



## Technical Service Bulletin

GROUP	NUMBER
DRIVESHAFT AND AXLE	23-DS-004G
DATE	MODEL(S)
AUGUST 2023	GV70 (JK1) GV80 (JX1) G80 (RG3)

<b>SUBJECT:</b>	REAR DIFFERENTIAL NOISE INSPECTION AND REPAIR
-----------------	---

**Description:** Certain GV70 (JK1 and JK1A), GV80 (JX1) and G80 (RG3) vehicles may have a noise condition from the rear differential at certain speeds while accelerating or decelerating. This bulletin describes the procedure to inspect the vehicle for noise and if necessary to tighten the lock nut or if necessary replace the differential.



### Applicable Vehicles:

- GV70 (JK1, VIN starts with "KMU") 2022MY ~
- GV70 (JK1A, VIN starts with "5NM") 2024MY ~
- GV80 (JX1) 2021MY ~
- G80 (RG3) 2021MY ~

**Table of Contents**

**Parts Information:** ..... 2

**Warranty Information:** ..... 4

**Service Procedure:**..... 5

**Repair Flow Chart** ..... 5

**Rear Differential Noise Inspection** ..... 6

**Rear Differential Lock Nut Tightening**..... 6

**Rear Differential Replacement**..... 14

**Parts Information:**

“JK1” refers to both JK1 (Korean) and JK1A (USA).

Model	Part Number	Part Description	Part Details	Qty
JK1 JX1 RG3	28751-3J000	Front & Center Muffler Gasket	2.5T and 3.5T	2.5T: 1 each 3.5T: 2 each
JK1 JX1	28751-2S000	Rear & Center Muffler Gasket		2 each
RG3	28751-3S100			2 each
JK1 JX1	49319-T6100	Rear Propeller Shaft Bolts (to transfer case)	2.5T and 3.5T	3 each
RG3	49319-3M000			
JK1 JX1 RG3	49329-3M000	Rear Propeller Shaft Nuts (to transfer case)	2.5T and 3.5T	3 each
JK1 JX1	49319-T6100	Rear Propeller Shaft Bolts (to differential)		
RG3	49319-T1000			

**Order the following parts only if differential replacement is necessary.**

JK1	53000-47520	Rear Differential Carrier	2.5T, AWD	1 each
	53000-4J510		3.5T, AWD	
	53000-4J520		3.5T, AWD, w/ & w/out E-LSD	
JX1	53000-4J600		2.5T, RWD & AWD	
	53000-4J620		2.5T, AWD, E-LSD	
	53000-4J610		3.5T, AWD	
	53000-4J630		3.5T, AWD, E-LSD	

**SUBJECT:**

**REAR DIFFERENTIAL NOISE INSPECTION AND REPAIR**

RG3	53000-47501	Rear Differential Carrier	2.5T, RWD	1 each		
	53000-47502		2.5T, RWD			
	53000-4J500		3.5T, RWD & AWD			
JK1 JX1 RG3	28751-3J000	Front & Center Muffler Gasket	2.5T and 3.5T	2.5T: 1 each 3.5T: 2 each		
JK1 JX1	28751-2S000	Rear & Center Muffler Gasket		2 each		
RG3	28751-3S100			2 each		
JK1 JX1	49319-T6100	Rear Propeller Shaft Bolts (to transfer case)		3 each		
RG3	49319-3M000					
JK1 JX1 RG3	49329-3M000	Rear Propeller Shaft Nuts (to transfer case)	2.5T and 3.5T	3 each		
JK1 JX1	49319-T6100	Rear Propeller Shaft Bolts (to differential)		3 each		
RG3	49319-T1000					
JK1	49557-3M000	Axle Clip	2.5T, w/out E-LSD	2 each		
	49557-2G000		3.5T, w/out E-LSD			
	49557-T6000		3.5T w/ E-LSD			
JX1	49557-2G000		2.5T and 3.5T w/out E-LSD			
	49557-T6000		2.5T and 3.5T w/ E-LSD			
RG3	49557-3M000		2.5T			
	49557-2G000		3.5T			
JK1 JX1 RG3	49551-4T000		Axle Castle Lock Nut		2.5T and 3.5T	2 each
JK1 JX1	00232-19075		Gear Oil, 75W-85, GL-5, LSD*, 1.0qt		2.5T and 3.5T	2 each
RG3	00232-19097	Gear Oil, 75W-85, GL-5, Non LSD, 1.0qt				

\*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 and 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 and 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 and 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 and 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 and 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.

