

SECTION **RSU**
 REAR SUSPENSION

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RSU

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PRECAUTIONS

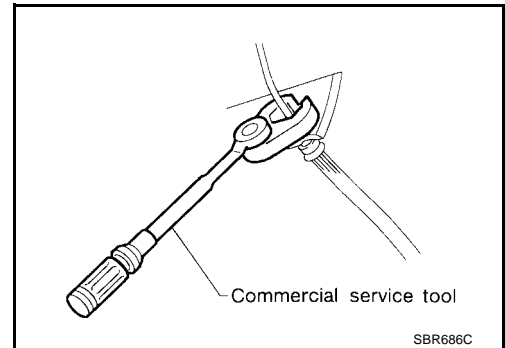
PRECAUTIONS

PFP:00001

Precautions

EES00191

- When installing each rubber part, final tightening must be carried out under unladen condition* with tires on ground. Oil will shorten the life of rubber bushings. Be sure to wipe off any spilled oil.
*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
- Use flare nut wrench when removing or installing brake tubes.
- After installing removed suspension parts, check wheel alignment.
- Do not jack up at the radius rod, front and rear lower links.
- Always tighten the brake lines to specification when installing.
- Lock nuts are not reusable parts; always use new ones.
When installing, do not wipe the oil off of the new lock nut before tightening.



PREPARATION

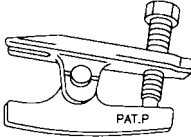
PREPARATION

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Special Service Tools

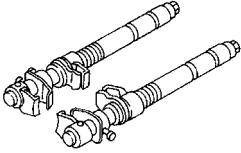
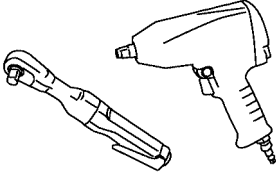
EES001C4

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

Tool number (Kent-Moore No.) Tool name	Description
HT72520000 (J-25730-A) Ball joint remover  NT146	Removing upper ball joint

Commercial Service Tools

EES00192

Tool name	Description
Spring compressor  NT717	Removing and installing coil spring
Power tool  PBIC0190E	Loosening bolts and nuts

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NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

NVH Troubleshooting Chart

EES001C5

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

Symptom		Possible Cause and SUSPECTED PARTS										Reference page				
		Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mounting	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer bar fatigue	DRIVE SHAFT	AXLE	TIRES	ROAD WHEEL	BRAKES	STEERING	
Symptom	Noise	x	x	x	x	x	x			x	x	x	x	x	x	RSU-5
	Shake	x	x	x	x		x			x	x	x	x	x	x	RSU-9
	Vibration	x	x	x	x	x				x	x	x				RSU-9
	Shimmy	x	x	x	x			x			x	x	x	x	x	RSU-5
	Shudder	x	x	x							x	x	x	x	x	RSU-10
	Poor quality ride or handling	x	x	x	x	x		x	x		x	x	x			RSU-5 RSU-6 RSU-11 FAX-4, "NVH Troubleshooting Chart" RAX-4, "NVH Troubleshooting Chart" WT-2, "NVH Troubleshooting Chart" WT-2, "NVH Troubleshooting Chart" WT-2, "NVH Troubleshooting Chart" BR-5, "NVH Troubleshooting Chart" PS-5, "NVH Troubleshooting Chart"

