

DS-2

Driveshaft and axle

General Information

Specification

Items		Inner side	Outer side
Front driveshaft	Joint type	PTJ	BJ
	Max. permissible angle	21°	46°
Rear driveshaft	Joint type	TJ	BJ
	Max. permissible angle	22°	46°
Differential	Oil type	Hypoid gear oil (API GL-5, SAE 75W/90)	
	Oil capacity (L)	About 0.9	
	Reduction gear type	Hypoid gear	
	Reduction gear ratio	3.818	
	Final drive gear backlash mm(in.)	0.10 ~ 0.15 (0.0039 ~ 0.0059)	
	Differential gear backlash mm(in.)	0 ~ 0.05 (0 ~ 0.0020)	

BJ : Birfield Joint

PTJ : Pillow journal Tripod Joint

TJ : Tripod Joint

Tightening Torque

Items		Nm	Kgf-m	lb-ft
Front	Wheel nut	88.3~107.9	9~11	65.1~79.6
	Driveshaft castle nut	196.1~274.6	20~28	144.7~202.5
	Strut assembly lower mounting bolt	152.0~171.6	15.5~17.5	112.1~126.6
	Inner shaft bearing bracket bolt	49.0~68.6	5~7	36.2~50.6
	Brake caliper mounting bolt	73.5~83.4	7.5~8.5	54.2~61.5
	Wheel speed sensor mounting bolt	6.9~10.8	0.7~1.1	5.1~8.0
	Brake disc mounting screw	4.9~5.9	0.5~0.6	3.6~4.3
	Hub assembly mounting bolt	78.5~98.1	8~10	57.9~72.3
	Lower arm ball joint mounting bolt	98.1~117.7	10~12	72.3~86.8
	Tie rod end ball joint mounting nut	23.5~33.3	2.4~3.4	17.4~24.6

General Information

DS-3

Items		Nm	Kgf-m	lb-ft
Rear	Wheel nut	88.3~107.9	9~11	65.1~79.6
	Driveshaft castle nut	196.1~274.6	20~28	144.7~202.5
	Shock absorber upper mounting bolt	137.3~156.9	14~16	101.3~115.7
	Shock absorber lower mounting nut	98.1~117.7	10~12	72.3~86.8
	Brake caliper mounting bolt	63.7~73.5	6.5~7.5	47.0~54.2
	Brake disc mounting screw	4.9~5.9	0.5~0.6	3.6~4.3
	Hub assembly mounting bolt	78.5~88.3	8~9	57.9~65.1
	Upper arm ball joint mounting nut	78.5~98.1	8~10	57.9~72.3
	Lower arm mounting bolt	137.3~156.9	14~16	101.3~115.7
	Assist arm ball joint mounting nut	98.1~117.7	10~12	72.3~86.8
	Trailing arm mounting bolt	137.3~156.9	14~16	101.3~115.7
Propeller shaft	Front propeller shaft mounting bolt	49.0~68.6	5~7	36.2~50.6
	Propeller shaft center bearing bracket mounting bolt	39.2~49.0	4~5	28.9~36.2
	Rear propeller shaft mounting bolt	49.0~68.6	5~7	36.2~50.6
Differential	Rear differential mounting bolt	68.6~88.3	7~9	50.6~65.1
	Differential cover mounting bolt	39.2~49.0	4~5	28.9~36.2

CAUTION

Replace self-locking nuts with new ones after removal.

Lubricants

Items		Lubricants	Quantity
Front driveshaft	BJ	ROLLUBE BJ	155 ± 10g
	PTJ	MX13KT	275 ± 10g
Rear driveshaft	BJ	RBA	100g
	TJ	CW-13TJ	110g

DS-4

Driveshaft and axle

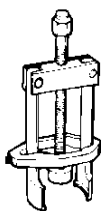
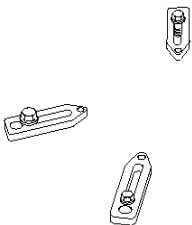
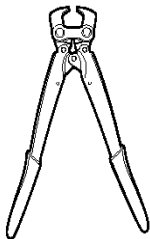
Troubleshooting

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

General Information

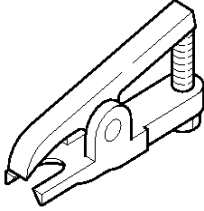
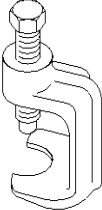
DS-5

Special Service Tools

Tool(Number and Name)	Illustration	Use
09495-33000 Puller	 D9533000	Removal of spider assembly from a drive shaft.
09517-43101 Working base	 E1743101	Support for the differential carrier
09517-43500 Adapter	 E1743500	Support for the differential carrier (Use with 09517-43101)
09495-3K000 Band installer	 KINF500C	Installation of ear type boot band
09495-39100 Band installer	 AILG650A	Installation of hook type boot band

DS-6

Driveshaft and axle

Tool(Number and Name)	Illustration	Use
09568-34000 Ball joint remover	 E6834000	Removal of the rear upper arm ball joint
09568-4A000 Ball joint remover	 KPRE103I	Removal of the front lower arm and tie rod end ball joint

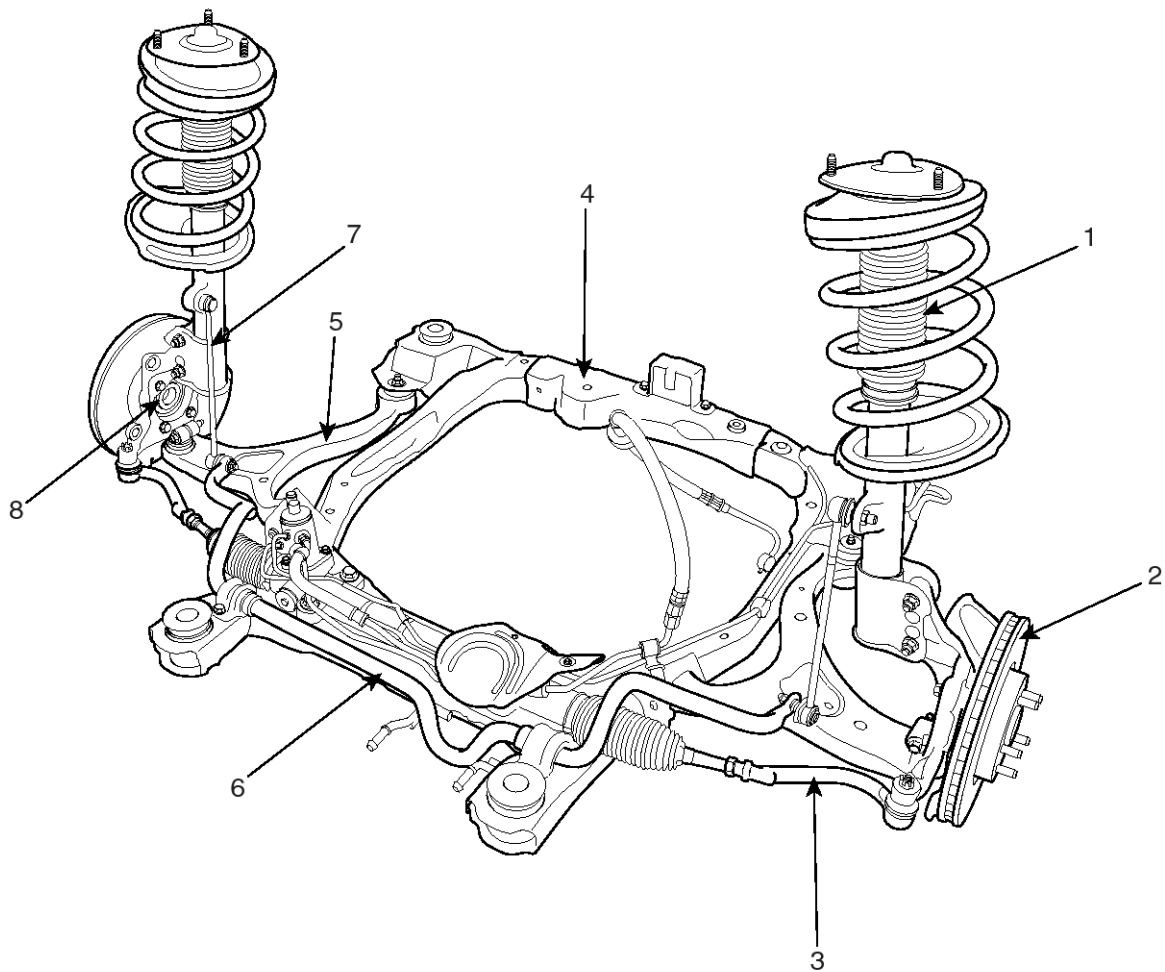
Front Axle Assembly

DS-7

Front Axle Assembly

Front Hub / Axle

Component Location



SENDS9001L

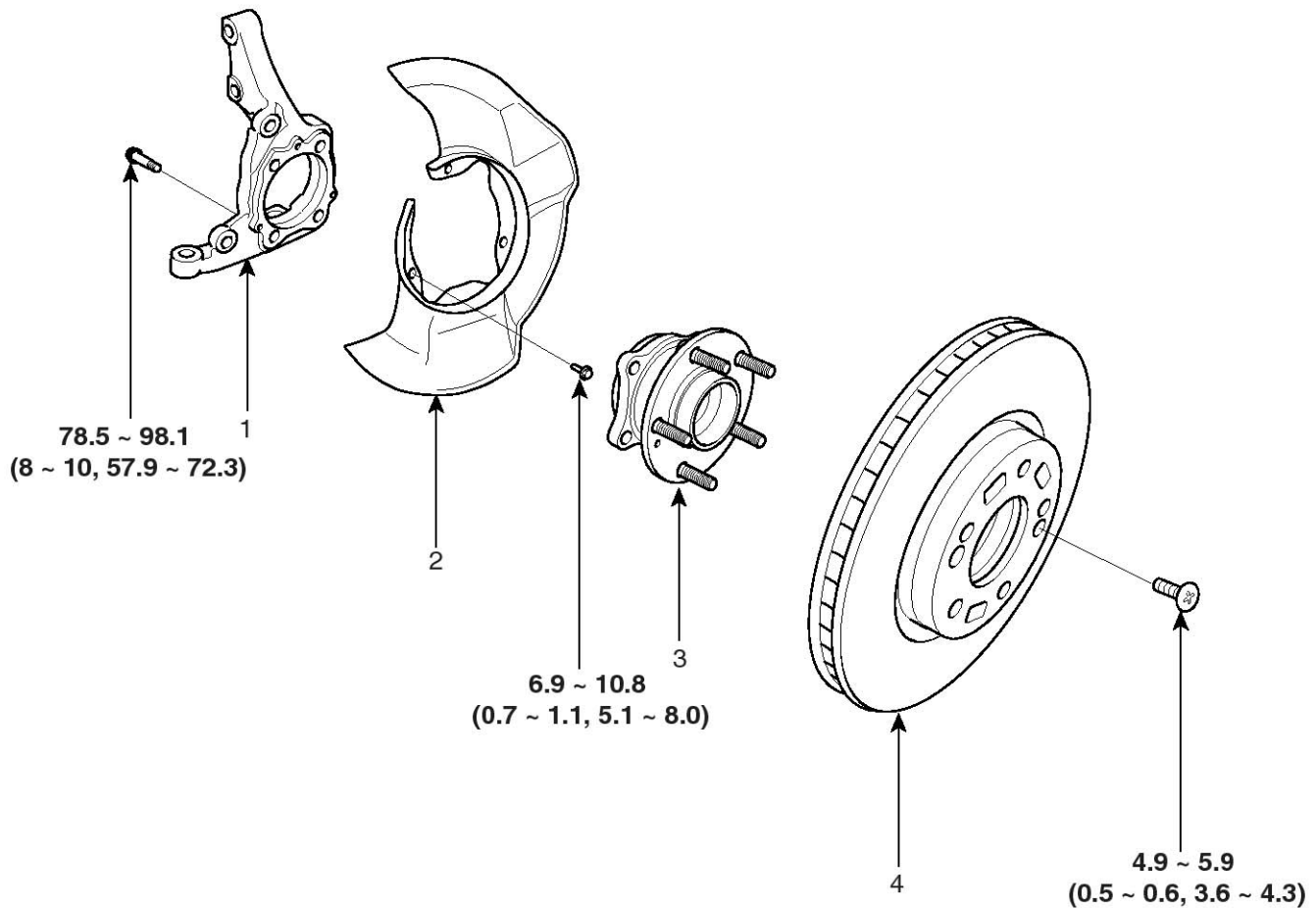
- 1. Front strut assembly
- 2. Front disc
- 3. Tie rod end assembly
- 4. Front subframe

- 5. Front lower arm
- 6. Front stabilizer bar assembly
- 7. Front stabilizer link assembly
- 8. Front knuckle assembly

DS-8

Driveshaft and axle

Components



Torque : Nm (kgf.m, lb-ft)

SENDS9002L

- 1. Knuckle
- 2. Dust cover

- 3. Hub assembly
- 4. Brake disc

Front Axle Assembly

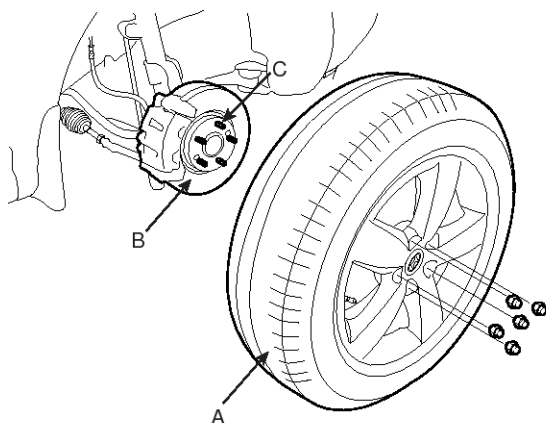
DS-9

Removal

1. Loosen the wheel nuts slightly.

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

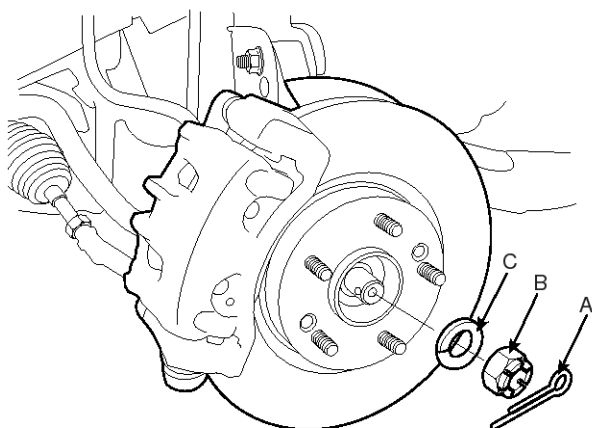
2. Remove the front wheel and tire (A) from the front hub (B).



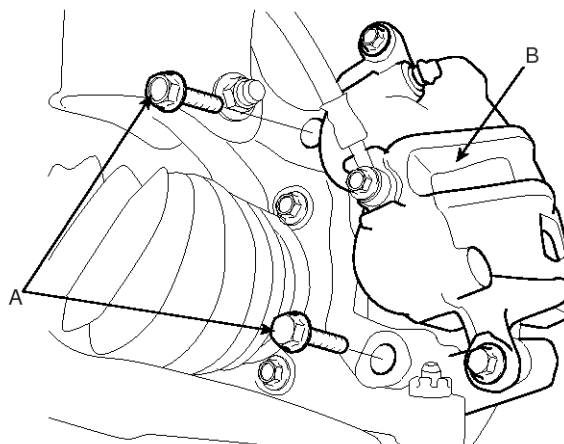
CAUTION

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

3. Remove the split pin (A), then remove castle nut (B) and washer (C) from the front hub under applying the brake.

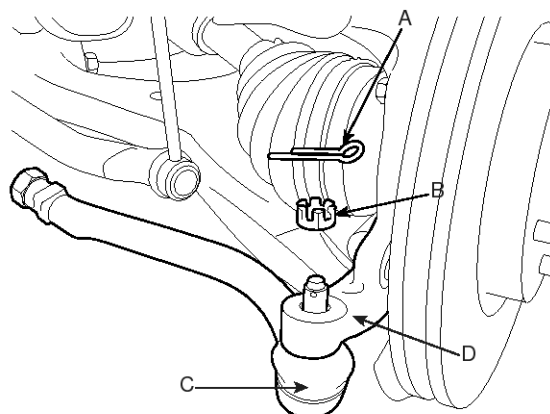


4. Remove the brake caliper mounting bolts (A), and then place the brake caliper assembly (B) with wire.



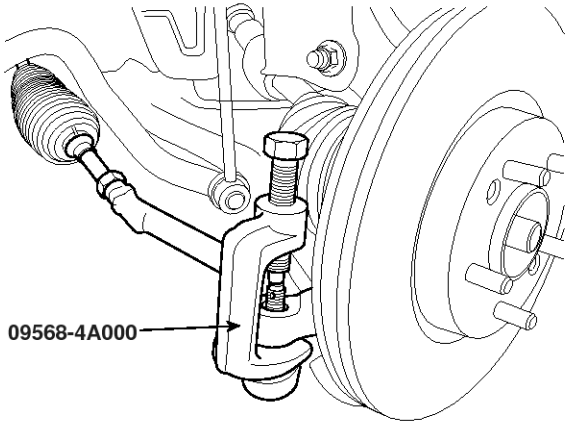
5. Remove the tie rod end ball joint from the knuckle.

- 1) Remove the split pin (A).
- 2) Remove the castle nut (B).
- 3) Disconnect the ball joint (C) from knuckle (D) using the special tool (09568-4A000).



DS-10

Driveshaft and axle

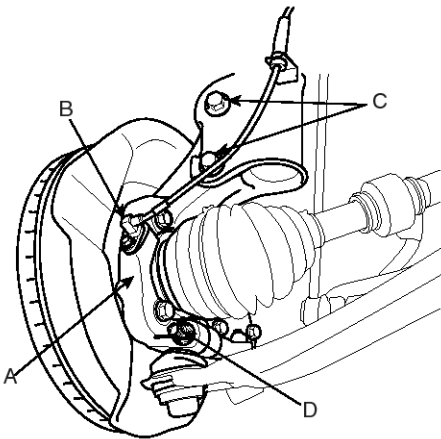


SCMDS6007D

⚠ CAUTION

Apply a few drops of oil to the special tool.
(Boot contact part)

6. Remove the wheel speed sensor (B), the strut lower mounting bolt (C) and the lower arm mounting bolt (D) from the knuckle (A).



SENDS7500D

7. Remove the hub and knuckle assembly.

⚠ CAUTION

Be careful not to damage the boot and rotor teeth.

Installation

1. Install the hub and knuckle assembly.
2. Install the wheel speed sensor (B), the strut lower mounting bolt (C) and the lower arm mounting bolt (D) from the knuckle (A).

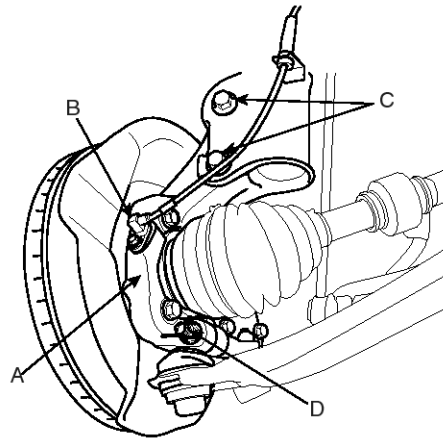
Tightening torque Nm (kgf-m, lb-ft) :

Wheel speed sensor (B):

6.9~10.8 (0.7~1.1, 5.1~8.0)

Bolts (C): 152.0~171.6 (15.5~17.5, 112.1~126.6)

Bolt (D) : 98.1~117.7 (10~12, 72.3~86.8)

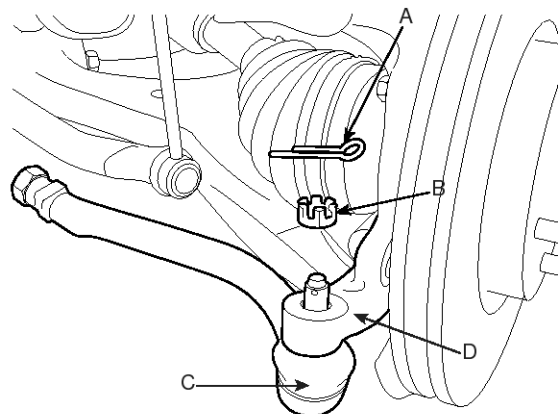


SENDS7500D

3. Install the tie rod end ball joint (C) to the knuckle (D).
4. Install the castle nut (B) and the split pin (A).

Tightening torque Nm (kgf-m, lb-ft) :

23.5~33.3 (2.4~3.4, 17.4~24.6)



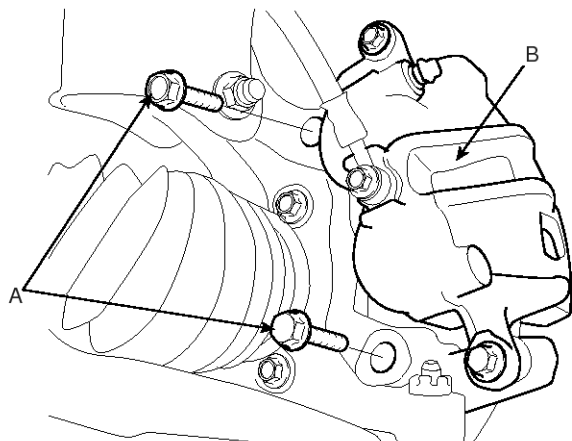
SCMDS6006D

Front Axle Assembly

DS-11

5. Install the brake caliper (B) and then tighten the mounting bolts (A).

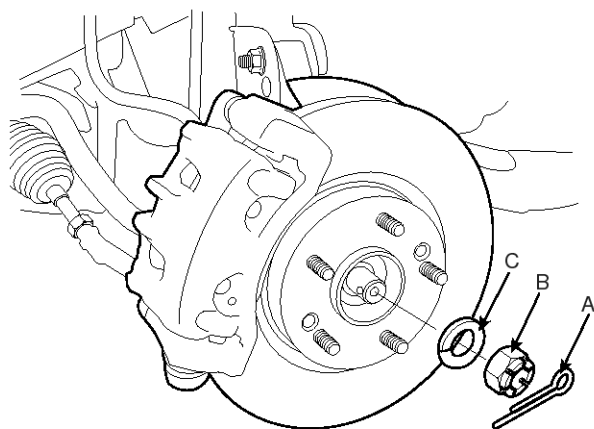
Tightening torque Nm (kgf-m, lb-ft) :
73.5~83.4 (7.5~8.5, 54.2~61.5)



SCMDS6005D

6. Install the washer (C), castle nut (B) and split pin (A) to the front hub assembly.

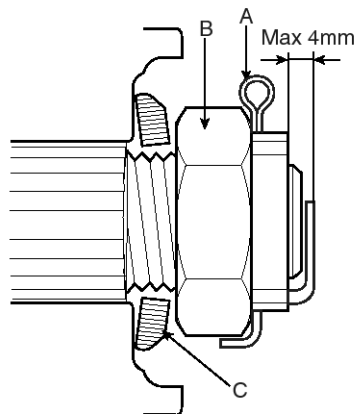
Tightening torque Nm (kgf-m, lb-ft) :
196.1~274.6 (20~28, 144.7~202.5)



SCMDS6004D

⚠ CAUTION

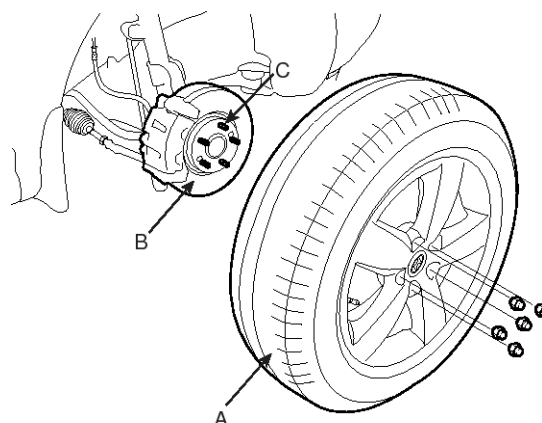
The washer (C) should be assembled with convex surface outward when installing the castle nut (B) and split pin (A).



