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| <br><br><b>Technical Service Bulletin</b> | <b>GROUP</b><br><b>DRIVESHAFT AND AXLE</b> | <b>NUMBER</b><br><b>24-DS-001G</b>   |
|  | <b>DATE</b><br><b>MAY 2024</b>             | <b>MODEL(S)</b><br><b>GV70 (JK1 &amp; JK1A)</b><br><b>GV80 (JX1)</b><br><b>G80 (RG3)</b> |
| <b>SUBJECT:</b> REAR DIFFERENTIAL HUM OR WHINE NOISE<br>INSPECTION AND REPAIR  |  |  |

**This TSB supersedes 23-DS-004G-1 to revise the repair flow chart, add additional information to the noise inspection, add an additional STUI photo requirement before the lock nut tightening, a reminder to fill a new differential with gear oil, and to add warranty chargeback information.**

**Description:** Certain GV70 (JK1 and 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:**

- 2022MY~ 2023MY GV70 (JK1, VIN starts with "KMU")
- 2024MY~ GV70 (JK1A, VIN starts with "5NM")
- 2021MY~ GV80 (JX1)
- 2021MY~ G80 (RG3)

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**Parts Information:**

| Model                     | Part Number | Part Description                                 | Part Details  | Qty          |
|---------------------------|-------------|--|---------------|--------------|
| JK1<br>JK1A<br>JX1<br>RG3 | 28751-3J000 | Front & Center<br>Muffler Gasket                 | 2.5T and 3.5T | 2.5T: 1 each |
|                           |             |  |               | 3.5T: 2 each |
| JK1<br>JK1A<br>JX1        | 28751-2S000 | Rear & Center<br>Muffler Gasket                  |               | 2 each       |
| RG3                       | 28751-3S100 |  |               | 2 each       |
| JK1<br>JK1A<br>JX1        | 49319-T6100 | Rear Propeller Shaft Bolts<br>(to transfer case) |               | 3 each       |
| RG3                       | 49319-3M000 |  |               |              |
| JK1<br>JK1A<br>JX1<br>RG3 | 49329-3M000 | Rear Propeller Shaft Nuts<br>(to transfer case)  |               | 3 each       |
| JK1<br>JK1A<br>JX1        | 49319-T6000 | Rear Propeller Shaft Bolts<br>(to differential)  |               | 3 each       |
| RG3                       | 49319-T1000 |  |               |              |

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

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

**SUBJECT:**

**REAR DIFFERENTIAL HUM OR WHINE NOISE INSPECTION AND REPAIR**

|                           |             |   |                              |        |
|---------------------------|-------------|---|------------------------------|--------|
| JK1<br>JK1A               | 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<br>w/out E-LSD |        |
|                           | 49557-T6000 |   | 2.5T and 3.5T<br>w/ E-LSD    |        |
| RG3                       | 49557-3M000 |   | 2.5T                         |        |
|                           | 49557-2G000 | 3.5T                                      |                              |        |
| JK1<br>JK1A<br>JX1<br>RG3 | 49551-4T000 | Axle Castle Lock Nut                      |                              | 2 each |
| JK1<br>JK1A<br>JX1        | 00232-19075 | Gear Oil, 75W-85, GL-5,<br>LSD*, 1.0qt    | 2.5T and 3.5T                | 2 each |
| RG3                       | 00232-19097 | Gear Oil, 75W-85, GL-5,<br>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)<br>GV80 (JX1)<br>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)<br>GV80 (JX1)<br>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)<br>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)<br>GV80 (JX1)<br>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)<br>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:

