

Description

The EPB is an electronic parking brake.

The 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. EPB has several functions.

Static apply

Emergency braking function by hydraulic brake malfunction

Auto apply

EPB Function

1. Static Switch Apply

Manual apply of EPB switch in stand still condition.

Clamping force control; When parked on less than 8% slope with engine running, it is applied with Reduced Clamp Force(RCF); Except for RCF condition, it is applied with full clamp force.

2. Reduced Clamp Force on Flat (RCF)

If EPB is applied on less than 8% slope with engine running, it is applied with reduced clamp force.

When switch is pulled for more than 3 sec, it is clamped to full clamp force.

3. Static (Switch) Release

Releasing EPB manually by switch

To prevent danger situation, it can be released only when ARC is fulfilled.

Additional Release Condition (ARC)

To prevent unintentional release of EPB, there is condition to be met before releasing;

Example: IGN On + [Brake Pedal pressed]

Child Safe (Release Inhibit)

With ignition switched off, EPB cannot be released.

4. Drive Away Assist (DAA)

EPB is released automatically when driver tries to move.

EPB is released when accelerator pedal is depressed with gear shifter in moving position. (D or R)

; Driver seatbelt should be buckled.

; Driver side Door + Hood + Trunk should be closed.

5. Electric Controlled Deceleration (ECD)

When EPB switch is pulled in dynamic condition, deceleration is realized by sending request via CAN to the ESC.

ECD means deceleration will be done via the ESC system, not by EPB Actuator;

Applied to the vehicle with ESC only.

6. Rear Wheel Unlocker (RWU)

This function is for vehicle with no ESC or failed ESC. When EPB switch is pulled in dynamic condition, dynamic deceleration is generated by EPB actuator.

Clamp force will be controlled to avoid locking of the rear wheels and ensure vehicle stability.

7. Auto Apply

With switching off ignition, EPB will automatically apply the brakes.

Auto Apply is disabled when Auto Hold switch is switch off.

The auto engage feature does not activate if the power switch is turned off while the EPB switch is pressed.

8. Roll Away Reclamp (RAR)

If vehicle rolls away, EPB gets reapplied.

; Vehicle movement is monitored via wheel speed.

; It can be active until CAN signal is available (3 min)

9. High Temperature Reclamp (HTR)

After detection of hot brakes, EPB will reapply from closed brake state to compensate for loss of clamp force during cooling of the brakes.

Activation condition: over 350°C

10. External Apply / Release (EAR)

EAR checks for an external demand to apply the brake and reacts according to that demand;
With EAR, Auto Hold → EPB takes over possible

11. Pad Change Mode

Return the spindle nut fully for pad replacement
; This mode can be entered via hand tool connected to vehicle with OBD2 connector.
; Piston can be pushed in after entering Pad change mode

12. Dynamic Standstill Detection (DSD)

This is how to operate the parking brake when there is no wheel speed signal because of malfunction. Braking force can be applied while the vehicle is in motion to slowly decelerate. If the EPB switch is continuously pulled, then the parking brake can be engaged with maximum force.

13. P to X

EPB is automatically released when gear shift lever is moved from P position;
Engine on + Brake pedal condition is necessary.

14. N to X

EPB is automatically released when gear shift lever is moved from Neutral position to moving position. (D or R)
; It does not get released if the gear shift lever is moved to P or passes through N rapidly.
; Engine on + Brake pedal condition is necessary.

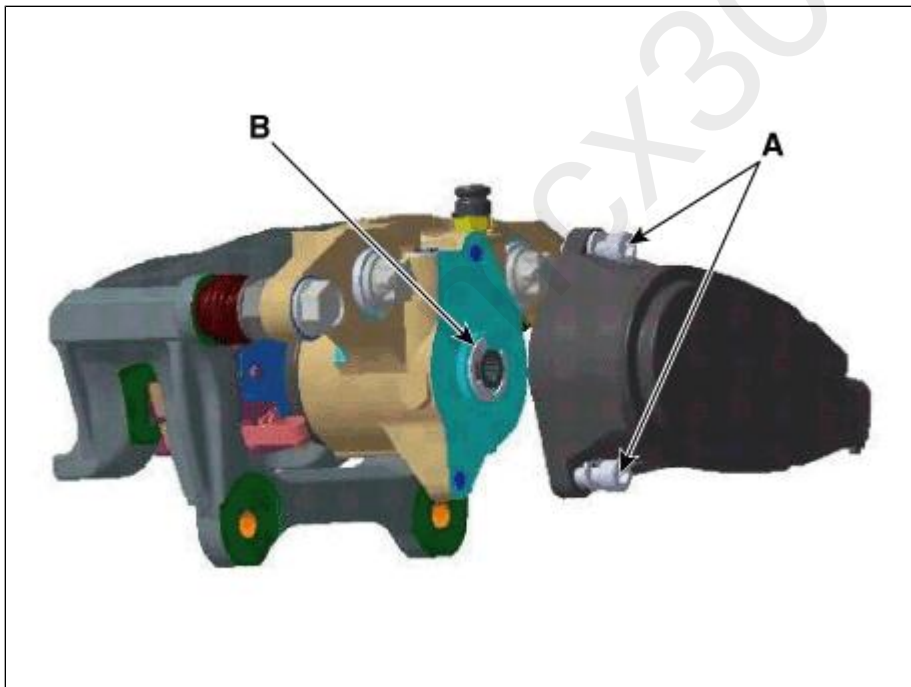
Parking Brake Emergency Release

The following procedure is for releasing the parking brake when EPB failure occurs.

This is the last resort for releasing the EPB when the parking brake cannot be released electrically or by using a diagnosis scanner because of motor or EPB damage, or power line disconnection.

The task must be performed on a flat surface and with safe surroundings. When you release the parking brake, be sure to keep the vehicle stationary.

(Perform this task only after you make sure that preventive measures are taken in case the vehicle moves when the parking brake is released.)



- 1) Use a standard hexagonal wrench to remove the screw (A) on the back of the rear caliper (2 of them)
- 2) Using the same hexagonal wrench, turn the hexagon part on the floor inside the spindle (B) clockwise by 0.5-1 complete turn.
- 3) The parking brake is released.

Auto Hold

The Auto Hold maintains the vehicle in a standstill even though the brake pedal is not depressed after the driver brings the vehicle to a complete stop by depressing the brake pedal.

The Auto Hold does not operate when:

The driver's seat belt is unfastened and driver's door is opened
The engine hood is opened
The trunk is opened
The shift lever is in P (Park)
The EPB is applied

For your safety, the Auto Hold automatically switches to EPB in such cases:

The driver's seat belt is unfastened and driver's door is opened
The engine hood is opened
The trunk is opened
The vehicle is in a standstill for more than 10 minutes
The vehicle is standing on a steep slope for a long period of time
The vehicle moved several times

1. Set up

- (1) With the driver's door, engine hood and trunk closed, fasten the driver's seat belt or depress the brake pedal and then press the Auto Hold button. The white AUTO HOLD indicator will come on and the system will be in the standby position.
- (2) When you stop the vehicle completely by depressing the brake pedal, the AUTO HOLD indicator changes from white to green.
- (3) The vehicle will remain stationary even if you release the brake pedal.
- (4) If EPB is applied, Auto Hold will be released and the indicator will change to white.

2. Leaving

If you want to release it manually, pull the EPB switch while depressing the brake pedal. The AUTO HOLD indicator changes from green to white and the system changes to the standby position.

For your safety, release the Auto Hold operation manually if the vehicle ahead is too close or during downhill driving.

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