

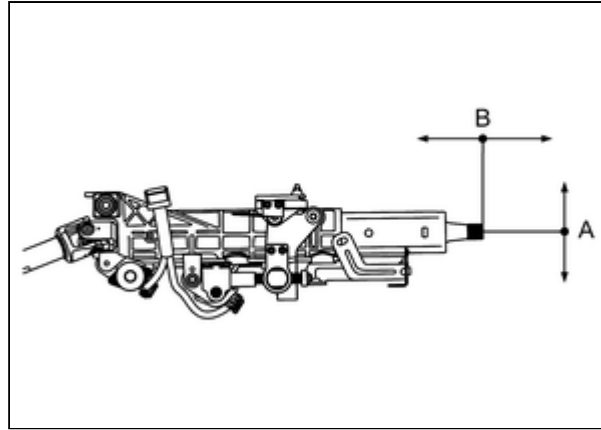
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2004 NISSAN Almera / Pulsar 5 Doors OEM Service and Repair Workshop Manual

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- Check each part of steering column assembly for damage or other malfunctions. Replace if there are any abnormal conditions.
- Check tilt and telescopic mechanism operating range “T”, “L” as shown in the figure.



RPR-001933818-03-000347710

Tilt operating range (T)

: Refer to [STEERING COLUMN : Service Data](#).

Telescopic operating range (L)

: Refer to [STEERING COLUMN : Service Data](#).

- Unlock the tilt and telescope adjustment lever, move steering column up and down smoothly without any catching or noise.
- After installation, turn steering wheel to make sure it moves smoothly while turning to the left and right stops.
- Make sure the number of turns is the same from the straight-forward position to left and right stops.
- Make sure that the steering wheel is in a neutral position when driving straight ahead.
- Rotate steering wheel to check for decentered condition, binding, noise, or excessive steering effort.
- Check the steering wheel play, neutral position steering wheel, steering wheel turning torque, and front wheel turning angle.
 - Steering wheel play: Refer to [STEERING WHEEL : Periodic Maintenance Operation](#).
 - Neutral position steering wheel, steering wheel turning torque, and front wheel turning angle: Refer to [STEERING WHEEL : Periodic Maintenance Operation](#)
- Adjust neutral position of steering angle sensor. Refer to [Work Procedure](#).
- If the steering column has been replaced or removed / installed, perform the following operations.
 - ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Refer to [Work Procedure](#).
 - RES RESET: Refer to [Work Procedure](#).
- If equipped with ProPILOT Assist, perform steering torque calibration after replacing or removing and installing the steering column. Refer to [How to check](#).

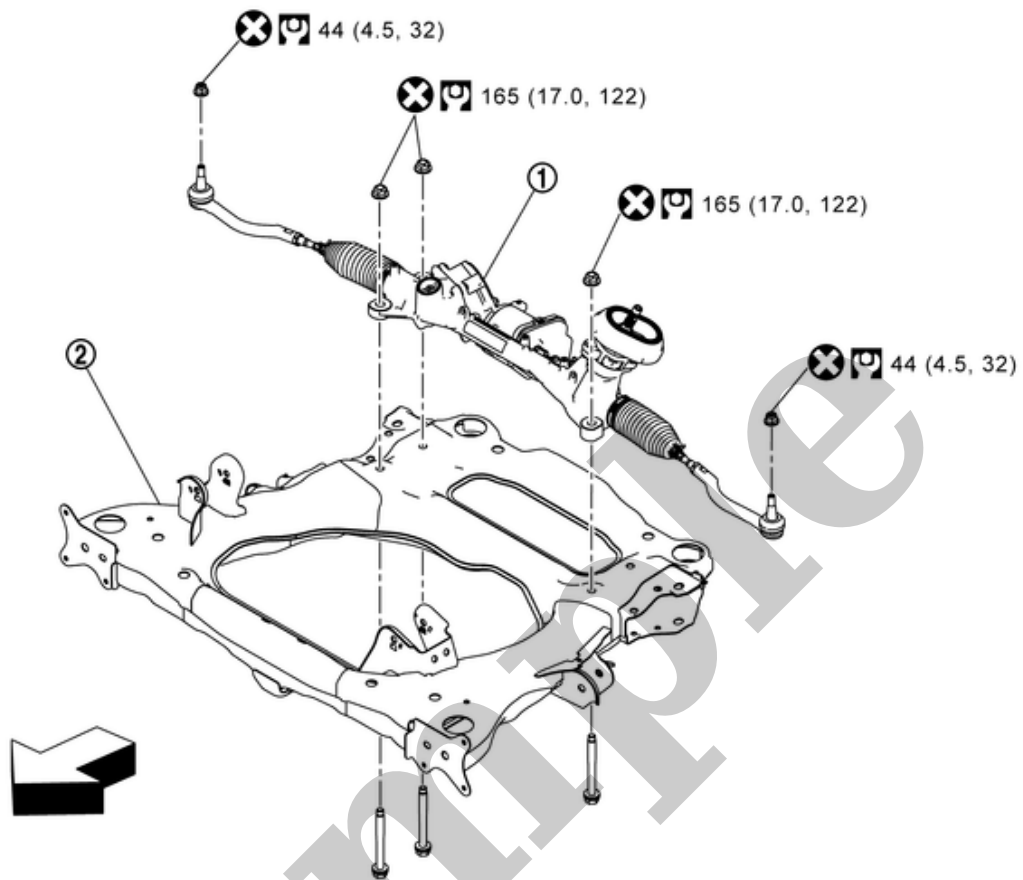
STEERING GEAR AND LINKAGE : Exploded View

