FAX

# **CONTENTS**

PRECAUTIONS	2	Components 11	- 1
Precautions	2	Removal14	
PREPARATION	3	Installation16	
Special Service Tools	3	TRANSAXLE SIDE16	(
Commercial Service Tools	3	WHEEL SIDE16	
NOISE, VIBRATION, AND HARSHNESS (NVH)		Disassembly16	
TROUBLESHOOTING	4	TRANSAXLE SIDE (TS79C AND T86 TYPE) 16	
NVH Troubleshooting Chart	4	TRANSAXLE SIDE (D90,D90+B AND D86+B	Г
ON-VEHICLE SERVICE	5	TYPE)17	
Front Axle Parts	5	WHEEL SIDE (ZF90, B90 AND B86 TYPE) 17	
Front Wheel Bearing	5	SUPPORT BEARING17	
Drive Shaft	5	Inspection	
WHEEL HUB AND KNUCKLE	6	DRIVE SHAFT18	
Components	6	BOOT18	
Removal	6	JOINT ASSEMBLY (TRANSAXLE SIDE) 18	
Installation	8	JOINT ASSEMBLY (WHEEL SIDE)19	
Disassembly	8	Assembly19	
WHEEL HUB	9	SUPPORT BEARING19	ľ
WHEEL BEARING		WHEEL SIDE (ZF90, B90 AND B86 TYPE) 20	
Inspection	9	DYNAMIC DAMPER21	
WHEEL HUB AND KNUCKLE	-	TRANSAXLE SIDE (TS79C AND T86)21	L
SNAP RING	9	SERVICE DATA AND SPECIFICATIONS (SDS) 23	
Assembly	10	Drive Shaft23	
DRIVE SHAFT	11	Wheel Bearing (Front)23	[\

# **PRECAUTIONS**

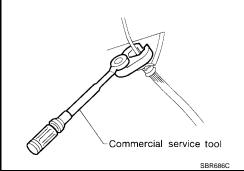
PRECAUTIONS PFP:00001

Precautions

When installing rubber parts, final tightening must be care.

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.



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# **PREPARATION**

PREPARATION		PFP:00002	
Special Service Tools The actual shapes of Kent-Moore tools ma	ay differ from those of special service tools	EDS000Q7	А
Tool number (Kent-Moore No.) Tool name	y diller from those of special service tools	Description	В
HT72520000 (J25730-B) Ball joint remover	a b 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)	FAX
KV38106800 (J34297-1) Differential side oil seal protector		Installing drive shaft	E F
Commercial Service Tool	NT147		G
Commission out vice 1001	•	EDS000Q8	

Tool name		Description	Н
1 Flare nut crowfoot 2 Torque wrench		Removing and installing each brake piping a: 10 mm (0.39 in)	1
	NT360		J

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# NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

# NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING 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		I	FAX-18, "Inspection"	Refer to MA-39, "WHEEL BALANCE"	FAX-8, "Installation"	FAX-5, "Front Wheel Bearing"	FAX-5, "Front Wheel Bearing"	Refer to DRIVE SHAFT in this chart.	Refer to AXLE in this chart.	Refer to FSU-4, "NVH Troubleshooting Chart"	Refer to WT-2, "NVH Troubleshooting Chart"	Refer to WT-2, "NVH Troubleshooting Chart"	Refer to BR-5, "NVH Troubleshooting Chart"	Refer to PS-6, "NVH Troubleshooting Chart"	
Possible cause a	and SUSPECTED P	ARTS	Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	DRIVE SHAFT	AXLE	SUSPENSION	TIRES	ROAD WHEEL	BRAKES	STEERING
	DDIVE OUAET	Noise, Vibration	×	×						×	×	×	×	×	×
	DRIVE SHAFT	Shake	×		×					×	×	×	×	×	×
		Noise				×	×		×		×	×	×	×	×
		Shake				×	×		×		×	×	×	×	×
Symptom	Vibration				×	×		×		×	×			×	
	AXLE	Shimmy				×	×				×	×	×	×	×
		Judder				×					×	×	×	×	×
		Poor quality ride or handling				×	×	×			×	×	×		

<sup>×:</sup> Applicable

# **ON-VEHICLE SERVICE**

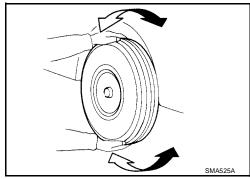
**ON-VEHICLE SERVICE** 

**Front Axle Parts** EDS000QA

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".



