

Driveshaft and Axle

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DS-2

Driveshaft and axle

General Information

Specification

Engine	T/M	Joint type		Max. permissible angle	
		Outer	Inner	Outer	Inner
Gasoline 2.4	A/T	BJ#24	UTJ#24	45°	21°
Gasoline 3.5	A/T	BJ#26	UTJ#25	45°	21°

Tightening Torque

Item		N.m	kgf.m	lb-ft
Front	Wheel nut	88.2 ~ 107.8	9.0 ~ 11.0	65.0 ~ 79.5
	Drive shaft nut	196.1 ~ 274.5	20.0 ~ 28.0	144.6 ~ 202.5
	Strut assembly lower mounting bolt	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Brake caliper mounting bolt	78.4 ~ 98.0	8.0 ~ 10.0	57.8 ~ 72.3
	Wheel speed sensor mounting bolt	6.8 ~ 10.7	0.7 ~ 1.1	5.0 ~ 7.9
	Brake disc mounting bolt	4.9 ~ 5.8	0.5 ~ 0.6	3.6 ~ 4.3
	Lower ball joint mounting bolt	98.0 ~ 117.6	10.0 ~ 12.0	72.3 ~ 86.7
	Tie rod end ball joint nut	34.3 ~ 44.0	3.5 ~ 4.5	25.3 ~ 32.5
Rear	Wheel nut	88.2 ~ 107.8	9.0 ~ 11.0	65.0 ~ 79.5
	Shock absorber upper mounting bolt	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Shock absorber lower mounting nut	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Brake caliper mounting bolt	78.4 ~ 98.0	8.0 ~ 10.0	57.8 ~ 72.3
	Wheel speed sensor mounting bolt	6.8 ~ 10.7	0.7 ~ 1.1	5.0 ~ 7.9
	Brake disc mounting bolt	4.9 ~ 5.8	0.5 ~ 0.6	3.6 ~ 4.3
	Hub assembly mounting bolt	78.4 ~ 88.2	8.0 ~ 9.0	57.8 ~ 65.0
	Upper arm ball joint mounting nut	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Lower arm mounting bolt	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Assist arm ball joint mounting nut	44.1 ~ 53.9	4.5 ~ 5.5	32.5 ~ 39.7
	Trailing arm mounting bolt	44.1 ~ 53.9	4.5 ~ 5.5	32.5 ~ 39.7

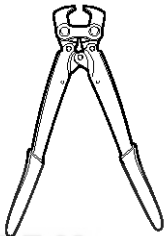

General Information

DS-3

Lubricants

		Lubricants	Quantity
Front Driveshaft	BJ#24	RBA	130g
	UTJ#24	CW-13TJ	160g
	BJ#25	RBA	160g
	UTJ#25	CW-13TJ	180g
	BJ#26	RBA	210g
	UTJ#25	CW-13TJ	180g

Special Tools

Tool(Number and Name)	Illustration	Use
09495-3K000 Band installer	 KINF500C	Installation of ear type boot band
09495-39100 Band installer	 AILG650A	Installation of hook type boot band

DS-4

Driveshaft and axle

Troubleshooting

Trouble Symptom	Probable cause	Remedy
Vehicle pulls to one side	Scoring of driveshaft ball joint	Replace
	Wear, rattle or scoring of wheel bearing	Replace
	Defective front suspension and steering	Adjustment or Replace
Vibration	Wear, damage or bending of driveshaft	Replace
	Driveshaft rattle and hub serration	Replace
	Wear, rattle or scratching of wheel bearing	Replace
Shimmy	Defective wheel balance	Adjustment or Replace
	Defective front suspension and steering	Adjustment or Replace
Excessive noise	Wear, damage or bending of driveshaft	Replace
	Rattle of driveshaft and worn hub splines	Replace
	Wear, rattle or scoring of wheel bearing	Replace
	Loose hub nut	Adjustment or Replace
	Defective front suspension and steering	Adjustment or Replace

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



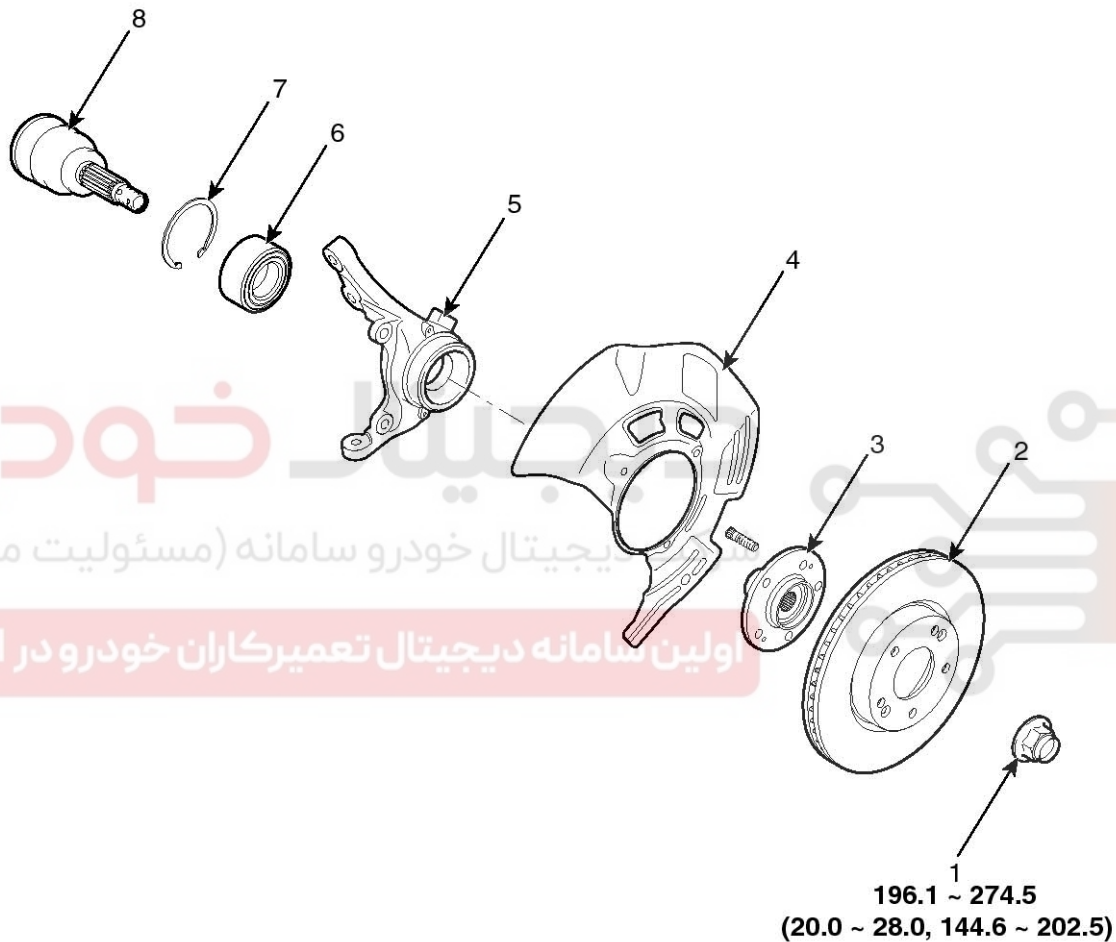
Front Axle Assembly

DS-5

Front Axle Assembly

Front Hub - Axle

Components



Tightening torque : N.m (kgf.m, lb-ft)

SVGDS0001L

1. Coking nut
2. Brake disc
3. Hub
4. Wheel bearing

5. Snap ring
6. Dust cover
7. Knuckle
8. Drive shaft

DS-6

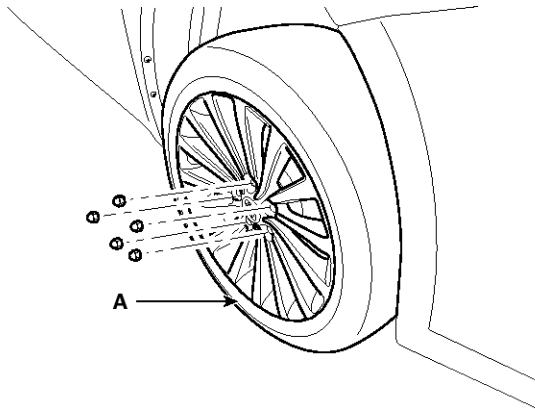
Driveshaft and axle

Replacement

1. Loosen the wheel nuts slightly.
Raise the vehicle, and make sure it is securely supported.
2. Remove the front wheel and tire(A) from front hub.

Tightening torque:

88.2 ~ 107.8 N.m (9.0 ~ 11.0 Kgf.m, 65.0 ~ 79.5 lb-ft)



SVGDS0002D

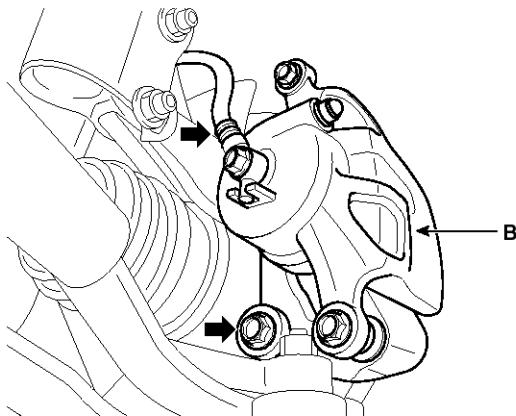
⚠ CAUTION

Be careful not to damage to the hub bolts when removing the front wheel and tire (A).

