

Driveshaft and Axle

GENERAL	DS -2
DRIVESHAFT	DS -7
FRONT AXLE	DS -20
REAR AXLE	DS -24



GENERAL

EIHA1000

SPECIFICATIONS

Driveshaft		
Joint type	2.0 L	2.7L
Outer	B.J.	A.C.
Inner	T.J.	A.A.R.
Maximum permissible angle		
Outer	46.5°	46.5°
Inner	23°	23°
Center bearing (V6 ENG.)		
Type	Radial ball bearing	
Dimensions (O.D. x I.D.) mm (in.)	62 x 30 (2.44 x 1.18)	
Inner shaft (V6 ENG.)		
Length mm (in.)	412±0.5(16.22±0.02)	
Wheel bearing		
Type	Double row angular contact ball bearing	
Dimensions (O.D. x I.D.) mm (in.)	87 x 45 (3.423 x 1.77)	

B.J. : Birfield joint

A.C. : Angular contact (GKN)

T.J. : Tripod joint

A.A.R. : Angular adjusted roller (GKN)

SERVICE STANDARD

EIHA1100

Limit		
Hub end play	mm (in.)	0.008 (0.0003) or less
Front wheel bearing starting torque	Nm (kg.cm, lb.in.)	1.8 (18, 16) or less
Rear wheel bearing starting torque	Nm (kg.cm, lb.in.)	1.8 (18, 16) or less

TIGHTENING TORQUE

EIHA1200

	Nm	Kg-cm	lb-ft
Driveshaft nut	240-280	2400-2800	177-207
Brake caliper to knuckle	65-75	650-750	48-55
Knuckle to lower arm ball joint	90-110	900-1100	66-81
Wheel nut	90-110	900-1100	66-81
Strut lower mounting bolt	110-130	1100-1300	81-96
Stabilizer bar link mounting nut	100-120	1000-1200	74-89
Tie rod end to knuckle	24-34	240-340	18-25
Center bearing bracket	40-50	400-500	30-37
Front axle assembly dust cover	7-11	70-110	52-81
Rear wheel bearing flange nut	200-260	2000-2600	148-192
Rear brake caliper mounting	50-60	500-600	37-44
Rear brake hose and tube plate nut	13-17	130-170	10-13

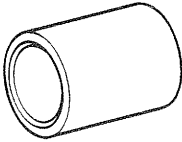
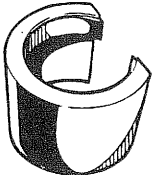
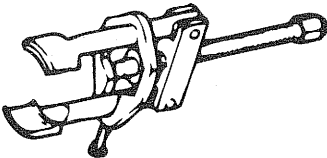
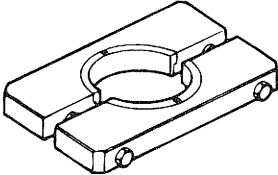
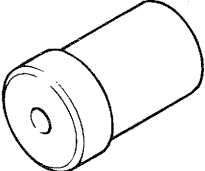
LUBRICANTS

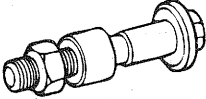
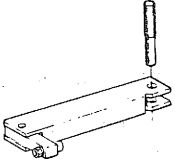
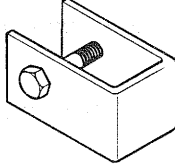
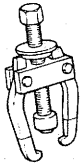
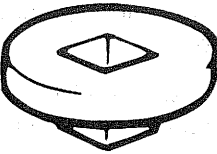
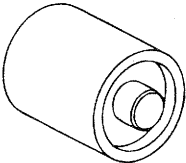
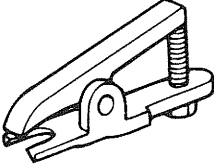
EIHA1300

	Recommended Lubricants	Capacities
B.J.-T.J. Type driveshaft (2.0L)		
B.J. boot grease	Centoplex 278M/136K or Sunlight SW-2	115±6gr.
T.J. boot grease	Oneluber MK	145±6gr.
A.C.-A.A.R. Type driveshaft (2.7L A/T)		
A.C. boot grease	Century	115±5gr.
A.A.R. boot grease	Oneluber GKN	105±10gr.

SPECIAL TOOLS

EIHA1400

Tool (Number and Name)	Illustration	Use
09216-21100 Mount bushing remover and installer	 EIHA140A	- Removal of center bearing (use with 09495-33100, 09216-21600) - Removal of rear hub tone wheel (use with 09457-34000)
09216-22100 Mount bushing remover and installer base	 EIHA140B	Installation of rear hub tone wheel
09432-33300 Bearing installer	 EIHA140C	Installation of inner shaft into center bearing
09455-21000 Bearing and gear puller	 HFR49-7	Removal of inner race from front hub (use with 09545-34100)
09457-34000 Removing plate	 EIHA140D	Removal of rear hub tone wheel (use with 09216-21100)
09495-33100 Center bearing remover and installer	 EIHA140E	- Removal and installation of center bearing - Installation of center bearing dust seal - Removal of front wheel bearing outer race (use with 09216-21100)

Tool (Number and Name)	Illustration	Use
09517-21500 Front hub remover and installer	 HFR49-3	Removal and installation of front hub
09517-29000 Knuckle arm bridge	 EIHA140F	Removal of front hub (use with 09517-3A000 and 09517-21500)
09517-3A000 Knuckle arm bridge adapter	 EIHA140G	Removal of front hub (use with 09517-21500 and 09517-29000)
09517-43001 Bearing puller	 EIHA140H	Removal of center bearing bracket
09532-11600 Preload socket	 HFR49-10	Measurement of front wheel bearing starting torque (use with torque wrench)
09545-34100 Lower arm bushing remover and installer	 EIHA140I	Removal of hub from knuckle
09568-34000 Ball joint remover	 HFR49-1	Removal of front lower arm and tie rod end ball joint

TROUBLESHOOTING

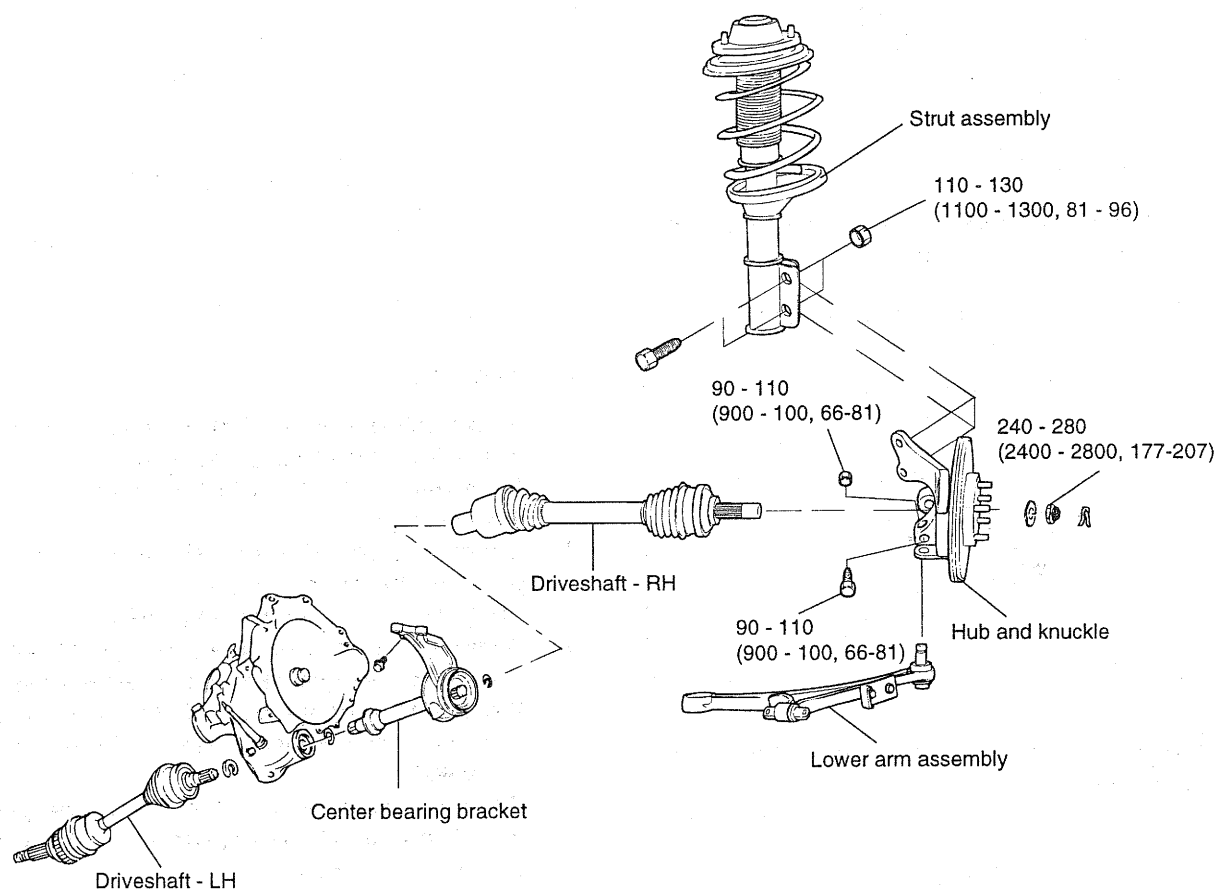
EIHA1500

Trouble Symptom	Probable cause	Remedy
Vehicle pulls to one side	Scoring of drive shaft ball joint Wear, rattle or scoring of wheel bearing Defective front suspension and steering	Replace Replace Adjust or replace
Vibration	Wear, damage or bending of drive shaft Drive shaft rattle and hub serration Wear, rattle or sintering of wheel bearing	Replace Replace Replace
Shimmy	Defective wheel balance Defective front suspension and steering	Adjust or replace Adjust or replace
Excessive noise	Wear, damage or bending of drive shaft Rattle of drive shaft and hub serration Rattle of drive shaft and side gear serration Wear, rattle or scoring of wheel bearing Loose hub nut Defective front suspension and steering	Replace Replace Replace Replace Adjust or replace Adjust or replace
Bent cage	Cage damage due to improper handling or tool usage	Replace bearing
Galling	Metal smears on roller end due to overheating, lubricant problem or overloading	Replace bearing Check seals, check for proper lubrication
Cracked inner race	Race cracked due to improper fit, cocking or poor bearing seats	Replace bearing
Etching	Bearing surfaces appear gray or grayish black in color with related etching away of material usually at roller spacing	Replace bearing Check seals, check for proper lubrication
Brinelling	Surface indentations, on race surface caused by rollers either under impact loading or vibration while the bearing is not rotating	Replace bearing
Heat discoloration	Heat discoloration is dark blue resulting from overload or no lubricant (Yellow or brown color is normal)	Replace bearing Check seals and other parts
Fatigue spalling	Flaking of surface metal resulting from fatigue	Replace bearing Clean all related parts

