

Glass, Frames and Mechanisms -**Sealants**

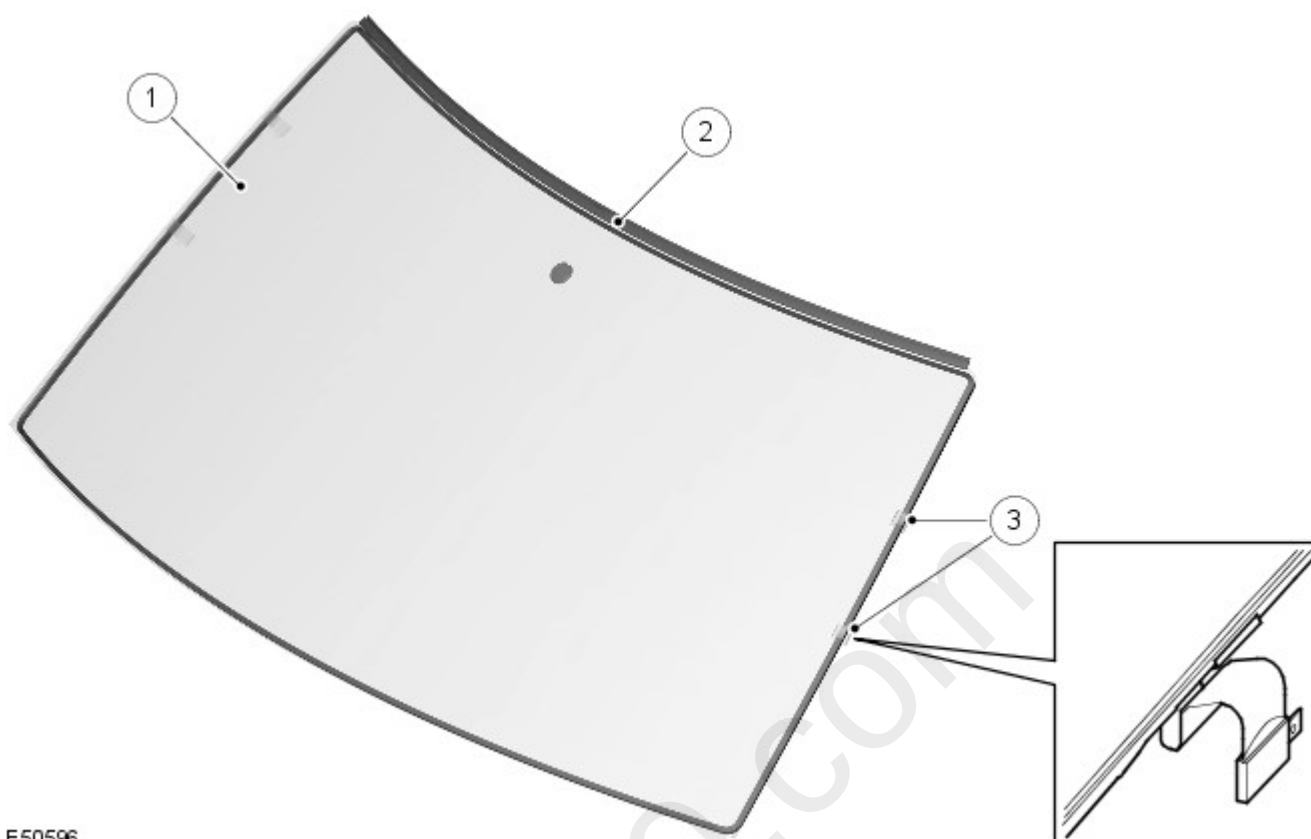
Application	Land Rover Sealant kit Part No.
Windshield	CES 500020
Liftgate glass	CES 500020
Glass roof panel	CES 500020
Rear quarter window glass	CES 500020

Torque Specifications

Description	Nm	lb-ft
Rear door window fixed glass Torx screw	10	7
Rear door window motor and regulator to door nuts and bolts	10	7
Front door window regulator and motor nuts and bolts	10	7
Front door window glass guide channel bolt	10	7
Liftgate glass retaining nuts	25	18

Glass, Frames and Mechanisms - Glass, Frames and Mechanisms

Description and Operation



E50596

Item	Part Number	Description
1.	-	Front screen
2.	-	Finisher
3	-	Heated front screen connectors

FRONT SCREEN

The laminated front screen is bonded, and sealed, to the body aperture using PU sealant. Heat bonded to the inner surface of the screen is the optical unit for the rain sensor and the interior mirror mounting boss.