SENDS7517D

7. Install the wheel and tire (A) to the front hub (B).

Tightening torque Nm (kgf-m, lb-ft) :
88.3~107.9 (9~11, 65.1~79.6)



SCMDS6003D

⚠ CAUTION

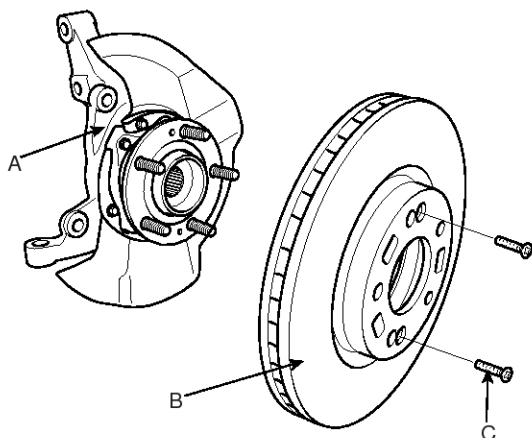
Be careful not to damage the hub bolts (C) when installing the front wheel and tire (A).

DS-12

Driveshaft and axle

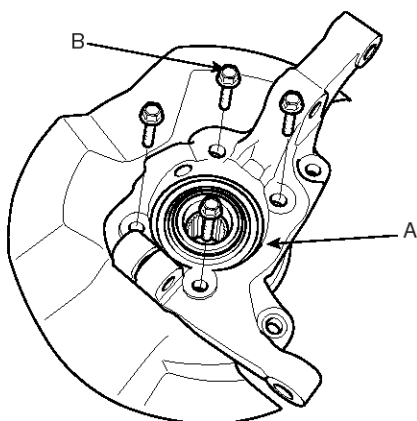
Disassembly

1. Remove the brake disc (B) from the knuckle assembly (A).



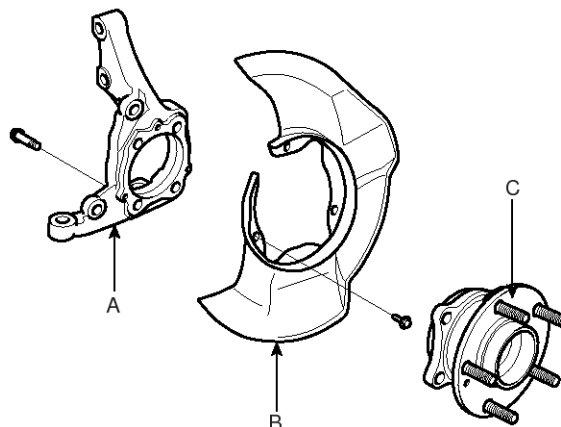
SCMDS6009D

2. Remove the hub assembly mounting bolts (B) from the knuckle (A).



SCMDS6010D

3. Remove the hub assembly (C) and the dust cover (B) from the knuckle (A).



SCMDS6501D

⚠ CAUTION

Do not disassemble the hub assembly.

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

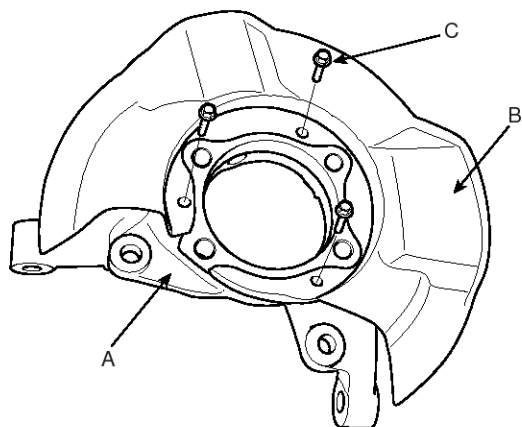
DS-13

Reassembly

1. Install the dust cover (B) to the knuckle (A) and then tighten the mounting bolt (C).

Tightening torque Nm (kgf-m, lb-ft) :

6.9~10.8 (0.7~1.1, 5.1~8.0)

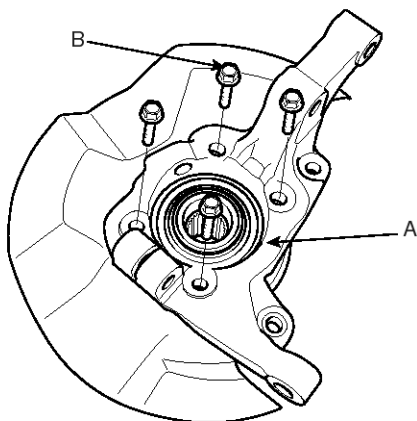


SCMDS6011D

2. Install the hub assembly to the knuckle (A) and then tighten the mounting bolt (B).

Tightening torque Nm (kgf-m, lb-ft) :

78.5~98.1 (8~10, 57.9~72.3)

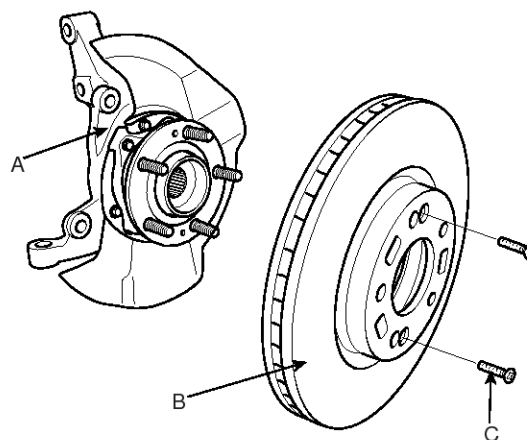


SCMDS6010D

3. Install the brake disc (B) to the knuckle assembly (A).

Tightening torque Nm (kgf-m, lb-ft) :

Screw(C): 4.9~5.9 (0.5~0.6, 3.6~4.3)



SCMDS6009D

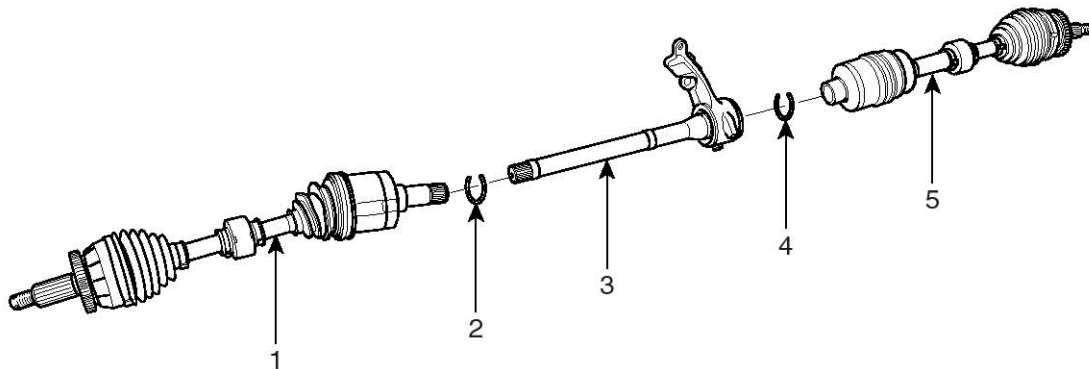
DS-14

Driveshaft and axle

Driveshaft Assembly

Front Driveshaft

Component



SENDS9003L

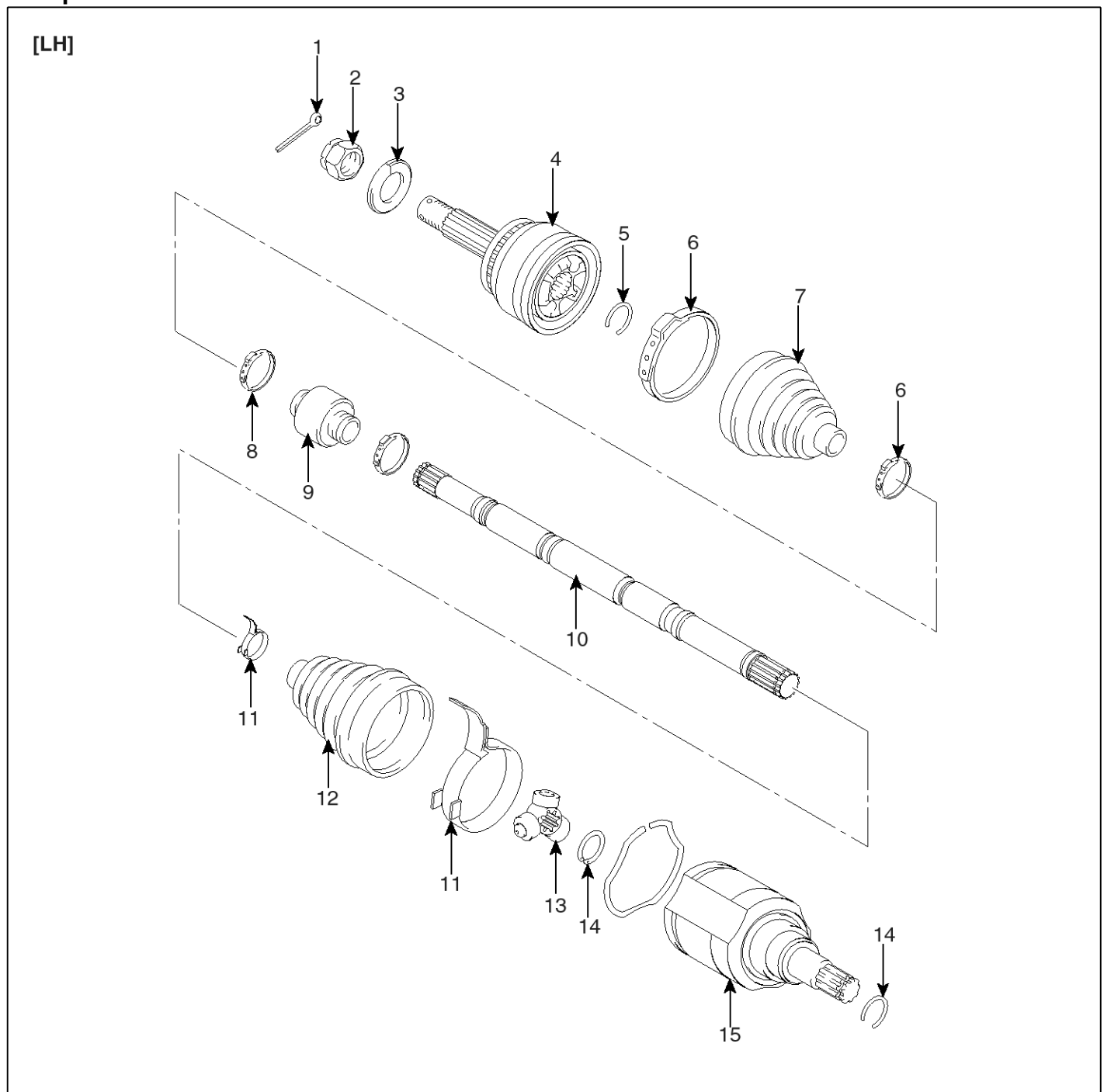
- 1. Driveshaft (LH)
- 2. Circlip
- 3. Inner shaft bearing bracket assembly

- 4. Circlip
- 5. Driveshaft (RH)

Driveshaft Assembly

DS-15

Component



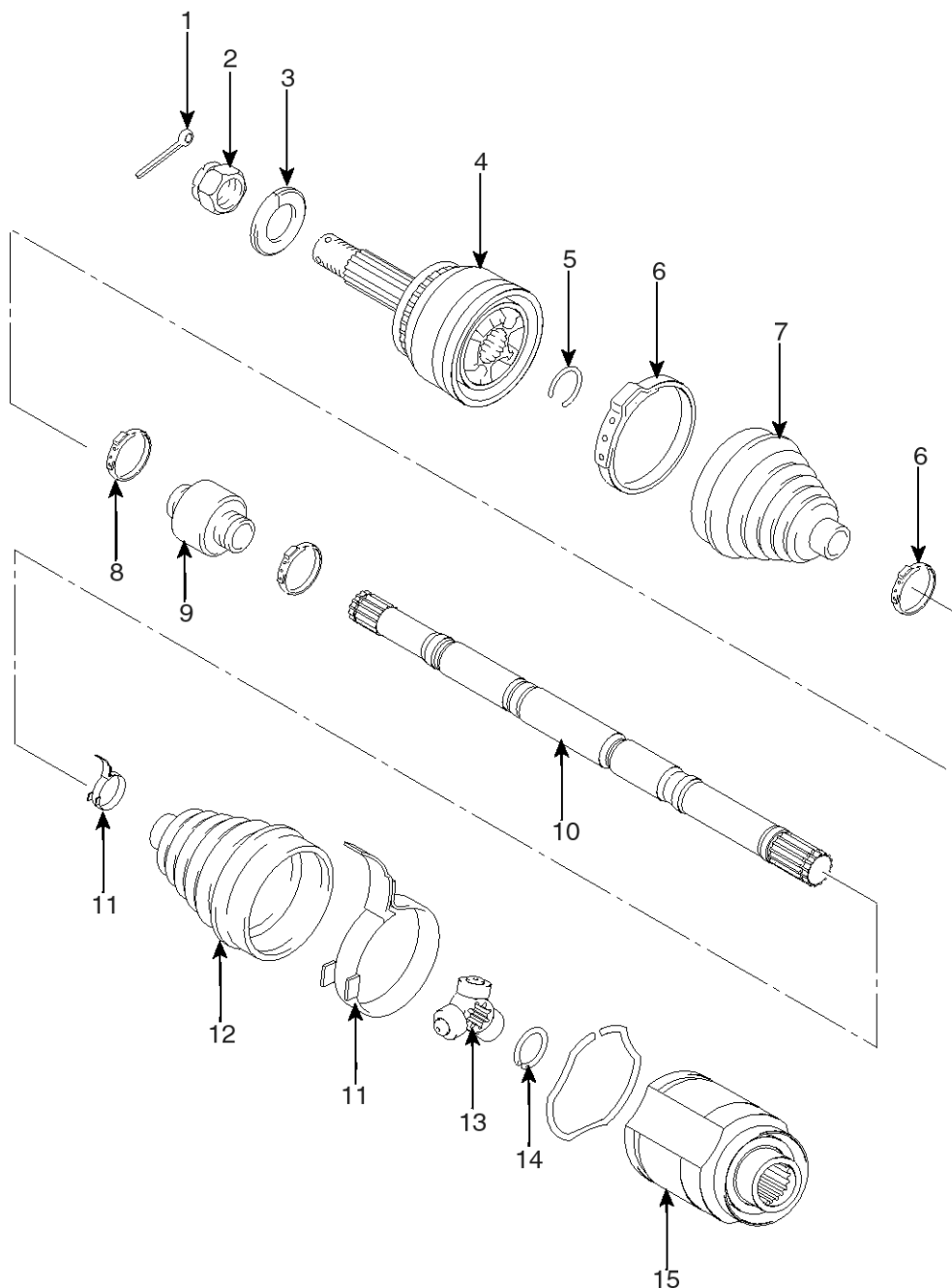
SENDS9004L

- | | | |
|----------------|------------------------|----------------------|
| 1. Split pin | 6. BJ boot band | 11. PTJ boot band |
| 2. Castle nut | 7. BJ boot | 12. PTJ boot |
| 3. Washer | 8. Dynamic damper band | 13. Trunion assembly |
| 4. BJ assembly | 9. Dynamic damper | 14. Circlip |
| 5. Clip A | 10. Shaft | 15. PTJ assembly |

DS-16

Driveshaft and axle

[RH]



SENDS9005L

1. Split pin
2. Castle nut
3. Washer
4. BJ assembly
5. Clip A

6. BJ boot band
7. BJ boot
8. Dynamic damper band
9. Dynamic damper
10. Shaft

11. PTJ boot band
12. PTJ boot
13. Trunion assembly
14. Circlip
15. PTJ assembly

Driveshaft Assembly

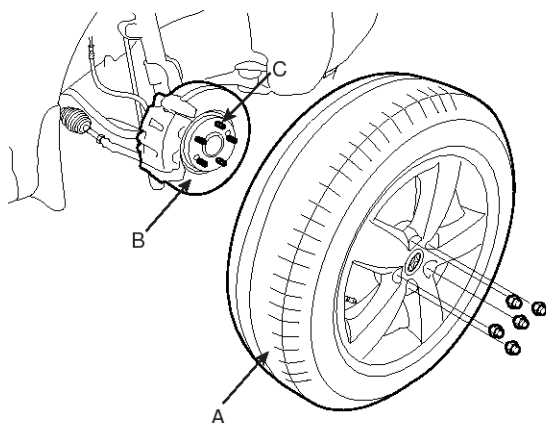
DS-17

Removal

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 the front hub (B).

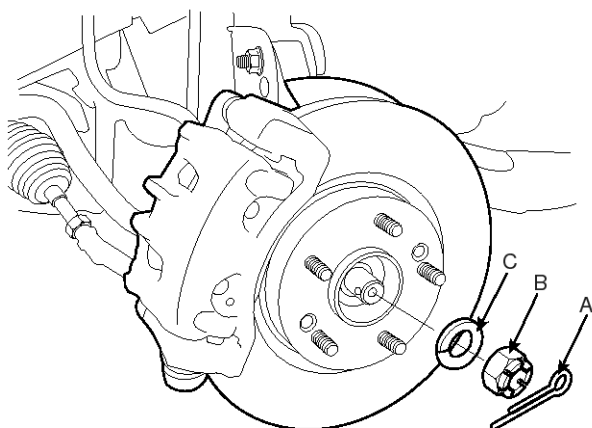


SCMDS6003D

CAUTION

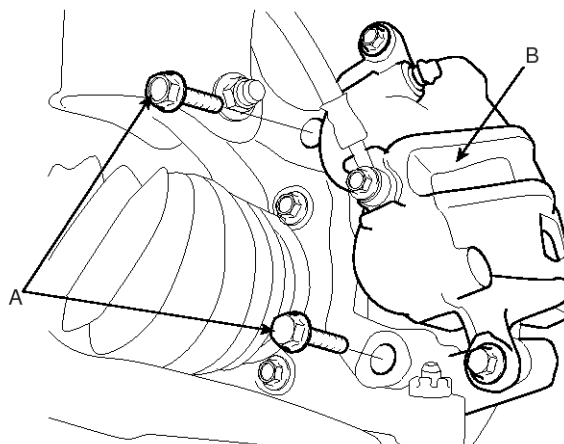
Be careful not to damage to the hub bolts (C) when removing the front wheel and tire (A).

3. Remove the split pin (A), then remove castle nut (B) and washer (C) from the front hub under applying the brake.



SCMDS6004D

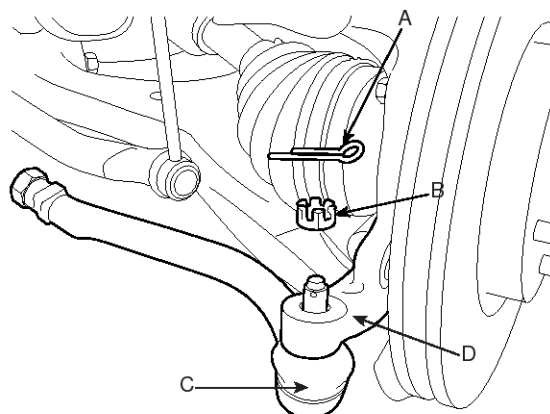
4. Remove the brake caliper mounting bolts (A), and then place the brake caliper assembly (B) with wire.



SCMDS6005D

5. Remove the tie rod end ball joint from the knuckle.

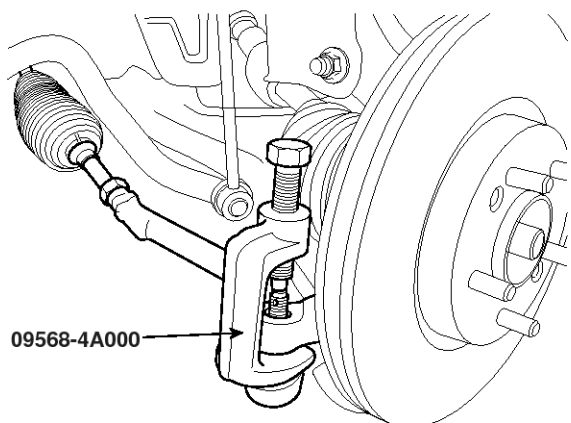
- 1) Remove the split pin (A).
- 2) Remove the castle nut (B).
- 3) Disconnect the ball joint (C) from knuckle (D) using the special tool (09568-4A000).



SCMDS6006D

DS-18

Driveshaft and axle

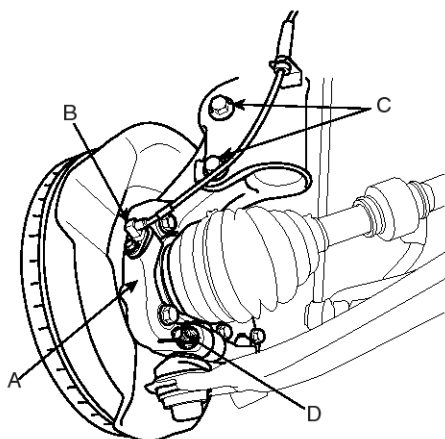


SCMDS6007D

⚠ CAUTION

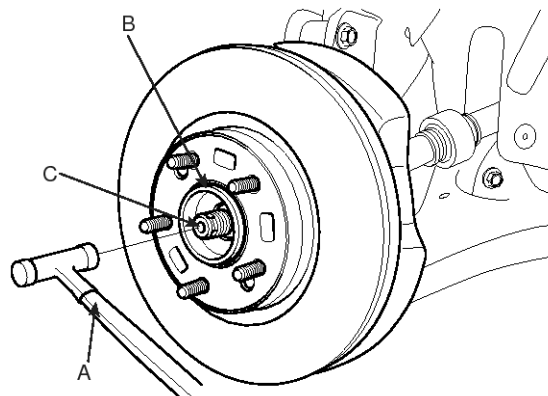
Apply a few drops of oil to the special tool.
(Boot contact part)

6. Remove the split pin and the lower arm mounting bolt (B) from the knuckle (A).



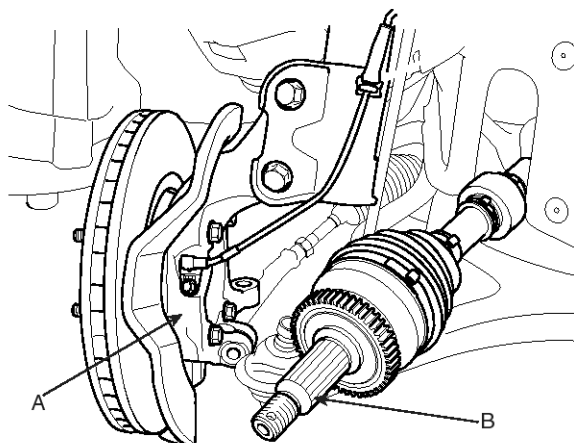
SENDS7500D

7. Using a plastic hammer (A), disconnect driveshaft (C) from the axle hub (B).



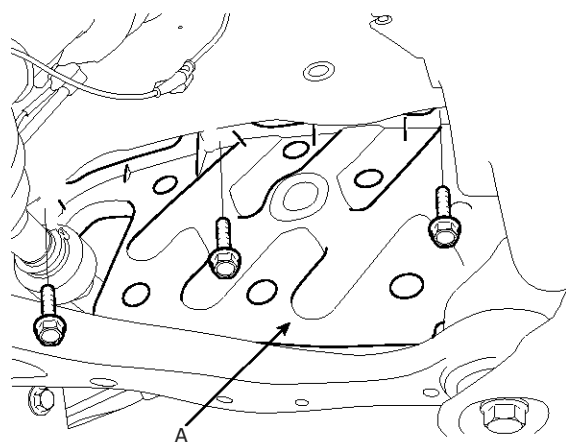
SCMDS6040D

8. Push the axle hub (A) outward and separate the driveshaft (B) from the axle hub (A).



SENDS7502D

9. Remove the dust cover (A). (RH side)



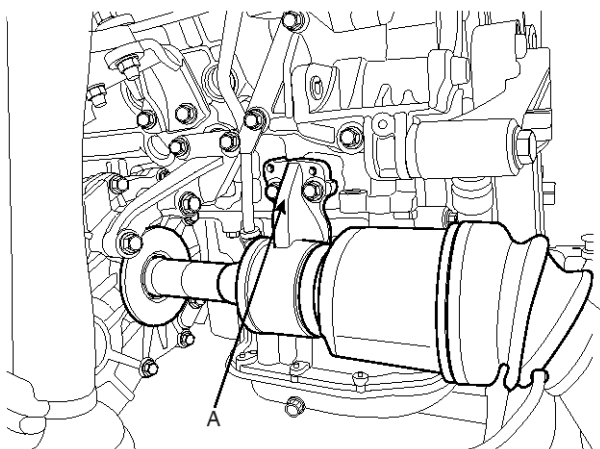
SCMDS6013D

Driveshaft Assembly

DS-19

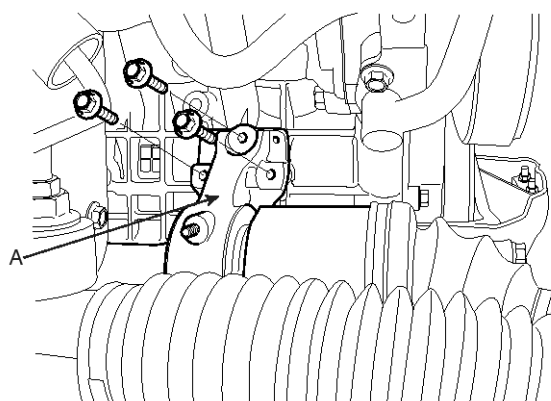
10. Remove the mounting bolts of inner shaft bearing bracket assembly (A).