DRIVESHAFT

FRONT DRIVESHAFT ASSEMBLY

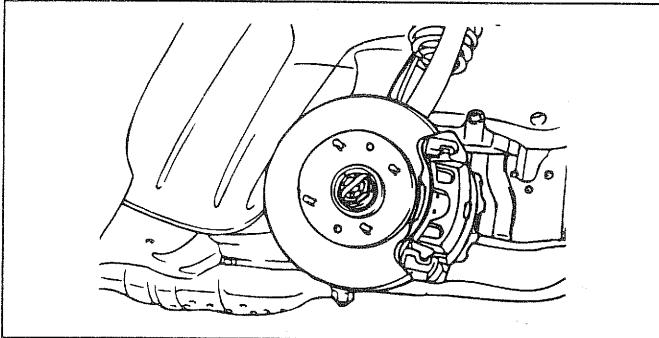
COMPONENTS EIHA2000



TORQUE : Nm (kg·cm, lb·ft)

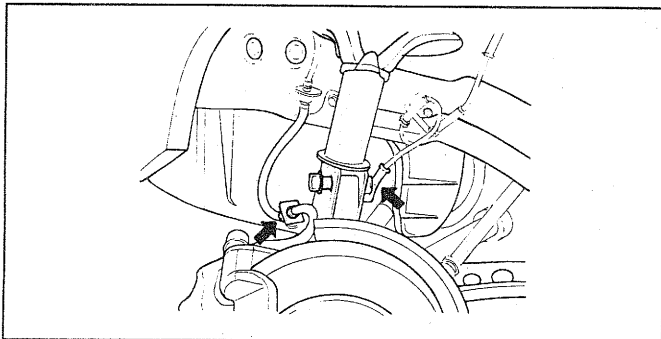
REMOVAL EIHA2100

1. Remove the aluminum wheel cover using a flat-blade screwdriver.
2. Raise the vehicle and remove the wheel.
3. Remove the split pin and drive shaft nut.



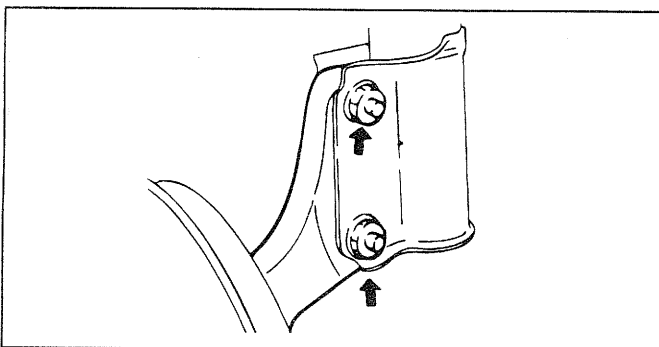
EIHA210A

4. Drain transaxle oil.
5. Detach the wheel speed sensor cable from the bracket (for a vehicle equipped with ABS)
6. Detach the brake hose cable from the bracket.



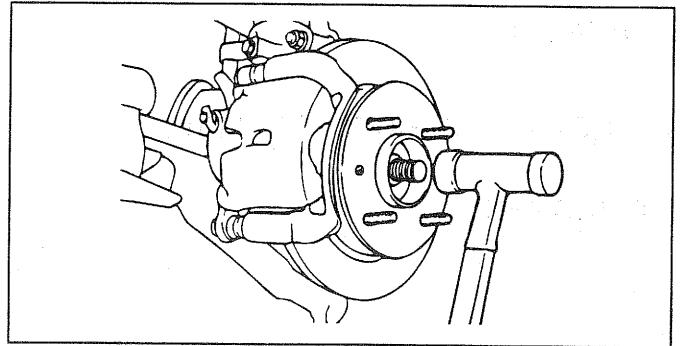
EIHA002A

7. Remove two flange bolts and detach the knuckle from the strut.



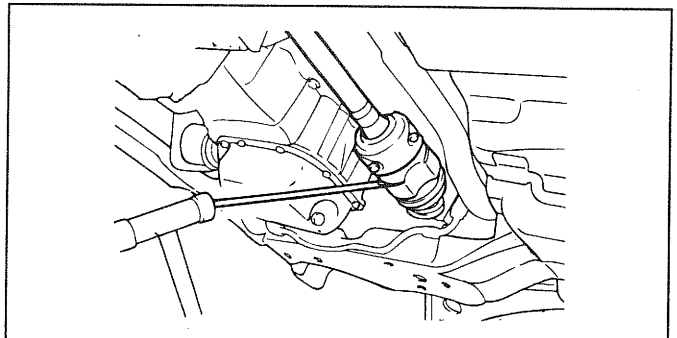
S5SS012B

8. Separate the drive shaft from the axle hub by tapping it lightly with a plastic hammer.



EIHA210B

9. Remove the drive shaft from the differential gear or inner shaft using a hammer and brass bar.

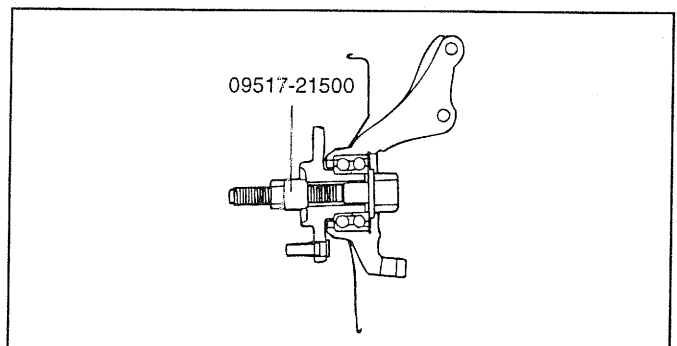


EIHA003A

CAUTION

1. If you pull the drive shaft by force, components in the joint kit break away from it. As a result, the boot is torn and bearing balls are damaged.
2. Cover a hole of transaxle with a oil cap to prevent contamination
3. Support the drive shaft properly.
4. Whenever removing the drive shaft from the transaxle case, replace the retainer ring.
5. While loosening the nuts of the drive shaft, make sure the wheel bearing does not get the load of the vehicle.

If the vehicle moves and then the wheel bearing gets the load of the vehicle, hold it for a while using a special tool.

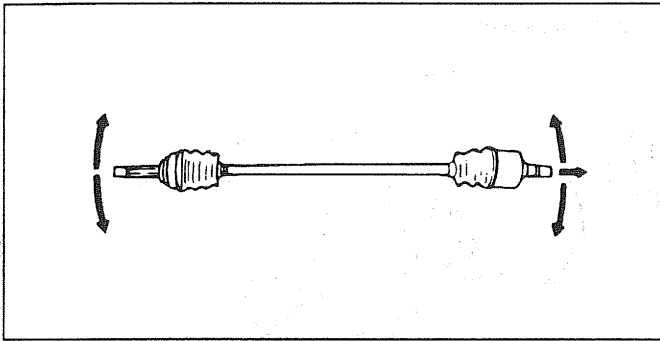


S5DS007F

INSPECTION

EIHA2200

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

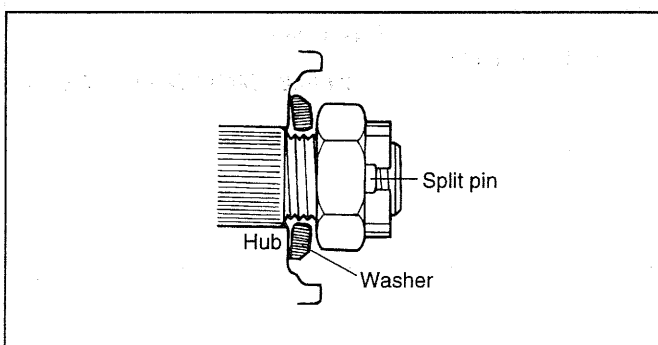


EIA9211A

INSTALLATION

EIHA2300

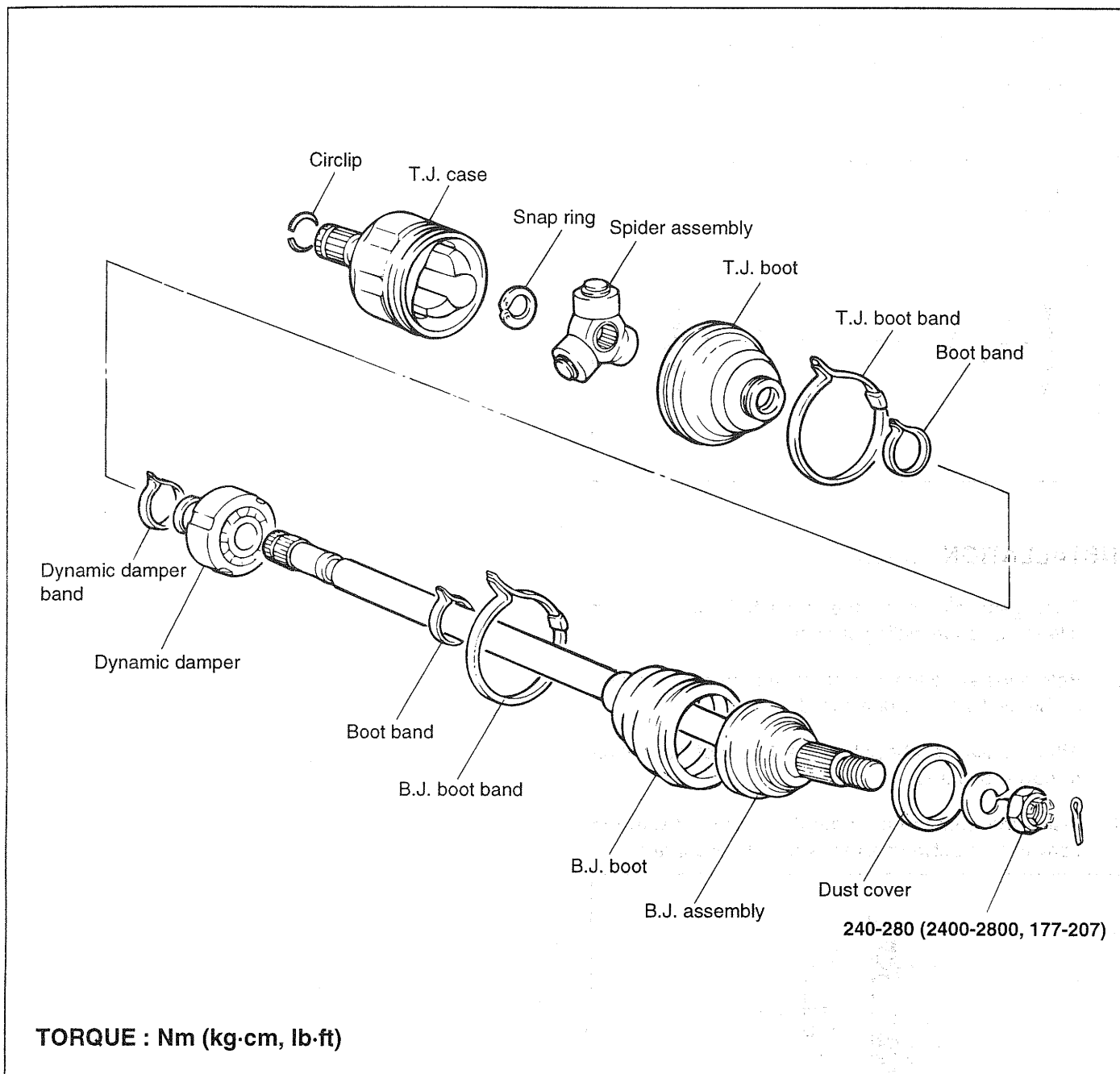
1. Coat gear oil on to the driveshaft splines and differential case sliding surface.
2. Before installing the driveshaft, set the opening side of the circlip facing downward.
3. After installation, check that the driveshaft cannot be removed by hand.
4. Install the washer under the driveshaft nut with the convex side outward as shown in the illustration.