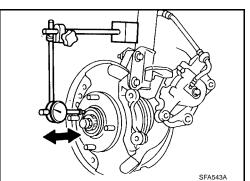
# **Front Wheel Bearing**

- 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

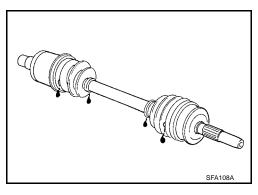
If out of specification or wheel bearing does not turn smoothly, replace wheel bearing assembly.

Refer to FAX-6, "WHEEL HUB AND KNUCKLE".



**Drive Shaft** 

Check for grease leakage or other damage.



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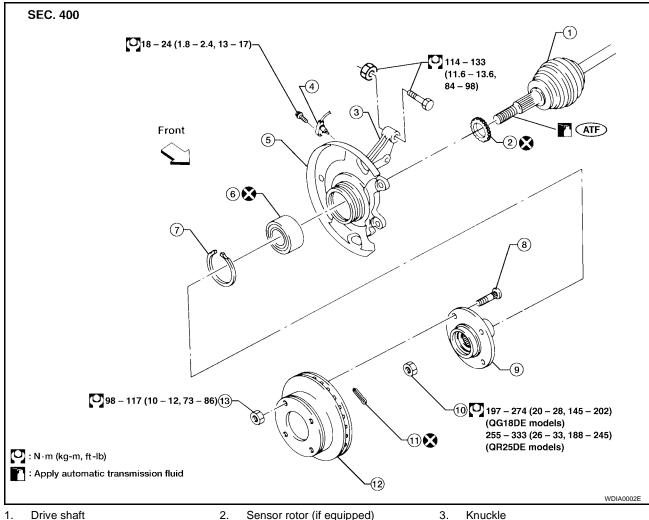
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Components EDS000QD



- 1. Drive shaft
- 4. Wheel sensor (if equipped)
- 7. Snap ring
- 10. Wheel bearing lock nut
- 13. Wheel nut

- 2. Sensor rotor (if equipped)
- 5. Baffle plate
- Wheel bolt 8.
- 11. Cotter pin

- Knuckle
- 6. Wheel bearing assembly
- 9. Wheel hub
- 12. Disc rotor

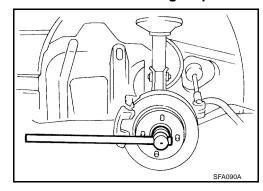
Removal

EDS000QE **CAUTION:** 

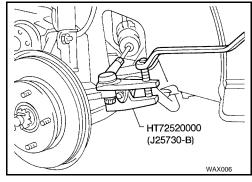
Before removing the front axle assembly, disconnect the wheel sensor from the assembly. Then move it away from the front axle assembly area.

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

Remove cotter pin and wheel bearing lock nut.

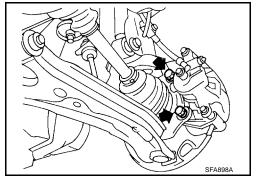


- 2. Separate tie-rod from knuckle with Tool.
  - Install stud nut on stud bolt to prevent damage to stud bolt.

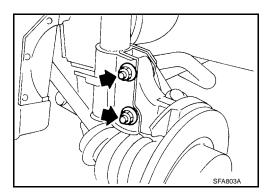


- 3. Remove brake caliper assembly, torque member and rotor.
  - Brake hose need not be disconnected from brake caliper.
     In this case, suspend caliper assembly with wire so as not to stretch brake hose. Be careful not to depress brake pedal, or piston will pop out.