3. Remove the brake caliper mounting bolts, and then place the brake caliper assembly (B) with wire.

Tightening torque:

78.4 ~ 98.0 N.m (8.0 ~ 10.0 Kgf.m, 57.8 ~ 72.3 lb-ft)

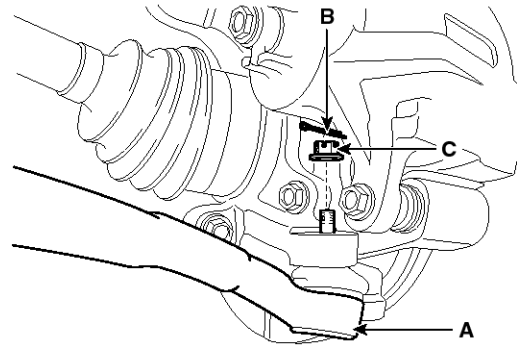


SVGDS0003D

4. Remove the tie rod end ball joint(A) from the knuckle.
 - 1) Remove the split pin(B).
 - 2) Remove the castle nut(C).

Tightening torque:

34.3 ~ 44.1 N.m (3.5 ~ 4.5 Kgf.m, 25.3 ~ 32.5 lb-ft)

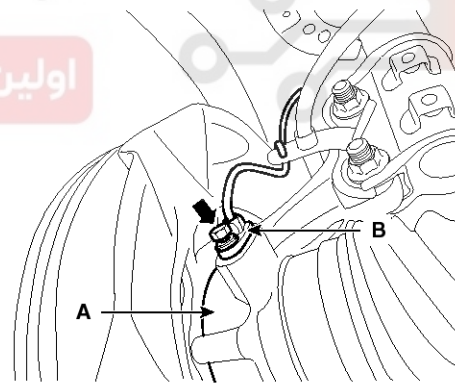


SVGDS0007D

5. Loosen the mount bolt and then remove the wheel speed sensor(B) from knuckle(A).

Tightening torque:

6.8 ~ 10.7 N.m (0.7 ~ 1.1 Kgf.m, 5.0 ~ 7.9 lb-ft)



SVGDS0008D

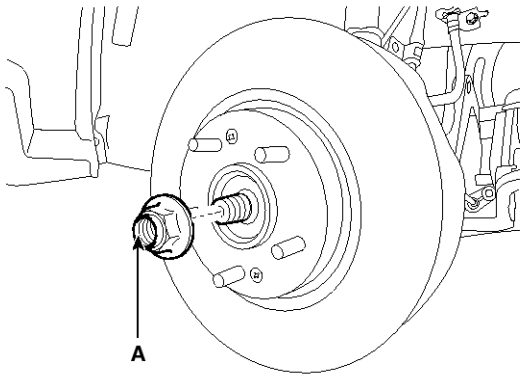
Front Axle Assembly

DS-7

6. Remove driveshaft coking nut(A) from the front hub under applying the break.

Tightening torque:

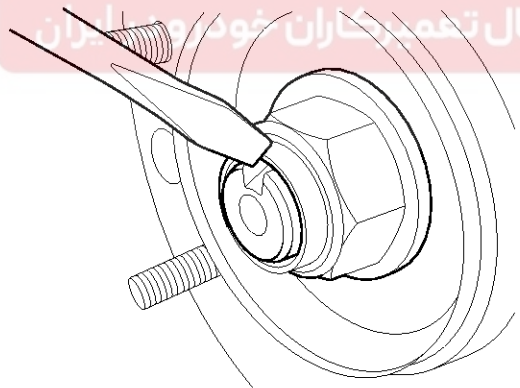
196.1 ~ 254.9 N.m (20.0 ~ 26.0 Kgf.m, 144.6 ~ 188.0 lb-ft)



SVGDS0004D

CAUTION

- The rear hub lock nut should be replaced with new ones.
- After installation lock nut, stake the lock nut using a chisel and hammer as shown in the illustration below.

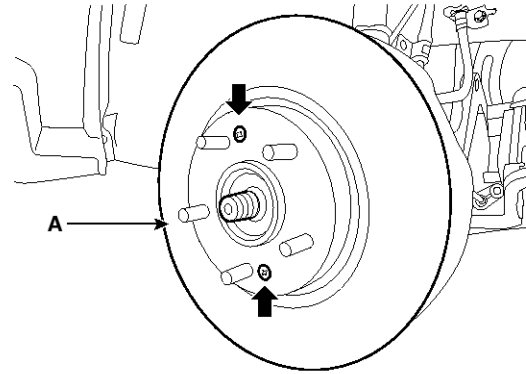


SVGDS0005D

7. Loosen the front brake disc mount screw and then remove the front brake disc(A).

Tightening torque:

4.9 ~ 5.8 N.m (0.5 ~ 0.6 Kgf.m, 3.6 ~ 4.3 lb-ft)

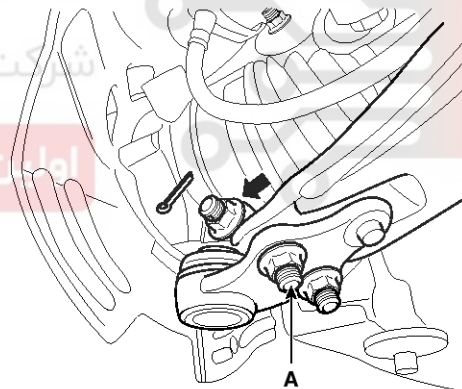


SVGDS0006D

8. Remove the lower arm(A) from the knuckle.

Tightening torque:

98.0 ~ 117.6 N.m (10.0 ~ 12.0 Kgf.m, 72.3 ~ 86.7 lb-ft)



SVGDS0016D

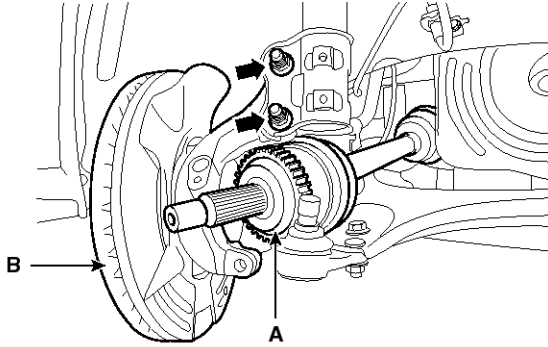
DS-8

Driveshaft and axle

9. Disconnect the driveshaft (A) from the front hub assembly and then loosen the strut mount bolts and then remove the knuckle assembly(B).

Tightening torque:

137.2 ~ 156.9 N.m (14.0 ~ 16.0 Kgf.m, 101.2 ~ 115.7 lb-ft)



SVGDS0009D

10. Install in the reverse order of removal.

Inspection

1. Check the hub for cracks and the splines for wear.
2. Check the brake disc for scoring and damage.
3. Check the knuckle for cracks.
4. Check the bearing for cracks or damage.

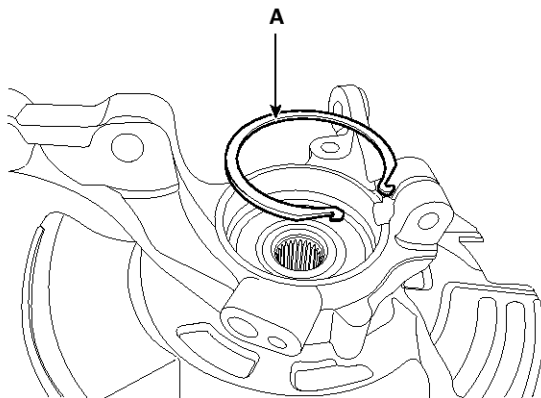


Front Axle Assembly

DS-9

Disassembly

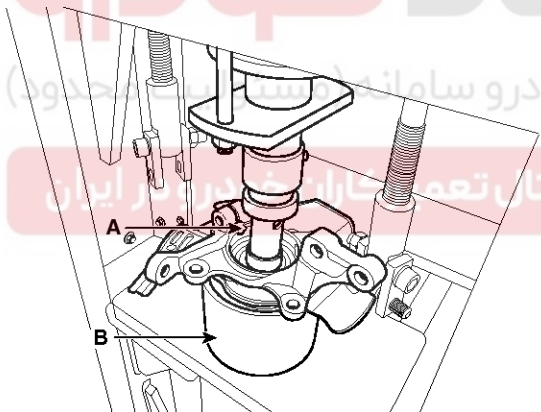
1. Remove the snap ring(A).



SVGDS0010D

2. Remove the hub assembly from the knuckle assembly.

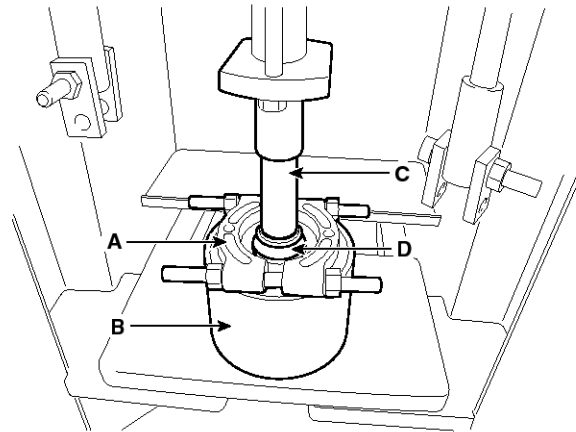
- 1) Install the front knuckle assembly (A) on press.
- 2) Lay a suitable adapter (B) upon the hub assembly shaft.



