

SECTION **FSU**
FRONT SUSPENSION

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FSU

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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[2WD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000003129894

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

Reference page				FSU-9, FSU-13, FSU-15, FSU-17, FSU-18		FSU-11		—		—		—		FSU-9, FSU-13, FSU-15, FSU-17, FSU-18		FSU-8		FSU-17		NVH in DLN section		NVH in FAX and FSU section		NVH in WT section		NVH in BR section		NVH in ST section			
Possible cause and SUSPECTED PARTS				Improper installation, looseness		Strut deformation, damage or deflection		Bushings or mounting deterioration		Parts interference		Spring fatigue		Suspension looseness		Incorrect wheel alignment		Stabilizer bar fatigue		PROPELLER SHAFT		FRONT AXLE AND FRONT SUSPENSION		ROAD WHEEL		BRAKE		STEERING			
Symptom	FRONT SUSPENSION	Noise		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
		Shake		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Vibration		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		Shimmy		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		Judder		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		Poor quality ride or handling		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

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FSU

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

INFOID:000000003737110

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 AIRBAG" and "SEAT BELT" 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, 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 AIRBAG".**
- **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.**

Precaution Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:000000003737112

NOTE:

- Before removing and installing any control units, first turn the push-button 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.

This vehicle is equipped with a push-button ignition switch and a 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 procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

2. Turn the push-button ignition switch to ACC position.
(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.
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 push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT-III.

PRECAUTIONS

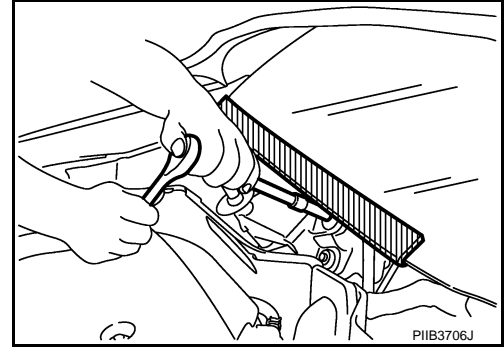
< PRECAUTION >

[2WD]

Precaution for Procedure without Cowl Top Cover

INFOID:000000003737114

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



Precautions for Suspension

INFOID:000000003129898

CAUTION:

- When installing rubber bushings, the final tightening must be carried out under unladen conditions with tires on ground. 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.

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PREPARATION

< PREPARATION >

[2WD]

PREPARATION

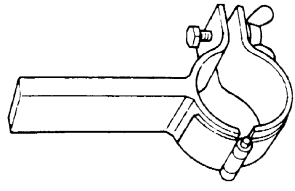
PREPARATION

Special Service Tool

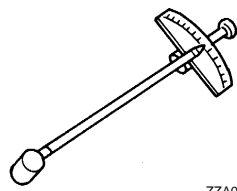
INFOID:000000003129899

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

Tool number (Kent-Moore No.) Tool name	Description
ST35652000 (-) Strut attachment	Disassembling and assembling strut
ST3127S000 (J-25765-A) Preload gauge	Measuring rotating torque of ball joint



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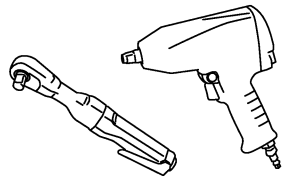


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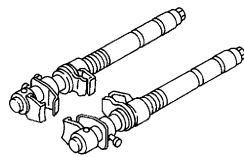
Commercial Service Tool

INFOID:000000003129900

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



PBIC0190E



S-NT717

FRONT SUSPENSION ASSEMBLY

< ON-VEHICLE MAINTENANCE >

[2WD]

ON-VEHICLE MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection

INFOID:000000003129901

MOUNTING INSPECTION

Make sure 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.

CAUTION:

Never depress brake pedal when measuring.

2. Place an iron bar or equivalent between transverse link or upper link and steering knuckle.
3. Measure axial end play by playing it up and down.

Standard

Axial end play : Refer to [FSU-20, "Ball Joint"](#).

CAUTION:

Be careful not to damage ball joint boot. never damage the installation position by applying excessive force.

STRUT

Check for oil leakage, damage. Replace it if necessary.

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WHEEL ALIGNMENT

Inspection

INFOID:000000003129902

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.
- Road wheels for runout. Refer to [WT-97, "Inspection"](#).
- Wheel bearing axial end play. Refer to [FAX-5, "Inspection"](#).
- Transverse link or upper link ball joint axial end play. Refer to [FSU-13, "Inspection"](#) or [FSU-15, "Inspection"](#).
- Strut operation.
- Each mounting part of axle and suspension for looseness and deformation.
- Each of suspension member, strut, upper link 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.
- Make sure the machine is properly calibrated.
- Your alignment equipment should be regularly calibrated in order to give correct information.
- Check with the manufacturer of your specific equipment for their recommended Service/Calibration Schedule.

ALIGNMENT PROCESS

IMPORTANT:

Use only the alignment specifications listed in this Service Manual.

- When displaying the alignment settings, many alignment machines use “indicators”: (Green/red, plus or minus, Go/No Go). **Do not use these indicators.**
- The alignment specifications programmed into your machine that operate these indicators may not be correct.
- This may result in an ERROR.
- Some newer alignment machines are equipped with an “optional Rolling Compensation” method to “compensate” the sensors (alignment targets or head units). **Never use this “Rolling Compensation” method.**
- Use the “Jacking Compensation Method”. After installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.
- See Instructions in the alignment machine you're using for more information on this.

FRONT COIL SPRING AND STRUT

< ON-VEHICLE REPAIR >

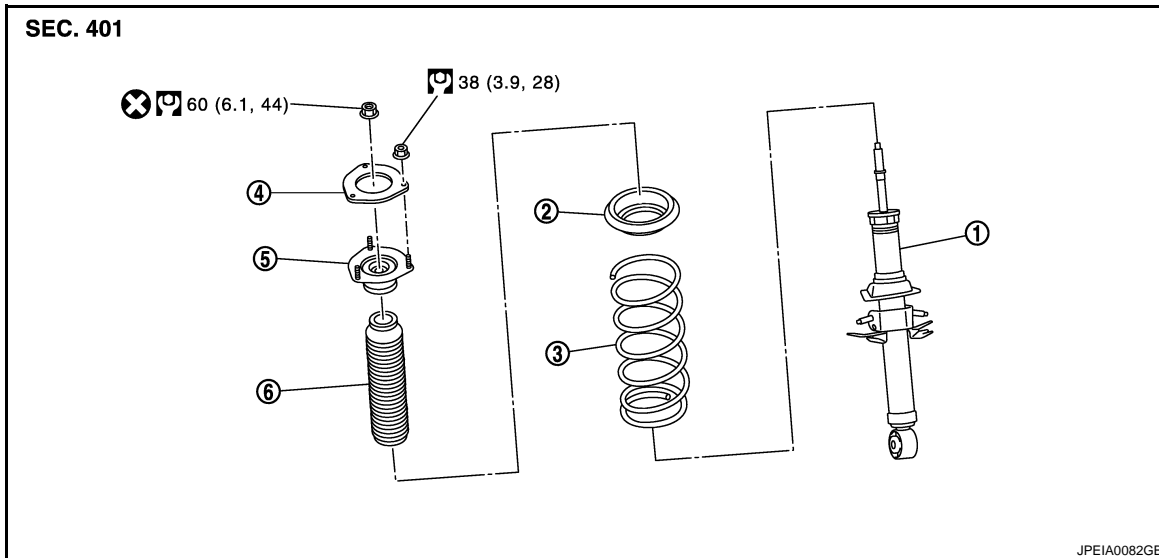
[2WD]

ON-VEHICLE REPAIR

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:000000003129903



1. Strut
2. Rubber seat
3. Coil spring
4. Mounting seal
5. Strut mounting bracket
6. Bound bumper

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129904

REMOVAL

1. Remove tires with power tool.
2. Remove wheel sensor and harness connector from strut. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
3. Remove brake hose bracket. Refer to [BR-20, "FRONT : Exploded View"](#).
4. Remove stabilizer connecting rod with power tool. Refer to [FSU-17, "Exploded View"](#).
5. Separate upper link from steering knuckle. Refer to [FAX-6, "Exploded View"](#).
6. Remove strut mounting bracket mounting nuts, and remove strut assembly.

NOTE:

If removing strut is difficult, loosen upper link mounting bolts (vehicle side).

INSTALLATION

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

- Never tap on the ball joint cap of the stabilizer connecting rod with a hammer or a similar item when inserting the stabilizer connecting rod into the transverse link.
- Perform final tightening of bolts and nuts at the strut lower side (rubber bushing), under unladen conditions with tires on level ground.

Disassembly and Assembly

INFOID:000000003129905

DISASSEMBLY

CAUTION:

Never damage strut piston rod when removing components from strut.