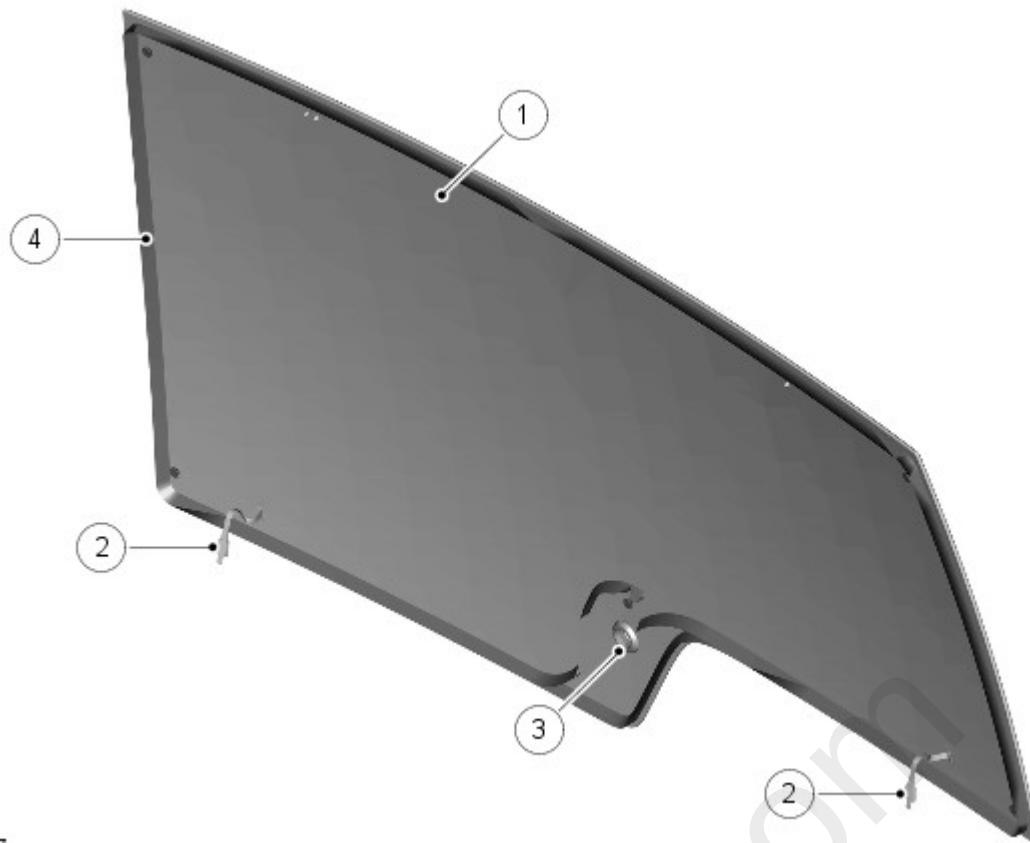
Vertical fine-wire multi-strand elements are fitted between the glass laminations to de-ice and demist the screen. At the bottom of the screen six horizontal heating elements bonded to the interior glass surface prevent the wiper blades freezing to the screen during adverse weather conditions.

For additional information, refer to: Control Components (412-04 Control Components, Description and Operation).

The screen is supplied with the heating element flat foil connectors fitted to a moulded sealed terminal block. This terminal block is wired to a connector for connecting to the vehicle harness.

REAR SCREEN

Rear Screen Components



E50597

Item	Part Number	Description
1.	-	Rear screen
2.	-	Heated rear screen connectors
3	-	Rear wiper motor aperture
4	-	Sealant

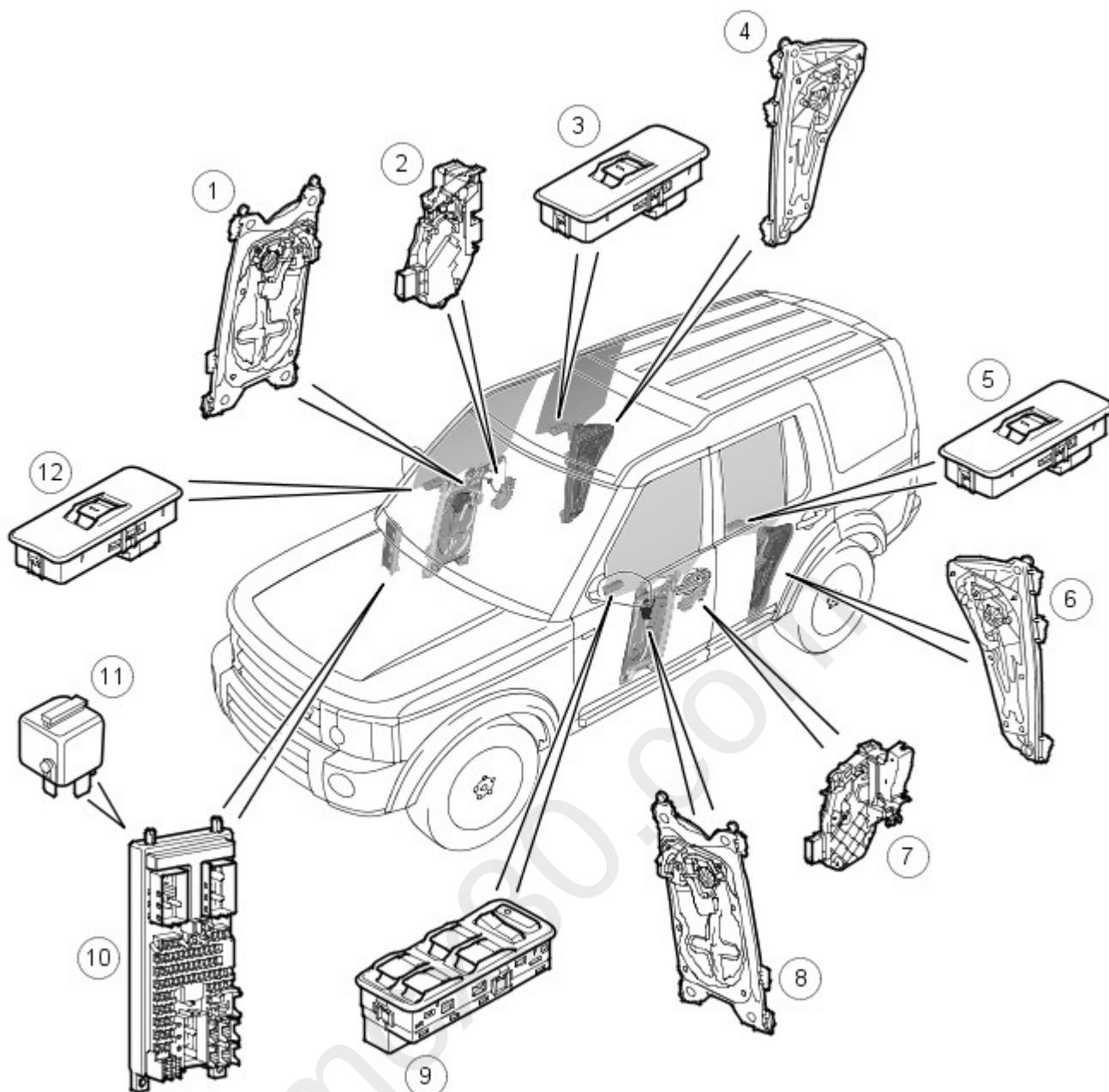
The tempered glass tinted green rear window is bonded to the upper tail doorframe using PU sealant. Fitted to the inner surface of the rear screen are the heating elements and an extra FM antenna for diversity tuning, if fitted. For additional information, refer to: Antenna (415-02 Antenna, Description and Operation).

