SECTION FRONT AXLE

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CONTENTS

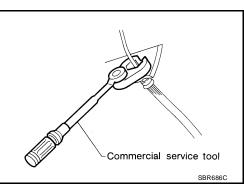
PRECAUTIONS	2
Precautions	2
PREPARATION	
Special Service Tools	
Commercial Service Tools	3
NOISE, VIBRATION, AND HARSHNESS (NVH)	
TROUBLESHOOTING	4
NVH Troubleshooting Chart	
ON-VEHICLE SERVICE	
Front Axle Parts	
Front Wheel Bearing	
Drive Shaft	
WHEEL HUB AND KNUCKLE	
Components	
Removal	
Installation	
Disassembly	
WHEEL HUB	9
WHEEL BEARING	
Inspection	
WHEEL HUB AND KNUCKLE	
SNAP RING	
Assembly	
DRIVE SHAFT	11
	••

	Components 1	1 F
	Removal1	
	Installation1	
	TRANSAXLE SIDE1	
	WHEEL SIDE1	6
	Disassembly1	
	TRANSAXLE SIDE (TS79C AND T86 TYPE) 1	6 _H
	TRANSAXLE SIDE (D90,D90+B AND D86+B	
	TYPE)1	
	WHEEL SIDE (ZF90, B90 AND B86 TYPE) 1	7
	SUPPORT BEARING1	7
	Inspection1	8
	DRIVE SHAFT1	8
	BOOT1	5 J
	JOINT ASSEMBLY (TRANSAXLE SIDE)1	8
	JOINT ASSEMBLY (WHEEL SIDE)1	9
	Assembly1	
	SUPPORT BEARING1	9
	WHEEL SIDE (ZF90, B90 AND B86 TYPE) 2	
	DYNAMIC DAMPER2	1
	TRANSAXLE SIDE (TS79C AND T86)2	1 🗋
S	ERVICE DATA AND SPECIFICATIONS (SDS) 2	3
	Drive Shaft2	
	Wheel Bearing (Front)2	3 M

PRECAUTIONS

Precautions

- 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

REPARATION		PFP:00002
pecial Service Tools		EDS00007
e actual snapes of Kent-Moore tools m Tool number (Kent-Moore No.) Tool name	ay differ from those of special service tools	Description
HT72520000 (J25730-B) Ball joint remover	r PAT.P NT546	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)
KV38106800 (J34297-1) Differential side oil seal protector		Installing drive shaft
	NT147	
ommercial Service Too	ls	EDS000QE
Tool name		Description
1 Flare nut crowfoot 2 Torque wrench		Removing and installing each brake piping a: 10 mm (0.39 in)
	NT360	

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NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING NVH Troubleshooting Chart

PFP:00003

EDS000Q9

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

Reference page			-AX-18, "Inspection"	Refer to MA-41, "WHEEL BALANCE"	"Installation"	FAX-5, "Front Wheel Bearing"	"Front Wheel Bearing"	Refer to DRIVE SHAFT in this chart.	Refer to AXLE in this chart.	"NVH Troubleshooting Chart"	Refer to <u>WT-2, "NVH Troubleshooting Chart"</u>	"NVH Troubleshooting Chart"	Refer to BR-5, "NVH Troubleshooting Chart"	Refer to PS-6, "NVH Troubleshooting Chart"	
			FAX-18, "	Refer to MA-41, "	FAX-8, "I	FAX-5, "Front	FAX-5, "Front	Refer to DRIVE S	Refer to AXL	Refer to FSU-4, "NVH	Refer to WT-2, "NVH	Refer to WT-2, "NVH	Refer to <u>BR-5, "NVH</u>	Refer to PS-6, "NVH	
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	
	DRIVE SHAFT	Noise, Vibration	×	×						×	×	×	×	×	×
Symptom		Shake	×		×					×	×	×	×	×	×
		Noise				×	×		×		×	×	×	×	×
		Shake				×	×		×		×	×	×	×	×
		Vibration				×	×		×		×	×			×
	AXLE	Shimmy				×	×				×	×	×	×	×
		Judder				×					×	×	×	×	×
		Poor quality ride or handling				×	×	×			×	×	×		

×: Applicable

ON-VEHICLE SERVICE

ON-VEHICLE SERVICE

Front Axle Parts

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 the cotter pin is properly installed.
- Retighten all axle and suspension nuts and bolts to the specified torque.

