

2004 Cadillac SRX

2004 DRIVELINE/AXLE Propeller Shaft - SRX

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Propeller Shaft - SRX

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Center Bearing Mounting Bolt	50 N.m	37 lb ft
Heat Shield	8 N.m	71 lb in
Rubber Couplings to Flanges - Rear	85 N.m	63 lb ft
Propeller Shaft C/V Flange Bolts - Front	30 N.m	22 lb ft
Propeller Shaft C/V Flange Bolts - Rear	30 N.m	22 lb ft

SEALERS, ADHESIVES, AND LUBRICANTS

Sealers, Adhesives, and Lubricants

Application	Type of Material	GM Part Number	
		United States	Canada
Centering Bushing	Lubricant	1051344	993037
Propeller Shaft Splines	Lubricant	12377985	8891242
Propeller Shaft-to-Flange Bolts	Threadlocker	12345493	10953488

COMPONENT LOCATOR

DRIVELINE DISASSEMBLED VIEWS

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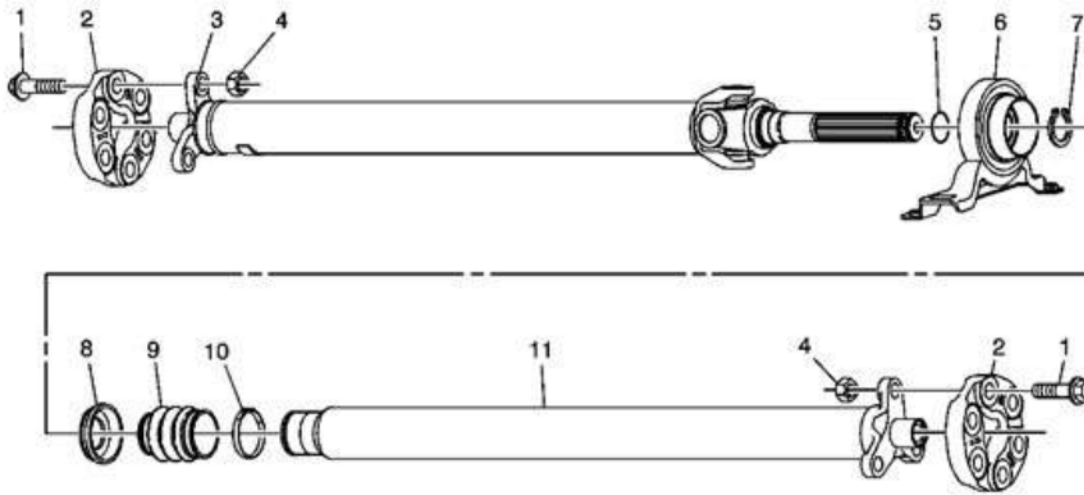


Fig. 1: Front & Rear Propeller Shaft (RWD) Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 1

Callout	Component Name
1	Mounting Flange Bolt
1	Mounting Flange Bolt
2	Mounting Flange
2	Mounting Flange
3	Propeller Shaft Rear Half
4	Mounting Flange Nut
4	Mounting Flange Nut
5	Propeller Shaft O-ring Seal
6	Center Support Bearing
7	Center Support Propeller Shaft Retaining Ring
8	Center Support Bearing Slinger
9	Dust Boot
10	Dust Boot Clamp
11	Propeller Shaft Front Half

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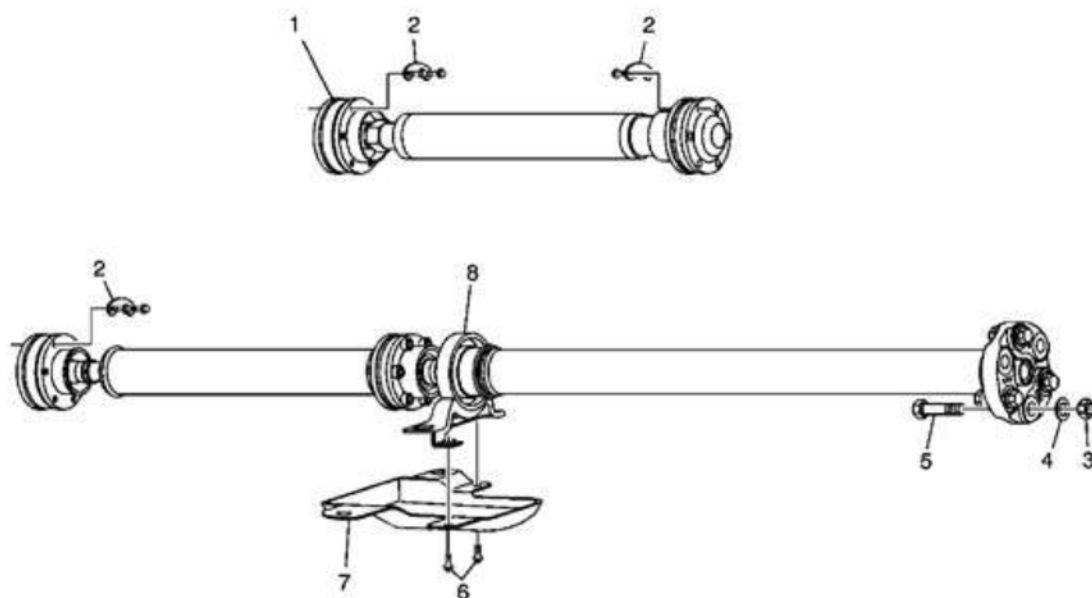


Fig. 2: Front & Rear Propeller Shaft (AWD) Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 2

Callout	Component Name
1	Front Propeller Shaft
2	Mounting Flange Bolt
2	Mounting Flange Bolt
2	Mounting Flange Bolt
3	Nut
4	Washer
5	Bolt
6	Heat Shield Bolts
7	Heat Shield
8	Center Bearing

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - PROPELLER SHAFT

Begin the system diagnosis by reviewing the system Description and Operation. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will

also help you determine if the condition described by the customer is normal operation. Refer to **Symptoms - Propeller Shaft** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

SYMPTOMS - PROPELLER SHAFT

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

Classifying the Symptom

Propeller Shaft symptoms can usually be classified into the following categories:

- Noises
- Vibrations

Noise related symptoms are diagnosed within the Propeller Shaft 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 Propeller Shaft.
- 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:

- **Universal Joint Noise**
- **Ping, Snap, or Click Noise**
- **Knock or Clunk Noise**
- **Scraping Noise**
- **Squeak Noise**
- **Shudder on Acceleration at Low Speed**

UNIVERSAL JOINT NOISE

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Universal Joint Noise (RWD)

Problem	Action
One or more of the universal joints are worn or damaged.	Replace the driveshaft complete.
One or more of the universal joints have lost lubricant.	Replace the driveshaft complete.
Rubber coupling bolts loose at transmission or axle flange.	Tighten the bolts to specifications. Refer to <u>Fastener Tightening Specifications</u> .
Bolts loose at driveshaft flange and coupling.	Tighten the bolts to specifications. Refer to <u>Fastener Tightening Specifications</u> .

PING, SNAP, OR CLICK NOISE

Ping, Snap, or Click Noise

Checks	Action
DEFINITION: A ping, snap or click is usually heard on initial load after the transmission is in gear, either in forward or reverse.	
The fixed yoke or the pinion yoke is loose.	Tighten the bolts and the pinion nut to specified torque. Refer to <u>Fastener Tightening Specifications</u> .
Loose rubber coupling	Tighten the bolts to specified torque. Refer to <u>Fastener Tightening Specifications</u> .

KNOCK OR CLUNK NOISE

Knock or Clunk Noise

Checks	Action
DEFINITION: Knocking or clunking noise occurs when operating the vehicle in high gear or coasting in neutral at 16 km/h (10 mph).	
C/V joint worn or loose/ripped boot	Replace the driveshaft complete.
The side gear hub counterbore in the differential is worn oversize.	Replace the differential case and/or the side gears. Refer to <u>Differential Replacement</u> in Rear Drive Axle.

SCRAPING NOISE

Scraping Noise

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Checks	Action
DEFINITION: A scraping noise occurs when driving the vehicle at various speeds.	
The pinion flange deflector or the center bearing is rubbing.	Correct the interference as necessary.
Center bearing heat shield	Correct the interference as necessary.
Exhaust pipe contact	Correct the interference as necessary.

SQUEAK NOISE

Squeak Noise

Checks	Action
DEFINITION: When driving the vehicle at various speeds a squeaking sound occurs.	
One or more of the universal joints have lost lubricant.	Replace the driveshaft complete.
C/V boot worn or torn	Replace the driveshaft complete.

SHUDDER ON ACCELERATION AT LOW SPEED

Shudder on Acceleration at Low Speed

Checks	Action
DEFINITION: When the vehicle is accelerating at low speed a shudder occurs.	
The driveline center bearing splined shaft angle is excessive or incorrectly set.	Determine if the driveline angle is incorrect then correct as necessary. Refer to <u>Diagnostic Starting Point - Vibration Diagnosis and Correction</u> in Vibration Diagnosis and Correction.
One or more of the universal joints are worn or damaged.	Replace the driveshaft complete.
Rubber coupling bolts loose	Tighten the bolts to specifications. Refer to <u>Fastener Tightening Specifications</u> .

REPAIR INSTRUCTIONS

PROPELLER SHAFT REPLACEMENT - FRONT

Removal Procedure

1. Raise and support vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

2. Remove the propeller shaft heat shield. Refer to Shield Replacement in Front Drive Axle.

IMPORTANT: Reference mark the location of the propeller shaft constant velocity (CV) joint to the transfer case flange.

3. Remove the propeller shaft CV joint-to-differential flange bolts.

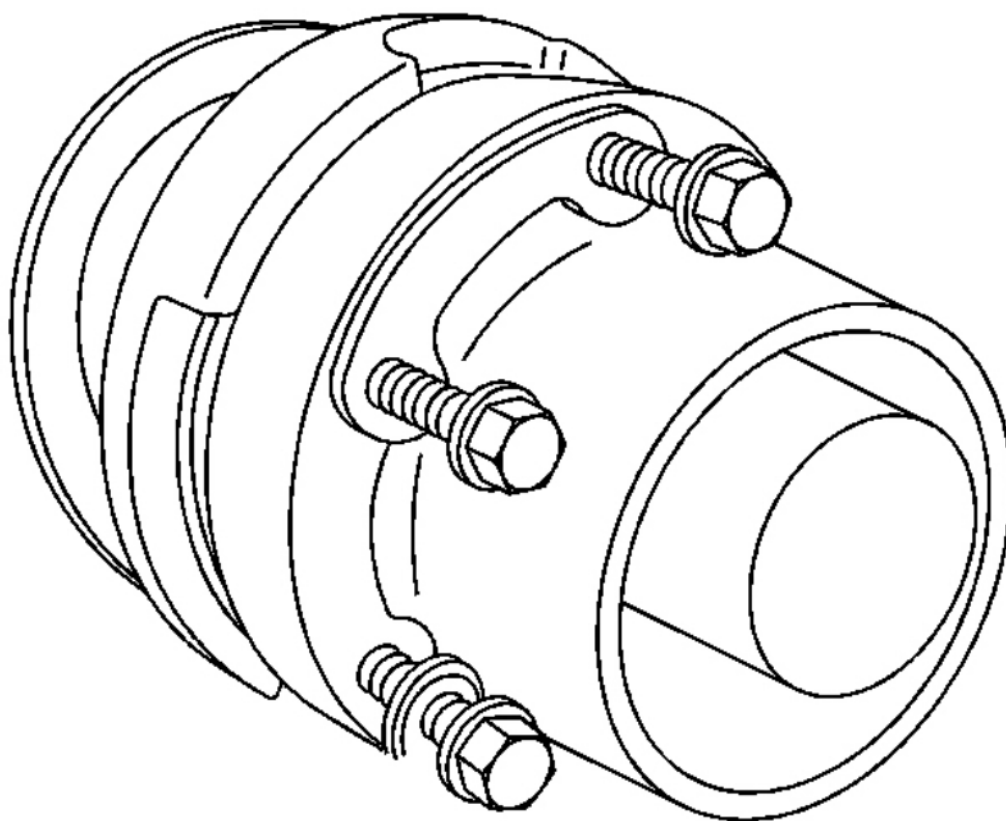


Fig. 3: View Of Propeller Shaft CV Joint-To-Transfer Case Flange Bolts
Courtesy of GENERAL MOTORS CORP.

4. Install a flat-bladed tool into the notch on the differential flange.
5. Using a flat-bladed tool, carefully move the propeller shaft toward the rear of the vehicle in order to release the propeller shaft CV joint from the differential pinion flange.
6. Remove the propeller shaft CV joint-to-transfer case flange bolts.

7. Install a flat-bladed tool into the notch on the transfer case flange.
8. Using a flat-bladed tool, carefully move the propeller shaft toward the front of the vehicle and remove the propeller shaft from the transfer case flange.

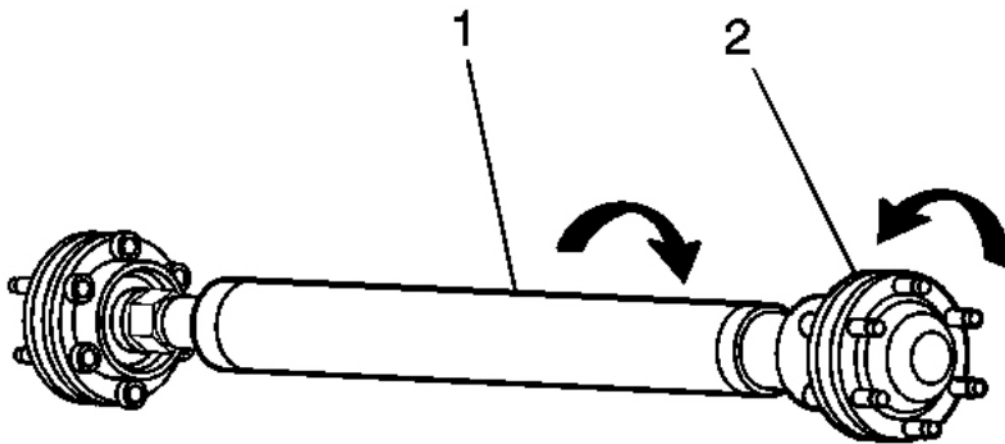


Fig. 4: View Of Propeller Shaft Tube & CV Joint
Courtesy of GENERAL MOTORS CORP.

9. Inspect the propeller shaft for the following conditions:
 - Rotational movement between the CV joint (2) and the propeller shaft tube (1)
 - Grease leaking from the CV joints
 - Damage to the CV joints
 - Damage to the CV seals
 - Binding of either CV joint
10. If any of the conditions are found, replace the front propeller shaft.

