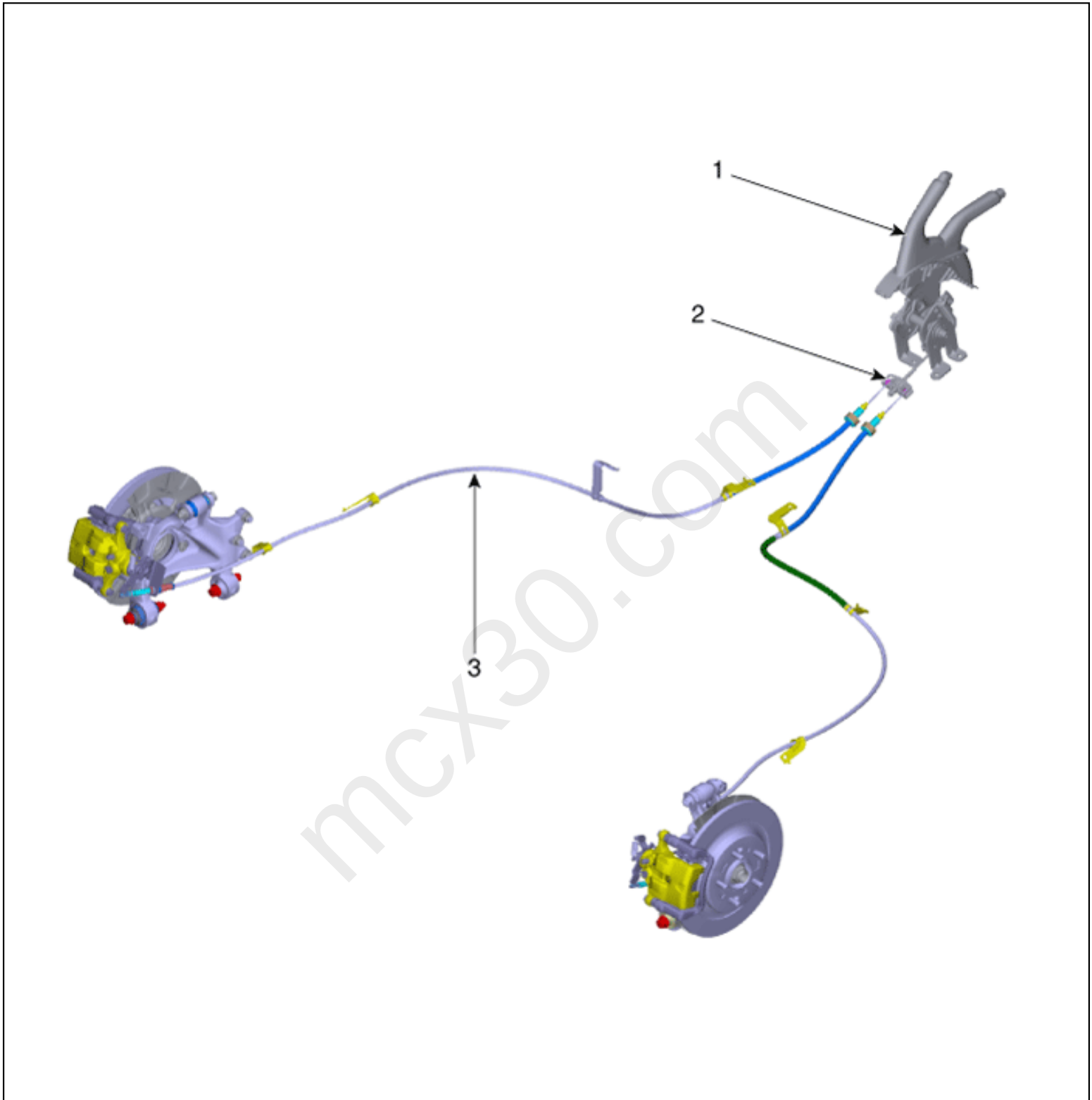


Components

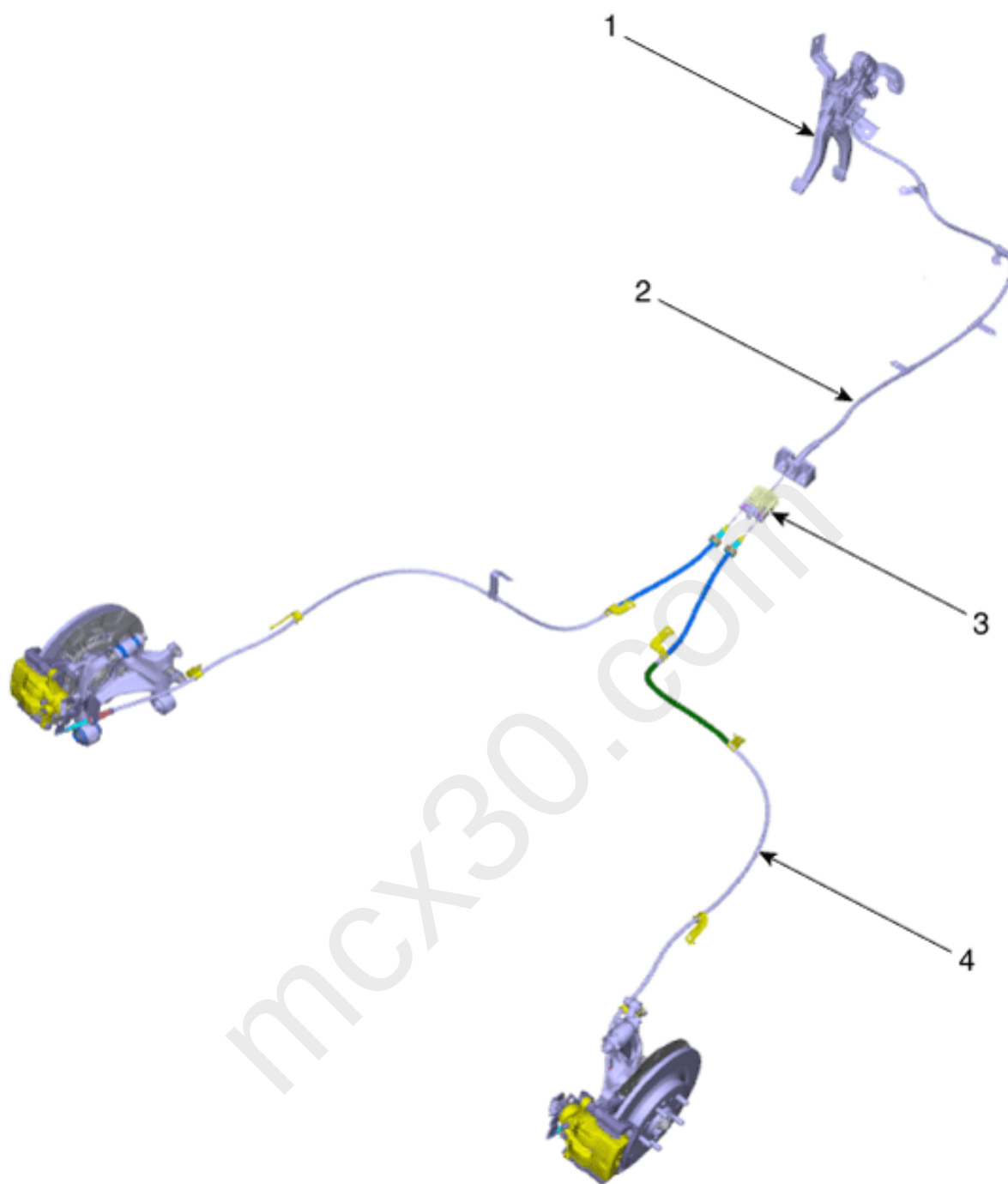
[Lever Type]



- 1. Parking brake pedal assembly
- 2. Equalizer assembly

- 3. Parking brake cable

[Pedal Type]

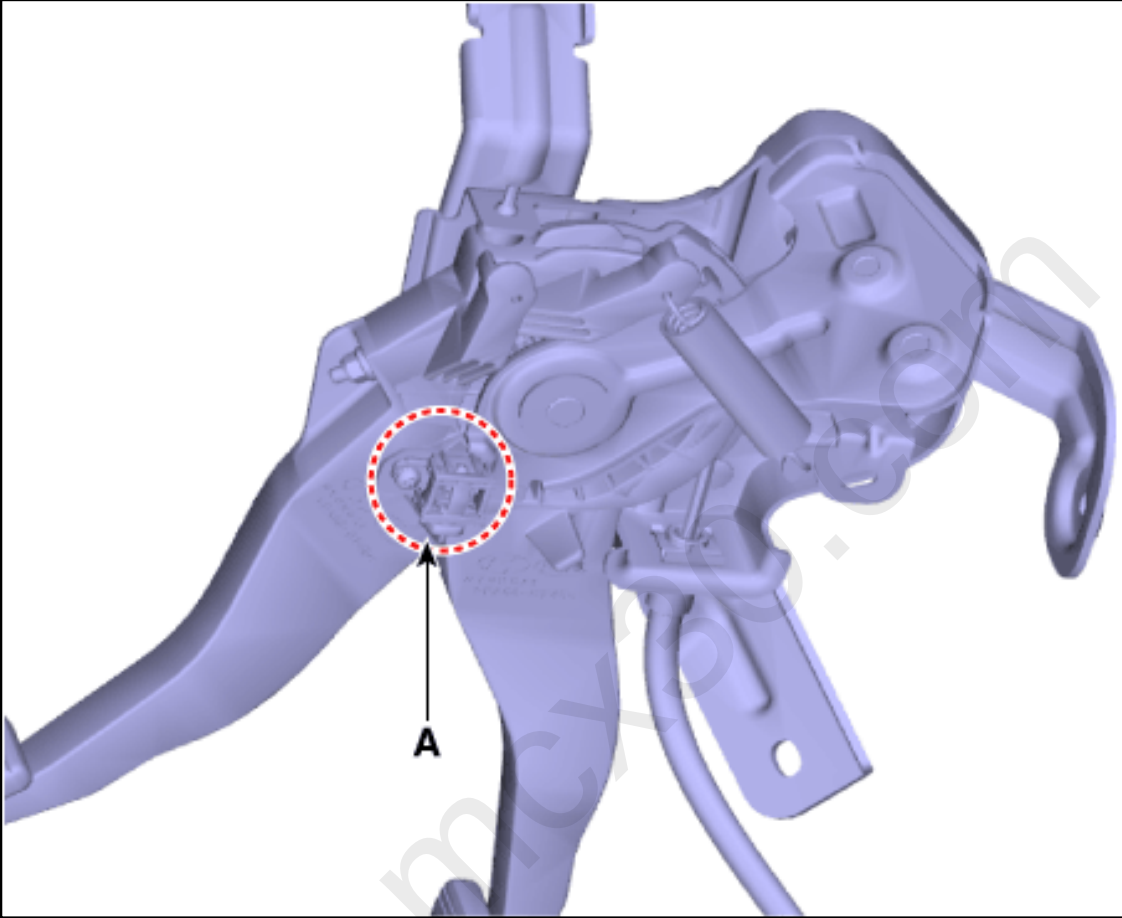


- 1. Parking brake pedal assembly
- 2. Front parking brake cable

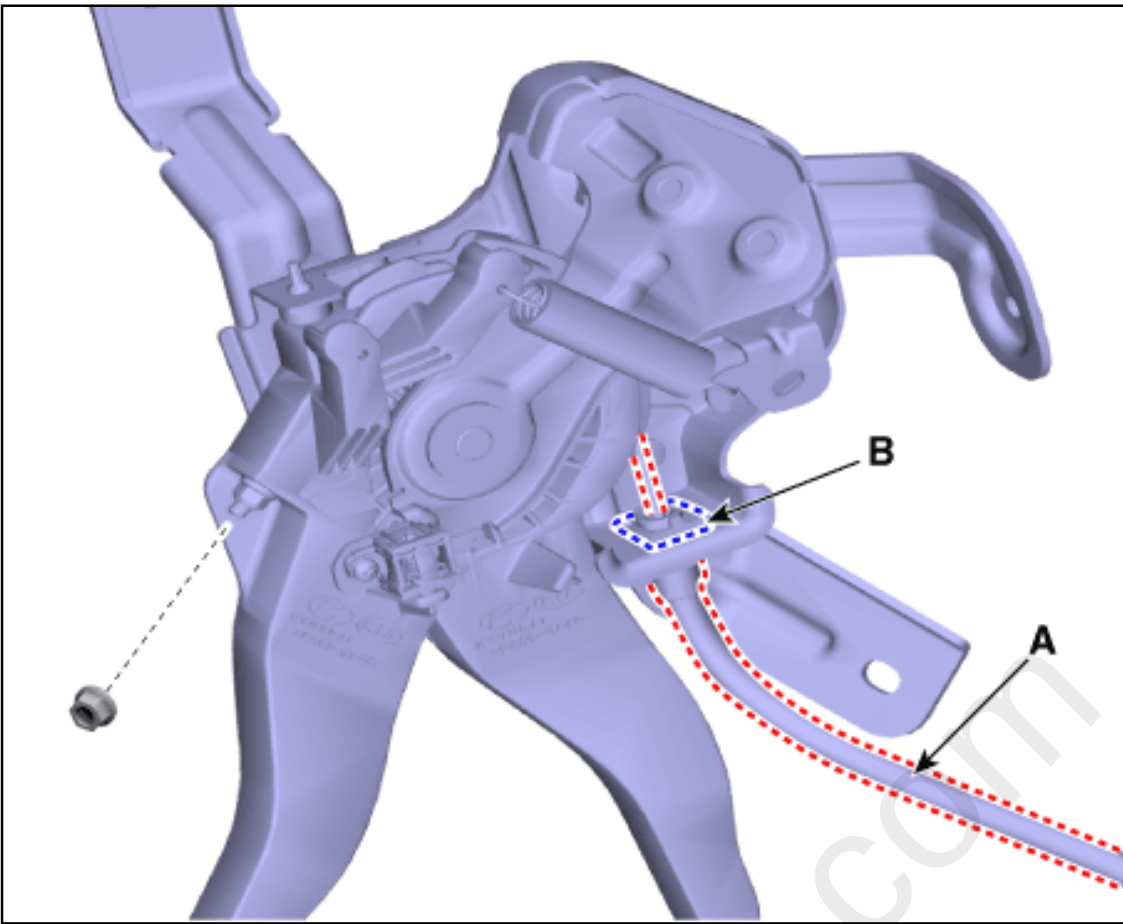
- 3. Equalizer assembly
- 4. Rear parking brake cable

Removal

1. Disconnect the (-) battery terminal.
2. Release the parking brake.
3. Remove the crash pad lower panel.
(Refer to Body - "Crash Pad Lower Panel")
4. Remove the Integrated Central Control Unit (ICU).
(
Refer to Body Electrical System - "Relay Box (Passenger Compartment)")
5. Disconnect the parking brake switch connector (A).