FRONT COIL SPRING AND STRUT

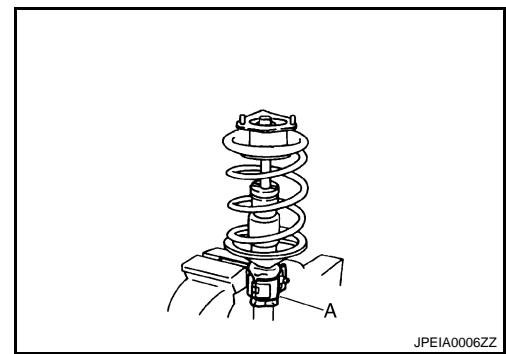
[2WD]

< ON-VEHICLE REPAIR >

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

CAUTION:

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

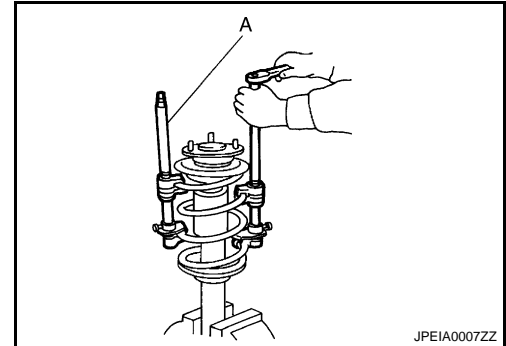


2. Using a spring compressor (A) (commercial service tool), compress coil spring between rubber seat and strut until coil spring with a spring compressor is free.

CAUTION:

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

3. Make sure coil spring with a spring compressor between rubber seat and strut 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 seal, strut mounting bracket, rubber seat, bound bumper from strut.



5. After remove coil spring with a spring compressor, and then gradually release a spring compressor.

CAUTION:

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

6. Remove the strut attachment from strut.

ASSEMBLY

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

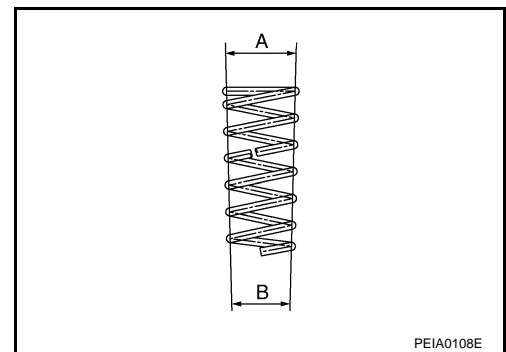
CAUTION:

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

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

CAUTION:

- Install with the large-diameter side (A) facing up and the small-diameter side (B) facing down.
- Be sure a spring compressor or is securely attached to coil spring. Compress coil spring.



3. Install the strut mounting bracket and rubber seat.

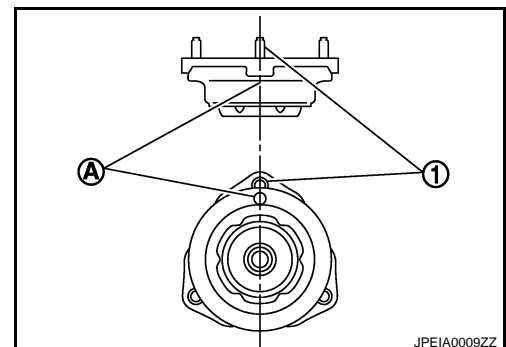
CAUTION:

Align the paint mark (A) to the stud bolt (1) position when assembling.

4. Apply soapy water to bound bumper.

CAUTION:

Never use machine oil.

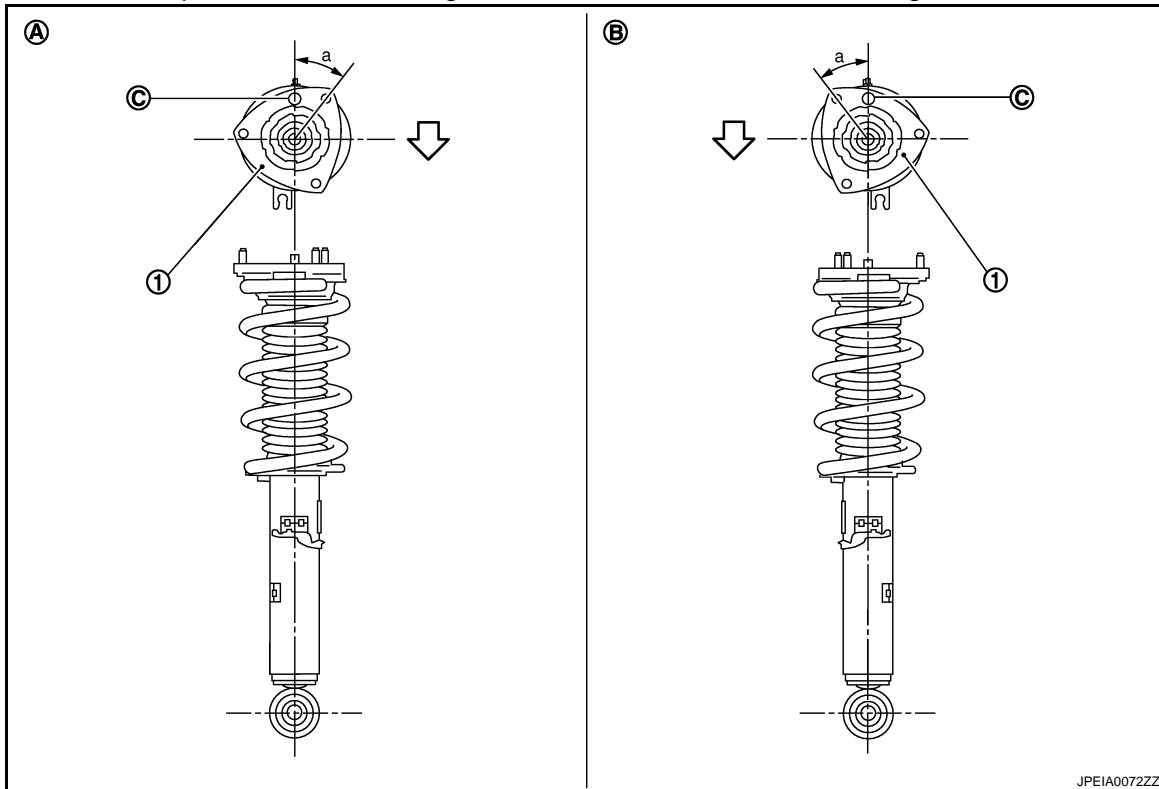


FRONT COIL SPRING AND STRUT

< ON-VEHICLE REPAIR >

[2WD]

5. Insert bound bumper into strut mounting bracket, and then install it to strut together with rubber seat.



1. Strut mounting bracket
A. Right side B. Left side
⇐: Vehicle front

- Install the strut mounting bracket as shown in the figure.

Angle (a) : 35.4°

- Check that the lower end of the coil spring (C) is positioned at the spring lower seat of the strut.
6. Secure piston rod tip so that piston rod does not turn, then tighten piston rod lock nut with specified torque.
 7. Gradually release a spring compressor, and remove coil spring.
CAUTION:
Loosen while making sure coil spring attachment position does not move.
 8. Remove the strut attachment from strut.
 9. Install the mounting seal to strut mounting bracket.

Inspection

INFOID:000000003129906

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107. "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-8. "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-8. "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

INSPECTION AFTER DISASSEMBLY

Strut

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

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

FRONT COIL SPRING AND STRUT

< ON-VEHICLE REPAIR >

[2WD]

- Oil leakage.

Strut Mounting Bracket and Rubber Parts Inspection

Check strut mounting bracket for cracks and rubber parts for wear. Replace it if necessary.

Coil Spring

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

TRANSVERSE LINK

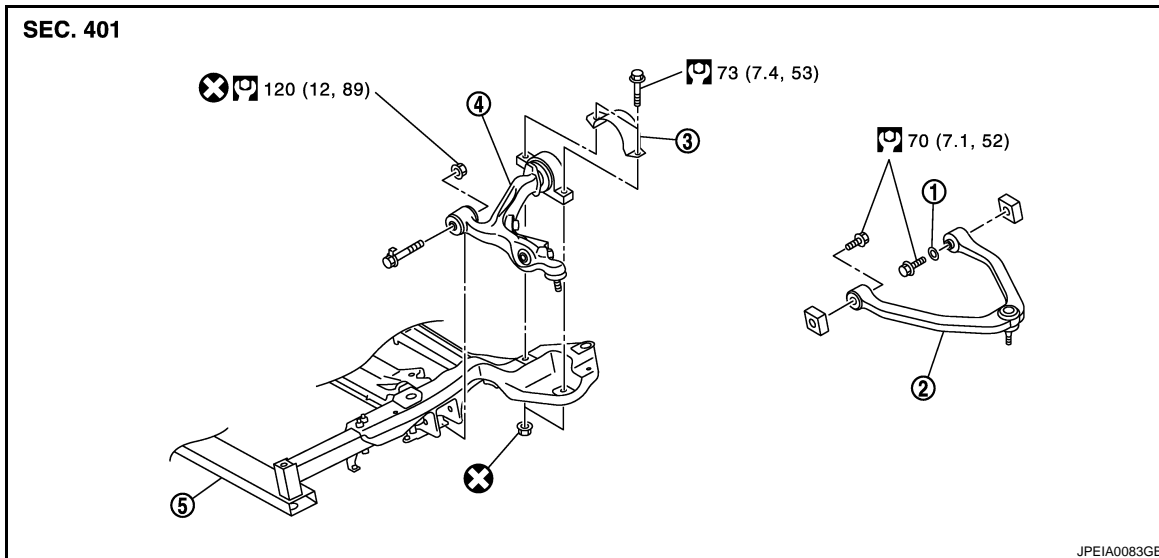
< ON-VEHICLE REPAIR >

[2WD]

TRANSVERSE LINK

Exploded View

INFOID:000000003129907



- | | | |
|--------------------|----------------------------|--------------|
| 1. Stopper rubber | 2. Upper link | 3. Insulator |
| 4. Transverse link | 5. Front suspension member | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129908

REMOVAL

1. Remove tires with power tool.
2. Remove under cover with power tool.
3. Remove strut. Refer to [FSU-9, "Exploded View"](#).
4. Remove steering outer socket from steering knuckle. Refer to [ST-25, "2WD : Exploded View"](#).
5. Remove transverse link from steering knuckle.
6. Set suitable jack under transverse link.
7. Remove transverse link and insulator.