Installation Procedure

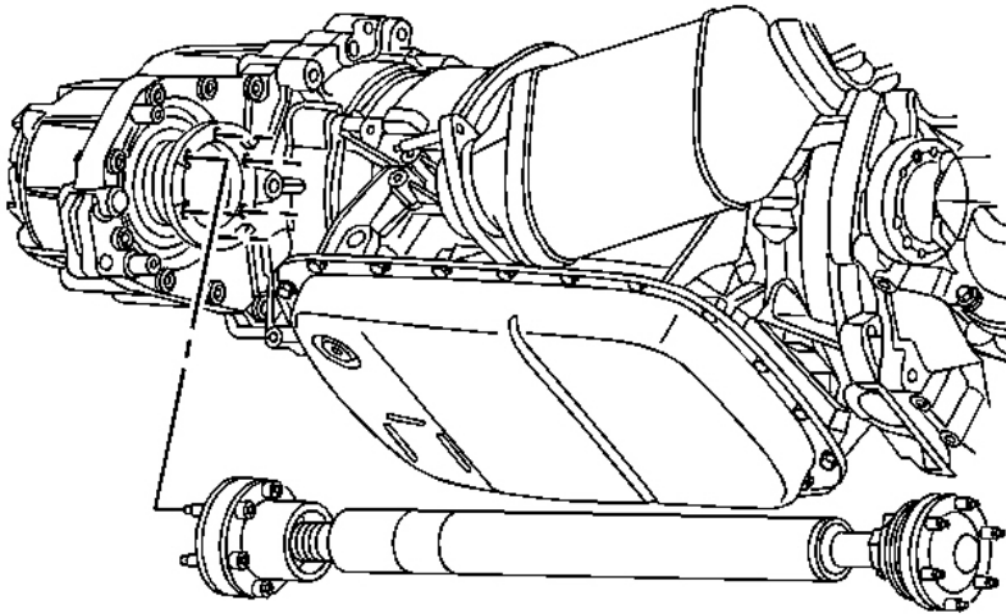


Fig. 5: Installing Propeller Shaft To Transfer Case Flange
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure that the coned end of the propeller shaft CV joint is installed into the transfer case flange.

1. Install the propeller shaft to the transfer case flange.

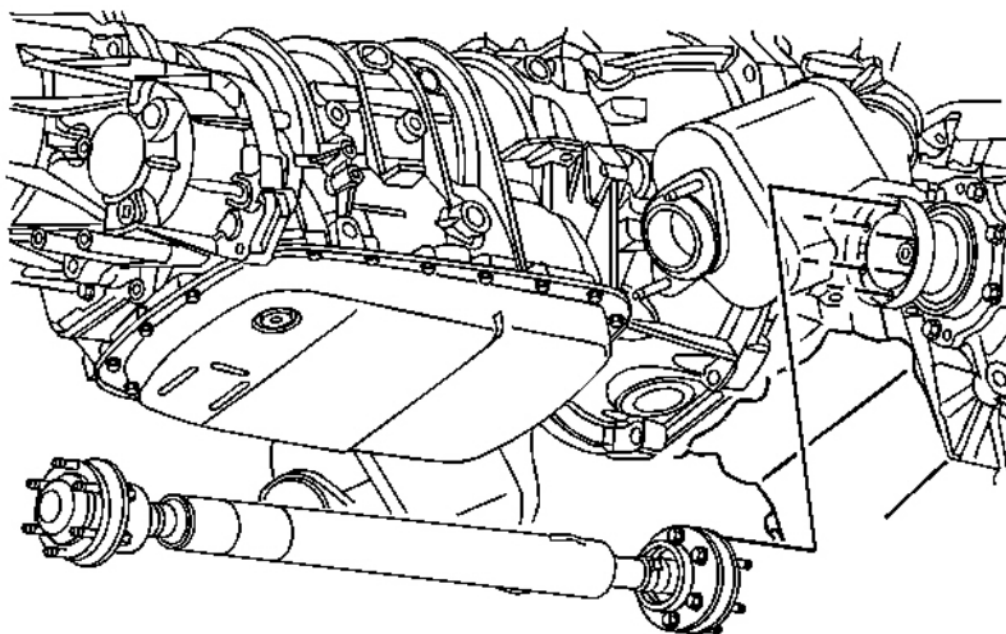


Fig. 6: Installing Propeller Shaft To Differential Flange
Courtesy of GENERAL MOTORS CORP.

2. Install the propeller shaft to the differential flange.
3. Inspect the propeller shaft-to-flange bolts. Replace if damaged or worn.

IMPORTANT: If reusing the propeller shaft-to-flange bolts to ensure proper adhesion and fastener retention, the threads must be free of debris prior to the application of threadlocker.

4. Thoroughly clean the threads using denatured alcohol or equivalent and allow to dry. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent to the propeller shaft-to-flange bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt. Allow the threadlocker to cure approximately 10 minutes before installation.

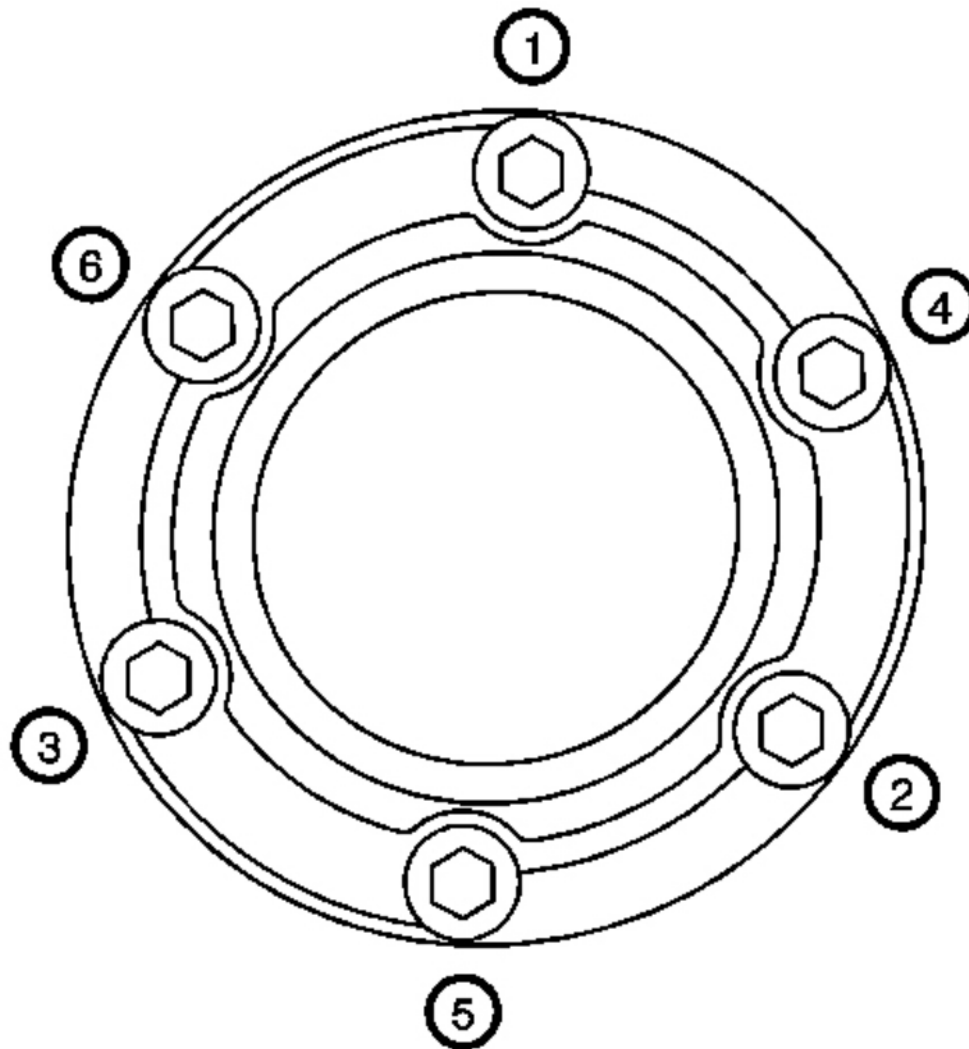


Fig. 7: Installing Propeller Shaft CV Joint-To-Differential Flange Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Install the propeller shaft CV joint-to-differential flange bolts. Ensure that the crescent washers are in place on each pair of bolts.

Tighten: Tighten the 6 propeller shaft CV joint-to-differential flange bolts in sequence (1-6) to 30 N.m (22 lb ft).

IMPORTANT: If reusing the propeller shaft-to-flange bolts, to ensure proper adhesion and fastener retention, the threads must be free of debris prior to the application of threadlocker.

6. Thoroughly clean the threads using denatured alcohol or equivalent and allow to dry. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent to the propeller shaft to the flange bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt. Allow the threadlocker to cure approximately 10 minutes before installation.
7. Install the front propeller shaft coupler-to-transfer case flange bolts. Ensure that the crescent washers are in place on each pair of bolts.

Tighten: Tighten the 6 propeller shaft CV joint-to-transfer case flange bolts in sequence (1-6) to 30 N.m (22 lb ft).

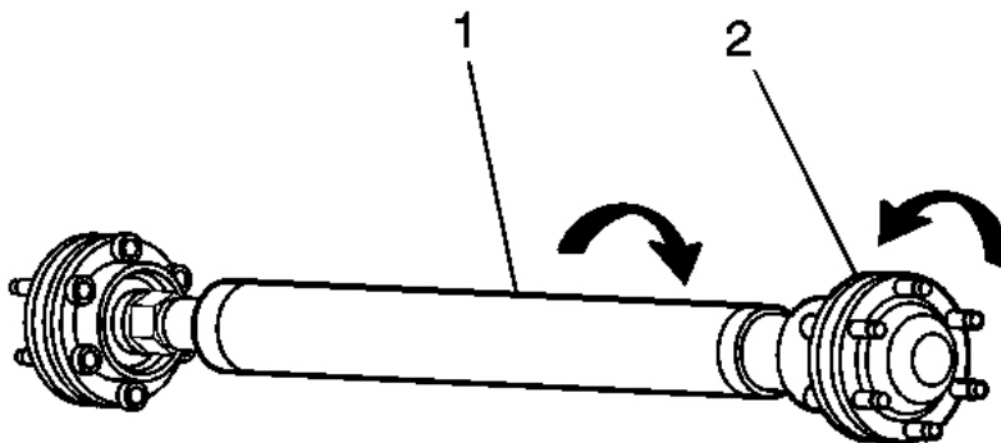


Fig. 8: View Of Propeller Shaft Tube & CV Joint
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure that there is no rotational movement between the CV joint (2) and the propeller shaft tube (1).

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8. Install the propeller shaft heat shield. Refer to **Shield Replacement** in Front Drive Axle.
9. Lower the vehicle.

PROPELLER SHAFT REPLACEMENT - REAR (AWD)

NOTE: The propeller shaft must be supported during removal and/or installation so that the CV joint does not articulate more than 8 degrees. Allowing the propeller shaft to articulate greater than 8 degrees could cause damage to the CV boot. Damage to boot could lead to contamination or loss of lubrication which could lead to CV joint damage.

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the exhaust system. Refer to **Exhaust System Replacement** in Engine Exhaust.
3. Using a suitable jack, support the propeller shaft close to the support bearing.

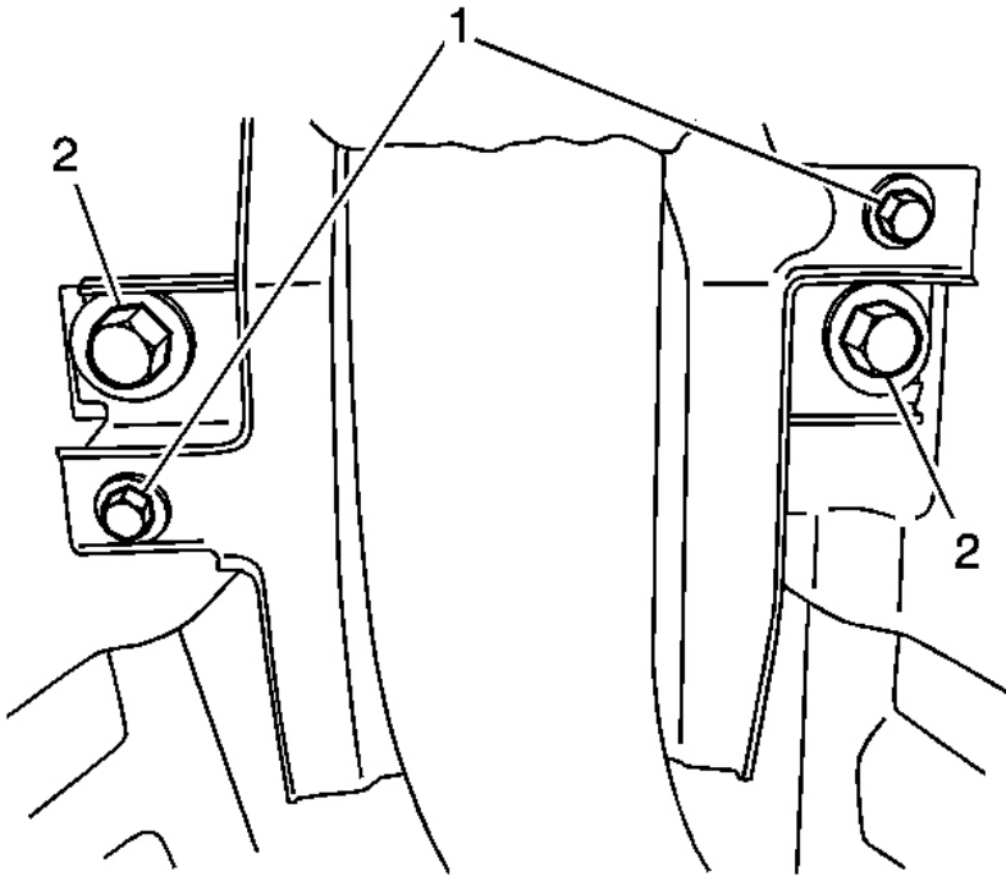


Fig. 9: View Of Vehicle Underbody Bolts
Courtesy of GENERAL MOTORS CORP.

4. Remove the bolts (1) securing the heat shield to the vehicle underbody.
5. Remove the bolts (2) securing the support bearing to the vehicle underbody.

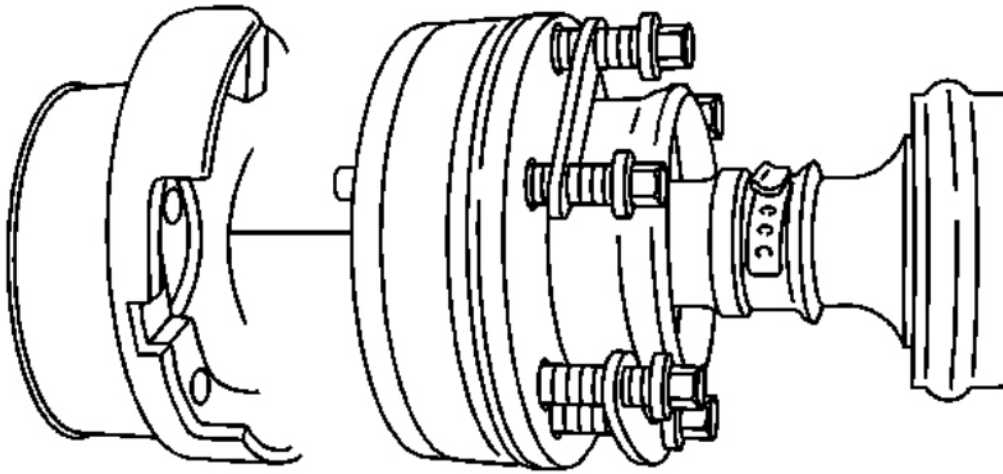


Fig. 10: View Of Propeller Shaft CV
Courtesy of GENERAL MOTORS CORP.

