
STEERING GEAR

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31.1 STEERING GEAR

1 Warnings and Precautions

1.1 Precautions

In order to avoid dangerous operation and damage to the vehicle before repair in this section, the following instructions must be observed.

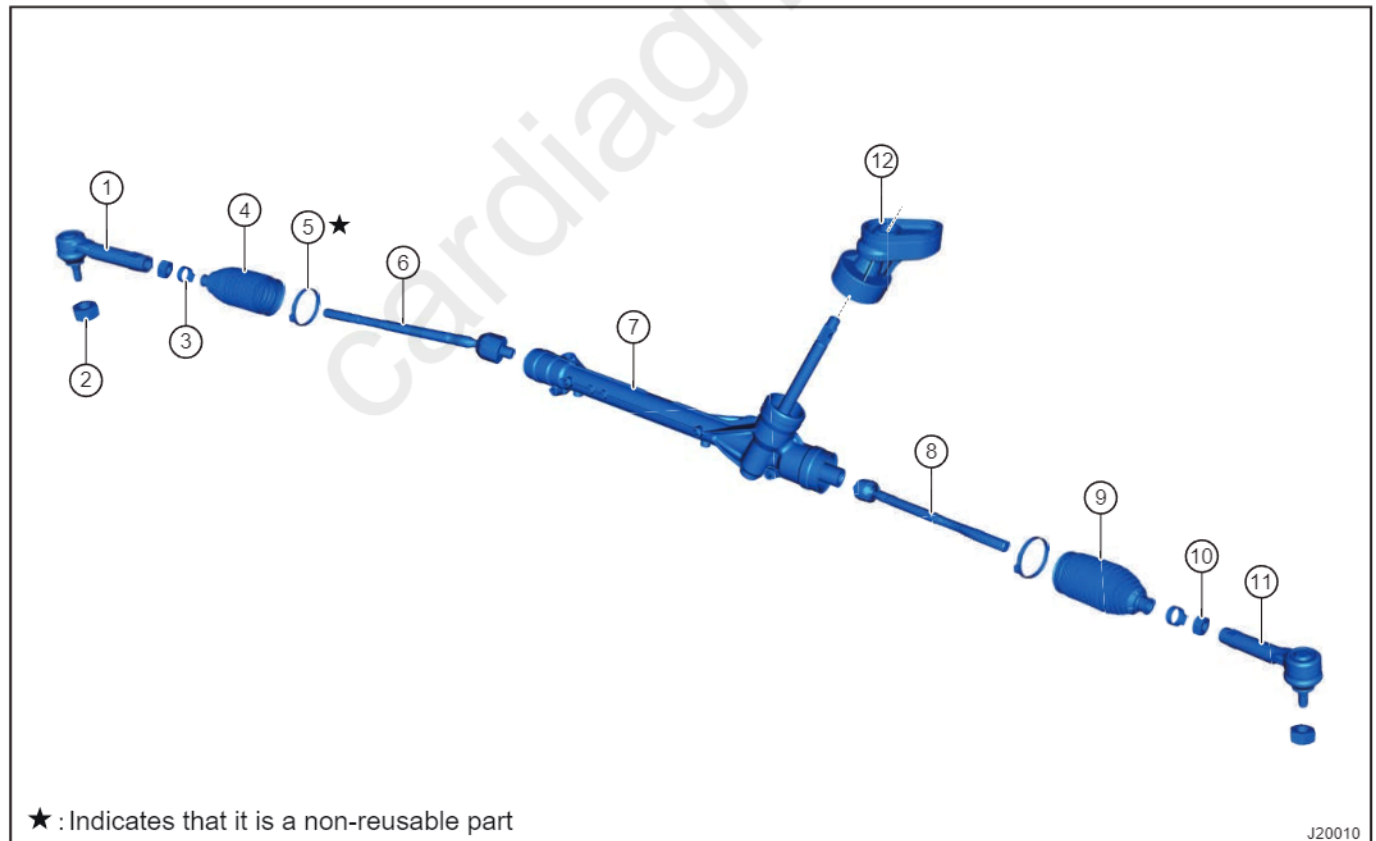
- (1) To replace steering gear, it is necessary to perform four-wheel alignment and center calibration.
- (2) After four-wheel alignment, it is necessary to perform center calibration again.
- (3) When removing and installing steering gear, it is necessary to turn off power supply of EPS (vehicle power supply is turned off), so as to avoid reverse impact, resulting in EPS internal protection circuit breakdown.
- (4) It is necessary to perform steering angle sensor zero point calibration after replacing steering gear.
- (5) When removing and installing steering system, suspension system, brake, tire, etc., it is necessary to turn off power supply of EPS (vehicle power supply is turned off), so as to avoid reverse impact, resulting in EPS internal protection circuit breakdown.

