

SECTION **FSU**
FRONT SUSPENSION

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000012601365

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.
- Improper repair, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

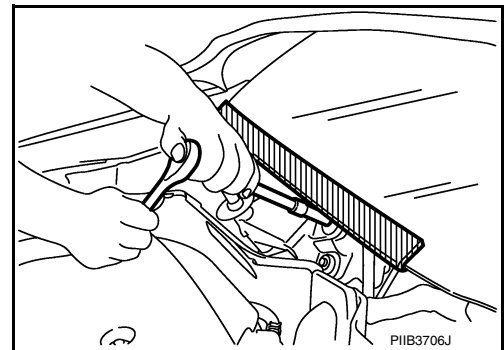
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery or batteries, and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

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When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precautions for Suspension

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- When installing rubber bushings, the final tightening must be carried out under unladen conditions with tires on ground. Spilled oil might shorten the life of rubber bushings. Be sure to wipe off any spilled oil.
- Unladen conditions mean that fuel, engine coolant and lubricants 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 pre-oiled, tighten as they are.

PREPARATION

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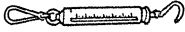
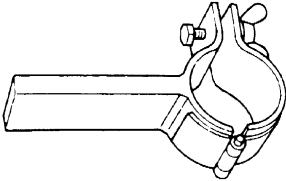
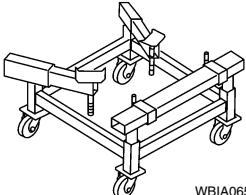
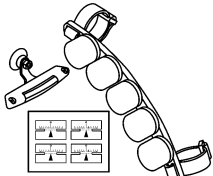
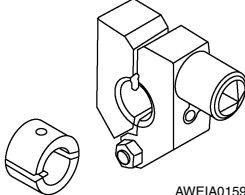
PREPARATION

PREPARATION

Special Service Tool

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The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-44372) Pull gauge  LST024	Measuring steering wheel turning force and ball joint swinging force
ST35652000 (—) Strut attachment  ZZA0807D	Disassembling and assembling strut
KV101J0010 (J-47242) Engine support table  WBIA0658E	Front suspension member removal
— (J-49286) Drift and Pull gauge  AWEIA0156ZZ	Measuring drift and pull
— (J-49029) Strut rod clamp  AWEIA0159ZZ	Securing strut rod

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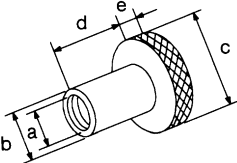
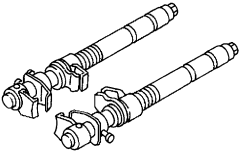
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PREPARATION

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Commercial Service Tool

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Tool name	Description
<p>Power tool</p>  <p>PIIB1407E</p>	<p>Loosening nuts, screws and bolts</p>
<p>Wheel alignment attachment</p>  <p>NT148</p>	<p>Measure wheel alignment</p> <p>a: M24 x 1.5 thread pitch</p> <p>b: 35 mm (1.38 in) dia.</p> <p>c: 65 mm (2.56 in) dia.</p> <p>d: 56 mm (2.20 in) dia.</p> <p>e: 12 mm (0.47 in) dia.</p>
<p>Spring compressor</p>  <p>NT717</p>	<p>Removing and installing coil spring</p>

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000012601370

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

Reference page		FSU-18	—	—	—	—	FSU-18	FSU-6	—	WT-51	WT-51	FAX-5	BR-6	ST-30
Possible cause and SUSPECTED PARTS		Improper installation, looseness	Strut deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer bar fatigue	TIRES	WHEEL	DRIVE SHAFT AND WHEEL HUB	BRAKES	STEERING
Symptom	Noise	x	x	x	x	x	x			x	x	x	x	x
	Shake	x	x	x	x		x			x	x	x	x	x
	Vibration	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
	Poor quality ride or handling	x	x	x	x	x		x	x	x	x			

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FRONT SUSPENSION ASSEMBLY

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection and Adjustment

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INSPECTION

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

LOWER BALL JOINT END PLAY

1. Set front wheels in a straight-ahead position. Do not depress brake pedal.
2. Measure the transverse link ball joint axial end play. Refer to [FSU-10, "Removal and Installation"](#).

CAUTION:

Be careful not to damage ball joint boot. Do not damage the installation position by applying excessive force.

FRONT COIL SPRING AND STRUT

Check for oil leakage, damage and replace if malfunction is detected.

WHEEL ALIGNMENT

Description

Measure wheel alignment under unladen conditions.

NOTE:

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

General Information and Recommendations

- 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 rack itself should be capable of accepting any NISSAN 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.

Preliminary Check

Check the following:

1. Tires for improper air pressure and wear. Refer to [WT-60, "Tire"](#).
2. Road wheels for runout. Refer to [WT-60, "Road Wheel"](#).
3. Wheel bearing axial end play. Refer to [FAX-6, "Inspection"](#).
4. Transverse link ball joint axial end play. Refer to [FSU-10, "Removal and Installation"](#).
5. Front coil spring and strut operation. Refer to [FSU-23, "Inspection"](#).
6. Each mounting part of axle and suspension for looseness and deformation. Refer to [FSU-18, "Exploded View"](#).
7. Suspension member, front coil spring and strut, and transverse link for cracks, deformation and other damage.
8. Vehicle for improper height (posture). Refer to [FSU-25, "Wheelarch Height \(Unladen*¹\)"](#).

Alignment Process

IMPORTANT:

Use only the alignment specifications listed in this Service Manual.

- When displaying the alignment settings, many alignment machines use "indicators" **Do not use these indicators.**: (Green/red, plus or minus, Go/No Go).
- The alignment specifications programmed into your machine that operate these indicators may not be correct.

FRONT SUSPENSION ASSEMBLY

< PERIODIC MAINTENANCE >

- This may result in an ERROR.
- Most camera-type alignment machines are equipped with both "Rolling Compensation" method and optional "Jacking Compensation" method to "compensate" the alignment targets or head units. "Rolling Compensation" is the preferred method.
- If using the "Rolling Compensation" method, after installing the alignment targets or head units, push or pull on the rear wheel to move the vehicle. Do not push or pull the vehicle body.
- If using the "Jacking Compensation" method, after installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.

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NOTE:

- Do not use the "Rolling Compensation" method if you are using sensor-type alignment equipment.
- Follow all instructions for the alignment machine you are using for more information.

ADJUSTMENT

Camber, Caster and Kingpin Inclination Angles

CAUTION:

Camber, caster, kingpin inclination angles cannot be adjusted.

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FRONT COIL SPRING AND STRUT

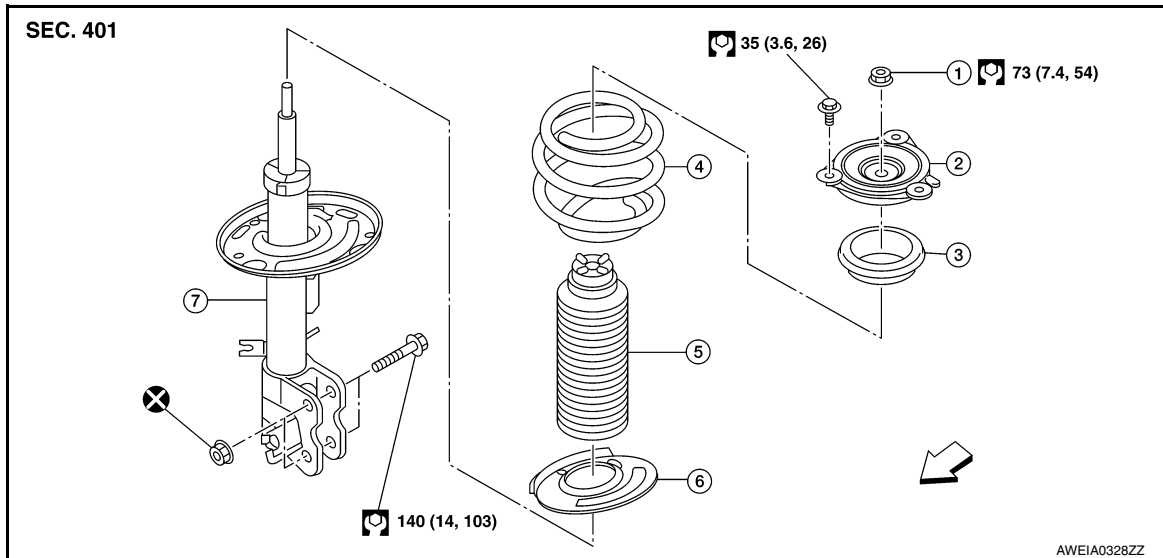
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FRONT COIL SPRING AND STRUT

