

SECTION **RSU**
 REAR SUSPENSION

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RSU

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PRECAUTIONS

PRECAUTIONS

PFP:00001

Precautions

GES0000L

- When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.
* Fuel, radiator coolant, and engine oil are full. Spare tire, jack, hand tools, and mats are in their designated positions. Oil will shorten the life of rubber bushings, so wipe off any spilled oil immediately.
- Lock nuts are not reusable. Always use new lock nuts for installation. New lock nuts are pre-oiled, do not apply any additional lubrication.

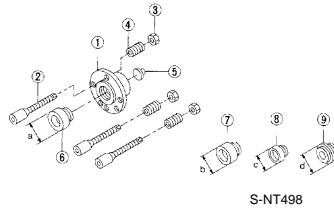
PREPARATION

PREPARATION

PPF:00002

Special Service Tools

GES0003C

Tool number Tool name	Description
<p>KV991040S0 CCK gauge attachment</p> <ol style="list-style-type: none"> 1. Plate 2. Guide bolts 3. Nuts 4. Springs 5. Center plate 6. KV9910 4020 Adapter A a: 72 mm (2.83 in) dia. 7. KV9910 4030 Adapter B b: 65 mm (2.56 in) dia. 8. KV9910 4040 Adapter C c: 57 mm (2.24 in) dia. 9. KV9910 4050 Adapter D d: 53.4 mm (2.102 in) dia. 	<p>Measuring wheel alignment</p> 

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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

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NVH Troubleshooting Chart

GES0000M

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

Reference page		RSU-5	RSU-8	RSU-5	RSU-5	RSU-11	RSU-5	PR-2, "NVH Troubleshooting Chart"	RFD-40 (with LSD), RFD-7 (without LSD)	RAX-5, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	BR-5, "NVH Troubleshooting Chart"	PS-5, "NVH Troubleshooting Chart"
Possible cause and SUSPECTED PARTS		Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	PROPELLER SHAFT	REAR FINAL DRIVE	AXLE	TIRES	ROAD WHEEL	BRAKES	STEERING
Symptoms	Noise	x	x	x	x	x	x	x	x	x	x	x	x	x
	Shake	x	x	x	x		x	x		x	x	x	x	x
	Vibration	x	x	x	x	x		x		x	x			x
	Shimmy	x	x	x	x					x	x	x	x	x
	Shudder	x	x	x						x	x	x	x	x
	Poor quality ride or handling	x	x	x	x	x	x			x	x	x		

