SECTION FSU
FRONT SUSPENSION

CONTENTS

PRECAUTION 2

PRECAUTIONS 2
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" 2
Precautions for Removing Battery Terminal 2
Precautions for Suspension 3

PREPARATION 4

PREPARATION 4
Special Service Tools 4
Commercial Service Tools 4

SYMPTOM DIAGNOSIS 6

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING 6
NVH Troubleshooting Chart 6

PERIODIC MAINTENANCE 7

FRONT SUSPENSION ASSEMBLY 7
Inspection 7

WHEEL ALIGNMENT 8
Inspection 8
Adjustment 8

REMOVAL AND INSTALLATION 10

FRONT COIL SPRING AND STRUT 10
Exploded View 10
Removal and Installation 10
Disassembly and Assembly 12
Inspection 13

TRANSVERSE LINK 14
Exploded View 14
Removal and Installation 14
Inspection 16

FRONT STABILIZER 17
Exploded View 17
Removal and Installation 17
Inspection 18

FRONT SUSPENSION MEMBER 19
Exploded View 19
Removal and Installation 19
Inspection 21

SERVICE DATA AND SPECIFICATIONS (SDS) 22

SERVICE DATA AND SPECIFICATIONS (SDS) 22
Wheel Alignment 22
Wheelarch Height 23

PRECAUTION

PRECAUTIONS

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

INFOID:0000000013550586

Risk of injury

There is a risk of injury caused by parts becoming projectiles if uncontrolled deployment of air bag or seat belt pre-tensioner occurs, or by storing air bag with the deployment side facing downwards. When scrapping air bag or seat belt pre-tensioner by means of controlled deployment, there is also a danger present if a sufficiently safe distance is not maintained, or if opening using cutting torches or other cutting tools, or due to smelting or if parts that are not yet triggered are exposed to a blaze or a smoldering fire at landfills.

Safety instructions/precautions

- Removed air bag must always be stored with deployment side facing up.
- Acquisition, transportation, storage, testing and assembly work should only be performed or supervised by properly trained personnel.
- Install air bag or seat belt pre-tensioner immediately following retrieval from storage.
- Air bag and seat belt pre-tensioner must be protected from flying sparks, open fires and temperature exceeding 100°C (212°F).
- Never transport air bag and seat belt pre-tensioner in the passenger compartment. Store them securely in the luggage room of the vehicle in their original replacement part packaging and secure them so that they cannot slip around.
- Never allow air bag and seat belt pre-tensioner to come into contact with grease, oil, or cleaning agents.
- Perform system tests using approved testing equipment only, and only when the units are properly installed and the vehicle is unoccupied.
- Before the initial hookup of the battery or an external power supply, the ignition must be switched on and the vehicle unoccupied.
- Air bag and seat belt pre-tensioner that fall from a height of more than 0.5 m must be replaced.
- When scrapping by means of controlled deployment of air bag and seat belt pre-tensioner, a safe distance of at least 10 m must be maintained.
- Before starting work on air bag and seat belt pre-tensioner and work on components that are connected to air bag and seat belt pre-tensioner or require and intervention in their electric circuit (e.g. when removing the steering wheel):

- Disconnect any external power sources (e.g. charger).
- Disconnect and insulate ground line of battery

- Before starting bodywork in combination with welding or retrofitting, during which work is performed on uninsulated, current-carrying lines or require an intervention in their electric circuit (e.g. when removing the steering wheel):

- Disconnect any external power sources (e.g. charger).
- Disconnect and insulate ground line of battery.
- During welding, disconnect plug connection and from control unit of air bag.

- When the air bag deploys, the pyrofuse activates and the power source from the battery is disconnected. This prevents possible fires caused by electric leakage after an accident occurs.

Precautions for Removing Battery Terminal

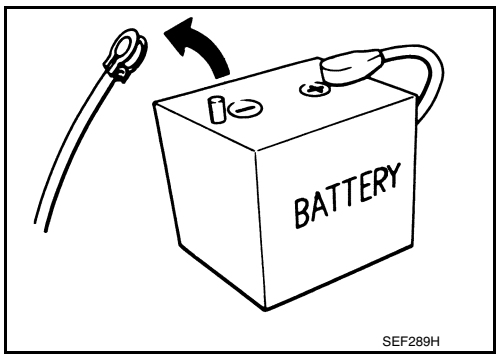
INFOID:0000000013550587

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

BR08DE	: 4 minutes	YD25DDTi	: 2 minutes
D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		



NOTE:
ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:
- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

NOTE:
If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:
The removal of 12V battery may cause a DTC detection error.

Precautions for Suspension

INFOID:0000000013550588

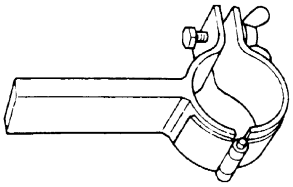
- When installing rubber bushings, the final tightening must be carried out under unladen conditions with tires on ground. Spilled oil might shorten the life of rubber bushings. Be sure to wipe off any spilled oil.
  - Unladen conditions mean that fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.
- After servicing suspension parts, be sure to check wheel alignment.
- Self-lock nuts are not reusable. Always use new ones when installing. Since new self-lock nuts are pre-oiled, tighten as they are.

PREPARATION

PREPARATION

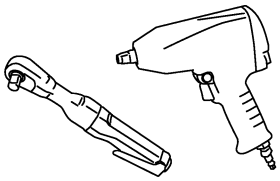
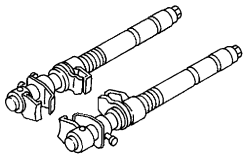
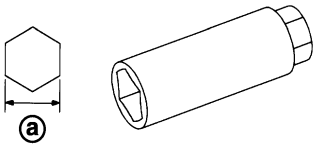
Special Service Tools

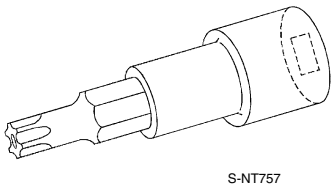
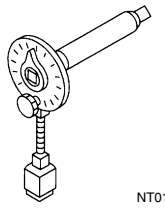
INFOID:0000000013550565

Tool number Tool name	Description
ST35652000 Strut attachment  ZZA0807D	Disassembling and assembling strut

Commercial Service Tools

INFOID:0000000013550566

Tool name	Description
Power tool  PBIC0190E	Loosening bolts and nuts
Spring compressor  S-NT717	Removing and installing coil spring
Deep socket  JPBIA0399ZZ	Removing and installing piston rod lock nut ⓐ: 21 mm (0.83 in)

Tool name	Description
TORX socket  S-NT757	Removing and installing piston rod lock nut Size: T50
Angle wrench  NT014	• Tightening for strut mounting nuts • Tightening for transverse link mounting bolt • Tightening for transverse link bearing mounting bolts