Exploded View

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- | | | |
|---------------------------|--------------------------|-----------------------------------|
| 1. Piston rod lock nut | 2. Strut mount insulator | 3. Strut mount bearing |
| 4. Front spring | 5. Bound bumper | 6. Front spring lower rubber seat |
| 7. Front suspension strut | ⇐ Front | |

Removal and Installation

INFOID:000000012601373

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-52, "Inspection"](#).
2. Remove brake hose lock plate and brake hose from front coil spring and strut.
3. Remove stabilizer bar connecting rod end from front coil spring and strut. Refer to [FSU-18, "Exploded View"](#).
4. Remove wheel sensor harness from front coil spring and strut.
5. Remove the lower strut nuts and bolts.
6. Remove bolts on strut tower.
7. Remove front coil spring and strut from vehicle.
 - To disassemble the front coil spring and strut, refer to [FSU-21, "Disassembly and Assembly"](#).

INSTALLATION

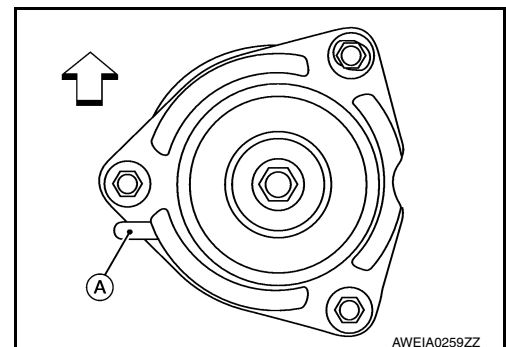
Installation is in the reverse order of removal.

CAUTION:

Do not reuse the lower strut nuts.

- Be sure that the tab (A) on the strut mount insulator is positioned on the outboard side of the vehicle.

- (A) :Tab
⇐ :Front



FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

- Check wheel alignment. Refer to [FSU-6. "Inspection and Adjustment"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-64. "Description"](#).

Disposal

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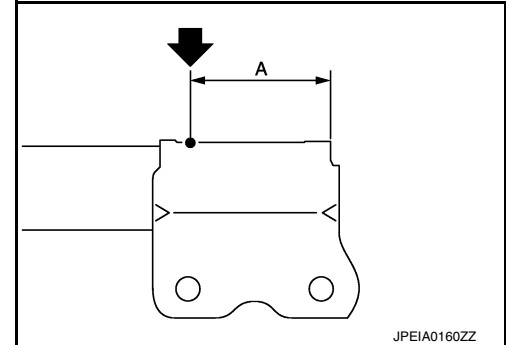
1. Set front suspension strut horizontally with the piston rod fully extended.
2. Drill 2 – 3 mm (0.08 – 0.12 in) hole at the position (●) from top as shown to release gas gradually.

CAUTION:

- **Wear eye protection (safety glasses).**
- **Wear gloves.**
- **Be careful with metal chips or oil blown out by the compressed gas.**

NOTE:

- Drill vertically in this direction (◄) directly to the outer tube avoiding brackets.
- The gas is clear, colorless, odorless, and harmless.



(A) : 20 – 30 mm (0.79 – 1.18 in)

3. Position the drilled hole downward and drain oil by moving the piston rod several times.

CAUTION:

Dispose of drained oil according to the law and local regulations.

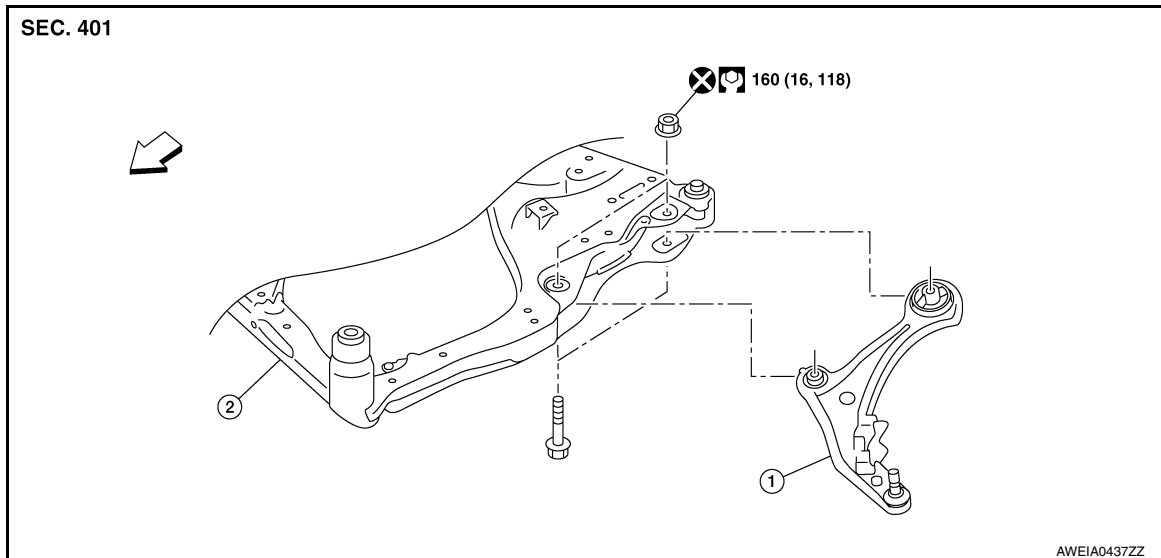
TRANSVERSE LINK

< REMOVAL AND INSTALLATION >

TRANSVERSE LINK

Exploded View

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1. Transverse link

2. Front suspension member

← Front

Removal and Installation

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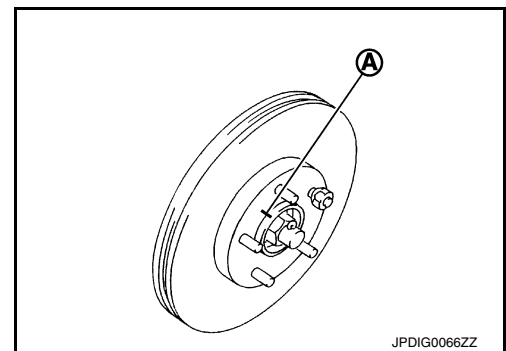
REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-54, "Adjustment"](#).
2. Remove brake caliper torque member bolts, leaving brake hose attached to the brake caliper. Position the brake caliper aside with wire. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

CAUTION:

- Do not depress brake pedal while brake caliper is removed.
- Do not twist or stretch the brake hose.

3. Put alignment marks (A) on the disc brake rotor and on the rear wheel hub and bearing, then remove the disc brake rotor.

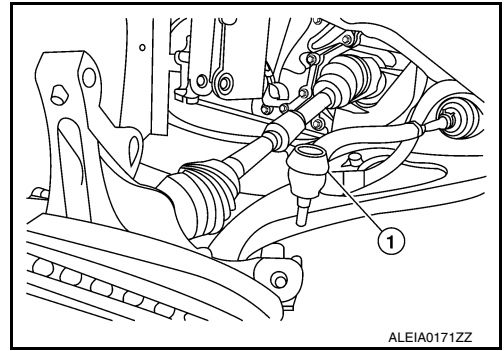


4. Remove wheel sensor and wheel sensor harness from strut. Refer to [BRC-165, "Exploded View - Front Wheel Sensor"](#).
5. Disengage the drive shaft from wheel hub and bearing. Refer to [FAX-10, "Removal and Installation \(LH\)"](#) (LH Side), [FAX-13, "Removal and Installation \(RH\)"](#) (RH Side).

