Driveshaft and Axle

GENERAL

SPECIFICATIONS EINC0100

Driveshaft		
Joint type	1.6L M/T, A/T	1.8L M/T, A/T
Outer	B.J.	B.J.
Inner	T.J.	T.J.
Maximum permissible angle		
B.J.	45° or more	45.8° or more
T.J.	22.5° or more	23° or more
Hub end play mm (in.)	0.008 (0.0003) or less	
Wheel bearing starting torque Nm (kg·cm, lb·in)	1.8 (18, 16) or less	

B. J. : Birfield joint
T. J. : Tripod joint
M/T : Manual transaxle
A/T : Automatic transaxle

TIGHTENING TORQUE EINC0200

	Nm	Kgf·cm	lb·ft
Driveshaft nut	200-260	2200-2600	159-192
Knuckle to strut assembly nut	110-130	1100-1300	81-96
Lower arm ball joint to knuckle nut	60-72	600-720	44-53
Tie rod end to knuckle	16-34	160-340	12-25
Brake caliper to knuckle	69-85	690-850	51-63
Wheel nut	90-110	900-1100	66-81
Rear hub bearing flange nut	200-260	2000-2600	159-192
Rear brake to rear axle carrier mounting bolt	65-75	650-750	48-56
Rear strut to carrier nut	110-130	1100-1300	81-96
Trailing arm to rear axle carrier mounting nut	100-120	1000-1200	74-88
Rear suspension arm to rear axle carrier mounting nut	130-150	1300-1500	96-110

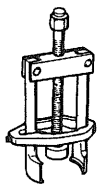
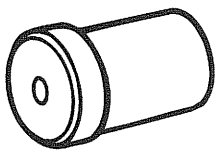
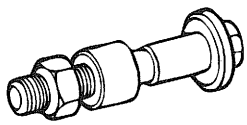
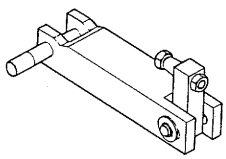
⚠ ***CAUTION***

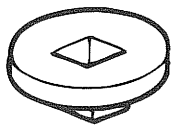
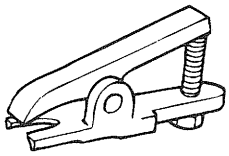
Replace self-locking nuts with new ones after removal.

LUBRICANTS EINC0300

Items	Recommended	Quantity
B.J.87+T.J.87 Type driveshaft (For 1.6L M/T, A/T)		
B.J. boot grease	CENTOPLEX 278M/136K	95 ± 6gr.
T.J. boot grease	KLK T.J. 41-182	105 ± 6gr.
B.J.92+T.J.92 Type driveshaft (For 1.8L M/T, A/T)		
B.J. boot grease	CENTOPLEX 278M/136K	110 ± 6gr.
T.J. boot grease	KLK T.J. 41-182	120 ± 6gr.

SPECIAL TOOLS EIDA1400

Tool (Number and Name)	Illustration	Use
09495-33000 Puller	 EIDA140A	Removal of wheel bearing inner race from the hub.
09495-33100 Center bearing remover and installer	 EIDA140B	1. Removal of wheel bearing from the knuckle. (use with 09517-29000) 2. Installation of hub to the knuckle.
09517-21500 Front hub remover and installer	 EIDA140C	1. Removal of front hub from the knuckle. (use with 09517-29000) 2. Measurement of front wheel bearing pre-load. (use with 09532-11600)
09517-29000 Knuckle arm bridge	 EIDA140D	1. Removal of front hub from the knuckle. (use with 09517-21500) 2. Removal of wheel bearing outer race from the knuckle. (use with 09495-33100)

Tool (Number and Name)	Illustration	Use
09532-11600 Preload socket	 EIDA140E	Measurement of front wheel bearing pre-load. (use with 09517-21500)
09532-31200A Oil seal installer	 EIDA140F	Installation of wheel bearing to the knuckle.
09568-34000 Ball joint puller	 EIDA140G	Seperation of front lower arm and tie rod end ball joint.

