FRONT & REAR AXLE

SECTION

EM

LC

EC

FE

CL

GI

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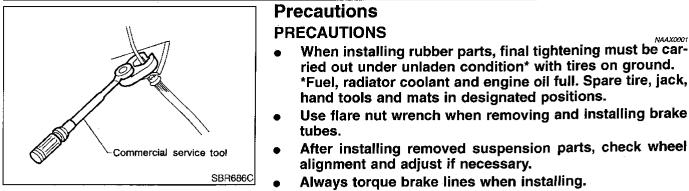
SC

EL

IDX

Precautions

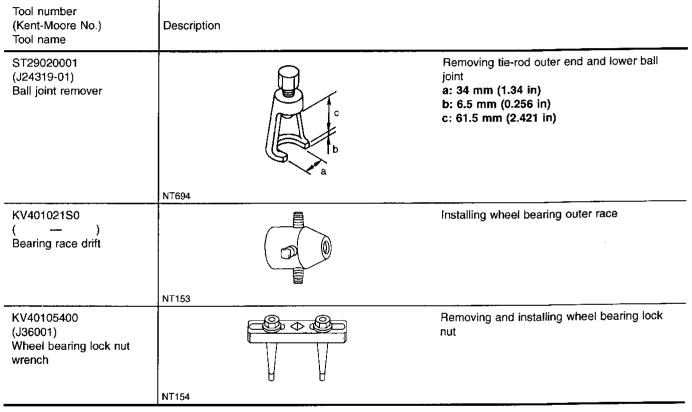
FRONT AXLE



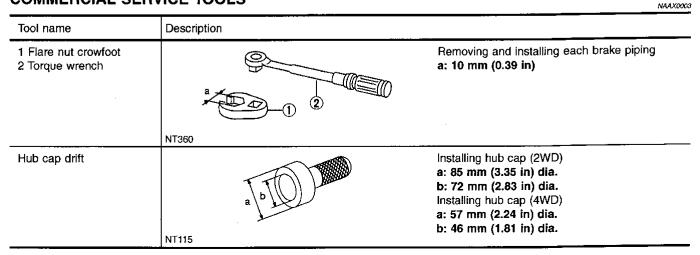
Preparation

SPECIAL SERVICE TOOLS

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



COMMERCIAL SERVICE TOOLS



NAAX0002

Noise, Vibration and Harshness (NVH) Troubleshooting

NAAX0034

GI

MA

NVH TROUBLESHOOTING CHART

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

Reference p	bage		1	AX-14		AX-6, 19	i	AX-4, 18	NVH in PD section	NVH in PD section	Refer to DRIVE SHAFT in this chart.	Refer to AXLE in this chart.	NVH in SU section	NVH in SU section	NVH in SU section	NVH in BR section	NVH in ST section	em LC EC
						ness		1										- [5]2
		ngle	stance		Improper installation, looseness	Ð	amage	SHAFT									CL	
Possible cause and SUSPEC	PECTED PARTS	e joint a	ng resi	Ð	installa	rferenc	aring d	LER SF	INTIAL	HAFT		SION		HEEL		ត	MT	
		Excessive joint angle	Joint sliding resistance	Imbalance	Improper	Parts interference	Wheel bearing damage	PROPELLER	DIFFERENTIAL	DRIVE SHAFT	AXLE	SUSPENSION	TIRES	ROAD WHEEL	BRAKES	STEERING	AT	
	DRIVE	Noise, Vibration	×	×					×	×		×	×	×	×	×	×	77
	SHAFT	Shake	×	_	×				×			×	×	×	×	×	×	
		Noise				×	×		×	×	×		×	×	×	×	×	PD
		Shake				×	×		×		×		×	×	×	×	×	
Symptom A		Vibration				×	×		×		×	1	×	×			×	AX
	AXLE	Shimmy				×	×						×	×	×	×	×	
		Judder				×							×	×	×	×	×	ŝU
		Poor quality ride or handling				×	×	×					×	×	×			BR

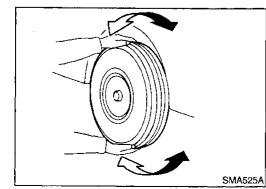
x: Applicable

RS

BT

HA

SC



On-vehicle Service FRONT AXLE PARTS

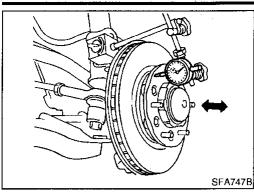
Check front axle parts for excessive play, cracks, wear and other damage. 1. Shake each front wheel to check for excessive play.

- Shake each front wheel to check for excessive play
 Retighten all nuts and bolts to the specified torque.
 - Retighten all nuts and bolts to the specified torque. Tightening torque: Refer to "Wheel Hub and Rotor Disc", AX-6.

