SECTION FSU
FRONT SUSPENSION

CONTENTS

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000010297061

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

Reference page			FSU-20	FSU-12	—	—	—	FSU-20	FSU-23	FSU-19	FSU-2, "NVH Troubleshooting Chart"	DLN-192, "NVH Troubleshooting Chart"	FAX-3, "NVH Troubleshooting Chart" FAX-42, "NVH Troubleshooting Chart"	NVH in WT section	NVH in WT section	FAX-3, "NVH Troubleshooting Chart" FAX-42, "NVH Troubleshooting Chart"	BR-4, "NVH Troubleshooting Chart"	ST-6, "NVH Troubleshooting Chart"
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	PROPELLER SHAFT (4WD)	DIFFERENTIAL (4WD)	FRONT AXLE AND FRONT SUSPENSION	TIRES	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	FRONT SUSPENSION	Noise	×	×	×	×	×	×			×	×	×	×	×	×	×	×
		Shake	×	×	×	×		×			×		×	×	×	×	×	×
		Vibration	×	×	×	×	×				×		×	×		×		×
		Shimmy	×	×	×	×			×				×	×	×		×	×
		Judder	×	×	×								×	×	×		×	×
		Poor quality ride or handling	×	×	×	×	×		×	×			×	×	×			

×: Applicable

PRECAUTION

PRECAUTIONS

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

INFOID:0000000010297062

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

WARNING:

Always observe the following items for preventing accidental activation.

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000010297063

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- **This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).**
- **Remove and install all control units after disconnecting both battery cables with the ignition switch in the LOCK position.**
- **Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.**

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

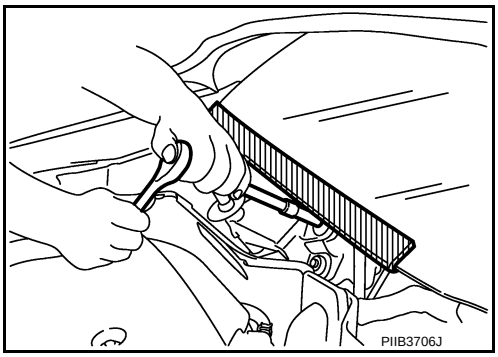
1. Connect both battery cables.
   NOTE:
   Supply power using jumper cables if battery is discharged.
2. Use the Intelligent Key or mechanical key to turn the ignition switch to the ACC position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.

5. When the repair work is completed, return the ignition switch to the LOCK position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000010297064

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



Precautions for Suspension

INFOID:0000000010297065

CAUTION:

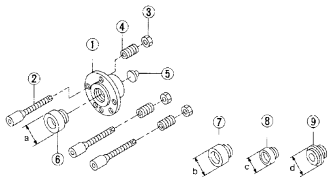
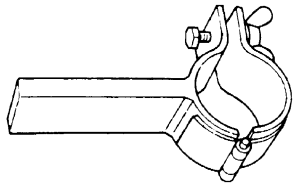
- **When installing rubber bushings, the final tightening must be carried out under unladen conditions with tires on ground. Oil might shorten the life of rubber bushings. Be sure to wipe off any spilled oil.**
- **Unladen conditions mean that fuel, engine coolant and lubricant are full. Spare tire, 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

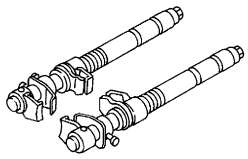
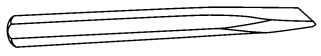
Special Service Tool

INFOID:0000000010297066

Tool number Tool name	Description
KV991040S1 CCK gauge attachment 1. Plate 2. Guide bolt 3. Nut 4. Spring 5. Center plate 6. KV99104020 Adapter A a: 72 mm (2.83 in) dia. 7. KV99104030 Adapter B b: 65 mm (2.56 in) dia. 8. KV99104040 Adapter C c: 57 mm (2.24 in) dia. 9. KV99104050 Adapter D d: 53.4 mm (2.102 in) dia.  S-NT498	Measuring wheel alignment
ST35652000 Strut attachment  ZZA0807D	Disassembling and assembling strut

Commercial Service Tool

INFOID:0000000010590087

Tool name	Description
Spring compressor  S-NT717	Removing and installing coil spring
NI-4038 Chisel  ALEIA0224ZZ	Separating steering knuckle from front coil spring and strut

PERIODIC MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection

INFOID:0000000010297068

MOUTING INSPECTION

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

BALL JOINT AXIAL END PLAY

1. Set front wheels in a straight-ahead position.
   CAUTION:
   Never depress brake pedal.
2. Place an iron bar or equivalent between transverse link and steering knuckle.
3. Measure axial end play by prying it up and down.

Standard end play : Refer to FSU-24, "Ball Joint".

CAUTION:

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

STRUT ASSEMBLY

Check for oil leakage and damage, and replace if malfunction is detected.

WHEEL ALIGNMENT

Wheel Alignment Inspection

INFOID:0000000010297069

INSPECTION

Description

CAUTION:

- **Camber, caster, kingpin inclination angles cannot be adjusted.**
- **If camber, caster, or kingpin inclination angle exceeds the standard value, check front suspension parts for wear and damage. Replace suspect parts if a malfunction is detected.**
- **Kingpin inclination angle is reference value, no inspection is required.**

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-57, "Inspection".
- Wheel bearing axial end play: Refer to FAX-8, "Inspection" (2WD), FAX-47, "Inspection" (4WD).
- Transverse link ball joint axial end play: Refer to FSU-6, "Inspection".
- Strut operation.
- Each mounting part of axle and suspension for looseness and deformation
- Each of suspension member and transverse link for cracks, deformation and other damage
- Vehicle height (posture)

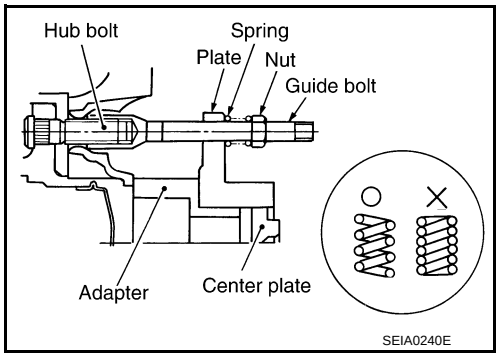
CAMBER, CASTER, AND KINGPIN INCLINATION ANGLES

- Camber, caster, kingpin inclination angles cannot be adjusted.
- Before inspection, mount front wheels onto turning radius gauge. Mount rear wheels onto a stand at the same height so that vehicle remains horizontal.