INSTALLATION

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

- Never tap on the ball joint cap of the stabilizer connecting rod with a hammer or a similar item when inserting the stabilizer connecting rod into the transverse link.
- Perform final tightening of bolts and nuts at the front suspension member installation and strut lower side (rubber bushing), under unladen conditions with tires on level ground.

Inspection

INFOID:000000003129909

INSPECTION AFTER REMOVAL

Appearance

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

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

Ball Joint Inspection

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

Swing Torque Inspection

NOTE:

TRANSVERSE LINK

[2WD]

< ON-VEHICLE REPAIR >

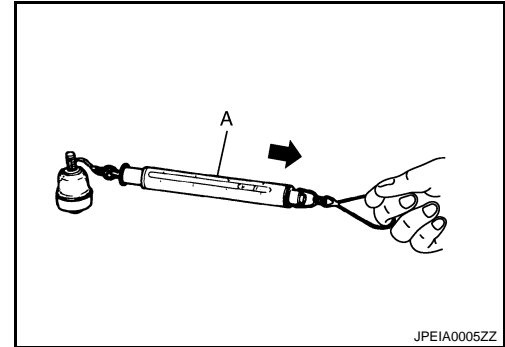
Before measurement, move ball stud at least ten times by hand to check for smooth movement.

- Hook a spring balance (A) at cotter pin mounting hole. Confirm spring balance measurement value is within specifications when ball stud begins moving.

Standard

Swing torque : Refer to [FSU-20, "Ball Joint"](#).

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



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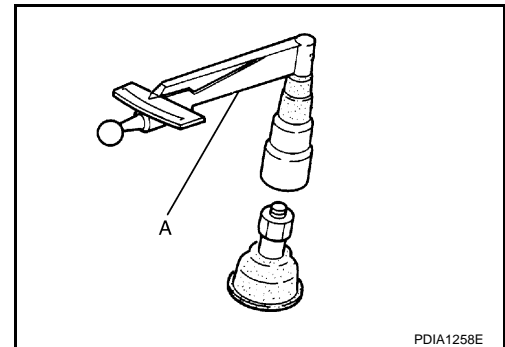
Rotating Torque Inspection

- Attach mounting nut to ball stud. Make sure that rotating torque is within specifications with a preload gauge (A) [SST: ST3127S000 (J-25765-A)].

Standard

Rotating torque : Refer to [FSU-20, "Ball Joint"](#).

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



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Axial End Play Inspection

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

Standard

Axial end play : Refer to [FSU-20, "Ball Joint"](#).

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

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-8, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

UPPER LINK

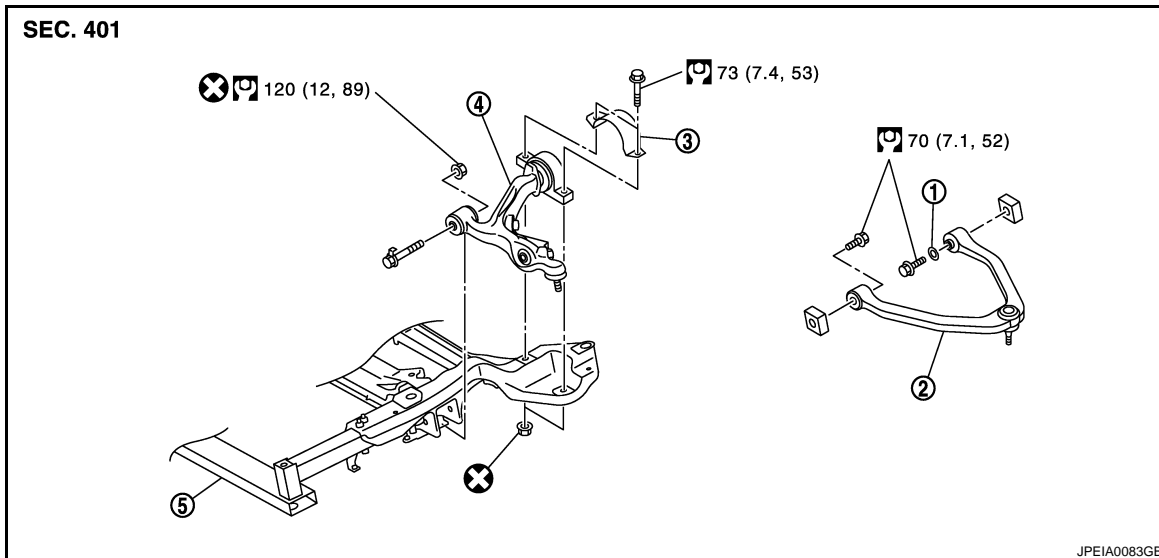
< ON-VEHICLE REPAIR >

[2WD]

UPPER LINK

Exploded View

INFOID:000000003129910



- | | | |
|--------------------|----------------------------|--------------|
| 1. Stopper rubber | 2. Upper link | 3. Insulator |
| 4. Transverse link | 5. Front suspension member | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129911

REMOVAL

1. Remove tires with power tool.
2. Remove strut. Refer to [FSU-9, "Exploded View"](#).
3. Remove upper link from steering knuckle with power tool. Refer to [FAX-6, "Exploded View"](#).
4. Remove upper link and stopper rubber.

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.

Inspection

INFOID:000000003129912

INSPECTION AFTER REMOVAL

Appearance

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

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

Ball Joint Inspection

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

Swing Torque Inspection

NOTE:

Before measurement, move ball stud at least ten times by hand to check for smooth movement.

UPPER LINK

[2WD]

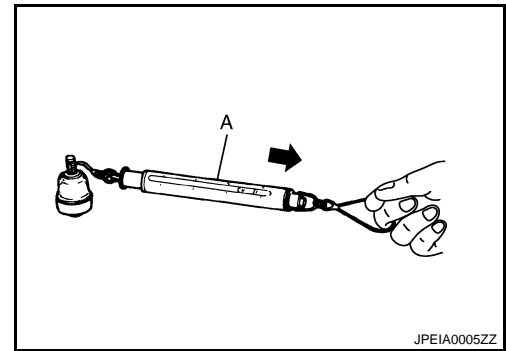
< ON-VEHICLE REPAIR >

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

Standard

Swing torque : Refer to [FSU-20, "Ball Joint"](#).

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



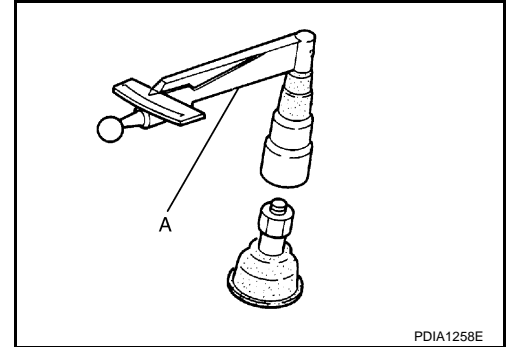
Rotating Torque Inspection

- Attach mounting nut to ball stud. Make sure that rotating torque is within specifications with a preload gauge (A) [SST: ST3127S000 (J-25765-A)].

Standard

Rotarian torque : Refer to [FSU-20, "Ball Joint"](#).

- If rotating torque exceeds standard range, replace upper link assembly.



Axial End Play Inspection

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

Standard

Axial end play : Refer to [FSU-20, "Ball Joint"](#).

- If axial end play exceeds standard range, replace upper link assembly.

