SECTION RAX
REAR AXLE

CONTENTS

PRECAUTIONS

PFP:00001

Caution

EDS00060

- When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.
  *: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
- After installing removed suspension parts, check wheel alignment and adjust if necessary.

Observe the following precautions when disassembling and servicing drive shaft.

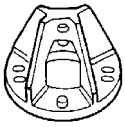
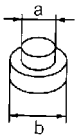
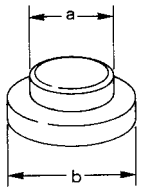
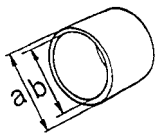
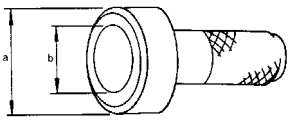
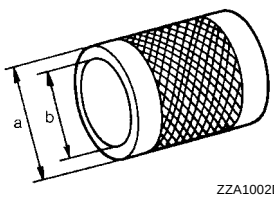
- Perform work in a location which is as dust-free and dirt-free as possible.
- Before disassembling and servicing, clean the outside of parts.
- The disassembly and service location must be clean. Care must be taken to prevent parts from becoming dirty and to prevent the entry of foreign objects.
- Disassembled parts must be carefully reassembled in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Paper shop cloths must be used. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Disassembled parts (except for rubber parts) should be cleaned with kerosene which shall be removed by blowing with air or wiping with paper shop cloths.

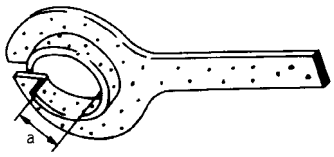
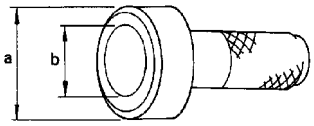
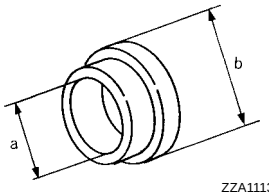
PREPARATION

PFP:00002

Special Service Tools

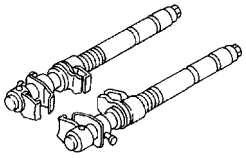
EDS00061

Tool number Tool name		Description
ST36230000 Sliding hammer	 ZZA0803D	Removing wheel hubs
KV40104100 Attachment	 ZZA0804D	Removing wheel hubs
ST33061000 Drift a: 28.5 mm (1.122 in) dia. b: 38.0 mm (1.496 in) dia.	 ZZA0969D	Removing inner race on outer side of wheel bearings
ST15242000 Drift b: 69 mm (2.72 in) dia.	 ZZA0881D	Removing wheel bearings
KV40105310 Drift a: 75 mm (2.95 in) dia. b: 62 mm (2.44 in) dia.	 ZZA1003D	Removing wheel bearings Installing wheel hubs
ST30720000 Drift a: 77.0 mm (3.031 in) dia. b: 55.5 mm (2.185 in) dia.	 ZZA0811D	Removing wheel bearings
Drift ST33200000 a: 60.0 mm (2.362 in) dia. b: 44.5 mm (1.752 in) dia.	 ZZA1002D	Installing wheel hubs

Tool number Tool name	Description
KV38107800 Protector a: 29 mm (1.41 in) dia.  ZZA0835D	Installing drive shafts
Drift KV38100500 a: 80 mm (3.15 in) dia. b: 60 mm (2.36 in) dia.  ZZA0701D	Installing center rotors
KV40101840 Collar a: 67 mm (2.64 in) dia. b: 85 mm (3.35 in) dia.  ZZA1113D	Installing center rotors

Commercial Service Tools

EDS000I3

Tool name	Description
Spring compressor  S-NT717	Removing and installing spring

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

NVH Troubleshooting Chart

EDS000FK

Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

Reference page			—	RAX-11	—	RAX-6, RAX-9	—	NVH in PR section.	NVH in RFD section.	NVH in FAX and FSU sections.	Refer to REAR AXLE in this chart.	NVH in WT section.	NVH in WT section.	Refer to DRIVE SHAFT in this chart.	NVH in BR section.	NVH in PS section.
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	PROPELLER SHAFT	DIFFERENTIAL	FRONT AXLE AND FRONT SUSPENSION	REAR AXLE	TIRES	ROAD WHEEL	DRIVE SHAFT	BRAKES	STEERING
Symptom	DRIVE SHAFT	Noise	×	×				×	×	×	×	×	×		×	×
		Shake	×		×			×		×	×	×	×		×	×
	REAR AXLE	Noise				×	×	×	×	×		×	×	×	×	×
		Shake				×	×	×		×		×	×	×	×	×
		Vibration				×	×	×		×		×		×		×
		Shimmy				×	×			×		×	×		×	×
		Judder				×				×		×	×		×	×
		Poor quality ride or handling				×	×			×		×	×			

