

SECTION **RSU**
 REAR SUSPENSION

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RSU

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PRECAUTIONS

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SERVICE INFORMATION

PRECAUTIONS

Precaution

INFOID:000000004160555

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

PREPARATION

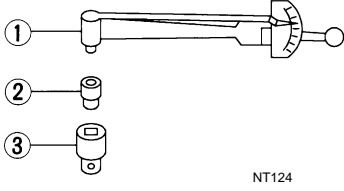
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PREPARATION

Special Service Tool

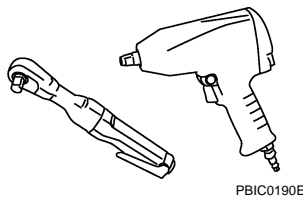
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The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
ST3127S000 (See J-25742-1) Preload Gauge 1. GG91030000 (J-25765) Torque wrench 2. HT62940000 (—) Socket adapter 3. HT62900000 (—) Socket adapter	 <p style="text-align: center;">NT124</p> Measuring rotating torque of ball joint

Commercial Service Tool

INFOID:000000004160557

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

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000004160558

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

Reference page		RSU-7	RSU-9	—	—	—	RSU-7	RSU-5	RSU-16	NVH in PR section.	NVH in RFD section.	NVH in RAX and RSU sections.	NVH in WT section.	NVH in WT section.	NVH in RAX section.	NVH in BR section.	NVH in PS section.		
Possible cause and SUSPECTED PARTS		Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushings or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer bar fatigue	PROPELLER SHAFT	DIFFERENTIAL	REAR AXLE AND REAR SUSPENSION	TIRES	ROAD WHEELS	DRIVE SHAFT	BRAKES	STEERING		
Symptom	REAR SUSPENSION	Noise	x	x	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	x	x	x	x	
		Vibration	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Shimmy	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Judder	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		Poor quality ride or handling	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

x: Applicable

REAR SUSPENSION ASSEMBLY

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REAR SUSPENSION ASSEMBLY

On-Vehicle Inspection

INFOID:000000004160559

Make sure the mounting conditions (looseness, back lash) of each component and component conditions (wear, damage) are normal.

INSPECTION SUSPENSION ARM BALL JOINT AXIAL END PLAY

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

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 malfunction is detected.

Wheel Alignment Inspection

INFOID:000000004160560

DESCRIPTION

Measure wheel alignment under unladen conditions.

NOTE:

“Unladen conditions” means that fuel, engine coolant, and lubricant are full. Spare tire, jack, hand tools and mats in designated positions.

PRELIMINARY INSPECTION

Check the following:

1. Tires for improper air pressure and wear.
2. Road wheels for runout. Refer to [WT-8](#).
3. Wheel bearing axial end play. Refer to [RAX-5, "On-Vehicle Inspection"](#).
4. Ball joint axial end play of suspension arm. Refer to [RSU-5, "On-Vehicle Inspection"](#).
5. Shock absorber operation.
6. Each mounting point of axle and suspension for looseness and deformation.
7. Each of front lower link, rear lower link, radius rod, rear suspension member, suspension arm and shock absorber for cracks, deformation, and other damage.
8. Vehicle height (posture).

GENERAL INFORMATION AND RECOMMENDATIONS

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

THE ALIGNMENT PROCESS

IMPORTANT:

Use only the alignment specifications listed in this Service Manual.

- 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 machine that operate these indicators may not be correct.
- This may result in an ERROR.

REAR SUSPENSION ASSEMBLY

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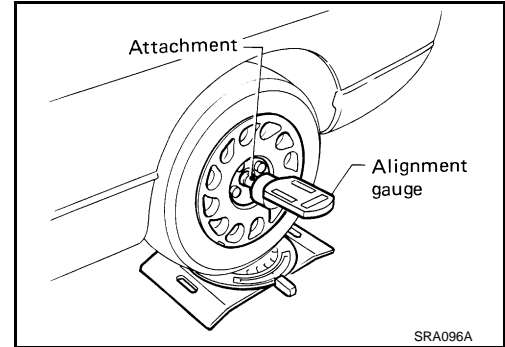
- Some newer alignment machines are equipped with an optional “Rolling Compensation” method to “compensate” the sensors (alignment targets or head units). **Do not use this “Rolling Compensation” method.**
- Use the “Jacking Compensation Method”. After installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.
- See Instructions in the alignment machine you're using for more information on this.