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-8, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

FRONT STABILIZER

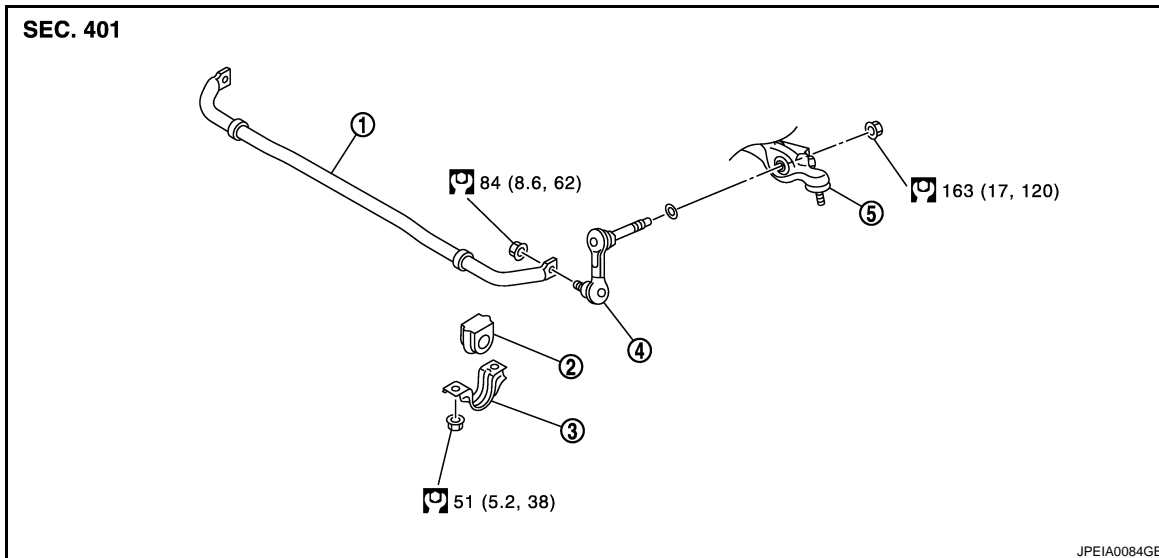
< ON-VEHICLE REPAIR >

[2WD]

FRONT STABILIZER

Exploded View

INFOID:000000003129913



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|------------------------------|-----------------------|---------------------|
| 1. Stabilizer bar | 2. Stabilizer bushing | 3. Stabilizer clamp |
| 4. Stabilizer connecting rod | 5. Transverse link | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129914

REMOVAL

1. Remove tires with power tool.
2. Remove under cover with power tool.
3. Remove stabilizer connecting rod with power tool.

CAUTION:

Apply a matching mark to identify the installation position.

4. Remove stabilizer clamp and stabilizer bushing.
5. Remove stabilizer bar.

INSTALLATION

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

- Check the matching mark when installing.
- Tighten the mounting nut to the specified torque while holding a hexagonal part of stabilizer connecting rod side.

Inspection

INFOID:000000003129915

INSPECTION AFTER REMOVAL

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

FRONT SUSPENSION MEMBER

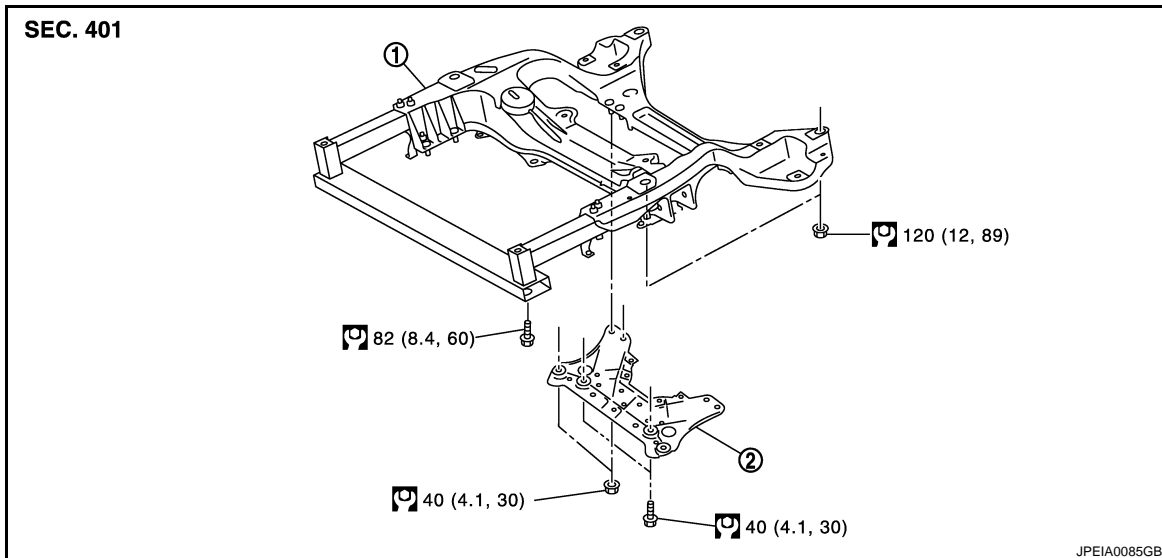
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[2WD]

FRONT SUSPENSION MEMBER

Exploded View

INFOID:000000003129916



1. Front suspension member
2. Suspension member stay

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129917

REMOVAL

1. Remove tire with power tool.
2. Remove under cover with power tool.
3. Remove suspension member stay with power tool.
4. Separate steering gear assembly and lower joint. Refer to [ST-25, "2WD : Exploded View"](#).
5. Remove steering outer socket from steering knuckle. Refer to [ST-25, "2WD : Exploded View"](#).
6. Remove wheel sensor and sensor harness from steering knuckle. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
7. Remove stabilizer connecting rod and stabilizer bar. Refer to [FSU-17, "Exploded View"](#).
8. Install engine slinger, and then hoist engine.
9. Remove transverse link from front suspension member with power tool. Refer to [FSU-13, "Exploded View"](#).
10. Remove steering hydraulic piping bracket and steering gear from front suspension member. Refer to [ST-51, "2WD : Exploded View"](#).
11. Set suitable jack front suspension member.
12. Remove mounting nuts between engine mounting insulator and from suspension member. Refer to [EM-79, "2WD : Exploded View"](#).
13. Remove mounting bolts and nuts of front suspension member with power tool.
14. Gradually lower jack to remove front suspension assembly from vehicle.

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 condition with tires on level ground.

Inspection

INFOID:000000003129918

INSPECTION AFTER REMOVAL

FRONT SUSPENSION MEMBER

< ON-VEHICLE REPAIR >

[2WD]

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

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-8, "Inspection"](#).
3. Adjust the neutral position of the steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

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FSU

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[2WD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment

INFOID:000000003129922

Item		Standard	
Camber Degree minute (Decimal degree)	Minimum	-0° 40' (-0.66°)	
	Nominal	0° 05' (0.08°)	
	Maximum	0° 50' (0.83°)	
	Left and right difference	0° 33' (0.55°) or less	
Caster Degree minute (Decimal degree)	Minimum	3° 30' (3.50°)	
	Nominal	4° 15' (4.25°)	
	Maximum	5° 00' (5.00°)	
	Left and right difference	0° 39' (0.65°) or less	
Kingpin inclination Degree minute (Decimal degree)	Minimum	6° 05' (6.09°)	
	Nominal	6° 50' (6.83°)	
	Maximum	7° 35' (7.58°)	
Total toe-in	Distance	Minimum	0 mm (0 in)
		Nominal	In 1 mm (0.04 in)
		Maximum	In 2 mm (0.08 in)
	Angle (left wheel or right wheel) Degree minute (Decimal Degree)	Minimum	0° 00' (0.00°)
		Nominal	In 0° 02' 24" (0.04°)
		Maximum	In 0° 04' 48" (0.08°)

Measure value under unladen* conditions.

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

Ball Joint

INFOID:000000003129923

Item		Standard
Swing torque	Transverse link	0.5 – 3.6 N·m (0.06 – 0.36 kg-m, 5 – 31 in-lb)
	Upper link	0 – 2.0 N·m (0 – 0.20 kg-m, 0 – 17 in-lb)
Measurement on spring balance	Transverse link	7.8 – 56.3 N (0.8 – 5.7 kg, 1.8 – 12.6 lb)
	Upper link	0 – 61.5 N (0 – 6.2 kg, 0 – 13.8 lb)
Rotating torque	Transverse link	0.5 – 3.9 N·m (0.06 – 0.39 kg-m, 5 – 34 in-lb)
	Upper link	0 – 2.0 N·m (0 – 0.2 kg-m, 0 – 17 in-lb)
Axial end play		0 mm (0 in)

SERVICE DATA AND SPECIFICATIONS (SDS)

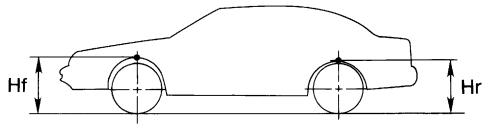
< SERVICE DATA AND SPECIFICATIONS (SDS)

[2WD]

Wheel Height

INFOID:000000003129924

Applied model	Without 4WAS	With 4WAS
Tire size	225/60R17	225/55R18
Front (Hf)	745 mm (29.33 in)	750 mm (29.53 in)



SFA818A

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

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[AWD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000003129925

