

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:000000006752397

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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

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, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, 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 "SRS AIR BAG".
- 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.
- The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.

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

WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag 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, and wait at least 3 minutes before performing any service.

Precaution Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:000000006752398

NOTE:

- Before removing and installing any control units, first turn the ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the operation procedure below before starting the repair operation.

PRECAUTIONS

< PRECAUTION >

OPERATION PROCEDURE

1. Connect both battery cables. A
NOTE:
Supply power using jumper cables if battery is discharged.
2. Turn the ignition switch to ACC position. B
(At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned. C
4. Perform the necessary repair operation.
5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.) D
6. Perform self-diagnosis check of all control units using CONSULT-III.

Precautions for Suspension

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- 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. F
- The tightening surface must be kept free of oil/grease.
- When jacking up the vehicle with a floor jack, never hang the jack on the torque rod. G

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PREPARATION

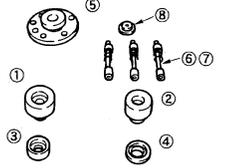
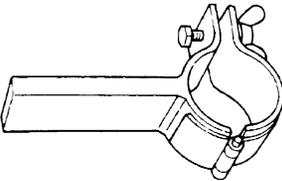
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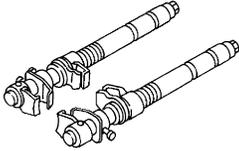
Special Service Tools

INFOID:000000006545065

Tool number Tool name	Description
KV991040S1 1. KV99104020 Adapter A 2. KV99104030 Adapter B 3. KV99104040 Adapter C 4. KV99104050 Adapter D 5. KV99104060 Plate 6. KV99104070 Guide bolt 7. KV99104080 Spring 8. KV99104090 Center plate	Measuring wheel alignment  <p style="text-align: center;">ZZA1167D</p>
ST35652000 Strut attachment	Disassembling and assembling strut  <p style="text-align: center;">ZZA0807D</p>

Commercial Service Tools

INFOID:000000006545066

Tool name	Description
Spring compressor	Removing and installing coil spring  <p style="text-align: center;">S-NT717</p>

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000006545067

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

Symptom		Reference page		Possible cause and SUSPECTED PARTS												
		FSU-9, FSU-14, FSU-16, FSU-18	FSU-12	—	—	—	FSU-9, FSU-14, FSU-16, FSU-18	FSU-7	FSU-16	NVH in FAX and FSU sections	NVH in WT section	NVH in WT section	NVH in FAX section	NVH in BR section	NVH in ST section	
Noise	FRONT SUSPENSION	Improper installation, looseness	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Shock absorber deformation, damage or deflection	x	x	x	x				x	x	x	x	x	x	
		Bushing or mounting deterioration	x	x	x	x				x	x					
		Parts interference	x	x	x	x				x	x	x				
		Spring fatigue	x	x	x											
		Suspension looseness	x	x	x											
Shake	FRONT SUSPENSION	Incorrect wheel alignment	x	x	x											
		Stabilizer bar fatigue	x	x	x											
		FRONT AXLE AND FRONT SUSPENSION	x	x	x											
		TIRE	x	x	x											
		ROAD WHEEL	x	x	x											
		DRIVE SHAFT	x	x	x											
Vibration	FRONT SUSPENSION	BRAKE	x	x	x											
		STEERING	x	x	x											
		Improper installation, looseness	x	x	x											
		Shock absorber deformation, damage or deflection	x	x	x											
		Bushing or mounting deterioration	x	x	x											
		Parts interference	x	x	x											
Shimmy	FRONT SUSPENSION	Spring fatigue	x	x	x											
		Suspension looseness	x	x	x											
		Incorrect wheel alignment	x	x	x											
		Stabilizer bar fatigue	x	x	x											
		FRONT AXLE AND FRONT SUSPENSION	x	x	x											
		TIRE	x	x	x											
Judder	FRONT SUSPENSION	ROAD WHEEL	x	x	x											
		DRIVE SHAFT	x	x	x											
		BRAKE	x	x	x											
		STEERING	x	x	x											
		Improper installation, looseness	x	x	x											
		Shock absorber deformation, damage or deflection	x	x	x											
Poor quality ride or handling	FRONT SUSPENSION	Bushing or mounting deterioration	x	x	x											
		Parts interference	x	x	x											
		Spring fatigue	x	x	x											
		Suspension looseness	x	x	x											
		Incorrect wheel alignment	x	x	x											
		Stabilizer bar fatigue	x	x	x											

x: Applicable

FRONT SUSPENSION ASSEMBLY

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection

INFOID:000000006545068

COMPONENT PART

Check the mounting conditions (looseness, backlash) of each component and component conditions (wear, damage) are normal.

BALL JOINT AXIAL END PLAY

1. Set front wheels in a straight-ahead position.
2. Measure axial end play by prying it up/down with iron bar or equivalent between transverse link and steering knuckle.

Axial end play : Refer to [FSU-22, "Ball Joint"](#).

CAUTION:

- Never depress brake pedal when measuring.
- Never perform with tires on level ground.
- Be careful not to damage ball joint boot. Never damage the installation position by applying excessive force.

STRUT ASSEMBLY

Check for oil leakage, damage, and replace if necessary.

WHEEL ALIGNMENT

< PERIODIC MAINTENANCE >

WHEEL ALIGNMENT

Inspection

INFOID:000000006545069

DESCRIPTION

CAUTION:

- The adjustment mechanisms of camber, caster, and kingpin inclination angles are not included.
- If camber, caster, or kingpin inclination angle is outside the standard, check front suspension parts for wear and damage. Replace suspect parts if a malfunction is detected.
- Kingpin inclination angle is reference value, no inspection is required.

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 are in designated positions.

PRELIMINARY CHECK

Check the following:

- Tires for improper air pressure and wear.
- Road wheels for runout. Refer to [WT-7, "Inspection"](#).
- Wheel bearing axial end play. Refer to [FAX-9, "Inspection"](#).
- Transverse link ball joint axial end play. Refer to [FSU-14, "Inspection"](#).
- Strut operation.
- Each mounting part of axle and suspension for looseness and deformation.
- Each of suspension member, strut and transverse link for cracks, deformation and other damage.
- Vehicle height (posture).