[Diesel 3.0]



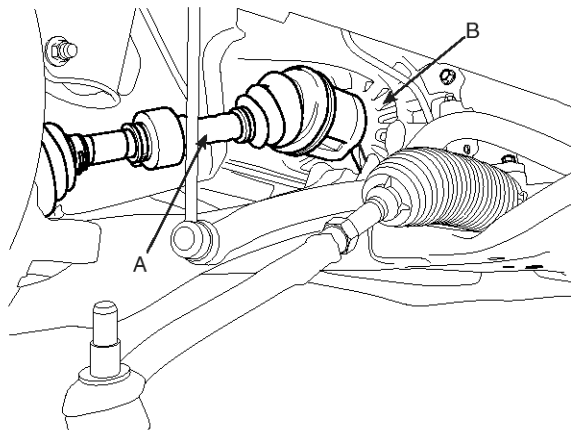
SENDS7503D

[Gasoline 3.8]



SENDS7504L

11. Separate the driveshaft (A) from the transaxle case (B).

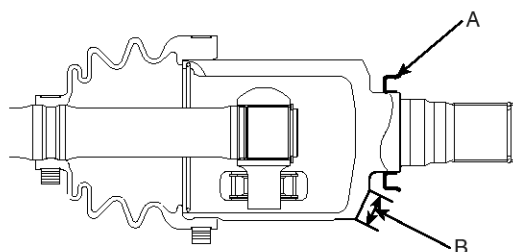


SENDS7523D

⚠ CAUTION

- Do not use a pry bar to remove the driveshaft, as this may cause damage to the dust cover (A) and dust seal.

Remove the driveshaft after striking a pipe added on the joint case (B) with a hammer to prevent damage.



SENDS7524D

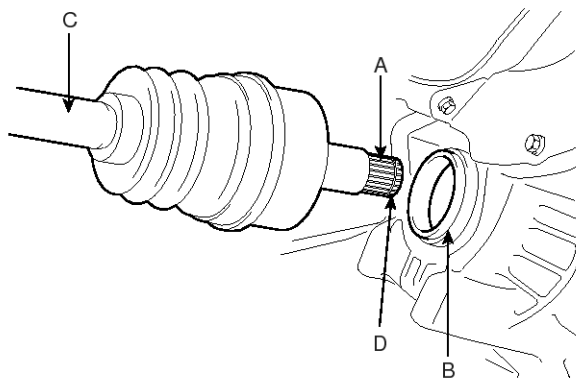
- Do not pull the driveshaft by excessive force it may cause components inside the joint kit to dislodge resulting in a torn boot or a damaged bearing.
- Plug the hole of the transaxle case with the oil seal cap to prevent contamination.
- Support the driveshaft properly.
- Replace the retainer ring whenever the driveshaft is removed from the transaxle case.

DS-20

Driveshaft and axle

Installation

1. Apply gear oil on the oil seal contacting surface (B) of transaxle case and the driveshaft splines (A).



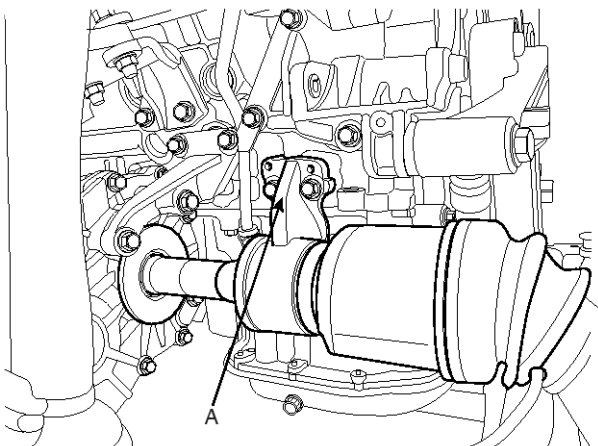
SCMDS6502D

2. Before installing the driveshaft (C), set the opening side of the circlip (D) facing downward.
3. After installation, check that the driveshaft (C) cannot be removed by hand.
4. Install the inner shaft bearing bracket assembly (A) and then tighten the mounting bolts.

Tightening torque Nm (kgf-m, lb-ft) :

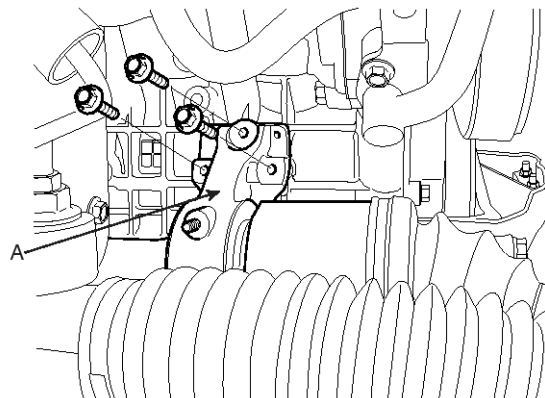
49.0~68.6 (5~7, 36.2~50.6)

[Diesel 3.0]



SENDS7503D

[Gasoline 3.8]

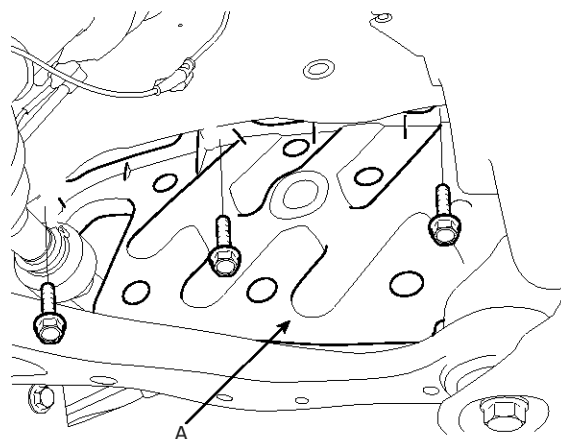


SENDS7504L

5. Install the dust cover (A). (RH side)

Tightening torque Nm (kgf-m, lb-ft) :

7.8~11.8 (0.8~1.2, 5.8~8.7)



SCMDS6013D

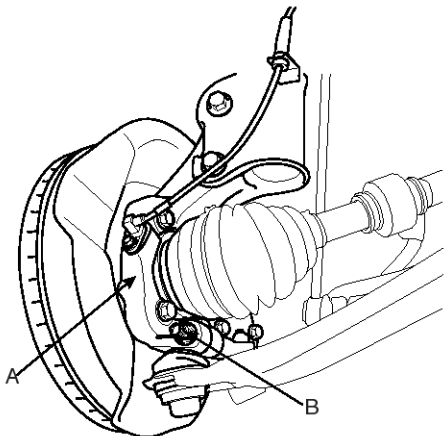
6. Install the driveshaft to the axle hub.

Driveshaft Assembly

DS-21

7. Install the lower arm mounting bolt (B) and the split pin to the knuckle (A).

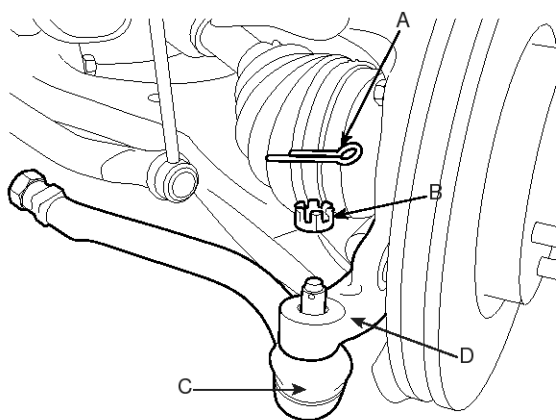
Tightening torque Nm (kgf-m, lb-ft) :
98.1~117.7 (10~12, 72.3~86.8)



SENDS7501D

8. Install the tie rod end ball joint (C) to the knuckle (D).
9. Install the castle nut (B) and the split pin (A).

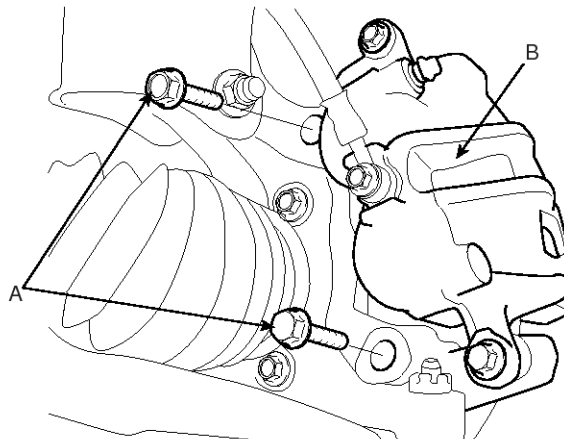
Tightening torque Nm (kgf-m, lb-ft) :
23.5~33.3 (2.4~3.4, 17.4~24.6)



SCMDS6006D

10. Install the brake caliper (B) and then tighten the mounting bolts (A).

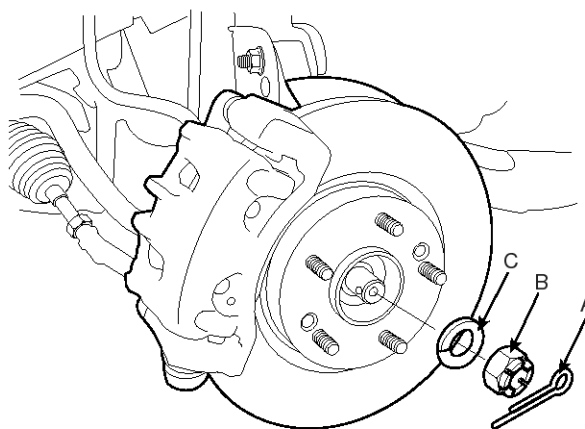
Tightening torque Nm (kgf-m, lb-ft) :
73.5~83.4 (7.5~8.5, 54.2~61.5)



SCMDS6005D

11. Install the washer (C), castle nut (B) and split pin (A) to the front hub assembly.

Tightening torque Nm (kgf-m, lb-ft) :
196.1~274.6 (20~28, 144.7~202.5)



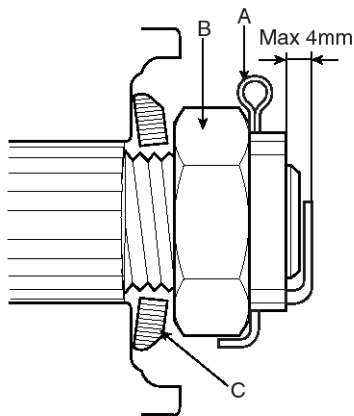
SCMDS6004D

DS-22

Driveshaft and axle

⚠ CAUTION

The washer (C) should be assembled with convex surface outward when installing the castle nut (B) and split pin (A).

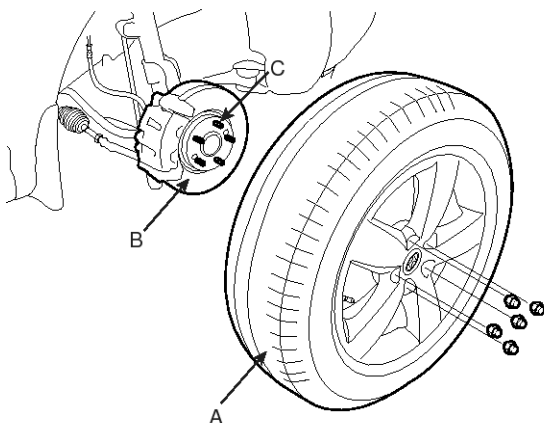


SENDS7517D

12. Install the wheel and tire (A) to the front hub (B).

Tightening torque Nm (kgf-m, lb-ft) :

88.3~107.9 (9~11, 65.1~79.6)



SCMDS6003D

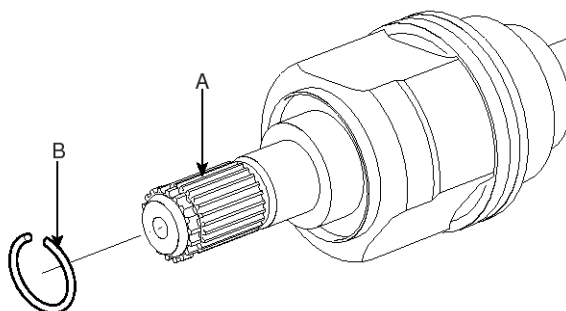
⚠ CAUTION

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

Disassembly

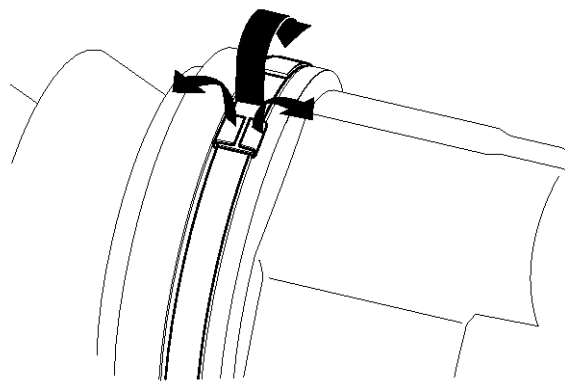
⚠ CAUTION

- 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 driveshaft splines (A) of the transaxle side PTJ case.



KXDDE07A

2. Remove the both boot clamps from the transaxle side PTJ case.



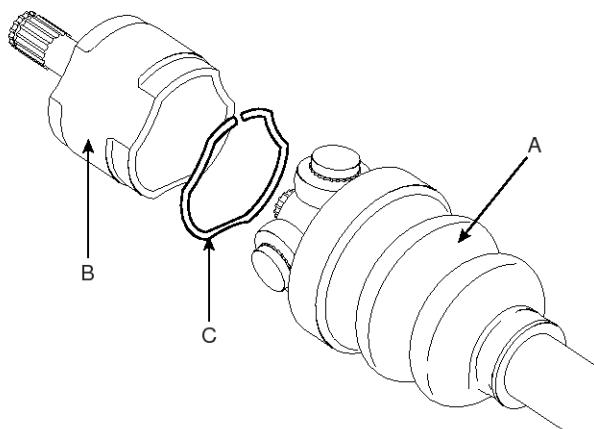
KXDDE08A

3. Pull out the boot from the transaxle side joint (PTJ).
4. Remove the clip (C) from the PTJ case (B).

Driveshaft Assembly

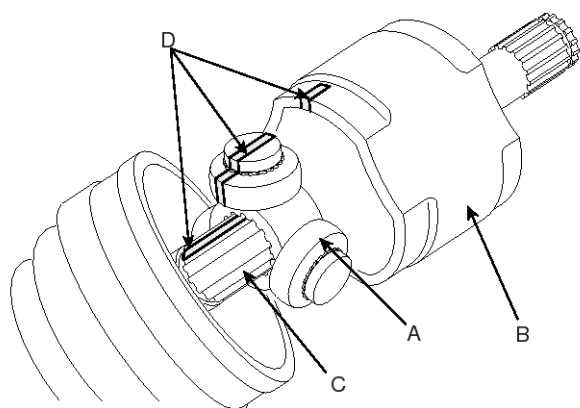
DS-23

5. While dividing joint(PTJ) boot (A) of the transaxle side, wipe the grease in PTJ case (B) and collect them respectively.

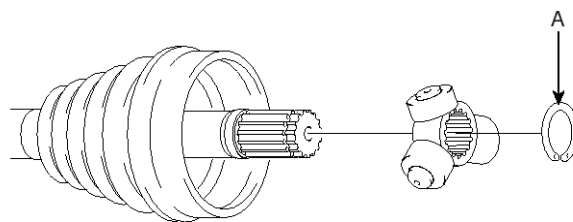


CAUTION

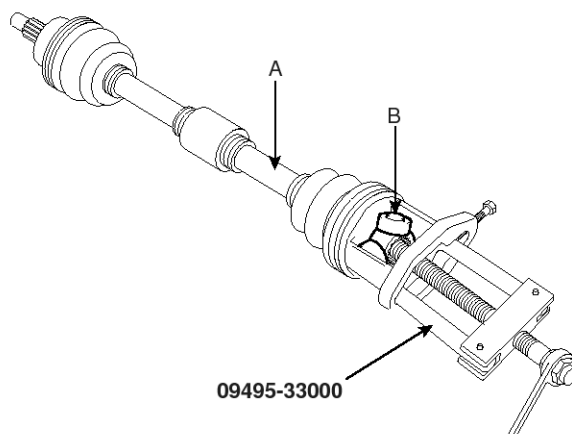
- Be careful not to damage the boot.
- According to below the illustrated, put marks (D) on roller of trunion assembly (A), PTJ case (B) and spline part (C), for providing assembly.



6. Using a snap ring plier or flat-tipped (-) screwdriver, remove the circlip (A).



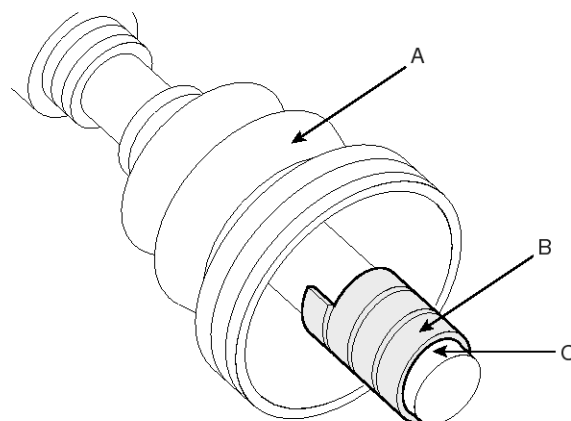
7. Remove the trunion assembly (B) from the driveshaft (A) using the special tool (09495-33000).



8. Clean the trunion assembly.
9. Remove the boot (A) of the transaxle side joint(PTJ).

CAUTION

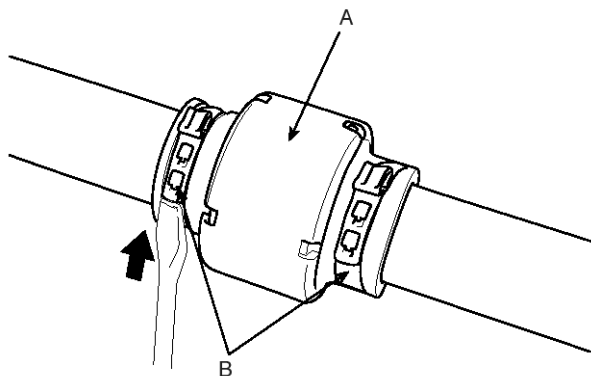
For reusing the boot (A), wrap tape (B) around the driveshaft splines (C) to protect the boot (A).



DS-24

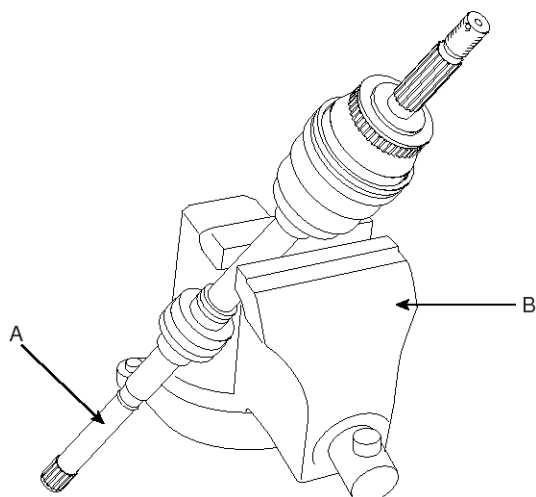
Driveshaft and axle

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



SHDDS6504L

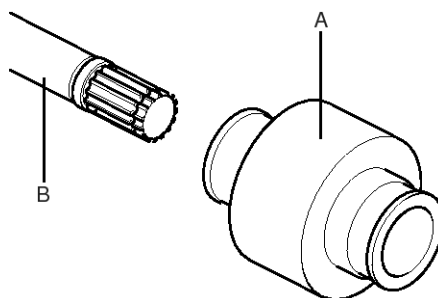
11. Fix the driveshaft (A) with a vice (B) as illustrated.



KXDDE16A

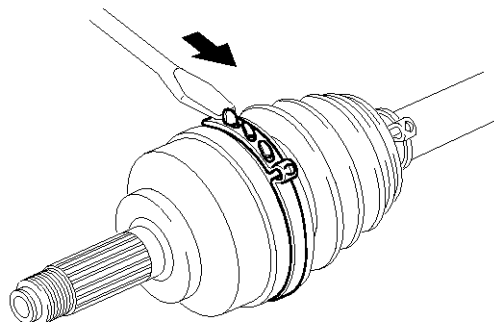
12. Apply soap powder on the shaft to prevent being damaged between the shaft spline and the dynamic damper when the dynamic damper is removed.

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



AIGE004D

14. Using a plier or flat-tipped (-) screwdriver, remove the clamp on the side of wheel.



EIRF003H

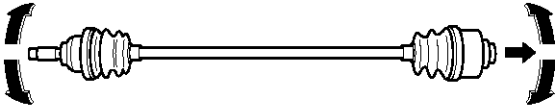
15. Pull out the joint(BJ) on the side of wheel into the transaxle direction.
Be carefull not to damage the boot.

Driveshaft Assembly

DS-25

Inspection

1. Check the driveshaft boots for damage and deterioration.
2. Check the ball joint for wear and damage.
3. Check the splines for wear and damage.
4. Check the dynamic damper for cracks, wear and position.

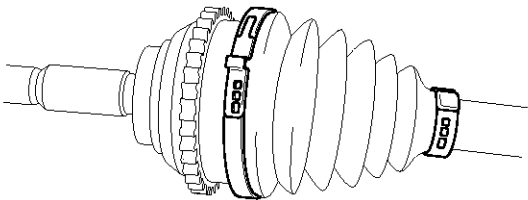


EIKD019A

5. Check the driveshaft for cracks and wears.

Reassembly

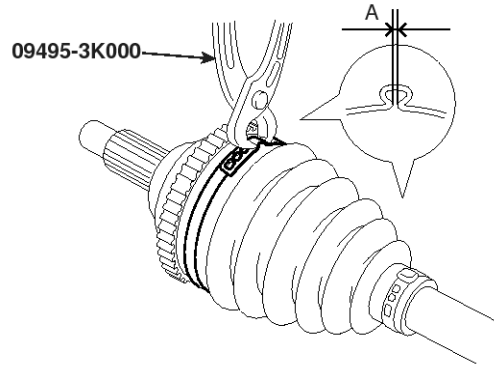
1. Wrap tape around the driveshaft splines (PTJ. side) to prevent damage to the boots.
2. Apply grease to the driveshaft and install the BJ boots.
3. Install the bands to both BJ boots.



EIRF003I

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

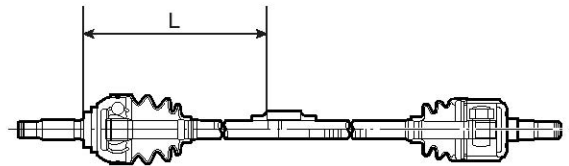
Clearance (A) : 2.0 mm (0.079 in.) or less



AILG500L

5. To reassemble the dynamic damper, keeping the shaft in the straight, tighten the dynamic damper with dynamic damper band, as the illustration.