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

Symptom		Possible cause and SUSPECTED PARTS														Reference page			
Symptom	FRONT SUSPENSION	Noise	x	x	x	x	x	x			x	x	x	x	x	x	x	x	FSU-28, FSU-32, FSU-34, FSU-36, FSU-37
		Shake	x	x	x	x		x			x		x	x	x	x			FSU-30
		Vibration	x	x	x	x	x				x		x	x		x			
		Shimmy	x	x	x	x			x				x	x	x		x		
		Judder	x	x	x									x	x	x			
		Poor quality ride or handling	x	x	x	x	x		x	x				x	x	x			
		Improper installation, looseness															FSU-28, FSU-32, FSU-34, FSU-36, FSU-37		
		Strut deformation, damage or deflection															FSU-30		
		Bushing or mounting deterioration															—		
		Parts interference															—		
		Spring fatigue															—		
		Suspension looseness															FSU-28, FSU-32, FSU-34, FSU-36, FSU-37		
		Incorrect wheel alignment															FSU-2Z		
		Stabilizer bar fatigue															FSU-36		
		PROPELLER SHAFT															NVH in DLN section.		
		DIFFERENTIAL															NVH in RFD section.		
		FRONT AXLE AND FRONT SUSPENSION															NVH in FAX and FSU sections.		
		TIRE															NVH in WT section.		
		ROAD WHEEL															NVH in WT section.		
		DRIVE SHAFT															NVH in FAX section.		
		BRAKE															NVH in BR section.		
		STEERING															NVH in ST section.		

x: Applicable

PRECAUTION

PRECAUTIONS

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

INFOID:000000003737111

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 AIRBAG" and "SEAT BELT" 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, 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 AIRBAG".
- 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.

Precaution Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:000000003737113

NOTE:

- Before removing and installing any control units, first turn the push-button 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.

This vehicle is equipped with a push-button ignition switch and a 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 procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.
 - NOTE:**
Supply power using jumper cables if battery is discharged.
2. Turn the push-button ignition switch to ACC position.
(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.
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 push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT-III.

PRECAUTIONS

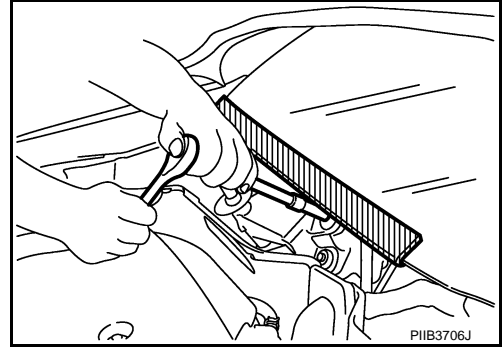
< PRECAUTION >

[AWD]

Precaution for Procedure without Cowl Top Cover

INFOID:000000003737115

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



Precautions for Suspension

INFOID:000000003129929

CAUTION:

- When installing rubber bushings, the final tightening must be carried out under unladen conditions with tires on ground. 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 >

[AWD]

PREPARATION

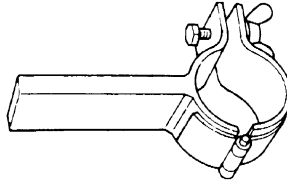
PREPARATION

Special Service Tool

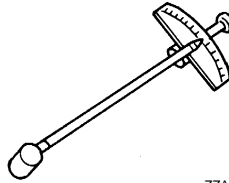
INFOID:000000003129930

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

Tool number (Kent-Moore No.) Tool name	Description
ST35652000 (-) Strut attachment	Disassembling and assembling strut
ST3127S000 (J-25765-A) Preload gauge	Measuring rotating torque of ball joint



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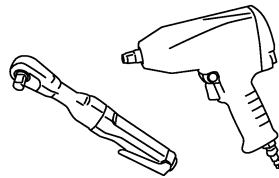


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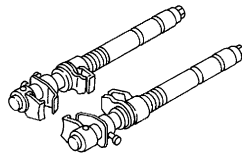
Commercial Service Tool

INFOID:000000003129931

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



PBIC0190E



S-NT717

ON-VEHICLE MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection

INFOID:000000003129932

MOUNTING INSPECTION

Make sure 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.

CAUTION:

Never depress brake pedal when measuring.

2. Place an iron bar or equivalent between transverse link or upper link and steering knuckle.
3. Measure axial end play by playing it up and down.

Standard

Axial end play : Refer to [FSU-39, "Ball Joint"](#).

CAUTION:

Be careful not to damage ball joint boot. never damage the installation position by applying excessive force.

Strut

Check for oil leakage, damage. Replace it if necessary.

WHEEL ALIGNMENT

< ON-VEHICLE MAINTENANCE >

[AWD]

WHEEL ALIGNMENT

Inspection

INFOID:000000003129933

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.
- Road wheels for runout. Refer to [WT-97, "Inspection"](#).
- Wheel bearing axial end play. Refer to [FAX-14, "Inspection"](#).
- Transverse link or upper link ball joint axial end play. Refer to [FSU-32, "Inspection"](#) or [FSU-34, "Inspection"](#).
- Strut operation.
- Each mounting part of axle and suspension for looseness and deformation.
- Each of suspension member, strut, upper link 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.
- Make sure the machine is properly calibrated.
- Your alignment equipment should be regularly calibrated in order to give correct information.
- Check with the manufacturer of your specific equipment for their recommended Service/Calibration Schedule.

ALIGNMENT PROCESS

IMPORTANT:

Use only the alignment specifications listed in this Service Manual.

- When displaying the alignment settings, many alignment machines use “indicators”: (Green/red, plus or minus, Go/No Go). **Do not use these indicators.**
- The alignment specifications programmed into your machine that operate these indicators may not be correct.
- This may result in an ERROR.
- Some newer alignment machines are equipped with an optional “Rolling Compensation” method to “compensate” the sensors (alignment targets or head units). **Never use this “Rolling Compensation” method.**
- Use the “Jacking Compensation Method”. After installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.
- See Instructions in the alignment machine you're using for more information on this.

FRONT COIL SPRING AND STRUT

< ON-VEHICLE REPAIR >

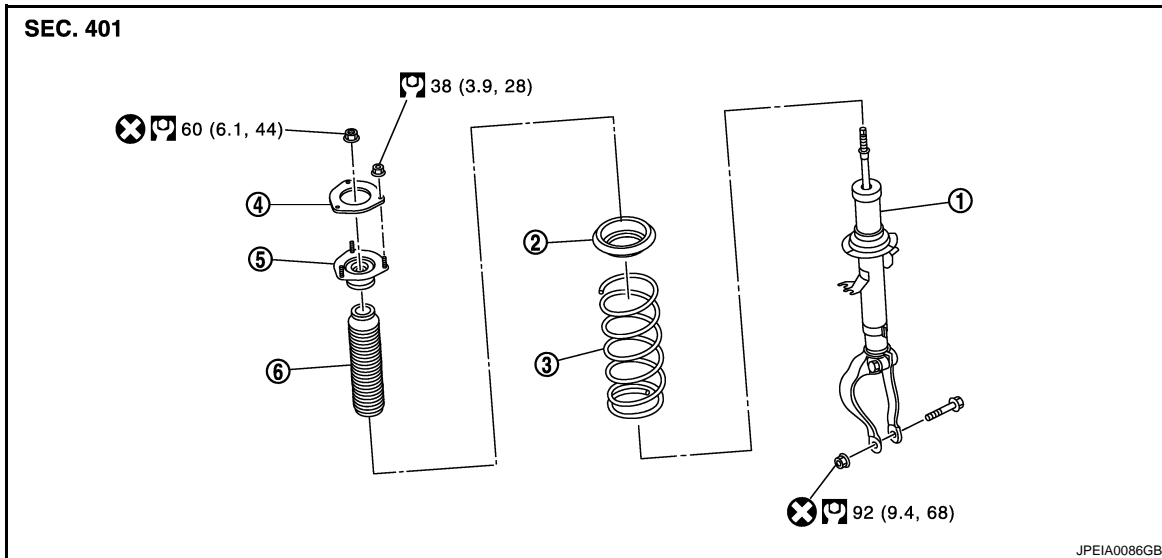
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ON-VEHICLE REPAIR

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:000000003129934



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| 1. Strut | 2. Rubber seat | 3. Coil spring |
| 4. Mounting seal | 5. Strut mounting bracket | 6. Bound bumper |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129935

REMOVAL

1. Remove tires with power tool.
2. Remove wheel sensor and harness connector from strut. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
- CAUTION:**
Never pull on wheel sensor harness.
3. Remove brake hose bracket. Refer to [BR-20, "FRONT : Exploded View"](#).
4. Remove stabilizer connecting rod with power tool. Refer to [FSU-36, "Exploded View"](#).
5. Remove strut from transverse link with power tool.
6. Separate upper link from steering knuckle. Refer to [FAX-16, "Exploded View"](#).
7. Remove strut assembly.

NOTE:

If removing strut is difficult, loosen upper link mounting bolts (vehicle side).