Using a CCK Gauge

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

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

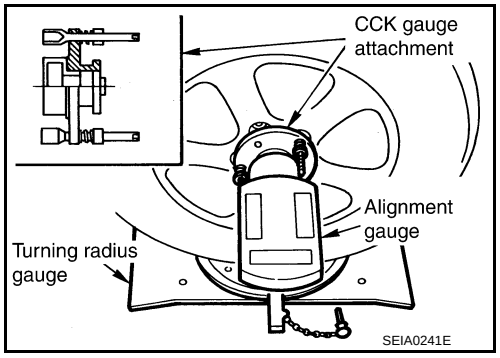


5. Place the dent of alignment gauge onto the projection of the center plate and tightly contact them to measure.

Camber, caster, kingpin inclination angles : **Refer to FSU-23, "Wheel Alignment".**

CAUTION:

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



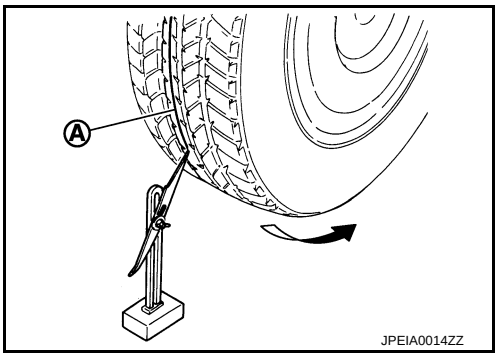
Toe-In

Measure toe-in by the following procedure.

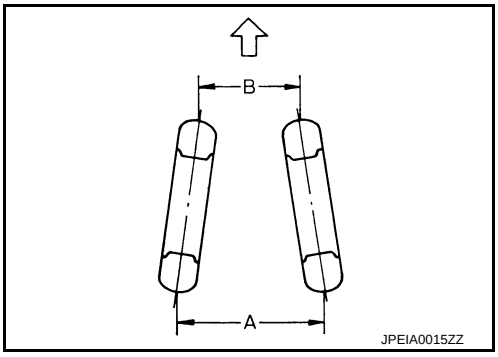
WARNING:

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

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



4. Measure distance (A) (rear side).
5. Push vehicle slowly ahead to rotate wheels 180 degrees (1/2 turn).
   NOTE:
   If the wheels rotates more than 180 degrees (1/2 turn), start this procedure again from the beginning. Do not push the vehicle backward.
6. Measure distance (B) (front side).



Total toe-in = A – B

Total toe-in : Refer to FSU-23, "Wheel Alignment".

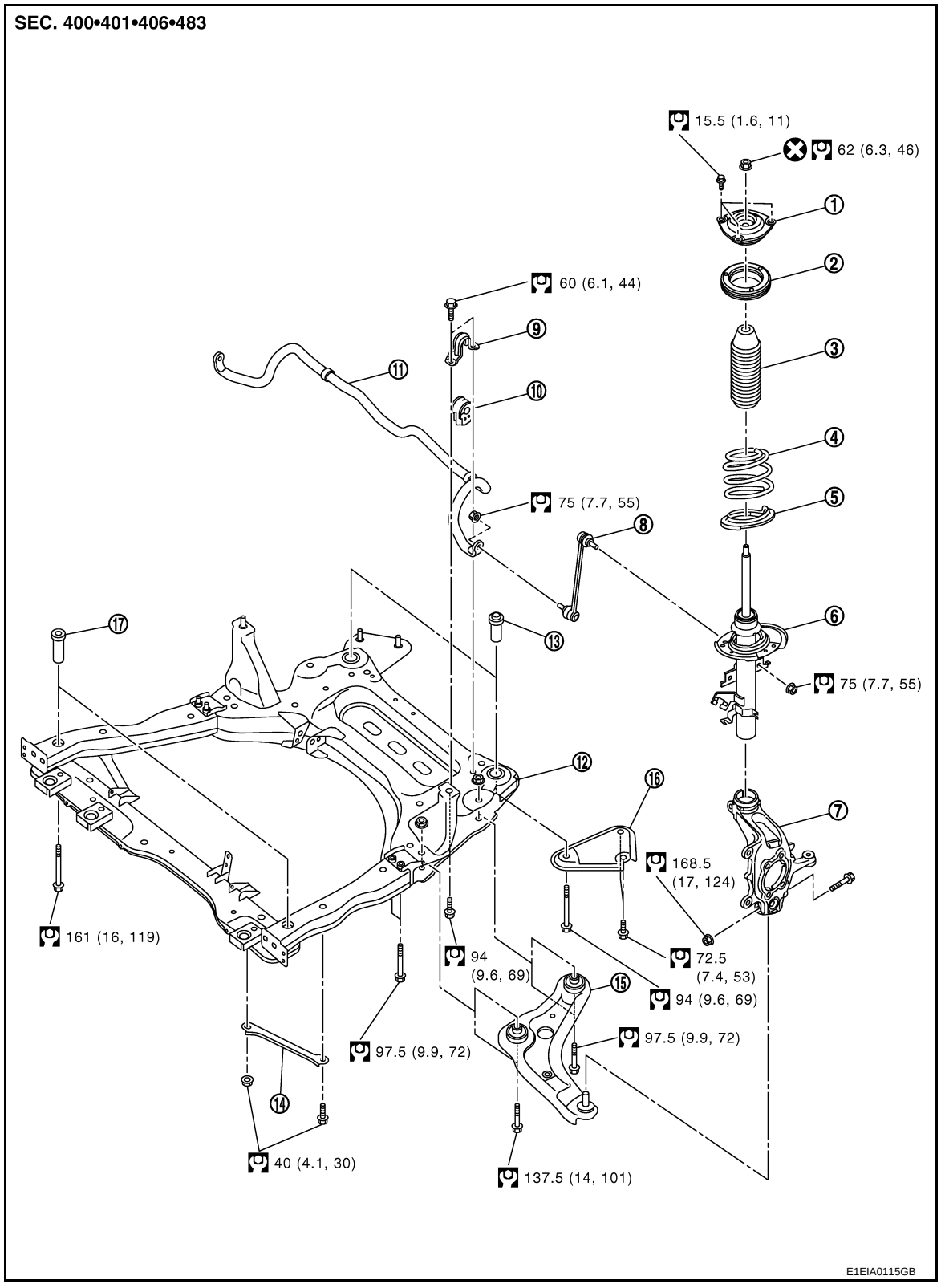
- If toe-in exceeds the standard value, adjust toe-in by varying the length of between steering outer socket and inner socket.