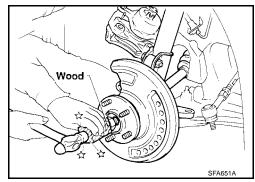
Make sure brake hose is not twisted.



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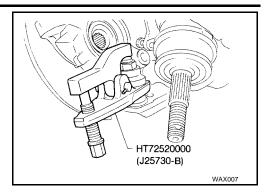
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- Loosen lower ball joint nut.
- 7. Remove knuckle from lower ball joint stud with Tool.



Installation

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- 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.

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

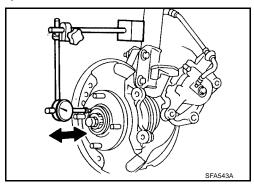
Tighten wheel bearing lock nut.

: 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



**Disassembly** 

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## **CAUTION:**

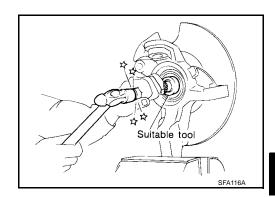
When removing wheel hub or wheel bearing from knuckle, replace wheel bearing assembly (outer race and inner race) with a new one.

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.



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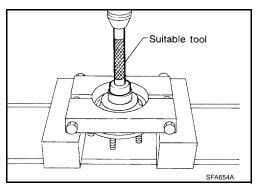
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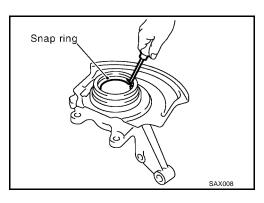
# WHEEL BEARING

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

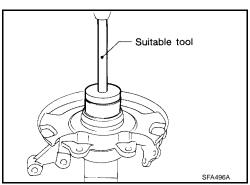
1. Remove bearing inner race.



2. Remove snap rings.



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



# Inspection WHEEL HUB AND KNUCKLE

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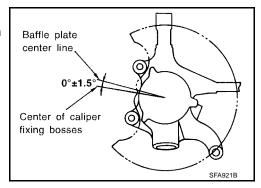
Check wheel hub and knuckle for cracks by using a magnetic exploration or dyeing test.

# **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.



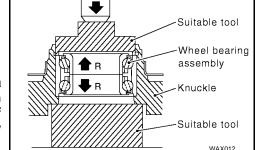
1. Press new wheel bearing assembly into knuckle until it seats against knuckle shoulder.

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.

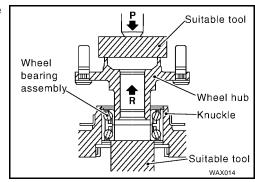


- Do not press inner race of wheel bearing assembly or seal.
- Do not apply oil or grease to mating surfaces of wheel bearing outer race and knuckle.
- 2. Install outer snap ring into groove of knuckle.
- 3. Press wheel hub into knuckle until it stops when the end of the wheel bearing is hit.

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".



- 4. Check bearing operation.
- a. Add load P with press.

b.

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.

c. Make sure that wheel bearings operate smoothly.



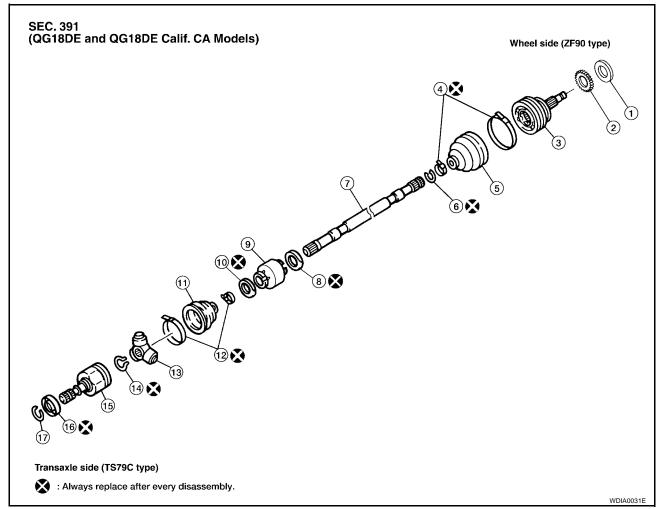
DRIVE SHAFT

# **Components**

#### EDS000QJ

## **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.



- 1. Dust shield
- 4. Boot band
- 7. Drive shaft
- 10. Dynamic damper band, inboard
- 13. Spider assembly
- 16. Dust shield