2 System Overview

2.1 System Description

This vehicle adopts the electronic power steering system, which can reduce the workload when driver operates the steering wheel, thus improving operation convenience and driving safety.

2.2 System Components Diagram



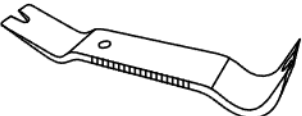
1	Right Steering Tie Rod Ball Pin	7	Steering Gear Body
2	Steering Tie Rod Ball Pin Locking Nut	8	Left Steering Tie Rod Assembly

3	Steel Belt Clamp	9	Left Steering Tie Rod Boot
4	Right Steering Tie Rod Boot	10	Steering Tie Rod Fixing Nut
5	Steel Belt Elastic Clamp	11	Left Steering Tie Rod Ball Pin
6	Right Steering Tie Rod Assembly	12	Boot Assembly

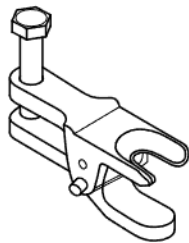
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31.2 ON-VEHICLE SERVICE

1 General Tool

Tool Name	Tool Drawing
Interior Crow Plate	 S00020

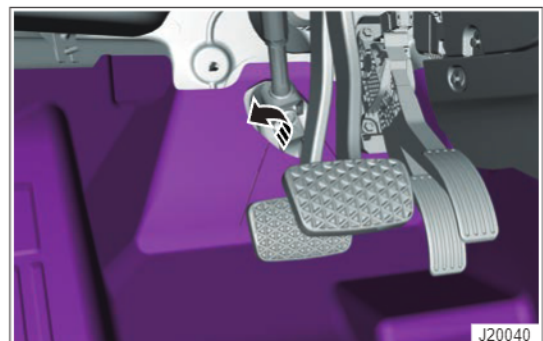
2 Special Tool

Tool Name	Part No.	Tool Drawing
Ball Separator	ECH-0003	 S00019

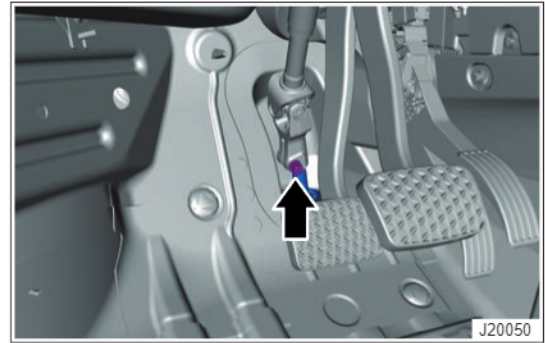
3 Replacement of Steering Gear Assembly

3.1 Removal

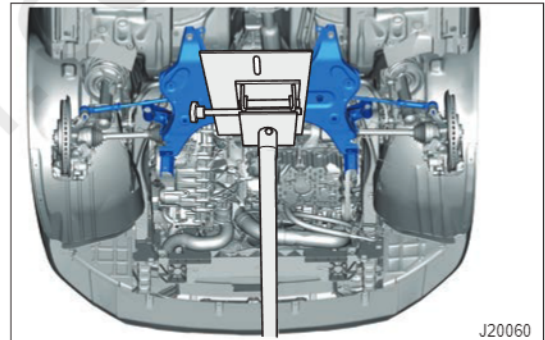
- (1) Set the steering wheel to straight-ahead position.
- (2) Turn off all electrical equipment and ENGINE START STOP switch.
- (3) Disconnect the negative battery cable.
- (4) Turn over carpet under driver seat in the direction of arrow.



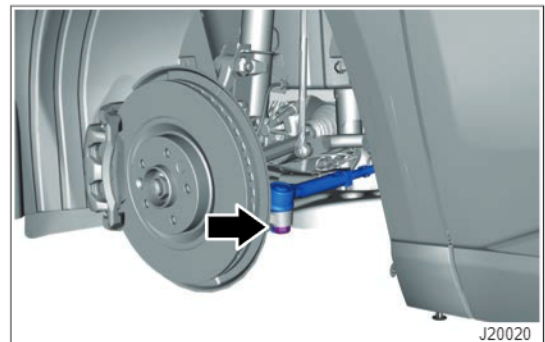
- (5) Remove coupling bolt between steering column with intermediate shaft assembly and steering gear input shaft.



