

SECTION **FSU**  
FRONT SUSPENSION

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**FSU**

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# PRECAUTIONS

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## PRECAUTION

### PRECAUTIONS

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

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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. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 "SRS AIR BAG".
- Never 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:**

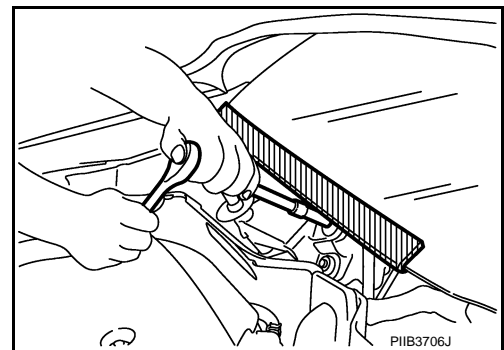
Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never 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 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 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 pre-oiled, tighten as they are.

# PREPARATION

< PREPARATION >

## PREPARATION

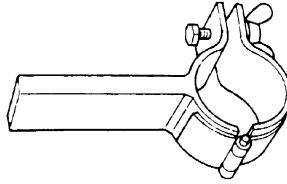
### PREPARATION

#### Special Service Tools

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

Tool number (Kent-More No.) Tool name	Description
ST35652000 ( — ) Strut attachment	Disassembling and assembling strut

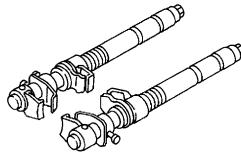


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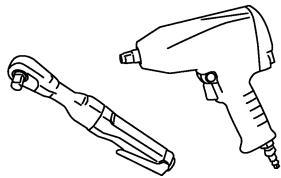
#### Commercial Service Tools

INFOID:000000007495803

Tool name	Description
Spring compressor	Removing and installing coil spring
Power tool	Loosening bolts and nuts



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# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

### NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

#### NVH Troubleshooting Chart

INFOID:000000007495804

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

Symptom		Possible cause and SUSPECTED PARTS	Reference														
			FSU-8, FSU-12, FSU-14, FSU-16	FSU-10	—	—	—	FSU-8, FSU-12, FSU-14, FSU-16	FSU-6	—	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	
Symptom	FRONT SUSPENSION	Noise	x	x	x	x	x	x			x	x	x	x	x	x	x
		Shake	x	x	x	x		x			x	x	x	x	x	x	x
		Vibration	x	x	x	x	x				x	x		x			
		Shimmy	x	x	x	x			x		x	x	x		x	x	
		Judder	x	x	x						x	x	x		x	x	
		Poor quality ride or handling	x	x	x	x	x		x	x	x	x	x				

x: Applicable

# FRONT SUSPENSION ASSEMBLY

< PERIODIC MAINTENANCE >

## PERIODIC MAINTENANCE

### FRONT SUSPENSION ASSEMBLY

#### Inspection

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#### COMPONENT PART

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

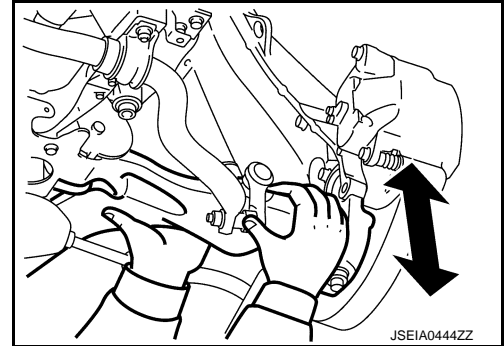
#### Ball Joint Axial End Play

1. Set front wheels in a straight-ahead position.
2. Move axle side of transverse link in the axial direction by hand. Check there is no end play.

**Axial end play** : Refer to [FSU-20. "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.

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# WHEEL ALIGNMENT

< PERIODIC MAINTENANCE >

## WHEEL ALIGNMENT

### Inspection

INFOID:000000007495806

### DESCRIPTION

#### CAUTION:

- **Camber, caster, kingpin inclination angles cannot be adjusted.**
- **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. Refer to [WT-48, "Tire Air Pressure"](#).
- Road wheels for runout.
- Wheel bearing axial end play. Refer to [FAX-6, "Inspection"](#).
- Transverse link ball joint axial end play. Refer to [FSU-5, "Inspection"](#).
- Strut operation.
- Each mounting part of axle and suspension for looseness and deformation.
- Each of suspension member, strut assembly and transverse link for cracks, deformation and other damage.
- 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.
- Check 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.

### 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). **Never use these indicators.**
- The alignment specifications programmed into your machine that operate these indicators may not be correct.
- 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 on 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.

#### NOTE:

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

### Adjustment

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### TOE-IN

- Loosen the steering outer socket, and then adjust the length using steering inner socket.

