

2017 Driveline/Axle
Propeller Shaft - Sierra, Silverado

SPECIFICATIONS

FASTENER SPECIFICATIONS

Single Use Non-Threaded Fasteners/Components

NOTE: <i>All fasteners/components listed in this table MUST BE DISCARDED and replaced with NEW after removal.</i>	
Application	
Slip Yoke Boot Clamp	
Yoke Retainer Clamp	

Reusable Threaded Fastener Tightening Specifications

NOTE: <i>All fasteners listed in this table can be reused after removal.</i>	
Application	Specification
	Metric (English)
Center Support Bearing Nut	40 N.m (30 lb ft)
Link Yoke Nut	160 N.m (118 lb ft)
Propeller Shaft Nut	160 N.m (118 lb ft)
Yoke Retainer Bolt	25 N.m (18 lb ft)

ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

Application	Type of Material	GM Part Number
Propeller Shaft Splines (Front Propeller Shaft and all RWD Propeller Shaft w/MYC Automatic Transmission)	Lubricant	19257121 (Canadian P/N 19257122) or equivalent meeting GM Specification 9985830
Propeller Shaft-to-Flange Bolts	Thread locker	89021297 (Canadian P/N 10953488) or equivalent meeting GM Specification

COMPONENT LOCATOR

DRIVELINE DISASSEMBLED VIEWS

Front Propeller Shaft

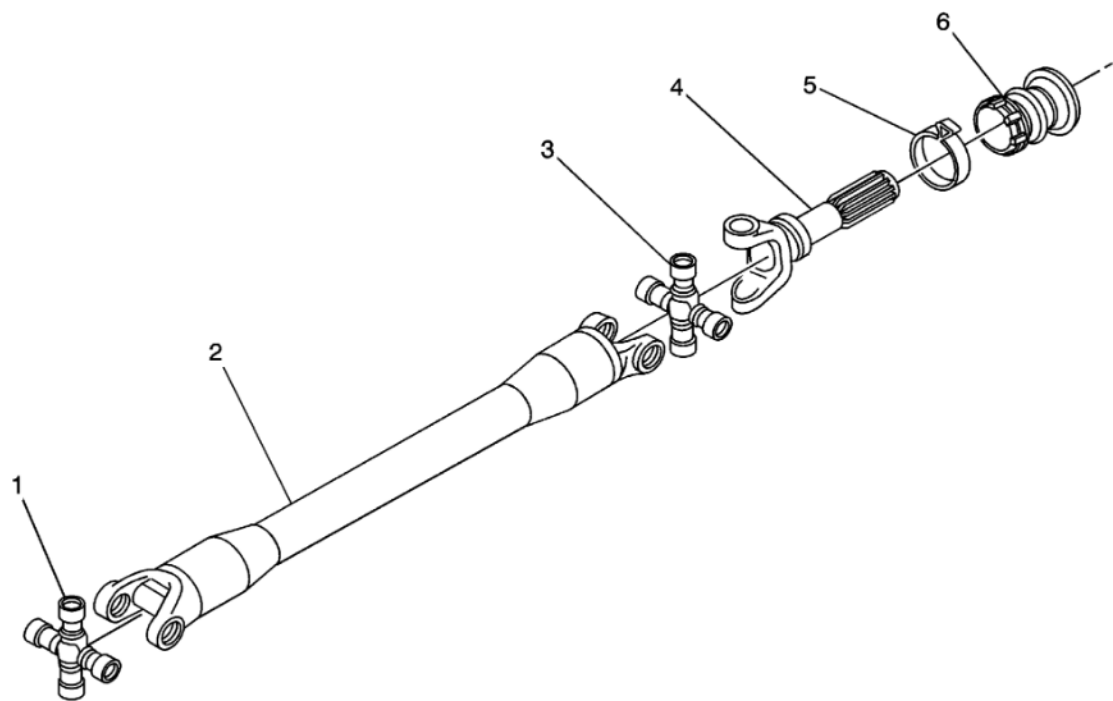


Fig. 1: Front Propeller Shaft Component View
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Propeller Shaft Universal Joint
2	Propeller Shaft Tube
3	Propeller Shaft Universal Joint
4	Propeller Shaft Slip Yoke
5	Propeller Shaft Rear Slip Yoke Boot Clamp- Front
6	Propeller Shaft Rear Slip Yoke Boot

One-Piece Propeller Shaft

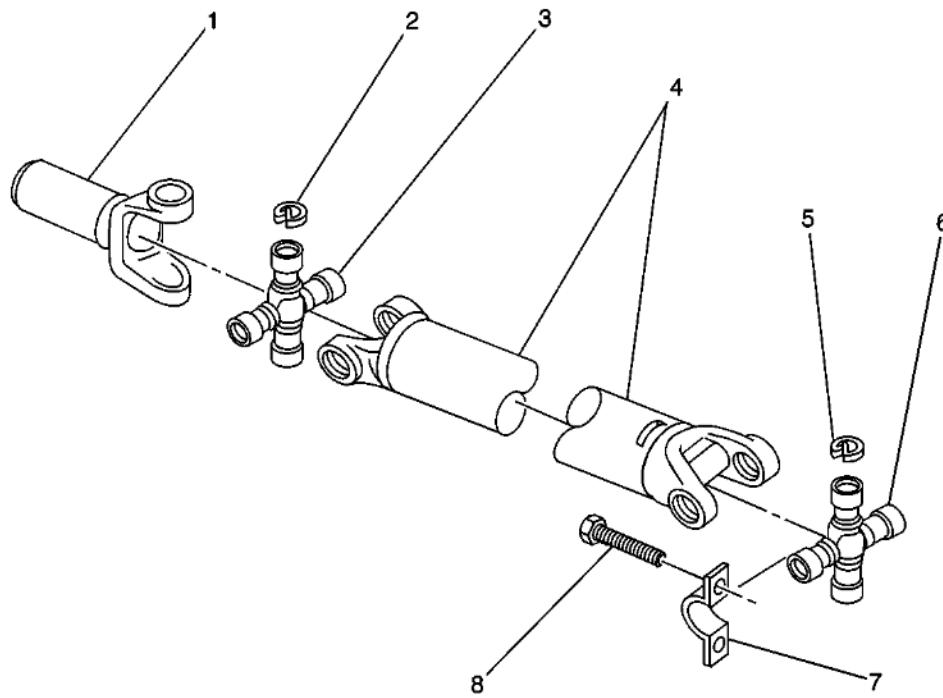


Fig. 2: One-Piece Propeller Shaft Component View
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Propeller Shaft Slip Yoke
2	Propeller Shaft Universal Joint Spider Bearing Retainer Ring
3	Propeller Shaft Universal Joint
4	Propeller Shaft Tube
5	Propeller Shaft Universal Joint Spider Bearing Retainer Ring
6	Propeller Shaft Universal Joint
7	Propeller Shaft Bearing Retainer
8	Propeller Shaft Bearing Retainer Bolt

Two-Piece Propeller Shaft

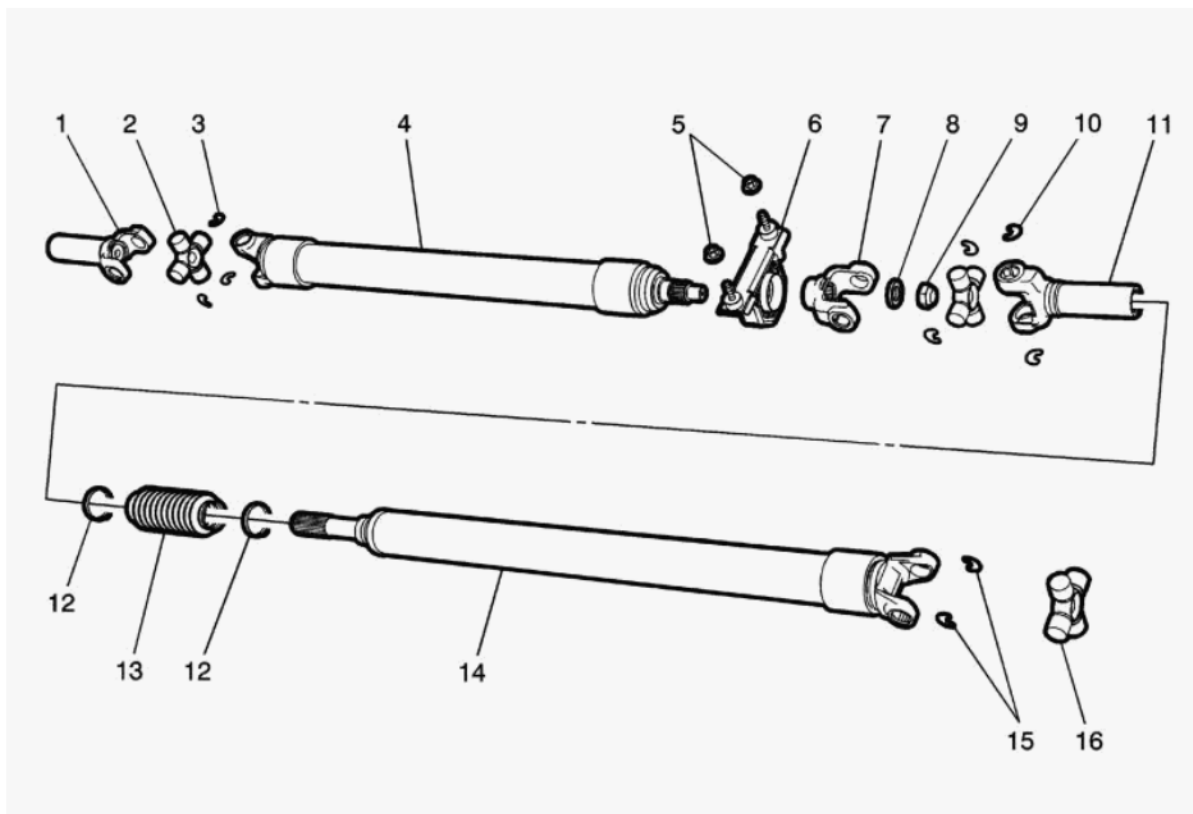


Fig. 3: Two-Piece Propeller Shaft Component View

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Propeller Shaft Front Slip Yoke
2	Rear Propeller Shaft Bearing - U-Joint
3	Front Propeller Shaft Bearing Retaining Ring - U-Joint Clip
4	Front Propeller Shaft Tube
5	Center Support Bearing Mounting Nuts
6	Center Support Bearing
7	Propeller Shaft Link Yoke
8	Propeller Shaft Washer
9	Propeller Shaft Nut
10	Propeller Shaft Bearing Retaining Ring - U-Joint
11	Propeller Shaft Slip Yoke - Rear
12	Propeller Shaft Slip Yoke Boot Clamp
13	Propeller Shaft Slip Yoke Boot
14	Rear Propeller Shaft Tube
15	Rear Propeller Shaft Bearing Retaining Ring - U-Joint Clip
16	Rear Propeller Shaft Bearing Retaining Ring - U-Joint

DIAGNOSTIC INFORMATION AND PROCEDURES

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:

- Leaks
- Noises
- Vibrations

Leak and noise related symptoms are diagnosed within the Propeller Shaft section. For vibration related symptoms, refer to [Vibration Diagnosis, Starting Point, and Correction](#).

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:

- [Leak at Front Slip Yoke](#)
- [Universal Joint Noise](#)
- [Ping, Snap, or Click Noise](#)
- [Knock or Clunk Noise](#)
- [Scraping Noise](#)
- [Squeak Noise](#)
- [Shudder on Acceleration at Low Speed](#)

LEAK AT FRONT SLIP YOKE

Checks	Action
DEFINITION: A few drops of lubricant that are leaking from the splined yoke are normal. This condition does not require attention.	
The slip yoke barrel is burred, nicked, corroded, or worn or the welch plug is leaking.	1. Inspect the slip yoke for burrs. Careful use of crocus cloth or fine stone honing can remove minor burrs. 2. If the yoke is badly burred, corroded, or worn, replace the yoke. 3. If the welch plug is leaking replace the yoke. Refer to Propeller Shaft Slip Yoke Replacement. 4. If the two wheel drive welch plug is leaking replace the oil seal in transmission. Refer to Propeller Shaft Front Slip Yoke Oil Seal Replacement (Two Wheel Drive). 5. Replace the oil seal. Refer to one of the following procedures: • For vehicles equipped with the MP 1222/1225/1226-NQG

Checks	Action
	transfer case, refer to Rear Output Shaft Seal Replacement . - For vehicles equipped with the MP 3023/3024-NQH transfer case, refer to Rear Output Shaft Seal Replacement . - For vehicles equipped with the 6L50/6L80/6L90 transmission, refer to Transmission Output Shaft Seal Replacement (Four Wheel Drive) .
There is a faulty oil seal in the transmission or in the transfer case output shaft.	Replace the oil seal. Refer to one of the following procedures: - For vehicles equipped with the MP 1222/1225/1226-NQG transfer case, refer to Rear Output Shaft Seal Replacement . - For vehicles equipped with the MP 3023/3024-NQH transfer case, refer to Rear Output Shaft Seal Replacement . - For vehicles equipped with the 6L50/6L80/6L90 transmission, refer to Case Extension and Gasket Replacement .

UNIVERSAL JOINT NOISE

Problem	Action
One or more of the universal joints are worn or damaged.	Replace the universal joint. Refer to Universal Joint Replacement .
One or more of the universal joints have lost lubricant.	Replace the universal joint. Refer to Universal Joint Replacement .
The yoke retainer strap bolts are loose.	Tighten the yoke retainer strap bolts to specifications. Refer to Fastener Specifications .

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.	
A loose pinion yoke or companion flange.	Tighten the bolts and the pinion nut to specified torque. Refer to Fastener Specifications .
One or more of the universal joints are worn or damaged.	Replace the universal joint. Refer to Universal Joint Replacement .
Heat shield interference	Eliminate interference.

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).	
One or more of the universal joints are worn or damaged.	Replace the universal joint. Refer to Universal Joint Replacement .

Checks	Action
The side gear hub counterbore in the differential is worn oversize.	Replace the differential case and/or the side gears. Refer to Differential Replacement (8.6, 9.5/9.76 Inch Axles) Differential Replacement (10.5/11.5 Inch Axles) .

SCRAPING NOISE

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, if equipped.	Correct the interference as necessary.
Exhaust pipe contact.	Correct the interference as necessary.
Balance weight detached from the propeller shaft.	A detached balance weight may create a sliding, scraping, or ticking type noise during acceleration or deceleration. 1. Inspect the propeller shaft and tube for a detached balance weight. 2. Replace components as required. Do not attempt to reattach the balance weight to the propeller shaft.

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 universal joint. Refer to Universal Joint Replacement .
C/V boot worn or torn.	Replace components as necessary.
Center bearing is dry or worn.	Lube or replace the center bearing.

SHUDDER ON ACCELERATION AT LOW SPEED

Checks	Action
DEFINITION: When the vehicle is accelerating at low speed a shudder occurs.	
The yoke retainer strap bolts are loose or missing.	Replace or tighten the yoke retainer strap bolts to specifications. Refer to Fastener Specifications .
The driveline joint angle is excessive or incorrectly set.	Determine if the driveline angle is incorrect and correct as necessary. Refer to Vibration Diagnosis, Starting Point, and Correction .
One or more of the universal joints are worn or damaged.	Replace the universal joint. Refer to Universal Joint Replacement .

REPAIR INSTRUCTIONS

FRONT AXLE PROPELLER SHAFT REPLACEMENT

Special Tools

Removal Procedure

NOTE: Before disassembly, observe and accurately reference mark all driveline components relative to the propeller shaft and axles. These items include the following components:

- The propeller shafts
- The wheel drive shafts
- The pinion flanges
- The output shafts

Assemble all components in the exact relationship to each other as they were prior to removal. Observe all published specifications and torque values, and any measurements obtained prior to disassembly.

1. Raise the vehicle. [Lifting and Jacking the Vehicle](#) .

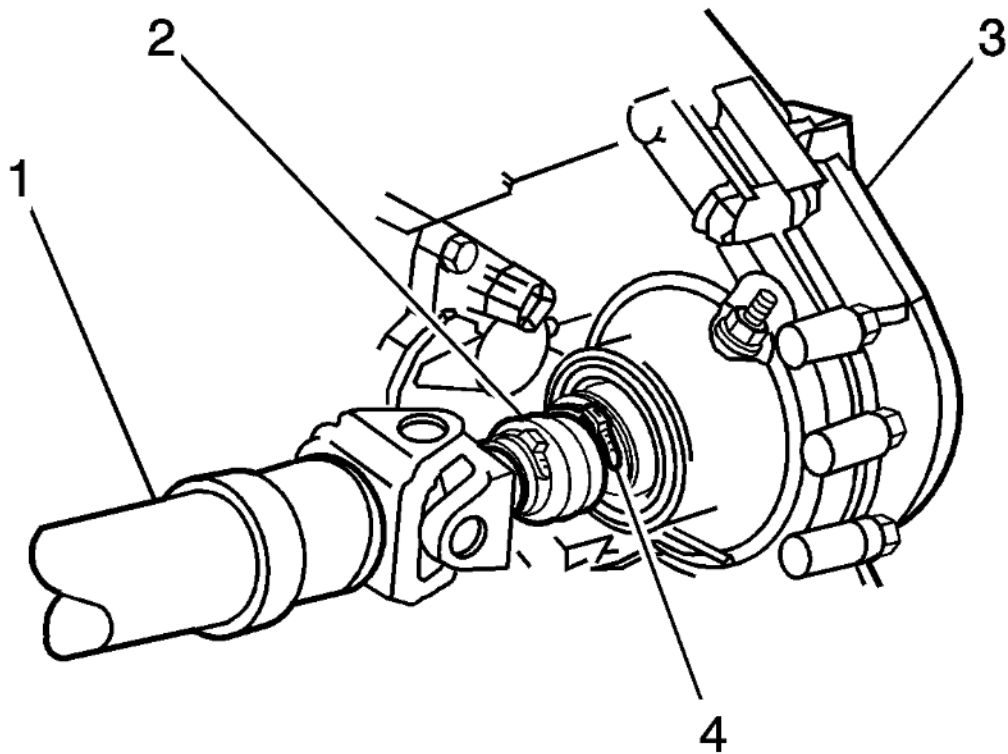


Fig. 4: Rear Propeller Shaft Boot Clamp

Courtesy of GENERAL MOTORS COMPANY

2. Remove the clamp (4) at the transfer case by prying up the exposed end of the clamp with a flat-bladed tool.
3. Reference mark the relationship of the propeller shaft to the front axle pinion yoke.

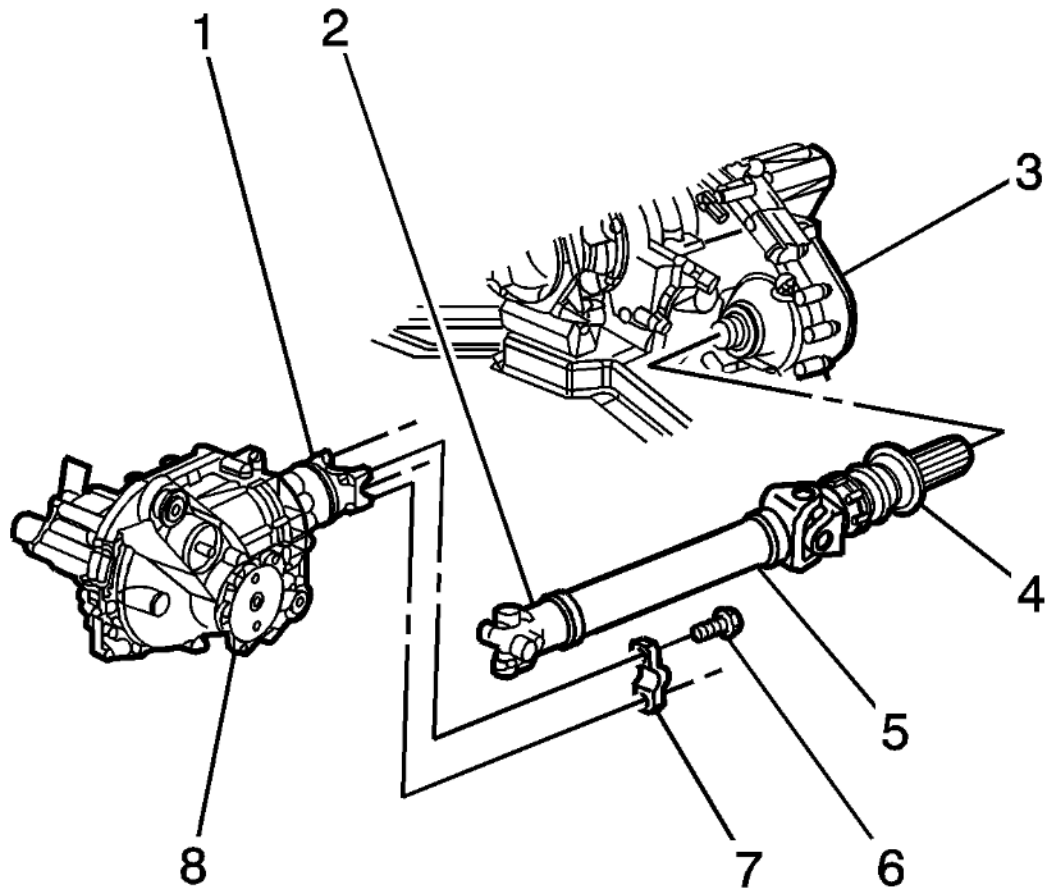


Fig. 5: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

CAUTION: When removing the propeller shaft, do not attempt to remove the shaft by pounding on the yoke ears or using a tool between the yoke and the universal joint. If the propeller shaft is removed by using such means, the injection joints may fracture and lead to premature failure of the joint.

4. Remove the bolts (6) and the yoke retainers (7) from the front axle pinion yoke (1).

NOTE: Do not drop the bearing cap assemblies of the yoke end.

5. Disconnect the propeller shaft (2) from the front axle pinion yoke (1).

Wrap the bearing caps with tape in order to prevent the loss of bearing rollers.

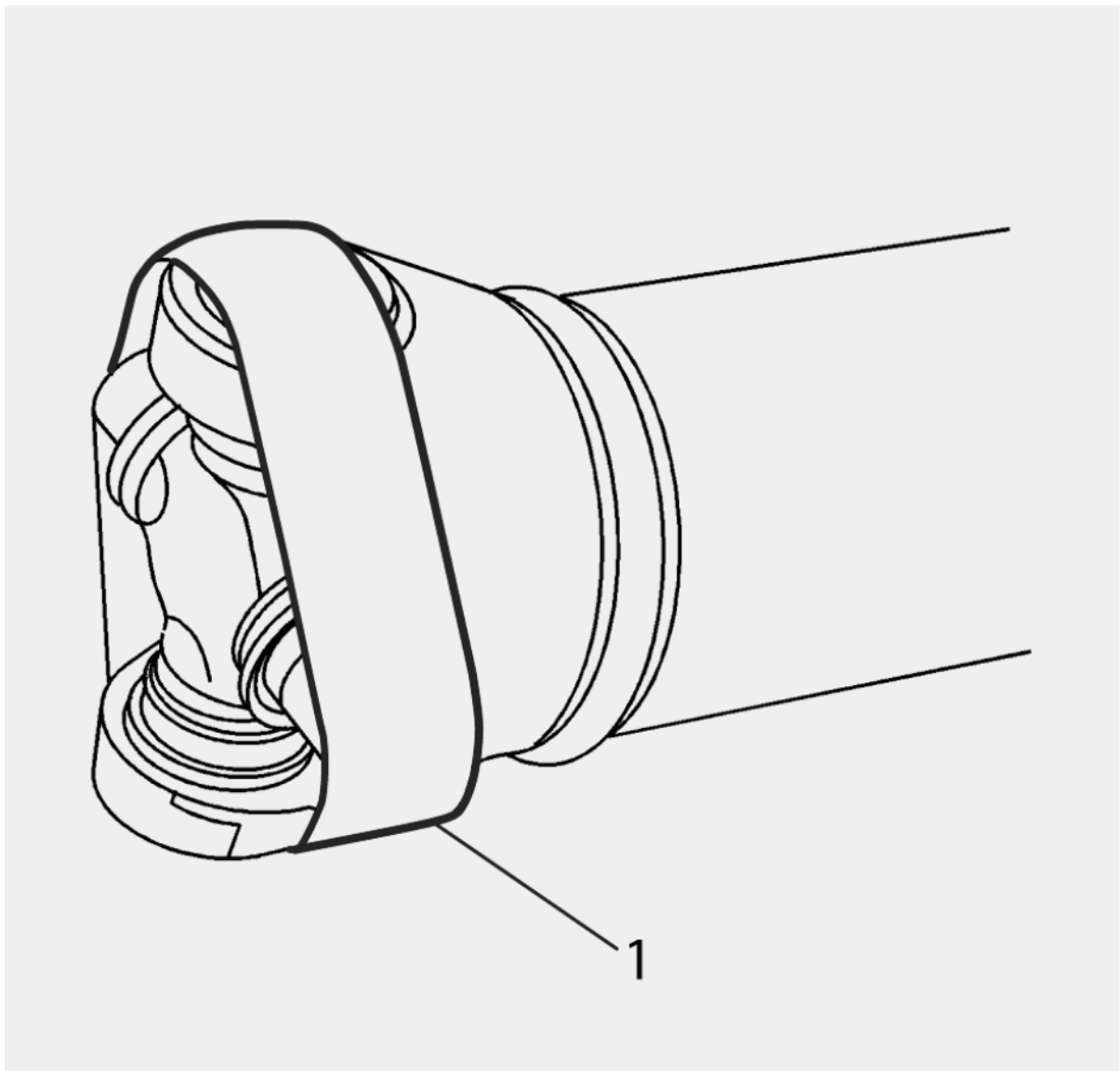


Fig. 6: U-Joint Bearing Caps

Courtesy of GENERAL MOTORS COMPANY

6. Use tape to secure the bearing caps.

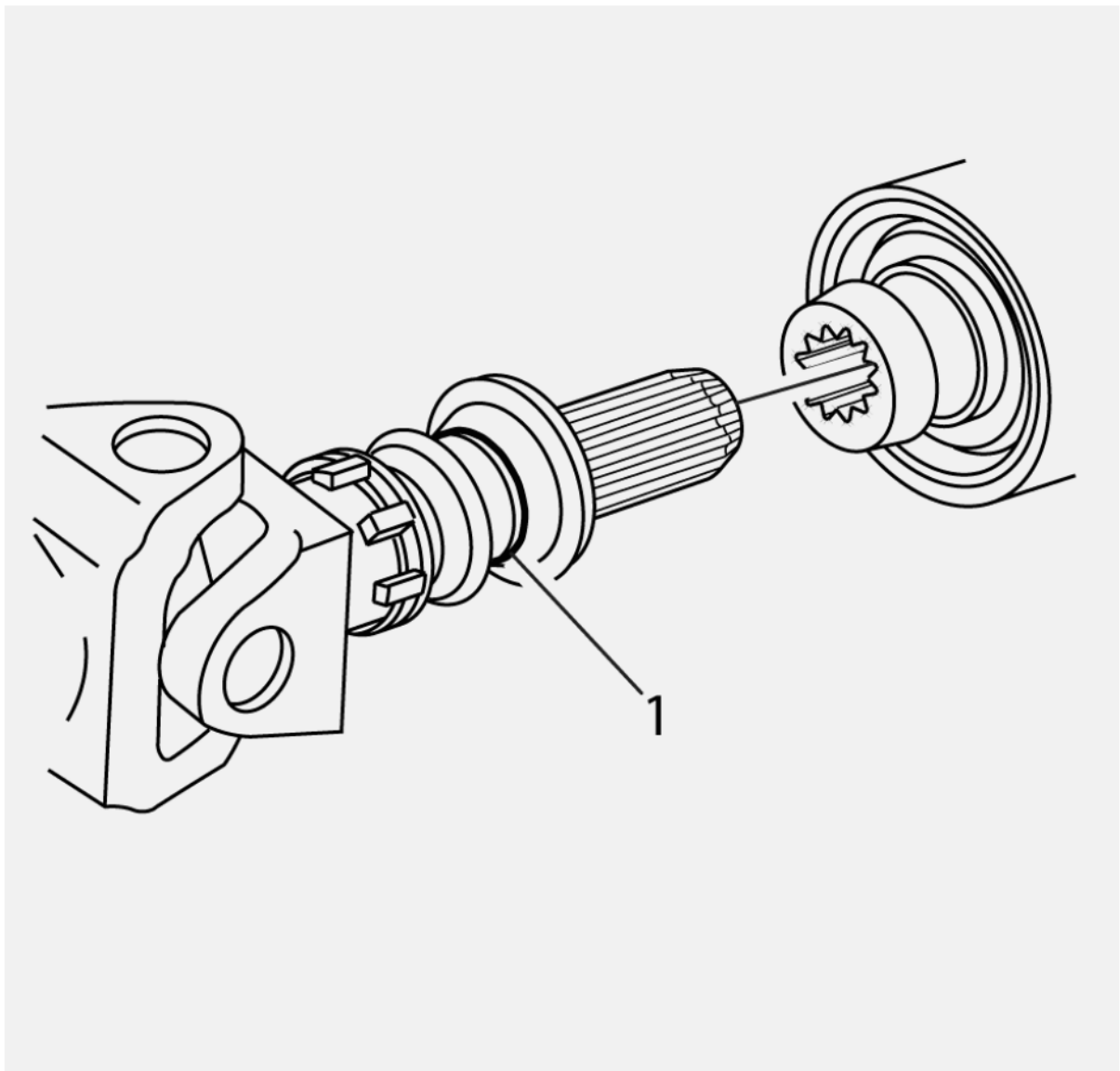


Fig. 7: View Of Boot & Groove On Transfer Case Output Shaft (Single Clamp Style Boot)
Courtesy of GENERAL MOTORS COMPANY

7. Remove the boot from the groove on the transfer case output shaft.
8. Remove the propeller shaft from the transfer case output shaft by sliding the propeller shaft forward.

