



**UNI-K**

- **Drive system**

**UNI-KRM2B/2/1**

## 2.2 Driveline

### Model :UNI-K

Contents	Page
<b>2.2.1 Drive System Overview.....</b>	<b>1</b>
System overview .....	1
Drive shaft.....	1
<b>2.2.2 Drive shaft.....</b>	<b>1</b>
Specifications .....	1
Material specification .....	1
Capacity specification .....	1
Torque specification .....	1
Description and operation .....	2
System overview .....	2
Exploded view .....	3
Fault symptom diagnosis and test .....	4
General inspection .....	4
Fault symptom table.....	4
Abnormal sound diagnosis process of drive shaft.....	5
There is a dull metal sound diagnostic process after neutral coasting and then acceleration. ....	7
Jitter or vibration diagnosis process during acceleration .....	8
Drive shaft falls off.....	9
Complete vehicle low speed shimmy .....	11
Drive shaft swing .....	12
Disassembly and assembly.....	13
Inner constant velocity universal joint and dust cover .....	13
Outer constant velocity universal joint and dust cover .....	15
Removal and installation.....	17
Left drive shaft .....	17
Right drive shaft.....	19

## 2.2.1 Drive System Overview

### System overview

### Drive shaft

The drive system adopts front-drive mode, and the differential is located inside the transmission assembly. The drive shaft transfers power from the transmission to the wheel assembly. Each drive shaft contains an inner constant velocity joint and an outer constant velocity joint connected to the shaft rod. The inner constant velocity joint is fully flexible and axially telescopic. The outer constant velocity joint is also flexible but cannot be axially telescoped. There is an external spline at the inner end of the left and right drive shafts, and the left drive shaft interlocks with the differential gear through the differential spring retaining ring at the spline end; The right drive shaft is mounted on the engine cylinder block through the bracket to achieve axial positioning.

## 2.2.2 Drive shaft

### Specifications

#### Material specification

Name	Model
High-performance grease (color: Yellow), inner constant velocity joint (front drive shaft)	AARi3700
High performance grease (color: Black), outer constant velocity joint (front drive shaft)	UF3-41
Common performance grease (color: Yellow), inner constant velocity universal joint (rear drive shaft)	
Common performance grease (color: Black), outer constant velocity universal joint (rear drive shaft)	

#### Capacity specification

Name	Weight
High-performance grease (color: Yellow), inner constant velocity joint (front drive shaft)	140 ± 10 g
High performance grease (color: Black), outer constant velocity joint (front drive shaft)	175g~180g
Common performance grease (color: Yellow), inner constant velocity universal joint (rear drive shaft)	100±10g
Common performance grease (color: Black), outer constant velocity universal joint (rear drive shaft)	90±10g

#### Torque specification

Name	Nm	lb-ft	lb-in
Lock nut	294±10		
Hexagon flange bolt	50±3		

## Description and operation

### System overview

Both ends of the drive shaft have constant velocity universal joints.

The 1. inner constant velocity universal joint (consisting of constant velocity ball ring, three-pin joint, roller, steel ball and constant velocity universal joint housing) is installed on the transmission.

The 2. outer constant velocity joint (consisting of steel ball, ball holder and constant velocity joint housing) is mounted on the brake.

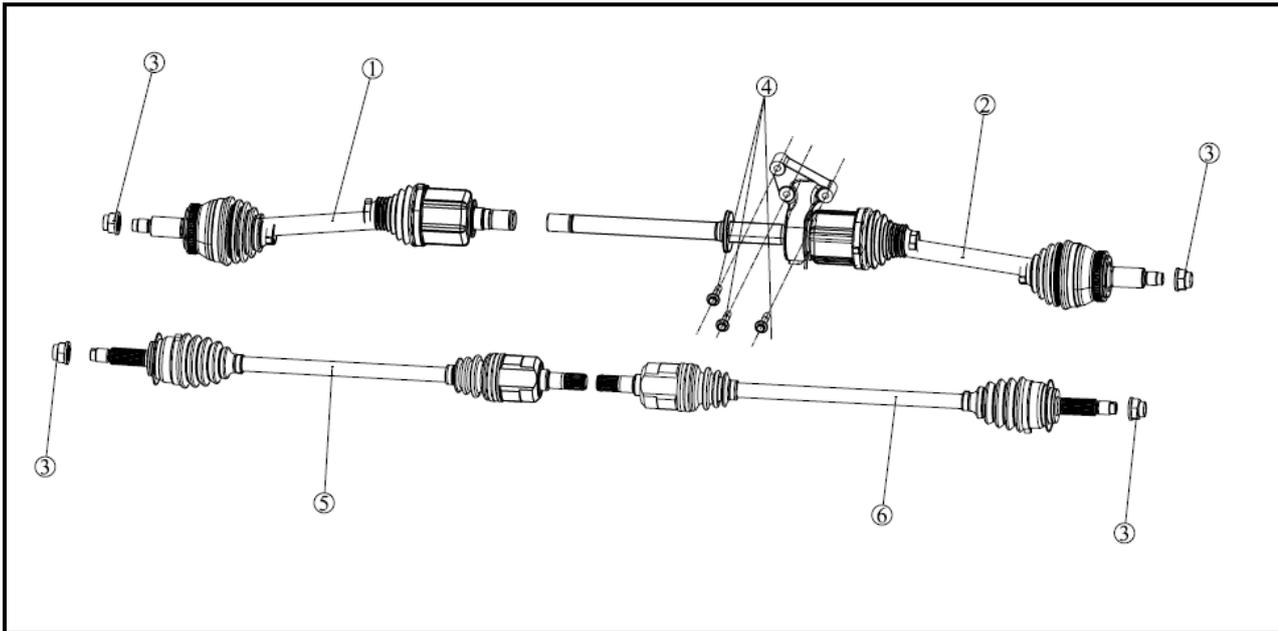
3. FRT LH axle and RR axle (LH and RH) inner constant velocity universal joint are fixed on variable (differential) gear with differential spring retaining ring; The right front axle inner constant velocity universal joint is mounted on the engine cylinder block through the bracket to achieve axial positioning.