# WHEEL ALIGNMENT

< PERIODIC MAINTENANCE >

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Toe-in : Refer to [FSU-18, "Wheel Alignment"](#).

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**CAUTION:**

- Always evenly adjust both toe-in alternately and adjust the difference between the left and right to the standard.
- Always fix the steering inner socket when tightening the steering outer socket.
- After toe-in adjustment, adjust neutral position of steering angle sensor. Refer to [BRC-44, "Work Procedure"](#).

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# FRONT COIL SPRING AND STRUT

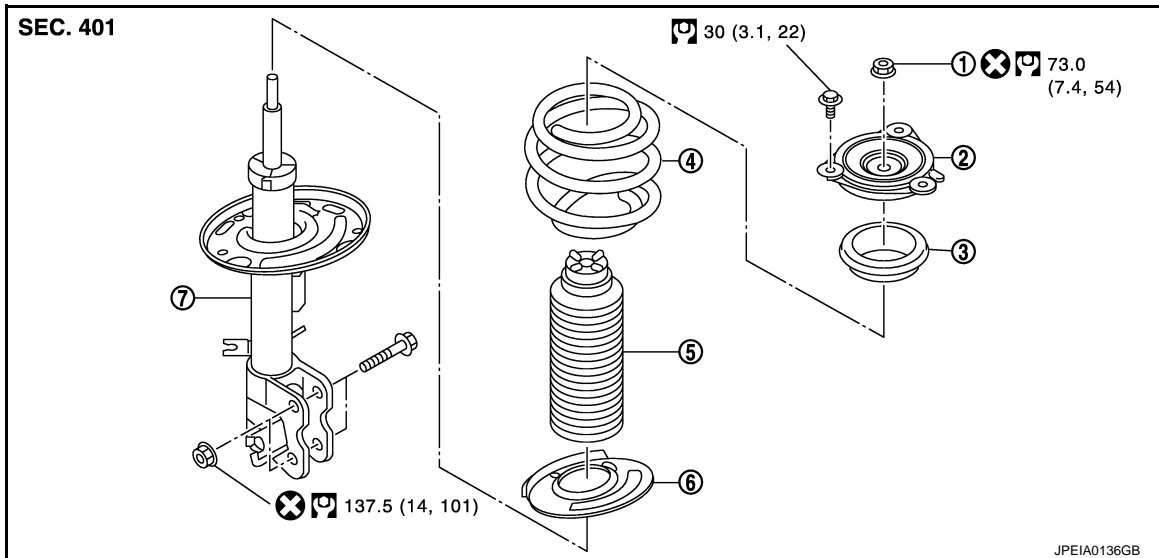
< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### FRONT COIL SPRING AND STRUT

Exploded View

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

: N·m (kg·m, ft·lb)

: Always replace after every disassembly.

## Removal and Installation

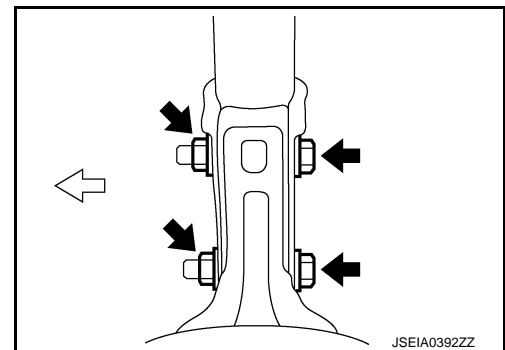
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### REMOVAL

1. Remove tires with power tool. Refer to [WT-43, "Exploded View"](#).
2. Remove lock plate from strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
3. Remove wheel sensor. Refer to [BRC-114, "FRONT WHEEL SENSOR : Removal and Installation"](#).
4. Separate stabilizer connecting rod from strut assembly. Refer to [FSU-14, "Removal and Installation"](#).
5. Remove strut mounting bolts and nuts from steering knuckle.

: Vehicle front

6. Remove cowl top extension. Refer to [EXT-21, "Removal and Installation"](#).
7. Remove mounting bolt of mounting insulator, and then remove strut assembly.



### INSTALLATION

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



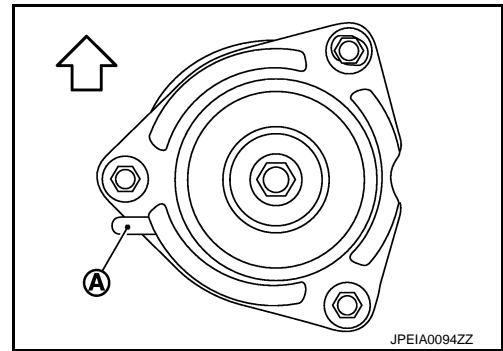
# FRONT COIL SPRING AND STRUT

## < REMOVAL AND INSTALLATION >

- Install strut assembly with the protrusion (A) of mounting insulator faced outside of the vehicle.