×: Applicable

WHEEL HUB (4WD)

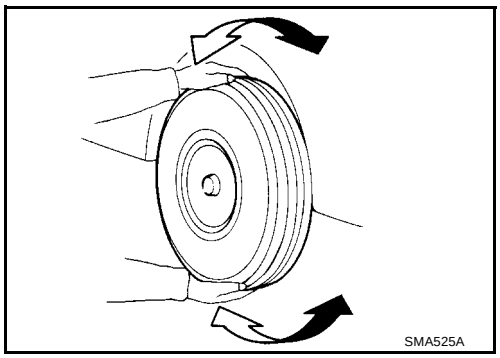
PFP:43202

On-Vehicle Inspection

EDS00065

Inspect to check that there is no excessive play, cracking, wear, or other damage to rear axle.

- Turn rear wheels (left/right) and check the play.



REAR WHEEL BEARING

With vehicle raised, inspect the following.

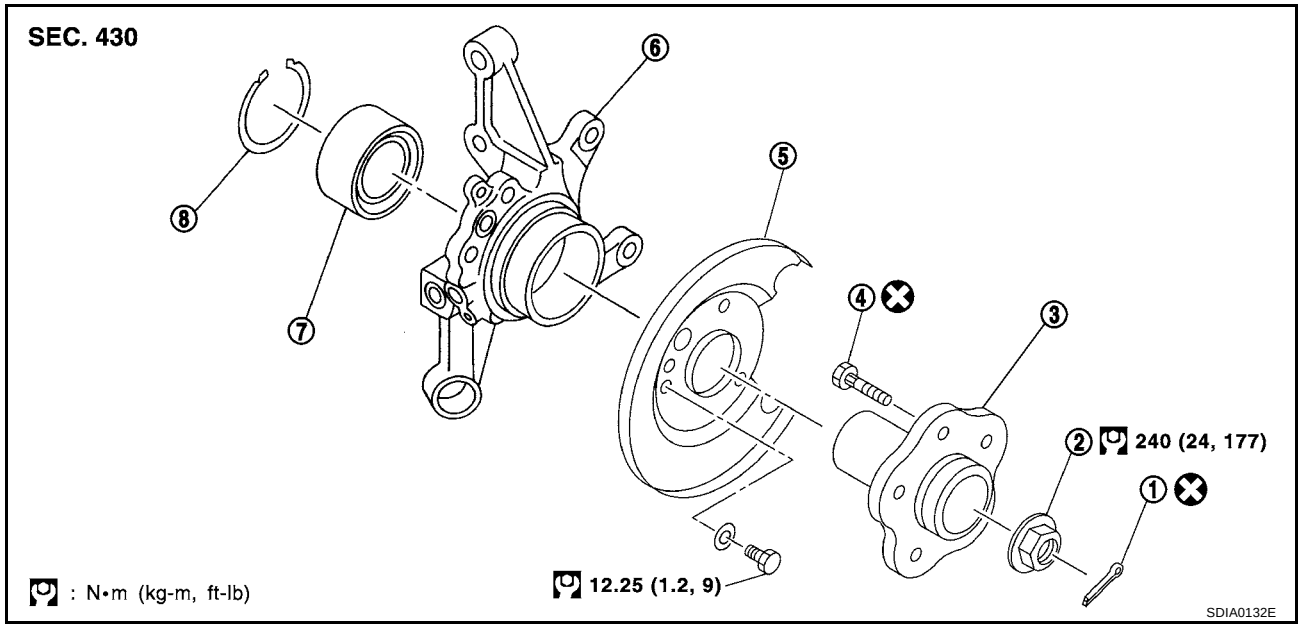
- Move wheel hub in the axial direction by hand. Check that there is no looseness of rear wheel bearings.

Axial end play : 0.05 mm (0.002 in) or less

- Rotate wheel hub and check that there is no unusual noise or other irregular conditions. If there are any irregular conditions, replace wheel bearing.

Removal and Installation

EDS00066



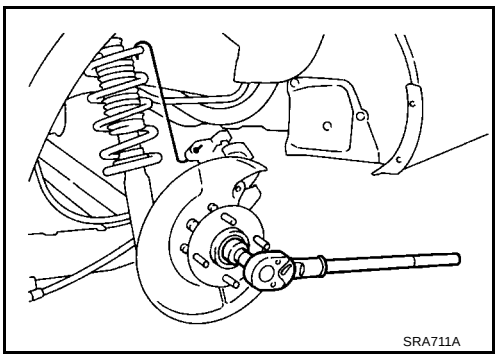
1. Cotter pin
2. Lock nut
3. Wheel hub
4. Hub bolt
5. Back plate
6. Axle housing
7. Wheel bearing assembly
8. Snap bearing

REMOVAL

1. Remove tire.

2. Remove wheel hub lock nuts.

CAUTION:
Discard the old hub lock nuts; replace with new ones.



