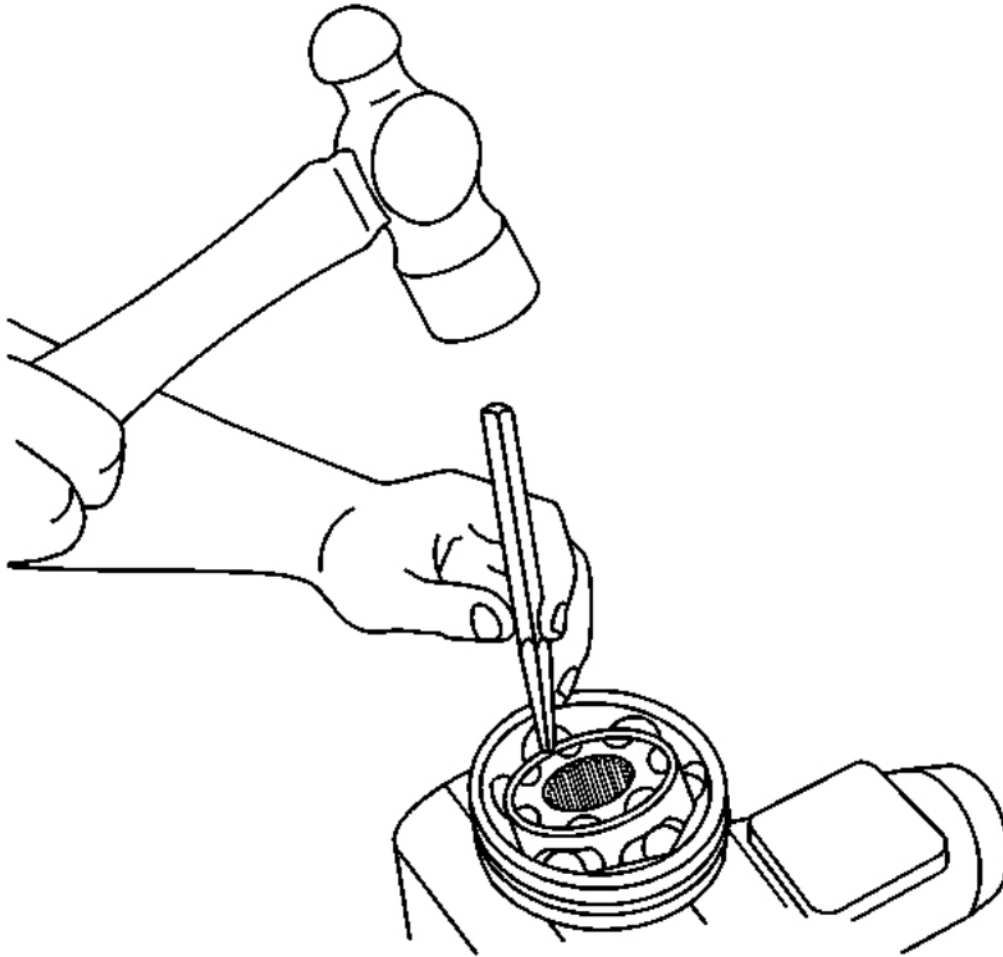


Fig. 81: Removing First Ball
Courtesy of GENERAL MOTORS CORP.

12. Wrap a shop towel around the joint outer race splined shaft.
13. Place the outer race vertically in a bench vise.
14. Use a brass drift and hammer to gently tap on the wheel drive shaft joints inner cage, until it is tilted enough to remove the first ball.

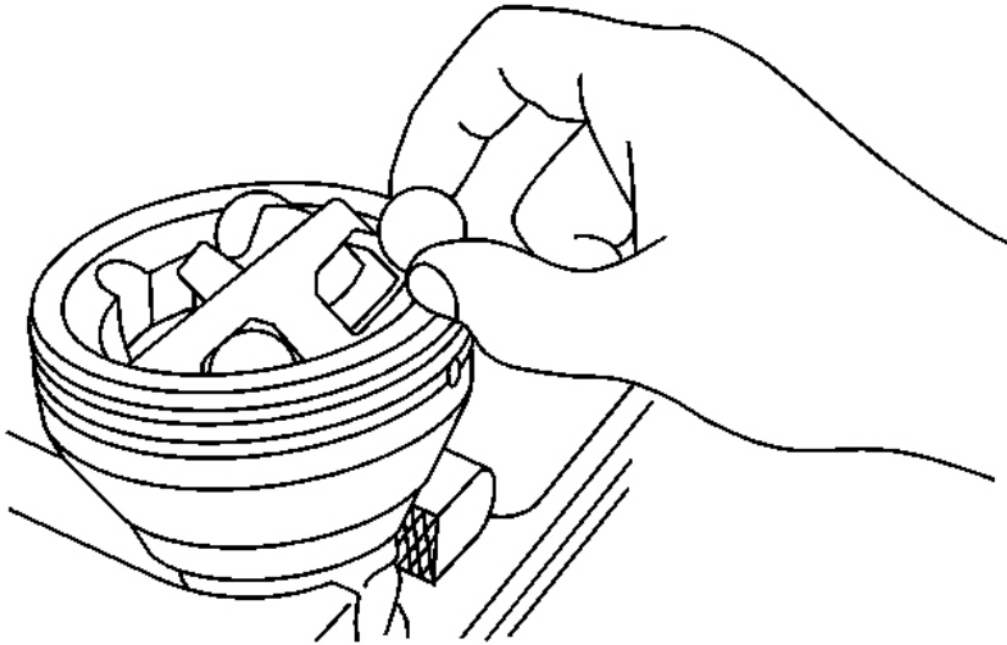


Fig. 82: Removing/Install Ball From Cage & Inner Race
Courtesy of GENERAL MOTORS CORP.

15. Remove the exposed ball.

Use a small screwdriver to aid in removal, if necessary.

16. Position the cage and inner race so they are level.

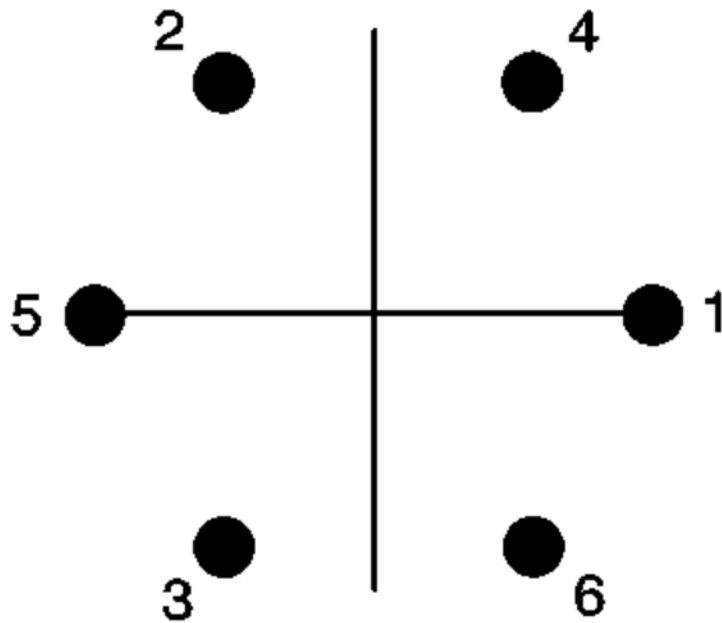


Fig. 83: View Of Ball Removal/Installation Sequence
Courtesy of GENERAL MOTORS CORP.

17. Repeat steps 14 through 16 in the removal sequence as shown until all of the balls are removed.

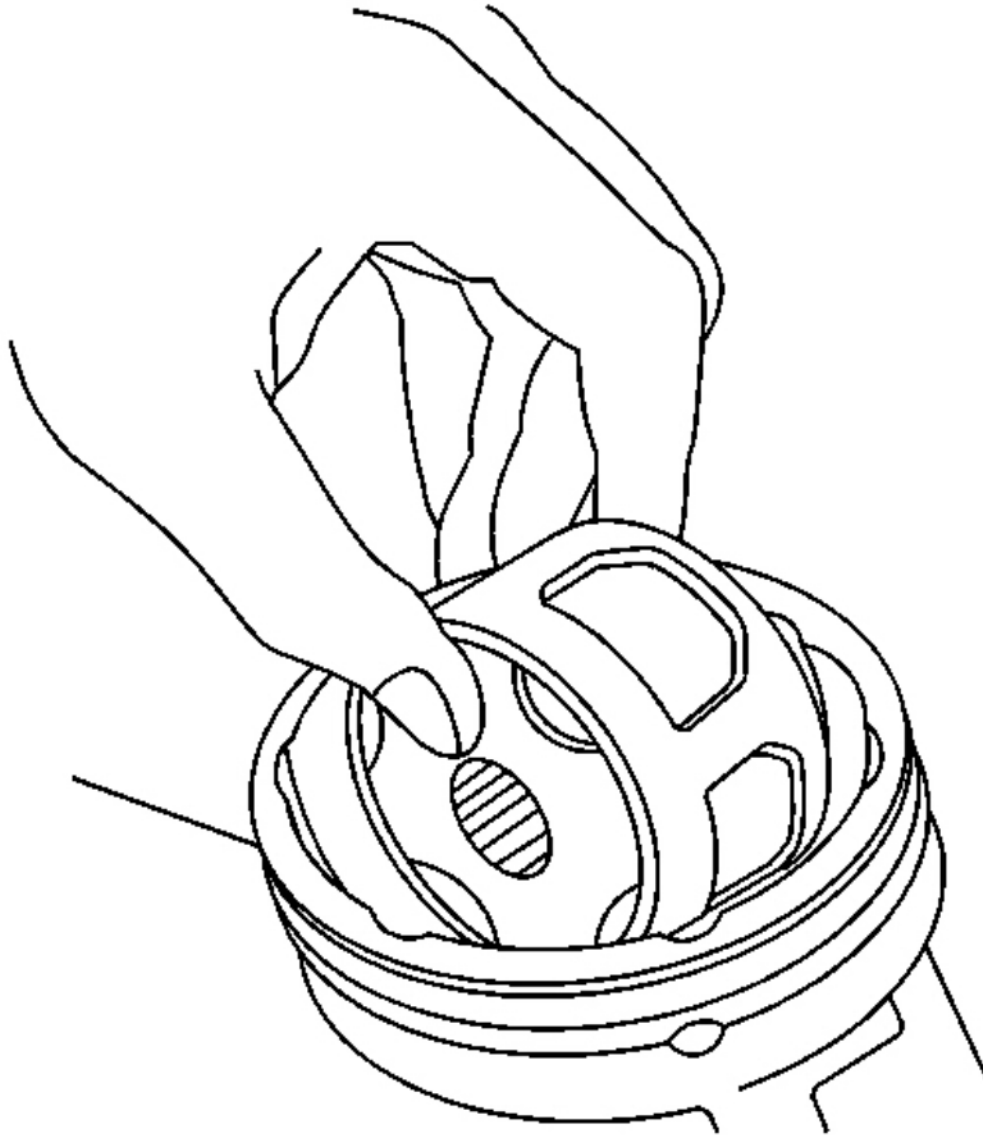


Fig. 84: Positioning Cage & Inner Race 90 Degrees To Centerline Of Outer Race
Courtesy of GENERAL MOTORS CORP.

18. Position the cage and the inner race 90 degrees to the centerline of the outer race.
19. Align the cage windows with the lands of the outer race.
20. Lift to remove the cage and the inner race from the outer race.

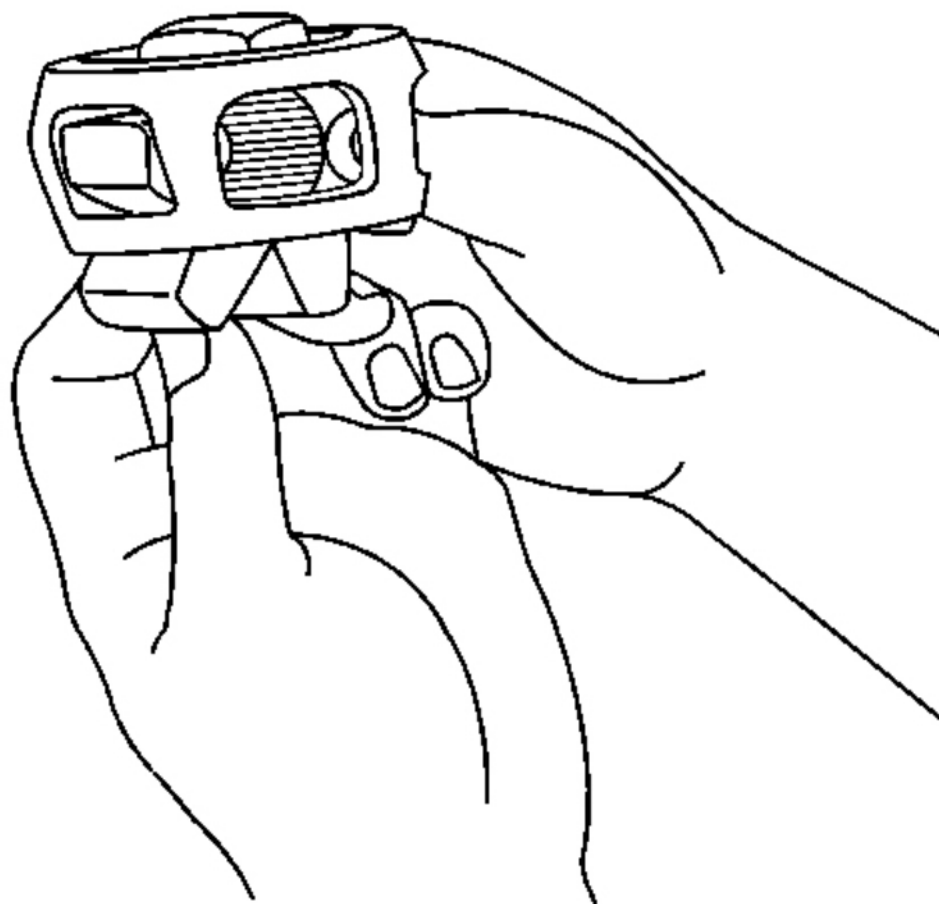


Fig. 85: Positioning Cage So Larger Radius Corners Of Cage Windows Are Up
Courtesy of GENERAL MOTORS CORP.

21. Position the cage and inner race so that the larger radius corners of the cage windows are up.
22. Rotate the inner race 90 degrees to the centerline of the cage.
23. Align the lands of the inner race with the windows of the cage.
24. Insert an inner race land into a cage window.
25. Pivot the inner race down and remove it from the cage.

IMPORTANT: All traces of old grease and any contaminates must be removed.

26. Clean the following parts thoroughly with clean solvent:

- The inner race
- The outer race
- The cage
- The balls
- The axle shaft exposed end

27. Thoroughly air dry all of the parts.

28. Inspect the following parts for damaged and/or wear:

- The inner race
- The outer race
- The cage
- The balls
- The axle shaft exposed end

Assembly Procedure

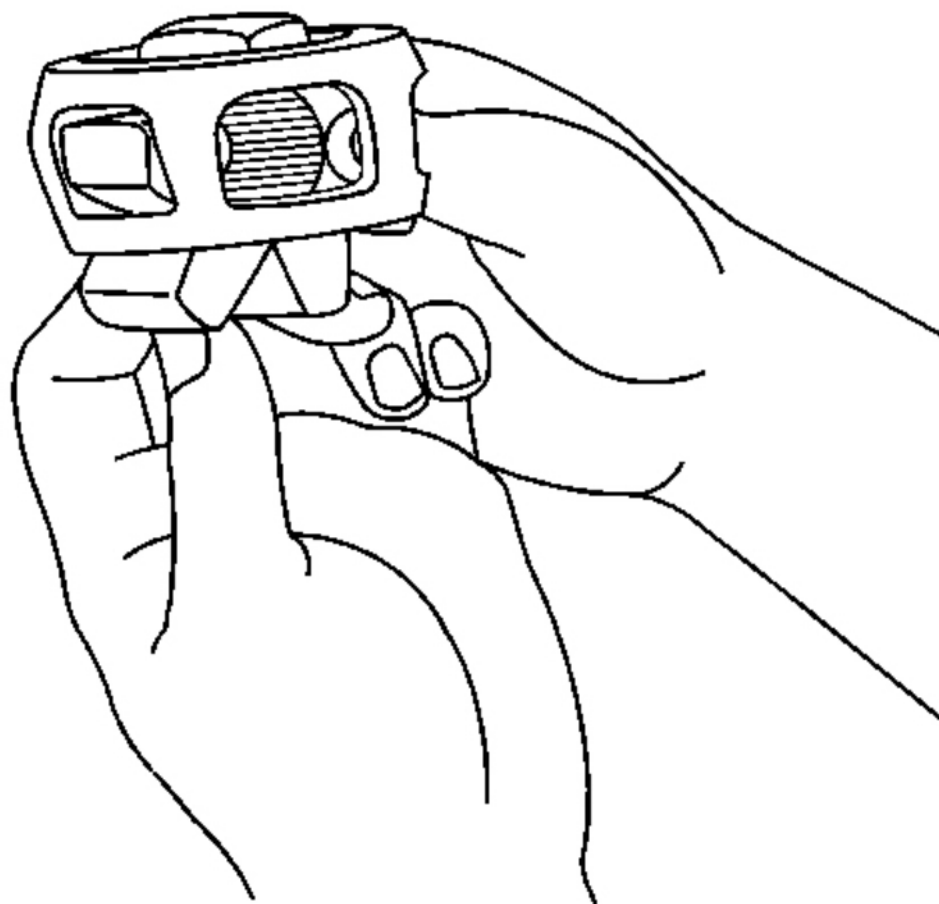


Fig. 86: Positioning Cage So Larger Radius Corners Of Cage Windows Are Up
Courtesy of GENERAL MOTORS CORP.

1. Position the cage so the larger radius corners of the cage windows are up.
2. Position the inner race 90 degrees to the centerline of the cage.
3. Begin to insert the inner race up through the bottom of the cage.
4. Align a land of the inner race to a window of the cage.
5. Insert the inner race land into the cage window.
6. Rotate the remainder of the inner race into the cage.
7. Rotate the inner race within the cage so that the grooved surface of the inner race is facing

up.

IMPORTANT: Ensure that the inner race is fully assembled into the cage.

