

SECTION **FAX**
FRONT AXLE

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FAX

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PRECAUTIONS

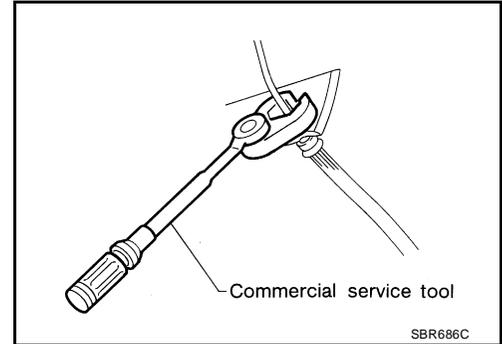
PRECAUTIONS

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Precautions

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- 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.
- Use flare nut wrench when removing or installing brake tubes.
- Always torque brake lines when installing.



PREPARATION

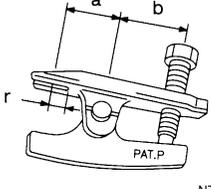
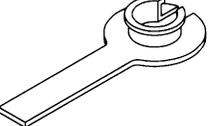
PREPARATION

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Special Service Tools

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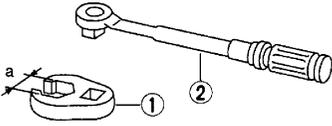
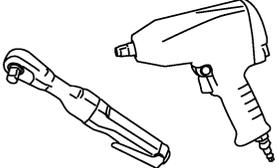
The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
HT72520000 (J25730-B) Ball joint remover	 <p>Removing tie-rod outer end and lower ball joint a: 33 mm (1.30 in) b: 50 mm (1.97 in) r: R11.5 mm (0.453 in)</p>
KV38106700 (J34296) KV38106800 (J34297) Differential side oil seal protector	 <p>Installing drive shaft LH: KV38106700 (J34296) RH: KV38106800 (J34297)</p>

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Commercial Service Tools

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Tool name	Description
1 Flare nut crowfoot 2 Torque wrench	 <p>Removing and installing each brake piping a: 10 mm (0.39 in)</p>
Power tool	 <p>Loosening bolts and nuts</p>

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

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NVH Troubleshooting Chart

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

			Reference page													
			—	FAX-15	—	FAX-6	—	FAX-5	Refer to DRIVE SHAFT in this chart.	Refer to AXLE in this chart.	FSU-4, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	BR-5, "NVH Troubleshooting Chart"	PS-5, "NVH Troubleshooting Chart"	
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	DRIVE SHAFT	AXLE	SUSPENSION	TIRES	ROAD WHEEL	BRAKES	STEERING	
Symptom	DRIVE SHAFT	Noise, Vibration	x	x						x	x	x	x	x	x	
		Shake	x		x					x	x	x	x	x	x	
	AXLE	Noise				x	x		x		x	x	x	x	x	x
		Shake				x	x		x		x	x	x	x	x	x
		Vibration				x	x		x		x	x				x
		Shimmy				x	x				x	x	x	x	x	x
		Judder				x					x	x	x	x	x	x
		Poor quality ride or handling				x	x	x			x	x	x			

x: Applicable

WHEEL HUB AND KNUCKLE

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WHEEL HUB AND KNUCKLE

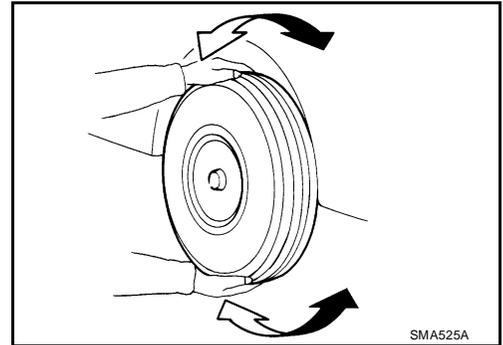
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On-vehicle Service

Check front axle and front suspension parts for excessive play, cracks, wear or other damage.

- Shake each front wheel to check for excessive play.
- Make sure that cotter pin is inserted.
- Retighten all axle and suspension nuts and bolts to the specified torque.

Tightening torque : Refer to [FSU-5, "Components"](#)

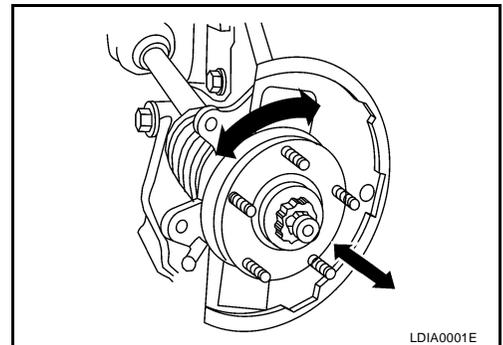


FRONT WHEEL BEARING

- Check that wheel bearings operate smoothly.
- Check axial end play.

Axial end play : **0.07 mm (0.0030 in) or less**

If out of specification or wheel bearing does not turn smoothly, replace wheel bearing assembly.
Refer to [FAX-6, "Removal and Installation"](#) .



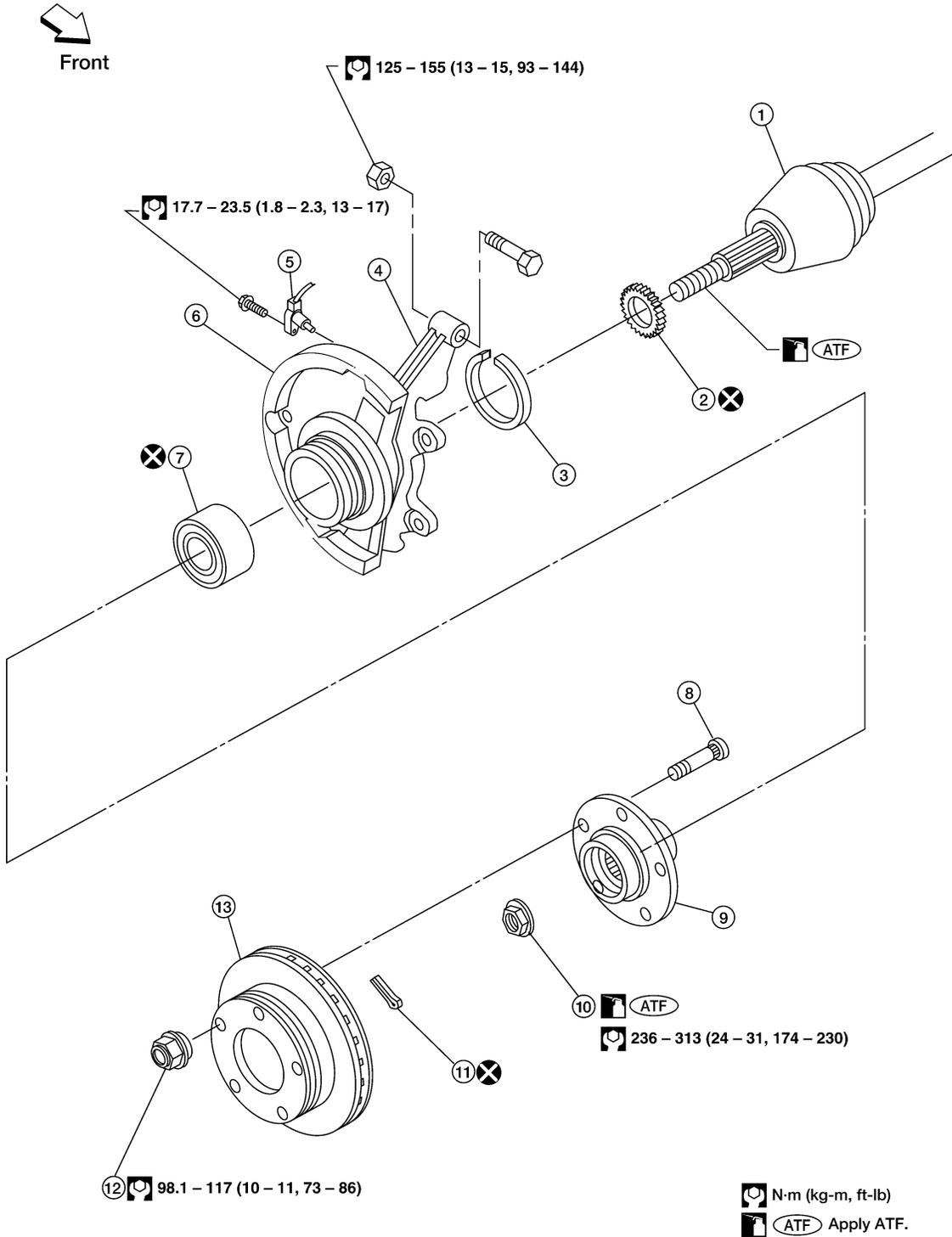
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WHEEL HUB AND KNUCKLE