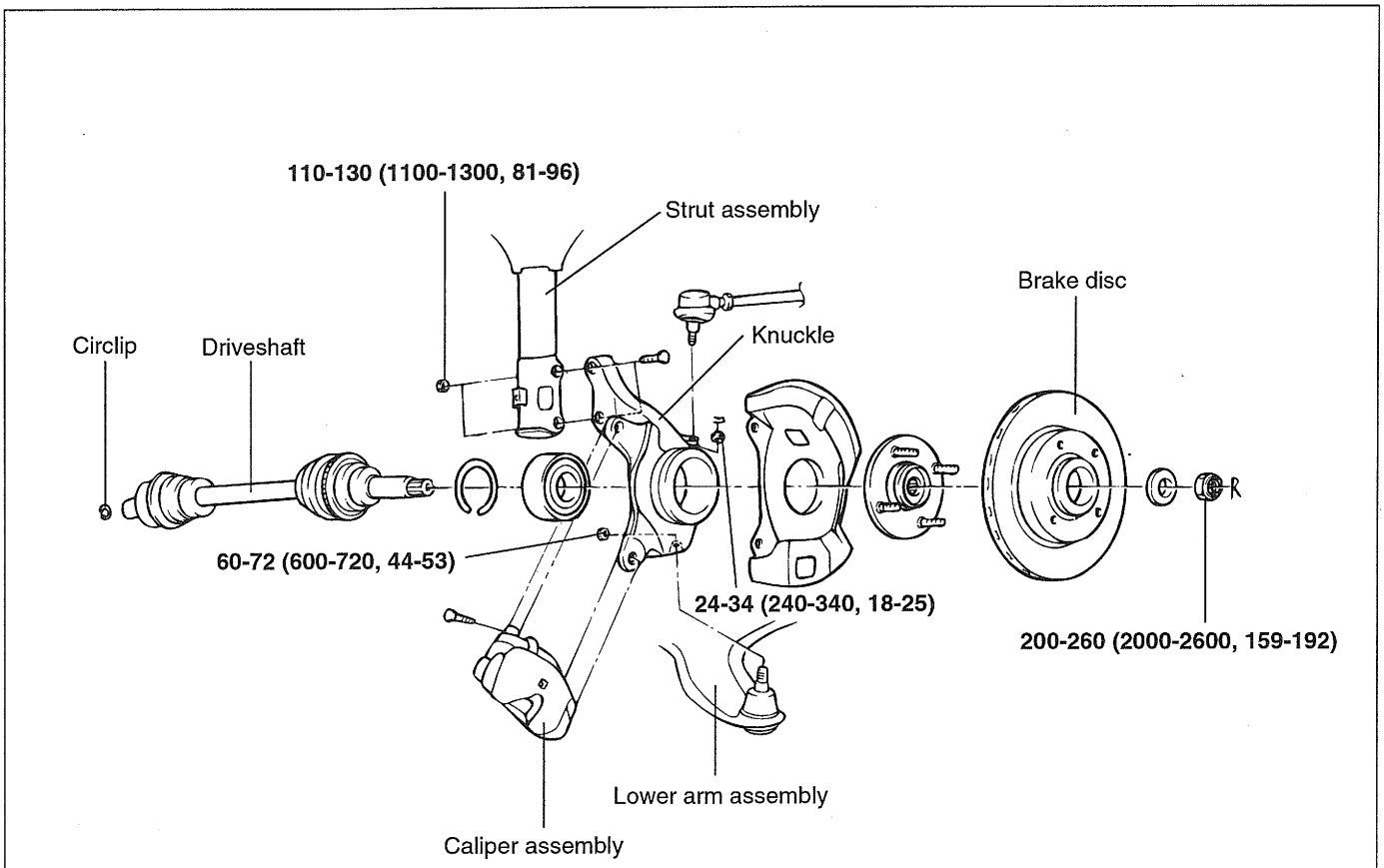
TROUBLESHOOTING EIDA1500

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

DRIVESHAFT

FRONT DRIVESHAFT ASSEMBLY

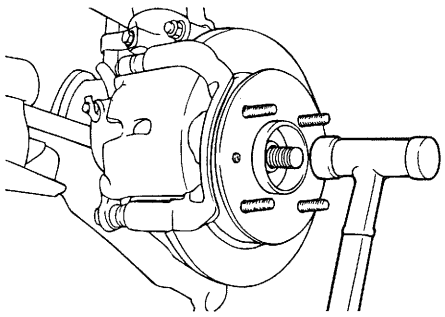
COMPONENTS EINC0600



EINC060A

REMOVAL EIKB0054

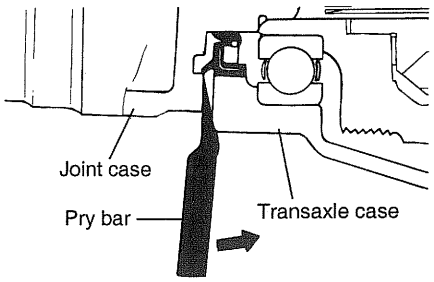
1. Raise the vehicle and remove the front wheel.
2. Remove the split pin and driveshaft nut from the front hub.
3. Drain the transaxle fluid.
4. Using a plastic hammer, disconnect the driveshaft from the axle hub.



