SECTION RSU
REAR SUSPENSION

CONTENTS

PRECAUTIONS

PFP:00001

Precautions

EES0017F

- **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, engine coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.**
- **After installing removed suspension parts, check wheel alignment.**
- **Do not jack up at the trailing arm and lateral link.**
- **Lock nuts are not reusable parts, always use new ones.**
  When replacing, do not wipe the oil off of the new lock nut before tightening.

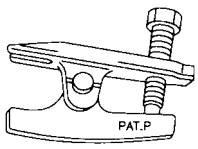
PREPARATION

PFP:00002

Special Service Tools

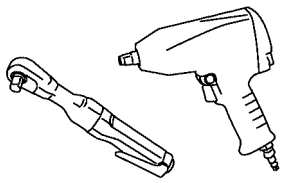
EES0017G

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

EES0017H

Tool name	Description
Power tool  PBIC0190E	Loosening bolts and nuts

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

NVH Troubleshooting Chart

EES0017I

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

Reference page		RSU-5	RSU-8	RSU-11	RSU-5	RSU-11	RSU-5	RSU-6	RSU-10	FAX-4, "NVH Troubleshooting Chart"	FAX-4, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	BR-5, "NVH Troubleshooting Chart"	PS-4, "NVH Troubleshooting Chart"
Possible Cause and SUSPECTED PARTS		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	×	×	×	×	×	×			×	×	×	×	×	×
	Shake	×	×	×	×		×			×	×	×	×	×	×
	Vibration	×	×	×	×	×				×	×	×			×
	Shimmy	×	×	×	×			×			×	×	×	×	×
	Shudder	×	×	×							×	×	×	×	×
	Poor quality ride or handling	×	×	×	×	×		×	×		×	×	×		