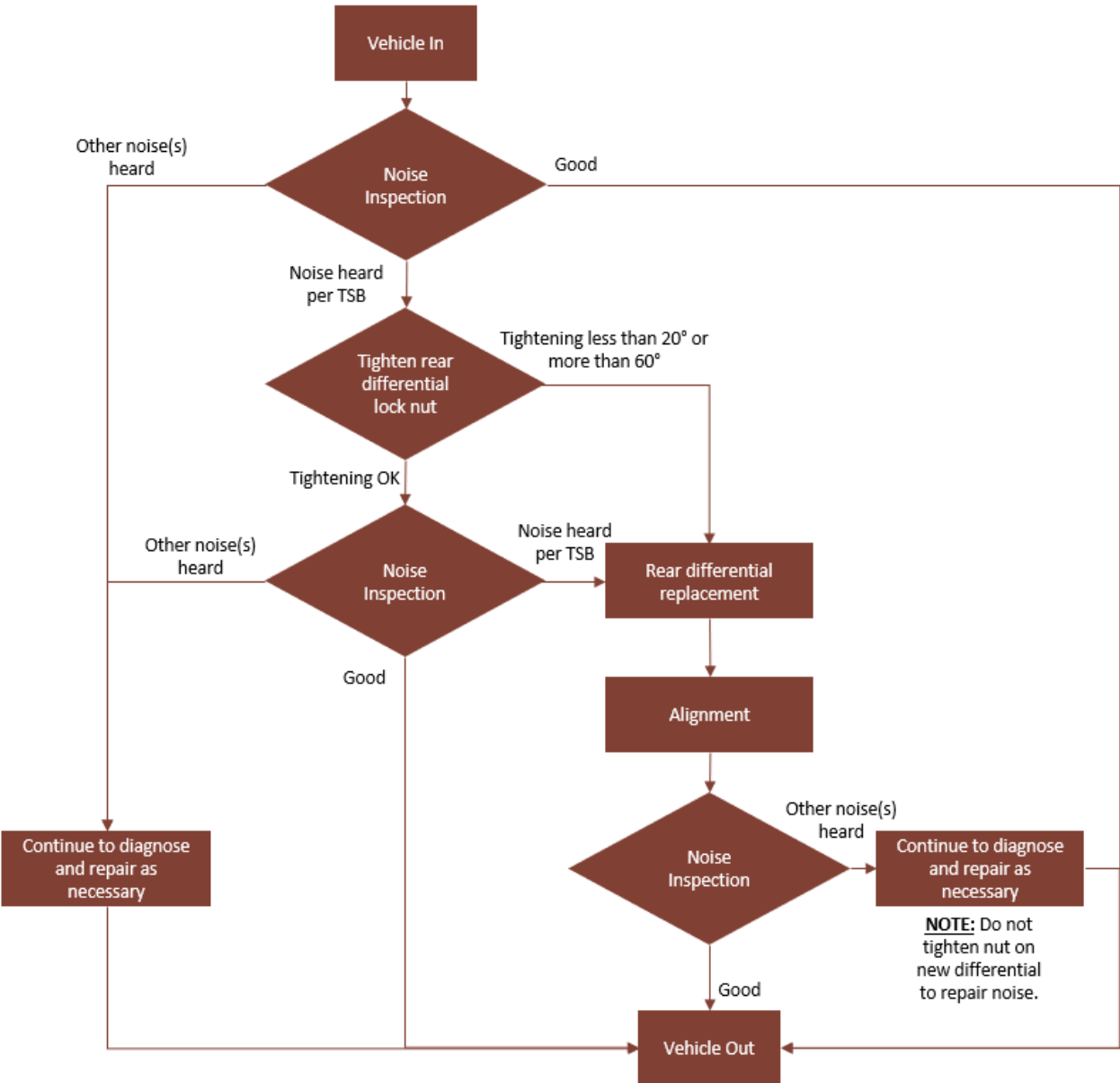
**Service Procedure:**

**STUI**



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

**Repair Flow Chart**



**i Information**

In the following procedures, “JK1” refers to both JK1 (Korean) and JK1A (USA).