- 2. Sensor rotor, if equipped
- 5. Boo
- 8. Dynamic damper band, outboard (if equipped)
- 11. Boot
- 14. Snap ring
- 17. Circular clip

- 3. Joint assembly
- 6. Circular clip
- 9. Dynamic damper
- 12. Boot band
- 15. Slide joint housing

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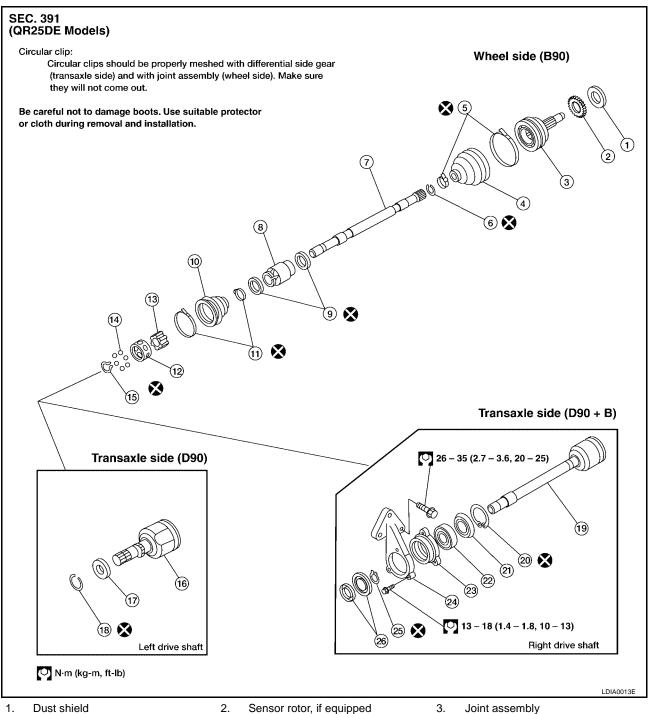
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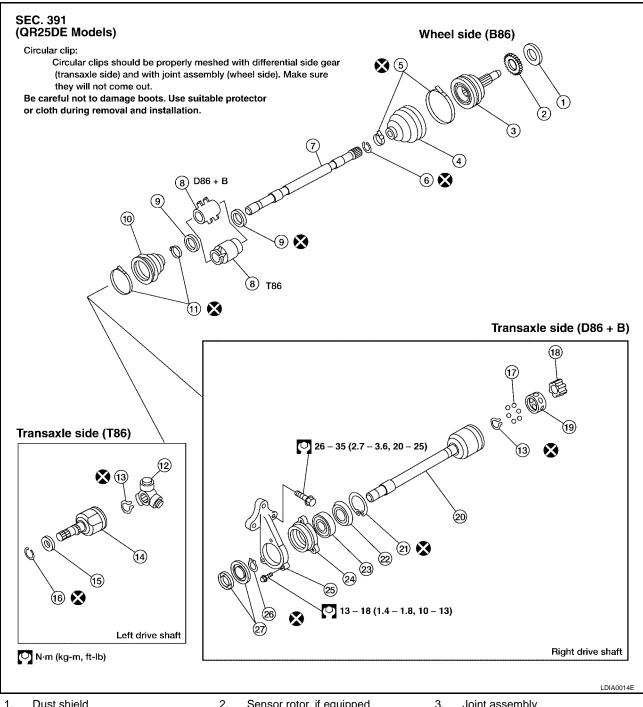
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- Dust shield 1.
- 4. **Boot**
- Drive shaft 7.
- 10. Boot
- 13. Inner race
- Slide joint assembly 16.
- 19. Slide joint housing with extension shaft
- 22. Support bearing
- 25. Snap ring