×: Applicable

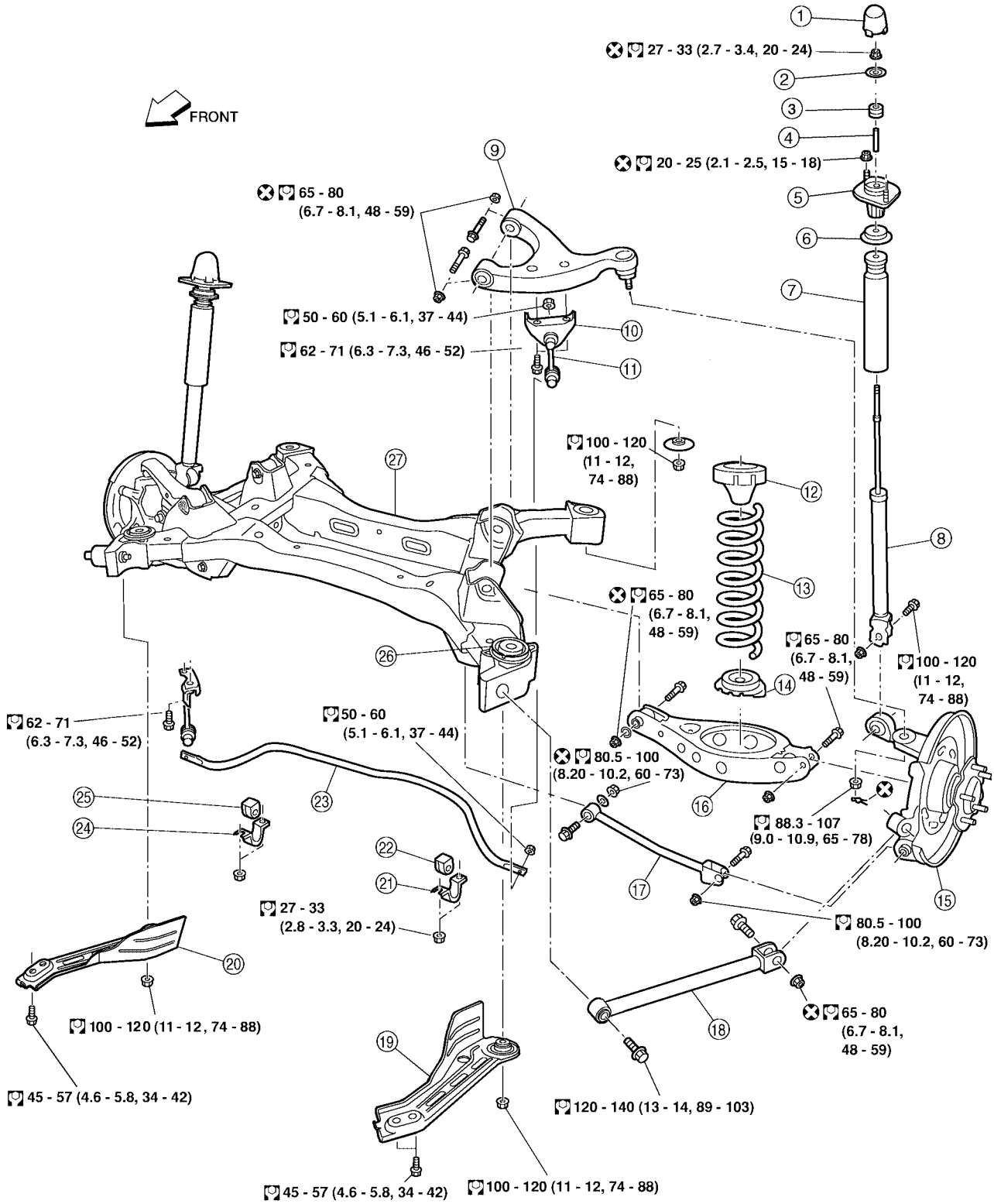
REAR SUSPENSION ASSEMBLY

PFP:55020

Components

EES0017J

SEC. 430 - 431



: N·m (kg - m, ft - lb)

: Always replace after every disassembly.

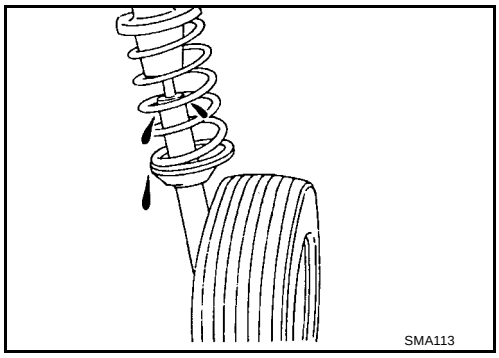
WEIA0100E

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

EES0017K

- 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 the specified torque.
- Make sure that the cotter pin is installed.
- Check the shock absorber for oil leakage or other damage.
- Check the wheelarch height. Refer to RSU-13, "Wheelarch Height (Unladen*)" .
- Check the suspension ball joint for grease leakage and the ball joint dust cover for cracks or other damage.



Rear Wheel Alignment

EES0017L

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

PRELIMINARY INSPECTION

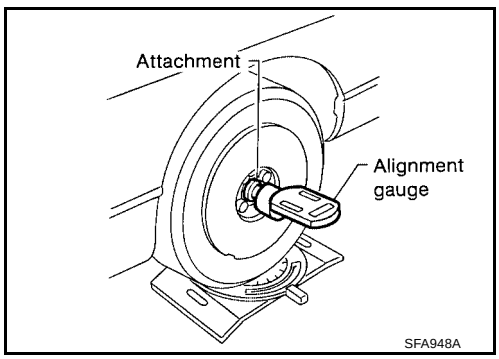
- Check the tires for wear and for improper inflation.
- Check the wheels for deformation, cracks, and other damage. Remove the wheel and check the wheel runout. Refer to WT-3, "Inspection" .
- Check the rear wheel bearings for looseness.
- Check the rear suspension for looseness.
- Check that the rear shock absorbers work properly.
- Check the wheelarch height in the unladen condition. Refer to RSU-13, "Wheelarch Height (Unladen*)" .

CAMBER

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

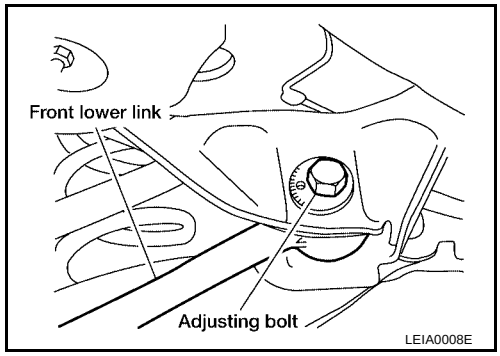
Camber : Refer to RSU-12, "Rear Wheel Alignment (Unladen*)" .