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000013550567

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

Reference			FSU-10, FSU-14, FSU-17, FSU-19	FSU-13	—	—	—	FSU-10, FSU-14, FSU-17, FSU-19	FSU-8	FSU-18	NVH in FAX and FSU sections	NVH in WT section	NVH in WT section	NVH in FAX section	NVH in BR section	NVH in ST section
Possible cause and SUSPECTED PARTS			Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer bar fatigue	FRONT AXLE AND FRONT SUSPENSION	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	FRONT SUSPENSION	Noise	×	×	×	×	×	×	—	—	×	×	×	×	×	×
		Shake	×	×	×	×	—	×	—	—	×	×	×	×	×	×
		Vibration	×	×	×	×	×	—	—	—	×	×	—	×	—	×
		Shimmy	×	×	×	×	—	—	×	—	×	×	×	—	×	×
		Judder	×	×	×	—	—	—	—	—	×	×	×	—	×	×
		Poor quality ride or handling	×	×	×	×	×	—	×	×	×	×	×	—	—	—

×: Applicable, —: Not applicable

PERIODIC MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection

INFOID:0000000013550568

COMPONENT PART

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

STRUT ASSEMBLY

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

WHEEL ALIGNMENT

Inspection

INFOID:0000000013550569

DESCRIPTION

CAUTION:

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

Measure wheel alignment under unladen conditions.

NOTE:

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

PRELIMINARY CHECK

Check the following:

- Tires for improper air pressure and wear. Refer to WT-76, "Tire Air Pressure".
- Road wheels for runout.
- Wheel bearing axial end play. Refer to FAX-8, "Inspection".
- Transverse link ball joint axial end play. Refer to FSU-7, "Inspection".
- Strut operation.
- Each mounting part of axle and suspension for looseness and deformation.
- Each of front suspension member, strut assembly and transverse link for cracks, deformation and other damage.
- Vehicle height (posture).

GENERAL INFORMATION AND RECOMMENDATIONS

- A four-wheel thrust alignment should be performed.
  - This type of alignment is recommended for any NISSAN/INFINITI vehicle.
  - The four-wheel “thrust” process helps ensure that the vehicle is properly aligned and the steering wheel is centered.
  - The alignment rack itself should be capable of accepting any NISSAN/INFINITI vehicle.
  - The rack should be checked to ensure that it is level.
- Check the machine is properly calibrated.
  - Your alignment equipment should be regularly calibrated in order to give correct information.
  - Check with the manufacturer of your specific equipment for their recommended Service/Calibration Schedule.

ALIGNMENT PROCESS

IMPORTANT:

Use only the alignment specifications listed in this Service Manual.

- When displaying the alignment settings, many alignment machines use “indicators”: (Green/red, plus or minus, Go/No Go). **Never use these indicators.**
  - The alignment specifications programmed into your machine that operate these indicators may not be correct.
  - This may result in an ERROR.
- Most camera-type alignment machines are equipped with both “Rolling Compensation” method and optional “Jacking Compensation” method to “compensate” the alignment targets or head units. “Rolling Compensation” is the preferred method.
  - If using the “Rolling Compensation” method, after installing the alignment targets or head units, push or pull on the rear wheel to move the vehicle. **Do not push or pull on the vehicle body.**
  - If using the “Jacking Compensation” method, after installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.

    NOTE:

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

Adjustment

INFOID:0000000013550570

TOE-IN

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

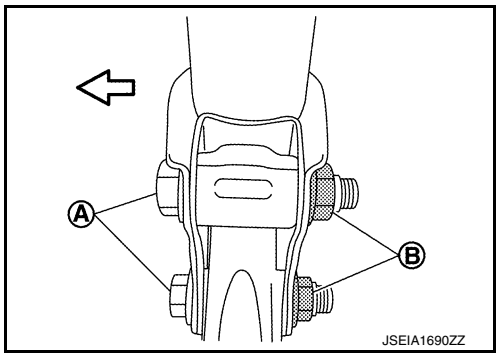
Toe-in : Refer to FSU-22, "Wheel Alignment".

CAUTION:
- **Always evenly adjust both toe-in alternately and adjust the difference between the left and right to the standard.**
- **Always fix the steering inner socket when tightening the steering outer socket.**

2. After toe-in adjustment, perform test drive. Refer to STC-26, "Description".

CAMBER

1. Loosen the strut mounting bolts Ⓐ and nuts Ⓑ, until strut can be moved, and then adjust camber.



⇦ : Vehicle front

Camber : Refer to FSU-22, "Wheel Alignment".

2. Temporary tightening to lower nut.
3. Tighten upper nut first and then lower nut.

: 110 N·m (11 kg-m, 81 ft-lb)

4. Turn 90 degrees clockwise (angle tightening).

CAUTION:
Check the tightening angle by using an angle wrench (commercial service tool) or protractor. Never judge by visual inspection without an angle wrench.

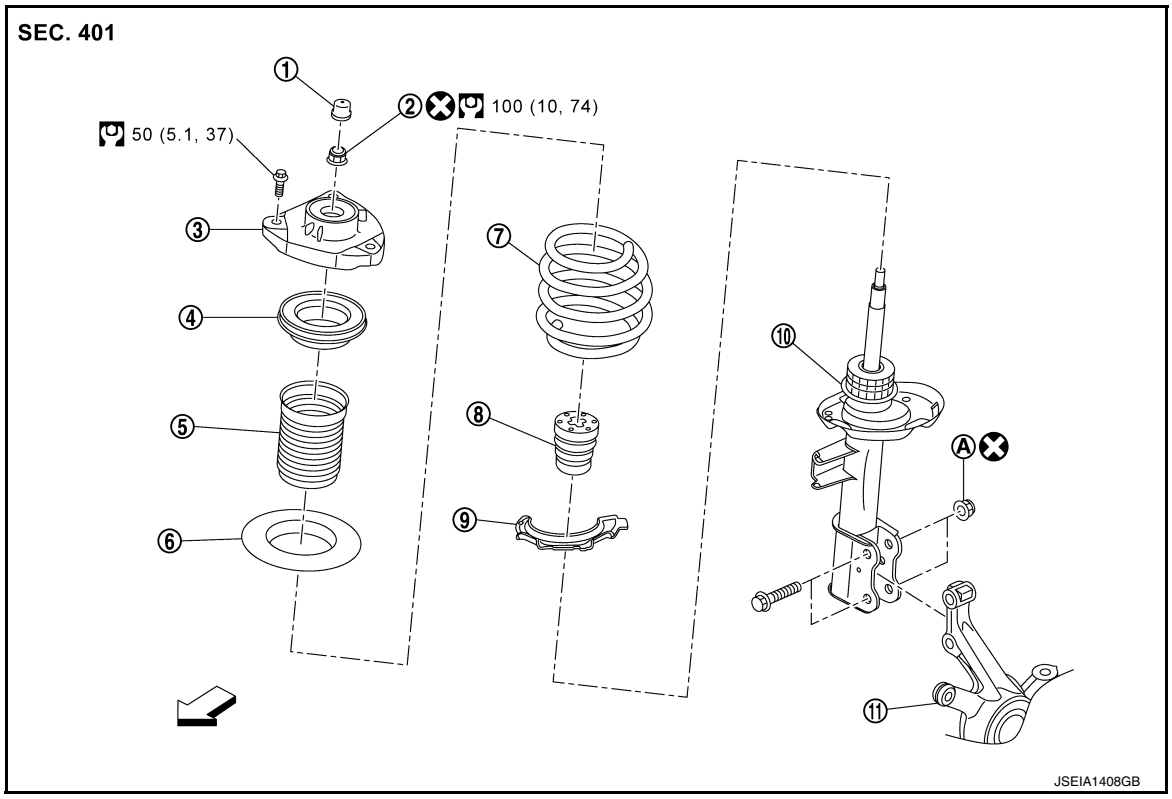
5. After camber adjustment, check wheel alignment. Refer to FSU-8, "Inspection".
6. After camber adjustment, perform test drive. Refer to STC-26, "Description".