↔ : Vehicle front

- Never reuse strut mounting nut.
- Perform final tightening of fixing parts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to [FSU-10, "Inspection"](#).
- After replacing the strut, always follow the disposal procedure to discard the strut. Refer to [FSU-11, "Disposal"](#).



## Disassembly and Assembly

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### DISASSEMBLY

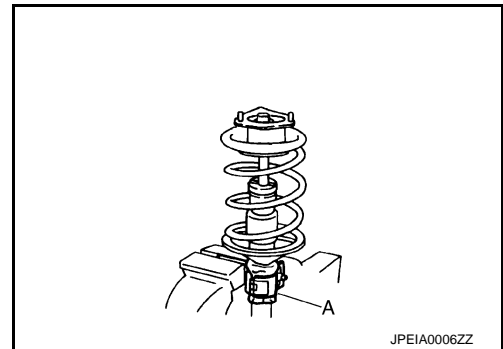
#### CAUTION:

**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.**

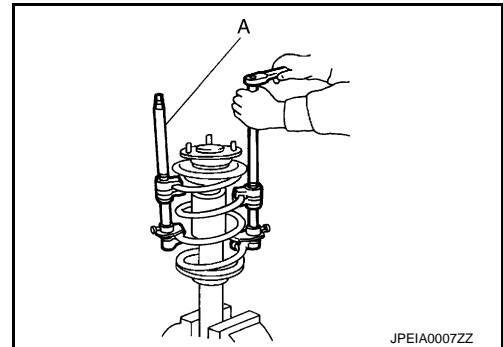


2. Using a spring compressor (A) (commercial service tool), compress coil spring between spring upper seat and lower seat (strut assembly) until coil spring with a spring compressor is free.

#### CAUTION:

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

3. 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.



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

5. After removing coil spring with a spring compressor (commercial service tool), then gradually release a spring compressor.

#### CAUTION:

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

6. Remove lower rubber seat.
7. Remove strut attachment [SST: ST35652000 ( — )] from strut.
8. Perform inspection after disassembly. Refer to [FSU-10, "Inspection"](#).

### ASSEMBLY

#### CAUTION:

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

1. 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.**

2. Install lower rubber seat.

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# FRONT COIL SPRING AND STRUT

## < REMOVAL AND INSTALLATION >

3. Apply soapy water to bound bumper.

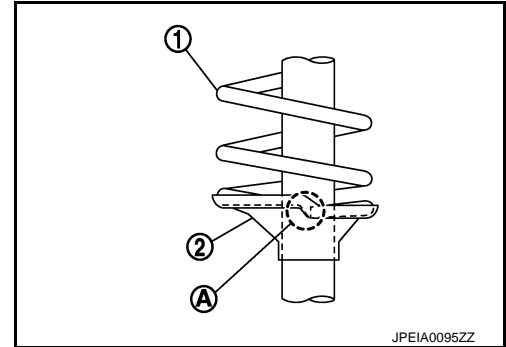
**CAUTION:**

**Never use machine oil.**

4. Insert bound bumper into mounting insulator.  
5. Compress coil spring using a spring compressor (commercial service tool), and install it onto strut assembly.

**CAUTION:**

- Be sure a spring compressor is securely attached to coil spring, before compress coil spring.
- Align the lower end of coil spring (1) with "A" of lower rubber seat (2) as shown in the figure.
- Set coil spring so that its paint marks are aligned with the positions of 1.25 turns and 2.25 turns from the bottom end of the coil spring.



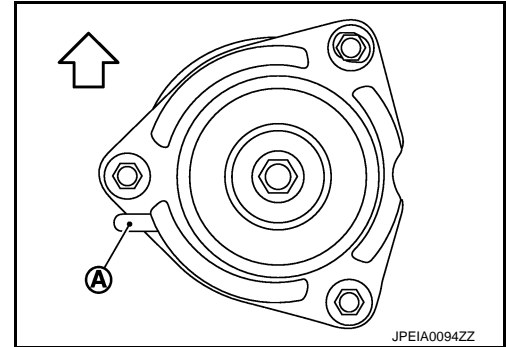
6. Check the location of protrusion (A) of the mounting insulator and install it with faced outside of the vehicle to the strut.

