Windows - Rear

Windows - Rear Description

The rear windows are electrically operated from two rockers switches located in the centre console. A rocker switch located in each rear door trim panel also operates the corresponding rear window.

A window lift isolation switch is located in the centre console. The isolation switch prevents rear window operation using the rear window switches in the rear door trims, but allows operation from the rear window switches in the centre console.

Power to the rear window motors is enabled by the Intelligent Driver's Module (IDM) which energises the rear window lift relay located in the passenger compartment fusebox.

The rear window enable is operative when the ignition switch is in position II and for a period of 44 seconds after the ignition is switched off or after the driver's door is opened. The rear window operation is suspended when the ignition switch is in the crank position III.

The rear windows are operated by electric motors located in each rear door. The window up/down functions are controlled by reversing the polarity to the motors.

Windows - Rear Supply

Circuit supply

A feed from the battery positive terminal is connected on an R wire to the engine compartment fusebox, where it passes through fusible links 1, 6 and 8. Fusible links 1 and 6 are connected in series.

A feed from fusible links 1 and 6 is connected from the engine compartment fusebox, on an NU wire, to the passenger compartment fusebox, where it passes through fuse 13. From fuse 13, the feed is connected to the contacts and the coil of the rear window lift relay located in the passenger compartment fusebox.

A feed from fusible link 8 is connected from the engine compartment fusebox, on an NW wire, to the passenger compartment fusebox. From the passenger compartment fusebox the feed is connected to the ignition switch on an N wire.

Ignition switch supply

With the ignition switch in position II, the feed from fusible link 8 passes through the ignition switch to fuse 29 in the passenger compartment fusebox on a Y wire.

When the ignition switch is in position II, the feed from fuse 29 is connected to the IDM. The IDM logic connects the feed from fuse 13 in the passenger compartment fusebox through the coil of the rear window lift relay, to earth header C0551 on a B wire. This supply energises the coil of the rear window lift relay.

The contacts of the rear window lift relay close when the coil is energised and allow the feed from fuse 13 to pass through the rear window lift relay contacts. The feed is connected from the passenger compartment fusebox to splice joint A183 by a WK wire. The feed is then connected on four WK wires to the LH and RH window console switches.

Windows - Rear Operation

LH rear window console switch - down
Operation of the LH window console switch in the down position, allows the feed from the rear window lift relay to pass through the up switch contacts to the LH rear window switch on an SW wire. The feed passes through the up switch contacts and is connected to the LH rear window motor on an SO wire.

When the LH window console switch is set in the down position, the contacts complete the earth path for the LH rear window motor. The LH rear window motor is earthed via an SR wire to the LH rear window switch. From the down contacts of LH rear window switch the earth continues on an SY wire to the closed contacts of LH window console switch. From the contacts of the LH rear console switch the earth continues on a B wire to earth header C0552.

LH rear window console switch - up
Operation of the LH window console switch in the up position, allows the feed from the rear window lift relay to pass through the down switch contacts to the LH rear window switch on an SY wire. The feed passes through the down switch contacts and is connected to the LH rear window motor on an SR wire.

When the LH window console switch is set in the up position, the contacts complete the earth path for the LH rear window motor. The earth path from the LH rear window motor is connected to the LH rear window switch on an SO wire. The earth continues through the up switch contacts and is connected to the LH window console switch on an SW wire. The earth passes through the down switch contacts and is connected to earth header C0552 on a B wire.

RH rear window console switch - down

Operation of the RH window console switch in the down position, allows the feed from the rear window lift relay to pass through the up switch contacts to the RH rear window switch on an SY wire. The feed passes through the up switch contacts and is connected to the RH rear window motor on an SO wire.

When the RH window console switch is set in the down position, the contacts complete the earth path for the RH rear window motor. The RH rear window motor is earthed via an SR wire to the down contacts of the RH rear window switch, then on a SW wire to connector interface C0650-3/C0804-3. From this interface the feed continues on a SN wire to the RH window console switch. From the RH window console switch the earth continues via the closed down contacts, via a B wire to earth header C0552.

RH rear window console switch - up

Operation of the RH window console switch in the up position, allows the feed from the rear window lift relay to pass through the down switch contacts on an SN wire to connector interface C0650-3/C0804-3. From this interface the feed continues on a SW wire to the RH rear window switch. The feed passes through the down switch contacts and is connected to the RH rear window motor on an SR wire.