x: Applicable

REAR SUSPENSION ASSEMBLY

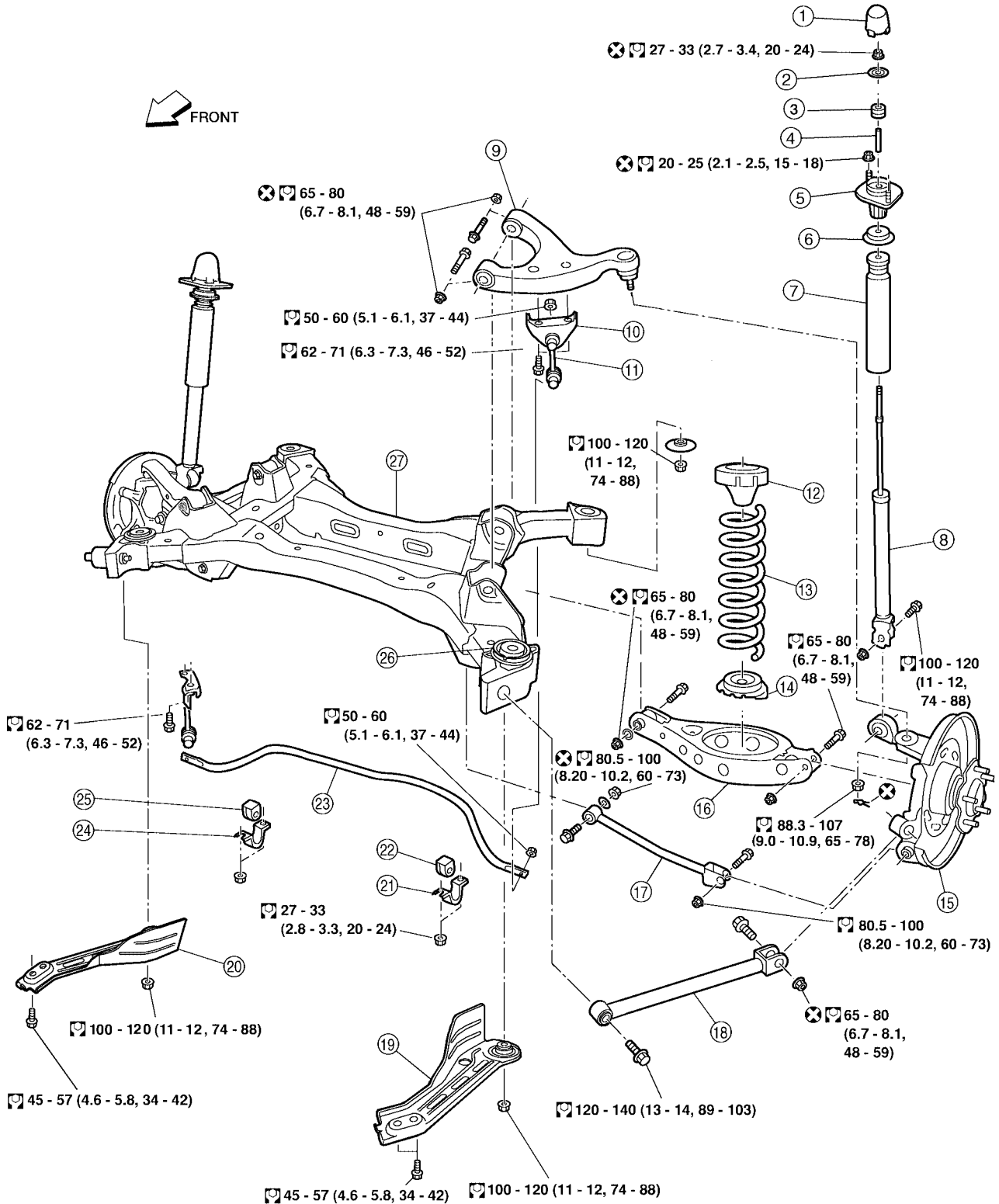
REAR SUSPENSION ASSEMBLY

Components

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EES001C6

SEC. 430 - 431



⊗ : N·m (kg · m, ft · lb)

⊗ : Always replace after every disassembly.

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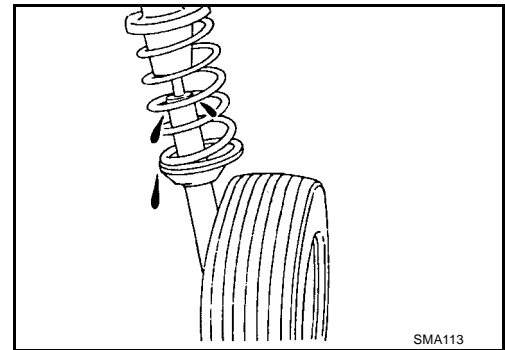
REAR SUSPENSION ASSEMBLY

- | | | |
|----------------------------------|---------------------------------|----------------------------|
| 1. Cap | 2. Washer | 3. Bushing |
| 4. Distance tube | 5. Shock absorber mount bracket | 6. Bound bumper cover |
| 7. Bound bumper | 8. Shock absorber | 9. Suspension arm |
| 10. Connecting rod mount bracket | 11. Connecting rod | 12. Upper rubber seat |
| 13. Coil spring | 14. Lower rubber seat | 15. Knuckle |
| 16. Rear lower link | 17. Front lower link | 18. Radius rod |
| 19. Member stay | 20. Member stay | 21. Stabilizer bar clamp |
| 22. Bushing | 23. Stabilizer bar | 24. Stabilizer bar clamp |
| 25. Bushing | 26. Member stopper | 27. Rear suspension member |