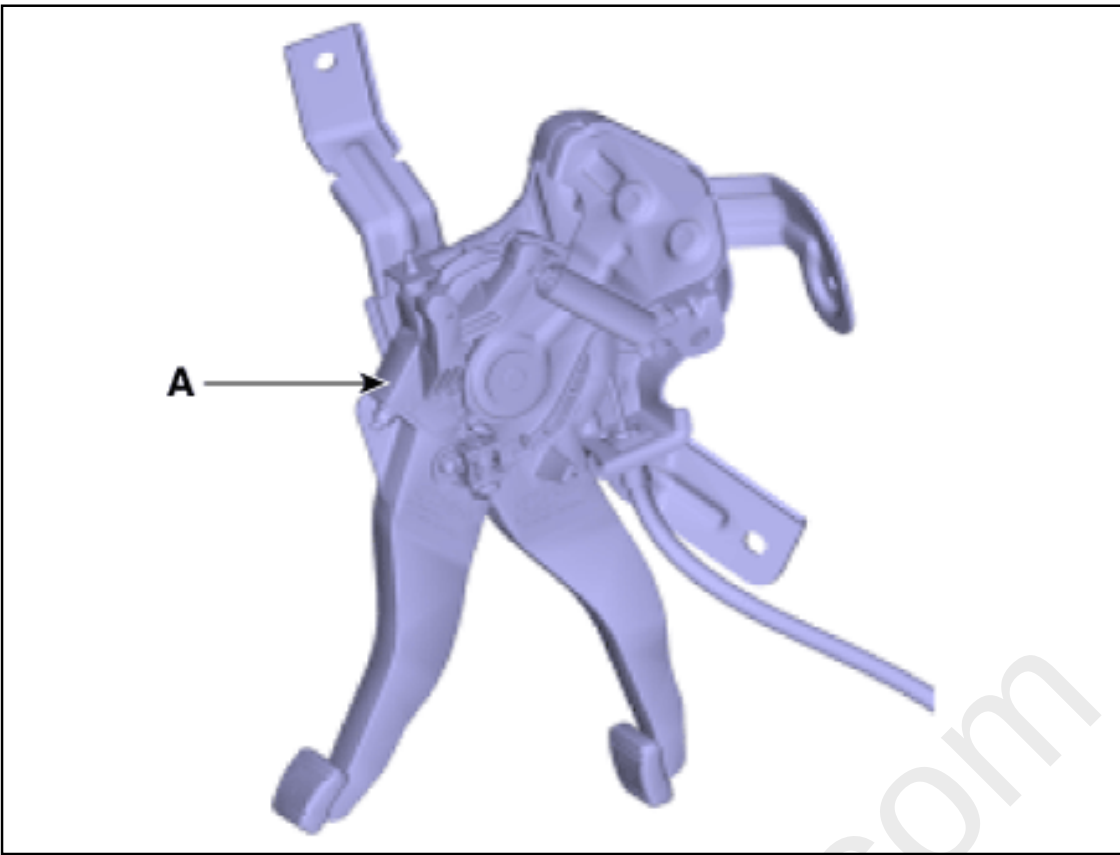
6. Separate the parking brake cable (A) by removing the nut and retaining clip (B).



7. Remove the bolts and nut remove the parking brake pedal assembly (A).

Tightening torque :

19.6 - 29.4 N·m (2.0 - 3.0 kgf·m, 14.5 - 21.7 lb·ft)



Installation

1. Install in the reverse order of removal.
2. After the installation, check the operation status of the parking brake and brake switch.

Parking Brake Pedal Stroke

Adjustment

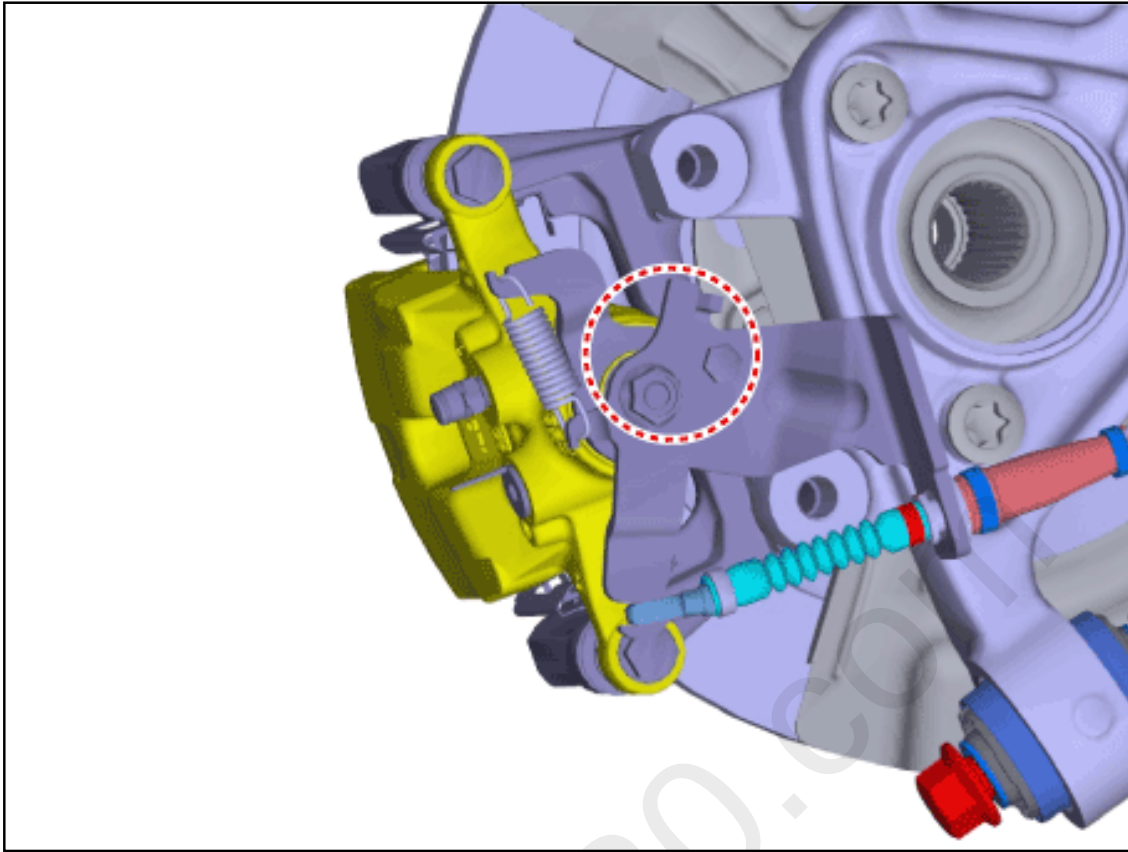


- After disassembling/assembling the caliper body or replacing the caliper, parking brake cable or brake disc, re-adjust the parking brake.

1. To fit the cable, follow one of these procedures.
 - Apply a parking brake fully more than 3 times
 - With full operation, hold the parking brake for 1 to 2 hours.
2. After fitting the cable, adjust the adjustment nut so that the stroke is 5 - 6 notch when operating the pedal at 30kgf.



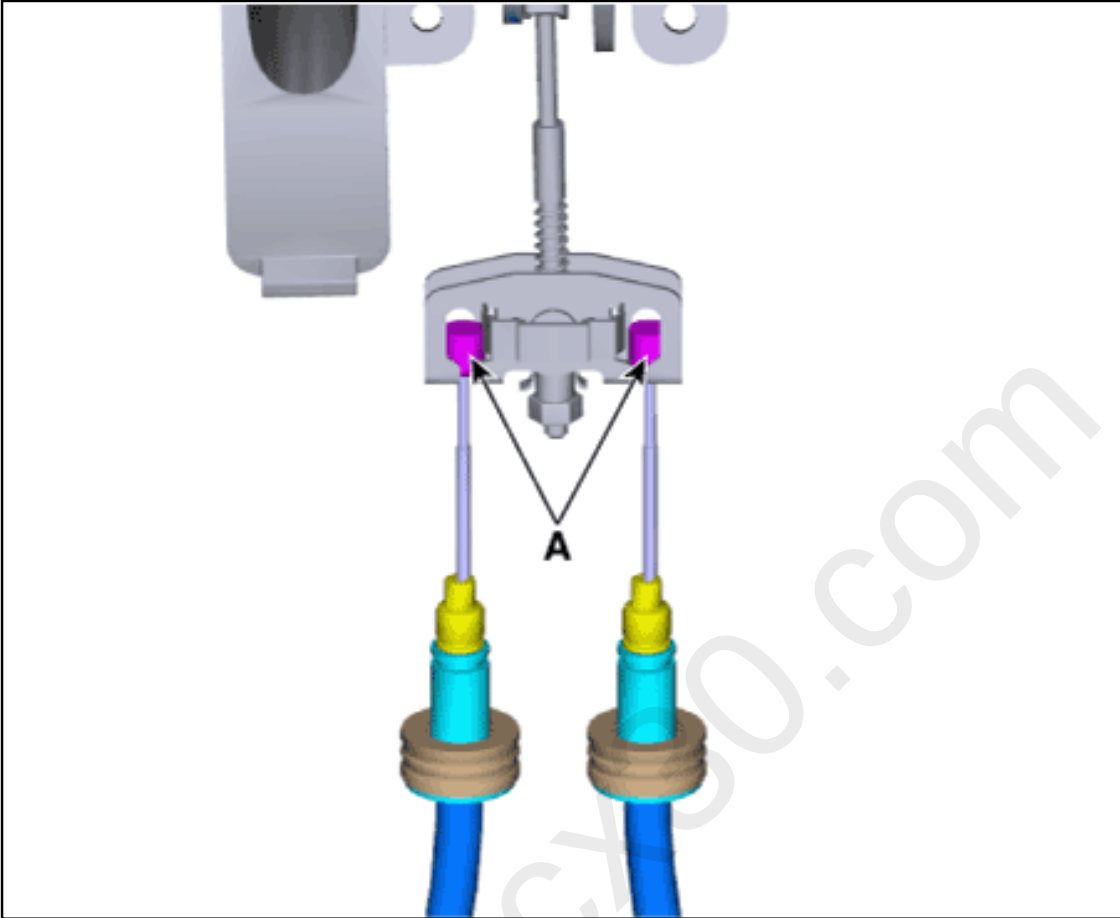
- For the BIR type, adjust the adjustment nut of the lever assembly so that the sum of the O / P lever on the rear caliper side and the stopper (LH / RH) angle is within 3.0 mm (0.11 in).