SVGDS0011D

3. Remove the hub bearing inner race from the hub assembly.

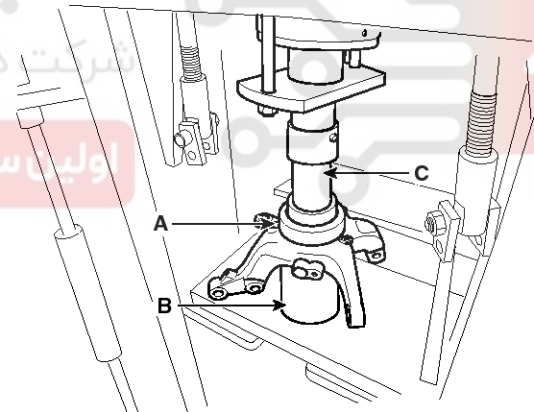
- 1) Install a suitable tool (A) for removing the hub bearing inner race on the hub assembly.
- 2) Lay the hub assembly and tool (A) upon a suitable adapter (B).
- 3) Lay a suitable adapter (C) upon the hub assembly shaft.
- 4) Remove the hub bearing inner race (D) from the hub assembly by using press.



SVGDS0012D

4. Remove the hub bearing outer race from the knuckle assembly.

- 1) Lay the hub assembly (A) upon a suitable adapter (B).
- 2) Lay a suitable adapter (C) upon the hub bearing outer race.
- 3) Remove the hub bearing outer race from the knuckle assembly by using press.



SVGDS0013D

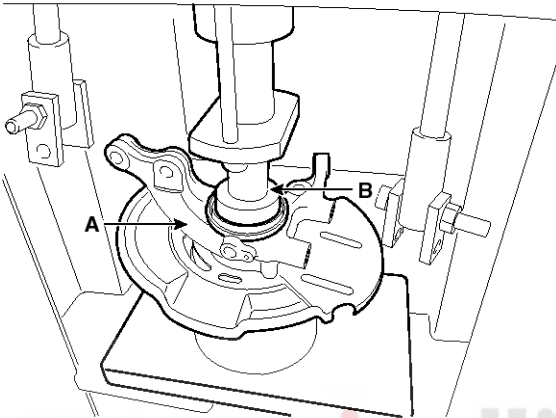
5. Replace hub bearing with a new one.

DS-10

Driveshaft and axle

Reassembly

1. Install the hub bearing to the knuckle assembly.
 - 1) Lay the knuckle assembly (A) on press.
 - 2) Lay a new hub bearing upon the knuckle assembly (A).
 - 3) Lay a suitable adapter (B) upon the hub bearing.
 - 4) Install the hub bearing to the knuckle assembly by using press.

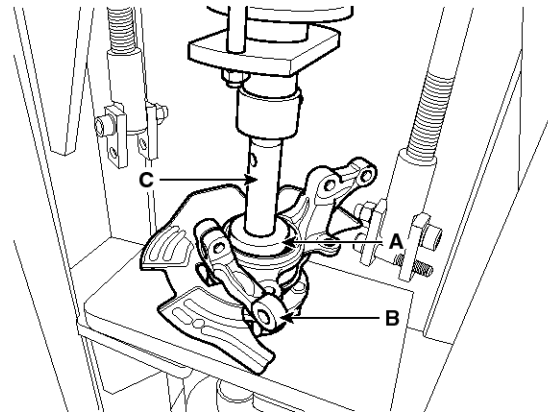


SVGDS0014D

⚠ CAUTION

- Do not press against the inner race of the hub bearing because that can cause damage to the bearing assembly.
- Always use a new wheel bearing assembly.

2. Install the hub assembly to the knuckle assembly.
 - 1) Lay the hub assembly (A) upon a suitable adapter.
 - 2) Lay the knuckle assembly (B) upon the hub assembly (A).
 - 3) Lay a suitable adapter upon the hub bearing.
 - 4) Install the hub assembly (A) to the knuckle assembly (B) by using press.

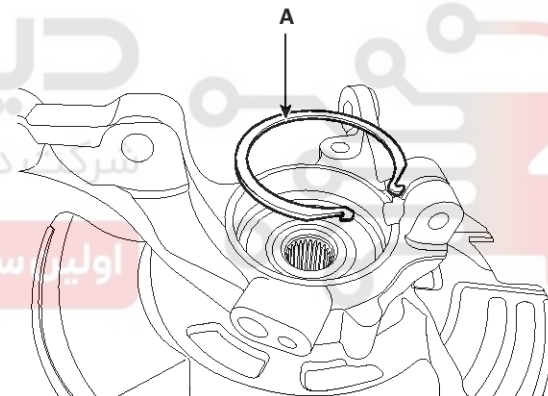


SVGDS0015D

⚠ CAUTION

Do not press against the inner race of the hub bearing because that can cause damage to the bearing assembly.

