

2010 DRIVELINE/AXLE

Propeller Shaft - Equinox & Terrain

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Center Bearing-to-Vehicle Underbody Bolts	25 N.m	19 lb ft
Propeller Shaft-to-Rear Differential Flange Bolts	50 N.m	37 lb ft
Propeller Shaft-to-Transfer Case Flange Bolts	35 N.m	25 lb ft

ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

Application	Type of Material	GM Part Number	Canadian Part Number
Center Bearing to Vehicle Bolts	Threadlocker	88861429	88861430
Front Propeller Shaft CVJ Bolts	Threadlocker	88861429	88861430
Propeller Shaft Rear Attaching Bolts	Threadlocker	88861429	88861430

DIAGNOSTIC INFORMATION AND PROCEDURES

SYMPTOMS - PROPELLER SHAFT

Strategy Based Diagnostics

Review the system operations in order to familiarize yourself with the system functions. Refer to **Propeller Shaft Description and Operation**, **Transfer Case Description and Operation** for the Getrag 760 transfer case, and **Rear Drive Axle Description and Operation** in this service manual. All diagnosis on a vehicle should follow a logical process. Strategy based diagnostics is a uniform approach for repairing all systems. The diagnostic flow may always be used in order to resolve a system problem. The diagnostic flow is the place to start when repairs are necessary. For a detailed explanation, refer to **Strategy Based Diagnosis** .

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the vehicle. Refer to **Checking Aftermarket Accessories** .

NOTE: **The constant velocity (CV) joint is not serviceable. If the boot is torn or the joint is worn or damaged, replace the propeller shaft as an assembly.**

- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom:

- Inspect the CV joint boot for rips or cracks.
- Rotate the CV joint to inspect for binding.
- Inspect the CV joint for grease or oil leakage.
- Verify the exact operating conditions under which the concern exists. Note factors such as speed, road conditions, ambient temperature, and other specifics.
- Compare the driving characteristics or sounds, if applicable, to a known good vehicle and make sure you are not trying to correct a normal condition.

Intermittent

Test the vehicle under the same conditions that the customer reported in order to verify the system is operating properly.

Symptom List

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

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

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 <u>Fastener Tightening Specifications</u> .
Loose rubber coupling	Tighten the bolts to specified torque. Refer to <u>Fastener Tightening Specifications</u> .
One or more of the universal joints are worn or damaged	Replace the propeller shaft assembly.
Heat shield interference	Eliminate interference.

KNOCK OR CLUNK NOISE

Cause	Correction
Knocking or clunking noise occurs when operating the vehicle in high gear or coasting in neutral at 16 km/h (10 mph).	
A worn or damaged universal joint	Replace the worn or damaged universal joint. Refer to <u>Propeller Shaft Replacement</u> .

The side hub counterbore in the differential is worn oversize.	Replace the differential case and/or side gears.
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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	Correct the interference as necessary.
Exhaust pipe contact	Correct the interference as necessary.

SQUEAK NOISE

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

SHUDDER ON ACCELERATION AT LOW SPEED

Cause	Correction
When accelerating the vehicle at low speed a shudder occurs.	
Bolts are loose or missing at the flanges.	Replace and/or tighten bolts to specified torque. Refer to <u>Fastener Tightening Specifications</u> .
A universal joint is worn.	Replace the propeller shaft. Refer to <u>Propeller Shaft Replacement</u> .

REPAIR INSTRUCTIONS

PROPELLER SHAFT REPLACEMENT

Removal Procedure

1. Place the transmission in neutral (N).
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
3. Mark the relationship of the propeller shaft to the rear differential drive flange and the transfer case.
4. Support the propeller shaft at the rear differential.

