

# Suspension System

[Kia Forte 2019-2023 \(BD\) Service Manual](#) / Suspension System

## Service data

### Service Data

#### Front Suspension

Item	Specification
Suspension type	Macpherson Strut
Shock absorber type	Advanced Valve

#### Rear Suspension - Couple Torsion Beam Axle

Item	Specification
Suspension type	Couple Torsion Beam Axle
Shock absorber type	Advanced Valve

#### Rear Suspension - Multi link

comes on. The FCA warning message will appear at the same time, too. But that doesn't necessarily mean the malfunction of the FCA system. Both the FCA warning light and warning message will disappear once the ESC warning light issue is resolved.

## WARNING

- *The FCA is only a supplemental system for the driver's convenience. It is the driver's responsibility to control the vehicle. Do not solely depend on the FCA system. Rather, maintain a safe braking distance, and, if necessary, depress the brake pedal to lower the driving speed.*
- *The FCA may unnecessarily produce the warning message and the warning alarms. Also, due to sensing limitations, the FCA may not produce alarms in certain situations. Read the section "Limitation of the system" for more information.*
- *When there is a malfunction with the FCA, the FCA braking control does not operate upon detecting a collision risk even with other braking systems operating normally.*
- *The FCA system only recognizes vehicles in front of it while driving forward. It does not identify any animals or vehicles in the opposite direction.*
- *The FCA cannot recognize cross-traffic or parked vehicles presenting a side profile.*
- *If the vehicle in front stops suddenly, you may have less time to apply the brakes system. Therefore, always keep a safe distance between your vehicle and the vehicle in front of you.*
- *The FCA system may activate during braking and the vehicle may stop suddenly. If this occurs, any load in the vehicle may endanger passengers. Therefore, always be mindful of the load volume in the vehicle.*
- *The FCA system may not activate if the driver applies the brake pedal to avoid the risk of a collision.*
- *The FCA system does not operate when the vehicle is in reverse. In these cases, you must maintain a safe braking distance, and if necessary, depress the brake pedal to reduce the driving speed in order to maintain a safe distance.*
- *The regular braking function will operate normally even if there is a problem with the FCA brake control system or other functions. In this case, the braking control will not operate in the risk of a collision.*
- *The FCA system may not activate in certain situations and according to driving condition, traffic on the road, weather, road conditions, etc.*
- *The FCA system may not activate in response to all types of vehicles.*



### FCA front view camera sensor

The sensor is designed to maintain a certain distance from the front end of the vehicle. However, a sensor covered or dirty with foreign substances, such as dirt or snow, adversely affects ...

### Limitation of the system

The FCA system is designed to monitor the vehicle ahead through camera recognition to warn the driver that a collision is imminent, and if necessary, apply emergency braking. In certain situ ...



### Other information:

## [Kia Forte 2019-2023 \(BD\) Service Manual: Radiator Grill](#)

Components and components location Component Location 1. Radiator grill Repair procedures Replacement Put on gloves to prevent hand injuries. ...

## S/W Management

### ■ Steering Angle Sensor(SAS) Calibration

#### ● [ Steering Angle Sensor(SAS) Calibration ]

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This function is used to calibrate steering angle values inputted in EPS ECU and in an actual vehicle respectively by making the values the same.

Perform this function when you replace EPS ECU or do work related to EPS.

1. Ignition On

2. Engine Stop

Turn the steering wheel to straight ahead position and

press **[OK]** button.

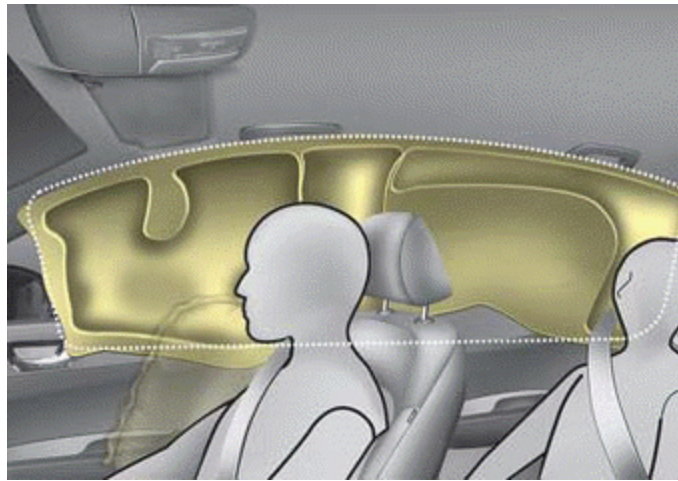
Press **[Cancel]** button to exit.