- Sensor rotor, if equipped
- 5. Boot band
- 8. Dynamic damper
- Boot band
- 14. Ball
- Dust shield 17.
- 20. Snap ring
- 23. Support bearing retainer
- 26. Dust shield

- 6. Circular clip
- 9. Dynamic damper band
- 12. Cage
- 15. Snap ring
- Circular clip 18.
- Dust shield 21.
- 24. Bracket



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4. **Boot** 

7. Drive shaft

10. **Boot** 

13. Snap ring

Circular clip 16.

19. Cage

22. Dust shield

25. Bracket 2. Sensor rotor, if equipped

5. Boot band

Dynamic damper 8.

11. Boot band

14. Slide joint assembly

17.

20. Slide joint housing with extension shaft

23. Support bearing

26. Snap ring 3. Joint assembly

6. Circular clip

Dynamic damper band 9.

12. Spider assembly

15. Dust shield

18. Inner race

21. Snap ring

24. Support bearing retainer

27. Dust shield

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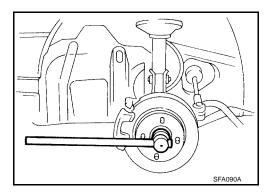
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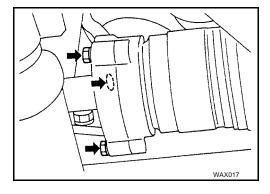
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Removal

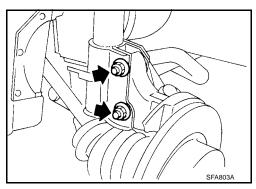
1. Remove cotter pin and wheel bearing lock nut.



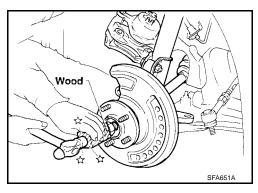
2. Remove drive shaft center support bearing bolts.



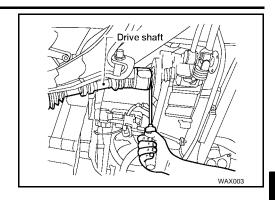
- 3. Remove strut lower mounting nuts and bolts.
- 4. Remove brake hose clip.



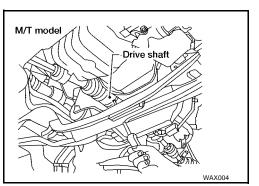
- 5. Separate drive shaft from knuckle by lightly tapping it. If it is hard to remove, use a puller.
  - Cover boots with shop towel so as not to damage them when removing drive shaft.



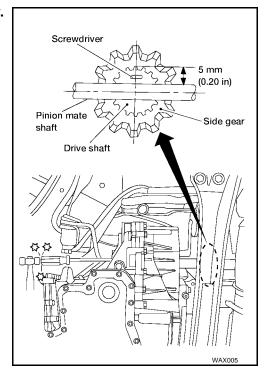
6. Remove left drive shaft from transaxle.



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



- 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.



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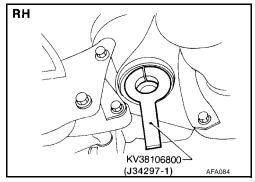
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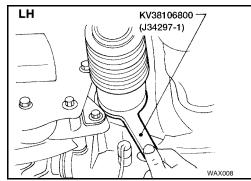
Installation EDS000QL TRANSAXLE SIDE

Drive a new oil seal to transaxle. Refer to MT-11, "SIDE OIL SEAL", MT-74, "SIDE OIL SEAL", MT-74, "SIDE OIL SEAL"AT-263, "Differential Side Oil Seal Replacement", or AT-643, "Differential Side Oil Seal Replacement".

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.