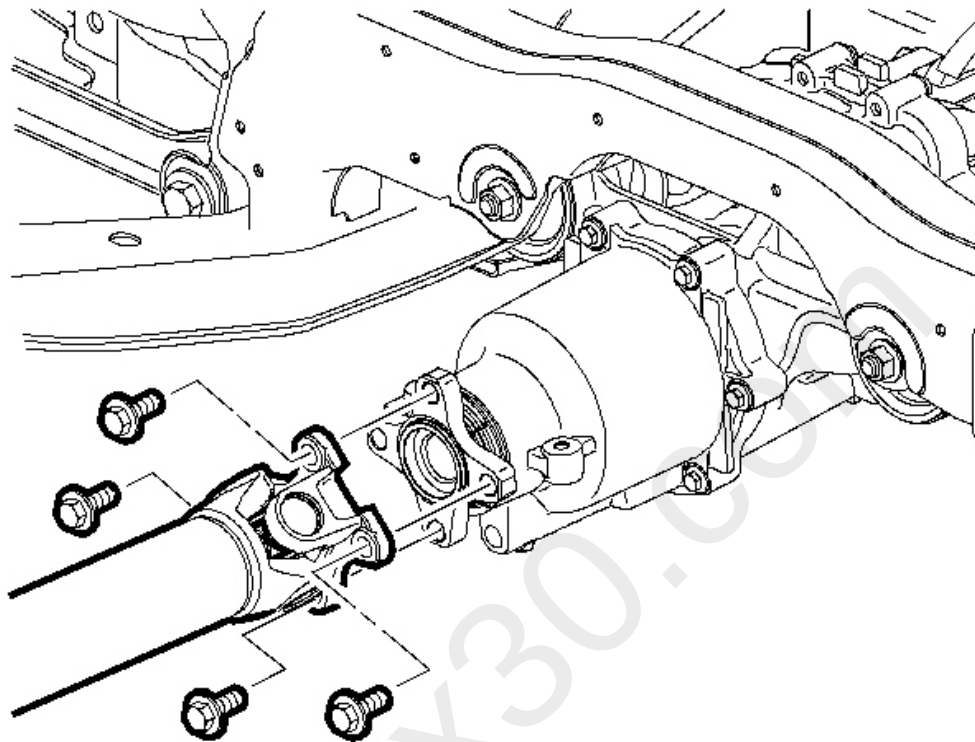


Fig. 1: Removing/Installing Propeller Shaft Flange Mounting Bolts
Courtesy of GENERAL MOTORS CORP.

5. Remove the mounting bolts for the propeller shaft at the rear differential drive flange.
6. Support propeller shaft at the transfer case.

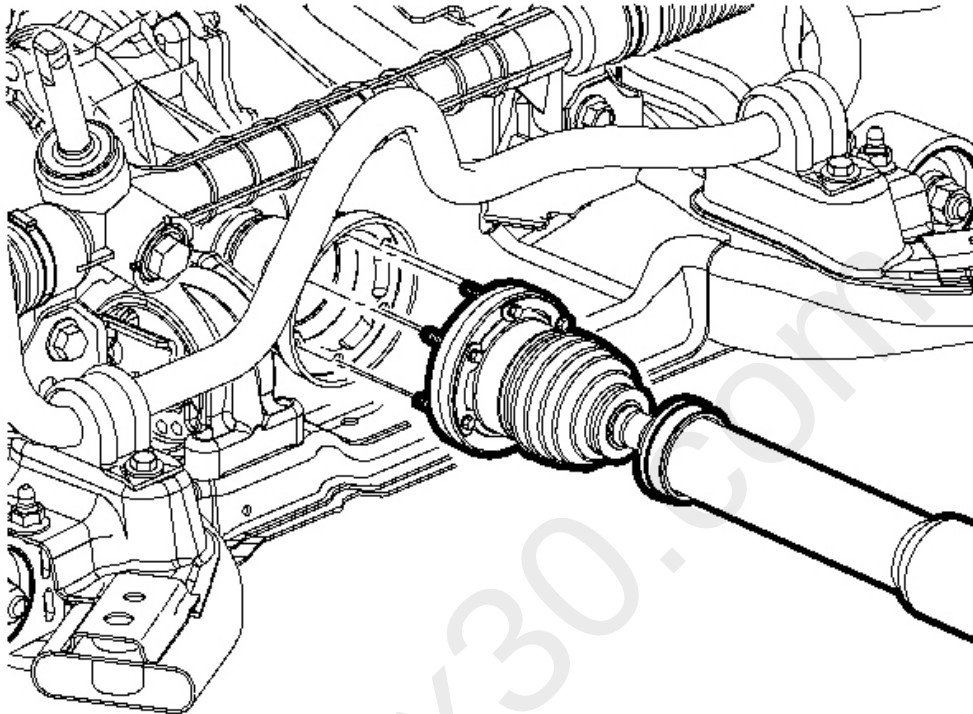


Fig. 2: View Of Propeller Shaft
Courtesy of GENERAL MOTORS CORP.