Tightening torque : Refer to FSU-5, "Components".

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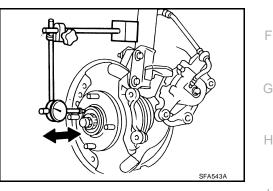
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Front Wheel Bearing

- Rotate wheel hub to check that wheel bearings operate smoothly.
- Check axial end play.

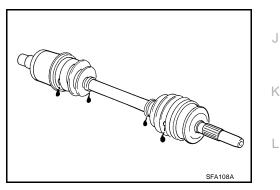
Axial end play : 0.05 mm (0.0020 in) or less

If out of specification or wheel bearing does not turn smoothly, replace wheel bearing assembly. Refer to FAX-6, "WHEEL HUB AND KNUCKLE".



Drive Shaft

Check for grease leakage or other damage.



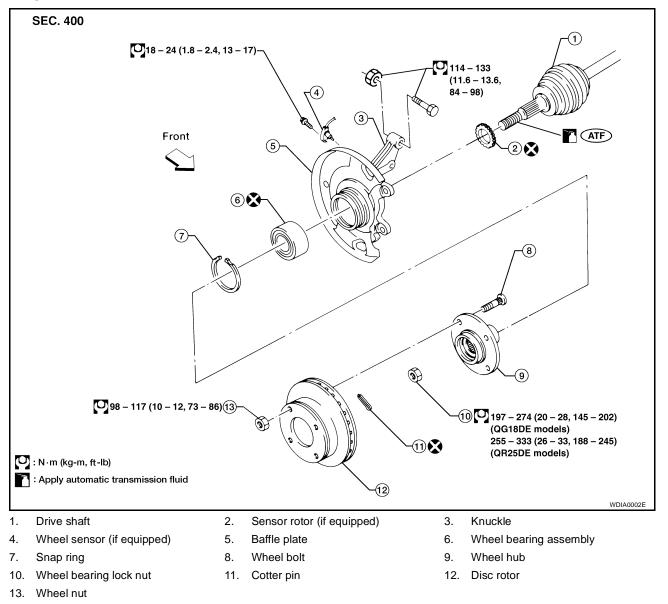
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WHEEL HUB AND KNUCKLE

Components

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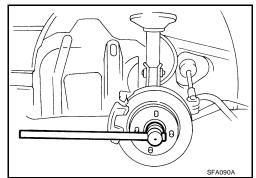
Removal

CAUTION:

Before removing the front axle assembly, disconnect 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 cotter pin and wheel bearing lock nut.



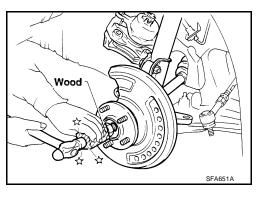
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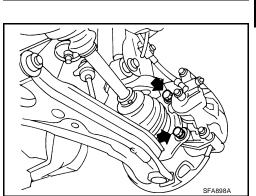
WHEEL HUB AND KNUCKLE

- 2. Separate tie-rod from knuckle with Tool.
 - Install stud nut on stud bolt to prevent damage to stud bolt.

- 3. Remove brake caliper assembly, torque member and rotor.
 - 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. Make sure brake hose is not twisted.
- 4. Remove strut lower mounting nuts and bolts.

- 5. 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.





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(J25730-B)

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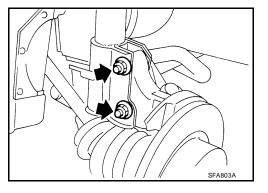
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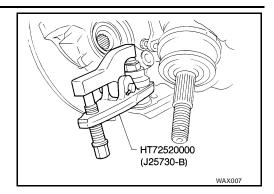
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- 6. Loosen lower ball joint nut.
- 7. Remove knuckle from lower ball joint stud with Tool.



Installation

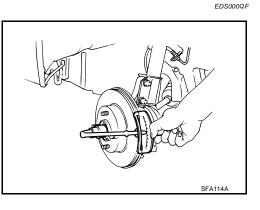
- 1. Install in reverse order of removal.
 - Install knuckle with wheel hub. When installing knuckle to strut, be sure to hold bolts and tighten nuts.