OK

Cancel



**Do not touch any system buttons while performing this function.**



Curtain air bags are located along both sides of the roof rails above the front and rear doors.

They are designed to help protect occupants in certain side impacts and to help prevent them from ejecting out of the vehicle as a result of a rollover, especially when the seatbelts are also in use.

- The curtain air bags are designed to deploy during certain side impact collisions, depending on the crash severity, angle, speed and point of impact. However, when side deployment threshold is satisfied in a front-impact crash, the curtain air bags may deploy.
- The curtain air bags may deploy on the side of the impact or on both sides.
- Also, the curtain air bags on both sides of the vehicle will deploy in certain rollover situations.
- The curtain air bags are not designed to deploy in all side impact or rollover situations.

Do not allow the passengers to lean their heads or bodies against the doors, put their arms on the doors, stretch their arms out of the window or place objects between the doors and passengers when they are seated on seats equipped with side impact and/or curtain air bags.

**\* NOTICE**

*Never try to open or repair any components of the side and curtain air bag system. This should only be done by an authorized Kia dealer.*

**WARNING - No attaching objects**

- *Do not place any objects over the air bag. Also, do not attach any objects around the area the air bag inflates such as the door, side door glass, front and rear pillar, roof side rail.*
- *Do not hang hard or breakable objects on the coat hook.*



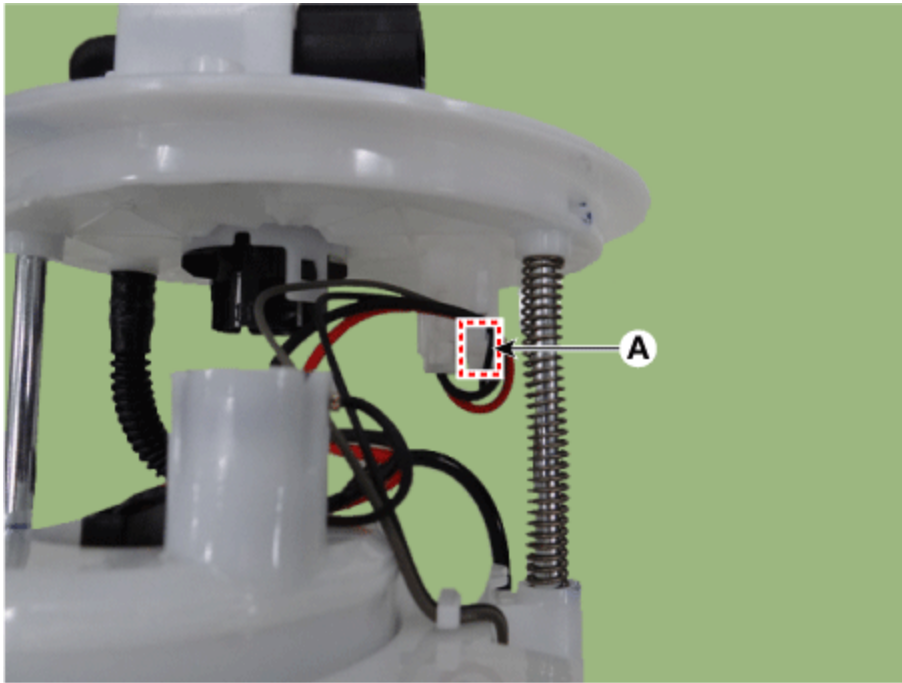
**Side air bag**

Your vehicle is equipped with a side air bag in each front seat. The purpose of the air bag is to provide the vehicle's driver and/or the front passenger with additional protection than ...