LHD models

RDE-001933819

REMOVAL

SEC. 492

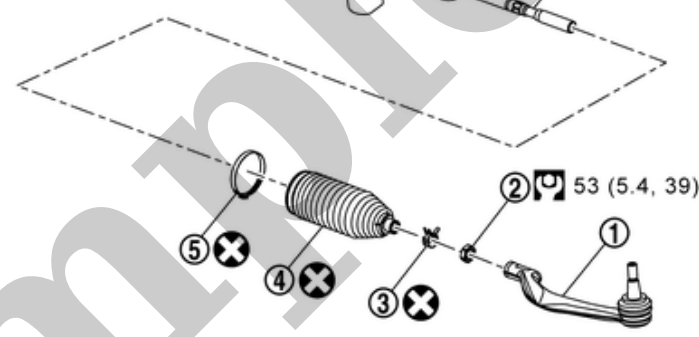
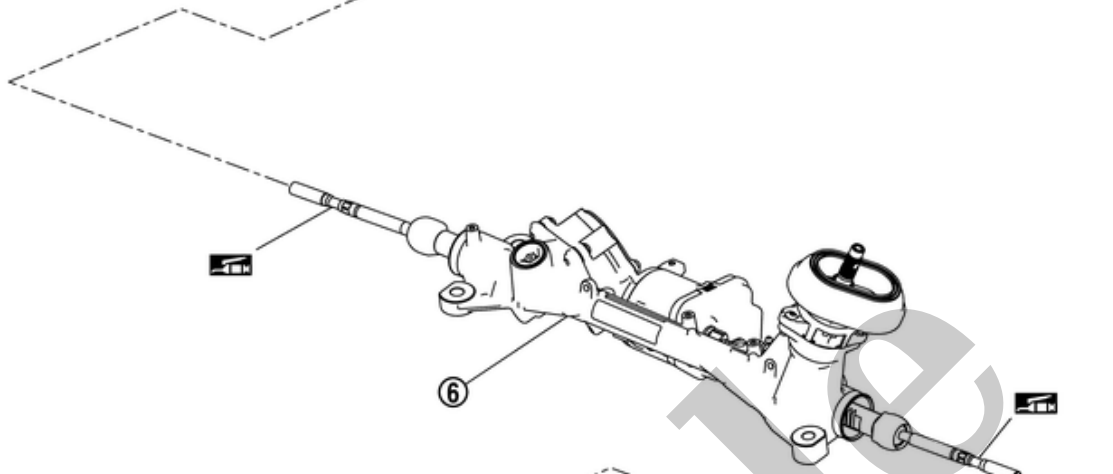
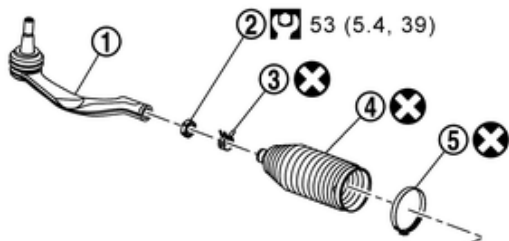


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①	Steering gear assembly	②	Front suspension member		
←	: Vehicle front				
⊞	: N·m (kg-m, ft-lb)				
⊗	: Always replace after every disassembly.				

