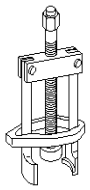
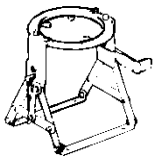
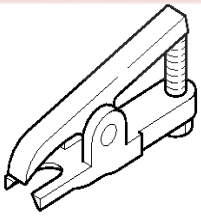
General Information

SPECIAL TOOLS

Tool(Number and Name)	Illustration	Use
09495-33000 Puller		Removal of wheel bearing inner race from a h-ub.
09517-43101 Working base		Support for the differential carrier
09517-43500 Adapter		
09568-34000 Ball joint puller		Separation of a lower arm and a tie rod end b-all joint.

TROUBLESHOOTING

Symptom	Possible cause	Remedy
Vehicle pulls to one side	Galling of drive shaft ball joint	Replace
	Wear, rattle or galling of wheel bearing	Replace
	Defective front suspension and steering	Adjust or replace
Vibration	Wear, damage or bending of drive shaft	Replace
	Drive shaft rattle and hub serration	Replace
	Wear, rattle or scratching of wheel bearing	Replace
Shimmy	Improper wheel balance	Adjust or replace
	Defective front suspension and steering	Adjust or replace
Excessive noise	Wear, damage or bending of drive shaft	Replace
	Drive shaft rattle and hub serration	Replace
	Drive shaft rattle and side gear serration	Replace
	Wear, rattle or galling of wheel bearing	Replace
	Loose hub nut	Adjust or replace
	Defective front suspension and steering	Adjust or replace
Quire-noise from the rear hub, occ-urs when driving on rugged roads	Cap separation from the hub bearing	Remove the rear hub check the h-ub bearing cap. Install a new cap if necessary.

SPECIFICATION

Type			Joint type		Assembly range length	
			Inner	Outer	Left	Right
FRONT DRIVESHAFT						
2WD	2.7GSL	AT	UTJ-II#25	BJ#25	536.5	531.5
	2.0GSL	MT/AT	UTJ-II#24	BJ#25	536.4	824.2
	2.0DSL	AT	UTJ-II#24	BJ#25	536.4	824.2
		MT	UTJ-II#25	BJ#25	536.5	824.3
4WD	2.7GSL	AT	UTJ-II#25	BJ#25	536.5	536.4
	2.0GSL	AT	UTJ-II#24	BJ#25	536.4	536.4
		MT	UTJ-II#24	BJ#25	536.4	536.4(Ø24)
	2.0DSL	AT	UTJ-II#24	BJ#24	536.4	536.4(Ø27)
		MT	UTJ-II#25	BJ#25	536.5	536.4
Max. permissible angle			Inner	46.5˚	Outer	23˚
REAR DRIVESHAFT						
4WD	ALL		TJ#22	BJ#22	670	670
Max. permissible angle			Inner	46.5˚	Outer	23˚
REAR DIFFERENTIAL CARRIER						
Oil type			Hypoid gear oil (GL-5, 80W/SAE90)			
Oil capacity			Approx. 0.75 ~ 0.80 ℓ (0.79 ~ 0.84 US gt.)			
Reduction gear type			Hypoid gear			
Reduction gear ratio			3.091			
Final drive gear backlash mm(in)			0.10 ~ 0.15 (0.0039 ~ 0.0059)			
Differential gear backlash mm(in)			0 ~ 0.076 (0 ~ 0.003)			

NOTICE

BJ : Birfield Joint

TJ : Tripod Joint

UTJ-II : U-type Tripod Joint

TIGHTENING TORQUE

Items		Nm	Kgf·m	lbf·ft
Front hub	Wheel nut	90 ~ 110	9 ~ 11	66.4 ~ 81.2
	Driveshaft castle nut	200 ~ 280	20 ~ 28	147.5 ~ 206.6
	Break caliper mounting bolt	50 ~ 60	5 ~ 6	36.9 ~ 44.3
	Lower arm mounting bolt	100 ~ 120	10 ~ 12	73.8 ~ 88.5
	Strut lower mounting bolt	140 ~ 160	14 ~ 16	103.3 ~ 118.0
	Tie rod end ball joint mounting nut	45 ~ 60	4.5 ~ 6	33.2 ~ 44.3

Items		Nm	Kgf·m	lbf·ft
Rear	Wheel nut	90 ~ 110	9 ~ 11	66.4 ~ 81.2
	Break caliper mounting bolt	50 ~ 60	5 ~ 6	36.9 ~ 44.3
	Break disc(drum) mounting screw	5 ~ 6	0.5 ~ 0.6	3.7 ~ 4.4
	Dust cover mounting bolt	50 ~ 60	5 ~ 6	36.9 ~ 44.3
	Strut lower mounting nut	140 ~ 160	14 ~ 16	103.3 ~ 118.0
	Trailing arm mounting bolt	100 ~ 120	10 ~ 12	73.8 ~ 88.5
	Hub bearing flange nut[2WD]	200 ~ 260	20 ~ 26	147.5 ~ 191.8
	Driveshaft castle nut[4WD]	200 ~ 280	20 ~ 28	147.5 ~ 206.6
	Suspension arm mounting nut[2W-D]	160 ~ 180	16 ~ 18	118.0 ~ 132.8
	Suspension arm mounting nut[4W-D]	140 ~ 160	14 ~ 16	103.3 ~ 118.0
Propeller shaft	Front propeller shaft mounting bolt	50 ~ 60	5 ~ 6	36.9 ~ 44.3
	Propeller shaft center bearing bracket mounting bolt	40 ~ 50	4 ~ 5	29.5 ~ 36.9
	Rear propeller shaft mounting bolt	100 ~ 120	10 ~ 12	73.8 ~ 88.5
Differential	Rear differential mounting bolt	90 ~ 120	9 ~ 12	66.4 ~ 88.5
	Differential cover mounting bolt	40 ~ 50	4 ~ 5	29.5 ~ 36.9

⚠CAUTION

Replace self-locking nuts with new ones after removal.

LUBRICANTS

FRONT DRIVESHAFT

[2WD]

Items	Recommended	Quantity
UTJ-II#24 + BJ#24 type (2.0GSL ALL, 2.0DSL AT)		
UTJ-II#24 boot grease	RTA-R (SK Chemical)	160g +10g
BJ#24 boot grease	RBA (SK Chemical)	130g +10g
UTJ-II#25 + BJ#25 type (2.0DSL MT, 2.7GSL AT)		
UTJ-II#25 boot grease	RTA-R (SK Chemical)	200g +10g
BJ#25 boot grease	RBA (SK Chemical)	160g +10g

[4WD]

UTJ-II#24 + BJ#24 type (2.0GSL ALL, 2.0DSL AT)		
UTJ-II#24 boot grease	RTA-R (SK Chemical)	160g +10g
BJ#24 boot grease	RBA (SK Chemical)	130g +10g
UTJ-II#25 + BJ#25 type (2.0DSL MT, 2.7GSL AT)		
UTJ-II#25 boot grease	RTA-R (SK Chemical)	200g +10g
BJ#25 boot grease	RBA (SK Chemical)	160g +10g

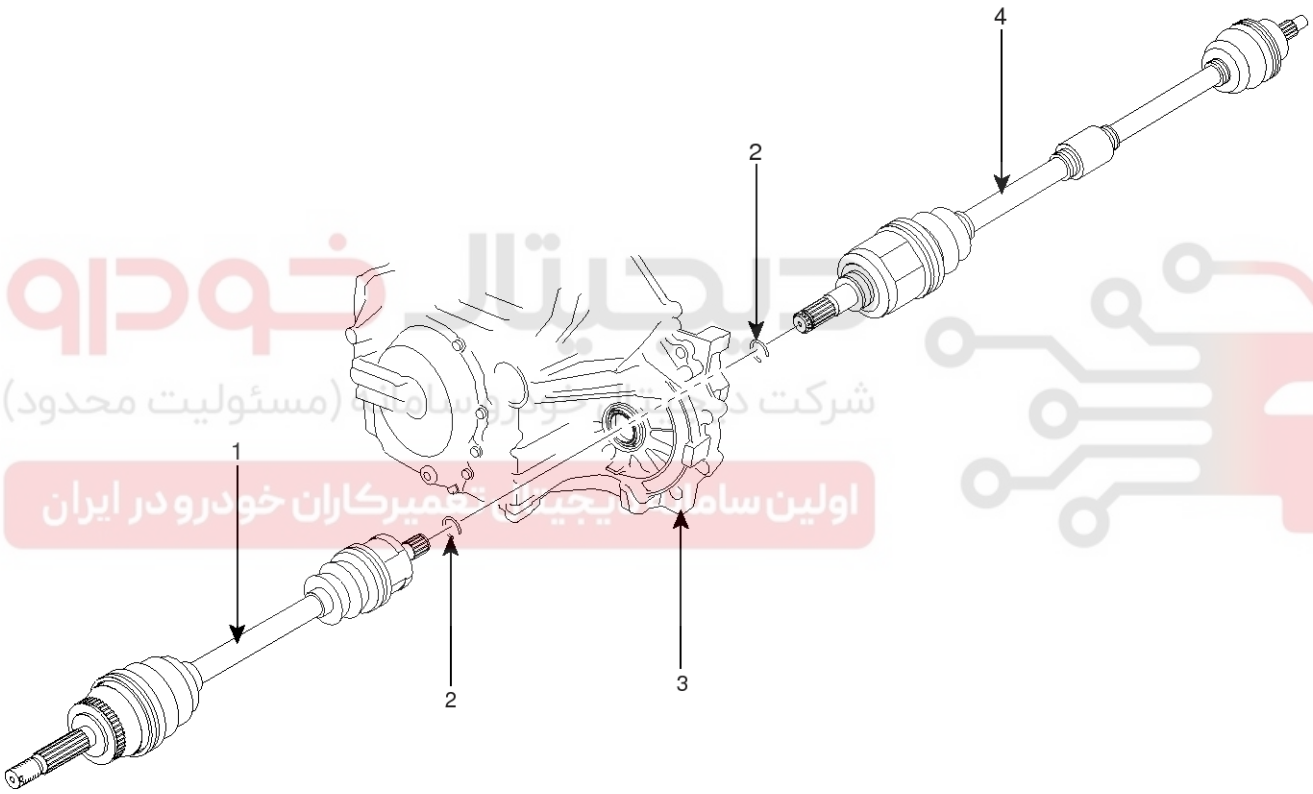
REAR DRIVESHAFT (4WD)

TJ#22 - BJ#22 type (ALL)		
TJ#22 boot grease	RTA-R (SK Chemical)	110g +10g
BJ#22 boot grease	RBA (SK Chemical)	100g +10g

Driveshaft Assembly

Front Driveshaft

COMPONENTS

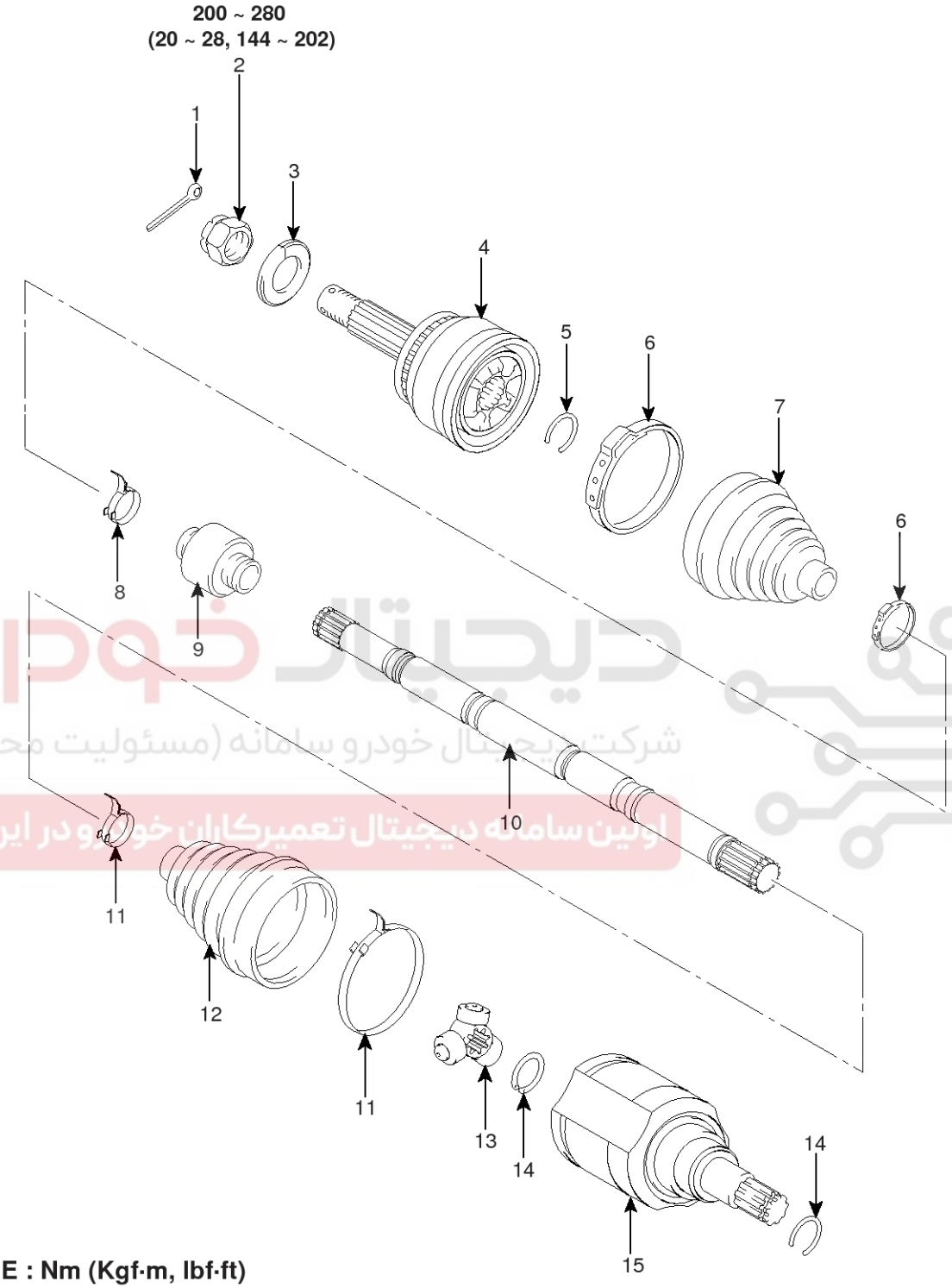


1. Driveshaft (LH)
2. Circlip
3. Transaxle
4. Driveshaft (RH)

LIIE010A

COMPONENTS

[2WD]

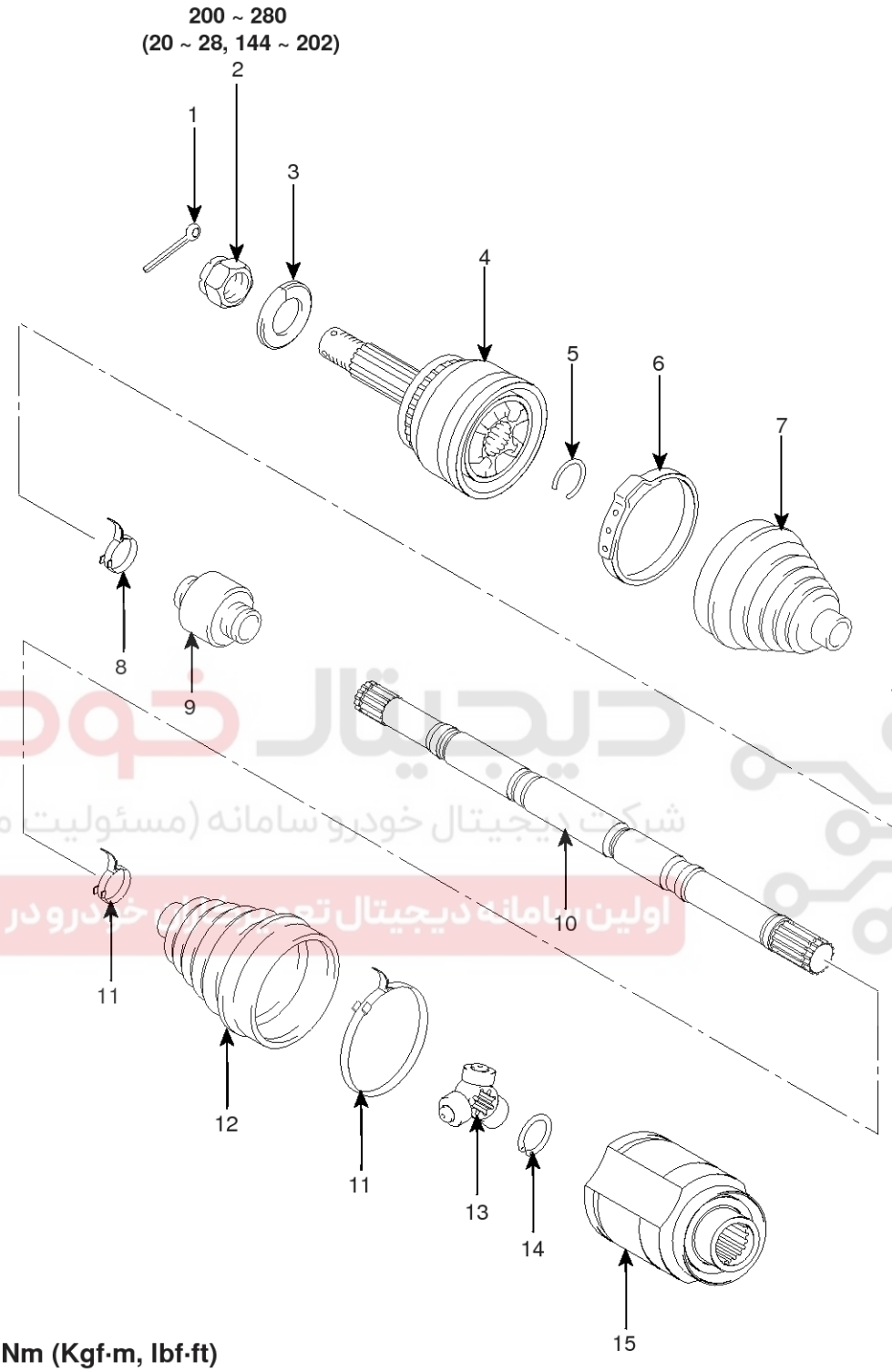


TORQUE : Nm (Kgf·m, lbf·ft)

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. UTJ boot band
12. UTJ boot
13. Trunion assembly
14. Circlip
15. UTJ assembly

LIIE070A

[4WD]



TORQUE : Nm (Kgf·m, lbf·ft)

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. UTJ boot band
12. UTJ boot
13. Trunion assembly
14. Circlip
15. UTJ assembly

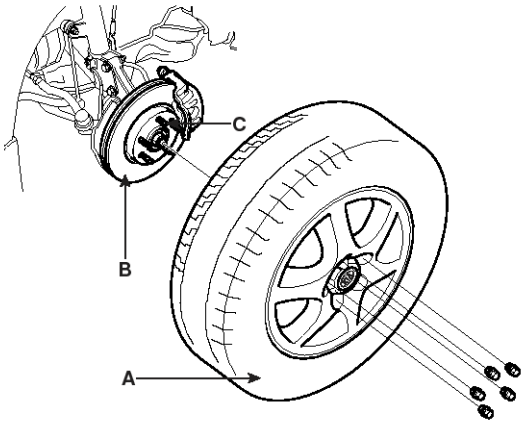
LIIE070B

REMOVAL

1. Loosen the wheel nuts slightly.

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

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

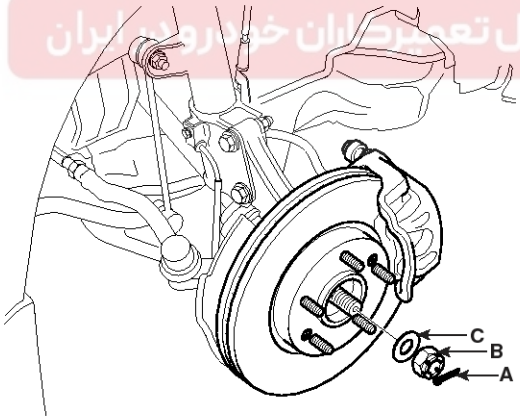


AIIE050A

⚠CAUTION

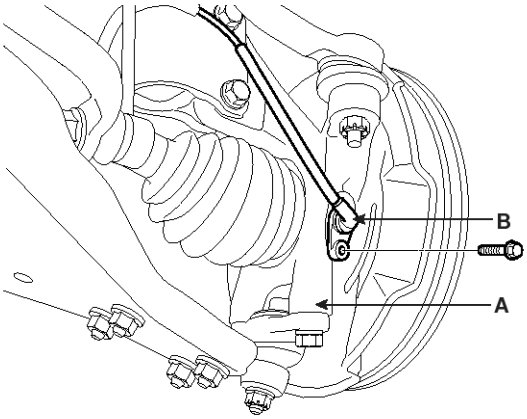
Be careful not to damage the hub bolts(C) then remove the front wheel and tire(A).

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



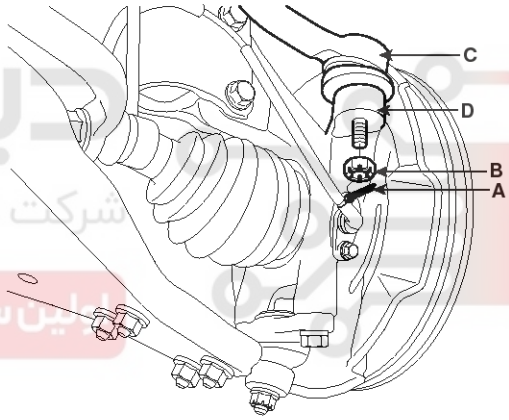
AIIE050B

4. Remove the wheel speed sensor(B) from the knuckle(A).



AIIE050C

5. Disconnect the tie rod end ball joint(C) from the knuckle(D) using the special tool(09568-34000).

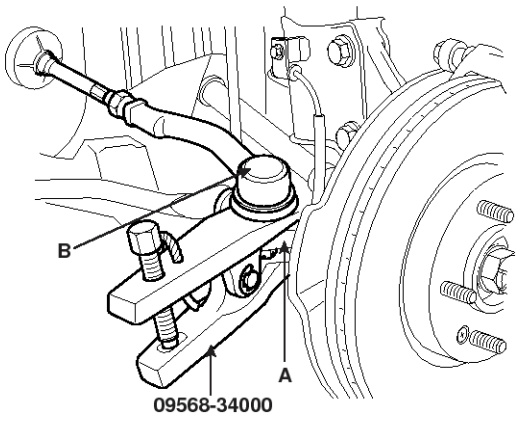


AIIE050D

   a. Remove the split pin(A).

   b. Remove the castle nut(B).

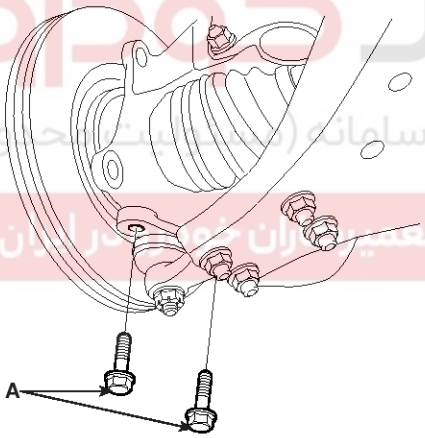
c. Disconnect the ball joint(C) from knuckle(D) using the special tool(09568-34000).



AIIE050E

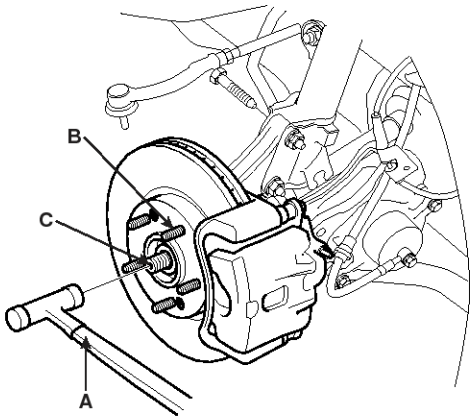
CAUTION
Apply a few drops of oil to the special tool.(Boot contact part)

6. Remove the lower arm ball joint mounting bolts(A).



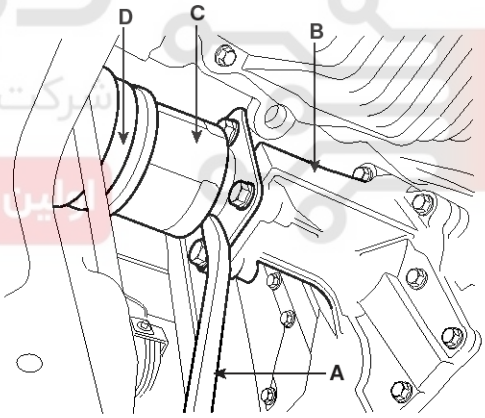
AIIE050F

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



AIIE050G

8. Push the axle hub(B) outward and separate the driveshaft(C) from the axle hub(B).
9. Insert a pry bar(A) between the transaxle case(B) and joint case(C), and separate the driveshaft(D) from the transaxle case.



