	GROUP	NUMBER
Technical Service Bulletin	DRIVESHAFT AND AXLE	24-DS-001G-1
	DATE	MODEL(S)
	OCTOBER 2024	GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)

SUBJECT: REAR DIFFERENTIAL HUM OR WHINE NOISE INSPECTION AND REPAIR

This TSB supersedes 24-DS-001G to clarify the applicable model years.

Description: Certain GV70 (JK1, JK1A), GV80 (JX1) and G80 (RG3) vehicles may have a hum or whine noise condition from the rear differential at certain speeds. This bulletin describes the procedure to inspect the vehicle for the hum or whine noise and if necessary to tighten the rear differential lock nut first. If the hum or whine noise remains, then replace the rear differential or other driveline components as necessary.

Applicable Vehicles:

- All GV70 (JK1) with VINs starting with "KMU"
- All GV70 (JK1A) with VINs starting with "5NM"
- All GV80 (JX1)
- All G80 (RG3)

Circulate To: General Manager, Service Manager, Parts Manager, Warranty Manager, Service Advisors, Technicians, Body Shop Manager, Fleet Repair

Table of Contents

Parts Information: 2
Warranty Information: 5
Service Procedure: 6
Repair Flow Chart 6
Rear Differential Noise Inspection 7
Rear Differential Lock Nut Tightening 8
Rear Differential Replacement 17

Parts Information:

Model	Part Number	Part Description	Part Detail	Quantity
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	28751-3J000	Front & Center Muffler Gasket	2.5T and 3.5T	2.5T: 1
				3.5T: 2
GV70 (JK1, JK1A) GV80 (JX1)	28751-2S000	Rear & Center Muffler Gasket		2
G80 (RG3)	28751-3S100			2
GV70 (JK1, JK1A) GV80 (JX1)	49319-T6100	Rear Propeller Shaft Bolts (to transfer case)		3
G80 (RG3	49319-3M000			
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	49329-3M000	Rear Propeller Shaft Nuts (to transfer case)		3
GV70 (JK1, JK1A) GV80 (JX1)	49319-T6000	Rear Propeller Shaft Bolts (to differential)		3
G80 (RG3)	49319-T1000			

Information

Order the following parts only if differential replacement is necessary.

Model	Part Number	Part Description	Part Details	Quantity
GV70 (JK1, JK1A)	53000-47520	Rear Differential Carrier	2.5T, AWD	1
	53000-4J510		3.5T, AWD	
	53000-4J520		3.5T, AWD, w/ & w/out E-LSD	
GV80 (JX1)	53000-4J600		2.5T, RWD & AWD	
	53000-4J610		3.5T, AWD	
	53000-4J630		3.5T, AWD, E-LSD	
G80 (RG3)	53000-47501		2.5T, RWD	1
	53000-47502		2.5T, RWD	
	53000-4J500		3.5T, RWD & AWD	
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	28751-3J000	Front & Center Muffler Gasket	2.5T and 3.5T	2.5T: 1 3.5T: 2
GV70 (JK1, JK1A) GV80 (JX1)	28751-2S000	Rear & Center Muffler Gasket		2
G80 (RG3)	28751-3S100			2
GV70 (JK1, JK1A) GV80 (JX1)	49319-T6100	Rear Propeller Shaft Bolts (to transfer case)		3
G80 (RG3)	49319-3M000			
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	49329-3M000	Rear Propeller Shaft Nuts (to transfer case)		3
GV70 (JK1, JK1A) GV80 (JX1)	49319-T6000	Rear Propeller Shaft Bolts (to differential)		3
G80 (RG3)	49319-T1000			

Model	Part Number	Part Description	Part Details	Quantity
GV70 (JK1, JK1A)	49557-3M000	Axle Clip	2.5T, w/out E-LSD	2
	49557-2G000		3.5T, w/out E-LSD	
	49557-T6000		3.5T w/ E-LSD	
GV80 (JX1)	49557-2G000		2.5T and 3.5T w/out E-LSD	
	49557-T6000		2.5T and 3.5T w/ E-LSD	
G80 (RG3)	49557-3M000		2.5T	
	49557-2G000		3.5T	
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	49551-4T000	Axle Castle Lock Nut	2.5T and 3.5T	2
GV70 (JK1, JK1A) GV80 (JX1)	00232-19075	Gear Oil, 75W-85, GL-5, LSD*, 1.0 qt		2
G80 (RG3)	00232-19097	Gear Oil, 75W-85, GL-5, Non LSD, 1.0 qt		

*__NOTE:__ LSD gear oil designates the specification, **NOT** if the vehicle is equipped with an E-LSD.

Warranty Information:

Model	Op. Code	Operation	Op. Time	Causal Part	Nature Code	Cause Code
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	53000F08	Rear Differential Carrier Noise Inspection	0.4 M/H	53000*	Q26	ZZ1
	53000F09	Rear Differential Carrier Noise Inspection, Lock Nut Tightening, and Noise Reinspection	1.9 M/H			
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	53000F10	Rear Differential Carrier Noise Inspection, Lock Nut Tightening (when overtightened), Replacement (without E-LSD), and Alignment	4.7 M/H			
GV70 (JK1, JK1A) GV80 (JX1)	53000F11	Rear Differential Carrier Noise Inspection, Lock Nut Tightening (when overtightened), Replacement (with E-LSD) and Alignment	4.8 M/H			
GV70 (JK1, JK1A) GV80 (JX1) G80 (RG3)	53000F12	Rear Differential Carrier Noise Inspection, Lock Nut Tightening, Noise Reinspection, Replacement (without E-LSD), and Alignment	6.1 M/H			
GV70 (JK1, JK1A) GV80 (JX1)	53000F13	Rear Differential Carrier Noise Inspection, Lock Nut Tightening, Noise Reinspection, Replacement (with E-LSD), and Alignment	6.2 M/H			

