

SECTION **RSU**
 REAR SUSPENSION

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RSU

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PRECAUTIONS

PRECAUTIONS

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Cautions

AES0008R

- When installing rubber bushings, final tightening must be carried out under unladen condition with tires on level ground. Oil will shorten the life of rubber bushings. Be sure to wipe off any spilled oil.
- Unladen condition means that fuel, coolant and lubricant are full. Spare tire, jack, hand tools and mats in designated positions.
- After servicing suspension parts, be sure to check wheel alignment.
- Caulking nuts are not reusable. Always use new ones when installing. Since new caulking nuts are pre-oiled, tighten as they are.

PREPARATION

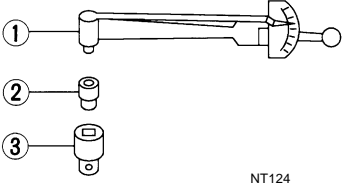
PREPARATION

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Special Service Tools

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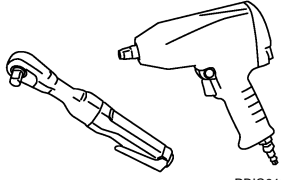
The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
ST3127 S000 (See J25742-1) Preload gauge 1. GG91030000 Torque wrench (J25765-A) 2. HT62940000 (—) Socket adapter (1/2") 3. HT62900000 (—) Socket adapter (3/8")	 <p style="text-align: right;">NT124</p> Measuring rotating torque of ball joint

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Commercial Service Tools

AES000D6

Tool number	Description
Power tool	 <p style="text-align: right;">PBIC0190E</p> <ul style="list-style-type: none"> ● Removing wheel nuts ● Removing rear suspension component parts ● Removing brake caliper assembly

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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

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NVH Troubleshooting Chart

AES0008T

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

		RSU-7	RSU-9	—	—	—	RSU-7	RSU-5	RSU-15	NVH in PR section.	NVH in RFD section.	NVH in FAX and FSU sections.	NVH in WT section.	NVH in WT section.	NVH in RAX section.	NVH in BR section.	NVH in PS section.	
Reference page																		
Possible cause and SUSPECTED PARTS		Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer fatigue	PROPELLER SHAFT	DIFFERENTIAL	FRONT AXLE AND FRONT SUSPENSION	TIRES	ROAD WHEEL	DRIVE SHAFT	BRAKES	STEERING	
Symptom	REAR SUSPENSION	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	x	
		Vibration	x	x	x	x	x				x		x	x		x		x
		Shimmy	x	x	x	x			x				x	x	x		x	x
		Judder	x	x	x								x	x	x		x	x
		Poor quality ride or handling	x	x	x	x	x		x	x			x	x	x			

x: Applicable

REAR SUSPENSION ASSEMBLY

REAR SUSPENSION ASSEMBLY

PPF:55020

On-Vehicle Inspection and Service

AES0008V

Check that the mounting conditions (looseness, back lash) of each component and component status (wear, damage) are normal.

INSPECTION OF BALL JOINT END PLAY

- Measure axial end play by installing and moving up/down with an iron pry bar or something similar between suspension arm and axle.

Standard value

Axial end play : 0 mm (0 in)

CAUTION:

Be careful not to damage ball joint boot.

SHOCK ABSORBER INSPECTION

- Check shock absorber for oil leakage, damage and replace if necessary.

Wheel Alignment Inspection DESCRIPTION

AES0008W

- Measure wheel alignment under unladen conditions. "Unladen conditions" means that fuel, coolant, and lubricant are full. Spare tire, jack, hand tools and mats in designated positions.

PRELIMINARY INSPECTION

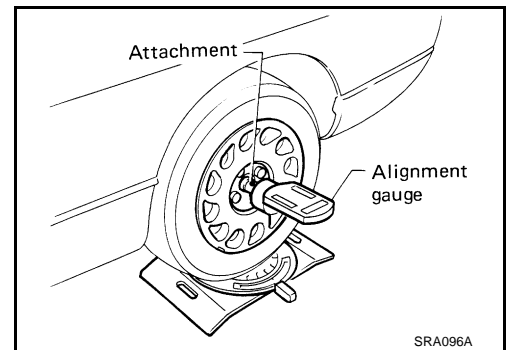
1. Check tires for improper air pressure and wear.
2. Check road wheels for runout.
3. Check wheel bearing axial end play.
4. Check ball joint axial end play of suspension arm.
5. Check shock absorber operation.
6. Check each mounting point of axle and suspension for looseness and deformation.
7. Check each link, arm and member for cracks, deformation, and other damage.
8. Check vehicle posture.