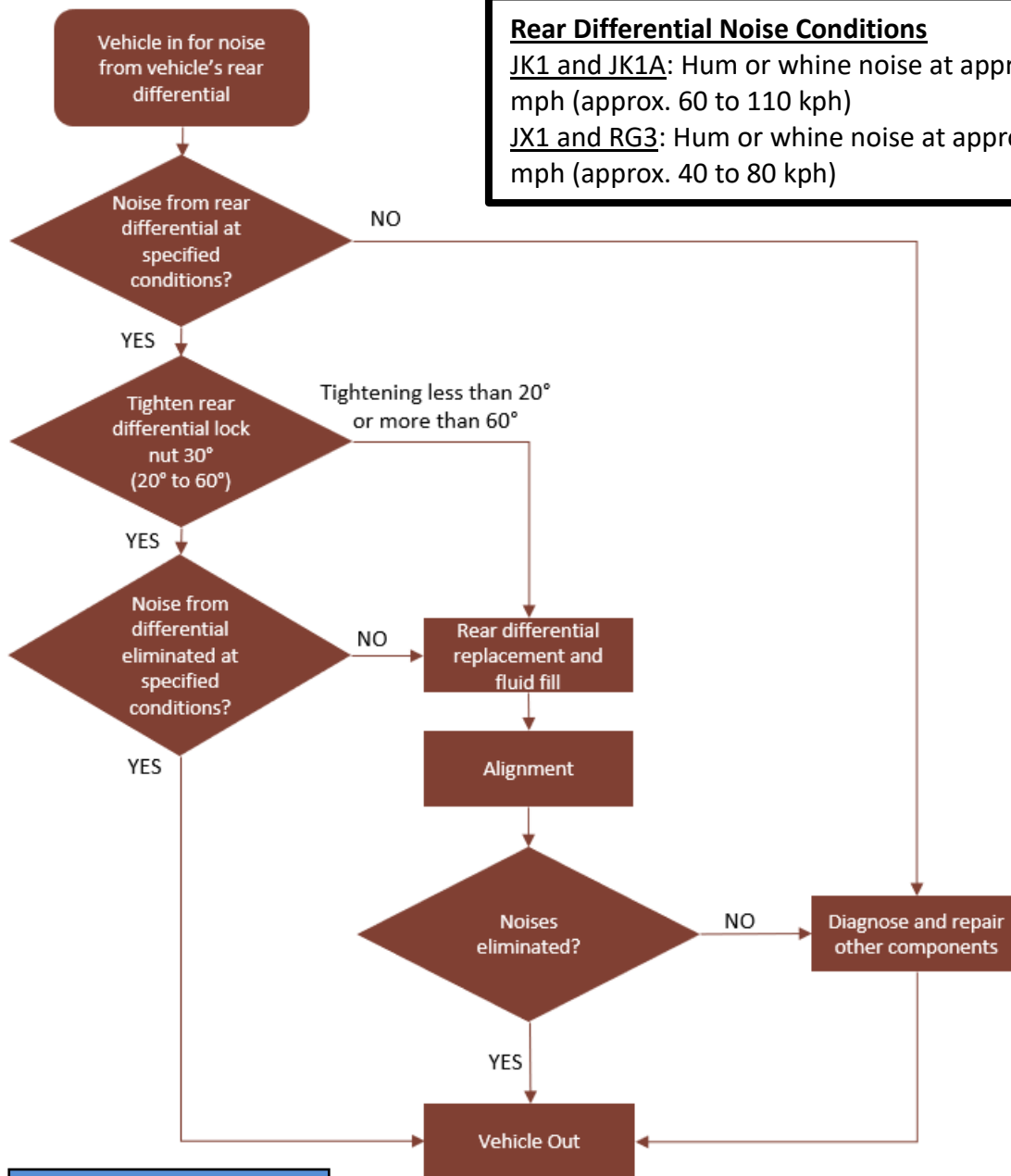
**STUI**



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

Repair Flow Chart

**Rear Differential Noise Conditions**  
JK1 and JK1A: Hum or whine noise at approximately 37 to 70 mph (approx. 60 to 110 kph)  
JX1 and RG3: Hum or whine noise at approximately 25 to 50 mph (approx. 40 to 80 kph)



**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 rear differential noise.
  - **JK1** and **JK1A**: Hum or whine noise in the speed range of 37 to 70 mph (approx. 60 to 110 kph)
    - 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.
  - **JX1** and **RG3**: Hum or whine noise in the speed range of 25 to 50 mph (approx. 80 to 40 kph)
    - 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, the service procedure is now complete.
  - If noises are heard from other areas of the vehicle, continue to diagnose, and repair the vehicle as necessary.

### Rear Differential Lock Nut Tightening

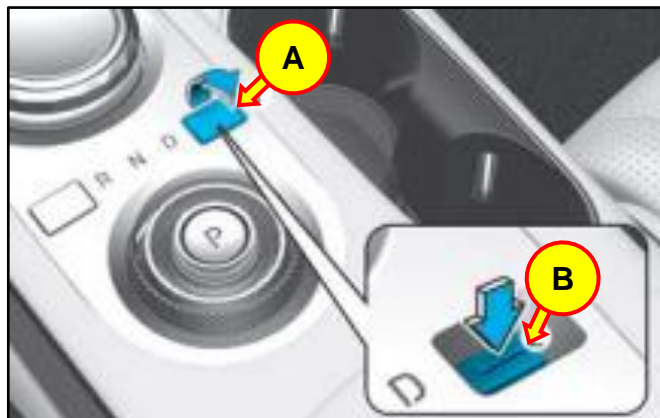
1. Using a lift, slightly raise the vehicle until the tires are no longer touching the ground.