### Rear Differential Noise Inspection

1. Drive the vehicle to inspect the vehicle for the rear differential noise.
  - **JK1**: Whine noise while gradually accelerating, in the speed range of 37 to 70mph (approx. 60 to 110 kph)
  - **JX1** and **RG3**: Whine noise while coasting, off throttle, in the speed range of 50 to 25mph (approx. 80 to 40 kph)

#### **i** Information

The noise does not have to occur during the entire speed range.

If the noise is not heard, the service procedure is now complete.

If the noise as described above is heard, continue to the **Rear Differential Lock Nut Tightening** procedure below.

If other noises are heard, continue to diagnose, and repair the vehicle as necessary.

### Rear Differential Lock Nut Tightening

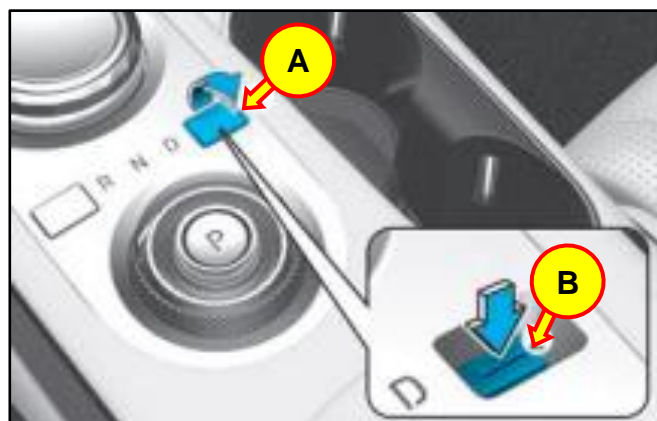
1. Using a lift, slightly raise the vehicle until the tires are no longer touching the ground.

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.

#### **i** Information

If neutral is selected while the engine is running, the transmission will not remain in neutral when the vehicle is turned off.



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

The Brake Pad Change Mode procedures can be found in the shop manual.

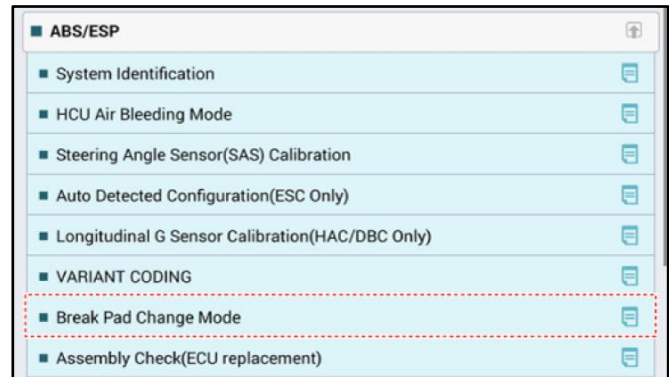
- **JK1:** Brake System → Brake System → Parking Brake System → Electronic Parking Brake (EPB) → Adjustment
- **JX1 and RG3:** Brake System → Brake System → Rear Disc Brake → Repair Procedures
- After releasing the parking brake, disconnect the 12v battery negative (-) terminal and the EPB actuator connector 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.



- Refer to the applicable shop manual to remove the rear propeller shaft to access the rear differential lock nut.

