

DRIVELINE/AXLE**Propeller Shaft - Escalade, Suburban, Tahoe, Yukon****SPECIFICATIONS****FASTENER SPECIFICATIONS**

Application	Specification	
	Metric	English
• Yoke Retainer Bolts	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**

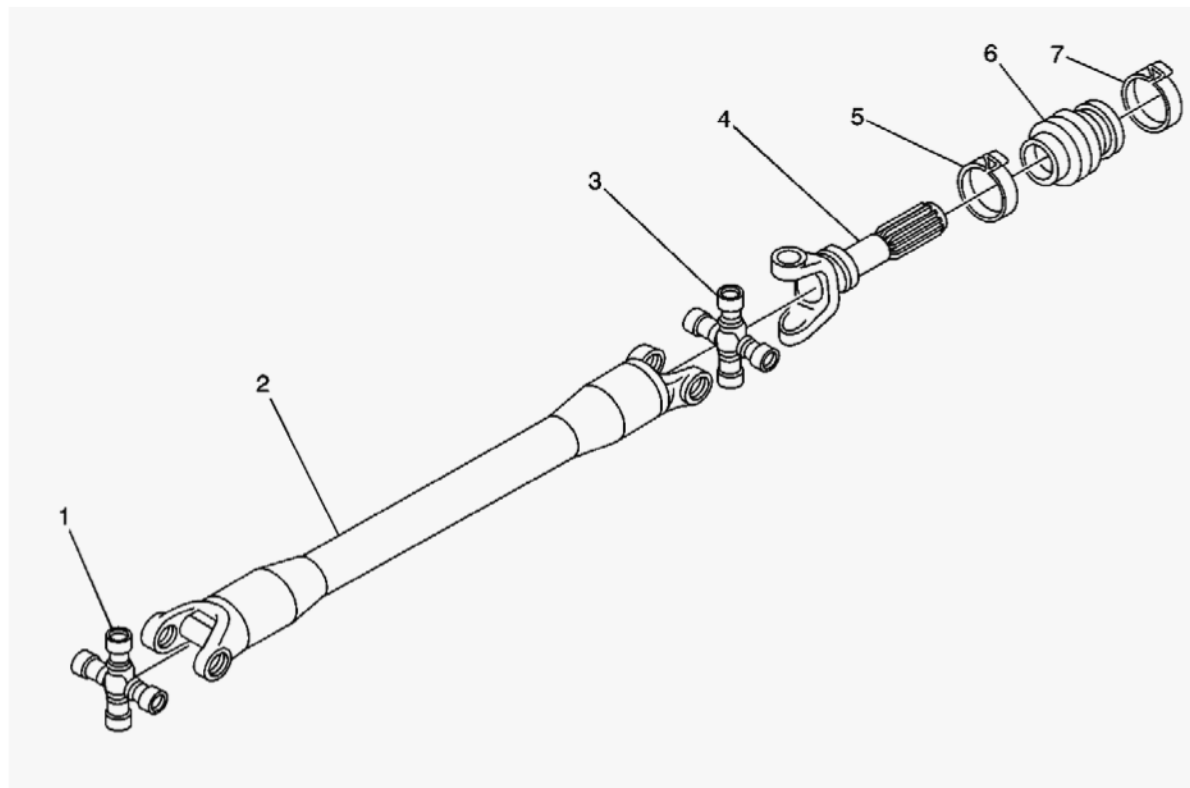


Fig. 1: Front Propeller Shaft Disassembled View

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
7	Propeller Shaft Rear Slip Yoke Boot Clamp - Rear

One-Piece Propeller Shaft

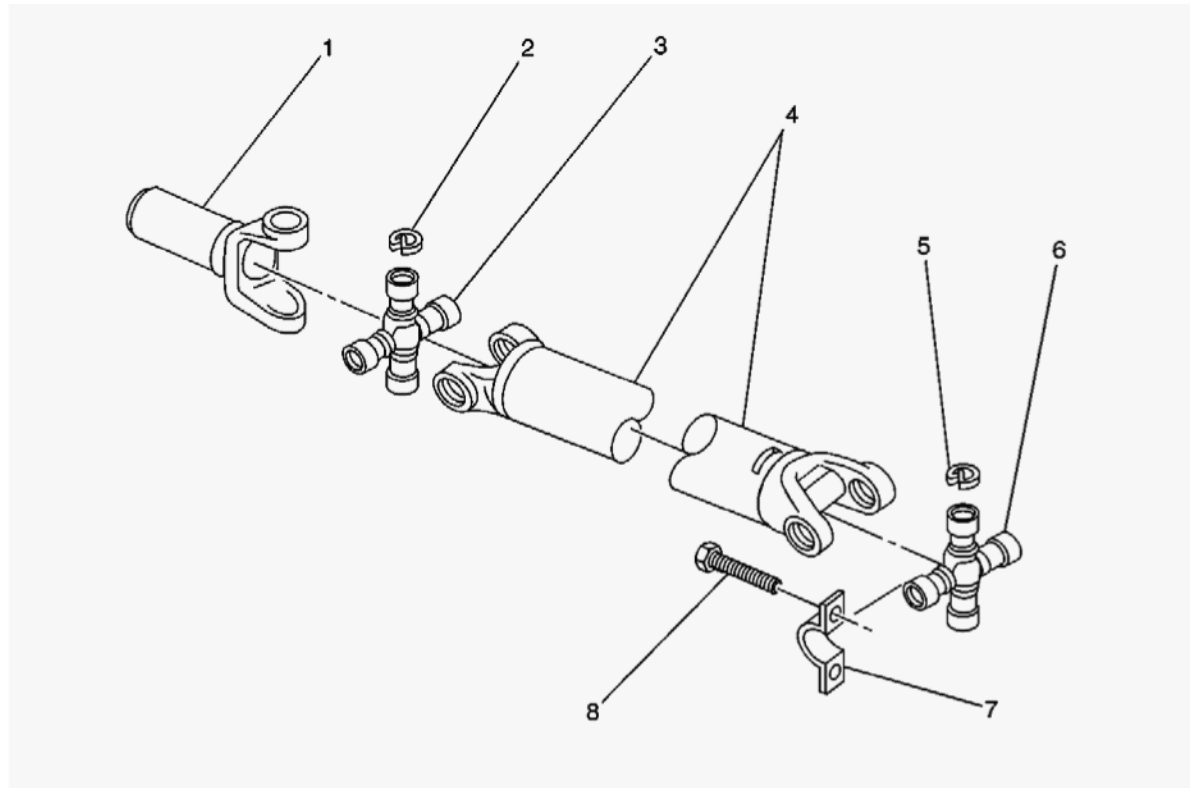


Fig. 2: One-Piece Propeller Shaft Disassembled View

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

DIAGNOSTIC INFORMATION AND PROCEDURES

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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
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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.	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. Refer to Universal Joint Replacement - Nylon Injected Ring, or Universal Joint Replacement - External Snap Ring. 3. Replace the oil seal. Refer to one of the following procedures: • Rear Output Shaft Seal Replacement for the MP 3010-NP0 transfer case • Rear Output Shaft Seal Replacement for the MP 3023/3024-NQH transfer case • Transmission Output Shaft Seal Replacement (Four Wheel Drive) for the 6L50/6L80/6L90 automatic transmission
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: • Rear Output Shaft Seal Replacement for the MP 3010-NP0 transfer case • Rear Output Shaft Seal Replacement for the MP 3023/3024-NQH transfer case • Transmission Output Shaft Seal Replacement (Four Wheel Drive) for the 6L50/6L80/6L90 automatic transmission

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 - External Snap Ring , or Universal Joint Replacement - Nylon Injected Ring .
One or more of the universal joints have lost lubricant.	Replace the universal joint. Refer to Universal Joint Replacement - External Snap Ring , or Universal Joint Replacement - Nylon Injected Ring .
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 the following: • Universal Joint Replacement - Nylon Injected Ring • Universal Joint Replacement - External Snap Ring
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 the following: • Universal Joint Replacement - Nylon Injected Ring • Universal Joint Replacement - External Snap Ring
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 Inch Axle) .

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.

Checks	Action
	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 the following: • Universal Joint Replacement - Nylon Injected Ring • Universal Joint Replacement - External Snap Ring
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 - Nylon Injected Ring , or Universal Joint Replacement - External Snap Ring .

REPAIR INSTRUCTIONS

FRONT AXLE PROPELLER SHAFT REPLACEMENT (NPO)

Special Tools

J-43218 Clamp Pliers - Narrow Jaw

Removal Procedure

1. Raise the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Remove the transfer case shield, if equipped. Refer to [Transfer Case Shield Replacement](#) .

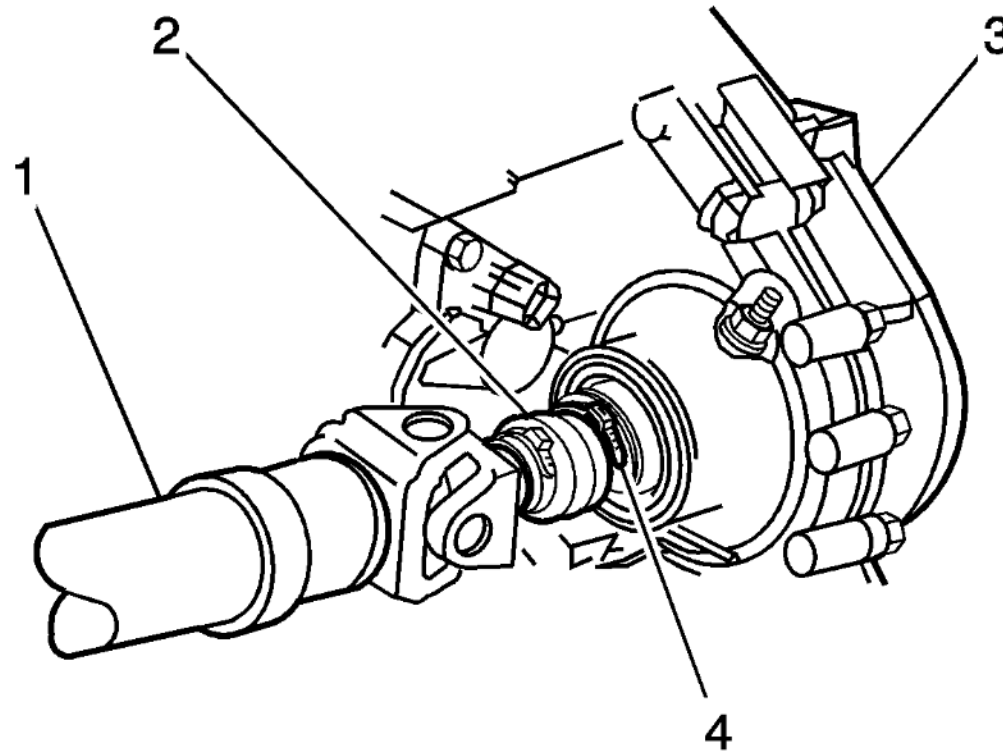


Fig. 3: Removing Clamp At Transfer Case
Courtesy of GENERAL MOTORS COMPANY

3. Remove the clamp (4) at the transfer case by prying up the exposed end of the clamp with a flat-bladed tool.

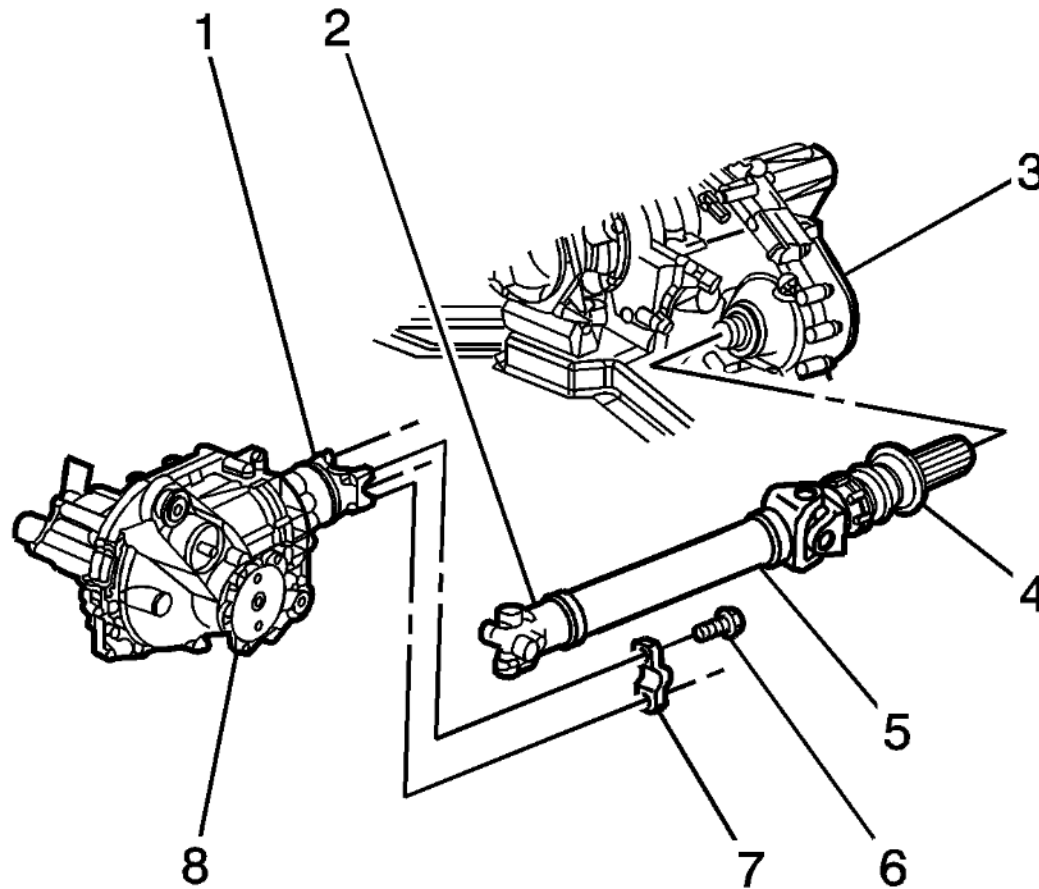


Fig. 4: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

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.

NOTE: Mark the relationship of the front propeller shaft to the drive axle flange.

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).

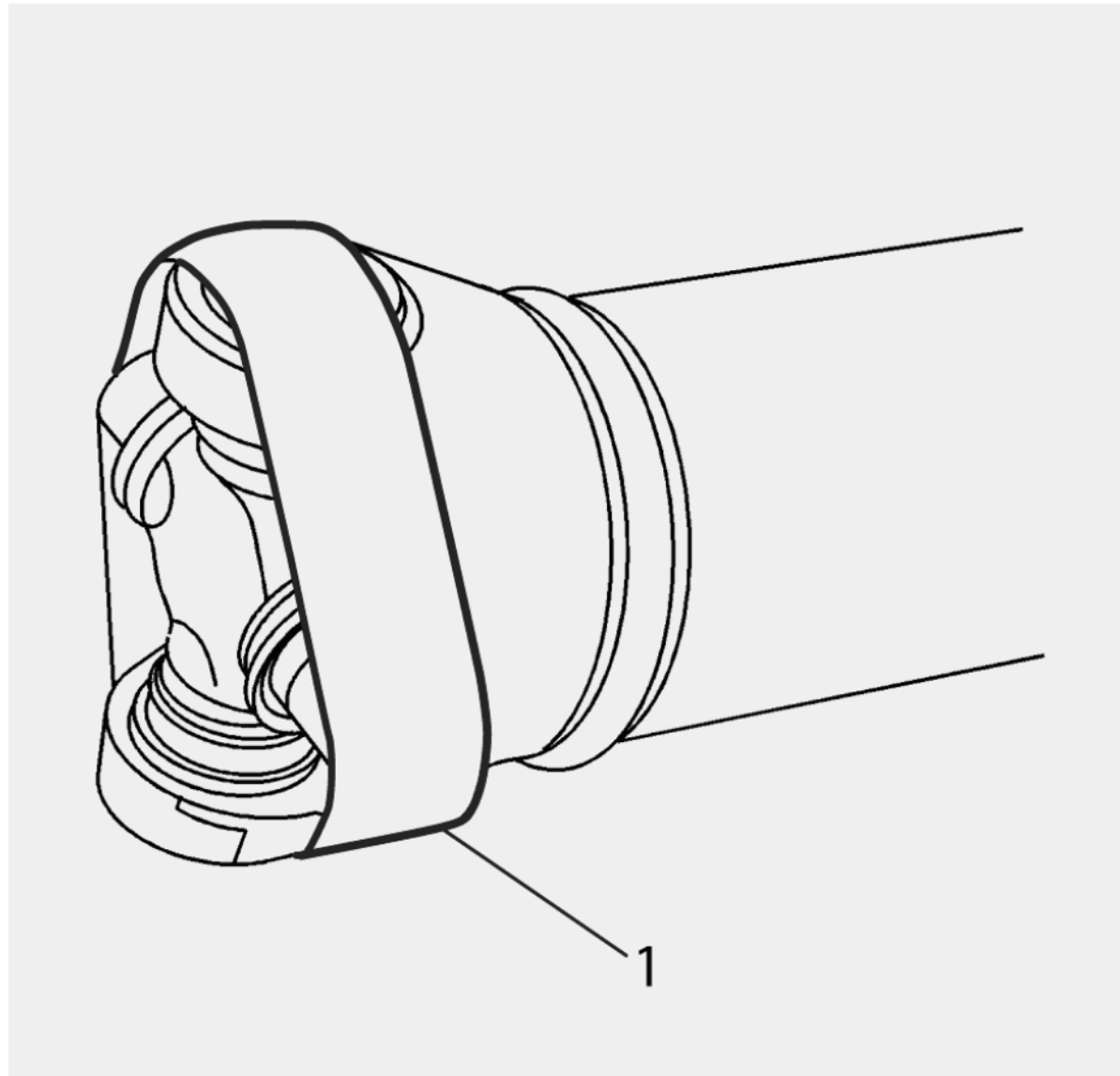


Fig. 5: U-Joint Bearing Caps

Courtesy of GENERAL MOTORS COMPANY

6. Use tape (1) to secure the bearing caps.

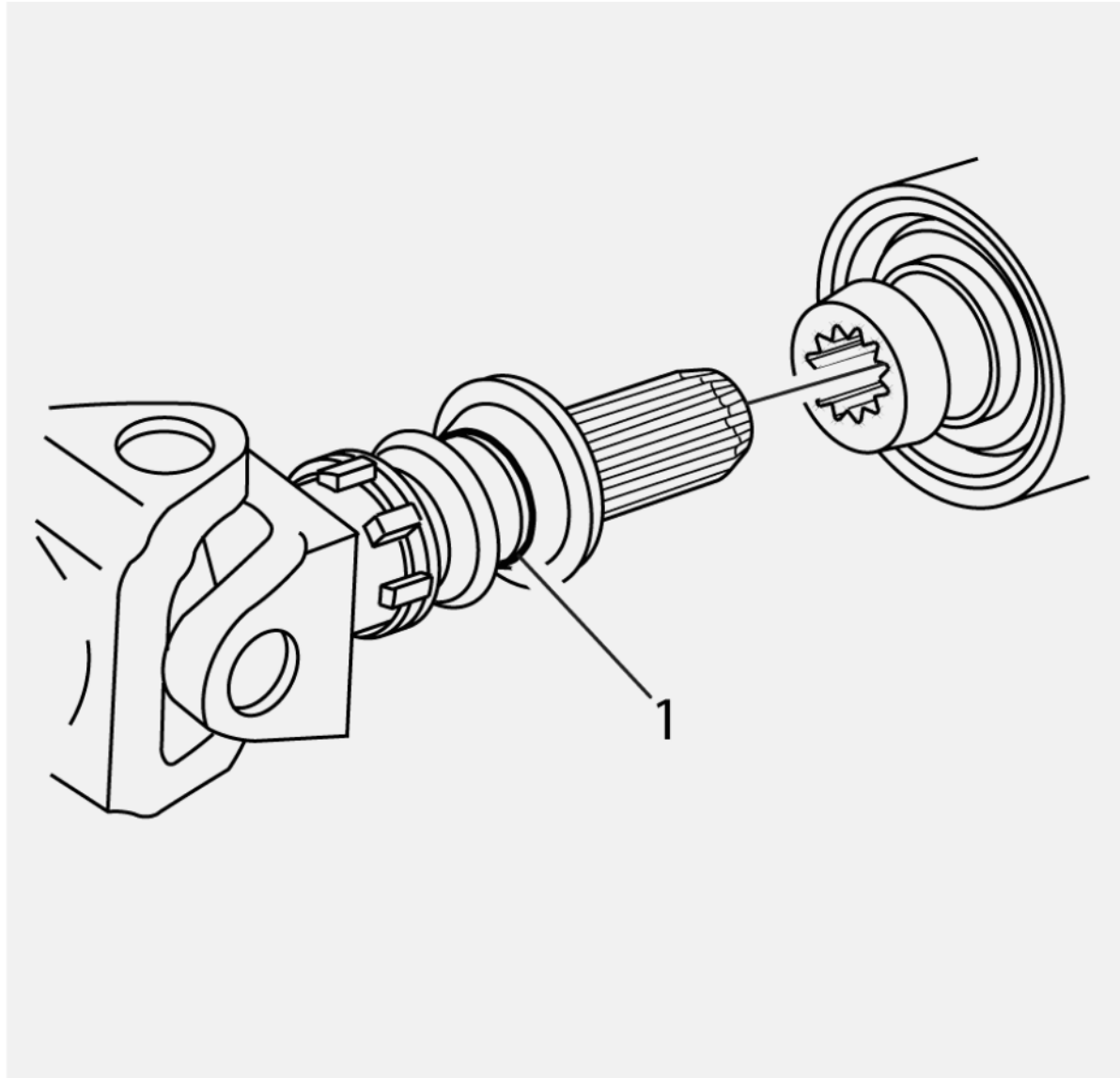


Fig. 6: Boot, Groove & Transfer Case Output Shaft

Courtesy of GENERAL MOTORS COMPANY

7. Remove the boot (1) from the groove on the transfer case output shaft.
8. Remove the propeller shaft from the transfer case output shaft.
9. Remove the propeller shaft from the vehicle.

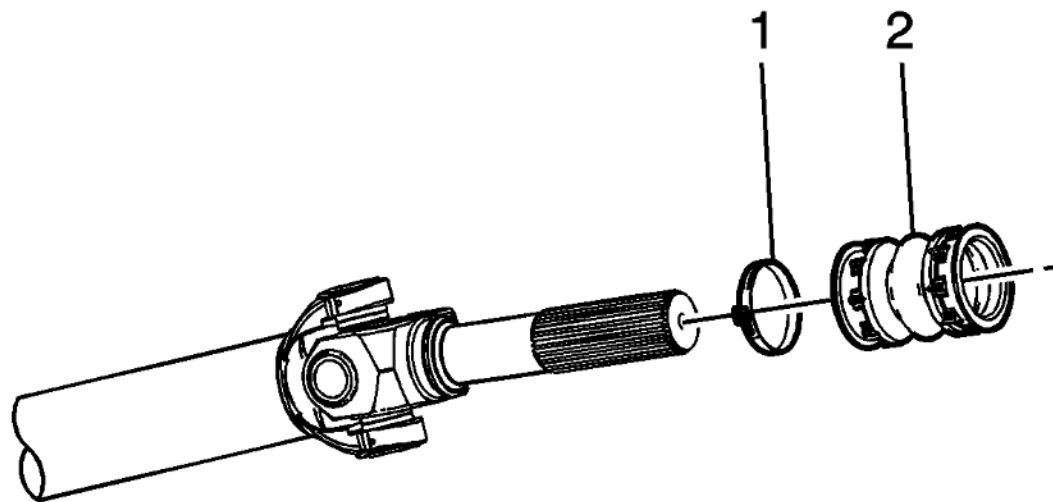


Fig. 7: Propeller Shaft, Clamp And Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

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

Installation Procedure

1. Inspect the splines of the transfer case output shaft for a sufficient coating of lubricant. If the output shaft does not have a sufficient coating of lubricant, lubricate the shaft with grease. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#) .

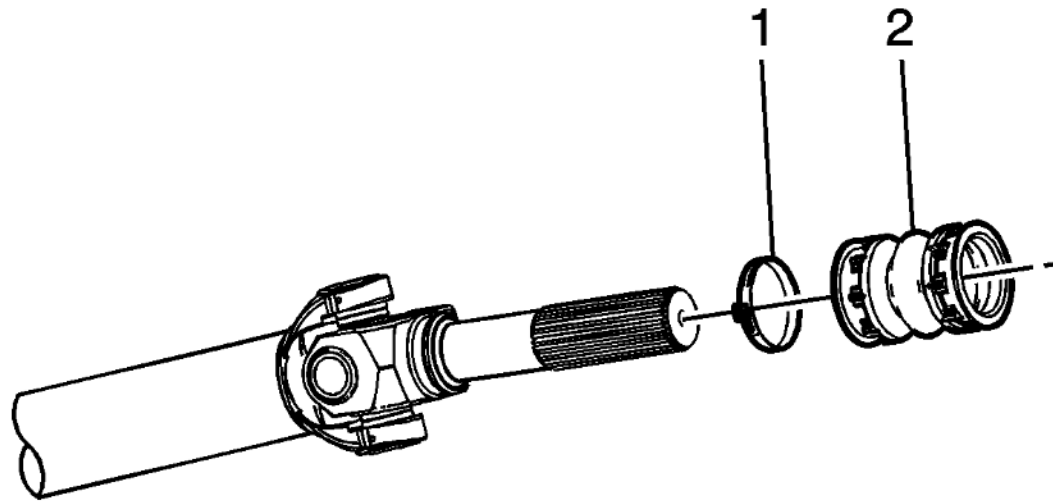


Fig. 8: Propeller Shaft, Clamp And Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

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

4. Position the propeller shaft into the vehicle.

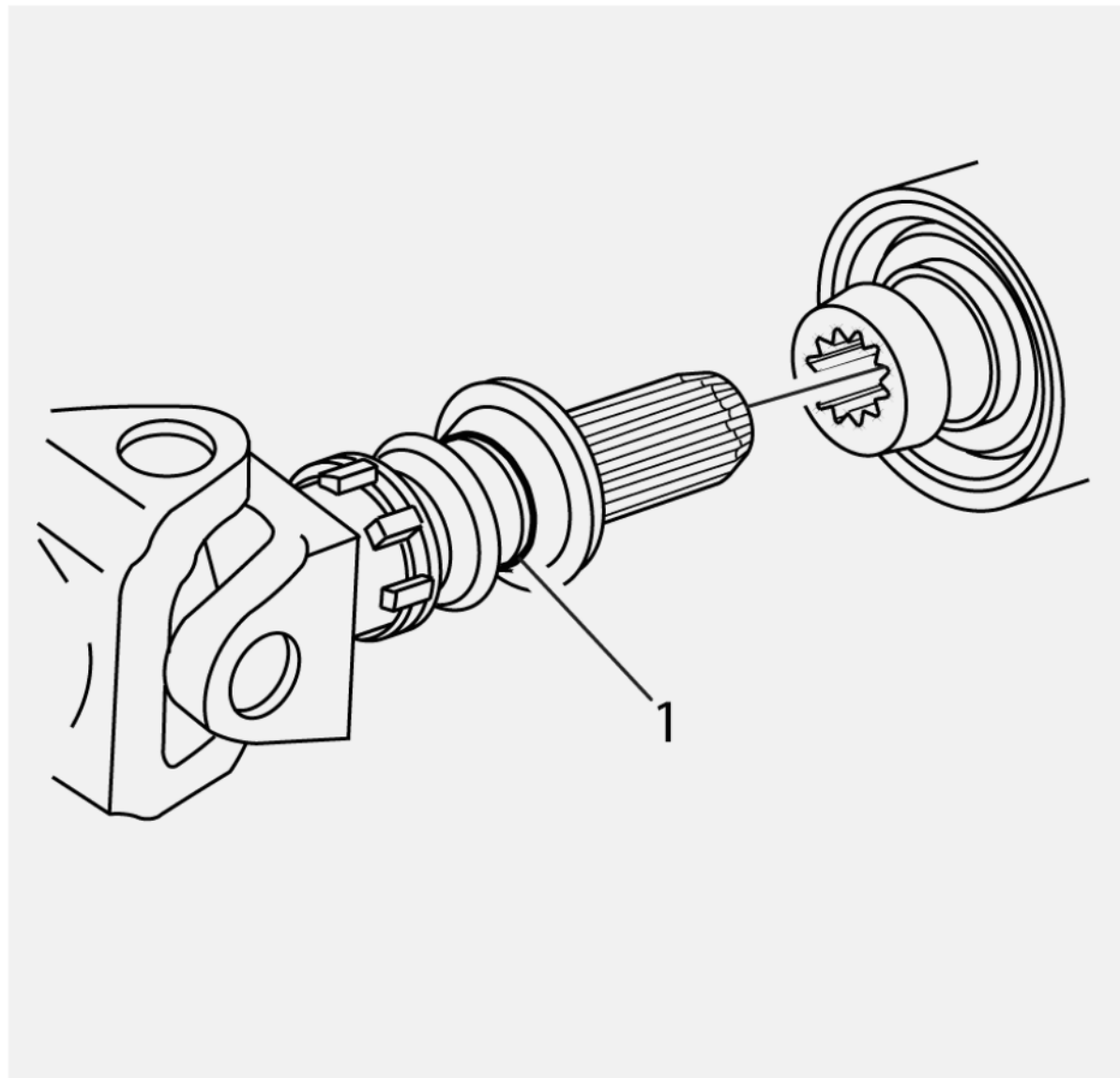


Fig. 9: Boot, Groove & Transfer Case Output Shaft
Courtesy of GENERAL MOTORS COMPANY

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

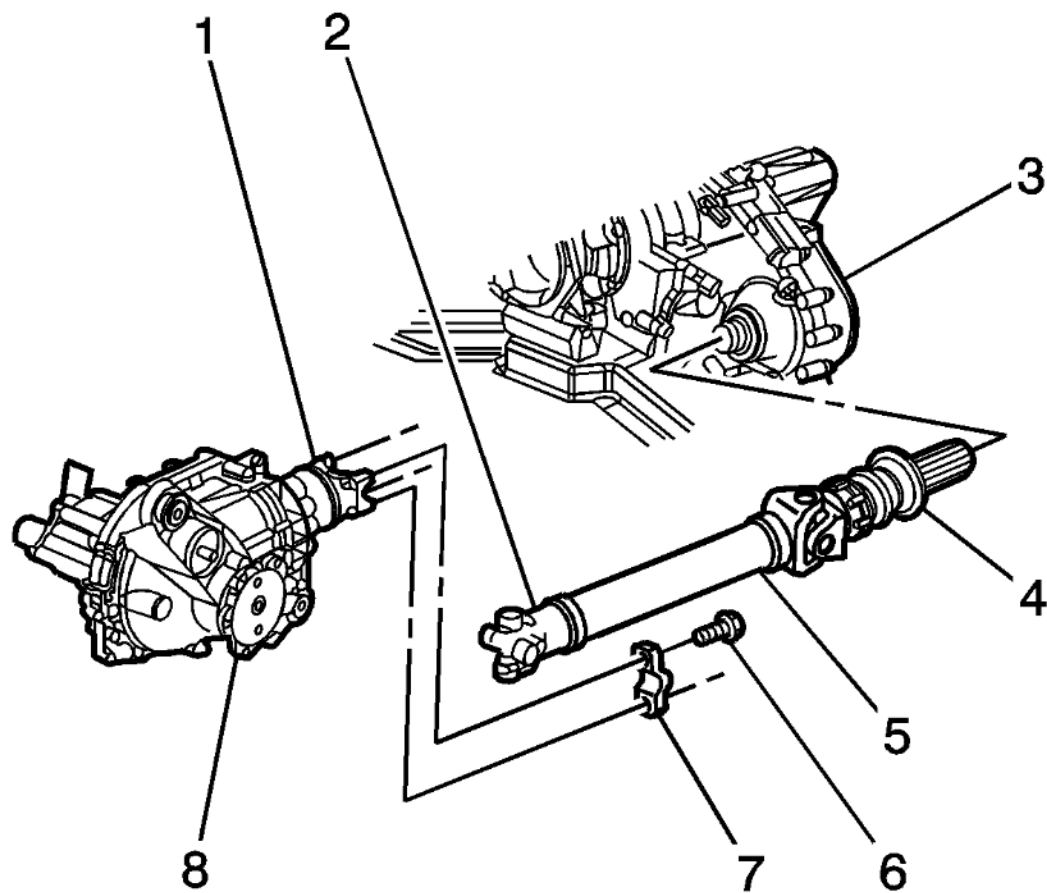


Fig. 10: Installing Propeller Shaft To Front Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

NOTE: Align the relationship marks on the front propeller shaft and the drive axle flange.