CAMBER INSPECTION

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

Standard value

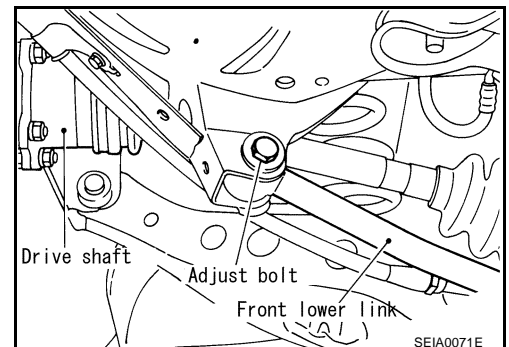
Camber : Refer to [RSU-17, "SERVICE DATA"](#) .



If outside the standard value, adjust with adjusting bolt in front lower link.

CAUTION:

After adjusting camber, be sure to check toe-in.



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REAR SUSPENSION ASSEMBLY

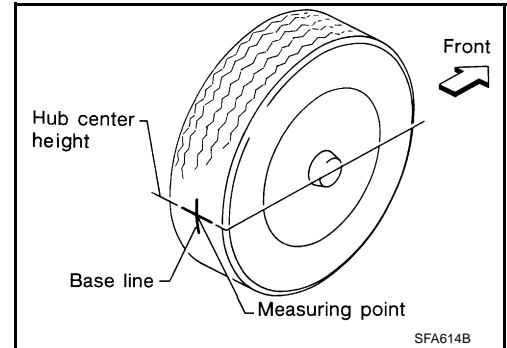
TOE-IN

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

WARNING:

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

1. Bounce rear of vehicle up and down to stabilize the posture.
2. Push 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. These are measuring point.
4. Measure distance "A" (rear side).

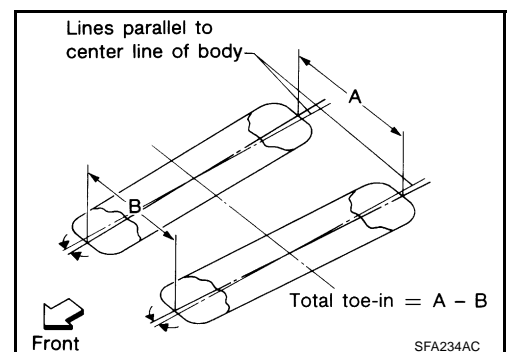


5. Push vehicle slowly ahead to rotate wheels 180 degrees (1/2 turn).
If wheels have rotated more than 180 degrees (1/2 turn), try the above procedure again from the beginning. Never push vehicle backward.

6. Measure distance "B" (front side).

Standard value

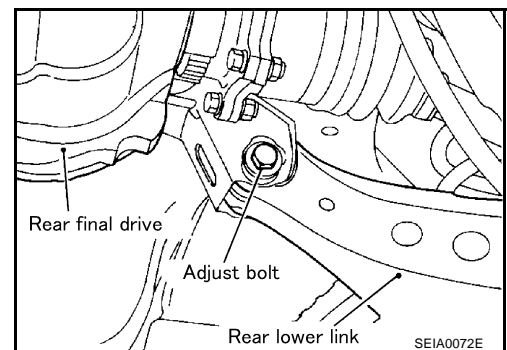
Total toe-in : Refer to [RSU-17, "SERVICE DATA"](#) .



7. If outside the standard value, adjust with adjusting bolt in rear lower link.

CAUTION:

Be sure to adjust equally on RH and LH side with adjusting bolt.