On-vehicle Service

EES00195

- Check the suspension parts for excessive play, cracks, wear or damage. Shake each rear wheel to check for excessive play.
- Retighten all nuts and bolts to specification.
- Check that the cotter pin is inserted securely.
- Check the shock absorber for oil leaks or other damage.
- Check the wheelarch height. Refer to [RSU-14, "Wheelarch Height \(Unladen*\)"](#) .
- Check the suspension ball joint for grease leaks and the ball joint dust cover for cracks or other damage.



Rear Wheel Alignment

EES001C7

Before checking the rear wheel alignment, make a preliminary inspection.

- Measure the wheel alignment under unladen conditions.

NOTE:

Unladen conditions mean that fuel, engine coolant, and lubricants are full. That the spare tire, jack, hand tools, and mats are in their designated positions.

PRELIMINARY INSPECTION

- Check the tires for wear or improper inflation pressure.
- Check the wheels for deformation, cracks or other damage. If deformed, remove the wheel and check the wheel runout. Refer to [WT-3, "Inspection"](#) .
- Check the rear wheel hub assemblies for looseness.
- Check the rear suspension for looseness.
- Check that the rear shock absorber works properly.
- Check the wheelarch height (Unladen*). Refer to [RSU-14, "Wheelarch Height \(Unladen*\)"](#) .

GENERAL INFORMATION AND RECOMMENDATIONS

1. A Four-Wheel Thrust Alignment should be performed.
 - This type of alignment is recommended for any NISSAN vehicle.
 - The four-wheel "thrust" process helps ensure that the vehicle is properly aligned and the steering wheel is centered.
 - The alignment machine itself should be capable of accepting any NISSAN vehicle.
 - The alignment machine should be checked to ensure that it is level.
2. Make sure the alignment machine is properly calibrated.
 - Your alignment machine should be regularly calibrated in order to give correct information.
 - Check with the manufacturer of your specific alignment machine for their recommended Service/Calibration Schedule.

REAR SUSPENSION ASSEMBLY

THE ALIGNMENT PROCESS

IMPORTANT: Use only the alignment specifications listed in this Service Manual. Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#) .

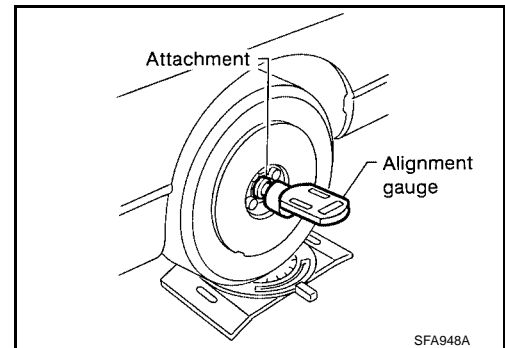
1. When displaying the alignment settings, many alignment machines use "indicators": (Green/red, plus or minus, Go/No Go). **Do NOT use these indicators.**
 - The alignment specifications programmed into your alignment machine that operate these indicators may not be correct.
 - This may result in an ERROR.
2. Some newer alignment machines are equipped with an optional "Rolling Compensation" method to "compensate" the sensors (alignment targets or head units). **Do NOT use this "Rolling Compensation" method.**
 - Use the "Jacking Compensation" method. After installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.
 - See Instructions in the alignment machine you are using for more information.

CAMBER

- Measure camber of both the right and left wheels with a suitable alignment gauge and adjust in accordance with the following procedure.

Camber : Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#) .