3. Install the snap ring(A).



SVGDS0010D

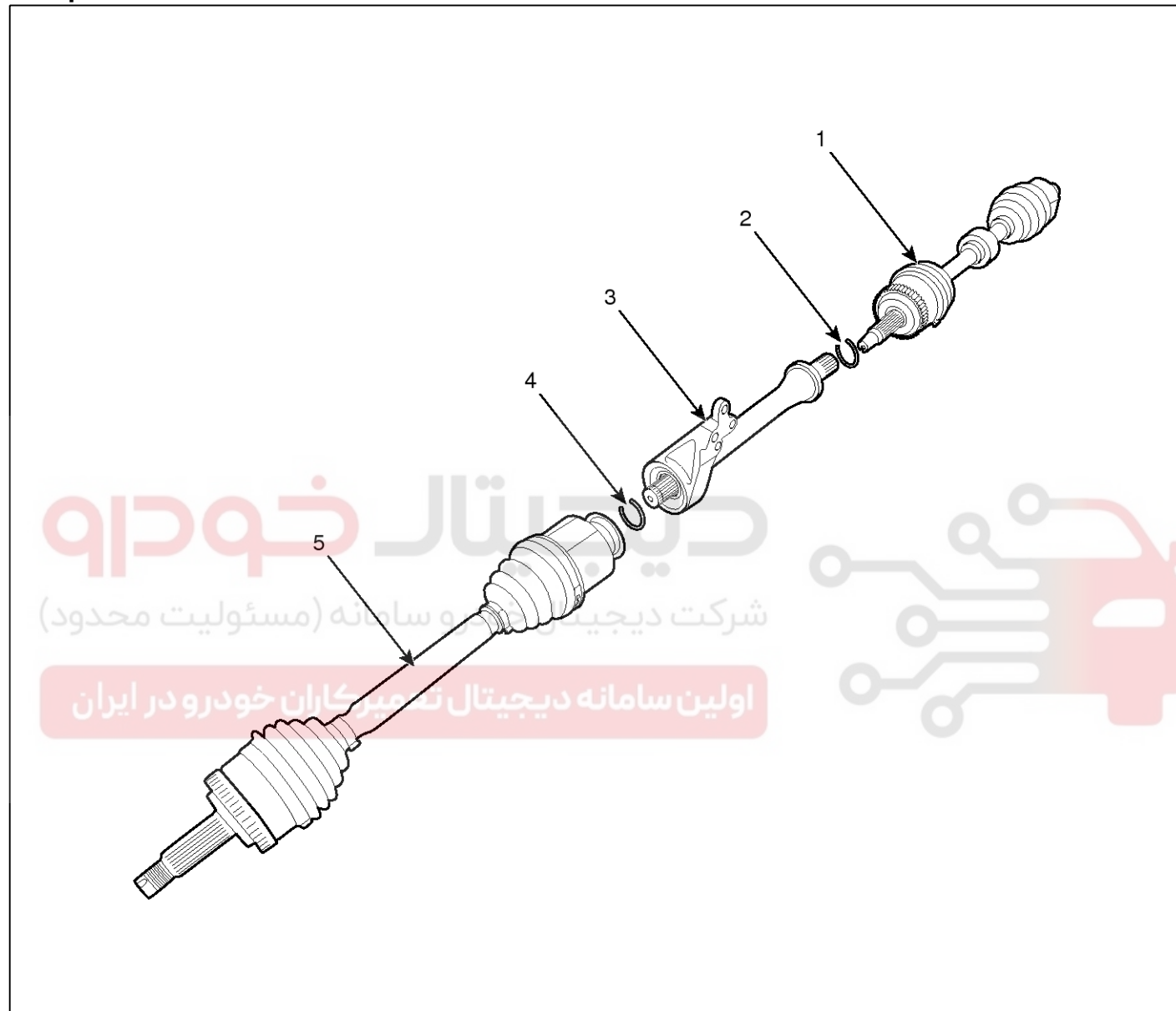
Driveshaft Assembly

DS-11

Driveshaft Assembly

Front Driveshaft

Component Location



SVGDS0017D

1. Driveshaft(LH)

2. Circlip

3. Inner shaft bearing bracket assembly

4. Circlip

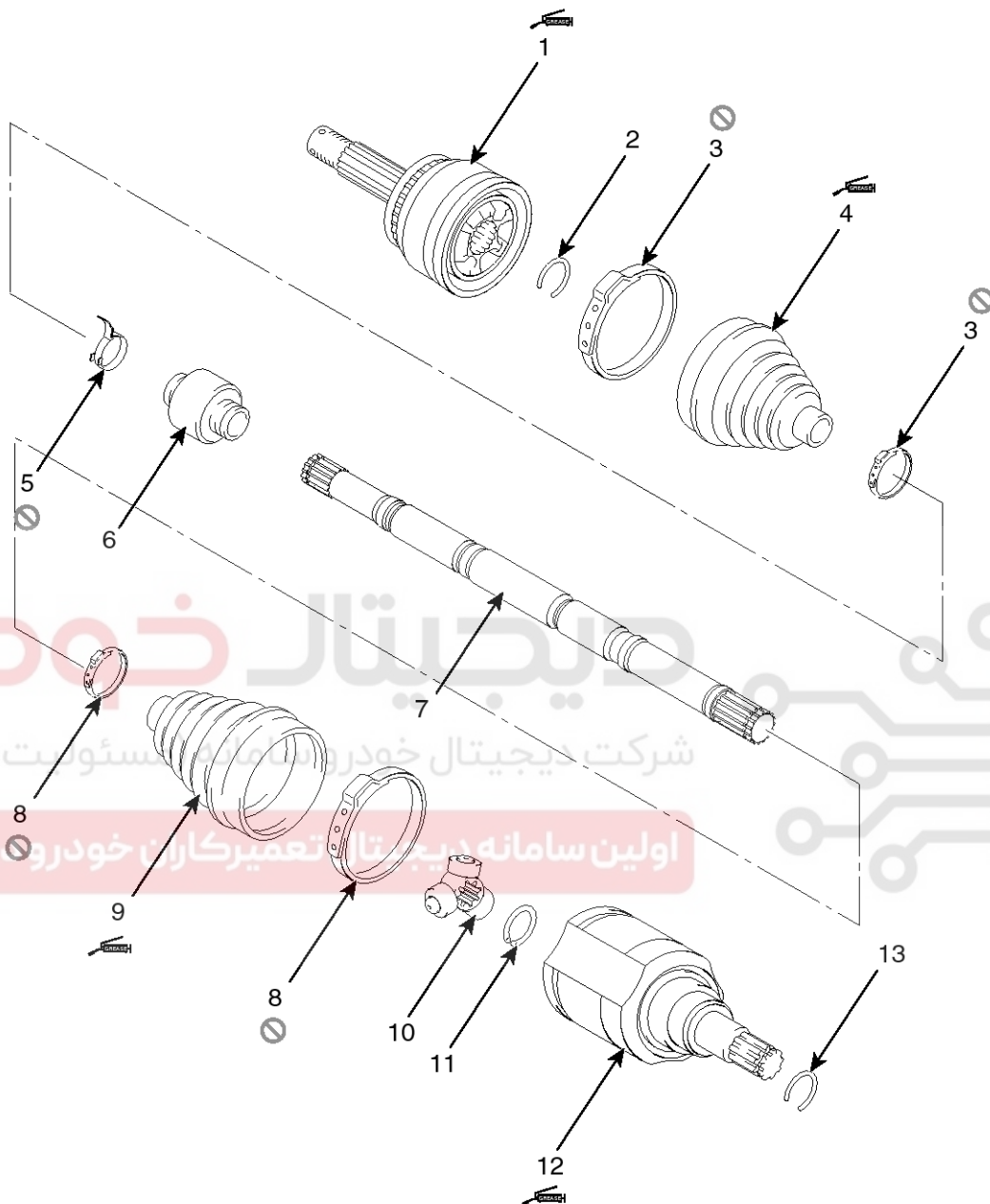
5. Driveshaft(RH)6.

DS-12

Driveshaft and axle

Components

[LH]



SVGDS0018D

1. BJ Assembly
2. Clip
3. BJ Boot Band
4. BJ Boot

5. Dynamic Damper Band
6. Dynamic Damper
7. Shaft
8. UTJ Boot Band

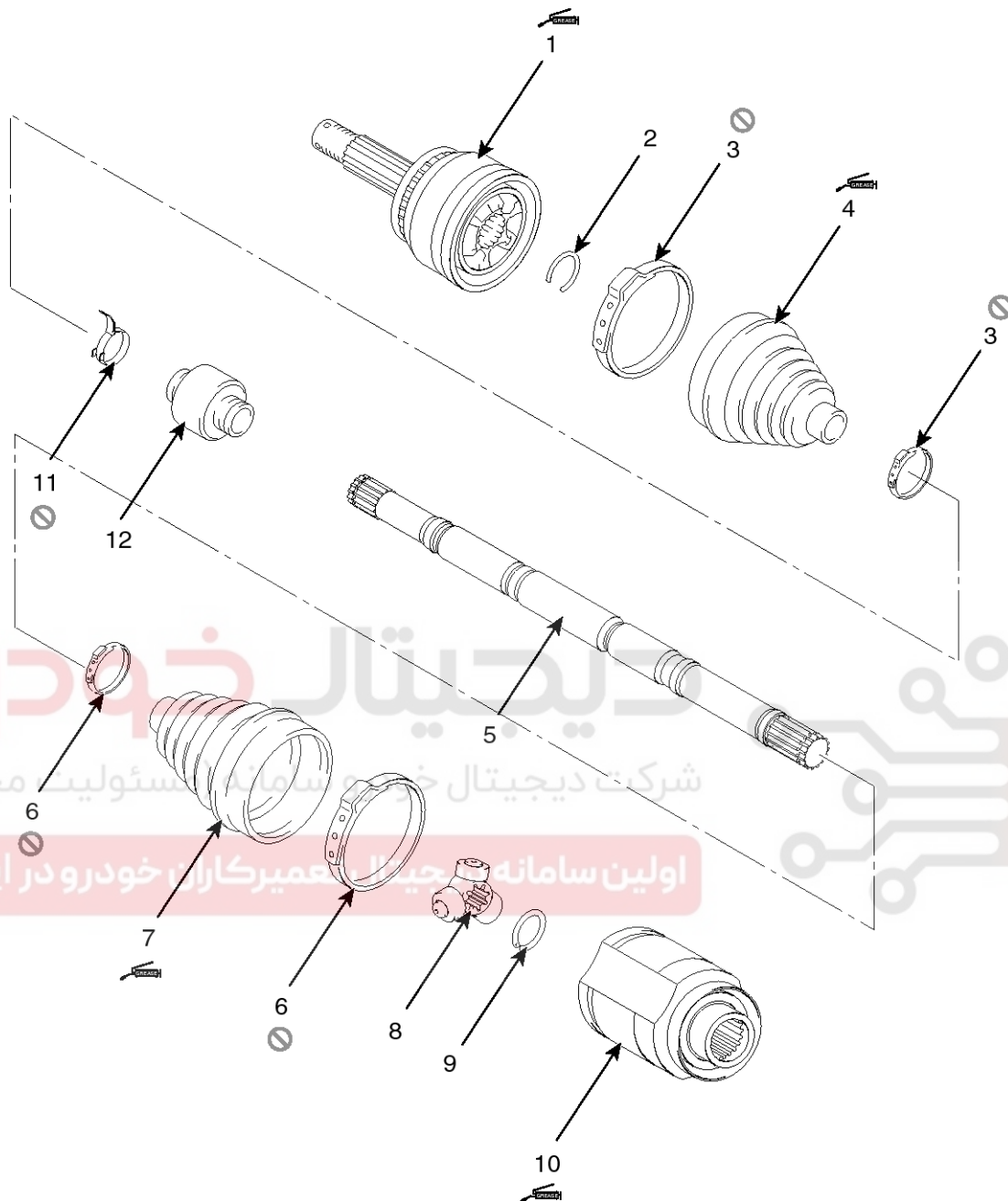
9. UTJ Boot
10. Spider Assembly
11. Clip
12. UTJ Case

13. Clip

Driveshaft Assembly

DS-13

[RH]



SVGDS0019D

1. BJ Assembly

2. Clip

3. BJ Boot Band

4. BJ Boot

5. Shaft

6. UTJ Boot Band

7. UTJ Boot

8. Spider Assembly

9. Clip

10. UTJ Case

11. Dynamic Damper Band

12. Dynamic Damper

DS-14

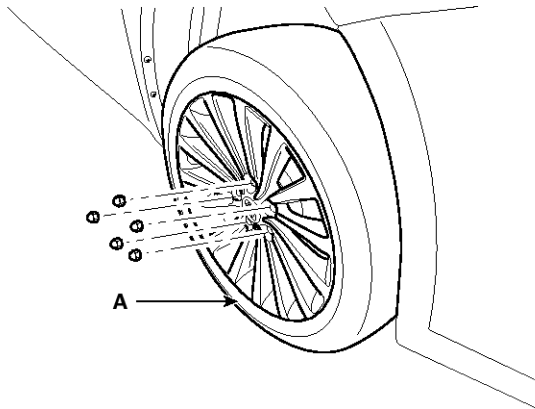
Driveshaft and axle

Replacement

1. Loosen the wheel nuts slightly.
Raise the vehicle, and make sure it is securely supported.
2. Remove the front wheel and tire(A) from front hub.