6. Align the reference marks made during removal.
7. Remove the tape securing the universal joint bearing caps.

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

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

9. Install the universal joint retainers (7) and the bolts (6) and tighten to 25 N.m (18 lb ft).

10. Install the boot onto the transfer case output shaft until the boot snaps into the groove on the output shaft.

11. Using the **J-43218** Clamp Pliers - Narrow Jaw, crimp both clamps.

12. Install the transfer case shield.

- For vehicles equipped with the MP 3010-NP0 transfer case, refer to [Transfer Case Shield Replacement](#) .

13. Check the fluid level of the transfer case.

14. Lower the vehicle.

FRONT AXLE PROPELLER SHAFT REPLACEMENT (NQH)

Special Tools

J-43218 Clamp Pliers - Narrow Jaw

Removal Procedure

1. Raise the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Remove the transfer case shield, if equipped. Refer to [Transfer Case Shield Replacement](#) .

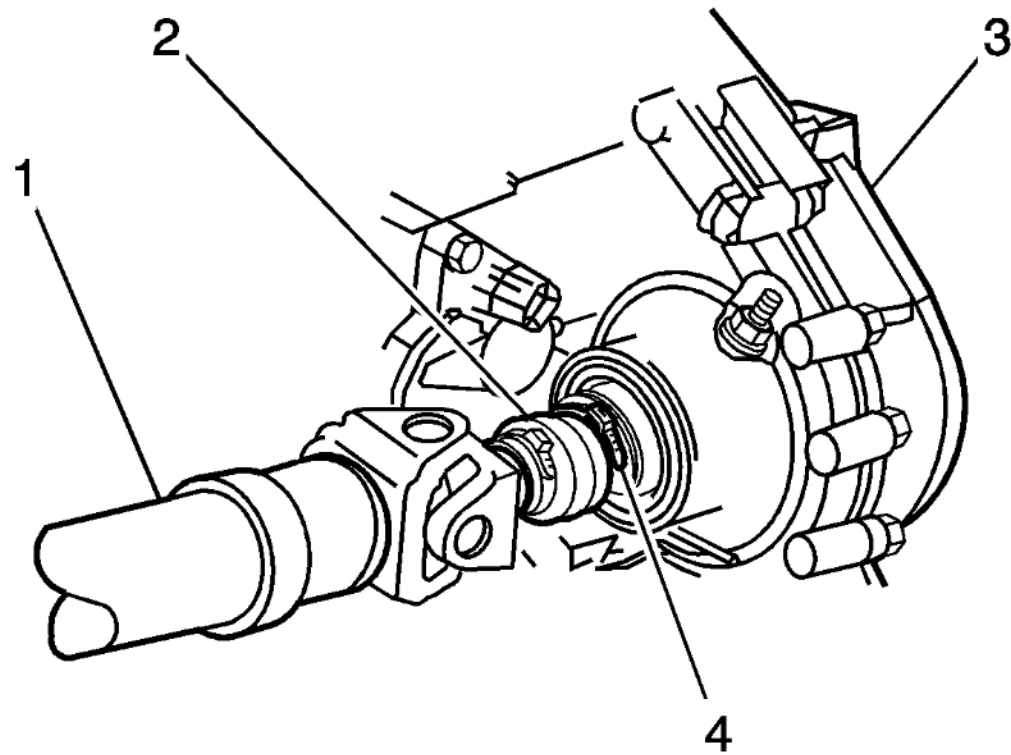


Fig. 11: Removing Clamp At Transfer Case

Courtesy of GENERAL MOTORS COMPANY

3. Remove the clamp (4) at the transfer case by prying up the exposed end of the clamp with a flat-bladed tool.

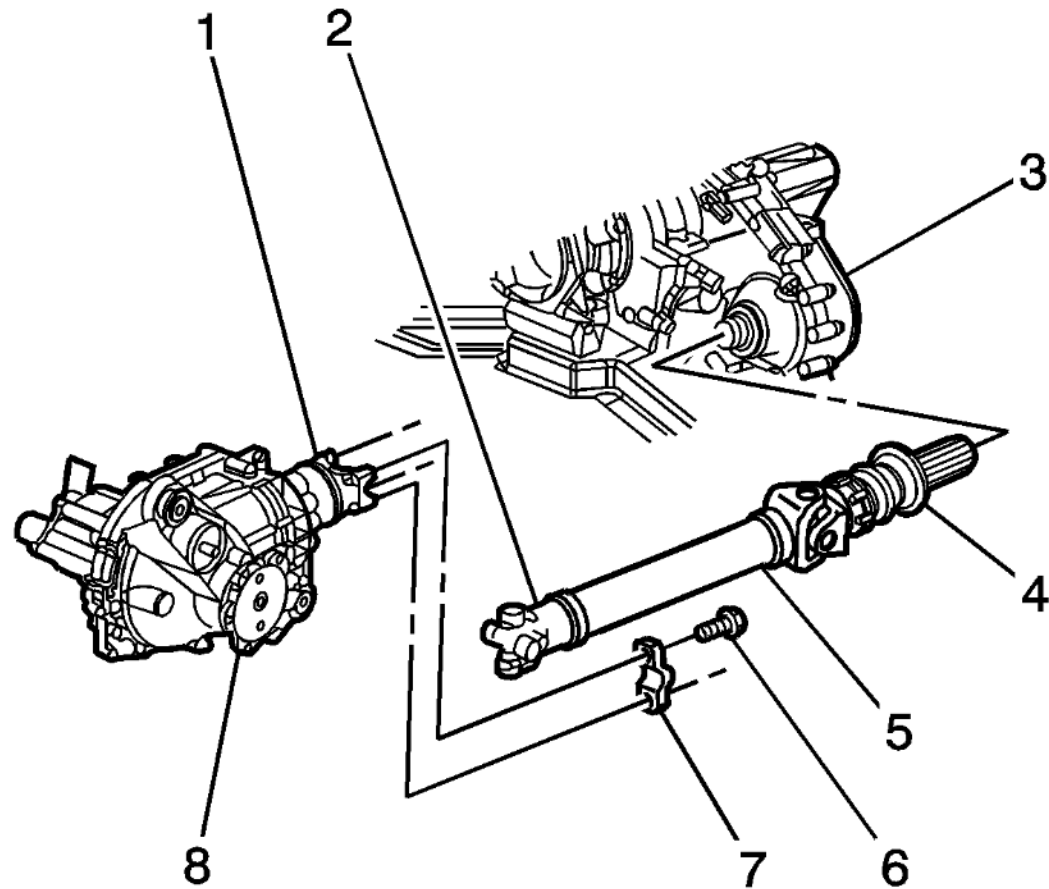


Fig. 12: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

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.

NOTE: Mark the relationship of the front propeller shaft to the drive axle flange.

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).

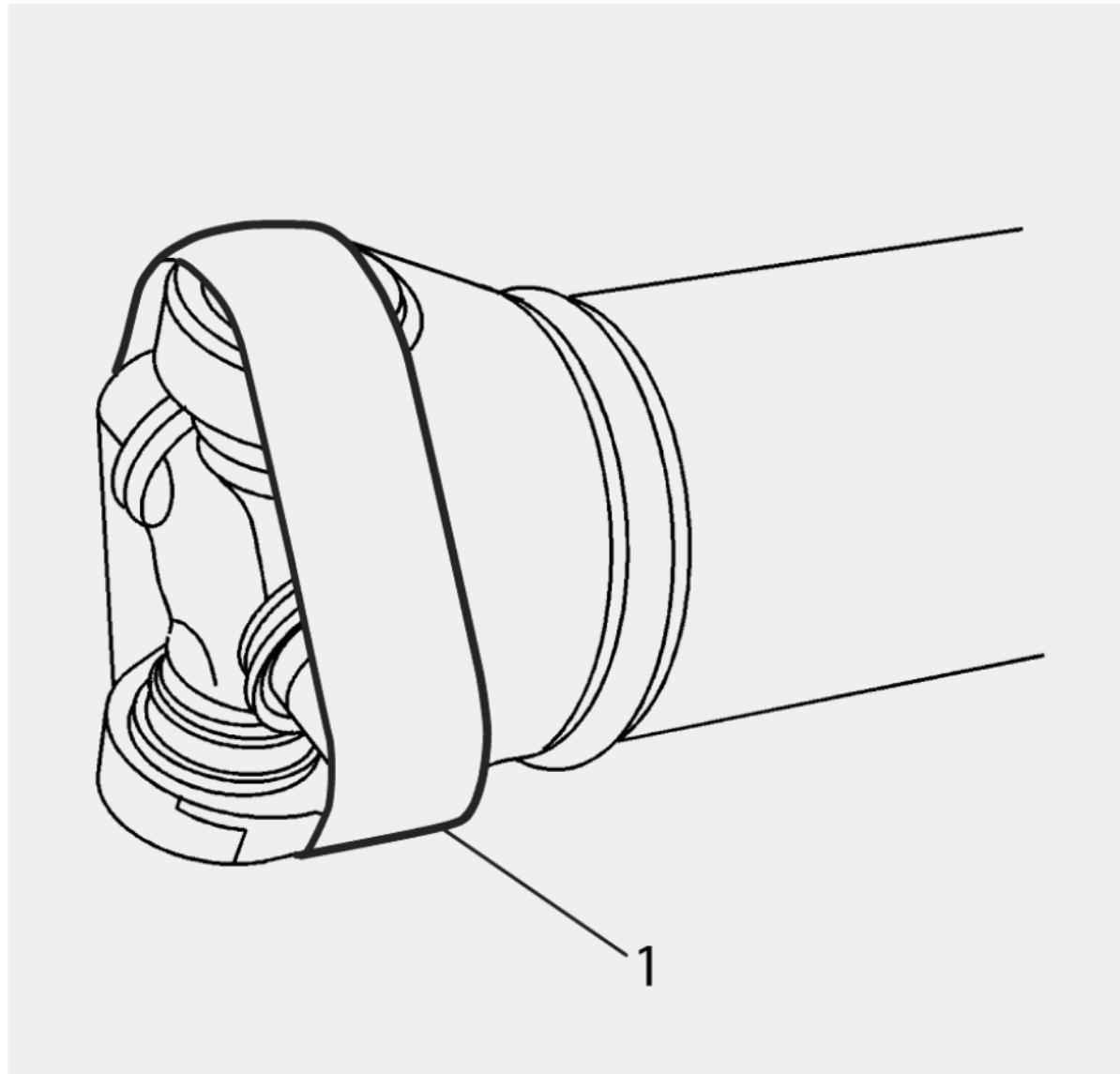


Fig. 13: U-Joint Bearing Caps

Courtesy of GENERAL MOTORS COMPANY

6. Use tape (1) to secure the bearing caps.

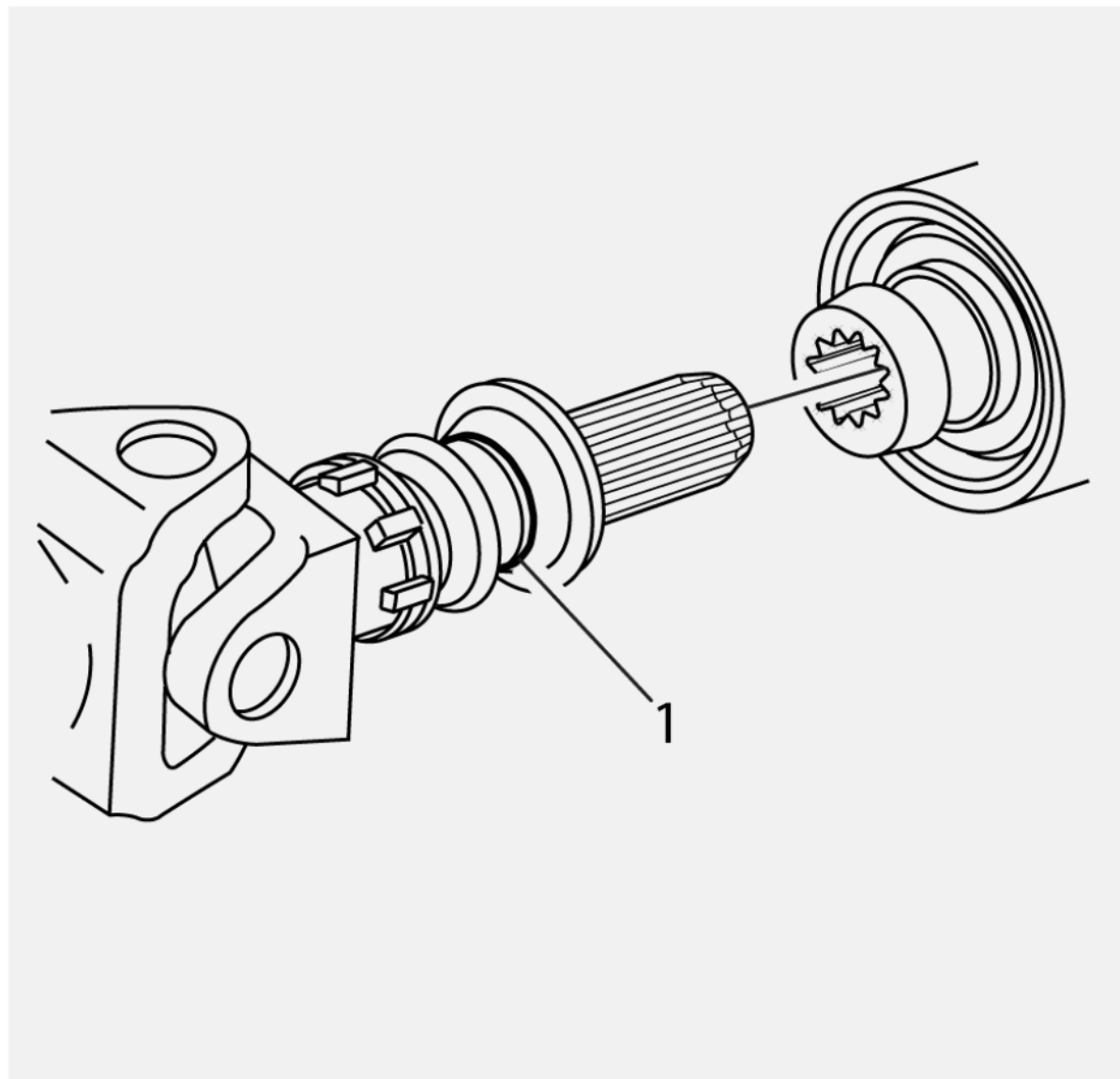


Fig. 14: Boot, Groove & Transfer Case Output Shaft

Courtesy of GENERAL MOTORS COMPANY

7. Remove the boot (1) from the groove on the transfer case output shaft.
8. Remove the propeller shaft from the transfer case output shaft.

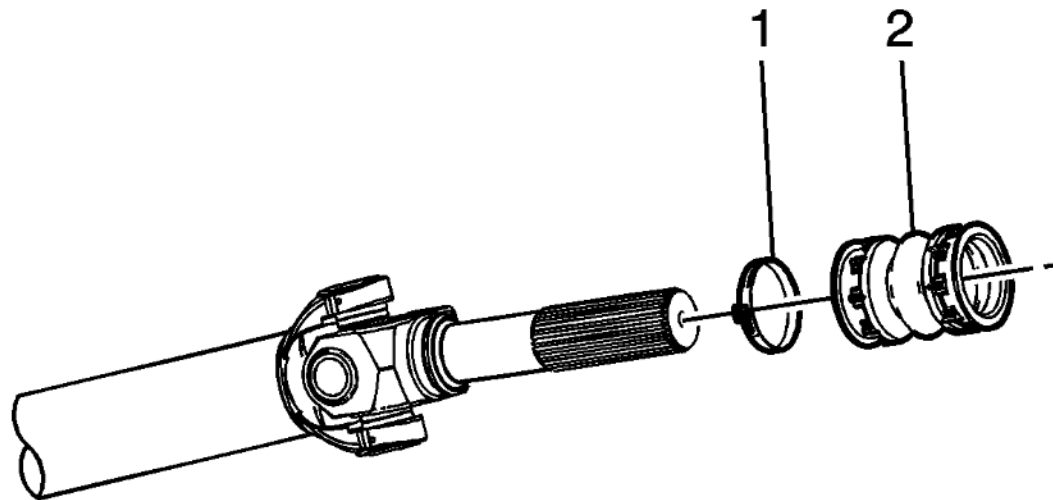


Fig. 15: Propeller Shaft, Clamp And Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

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

1. Inspect the splines of the transfer case output shaft for a sufficient coating of lubricant. If the output shaft does not have a sufficient coating of lubricant, lubricate the shaft with grease. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#) .

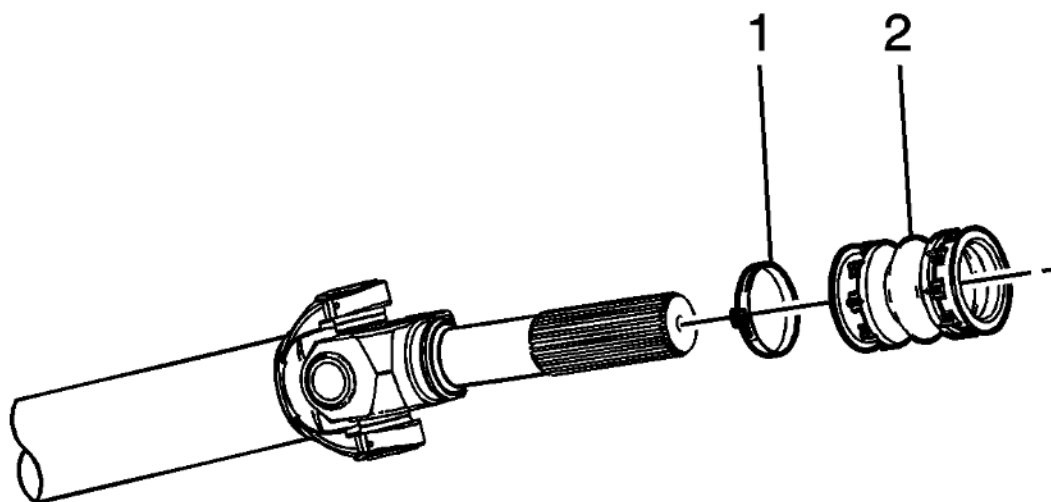


Fig. 16: Propeller Shaft, Clamp And Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

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

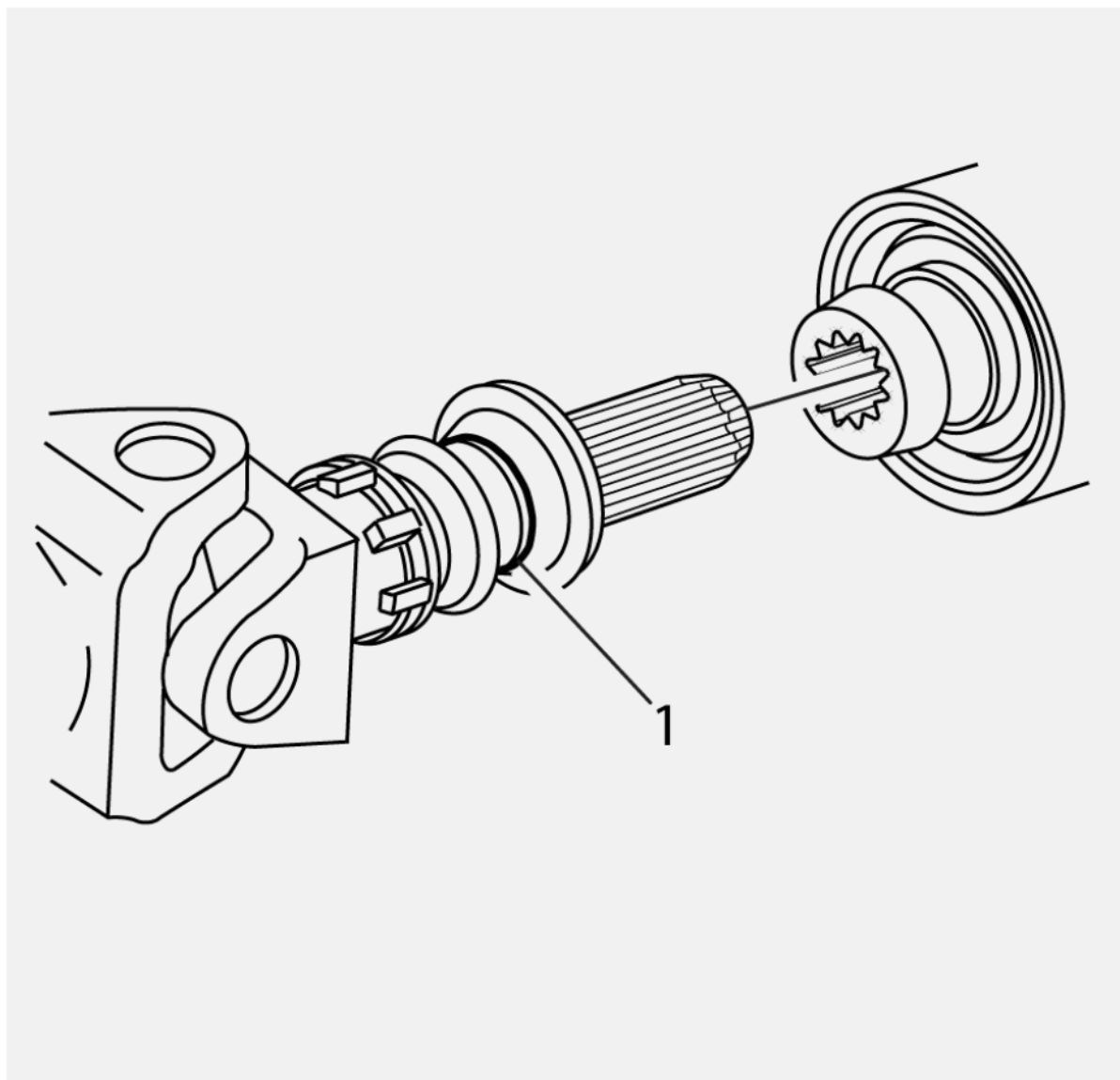


Fig. 17: Boot, Groove & Transfer Case Output Shaft
Courtesy of GENERAL MOTORS COMPANY

4. Inspect the boot (1) for tears. Install the propeller shaft splines into the transfer case output shaft.

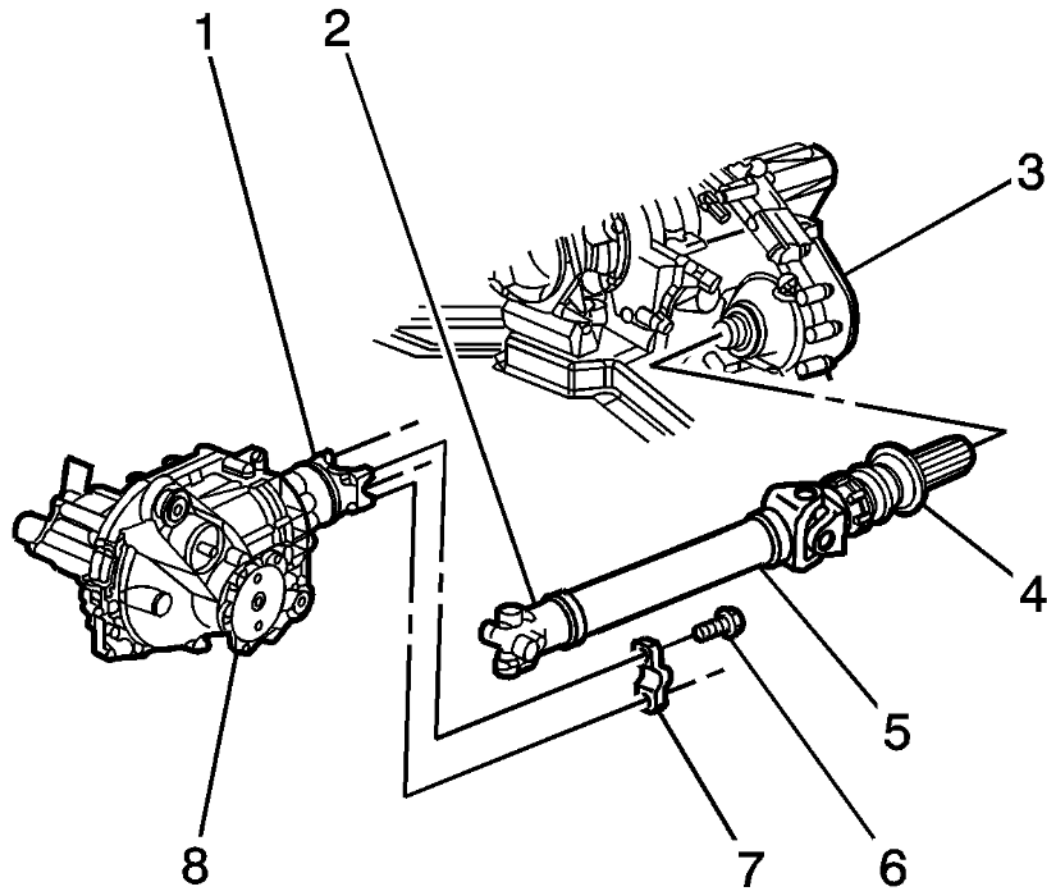


Fig. 18: Installing Propeller Shaft To Front Axle Pinion Yoke
Courtesy of GENERAL MOTORS COMPANY

NOTE: Align the relationship marks on the front propeller shaft and the drive axle flange.