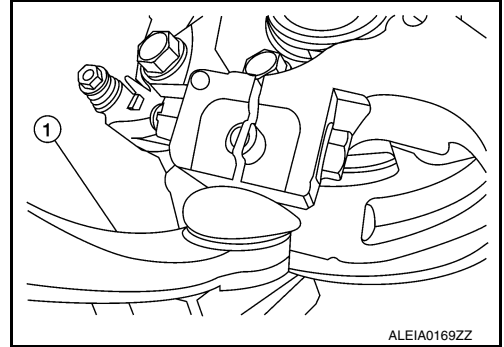
TRANSVERSE LINK

< REMOVAL AND INSTALLATION >

6. Separate the outer socket from the knuckle (1). Refer to [ST-37, "Exploded View"](#).

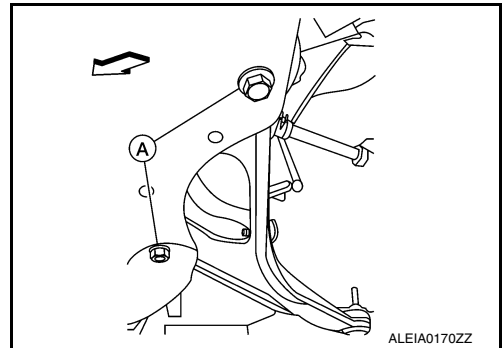


7. Remove the strut from the knuckle using power tool. Refer to [FSU-18, "Exploded View"](#).
8. Remove transverse link bolt and nut. Separate transverse link (1) from steering knuckle.



9. Remove the steering knuckle and hub.
10. Remove transverse link bolts (A) and the transverse link from suspension member.

⇐ :Front



INSPECTION AFTER REMOVAL

Ball Joint Inspection

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

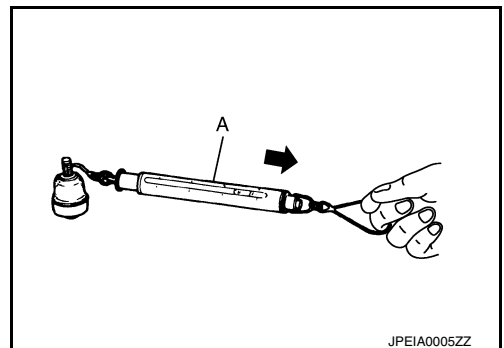
Swinging Torque Inspection

1. Move ball stud at least ten times by hand to check for smooth movement.
2. Hook a tool (A) at pinch bolt location. Confirm measurement value is within specifications when ball stud begins moving.

Tool number : — (J-44372)

Swinging torque :Refer to [FSU-25, "Ball Joint"](#).

- If swinging torque exceeds standard range, replace transverse link.



Rotating Torque Inspection

1. Move ball stud at least ten times by hand to check for smooth movement.
2. Confirm measurement value is within specifications when the ball stud begins rotating.

TRANSVERSE LINK

< REMOVAL AND INSTALLATION >

Rotating torque :Refer to [FSU-25, "Ball Joint"](#).

- If the rotating torque exceeds the standard range, replace transverse link.

Axial End Play Inspection

1. Move ball stud at least ten times by hand to check for smooth movement.
2. Move tip of ball stud in axial direction to check for looseness.

Axial end play :Refer to [FSU-25, "Ball Joint"](#).

- If axial end play exceeds the standard value, replace transverse link.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse the transverse link nuts at the front suspension member.

- Perform final tightening of bolts and nuts at the front suspension member, under unladen conditions with tires on level ground.
- Check wheel alignment. Refer to [FSU-6, "Inspection and Adjustment"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-64, "Description"](#).

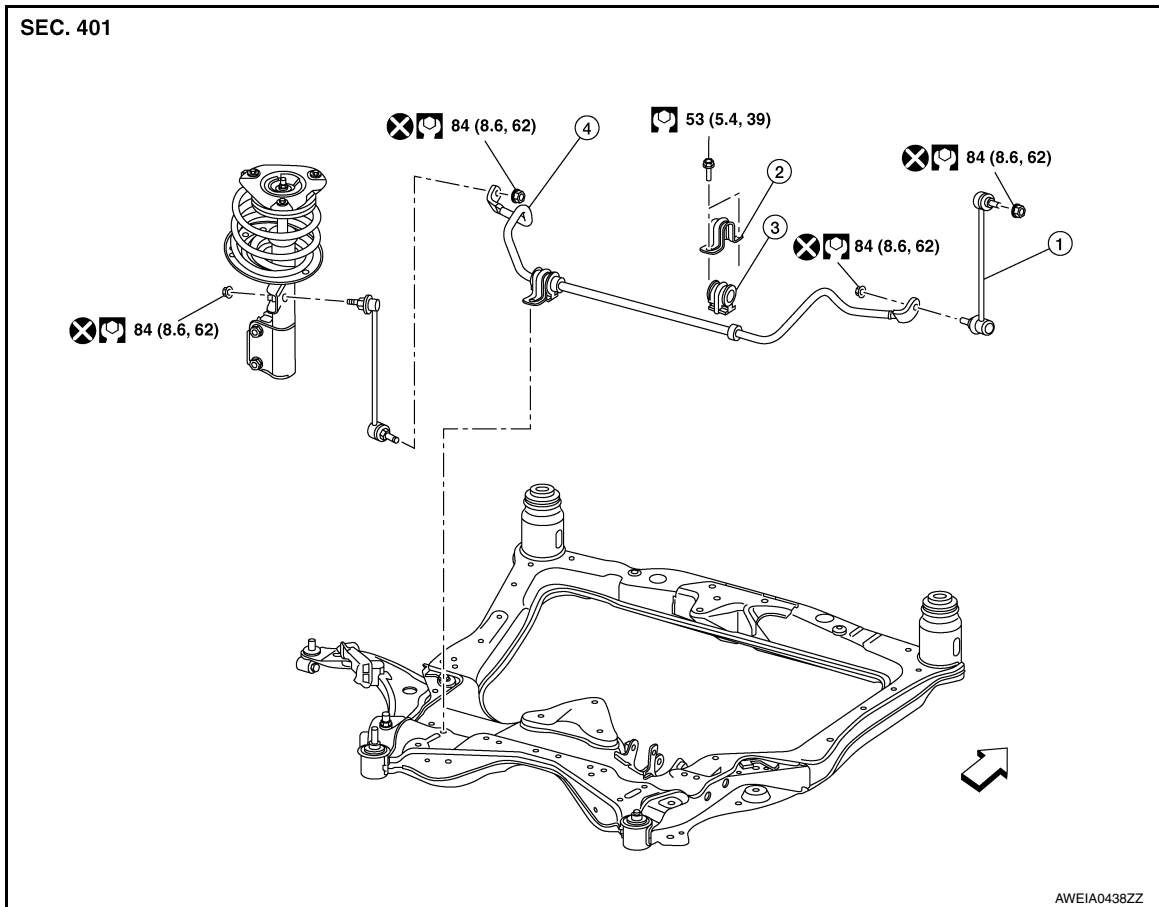
FRONT STABILIZER

< REMOVAL AND INSTALLATION >

FRONT STABILIZER

Exploded View

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- 1. Stabilizer connecting rod
- 4. Stabilizer bar

- 2. Stabilizer clamp
- ← Front

- 3. Stabilizer bushing

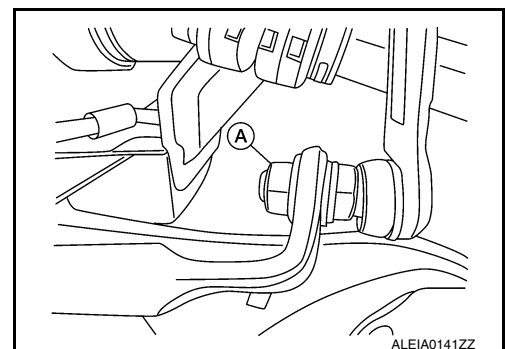
Removal and Installation

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Removal

1. Remove the front wheel and tire using power tool. Refer to [WT-60. "Road Wheel"](#).
2. Remove each stabilizer connecting rod nut (A) at the stabilizer bar.