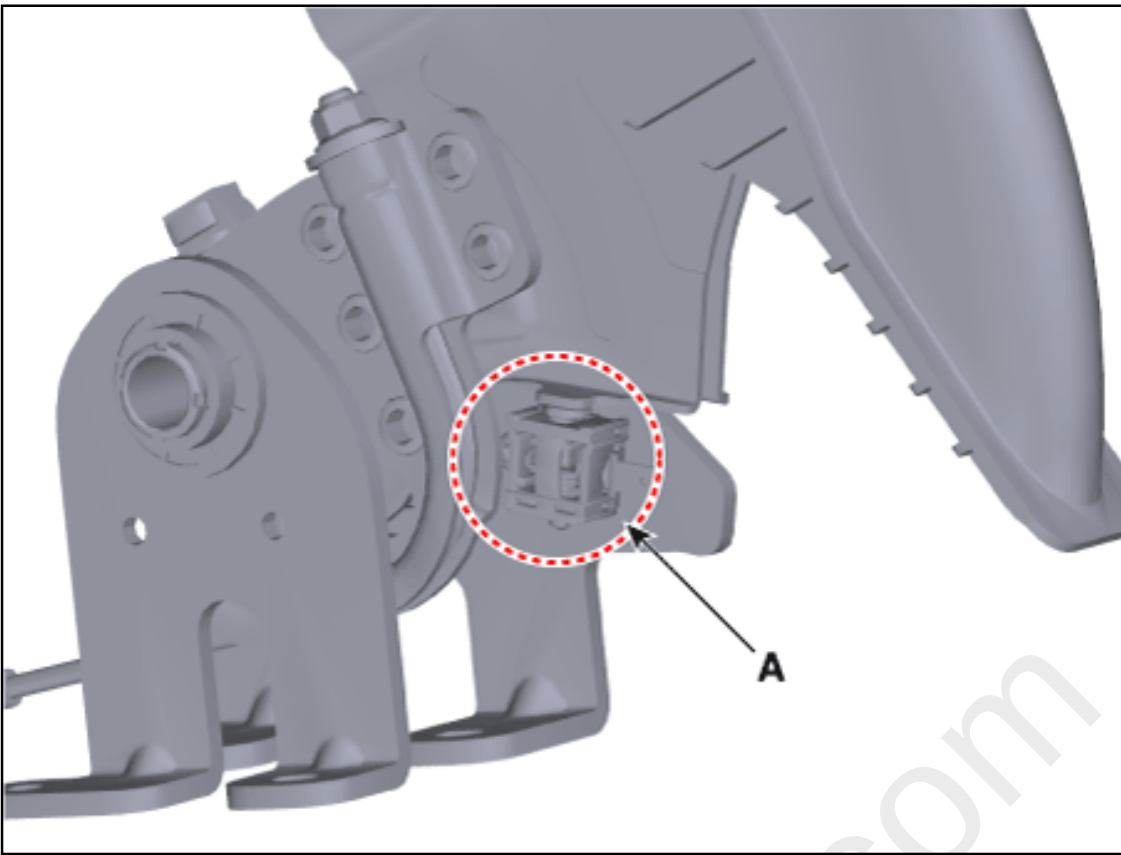
3. Make sure that there is no gap between adjustment nut and clip after adjusting the parking brake.
4. Make sure that the brakes are not drag.
5. Check whether the wheel operates smoothly.
6. Perform driving test.

Removal

1. Disconnect the negative (-) battery cable.
2. Release the parking brake.
3. Remove the floor console assembly.
(Refer to Body - "Floor Console Assembly")
4. Remove the cable retainer and remove the parking brake cable (A).



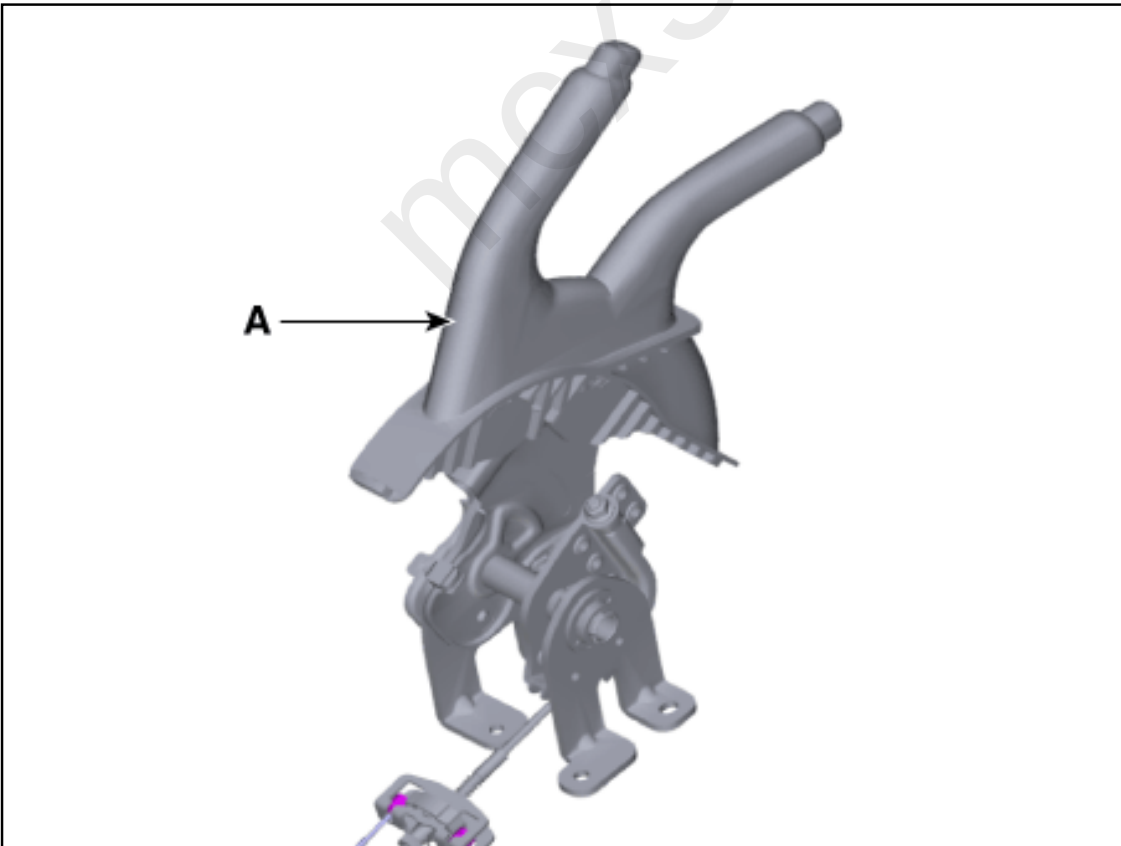
5. Disconnect the parking brake switch connector (A).



6. Remove the parking brake lever assembly (A) after loosening the bolts.

Tightening torque :

19.6 - 29.4 N·m (2.0 - 3.0 kgf·m, 14.5 - 21.7 lb·ft)



Installation

1. Install in the reverse order of removal.
2. After the installation, check the operation status of the parking brake and brake switch.

Adjustment

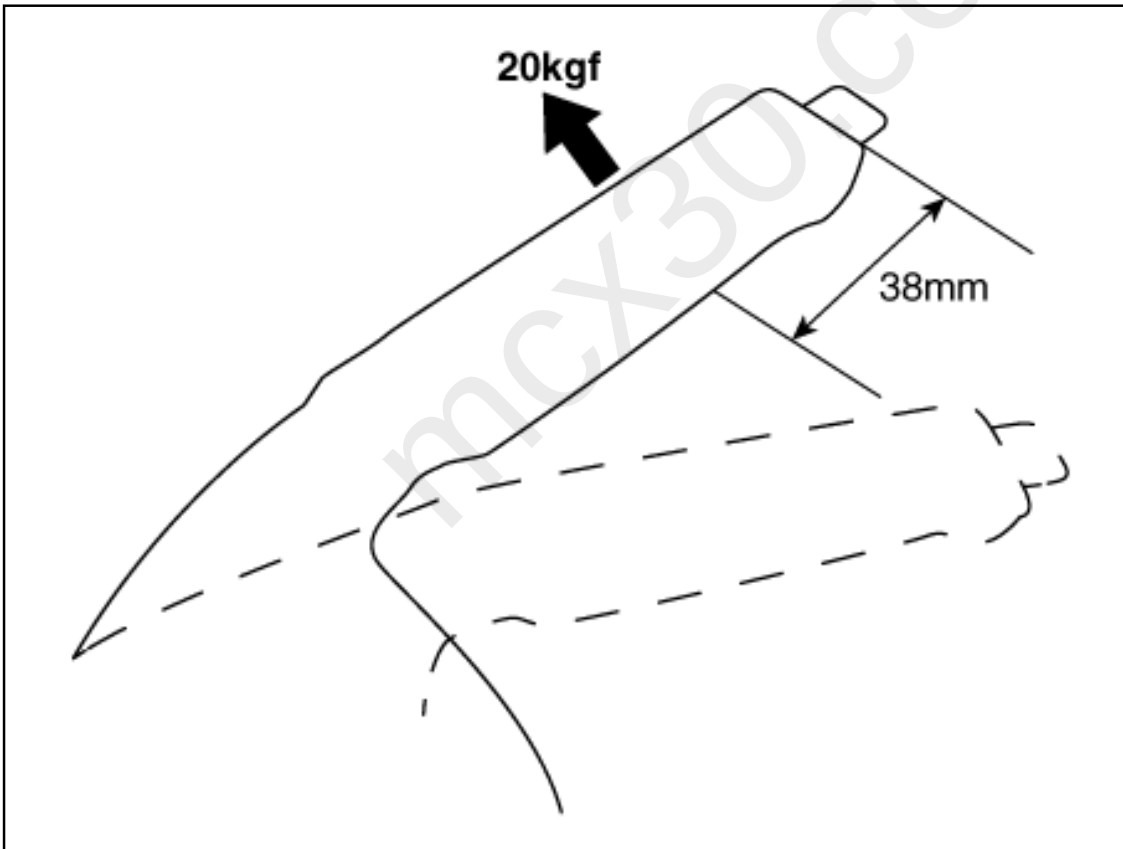
Parking Brake Adjustment

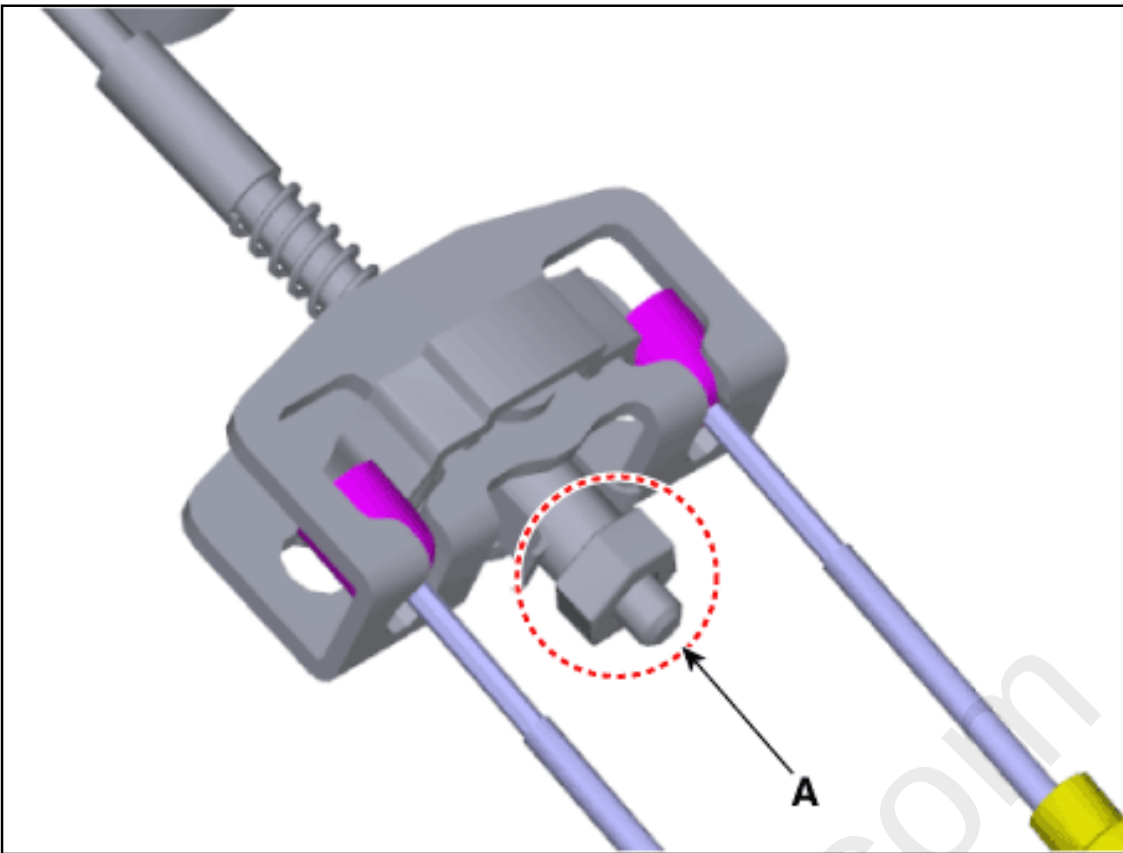


- After disassembling/assembling the caliper body or replacing the caliper, parking brake cable or brake disc, re-adjust the parking brake.

1. Remove the floor console assembly.
(Refer to Body - "Floor Console Assembly")
2. For the brake pad to locate on the normal operation position, depress the brake pedal halfway several times until the brake pedal gains resistance.
3. Release the parking brake lever completely so that the parking brake cable is loosened.
4. Adjust the parking brake lever stroke by turning adjusting nut (A).