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 universal joint retainers (7) and the bolts (6) and tighten 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 - Narrow Jaw, crimp both clamps.

9. Install the transfer case shield.

- For vehicles equipped with the for the MP 3023/3024-NQH transfer case, refer to [Transfer Case Shield Replacement](#) .

10. Check the fluid level of the transfer case.

11. Lower the vehicle.

FRONT AXLE PROPELLER SHAFT REPLACEMENT (HEAVY DUTY)

Special Tools

J-43218 Clamp Pliers - Narrow Jaw

Removal Procedure

1. Raise the vehicle. Refer to [Lifting and Jacking the Vehicle](#)
2. Remove the transfer case shield. Refer to [Transfer Case Shield Replacement](#)

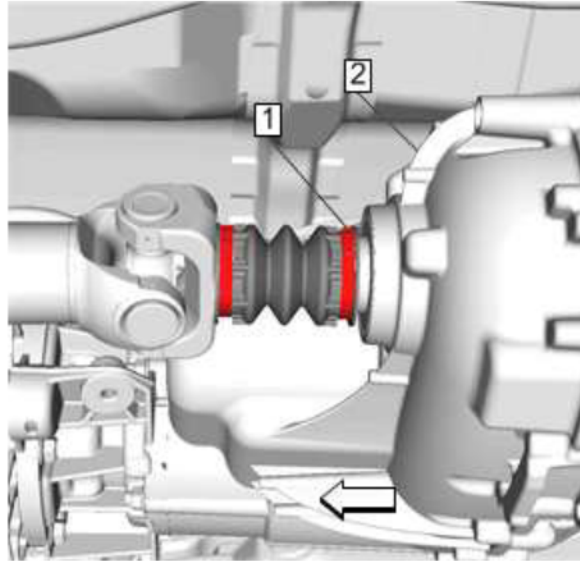


Fig. 19: Removing Clamp At Transfer Case

Courtesy of GENERAL MOTORS COMPANY

3. Remove the clamp (1) at the transfer case (2) by prying up the exposed end of the clamp with a flat-bladed tool.

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.

NOTE: Mark the relationship of the front propeller shaft to the drive axle flange.

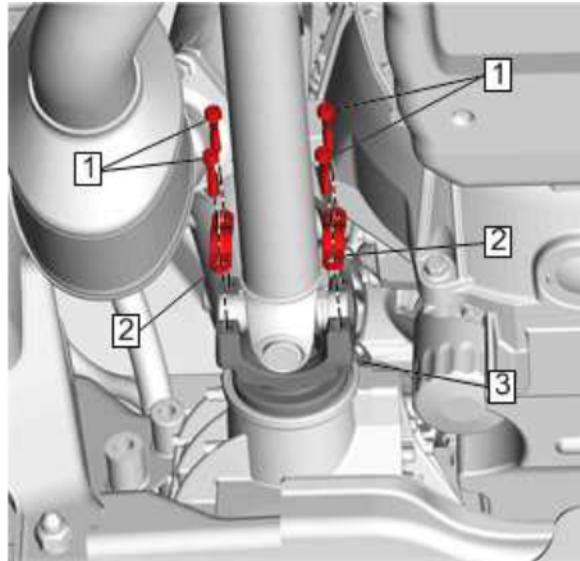


Fig. 20: Front Axle Pinion Yoke Bolts And Retainers

Courtesy of GENERAL MOTORS COMPANY

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

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

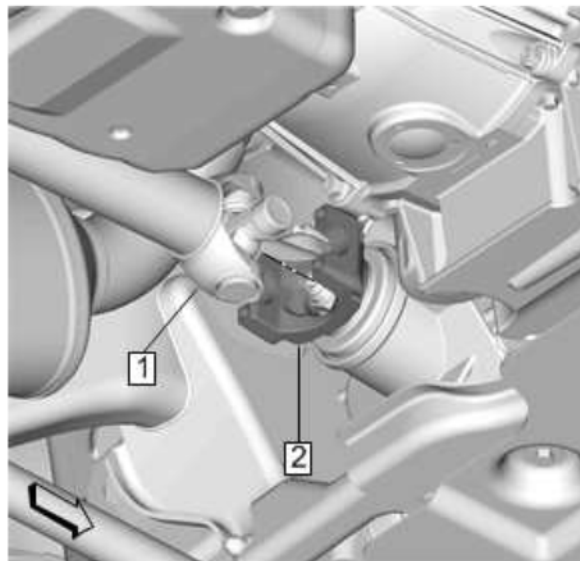


Fig. 21: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

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

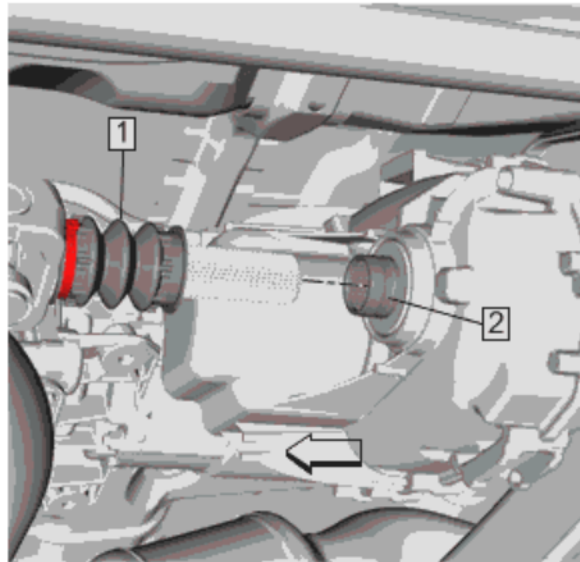


Fig. 22: Boot, Groove & Transfer Case Output Shaft

Courtesy of GENERAL MOTORS COMPANY

6. Remove the boot (1) from the groove on the transfer case output shaft (2).
7. Remove the propeller shaft from the transfer case output shaft.

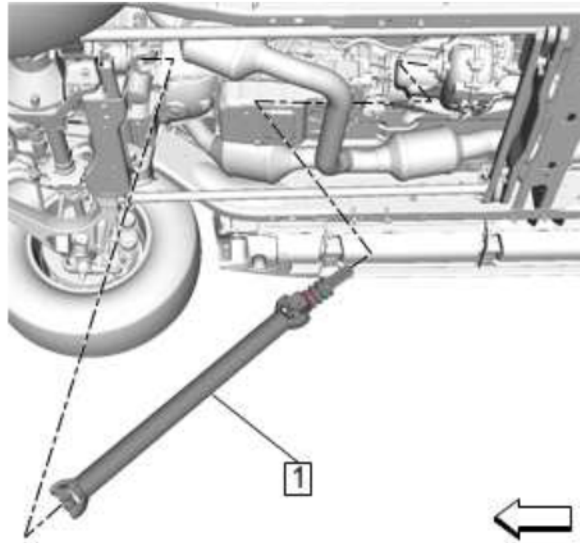


Fig. 23: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

8. Remove the propeller shaft (1) from the vehicle.

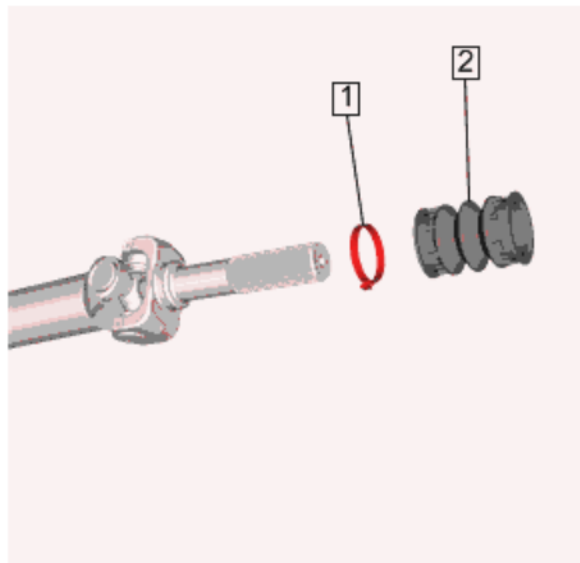


Fig. 24: Propeller Shaft Boot And Clamp

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

1. Inspect the splines of the transfer case output shaft for a sufficient coating of lubricant. If the output shaft does not have a sufficient coating of lubricant, lubricate the shaft with grease. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#) .

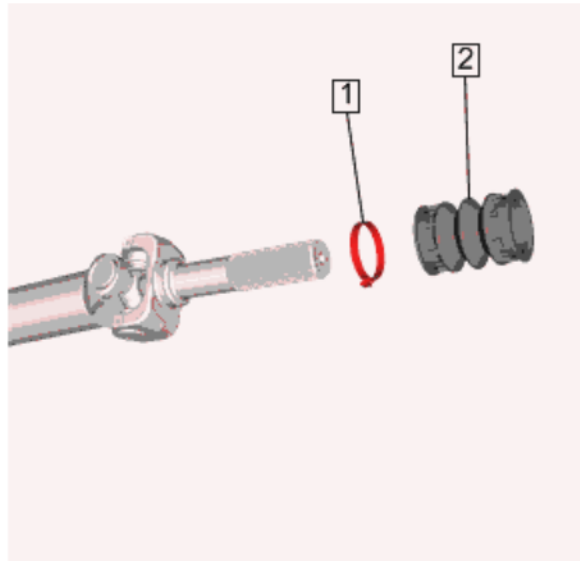


Fig. 25: Propeller Shaft Boot And Clamp

Courtesy of **GENERAL MOTORS COMPANY**

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

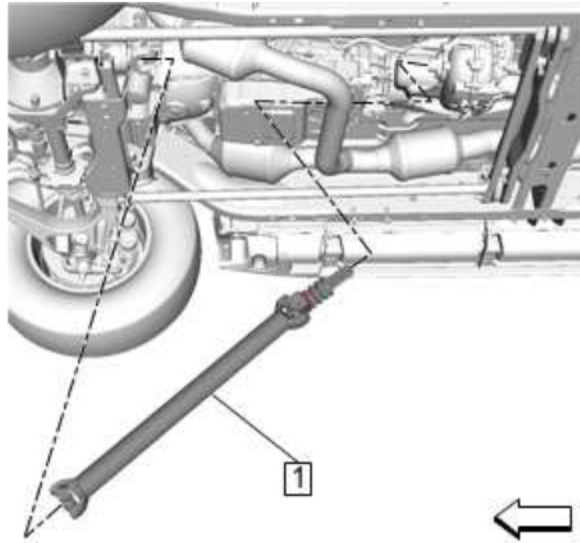


Fig. 26: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

4. Position the propeller shaft (1) into the vehicle.

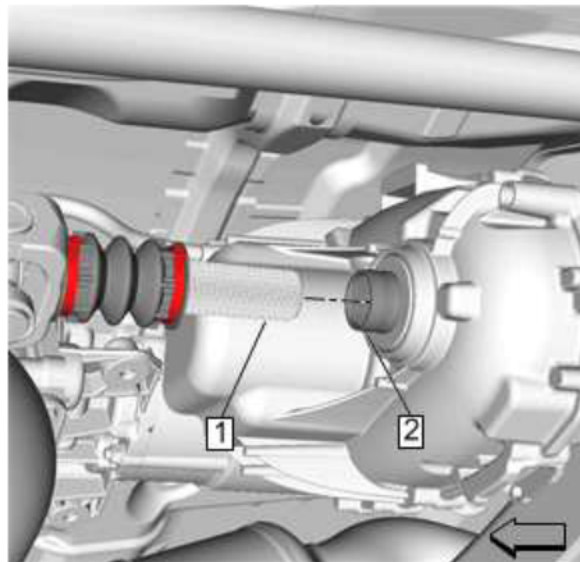


Fig. 27: Propeller Shaft Splines And Transfer Case Output Shaft

Courtesy of GENERAL MOTORS COMPANY

5. Install the propeller shaft splines (1) into the transfer case output shaft (2).

NOTE: Align the relationship marks on the front propeller shaft and the drive axle flange.

6. Align the reference marks made during removal.

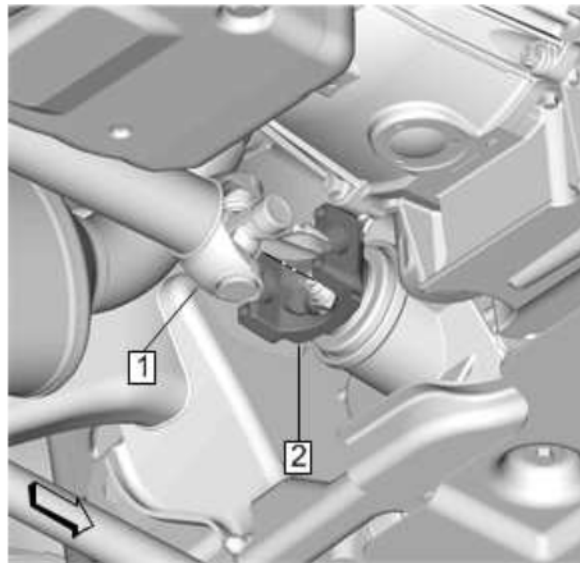


Fig. 28: Propeller Shaft To Front Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

7. Position the propeller shaft (1) to the front axle pinion yoke (2).

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

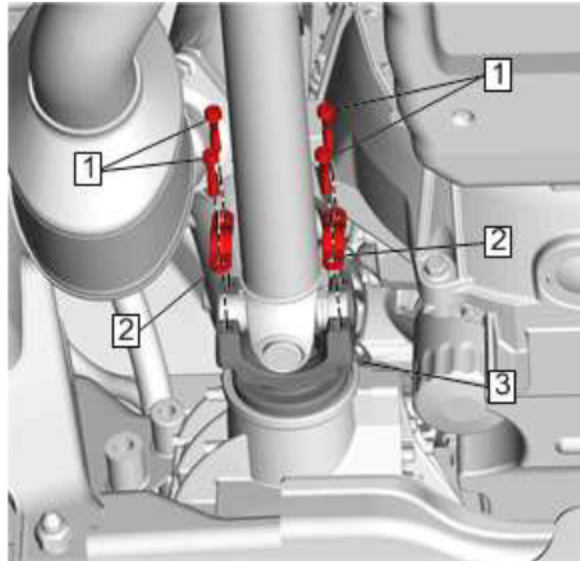


Fig. 29: Front Axle Pinion Yoke Bolts And Retainers

Courtesy of GENERAL MOTORS COMPANY

8. Install the universal joint retainers (2) and the bolts (1) into the front axle pinion yoke (3) and tighten to 25 N.m (18 lb ft).
9. Install the boot onto the transfer case output shaft until the boot snaps into the groove on the output shaft.

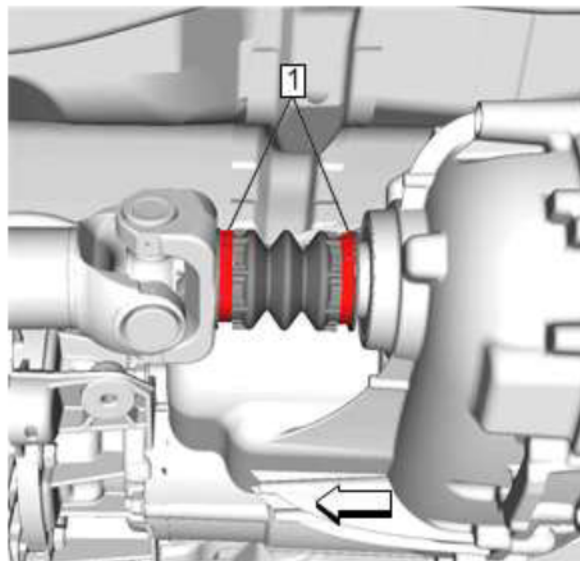


Fig. 30: Boot Clamps

Courtesy of GENERAL MOTORS COMPANY

10. Using the **J-43218** Clamp Pliers - Narrow Jaw, crimp both clamps (1).
11. Install the transfer case shield. Refer to [Transfer Case Shield Replacement](#)
12. Check the fluid level of the transfer case.
13. Lower the vehicle.

REAR PROPELLER SHAFT REPLACEMENT (1500)

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

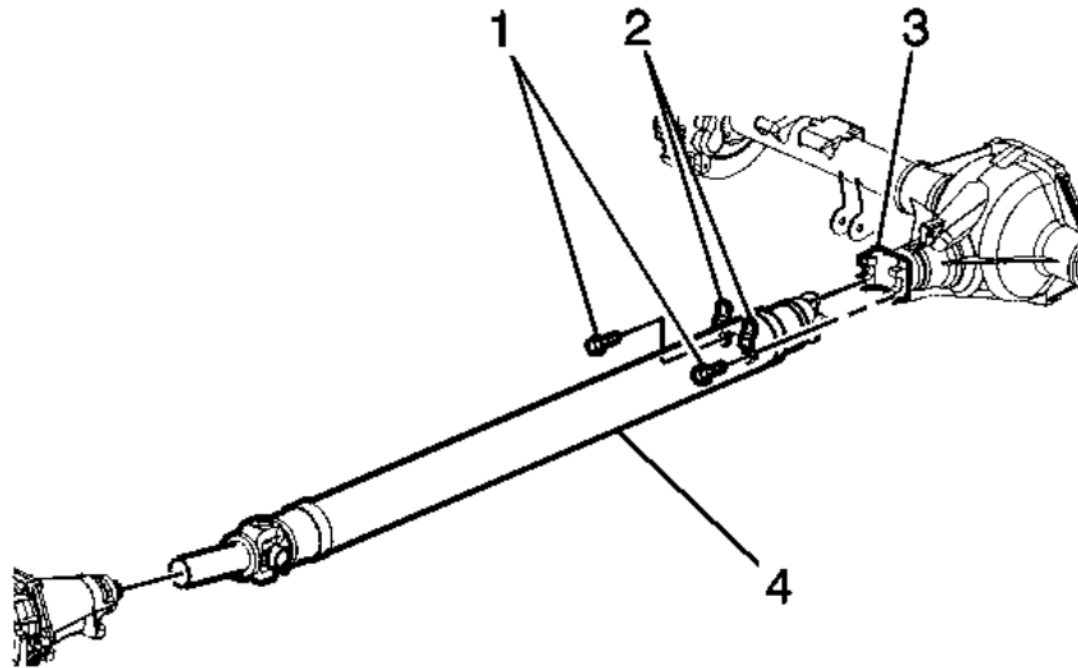


Fig. 31: Yoke Retainers, Rear Axle Pinion Yoke & Bolts
Courtesy of GENERAL MOTORS COMPANY

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.

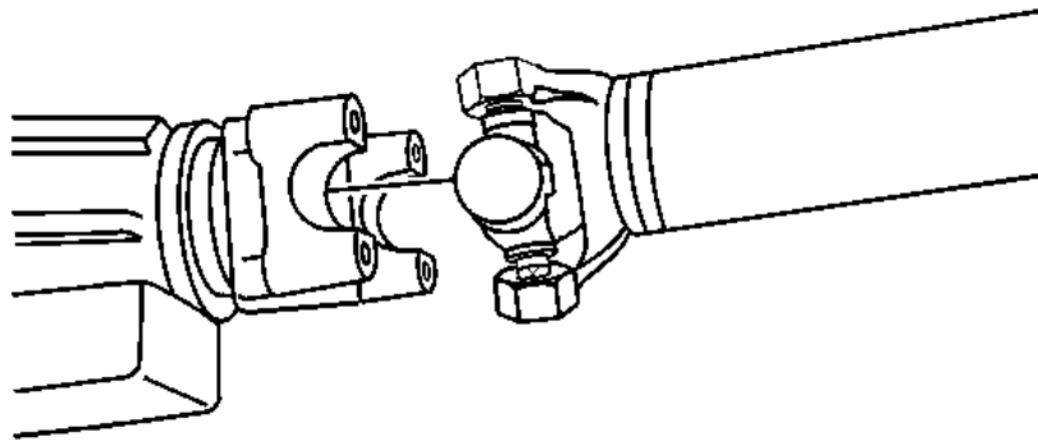


Fig. 32: Disconnecting Propeller Shaft From Rear Axle Pinion Yoke

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.

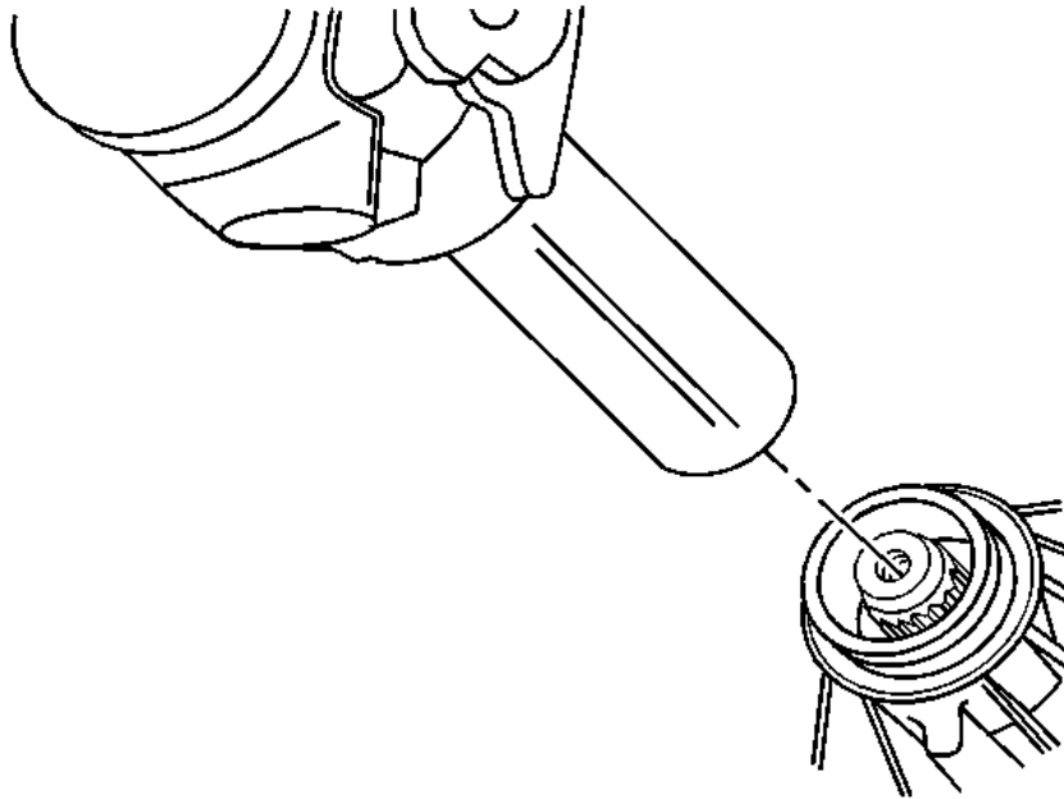


Fig. 33: Removing Propeller Shaft

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**

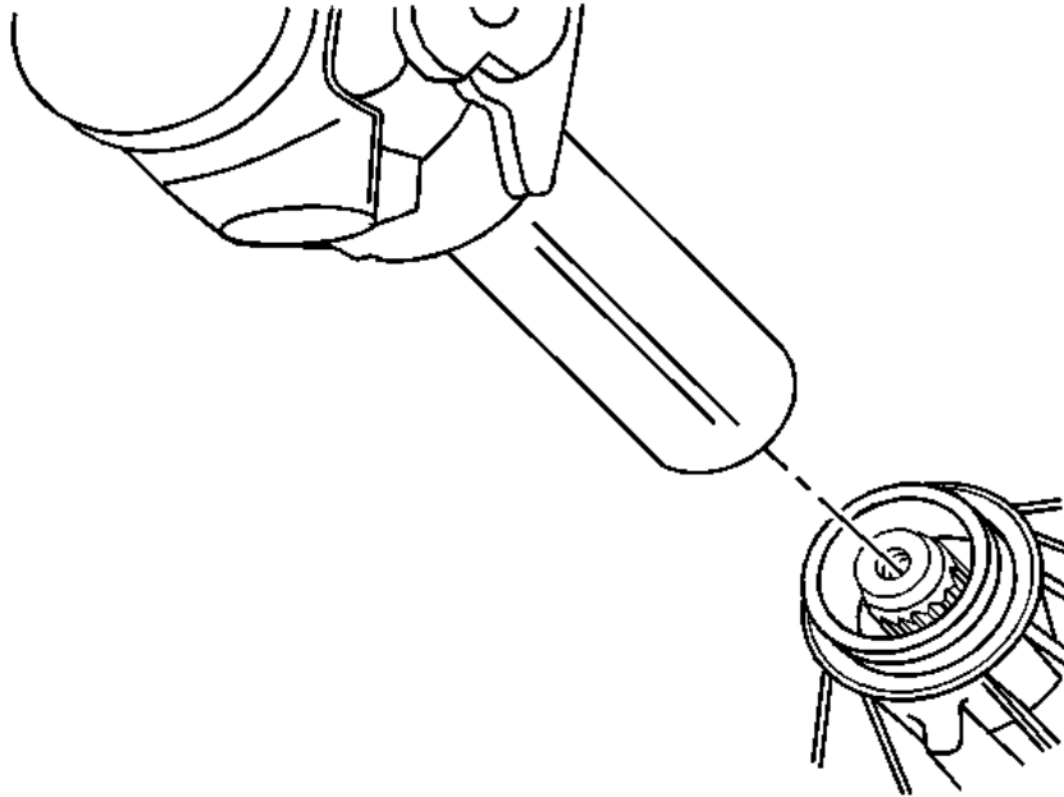


Fig. 34: Installing Propeller Shaft To Transmission Or Transfer Case
Courtesy of GENERAL MOTORS COMPANY

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

Align the reference marks made during removal.

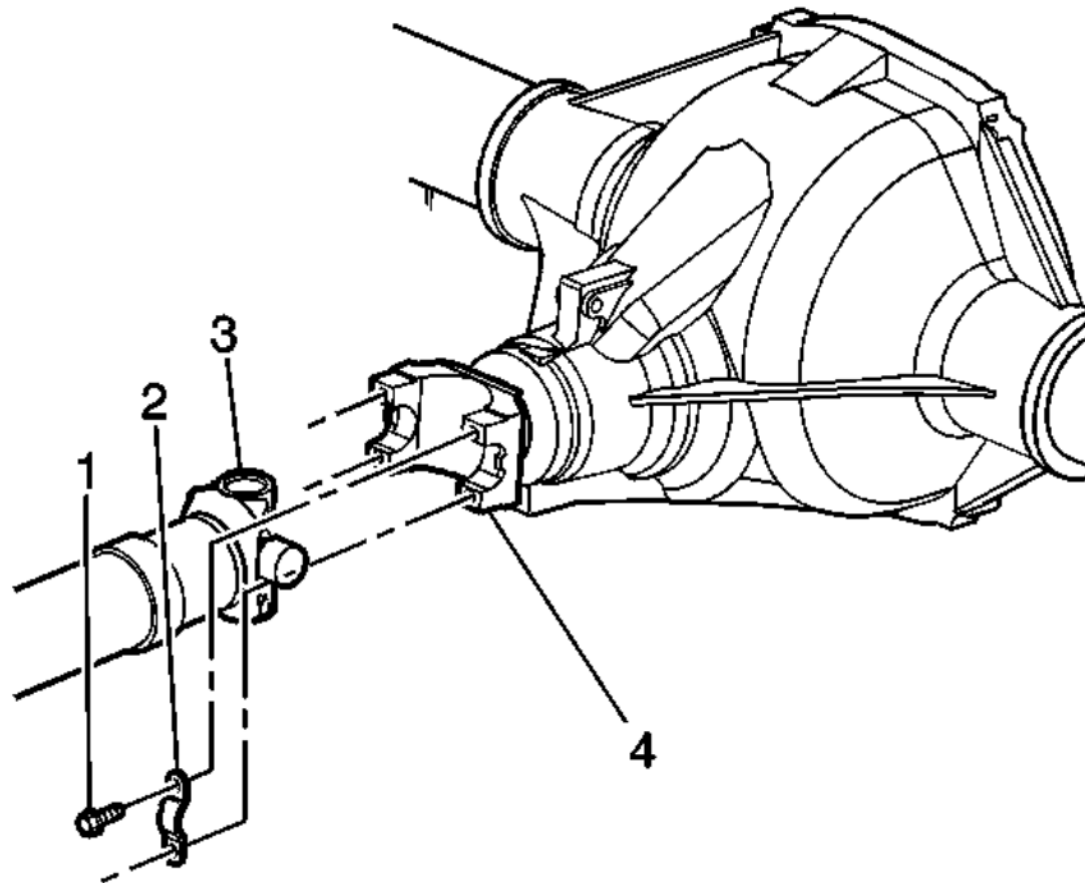


Fig. 35: Propeller Shaft, Rear Axle Pinion Yoke, Yoke Retainers And Bolts
Courtesy of GENERAL MOTORS COMPANY

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.