NOTE 1: Normal warranty applies.
NOTE 2: Submit claim on Claim Entry Screen as “Warranty” type.
NOTE 3: This TSB includes Repair validation photos. Op times include VIN, Mileage, and Repair validation photos as outlined in the Digital Documentation Policy
NOTE 4: The incident parts are subject to callback through the normal Warranty Technical Center (WTC) parts return process. **Claim is subject to debit if the part is not returned.**
***NOTE 5:** Refer to applicable parts catalog for full causal part numbers.

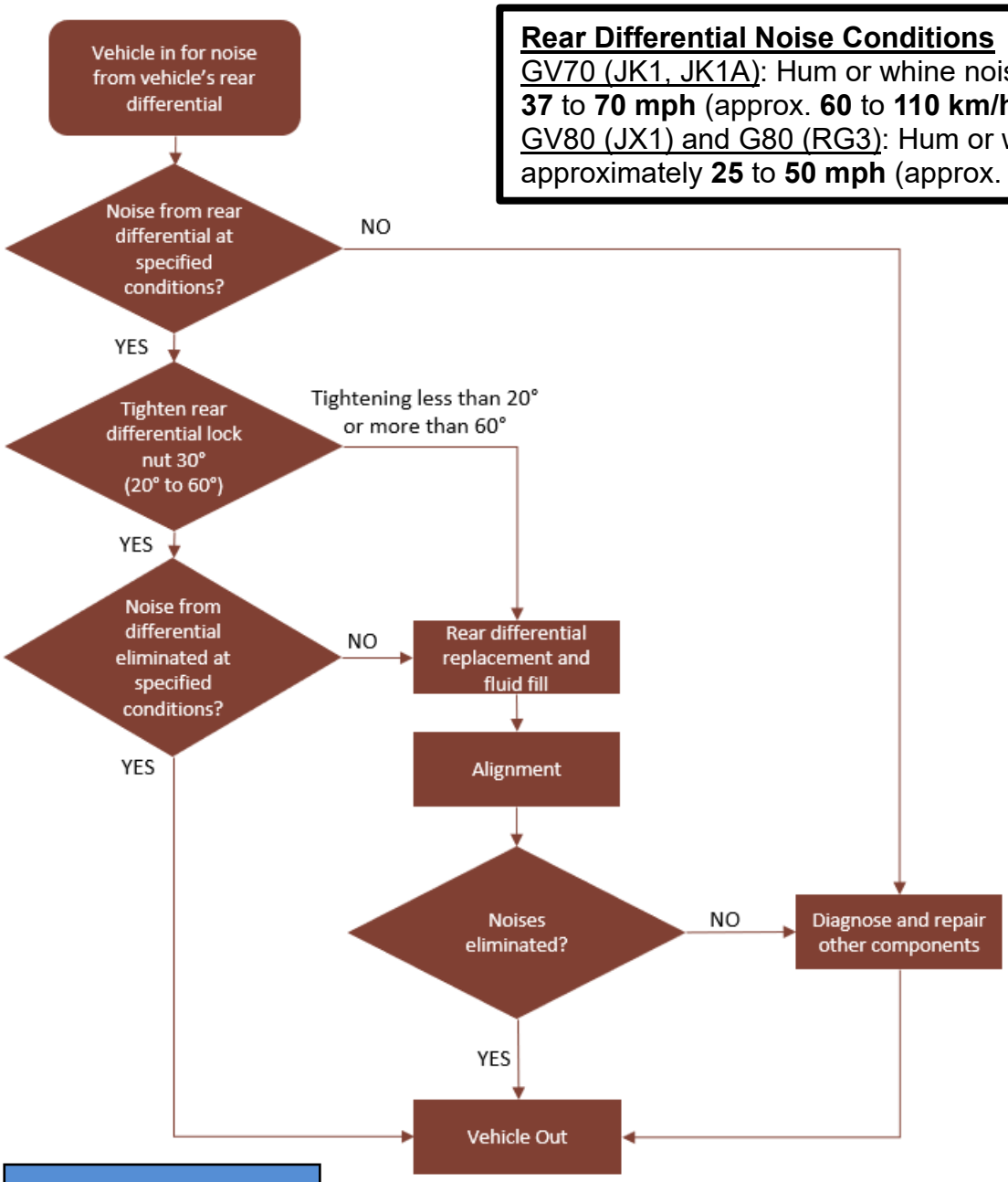
Service Procedure:

STUI

This TSB includes Repair validation photos. Refer to the latest Warranty Digital Documentation Policy for requirements.

Repair Flow Chart

Rear Differential Noise Conditions
GV70 (JK1, JK1A): Hum or whine noise at approximately **37** to **70 mph** (approx. **60** to **110 km/h**)
GV80 (JX1) and G80 (RG3): Hum or whine noise at approximately **25** to **50 mph** (approx. **40** to **80 km/h**)



NOTICE

- Replacing the rear differential before attempting the lock nut tightening procedure may result in a warranty charge back.
- Diagnose and repair other components if the noise does not fall within the specified differential noise conditions.
- Do **NOT** tighten the lock nut on a new differential.