DISASSEMBLY

SEC. 480



RDE-001868963-02-000373802

①	Outer socket	②	Outer socket lock nut	③	Boot clamp (small diameter)
④	Boot	⑤	Boot clamp (large diameter)	⑥	Gear housing assembly
←	: Vehicle front				
	: N·m (kg-m, ft-lb)				
	: Apply Dow corning 111 or equivalent.				
	: Always replace after every disassembly.				

CAUTION:

Never apply the grease to the surface between steering rack and inner socket screw part.

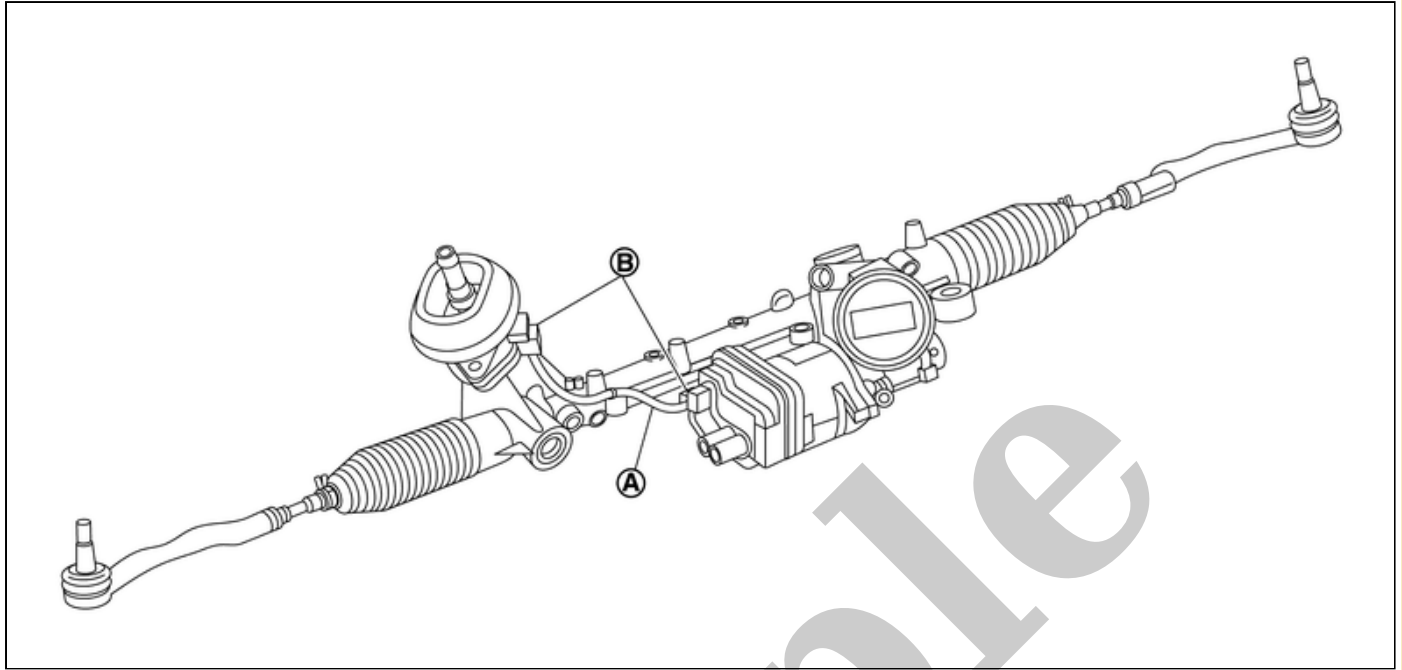
STEERING GEAR AND LINKAGE : Removal & Installation

LHD models

RPR-001933820

CAUTION:

Never disconnect or pull the torque sensor harness (A) and harness connector (B).