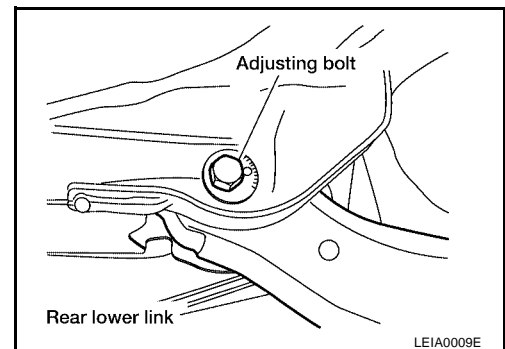
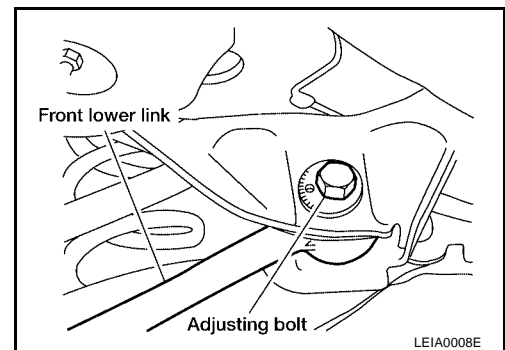
- If camber is not within specification, adjust by turning the adjusting bolts in the same direction.



1. Turn the adjusting bolts in the same direction to calibrate.

NOTE:

Camber changes about 5° with each graduation of the adjusting bolt.



2. Tighten the adjusting bolt nuts to specification.

Adjusting bolt nuts : Refer to [RSU-5, "Components"](#) .

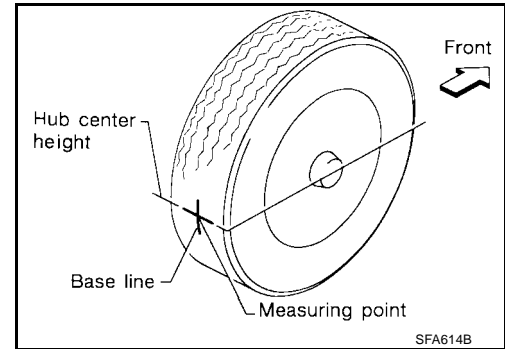
REAR SUSPENSION ASSEMBLY

TOE-IN

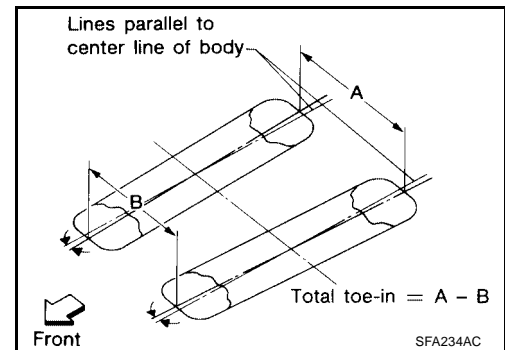
Measure toe-in using the following procedure. If out of specification, inspect and replace any damaged or worn rear suspension components.

WARNING:

- Always perform the following procedure on a flat surface.
 - Make sure that no person is in front of the vehicle before pushing it.
1. Bounce the rear of the vehicle up and down to stabilize the wheelarch height.
 2. Push the vehicle straight ahead about 5 m (16 ft).
 3. Put a mark on the base line of the tread (rear side) of both tires at the same height as the hub center as shown. These marks are the measuring points.



4. Measure the 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), start the above procedure again from the beginning. Never push the vehicle backward.
6. Measure the distance "B" (front side).

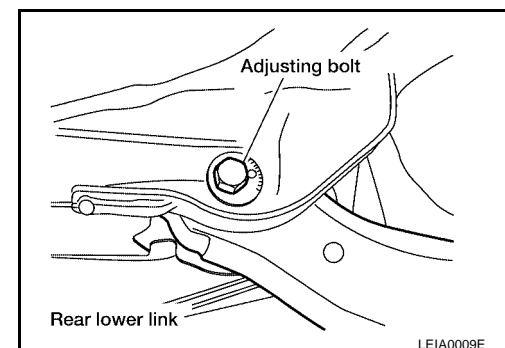
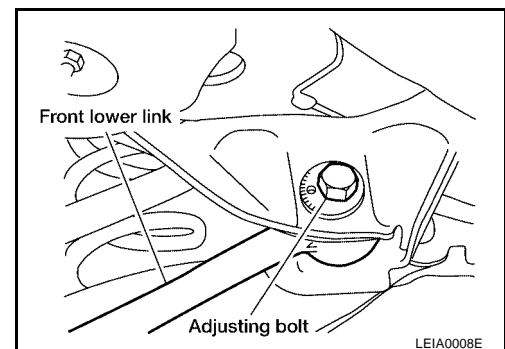


Total toe-in : Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#) .