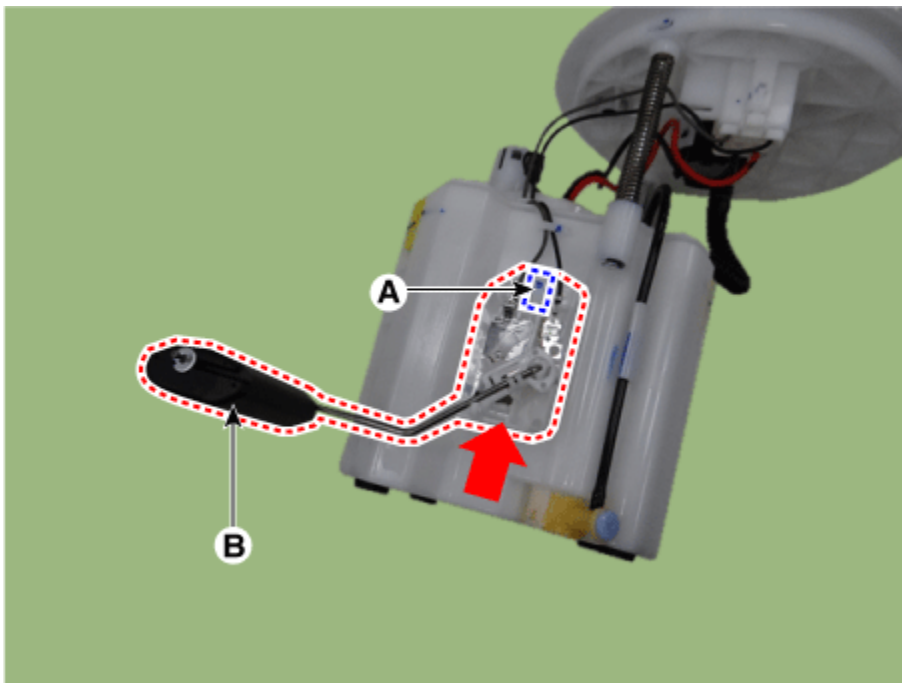
**Inflation and non-inflation conditions of the air bag**

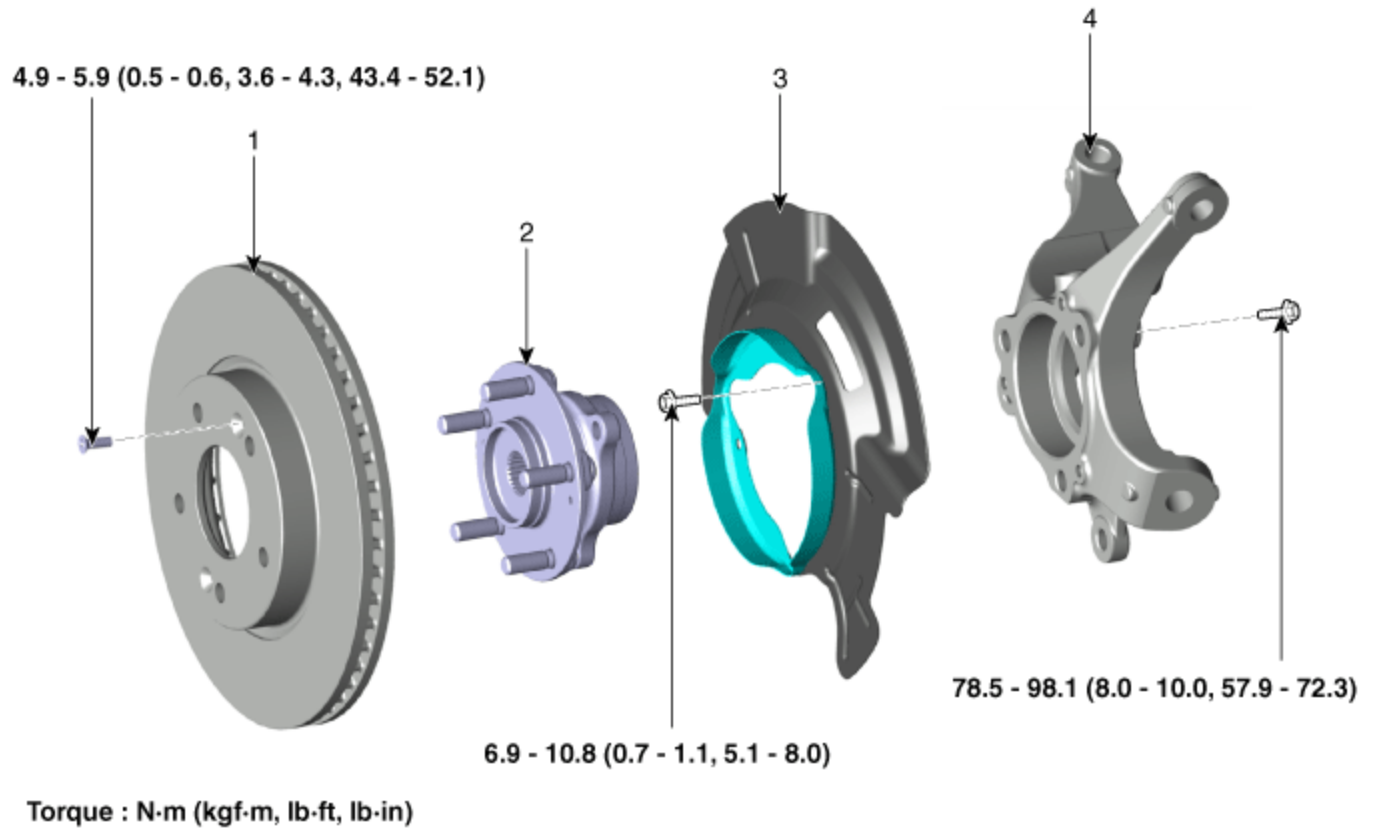
There are many types of accidents in which the air bag would not be expected to provide additional protection. These include rear impacts, second or third collisions in multiple impact accidents ...