⇐ : Vehicle front

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

**CAUTION:**

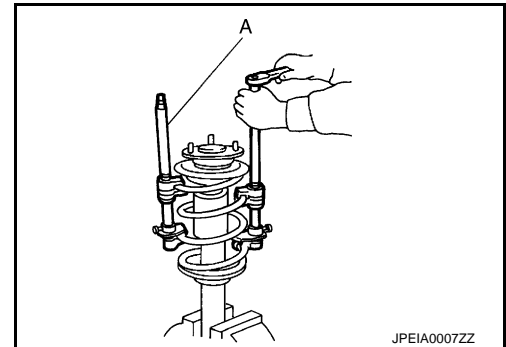
**Never reuse piston rod lock nut.**



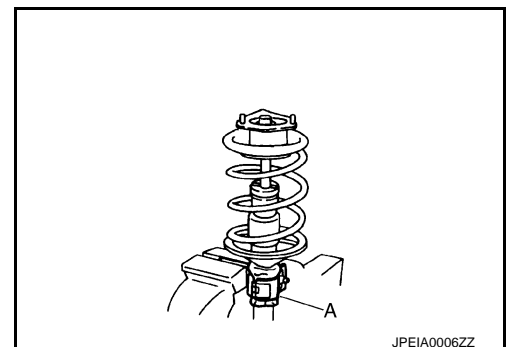
8. Gradually release a spring compressor (A) (commercial service tool), and remove coil spring.

**CAUTION:**

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



9. Remove the strut attachment (A) [SST: ST35652000 ( — )] from strut assembly.



## Inspection

INFOID:000000007495811

## INSPECTION AFTER DISASSEMBLY

# FRONT COIL SPRING AND STRUT

## < REMOVAL AND INSTALLATION >

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-114, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-6, "Inspection"](#).

## Disposal

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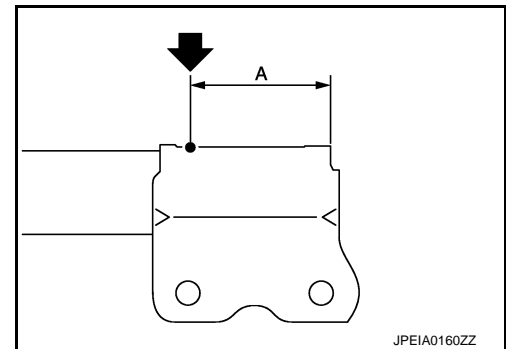
1. Set strut assembly horizontally to the ground with the piston rod fully extracted.
2. Drill 2 – 3 mm (0.08 – 0.12 in) hole at the position (●) from top as shown in the figure to release gas gradually.

### CAUTION:

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

### NOTE:

- Drill vertically in this direction show by arrow.
- 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.**

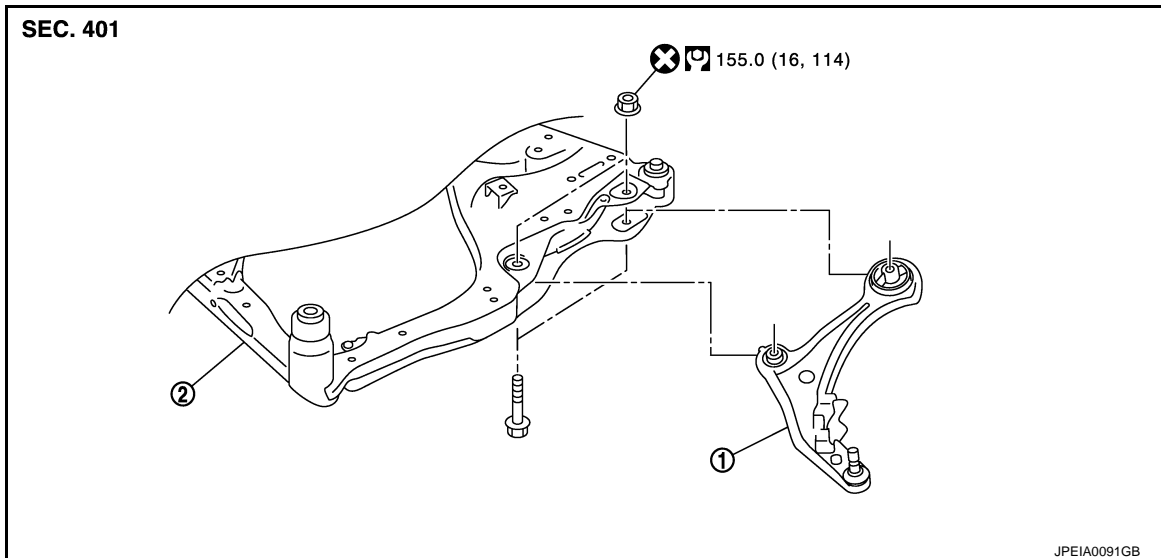
# TRANSVERSE LINK

< REMOVAL AND INSTALLATION >

## TRANSVERSE LINK

### Exploded View

INFOID:000000007495813



1. Transverse link
2. Front suspension member

: N·m (kg·m, ft·lb)

: Always replace after every disassembly.