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Removal and Installation

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- | | | |
|----------------------------|------------------------------|-----------------|
| 1. Drive shaft | 2. Sensor rotor, if equipped | 3. Snap ring |
| 4. Knuckle | 5. Wheel sensor, if equipped | 6. Baffle plate |
| 7. Wheel bearing assembly | 8. Hub bolt | 9. Wheel hub |
| 10. Wheel bearing lock nut | 11. Cotter pin | 12. Wheel nut |
| 13. Disc rotor | | |

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WHEEL HUB AND KNUCKLE

REMOVAL

CAUTION:

Before removing the front axle assembly, remove the wheel sensor from the assembly. Then move it away from the front axle assembly area.

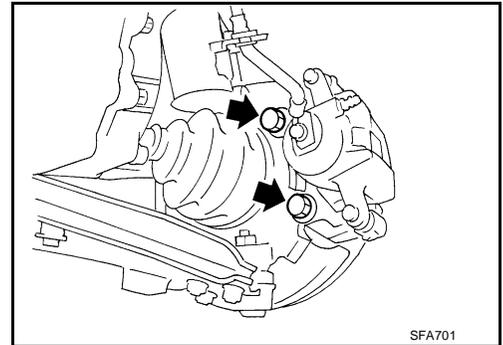
Failure to do so may result in damage to the sensor wires and the wheel sensor becoming inoperative.

1. Remove wheel and tire assembly.
2. Remove wheel bearing lock nut using power tool.
3. Remove brake caliper assembly and rotor using power tool. Brake hose need not be disconnected from brake caliper. In this case, suspend caliper assembly with wire so as not to stretch brake hose. Be careful not to depress brake pedal, or piston will pop out.

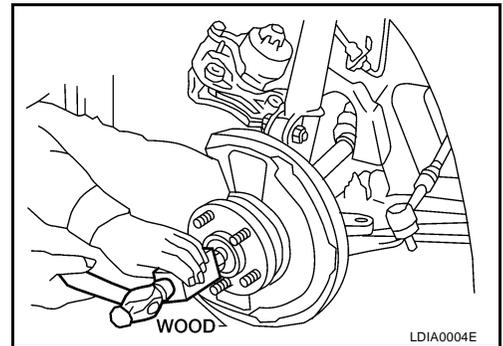
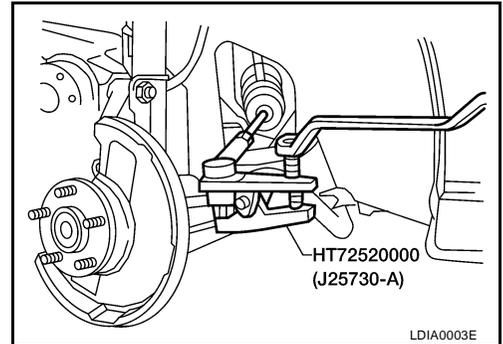
CAUTION:

Make sure brake hose is not twisted.

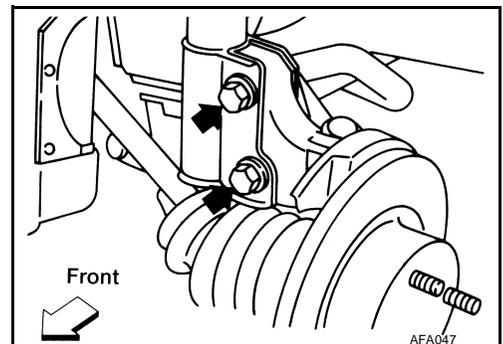
4. Remove wheel sensor, if equipped.
5. Separate tie rod from knuckle with Tool. Install stud nut on stud bolt to prevent damage to stud bolt.



6. Separate drive shaft from knuckle by lightly tapping it. If it is hard to remove, use a puller. Cover boots with shop towel so as not to damage them when removing drive shaft.



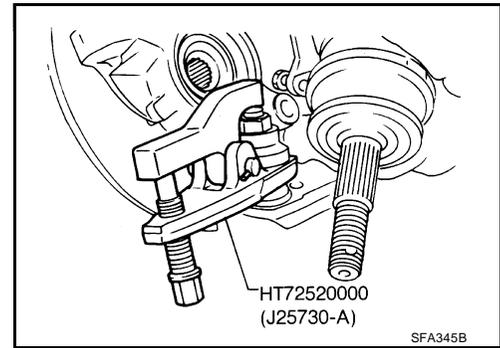
7. Remove lower strut mounting bolts.



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WHEEL HUB AND KNUCKLE

8. Loosen lower ball joint tightening nut.
9. Separate knuckle from lower ball joint stud with Tool.
10. Remove lower ball joint tightening nut and knuckle from transverse link.



INSPECTION AFTER REMOVAL

Wheel Hub

- Check wheel hub for cracks by a magnetic exploration or dying test, and replace if cracked.

Knuckle

- Check for deformity, cracks (by magnetic exploration or dying test) and damage on steering knuckle, replace if necessary.

Snap Ring

- Check for wear and damage on snap ring, replace if necessary.

INSTALLATION

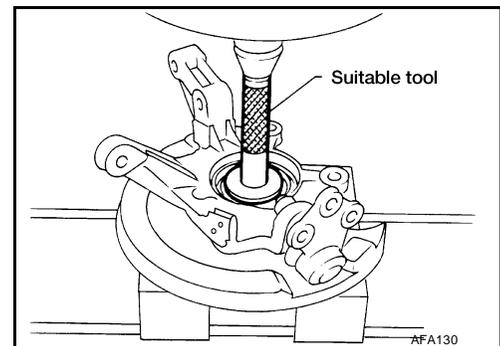
- To install, reverse the removal procedure. For tightening torques, refer to [FAX-6, "Removal and Installation"](#).

