SECTION FSU
FRONT SUSPENSION

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012894898

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 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 or batteries, and wait at least three minutes before performing any service.**

Precaution for Procedure without Cowl Top Cover

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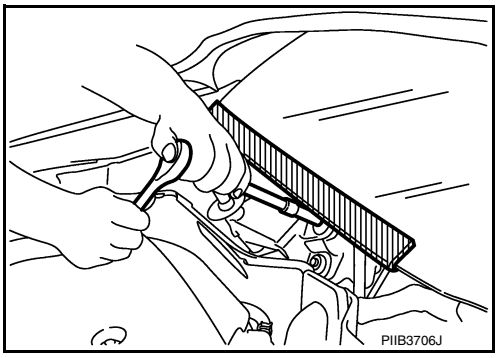
When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precautions for Suspension

INFOID:0000000012894900

- 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.

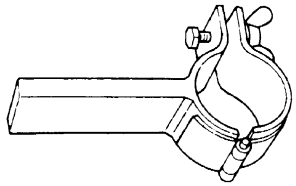
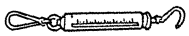
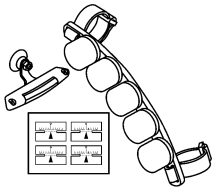
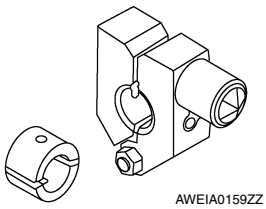
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000012894901

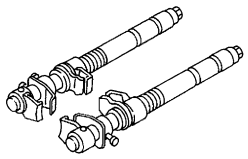
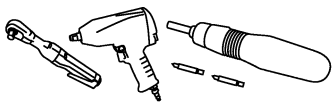
The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name		Description
ST35652000 (—) Strut attachment	 ZZA0807D	Securing strut outer tube in a vise while disassembling and assembling front coil spring and strut.
— (J-44372) Pull gauge	 LST024	Measuring ball joint swinging force
— (J-49286) Drift and Pull gauge	 AWEIA0156ZZ	Measuring drift and pull
— (J-49029) Strut rod clamp	 AWEIA0159ZZ	Securing strut rod while disassembling and assembling front coil spring and strut.

Commercial Service Tool

INFOID:0000000012894902

Tool name	Description

Spring compressor  S-NT717	Removing and installing coil spring
Power tool  PIIB1407E	Loosening nuts, screws and bolts

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000012894903

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

Reference page			FSU-10, FSU-13, FSU-15, FSU-18, FSU-20	FSU-10, "Removal and Installation"	—	—	—	FSU-10, FSU-13, FSU-15, FSU-18, FSU-20	FSU-25, "Wheel Alignment (Unladen*1)"	—	DLN-87	DLN-102	FAX-5	WT-61	WT-61	FAX-5	BR-6	ST-28
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 fatigue	PROPELLER SHAFT (AWD)	DIFFERENTIAL (AWD)	FRONT AXLE	TIRE	WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	FRONT SUSPENSION	Noise	×	×	×	×	×	×			×	×	×	×	×	×	×	×
		Shake	×	×	×	×		×			×		×	×	×	×	×	×
		Vibration	×	×	×	×	×				×		×	×		×		×
		Shimmy	×	×	×	×			×					×	×		×	×
		Shudder	×	×	×									×	×		×	×
		Poor quality ride or handling	×	×	×	×	×		×	×				×	×			

×: Applicable

PERIODIC MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection

INFOID:0000000013506406

ON-VEHICLE SERVICE

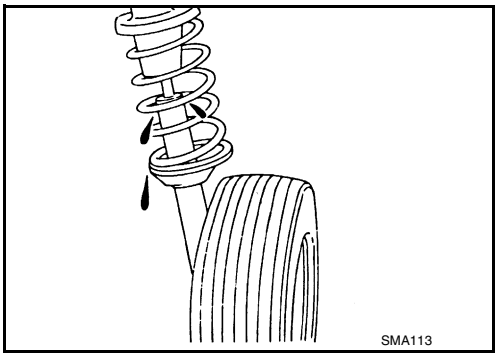
- Check the suspension parts for excessive play, cracks, wear or damage. Shake each front wheel to check for excessive play.
- Retighten all nuts and bolts to the specified torque.
- Make sure that each cotter pin is installed.
- Check the wheelarch height. Refer to FSU-26, "Wheelarch Height (Unladen*)".

INSPECTION

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

FRONT COIL SPRING AND STRUT

Check for oil leakage and damage. Replace parts if necessary.



TRANSVERSE LINK

- Check the transverse link for damage, cracks, deformation and replace if necessary.
- Check the rubber bushings for damage, cracks and deformation. Replace transverse link if necessary.
- Check the suspension ball joint for grease leaks and the ball joint dust cover for cracks or other damage.
- Check the ball joint. Replace the suspension arm if the ball stud is worn or the joint is hard to swing.

FRONT STABILIZER

- Check the front stabilizer and clamps for any deformation, cracks or damage and replace if necessary.
- Check the rubber bushings for deterioration or cracks and replace if necessary.

STEERING KNUCKLE

Check the steering knuckle for any deformation, cracks, or other damage and replace if necessary.

WHEEL ALIGNMENT

Inspection

INFOID:0000000012894905

PRELIMINARY INSPECTION

WARNING:
Always adjust wheel alignment with vehicle on a flat surface.
NOTE:
If wheel alignment is out of specification, inspect and replace any damaged or worn suspension parts before making any adjustments.
Check the following:

- Check and adjust wheel alignment with vehicle under unladen conditions. “Unladen conditions” means that fuel, engine coolant, and lubricants are full; spare tire, jack, hand tools and mats are in designated positions.
- Check tires for incorrect air pressure and excessive wear. Refer to WT-72, "Tire Air Pressure".
- Check wheels for deformation, cracks, and other damage. Remove wheel and check wheel runout. Refer to WT-62, "Inspection".
- Check wheel bearing axial end play. Refer to FAX-6, "Inspection".
- Check struts for leaks or damage.
- Check each mounting point of suspension components for any excessive looseness or damage.
- Check each link, arm, and suspension member for any damage.
- Check wheelarch height in unladen conditions. Refer to FSU-26, "Wheelarch Height (Unladen*)".

GENERAL INFORMATION AND RECOMMENDATIONS

1. 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 machine itself should be capable of accepting any NISSAN/INFINITI vehicle.
   - The alignment machine should be checked to ensure that it is level.
2. 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 alignment machine for their recommended Service/Calibration Schedule.

ALIGNMENT PROCESS

CAUTION:
If the vehicle is equipped with the Intelligent Cruise Control (ICC) system and the rear toe has been adjusted during a wheel alignment, the ICC sensor must be aligned. Refer to CCS-64, "ICC Sensor Adjustment".
IMPORTANT:
Use only the alignment specifications listed in this Service Manual. Refer to FSU-25, "Wheel Alignment (Unladen*1)".

