

FRONT & REAR SUSPENSION

SECTION SU

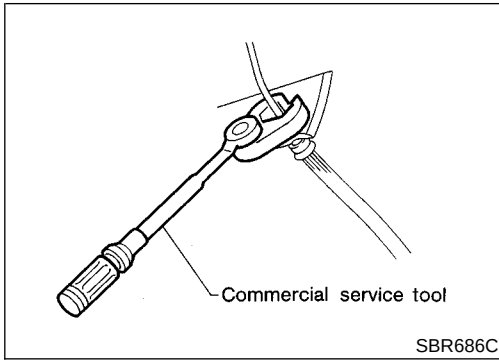
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FRONT SUSPENSION

Precautions



Precautions PRECAUTIONS

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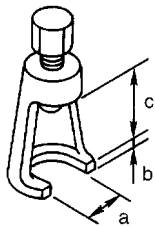
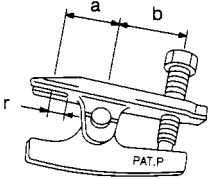
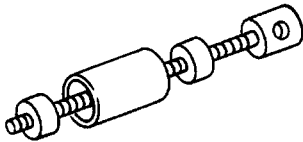
- When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.
*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
- Use flare nut wrench when removing and installing brake tubes.
- After installing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

Preparation

SPECIAL SERVICE TOOLS

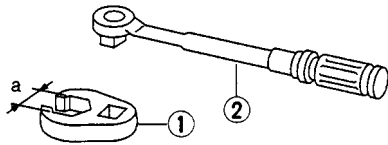
NESU0002

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
ST29020001 (J24319-01) Gear arm puller	 Removing ball joint for knuckle spindle a: 34 mm (1.34 in) b: 6.5 mm (0.256 in) c: 61.5 mm (2.421 in)
HT72520000 (J25730-B) Ball joint remover	 Removing tie-rod outer end a: 33 mm (1.30 in) b: 50 mm (1.97 in) r: R11.5 mm (0.453 in)
KV40106800 (—) Lower link bushing puller	 Removing and installing lower link bushing

COMMERCIAL SERVICE TOOLS

NESU0003

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

FRONT SUSPENSION

Noise, Vibration and Harshness (NVH) Troubleshooting

Noise, Vibration and Harshness (NVH) Troubleshooting

=NESU0004

NESU0004S01

NVH TROUBLESHOOTING CHART

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

Symptom		Possible Cause and SUSPECTED PARTS		Reference page	
Symptom	SUSPENSION	Noise	x	x	SU-4, 26
		Shake	x	x	SU-14, 28
		Vibration	x	x	—
		Shimmy	x	x	—
		Judder	x	x	—
		Poor quality ride or handling	x	x	SU-12, 28
					SU-7
	TIRES	Noise	x	x	SU-17
		Shake	x	x	SU-7
		Vibration			—
		Shimmy	x	x	—
		Judder	x	x	—
		Poor quality ride or handling	x	x	—
	ROAD WHEEL	Noise	x	x	—
		Shake	x	x	—
		Shimmy, Judder	x	x	—
		Poor quality ride or handling	x	x	—
	SUSPENSION	Noise	x	x	Refer to PD-4 , NVH.
		Shake	x	x	Refer to PD-4 , NVH.
		Vibration	x	x	Refer to AX-3 , NVH.
		Shimmy	x	x	Refer to AX-3 , NVH.
		Judder	x	x	Refer to SUSPENSION in this chart.
		Poor quality ride or handling	x	x	Refer to TIRES in this chart.
					Refer to ROAD WHEEL in this chart.
					Refer to BR-7 , NVH.
					Refer to ST-5 , NVH.

x: Applicable

FRONT SUSPENSION

Components

Components

NESU0005

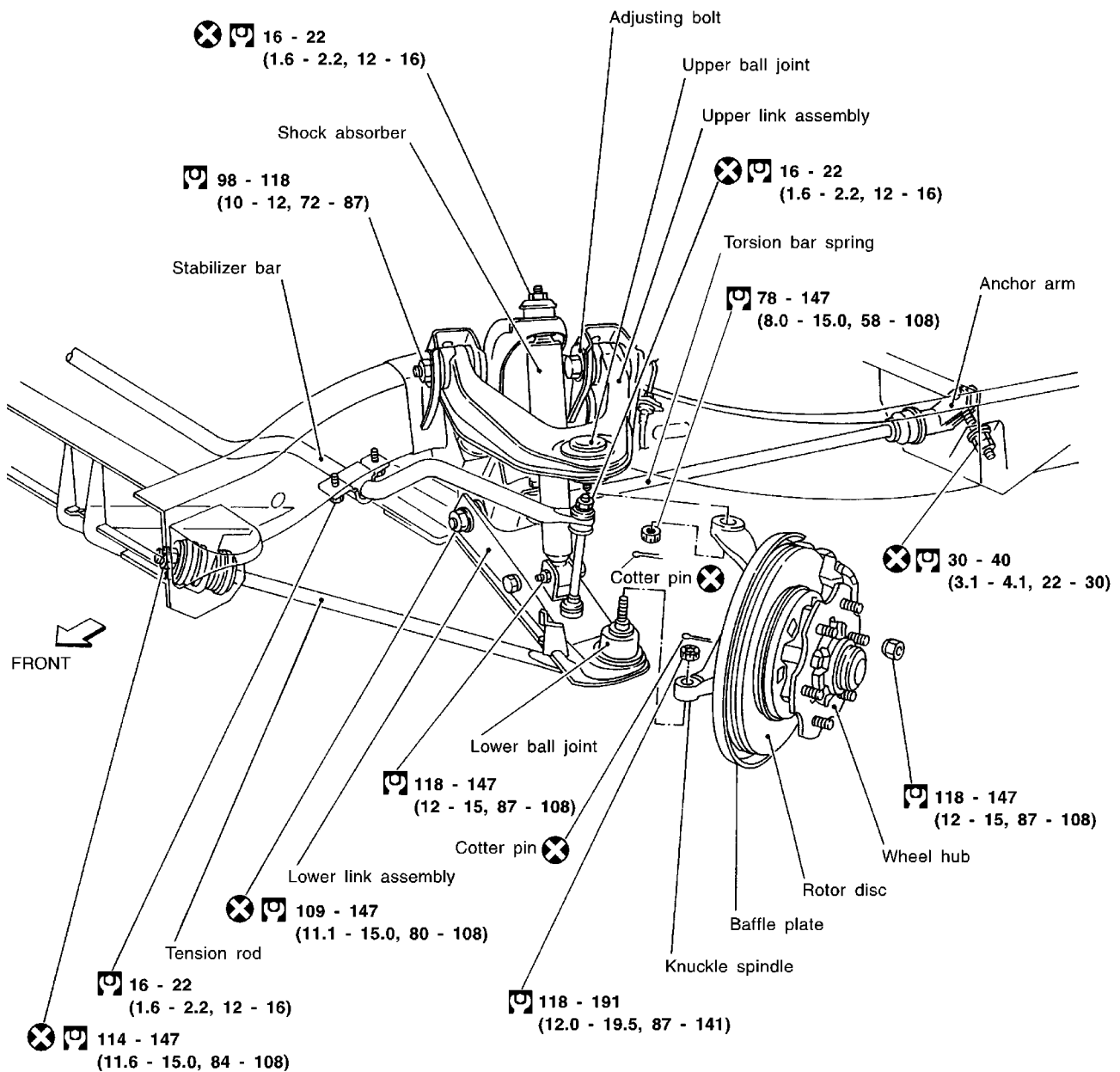
NESU0005S01

2WD KA24DE MODELS

SEC. 400•401

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.



: N•m (kg-m, ft-lb)

SFA811B

FRONT SUSPENSION

Components (Cont'd)

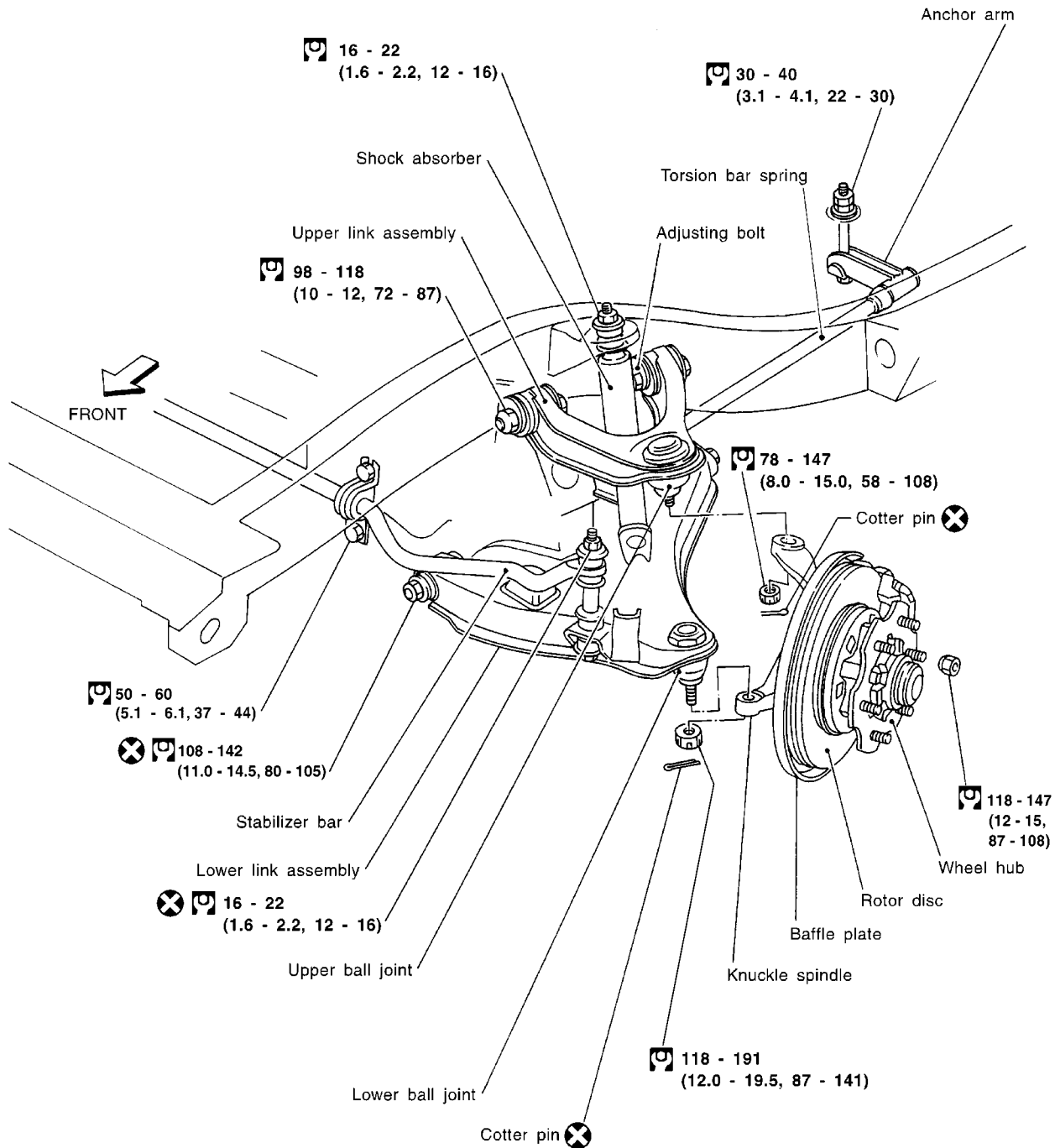
2WD VG33E MODELS

NESU0005S03

SEC. 391•400•401

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.