x: Applicable

REAR SUSPENSION ASSEMBLY

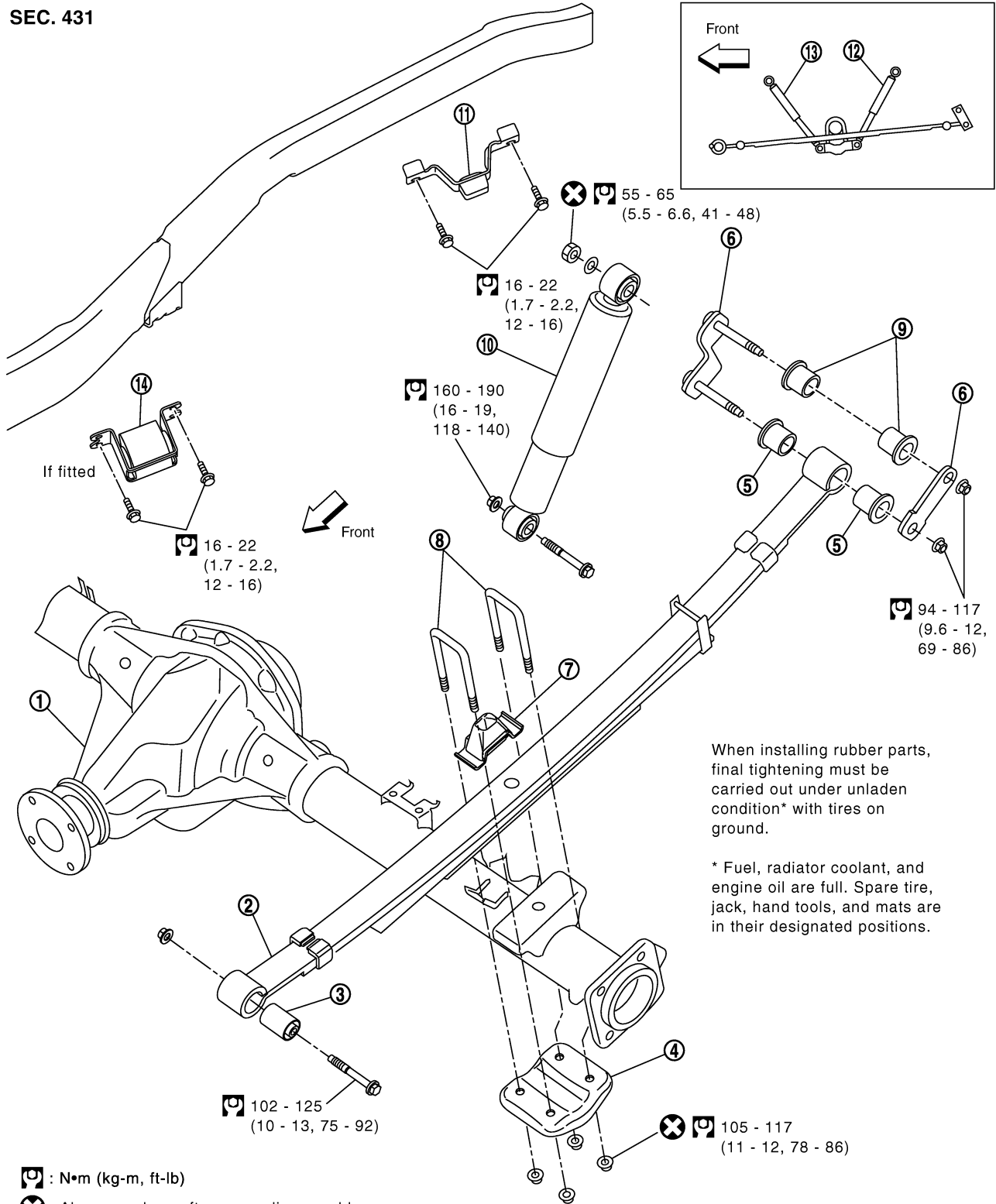
REAR SUSPENSION ASSEMBLY

PPF:55020

Components

GES0000N

SEC. 431



- | | | |
|---------------------|-------------------------------|--------------------------------|
| 1. Rear final drive | 2. Rear leaf spring | 3. Rear spring bushing (front) |
| 4. Rear spring pad | 5. Rear spring bushing (rear) | 6. Rear spring shackle |
| 7. Bumper | 8. Rear spring clip U-bolts | 9. Rear spring shackle bushing |

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REAR SUSPENSION ASSEMBLY

10. Shock absorber

11. Bumper

12. Shock absorber (left side)

13. Shock absorber (right side)

14. Damper

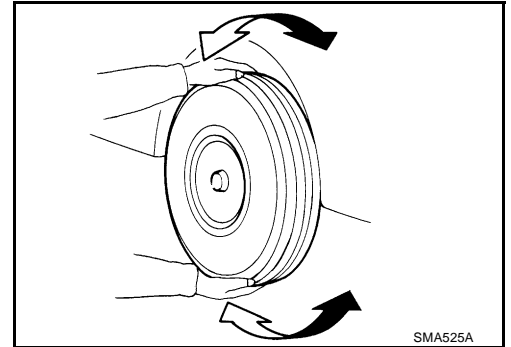
CAUTION:

When installing the components with rubber bushings, the final tightening of the nuts and bolts must be done with the vehicle in an unladen condition (the fuel, engine coolant, and engine oil full; the spare tire, jack, hand tools and mats in their designated positions) with the tires on the ground.