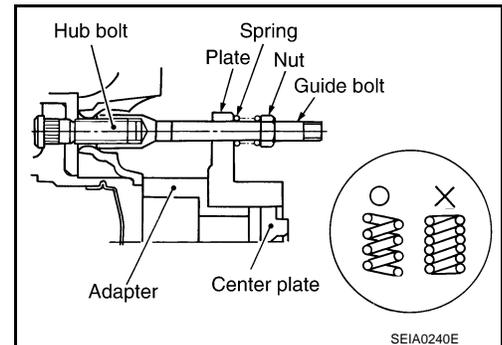
CAMBER, CASTER, AND KINGPIN INCLINATION ANGLES

Before inspection, mount front wheels onto turning radius gauge. Mount rear wheels onto a stand at the same height so that vehicle remains horizontal.

Using a CCK Gauge

Install the CCK gauge attachment (SST: KV991040S1) with the following procedure on wheel, then measure wheel alignment.

1. Remove three wheel to nuts, and install the guide bolts to hub bolt.
2. Screw the adapter into the plate until it contacts the plate tightly.
3. Screw the center plate into the plate.
4. Insert the plate assembly on the guide bolt. Put the spring in, and then evenly screw the three guide bolt nuts. When fastening the guide nuts, do not completely compress the spring.

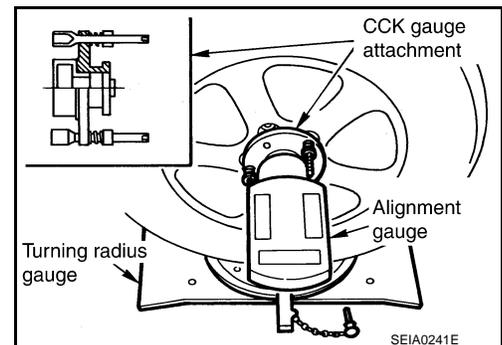


5. Place the dent of alignment gauge onto the projection of the center plate and tightly contact them to measure.

Camber, caster, kingpin inclination angles : Refer to [FSU-21, "Wheel Alignment"](#).

CAUTION:

- If camber, caster, or kingpin inclination angle exceeds the standard value, check front suspension parts for wear and damage. Replace suspect parts if a malfunction is detected.
- Kingpin inclination angle is reference value, no inspection is required.



TOE-IN

Measure toe-in by the following procedure.

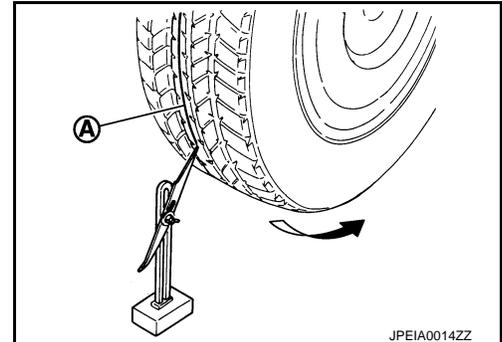
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WHEEL ALIGNMENT

< PERIODIC MAINTENANCE >

WARNING:

- Always perform the following procedure on a flat surface.
 - Check that no person is in front of vehicle before pushing it.
1. Bounce front of vehicle up and down to stabilize the vehicle height (posture).
 2. Push vehicle straight ahead about 5 m (16 ft).
 3. Put matching mark (A) on base line of the tread (rear side) of both tires at the same height of hub center. These are measuring points.



4. Measure distance (A) (rear side).

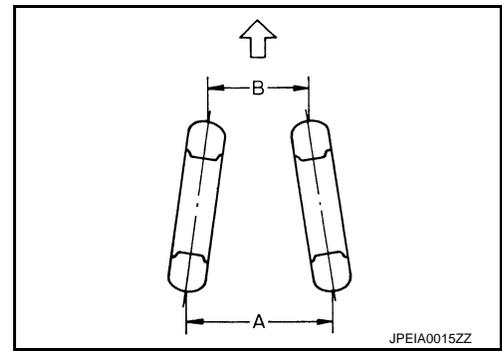
⇐ : Vehicle front

5. Push vehicle slowly ahead to rotate wheels 180 degrees (1/2 turn).

NOTE:

If the wheels rotates more than 180 degrees (1/2 turn), start this procedure again from the beginning. Do not push the vehicle backward.

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



Total toe-in = A – B

Total toe-in : Refer to [FSU-21, "Wheel Alignment"](#).

- If toe-in exceeds the standard value, adjust toe-in by varying the length of between steering outer socket and inner socket.

FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

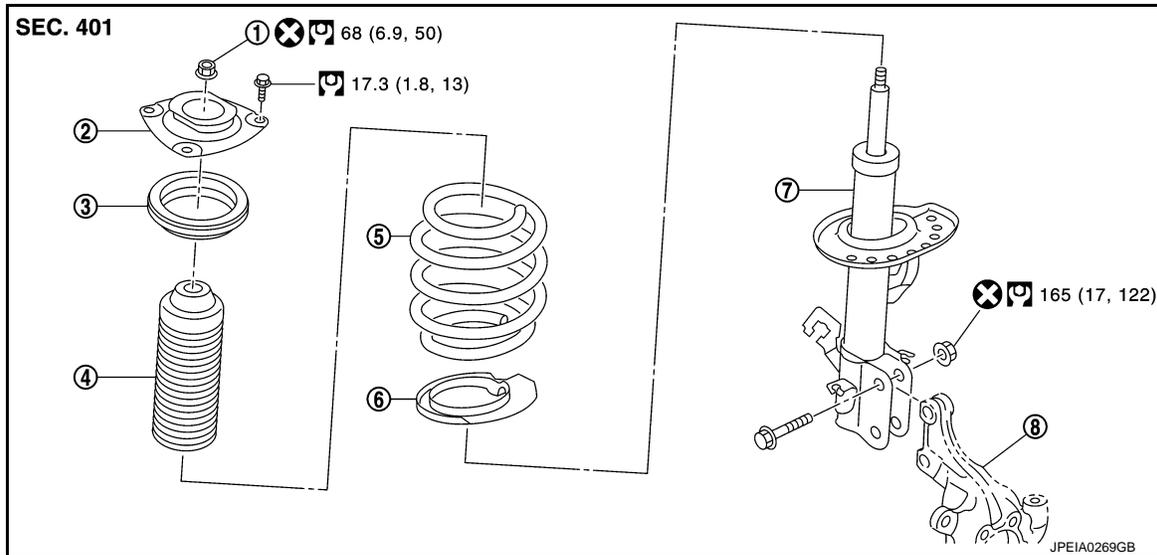
REMOVAL AND INSTALLATION

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:000000006545070

2WD

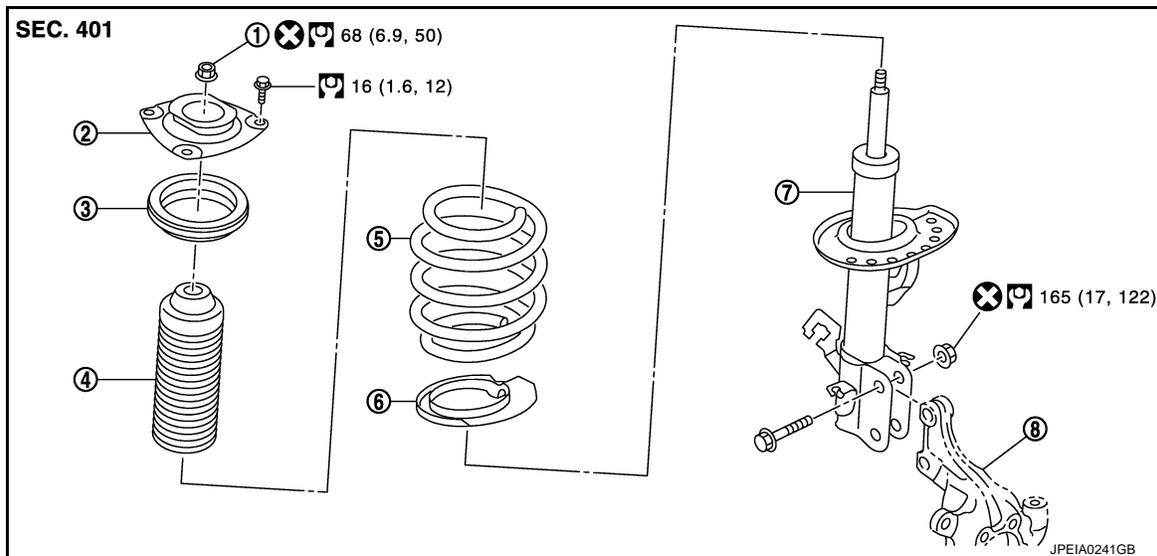


- | | | |
|------------------------|-----------------------|----------------------|
| 1. Piston rod lock nut | 2. Mounting insulator | 3. Mounting bearing |
| 4. Bound bumper | 5. Coil spring | 6. Lower rubber seat |
| 7. Strut | 8. Steering knuckle | |

: N·m (kg·m, ft·lb)

: Always replace after every disassembly.

4WD



- | | | |
|------------------------|-----------------------|----------------------|
| 1. Piston rod lock nut | 2. Mounting insulator | 3. Mounting bearing |
| 4. Bound bumper | 5. Coil spring | 6. Lower rubber seat |
| 7. Strut | 8. Steering knuckle | |

: N·m (kg·m, ft·lb)

: Always replace after every disassembly.

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FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

Removal and Installation

INFOID:00000006545071

REMOVAL

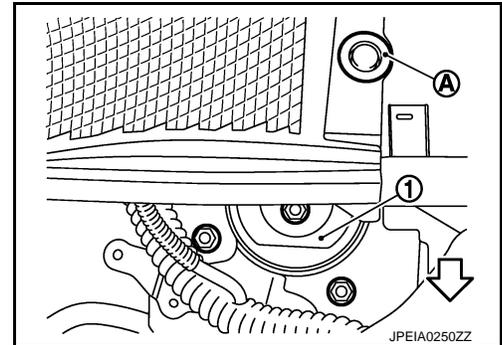
1. Remove tires. Refer to [WT-7, "Removal and Installation"](#).
2. Remove lock plate from strut assembly. Refer to [BR-29, "FRONT : Removal and Installation"](#) (LHD), [BR-95, "FRONT : Removal and Installation"](#) (RHD).
3. Remove wheel sensor. Refer to [BRC-84, "FRONT WHEEL SENSOR : Removal and Installation"](#) (Without ESP), [BRC-224, "FRONT WHEEL SENSOR : Removal and Installation"](#) (With ESP).
4. Remove stabilizer connecting rod from strut assembly. Refer to [FSU-16, "Removal and Installation"](#).
5. Remove strut mounting bolts and nuts from steering knuckle.
6. Remove grommet (A) of cowl top cover.

↔ : Vehicle front

NOTE:

Remove mounting bolt of mounting insulator (1) from grommet hole.

7. Remove mounting bolt of mounting insulator, and then remove strut assembly.



INSTALLATION

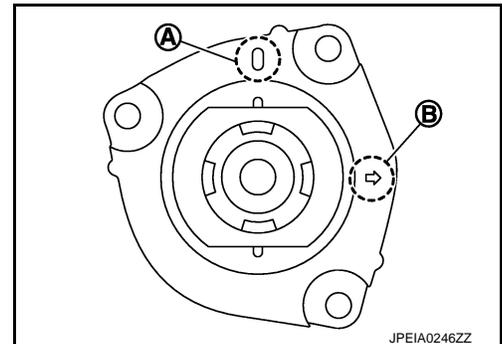
Note the following, and install in the reverse order of removal.

- Install strut assembly with the identification mark (A) of mounting insulator faced forward of the vehicle and the arrow (B) faced outside.

NOTE:

The identification mark "0" shows the right mounting insulator and "1" shows left.

- Never reuse strut mounting nut.
- Perform final tightening of bolts and nuts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to [FSU-12, "Inspection"](#).
- After replacing the strut absorber, always follow the disposal procedure to discard the strut absorber. Refer to [FSU-12, "Disposal"](#).



Disassembly and Assembly

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DISASSEMBLY

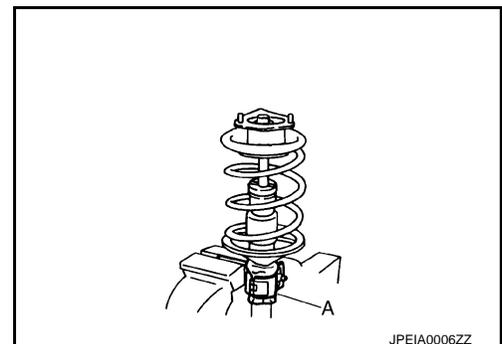
CAUTION:

Never damage strut assembly piston rod when removing components from strut assembly.

1. Install strut attachment (A) (SST: ST35652000) to strut assembly and secure it in a vise.

CAUTION:

When installing the strut attachment to strut assembly, wrap a shop cloth around strut to protect from damage.



FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

- Using a spring compressor (A) (commercial service tool), compress coil spring between spring upper seat and lower seat (strut assembly) until coil spring with a spring compressor is free.

CAUTION:

Be sure a spring compressor is securely attached to coil spring. Compress coil spring.

- Check coil spring with a spring compressor between spring upper seat and lower seat (strut assembly) is free. And then remove piston rod lock nut while securing the piston rod tip so that piston rod does not turn.

- Remove mounting insulator, mounting bearing, and bound bumper from strut.

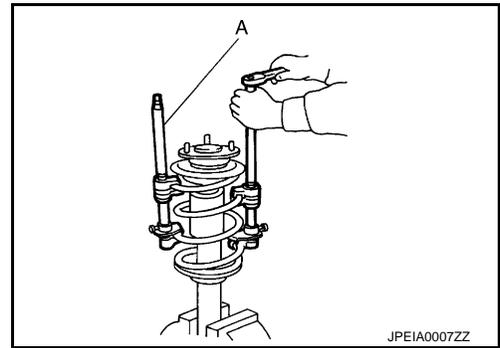
- After removing coil spring with a spring compressor, then gradually release a spring compressor.

CAUTION:

Loosen while making sure coil spring attachment position does not move.

- Remove lower rubber seat.

- Perform inspection after disassembly. Refer to [FSU-12, "Inspection"](#).



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ASSEMBLY

CAUTION:

Never damage strut assembly piston rod when installing components from strut assembly.

- Install strut attachment (SST: ST35652000) to strut and secure it in a vise.

CAUTION:

When installing the strut attachment to strut assembly, wrap a shop cloth around strut to protect from damage.

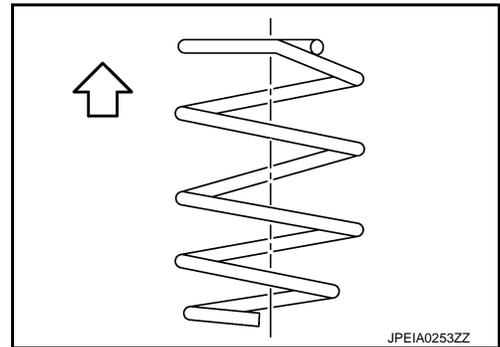
- Install lower rubber seat.

- Compress coil spring using a spring compressor (commercial service tool), and install it onto strut assembly.

CAUTION:

- **Be sure a compressor is securely attached to coil spring. Compress coil spring.**
- **Be careful with the vertical direction of the coil spring.**

← : Upper side



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- **Align the lower end of coil spring (1) with (A) of lower rubber seat (2) as shown in the figure.**

- Apply soapy water to bound bumper.

CAUTION:

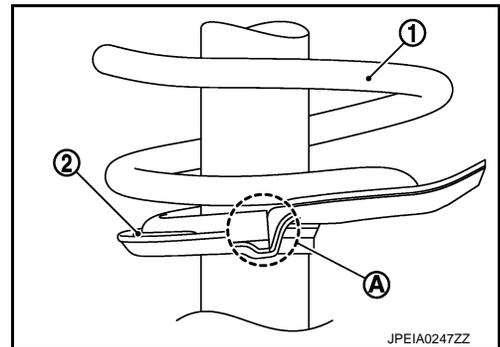
Never use machine oil.

- Insert bound bumper into mounting insulator.

- Install mounting bearing.

CAUTION:

Never apply oils, such as grease, when installing the mounting bearing.



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FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

7. Check the location of identification mark (A) of the mounting insulator and install it with the arrow (B) faced outside of the vehicle to the strut.

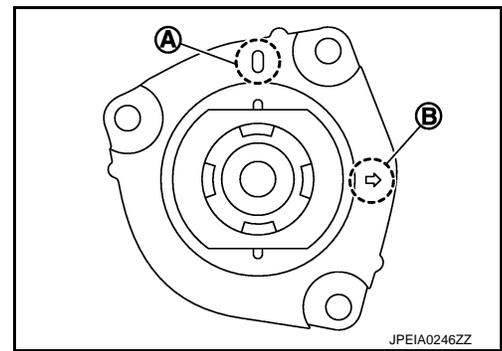
NOTE:

The identification mark "0" shows right mounting insulator and "1" shows left.

8. Secure piston rod tip so that piston rod does not turn, then tighten piston rod lock nut with specified torque.

CAUTION:

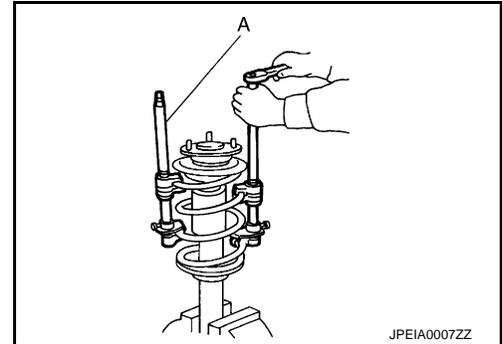
Never reuse piston rod lock nut.



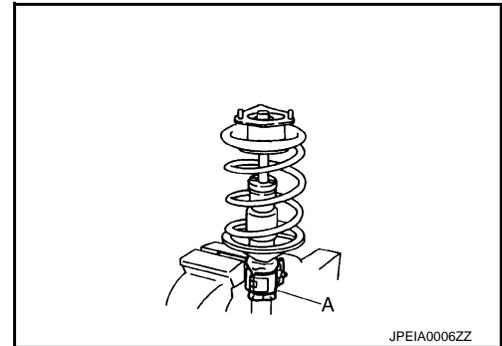
9. Gradually release a spring compressor (A), and remove coil spring.

CAUTION:

Loosen while making sure coil spring attachment position does not move.



10. Remove the strut attachment (A) from strut assembly.



Inspection

INFOID:000000006545073

INSPECTION AFTER DISASSEMBLY

Check the following items, and replace the parts if necessary.

Strut

- Strut for deformation, cracks or damage
- Piston rod for damage, uneven wear or distortion
- Oil leakage

Strut Mounting Insulator and bound bumper

Check strut mounting insulator and bound bumper for cracks, wear or damage.

Coil Spring

Check coil spring for cracks, wear or damage.

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connector. Refer to [BRC-84, "FRONT WHEEL SENSOR : Exploded View"](#) (Without ESP), [BRC-224, "FRONT WHEEL SENSOR : Exploded View"](#) (With ESP).
2. Check wheel alignment. Refer to [FSU-7, "Inspection"](#).