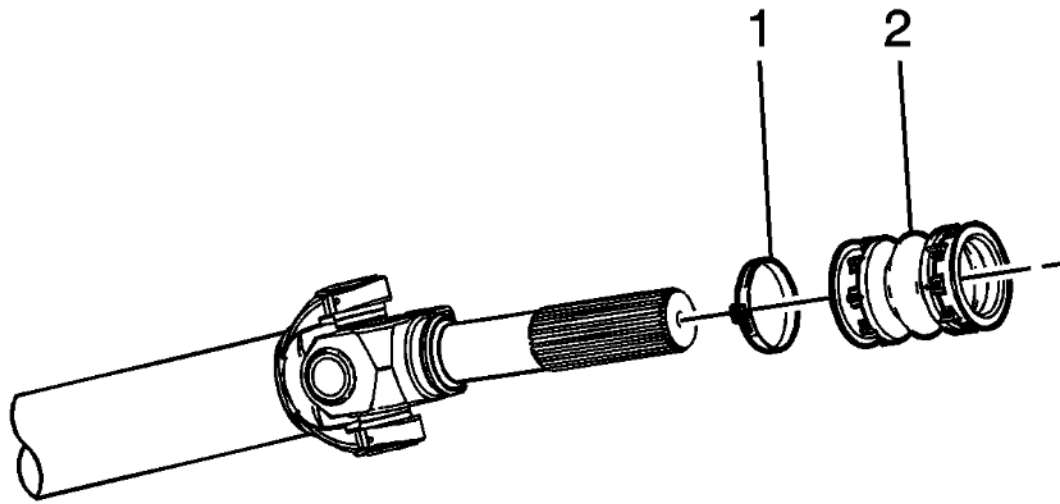


Fig. 8: View Propeller Shaft, Clamp & Shaft Boot

Courtesy of GENERAL MOTORS COMPANY

9. Remove the clamp (1) from the propeller shaft boot (2), if needed.
10. Remove the propeller shaft boot (2) from the propeller shaft, if needed.

Installation Procedure

NOTE: Use of grease on splines of 4WD vehicles can negatively affect transfer case performance. Use transfer case lubricant only.

1. Inspect the splines of the slip yoke for a sufficient coating of lubricant. If the splines of the slip yoke do not have a sufficient coating, lubricate the internal slip yoke splines with clean transmission fluid.

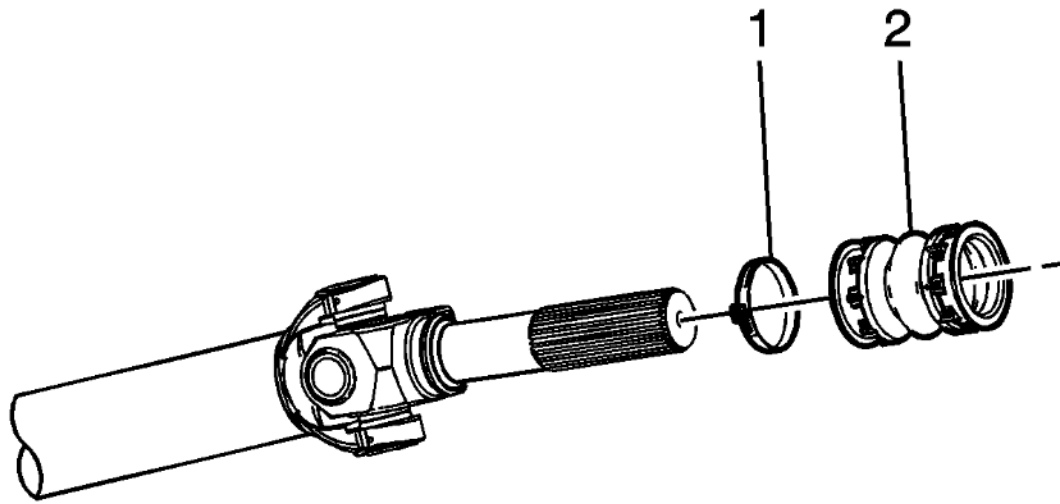


Fig. 9: View Propeller Shaft, Clamp & Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

2. Install the propeller shaft boot (2).
3. Install the propeller shaft boot clamp (1).

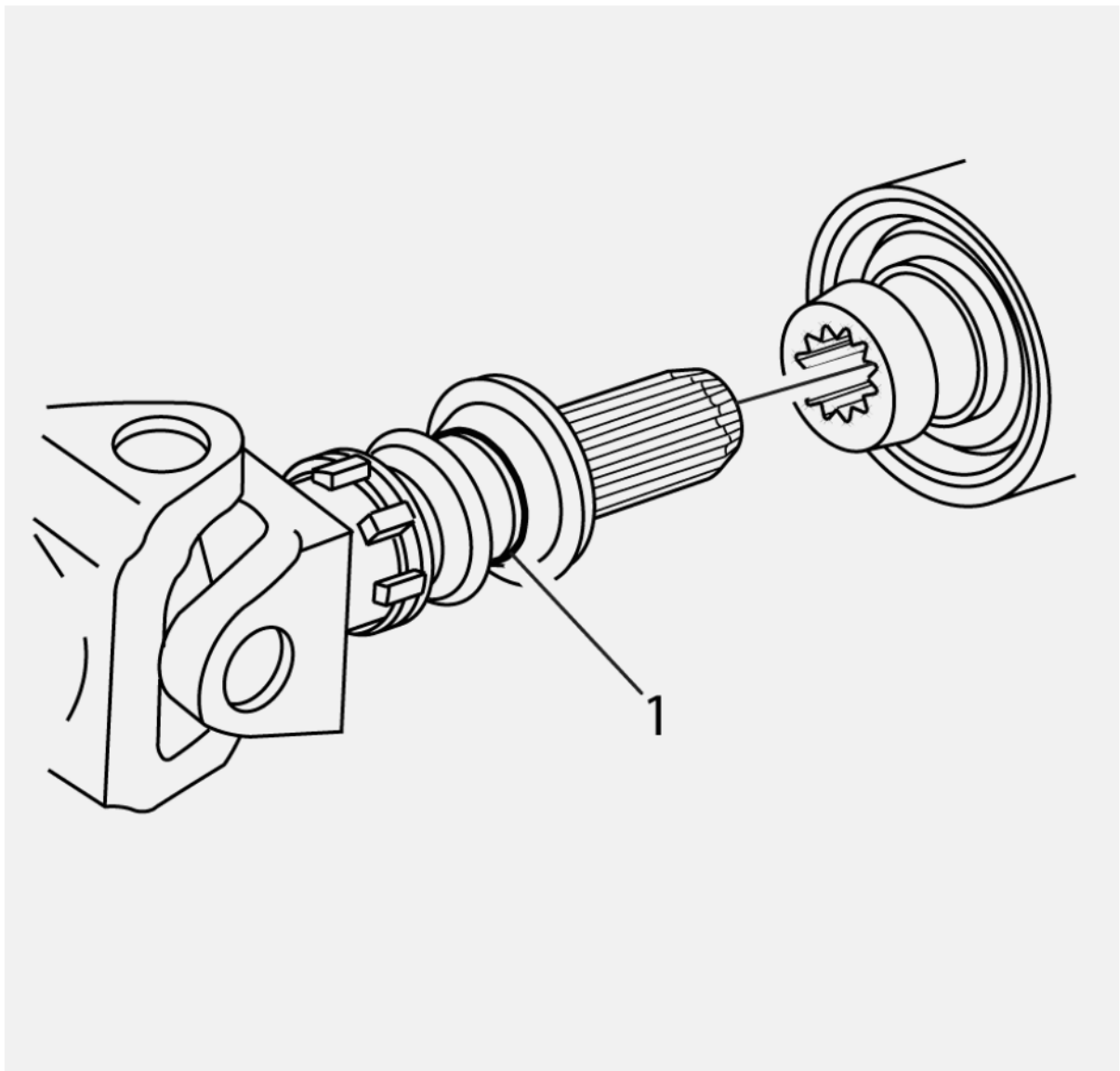


Fig. 10: View Of Boot & Groove On Transfer Case Output Shaft (Single Clamp Style Boot)
Courtesy of GENERAL MOTORS COMPANY

4. Install the propeller shaft splines into the transfer case output shaft.

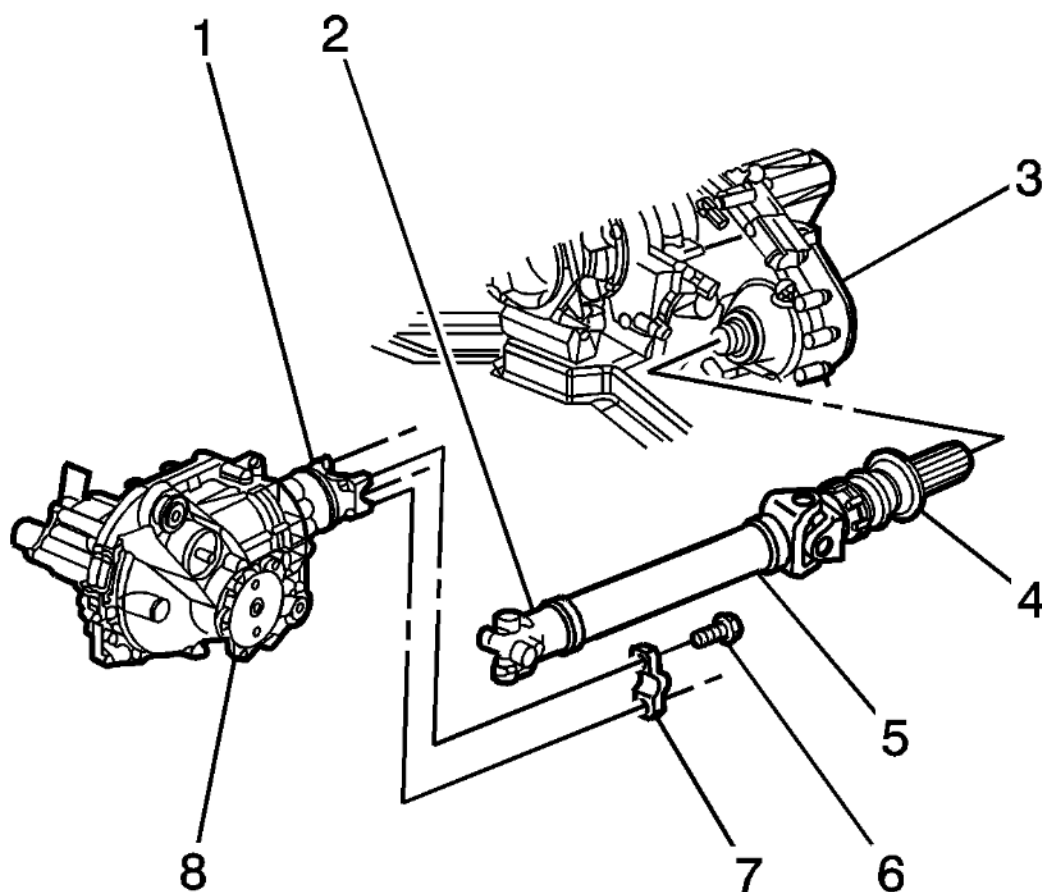


Fig. 11: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

5. Install the propeller shaft (5) to the front axle pinion yoke (1).

Align the reference marks made during removal.

CAUTION: Fastener Caution .

NOTE: If the bolts or nuts are found to be damaged or are excessively worn, DO NOT reuse. Replace with new.

NOTE: If reusing the propeller shaft bolts, to ensure proper adhesion and fastener retention, the threads must be free of debris prior to the application of thread locker.

6. Use an appropriate cleaner to thoroughly clean the threads and allow to dry. Apply thread locker to the propeller shaft to flange bolts. Ensure that there are no gaps in the thread locker along the length of the filled area of the bolts. Allow the thread locker to cure approximately 10 minutes before installation.
7. Install the yoke retainers (7) and the bolts (6).

Tighten

Tighten the yoke retainer bolts to 25 N.m (18 lb ft).

8. Install the boot onto the transfer case output shaft until the boot snaps into the groove on the output shaft.
9. Using the **J-43218** clamp pliers to crimp both clamps.
10. Lower the vehicle.

ONE-PIECE PROPELLER SHAFT REPLACEMENT

Removal Procedure

NOTE: Observe and accurately reference mark all driveline components relative to the propeller shaft and axles before disassembly. These components include the propeller shafts, the drive axles, the pinion flanges, the output shafts, etc. All components must be reassembled in the exact relationship to each other as they were when removed. In addition, published specifications and torque values, as well as any measurements made prior to disassembly must be followed.

1. Raise the vehicle. [Lifting and Jacking the Vehicle](#)

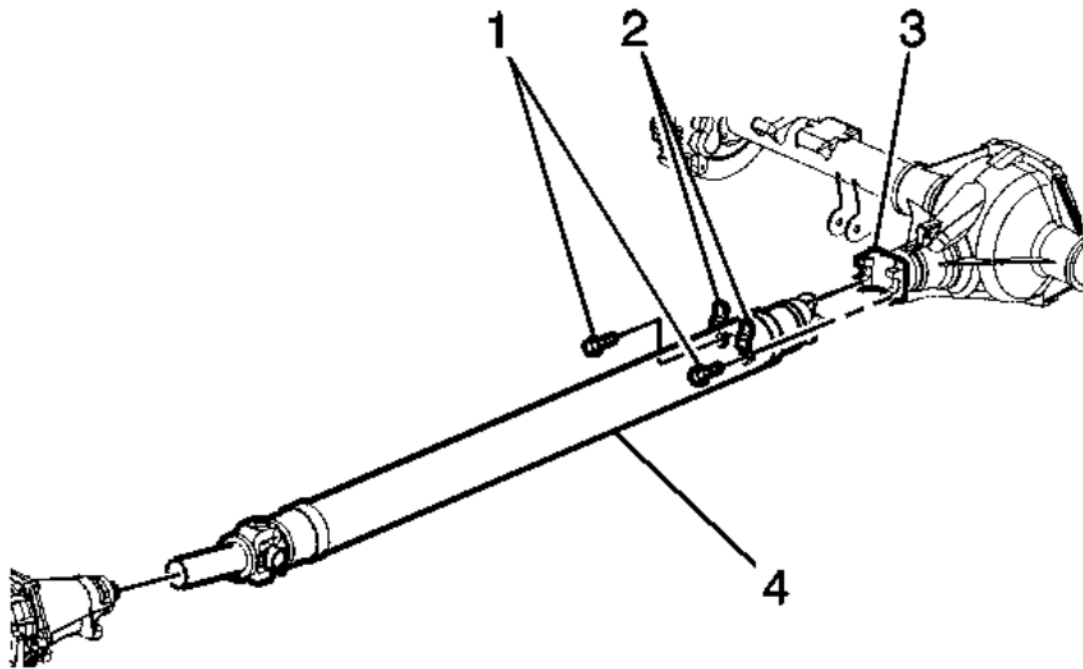


Fig. 12: Yoke Retainers, Rear Axle Pinion Yoke & Bolts

Courtesy of GENERAL MOTORS COMPANY

2. Reference mark the propeller shaft to the rear axle pinion yoke.
3. Reference mark the propeller shaft to the transmission or transfer case.

NOTE: **DO NOT re-use the yoke retainers. DISCARD and replace with NEW only.**

4. Remove the bolts (1) and the yoke retainers (2) from the rear axle pinion yoke (3). DISCARD the bolts.

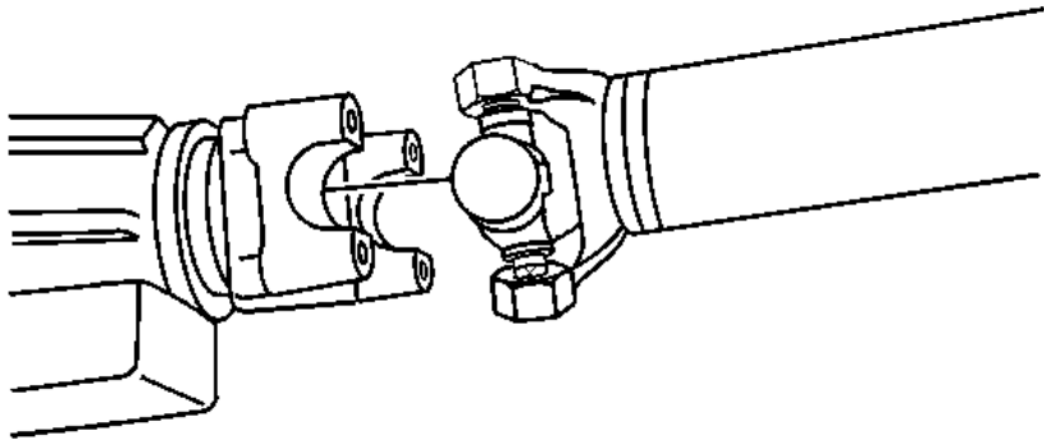


Fig. 13: Disconnecting Propeller Shaft From Rear Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

CAUTION: When removing the propeller shaft, do not attempt to remove the shaft by pounding on the yoke ears or using a tool between the yoke and the universal joint. If the propeller shaft is removed by using such means, the injection joints may fracture and lead to premature failure of the joint.

5. Slide the propeller shaft forward in order to disconnect the propeller shaft from the rear axle pinion yoke.

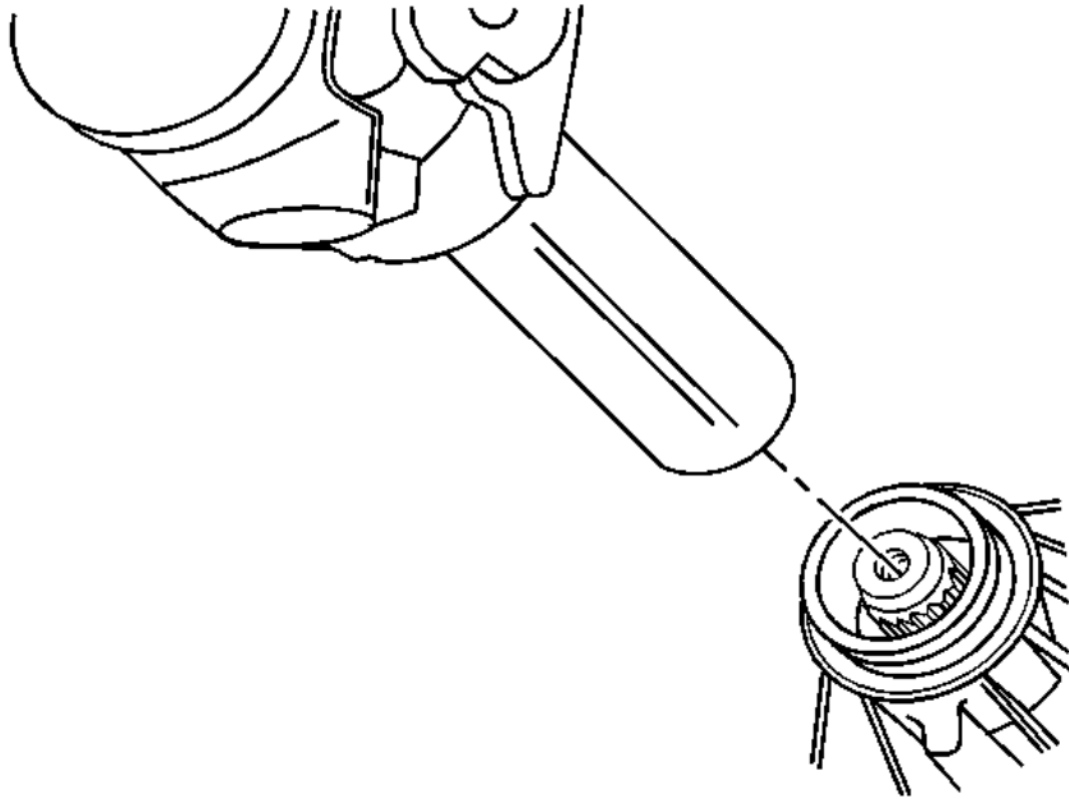


Fig. 14: View Of Propeller Shaft To Transmission Or Transfer Case
Courtesy of GENERAL MOTORS COMPANY

6. Slide the propeller shaft rearward in order to disconnect the propeller shaft from the transmission or transfer case.
7. Remove the propeller shaft from the vehicle.

Installation Procedure

1. Inspect the splines of the slip yoke for a sufficient coating of lubricant. If the splines of the slip yoke do not have a sufficient coating, lubricate the internal slip yoke splines with proper lubricant. **Adhesives, Fluids, Lubricants, and Sealers**

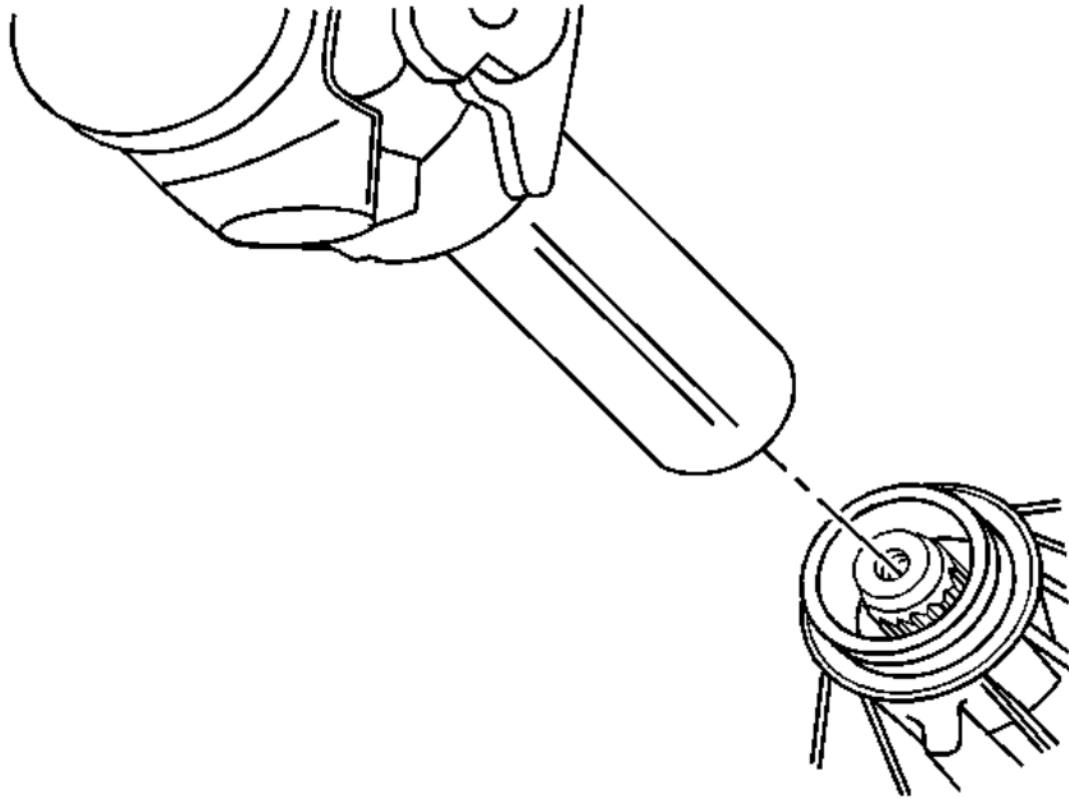


Fig. 15: View Of Propeller Shaft To Transmission Or Transfer Case
Courtesy of GENERAL MOTORS COMPANY

2. Install the propeller shaft into the transmission or transfer case.

Align the reference marks made during removal.

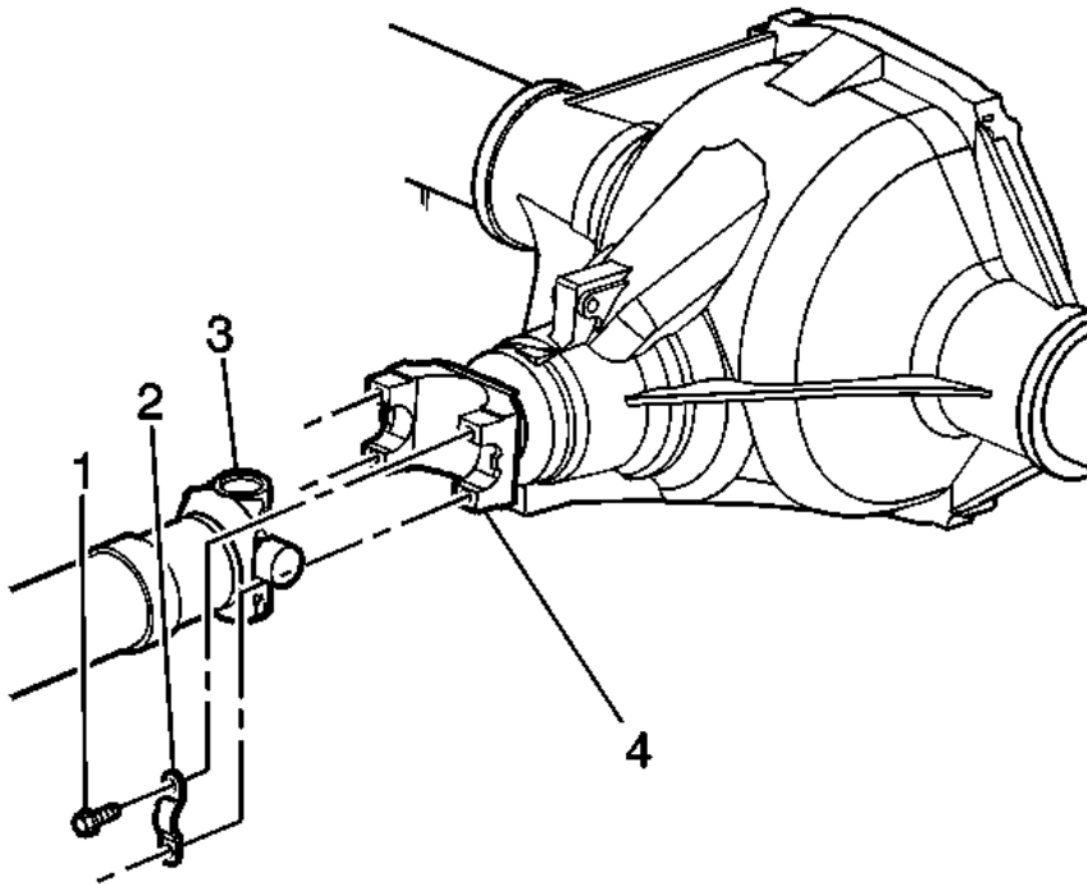


Fig. 16: Identifying Driveshaft Pinion, Yoke Retainers & Bolts
Courtesy of GENERAL MOTORS COMPANY

3. Install the propeller shaft (3) to the rear axle pinion yoke (4).

Align the reference marks made during removal.