1. When displaying the alignment settings, many alignment machines use “indicators”: (Green/red, plus or minus, Go/No Go.) **Do not use these indicators.**
   - The alignment specifications programmed into your alignment machine that operate these indicators may not be correct.
   - This may result in an ERROR.
2. Most camera-type alignment machines are equipped with both a “Rolling Compensation” method and an 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 are using for more information.

CAMBER, CASTER AND KINGPIN INCLINATION ANGLES INSPECTION

CAUTION:

Camber, caster, kingpin inclination angles cannot be adjusted.
Before inspection, set the front wheels onto a turning radius gauge. Set the rear wheels onto a pad that has the same height so the vehicle will remain horizontal.

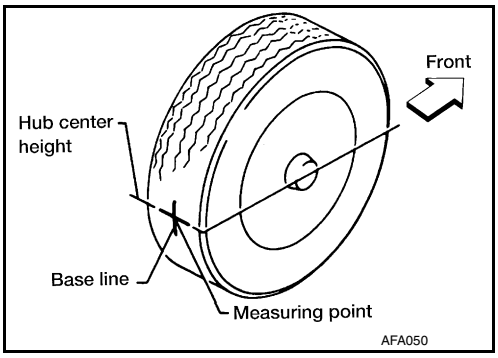
TOTAL TOE-IN INSPECTION

Measure the total toe-in using the following procedure:

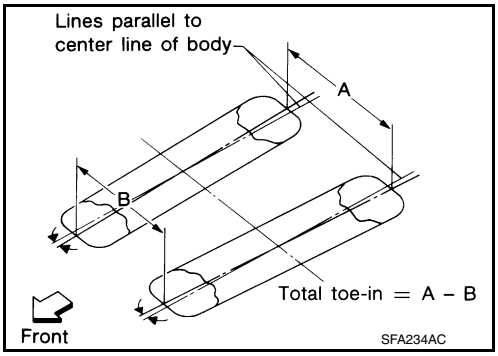
WARNING:

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

1. Bounce the front of vehicle up and down to stabilize the vehicle height (posture).
2. Push on the rear wheel to move the vehicle straight ahead about 5 m (16 ft).
3. Put a mark on the base line of the tread (rear side) of both tires at the same height of hub center. These are measuring points.



4. Measure the distance (A) from the rear side.
5. Push on the rear wheel to move the vehicle slowly ahead and to rotate the wheels 180 degrees (1/2 turn).
   CAUTION:
   If the wheels have rotated more than 180 degrees (1/2 turn), try the above procedure again from the beginning. Do not push vehicle backward.
6. Measure the distance (B) from the front side.



7. Use the formula below to calculate total toe-in.

Total toe-in formula	**: A - B**
Total toe-in specification	**: Refer to FSU-25, "Wheel Alignment (Unladen*1)".**

- If the total toe-in is outside the specification, adjust the total toe-in. Refer to FSU-8, "Adjustment".

Adjustment

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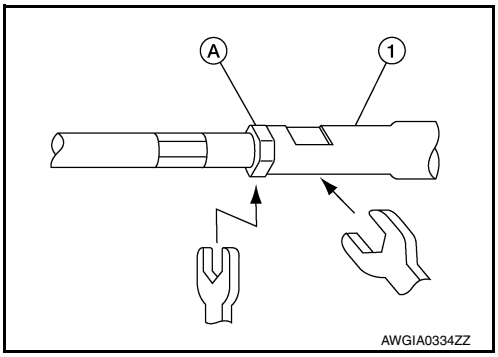
TOE-IN ADJUSTMENT

1. Loosen the inner socket lock nut (A).
   CAUTION:
   To prevent damage, hold outer socket (1) across flats using suitable tool while loosening inner socket lock nut.
2. Adjust the toe using the inner socket.
   CAUTION:
   Always evenly adjust toe using LH and RH inner sockets alternately and adjust the total toe-in to the standard.

Total toe-in	**: Refer to FSU-25, "Wheel Alignment (Unladen*1)".**



3. Tighten the inner socket lock nut. Refer to ST-34, "Exploded View".
   CAUTION:

- **To prevent damage, hold outer socket across flats using suitable tool while tightening inner socket lock nut.**
- **Inspect to make sure no boot deformation has occurred during toe-in adjustment. Adjust boot as necessary.**
- **If the vehicle is equipped with the Intelligent Cruise Control (ICC) system and the rear toe has been adjusted during a wheel alignment, the ICC sensor must be aligned. Refer to CCS-64, "ICC Sensor Adjustment".**

4. After toe-in adjustment, adjust neutral position of steering angle sensor. Refer to BRC-62, "Description".

REMOVAL AND INSTALLATION

FRONT COIL SPRING AND STRUT

Exploded View

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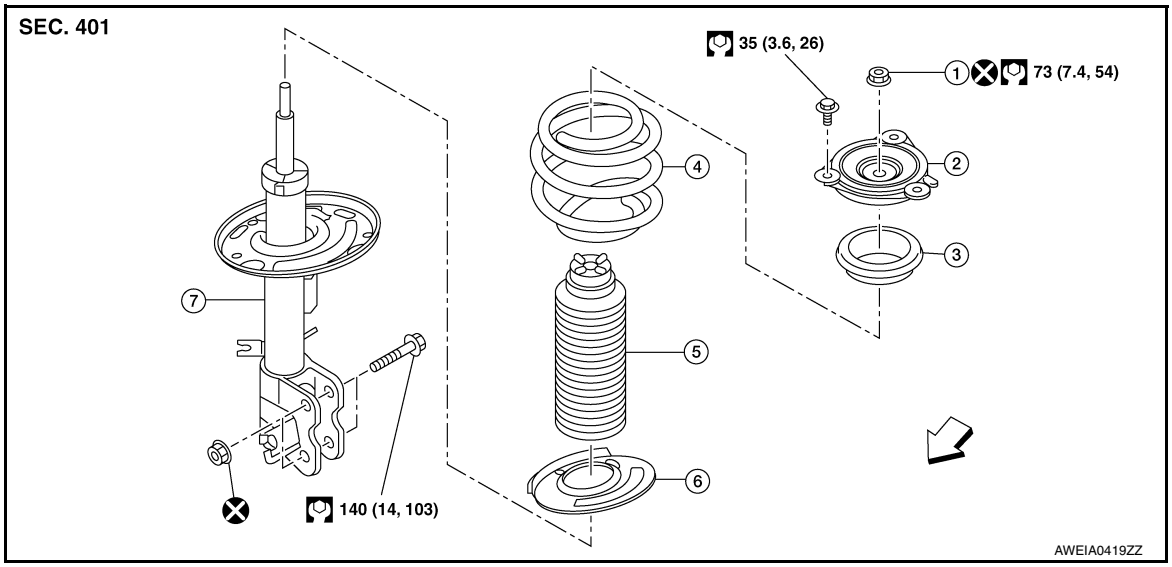


1. Piston rod lock nut
2. Strut mount insulator
3. Strut mount bearing
4. Front coil spring
5. Bound bumper
6. Lower rubber seat
7. Strut

