

SYSTEM DESCRIPTION

1. POWER BACK DOOR SYSTEM DESCRIPTION

- (a) The power back door system controls the power back door to automatically open/close using a motor.
 - (1) The power back door system operates only when the necessary conditions are present.
 - (2) The power back door ECU records the back door positions in the memory. When any of the battery, fuse, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such cases, resetting the power back door system is necessary. Please refer to the resetting operation specified in step [*1].
 - (3) "OPEN/CLOSE" request signals for the back door are input to the power back door ECU. Then, the power back door ECU controls the back door opening/closing operation by outputting commands to the back door lock and back door drive unit.
 - (4) The power back door system has various request signals: "OPEN/CLOSE" request signal from the transmitter switch, "OPEN/CLOSE" request signal from the power back door opener/closer switch, "CLOSE" request signal from the power back door closer switch, and "OPEN" request signal from the back door opener switch (outside handle switch).
 - (5) The power back door system sets off an alarm using a buzzer and hazard warning lights when the power back door starts operating.
 - (6) The power back door system causes a buzzer to sound in warning when the shift lever is moved into any position except P when the power back door starts operating or while the power back door is operating and the buzzer continues sounding.
 - (7) [*1] The power back door system turns OFF when the shift lever is moved into any position except P while the power back door is opening. The power back door continues to close when the shift lever is moved into any position except P while the power back door is closing.
 - (8) The power back door reverses the direction that the power back door is operating when any switch is pressed during operation.
 - (9) A pulse sensor and a touch sensor are used to prevent anything from being gets caught in while the power back door is operating (jam protection function).

(10)The power back door system stops motor operation and switches to the manual operation mode when the jam protection function is activated repeatedly more than the specified number of times.

(11)The power back door system slows the back door down when the back door comes closer to the fully open position or fully closed position in order to reduce the impact against the vehicle body.

(b) Operational condition

Function	Switch	Necessary Condition
OPEN operation	<ul style="list-style-type: none"> • Transmitter switch • Power back door opener/closer switch • Back door opener switch (Outside handle switch) (This switch can be set ON by customization. Default setting is OFF) 	<ol style="list-style-type: none"> 1. Power back door main switch: ON (pressed) 2. Shift position: P position 3. Back door lock: Unlocked 4. Door position: Between fully closed position and half-open position
CLOSE operation	<ul style="list-style-type: none"> • Transmitter switch • Power back door opener/closer switch • Power back door closer switch 	<ol style="list-style-type: none"> 1. Power back door main switch: ON (pressed) 2. Shift position: P position 3. Touch sensor: Neither pressed nor open 4. Door position: Between fully open position and half-open position

(c) Function description

Function	Contents
Back door buzzer (Sounds differently depending on the situation; when power back door starts operation, when system outputs warning and when power back door reverses moving direction)	<ol style="list-style-type: none"> 1. When power back door starts operation: Sounds twice (a cycle of 0.5 sec.) to notify that power back door will start operating when a request is input from the switch* while back door is fully closed/open. 2. When system outputs warning: <ol style="list-style-type: none"> (a) Sounds continuously (a cycle of 0.3 sec.) in warning when shift lever is moved into any position except P while back door is open or ajar (courtesy switch ON and door not fully latched). (b) Sounds continuously (a cycle of 0.3 sec.) in warning when shift lever is moved into any position except P while back door is opening/closing. 3. When power back door reverses moving direction: Sounds once for 0.3 sec. to notify that power back door will reverse moving direction after being triggered by switch operation or activation of jam protection function.
Hazard lights (Output signals are sent from power back door ECU to hazard lights via body ECU)	<ol style="list-style-type: none"> 1. When power back door starts operation: Flashes twice to notify that power back door will start operating when a request is input from the switch* while back door is fully closed/open.
Reverse Operation	<ol style="list-style-type: none"> 1. During opening operation: Power back door reverses the direction of movement and moves to fully closed position when any of transmitter switch, power back door opener/closer switch or power back door closer switch are pressed during opening operation. 2. During closing operation: Power back door reverses the direction of movement and moves to fully open position when any of transmitter switch, power back door opener/closer switch or back door opener switch (outside handle switch) are pressed during closing operation.