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

4. Install the NEW yoke retainers (2) and the NEW bolts (1). Tighten to 25 N.m (18 lb ft).
5. Lower the vehicle.

TWO-PIECE PROPELLER SHAFT REPLACEMENT (MYC, M5U, MSX)

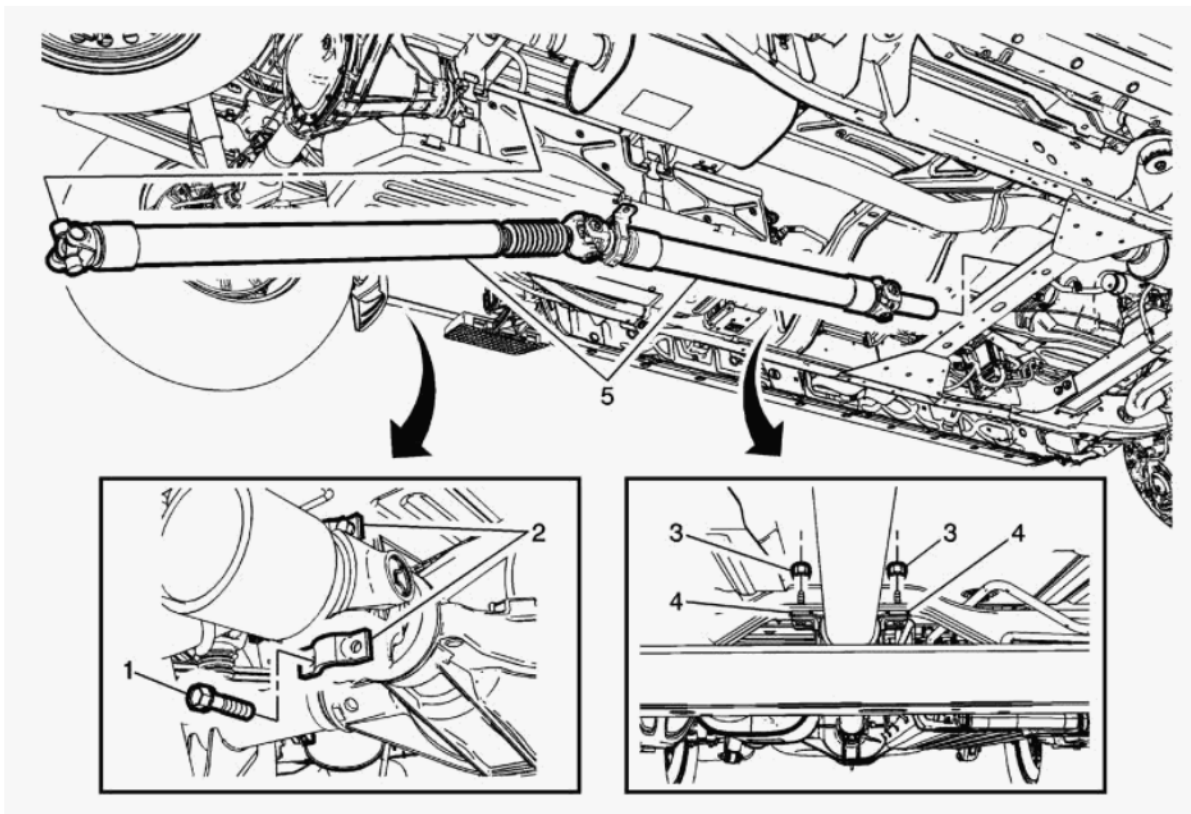


Fig. 17: Two-Piece Propeller Shaft (MYC, M5U, MSX)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Raise and support vehicle. <u>Lifting and Jacking the Vehicle</u>	
1	Yoke Retainer Bolts (4x) CAUTION: Refer to <u>Fastener Caution</u> . Procedure Remove and DISCARD the Yoke Retainer Bolts. NOTE: Replace with NEW yoke retainers (2) and NEW bolts (1). Tighten 25 (18 ft lb)

Callout	Component Name
2	Yoke Retainers (2x) NOTE: Replace with new retainers.
3	Center Support Bearing Nuts (2x) Procedure Remove the Center Support Bearing Nuts. NOTE: Support the propeller shaft with a jack while removing the center support bearing nuts. Tighten 40 (30 ft lb)
4	Center Support Bearing
5	2 Piece Propeller Shaft CAUTION: When removing the propeller shaft, do not attempt to remove the shaft by pounding on the yoke ears or using a tool between the yoke and the universal joint. If the propeller shaft is removed by using such means, the

Callout	Component Name
	injection joints may fracture and lead to premature failure of the joint.

TWO-PIECE PROPELLER SHAFT REPLACEMENT (MW7)

Removal Procedure

NOTE: Observe and accurately reference mark all driveline components relative to the propeller shaft and axles before disassembly. These components include the propeller shafts, the drive axles, the pinion flanges, the output shafts, etc. All components must be reassembled in the exact relationship to each other as they were when removed. In addition, published specifications and torque values, as well as any measurements made prior to disassembly must be followed.

1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)

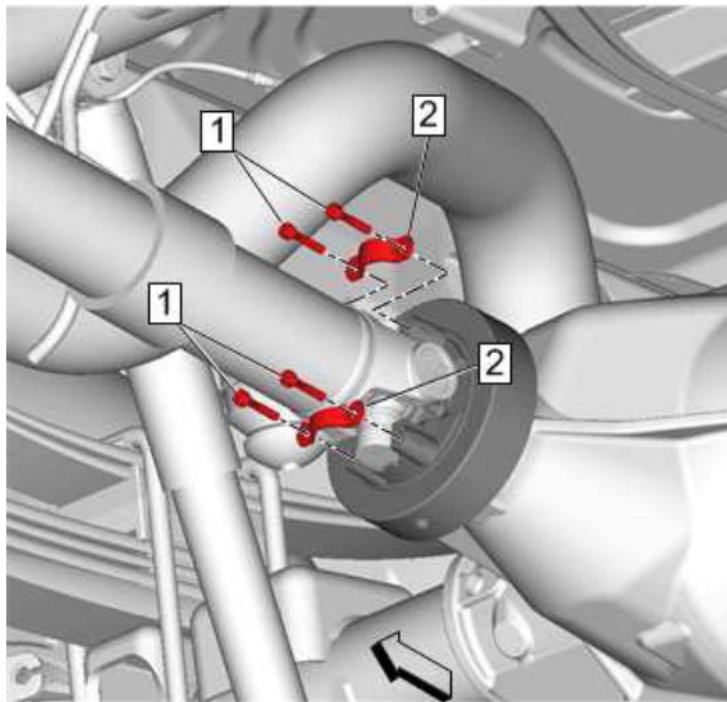


Fig. 18: Rear Propeller Shaft Bolts

Courtesy of GENERAL MOTORS COMPANY

2. Rear Propeller Shaft Bolt 1 - Remove and DISCARD
3. Rear Propeller Shaft Retainer 2 - Remove and DISCARD

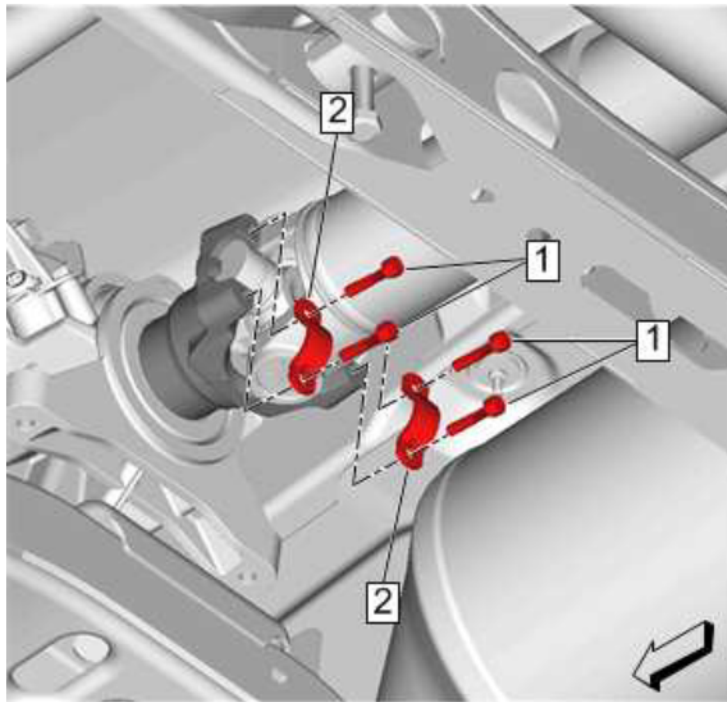


Fig. 19: Front Propeller Shaft Bolts

Courtesy of GENERAL MOTORS COMPANY

4. Front Propeller Shaft Bolt 1 - Remove and DISCARD
5. Front Propeller Shaft Retainer 2 - Remove and DISCARD

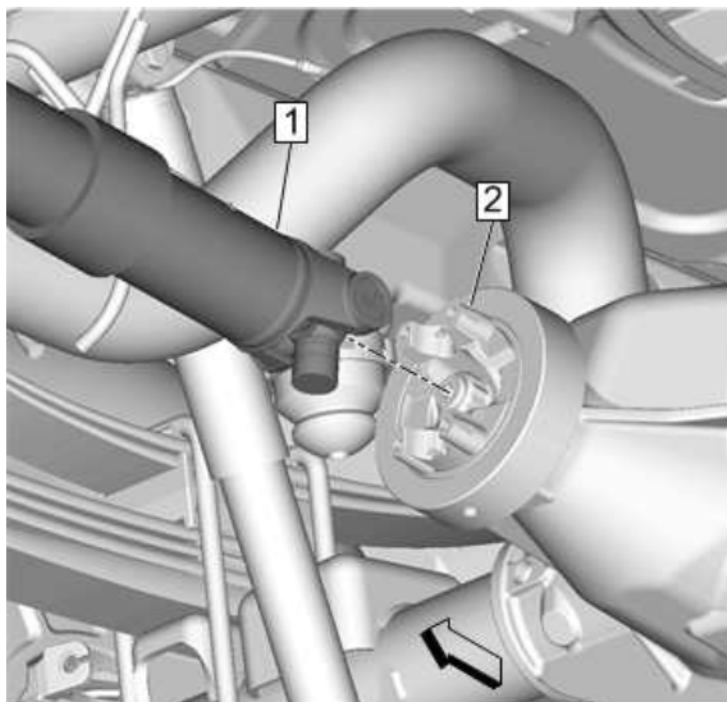


Fig. 20: Propeller Shaft And Rear Axle

Courtesy of GENERAL MOTORS COMPANY

CAUTION: When removing the propeller shaft, do not attempt to remove the shaft by pounding on the yoke ears or using a tool between the yoke and the universal joint. If the propeller shaft is removed by using such means, the

injection joints may fracture and lead to premature failure of the joint.

6. Propeller Shaft 1 @Rear Axle 2 - Separate

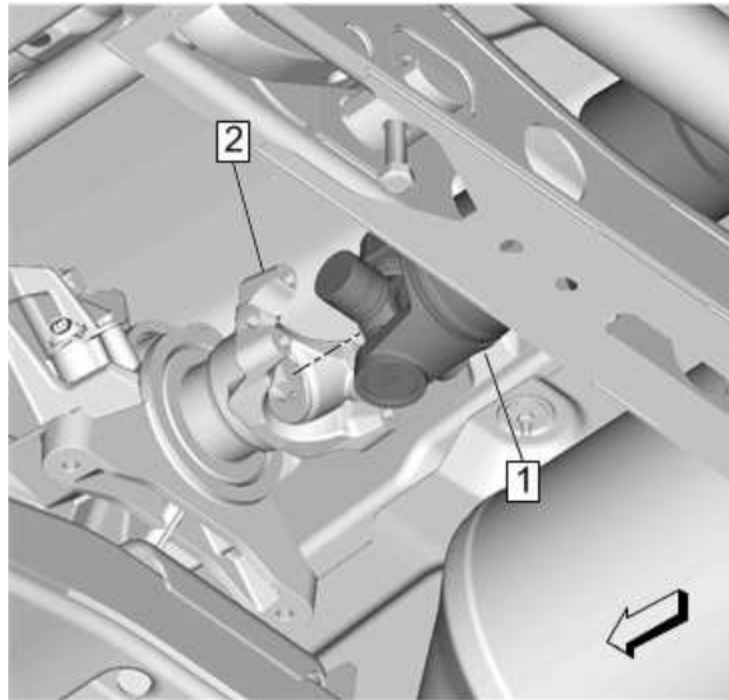


Fig. 21: Propeller Shaft And Propeller Shaft Transmission Flange

Courtesy of GENERAL MOTORS COMPANY

7. Propeller Shaft 1 @Propeller Shaft Transmission Flange 2 - Separate

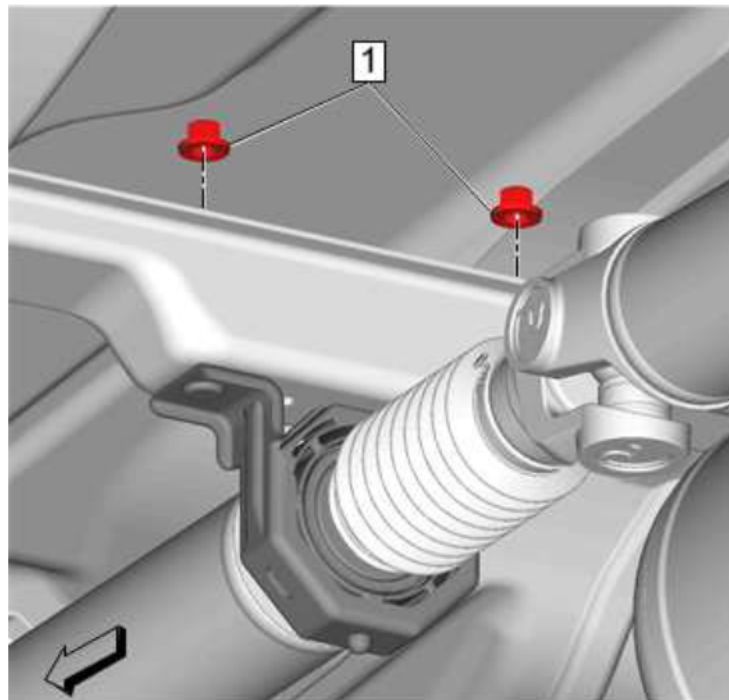


Fig. 22: Propeller Shaft Center Support Bearing Retainer Nuts

Courtesy of GENERAL MOTORS COMPANY

8. Propeller Shaft Center Support Bearing Retainer Nut 1 - Remove

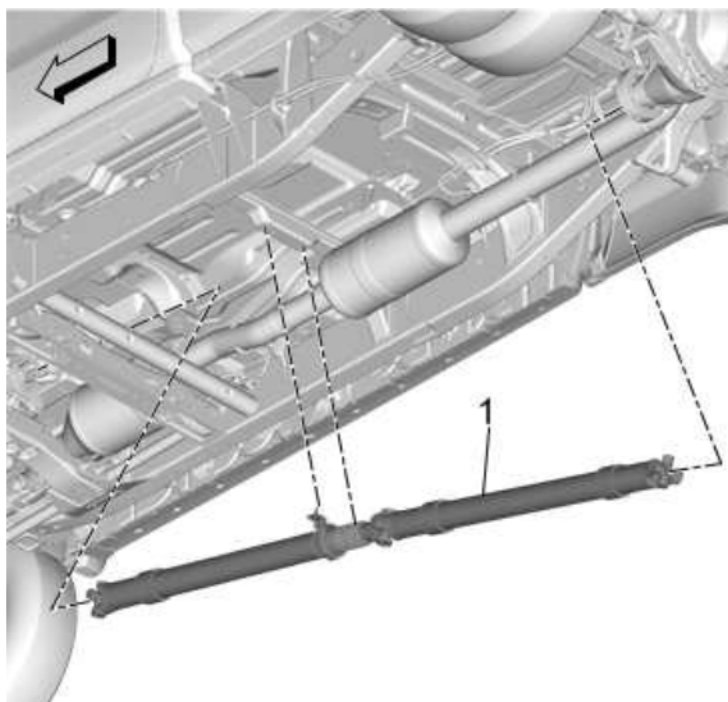


Fig. 23: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

9. Propeller Shaft 1 - Remove

Installation Procedure

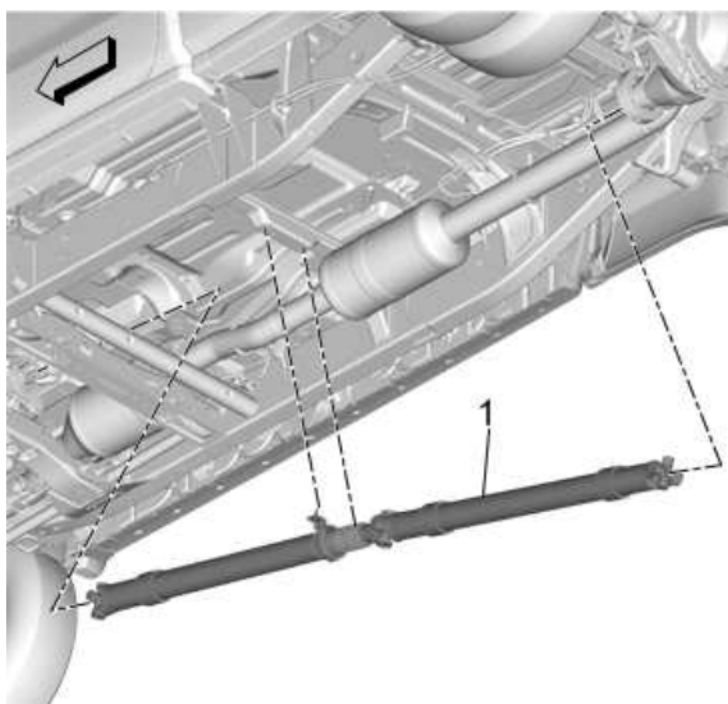


Fig. 24: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

1. Propeller Shaft 1 - Install

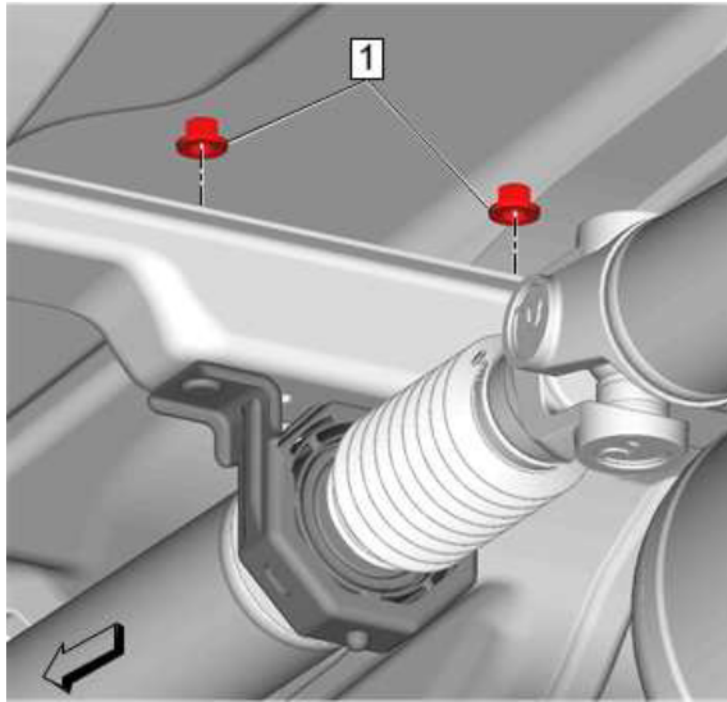


Fig. 25: Propeller Shaft Center Support Bearing Retainer Nuts
 Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to **Fastener Caution** .

2. Propeller Shaft Center Support Bearing Retainer Nut 1 - Install and tighten 40 N.m (30 lb ft)

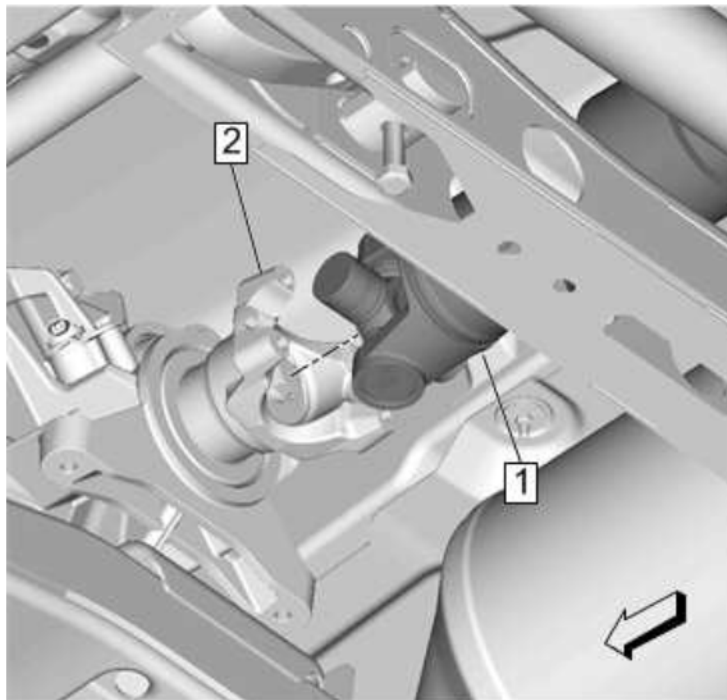


Fig. 26: Propeller Shaft And Propeller Shaft Transmission Flange
 Courtesy of GENERAL MOTORS COMPANY

3. Propeller Shaft 1 @Propeller Shaft Transmission Flange 2 - Install

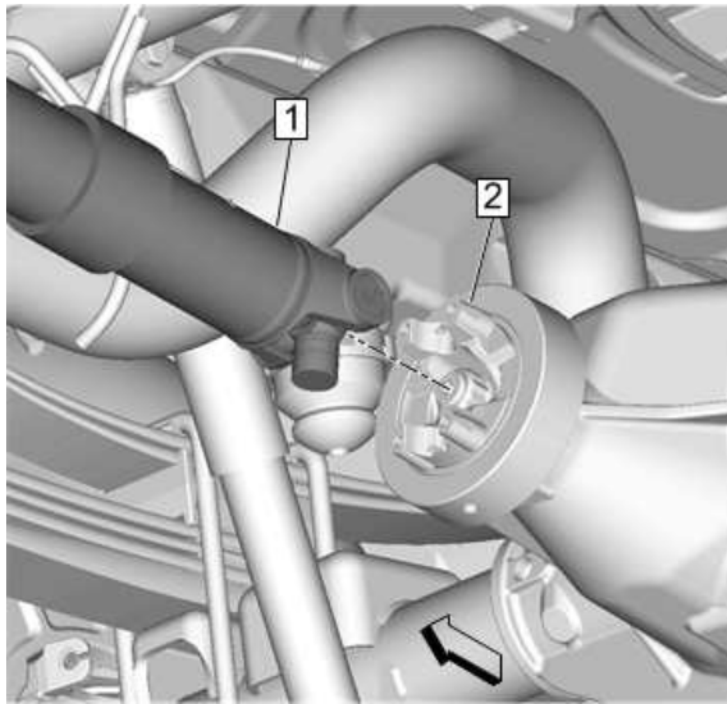


Fig. 27: Propeller Shaft And Rear Axle

Courtesy of GENERAL MOTORS COMPANY

4. Propeller Shaft 1 @Rear Axle 2 - Install

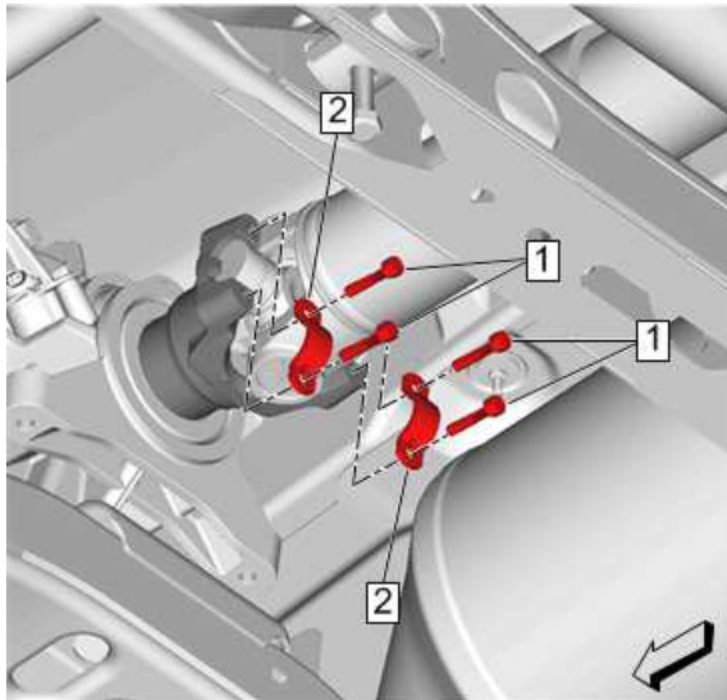


Fig. 28: Front Propeller Shaft Bolts

Courtesy of GENERAL MOTORS COMPANY

5. Front Propeller Shaft Retainer 2 - Install a NEW retainer.
 6. Front Propeller Shaft Bolt 1 - Install a NEW bolt. Tighten 25 N.m (18 lb ft)

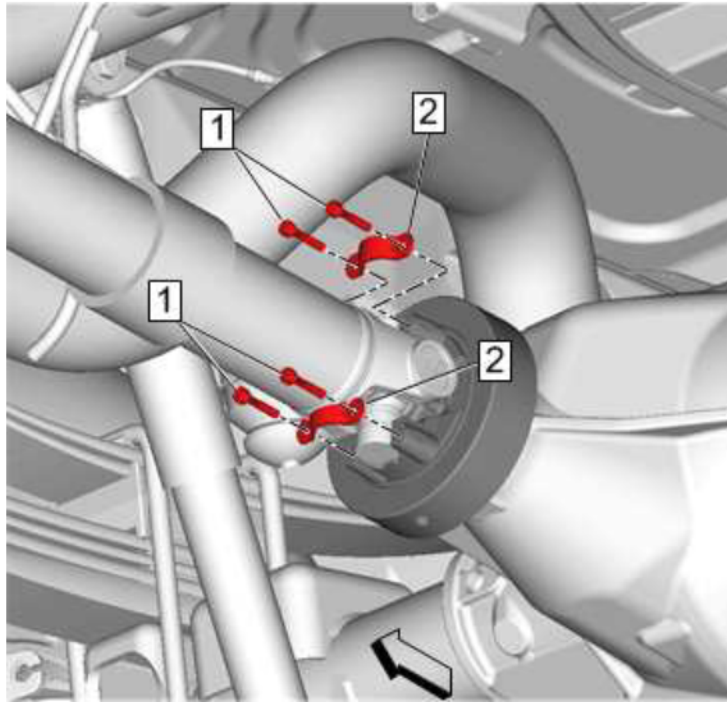


Fig. 29: Rear Propeller Shaft Bolts

Courtesy of GENERAL MOTORS COMPANY

7. Rear Propeller Shaft Retainer 2 - Install a NEW retainer.
8. Rear Propeller Shaft Bolt 1 - Install a NEW bolt. Tighten 25 N.m (18 lb ft)
9. Lower the vehicle.

PROPELLER SHAFT SLIP YOKE BOOT REPLACEMENT

Special Tools

J-43218 Clamp Pliers - Narrow Jaw

Removal Procedure

NOTE: Observe and accurately reference mark all driveline components relative to the propeller shaft and axles before disassembly. These components include the propeller shafts, the drive axles, the pinion flanges, the output shafts, etc. All components must be reassembled in the exact relationship to each other as they were when removed. In addition, published specifications and torque values, as well as any measurements made prior to disassembly must be followed.