REMOVAL AND INSTALLATION

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:0000000010297070



1. Strut mounting insulator
2. Strut mounting bearing
3. Bound bumper
4. Coil spring
5. Lower rubber seat
6. Strut
7. Steering knuckle
8. Stabilizer connecting rod
9. Stabilizer clamp
10. Stabilizer bushing
11. Stabilizer bar
12. Front suspension member
13. Rebound stopper rubber
14. Front suspension member stay
15. Transverse link
16. Rear suspension member stay
17. Front suspension member insulator

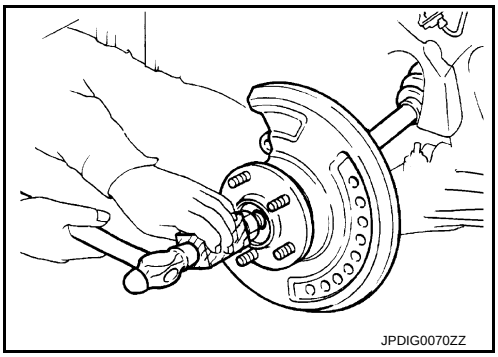
Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000010297071

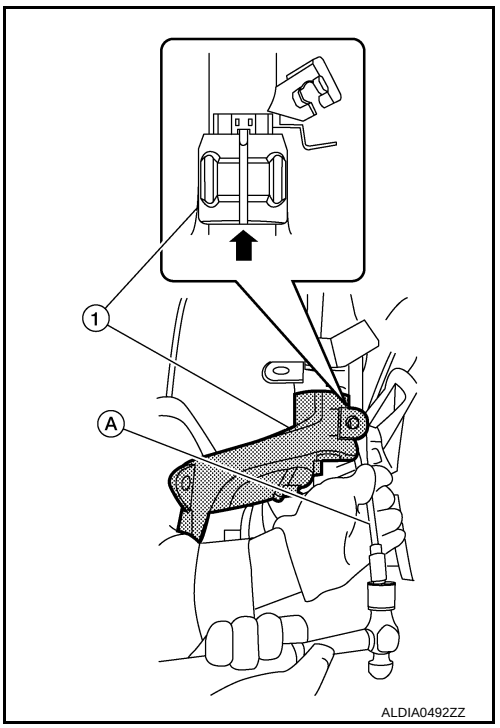
REMOVAL

1. Remove tires from vehicle.
2. Remove wheel hub lock nut.
3. Tap wheel hub lock nut with a piece of wood to disengage wheel hub and bearing from drive shaft.
   NOTE:
   Use a suitable puller if wheel hub and bearing and drive shaft cannot be separated even after performing the above procedure.



4. Remove brake rotor and caliper. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
5. Remove the brake hose lock plate from strut. BR-19, "FRONT : Exploded View" (LHD), BR-63, "FRONT : Exploded View" (RHD).
6. Remove the bolt and separate the front wheel sensor from the steering knuckle. Separate the harness from the brackets and position aside.
   CAUTION:
   - **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
   - **Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.**
7. Remove the nut and separate the stabilizer connecting rod from the strut bracket.
8. Separate axle transverse link and steering knuckle.
9. Remove front strut lower bolt.

10. Open the slot using a chisel (NI-4038) (A). Separate the steering knuckle (1) from the front coil spring and strut.
    CAUTION:
    - **Never drop steering knuckle.**
11. Separate strut lower.
12. Remove knuckle assembly (knuckle and wheel hub).
13. Remove strut upper bolts.
14. Remove front strut from the vehicle.



INSTALLATION

CAUTION:
- **Never reuse the wheel hub lock nut.**
- **Never reuse the cotter pin.**
- **Never reuse steering knuckle upper bolt.**
- **Never reuse steering knuckle lower nut.**

Note the following, and install in the reverse order of removal.
- Perform final tightening of bolts and nuts, under unladen conditions with tires on level ground.

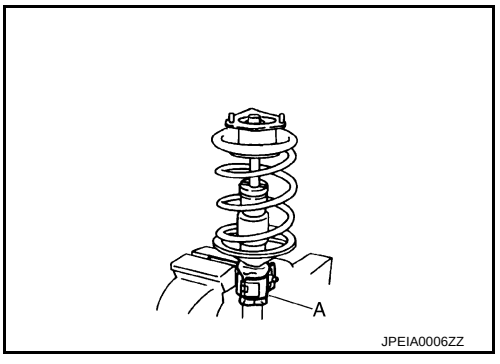
Disassembly and Assembly

INFOID:0000000010297072

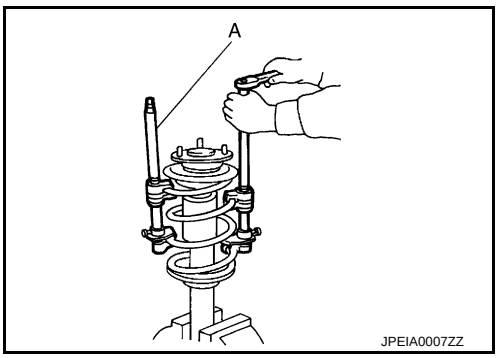
DISASSEMBLY

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

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



2. Using a spring compressor (A) (commercial service tool), compress coil spring between strut mounting bearing and lower rubber seat (on strut assembly) until coil spring with a spring compressor is free.
   CAUTION:
   Be sure a spring compressor is securely attached to coil spring. Compress coil spring.
3. Make sure coil spring with a spring compressor between strut mounting bearing and lower rubber seat (strut assembly) is free. And then remove piston rod lock nut while securing the piston rod tip so that piston rod does not turn.
4. Remove strut mounting insulator and strut mounting bearing, and bound bumper from strut.

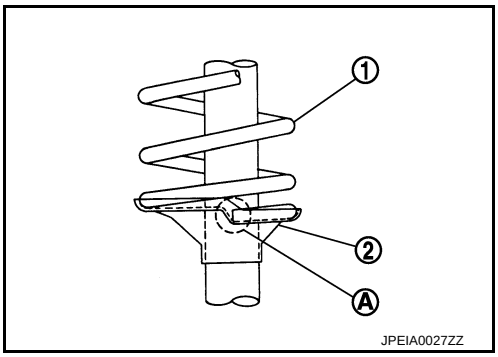


5. After remove coil spring with a spring compressor, and then gradually release a spring compressor.
   CAUTION:
   Loosen while making sure coil spring attachment position does not move.
6. Remove lower rubber seat from strut.
7. Remove the strut attachment (SST: ST35652000) from strut.