Rear Differential Noise Inspection

1. Drive the vehicle on the road to inspect the vehicle for a rear differential noise.

- **GV70 (JK1, JK1A):** Hum or whine noise in the speed range of **37** to **70 mph** (approx. **60** to **110 km/h**)
  - To confirm the noise is from the rear differential, drive at approximately **52 mph** and gently depress the accelerator pedal then release the pedal to coast.
    Repeat this a few times. The humming/whining noise will be most apparent when depressing and releasing the pedal.

- **GV 80 (JX1)** and **G80 (RG3)**: Hum or whine noise in the speed range of **25** to **50 mph** (approx. **80** to **40 km/h**)
  - To confirm the noise is from the rear differential, drive at approximately **35 mph** and gently depress the accelerator pedal then release the pedal to coast.
    Repeat this a few times. The humming/whining noise will be most apparent when depressing and releasing the pedal.

Information

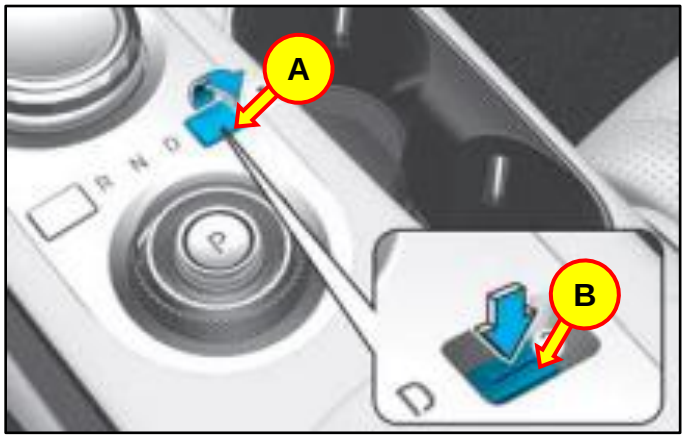
- The noise does **NOT** have to occur during the entire speed range.
- Do **NOT** test the vehicle for noise on the lift. The vehicle must be driven on the road to accurately assess for differential noise.
- For an optimal evaluation, ensure a person sits in the rear seat during the test drive to identify the noise source.
- If the noise is **NOT** from the rear of the vehicle, then the rear differential may not be the source. Determine where noise is coming from and proceed with diagnosis and repair for that noise.

- If noise is heard as described above, continue to the **Rear Differential Lock Nut Tightening** procedure below.
- If the noise as described above is **NOT** heard, then the service procedure is now complete.
- If noises are heard from other areas of the vehicle, then continue to diagnose, and repair the vehicle as necessary.

Rear Differential Lock Nut Tightening

1. Using a lift, slightly raise the vehicle until the tires are no longer touching the ground.

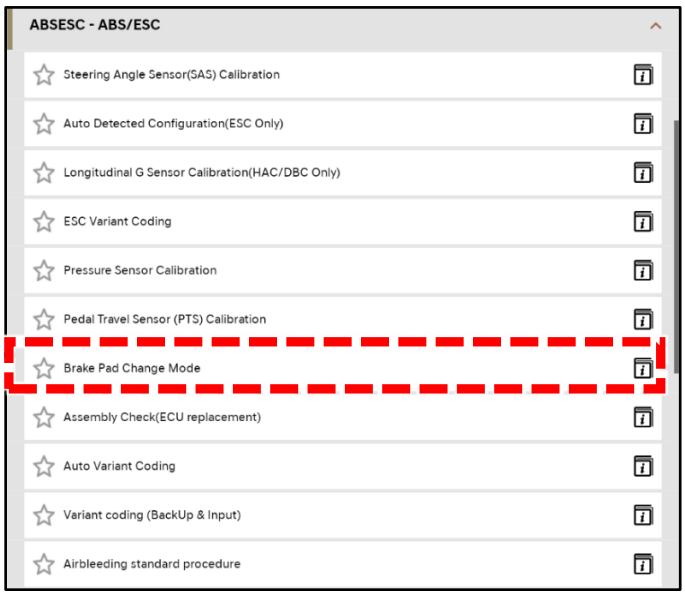
   Within **3 minutes** of turning **OFF** the vehicle's engine, place the transmission into neutral by pressing the button (B) under the cap cover (A) on the center console:
   A. Remove the cap-cover.
   B. Press the button while depressing the brake pedal until the transmission shifts into neutral. The button must be pressed within **3 minutes** after the engine is turned off.



Information

If neutral is selected while the engine is running, the transmission will **NOT** remain in neutral when the vehicle is turned **OFF**.

2. If the vehicle is equipped with an E-LSD, use the GDS **Brake Pad Change Mode** to release the parking brake.



   To access the **Brake Pad Change Mode**, refer the shop manual:

   - **GV70 (JK1, JK1A):**
     Brake System > Brake System > Parking Brake System > Electronic Parking Brake (EPB) > Adjustment

   - **GV80 (JX1)** and **G80 (RG3):**
     Brake System > Brake System > Rear Disc Brake > Repair procedures

   - After releasing the parking brake, disconnect the 12 V battery negative (–) terminal and the EPB actuator connector after completing the function.

   If the vehicle is **NOT** equipped with an E-LSD, skip to **step 3**.

> **Information**
>
> For E-LSD equipped vehicles, shifting into the transmission into neutral and releasing the EPB is necessary to turn the propeller shaft to access the bolts.