6. Reference mark the location of the propeller shaft consent velocity (CV) joint to the transfer case flange.
7. Remove the propeller shaft CV joint to transfer case flange bolts.

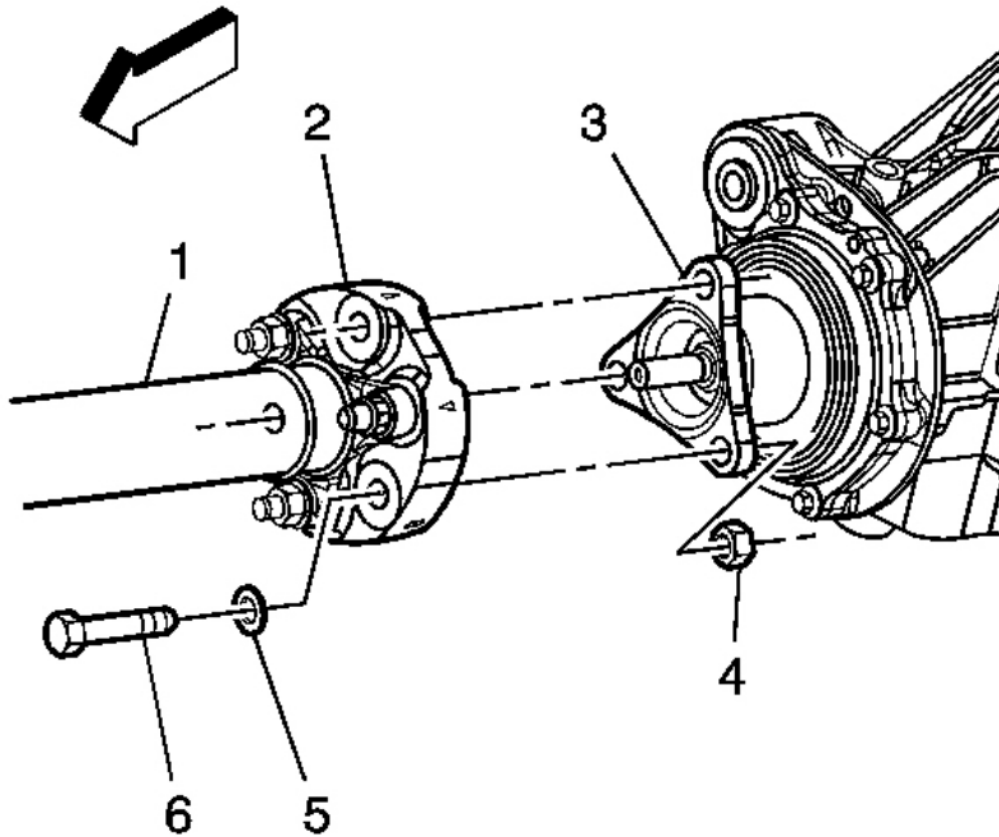


Fig. 11: View Of Propeller Shaft Coupler-To-Differential Flange Bolts, Nuts & Washers

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Remove only the propeller shaft coupler-to-differential flange bolts. Do NOT remove the coupler from the propeller shaft.

8. Remove the propeller shaft coupler-to-differential flange bolts (6), nuts (4) and washers (5).

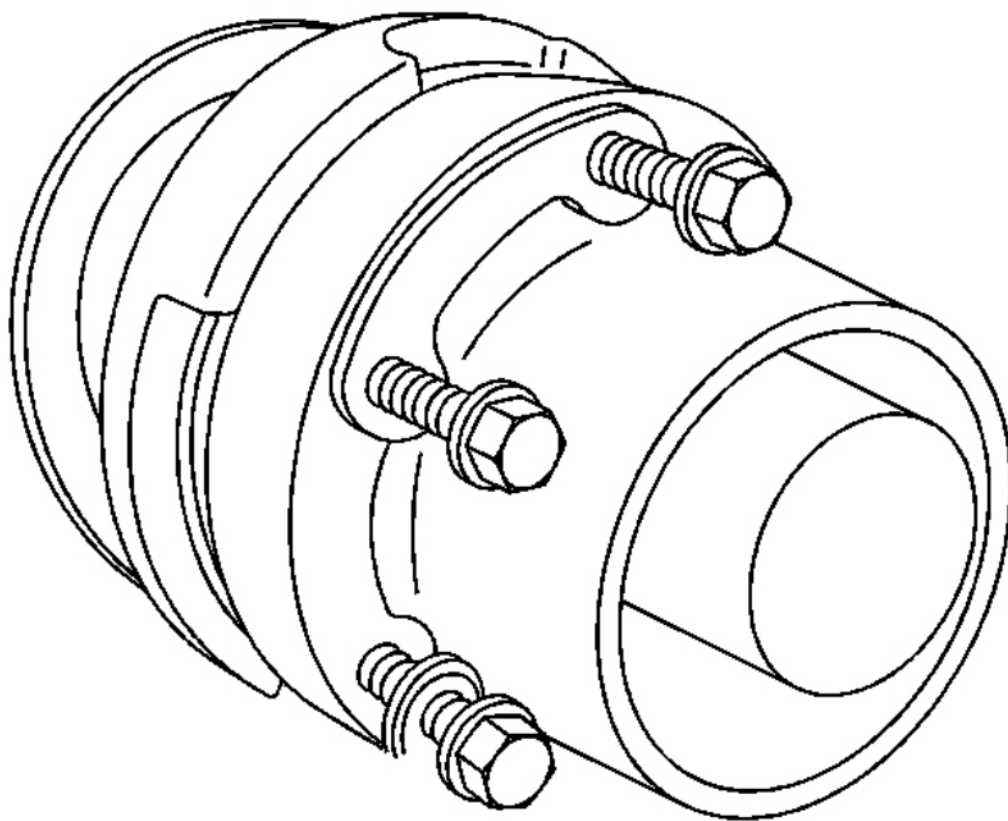


Fig. 12: View Of Propeller Shaft CV Joint-To-Transfer Case Flange Bolts
Courtesy of GENERAL MOTORS CORP.

9. Install a flat-bladed tool into the notch on the transfer case flange.
10. Using a flat-bladed tool, move the propeller shaft toward the rear of the vehicle in order to release the propeller shaft CV joint from the transfer case flange.
11. While holding the propeller shaft, lower the support device under the propeller shaft.
12. Move the propeller shaft forward to release the coupler from the differential flange.
13. Remove the propeller shaft from the vehicle.
14. Inspect the propeller shaft coupler for the following conditions:
 - Splitting of the coupler
 - Deep cracking. Minor superficial cracking of the coupler is acceptable.
 - Distorted or missing mounting bolt bushings

15. If any of the above conditions are found, the propeller shaft requires replacement.
16. Inspect the CV Joint for the following:
 - Grease leaking from the CV joint
 - Damage to the CV joint
 - Damage to the CV joint boot
 - Rotate the CV joint for binding

Installation Procedure

1. Using a clean shop cloth, clean the following:
 - The differential flange centering pin
 - The propeller shaft centering bushing
2. Inspect the propeller shaft to flange nuts and bolts. Replace the nuts and bolts if damaged or worn.

IMPORTANT: The propeller shaft flange bolts must be installed toward the flanges. There are arrows on the coupler pointing toward the flange as a reference.

3. Using a suitable jack, support the propeller shaft close to the support bearing.
4. Apply a small amount of lubricant GM P/N 1051344 (Canadian P/N 993037), or equivalent, to the rear propeller shaft centering bushing.

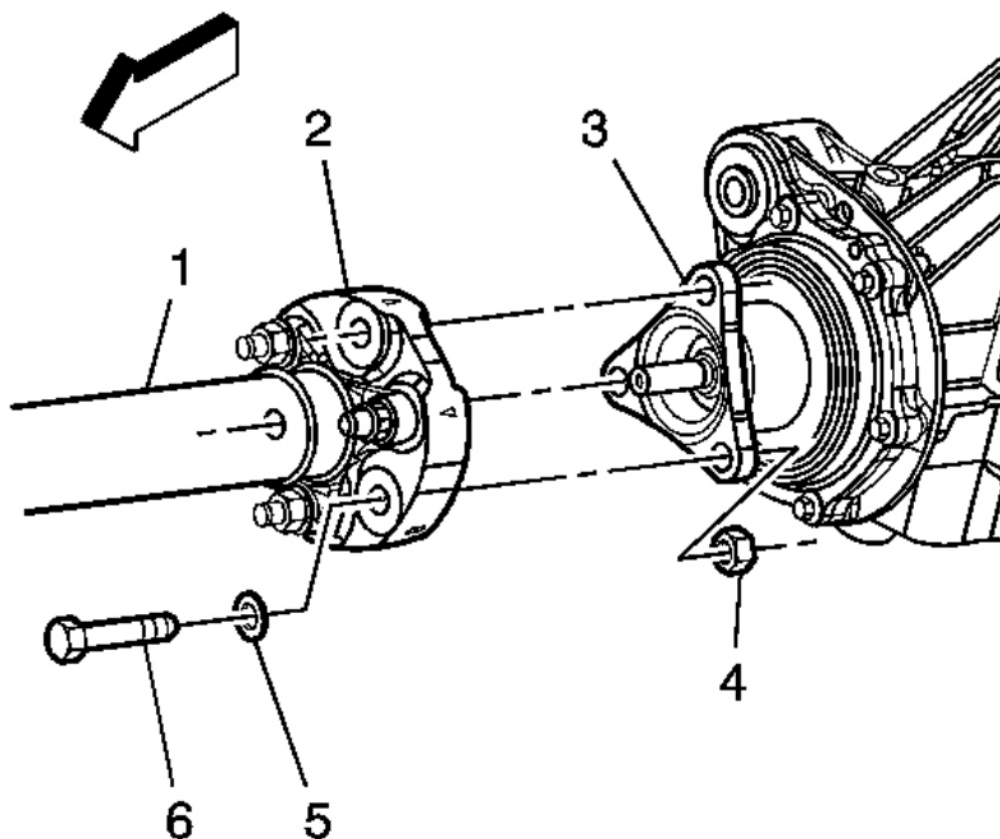


Fig. 13: View Of Propeller Shaft Coupler-To-Differential Flange Bolts, Nuts & Washers

Courtesy of GENERAL MOTORS CORP.

5. Inspect the propeller shaft-to-flange nuts (4), bolts (6) and washers (5). Replace if damaged or worn.

Install the rear propeller shaft coupler (2) to the differential flange (3).

6. Push the propeller shaft (1) to the rear of the vehicle and install the propeller shaft coupler to the transfer case flange.

IMPORTANT: If reusing the propeller shaft-to-flange nuts and bolts, to ensure proper adhesion and fastener retention, the threads

must be free of debris prior to the application of threadlocker.

7. Thoroughly clean the threads using denatured alcohol, or equivalent, and allow to dry. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent, to the propeller shaft to the flange bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt. Allow the threadlocker to cure approximately 10 minutes before installation.
8. Install the propeller shaft coupler-to-differential flange washers (5) to the propeller shaft coupler-to-differential flange bolts (6).
9. Install the propeller shaft coupler-to-differential flange bolts (6) and washers (5) to the differential flange (3) and propeller shaft coupler (2).

NOTE: Refer to Fastener Notice in Cautions and Notices.

10. Install the propeller shaft coupler-to-differential flange nuts (4).

Tighten: Tighten the propeller shaft coupler to differential flange bolts to 85 N.m (63 lb ft).

IMPORTANT: If reusing the propeller shaft to flange nuts and bolts, to ensure proper adhesion and fastener retention, the threads must be free of debris prior to the application of threadlocker.

11. Thoroughly clean the threads using denatured alcohol, or equivalent, and allow to dry. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent, to the propeller shaft to flange bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt. Allow the threadlocker to cure approximately 10 minutes before installation.

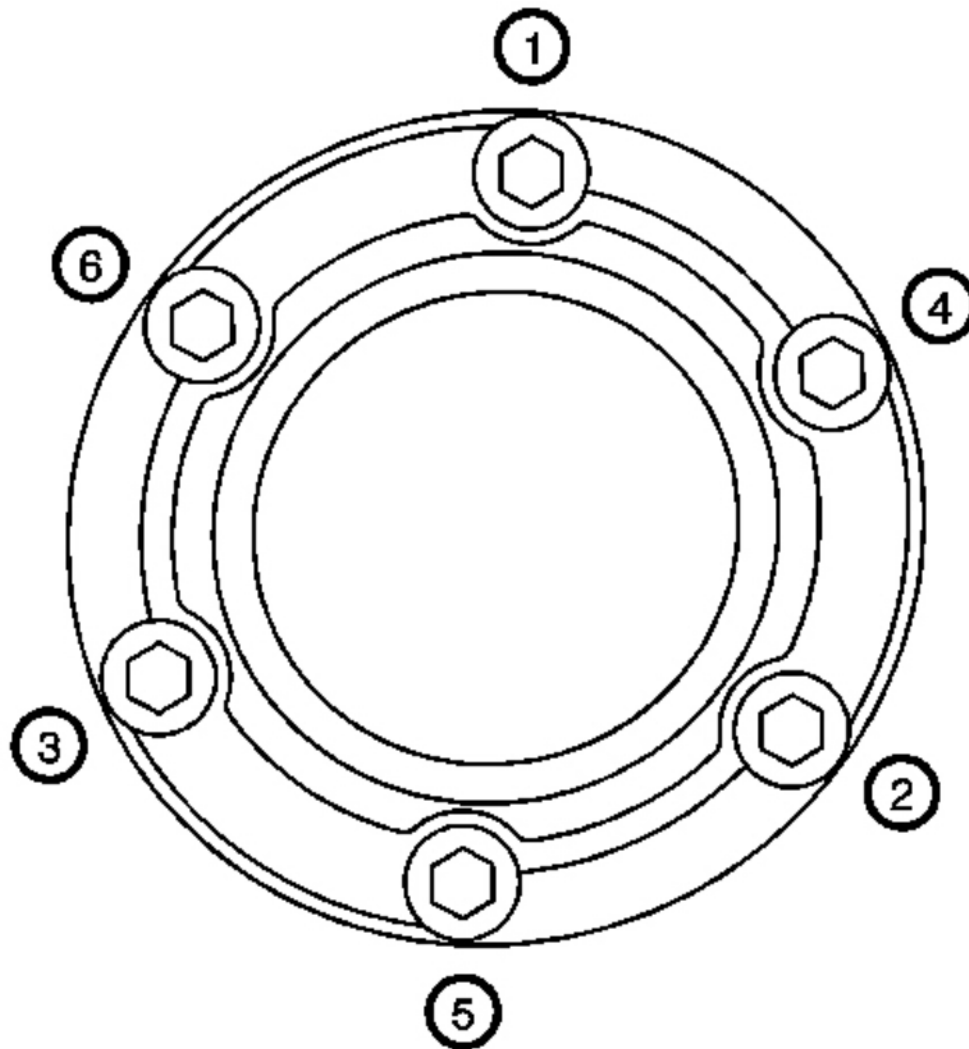


Fig. 14: Installing Propeller Shaft CV Joint-To-Differential Flange Bolts
Courtesy of GENERAL MOTORS CORP.