IDX

EL

On-vehicle Service (Cont'd)



FRONT AXLE

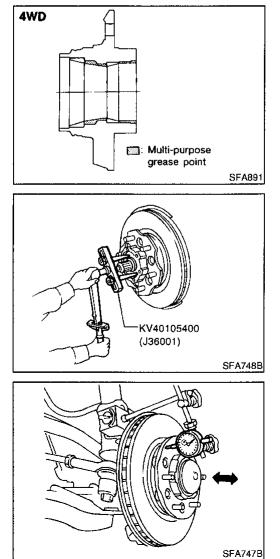
FRONT WHEEL BEARING

- 1. Check that wheel bearings operate smoothly.
- 2. Check axial end play.
 - Axial end play: 0 mm (0 in)
- 3. Adjust wheel bearing preload if there is any axial end play or wheel bearing does not turn smoothly.

Preload Adjustment

Adjust wheel bearing preload after wheel bearing has been replaced or front axle has been reassembled. Adjust wheel bearing preload as follows:

1. Before adjustment, thoroughly clean all parts to prevent dirt entry.



- 2. Apply multi-purpose grease sparingly to the following parts:
- Threaded portion of spindle
- Contact surface between wheel bearing lock washer (chamfered side) and outer wheel bearing
- Grease seal lip
- Wheel hub (as shown at left) 4WD —
- 3. Tighten wheel bearing lock nut with Tool. [○]: 78 - 98 N·m (8 - 10 kg-m, 58 - 72 ft-lb)
- 4. Turn wheel hub several times in both directions.
- Loosen wheel bearing lock nut so that torque becomes 0 N·m (0 kg-m, 0 ft-lb).
- Retighten wheel bearing lock nut with Tool.
 : 0.5 1.5 N·m (0.05 0.15 kg-m, 4.3 13.0 in-ib)
- 7. Turn wheel hub several times in both directions.
- Retighten wheel bearing lock nut with Tool.
 1.5 N-m (0.05 0.15 kg-m, 4.3 13.0 in-lb)
- 9. Measure wheel bearing axial end play. Axial end play: 0 mm (0 in)

AX-4

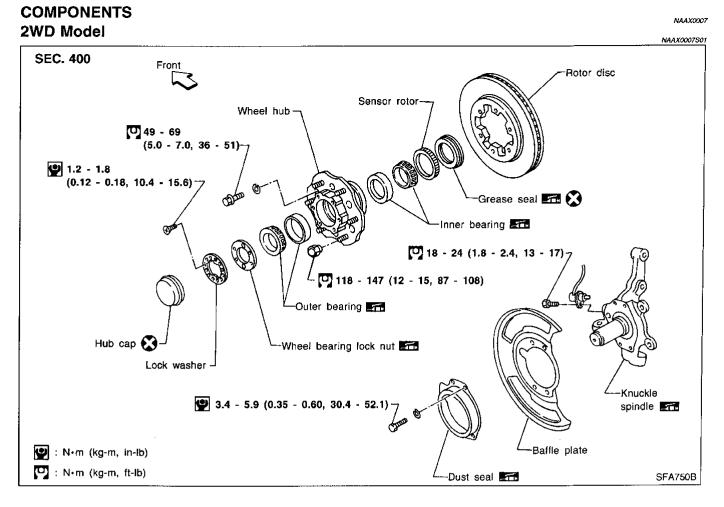
NAAX0005

	Un-venicie Service (Conta)	
Starting force: "A"	10. Measure starting force "A" at wheel hub bolt.	GI
		MA
90°		EM
		LC
SMA580A	11. Install lock washer by tightening the lock nut within 15 to 30 degrees.	EĈ
0.50	12. Turn wheel hub several times in both directions to seat wheel bearing correctly.	FE
	13. Measure starting force "B" at wheel hub bolt. Refer to proce- dure 10.	CL
	 14. Wheel bearing preload "C" can be calculated as shown below. C = B - A 	
	Wheel bearing preload "C": 7.06 - 20.99 N (0.72 - 2.14 kg, 1.59 - 4.72 lb)	MT
SFA830	15. If wheel bearing preload "C" is outside specifications, remove lock washer. Tighten or loosen lock nut within ±15 degrees	AT
	(Refer to step 11 above). Install lock washer, then repeat steps12, 13 and 14.16. Repeat above procedures until correct axial end play and	ŢŢ
	wheel bearing preload are obtained.17. Install drive flange (4WD models) and wheel hub cap.	PD
		AX
		SU
	 DRIVE SHAFT Check boot and drive shaft for cracks, wear, damage and grease leakage. 	BR
MOULE		ST
		RS
SFA901		BT
		HA
		SC