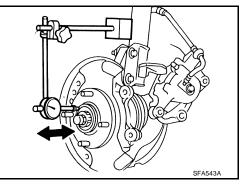
C : 114 - 133 N·m (11.6 - 13.6 kg-m, 84 - 98 ft-lb)

Before tightening, apply oil to threaded portion of drive shaft.

- Tighten wheel bearing lock nut.
 - C : 197 274 N·m (20 28 kg-m, 145 202 ft-lb) (QG18DE models)
 - : 255 333 N·m (26 33 kg-m, 188 245 ft-lb) (QR25DE models)
- Rotate wheel hub to check that wheel bearings operate smoothly.
- Rotate wheel hub to check wheel bearing axial end play.

Axial end play : 0.05 mm (0.0020 in) or less





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Disassembly CAUTION:

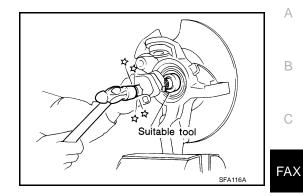
When removing wheel hub or wheel bearing from knuckle, replace wheel bearing assembly (outer race and inner race) with a new one.

Wheel bearing does not require maintenance. If any of the following symptoms are noted, replace wheel bearing assembly.

- Growling noise is emitted from wheel bearing during operation.
- Wheel bearing drags or turns roughly. This occurs when turning hub by hand after bearing lock nut is tightened to specified torque.

WHEEL HUB

Drive out hub and inner race from knuckle with a suitable tool.



Suitable tool

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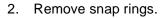
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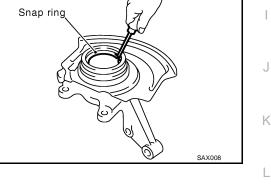
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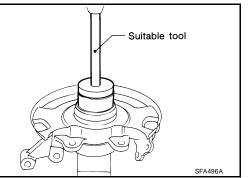
WHEEL BEARING

When replacing wheel bearing, replace complete wheel bearing assembly (inner race and outer race).

1. Remove bearing inner race.







Inspection WHEEL HUB AND KNUCKLE

Press out bearing outer race.
Remove baffle plate, if required.

Check wheel hub and knuckle for cracks by using a magnetic exploration or dyeing test.

SNAP RING

Check snap ring for wear or cracks. Replace if necessary.

Assembly

- If baffle plate has been removed, replace it with a new one.
- When installing the baffle plate, press new plate so that it is in contact with knuckle wall. Refer to figure at right.



Maximum load P : 29.4 kN

(3.0 ton, 3.3 US ton, 2.95 Imp ton)

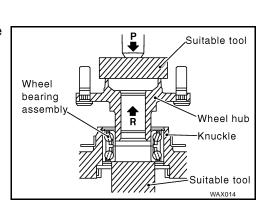
CAUTION:

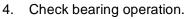
- Do not apply disassembly force in direction "R". There is a possibility of breaking the seal. In case of separation (except range of initial clearance) and disassembling of inner race, the wheel bearing must be replaced with a new part.
- Do not press inner race of wheel bearing assembly or seal.
- Do not apply oil or grease to mating surfaces of wheel bearing outer race and knuckle.
- 2. Install outer snap ring into groove of knuckle.
- 3. Press wheel hub into knuckle until it stops when the end of the wheel bearing is hit.

Maximum load P : 49.0 kN

(5.0 ton, 5.5 US ton, 4.9 Imp ton)

Do not move wheel hub in direction "R".

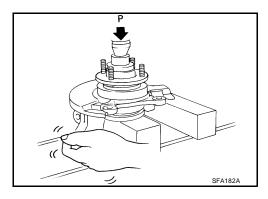




а Add load P with press.

> Load P : 34.3 - 49.0 kN (3.5 - 5.0 ton, 3.9 - 5.5 US ton, 3.44 - 4.92 Imp ton)

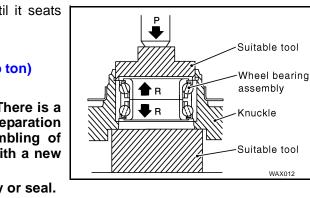
- Spin knuckle several turns in both directions. b.
- c. Make sure that wheel bearings operate smoothly.