12. Install the propeller shaft CV joint to transfer case flange bolts.

Tighten: Tighten the propeller shaft CV joint to transfer case flange bolts in sequence (1-6) to 30 N.m (22 lb ft).

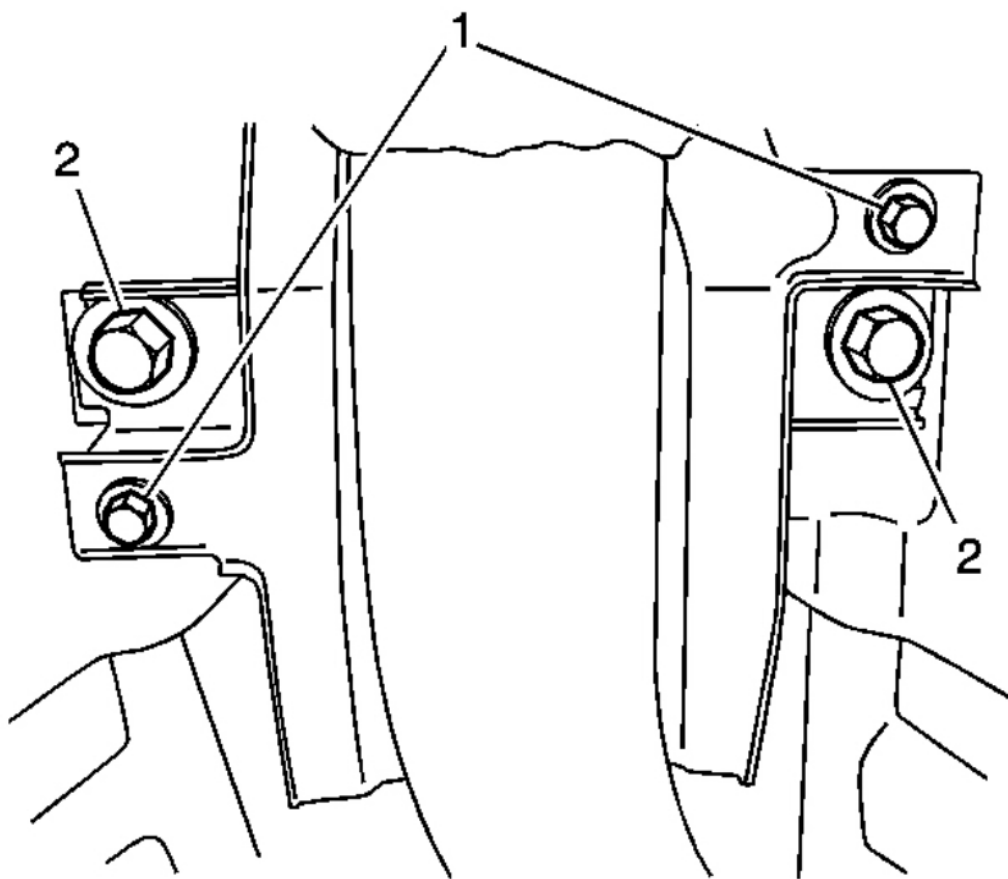


Fig. 15: View Of Vehicle Underbody Bolts
Courtesy of GENERAL MOTORS CORP.

13. Install the center support bearing to the vehicle underbody.
14. Raise the support device in order to hold the support bearing in position.
15. Install the center support bearing bolts (2) to the studs on the vehicle underbody.

Tighten: Tighten the support bearing bolts to 50 N.m (37 lb ft).

16. Install the heat shield bolts to the mounting studs on the underbody.

Tighten: Tighten the heat shield mounting bolts to 8 N.m (71 lb in).

17. Remove the support device from the propeller shaft.
18. Install the exhaust system. Refer to **Exhaust System Replacement** in Engine Exhaust.
19. Lower the vehicle.

PROPELLER SHAFT REPLACEMENT - REAR (RWD)

NOTE: The propeller shaft must be supported during removal and/or installation so that the CV joint does not articulate more than 8 degrees. Allowing the propeller shaft to articulate greater than 8 degrees could cause damage to the CV boot. Damage to boot could lead to contamination or loss of lubrication which could lead to CV joint damage.

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the exhaust system. Refer to **Exhaust System Replacement** in Engine Exhaust.

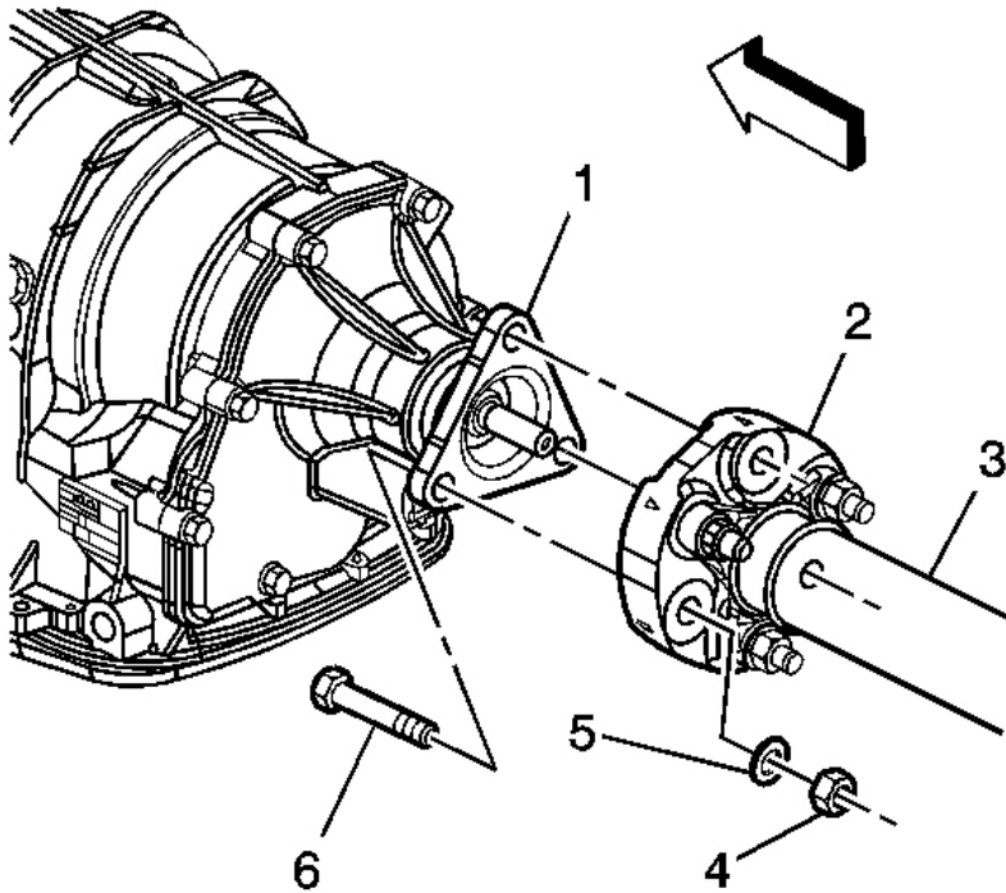


Fig. 16: View Of Front Propeller Shaft, Bolts, Nuts & Washers
 Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Remove only the propeller shaft coupler-to-transmission flange bolts. Do NOT remove the coupler from the propeller shaft.

3. Remove the propeller shaft coupler-to-transmission flange bolts (6), nuts (4) and washers (5).

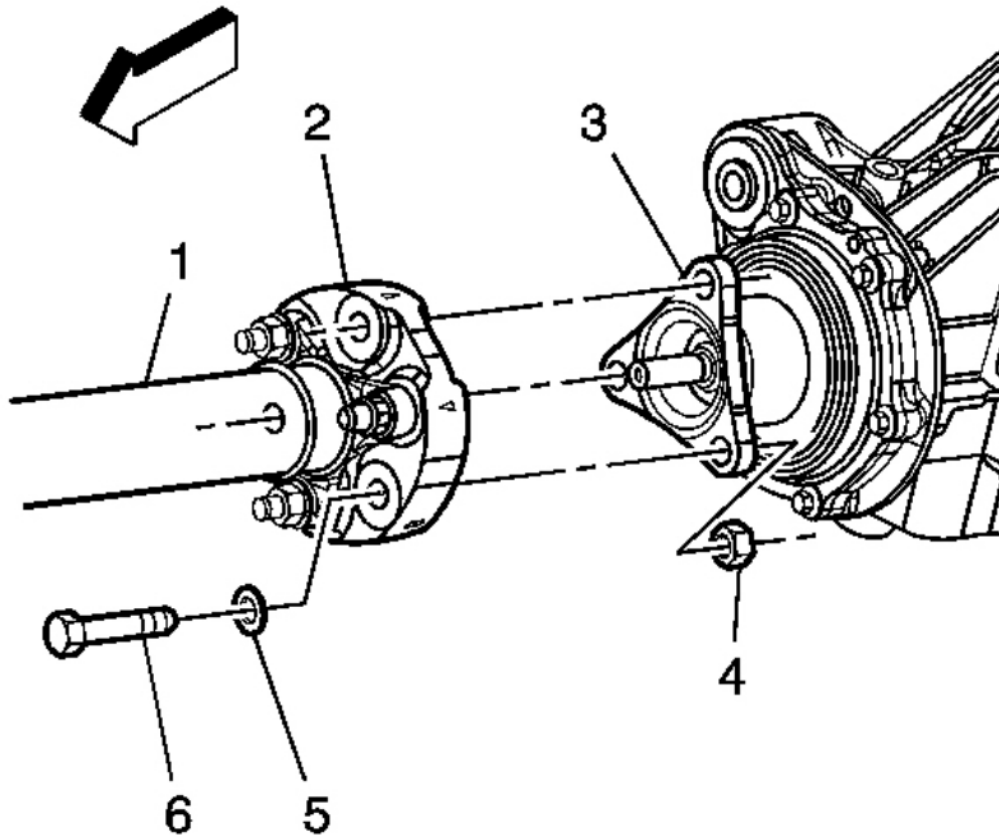


Fig. 17: View Of Propeller Shaft Coupler-To-Differential Flange Bolts, Nuts & Washers

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Remove only the propeller shaft coupler-to-differential flange bolts. Do NOT remove the coupler from the propeller shaft.

4. Remove the propeller shaft coupler-to-differential flange bolts (6), nuts (4) and washers (5).

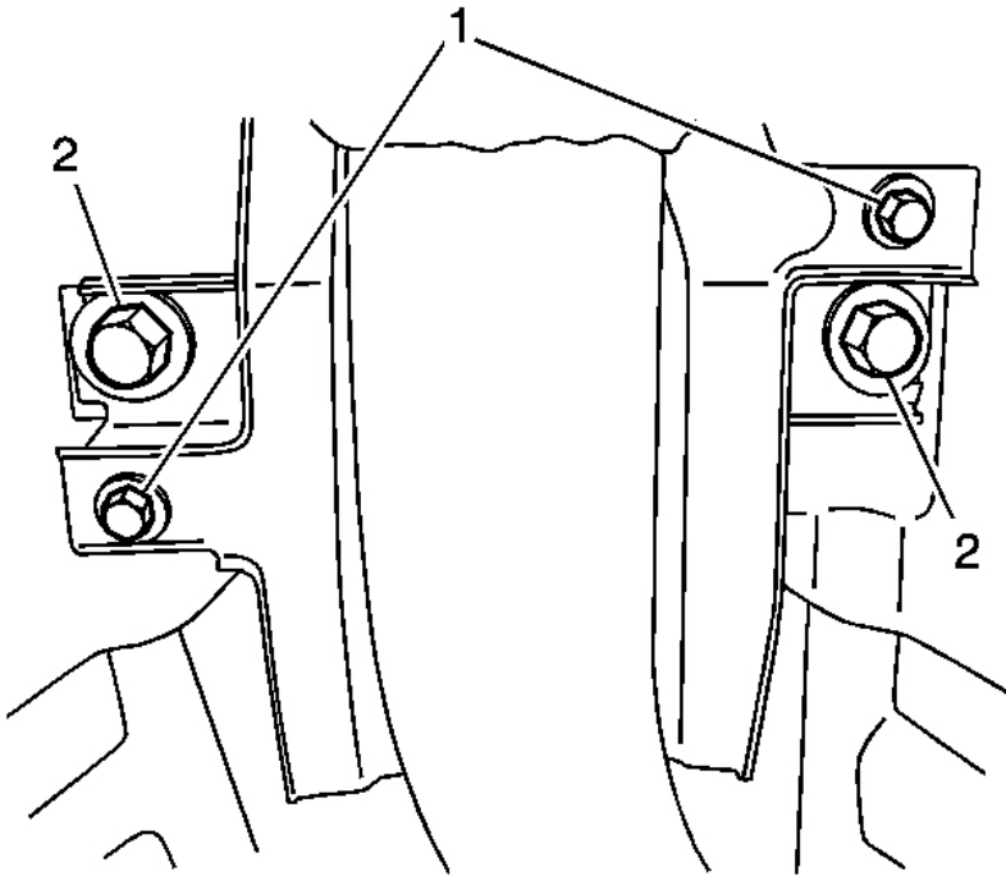


Fig. 18: View Of Vehicle Underbody Bolts
Courtesy of GENERAL MOTORS CORP.

5. Support the propeller shaft at the support bearing.
6. Remove the bolts (2) securing the support bearing to the vehicle underbody.

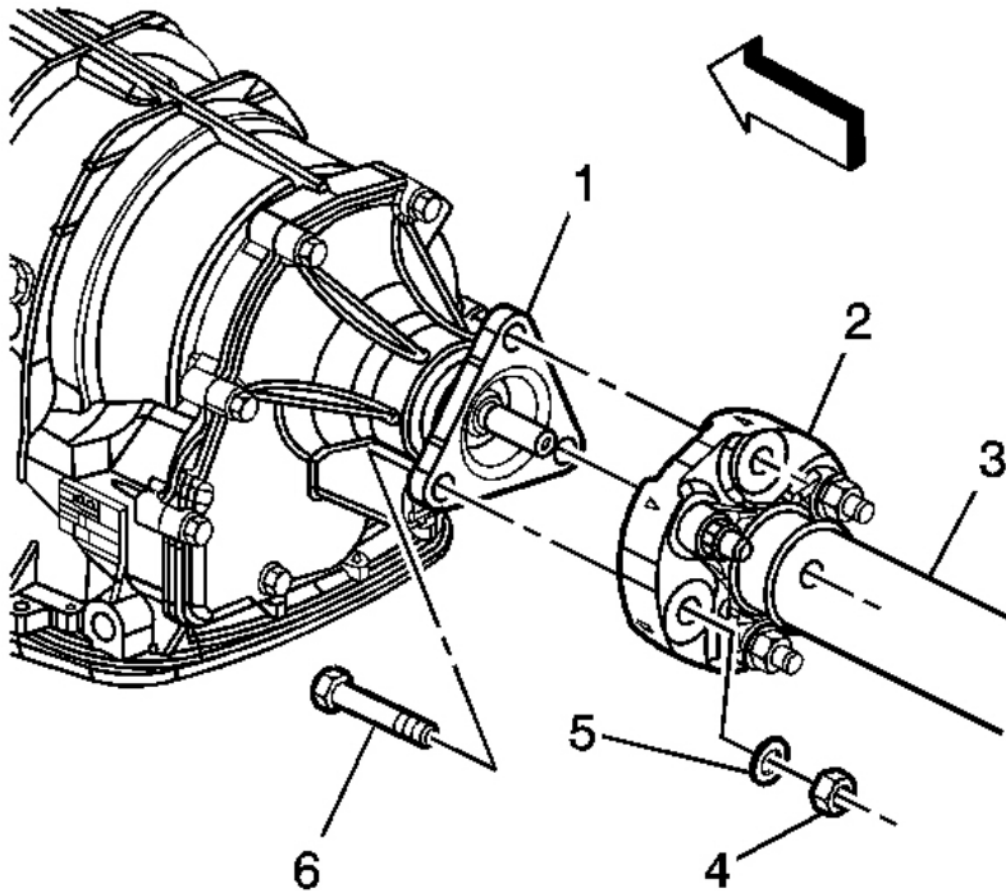


Fig. 19: View Of Front Propeller Shaft, Bolts, Nuts & Washers
Courtesy of GENERAL MOTORS CORP.