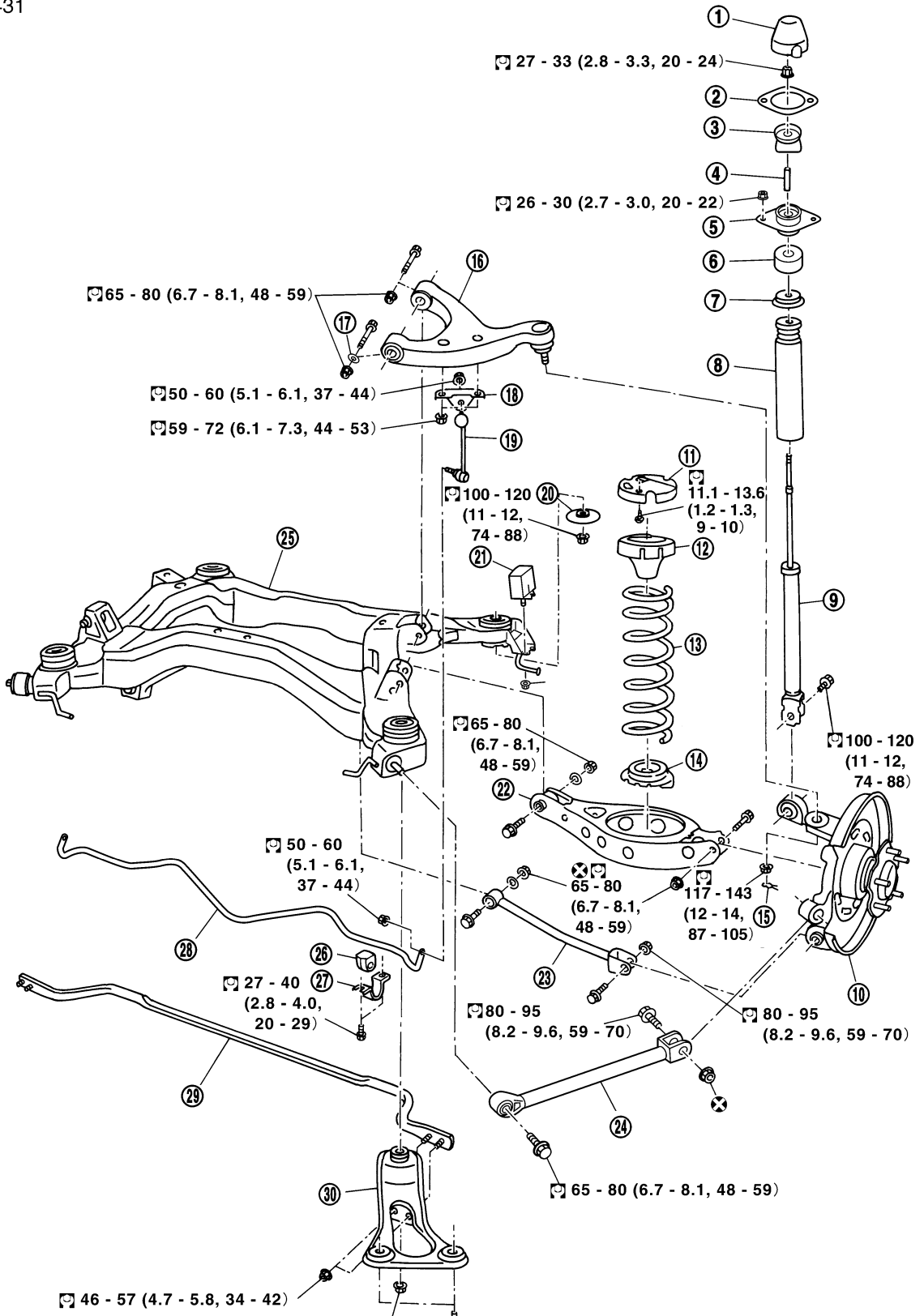


REAR SUSPENSION ASSEMBLY

Components

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☑ : N·m (kg-m, ft-lb)

☑ 100 - 120 (11 - 12, 74 - 88)

☑ 43 - 55 (4.4 - 5.6, 32 - 40)

⊗ : Always replace after every disassembly.