The heating element is connected by 2 lucar terminals while the antenna is connected to the vehicle by a twin and single stud connector at the top of the screen. For additional information, refer to: Control Components (412-04 Control Components, Description and Operation).

WINDOW REGULATOR CONTROL

Windows Component Location

- NOTE: LH drive shown, RH drive similar.



E47512

Item	Part Number	Description
1	-	Passenger front window motor
2	-	Front passenger door latch (ajar switch)
3	-	RH rear window switch
4	-	RH rear window motor
5	-	LH rear window switch
6	-	LH rear window motor
7	-	Drivers door latch (ajar switch)
8	-	Drivers window motor
9	-	Drivers window switch pack
10	-	Central Junction Box (CJB)
11	-	Window lift relay
12	-	Passenger front window switch

GENERAL

Electric windows are installed in all four doors. The drivers front window incorporates a self-contained 'Anti-trap' regulator, which features one-shot up and one-shot down functionality. All the passenger windows are hard wired and are powered via the window lift relay in the Central Junction Box (CJB). The one-shot and one-shot down feature is also fitted to the front passenger window of vehicles from 2007 model year onwards .

Should any of the passenger windows have opposing up/down requests from two separate switches, for example, the drivers door switch and the switch on the operating window, then the operation of that window will cease, until one or both of the switches are released.

System Inputs and Outputs

Inputs	Outputs
Ignition switch	CJB window enable signal
Drivers door switch pack	CJB window power feeds
Front passenger door window switch	Front window lift motors (LH and RH)
Rear passenger door window switch (LH and RH)	Rear window lift motors (LH and RH)
Drivers door ajar switch	-
Front passenger door ajar switch	-

IGNITION SWITCH

The window lift system is enabled during ignition switch positions I and II, but disabled during cranking.

T4 can be used to monitor the state of the ignition switch.

WINDOW SWITCHES

Individual window switches are installed in each of the three passenger doors. Window switches for all of the windows, are installed in the drivers door in the top surface of the door trim.

All window switches are of the non-latching rocker type and contain illumination bulbs that operate when the side lamps or headlamps are on.

The drivers window switch (and passenger window switch from 2007 model year onwards) has two switching positions in each direction, inch up/down and one-shot up/down. Operating the switch to the second detent position will activate the one-shot feature. All the passenger windows have conventional power motors, providing an inch up/down operation whilst the corresponding switch is held.

When the switches in the drivers door are used to operate the passenger windows or to isolate the rear windows, the drivers door switch pack outputs a signal to the relevant window regulator. While the isolator is engaged, the rear regulators ignore inputs from the rear window switches, and the drivers door switch pack illuminates a LED in the isolator switch.

With the switches in the rest position, there is battery voltage at both sides of each switch as well as at the window motors. Operating any switch provides a ground path through the switch to the window motor. Operating the switch in the opposite direction switches the voltage path and the earth path to the motor allowing the motor to run in the opposite direction.

Power for window operation is supplied from the window lift relay located in the CJB. When energised, the window lift relay provides feed to the following fuses, which are also located in the CJB:

- 30 (25 Amps)
- 17 (20 Amps)
- 31 (20 Amps).