EIDA210A

5. Push the axle hub toward the outside of the vehicle, and separate the driveshaft from the axle hub.

6. Insert a pry bar between the transaxle case and joint case, and separate the driveshaft from the transaxle case.



EXDA210B

⚠ *CAUTION*

1. ***Use a pry bar being careful not to damage the transaxle and joint.***
2. ***Do not insert the pry bar too deep, as this may cause damage to the oil seal. [max. depth : 7 mm (0.28 in.)]***
3. ***Do not pull the driveshaft by excessive force it may cause components inside the B.J. or T.J. joint kit to dislodge resulting in a torn boot or a damaged bearing.***

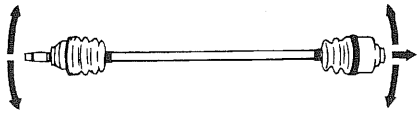
7. Pull out the driveshaft from the transaxle case.

⚠ *CAUTION*

- ***Plug the hole of the transaxle case with the oil seal cap to prevent contamination.***
- ***Support the driveshaft properly.***
- ***Replace the retainer ring whenever the driveshaft is removed from the transaxle case.***

INSPECTION EIKB0057

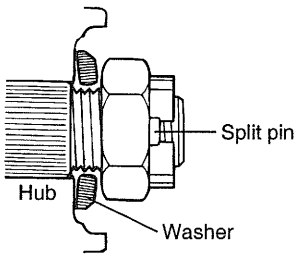
1. Check the driveshaft boots for damage and deterioration.
2. Check the ball joints for wear and damage.
3. Check the splines for wear and damage.
4. Check the dynamic damper for cracks and wear.



EIDA211A

INSTALLATION EIKB0060

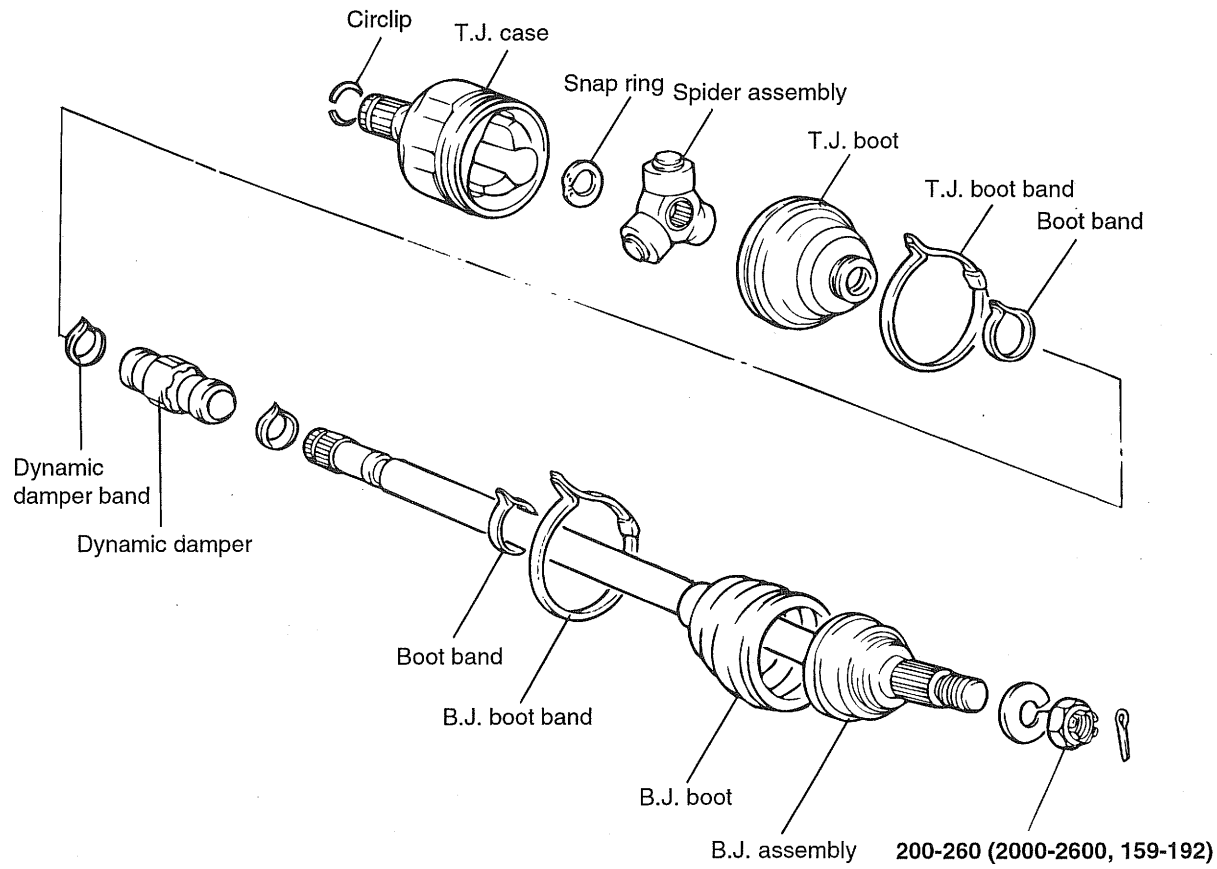
1. Apply gear oil on the driveshaft splines and differential case contacting surface.
2. Before installing the driveshaft, set the opening side of the circlip facing downward.
3. After installation, check that the driveshaft cannot be removed by hand.
4. Position the convex side of the washer to face outside and install the nut and split pin.
5. Replace the self-locking nuts and split pin with new ones after removal.