7. Push the front propeller shaft (3) toward the rear of the vehicle in order to release the propeller shaft coupler (2) from the transmission flange (1).
8. While holding the front propeller shaft (3), lower the support device under the propeller shaft support bearing.
9. Remove the support bearing from the mounting studs.

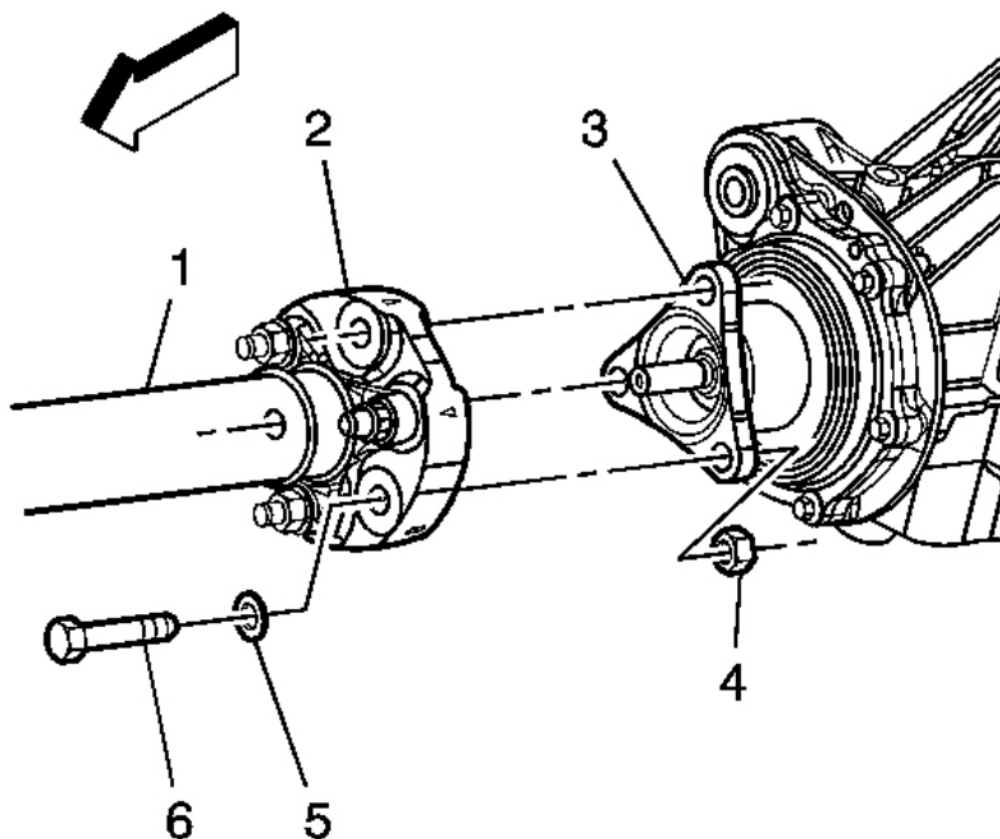


Fig. 20: View Of Propeller Shaft Coupler-To-Differential Flange Bolts, Nuts & Washers

Courtesy of GENERAL MOTORS CORP.

10. Pull the rear propeller shaft (1) forward to release the coupler (2) from the differential flange (3).
11. Note the number and location of the shim packs between the support bearing mounting bracket and the underbody to ensure proper assembly.
12. Remove the propeller shaft from the vehicle.
13. Inspect the propeller shaft coupler for the following conditions:
 - Splitting of the coupler
 - Deep cracking. Minor superficial cracking of the coupler is acceptable.
 - Looseness at the propeller shaft mounting bolts

- Distorted or missing mounting bolt bushings

14. If any of the above conditions are found, the propeller shaft requires replacement.

Installation Procedure

1. Using a clean shop towel clean the following:
 - The differential flange centering pin
 - The transmission flange centering pin
 - The front propeller shaft centering bushing
 - The rear propeller shaft centering bushing
2. Apply a small amount of lubricant GM P/N 1051344 (Canadian P/N 993037), or equivalent, to the front and rear propeller shaft centering bushings.

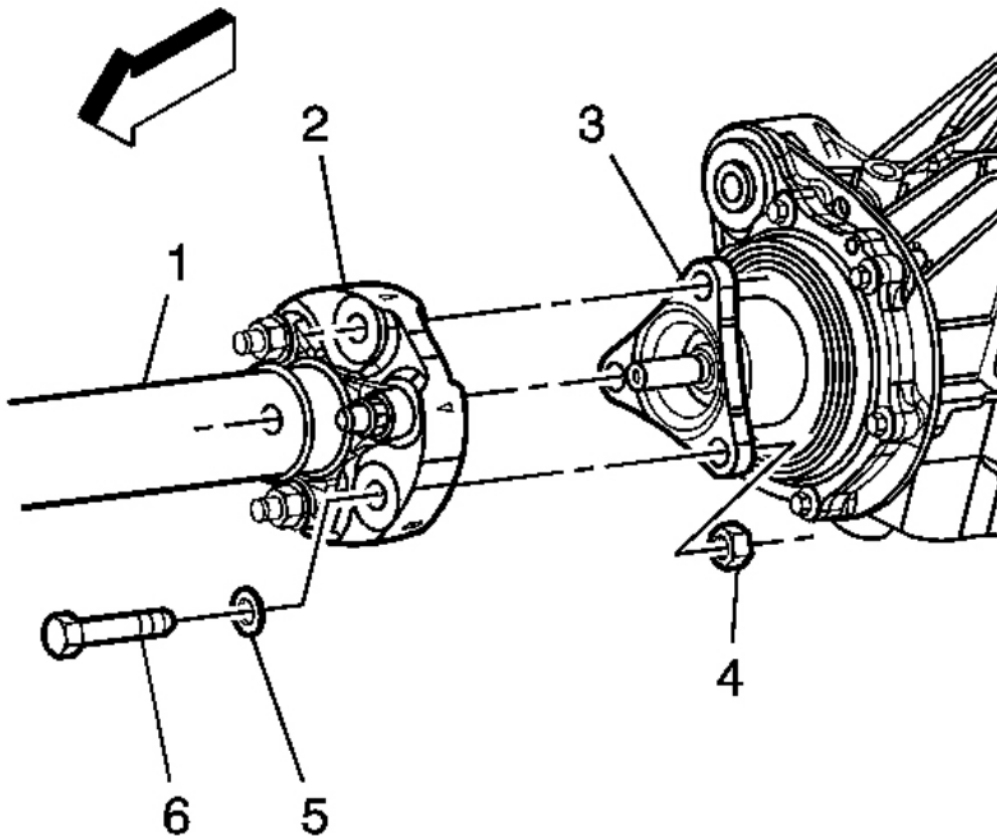


Fig. 21: View Of Propeller Shaft Coupler-To-Differential Flange Bolts, Nuts & Washers

Courtesy of GENERAL MOTORS CORP.

3. Inspect the propeller shaft to flange nuts (4), bolts (6) and washers (5). Replace if damaged or worn.
4. Install the rear propeller shaft coupler (2) to the differential flange (3).
5. Rest the support bearing on the support device.

IMPORTANT: If reusing the propeller shaft-to-flange nuts and bolts, to ensure proper adhesion and fastener retention, the threads must be free of debris prior to the application of threadlocker.

6. Thoroughly clean the threads using denatured alcohol, or equivalent, and allow to dry. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent, to the propeller shaft to the flange bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt. Allow the threadlocker to cure approximately 10 minutes before installation.
7. Install the propeller shaft coupler-to-differential flange washers (5) to the propeller shaft coupler-to-differential flange bolts (6).
8. Install the propeller shaft coupler-to-differential flange bolts (6) and washers (5) to the differential flange (3) and propeller shaft coupler (2).

NOTE: Refer to Fastener Notice in Cautions and Notices.

9. Install the propeller shaft coupler-to-differential flange nuts (4).

Tighten: Tighten the propeller shaft coupler-to-differential flange bolts and nuts to 85 N.m (63 lb ft).

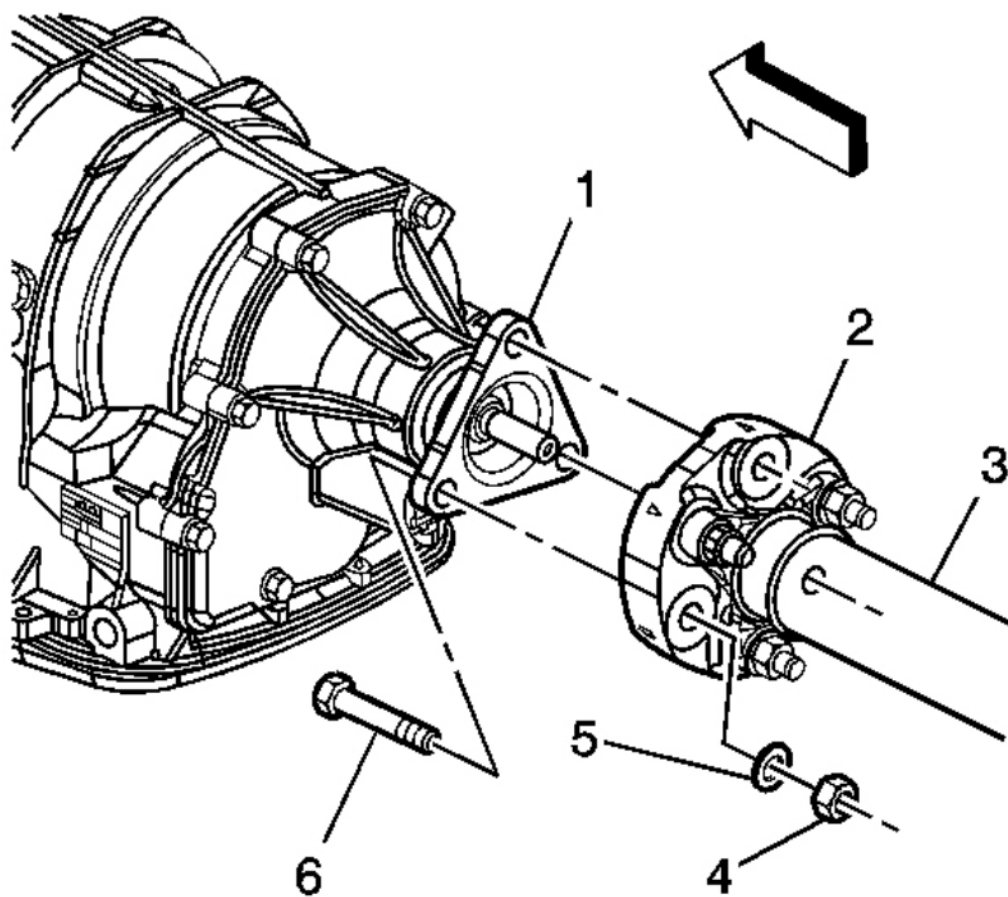


Fig. 22: View Of Front Propeller Shaft, Bolts, Nuts & Washers
Courtesy of GENERAL MOTORS CORP.

10. Push the front propeller shaft (3) to the rear of the vehicle and install the propeller shaft coupler (2) to the transmission flange (1).

IMPORTANT: If reusing the propeller shaft-to-flange nuts and bolts, to ensure proper adhesion and fastener retention, the threads must be free of debris prior to the application of threadlocker.

11. Thoroughly clean the threads using denatured alcohol, or equivalent, and allow to dry. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent, to the

propeller shaft to the flange bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt. Allow the threadlocker to cure approximately 10 minutes before installation.

12. Install the front propeller shaft coupler-to-transmission flange bolts (6) to the transmission flange (1) and propeller shaft coupler (2).
13. Install the propeller shaft coupler-to-transmission flange washers (5) and nuts (4).

Tighten: Tighten the propeller shaft coupler-to-transmission flange bolts and nuts to 85 N.m (63 lb ft).

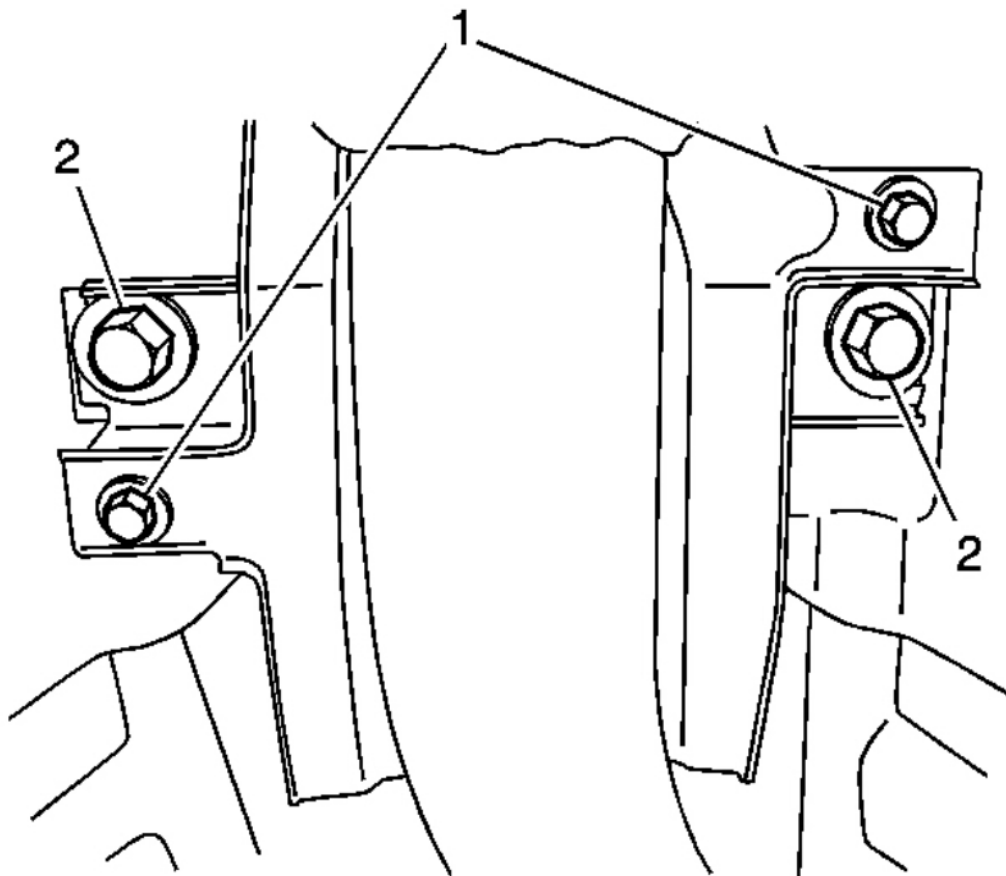


Fig. 23: View Of Vehicle Underbody Bolts
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Ensure that the shim packs on the support bearing are installed in their original positions.