Fuse	Description
Fuse 7	Drivers window regulator
Fuse 17	Drivers switch pack, RH rear - up/down RH rear window switch via isolator
Fuse 30	Drivers switch pack, front passenger - up/down Front passenger switch - up/down
Fuse 31	Drivers switch pack, LH rear - up/down LH rear window switch via isolator

Driver's Door Window Switch Pack Pin Out Information

Connector C0081

Pin No.	Description	Input / Output
1	Front passenger window down	Output
2	Front passenger window up	Output
3	Front passenger battery power supply	Input
4	Front drivers window down	Output
5	Front drivers window up	Output
6	Ground	-

Connector C0343

Pin No.	Description	Input / Output
1	Rear LH battery power supply	Input
2	Rear RH passenger window down	Output
3	Rear RH passenger window up	Output
4	Rear RH battery power supply	Input
5	Rear LH passenger window down	Output
6	Rear LH passenger window up	Output
7	Switch illumination	Input
8	Ground	-

Connector C2654

Pin No.	Description	Input / Output
1	Not used	-
2	Rear RH battery power supply via isolator switch	Input
3	Not used	-
4	Not used	-
5	Not used	-

Pin No.	Description	Input / Output
6	Rear LH battery power supply via isolator switch	Input
7	Child lock status LED	Input
8	Child lock switch	Output

Front Passenger's Door Window Switch Pin Out Information

Connector C0087

Pin No.	Description	Input / Output
1	Up power supply from drivers door switch pack	Input
2	Up power supply to window regulator	Output
3	Down power supply from drivers door switch pack	Input
4	Not used	-
5	Switch illumination ground	-
6	Switch illumination power supply	Input
7	Down power supply to window regulator	Output
8	Power supply from drivers door switch pack	Input

Rear Passenger's Door Window Switch Pin Out Information

Connector C0732

Pin No.	Description	Input / Output
1	Up power supply from drivers door switch pack	Input
2	Up power supply to window regulator	Output
3	Down power supply from drivers door switch pack	Input
4	Not used	-
5	Switch illumination ground	-
6	Switch illumination power supply	Input
7	Down power supply to window regulator	Output
8	Power supply from drivers door switch pack	Input

T4 can not be used to monitor the state of the window switches because they are part of a hard wired circuit.

FRONT DOOR AJAR SWITCHES

Window operation is immediately disabled when a front door is opened during a 40 second timeout period. The door ajar switches are located in the front door latch mechanisms.

T4 can be used to monitor the state of the front door ajar switches.

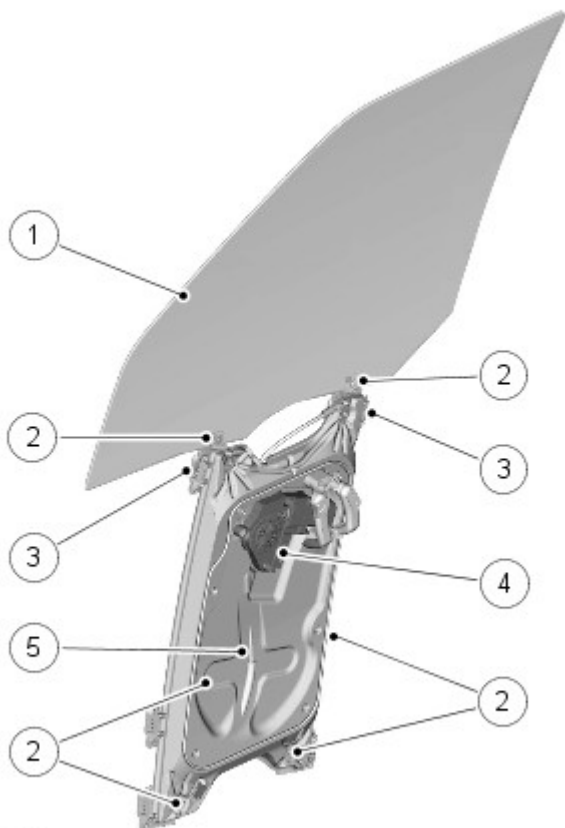
ENABLE LINES

The use of enable lines limits the windows to operate when the ignition switch is in position I or II, and for a period of forty seconds once the ignition has been switched off. If the drivers door or the front passenger door is opened within the forty second period, window operation will be disabled. No window operation is possible during vehicle cranking.

WINDOW REGULATORS

Cable operated window regulators powered by an electric motor are installed in each of the doors.

Front Window Regulators



E47513

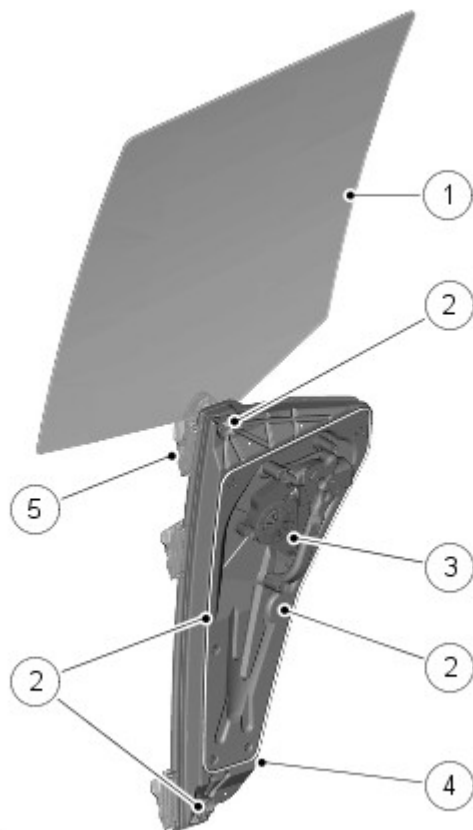
Item	Part Number	Description
1	-	Window Glass
2	-	Fixing points
3	-	Glass carrier
4	-	Window motor
5	-	Mounting frame
6	-	Cable

The front window regulator and motor is supplied as an assembly and is handed. Each assembly comprises a front and rear runner, a continuous cable and a motor.