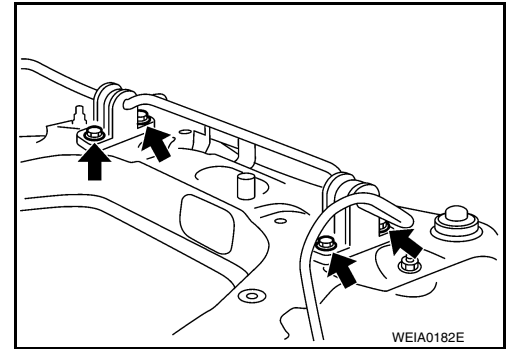
3. Separate the outer sockets from each knuckle. Refer to [ST-37. "Exploded View"](#).
4. Disconnect the oxygen sensor harness connector.
5. Remove the front exhaust tube. Refer to [EX-5. "Exploded View"](#).

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FRONT STABILIZER

< REMOVAL AND INSTALLATION >

6. Position the steering gear aside. Refer to [ST-37, "Exploded View"](#).
 - Disconnect the steering gear from steering column.
 - Remove the steering gear support bracket on the RH side.
 - Remove the steering gear bolts.
7. Remove bolts (←) from each stabilizer clamp.



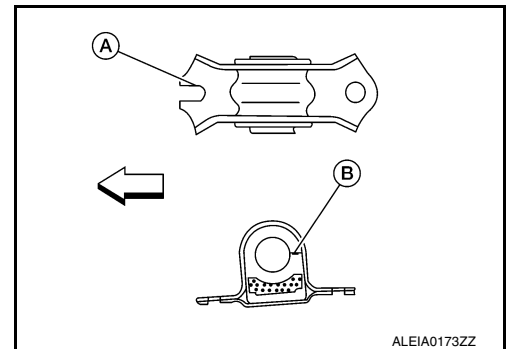
8. Remove stabilizer clamps and stabilizer bushings from front suspension member.
9. Remove stabilizer from the vehicle.

Installation

Installation is in the reverse order of removal.

- Install stabilizer clamp so that notch (A) is facing front of vehicle.
- Install stabilizer bushing so that slit (B) is facing rear of vehicle.

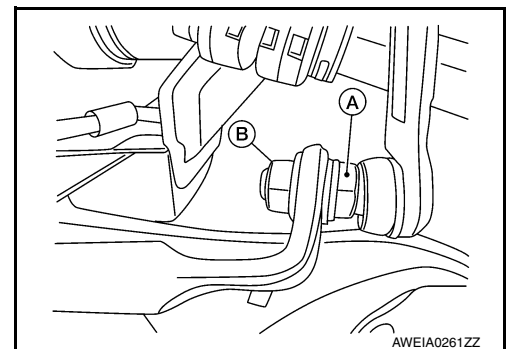
← :Front



- While holding the stabilizer connecting rod (A), install the stabilizer connecting rod nut (B) and tighten to specification. Refer to [FSU-13, "Exploded View"](#).

CAUTION:

Do not reuse stabilizer connecting rod nuts.



- Check toe in measurement. Refer to [FSU-6, "Inspection and Adjustment"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-64, "Description"](#).

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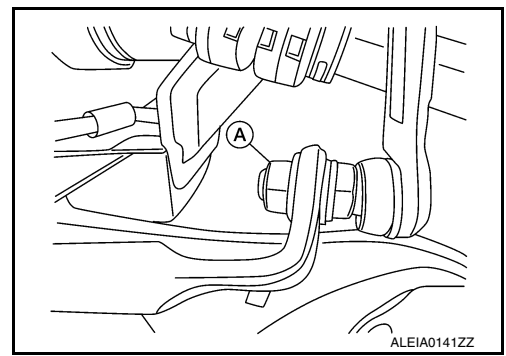
Removal

1. Remove the wheel and tire using power tool. Refer to [WT-60, "Road Wheel"](#).

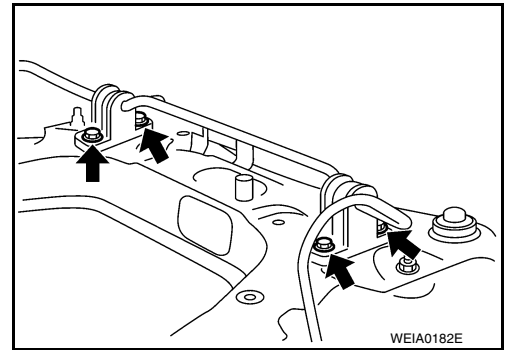
FRONT STABILIZER

< REMOVAL AND INSTALLATION >

- Remove each stabilizer connecting rod nut (A) at the stabilizer bar.



- Remove power steering gear. Refer to [ST-37, "Exploded View"](#).
- Remove front exhaust tube. Refer to [EX-10, "Exploded View"](#).
- Remove bolts (←) of stabilizer clamp, and then remove stabilizer clamp and stabilizer bushing from front suspension member.



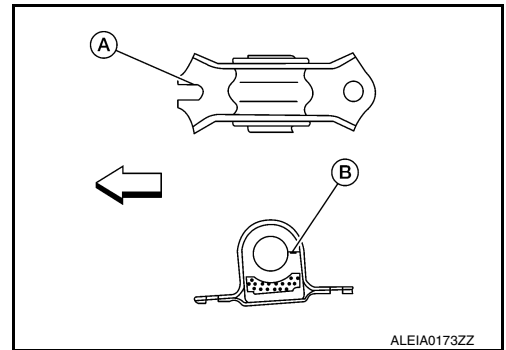
- Remove stabilizer from the vehicle.

Installation

Installation is in the reverse order of removal.

- Install stabilizer clamp so that notch (A) is facing front of vehicle.
- Install stabilizer bushing so that slit (B) is facing rear of vehicle.

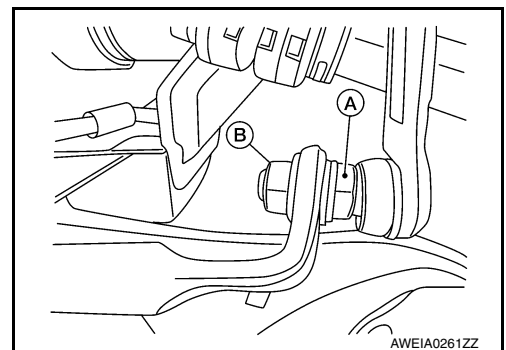
← :Front



- While holding the stabilizer connecting rod (A), install the stabilizer connecting rod nut (B) and tighten to specification. Refer to [FSU-13, "Exploded View"](#).

CAUTION:

Do not reuse stabilizer connecting rod nuts.



- Check toe in measurement. Refer to [FSU-6, "Inspection and Adjustment"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-64, "Description"](#).

