

DRIVE SHAFT

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

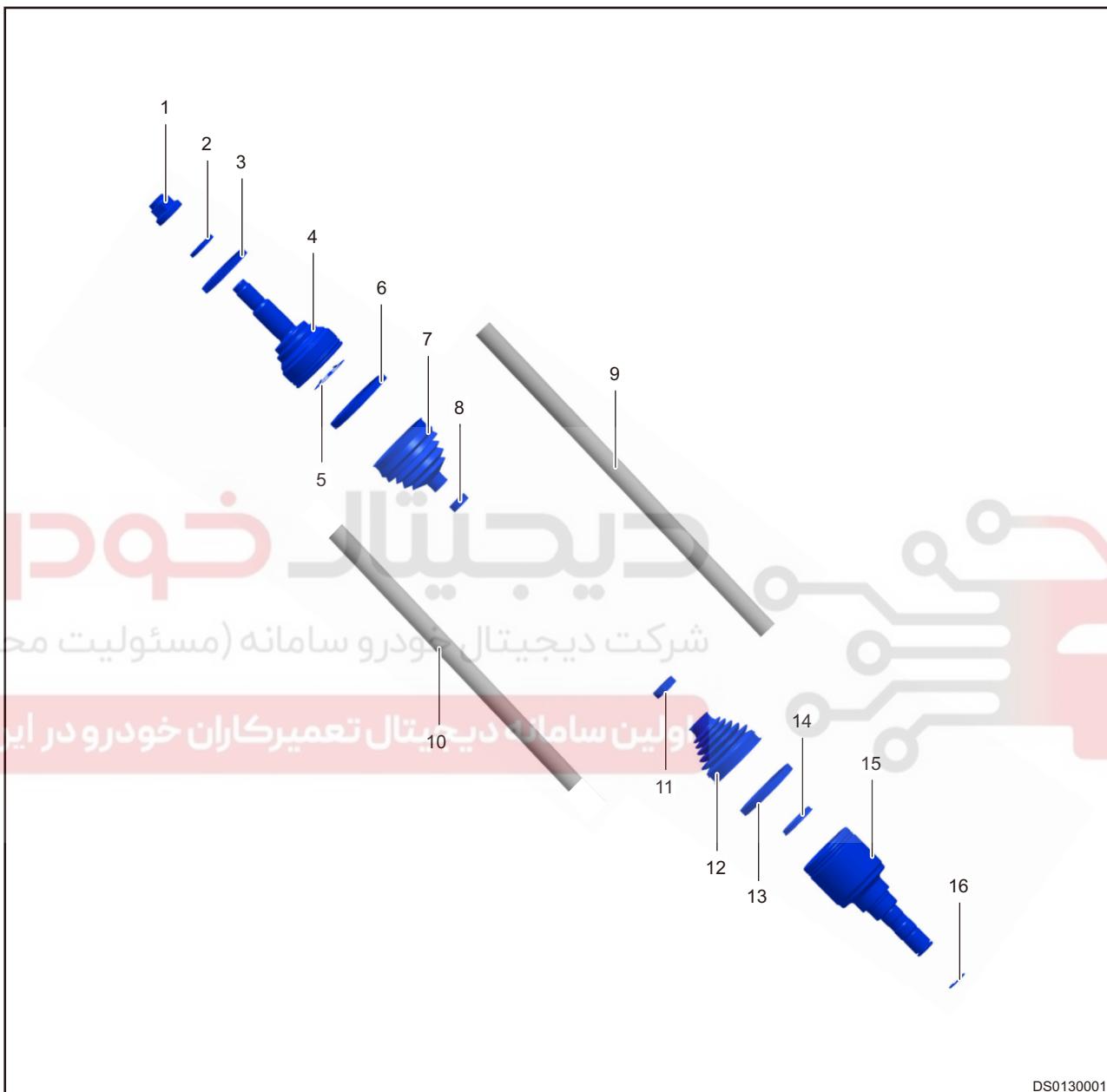
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GENERAL INFORMATION

Overview

Description



1 - Hexagon Flange Face Self-locking Nut	2 - Nut Washer
3 - Wheel Speed Sensor Ring Gear	4 - Outer Ball Cage
5 - Positioning Snap Spring	6 - Outer Dust Boot Clamp
7 - Outer Dust Boot	8 - Outer Dust Boot Clamp
9 - Right Constant Velocity Universal	10 - Left Constant Velocity Universal
11 - Inner Dust Boot Clamp	12 - Inner Dust Boot
13 - Inner Dust Boot Clamp	14 - Positioning Snap Spring
15 - Inner Ball Cage	16 - Set Ring

Operation

Drive shaft, which is a solid shaft, transmits torque between differential and drive wheels. Generally, the inner end of drive shaft is connected with drive shaft gear by spline, and the outer end is connected with wheel hub. Drive shaft transmits torque from differential to wheels, thus rotating the wheels to run vehicle.