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.



2. 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.

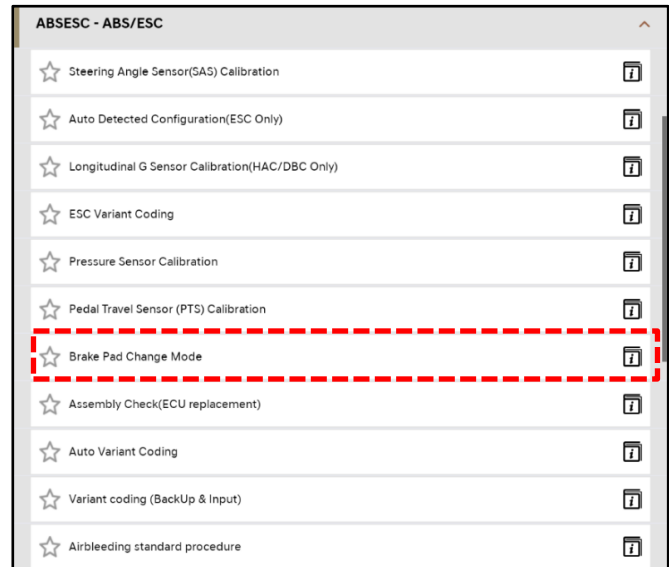
- **JK1** and **JK1A**: Brake System → Brake System → Parking Brake System → Electronic Parking Brake (EPB) → Adjustment
- **JX1** and **RG3**: Brake System → Brake System → Rear Disc Brake → Repair Procedures
- After releasing the parking brake, disconnect the 12v battery negative (-) terminal and the 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.



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

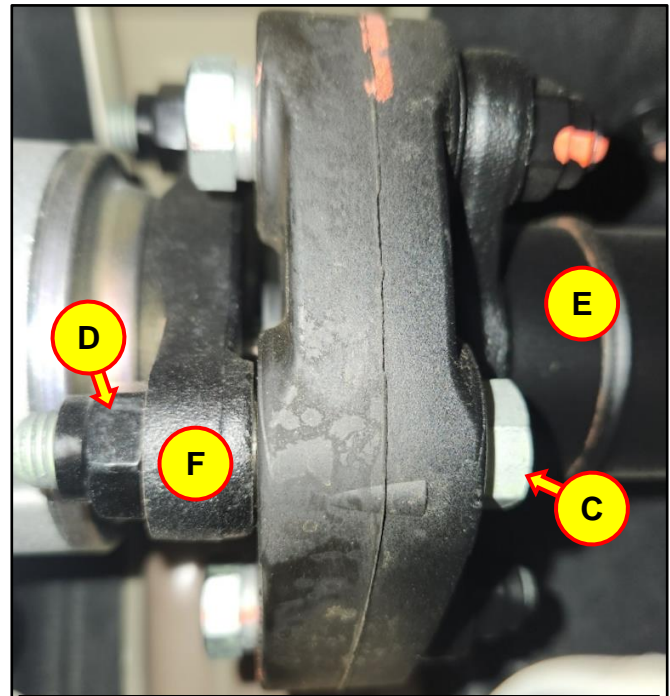
Driveshaft and Axle → Propeller Shaft Assembly  
→ Propeller Shaft