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REAR SUSPENSION ASSEMBLY

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|-------------------------------|------------------------------------|--|
| 1. Cap | 2. Shock absorber mounting seal | 3. Bushing |
| 4. Distance tube | 5. Shock absorber mounting bracket | 6. Bushing |
| 7. Bound bumper cover | 8. Bound bumper | 9. Shock absorber |
| 10. Axle assembly | 11. Bracket | 12. Upper seat |
| 13. Coil spring | 14. Rubber seat | 15. Cotter pin |
| 16. Suspension arm | 17. Stopper rubber | 18. Stabilizer connecting rod mounting bracket |
| 19. Stabilizer connecting rod | 20. Mount stopper | 21. Dynamic dumper |
| 22. Rear lower link | 23. Front lower link | 24. Radius rod |
| 25. Rear suspension member | 26. Stabilizer bushing | 27. Stabilizer clamp |
| 28. Stabilizer bar | 29. Cross bar | 30. Member stay |

SHOCK ABSORBER

SHOCK ABSORBER

PPF:56210

Removal and Installation

AES0008Y

REMOVAL

1. Remove tire with power tool.
2. Set jack under rear lower link to remove fixing bolt and nut in lower side of shock absorber with power tool.
3. Remove jack from rear lower link.
4. Remove rear seat cushion, rear seat back and rear parcel shelf finisher. Refer to [EI-36, "REAR PARCEL SHELF FINISHER"](#).
5. Remove cap and then remove shock absorber mounting bracket fixing nuts of shock absorber upper side and remove shock absorber from vehicle.

INSPECTION AFTER REMOVAL

- Check shock absorber for deformation, cracks, damage, and replace if necessary.
- Check piston rod for damage, uneven wear, distortion, and replace if necessary.
- Check welded and sealed areas for oil leakage, and replace if necessary.

INSTALLATION

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.
CAUTION:
Refer to component parts location and do not reuse non-reusable parts.
- Perform final tightening of shock absorber lower side (rubber bushing) under unladen condition with tires on level ground. Check wheel alignment. Refer to [RSU-5, "Wheel Alignment Inspection"](#).

Disassembly and Assembly

AES0008Z

DISASSEMBLY

CAUTION:

Make sure piston rod on shock absorber is not damaged when removing components from shock absorber.

1. Remove shock absorber mounting seal from shock absorber mounting bracket.
2. Wrap a shop cloth around lower side of shock absorber and fix it in a vise.
CAUTION:
Do not set the cylindrical part of shock absorber in vise.
3. Secure piston rod tip so that piston rod does not turn, and remove piston rod lock nut.
4. Remove bushes, distance tube, shock absorber mounting bracket, bound bumper cover and bound bumper from shock absorber.

INSPECTION AFTER DISASSEMBLY

Bound bumper and Bushing

- Check bound bumper and bushing for cracks, deformation or other damage. Replace if necessary.

ASSEMBLY

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.
CAUTION:
 - Refer to component parts location and do not reuse non-reusable parts.
 - Make sure piston rod on shock absorber is not damaged when attaching components to shock absorber.

SUSPENSION ARM

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AES00090

SUSPENSION ARM

Removal and Installation

REMOVAL

1. Remove tire with power tool.
2. Remove brake caliper with power tool. Hang it in a place where it will not interfere with work. Refer to [BR-31, "REAR DISC BRAKE"](#).

CAUTION:

Avoid depressing brake pedal while brake caliper is removed.

3. Remove stabilizer connecting rod mounting bracket from suspension arm with power tool.
4. Remove fixing bolts and nuts between suspension arm and rear suspension member with power tool.
5. Remove cotter pin of suspension arm ball joint, then loosen mounting nut.
6. Use a ball joint remover (suitable tool) to remove suspension arm from axle. Be careful not to damage ball joint boot.

CAUTION:

To prevent damage to threads and to prevent ball joint remover (suitable tool) from coming off, and temporarily tighten mounting nuts.