Tightening torque:

88.2 ~ 107.8 N.m (9.0 ~ 11.0 Kgf.m, 65.0 ~ 79.5 lb-ft)



SVGDS0002D

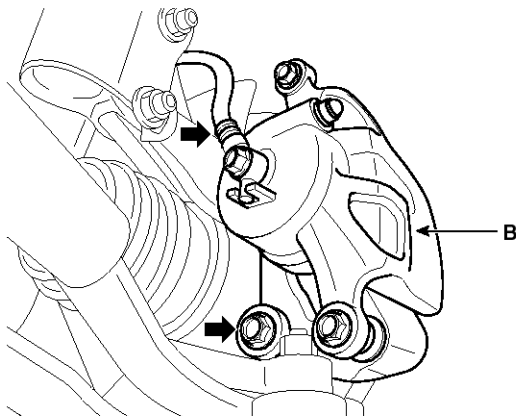
CAUTION

Be careful not to damage to the hub bolts when removing the front wheel and tire (A).

3. Remove the brake caliper mounting bolts, and then place the brake caliper assembly (B) with wire.

Tightening torque:

78.4 ~ 98.0 N.m (8.0 ~ 10.0 Kgf.m, 57.8 ~ 72.3 lb-ft)

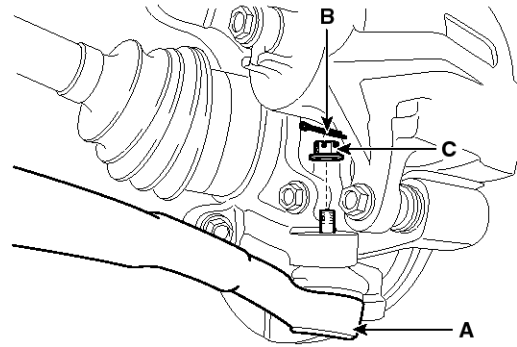


SVGDS0003D

4. Remove the tie rod end ball joint(A) from the knuckle.
 - 1) Remove the split pin(B).
 - 2) Remove the castle nut(C).

Tightening torque:

34.3 ~ 44.1 N.m (3.5 ~ 4.5 Kgf.m, 25.3 ~ 32.5 lb-ft)

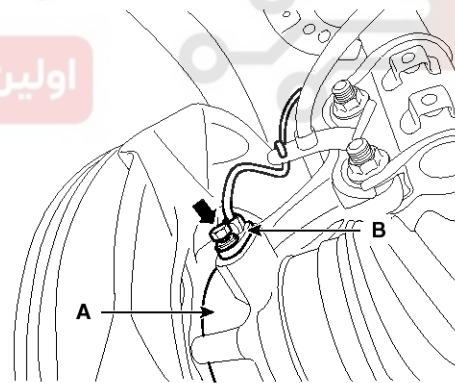


SVGDS0007D

5. Loosen the mount bolt and then remove the wheel speed sensor(B) from knuckle(A).

Tightening torque:

6.8 ~ 10.7 N.m (0.7 ~ 1.1 Kgf.m, 5.0 ~ 7.9 lb-ft)



SVGDS0008D

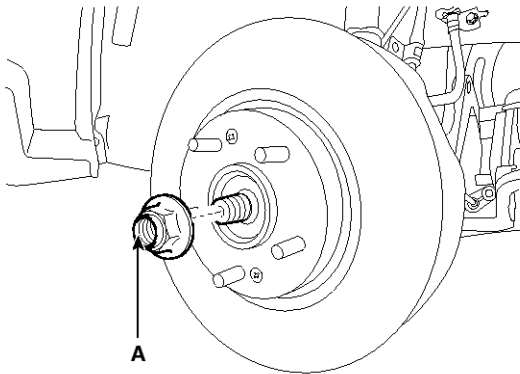
Driveshaft Assembly

DS-15

6. Remove driveshaft coking nut(A) from the front hub under applying the break.

Tightening torque:

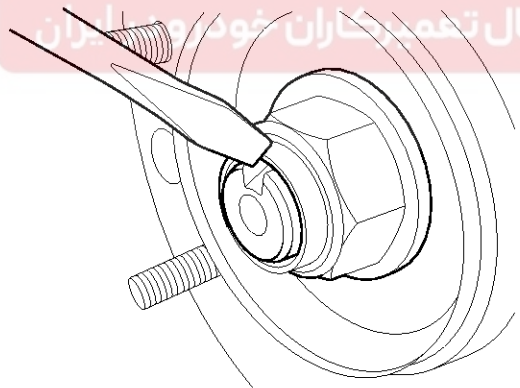
196.1 ~ 254.9 N.m (20.0 ~ 26.0 Kgf.m, 144.6 ~ 188.0 lb-ft)



SVGDS0004D

CAUTION

- The rear hub lock nut should be replaced with new ones.
- After installation lock nut, stake the lock nut using a chisel and hammer as shown in the illustration below.

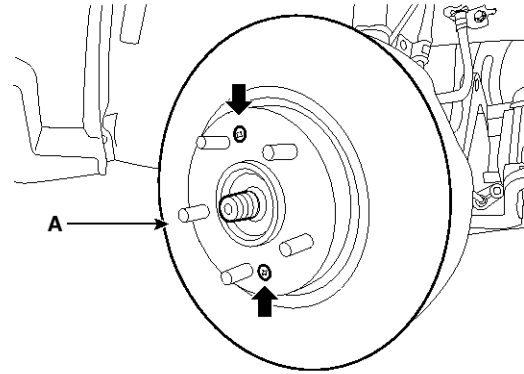


SVGDS0005D

7. Loosen the front brake disc mount screw and then remove the front brake disc(A).

Tightening torque:

4.9 ~ 5.8 N.m (0.5 ~ 0.6 Kgf.m, 3.6 ~ 4.3 lb-ft)

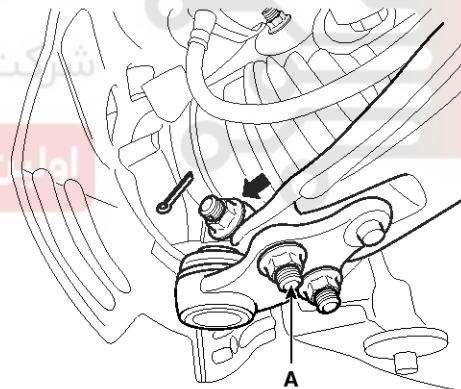


SVGDS0006D

8. Remove the lower arm(A) from the knuckle.

Tightening torque:

98.0 ~ 117.6 N.m (10.0 ~ 12.0 Kgf.m, 72.3 ~ 86.7 lb-ft)

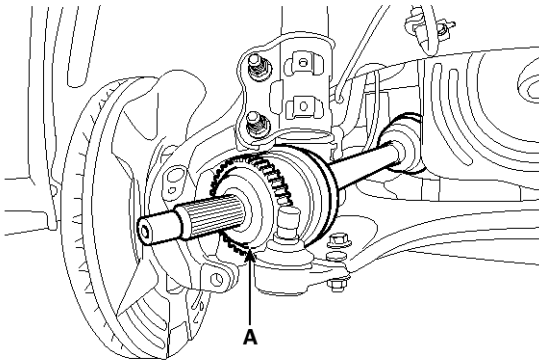


SVGDS0016D

DS-16

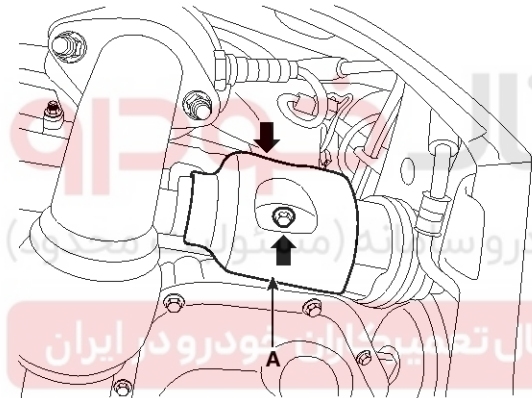
Driveshaft and axle

9. Disconnect the driveshaft (A) from the front hub assembly.



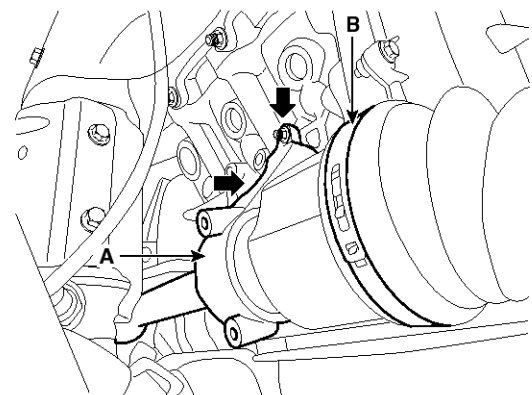
SVGDS0040D

10. Remove the driveshaft cover(A).



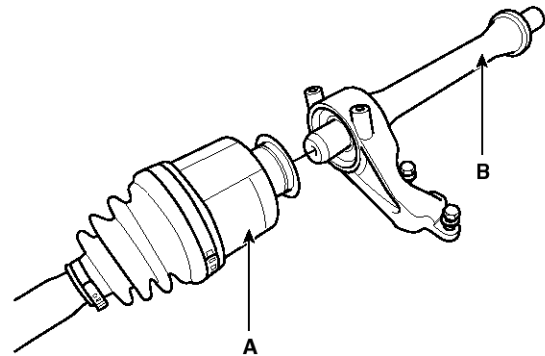
SVGDS0020D

11. Loosen the mounting bolts and then remove the inner shaft(A) & driveshaft assembly(B).



SVGDS0021D

12. Disconnect the driveshaft(A) from inner shaft(B).



SVGDS0022D

13. Install in the reverse order of removal.

CAUTION

- Use a pry bar(A) being careful not to damage the transaxle and joint.
- Do not insert the pry bar(A) too deep, as this may cause damage to the oil seal.
- Do not pull the driveshaft by excessive force it may cause components inside the joint kit to dislodge resulting in a torn boot or a damaged bearing.
- Plug the hole of the transaxle case with the oil seal cap to prevent contamination.
- Support the driveshaft properly.
- Replace the retainer ring whenever the driveshaft is removed from the transaxle case.