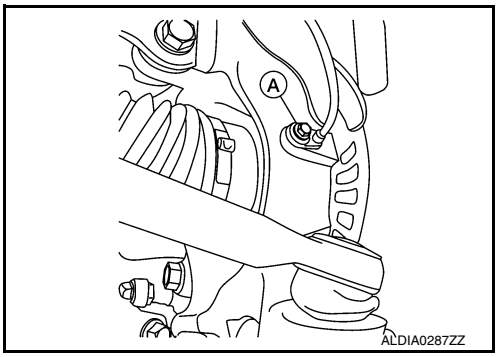
⇦ Front

Removal and Installation

INFOID:0000000012894908

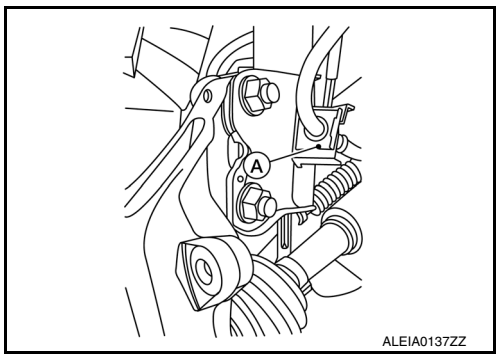
REMOVAL

1. Remove strut bolt access panel from cowl top.
2. Remove strut bolt grommet from cowl top extension.
3. Remove strut mount insulator bolts using power tool.
4. Remove wheel and tire using power tool. Refer to WT-66, "Removal and Installation".
5. Remove bolt (1) and separate front wheel sensor from steering knuckle. Refer to BRC-167, "FRONT WHEEL SENSOR : Exploded View".
   CAUTION:
   - **Failure to separate front wheel sensor from steering knuckle may result in damage to front wheel sensor.**
   - **Pull out front wheel sensor being careful to turn it as little as possible. Do not pull on wheel sensor harness.**

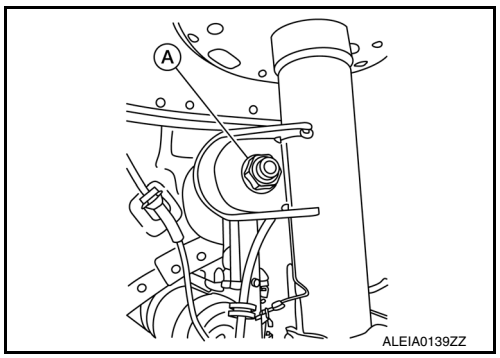


6. Separate front wheel sensor harness from front coil spring and strut.

7. Remove brake hose lock plate (A).



8. Remove stabilizer connecting rod nut (A) from front coil spring and strut. Position stabilizer connecting rod aside. Refer to FSU-15, "Exploded View".



9. Remove lower strut nuts and bolts using power tool.
10. Remove front coil spring and strut.

INSPECTION AFTER REMOVAL

Strut

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

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

Strut Mount Insulator, Strut Mount Bearing, and Rubber Parts Inspection

Check strut mount insulator and strut mount bearing for cracks. Check rubber parts for wear. Replace parts if necessary.

Front Coil Spring

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

INSTALLATION

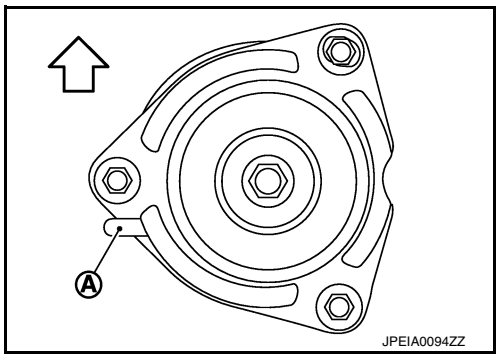
Installation is in reverse order of removal.

CAUTION:

Do not reuse lower strut nuts.

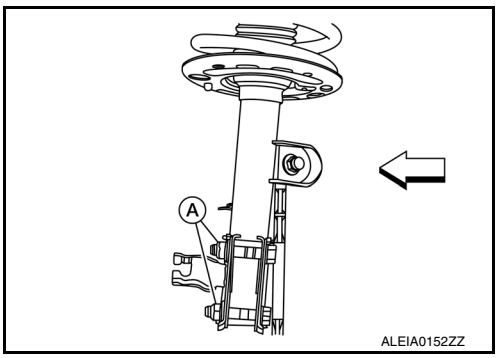
- Be sure tab (A) on strut mount insulator is positioned as shown.

⇦ : Front



- Be sure lower strut nuts (A) are facing front of vehicle.

⇦ : Front



- Check wheel alignment. Refer to FSU-7, "Inspection".
- Adjust neutral position of steering angle sensor. Refer to BRC-62, "Description".
- After replacing the strut, follow disposal procedure to discard old strut. Refer to FSU-12, "Disposal".

Disposal

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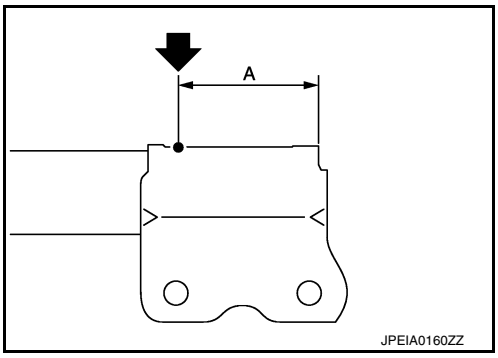
1. Set strut horizontally with piston rod fully extended.
2. Drill a 2 – 3 mm (0.08 – 0.12 in) hole at position (●) from top as shown to release gas gradually.
   CAUTION:
   - **Wear eye protection (safety glasses).**
   - **Wear gloves.**
   - **Be careful with metal chips or oil blown out by compressed gas.**

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



(A) : 20 – 30 mm (0.79 – 1.18 in)

3. Position drilled hole downward and drain oil by moving piston rod several times.
   CAUTION:
   Dispose of drained oil according to the law and local regulations.