Disassembly and Assembly

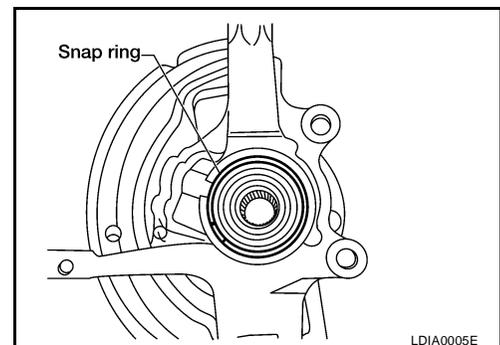
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DISASSEMBLY

- CAUTION:**
- When removing wheel hub or wheel bearing from knuckle, replace wheel bearing assembly (outer race, inner races and grease seals) with a new one.
 - When replacing wheel bearing, replace complete wheel bearing assembly (inner races and outer race).
1. Press out wheel hub from knuckle with a suitable tool.

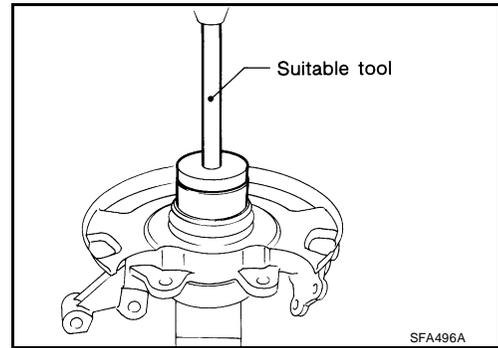


2. Remove snap rings.



WHEEL HUB AND KNUCKLE

3. Press out wheel bearing from knuckle.



ASSEMBLY

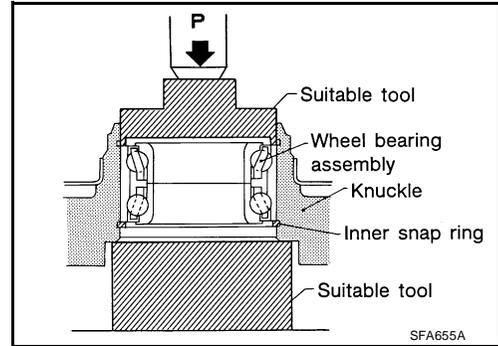
1. Install inner snap ring into groove of knuckle.
2. Press new wheel bearing assembly into knuckle until it contacts snap ring.

Maximum load P : 50 kN (5.1 ton, 5.6 US ton, 5.02 Imp ton)

CAUTION:

- Do not press inner race of wheel bearing assembly.
- Do not apply oil or grease to mating surfaces of wheel bearing outer race and knuckle.

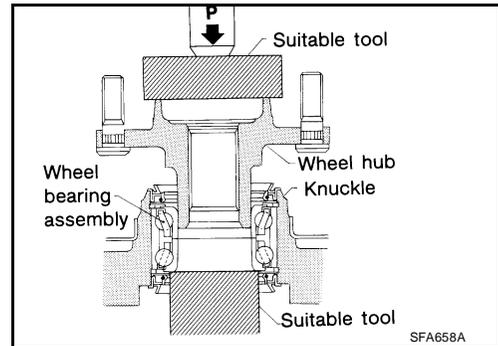
3. Install outer snap ring into groove of knuckle.



4. Press wheel hub into knuckle.

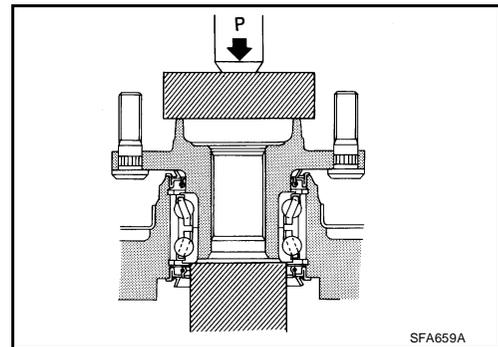
Maximum load P : 50 kN (5.1 ton, 5.6 US ton, 5.02 Imp ton)

5. Check bearing operation.



- a. Add load P with press.

Load P : 35-50 kN (3.6 - 5.1 ton, 3.9 - 5.6 US ton, 3.51 - 5.02 Imp ton)

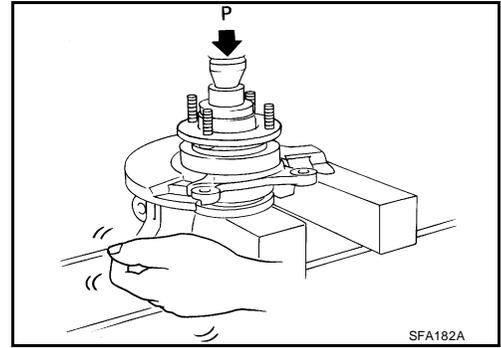


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WHEEL HUB AND KNUCKLE

- b. Spin knuckle several turns in both directions.
- c. Make sure that wheel bearings operate smoothly.