8. Align the inner race ball tracks with the cage windows.

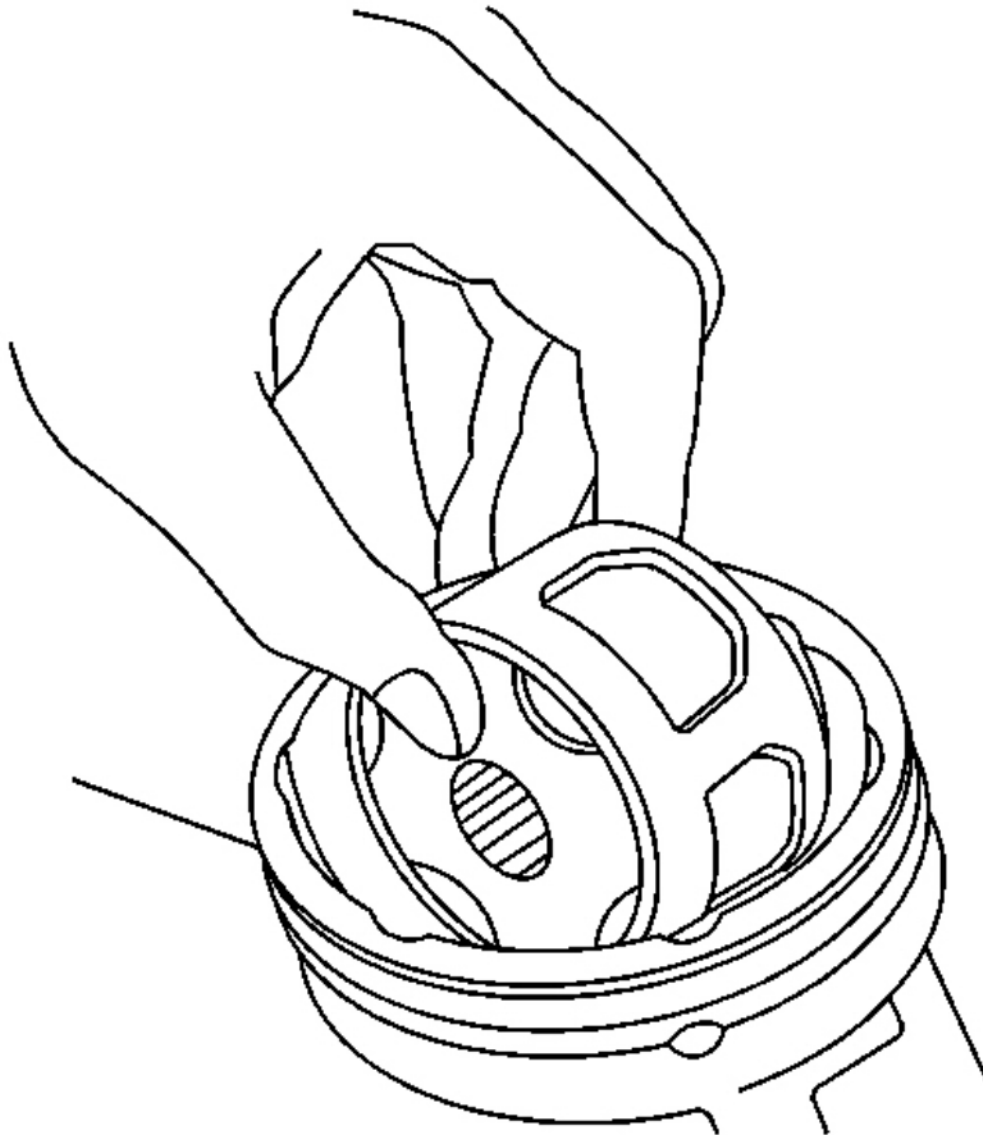


Fig. 87: Positioning Cage & Inner Race 90 Degrees To Centerline Of Outer Race
Courtesy of GENERAL MOTORS CORP.

9. Wrap a shop towel around the joint outer race splined shaft.
10. Place the outer race vertically in a bench vise.
11. Position the cage and inner race 90 degrees to the centerline of the outer race.
12. Align 2 cage windows at 0 and 180 degrees, within the outer race.

Rotate the inner race and cage assembly downward in the vertical plane.

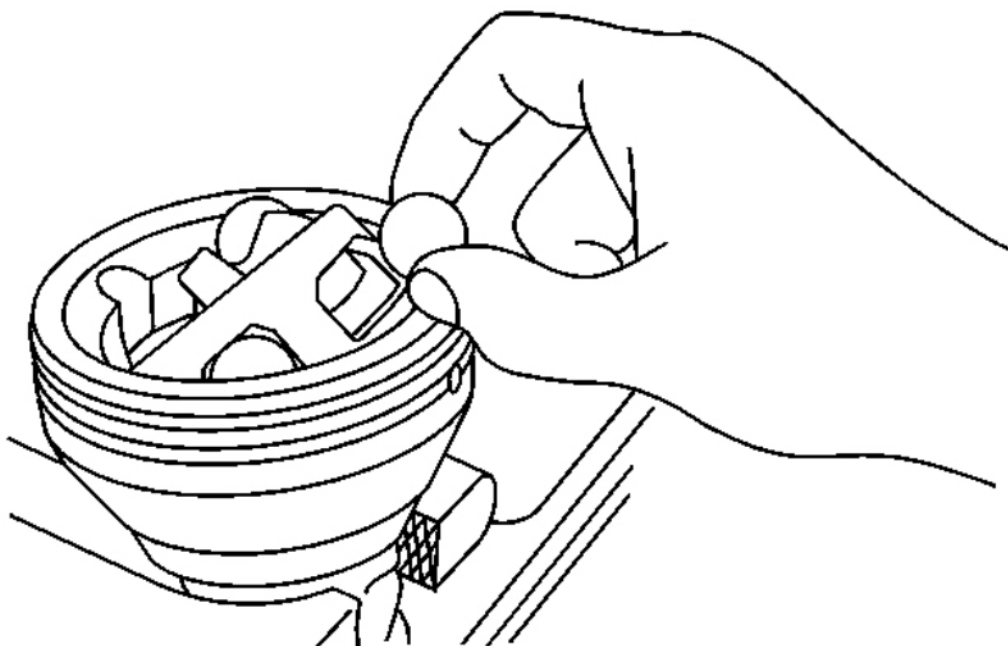


Fig. 88: Removing/Install Ball From Cage & Inner Race
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The inner race ring groove must be positioned down.

13. Position the cage and inner race so they are level.
14. Align the cage windows and inner race ball tracks with the outer race ball tracks.
15. Position a cage window and inner race ball track for ball installation.

1. Press down on the cage following one of the outer race ball tracks. The opposing cage window and inner race ball track will be accessible for ball installation.
2. After installing the first ball, use a brass drift and a hammer to tap gently on the cage, in order to drive the cage and inner race down completely.

IMPORTANT: No gap should exist between the ball and the inner race ball track.

16. Insert a ball through the cage window onto the inner race ball track.

Tap the ball lightly with a plastic tipped hammer.

17. Position the cage and inner race so they are level.

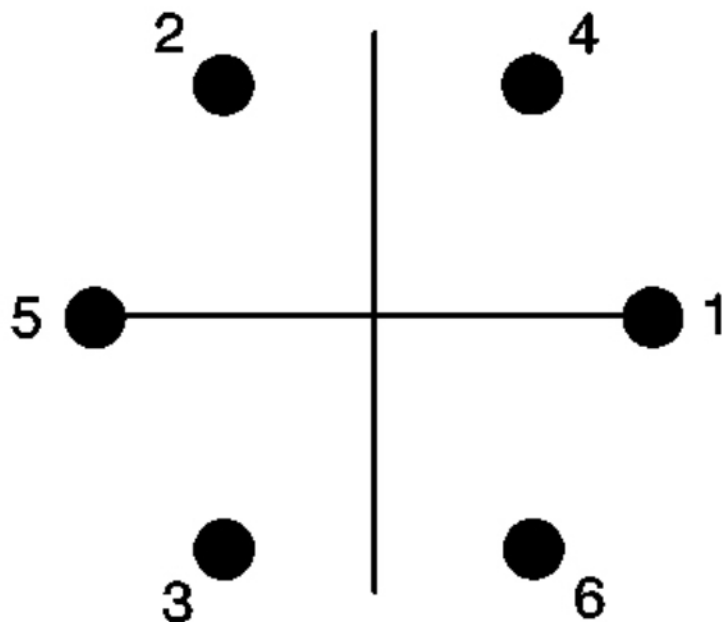


Fig. 89: View Of Ball Removal/Installation Sequence
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The ball installation sequence must be followed as shown.

18. Repeat steps 17 through 19 in the installation sequence as shown, until all of the balls are installed.

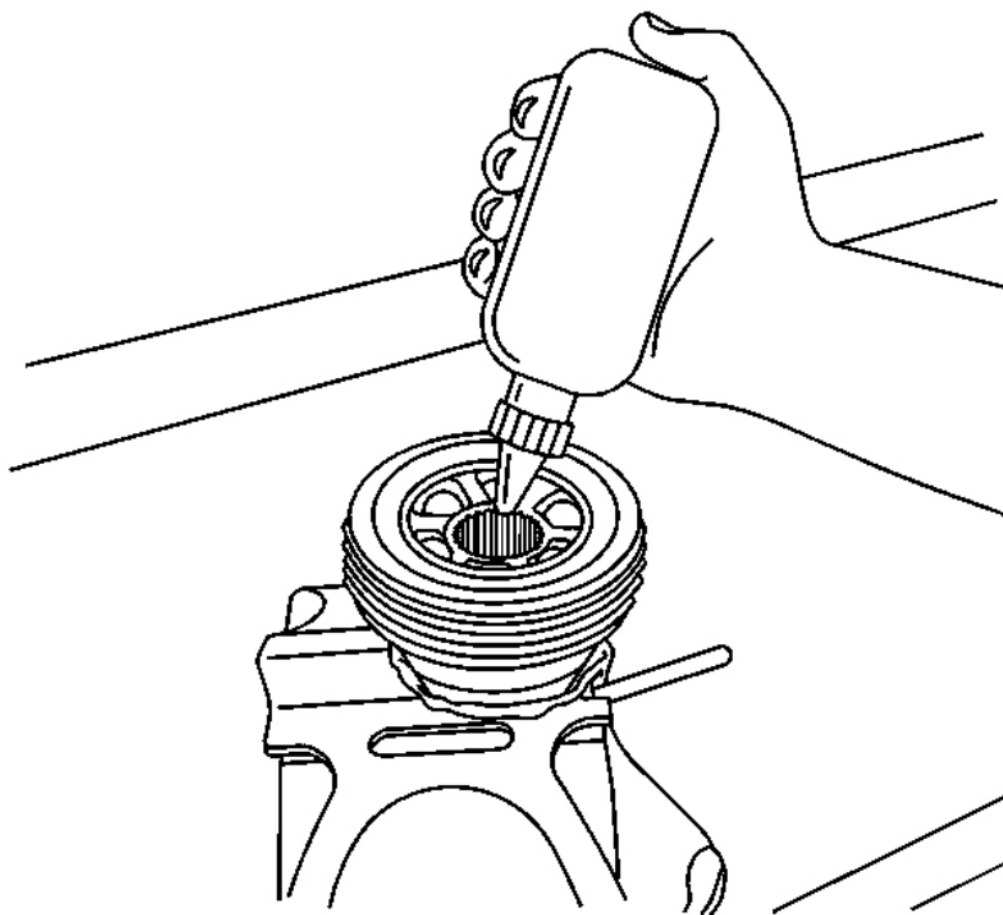


Fig. 90: Applying Grease To Outer Joint
Courtesy of GENERAL MOTORS CORP.

19. Insert approximately 60 percent of the grease from the service kit into the outer joint.
 1. Spread 60 percent of the grease onto the ball tracks, the balls, the cage and the inner race.
 2. Spread the remainder of the grease into the bottom of the outer race.
20. Remove the outer joint from the bench vise.

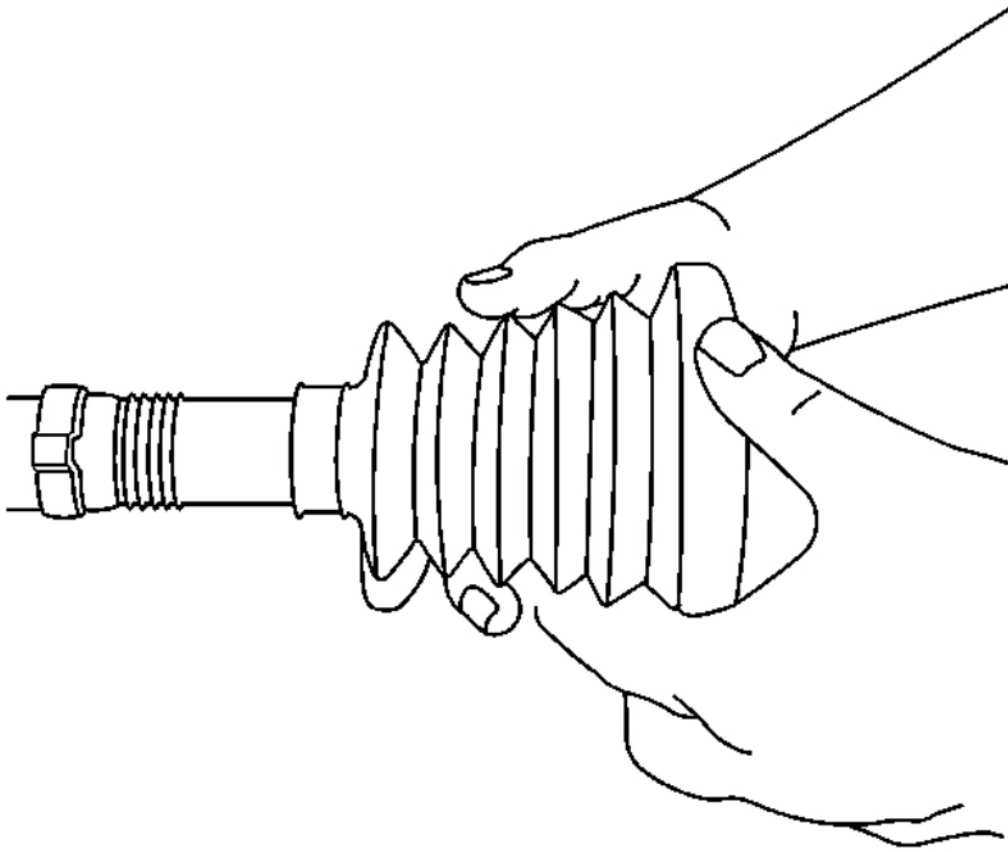


Fig. 91: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

21. Wrap a shop towel around the axle shaft.
22. Place the wheel drive shaft horizontally in a bench vise.
23. Install a new small seal retaining clamp onto the axle shaft.
24. Install the seal onto the axle shaft.

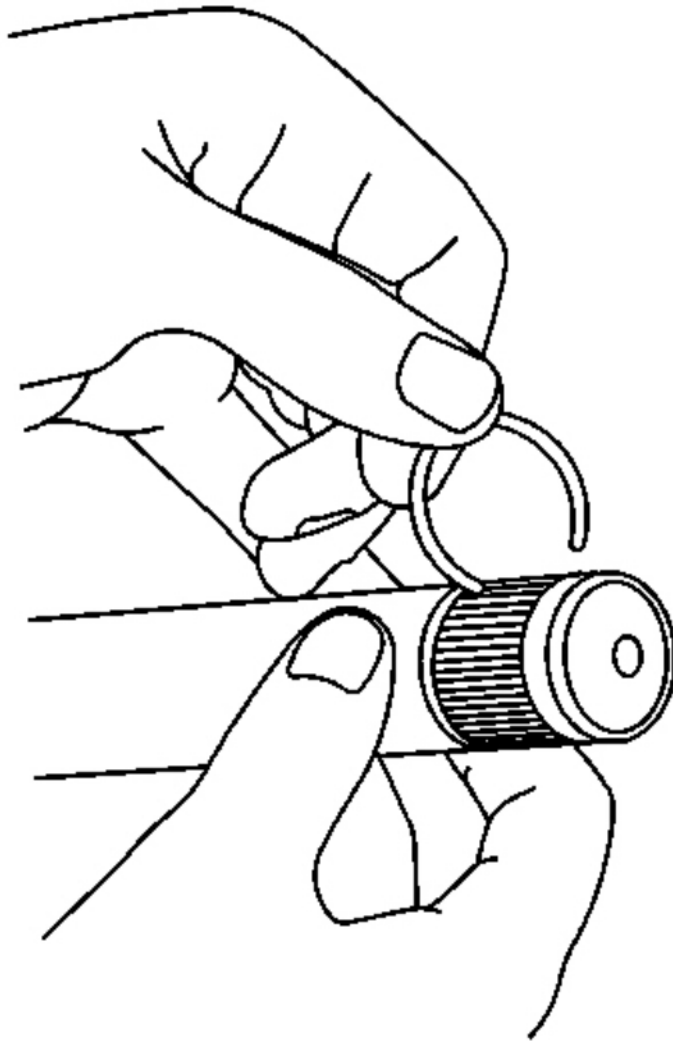


Fig. 92: View Of Axle Shaft Retaining Ring
Courtesy of GENERAL MOTORS CORP.

25. Install a new retaining ring to the axle shaft.

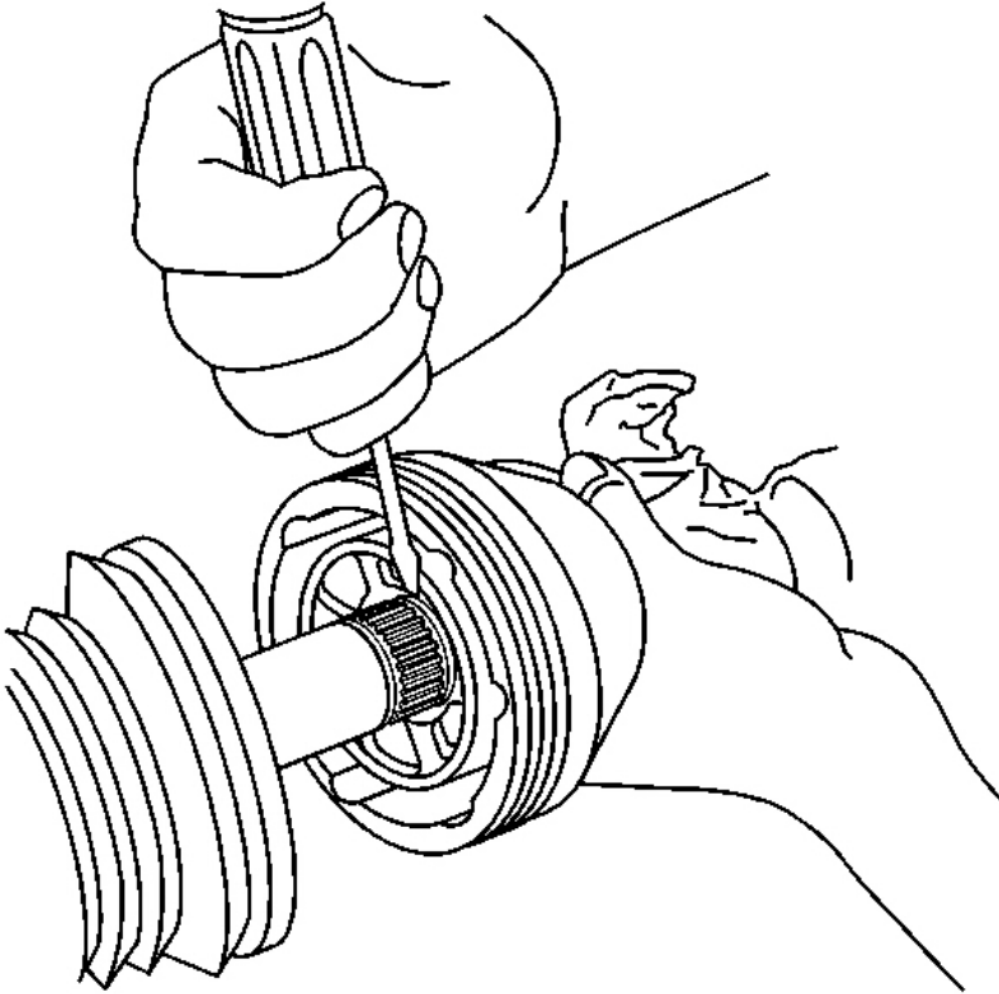


Fig. 93: Compressing Axle Shaft Ring Spacer
Courtesy of GENERAL MOTORS CORP.

26. Position the outer joint horizontally.
27. Engage the inner race splines onto the axle shaft splines.
28. Compress the axle shaft retaining ring.
 1. Press the end of the retaining ring, using a flat-bladed tool, into the axle shaft groove while firmly pressing the outer joint onto the axle shaft.
 2. Continue to work around the retaining ring, until it is compressed.

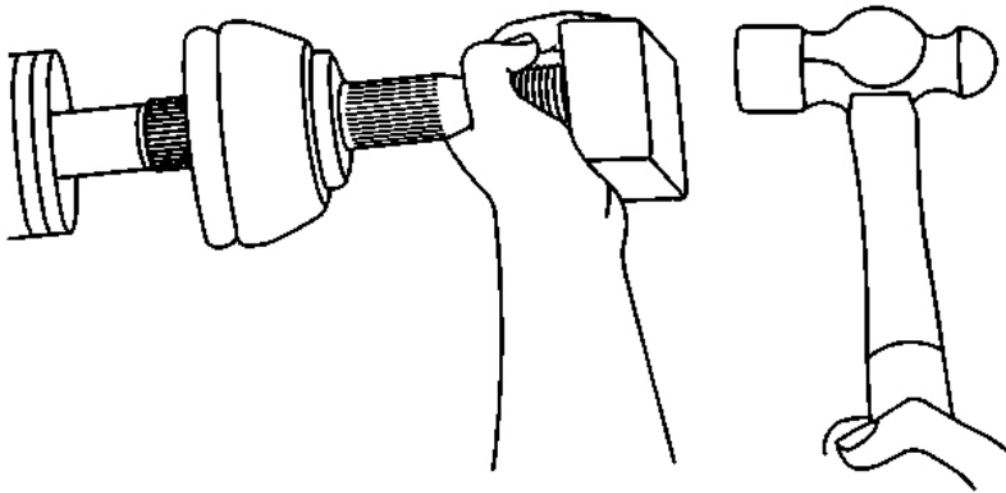


Fig. 94: Installing Joint To Axle Shaft
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The axle shaft and inner race must be fully seated to each other.