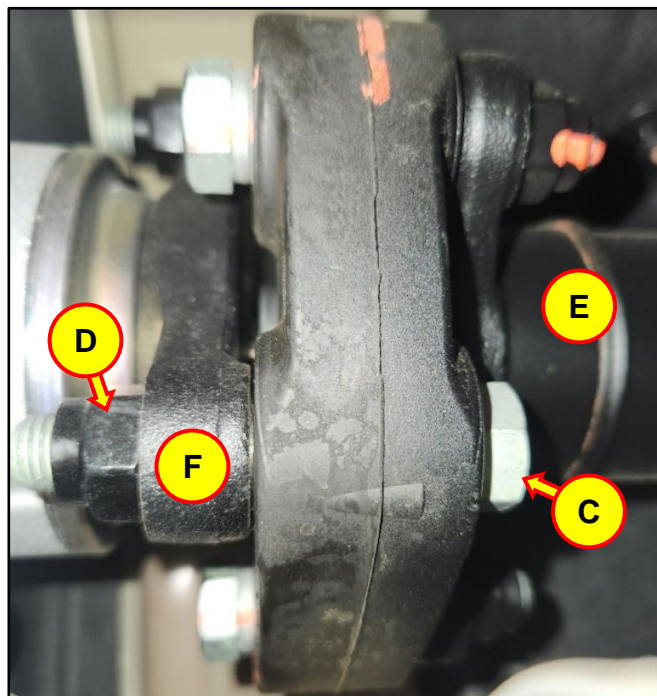
Driveshaft and Axle → Propeller Shaft Assembly  
→ Propeller Shaft

- 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



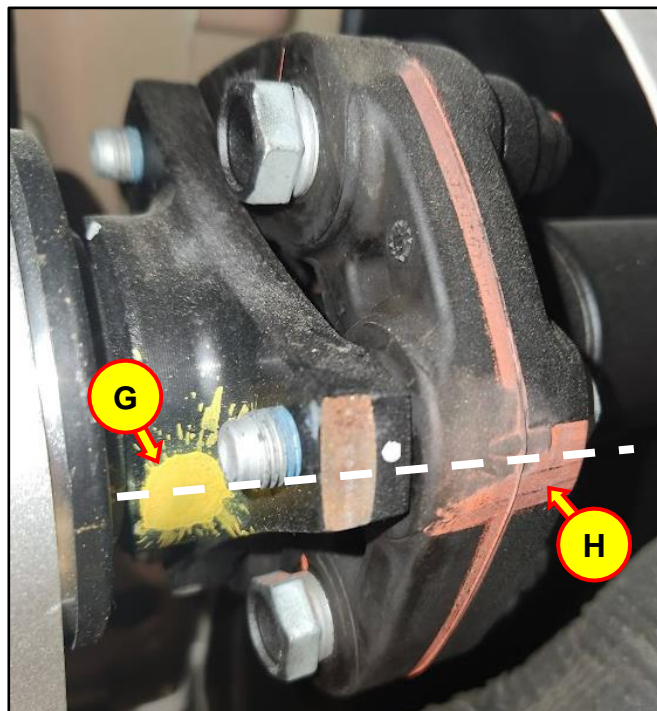
Transfer Case Flange/Propeller Shaft

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**

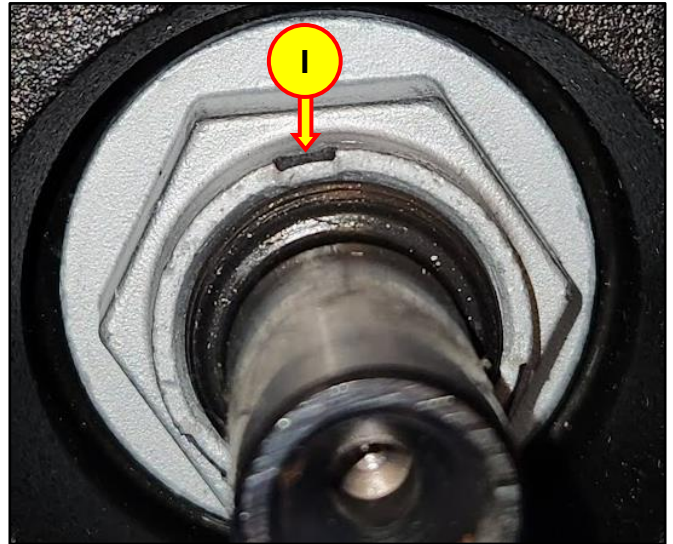
- Installing the bolts, washers (RG3 only), and nuts differently from the initial state or changing the position of the propeller shaft relative to the flange can result in unbalanced propeller shaft causing a vibration at high speed.
- Properly support the entire length of the propeller shaft after 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.