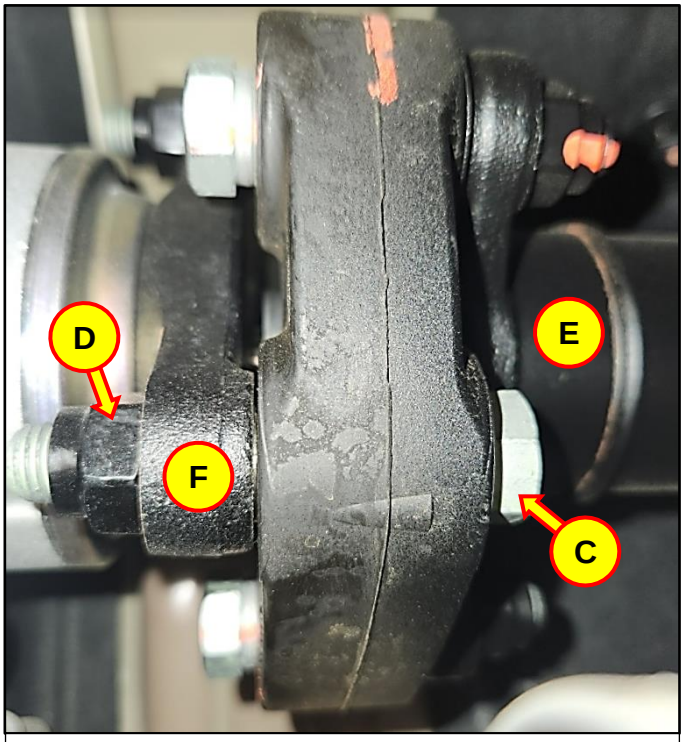
3. Refer to the applicable shop manual to remove the rear propeller shaft to access the rear differential lock nut.
   - **Driveshaft and Axle > Propeller Shaft Assembly > Propeller Shaft**

4. Note the direction of bolts (C), washers (RG3 only), and nuts (D) before removing the propeller shaft (E) from the transfer case/transmission and rear differential flange (F).

Propeller Shaft to Flange* Tightening Torque

lb-ft	73
N.m	99

*Transfer case/transmission and rear differential flanges



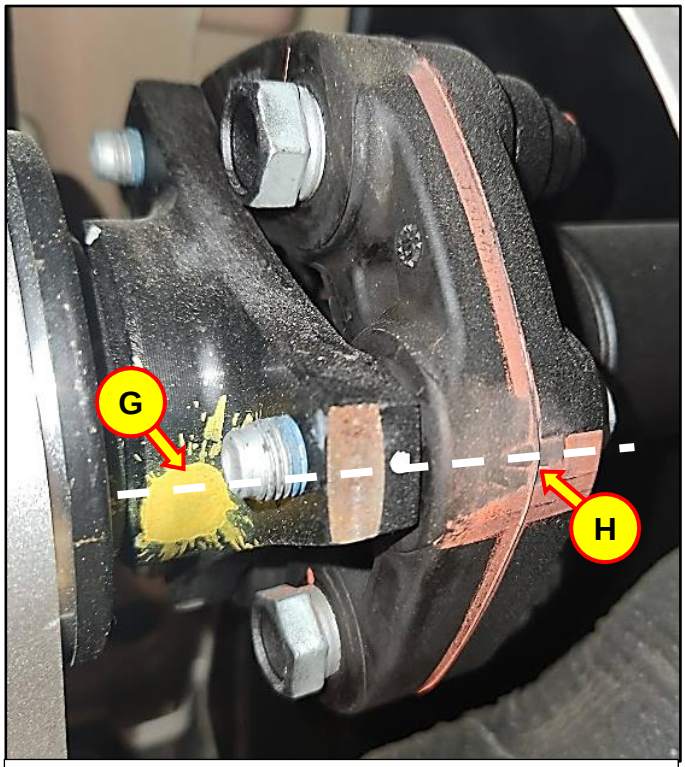
Transfer Case Flange/Propeller Shaft

Note the alignment of the yellow dot (G) on the transfer case/transmission and rear differential flange and the red stripe (H) on the propeller shaft rubber coupling.

If the dot or the stripe are **NOT** visible, create similar markings before disassembly to ensure the position of the propeller shaft to the flanges during reassembly.

NOTICE

- Installing the bolts, washers (RG3 only), and nuts differently from the initial state or changing the position of the propeller shaft relative to the flange can result in unbalanced propeller shaft causing a vibration at high speed.
- Properly support the entire length of the propeller shaft after it is removed. I.e., place it on level ground.
- Do **NOT** reuse the bolts and nuts during reinstallation of the propeller shaft to the flanges.



During reassembly, align the dot (G) on the flange with the stripe (H) on the propeller shaft rubber coupler.

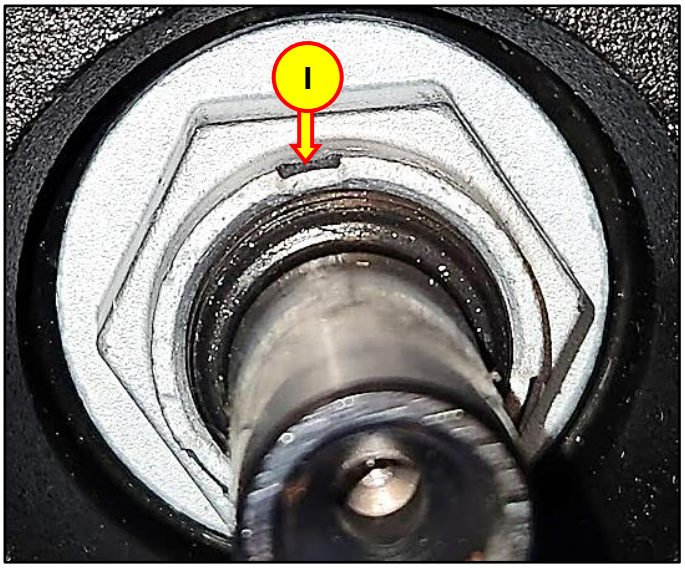
5. After removal of the propeller shaft, using STUI, take a photo of the rear differential lock nut.