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



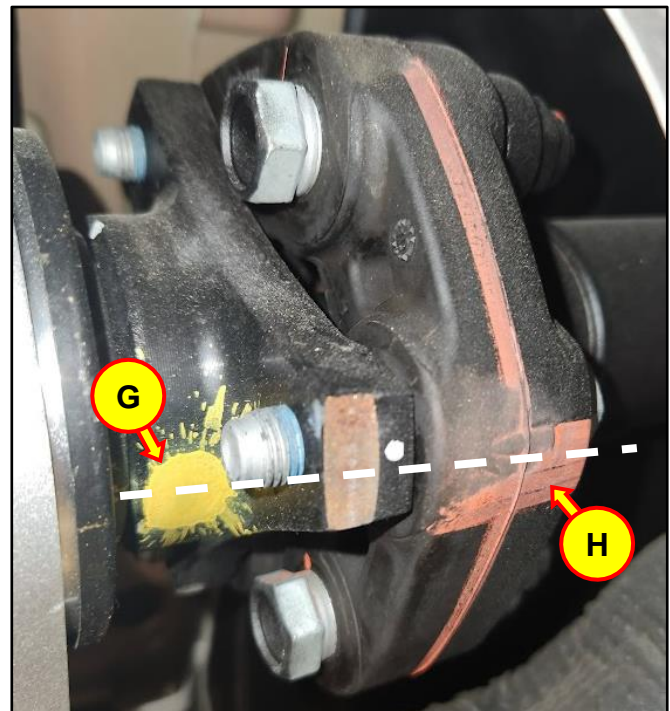
Transfer Case Flange/Propeller Shaft

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.

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

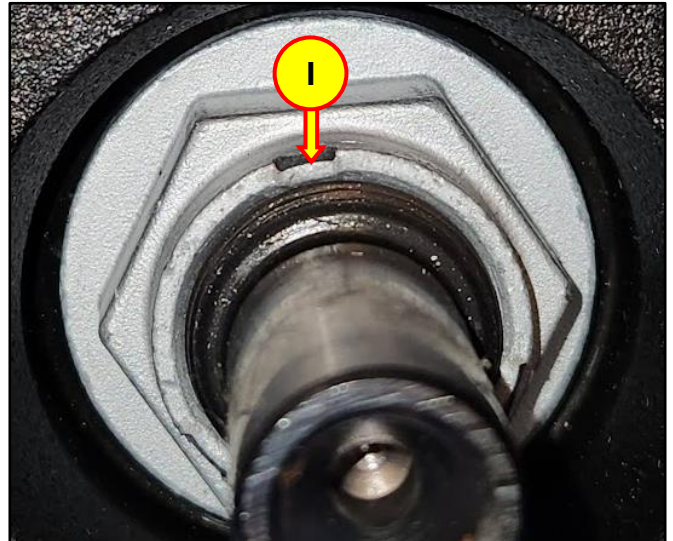
**STUI**

Using STUI, take a photo **before** 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.



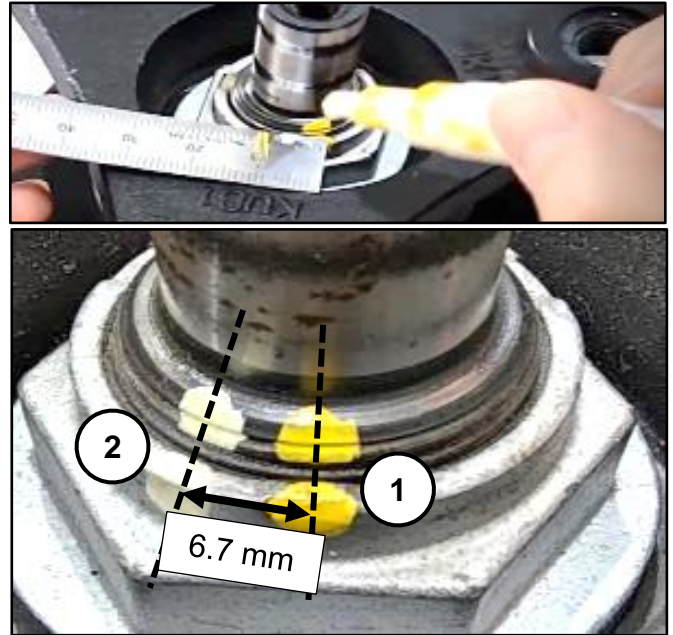
- Locate the stake (I) on the lock nut in the differential flange.



