



WINDOWS

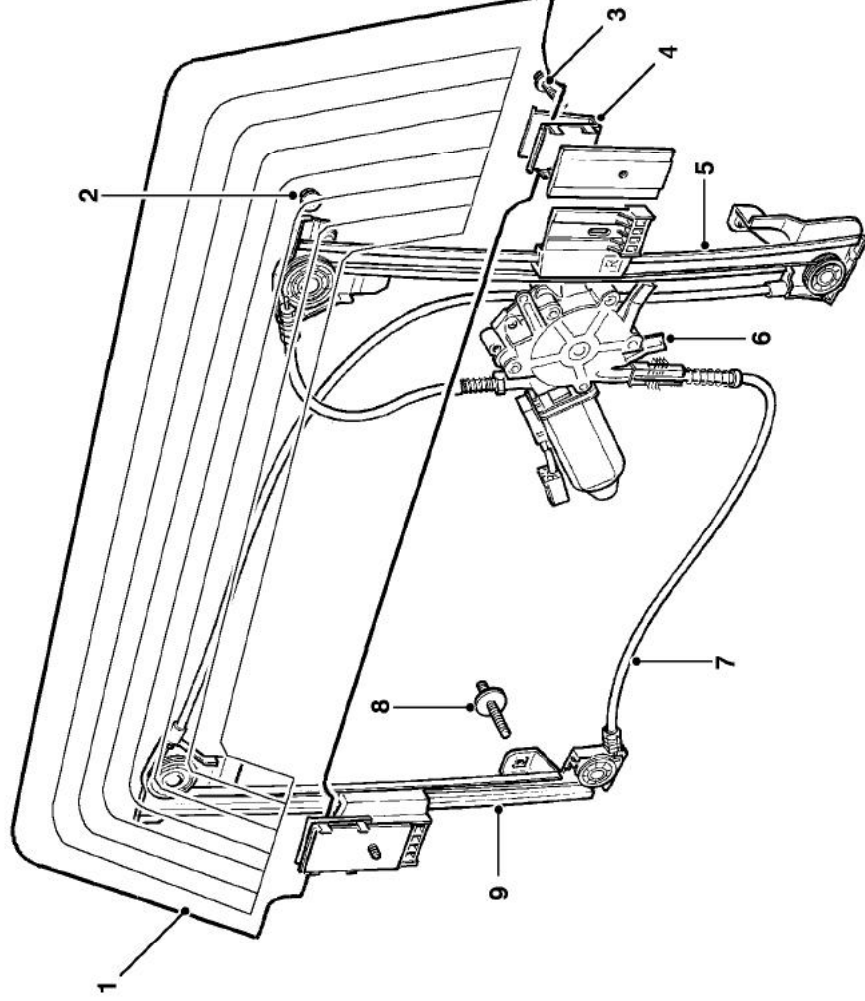
Tail Door Window

The tail door window regulator comprises left and right hand runners, a continuous cable and a motor. The runners are secured in the tail door frame with four screws. The glass is located in two carriers which are located in tracks in the runners. The glass is retained in friction pads in each carrier and secured with clamp screws.

Each carrier is attached to the cable which, in turn, is attached to a drum driven by the motor. When the motor is operated, the drum pulls the cable in the required direction to raise or lower the glass.

The motor incorporates a movement sensor that supplies a position feedback signal to the CCU.

Tail Door Window Regulator



M76 4006

- 1 Tail door glass
- 2 Nut (3 off)
- 3 Clamp screw (2 off)
- 4 Friction pad (2 off)
- 5 RH runner

- 6 Motor
- 7 Cable
- 8 Mounting screw (4 off)
- 9 LH runner

Window Lift ECU

The window lift ECU provides 'one shot' opening of the driver's door window. Instead of the window switch being connected direct to the window motor, as on the other side door(s), the driver's door window switch is connected to the window motor via the window lift ECU. The window lift ECU is installed on the driver's side A post, level with the lower edge of the fascia.

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Operation

Side Door Windows

Power for side door window operation is supplied from the window lift relay and, on 5 door models, the sunroof relay, both located in the passenger compartment fusebox. The CCU controls the relays, which are energised while the ignition switch is in position II and for 40 seconds after the ignition is turned off.

When an up or down selection is made on one of the side door window switches, the switch simultaneously connects a power supply and an earth to the related door window motor to drive the window in the required direction. When the opposite selection is made, the switch changes the polarity of the connections to drive the window in the opposite direction. The window stops moving immediately the switch is released, except when a momentary down selection is made on the driver's door switch.

The driver's door window switch is connected to the window motor via the window lift ECU. When the window lift ECU senses a momentary (0.2 second or less) down selection on the driver's door switch, it connects the driver's door window motor to a power supply direct from the window lift relay and to an ECU earth. The window lift ECU maintains these connections until the door window motor stalls, after driving the window fully down, or an up selection is made on the window switch.

On 5 door models, each rear window switch on the centre console is connected to the window motor via the related rear door mounted window switch. When the isolator switch is pressed, the earth path for the two rear door mounted window switches is disconnected. With the isolator switch pressed, only the rear window switches in the centre console will operate the rear door window motors.