The drive shaft transfers torque from the engine to the wheels. To accommodate the up and down movement of the wheel and engine, the drive shaft needs to run at different lengths and angles. The inner constant velocity universal joint allows the length of the drive shaft to change during axial movement.

### Precautions

1. When removing the drive shaft, do not push or pull the constant velocity universal joint dust cover.
2. The working angle of inner constant velocity universal joint shall not exceed 23 degrees, and that of outer constant velocity universal joint shall not exceed 45 degrees.
3. Inspect the polished surface and splines for damage.
4. Do not contact the dust cover with sharp edges and hot engine or exhaust system.
5. Do not drop the drive shaft, which may cause dust cover or internal damage of the drive shaft.
6. When installing other parts, do not use the drive shaft as a prying tool. Do not hang the drive shaft at will.
7. The constant velocity universal joint cage may be damaged by knocking from the outside.

## Exploded view



Serial number	Component name	Quantity	Remarks
1	Drive shaft assembly(Left)	1	
2	Drive shaft assembly(Right)	1	
3	Lock nut M22×1.5	4	Not reusable
4	Hexagon flange bolt	3	
5	Rear drive shaft assembly(Left)	1	
6	Rear drive shaft assembly(Right)	1	

## Fault symptom diagnosis and test

### General inspection

Note: Confirm that the drive shaft is faulty before installing a new drive shaft. Do not replace the drive shaft easily.

1. Inspect the drive shaft dust cover for obvious cracks or cracks.

Note: Check the dust cover of the drive shaft, and observe whether there is dent (dent) in the rotation of the dust cover. If a dent is found, it must be replaced.

2. Inspect whether there is grease splash mark around the periphery and inner part of the drive shaft dust cover. It may be that the drive shaft dust cover or the fixing clamp of the drive shaft dust cover is damaged.
3. Confirm that the drive shaft lock nut is the correct locking torque.
4. Check and confirm that the inner constant velocity universal joint slides smoothly in the thrust direction.
5. Check whether the clearance of outer constant velocity universal joint is normal.
6. If the problem persists after inspection, perform troubleshooting according to the symptom table.

### Fault symptom table

If the fault occurs but no DTCs are stored in the control module and the cause of the fault cannot be confirmed in the basic inspection, the fault diagnosis and rule out shall be performed according to the sequence listed in the following table.

Symptoms	Possible causes	Measures
Abnormal sound of drive shaft(Including abnormal sound when starting)	1. Insufficient lubrication or contamination of drive shaft constant velocity universal joint	Reference: Abnormal sound diagnosis process of drive shaft
	2. Drive shaft in contact with other components	
	3. Drive shaft anti-friction gasket wear or anti-friction agent wear	
There is dull metal sound when sliding in neutral and then accelerating	1. Constant speed universal joint dust cover cracking or damage	Reference: There is a dull metal sound diagnostic process after sliding in neutral gear and then accelerating.
	2. The constant velocity universal joint is worn or damaged.	
Vibration at high speed	1. Wheel out of balance	A. Wheel balancing
	2. Front wheel radial runout is too large	B. See drive shaft removal and installation instructions
	3. Incorrect drive shaft installation	
Jitter or vibration during	Improper load height of 1. causes	Reference: Jitter or vibration

acceleration	excessive angle of triple ball pin constant velocity universal joint. 2. Excessive wear or damage of drive shaft	diagnosis process during acceleration
There is cracking sound, knocking sound or Friction sound	1. Insufficient lubrication or contamination of drive shaft constant velocity universal joint 2. Drive shaft in contact with other components 3. Wear or damage of wheel bearing, brake component, suspension component or steering component	A. Check, clean and replace grease if necessary B. Check and repair if necessary C. Check and repair if necessary
Complete vehicle low speed shimmy	1. Tire dynamic balance error 2. Incorrect tire positioning 3. Hub bearing damage 4. Damaged drive shaft 5. strut damaged 6. The stabilizer bar and bushing are worn or damaged.	Reference: Low speed shimmy of complete vehicle
Drive shaft falls off	Deformation of spring retainer at connecting end of 1. drive shaft and transmission 2. Drive shaft deformation 3. Front pillar deformation, suspension fracture or falling off, brake angle fracture or swing arm falling off 4. Drive shaft lock nut is damaged	Reference: Drive shaft off diagnosis process

## Abnormal sound diagnosis process of drive shaft

Test conditions	Details/Results/Measures
1. Check whether the drive shaft is in contact with other objects.	