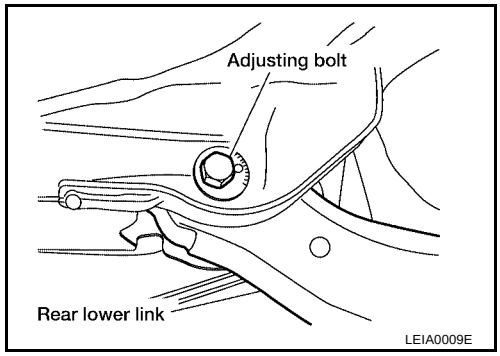
- If the camber is not within specification, adjust the camber by turning the adjusting bolts in the same direction.



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 the specified torque.

   Adjusting bolt nuts : Refer to RSU-5, "Components" .

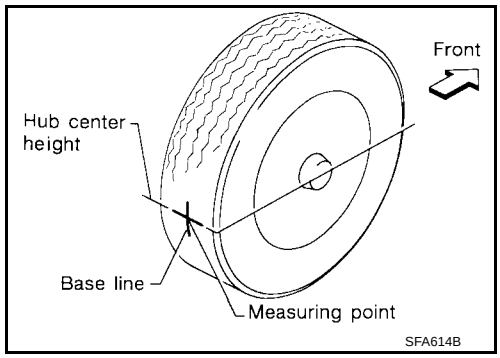
TOE-IN

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

WARNING:

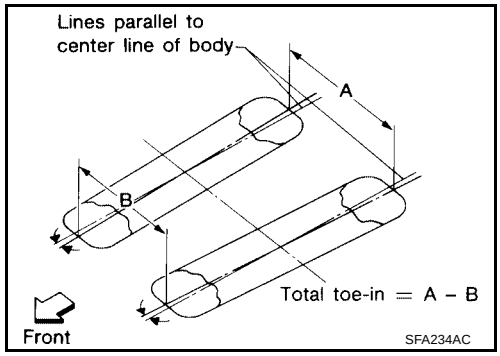
- **Always perform the following procedure on a flat surface.**
- **Make sure that no person is in front of the vehicle before pushing it.**

1. Bounce rear 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.



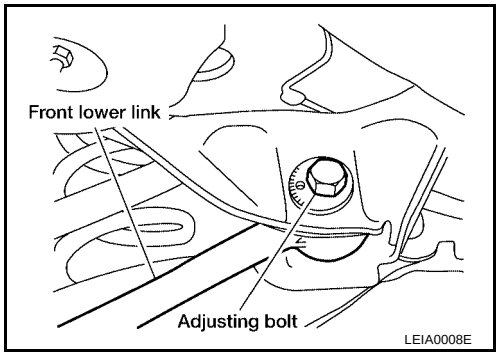
4. Measure distance “A” (rear side).
5. Push the vehicle slowly ahead to rotate the wheels 180° degrees (1/2 a turn).
   - If the wheels have rotated more than 180° degrees (1/2 a turn), try the above procedure again from the beginning. Never push vehicle backward.
6. Measure distance “B” (front side).

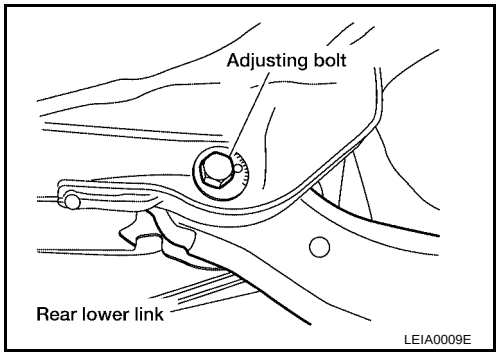
   Total toe-in : Refer to RSU-12, "Rear Wheel Alignment (Unladen*)" .



7. Adjust toe-in by turning adjusting bolt.

   NOTE:
   Toe changes about 1.5 mm (0.059 in) [One side] with each graduation of the adjusting bolt.





8. Tighten the adjusting bolt nuts to the specified torque.

   Adjusting bolt nuts : Refer to RSU-5, "Components" .

Removal and Installation

EES0017M

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 muffler(s). Refer to EX-4, "Removal and Installation" (QR25DE) or EX-7, "Removal and Installation" (VQ35DE).
2. Remove the brake caliper assembly and reposition aside, without disconnecting the hydraulic hose, using power tools. Refer to BR-20, "Removal and Installation" .
   - Leave the brake hydraulic hose 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 hydraulic hose.
3. Disconnect the parking brake wire front end. Refer to PB-2, "Removal and Installation" .
4. Remove the rear ABS wheel sensors. Refer to BRC-42, "Removal and Installation" .
5. Set a suitable jack to support the rear suspension assembly.
6. Remove the upper shock absorber nuts using power tools.
7. Remove the suspension member nuts and member stay bolts using power tools.
8. Use the jack to support and lower the rear suspension 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-6, "Rear Wheel Alignment" .