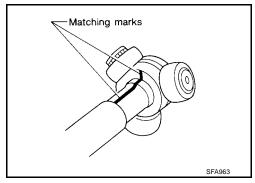


## WHEEL SIDE

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

# **Disassembly** TRANSAXLE SIDE (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.

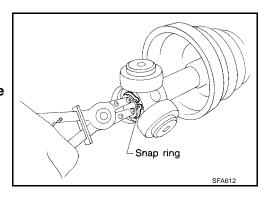


4. Remove snap ring, then remove spider assembly.

#### CAUTION:

Do not disassemble spider assembly.

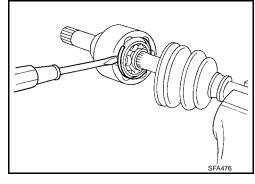
- 5. Draw out boot.
- Cover drive shaft serrations with tape so as not to damage the boot.



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# 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.
- Pry off snap ring with a screwdriver, and pull out slide joint housing.



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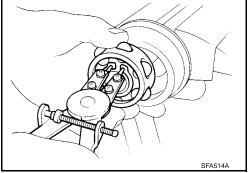
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- 4. Put matching marks on inner race and drive shaft.
- 5. Remove snap ring, then remove ball cage, inner race and balls as a unit.
- 6. Draw out boot.
- Cover drive shaft serrations with tape so as not to damage the boot.



WHEEL SIDE (ZF90, B90 AND B86 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.

# Suitable tool (Sliding hammer) Wheel bearing lock nut

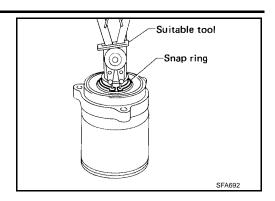
SUPPORT BEARING

1. Remove dust shield.

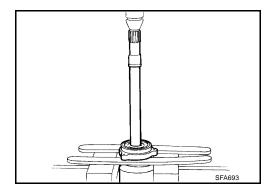
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**FAX-17** 

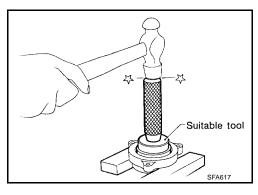
Remove snap ring.



3. Press support bearing assembly off drive shaft.



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



Inspection

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

## **DRIVE SHAFT**

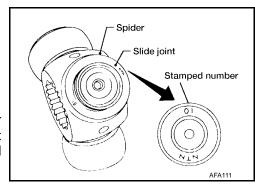
Replace drive shaft if it is twisted or cracked.

## **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.



# Housing alone cannot be replaced. It must be replaced together with spider assembly.

Stamped number	Part No.*
01	39720-61E01
02	39720-61E02
03	39720-61E03
04	39720-61E04
05	39720-61E05
06	39720-61E06
07	39720-61E07

<sup>\*:</sup> Always check with the Parts Department for the latest parts information.

## D90+B TYPE

- Replace any parts of double offset joint which show signs of scorching, rust, wear or excessive play.
- 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.

## 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

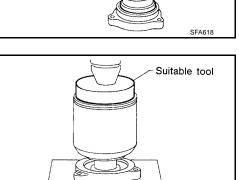
- After drive shaft has been assembled, ensure that it moves smoothly over its entire range without binding.
- Use Genuine NISSAN grease or equivalent after every overhaul.

# SUPPORT BEARING

1. Install bearing into retainer.

Suitable tool

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



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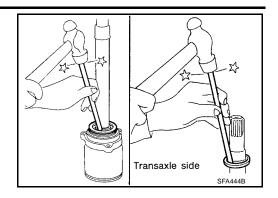
FAX

Н

M

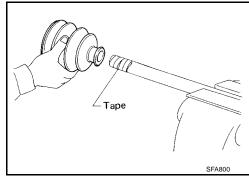
**FAX-19** 

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

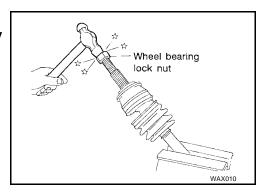


# WHEEL SIDE (ZF90, B90 AND B86 TYPE)

- 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

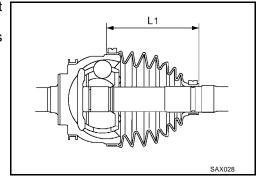
(4.06 - 4.76 oz)

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

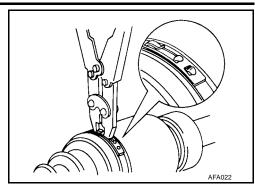
Set boot so that it does not swell and deform when its length is "L1".