Disposal

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1. Set strut assembly horizontally to the ground with the piston rod fully extracted.

FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

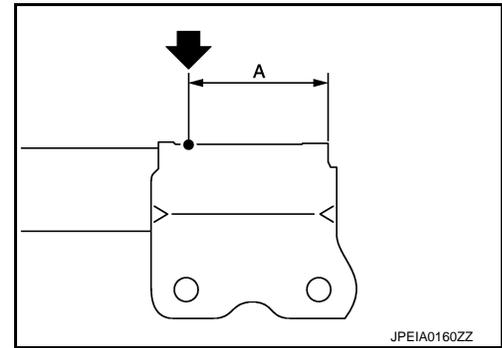
- Drill 2 – 3 mm (0.08 – 0.12 in) hole at the position (●) from top as shown in the figure to release gas gradually.

CAUTION:

- **Wear eye protection (safety glass).**
- **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)

- 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.

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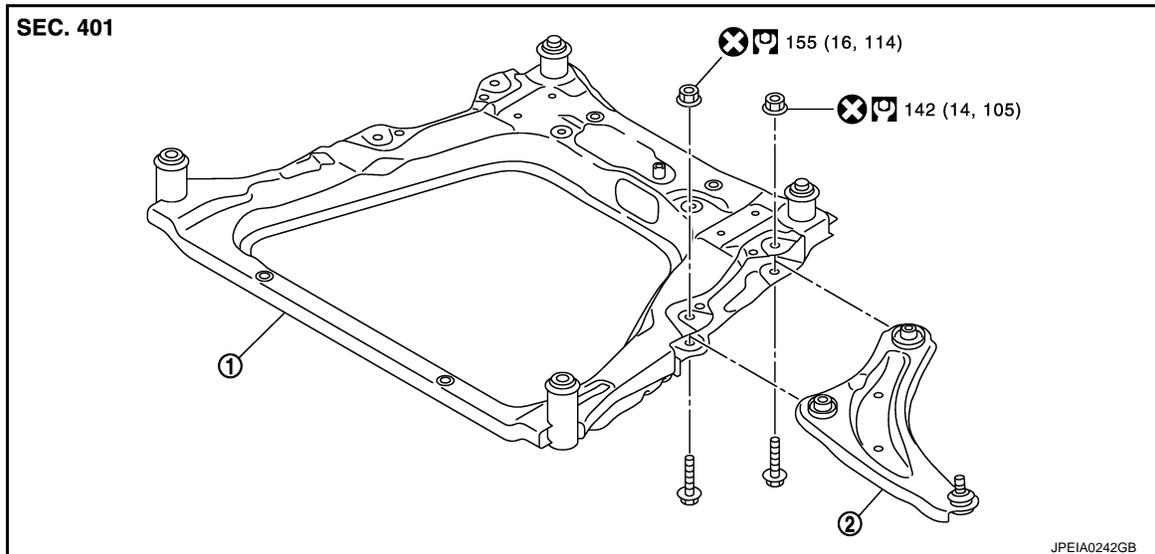
TRANSVERSE LINK

< REMOVAL AND INSTALLATION >

TRANSVERSE LINK

Exploded View

INFOID:000000006545075



1. Front suspension member 2. Transverse link

⊗: Always replace after every disassembly.

U: N·m (kg·m, ft·lb)

Removal and Installation

INFOID:000000006545076

REMOVAL

1. Remove tires. Refer to [WT-7, "Removal and Installation"](#).
2. Remove transverse link from steering knuckle.
 - MR16DDT: Refer to [FAX-11, "Removal and Installation"](#).
 - HR16DE: Refer to [FAX-43, "Removal and Installation"](#).
 - K9K: Refer to [FAX-68, "Removal and Installation"](#).
3. Remove transverse link from suspension member.

INSTALLATION

Note the following, and install in the reverse order of removal.

- Never reuse transverse link mounting nut.
- Perform final tightening of bolts and nuts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to [FSU-14, "Inspection"](#).

Inspection

INFOID:000000006545077

INSPECTION AFTER REMOVAL

Check the following items, and replace the parts if necessary.

Transverse Link

- Transverse link and bushing for deformation, cracks or damage.
- Ball joint boot for cracks or other damage, and also for grease leakage.

Swing Torque

1. Manually move ball stud to confirm it moves smoothly with no binding.
2. Move ball stud at least ten times by hand to check for smooth movement.

TRANSVERSE LINK

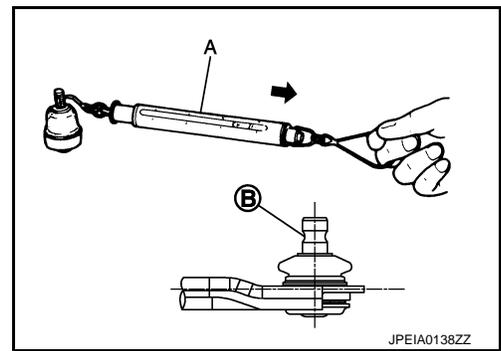
< REMOVAL AND INSTALLATION >

- Hook a spring balance (A) at cutout on ball stud (B). Confirm spring balance measurement value is within specifications when ball stud begins moving.

Swing torque : Refer to [FSU-22, "Ball Joint"](#).

Measurement on spring balance : Refer to [FSU-22, "Ball Joint"](#)

- If swing torque exceeds standard range, replace transverse link assembly.



Axial End Play

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

Axial end play : Refer to [FSU-22, "Ball Joint"](#).

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

INSPECTION AFTER INSTALLATION

Check wheel alignment. Refer to [FSU-7, "Inspection"](#).