3. Remove brake caliper from axle housing and hang it up somewhere.

CAUTION:
Avoid depressing the brake pedal while the brake caliper is removed.

4. Remove disc rotor and parking brake assembly from back plate and axle housing.
5. Remove ABS wheel speed sensor from axle housing.
6. Remove axle housing from strut.
7. Remove nut and bolt from axle housing side of radius rod.
8. Remove nuts and bolts from axle housing sides of front and rear parallel links. Remove axle housing from vehicle.

INSTALLATION

- Refer to component parts drawing for tightening torque. For installation, follow removal procedure in reverse order.

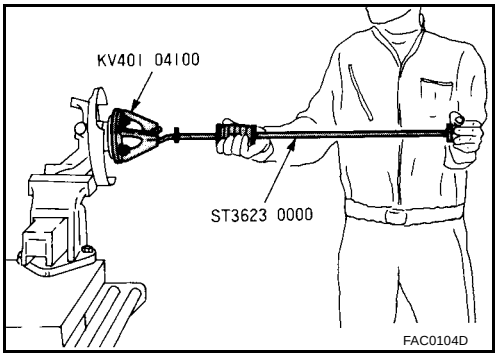
Disassembly and Assembly

EDS00067

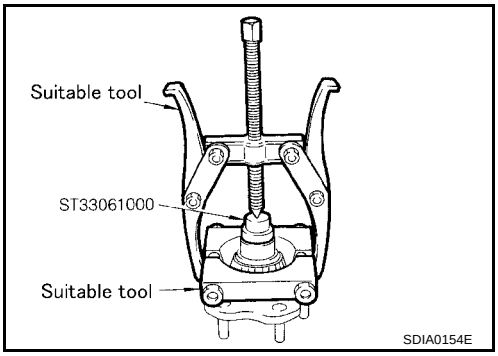
DISASSEMBLY

1. Set axle housing on bench vise. As shown in the figure, use attachment and sliding hammer to remove wheel hub from axle housing.

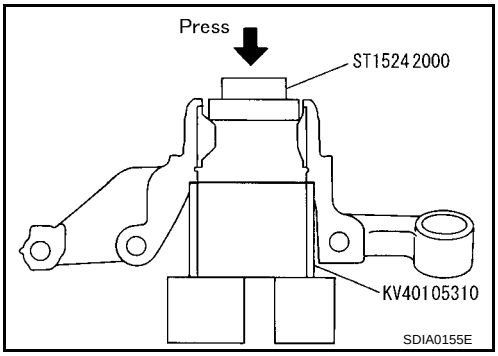
CAUTION:
When placing onto bench vise, be careful not to damage strut mounting surface of steering knuckle. Use an aluminum plate or another suitable tool.



2. Use a bearing replace, puller, and adapter to remove inner race of outer-wheel bearing from wheel hub.
3. Remove back plate installation bolt and anchor block. Remove back plate from axle housing. Refer to PB-5, "Components"
4. Use a flat-bladed screwdriver or similar tool to remove snap ring.



5. Use a drift to remove wheel bearing from axle housing.



INSPECTION AFTER DISASSEMBLY

Wheel Hub

- Inspect wheel hub for deformation, cracks, and other damage. If any irregular conditions are found, replace wheel hub.

Axle Housing

- Inspect axle housing for deformation, cracks, and other damage. If any irregular conditions are found, replace axle housing.

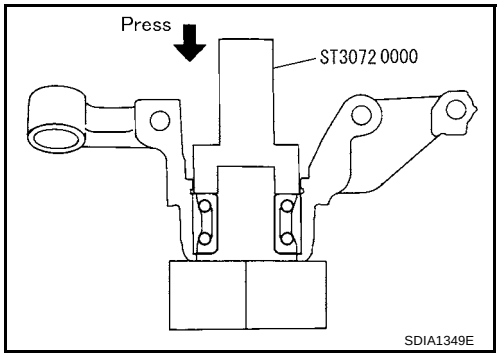
Snap Ring

- Check snap ring for deformation, cracks, and other damage. If any irregular conditions are found, replace snap ring.

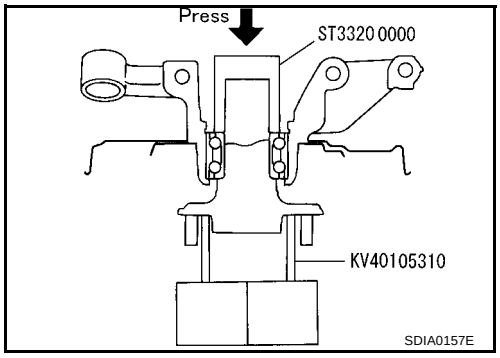
ASSEMBLY

1. Use a drift to press fit wheel bearing into axle housing.

   CAUTION:
   Discard the old wheel bearing; replace with a new one.
2. Use a flat-bladed screwdriver or similar tool to install the snap ring.
3. Install back plate and anchor block onto axle housing. Refer to PB-5, "Components" .