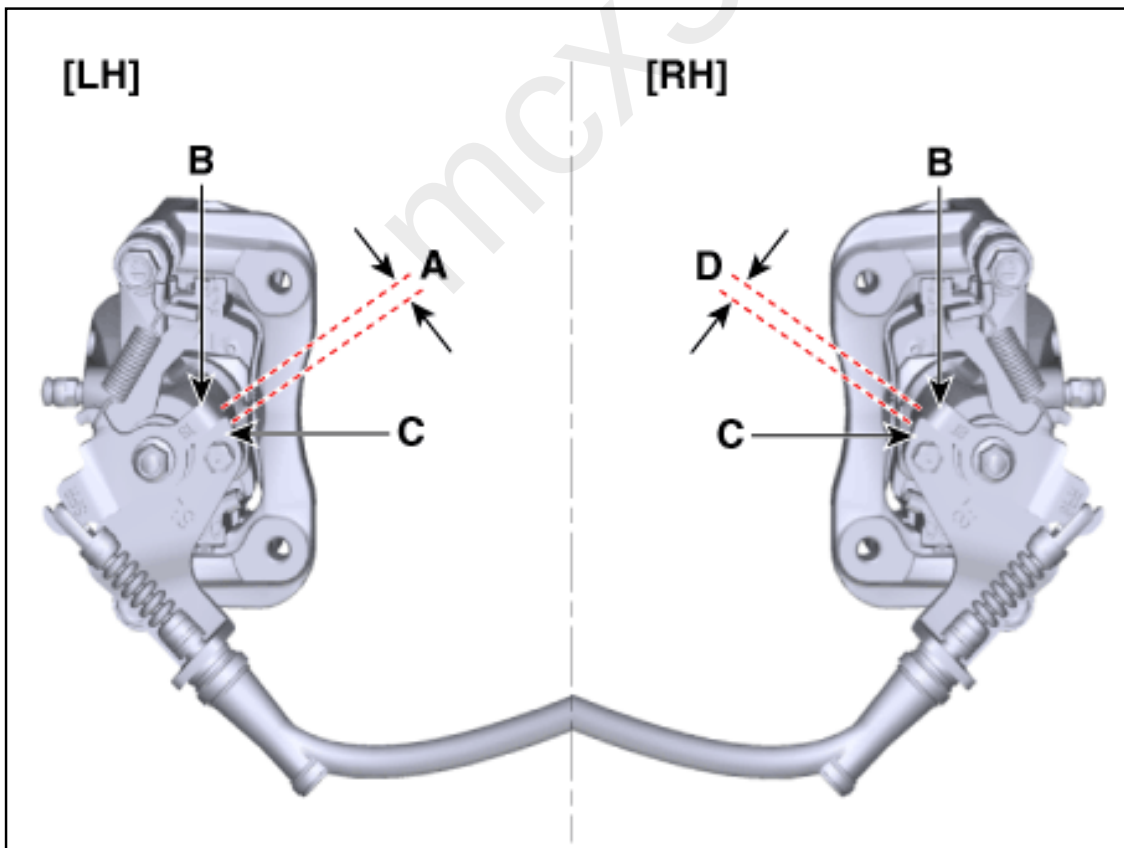
5 - 7 clicks (Pull the lever with 196N (20 kgf, 44 lbf))





5. Tension the parking brake cable by tightening the adjusting nut, until the operating levers on both calipers lift from the stop, up to a distance of (A) and (D) between operating lever (B) and stopper (C).

Distance (A + D) : Max. 3 mm (0.12 in)



6. Release the parking brake lever fully, and check that parking brakes do not drag when the rear wheels are turned. Readjust if necessary.
7. Make sure that the parking brakes are fully applied when the parking brake lever is pulled up fully.
8. Install the floor console assembly.
(Refer to Body - "Floor Console Assembly")

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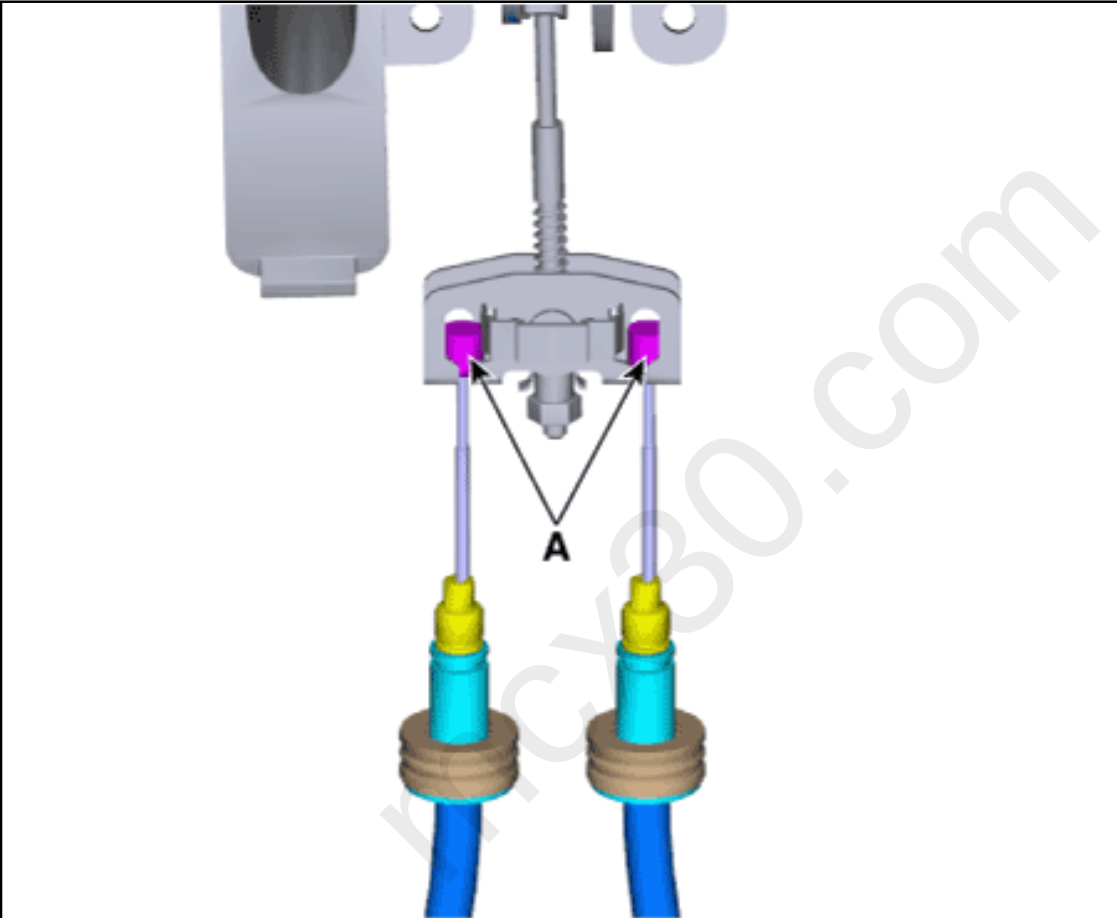
Removal

Lever Type

1. Disconnect the negative (-) battery cable.
2. Release the parking brake.
3. Remove the floor console assembly.
(Refer to Body - "Floor Console Assembly")
4. Remove the cable retainer and remove the parking brake cable (A).



- Parking brake lever in the car must be in fully loosened position.



5. Remove the rear wheel and tire (A) from the rear hub.

Tightening torque :

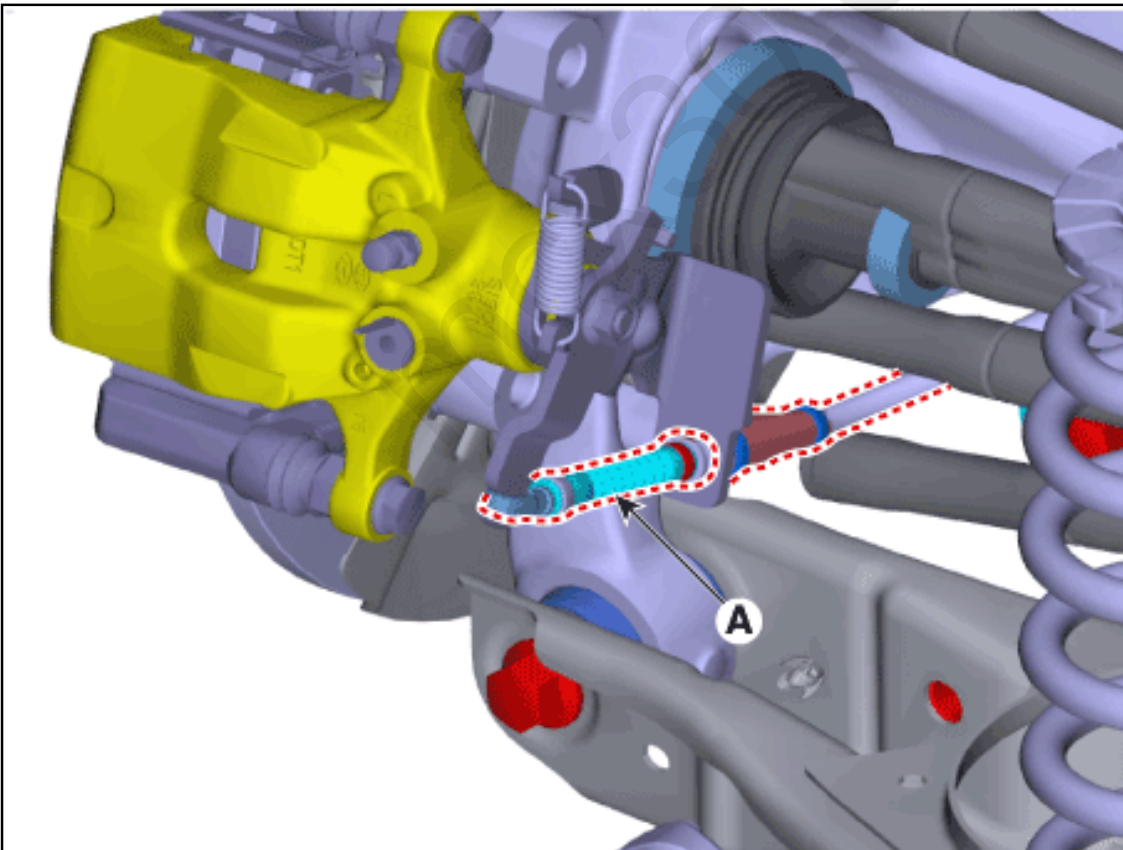
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)



- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



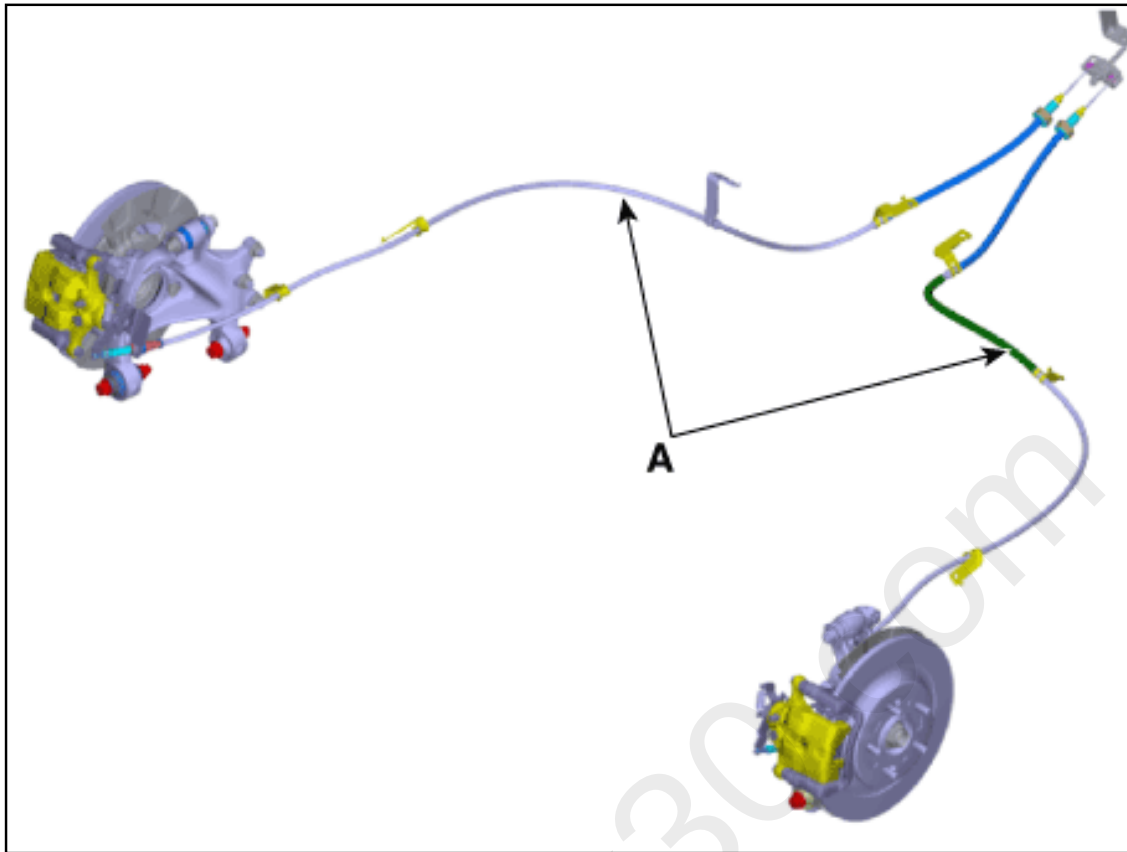
6. Remove the parking brake cable (A), after removing the clip.