7. Adjust the toe-in by turning the adjusting bolts.

NOTE:

Toe-in changes about 1.5 mm (0.059 in) (one side) with each graduation of the adjusting bolt.



8. Tighten the adjusting bolt nuts to specification.

Adjusting bolt nuts : Refer to [RSU-5, "Components"](#) .

REAR SUSPENSION ASSEMBLY

EES001C8

Removal and Installation REAR SUSPENSION ASSEMBLY

Removal

CAUTION:

Before removing the rear suspension assembly, disconnect the ABS wheel sensor from the assembly. Failure to do so may result in damage to the sensor wires and the sensor becoming inoperative.

1. Remove the center exhaust tube with mufflers. Refer to [EX-3, "Removal and Installation"](#) .
2. Remove the brake caliper assembly using power tools. Refer to [BR-30, "Removal and Installation of Caliper Assembly and Disc Rotor"](#) .
 - Leave the brake line connected to the brake caliper.
 - Do not depress the brake pedal, or the caliper piston will pop out.
 - Do not pull or twist the brake hose.
3. Disconnect the parking brake cable assemblies from the front cable. Refer to [PB-2, "Removal and Installation"](#) .
4. Remove the rear ABS wheel sensors. Refer to [BRC-41, "WHEEL SENSORS"](#) .
5. Set a suitable jack to support the rear suspension assembly.
6. Remove the shock absorber upper end nut using power tools.
7. Remove the suspension member nuts and the member stay bolts using power tools.
8. Use the jack to support and lower the rear suspension member assembly for removal.

Installation

Installation is in the reverse order of removal. Refer to [RSU-2, "Precautions"](#) .

- Check the rear wheel alignment and adjust if necessary. Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#) .

SHOCK ABSORBER

Removal

1. Remove the wheel and tire using power tools.
2. Set a suitable jack on the rear lower link to remove the lower shock absorber nut and bolt using power tools.
3. Remove the suitable jack from rear lower link.
4. Remove the upper shock absorber nuts using power tools.
5. Remove the shock absorber.

Installation

Installation is in the reverse order of removal.

SUSPENSION ARM

Removal

1. Remove the rear suspension assembly. Refer to [RSU-9, "REAR SUSPENSION ASSEMBLY"](#) .
2. Remove the connecting rod mounting bracket from suspension arm using power tools.
3. Remove the two suspension arm nuts and bolts from the suspension member side of the suspension arm using power tools.
4. Remove the ball joint cotter pin and lock nut using power tools.
 - Discard the cotter pin, use a new cotter pin for installation.
5. Remove the suspension arm from the knuckle using Tool.

Tool number : HT72520000 (J-25730-A)

CAUTION:

- Do not damage the ball joint when removing.
- While using Tool, temporarily tighten the nut so as not to damage screw threads.

Installation

Installation is in the reverse order of removal.

- Discard the cotter pin, use a new cotter pin for installation.

REAR SUSPENSION ASSEMBLY

- Check the rear wheel alignment and adjust if necessary. Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#).

RADIUS ROD

Removal

1. Remove the rear suspension assembly. Refer to [RSU-9, "REAR SUSPENSION ASSEMBLY"](#).
2. Remove the radius rod using power tools.

Installation

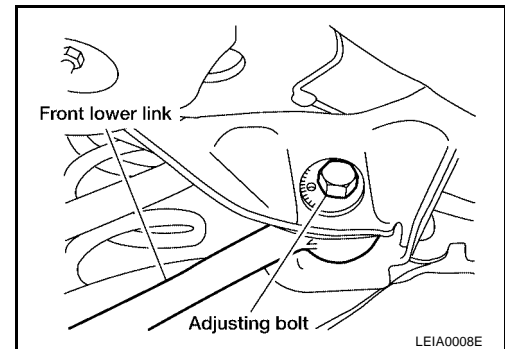
Installation is in the reverse order of removal.

- Check the rear wheel alignment and adjust if necessary. Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#).

FRONT LOWER LINK

Removal

1. Remove the front lower link nut and bolt from the knuckle side and the adjusting bolt and nut from the suspension member side using power tools.
 - Do not reuse the adjusting nut, use a new adjusting nut for installation.
2. Remove the front lower link.