REAR PROPELLER SHAFT REPLACEMENT (HEAVY DUTY)

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

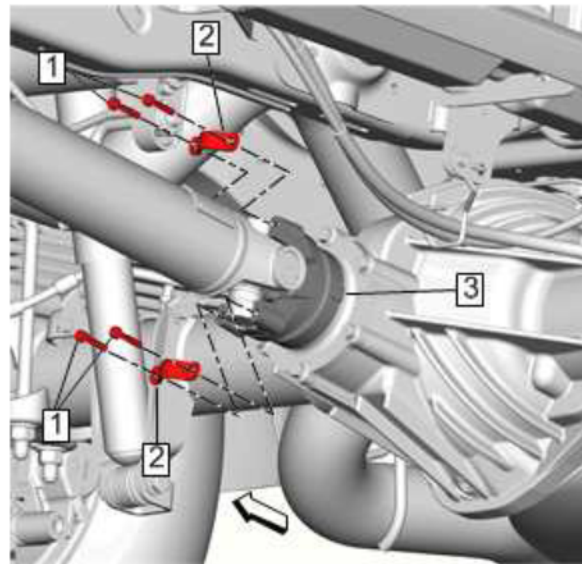


Fig. 36: Propeller Shaft, Rear Axle Pinion Yoke, Bolts And Yoke Retainers

Courtesy of GENERAL MOTORS COMPANY

2. Mark a reference point between the propeller shaft and the flange.
3. Mark a reference point between the propeller shaft and the transmission or transfer case.

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

4. Remove and discard the bolts, (1) (Qty: 4) and the yoke retainers, (2) (Qty: 2) from the rear axle pinion yoke (3).

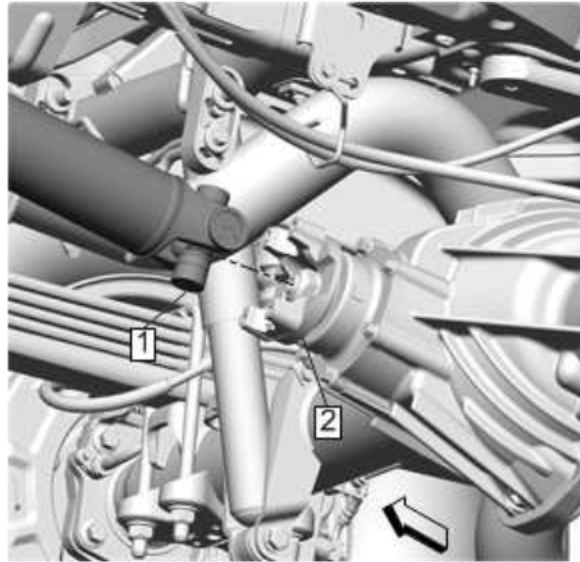


Fig. 37: Disconnecting Propeller Shaft From Rear Axle Pinion Yoke

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 (1) forward in order to disconnect the propeller shaft from the rear axle pinion yoke (2).

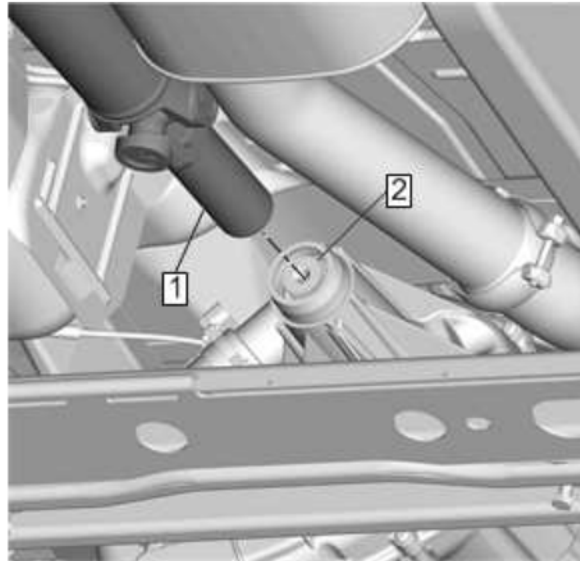


Fig. 38: Disconnecting Propeller Shaft From Transmission Or Transfer Case

Courtesy of GENERAL MOTORS COMPANY

6. Slide the propeller shaft (1) rearward in order to disconnect the propeller shaft from the transmission or transfer case (2).

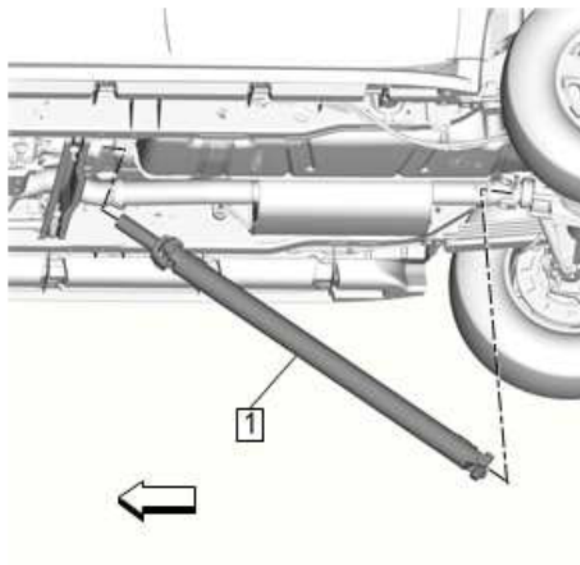


Fig. 39: Removing Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

- 7.
8. Remove the rear propeller shaft.

Installation Procedure

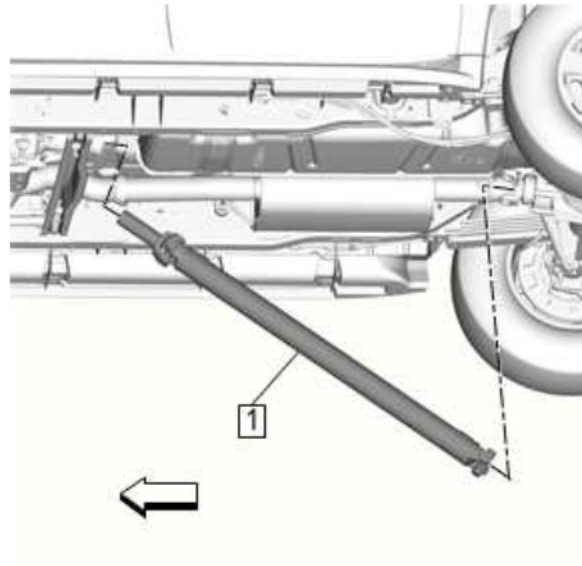


Fig. 40: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

1. Install the propeller shaft (1) into the vehicle.
2. 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. Refer to **Adhesives, Fluids, Lubricants, and Sealers**

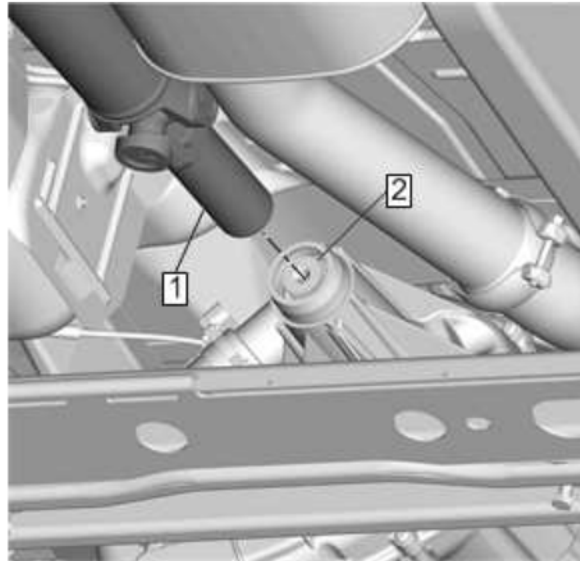


Fig. 41: Propeller Shaft To Transmission Or Transfer Case

Courtesy of GENERAL MOTORS COMPANY

3. Install the propeller shaft (1) into the transmission or transfer case (2).

Align the reference marks made during removal.

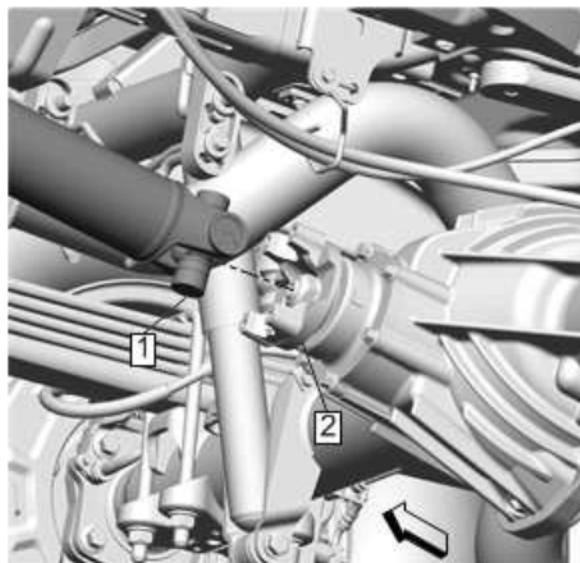


Fig. 42: Propeller Shaft To Rear Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

4. Install the propeller shaft (1) to the rear axle pinion yoke (2).

Align the reference marks made during removal.

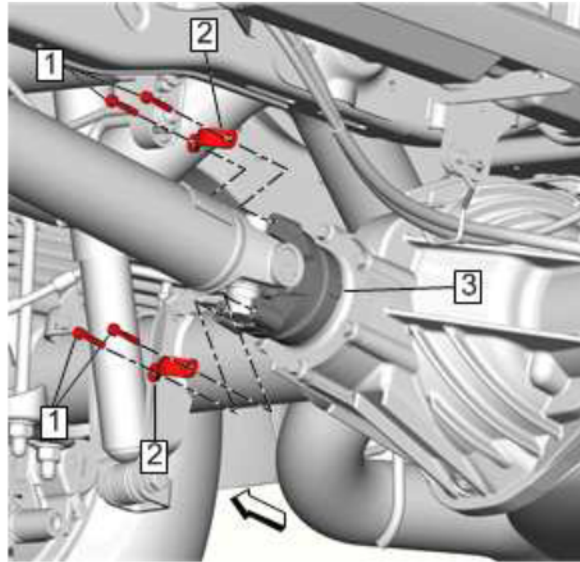


Fig. 43: Propeller Shaft, Rear Axle Pinion Yoke, Bolts And Yoke Retainers

Courtesy of GENERAL MOTORS COMPANY

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

5. Install the NEW yoke retainers, (2) (Qty: 2) NEW bolts, (1) (Qty: 4) and tighten to 25 N.m (18 lb ft).
6. Lower the vehicle.

REAR PROPELLER SHAFT REPLACEMENT (M5U, 2WD)

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

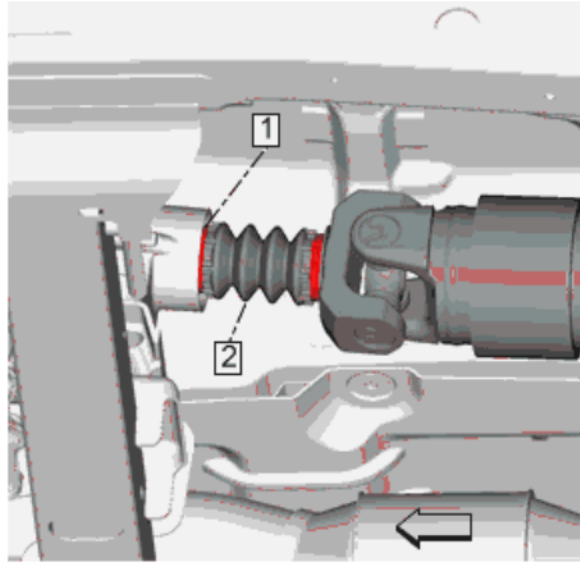


Fig. 44: Front Boot Clamp And Propeller Shaft Slip Yoke Boot

Courtesy of GENERAL MOTORS COMPANY

2. Remove the front boot clamp (1) from the propeller shaft slip yoke boot (2) by prying up the exposed end of the clamp with a flat-bladed tool.
3. Mark a reference point between the propeller shaft and the flange.
4. Mark a reference point between the propeller shaft and the transmission.

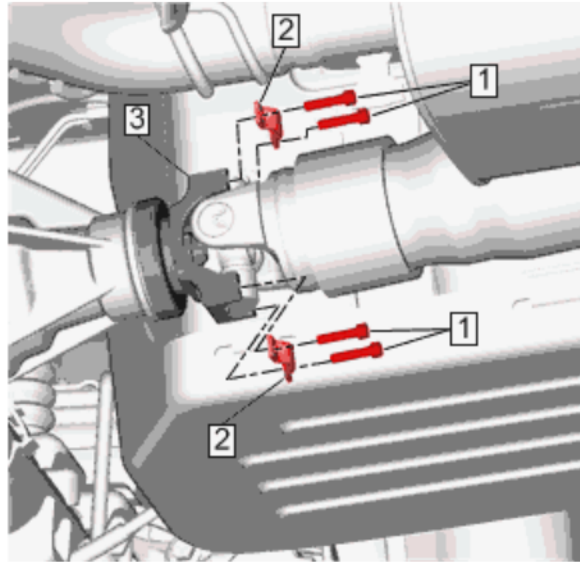


Fig. 45: Bolts, Yoke Retainers And Rear Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

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

5. REMOVE and DISCARD the bolts (1) (Qty: 4), and the yoke retainers (2) (Qty: 2), from the rear axle pinion yoke (3).

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.

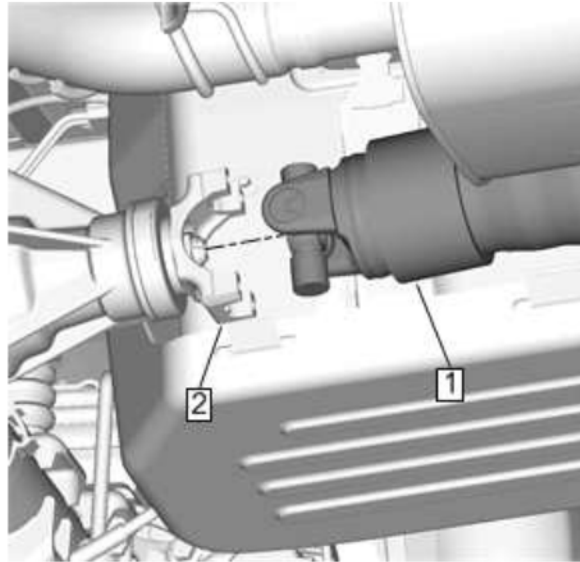


Fig. 46: Disconnecting Propeller Shaft From Rear Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

6. Slide the propeller shaft (1) forward in order to disconnect the propeller shaft (1) from the rear axle pinion yoke (2).

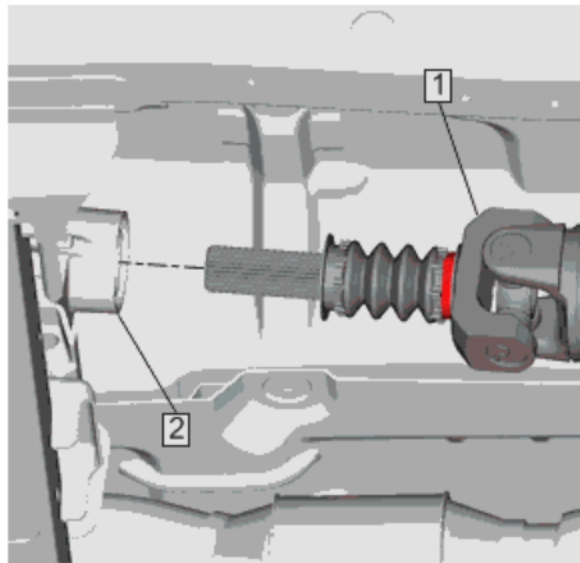


Fig. 47: Disconnecting Propeller Shaft From Transmission

Courtesy of GENERAL MOTORS COMPANY

7. Slide the propeller shaft (1) rearward in order to disconnect the propeller shaft (1) from the transmission (2).

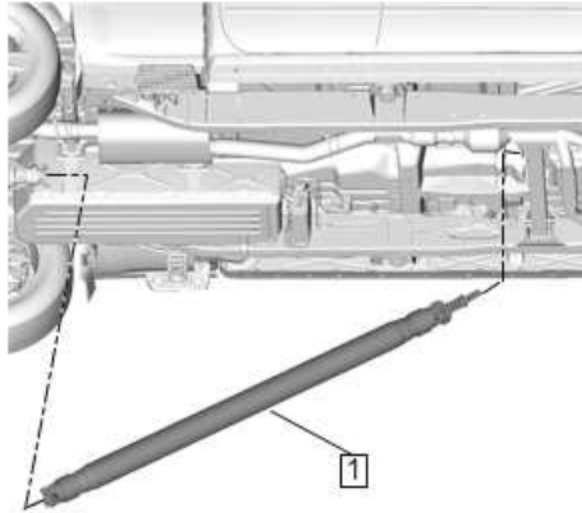


Fig. 48: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

- 8.
9. Remove the rear propeller shaft (1).

Installation Procedure

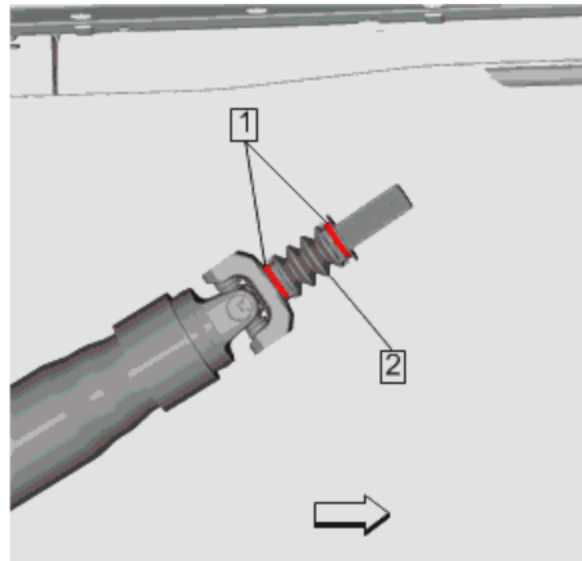


Fig. 49: Slip Yoke Boot And Clamps

Courtesy of GENERAL MOTORS COMPANY

NOTE: Prior to installation closely inspect the slip yoke boot for damage. Replace the boot if damaged.

1. Loosely install the clamps (1) and the boot (2) onto the propeller shaft.
2. 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. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#)

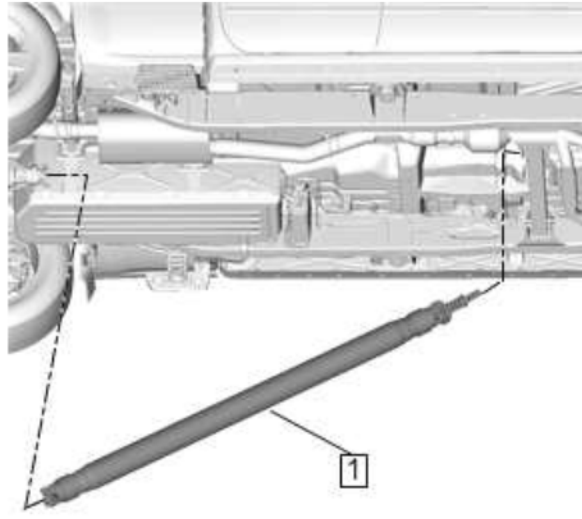


Fig. 50: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

3. Install the propeller shaft (1)
4. Align the reference marks made during removal.

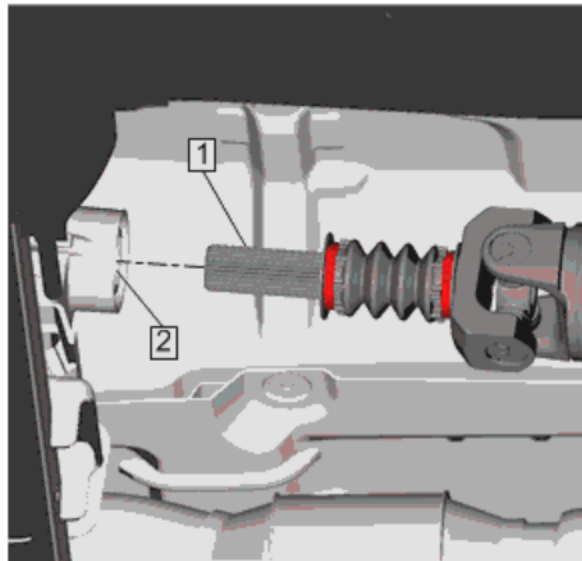


Fig. 51: Propeller Shaft To Transmission Output Shaft

Courtesy of GENERAL MOTORS COMPANY

5. Install the propeller shaft splines (1) into the transmission output shaft (2).

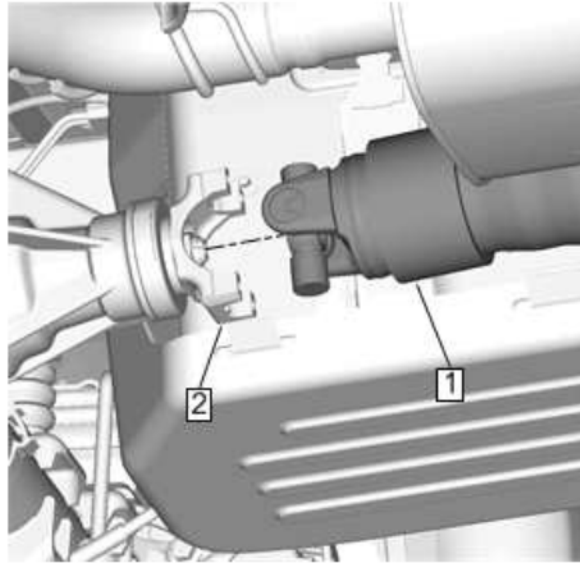


Fig. 52: Propeller Shaft To Rear Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

6. Install the propeller shaft (1) to the rear axle pinion yoke (2).

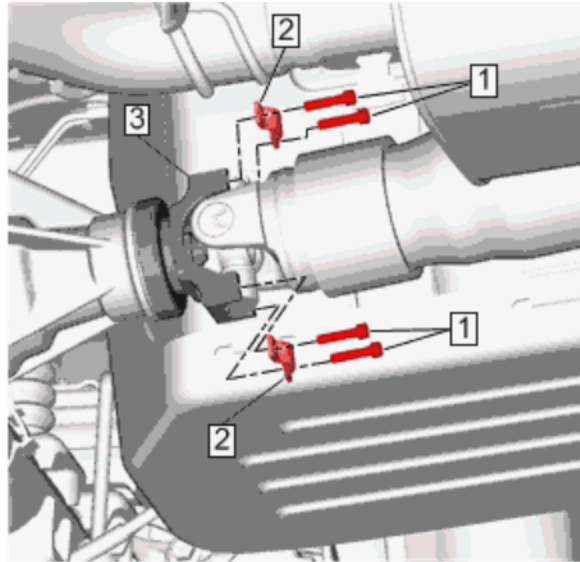


Fig. 53: Yoke Retainers And Bolts

Courtesy of GENERAL MOTORS COMPANY

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

7. Install the NEW yoke retainers (2) (Qty: 2), NEW bolts (1) (Qty: 4) and tighten to 25 N.m (18 lb ft).
8. Install the boot onto the transmission output shaft until the boot snaps into the groove on the output shaft.
9. Use the **J-43218** clamp pliers to crimp both clamps.
10. Lower the vehicle.

PROPELLER SHAFT SLIP YOKE BOOT REPLACEMENT (M5U, 2WD)

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

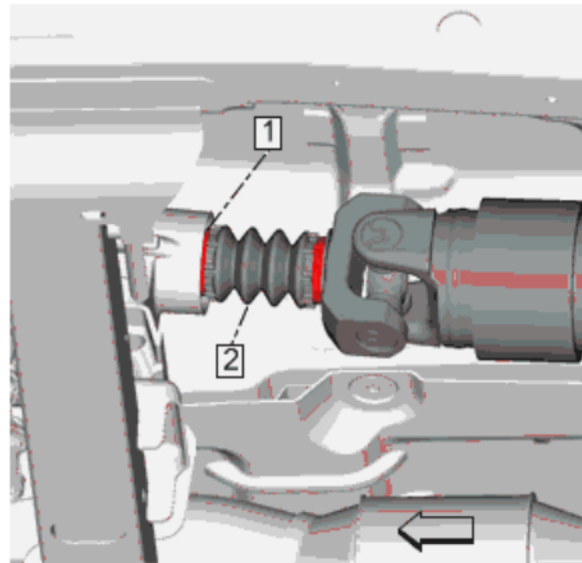


Fig. 54: Front Boot Clamp And Propeller Shaft Slip Yoke Boot

Courtesy of GENERAL MOTORS COMPANY

2. Remove the front boot clamp (1) from the propeller shaft slip yoke boot (2) by prying up the exposed end of the clamp with a flat-bladed tool.
3. Mark a reference point between the propeller shaft and the rear axle flange.

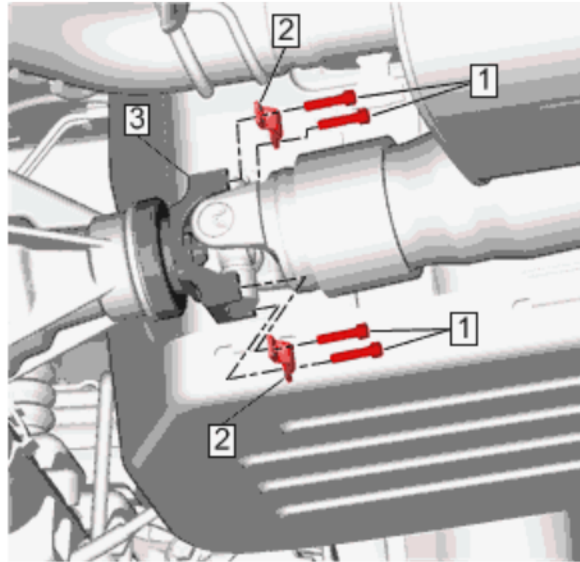


Fig. 55: Propeller Shaft Bolts, Yoke Retainers And Rear Axle Pinion Yoke

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.

4. REMOVE and DISCARD the propeller shaft bolts (1) (Qty: 4) and the yoke retainers (2) (Qty: 2) from the rear axle pinion yoke.

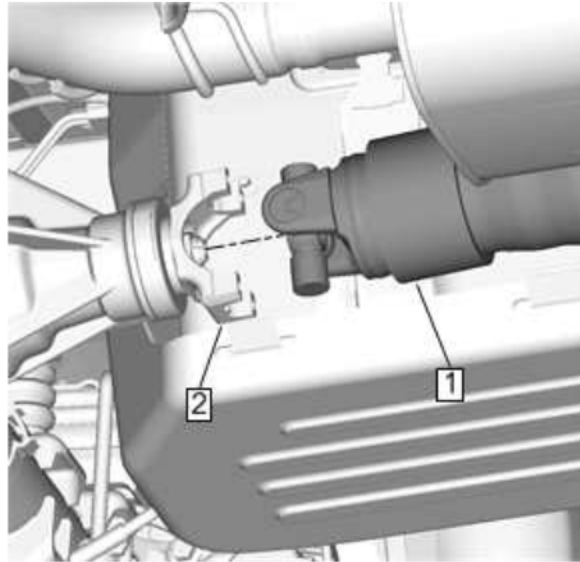


Fig. 56: Propeller Shaft And Rear Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

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

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

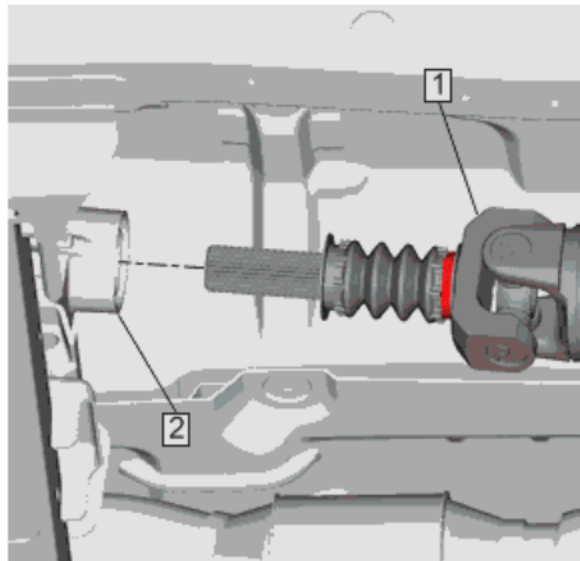


Fig. 57: Removing Propeller Shaft From Transmission Output Shaft

Courtesy of GENERAL MOTORS COMPANY

6. Remove the boot from the groove on the transfer case output shaft.
7. Remove the propeller shaft (1) from the transmission output shaft (2) by sliding the propeller shaft (1) reward.

