

Power Running Board (PRB) - System Operation and Component Description

System Operation

Power Running Board (PRB) Controls

Network Message Chart

Module Network Input MessagesRBM

Broadcast Message	Originating Module	Message Purpose
Driver door ajar status	BCM	This message is sent to the GWM and then to the RBM. This message informs the RBM of the current driver door status: AJAR, CLOSED.
Left rear door ajar status	BCM	This message is sent to the GWM and then to the RBM. This message informs the RBM of the current left rear door status: AJAR, CLOSED.
Passenger door ajar status	BCM	This message is sent to the GWM and then to the RBM. This message informs the RBM of the current passenger door status: AJAR, CLOSED.
Right rear door ajar status	BCM	This message is sent to the GWM and then to the RBM. This message informs the RBM of the current right rear door status: AJAR, CLOSED.
Vehicle speed	PCM	This message is sent to the GWM and then to the RBM. This message informs the RBM of the current vehicle speed.
Power running board request status	IPC	This message is sent to the GWM and then to the RBM. This message informs the RBM of the requested PRB mode: AUTO, OUT, OFF.
Ignition status	BCM	This message is sent to the GWM and then to the RBM. This message informs the RBM of the current ignition switch position.

PRB System

The RBM module is located behind the rear passenger seat back. It is powered by BJB fuse F57 (30A) and grounded at G301. The RBM receives vehicle occupant input for the desired mode via MS-CAN from the IPC. The different modes are as follows:

- **AUTO:** The respective PRB extends (deploys) automatically when a door is opened on the same side of the vehicle. When both doors on the same side of the vehicle are closed, the respective PRB automatically retracts (stows) after a short delay of approximately 5 seconds.
- **OUT:** Both Power Running Boards (PRBs) (deploy) ignoring the door positions as long as the vehicle is not moving more than 8 km/h (5 mph). When the vehicle speed increases above 8 km/h (5 mph) both Power Running Boards (PRBs) stow automatically. Additionally, when the vehicle speed reaches 8 km/h (5 mph) the setting is automatically changed back to AUTO.
- **OFF:** The Power Running Boards (PRBs) remain in the stow position ignoring the door positions, however, if the Power Running Boards (PRBs) are extended when the setting is changes to OFF, the Power Running Boards (PRBs) will stow when both doors are closed and remain in the stow position until the setting is changed.

The RBM controls the PRB position depending on occupant input as well as vehicle information data for automatic control. The RBM sets Continuous Memory Diagnostic Trouble Codes (DTCs) to aid in system diagnostics.

The PRB system will reverse PRB direction if there is an object interfering with movement, or if there is excessive resistance due to debris or corrosion.

Component Description

PRB

The Power Running Boards (PRBs) are attached to the vehicle body with 2 PRB hinges with the front PRB hinge having the PRB motor attached. The front PRB hinge and PRB motor are serviced as an assembly. There is a PRB connecting rod between the front and rear PRB hinge that makes the PRB move evenly and smooth during operation. There are also 2 end caps on each PRB. The PRB torsion bars and end caps are

serviced individually.

RBM

The RBM determines the need to move the LH or RH PRB and applies voltage and ground on only 2 circuits to the PRB motor in order to stow (retract) or deploy (extend) the PRB. To stow the PRB, the RBM applies voltage on the RB STOW circuit and ground on the RB DEPLOY circuit. To deploy the PRB the RBM switches the voltage and ground so the voltage is applied to the RB DEPLOY circuit and ground to the RB STOW circuit. The RBM monitors the movement and position of PRB with a hall-effect switch that is part of the PRB motor. The RBM supplies a 10 volt controlled voltage and a ground circuit to the PRB motor hall-effect sensor and receives a sensor signal from the hall-effect sensor.

PRB Motor

The PRB motor is a reversible motor that incorporates an internal hall-effect sensor for monitoring the position and movement of the PRB. The PRB motor is serviced as an assembly with the front PRB hinge.

mcx30.com