TRANSVERSE LINK

Exploded View

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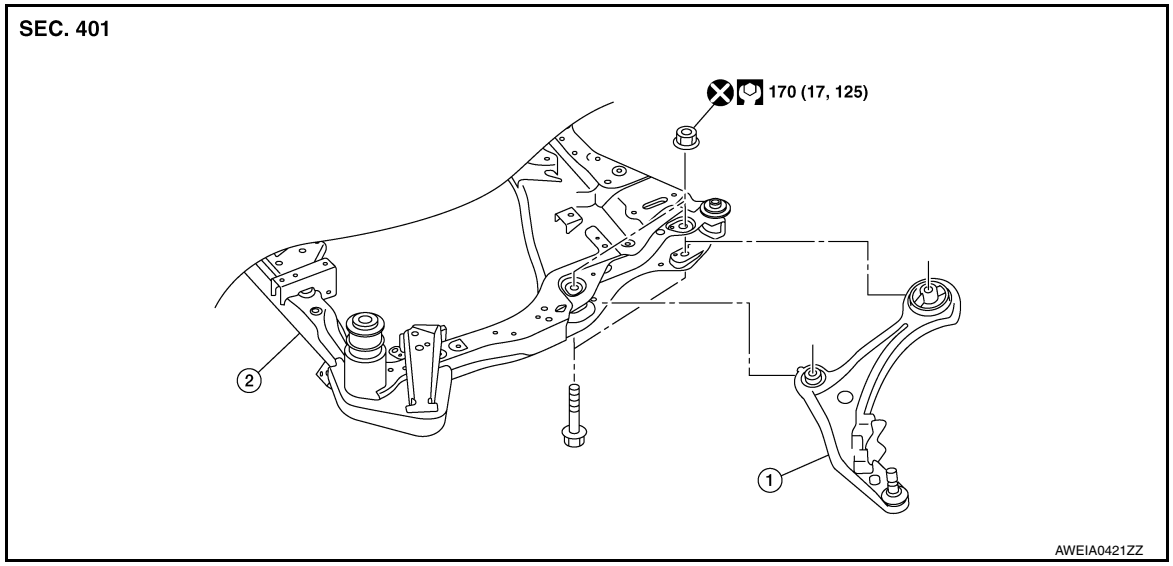


1. Transverse link
2. Front suspension member

Removal and Installation

INFOID:0000000012894911

REMOVAL

1. Remove steering knuckle with wheel hub and bearing. Refer to FSU-18, "Removal and Installation".
2. Remove transverse link nuts and bolts from suspension member.
3. Remove transverse link from suspension member.

INSPECTION AFTER REMOVAL

Ball Joint Inspection

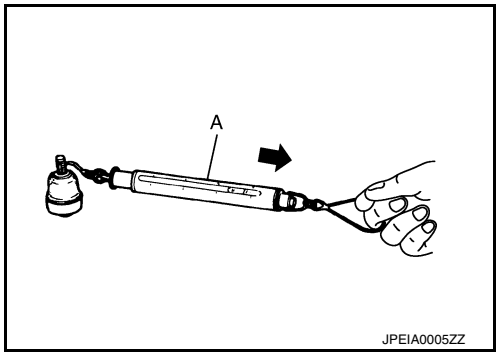
Manually move ball joint to confirm it moves smoothly with no binding.

Swinging Torque Inspection

1. Move ball joint at least ten times by hand to check for smooth movement.
2. Hook Tool (A) on ball joint at pinch bolt location. Confirm measurement value is within specifications when ball joint 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 joint at least ten times by hand to check for smooth movement.
2. Confirm measurement value is within specifications when ball joint begins rotating.

Rotating torque : Refer to FSU-25, "Ball Joint".

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

Axial End Play Inspection

1. Move ball joint at least ten times by hand to check for smooth movement.

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

Axial end play : Refer to FSU-25, "Ball Joint".

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

INSTALLATION

Installation is in reverse order of removal.

CAUTION:

- **Do not reuse transverse link nuts at front suspension member.**
- **Do not reuse steering knuckle lower nut.**
- Perform final tightening of bolts and nuts at front suspension member under unladen conditions with tires on level ground.
- Check wheel alignment. Refer to FSU-7, "Inspection".
- Adjust neutral position of steering angle sensor. Refer to BRC-62, "Description".

FRONT STABILIZER

Exploded View

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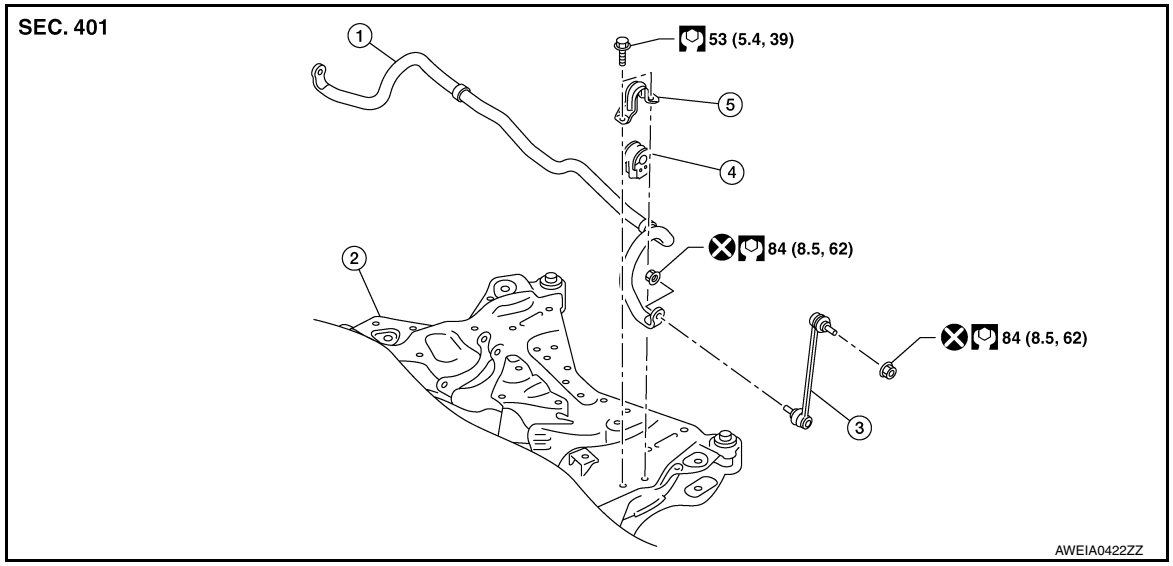


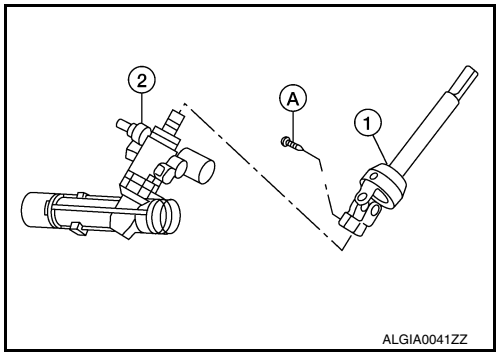
1. Stabilizer
2. Front suspension member
3. Stabilizer connecting rod
4. Stabilizer bushing
5. Stabilizer clamp

Removal and Installation

INFOID:0000000012894913

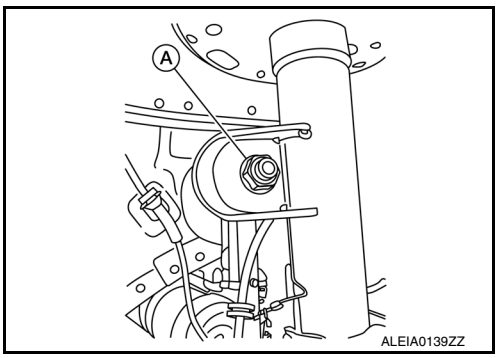
REMOVAL

1. Remove front wheels and tires using power tool. Refer to WT-66, "Removal and Installation".
2. For AWD vehicles, remove heat insulator.
3. For AWD vehicles, remove rear propeller shaft. Refer to DLN-89, "Removal and Installation".
4. Remove cotter pin from outer socket (LH).
5. Loosen outer socket nut (LH) and separate outer socket (LH) from steering knuckle using suitable tool.
   CAUTION:
   Leave outer socket nut half threaded on outer socket to prevent damage to threads and to prevent suitable tool from coming off suddenly.
6. Remove outer socket nut (LH) and separate outer socket (LH) from steering knuckle.
7. Remove front exhaust tube. Refer to EX-5, "Exploded View".
8. For FWD vehicles, remove engine rear mount bracket. Refer to EM-105, "FWD : Exploded View".
9. Remove bolt (A) and separate steering intermediate shaft (1) from steering gear (2).
   CAUTION:
   With steering linkage disconnected, spiral cable may snap by turning steering wheel beyond the limited number of turns. Secure steering wheel during removal of stabilizer.