7. Remove the mounting bolts for the propeller shaft at the transfer case.
8. Support the propeller shaft at the center support bearing.

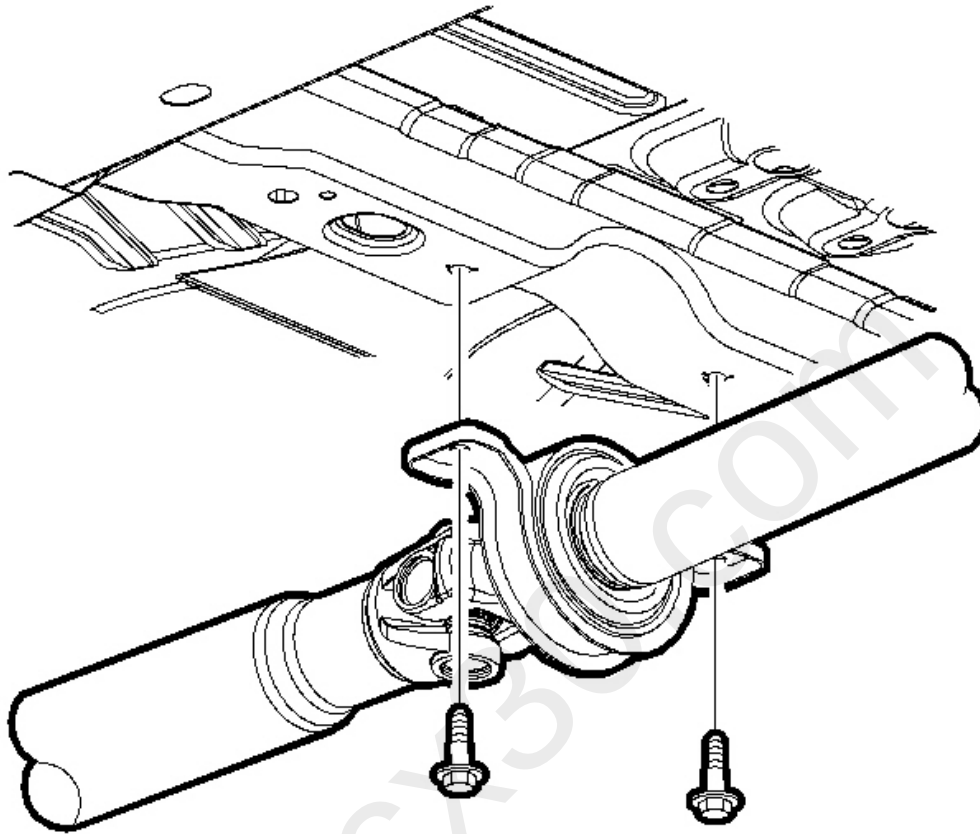


Fig. 3: View Of Propeller Shaft, Support Bearing & Bolts
Courtesy of GENERAL MOTORS CORP.

9. Remove the mounting bolts for the center support bearing.
10. With the aide of an assistant, remove the propeller shaft from the vehicle.

Installation Procedure

1. Thoroughly clean the mounting bolts for center bearing and the front and rear propeller shaft flanges. Apply threadlocker, GM P/N 89021297 (Canadian P/N 10953488), to the bolt threads.
2. With the aide of an assistant, position the propeller shaft on the supports.
3. Align the reference marks on the front and rear of the propeller shaft to the transfer case and rear differential.