INSTALLATION

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

- Never tap on the ball joint cap of the stabilizer connecting rod with a hammer or a similar item when inserting the stabilizer connecting rod into the transverse link.
- Perform final tightening of bolts and nuts at the strut lower side (rubber bushing), under unladen conditions with tires on level ground.

Disassembly and Assembly

INFOID:000000003129936

DISASSEMBLY

CAUTION:

Never damage strut piston rod when removing components from strut.

FRONT COIL SPRING AND STRUT

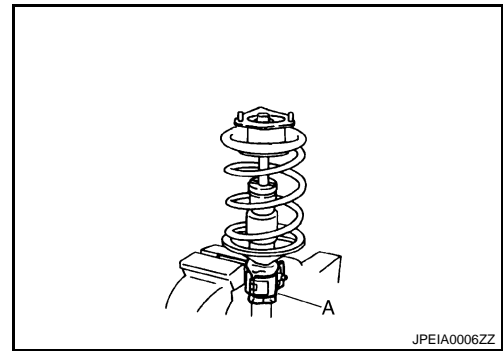
[AWD]

< ON-VEHICLE REPAIR >

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

CAUTION:

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

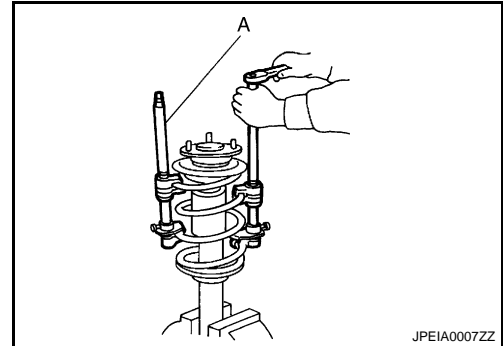


2. Using a spring compressor (A) (commercial service tool), compress coil spring between rubber seat and strut until coil spring with a spring compressor is free.

CAUTION:

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

3. Make sure coil spring with a spring compressor between rubber seat and strut 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 seal, strut mounting bracket, rubber seat, bound bumper from strut.



5. After remove coil spring with a spring compressor, and then gradually release a spring compressor.

CAUTION:

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

6. Remove the strut attachment from strut.

ASSEMBLY

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

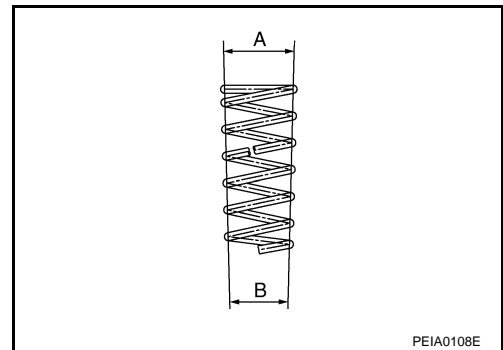
CAUTION:

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

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

CAUTION:

- Install with the large-diameter side (A) facing up and the small-diameter side (B) facing down.
- Be sure a spring compressor or is securely attached to coil spring. Compress coil spring.



3. Install the strut mounting bracket and rubber seat.

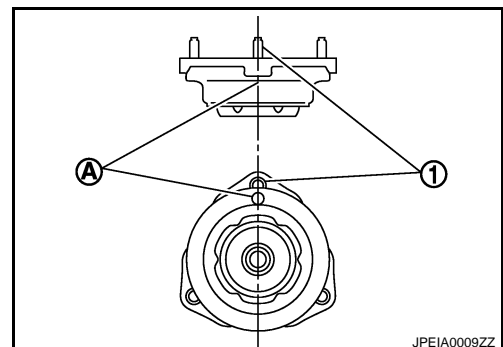
CAUTION:

Align the paint mark (A) to the stud bolt (1) position when assembling.

4. Apply soapy water to bound bumper.

CAUTION:

Never use machine oil.

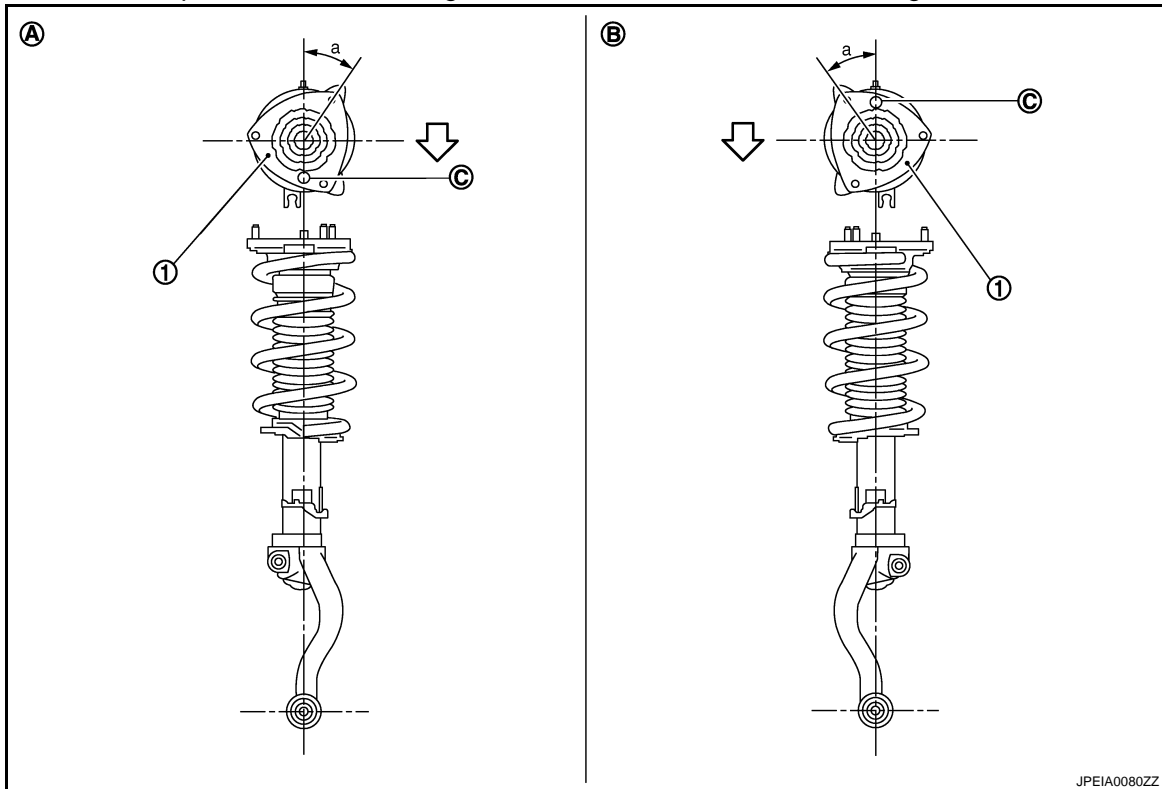


FRONT COIL SPRING AND STRUT

< ON-VEHICLE REPAIR >

[AWD]

5. Insert bound bumper into strut mounting bracket, and then install it to strut together with rubber seat.



1. Strut mounting bracket

A. Right side

B. Left side

⇐: Vehicle front

- Install the strut mounting bracket as shown in the figure.

Angle (a) : 35.4°

- Check that the lower end of the coil spring (C) is positioned at the spring lower seat of the strut.

6. Secure piston rod tip so that piston rod does not turn, then tighten piston rod lock nut with specified torque.
7. Gradually release a spring compressor, and remove coil spring.

CAUTION:

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

8. Remove the strut attachment from strut.
9. Install the mounting seal to strut mounting bracket.

Inspection

INFOID:000000003129937

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-27, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

INSPECTION AFTER DISASSEMBLY

Strut

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

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

FRONT COIL SPRING AND STRUT

< ON-VEHICLE REPAIR >

[AWD]

- Oil leakage.

Strut Mounting Bracket and Rubber Parts Inspection

Check strut mounting bracket for cracks and rubber parts for wear. Replace it if necessary

Coil Spring

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

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TRANSVERSE LINK

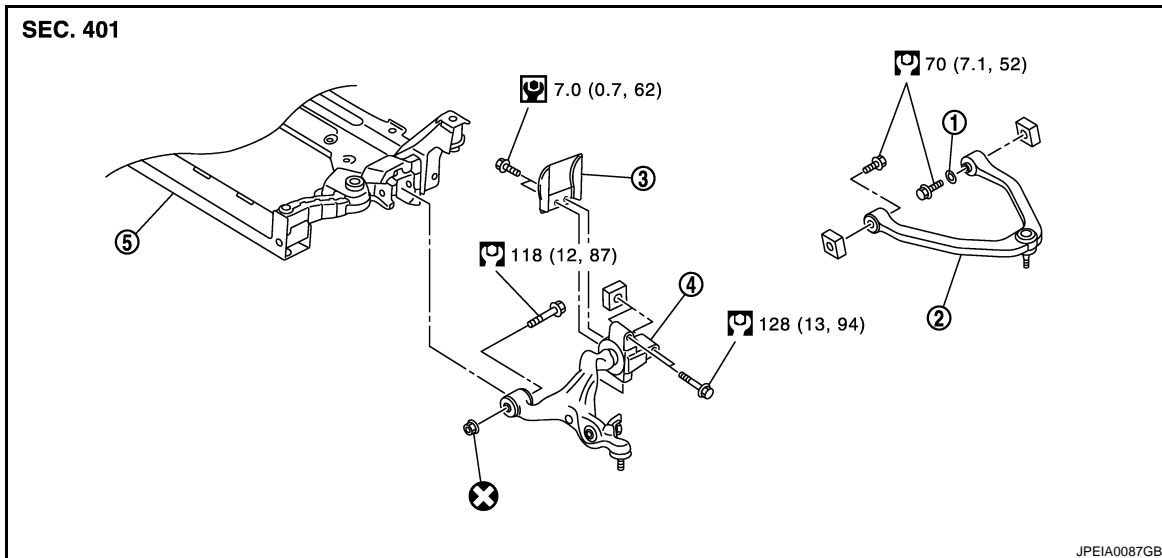
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[AWD]