REMOVAL AND INSTALLATION

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:0000000013550571



① Cap	② Piston rod lock nut	③ Mounting insulator
④ Mounting bearing	⑤ Dust boot	⑥ Rubber seat
⑦ Coil spring	⑧ Bound bumper	⑨ Lower rubber seat
⑩ Strut	⑪ Steering knuckle	

Ⓐ: Tightening must be done following the installation procedure. Refer to FSU-10, "Removal and Installation".

⇦: Vehicle front

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

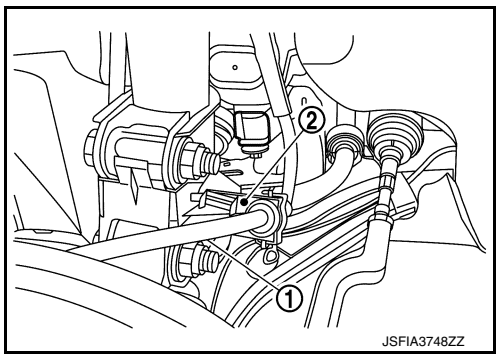
Removal and Installation

INFOID:0000000013550572

REMOVAL

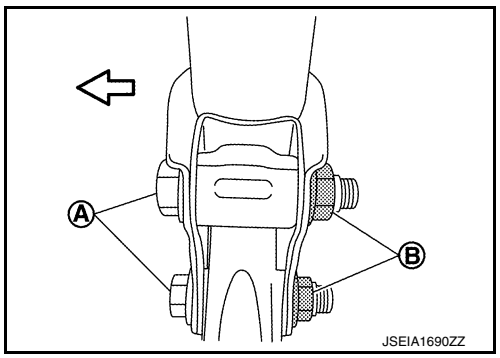
1. Remove tires with power tool (commercial service tool). Refer to WT-70, "Exploded View".

2. Remove brake hose ① from bracket ②.
3. Remove bracket from strut assembly. Refer to BR-21, "FRONT : Removal and Installation".
4. Separate stabilizer connecting rod from strut assembly. Refer to FSU-17, "Removal and Installation".



5. Remove strut mounting bolts Ⓐ and nuts Ⓑ from steering knuckle.

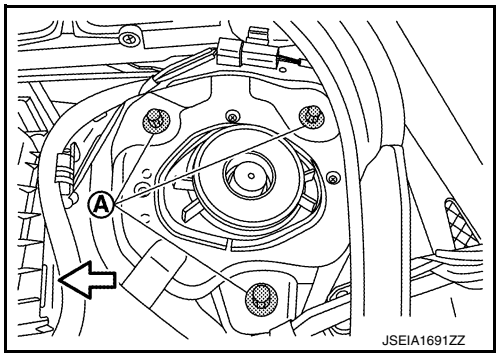
⇦ : Vehicle front



6. Remove mounting bolts Ⓐ of mounting insulator, and then remove strut assembly.

⇦ : Vehicle front

7. Perform inspection after removal. Refer to FSU-13, "Inspection".



INSTALLATION

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

- Install strut assembly with the following procedure.

- Install strut assembly to strut tower.

CAUTION:

Ensure that positioning shackles of mounting insulator do not come into contact with the strut tower. Otherwise the strut tower may be damaged.

- Install strut mounting bolts and nuts to steering knuckle.

CAUTION:

Never reuse strut mounting nut.

- Tighten strut mounting nuts.

: 110 N·m (11 kg-m, 81 ft-lb)

- Turn 90 degrees clockwise (angle tightening).

CAUTION:

Check the tightening angle by using an angle wrench (commercial service tool) or protractor. Never judge by visual inspection without an angle wrench.

- Perform final tightening of fixing parts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to FSU-13, "Inspection".
- After replacing the strut, disposal of strut carried out according to legal requirements of the country.

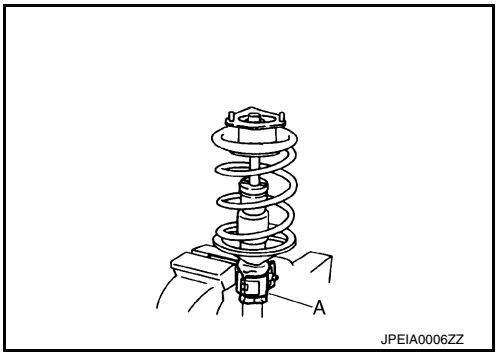
Disassembly and Assembly

INFOID:0000000013550573

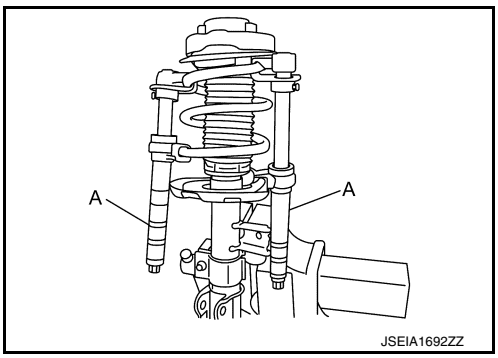
DISASSEMBLY

DANGER:
Risk of injury caused by pinching or crushing when working on springs or spring bodies that are under tension.
CAUTION:
Never damage piston rod of strut when removing components from strut assembly.

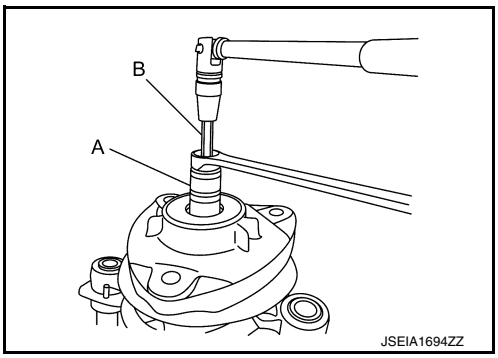
1. Install strut attachment (SST: ST35652000) (A) to strut assembly and secure it in a vise.
   CAUTION:
   When installing the strut attachment to strut assembly, wrap a shop cloth around strut to protect from damage.