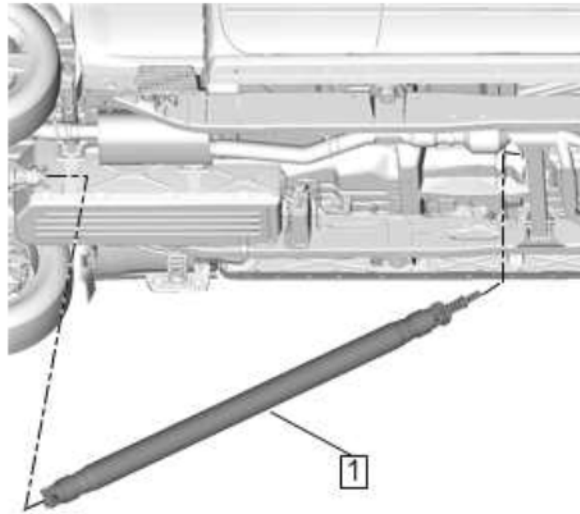


Fig. 58: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

8. Remove the propeller shaft (1) from the vehicle.

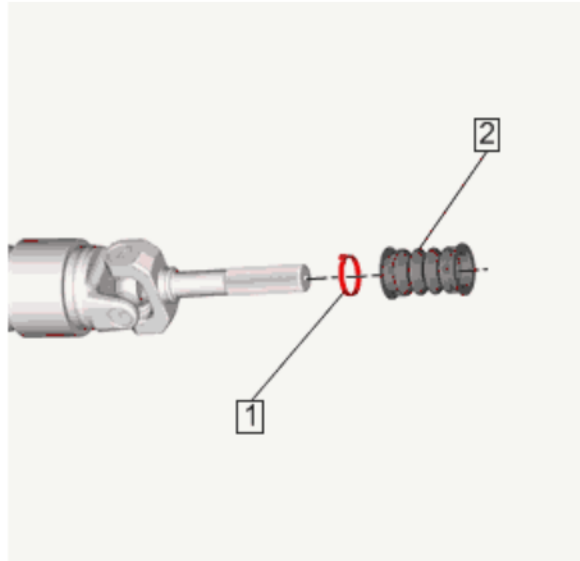


Fig. 59: Propeller Shaft Boot And Clamp

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

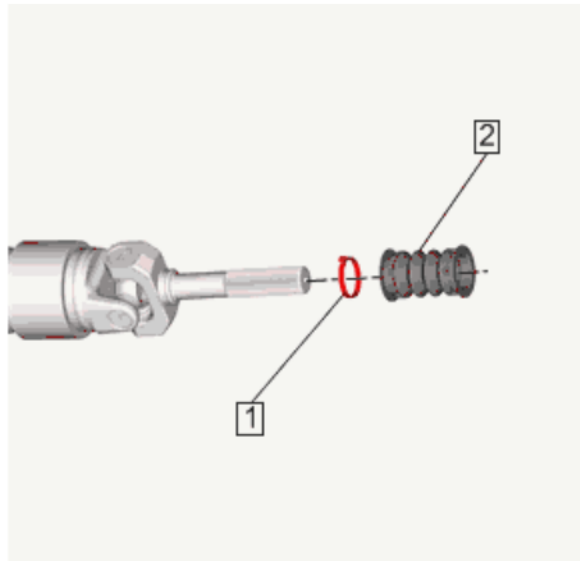


Fig. 60: Propeller Shaft Boot And Clamp

Courtesy of GENERAL MOTORS COMPANY

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

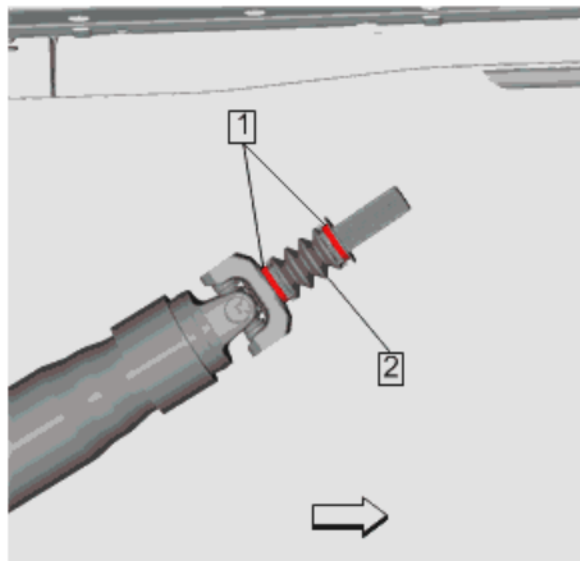


Fig. 61: Propeller Shaft Boot And Clamps

Courtesy of GENERAL MOTORS COMPANY

3. Loosely install the clamps (1) and the boot (2) onto the propeller shaft.

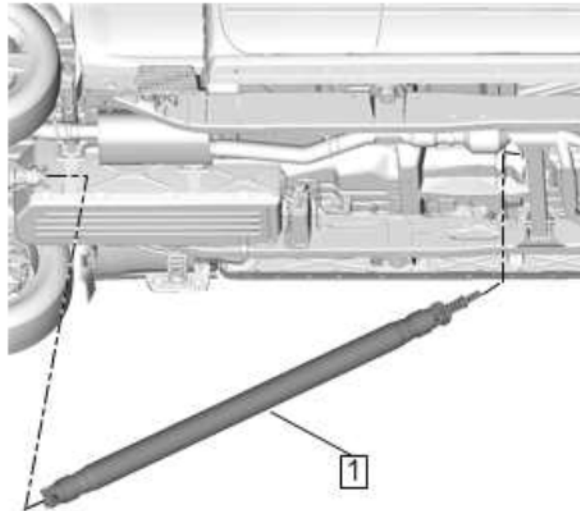


Fig. 62: Propeller Shaft

Courtesy of GENERAL MOTORS COMPANY

4. 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.
5. Install the propeller shaft (1) into the vehicle

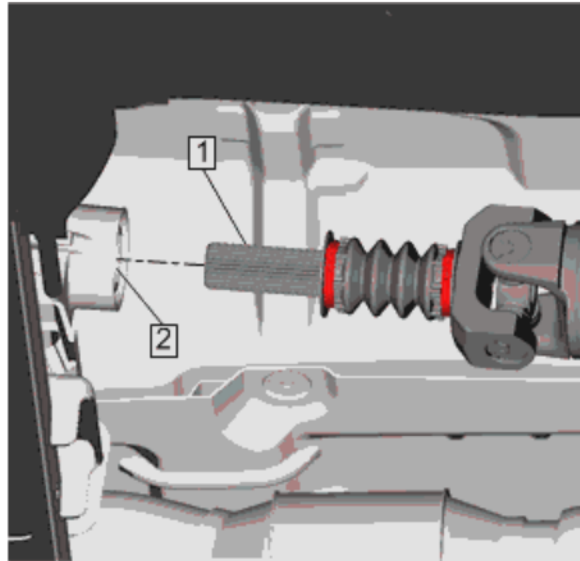


Fig. 63: Propeller Shaft And Transmission Output Shaft

Courtesy of GENERAL MOTORS COMPANY

6. Install the propeller shaft splines (1) into the transmission output shaft (2).

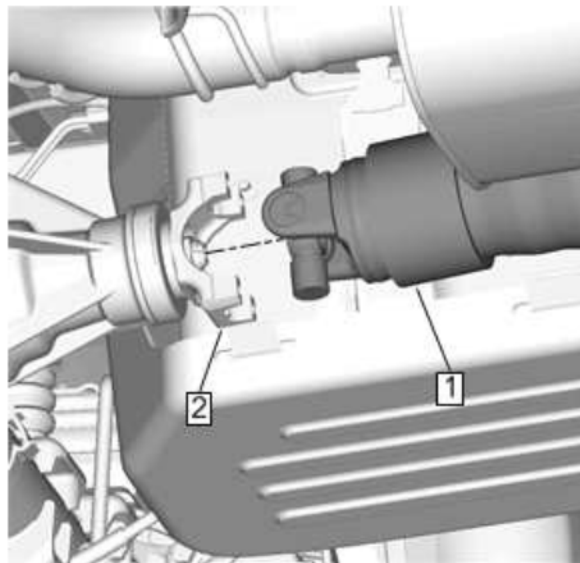


Fig. 64: Propeller Shaft To Rear Axle Pinion Yoke

Courtesy of GENERAL MOTORS COMPANY

7. Install the propeller shaft (1) to the rear axle pinion yoke (2).

Align the reference marks made during removal.

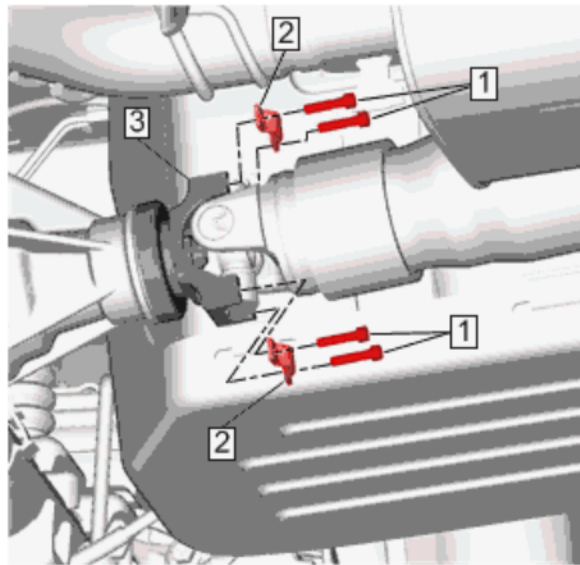


Fig. 65: Yoke Retainers And Bolts

Courtesy of GENERAL MOTORS COMPANY

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

8. Install the NEW yoke retainers (2) (Qty: 2) and the NEW bolts (1) (Qty: 4).

Tighten

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

9. Install the boot onto the transmission output shaft until the boot snaps into the groove on the output shaft.
10. Use the **J-43218** clamp pliers to crimp both clamps.
11. Lower the 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](#) .

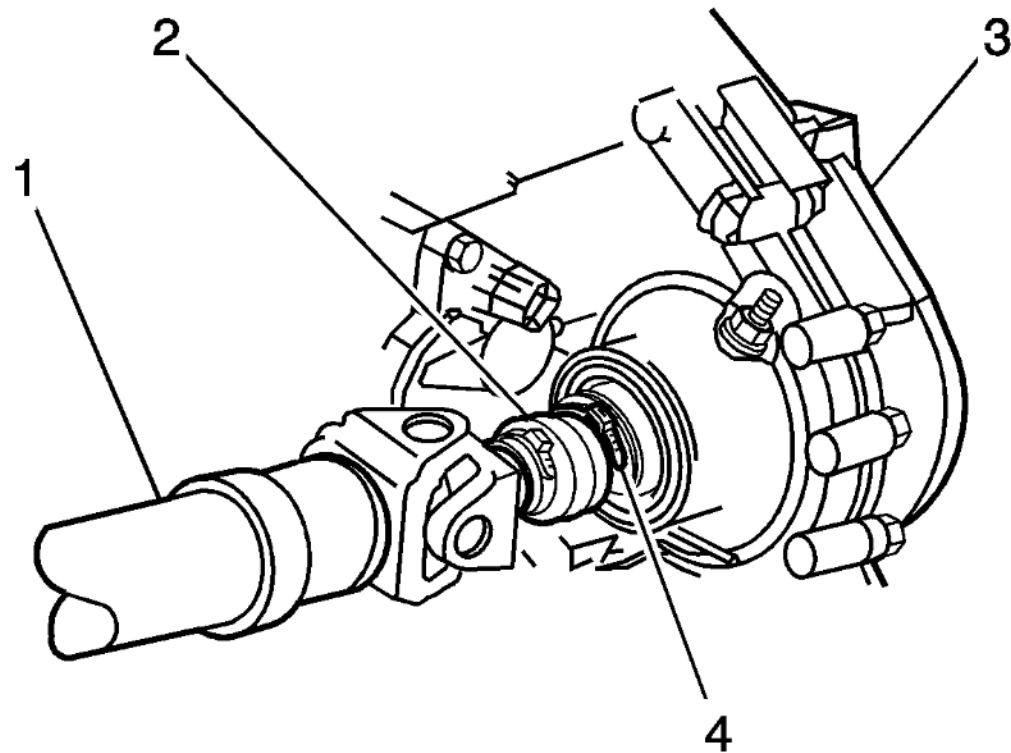


Fig. 66: Removing Clamp At Transfer Case

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 pinon yoke.

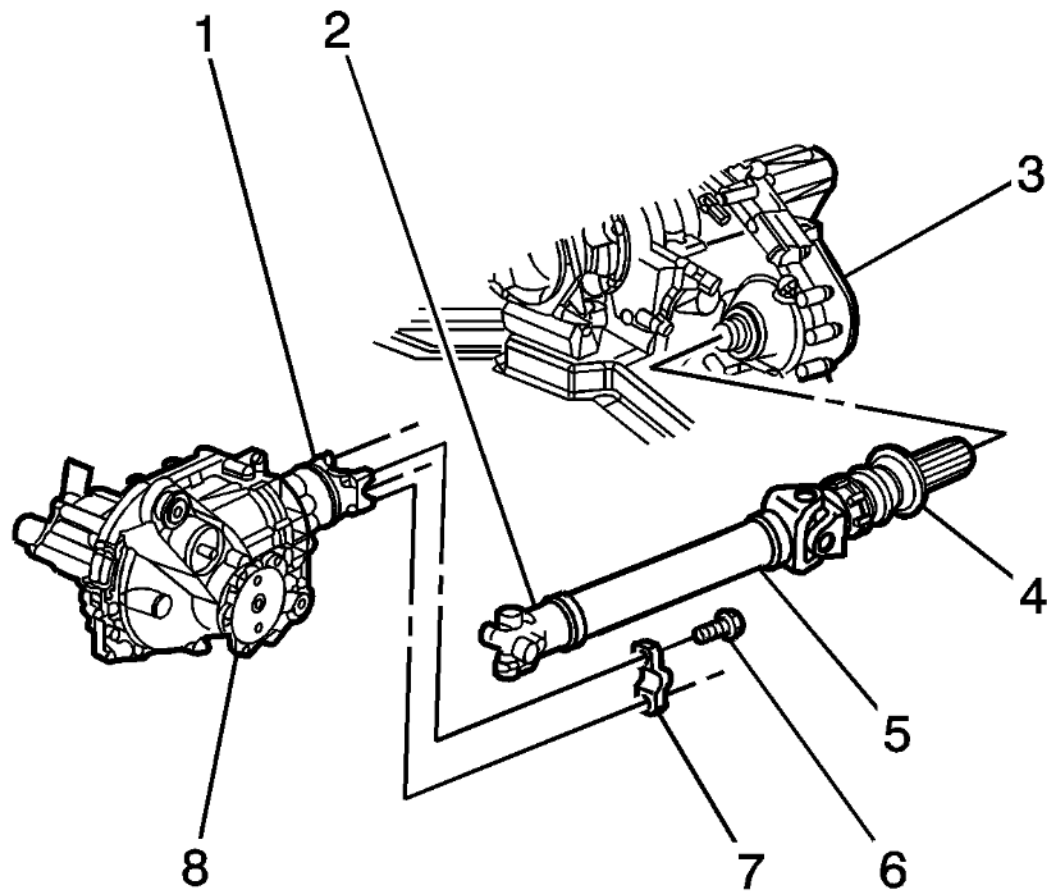


Fig. 67: Disconnecting Propeller Shaft From Front Axle Pinion Yoke

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.

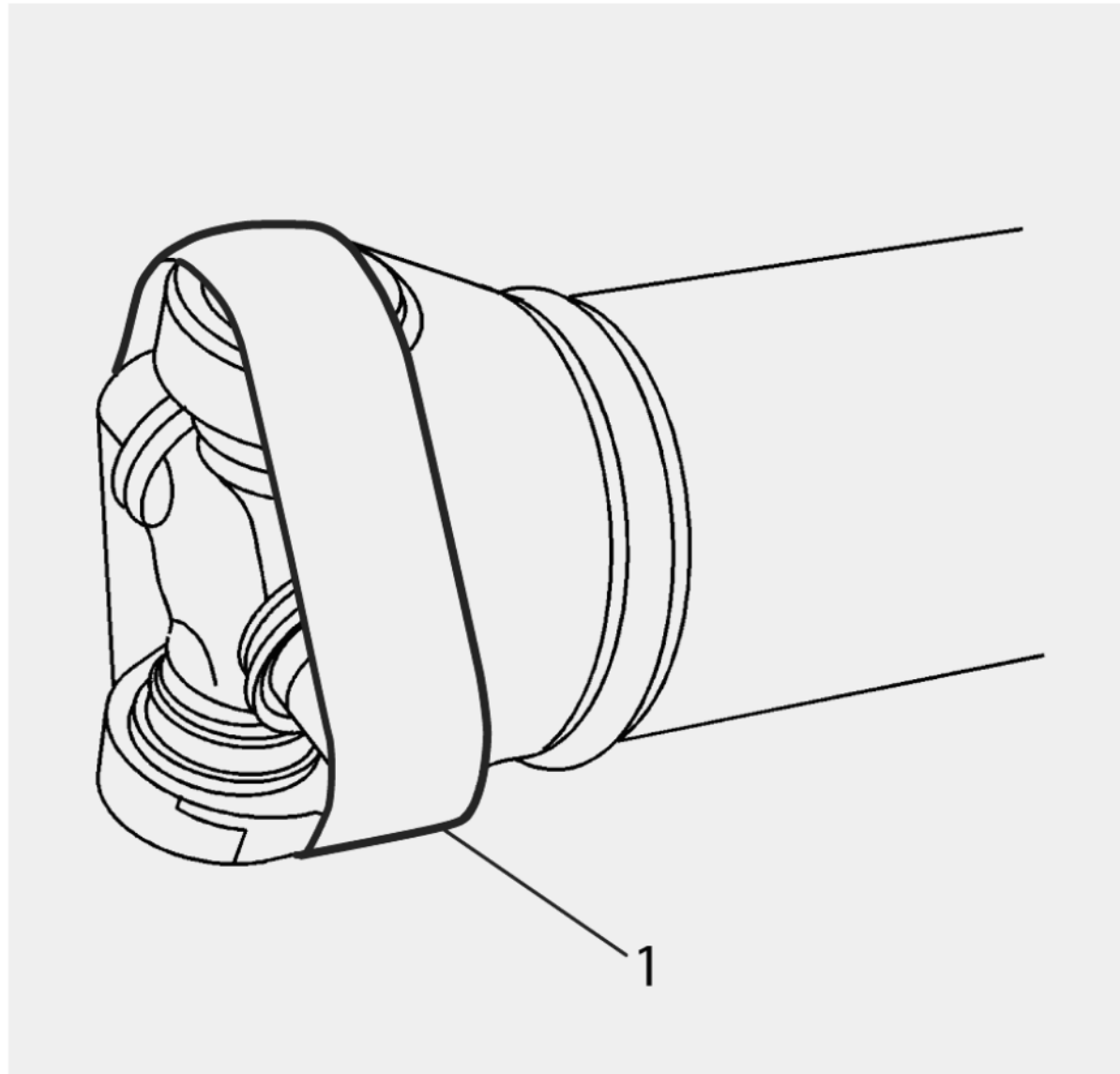


Fig. 68: U-Joint Bearing Caps

Courtesy of GENERAL MOTORS COMPANY

6. Use tape to secure the bearing caps.

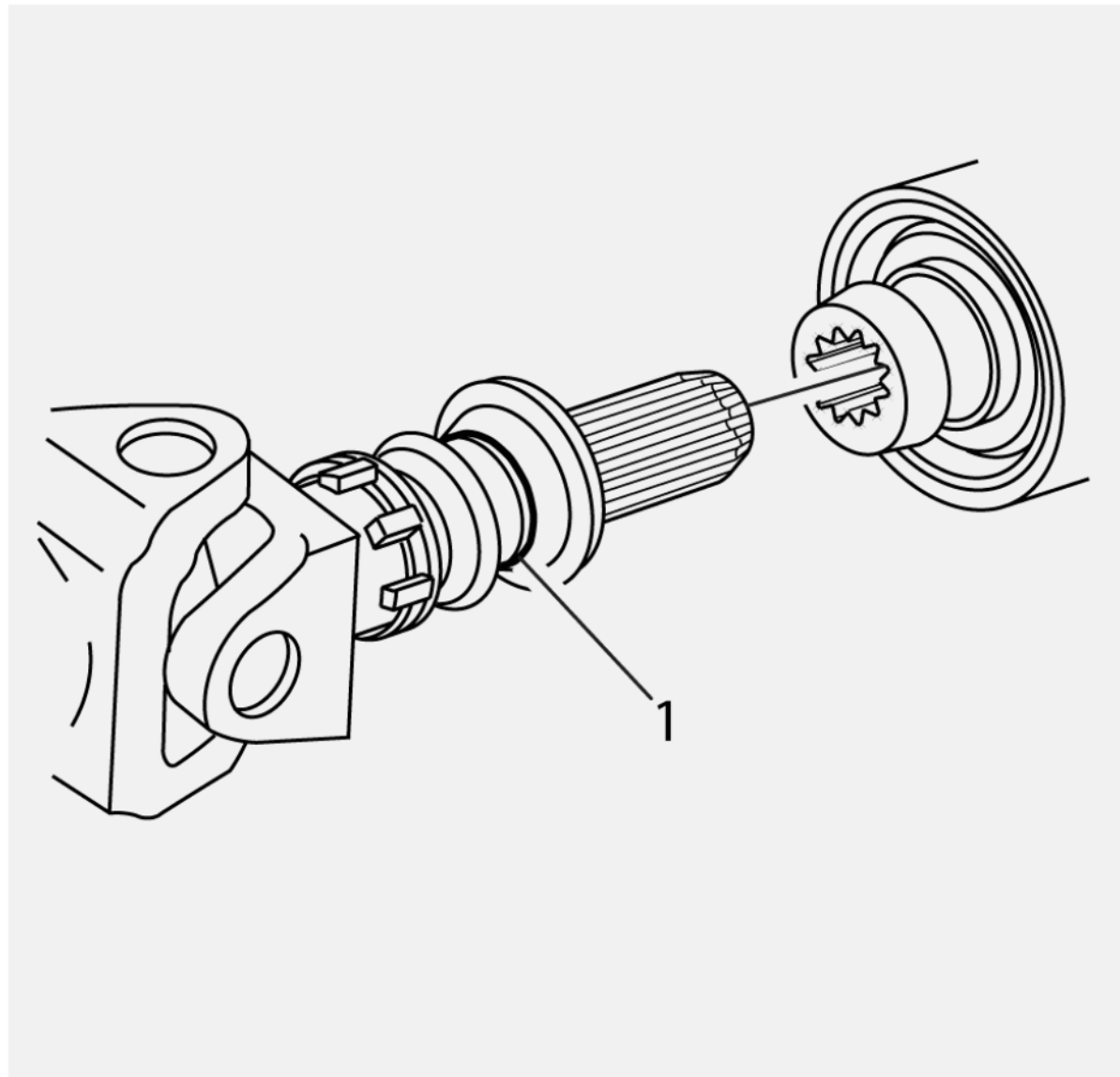


Fig. 69: Boot, Groove & Transfer Case Output Shaft

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.

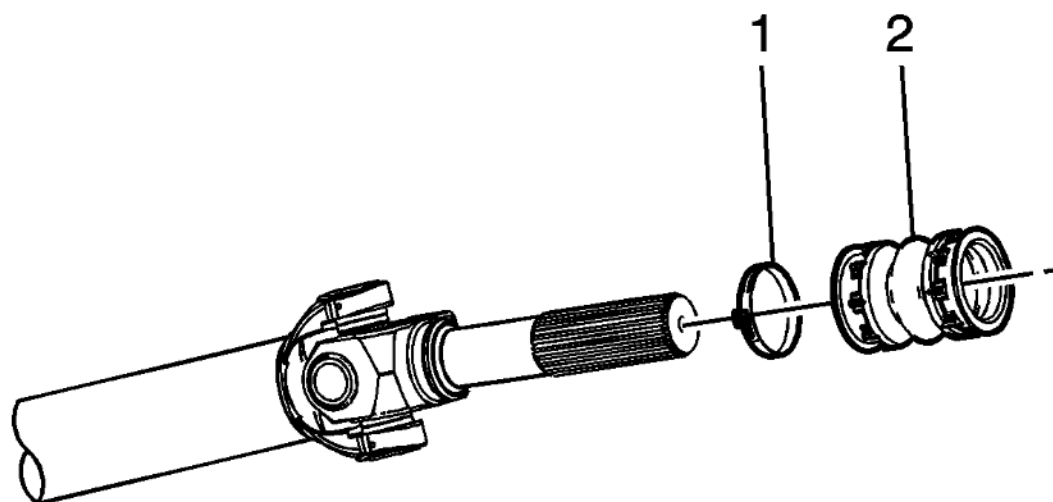


Fig. 70: Propeller Shaft, Clamp And Shaft Boot
Courtesy of GENERAL MOTORS COMPANY

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.