7. Remove suspension arm from vehicle.

INSPECTION AFTER REMOVAL

Visual Inspection

- Check suspension arm and bushing for deformation, cracks, or damage. If any non-standard condition is found, replace it.
- Check boot of ball joint for cracks or damage, and also for grease leakage.

Ball joint Inspection

- Manually move ball stud to confirm it moves smoothly with no binding.

Swing Torque Inspection

CAUTION:

Before measuring, move ball joint at least ten times by hand to check for smooth movement.

- Hook spring scale at cotter pin mounting hole. Confirm spring scale measurement value is within specifications when ball stud begins moving.

Standard value

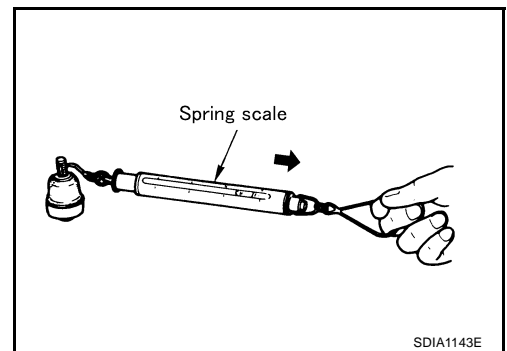
Swing torque:

0.5 - 3.4 N·m (0.06 - 0.34 kg·m, 5 - 30 in-lb)

Measured value of spring scale:

7.85 - 54.4 N (0.80 - 5.55 kg, 1.77 - 12.27 lb)

- If it is outside the specified range, replace suspension arm assembly.



Rotating Torque Inspection

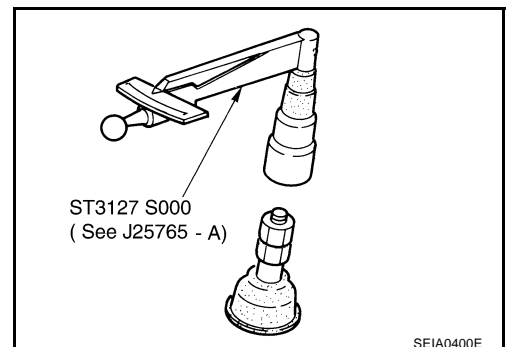
- Attach mounting nut to ball stud. Check that rotating torque is within specifications with a preload gauge (special service tool).

Standard value

Rotating torque:

0.5 - 3.4 N·m (0.06 - 0.34 kg·m, 5 - 30 in-lb)

- If it is outside the specified range, replace suspension arm assembly.



SUSPENSION ARM

Axial End Play Inspection

- Move tip of ball joint in axial direction to check for looseness.

Standard value

Axial end play : 0 mm (0 in)

- If it is outside the specified range, replace suspension arm assembly.

INSTALLATION

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.

CAUTION:

Refer to component parts location and do not reuse non-reusable parts.

- Perform final tightening of rear suspension member installation position (rubber bushing) under unladen condition with tires on level ground. Check wheel alignment. Refer to [RSU-5, "Wheel Alignment Inspection"](#) .

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RADIUS ROD

RADIUS ROD

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Removal and Installation

REMOVAL

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1. Remove tire with power tool.
2. Remove fixing bolt and nut in axle side of radius rod with power tool.
3. Remove fixing bolt and nut in rear suspension member side of radius rod with power tool, then remove radius rod from vehicle.

INSPECTION AFTER REMOVAL

- Check radius rod and bushing for any deformation, crack, or damage. Replace if necessary.

INSTALLATION

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.

CAUTION:

Refer to component parts location and do not reuse non-reusable parts.

- Perform final tightening of rear suspension member and axle installation position (rubber bushing) under unladen condition with tires on level ground. Check wheel alignment. Refer to [RSU-5, "Wheel Alignment Inspection"](#) .

FRONT LOWER LINK

FRONT LOWER LINK

PFP:55110

Removal and Installation

AES00092

REMOVAL

1. Remove tire with power tool.
2. Set jack under rear lower link.
3. Remove fixing bolt and nut between front lower link and rear suspension member with power tool.
4. Remove fixing bolt and nut between front lower link and axle with power tool.
5. Remove front lower link from vehicle.