Specifications

Torque Specifications

Description	Torque (N·m)
Drive Shaft Fixing Nut	270 ± 20
Coupling Nut Between Steering Knuckle and Control Arm Ball Pin	95 ± 10

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ON-VEHICLE SERVICE

Drive Shaft Assembly

Removal

Warning/Caution/Hint:

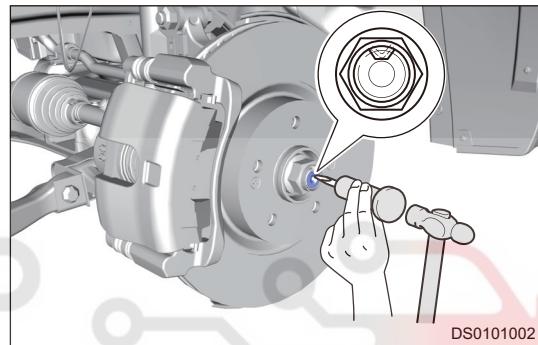
Caution:

- Use same removal/installation procedures for left drive shaft assembly and right drive shaft assembly.
- Removal procedures listed below are for left drive shaft.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front left wheel (See page 20-8).
4. Drain the transmission oil (See page 15-82).
5. Remove the front left drive shaft locking nut.
 - (a) Using a nut punch and a hammer, loosen the staked part of nut.

Caution:

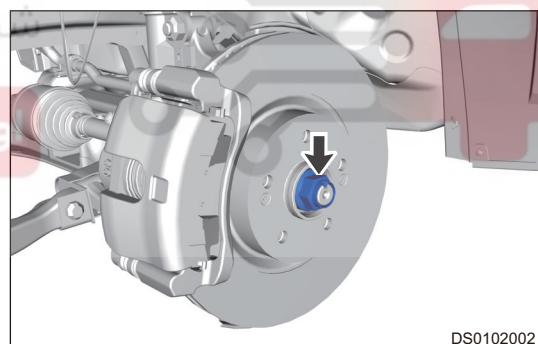
- Loosen staked part of nut completely, otherwise it will damage threads of drive shaft assembly.



- (b) Remove the left drive shaft locking nut and washer (arrow) while applying brake.

Tightening torque

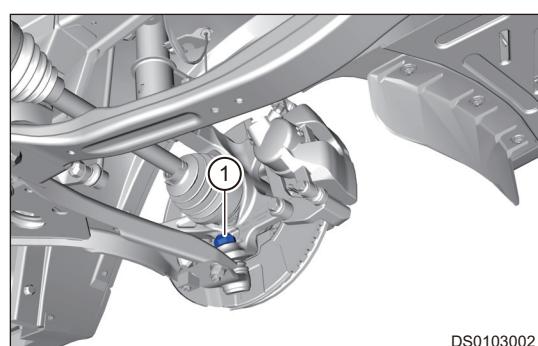
$270 \pm 20 \text{ N}\cdot\text{m}$



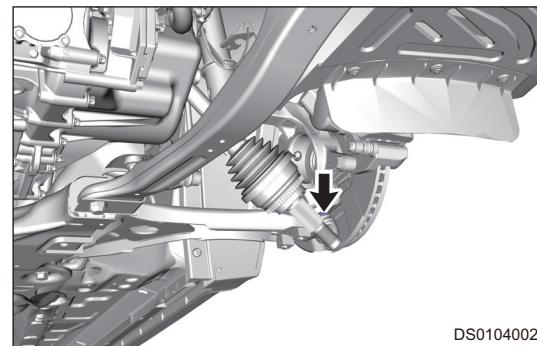
6. Remove the coupling nut (1) between front left steering knuckle and control arm ball pin, and separate control arm ball pin from steering knuckle with tools.