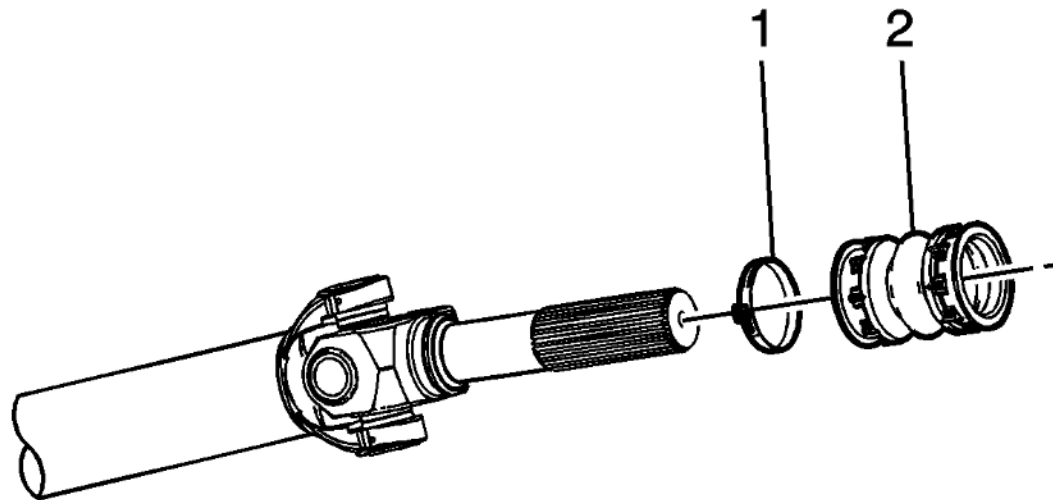


Fig. 71: Propeller Shaft, Clamp And Shaft Boot

Courtesy of GENERAL MOTORS COMPANY

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

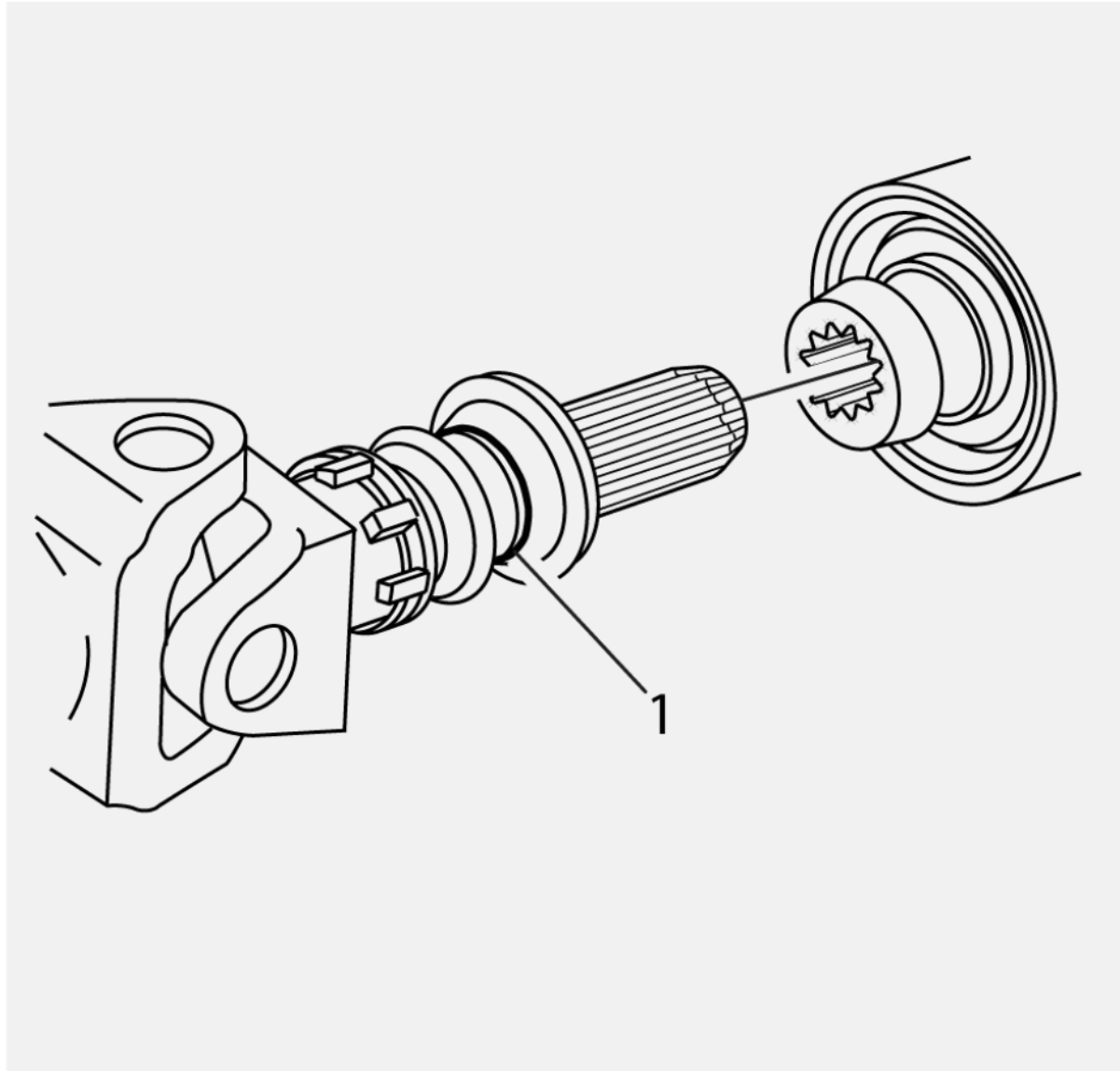


Fig. 72: Boot, Groove & Transfer Case Output Shaft

Courtesy of GENERAL MOTORS COMPANY

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

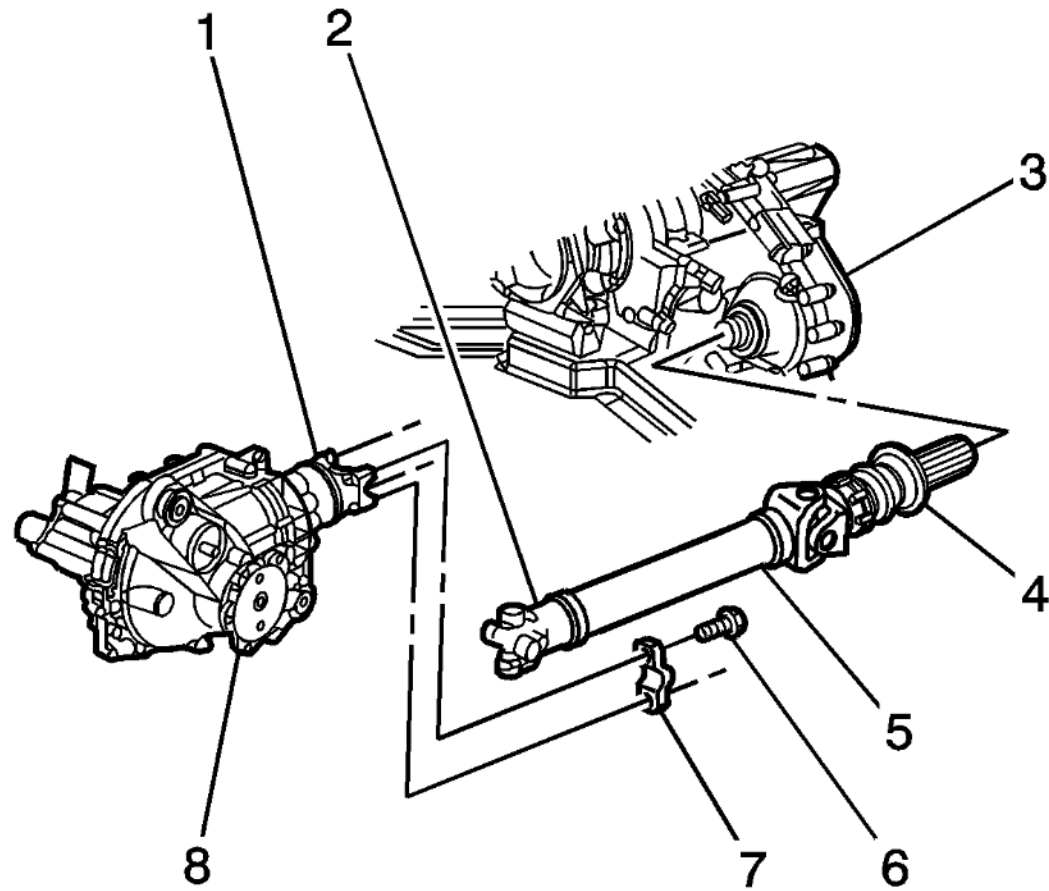


Fig. 73: Installing Propeller Shaft To Front Axle Pinion Yoke

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 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 \(NPO\)Front Axle Propeller Shaft Replacement \(NQH\)Front Axle Propeller Shaft Replacement \(Heavy Duty\)](#).
 - For Rear Propeller Shaft replacement, refer to [Rear Propeller Shaft Replacement \(1500\)Rear Propeller Shaft Replacement \(Heavy Duty\)Rear Propeller Shaft Replacement \(M5U, 2WD\)](#).

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.

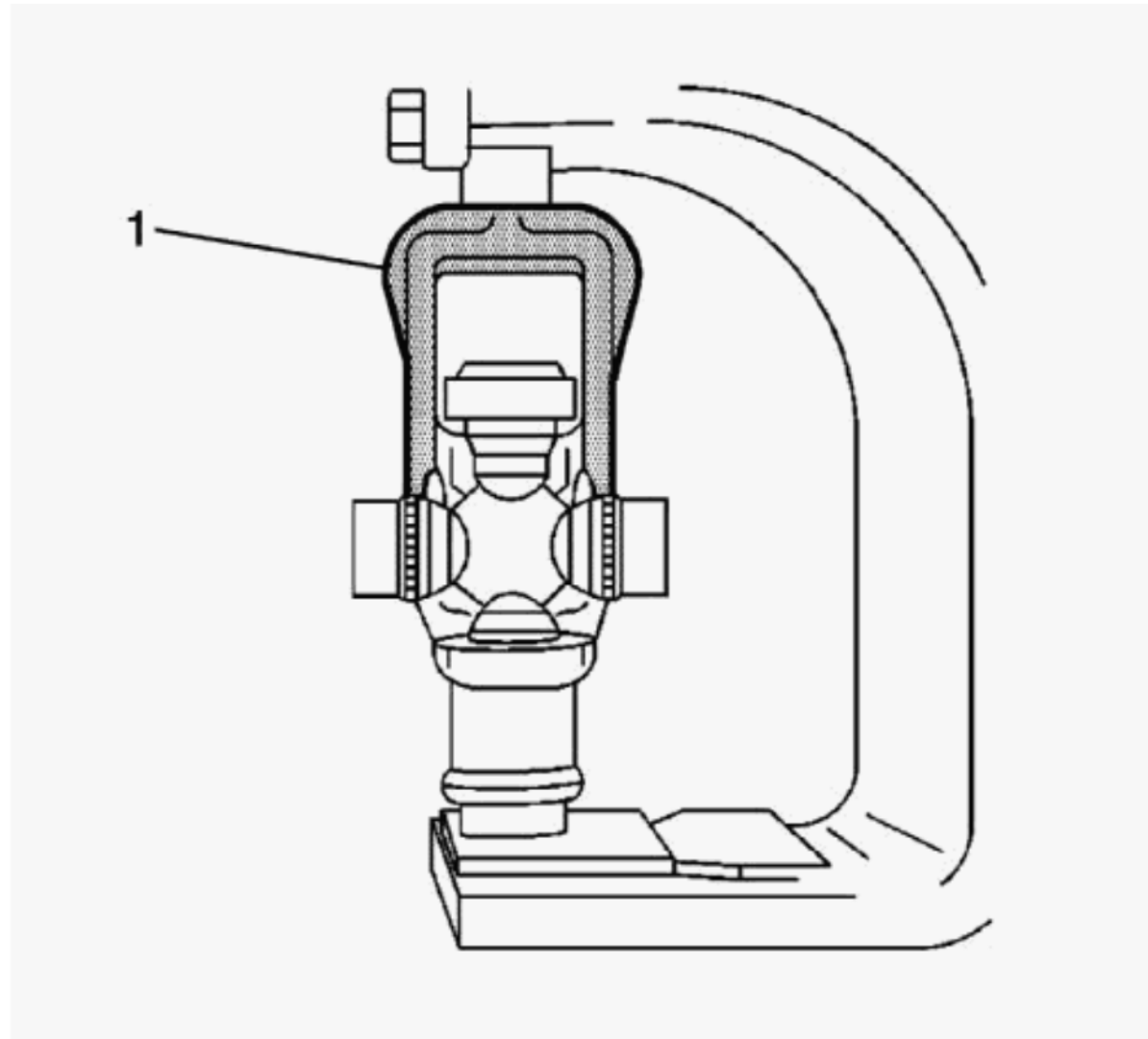


Fig. 74: Disassembling Universal Joint

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.

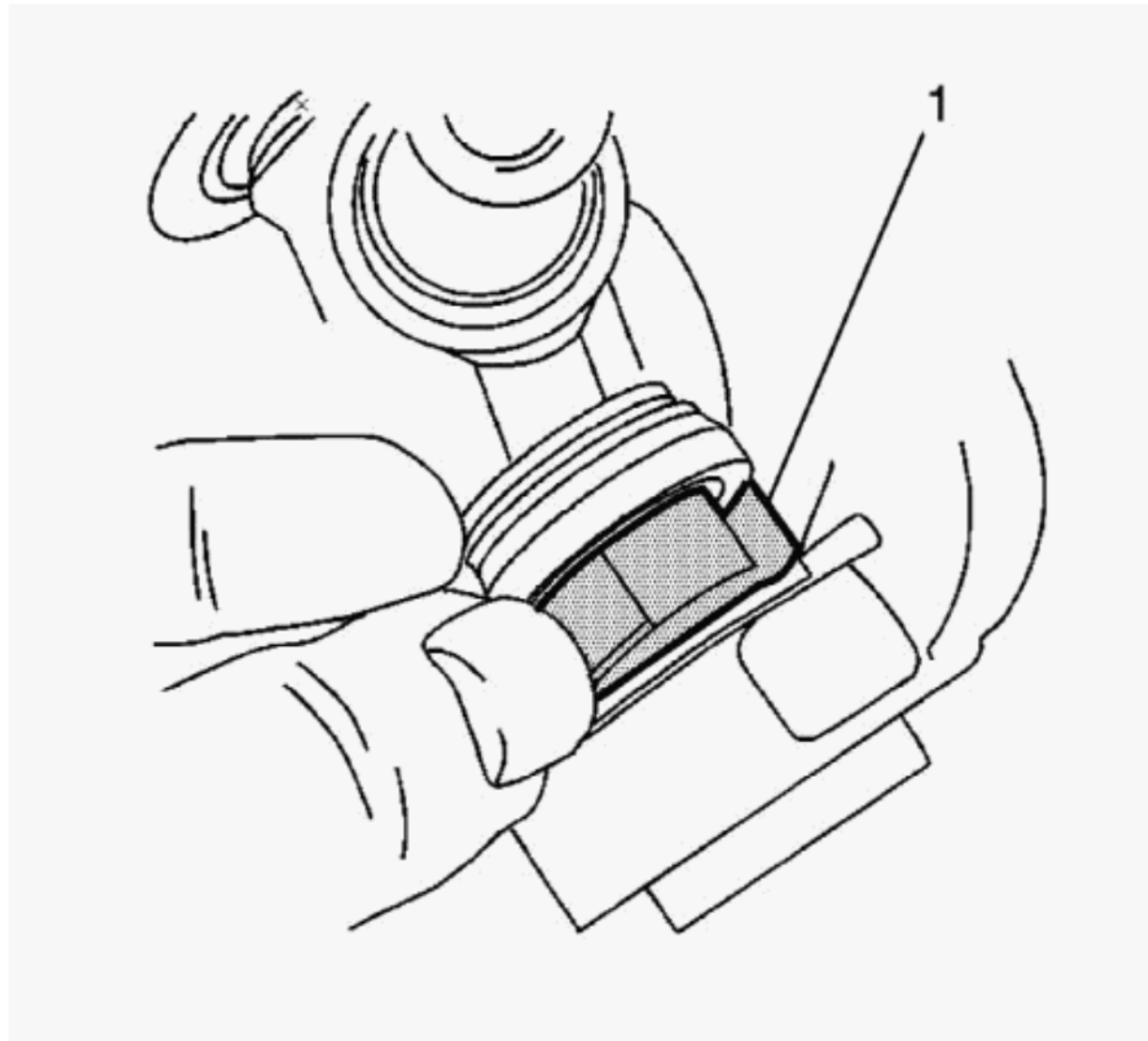


Fig. 75: Placing U-Joint Bearing Spacer Remover Between Seal And Bearing Cup

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.

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.

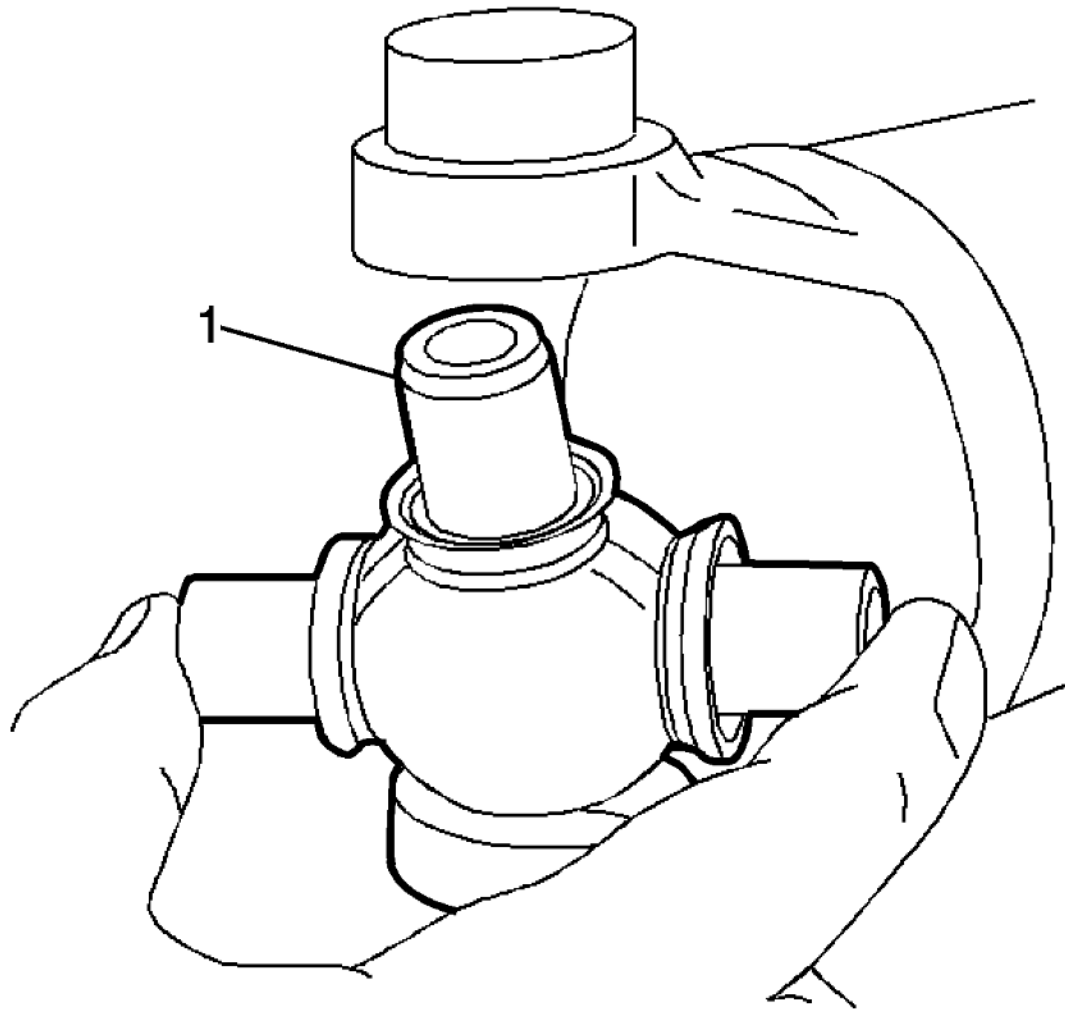


Fig. 76: Assembling Trunnion Into Yoke

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.

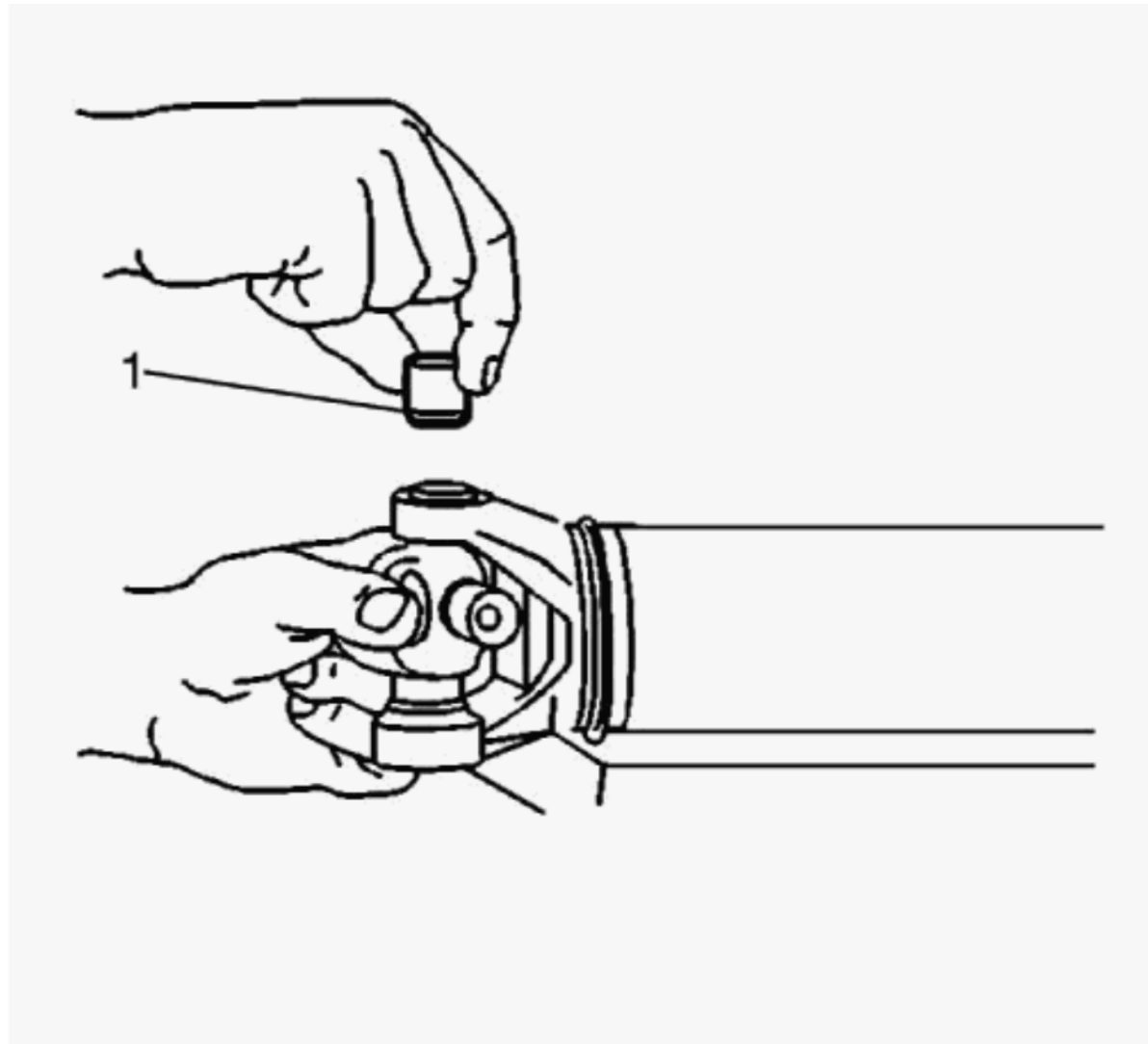


Fig. 77: Installing Bearing Cup Into Yoke Ear
Courtesy of GENERAL MOTORS COMPANY

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.

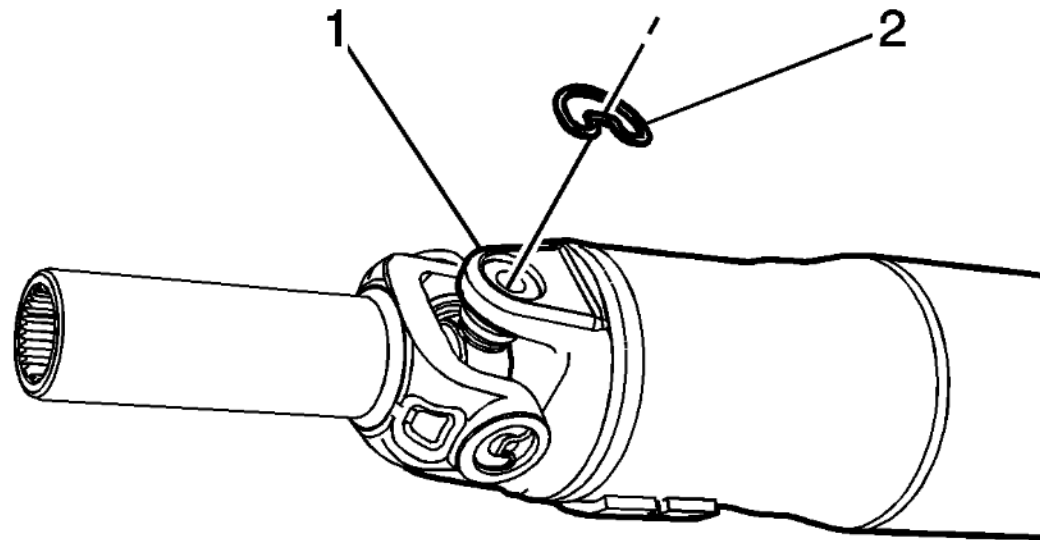


Fig. 78: Retaining Ring & Propeller Shaft Yoke

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.

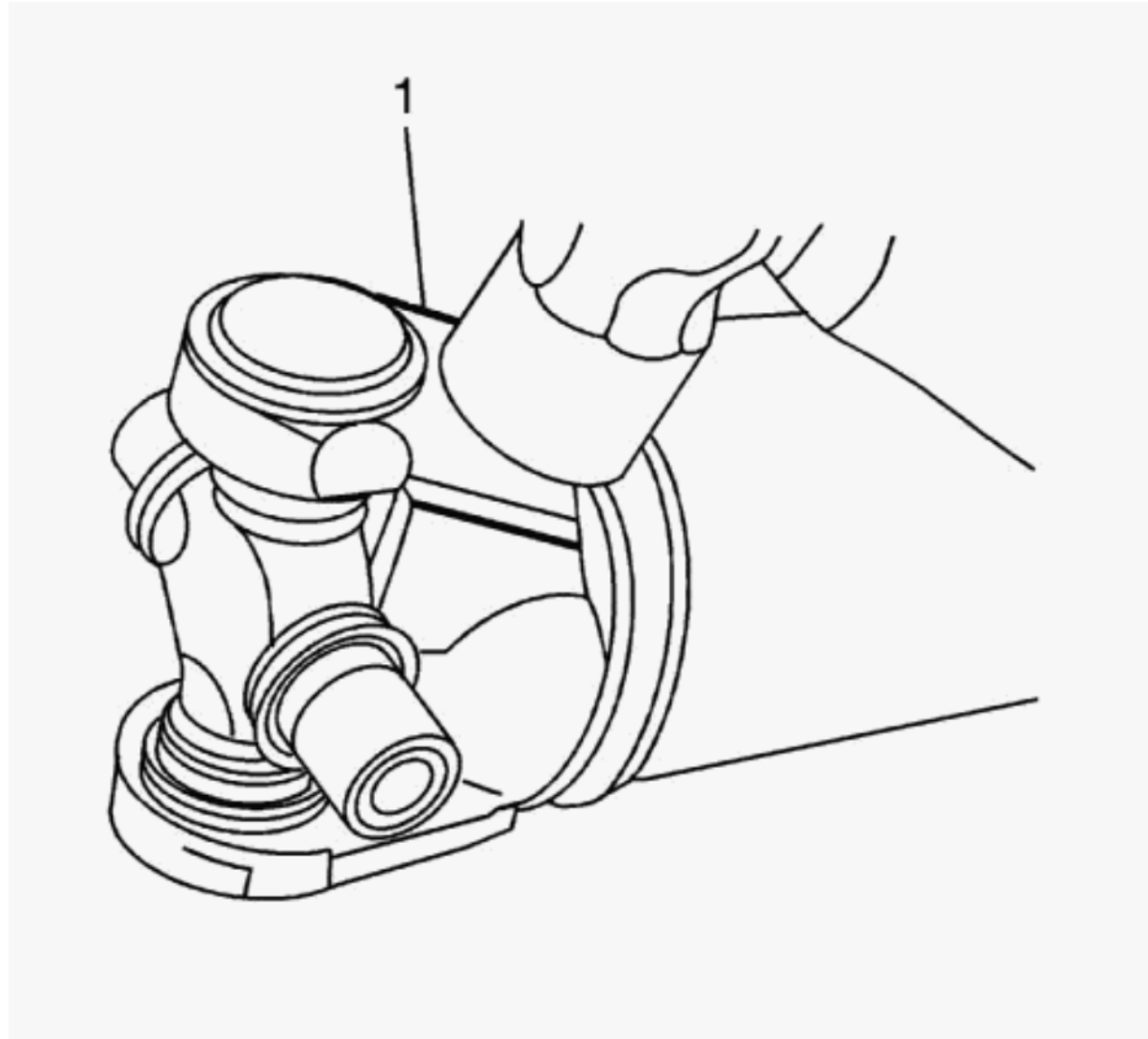


Fig. 79: Springing Yoke Using Hammer

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 \(NPO\)Front Axle Propeller Shaft Replacement \(NQH\)Front Axle Propeller Shaft Replacement \(Heavy Duty\)](#).
 - For Rear Propeller Shaft replacement, refer to [Rear Propeller Shaft Replacement \(1500\)Rear Propeller Shaft Replacement \(Heavy Duty\)Rear Propeller Shaft Replacement \(M5U, 2WD\)](#).

UNIVERSAL JOINT REPLACEMENT - NYLON INJECTED RING

Special Tools

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

Disassembly Procedure

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.

1. Support the propeller shaft in a line horizontal with the table of a press.
2. Mark the propeller shaft as to which end is the transmission end and which end goes to the rear axle.