On-Vehicle Inspection and Service

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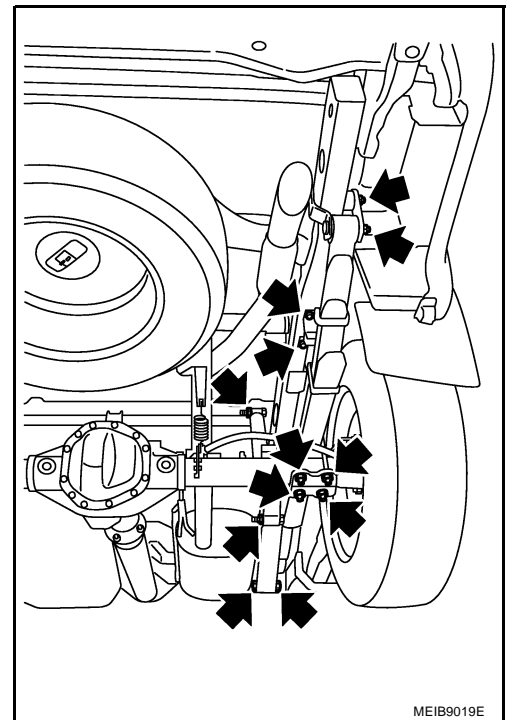
- Check the rear suspension parts for any excessive play, cracks, wear, and other damage.
- Shake each rear wheel to check for any excessive play as shown.



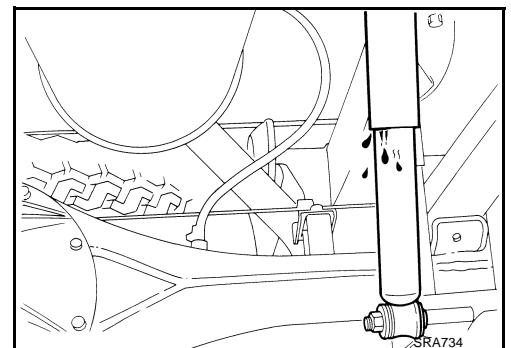
- Tighten all of the nuts and bolts to the specified torque.

CAUTION:

When installing the components with rubber bushings, the final tightening of the nuts and bolts must be done with the vehicle in an unladen condition (the fuel, engine coolant, and engine oil full; the spare tire, jack, hand tools and mats in their designated positions) with the tires on the ground.



- Check the shock absorbers for oil leaks, deformation, and other damage.
- Check the shock absorber bushings for excessive wear and other damage.



REAR SUSPENSION ASSEMBLY

GES0003G

Rear Wheel Alignment PRELIMINARY INSPECTION

WARNING:

Always check the alignment with the vehicle on a flat surface.

1. Check the wheel alignment with the vehicle under unladen conditions. "Unladen conditions" means that the fuel, coolant, and lubricant are full; and that the spare tire, jack, hand tools and mats are in their designated positions.
2. Check the tires for incorrect air pressure and excessive wear.
3. Check the wheels for run out and damage. Refer to [WT-3, "Inspection"](#) .
4. Check the rear axle bearing axial end play. Refer to [RAX-6, "Rear Axle Bearing"](#) .
5. Check the shock absorbers for leaks or damage.
6. Check each mounting point of the suspension components for any excessive looseness or damage.
7. Check the vehicle height. Refer to [RSU-13, "Wheelarch Height \(Unladen*1\)"](#) .

CAMBER

1. Install CCK gauge attachment (SST: KV991040S0) as following procedure in wheel.
 - a. Remove wheel nuts (2), and install a guide bolt to hub bolt.
 - b. Screw center plate into plate.
 - c. Insert plate on guide bolt. Put spring in, and then evenly screw both guide bolt nut. When fastening guide bolt nut, do not completely compress spring.

CAUTION:

Do not use any adapter for attaching the attachment.

- d. Place the dent of alignment gauge onto the projection of center plate and tightly contact them to measure.
2. Measure camber of both the right and left wheels with a suitable alignment gauge and compare to specifications.

CAUTION:

After inspecting the camber then check the toe-in.

Camber: Refer to [RSU-13, "Wheel Alignment \(Unladen*1\)"](#) .

TOE-IN

WARNING:

Always perform the following procedure on a flat surface.

CAUTION:

After inspecting the camber then check the toe-in.

Toe-in: Refer to [RSU-13, "Wheel Alignment \(Unladen*1\)"](#) .