Distance (L) : 228.4 ~ 228.6mm (8.99 ~ 9.00in)



SENDS7518D

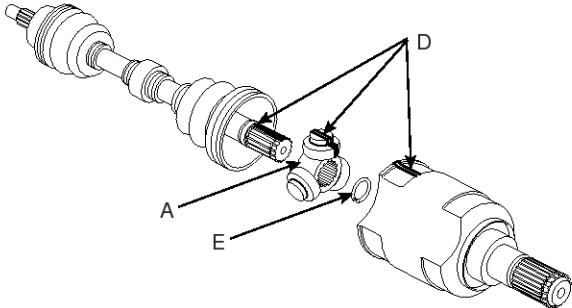
6. Install the PTJ boot bands and PTJ boot.

DS-26

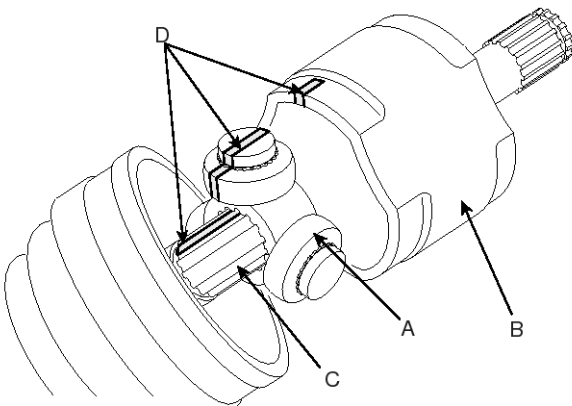
Driveshaft and axle

7. Install the trunion assembly (A) and the circlip (E) to the spline (C) on the driveshaft.

At this time align the marks (D) each other.



KXDDE20A

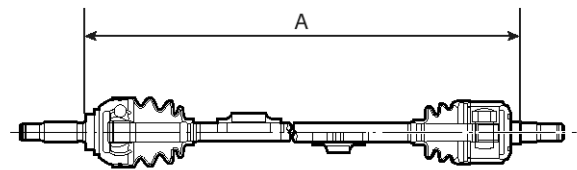


KXDDE11A

8. Install the clip to the PTJ case (B).
9. Add the specified grease to the PTJ as much as wiped away at inspection.
10. Install the PTJ boots.

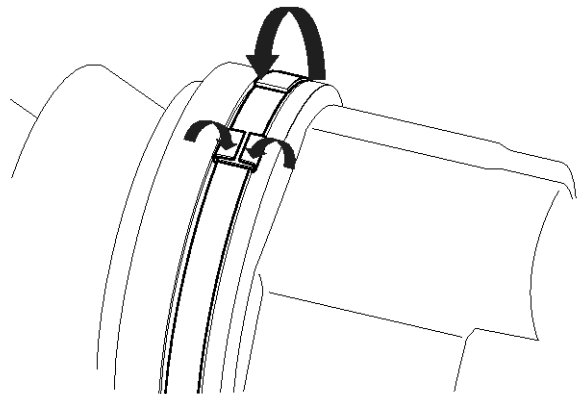
11. To control the air in the PTJ boot, keep the specified distance between the boot bands when they are tightened.

Distance (A)	LH side	RH side
Diesel 3.0, Gasoline 3.8 (mm(in))	530.5 +27.9 -22.5 (20.89 +1.10 -0.89)	543.5 +27.9 -22.5 (21.40 +1.10 -0.89)



EIKD022A

12. Install the bands to both PTJ boots.



SHDDS6506L

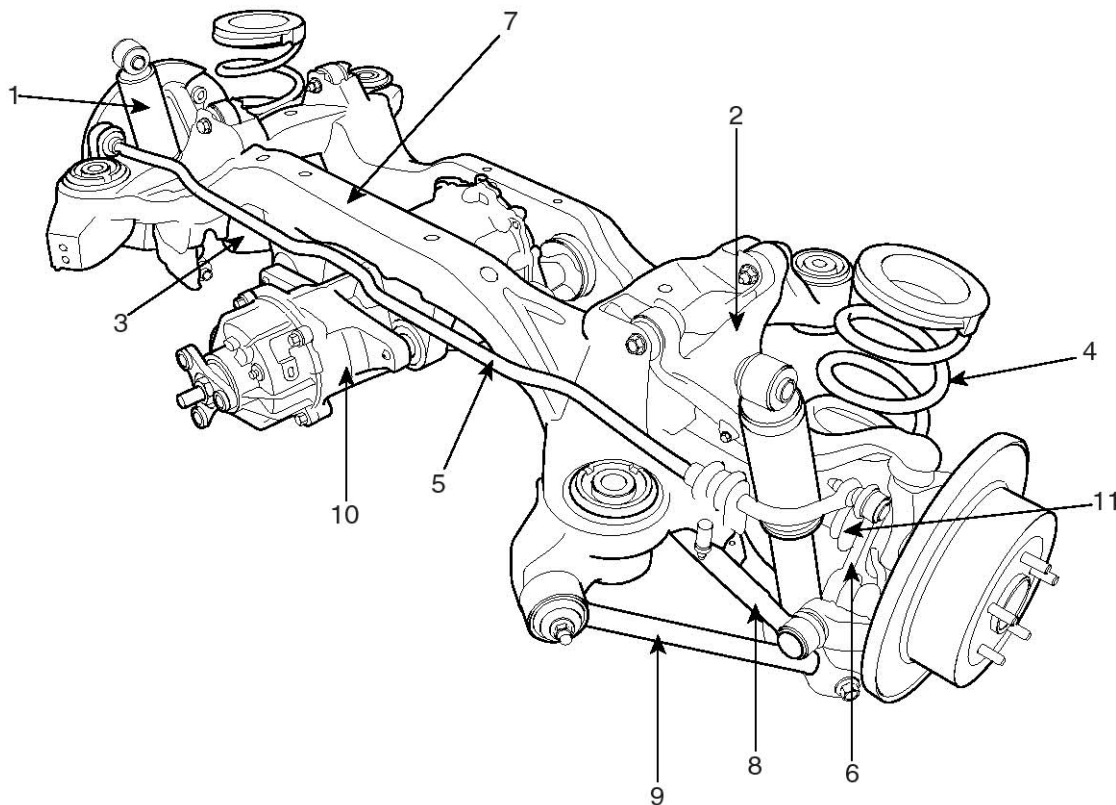
Rear Axle Assembly

DS-27

Rear Axle Assembly

Rear Hub / Carrier

Component Location



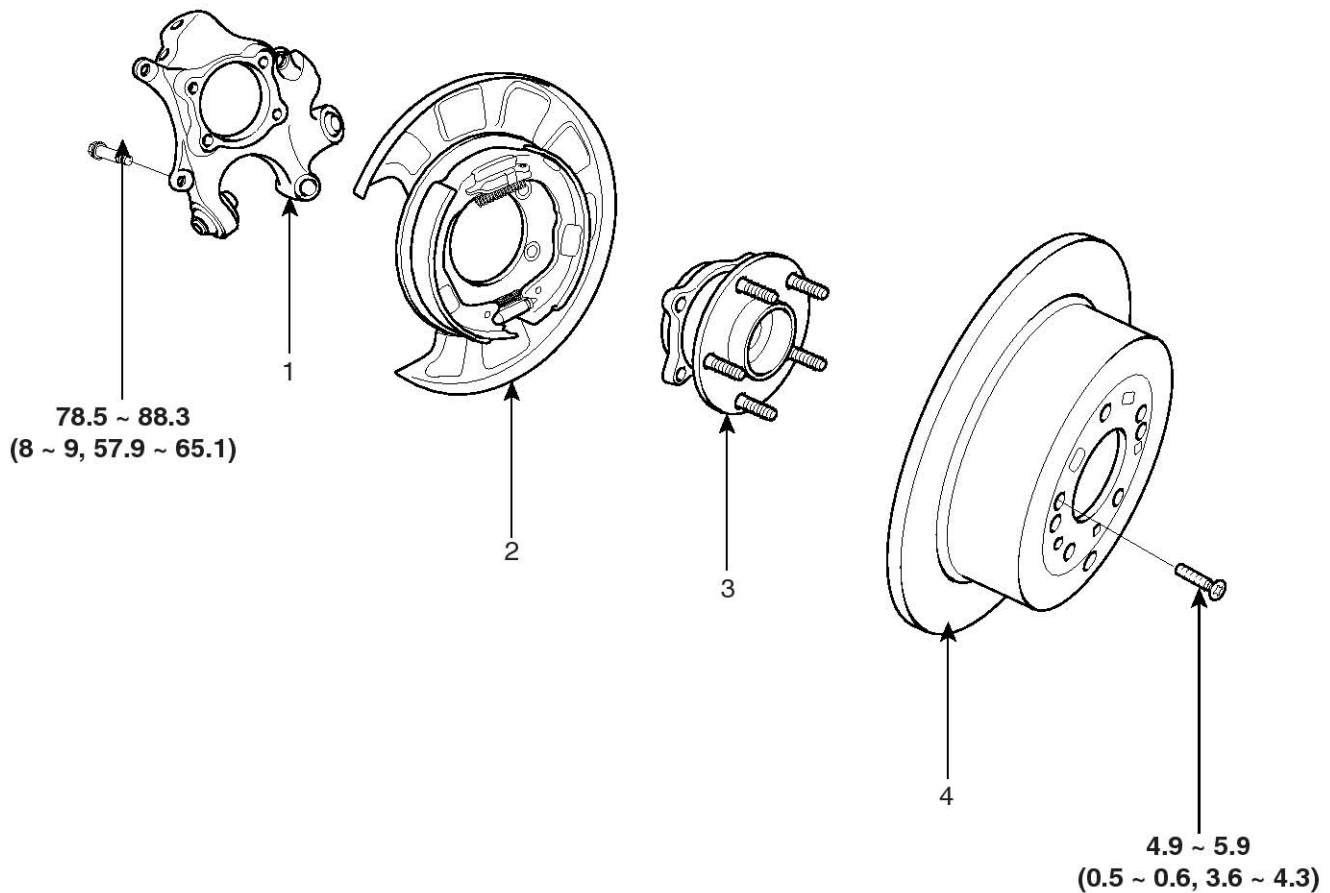
SENDS9006L

- | | |
|----------------------------------|--------------------------------|
| 1. Rear shock absorber assembly | 7. Rear cross member |
| 2. Rear upper arm | 8. Rear assist arm |
| 3. Rear lower arm | 9. Trailing arm |
| 4. Rear coil spring | 10. Differential Carrier (4WD) |
| 5. Rear stabilizer bar assembly | 11. Drive shaft (4WD) |
| 6. Rear stabilizer link assembly | |

DS-28

Driveshaft and axle

Component



Torque : Nm (kgf.m, lb-ft)

SENDS9007L

- 1. Rear carrier assembly
- 2. Parking brake assembly

- 3. Rear hub assembly
- 4. Rear brake disc

Rear Axle Assembly

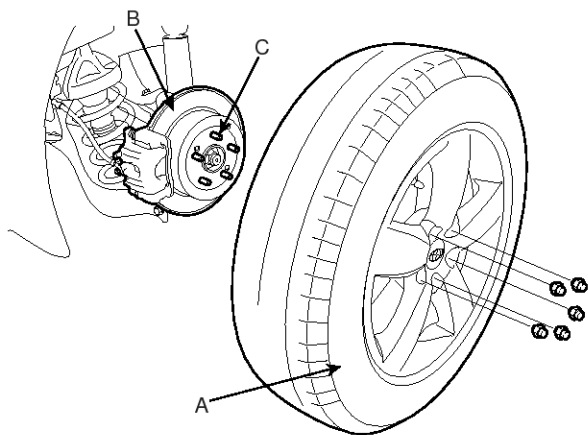
DS-29

Removal

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 the rear hub (B).

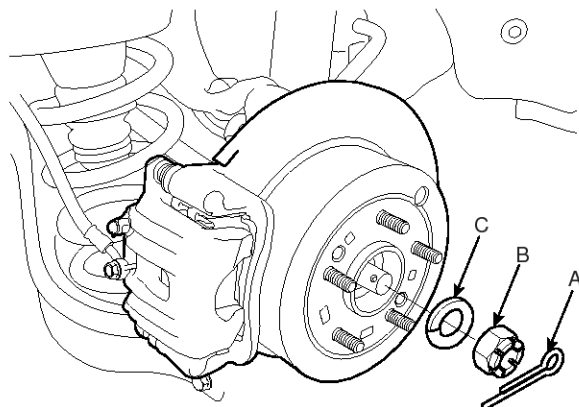


SCMDS6019D

CAUTION

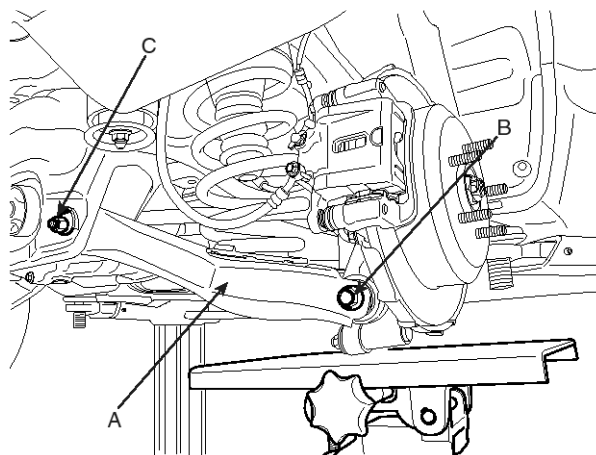
Be careful not to damage to the hub bolts (C) when removing the rear wheel and tire (A).

3. Remove the split pin (A), then remove castle nut (B) and washer (C) from the front hub under applying the brake.



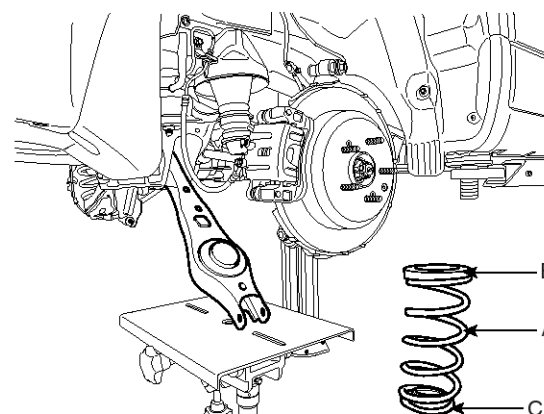
SCMDS6020D

4. Remove the mounting bolt (B) of the rear lower arm(A) and the rear carrier, while supporting the lower arm (A) with a jack as shown in the illustration. Loosen the mounting bolt (C) of the cross member and the rear lower arm.



SENDS7506D

5. Remove the spring (A), the upper pad (B) and the lower pad (C).

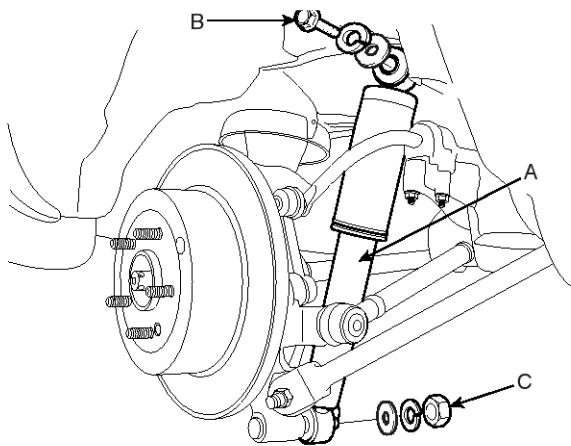


SENDS7507D

DS-30

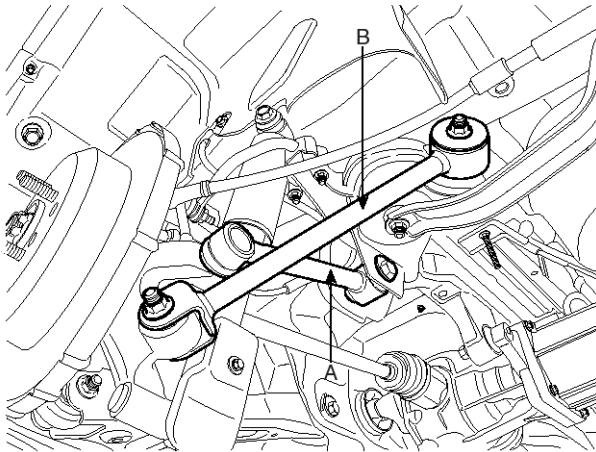
Driveshaft and axle

6. Remove the rear shock absorber (A).



SENDS7508D

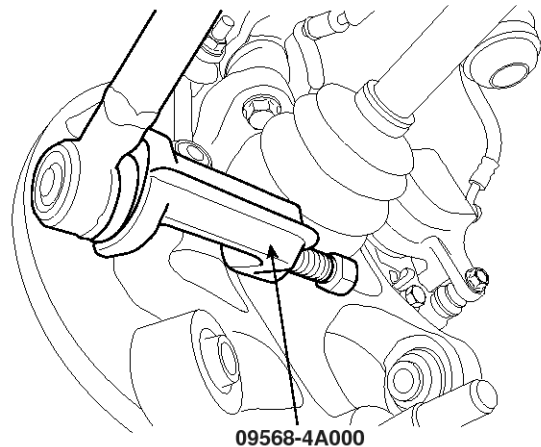
7. Remove the assist arm (A) and the trailing arm (B) from the rear axle carrier.



SENDS7509D

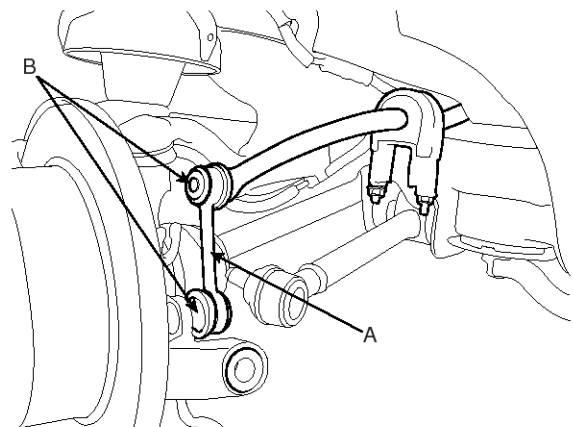
NOTICE

Remove the rear assist arm ball joint by using the special tool(09568-4A000).



SCMDS6518L

8. Remove the rear stabilizer link (A) from the rear axle carrier.

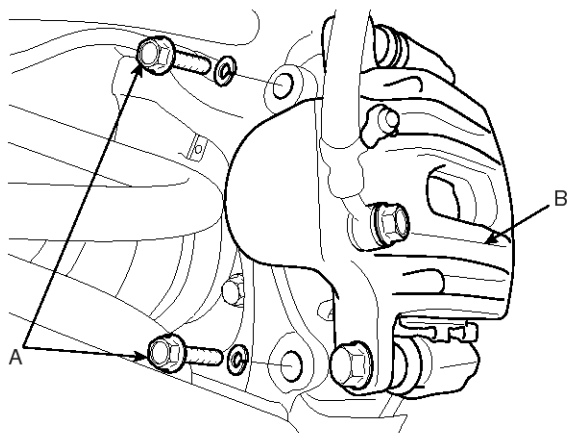


SCMDS6026D

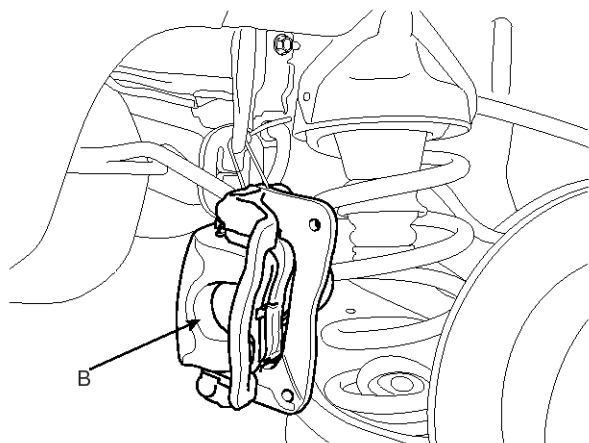
Rear Axle Assembly

DS-31

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

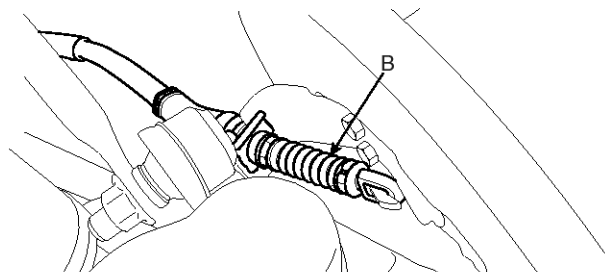


SCMDS6027D

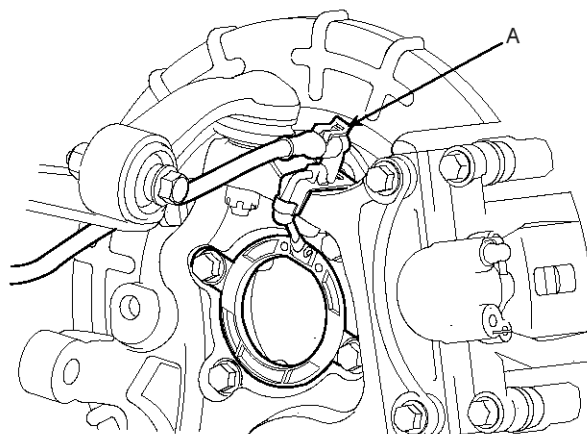


SCMDS6028D

10. Remove the wheel speed sensor connector (A) and the parking brake cable (B) from the rear axle carrier.

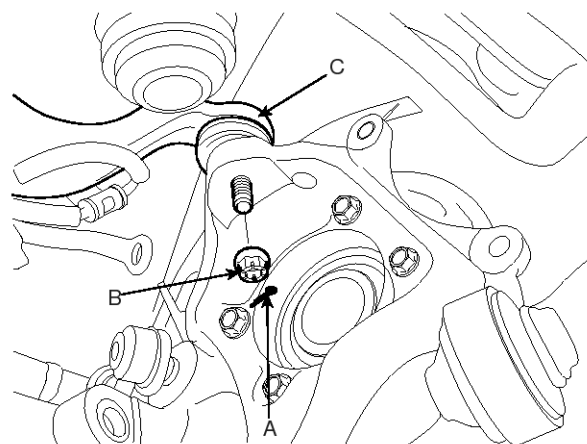


SENDS7522D

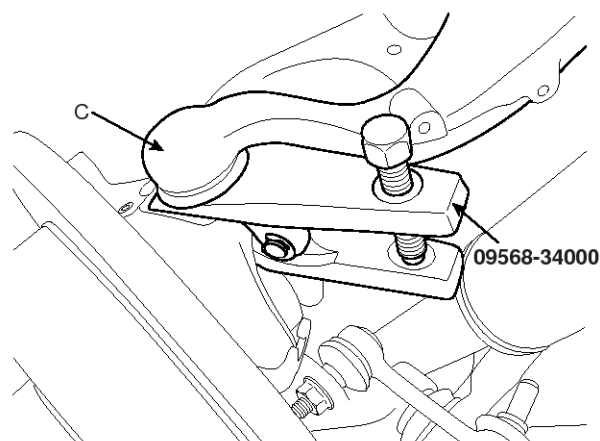


SENDS7521D

11. Remove the split pin (A) and the castle nut (B) from the rear upper arm ball joint (C), and then remove the rear upper arm ball joint (C) by using the special tool(09568-34000).



SCMDS6030D



SCMDS6031D

12. Remove the rear axle carrier assembly.

DS-32

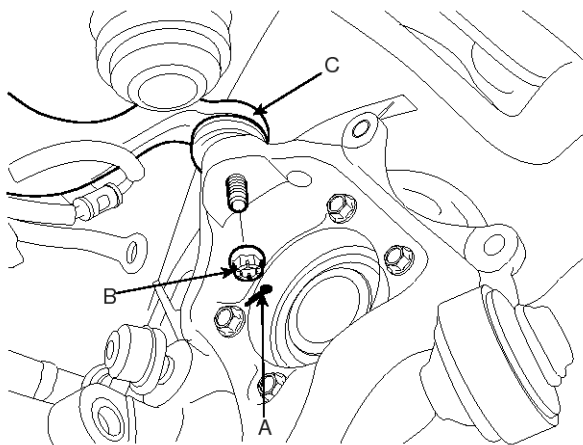
Driveshaft and axle

Installation

1. Install the rear axle carrier assembly.
2. Install the split pin (A) and the castle nut (B) to the rear upper arm ball joint (C).