STUI

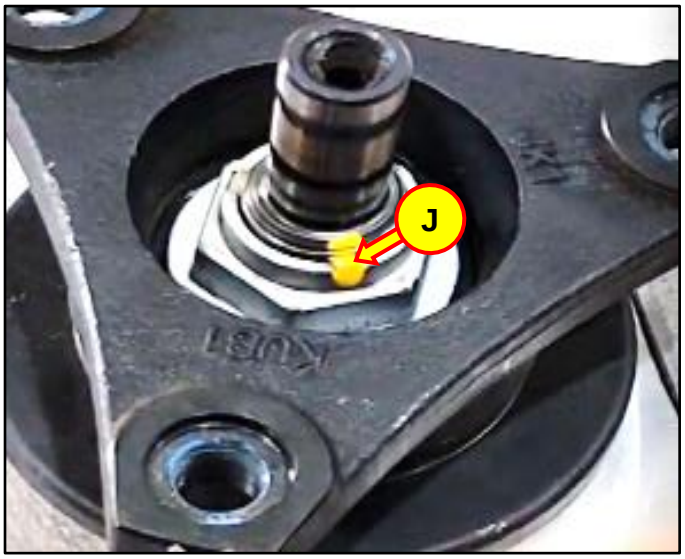
Using STUI, take a photo <u>before</u> tightening the lock nut, the last 6 digits of the VIN, and the date of repair on a piece of paper.

Upload the photos to STUI.

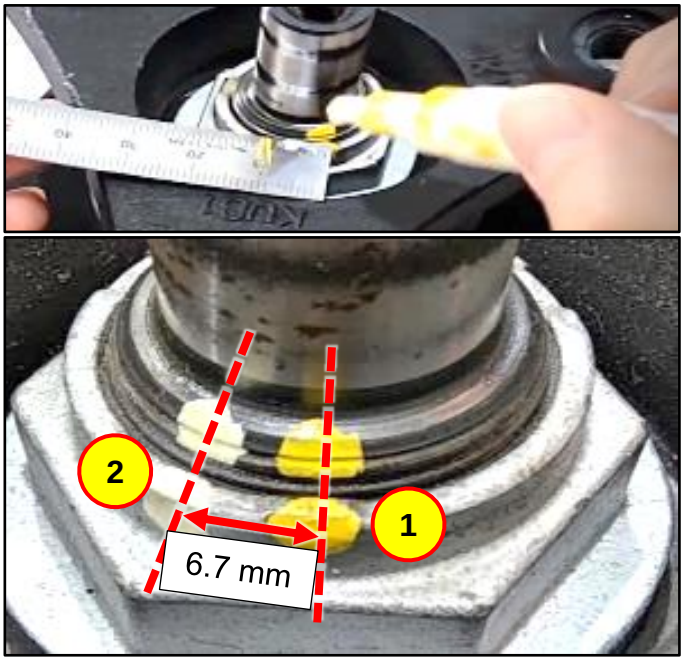
6. Locate the stake (I) on the lock nut in the differential flange.



7. Mark a line (J) on the located stake up to the threads on the shaft.



8. Mark a second line that is **6.7 mm** to the left of the first.



9. Tighten the lock nut using a **1/2-inch impact wrench** with a **30 mm** deep socket.

Information

The **1/2-inch impact wrench** must provide enough torque to turn the lock nut.

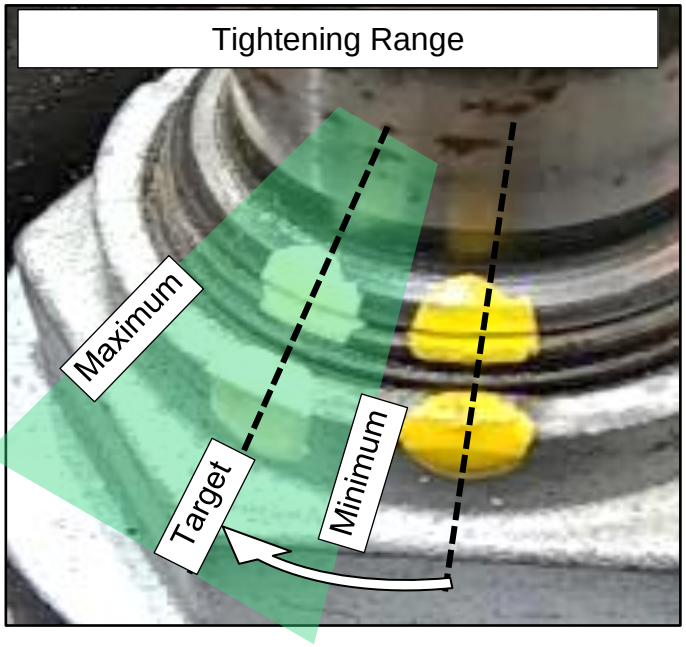
Tighten the lock nut incrementally. Check the movement of the mark every **1-2 seconds**. Stop when the nut reaches the **6.7 mm** mark or **30°** of rotation.