EIDA212A

FRONT DRIVESHAFT (T.J-BJ TYPE)

COMPONENTS EINC1000



TORQUE : Nm (kgf·cm, lb·ft)

EINC100A

DISASSEMBLY EIKB0094

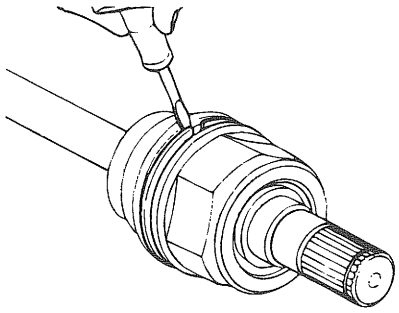
NOTE

- *Do not disassemble the B.J. 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 T.J. boot bands and pull the T.J. boot from the T.J. case.

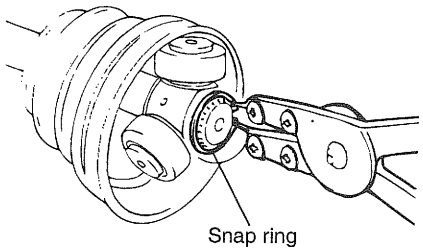
NOTE

Be careful not to damage the boot.



EIDA301A

2. Remove the snap ring and spider assembly from the driveshaft.



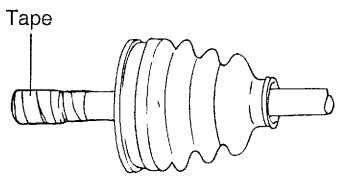
EIDA301B

3. Clean the spider assembly.

4. Remove the B.J. boot bands and pull out the T.J. boot and B.J. boot.

NOTE

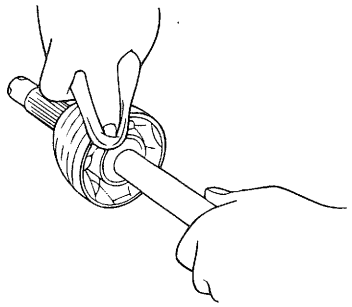
If the boot is to be reused, wrap tape around the driveshaft splines to protect the boot.



EIDA251D

INSPECTION EIKB0097

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



EIDA252A

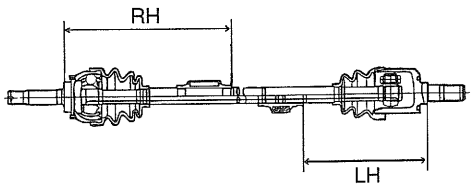
REASSEMBLY EINC1300

1. Wrap tape around the driveshaft splines (T.J. side) to prevent damage to the boots.
2. Apply grease to the driveshaft and install the boots.

Recommended lubricant
B.J. Boot grease : Centoplex 278M/136K T.J. Boot grease : KLKTJ41-182 (MS511-50, KOREA KLUBER)

3. To install the dynamic damper, keep the B.J. and driveshaft in a straight line and secure the dynamic damper with the dynamic damper band in the direction illustrated.