Tightening torque

$95 \pm 10 \text{ N}\cdot\text{m}$

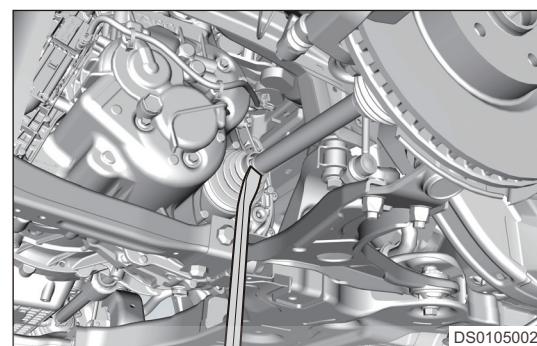


7. Detach the left drive shaft outer ball cage spline from spline groove (arrow) of front hub.



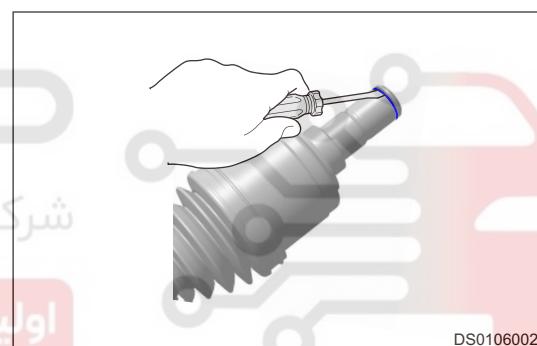
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8. Pry out the inner ball cage spline inserted in end of transmission with crowbar.



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9. Remove the set ring.



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Installation

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1. Installation is in the reverse order of removal.

Caution:

- Replace the inner ball cage spline shaft head set ring if it is deformed obviously during removing or is removed and installed for more than twice.
- Replace the outer ball cage end locking nut flange if it is damaged seriously during removing or is removed and installed more than twice.
- Do not pull shaft lever and outer ball cage end excessively during assembly to avoid inner ball cage tripod joint slipping out excessively from interior of housing. Otherwise, inner end boot will be squeezed when it is intruded again, causing oil leakage and affecting its service life.
- When the inner ball cage is inserted into transmission, be careful not to make spline to scratch differential oil seal, or it will cause damage to oil seal main lip.
- Take particular care to prevent contact and collision between the sealing boot and hard objects such as tools rack and chassis parts during the assembly; If there are any damages or scratch traces of the boot during assembly, the sample must be replaced and do not assemble it to vehicle privately.
- Do not hold the sealing boot with hands to prevent wrinkles from forming on sealing boot during assembly.
- Protect the threads, spline and installation surface to prevent from forming defects such as nick, scratch.
- Make sure that there is no excessive pivot angle, excessive impact, excessive stretch and excessive compression on both ends universal joint during assembly operation to avoid contact between drive shaft internal end sealing boot and tripod universal joint.

Inner Ball Cage

Disassembly

Warning/Caution/Hint:

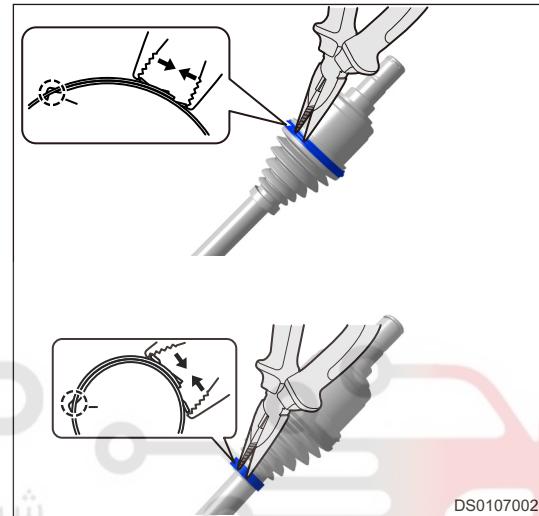
Hint:

- Use same disassembly and assembly procedures for left and right drive shaft assemblies.

Caution:

- DO NOT put matchmarks on the rotating surface of rotary drum.
- Operate carefully to prevent dust boot from being damaged.

1. Remove the drive shaft assembly (See page 16-5).
2. Remove the inner ball cage dust boot clamps
 - (a) Using needle nose pliers, remove the inner ball cage dust boot clamps.