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REMOVAL

- 1 Set vehicle to the straight-ahead position.
- 2 Remove front suspension member. Refer to [FRONT SUSPENSION MEMBER : Removal & Installation](#)
- 3 Remove front traction motor, front traction motor inverter and reduction gear from front suspension member.
- 4 Remove rear motor mounting. Refer to [FRONT TRACTION MOTOR : Removal & Installation](#).
- 5 Remove steering gear assembly from front suspension member.

INSTALLATION

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

CAUTION:

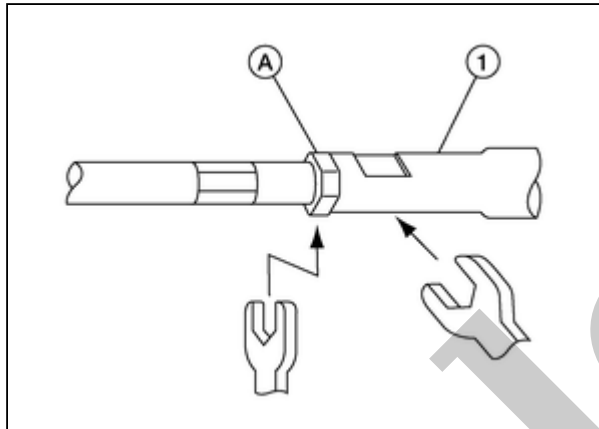
- **Spiral cable may be cut if steering wheel turns while separating steering column assembly and steering gear assembly. Always fix the steering wheel using string to avoid turning.**
- Before installation, check that the tilt position is at the middle level.
- Clean mounting surface on the body side of fire wall seal when installing steering gear assembly.
- Perform final tightening of nuts and bolts on each part under unladen conditions with tires on level ground when removing steering gear assembly. Check wheel alignment.
- Rotate steering wheel to check for decentered condition, binding, noise or excessive steering effort.
- Perform inspection after installation. Refer to [STEERING GEAR AND LINKAGE : Inspection](#).
- If equipped with ProPILOT Assist, perform steering torque calibration after replacing or removing and installing the steering gear assembly. Refer to [How to check](#).

DISASSEMBLY

CAUTION:

Disassemble and assemble steering gear assembly by fixing the mounting area with a vise using copper plates.

1 Loosen inner socket lock nut **(A)**.



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CAUTION:

To prevent damage, hold outer socket **(1)** across flats using suitable tool while loosening inner socket lock nut **(A)**.

2 Remove boot clamps, and then remove boot from inner socket and housing.

CAUTION:

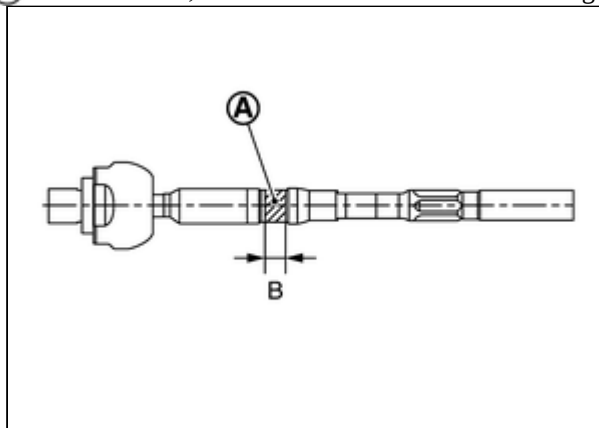
Never damage inner socket part of gear housing assembly when removing boot. Steering gear assembly must be replaced if gear housing assembly are damaged because it may cause foreign material interfusion.

3 Remove fire wall seal.

4 Perform inspection after disassembly. Refer to [STEERING GEAR AND LINKAGE : Inspection](#).

ASSEMBLY

1 Apply recommended grease to part **(A)** of inner socket, and install boot to inner socket and gear housing.



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Use Dow corning 111 (manufactured by TOURE·DAUKONINGU) or equivalent.