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



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



9. 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°

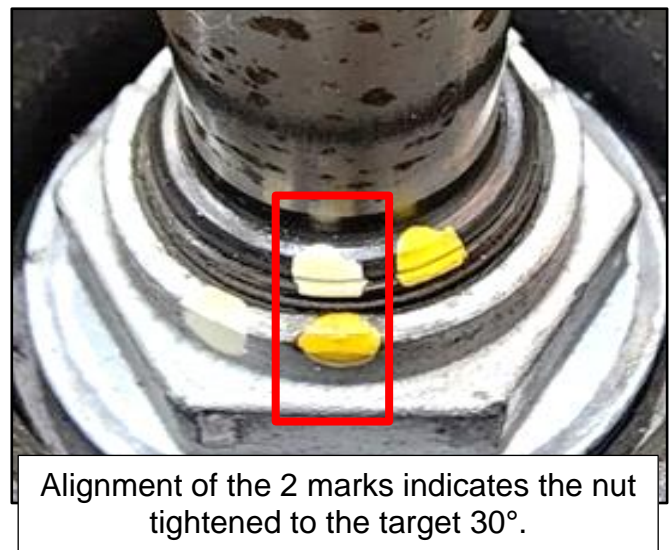
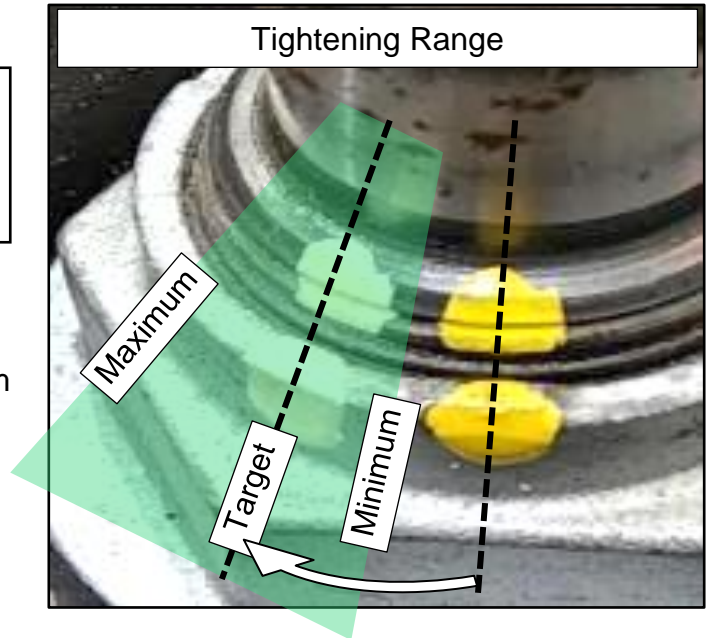
Target: 6.7mm, 30°

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.



10.

**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.

**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 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.

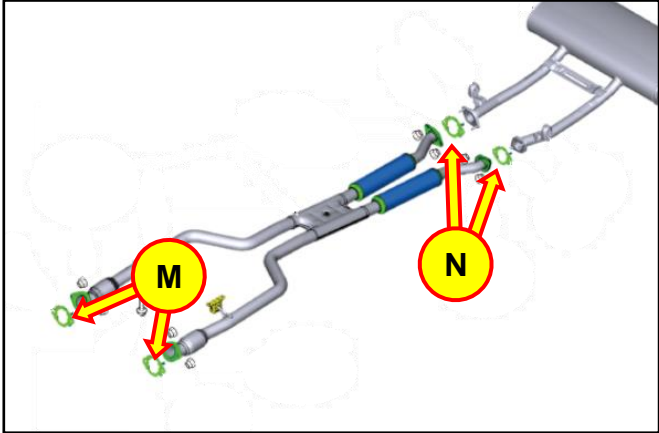
- Propeller Shaft Bolts (K) (to transmission/transfer case)
- Propeller Shaft Nuts (K) (to transmission/transfer case)
- Propeller Shaft Bolts (L) (to differential)
- Front Exhaust Gasket (M) (to catalyst)
- Rear Exhaust Gasket (N) (to exhaust muffler)

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



Propeller shaft to transmission/transfer case

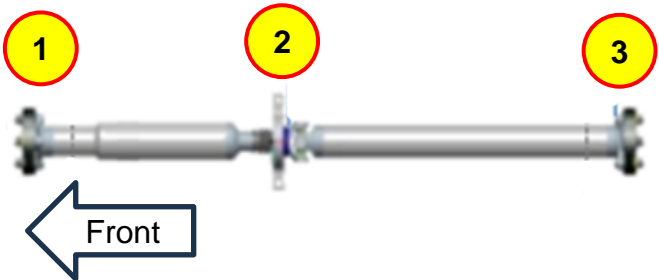
Propeller shaft to rear differential



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



12. After reassembly, drive the vehicle on the road to inspect the vehicle for rear differential noise.
- **JK1** and **JK1A**: Hum or whine noise in the speed range of 37 to 70 mph (approx. 60 to 110 kph)
    - 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.
  - **JX1** and **RG3**: Hum or whine noise in the speed range of 25 to 50 mph (approx. 40 to 80 kph)
    - 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 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 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. 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)