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .

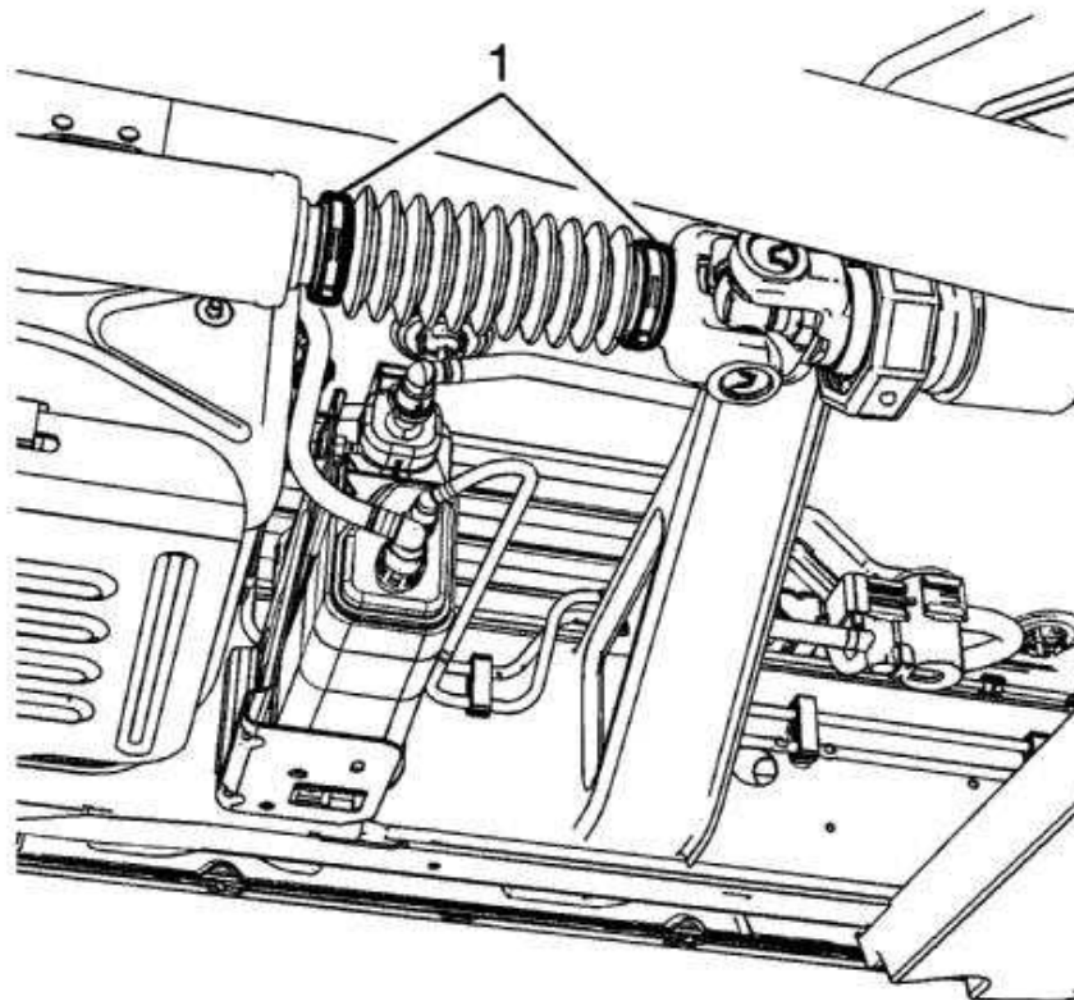


Fig. 30: Propeller Shaft Slip Yoke Boot Clamps

Courtesy of GENERAL MOTORS COMPANY

2. Using a flat bladed tool remove the propeller shaft slip yoke boot clamps (1) and separate the boot from the slip yoke.

CAUTION: When removing the propeller shaft, do not attempt to remove the shaft by pounding on the yoke ears or using a tool between the yoke and the universal joint. If the propeller shaft is removed by using such means, the injection joints may fracture and lead to premature failure of the joint.

3. Remove the propeller shaft. [Two-Piece Propeller Shaft Replacement \(MYC, M5U, MSX\)](#)[Two-Piece Propeller Shaft Replacement \(MW7\)](#)

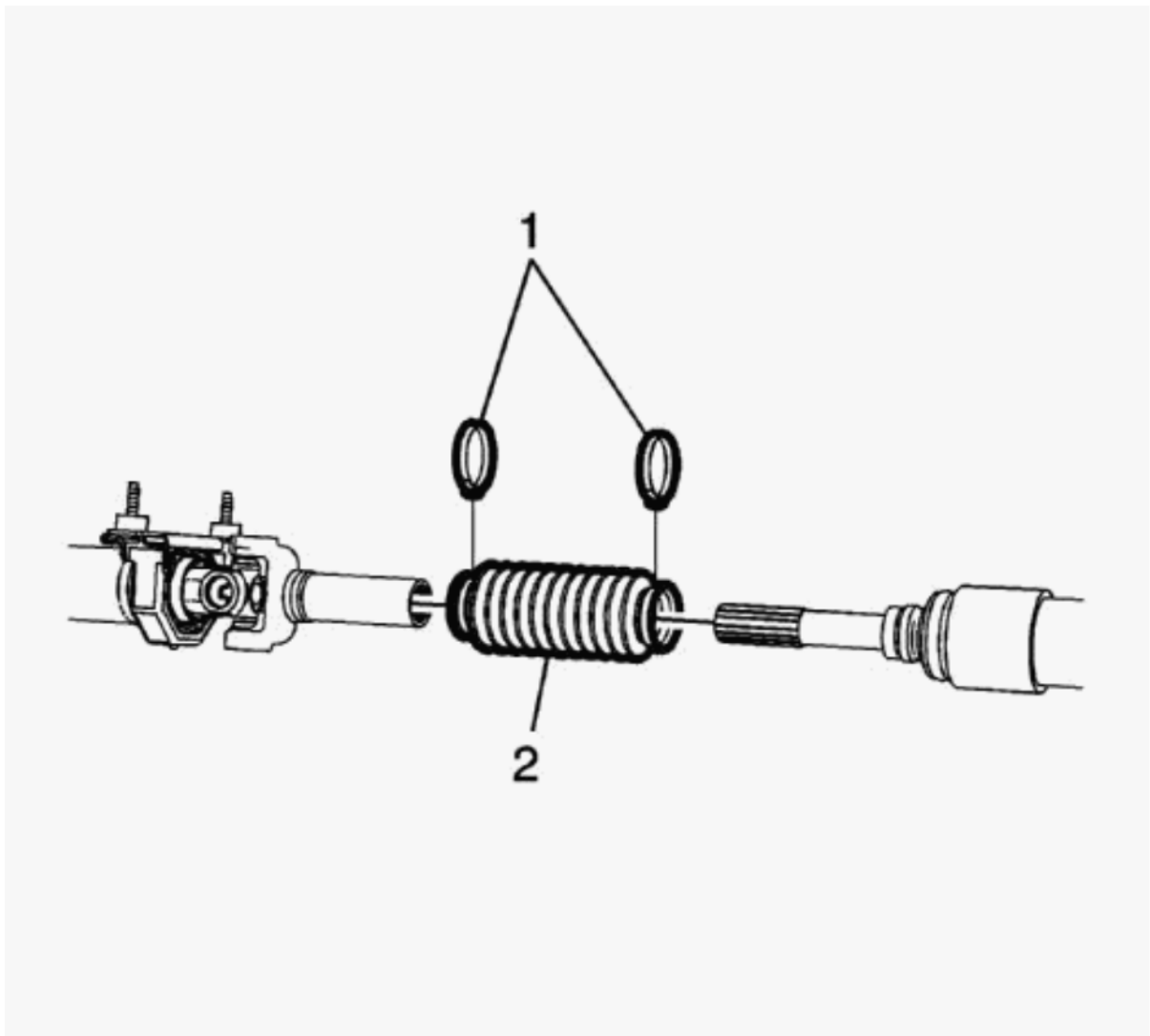


Fig. 31: Both Slip Yoke Boot Clamps And Boot
Courtesy of GENERAL MOTORS COMPANY

4. Remove both slip yoke boot clamps (1) and the boot (2).

Installation Procedure

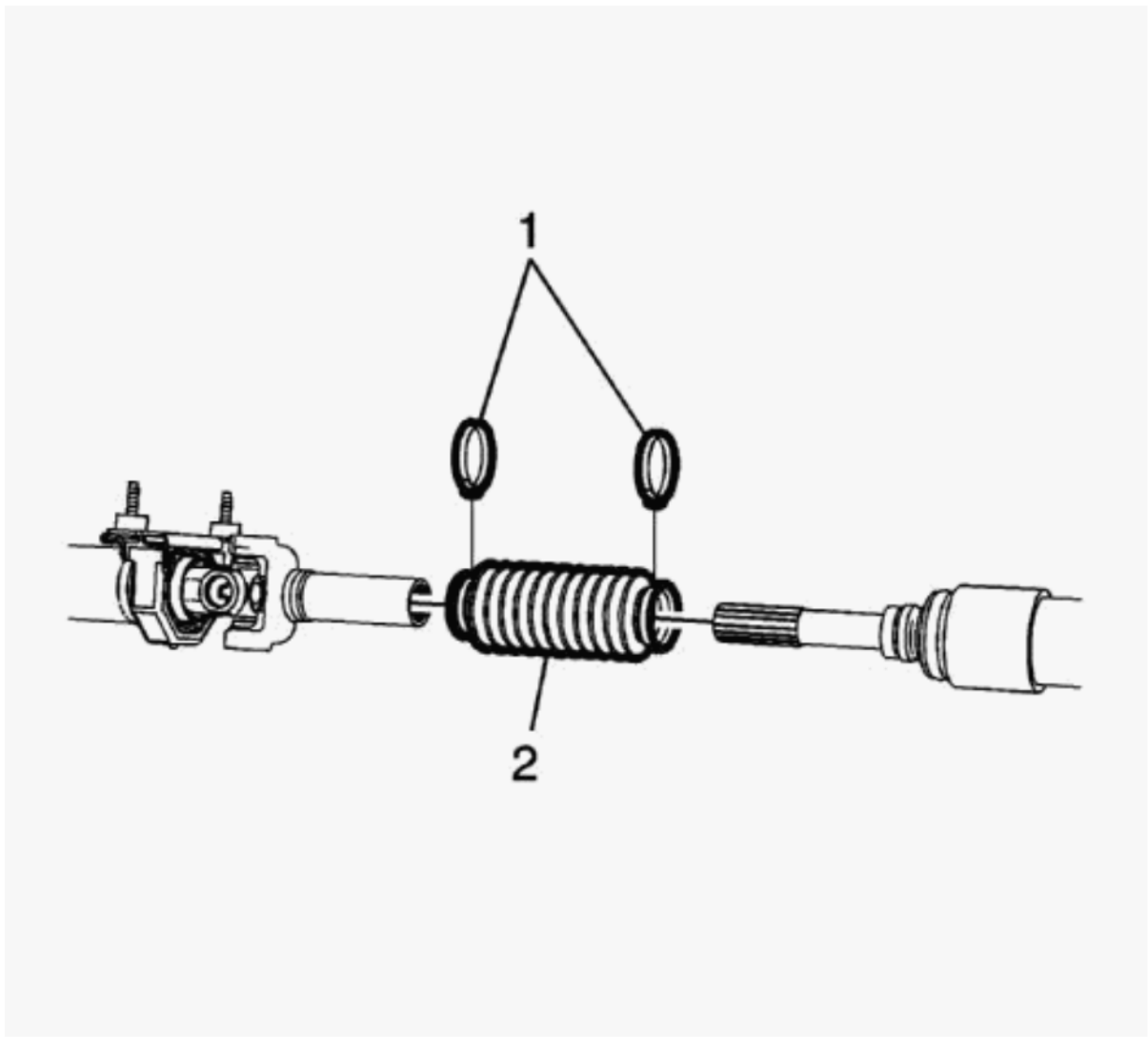


Fig. 32: Both Slip Yoke Boot Clamps And Boot
Courtesy of GENERAL MOTORS COMPANY

1. Install NEW slip yoke boot clamps (1) and boot (2).

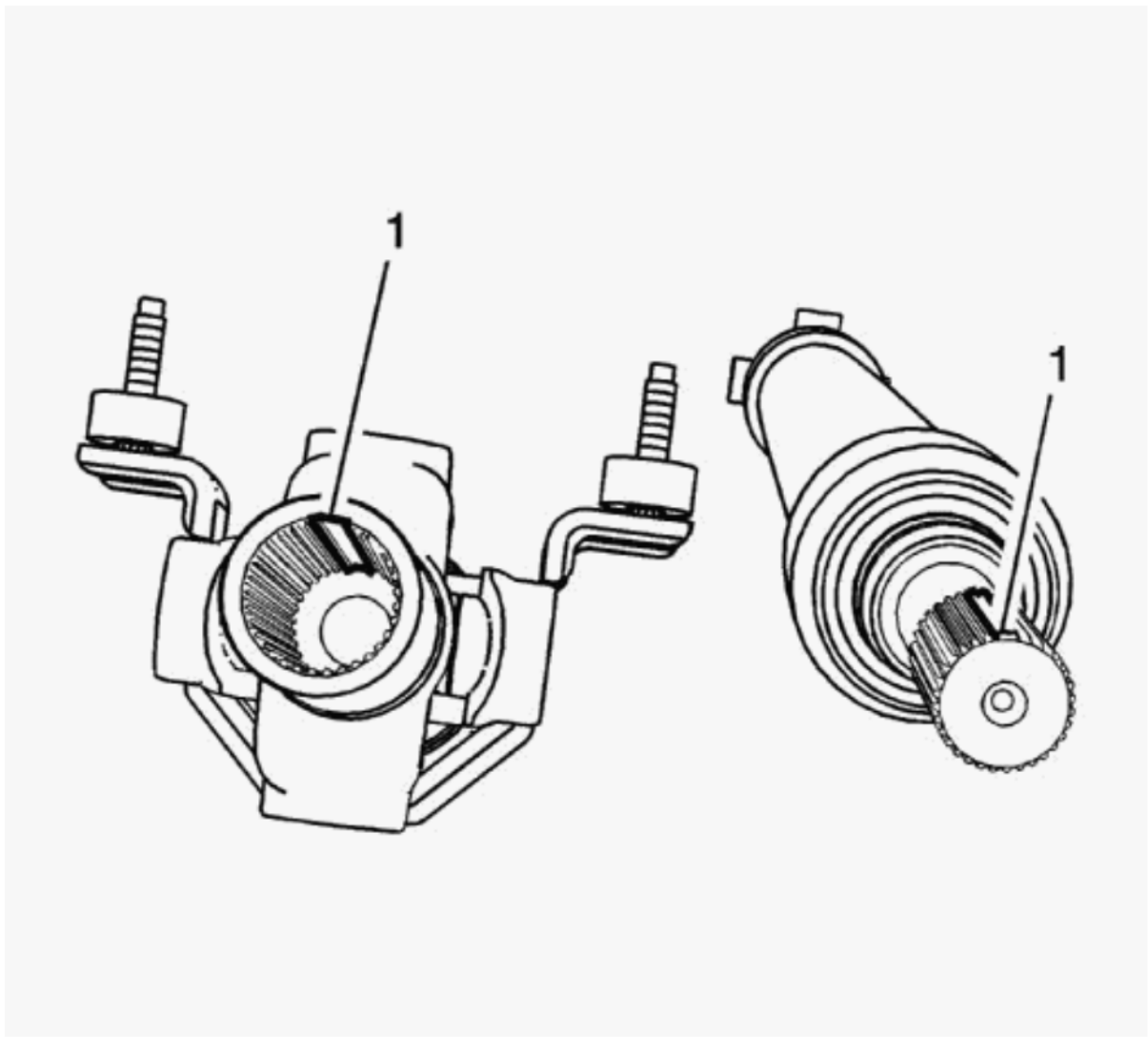


Fig. 33: Alignment Grooves

Courtesy of GENERAL MOTORS COMPANY

NOTE: Ensure that the master splines on the slip yoke and the stub shaft are aligned before installing the rear propeller shaft.

2. Apply a small amount of clean chassis grease to the slip yoke and the rear propeller shaft. Install the rear propeller shaft into the slip yoke, making note of the alignment grooves (1) that are machined into the slip yoke.

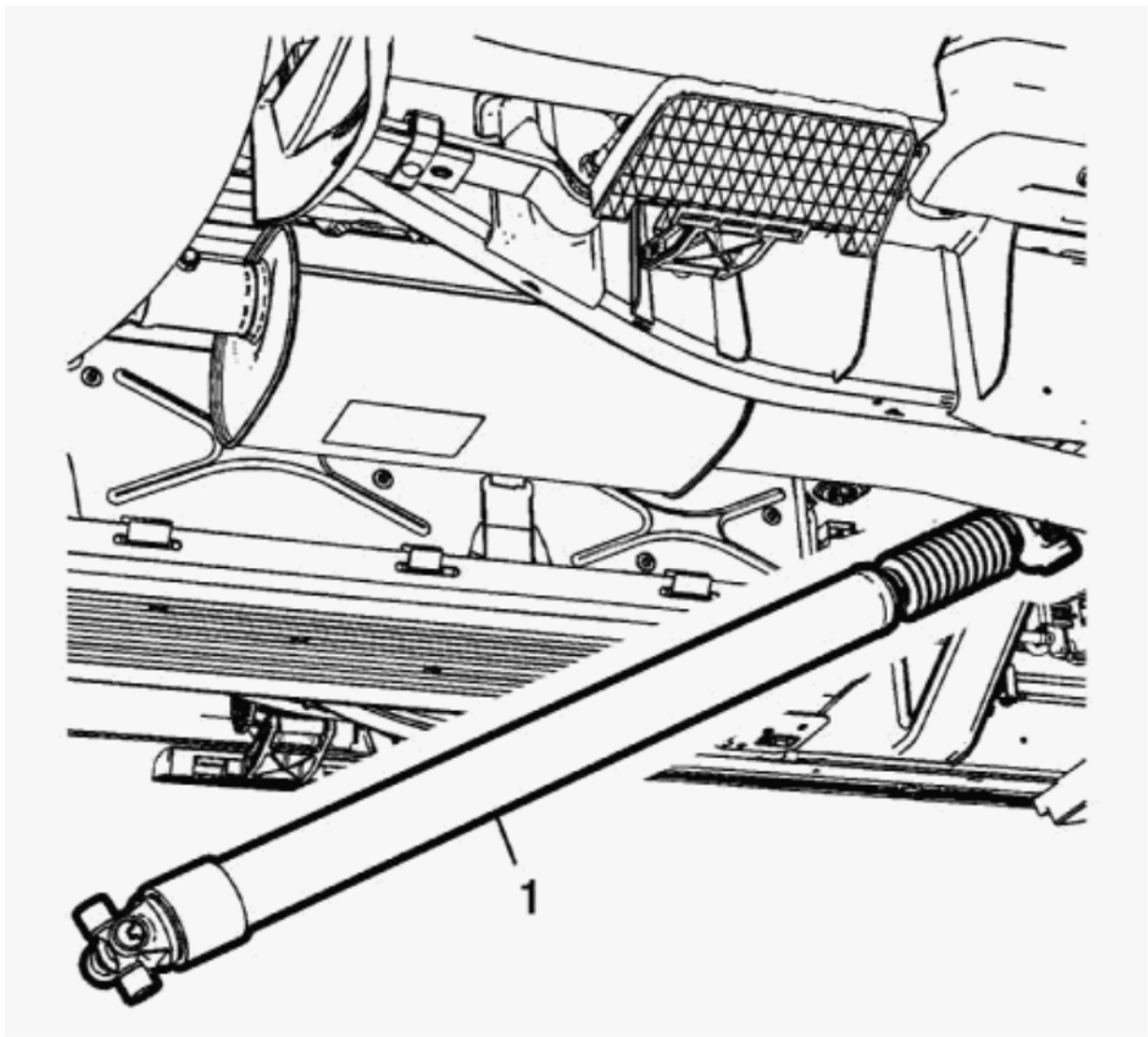


Fig. 34: Rear Propeller

Courtesy of GENERAL MOTORS COMPANY

3. Install the propeller shaft (1) . **Two-Piece Propeller Shaft Replacement (MYC, M5U, MSX)Two-Piece Propeller Shaft Replacement (MW7)**

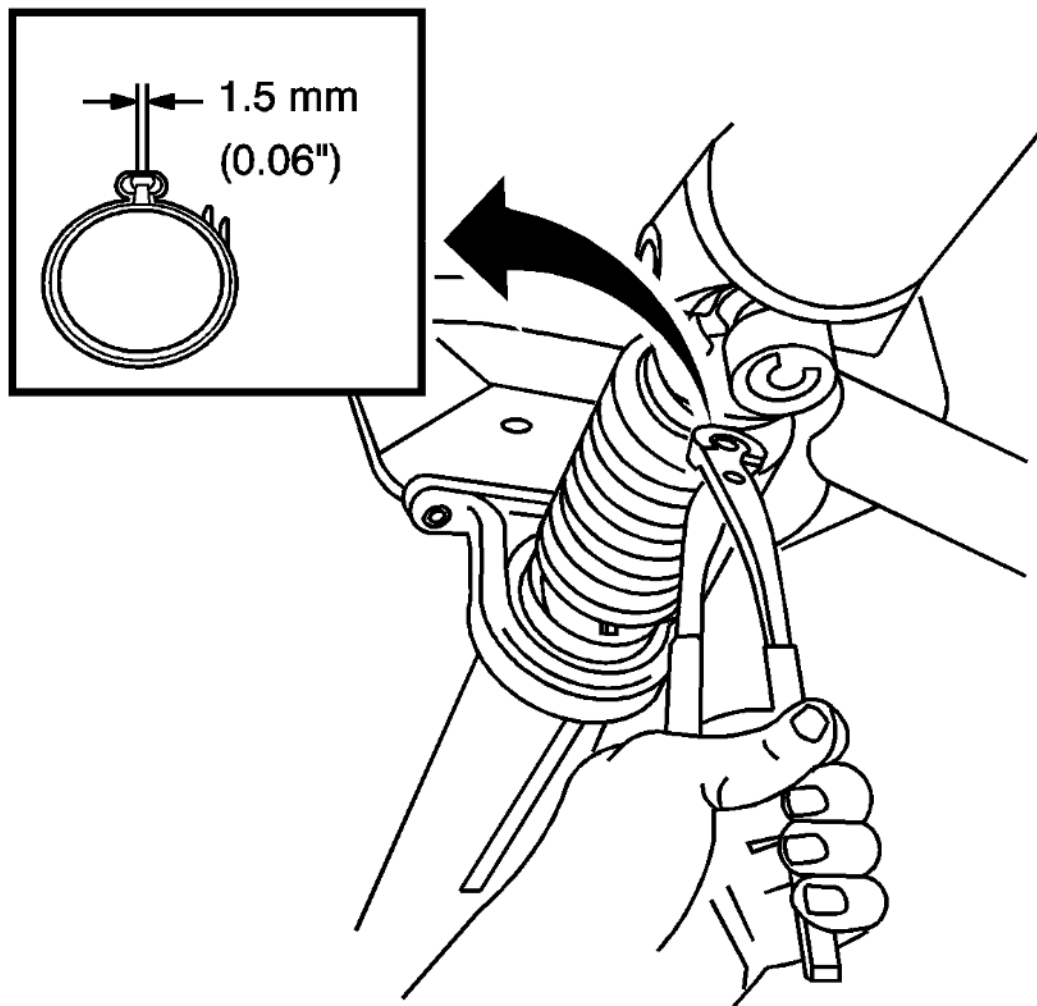


Fig. 35: Crimping Boot Clamps

Courtesy of GENERAL MOTORS COMPANY

4. Using the **J- 43218** Clamp pliers crimp the boot clamps until the dimensions shown are obtained.
5. Remove the support and lower that vehicle.

FRONT AXLE PROPELLER SHAFT SLIP YOKE BOOT REPLACEMENT

Special Tools

J-43218 Clamp Pliers - Narrow Jaw

Removal Procedure

NOTE:

Before disassembly, observe and accurately reference mark all driveline components relative to the propeller shaft and axles. These items include the following components:

- The propeller shafts
- The wheel drive shafts
- The pinion flanges

- The output shafts

Assemble all components in the exact relationship to each other as they were prior to removal. Observe all published specifications and torque values, and any measurements obtained prior to disassembly.

1. Raise the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .

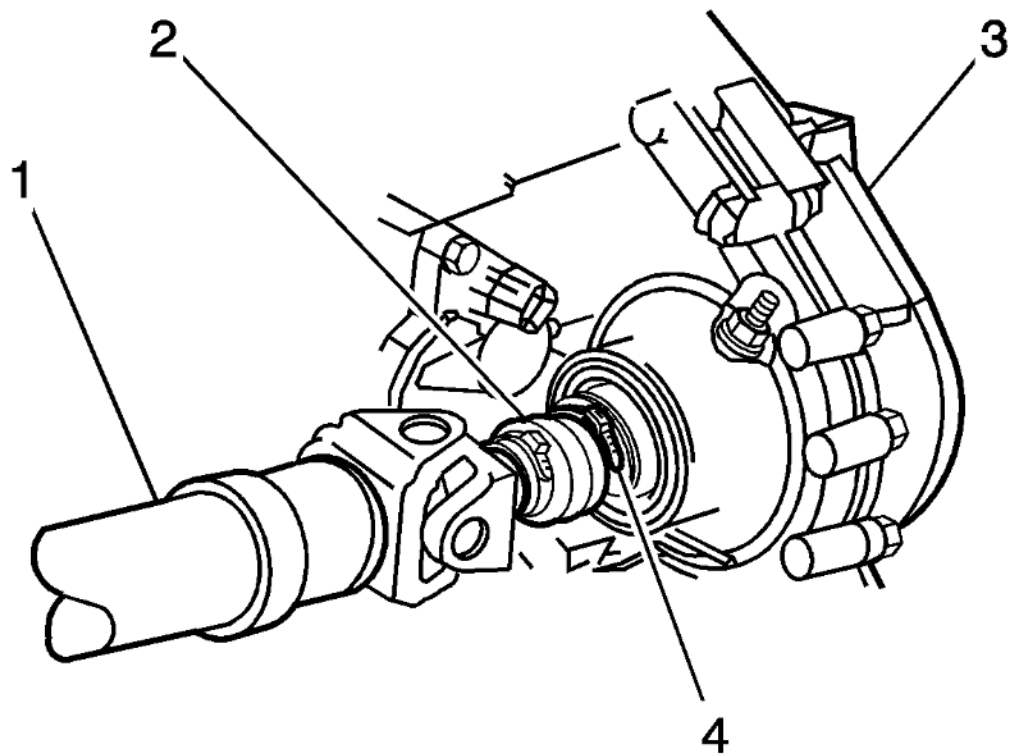


Fig. 36: Rear Propeller Shaft Boot Clamp

Courtesy of GENERAL MOTORS COMPANY

2. Remove the clamp (4) at the transfer case by prying up the exposed end of the clamp with a flat-bladed tool.
3. Reference mark the relationship of the propeller shaft to the front axle pinion yoke.