14. Install the center support bearing to the vehicle underbody.

Raise the support device in order to hold the support bearing in position.

15. Install the center support bearing bolts (2) to the studs on the vehicle underbody.

Tighten: Tighten the support bearing bolts to 50 N.m (37 lb ft).

16. Remove the support device from under the support bearing.

17. Install the exhaust system. Refer to **Exhaust System Replacement** in Engine Exhaust.

18. Lower the vehicle.

PROPELLER SHAFT CENTER SUPPORT BEARING OVERHAUL (RWD ONLY)

Tools Required

- **J 22912-01** Split-Plate Bearing Puller. See **Special Tools and Equipment**.
- **J 25863** Pinion Cone and Side Bearing Installer. See **Special Tools and Equipment**.

Removal Procedure

NOTE: Never clamp propeller shaft tubing in a vise. Clamping propeller shaft tubing in a vise could dent or deform the tube causing an imbalance or unsafe condition. Always clamp on one of the yokes and support the shaft horizontally.

IMPORTANT: Proper alignment on assembly is critical in order to maintain correct balance.

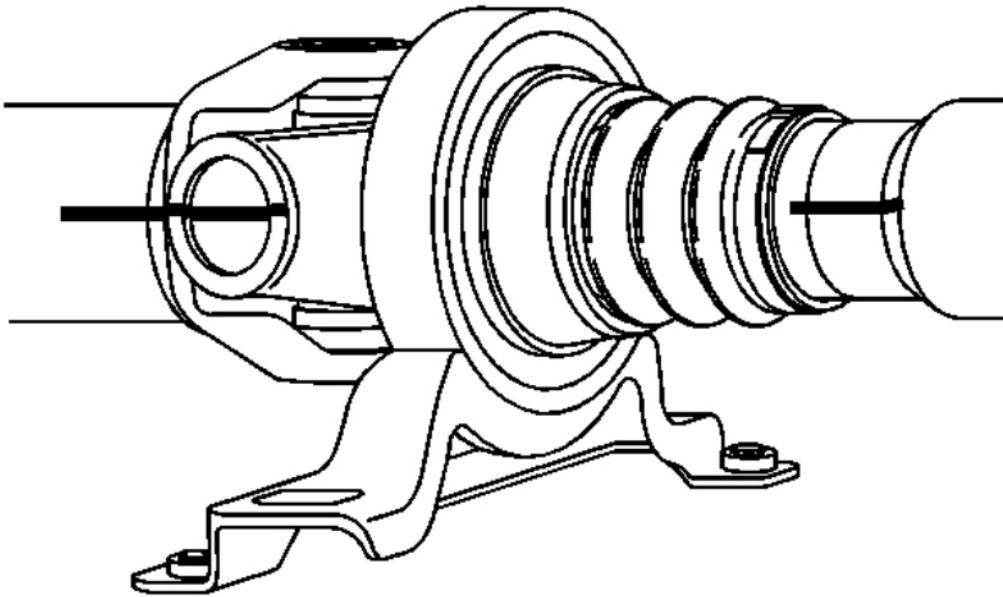


Fig. 24: View Of Propeller Shaft Alignment Marks

Courtesy of GENERAL MOTORS CORP.

1. Using a paint stick, mark the shaft on both sides. The splines are not keyed, therefore, alignment marks are necessary for assembly.

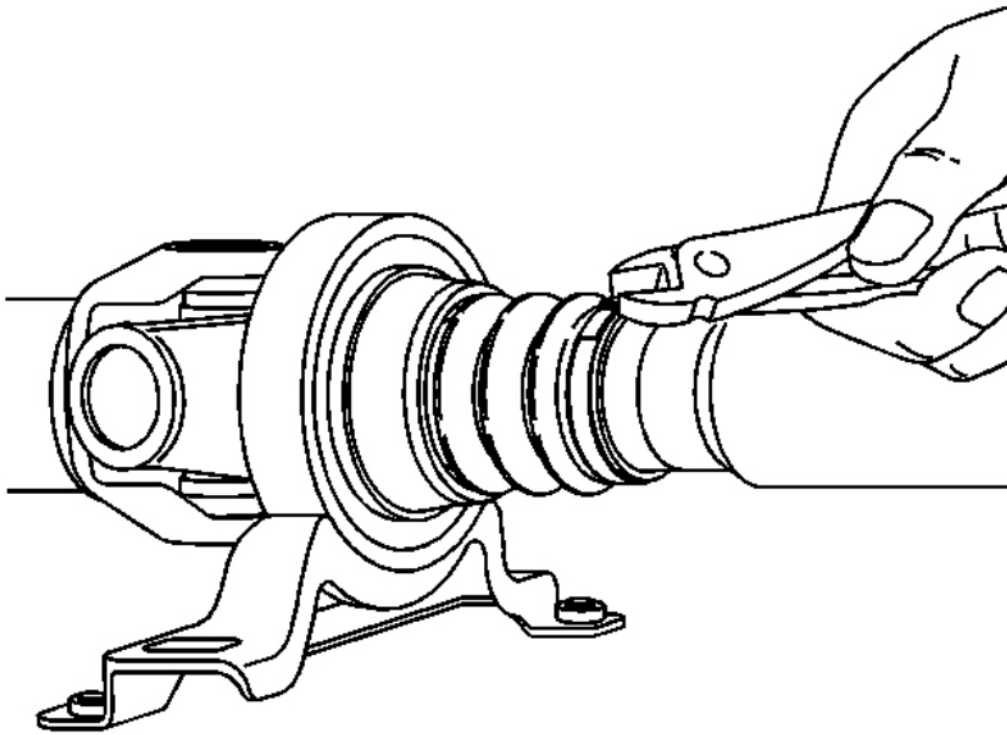


Fig. 25: Removing Shaft Dust Boot Clamp
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The clamp is not reusable.

2. Remove the clamp holding the dust boot to the shaft. Discard the clamp.

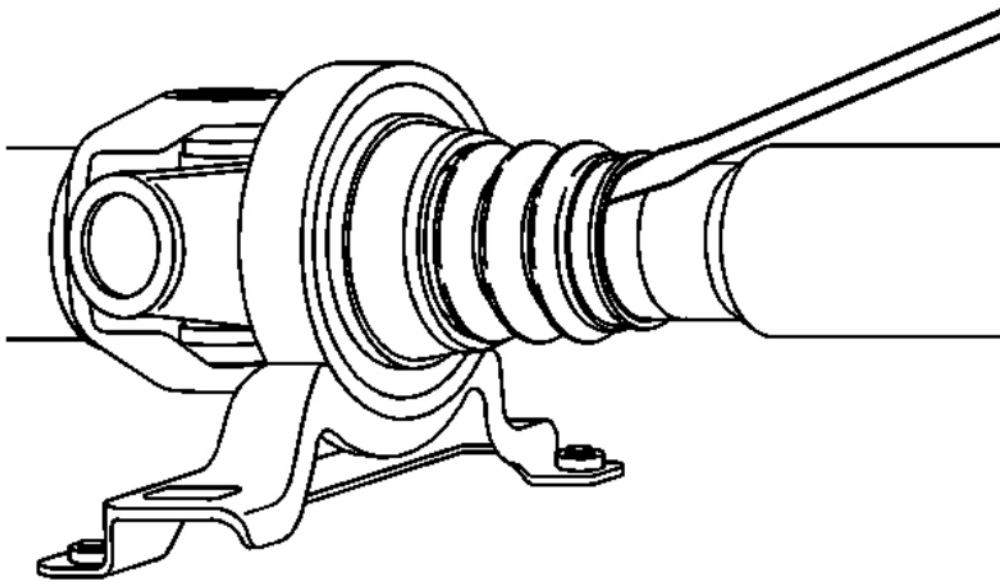


Fig. 26: Prying Off Dust Boot
Courtesy of GENERAL MOTORS CORP.

3. Pry the dust boot off the shaft tube.

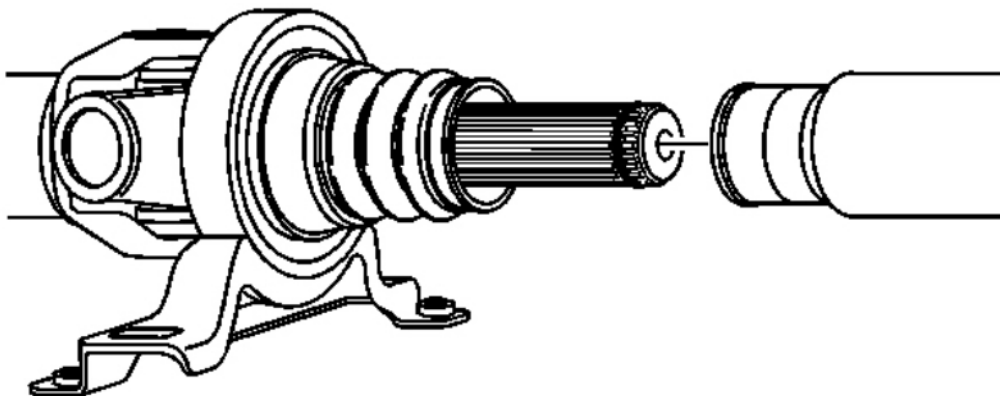


Fig. 27: Separating Propeller Shaft Halves
Courtesy of GENERAL MOTORS CORP.

4. Hold the shaft on both sides of the bearing and pull or separate the 2 halves.

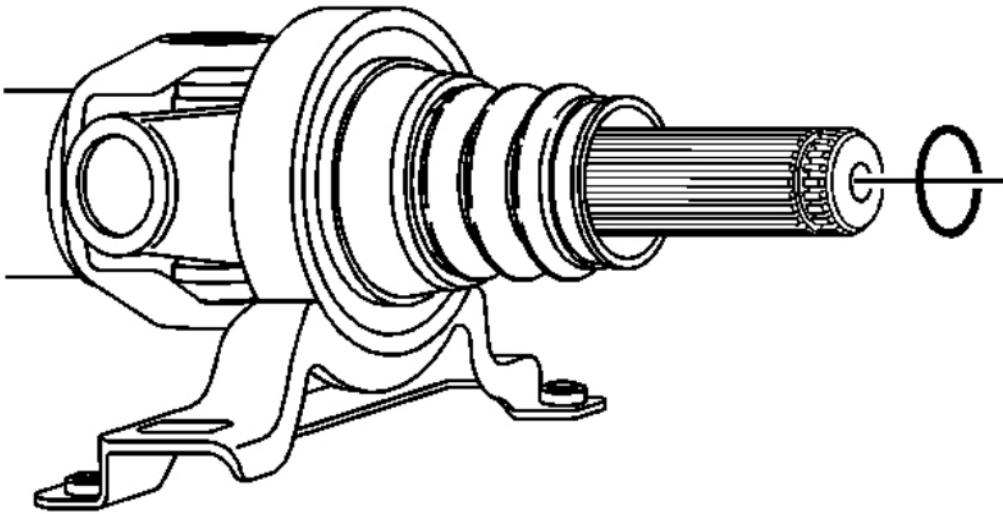


Fig. 28: View Of Spline Shaft O-Ring
Courtesy of GENERAL MOTORS CORP.

5. Remove the O-ring from the end of the spline shaft.

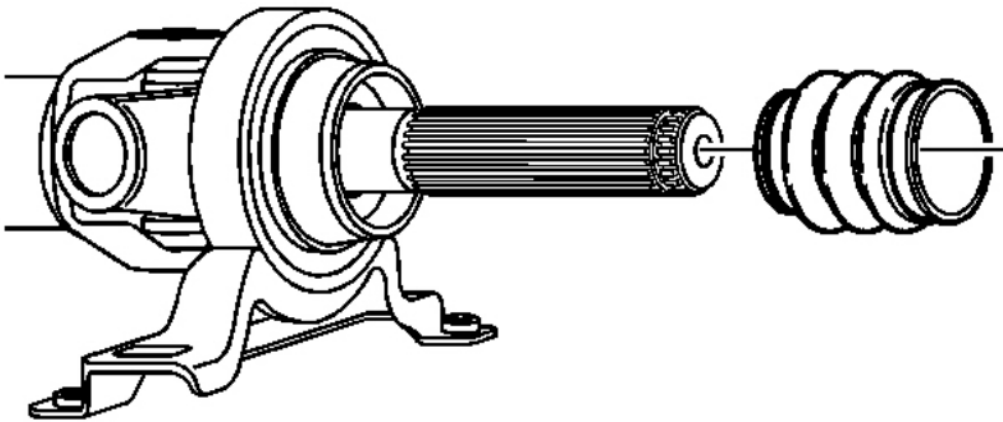


Fig. 29: View Of Dust Boot
Courtesy of GENERAL MOTORS CORP.

6. Remove the dust boot.

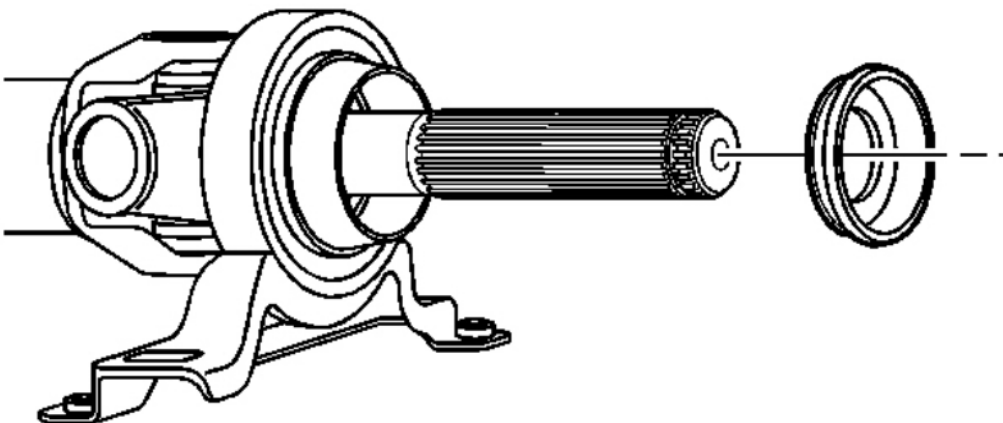


Fig. 30: View of Bearing Slinger
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not reuse the slinger.