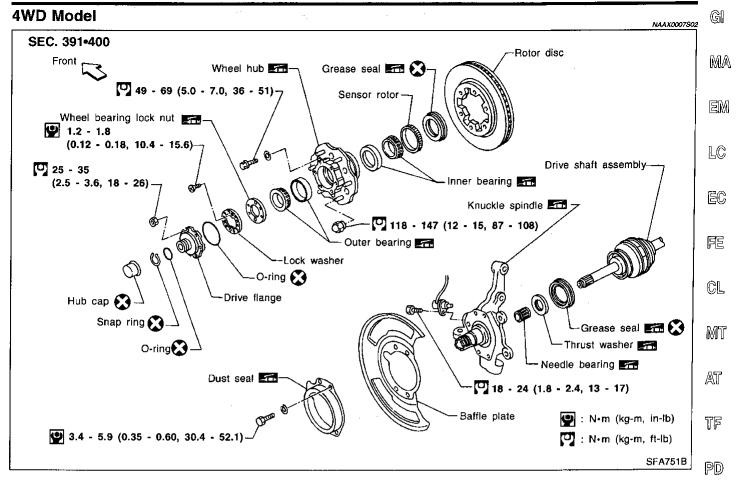
EL

10X

Wheel Hub and Rotor Disc



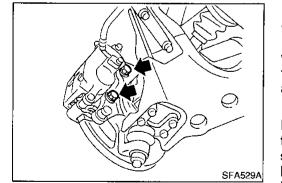
Wheel Hub and Rotor Disc (Cont'd)



AX

SU

NAAXOOOS



REMOVAL

CAUTION:

BR Before removing the front axle assembly, disconnect the ABS wheel sensor from the assembly. Then move it away from the front axle assembly area. Failure to do so may result in dam-ST age to the sensor wires and the sensor becoming inoperative.

1. Remove brake caliper assembly.

RS Brake hose need not be disconnected from brake caliper. In this case, suspend caliper assembly with wire so as not to stretch brake hose.

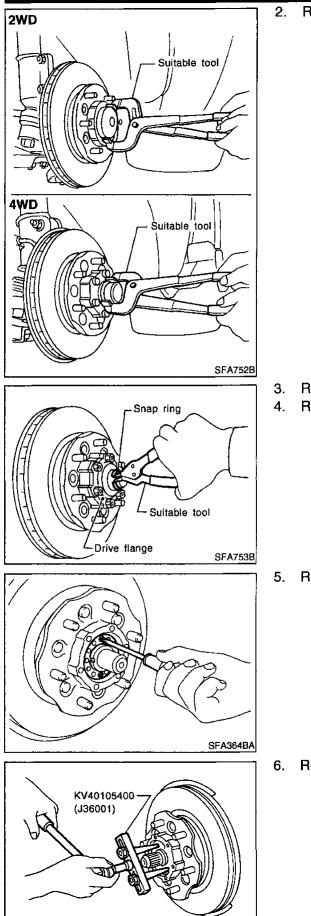
BT Be careful not to depress brake pedal, or piston will pop out. Make sure brake hose is not twisted.

HA

SC

EL

IDX



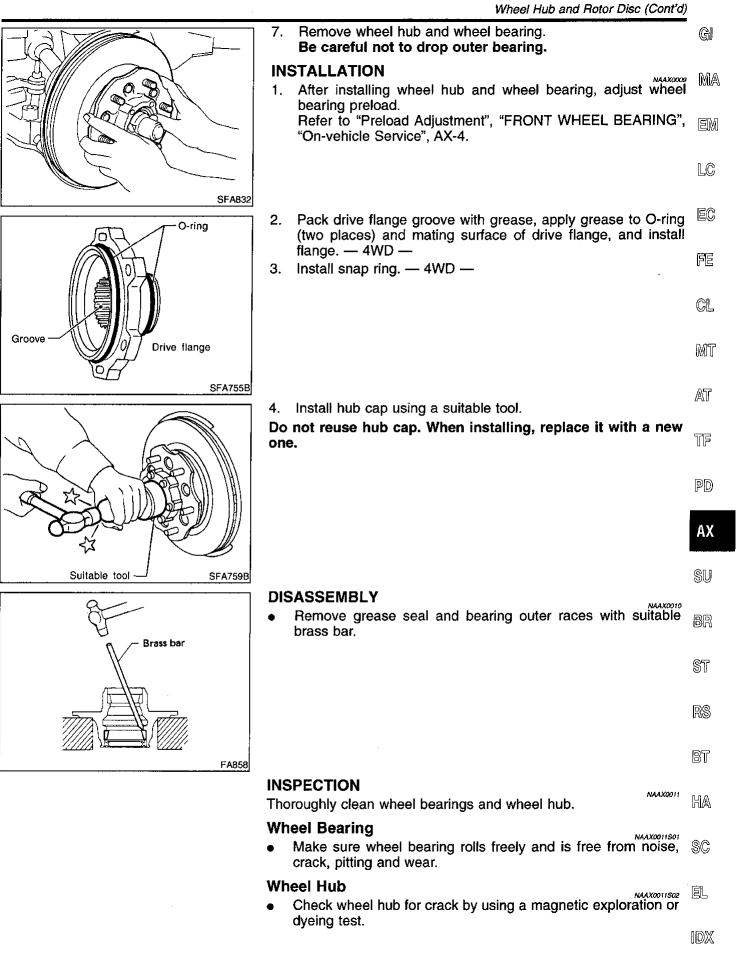
2. Remove hub cap with suitable tool.