: N·m (kg-m, ft-lb)

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FRONT SUSPENSION

Components (Cont'd)

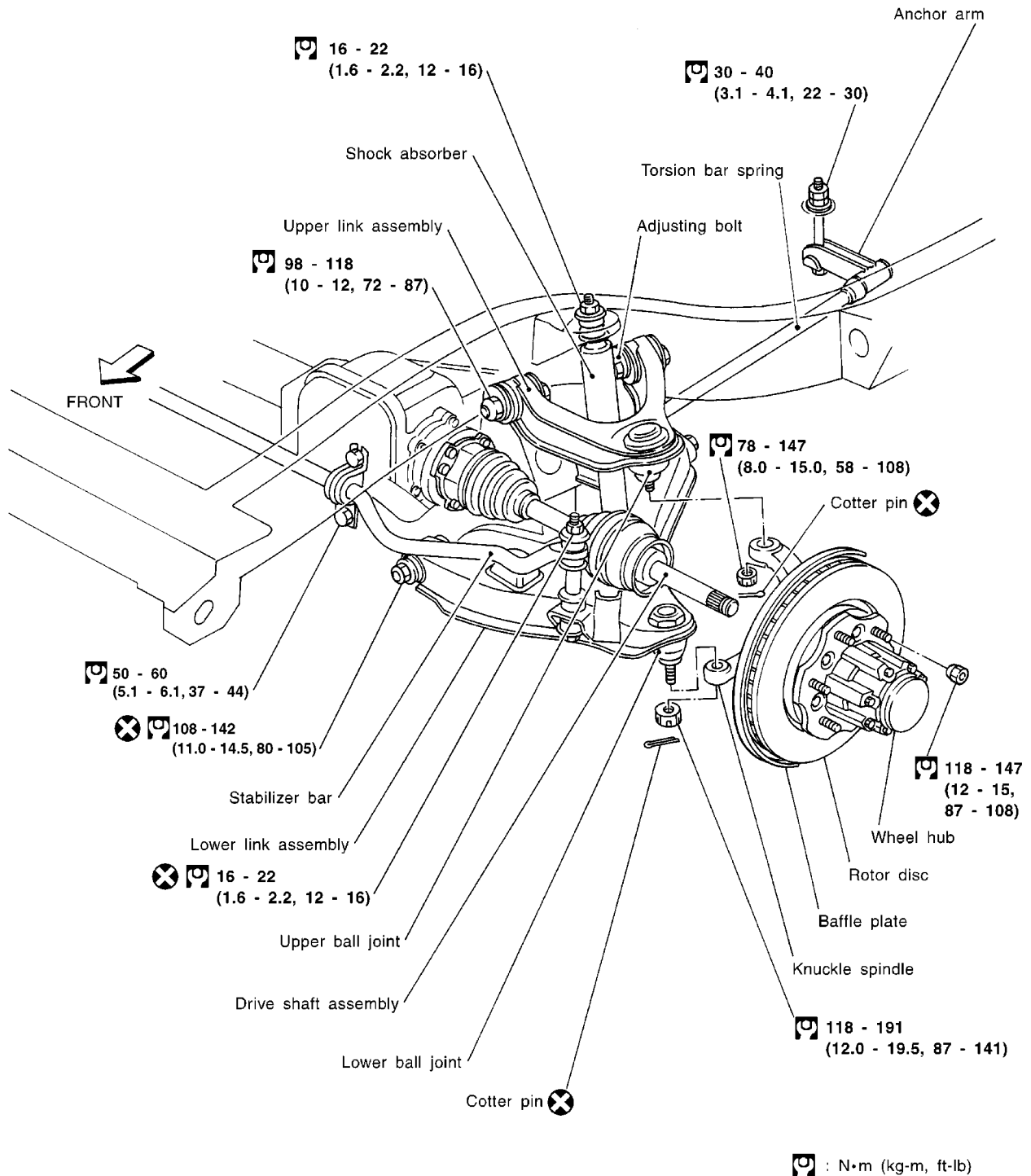
4WD MODELS

NESU0005S02

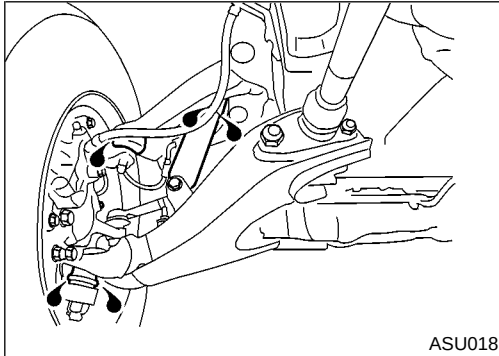
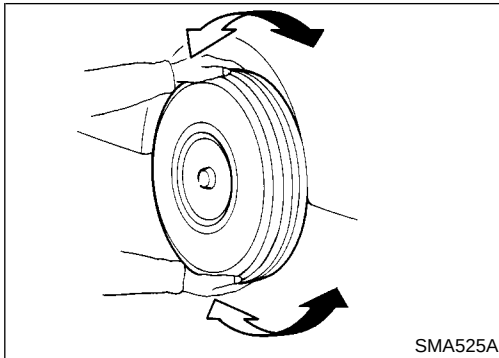
SEC. 391•400•401

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.



ASU058



On-vehicle Service

FRONT SUSPENSION PARTS

NESU0006

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

- Shake each front wheel to check for excessive play. If looseness is noted, adjust wheel bearing end play, then check ball joint end play.
- Make sure that the cotter pin is inserted.
- Retighten all nuts and bolts to the specified torque.

: Refer to "FRONT SUSPENSION", SU-12.

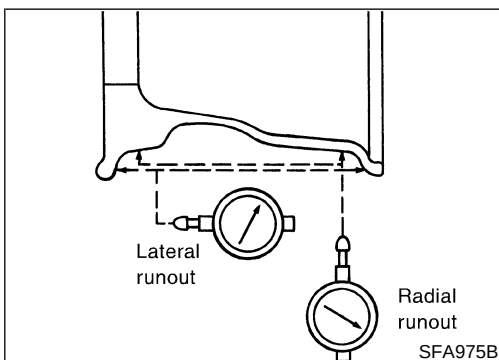
- Check shock absorber for oil leakage and other damage.
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks and other damage.

FRONT WHEEL ALIGNMENT

NESU0007

Before checking front wheel alignment, make a preliminary inspection (Unladen*).

*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.



Preliminary Inspection

NESU0007S01

1. Check tires for wear and proper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.

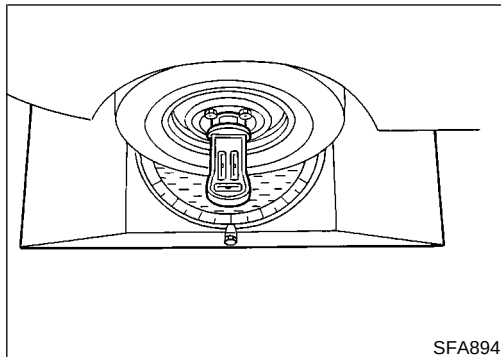
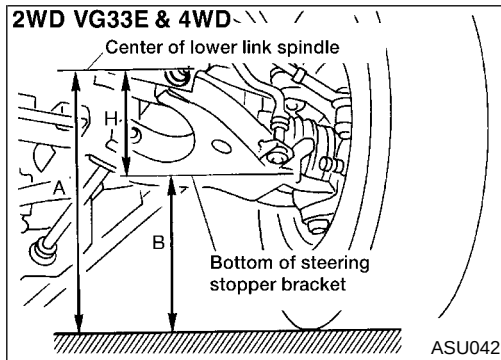
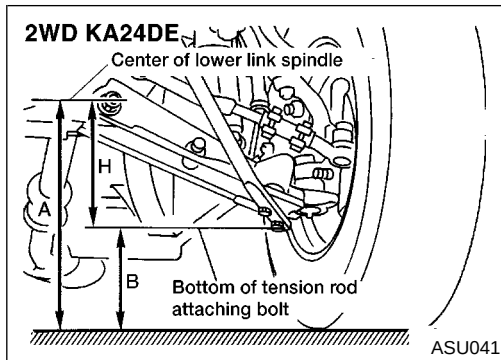
Wheel runout (Dial indicator value):

Refer to SDS, SU-21.

3. Check front wheel bearings for looseness.
4. Check front suspension for looseness.
5. Check steering linkage for looseness.
6. Check that front shock absorbers work properly by using the standard bounce test.

FRONT SUSPENSION

On-vehicle Service (Cont'd)



7. Check vehicle posture (Unladen): $H = A - B$ mm (in)

Refer to SDS, SU-22.

a. Exercise the front suspension by bouncing the front of the vehicle 4 or 5 times to ensure that the vehicle is in a neutral height attitude.

b. Measure wheel alignment.

Refer to SDS, SU-22.

c. If wheel alignment is not as specified, adjust vehicle posture.

Refer to SDS, SU-22.

d. Adjust wheel alignment.

Refer to SDS, SU-22.

Camber, Caster and Kingpin Inclination

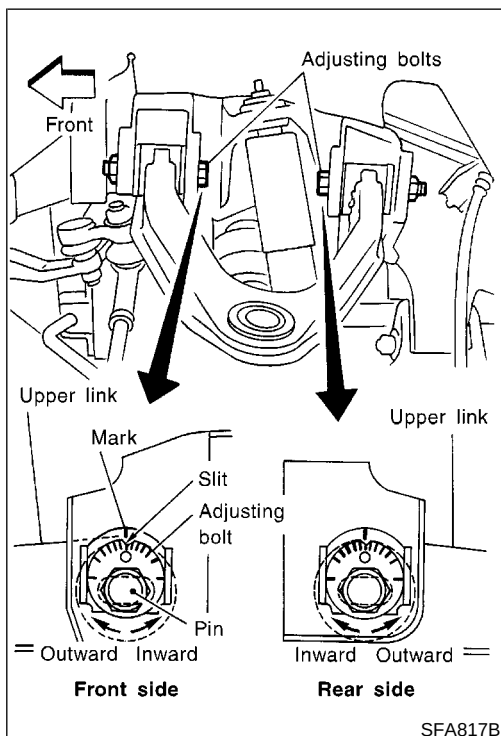
NESU0007S02

Before checking camber, caster or kingpin inclination, move vehicle up and down on turning radius gauge to minimize friction. Ensure that the vehicle is in correct posture.

- Measure camber, caster and kingpin inclination of both right and left wheels with a suitable alignment gauge and adjust in accordance with the following procedures.

Camber, Caster and Kingpin inclination:

Refer to SDS, SU-22.



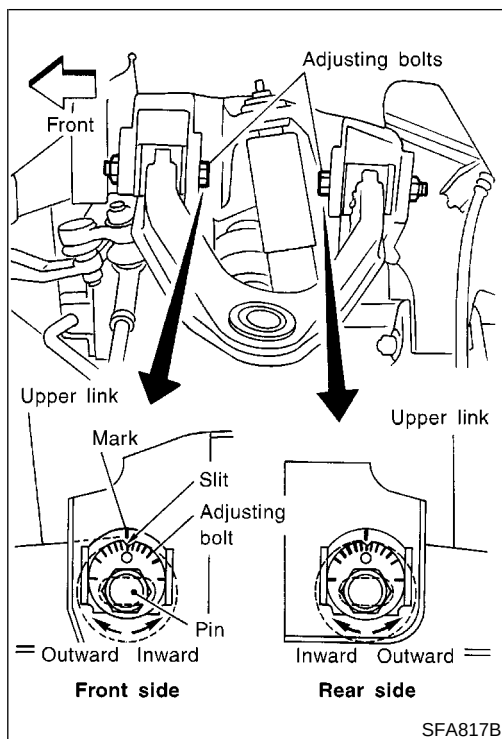
- In the following two cases, temporarily tighten the adjusting bolts while aligning the matching marks with the slits as shown in the figure at the left and measure the camber, caster and kingpin inclination:

- When replacing the upper link or other suspension parts with new ones
- When matching marks were not painted on adjusting bolts before suspension disassembly procedures

- If matching marks were already painted during suspension disassembly, align the matching marks with the slits, then temporarily tighten the adjusting bolts. Measure the camber, caster and kingpin inclination.