Inspection

1. Check the driveshaft boots for damage and deterioration.
2. Check the driveshaft spline for wear or damage.
3. Check that there is no water or foreign material in the joint.
4. Check the spider assembly for roller rotation, wear or corrosion.
5. Check the groove inside the joint case for wear or corrosion.
6. Check the dynamic damper for damage or cracks.

Driveshaft Assembly

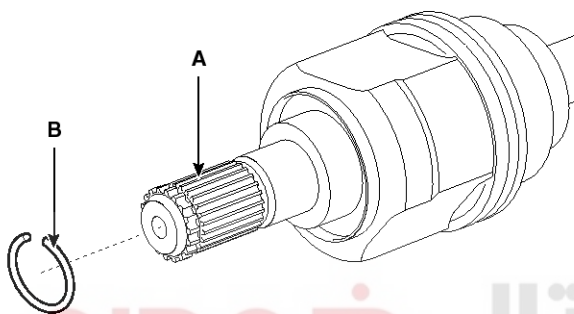
DS-17

Disassembly

⚠ CAUTION

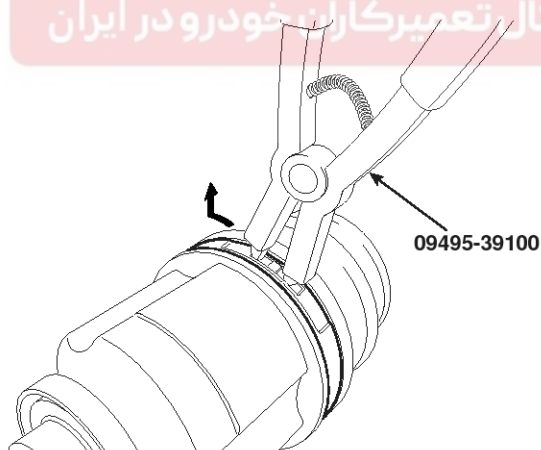
- Do not disassemble the BJ assembly.
- Special grease must be applied to the driveshaft joint. Do not substitute with another type of grease.
- The boot band should be replaced with a new one.

1. Remove the circlip (B) from the driveshaft spline (A).

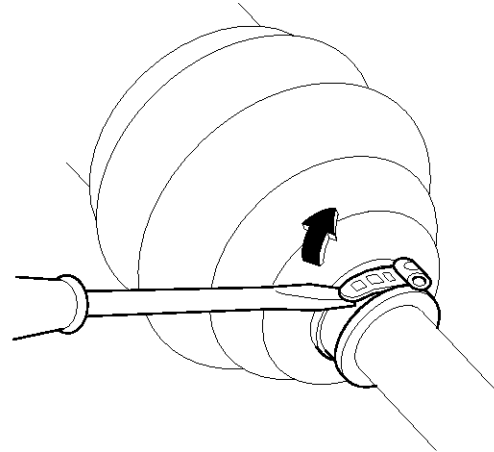


KXDDE07A

2. Remove both boot bands from the transaxle side joint(UTJ) case.

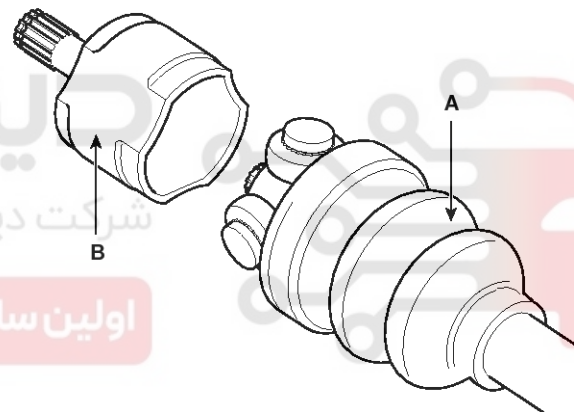


SUNDS6501D



KIQE160A

3. Pull out the boot from transaxle side joint case (B).
4. While dividing joint(UTJ) boot (A) of the transaxle side, wipe the grease in UTJ case (B) and collect them respectively.



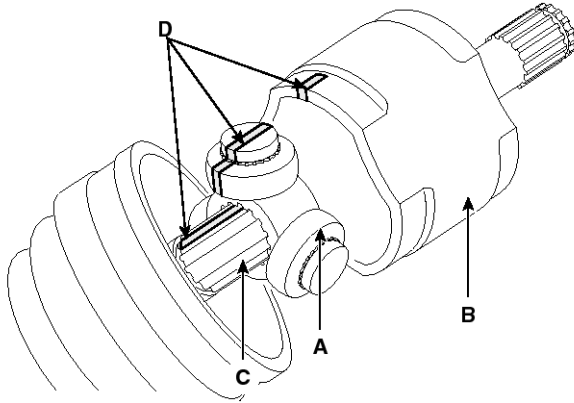
AIGE004B

DS-18

Driveshaft and axle

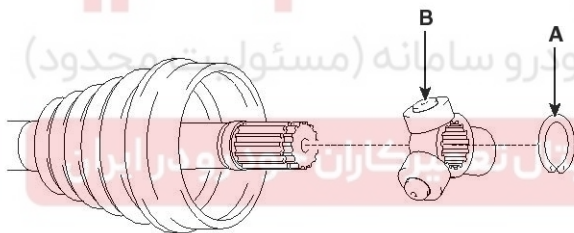
CAUTION

Make alignment marks on spider roller assembly (A), joint case (B), and shaft spline (C) to aid reassembly.



KXDDE11A

5. Remove the snap ring (A) and spider roller assembly (B) from the shaft.

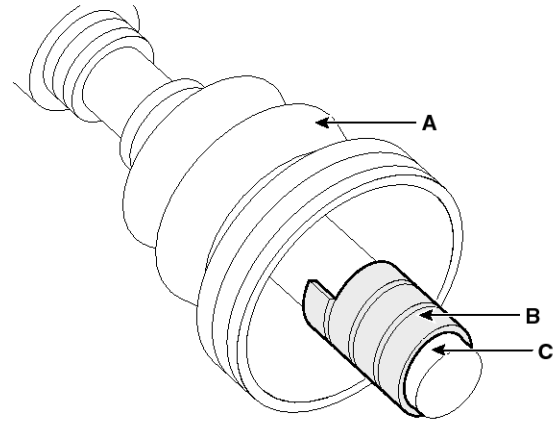


SVGDS0040L

6. Clean the spider assembly.
7. Remove the boot (A) of the transaxle side joint(UTJ).

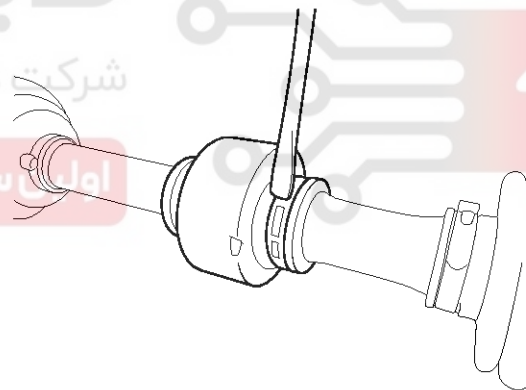
CAUTION

For reusing the boot (A), wrap tape (B) around the driveshaft splines (C) to protect the boot (A).



KXDDE14A

8. Using a pillar or flat-tipped (-) screwdriver, remove the both side of clamp (B) of the dynamic damper (A).

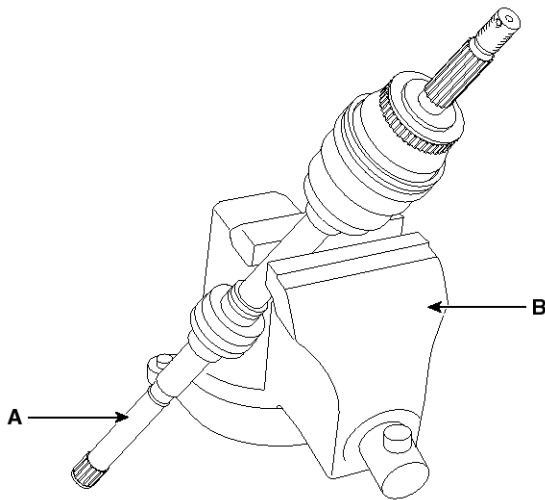


SVGDS0023D

Driveshaft Assembly

DS-19

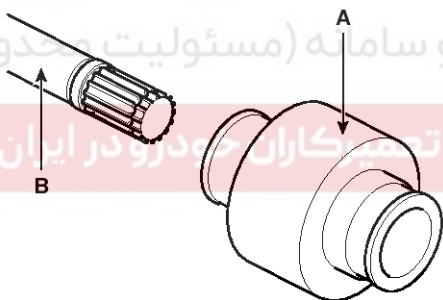
9. Fix the driveshaft (A) with a vice (B) as illustrated.