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WAX012



Baffle plate

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Center of caliper fixing bosses

center line

DRIVE SHAFT

Components

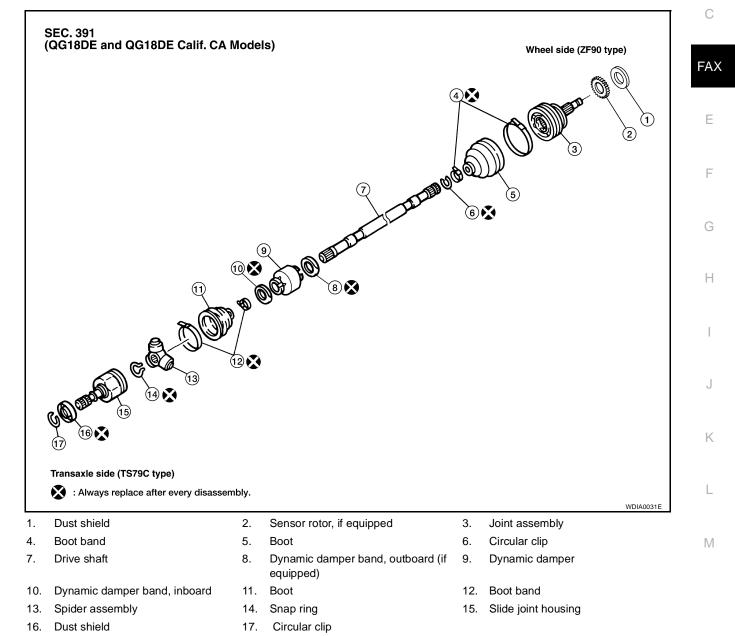
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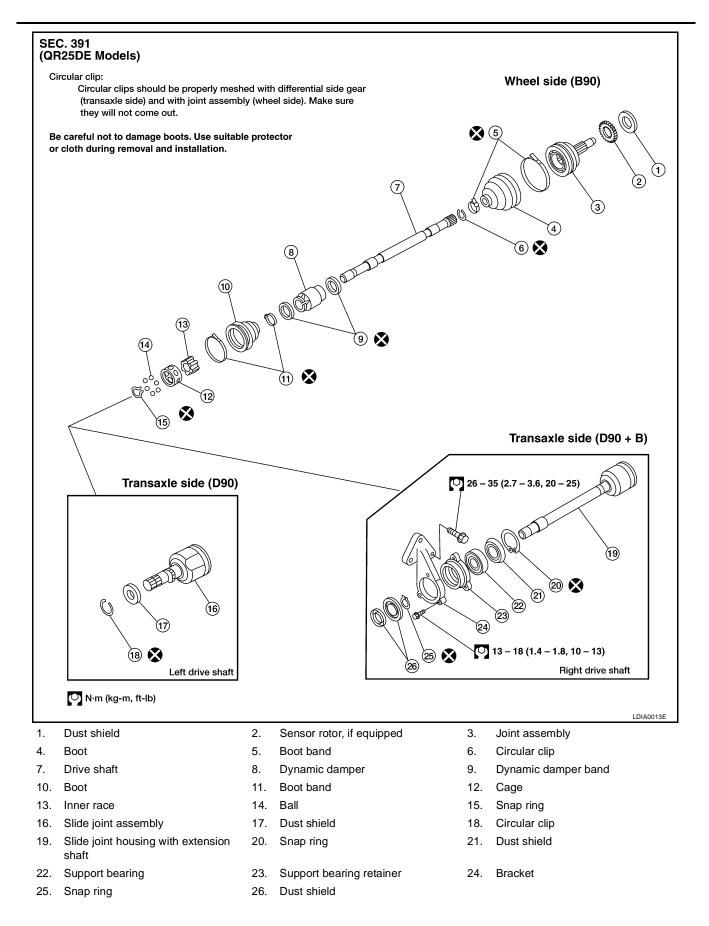
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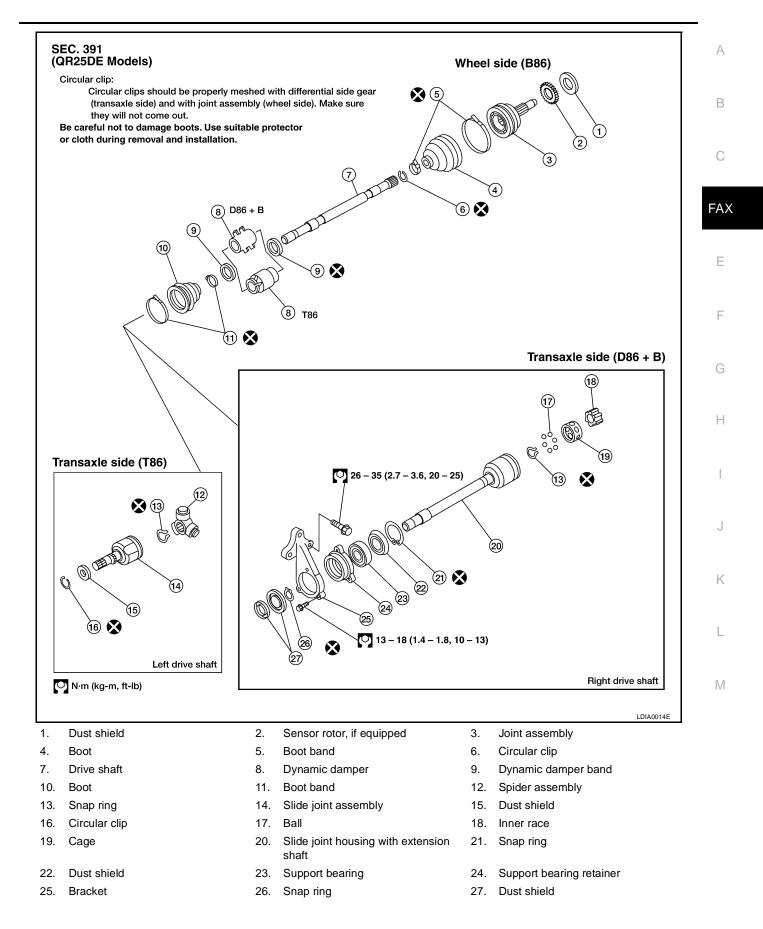
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CAUTION:

- 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.







Removal

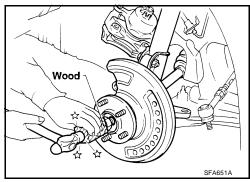
1. Remove cotter pin and wheel bearing lock nut.

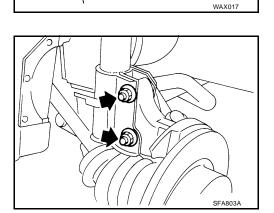
2. Remove drive shaft center support bearing bolts.

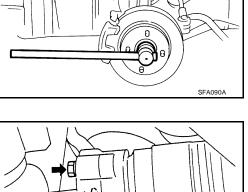
- 3. Remove strut lower mounting nuts and bolts.
- Remove brake hose clip. 4.

- Separate drive shaft from knuckle by lightly tapping it. If it is hard 5. to remove, use a puller.
 - Cover boots with shop towel so as not to damage them when removing drive shaft.

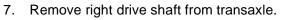




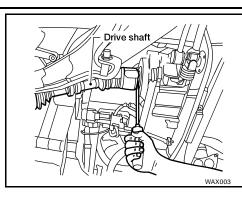




6. Remove left drive shaft from transaxle.



- For M/T models —
- Pry off drive shaft from transaxle as shown at right.



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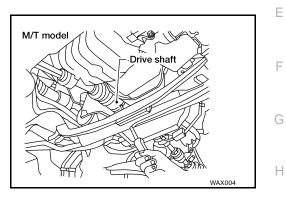
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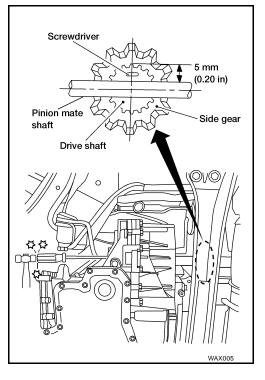
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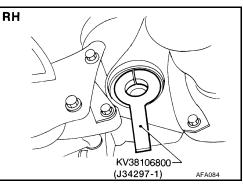
- For A/T models —
- Insert screwdriver into transaxle opening for right drive shaft and strike with a hammer.
- Be careful not to damage pinion mate shaft and side gear.