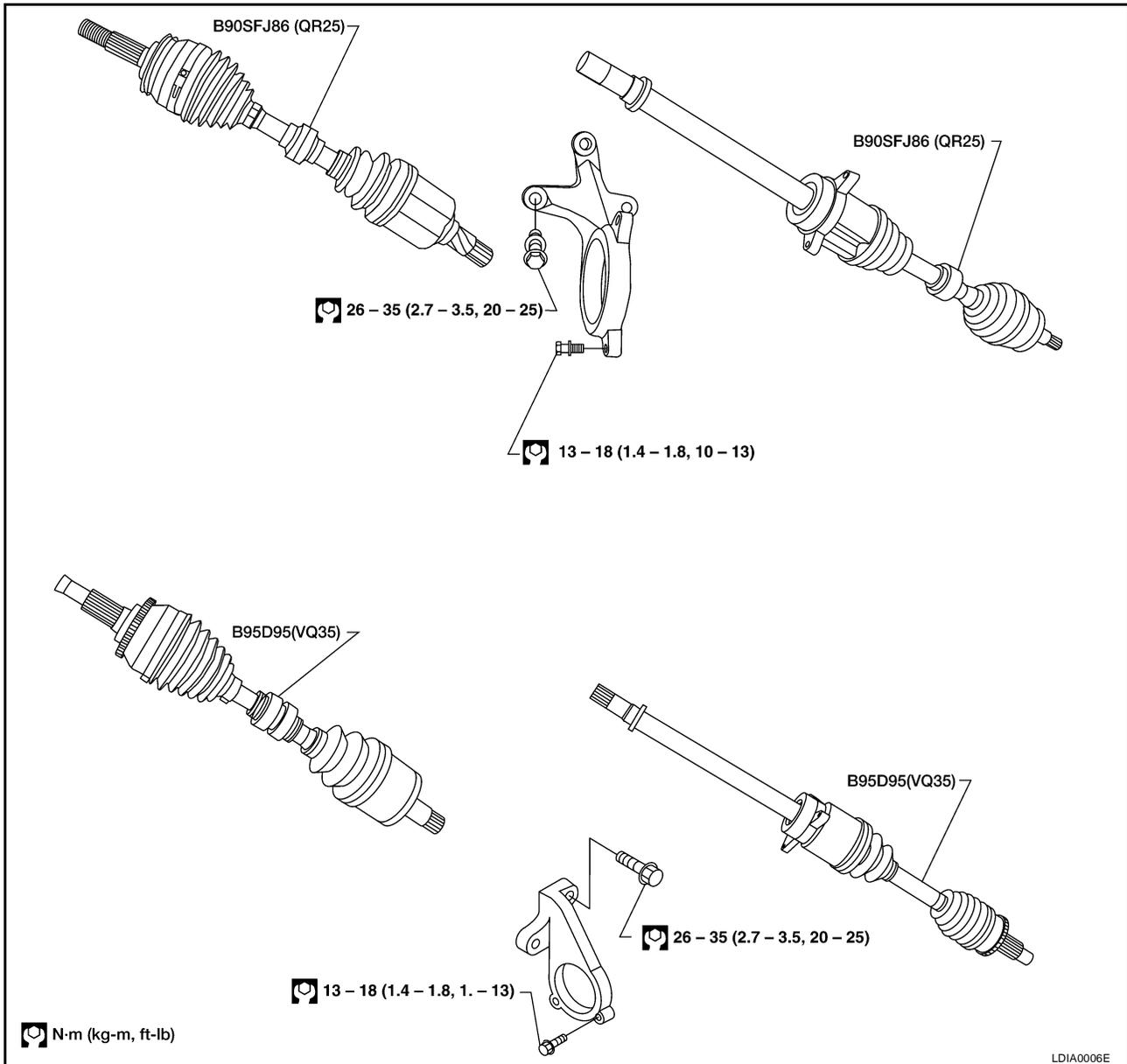


FRONT DRIVE SHAFT

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FRONT DRIVE SHAFT Removal and Installation



REMOVAL

1. Remove the wheel and tire.
2. Remove wheel bearing lock nut using power tool.

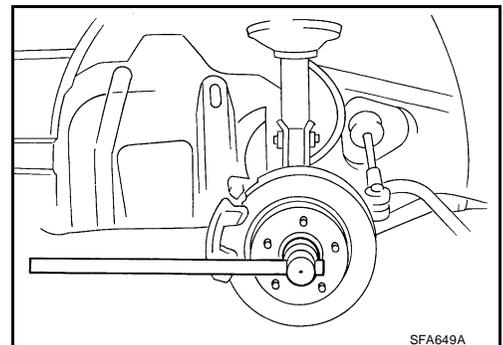
NOTE:

Brake caliper need not be disconnected.

CAUTION:

Do not twist or stretch brake hose when moving components.

3. Remove the splash shield.
4. Loosen the lower ball joint tightening nut and separate the lower ball joint front transverse link using Tool.

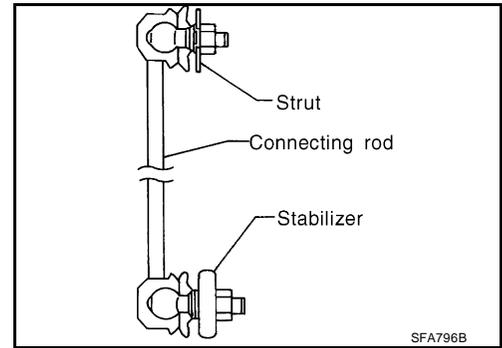


FRONT DRIVE SHAFT

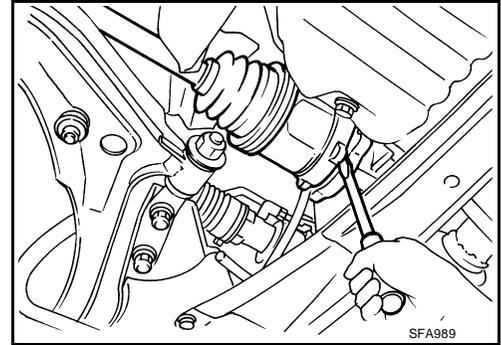
5. Disconnect the connecting rod from the strut.
6. Separate drive shaft from knuckle by lightly tapping it. If it is hard to remove, use a puller.

CAUTION:

Cover boots with shop towel so as not to damage them when removing drive shaft.

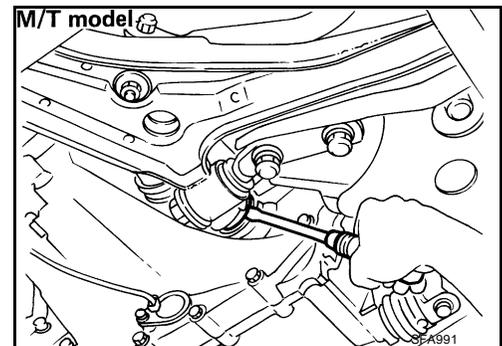


7. Remove support bearing bolts using power tool, and pull drive shaft from transaxle.
8. Remove left drive shaft from transaxle.



— For M/T models —

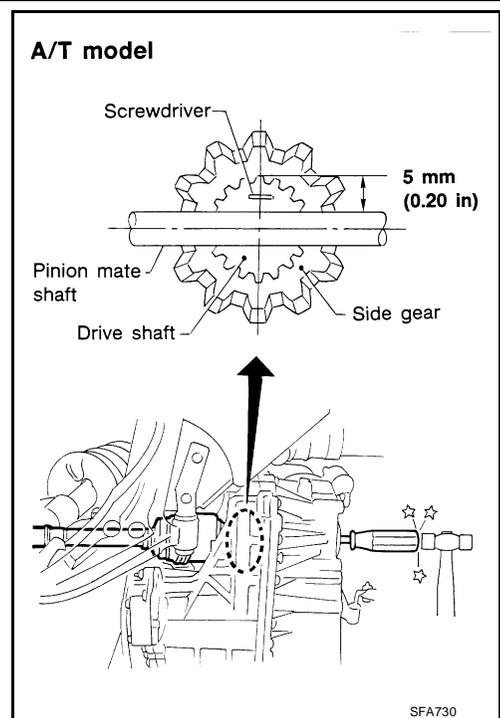
- Pry off drive shaft from transaxle as shown.



FRONT DRIVE SHAFT

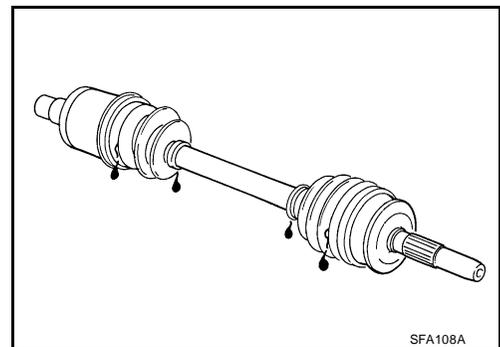
— For A/T models —

- Insert screwdriver into transaxle opening for right drive shaft and strike with a hammer.
- Be careful not to damage pinion mate shaft and side gear.



INSPECTION AFTER REMOVAL

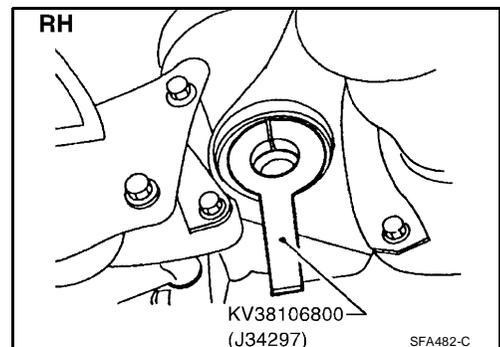
- Check for halting movement or a noticeable rattle by moving a joint part vertically, horizontally and to axial direction.
- Check for crack damage and grease leak of boot.