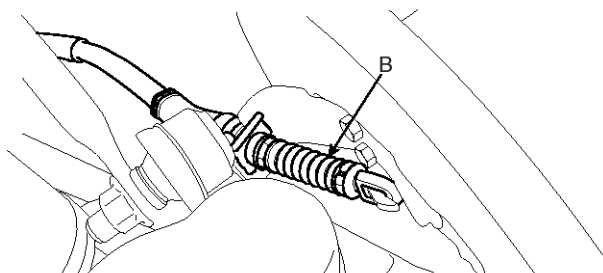
Tightening torque Nm (kgf-m, lb-ft) :

78.5~98.1 (8.0~10.0, 57.9~72.3)

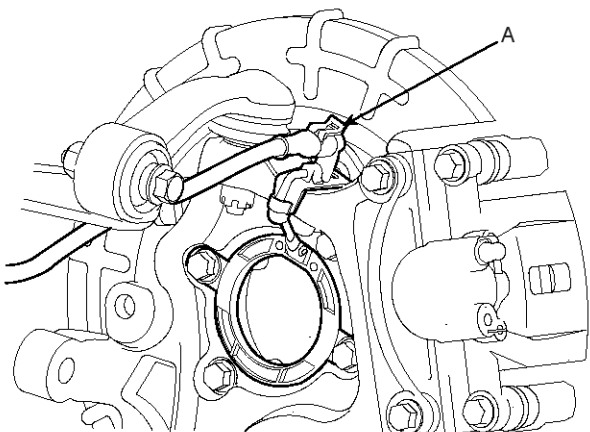


SCMDS6030D

3. Install the wheel speed sensor connector (A) and the parking brake cable (B) to the rear axle carrier.



SENDS7522D

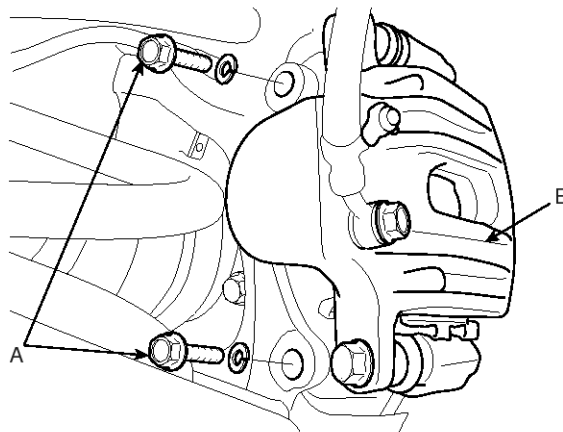


SENDS7521D

4. Install the brake caliper (B), then tighten the brake caliper mounting bolts (A).

Tightening torque Nm (kgf-m, lb-ft) :

63.7~73.5 (6.5~7.5, 47.0~54.2)

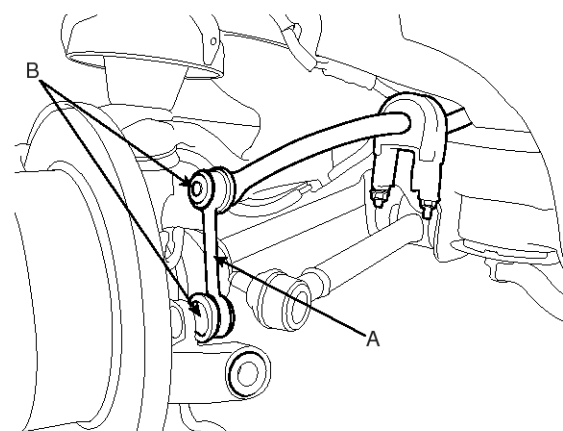


SCMDS6027D

5. Install the rear stabilizer link (A) from the rear axle carrier.

Tightening torque Nm (kgf-m, lb-ft) :

Nut(B) : 58.8~78.5 (6.0~8.0, 43.4~57.9)



SCMDS6026D

Rear Axle Assembly

DS-33

6. Install the assist arm (A) and the trailing arm (B) to the rear axle carrier.

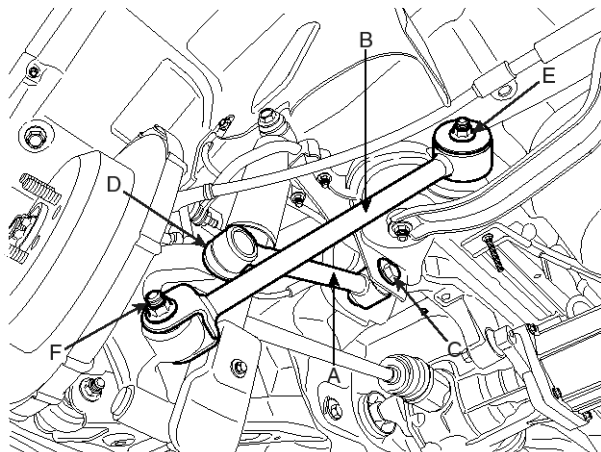
Tightening torque Nm (kgf-m, lb-ft) :

Bolt (C) : 137.3~156.9 (14~16, 101.3~115.7)

Nut (D) : 98.1~117.7 (10~12, 72.3~86.8)

Nut (E) : 137.3~156.9 (14~16, 101.3~115.7)

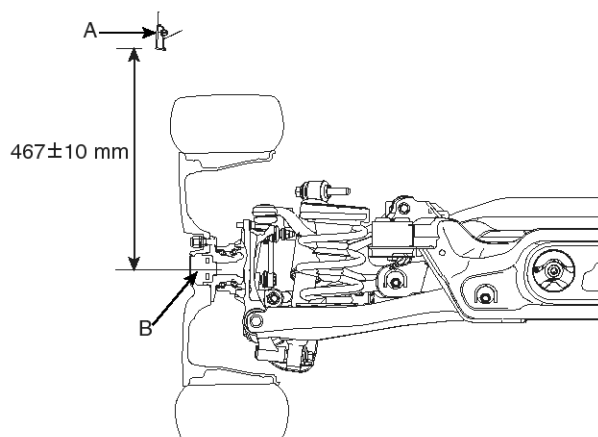
Bolt (F) : 137.3~156.9 (14~16, 101.3~115.7)



SENDS7520D

NOTICE

After checking the distance ($467 \pm 10 \text{ mm}$ ($18.39 \pm 0.39 \text{ in}$)) between the wheel housing garnish (A) and the hub assembly (B) as shown in the illustration, tighten the mounting bolts and nuts of rear chassis part with specified torque.



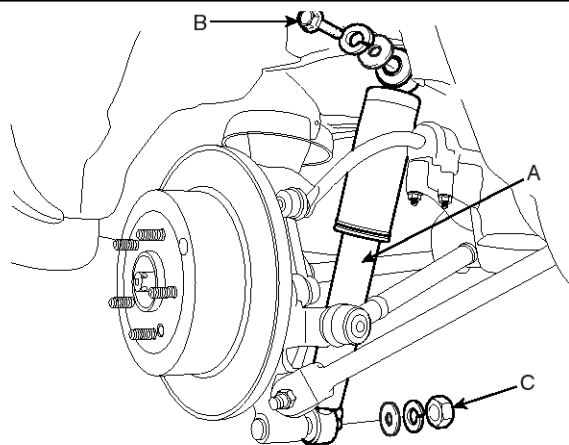
SENDS7519D

7. Install the rear shock absorber (A).

Tightening torque Nm (kgf-m, lb-ft) :

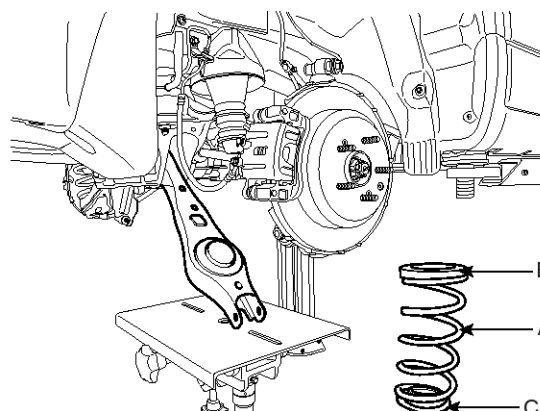
Bolt (B) : 137.3~156.9 (14~16, 101.3~115.7)

Nut (C) : 98.1~117.7 (10.0~12.0, 72.3~86.8)



SENDS7508D

8. Install the spring (A), the upper pad (B) and the lower pad (C).



SENDS7507D

DS-34

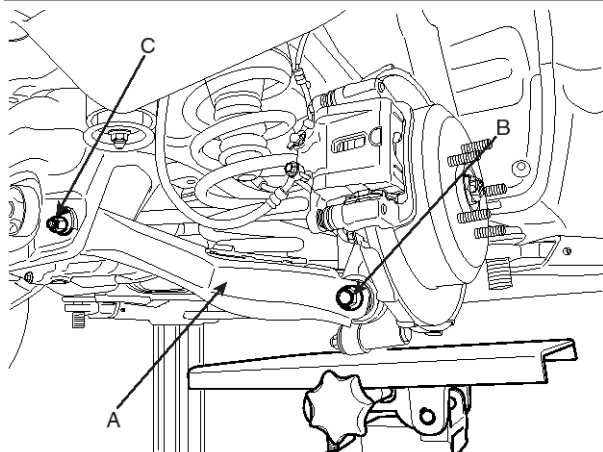
Driveshaft and axle

9. Install the mounting bolt (B) of the rear lower arm(A) and the rear carrier with a specified torque, while supporting the lower arm (A) with a jack as shown in the illustration. Tighten the mounting bolt (C) of the cross member and the rear lower arm with a specified torque.

Tightening torque Nm (kgf-m, lb-ft) :

Bolt (B) : 137.3~156.9 (14~16, 101.3~115.7)

Nut (C) : 137.3~156.9 (14~16, 101.3~115.7)

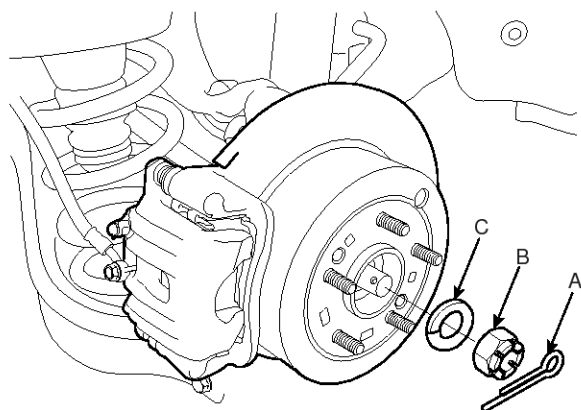


SENDS7506D

10. Install the washer (C), castle nut (B) and split pin (A) to the rear hub assembly.

Tightening torque Nm (kgf-m, lb-ft) :

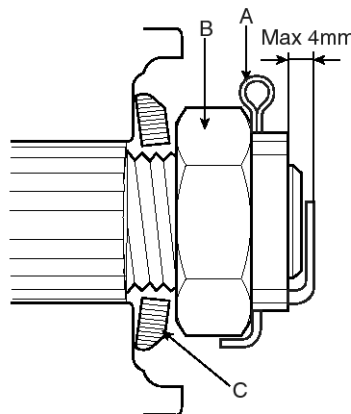
196.1~274.6 (20~28, 144.7~202.5)



SCMDS6020D

CAUTION

The washer (C) should be assembled with convex surface outward when installing the castle nut (B) and split pin (A).

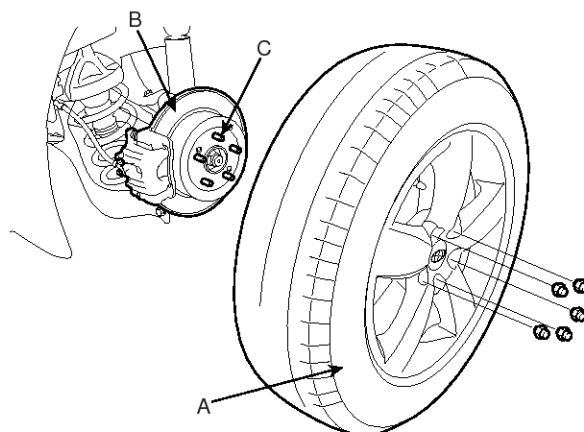


SENDS7517D

11. Install the wheel and tire (A) to the rear hub (B).

Tightening torque Nm (kgf-m, lb-ft) :

88.3~107.9 (9~11, 65.1~79.6)



SCMDS6019D

CAUTION

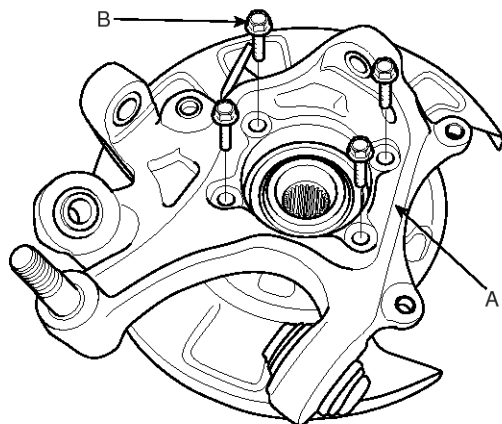
Be careful not to damage the hub bolts (C) when installing the rear wheel and tire (A).

Rear Axle Assembly

DS-35

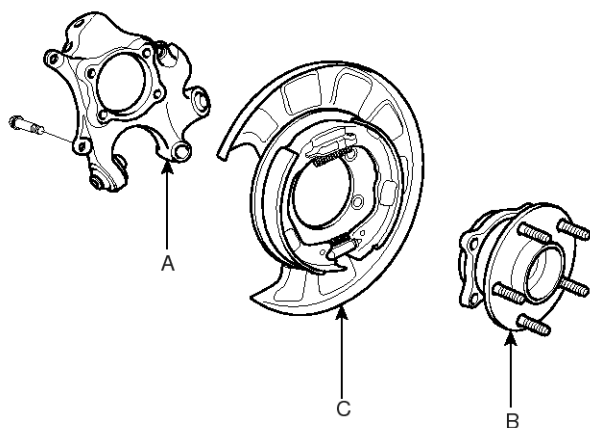
Disassembly

1. Remove the brake disc from the rear axle carrier assembly.
2. Remove the hub assembly mounting bolts (B) from the rear axle carrier (A).



SCMDS6032D

3. Remove the hub assembly (B) and the parking brake assembly (C) from the rear axle carrier (A).



SCMDS6506D

CAUTION

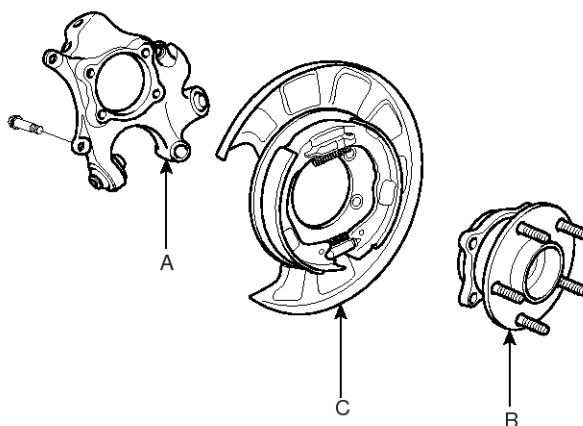
Do not disassemble the hub assembly.

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.

Reassembly

1. Install the parking brake assembly (C) and the hub assembly (B) to the rear axle carrier (A).

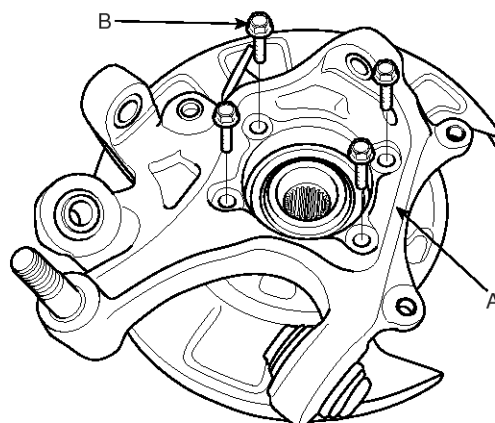


SCMDS6506D

2. Install the hub assembly to the rear axle carrier (A) and then tighten the mounting bolt (B).

Tightening torque Nm (kgf-m, lb-ft) :

78.5~88.3 (8~9, 57.9~65.1)



SCMDS6032D

3. Install the brake disc to the rear axle carrier assembly.

Tightening torque Nm (kgf-m, lb-ft) :

Screw: 4.9~5.9 (0.5~0.6, 3.6~4.3)

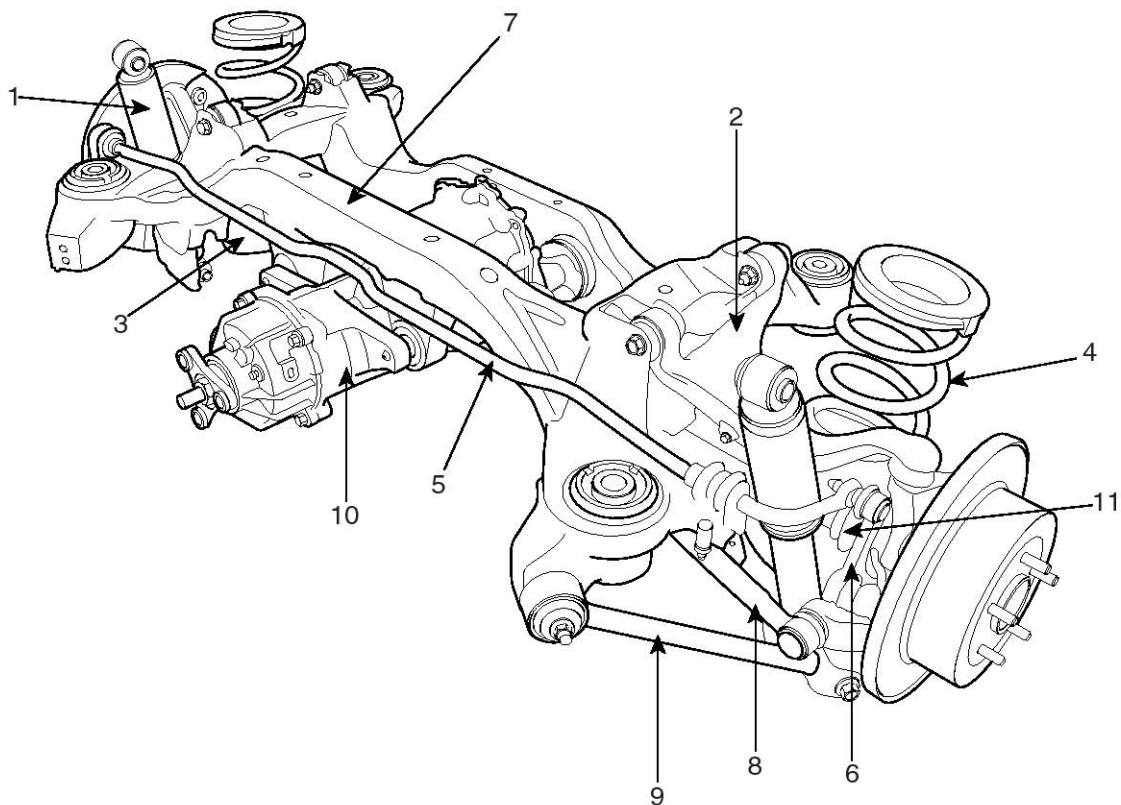
DS-36

Driveshaft and axle

Rear Driveshaft Assembly

Rear Driveshaft

Component Location



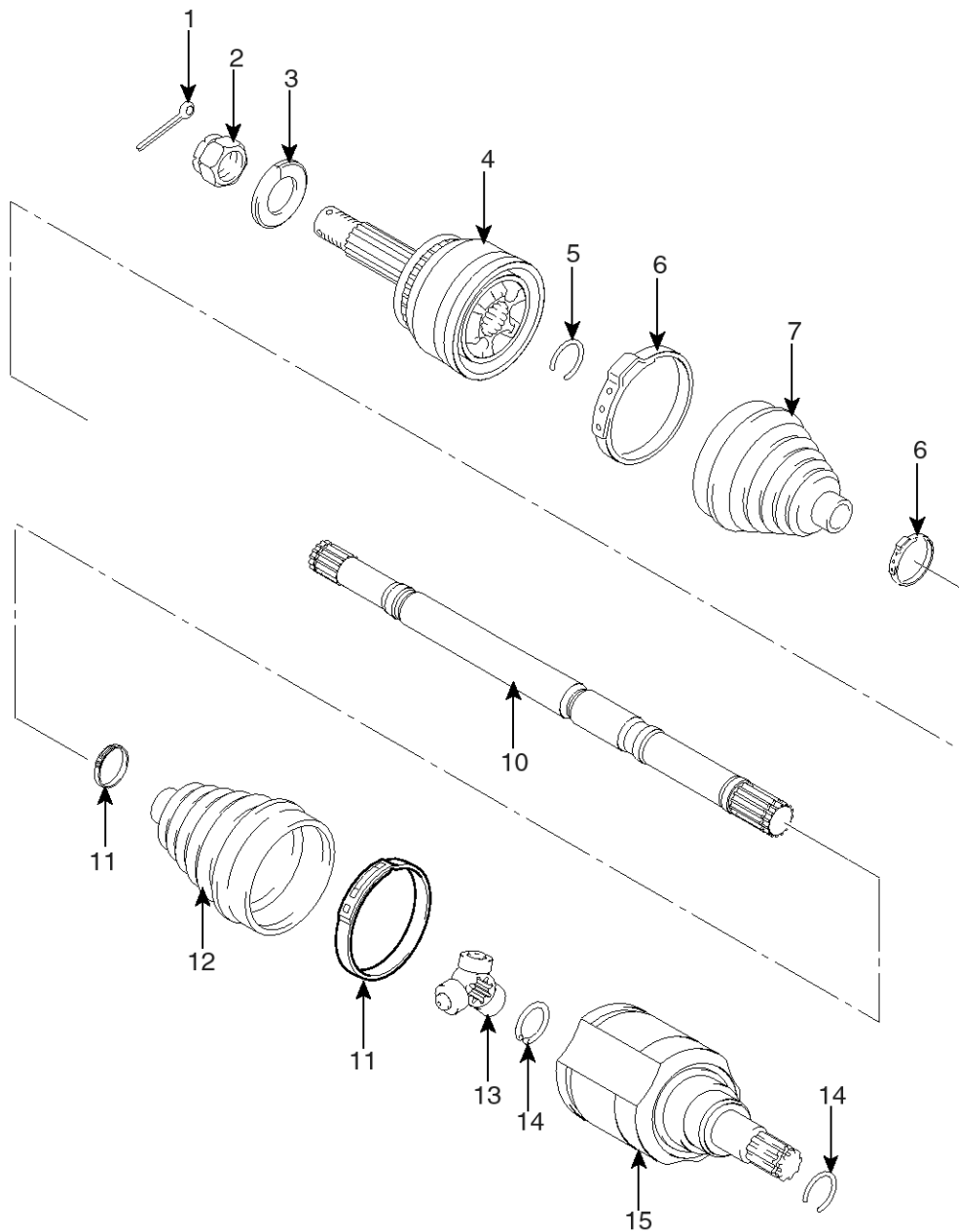
SENDS9008L

- | | |
|----------------------------------|--------------------------------|
| 1. Rear shock absorber assembly | 7. Rear cross member |
| 2. Rear upper arm | 8. Rear assist arm |
| 3. Rear lower arm | 9. Trailing arm |
| 4. Rear coil spring | 10. Differential Carrier (4WD) |
| 5. Rear stabilizer bar assembly | 11. Drive shaft (4WD) |
| 6. Rear stabilizer link assembly | |

Rear Driveshaft Assembly

DS-37

Component



SENDS9009L

- | | | |
|----------------|------------------------|----------------------|
| 1. Split pin | 6. BJ boot band | 11. TJ boot band |
| 2. Castle nut | 7. BJ boot | 12. TJ boot |
| 3. Washer | 8. Dynamic damper band | 13. Trunion assembly |
| 4. BJ assembly | 9. Dynamic damper | 14. Circlip |
| 5. Clip A | 10. Shaft | 15. TJ assembly |

DS-38

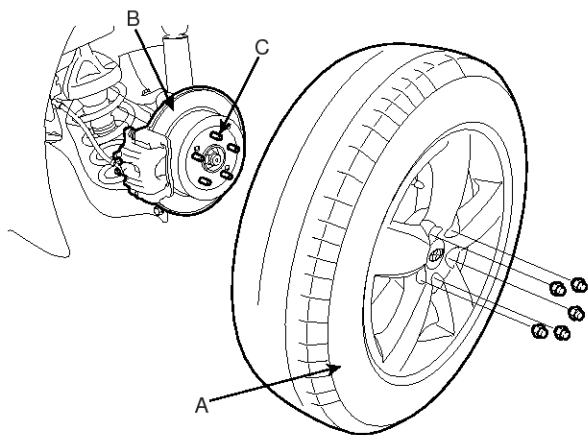
Driveshaft and axle

Removal

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 the rear hub (B).