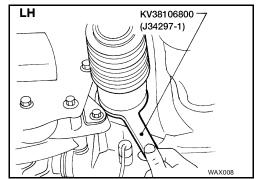


Installation TRANSAXLE SIDE

- 1. Drive a new oil seal to transaxle. Refer to <u>MT-11, "SIDE OIL</u> <u>SEAL"</u>, <u>MT-74, "SIDE OIL SEAL"</u>, <u>MT-74, "SIDE OIL SEAL"AT-</u> <u>262, "Differential Side Oil Seal Replacement"</u>, or <u>AT-641, "Dif-</u> <u>ferential Side Oil Seal Replacement"</u>.
- 2. Set Tool along the inner circumference of oil seal.

- 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.





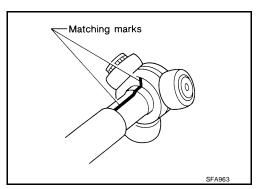
WHEEL SIDE

- 1. Install drive shaft into knuckle.
- 2. Tighten strut lower mounting nuts and wheel bearing lock nut.

Disassembly

TRANSAXLE ŠIDE (TS79C AND T86 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.

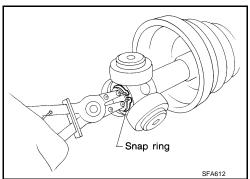


4. Remove snap ring, then remove spider assembly.

CAUTION:

Do not disassemble spider assembly.

- 5. Draw out boot.
- Cover drive shaft serrations with tape so as not to damage the boot.



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Revision: December 2006

EDS000QL

TRANSAXLE SIDE (D90,D90+B AND D86+B TYPE)

- 1. Remove boot bands.
- 2. Put matching marks on slide joint housing and drive shaft before separating joint assembly.
- 3. Pry off snap ring with a screwdriver, and pull out slide joint housing.

- Put matching marks on inner race and drive shaft. 4.
- 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.

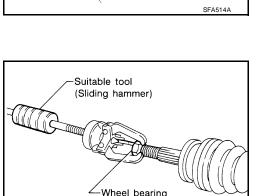
WHEEL SIDE (ZF90, B90 AND B86 TYPE)

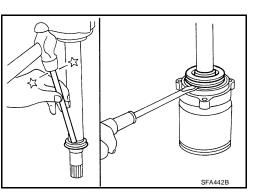
CAUTION:

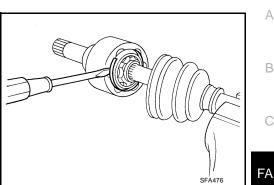
The joint on the wheel side cannot be disassembled.

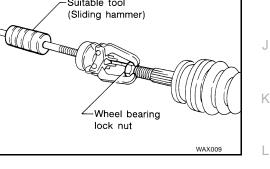
- Before separating joint assembly, put matching marks on drive 1. shaft and joint assembly.
- 2. Separate joint assembly with a suitable tool.
- Be careful not to damage threads on drive shaft. •
- 3. Remove boot bands.

SUPPORT BEARING 1. Remove dust shield.









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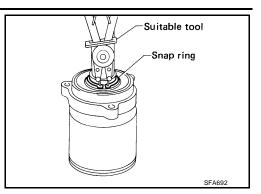
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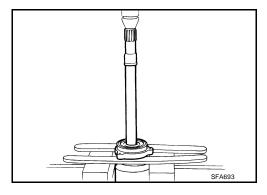
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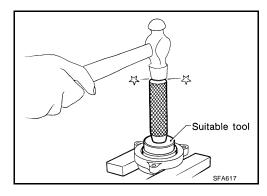
2. Remove snap ring.



3. Press support bearing assembly off drive shaft.



- 4. Remove snap ring.
- 5. Remove dust shield.
- 6. Separate support bearing from retainer.