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 the rear lower link.

4. Remove the upper shock absorber nut and bolt 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-8, "Removal and Installation" .
2. Remove the connecting rod bracket from the suspension arm using power tools.
3. Remove the two suspension arm bolts and nuts 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 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.
- Check the rear wheel alignment and adjust if necessary. Refer to RSU-6, "Rear Wheel Alignment" .

RADIUS ROD

Removal

1. Remove the rear suspension assembly. Refer to RSU-8, "Removal and Installation" .
2. Remove the radius rod using power tools.

Installation

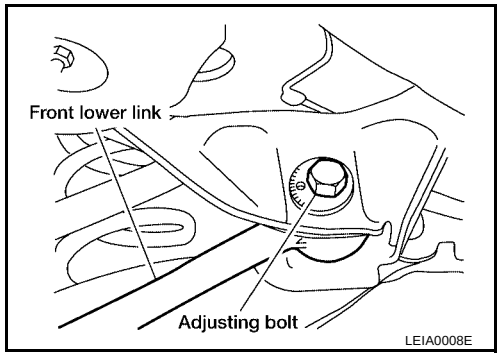
Installation is in the reverse order of removal.

- Check the rear wheel alignment and adjust if necessary. Refer to RSU-6, "Rear Wheel Alignment" .

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.

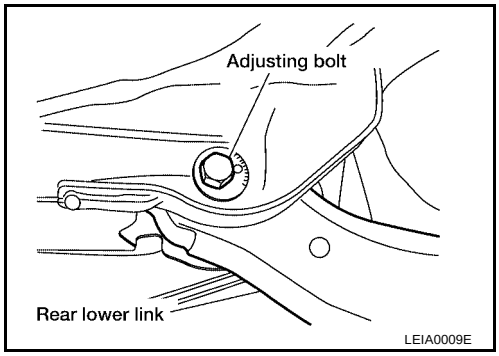
- Do not reuse the adjusting nut, use a new adjusting nut for installation.
- Check the rear wheel alignment and adjust if necessary. Refer to RSU-6, "Rear Wheel Alignment" .

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.

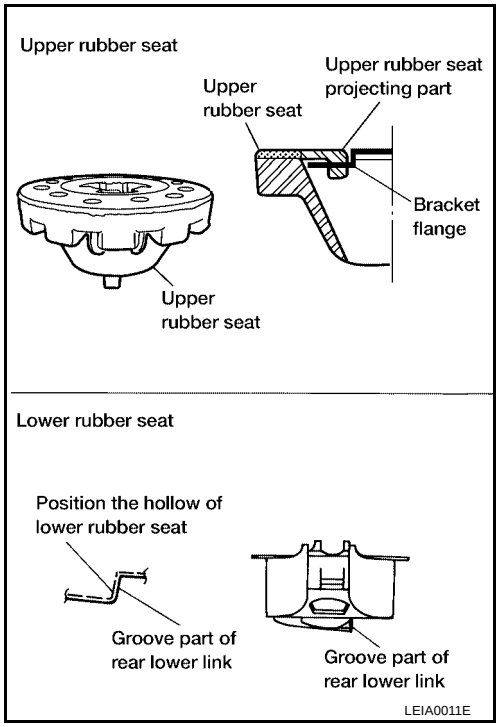
3. Remove the rear lower link adjusting bolt and nut from the suspension member side using power tool.
   - Do not reuse the adjusting nut, use a new adjusting nut for installation.
4. Slowly lower the jack to lower the rear lower link and coil spring.
5. Remove the upper rubber seat, coil spring, and 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.
- 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-6, "Rear Wheel Alignment" .



STABILIZER BAR

Removal

1. Disconnect the stabilizer bar from connecting rod, using power tools.
2. Remove the stabilizer bar clamps and bushings using power tools.
3. Remove the stabilizer bar.

Installation

Installation is in the reverse order of removal.