SHOCK ABSORBER

SHOCK ABSORBER

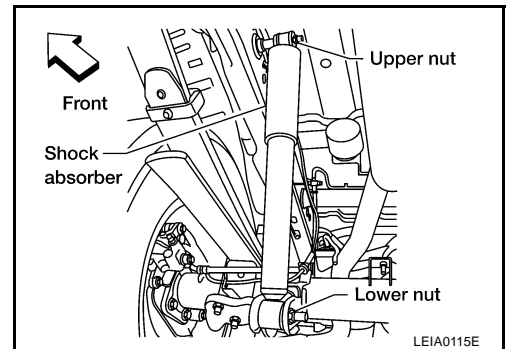
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Removal and Installation

GES0000P

REMOVAL

1. Support the rear final drive and suspension assembly using a suitable jack.
2. Remove the shock absorber upper and lower nuts and bolts.



3. Remove the shock absorber.

INSPECTION AFTER REMOVAL

- Inspect the shock absorber for any oil leaks, cracks, or deformations. Replace the shock absorber as necessary.
- Check the shock absorber for smooth operation through a full stroke, both compression and extension.
- If rubber bushings are cracked or deformed, replace rubber bushings.

INSTALLATION

Installation is in the reverse order of removal.

Shock absorber upper and lower nuts : Refer to [RSU-5, "Components"](#) .

LEAF SPRING

LEAF SPRING

Removal and Installation

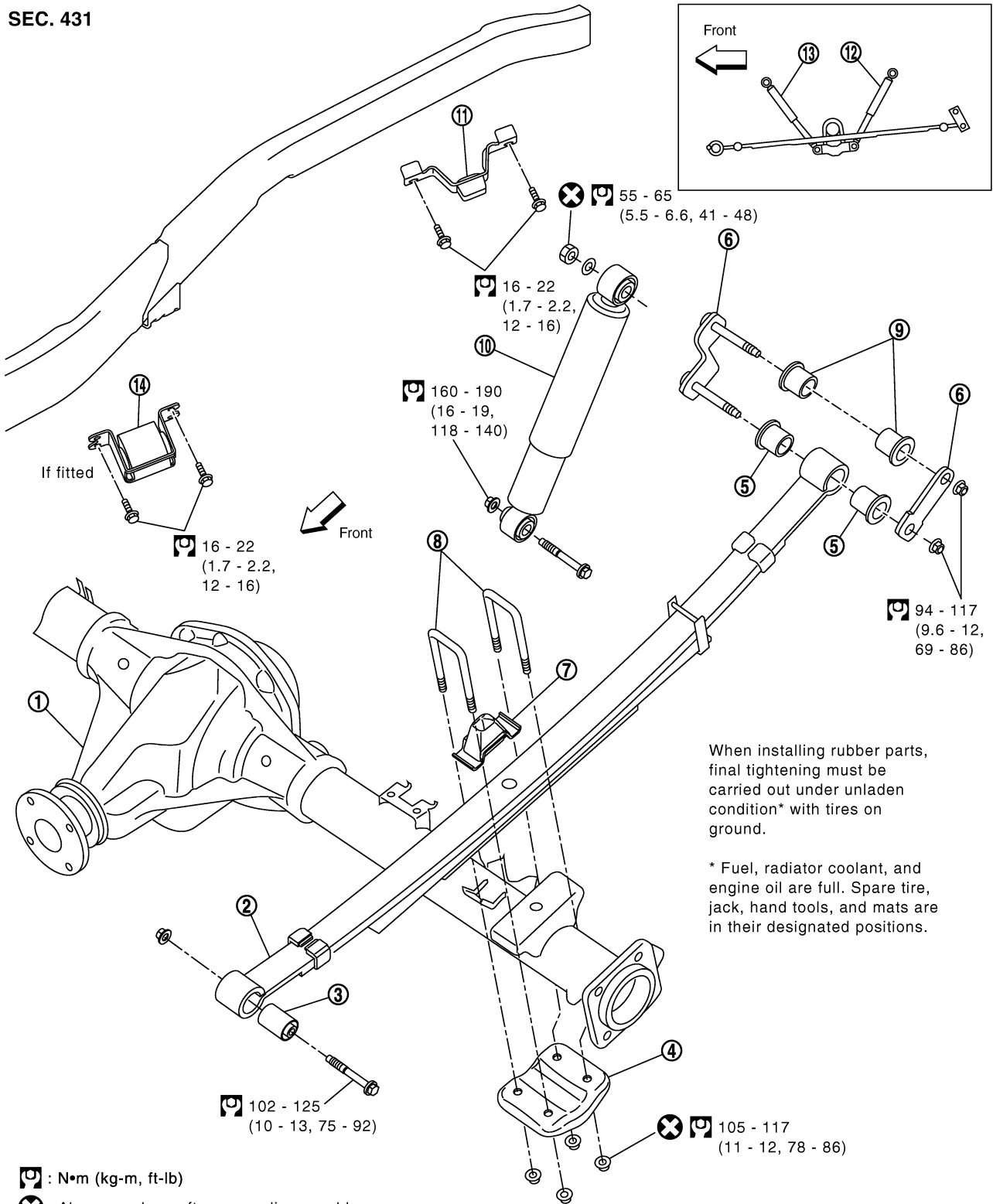
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RSU