4. Use a drift to install wheel hub onto axle housing.
5. After completing step 4, apply an additional load of 34,300 - 49,000 N (3,500 - 5,000 kg, 7,718 - 11,025 lb). Rotate axle housing in forward and reverse directions 10 times each to ensure a good fit.



6. Place a spring balance at the point where the strut is joined (upper side bolt hole) and measure rotation torque when spring is pulled at a speed of 8 -12 rpm. Refer to the RAX-15, "Wheel Bearing" item.

   Rotation torque : 1.96 N·m (0.20 kg-m, 17 in-lb) or less
   Spring balance reading : 12.8 N (1.30 kg, 2.87 lb) or less

NOTE:
If a load of 34,300 - 49,000 N (3,500 - 5,000 kg, 7,718 - 11,025 lb) cannot be applied:

- Install to drive shaft and tighten wheel hub lock nuts to specified torque. Rotate in forward and reverse direction 10 times each to ensure a good fit.
- At a rotation speed of 8 - 12 rpm, place a spring balance on hub bolt and measure rotation torque.

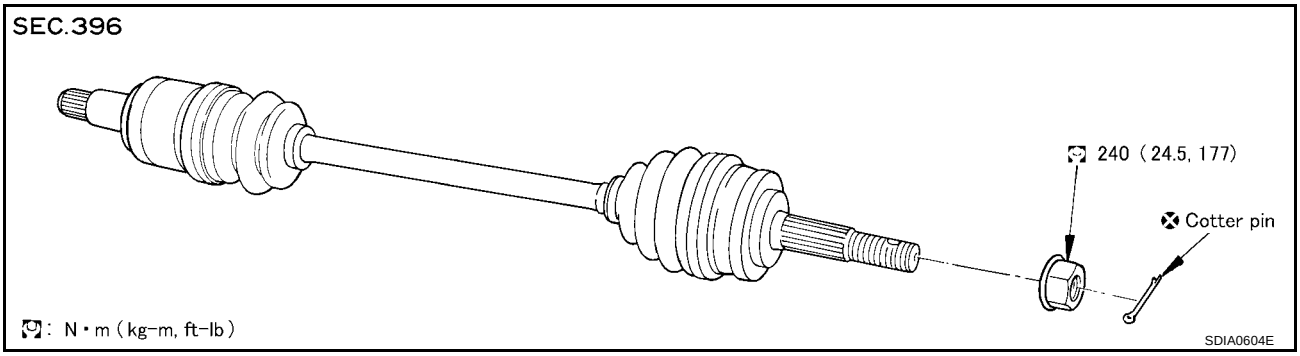
  Rotation torque : 1.126 N·m (0.11 kg-m, 10 in-lb)
  Spring balance reading : 19.70 N (2.01 kg, 4.43 lb)

REAR DRIVE SHAFT

PFP:39600

Removal and Installation

EDS000FL

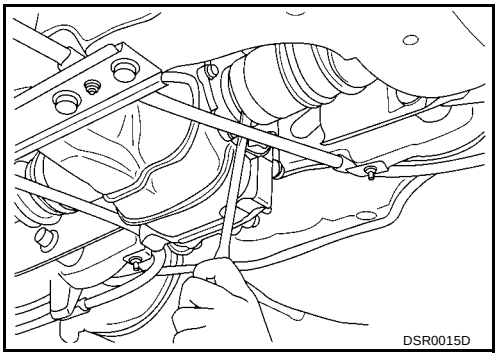


REMOVAL

1. Remove rear axle. Refer to RAX-6, "REMOVAL" .

   NOTE:
   In order to remove the rear drive shaft assembly, the rear axle is removed. At this time it is recommended that front and rear parallel links on axle side be loosened (not removed). This will facilitate wheel alignment inspection and adjustment which are carried out later.

2. As shown in the figure, use a wheel wrench or similar tool to remove drive shaft from final drive.



INSPECTION AFTER REMOVAL

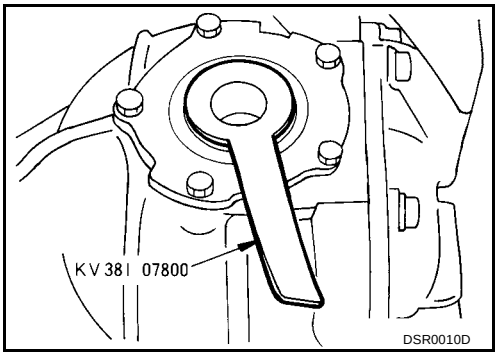
- Move the joint in the up/down, left/right, and axial directions. Check for any rough movement or significant looseness.
- Check boot for cracks or other damage, and also for grease leakage.