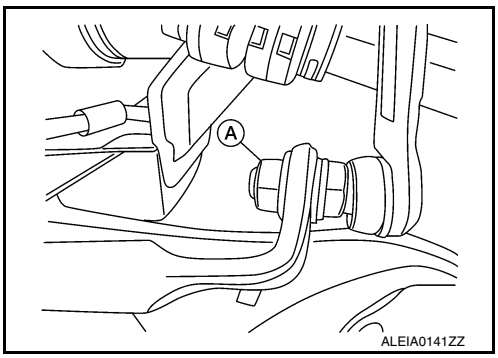


10. Remove steering gear heat shield.
11. Remove steering gear bolts. Refer to ST-42, "Exploded View".
12. Position steering gear forward.

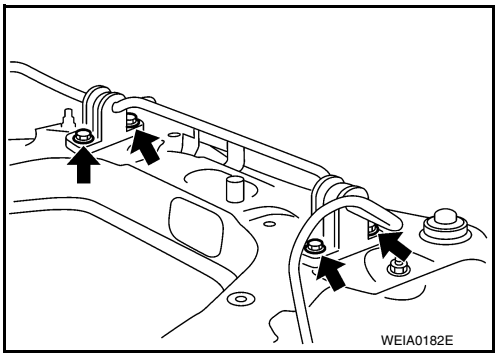
13. Remove stabilizer connecting rod upper nuts (A) from front coil spring and struts (LH/RH).



14. Remove stabilizer connecting rod lower nuts (A) from stabilizer, and remove stabilizer connecting rods (LH/RH).



15. Remove bolts (⬅) from stabilizer clamps, and then remove stabilizer clamps and stabilizer bushings from front suspension member.



16. Remove stabilizer from (LH) side of vehicle.

INSTALLATION

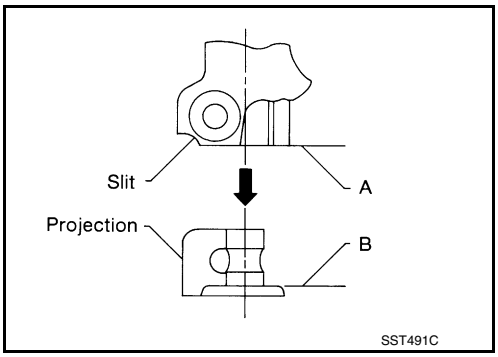
Installation is in reverse order of removal.

CAUTION:

- **With steering linkage disconnected, spiral cable may snap by turning steering wheel beyond the limited number of turns. Secure steering wheel during installation of stabilizer.**
- **Do not reuse stabilizer connecting rod nuts.**

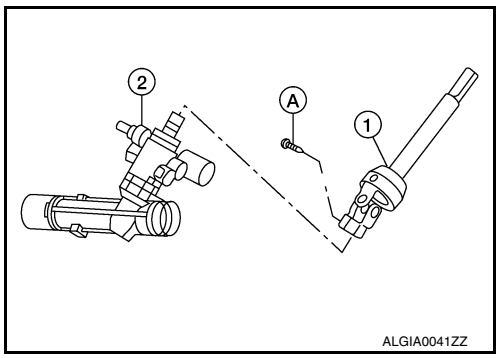
NOTE:

Align the slit on steering intermediate shaft with projection on steering gear. Connect surface (A) to surface (B).



CAUTION:

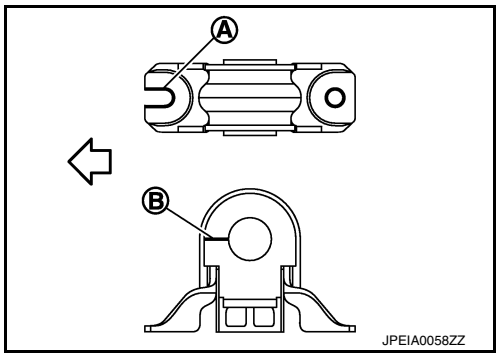
When connecting steering intermediate shaft (1) to steering gear (2), first finger-tighten joint retaining bolt (A) then tighten to specification. The joint retaining bolt is directional. Refer to ST-32, "Exploded View".



WARNING:

After torquing outer socket nut, be sure to install cotter pin through outer socket stud hole and bend cotter pin around outer socket stud.