7. Pry off the bearing slinger from the spline shaft. Discard the slinger.

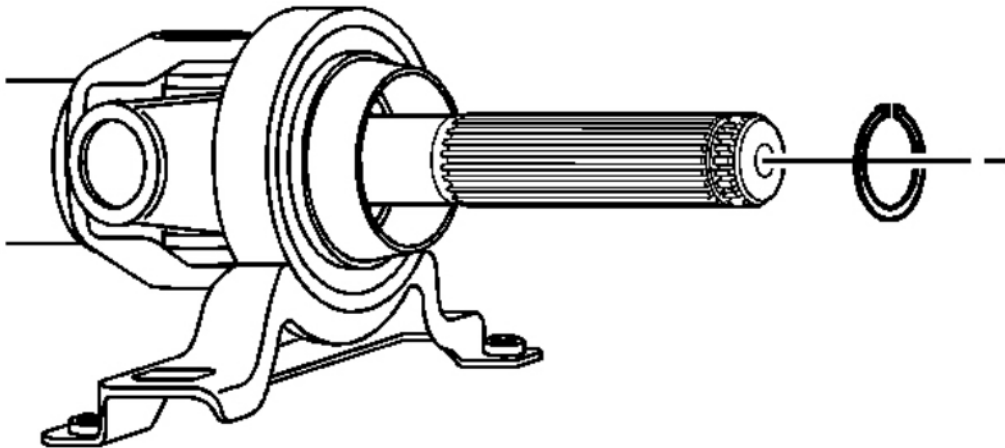


Fig. 31: View Of Snap Ring

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Grease may have to be removed to see the snap ring.

8. Remove the snap ring from the groove.

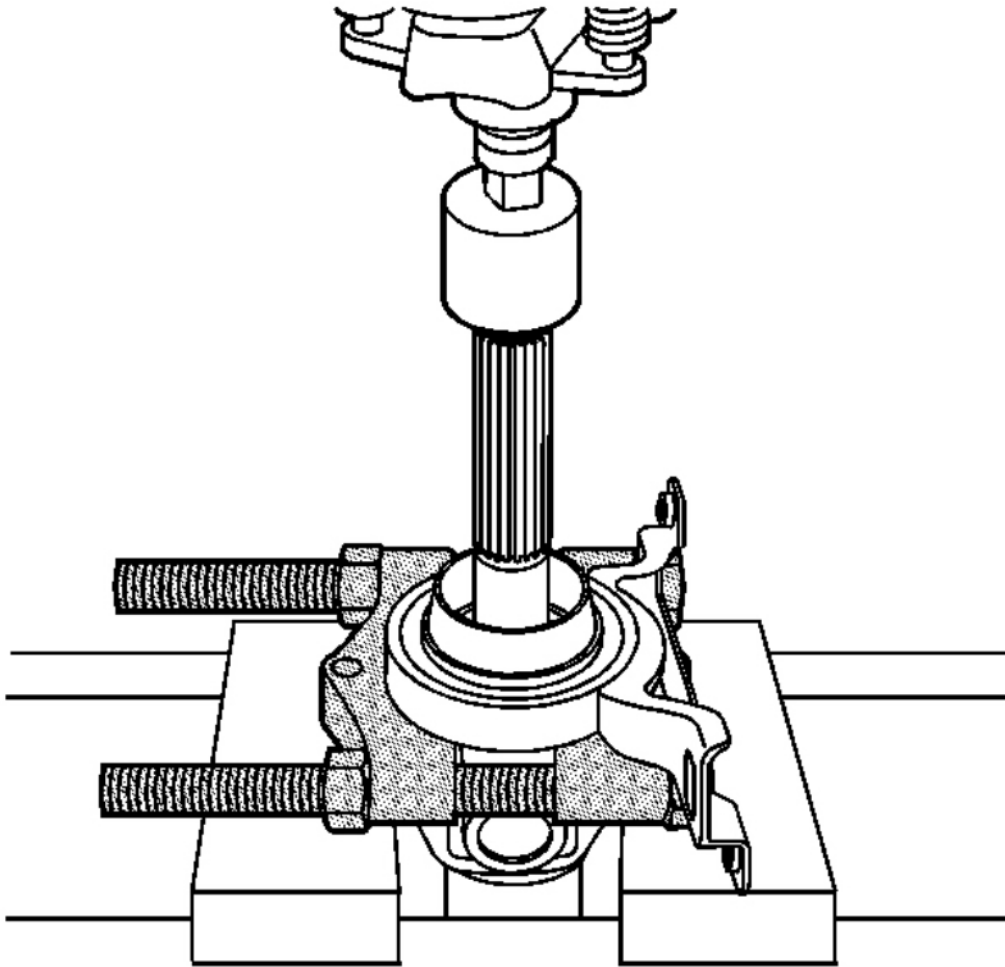


Fig. 32: View Of J 22912-01 Removing Bearing
Courtesy of GENERAL MOTORS CORP.

9. Install the **J 22912-01** around the shaft behind the bearing. See **Special Tools and Equipment**. Place shaft in a press and remove the bearing.

Clean and Inspect

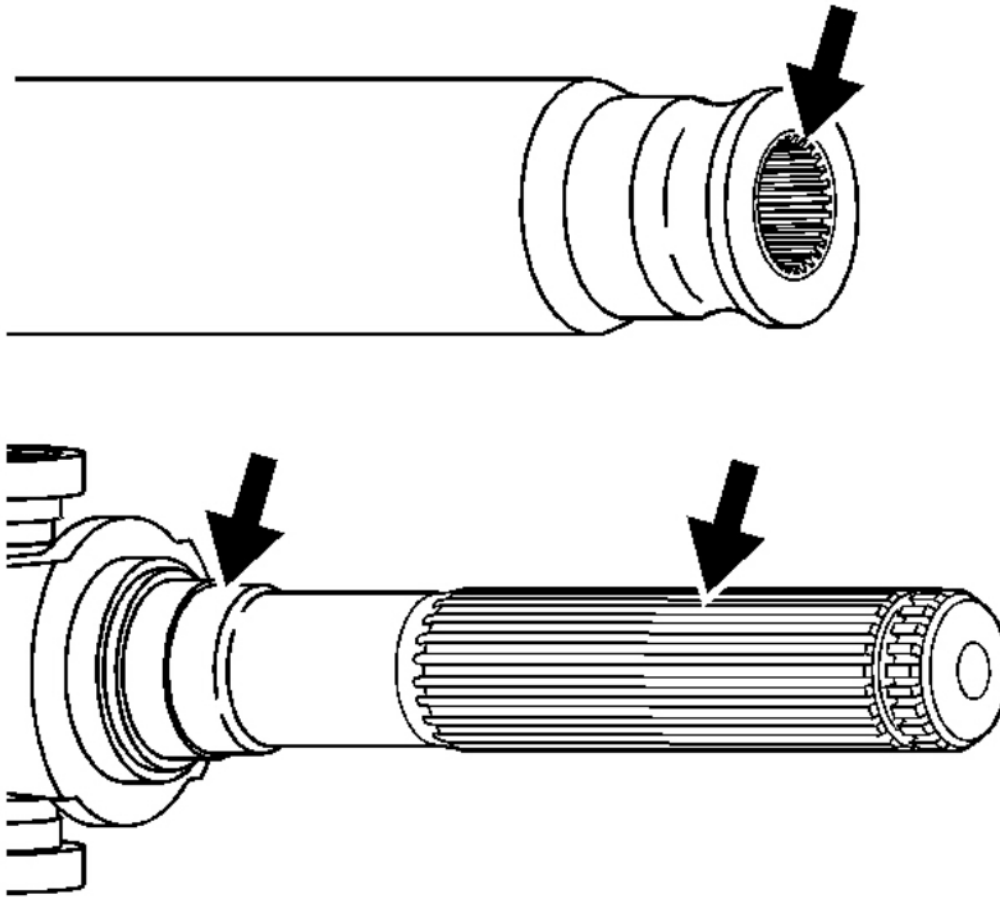


Fig. 33: Inspecting Shaft Splines
Courtesy of GENERAL MOTORS CORP.

1. Clean grease from the splines on both halves of the shaft.
2. Remove any corrosion or debris from the bearing area.

Installation Procedure

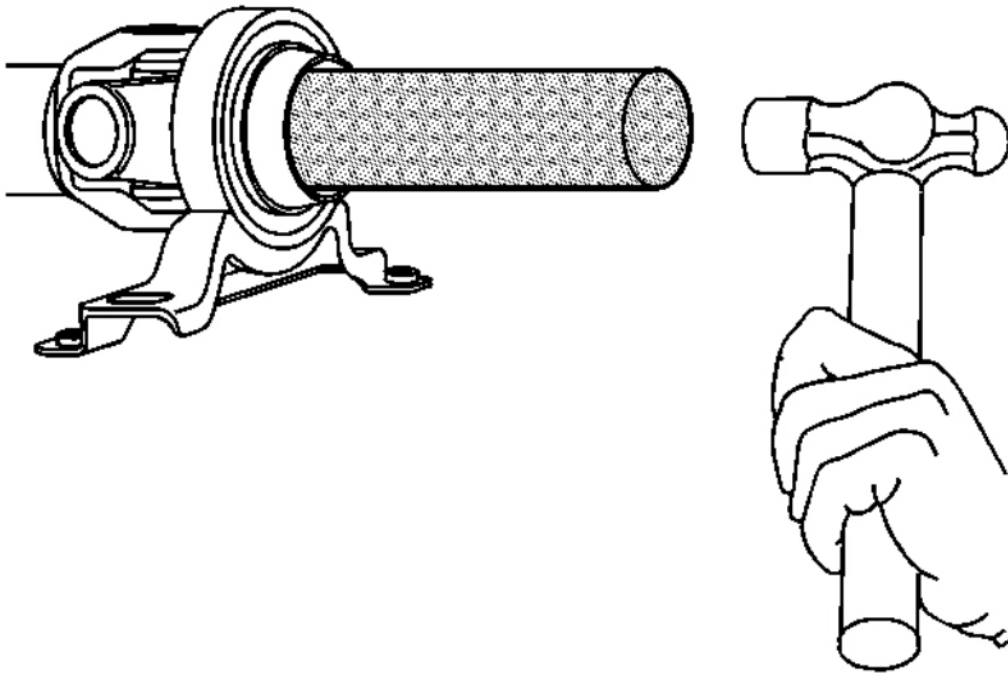


Fig. 34: Installing Spline Shaft Bearing
Courtesy of GENERAL MOTORS CORP.

1. Slide a NEW bearing over the spline shaft.
2. Using the **J 25863** , drive on the bearing until it seats and the snap ring groove is visible.
See **Special Tools and Equipment**.

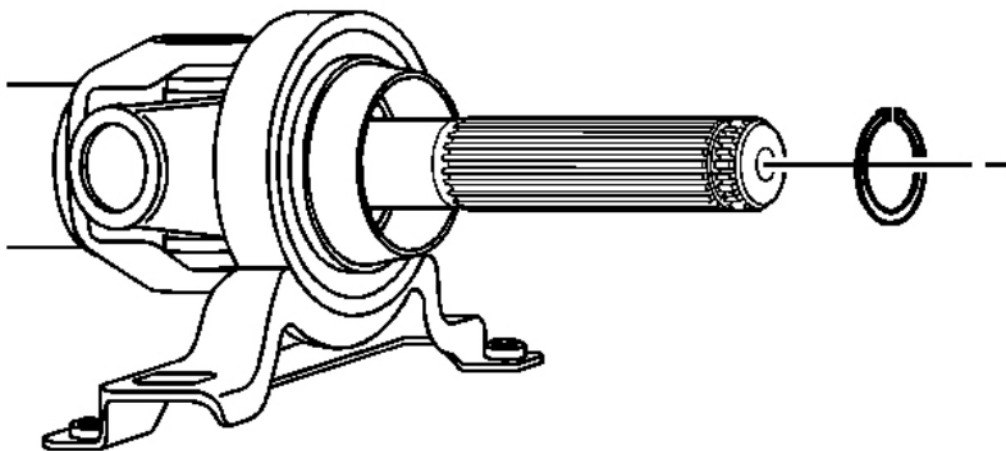


Fig. 35: View Of Snap Ring

Courtesy of GENERAL MOTORS CORP.

3. Install a NEW snap ring in the groove.

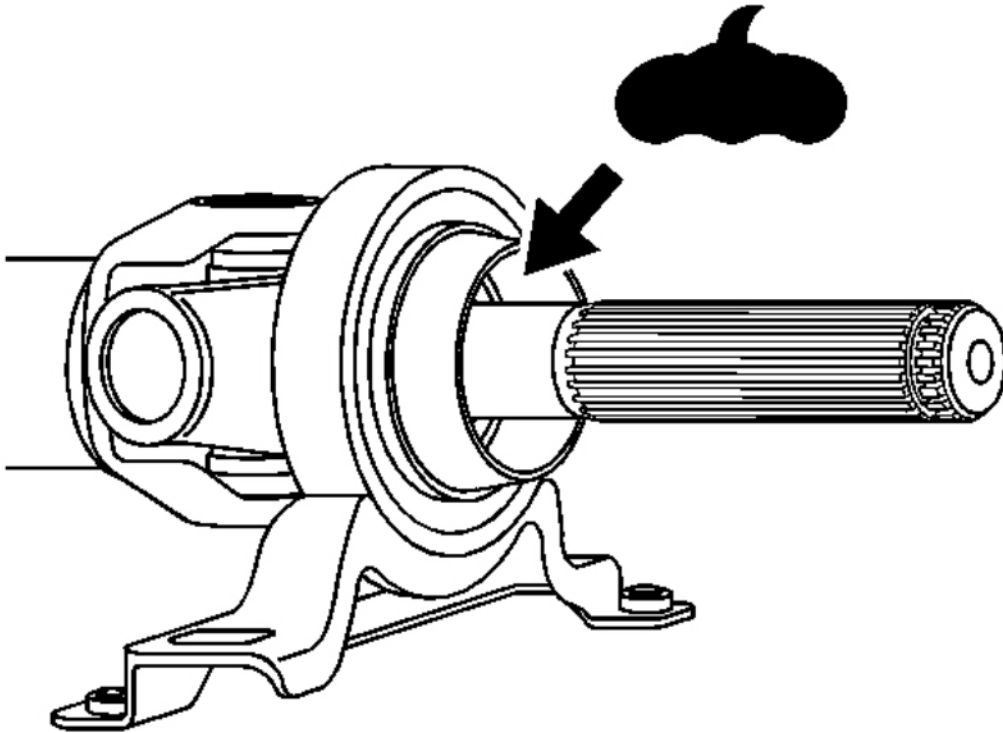


Fig. 36: Applying Grease To Snap Ring Area
Courtesy of GENERAL MOTORS CORP.