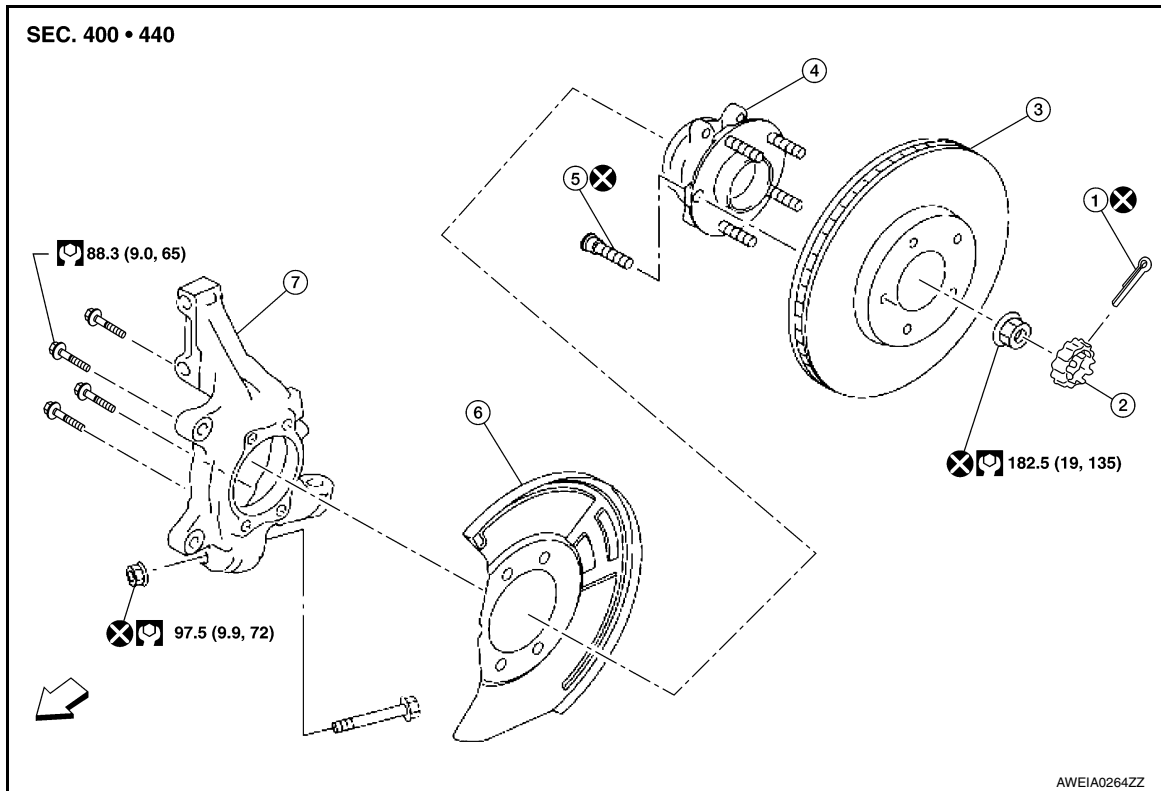
STEERING KNUCKLE

< REMOVAL AND INSTALLATION >

STEERING KNUCKLE

Exploded View

INFOID:000000012601379



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|-----------------------------------|-------------------|-----------------|
| 1. Cotter pin | 2. Nut retainer | 3. Rotor |
| 4. Wheel hub and bearing assembly | 5. Wheel hub bolt | 6. Splash guard |
| 7. Steering knuckle | ↔ Front | |

Removal and Installation

INFOID:000000012601380

REMOVAL

1. Remove the splash guard and the wheel hub and bearing from the steering knuckle. Refer to [FAX-8, "Removal and Installation"](#).
2. Remove the outer socket from steering knuckle. Refer to [ST-37, "Exploded View"](#).
3. Remove the front strut bolt at steering knuckle. Refer to [FSU-8, "Exploded View"](#).
4. Remove transverse link bolt and nut. Separate transverse link from steering knuckle.
5. Remove steering knuckle.

INSTALLATION

Installation is in the reverse order of removal.

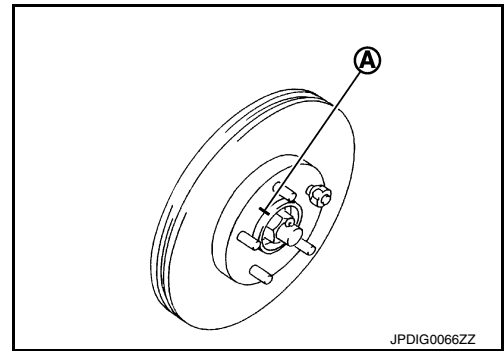
CAUTION:

- Do not reuse the transverse link nut.
- Do not reuse the cotter pin.
- Do not reuse the wheel hub lock nut.
- Do not use a power tool to tighten the wheel hub lock nut.
- When installing wheel hub and bearing to steering knuckle, align cutout in sensor rotor cover with wheel sensor mounting hole in steering knuckle.

STEERING KNUCKLE

< REMOVAL AND INSTALLATION >

- Align the marks (A) made on the disc brake rotor and on the wheel hub and bearing.
- Do not apply lubricating oil to the mating surface.
- Check wheel alignment. Refer to [FSU-6. "Inspection and Adjustment"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-64. "Description"](#).