Tail Door Window

The CCU controls the tail door window via the tail door window relay located above the RH rear suspension turret. The tail door window relay is a dual relay that incorporates separate 'up' and 'down' contacts. When the CCU wants to operate the window, it switches the appropriate contacts in the tail door window relay to connect a power supply and an earth to drive the window motor in the required direction. The contacts change the polarity of the motor to change the direction of drive.

The tail door window can be lowered using the console switch or the remote handset. On 3 door models, opening/removal of the roof will automatically lower the window. The window can be raised using the console switch or the vehicle key in the tail door key barrel. When the tail door is opened, the tail door window lowers to a 'clear of seal' position and, when the door is closed, the window automatically rises to its fully up position in the window seal.

Tail Door Window Lower

The rear screen wiper must be parked off-screen before the CCU will allow the tail door window to lower. If the rear screen wiper is operating when a window down request is made, the CCU will automatically park the wiper off-screen before lowering the window. If the Heated Rear Window (HRW) is operating, the CCU will turn off the HRW when the window is lowered.

Remote Handset Lower: With the ignition off and the tail door closed, if the unlock button on the remote handset is pressed for a minimum of 1 second the CCU will unlock the doors and energise the tail door window down relay to fully lower the window.

NOTE: *The tail door window cannot be raised using the remote handset. To raise the tail door window use the Tail Door Key Barrel Raise procedure.*

Console Switch Lower - Inch Down: With the ignition on, pressing the console switch in the down position will signal the CCU to lower the tail door window for as long as the switch is held. The window will stop at the chosen position when the switch is released. When the window is almost fully down, the CCU will continue to lower the window irrespective of whether the switch is pressed or not.



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Console Switch Lower - One Shot: With the ignition on, pressing the console switch in the down position, for approximately 0.2 second or less, will signal the CCU to lower the tail door window until it is fully down or an up request is received. This feature is market programmable.

Roof Removal (3 Door Models Only): Opening/ removal of the roof will trip the roof off switch. This signals the CCU which, if the alarm is not armed, automatically lowers the tail door window even if the tail door is open. If the roof is opened/ removed while the alarm is armed, the roof off switch triggers the alarm and the CCU will not lower the tail door window.

Tail Door Window Raise

If the rear screen wiper is selected on when the tail door window is raised, the CCU will start/ resume operation of the wiper once the window is closed.

Tail Door Key Barrel Raise: With the tail door closed and, on 3 door models the roof closed/on, turning and holding the key in the tail door key barrel will signal the CCU to raise the tail door window. The key must be held until the window is fully raised (stalled position). If the key is released before the window is fully raised, the raise signal is removed from the CCU and the window will be fully lowered.

Console Switch Raise: With the ignition on, the tail door closed and, on 3 door models the roof closed/on, pressing the console switch in the up position will signal the CCU to raise the tail door window. The switch must be pressed until the window is fully raised (stalled position). If the switch is released before the window is fully raised, the raise signal is removed from the CCU and the window will be fully lowered.

Motor Timeout

To protect the tail door window motor from damage, the motor outputs have a fail-safe inhibit relative to the window height. This prevents the motor from being overdriven. If the fail-safe limit is reached, the CCU will energise the tail window down relay, to fully lower the window, and change the window position setting to uncalibrated. The calibration procedure will need to be performed to restore normal tail door window operation.

Tail Door Window Open Warning

If the tail door window is calibrated and open and, on 3 door models the roof is closed/on, and a lock request is made from the remote handset or the driver's door key barrel, the CCU will sound an audible miss-lock warning to advise that the window is open. The window can be closed using either the console switch or the tail door key barrel.

Calibration

When the CCU is changed from transit mode to a valid market mode, and/or after the vehicle battery has been disconnected, the tail door window must be calibrated to provide the CCU with a window position datum. When the CCU mode is changed to a valid market, or the battery reconnected, the CCU automatically begins the calibration process by energising the down contacts in the tail window lift relay until the window motor stalls, to ensure the window is fully down. The calibration procedure is completed as follows:

- 1 Ensure the tail door is closed, the vehicle unlocked and the alarm disarmed.
- 2 On 3 door models, ensure the roof is on (hard back) or lowered and secured (soft back).
- 3 Disconnect the battery earth lead, observing battery disconnection electrical precautions detailed in the Workshop Manual Service Repairs.
- 4 Allow at least 10 seconds to elapse before reconnecting the battery earth lead. The tail door glass will fully lower approximately 2 seconds after the battery is reconnected.
- 5 Start the engine. Ensure that all electrical loads, i.e. lights etc. are switched off. Increase the engine speed to 1500 rev/min. for 10 seconds.
- 6 After 10 seconds and whilst maintaining the engine speed at 1500 rev/min., carry out the following:
 - a Close the tail door window fully to start the calibration procedure.
 - b Fully open the tail door window.
 - c Fully close the tail door window.
 - d If the tail door window remains closed, the calibration procedure is complete.
- 7 If the calibration procedure is unsuccessful, the CCU will sound a warning for approximately 0.8 second and fully lower the window. Repeat the calibration procedure from step 1.
- 8 Allow the engine to idle and then switch off the engine.

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Tail door window calibration can fail for the following reasons:

- Window stops before minimum travel is achieved.
- Window does not achieve a stall.
- Window request removed before stall is achieved.
- Tail door opened while driving window up.