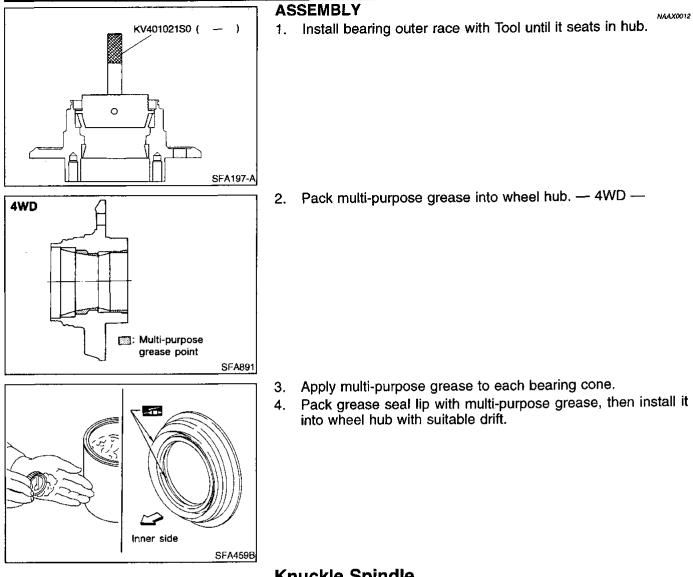
Remove snap ring with suitable tool. — 4WD —
 Remove drive flange. — 4WD —

5. Remove lock washer.

6. Remove wheel bearing lock nut.

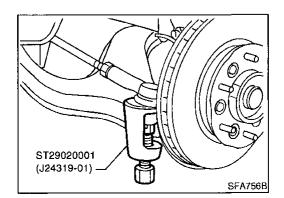
SFA754B





Knuckle Spindle REMOVAL

1. Remove drive shaft. — 4WD — Refer to "Drive Shaft", AX-12. NAAX0013



2. Separate tie-rod end and lower ball joint from knuckle with Tool.

Install stud nut conversely on stud bolt so as not to damage stud bolt.

0

4WD

4WD

3

- Seai

	Knuckle Spindle (Cont'd)	
15 de	3. Separate knuckle from strut.	GI
		MA
		EM
SFA758B		LC
	INSPECTION Knuckle Spindle	EĈ
	• Check knuckle spindle for deformation, cracks and other dam- age by using a magnetic exploration or dyeing test.	FE
	 Needle Bearing — 4WD — Check needle bearing for wear, scratches, pitting, flaking and burn marks. 	CL
	buin marks.	MT
		AT
Knuckle spindle	 Install needle bearing into knuckle spindle 4WD Make sure that needle bearing is facing in proper direction. Apply multi-purpose grease. 	릭니
lip	 Install knuckle with wheel hub. Install tie-rod end and lower ball joint. 	PD
		AX
Needle bearing SFA962	4. After installing knuckle spindle, adjust wheel bearing preload.	SU
	Refer to "Preload Adjustment", "FRONT WHEEL BEARING", "On-vehicle Service", AX-4.	BR
	 After installing drive shaft, check drive shaft axial end play. Do not reuse snap ring once it has been removed. Refer to "Drive Shaft", AX-12. 	ST
		RS
SFA369B		BT
	·	HA
		SC

EL

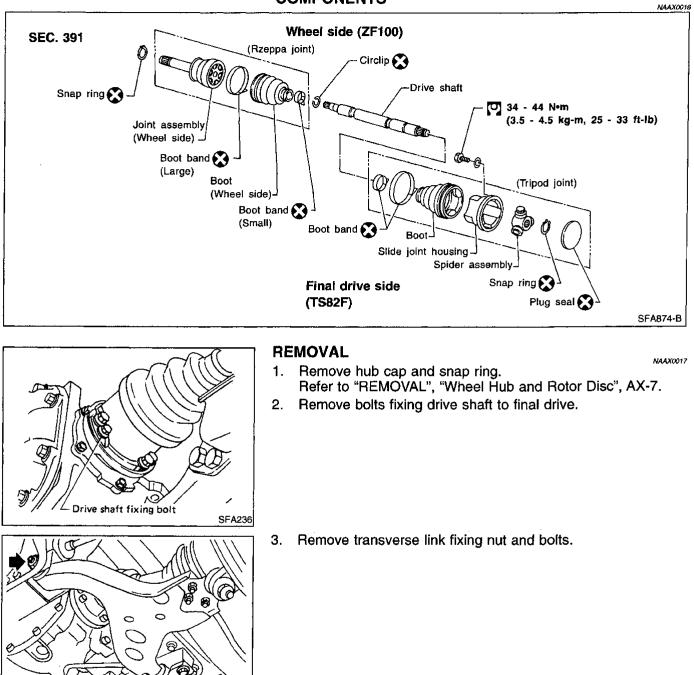
IDX

71

Drive Shaft

FRONT AXLE

Drive Shaft COMPONENTS



4. Separate drive shaft from knuckle by lightly tapping it with a copper hammer.
 Cover boots with shop towel so as not to damage them when