3. Press the fixing hook (A) with a driver and then remove fuel sender (B) in the arrow direction.





1. Front brake disc
2. Front hub bearing

3. Dust cover
4. Knuckle

### Repair procedures

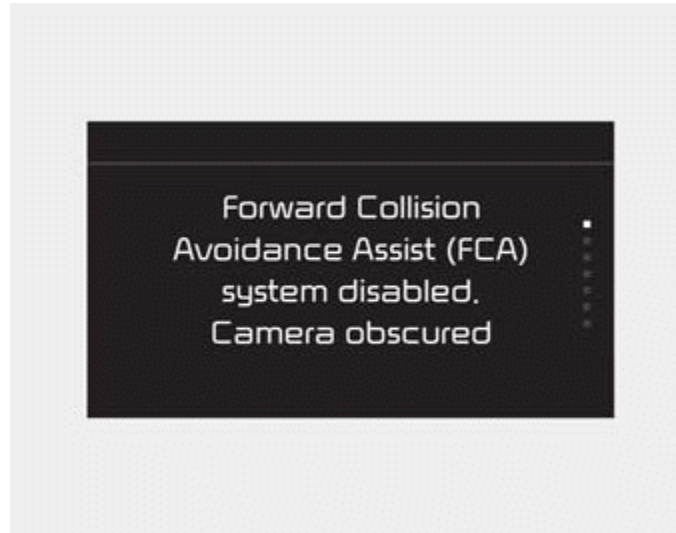
#### Removal and Installation

1. Remove the front wheel and tire (A).

Tightening torque:

107.9 - 127.5 N·m (11.0 - 13.0 kgf·m, 79.6 - 94.0 lb·ft)

## Warning message and warning light



When the sensor is covered or the sensor lens is dirty with foreign substances, such as snow or rain, the FCA system may not be able to detect vehicles. In this situation, a warning message ("Forward Collision-Avoidance Assist (FCA) system disabled. Camera blocked") will appear to notify the driver. Remove the foreign substances to allow the FCA system to function properly.

This is not a malfunction with the FCA. To operate the FCA again, remove the foreign substances.

The FCA may not properly operate in an area (e.g. open terrain), where vehicles or objects are not detected after turning ON the engine.

### \* NOTICE

- *Always keep the sensor clean and free of dirt and debris.*
- *Be careful not to apply unnecessary force on the sensor. If the sensor is forcibly moved out of proper alignment, the FCA system may not operate correctly. In this situation, a warning message may not be displayed. In this situation, have the vehicle inspected by an authorized Kia dealer.*
- *Use only genuine parts to repair or replace a damaged*
- *Do not tint the window or install stickers, accessories around the inside mirror where the camera is installed.*
- *Make sure the frontal camera installation point does not get wet.*
- *Do not impact or remove any camera components.*
- *Do not place reflective objects (white paper or mirror etc.) on the dashboard. The system may unnecessarily activate or deactivate due to reflection of the sunlight.*
- *Excessive audio system volume may prevent occupants from hearing the FCA system warning alarm.*