29. Install the outer joint to the axle shaft.
 1. Position a wood block over the end of the outer joint threaded shaft.
 2. Use a hammer to drive the outer joint onto the shaft.
 3. Continue to drive the outer joint until the outer joint seats fully onto the axle shaft.

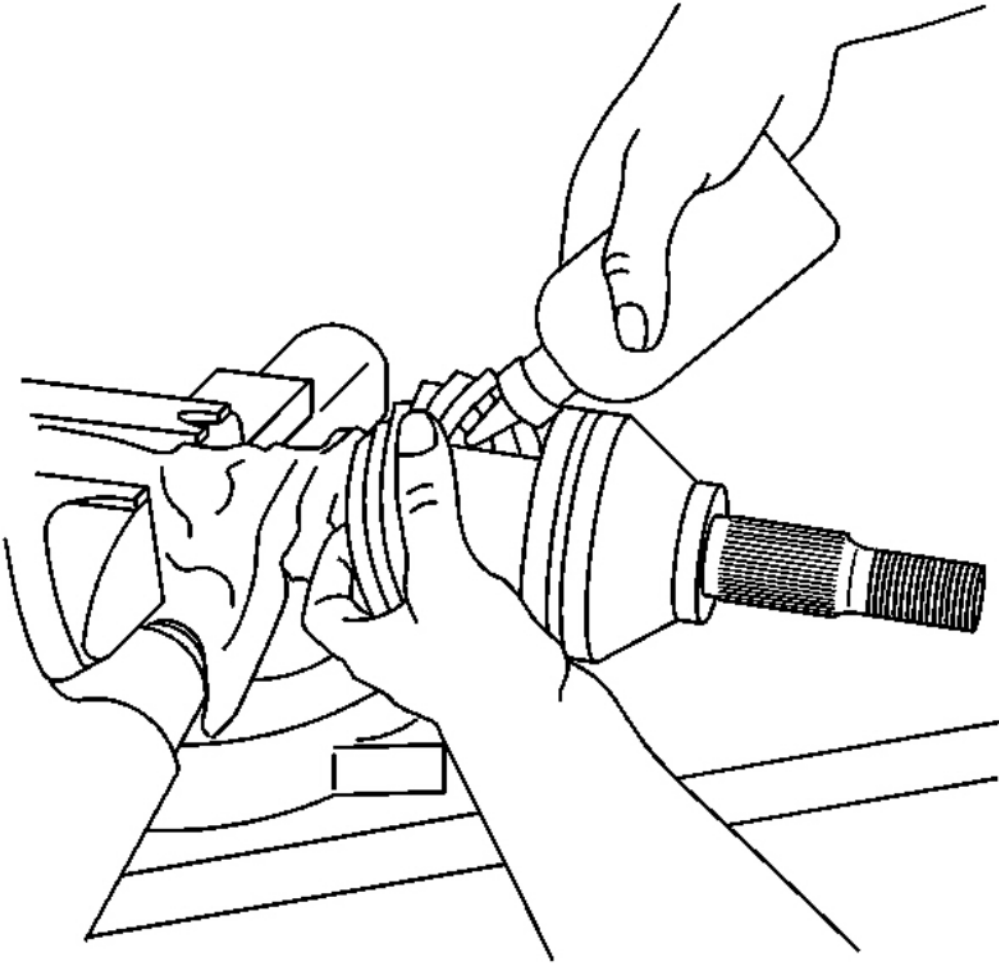


Fig. 95: Inserting Remaining Grease From Service Kit Into Seal
Courtesy of GENERAL MOTORS CORP.

30. Insert the remaining grease from the service kit into the seal.

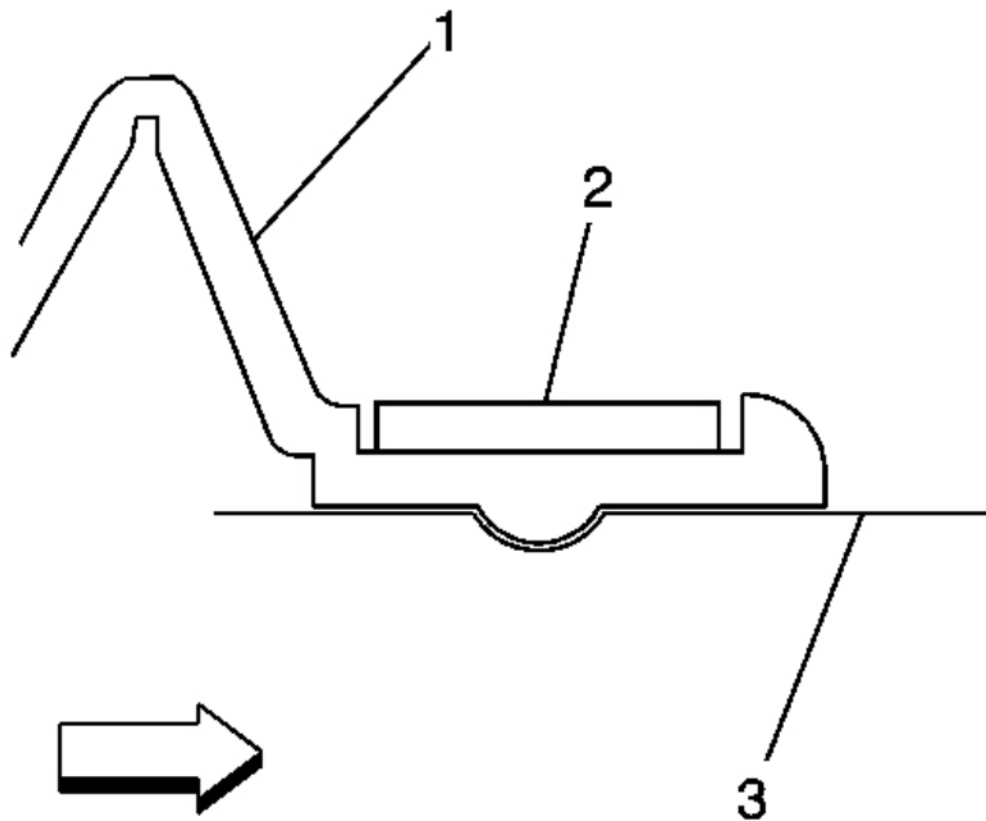


Fig. 96: Inner Joint Seal, Small Seal Clamp, & Inner Joint Seal Groove
Courtesy of GENERAL MOTORS CORP.

31. Position the small seal retaining clamp (2) into the seal boot groove.
32. Position the seal and small retaining clamp to the axle shaft boot groove (3) as shown.

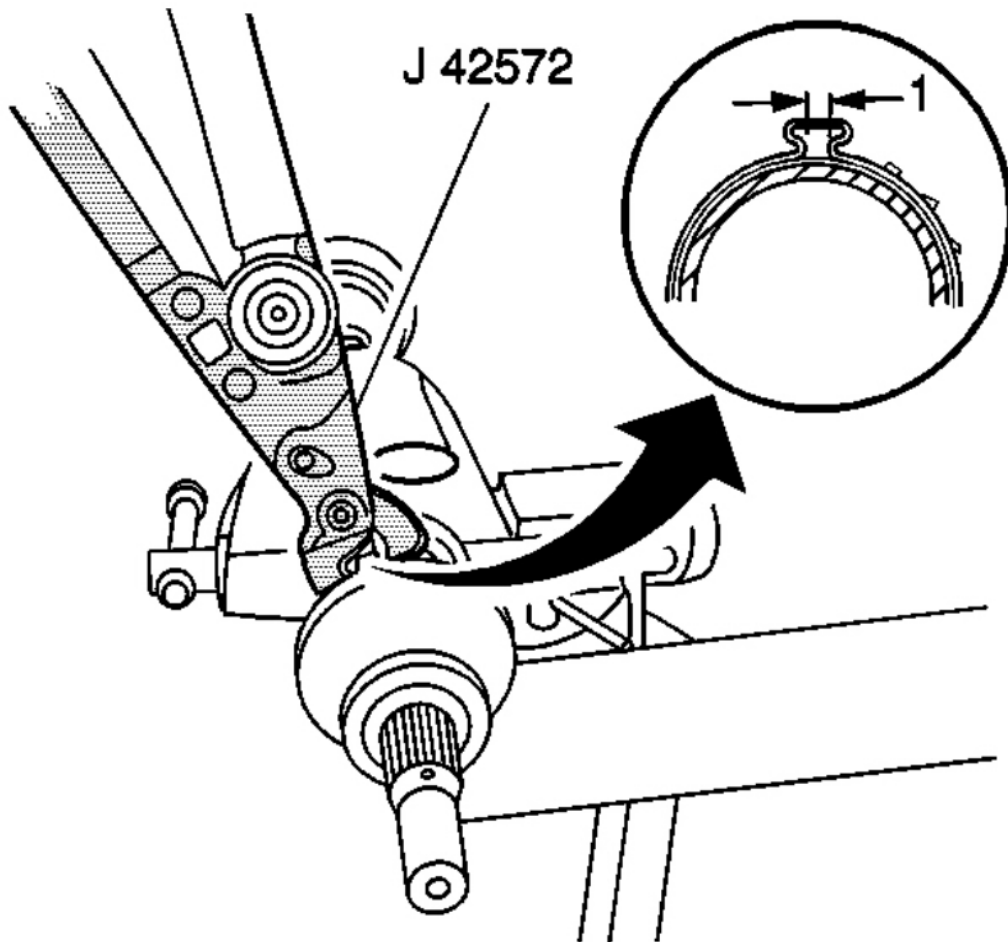


Fig. 97: Using J 42572 To Crimp Seal Retaining Clamp
 Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

33. Using the **J 42572** , crimp the small seal retaining clamp. See Special Tools and Equipment.

Tighten: Tighten the small seal clamp until the base of the omega shape has a gap of 1 mm (0.039 in).

The clamping hold time must be no less than 2 seconds.

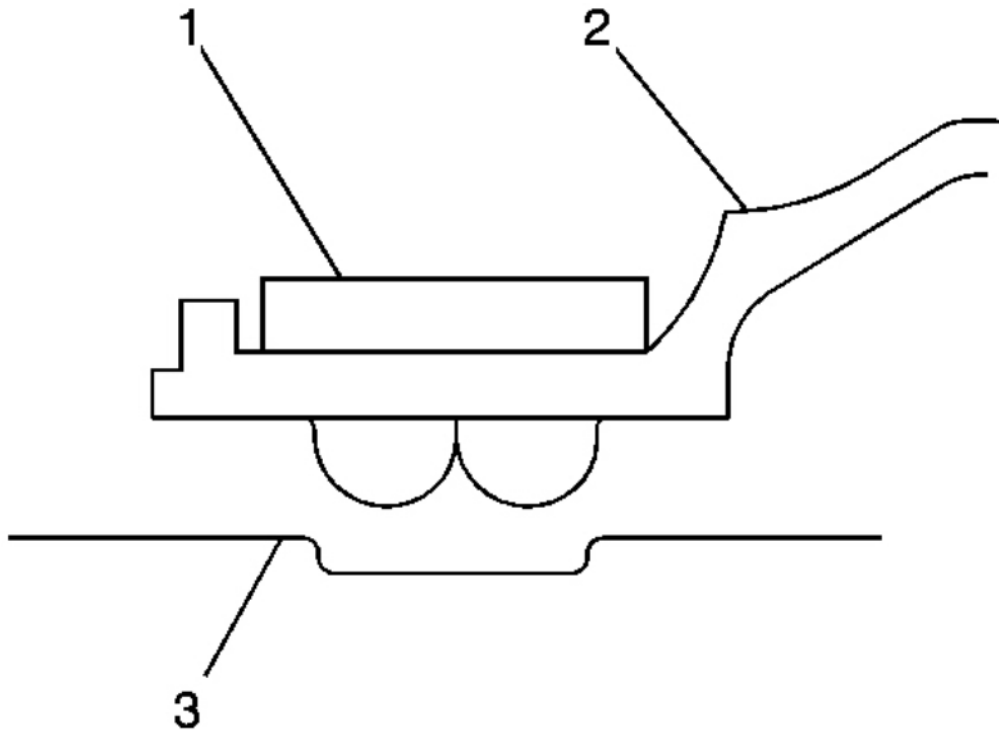


Fig. 98: View Of Large Seal Retaining Clamp, Seal & Boot Groove
Courtesy of GENERAL MOTORS CORP.

34. Position the large seal retaining clamp (1) onto the seal (2).
35. Position the seal and large retaining clamp to the joint outer race (3) as shown.

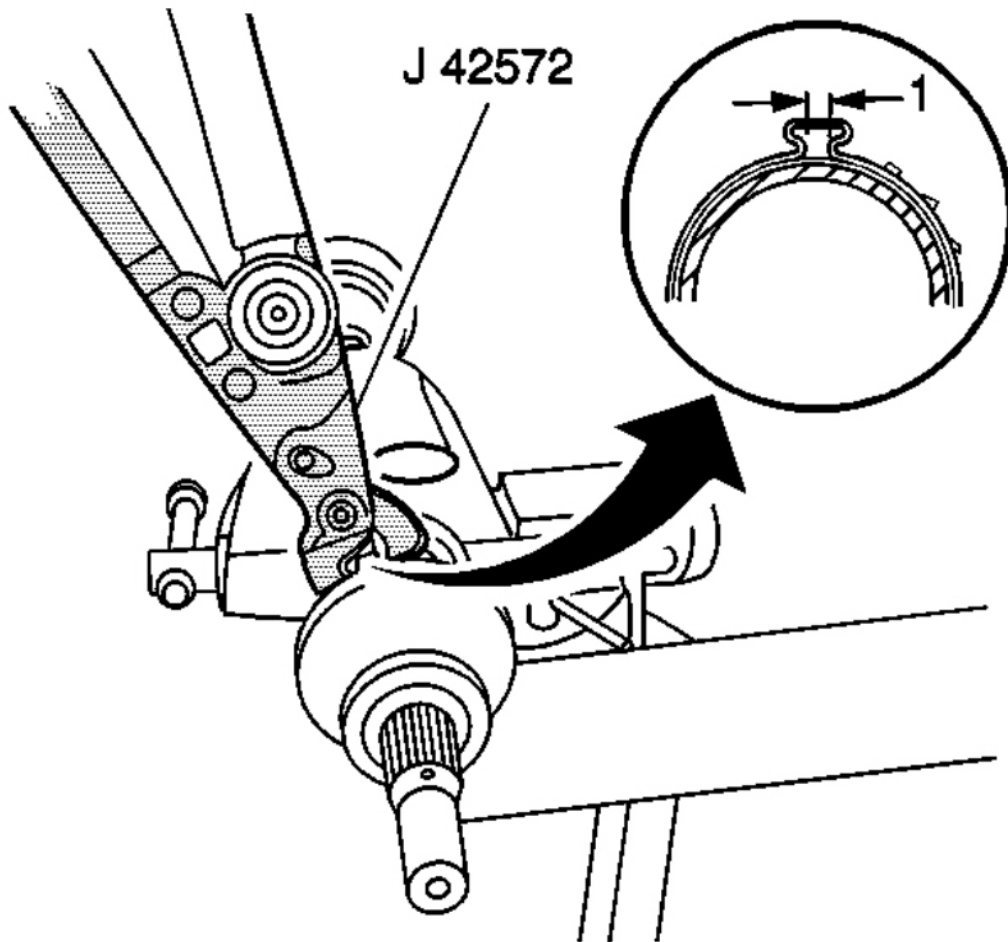


Fig. 99: Using J 42572 To Crimp Seal Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal must not be dimpled, stretched or otherwise deformed.

36. Inspect the seal for proper shape.

If the seal is not shaped correctly, equalize the pressure in the seal by lifting the seal edge slightly and shape the seal properly by hand.

37. Inspect the seal for damage.

If the seal has been cut or punctured during assembly, you must discard and replace the seal.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

38. Using the **J 42572** , crimp the large seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the large seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

The clamping hold time must be no less than 2 seconds.

39. Inspect the outer joint for smooth operation. This will also distribute the grease within the joint.
1. Hold the wheel drive shaft vertically, with the outer joint at the bottom.
 2. Rotate the wheel drive shaft 4 or 5 times in a circular motion.

WHEEL DRIVE SHAFT OUTER JOINT AND SEAL REPLACEMENT - REAR (AWD)

Tools Required

J 42572 Drive Shaft Seal Clamp Pliers. See **Special Tools and Equipment**.

Disassembly Procedure

This procedure is to be performed only after the wheel drive shaft has been removed from the vehicle. Refer to **Wheel Drive Shaft Replacement - Rear**.

1. Wrap a shop towel around the axle shaft.
2. Place the wheel drive shaft horizontally in a bench vise.
3. Using a side cutter or other suitable tool, remove the large seal retaining clamp from the outer joint seal and discard the clamp.
4. Using a side cutter or other suitable tool, remove the small seal retaining clamp from the outer joint seal and discard the clamp.
5. Separate the seal from the joint outer race at the large diameter end.
6. Slide the seal away from the joint face.
7. Wipe the grease from the face of the joint inner race, cage, balls, etc.

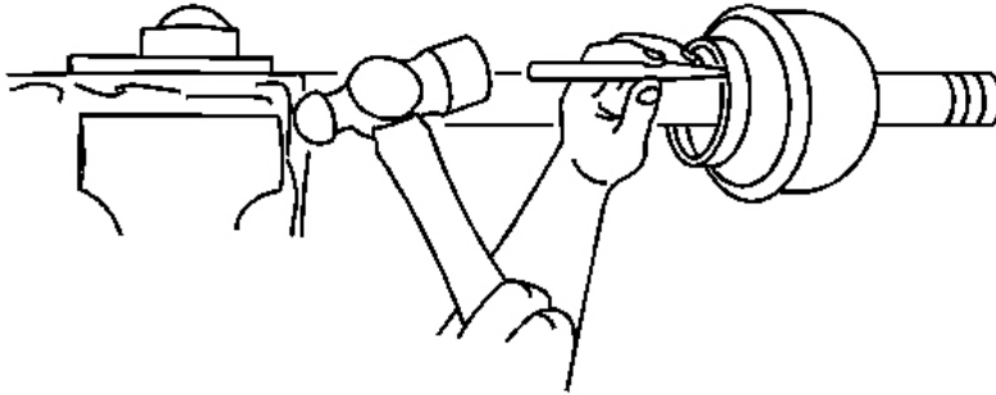


Fig. 100: Removing Inner Joint Assembly From Wheel Drive Shaft
Courtesy of GENERAL MOTORS CORP.

8. Remove the outer joint from the axle shaft using the following steps:
 1. Hold the inner joint housing horizontally to the shaft.
 2. Position a brass drift on the inner race.
 3. Strike the brass drift with a hammer to compress the axle shaft retaining clip.
 4. Continue to strike the brass drift in order to remove the inner joint from the axle shaft.