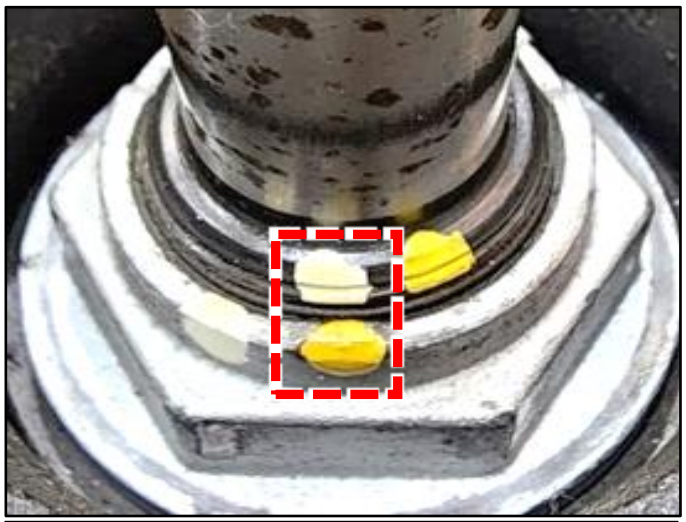
Tightening Range:
Minimum: **4.5 mm**, **20°**
Target: **6.7 mm**, **30°**
Maximum: **13.3 mm**, **60°**

NOTICE

- Ensure the impact wrench is in the tightening, clockwise direction.
- **Do NOT tighten the nut beyond 60° of rotation**. If the nut is over tightened, replace the differential.
- **Do NOT loosen the nut and attempt to retighten the nut**. If the nut is loosened, the differential must be replaced.
- If the nut does **NOT** reach at least **20°** of rotation, replace the differential.

If differential replacement is necessary, refer to the procedures in **Rear Differential Replacement** below.





Alignment of the 2 marks indicates the nut tightened to the target **30°**.

10.

STUI

Using STUI, take a photo <u>after</u> tightening the lock nut with the marks clearly visible, the last 6 digits of the VIN, and the date of repair on a piece of paper.

Upload the photos to STUI.

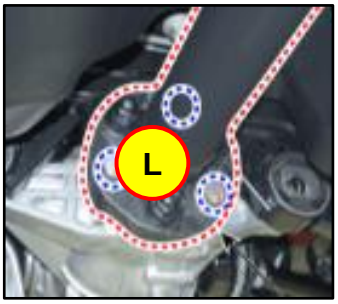
Information

A photo is required regardless of the nut tightening angle.

11. Install parts in the reverse order of removal.

Refer to the applicable shop manual for tightening torque specificaitons.

Propeller shaft to transmission/ transfer case



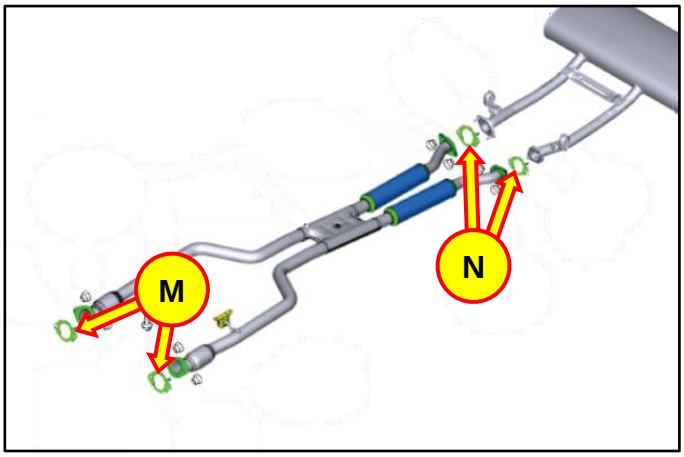
Propeller shaft to rear differential

NOTICE

The following new parts must be used during reassembly. Use the above **Parts Information** table, shop manual, and parts catalog to ensure the correct parts are used:

- Propeller Shaft Bolts (K) (to transmission/ transfer case)
- Propeller Shaft Nuts (K) (to transmission/ transfer case)
- Propeller Shaft Bolts (L) (to differential)
- Front Exhaust Gasket (M) (to catalyst)
- Rear Exhaust Gasket (N) (to exhaust muffler)

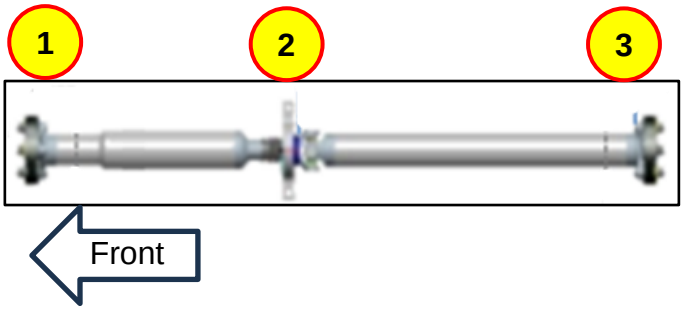
Reusing parts will **NOT** provide the correct clamping force and can cause the exhaust to leak.



Ensure proper propeller shaft alignment and fastener locations as noted in **step 4** above.