Inspection

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

DRIVE SHAFT

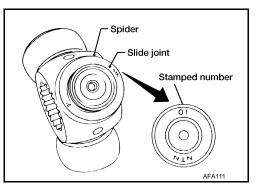
Replace drive shaft if it is twisted or cracked.

BOOT

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

JOINT ASSEMBLY (TRANSAXLE SIDE) TS79C AND T86 TYPE

- Check spider assembly for needle bearing and washer damage. Replace if necessary.
- Check roller surfaces for scratches, wear and other damage. Replace if necessary.
- Check serration for deformation. Replace if necessary.
- Check slide joint housing for any damage. Replace if necessary.
- When replacing only spider assembly, select a new spider assembly from among those listed in table below. Ensure that the number stamped on slide joint is the same as that stamped on new part.





EDS000QN

Stamped number	Part No.*	'	A
01	39720-61E01		
02	39720-61E02		В
03	39720-61E03		
04	39720-61E04		0
05	39720-61E05		С
06	39720-61E06		
07	39720-61E07		FAX
Always check with the Parts Department fo 90+B TYPE	r the latest parts information.		
Replace any parts of double offs	et joint which show signs of sco	rching, rust, wear or excessive play.	E
Check serration for deformation.	Replace if necessary.		
Check slide joint housing for any	damage. Replace if necessary.		F
OINT ASSEMBLY (WHEEL SID	E)		I
· · · · · ·	,		

SUPPORT BEARING

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

SUPPORT BEARING BRACKET

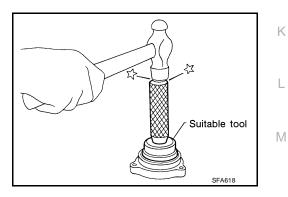
Check support bearing bracket for cracks with a magnetic exploration or dyeing test.

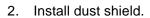
Assembly

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

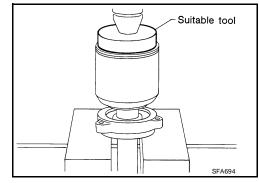
SUPPORT BEARING

1. Install bearing into retainer.





- 3. Install snap ring.
- 4. Press drive shaft into bearing.

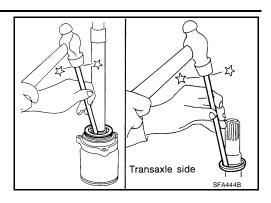


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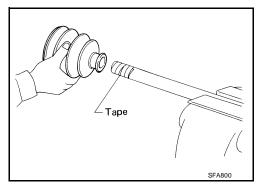
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- 5. Install snap ring.
- 6. Install new dust shield.

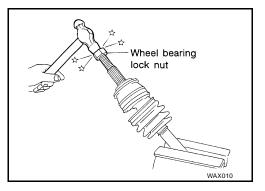


WHEEL SIDE (ZF90, B90 AND B86 TYPE)

- 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. Set joint assembly onto drive shaft by lightly tapping it.
 - Ensure that marks which were made during disassembly are properly aligned.



3. Pack drive shaft with specified amount of grease.

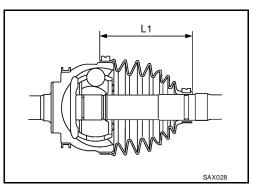
Specified amount of	: QG18DE 122 - 126 g
grease	(4.30 - 4.44 oz)
	: QR25DE A/T 120 - 140 g
	(4.23 - 4.94 oz)
	: QR25DE M/T 115 - 135 g
	(4.06 - 4.76 oz)

4. 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" QG18DE QR25DE A/T QR25DE M/T

: 97 mm (3.82 in) : 115.7 mm (4.56 in) : 124.2 mm (4.89 in)



5. Lock new large and small boot bands securely with a suitable tool.

- 6. Install the sensor rotor, if equipped. For front sensor rotor, use a hammer and wooden block. For rear sensor rotor, use a suitable drift and press.
- Always replace sensor rotor with a new one.