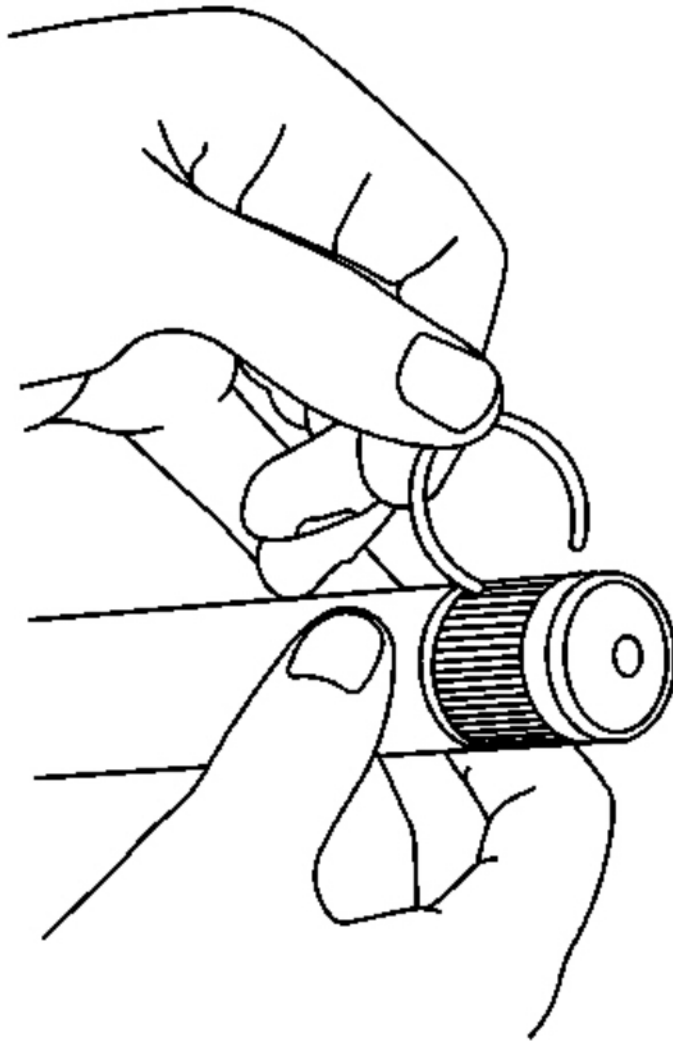


Fig. 101: View Of Axle Shaft Retaining Ring
Courtesy of GENERAL MOTORS CORP.

9. Remove and discard the axle shaft retaining ring from the axle shaft.

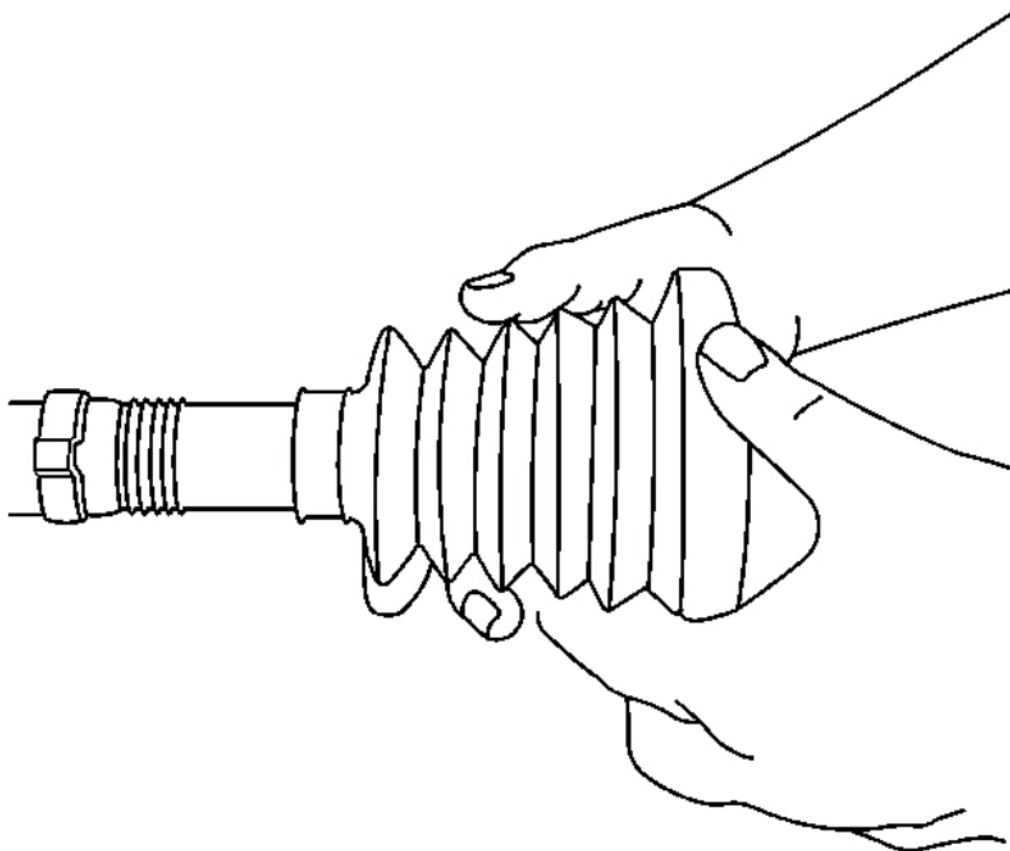


Fig. 102: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

10. Remove the seal from the axle shaft.
11. Remove the wheel drive shaft from the vise.

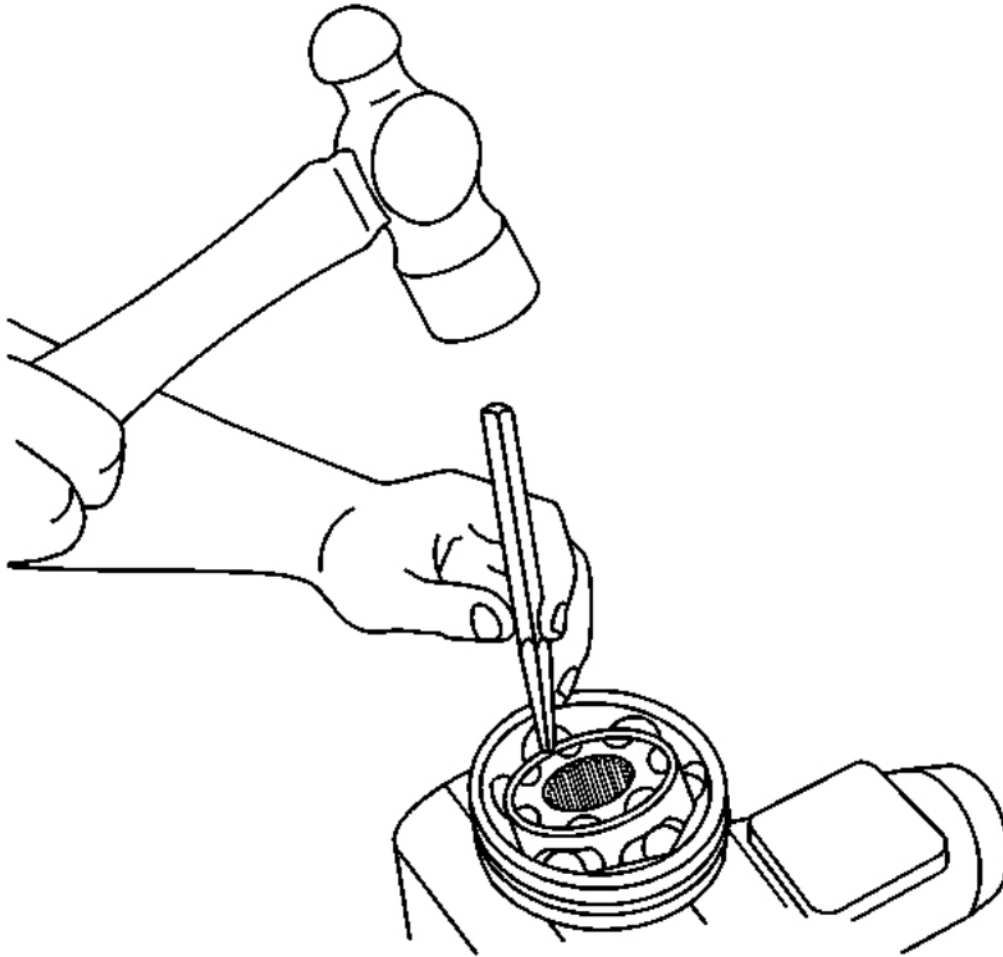


Fig. 103: Removing First Ball
Courtesy of GENERAL MOTORS CORP.

12. Wrap a shop towel around the joint outer race splined shaft.
13. Place the outer race vertically in a bench vise.
14. Use a brass drift and hammer to gently tap on the wheel drive shaft joints inner cage, until it is tilted enough to remove the first ball.

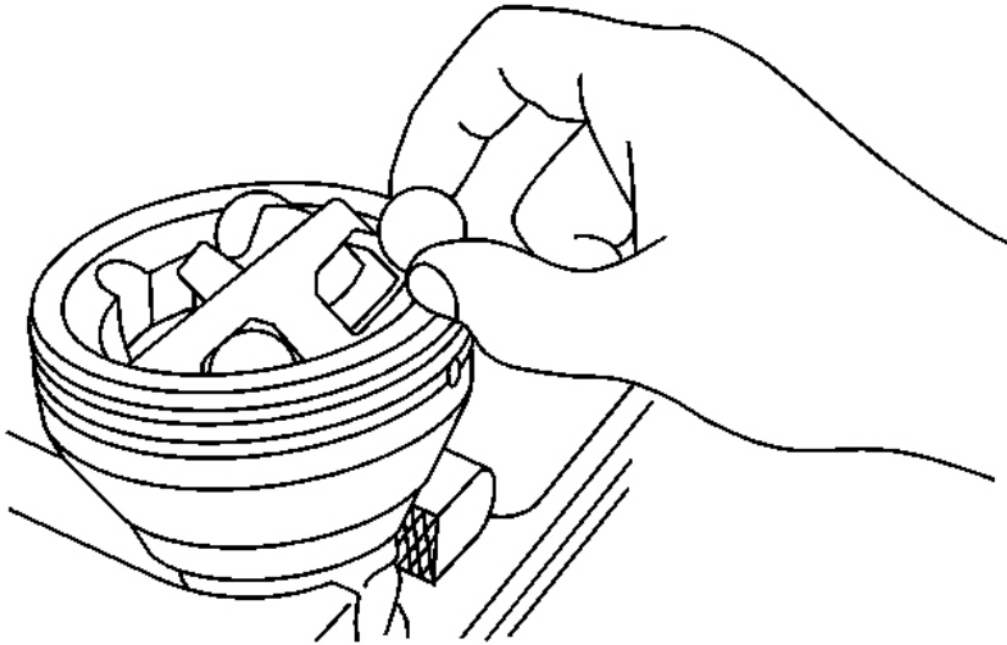


Fig. 104: Removing/Install Ball From Cage & Inner Race
Courtesy of GENERAL MOTORS CORP.

15. Remove the exposed ball.

Use a small screwdriver to aid in removal, if necessary.

16. Position the cage and inner race so they are level.

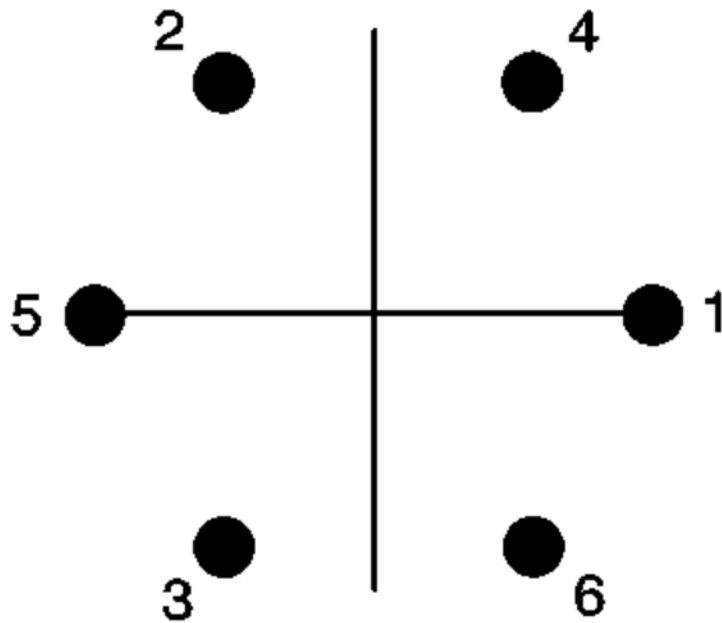


Fig. 105: View Of Ball Removal/Installation Sequence
Courtesy of GENERAL MOTORS CORP.

17. Repeat steps 14 through 16 in the removal sequence as shown, until all of the balls are removed.

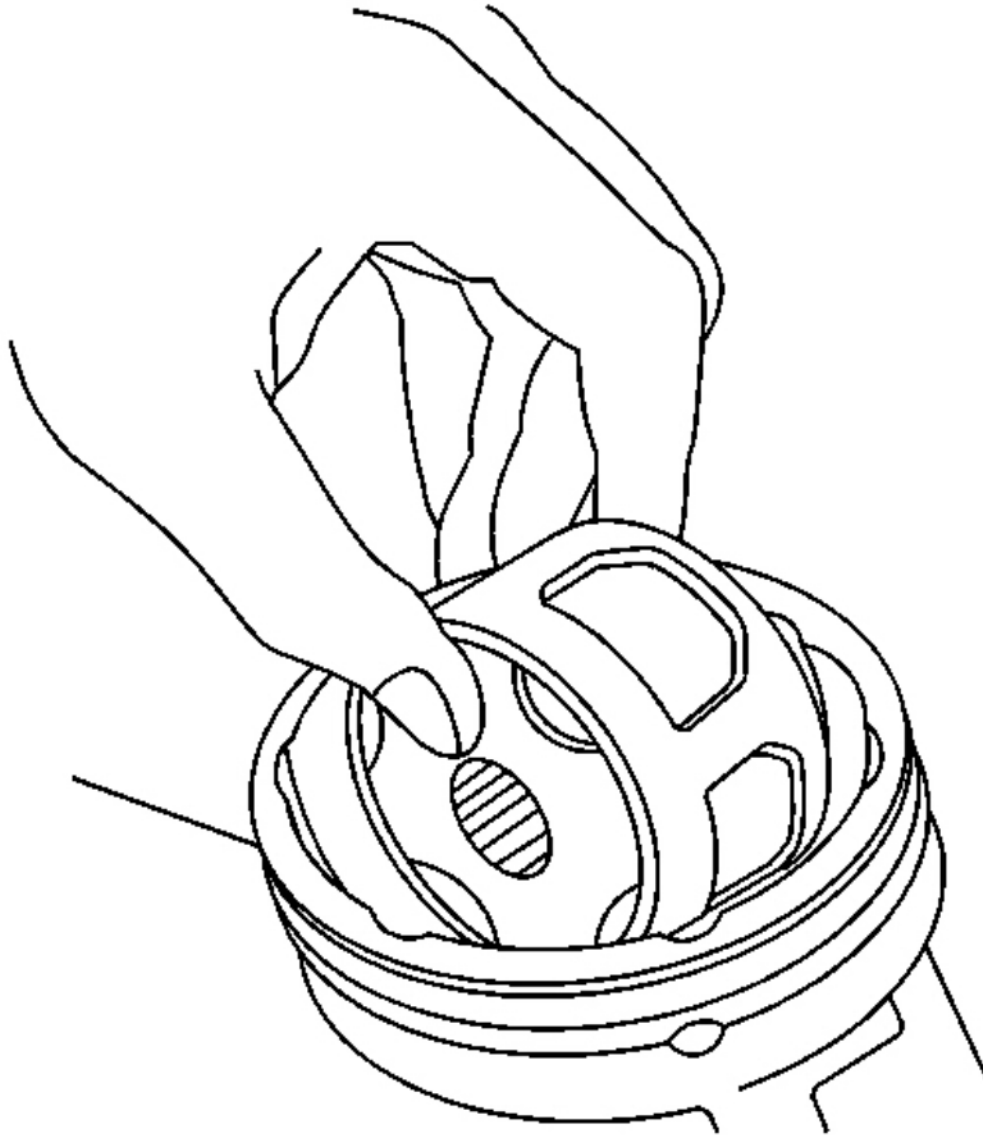


Fig. 106: Positioning Cage & Inner Race 90 Degrees To Centerline Of Outer Race
Courtesy of GENERAL MOTORS CORP.

18. Position the cage and the inner race 90 degrees to the centerline of the outer race.
19. Align the cage windows with the lands of the outer race.
20. Lift to remove the cage and the inner race from the outer race.

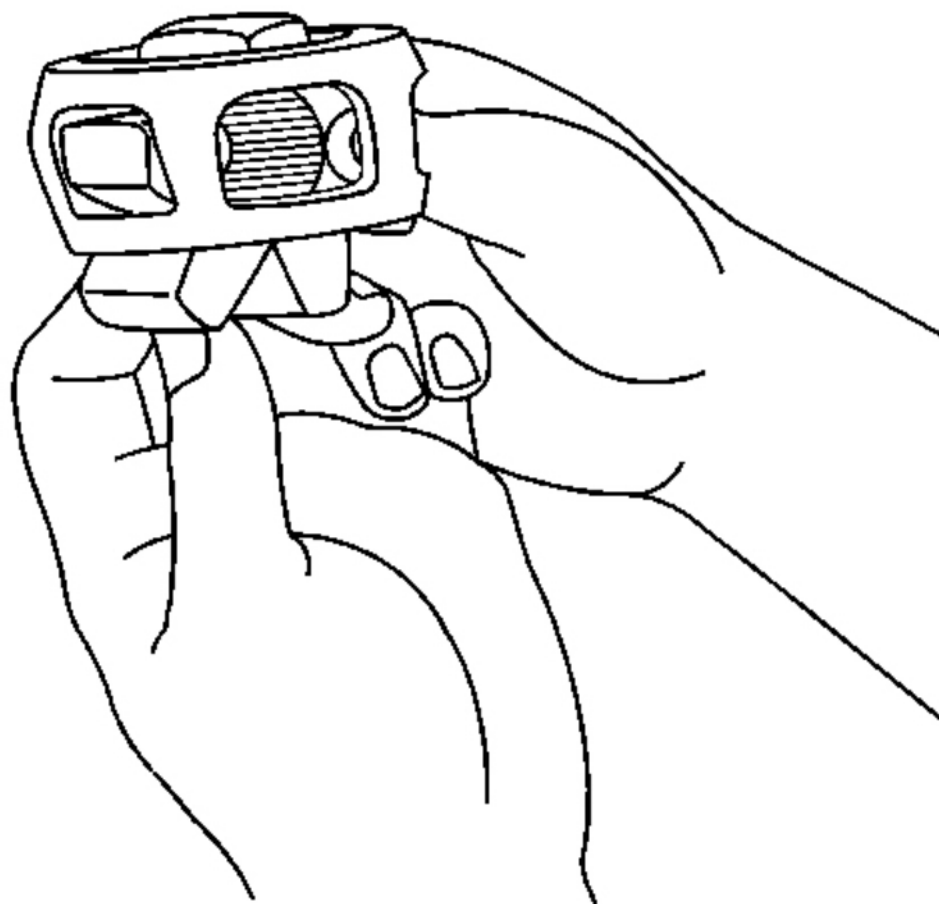


Fig. 107: Positioning Cage So Larger Radius Corners Of Cage Windows Are Up
Courtesy of GENERAL MOTORS CORP.

21. Position the cage and inner race so that the larger radius corners of the cage windows are up.
22. Rotate the inner race 90 degrees to the centerline of the cage.
23. Align the lands of the inner race with the windows of the cage.
24. Insert an inner race land into a cage window.
25. Pivot the inner race down and remove it from the cage.

IMPORTANT: All traces of old grease and any contaminates must be removed.