EIA9212A

FRONT DRIVESHAFT (T.J-BJ TYPE)

COMPONENTS EIDA3000



EIDA300A

DISASSEMBLY EIDA3010

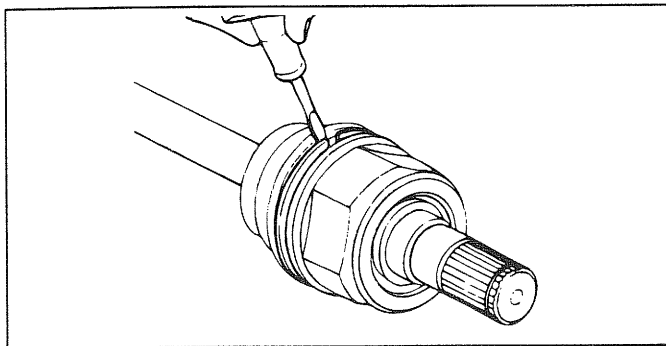
1. Remove the T.J. boot bands and pull the T.J. boot from the T.J. case.

NOTE

1. Do not disassemble the B.J. assembly.
2. The drive shaft joint uses special grease. Do not substitute with another type of grease.
3. The boot band should be replaced with a new one.

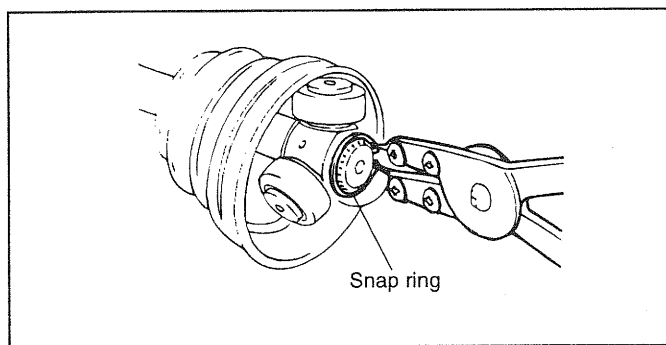
NOTE

Be careful not to damage the boot.



EIDA301A

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

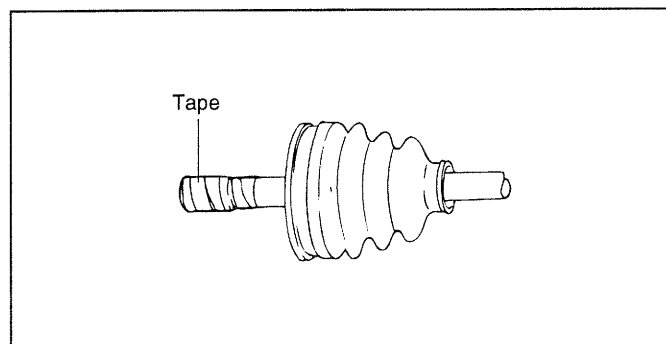


EIDA301B

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 drive shaft splines to protect the boot.



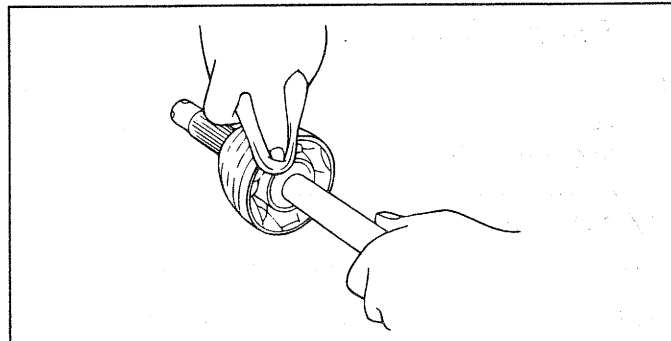
EIDA251D

INSPECTION

EIDA3020

1. Check the driveshaft spline part for wear or damage.
2. Check for entry of water and/or foreign material into 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 cracking.



EIDA252A

REASSEMBLY

EIHA3120

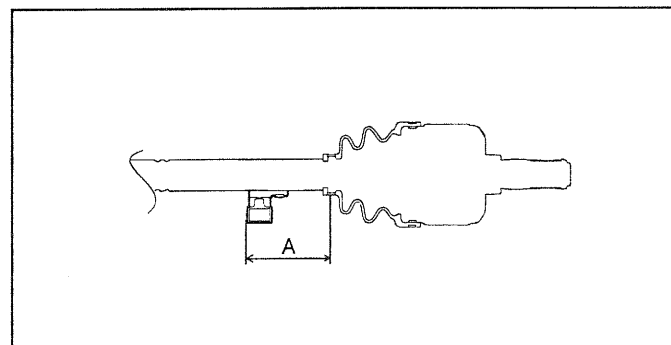
1. Wrap tape around the drive shaft splines (T.J. side) to prevent damage to the boots.
2. Apply grease to the drive shaft and install the boots.

Recommended lubricant

B.J. Boot grease : Centoplex 278M/136K
T.J. Boot grease : Oneluber MK

3. To install the dynamic damper, keep the B.J. and shaft in a straight line and secure the dynamic damper in the direction illustrated, and then install the small boot band.

Standard value (A) : 160mm (6.3 in)



EIHA005A

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

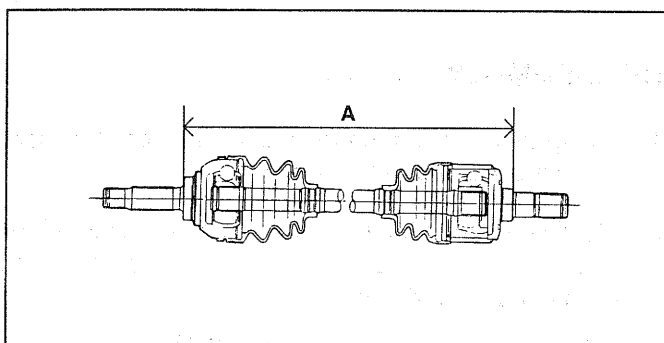
T.J. boot grease gr.

Total : 145±6gr.
In the joint : 100±3gr.
In the boot : 45±3gr.

5. Tighten the T.J. boot bands.

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

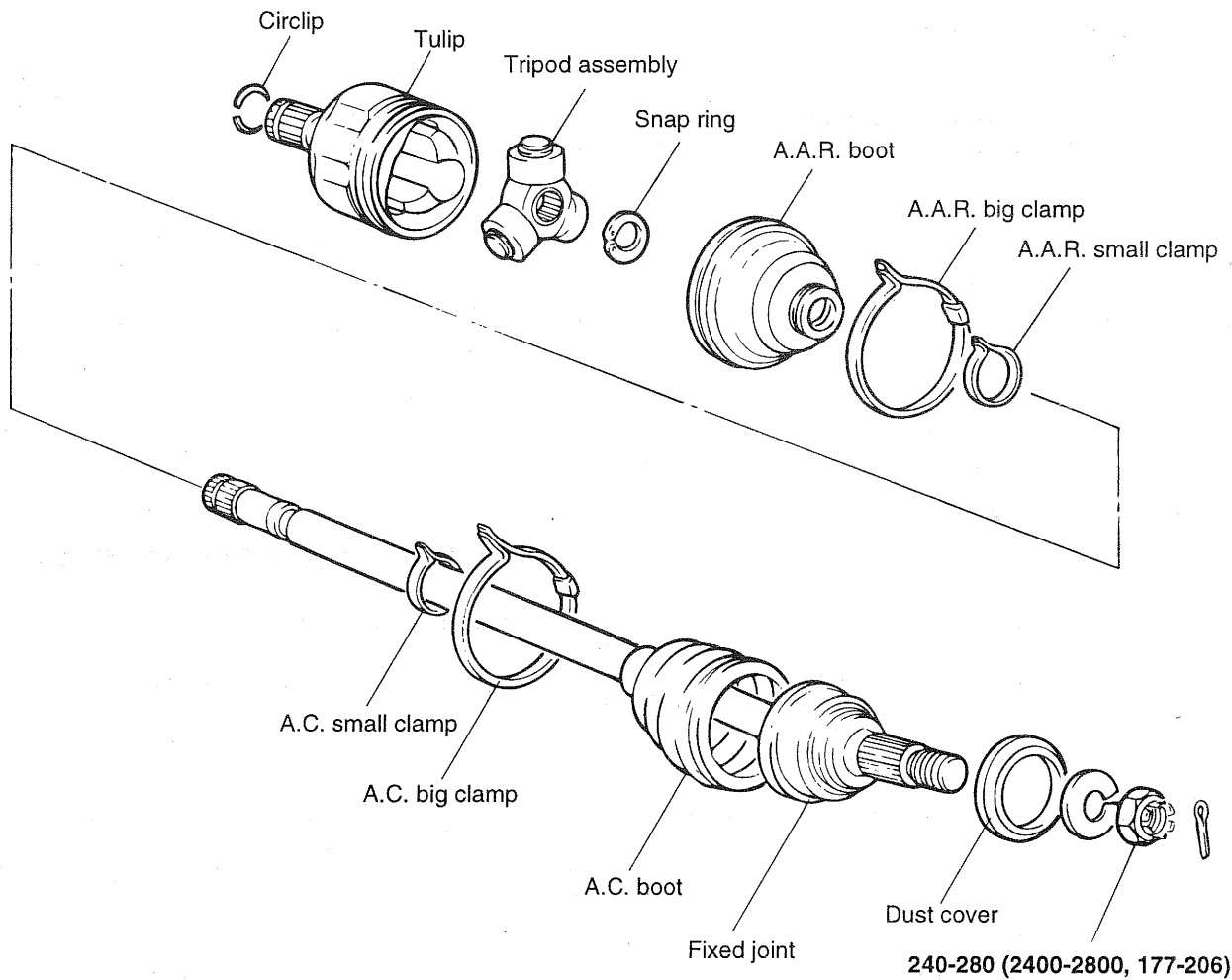
Standard value (A)	mm (in.)
LH	539±2 (21.2±0.08)
RH	841±2 (33.1±0.08)



EIDA253D

FRONT DRIVESHAFT (AAR-AC TYPE)

COMPONENTS EIHA3300



TORQUE : Nm (kg·cm, lb·ft)

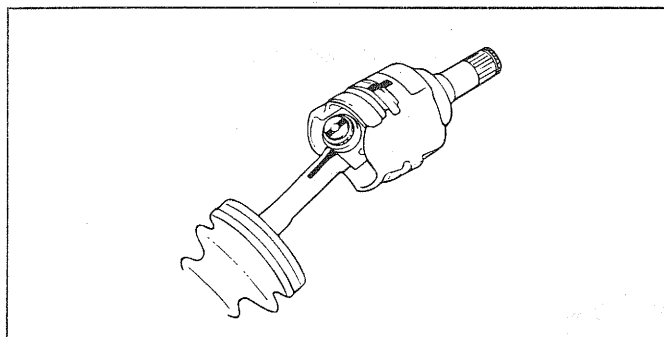
DISASSEMBLY EIHA3310**CAUTION**

- Do not disassemble the tripod assembly.
- The driveshaft joint uses special grease. Do not substitute it with another type of grease.
- The boot clamp should be replaced with a new one.
- The boot should be replaced with a new one.