The runners are secured in the door frame with four screws. The door 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.

Rear Window Regulators



E47514

Item	Part Number	Description
1	-	Window Glass
2	-	Fixing points
3	-	Window motor
4	-	Mounting frame
5	-	Glass carrier

The rear window regulator and motor is supplied as an assembly and is handed. Each assembly comprises a runner, a continuous cable and a motor.

The runner is secured in the door frame with four bolts. The door glass is located in a carrier located in a track in the runner. The glass is retained in friction pads in the carrier and secured with a clamp screw.

The 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.

ANTI-TRAP

The anti-trap function is enabled for the drivers window closing in both the inching and one-shot modes. If the anti-trap feature is activated while a window is closing, the window motor is reversed for 0.5 second.

A Hall sensor, located in the drivers window regulator, monitors the speed of the motor and if the speed decreases below a set threshold, indicating an obstruction, the power feed to the motor is reversed so the window goes back down.

In an emergency the anti-trap function can be overridden by holding the window switch in the one-shot closed position.

After the battery has been disconnected it is necessary to initialize the drivers door window motor to be able to operate the one-shot up function.

Driver's Door Window Motor Initialisation

- Operate the drivers window switch until the window glass is in the fully closed position, continue to operate the window switch for a further two seconds
- Release the window control switch
- Operate the drivers window switch in the closed position and continue to operate the window switch for a further two seconds
- Operate the drivers window switch until the window is in the fully open position (one-shot down)

• **NOTE:** If the drivers window motor initialisation has been completed correctly, when the drivers window switch is operated, the window should move to the fully closed position (one-shot up) automatically. If the window does not fully close automatically (one-shot up), repeat the complete procedure.

- Operate the drivers window switch once to the close position.

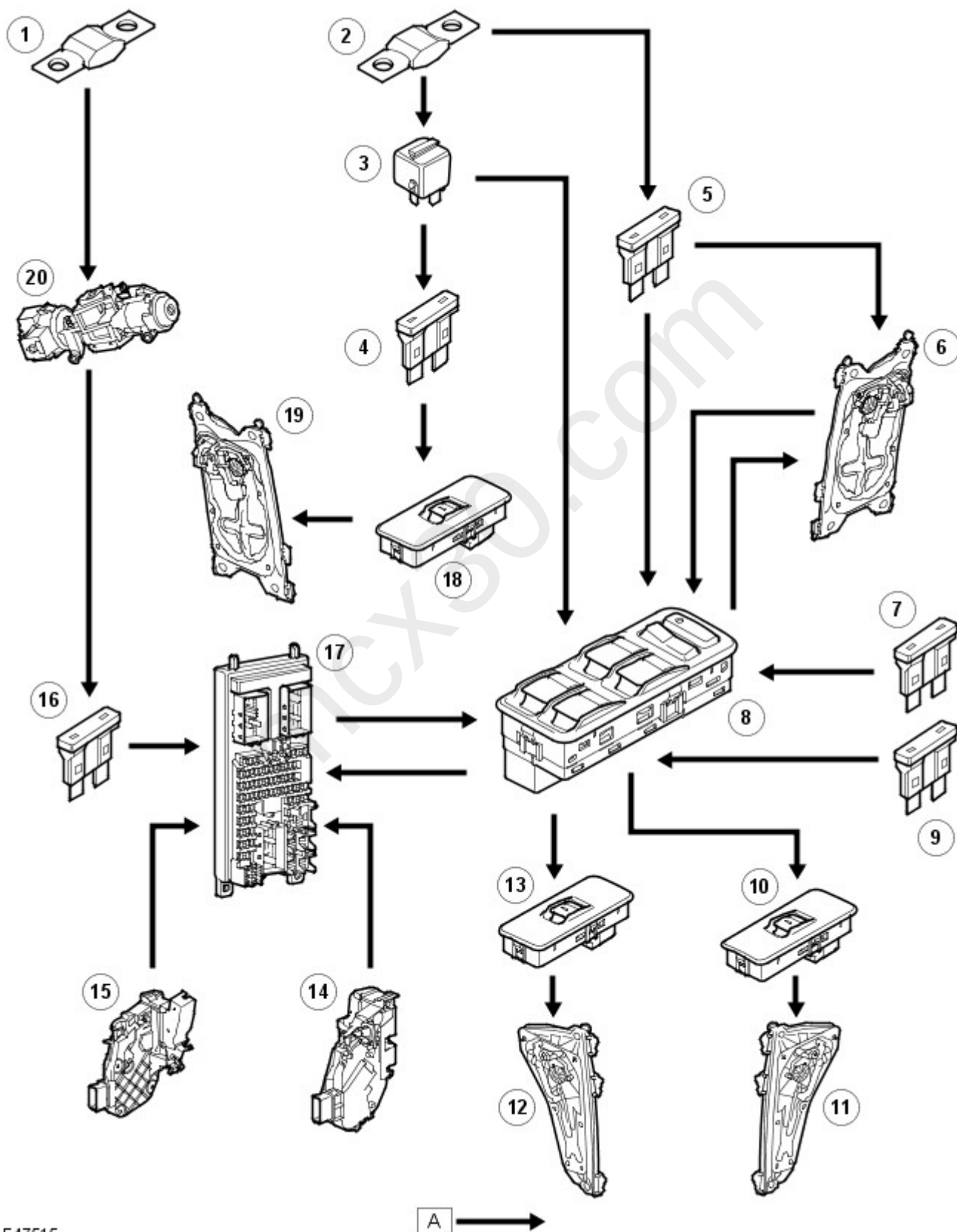
Driver's Door Anti-trap Regulator Pin Out Information