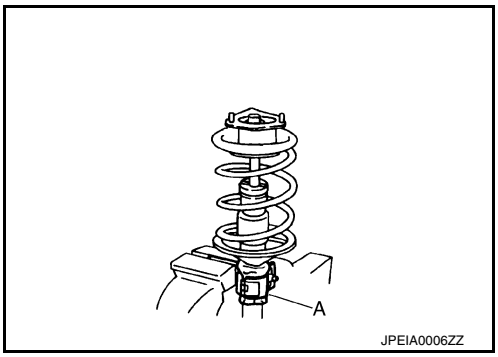


2. Using a spring compressor (commercial service tool) (A), compress coil spring between mounting bearing and lower rubber seat until coil spring with a spring compressor is free.
   CAUTION:
   Be sure a spring compressor is securely attached to coil spring. Compress coil spring.
3. Remove cap.



4. Remove piston rod lock nut, using deep socket (commercial service tool) (A) while securing the piston rod, using TORX socket (commercial service tool) (B).
5. Remove mounting insulator, mounting bearing, dust boot, and rubber seat from strut.
6. After removing coil spring with a spring compressor (commercial service tool), then gradually release a spring compressor.
   CAUTION:
   Loosen while making sure coil spring attachment position does not move.
7. Remove bound bumper and lower rubber seat.
8. Remove strut attachment (SST: ST35652000) (A) from strut.
9. Perform inspection after disassembly. Refer to FSU-13, "Inspection".





ASSEMBLY

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

DANGER:

Risk of injury caused by pinching or crushing when working on springs or spring bodies that are under tension.

CAUTION:

- **Never damage piston rod of strut when installing components from strut assembly.**
- **Never reuse piston rod lock nut.**
- Observe installation position of coil spring.

Inspection

INFOID:0000000013550574

INSPECTION AFTER REMOVAL

Check strut assembly for damage, and replace the strut assembly if necessary.

INSPECTION AFTER DISASSEMBLY

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

Strut

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

Mounting Bearing

Check mounting bearing for cracks, wear or damage.

Mounting Insulator, Dust Boot, and Bound Bumper

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

Coil Spring

Check coil spring for cracks, wear or damage.

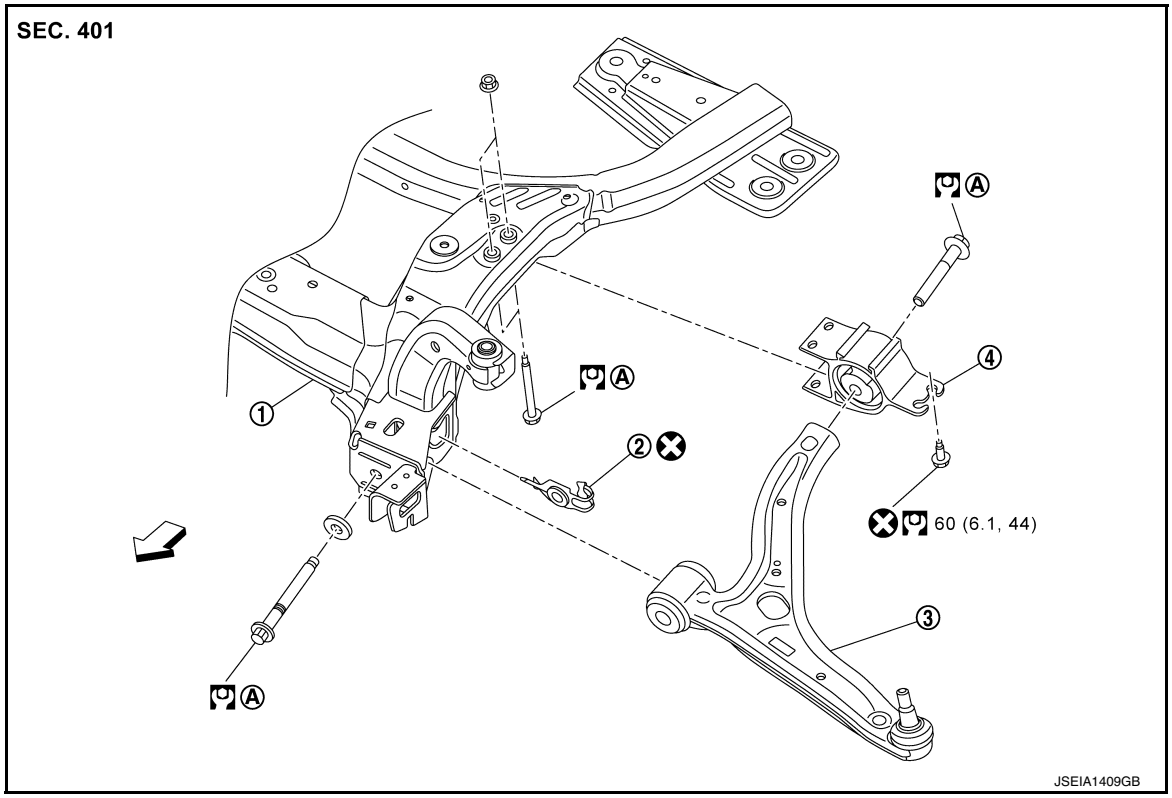
INSPECTION AFTER INSTALLATION

1. Check wheel alignment. Refer to FSU-8, "Inspection".
2. Perform test drive when adjusting wheel alignment. Refer to STC-26, "Description".

TRANSVERSE LINK

Exploded View

INFOID:0000000013550575



① Front suspension member ② Retaining nut ③ Transverse link
④ Transverse link bearing

Ⓐ: Tightening must be done following the installation procedure. Refer to FSU-14, "Removal and Installation".

⇦: Vehicle front

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

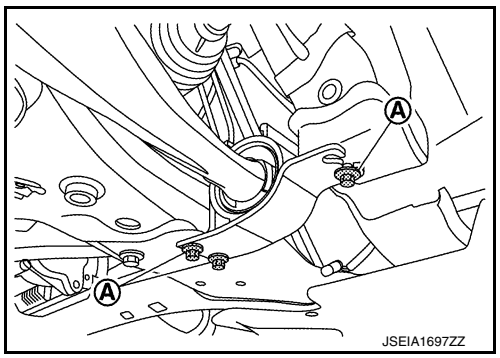
Removal and Installation

INFOID:0000000013550576

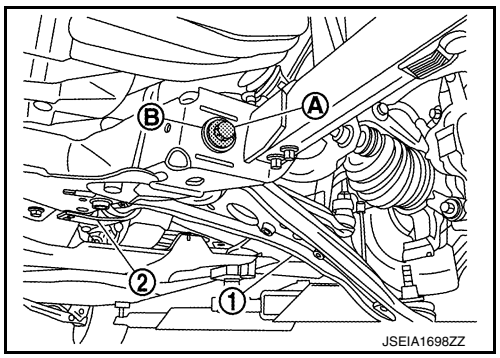
REMOVAL

1. Remove tires with power tool (commercial service tool). Refer to WT-70, "Exploded View".
2. Remove engine under cover. Refer to EXT-44, "ENGINE UNDER COVER : Removal and Installation".
3. Remove fender protector. Refer to EXT-41, "FENDER PROTECTOR : Removal and Installation".
4. Remove front axle rpm sensor. Refer to BRC-968, "FRONT AXLE RPM SENSOR : Removal and Installation".
5. Remove harness bracket from transverse link. Refer to BRC-968, "FRONT AXLE RPM SENSOR : Removal and Installation".
6. Remove harness bracket from transverse link bearing. Refer to BRC-968, "FRONT AXLE RPM SENSOR : Removal and Installation".
7. Separate transverse link from steering knuckle. Refer to FAX-10, "Removal and Installation".