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

SFA760B

SFA761B

Slide joint - housing	/ Plug seal	DISASSEMBLY NAAX0078 Final Drive Side (TS82F)	
	T - D	1. Remove plug seal from slide joint housing by lightly tapping around slide joint housing.	MA
		2. Remove boot bands.	EM
	± ≠ /		LC
Matching marks	SFA880	3. Move boot and slide joint housing toward wheel side, and put matching marks.	EC
Watching History		matching marke.	FE
			CL
			MT
	SFA963	4. Remove snap ring.	AT
			TF
P 1 0			PD
, Filt	- Snap ring		AX
	SFA964		SU
(↓)		5. Detach spider assembly with press.	BR
			ST
			RS
	SFA392		BT
		6. Draw out boot. Cover drive shaft serration with tape so as not to damage the boot.	HA
			SC
-Tape			EL
	/		IDX
	SFA799		

Drive Shaft (Cont'd)

SFA455

FRONT AXLE

Wheel Side (ZF100)

CAUTION:

The joint on the wheel side cannot be disassembled.

- Before separating joint assembly, put matching marks on drive shaft and joint assembly.
- Separate joint assembly with suitable tool.

Be careful not to damage threads on drive shaft.

• Remove boot bands.

INSPECTION

Thoroughly clean all parts in cleaning solvent, and 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, and wear. Replace boot with new boot bands.

Joint Assembly (Final drive side)

- 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.

ASSEMBLY

- 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.

D Tape	
	SEVOU

Final Drive Side (TS82F)

 Install new small boot band, boot and side joint housing to drive shaft.

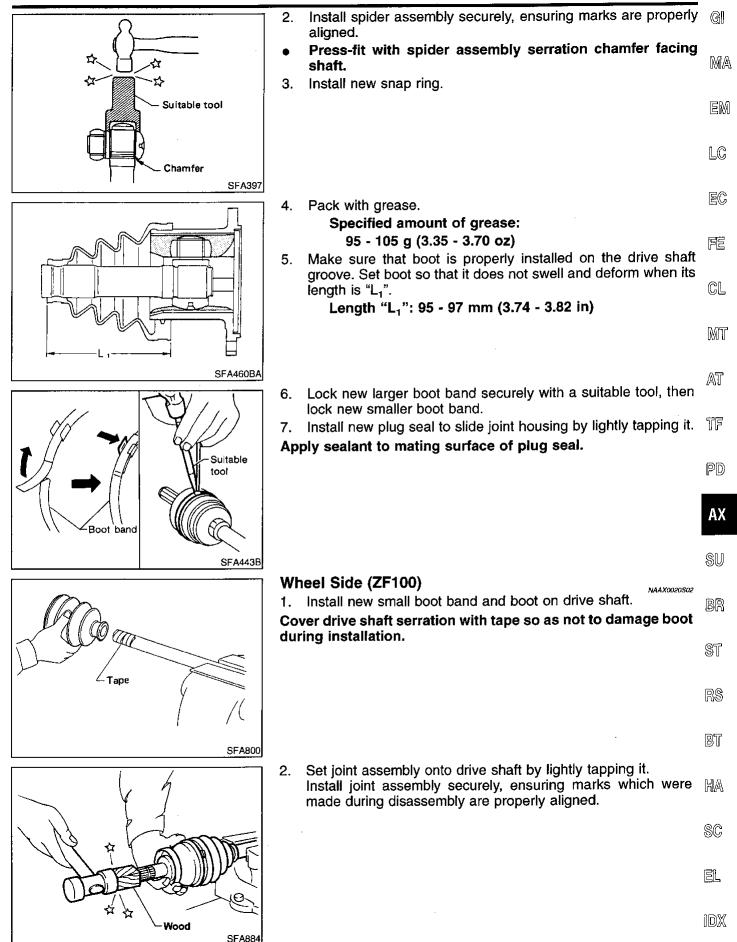
Cover drive shaft serration with tape so as not to damage boot during installation.