INSTALLATION

1. In order to prevent damage to final drive side oil seal, first fit a protector onto oil seal before inserting drive shaft. Slide drive shaft into slide joint and tap with a hammer to install securely.

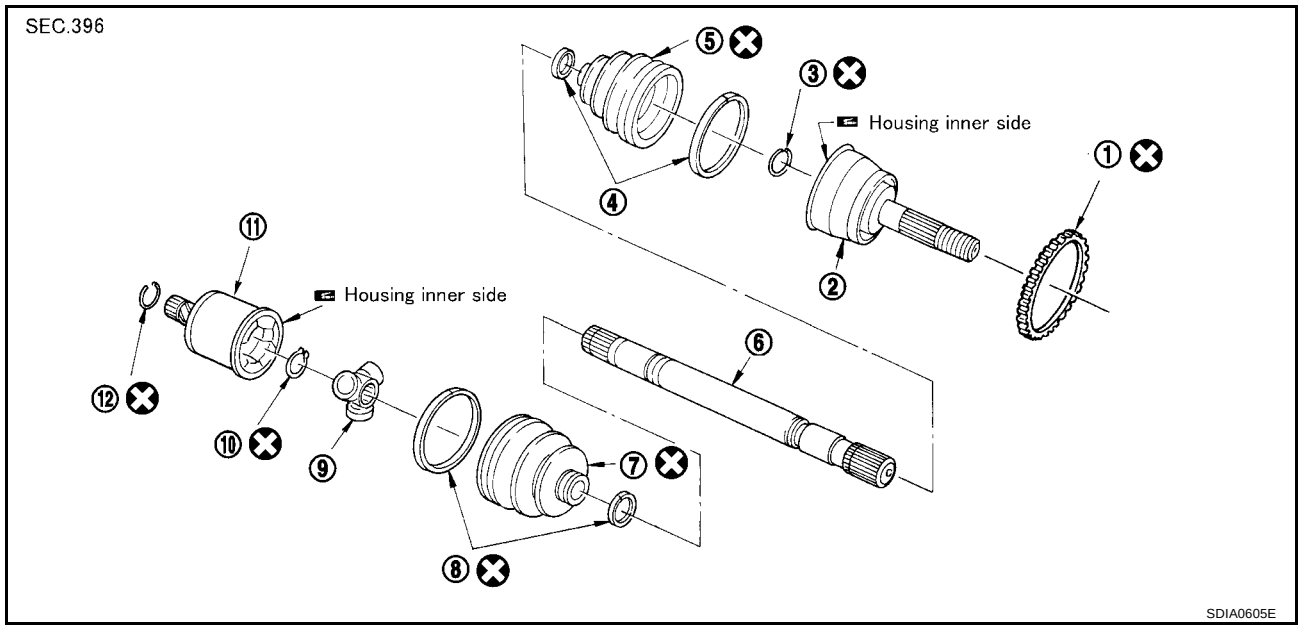
   CAUTION:
   Be sure to check that circular clip is securely fastened.

2. Install rear axle. Refer to RAX-7, "INSTALLATION"



Disassembly and Assembly

EDS000FM



1. Sensor rotor
2. Joint sub assembly
3. Circular clip
4. Boot bands
5. Boot
6. Shaft
7. Boot
8. Boot bands
9. Spider assembly
10. Snap ring
11. Housing (Slide joint)
12. Circular clip

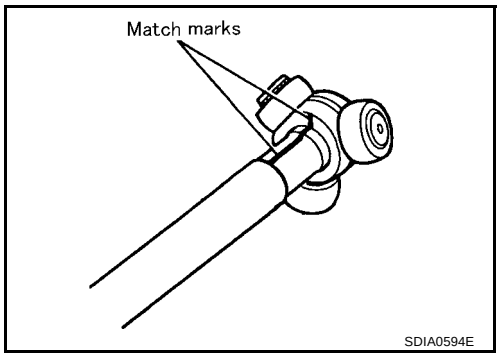
DISASSEMBLY

Final Drive Side

1. Remove boot bands.
2. Fix shaft to bench vise.

   CAUTION:
   When fixing shaft to bench vise, be sure to protect it with a copper or aluminum sheet.
3. Make alignment marks on shaft and spider assembly.

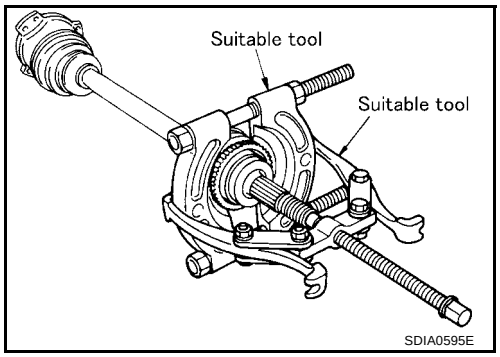
   CAUTION:
   Use paint or similar substance for alignment marks. Do not scratch the surface.
4. Remove snap ring. Remove spider assembly from shaft.
5. Remove boot from shaft.