## Removal and Installation

INFOID:000000007495814

### REMOVAL

1. Remove tires with power tool. Refer to [WT-43, "Exploded View"](#).
2. Remove drive shaft from wheel hub assembly.
  - Left side: Refer to [FAX-17, "LEFT SIDE : Removal and Installation"](#).
  - Right side: Refer to [FAX-18, "RIGHT SIDE : Removal and Installation"](#).
3. Separate transverse link from steering knuckle. Refer to [FAX-8, "Exploded View"](#).
4. 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-12, "Inspection"](#).

### Inspection

INFOID:000000007495815

### 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

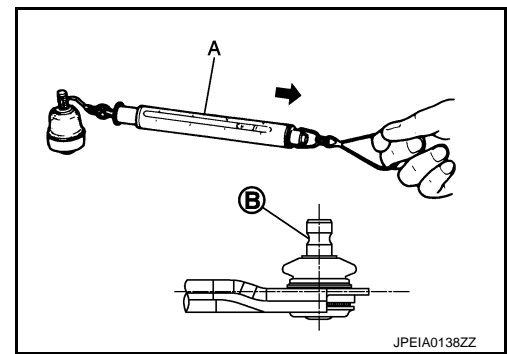
### < REMOVAL AND INSTALLATION >

- 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-20, "Ball Joint"](#).

**Measurement on spring balance** : Refer to [FSU-20, "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-20, "Ball Joint"](#).

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

### INSPECTION AFTER INSTALLATION

- Check wheel sensor harness for proper connector. Refer to [BRC-114, "FRONT WHEEL SENSOR : Exploded View"](#).
- Check wheel alignment. Refer to [FSU-6, "Inspection"](#).

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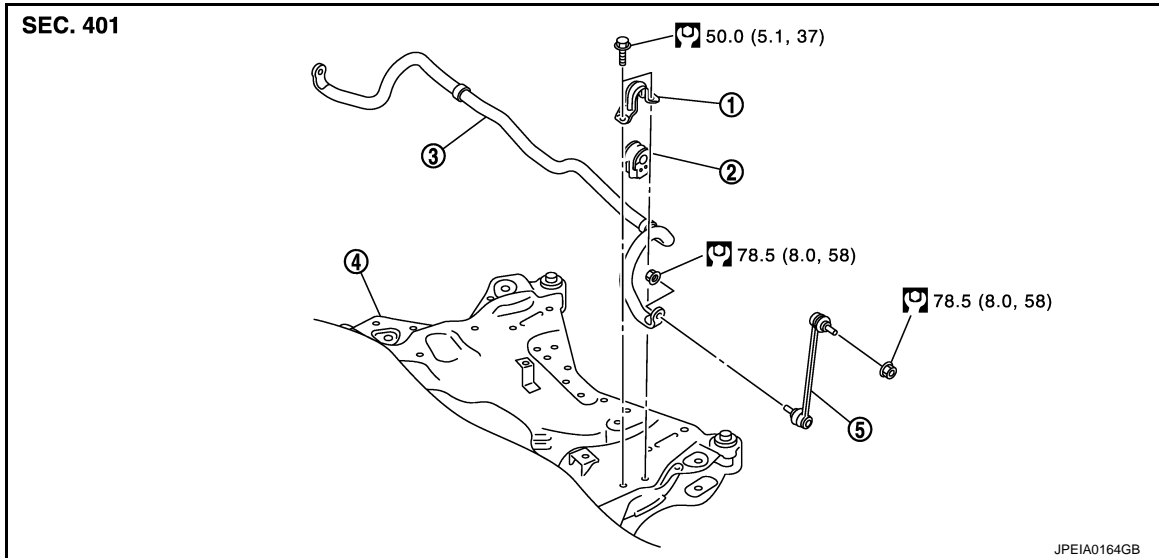
# FRONT STABILIZER

< REMOVAL AND INSTALLATION >

## FRONT STABILIZER

Exploded View

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

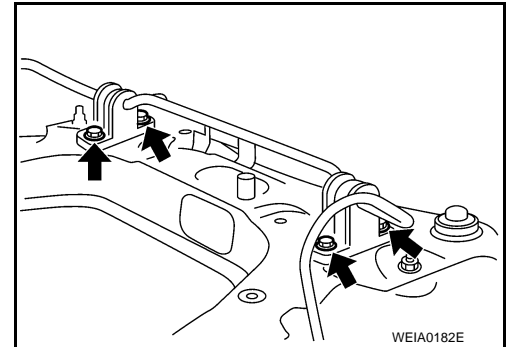
: N-m (kg-m, ft-lb)

## Removal and Installation

INFOID:000000007495817

### REMOVAL

1. Remove tires with power tool. Refer to [WT-43, "Exploded View"](#).
2. Remove exhaust front tube. Refer to [EX-6, "Removal and Installation"](#).
3. Remove wheel sensor harness from strut assembly. Refer to [BRC-114, "FRONT WHEEL SENSOR : Removal and Installation"](#).
4. Separate steering outer socket from steering knuckle. Refer to [ST-21, "Removal and Installation"](#).
5. Remove stabilizer connecting rod.
6. Remove drive shaft (right side). Refer to [FAX-18, "RIGHT SIDE : Removal and Installation"](#).
7. Remove mounting bolts () of stabilizer clamp, and then remove stabilizer clamp and stabilizer bushing from front suspension member.
8. Remove stabilizer bar.
9. Perform inspection after removal. Refer to [FSU-15, "Inspection"](#).