TRANSVERSE LINK

Exploded View

INFOID:000000003129938



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|--------------------|----------------------------|--------------|
| 1. Stopper rubber | 2. Upper link | 3. Insulator |
| 4. Transverse link | 5. Front suspension member | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129939

REMOVAL

1. Remove tires with power tool.
2. Remove under cover with power tool.
3. Remove strut. Refer to [FSU-28, "Exploded View"](#).
4. Remove front crossbar. Refer to [FSU-37, "Exploded View"](#).
5. Remove steering outer socket from steering knuckle. Refer to [ST-34, "AWD : Exploded View"](#).
6. Remove transverse link from steering knuckle.
7. Set suitable jack under transverse link.
8. Remove transverse link and insulator.

INSTALLATION

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

- Never tap on the ball joint cap of the stabilizer connecting rod with a hammer or a similar item when inserting the stabilizer connecting rod into the transverse link.
- Perform final tightening of bolts and nuts at the front suspension member installation and strut lower side (rubber bushing), under unladen conditions with tires on level ground.

Inspection

INFOID:000000003129940

INSPECTION AFTER REMOVAL

Appearance

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

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

Ball Joint Inspection

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

Swing Torque Inspection

TRANSVERSE LINK

< ON-VEHICLE REPAIR >

[AWD]

NOTE:

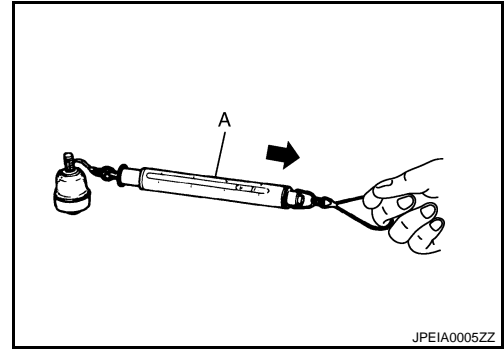
Before measurement, move ball stud at least ten times by hand to check for smooth movement.

- Hook a spring balance (A) at cotter pin mounting hole. Confirm spring balance measurement value is within specifications when ball stud begins moving.

Standard

Swing torque :Refer to [FSU-39, "Ball Joint"](#).

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



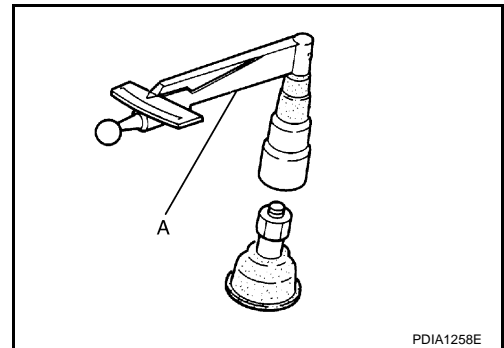
Rotating Torque Inspection

- Attach mounting nut to ball stud. Make sure that rotating torque is within specifications with a preload gauge (A) [SST: 3127S000 (J-25765-A)].

Standard

Rotating torque : Refer to [FSU-39, "Ball Joint"](#).

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



Axial End Play Inspection

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

Standard

Axial end play :Refer to [FSU-39, "Ball Joint"](#).

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

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-27, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

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UPPER LINK

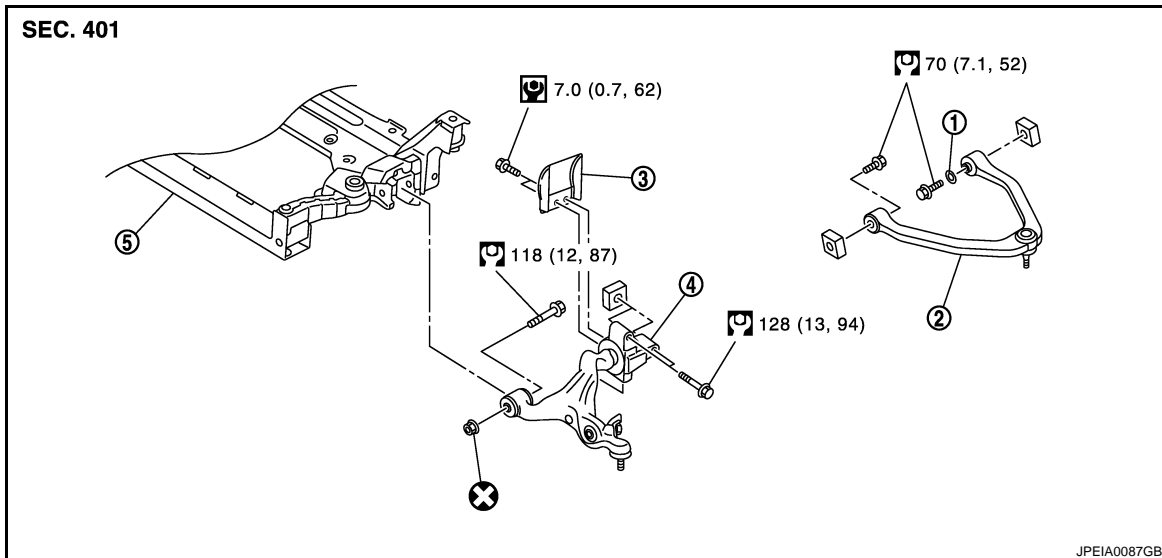
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[AWD]

UPPER LINK

Exploded View

INFOID:000000003129941



- | | | |
|--------------------|----------------------------|--------------|
| 1. Stopper rubber | 2. Upper link | 3. Insulator |
| 4. Transverse link | 5. Front suspension member | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129942

REMOVAL

1. Remove tires from with power tool.
2. Remove strut. Refer to [FSU-28, "Exploded View"](#).
3. Remove upper link from steering knuckle with power tool.
4. Remove upper link and stopper rubber with power tool.

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.

Inspection

INFOID:000000003129943

INSPECTION AFTER REMOVAL

Appearance

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

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

Ball Joint Inspection

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

Swing Torque Inspection

NOTE:

Before measurement, move ball stud at least ten times by hand to check for smooth movement.

UPPER LINK

[AWD]

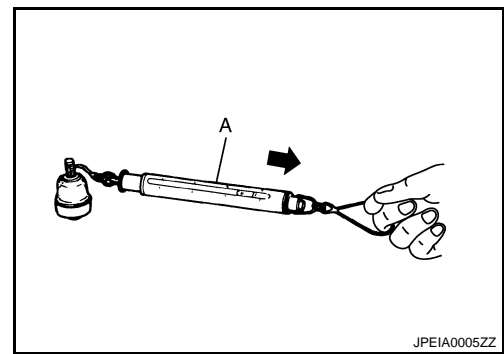
< ON-VEHICLE REPAIR >

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

Standard

Swing torque : Refer to [FSU-39, "Ball Joint"](#).

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



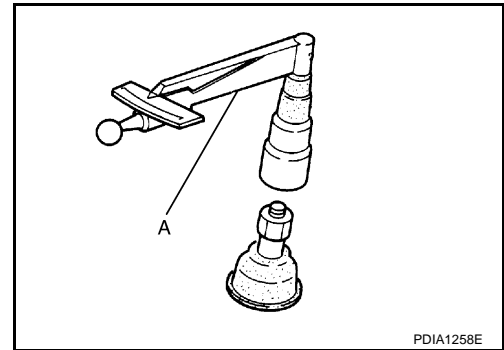
Rotating Torque Inspection

- Attach mounting nut to ball stud. Make sure that rotating torque is within specifications with a preload gauge (A) [SST: ST3127S000 (J-25765-A)].

Standard

Rotarian torque : Refer to [FSU-39, "Ball Joint"](#).

- If rotating torque exceeds torque range, replace upper link assembly.



Axial End Play Inspection

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

Standard

Axial end play : Refer to [FSU-39, "Ball Joint"](#).

- If axial end play exceeds standard range, replace upper link assembly.