Wheel Side

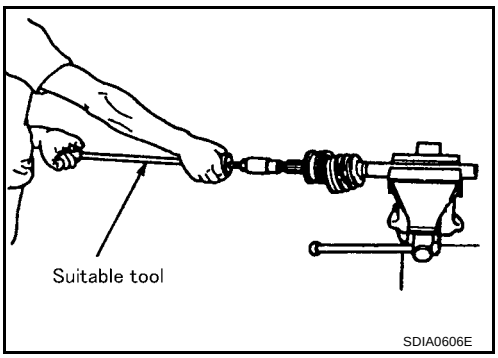
1. As shown in the figure, use a bearing replacer and puller to remove sensor rotor from drive shaft.
2. Fix shaft to bench vise.

   CAUTION:
   When fixing shaft to bench vise, be sure to protect it with a copper or aluminum sheet.
3. Remove boot bands. Remove boot from joint sub-assembly.



4. Screw a drive shaft puller 30 mm (1.18 in) or more into threaded part of joint sub-assembly. Pull joint sub-assembly out of shaft.

   CAUTION:
   If joint sub assembly cannot be removed after five or more unsuccessful attempts, replace the entire drive shaft assembly.
5. Remove boot from shaft.
6. Remove circular clip from shaft.
7. Remove old grease.



INSPECTION AFTER DISASSEMBLY

Shaft

- Replace shaft if there is any runout, cracking, or other damage.

Boot and Boot Bands

- If boot is ruptured, replace it.
- Once boot bands are removed, they must be replaced with new ones.

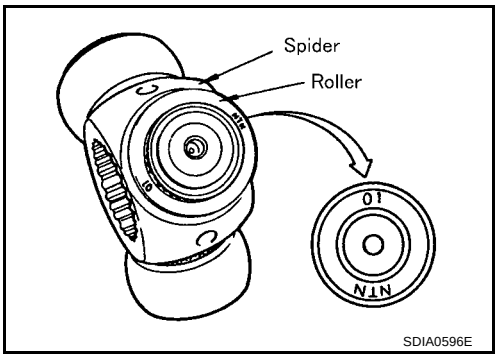
Joint Sub-Assembly (Fixed Joint)

- Check that there is no rough rotation or unusual axial looseness.
- Check that there is no foreign material inside joint.

  CAUTION:
  If there are any irregular conditions of joint assembly components, replace the entire joint assembly.

Joint Assembly (Slide Joint)

- If there is scratching or wear of housing roller contact surface or spider roller contact surface, replace housing and spider assemblies.
- If there is circumferential looseness or rough rotation of spider roller, replace spider assembly.
- As shown in the figure, the spider roller has a stamped number which corresponds to a part number. Select a suitable replacement part with the same stamp number from the table below.
- If there are any irregular conditions of joint assembly components, replace the entire joint assembly.
- For housing replacement, spider assembly and joint assembly are a set.



Stamped No.	Part No.	Model
00	39720 2U610	T58C
01	39720 2U611	
02	39720 2U612	
03	39720 2U613	
04	39720 2U614	
05	39720 2U615	
06	39720 2U616	

Housing (Sliding Joint)

- Check that there is no damage or unusual wear of ball rolling surface.
- Check that there is no damage to shaft screws.
- Check that there is no deformation of boot installation parts.

Ball Gauge

- Check that there is no damage or other irregular conditions of sliding surface.

Steel Ball

- Check that there is no damage or unusual wear.

Inner Case

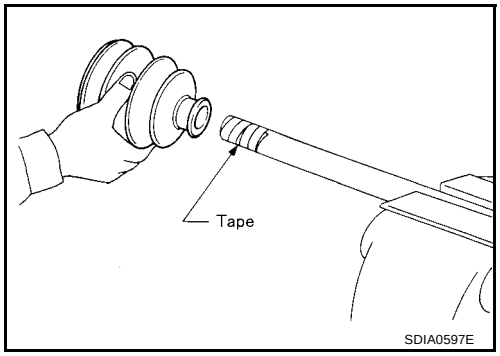
- Check that there is no damage or other irregular conditions of ball rolling surface.
- Check that there is no damage to serrated part.