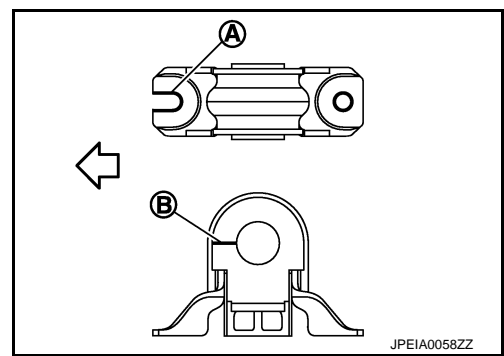
### INSTALLATION

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

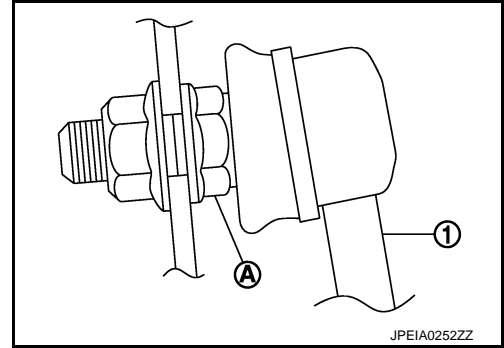
# FRONT STABILIZER

## < REMOVAL AND INSTALLATION >

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



- To install stabilizer 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-12. "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

1. Check wheel sensor harness for proper connector. Refer to [BRC-114. "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-6. "Inspection"](#).

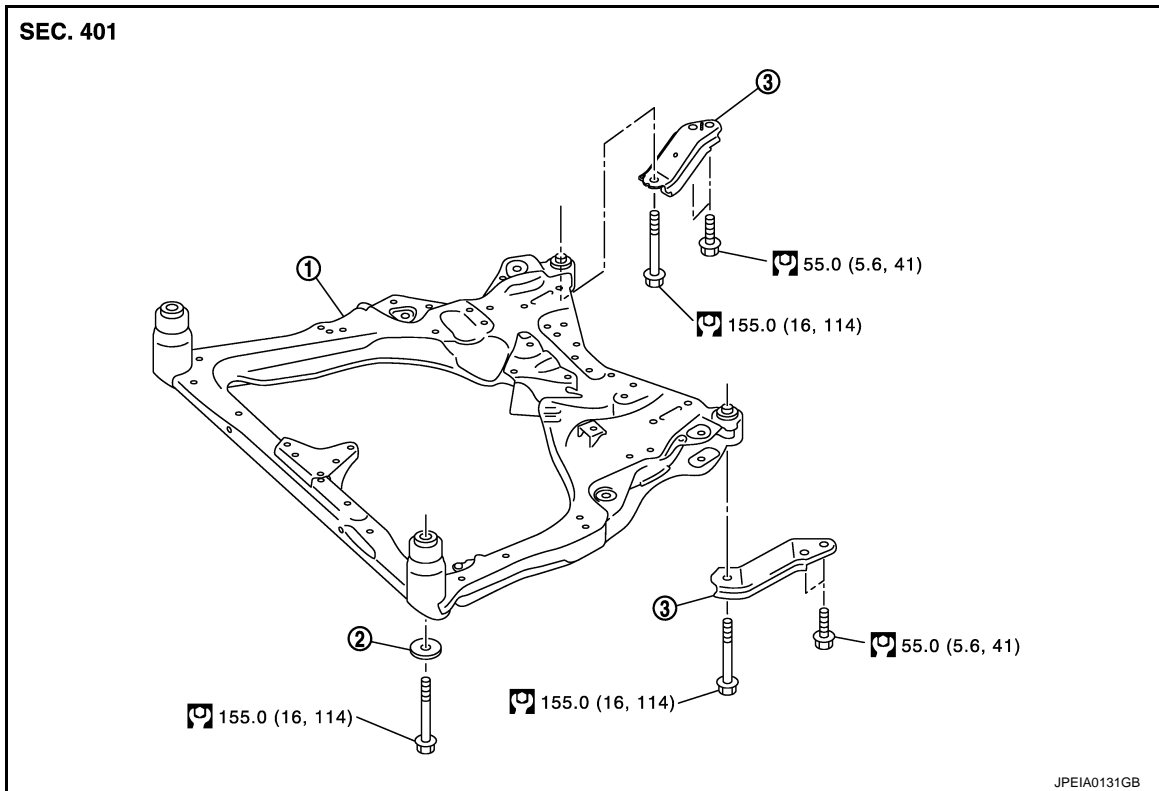
# FRONT SUSPENSION MEMBER

< REMOVAL AND INSTALLATION >

## FRONT SUSPENSION MEMBER

Exploded View

INFOID:000000007495819



1. Front suspension member      2. Rebound stopper      3. Front suspension member stay

: N·m (kg·m, ft·lb)