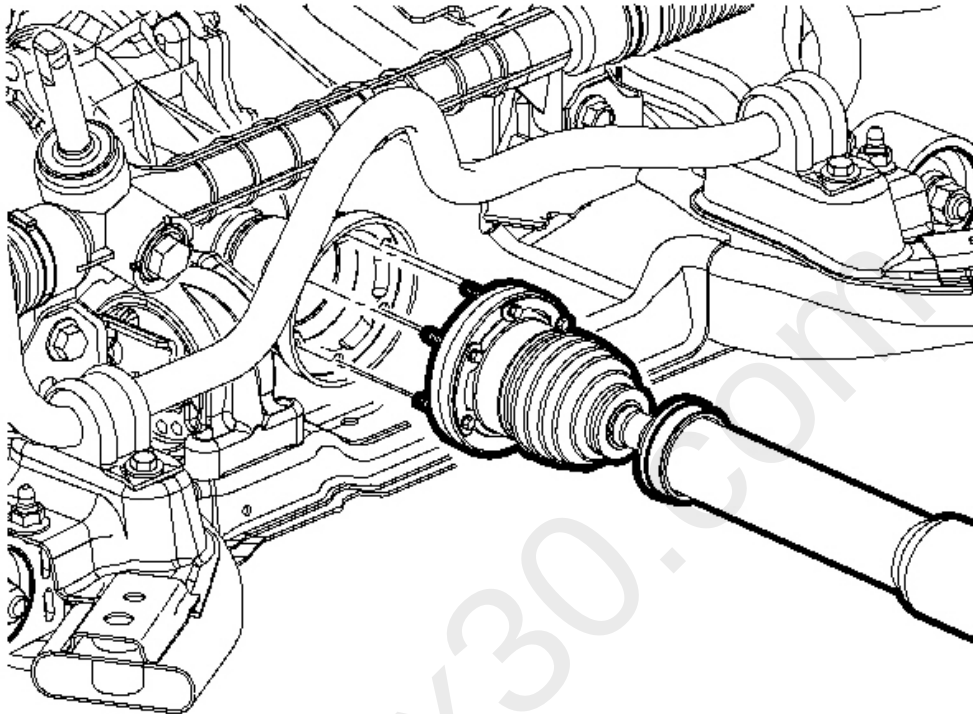


Fig. 4: View Of Propeller Shaft
Courtesy of GENERAL MOTORS CORP.

4. Position the propeller shaft on the transfer case output flange.
5. Finger tighten the mounting bolts for the propeller shaft at the transfer case output flange.