AIIE050H

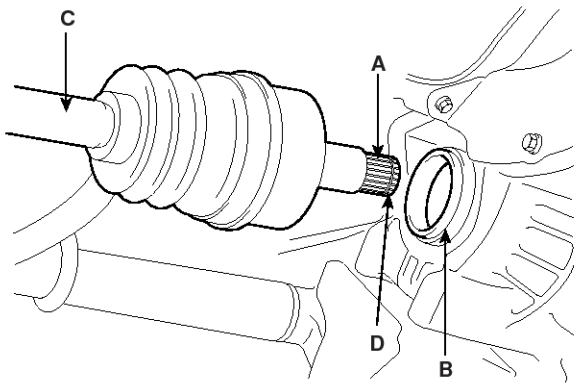
⚠CAUTION

- **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.(max. depth : 7mm(0.28in)**
- **Do not pull the driveshaft by excessive force it may cause components inside the axle shaft 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.**

INSTALLATION

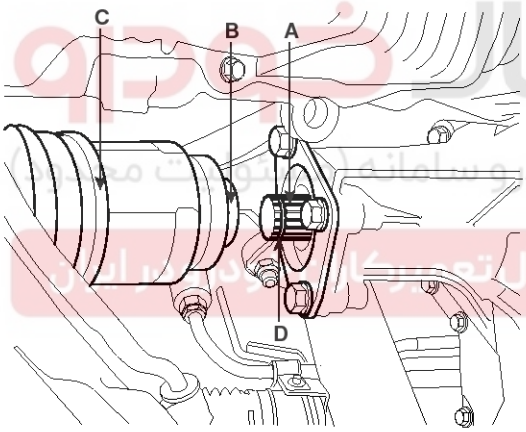
1. Apply gear oil on the driveshaft oil seal case contacting surface(B) and transaxle case splines(A).

[2WD]



AIIE050I

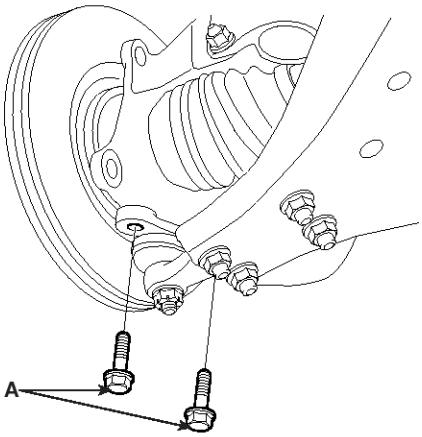
[4WD]



AIIE050J

2. Before installing the driveshaft(C), set the opening side of the circlip(D) facing downward.
3. After installation, check that the driveshaft cannot be removed by hand.
4. Install the drive shaft into the knuckle.
5. Install the lower arm mounting bolts(A).

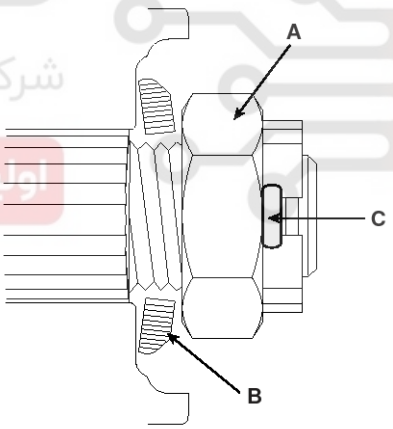
Tightening torque :
100 ~ 120 Nm (10 ~ 12 Kgf·m, 73.8 ~ 88.5 lbf·ft)



AIIE050F

6. After installing the washer(B) with convex surface outward, install the castle nut(A) and the split pin(C).

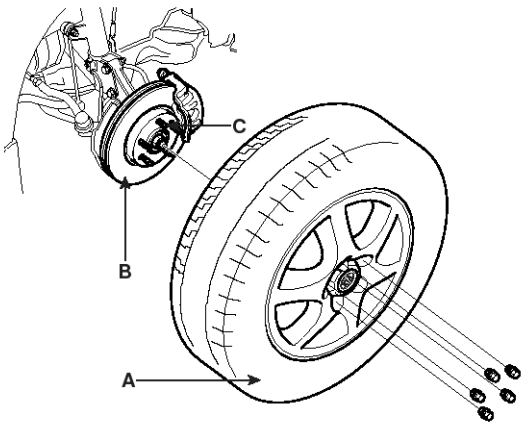
Tightening torque :
200 ~ 280 Nm (20 ~ 28 Kgf·m, 147.5 ~ 206.6 lbf·ft)



AIIE050K

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

Tightening torque :
90 ~ 110 Nm (9 ~ 11 Kgf·m, 66.4 ~ 81.2 lbf·ft)

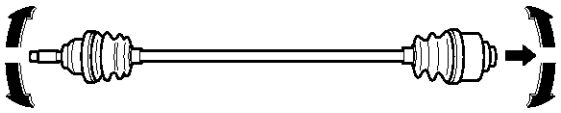


AIIE050A

⚠CAUTION
Be careful not to damage the hub bolts(C) then install the front wheel and tire(A).

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



AIIE001E

5. Check the driveshaft for cracks and wears.

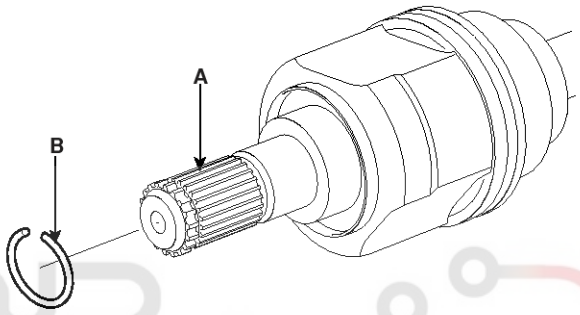
DISASSEMBLY

DRIVESHAFT (2WD)

⚠CAUTION

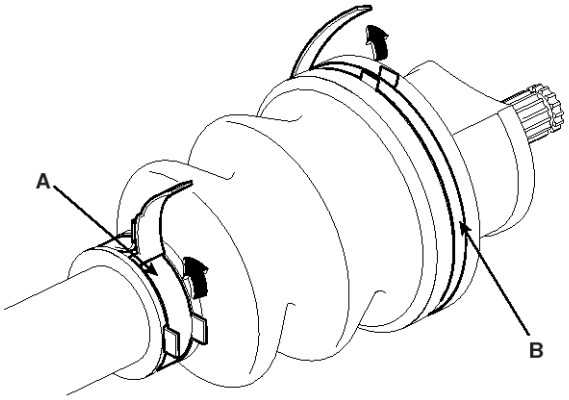
- **Do not disassemble the BJ assembly.**
- **Special grease must be applied to the driveshaft joint. Do not substitute with another type of grease.**
- **The boot band should be replaced with a new one.**

1. Remove the circlip(B) from driveshaft splines(A) of the transaxle side UTJ case.



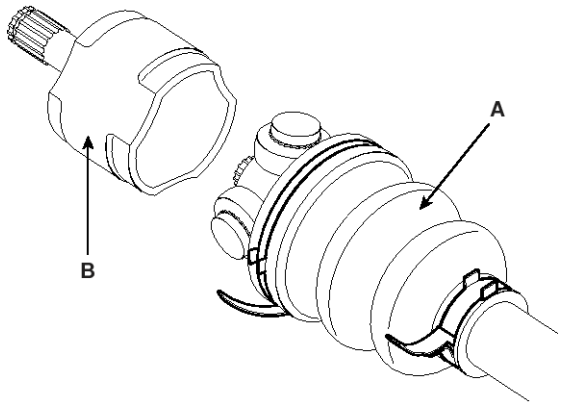
AIIE070C

2. Remove the both boot clamps from the transaxle side UTJ case.
   a. Using a plier or flat-tipped (-) screwdriver, remove the both clamps(UTJ boot band(B), boot band(A)) of the transaxle side.



AIIE070D

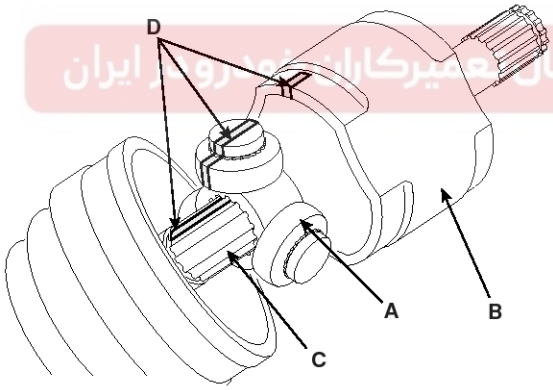
3. Pull out the boot from the transaxle side joint(UTJ).
4. While dividing joint(UTJ) boot(A) of the transaxle side, wipe the grease in UTJ case(B) and collect them respectively.



AIIE070E

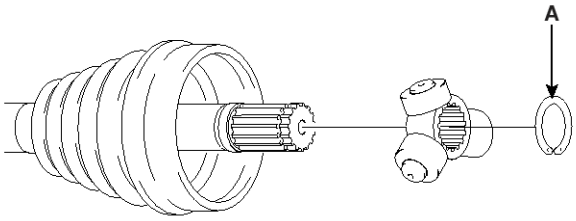
CAUTION

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



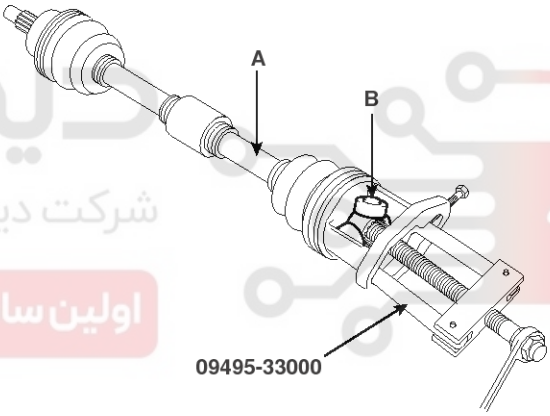
AIIE070F

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



AIIE070G

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

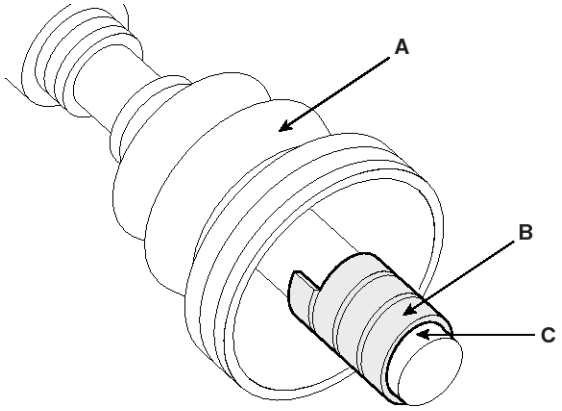


AIIE070H

7. Clean the trunion assembly.

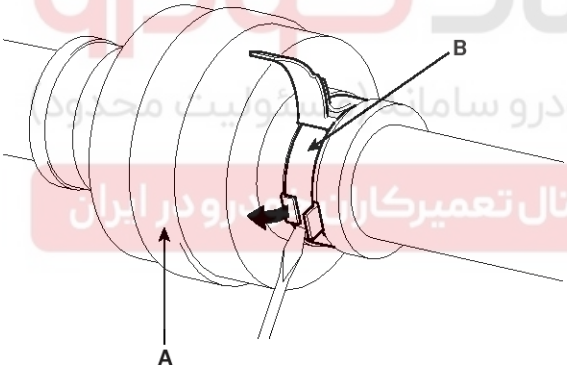
8. Remove the boot(A) of the transaxle side joint(UTJ).

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



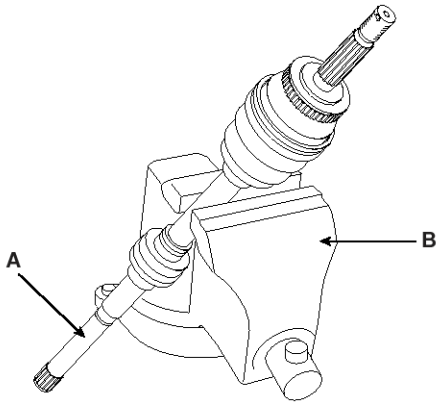
AIIE060F

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



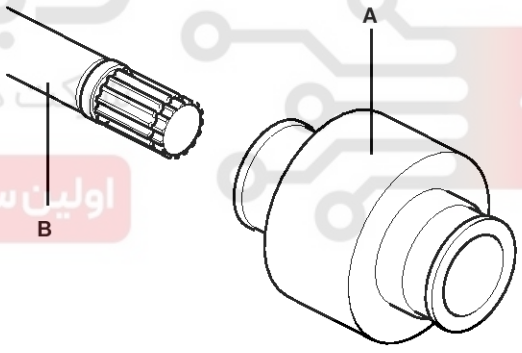
AIIE070I

10. Fix the driveshaft(A) with a vise(B) as illustrated.



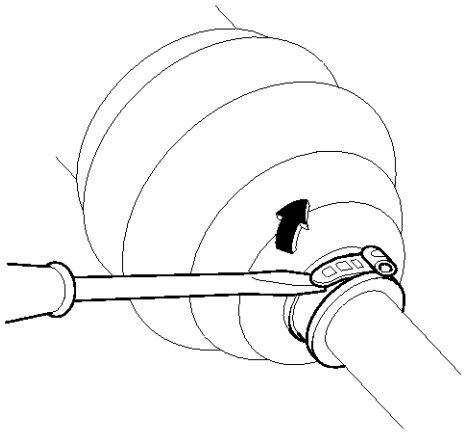
AIIE070J

11. Apply soap powder on the shaft to prevent being damaged between the shaft spline and the dynamic damper when the dynamic damper is removed.
12. Saperate the dynamic damper(A) from the shaft(B) carefully.



AIIE070N

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



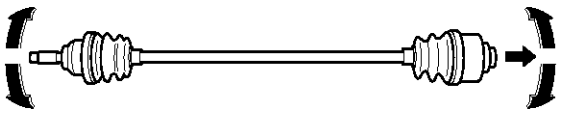
AIIE060C

14. 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 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

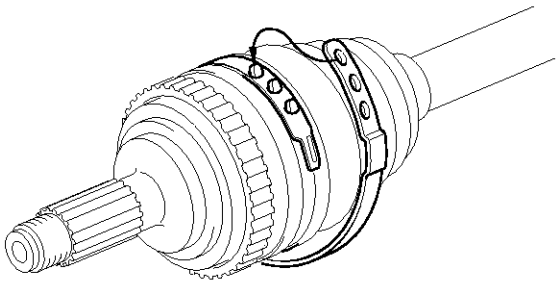


AIIE001E

5. Check the driveshaft for cracks and wears.

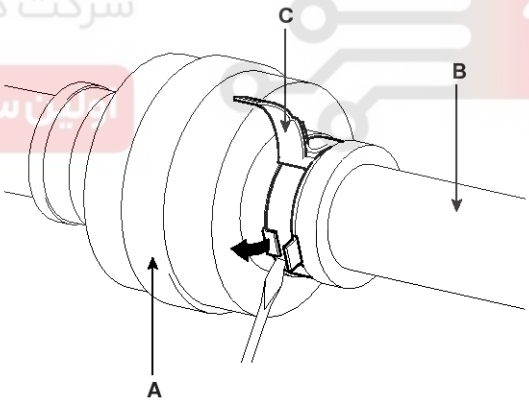
REASSEMBLY

1. Wrap tape around the driveshaft splines (UTJ side) to prevent damage to the boots.
2. Apply grease to the driveshaft and install the boots. (See page DS - 4)
3. Install the clamps to both boots.



AIIE070K

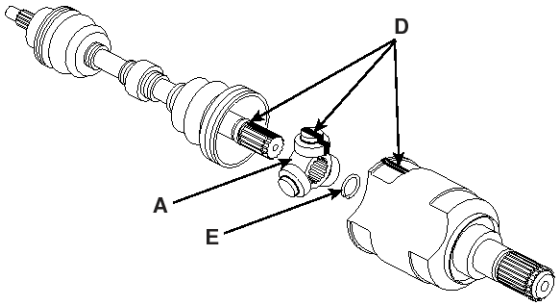
4. To reassemble the dynamic damper(A), keeping the shaft(B) in the straight, tighten the dynamic damper(A) with dynamic band(C), as the illustration.



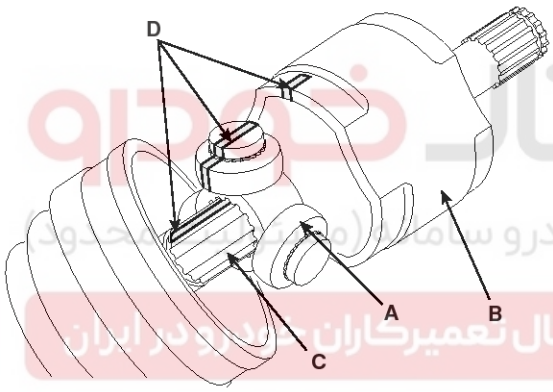
AIIE070L

5. Install the UTJ boot bands and UTJ boot.

6. Install the trunion assembly(A) and the circlip(E) to the spline(C) on the drivershaft.
   At this time align the marks(D) each other.



AIIE070M



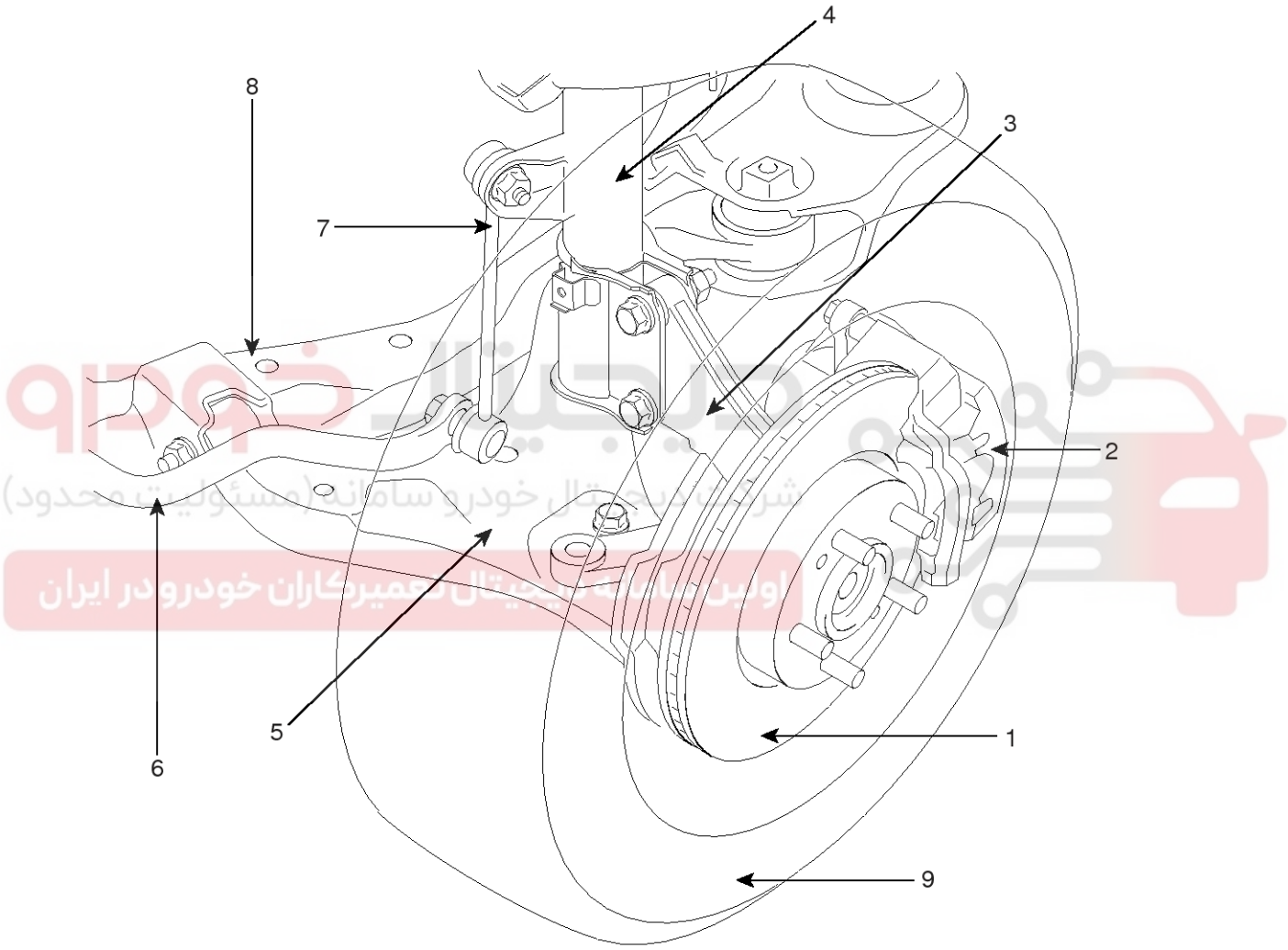
AIIE070F

7. Add the specified grease to the UTJ as mush as wiped away at inspection.
8. Install the boots.
9. Tighten the UTJ boot bands.
10. To control the air in the UTJ boot, keep the specified distance between the boot bands when they are tightened.