SEC. 431



: N•m (kg-m, ft-lb)

: Always replace after every disassembly.

- | | | |
|---------------------|-------------------------------|--------------------------------|
| 1. Rear final drive | 2. Rear leaf spring | 3. Rear spring bushing (front) |
| 4. Rear spring pad | 5. Rear spring bushing (rear) | 6. Rear spring shackle |
| 7. Bumper | 8. Rear spring clip U-bolts | 9. Rear spring shackle bushing |

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LEAF SPRING

- 10. Shock absorber
- 13. Shock absorber (right side)

- 11. Bumper
- 14. Damper

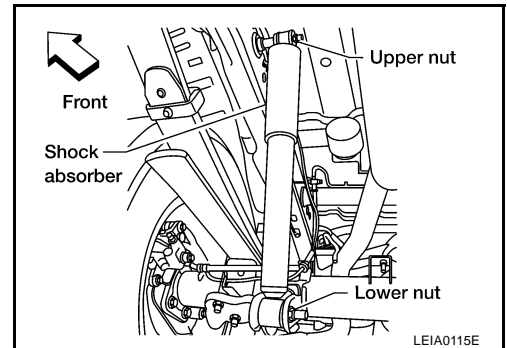
- 12. Shock absorber (left side)

CAUTION:

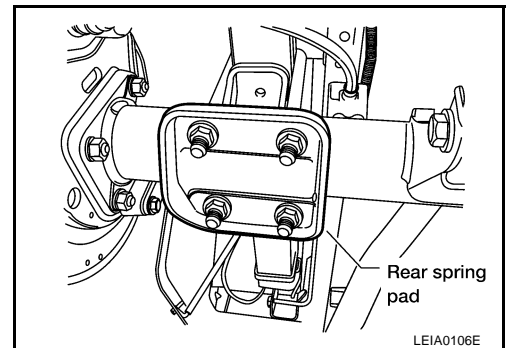
When installing the components with rubber bushings, the final tightening of the nuts and bolts must be done with the vehicle in an unladen condition (the fuel, engine coolant, and engine oil full; the spare tire, jack, hand tools and mats in their designated positions) with the tires on the ground.

REMOVAL

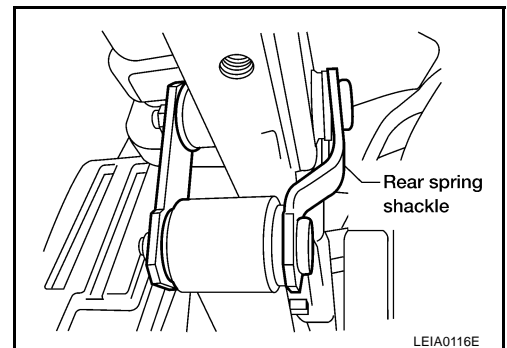
1. Support the rear final drive assembly with a suitable jack to relieve the tension from the rear leaf spring.
 - The axle weight should be supported, but there should be no compression in the rear leaf spring.
2. Remove the shock absorber lower nut and bolt.