CAMBER INSPECTION

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

Standard value

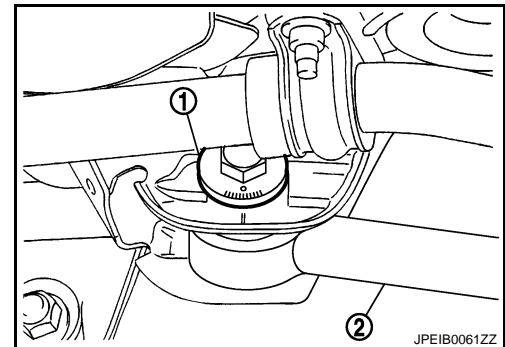
Camber : Refer to [RSU-17](#).



- If outside the standard value, adjust with adjusting bolt (1) in front lower link (2).

NOTE:

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

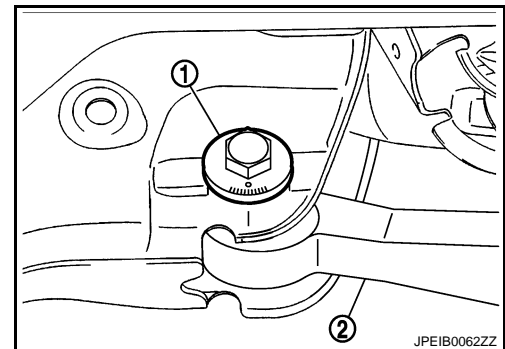


TOE-IN

If toe-in is not within the specification, adjust with adjusting bolt (1) in rear lower link (2).

CAUTION:

Be sure to adjust equally on RH and LH side with adjusting bolt. If toe-in is not still within the specification, inspect and replace any damaged or worn rear suspension parts.