8. Remove transverse link bearing mounting bolts Ⓐ and nuts.
9. Remove stabilizer connecting rod from stabilizer bar. Refer to FSU-17, "Removal and Installation".



10. Remove transverse link mounting bolt Ⓐ, washer Ⓑ, and retaining nut and then remove transverse link ① and transverse link bearing ②.
11. Remove transverse link bearing from transverse link.
12. Perform inspection after removal. Refer to FSU-16, "Inspection".



INSTALLATION

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

- Install transverse link mounting bolt Ⓐ with the following procedure.

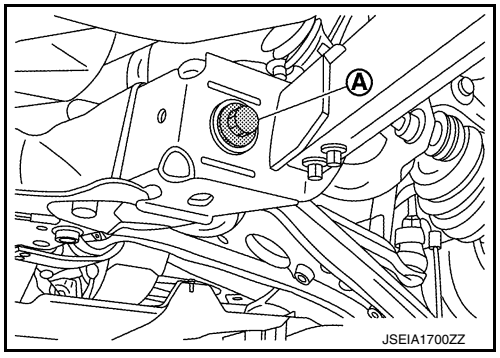
CAUTION:
Never reuse retaining nut.

- Tighten transverse link mounting bolt.

: 120 N·m (12 kg-m, 89 ft-lb)

- Turn 90 degrees clockwise (angle tightening).

CAUTION:
Check the tightening angle by using an angle wrench (commercial service tool) or protractor. Never judge by visual inspection without an angle wrench.



NOTE:
Perform final tightening of transverse link mounting bolt at the vehicle installation position under unladen conditions with tires on level ground.

- Install transverse link bearing mounting bolts and nuts with the following procedure.

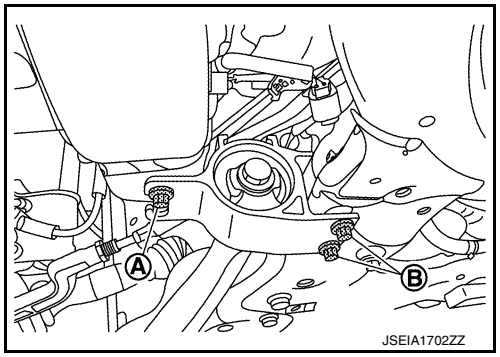
CAUTION:
Never reuse transverse link bearing mounting bolt Ⓐ.

- Tighten transverse link bearing mounting bolts Ⓑ.

: 50 N·m (5.1 kg-m, 37 ft-lb)

- Turn 90 degrees clockwise (angle tightening).

CAUTION:
Check the tightening angle by using an angle wrench (commercial service tool) or protractor. Never judge by visual inspection without an angle wrench.

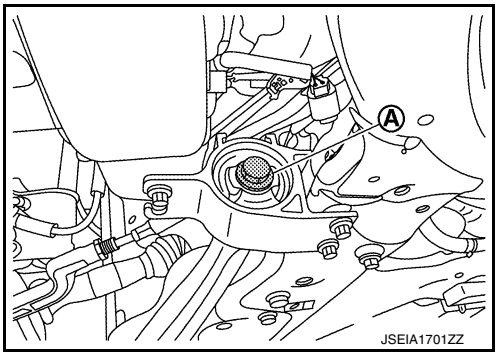


NOTE:
Perform final tightening of transverse link bearing mounting bolts at the vehicle installation position under unladen conditions with tires on level ground.

- Install transverse link bearing mounting bolt Ⓐ with the following procedure.

- Tighten transverse link bearing mounting bolt.

: **80 N·m (8.2 kg-m, 59 ft-lb)**



- Turn 90 degrees clockwise (angle tightening).

CAUTION:

Check the tightening angle by using an angle wrench (commercial service tool) or protractor. Never judge by visual inspection without an angle wrench.

NOTE:

Perform final tightening of transverse link bearing mounting bolt at the vehicle installation position under unladen conditions with tires on level ground.

- Perform final tightening of bolts and nuts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to FSU-16, "Inspection".

Inspection

INFOID:0000000013550577

INSPECTION AFTER REMOVAL

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

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

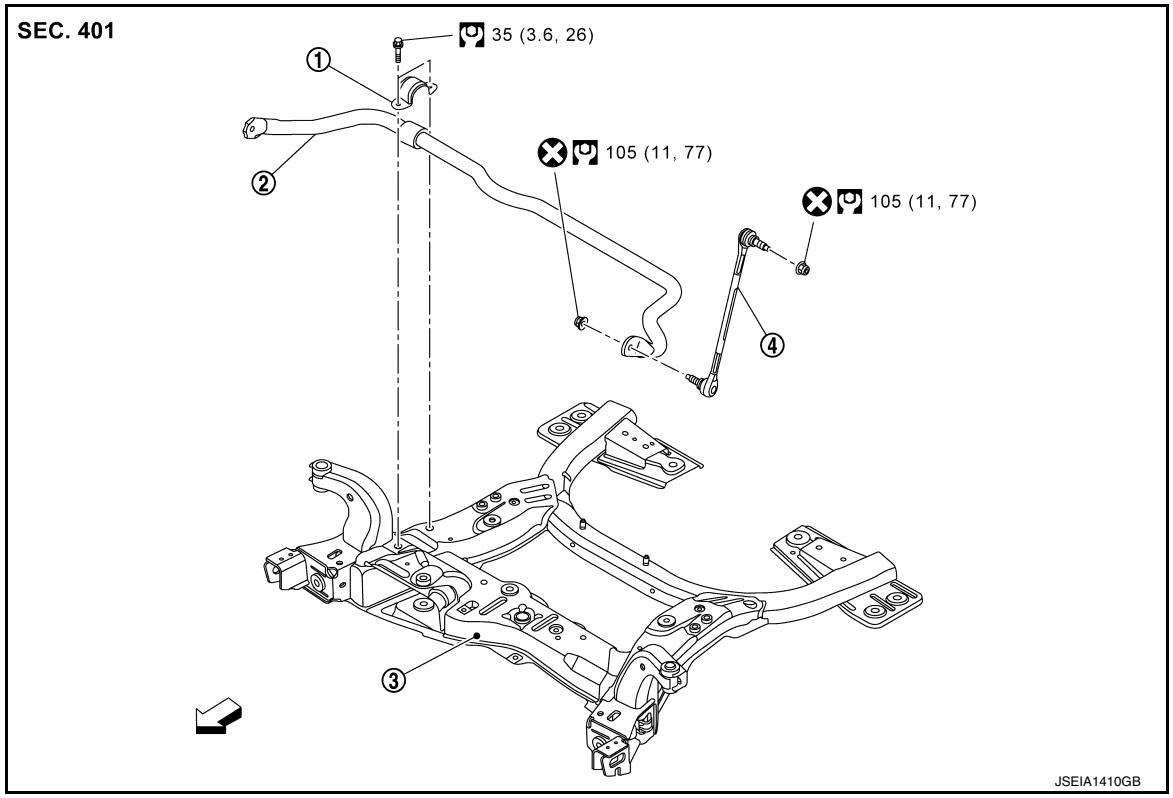
INSPECTION AFTER INSTALLATION

1. Check front axle rpm sensor harness for proper connector. Refer to BRC-967, "FRONT AXLE RPM SENSOR : Exploded View".
2. Check wheel alignment. Refer to FSU-8, "Inspection".
3. Perform test drive when adjusting wheel alignment. Refer to STC-26, "Description".