ASSEMBLY

1. Install strut attachment (SST: ST35652000) to strut and secure it in a vise.
   CAUTION:
   When installing the strut attachment to strut assembly, wrap a shop cloth around strut to protect from damage.
2. Install lower rubber seat.
3. Install bound bumper.
4. Compress coil spring using a spring compressor (commercial service tool), and install it onto strut assembly.
   CAUTION:
   - **Face tube side of coil spring (1) downward. Align the lower end (A) to lower rubber seat (2).**
   - **Be sure a spring compress is securely attached to coil spring. Compress coil spring.**

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



5. Install strut mounting bearing and strut mounting insulator to strut.
6. Secure piston rod tip so that piston rod does not turn, then tighten piston rod lock nut with specified torque.
   CAUTION:
   Never reuse piston rod lock nut.
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 assembly.

Inspection

INFOID:0000000010297073

INSPECTION AFTER REMOVAL

Strut

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

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

• Oil leakage

Strut Mounting Insulator and Rubber Parts InspectionCheck strut mounting insulator for cracks and rubber parts for wear. Replace it if necessary.

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

INSPECTION AFTER INSTALLATION

1. Check wheel alignment. Refer to FSU-7, "Wheel Alignment Inspection".
2. Adjust neutral position of steering angle sensor. Refer to BRC-64, "Work Procedure".

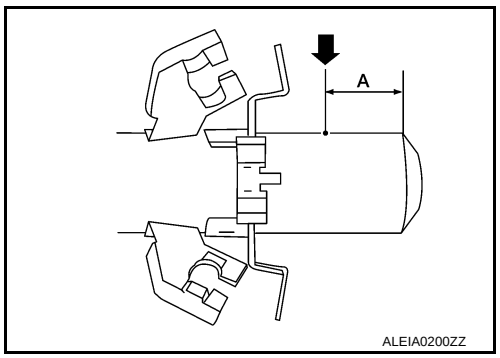
Disposal

INFOID:0000000010425116

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

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

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



A: 20 – 30 mm (0.79 – 1.18 in)

3. Position the drilled hole downward and drain oil by moving the piston rod several times.

   CAUTION:
   Dispose of drained oil according to the law and local regulations.

TRANSVERSE LINK

Exploded View

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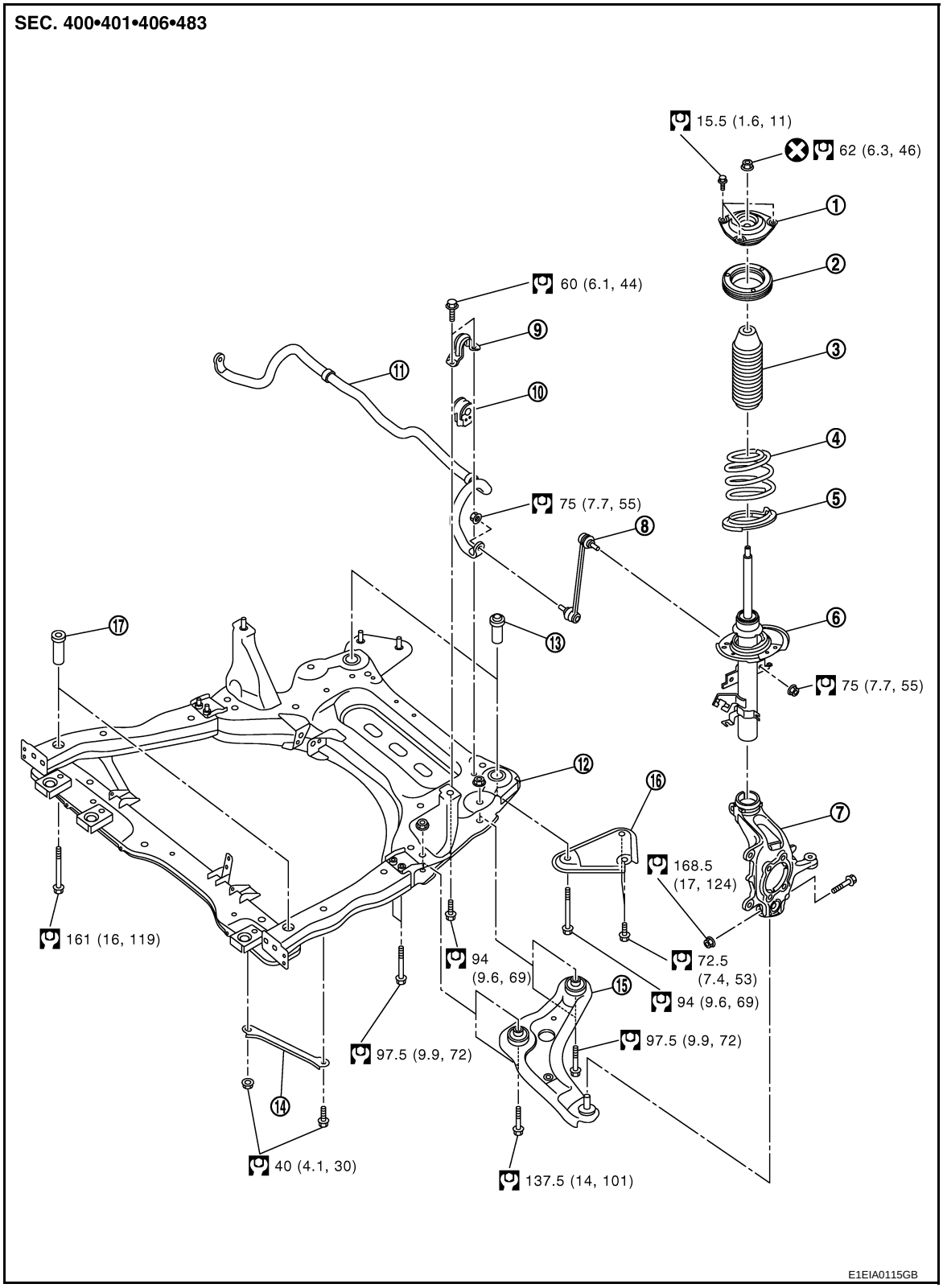


1. Strut mounting insulator
2. Strut mounting bearing
3. Bound bumper
4. Coil spring
5. Lower rubber seat
6. Strut
7. Steering knuckle
8. Stabilizer connecting rod
9. Stabilizer clamp

10. Stabilizer bushing
11. Stabilizer bar
12. Front suspension member
13. Rebound stopper rubber
14. Front suspension member stay
15. Transverse link
16. Rear suspension member stay
17. Front suspension member insulator

Refer to GI-4, "Components" for symbols in the figure.