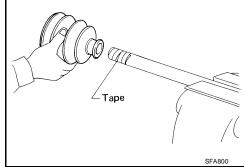


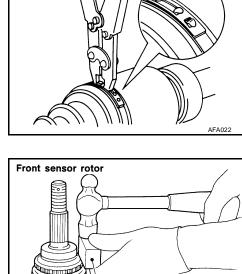
- 1. Use a new damper band when reinstalling.
- 2. Install dynamic damper from stationary-joint side while holding it securely: I Init: mm (in)

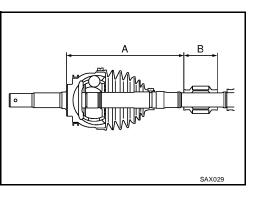
Unit: mm (in						
Applied model	QG18DE					
Applied model	LH	RH				
"A"	175-185 (6.89 - 7.28)	420-430 (16.54 - 16.93)				
"B"	70 (2.76)	64 (2.52)				
	QR25DE					
"A"	173 - 179 (6.81 - 7.05)	200 - 206 (7.87 - 8.11)				
"B"	50 (1.97)	68 (2.68)				

TRANSAXLE SIDE (TS79C AND T86)

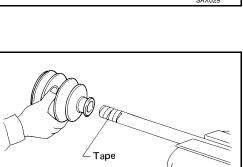
- Install boot and new small boot band on drive shaft. 1.
- Cover drive shaft serration with tape to prevent damage to boot during installation.







Wooden block



А

В

FAX

Е

F

Н

J

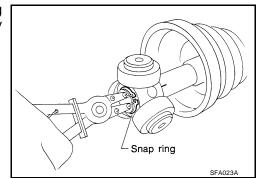
Κ

L

Μ

SBR985C

- 2. Install spider assembly securely, making sure the matching marks which were made during disassembly are properly aligned.
- 3. Install new snap ring.



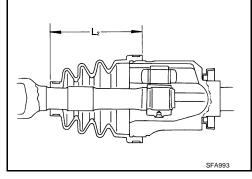
4. Pack drive shaft with specified amount of grease.

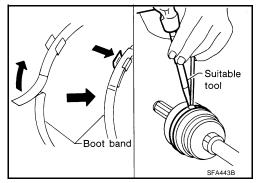
Specified amount : QG18DE 154 - 164 g of grease (5.43 - 5.78 oz) : QR25DE A/T 145 - 165 g (5.11 - 5.82 oz) : QR25DE M/T D86+B 135 - 155 g (4.76 - 5.47 oz) : QR25DE M/T T86 140 - 160 g (4.94 - 5.64 oz)

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

Length "L2 "	
QG18DE	: 102.5 mm (4.035 in)
QR25DE A/T	: 98 mm (3.86 in)
QR25DE M/T D86+B	: 98 mm (3.86 in)
QR25DE M/T T86	: 98.5 mm (3.88 in)

- Make sure the boot is properly installed on the drive shaft groove.
- 7. Lock new large and small boot bands securely with a suitable tool.





SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS) PFP:00030 А **Drive Shaft** EDS000QP Applied model QG18DE QR25DE В Transaxle side TS79C D90+B, D90, D86+B and T86 Joint type Wheel side ZF90 B90 and B86 Genuine NISSAN grease or equivalent Quality С D90+B and D90 145 - 165 (5.11- -5.82) Transaxle TS79C 154 - 164 (5.43 - 5.78) D86+B 135 - 155 (4.76 - 5.47) side Grease FAX T86 140 - 160 (4.94 - 5.64) Capacity g (oz) B90 120 - 140 (4.23 - 4.94) Wheel side ZF90 122 - 126 (4.30 - 4.44) B86 115- -135 (4.06 - 4.76) Ε D90+B and D90 98 (3.86) D86+B 98 (3.86) Transaxle side "L2 " TS79C 102.5 (4.035) Boot T86 98.5 (3.88) F length mm (in) B90 115.7 (4.56) Wheel side "L1 " ZF90 97 (3.82) B86 124.2 (4.89) Transaxle side La Н SFA961AA Wheel side L Κ

Wheel Bearing (Front)				
Wheel bearing axial end play limit mm (in)	0.05 (0.0020 in) or less			
Wheel bearing lock nut tightening torque N·m (kg-m, ft-lb)	197 - 274 (20 - 28, 145 - 202)			
Knuckle to strut tightening torque N·m (kg-m, ft-lb)	114 - 133 (11.6 - 13.6, 84 - 98)	M		

SFA962A