### Brake operation

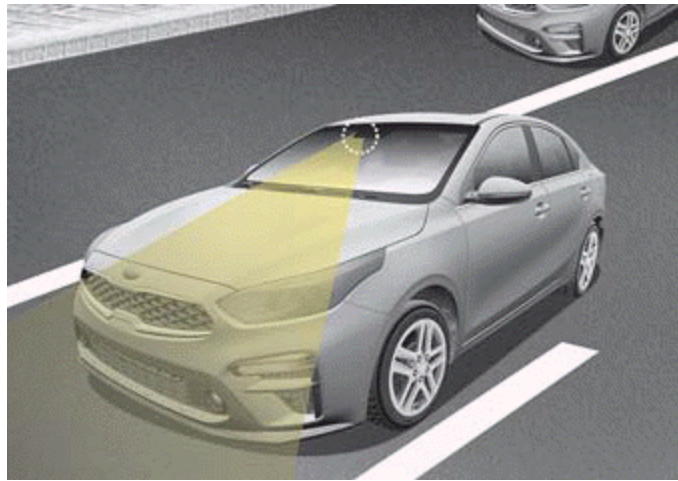
In an emergency situation, the braking system enters in ready status for prompt reaction upon the driver depressing the brake pedal. The

### System malfunction

When the FCA is not working properly, the FCA warning light ( ) will illuminate and the warning message will appear for a few seconds.



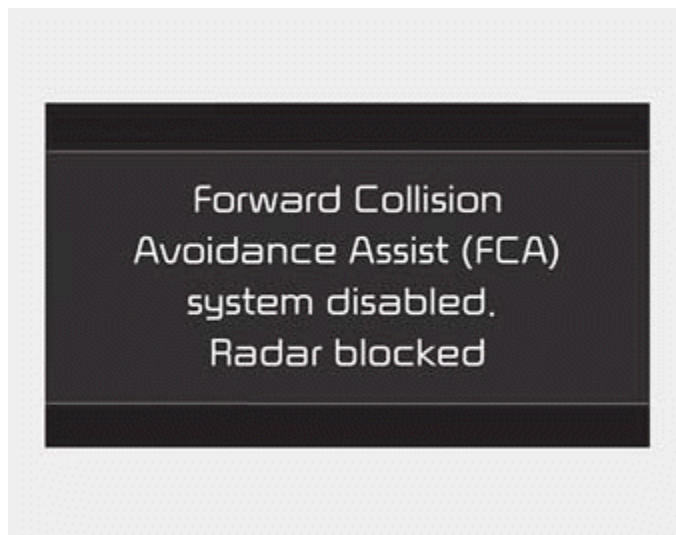




By detecting the vehicle or pedestrian ahead of the vehicle, the sensor helps to operate the Forward Collision-Avoidance Assist when the vehicle is at risk of a collision.

In order for the FCA system to operate properly, always make sure the sensor or sensor cover is clean and free of dirt, snow, and debris. Dirt, snow, or foreign substances on the lens may adversely affect the sensing performance of the sensor.

### **Warning message and warning light**



When the sensor is covered or the sensor lens is dirty with foreign substances, such as snow or rain, the FCA system may not be able to detect vehicles. In this situation, a warning message (“Forward Collision-Avoidance Assist (FCA) system disabled. Radar blocked”) will appear to notify the driver. Remove the foreign substances to allow the FCA system to function properly.

This is not a malfunction with the FCA. To operate the FCA again, remove the foreign substances.

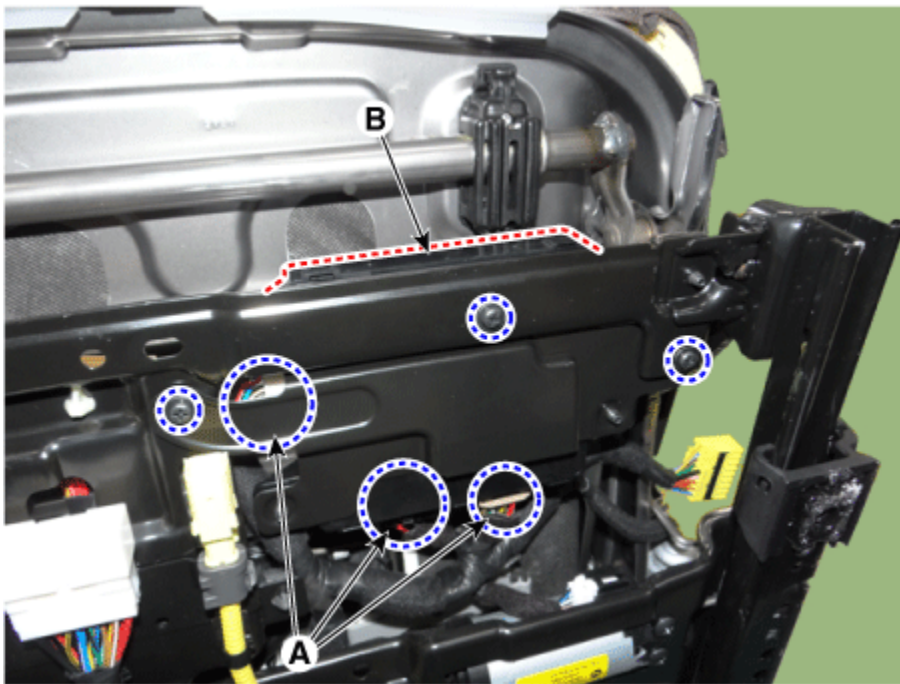
The FCA may not properly operate in an area (e.g. open terrain), where vehicles or objects are not detected after turning ON the engine.