AX-14

NAAX0016S02

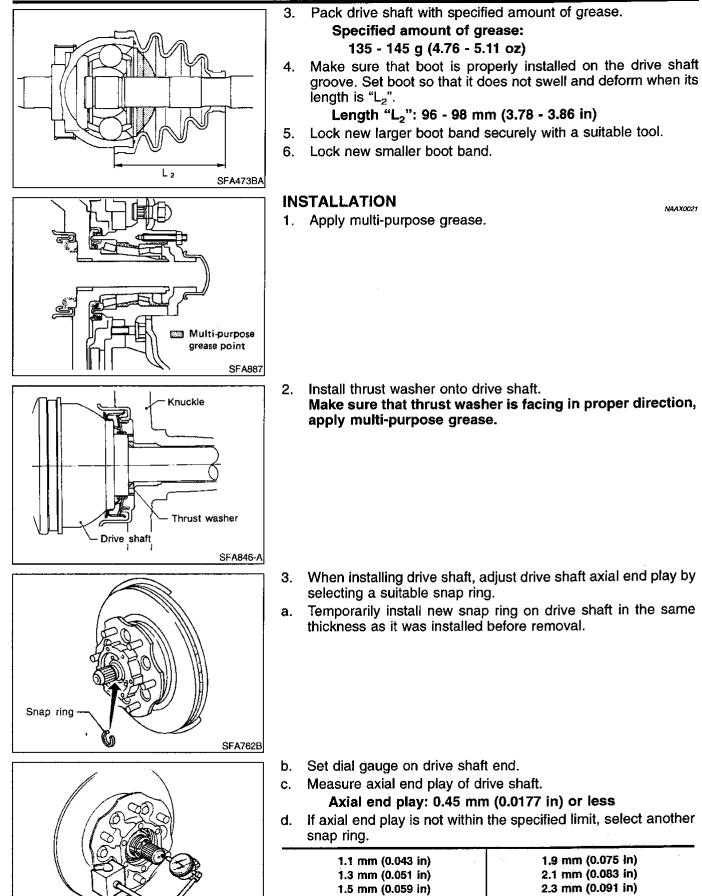
NAAX0019S01

NAAX0019S04



Drive Shaft (Cont'd)

FRONT AXLE



AX-16

SFA847

1.7 mm (0.067 in)



SPECIAL SERVICE	alignment and adjust if necessary. SBR686C Always torque brake lines when installing. Preparation TOOLS	gi Ma Em LC EC
Tool number (Kent-Moore No.) Tool name	Description	CL
KV40101000 (J25604-01) Axle stand		MT AT
ST36230000 (J25840-A) Sliding hammer		TF
	NT126	PD
ST38020000 (—) Bearing lock nut wrench		ax Su
HT72480000 or	NT160 Removing wheel bearing	BR
HT72210000 (J25852-B) Rear axle shaft bearing puller		ST
ST37840000 () Rear axle shaft guide	Installing rear axle shaft	RS BT
	NT162	HA

SC

EL

IDX

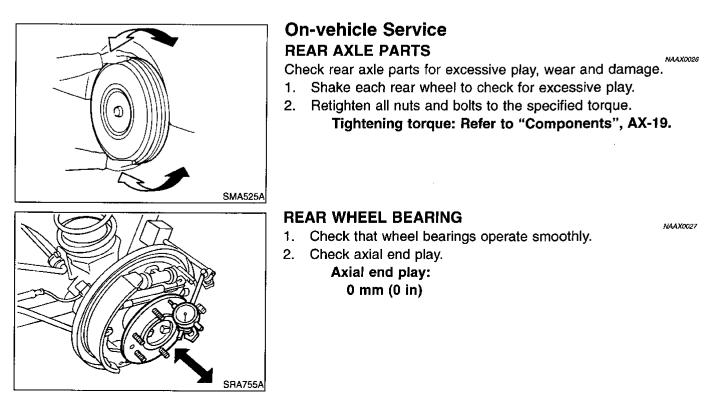
Preparation (Cont'd)

COMMERCIAL SERVICE TOOLS

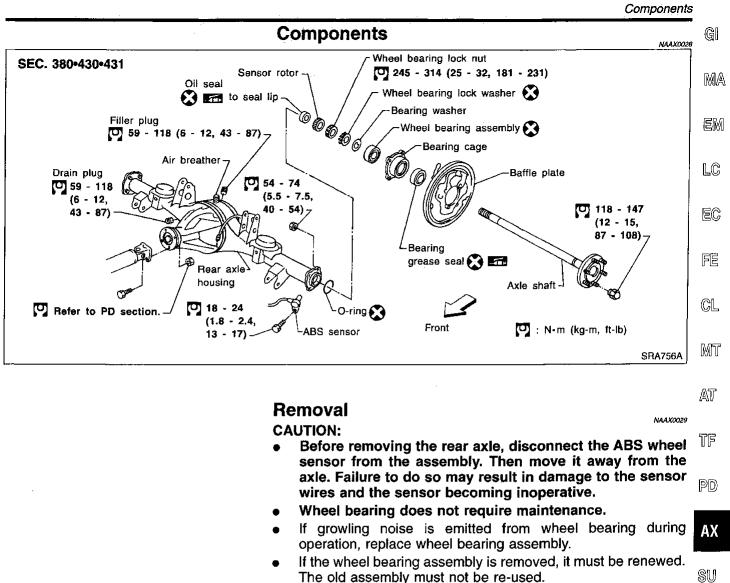
1 Flare nut crowfoot 2 Torque wrench Removing and installing e a: 10 mm (0.39 in) NT360	ach brake piping
NT360	
Rear axle oil seal drift C Linstalling oil seal a: 74 mm (2.91 in) dia. b: 68 mm (2.68 in) dia. c: 10 mm (0.39 in)	