INSPECTION AFTER REMOVAL

- Check front lower link and bushing for any deformation, crack, or damage. Replace if necessary.

INSTALLATION

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.

CAUTION:

Refer to component parts location and do not reuse non-reusable parts.

- Perform final tightening of rear suspension member and axle installation position (rubber bushing) under unladen condition with tires on level ground. Check wheel alignment. Refer to [RSU-5, "Wheel Alignment Inspection"](#).

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REAR LOWER LINK & COIL SPRING

REAR LOWER LINK & COIL SPRING

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Removal and Installation

REMOVAL

AES00093

1. Remove tire with power tool.
2. Set jack under rear lower link.
3. Loosen fixing bolt and nut of rear lower link in side of rear suspension member, and then remove fixing bolt and nut in side of axle.
4. Slowly lower jack, then remove upper seat, coil spring and rubber sheet from rear lower link.
5. Remove fixing bolt and nut in side of rear suspension member to remove rear lower link.

INSPECTION AFTER REMOVAL

- Check rear lower link, bushing and coil spring for deformation, cracks, and damage. Replace rear lower link and coil spring if necessary.

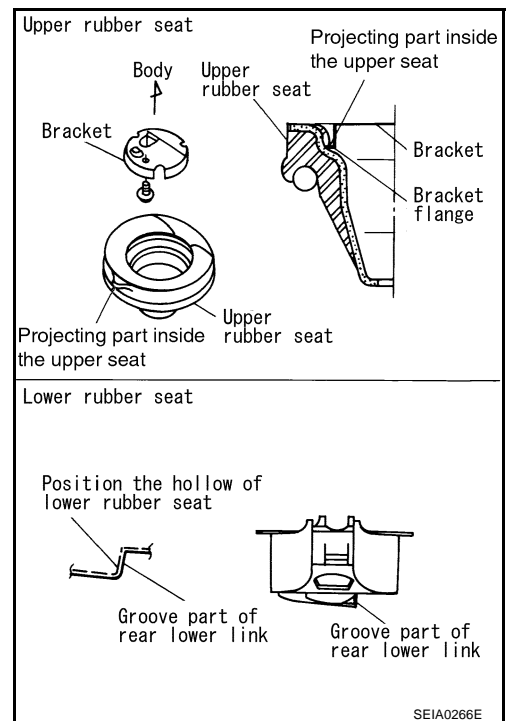
INSTALLATION

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.

CAUTION:

Refer to component parts location and do not reuse non-reusable parts.

- Check that the projecting part inside upper seat and the flange part of bracket are attached as shown in the figure.
- Check that the projection part outside upper seat directs to vehicle front.
- Position the hollow of rubber seat with the groove part of rear lower link to install.
- Install coil spring with the side of 2 paint markers directing to lower side.
- Perform final tightening of rear suspension member and axle installation position (rubber bushing) under unladen condition with tires on level ground. Check wheel alignment. Refer to [RSU-5, "Wheel Alignment Inspection"](#).



STABILIZER BAR

STABILIZER BAR

PPF:54611

Removal and Installation

AES00094

REMOVAL

1. Remove dynamic dampener of exhaust tube. Refer to [EX-3, "EXHAUST SYSTEM"](#)
2. Remove stabilizer connecting rod from stabilizer bar with power tool.
3. Remove mounting bolts of stabilizer clamp and then remove stabilizer clamp and stabilizer bushing from stabilizer bar with power tool.
4. Remove stabilizer bar from vehicle behind.

INSPECTION AFTER REMOVAL

- Check stabilizer bar, stabilizer bushing, stabilizer clamp, stabilizer connecting rod, stabilizer connecting rod mounting bracket for any deformation, crack or damage. Replace if necessary.

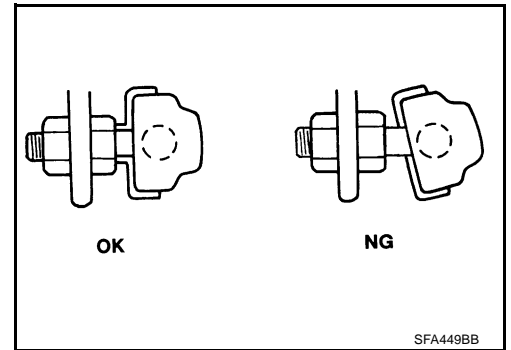
INSTALLATION

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.