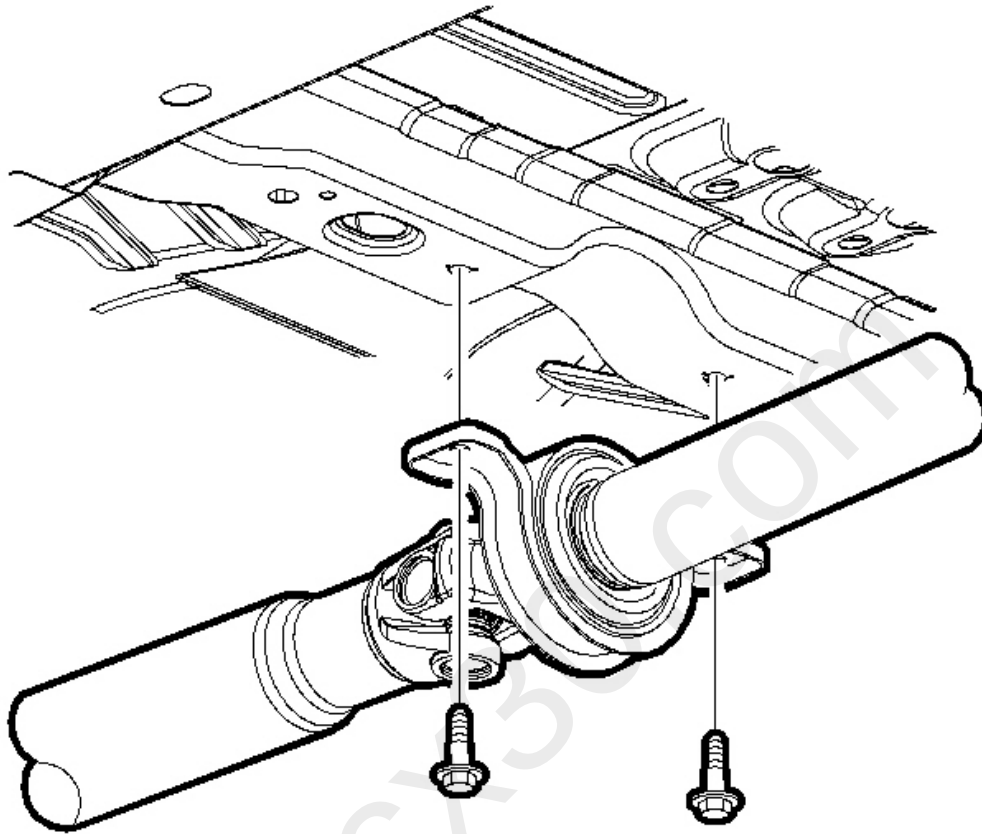


Fig. 5: View Of Propeller Shaft, Support Bearing & Bolts
Courtesy of GENERAL MOTORS CORP.

6. Position the center support bearing of the propeller shaft on the vehicle.
7. Finger tighten the mounting bolts for the center support bearing.

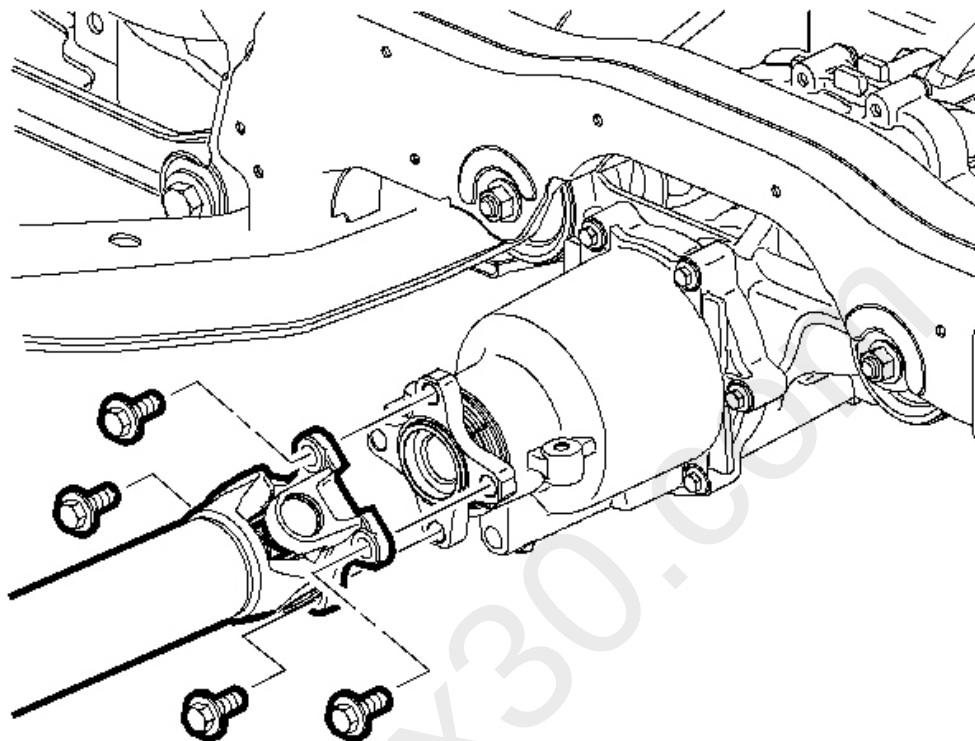


Fig. 6: Removing/Installing Propeller Shaft Flange Mounting Bolts
Courtesy of GENERAL MOTORS CORP.

8. Position the propeller shaft on the rear differential drive flange.
9. Finger tighten the rear mounting bolts for the propeller shaft.

CAUTION: Refer to **Fastener Caution** .

10. Tighten the front mounting bolts for the propeller shaft.

Tighten: Tighten the mounting bolts to 35 N.m (25 lb ft).

11. Tighten the mounting bolts for the center support bearing.

Tighten: Tighten the mounting bolts to 25 N.m (19 lb ft).