Connector C0740

Pin No.	Description	Input / Output
1	Up signal	Input
2	Down signal	Input
3	Battery supply	Input
4	Ground	-
5	Not used	-
6	Enable line	Input

WINDOW CONTROL DIAGRAM

• NOTE: A = Hardwired



Item	Part Number	Description
1	-	Fusible link 11
2	-	Fusible link 18
3	-	Window lift relay
4	-	Fuse 30
5	-	Fuse 7
6	-	Drivers window motor
7	-	Fuse 31
8	-	Drivers window switch pack
9	-	Fuse 17
10	-	RH rear window switch
11	-	RH rear window motor
12	-	LH rear window motor
13	-	LH rear window switch
14	-	Drivers door latch (ajar switch)
15	-	Passengers front door latch (ajar switch)
16	-	Fuse 60
17	-	Central Junction Box (CJB)
18	-	Passenger front window switch
19	-	Passenger front window motor
20	-	Ignition switch

mcx30.com

Glass, Frames and Mechanisms - Glass, Frames and Mechanisms

Diagnosis and Testing

Principle of Operation

For a detailed description of the glass, frames and mechanisms and operation, refer to the relevant Description and Operation section of the workshop manual. REFER to: [Glass, Frames and Mechanisms](#) (501-11 Glass, Frames and Mechanisms, Description and Operation).

Inspection and Verification



CAUTION: Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Substitution of control modules does not guarantee confirmation of a fault and may also cause additional faults in the vehicle being checked and/or the donor vehicle.

- **NOTE:** Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests.

1. 1. Verify the customer concern.
2. 2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection

Mechanical	Electrical
• Window control switches condition and installation • Window motors/regulators • Window channels/runners • Window cables • Door window glass retaining brackets	• Fuses • Harnesses and connectors • Window lift relay • Window control switches • Window motors

3. 3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. 4. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart, alternatively check for Diagnostic Trouble Codes (DTCs) and refer to the DTC Index.

Symptom Chart

Symptom	Possible Causes	Action
Window(s) inoperative	• Fuse(s) • Switch fault • Front switch isolator fault • Motor/Regulator fault • Channel/Runner fault • Cable fault • Harness fault	• Check the fuses. Check the suspect window operation from the individual door switch and from the driver door master switch (it is unlikely that both switches would fail at the same time, so if the window is inoperative from either switch, suspect a fault other than a switch). If the inoperative window is a rear unit, check the function of the isolator at the master switch. • If the concern persists and a noise cannot be heard when operating the door window glass, GO to Pinpoint Test B.
Window(s) 'one-shot' function inoperative	• Window motor initialization required • Switch fault	• NOTE: Do not install a new door window regulator motor for this concern. If the battery has been disconnected, carry out the initialization procedure. REFER to: Door Window Motor Initialization (501-11 Glass, Frames and Mechanisms, General Procedures). Check the switch function after initialization.
Rear window does not defrost	• Fuse • Switch fault • Relay fault • Element fault • Circuit fault	Check fuse. Check the operation of the heated rear window switch and relay. Check the element for continuity. Check the heated rear window circuit. Refer to the electrical guides.
Window(s) noisy during operation	• Channel/Runner fault • Cable fault • Motor/Regulator fault	• NOTE: Door window glass retaining bracket adjustment procedure GO to Pinpoint Test A.
Slow or partial window operation	• Fuse • Switch fault • Relay fault • Element fault • Circuit fault	GO to Pinpoint Test C.
Rear door window glass bounce back	• Window motor initialization required (using the manufacturers approve diagnostic system)	• NOTE: Do not install a new door window regulator motor for this concern. Refer to IDS/SDD.

Symptom	Possible Causes	Action
Front door window glass bounce back	- Window motor initialization required - Channel/Runner fault	NOTE: Do not install a new door window regulator motor for this concern. GO to Pinpoint Test D .

DTC Index

For a list of Diagnostic Trouble Codes (DTCs) that could be logged on this vehicle, please refer to Section 100-00. REFER to: [Diagnostic Trouble Code \(DTC\) Index - DTC: Driver/Passenger Door Module \(DDM/PDM\)](#) (100-00 General Information, Description and Operation).