CAUTION:

Refer to component parts location and do not reuse non-reusable parts.

- Stabilizer bar uses the pillow ball type connecting rod, position ball joint with case on pillow ball head parallel to stabilizer bar.



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REAR SUSPENSION MEMBER

REAR SUSPENSION MEMBER

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Removal and Installation

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REMOVAL

1. Remove tire with power tool.
2. Remove brake caliper with power tool. Hang it in a place where it will not interfere with work. Refer to [BR-31, "REAR DISC BRAKE"](#).

CAUTION:

Avoid depressing brake pedal while brake caliper is removed.

3. Remove stabilizer bar with power tool. Refer to [RSU-15, "STABILIZER BAR"](#).
4. Remove rear final drive from vehicle. Refer to [RFD-10, "REAR FINAL DRIVE ASSEMBLY"](#).
5. Remove parking brake cable from body and rear suspension member. Refer to [PB-4, "PARKING BRAKE CONTROL"](#).
6. Set jack under rear lower link.
7. Remove fixing bolt and nut in the lower side of shock absorber with power tool.
8. Remove fixing nut in rear suspension member side of suspension arm.
9. Remove rear lower link and coil spring. Refer to [RSU-14, "REAR LOWER LINK & COIL SPRING"](#).
10. Set jack under rear suspension member.
11. Remove fixing bolt in body side of member stay.
12. Remove fixing nuts of rear suspension member with power tool.
13. Slowly jack to remove rear suspension member from vehicle.
14. Remove front lower link from rear suspension member with power tool.
15. Remove radius rod from rear suspension member with power tool.

INSPECTION AFTER REMOVAL

- Check rear suspension member for deformation, cracks, and other damage and replace if necessary.

INSTALLATION

- Refer to [RSU-7, "Components"](#) for tightening torque. Tighten in the reverse order of removal.

CAUTION:

Refer to component parts location and do not reuse non-reusable parts.

- Perform final tightening of installation position of links (rubber bushing) under unladen condition with tires on level ground. Check wheel alignment. Refer to [RSU-5, "Wheel Alignment Inspection"](#).

SERVICE DATA

SERVICE DATA

PPF:00030

Wheel Alignment

AES00096

Camber Degree minute (Decimal degree)	Minimum	- 1°10' (- 1.17°)	
	Nominal	- 0°40' (- 0.67°)	
	Maximum	- 0°10' (- 0.17°)	
	Left and right difference	45' (0.75°) or less	
Total toe-in	Distance (A - B)	Minimum	0 mm (0 in)
		Nominal	2.6 mm (0.12 in)
		Maximum	5.2 mm (0.205 in)
	Angle Degree minute (Decimal degree)	Minimum	0' (0.00°)
		Nominal	7' (0.12°)
		Maximum	14' (0.23°)

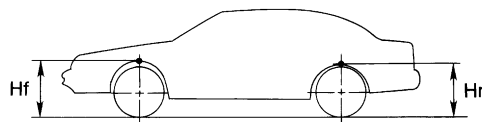
Ball Joint

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Axial end play	0 mm (0 in)
Swing torque	0.5 - 3.4 N·m (0.06 - 0.34 kg·m, 5 - 30 in·lb)
Measurement on spring balance (cotter pinhole position)	7.85 - 54.4 N (0.80 - 5.55 kg, 1.77 - 12.27 lb)
Rotating torque	0.5 - 3.4 N·m (0.06 - 0.34 kg·m, 5 - 30 in·lb)

Wheelarch Height (Unladen*)

AES00098



SFAB18A

Tire	235/45R18 P235/45R18
Front (Hf)	711 mm (27.99 in) [USA model] 712 mm (28.03 in) [Canada model]
Rear (Hr)	706 mm (27.79 in) [USA model] 707 mm (27.83 in) [Canada model]

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

SERVICE DATA