Front Axle Assembly

Front Hub - Axle

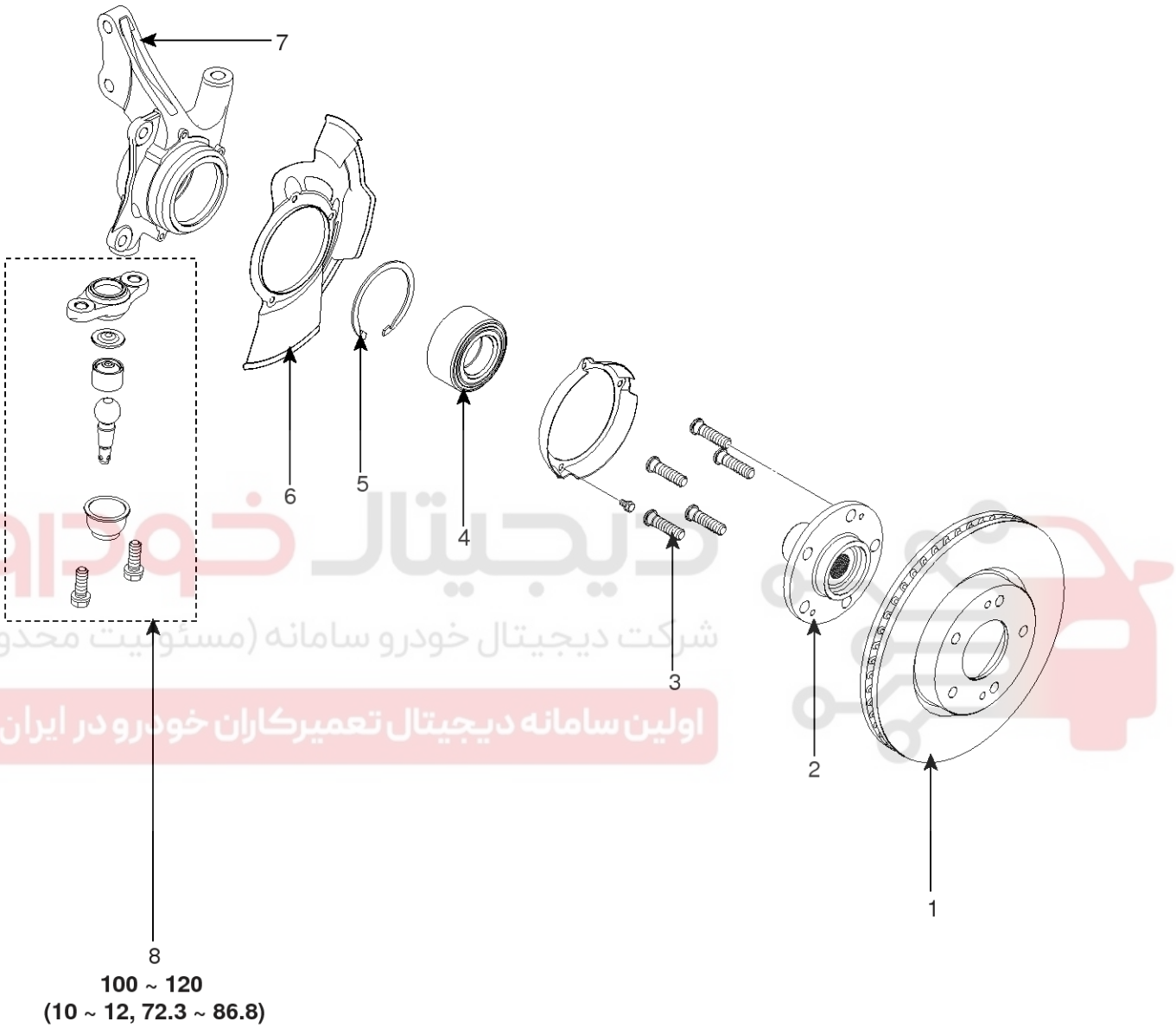
COMPONENT LOCATION



1. Disc
2. Caliper
3. Knuckle
4. Strut assembly
5. Lower arm
6. Stabilizer bar
7. Stabilizer bar link
8. Sub-frame
9. Tire

LIIE080A

COMPONENTS



TORQUE : Nm (Kgf·m, lbf·ft)

1. Disc
2. Hub
3. Hub bolt
4. Hub bearing
5. Snap ring
6. Dust ring
7. Knuckle
8. Ball joint

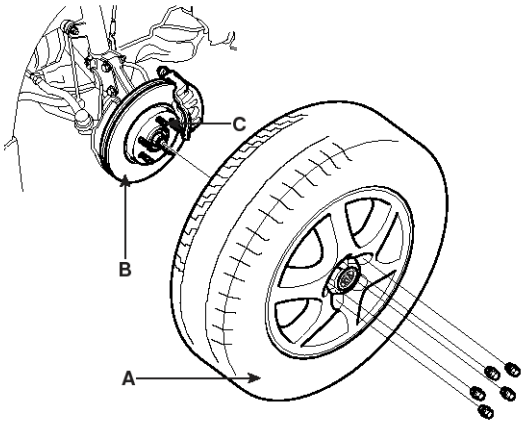
LIIE080B

REMOVAL

1. Loosen the wheel nuts slightly.

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

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

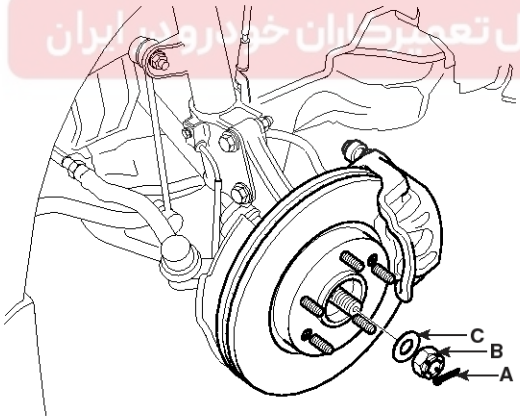


AIIE050A

⚠CAUTION

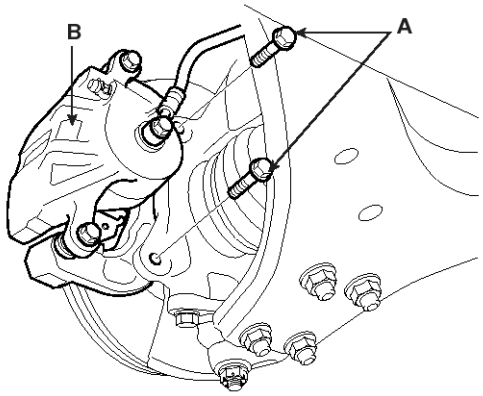
Be careful not to damage the hub bolts(C) then remove the front wheel and tire(A).

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



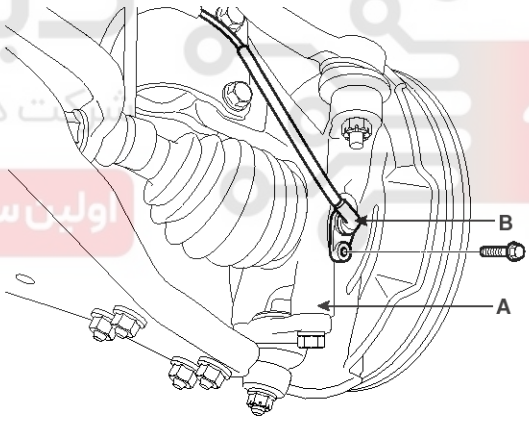
AIIE050B

4. Remove the caliper mounting bolts(A), and hang the caliper assembly(B) to one side. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper from the undercarriage.



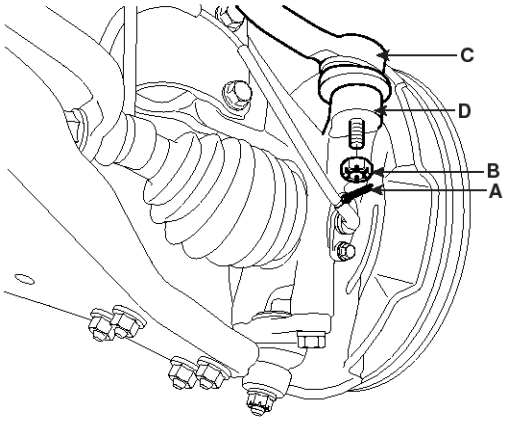
AIIE080C

5. Remove the wheel speed sensor(B) from the knuckle(A).



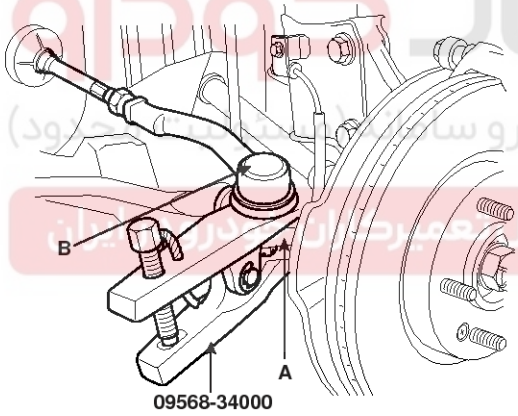
AIIE050C

6. Disconnect the tie rod end ball joint(C) from the knuckle(D) using the special tool(09568-34000).



AIIE050D

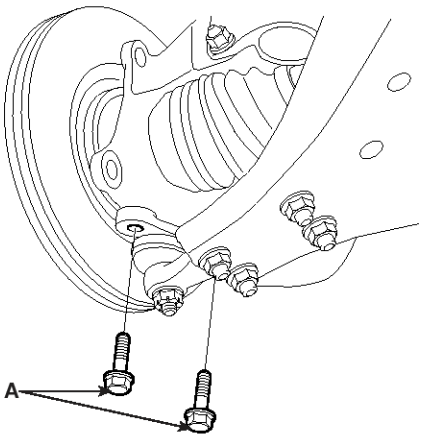
a. Remove the split pin(A).
b. Remove the castle nut(B).
c. Disconnect the ball joint(C) from knuckle(D) using the special tool(09568-34000).



AIIE050E

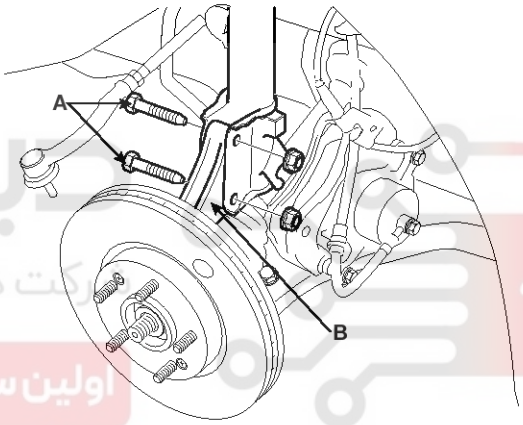
⚠CAUTION
Apply a few drops of oil to the special tool. (Boot contact part)

7. Remove the lower arm ball joint mounting bolts(A).



AIIE050F

8. Remove the strut lower arm mounting bolts(A).



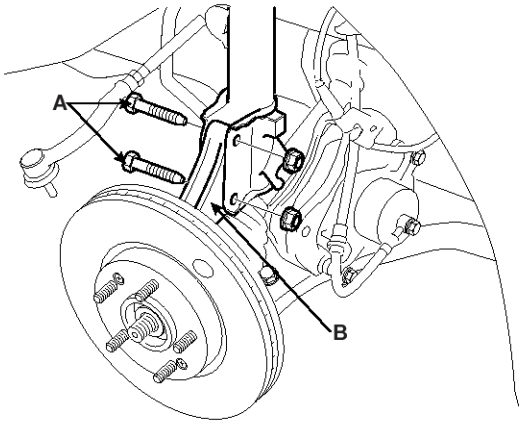
AIIE080F

9. Remove the hub and the knuckle assembly(B).

⚠CAUTION
Be careful not to damage the boot and rotor teeth.

INSTALLATION

1. Install the hub and the knuckle assembly(B).



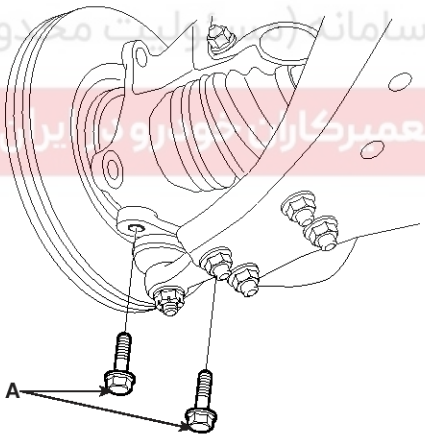
AIIE080F

2. Install the strut lower mounting bolts(A).

Tightening torque :
140 ~ 160 Nm (14 ~ 16 Kgf·m, 103.3 ~ 118 lbf·ft)

3. Install the lower arm ball joint mounting bolts(A).

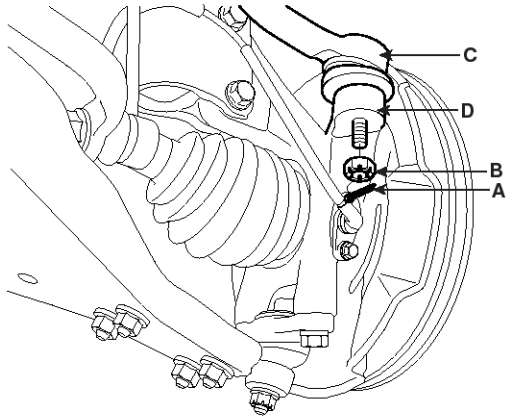
Tightening torque :
100 ~ 120 Nm (10 ~ 12 Kgf·m, 73.8 ~ 88.5 lbf·ft)



AIIE050F

4. Install the tie rod end ball joint(C) from the knuckle.

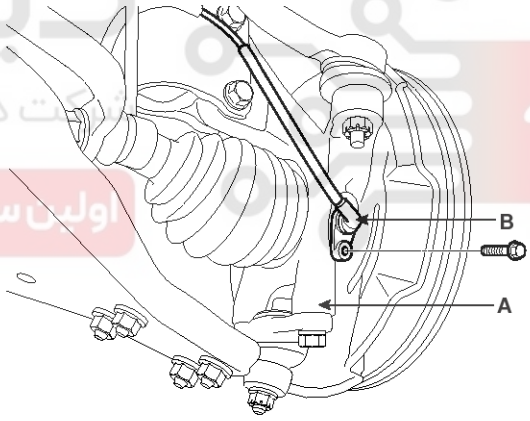
Tightening torque :
45 ~ 60 Nm (4.5 ~ 6 Kgf·m, 33.2 ~ 44.3 lbf·ft)



AIIE050D

   a. Install the castle nut(B).
   b. Install the split pin(A).

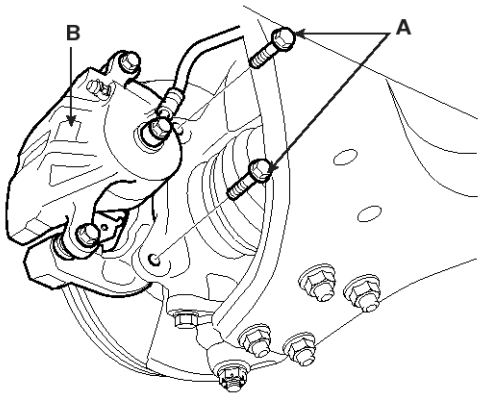
5. Install the wheel speed sensor(A).



AIIE050C

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

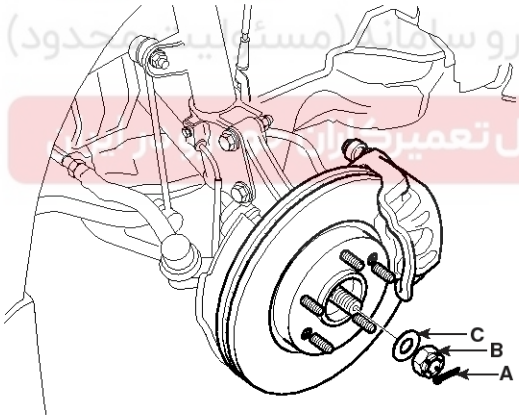
Tightening torque :
50 ~ 60 Nm (5 ~ 6 Kgf·m, 36.9 ~ 44.3 lbf·ft)



AIIE080C

7. Install the washer(C), castle nut(B) and split pin(A) from the front hub.

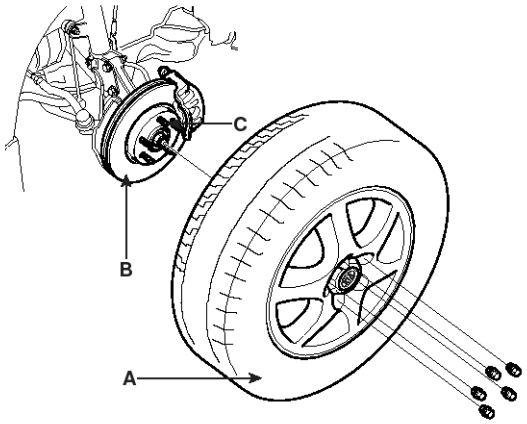
Tightening torque :
200 ~ 280 Nm (20 ~ 28 Kgf·m, 147.5 ~ 206.6 lbf·ft)



AIIE050B

8. Install the front wheel and tire(A) on the front hub(B).

Tightening torque :
90 ~ 110 Nm (9 ~ 11 Kgf·m, 66.4 ~ 81.2 lbf·ft)



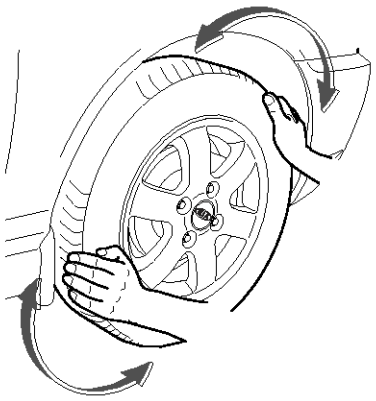
AIIE050A

⚠CAUTION
Be careful not to damage the hub bolts(C) then install the front wheel and tire(A).

ON-VEHICLE INSPECTION

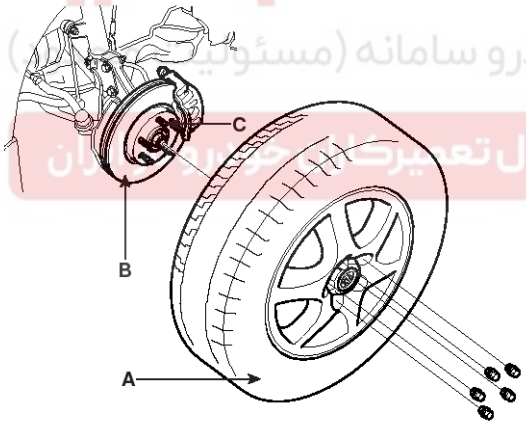
WHEEL BEARING PLAY INSPECTION

1. Inspection the play of the bearing while the vehicle is jacked up.



AIIE080G

2. If there is any play, loosen the wheel nuts slightly. Raise the front of the vehicle, and make sure it is securely supported.
3. Remove the front wheel and tire(A) from front hub(B).

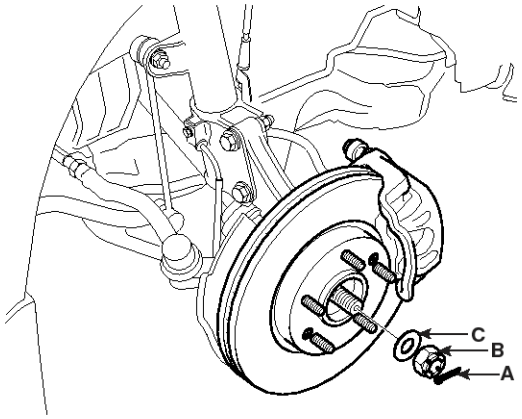


AIIE050A

⚠CAUTION

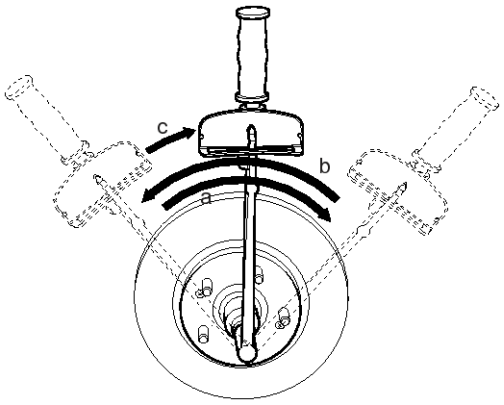
Be careful not to damage the hub bolts(C) then remove the front wheel and tire(A).

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



AIIE050B

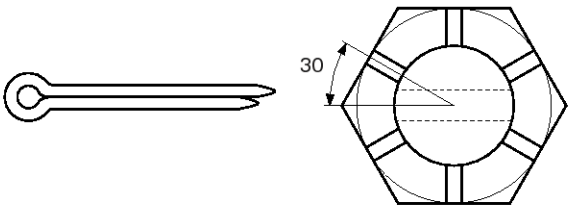
5. Tighten the hub bearing nut by the following procedures.
   a. Hub bearing nut must be fastened with torque 28kgf·m and front hub must be rotated above 3 times enough for secure placement of hub bearing.
   b. Unfasten hub bearing nut until its tightening torque is 0kgf·m.
   c. Hub bearing nut must be fastened again with torque 20kgf·m



AIIE080H

   d. Assemble split pin.

e. If the direction of split pin is not in line with the hole of knuckle unfasten hub bearing nut within 30° and assemble sprit pin.

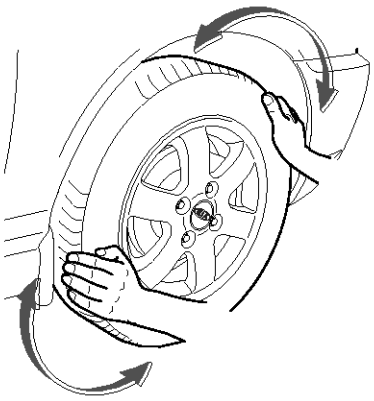


AIIE080I

ON-VEHICLE INSPECTION

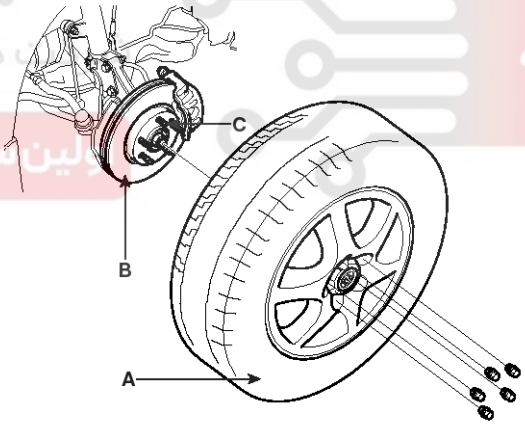
WHEEL BEARING PLAY INSPECTION

1. Inspection the play of the bearing while the vehicle is jacked up.



AIIE080G

2. If there is any play, loosen the wheel nuts slightly. Raise the front of the vehicle, and make sure it is securely supported.
3. Remove the front wheel and tire(A) from front hub(B).

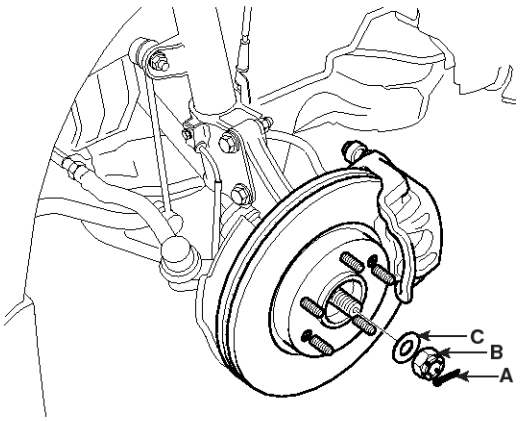


AIIE050A

⚠CAUTION

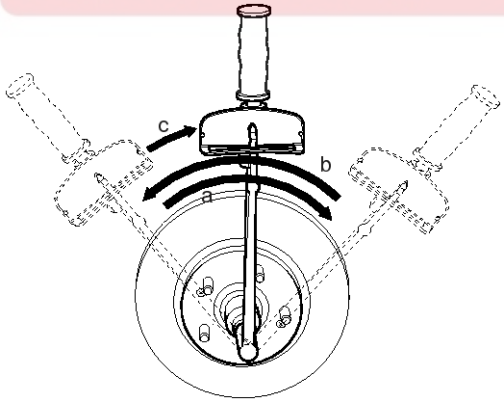
Be careful not to damage the hub bolts(C) then remove the front wheel and tire(A).

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



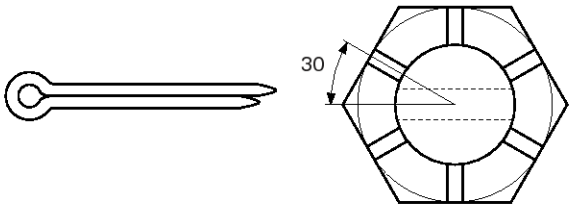
AIIE050B

5. Tighten the hub bearing nut by the following procedures.
   a. Hub bearing nut must be fastened with torque 28kgf·m and front hub must be rotated above 3 times enough for secure placement of hub bearing.
   b. Unfasten hub bearing nut until its tightening torque is 0kgf·m.
   c. Hub bearing nut must be fastened again with torque 20kgf·m



AIIE080H

   d. Assemble split pin.
   e. If the direction of split pin is not in line with the hole of knuckle unfasten hub bearing nut within 30° and assemble sprit pin.