Standard value (LH, RH)		mm (in.)
	1.6L M/T, A/T	1.8L M/T, A/T
LH	246 ± 3 (9.69 ± 0.12)	-
RH	475 ± 3 (18.7 ± 0.12)	439 ± 3 (17.28 ± 0.12)



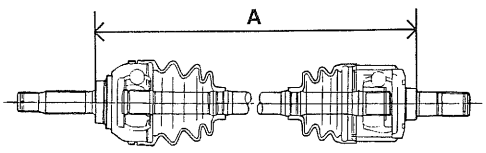
EFCDS05A

4. Apply grease into the T.J. boot and install the boot.

T.J. boot grease gr.		
	1.6L M/T, A/T	1.8L M/T, A/T
Total	105 ± 6	120 ± 6
In the joint	65 ± 3	75 ± 3
In the boot	40 ± 3	45 ± 3

5. Tighten the T.J. boot bands.
6. Add the specified grease to the B.J. as much as was wiped away at inspection.
7. Install the boots.
8. Tighten the B.J. boot bands.
9. To control the air in the T.J. boot, keep the specified distance between the boot bands when they are tightened.

Standard value (A)		mm (in.)
	1.6L M/T, A/T	1.8L M/T, A/T
LH	508.7 ± 2 (20.03 ± 0.08)	502.5 ± 2 (19.78 ± 0.08)
RH	806.2 ± 2 (31.73 ± 0.08)	806 ± 2 (31.73 ± 0.08)

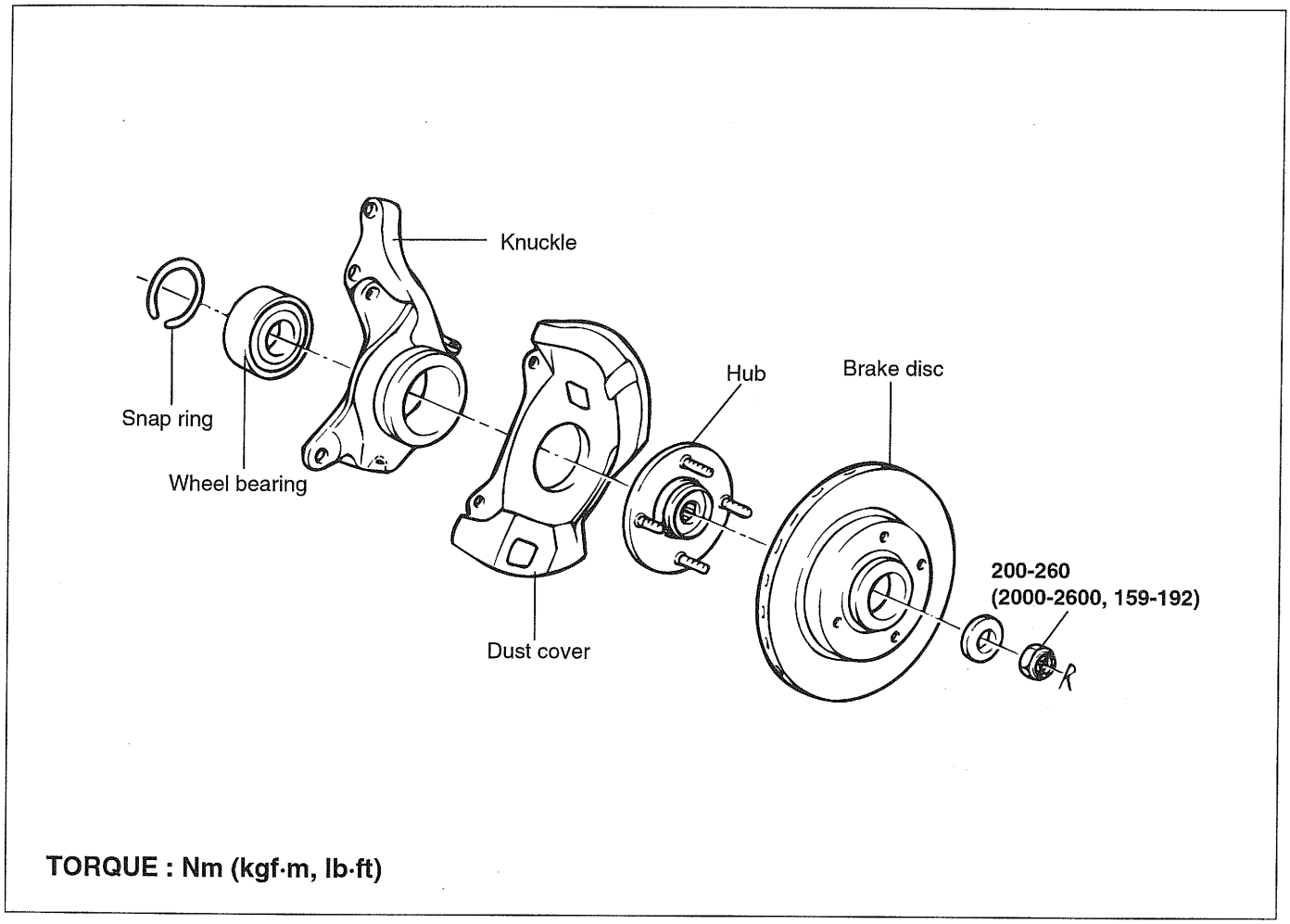


EIDA253D

FRONT AXLE

FRONT HUB/KNUCKLE

COMPONENTS EINC1400



TORQUE : Nm (kgf·m, lb·ft)