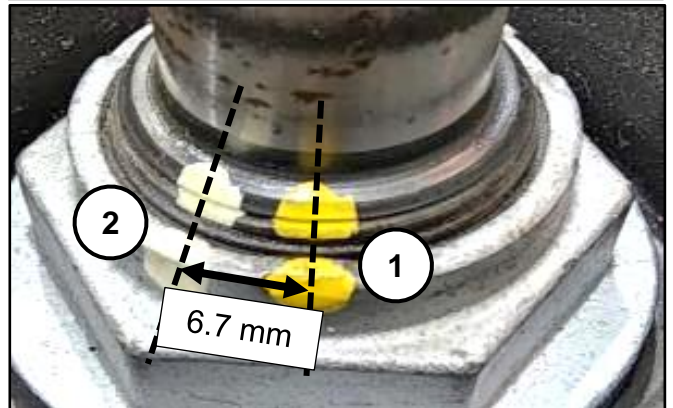
5. After removal of the propeller shaft, locate the stake (I) on the lock nut in the differential flange.



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



7. Mark a second line 6.7mm to the left of the first.



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

**i** **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 one to two seconds. Stop when the nut reaches the 6.7mm mark or 30° of rotation.

**Tightening Range**

Minimum: 4.5mm, 20°

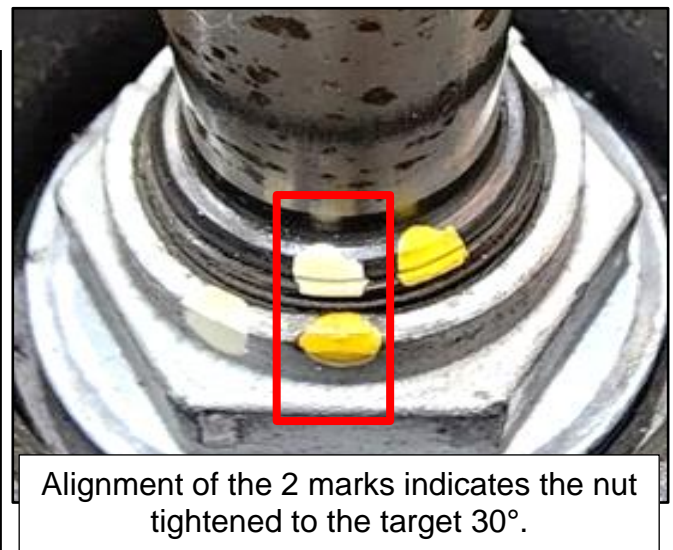
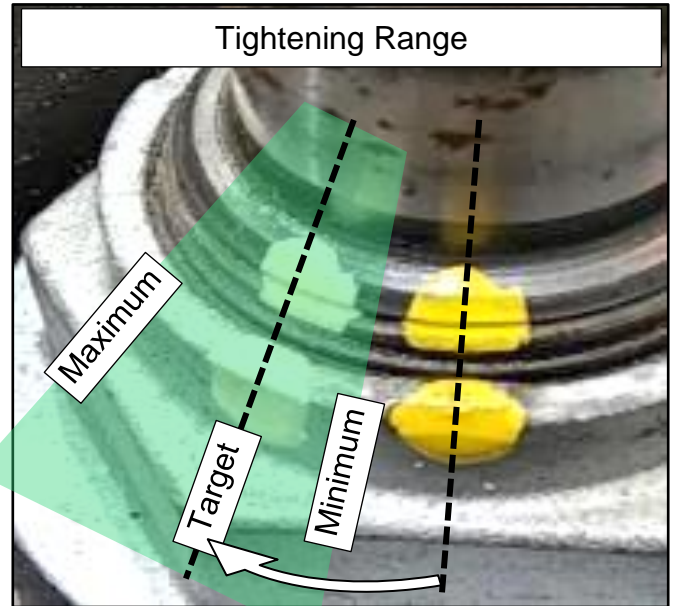
Target: 6.7mm, 30°

Maximum: 13.3mm, 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.