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

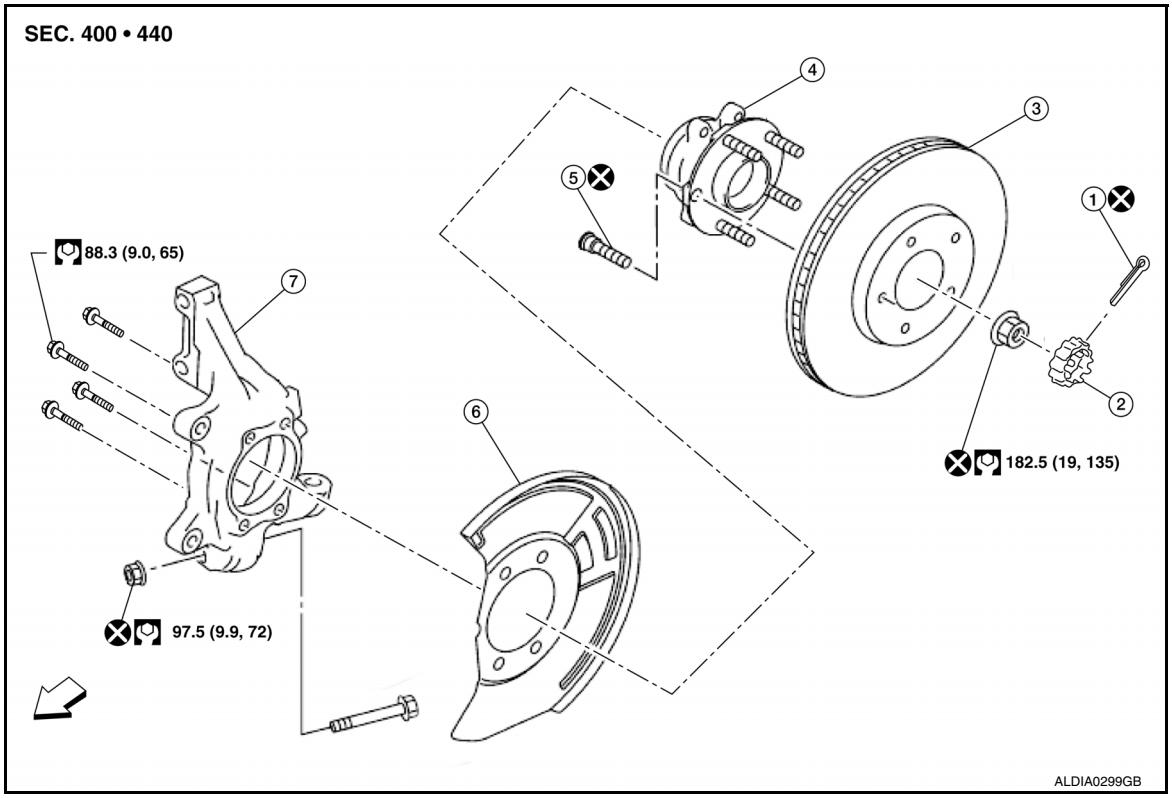


- Check wheel alignment. Refer to FSU-7, "Inspection".
- Adjust neutral position of steering angle sensor. Refer to BRC-62, "Description".

STEERING KNUCKLE

Exploded View

INFOID:0000000012894914



1. Cotter pin
2. Nut retainer
3. Disc brake rotor
4. Wheel hub and bearing
5. Wheel stud
6. Splash guard
7. Steering knuckle
⇦ Front

Removal and Installation

INFOID:0000000012894915

REMOVAL

1. Remove front wheel hub and bearing. Refer to FAX-8, "Removal and Installation".
2. Remove cotter pin from outer socket stud.
3. Loosen outer socket nut and separate outer socket from steering knuckle using suitable tool.
   CAUTION:
   Leave outer socket nut half threaded on outer socket to prevent damage to threads and to prevent suitable tool from coming off suddenly.
4. Remove outer socket nut and separate outer socket from steering knuckle.
5. Remove steering knuckle lower pinch bolt and separate transverse link from steering knuckle.
6. Remove lower strut nuts and bolts and then remove steering knuckle. Refer to FSU-10, "Exploded View".

INSPECTION AFTER REMOVAL

Check for deformity, cracks and damage on each part. Replace if necessary.

INSTALLATION

Installation is in reverse order of removal.

CAUTION:

- **Do not reuse lower strut nuts.**
- **Do not reuse wheel hub lock nut.**
- **Do not reuse cotter pin.**
- **Do not reuse steering knuckle lower nut.**

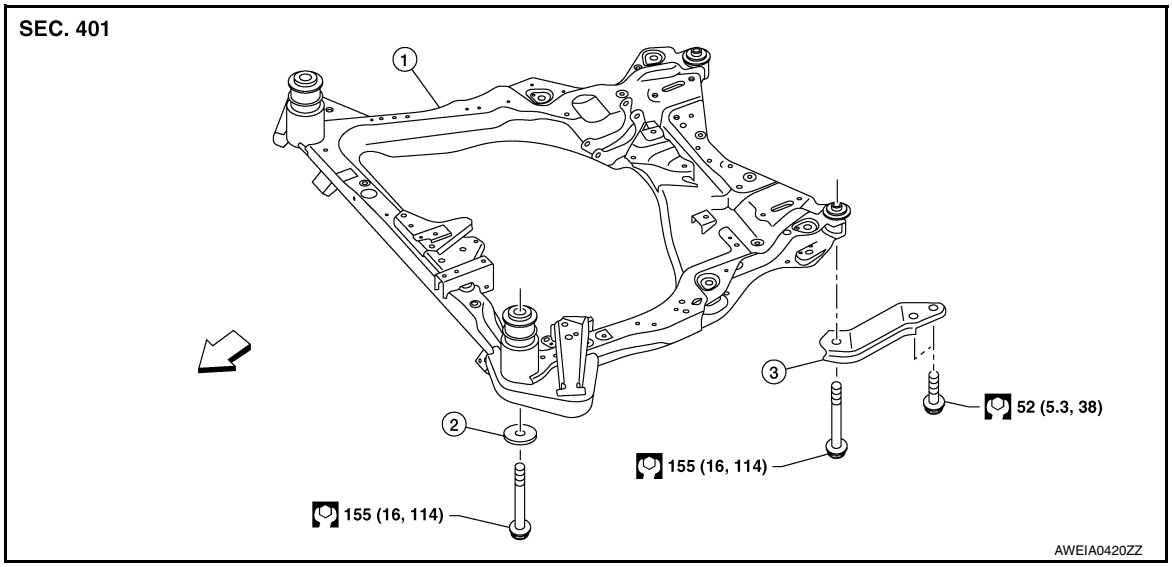
- Check wheel alignment. Refer to FSU-7, "Inspection".
- Adjust neutral position of the steering angle sensor. Refer to BRC-62, "Description".

UNIT REMOVAL AND INSTALLATION

FRONT SUSPENSION MEMBER

Exploded View

INFOID:0000000012894916



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

⇦ Front

Removal and Installation

INFOID:0000000012894917

REMOVAL

1. Remove engine and transmission with front suspension member. Lift engine and transmission off suspension member. Refer to EM-105, "FWD : Removal and Installation" (FWD) or EM-110, "AWD : Removal and Installation" (AWD).
   NOTE:
   Engine, transmission and suspension member must be removed as an assembly.
2. If necessary, remove steering knuckles. Refer to FSU-18, "Exploded View".
3. If necessary, remove transverse links. Refer to FSU-13, "Exploded View".
4. If necessary, remove stabilizer. Refer to FSU-15, "Exploded View".
5. If necessary, remove steering gear and hydraulic lines. Refer to ST-42, "Exploded View".

INSPECTION AFTER REMOVAL

Check front suspension member for significant deformation, cracks, or damages. Replace it if necessary.

INSTALLATION

Installation is in reverse order of removal.