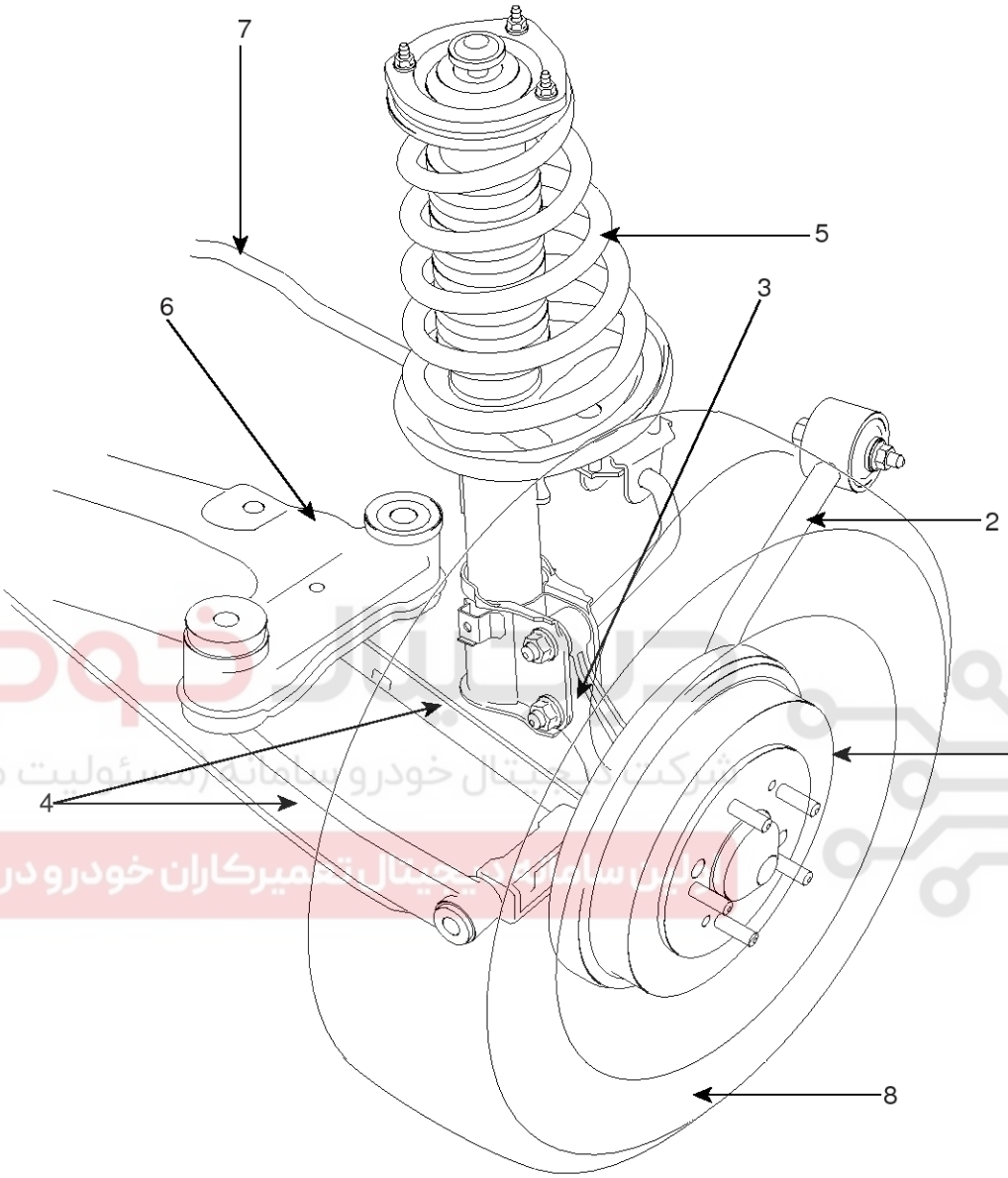
AIIE080I

Rear Axle Assembly

Rear Hub - Carrier

COMPONENT LOCATION

[2WD]

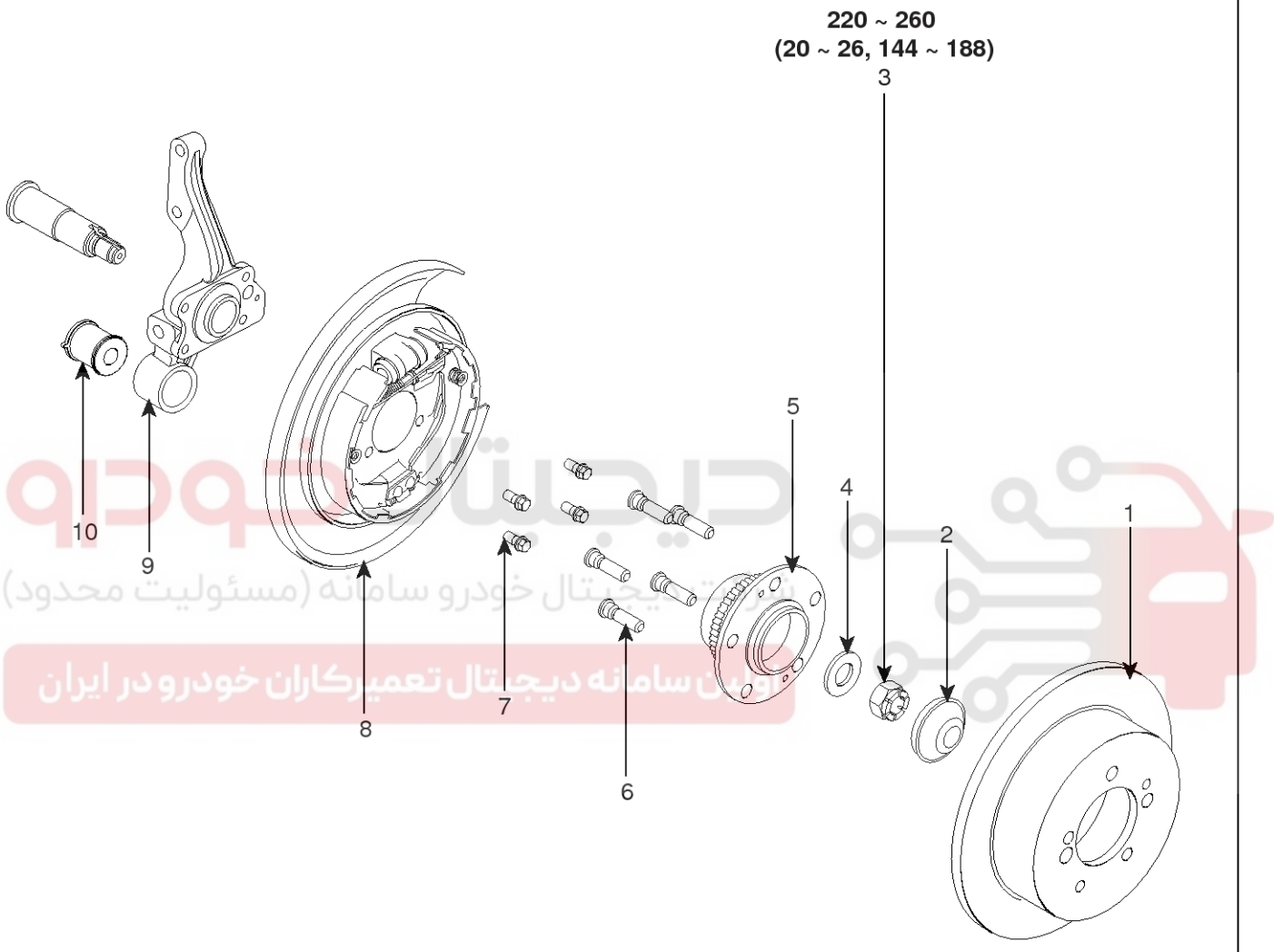


1. Drum brake(Disc brake)
2. Trailing arm
3. Axle carrier
4. Suspension arm
5. Strut assembly
6. Cross member
7. Stabilizer bar
8. Tire

LIIE090A

COMPONENTS

[DISK BRAKE]

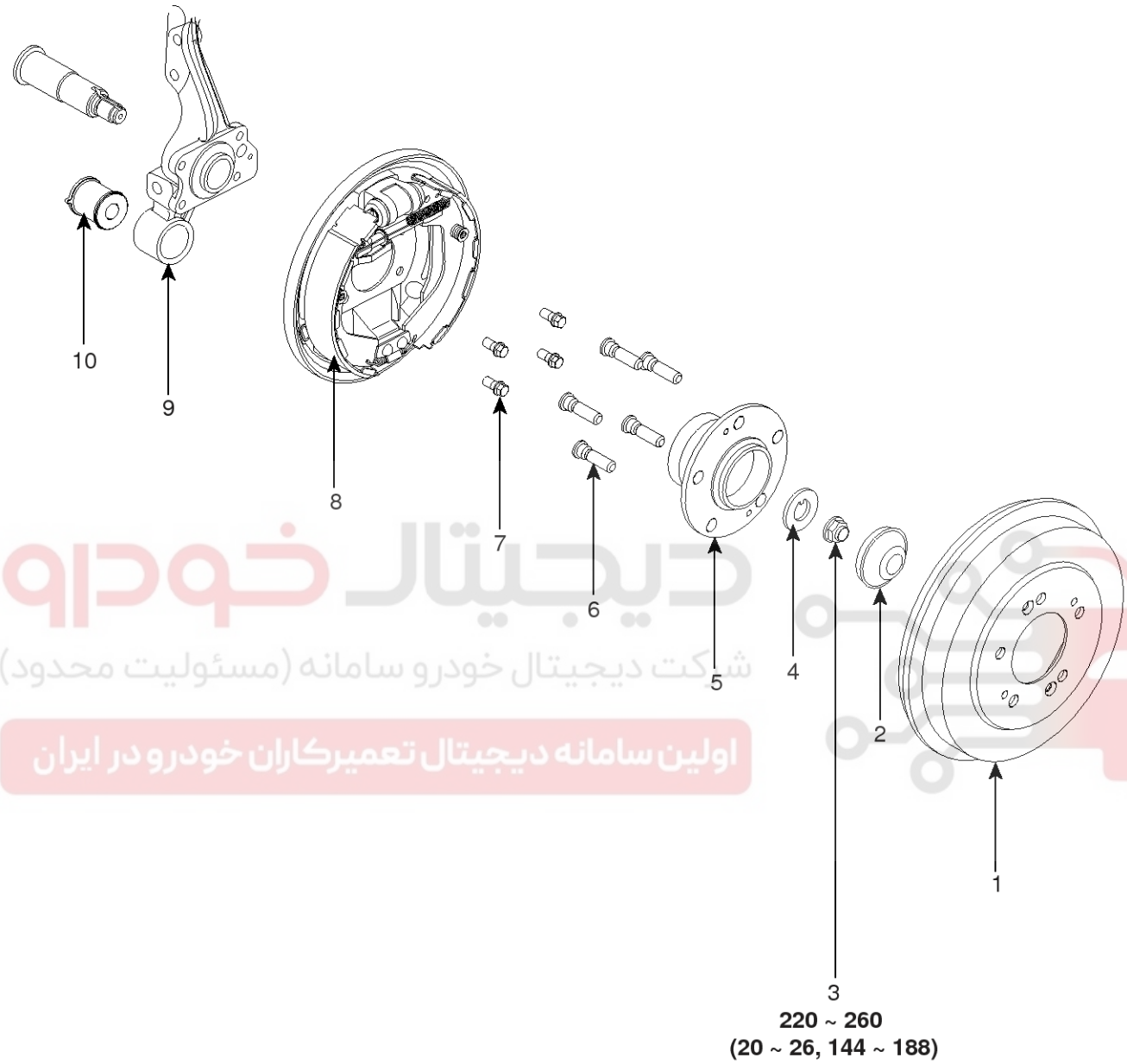


TORQUE : Nm (Kgf·m, lbf·ft)

1. Disc
2. Hub cap
3. Castle nut
4. Washer
5. Hub
6. Hub bolt
7. Dust cover mounting bolt
8. Rear parking brake assembly
9. Axle carrier
10. Bushing

LIIE090B

[DRUM BRAKE]



TORQUE : Nm (Kgf·m, lbf·ft)

1. Drum
2. Hub cap
3. Castle nut
4. Washer
5. Hub
6. Hub bolt
7. Dust cover mounting bolt
8. Drum brake assembly
9. Axle carrier
10. Bushing

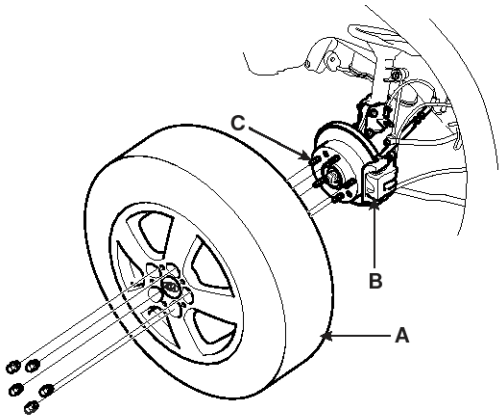
LIIE090C

REMOVAL

[DISC BRAKE]

1. Loosen the wheel nuts slightly

   Raise the rear of the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire(A) from rear hub(B).

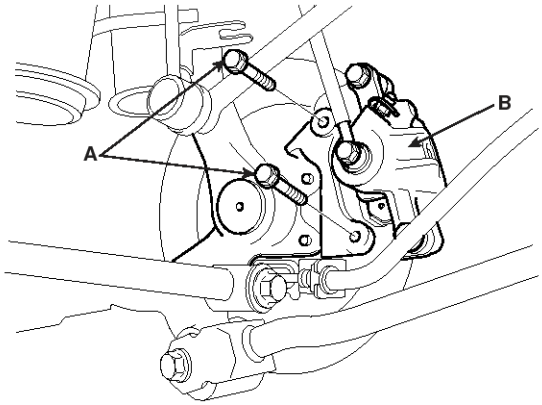


AIIE090T

⚠CAUTION

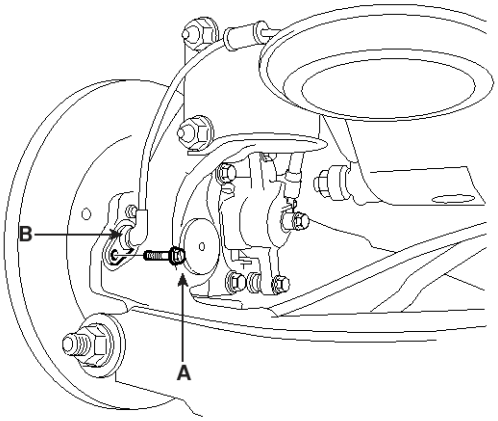
Be careful not to damage the hub bolts(C) then remove the rear wheel and tire(A).

3. Remove the caliper mounting bolts(A), and hang the caliper assembly(B) to one side. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper from the undercarriage.



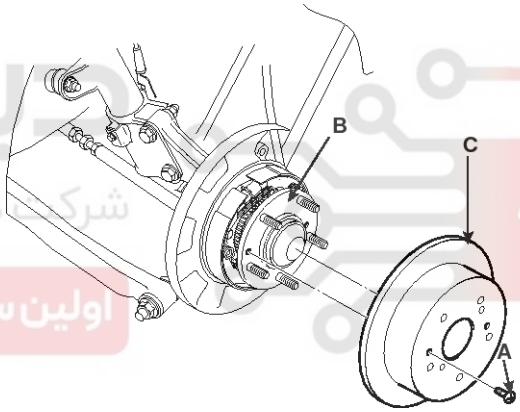
AIIE090E

4. Remove the wheel speed sensor(B) from the axle carrier(A).



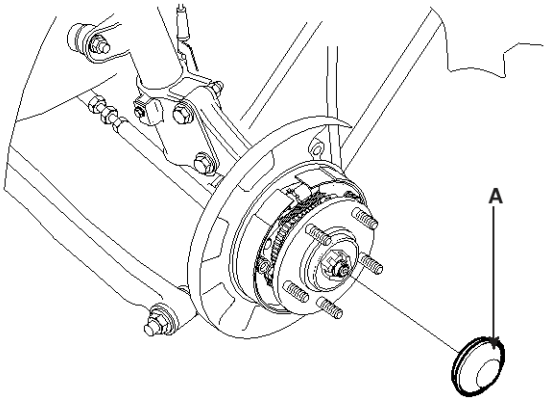
AIIE090F

5. Loosen the brake disc mounting screw(A), and then remove the brake disc(C) from the hub(B).



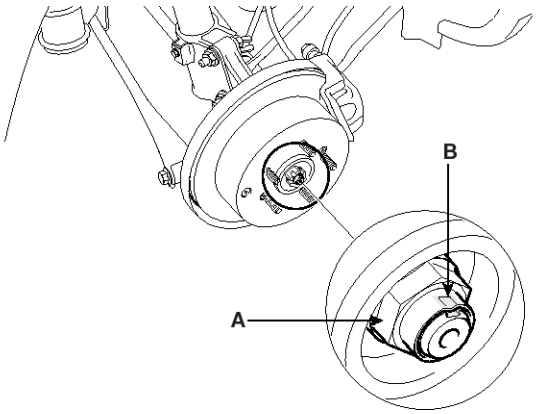
AIIE090G

6. Using a (-)screwdriver, remove the hub cap(A).



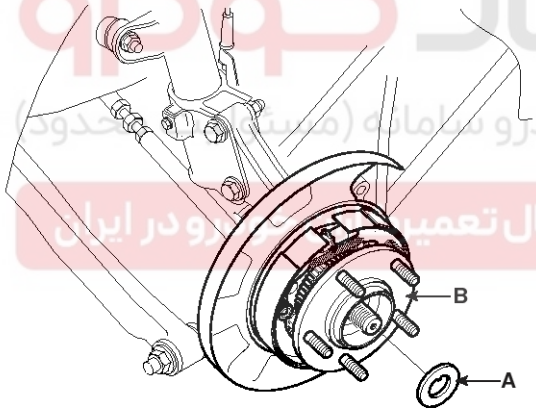
AIIE090H

7. Remove the hub bearing flange nut(A).
   a. Using a flat-tipped (-)screwdriver, spread out the groove(B) on the flange nut(A)
   b. Loosen the hub bearing flange nut(A).



AIIE090I

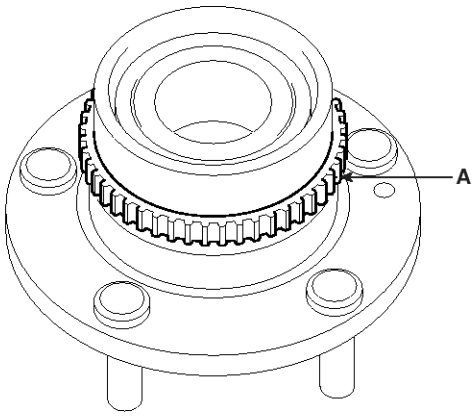
8. Remove the rear hub washer(A) and rear hub assembly(B).



AIIE090J

⚠CAUTION

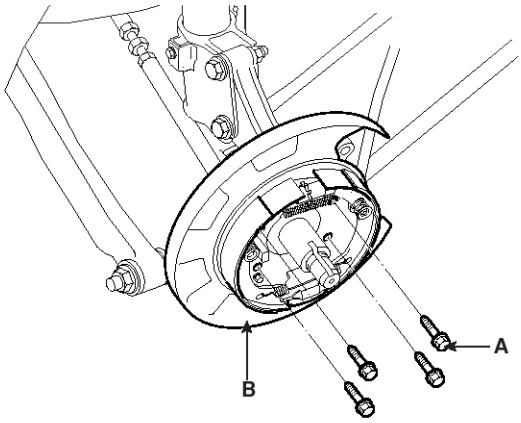
- **Be careful not disassembly the rear hub assembly.**
- **For vehicles equipped with ABS.**



AIIE090K

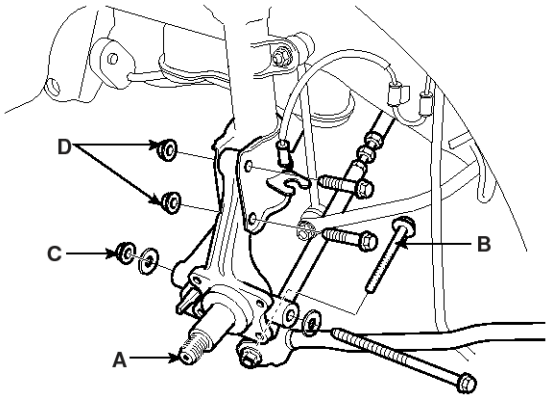
- **Care must be taken not to scratch or damage the teeth of the rotor(A).**
- **The rotor must never be dropped.**
- **If the teeth of the rotor are chipped, it results in deformation of the rotor. It will make it impossible to detect the wheel rotation speed accurately and to operate the system normally.**

9. Loosen the rear dust cover mounting bolts(A) and then remove the rear parking brake assembly(B).



AIIE090L

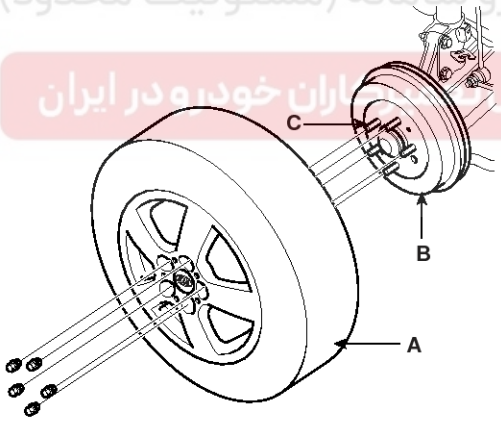
10. Remove the rear axle carrier(A).
    a. Remove the trailing arm mounting bolt(B).
    b. Remove the suspension arm mounting nut(C).
    c. Remove the strut mounting nuts(D).



AIIE090M

[DRUM BRAKE]

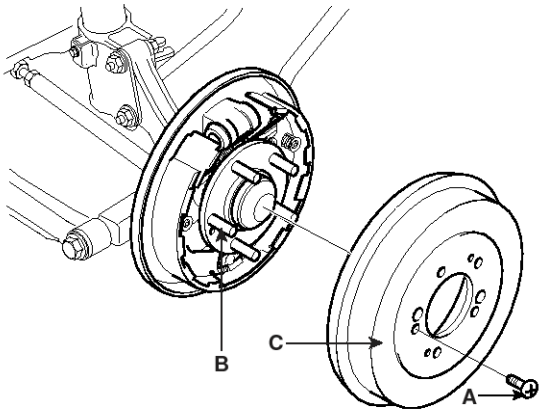
1. Loosen the wheel nuts slightly.
   Raise the rear of the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire(A) from rear hub(B).



AIIE090D

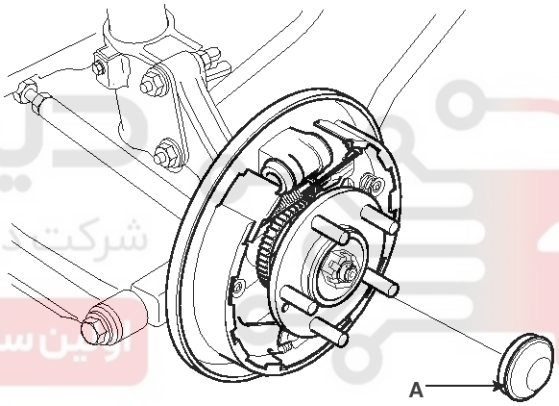
⚠CAUTION
Be careful not to damage the hub bolts(C) then remove the rear wheel and tire(A).

3. Loosen the brake drum mounting screw(A), and then remove the brake drum(C) from the hub(B).



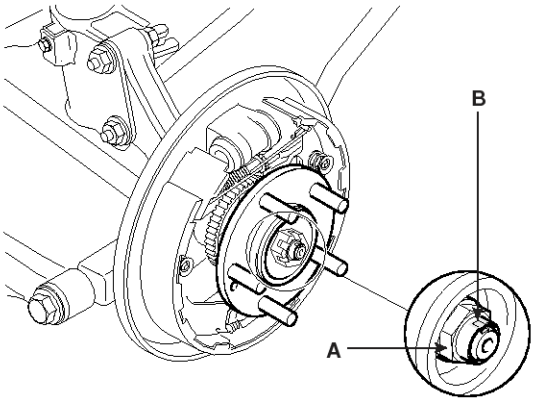
AIIE090N

4. Using a (-)screwdriver, remove the hub cap(A).



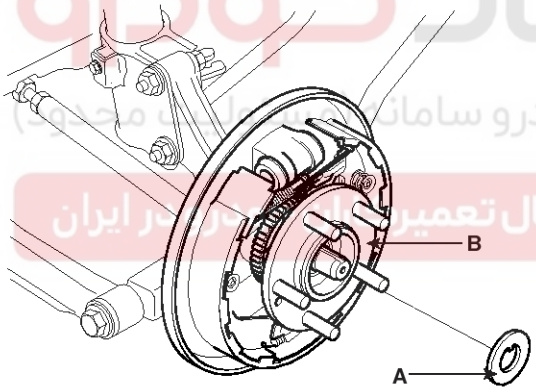
AIIE090O

5. Remove the hub bearing flange nut(A).
   a. Using a flat-tipped (-) screwdriver, spread out the groove(B) on the flange nut(A).
   b. Loosen the hub bearing flange nut(A).