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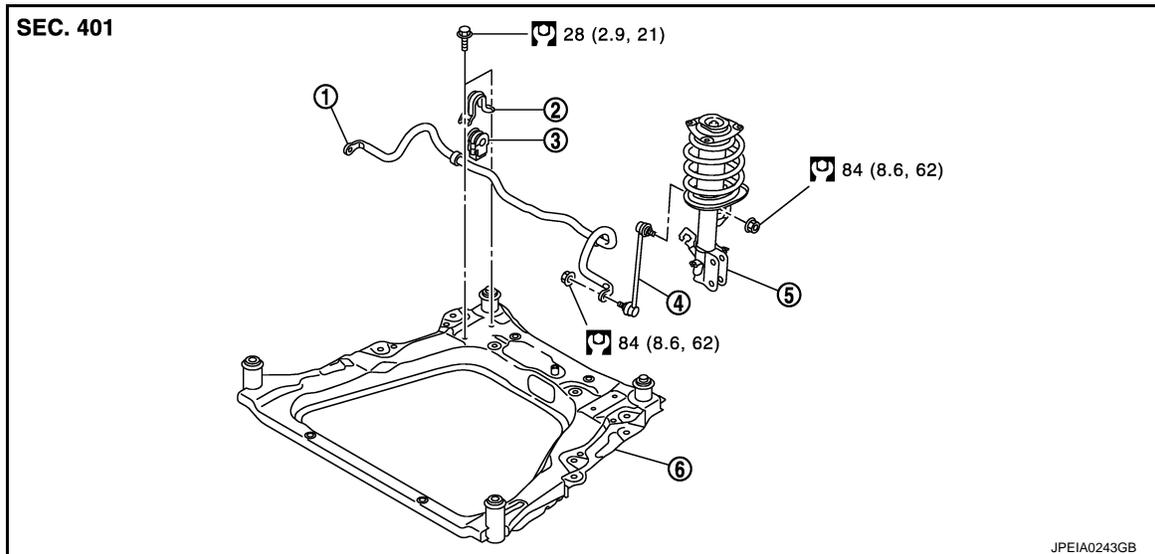
FRONT STABILIZER

< REMOVAL AND INSTALLATION >

FRONT STABILIZER

Exploded View

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- | | | |
|------------------------------|---------------------|----------------------------|
| 1. Stabilizer bar | 2. Stabilizer clamp | 3. Stabilizer bushing |
| 4. Stabilizer connecting rod | 5. Strut assembly | 6. Front suspension member |

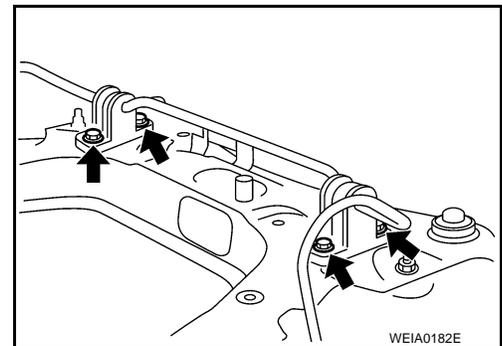
: N·m (kg·m, ft·lb)

Removal and Installation

INFOID:000000006548578

REMOVAL

1. Remove tires. Refer to [WT-7, "Removal and Installation"](#).
2. Remove front suspension member. Refer to [FSU-18, "Removal and Installation"](#).
3. Remove stabilizer connecting rod.
4. Remove mounting bolts () of stabilizer clamp, and then remove stabilizer clamp and stabilizer bushing from front suspension member.
5. Remove stabilizer bar.
6. Perform inspection after removal. Refer to [FSU-17, "Inspection"](#).



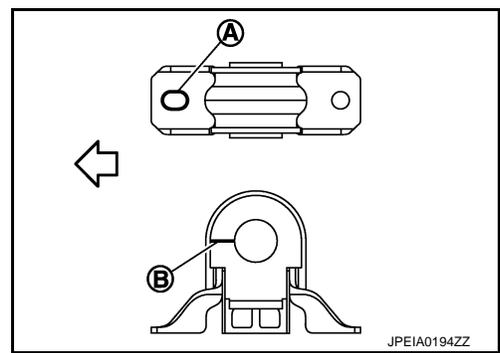
INSTALLATION

Note the following, and install in the reverse order of removal.

FRONT STABILIZER

< REMOVAL AND INSTALLATION >

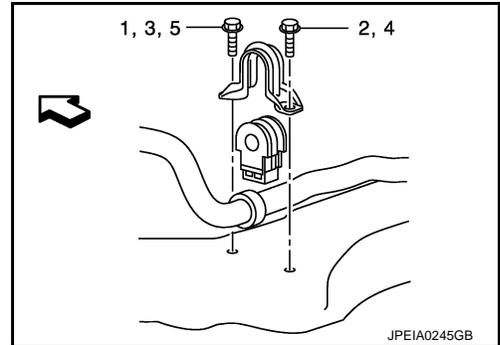
- Install stabilizer clamp and stabilizer bush with notch (A) and slit (B) faced forward of the vehicle (↔).



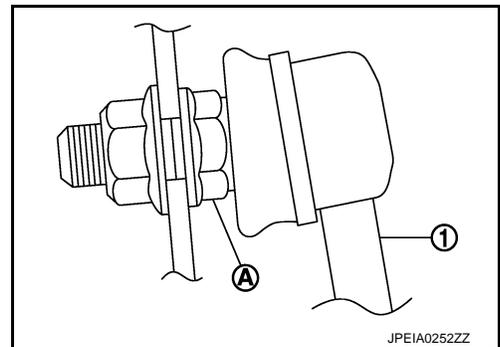
- To install stabilizer clamp mounting bolt, follow the tightening method and the numerical order shown below:

Manual tightening	: 1
Temporary tightening	: 2 → 3
Final tightening (Specified torque)	: 4 → 5

↔ : Vehicle front



- To install stabilizer connecting rod (1), tighten the mounting nut with the hexagonal part (A) on the stabilizer connecting rod side fixed.
- Perform final tightening of bolts and nuts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to [FSU-14. "Inspection"](#).



Inspection

INSPECTION AFTER REMOVAL

Check stabilizer bar, stabilizer connecting rod, stabilizer bushing and stabilizer clamp for deformation, cracks or damage. Replace it if necessary.

INSPECTION AFTER INSTALLATION

Check wheel alignment. Refer to [FSU-7. "Inspection"](#).