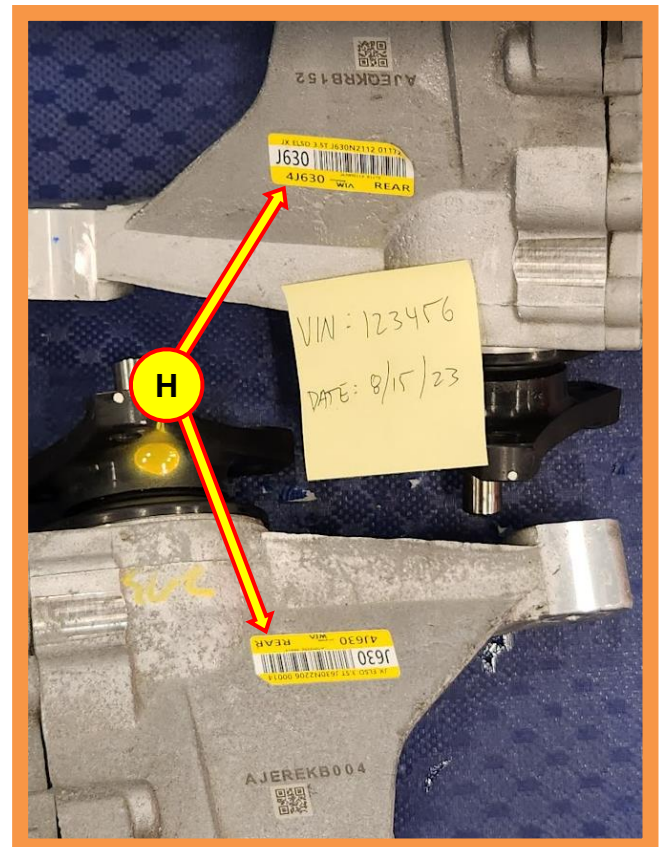
3.

**STUI**



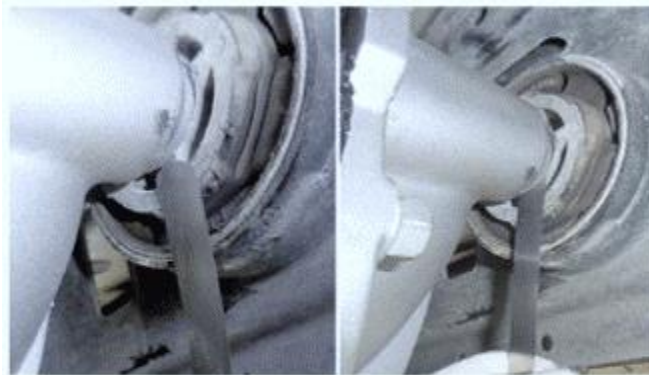
Using STUI, take a photo of the new rear differential next to the removed differential with the differential labels (H) visible, the last 6 digits of the VIN, and the date of repair on a piece of paper.

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.



**NOTICE**

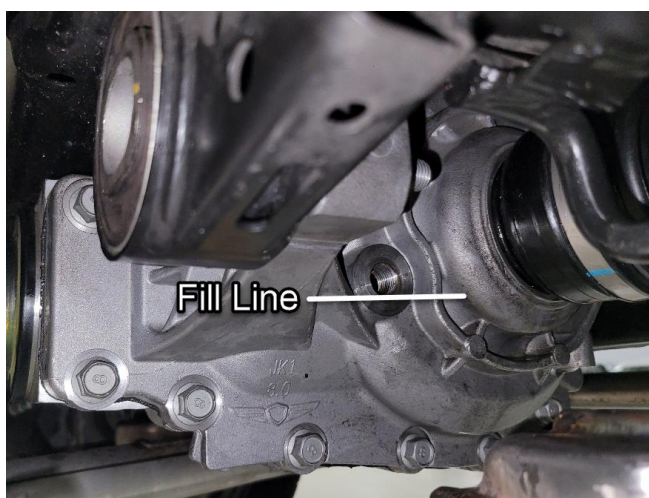
- New differentials from the PDC (Parts Distribution Center) are not filled with gear oil.**
- Fill with the gear oil until it reaches the fill port.
- Failure to fill the differential with gear oil will damage the differential and may result in a warranty charge back.