## Repair procedures

### Removal

1. Before removing the driver side seat assembly, pull it upward to the maximum by pushing the front seat height adjusting switch.
2. Disconnect the negative battery terminal.
3. Remove the front drive seat assembly.  
(Refer to Body - "Front Seat Assembly")
4. Remove the memory seat unit (B) by loosening the screws after disconnecting the connector (A).



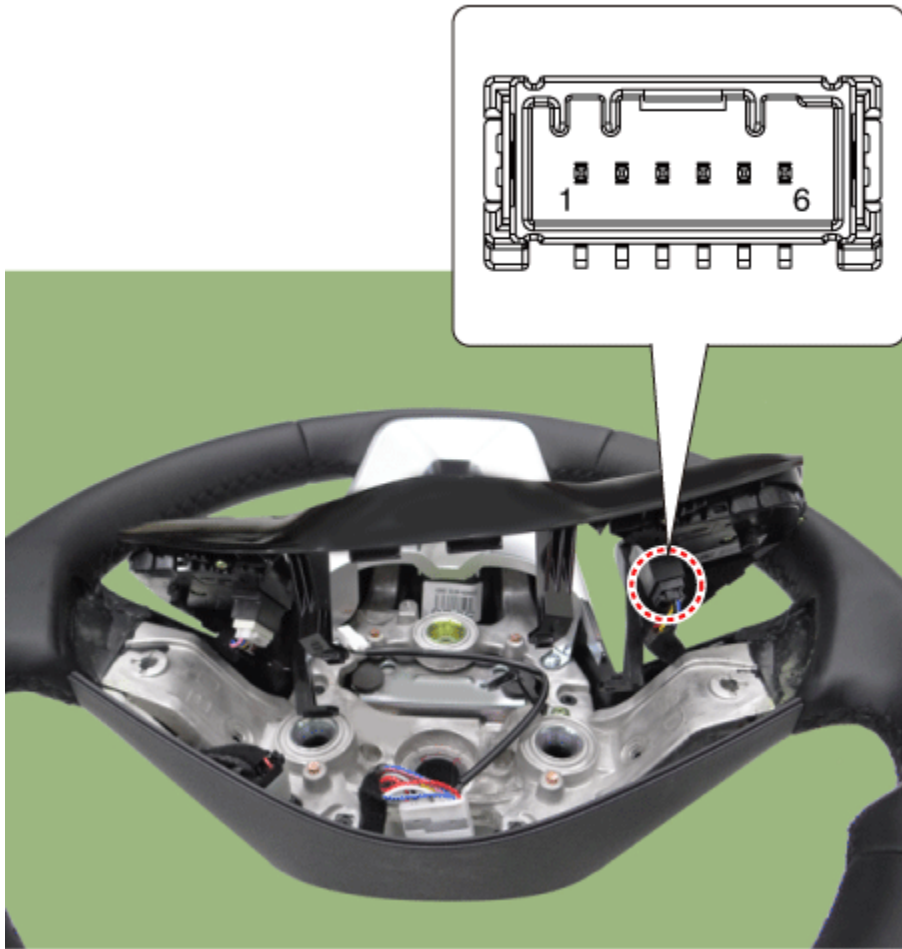
### Installation

1. Install in the reverse order of removal.

### Inspection

### Diagnosis with KDS

1. Check for resistance between terminals in each switch position (LH).

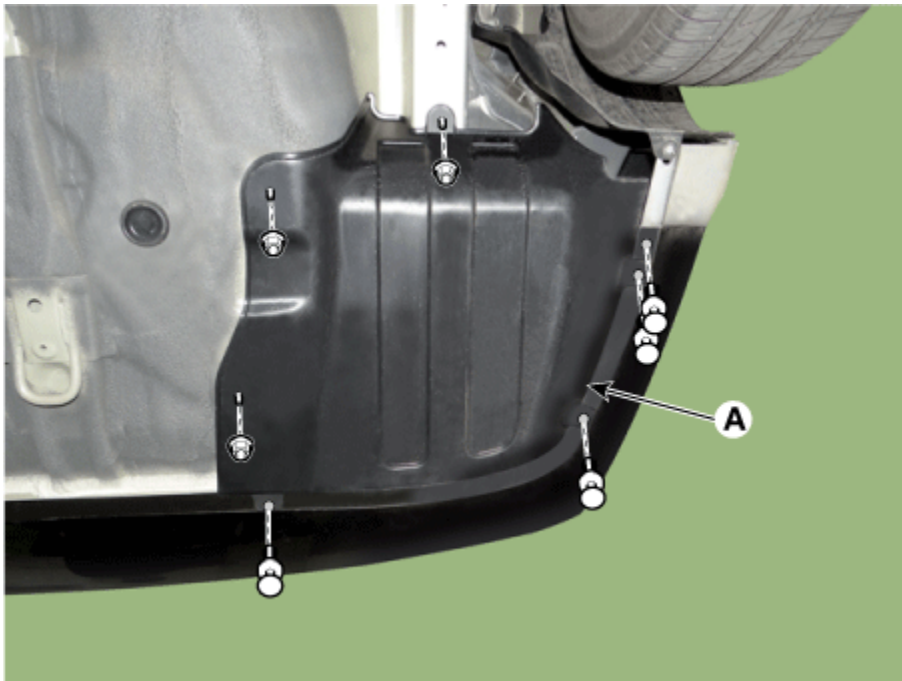


**[Audio + Bluetooth + Voice]**

Switch	Connector terminal	Resistance ( $\pm 3\%$ )
SEEK Up	1-6	430 $\Omega$
SEEK Down		1.11 k $\Omega$
MODE		2.11 k $\Omega$
MUTE		3.11 k $\Omega$
Volume (+)		4.61 k $\Omega$
Volume (-)		6.81 k $\Omega$
Voice		10.71 k $\Omega$
END		18.91 k $\Omega$
SEND		40.91 k $\Omega$



4. Loosen the mounting clips and nuts, remove the rear bumper retainer cover (A).



5. Loosen the mounting bolts.

- When headlamp aiming is not properly adjusted.
- When driving on a narrow curved road, rough road, downhill or uphill.
- When only part of the vehicle in front is visible on a crossroad or curved road.
- When there is a traffic light, reflecting sign, flashing sign or mirror ahead.
- When there is a temporary reflector or flash ahead (construction area).
- When the road conditions are poor, such as when wet, icy, or covered with snow.
- When a vehicle suddenly appears from a curve.
- When the vehicle is tilted from a flat tire or being towed.
- When front visibility is poor
  - When the lamp of the on-coming or front vehicle is covered with dust, snow or water.