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FRONT SUSPENSION ASSEMBLY

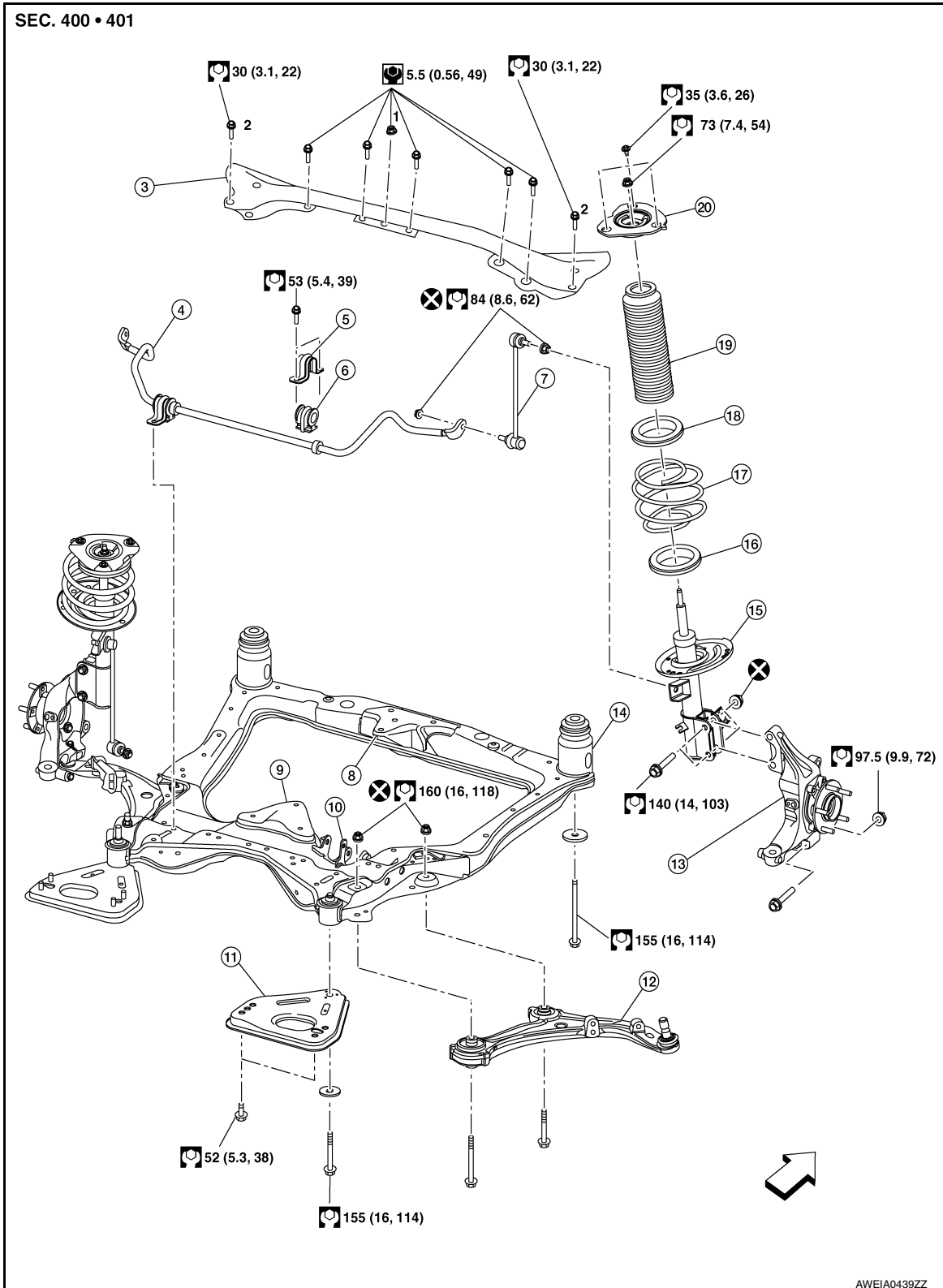
< UNIT REMOVAL AND INSTALLATION >

UNIT REMOVAL AND INSTALLATION

FRONT SUSPENSION ASSEMBLY

Exploded View

INFOID:000000012601381



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FRONT SUSPENSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

- | | | |
|---|------------------------------|------------------------------------|
| 1-2. Tightening order for nut and bolts | 3. Strut tower bar | 4. Stabilizer bar |
| 5. Stabilizer clamp | 6. Stabilizer bushing | 7. Stabilizer connecting rod |
| 8. VQ35DE front mount bracket | 9. VQ35DE rear mount bracket | 10. QR25DE mount bracket |
| 11. Front suspension member stay | 12. Transverse link | 13. Steering knuckle |
| 14. Front suspension member | 15. Front suspension strut | 16. Front spring lower rubber seat |
| 17. Front spring | 18. Strut mount bearing | 19. Bound bumper |
| 20. Strut mount insulator | ⇐ Front | |

Removal and Installation

INFOID:000000012601382

QR25DE ENGINE

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-54, "Adjustment"](#).
2. Remove brake caliper torque member bolts using power tool, leaving each brake caliper hydraulic hose attached to each brake caliper. Position each brake caliper aside with wire. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

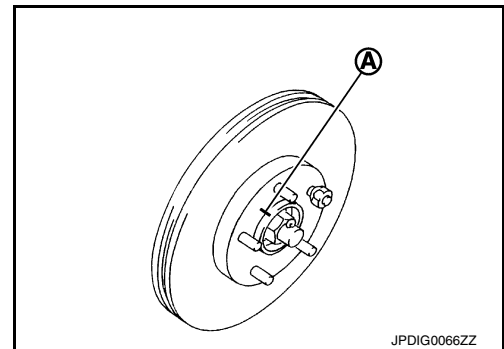
CAUTION:

- Do not depress brake pedal while brake caliper is removed.
- Do not twist or stretch the brake hose.

3. Put alignment marks (A) on each disc brake rotor and each wheel hub and bearing.
4. Remove each disc brake rotor.

CAUTION:

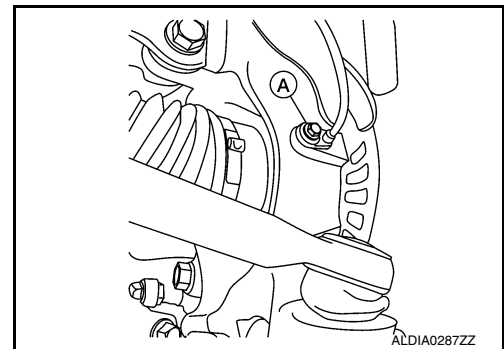
Do not drop the disc brake rotor.



5. Remove each wheel sensor bolt (A) and each wheel sensor from each steering knuckle. Refer to [BRC-165, "Removal and Installation - Front Wheel Sensor"](#).

CAUTION:

Do not pull on wheel sensor harness.



6. Remove stabilizer connecting rods from stabilizer bar.
7. Remove front exhaust tube. Refer to [EX-5, "Exploded View"](#).
8. Remove steering gear bolts. Remove steering gear from the front suspension member and support the steering gear with wire. Refer to [ST-37, "Exploded View"](#).
9. Remove front under cover. Refer to [EXT-38, "FRONT UNDER COVER : Removal and Installation"](#).
10. Remove the transverse link bolts and nuts at each steering knuckle. Separate each transverse link from each steering knuckle.
11. Remove rear engine mount torque rod bolt and rear torque rod insulator bracket, then remove support bracket. Refer to [EM-84, "Exploded View"](#).
12. Position the power steering lines aside and remove the power steering line clips.
13. Set Tool under the front suspension member, and remove the front suspension member bolts. Slowly lower Tool to remove the front suspension member from the vehicle

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FRONT SUSPENSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

Tool number : KV101J0010 (J-47242)

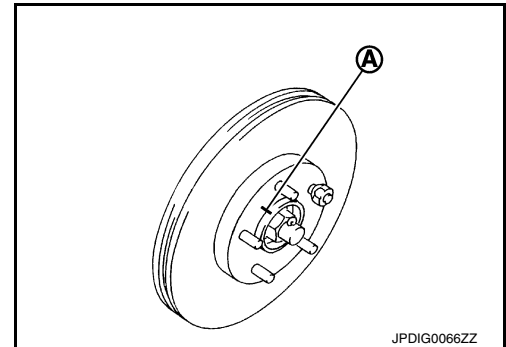
14. If replacing the front suspension member, perform the following procedures:
- Remove the transverse links from the front suspension member.
 - Remove the stabilizer bar, the stabilizer clamps, and the stabilizer bushings as an assembly from the front suspension member.
 - Remove the front suspension member stays from the front suspension member.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Do not reuse the transverse link nuts.**
- **Do not reuse the stabilizer connecting rod nuts.**
- When installing wheel hub and bearing to steering knuckle, align cutout in sensor rotor cover with wheel sensor mounting hole in steering knuckle.
- Align the marks (A) made on the disc brake rotor and each front wheel hub and bearing.
- Perform final tightening of each part under unladen conditions with tires on ground. Refer to [FSU-18, "Exploded View"](#).
- Check wheel alignment. Refer to [FSU-6, "Inspection and Adjustment"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-64, "Description"](#).



VQ35DE ENGINE

REMOVAL

Engine, transmission and suspension member must be removed as an assembly. Refer to [EM-226, "Exploded View"](#).

If replacing the front suspension member, perform the following procedures:

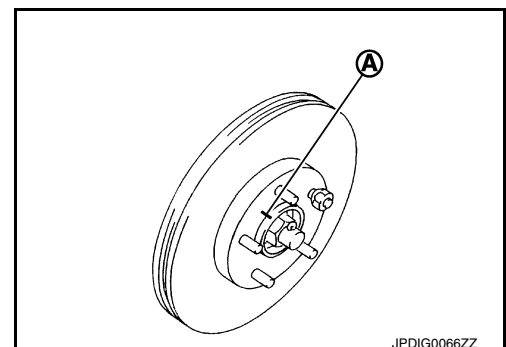
- Lift the engine and transmission off of the front suspension member.
- Remove the transverse links from the front suspension member.
- Remove the stabilizer bar, the stabilizer clamps, the stabilizer bushings, and the stabilizer connections rods as an assembly from the front suspension member.
- Remove the front suspension member stays from the front suspension member.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Do not reuse the transverse link nuts.**
- **Do not reuse the stabilizer connecting rod nuts.**
- When installing wheel hub and bearing to steering knuckle, align cutout in sensor rotor cover with wheel sensor mounting hole in steering knuckle.
- Align the marks (A) made on the disc brake rotor and each front wheel hub and bearing.
- Perform final tightening of each part under unladen conditions with tires on ground. Refer to [FSU-18, "Exploded View"](#).
- Check wheel alignment. Refer to [FSU-6, "Inspection and Adjustment"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-64, "Description"](#).