FRONT SUSPENSION

On-vehicle Service (Cont'd)



Adjustment

NESU0007S03

- Both camber and caster angles are adjusted by adjusting bolts.
 - If the kingpin inclination is outside specifications, check the front suspension parts for wear or damage. Replace faulty parts with new ones.
- From the measured value, read the coordinate (or: graduation) at the intersecting point in the graph.
 - If the coordinate (or: graduation) at the intersecting point is positive, move the pin outward by turning the corresponding adjusting bolt by the indicated graduation.
 - If the coordinate (or: graduation) at the intersecting point is negative, move the pin inward by turning the corresponding adjusting bolt by the indicated graduation.
- Re-measure to ensure that the camber and caster are within specified tolerances.

[Example]

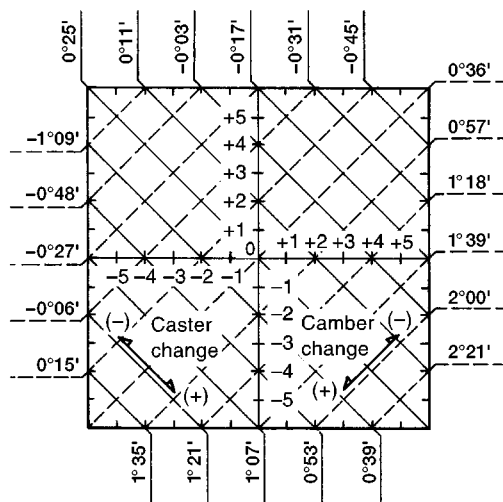
- Measured values corresponding with the two values indicated below: (See chart for 4WD model.)

Camber angle: $-0^{\circ}06'$ (-0.10°)

Caster angle: $2^{\circ}10'$ (2.17°)

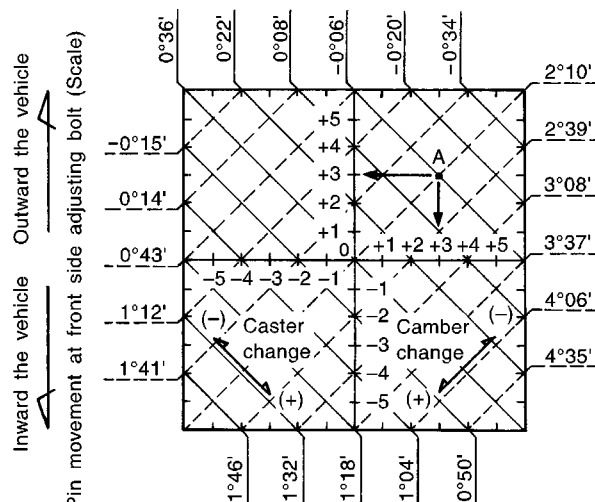
- Apply the above two values to the graph and determine point "A".
 - The coordinate (or: graduation) indicates that both the front and rear adjusting bolts must be turned outward by 3 graduations.
- Turn the adjusting bolts by the amount corresponding with the 3 graduations.

2WD



Inward the vehicle Outward the vehicle
Pin movement at rear side adjusting bolt (Scale)
————— Camber angle
----- Caster angle

4WD

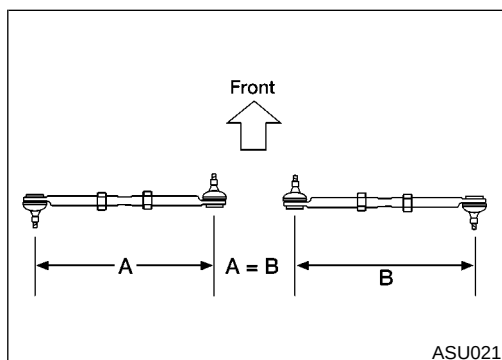
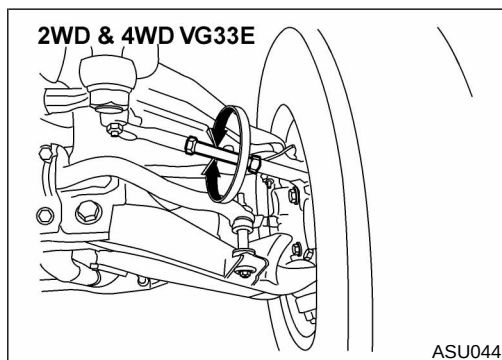
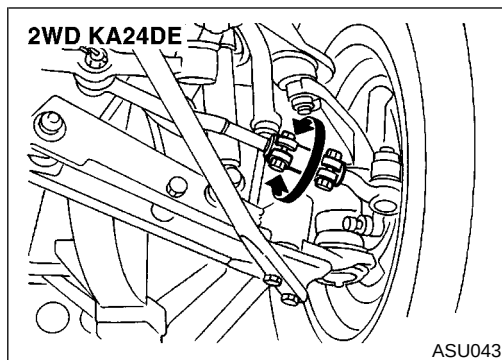
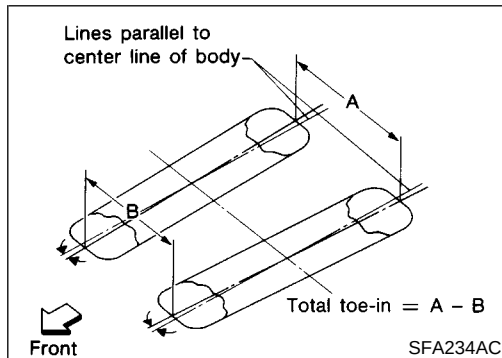
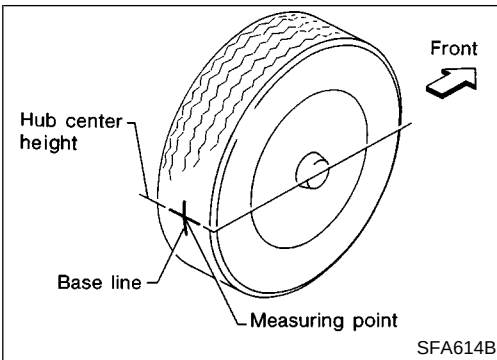


Inward the vehicle Outward the vehicle
Pin movement at rear side adjusting bolt (Scale)
————— Camber angle
----- Caster angle

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FRONT SUSPENSION

On-vehicle Service (Cont'd)



Toe-in

Measure toe-in using the following procedure.

WARNING:

- Always perform the following procedure on a flat surface.
 - Make sure that no one is in front of the vehicle before pushing it.
1. Bounce front of vehicle up and down to stabilize the posture.
 2. Push the vehicle straight ahead about 5 m (16 ft).
 3. Put a mark on base line of the tread (rear side) of both tires at the same height of hub center. This mark is a measuring point.
 4. Measure distance "A" (rear side).
 5. Push the vehicle slowly ahead to rotate the wheels 180 degrees (1/2 turn).
- If the wheels have rotated more than 180 degrees (1/2 turn), try the above procedure again from the beginning. Never push vehicle backward.
6. Measure distance "B" (front side).

Total toe-in:

Refer to SDS, SU-22.

7. Adjust toe-in by varying the length of both steering tie-rods.
 - a. Loosen clamp bolts or lock nuts.
 - b. Adjust toe-in by turning both the left and right tie-rod tubes equal amounts.

Make sure that the tie-rod bars are screwed into the tie-rod tube more than 35 mm (1.38 in) KA24DE, 22mm (0.87 in) 2WD & 4WD VG33E.

Make sure that the tie-rods are the same length.

Standard length (A = B):

2WD KA24DE models

343.9 mm (13.54 in)

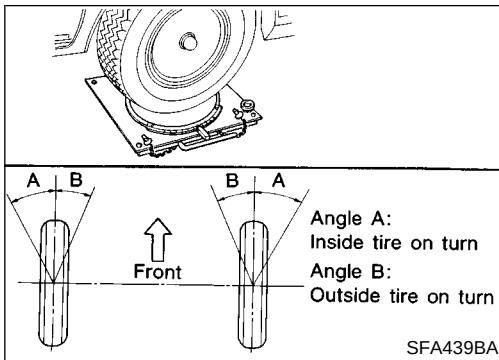
2WD & 4WD VG33E models

297.6 mm (11.72 in)

- c. Tighten clamp bolts or lock nuts, then torque them.

FRONT SUSPENSION

On-vehicle Service (Cont'd)

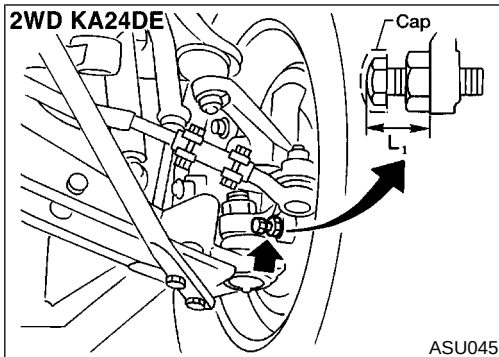


Front Wheel Turning Angle

NESU0007S05

1. Set wheels in straight-ahead position. Then move vehicle forward until front wheels rest properly on turning radius gauge.
 2. Rotate steering wheel all the way right and left; measure turning angle.
- On power steering models, turn steering wheel to full lock and apply force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine at idle.
 - **Do not hold the steering wheel at full lock for more than 15 seconds.**

Wheel turning angle (Full turn):
Refer to SDS, SU-22.

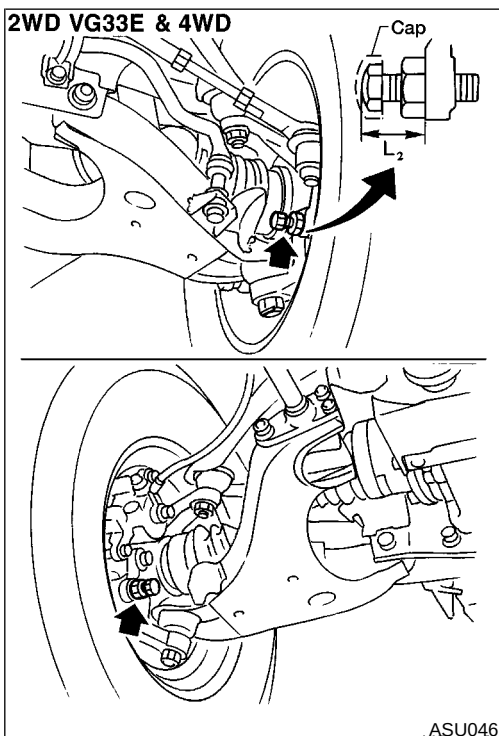


3. Adjust stopper bolt if necessary.

Standard length "L₁" (2WD models):
20 mm (0.79 in)
(Length before cap is mounted)

Standard length "L₂" (4WD models):
Except P265/70R15 tire:
26.5 mm (1.043 in)
(Length before cap is mounted)

P265/70R15 tire:
30.0 mm (1.2 in)
(Length before cap is mounted)



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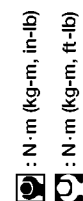
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2WD KA24DE



- When removing each suspension part, check wheel alignment and adjust if necessary.
- When installing a bushing, do not allow it to project beyond the surface area of the washer.
- Do not allow the bushings and washers to come in contact with grease, oil, soapy water, etc.
- When installing rubber parts, final tightening must be carried out under unladen condition* with tires on the ground.
- * Fuel, radiator coolant and engine oil full.
- Spare tire, jack, hand tools and mats in designated positions.
- When removing or installing brake tubes, use flare nut torque wrench.

* Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

- **When removing or installing brake tubes, use designated positions.**
- **When removing or installing brake tubes, use flare nut torque wrench.**

SEC. 400

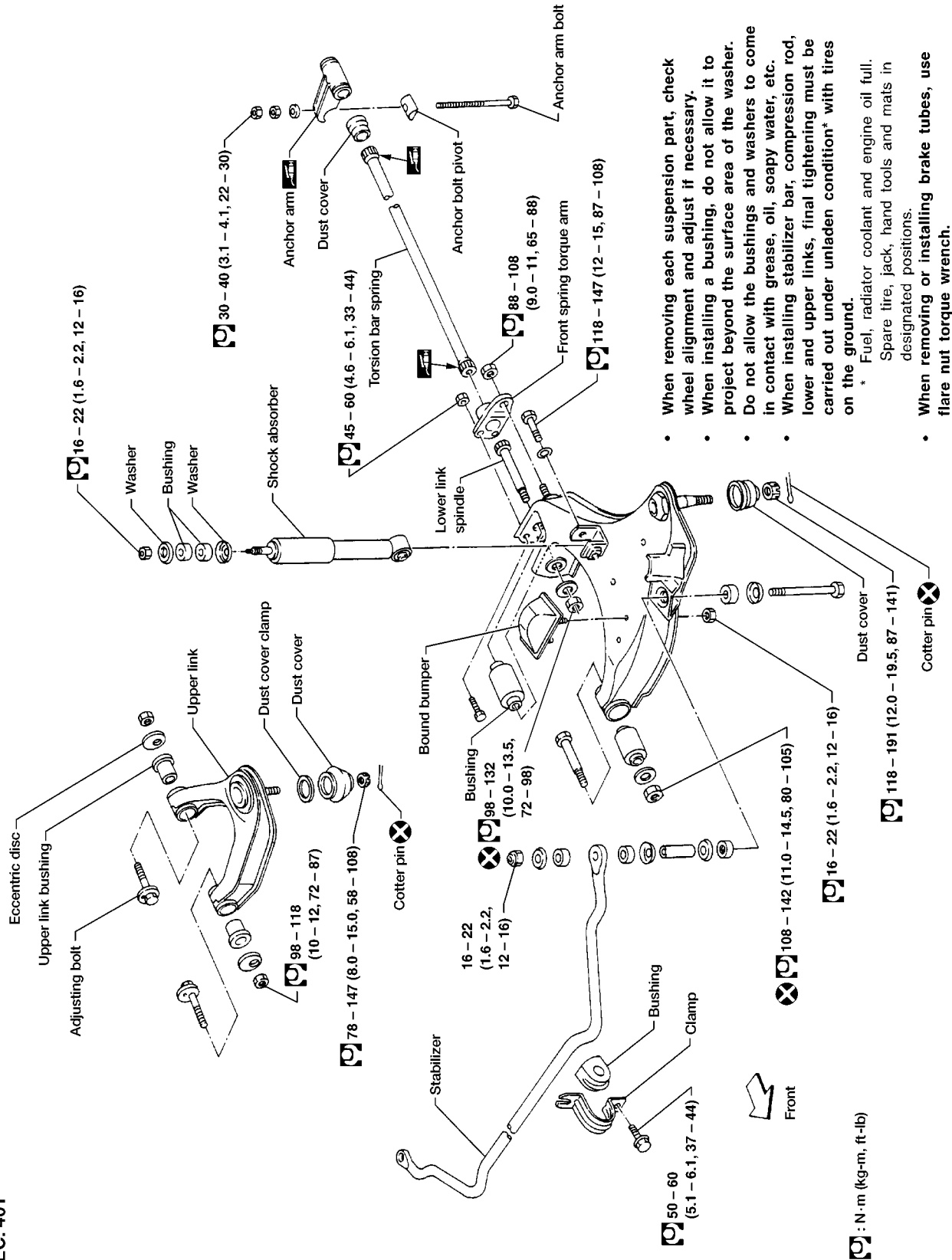
FRONT SUSPENSION

Components (Cont'd)

2WD VG33E & 4WD

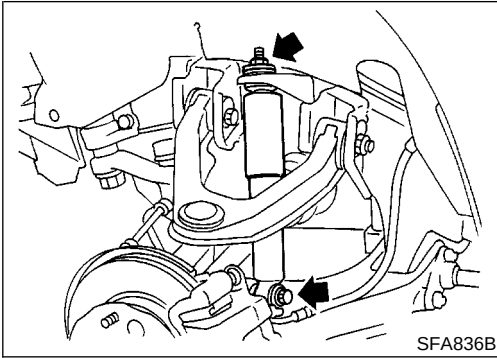
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SEC. 401



FRONT SUSPENSION

Shock Absorber



Shock Absorber

REMOVAL AND INSTALLATION

NESU0009

1. Support lower link with jack.
2. Remove bolt and nut that hold shock absorber.

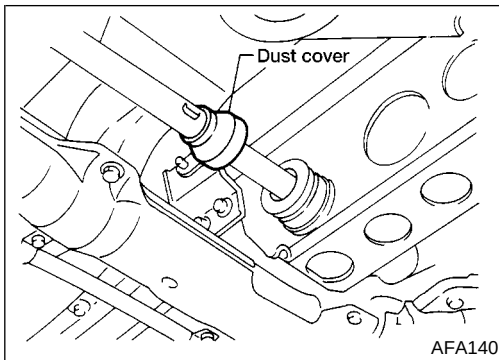
INSPECTION

NESU0010

Except for nonmetallic parts, clean all parts with suitable solvent and dry with compressed air.

Use compressed air to blow dirt and dust off of nonmetallic parts.

- Check for oil leakage and cracks. Replace if necessary.
- Check piston rod for cracks, deformation and other damage. Replace if necessary.
- Check rubber parts for wear, cracks, damage and deformation. Replace if necessary.



Torsion Bar Spring

REMOVAL

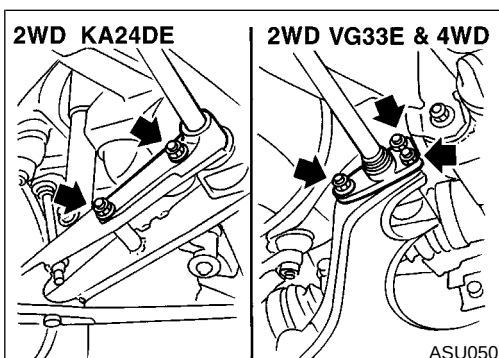
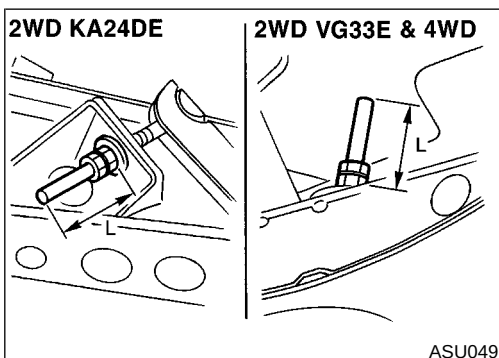
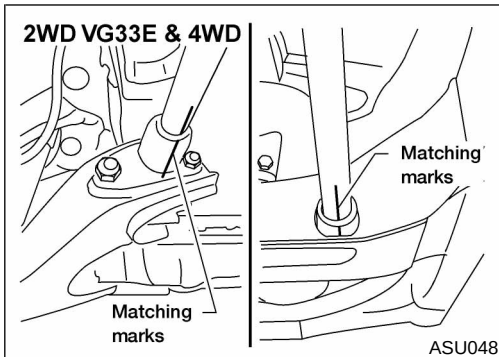
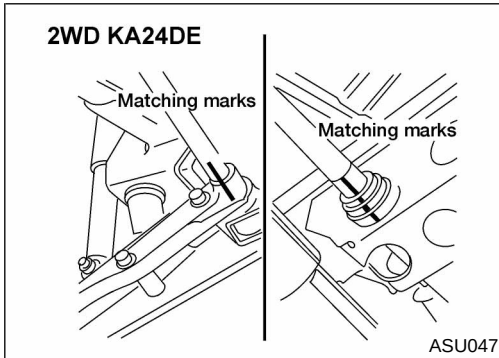
NESU0011

1. Move dust cover.
2. Paint matching marks on the torsion bar spring and the corresponding arm.

Always use paint to place the matching mark; do not scribe the affected parts.

3. Measure anchor bolt protrusion "L" and remove the lock nut and adjusting nut.

Before removing the nuts, ensure that twisting force is eliminated from the torsion bar springs.



4. Remove torsion bar spring.
 - Remove torque arm fixing nuts, then withdraw torsion bar spring forward with torque arm.

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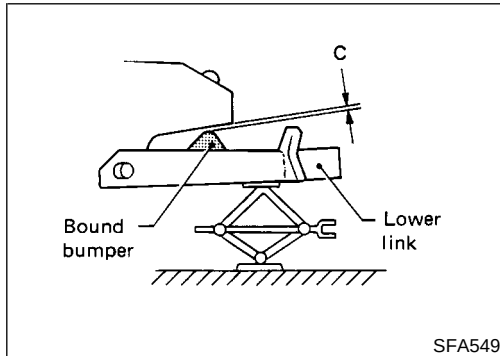
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FRONT SUSPENSION

Torsion Bar Spring (Cont'd)

INSPECTION

- Check torsion bar spring for wear, twist, bend and other damage. ^{NESU0012}
- Check serrations of each part for cracks, wear, twist and other damage.
- Check dust cover for cracks.



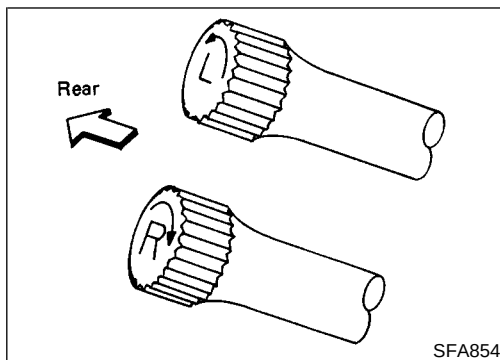
INSTALLATION AND ADJUSTMENT

^{NESU0013}
Adjustment of anchor arm adjusting nut is in tightening direction only.

Do not adjust by loosening anchor arm adjusting nut.

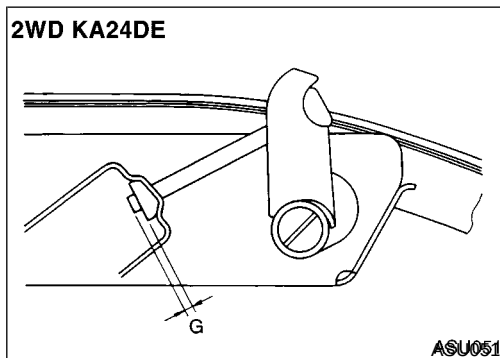
1. Coat multi-purpose grease on the serration of torsion bar spring.
2. Place lower link in the position where bound bumper clearance "C" is 0.

Clearance "C": 0 mm (0 in)



3. Install torsion bar spring with torque arm.

Be sure to install right and left torsion bar springs correctly.



4. While aligning the anchor arm with the matching mark, install the anchor arm to the torsion bar spring.

If a new torsion bar spring or anchor arm is installed, adjust anchor arm length to the dimension indicated in the figure at the left.