	<p>A. Lift the vehicle.</p> <p>B. Check whether the drive shaft is wrapped by other sundrives.</p> <p>C. Check whether the drive shaft is in contact with other parts.</p> <p>Is it normal?</p> <p>? Yes</p> <p>Go to step 2.</p> <p>? No Handle the faulty position.</p>
2. Inspect the drive shaft dust cover.	
	<p>A. Inspect the drive shaft dust cover for damage.</p> <p>B. Check whether the drive shaft dust cover is installed correctly.</p> <p>C. Inspect whether the drive shaft constant velocity universal joint lubricating oil leaks.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to Step 3.</p> <p>? No Handle the faulty position.</p>
3. Check drive shaft	
	<p>A. Remove the drive shaft.</p> <p>B. Inspect the drive shaft.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Check whether the anti-friction gasket is seriously worn.? Yes Replace anti-friction washer? No Analyze drive shaft for internal conditions</p> <p>? No Replace drive shaft assembly.</p>

**There is a dull metal sound diagnostic process after neutral coasting and then acceleration.**



Note: Coasting acceleration or dull metal sound when starting from stationary may be caused by wear or damage of constant velocity universal joint inside the wheel drive shaft. Damage to the inner constant velocity joint of the wheel drive shaft is usually caused by insufficient grease or foreign matter and dirt in the constant velocity joint. This is usually caused by cracking or damage of inner constant velocity joint sealing sleeve.

Test conditions	Details/Results/Measures
1. Inspect the drive shaft dust cover.	<p>A. Inspect the drive shaft dust cover for damage.</p> <p>B. Check whether the drive shaft dust cover is installed correctly.</p> <p>C. Inspect whether the drive shaft constant velocity universal joint lubricating oil leaks.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to step 2.</p> <p>? No</p> <p>Handle the faulty position.</p>
2. Check drive shaft	<p>A. Remove the drive shaft.</p> <p>B. Inspect the drive shaft.</p> <p>C. Any stuck or blocked movement of the constant velocity joint indicates possible damage to the fault.</p> <p>Check whether it is normal?</p> <p>? Yes Analysis of drive shaft Analysis of internal conditions</p> <p>? No Replace drive shaft assembly.</p>

## Jitter or vibration diagnosis process during acceleration

Test conditions	Details/Results/Measures
1. Check height of front pillar assembly	
	<p>A. Check whether the front pillar assembly is deformed. Check whether it is normal?</p> <p>? Yes to step 2.</p>
2. Check swing arm ball joint	
	<p>A. Inspect whether there is clearance, damage and other abnormalities on swing arm ball joint.</p> <p>Check whether it is normal?</p>
3. Check swing arm and mounting bolts	
	<p>A. Remove all mounting bolts of swing arm for loosening and other abnormal conditions. Check whether each sleeve of swing arm is damaged or not.</p> <p>Check whether it is normal?</p> <p>? Yes to step 4</p>
4. Inspect the drive shaft dust cover.	
	<p>A. Inspect the drive shaft dust cover for damage.</p> <p>B. Check whether the drive shaft dust cover is installed correctly.</p> <p>C. Inspect whether the drive shaft constant velocity universal joint lubricating oil leaks.</p> <p>Check whether it is normal?</p> <p>? Yes to step 5.</p> <p>? No Handle the faulty position.</p>
5. Check drive shaft	
	<p>A. Remove the drive shaft.</p> <p>B. Inspect the drive shaft.</p> <p>Check whether it is normal?</p> <p>? Yes Analysis of drive shaft Analysis of internal</p>

	<p>conditions</p> <p>? No Replace drive shaft assembly.</p>
--	---

## Drive shaft falls off

Test conditions	Details/Results/Measures
1. Check drive shaft	
	<p>A. Inspect the drive shaft dust cover for damage.</p> <p>B. Check whether the drive shaft dust cover is installed correctly.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to step 2.</p> <p>? No Handle the faulty position.</p>
2. Check front pillar, suspension, brake and swing arm	
	<p>A. Inspect whether the front pillar assembly is deformed. Check whether the suspension is broken or off, and whether the brake angle is broken or the swing arm is off.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to Step 3.</p> <p>? No Replace faulty part.</p>
3. Inspect the drive shaft lock nut.	
	<p>A. Inspect whether the lock nut of drive shaft is damaged.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to Step 4.</p> <p>? No Replace lock nut.</p>
4. Check spring retaining ring on drive shaft and transmission side	
	<p>A. Remove the drive shaft.</p> <p>B. Inspect the spring retaining ring on the transmission side of the drive shaft.</p>

	<p>Check whether it is normal?</p> <p>? Yes Check interface dimension between transmission and drive shaft</p> <p>? No Replace drive shaft assembly.</p>
--	--