KXDDE16A

10. Apply soap powder on the shaft to prevent being damaged between the shaft spline and the dynamic damper when the dynamic damper is removed.

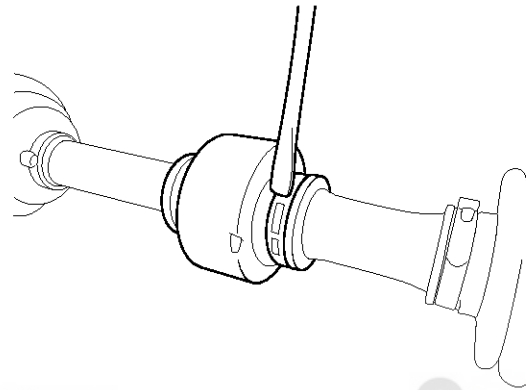
11. Saperate the dynamic damper (A) from the shaft (B) carefully.



AIGE004D

Reassembly

1. Wrap tape around the driveshaft spline(UTJ) to prevent damage to the boots.
2. Apply grease to the joint boot on the side of the wheel and install the boot.
3. Install the clamp.
4. To install the dynamic damper(A), keep the shaft in a straight line and assemble the dynamic damper with the bands(B).

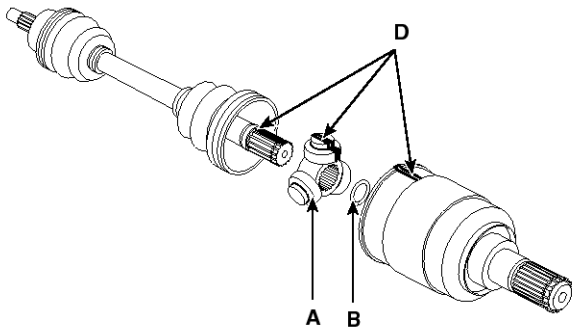


SVGDS0023D

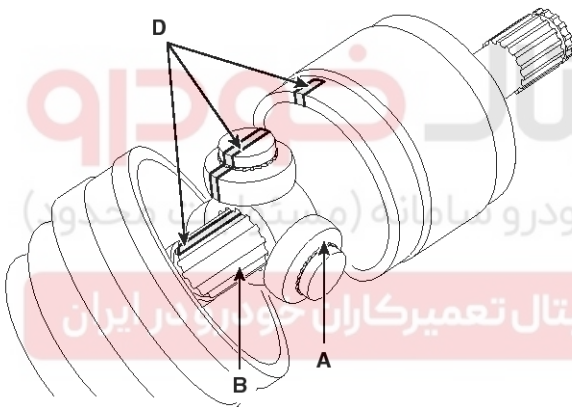
DS-20

Driveshaft and axle

5. Assemble the transaxle side joint boot and bands.
6. Using the alignment marks (D) made during disassembly as a guide, install the spider assembly (A) and snap ring (B) on the driveshaft splines (C).



SHDDS6505D

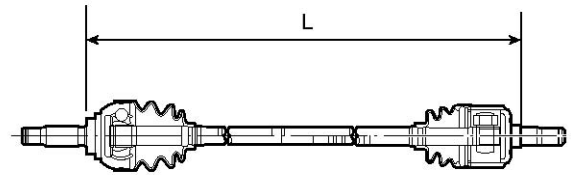


SHDDS6510L

7. Add specified grease to the joint boot as much as it was wiped away at inspection.
8. Install the both boot band.

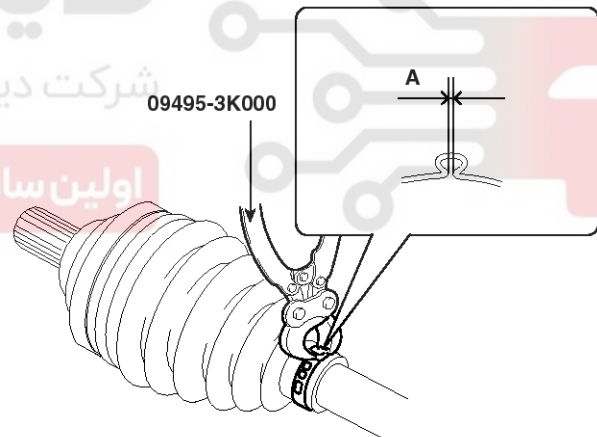
9. To control the air in the UTJ boot, keep the specified distance between the boot bands when they are tightened.

Items	Distance (L) mm(in)	
	LH side	RH side
Gasoline 2.4	533.8mm	833.6mm
Gasoline 3.5	517.2mm	531.5mm



SHDDS6522D

10. Using the SST(09495-3K000), secure the UTJ boot bands.



SHDDS6504D

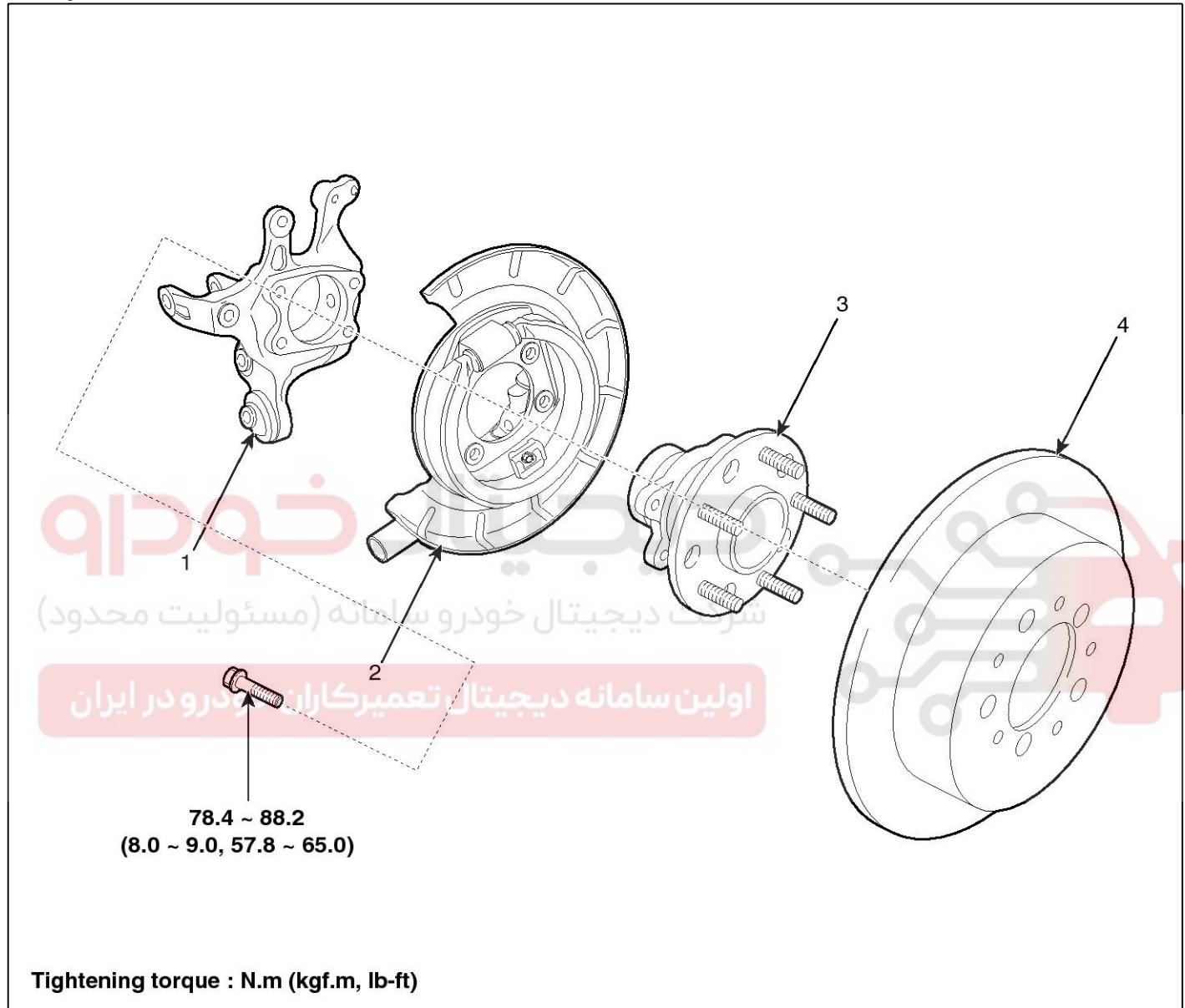
Rear Axle Assembly

DS-21

Rear Axle Assembly

Rear Hub - Carrier

Components



SVGDS0024L

1. Rear Carrier Assembly
2. Parking Brake Assembly

3. Rear Hub Assembly
4. Rear Brake Disc

DS-22

Driveshaft and axle

Replacement

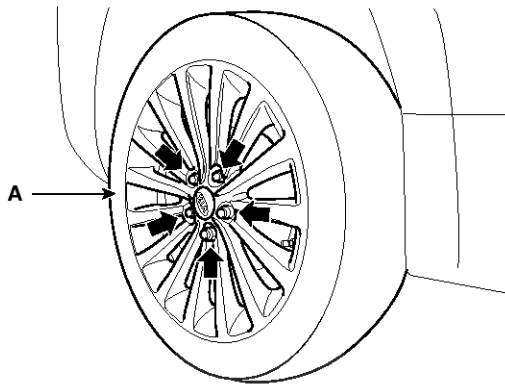
1. Loosen the wheel nuts slightly.