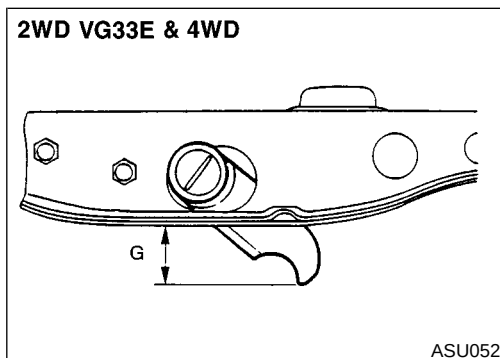
Standard length "G":

2WD models

6 - 18 mm (0.24 - 0.71 in)

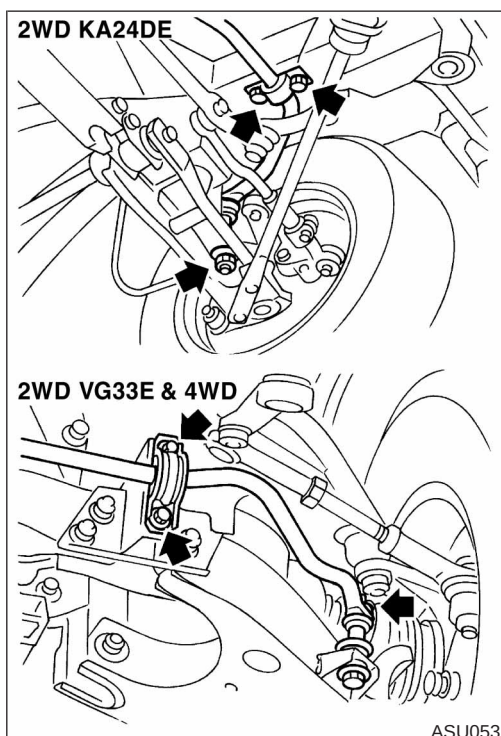
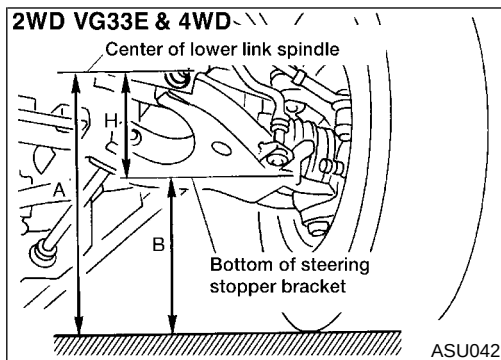
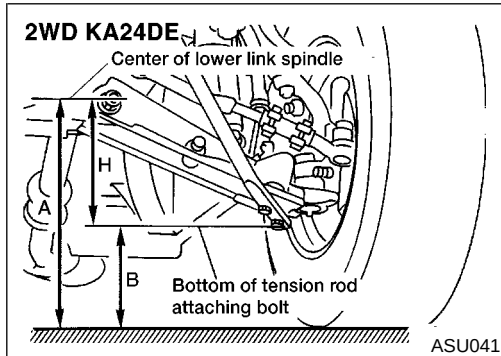
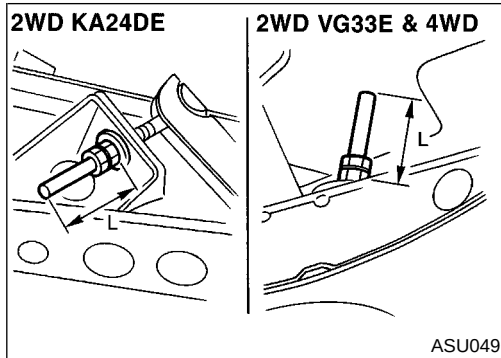
4WD models

25 - 39 mm (0.98 - 1.54 in)



FRONT SUSPENSION

Torsion Bar Spring (Cont'd)



5. Tighten the adjusting nut so the torsion bar length corresponds with dimension "L" previously measured during torsion bar removal. Tighten the lock nut to specifications.
If a new torsion bar spring or anchor arm is installed, tighten the adjusting nut to the dimension indicated in the figure at the left, then tighten the lock nut to specifications.

Standard length "L":

2WD models

54 mm (2.13 in)

4WD models

70 mm (2.76 in)

6. Bounce vehicle with tires on ground (Unladen) to eliminate friction of suspension.
7. Measure vehicle posture "H".
 - a. Exercise the front suspension by bouncing the front of the vehicle 4 or 5 times to ensure that the vehicle is in a neutral height attitude.
 - b. Measure vehicle posture ... Dimension "H".

$H = A - B$ mm (in) "Unladen"

Refer to "Wheel Alignment (Unladen)", "SDS", SU-22.

8. If height of the vehicle is not within allowable limit, adjust vehicle posture.

Refer to "Wheel Alignment (Unladen)", "SDS", SU-22.

9. Check wheel alignment if necessary.

Refer to "Wheel Alignment (Unladen)", "SDS", SU-22.

Stabilizer Bar

REMOVAL

- Remove stabilizer bar connecting bolts and clamp bolts.

NESU0014

INSPECTION

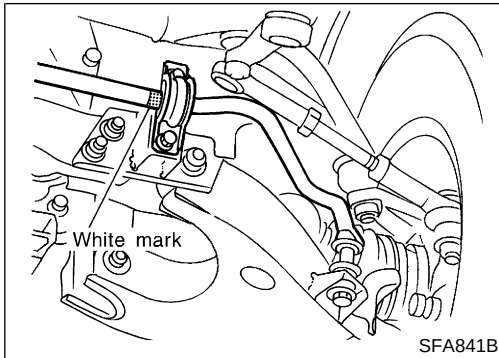
- Check stabilizer bar for twist and deformation.
Replace if necessary.
- Check rubber bushing for cracks, wear and deterioration.
Replace if necessary.

NESU0015

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FRONT SUSPENSION

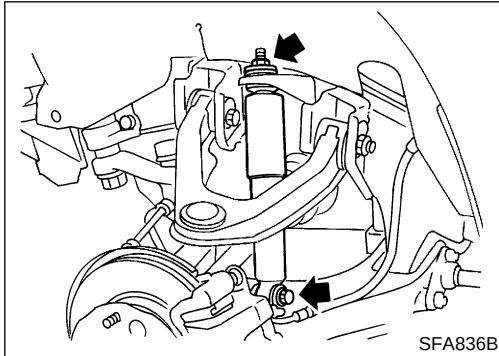
Stabilizer Bar (Cont'd)



INSTALLATION

- Install bushing outside of white mark painted on stabilizer.

NESU0016

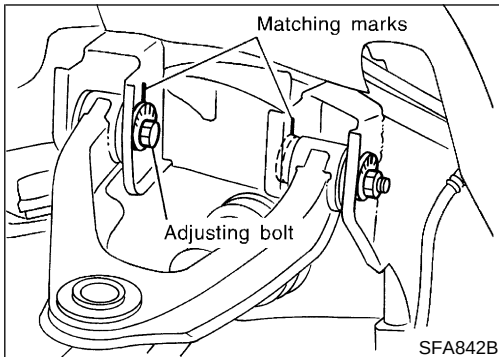


Upper Link

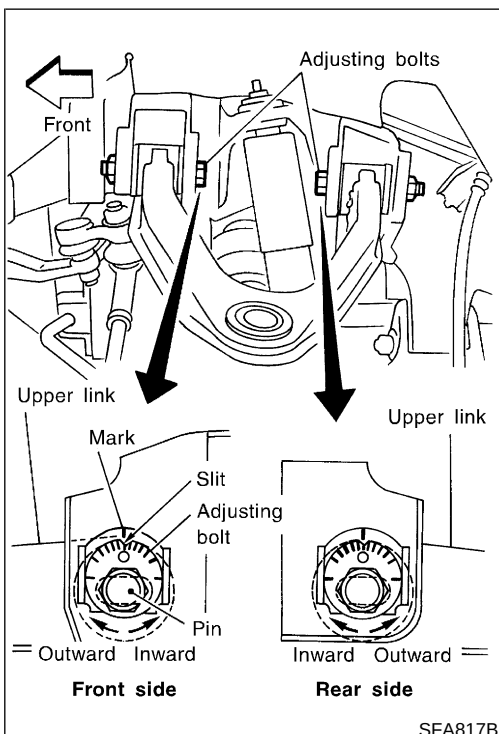
REMOVAL

1. Remove shock absorber. Refer to "Shock Absorber", SU-14.
2. Separate upper ball joint stud from knuckle spindle.
Support lower link with jack.
Refer to **AX-14**, "Knuckle Spindle".

NESU0017



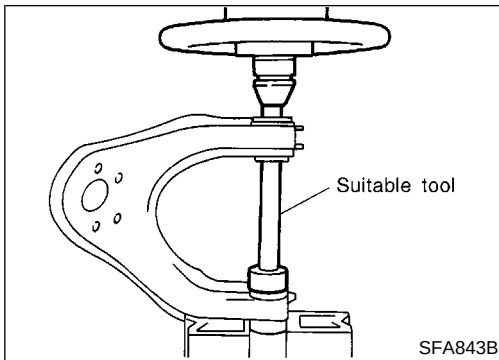
3. Put matching marks on adjusting bolts and remove adjusting bolts.



INSTALLATION

1. While aligning the adjusting bolts with the matching marks, install the upper link.
If a new upper link or any other suspension part is installed, align the matching mark with the slit as indicated in the figure at the left, then install the upper link.
Refer to "FRONT WHEEL ALIGNMENT", "On-vehicle Service", SU-7.
2. Install shock absorber.
3. Tighten adjusting bolts under unladen condition with tires on ground.
4. After installing, check wheel alignment. Adjust if necessary.
Refer to SU-7.

NESU0018



DISASSEMBLY

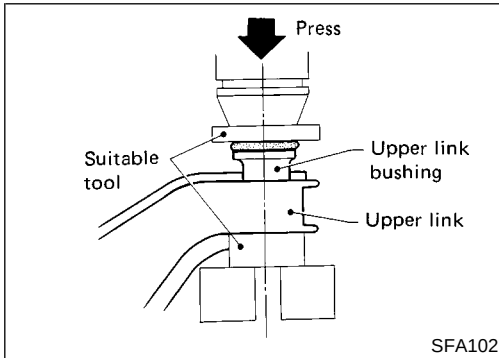
- Press out upper link bushings.

NESU0019

INSPECTION

- Check adjusting bolts and rubber bushings for damage. Replace if necessary.
- Check upper link for deformation and cracks. Replace if necessary.

NESU0020

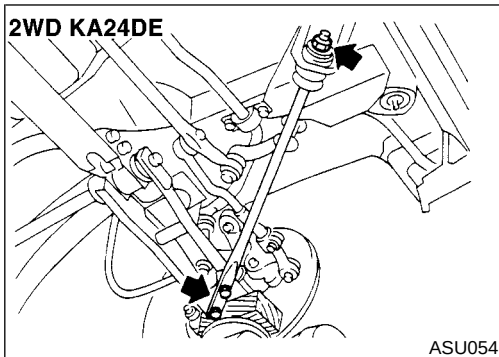


ASSEMBLY

- Apply soapsuds to rubber bushing.
- Press upper link bushing.

NESU0021

Press bushing so that the flange of bushing securely contacts the end surface of the upper link collar.

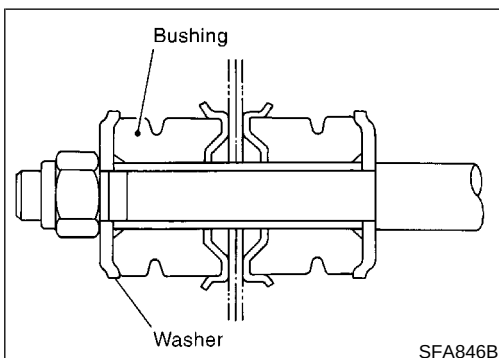


Tension Rod

REMOVAL AND INSTALLATION

- Remove fixing nuts on lower link and frame.
Support lower link with jack.

NESU0053



- Install tension rod.
Make sure that the bushings and washers are installed properly.

SU

INSPECTION

- Check tension rod for deformation and cracks. Replace if necessary.
- Check rubber bushings for damage. Replace if necessary.