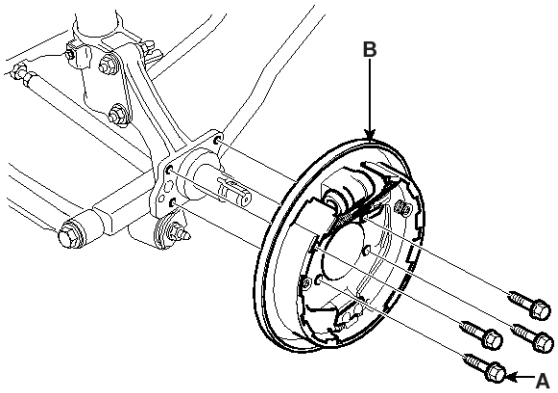
AIIE090P

6. Remove the rear hub washer(A) and rear hub assembly(B).



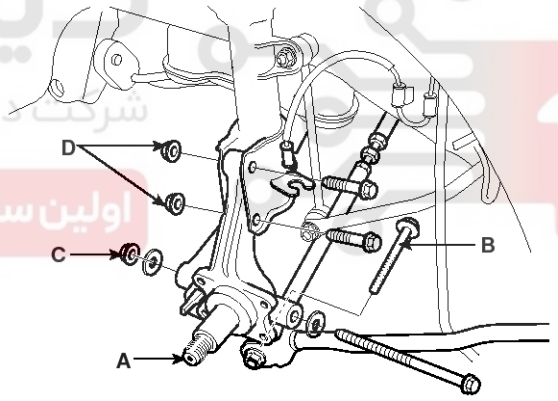
AIIE090Q

7. Loosen the rear dust cover mounting bolts(A) and then remove the drum brake assembly(B).



AIIE090R

8. Remove the rear axle carrier(A).
   a. Remove the trailing arm mounting bolt(B).
   b. Remove the suspension arm mounting nut(C).
   c. Remove the strut mounting nuts(D).



AIIE090M

INSTALLATION

[DISC BRAKE]

1. Install the rear axle carrier(A).
   a. Install the strut mounting nuts(D).

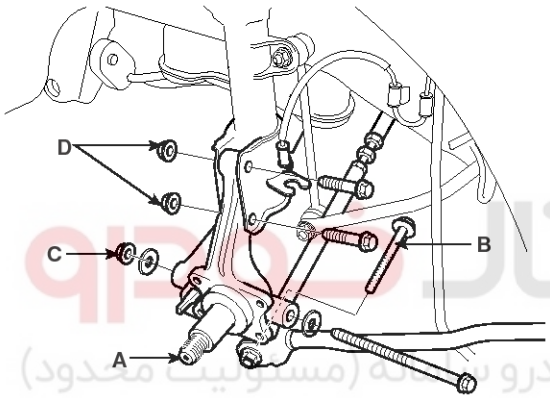
Tightening torque :
140 ~ 160 Nm (14 ~ 16 Kgf·m, 103.3 ~ 118.0 lbf·ft)

   b. Install the suspension arm mounting nut(C).

Tightening torque :
160 ~ 180 Nm (16 ~ 18 Kgf·m, 118.0 ~ 132.8 lbf·ft)

   c. Install the trailing arm mounting bolt(B).

Tightening torque :
100 ~ 120 Nm (10 ~ 12 Kgf·m, 73.8 ~ 88.5 lbf·ft)

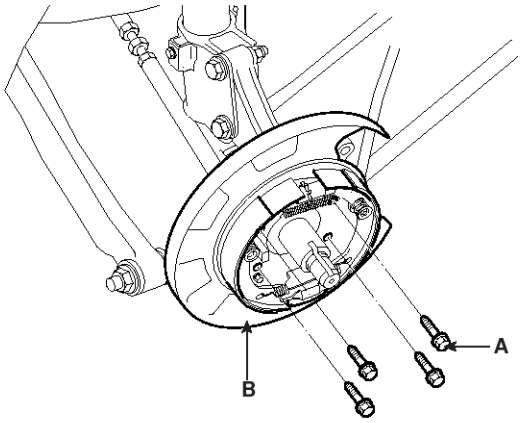


AIIE090M

⚠CAUTION
Replace the self-locking nut with new ones after removal.

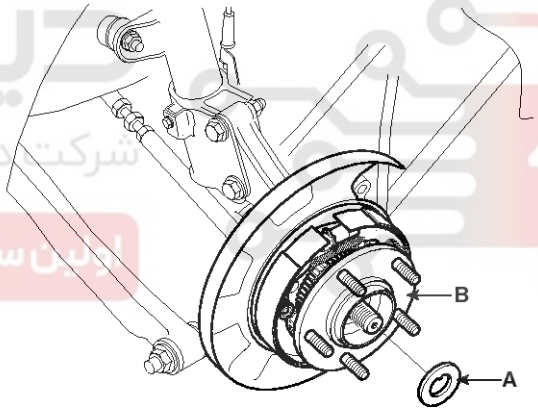
2. Install the rear dust cover(B) and then tighten the mounting bolts(A).

Tightening torque :
50 ~ 60 Nm (5 ~ 6 Kgf·m, 36.9 ~ 44.3 lbf·ft)



AIIE090L

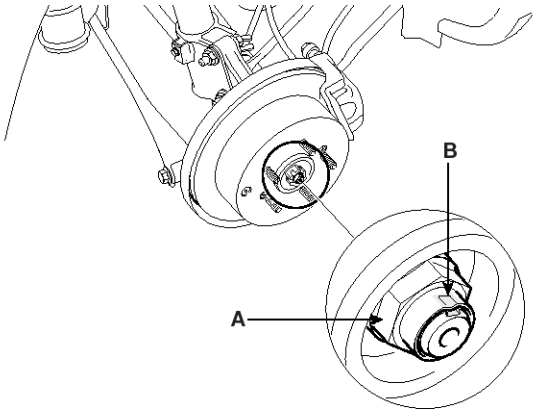
3. Install the hub assembly(B) and hub washer(A).



AIIE090J

4. After tightening the hub bearing flange nut(A), caulk the concave portion(B) of the spindle by crimping the nut.

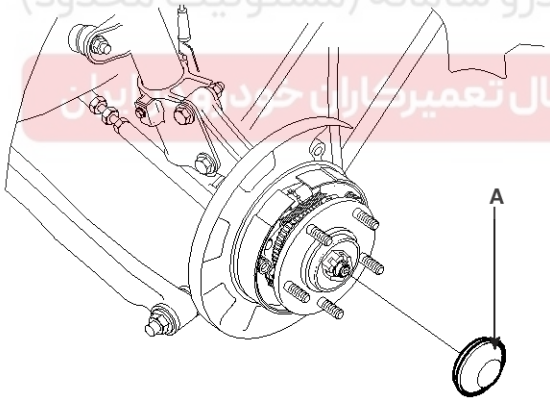
Tightening torque :
200 ~ 260 Nm (20 ~ 26 Kgf·m, 147.5 ~ 191.8 lbf·ft)



AIIE090I

⚠CAUTION
Replace the flange nut with new ones after removal.

5. Install the hub cap(A).



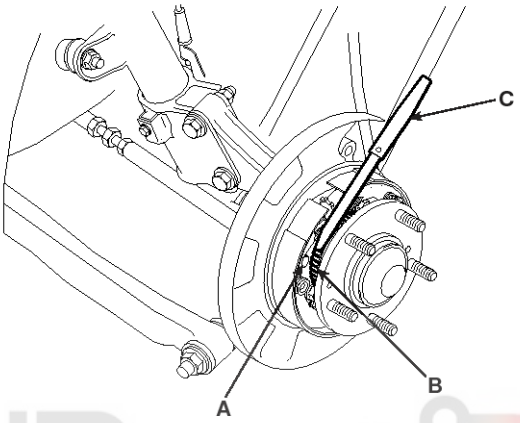
AIIE090H

⚠CAUTION
Replace the hub cap with new ones after removal.

6. Installation of the rear speed sensor(A).(For vehicles equipped with ABS):

   Insert a feeler gauge(C) into the space between the pole piece of the speed sensor(A) and the rotor teeth(B) surface, and then tighten the speed sensors(A) at the position where the clearance at all places is within the standard value.

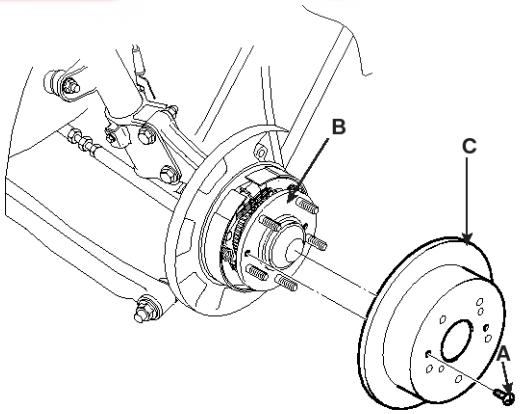
Standard value :
Clearance : 0.5 ~ 1.5mm (0.02 ~ 0.06 in)



BIIF090W

7. Install the brake disc(C) from the hub(B), then tighten the brake disc mounting screw(A).

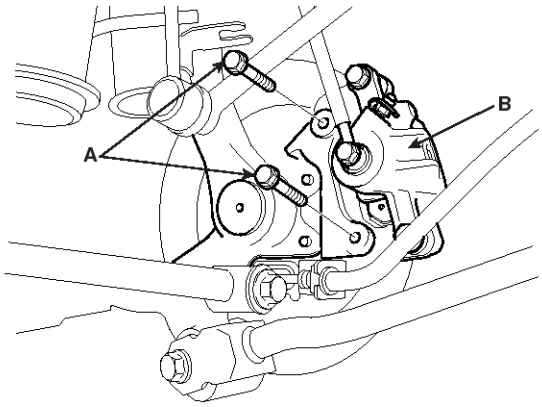
Tightening torque :
5 ~ 6 Nm (0.5 ~ 0.6 Kgf·m, 3.7 ~ 4.4 lbf·ft)



AIIE090G

8. Install the brake caliper(B), then tighten the mounting bolt(A).

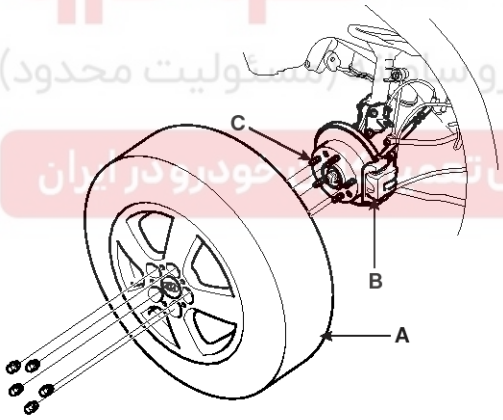
Tightening torque :
50 ~ 60 Nm (5 ~ 6 Kgf·m, 36.9 ~ 44.3 lbf·ft)



AIIE090E

9. Install the rear wheel and tire(A) on the rear hub(B).

Tightening torque :
90 ~ 110 Nm (9 ~ 11 kgf·m, 66.4 ~ 81.2 lbf·ft)



AIIE090T

⚠CAUTION
Be careful not to damage the hub bolts(C) then install the rear wheel and tire(A).

[DRUM BRAKE]

1. Install the rear axle carrier(A).
   a. Install the strut mounting nuts(D).

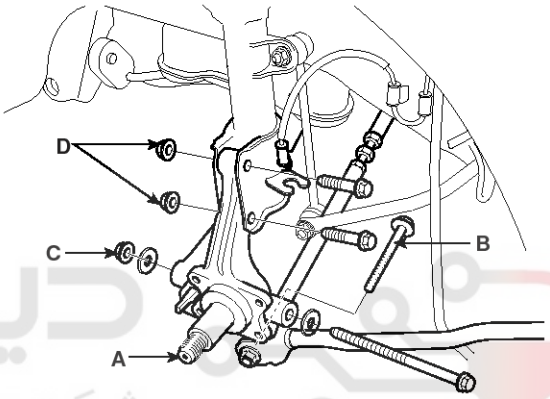
Tightening torque :
140 ~ 160 Nm (14 ~ 16 Kgf·m, 103.3 ~ 118.0 lbf·ft)

   b. Install the suspension arm mounting nut(C).

Tightening torque :
160 ~ 180 Nm (16 ~ 18 Kgf·m, 118.0 ~ 132.8 lbf·ft)

   c. Install the trailing arm mounting bolt(B).

Tightening torque :
100 ~ 120 Nm (10 ~ 12 Kgf·m, 73.8 ~ 88.5 lbf·ft)

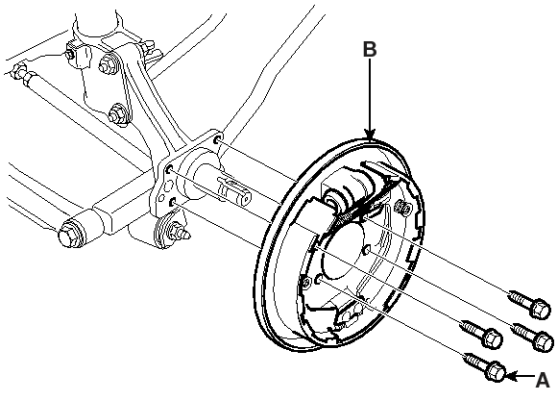


AIIE090M

⚠CAUTION
Replace the self-locking nut with new ones after removal.

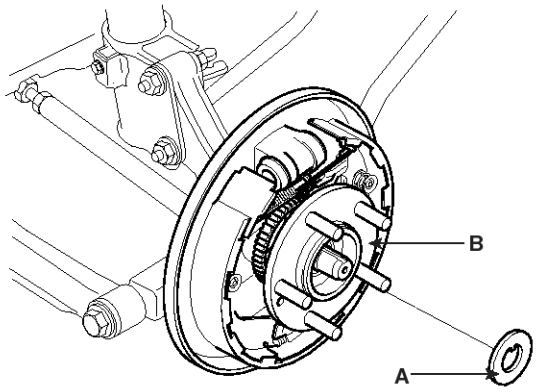
2. Install the rear dust cover(B), then tighten the mounting bolt(A).

Tightening torque :
50 ~ 60 Nm (5 ~ 6 Kgf·m, 36.9 ~ 44.3 lbf·ft)



AIIE090R

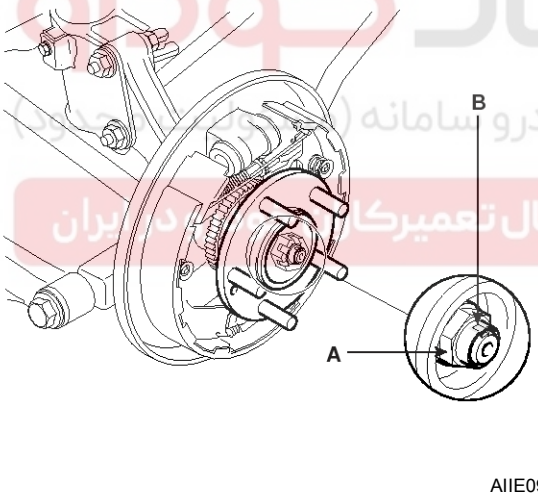
3. Install the rear hub assembly(B) and hub washer(A).



AIIE090Q

4. After tightening the hub bearing flange nut(A), caulk the concave portion(B) of the spindle by crimping the nut.

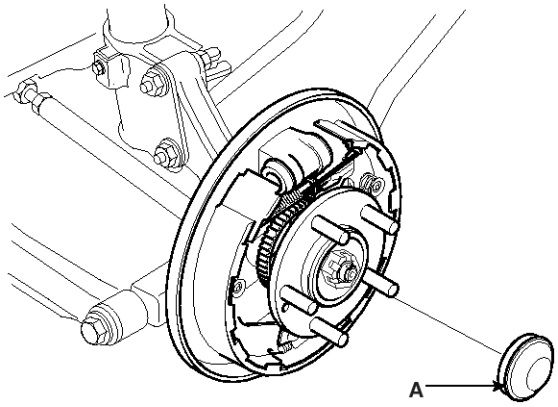
Tightening torque :
200 ~ 260 Nm (20 ~ 26 Kgf·m, 147.5 ~ 191.8 lbf·ft)



AIIE090P

⚠CAUTION
Replace the flange nut with new ones after removal.

5. Install the hub cap(A).

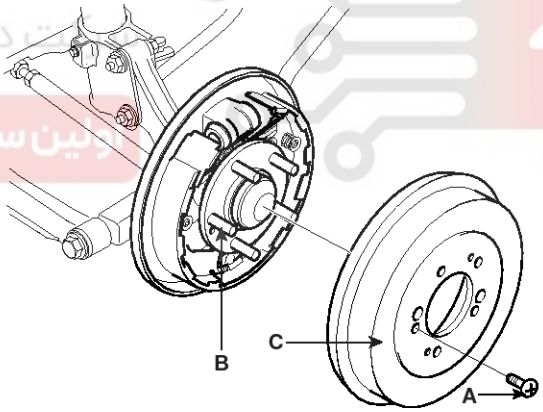


AIIE090O

⚠CAUTION
Replace the hub cap with new ones after removal.

6. Install the brake drum(C) from the hub(B), then tighten the brake drum mounting screw(A).

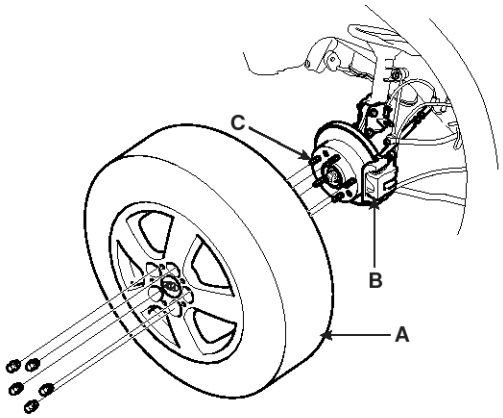
Tightening torque :
5 ~ 6 Nm (0.5 ~ 0.6 Kgf·m, 3.7 ~ 4.4 lbf·ft)



AIIE090N

7. Install the rear wheel and tire(A) on the rear hub(B).

Tightening torque :
90 ~ 110 Nm (9 ~ 11 Kgf·m, 66.4 ~ 81.2 lbf·ft)



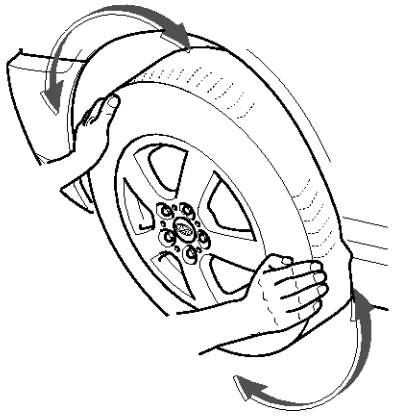
AIIE090T

⚠CAUTION
Be careful not to damage the hub bolts(C) then install the rear wheel and tire(A).

ON-VEHICLE INSPECTION

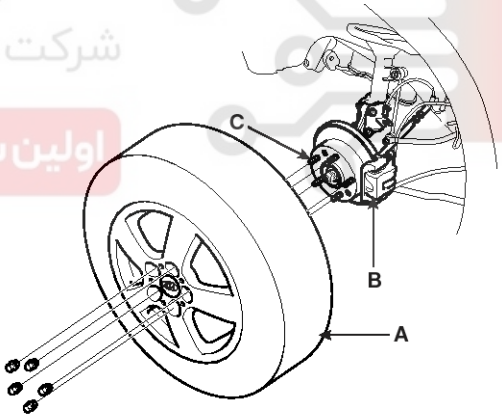
WHEEL BEARING PLAY INSPECTION

1. Inspection the play of the bearing while the vehicle is jacked up.



AIIE090S

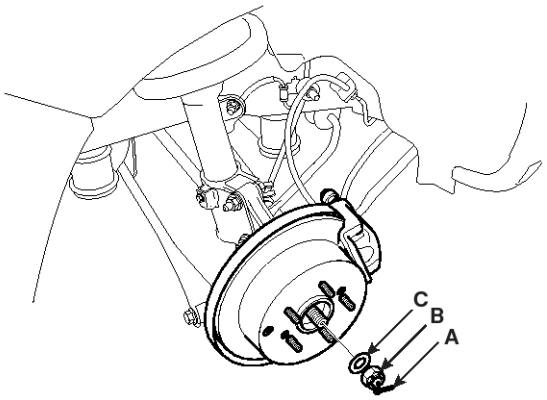
2. If there is any play, loosen the wheel nuts slightly. Raise the rear of the vehicle, and make sure it is securely supported.
3. Remove the rear wheel and tire(A) from rear hub(B).



AIIE090T

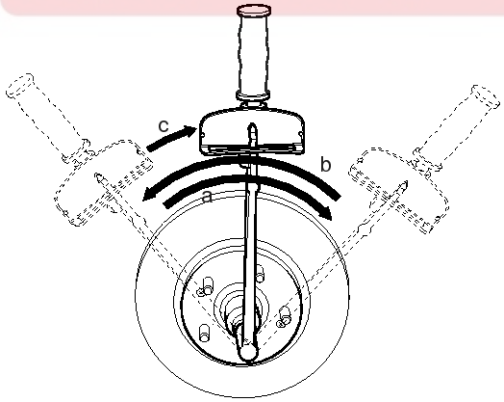
⚠CAUTION
Be careful not to damage the hub bolts(C) then remove the rear wheel and tire(A).

4. Remove the split pin(A), then remove castle nut(B) and washer(C) from the rear hub under applying the break.



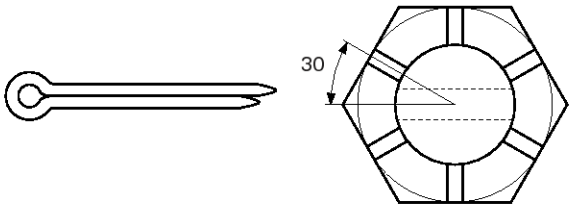
AIIE090U

5. Tighten the hub bearing nut by the following procedures.
   a. Hub bearing nut must be fastened with torque 280 Nm (28 kgf·m,202.5 lb-ft)_ and rear hub must be rotated above 3 times enough for secure placement of hub bearing.
   b. Unfasten hub bearing nut until its tightening torque is 0 Nm (Kgf·m,lb-ft)
   c. Hub bearing nut must be fastened again with torque 200 Nm (20Kgf·m, 144.7 lb-ft)



AIIE080H

   d. Assemble split pin.
   e. If the direction of split pin is not in line with the hole of knuckle unfasten hub bearing nut within 30° and assemble split pin

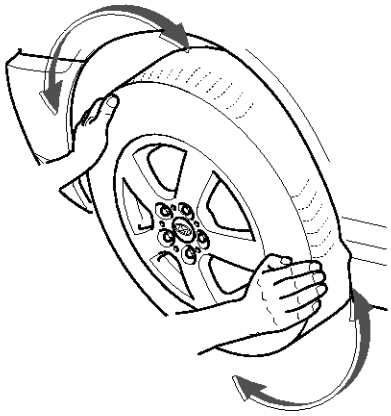


AIIE080I

ON-VEHICLE INSPECTION

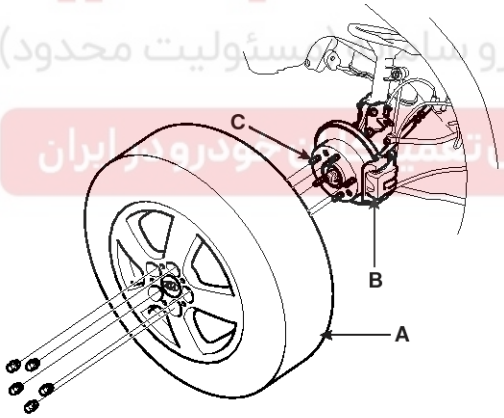
WHEEL BEARING PLAY INSPECTION

1. Inspection the play of the bearing while the vehicle is jacked up.



AIIE090S

2. If there is any play, loosen the wheel nuts slightly. Raise the rear of the vehicle, and make sure it is securely supported.
3. Remove the rear wheel and tire(A) from rear hub(B).

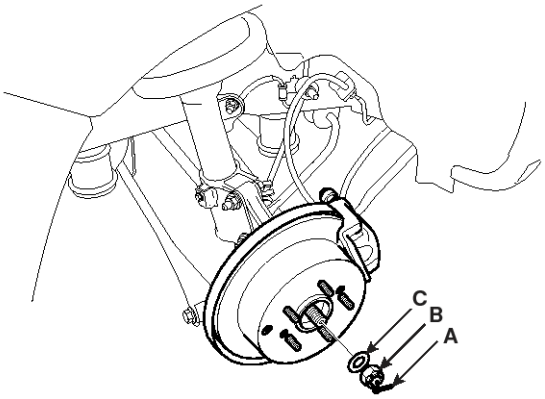


AIIE090T

⚠CAUTION

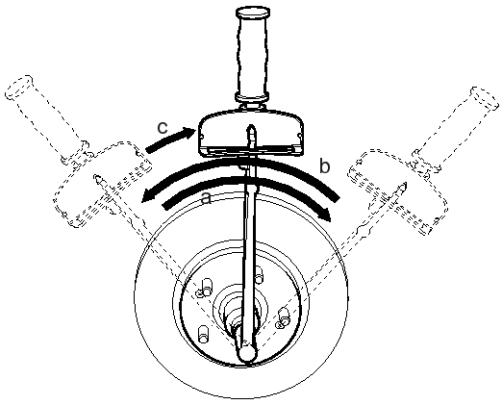
Be careful not to damage the hub bolts(C) then remove the rear wheel and tire(A).