12. Tighten the rear mounting bolts for the propeller shaft yoke to rear drive axle.

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

13. Remove the supports for the propeller shaft.

14. Lower the vehicle.

DESCRIPTION AND OPERATION

PROPELLER SHAFT DESCRIPTION AND OPERATION

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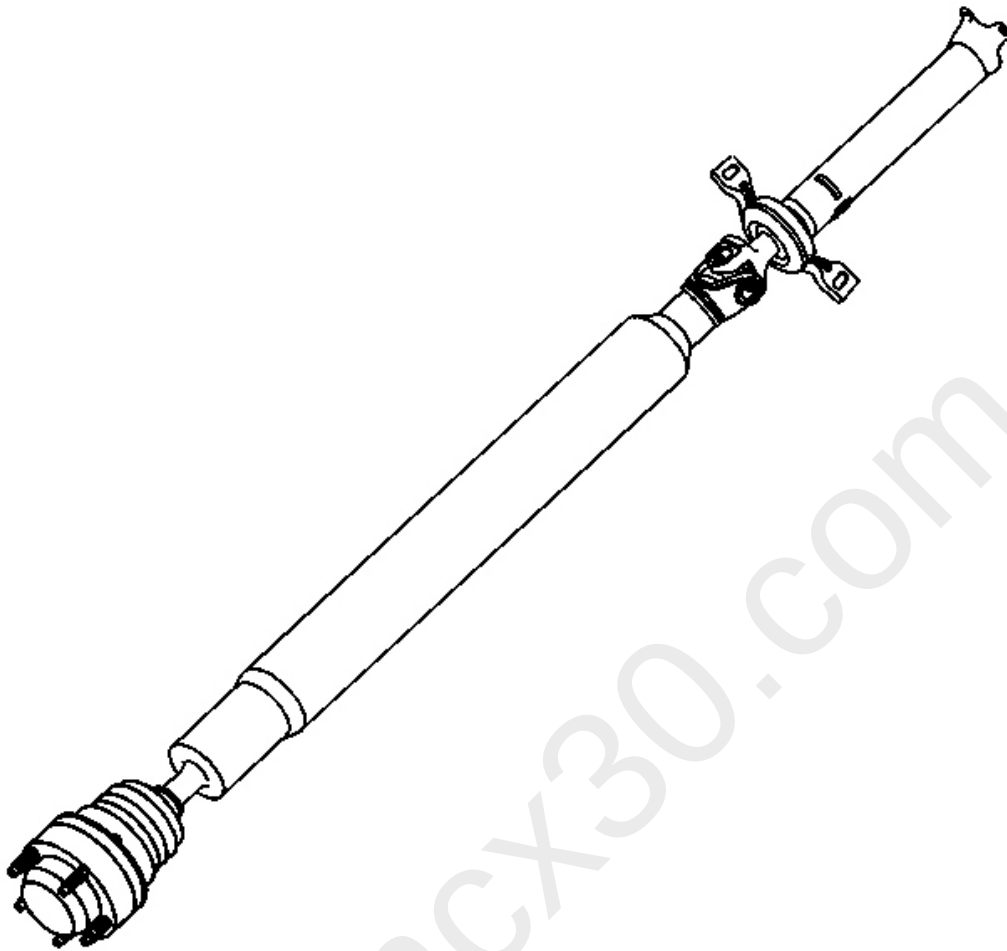


Fig. 7: View Of Propeller Shaft Assembly
Courtesy of GENERAL MOTORS CORP.

The propeller shaft assembly is a 2-piece design. The front shaft consists of a plunging A-type constant velocity joint at the front and a universal joint and yoke at the rear.

The rear shaft consists of a center bearing and a center yoke, which are pressed onto the rear half of the propshaft and retained by a snap ring. The front and rear shafts are joined together at the yokes with a universal joint. The rear shaft attaches to the axle with a flange which is attached to the rear shaft with a universal joint.

The center bearing provides support where the front and rear shafts mate and is bolted to the underbody. The front constant velocity joint is bolted to the power take-off unit (PTU), and the rear universal joint flange is bolted to the rear differential.