## Removal and Installation

INFOID:000000007495820

### REMOVAL

1. Remove tires with power tool. Refer to [WT-43, "Exploded View"](#).
2. Remove the engine and the transaxle assembly from the vehicle together with the front suspension member. Refer to [EM-56, "Removal and Installation"](#).
3. Remove the following parts from front suspension member.
  - Engine assembly: Refer to [EM-56, "Removal and Installation"](#).
  - Transaxle assembly: Refer to [TM-163, "Removal and Installation"](#).
  - Steering gear assembly: Refer to [ST-21, "Removal and Installation"](#).
  - Steering hydraulic line: Refer to [ST-34, "Exploded View"](#).
  - Stabilizer bar: Refer to [FSU-14, "Removal and Installation"](#).
  - Transverse link: Refer to [FSU-12, "Removal and Installation"](#).
4. Perform inspection after removal. Refer to [FSU-12, "Inspection"](#).

### INSTALLATION

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

- 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"](#).

### Inspection

INFOID:000000007495821

### INSPECTION AFTER REMOVAL



## FRONT SUSPENSION MEMBER

### < REMOVAL AND INSTALLATION >

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

### INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connector. Refer to [BRC-114, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-6, "Inspection"](#).

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## SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

# SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### Wheel Alignment

INFOID:000000007495822

### FOR USA MODELS

Item		Standard		
		Left side	Right side	
Camber Degree minute (Decimal degree)	Minimum	-1° 00' (-1.00°)	-1° 15' (-1.25°)	
	Nominal	-0° 15' (-0.25°)	-0° 30' (-0.50°)	
	Maximum	0° 30' (0.50°)	0° 15' (0.25°)	
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)		
Caster Degree minute (Decimal degree)	Minimum	3° 55' (3.92°)	4° 05' (4.09°)	
	Nominal	4° 40' (4.67°)	4° 50' (4.83°)	
	Maximum	5° 25' (5.41°)	5° 35' (5.58°)	
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)		
Kingpin inclination Degree minute (Decimal degree)	Minimum	12° 00' (12.00°)		
	Nominal	12° 45' (12.75°)		
	Maximum	13° 30' (13.50°)		
Toe-in	Total toe-in Distance	Minimum	Out 0.4 mm (0.016 in)	
		Nominal	In 0.6 mm (0.024 in)	
		Maximum	In 1.6 mm (0.063 in)	
	Toe angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)	In 0° 01' (0.02°)
		Nominal	In 0° 04' (0.07°)	In 0° 03' (0.05°)
		Maximum	In 0° 06' (0.10°)	In 0° 05' (0.08°)

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.

### FOR CANADA MODELS

#### For 3.5S Grade

Item		Standard	
		Left side	Right side
Camber Degree minute (Decimal degree)	Minimum	-1° 00' (-1.00°)	-1° 15' (-1.25°)
	Nominal	-0° 15' (-0.25°)	-0° 30' (-0.50°)
	Maximum	0° 30' (0.50°)	0° 15' (0.25°)
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)	
Caster Degree minute (Decimal degree)	Minimum	3° 50' (3.84°)	4° 05' (4.09°)
	Nominal	4° 35' (4.58°)	4° 50' (4.83°)
	Maximum	5° 20' (5.33°)	5° 35' (5.58°)
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)	
Kingpin inclination Degree minute (Decimal degree)	Minimum	12° 00' (12.00°)	
	Nominal	12° 45' (12.75°)	
	Maximum	13° 30' (13.50°)	

# SERVICE DATA AND SPECIFICATIONS (SDS)

## < SERVICE DATA AND SPECIFICATIONS (SDS)

Item			Standard	
			Left side	Right side
Toe-in	Total toe-in Distance	Minimum	Out 0.4 mm (0.016 in)	
		Nominal	In 0.6 mm (0.024 in)	
		Maximum	In 1.6 mm (0.063 in)	
	Toe angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)	In 0° 01' (0.02°)
		Nominal	In 0° 04' (0.07°)	In 0° 03' (0.05°)
		Maximum	In 0° 06' (0.10°)	In 0° 05' (0.08°)

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.