26. Clean the following parts thoroughly with clean solvent:

- The inner race
- The outer race
- The cage
- The balls
- The axle shaft exposed end

27. Thoroughly air dry all of the parts.

28. Inspect the following parts for damage and/or wear:

- The inner race
- The outer race
- The cage
- The balls
- The axle shaft exposed end

Assembly Procedure

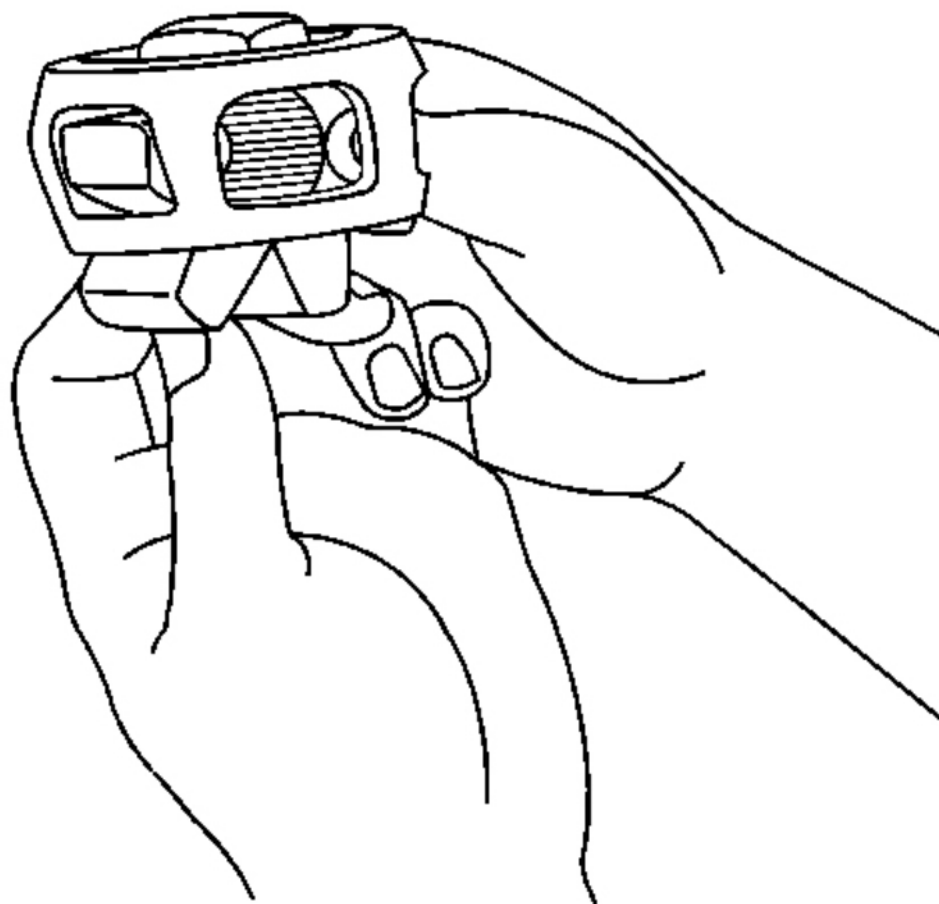


Fig. 108: Positioning Cage So Larger Radius Corners Of Cage Windows Are Up
Courtesy of GENERAL MOTORS CORP.

1. Position the cage so the larger radius corners of the cage windows are up.
2. Position the inner race 90 degrees to the centerline of the cage.
3. Begin to insert the inner race up through the bottom of the cage.
4. Align a land of the inner race to a window of the cage.
5. Insert the inner race land into the cage window.
6. Rotate the remainder of the inner race into the cage.
7. Rotate the inner race within the cage so that the grooved surface of the inner race is facing

up.

IMPORTANT: Ensure that the inner race is fully assembled into the cage.

8. Align the inner race ball tracks with the cage windows.

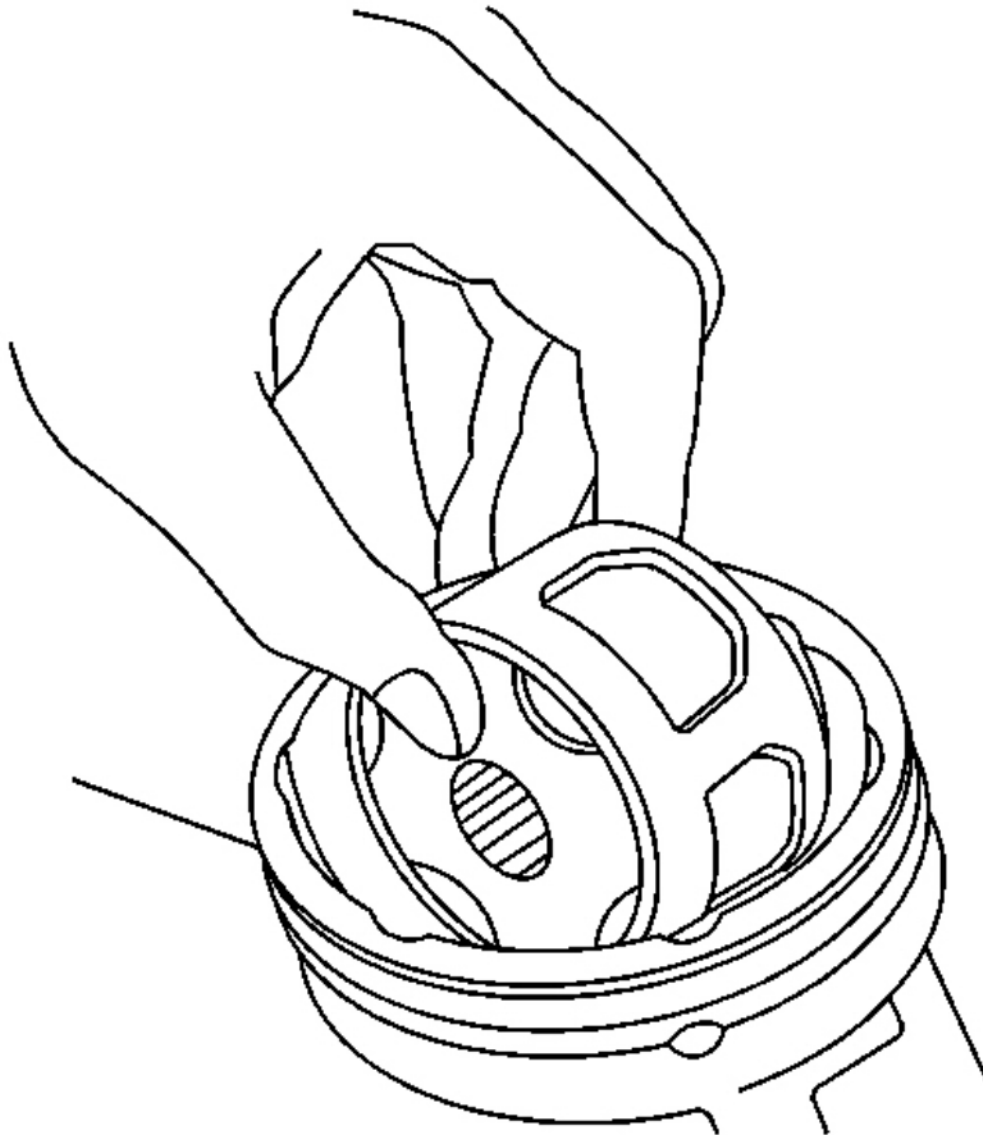


Fig. 109: Positioning Cage & Inner Race 90 Degrees To Centerline Of Outer Race
Courtesy of GENERAL MOTORS CORP.

9. Wrap a shop towel around the joint outer race splined shaft.
10. Place the outer race vertically in a bench vise.
11. Position the cage and inner race 90 degrees to the centerline of the outer race.
12. Align 2 cage windows at 0 and 180 degrees, within the outer race.

Rotate the inner race and cage assembly downward in the vertical plane.

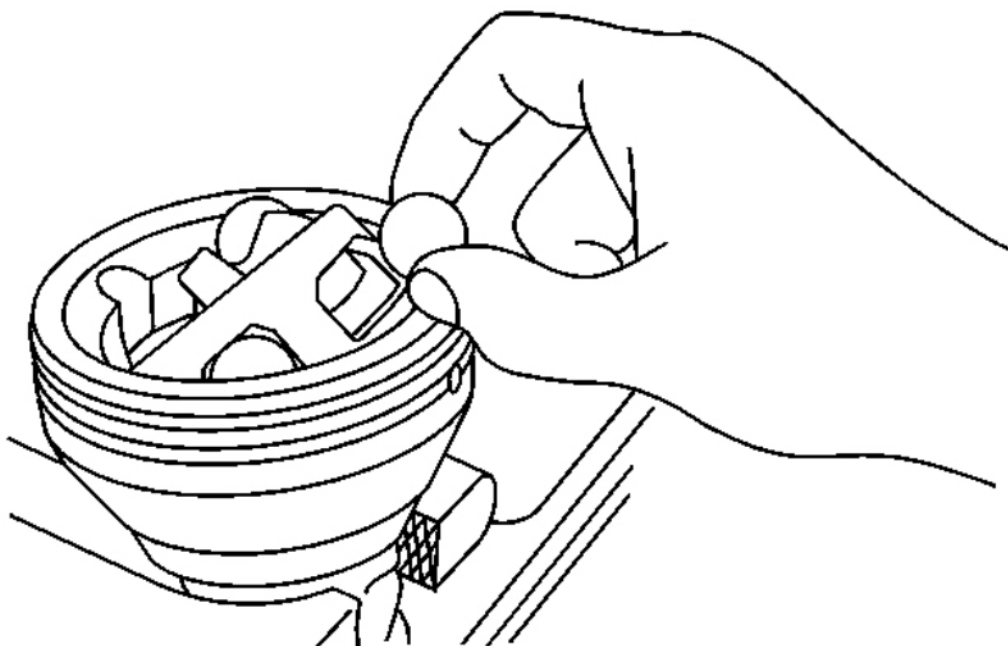


Fig. 110: Removing/Install Ball From Cage & Inner Race
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The inner race ring groove must be positioned down.

13. Position the cage and inner race so they are level.
14. Align the cage windows and inner race ball tracks with the outer race ball tracks.
15. Position a cage window and inner race ball track for ball installation.

1. Press down on the cage following one of the outer race ball tracks. The opposing cage window and inner race ball track will be accessible for ball installation.
2. After installing the first ball, use a brass drift and a hammer to tap gently on the cage, in order to drive the cage and inner race down completely.

IMPORTANT: No gap should exist between the ball and the inner race ball track.

16. Insert a ball through the cage window onto the inner race ball track.

Tap the ball lightly with a plastic tipped hammer.

17. Position the cage and inner race so they are level.

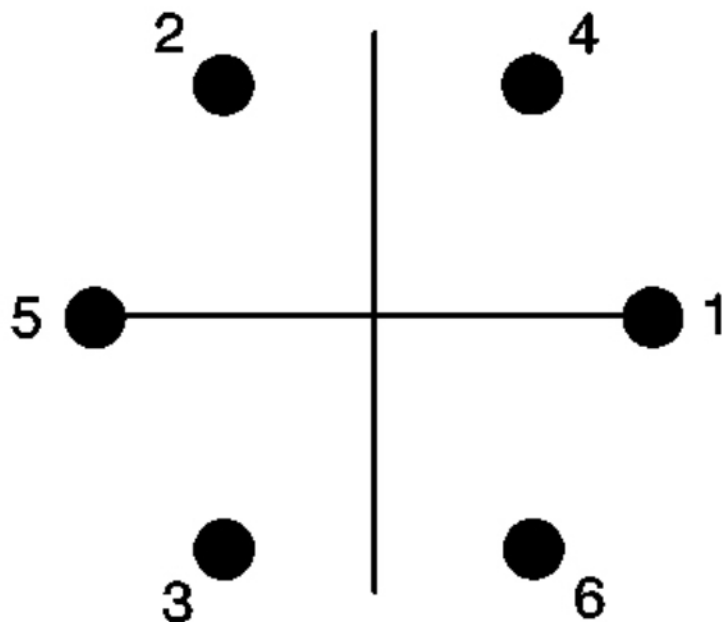


Fig. 111: View Of Ball Removal/Installation Sequence
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The ball installation sequence must be followed as shown.

18. Repeat steps 17 through 19 in the installation sequence as shown, until all of the balls are installed.

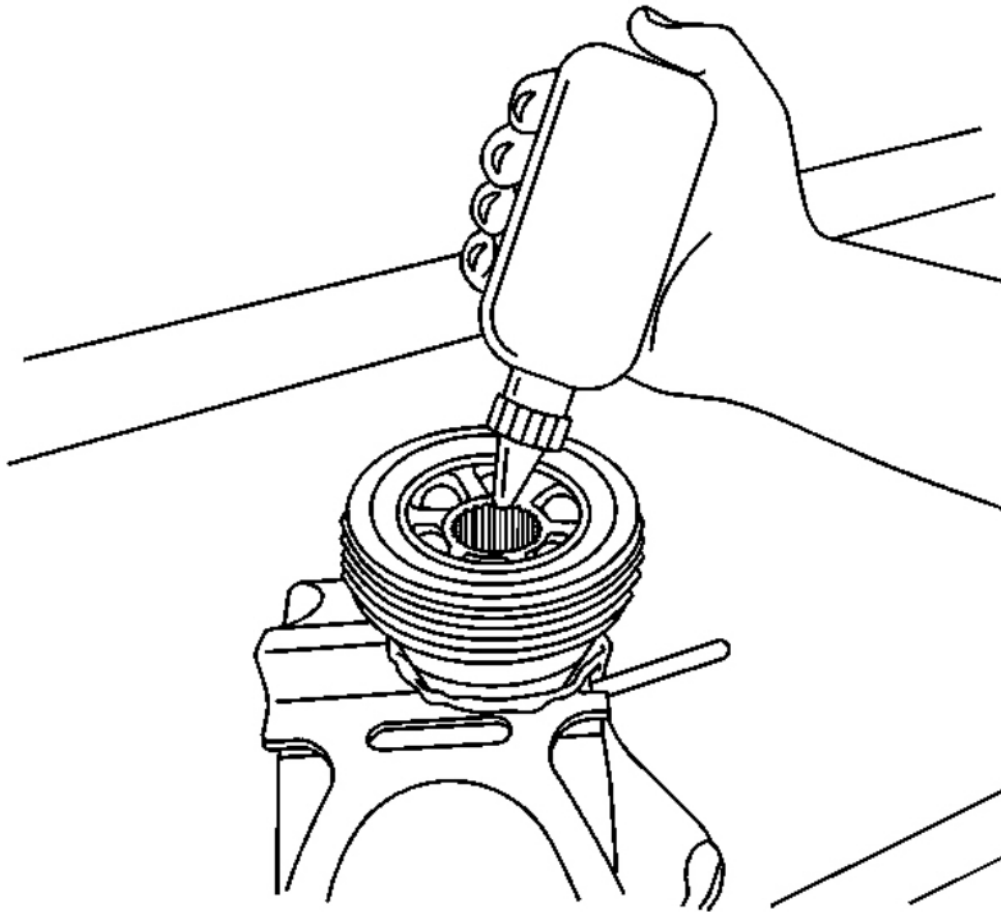


Fig. 112: Applying Grease To Outer Joint
Courtesy of GENERAL MOTORS CORP.

19. Insert approximately 60 percent of the grease from the service kit into the outer joint.
 1. Spread 60 percent of the grease onto the ball tracks, the balls, the cage and the inner race.
 2. Spread the remainder of the grease into the bottom of the outer race.
20. Remove the outer joint from the bench vise.

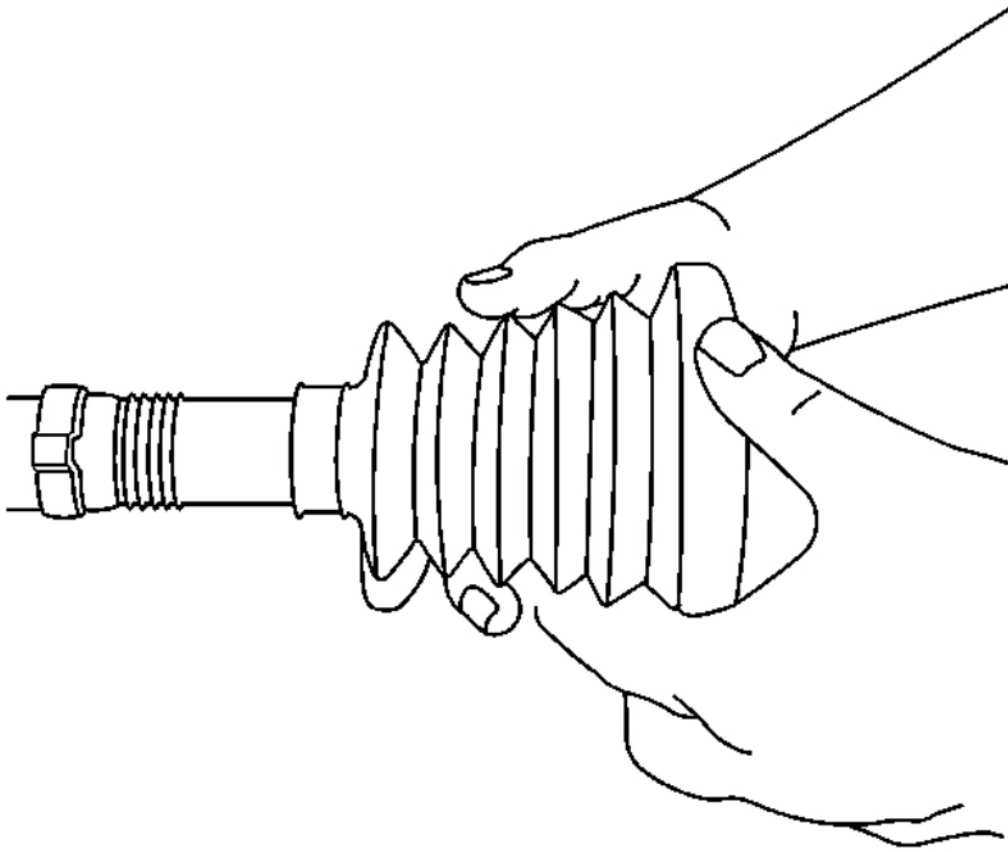


Fig. 113: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

21. Wrap a shop towel around the axle shaft.
22. Place the wheel drive shaft horizontally in a bench vise.
23. Install a new small seal retaining clamp onto the axle shaft.
24. Install the seal onto the axle shaft.

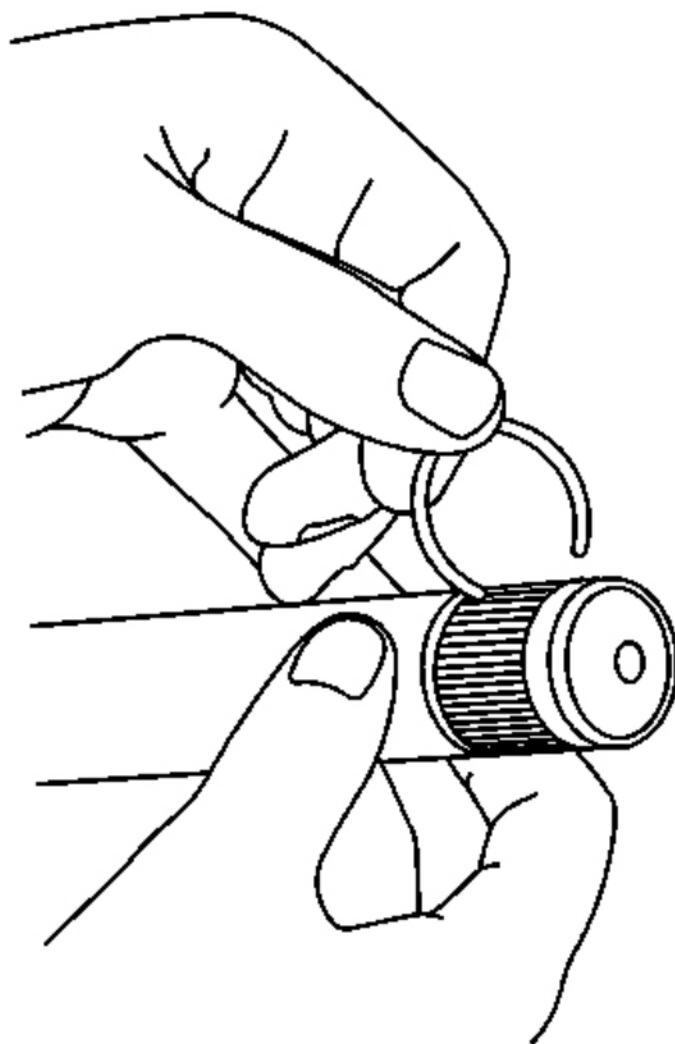


Fig. 114: View Of Axle Shaft Retaining Ring
Courtesy of GENERAL MOTORS CORP.