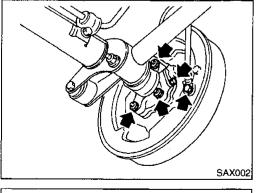
Noise, Vibration and Harshness (NVH) Troubleshooting

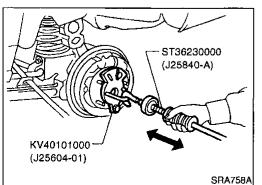
Refer to "Noise, Vibration and Harshness (NVH) Troubleshooting", "FRONT AXLE", AX-3.



AX-18







 BT

 3. Draw out axle shaft with Tool.

 When drawing out axle shaft, be careful not to damage oil seal.

 HA

 SC

Disconnect parking brake cable and brake tube.

Remove nuts securing wheel bearing cage with baffle plate.

1. 2.

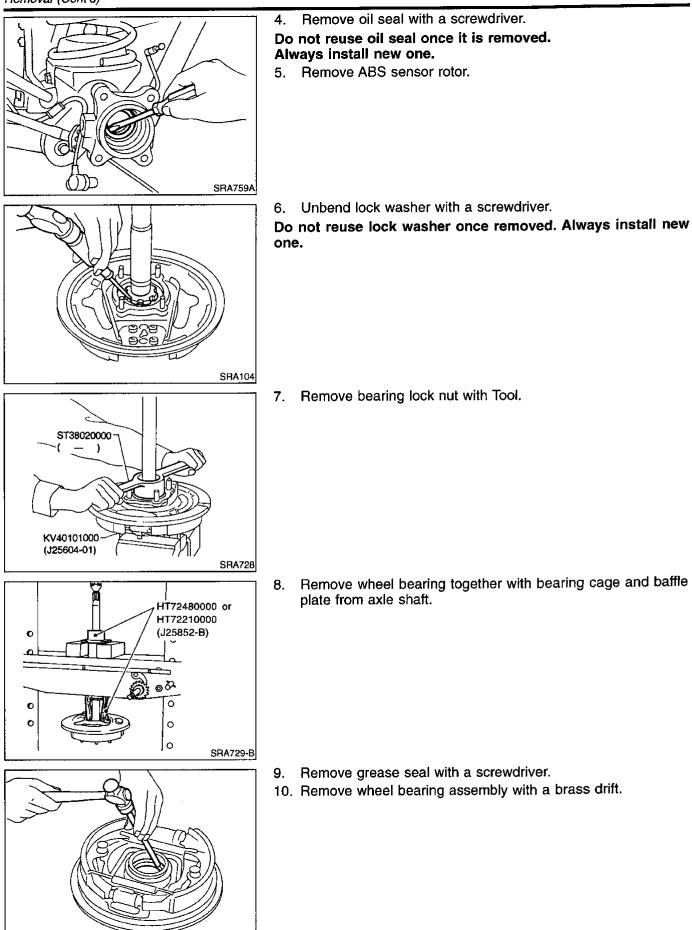
1DX

BR

ST

RS

Removal (Cont'd)

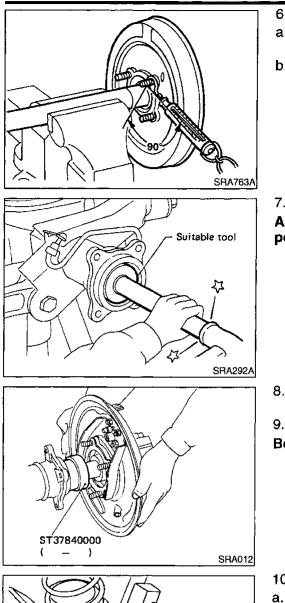


SRA106

	spection NAAX0030	Ĝ
Cł	neck axle shaft for straightness, cracks, damage, wear and dis- tion. Replace if necessary.	MA
	EARING CAGE neck bearing cage for deformation and cracks. Replace if neces- ry.	EM
Ch if r	EAR AXLE HOUSING neck rear axle housing for yield, deformation and cracks. Replace necessary.	lC EC
Press Suitable too!	Stallation Press new wheel bearing until it bottoms end face of bearing cage. Maximum load P:	FE
	39 kN (4 ton, 4.4 US ton, 3.9 lmp ton) ways press outer race of wheel bearing during installation.	CL
		MT
Press 2.	Press new grease seal until it bottoms end face of bearing cage.	AT
	-	TF
		PD
SRA289A		ax Su
Press 3.	Press axle shaft into inner race of wheel bearing.	BR
Grease seal	careful not to damage and deform grease seal.	st
Wheel bearing assembly		RS
SRA761A		BT
4. 5.	Install plain washer and a new wheel bearing lock washer. Tighten wheel bearing lock nut to specified torque. 23: 245 - 314 N·m (25 - 32 kg-m, 181 - 231 ft-lb)	HA
	wheel bearing lock washer lip in wheel bearing lock nut ove correctly by tightening lock nut. Be sure to bend it up.	SC
		EL
SRA762A		IDX