7. Remove the mounting bolts and remove the parking brake cable (A).

Tightening torque :

19.6 - 29.4 N·m (2.0 - 3.0 kgf·m, 14.5 - 21.7 lb·ft)



Pedal Type

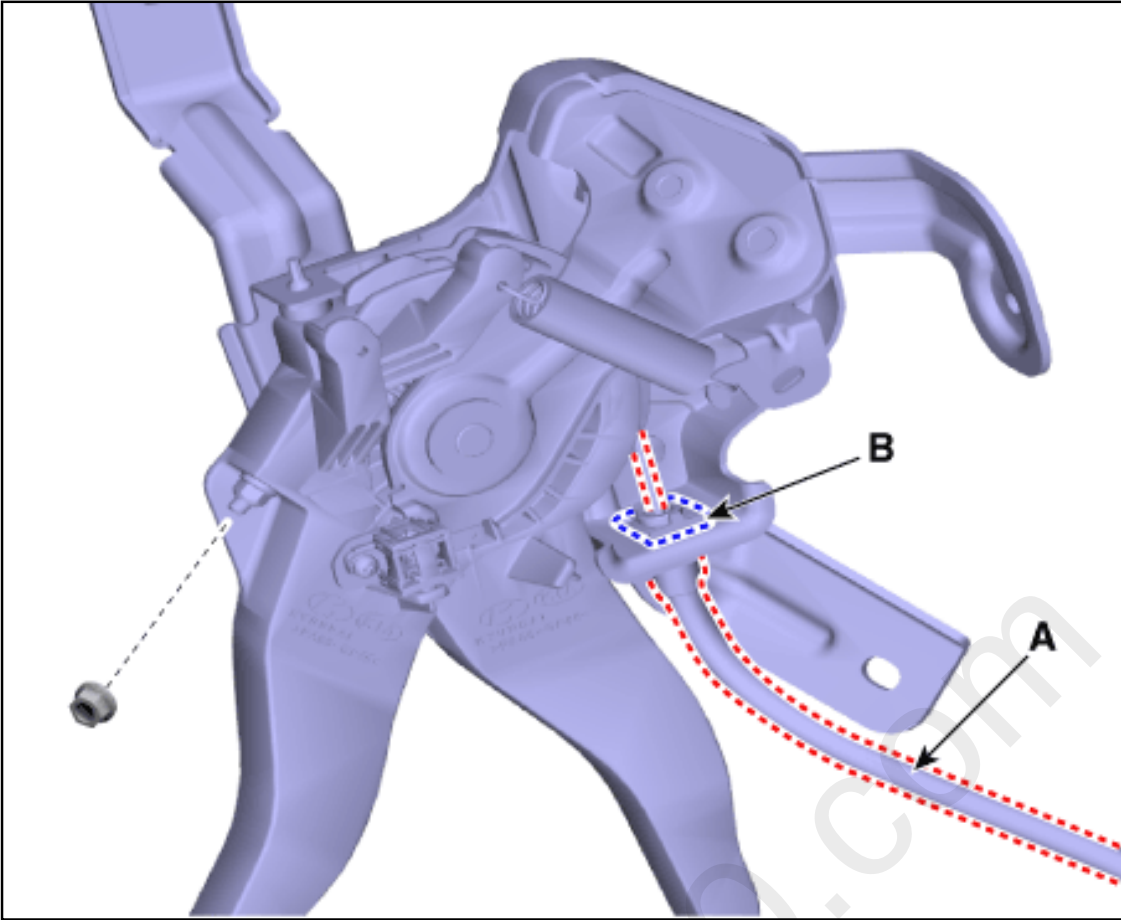
[Front cable]

1. Disconnect the (-) battery terminal.
2. Release the parking brake.
3. Remove the crash pad lower panel.
(Refer to Body - "Crash Pad Lower Panel")
4. Remove the Integrated Central Control Unit (ICU).

(

Refer to Body Electrical System - "Relay Box (Passenger Compartment)")

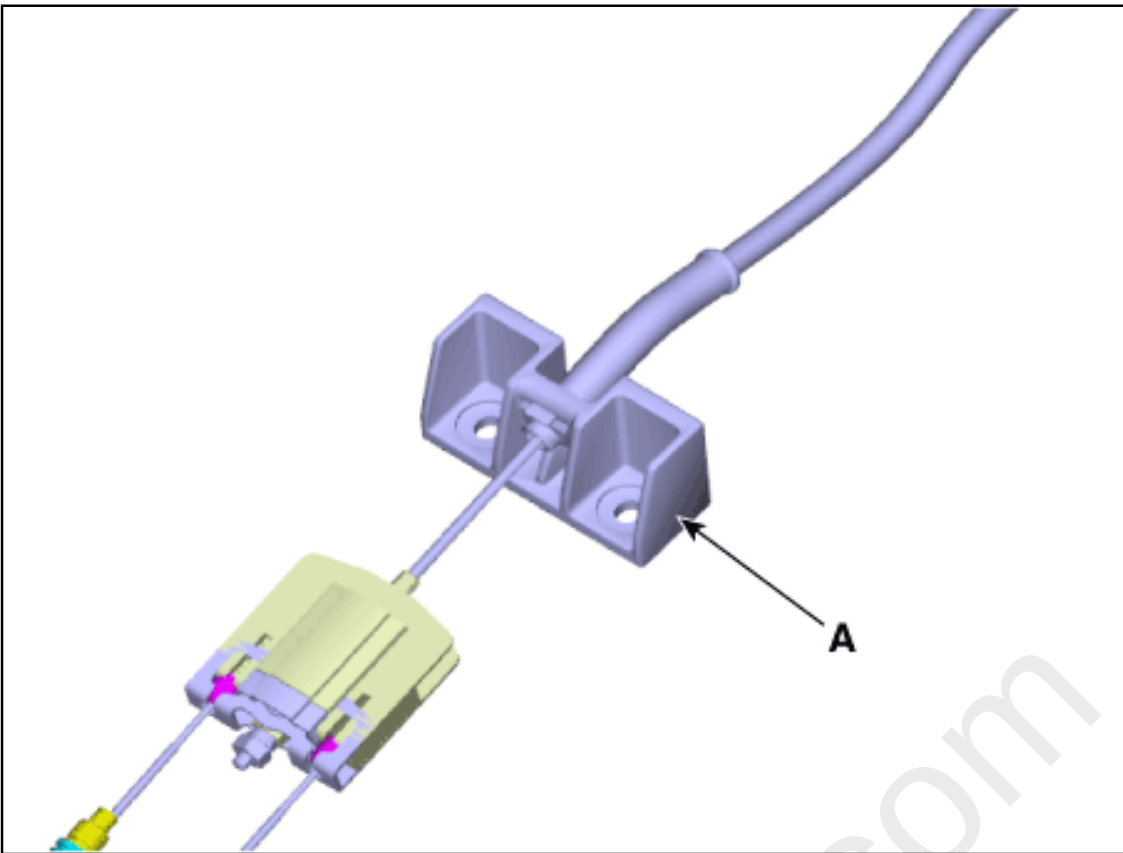
5. Separate the parking brake cable (A) by removing the nut and retaining clip (B).



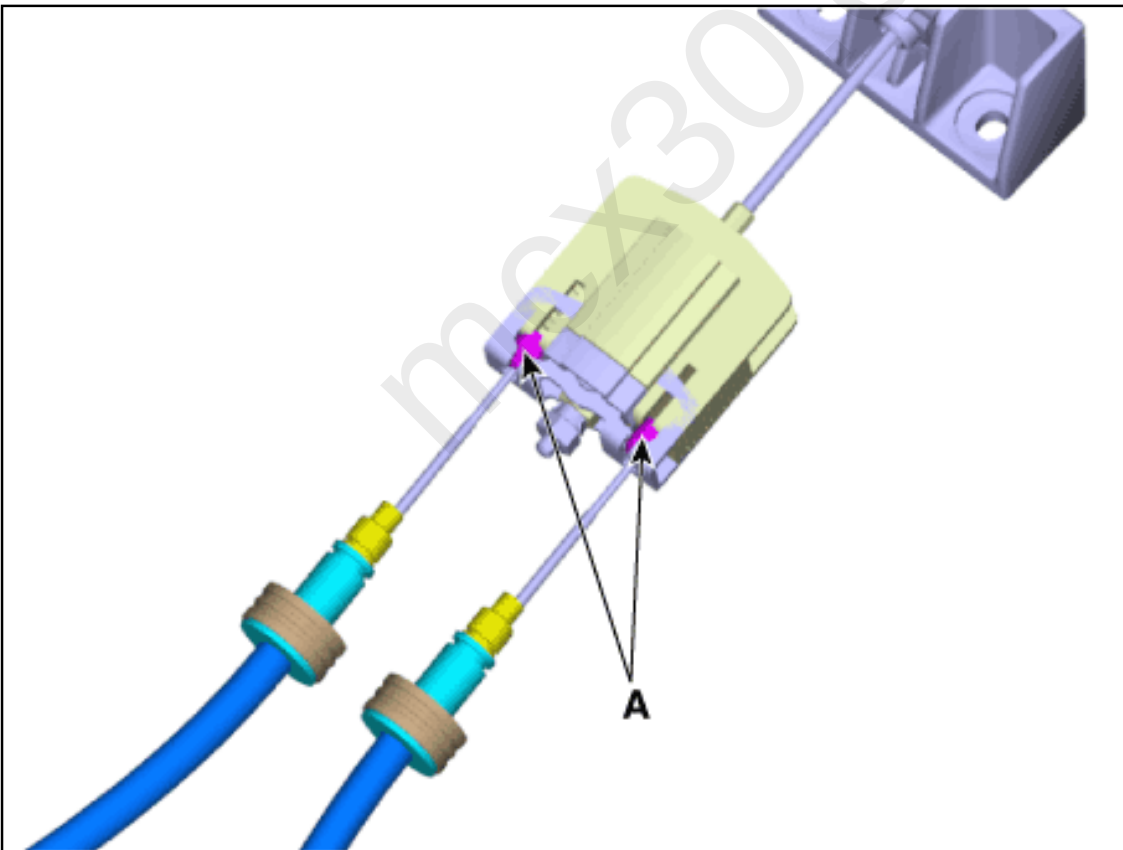
6. Remove the floor console assembly.
(Refer to Body - "Floor Console Assembly")
7. Remove the front parking brake cable bracket (A) by removing the bolts and clip.

Tightening torque :

19.6 - 29.4 N·m (2.0 - 3.0 kgf·m, 14.5 - 21.7 lb·ft)



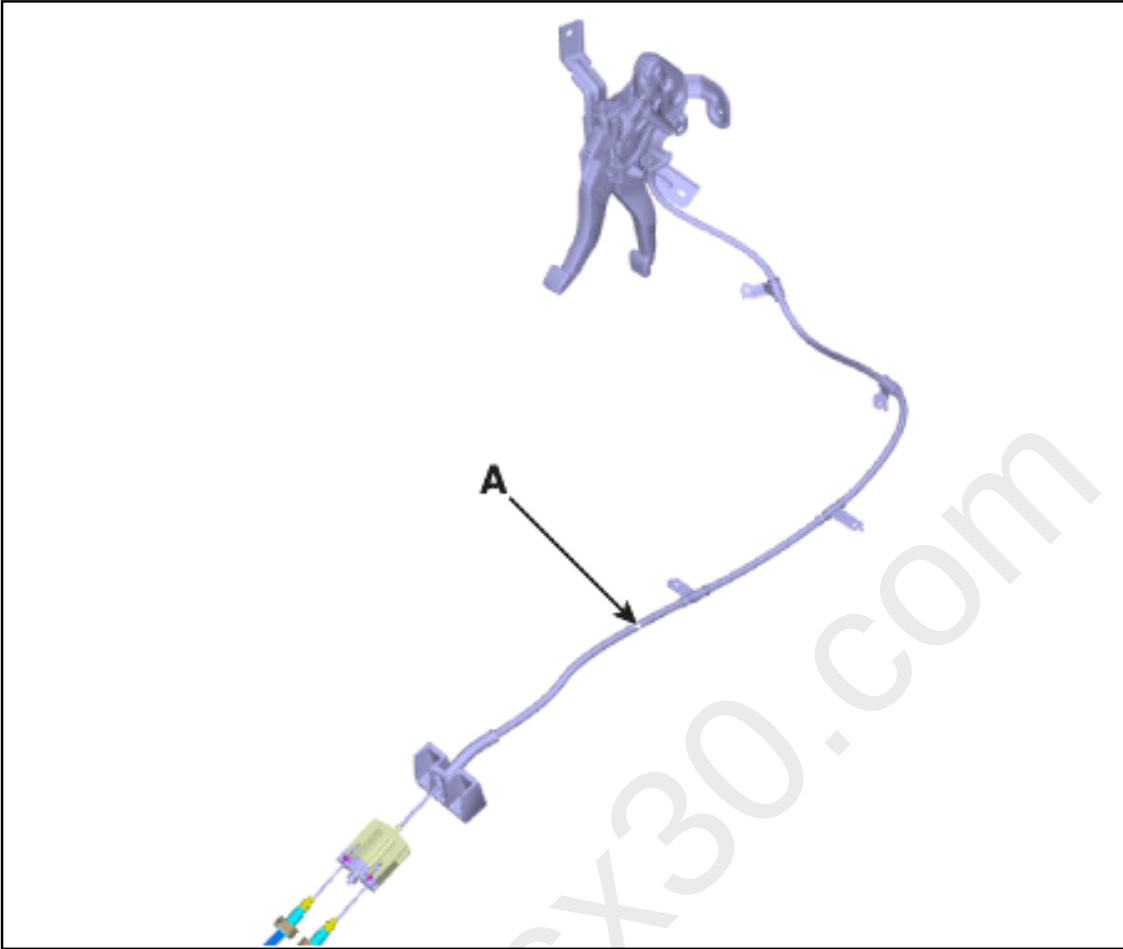
8. Remove the cable retainer and remove the parking brake cable (A).