When the RH window console switch is set in the up position, the contacts complete the earth path for the RH rear window motor. The earth path from the RH rear window motor is connected to the RH rear window switch on an SO wire. The earth continues on an SY wire to the up contacts of the RH rear window console switch. From the RH rear window console switch the earth continues on a B wire to earth header C0552.

LH rear window switch - down

Operation of the LH rear window switch in the down position, allows the feed from the rear window lift relay to pass through the up contacts of the LH window console switch on an SW wire. The feed passes through the up switch contacts and is connected to the LH rear window motor on an SO wire.

When the LH rear window switch is set in the down position, the contacts complete the earth path for the LH rear window motor. The earth path from the LH rear window motor is connected to the LH rear window switch on an SR wire. The earth continues through the down switch contacts and is connected via splice joint A358 to the window lift isolation switch on an SG wire. The earth is connected from the closed contacts of the window lift isolation switch on a B wire to earth header C0552.

LH rear window switch - up

Operation of the LH rear window switch in the up position, allows the feed from the rear window lift relay to pass through the down contacts of the LH window console switch to the rear window switch on an SY wire. The feed passes through the down switch contacts to the LH rear window motor on an SR wire.

When the LH rear window switch is set in the up position, the contacts complete the earth path for the LH rear window motor. The earth path from the LH rear window motor is connected to the LH rear window switch on an SO wire. The earth continues through the up switch contacts and is connected via splice joint A358 to the window lift isolation switch on an SG wire. The earth is connected from the closed contacts of the window lift isolation switch on a B wire to earth header C0552.

RH rear window switch - down

Operation of the RH rear window switch in the down position, allows the feed from the rear window lift relay to pass through the up contacts of the RH window console switch on an SY wire to the RH rear window switch. The feed passes through the up switch contacts and is connected to the RH rear window motor on an SO wire.

When the RH rear window switch is set in the down position, the contacts complete the earth path for the LH rear window motor. The earth path from the RH rear window motor is connected to the RH rear window switch on an SR wire. The earth continues through the switch down contacts and is connected via splice joint A358 to the window lift isolation switch on an SG wire. The earth is connected from the closed contacts of the window lift isolation switch on a B wire to earth header C0552.

RH rear window switch - up

Operation of the RH rear window switch in the up position, allows the feed from the rear window lift relay to pass through the down contacts of the RH window console switch on an SN wire to connector interface C0650-3/C0804-3. From this interface the feed continues on an SW wire to the rear window switch. The feed passes through the down switch contacts to the RH rear window motor on an SR wire.

When the RH rear window switch is set in the up position, the contacts complete the earth path for the RH rear window motor. The earth path from the RH rear window motor is connected to the RH rear window switch on an SO wire. The earth continues through the up switch contacts and is connected via splice joint A358 to the window lift isolation switch on an SG wire. The earth is connected from the closed contacts of the window lift isolation switch on a B wire to earth header C0552.

Window lift isolation switch

If the window lift isolation switch is latched out, the earth path from the LH and RH rear window switches is broken, preventing operation of the LH and RH rear window switches. Rear window operation using the console switches is not affected by the isolation switch.

When the window lift isolation switch is latched out, the removal of the earth path also breaks the earth path for the LH and RH rear window switch illumination. Refer to interior illumination - Description and Operation in this manual for switch illumination circuit description.

Sunroof

Sunroof Description

Electric sunroofs are fitted at the front and rear of the vehicle. Both sunroofs are electrically operated. Switches on the front overhead console control operation of the front and rear sunroofs.

The rear sunroof can be operated by a switch located in the rear overhead console. The switch is only operative when not disabled by the rear sunroof isolation switch located in the front overhead console.

Sunroof Supply

Circuit supply

A feed from the battery positive terminal is connected on an R wire to the engine compartment fusebox where it passes through fusible links 1, 6 and 8. Fusible links 1 and 6 are connected in series.

The feed from fusible links 1 and 6 is connected on an NU wire to the passenger compartment fusebox where it passes through fuse 12. The feed is connected from fuse 12 to supply a continuous battery feed on an NR wire to the sunroof ECU pin C0785-3.

The feed from fusible link 8 is connected on an NW wire to the passenger compartment fusebox and from the fusebox to the ignition switch on an N wire.

Ignition switch supply

With the ignition switch in position II, the feed from fusible link 8 passes through the ignition switch to the passenger compartment fusebox on a Y wire, where it passes through fuse 29. The feed is connected from fuse 29 to the Body Control Unit (BCU) pin C0660-1 on a GU wire.