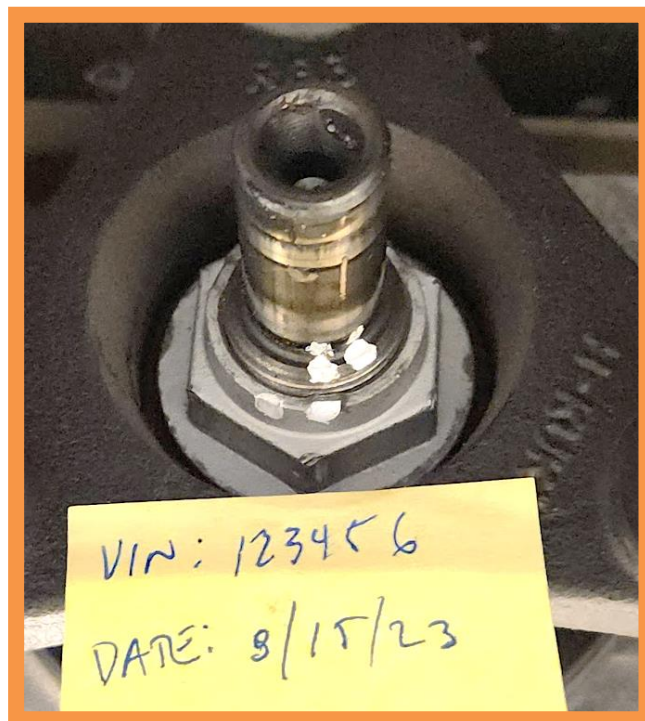


9.

**STUI**

Using STUI, take a photo after 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.



10. Install parts in the reverse order of removal.

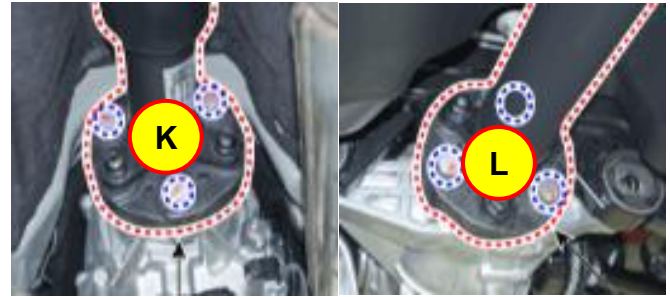
Refer to the applicable shop manual for tightening torque specifications.

**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.

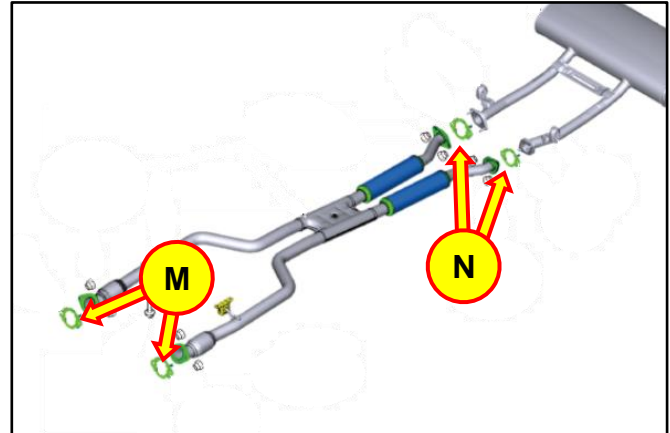
- Propeller Shaft Bolts (K) (to transmission/transfer case)
- Propeller Shaft Nuts (K) (to transmission/transfer case)
- Propeller Shaft Bolts (L) (to differential)
- Front Exhaust Gasket (M) (to catalyst)
- Rear Exhaust Gasket (N) (to exhaust muffler)

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



Propeller shaft to transmission/transfer case

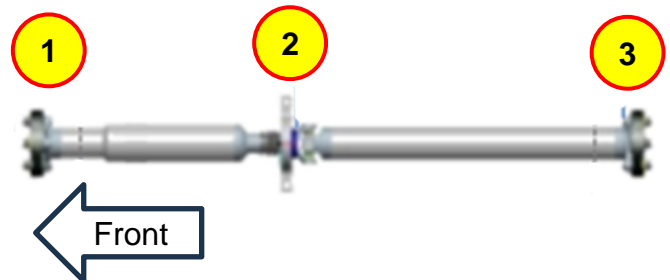
Propeller shaft to rear differential



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

Install the propeller shaft in the following order.