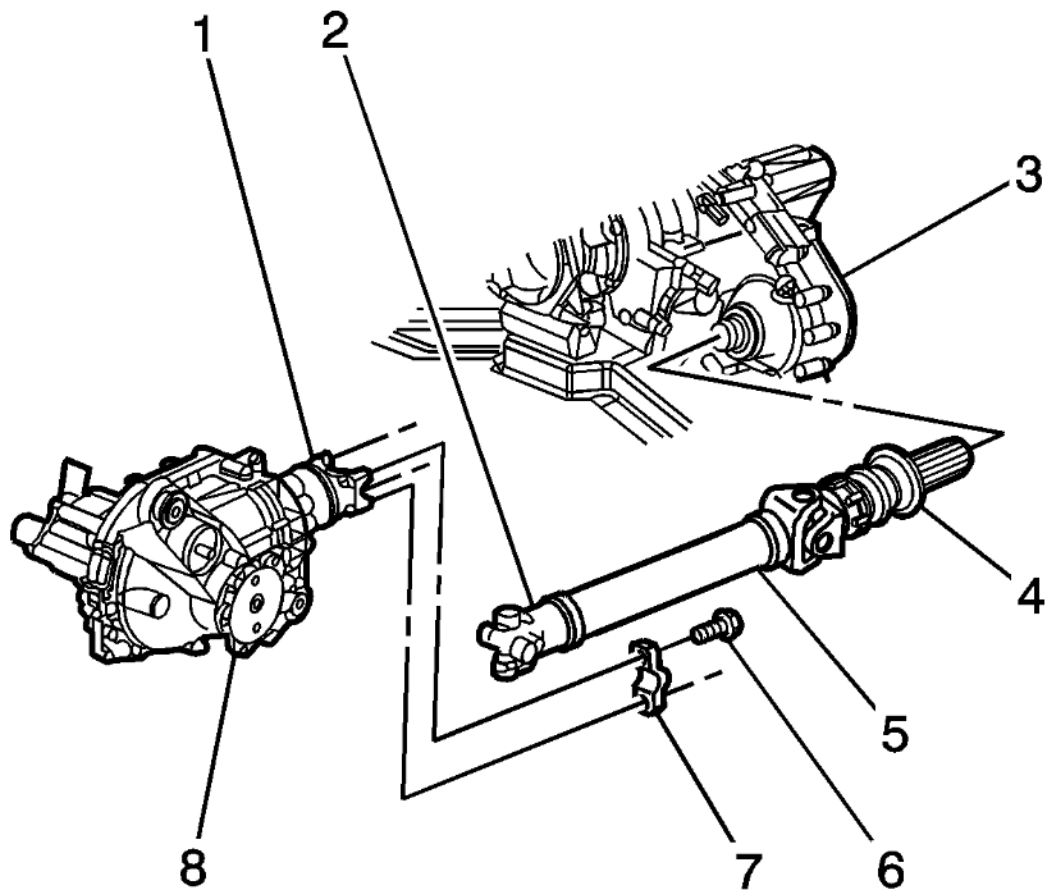


Fig. 37: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

CAUTION: When removing the propeller shaft, do not attempt to remove the shaft by pounding on the yoke ears or using a tool between the yoke and the universal joint. If the propeller shaft is removed by using such means, the injection joints may fracture and lead to premature failure of the joint.

4. Remove the bolts (6) and the yoke retainers (7) from the front axle pinion yoke (1).

NOTE: Do not drop the bearing cap assemblies of the yoke end.

5. Disconnect the propeller shaft (2) from the front axle pinion yoke (1).

Wrap the bearing caps with tape in order to prevent the loss of bearing rollers.

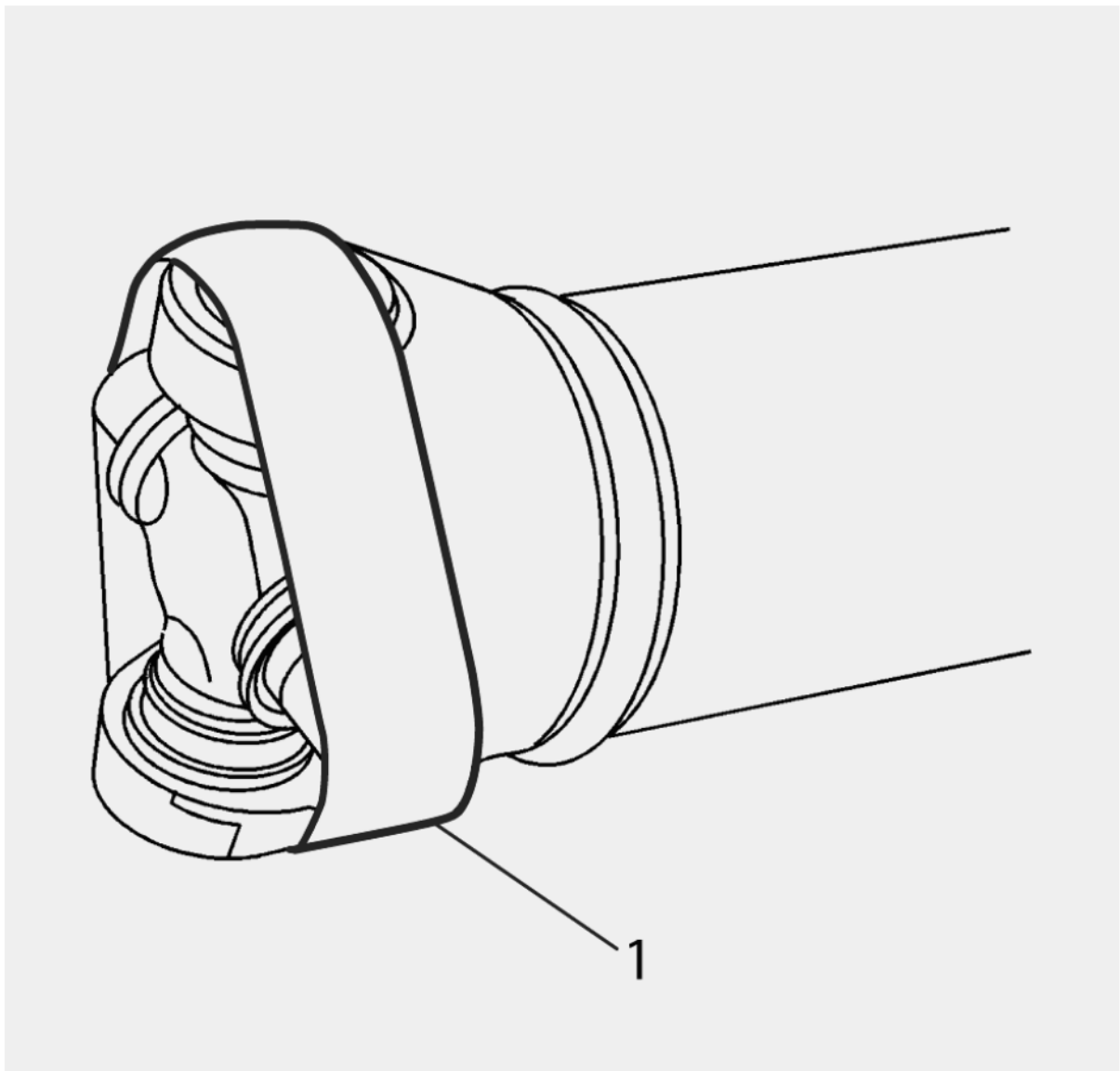


Fig. 38: U-Joint Bearing Caps

Courtesy of GENERAL MOTORS COMPANY

6. Use tape to secure the bearing caps.

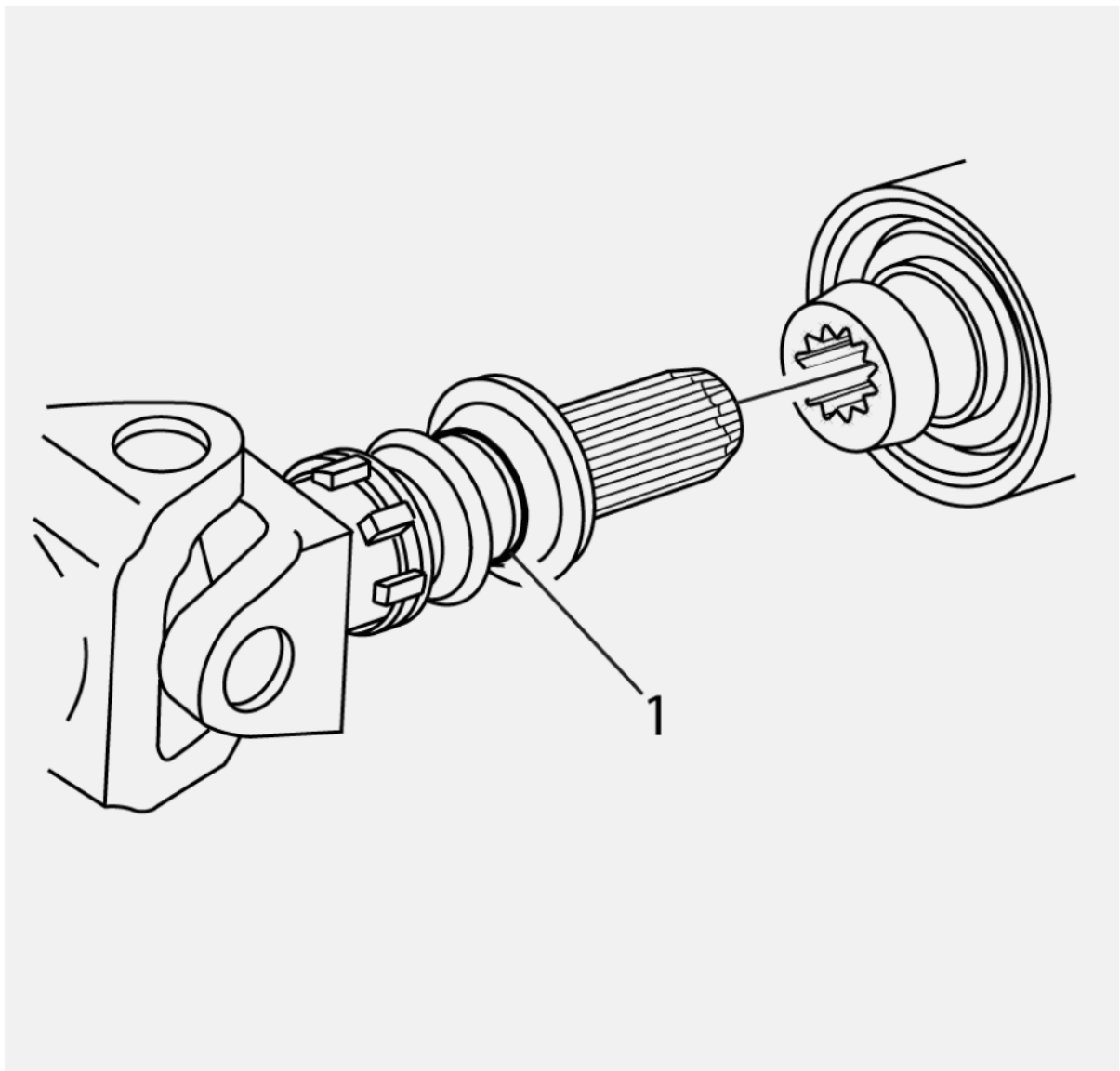


Fig. 39: View Of Boot & Groove On Transfer Case Output Shaft (Single Clamp Style Boot)
Courtesy of GENERAL MOTORS COMPANY

7. Remove the boot from the groove on the transfer case output shaft.
8. Remove the propeller shaft from the transfer case output shaft by sliding the propeller shaft forward.

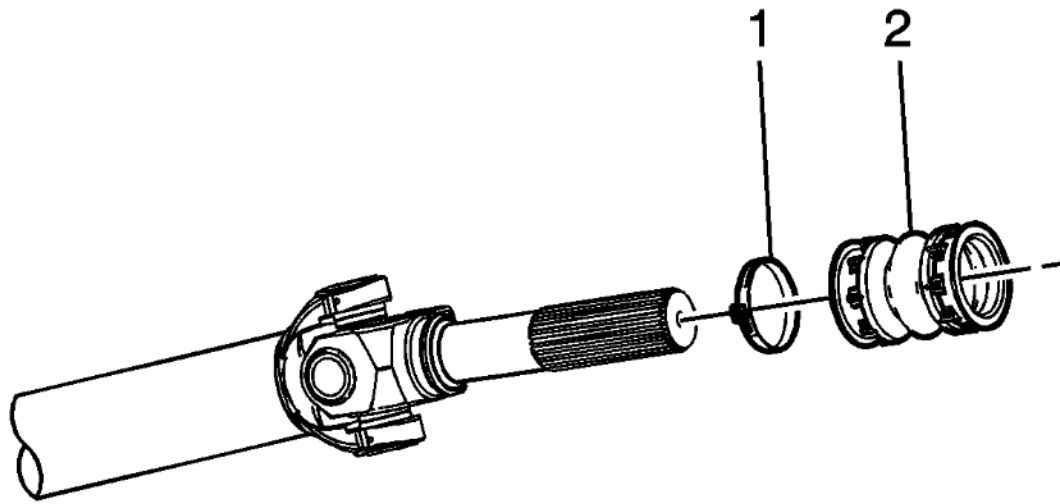


Fig. 40: View Propeller Shaft, Clamp & Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

9. Remove the clamp (1) from the propeller shaft boot (2).
10. Remove the propeller shaft boot (2) from the propeller shaft.

Installation Procedure

NOTE: Use of grease on splines of 4WD vehicles can negatively affect transfer case performance. Use transfer case lubricant only.

1. Inspect the splines of the slip yoke for a sufficient coating of lubricant. If the splines of the slip yoke do not have a sufficient coating, lubricate the internal slip yoke splines with clean transmission fluid.

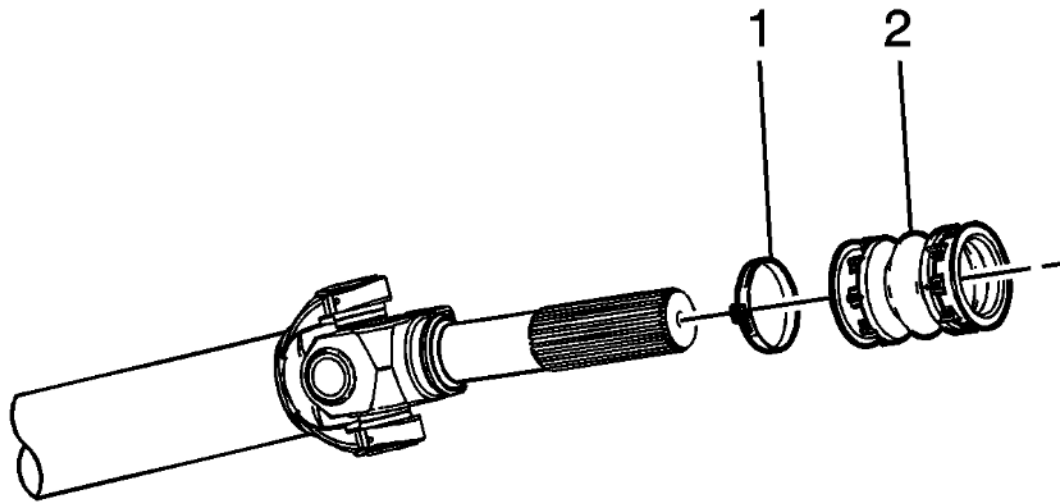


Fig. 41: View Propeller Shaft, Clamp & Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

2. Install the propeller shaft boot (2).
3. Install the propeller shaft boot clamp (1).

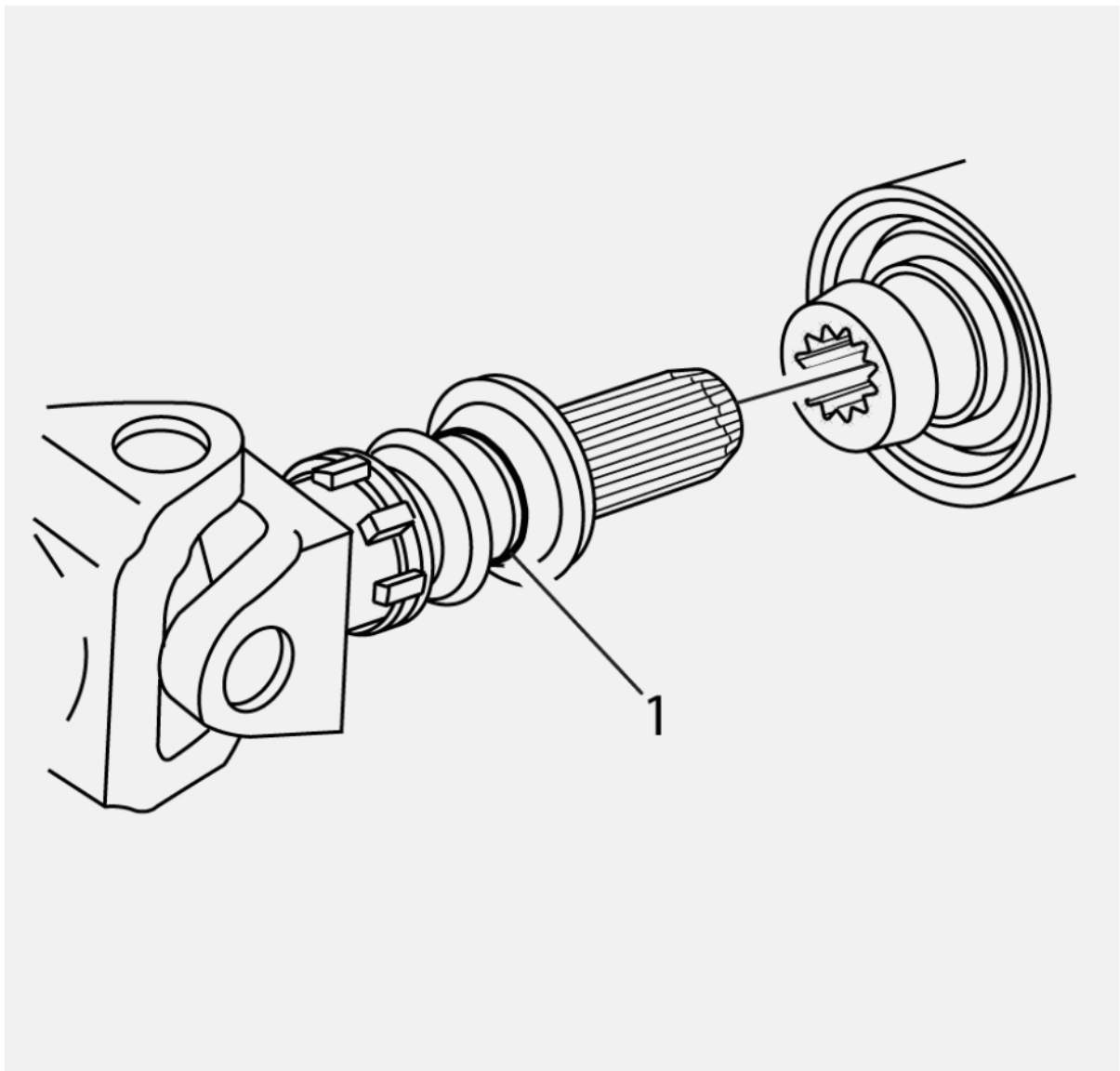


Fig. 42: View Of Boot & Groove On Transfer Case Output Shaft (Single Clamp Style Boot)
Courtesy of GENERAL MOTORS COMPANY

4. Install the propeller shaft splines into the transfer case output shaft.

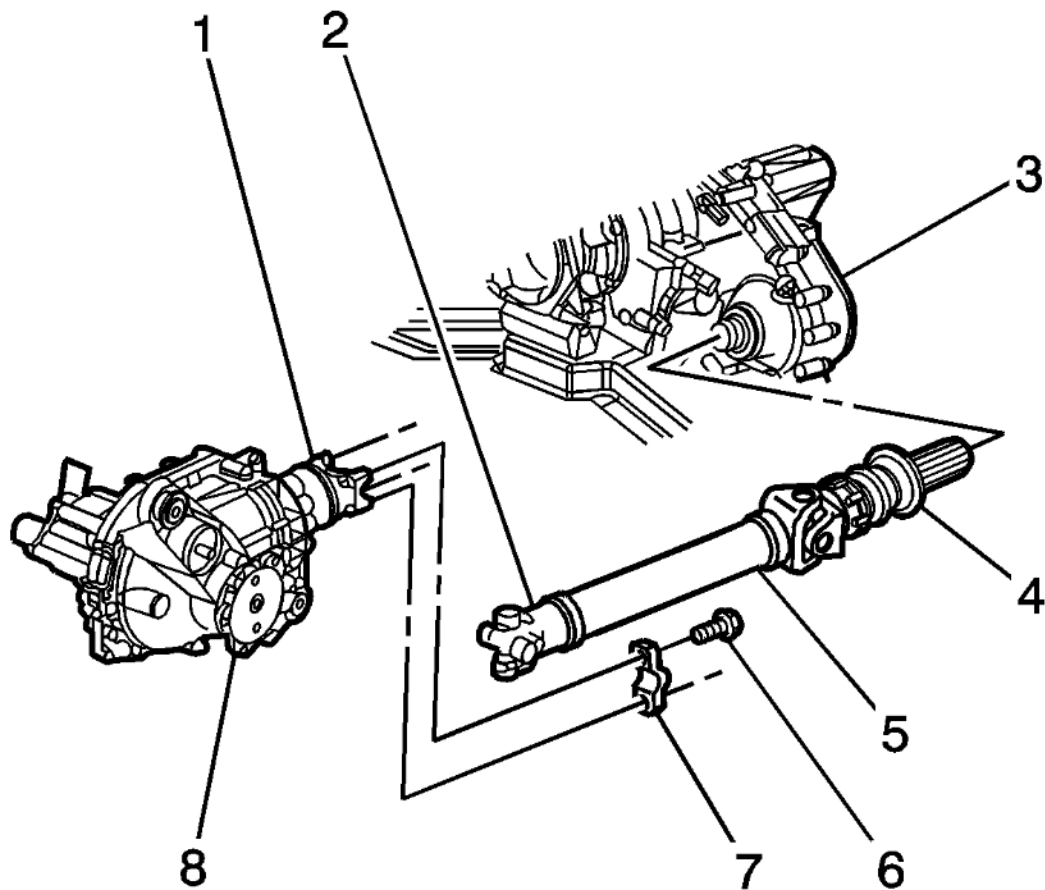


Fig. 43: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

5. Install the propeller shaft (5) to the front axle pinion yoke (1).

Align the reference marks made during removal.

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

6. Install the yoke retainers (7) and the bolts (6).

Tighten

Tighten the yoke retainer bolts to 25 N.m (18 lb ft).

7. Install the boot onto the transfer case output shaft until the boot snaps into the groove on the output shaft.
8. Using the **J-43218** clamp pliers to crimp both clamps.
9. Lower the vehicle.

PROPELLER SHAFT CENTER SUPPORT BEARING REPLACEMENT

Special Tools

- **J-6133-A** Bearing Installer
- **J-39477** Puller Kit

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Remove the propeller shaft assembly. Refer to [Two-Piece Propeller Shaft Replacement \(MYC, M5U, MSX\)Two-Piece Propeller Shaft Replacement \(MW7\)](#).

NOTE: Mark the U-joint caps and slip yoke orientation to the link yoke for reassembly.

3. Remove the U-joint between the propeller shaft link yoke and the propeller shaft rear slip yoke. Refer to [Propeller Shaft Rear Slip Yoke Replacement](#).

NOTE: Care must be taken when performing the next step. Do Not clamp vise onto counter weights attached to propeller shaft.

4. Secure the front portion of the propeller shaft assembly in a soft jawed vise.
5. Remove the link yoke nut. Refer to [Propeller Shaft Link Yoke Replacement](#).

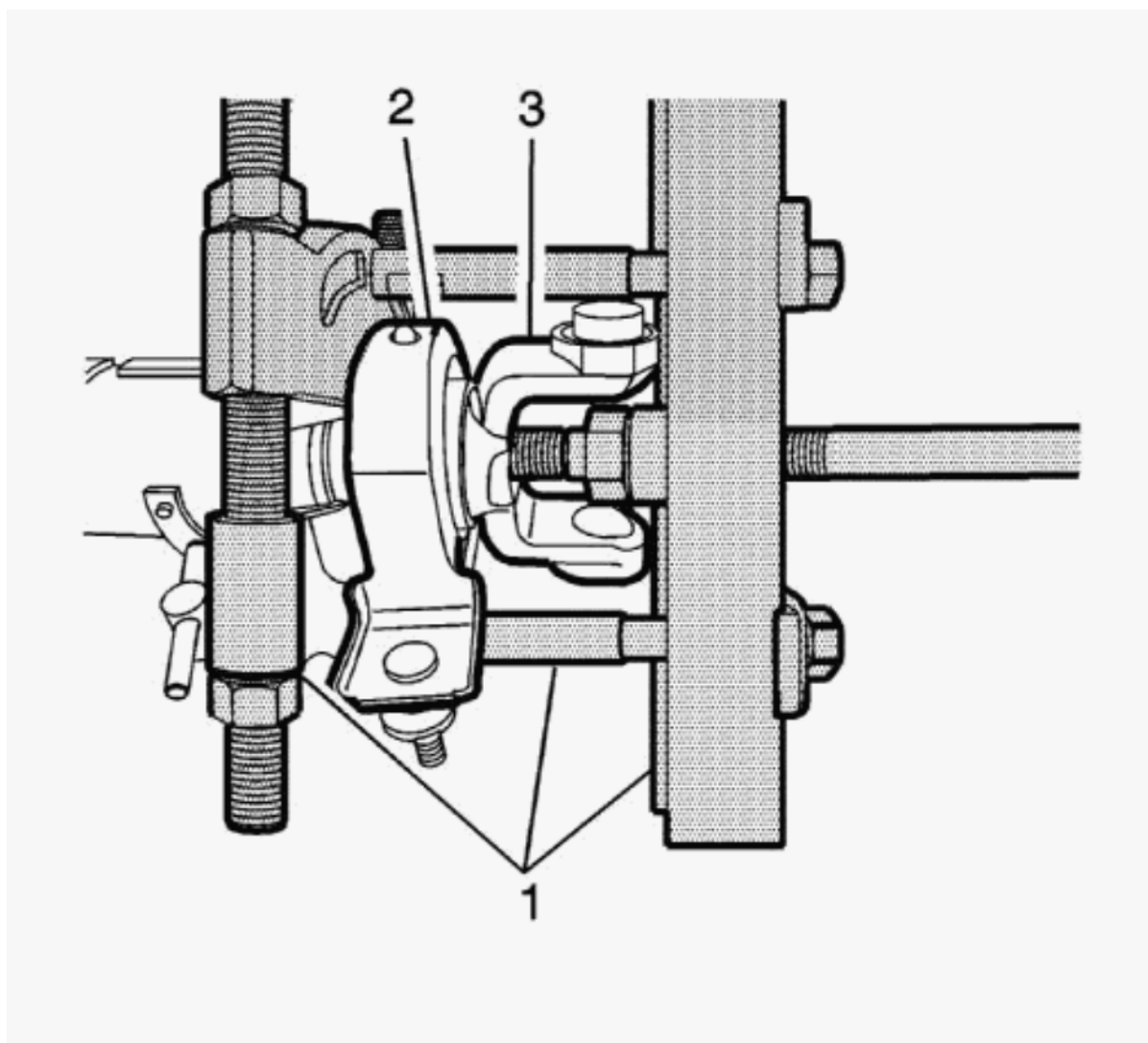


Fig. 44: Puller Kit And Center Support Bearing
Courtesy of GENERAL MOTORS COMPANY

6. Install the **J-39477** puller kit (1) as it is pictured.
7. Remove the center support bearing (2) and the link yoke (3).

Installation Procedure

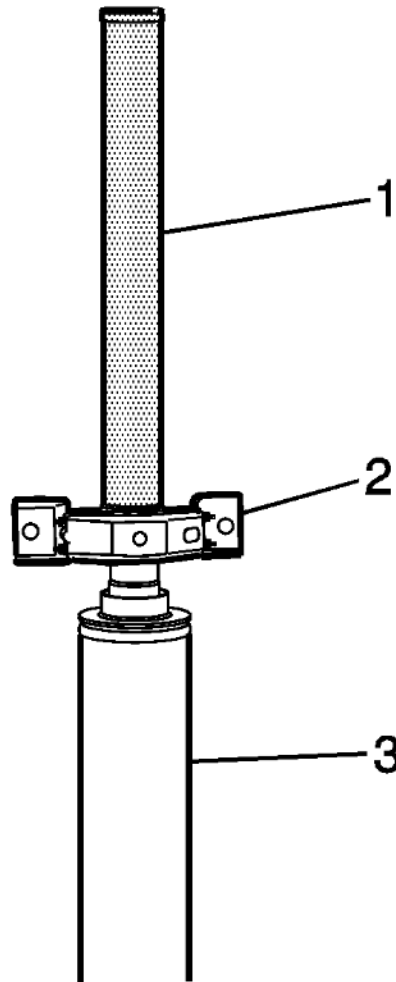


Fig. 45: Installing Center Bearing Assembly To Propeller Shaft
Courtesy of GENERAL MOTORS COMPANY

1. Place the propeller shaft assembly (3) on a block of wood.
2. Position the center bearing assembly (2) on the propeller shaft (3).