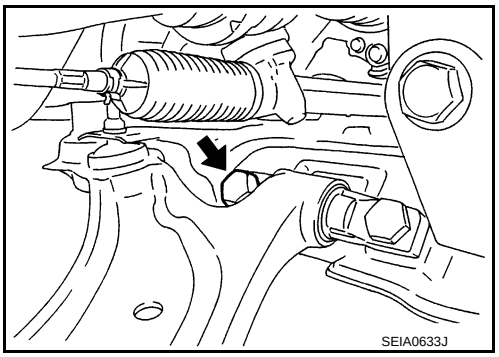
Removal and Installation

INFOID:0000000010297076

REMOVAL

1. Remove tires from vehicle.
2. Remove the engine undercover.
3. Remove the steering knuckle lower bolt and nut.
4. Remove the nut, and separate the stabilizer connecting rod (LH/RH) from the strut bracket.
5. Remove transverse link bolts from suspension member, and remove transverse link..

NOTE:
Transverse link cannot be pulled out because the mounting bolt (⬅) of transverse link at the rear of the mounting area located on the front side of vehicle hits against the stabilizer bar. Therefore, get stabilizer bar out of the way to remove the transverse link.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INSTALLATION

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

- Perform final tightening of bolts and nuts at the front suspension member, under unladen conditions with tires on level ground.

Inspection

INFOID:0000000010297077

INSPECTION AFTER REMOVAL

Visual Inspection

Check the following:

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

Ball Joint Inspection

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

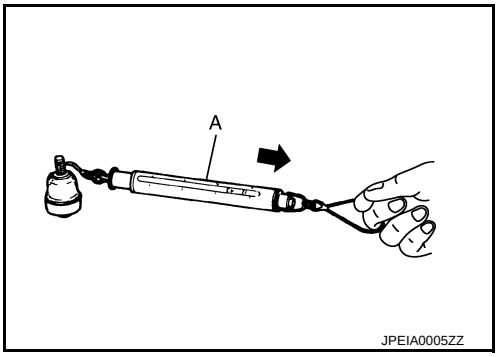
Swing Torque Inspection

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

- 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-24, "Ball Joint".**
Spring balance measurement	**:Refer to FSU-24, "Ball Joint".**



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- If swing 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-24, "Ball Joint".**

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

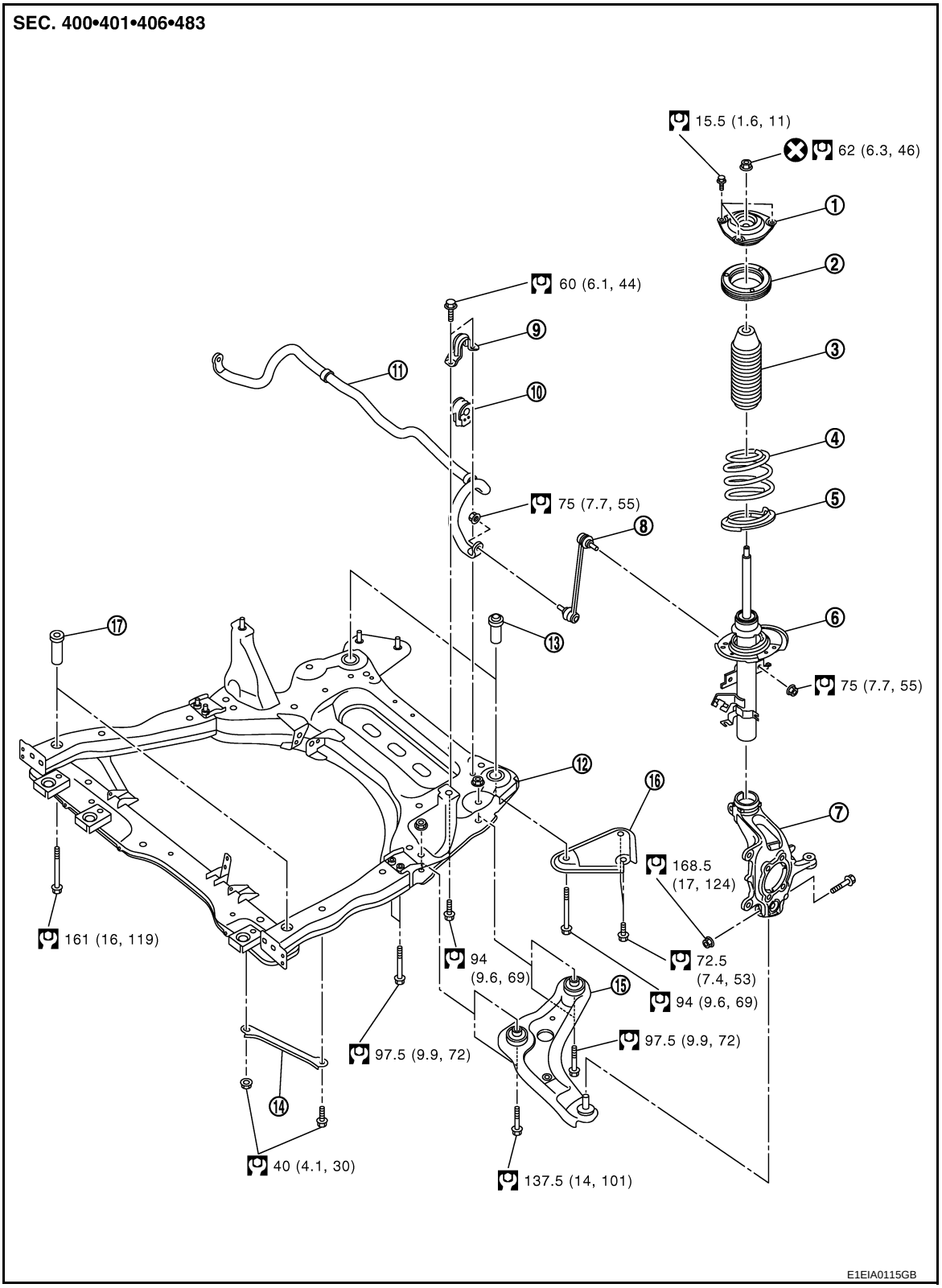
INSPECTION AFTER INSTALLATION

1. Check wheel alignment. Refer to FSU-7, "Wheel Alignment Inspection".
2. Adjust neutral position of steering angle sensor. Refer to BRC-64, "Work Procedure" .