4. Remove the split pin(A), then remove castle nut(B) and washer(C) from the rear hub under applying the break.



AIIE090U

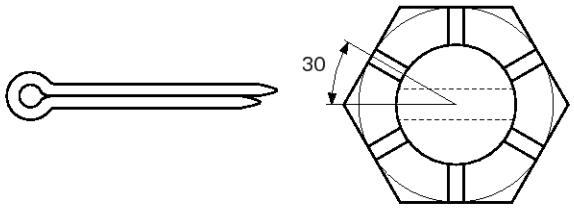
5. Tighten the hub bearing nut by the following procedures.
   a. Hub bearing nut must be fastened with torque 280 Nm (28 kgf·m,202.5 lb-ft)_ and rear hub must be rotated above 3 times enough for secure placement of hub bearing.
   b. Unfasten hub bearing nut until its tightening torque is 0 Nm (Kgf·m,lb-ft)
   c. Hub bearing nut must be fastened again with torque 200 Nm (20Kgf·m, 144.7 lb-ft)



AIIE080H

d. Assemble split pin.

e. If the direction of split pin is not in line with the hole of knuckle unfasten hub bearing nut within 30° and assemble split pin

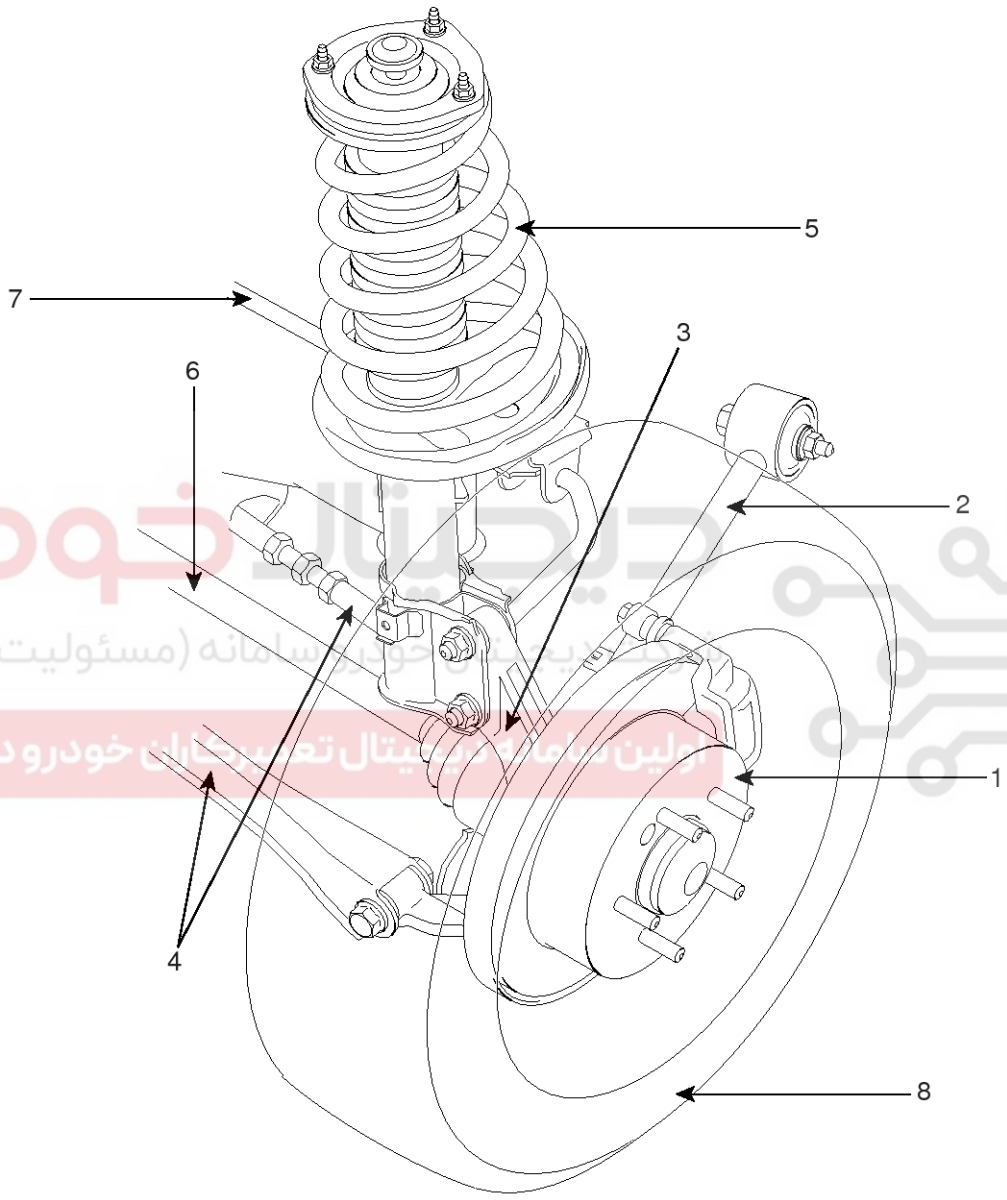


AIIE080I

Rear Hub - Axle

COMPONENT LOCATION

[4WD]



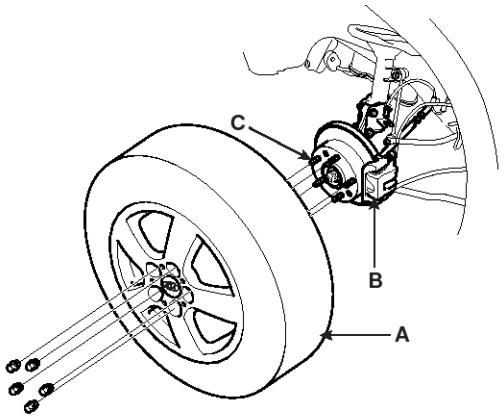
1. Disc brake
2. Trailing arm
3. Axle carrier
4. Suspension arm
5. Strut assembly
6. Drive shaft
7. Stabilizer bar
8. Tire

LIIE100A

REMOVAL

1. Loosen the wheel nuts slightly.

   Raise the rear of the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire(A) from rear hub(B).

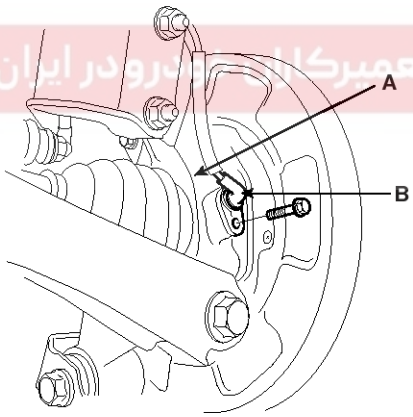


AIIE090T

⚠CAUTION

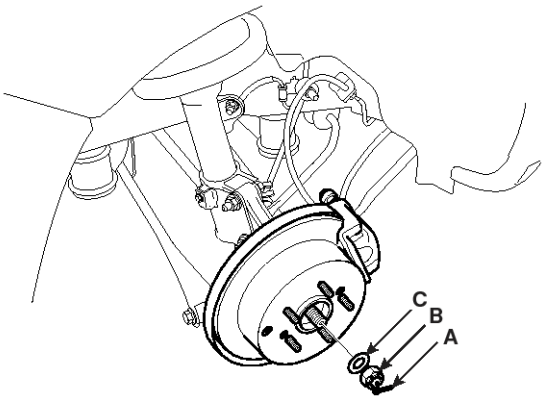
Be careful not to damage the hub bolts(C) then remove the rear wheel and tire(A).

3. Remove the wheel speed sensor(B) from the axle carrier(A).



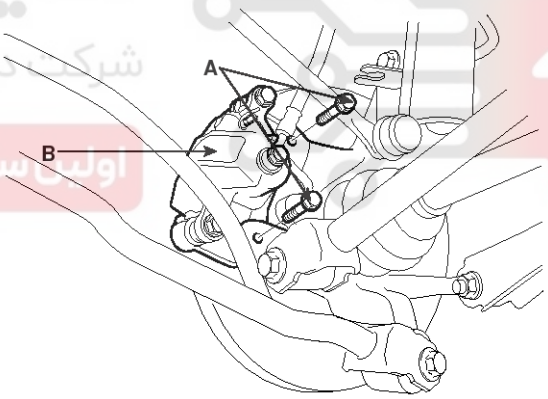
AIIE100B

4. Remove the split pin(A), then remove castle nut(B) and washer(C) from the rear hub under applying the break.



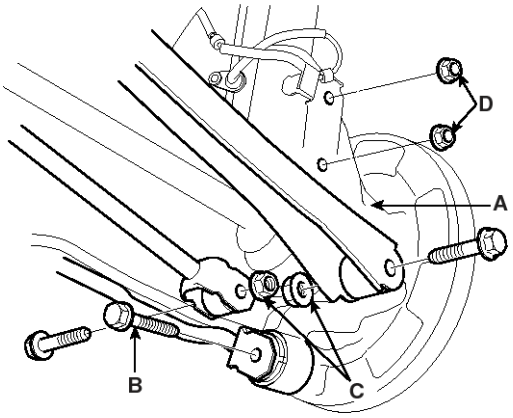
AIIE090U

5. Remove the caliper mounting bolts(A), and hang the caliper assembly(B) to one side. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper from the undercarriage.



AIIE100C

6. Remove the rear axle assembly(A).
   a. Remove the trailing arm mounting bolt(B).
   b. Remove the suspension arm mounting nuts(C).
   c. Remove the strut mounting nuts(D).



AIIE100D

INSTALLATION

1. Install the rear axle assembly(A).
   a. Install the strut mounting nuts(D).

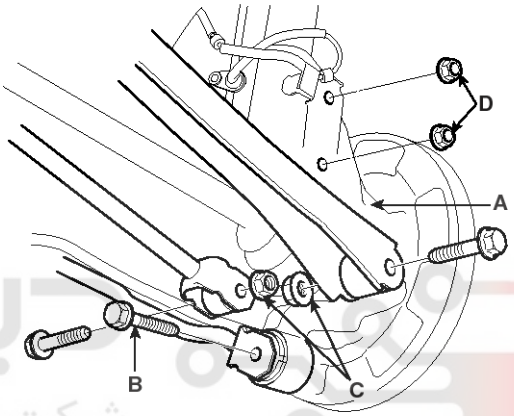
Tightening torque :
140 ~ 160 Nm (14 ~ 16 Kgf·m, 103.3 ~ 118 lbf·ft)

   b. Install the suspension arm mounting nuts(C).

Tightening torque :
140 ~ 160 Nm (14 ~ 16 Kgf·m, 103.3 ~ 118 lbf·ft)

   c. Install the trailing arm mounting bolt(B).

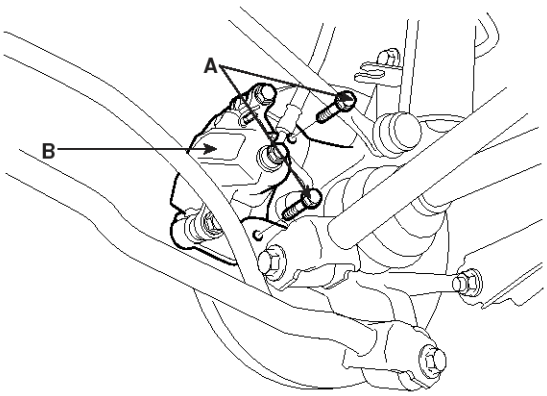
Tightening torque :
100 ~ 120 Nm (10 ~ 12 Kgf·m, 73.8 ~ 88.5 lbf·ft)



AIIE100D

2. Install the brake caliper(B), then tighten the mounting bolt(A).

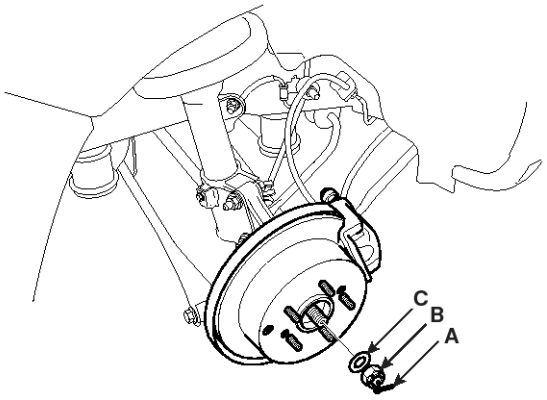
Tightening torque :
50 ~ 60 Nm (5 ~ 6 Kgf·m, 36.9 ~ 44.3 lbf·ft)



AIIE100C

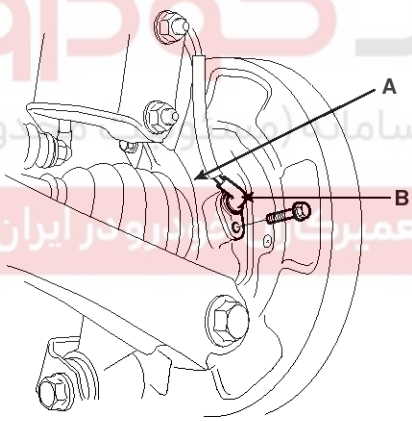
3. Install the washer(C), castle nut(B) and split pin(A) from the rear hub.

Tightening torque :
200 ~ 280 Nm (20 ~ 28 Kgf·m, 147.5 ~ 206.6 lbf·ft)



AIIE090U

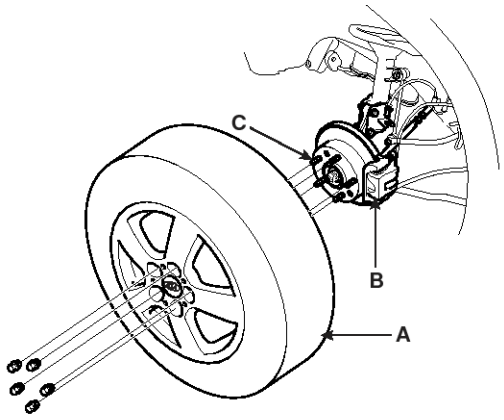
4. Install the wheel speed sensor(B) from the axle carrier(A).



AIIE100B

5. Install the rear wheel and tire(A) on the rear hub(B).

Tightening torque :
90 ~ 110 Nm (9 ~ 11 Kgf·m, 66.4 ~ 81.2 lbf·ft)



AIIE090T

⚠CAUTION
Be careful not to damage the hub bolts(C) then install the rear wheel and tire(A).

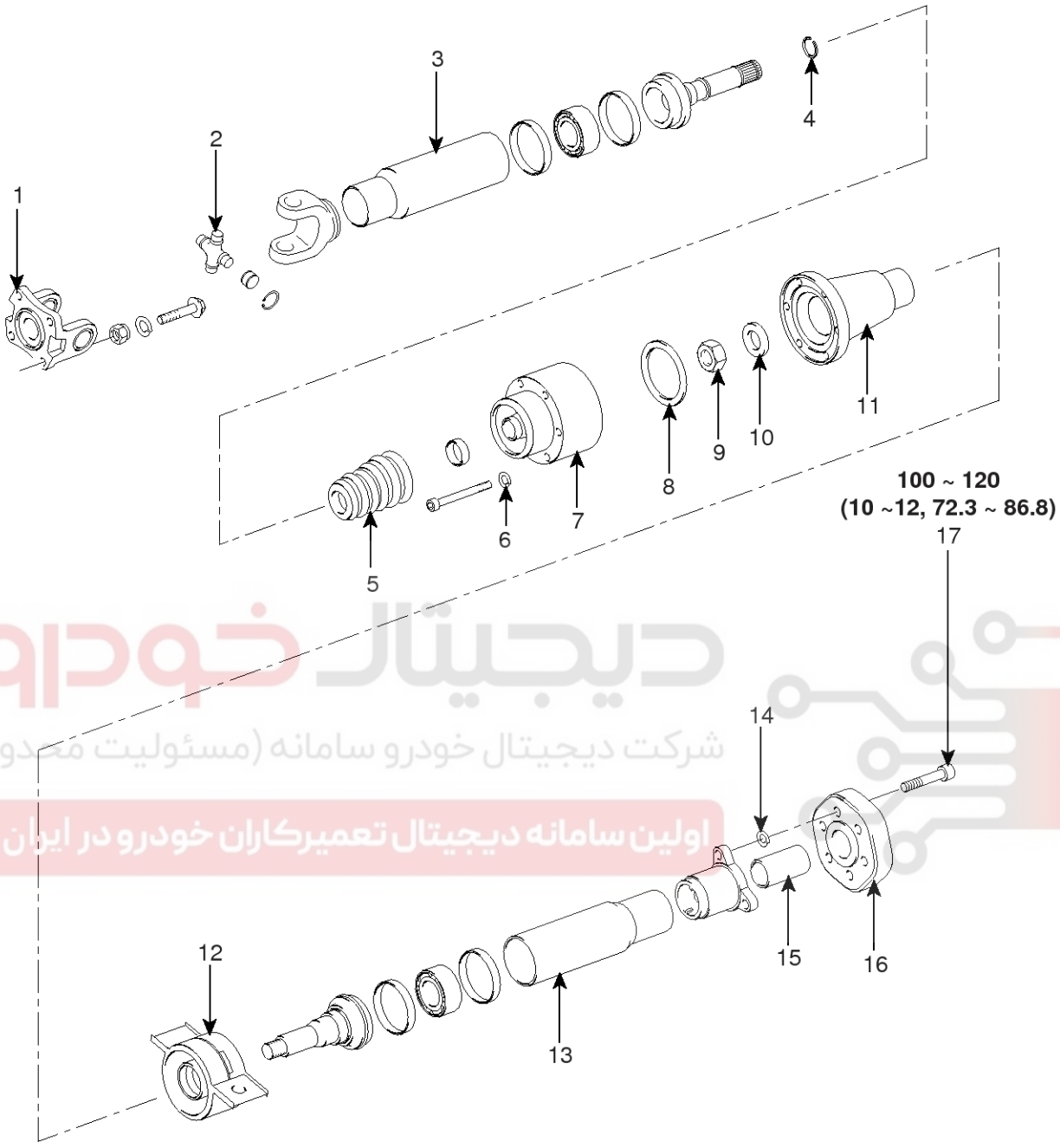
INSPECTION

1. Check the hub bearing for wear or damage.
2. Check the carrier for cracks.

Propeller Shaft Assembly

Propeller Shaft

COMPONENTS



TORQUE : Nm (Kgf·m, lbf·ft)

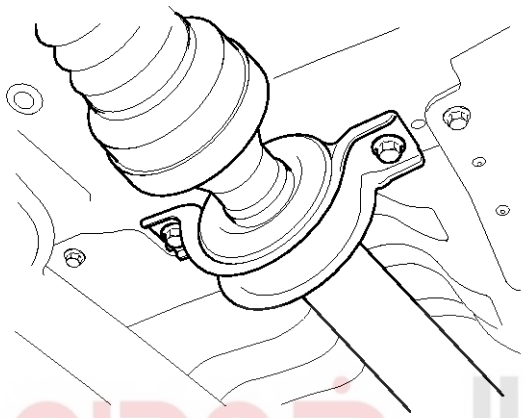
1. Flange yoke
2. Universal joint assembly
3. Front tube
4. Snap ring(VL)
5. LJ boot
6. Spring washer
7. VL joint
8. Sealing
9. Nut
10. Spring washer
11. Companion flange
12. Center bearing
13. Rear tube
14. Plain washer
15. Center device
16. Rubber coupling
17. Bolt

LIIE200A

INSPECTION

VL JOINT AND BOOTS

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



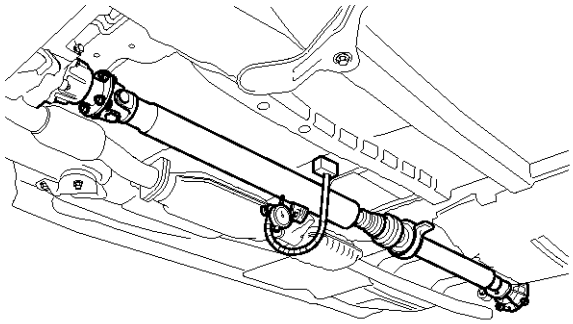
AIIE200E

4. Check the VL joint boots for damage and deterioration. If the boots are damaged or deteriored. replace the propeller shaft assembly.
5. Check the VL joints for excessive play or rattle.
   If the universal joints have excessive play or rattle, replace the propeller shaft assembly.

PROPELLER SHAFT RUNOUT

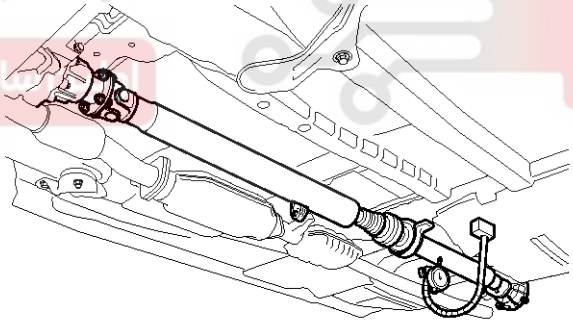
1. Install a dial indicator with its needle on the center of front propeller shaft or rear propeller shaft.
2. Turn the other propeller shaft slowly and check the runout. Repear this procedure for the other propeller shaft.

Front Propeller Shaft Runout : 0.3mm (0.012in)



AIIE200F

Rear Propeller Shaft Runout : 0.3mm (0.012in)

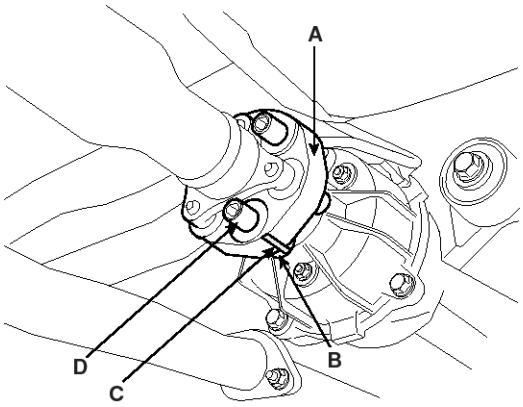


AIIE200G

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

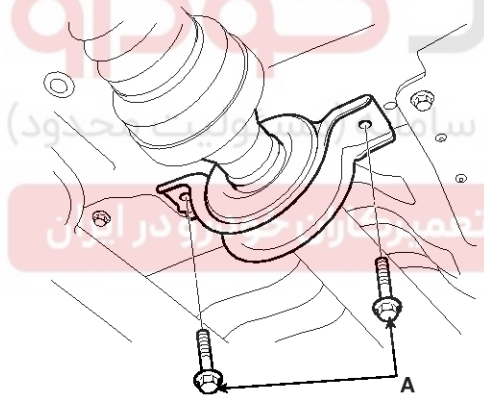
REMOVAL

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



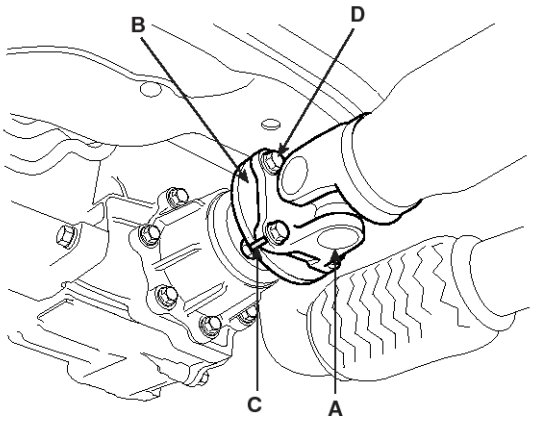
AIIE200B

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



AIIE200C

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



AIIE200D

NOTICE

If a grease leak is shown around the nuiversal joint, be sure to put grease in the universal joint through the nipple enough until grease come out of the universal joint.

INSTALLATION

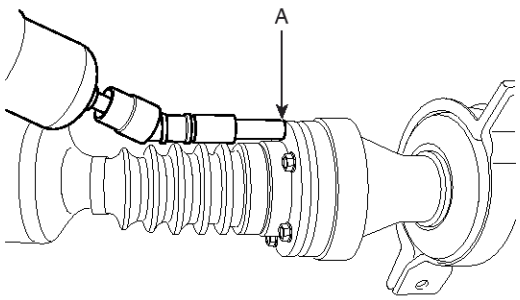
1. Installation is the reverse of the removal procedures.
2. Install according to match mark of transaxle companion (or rear differential companion) and propeller shaft.