## Complete vehicle low speed shimmy

Test conditions	Details/Results/Measures
1. Check wheels	
	<p>A. Check whether the tire runout is normal.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to step 2.</p> <p>? No Handle the faulty position.</p>
2. Check wheel alignment	
	<p>A. Inspect whether the wheel alignment is normal.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to Step 3.</p> <p>? No Handle the faulty position.</p>
3. Check suspension system	
	<p>A. Check suspension system.</p> <p>Check whether it is normal?</p> <p>? Yes to Step 4</p> <p>? No Handle the faulty position.</p>
3. Check drive shaft	
	<p>A. Inspect the drive shaft dust cover for damage.</p> <p>B. Check whether the drive shaft dust cover is installed correctly.</p> <p>C. Check whether the drive shaft is bent or deformed.</p> <p>Check whether it is normal?</p> <p>? Yes Analysis of drive shaft Analysis of internal conditions</p> <p>? No Handle the faulty position.</p>

## Drive shaft swing

Test conditions	Details/Results/Measures
1. Check drive shaft	
	<p>A. Inspect the drive shaft dust cover for damage.</p> <p>B. Check whether the drive shaft dust cover is installed correctly.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Go to step 2.</p> <p>? No</p> <p>Handle the faulty position.</p>
2. Check spring retaining ring on drive shaft and transmission side	
	<p>A. Remove the drive shaft.</p> <p>B. Inspect the spring retaining ring on the transmission side of the drive shaft.</p> <p>Check whether it is normal?</p> <p>? Yes</p> <p>Analyze the drive shaft to analyze the internal situation.</p> <p>? No</p> <p>Replace drive shaft assembly.</p>

**Disassembly and assembly**

**Inner constant velocity universal joint and dust cover**

**Disassembling**

Special tool

	<p>Drive shaft dust cover clamp removal pliers</p>
	<p>Drive shaft dust cover clamp mounting pliers</p>

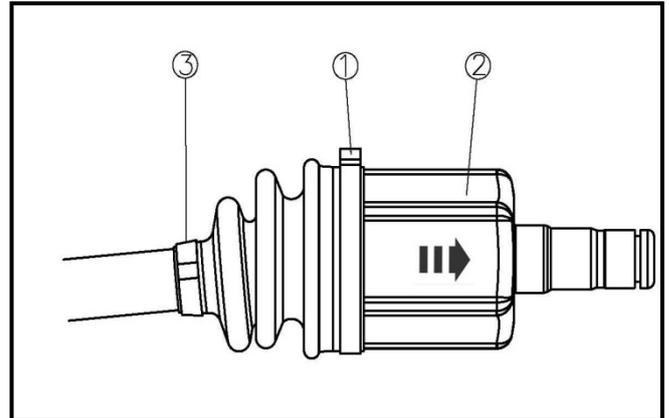
Material

Name	Model
High performance grease	G-3T2(Fixed end) CVJ5(Moving end)

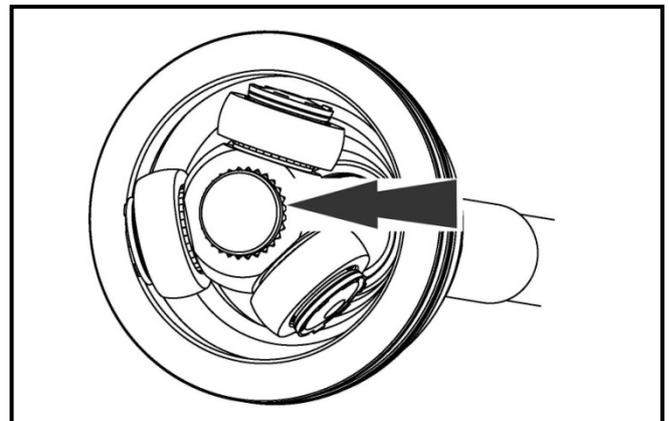
1. Remove drive shaft.
2. Remove the ball joint assembly.
  - Remove the dust cover clamp with special tool.

Special tool: Drive shaft dust cover clamp removal pliers

  - Disassemble ball joint assembly.
  - Remove grease in constant velocity universal joint.



3. Remove the three ball pin constant velocity universal joint snap spring with a suitable tool.



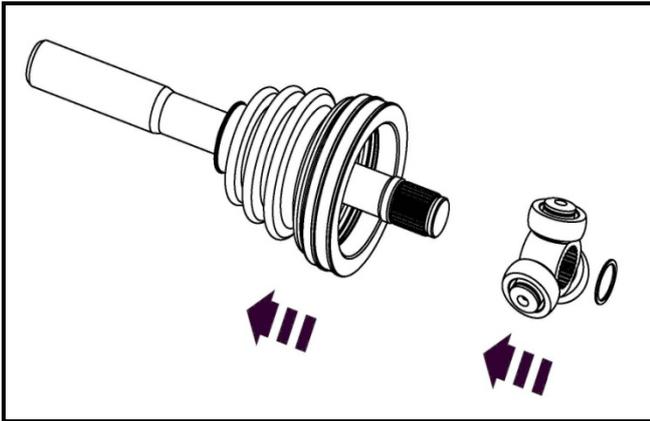
4. Remove the inner constant velocity universal joint dust cover.