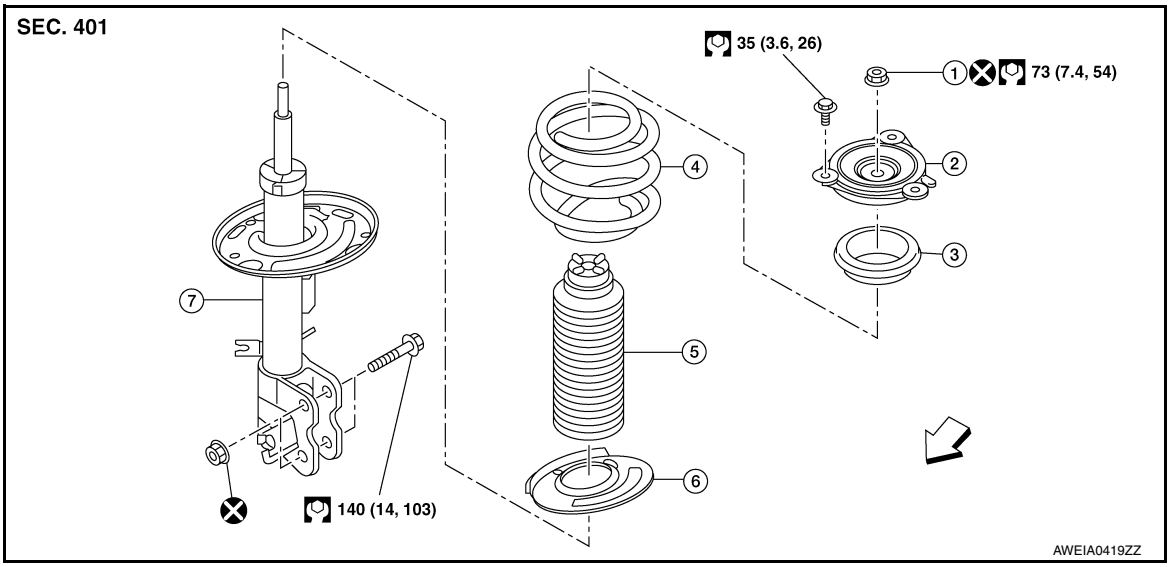
- After installation, perform final tightening of each part under unladen conditions with tires on level ground.
- Check wheel alignment. Refer to FSU-7, "Inspection".
- Adjust neutral position of the steering angle sensor. Refer to BRC-62, "Description".

UNIT DISASSEMBLY AND ASSEMBLY

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:0000000012894918



1. Piston rod lock nut
2. Strut mount insulator
3. Strut mount bearing
4. Front coil spring
5. Bound bumper
6. Lower rubber seat
7. Strut
- Front

Disassembly and Assembly

INFOID:0000000012894919

DISASSEMBLY

CAUTION:

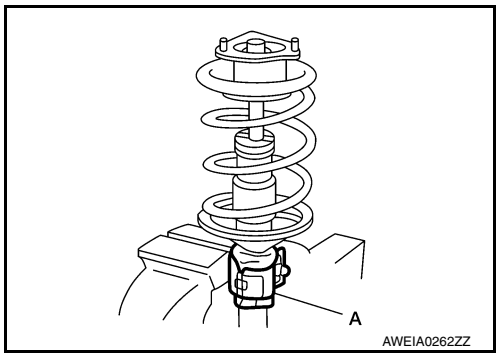
Do not damage piston rod when removing components from front coil spring and strut.

1. Install Tool (A) to front coil spring and strut.

   CAUTION:

   When installing Tool (A), wrap a shop cloth around front coil spring and strut to protect parts from damage.

   Tool number : ST35652000 (–)



2. Secure Tool (A) in a vise.

3. Install Tool to strut rod.

   Tool number : — (J-49029)

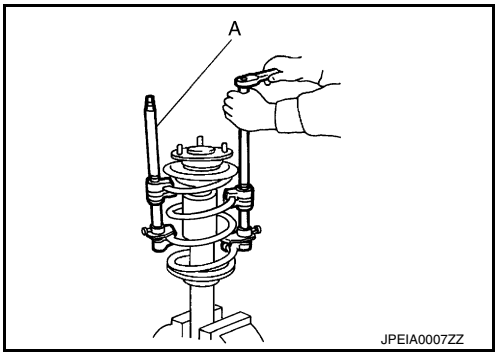
4. Slightly loosen piston rod lock nut.

   WARNING:

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

5. Compress front coil spring using suitable tool (A).

WARNING:
Make sure that pawls of suitable tool are firmly hooked on front coil spring. Suitable tool must be tightened alternately so as not to tilt front coil spring.



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

CAUTION:
Release suitable tool while making sure position of suitable tool on front coil spring does not move.

10. Remove lower rubber seat.

INSPECTION AFTER DISASSEMBLY

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

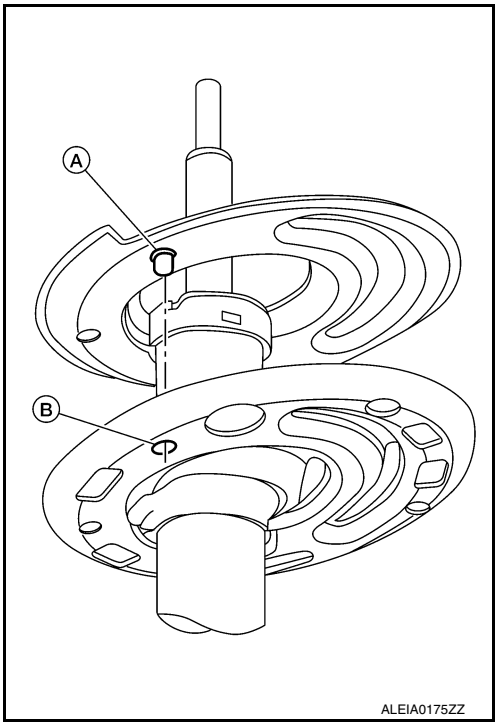
Insulator and Rubber Parts
Check strut mount insulator for cracks. Check rubber parts for wear. Replace parts if necessary.

Front Coil Spring
Check front coil spring for cracks, wear, and damage. Replace front coil spring if necessary.

ASSEMBLY

CAUTION:
Do not damage piston rod when installing components to front coil spring and strut.

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

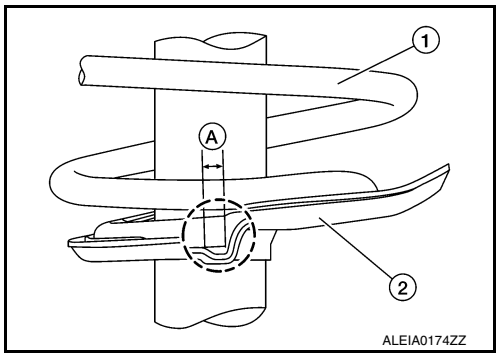


2. Compress front coil spring using suitable tool.

WARNING:
Make sure that pawls of suitable tool are firmly hooked on front coil spring. Suitable tool must be tightened alternately so as not to tilt front coil spring.

3. Align lower end of front coil spring (1) with lower rubber seat (2) as shown.

Maximum Gap (A) : 5 mm (0.2 in)



4. Connect bound bumper to strut mount bearing.

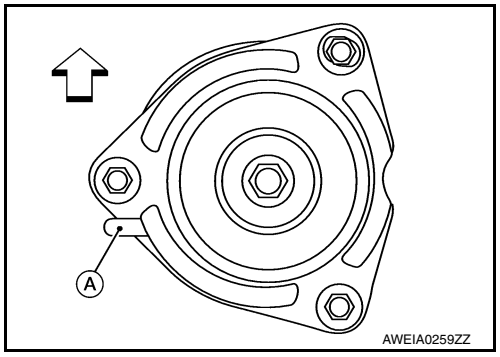
CAUTION:
- **Be sure to install bound bumper to strut mount bearing securely.**
- **When installing bound bumper, use soapy water. Do not use machine oil or other lubricants.**

5. Install strut mount bearing and strut mount insulator.
6. Temporarily install piston rod lock nut.

CAUTION:
Do not reuse piston rod lock nut.