1. Using a side cutter, cut the big clamps of the A.A.R. and A.C.
2. Using a brass bar and hammer, remove the small clamps of the A.A.R. and A.C.
3. Place a matchmark on the tripod and tulip.

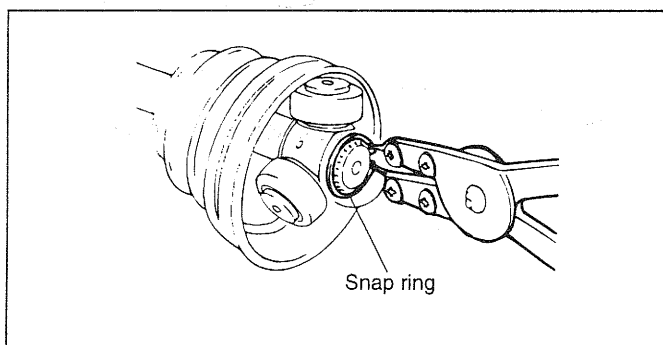
NOTE

Do not punch the mark.



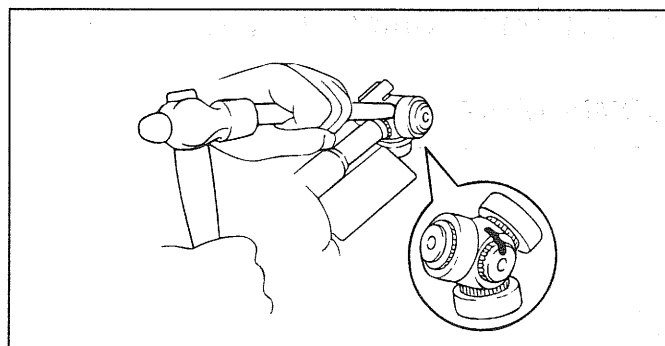
EIB9002A

4. Remove the tulip assembly from the driveshaft.
5. Using a snap ring expander, remove the snap ring.



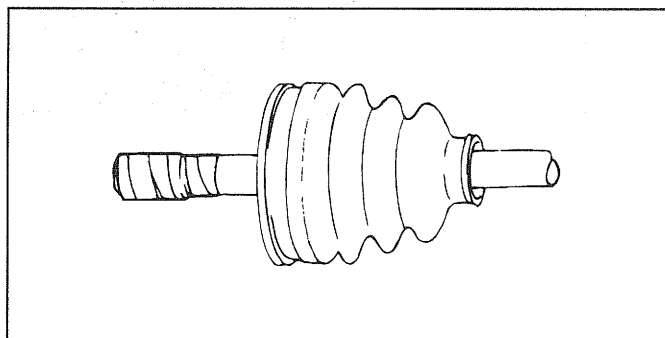
EIDA301B

6. Align matchmark on the tripod and joint shaft.
7. Using a brass bar and hammer, remove the tripod from the joint shaft.



EIB9003A

8. Remove the A.C. boot clamps. Pull out the A.A.R. boot and A.C. boot.

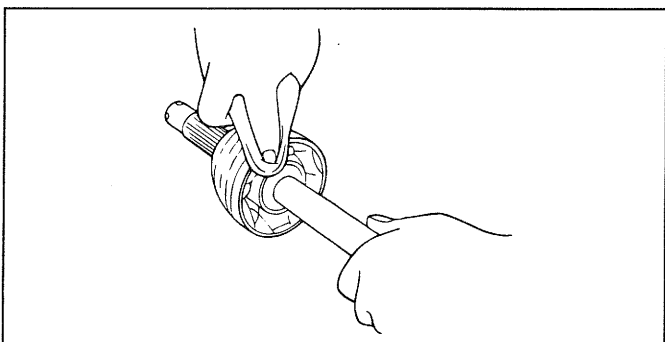


J49-015C

INSPECTION AFTER DISASSEMBLY

EIHA3320

1. Check the driveshaft spline part for wear or damage.
2. Check for entry of water and/or contamination in boot.
3. Check the tripod assembly for roller rotation, wear or corrosion.
4. Check the grooves inside tulip for wear or corrosion.

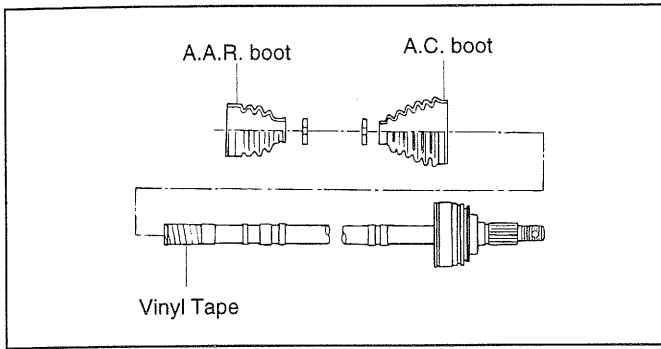


EIDA252A

REASSEMBLY

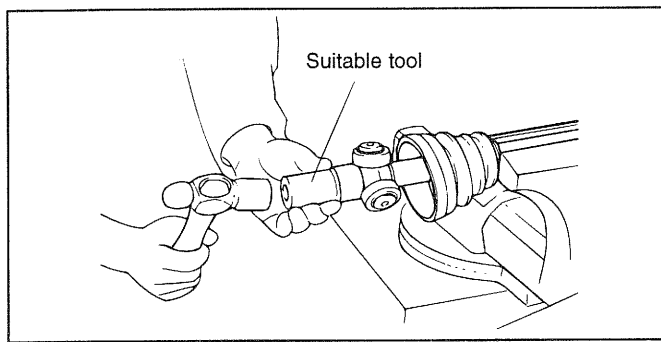
EIHA3330

1. Wrap tape around the drive shaft splines (A.A.R. side) to prevent damage to the boots.
2. Before installing the boots, place new clamps to the small boot ends and install them to the drive shaft.



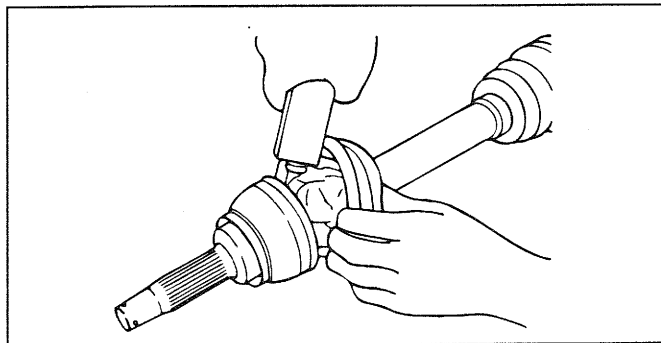
EIH333A

3. After aligning the matchmark, place the beveled side of the tripod axial spline toward the A.C. joint.
4. Using suitable tool and hammer, tap in the tripod to the drive shaft.



EIB9001A

5. Install a new snap ring.
6. Add specified grease to the A.C. joint and boot as much as wiped away at the time of inspection.
7. Apply specified grease to the A.A.R. joint and boot.



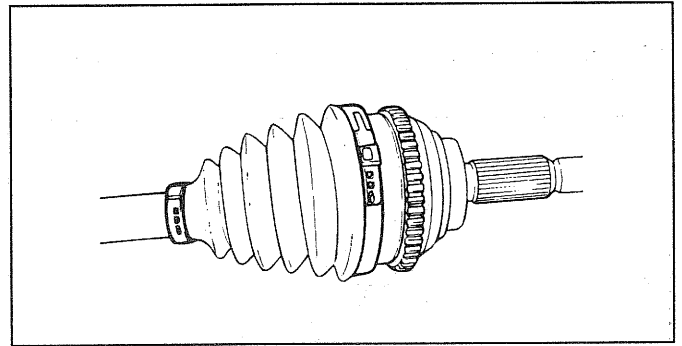
S5DS012B

8. Align the matchmarks and install the A.A.R. joint to the shaft.
9. Install the boots.

NOTE

- Make sure that the 2 boots are on the shaft groove.
- Make sure that the 2 boots are not stretched.