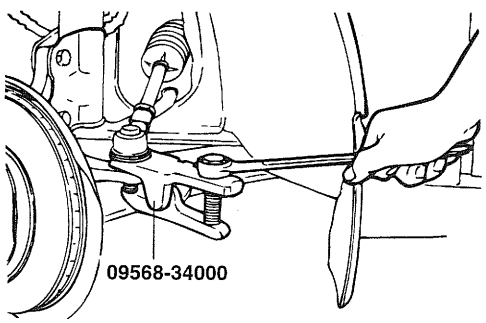
EINC140A

REMOVAL EIKB0120

1. Remove the front wheel.
2. Remove the split pin and driveshaft nut from the front hub.
3. Remove the front brake assembly from the knuckle and suspend it with a wire.
4. Remove the vehicle speed sensor from the knuckle.
5. Disconnect the tie rod end ball joint from the knuckle by using the Special Tool (09568 - 34000).

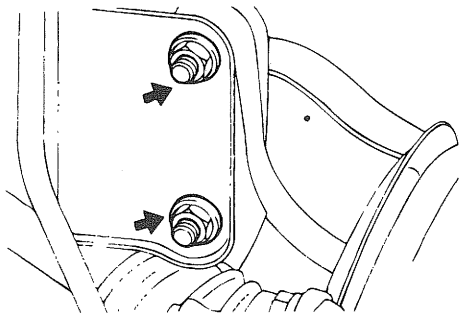
NOTE

Be sure to tie the special tool (09568 - 34000) to the near part with cord not to fall.



EIDA401A

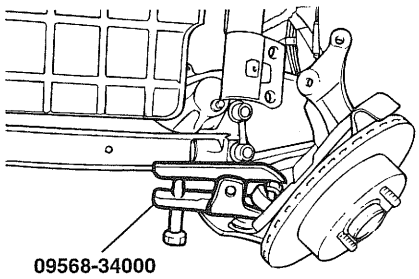
6. Disconnect the strut assembly from the knuckle.



EIDA401B

7. Disconnect the driveshaft from the hub.

8. Disconnect the lower arm ball joint from the knuckle by using the Special Tool (09568 - 34000).



EIDA401C

9. Remove the hub and knuckle as an assembly.

INSTALLATION EINC1600

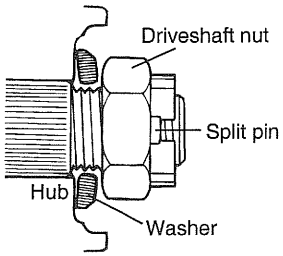
1. Installation is the reverse of removal.

NOTE

- *Tighten the components below to the specified torque as follows :*

Items	Torque Nm (kgf·cm, lb·ft)
Driveshaft nut	200-260 (2000-2600, 159-192)
Lower arm ball joint to knuckle nut	60-72 (600-720, 44-53)
Knuckle to strut assembly nut	110-130 (1100-1300, 81-96)

- *Install the washer behind the driveshaft nut with the convex side outward as shown in the illustration.*

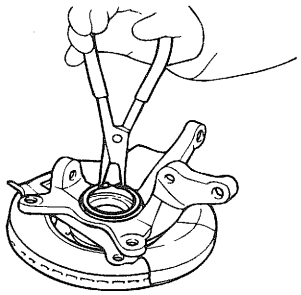


EIA9212A

DISASSEMBLY EIKB0134

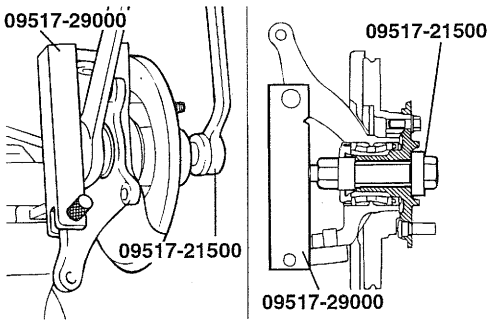
1. After removing the screws(2) mounting the brake disc, remove the brake disc from the hub.