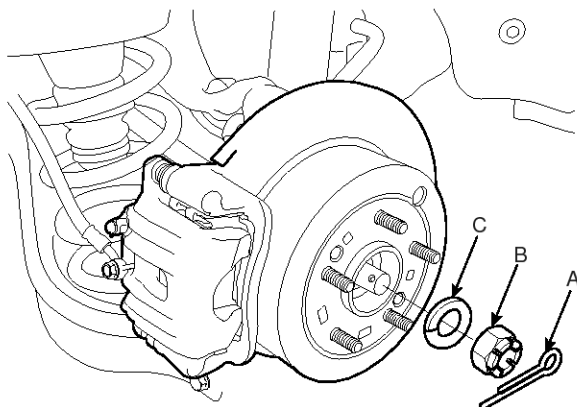


SCMDS6019D

CAUTION

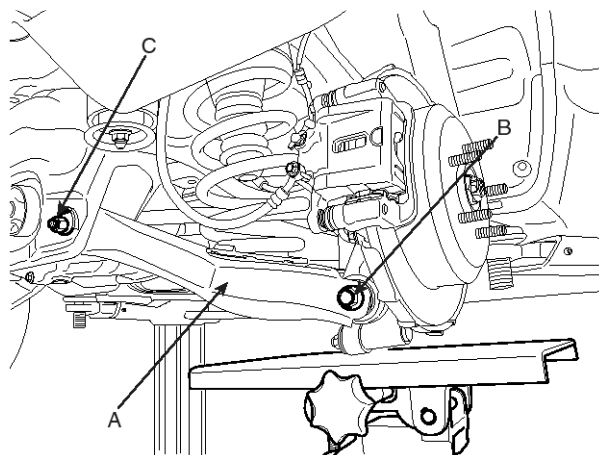
Be careful not to damage to the hub bolts (C) when removing the rear wheel and tire (A).

3. Remove the split pin (A), then remove castle nut (B) and washer (C) from the front hub under applying the brake.



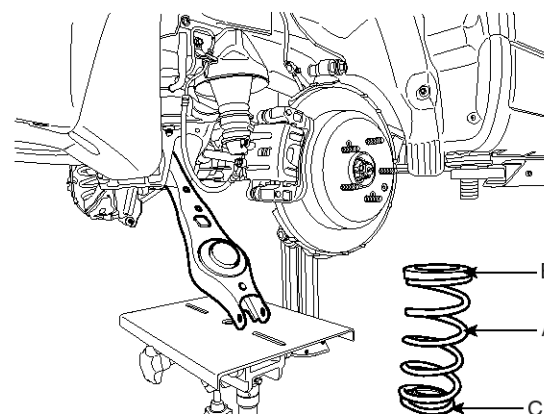
SCMDS6020D

4. Remove the mounting bolt (B) of the rear lower arm (A) and the rear carrier, while supporting the lower arm (A) with a jack as shown in the illustration. Loosen the mounting bolt (C) of the cross member and the rear lower arm.



SENDS7506D

5. Remove the spring (A), the upper pad (B) and the lower pad (C).

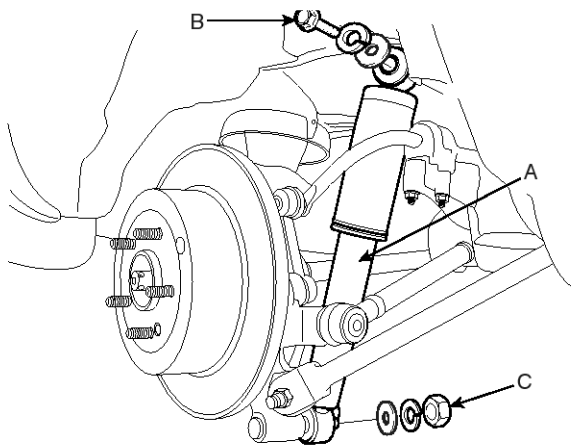


SENDS7507D

Rear Driveshaft Assembly

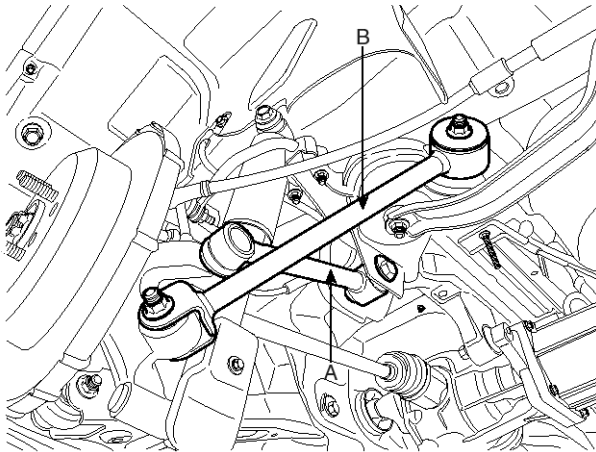
DS-39

6. Remove the rear shock absorber (A).



SENDS7508D

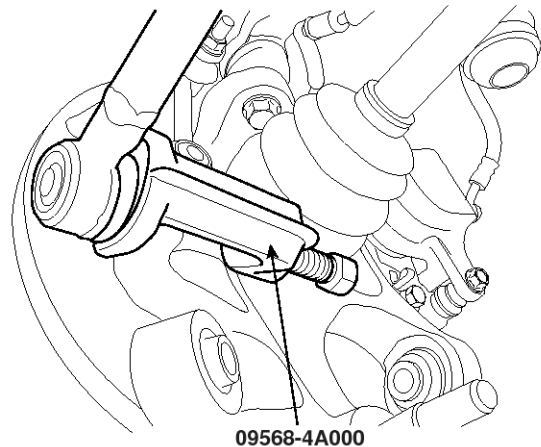
7. Remove the assist arm (A) and the trailing arm (B) from the rear axle carrier.



SENDS7509D

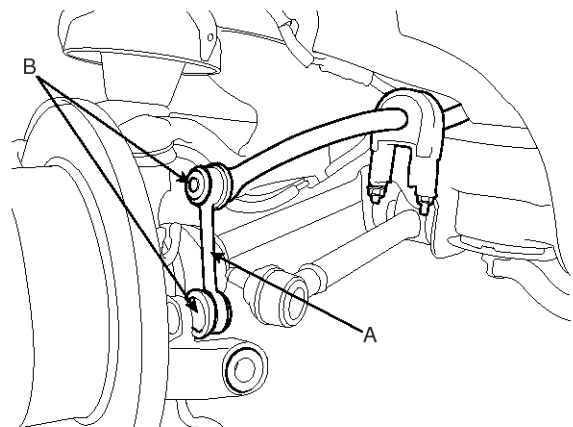
NOTICE

Remove the rear assist arm ball joint by using the special tool(09568-4A000).



SCMDS6518L

8. Remove the rear stabilizer link (A) from the rear axle carrier.

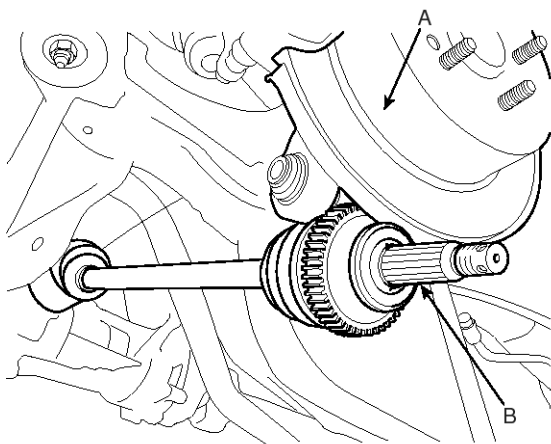


SCMDS6026D

DS-40

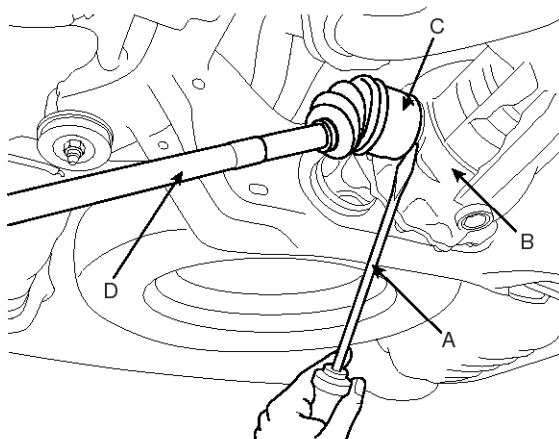
Driveshaft and axle

9. Push the rear axle carrier (A) outward and separate the driveshaft (B) from the axle hub (A).



SCMDS6033D

10. Insert a pry bar (A) between the differential case (B) and joint case (C), and separate the driveshaft (D) from the differential case.



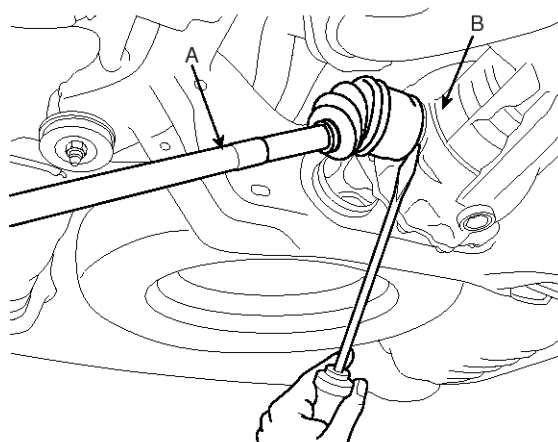
SCMDS6034D

⚠ CAUTION

- Use a pry bar (A) being careful not to damage the differential 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 differential case with the oil seal cap to prevent contamination.
- Support the driveshaft properly.
- Replace the retainer ring whenever the driveshaft is removed from the differential case.

Installation

1. Apply gear oil on the oil seal contacting surface of differential case (B) and the driveshaft (A) splines.

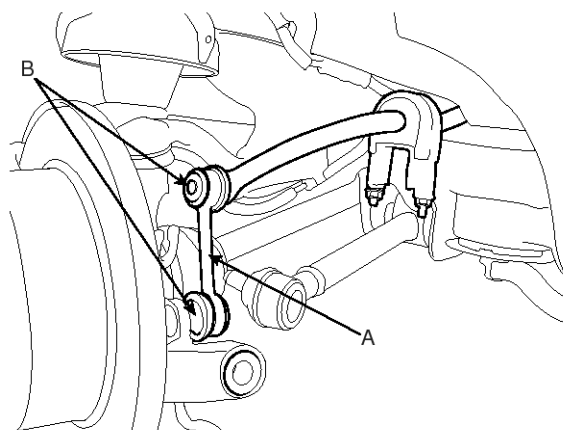


SCMDS6053D

2. Before installing the driveshaft(A), set the opening side of the circlip facing downward.
3. After installation, check that the driveshaft (A) cannot be removed by hand.
4. Install the driveshaft to the rear axle carrier assembly.
5. Install the rear stabilizer link (A) from the rear axle carrier.

Tightening torque Nm (kgf-m, lb-ft) :

Nut(B) : 58.8~78.5 (6.0~8.0, 43.4~57.9)



SCMDS6026D

Rear Driveshaft Assembly

DS-41

6. Install the assist arm (A) and the trailing arm (B) to the rear axle carrier.

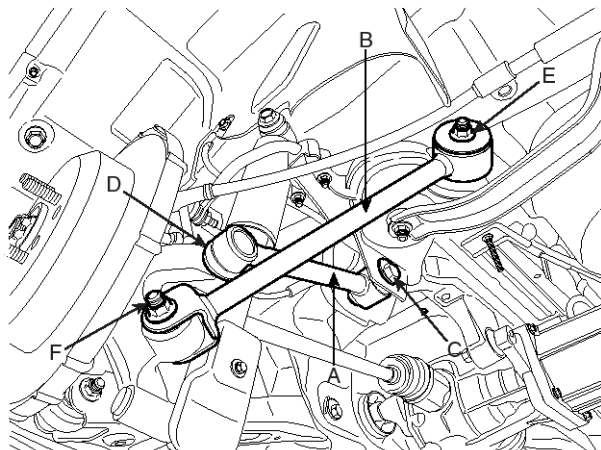
Tightening torque Nm (kgf-m, lb-ft) :

Bolt (C) : 137.3~156.9 (14~16, 101.3~115.7)

Nut (D) : 98.1~117.7 (10~12, 72.3~86.8)

Nut (E) : 137.3~156.9 (14~16, 101.3~115.7)

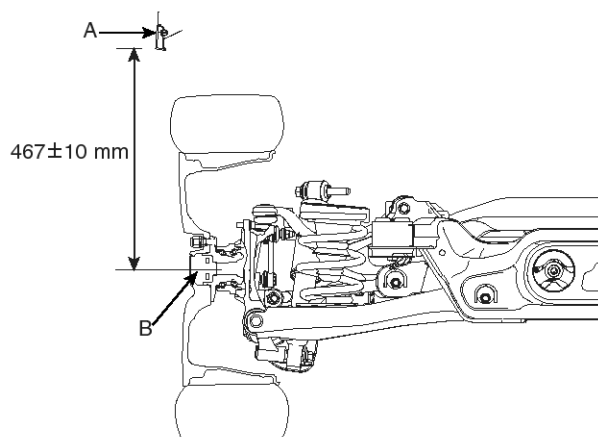
Bol t(F) : 137.3~156.9 (14~16, 101.3~115.7)



SENDS7520D

NOTICE

After checking the distance ($467 \pm 10 \text{ mm}$ ($18.39 \pm 0.39 \text{ in}$)) between the wheel housing garnish (A) and the hub assembly (B) as shown in the illustration, tighten the mounting bolts and nuts of rear chassis part with specified torque.



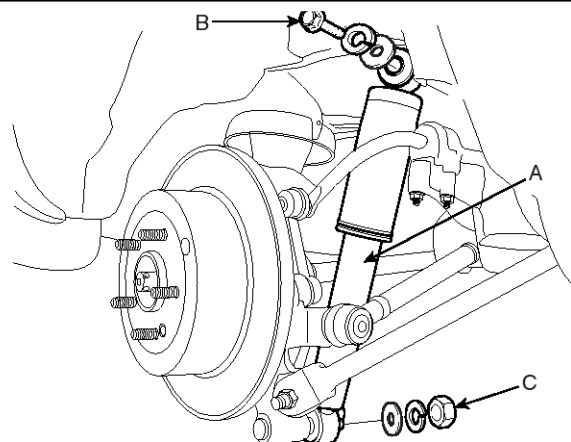
SENDS7519D

7. Install the rear shock absorber (A).

Tightening torque Nm (kgf-m, lb-ft) :

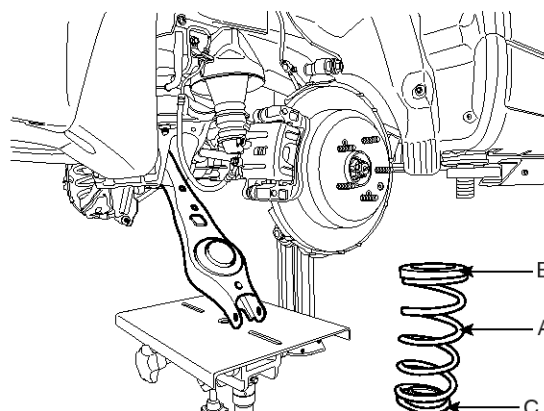
Bolt (B) : 137.3~156.9 (14~16, 101.3~115.7)

Nut (C) : 98.1~117.7 (10.0~12.0, 72.3~86.8)



SENDS7508D

8. Install the spring (A), the upper pad (B) and the lower pad (C).



SENDS7507D

DS-42

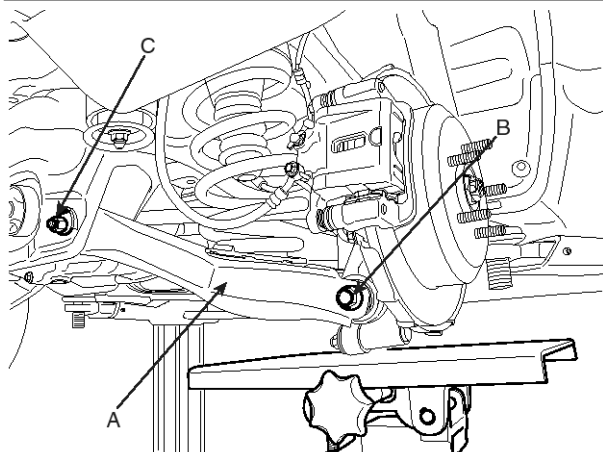
Driveshaft and axle

9. Install the mounting bolt (B) of the rear lower arm (A) and the rear carrier with a specified torque, while supporting the lower arm (A) with a jack as shown in the illustration. Tighten the mounting bolt (C) of the cross member and the rear lower arm with a specified torque.

Tightening torque Nm (kgf-m, lb-ft) :

Bolt (B) : 137.3~156.9 (14~16, 101.3~115.7)

Nut (C) : 137.3~156.9 (14~16, 101.3~115.7)

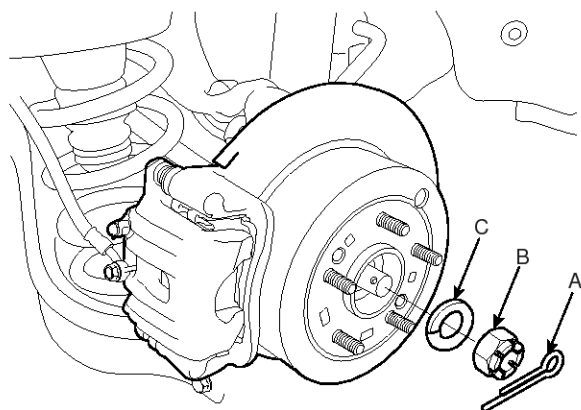


SENDS7506D

10. Install the washer (C), castle nut (B) and split pin (A) to the rear hub assembly.

Tightening torque Nm (kgf-m, lb-ft) :

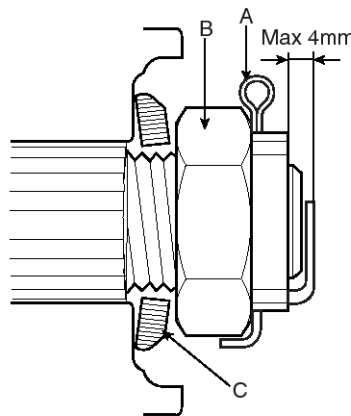
196.1~274.0 (20~28, 144.7~202.5)



SCMDS6020D

CAUTION

The washer (C) should be assembled with convex surface outward when installing the castle nut (B) and split pin (A).

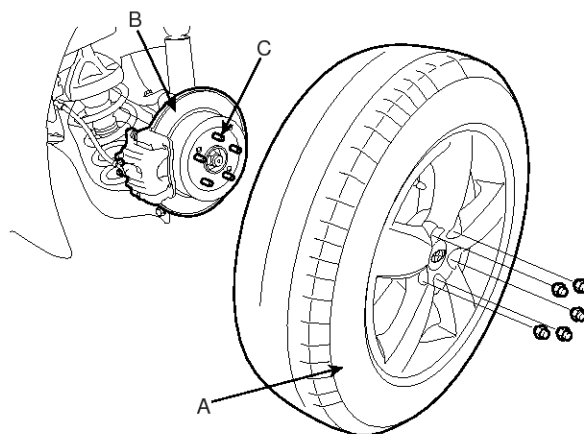


SENDS7517D

11. Install the wheel and tire (A) to the rear hub (B).

Tightening torque Nm (kgf-m, lb-ft) :

88.3~107.9 (9~11, 65.1~79.6)



SCMDS6019D

CAUTION

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

Rear Driveshaft Assembly

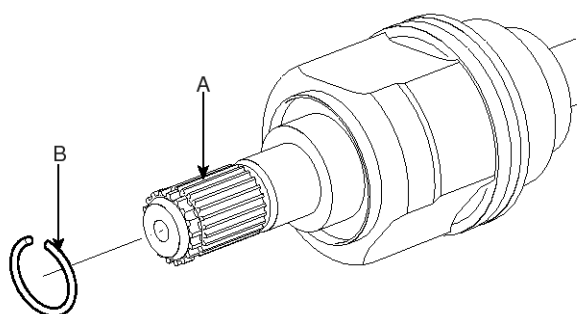
DS-43

Disassembly

⚠ CAUTION

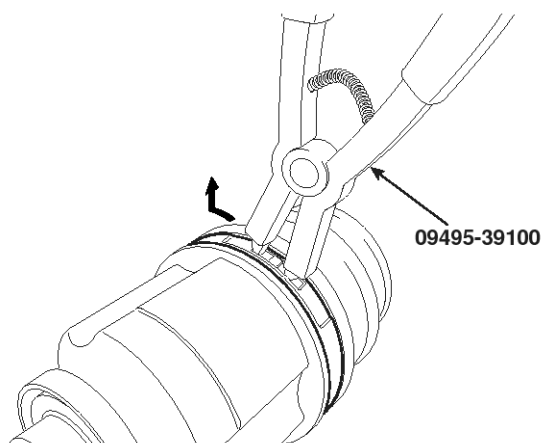
- Do not disassemble the BJ assembly.
- Special grease must be applied to the driveshaft joint. Do not substitute with another type of grease.
- The boot band should be replaced with a new one.

1. Remove the circlip (B) from driveshaft splines (A) of the differential side TJ case.



KXDDE07A

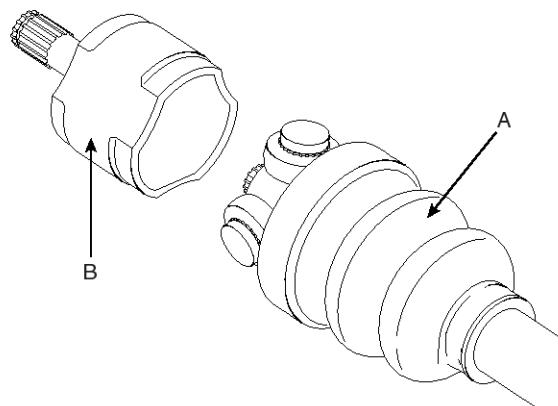
2. Remove the both boot clamps from the differential side TJ case.



SUNDS6501D

3. Pull out the boot from the differential side joint(TJ).

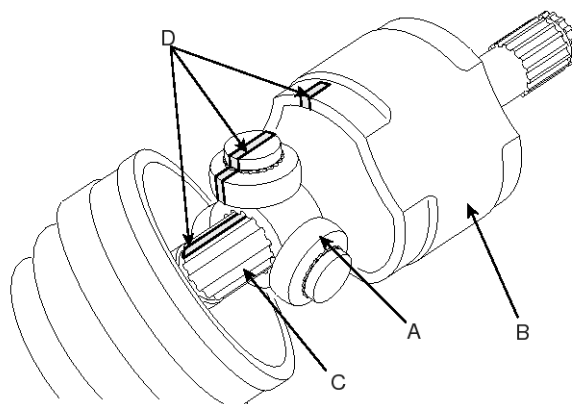
4. While dividing joint(TJ) boot (A) of the differential side, wipe the grease in TJ case (B) and collect them respectively.



SENDS7512D

⚠ CAUTION

- Be careful not to damage the boot.
- According to below the illustrated, put marks (D) on roller of trunion assembly (A), TJ case (B) and spline part (C), for providing assembly.