10. Position the holes of the clamps free end to the closing hooks.



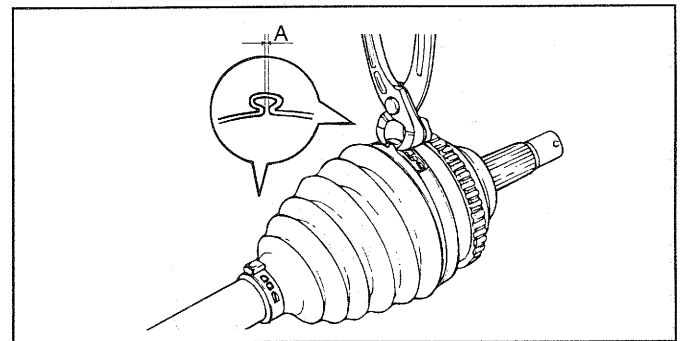
EIB9006A

11. Using a plier, secure the clamps.

Clearance (A)

A.C. big clamp : 2.0mm (0.079 in) or less

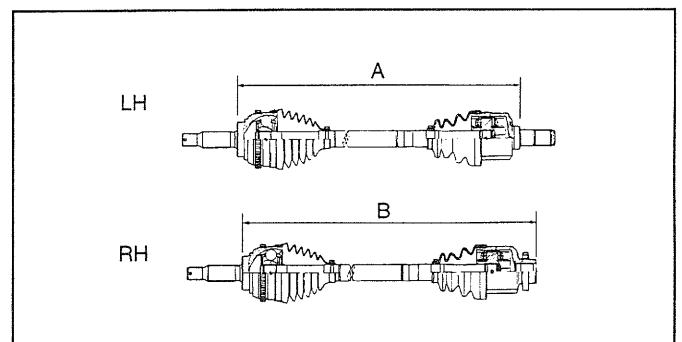
A.C. small clamp : 1.8mm (0.071 in) or less



EIB9007A

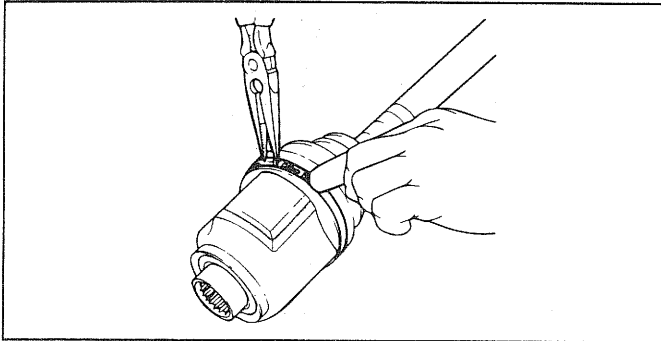
12. To control air in the A.A.R. boot, keep the specified distance between the boot clamps when they are tightened.

Standard value (A/B)	mm (in.)
LH(A)	523.1±2 (20.59±0.08)
RH(B)	542.7±3 (21.37±0.12)



EIA9253A

13. Holding the A.A.R. big clamp near the closing hook, using the long nose plier, position the hole of the clamps free end over the closing hook.
14. Secure the clamp by drawing the closing hooks together.

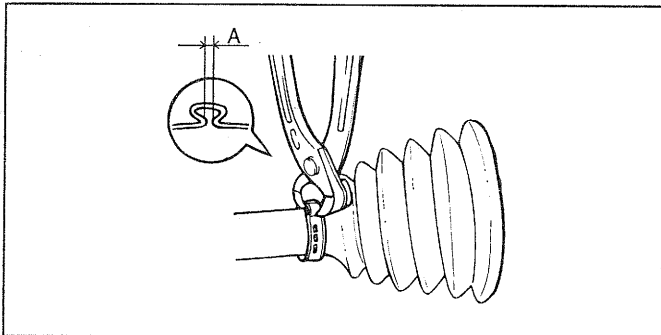


EIB9008A

15. Using a plier, secure the small clamp of the A.A.R..

Clearance (A)

A.A.R. small clamp : 1.6mm (0.063 in) or less

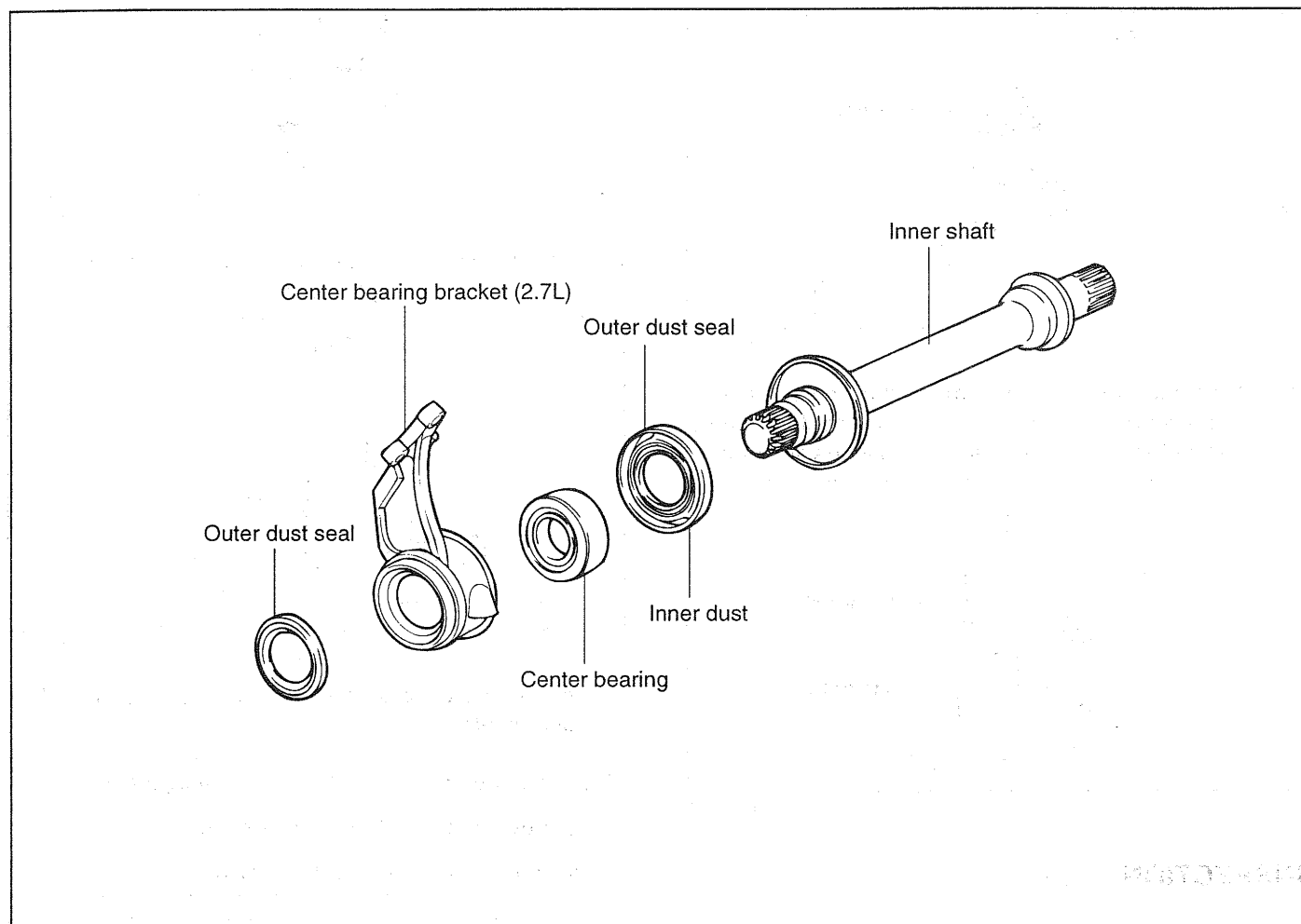


EIB9010A

CENTER BEARING AND INNER SHAFT

COMPONENTS

EIHA3500

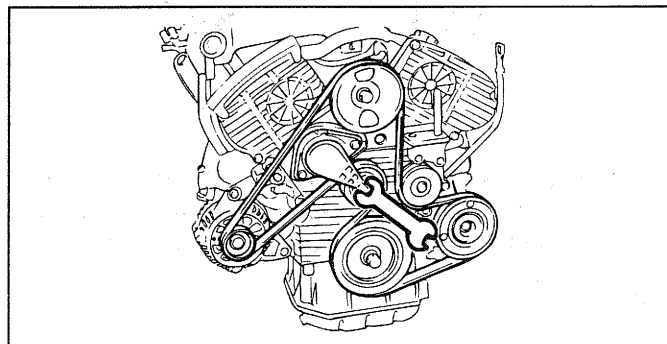


EIHA007A

REMOVAL

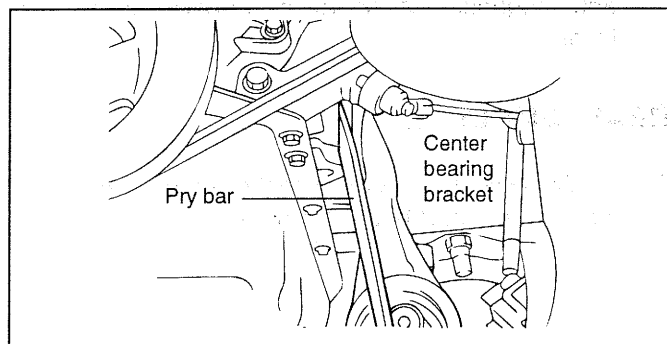
EIHA3505

1. After releasing the auto tensioner, remove the drive belt.



EIHA004A

bracket and the cylinder block to disconnect the bracket from the cylinder block.

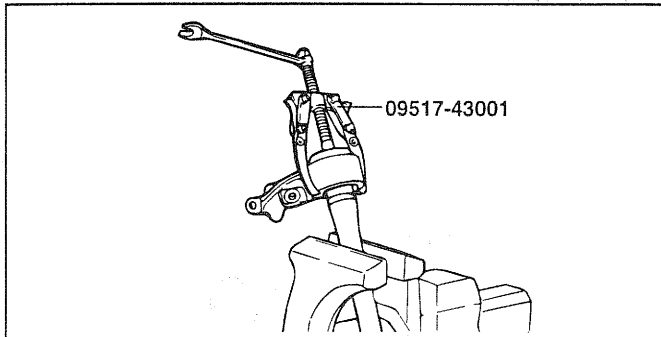


EIA9210H

2. Remove the alternator assembly.
3. Remove the center bearing bracket mounting bolts. Insert the pry bar between the center bearing bracket and the cylinder block to disconnect the bracket from the cylinder block.
4. Remove the center bearing and inner shaft.

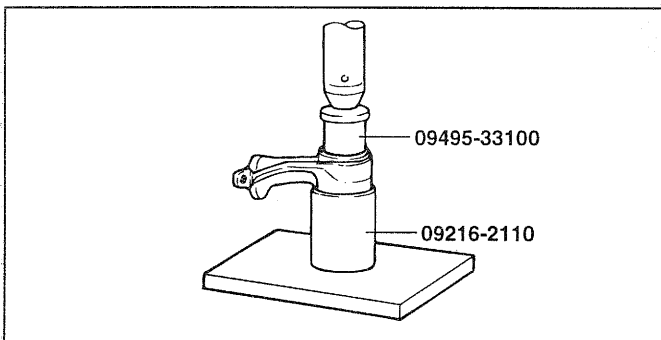
DISASSEMBLY EIHA3510

1. Using the special tool, disassemble the center bearing bracket from the inner shaft.



EIA9351A

2. Using the special tool, remove the center bearing by pressing it from the outside of the center bearing bracket to the inside of it as shown in the illustration.