FRONT STABILIZER

Exploded View

INFOID:0000000013550578



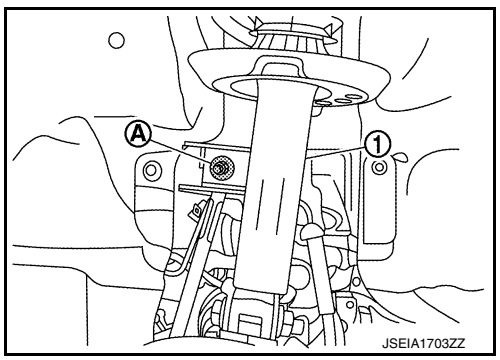
① Stabilizer clamp ② Stabilizer bar ③ Front suspension member
④ Stabilizer connecting rod
⇦: Vehicle front
: Always replace after every disassembly.
: N·m (kg-m, ft-lb)

Removal and Installation

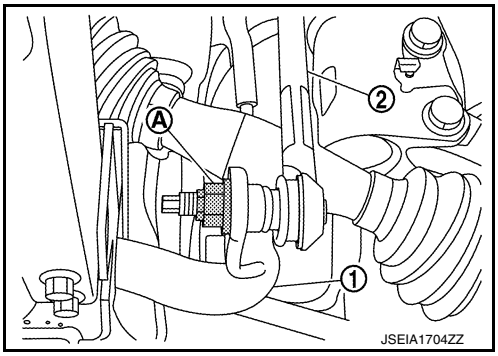
INFOID:0000000013550579

REMOVAL

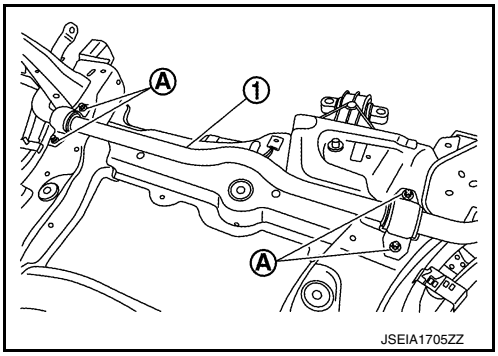
1. Remove tires with power tool (commercial service tool). Refer to WT-70, "Exploded View".
2. Position steering gear assembly forward.
3. Remove stabilizer connecting rod mounting nut Ⓐ from strut ①.



4. Remove stabilizer connecting rod mounting nut Ⓐ from stabilizer bar ①, and remove stabilizer connecting rod ②.
5. Remove front suspension member. Refer to FSU-19, "Removal and Installation".
6. Remove heat insulator from front suspension member. Refer to FSU-19, "Exploded View".
7. Remove heat insulator from front suspension member. Refer to ST-13, "Exploded View".
8. Remove steering gear assembly from front suspension member. Refer to ST-13, "Exploded View".
9. Remove height sensor from front suspension member. (LED headlamp) Refer to EXL-301, "FRONT HEIGHT SENSOR : Removal and Installation".
10. Remove stabilizer clamp mounting bolts Ⓐ, and remove stabilizer clamp and stabilizer bar ① from front suspension member.
11. Perform inspection after removal. Refer to FSU-18, "Inspection".



JSEIA1704ZZ

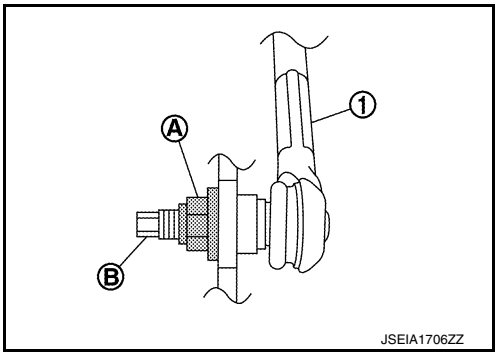


JSEIA1705ZZ

INSTALLATION

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

- To install stabilizer connecting rod ①, tighten the mounting nut Ⓐ with the hexagonal part Ⓑ on the stabilizer connecting rod side fixed.
  CAUTION:
  Never reuse stabilizer connecting rod mounting nut.
- To install clamp of stabilizer bar, tighten bolts equally.
- Perform final tightening of bolts and nuts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to FSU-16, "Inspection".