Sunroof Operation

Front sunroof operation

When the ignition switch is in position II, an enable input is sent from the BCU pin C0661-9 on a WG wire to pin C0785-10 on the sunroof ECU. When the enable input is present the power feed from pin C0785-3 is made available by the logic circuits in the sunroof ECU.

The sunroof ECU is earthed from pin C0785-2 on a B wire via splice joints A14 and A15 to earth header C0018.

Front sunroof tilt detection

The front sunroof motor is connected to pin C0784-8 on the sunroof ECU by an OU wire. An input to the sunroof ECU via this connection forms a sunroof tilt input to the sunroof ECU.

Front sunroof - open function

When the front sunroof switch is set to the open position, an earth path from pin C0784-2 to the front sunroof switch on a GK wire is completed. From the front sunroof switch the earth continues to earth header C0018 via splice joints A14 and A15. The sunroof ECU logic circuit monitors a current flow from pin C0784-2. This current flow forms the ’open’ input to the sunroof ECU, and the ECU logic supplies a power feed to pin C0785-5.

The feed flows from pin C0785-5 on the sunroof ECU to the sunroof motor on a P wire. The front sunroof motor is earthed on a B wire via splice joints A14 and A15 to earth header C0018.

The sunroof motor drives the sunroof mechanism towards the open position. When the sunroof switch is released, the earth path via the sunroof switch is interrupted and the ’open’ input to the sunroof ECU is lost. The sunroof ECU logic circuits remove the power supply to pin C0785-5, this removes the power supply from the sunroof motor.

Front sunroof - close function
When the front sunroof switch is set to the close position, an earth path from pin C0785-7 of the sunroof ECU to the front sunroof switch is completed on a GR wire. The front sunroof switch is earthed via splice joints A14 and A15 to earth header C0018 on a B wire. The sunroof ECU logic circuit monitors a current flow from pin C0785-7. With this current flow forming a 'close' input the sunroof ECU logic supplies a power feed to pin C0785-1.

The feed flows from pin C0785-1 of the sunroof ECU to the sunroof motor on a W wire. The front sunroof motor is earthed on a B wire via splice joints A14 and A15 to earth header C0018. The sunroof motor drives the sunroof mechanism towards the close position.

When the sunroof switch is released, the earth path via the sunroof switch is interrupted and the close input to the sunroof ECU will be lost. The sunroof ECU logic circuits remove the power supply to pin C0785-1, this removes the power supply from the sunroof motor.

Rear sunroof operation

Rear sunroof tilt detection
The rear sunroof motor is connected to pin C0784-1 on the sunroof ECU by a OG wire. An input to the sunroof ECU via this connection forms a sunroof tilt input to the sunroof ECU.

Rear sunroof operation - via front switch 1

Rear sunroof - open function - via front switch 1
When the rear 1 sunroof switch is set to the open position, an earth path from pin C0784-7 of the sunroof ECU to the to sunroof switch is completed on a GU wire. From sunroof switch 1 the earth continues via splice joints A14 and A15 to earth header C0018 on a B wire. The sunroof ECU logic circuit monitors the current flow from pin C0784-7. With this current flow forming an 'open' input the sunroof ECU logic supplies a power feed to pin C0785-4.

The feed flows from pin C0785-4 of the sunroof ECU to the rear sunroof motor on an U wire. The rear sunroof motor is earthed on two B wires via splice joints A14 and A15 to earth header C0018. The sunroof motor drives the sunroof mechanism towards the open position.

When the sunroof switch is released, the earth path via the sunroof switch is interrupted and the open input to the sunroof ECU will be lost. The sunroof ECU logic circuits remove the power supply to pin C0785-4, this removes the power supply from the sunroof motor.

Rear sunroof - close function - via front switch 1
When the rear sunroof switch 1 is set to the close position, an earth path from pin C0785-8 on the sunroof ECU to the rear sunroof switch 1 is connected on a GO wire. The rear sunroof switch 1 is earthed via splice joints A14 and A15 to earth header C0018 on a B wire. The sunroof ECU logic circuit monitors a current flow from pin C0785-8. With a current flow forming an 'close' input the sunroof ECU logic supplies a power feed to pin C0785-6.

The feed flows from pin C0785-6 on a O wire to the rear sunroof motor. The rear sunroof motors are earthed on a B wire via splice joints A14 and A15 to earth header C0018. The sunroof motor drives the sunroof mechanism towards the close position.