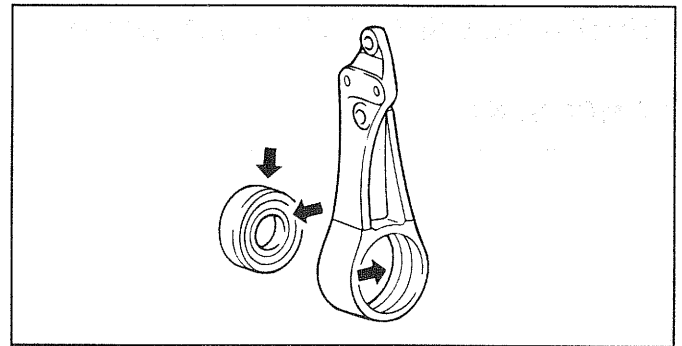
EIH351A

INSPECTION EIHA3520

1. Check the inner shaft for damage, bending or rust.
2. Check the inner shaft splines for wear or damage.
3. Check the center bearing for scoring, discoloration, and roughness of the roller journal's moving surfaces.

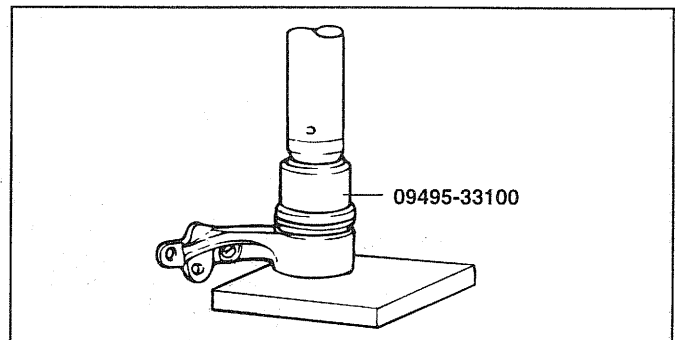
REASSEMBLY EIHA3530

1. Apply multipurpose grease to the center bearing and inside the center bearing bracket.



EIA9353E

2. Using the special tools, press the center bearing into the center bearing bracket.



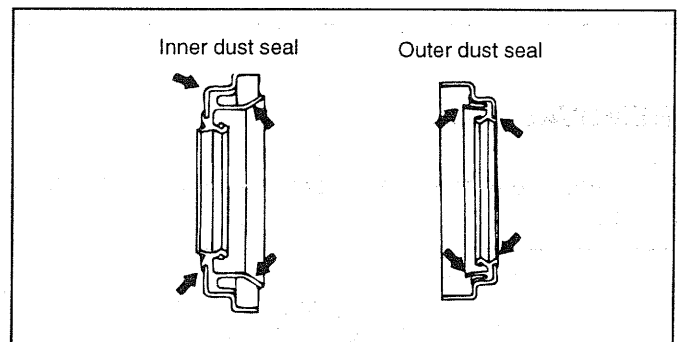
EIA9353B

3. Apply multipurpose grease to the rear surface of all dust seals.

Recommended grease : LIG-2 or Sunlight No.2

Inner dust seal : 7-10 g (0.25-0.35 oz)

Outer dust seal : 4-6 g (0.14-0.21 oz)

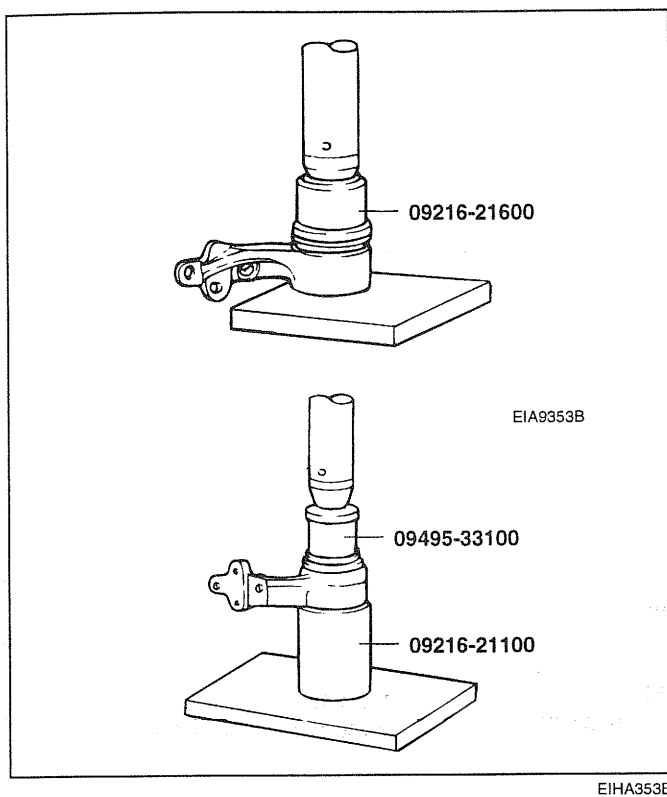


EIH353A

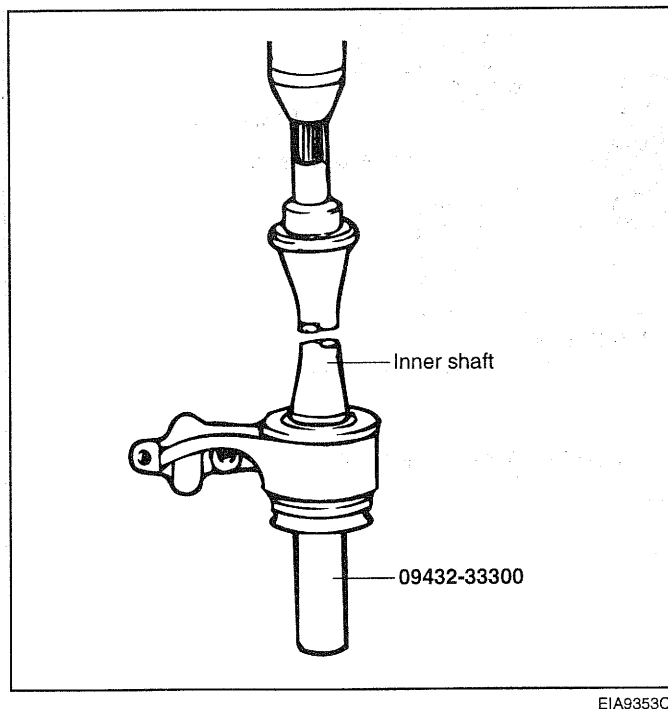
4. Using the special tool, tap the outer dust seal and inner dust seal in that order until they are flushed with the edge of the center bearing bracket.

NOTE

When applying grease, make sure that it does not adhere to the outside of the lip.



5. Using the special tool, support the center bearing as shown in the figure, then press in the inner shaft.

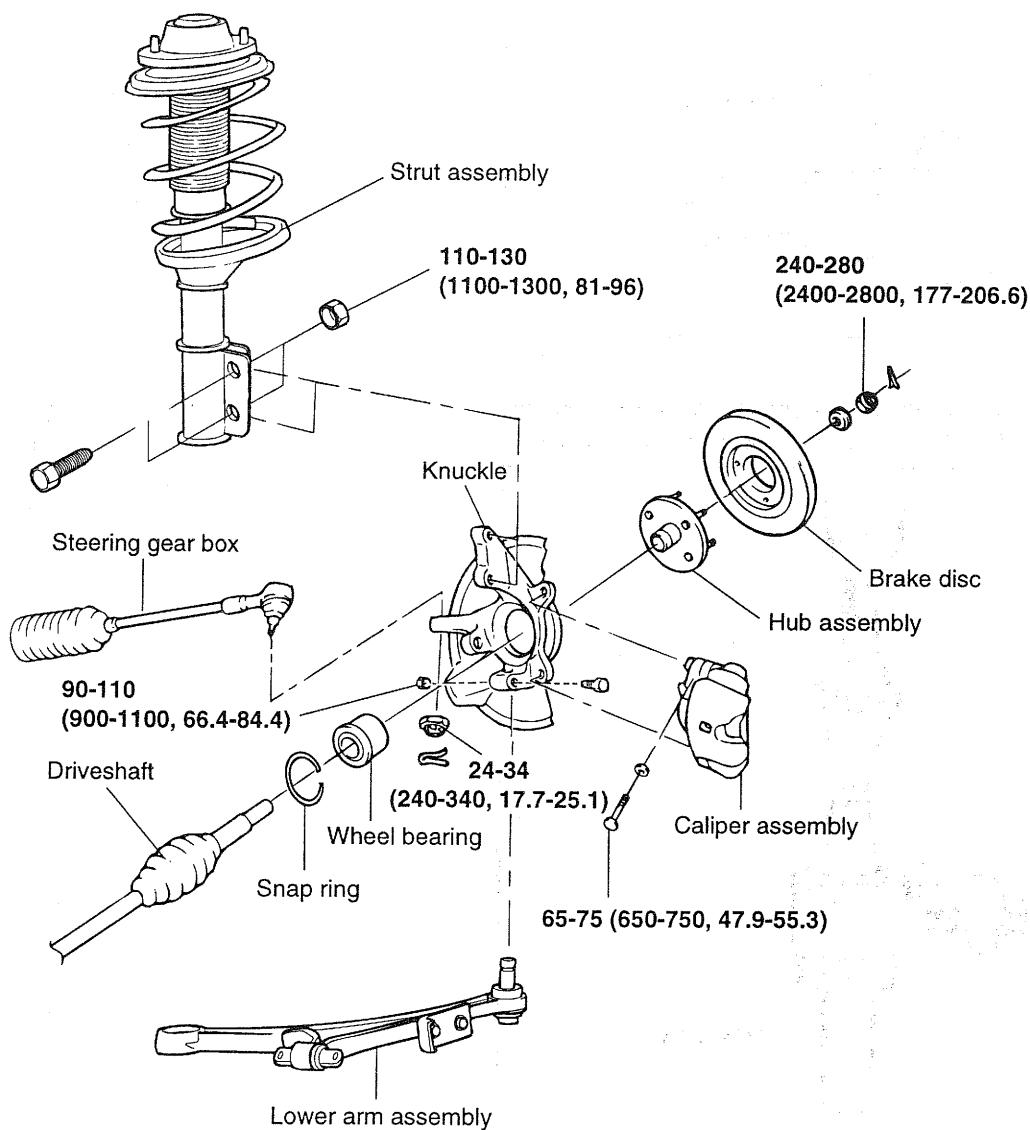


FRONT AXLE

FRONT HUB/KNUCKLE

COMPONENTS

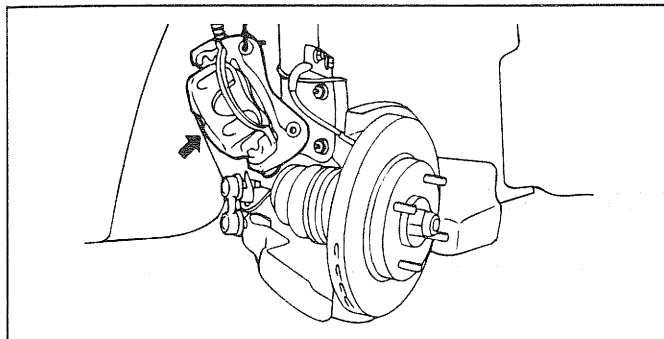
EIHA4000



TORQUE : Nm (kg·cm, lb·ft)

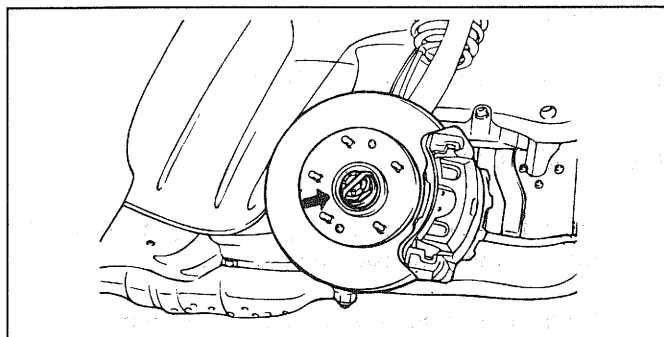
REMOVAL EIHA4100

1. Raise the vehicle and remove the front wheel.
2. Remove the vehicle speed sensor from the knuckle.
3. Remove the caliper and suspend it with a wire.