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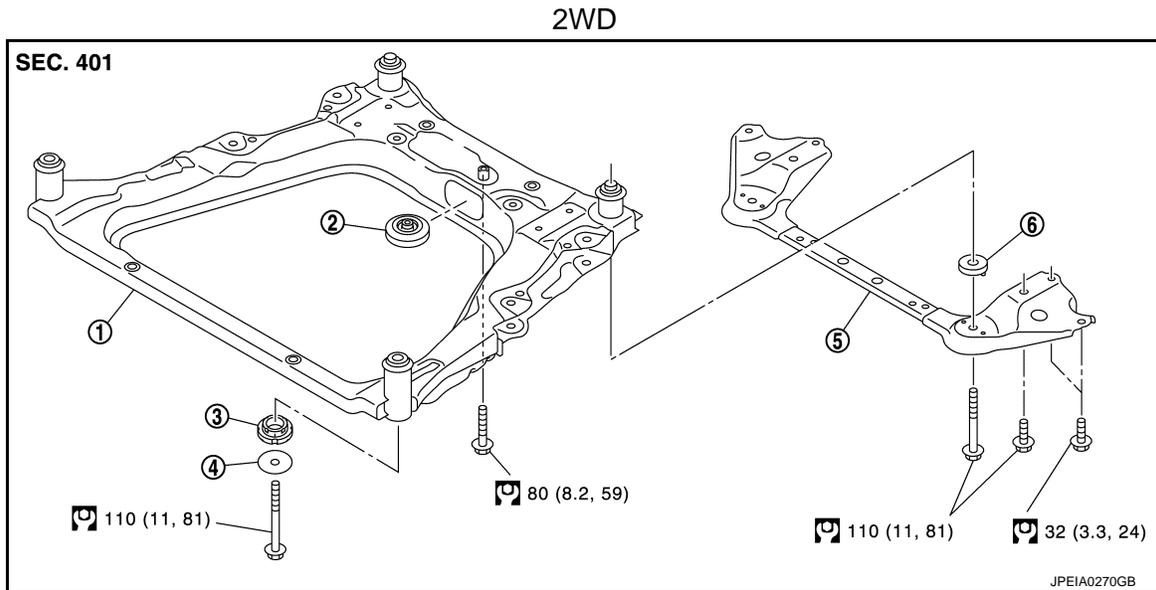
FRONT SUSPENSION MEMBER

< REMOVAL AND INSTALLATION >

FRONT SUSPENSION MEMBER

Exploded View

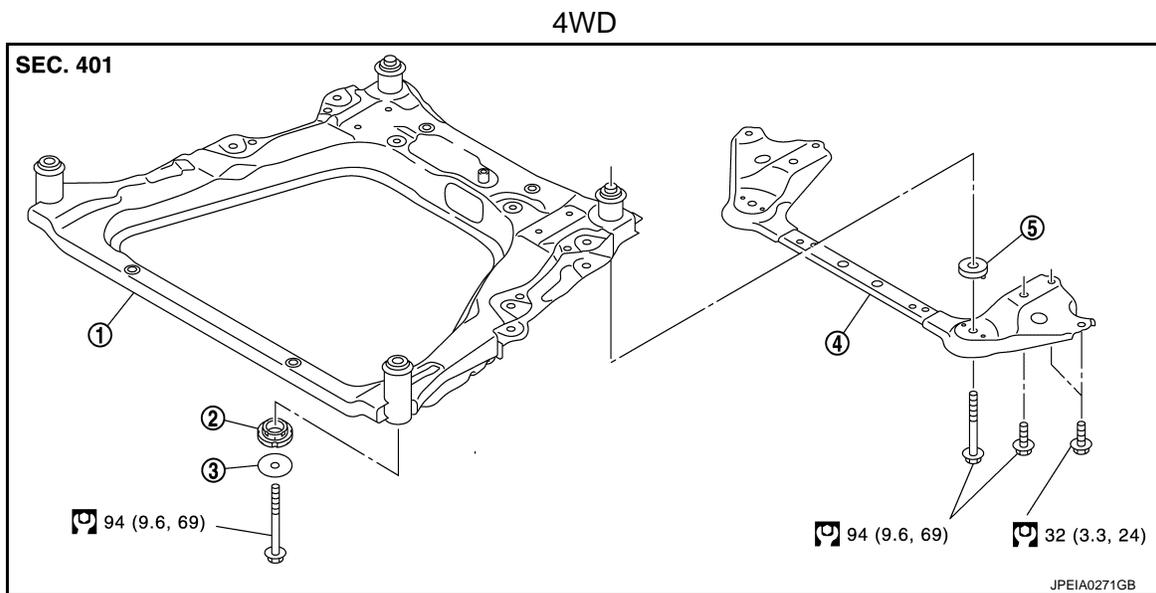
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- | | | |
|----------------------------|---------------------|---------------------------|
| 1. Front suspension member | 2. Damper assembly* | 3. Rebound stopper rubber |
| 4. Washer | 5. Member stay | 6. Rebound stopper |

: N·m (kg·m, ft·lb)

*: For K9K models



- | | | |
|----------------------------|---------------------------|-----------|
| 1. Front suspension member | 2. Rebound stopper rubber | 3. Washer |
| 4. Member stay | 5. Rebound stopper | |

: N·m (kg·m, ft·lb)

Removal and Installation

INFOID:000000006545079

REMOVAL

1. Separate intermediate shaft from steering gear assembly. Refer to [ST-14, "Removal and Installation"](#).
2. Remove tires. Refer to [WT-7, "Removal and Installation"](#).

FRONT SUSPENSION MEMBER

< REMOVAL AND INSTALLATION >

3. Remove front under cover.
4. Separate stabilizer connecting rod from strut assembly. Refer to [FSU-16, "Removal and Installation"](#).
5. Separate steering outer socket from steering knuckle. Refer to [ST-19, "Removal and Installation"](#).
6. Separate transverse link from steering knuckle.
 - MR16DDT: Refer to [FAX-11, "Removal and Installation"](#).
 - HR16DE: Refer to [FAX-43, "Removal and Installation"](#).
 - K9K: Refer to [FAX-68, "Removal and Installation"](#).
7. Remove rear torque rod.
 - MR16DDT: Refer to [EM-55, "2WD : Removal and Installation"](#).
 - HR16DE: Refer to [EM-215, "Removal and Installation"](#).
 - K9K: Refer to [EM-326, "Removal and Installation"](#).
8. Set suitable jack under front suspension member.

CAUTION:
Check the stable condition when using a jack.
9. Remove member stay and rebound stopper.
10. Remove suspension member mounting bolts, washer, and rebound stopper rubber.
11. Gradually lower the jack to remove front suspension member from vehicle body.

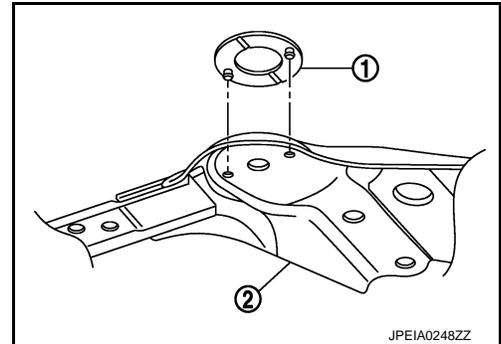
CAUTION:
Operate while checking that jack supporting status is stable.