25. Install a new retaining ring to the axle shaft.

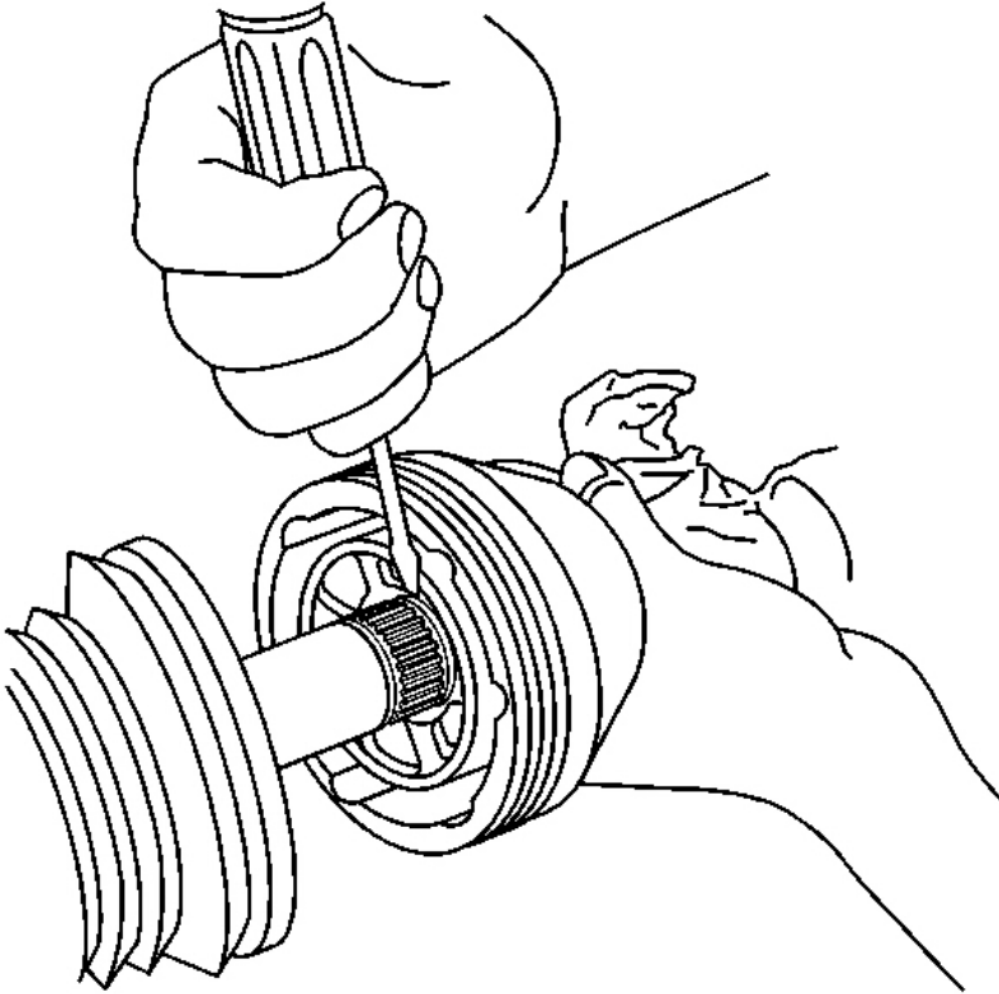


Fig. 115: Compressing Axle Shaft Ring Spacer
Courtesy of GENERAL MOTORS CORP.

26. Position the outer joint horizontally.
27. Engage the inner race splines onto the axle shaft splines.
28. Compress the axle shaft ring spacer.
 1. Press the end of the retaining ring, using a flat-bladed tool, into the axle shaft groove while firmly pressing the inner joint onto the axle shaft.
 2. Continue to work around the retaining ring until it is compressed.

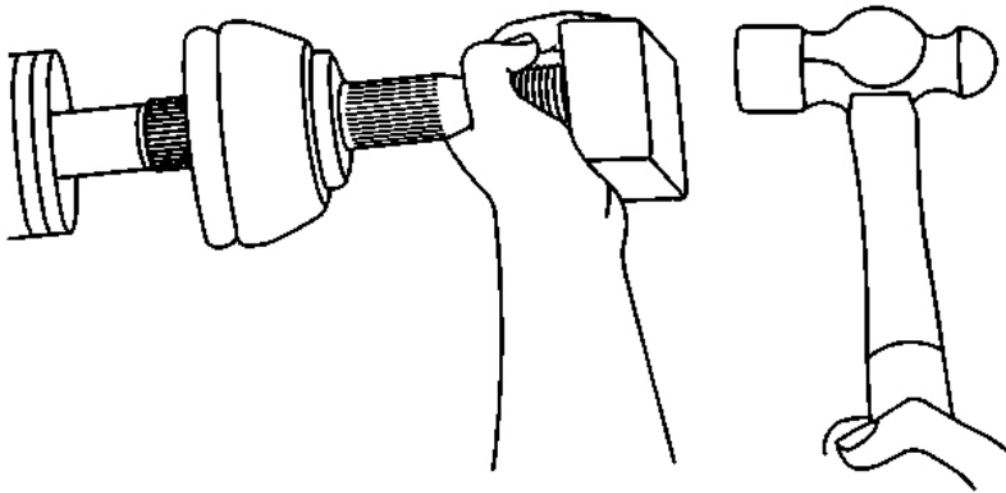


Fig. 116: Installing Joint To Axle Shaft
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The axle shaft and inner race must be fully seated to each other.

29. Install the inner joint to the axle shaft.
 1. Position a wood block over the end of the inner joint threaded shaft.
 2. Use a hammer to drive the inner joint onto the shaft.
 3. Continue to drive the inner joint until the inner joint seats fully onto the axle shaft.

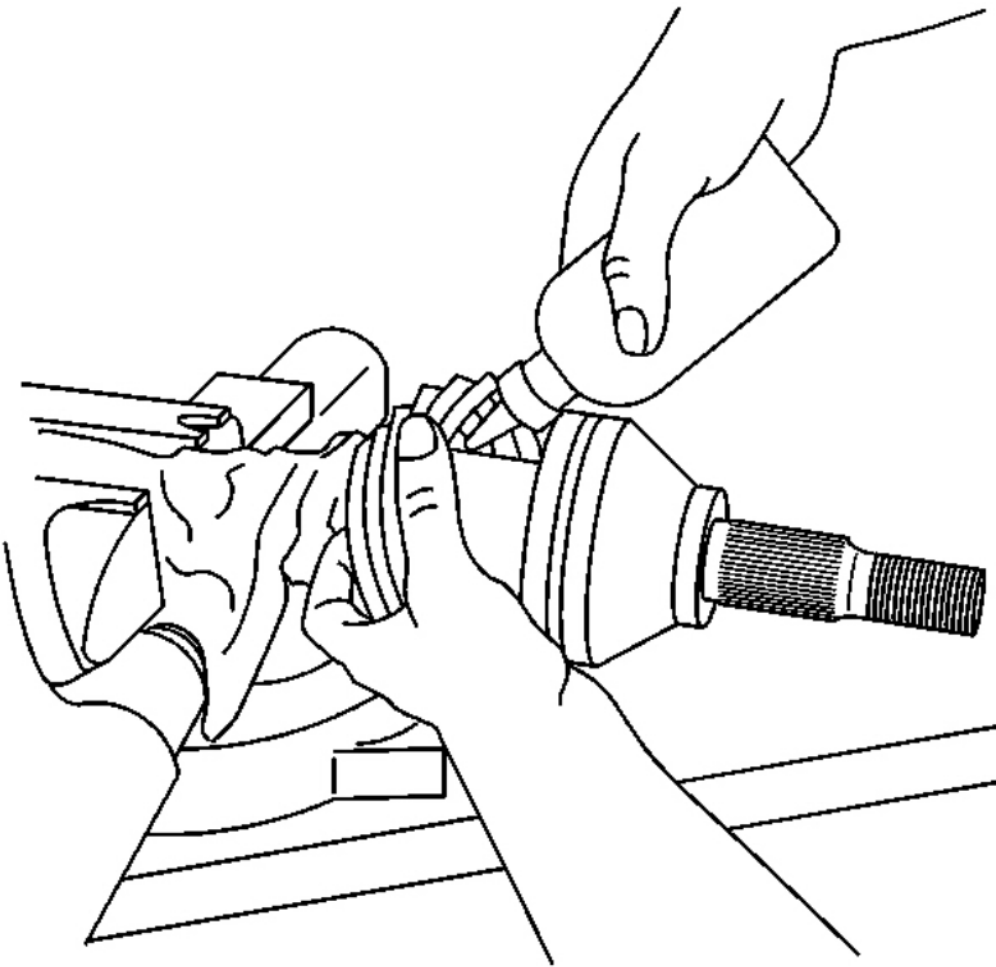


Fig. 117: Inserting Remaining Grease From Service Kit Into Seal
Courtesy of GENERAL MOTORS CORP.

30. Insert the remaining grease from the service kit into the seal.

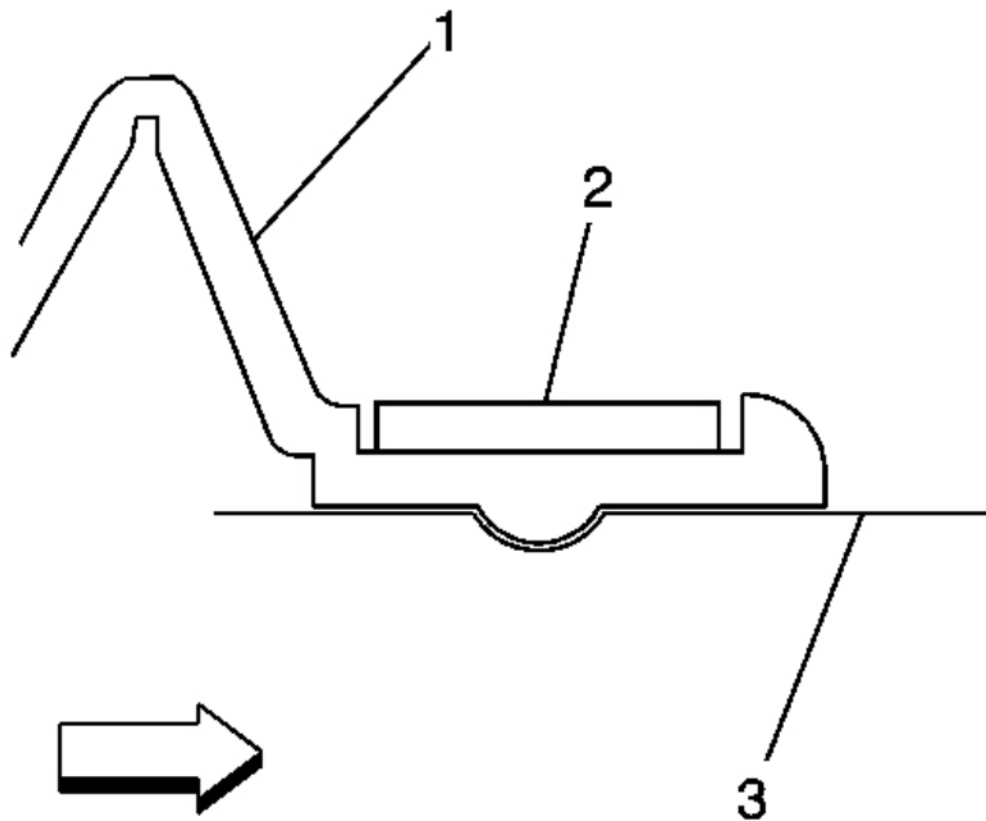


Fig. 118: Inner Joint Seal, Small Seal Clamp, & Inner Joint Seal Groove
Courtesy of GENERAL MOTORS CORP.

31. Position the small seal retaining clamp (2) into the seal boot groove.
32. Position the seal and small retaining clamp to the axle shaft (3) as shown.

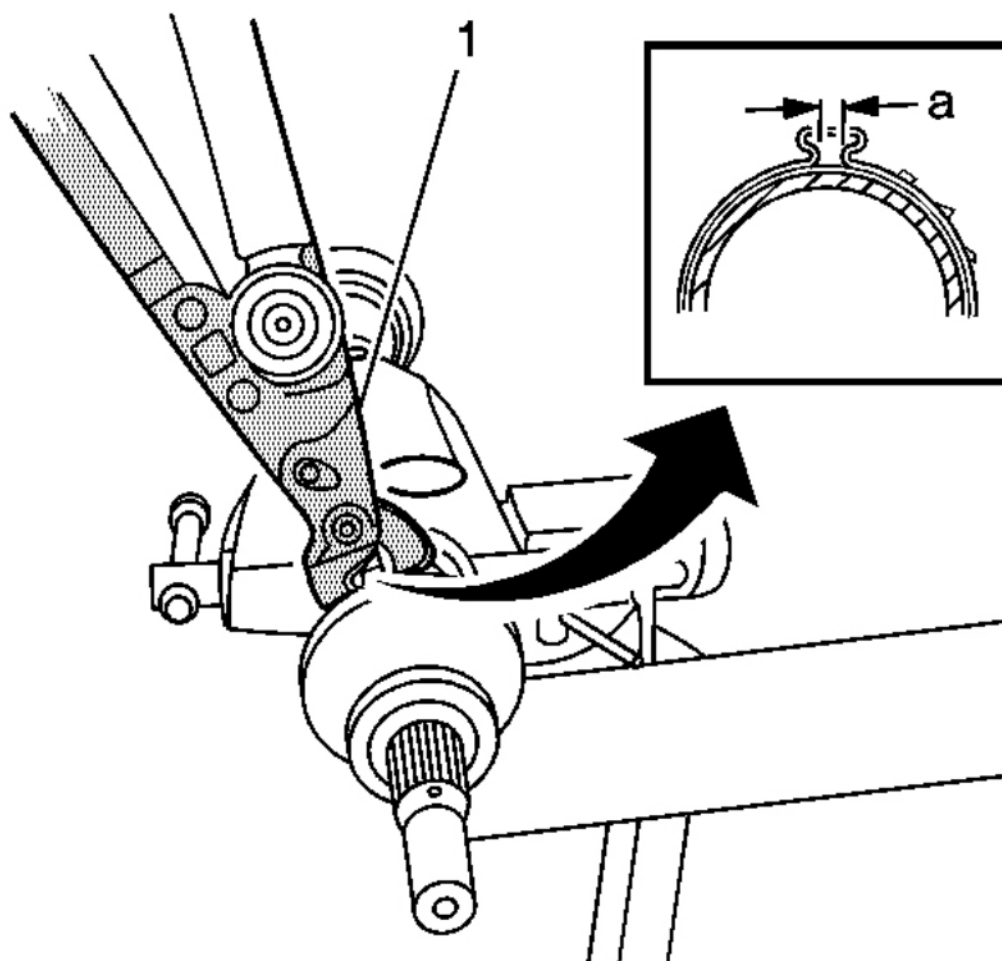


Fig. 119: Measuring Base Clamp Gap Width
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

33. Using the **J 42572** (1), crimp the small seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the small seal clamp until the base of the omega shape has a gap of 1 mm (0.039 in).

The clamping hold time must be no less than 2 seconds.

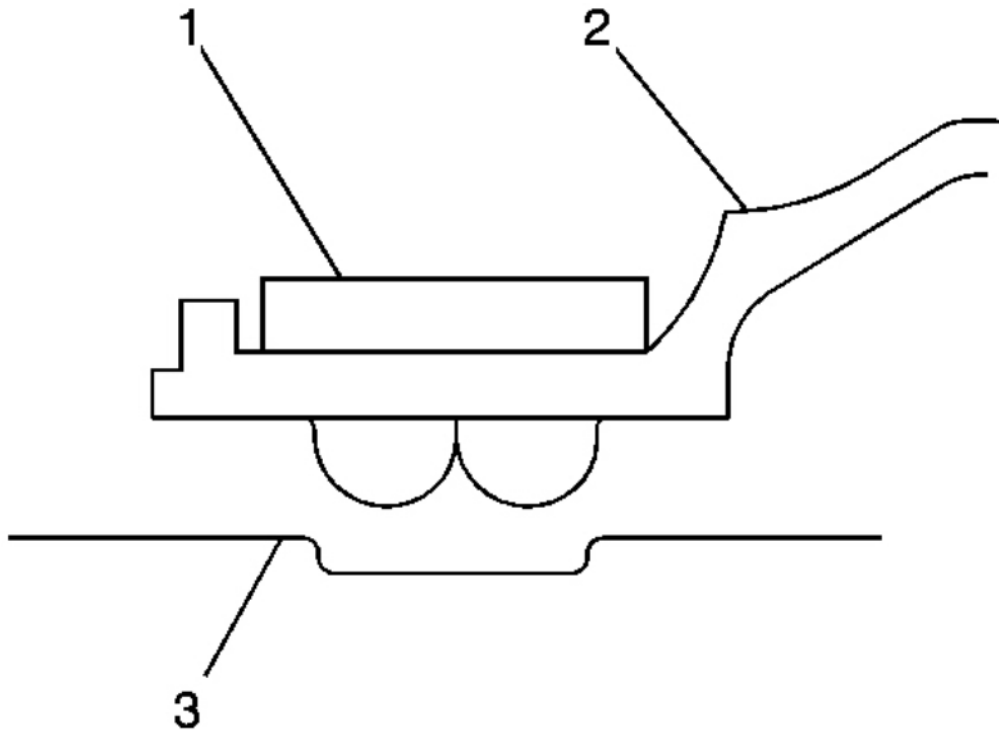


Fig. 120: View Of Large Seal Retaining Clamp, Seal & Boot Groove
Courtesy of GENERAL MOTORS CORP.

34. Position the large seal retaining clamp (1) onto the seal (2).
35. Position the seal and large retaining clamp to the joint outer race (3) as shown.

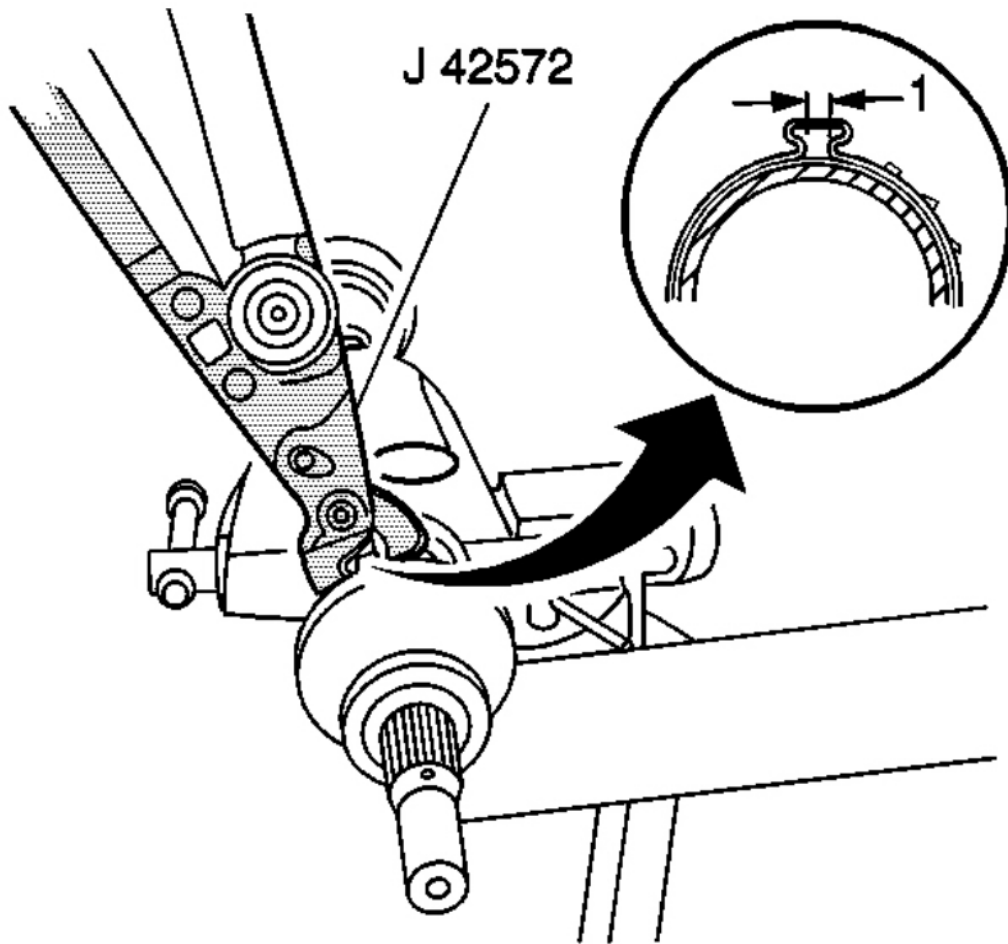


Fig. 121: Using J 42572 To Crimp Seal Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal must not be dimpled, stretched, or otherwise deformed.