  - When the light from the oncoming or front vehicle is not detected because of exhaust fume, smoke, fog, snow, etc.
  - When the front window is covered with foreign matters.
  - When it is hard to see because of fog, heavy rain or snow and etc.

**\* NOTICE**

- *Do not disassemble the front view camera for window tinting or installing any forms of coatings or accessories. If you disassemble and reassemble the camera, take your vehicle to an authorized Kia dealer and have the system checked to see if a calibration is needed.*
- *When you replace or reinstall the windshield glass or front view camera, take your vehicle to an authorized Kia dealer and have the system checked.*
- *Be careful that water doesn't get into the High Beam Assist unit and do not remove or damage parts of the High Beam Assist system.*
- *Do not place objects on the dash board that reflect light such as mirrors, white paper, etc. The system may not be able to function if sunlight is reflected.*
- *At times, the High Beam Assist may not operate due to system limitations. The system is for your convenience only. It is the responsibility of the driver to drive safely and always check the road conditions.*
- *When the system does not operate normally, change the lamp position manually between the high beam and low beam.*
- *Do not place any accessories, stickers or tint on the windshield.*



**High beam operation**

To turn on the high beam headlamp, push the lever away from you. The lever will return to its original position. To turn off the high beam headlamps, pull the lever towards you. It will retur ...

**Turn signals and lane change signals**



The ignition switch must be on for the turn signals to function. To turn on the turn signals, move the lever up or down (A). The green arrow indicators on the instrument panel indicate whi ...