1. Flange to transmission/transfer case
2. Center bearing bracket
3. Flange to rear differential



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

- **JK1**: Whine noise while gradually accelerating in the speed range of 37 to 70mph (approx. 60 to 110 kph)
- **JX1** and **RG3**: Whine noise while coasting, off throttle, in the speed range of 50 to 25mph (approx. 80 to 40 kph)

**Information**

The noise does not have to occur during the entire speed range.

If the noise as described above is heard, replace the differential. Refer to the procedures in **Rear Differential Replacement** below.

If other noises are heard, continue to diagnose, and repair the vehicle as necessary.

If the noise is not heard, the service procedure is now complete.

### Rear Differential Replacement

1. Follow steps 1 to 4 in the “Rear Differential Lock Nut Tightening” procedures to remove the propeller shaft again.
2. Refer to the applicable shop manual to remove and install the new rear differential.

Driveshaft and Axle → Differential Carrier  
Assembly → Rear Differential Carrier

If the vehicle is equipped with an E-LSD, remove it before removing the differential.

Electronic Limited Slip Differential System →  
Electronic Limited Slip Differential (E-LSD)

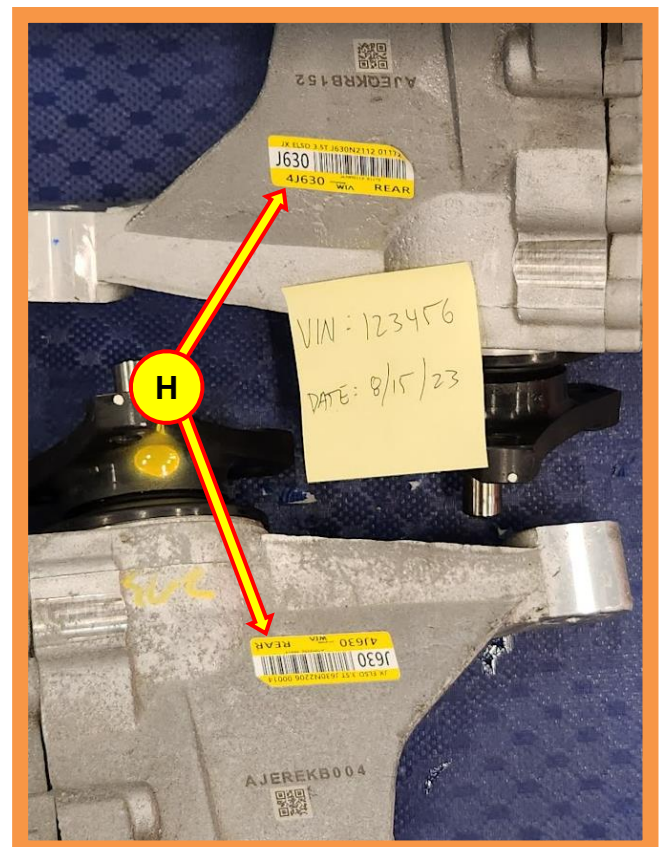
3.

**STUI**



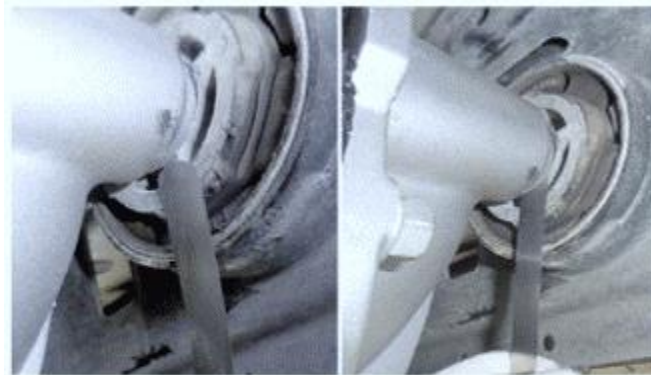
Using STUI, take a photo of the new rear differential next to the removed differential with the differential labels (H) visible, the last 6 digits of the VIN, and the date of repair on a piece of paper.