NESU0054

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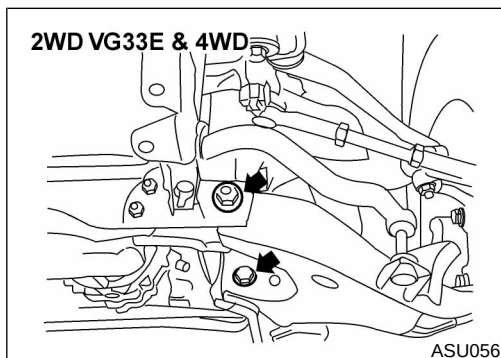
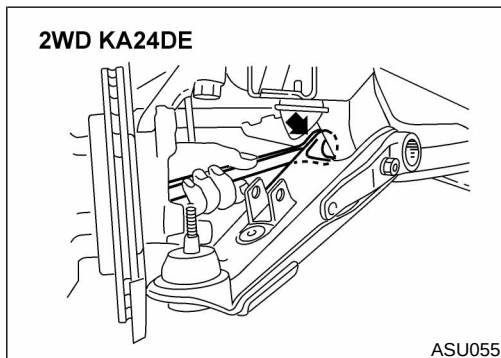
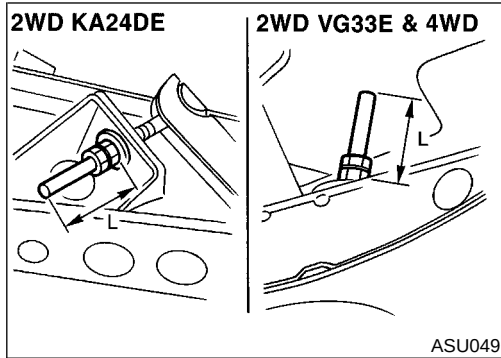
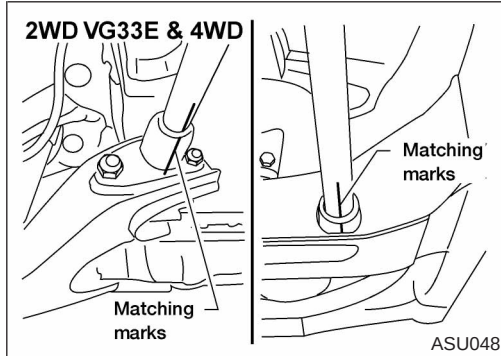
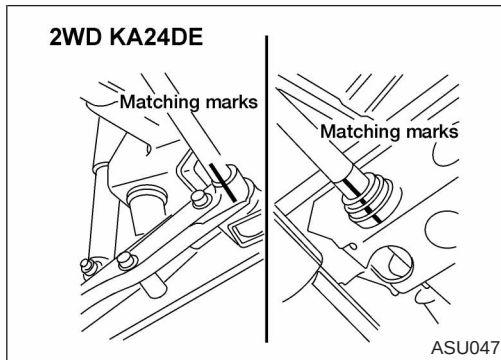
SC

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FRONT SUSPENSION

Lower Link



Lower Link

REMOVAL AND INSTALLATION

NESU0024

1. Remove torsion bar spring. Refer to "REMOVAL", "Torsion Bar Spring", SU-15.

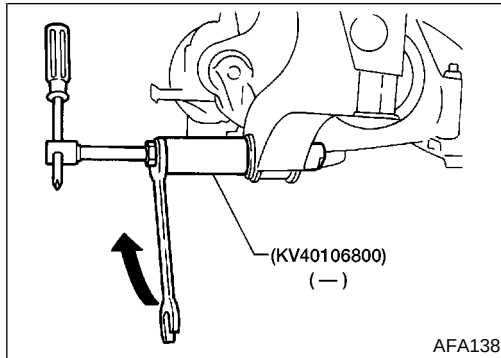
Make matching marks and measure dimension "L" when loosening adjusting nut until there is no tension on torsion bar spring.

2. Remove shock absorber lower fixing bolt.
3. Remove stabilizer bar connecting bolt.
4. Separate drive shaft from front final drive (4WD models). Refer to **AX-16**, "Drive Shaft".
5. Separate lower link ball joint from knuckle spindle. Refer to **AX-14**, "Knuckle Spindle".

6. Remove front lower link fixing nut.

FRONT SUSPENSION

Lower Link (Cont'd)



7. Remove bushing of lower link spindle from frame with Tool.
8. After installing lower link, adjust wheel alignment and vehicle height. Refer to "FRONT WHEEL ALIGNMENT", "On-vehicle Service", SU-7.

INSPECTION

Lower Link and Lower Link Spindle

- Check for deformation and cracks. Replace if necessary.

Lower Link Bushing

- Check for distortion and damage. Replace if necessary.

Upper Ball Joint and Lower Ball Joint

REMOVAL AND INSTALLATION

- Separate knuckle spindle from upper and lower links. Refer to **AX-14**, "Knuckle Spindle".

INSPECTION

- Check joints for play. If ball is worn and play in axial direction is excessive or joint is hard to swing, replace as a upper link or lower link.

Axial end play "C":

Upper link

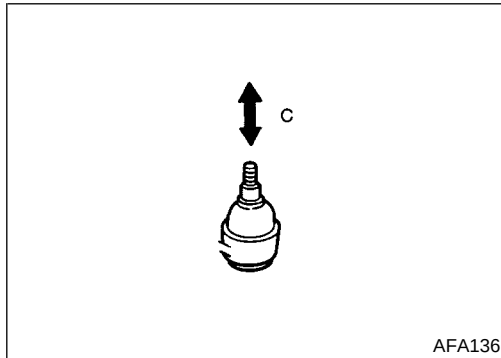
0 mm (0 in)

Lower link

2WD models 1.3 mm (0.051 in) or less

4WD models 0.2 mm (0.008 in) or less

- Check dust cover for damage. Replace dust cover and dust cover clamp if necessary.



Service Data and Specifications (SDS)

GENERAL SPECIFICATIONS (FRONT)

Suspension type	Independent double wishbone torsion bar spring
Shock absorber type	Double-acting hydraulic
Stabilizer	Standard equipment

WHEEL RUNOUT AVERAGE*

Wheel type	Aluminum	Steel			
		15 inches	14 inches		
			Painted	Plated	
Radial runout limit mm (in)	0.3 (0.012)	0.8 (0.031)	0.5 (0.020)	0.6 (0.024)	
Lateral runout limit mm (in)	0.3 (0.012)	0.8 (0.031)	0.8 (0.031)	0.8 (0.031)	

* Wheel runout average = (Outside runout value + Inside runout value) x 0.5

UPPER BALL JOINT

Vertical end play "C" mm (in)	0 (0)
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FRONT SUSPENSION

Service Data and Specifications (SDS) (Cont'd)

LOWER BALL JOINT

NESU0031

Applied model	2WD	4WD
Vertical end play "C" mm (in)	1.3 (0.051) or less	0.2 (0.008) or less

WHEEL ALIGNMENT (UNLADEN*1)

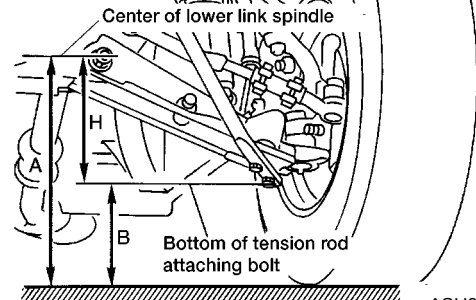
NESU0032

2WD KA24DE Models

NESU0032S01

Camber Degree minute (Decimal degree)			Minimum	-0°05' (-0.08°)	
			Nominal	0°25' (0.42°)	
			Maximum	0°55' (0.92°)	
			Left and right difference	45' (0.75°) or less	
Caster Degree minute (Decimal degree)			Minimum	0°06' (0.10°)	
			Nominal	0°36' (0.60°)	
			Maximum	1°06' (1.10°)	
			Left and right difference	45' (0.75°) or less	
Kingpin inclination Degree minute (Decimal degree)			Minimum	8°35' (8.58°)	
			Nominal	9°05' (9.08°)	
			Maximum	9°35' (9.58°)	
Total toe-in	Distance (A - B) mm (in)	Radial tire	Minimum	2 (0.08)	
			Nominal	3 (0.12)	
			Maximum	4 (0.16)	
	Angle (left plus right) Degree minute (Decimal degree)	Radial tire	Minimum	11' (0.18°)	
			Nominal	16' (0.27°)	
			Maximum	20' (0.33°)	
Wheel turning angle	Full turn*2	Inside Degree minute (Decimal degree)		Except P215/65R15	P215/65R15
			Minimum	36°00' (36.00°)	35°00' (35.00°)
			Nominal	38°00' (38.00°)	37°00' (37.00°)
			Maximum	38°00' (38.00°)	37°00' (37.00°)
		Outside Degree minute (Decimal degree)	Minimum	32°36' (32.60°)	31°36' (31.60°)
			Nominal	34°36' (34.60°)	33°36' (33.60°)
			Maximum	34°36' (34.60°)	33°36' (33.60°)
Vehicle posture	Lower arm pivot height (H) mm (in)			111 - 115 (4.37 - 4.53)	

2WD KA24DE



ASU041

*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

FRONT SUSPENSION

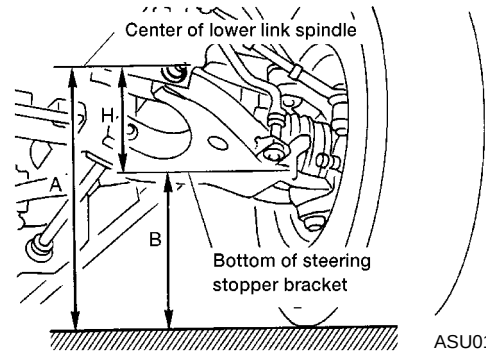
Service Data and Specifications (SDS) (Cont'd)

*2: On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

2WD VG33E Models

NESU0032S03

Camber Degree minute (Decimal degree)			Minimum		0°06′ (0.10°)	
			Nominal		0°36′ (0.60°)	
			Maximum		1°06′ (1.10°)	
			Left and right difference		45′ (0.75°) or less	
Caster Degree minute (Decimal degree)			Minimum		1°40′ (1.67°)	
			Nominal		2°10′ (2.17°)	
			Maximum		2°40′ (2.67°)	
			Left and right difference		45′ (0.75°) or less	
Kingpin inclination Degree minute (Decimal degree)			Minimum		10°18′ (10.30°)	
			Nominal		10°48′ (10.80°)	
			Maximum		11°18′ (11.30°)	
Total toe-in	Distance (A – B) mm (in)		Radial tire	Minimum	3 (0.12)	
				Nominal	4 (0.16)	
				Maximum	5 (0.20)	
	Angle (left plus right) Degree minute (Decimal degree)		Radial tire	Minimum	15′ (0.25°)	
				Nominal	20′ (0.33°)	
				Maximum	25′ (0.42°)	
Wheel turning angle	Full turn*2	Inside Degree minute (Decimal degree)			Except P255/65R16	P255/65R16
			Minimum		33°06′ (33.10°)	31°00′ (31.00°)
			Nominal		35°06′ (35.10°)	33°00′ (33.00°)
			Maximum		35°06′ (35.10°)	33°00′ (33.00°)
		Outside Degree minute (Decimal degree)	Minimum		31°12′ (31.20°)	29°00′ (29.00°)
			Nominal		33°12′ (33.20°)	31°00′ (31.00°)
			Maximum		33°12′ (33.20°)	31°00′ (31.00°)
Vehicle posture	Lower arm pivot height (H) mm (in)				45.5 - 49.5 (1.791 - 1.949)	