4. Apply 5-6 grams of grease from the kit in the snap ring area, ensuring surface of the bearing is covered.

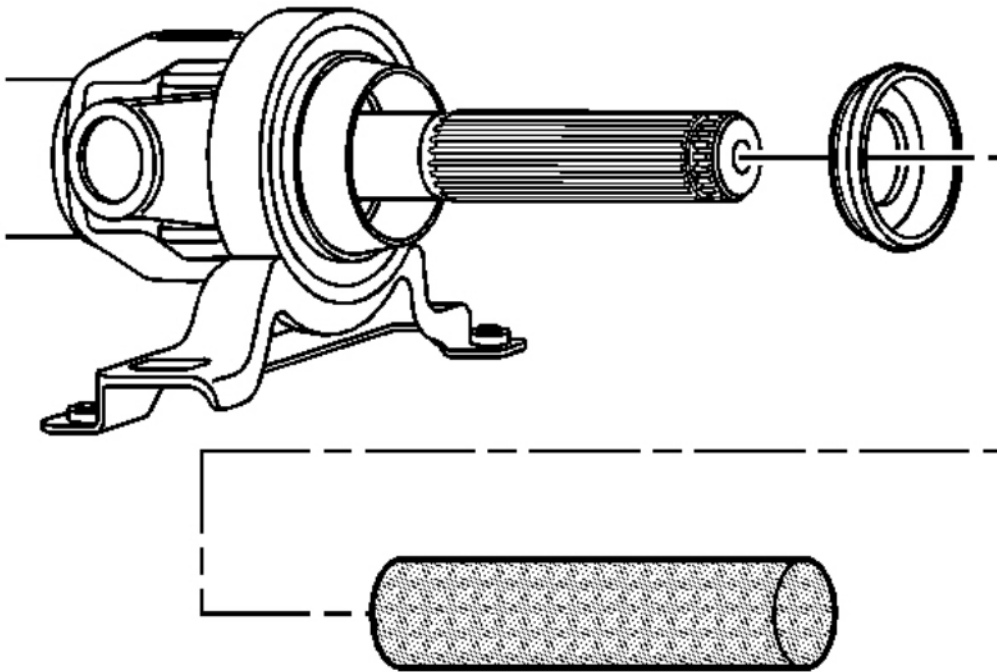


Fig. 37: Installing Slinger

Courtesy of GENERAL MOTORS CORP.

5. Install a NEW slinger from kit with the **J 25863** until it seats on the shaft against the bearing. See **Special Tools and Equipment**.

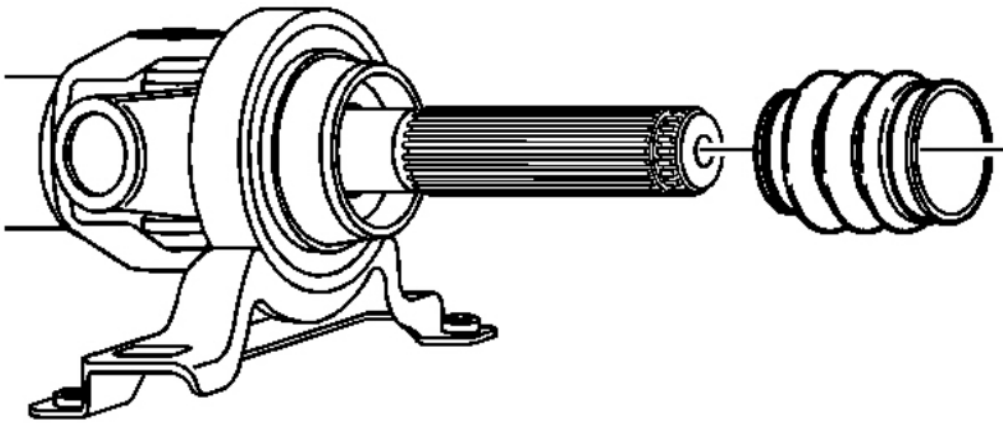


Fig. 38: View Of Dust Boot

Courtesy of GENERAL MOTORS CORP.

6. Apply 1 gram of grease to the inside of the dust boot.
7. Slide the dust boot over the splines with the clamp end out.

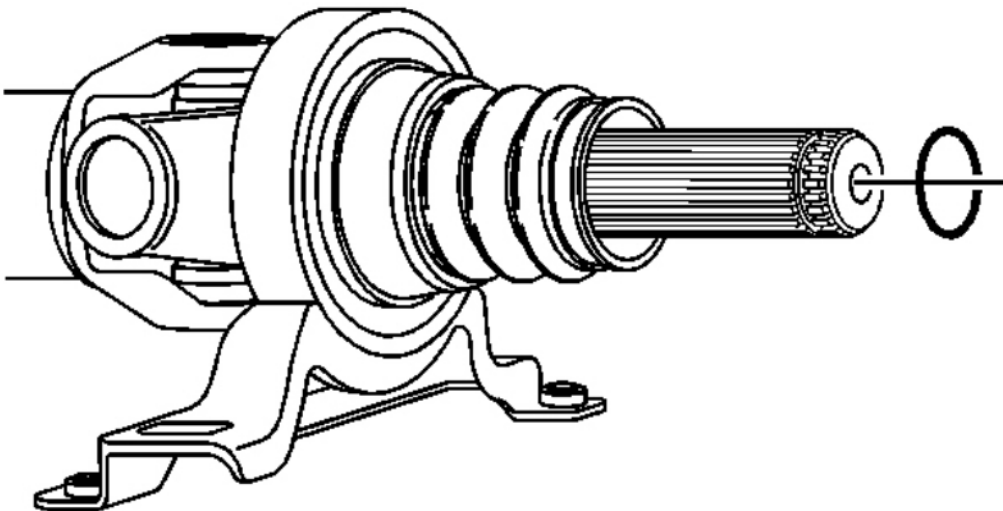


Fig. 39: View Of Spline Shaft O-Ring
Courtesy of GENERAL MOTORS CORP.

8. Install the NEW O-ring on the end of the spline shaft.
9. Apply 1-2 grams of grease to the splines for assembly.

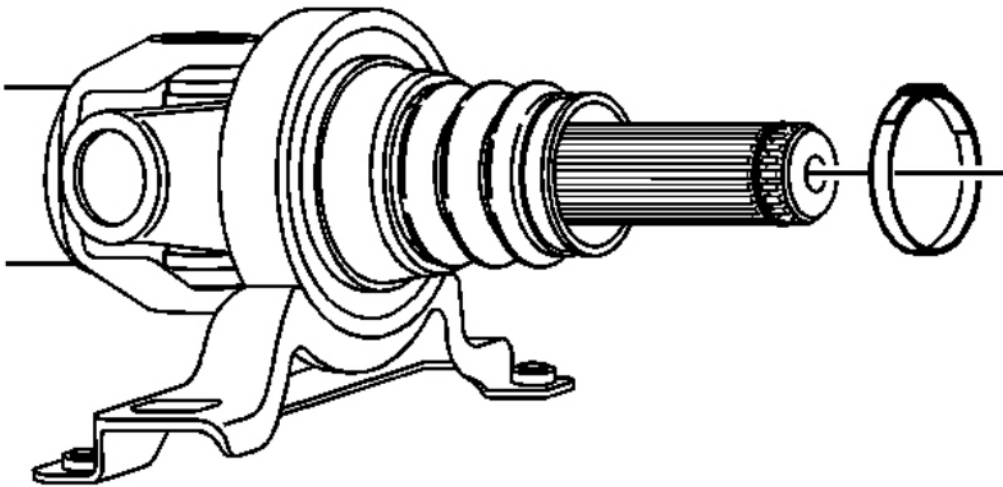


Fig. 40: Installing Dust Boot Clamp
Courtesy of GENERAL MOTORS CORP.

10. Install the NEW dust boot clamp over the splines.

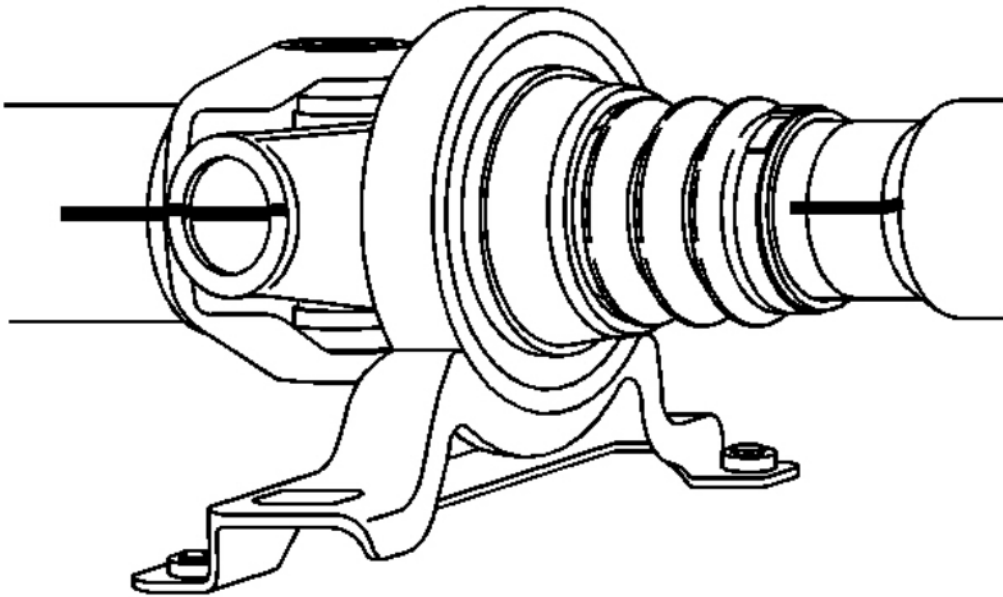


Fig. 41: View Of Propeller Shaft Alignment Marks
Courtesy of GENERAL MOTORS CORP.

11. Align the paint marks on the shaft to ensure proper assembly balance. Push the splines together.
12. Push the dust boot and clamp over the shaft.

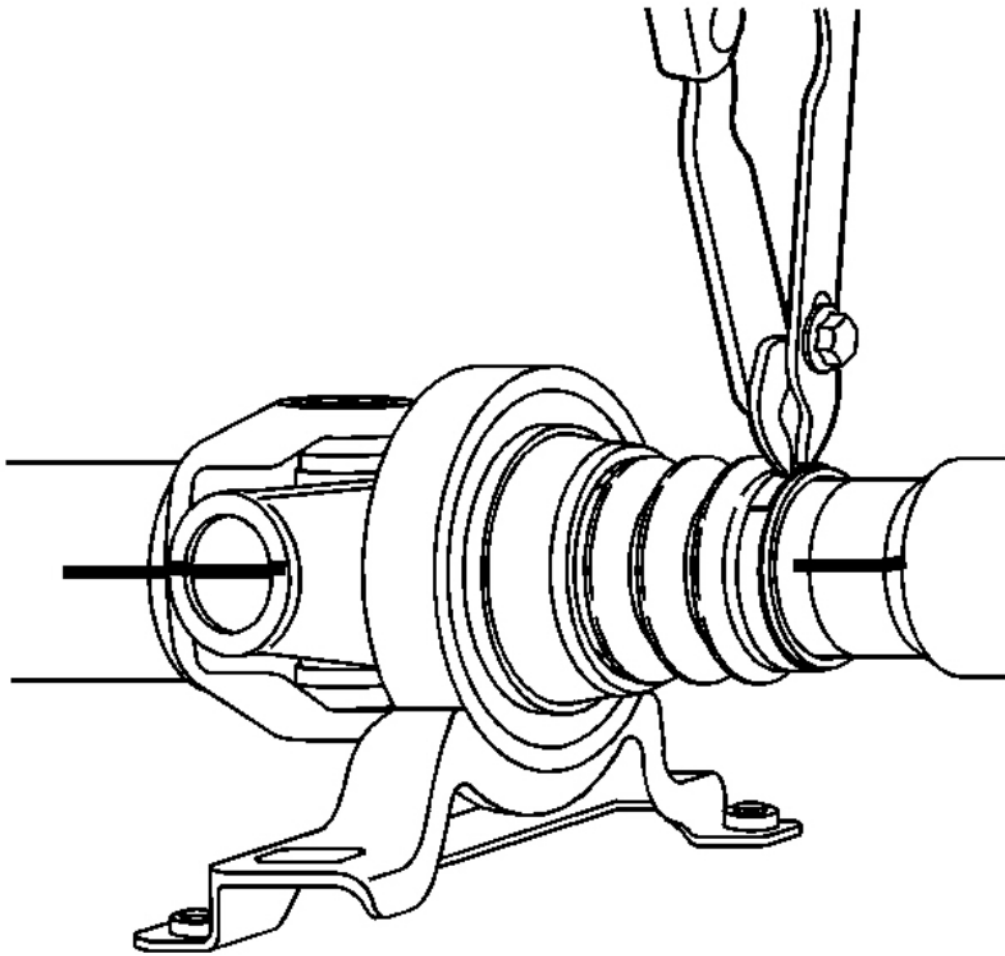


Fig. 42: Compressing Dust Boot Retaining Clamp
Courtesy of GENERAL MOTORS CORP.

13. Compress the dust boot retaining clamp.

DESCRIPTION AND OPERATION

PROPELLER SHAFT DESCRIPTION AND OPERATION

The propeller shaft is a tube with joints at both ends which do not require periodic maintenance, that transmit power from the transfer case or transmission output shaft to the differential.

Two-Piece Propeller Shaft Description

There are 2 universal joints used on the two-piece propeller shaft. A center bearing assembly is used to support the propeller shaft connection point, and help isolate the vehicle from vibration.

Propeller Shaft Phasing Description

The propeller shaft is designed and built with the yoke lugs, ears, in line with each other. This produces the smoothest running shaft possible. A propeller shaft designed with built in yoke lugs in line is known as in-phase. An out of phase propeller shaft often causes vibration. The propeller shaft generates vibration from speeding up and slowing down each time the universal joint goes around. The vibration is the same as a person snapping a rope and watching the wave reaction flow to the end. An in phase propeller shaft is similar to 2 persons snapping a rope at the same time and watching the waves meet and cancel each other out. A total cancellation of vibration produces a smooth flow of power in the driveline.

Universal Joint Description (RWD Only)

The universal joint is connected to the propeller shaft. The universal consist of 4 caps with needle bearings and grease seals mounted on the trunnions of a cross or spider. These bearings and caps are greased at the factory and no periodic maintenance is required. There are 2 universal joints used in a two-piece propeller shaft. The bearings and caps are pressed into the yokes and staked in place. Universal joints are designed to handle the effects of various loads and rear axle windup conditions during acceleration and braking. The universal joint operates efficiently and safely within the designed angle variations. When the design angles are exceeded, the operational life of the joint decreases.

Center Bearing Description

Center bearings support the driveline when using 2 or more propeller shafts. The center bearing is a ball bearing mounted in a rubber cushion that attaches to a frame crossmember. The manufacturer prelubricates and seals the bearing. The cushion allows vertical motion at the driveline and helps isolate the vehicle from vibration.

SPECIAL TOOLS AND EQUIPMENT

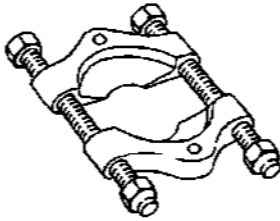
SPECIAL TOOLS

Special Tools

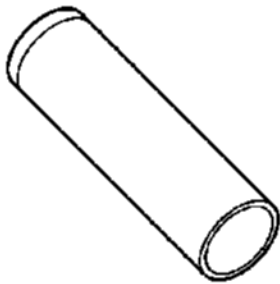
Illustration	Tool Number/Description

2004 Cadillac SRX

2004 DRIVELINE/AXLE Propeller Shaft - SRX



J 22912-O1
Split-Plate Bearing Puller



J 25863
Pinion Cone and Side Bearing Installer