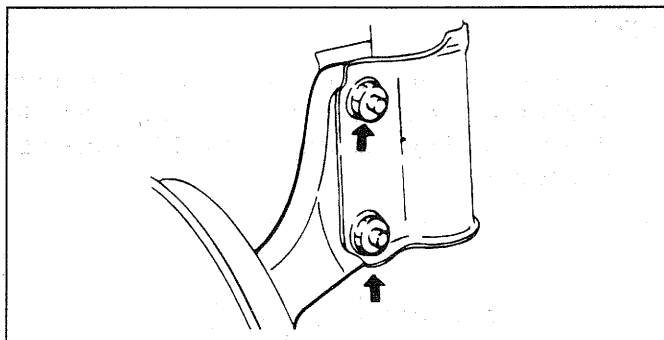
S5DS018A

4. Remove the split pin and driveshaft nut from the front hub.



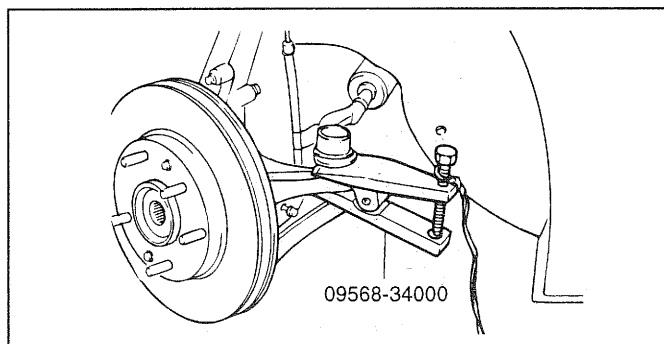
EIHA017A

5. Remove the 2 bolts and the knuckle from the strut assembly.



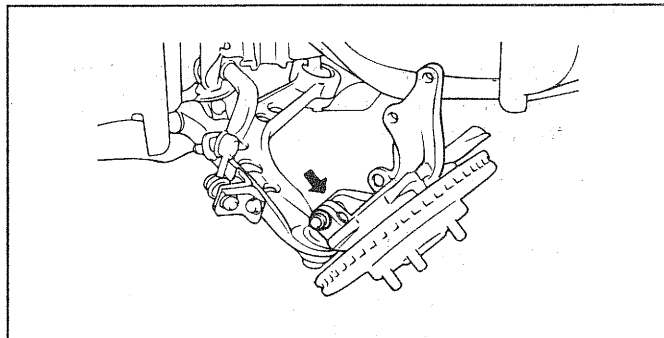
S5SS012B

6. Disconnect the tie rod end ball joint from the knuckle using the special tool.



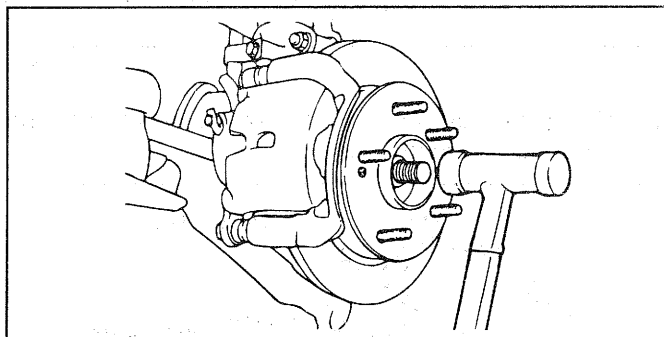
EIHA018A

7. Remove the lower arm ball joint mounting bolt.



EIHA009A

8. Using a plastic hammer, disconnect the driveshaft from the axle hub.

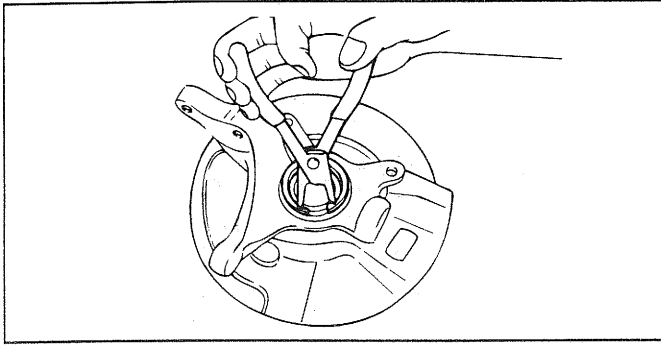


EIHA010A

9. Remove the front axle assembly.

DISASSEMBLY EIHA4110

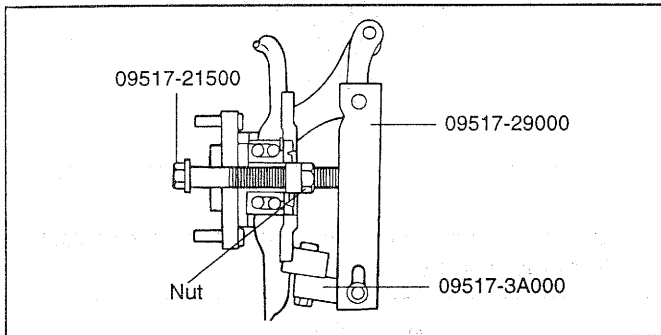
1. Remove the brake disc from the hub.
2. Remove the snap ring.



V5DS016A

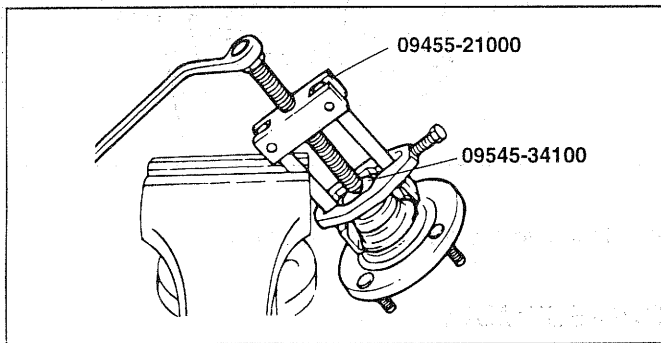
3. Remove the hub from the knuckle using a special tool.

- Install the special tool to the hub and knuckle.
- Tighten the nut of the special tool to disconnect the hub from the knuckle.



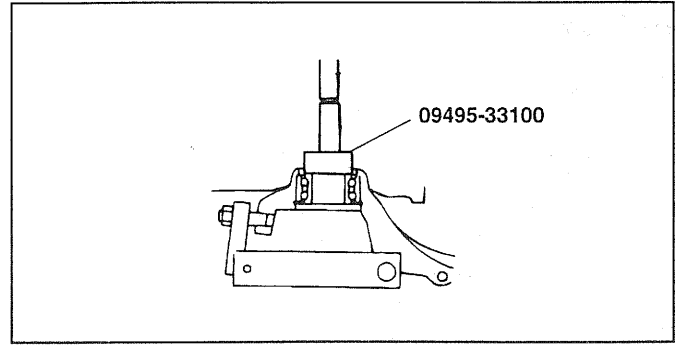
S5DS020A

4. Using the special tool, remove the wheel bearing inner race from the hub.



S5DS020C

5. Using the special tool, remove the wheel bearing outer race from the knuckle.



EIHA011A

INSPECTION

EIHA4120

1. Check the hub for cracks and check the splines for wear.
2. Check the hub bolts for cracks and damage.
3. Check the brake disc for scoring and damage.
4. Check the knuckle for cracks.
5. Check the bearings for defects.

REASSEMBLY

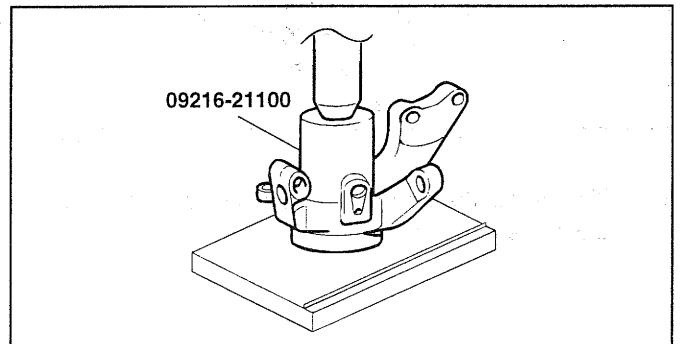
EIHA4130

1. Apply thin coat of multi-purpose grease to the surface of the knuckle and bearing.
2. Using the special tool, press in the bearing to the knuckle.

Press in load [kg(f), (lb(f))] : 4500-5000 (9921-11023)

NOTE

- Do not press the inner race of wheel bearing. That will cause damage to the bearing assembly.
- When installing a bearing assembly, always use a new one.



EIHA012A

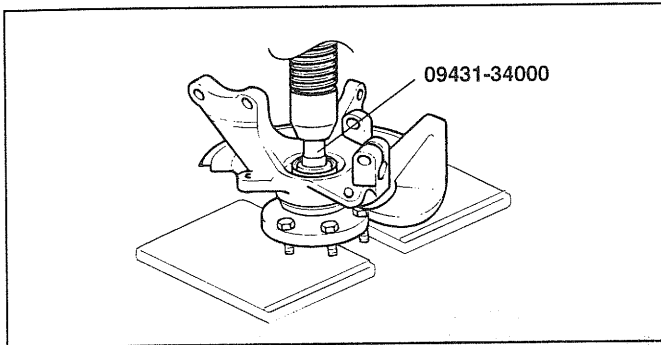
3. Install the snap ring into the groove of knuckle.
4. Install the backing plate to knuckle.

5. Press in the hub to the knuckle using a special tool.

Press in load [kg(f), (lb(f))] : 2000-2500(4409-5512)

NOTE

Do not press the outer race of the wheel bearing.
This will cause damage to the bearing assembly.