NOTE:
Remove it with each component parts.
12. Remove damper assembly from front suspension member. (K9K models only)
13. Remove component parts from front suspension member.
14. Perform inspection after removal. Refer to [FSU-14, "Inspection"](#).

INSTALLATION

Note the following, and install in the reverse order of removal.

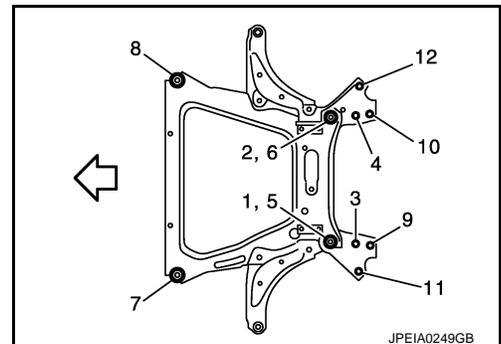
- To install rebound stopper (1), insert it with the protrusion aligned with the hole of member stay (2).



- To install member stay and mounting bolts of front suspension member, temporarily tighten the bolts before tightening to the specified torque, referring to the tightening method and the numerical order shown below:

Temporary tightening : 1 → 2
 Final tightening (Specified torque) : 3 → 4 → 5 → 6 → 7 → 8 → 9 → 10 → 11 → 12

⇐ : Vehicle front



- Perform final tightening of bolts and nuts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to [FSU-14, "Inspection"](#).

Inspection

INFOID:000000006545080

INSPECTION AFTER REMOVAL

Check front suspension member for cracks, wear or damage. Replace it if necessary.

FRONT SUSPENSION MEMBER

< REMOVAL AND INSTALLATION >

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connector.
2. Check wheel alignment. Refer to [FSU-7, "Inspection"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

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SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment

INFOID:0000000006546736

2WD

Item		Standard		
		HR16DE	MR16DDT	K9K
Engine type		HR16DE	MR16DDT	K9K
Camber Degree minute (Decimal degree)	Minimum	-1° 10' (-1.16°)		
	Nominal	-0° 25' (-0.42°)		
	Maximum	0° 20' (0.33°)		
	Left and right difference*1	-0° 45' (-0.75°) - 0° 45' (0.75°)		
Caster Degree minute (Decimal degree)	Minimum	3° 45' (3.75°)	3° 40' (3.67°)	
	Nominal	4° 30' (4.50°)	4° 25' (4.42°)	
	Maximum	5° 15' (5.25°)	5° 10' (5.16°)	
	Left and right difference*1	-0° 45' (-0.75°) - 0° 45' (0.75°)		
Kingpin inclination Degree minute (Decimal degree)	Minimum	10° 35' (10.59°)	10° 40' (10.67°)	
	Nominal	11° 20' (11.33°)	11° 25' (11.42°)	
	Maximum	12° 05' (12.08°)	12° 10' (12.16°)	
Toe-in	Total toe-in Distance	Minimum	In 1 mm (0.04 in)	
		Nominal	In 2 mm (0.08 in)	
		Maximum	In 3 mm (0.12 in)	
	Toe angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)	
		Nominal	In 0° 05' (0.08°)	
		Maximum	In 0° 08' (0.13°)	

Measure value under unladen*2 conditions.

*1: A difference when assuming the left side a standard.

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

4WD

Item		Standard	
		HR16DE	MR16DDT
Camber Degree minute (Decimal degree)	Minimum	-1° 10' (-1.16°)	
	Nominal	-0° 25' (-0.42°)	
	Maximum	0° 20' (0.33°)	
	Left and right difference*1	-0° 45' (-0.75°) - 0° 45' (0.75°)	
Caster Degree minute (Decimal degree)	Minimum	3° 50' (3.84°)	3° 40' (3.67°)
	Nominal	4° 35' (4.58°)	4° 25' (4.42°)
	Maximum	5° 20' (5.33°)	5° 10' (5.16°)
	Left and right difference*1	-0° 45' (-0.75°) - 0° 45' (0.75°)	
Kingpin inclination Degree minute (Decimal degree)	Minimum	10° 40' (10.67°)	
	Nominal	11° 25' (11.42°)	
	Maximum	12° 10' (12.16°)	

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Item		Standard	
Toe-in	Total toe-in Distance	Minimum	In 1 mm (0.04 in)
		Nominal	In 2 mm (0.08 in)
		Maximum	In 3 mm (0.12 in)
	Toe angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)
		Nominal	In 0° 05' (0.08°)
		Maximum	In 0° 08' (0.13°)

Measure value under unladen*² conditions.

*1: A difference when assuming the left side a standard.

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

Ball Joint

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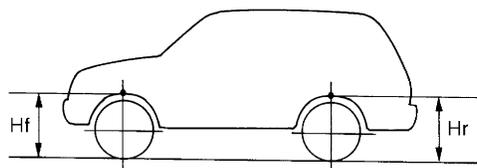
Item	Standard
Swing torque	0.5 – 4.9 N·m (0.06 – 0.49 kg-m, 5 – 43 in-lb)
Measurement on spring balance	15.4 – 150.8 N (1.6 – 15.3 kg, 3.5 – 33.8 lb)
Axial end play	0 mm (0 in)

Wheelarch Height

INFOID:000000006545083

2WD

Item	Standard				
	HR16DE		MR16DDT	K9K	
Wheel size	16 inch	17 inch		16 inch	17 inch
Front (Hf)	730 mm (28.74 in)	740 mm (29.13 in)	737 mm (29.02 in)	726 mm (28.58 in)	737 mm (29.02 in)
Rear (Hr)	740 mm (29.13 in)	750 mm (29.53 in)	747 mm (29.41 in)	740 mm (29.13 in)	750 mm (29.53 in)



SFA746B

Measure value under unladen* conditions.

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

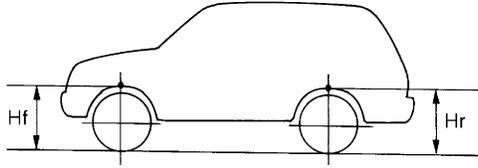
4WD

Item	Standard
Front (Hf)	736 mm (28.98 in)

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Item	Standard
Rear (Hr)	742 mm (29.21 in)



SFA746B

Measure value under unladen* conditions.

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

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