9. Remove the mounting bolts and remove the parking brake cable (A).

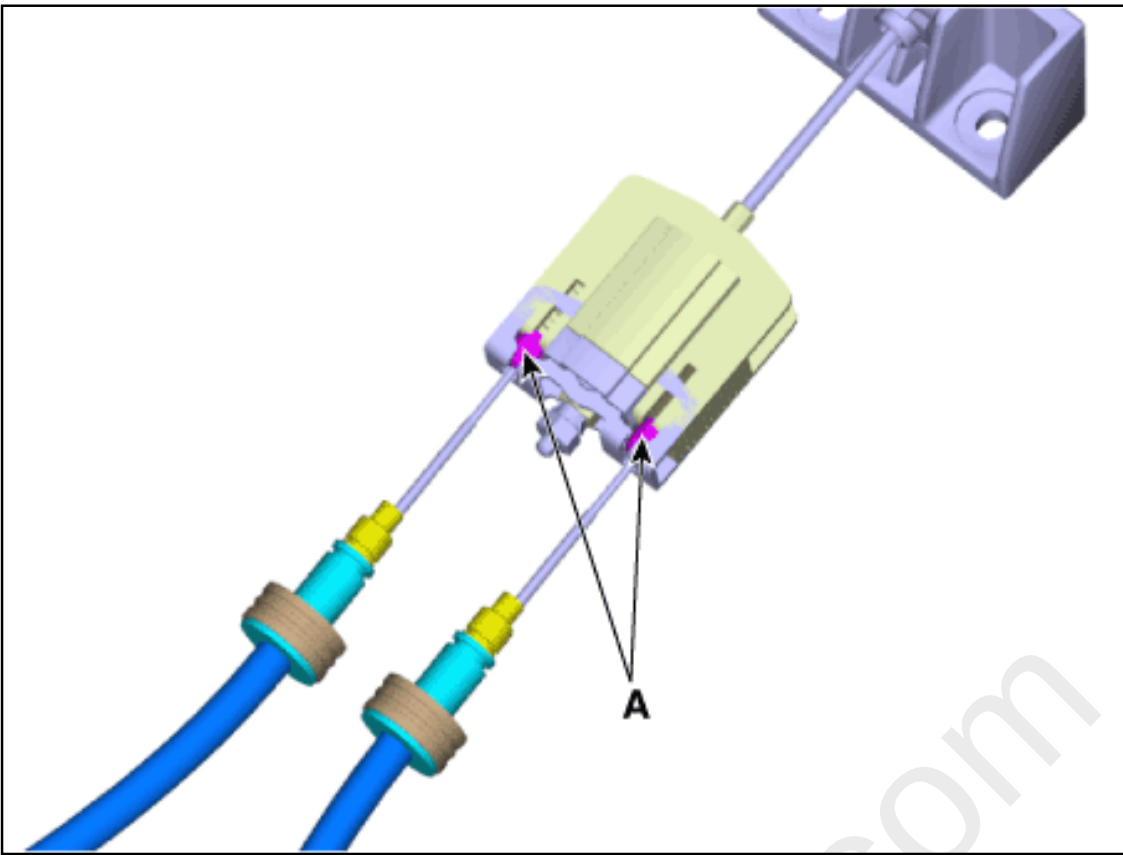
Tightening torque :

3.9 - 5.9 N·m (0.4 - 0.6 kgf·m, 2.8 - 4.3 lb·ft)



[Rear cable]

1. Disconnect the (-) battery terminal.
2. Release the parking brake.
3. Remove the floor console assembly.
(Refer to Body - "Floor Console Assembly")
4. Remove the cable retainer and remove the parking brake cable (A).



5. Remove the rear wheel and tire (A) from the rear hub.

Tightening torque :

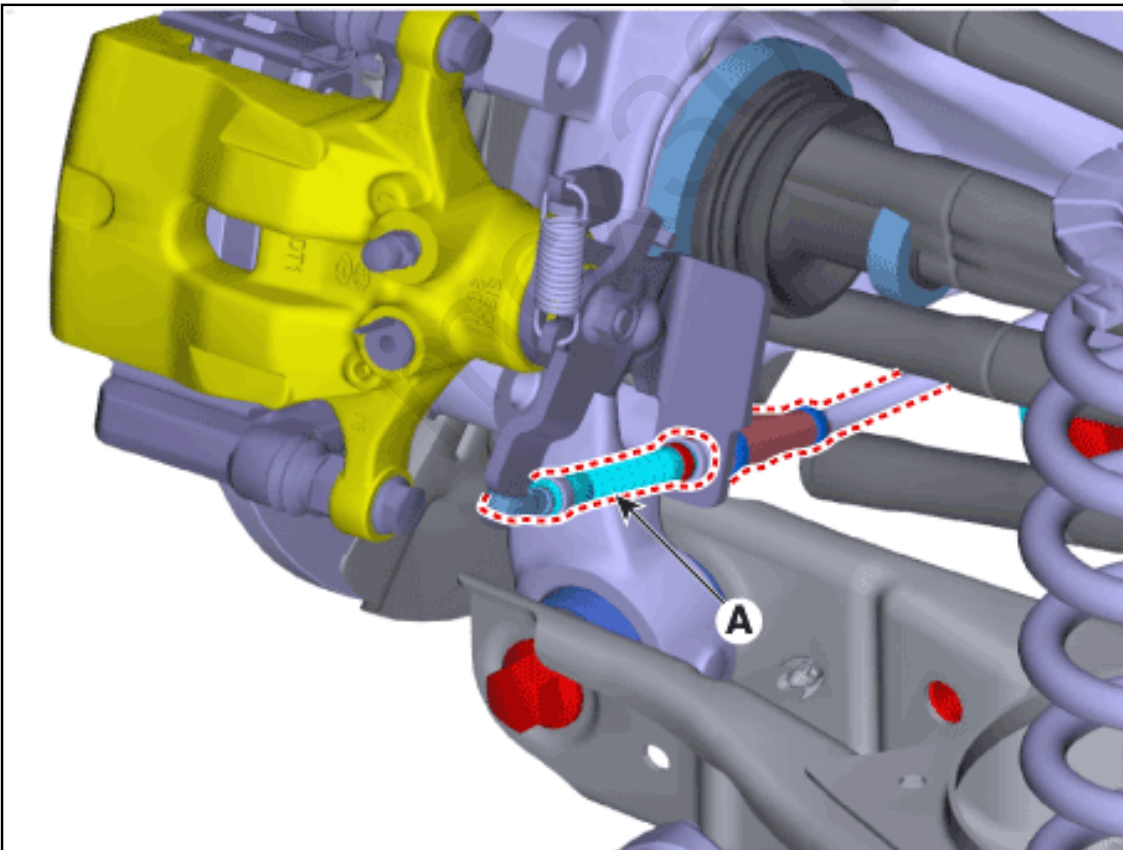
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)



- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



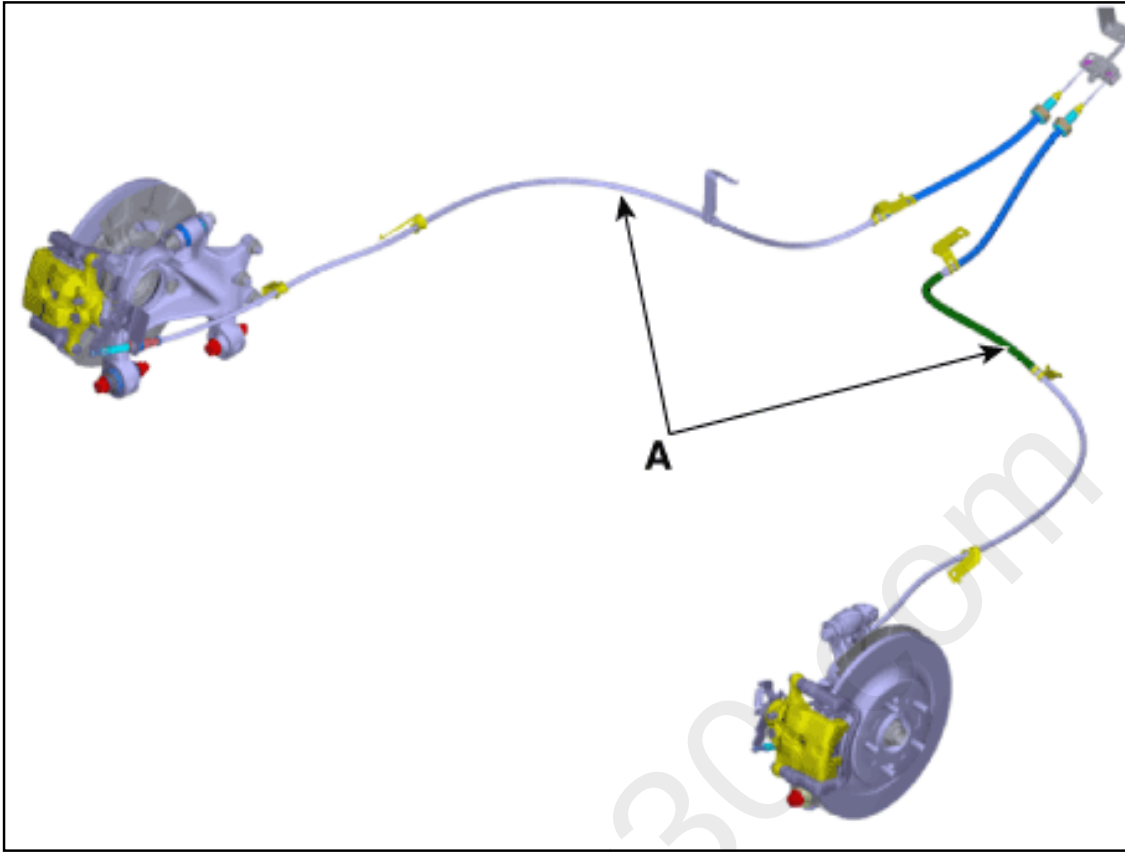
6. Remove the parking brake cable (A), after removing the clip.



7. Remove the mounting bolts and remove the parking brake cable (A).

Tightening torque :

19.6 - 29.4 N·m (2.0 - 3.0 kgf·m, 14.5 - 21.7 lb·ft)

**Installation**

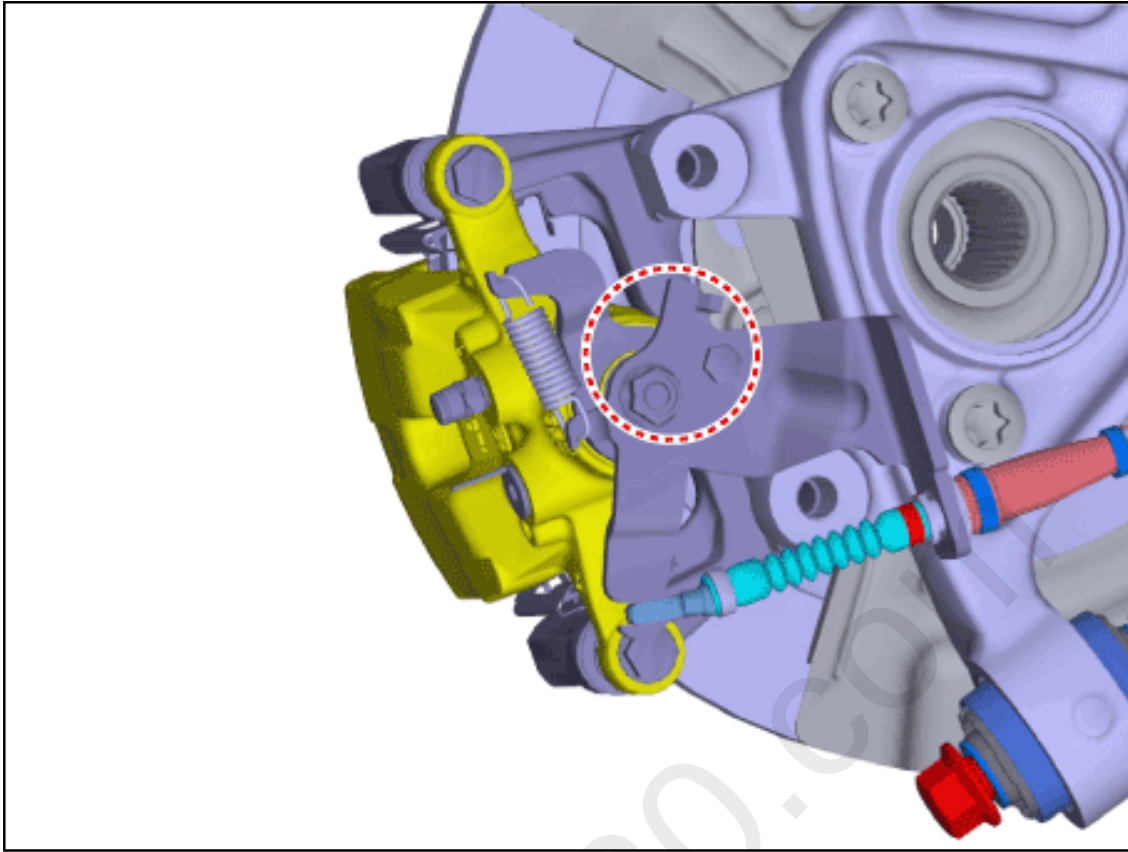
1. Install in the reverse order of removal.
2. After the installation, check the operation status of the parking brake and brake switch.