*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

*2: On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

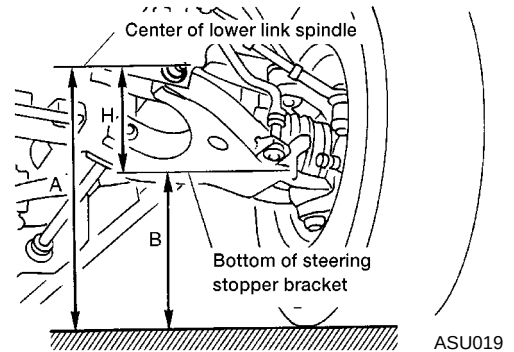
FRONT SUSPENSION

Service Data and Specifications (SDS) (Cont'd)

4WD Models

NESU0032S02

Camber Degree minute (Decimal degree)			Minimum		0°06′ (0.10°)	
			Nominal		0°36′ (0.60°)	
			Maximum		1°06′ (1.10°)	
			Left and right difference		45′ (0.75°) or less	
Caster Degree minute (Decimal degree)			Minimum		1°40′ (1.67°)	
			Nominal		2°10′ (2.17°)	
			Maximum		2°40′ (2.67°)	
			Left and right difference		45′ (0.75°) or less	
Kingpin inclination Degree minute (Decimal degree)			Minimum		10°18′ (10.30°)	
			Nominal		10°48′ (10.80°)	
			Maximum		11°18′ (11.30°)	
Total toe-in	Distance (A – B) mm (in)		Radial tire	Minimum	3 (0.12)	
				Nominal	4 (0.16)	
				Maximum	5 (0.20)	
	Angle (left plus right) Degree minute (Decimal degree)		Radial tire	Minimum	15′ (0.25°)	
				Nominal	20′ (0.33°)	
				Maximum	25′ (0.42°)	
Wheel turning angle	Full turn*2	Inside Degree minute (Decimal degree)			Except P255/65R16	P255/65R16
			Minimum		33°06′ (33.10°)	31°00′ (31.00°)
			Nominal		35°06′ (35.10°)	33°00′ (33.00°)
			Maximum		35°06′ (35.10°)	33°00′ (33.00°)
		Outside Degree minute (Decimal degree)	Minimum		31°12′ (31.20°)	29°00′ (29.00°)
			Nominal		33°12′ (33.20°)	31°00′ (31.00°)
			Maximum		33°12′ (33.20°)	31°00′ (31.00°)
Vehicle posture	Lower arm pivot height (H) mm (in)				45.5 - 49.5 (1.791 - 1.949)	

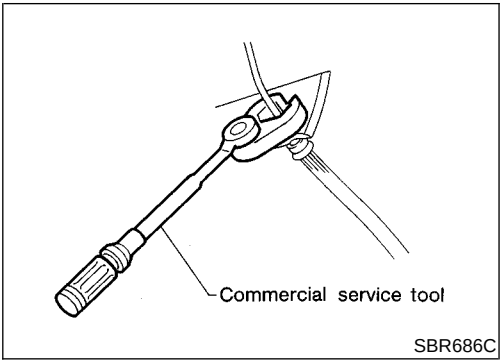


*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

*2: On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

REAR SUSPENSION

Precautions



Precautions
PRECAUTIONS

NESU0033

- 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.
- Use flare nut wrench when removing and installing brake tubes.
- After installing removed suspension parts, check wheel alignment and adjust if necessary.
- Always torque brake lines when installing.

Preparation

COMMERCIAL SERVICE TOOLS

NESU0035

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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REAR SUSPENSION

Noise, Vibration and Harshness (NVH) Troubleshooting

Noise, Vibration and Harshness (NVH) Troubleshooting

=NESU0036

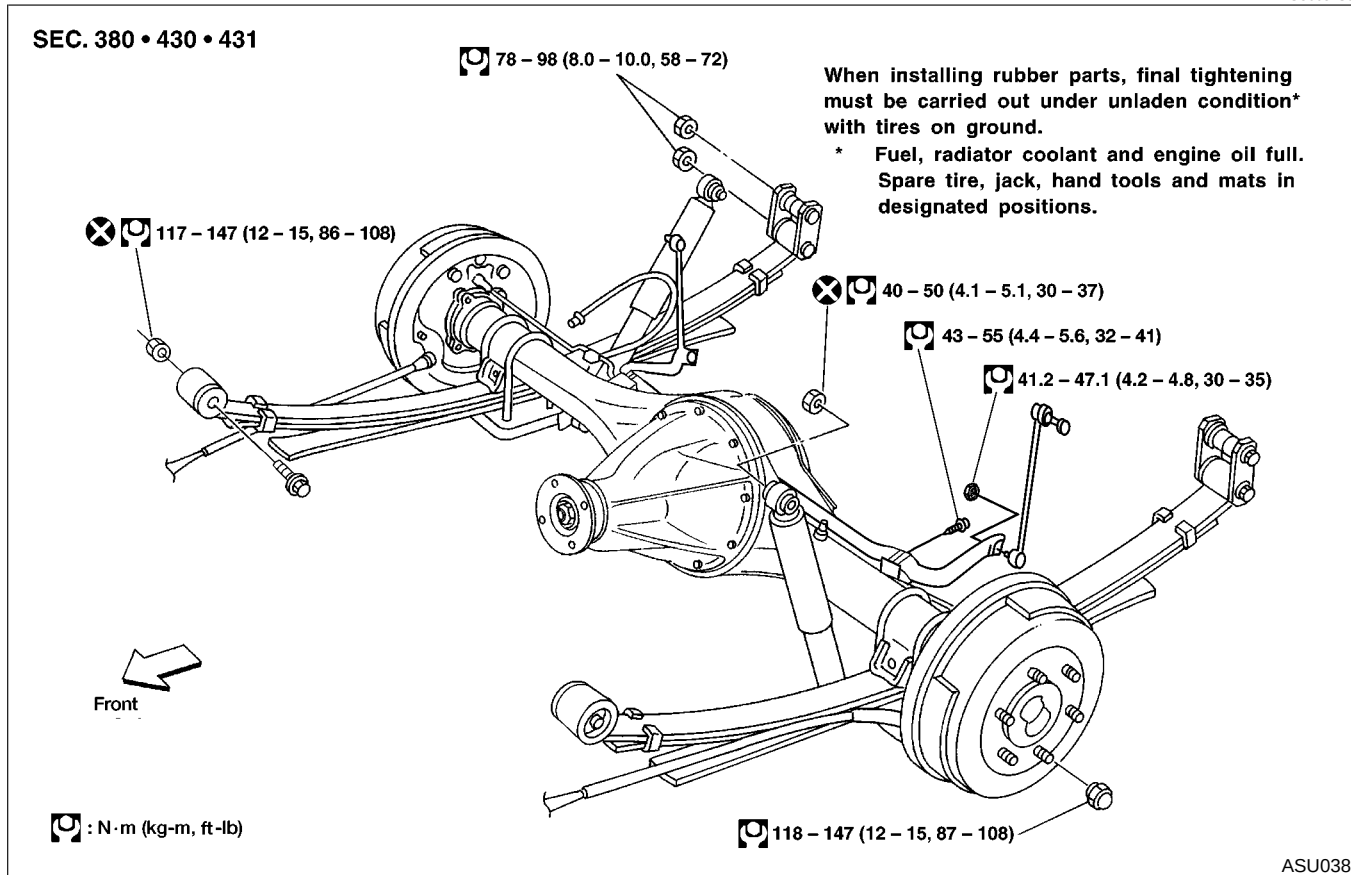
Refer to "Noise, Vibration and Harshness (NVH) Troubleshooting", "FRONT SUSPENSION", SU-3.

Components

NESU0037

2WD MODELS

NESU0037S03



ASU038

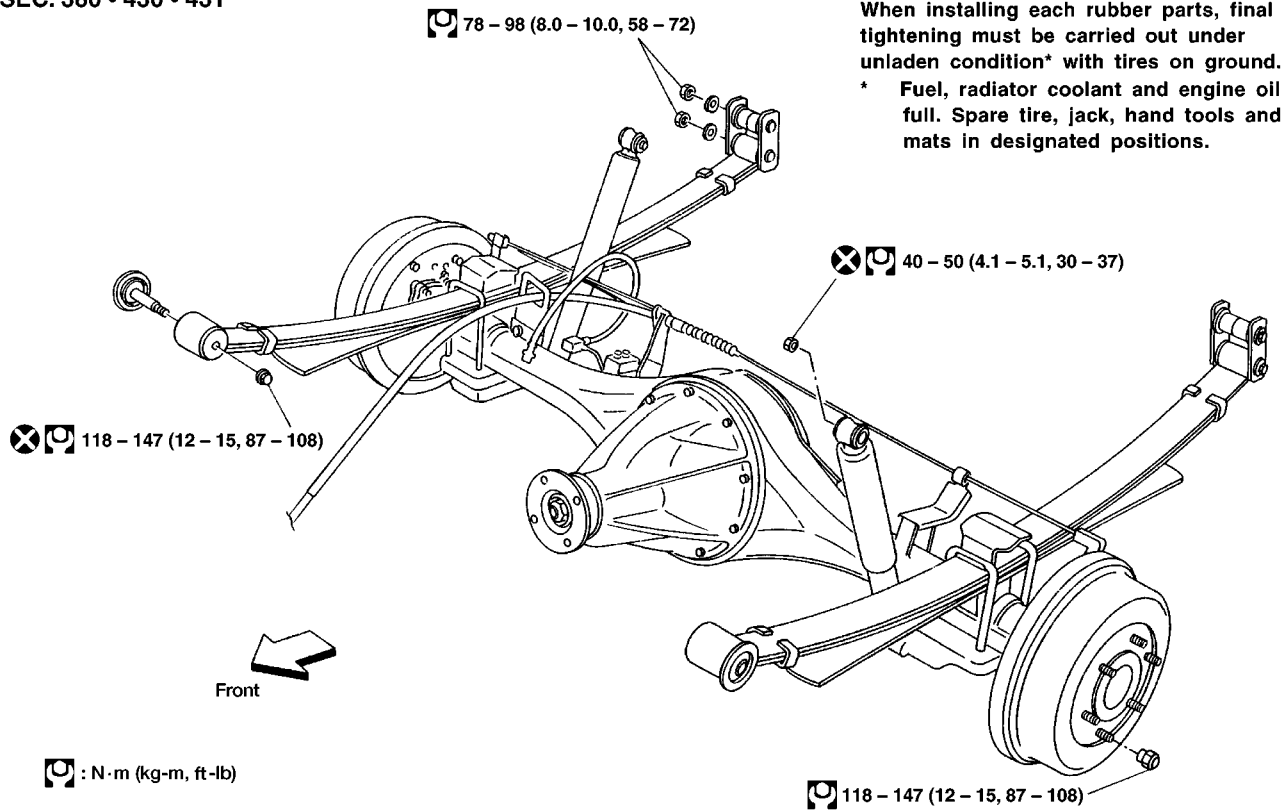
REAR SUSPENSION

Components (Cont'd)

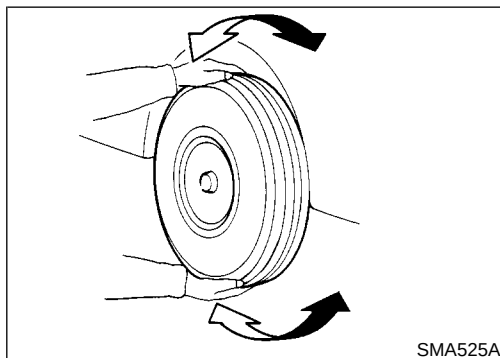
4WD MODELS

NESU0037S04

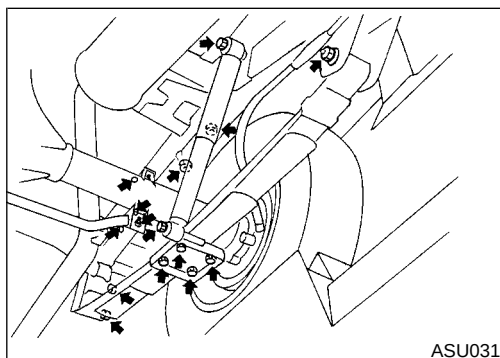
SEC. 380 • 430 • 431



ARA109



SMA525A



ASU031

On-vehicle Service

REAR SUSPENSION PARTS

NESU0038

Check rear suspension parts for excessive play, wear and damage.