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-27, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

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FRONT STABILIZER

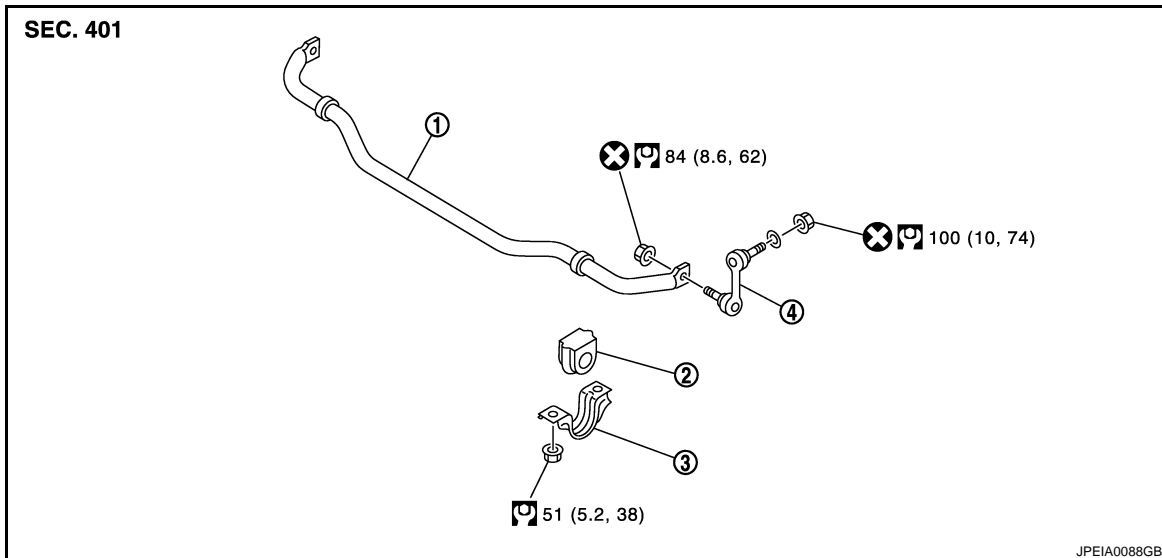
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[AWD]

FRONT STABILIZER

Exploded View

INFOID:000000003129944



1. Stabilizer bar
2. Stabilizer bushing
3. Stabilizer clamp
4. Stabilizer connecting rod

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129945

REMOVAL

1. Remove tires with power tool.
2. Remove under cover with power tool.
3. Remove stabilizer connecting rod with power tool.

CAUTION:

Apply a matching mark to identify the installation position.

4. Remove stabilizer clamp and stabilizer bushing.
5. Remove stabilizer bar.

INSTALLATION

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

- Check the matching mark when installing.
- Tighten the mounting nut to the specified torque while holding a hexagonal part of stabilizer connecting rod side.

Inspection

INFOID:000000003129946

INSPECTION AFTER REMOVAL

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

FRONT SUSPENSION MEMBER

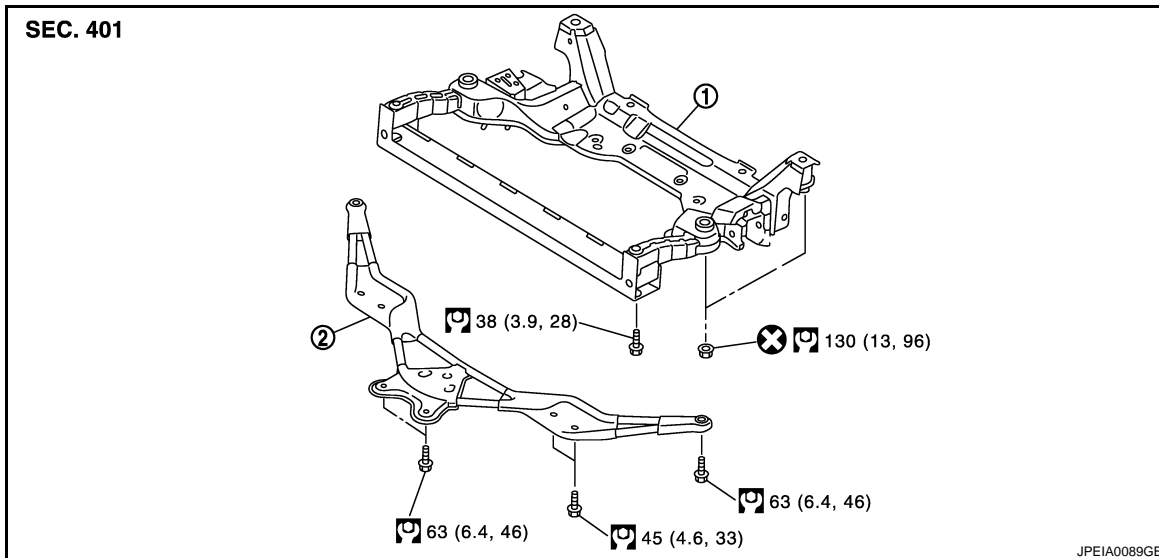
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[AWD]

FRONT SUSPENSION MEMBER

Exploded View

INFOID:000000003129947



1. Front suspension member
2. Front cross bar

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000003129948

REMOVAL

1. Remove tire with power tool.
2. Remove under cover with power tool.
3. Remove front cross bar with power tool.
4. Separate steering gear assembly and lower joint. Refer to [ST-34, "AWD : Exploded View"](#) and [ST-23, "Exploded View"](#).
5. Remove steering outer socket from steering knuckle. Refer to [ST-34, "AWD : Exploded View"](#).
6. Remove wheel sensor and sensor harness from steering knuckle. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
7. Remove strut from transverse link. Refer to [FSU-28, "Exploded View"](#).
8. Remove stabilizer connecting rod and stabilizer bar. Refer to [FSU-36, "Exploded View"](#).
9. Install engine slinger, and then hoist engine.
10. Remove transverse link from front suspension member with power tool. Refer to [FSU-32, "Exploded View"](#).
11. Remove steering hydraulic piping bracket and steering gear from front suspension member. Refer to [ST-52, "AWD : Exploded View"](#).
12. Set suitable jack front suspension member.
13. Remove mounting nuts between engine mounting insulator and from suspension member. Refer to [EM-83, "AWD : Exploded View"](#).
14. Remove mounting bolts and nuts of front suspension member with power tool.
15. Gradually lower jack to remove front suspension assembly from vehicle.

INSTALLATION

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

- Perform final tightening of bolts and nut at the vehicle installation position (rubber bushing), under unladen condition with tires on level ground.

FRONT SUSPENSION MEMBER

< ON-VEHICLE REPAIR >

[AWD]

Inspection

INFOID:000000003129949

INSPECTION AFTER REMOVAL

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

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-107, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check wheel alignment. Refer to [FSU-27, "Inspection"](#).
3. Adjust the neutral position of the steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

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[AWD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment

INFOID:000000003129953

Item		Standard	
Camber Degree minute (Decimal degree)	Minimum	-1° 05' (-1.08°)	
	Nominal	-0° 20' (-0.33°)	
	Maximum	0° 25' (0.42°)	
	Left and right difference	0° 33' (0.55°) or less	
Caster Degree minute (Decimal degree)	Minimum	3° 25' (3.42°)	
	Nominal	4° 10' (4.17°)	
	Maximum	4° 55' (4.91°)	
	Left and right difference	0° 39' (0.65°) or less	
Kingpin inclination Degree minute (Decimal degree)	Minimum	6° 35' (6.58°)	
	Nominal	7° 20' (7.33°)	
	Maximum	8° 05' (8.08°)	
Total toe-in	Distance	Minimum	0 mm (0 in)
		Nominal	In 1 mm (0.04 in)
		Maximum	In 2 mm (0.08 in)
	Angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	0° 00' (0.00°)
		Nominal	In 0° 02' 24" (0.04°)
		Maximum	In 0° 04' 48" (0.08°)

Measure value under unladen* conditions.

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

Ball Joint

INFOID:000000003129954

Item		Standard
Swing torque	Transverse link	0.5 – 3.6 N·m (0.06 – 0.36 kg-m, 5 – 31 in-lb)
	Upper link	0 – 2.0 N·m (0 – 0.20 kg-m, 0 – 17 in-lb)
Measurement on spring balance	Transverse link	7.8 – 56.3 N (0.8 – 5.7 kg, 1.8 – 12.6 lb)
	Upper link	0 – 61.5 N (0 – 6.2 kg, 0 – 13.8 lb)
Rotating torque	Transverse link	0.5 – 3.9 N·m (0.06 – 0.39 kg-m, 5 – 34 in-lb)
	Upper link	0 – 2.0 N·m (0 – 0.2 kg-m, 0 – 17 in-lb)
Axial end play		0 mm (0 in)

SERVICE DATA AND SPECIFICATIONS (SDS)

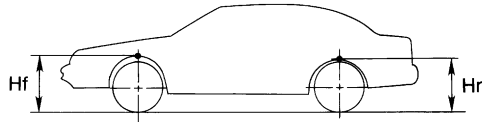
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[AWD]

Wheel Height

INFOID:000000003129955

Tire size	225/60R17	225/55R18
Front (Hf)	742 mm (29.21 in)	747 mm (29.41 in)



SFA818A

Measure value under unladen* conditions.

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