FRONT COIL SPRING AND STRUT

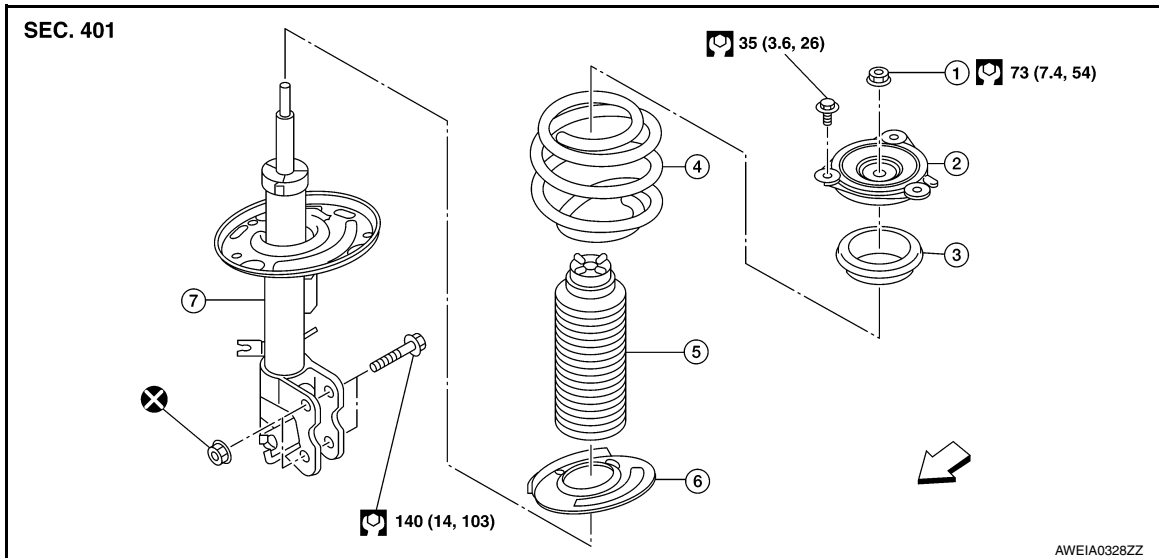
< UNIT DISASSEMBLY AND ASSEMBLY >

UNIT DISASSEMBLY AND ASSEMBLY

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:000000012601383



- | | | |
|---------------------------|--------------------------|-----------------------------------|
| 1. Piston rod lock nut | 2. Strut mount insulator | 3. Strut mount bearing |
| 4. Front spring | 5. Bound bumper | 6. Front spring lower rubber seat |
| 7. Front suspension strut | ↔ Front | |

Disassembly and Assembly

INFOID:000000012601384

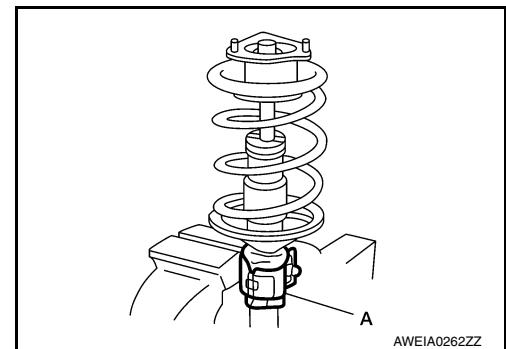
DISASSEMBLY

1. Install Tool (A) to the front suspension strut.

Tool number (A) : ST35652000 (—)

CAUTION:

When installing Tool, wrap a shop cloth around front suspension strut to protect it from damage.



2. Secure tool (A) in a vise.
3. Install Tool to the strut rod.

Tool number : — (J-49029)

4. Slightly loosen the piston rod lock nut.

WARNING:

Do not remove the piston rod lock nut completely. If the piston rod lock nut is removed completely, the front spring can jump out and may cause serious damage or injury.

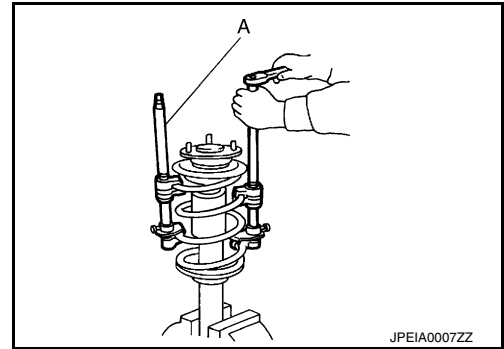
FRONT COIL SPRING AND STRUT

< UNIT DISASSEMBLY AND ASSEMBLY >

5. Compress the front spring using a suitable tool (A).

WARNING:

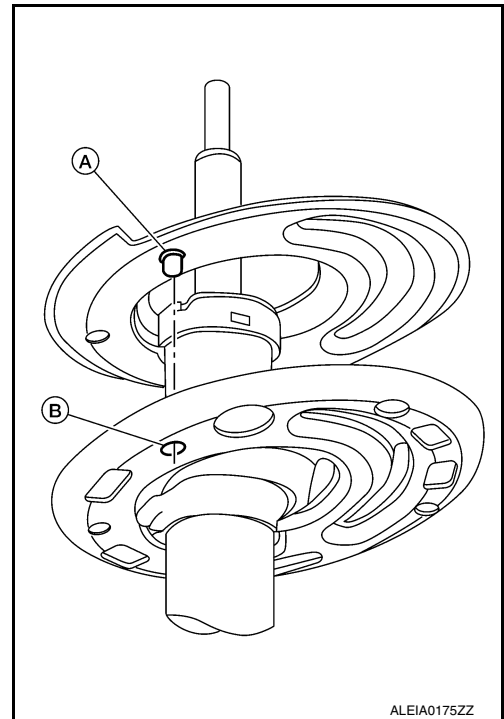
Make sure that the pawls of the suitable tool are firmly hooked on the front spring. The suitable tool must be tightened alternately so as not to tilt the front spring.



6. Make sure the front spring is free between the strut mount bearing and the front spring lower rubber seat, then remove the piston rod lock nut.
7. Remove the strut mount insulator and the strut mount bearing.
8. Remove the bound bumper.
9. Gradually release the suitable tool, and remove the front spring.
10. Remove the front spring lower rubber seat.

ASSEMBLY

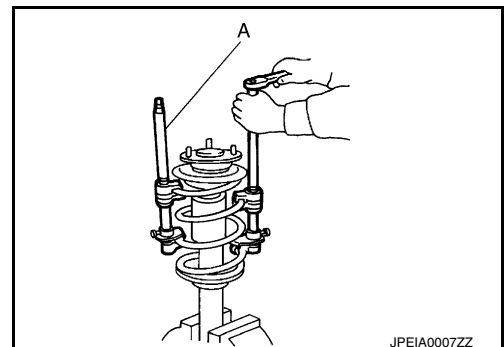
1. Install the front spring lower rubber seat to the front suspension strut. Make sure that the pin (A) on the front spring lower rubber seat is positioned into the hole (B) on the front suspension strut.



2. Compress the front spring using a suitable tool (A), and install the front spring onto the front suspension strut.

WARNING:

Make sure that the pawls of the suitable tool are firmly hooked on the front spring. The suitable tool must be tightened alternately so as not to tilt the front spring.



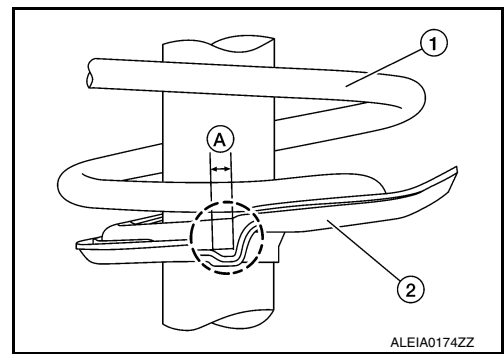
CAUTION:

FRONT COIL SPRING AND STRUT

< UNIT DISASSEMBLY AND ASSEMBLY >

Face the tube side of the front spring (1) downward. Align the lower end of the front spring to the front spring lower rubber seat (2).