ASSEMBLY

Final Drive Side

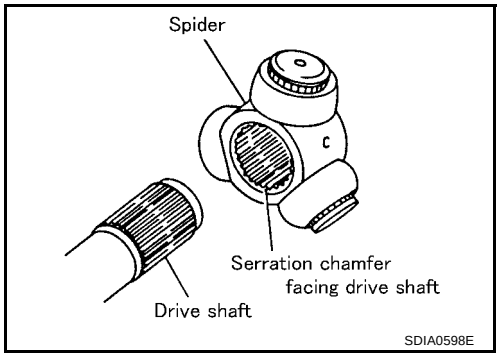
1. Wind serrated part of drive shaft with tape. Install boot band and boot to shaft. Be careful not to damage boot.

   CAUTION:
   Discard the old boot band and boot; replace with new ones.



2. Remove protective tape wound around serrated part of shaft.
3. Line up alignment marks which were made when spider assembly was removed. Install spider assembly, with serration chamfer facing drive shaft.
4. Secure spider assembly with snap ring.

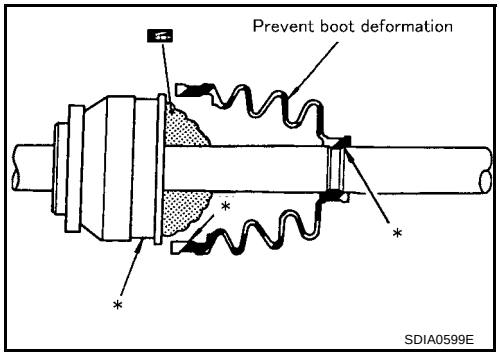
   CAUTION:
   Discard the old snap ring; replace with a new one.
5. Apply grease (Nissan genuine grease or equivalent) to spider assembly and sliding surface.
6. Install housing to spider assembly. Add remaining grease (Nissan genuine grease or equivalent) up to the amount listed below.



   Grease amount : 40 - 50 g (1.41 - 1.77 oz)

7. Install boot securely into grooves (indicated by * marks) shown in the figure.

   CAUTION:
   If there is grease on boot mounting surfaces (indicated by * marks) of joint, boot may come off. Remove all grease from surfaces.



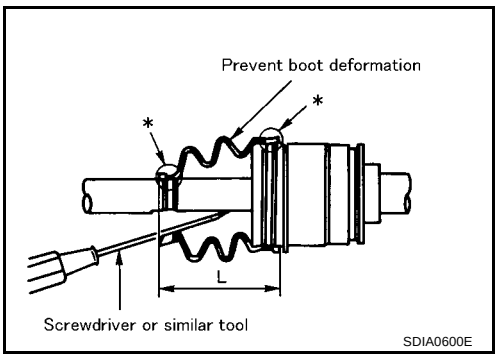
8. Check that boot installation length “L” is the length indicated below. Insert a flat-bladed screwdriver or similar tool into smaller side of boot. Remove air from boot to prevent boot deformation.

Boot installation length:

78.6 - 80.6 mm (3.094 - 3.173 in)

CAUTION:

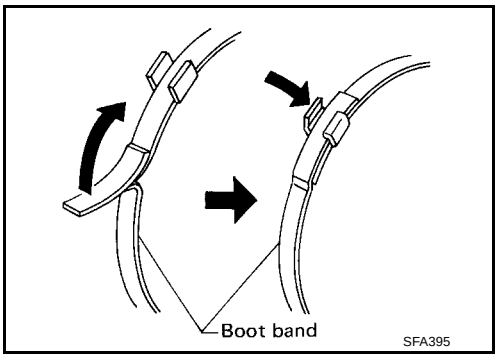
- **Boot may break if boot installation length is less than standard value.**
- **Be careful that screwdriver tip does not contact inside surface of boot.**



9. Secure big and small ends of boot with new boot bands as shown in figure.

CAUTION:

Rotate housing and check that boot installation position does not change. If position changes, reinstall boot bands.

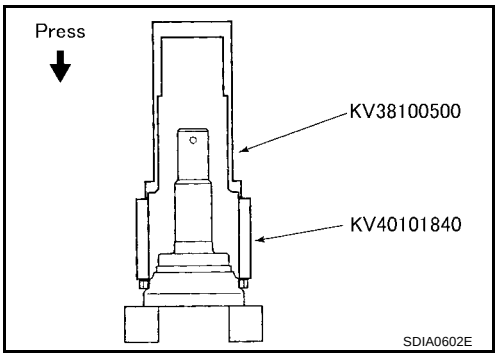


Wheel Side

1. Use a drift to press-fit sensor rotor into joint sub-assembly.

CAUTION:

Discard the old sensor rotor; replace with a new one.

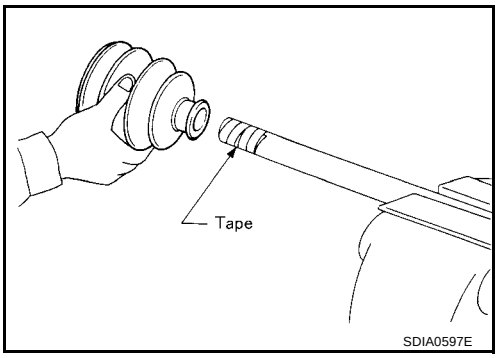


2. Wind serrated part of drive shaft with tape. Install boot band and boot to shaft. Be careful not to damage boot.

CAUTION:

Discard the old boot band and boot; replace with new ones.