- Shake each rear wheel to check for excessive play.

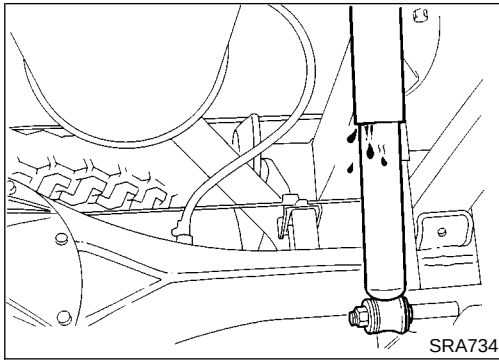
- Retighten all nuts and bolts to the specified torque.

: Refer to REAR SUSPENSION, SU-28.

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REAR SUSPENSION

On-vehicle Service (Cont'd)

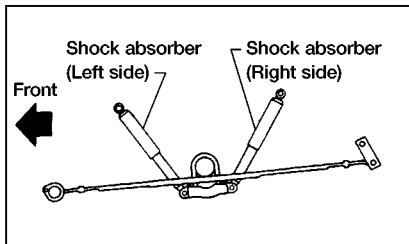


- Check shock absorber for oil leakage and other damage.
- Check shock absorber bushing for excessive wear and other damage.

Removal and Installation

NESU0039

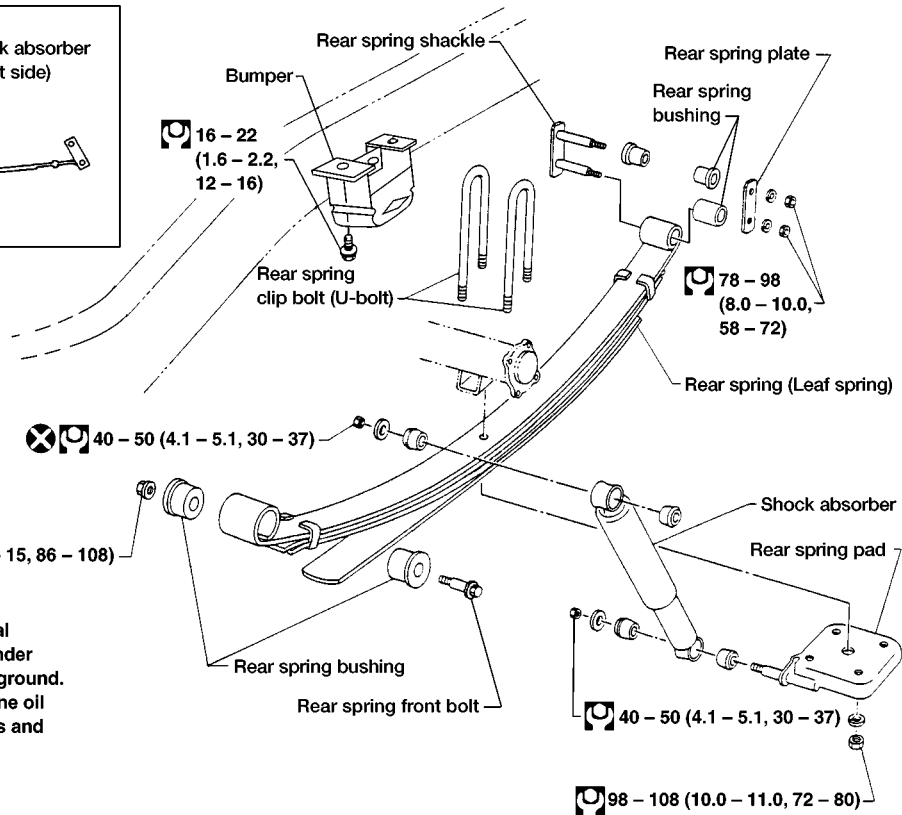
SEC. 431



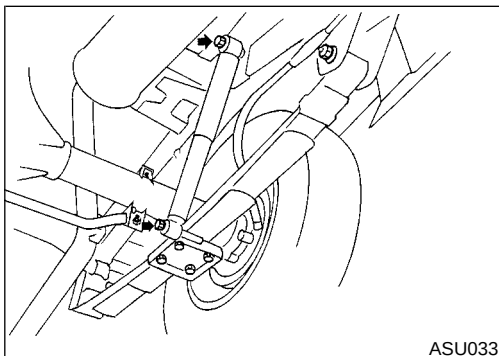
When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.

* Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

: N·m (kg-m, ft-lb)



ASU032



ASU033

Shock Absorber REMOVAL AND INSTALLATION

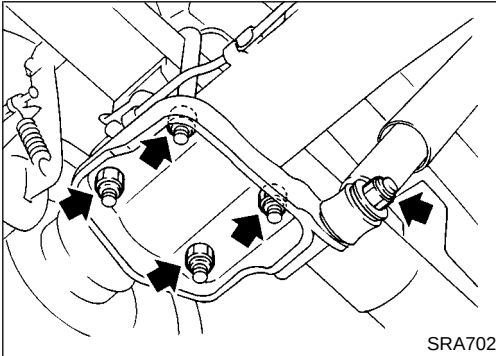
NESU0040

- Remove shock absorber by disconnecting upper and lower end.

INSPECTION

- If oil leakage, cracks and deformation occurs, replace shock absorber assembly.
- If rubber bushings are cracked and deformed, replace rubber bushings.

NESU0041



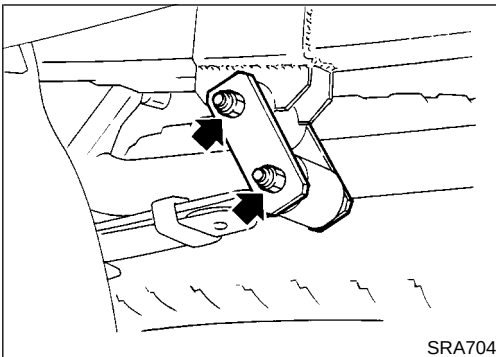
SRA702

Leaf Spring

REMOVAL AND INSTALLATION

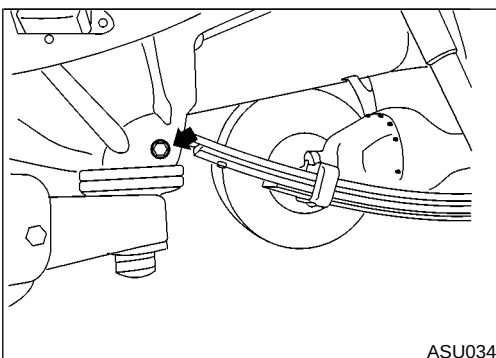
NESU0042

1. Disconnect shock absorber lower end, and remove U-bolts.



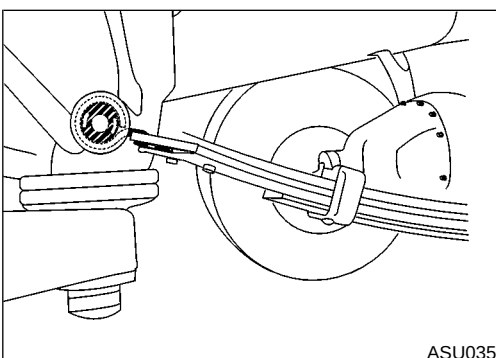
SRA704

2. Disconnect spring shackle.



ASU034

3. Disconnect front pin.



ASU035

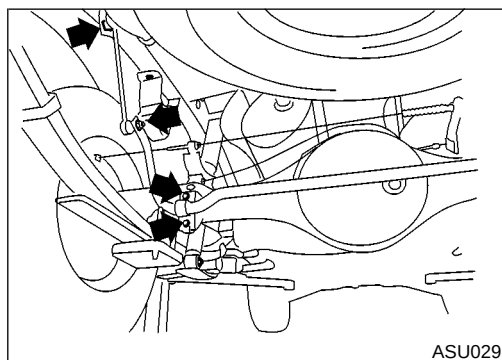
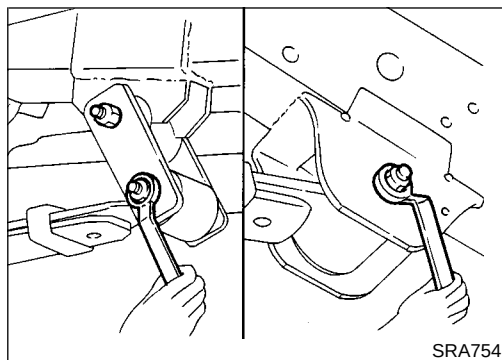
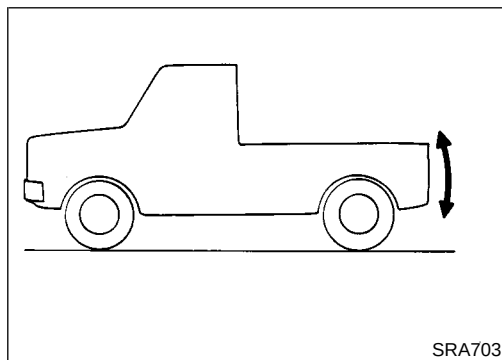
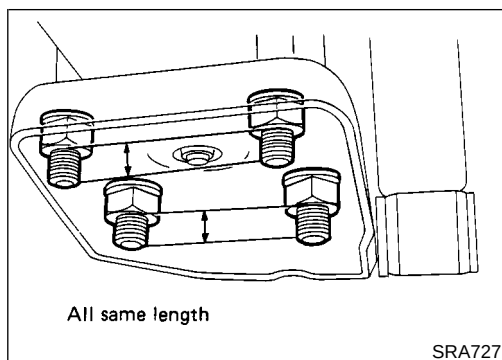
INSPECTION

NESU0043

- Check leaf spring for cracks. Replace if necessary.
- Check front bracket and pin, shackle, U-bolts and spring pad for wear, cracks, straightness and damaged threads. Replace if necessary.
- Check all bushings for deformation and cracks. Replace if necessary.
(4WD models: Rear spring front bushing)
Make sure that front bushing is properly installed.

REAR SUSPENSION

Leaf Spring (Cont'd)



INSTALLATION

NESU0044

1. Apply soapsuds to rubber bushing.
2. Install spring shackle and front pin, and finger tighten the nuts.
3. Install spring pad and nuts under leaf spring or axle case.
4. Tighten U-bolt mounting nuts diagonally.

Tighten U-bolts so that the lengths of all U-bolts under spring pad are the same.

5. Install shock absorber, and finger tighten the nuts.

6. Remove stands and bounce the vehicle to stabilize suspension. (Unladen)

7. Tighten spring shackle nuts, front pin nuts and shock absorber nuts.

When installing rubber parts, final tightening must be carried out under unladen condition* with tires on the ground.

*** Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.**

Stabilizer Bar

REMOVAL

NESU0050

- Remove stabilizer bar connecting bolts and clamp bolts.

INSPECTION

NESU0051

- Check stabilizer bar for twist and deformation.
- Check rubber bushing for cracks, wear and deterioration. Replace if necessary.

INSTALLATION

NESU0052

- Install bushing outside of white mark painted on stabilizer.

Service Data and Specifications (SDS)

GENERAL SPECIFICATIONS (REAR)

NESU0045

Suspension type	Rigid axle with semi-elliptic leaf spring
Shock absorber type	Double-acting hydraulic