Inspection

EES0017N

SHOCK ABSORBER ASSEMBLY

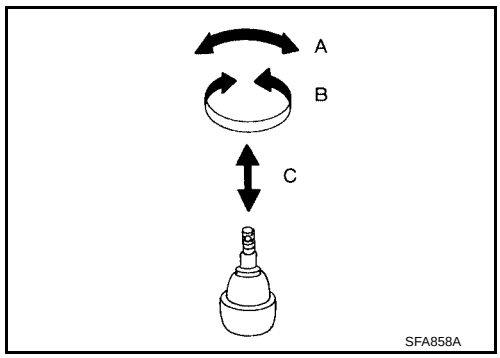
- Check for smooth operation through a full stroke for both compression and extension.
- Check for oil leakage on the welded or gland packing portions.
- Check the shock absorber piston rod for cracks, deformation, or other damage and replace if necessary.

SUSPENSION ARM

- Check the suspension arm for damage, cracks, deformation and replace if necessary.
- Check the rubber bushings for damage, cracks and deformation. Replace suspension arm if necessary.

- Check the ball joint. Replace the suspension arm assembly if any of the following conditions exist: swinging force, turning force, and vertical end play. Replace suspension arm if it is not within specifications.
  - 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-12, "Ball Joint" .**
Turning force “B” : **Refer to RSU-12, "Ball Joint" .**
Vertical end play “C” : **Refer to RSU-12, "Ball Joint" .**

RADIUS ROD

- Check the radius rod for any deformation, cracks, or damage and replace if necessary.
- After installing the radius rod, check the wheel alignment and adjust if necessary. Refer to RSU-6, "Rear Wheel Alignment" .

FRONT LOWER LINK

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

UPPER AND LOWER RUBBER SEATS

- Check the upper and lower rubber seats for deterioration, or cracks and replace if necessary.

REAR LOWER LINK AND COIL SPRING

- Check the rear lower link and coil spring for any 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)

PFP:00030

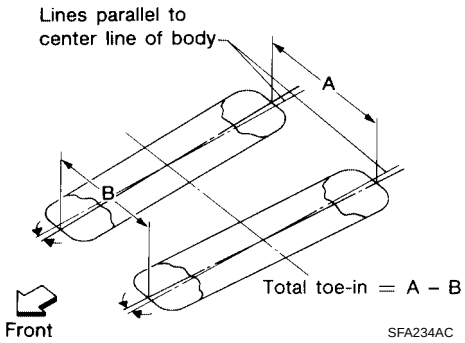
General Specifications (Rear)

EES0017O

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

Rear Wheel Alignment (Unladen*)

EES0017P

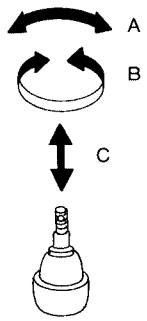


Tire size			215/60R16	215/60R16 (SL) 215/55R17 (SE)	225/45R18
Engine			QR25DE	VQ35DE	
Model			Base / S	SL / SE	SE-R
Camber Degree minute (Decimal degree)		Minimum	–0° 04′ (–0.07°)	–0° 2' (–0.03°)	–0° 13′ (–0.22°)
		Nominal	–0° 34′ (–0.57°)	–0° 32′ (–0.53°)	–0° 43′ (–0.72°)
		Maximum	–0° 64′ (–1.07°)	–1° 2′ (–1.03°)	–1° 13′ (–1.22°)
Total toe-in	Distance (A – B) mm (in)	Minimum	2.4 (0.09)		2.3 (0.09)
		Nominal	3.9 (0.15)		3.8 (0.15)
		Maximum	5.4 (0.21)		5.3 (0.21)
	Distance difference between RH and LH side mm (in)	Minimum	–2 (–0.08)		
		Nominal	0 (0)		
		Maximum	2 (0.08)		
	Angle (left plus right) Degree minute (Decimal degree)	Minimum	0° 6′ (0.10°)		
		Nominal	0° 10′ (0.17°)		
		Maximum	0° 14′ (0.23°)		

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

Ball Joint

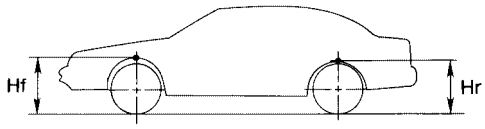
EES0017Q



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

Wheelarch Height (Unladen*)

EES001C1



SFA818A

Engine	QR25DE	VQ35DE		
Model	Base / S	SL	SE	SE-R
Tire size	215/60R16	215/60R16	215/55R17	225/45R18
Front (Hf) mm (in)	722 (28.43)	717 (28.23)	722 (28.43)	721 (28.39)
Rear (Hr) mm (in)	695 (27.36)	696 (27.40)	701 (27.60)	695 (27.36)

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