Installation

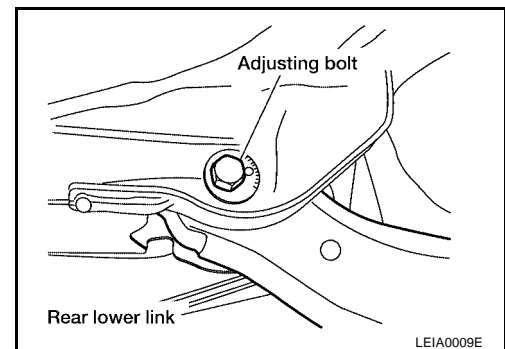
Installation is in the reverse order of removal.

- Do not reuse the adjusting nut, use a new adjusting nut for installation.
- Check the rear wheel alignment and adjust if necessary. Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#).

REAR LOWER LINK AND COIL SPRING

Removal

1. Loosen the rear lower link bolt and nut from the suspension member side.
2. Support the rear lower link by placing a suitable jack under the knuckle.
3. Remove the rear lower link adjusting bolt and nut from the suspension member side using power tool.
 - Do not reuse the adjusting nut, use a new adjusting nut for installation.
4. Slowly lower the jack to lower the rear lower link and coil spring.
5. Remove the upper rubber seat, coil spring, and lower rubber seat from the rear lower link.
6. Remove rear lower link bolt and nut from the suspension member side using power tool.
7. Remove the rear lower link.



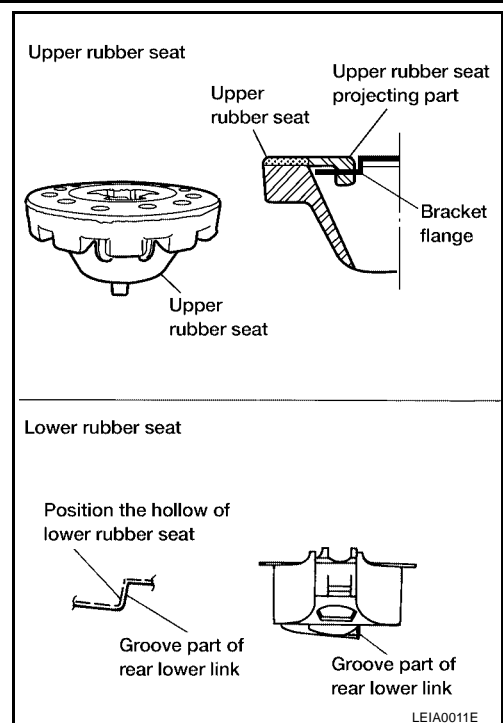
Installation

Installation is in the reverse order of removal.

- Do not reuse the adjusting nut, use a new adjusting nut for installation.

REAR SUSPENSION ASSEMBLY

- Check that the projecting part inside the upper rubber seat and the bracket flange are attached as shown.
- Check that the projection part outside the upper rubber seat is directed toward the front of the vehicle.
- Position the hollow of the lower rubber seat with the groove part of the rear lower link.
- Install the coil spring so that the side with the two paint markers is directed toward the lower side.
- Check the rear wheel alignment and adjust if necessary. Refer to [RSU-13, "Rear Wheel Alignment \(Unladen*\)"](#).



STABILIZER BAR

Removal

1. Disconnect the stabilizer bar ends from the connecting rods using power tool.
2. Remove the stabilizer bar clamps and bushings using power tool.
3. Remove the stabilizer bar.

Installation

Installation is in the reverse order of removal.

Inspection

SHOCK ABSORBER ASSEMBLY

EES00198

- Check for smooth operation through a full stroke of both compression and extension.
- Check for oil leaks on the welded or gland packing portions.
- Check the piston rod for cracks, deformation, or other damage and replace if necessary.

SUSPENSION ARM

- Check the suspension arm for damage, cracks, deformation and replace if necessary.
- Check the rubber bushing for damage, cracks, deformation and replace if necessary.
- Check the ball joint. Replace the suspension arm assembly if any of the following conditions exist:
 - Ball stud is worn.
 - Joint is hard to swing.
 - Check if the swinging force "A", turning force "B", or vertical end play "C" is out of specification.