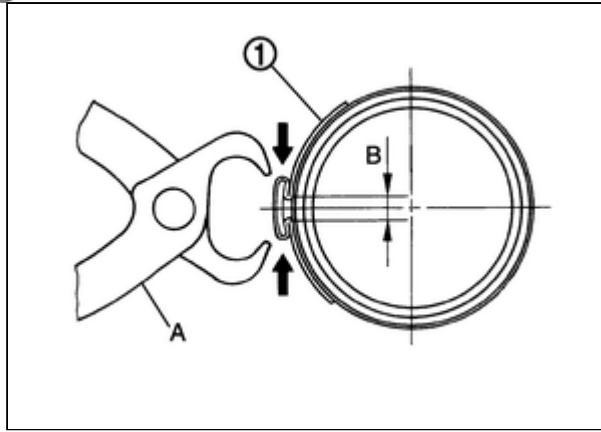
CAUTION:

Never reuse boot.

Grease application position (Reference)

B : 10 mm (0.39 in)

2 Install boot clamp (large diameter) ① to boot using boot band crimping tool (SST: KV40107300) (A).



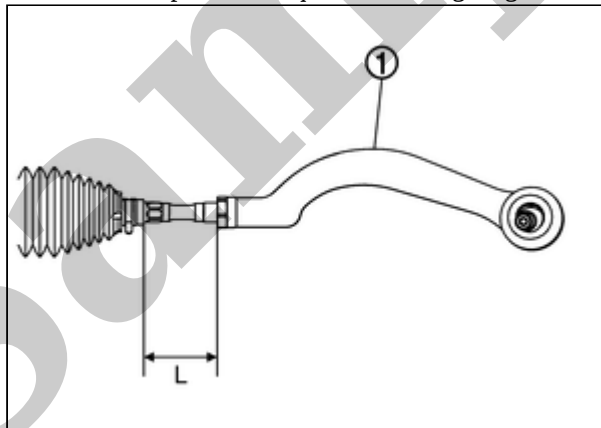
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CAUTION:

- Never reuse boot clamp (large diameter).
- Install boot clamp (large diameter) securely to boot groove, and crimp it so as to have clearance (B) of 3 mm (0.12 in) or less as shown.

3 Install boot clamp (small diameter) to boot.

4 Adjust outer socket and then tighten lock nut to the specified torque. Check length again after tightening lock nut.



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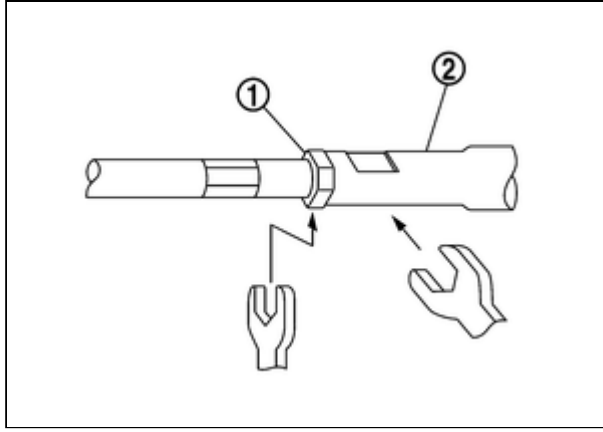
① : Outer socket

Inner socket length (L)

: Refer to [STEERING GEAR AND LINKAGE : Service Data](#)

CAUTION:

- When tightening the lock nut ①, be sure to fix outer socket ② with a wrench or an equivalent to prevent the ball joint from getting contact with the knuckle.



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- Adjust toe-in after this procedure. The length achieved after toe-in adjustment is not necessarily the above value.

Sample

INSPECTION AFTER DISASSEMBLY

Boot

- Check boot for cracks, and replace it if a malfunction is detected.

Gear Housing Assembly

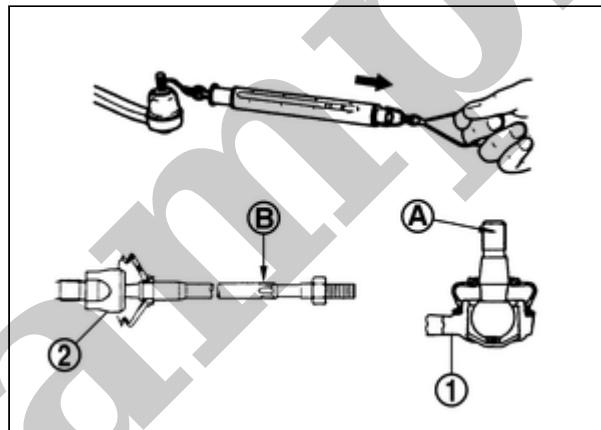
- Check gear housing assembly for damage and scratches. Replace if there are any abnormal conditions.

