

Roof Opening Panel - System Operation and Component Description

System Operation

Roof Opening Panel System Function

The roof opening panel motor and the shield motor are hard wired to both the BCM and the roof opening panel control switch. The only function of the BCM is to provide battery voltage and accessory delay voltage to the roof opening panel motor and battery voltage only to the shield motor. Both motors are interchangeable with the shield having one extra ground circuit which determines that it is the shield motor and that the roof opening panel motor is the master motor. The 2 motors communicate on a K Bus for interaction but there is no vehicle communication with the motors. The K Bus is only for communication between the motors and is not used for diagnostics. The roof opening panel control switch is hard wired to the roof opening panel motor with a roof opening panel open circuit, roof opening panel close circuit and a tilt/vent switch circuit. When the roof opening panel control switches are pressed a ground signal is sent to the roof opening panel motor to activate the respective switch request. The shield open and close switches are hard wired to the shield motor and operate the same as the roof opening panel motor.

Switch Operation

The roof opening panel opening panel switches are located in the overhead console in the center of the overhead console switch bank. The sliding glass panel has 3 switches in-line, in the center of the switch bank, The forward switch is the close switch, the center switch is the vent switch, and the rear switch is the open switch. The two switches to the right side of the roof opening panel switches are the shield switches the first being shield close and then shield open. All of the roof opening panel switches are single position switches that can achieve one touch operation in either direction by pressing the switch for less than 1 second. For manual operation, simply press and hold the switch until the roof opening panel or shield is in the desired position and release the switch. When the front roof opening panel is in the fully closed or between fully closed and full vent position the vent switch operates in either manual or one touch operation similar to the roof opening panel and shield switches. If the shield is not open at least to the front of the rear fixed glass (comfort stop) when the vent or roof opening panel glass open switch is pressed then the shield will first open to the comfort stop position before the roof opening panel glass will move. The roof opening panel glass and the shield will not move at the same time. One touch operation of either the roof opening panel or the shield can be cancelled anytime by pressing any roof opening panel switches during operation.

Shield (Sunshade) Operation

When the shield open switch is pressed and released (one touch operation), the shield will automatically open and stop at the front of the rear fixed glass (comfort stop position), leaving only the front sliding glass panel exposed. Pressing the shield open switch again for one touch operation (after the initial stop), the shield will open the full open position. When the shield is open to any position between full open and the comfort stop and the shield close switch is pressed for one touch operation, the shield moves forward only to the comfort stop position. With the shield in any position between comfort stop (with roof opening panel glass fully closed) and fully closed and the shield close switch is pressed for one touch operation the shield moves to the fully closed position. The shield will not close beyond the comfort stop position if the roof opening panel glass is not fully closed. The roof opening panel glass will not move from any shield switch command. If the shield is in any position forward of the comfort stop position and the roof opening panel open switch is pressed for either manual or one touch operation, the shield will perform a one-touch open operation to the comfort stop position automatically which will then be followed by the front sliding glass panel operation that was requested. For manual operation, press the shield open or close switch and hold until the desired position and release the switch.

Front Sliding Glass Panel Operation

When the roof opening panel open switch is pressed and released (one touch operation) with the shield open to the comfort stop position, the front sliding glass panel will automatically open and stop at a predetermined position before the fully open position (comfort stop position). Pressing the roof opening panel open switch again for one touch operation (after the initial stop), the roof opening panel will open the full open position. Pressing the roof opening panel close switch for one touch operation will fully close the roof opening panel. If the shield is open in any position forward of the comfort stop position when a roof opening panel open switch is pressed the shield will move to the comfort stop position before the roof opening panel will begin movement. The vent position can only be requested when the front sliding glass panel is in the fully closed position or between fully closed and full vent. To open to the full vent position, press and release the vent switch for one touch operation. Manual operation for the roof opening panel vent (between closed and full vent) is similar to the roof opening panel manual open operation.

No Stop Region - Front Sliding Glass Panel

Manual closing or one touch closing of the front sliding glass panel cannot be stopped in a small range very close to the fully closed position. This feature is to make sure that the occupant does not leave the front sliding glass panel in this position because it looks fully closed and may allow water intrusion.

Bounce Back - Front Sliding Glass Panel And Shield

The front sliding glass panel and shield has a bounce back feature. If an obstacle has been detected as the front sliding glass panel or shield is closing, operation will automatically reverse and stop at a predetermined position.

Security Override

To override a bounce back condition (to overcome the resistance of ice on the front sliding glass panel seal for example), within 2 seconds of a bounce back event, press and hold the front sliding glass panel close switch. The front sliding glass panel will operate in manual mode with bounce back detection disabled until the switch is released.

Vista Roof Panel Glass

The roof opening panel system on this vehicle includes a fixed vista roof panel glass behind the front sliding glass panel. Any time this panel is removed or adjusted the front sliding glass panel will need to be initialized.

Refer to: Power Roof Opening Panel Initialization (501-17 Roof Opening Panel - Vehicles With: Vista Roof Opening Panel, General Procedures).

K Bus Communication

There is a communication circuit (K Bus) between the roof opening panel motor and the shield motor that is only for communication between the motors and not for service diagnostics. If this circuit is opened or shorted the roof opening panel system will not operate. When the K Bus circuit is repaired, normal system function will return.

mcx30.com