JSEIA1706ZZ

Inspection

INFOID:0000000013550580

INSPECTION AFTER REMOVAL

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

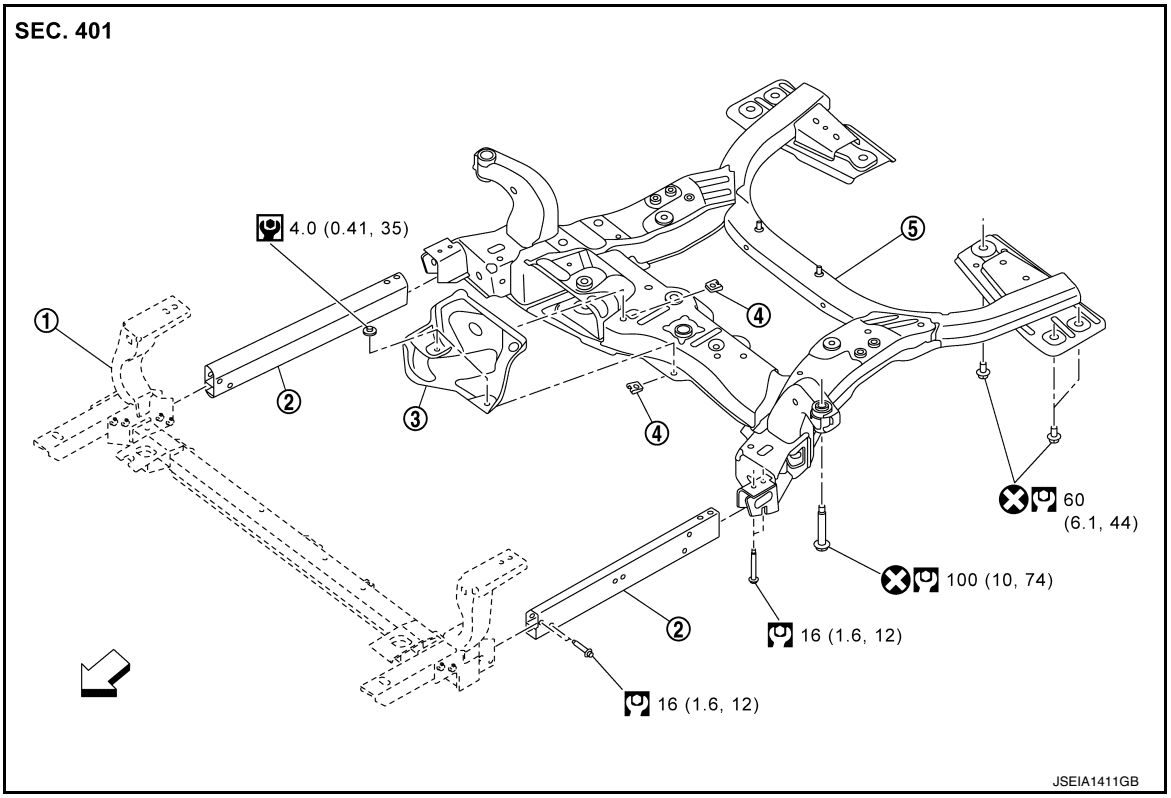
INSPECTION AFTER INSTALLATION

1. Check wheel alignment. Refer to FSU-8, "Inspection".
2. Perform test drive when adjusting wheel alignment. Refer to STC-26, "Description".

FRONT SUSPENSION MEMBER

Exploded View

INFOID:0000000013550581



① Radiator core support lower ② Crossbar ③ Heat insulator
④ Grommet ⑤ Front suspension member

⇦: Vehicle front

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

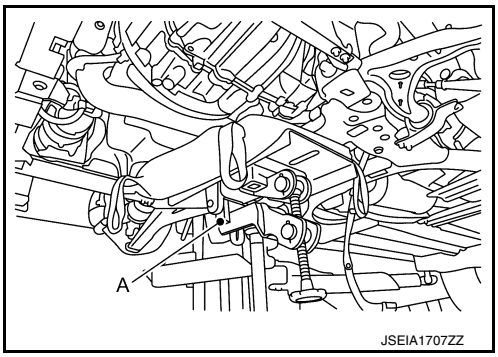
Removal and Installation

INFOID:0000000013550582

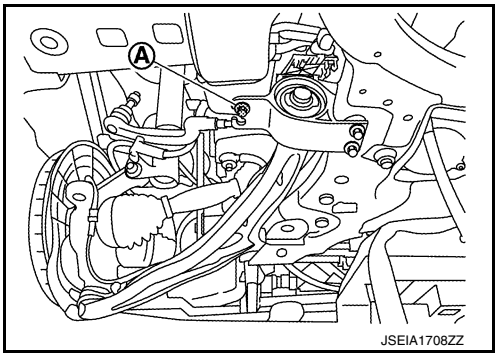
REMOVAL

1. Remove tires with power tool (commercial service tool). Refer to WT-70, "Exploded View".
2. Remove fender protector. Refer to EXT-41, "FENDER PROTECTOR : Removal and Installation".
3. Remove engine under cover. Refer to EXT-44, "ENGINE UNDER COVER : Removal and Installation".
4. Remove floor under cover. Refer to EXT-45, "FLOOR UNDER COVER : Removal and Installation".
5. Separate outer socket from steering knuckle. Refer to ST-14, "Removal and Installation".
6. Separate transverse link from steering knuckle. Refer to FAX-10, "Removal and Installation".
7. Separate stabilizer connecting rod from stabilizer bar. Refer to FSU-17, "Removal and Installation".
8. Remove steering shaft mounting bolt (steering gear side). Refer to ST-11, "Removal and Installation".
9. Disconnect EPS control unit harness connectors, and remove EPS control unit harness from front suspension member. Refer to ST-14, "Removal and Installation".
10. Disconnect front height sensor harness connector. (LED hedlamp) Refer to EXL-301, "FRONT HEIGHT SENSOR : Removal and Installation".
11. Disconnect front axle rpm sensor harness connectors, and remove front axle rpm sensor harness from transverse link. Refer to BRC-968, "FRONT AXLE RPM SENSOR : Removal and Installation".

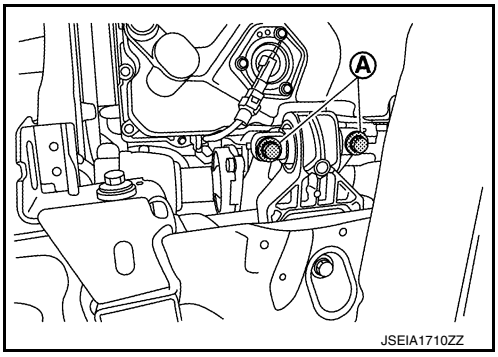
12. Disconnect right front brake wear sensor harness connector, and remove right front brake wear sensor harness from transverse link. Refer to BR-35, "BRAKE PAD : Removal and Installation".
13. Remove mounting rubber (FR) mounting nuts from front suspension member. Refer to EX-5, "Exploded View".
14. Set suitable jack (A) under front suspension member.
    CAUTION:
    Check the stable condition when using a jack.



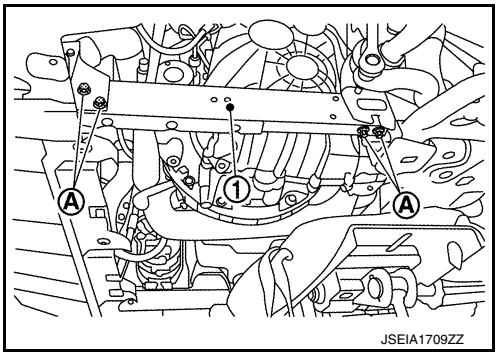
15. Remove transverse link bearing mounting bolt Ⓐ. Refer to FSU-14, "Exploded View".
16. Remove washer tank. Refer to WW-75, "WASHER TANK : Removal and Installation".



17. Remove rear torque rod mounting bolts Ⓐ. Refer to EM-95, "Exploded View".



18. Remove crossbar mounting bolts Ⓐ, and remove crossbar ①.
19. Remove front suspension member mounting bolts.
20. Gradually lower the jack to remove front suspension member from vehicle body.
    CAUTION:
    Operate while checking that jack supporting status is stable.
21. If necessary, remove the following parts.
    - Heat insulator and grommets: Refer to FSU-19, "Exploded View".
    - Heat insulator: Refer to ST-13, "Exploded View".
    - Steering gear assembly: Refer to ST-13, "Exploded View".
    - Rear torque rod: Refer to EM-95, "Exploded View".
    - Stabilizer bar: Refer to FSU-17, "Exploded View".
    - Height sensor (LED hedlamp): Refer to EXL-300, "Exploded View".
    - Transverse link: Refer to FSU-14, "Exploded View".
22. Perform inspection after removal. Refer to FSU-16, "Inspection".



INSTALLATION

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

CAUTION:

Never reuse front suspension member mounting bolt.