INSTALLATION

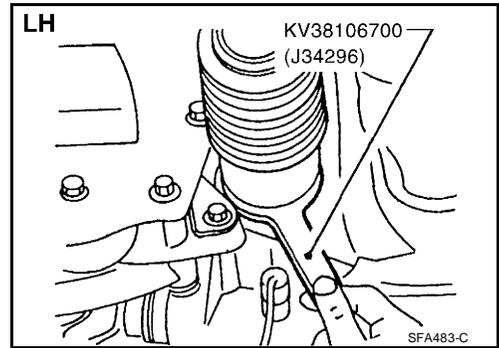
Transaxle Side

1. Drive a new oil seal into transaxle case. Refer to [MT-11, "SIDE OIL SEAL"](#) or [AT-258, "Differential Side Oil Seal Replacement"](#).
2. Set Tool along the inner circumference of oil seal.



FRONT DRIVE SHAFT

3. Insert drive shaft into transaxle. Be sure to properly align the serrations and then withdraw Tool.
4. Push drive shaft, then press-fit circular clip on the drive shaft into circular clip groove of side gear.
5. After its insertion, try to pull the flange out of the slide joint by hand. If it pulls out, the circular clip is not properly meshed with the side gear.



Wheel Side

Install drive shaft into knuckle.

- Tighten support bearing bolts. Refer to [FAX-11, "Removal and Installation"](#) .
- Tighten lower ball joint tightening nut and connecting rod nut, wheel bearing lock nut. Refer to [FSU-5, "Components"](#) .

FRONT DRIVE SHAFT

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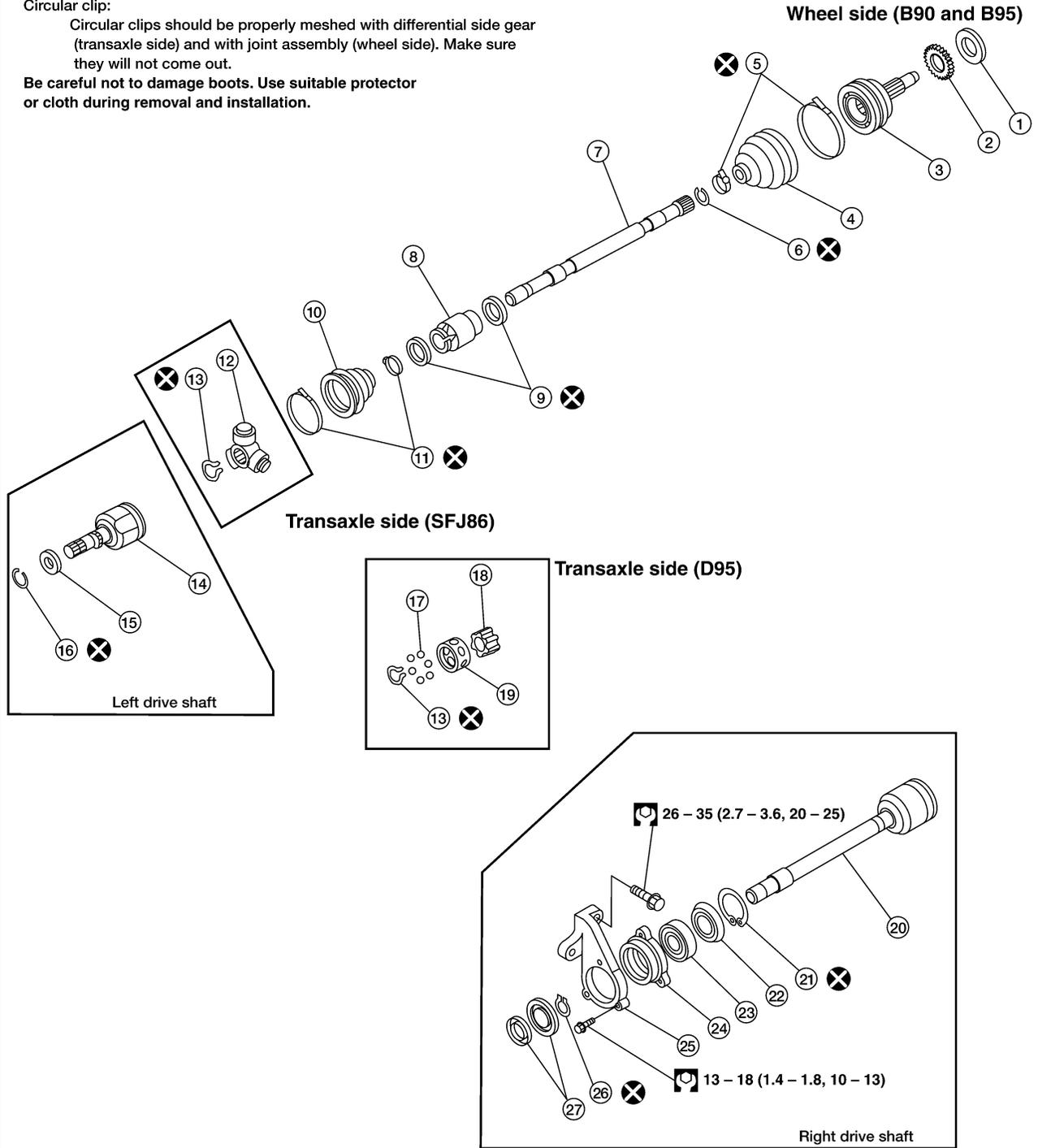
Disassembly and Assembly

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Circular clip:

Circular clips should be properly meshed with differential side gear (transaxle side) and with joint assembly (wheel side). Make sure they will not come out.

Be careful not to damage boots. Use suitable protector or cloth during removal and installation.



Nm (kg-m, ft-lb)

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- | | | |
|-------------------|------------------------------|------------------------|
| 1. Dust shield | 2. Sensor rotor, if equipped | 3. Joint assembly |
| 4. Boot | 5. Boot band | 6. Circular clip |
| 7. Drive shaft | 8. Dynamic damper | 9. Dynamic damper band |
| 10. Boot | 11. Boot band | 12. Spider assembly |
| 13. Snap ring | 14. Slide joint assembly | 15. Dust shield |
| 16. Circular clip | 17. Ball | 18. Inner race |

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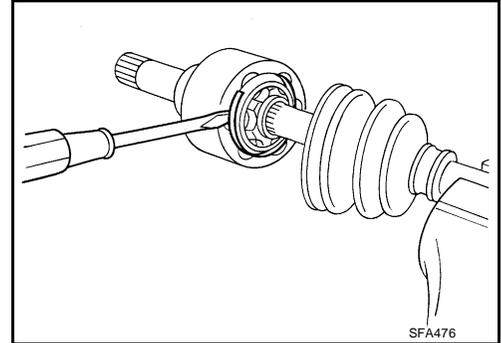
FRONT DRIVE SHAFT

- | | | |
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| 19. Cage | 20. Slide joint housing with extension shaft | 21. Snap ring |
| 22. Dust shield | 23. Support bearing | 24. Support bearing retainer |
| 25. Bracket | 26. Snap ring | 27. Dust shield |

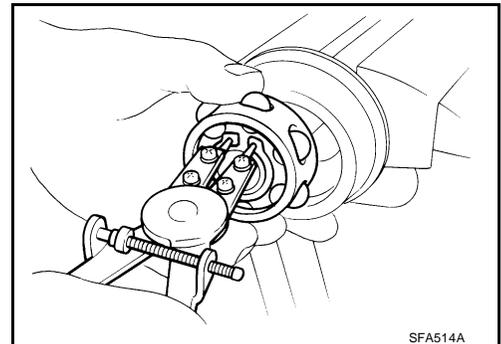
DISASSEMBLY

Transaxle Side (D95 type)

1. Remove boot bands.
2. Put matching marks on slide joint housing and inner race, before separating joint assembly.
3. Remove stopper ring with a screwdriver, and pull out slide joint housing.
4. Put matching marks on inner race and drive shaft.