REAR SUSPENSION ASSEMBLY

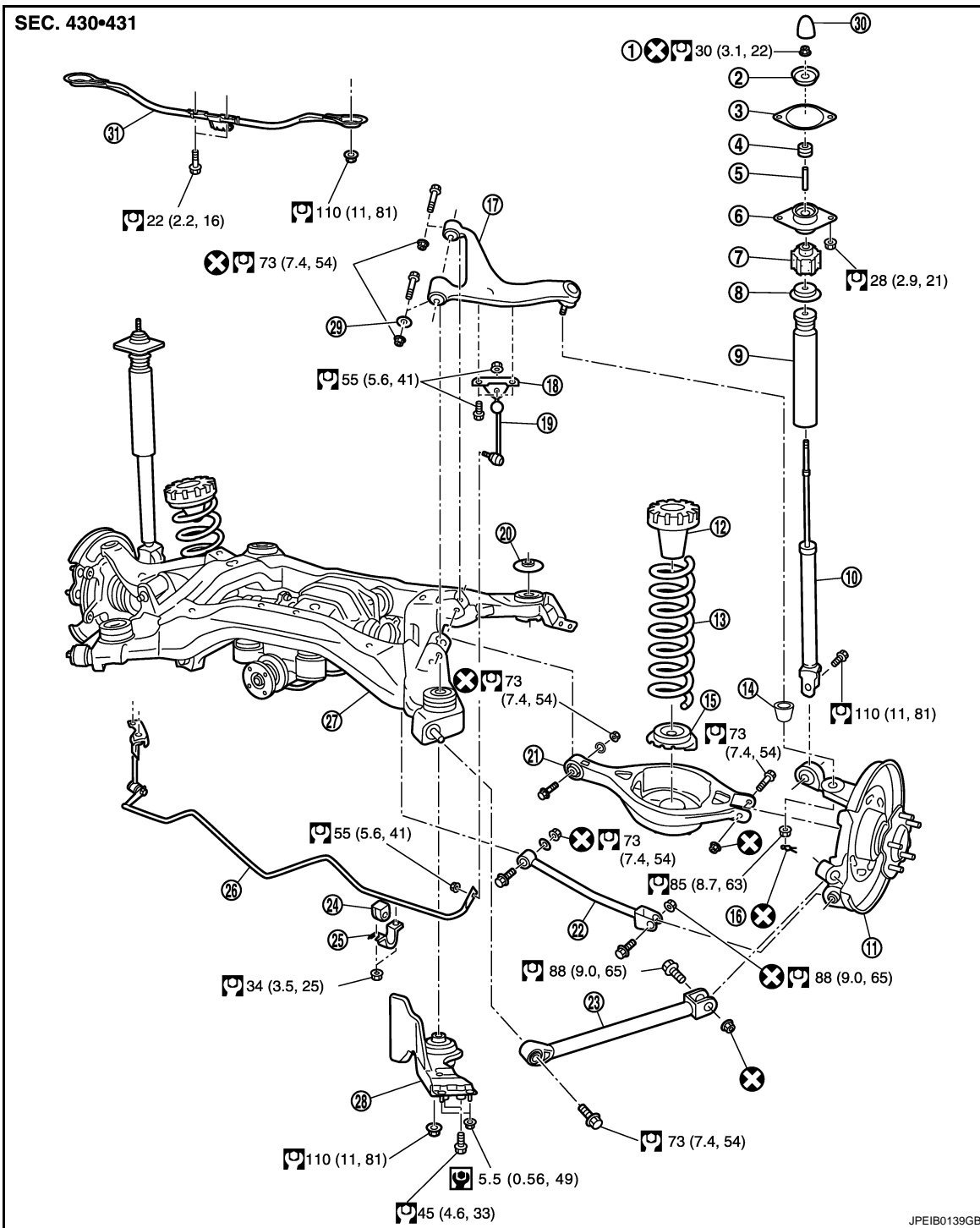
< SERVICE INFORMATION >

Component

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|-------------------------|-----------------------|-------------------------------------|
| 1. Piston rod lock nut | 2. Washer | 3. Mounting seal |
| 4. Bushing (upper side) | 5. Distance tube | 6. Mounting bracket |
| 7. Bushing (lower side) | 8. Bound bumper cover | 9. Bound bumper |
| 10. Shock absorber | 11. Axle assembly | 12. Upper seat |
| 13. Coil spring | 14. Ball seat | 15. Rubber seat |
| 16. Cotter pin | 17. Suspension arm | 18. Connecting rod mounting bracket |
| 19. Connecting rod | 20. Mount stopper | 21. Rear lower link |
| 22. Front lower link | 23. Radius rod | 24. Stabilizer Bushing |

REAR SUSPENSION ASSEMBLY

< SERVICE INFORMATION >

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|----------------------|--------------------|----------------------------|
| 25. Stabilizer Clamp | 26. Stabilizer bar | 27. Rear suspension member |
| 28. Member stay | 29. Stopper rubber | 30. Cap |
| 31. Rear pin stay | | |

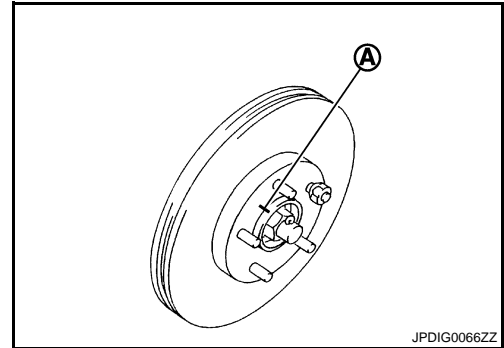
Refer to [GI-9, "Component"](#), for the symbols in the figure.

Removal and Installation

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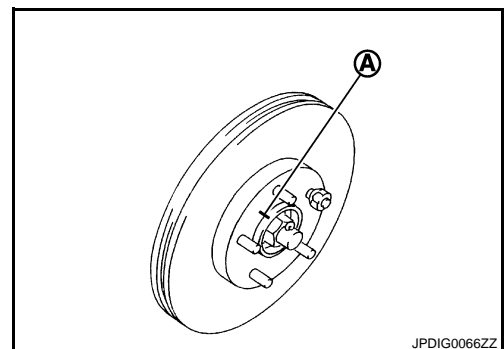
REMOVAL