2. Remove the snap ring.



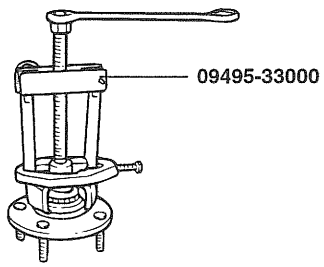
EIDA403A

3. Install the Special Tools as illustrated.



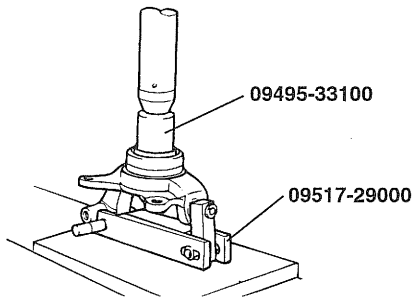
EIDA403B

4. Remove the hub from the knuckle by turning the Special Tool.
5. Remove the Special Tool and dust cover.
6. Remove the bearing inner race from the hub by using the Special Tool.



EIDA403C

7. Using the Special Tool (09495 - 33100, 09517 - 29000), remove the wheel bearing outer race from the knuckle.



EIDA403D

INSPECTION EIKB0137

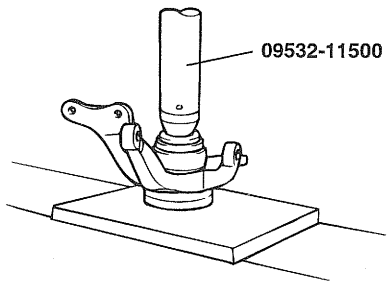
1. Check the hub for cracks and the splines for wear.
2. Check the brake disc for scoring and damage.
3. Check the knuckle for cracks.
4. Check the bearing for cracks or damage.

REASSEMBLY EINC1900

1. Apply multi-purpose grease to the contacting surface of the knuckle hub and bearing thinly.
2. Using the Special Tool (09495 - 33100, 09517 - 29000), press-in the bearing to the knuckle.

NOTE

- *Press-in the outer race of the wheel bearing to prevent damage to the bearing assembly.*
- *When installing a bearing assembly, always use a new one.*

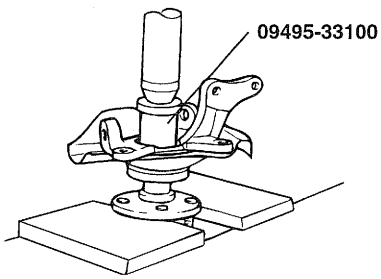


EIKB014A

3. Install the dust cover.
4. Using the Special Tool (09495 - 33100), press-in the hub to the knuckle.

NOTE

Press-in the inner race of the wheel bearing to prevent damage to the bearing assembly.

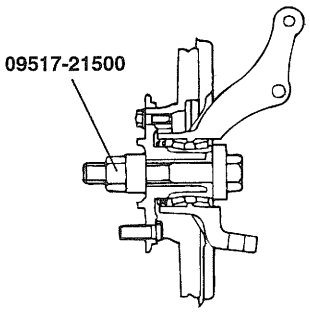


EIDA405B

5. Install the brake disc.
6. Tighten the hub and the knuckle to the specified torque by using the Special Tool (09517 - 21500).

Specified torque Nm (kgf.cm, ft.lb) :

200-260 (2000-2600, 159-192)

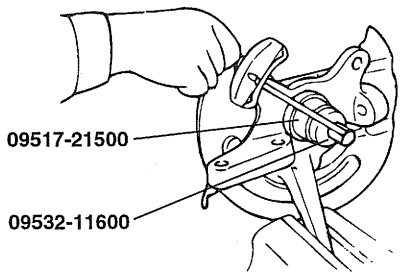


EIDA405C

7. Rotate the hub several times to seat the bearing.
8. Measure the hub bearing starting torque.

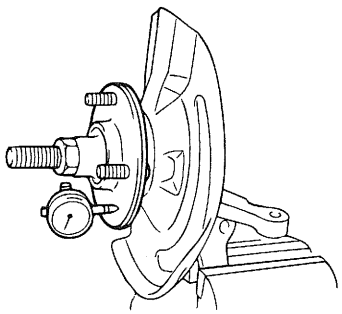
Hub bearing starting torque [Limit] :

1.8 Nm (18 kgf.cm, 16 lb.in) or less



EIDA405D

9. If the starting torque is 0 Ncm (0 in.lbs.), measure the hub bearing axial play.



S5DS022E

10. If the hub axial play exceeds the limit while the nut is tightened to 200-260 Nm (2000-2600Kg.cm, 159-192 ft.lb), the bearing, hub and knuckle are not installed correctly. Repeat the disassembly and assembly procedure.