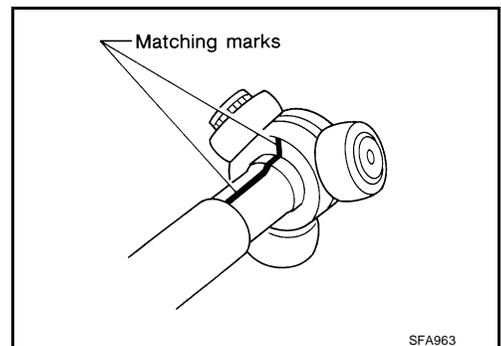


5. Remove snap ring, then remove ball cage, inner race and balls as a unit.
6. Draw out boot. Cover drive shaft serrations with tape so as not to damage the boot.

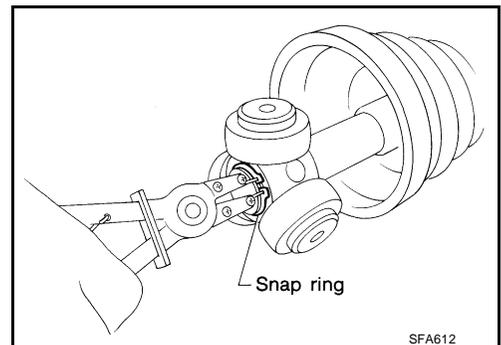


Transaxle Side (SFJ86 type)

1. Remove boot bands.
2. Put matching marks on slide joint housing and drive shaft before separating joint assembly.
3. Put matching marks on spider assembly and drive shaft.



4. Remove snap ring, then remove spider assembly.
 - **CAUTION:**
Do not disassemble spider assembly.
5. Draw out boot. Cover drive shaft serration with tape to prevent damage to the boot.



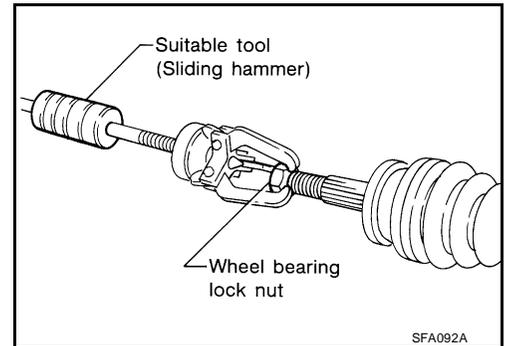
FRONT DRIVE SHAFT

Wheel Side (B90 and B95 type)

CAUTION:

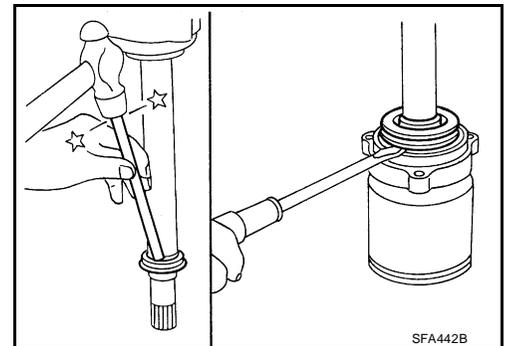
The joint on the wheel side cannot be disassembled.

1. Before separating joint assembly, put matching marks on drive shaft and joint assembly.
2. Separate joint assembly with a suitable tool.
Be careful not to damage threads on drive shaft.
3. Remove boot bands.
4. Draw out boot.

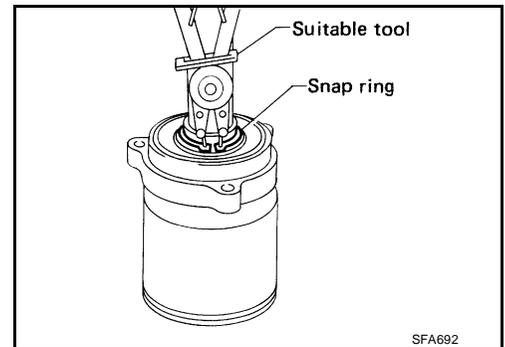


Support Bearing

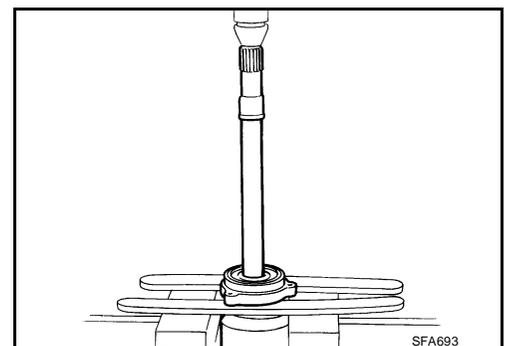
1. Remove dust shield.



2. Remove snap ring.



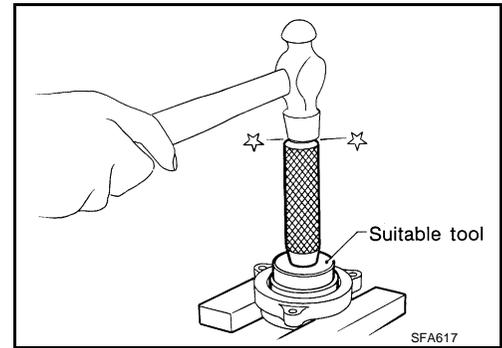
3. Press support bearing assembly off drive shaft.



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FRONT DRIVE SHAFT

4. Separate support bearing from retainer.



INSPECTION AFTER DISASSEMBLY

Thoroughly clean all parts in cleaning solvent, and dry with compressed air. Check parts for evidence of deformation or other damage.

Shaft

Replace drive shaft if it is twisted or cracked.

Boot and Boot Band

Check boot for fatigue, cracks or wear. Replace boot with new boot bands.

Joint Assembly (Transaxle side)

- Check spider assembly for needle bearing and washer damage. Replace if necessary. (TS83 type)
- Check roller surfaces for scratches, wear or other damage. Replace if necessary. (TS83 type)
- Replace any parts of double offset joint which show signs of scorching, rust, wear or excessive play. (DS90 type)
- Check serration for deformation. Replace if necessary.
- Check slide joint housing for any damage. Replace if necessary.

Joint Assembly (Wheel side)

Replace joint assembly if it is deformed or damaged.

Housing (D type slide joint)

- Check for damage or abnormal wear on ball rolling surface.
- Check for wear on shaft bolts.
- Check for deformity on boot install part.

Ball cage

- Check for damage or abnormality on sliding surface.

Steel ball

- Check for damage or abnormal wear.

Inner race

- Check for damage or abnormality on ball rolling surface.
- Check for damage on serration part.

Support Bearing

Make sure wheel bearing rolls freely and is free from noise, cracks, pitting or wear.