Raise the vehicle, and make sure it is securely supported.

2. Remove the rear wheel and tire(A) from rear hub.

Tightening torque:

88.2 ~ 107.8 N.m (9.0 ~ 11.0 Kgf.m, 65.0 ~ 79.5 lb-ft)



SVGDS0030D

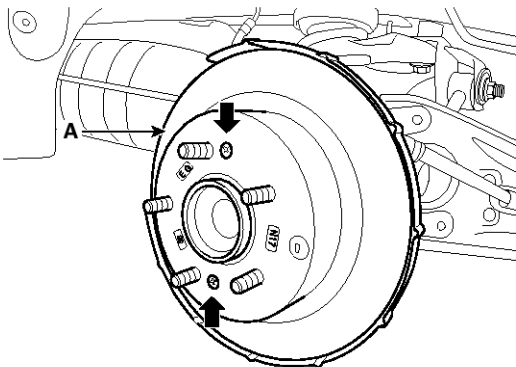
CAUTION

Be careful not to damage to the hub bolts when removing the rear wheel and tire (A).

3. Loosen the mount screw and then brake disc(A).

Tightening torque:

4.9 ~ 6.8 N.m (0.5 ~ 0.7 Kgf.m, 3.6 ~ 5.0 lb-ft)

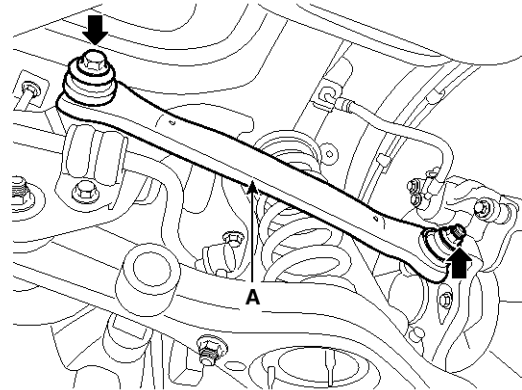


SVGDS0031D

4. Loosen the rear upper arm and then remove the rear upper arm(A).

Tightening torque:

137.2 ~ 156.9 N.m (14.0 ~ 16.0 Kgf.m, 101.2 ~ 115.7 lb-ft)

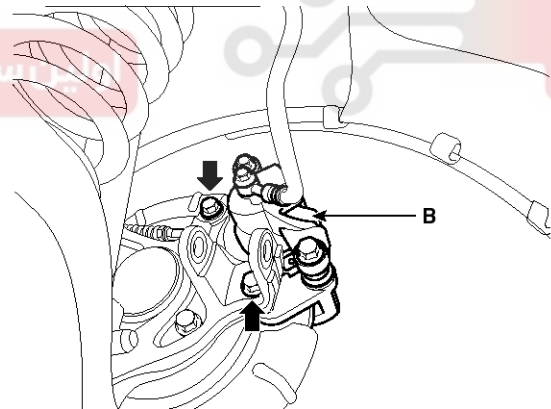


SVGDS0032D

5. Remove the brake caliper mounting bolts, and then place the brake caliper assembly (B) with wire as shown in the illustration.

Tightening torque:

78.4 ~ 98.0 N.m (8.0 ~ 10.0 Kgf.m, 57.8 ~ 72.3lb-ft)



SVGDS0033D

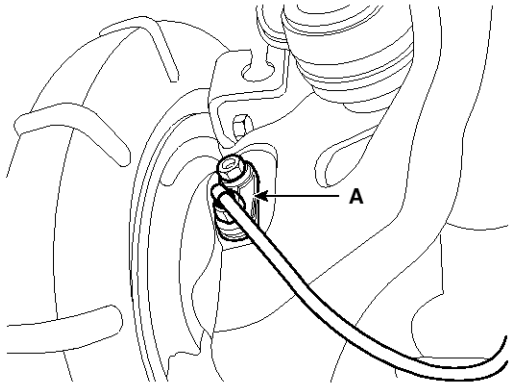
Rear Axle Assembly

DS-23

6. Disconnect the wheel speed sensor connector (A).

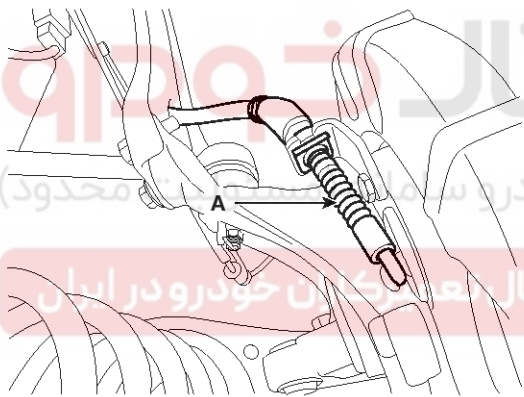
Tightening torque:

6.8 ~ 10.7 N.m (0.7 ~ 1.1 Kgf.m, 2.8 ~ 7.9 lb-ft)



SVGDS0034D

7. Disconnect the parking cable(A).

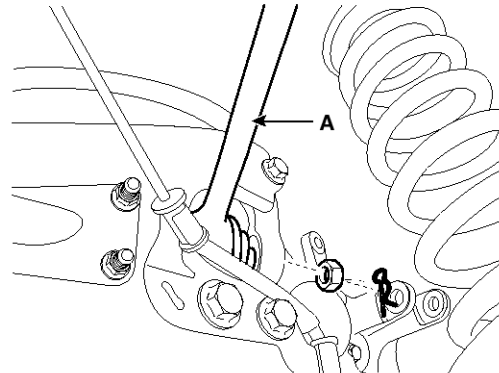


SVGDS0035D

8. Loosen the assist arm mounting nut and then remove the assist arm(A).

Tightening torque:

44.1 ~ 53.9 N.m (4.5 ~ 5.5 Kgf.m, 32.5 ~ 39.7 lb-ft)

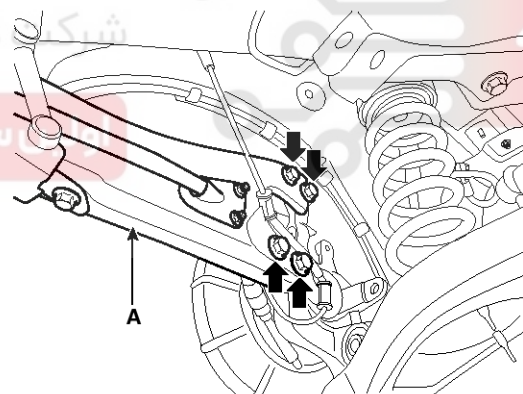


SVGDS0036D

9. Loosen the trailing arm mounting bolt, and then remove the trailing arm(A),

Tightening torque:

44.1 ~ 53.9 N.m (4.5 ~ 5.5 Kgf.m, 32.5 ~ 39.7 lb-ft)



SVGDS0037D

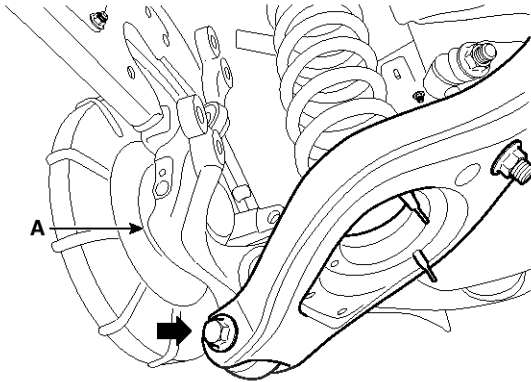
DS-24

Driveshaft and axle

10. Loosen the rear strut mounting bolts and remove the rear strut assembly (Refer to SS group- Rear strut)
11. Loosen the lower arm mounting bolt and then remove the rear hub assembly (A).

Tightening torque:

137.2 ~ 156.9 N.m (14.0 ~ 16.0 Kgf.m, 101.2 ~ 115.7 lb-ft)

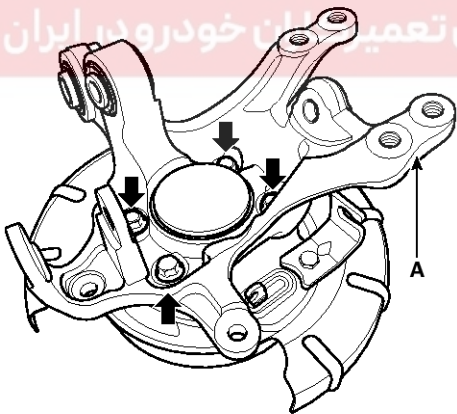


SVGDS0039D

12. Loosen the hub bearing mounting, and then remove the hub bearing from knuckle (A).

Tightening torque:

78.4 ~ 88.2 N.m (8.0 ~ 9.0 Kgf.m, 57.8 ~ 65.0 lb-ft)



SVGDS0038D

13. Install in the reverse order of removal.

Inspection

1. Check the hub for cracks and the splines for wear.
2. Check the brake disc for scoring and damage.
3. Check the rear axle carrier for cracks.
4. Check the bearing for cracks or damage.