Inspection

Installation (Cont'd)



- 6. Check wheel bearing preload.
- a. Turn bearing cage (with respect to axle shaft) two or three times. It must turn smoothly.
- b. Attach spring gauge to bearing cage bolt (as shown at left) and pull it at a speed of 10 rpm to measure preload.

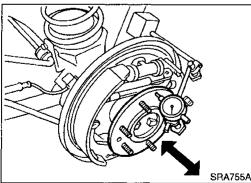
Spring gauge indication: 6.9 - 48.1 N (0.7 - 4.9 kg, 1.5 - 10.8 lb)

7. Install new oil seal to rear axle housing using a suitable tool. After installing new oil seal, coat sealing lip with multi-purpose grease.

8. Press ABS sensor rotor onto axle shaft until it contacts wheel bearing lock nut.

9. Position axle shafts in rear axle housing with Tool as a guide. **Be careful not to damage oil seal.**

- 10. Check axial end play.
- a. Check that wheel bearings operate smoothly.
- b. Check axial end play.
 Axial end play:
 0 mm (0 in)



SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing (Front)

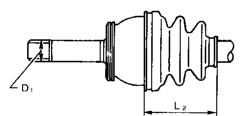
Wheel Bearing (Front)

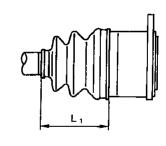
Wheel Bearing (Front) MAXX00000 Tightening torque 78 - 98 N-m (8 - 10 kg-m, 58 - 72 ft-lb) MM Retightening torque after loosening wheel bearing lock nut 0.5 - 1.5 N-m (0.05 - 0.15 kg-m, 4.3 - 13.0 in-lb) MM Wheel bearing lock nut Axial end play 0 mm (0 in) EM Starting force at wheel hub bolt N (kg, lb) A 15° - 30° EM Wheel bearing preload at wheel hub bolt B - A 7.06 - 20.99 N (0.72 - 2.14 kg, 1.59 - 4.72 lb) EC	GI		
	Tightening torque	78 - 98 N-m (8 - 10 kg-m, 58 - 72 ft-lb)	0.0.0
		0.5 - 1.5 N·m (0.05 - 0.15 kg-m, 4.3 - 13.0 in-lb)	IMIA
Wheel bearing lock nut	Axial end play	0 mm (0 in)	EM
-	Starting force at wheel hub bolt N (kg, lb)	Α	
	Turning angle	15° - 30°	LC
	Starting force at wheel hub bolt N (kg, lb)	В	
Wheel bearing preload at wheel hub bolt	B – A	7.06 - 20.99 N (0.72 - 2.14 kg, 1.59 - 4.72 lb)	EĈ

Drive Shaft (4WD)

		Drive Shall (4WD)	NAAXOO	33
Drive shaft joint type	Final drive side		TS82F	_
	Wheel side		ZF100	(
	Fixed joint axial end play limit		1 mm (0.04 in)	_
Diameter	Wheel side (D1)		29.0 mm (1.142 in)	
	Quality		Nissan genuine grease or equivalent	_
Grease		Final drive side	95 - 105 g (3.35 - 3.70 oz)	
	Specified amount of grease	Wheel side	135 - 145 g (4.76 - 5.11 oz)	_
Drive shaft axial end p	lay		0.45 mm (0.0177 in) or less	_
Post longth	Final drive side (L1)		95 - 97 mm (3.74 - 3.82 in)	_
Boot length	Wheel side (L2)		96 - 98 mm (3.78 - 3.86 in)	_

Wheel side





SAX001

Final drive side

SU

BR

AX

				_
RIVE SHAFT END SNA	P RING		NAAX00333	301
Thickness mm (in)	Part No.	Thickness mm (in)	Part No.	
1.1 (0.043) 1.3 (0.051) 1.5 (0.059) 1.7 (0.067)	39253-88G10 39253-88G11 39253-88G12 39253-88G13	1.9 (0.075) 2.1 (0.083) 2.3 (0.091)	39253-88G14 39253-88G15 39253-88G16	_
	Wheel E	Bearing (Rear)	NAAXO)32
Wheel bearing axial end play		0 mm (0 in)		_
Wheel bearing lock nut tightening torque		245 - 314 N·m (25 - 32 kg-m, 181 - 231 ft-lb)		
Wheel bearing preload measured at bearing cage bolt		6.9 - 48.1 N (0.7 - 4.9 kg, 1.5 - 10.8 lb)		