Adjustment

1. To fit the cable, follow one of these procedures.
 - Apply a parking brake fully more than 3 times
 - With full operation, hold the parking brake for 1 to 2 hours.
2. After fitting the cable, adjust the adjustment nut so that the stroke is 5 - 6 notch when operating the pedal at 30kgf.



- For the BIR type, adjust the adjustment nut of the lever assembly so that the sum of the O / P lever on the rear caliper side and the stopper (LH / RH) angle is within 3.0 mm (0.11 in).



3. Make sure that there is no gap between adjustment nut and clip after adjusting the parking brake.
4. Make sure that the brakes are not drag.
5. Check whether the wheel operates smoothly.
6. Perform driving test.

Description

The electronic parking brake (EPB) is different from existing parking systems which operated with the brake pedal or the lever type. The EPB system sends the signal to the ECU when a driver operates the EPB switch. The ECU operates the EPB actuator composed with motor gears. The braking power is caused by occurs when the motor pulls the cable connected the brake system.

The EPB ECU is one of the parts of EPB system. It perceives the signal of the various sensor of system, executes a self diagnosis, controls EPB system with the logic.

Main Function

1. Static Braking Mode

The operation and the cancellation at the stop condition of the vehicle

(1) The operation condition: Pull the EPB switch irrespective of the brake pedal pressed condition. (Pull).

–The Vehicle speed $\leq 3\text{kph}$

(2) The cancellation condition: Push the EPB switch at the ignition switch on & the brake pedal pressed condition. (Push).

2. Dynamic Braking Function

Dynamic Braking Function (DBF) : The DBF is the braking function at the driving condition, it can operate the EPB system and cancel it at the vehicle driving condition. This function will be used while foreign materials get in between the brake pedal or the brake hydraulic line can not be operated.

(1) The operation condition

It operated only when the vehicle speed is faster than 3kph and the EPB switch is pushed.

(2) The cancellation condition: It canceled when the pulling of the EPB switch is stopped.

(3) Principle of Operation

–ESC system is normal condition: EPB requests applying pressure of brake to ESC system.

–ESC system is abnormal condition: EPB operates the parking brake for reduction of speed.

(4) Peculiarity

Anti-lock is operated when occurring wheel lock. Parking lamp on the cluster illuminates in the case of emergency braking.

3. Drive Away Release

Convenient for drivers, EPB is automatically released when driver shift from P into another (R/N/D/S) during braking.

4. Latching Run

This is reconnection function to operate EPB normally after emergency release.

Operation

(1) After emergency release, when operating EPB first, the hook connects to the claw in the EPB with operating parking brake with maximum cable tension.

(2) Reconnection function can be performed with the diagnostic tool.

(3) After testing for reconnection 5 times, EPB isn't be operated in the present ignition switch cycle when EPB doesn't reconnect normally.

5. Bedding Mode

You must do "Bedding in process" for optimizing the initial operation performance of EPB after replacing the parking brake shoe and rear brake disc.

Bedding in Process

- (1) Ignition on, start engine.
- (2) Apply the foot brake 2 times within 10 seconds and hold applied after the last application.
- (3) Apply the EPB switch 4 times, followed by 3 release applications within 10 seconds.
- (4) The linings must be bedded-in by 6 repeated dynamic braking procedures from 30-35 km/h to vehicle standstill. (If the vehicle speed is over 50 km/h at the Bedding Mode, it is automatically released.)
- (5) After each braking cycle a cooling period for the linings is necessary to prevent lining damage.
 - The cooling can either be carried out via driving a 500 m distance after each braking cycle without any apply of the EPB or via keeping the vehicle in standstill for 1 minute after each braking.

6. AVH (Automatic Vehicle Hold)

AVH supports to keep a stop condition of the vehicle by hydraulic brake at a stop.

(1) Condition for operation

- Engine run
- AVH switch ON.
- Closing driver door
- Fastening driver seat belt
- A gear shift is not P-range
- Perfect stop condition with hitting the brake pedal.

(2) AVH function holds stop condition of the vehicle for maximum 5 minutes.

VDC valve keeps stop condition because of intercept the oil passage with pressure occurred from brake pedal.

(3) An accumulated time of AVH operation : Max. 30min

(4) Automatic release function

AVH mode is released when driver attempts starting a vehicle by pedaling an acceleration pedal at the D/ S/ R range.

(5) Automatically convert AVH to EPB

AVH will convert EPB operation automatically if any one satisfy conditions below.

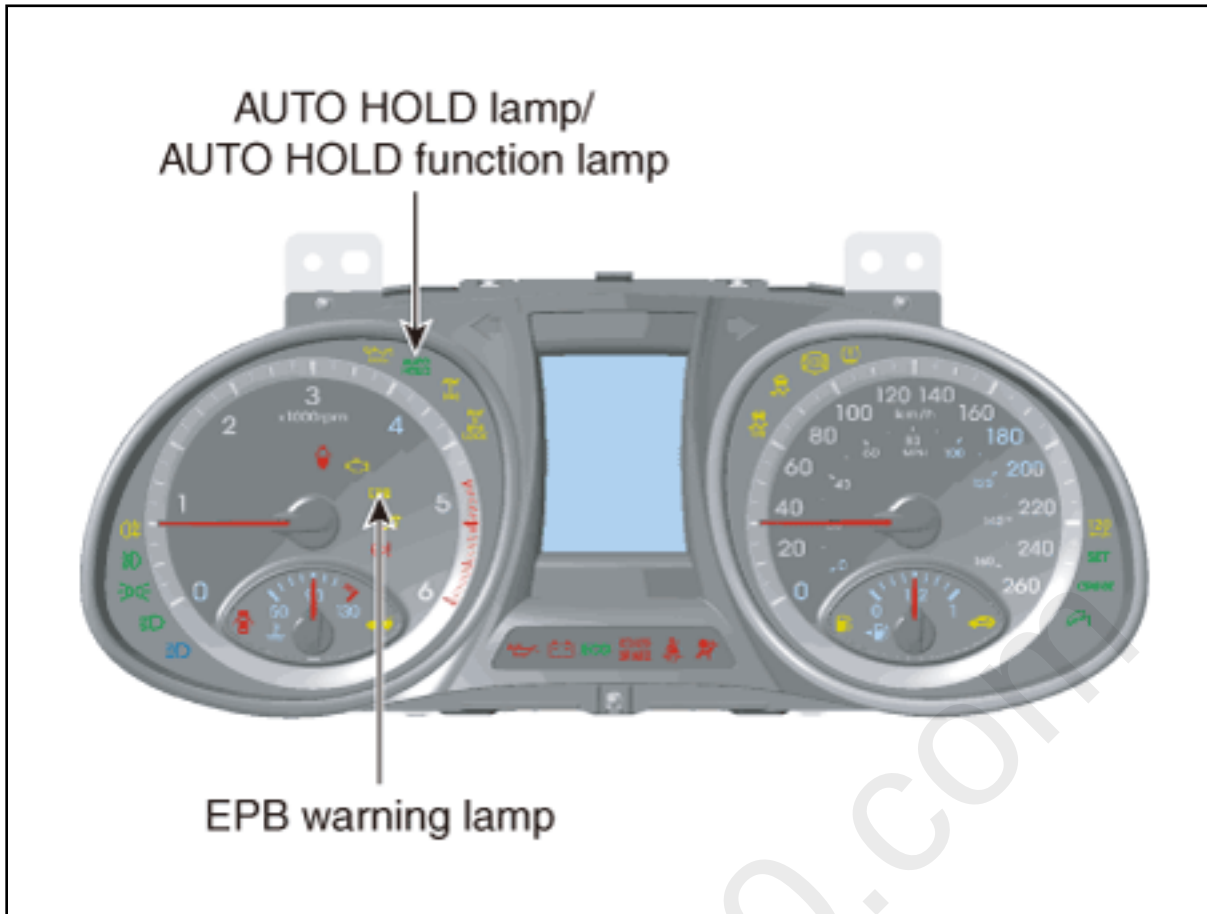
[Normal conversion case]

- In the case of driver door open & Driver seat belt release at the same time
- In the case of opening the hood while the shift lever is D or S.
- In the case of opening the trunk while the shift lever is R
- In the case of over 5 minutes of AVH operation time
- Stop at a slope of twenty five degrees

[Abnormal conversion case]

- When sensing detailed motion of the vehicle.
- When sensing the fault of ESC hydraulic system.

Warning Lamp



1. EPB warning lamp

EPB warning lamp indicates the EPB cut and malfunction.

EPB warning lamp comes ON below cases.

- (1) EPB warning lamp comes on for 3 seconds after the ignition switch is ON. If EPB system is working properly, EPB warning lamp goes OFF
- (2) If EPB system is not working properly, EPB warning lamp comes ON
- (3) Under diagnosis mode, EPB warning lamp comes ON

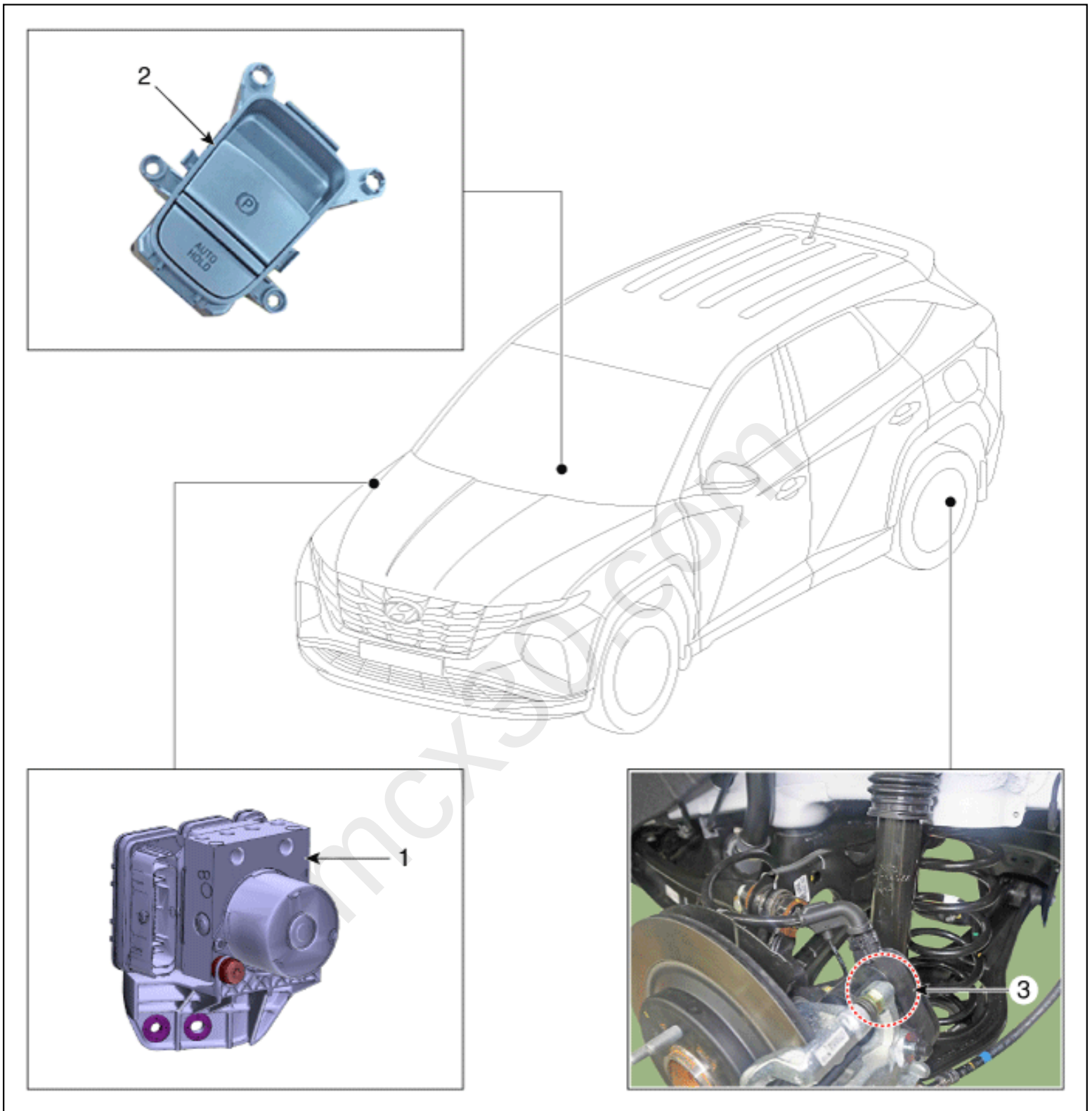
2. AUTO HOLD lamp / AUTO HOLD function lamp

(1) AUTO HOLD switch ON

- A. Brake system operates automatically when vehicle speed is "0", in the case of parking or waiting at a red light, during braking (AUTO HOLD function lamp : Green)
- B. Brake system is released automatically when step on the accelerator pedal. (AUTO HOLD lamp : White)

(2) AUTO HOLD switch OFF : AUTO HOLD function does not operate.