Maximum Gap (A) : 5 mm (0.20 in)



3. Install the bound bumper.

CAUTION:

- Be sure to install the bound bumper securely.
- When installing the bound bumper, use soapy water. Do not use machine oil or other lubricants.

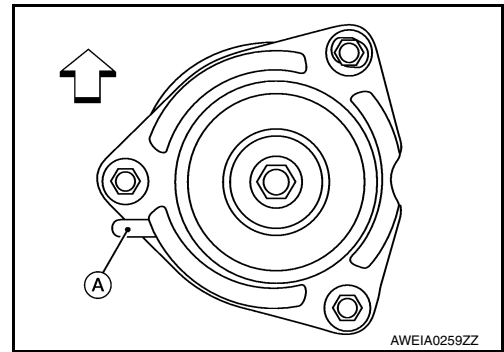
4. Install the strut mount bearing and the strut mount insulator to the front suspension strut. Temporarily install the piston rod lock nut.

CAUTION:

Do not reuse the piston rod lock nut.

5. Be sure that the tab (A) on the strut mount insulator is positioned on the outboard side of the vehicle.

← :Front



6. Be sure the front spring is properly set in the front spring lower rubber seat. Gradually release the suitable tool.

CAUTION:

Be sure the strut mount bearing and the front spring lower rubber seat are properly aligned to the front spring.

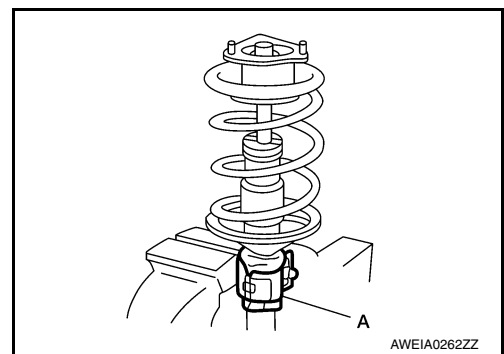
7. Tighten the piston rod lock nut to the specified torque. Refer to [FSU-18. "Exploded View"](#).
8. Remove Tool from the strut rod.

Tool number : — (J-49029)

9. Remove Tool (A) from vise.

Tool number (A) : ST35652000 (—)

10. Remove Tool (A) from front suspension strut.



Inspection

INSPECTION AFTER DISASSEMBLY

Front Suspension Strut

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FRONT COIL SPRING AND STRUT

< UNIT DISASSEMBLY AND ASSEMBLY >

- Check front suspension strut for deformation, cracks, and damage. Replace if necessary.
- Check piston rod for damage, uneven wear, and distortion. Replace if necessary.
- Check welded and sealed areas for oil leaks. Replace if necessary.

Strut Mount Insulator, Strut Mount Bearing, and Front Spring Lower Rubber Seat

Check strut mount insulator for cracks. Check strut mount bearing and front spring lower rubber seat for wear. Replace if necessary.

Front Spring

Check front spring for cracks, wear, and damage. Replace if necessary.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

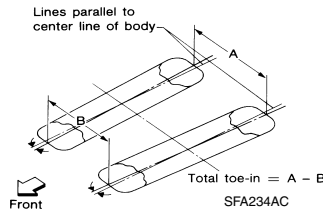
SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment (Unladen*1)

INFOID:0000000012601386

Engine type		QR25DE		VQ35DE
Tire size		215/60R16	215/55R17	235/45R18
Camber Degree minute (Decimal degree)	Minimum	-1° 05' (-1.08°)		
	Nominal	-0° 20' (-0.33°)		
	Maximum	0° 25' (0.42°)		
	Difference (LH - RH)	0°± 0.33' (0°± 0.55°)		
Caster *2 Degree minute (Decimal degree)	Minimum	4° 10' (4.17°)		
	Nominal	4° 55' (4.92°)		
	Maximum	5° 40' (5.67°)		
Kingpin inclination Degree minute (Decimal degree)	Minimum	13° 35' (13.58°)	13° 40' (13.67°)	
	Nominal	14° 20' (14.33°)	14° 25' (14.42°)	
	Maximum	15° 05' (15.08°)	15° 10' (15.17°)	



Total toe-in	Distance (A - B)	Minimum	Out 1.1 mm (Out 0.04 in)
		Nominal	In 0.8 mm (In 0.03 in)
		Maximum	In 2.7 mm (In 0.11 in)
	Angle (LH and RH) Degree minute (Decimal degree)	Minimum	Out 0° 05' 24" (Out 0.09°)
		Nominal	In 0° 4' 12" (In 0.07°)
		Maximum	In 0° 13' 48" (In 0.23°)
Wheel turning angle		Refer to ST-47. "Steering Angle" .	

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

*2: For the caster angle, the difference between right and left against the ground surface shall be $\pm 0^\circ 30'$ ($\pm 0.50^\circ$) maximum.

Ball Joint

INFOID:0000000012601387

Swinging torque	0.5 - 4.9 N·m (0.05 - 0.50 kg-m, 4 - 43 in-lb)
Rotating torque	0.5 - 4.9 N·m (0.05 - 0.50 kg-m, 4 - 43 in-lb)
Axial endplay	0.1 mm (0.004 in) or less

Wheelarch Height (Unladen*1)

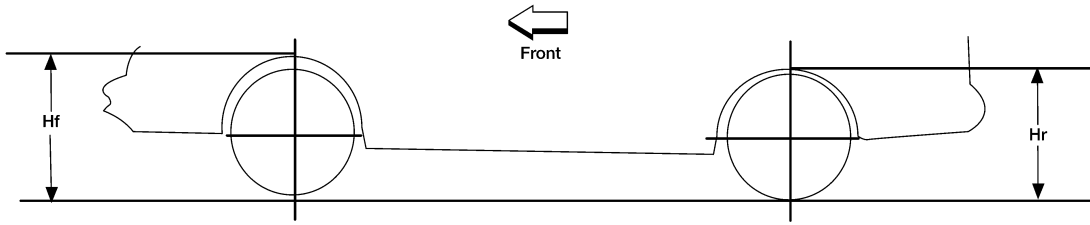
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UNITED STATES

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)



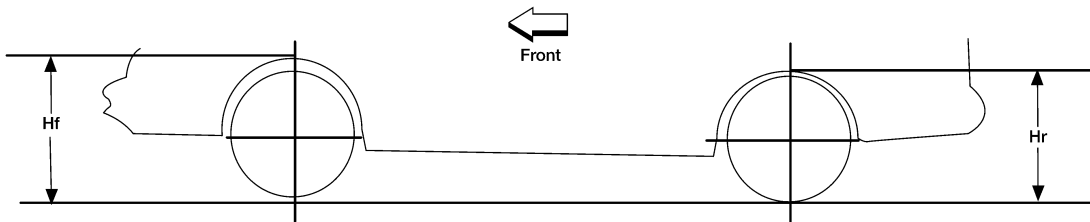
LEIA0085E

Engine	QR25DE			VQ35DE	
Tire size	215/60R16	215/55R17	235/45R18	235/45R18	
Grade	Except for SR		SR	Except for SR	SR
Front (Hf)	706 (27.80)	708 (27.87)	713 (28.07)	712 (28.03)	711 (27.99)
Rear (Hr)	699 (27.52)	702 (27.64)	704 (27.72)	704 (27.72)	704 (27.72)

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

CANADA

Unit: mm (in)



LEIA0085E

Engine	QR25DE			VQ35DE	
Tire size	215/60R16	215/55R17	235/45R18	235/45R18	
Front (Hf)	706 (27.80)	708 (27.87)	713 (28.07)	712 (28.03)	
Rear (Hr)	700 (27.56)	702 (27.64)	705 (27.76)	705 (27.76)	

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