3. Remove protective tape wound around serrated part of shaft.

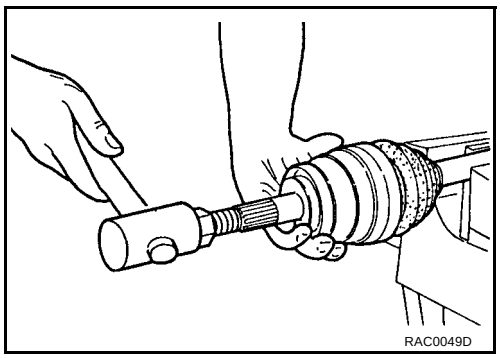


4. Attach circular clip to shaft. At this time, circular clip must fit securely into the shaft groove. Attach nut to joint sub-assembly. Use a wooden hammer to press-fit.

   CAUTION:
   Discard the old circular clip; replace with a new one.

5. Insert the amount of grease (Nissan genuine grease or equivalent) listed below into housing from large end of boot.

   Grease amount : 35 - 45 g (1.23 - 1.59 oz)



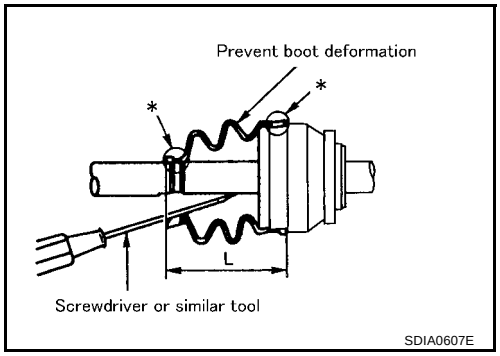
6. Install boot securely into grooves (indicated by * marks) shown in the figure.

   CAUTION:
   If there is grease on boot mounting surfaces (indicated by * marks) of joint sub-assembly, boot may come off. Remove all grease from surfaces.

7. Check that boot installation length “L” is the length indicated below. Insert a flat-bladed screwdriver or similar tool into smaller side of boot. Remove air from boot to prevent boot deformation.

   Boot installation length:

   66.7 - 68.7 mm (2.626 - 2.705 in)

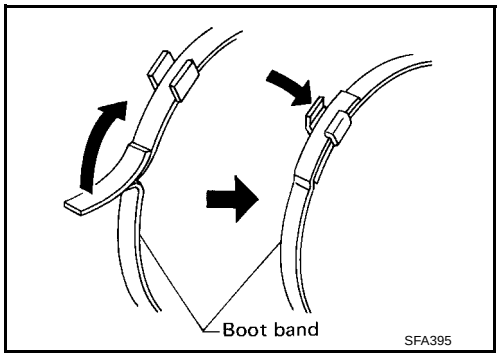


CAUTION:

- **Boot may break if boot installation length is less than standard value.**
- **Be careful that screwdriver tip does not contact inside surface of boot.**

8. Secure big and small ends of boot with new boot bands as shown in the figure.

   CAUTION:
   Rotate housing and check that boot installation position does not change. If position changes, reinstall boot bands.

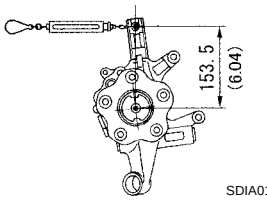


SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

Wheel Bearing

EDS000ID

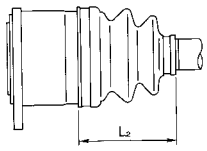
Drive type	4WD
Rotation torque	1.96 N·m (0.20 kg-m, 17 in-lb)
Spring balance reading	12.8 N or less (1.30 kg or less)
Installation location of spring balance mm (in)	 SDIA0148E
Axial end play	0.05 mm (0.0020 in) or less

Drive Shaft

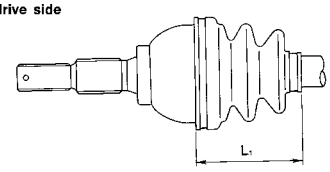
EDS000IE

Joint type	Final drive side	T58C
	Wheel side	Z65
Grease		Nissan genuine grease or equivalent
Specified amount of grease	Final drive side	40 - 50 g (1.41 - 1.77 oz)
	Wheel side	35 - 45 g (1.23 - 1.59 oz)
Boot length	Final drive side (L_2)	78.6 - 80.6 mm (3.094 - 3.173 in)
	Wheel side (L_1)	66.7 - 68.7 mm (2.626 - 2.705 in)

Final drive side



Wheel drive side



SDIA0618E