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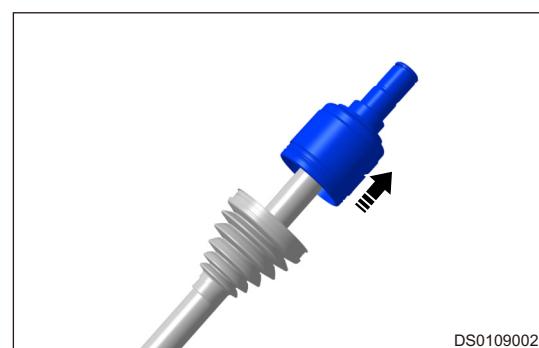
3. Remove the inner ball cage

- (a) Separate the dust boot from inner ball cage in direction of arrow.



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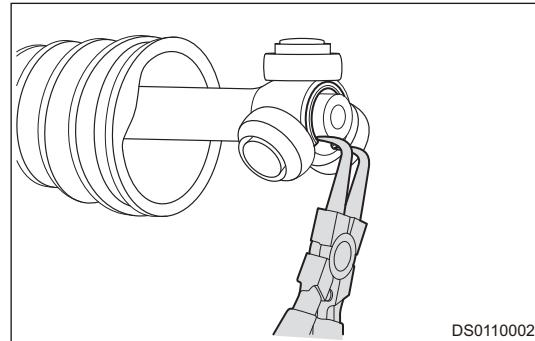
- (b) Remove the inner ball cage in direction of arrow, and place it on a piece of clean cloth.



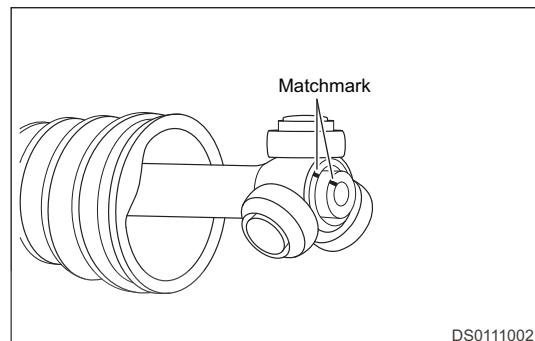
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4. Remove the tripod

(a) Using snap spring calipers, remove the positioning snap spring of tripod.

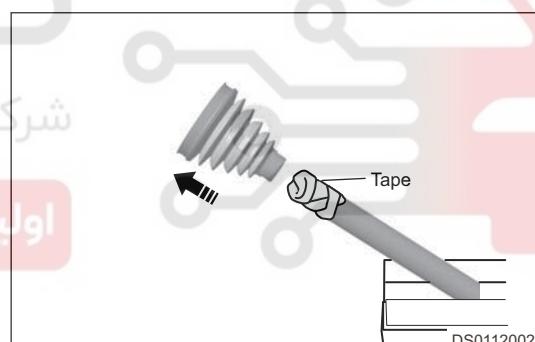


(b) Put matchmarks on the tripod and drive shaft, and remove the tripod.



5. Remove the dust boot.

(a) Wrap tape on the spline of drive shaft, and remove the dust boot.



(b) Remove the tape.

Inspection

1. Check if spline of drive shaft is in good condition. If it is deformed or damaged, replace it
2. Check if dust boot is in good condition. If it is scratched or broken, replace it
3. Check if positioning snap spring of tripod is deformed. If it is deformed, replace it

Installation

1. Assembly is in the reverse order of disassembly.

Caution:

- Refill grease during assembly.
- Operate carefully to prevent dust boot from being damaged.

Outer Ball Cage

Disassembly

Warning/Caution/Hint:

Hint:

- Use same disassembly and assembly procedures for outer ball cage of left / right drive shaft assemblies.

1. Remove the drive shaft assembly (See page 16-5).

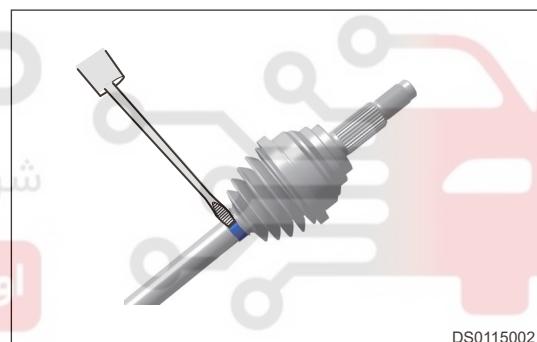
2. Remove the outer ball cage dust boot outer clamp.