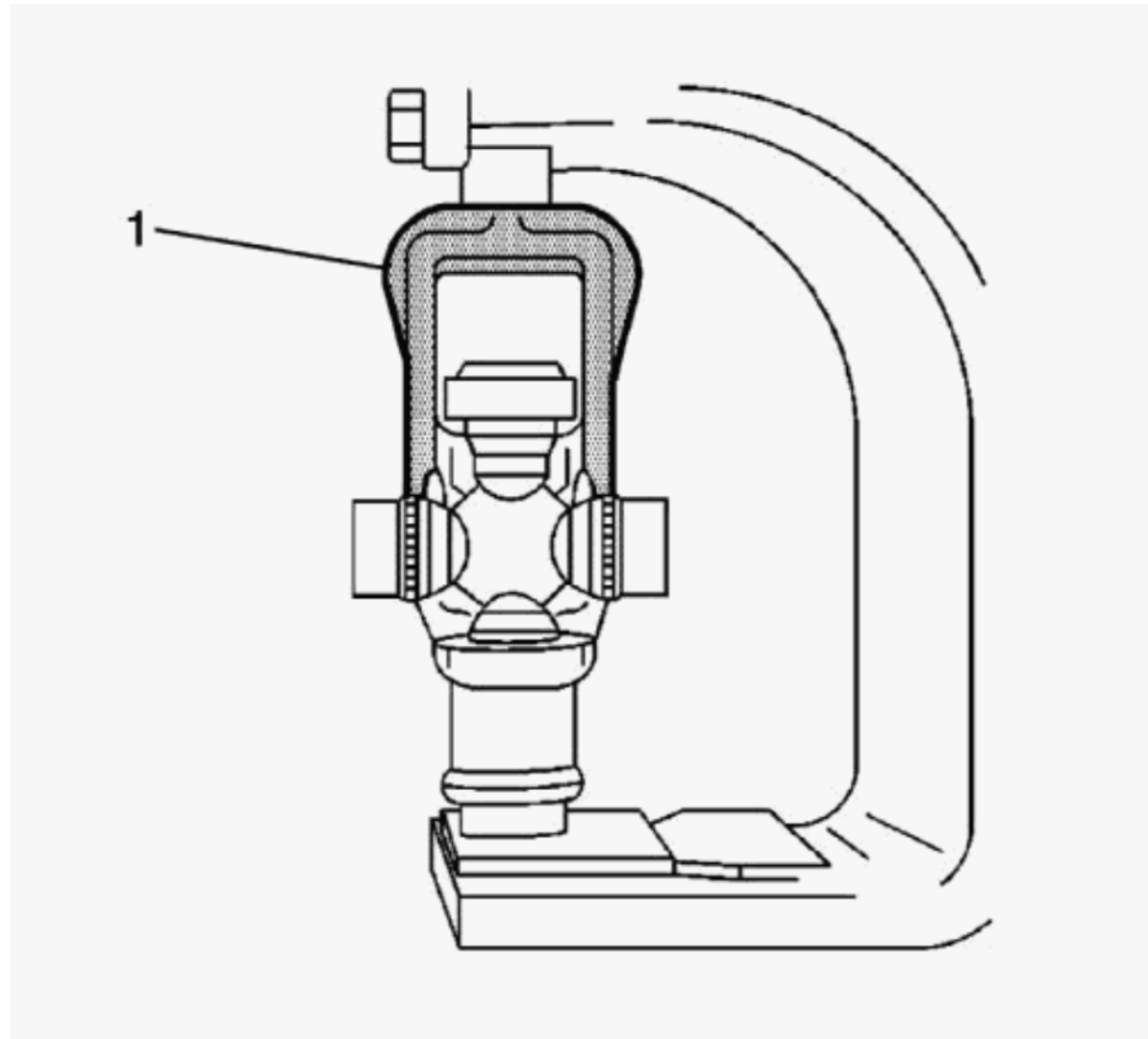


Fig. 80: Disassembling Universal Joint

Courtesy of GENERAL MOTORS COMPANY

3. Place the universal joint so that the lower ear of the yoke is supported on a 30 mm (1 1/8 in) socket.

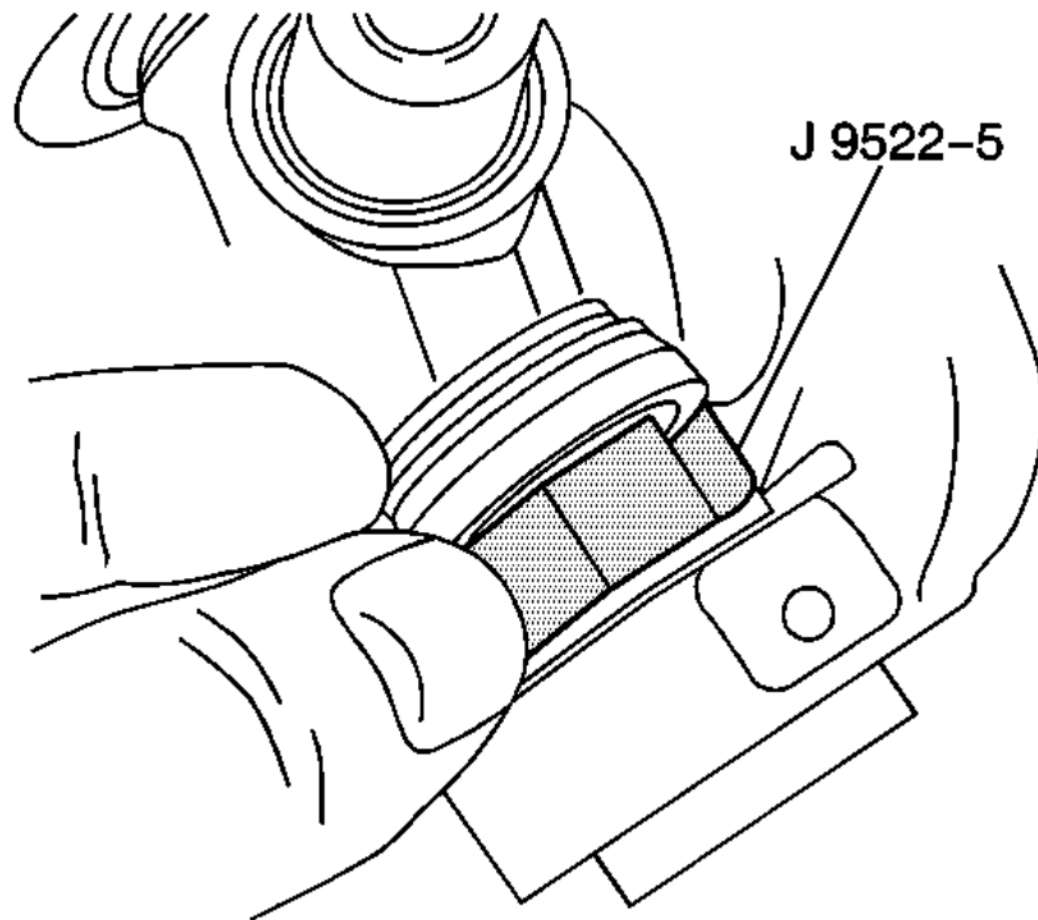


Fig. 81: Inserting Special Tool Between Seal And Bearing Cup

Courtesy of GENERAL MOTORS COMPANY

4. In order to shear the plastic retaining ring on the bearing cup, place **J-9522-3** U Joint Bearing Separator on the open horizontal bearing cups. Press the lower bearing cup out of the yoke ear.
5. If you do not completely remove the bearing cup, lift the cross and insert **J-9522-5** U Joint Bearing Spacer Remover between the seal and the bearing cup you are removing. Continue to press the bearing cup out of the yoke.

6. Rotate the propeller shaft. Press the opposite bearing cup out of the yoke.
7. Mark the orientation of the slip yoke to the tube for proper reassembly.
8. Remove the cross from the yoke.
9. Remove the remaining universal joint parts from the yoke. If you are replacing the front universal joint, remove the bearing cups in the slip yoke in the same manner.
10. Inspect the retaining ring grooves for plastic.
11. Inspect the bearing cup bores in the yoke ears for burrs or imperfections.
12. Clean the remains of the sheared plastic bearing retainers from the grooves in the yoke.
13. The sheared plastic may prevent the bearing cups from pressing into place and thus prevent the bearing retainers from properly seating.

Assembly Procedure

1. Remove the bearing cups from the universal joint.

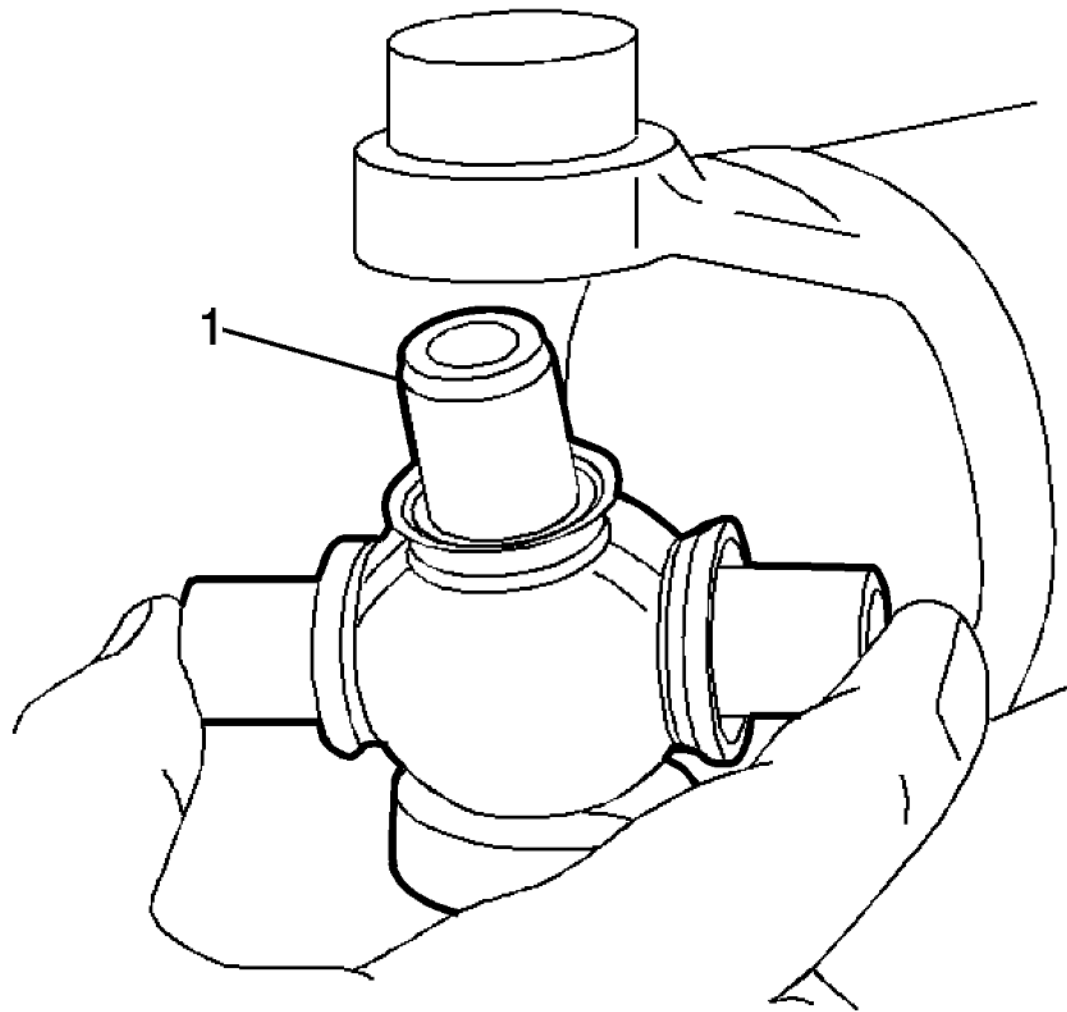


Fig. 82: Assembling Trunnion Into Yoke

Courtesy of GENERAL MOTORS COMPANY

2. Assemble 1 bearing cup part way into 1 side of the yoke.
3. Turn the yoke ear toward the bottom.
4. Assemble the cross into the yoke so the trunnion seats freely into the bearing cup.
5. With the trunnion seated in the bearing cup, press the bearing cup into the yoke until the bearing cup is flush with the yoke ear.

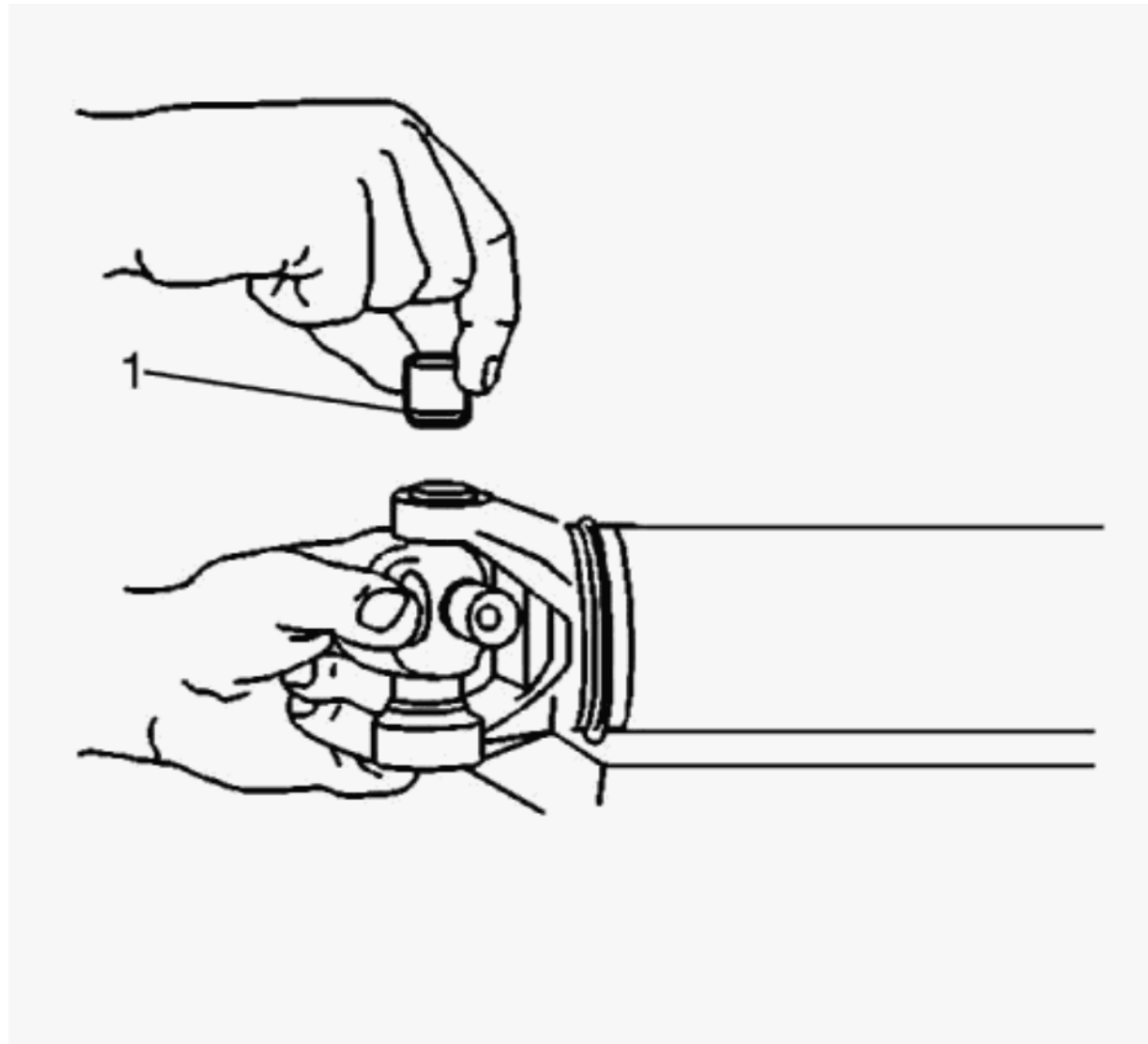


Fig. 83: Installing Bearing Cup Into Yoke Ear
Courtesy of GENERAL MOTORS COMPANY

6. Assemble the opposite bearing cup part way into the yoke ear.
7. Ensure that the trunnions start straight and true into both bearing cups.
8. Press the opposite bearing cup into the yoke ear while working the cross all the time in order to inspect for a free unbinding movement of the trunnions in the bearing cups.

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

9. Press the bearing cup into the yoke until the bearing retainer groove clears the inside of the yoke.

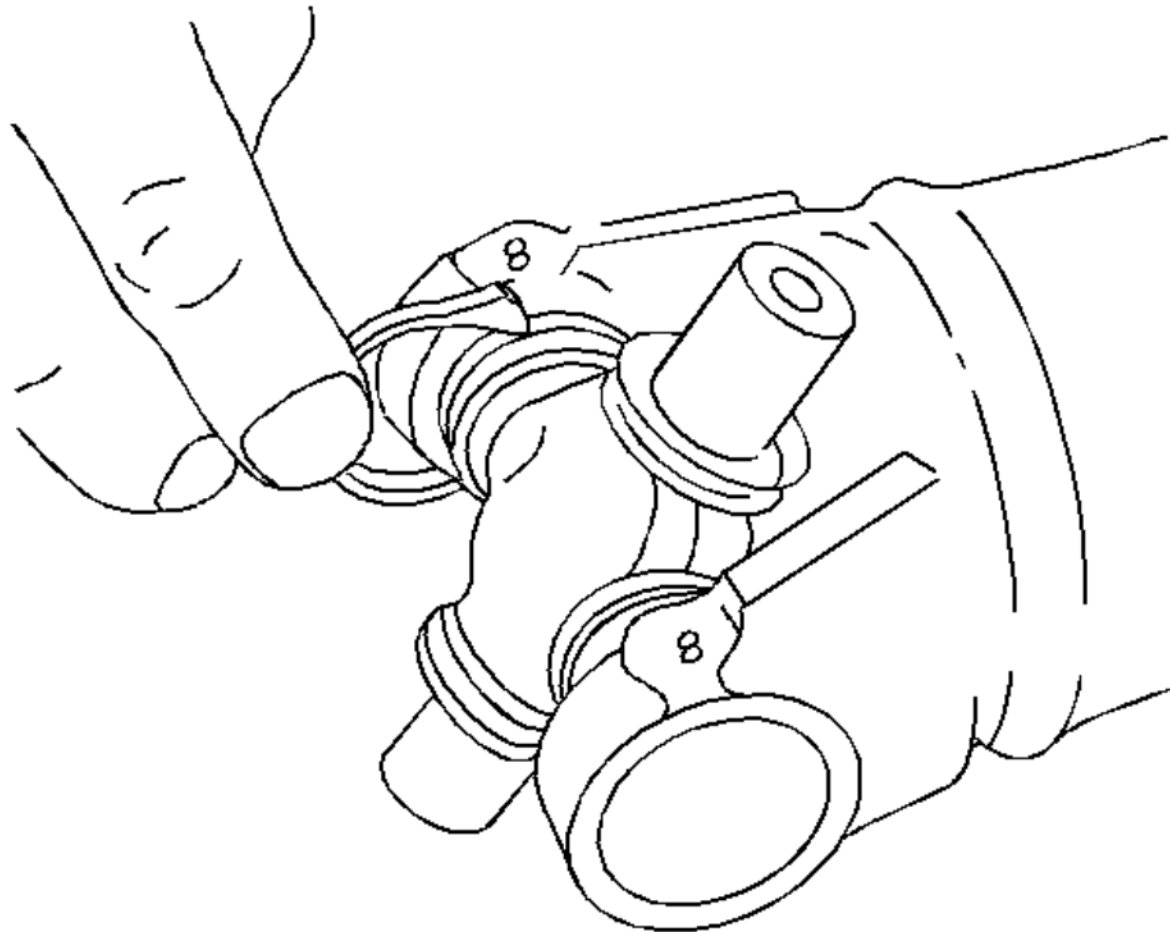


Fig. 84: Assembling Bearing Retainer In Retainer Groove
Courtesy of GENERAL MOTORS COMPANY

10. Assemble the bearing retainer in the retainer groove.
11. Continue pressing until you can snap both retainers into place.

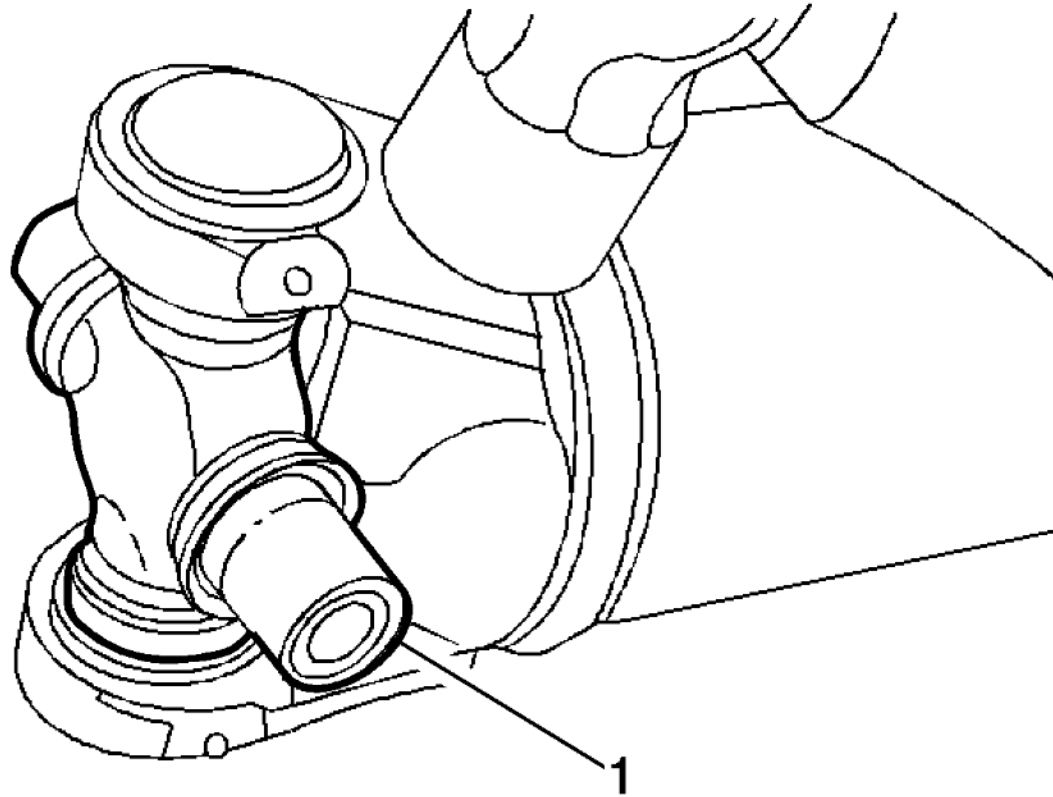


Fig. 85: Springing Yoke Using Hammer
Courtesy of GENERAL MOTORS COMPANY

12. If seating the retainer is difficult, spring the yoke slightly with a firm blow from a dead blow hammer.
13. It may be necessary to lubricate the snap ring with a slight amount of chassis grease so the snap ring seats in the bearing cup groove.

UNIVERSAL JOINT REPLACEMENT - EXTERNAL SNAP RING

Special Tools

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

Disassembly Procedure

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.

1. Support the propeller shaft in a line horizontal with the table of a press.
2. Mark the propeller shaft in order to show which end connects to the transmission and which end goes to the rear axle.
3. Disassemble 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.

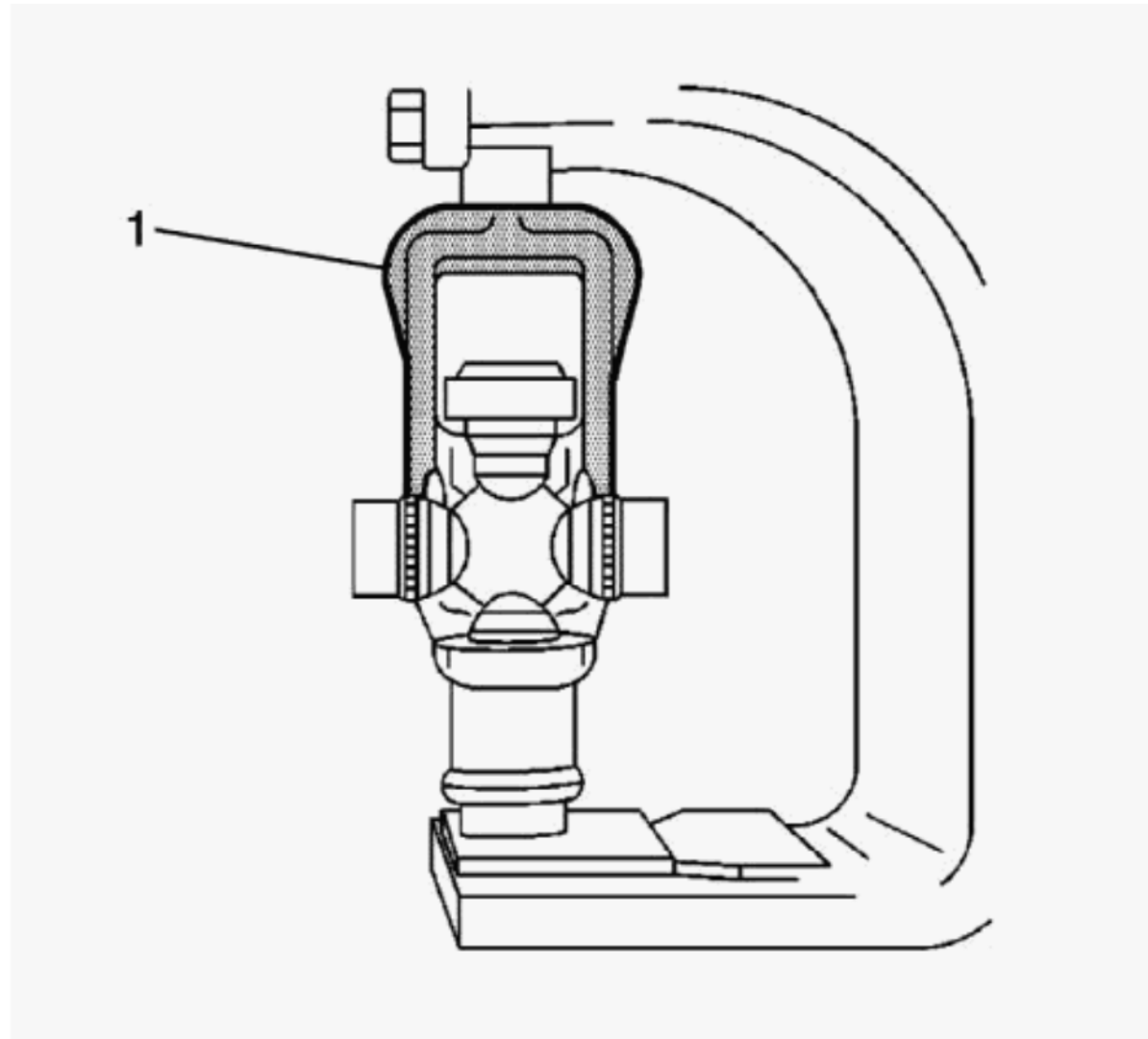


Fig. 86: Disassembling Universal Joint

Courtesy of GENERAL MOTORS COMPANY

5. Place the universal joint so that the lower ear of the yoke is supported on a 30 mm (1-1/8 in) hex head socket or a 27 mm (1-1/16 in) socket.