NOTE: When installing the center support bearing monitor your progress, so as to not damage the bearing.

3. Using the **J-6133-A** Bearing Installer (1), install the center bearing assembly (2) on the propeller shaft (3).

NOTE: Care must be taken when performing the next step. Do Not clamp vise

onto counter weights attached to propeller shaft.

4. Secure the front portion of the propeller shaft assembly in a soft jawed vise.

NOTE: Make note of the link yoke master spline when installing the link yoke assembly.

5. Using **J-6133-A** Install the propeller shaft link yoke.
6. Torque the link yoke nut to 160 (118 lb. ft.)

NOTE: Make note of the marks placed on the U-joint caps and slip yoke for proper orientation.

7. Install the U-joint between the propeller shaft link yoke and the rear propeller shaft rear slip yoke. Refer to **Propeller Shaft Rear Slip Yoke Replacement**.
8. Install the propeller shaft assembly. Refer to **Two-Piece Propeller Shaft Replacement (MYC, M5U, MSX)Two-Piece Propeller Shaft Replacement (MW7)**.
9. Lower the vehicle.

PROPELLER SHAFT SLIP YOKE REPLACEMENT

Special Tools

- **J 9522-3** U-Joint Bearing Separator
- **J 9522-5** U-Joint Bearing Spacer Remover

Disassembly Procedure

1. Remove the propeller shaft:
 - For Front Propeller Shaft replacement, refer to **Front Axle Propeller Shaft Replacement**.
 - For One-Piece Propeller Shaft replacement, refer to **One-Piece Propeller Shaft Replacement**.
 - For Two-Piece Propeller Shaft replacement, refer to **Two-Piece Propeller Shaft Replacement (MYC, M5U, MSX)Two-Piece Propeller Shaft Replacement (MW7)**.

CAUTION: 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. Avoid damaging the slip yoke sealing surface. Nicks may damage the bushing or cut the lip seal.

2. Support the propeller shaft in a line horizontal with the table of a press.
3. Mark the relation of propeller shaft to the slip yoke in order to ensure the reassembly is correct.
4. Remove the snap rings by pinching the ends together with a pair of pliers.
5. If the ring does not readily snap out of the groove in the yoke, tap the end of the cup lightly in order to relieve the pressure from the ring.

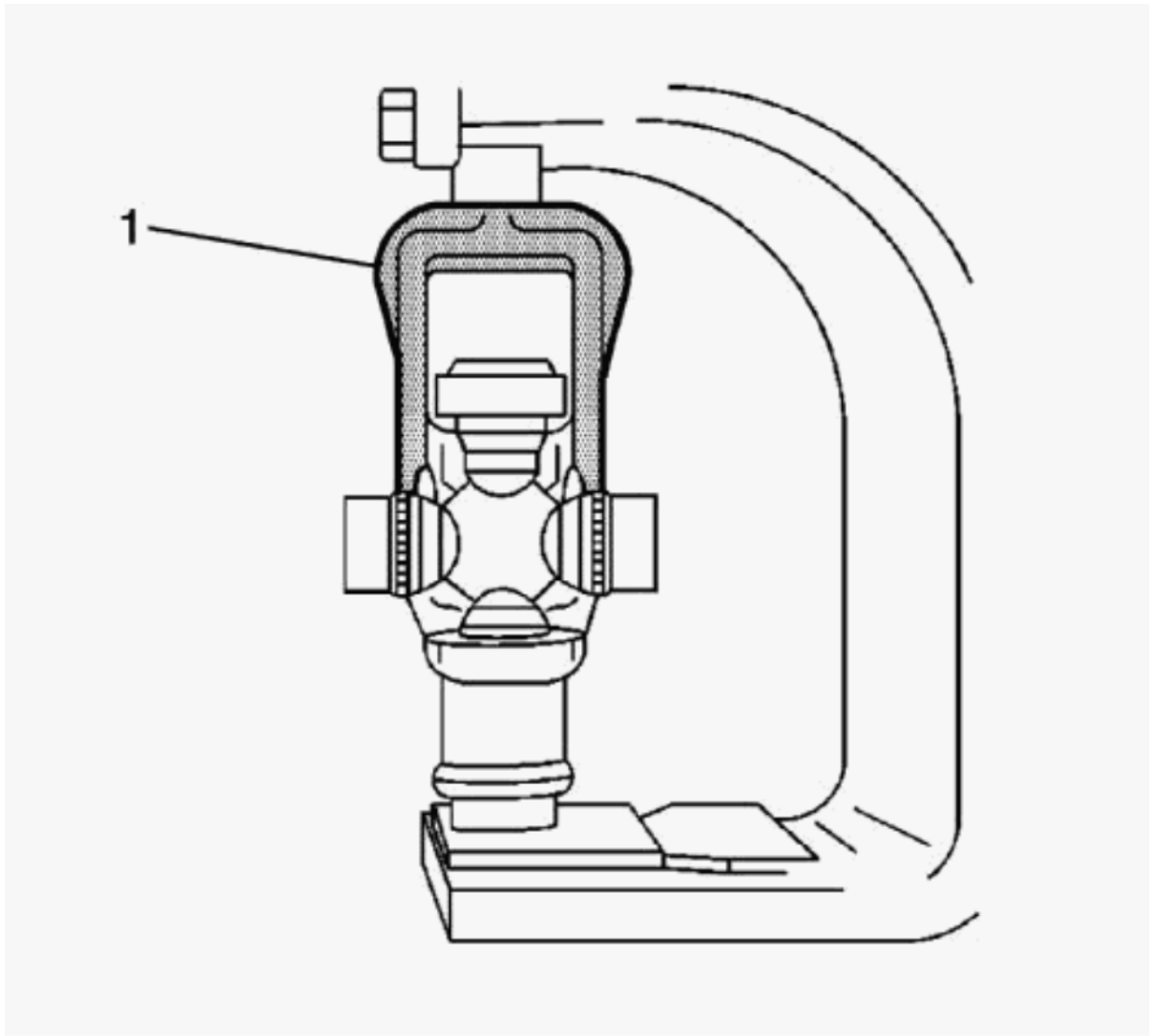


Fig. 46: Assembling Universal Joint

Courtesy of GENERAL MOTORS COMPANY

6. Place the propeller shaft yoke in the press, so that the lower ear of the yoke is supported by a socket. The socket should be deep enough to allow the bearing to completely pass through the bore of the yoke.
7. Place **J 9522-3** u-joint bearing separator (1) on the open horizontal bearing cups. Press the lower bearing cup out of the yoke ear.

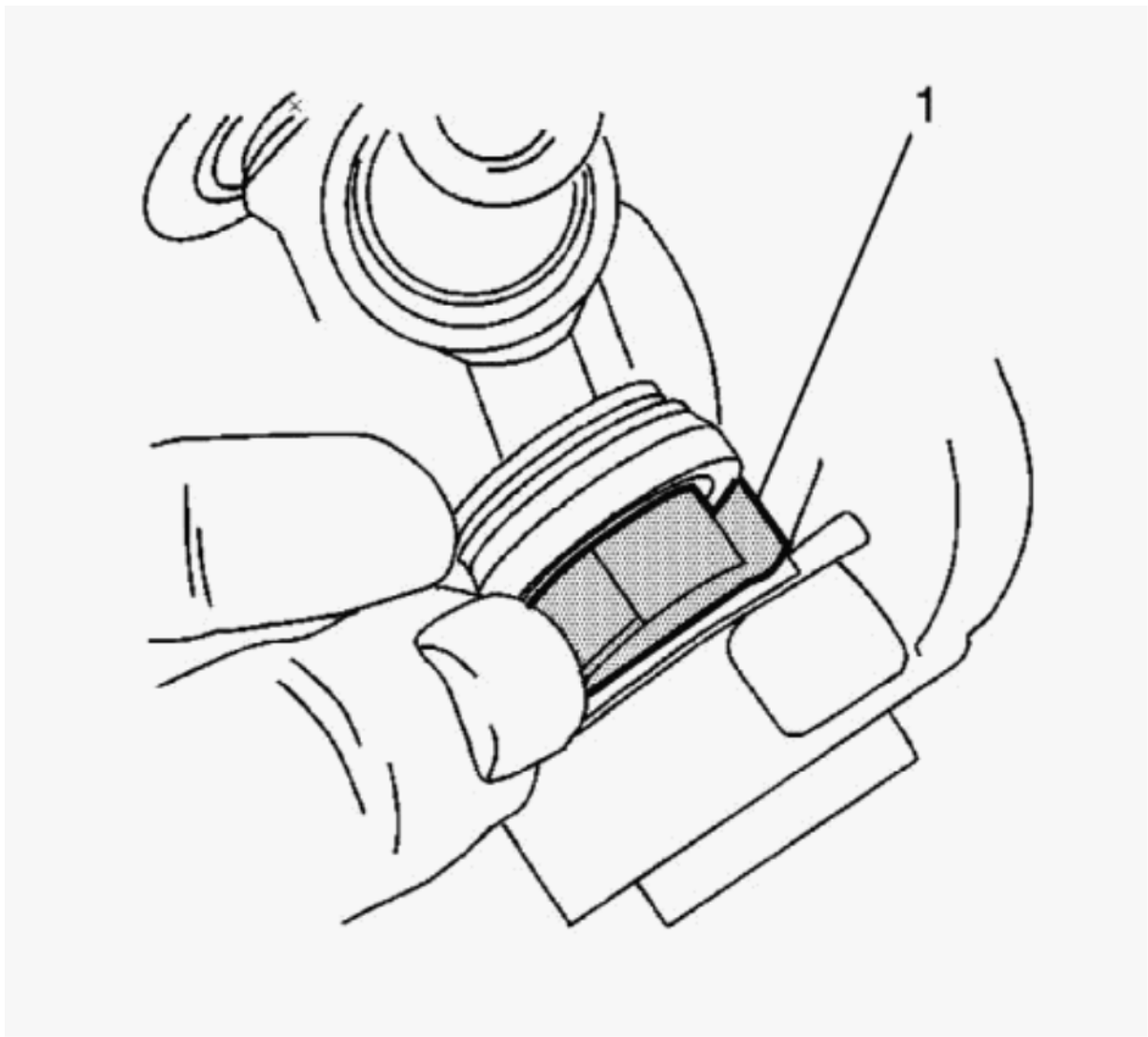


Fig. 47: Placing J 9522-5 Between The Seal And The Bearing Cup

Courtesy of GENERAL MOTORS COMPANY

8. If you do not completely remove the bearing cup, lift the spider and insert **J 9522-5** u-joint bearing spacer remover (1) between the seal and the bearing cup you are removing. Continue pressing the bearing cup out of the yoke.
9. Rotate the propeller shaft . Press the opposite bearing cup out of the yoke.
10. Remove the spider from the yoke.
11. Remove the remaining universal joint parts from the yoke.
12. Inspect the retaining ring grooves for dirt, corrosion, or pieces of the old ring.
13. Inspect the bearing cup bores for burrs or imperfections.
14. Clean the retaining ring grooves. Corrosion, dirt, rust, or pieces of the old retaining ring may prevent the bearing cups from pressing into place or prevent the bearing retainers from properly seating.

Assembly Procedure

NOTE:

Care must be taken when removing the bearings from the spider. Inspect inside the bearing cap to ensure none of the needle bearings become loose or have fallen out. Its best to place the bearing cups on a clean surface, where they will not be disturbed until installation. Also make sure

the surface the bearing rides on does not get damaged and remains free of debris.

1. Remove the bearing cups from the universal joint.
2. Assemble one bearing cup part way into one side of the yoke.

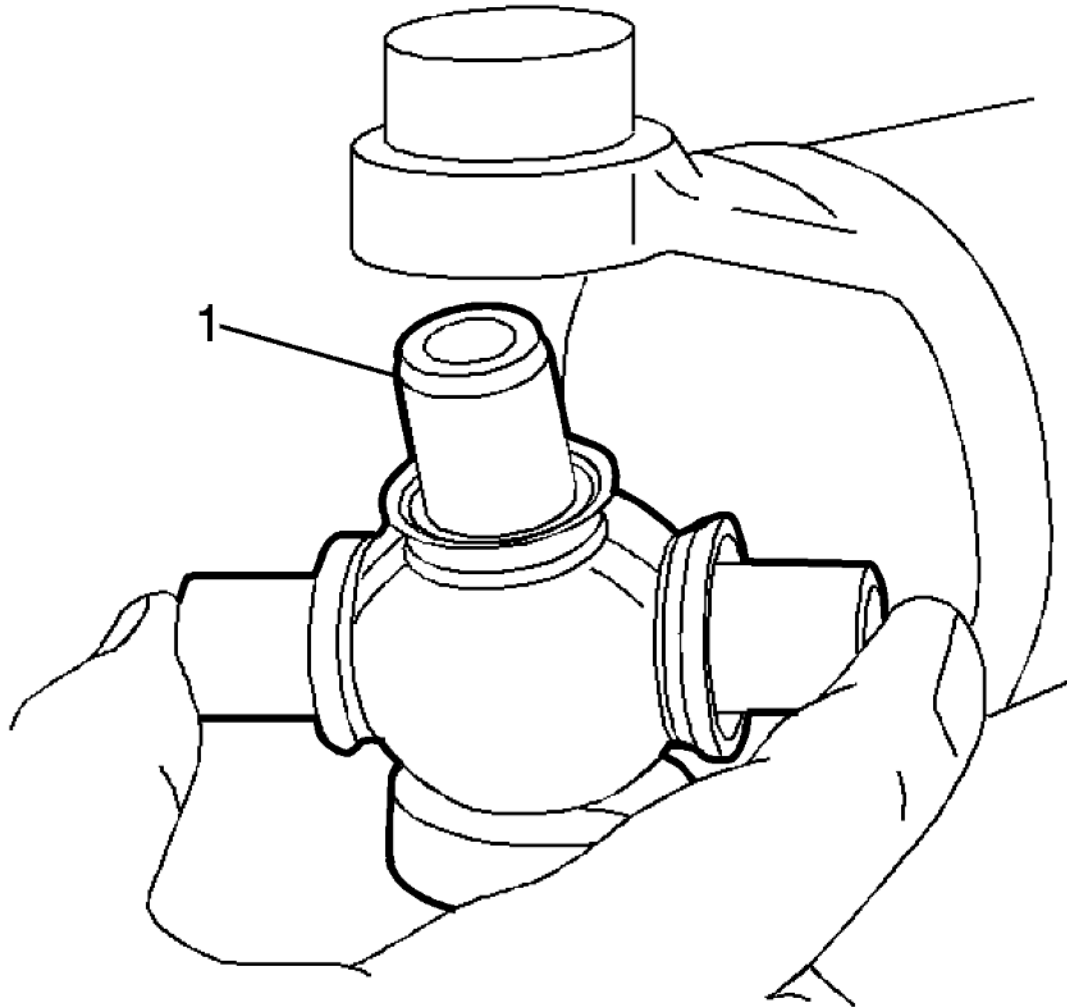


Fig. 48: Assembling Trunnion Into Yoke

Courtesy of GENERAL MOTORS COMPANY

3. Turn the yoke ear toward the bottom. Assemble the spider (1) into the yoke so that the trunnion seats freely into the bearing cup.

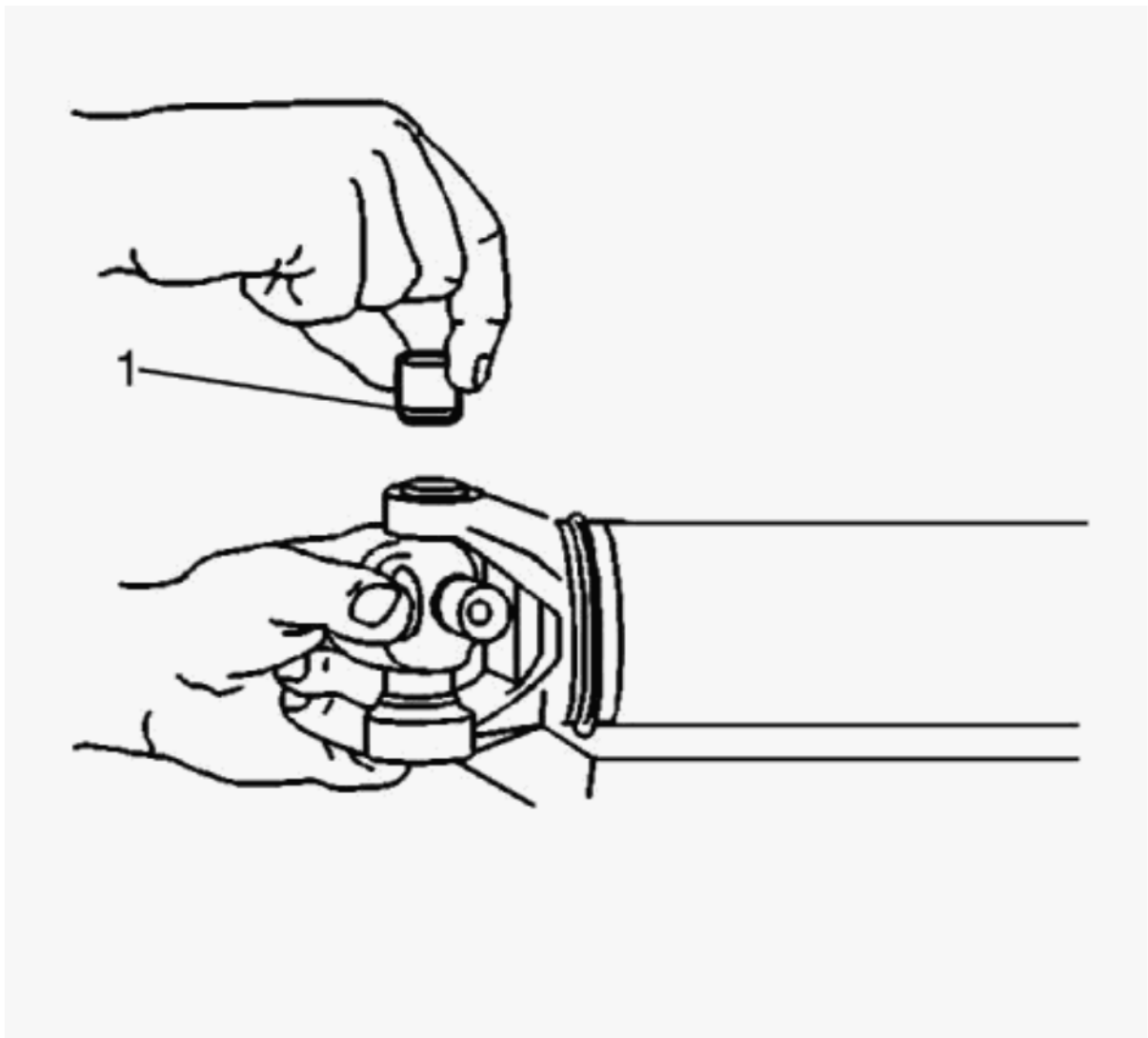


Fig. 49: Installing Bearing Cup Into Yoke Ear

Courtesy of GENERAL MOTORS COMPANY

4. With the trunnion seated in the bearing cup, press the bearing cup (1) into the yoke until the bearing cup is flush with the yoke ear.
5. Install the opposite bearing cup part way into the yoke ear.
6. Ensure that the trunnions start straight and true into both bearing cups.
7. Press the opposite bearing cup into the yoke ear while twisting the spider back and forth, in order to inspect for free unbinding movement of the trunnions in the bearing cups.

NOTE: If there seems to be a hang up or binding, stop pressing. Inspect the needle bearings for misalignment in the bearing cup.

8. Press the bearing cup into the yoke until the bearing cup retainer groove is visible over the top of the bearing cup.

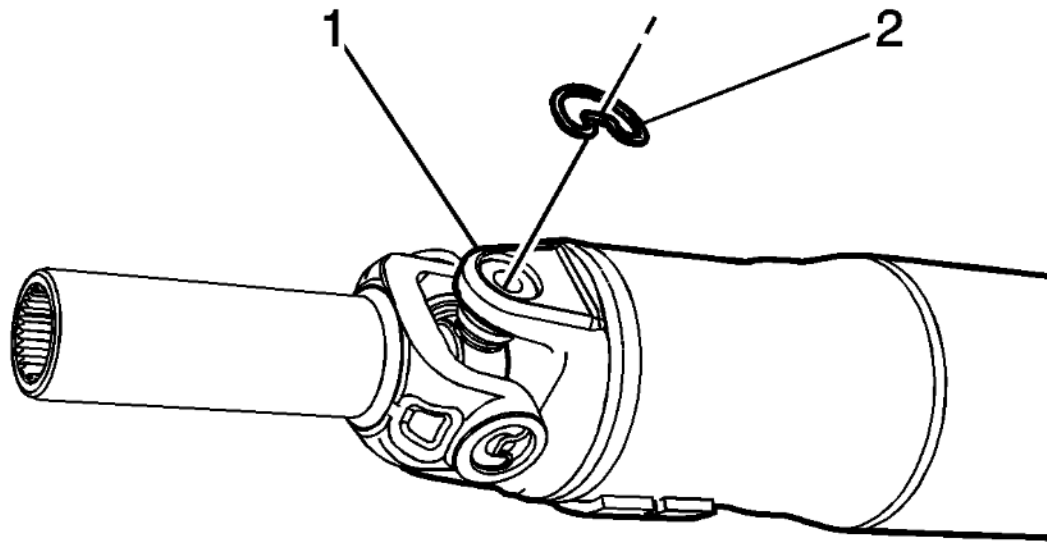


Fig. 50: View Of Retaining Ring & Propeller Shaft Yoke
Courtesy of GENERAL MOTORS COMPANY

9. Assemble the bearing retainer (2) into the retainer groove (1).
10. Continue pressing until both retainers can be snapped into place.

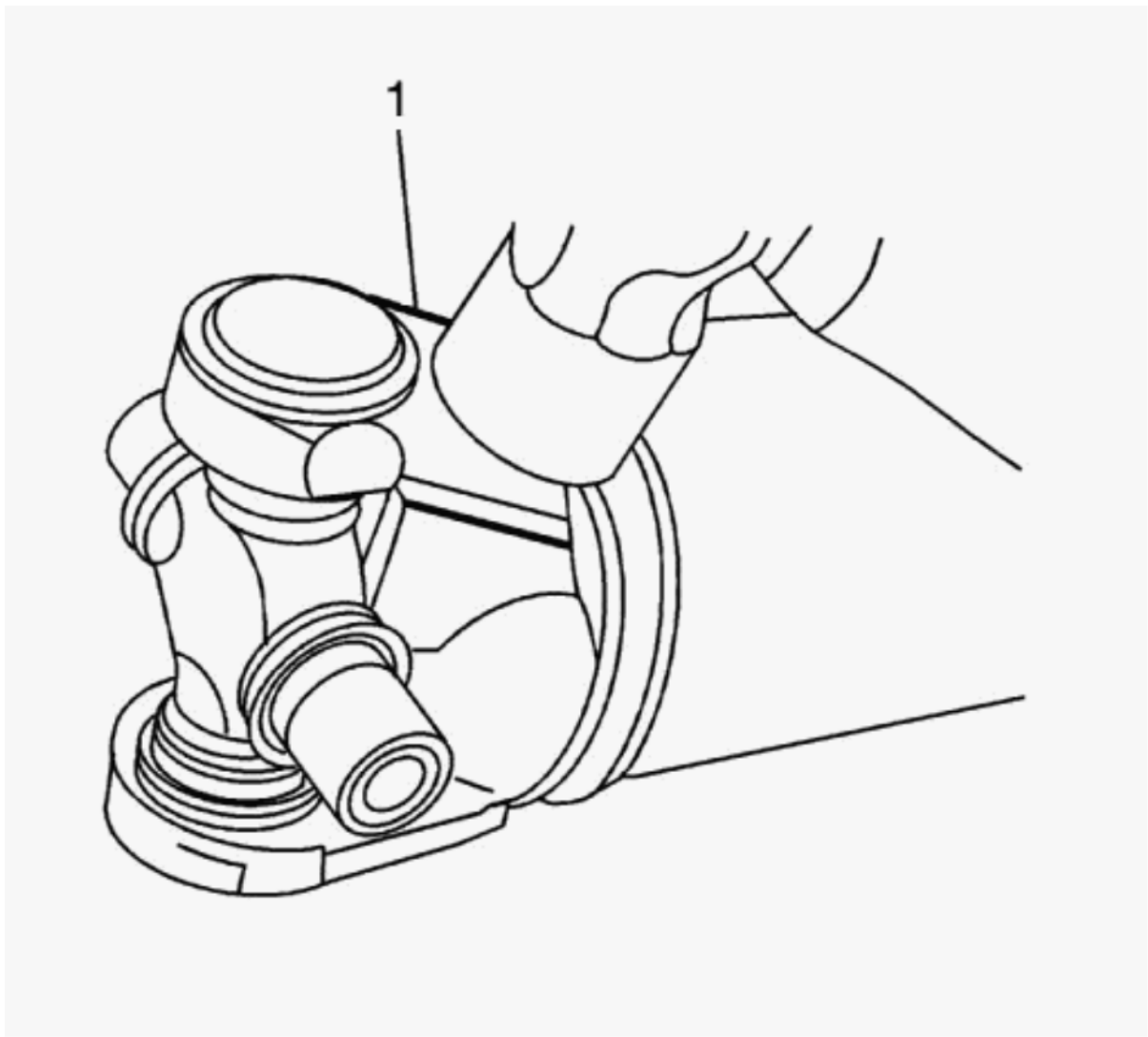


Fig. 51: Seating Retainer Using Hammer (External Snap Ring)

Courtesy of GENERAL MOTORS COMPANY

11. If the retainer is difficult to seat, the yoke (1) can be unsprung slightly with a firm blow from a dead blow hammer.
12. It may be necessary to lubricate the snap ring with a slight amount of chassis grease so that the snap ring seats in the bearing cup groove.
13. Reinstall the propeller shaft:
 - For Front Propeller Shaft replacement, refer to [**Front Axle Propeller Shaft Replacement**](#).
 - For One-Piece Propeller Shaft replacement, refer to [**One-Piece Propeller Shaft Replacement**](#).
 - For Two-Piece Propeller Shaft replacement, refer to [**Two-Piece Propeller Shaft Replacement \(MYC, M5U, MSX\)Two-Piece Propeller Shaft Replacement \(MW7\)**](#).

PROPELLER SHAFT REAR SLIP YOKE REPLACEMENT

Special Tools

- **J 9522-3** U-Joint Bearing Separator
- **J 9522-5** U-Joint Bearing Spacer Remover

Disassembly Procedure

1. Remove the rear section of the of the two piece propeller shaft. Refer to [Propeller Shaft Slip Yoke Boot Replacement](#)

CAUTION: 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. Avoid damaging the slip yoke sealing surface. Nicks may damage the bushing or cut the lip seal.

2. Support the propeller shaft in a line horizontal with the table of a press.
3. Remove all the snap rings by pinching the ends together with a pair of pliers.
4. If the ring does not readily snap out of the groove in the yoke, tap the end of the cup lightly in order to relieve the pressure from the ring.