When the sunroof switch is released, the earth path via the sunroof switch is interrupted and the close input to the sunroof ECU will be lost. The sunroof ECU logic circuits remove the power supply to pin C0785-6, this removes the power supply from the sunroof motor.

Rear sunroof operation - via rear switch 2

Rear sunroof switch 2 - isolation
An isolation switch is connected by an BS wire to the rear sunroof switch 2. From the isolation switch a B wire is connected to earth via splice joints A14 and A15 to earth header C0018. When the isolation switch is pressed the earth line from the rear sunroof switch 2 is interrupted. This function allows the driver or front seat passenger to disable the rear sunroof switch 2.

Rear sunroof switch 2 - normal operation

Rear sunroof - open function - via switch 2
When the rear 2 sunroof switch is set to the open position, an earth path from pin C0784-6 on a GW wire is completed via the closed contacts of the isolation switch, and on a B wire via splice joints A14 and A15 to earth header C0018. The sunroof ECU logic circuit monitors the current flow from pin C0784-6. With this current flow forming an ’open’ input the sunroof ECU logic supplies a power feed to pin C0785-4.

The feed flows from pin C0785-4 on an OU wire to the rear sunroof motor. The rear sunroof motor is earthed on a B wire via splice joints A14 and A15 to earth header C0018. The sunroof motor drives the sunroof mechanism towards the open position.

When the sunroof switch is released, the earth path via the sunroof and isolation switches is interrupted. The open input to the sunroof ECU will be lost and the sunroof ECU logic circuits remove the power feed to pin C0785-4, this removes the power supply from the sunroof motor.

Rear sunroof - close function - via switch 2
When the rear sunroof switch 2 is set to the close position, an earth path from pin C0785-9 on a GB wire is completed via the closed contacts of the isolation switch, and on a B wire via splice joints A14 and A15 to earth header C0018. The sunroof ECU logic circuit monitors the current flow from pin C0785-9, this current flow forms a 'close' input and the sunroof ECU logic supplies a power feed to pin C0785-6.

The feed flows from pin C0785-6 on a O wire to the rear sunroof motor. The sunroof motor drives the sunroof mechanism towards the close position. When the sunroof switch 2 is released, the earth path via the sunroof switch is interrupted. The close input to the sunroof ECU is lost and the sunroof ECU logic circuits remove the power supply to pin C0785-6. This removes the power supply from the rear sunroof motor.

Sunroof motor protection
Control functions of the sunroof ECU prevent damage to the sunroof motors at full travel positions when the operating switch is still pressed:
- Current (step) sensing
- A backup seven second time delay after movement has stopped.

NOTE: Either of these control functions will stop the operation of the sunroof motors at the end of travel positions.

Ignition key modes
Depending on the vehicles specification:

The sunroof ECU controls operation of both sunroofs and will allow sunroof operation for a period of 44 seconds after the ignition switch is moved to the off position.

On some models if the time is less than 44 seconds and the drivers door (or any door on some models) is opened the sunroof ECU will disable the function of the sunroofs.

On some models the sunroof ECU will disable the sunroofs as soon as the ignition is turned off.

On all models the sunroofs will not operate while the ignition key is turned to the cranking position III.

Mirrors

Mirrors Description

The door mirrors are electrically adjustable using a joystick operated mirror switch located on the fascia. The mirrors only operate with the ignition switch in position II.

The mirror switch can be rotated to select the left or right hand door mirror. A central position on the switch isolates the mirror operation. Movement of the switch in the vertical or horizontal positions moves the selected mirror glass accordingly. The mirror glass is attached to a swash plate operated vertically and horizontally by two motors.

Each mirror glass has heater elements bonded to the rear of the glass for demisting. The mirror heater elements operate when the heated rear window is switched on.

Mirrors Supply

Circuit supply

A feed from the battery positive terminal is connected on an R wire to the engine compartment fusebox where it passes through fusible links 1, 6 and 8, and fuse 13.

A feed from fusible link 6 is connected to the passenger compartment fusebox on an OS wire. The feed passes through fuse 8 in the passenger compartment fusebox and is connected to the contacts of the heated rear screen relay.

A feed from fusible link 8 is connected on an NW wire to the passenger compartment fusebox and from the fusebox to the ignition switch on an N wire.

A feed from fuse 13 is connected to the passenger compartment fusebox on a PN wire and is connected to the coil of the heated rear screen relay.