(a) Using a screwdriver, pry out the striker of outer ball cage dust boot outer clamp and remove the outer ball cage dust boot outer clamp.



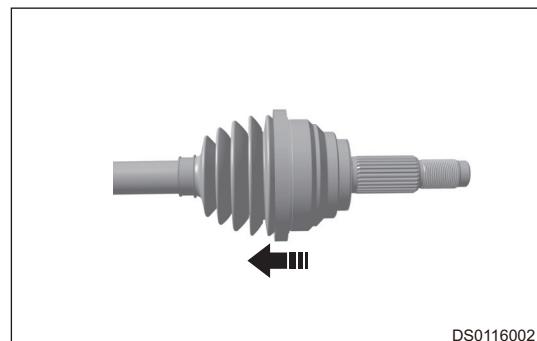
3. Remove the outer ball cage dust boot inner clamp.

(a) Using a screwdriver, pry out the striker of outer ball cage dust boot inner clamp and remove the outer ball cage dust boot inner clamp.

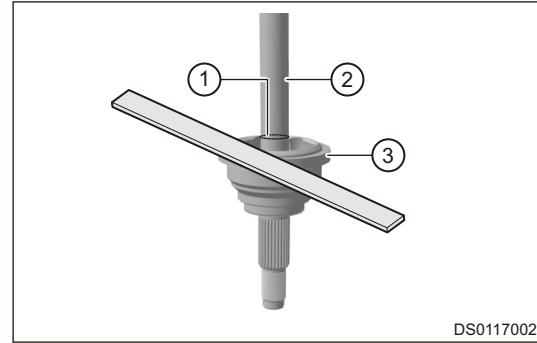


4. Remove the outer ball cage.

(a) Slide the outer dust boot carefully into the inner ball cage side in direction of arrow.

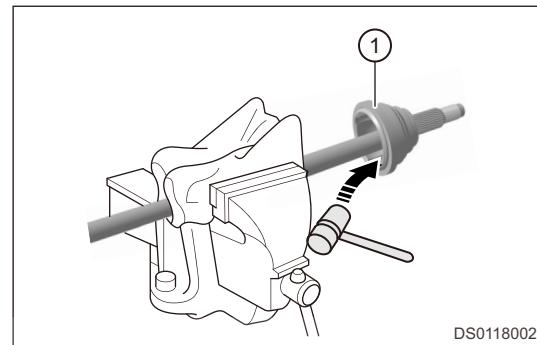


(b) Put matchmarks (1) on the area at same height as drive shaft assembly (2) and the edge of outer ball cage (3) for correct installation.



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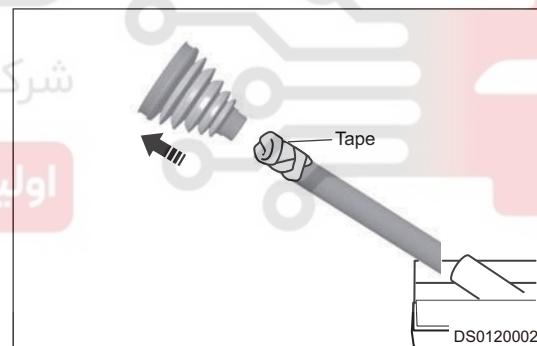
(c) Wrap the drive shaft assembly with a piece of cloth and put it onto a vise. Secure the vise to prevent drive shaft assembly from shaking. Expand the internal positioning snap spring of outer ball cage with snap spring calipers, then tap outer ball cage with a hammer and remove the outer ball cage (1).



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5. Remove the left drive shaft from vise.
6. Remove the internal positioning snap spring of outer ball cage.
7. Remove the outer ball cage dust boot.

(a) Wrap tape on the spline of drive shaft, and remove the dust boot.



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(b) Remove the tape.

Inspection

1. Check if spline of drive shaft is in good condition. If it is deformed or damaged, replace it
2. Check if dust boot is in good condition. If it is scratched or broken, replace it

Installation

1. Assembly is in the reverse order of disassembly.

Caution:

- Refill grease during assembly.
- Install with new clamps.
- Operate carefully to prevent dust boot from being damaged.