1. Remove tires with a power tool.
 2. Remove brake caliper with a power tool. Hang it in a place where it will not interfere with work. Refer to [BR-27](#).
- CAUTION:**
Do not depressing brake pedal while brake caliper is removed.
3. Put matching marks (A) on both disc rotor and the wheel hub and bearing assembly, then remove disc rotor.
 4. Remove rear under cover.
 5. Remove wheel sensor from rear final drive.
 6. Remove harness from rear final drive and rear suspension member.
 7. Remove center muffler. Refer to [EX-3](#).
 8. Remove rear propeller shaft. Refer to [PR-8, "Component"](#).
 9. Remove stabilizer bar. Refer to [RSU-16](#).
 10. Remove parking brake cable mounting bolt and separate parking brake cable from vehicle and rear suspension member. Refer to [PB-4](#).
 11. Remove rear lower link and coil spring. Refer to [RSU-15](#).
 12. Remove mounting bolt on lower side of shock absorber. Refer to [RSU-9](#).
 13. Set jack under rear final drive.
 14. Remove member stay from vehicle.
 15. Remove rear pin stay mounting bolts and nuts.
 16. Gradually lowering jack, remove rear pin stay and rear suspension assembly.



INSTALLATION

- Installation is the reverse order of the removal. For tightening torque, refer to [RSU-7, "Component"](#).
- CAUTION:**
Do not reuse non-reusable parts.
- Assemble disc rotor and wheel hub and bearing assembly by aligning each matching mark (A) as shown in the figure when installing disc rotor.
 - Perform the final tightening of each of parts under unladen conditions, which were removed when removing rear suspension assembly. Check the wheel alignment. Refer to [RSU-5, "Wheel Alignment Inspection"](#).
 - Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8, "Adjustment of Steering Angle Sensor Neutral Position"](#).
 - Check for the following after finishing work.
 - Parking brake operation (stroke): Refer to [PB-3, "On-Vehicle Service"](#).
 - Wheel sensor harness for proper connection: Refer to [BRC-59](#).



SHOCK ABSORBER

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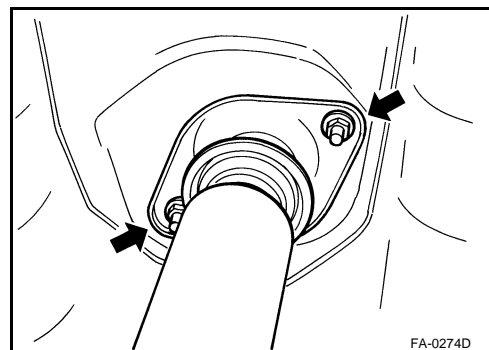
SHOCK ABSORBER

Removal and Installation

INFOID:000000004160563

REMOVAL

1. Remove tires from vehicle with a power tool.
2. Set a jack under rear lower link to relieve the coil spring tension.
3. Remove shock absorber lower end bolt with a power tool.
4. Gradually lower the jack to remove it from rear lower link.
5. Remove shock absorber assembly upper end nuts (←) with a power tool, and then remove shock absorber assembly from vehicle.



INSPECTION AFTER REMOVAL

- Check shock absorber assembly for deformation, cracks, damage, and replace if there are.
- Check welded and sealed areas for oil leakage, and replace if there are.

INSTALLATION

- Installation is the reverse order of removal. For tightening torque. Refer to [RSU-7. "Component"](#).

CAUTION:

Do not reuse non-reusable parts.

- Perform final tightening of shock absorber assembly lower side (rubber bushing) under unladen condition with tires on level ground. Check wheel alignment. Refer to [RSU-5. "Wheel Alignment Inspection"](#).
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8. "Adjustment of Steering Angle Sensor Neutral Position"](#).

Disassembly and Assembly

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DISASSEMBLY

CAUTION:

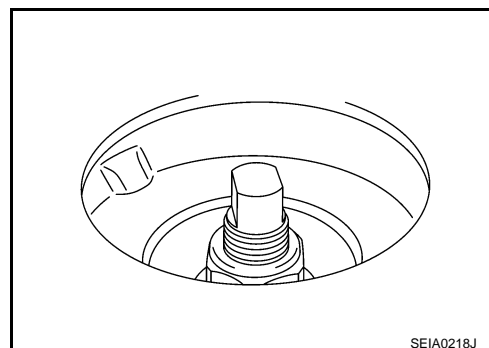
Make sure piston rod on shock absorber is not damaged when removing components from shock absorber.

1. Remove mounting seal from mounting bracket.
2. Wrap a shop cloth around lower side of shock absorber and secure it in a vise.

CAUTION:

Do not set the cylindrical part of shock absorber in a vise.

3. Secure the piston rod tip so that piston rod does not turn, and remove piston rod lock nut.
4. Remove washer, distance tube, bushing, bound bumper cover and bound bumper from shock absorber.