FRONT STABILIZER

Exploded View

INFOID:0000000010297078



1. Strut mounting insulator
2. Strut mounting bearing
3. Bound bumper
4. Coil spring
5. Lower rubber seat
6. Strut
7. Steering knuckle
8. Stabilizer connecting rod
9. Stabilizer clamp

10. Stabilizer bushing
11. Stabilizer bar
12. Front suspension member
13. Rebound stopper rubber
14. Front suspension member stay
15. Transverse link
16. Rear suspension member stay
17. Front suspension member insulator

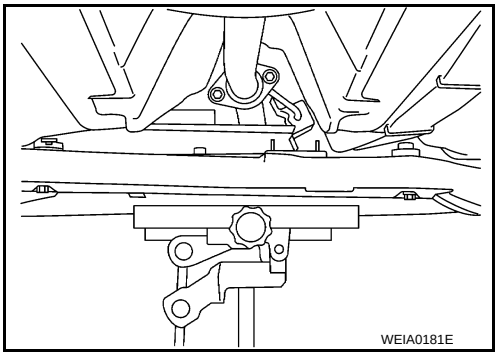
Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

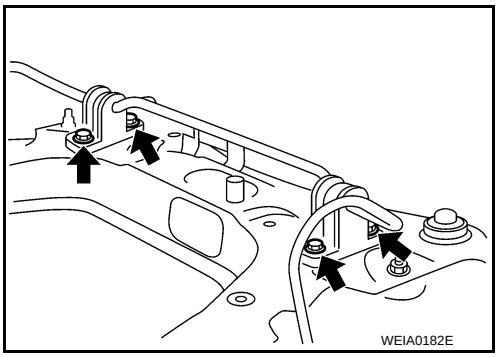
INFOID:0000000010297079

REMOVAL

1. Remove tires from vehicle.
2. Remove the engine side under cover.
3. Set suitable jack under front suspension member.
4. Remove stabilizer connecting rod. Refer to FSU-17, "Exploded View"
5. Remove steering outer socket from steering knuckle. Refer to ST-12, "Exploded View".
6. Remove front exhaust mount.
7. Remove catalytic converter.
8. Remove rear torque rod. Refer to EM-318, "Exploded View" (K9K), EM-429, "Exploded View" (R9M), EM-52, "Exploded View" (HRA2DDT), EM-172, "Exploded View" (MR20DD).
9. Remove front suspension member stay and rubber stopper from vehicle.
10. Gradually lower jack front suspension member in order to remove stabilizer mounting bolts.



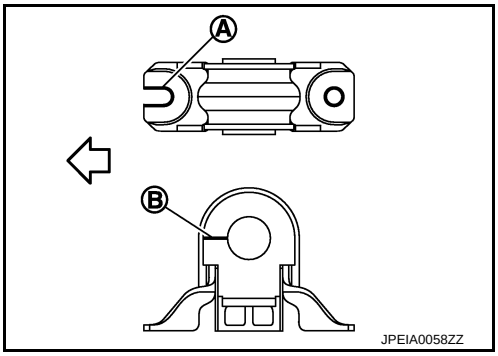
11. Remove mounting bolts (⬅) of stabilizer clamp, and then remove stabilizer clamp and stabilizer bushing from front suspension member.
12. Remove stabilizer bar.



INSTALLATION

Install in the reverse order of removal.

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

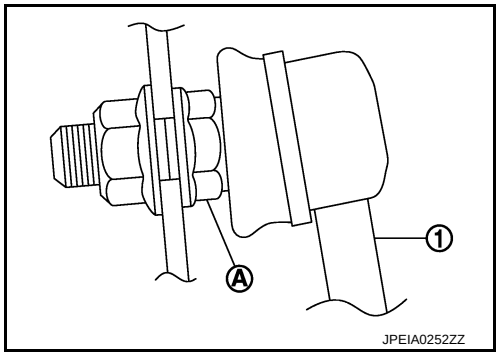


- Install the stabilizer clamp bolts.

Stabilizer clamps : 60 N.m (6.1 kg-m; 44 ft-lb)

- To connect the stabilizer connecting rod (1), tighten the nut while holding the hexagonal part (A) on the stabilizer connecting rod.

Stabilizer connecting rod : 84 N.m (8.6 kg-m; 62 ft-lb)



- Perform the final tightening of the nuts and bolts under unladen conditions with the tires on level ground.
- Perform inspection after installation.