For 3.5SV Grade

FSU

Item			Standard	
			Left side	Right side
Camber Degree minute (Decimal degree)	Minimum	-1° 00' (-1.00°)	-1° 15' (-1.25°)	
	Nominal	-0° 15' (-0.25°)	-0° 30' (-0.50°)	
	Maximum	0° 30' (0.50°)	0° 15' (0.25°)	
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)		
Caster Degree minute (Decimal degree)	Minimum	3° 50' (3.84°)	4° 00' (4.00°)	
	Nominal	4° 35' (4.58°)	4° 45' (4.75°)	
	Maximum	5° 20' (5.33°)	5° 30' (5.50°)	
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)		
Kingpin inclination Degree minute (Decimal degree)	Minimum	12° 00' (12.00°)		
	Nominal	12° 45' (12.75°)		
	Maximum	13° 30' (13.50°)		
Toe-in	Total toe-in Distance	Minimum	Out 0.4 mm (0.016 in)	
		Nominal	In 0.6 mm (0.024 in)	
		Maximum	In 1.6 mm (0.063 in)	
	Toe angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)	In 0° 01' (0.02°)
		Nominal	In 0° 04' (0.07°)	In 0° 03' (0.05°)
		Maximum	In 0° 06' (0.10°)	In 0° 05' (0.08°)

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.

For 3.5SL and 3.5LE Grade

Item			Standard	
			Left side	Right side
Camber Degree minute (Decimal degree)	Minimum	-1° 00' (-1.00°)	-1° 15' (-1.25°)	
	Nominal	-0° 15' (-0.25°)	-0° 30' (-0.50°)	
	Maximum	0° 30' (0.50°)	0° 15' (0.25°)	
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)		

# SERVICE DATA AND SPECIFICATIONS (SDS)

## < SERVICE DATA AND SPECIFICATIONS (SDS)

Item		Standard		
		Left side	Right side	
Caster Degree minute (Decimal degree)	Minimum	3° 55' (3.92°)	4° 05' (4.09°)	
	Nominal	4° 40' (4.67°)	4° 50' (4.83°)	
	Maximum	5° 25' (5.41°)	5° 35' (5.58°)	
	Left and right difference*1	-0° 18' (-0.30°) - 0° 48' (0.80°)		
Kingpin inclination Degree minute (Decimal degree)	Minimum	12° 00' (12.00°)		
	Nominal	12° 45' (12.75°)		
	Maximum	13° 30' (13.50°)		
Toe-in	Total toe-in Distance	Minimum	Out 0.4 mm (0.016 in)	
		Nominal	In 0.6 mm (0.024 in)	
		Maximum	In 1.6 mm (0.063 in)	
	Toe angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)	In 0° 01' (0.02°)
		Nominal	In 0° 04' (0.07°)	In 0° 03' (0.05°)
		Maximum	In 0° 06' (0.10°)	In 0° 05' (0.08°)

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

INFOID:000000007495823

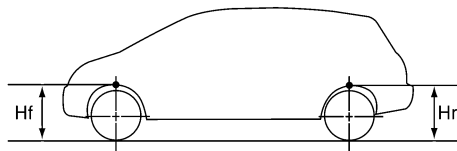
Item	Standard
Swing torque	0.5 – 4.9 N·m (0.06 – 0.49 kg-m, 5 – 43 in-lb)
Measurement on spring balance	11.1 – 108.9 N (1.2 – 11.1 kg, 3 – 24 lb)
Axial end play	0 mm (0 in)

## Wheelarch Height

INFOID:000000007495824

### FOR USA MODELS

Item	Standard			
	3.5S	3.5SV	3.5SL	3.5LE
Grade				
Front (Hf)	760 mm (29.92 in)		769 mm (30.28 in)	770 mm (30.31 in)
Rear (Hr)	751 mm (29.57 in)		760 mm (29.92 in)	759 mm (29.88 in)



WEIA0030E

Measure value under unladen\* conditions.

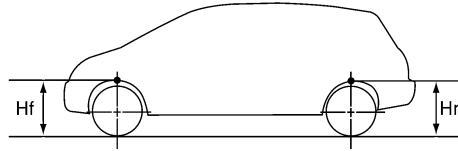
\*: Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.

### FOR CANADA MODELS

# SERVICE DATA AND SPECIFICATIONS (SDS)

## < SERVICE DATA AND SPECIFICATIONS (SDS)

Item	Standard			
	3.5S	3.5SV	3.5SL	3.5LE
Grade				
Front (Hf)	760 mm (29.92 in)		770 mm (30.31 in)	
Rear (Hr)	752 mm (29.61 in)	751 mm (29.57 in)	760 mm (29.92 in)	



WEIA0030E

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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**FSU**