**Assembly**

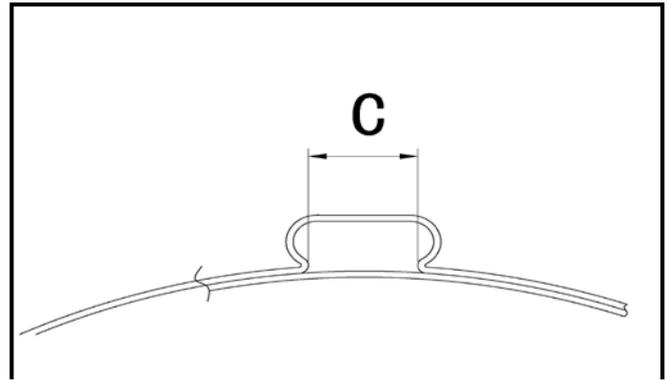


**Note:** Replace all snap rings and clamps.

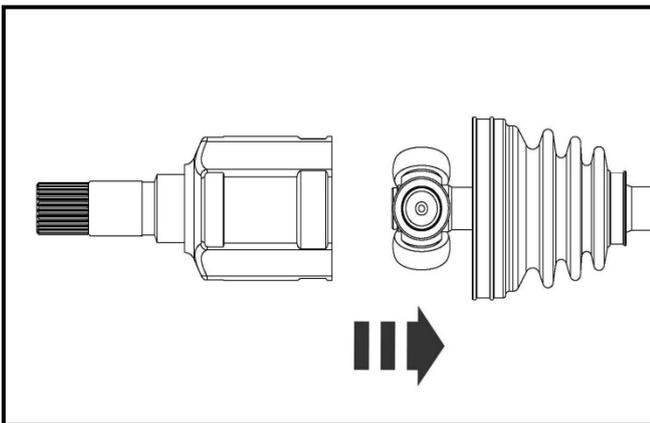
1. Install dust cover/three ball pins.
  - Install dust cover.
  - Install three ball pin constant velocity universal joint.
  - Install three ball pin constant velocity universal joint snap spring.



2. Install grease in the ball joint assembly.
3. Install ball joint assembly.



6. Install drive shaft.



4. Install dust cover.
5. Fit dust cover clamp with special tool.

Special tool: Drive shaft dust cover clamp mounting pliers



Note: After clamping the large and small clamps, the clamp opening dimension C is not greater than 1.5 mm.

# Outer constant velocity universal joint and dust cover

## Disassembling

### Special tool

	<p>Drive shaft dust cover clamp removal pliers</p>
	<p>Drive shaft dust cover clamp mounting pliers</p>

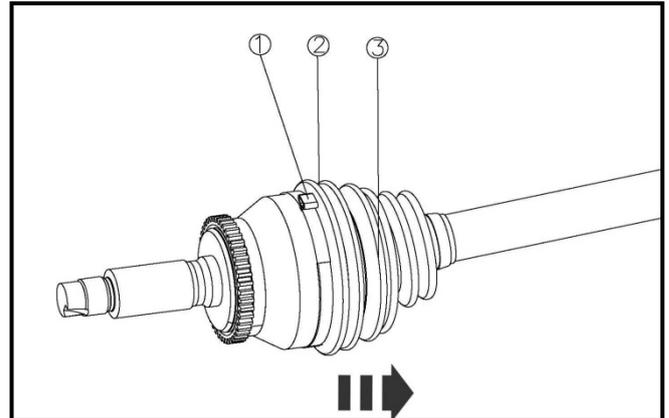
### Material

Name	Model
High performance grease	G-3T2(Fixed end) CVJ5(Moving end)

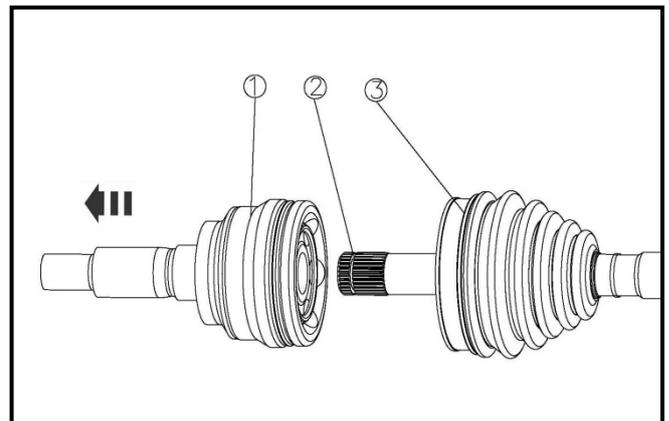
1. Remove drive shaft.
2. Remove dust cover clamp.
  - Remove the dust cover clamp with special tool.

Special tool: Drive shaft dust cover clamp removal pliers

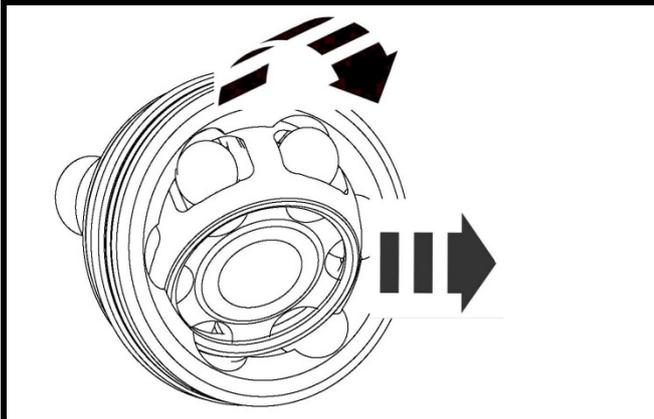
- Disengage the dust cover.
- Remove grease.