Pinpoint Test

PINPOINT TEST A : WINDOW(S) NOISY DURING OPERATION	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
A1: CHECK THE DOOR WINDOW GLASS IS SECURE	
	- Remove the door window glass outer waist seal. - Check if the door glass installed correctly and secured to the door window regulator.
	Is the door window glass correctly installed and secure? Yes GO to A2. No Install a new door window glass as necessary. REFER to: Front Door Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation) / Rear Door Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
A2: CHECK THE OPERATION OF THE DOOR WINDOW REGULATOR MOTOR	
	- Remove the door window glass as necessary. REFER to: Front Door Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation) / Rear Door Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation). - Operate the door window regulator four times.
	Does the door window regulator operate correctly (without noise)? Yes Ensure that an anti-rattle pad (available from the parts department) is installed to the door window glass retaining bracket and installed correctly. REFER to: Front Door Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation). Test the system for normal operation. If the concern persists, GO to A3 . No Install a new door window regulator motor as necessary. REFER to: Front Door Window Regulator and Motor (501-11 Glass, Frames and Mechanisms, Removal and Installation) / Rear Door Window Regulator and Motor (501-11 Glass, Frames and Mechanisms, Removal and Installation).
A3: CHECK THAT THE DOOR WINDOW GLASS SEAL IS FREE FROM FOREIGN MATERIAL	
	Check for any foreign material or obstruction in the door window glass seal.
	Is the door window glass seal free from foreign material? Yes GO to A4. No Remove any foreign material from door window glass seal and lubricate the seal. Test the system for normal operation.
A4: CHECK THAT THE DOOR WINDOW GLASS SEAL IS INSTALLED CORRECTLY	
	Check that the door window glass seal is installed correctly.
	Is the door window glass seal installed correctly? Yes GO to A5. No Install the door window glass seal correctly. Test the system for normal operation.
A5: CHECK THAT THE DOOR WINDOW GLASS SEAL IS NOT WORN IN THE CHANNELS	
	Visually check that the door window glass seal is not worn in the door channels.
	Is the door window glass seal worn in the channels? Yes Install a new door window glass seal as necessary. Test the system for normal operation. No Install the door window glass and adjust the door window glass. Test the system for normal operation.
PINPOINT TEST B : WINDOW(S) INOPERATIVE (MOTOR NOISE CANNOT BE HEARD)	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
B1: CHECK FOR DOOR WINDOW REGULATOR MOTOR NOISE	
	Operate the door window regulator motor as necessary.
	Is there a noise from the door window regulator motor when operated? Yes GO to B2. No

	Install a new door window regulator motor as necessary. REFER to: Front Door Window Regulator and Motor (501-11 Glass, Frames and Mechanisms, Removal and Installation) / Rear Door Window Regulator and Motor (501-11 Glass, Frames and Mechanisms, Removal and Installation).
B2: CHECK THAT THE DOOR WINDOW GLASS SEAL IS FREE FROM FOREIGN MATERIAL	
	1 Check for any foreign material or obstruction in the door window glass seal.
	Is the door window glass seal free from foreign material? Yes GO to B3. No Remove any foreign material from door window glass seal and lubricate the seal. Test the system for normal operation.
B3: CHECK THAT THE DOOR WINDOW GLASS SEAL IS INSTALLED CORRECTLY	
	1 Check that the door window glass seal is installed correctly.
	Is the door window glass seal installed correctly? Yes GO to B4. No Install the door window glass seal correctly. Test the system for normal operation.
B4: CHECK THAT THE DOOR WINDOW GLASS SEAL IS NOT WORN IN THE CHANNELS	
	1 Visually check that the door window glass seal is not worn in the door channels.
	Is the door window glass seal worn in the channels? Yes Install a new door window glass seal as necessary. Test the system for normal operation. No Install the door window glass. Adjust the door window glass referring to the door window glass retaining bracket procedure at the end of this section (see below). Test the system for normal operation. If the concern persists, Test the system for normal operation.

PINPOINT TEST C : SLOW OR PARTIAL WINDOW OPERATION

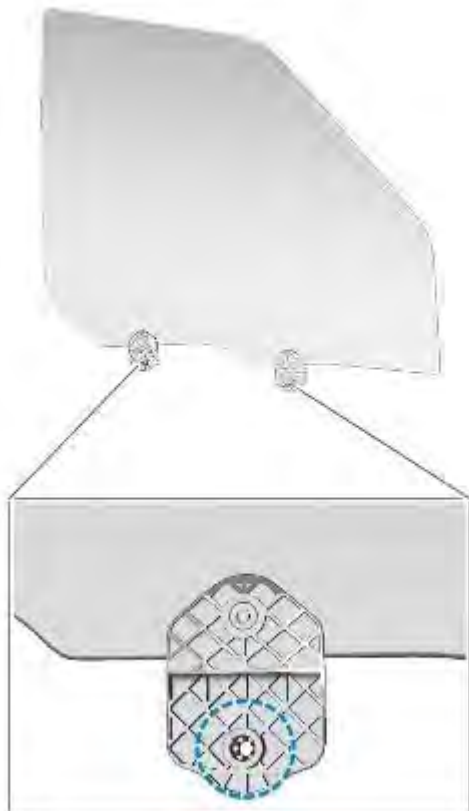
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
C1: CHECK THE OPERATION OF THE DOOR WINDOW REGULATOR MOTOR	
	1 Remove the door window glass as necessary. REFER to: Front Door Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation) / Rear Door Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
	2 Operate the door window regulator as necessary.
	Does the door window regulator operate correctly? Yes GO to C2. No GO to C5.
C2: CHECK THAT THE DOOR WINDOW GLASS SEAL IS FREE FROM FOREIGN MATERIAL	
	1 Check for any foreign material or obstruction in the door window glass seal.
	Is the door window glass seal free from foreign material? Yes GO to C3. No Remove any foreign material from door window glass seal and lubricate the seal. Test the system for normal operation.
C3: CHECK THAT THE DOOR WINDOW GLASS SEAL IS INSTALLED CORRECTLY	
	1 Check that the door window glass seal is installed correctly.
	Is the door window glass seal installed correctly? Yes GO to C4. No Install the door window glass seal correctly. Test the system for normal operation.
C4: CHECK THAT THE DOOR WINDOW GLASS SEAL IS NOT WORN IN THE CHANNELS	
	1 Visually check that the door window glass seal is not worn in the door channels.
	Is the door window glass seal worn in the channels? Yes Install a new door window glass seal as necessary. Test the system for normal operation. No Adjust the door window glass referring to the door window glass retaining bracket procedure at the end of this section (see below). Test the system for normal operation.
C5: CHECK THE VOLTAGE TO THE DOOR WINDOW REGULATOR MOTOR	
• NOTE: The door window regulator motor can be removed from the regulator. Install a new door window regulator motor not the complete assembly for this concern.	
	1 Using a multimeter, check the voltage to the door window regulator motor.
	Is the voltage greater than 10 volts? Yes Install a new door window regulator motor as necessary. No Repair the wiring harness. Test the system for normal operation. If the concern continues, install a new door window regulator motor as necessary.