- Perform final tightening of bolts and nuts at the vehicle installation position (rubber bushing), under unladen conditions with tires on level ground.
- Perform inspection after installation. Refer to FSU-16, "Inspection".

Inspection

INFOID:0000000013550583

INSPECTION AFTER REMOVAL

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

INSPECTION AFTER INSTALLATION

1. Check front axle rpm sensor harness for proper connector. Refer to BRC-967, "FRONT AXLE RPM SENSOR : Exploded View".
2. Check wheel alignment. Refer to FSU-8, "Inspection".
3. Perform test drive when adjusting wheel alignment. Refer to STC-26, "Description".

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment

INFOID:0000000013550584

2WD

1.6L TURBO ENGINE

Item			Standard
Camber Degree minute (Decimal degree)		Minimum	–1° 35′ (–1.58°)
		Nominal	–0° 50′ (–0.83°)
		Maximum	–0° 05′ (–0.09°)
		Left and right difference*1	–0° 30′ (–0.50°) - 0° 30′ (0.50°)
Caster Degree minute (Decimal degree)		Minimum	5° 30′ (5.50°)
		Nominal	6° 15′ (6.25°)
		Maximum	7° 00′ (7.00°)
		Left and right difference*1	–0° 30′ (–0.50°) - 0° 30′ (0.50°)
Kingpin inclination Degree minute (Decimal degree)		Minimum	9° 45′ (9.75°)
		Nominal	10° 30′ (10.50°)
		Maximum	11° 15′ (11.25°)
Toe-in	Total toe-in Distance	Minimum	In 0.7 mm (0.028 in)
		Nominal	In 2.7 mm (0.106 in)
		Maximum	In 4.7 mm (0.185 in)
	Total toe-angle Degree minute (Decimal degree)	Minimum	In 0° 9′ 00″ (In 0.15°)
		Nominal	In 0° 13′ 48″ (In 0.23°)
		Maximum	In 0° 18′ 36″ (In 0.31°)

Measure value under unladen*2 conditions.

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

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

2.0L TURBO ENGINE

Item		Standard	
Grade		Except Sportt	Sport
Camber Degree minute (Decimal degree)	Minimum	–1° 35′ (–1.58°)	–1° 45′ (–1.75°)
	Nominal	–0° 50′ (–0.83°)	–1° 00′ (–1.00°)
	Maximum	–0° 05′ (–0.09°)	–0° 15′ (–0.25°)
	Left and right difference*1	–0° 30′ (–0.50°) - 0° 30′ (0.50°)	
Caster Degree minute (Decimal degree)	Minimum	5° 30′ (5.50°)	5° 50′ (5.84°)
	Nominal	6° 15′ (6.25°)	6° 35′ (6.58°)
	Maximum	7° 00′ (7.00°)	7° 20′ (7.33°)
	Left and right difference*1	–0° 30′ (–0.50°) - 0° 30′ (0.50°)	
Kingpin inclination Degree minute (Decimal degree)	Minimum	9° 45′ (9.75°)	9° 55′ (9.92°)
	Nominal	10° 30′ (10.50°)	10° 40′ (10.67°)
	Maximum	11° 15′ (11.25°)	11° 25′ (11.41°)

Item			Standard	
Grade			Except Sportt	Sport
Toe-in	Total toe-in Distance	Minimum	In 1.7 mm (0.067 in)	
		Nominal	In 2.7 mm (0.106 in)	
		Maximum	In 3.7 mm (0.146 in)	
	Total toe-angle Degree minute (Decimal degree)	Minimum	In 0° 9′ 00″ (In 0.15°)	In 0° 8′ 24″ (In 0.14°)
		Nominal	In 0° 13′ 48″ (In 0.23°)	In 0° 13′ 12″ (In 0.22°)
		Maximum	In 0° 18′ 36″ (In 0.31°)	In 0° 18′ 00″ (In 0.30°)

Measure value under unladen*2 conditions.

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

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

AWD

2.0L TURBO ENGINE

Item			Standard
Camber Degree minute (Decimal degree)		Minimum	–1° 15′ (–1.25°)
		Nominal	–0° 30′ (–0.50°)
		Maximum	0° 15′ (0.25°)
		Left and right difference*1	–0° 30′ (–0.50°) - 0° 30′ (0.50°)
Caster Degree minute (Decimal degree)		Minimum	5° 10′ (5.17°)
		Nominal	5° 55′ (5.92°)
		Maximum	6° 40′ (6.66°)
		Left and right difference*1	–0° 30′ (–0.50°) - 0° 30′ (0.50°)
Kingpin inclination Degree minute (Decimal degree)		Minimum	9° 25′ (9.42°)
		Nominal	10° 10′ (10.17°)
		Maximum	10° 55′ (10.91°)
Toe-in	Total toe-in Distance	Minimum	In 0.7 mm (0.028 in)
		Nominal	In 2.7 mm (0.106 in)
		Maximum	In 4.7 mm (0.185 in)
	Total toe-angle Degree minute (Decimal degree)	Minimum	In 0° 9′ 00″ (In 0.15°)
		Nominal	In 0° 13′ 48″ (In 0.23°)
		Maximum	In 0° 18′ 36″ (In 0.31°)

Measure value under unladen*2 conditions.

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

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

Wheelarch Height

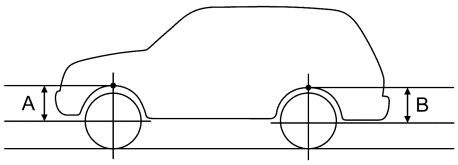
INFOID:0000000013550585

2WD

1.6L TURBO ENGINE

Item	Standard
Front (A)	404 mm (15.91 in)

Item	Standard
Rear (B)	405 mm (15.94 in)



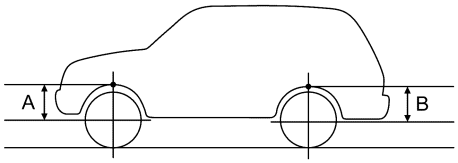
JSEIA1711ZZ

Measure value under unladen* conditions.

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

2.0L TURBO ENGINE

Item		Standard	
Grade		Except Sport	Sport
Front (A)	Except canada	404 mm (15.91 in)	388 mm (15.28 in)
Rear (B)	Except canada	405 mm (15.94 in)	388 mm (15.28 in)
	Canada	406 mm (15.98 in)	



JSEIA1711ZZ

Measure value under unladen* conditions.

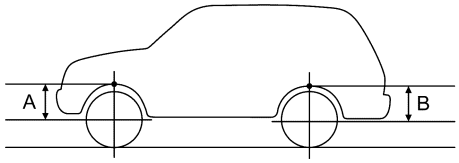
*: Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.

AWD

2.0L TURBO ENGINE

Item		Standard	
Grade		Except Premium	Premium
Front (A)	Except canada	433 mm (17.05 in)	433 mm (17.05 in)

Item		Standard	
Grade		Except Premium	Premium
Rear (B)	Except canada	423 mm (16.65 in)	422 mm (16.61 in)
	Canada	424 mm (16.69 in)	



JSEIA1711ZZ

Measure value under unladen* conditions.

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