ASSEMBLY

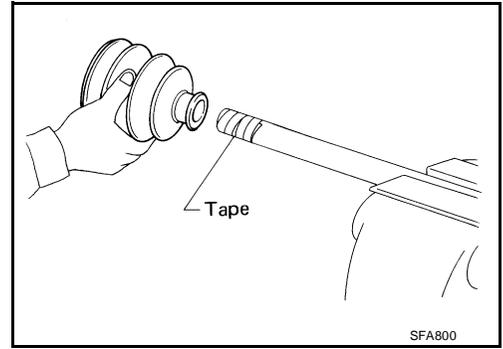
CAUTION:

- After drive shaft has been assembled, ensure that it moves smoothly over its entire range without binding.
- Use NISSAN Genuine Grease or equivalent after every overhaul.

FRONT DRIVE SHAFT

Transaxle Side (D95 type)

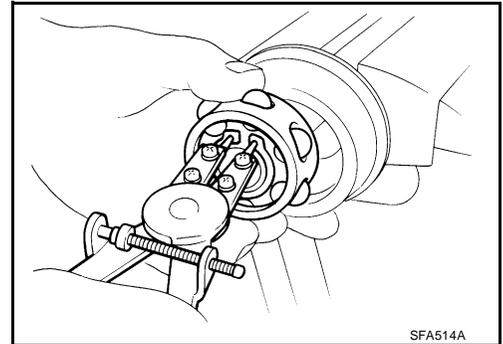
1. Install boot and new small boot band on drive shaft.
Cover drive shaft serration with tape so as not to damage boot during installation.



2. Install ball cage, inner race and balls as a unit, making sure the marks which were made during disassembly are properly aligned.
3. Install new snap ring.
4. Pack drive shaft with specified amount of grease.

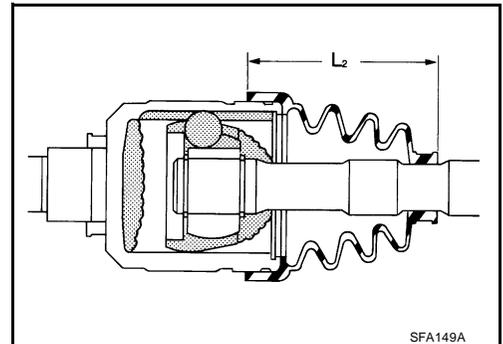
Capacity:
Unit: g (oz)

Grease Capacity	Transaxle side	
	165 - 185 (5.82 - 6.52)	
	Wheel side	
	B90	120 - 140 (4.23 - 4.94)
	B95	145 - 165 (5.11 - 5.82)

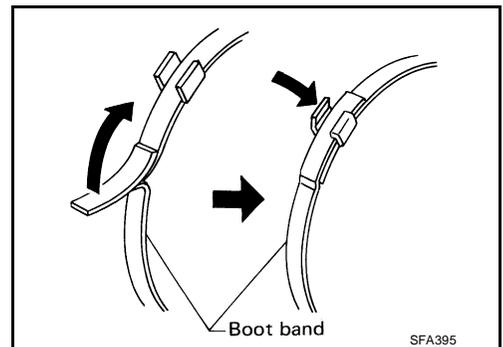


5. Install slide joint housing, then install new snap ring.
6. Make sure that boot is properly installed on the drive shaft groove.
Set boot so that it does not swell and deform when its length is "L2".

Length "L2" : 95.1 - 97.9 mm (3.74 - 3.85 in)



7. Lock new larger and smaller boot bands securely with a suitable tool.



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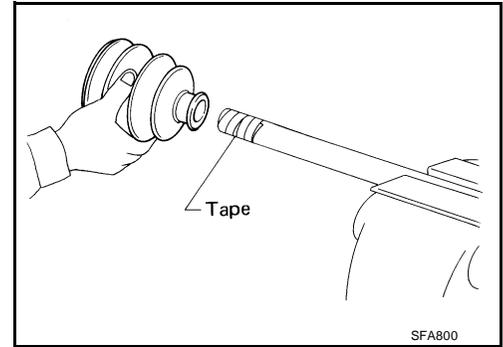
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FRONT DRIVE SHAFT

Transaxle Side (SFJ86 type)

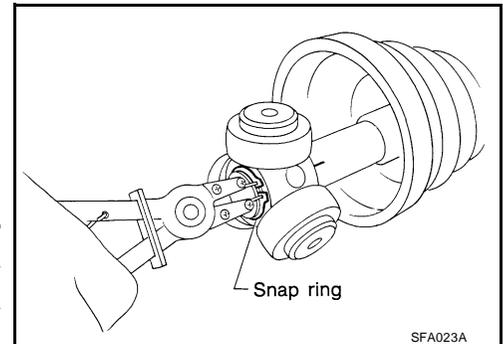
1. Install boot and new small boot band on drive shaft.
Cover drive shaft serration with tape to prevent damage to boot during installation.



2. Install spider assembly securely, making sure the marks which were made during disassembly are properly aligned.
3. Install new snap ring.
4. Pack drive shaft with specified amount of grease.

Capacity:
Unit: g (oz)

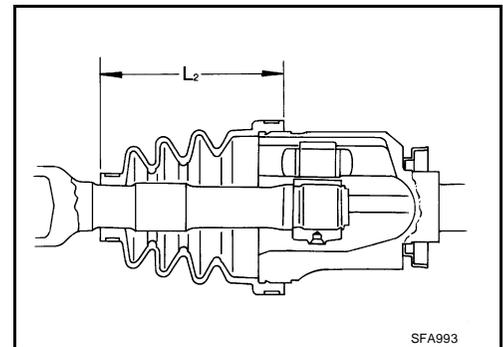
Grease Capacity	Transaxle side	
	165 - 185 (5.82 - 6.52)	
	Wheel side	
	B90	120 - 140 (4.23 - 4.94)
	B95	145 - 165 (5.11 - 5.82)



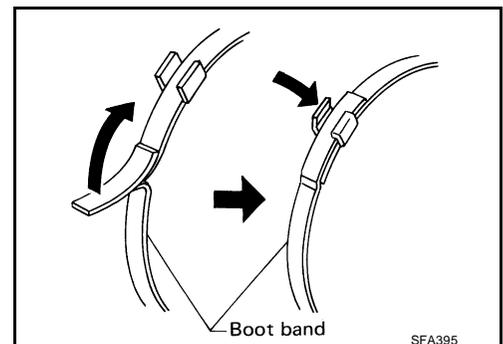
5. Install slide joint housing.
6. Set boot so that it does not swell and deform when its length is "L2".

Length "L2" : 96.9 - 99.7 mm (3.81 - 3.93 in)

Make sure that boot is properly installed on the drive shaft groove.

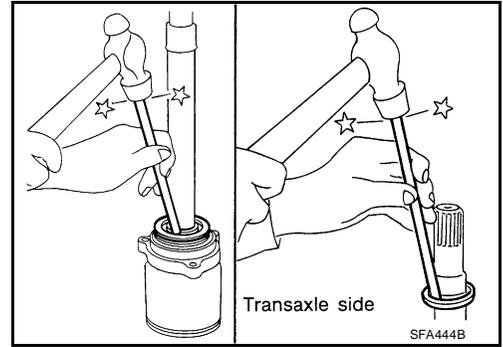


7. Lock new larger and smaller boot bands securely with a suitable tool.



FRONT DRIVE SHAFT

- Install snap ring.



- Install new dust shield.