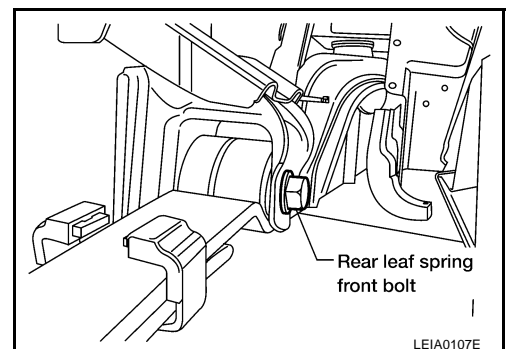
3. Remove the four rear spring clip U-bolt nuts, then remove the rear spring pad.



4. Remove the rear spring shackle and bushings.



5. Remove the rear leaf spring front nut and bolt.
6. Remove the rear leaf spring.



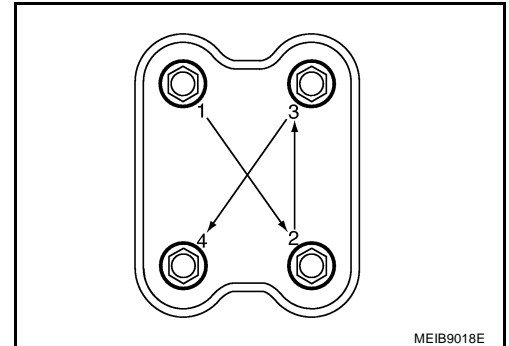
LEAF SPRING

INSPECTION AFTER REMOVAL

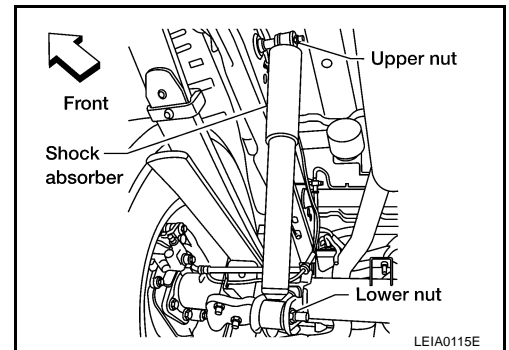
- Check the rear leaf spring for any cracks or damage. Replace the rear leaf spring if necessary.
- Check the rear spring shackle, rear spring clip U-bolts, bumper, and rear spring pad for excessive wear, cracks, straightness, and damage. Replace any components if necessary.
- Check all bushings for deformation and cracks. Replace any bushings if necessary.

INSTALLATION

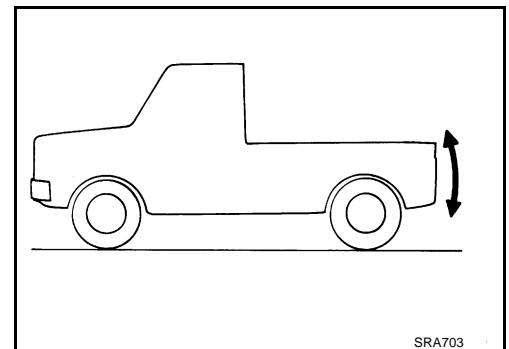
1. Apply soapsuds to all of the rubber bushings.
2. Install the rear spring shackle and rear leaf spring front nut and bolt. Finger-tighten the nuts.
3. Install the rear spring clip U-bolts and bumper on top of the rear leaf spring.
4. Install the rear spring pad, and nuts under the axle case.
5. Finger tighten rear spring clip U-bolt nuts.



6. Install the shock absorber, and finger-tighten the nuts.



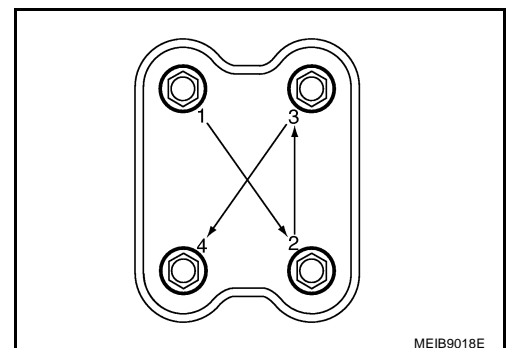
7. Remove the jack supporting the rear final drive assembly and bounce the rear of the vehicle to stabilize the suspension.



8. Tighten diagonally and in few steps the rear spring clip U-bolt nuts, until the lengths of all the exposed rear spring clip U-bolt threads under spring pad are equal in length, within a tolerance of 3 mm (0.12 in). Tighten nuts to specification. Refer to [RSU-5, "Components"](#).