Items	Nm	Kgf·m	lbf·ft
Front propeller shaft mounting bolt	50 ~ 60	5 ~ 6	36.9 ~ 44.3
Center bearing bracket mounting bolt	40 ~ 50	4 ~ 5	29.5 ~ 36.9
Rear propeller shaft mounting bolt	100 ~ 120	10 ~ 12	73.8 ~ 88.5

Disassembly

Center bearing disassembly

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

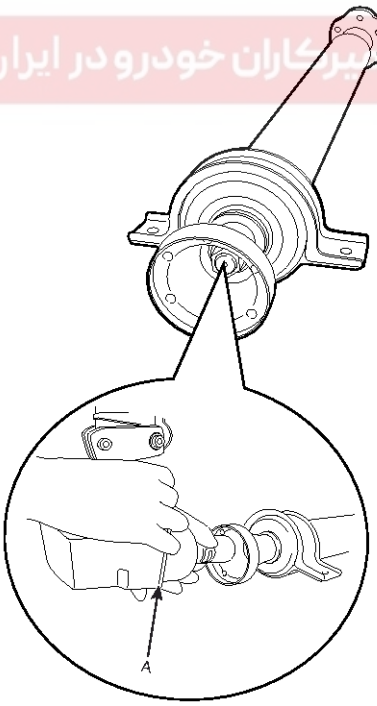


SJMDS9002D

CAUTION

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

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



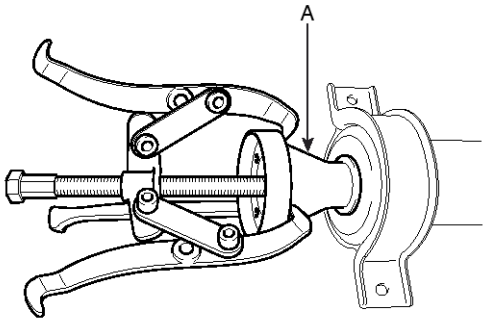
SJMDS9003D

CAUTION

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

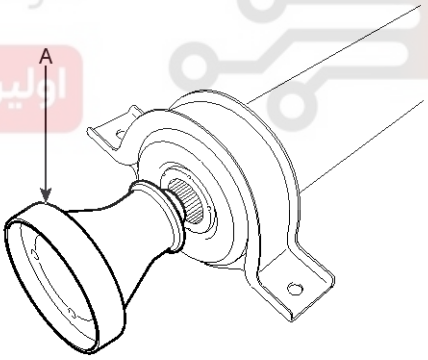
3. Disassemble the key pliers as shown in the illustration.

   Disassemble the flange(A) by using a tool.



SJMDS9005D

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

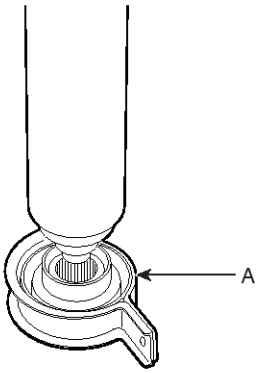


SJMDS9006D

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.



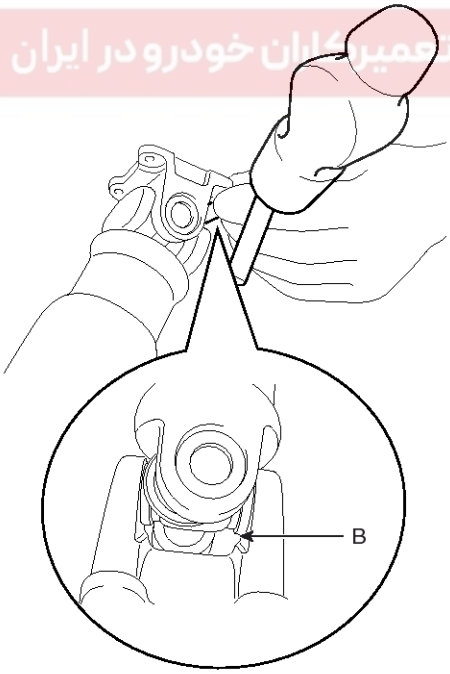
SJMDS9007D

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

6. Installation is the reverse order of removal.

Universal joint disassembly

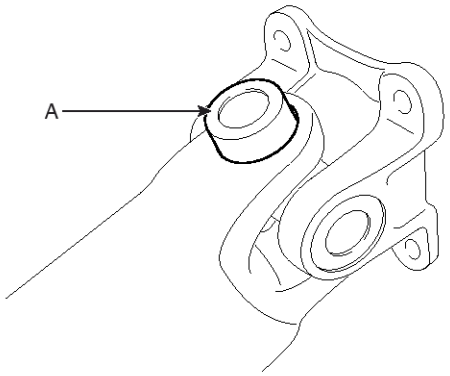
1. After marking alignment point on flange yoke and tube yoke, disassemble snap ring(B) on tube yoke.



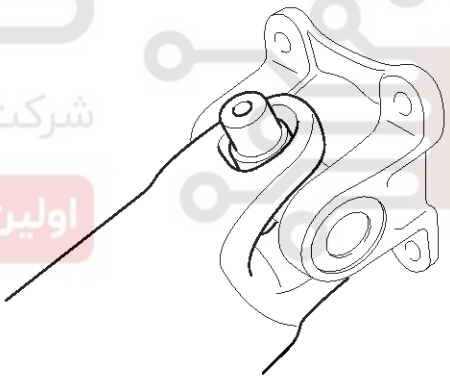
SJMDS9008D

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.



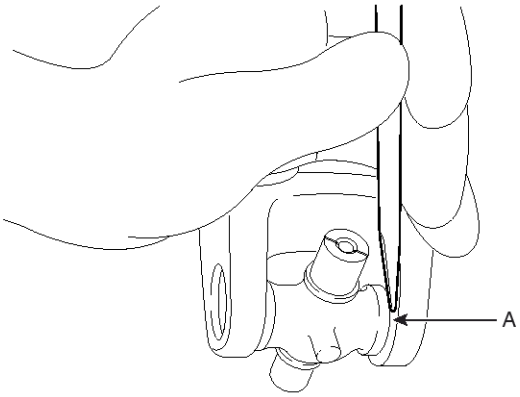
SJMDS9010D



SJMDS9012D

CAUTION
Do not hit too strongly with hammer.

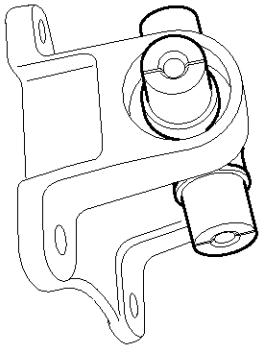
3. Disassemble snap ring(A) on the yoke.



SJMDS9013D

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

SJMDS9014D



SJMDS9015D

CAUTION

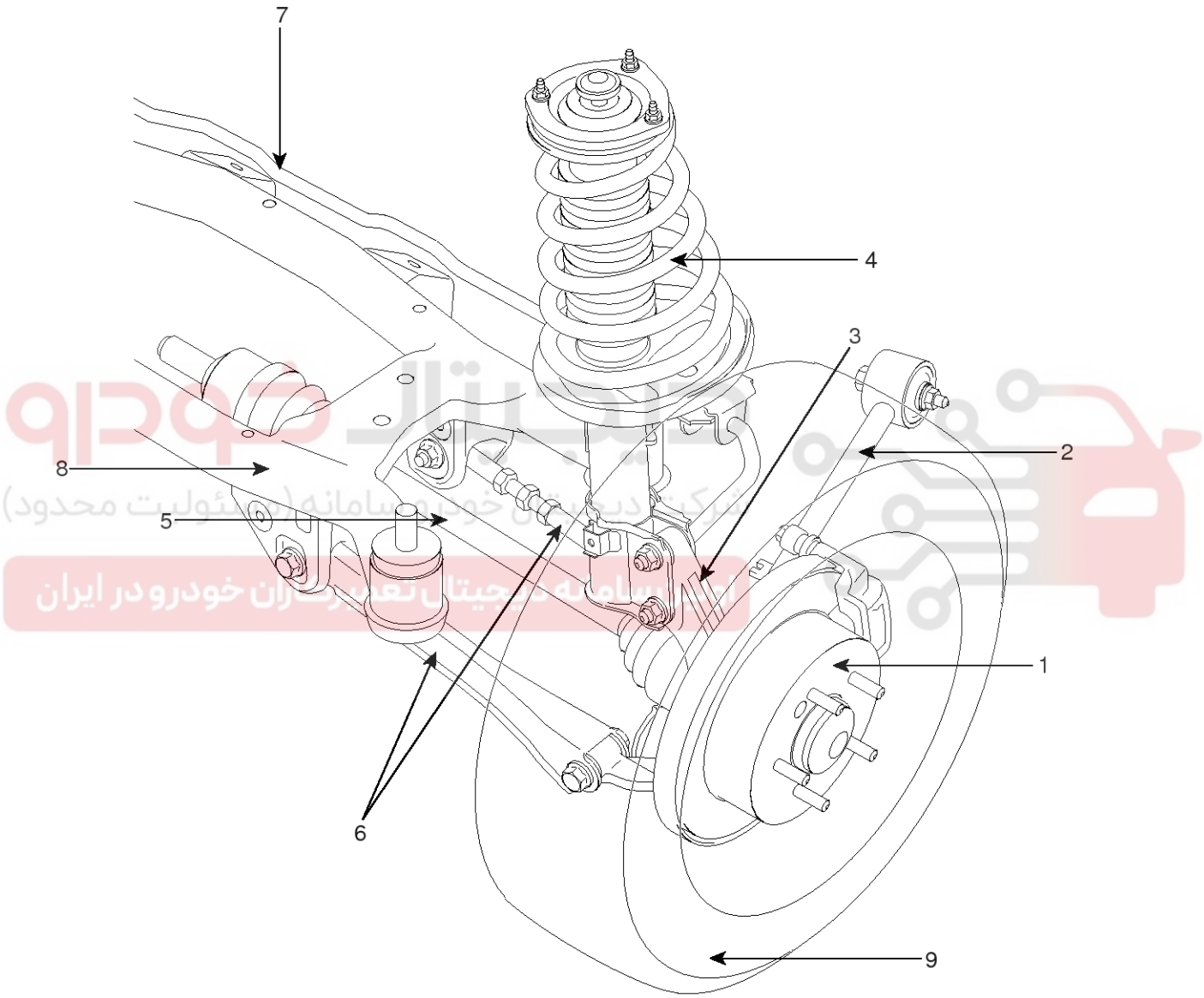
- **Do not hit too strongly with hammer.**

5. Installation is the reverse order of removal.

Rear Driveshaft Assembly

Rear Driveshaft

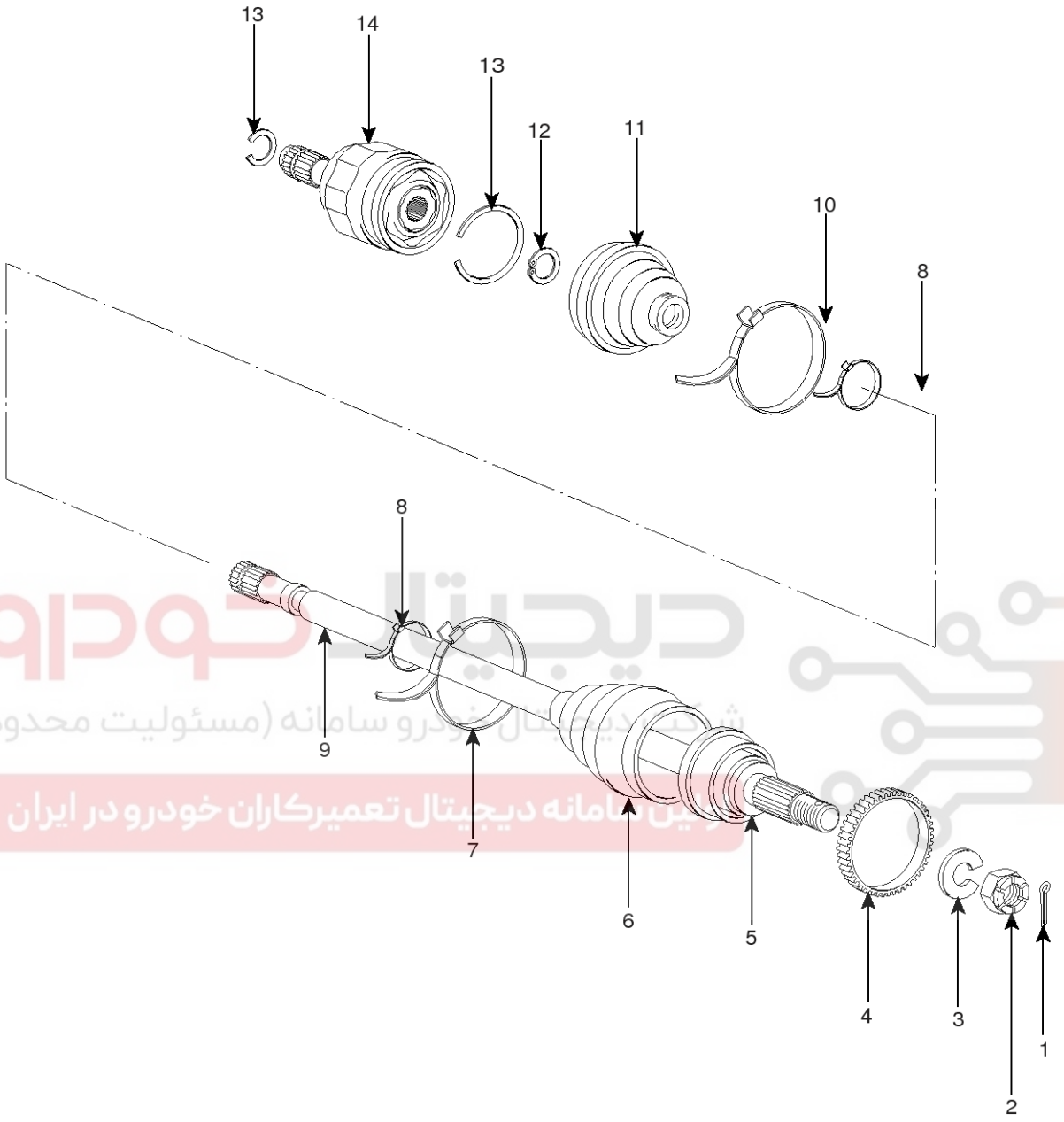
COMPONENT LOCATION



1. Disc brake assembly
2. Trailing arm
3. Axle carrier
4. Strut assembly
5. Driveshaft
6. Suspension
7. Stabilizer bar
8. Cross member
9. Tire

LIIE300A

COMPONENTS



TORQUE : Nm (Kgf·m, lbf·ft)

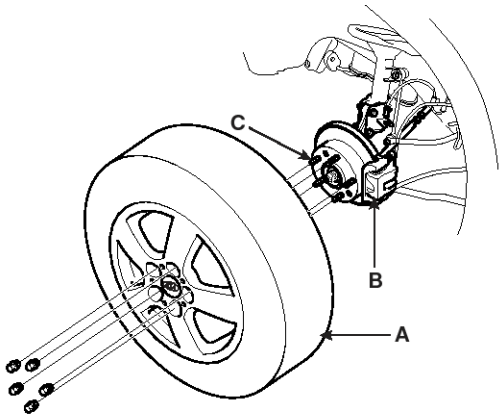
1. Split pin
2. Castle nut
3. Washer
4. Dust cover & Tone wheel
5. BJ assembly
6. BJ boot
7. BJ boot big part band
8. Boot small part band
9. Shaft
10. TS boot big part band
11. TS boot
12. Snap ring
13. Circlip
14. TS assembly

LIIE300B

REMOVAL

1. Loosen the wheel nuts slightly.

   Raise the rear of the vehicle, and make sure it is securely supported.
2. Remove the rear wheel and tire(A) from rear hub(B).

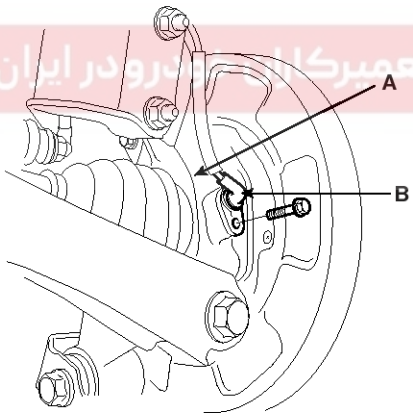


AIIE090T

⚠CAUTION

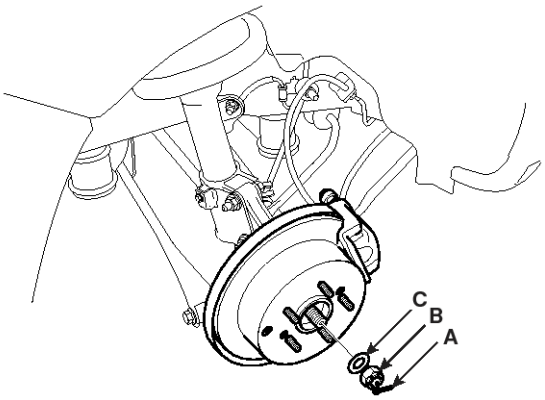
Be careful not to damage the hub bolts(C) then remove the rear wheel and tire(A).

3. Remove the wheel speed sensor(B) from the axle carrier(A).



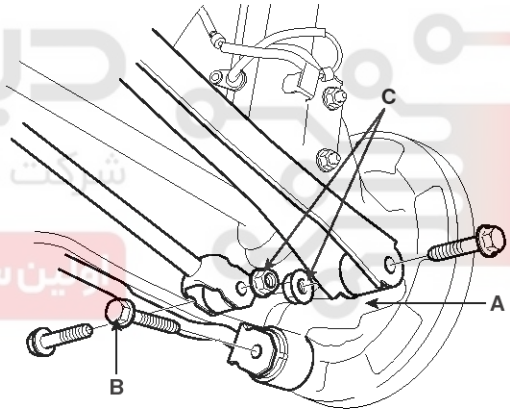
AIIE100B

4. Remove the split pin(A), then remove castle nut(B) and washer(C) from the rear hub under applying the break.



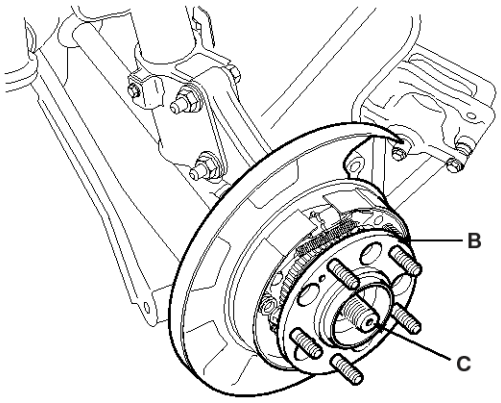
AIIE090U

5. Remove the trailing arm mounting bolt(B) from the knuckle(A).



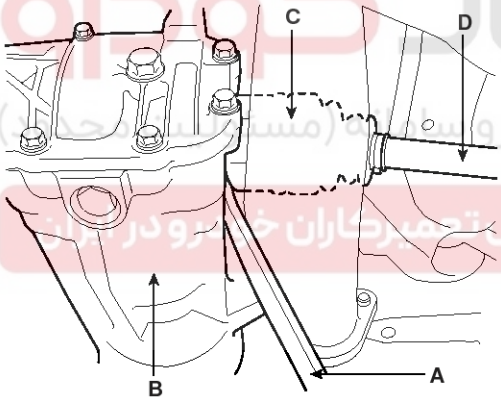
AIIE300C

6. Remove the suspension arm mounting nuts(C).
7. Push the axle hub(B) outward and separate the driveshaft(C) from the axle hub(B).



AIIE300D

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



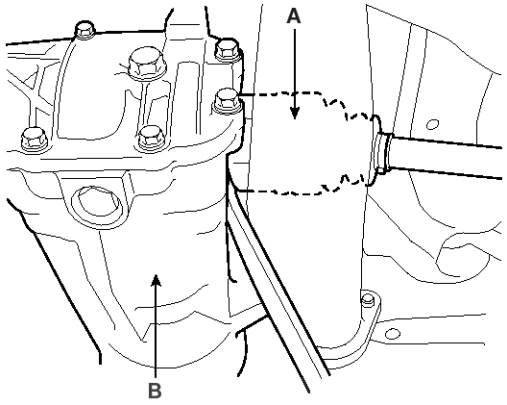
AIIE300E

⚠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.(max. depth : 7mm(0.28in).**
- **Do not pull the driveshaft by excessive force because it may cause components inside the BJ or TJ 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.**

INSTALLATION

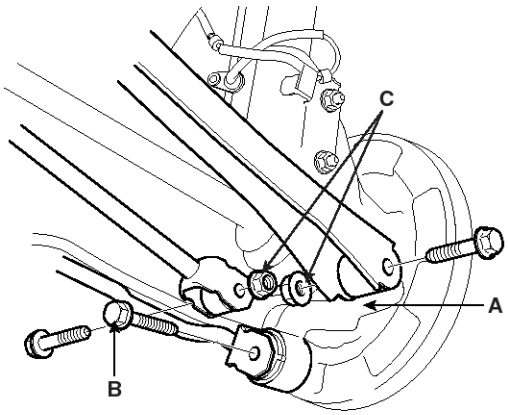
1. Apply gear oil on the driveshaft differential case(B) contacting surface(B) and driveshaft(A) splines.



AIIE300F

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 BJ into the knuckle.
5. Install the suspension arm mounting nuts(C) and trailing arm mounting bolt(B) from the knuckle(B).

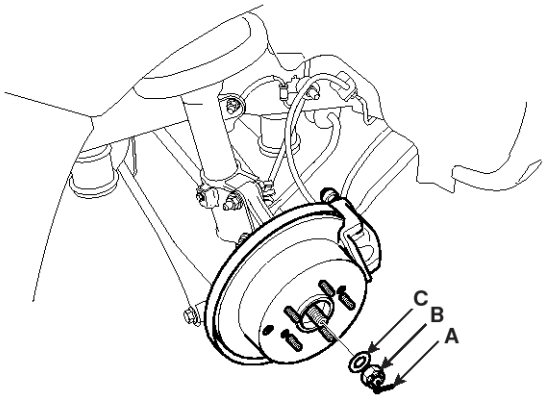
Tightening torque :
Suspension arm mounting nuts(C)
140 ~ 160 Nm (14 ~ 16 Kgf·m, 103.8 ~ 118 lbf·ft)
Trailing arm mounting bolt(B)
100 ~ 120 Nm (10 ~ 12 Kgf·m, 73.8 ~ 88.5 lbf·ft)



AIIE300C

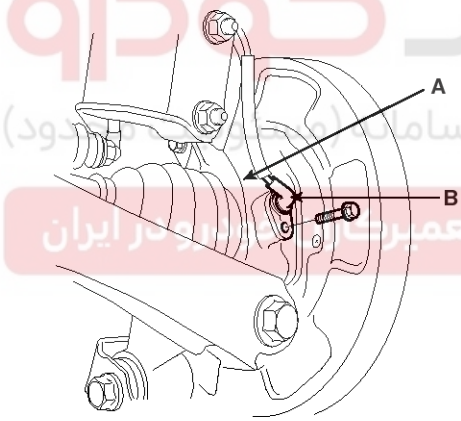
6. Install the washer(C), castle nut(B) and split pin(A) from the rear hub.

Tightening torque :
200 ~ 280 Nm (20 ~ 28 Kgf·m, 147.5 ~ 206.6 lbf·ft)



AIIE090U

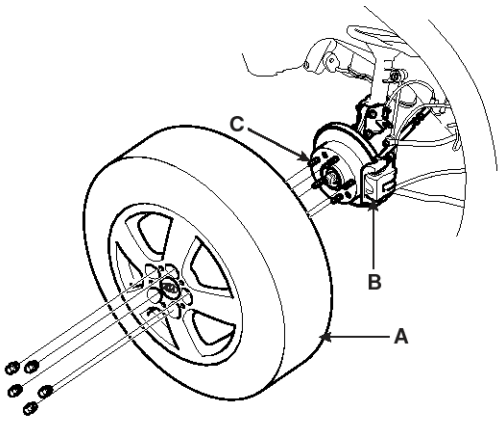
7. Install the wheel speed sensor(B) from the knuckle(A).