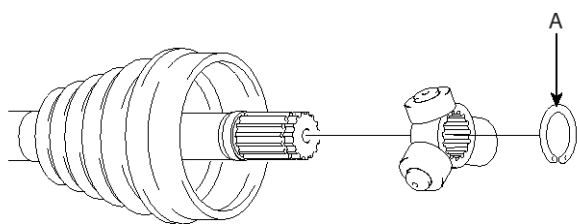


KXDDE11A

DS-44

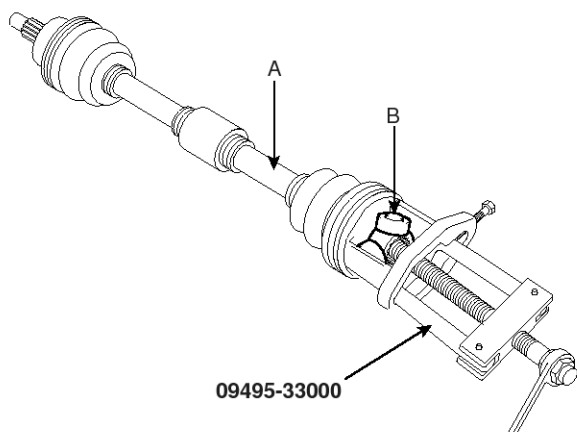
Driveshaft and axle

5. Using a snap ring plier or flat-tipped (-) screwdriver, remove the circlip (A).



KXDDE12A

6. Remove the trunion assembly (B) from the driveshaft (A) using the special tool (09495-33000).

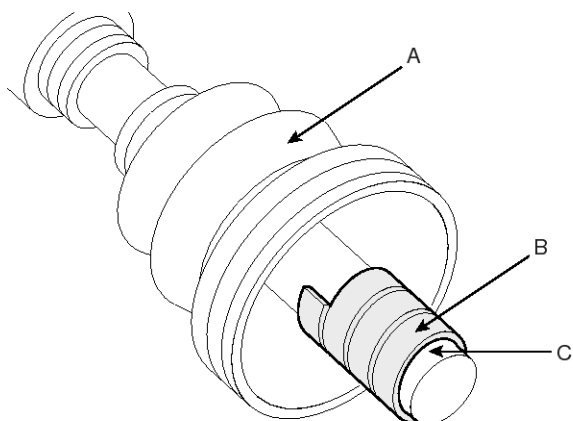


KXDDE13A

7. Clean the trunion assembly.
8. Remove the boot (A) of the transaxle side joint(TJ).

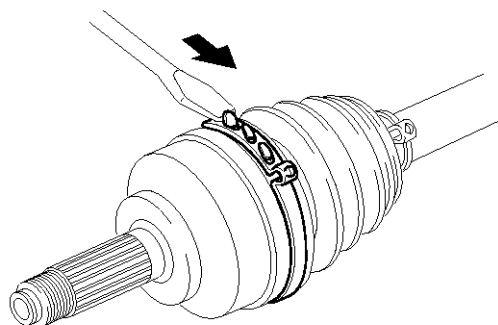
⚠ CAUTION

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



KXDDE14A

9. Using a plier or flat-tipped (-) screwdriver, remove the clamp on the side of wheel.



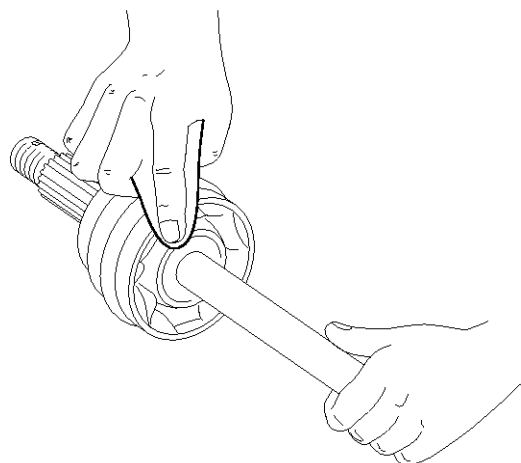
EIRF003H

10. Pull out the joint(BJ) on the side of wheel into the transaxle direction.

Be carefull not to damage the boot.

Inspection

1. Check the driveshaft spline for wear or damage.
2. Check that there is no water or foreign material in the BJ.
3. Check the trunion assembly for roller rotation, wear or corrosion.
4. Check the groove inside the TJ case for wear or corrosion.
5. Check the dynamic damper for damage or cracks.



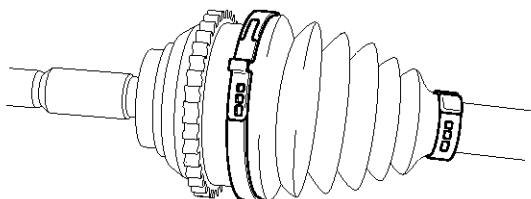
EIKD025B

Rear Driveshaft Assembly

DS-45

Reassembly

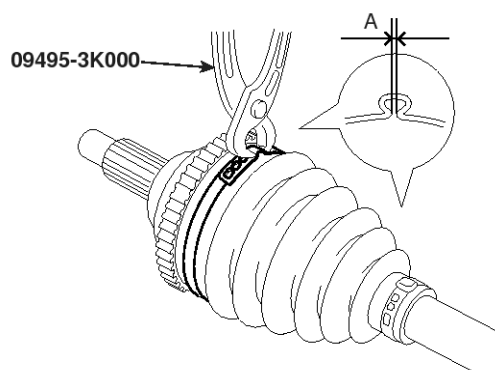
1. Wrap tape around the driveshaft splines (TJ. side) to prevent damage to the boots.
2. Apply grease to the driveshaft and install the BJ boots.
3. Install the bands to both BJ boots.



EIRF003I

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

Clearance (A) : 2.0 mm (0.079 in.) or less

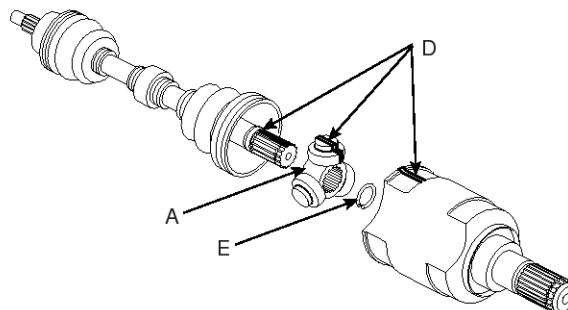


AILG500L

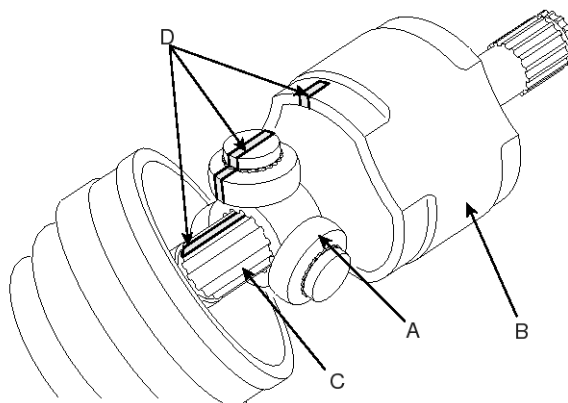
5. Install the TJ boot bands and TJ boot.

6. Install the trunion assembly (A) and the circlip (E) to the spline (C) on the driveshaft.

At this time align the marks (D) each other.



KXDDE20A



KXDDE11A

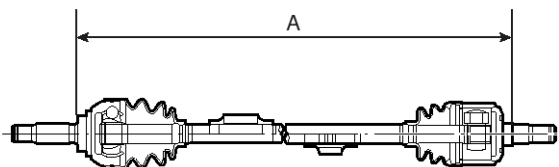
7. Add the specified grease to the TJ as much as wiped away at inspection.
8. Install the TJ boots.

DS-46

Driveshaft and axle

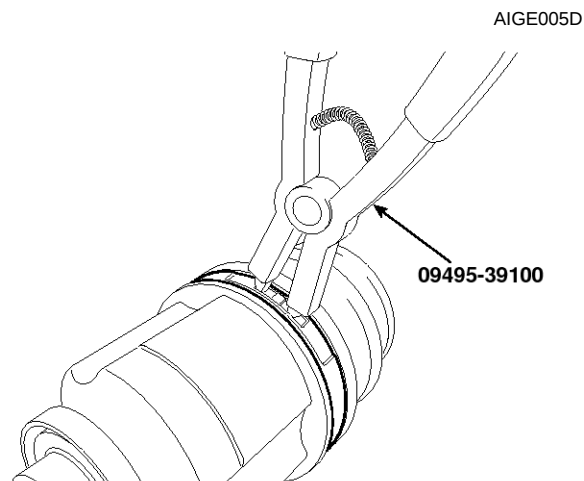
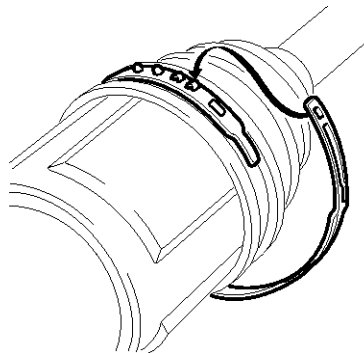
9. To control the air in the TJ boot, keep the specified distance between the boot bands when they are tightened.

Distance (A)	LH side	RH side
Diesel 3.0, Gasoline 3.8 (mm(in))	715.8 (28.18)	715.8 (28.18)



EIKD022A

10. Using the SST (09495-39100), secure the boot bands.



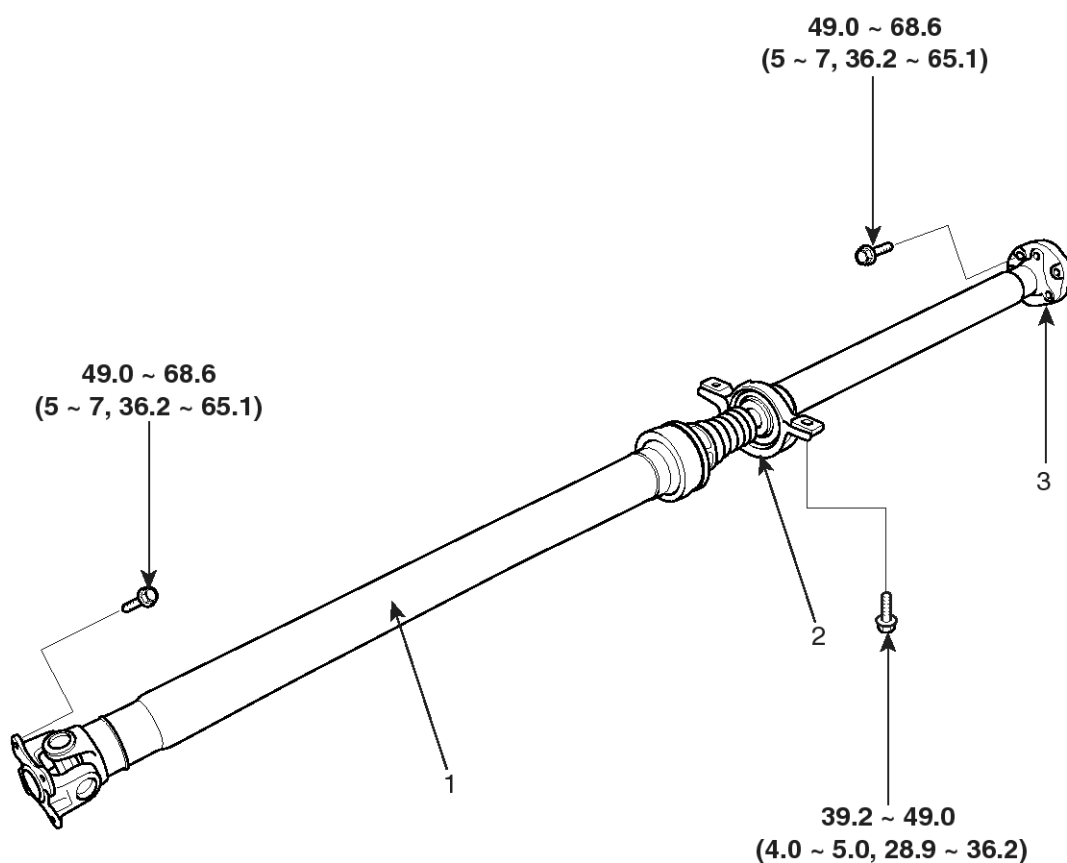
Propeller Shaft Assembly

DS-47

Propeller Shaft Assembly

Propeller Shaft

Component



Torque : Nm (kgf.m, lb-ft)

SENDS9010L

- 1. Front propeller shaft
- 2. Center bearing bracket

- 3. Rear propeller shaft

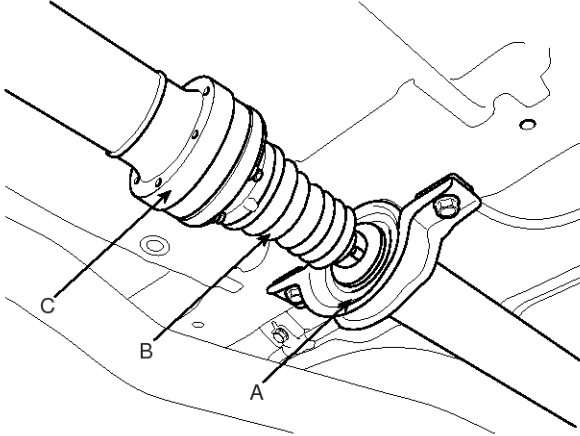
DS-48

Driveshaft and axle

Inspection

CV Joint and Boots

1. Shift the transaxle to Neutral.
2. Raise the vehicle off the ground, and support it with safety stands in the proper locations.
3. Check the center bearing (A) for excessive play or rattle and rubber for rent. If the center bearing (A) has excessive play or rattle and rubber has rent, replace the propeller shaft assembly.



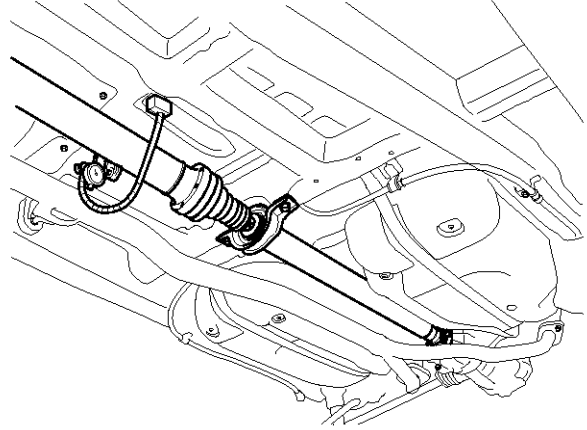
SCMDS6036D

4. Check the CV joint boot (B) for damage and deterioration. If the boot is damaged or deteriorated, replace the propeller shaft assembly.
5. Check the CV joint (C) for excessive play or rattle. If the CV joint have excessive play or rattle, replace the propeller shaft assembly.

Propeller Shaft Runout

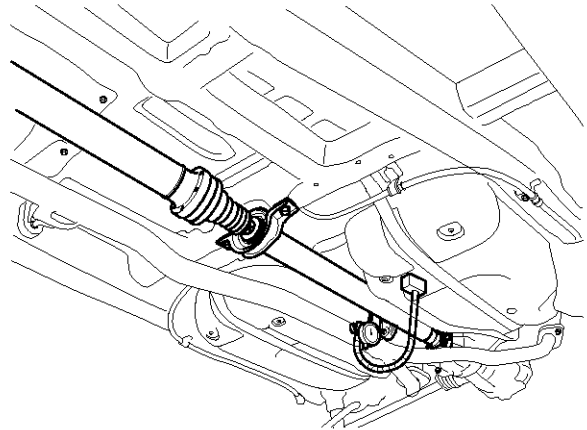
1. Install a dial indicator with its needle on the center of front propeller shaft or rear propeller shaft.
2. Turn the propeller shaft slowly and check the runout. Repeat this procedure for the other propeller shaft.

Front Propeller Shaft Runout : 0.3mm (0.012in.)



SCMDS6037D

Rear Propeller Shaft Runout : 0.3mm (0.012in.)



SCMDS6055D

3. If the runout on either propeller shaft exceeds the service limit, replace the propeller shaft assembly.

Propeller Shaft Assembly

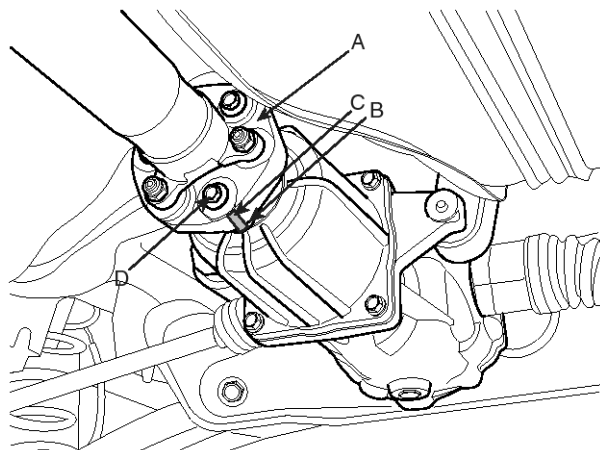
DS-49

Removal

1. After making a match mark (C) on the rubber coupling (A) and rear differential companion (B), remove the propeller shaft mounting bolts (D).

Tightening torque Nm (kgf-m, lb-ft) :

49.0~68.6 (5~7, 36.2~50.6)

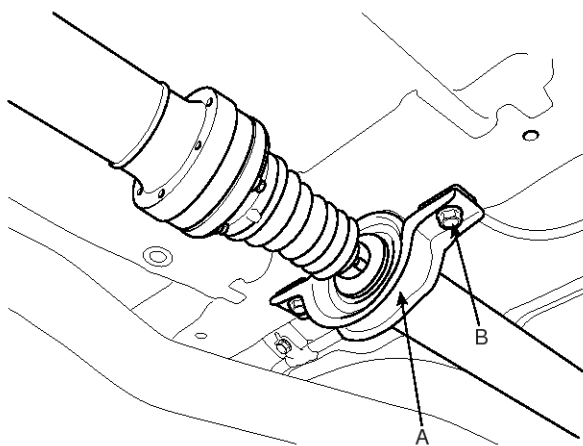


SENDS7516D

2. Remove the center bearing bracket (A) mounting bolts (B).

Tightening torque Nm (kgf-m, lb-ft) :

39.2~49.0 (4~5, 28.9~36.2)

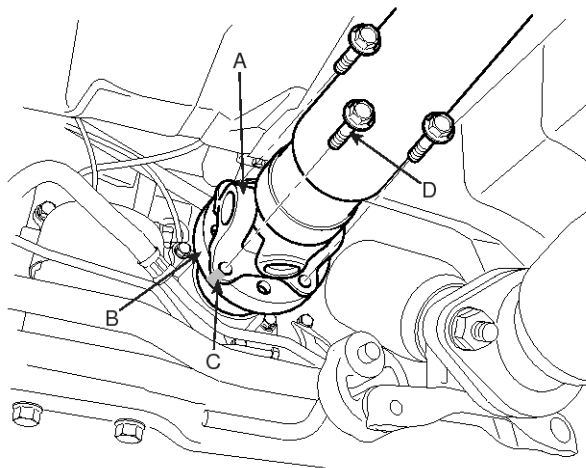


SCMDS6054D

3. After making a match mark (C) on the flange yoke (A) and transaxle companion (B), remove the propeller shaft mounting bolts (D).

Tightening torque Nm (kgf-m, lb-ft) :

49.0~68.6 (5~7, 36.2~50.6)



SCMDS6510D

CAUTION

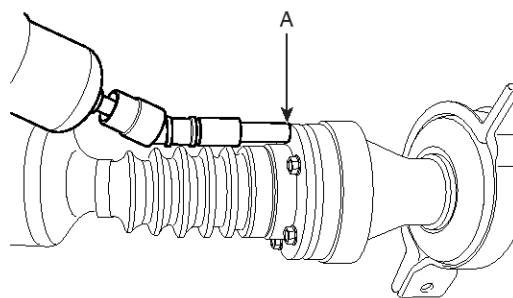
Use the hexagonal wrench to prevent damage of bolt head when removing bolts (D).

4. Installation is the reverse of the removal procedures

Disassembly

Center bearing disassembly

1. After marking the alignment point on front or rear, loosen 6EA bolts on the C.V. Joint(A).



SJMDS9002D

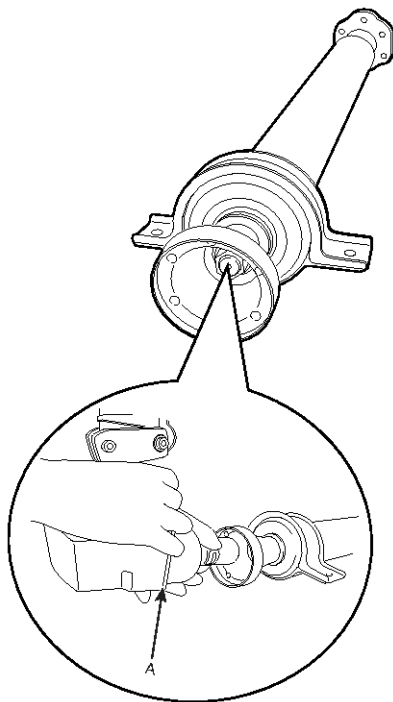
CAUTION

- The alignment point assembles in the direction to marked reassemble.
- It is to minimize the change of balance.

DS-50

Driveshaft and axle

2. After fixing the pipe on the circle vise, loosen the nut by using impact(A) (26mm).



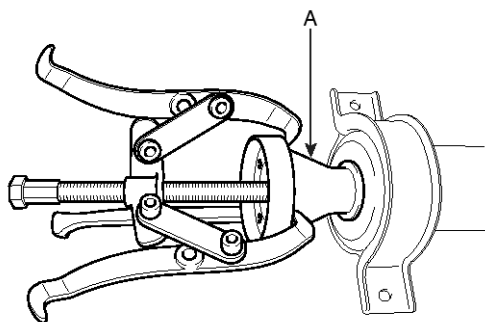
SJMDS9003D

⚠ CAUTION

- When you fix the pipe, you should use the circle vise or cleat.
- It is to prevent the crush of pipe.

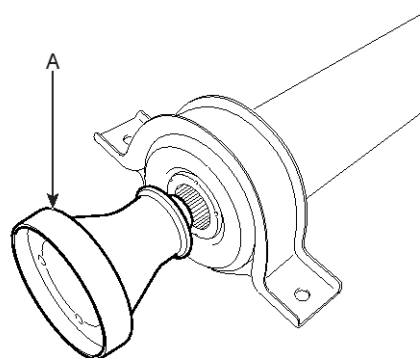
3. Disassemble the key pliers as shown in the illustration.

Disassemble the flange(A) by using a tool.



SJMDS9005D

4. After disassembling by using the key pliers, disassemble the flange(A).

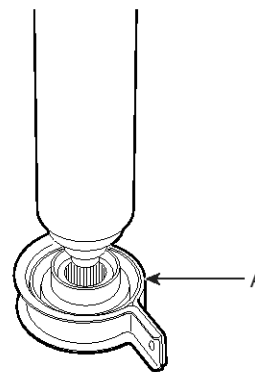


SJMDS9006D

⚠ CAUTION

- Before disassembling flange, mark the alignment point.
- It is to assemble with alignment, when you reassemble flange.

5. If center bearing do not fall, lightly hit the center bearing as shown in the illustration. Then, center bearing(A) is disassembly.



SJMDS9007D

⚠ CAUTION

- When you hit strongly, appear the abrasion in the shape of the screw thread.

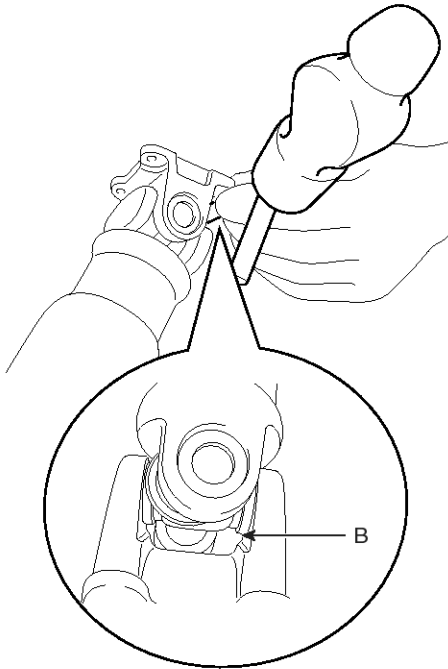
6. Installation is the reverse order of removal.