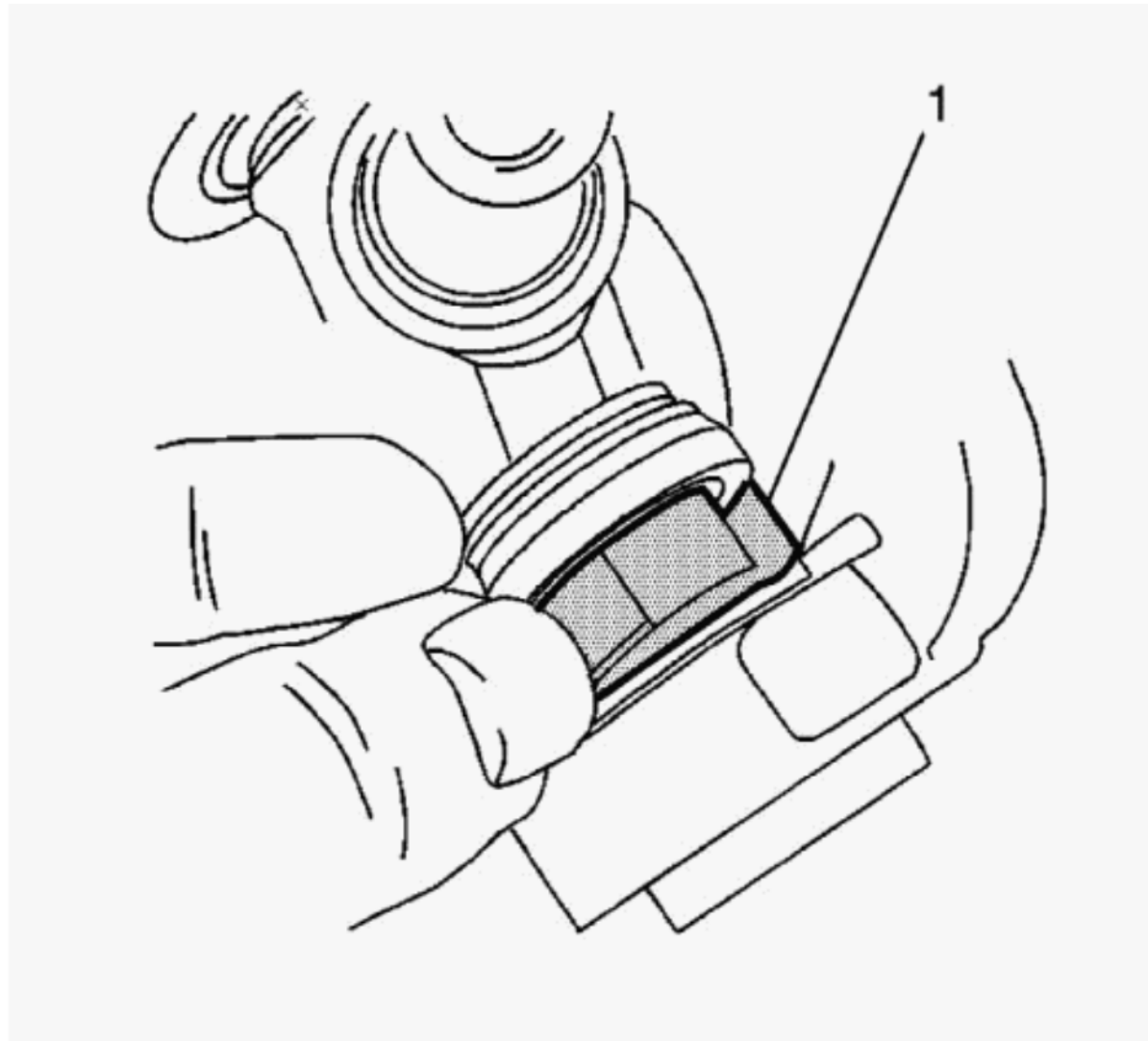


Fig. 87: Placing U-Joint Bearing Spacer Remover Between Seal And Bearing Cup

Courtesy of GENERAL MOTORS COMPANY

6. Place **J 9522-3** u-joint bearing separator on the open horizontal bearing cups. Press the lower bearing cup out of the yoke ear.
7. If you do not completely remove the bearing cup, lift the cross and insert **J 9522-5** u-joint bearing spacer remover 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. Mark the orientation of the slip yoke to the tube for proper reassembly.
10. Remove the cross from the yoke.
11. Remove the remaining universal joint parts from the yoke.
12. If you are replacing the front universal joint, remove the bearing cups in the slip yoke in the same manner.
13. Inspect the retaining ring grooves for dirt, corrosion, or pieces of the old ring.
14. Inspect the bearing cup bores for burrs or imperfections.
15. 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

1. Remove the bearing cups from the universal joint.

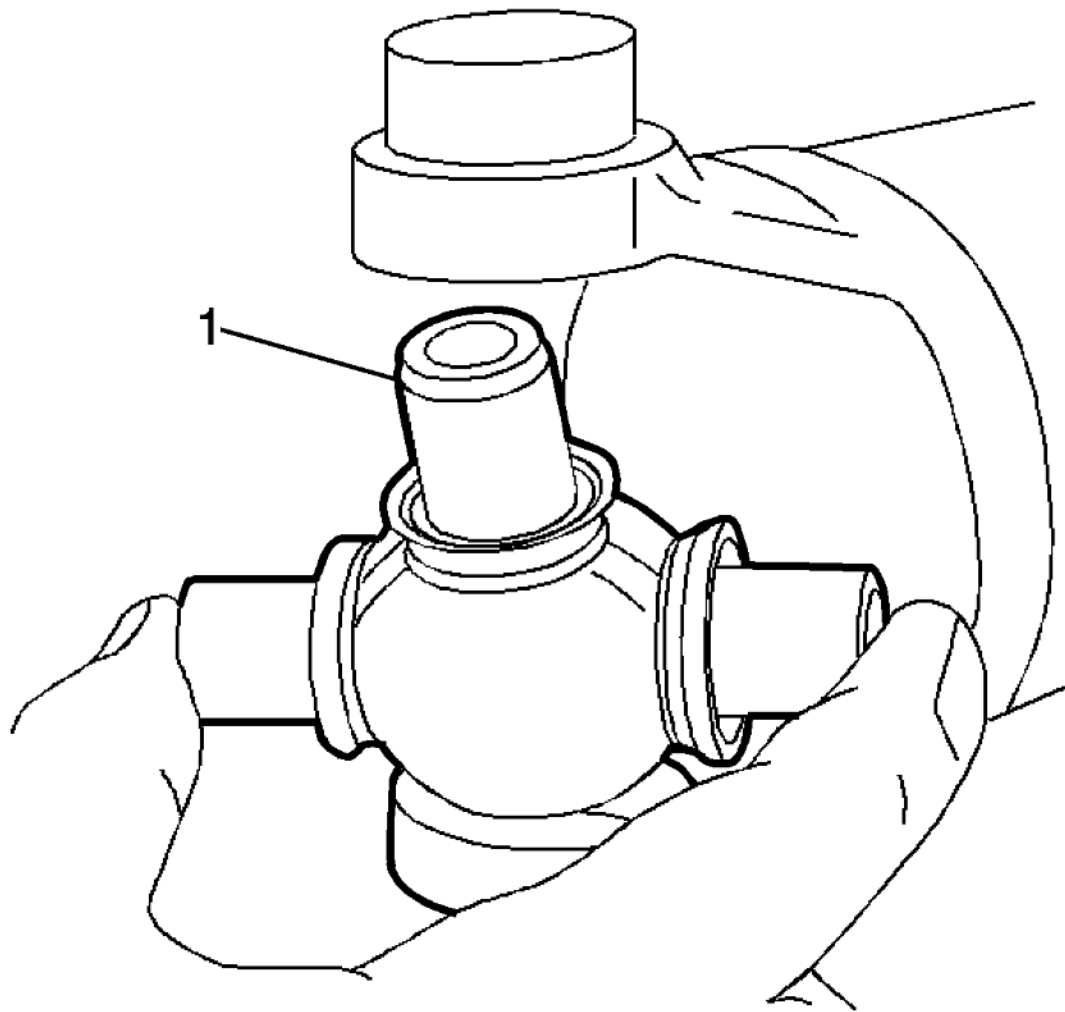


Fig. 88: Assembling Trunnion Into Yoke

Courtesy of GENERAL MOTORS COMPANY

2. Assemble one bearing cup part way into 1 side of the yoke. Turn the yoke ear toward the bottom.
3. Assemble the cross into the yoke so that the trunnion seats freely into the bearing cup.

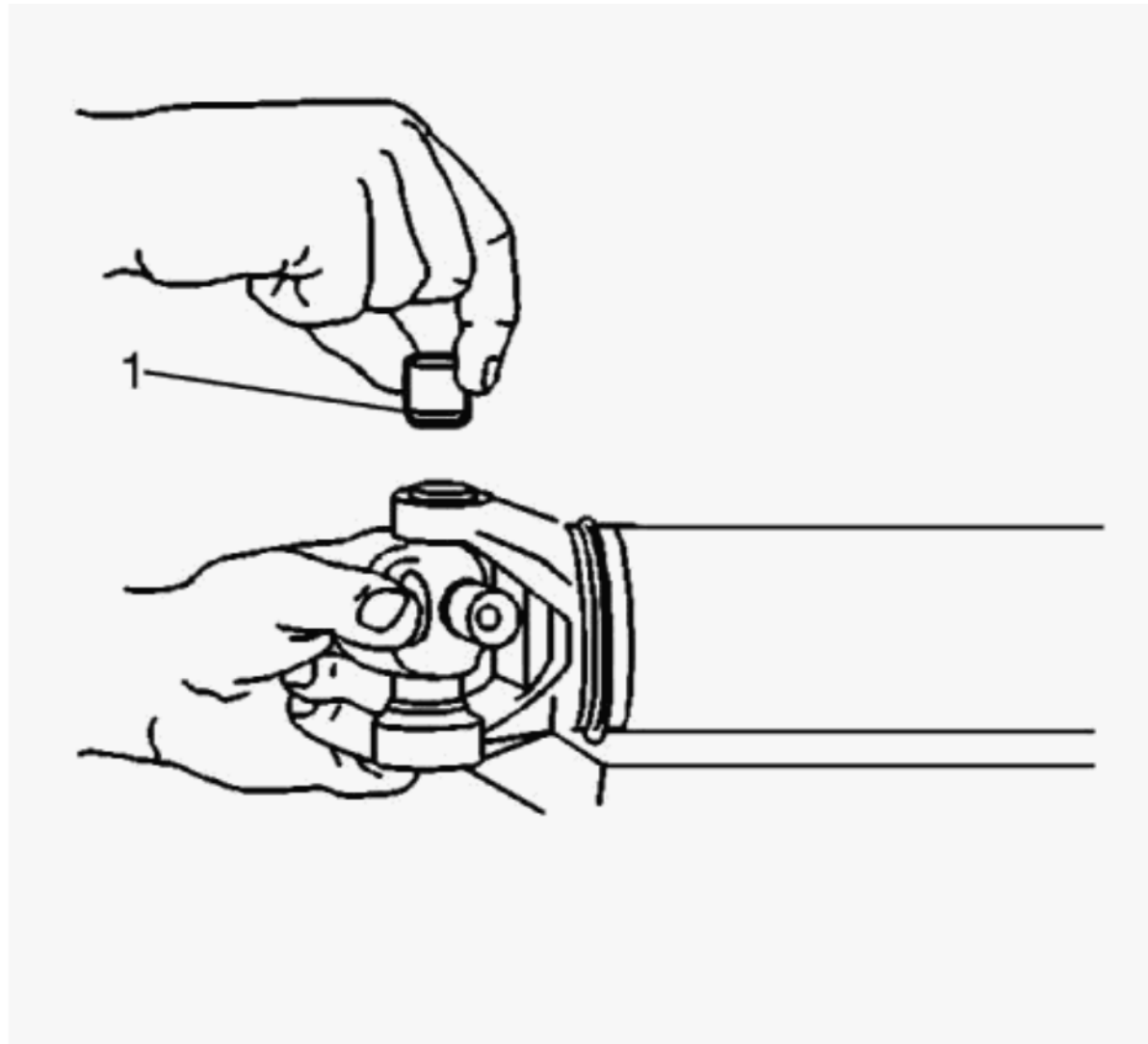


Fig. 89: Installing Bearing Cup Into Yoke Ear
Courtesy of GENERAL MOTORS COMPANY

4. With the trunnion seated in the bearing cup, press the bearing cup 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 working the cross all the time 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.

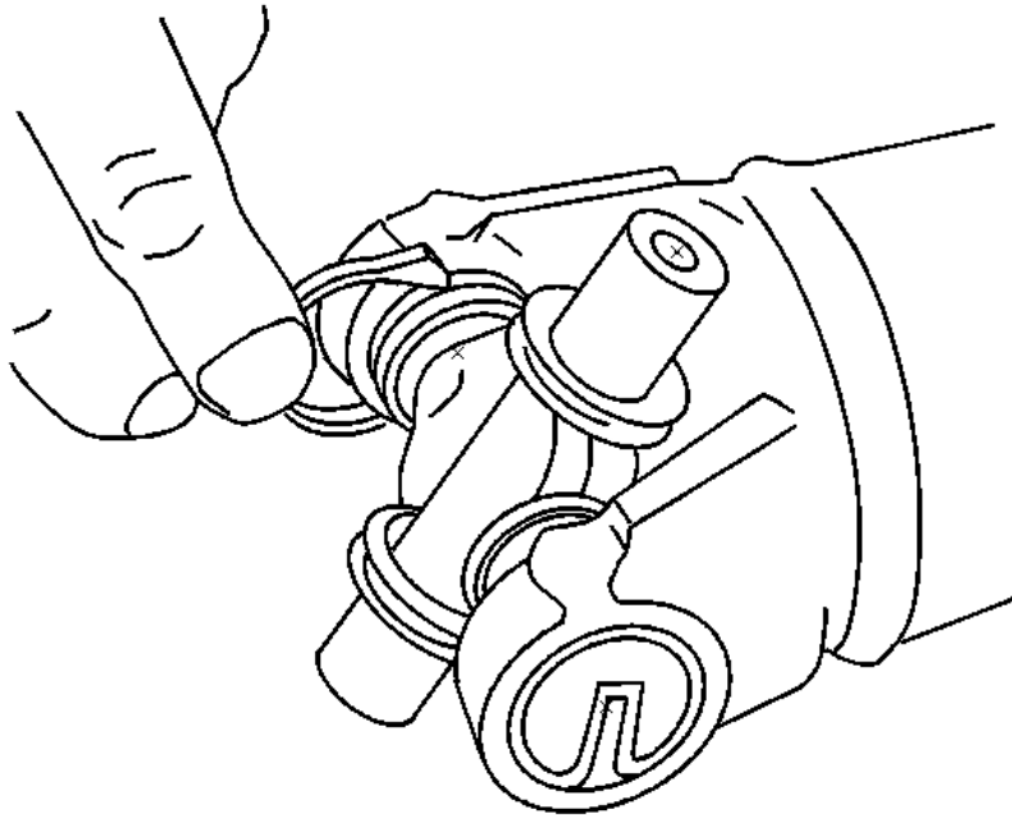


Fig. 90: Assembling Bearing Retainer In Retainer Groove

Courtesy of GENERAL MOTORS COMPANY

9. Assemble the bearing retainer in the retainer groove.
10. Continue pressing until both retainers can be snapped into place.

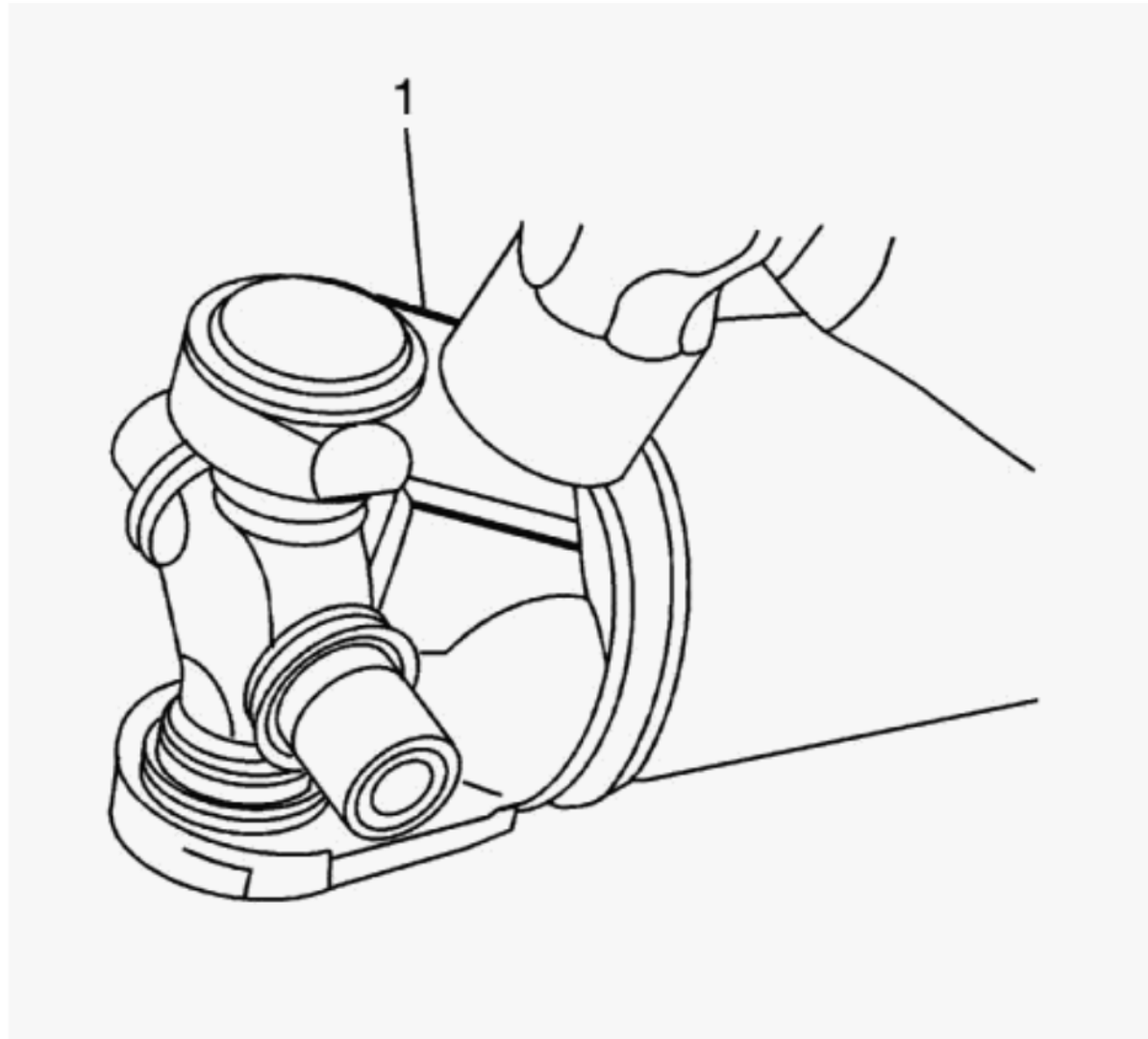


Fig. 91: Springing Yoke Using Hammer

Courtesy of GENERAL MOTORS COMPANY

11. If the retainer is difficult to seat, the yoke can be sprung 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.

DESCRIPTION AND OPERATION

PROPELLER SHAFT DESCRIPTION AND OPERATION

The propeller shaft is a tube with universal joints at both ends that do not require periodic maintenance. The universal joints transmit power from the transfer case, or from the 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 one-piece propeller shaft uses a splined slip joint in order to connect the driveline to the transmission, or to the transfer case.

Propeller Shaft Phasing Description

The propeller shaft is designed and built with the yoke lugs, or the ears, in-line with each other. This produces the smoothest running shaft possible. A propeller shaft that is 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 from slowing down each time that the universal joint spins around. The vibration is similar to 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. Cancelling the 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 joint consists of 4 caps with needle bearings and with grease seals. The caps and the seals are mounted on the trunnions of a cross or of a spider. The bearings and the caps are greased at the factory. No periodic maintenance is required. Two universal joints are used in a one-piece propeller shaft. Three universal joints are used in a two-piece propeller shaft. The bearings and the caps are pressed into the yokes. The bearings and the caps are held in place with snap rings, except for 2 bearings on some models. These bearings on some models are attached to the pinion flange of the differential. Universal joints handle the effects of various loads and of rear axle windup conditions during acceleration and braking. The universal joint operation is efficient and safe within the designed angle variations. When the design angle is 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 in a rubber cushion that attaches to a frame crossmember. The manufacturer lubricates the bearing 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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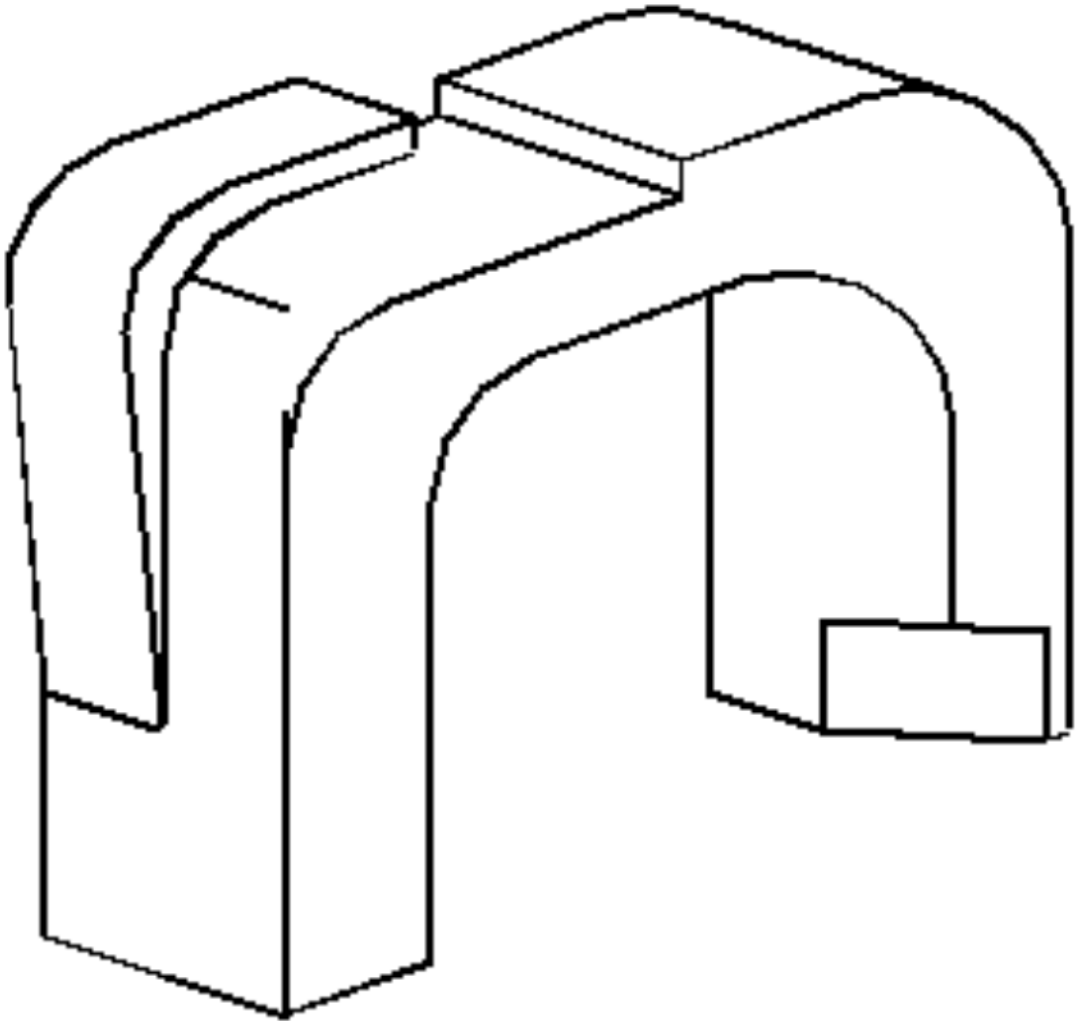
Illustration	Tool Number/Description
	J 9522-3 U Joint Bearing Separator

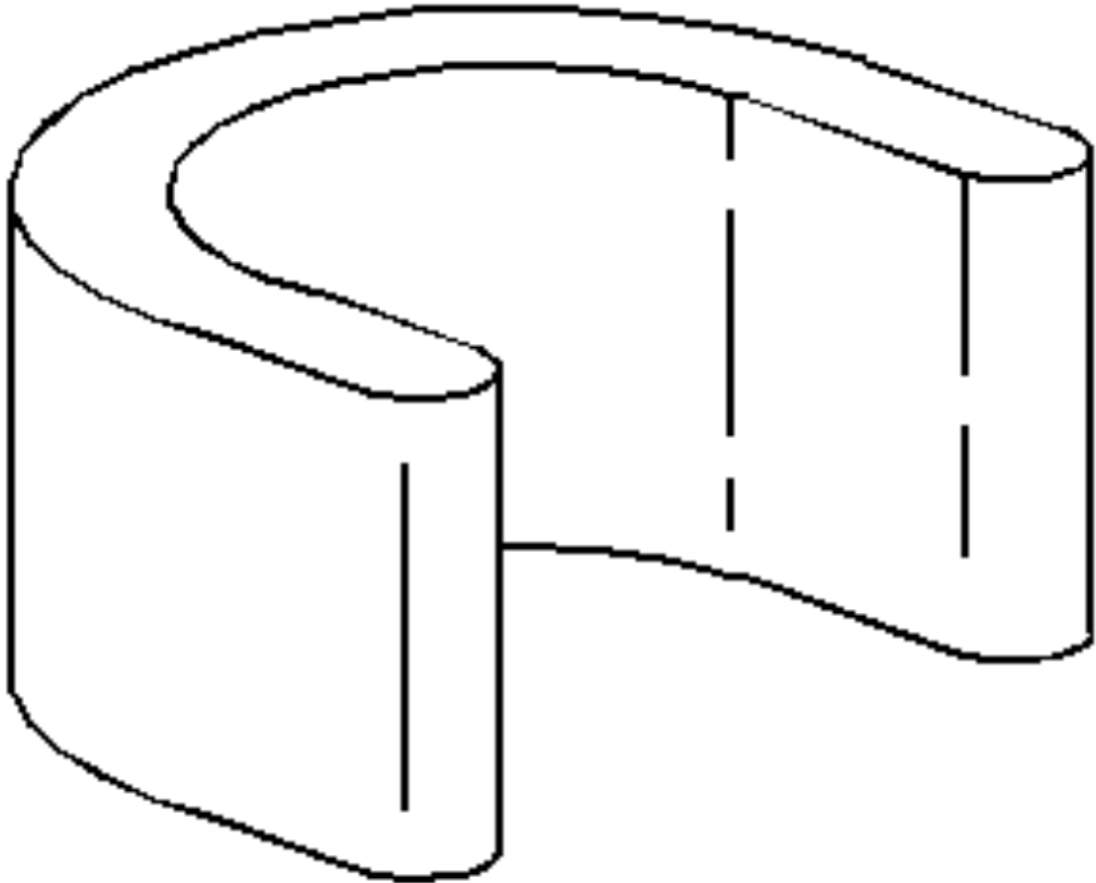
Illustration	Tool Number/Description
	J 9522-5 U Joint Bearing Spacer Remover - Use with J 9522-3

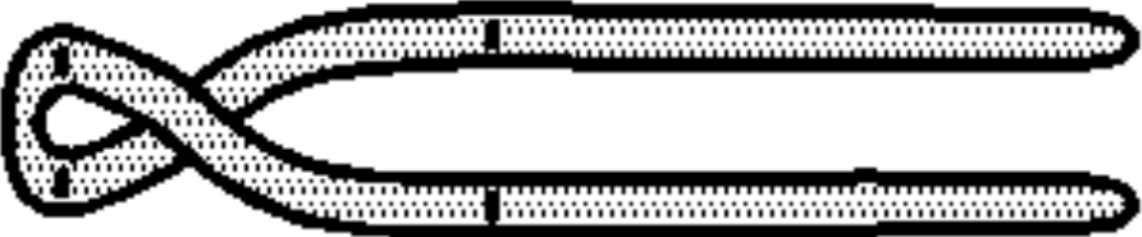
Illustration	Tool Number/Description
	J 43218 Clamp Pliers - Narrow Jaw

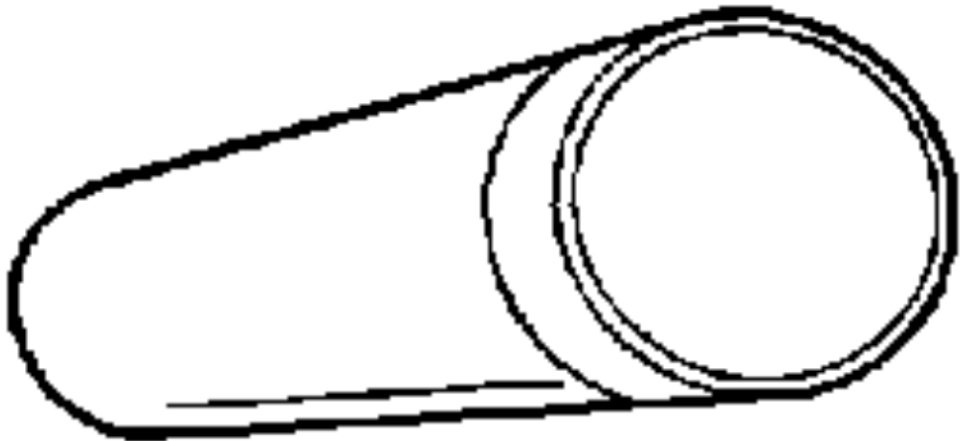
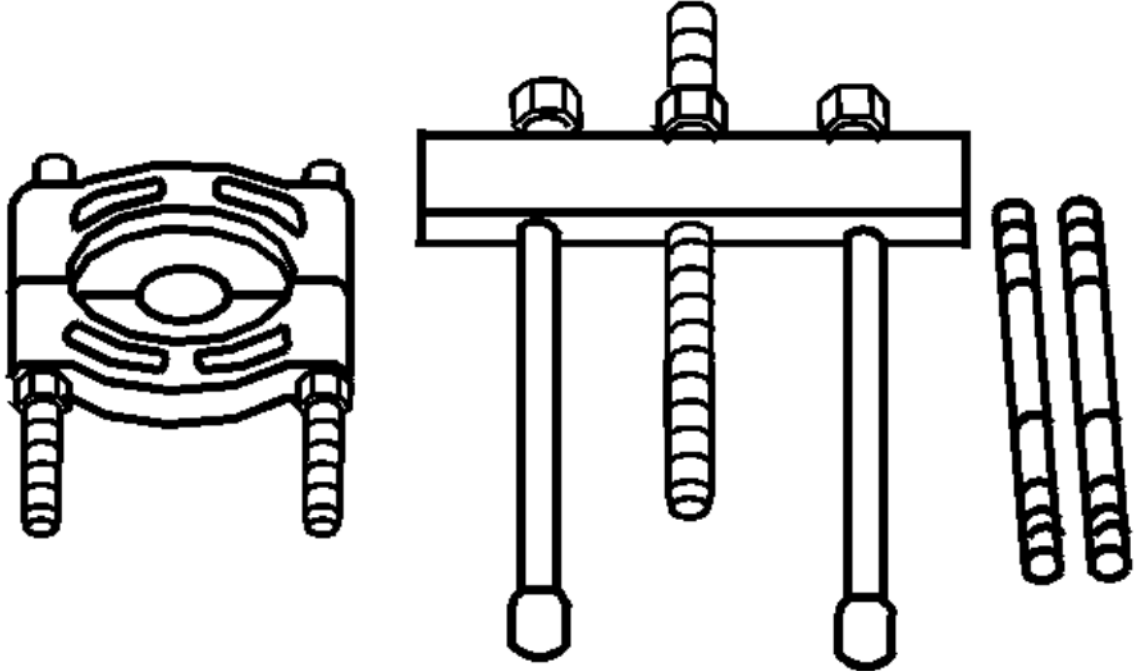
Illustration	Tool Number/Description
	J 6133 Bearing Installer

Illustration	Tool Number/Description
	J-39477 Puller Kit