INSPECTION AFTER DISASSEMBLY

Bound Bumper and Bushing

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SHOCK ABSORBER

< SERVICE INFORMATION >

Check bound bumper cover and bushing for cracks and damage. Replace if there are.

Shock Absorber

Check the following:

- Shock absorber for deformation, cracks, and other damage. Replace if there are.
- Piston rod for damage, uneven wear, and distortion. Replace if there are.

ASSEMBLY

- Installation is the reverse order of removal. For tightening torque. Refer to [RSU-7, "Component"](#).

CAUTION:

Do not reuse non-reusable parts.

- Make sure piston rod on shock absorber is not damaged when attaching components to shock absorber.

SUSPENSION ARM

< SERVICE INFORMATION >

SUSPENSION ARM

Removal and Installation

INFOID:000000004160565

REMOVAL

1. Remove tire with a power tool.
2. Set a jack under rear lower link to relieve the coil spring tension.
3. Remove connecting rod mounting bracket from suspension arm with a power tool.
4. Remove mounting nuts and bolts between suspension arm and rear suspension member.
5. Remove cotter pin of suspension arm ball joint, and loosen nut.
6. Use a ball joint remover (suitable tool) to remove suspension arm from axle. Be careful not to damage ball joint boot.

CAUTION:

Tighten temporarily mounting nut to prevent damage to threads and to prevent ball joint remover (suitable tool) from coming off.

7. Remove suspension arm and stopper rubber 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. If a malfunction is detected, replace suspension arm.

Ball Joint Inspection

Manually move ball stud at least ten times by hand to check for smooth movement.

Swing Torque Inspection

- Hook spring balance at cotter pin mounting hole. Confirm spring balance 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 balance:

8.1 - 54.8 N (0.83 - 5.5 kg, 1.82 - 12.32 lb)

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

Rotating Torque Inspection

- Install the mounting nut to ball stud. Make sure that rotating torque is within the specifications with a preload gauge (SST)

Standard value

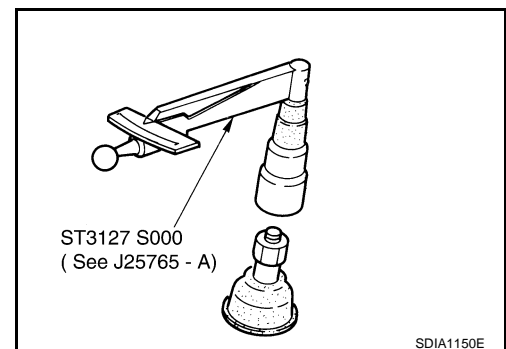
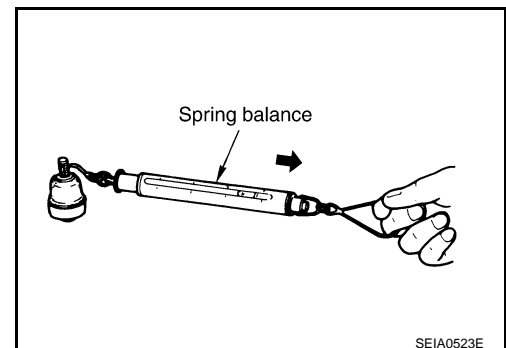
Rotating torque:

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.

Axial End Play Inspection

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



SUSPENSION ARM

< SERVICE INFORMATION >

Standard value

Axial end play : 0 mm (0 in)

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

INSTALLATION

- Installation is the reverse order of removal. For tightening torque. Refer to [RSU-7, "Component"](#).

CAUTION:

Do not reuse non-reusable parts.

- Perform the final tightening of rear suspension member installation position (rubber bushing) under unladen condition with tires on level ground. Refer to [RSU-5, "Wheel Alignment Inspection"](#).
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8, "Adjustment of Steering Angle Sensor Neutral Position"](#).