Propeller Shaft Assembly

DS-51

Universal joint disassembly

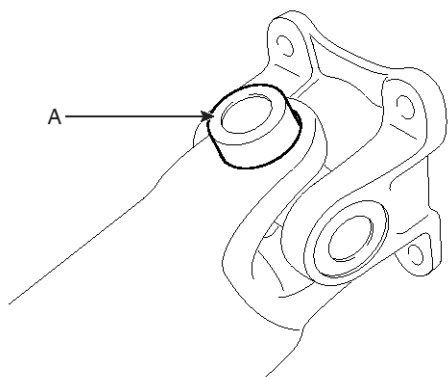
1. After marking alignment point on flange yoke and tube yoke, disassemble snap ring(B) on tube yoke.



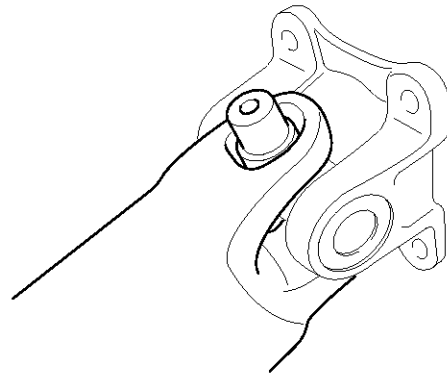
SJMDS9008D

⚠ CAUTION

- The alignment point assembles in the direction on marked reassemble.
 - It is to minimize the change of balance.
2. Disassemble the case(A) by using hammer as shown in the illustration.



SJMDS9010D

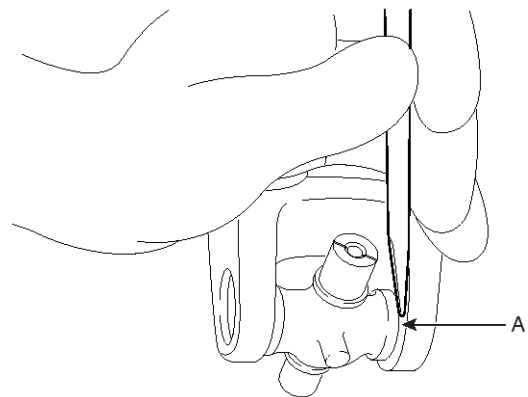


SJMDS9012D

⚠ CAUTION

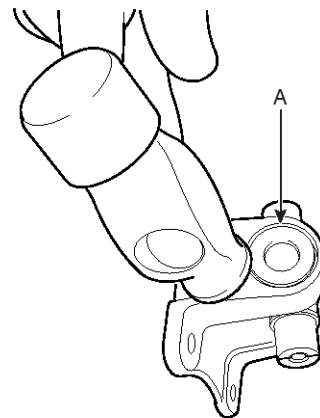
Do not hit too strongly with hammer.

3. Disassemble snap ring(A) on the yoke.

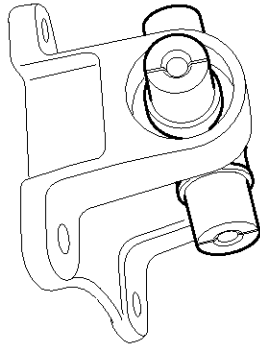


SJMDS9013D

4. Disassemble the case(A) by using hammer as shown in the illustration.



SJMDS9014D



SJMDS9015D

⚠ CAUTION

- Do not hit too strongly with hammer.
5. Installation is the reverse order of removal.

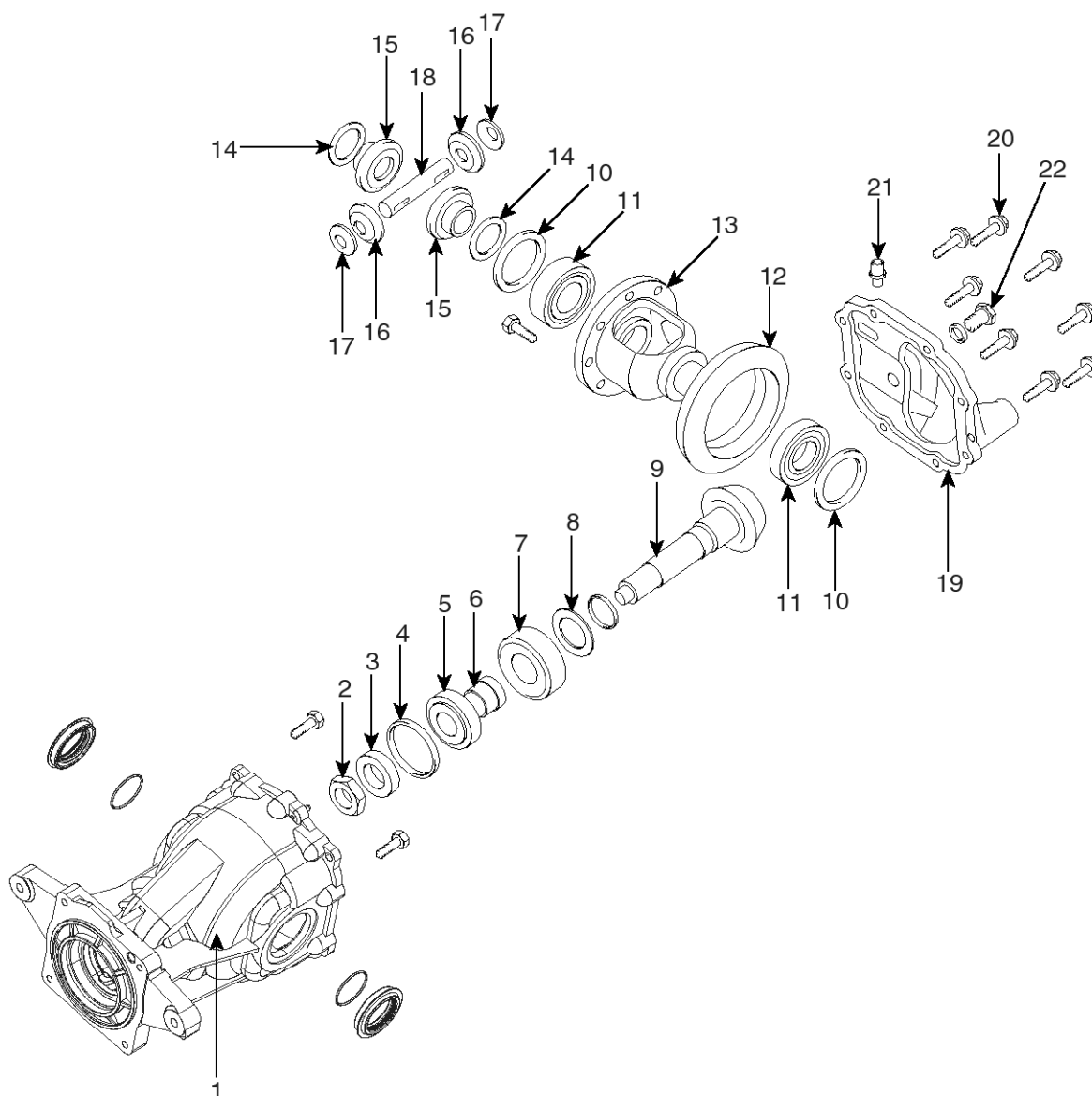
Differential Carrier Assembly

DS-53

Differential Carrier Assembly

Front Differential Carrier(4WD)

Component



SENDS9011L

1. Differential carrier
2. Pinion locking nut
3. Oil seal guide
4. Pinion oil seal
5. Outer pinion bearing
6. Pinion bearing spacer
7. Inner pinion bearing
8. Inner bearing adjust shim

9. Drive gear
10. Oil seal
11. Differential side bearing
12. Ring gear
13. Differential case
14. Thrust washer
15. Differential side gear
16. Differential pinion gear

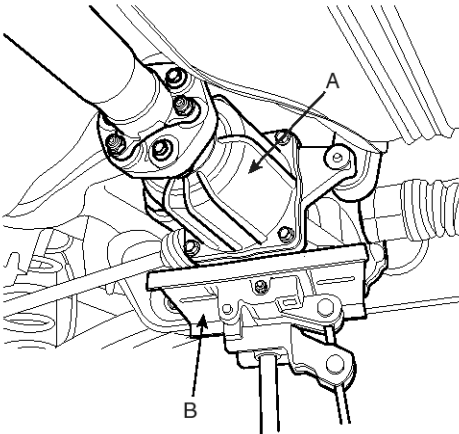
17. Thrust washer
18. Differential pinion shaft
19. Differential cover
20. Differential cover mounting bolts
21. Breather
22. Filler plug

DS-54

Driveshaft and axle

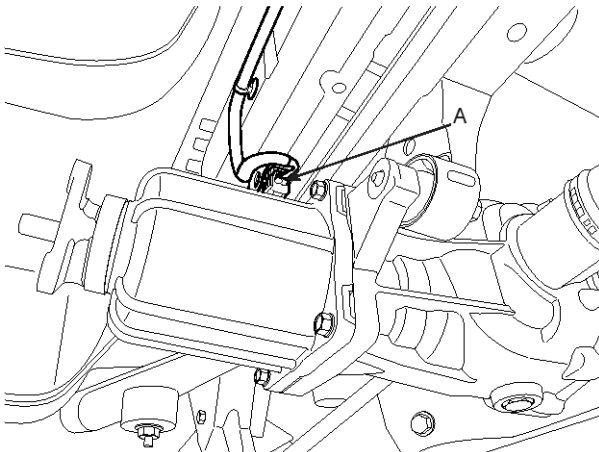
Removal

1. Drain the differential gear oil.
2. Remove the rear drive shaft.
3. Remove the propeller shaft.
4. Support the differential assembly (A) with the jack (B).



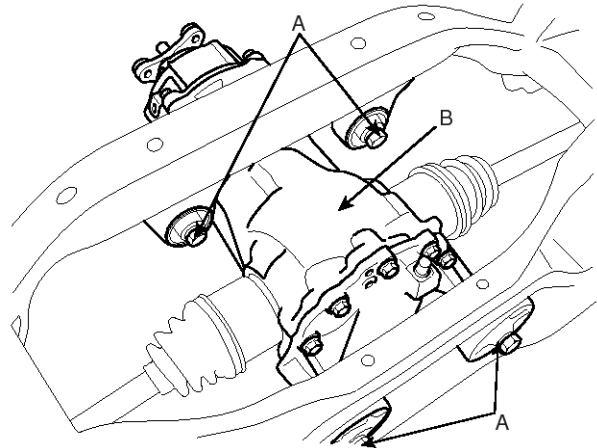
SENDS7513D

5. Disconnect the coupling control connector (A).



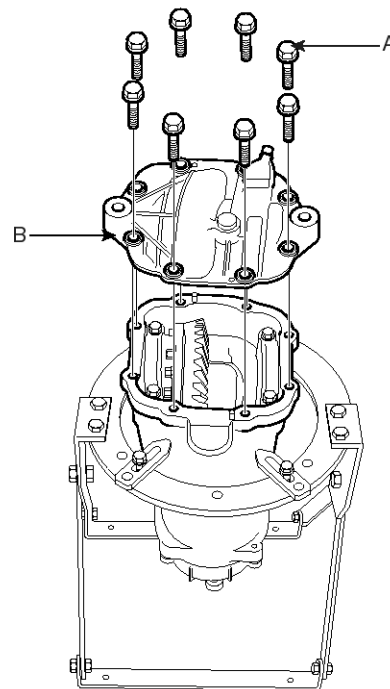
SENDS7514D

6. After loosen the differential mounting bolts (A), and remove the differential (B).



SCMDS6039D

7. After loosen the cover bolts (A), and remove the differential cover (B).



SCMDS6514D

Differential Carrier Assembly

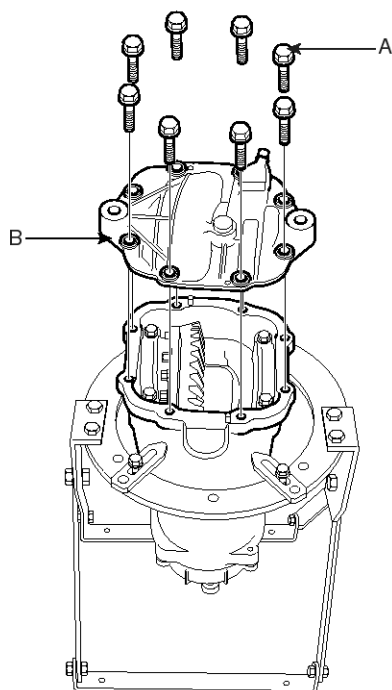
DS-55

Installation

1. After apply liquid gasket, install the differential cover (B), and install the mounting bolts (A).

Tightening torque Nm (kgf-m, lb-ft) :

39.2~49.0 (4~5, 28.9~36.2)

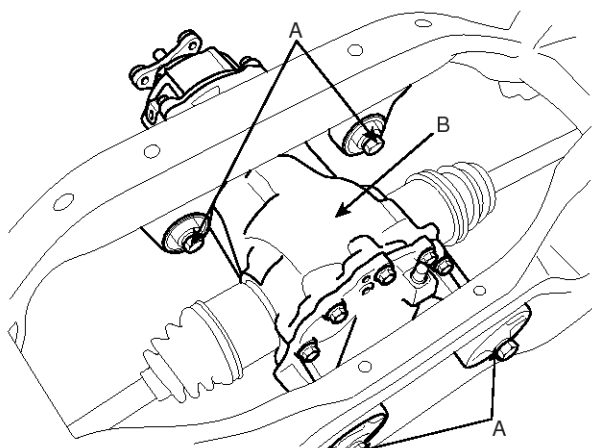


SCMDS6514D

2. After install the differential (B), and install the mounting bolts (A).

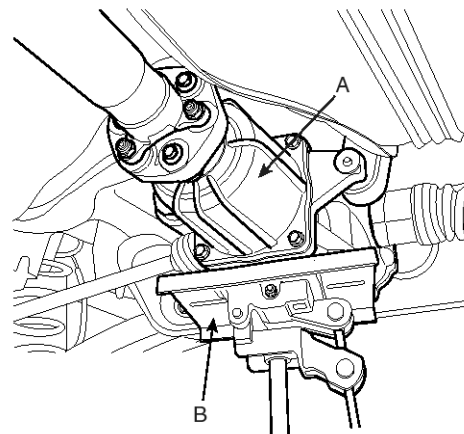
Tightening torque Nm (kgf-m, lb-ft) :

68.6~88.3 (7~9, 50.6~65.1)



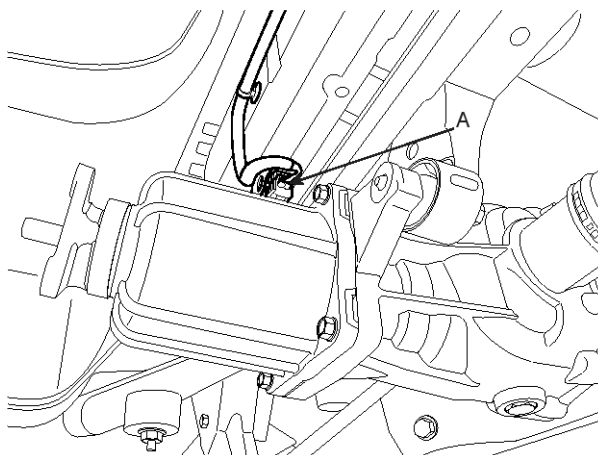
SCMDS6039D

3. Using the transaxle jack (B), install the differential assembly (A).



SENDS7513D

4. Connect the coupling control connector (A).



SENDS7514D

5. Install the propeller shaft.
6. Install the rear drive shaft.

DS-56

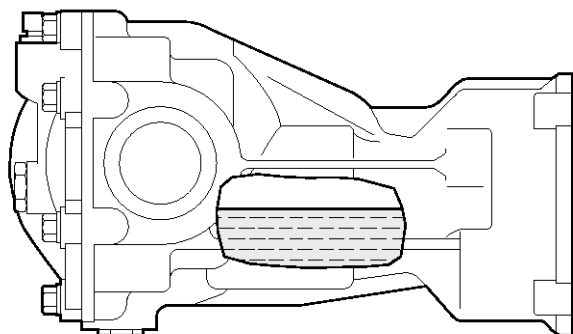
Driveshaft and axle

7. Fill the gear oil.

Specified lubricant:

Hypoid gear oil (API GL-5, SAE 75W/90)

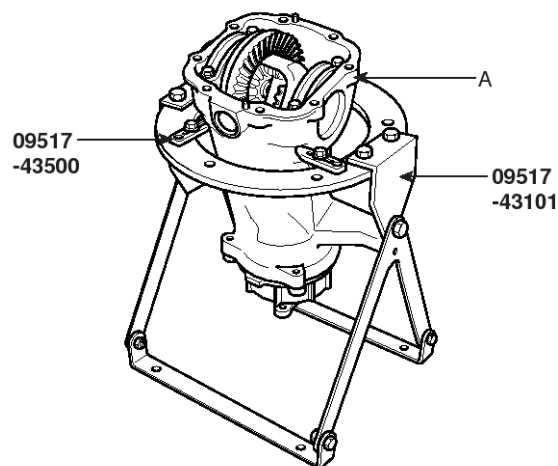
Oil quantity : Fill the reservoir to the plug hold (About 0.9 L)



KIQE640A

Inspection

Install the differential carrier assembly(A) with the special tools(09517-43101 & 09517-43500).Then carry out the following inspection.



KIQE610A

1. Check the final drive gear backlash by the following procedure.

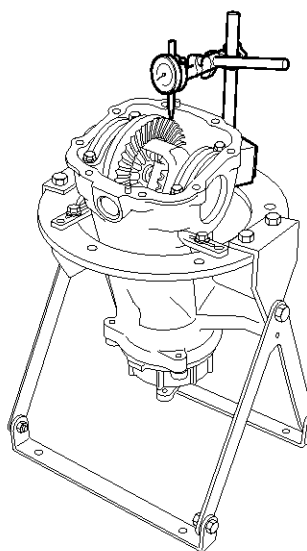
- 1) Place the drive pinion and move the drive gear to check backlash is within the standard range.

NOTICE

Measure at 4 points on the gear periphery.

Standard value :

0.10 ~ 0.15mm (0.0039 ~ 0.0059in.)



KIQE610B

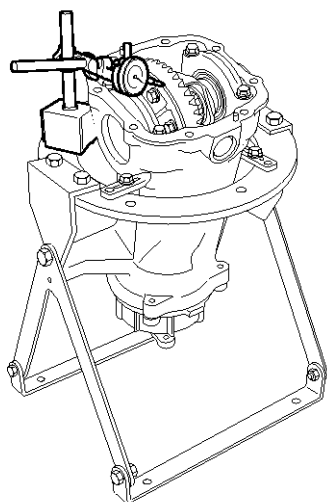
Differential Carrier Assembly

DS-57

2. Check the drive gear back-face lash by the following procedure.

- 1) Place a dial gauge on the back-face of the drive gear and measure the runout.

Limit : 0.05 mm (0.002 in)



KIQE610C

- 2) If the runout is beyond the limit, check that there are no foreign substances between the drive gear and differential case and, that the bolts fixing the drive gear are not loose.

3. Check the differential carrier backlash by the following procedure.

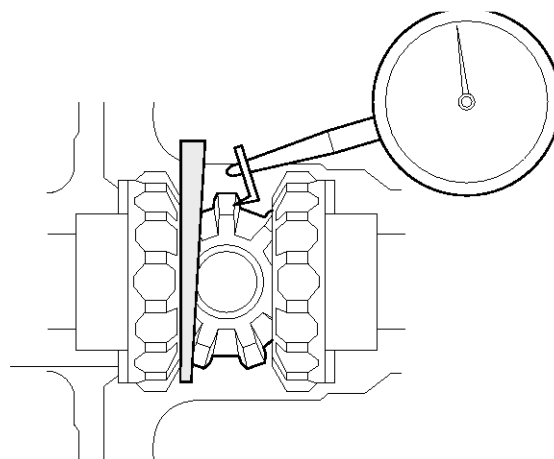
- 1) Fix the side gear with a wedge so it cannot move and measure the differential gear backlash with a dial indicator on the pinion gear.

Standard value :

0 ~ 0.05 mm (0 ~ 0.002 in)

NOTICE

Take the measurements at two places on the pinion gear.



KISE610E

- 2) If the backlash exceeds the limit, adjust using side bearing spacers.

NOTICE

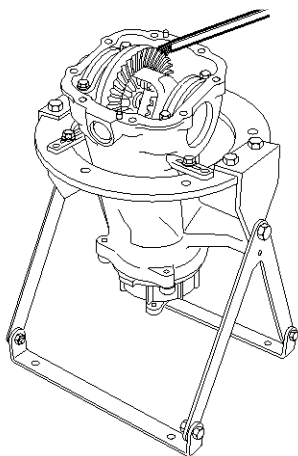
If adjustment is impossible, replace the side gear and pinion gear as a set.

DS-58

Driveshaft and axle

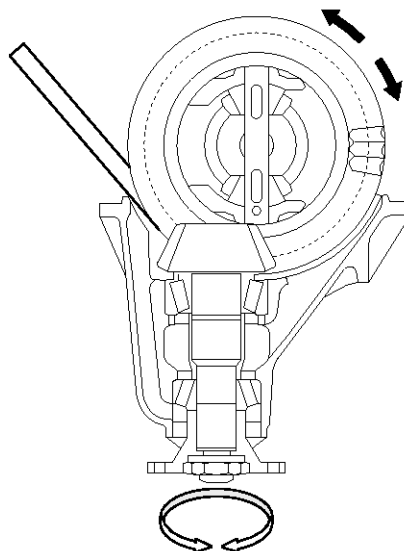
4. Check the tooth contact of the final drive gear by the following procedure.

- 1) Apply the same amount of machine blue slightly to both surfaces of the drive gear teeth.



KIQE610D

- 2) Insert a brass rod between the differential carrier and the differential case, and then rotate the companion flange by hand (once in the normal direction, and then once in the reverse direction) while applying a load to the drive gear so that some torque (approximately 25~30Nm) is applied to the drive pinion.



KISE610G

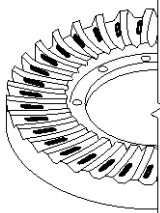
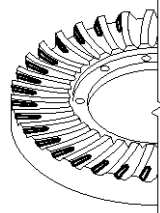
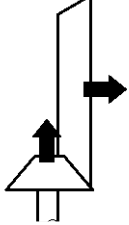
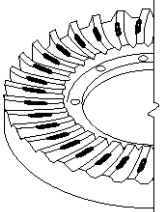
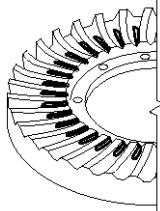
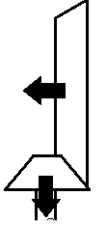
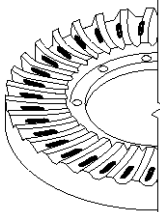
⚠ CAUTION

If the drive gear is rotated too much, the tooth contact pattern will become unclear and difficult to check.

Differential Carrier Assembly

DS-59

3) Check the tooth contact pattern.

Tooth contact	Contact state	Solution	
Standard contact	 KISE610H		
1. Heal contact	 KISE650A	Increase the thickness of the pinion height adjusting shim, and position the drive pinion closer to the center of the drive gear.	 KISE630A
2. Face contact	 KISE650B	Also, for backlash adjustment, reposition the drive gear further from the drive pinion.	
3. Toe contact	 KISE650C	Decrease the thickness of the pinion height adjusting shim, and position the drive pinion further from the center of the drive gear.	 KISE630B
4. Flank contact	 KISE650D	Also, for backlash adjustment, reposition the drive gear closer to the drive pinion.	

 NOTICE

- *Tooth contact pattern is a method for judging the result of the adjustment of drive pinion height and final drive gear backlash. The adjustment of drive pinion height and final drive gear backlash should be repeated until the tooth contact patterns are similar to the standard tooth contact pattern.*
 - *When you cannot obtain a correct pattern, the drive gear and drive pinion have exceeded their limits. Both gears should be replaced as a set.*
5. Check the oil leaks and the lip part for chew or wear.
 6. Check the bearings for wear or discoloration.
 7. Check the gear carrier for cracks.
 8. Check the drive pinion and drive gear for wear or cracks.
 9. Check the side gears, pinion gears and pinion shaft for wear or damage.
 10. Check the side gear spline for wear or damage.