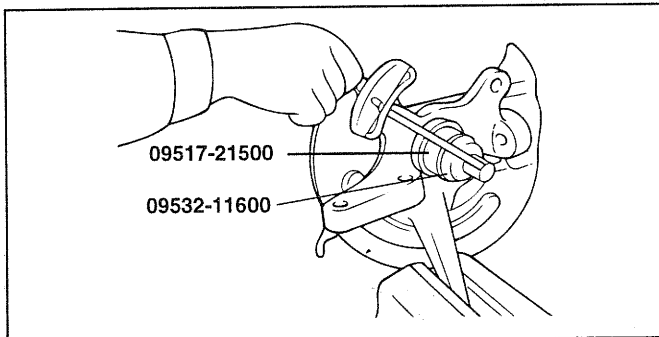


EIHA013A

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

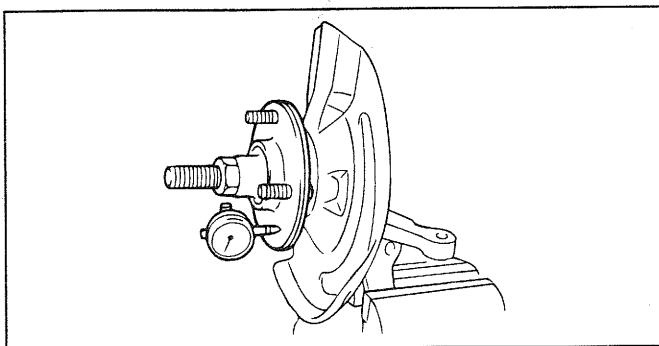
Wheel bearing starting torque [Limit]:

1.88 Nm (18.8kg.cm, 16.64lb.in) or less



S5DS022D

8. Measure end play of the hub by installing a dial gauge and check that it is within specifications.
9. Remove the dial gauge.
10. Install the hub to the disc.



S5DS022E

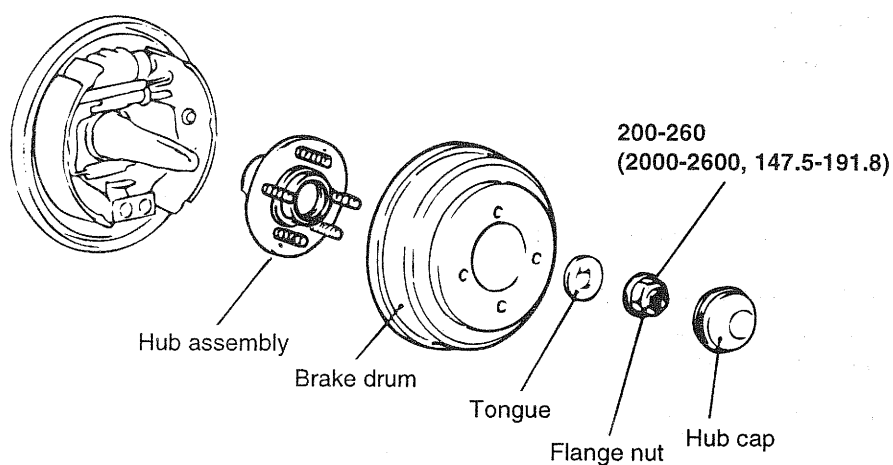
REAR AXLE

REAR AXLE/HUB

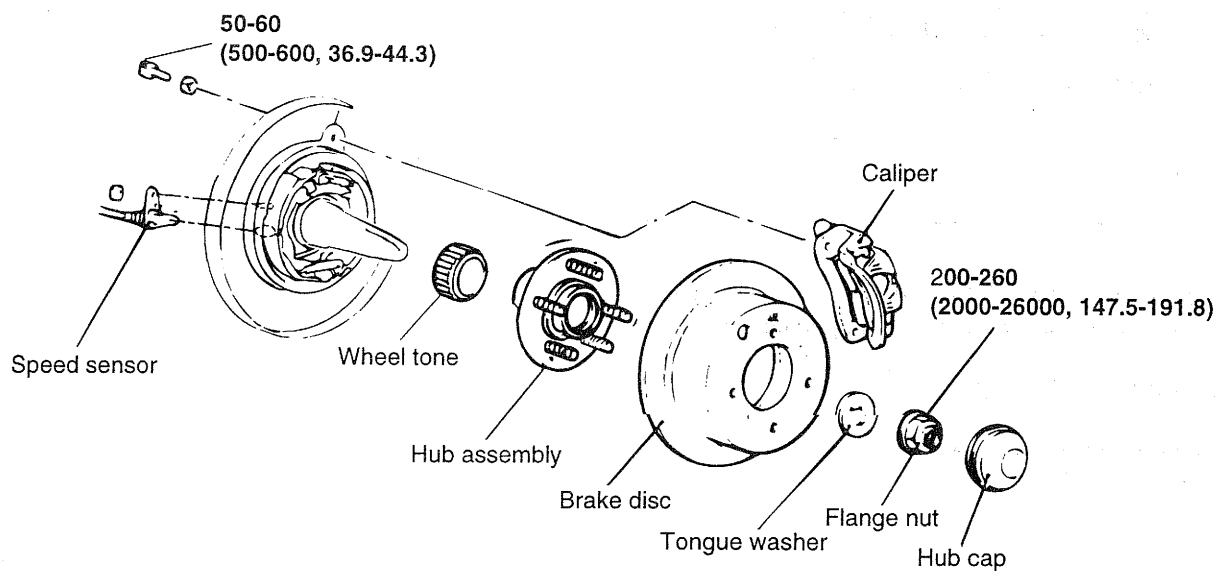
COMPONENTS

EIHA800

<DRUM BRAKE>



<DISC BRAKE>



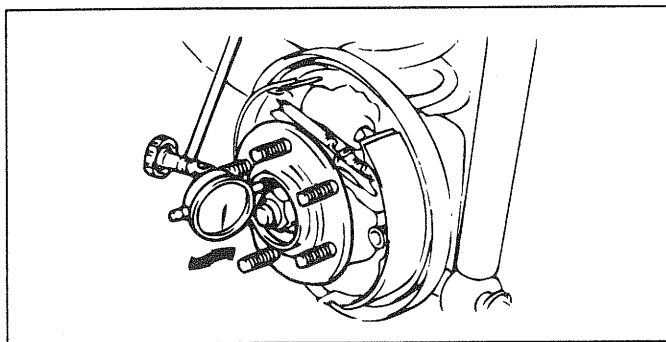
TORQUE : Nm (kg·cm, lb·ft)

INSPECTION OF WHEEL BEARING END PLAY

EIHA8100

1. Release the parking brake.
2. Remove the brake drum from the hub.
3. Remove the caliper assembly and brake disc (for disc brake).
4. Measure end play of the wheel bearing.
 - Install a dial gauge to the surface of the hub as shown in the illustration.
 - Check the scale of a dial gauge by moving the hub in the axial direction.

Limit value : 0.05mm or less



EIHA019A

5. If the end play is over the limit value, loosen the flange nut and tighten it again to the specified torque. Then measure it again.
6. If the end play is beyond limit value, replace rear hub assembly.

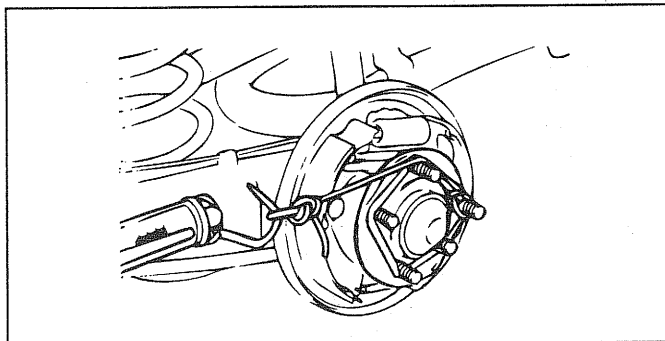
CHECKING STARTING TORQUE OF REAR HUB ROTATION

EIHA8110

1. Release the parking brake.
2. Remove the brake drum.
3. Remove the caliper assembly and brake disc (for a vehicle equipped with ABS).
4. Measure starting torque of the hub rotation.
 - Rotate the hub several times to seat the bearing.
 - After suspending the spring balance to the hub bolt, check the scale for spring balance, pulling it at a 90° angle.

Starting torque of rear hub rotation :

27N (6.1 lbs) or less



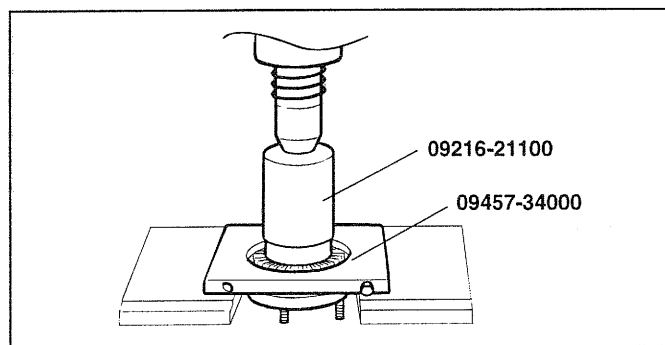
EIHA020A

5. If the starting torque is over the limit value, loosen the flange nut and tighten it again to the specified torque. Then measure it again.
6. If the starting torque is beyond the limit value, replace the rear hub assembly.

REMOVAL

EIHA8120

1. Jack the vehicle up and remove the wheel.
2. After stretching the caulking part of the wheel nut, remove the nut and tongue washer.
3. Disconnect the caliper from the rear arm and suspend it to the frame.
4. Remove the brake disc.
5. Remove the rear hub.
6. Using a special tool, remove the tone wheel.



EIHA015A

INSPECTION

EIHA8130

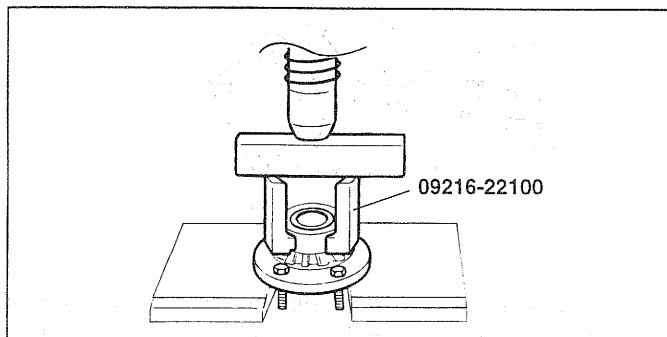
1. Check that the bearing of the rear hub is not worn out or damaged.
2. Check that the tone wheel is not broken or damaged.

3. Check that there is no scratch on the inside surface of the hub.

DISASSEMBLY

EIHA8140

1. Using a special tool, press in the tone wheel to the rear hub.



EIHA016A

2. Installation is the reverse order of removal.