Components

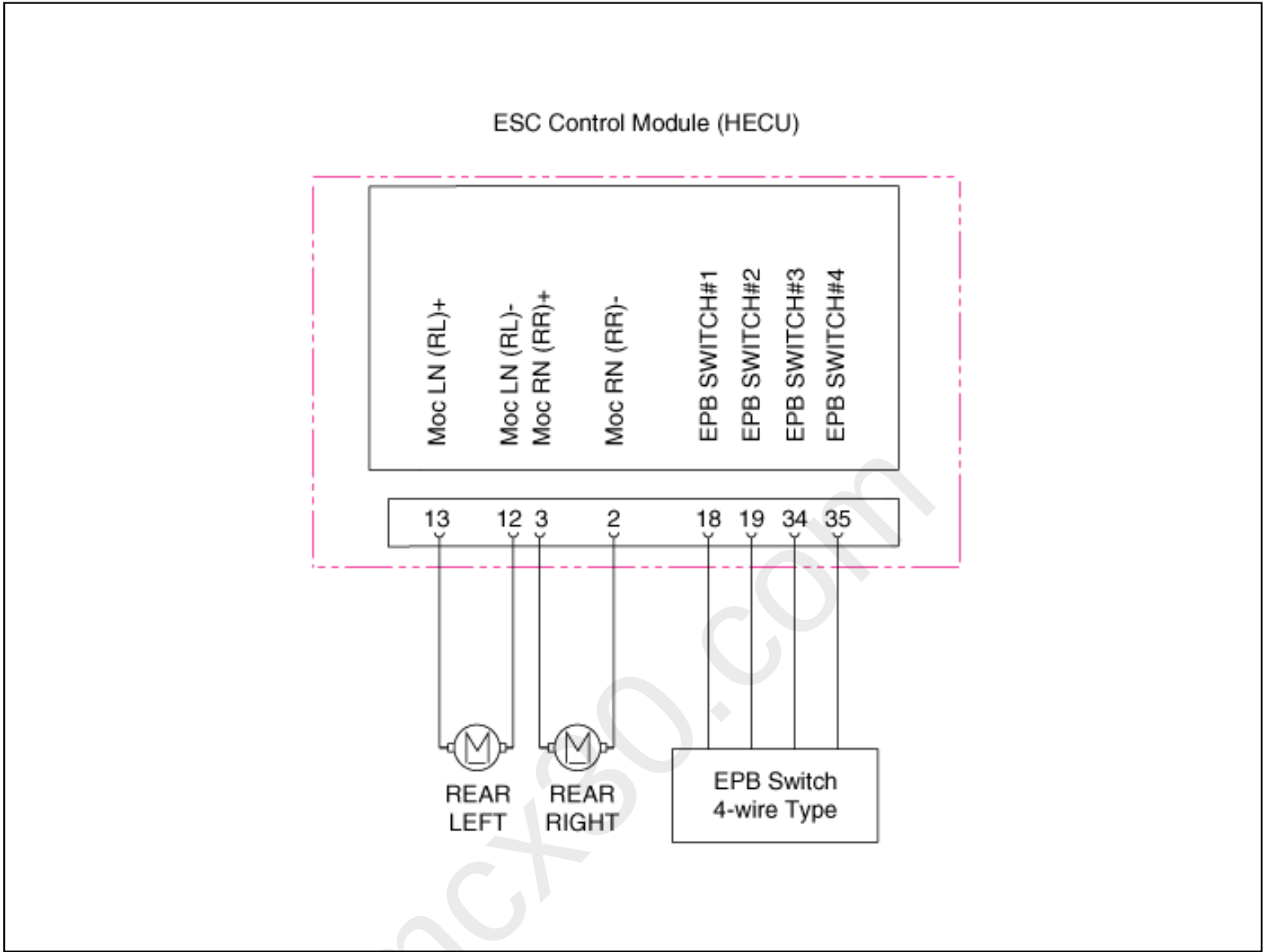


1. ESC Control Module (HECU)

2. EPB Switch

3. Electronic Parking Brake (EPB) actuator

Circuit
Diagram



Removal

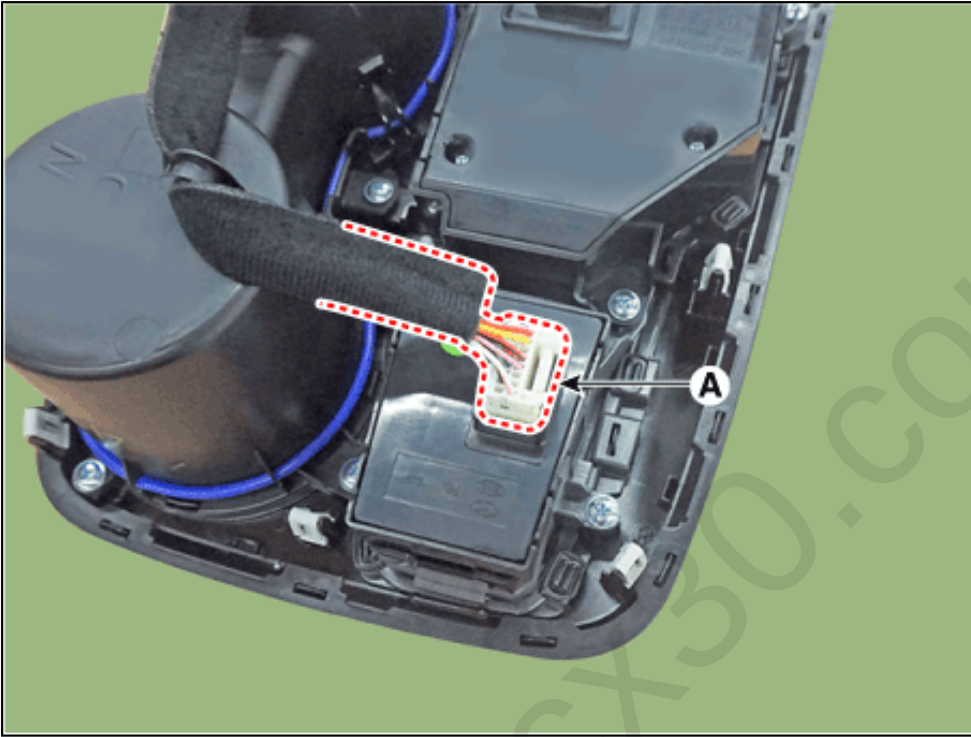


- Be careful not to damage the parts located under the vehicle (floor under cover, fuel filter, fuel tank and canister) when raising the vehicle using the lift.

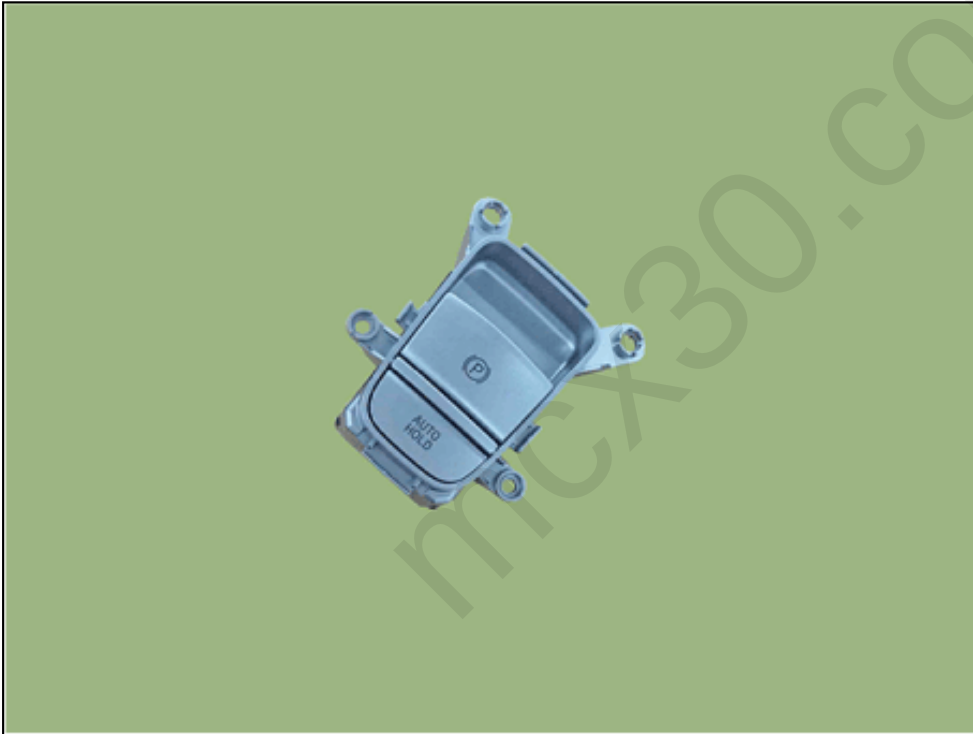
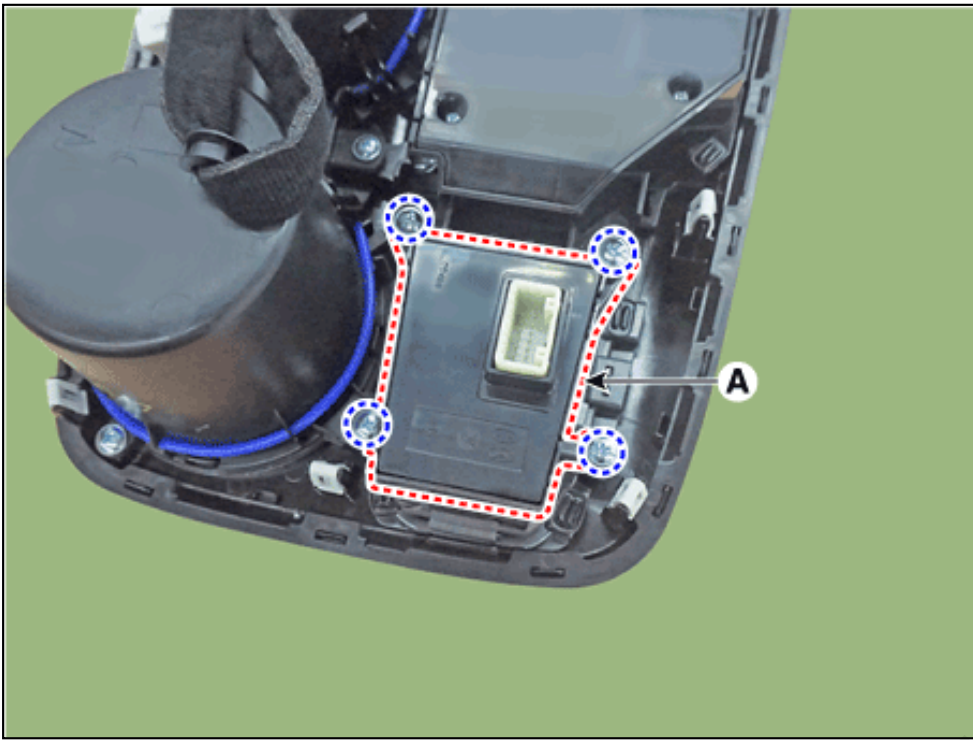
(Refer to General Information - "Lift and Support Points")

[EPB Switch]

1. Turn ignition switch off and disconnect the battery (-) cable from the battery.
2. Remove the floor console upper cover.
(Refer to Body - "Floor Console Assembly")
3. Disconnect the EPB switch connector (A).



4. Remove the EPB switch (A) after loosening the screw.



[EPB Actuator]

1. Turn ignition switch off and disconnect the battery (-) cable from the battery.

2. Remove the rear wheel and tire (A) from the rear hub.

Tightening torque :

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



- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



3. Remove the EPB actuator from rear caliper.
(Refer to Brake System - "Rear Disc Brake")

Installation

1. Install in the reverse order of removal.
2. After replacing the EPB actuator, make sure that the caliper is installed correctly by performing "Check assembling (ECU replaced)" from the option



■ ABS/ESP	
■ System Identification	
■ HCU Air Bleeding Mode	
■ Auto Detected Configuration(ESC Only)	
■ Longitudinal G Sensor Calibration(HAC/DBC Only)	
■ Steering Angle Sensor(SAS) Calibration	
■ Assembly Check(ECU replacement)	
■ Variant Coding	
■ Deactivate factory mode	
■ Change Mode of DIH and MoD actuator	



Do not touch any system buttons while performing this function.