36. Inspect the seal for proper shape.

If the seal is not shaped correctly, equalize the pressure in the seal by lifting the seal edge slightly and shape the seal properly by hand.

37. Inspect the seal for damage.

If the seal has been cut or punctured during assembly, you must discard and replace the seal.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

38. Using the **J 42572** , crimp the large seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the large seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

The clamping hold time must be no less than 2 seconds.

39. Inspect the outer joint for smooth operation. This will also distribute the grease within the joint.
1. Hold the wheel drive shaft vertically, with the outer joint at the bottom.
 2. Rotate the wheel drive shaft 4 or 5 times in a circular motion.
 3. Install the wheel drive shaft. Refer to **Wheel Drive Shaft Replacement - Rear**.

WHEEL DRIVE SHAFT OUTER JOINT AND SEAL REPLACEMENT - REAR (RWD)

Tools Required

J 42572 Drive Shaft Seal Clamp Pliers. See **Special Tools and Equipment**.

Disassembly Procedure

This procedure is to be performed only after the wheel drive shaft has been removed from the vehicle. Refer to **Wheel Drive Shaft Replacement - Rear**.

1. Wrap a shop towel around the axle shaft.
2. Place the wheel drive shaft horizontally in a bench vise.
3. Using a side cutter or other suitable tool, remove the large seal retaining clamp from the outer joint seal and discard the clamp.
4. Using a side cutter or other suitable tool, remove the small seal retaining clamp from the outer joint seal and discard the clamp.
5. Separate the seal from the joint outer race at the large diameter end.
6. Slide the seal away from the joint face.
7. Wipe the grease from the face of the joint inner race, cage, balls, etc.

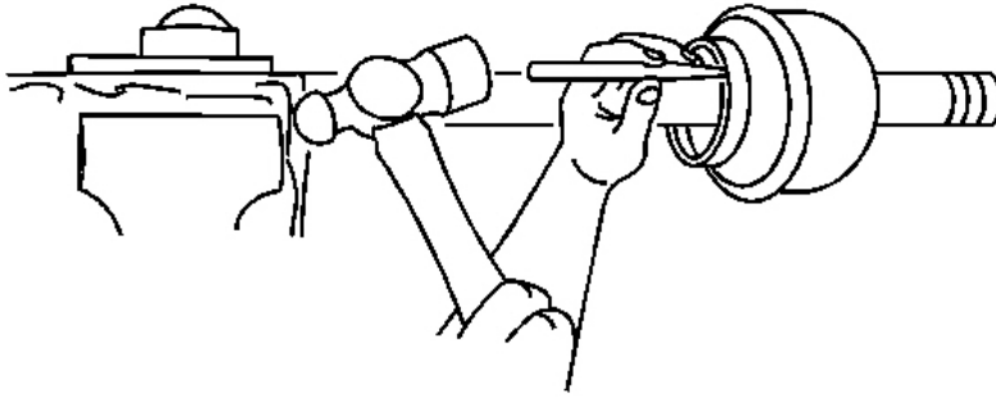


Fig. 122: Removing Inner Joint Assembly From Wheel Drive Shaft
Courtesy of GENERAL MOTORS CORP.

8. Remove the outer joint from the axle shaft using the following steps:
 1. Hold the outer joint housing horizontally to the shaft.
 2. Position a brass drift on the inner race.
 3. Strike the brass drift with a hammer to compress the axle shaft retaining clip.
 4. Continue to strike the brass drift in order to remove the outer joint from the axle shaft.

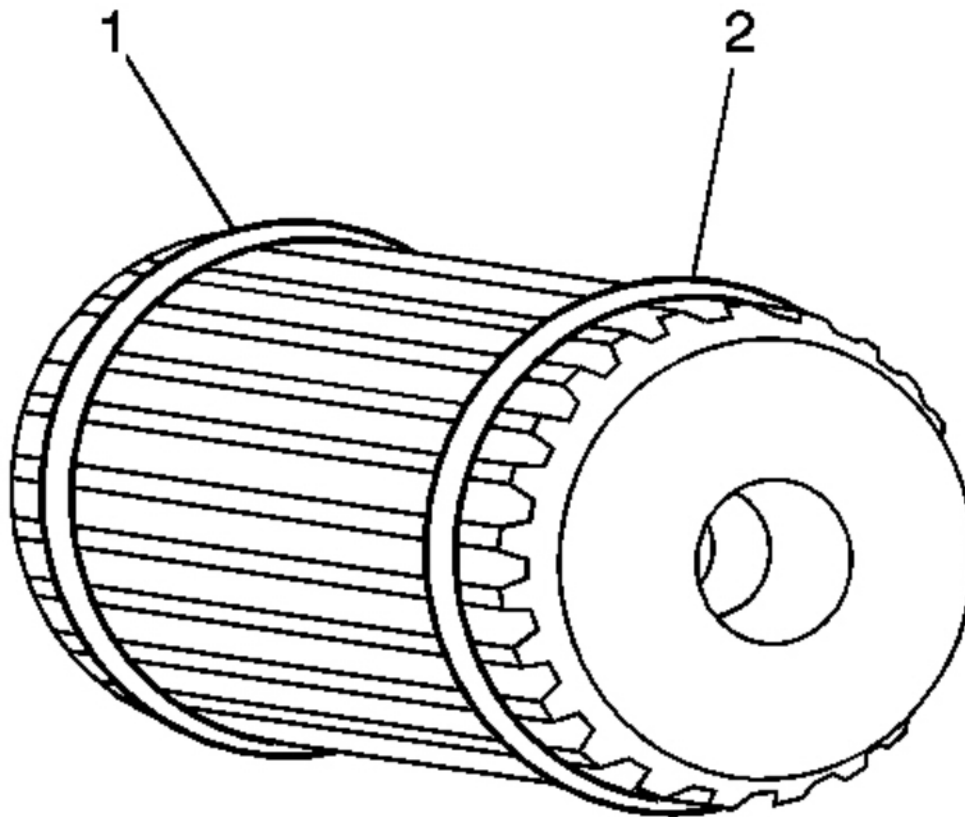


Fig. 123: View Of Ring Grooves

Courtesy of GENERAL MOTORS CORP.

9. Remove and discard the narrow retaining ring from the outer narrow ring groove (2) at the end of the wheel drive shaft.
10. Remove and discard the wide spacer ring from the wide ring groove of the wheel drive shaft (1).

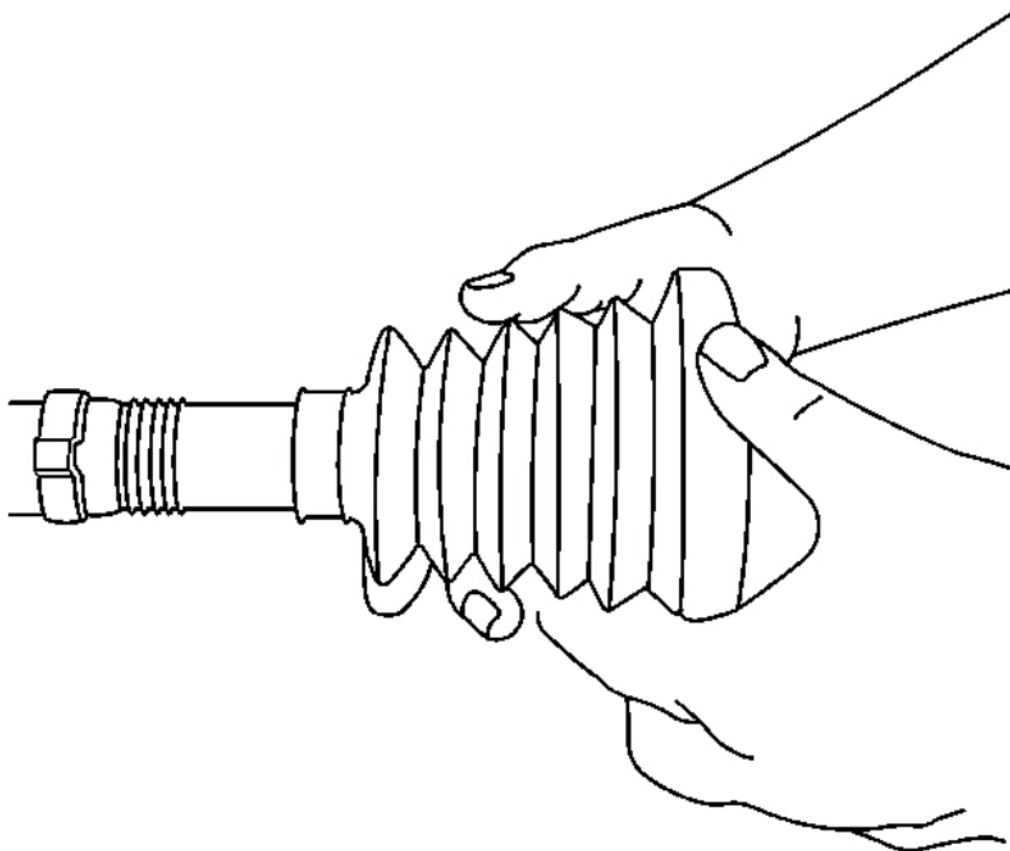


Fig. 124: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

11. Remove the seal from the axle shaft.
12. Remove the wheel drive shaft from the vise.
13. Wrap a shop towel around the joint outer race splined shaft.
14. Place the outer race vertically in a bench vise.

IMPORTANT: All traces of old grease and any contaminates must be removed.

15. Clean the following parts thoroughly with clean solvent:
 - The inner race

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2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX

- The outer race
- The cage
- The balls
- The axle shaft exposed end

16. Thoroughly air dry all of the parts.

17. Inspect the following parts for damage and/or wear:

- The inner race
- The outer race
- The cage
- The balls
- The axle shaft exposed end

Assembly Procedure

1. Insert approximately 60 percent of the grease from the service kit into the outer joint.
 1. Spread the grease onto the ball tracks, the balls, the cage, and the inner race.
 2. Spread the remainder of the grease into the bottom of the outer race.
2. Remove the inner joint from the bench vise.

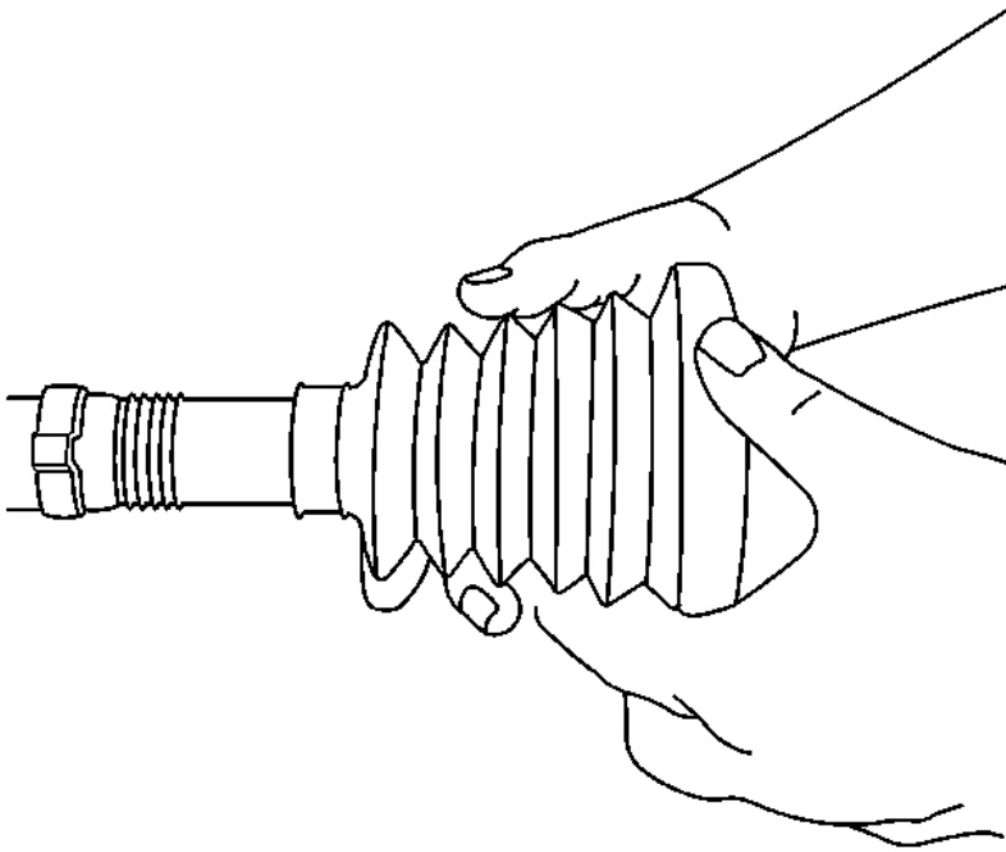


Fig. 125: Removing/Installing Axle Shaft Boot Seal
Courtesy of GENERAL MOTORS CORP.

3. Wrap a shop towel around the axle shaft.
4. Place the wheel drive shaft horizontally in a bench vise.
5. Install a new small seal retaining clamp onto the axle shaft.
6. Install the seal onto the axle shaft.

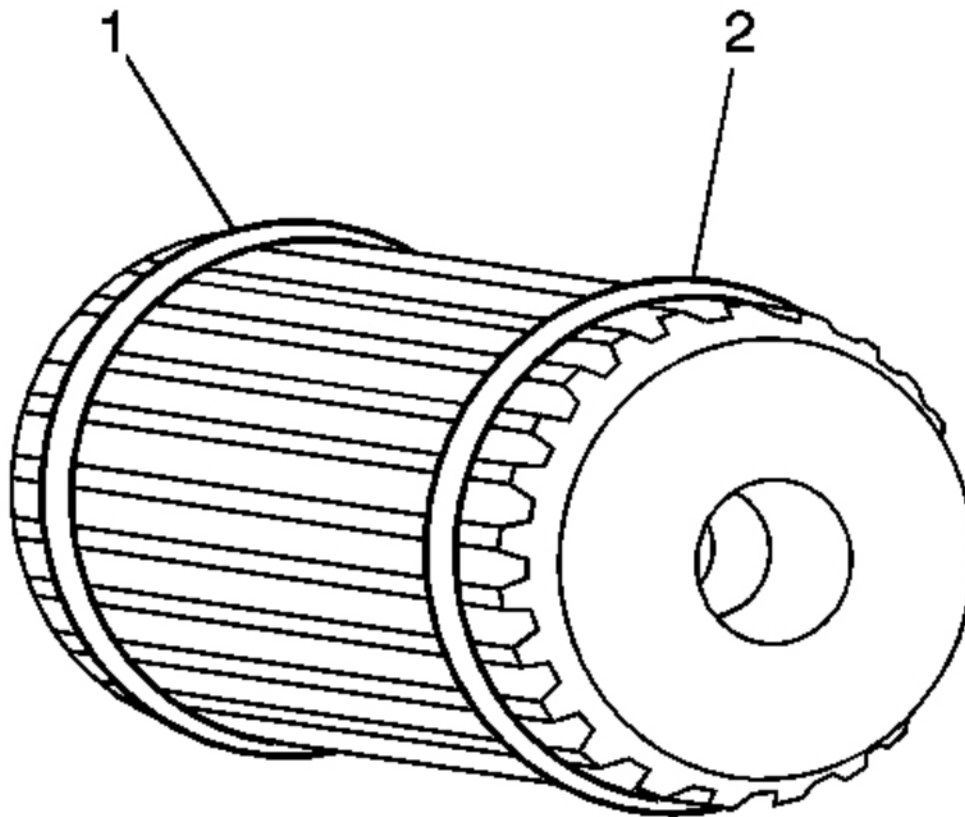


Fig. 126: View Of Ring Grooves

Courtesy of GENERAL MOTORS CORP.

7. Install the New narrow retaining ring to the outer narrow ring groove (2) at the end of the wheel drive shaft.
8. Install the New wide spacer ring to the wide ring groove of the wheel drive shaft (1).

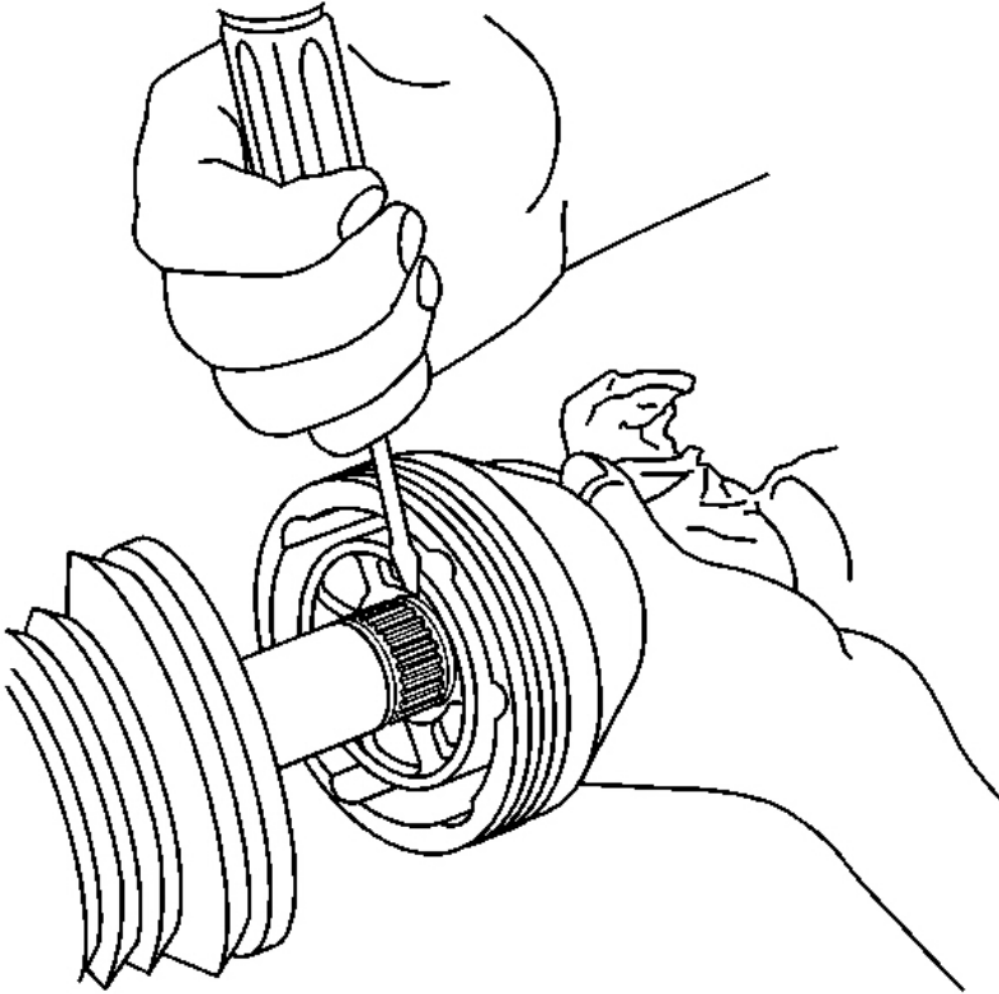


Fig. 127: Compressing Axle Shaft Ring Spacer
Courtesy of GENERAL MOTORS CORP.

9. Position the outer joint horizontally.
10. Engage the inner race splines onto the axle shaft splines.
11. Compress the axle shaft ring spacer.
 1. Press the end of the retaining ring, using a flat-bladed tool, into the axle shaft groove while firmly pressing the inner joint onto the axle shaft.
 2. Continue to work around the retaining ring, until it is compressed.