Inspection

INFOID:0000000010297080

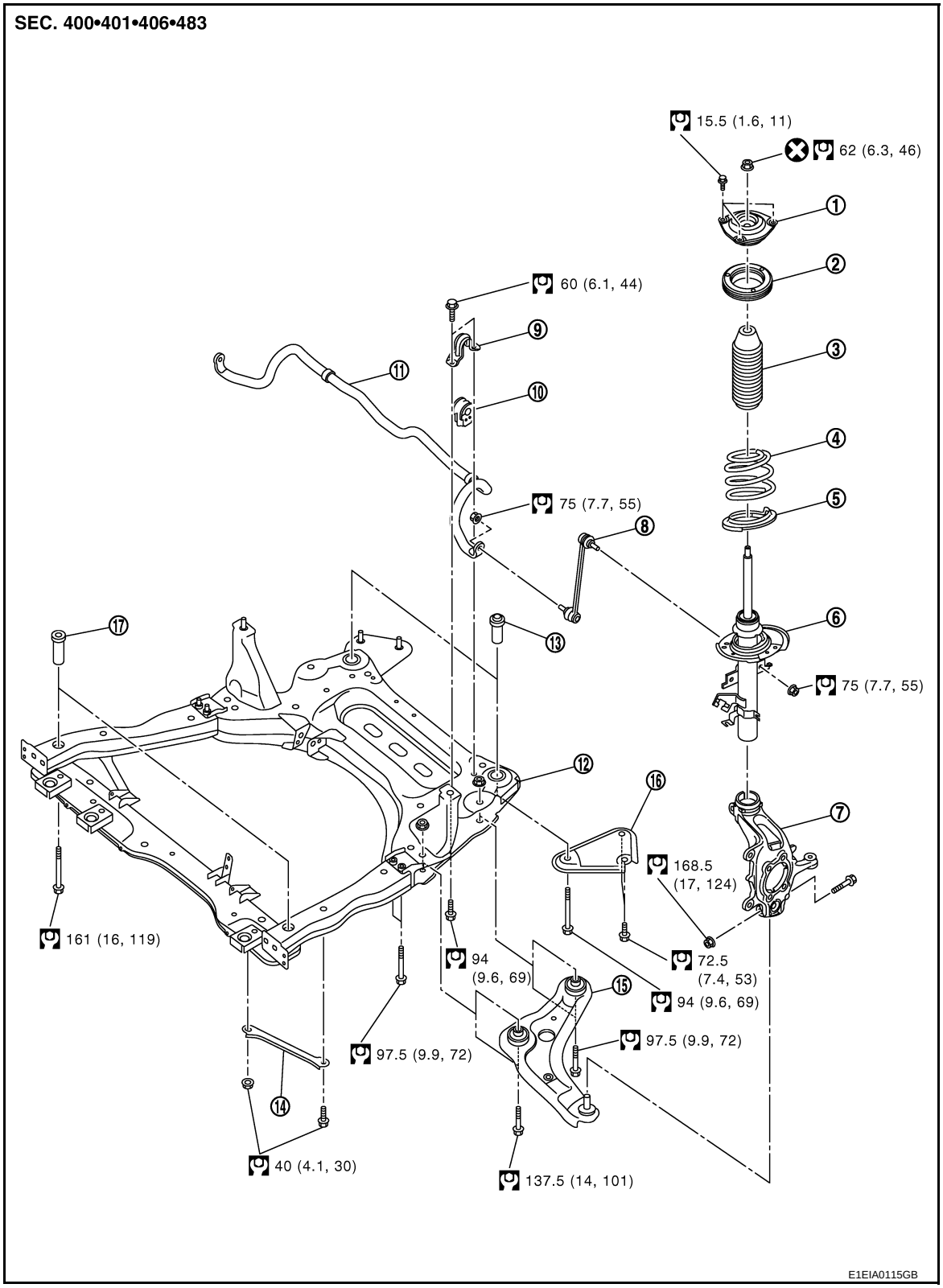
INSPECTION AFTER REMOVAL

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

FRONT SUSPENSION MEMBER

Exploded View

INFOID:0000000010297081



1. Strut mounting insulator
2. Strut mounting bearing
3. Bound bumper
4. Coil spring
5. Lower rubber seat
6. Strut
7. Steering knuckle
8. Stabilizer connecting rod
9. Stabilizer clamp

10. Stabilizer bushing
11. Stabilizer bar
12. Front suspension member
13. Rebound stopper rubber
14. Front suspension member stay
15. Transverse link
16. Rear suspension member stay
17. Front suspension member insulator

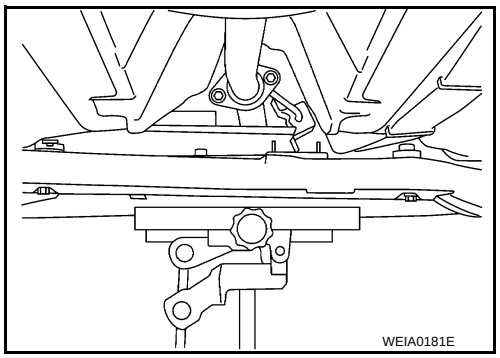
Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000010297082

REMOVAL

1. Remove tires from vehicle.
2. Remove under cover from vehicle.
3. Remove the bolt and separate the front wheel sensor from steering knuckle. Separate the harness from the brackets and position aside. Refer to BRC-138, "FRONT WHEEL SENSOR : Exploded View".
   CAUTION:
   - **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
   - **Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.**
4. Remove the nut and separate the stabilizer connecting rod from the strut bracket.
5. Remove the cotter pin and nut, and separate the outer socket from the steering knuckle.
6. Remove the bolt and separate steering column yoke from steering gear. Refer to ST-10, "Removal and Installation"
7. Remove transverse link from steering knuckle. Refer to FAX-10, "Exploded View" (2WD), Refer to FAX-49, "Exploded View" (4WD).
8. Remove rear torque rod. Refer to EM-318, "Exploded View" (K9K), EM-429, "Exploded View" (R9M), EM-52, "Exploded View" (HRA2DDT), EM-172, "Exploded View"(MR20DD).
9. Set suitable jack front suspension member.
10. Remove front suspension member stay from vehicle. Refer to FSU-20, "Exploded View".
11. Remove mounting bolts and nuts of front suspension member.
12. Gradually lower jack to remove front suspension assembly from vehicle.
    CAUTION:
    Secure suspension assembly to suitable jack while removing it.
13. Remove mounting bolts and nuts, and then remove transverse link, stabilizer bar from front suspension member.



INSTALLATION

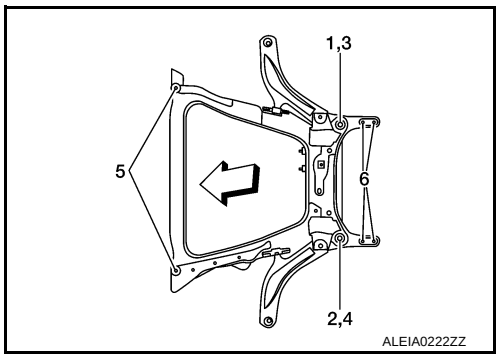
Note the following, and install in the reverse order of removal.

- Install the suspension member bolts in the order shown.

- 1-2 temporary tightening3-5 torque to specification Refer to FSU-20, "Exploded View"

⇐ : Front

- Perform final tightening of installation position between front suspension member and transverse links (rubber bushing) under unladen condition with tires on level ground.
- Check wheel sensor harness for proper connection.



Inspection

INFOID:0000000010297083

INSPECTION AFTER REMOVAL

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

INSPECTION AFTER INSTALLATION

1. Check wheel alignment. Refer to FSU-7, "Wheel Alignment Inspection".
2. Adjust the neutral position of the steering angle sensor. Refer to BRC-64, "Work Procedure".