Upload the photos to STUI.



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

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



- Fill the differential with gear oil.

Model	Capacity	Type
JK1	1.2 +/- 0.05 L (1.27 +/- 0.05 qt)	75W-85 LSD* P/N: 00232-19075
JX1	1.3 +/- 0.05 L (1.37 +/- 0.05 qt)	
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.

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

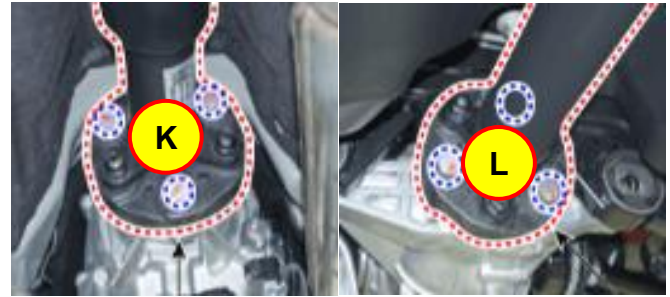
Refer to the applicable shop manual for tightening torque specifications.

**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.

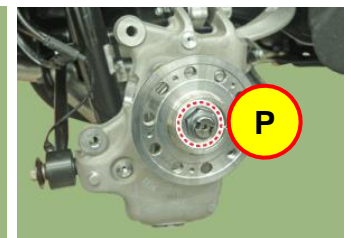
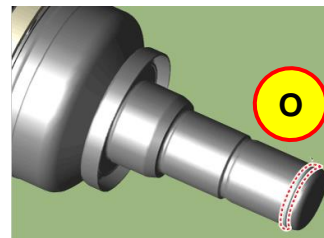
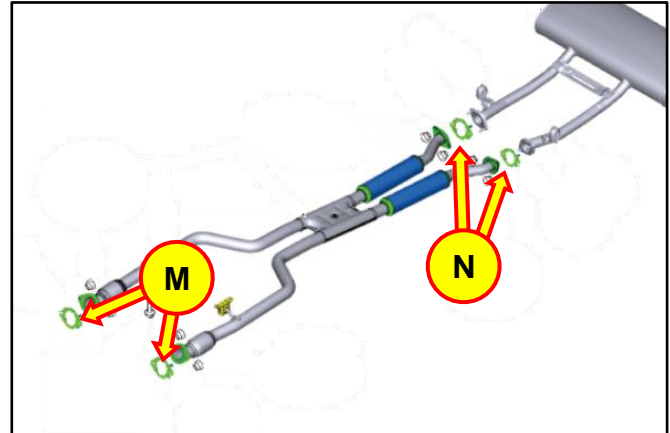
- Propeller Shaft Bolts (K) (to transmission/transfer case)
- Propeller Shaft Nuts (K) (to transmission/transfer case)
- Propeller Shaft Bolts (L) (to differential)
- Front Exhaust Gasket (M) (to catalyst)
- Rear Exhaust Gasket (N) (to exhaust muffler)
- Axle Clips (O)
- Castle Lock Nuts (P)

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



Propeller shaft to transmission/transfer case

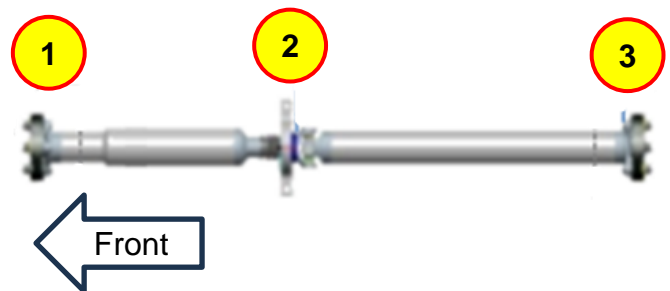
Propeller shaft to rear differential



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.

1. Flange to transmission/transfer case
2. Center bearing bracket
3. Flange to rear differential



7. Perform a suspension alignment on an alignment rack.



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

If noise is not heard, the service procedure is now complete.

If other noises are heard, continue to diagnose, and repair the vehicle as necessary.

**Information**

**Do not** tighten the lock nut on the new differential if a noise is heard.