AIIE100B

8. Install the rear wheel and tire(A) on the rear hub(B).

Tightening torque :
90 ~ 110 Nm (9 ~ 11 Kgf·m, 66.4 ~ 81.2 lbf·ft)

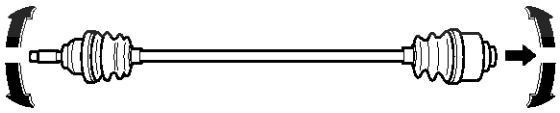


AIIE090T

⚠CAUTION
Be careful not to damage the hub bolts(C) then install the rear wheel and tire(A).

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.



AIIE001E

5. Check the driveshaft for cracks and wears.

DISASSEMBLY

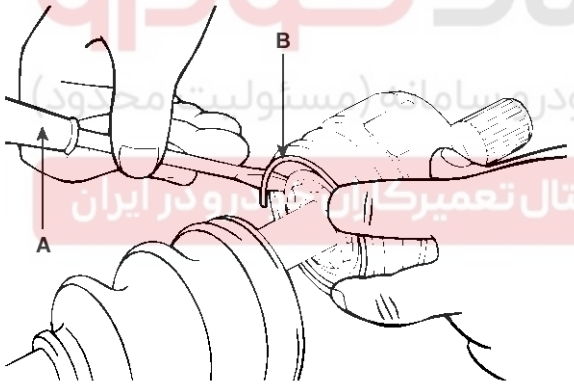
DRIVESHAFT (RH)

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.**

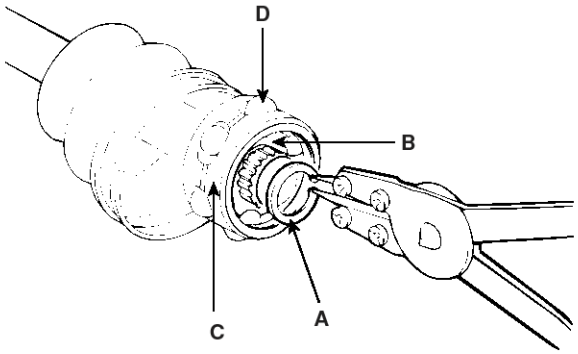
1. Remove the TJ boot bands and pull the TJ boot from the TJ outer race.
   a. Using a plier or flat-tipped (-) screwdriver, remove the LH boot band and LH TJ boot band from the driveshaft
   b. Remove RH boot band and RH TJ boot band in the same way of LH removal procedure.

   CAUTION
   Be careful not to damage the boot.
2. Remove the circlip(B) with a flat-tipped (-)screwdriver(A).



AIIE060D

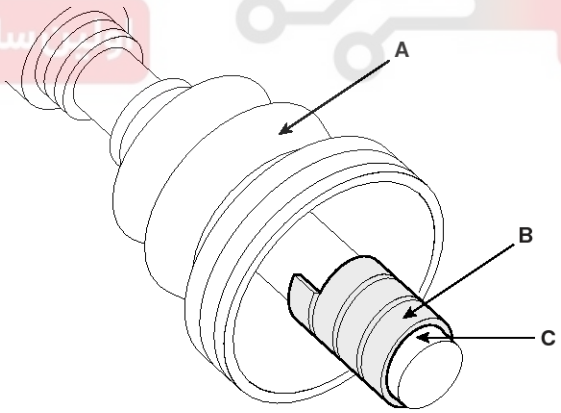
3. Pull out the driveshaft from the TJ outer race.
4. Remove the snap ring(A) and take out the inner race(B), cage(C) and balls(D) as an assembly.



AIIE060E

5. Clean the inner race, cage and balls without disassembling.
6. Remove the BJ. boot bands and pull out the TJ boot and BJ boot.

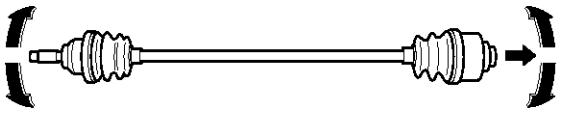
   CAUTION
   If the boot(A) is to be reused, wrap tape(B) around the driveshaft splines(C) to protect the boot(A).



AIIE060F

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.



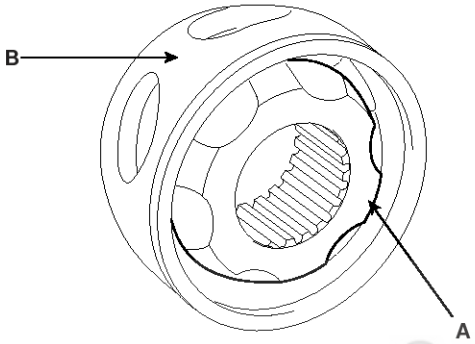
AIIE001E

5. Check the driveshaft for cracks and wears.

REASSEMBLY

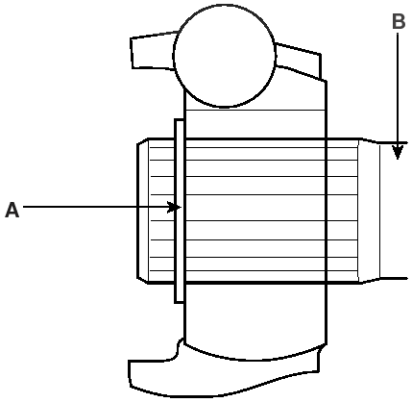
1. Wrap tape around the driveshaft splines (TJ side) to prevent damage to the boots.
2. Apply grease to the driveshaft and install the boots.
3. Apply the specified grease to the inner race(A) and cage(B). Install the cage(B) so that it is offset on the race as shown.

⚠CAUTION
Use the grease included in the repair kit.



AIIE060I

4. Apply the specified grease to the cage and fit the balls into the cage.
5. Position the chamfered side(A) as shown in the illustration. Install the inner race on the driveshaft(B), and then the snap ring.



AIIE060J

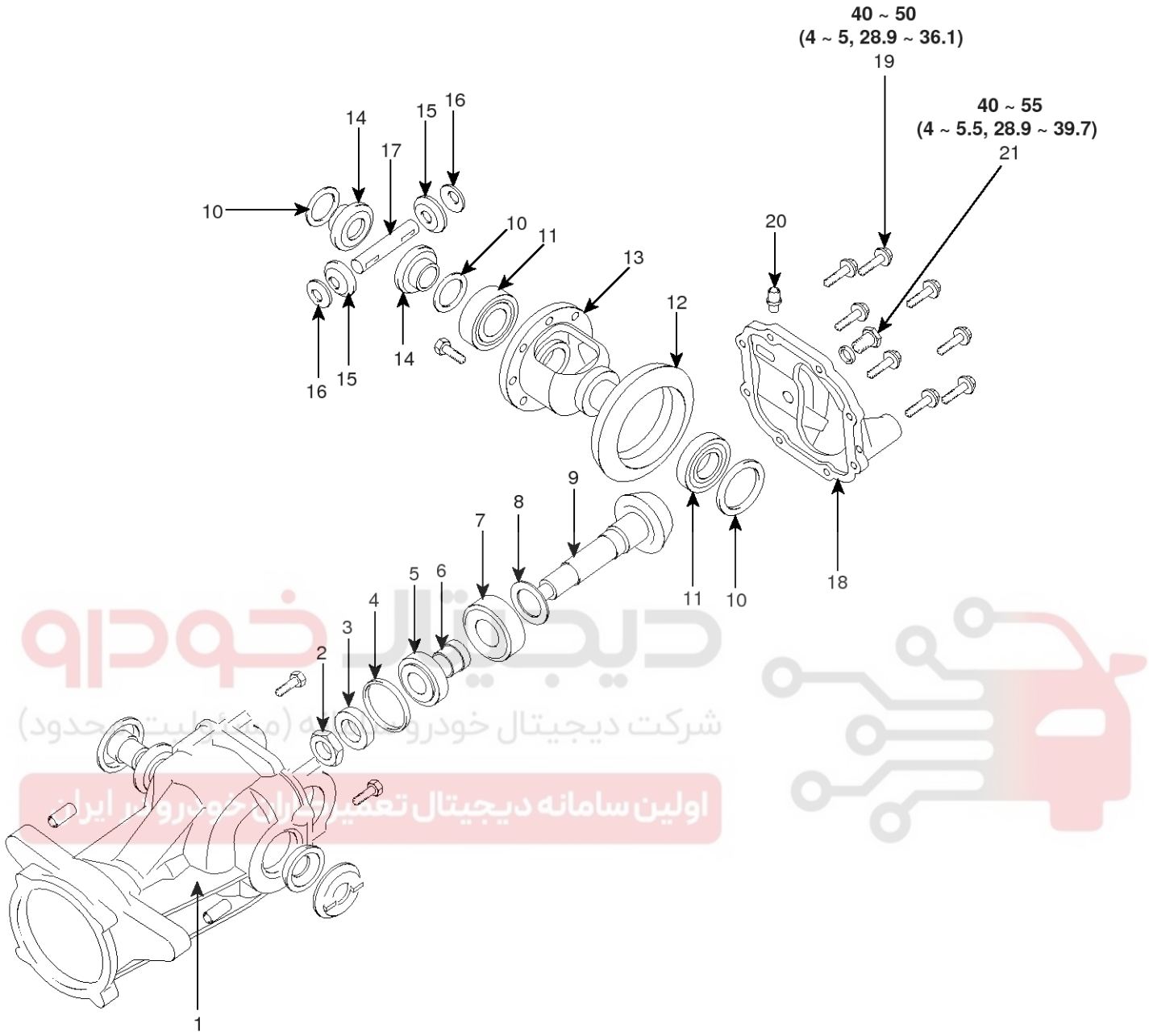
6. Apply the specified grease to the outer race and install the BJ outer race onto the driveshaft. (See page DS - 4)
7. Apply the specified grease into the TJ boot and install the boot with a clip. (See page DS - 4)
8. Tighten the TJ boot bands.
9. Add the specified grease to the BJ as much as wiped away at inspection.
10. Install the boots.
11. Tighten the BJ boot bands.
12. To control the air in the TJ boot, keep the specified distance between the boot bands when they are tightened.

Differential Carrier Assembly DS-63

Differential Carrier Assembly

Rear Differential Carrier

COMPONENTS



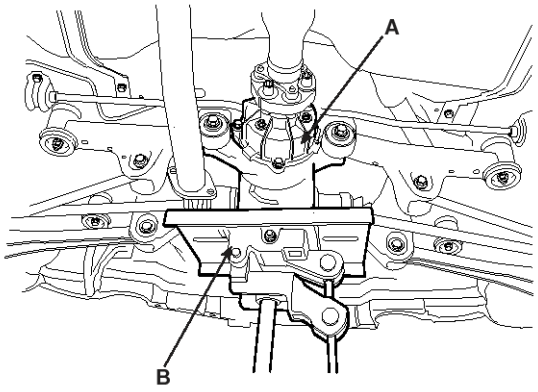
TORQUE : Nm (Kgf·m, lbf·ft)

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. Driver gear
10. Oil seal
11. Differential side bearing
12. Ring gear
13. Differential
14. Cam side gear
15. Pinion gear
16. Thrust washer
17. Differential pinion shaft
18. Differential cover
19. Differential cover mountin bolts
20. Breather
21. Filler plug

LIIE400A

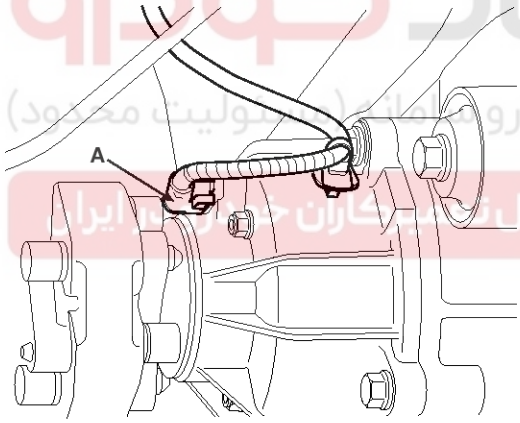
REMOVAL

1. Drain the differential gear oil.
2. Remove the rear drive shaft. (See page DS - 46)
3. Remove the propeller shaft. (See page DS - 43)
4. Support the differential assembly(B) with the jack(A).



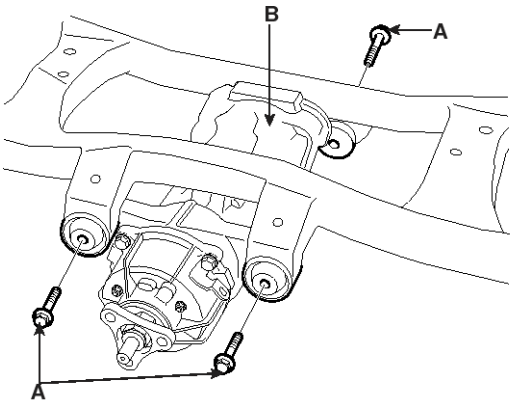
AIIE400B

5. Disconnect the coupling control connector(A).



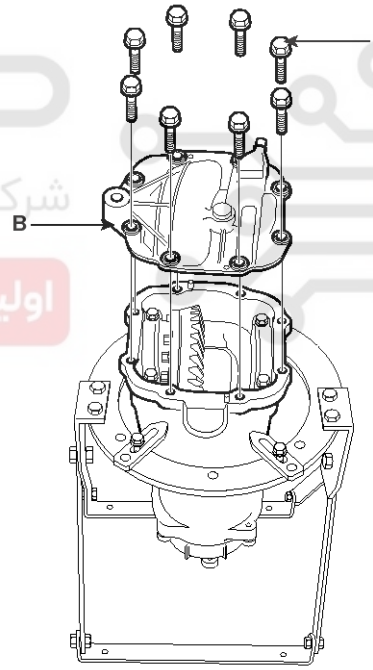
AIIE400C

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



AIIE400D

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

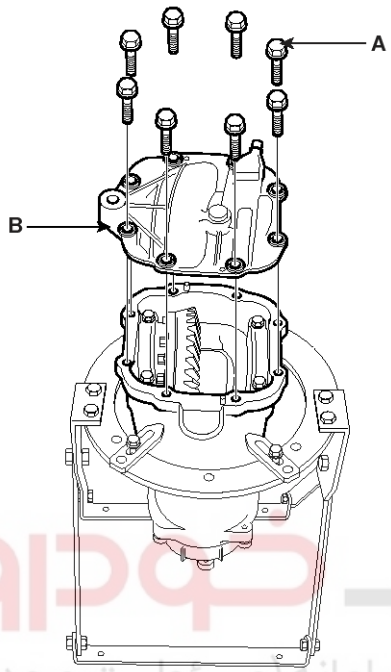


AIIE400E

INSTALLATION

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

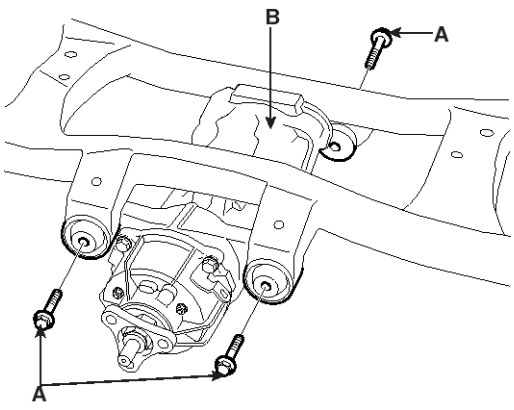
Tightening torque :
40 ~ 50 Nm (4 ~ 5 Kgf·m, 29.5 ~ 36.9 lbf·ft)



AIIE400E

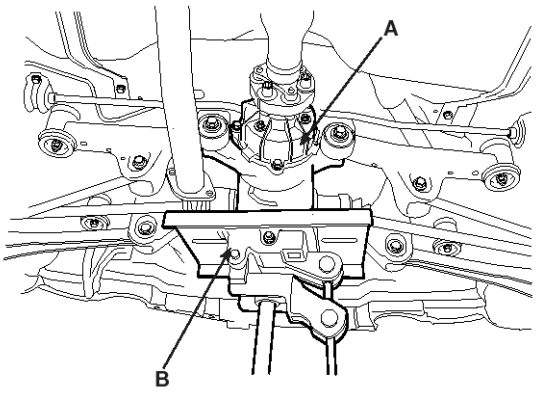
2. After install the differential(B), and install the mounting bolts(A).

Tightening torque :
90 ~ 120 Nm (9 ~ 12 Kgf·m, 66.4 ~ 88.5 lbf·ft)



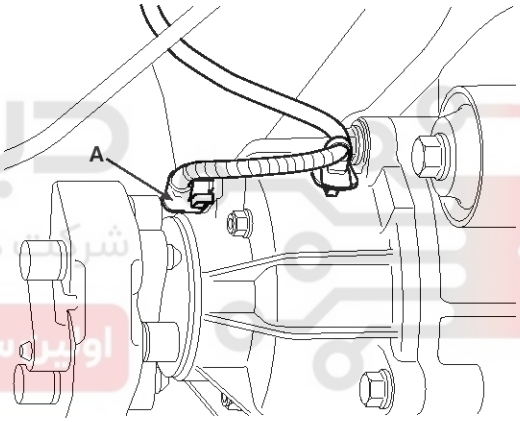
AIIE400D

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



AIIE400B

4. Connect the coupling control connector(A).



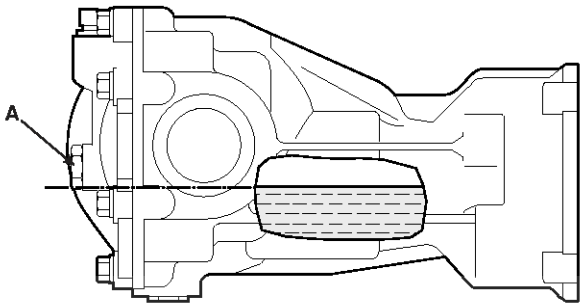
AIIE400C

5. Install the propeller shaft. (See page DS - 43)
6. Install the rear drive shaft. (See page DS - 49)

7. Fill the gear oil.

Specified lubricant :
Hypoid gear oil (GL-5, 80W / SAE 90),
Oil quantity : Fill the reservoir to the plug hole (approx. 0.75 ~ 0.80L)

CAUTION
Be sure to fill the gear oil below the lower end of the filler plug(A).

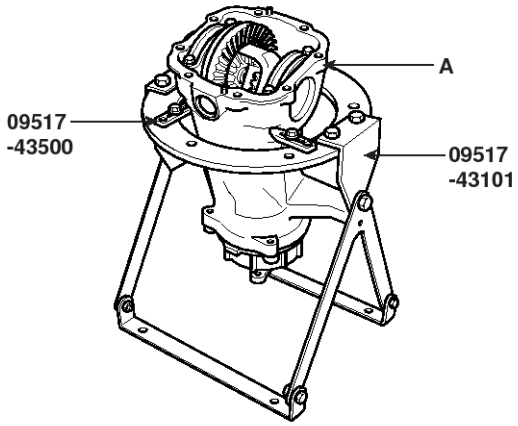


AIIE400L

INSPECTION

Install the differential carrier assembly(A) with the special tools(09517-43101 & 09517-43500).

Then carry out the following inspection.

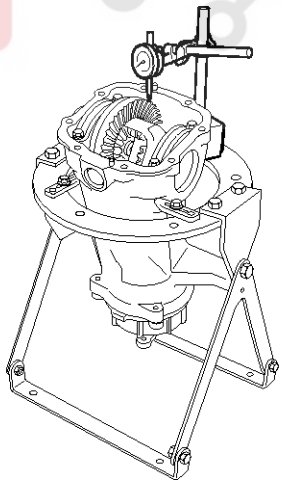


AIIE400F

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

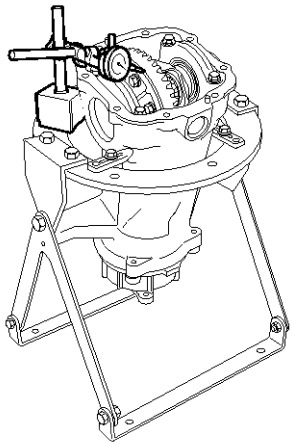
Standard value : 0.10 ~ 0.15mm (0.0039 ~ 0.0059in)



AIIE400G

2. Check the drive gear back-face lash by the following procedure.
   a. Place a dial gauge on the back-face of the drive gear and measure the runout.

Limit mm(in) : 0.05 (0.002)



AIIE400H

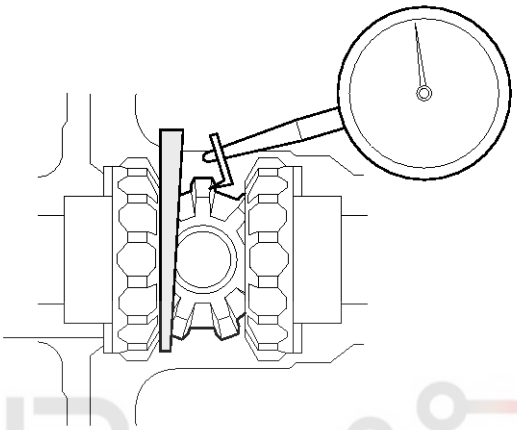
   b. If the runout is beyond the limit, check that there are no foreign substances between the drive gear and differential case and, that the bolts fixing the drive gear are not loose.

3. Check the differential carrier backlash by the following procedure.
   a. 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 ~ 0.076mm (0 ~ 0.003in)

NOTICE

Take the measurements at two places on the pinion gear.



AIIE400I

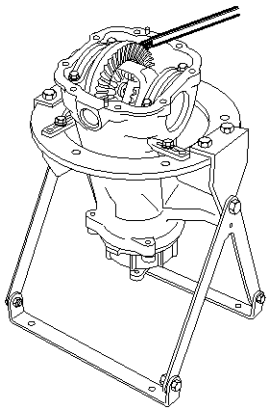
   b. If the backlash exceeds the limit, adjust using side bearing spacers.

NOTICE

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

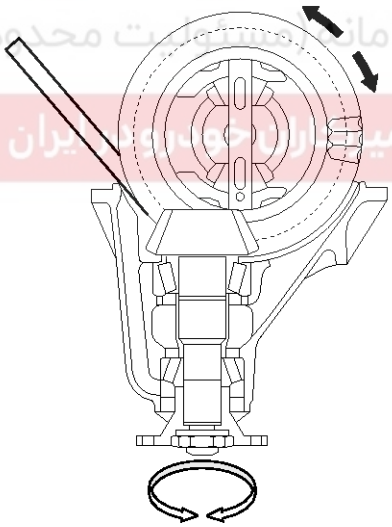
4. Check the tooth contact of the final drive gear by the following procedure.

a. Apply the same amount of machine blue slightly to both surfaces of the drive gear teeth.



AIIE400J

b. 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.

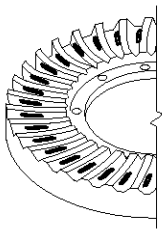
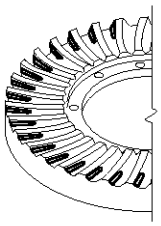


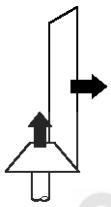
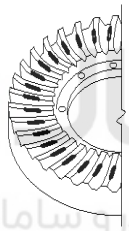
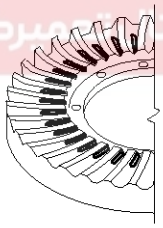
AIIE400K

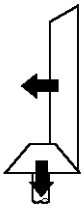
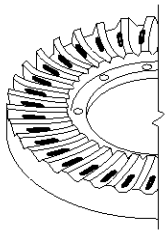
⚠CAUTION

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

c. Check the tooth contact pattern.

<table>
<tr><th>Tooth contact</th><th>Contact state</th><th colspan="2">Solution</th></tr>
<tr><td>Standard contact</td><td>  </td><td></td><td></td></tr>
<tr><td>Heal contact</td><td>  </td><td rowspan="2">Increase the thickness of the pinion height adjusting shim, and position the drive pinion closer to the center of the drive gear.

Also, for backlash adjustment, reposition the drive gear further from the drive pinion.</td><td rowspan="2">  </td></tr>
<tr><td>Face contact</td><td>  </td></tr>
<tr><td>Toe contact</td><td>  </td><td rowspan="2">Decrease the thickness of the pinion height adjusting shim, and position the drive pinion further from the center of the drive gear.

Also, for backlash adjustment, reposition the drive gear closer to the drive pinion.</td><td rowspan="2">  </td></tr>
<tr><td>Flank contact</td><td>  </td></tr>
</table>

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.