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment

INFOID:0000000010297084

For Europe

Tire size			215/65R16	215/60R17	225/45R19
Camber Degree minute (Decimal degree)		Minimum	–1° 15′ (–1.25°)		
		Nominal	–0° 30′ (–0.50°)		
		Maximum	0° 15′ (0.25°)		
		Left and right difference	0° 36′ (0.60°) or less		
Caster Degree minute (Decimal degree)		Minimum	4° 55′ (4.92°)		
		Nominal	5° 40′ (5.67°)		
		Maximum	6° 25′ (6.42°)		
		Left and right difference	0° 36′ (0.60°) or less		
Kingpin inclination Degree minute (Decimal degree)		Minimum	10° 00′ (10.00°)		
		Nominal	10° 45′ (10.75°)		
		Maximum	11° 30′ (11.50°)		
Total toe-in	Distance	Minimum	In 2 mm (0.08 in)		
		Nominal	In 3 mm (0.12 in)		
		Maximum	In 4 mm (0.16 in)		
	Angle Degree minute (Decimal degree)	Minimum	In 0° 04′ (0.07°)		
		Nominal	In 0° 10′ (0.17°)		
		Maximum	In 0° 16′ (0.27°)		

Measure value under unladen* conditions.

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

For Russie

Tire size			215/65R16	215/60R17	225/45R19
Camber Degree minute (Decimal degree)		Minimum	–1° 05′ (–1.08°)		–1° 10′ (–1.17°)
		Nominal	–0° 20′ (–0.33°)		–0° 25′ (–0.42°)
		Maximum	0° 25′ (0.42°)		0° 20′ (0.33°)
		Left and right difference	0° 36′ (0.60°) or less		
Caster Degree minute (Decimal degree)		Minimum	4° 50′ (4.83°)		4° 45′ (4.75°)
		Nominal	5° 35′ (5.58°)		5° 30′ (5.50°)
		Maximum	6° 20′ (6.33°)		6° 15′ (6.25°)
		Left and right difference	0° 36′ (0.60°) or less		
Kingpin inclination Degree minute (Decimal degree)		Minimum	9° 45′ (9.75°)		9° 50′ (9.83°)
		Nominal	10° 30′ (10.50°)		10° 35′ (10.58°)
		Maximum	11° 15′ (11.25°)		11° 20′ (11.33°)
Total toe-in	Distance	Minimum	In 2 mm (0.08 in)		
		Nominal	In 3 mm (0.12 in)		
		Maximum	In 4 mm (0.16 in)		
	Angle Degree minute (Decimal degree)	Minimum	In 0° 04′ (0.07°)		
		Nominal	In 0° 10′ (0.17°)		
		Maximum	In 0° 16′ (0.27°)		

Measure value under unladen* conditions.

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

For GOM / SAF / Australia

Tire size			215/65R16	215/60R17	225/45R19
Camber Degree minute (Decimal degree)		Minimum	–1° 15′ (–1.25°)		
		Nominal	–0° 30′ (–0.50°)		
		Maximum	0° 15′ (0.25°)		
		Left and right difference	0° 36′ (0.60°) or less		
Caster Degree minute (Decimal degree)		Minimum	4° 40′ (4.67°)		4° 45′ (4.75°)
		Nominal	5° 25′ (5.42°)		5° 30′ (5.50°)
		Maximum	6° 10′ (6.17°)		6° 15′ (6.25°)
		Left and right difference	0° 36′ (0.60°) or less		
Kingpin inclination Degree minute (Decimal degree)		Minimum	10° 00′ (10.00°)		
		Nominal	10° 45′ (10.75°)		
		Maximum	11° 30′ (11.50°)		
Total toe-in	Distance	Minimum	In 2 mm (0.08 in)		
		Nominal	In 3 mm (0.12 in)		
		Maximum	In 4 mm (0.16 in)		
	Angle Degree minute (Decimal degree)	Minimum	In 0° 04′ (0.07°)		
		Nominal	In 0° 10′ (0.17°)		
		Maximum	In 0° 16′ (0.27°)		

Measure value under unladen* conditions.

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

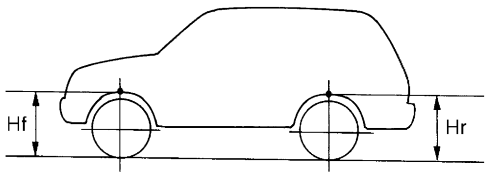
Ball Joint

INFOID:0000000010297085

Swing torque	Transverse link	0.5 – 3.4 N·m (0.06 – 0.34 kg-m, 5 – 30 in-lb)
Measurement on spring balance	Transverse link	13.5 – 91.9 N (1.4 – 9.4 kg, 3 – 21 lb)
Axial end play		0 mm (0 in)

Wheelarch Height

INFOID:0000000010478352



SFA746B

Applied model	H5FT					
Destination	Europe / SAF / GOM			Russie		
Tire size	215/65R16	215/60R17	225/45R19	215/65R16	215/60R17	225/45R19
Front (Hf)	760 mm (29.92 in)		759 mm (29.88 in)	770 mm (30.31 in)		769 mm (30.28 in)

Measure value under unladen* conditions.

*: 90% Fuel. Engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.

Applied model	MR20DD								
Destination	Russie 6MT			Russie CVT			SAF / GOM / Australia		
Tire size	215/65R16	215/60R17	225/45R19	215/65R16	215/60R17	225/45R19	215/65R16	215/60R17	225/45R19
Front (Hf)	769 mm (30.28 in)	768 mm (30.24 in)	767 mm (30.20 in)	767 mm (30.20 in)	765 mm (30.12 in)	766 mm (30.16 in)	758 mm (29.84 in)		759 mm (29.88 in)

Measure value under unladen* conditions.

*: 90% Fuel. Engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.

Applied model	K9K				
Destination	Europe			SAF / GOM	
Tire size	215/65R16	215/60R17	225/45R19	215/60R17	225/45R19
Front (Hf)	758 mm (29.84 in)			759 mm (29.88 in)	758 mm (29.84 in)

Measure value under unladen* conditions.

*: 90% Fuel. Engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.

Applied model	R9M							
Destination	Europe / Australia			Russie		SAF / GOM		
Tire size	215/65R16	215/60R17	225/45R19	215/60R17	225/45R19	215/65R16	215/60R17	225/45R19
Front (Hf)	756 mm (29.76 in)	755 mm (29.72 in)		770 mm (30.31 in)		756 mm (29.76 in)	755 mm (29.72 in)	

Measure value under unladen* conditions.

*: 90% Fuel. Engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.