
STEERING WHEEL

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29.1 STEERING WHEEL

1 Warnings and Precautions

1.1 Warnings

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair.

- (1) Be sure to read precautions for SRS airbag before removing steering wheel.
- (2) Be sure to read precautions for SRS airbag before removing multi-function switch.
- (3) Be sure to read precautions for SRS airbag before removing shift fork.

1.2 Precautions

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair.

- (1) Wait at least 90 seconds after disconnecting the negative battery cable to prevent airbag and belt pretensioner from being activated.
- (2) SAM angle sensor of vehicle provides angle signal for related controller such as ESP; Motor position sensor inside EPS module provides steering angle signal for EPS; Therefore, it is necessary to perform SAM steering angle zero point calibration and motor position sensor calibration inside EPS module after replacing electronic steering column assembly, steering gear and four-wheel alignment.
- (3) 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

Steering wheel is the device that driver controls the driving direction. Through the steering mechanism, steering wheel controls wheels to left and right to change driving direction or keep vehicle driving straight.

2.2 System Components Diagram

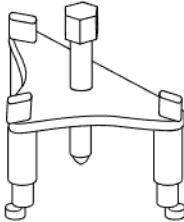


1	Driver Airbag	3	Steering Wheel Body
2	Steering Wheel Multi-function Switch	4	Steering Wheel Locking Nut

29.2 ON-VEHICLE SERVICE

1 Tool

■ Special Tool

Tool Name	Tool Drawing
Steering Wheel Remover	 S00085

2 Steering Wheel Assembly

2.1 Removal

 **Caution**

After removing steering wheel, install spiral cable stopper pin fixing combination switch.

- (1) Adjust steering wheel to the centered position (visually check tire is straight-ahead).
- (2) Turn ENGINE START STOP switch to OFF.
- (3) Disconnect the negative battery cable.

 **Caution**

Wait at least 90 seconds after disconnecting the negative battery cable to prevent airbag and belt pretensioner from being activated.

- (4) Remove the driver airbag assembly.
- (5) Remove the steering wheel assembly.
 - 1) Disconnect the steering wheel quick button connector (arrow).



- 2) Remove the steering wheel locking nut.



- 3) Use steering wheel remover to remove steering wheel.



- 4) Install spiral cable stopper pin fixing combination switch.

2.2 Inspection

Hint:

Steering wheel centering or steering performance are affected by manufacturing error, requirements for four wheels alignment toe-in and steering wheel centering are as following:

- (1) Confirm the left and right strokes of steering wheel after it is assembled.
- (2) Before performing four-wheel alignment, first rotate steering wheel to left and right to determine rotation angle of one side is not less than 45° , then returns to horizontal position.
- (3) Fix the steering wheel horizontally.
- (4) Use calibration device to complete center position calibration of steering wheel rotation angle (for calibration methods, refer to EPS steering angle calibration).
- (5) When adjusting front wheel toe-in, it is necessary to adjust steering gear left and right tie rods. Loosen locking nut of steering gear tie rod when adjusting, use wrench to rotate inner lever at hexagonal position of outer lever, until toe-in value reaches specified value, then tighten locking nut. If threads exposed outside on left and right levers are greatly not equal (difference between threads exposed outside on left and right levers are more than 3 threads), please recheck if steering wheel is centered. It is necessary to hold the flat and square position of outer lever with wrench while tightening. Tightening torque for nut is $50 \pm 5 \text{ N}\cdot\text{m}$.
- (6) After four-wheel alignment is completed and vehicle drives from four-wheel alignment station, turn the steering wheel left and right to the limit position (make sure steering wheel has hit the limit position) without vehicle moving and return it to the center position, then turn off the vehicle.

2.3 Installation

Hint:

The scale marks on steering wheel and steering column can only assist in assembly, and cannot be used on final position, it is necessary to perform toe-in and steering wheel rotation angle adjustment.

- (1) Pull out the spiral cable stopper pin.
- (2) Visually check tire is straight-ahead (adjust steering wheel to the centered position).

(3) Install the steering wheel.

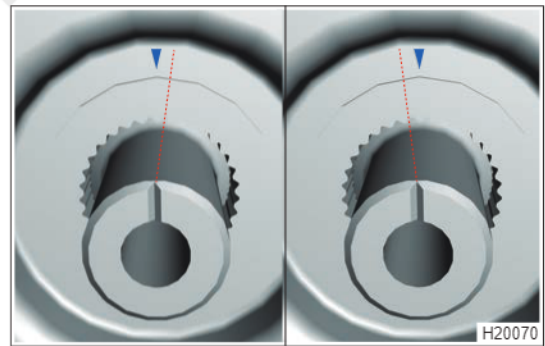
- 1) Align scale marks on steering wheel and steering column to assemble.



- 2) Turn steering wheel left and right to the limit position, and check steering wheel rotation angle.



- 3) Visually check steering wheel rotation angle, and ensure the angle deviation on both sides is no more than 10°. If the deviation is more than 10°, check after adjusting one gear tooth.



- (4) Install the steering wheel locking nut.

Tightening torque: $48 \pm 4 \text{ N}\cdot\text{m}$

- (5) Connect the steering wheel multi-function switch connector.

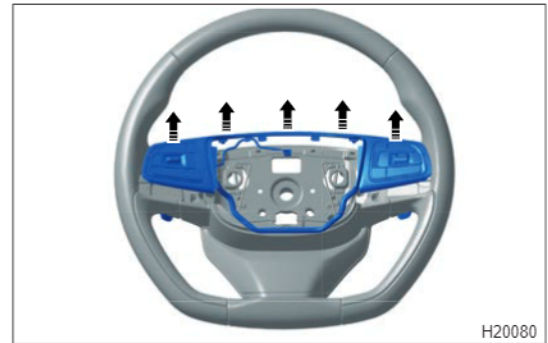
- (6) Install the driver airbag.

3 Steering Wheel Multi-function Switch

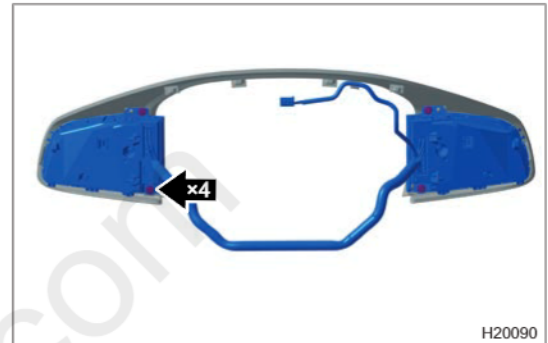
3.1 Removal

- (1) Remove the driver airbag.

- (2) Squeeze mounting board clips and steering wheel multi-function switch to push it out.



- (3) Remove 4 fixing screws between steering wheel multi-function switch and mounting board.



- (4) Remove the steering wheel multi-function switch.

3.2 Installation

- (1) Install the steering wheel multi-function switch.
- (2) Install 4 fixing screws between steering wheel multi-function switch and mounting board.
- (3) Install steering wheel multi-function switch and mounting board to steering wheel, press steering wheel multi-function switch firmly, and clip steering wheel with clips.
- (4) Install the driver airbag.