Outer Socket and Inner Socket

- Check the following items and replace the component if it does not meet the standard.

BALL JOINT SWINGING FORCE

- Hook a pull gauge [SST: — (J-44372)] at the point shown in the figure and pull the pull gauge. Make sure that the pull gauge reads the specified value when ball stud and inner socket start to move. Replace outer socket and inner socket if they are outside the standard.



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Measuring point of outer socket (1)

Ball stud upper side (A)

Measuring point of inner socket (2)

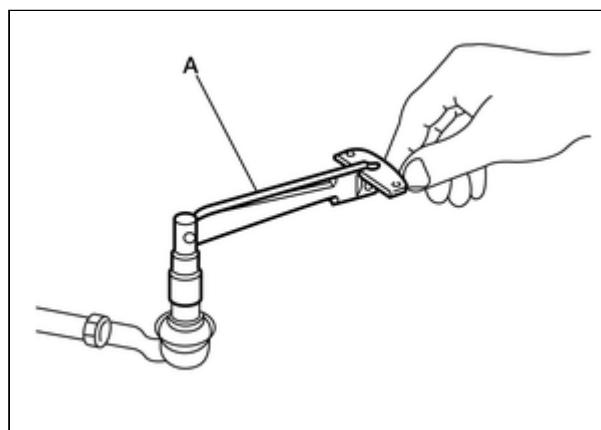
Point (B) shown in the figure

Swinging force

Refer to [STEERING GEAR AND LINKAGE : Service Data](#).

BALL JOINT ROTATING TORQUE

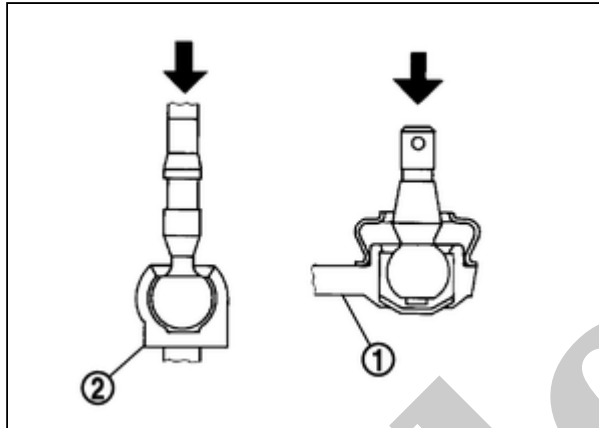
- Make sure that the reading is within the following specified range using suitable tool (A). Replace outer socket if the reading is outside the specification.



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BALL JOINT AXIAL END PLAY

- Apply an axial load of 490 N (50 kg, 110 lb) to ball stud. Using a dial gauge, measure amount of stud movement, and then make sure that the value is within the following specified range. Replace outer socket ① and inner socket ② if the measured value is outside the standard.



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Axial end play

Refer to [STEERING GEAR AND LINKAGE : Service Data](#).

INSPECTION AFTER INSTALLATION

- After installation, confirm that the power supply connector lock of steering control module is securely locked.
- If the steering gear has been replaced, perform the following operations.
 - ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Refer to [Work Procedure](#).
 - RES RESET: Refer to [Work Procedure](#)
 - ADDITIONAL SERVICE WHEN REPLACING POWER STEERING CONTROL MODULE: Refer to [Work Procedure](#).
- Check the following items, and if there are any abnormalities, replace them.
 - Rotate the steering wheel and check for abnormal noise and excessive steering force, etc.
 - Check if steering wheel turns smoothly when it is turned several times fully to the end of the left and right.
 - Check the steering wheel play, neutral position steering wheel, steering wheel turning force, and front wheel turning angle.
 - Steering wheel play: Refer to [STEERING WHEEL : Periodic Maintenance Operation](#).
 - Neutral position steering wheel, steering wheel turning force, and front wheel turning angle: Refer to [Work Procedure](#)