Install the propeller shaft in the following order:

A. Flange to transmission/transfer case
B. Center bearing bracket
C. Flange to rear differential



12. After reassembly, drive the vehicle on the road to inspect the vehicle for rear differential noise.

- **GV70 (JK1,JK1A):** Hum or whine noise in the speed range of **37** to **70 mph** (approx. **60** to **110 km/h**)
    - To confirm the noise is from the rear differential, drive at approximately **52 mph** and gently depress the accelerator pedal then release the pedal to coast. Repeat this a few times. The humming/whining noise will be most apparent when depressing and releasing the pedal.

- **GV80 (JX1)** and **G80 (RG3):** Hum or whine noise in the speed range of **25** to **50 mph** (approx. **80** to **40 km/h**)
    - To confirm the noise is from the rear differential, drive at approximately **35 mph** and gently depress the accelerator pedal then release the pedal to coast. Repeat this a few times. The humming/whining noise will be most apparent when depressing and releasing the pedal.

Information

- The noise does **NOT** have to occur during the entire speed range.
- Do **NOT** test the vehicle for noise on the lift. The vehicle must be driven to accurately assess for differentiall noise.
- For an optimal evaluation, ensure a person sits in the rear seat during the test drive to identify the noise source.
- If the noise is **NOT** from the rear of the vehicle, then the rear differential may **NOT** be the source. Determine where noise is coming from and proceed with diagnosis and repair for that noise.

- If the noise as described above is heard, replace the differential. Refer to the procedures in **Rear Differential Replacement** below.
- If the noise as described above is **NOT** heard, the service procedure is now complete.
- If other noises are heard from other areas of the vehicle, continue to diagnose, and repair the vehicle as necessary.

Rear Differential Replacement

1. Follow **steps 1** to **4** in the **Rear Differential Lock Nut Tightening** procedures to remove the propeller shaft again.
2. to remove and install the new rear differential, Refer to the applicable shop manual:
   - **Driveshaft and Axle > Differential Carrier Assembly > Rear Differential Carrier**

   If the vehicle is equipped with an E-LSD, remove it before removing the differential. Refer to the shop manual:
   - **Electronic Limited Slip Differential System > Electronic Limited Slip Differential (E-LSD)**

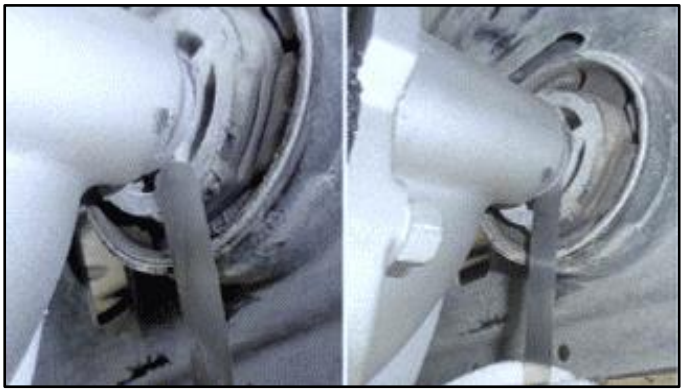
3. ***STUI***

   Using STUI, take a photo of the new rear differential next to the removed differential with the differential labels (H) visible, the last 6 digits of the VIN, and the date of repair on a piece of paper.

   Upload the photos to STUI.

4. After reinstalling the rear differential carrier, use a feeler gauge to ensure there is a gap of less than **0.04 mm** between the rear differential carrier cover and the bushing protrusion.

   If the gap is larger than **0.04 mm**, the differential carrier and the bushing may **NOT** be aligned properly. Loosen the bolts to align the differential, then torque the bolts to specification.



NOTICE

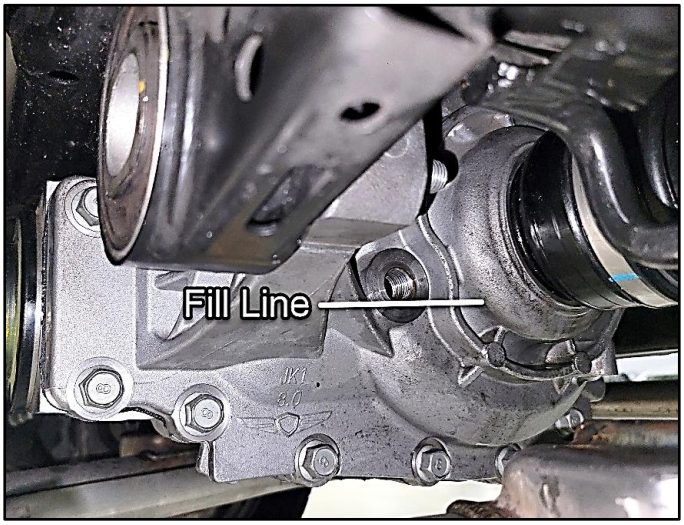
- **New differentials from the Parts Distribution Center (PDC) are not filled with gear oil.**
- Fill with the gear oil until it reaches the fill port.
- Failure to fill the differential with gear oil will damage the differential and may result in a warranty charge back.

5. Fill the differential with gear oil.

Model	Capacity	Type
GV70 (JK1, JK1A)	1.2 +/- 0.05 L (1.27 +/- 0.05 qt)	75W-85 LSD* P/N: 00232-19075
GV80 (JX1)	1.3 +/- 0.05 L (1.37 +/- 0.05 qt)	
G80 (RG3)	1.2 +/- 0.05 L (1.27 +/- 0.05 qt)	75W-85 Non LSD P/N: 00232-19097

*LSD gear oil designates the specification, **NOT** if the vehicle is equipped with an E-LSD.