RADIUS ROD

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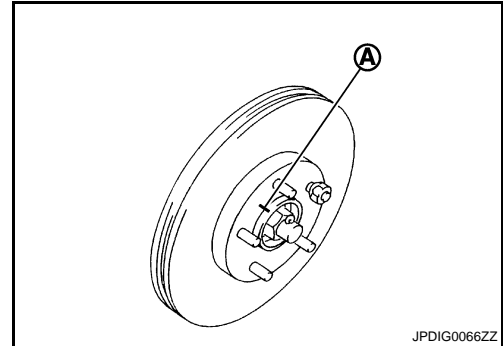
RADIUS ROD

Removal and Installation

INFOID:000000004160566

REMOVAL

1. Remove tire with a power tool.
 2. Remove brake caliper with a power tool. Hang it in a place where it will not interfere with work. Refer to [BR-27](#).
- CAUTION:**
Do not depressing brake pedal while brake caliper is removed.
3. Put matching marks (A) on both disc rotor and the wheel hub and bearing assembly. then remove disc rotor.
 4. Remove rear lower link and coil spring. Refer to [RSU-15](#).
 5. Remove mounting bolt in lower side of shock absorber with a power tool.
 6. Remove mounting bolt and nut in axle side of front lower link with a power tool.
 7. Remove mounting bolt and nut in axle side of radius rod with a power tool.
 8. Remove mounting bolt in rear suspension member side of radius rod with a power tool, then remove radius rod from vehicle.

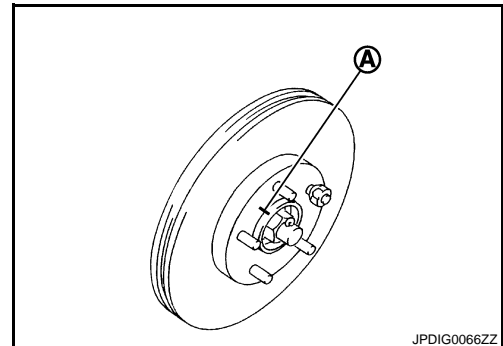


INSPECTION AFTER REMOVAL

Check radius rod and bushing for any deformation, cracks, or damage. Replace if there are.

INSTALLATION

- Installation is the reverse order of removal. For tightening torque. Refer to [RSU-7, "Component"](#).
- CAUTION:**
Do not reuse non-reusable parts.
- Assemble disc rotor and wheel hub and bearing assembly by aligning each matching mark (A) as shown in the figure when installing disc rotor.
 - 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"](#).
 - Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8, "Adjustment of Steering Angle Sensor Neutral Position"](#).



FRONT LOWER LINK

< SERVICE INFORMATION >

FRONT LOWER LINK

Removal and Installation

INFOID:000000004160567

REMOVAL

1. Remove tire with a power tool.
2. Set a jack under rear lower link to relieve the coil spring tension.
3. Remove mounting nut and bolt between front lower link and rear suspension member with a power tool.
4. Remove mounting nut and bolt between front lower link and axle with a power tool.
5. Remove front lower link from vehicle.

INSPECTION AFTER REMOVAL

Check front lower link and bushing for any deformation, cracks, or damage. Replace if there are.

INSTALLATION

- Installation is the reverse order of removal. For tightening torque. Refer to [RSU-7, "Component"](#).

CAUTION:

Do not reuse non-reusable parts.

- Perform the 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"](#).
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8, "Adjustment of Steering Angle Sensor Neutral Position"](#).

REAR LOWER LINK & COIL SPRING

< SERVICE INFORMATION >

REAR LOWER LINK & COIL SPRING

Removal and Installation

INFOID:000000004160568

REMOVAL

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

INSPECTION AFTER REMOVAL

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

INSTALLATION

- Installation is the reverse order of removal. For tightening torque. Refer to [RSU-7, "Component"](#).

CAUTION:

Do not reuse non-reusable parts.

- Make sure that upper seat is attached as shown in the figure.

CAUTION:

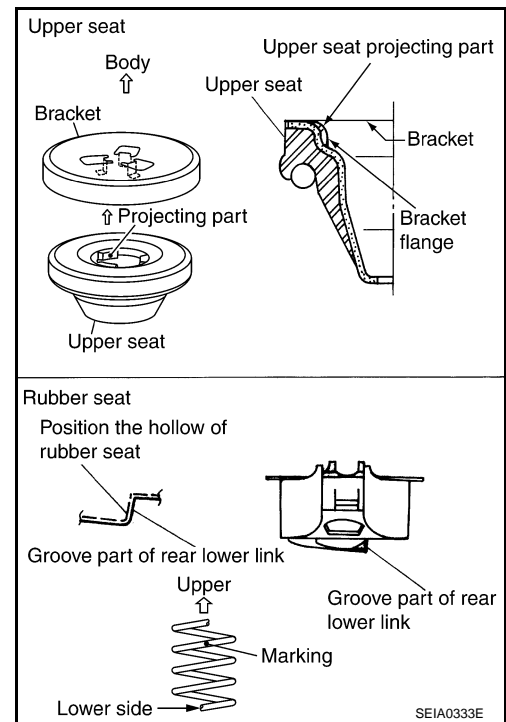
Make sure that the projecting parts (3) on upper seat inside is securely fitted on the bracket tabs (3).

