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## DESCRIPTION

### Description of EPB

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. Switch Operation at Stationary Condition (Static Park)

- Manually engage the parking brake by operating the EPB switch at stationary condition.
- With the ignition switch ON, the parking brake is engaged by the Reduced Clamp Force at less than 8% of slope
- Except for the above, it is always engaged by the Full Clamp Force.

#### 2. Switch Release at Stationary Condition (Static Release)

- Release the parking brake by manually operating the EPB switch at stationary condition.
- To secure safety, it is only released with ignition switch ON and the brake pedal pressed.

#### 3. Dynamic Emergency Braking (Dynamic Braking)

- Electric Controlled Deceleration (ECD)  
: When operating the EPB switch while driving, the operation request is sent to VDC only during the switch operation, in order to perform hydraulic braking by the VDC, not by the EPB actuator.
- Rear Wheel Unlocker (RWU)  
: If the VDC is not normally operated (VDC Fail) by operating the EPB switch while driving and wheel speed information can be obtained, the EPB actuator will independently maintain the vehicle's movement safely to perform braking only during the switch operation.
- Slow Ramp Up (SRU):  
If the VDC is not normally operated (VDC Fail) by operating the EPB switch while driving and wheel speed information cannot be obtained, the EPB will independently increase the parking force gradually to perform braking only during the switch operation.

#### 4. Automatic Application of EPB Force (Auto Apply)

- Stop the vehicle with the Auto Vehicle Hold (AVH) switch ON, and then the EPB will be automatically applied when turning off the engine.

#### 5. Automatic Release of EPB Force (Drive Away Release)

- The parking brake will be automatically released when pressing the accelerator pedal with the EPB engaged.
- To secure safety for automatic release, it will be automatically released only when all of the following conditions are met:
  - 1) Engine turned on
  - 2) Seatbelt fastened
  - 3) Door, trunk and hood closed
- To prevent the vehicle from being moved downwards on a slope way, it will be automatically released only when driving torque above specific level based on the slope has been obtained.

## 6. Reapplication of EPB Force When Vehicle Moves Downwards (Roll Away Reclamp)

English 

- Additional EPB force is generated when a downward vehicle movement is detected after applying EPB force.
- With the engine OFF, this function is enabled only while the wheel speed information can be received (i.e., for 3 minutes after the engine is turned off).

## 7. P to X (Automatic Release of EPB Force for Gear Shifting)

When moving the gearshift lever from the P or N position to the D or R position, the parking brake will be automatically released.

However, it will be possible only with the engine ON and the brake pedal pressed, in order to secure safety for automatic release.

## 8. Auto Hold

**Auto hold helps keep vehicle in a stop condition by applying hydraulic brake at a stop.**

### (1) Condition for operation

- Engine run
- Auto hold switch ON.
- The driver's side door / Hood / Trunk should be closed.
- Fastening driver seat belt
- A gear shift is not P-range
- Perfect stop condition with hitting the brake pedal.

### (2) (2) Auto hold function holds stop condition of the vehicle for maximum 10 minutes.

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

### (3) (3) An accumulated time of auto hold operation : Max. 30min

### (4) (4) Automatic release function

Auto hold mode is released when driver starts to accelerate the vehicle by depressing pedal when in D/ S/ R gear range.

### (5) (5) Automatically convert auto hold to EPB

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

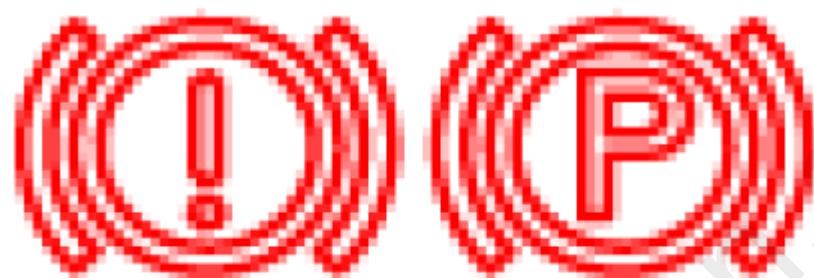
#### [Normal conversion case]

- 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 10 minutes of auto hold 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 ESP hydraulic system.

## Warning Lamp



**BRAKE**

**EPB**

## 1. EPB warning lamp

English 

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. 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.

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