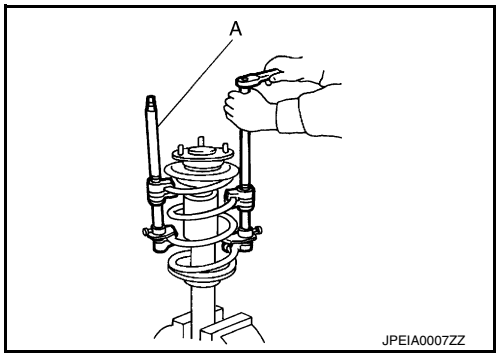
7. Be sure that tab (A) on strut mount insulator is positioned on outboard side of vehicle.

⇦ : Front



8. Gradually release suitable tool (A) and remove suitable tool from front coil spring.

CAUTION:
Release suitable tool while making sure position of suitable tool on front coil spring does not move.

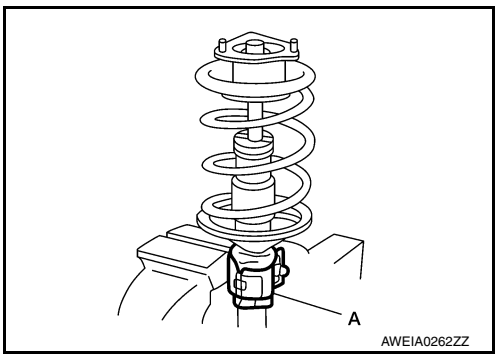


9. Tighten piston rod lock nut to specified torque. Refer to FSU-21, "Exploded View".
10. Remove Tool from strut rod.

Tool number : — (J-49029)

11. Remove Tool (A) from vise.
12. Remove Tool (A) from front coil spring and strut.

Tool number : ST35652000 (–)



13. After replacing strut, always follow disposal procedure to discard old strut. Refer to FSU-12, "Disposal".

SERVICE DATA AND SPECIFICATIONS (SDS)

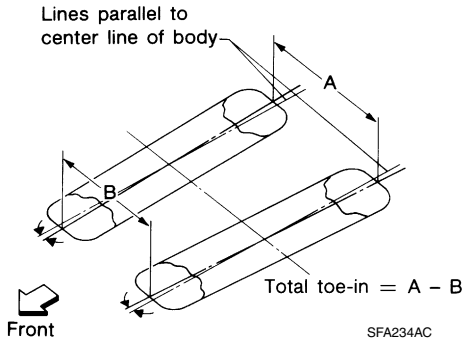
SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment (Unladen*1)

INFOID:0000000012894920

WARNING:
If the vehicle is equipped with the Intelligent Cruise Control (ICC) system and the rear toe has been adjusted during a wheel alignment, the ICC sensor must be aligned. Refer to CCS-64, "ICC Sensor Adjustment".

Measurement wheel		(LH) side	(RH) 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°)
	Difference (LH-RH)	0° 15′±0° 33′ (0.25°±0.55°)	
Caster Degree minute (Decimal degree)	Minimum	4° 00′ (4.00°)	
	Nominal	4° 45′ (4.75°)	
	Maximum	5° 30′ (5.50°)	
	(LH) and (RH) difference	0.30′ (0.50°) Maximum	
Kingpin inclination Degree minute (Decimal degree)	Minimum	12° 00′ (12.00°)	12° 15′ (12.25°)
	Nominal	12° 45′ (12.75°)	13° 00′ (13.00°)
	Maximum	13° 30′ (13.50°)	13° 45′ (13.75°)



Total toe-in	Distance (A - B)	Minimum	Out 0.6 mm (Out 0.024 in)
		Nominal	In 1.4 mm (In 0.055 in)
		Maximum	In 3.4 mm (In 0.134 in)
	Angle (LH) and (RH) Degree minute (Decimal degree)	Minimum	Out 0° 03′ 30″ (Out 0.06°)
		Nominal	In 0° 06′ 00″ (In 0.10°)
		Maximum	In 0° 15′ 30″ (In 0.26°)

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

Ball Joint

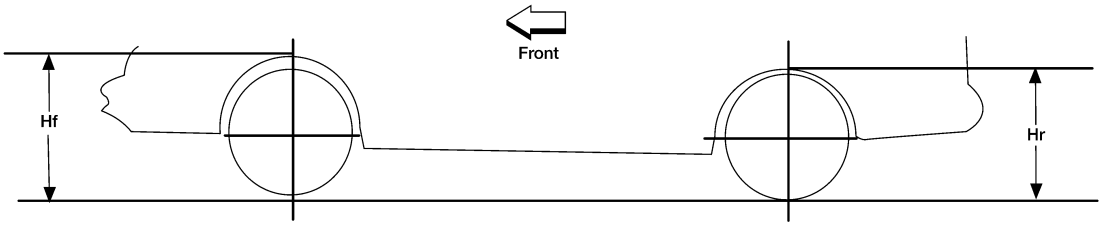
INFOID:0000000012894921

Item		Standard
Swinging torque	Transverse link	0.5 – 4.9 N·m (0.05 – 0.50 kg-m, 4 – 43 in-lb)
Rotating torque	Transverse link	0.5 – 4.9 N·m (0.05 – 0.50 kg-m, 4 – 43 in-lb)
Axial end play		0.1 mm (0.004 in)

Wheelarch Height (Unladen*)

INFOID:0000000012894922

UNITED STATES

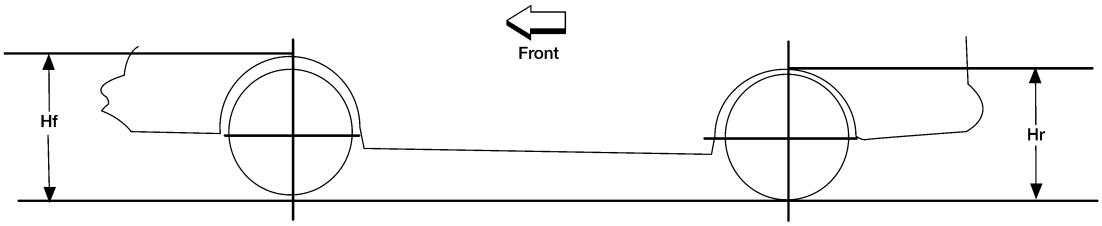


LEIA0085E

Tire size	235/65R18	235/55R20
Front (Hf)	835 mm (32.87 in)	834 mm (32.83 in)
Rear (Hr)	824 mm (32.44 in)	822 mm (32.36 in)

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

CANADA



LEIA0085E

Tire size	235/65R18	235/55R20
Front (Hf)	836 mm (32.91 in)	834 mm (32.83 in)
Rear (Hr)	824 mm (32.44 in)	822 mm (32.36 in)

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