**Other information:**

**[Kia Forte 2019-2023 \(BD\) Owners Manual: Driver's side fuse panel](#)**

Inside the fuse/relay panel covers, you can find the fuse/relay label describing fuse/relay name and capacity. \* NOTICE Not all fuse panel descriptions in this manual may be applicable to your vehicle. It is accurate at the time of printing. When you inspect the fuse panel in you ...

# Seat belts / Pre-tensioner seat belt

[Kia Forte 2019-2023 \(BD\) Owners Manual](#) / [Safety features of your vehicle](#) / [Seat belts](#) / Pre-tensioner seat belt

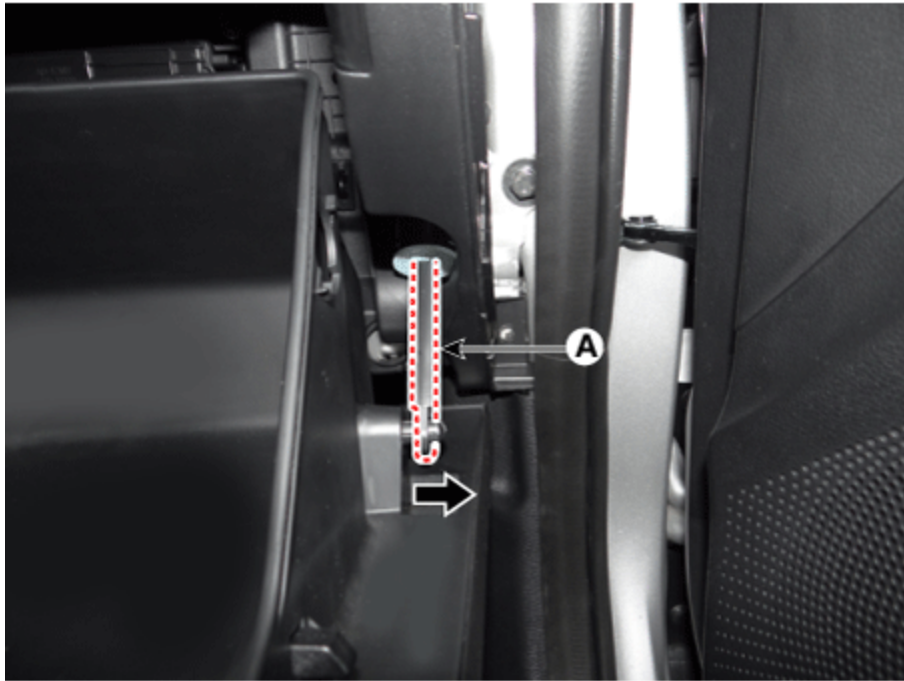


Your vehicle is equipped with driver's and front passenger's pre-tensioner seat belts.

## 1. Retractor pre-tensioner

The retractor pre-tensioner is a supplemental system of the seat belts. The purpose of the retractor pre-tensioner is to tighten the shoulder belt against the occupant's upper body in certain frontal collisions.

The pre-tensioner seat belts may be activated, when a collision is severe enough, together with the air



3. Disconnect the pushpins (A) and then remove the glove box (B).



*seconds. Then the system will be disarmed.*

- *If you lose your keys, consult your authorized Kia dealer.*



#### **Armed & Theft-alarm stage**

Armed stage Using the smart key Park the vehicle and stop the engine. Arm the system as described below. 1. Turn off the engine. 2. Make sure that all doors (and tailgate) and the engine hood ar ...

#### **Door locks**



Operating door locks from outside the vehicle To remove the cover (if equipped, for type C) : 1. Pull out the door handle. 2. Press the lever (1) located inside the bottom part of the cover ...

**Other information:**

### **[Kia Forte 2019-2023 \(BD\) Service Manual: Trailing Arm](#)**

Repair procedures Removal and Installation 1. Remove the rear wheel and tire (A). Tightening torque : 107.9 - 127.5 N·m (11.0 - 13.0 kgf·m, 79.6 - 94.0 lb·ft) ...

### **[Kia Forte 2019-2023 \(BD\) Owners Manual: Remote keyless entry system operations](#)**

■ Type A ■ Type B Lock (1) All doors are locked if the lock button is pressed. If all doors are closed, the hazard warning lights will blink and the chime will sound once to indicate that all doors are locked. Also, if the lock button is pressed once more within 4 seconds, the ...