Length "L1"

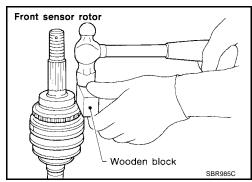
QG18DE : 97 mm (3.82 in)
QR25DE A/T : 115.7 mm (4.56 in)
QR25DE M/T : 124.2 mm (4.89 in)



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.

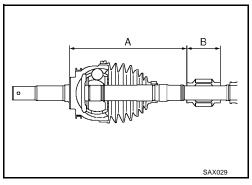


# **DYNAMIC DAMPER**

- 1. Use a new damper band when reinstalling.
- 2. Install dynamic damper from stationary-joint side while holding it securely:

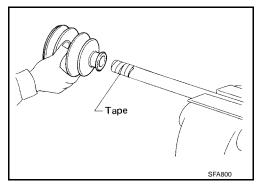
Unit: mm (in)

Applied model	QG18DE				
Applied model	LH	RH			
"A"	175-185 (6.89 - 7.28) 420-430 (16.54 - 16.				
"B"	70 (2.76) 64 (2.52)				
	QR2	25DE			
"A"	173 - 179 (6.81 - 7.05) 200 - 206 (7.87 -				
"B"	50 (1.97) 68 (2.68)				



# **TRANSAXLE SIDE (TS79C AND T86)**

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



Α

В

С

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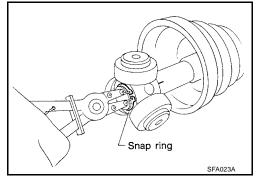
J

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**FAX-21** 

- 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.

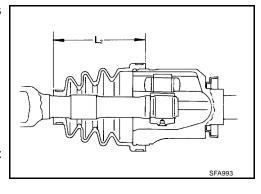
6. Set boot so that it does not swell and deform when its length is "L2".

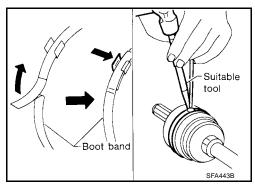
Length "L2"

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.

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





# **SERVICE DATA AND SPECIFICATIONS (SDS)**

# SERVICE DATA AND SPECIFICATIONS (SDS) Drive Shaft

PFP:00030

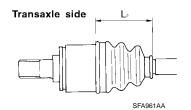
Α

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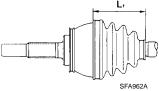
Κ

 $\mathbb{N}$ 

Applied mode	el		QG18DE	QR25DE	_
laint tuna	Transaxle side		TS79C	D90+B, D90, D86+B and T86	В
Joint type	Wheel side		ZF90	B90 and B86	_
Quality		Genuine NISSAN grease or equivalent			
				D90+B and D90 145 - 165 (5.115.82)	
Grease		Transaxle side	TS79C 154 - 164 (5.43 - 5.78)	D86+B 135 - 155 (4.76 - 5.47)	
Grease	Capacity g (oz)		T86 140 - 160 (4.94 - 5.64)	FAX	
		Wheel side		B90 120 - 140 (4.23 - 4.94)	
			ZF90 122 - 126 (4.30 - 4.44)	B86 115135 (4.06 - 4.76)	E
				D90+B and D90 98 (3.86)	
Boot	Transaxle side "La	2 "	TS79C 102.5 (4.035)	D86+B 98 (3.86)	_
length mm			T86 98.5 (3.88)	F	
(in)	Wheel side "L1 "		7500 07 /2 92\	B90 115.7 (4.56)	=
			ZF90 97 (3.82)	B86 124.2 (4.89)	_ 







EDS000QQ

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)

# SERVICE DATA AND SPECIFICATIONS (SDS)