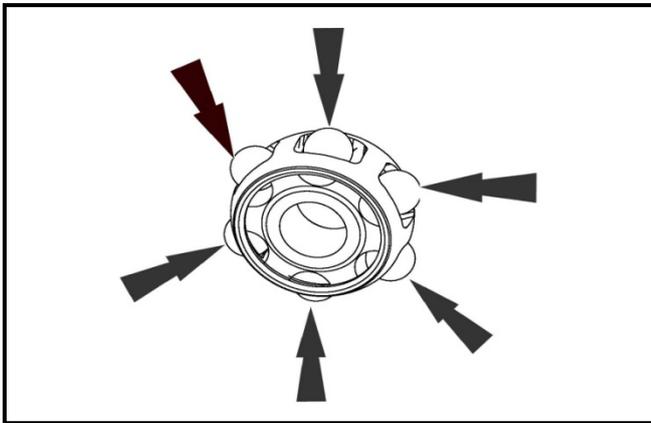
3. Remove the ball cage and cage frame from the housing.
  - Use sharp-nose pliers to open the snap ring.
  - Click with a copper bar to remove the constant velocity universal joint.
  - Take out the drive shaft ball cage (1) from the constant velocity universal joint.
  - Remove the circlip (2) from the constant velocity universal joint.
  - Remove the dust cover (3).



4. Remove ball cage.
  - Turn ball cage.
  - Take out the ball cage.



5. Remove the steel ball from the ball cage.

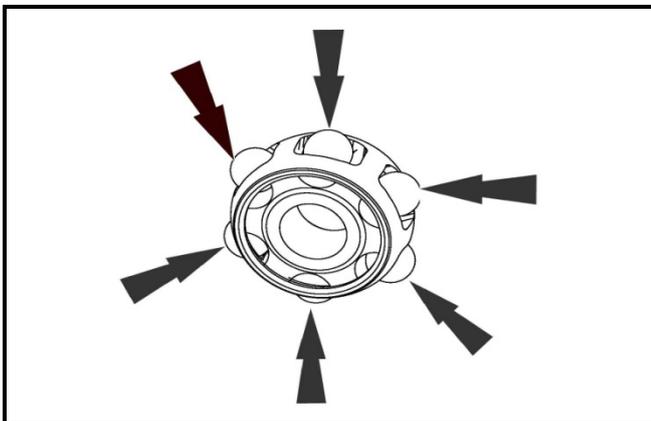


6. Check the wear of each movement surface.

## Assembly

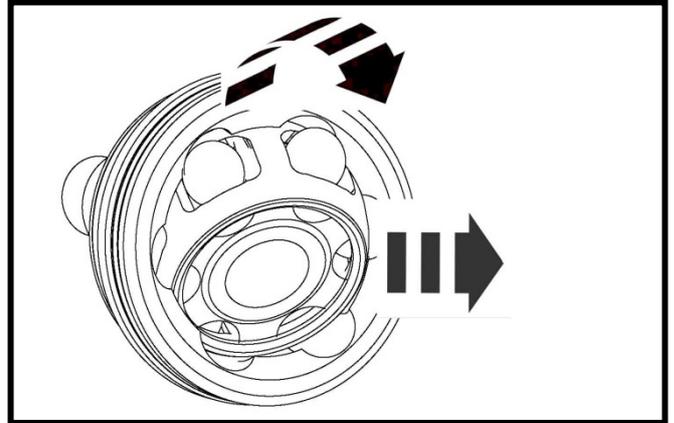
 **Note:** Replace all snap rings and clamps.

1. Fit steel balls on the ball cage.



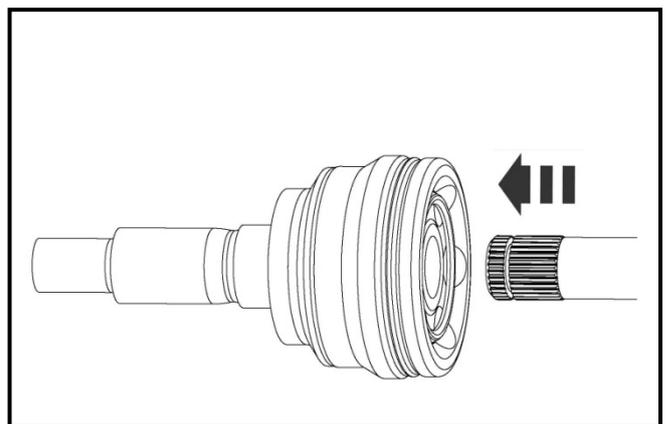
2. Install ball cage.

- Install the ball cage into the housing.
- Turn ball cage.



3. Install the drive shaft lever into the constant velocity joint.

- Set dust cover and inner clamp.
- Insert a new circlip in the drive shaft constant velocity joint groove.
- Insert the drive shaft into the drive shaft constant velocity joint until it engages the snap spring.