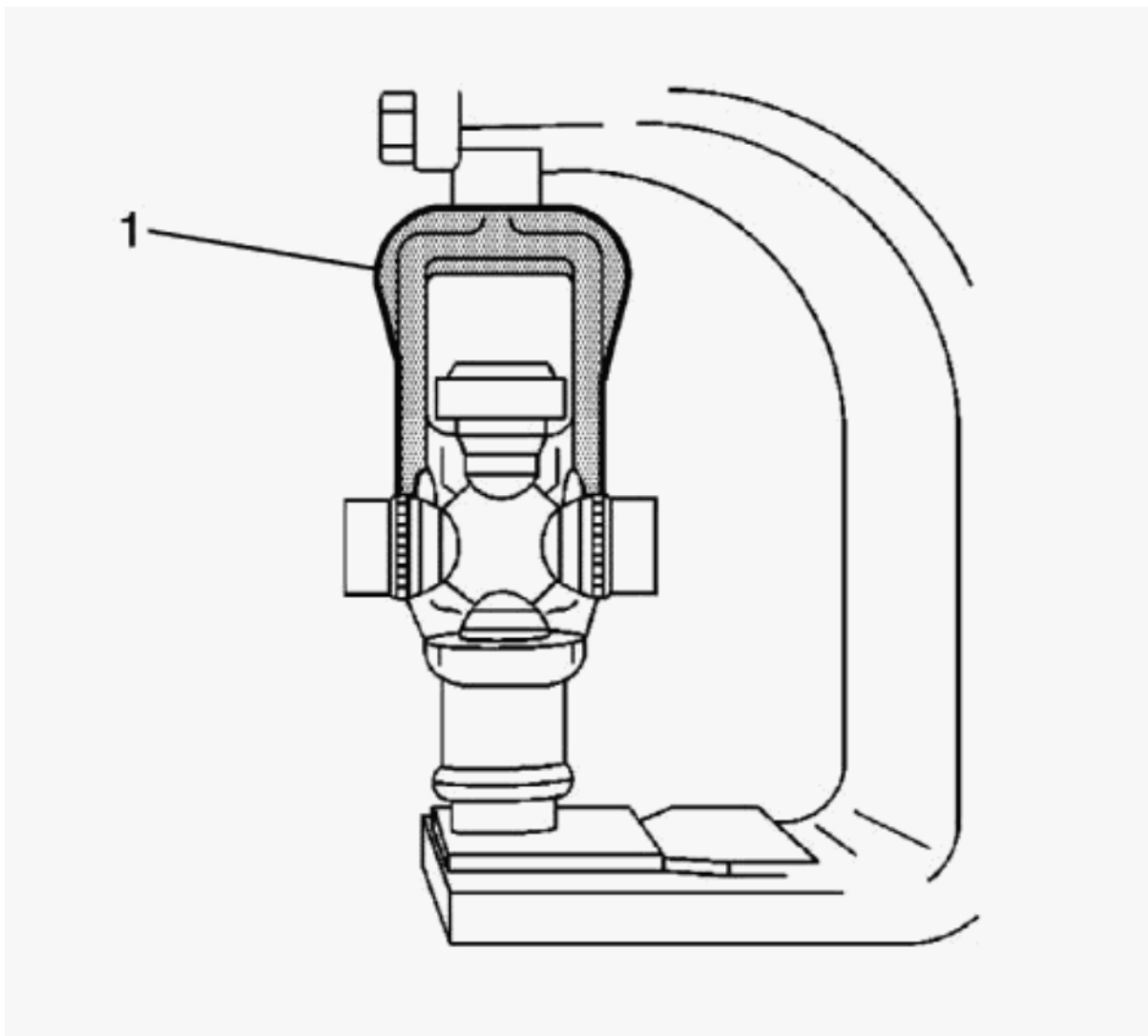


Fig. 52: Assembling Universal Joint

Courtesy of GENERAL MOTORS COMPANY

5. Place the propeller shaft yoke in the press, so that the lower ear of the yoke is supported by a socket. The socket should be deep enough to allow the bearing to completely pass through the bore of the yoke.

6. Place **J 9522-3** u-joint bearing separator (1) on the open horizontal bearing cups. Press the lower bearing cup out of the yoke ear.

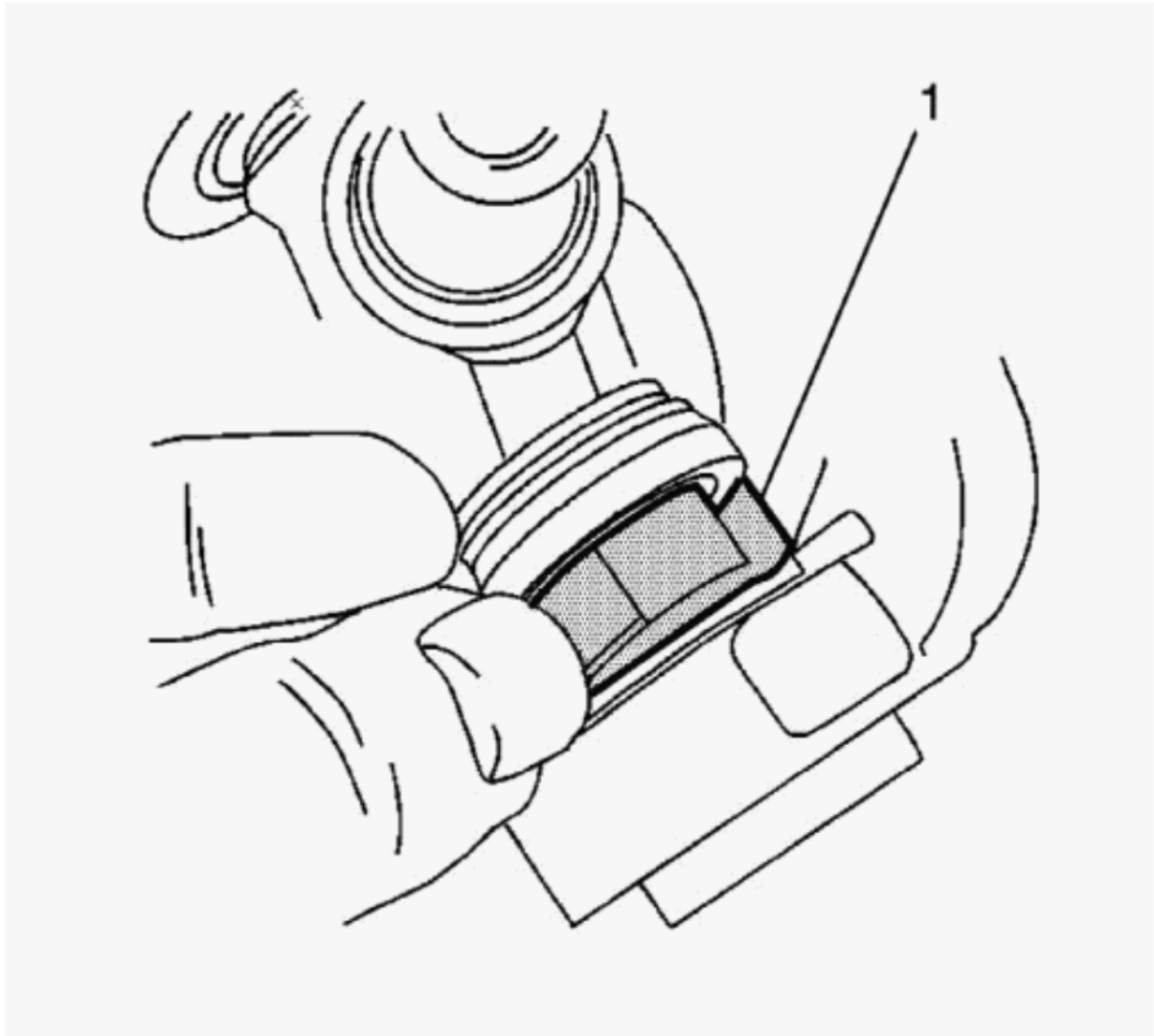


Fig. 53: Placing J 9522-5 Between The Seal And The Bearing Cup
Courtesy of GENERAL MOTORS COMPANY

7. If you do not completely remove the bearing cup, lift the spider and insert **J 9522-5** u-joint bearing spacer remover (1) between the seal and the bearing cup you are removing. Continue pressing the bearing cup out of the yoke.
8. Rotate the propeller shaft . Press the opposite bearing cup out of the yoke.
9. Remove the spider from the yoke.
10. Remove the remaining universal joint parts from the yoke.
11. Inspect the retaining ring grooves for dirt, corrosion, or pieces of the old ring.
12. Inspect the bearing cup bores for burrs or imperfections.
13. Clean the retaining ring grooves. Corrosion, dirt, rust, or pieces of the old retaining ring may prevent the bearing cups from pressing into place or prevent the bearing retainers from properly seating.

NOTE: Be careful not to scratch or damage the machined surface of the slip yoke the output shaft seals rides, this may cause leaks.

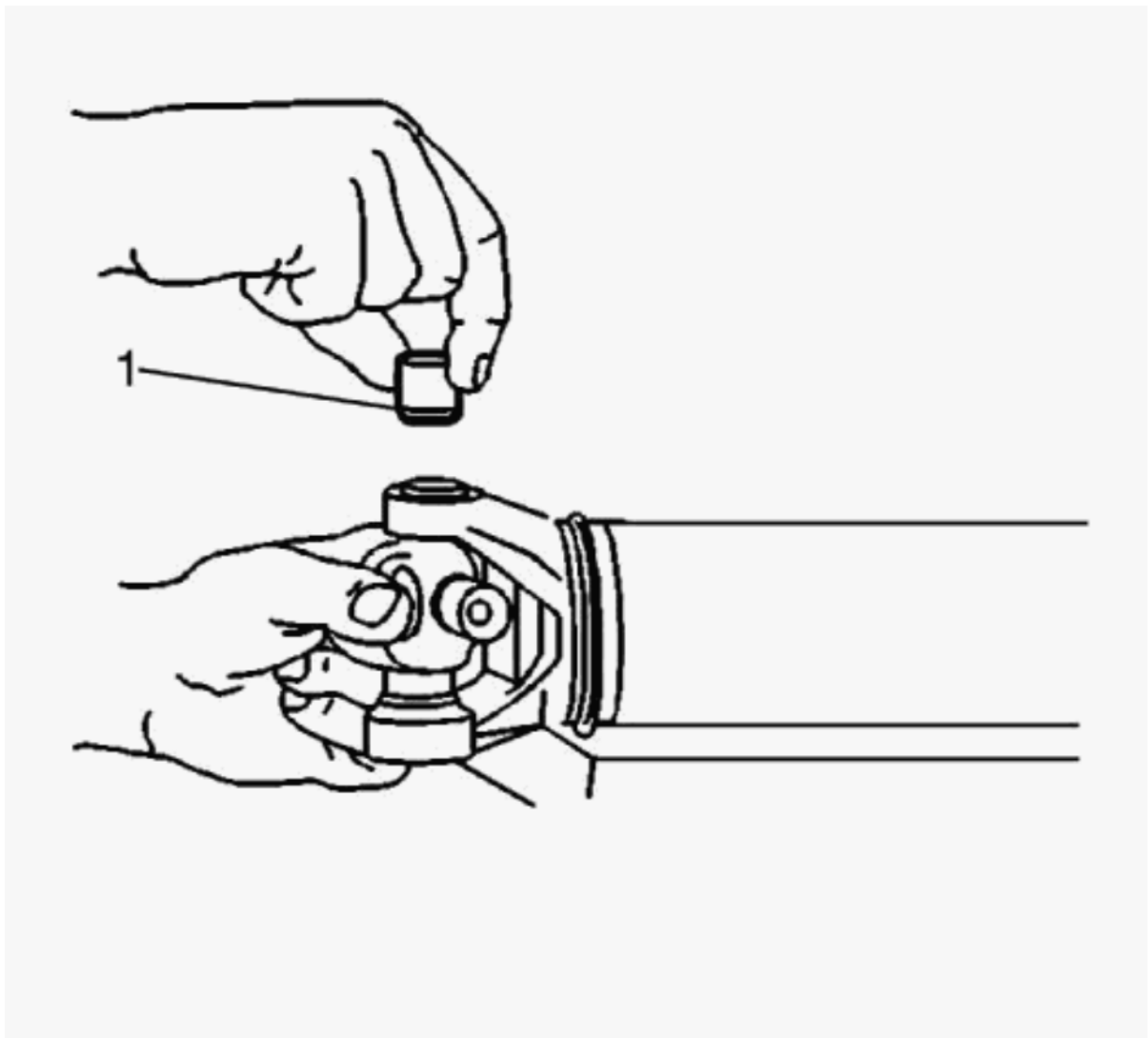


Fig. 55: Installing Bearing Cup Into Yoke Ear
Courtesy of GENERAL MOTORS COMPANY

4. With the trunnion seated in the bearing cup, press the bearing cup (1) into the yoke until the bearing cup is flush with the yoke ear.
5. Install the opposite bearing cup part way into the yoke ear.
6. Ensure that the trunnions start straight and true into both bearing cups.
7. Press the opposite bearing cup into the yoke ear while twisting the spider back and forth, in order to inspect for free movement of the trunnions in the bearing cups.

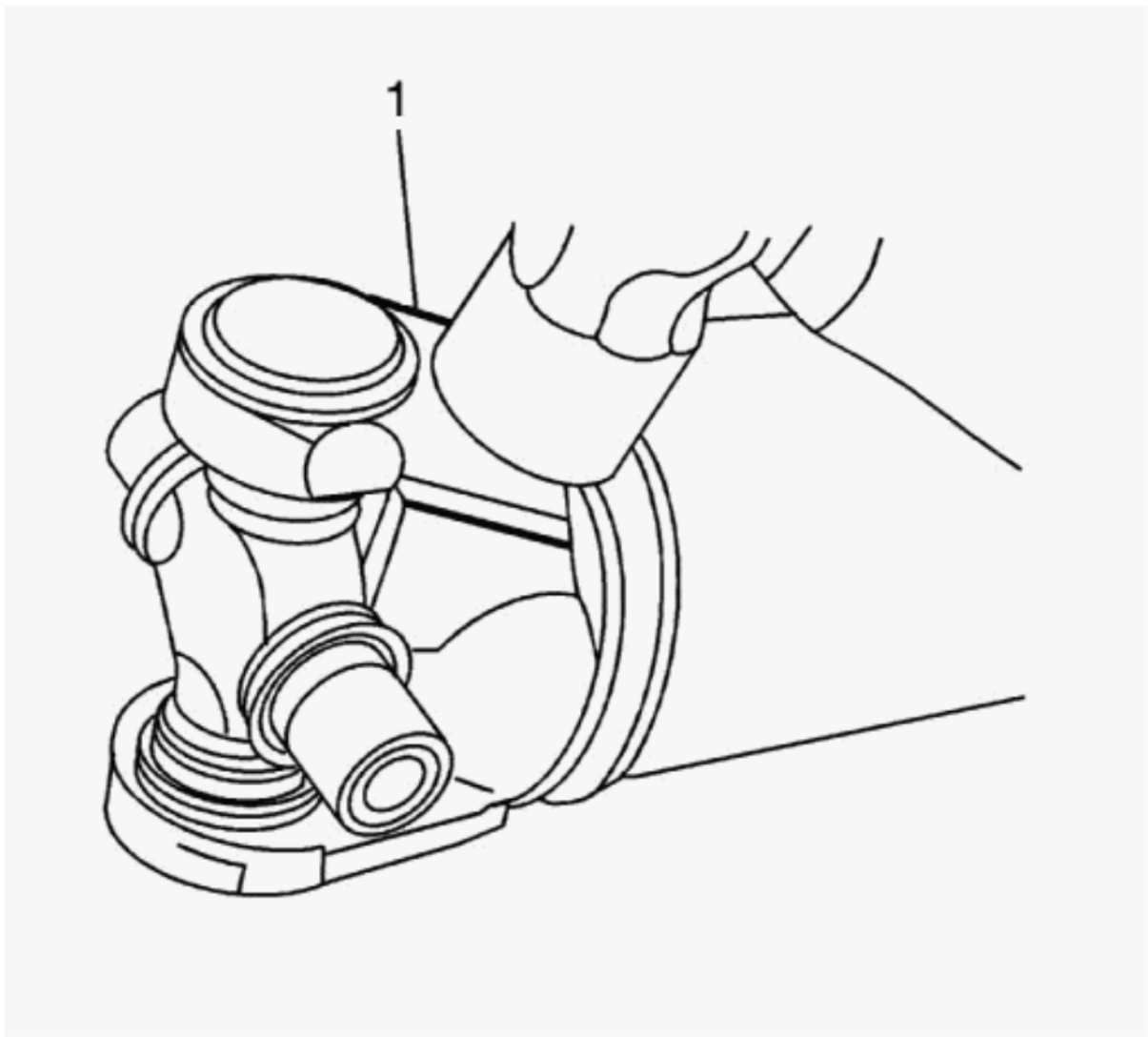


Fig. 56: Seating Retainer Using Hammer (External Snap Ring)

Courtesy of GENERAL MOTORS COMPANY

8. If the retainer is difficult to seat, the yoke (1) can be unsprung slightly with a firm blow from a dead blow hammer.

NOTE: If there seems to be a hang up or binding, stop pressing. Inspect the needle bearings for misalignment in the bearing cup.

9. Press the bearing cup into the yoke until the bearing cup retainer groove is visible over the top of the bearing cup.

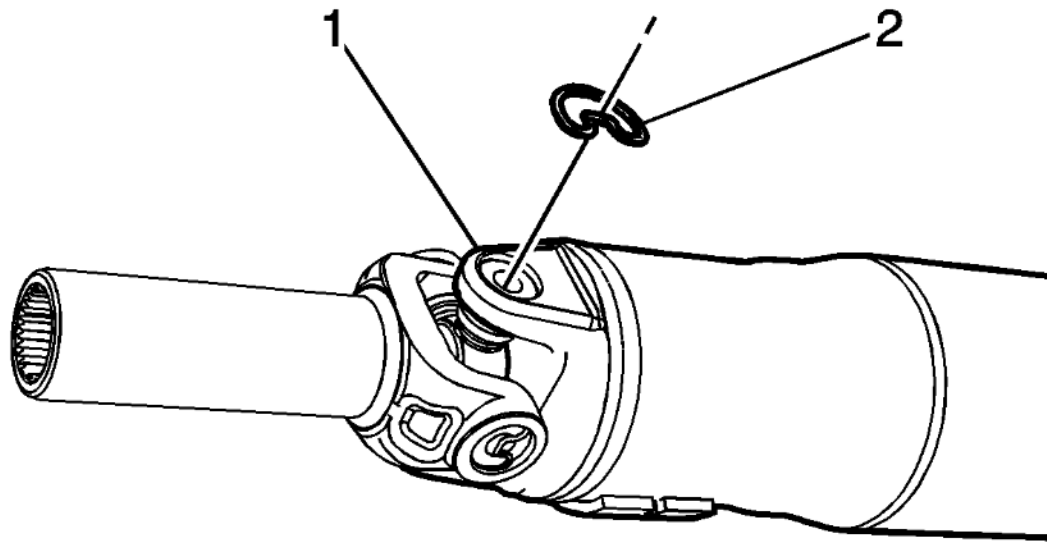


Fig. 57: View Of Retaining Ring & Propeller Shaft Yoke

Courtesy of GENERAL MOTORS COMPANY

10. Assemble the bearing retainer (2) into the retainer groove (1).
11. Continue pressing until both retainers can be snapped into place.
12. It may be necessary to lubricate the snap ring with a slight amount of chassis grease so that the snap ring seats in the bearing cup groove.
13. Install the New slip yoke onto the propeller shaft by repeating steps 1-12.
14. Reinstall the rear section of the two piece propeller shaft. Refer to **Propeller Shaft Slip Yoke Boot Replacement**

PROPELLER SHAFT LINK YOKE REPLACEMENT

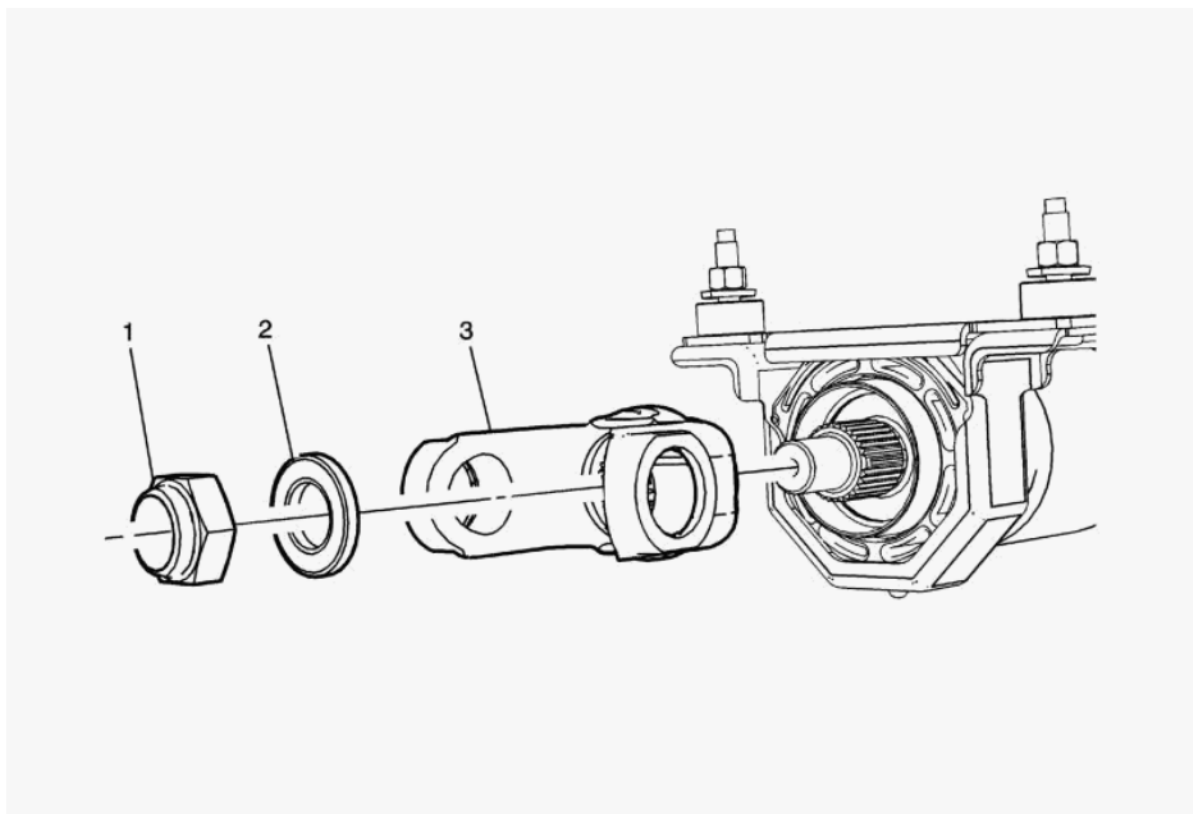


Fig. 58: Propeller Shaft Link Yoke

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
Remove the propeller shaft rear slip yoke. <u>Propeller Shaft Rear Slip Yoke Replacement</u>	

Callout	Component Name
1	Propeller Shaft Nut CAUTION: Refer to Fastener Caution . Procedure NOTE: Do not damage the propeller shaft counter weights when clamping in a soft jawed vise. Clamp the front portion of the propeller shaft in a soft jawed vise. Use the appropriate tool to remove the propeller shaft nut. Tighten 160 N.m (118 lb ft)
2	Propeller Shaft Washer Procedure Apply thin layer of lubricant to the contact surfaces of the washer to ensure accurate torque.
3	Propeller Shaft Link Yoke Procedure NOTE: The propeller shaft link yoke and the propeller shaft have a master spline. Ensure the master splines are aligned properly when installing the propeller shaft yoke to the propeller shaft.

UNIVERSAL JOINT REPLACEMENT

Special Tools

- **J 9522-3** U-Joint Bearing Separator
- **J 9522-5** U-Joint Bearing Spacer Remover

Disassembly Procedure

1. Remove the propeller shaft:

- For Front Propeller Shaft replacement, refer to [Front Axle Propeller Shaft Replacement](#).
- For One- Piece Propeller Shaft replacement, refer to [One-Piece Propeller Shaft Replacement](#).
- For Two- Piece Propeller Shaft replacement, refer to [Two-Piece Propeller Shaft Replacement \(MYC, M5U, MSX\)Two-Piece Propeller Shaft Replacement \(MW7\)](#).

CAUTION: 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. Avoid damaging the slip yoke sealing surface. Nicks may damage the bushing or cut the lip seal.

2. Support the propeller shaft in a line horizontal with the table of a press.
3. Mark the relation of propeller shaft to the slip yoke in order to ensure the reassembly is correct.
4. Remove all the snap rings by pinching the ends together with a pair of pliers.
5. If the ring does not readily snap out of the groove in the yoke, tap the end of the cup lightly in order to relieve the pressure from the ring.

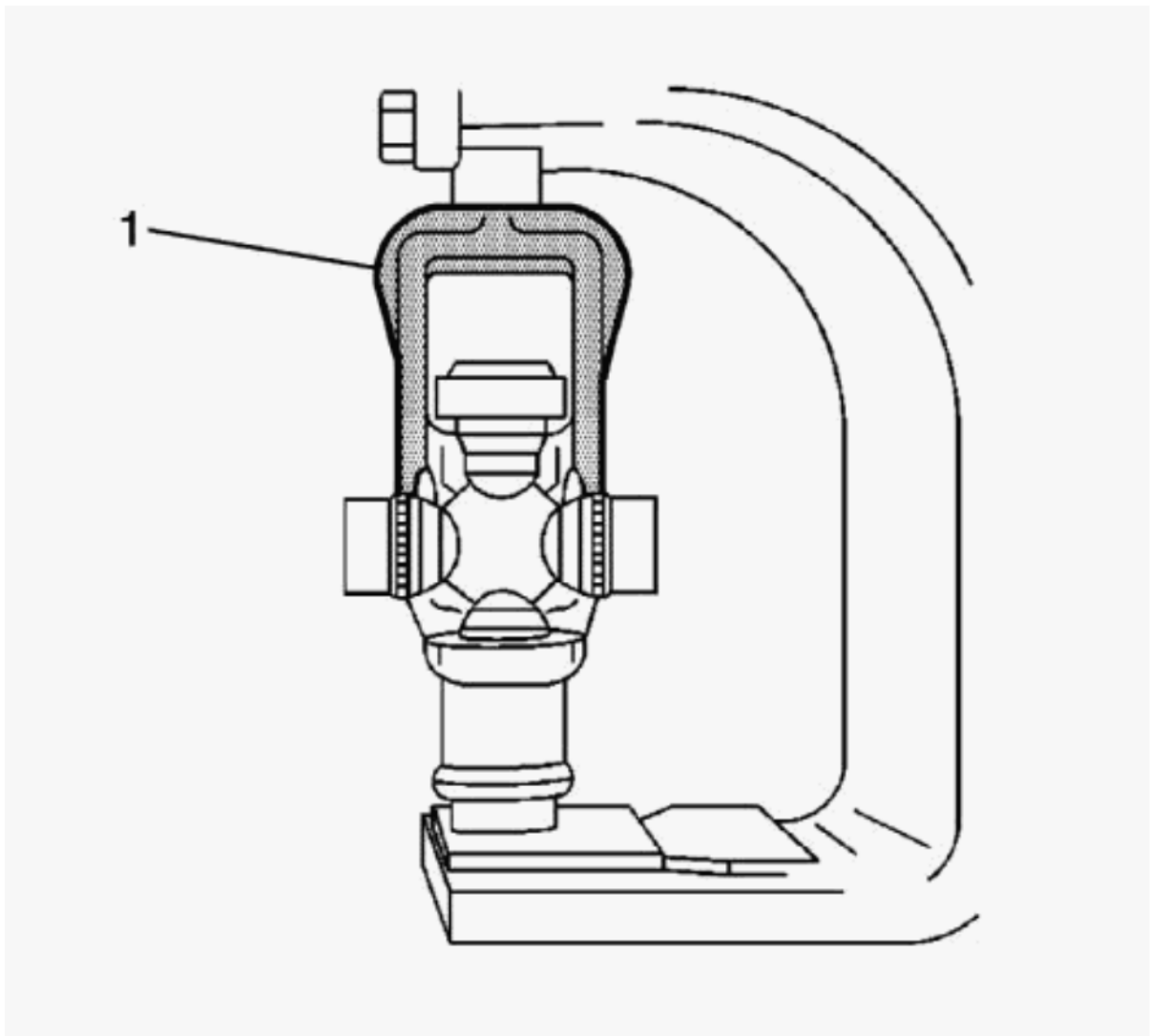


Fig. 59: Assembling Universal Joint

Courtesy of GENERAL MOTORS COMPANY

6. Place the propeller shaft yoke in the press, so that the lower ear of the yoke is supported by a socket. The socket should be deep enough to allow the bearing to completely pass through the bore of the yoke.
7. Place **J 9522-3** u-joint bearing separator (1) on the open horizontal bearing cups. Press the lower bearing cup out of the yoke ear.