- Fill the differential with gear oil.

| Model        | Capacity                             | Type                               |
|--------------|--------------------------------------|------------------------------------|
| JK1/<br>JK1A | 1.2 +/- 0.05 L<br>(1.27 +/- 0.05 qt) | 75W-85 LSD*<br>P/N: 00232-19075    |
| JX1          | 1.3 +/- 0.05 L<br>(1.37 +/- 0.05 qt) |                                    |
| RG3          | 1.2 +/- 0.05 L<br>(1.27 +/- 0.05 qt) | 75W-85 Non LSD<br>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.

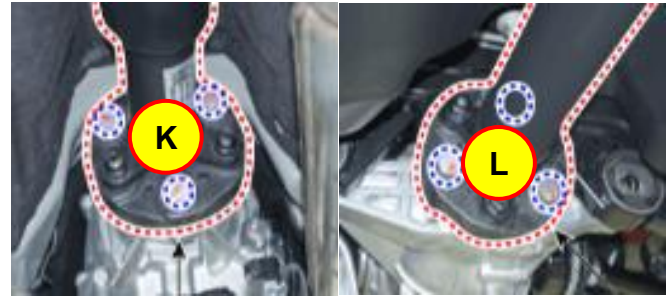
Refer to the applicable shop manual for tightening torque specifications.

**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.

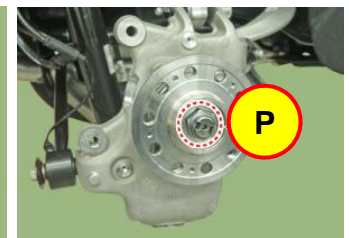
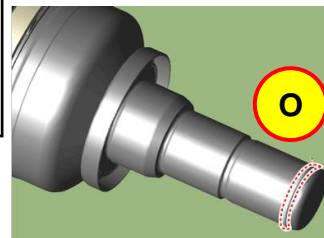
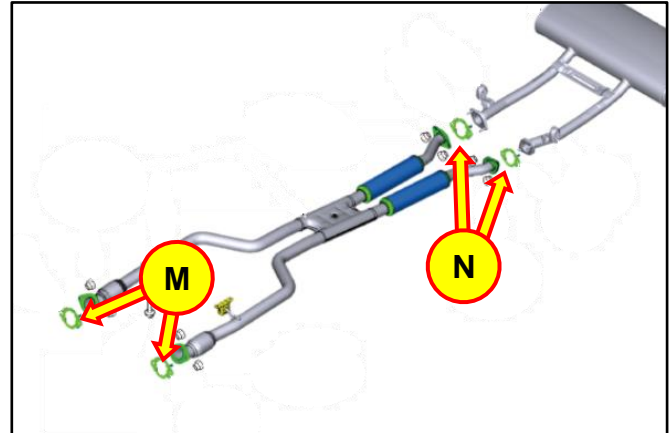
- Propeller Shaft Bolts (K) (to transmission/transfer case)
- Propeller Shaft Nuts (K) (to transmission/transfer case)
- Propeller Shaft Bolts (L) (to differential)
- Front Exhaust Gasket (M) (to catalyst)
- Rear Exhaust Gasket (N) (to exhaust muffler)
- Axle Clips (O)
- Castle Lock Nuts (P)

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



Propeller shaft to transmission/transfer case

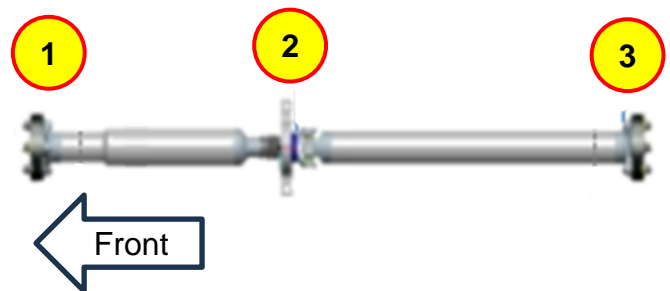
Propeller shaft to rear differential



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 on the road to inspect the vehicle for rear differential noise.
  - **JK1** and **JK1A**: Hum or whine noise in the speed range of 37 to 70 mph (approx. 60 to 110 kph)
    - 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.
  - **JX1** and **RG3**: Hum or whine noise in the speed range of 25 to 50 mph (approx. 40 to 80 kph)
    - 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 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 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.