4. Fill the drive shaft outer constant velocity joint with high-performance grease.

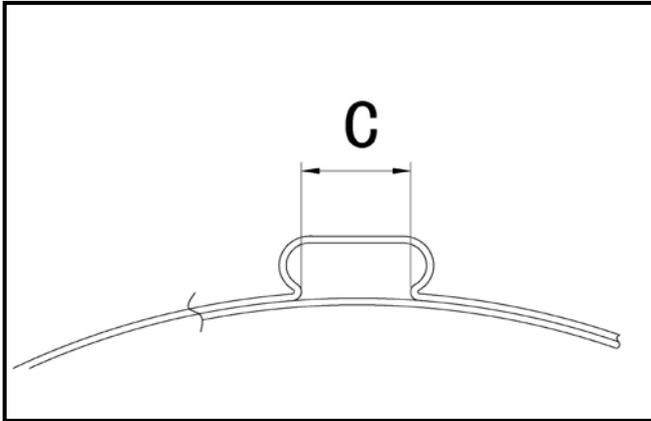
5. Install dust cover.
6. Fit dust cover clamp with special tool.

Special tool: Drive shaft dust cover clamp

mounting pliers



Note: After clamping the large and small clamps, the clamp opening dimension C is not greater than 1.5 mm.



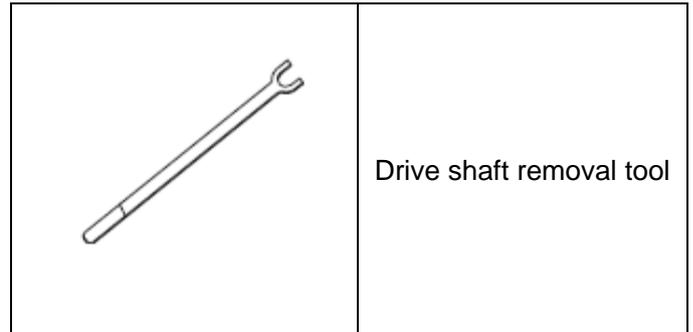
7. Install drive shaft.

## Removal and installation

### Left drive shaft

#### Removal

Special tool



1. Disconnect the negative battery harness.

[Reference: 3.1.11 charging system](#)

2. Remove wheel.

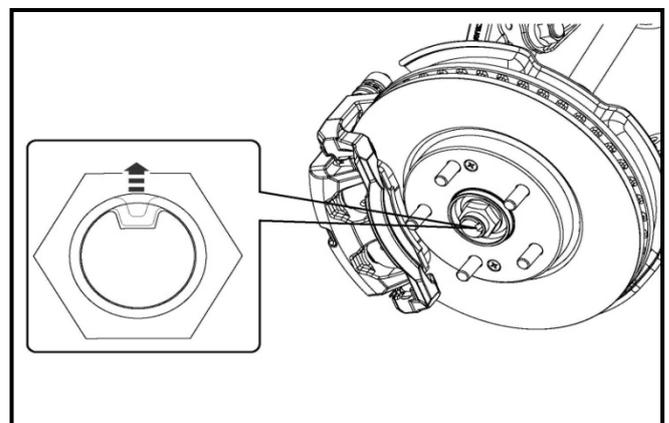
[Reference: 2.1.4 Wheels and tires](#)

3. Lift the vehicle.

[Reference: 1.1.3 Towing and lifting](#)

4. Remove lock nut.

· Remove the lock nut (not reusable).



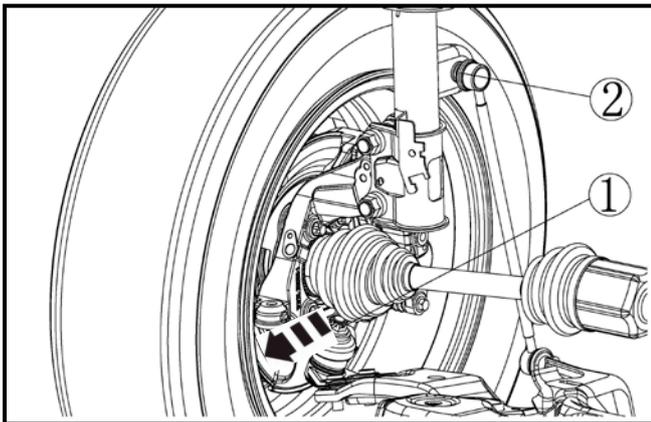
5. Remove the front swing arm ball joint from the steering knuckle.

- Straighten and remove the locking pin.
- Remove retaining nut of swing arm ball joint