Hub bearing axial play [Limit] :

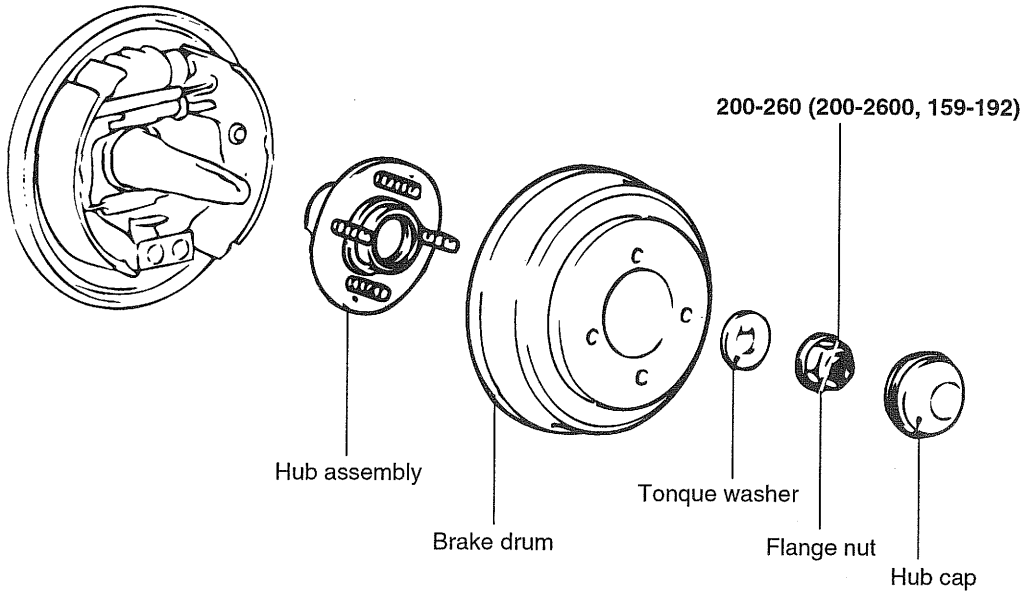
0.008 mm (0.0031 in.) or less

11. Remove the Special Tool (09517 - 21500).

REAR AXLE

REAR AXLE/HUB

COMPONENTS EINC2000



TORQUE : Nm (kgf·m, lb·ft)

EINC200A

REMOVAL EINC2100

1. Remove the rear wheel speed sensor (for vehicles equipped with ABS).

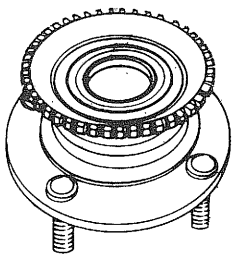
   ⚠ ***CAUTION***

   When removing the speed sensor from the adapter, be careful so that the end of the pole piece doesn't strike teeth on the rotor or other components.

2. Remove the brake drum.
3. Remove the hub cap, wheel bearing nut and tongue washer.
4. Remove the hub assembly.

⚠ *CAUTION*

- ***The rear hub assembly should not be disassembled.***
- ***(For vehicles equipped with ABS)***
  Care must be taken not to scratch or damage the teeth of the rotor. 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.



S5SS051B

INSPECTION EIKB0170

1. Check the oil seal for cracks or damage.
2. Check the rear hub bearing for wear or damage.
3. Check the rear rotor for chipped teeth.
4. Check the rear carrier for cracks.

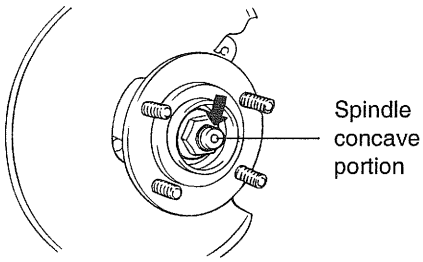
INSTALLATION EINC2300

Installion is the reverse of removal.

1. After tightening the flange nut, caulk the concave portion of the spindle by crimping the nut.

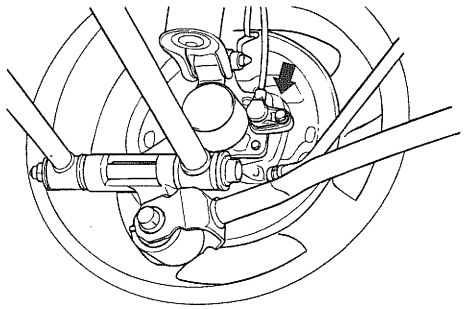
⚠ *CAUTION*

Replace the flange nut with new ones after removal.



S5SS053A

2. Installation of the rear speed sensor (For vehicles equipped with ABS)



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3. Install the hub cap.