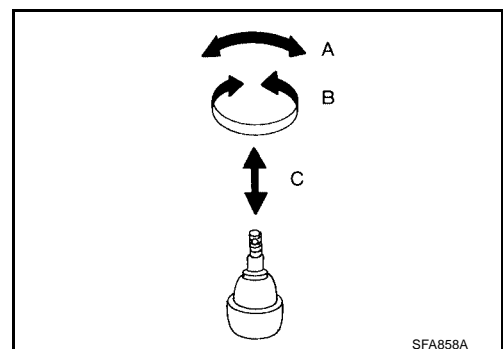
NOTE:

Before checking specifications, turn the ball joint at least 10 revolutions so the ball joint is properly broken in.

Swinging force "A" : Refer to [RSU-13, "Ball Joint"](#) .

Turning force "B" : Refer to [RSU-13, "Ball Joint"](#) .

Vertical end play "C" : Refer to [RSU-13, "Ball Joint"](#) .



RADIUS ROD

- Check the radius rod for any deformation, cracks, or damage and replace if necessary.

REAR SUSPENSION ASSEMBLY

- After installing the radius rod, check the wheel alignment and adjust if necessary.

FRONT LOWER LINK

- Check the front lower link for any deformation, cracks, or damage and replace if necessary.

UPPER RUBBER SEAT AND BUSHING

- Check the rubber parts for deterioration, or cracks and replace if necessary.

REAR LOWER LINK AND COIL SPRING

- Check the rear lower link and coil spring for deformation, cracks, or other damage and replace if necessary.

STABILIZER BAR

- Check the stabilizer bar and clamps for any deformation, cracks, or damage and replace if necessary.
- Check the rubber bushings for deterioration, or cracks and replace if necessary.

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

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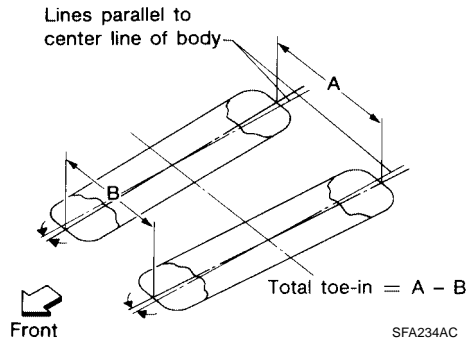
General Specifications (Rear)

EES00199

Suspension type	Multi-link independent suspension
Shock absorber type	Double-acting hydraulic

Rear Wheel Alignment (Unladen*)

EES0019A

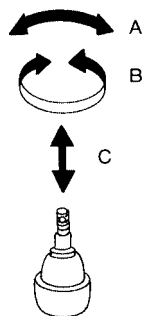


Camber Degree minute (Decimal degree)	Minimum	-0°08' (-0.13°)	
	Nominal	-0°38' (-0.63°)	
	Maximum	-0°68' (-1.13°)	
Total toe-in	Distance (A - B) mm (in)	Minimum	2.3 (0.091)
		Nominal	3.8 (0.150)
		Maximum	5.3 (0.209)
	Distance difference between RH and LH side mm (in)	Minimum	-2.0 (-0.079)
		Nominal	0 (0)
		Maximum	2.0 (0.079)
	Angle (left plus right) Degree minute (Decimal degree)	Minimum	0° 6' (0.10°)
		Nominal	0° 10' (0.17°)
		Maximum	0° 14' (0.23°)

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

Ball Joint

EES0019B



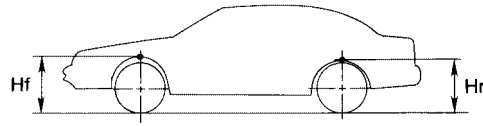
Swinging force "A" (measuring point at the cotter pin hole of the ball stud)	7.8 - 54.9 N (0.8 - 5.6 kg-f, 1.8 - 12.3 lb-f)
Turning torque "B"	0.49 - 3.43 N-m (5.0 - 35.0 kg-cm, 4.3 - 30.4 in-lb)
Vertical end play "C"	0 mm (0 in)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheelarch Height (Unladen*)

EES0019C

Unit: mm (in)



SFA818A

Tire size	225/55R17	245/45R18
Front (Hf)	738 (29.06)	737 (29.02)
Rear (Hr)	705 (27.76)	705 (27.76)

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