Ensure the gear oil reaches the fill port.



6. Install the remaining parts in the reverse order of removal.

Refer to the applicable shop manual for tightening torque specificaitons.

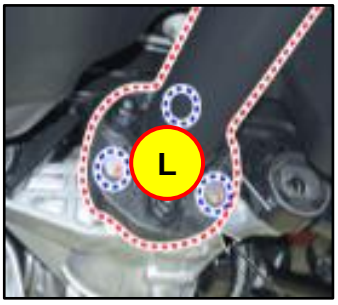
NOTICE

The following new parts must be used during reassembly. Use the above **Parts Information** table, shop manual, and parts catalog to ensure the correct parts are used.

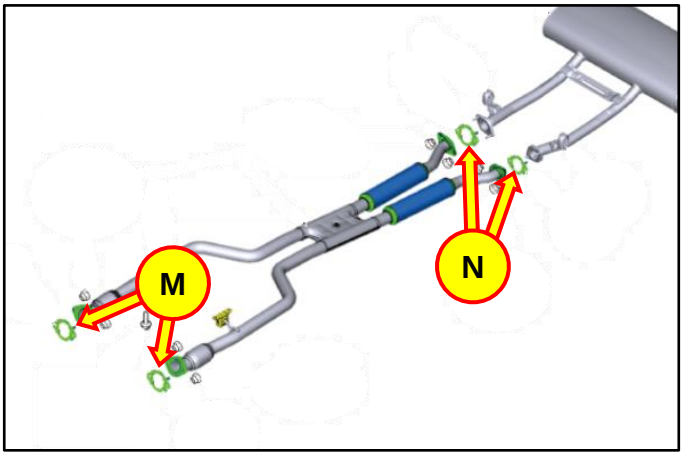
- Propeller Shaft Bolts (K) (to transmission/ transfer case)
- Propeller Shaft Nuts (K) (to transmission/ transfer case)
- Propeller Shaft Bolts (L) (to differential)
- Front Exhaust Gasket (M) (to catalyst)
- Rear Exhaust Gasket (N) (to exhaust muffler)
- Axle Clips (O)
- Castle Lock Nuts (P)

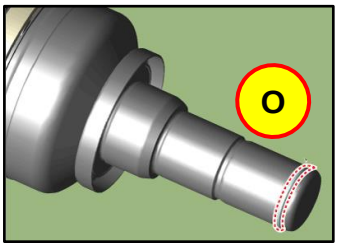
Reusing parts will **NOT** provide the correct clamping force and can cause the exhaust to leak.

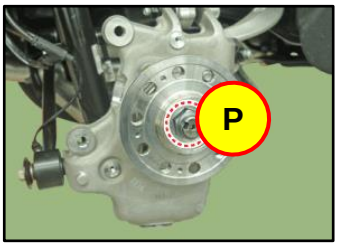
Propeller shaft to transmission/ transfer case



Propeller shaft to rear differential



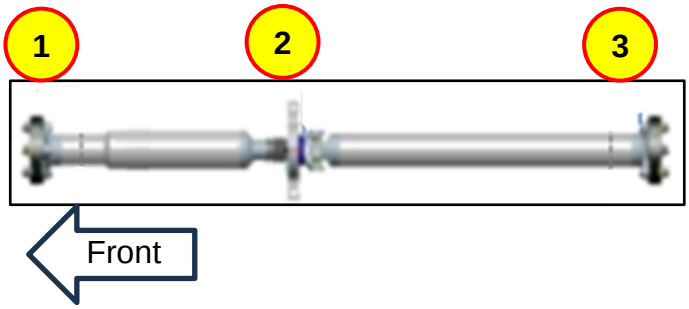




Ensure proper propeller shaft alignment and fastener locations as noted in step 4 in the **Rear Differential Lock Nut Tightening** procedures.

Install the propeller shaft in the following order.

A. Flange to transmission/transfer case
B. Center bearing bracket
C. Flange to rear differential



7. Perform a suspension alignment on an alignment rack.

8. After reassembly, drive the vehicle on the road to inspect the vehicle for rear differential noise.

- **GV70 (JK1, JK1A):** Hum or whine noise in the speed range of 37 to 70 mph (approx. **60** to **110 km/h**)
    - To confirm the noise is from the rear differential, drive at approximately **52 mph** and gently depress the accelerator pedal then release the pedal to coast. Repeat this a few times. The humming/whining noise will be most apparent when depressing and releasing the pedal.

- **GV80 (JX1)** and **G80 (RG3):** Hum or whine noise in the speed range of **25** to **50 mph** (approx. **80** to **40 km/h**)
    - To confirm the noise is from the rear differential, drive at approximately **35 mph** and gently depress the accelerator pedal then release the pedal to coast. Repeat this a few times. The humming/whining noise will be most apparent when depressing and releasing the pedal.

Information

- The noise does **NOT** have to occur during the entire speed range.
- Do **NOT** test the vehicle for noise on the lift. The vehicle must be driven to accurately assess for differentiall noise.
- For an optimal evaluation, ensure a person sits in the rear seat during the test drive to identify the noise source.
- If the noise is **NOT** from the rear of the vehicle, then the rear differential may **NOT** be the source. Determine where noise is coming from and proceed with diagnosis and repair for that noise.

- If the noise as described above is **NOT** heard, the service procedure is now complete.
- If other noises are heard from other areas of the vehicle, continue to diagnose, and repair the vehicle as necessary.

NOTICE

Do **NOT** tighten the lock nut on a new differential.