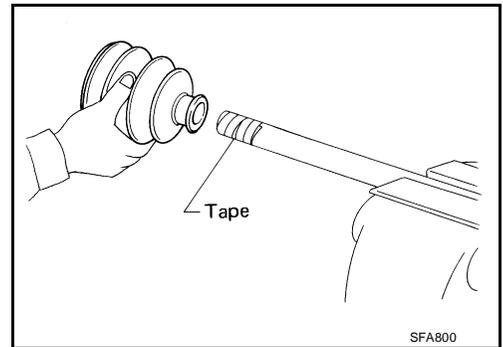
Wheel Side (B90 and B95 type)

1. Press in sensor rotor to joint sub-assembly using drift (special service tool).

CAUTION:

Always use new sensor rotor.

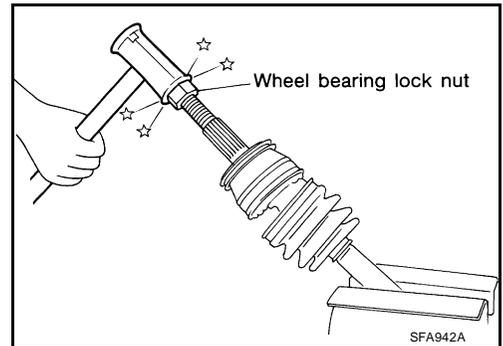
2. Install boot and new small boot band on drive shaft.
Cover drive shaft serration with tape so as not to damage boot during installation.



3. Set joint assembly onto drive shaft by lightly tapping it. Install joint assembly securely, ensuring marks which were made during disassembly are properly aligned.
4. Pack drive shaft with specified amount of grease.

Capacity:
Unit: g (oz)

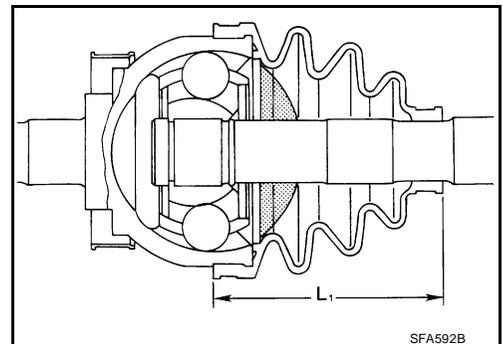
Grease Capacity	Transaxle side	
	165 - 185 (5.82 - 6.52)	
	Wheel side	
	B90	120 - 140 (4.23 - 4.94)
	B95	145 - 165 (5.11 - 5.82)



5. Make sure that boot is properly installed on the drive shaft groove.
Set boot so that it does not swell and deform when its length is "L1".

Length "L1"

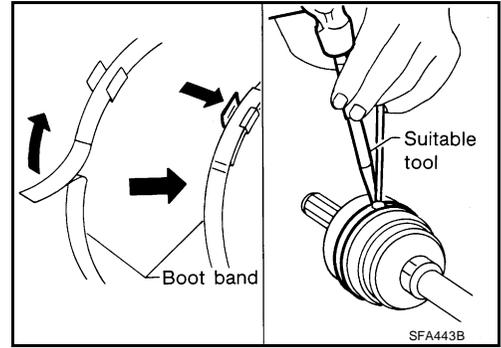
- : QR25 114.3 - 117.1 mm (4.50 - 4.61 in)
- : VQ35 126.7 - 129.9 mm (4.99 - 5.11 in)



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FRONT DRIVE SHAFT

- Lock new larger and smaller boot bands securely with a suitable tool.



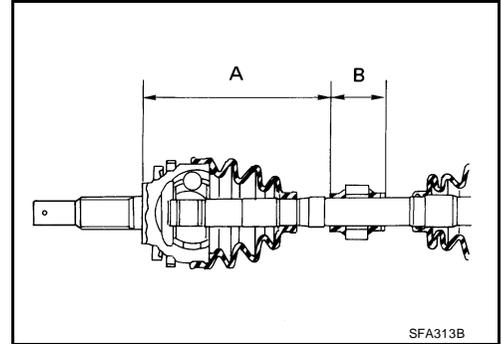
Dynamic Damper

- Use new damper bands when installing.
- Install dynamic damper from stationary-joint side while holding it securely.

Length:

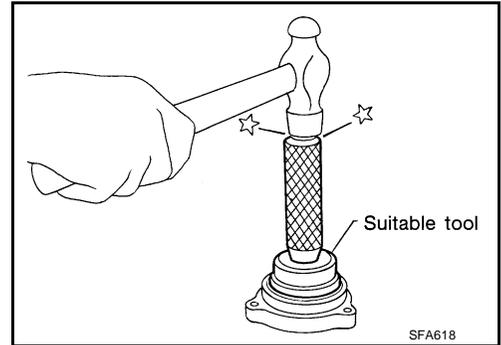
Unit: mm (in)

Applied model	RH		LH	
	QR25	VQ35	QR25	VQ35
Engine	QR25	VQ35	QR25	VQ35
"A"	207 - 213 (8.1 - 8.4)	—	207 - 213 (8.1 - 8.4)	207 - 213 (8.1 - 8.4)
"B"	50 (2.0)	—	50 (2.0)	50 (2.0)

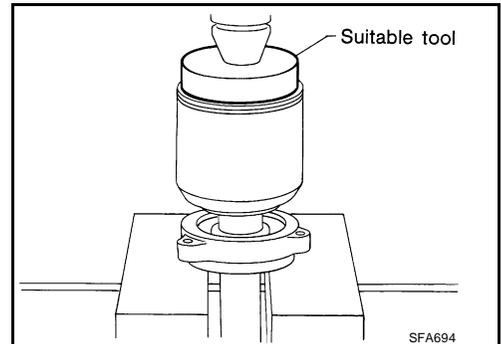


Support Bearing

- Press bearing into retainer.



- Press drive shaft into bearing.



SERVICE DATA AND SPECIFICATIONS (SDS)

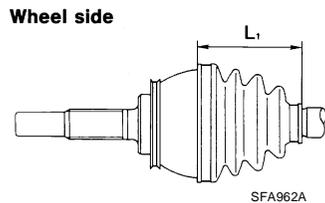
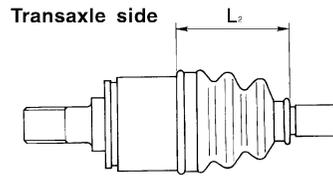
SERVICE DATA AND SPECIFICATIONS (SDS)

PF0:00030

Drive Shaft

EDS0009B

Applied model		QR25	VQ35
Joint type	Transaxle side	SFJ86	D95
	Wheel side	B90	B95
Grease	Quality	NISSAN Genuine Grease or equivalent	
	Capacity g (oz)	Transaxle side	165 - 185 (5.82 - 6.52)
		Wheel side	120 - 140 (4.23 - 4.94)
Boot length mm (in)	Transaxle side "L2"	SFJ86	D95
		96.9 - 99.7 (3.81 - 3.93)	95.1 - 97.9 mm (3.74 - 3.85 in)
	Wheel side "L1"	B90	B95
		114.3 - 117.1 (4.50 - 4.61)	126.7 - 129.9 (4.99 - 5.11)



Wheel Bearing (Front)

EDS0009C

Wheel bearing axial end play limit	0.07 mm (0.0030 in)
Wheel bearing lock nut tightening torque	236 - 313 N·m (24 - 31 kg-m, 174 - 224 ft-lb)

SERVICE DATA AND SPECIFICATIONS (SDS)