- Match up rubber seat indentions and rear lower link grooves and attach.

CAUTION:

Make sure spring is not up side down. The top and bottom are indicated by paint color.

- Perform the 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"](#).
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8, "Adjustment of Steering Angle Sensor Neutral Position"](#).



STABILIZER BAR

< SERVICE INFORMATION >

STABILIZER BAR

Removal and Installation

INFOID:000000004160569

REMOVAL

1. Remove mounting bracket of center muffler and remove mounting rubber of main muffler. Refer to [EX-3](#).
2. Remove lower side mounting nut on stabilizer connecting rod and remove stabilizer connecting rod from stabilizer bar with power tool.
3. Remove mounting nut on stabilizer clamp and remove stabilizer from vehicle with power tool.

INSPECTION AFTER REMOVAL

Check stabilizer bar, stabilizer bushings, stabilizer clamp, stabilizer connecting rod and stabilizer connecting rod mounting bracket for any deformation, crack or damage. Replace if there are.

INSTALLATION

Installation is the reverse order of removal. For tightening torque. Refer to [RSU-7, "Component"](#).

CAUTION:

Do not reuse non-reusable parts.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE INFORMATION >

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment (Unladen*)

INFOID:000000004160570

Item		Standard		
Axle		2WD		AWD
Tire size		245/45R18	245/40R19	245/45R18
Camber Degree minute (Decimal degree)	Minimum	-1° 10' (-1.16°)	-1° 20' (-1.33°)	-0° 40' (-0.66°)
	Nominal	-0° 40' (-0.67°)	-0° 50' (-0.83°)	-0° 10' (-0.17°)
	Maximum	-0° 10' (-0.17°)	-0° 20' (-0.34°)	0° 20' (0.33°)
Total toe-in	Distance	Minimum	In 0.1 mm (0.004 in)	
		Nominal	In 2.8 mm (0.110 in)	
		Maximum	In 5.5 mm (0.217 in)	
	Angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	0° 00' (0.00°)	
		Nominal	In 0° 07' (0.12°)	
		Maximum	In 0° 14' (0.23°)	

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

Ball Joint

INFOID:000000004160571

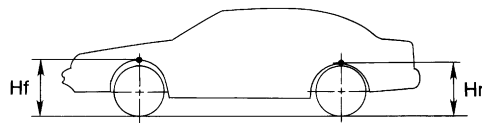
Item	Standard
Axial end play	0 mm (0 in)
Swing torque	0.5 – 3.4 N·m (0.06 – 0.34 kg·m, 5 – 30 in-lb)
Measurement on spring balance (cotter pinhole position)	8.1 – 54.8 N (0.83 – 5.5 kg, 1.82 – 12.32 lb)
Rotating torque	0.5 – 3.4 N·m (0.06 – 0.34 kg·m, 5 – 30 in-lb)

Wheelarch Height (Unladen*)

INFOID:000000004160572

U.S.A. model

Item	Standard		
	2WD		4WD
Applied model			
Tire size	245/45R18	245/40R19	245/45R18
Front (Hf)	717 mm (28.23 in)	721 mm (28.39 in)	731 mm (28.78 in)
Rear (Hr)	710 mm (27.95 in)	711 mm (27.99 in)	725 mm (28.54 in)



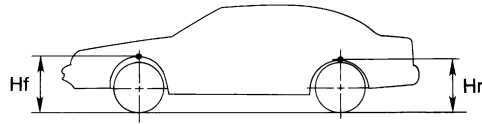
SFA818A

Canada model

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE INFORMATION >

Item	Standard		
	2WD		4WD
Applied model			
Tire size	245/45R18	245/40R19	245/45R18
Front (Hf)	718 mm (28.27 in)	721 mm (28.39 in)	732 mm (28.82 in)
Rear (Hr)	711 mm (27.99 in)	711 mm (27.99 in)	726 mm (28.58 in)



SFA818A