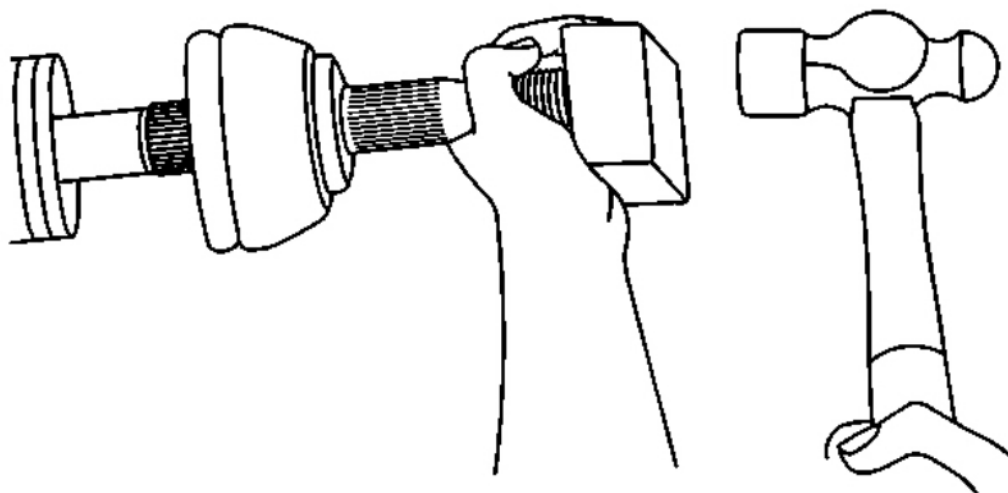


Fig. 128: Installing Joint To Axle Shaft
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The axle shaft and inner race must be fully seated to each other.

12. Install the outer joint to the axle shaft.
 1. Position a wood block over the end of the outer joint threaded shaft.
 2. Use a hammer to drive the outer joint onto the shaft.
 3. Continue to drive the outer joint until the inner joint seats fully onto the axle shaft.

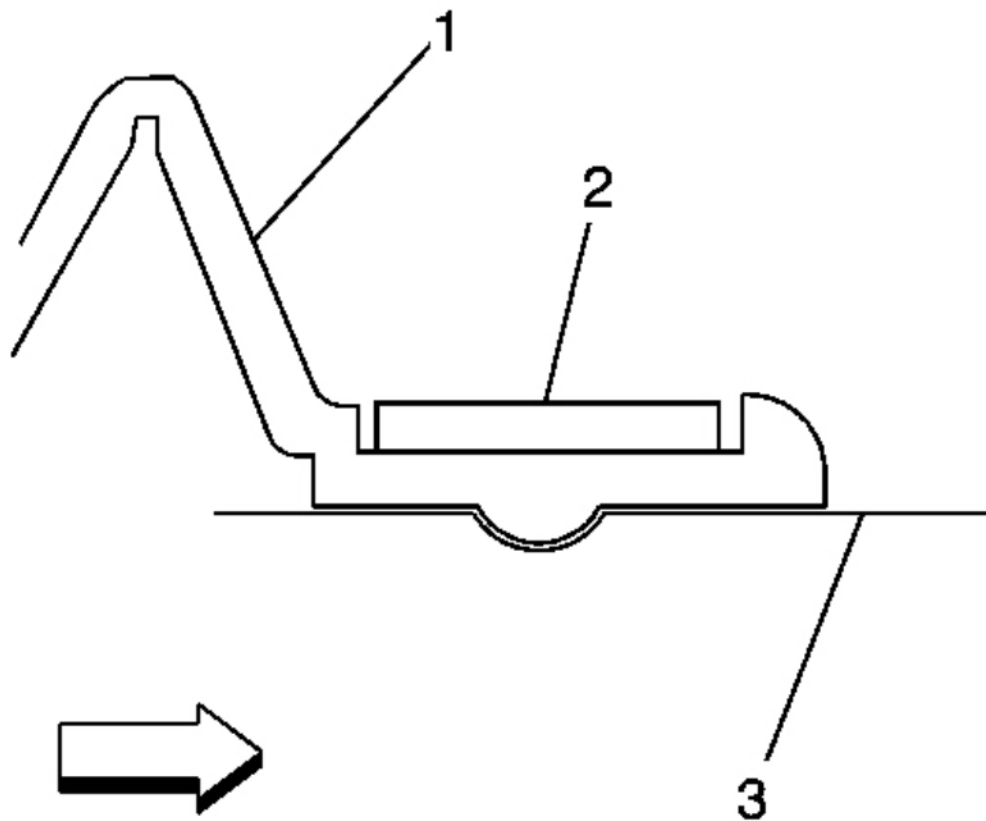


Fig. 129: Inner Joint Seal, Small Seal Clamp, & Inner Joint Seal Groove
Courtesy of GENERAL MOTORS CORP.

13. Position the small seal retaining clamp (2) into the seal boot groove.
14. Position the seal and small retaining clamp to the axle shaft boot groove (3) as shown.

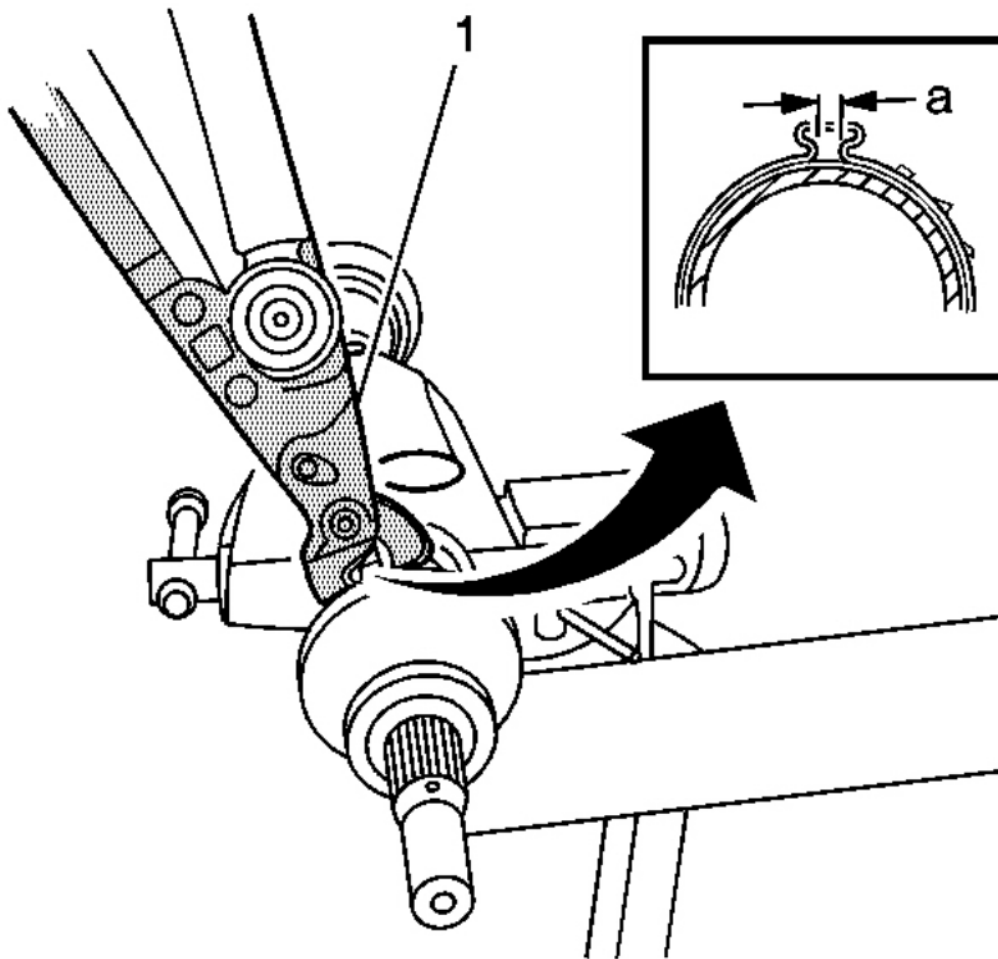


Fig. 130: Measuring Base Clamp Gap Width
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

15. Using the **J 42572** (1), crimp the small seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the small seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

The clamping hold time must be no less than 2 seconds.

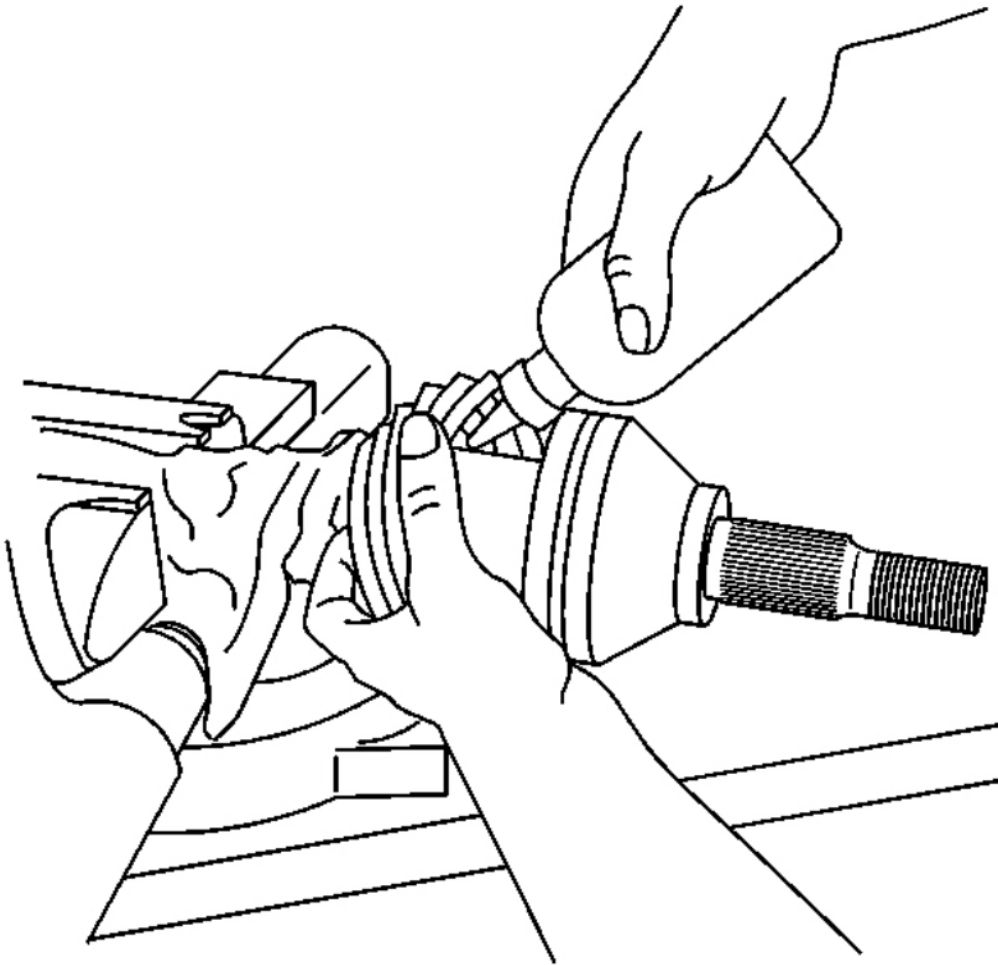


Fig. 131: Inserting Remaining Grease From Service Kit Into Seal
Courtesy of GENERAL MOTORS CORP.

16. Insert the remaining grease from the service kit into the seal.

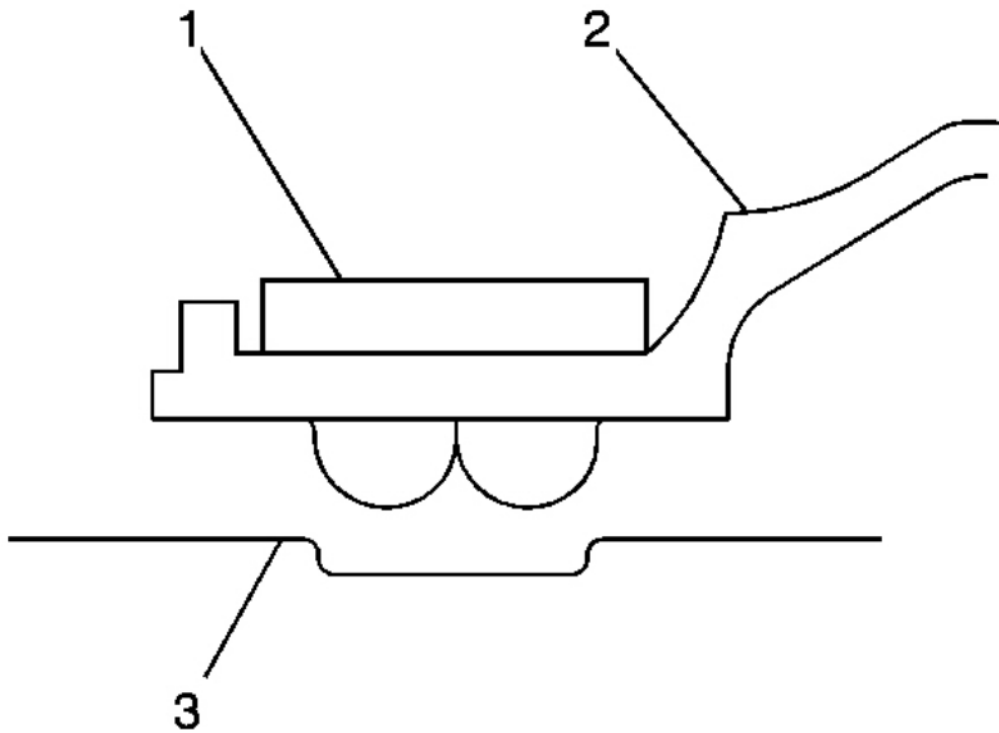


Fig. 132: View Of Large Seal Retaining Clamp, Seal & Boot Groove
Courtesy of GENERAL MOTORS CORP.

17. Position the large seal retaining clamp (1) onto the seal (2).
18. Position the seal and large retaining clamp to the joint outer race (3) as shown.

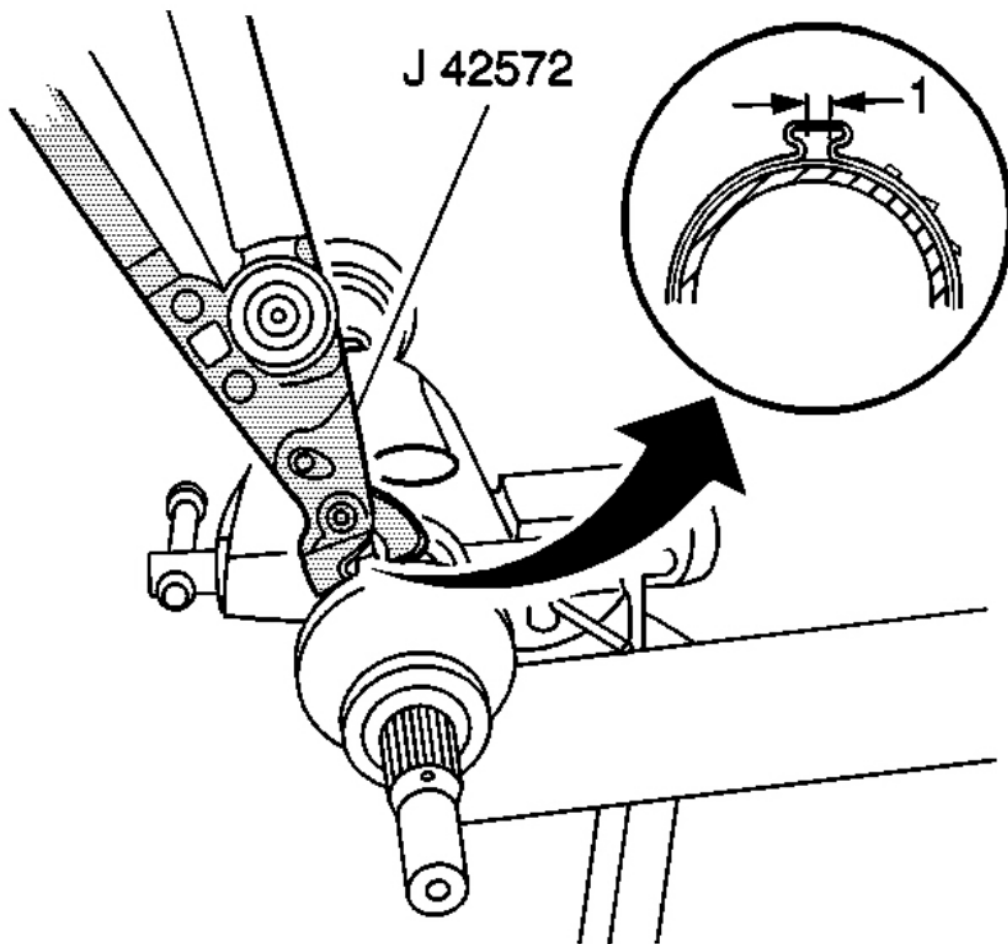


Fig. 133: Using J 42572 To Crimp Seal Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The seal must not be dimpled, stretched, or otherwise deformed.

19. Inspect the seal for proper shape.

If the seal is not shaped correctly, equalize the pressure in the seal by lifting the seal edge slightly and shape the seal properly by hand.

20. Inspect the seal for damage.

If the seal has been cut or punctured during assembly, you must discard and replace the seal.

IMPORTANT: The seal retaining clamp must not be over-tightened or under-tightened.

21. Using the **J 42572** , crimp the large seal retaining clamp. See **Special Tools and Equipment**.

Tighten: Tighten the large seal clamp until the base of the omega ohms shape has a gap of 1 mm (0.039 in).

The clamping hold time must be no less than 2 seconds.

22. Inspect the outer joint for smooth operation. This will also distribute the grease within the joint.
1. Hold the wheel drive shaft vertically, with the outer joint at the bottom.
 2. Rotate the wheel drive shaft 4 or 5 times in a circular motion.
 3. Install the wheel drive shaft. Refer to **Wheel Drive Shaft Replacement - Rear**.

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.

Seal and Clamp

Rear wheel drive shaft assemblies use inboard and outboard joint seals made of thermoplastic material, and 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.

IMPORTANT: The seals should be protected from sharp tools and from the sharp edges of surrounding components. Any damage to the seals 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 seal 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.

The function of the clamps is to provide a leak proof connection at the housing and the axle shaft for the inboard and outboard joints.

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

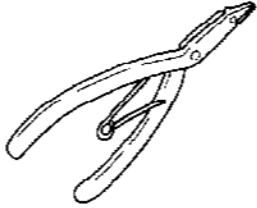
SPECIAL TOOLS

Special Tools

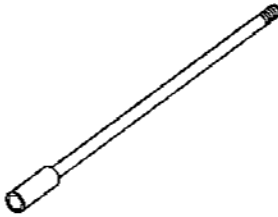
Illustration	Tool Number/ Description
	J 8059 Snap Ring Pliers

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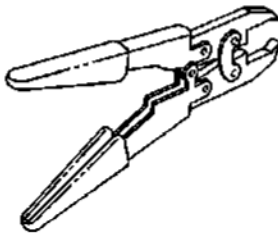
2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX



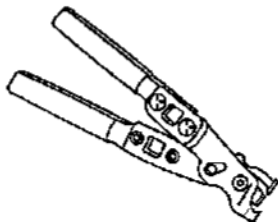
J 2619-01
Slide Hammer With Adapter



J 29794
Extension



J 35566
Drive Axle Seal Clamp Pliers



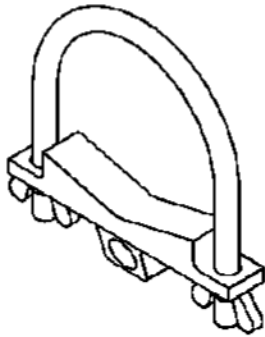
J 42572
Drive Shaft Seal Clamp Pliers

2004 Cadillac SRX

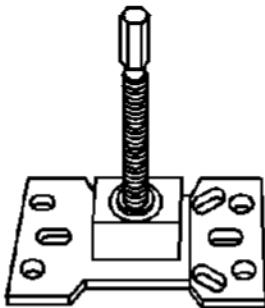
2004 DRIVELINE/AXLE Wheel Drive Shafts - SRX



J 44394
Seal Protector



J 45341
Axle Shaft Puller



J 45859
Wheel Hub Remover