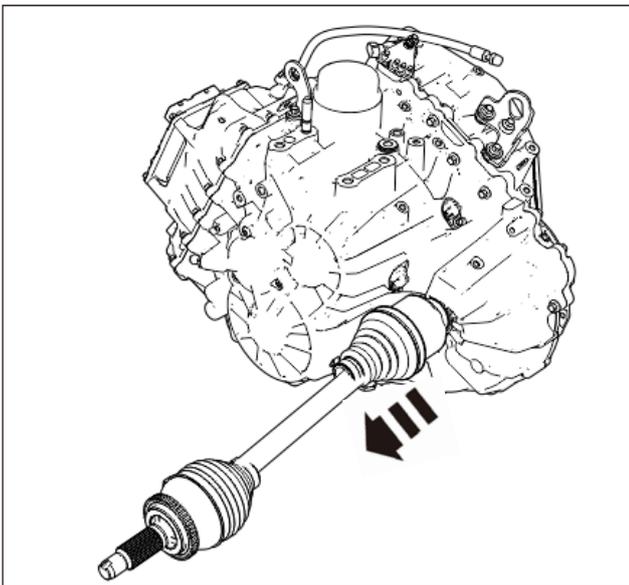
Torque: See chassis section

- Remove connecting rod mounting nut

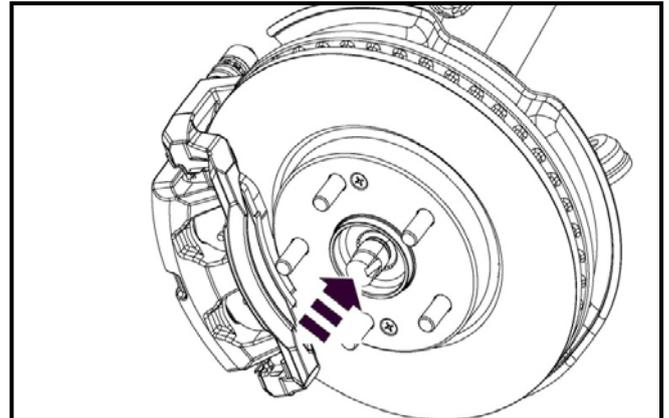
Torque: See chassis section



6. Take drive shaft out of the transmission using a suitable tool.



7. In order to prevent the transmission oil from leaking to the ground, find a suitable capacity and place it on the lower part of the transmission.
8. Take drive shaft out of the wheel hub using special tool.



Tools: Drive shaft removal tool

## Installation

1. Install the drive shaft to the variable (differential) speed shifter.



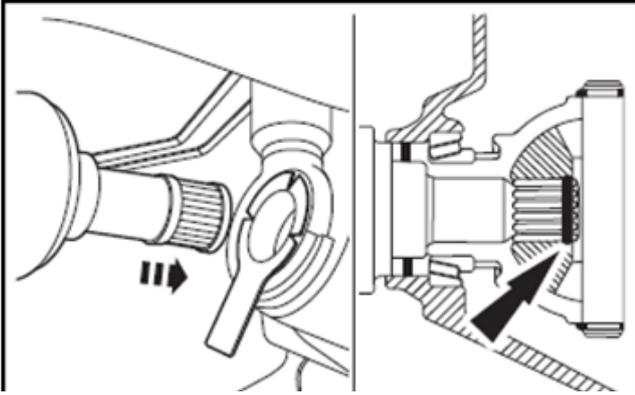
Note: Protect the drive shaft to avoid damage to the constant velocity universal joint. The working angle of the inner constant velocity universal joint shall not exceed 23 degrees. The working angle of outer constant velocity universal joint shall not exceed 45 degrees.



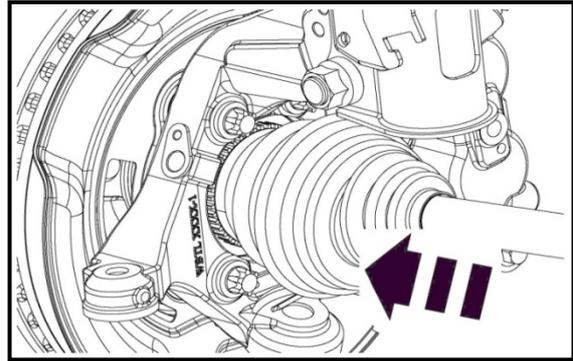
Note: When inserting the drive shaft, use the oil seal protective sleeve (supplied with the oil seal) to protect the transmission oil seal.



Note: Make sure that the retaining ring is installed in the groove when installing a new retaining ring.



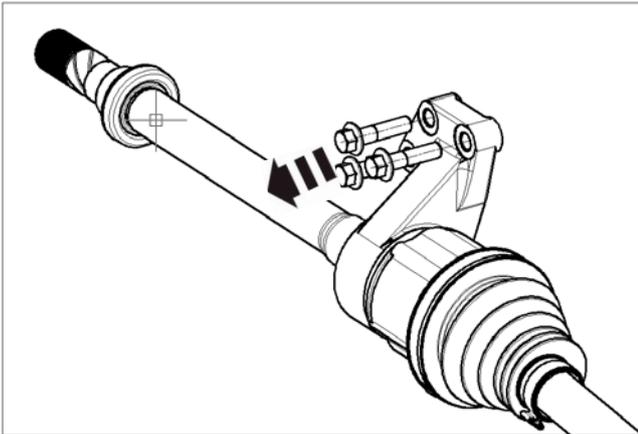
2. Install the drive shaft onto the hub bearing.



3. Install swing arm ball joint.
4. Install wheel hub nuts.
5. Fit wheel.
6. Connect the battery negative harness.

## Right drive shaft

1. Remove the three bolts of intermediate support of drive shaft.



Reference: [2.2.2 Left drive shaft, removal and installation](#)



**SAIPA YADAK**

DAROU PAKHSH St.-KM17 KARAJ MAKHSOOS ROAD-TEHRAN

[www.sajpayadak.org](http://www.sajpayadak.org)