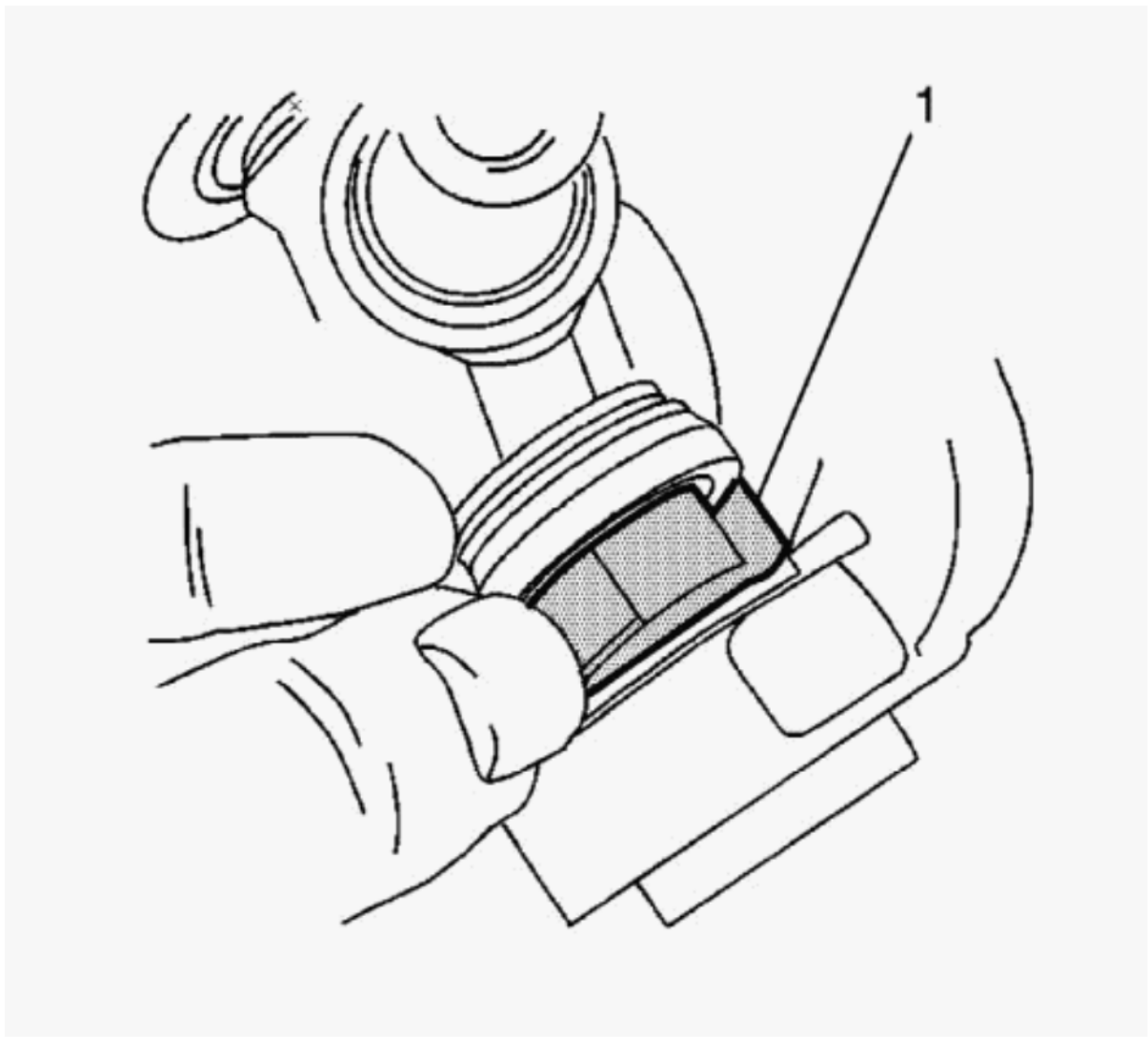


Fig. 60: Placing U-Joint Bearing Spacer Remover Between Seal And Bearing Cup
Courtesy of GENERAL MOTORS COMPANY

8. If you do not completely remove the bearing cup, lift the spider and insert **J 9522-5** u-joint bearing spacer remover (1) between the seal and the bearing cup you are removing. Continue pressing the bearing cup out of the yoke.
9. Rotate the propeller shaft . Press the opposite bearing cup out of the yoke.
10. Remove the spider from the yoke.
11. Remove the remaining universal joint parts from the yoke.
12. Inspect the retaining ring grooves for dirt, corrosion, or pieces of the old ring.
13. Inspect the bearing cup bores for burrs or imperfections.
14. Clean the retaining ring grooves. Corrosion, dirt, rust, or pieces of the old retaining ring may prevent the bearing cups from pressing into place or prevent the bearing retainers from properly seating.

NOTE: Be careful not to scratch or damage the machined surface of the slip yoke the output shaft seals rides, this may cause leaks.

15. Remove the propeller shaft from the press and install the slip yoke, supporting it the same way as the propeller shaft .

16. Repeat steps 7-14.

Assembly Procedure

NOTE: Care must be taken when removing the bearings from the spider. Inspect inside the bearing cap to ensure none of the needle bearings become loose or have fallen out. Its best to place the bearing cups on a clean surface, where they will not be disturbed until installation. Also make sure the surface the bearing rides on does not get damaged and remains free of debris.

1. Remove the bearing cups from the universal joint.
2. Assemble one bearing cup part way into one side of the yoke.

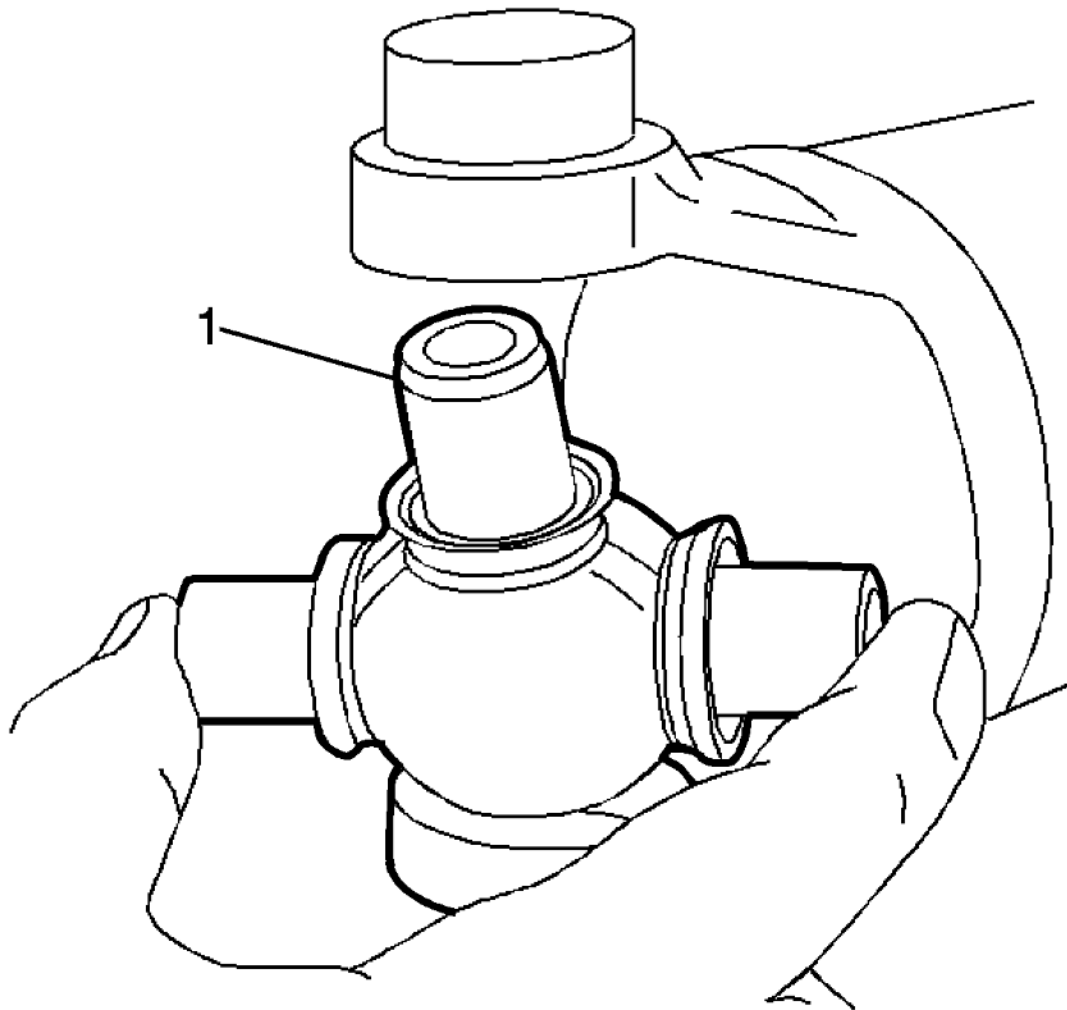


Fig. 61: Assembling Trunnion Into Yoke
Courtesy of GENERAL MOTORS COMPANY

3. Turn the yoke ear toward the bottom. Assemble the spider (1) into the yoke so that the trunnion seats freely into the bearing cup.

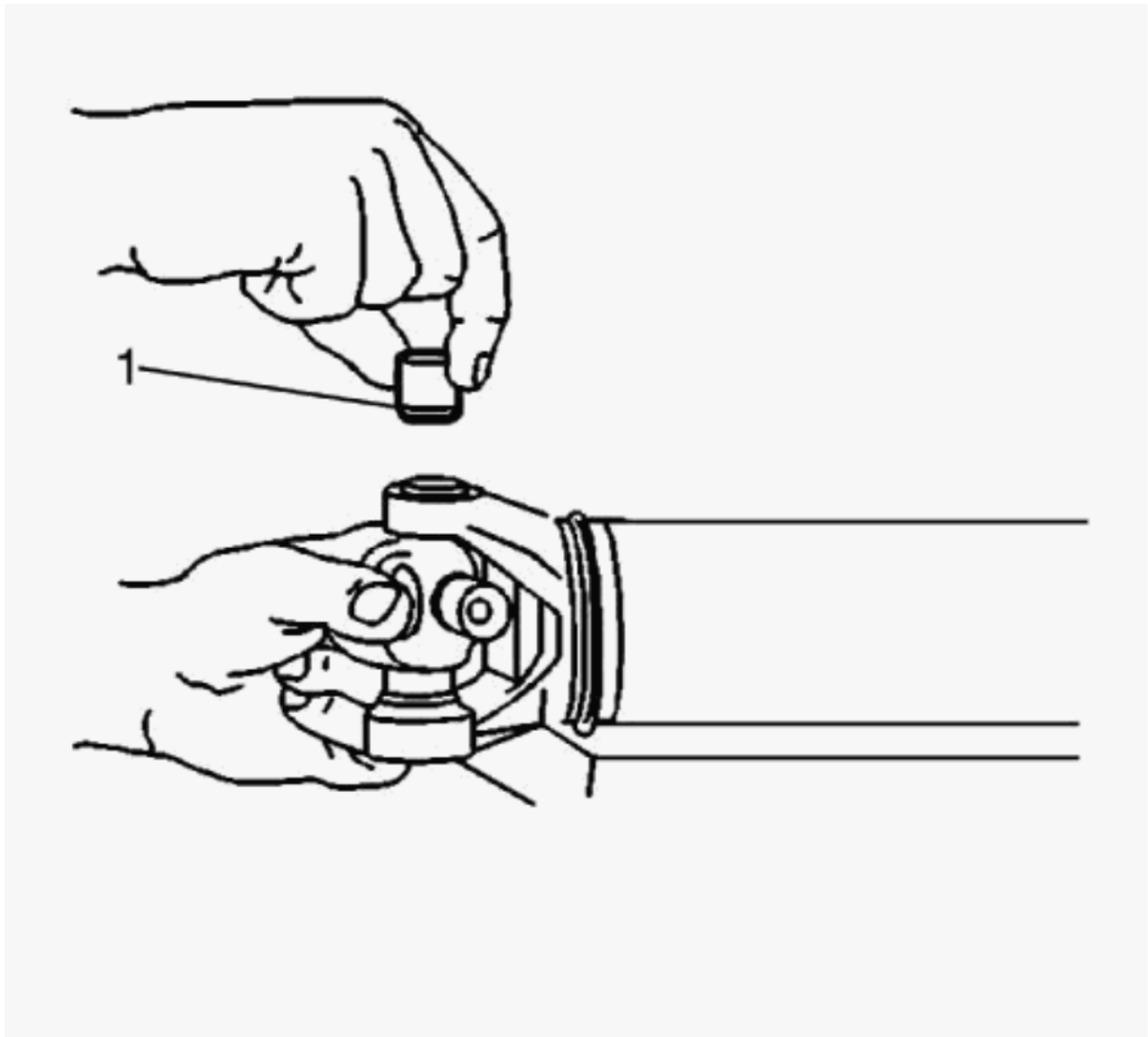


Fig. 62: Installing Bearing Cup Into Yoke Ear
Courtesy of GENERAL MOTORS COMPANY

4. With the trunnion seated in the bearing cup, press the bearing cup (1) into the yoke until the bearing cup is flush with the yoke ear.
5. Install the opposite bearing cup part way into the yoke ear.
6. Ensure that the trunnions start straight and true into both bearing cups.
7. Press the opposite bearing cup into the yoke ear while twisting the spider back and forth, in order to inspect for free unbinding movement of the trunnions in the bearing cups.

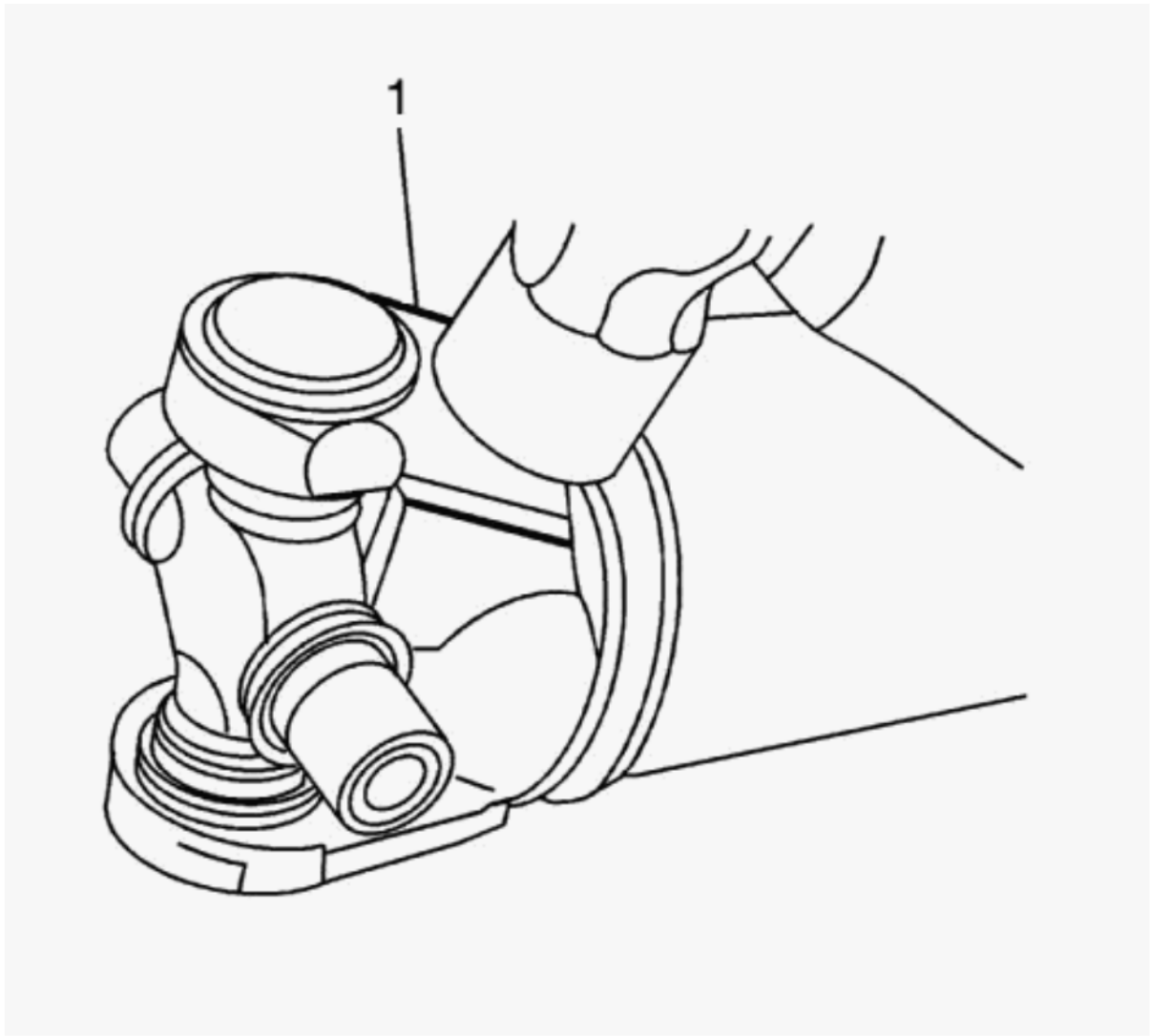


Fig. 63: Seating Retainer Using Hammer (External Snap Ring)

Courtesy of GENERAL MOTORS COMPANY

8. If the retainer is difficult to seat, the yoke can be unsprung slightly with a firm blow from a dead blow hammer.

NOTE: If there seems to be a hang up or binding, stop pressing. Inspect the needle bearings for misalignment in the bearing cup.

9. Press the bearing cup into the yoke until the bearing cup retainer groove is visible over the top of the bearing cup.

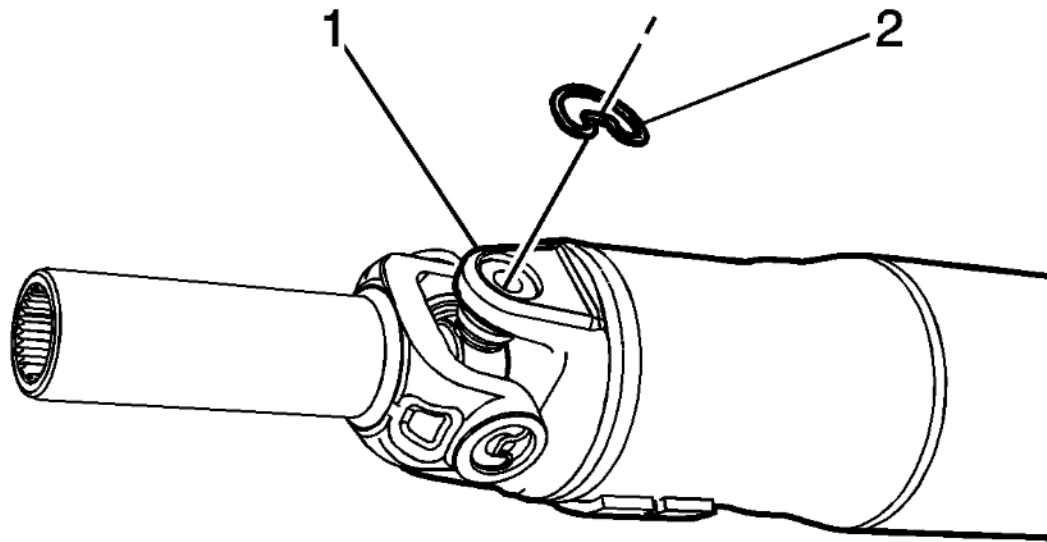


Fig. 64: View Of Retaining Ring & Propeller Shaft Yoke
Courtesy of GENERAL MOTORS COMPANY

10. Assemble the bearing retainer (2) into the retainer groove (1).
11. Continue pressing until both retainers can be snapped into place.
12. It may be necessary to lubricate the snap ring with a slight amount of chassis grease so that the snap ring seats in the bearing cup groove.
13. Install the slip yoke onto the propeller shaft by repeating steps 1-12.
14. Reinstall the propeller shaft:
 - For Front Propeller shaft replacement, refer to [**Front Axle Propeller Shaft Replacement**](#).
 - For One- Piece Propeller Shaft replacement, refer to [**One-Piece Propeller Shaft Replacement**](#).
 - For Two- Piece Propeller Shaft replacement, refer to [**Two-Piece Propeller Shaft Replacement \(MYC, M5U, MSX\)Two-Piece Propeller Shaft Replacement \(MW7\)**](#).

DESCRIPTION AND OPERATION

PROPELLER SHAFT DESCRIPTION AND OPERATION

The propeller shaft is a tube with universal joints at both ends which do not require periodic maintenance, that

transmit power from the transfer case or transmission output shaft to the differential.

Front Propeller Shaft Description

The front propeller shaft transmits rotating force from the transfer case to the front differential when the transfer case is engaged. The front propeller shaft connects to the transfer case using a splined slip joint.

One Piece Propeller Shaft Description

A 1 piece propeller shaft uses a splined slip joint to connect the driveline to the transmission or transfer case.

Two Piece Propeller Shaft Description

There are 3 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 drive line. All splined shaft slip yokes are keyed in order to ensure proper phasing.

Universal Joint Description

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 one piece propeller shaft and 3 used in two piece propeller shaft. The bearings and caps are pressed into the yokes and held in place with snap rings, except for 2 bearings on some models witch are strapped onto the pinion flange of the differential. 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

Illustration		Tool Number/ Description
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Illustration	Tool Number/ Description
	J 9522-3 U Joint Bearing Separator

Illustration	Tool Number/ Description
	J 9522-5 U Joint Bearing Spacer Remover- Use with J 9522-3

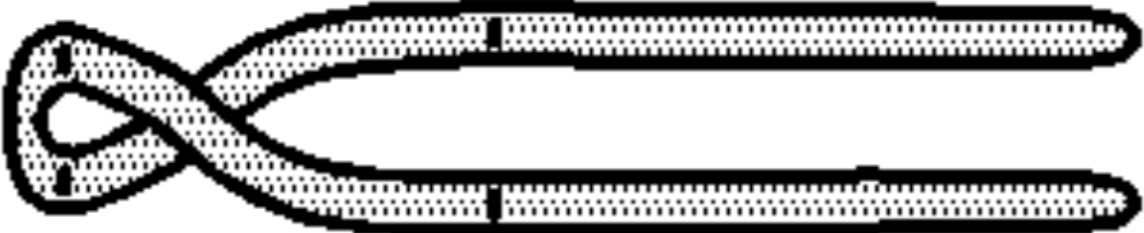
Illustration	Tool Number/ Description
	J 43218 Clamp Pliers- Narrow Jaw

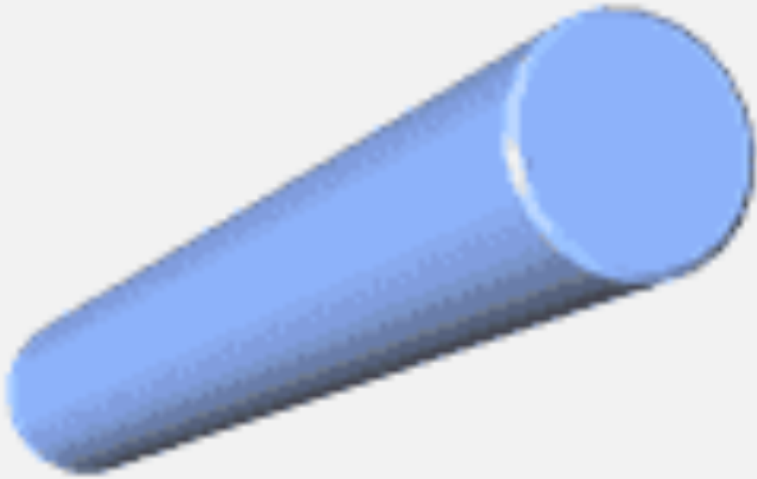
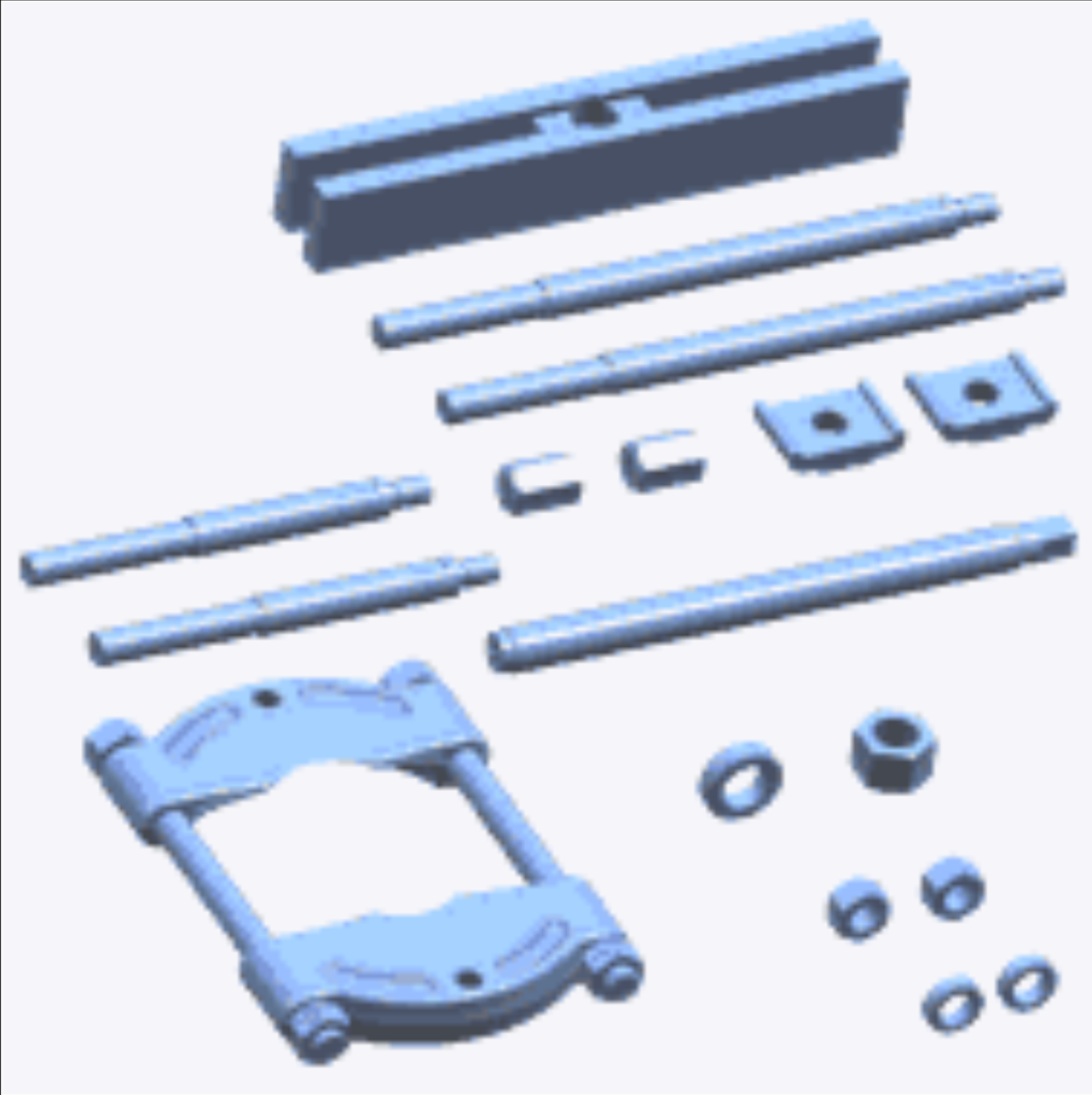
Illustration	Tool Number/ Description
	J 6133 Bearing Installer

Illustration	Tool Number/ Description
	J-39477 Puller Kit

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