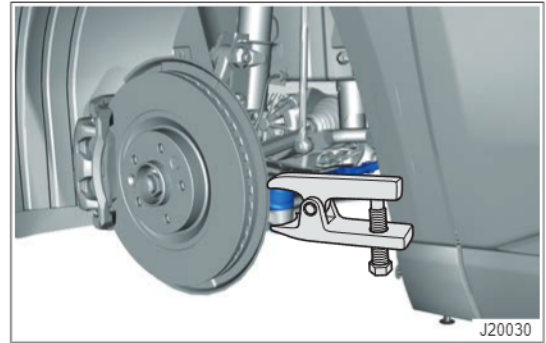
- (6) Remove front left and front right wheels.
- (7) Remove the engine lower protector assembly.
- (8) Remove left and right side rail assembly.
- (9) Remove front left and front right control arm assemblies.
- (10) Remove the rear mounting cushion assembly.
- (11) Using a transmission carrier, support front sub frame welding assembly.



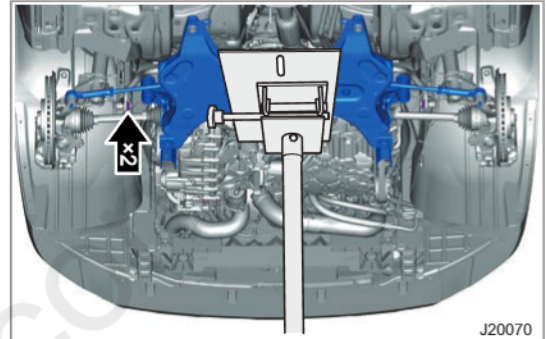
- (12) Remove locking nut between left steering tie rod ball pin assembly and front left steering knuckle assembly (the right side is same as left side).



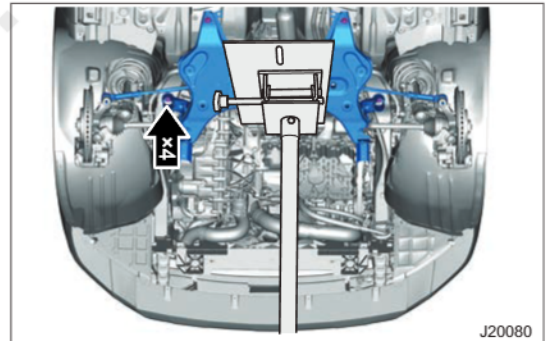
- (13) Install ball pin separator, and separate steering tie rod ball pin from steering knuckle assembly.



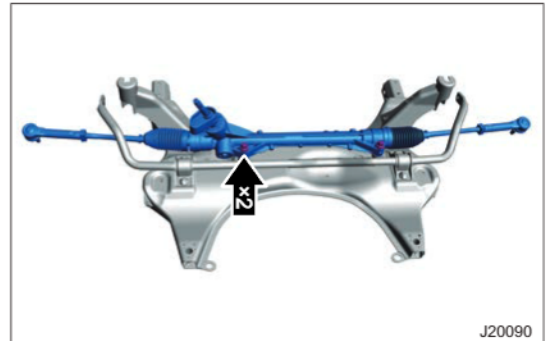
- (14) Remove 2 locking nuts between front connecting rod and front stabilizer bar.



- (15) Remove 4 fixing bolts between front sub frame and vehicle body, and lower front sub frame slowly.



- (16) Remove 2 fixing bolts fixing steering gear with tie rod assembly from sub frame, and remove steering gear with tie rod assembly.



Hint:

- Check if steering gear dust boot is damaged, clamp is loosen. Replace them if necessary to prevent water and micro dust from entering and causing parts failure prematurely.
- Check if steering gear is damaged. Replace the steering gear assembly if necessary.

■ Installation

- (1) Install steering gear with tie rod assembly to sub frame.
- (2) Install 2 fixing bolts fixing steering gear with tie rod assembly to sub frame.

Torque: $180 \pm 18 \text{ N}\cdot\text{m}$

- (3) Slowly raise sub frame to a proper position and install 2 fixing bolts between sub frame and vehicle body.

Torque: $110 \pm 8 \text{ N}\cdot\text{m}$

- (4) Install 2 fixing bolts connecting left and right bracket and front sub frame welding assembly.

Torque: $200 \pm 18 \text{ N}\cdot\text{m}$

- (5) Separate transmission carrier from front sub frame welding assembly.
- (6) Install 2 hanger blocks to front sub frame assembly.
- (7) Install steering tie rod ball pin to steering knuckle assembly.
- (8) Install locking nut between left steering tie rod ball pin assembly and front left steering knuckle assembly (the right side is same as left side).

Torque: $60 \pm 5 \text{ N}\cdot\text{m}$

- (9) Install the rear mounting lower body.
- (10) Install front left and front right control arm assembly.
- (11) Install left and right side rail welding assembly.
- (12) Install the front compartment lower protector assembly.
- (13) Install front left and front right wheels.
- (14) Install coupling bolt between steering column with intermediate shaft assembly and steering gear input shaft.

Torque: $40 \pm 3 \text{ N}\cdot\text{m}$

- (15) Place the carpet under driver seat in a suitable position.
- (16) Install the negative battery cable.
- (17) Press ENGINE START STOP switch and perform running test.