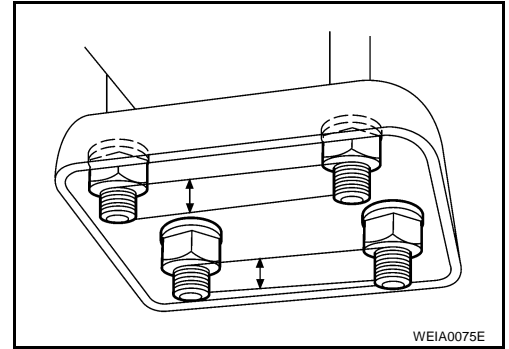
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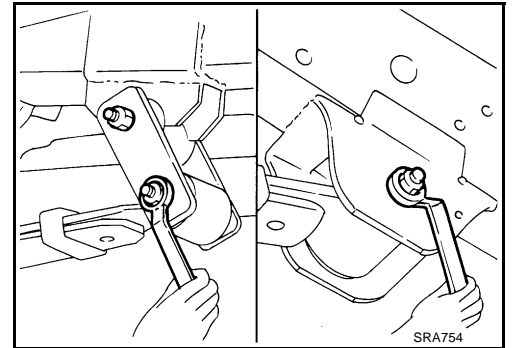
LEAF SPRING



9. Tighten the rear spring shackle nuts, rear leaf spring front nut, and shock absorber nuts to specification. Refer to [RSU-5, "Components"](#).

CAUTION:

When installing the components with rubber bushings, the final tightening of the nuts and bolts must be done with the vehicle in an unladen condition (the fuel, engine coolant, and engine oil full; the spare tire, jack, hand tools and mats in their designated positions) with the tires on the ground.



SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

General Specifications (Rear)

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

Wheel Alignment (Unladen*¹)

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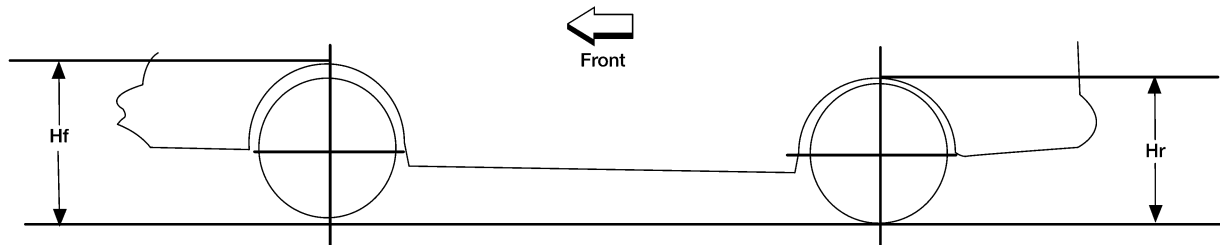
Drive type		ALL	
Camber Degree minute (decimal degree)	Minimum	-0°45' (-0.75°)	
	Nominal	0°00' (0.00°)	
	Maximum	0°45' (0.75°)	
Toe-in Angle (left, right) Degree minute (Decimal degree)	Minimum	-0°24' (-0.40°)	
	Nominal	0°00' (0.00°)	
	Maximum	0°24' (0.40°)	
	Left and right difference	0°24' (0.40°)	

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

Wheelarch Height (Unladen*¹)

GES0000S

Unit: mm (in)



LEIA0085E

Engine type	VQ40, YD25				
Drive type	2WD		4WD		
Applied model	SE		XE	XE, SE	SE
Tire size	235/70R16	255/70R16	235/70R16	255/70R16	255/65R17
Front wheelarch height (Hf)	832 - 862 (32.76 - 33.94)	844 - 874 (33.23 - 34.41)	846 - 876 (33.31 - 34.49)	857 - 887 (33.74 - 34.92)	860 - 890 (33.86 - 35.04)
Rear wheelarch height (Hr)	873 - 903 (34.37 - 35.55)	886 - 916 (34.88 - 36.06)	877 - 907 (34.53 - 35.71)	889 - 919 (35.00 - 36.18)	891 - 921 (35.08 - 36.26)

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

SERVICE DATA AND SPECIFICATIONS (SDS)