Function	Contents
Jam protection function	<ol style="list-style-type: none"> During opening operation: When pulse sensor detects any change in speed while back door is opening, the system interprets it as "jam" and reverses the direction of movement and returns back door to fully closed position. During closing operation: <ol style="list-style-type: none"> When pulse sensor detects any change in speed while back door is closing, the system interprets it as "jam" and reverses the direction of movement and returns back door to fully open position. When either touch sensor is pressed while back door is closing, the system interprets it as "jam" and reverses the direction of movement and returns back door to fully open position.
Manual operation mode	<ol style="list-style-type: none"> The system switches to manual operation mode: The system stops motor and switches to manual operation mode when "jam protection function" has been activated 2 or more consecutive times and when the 2nd or most recent activation has occurred during closing. The system return to normal operation mode: <ol style="list-style-type: none"> The system returns to normal operation mode by pressing the switch again or fully closing the door. Power back door is activated to open when the system returns to normal operation mode by pressing the switch* and the door is between fully closed position and half-open position, and it is activated to close when the system returns to normal operation mode by pressing the switch* and the door is between fully open position and half-open position:
Power back door system stop function	<ol style="list-style-type: none"> The system switches OFF (manual operation mode) when either of the following is detected: <ol style="list-style-type: none"> DTC B2222 Either touch sensor has short/open circuit Shift lever is moved into P position while power back door is opening When the problem indicated by step 1 has been solved, the system switches to normal operation mode.

HINT:

*: For details of the switch, refer to the table specified in step [*2] "Switches".

(d) [*2] Switches

Switches	Contents
Power back door main switch <ul style="list-style-type: none"> Located in the glove box on the passenger side 	<ul style="list-style-type: none"> The system operates when the switch is in "ON" position (pressed). The system does not operate when the switch is in "OFF" position (not pressed).
Transmitter switch ("PWR DOOR" switch)	<ul style="list-style-type: none"> Pressing the switch causes power back door to open/close. Pressing it again during operation reverses the direction of movement. Request is input when the switch has been pressed for 0.8 sec. and the back door is fully closed or fully open. "0.8 sec." is the default setting and can be changed by customization (See page ED-32). The power back door reverses the direction of movement immediately when the switch is pressed while in operation. Pressing the switch during manual operation mode returns the system to normal operation mode. The switch does not function while the ignition switch is ON (key is inserted into the ignition key cylinder).

Switches	Contents
Power back door opener/closer switch <ul style="list-style-type: none"> • Located on the instrument panel on the driver side 	<ul style="list-style-type: none"> • Pressing the switch causes power back door to open/close. Pressing it again during operation reverses the direction of movement. • Request is input when the switch has been pressed for 0.8 sec. and the back door is fully closed or fully open. "0.8 sec." is the default setting and can be changed by customization (See page ED-32). The power back door reverses the direction of movement immediately when the switch is pressed while in operation. • Pressing the switch during manual operation mode returns the system to normal operation mode.
Power back door closer switch <ul style="list-style-type: none"> • Located on the back door trim 	<ul style="list-style-type: none"> • Pressing the switch when back door is fully open causes power back door to close. • Pressing the switch while power back door is opening reverses the direction of movement and returns back door to fully closed position. • Request is input when the switch is pressed. • Pressing the switch during manual operation mode returns the system to normal operation mode.
Back door opener switch (Outside handle switch)	<ul style="list-style-type: none"> • Pressing the switch when the back door is fully closed and is unlocked causes back door latch to be released although back door does not open. This setting can be changed by customization (See page ED-32). • Request is input only when the vehicle speed is 5 km/h (8 mph) or less. • Pressing the switch while back door is closing reverses the direction of movement and returns the back door to fully open position. • Pressing the switch during manual operation mode does not return the system to normal operation mode.