PINPOINT TEST D : FRONT DOOR WINDOW GLASS BOUNCE BACK

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
D1: CHECK WINDOW MOTOR INITIALIZATION	
	1 Initialize the door window motor. REFER to: Door Window Motor Initialization (501-11 Glass, Frames and Mechanisms, General Procedures).
	Did the initialization work? Yes Test the system for normal operation. No GO to D2.
D2: CHECK THAT THE DOOR WINDOW GLASS SEAL IS FREE FROM FOREIGN MATERIAL	
	1 Check for any foreign material or obstruction in the door window glass seal.
	Is the door window glass seal free from foreign material? Yes GO to D3. No Remove any foreign material from door window glass seal and lubricate the seal. Test the system for normal operation.
D3: CHECK THAT THE DOOR WINDOW GLASS SEAL IS INSTALLED CORRECTLY	
	1 Check that the door window glass seal is installed correctly.
	Is the door window glass seal installed correctly? Yes GO to D4. No Install the door window glass seal correctly. Test the system for normal operation.
D4: CHECK THAT THE DOOR WINDOW GLASS SEAL IS NOT WORN IN THE CHANNELS	
	1 Visually check that the door window glass seal is not worn in the door channels.
	Is the door window glass seal worn in the channels? Yes Install a new door window glass seal as necessary. Test the system for normal operation. No GO to D5.
D5: CHECK THE DOOR WINDOW GLASS IS SECURE	
	1 Remove the door window glass outer waist seal.
	2 Check if the door glass installed correctly and secured to the door window regulator.
	Is the door window glass correctly installed and secure? Yes Test the system for normal operation. No Adjust the door window glass referring to the door window glass retaining bracket procedure in this procedure. Test the system for normal operation. If the concern persists, install a new door window regulator motor as necessary. REFER to: Front Door Window Regulator and Motor (501-11 Glass, Frames and Mechanisms, Removal and Installation).

Door window glass retaining bracket adjustment procedure

1. Remove the door window glass as necessary.
REFER to: [Front Door Window Glass](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation) / [Rear Door Window Glass](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).
2. Check for any foreign material or obstruction in the door window glass seal and channels. Clean all areas prior to adjustment to allow correct alignment.
3. Release but do not remove the door window glass retaining bracket(s) bolt(s).
4. Push the door window glass retaining bracket(s) to the edge of the door window glass to achieve minimum parallel gap.
5. Tighten the door window glass retaining bracket(s) bolt(s).
 - Tighten the retaining bolt(s) to 6Nm.

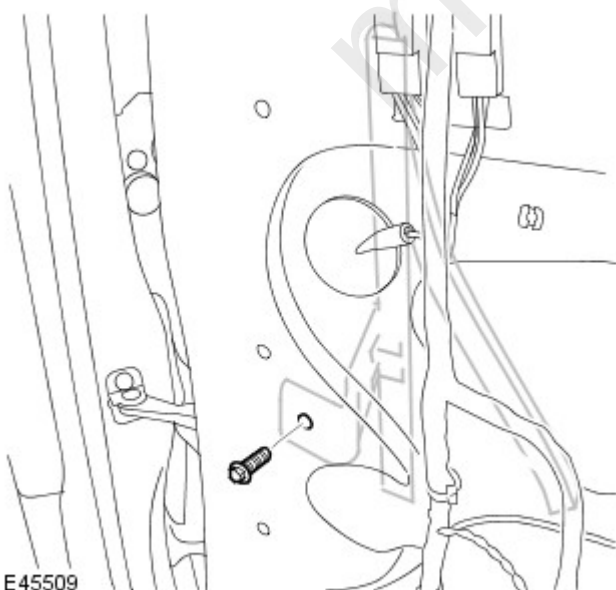


E136430

6. **6.** Apply lubricate (RYL500010) to the lower part of the door window glass retaining brackets prior to installation of the door window glass.
7. **7.** Install the door window glass as necessary.
REFER to: [Front Door Window Glass](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation) / [Rear Door Window Glass](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).
8. **8.** Check the system for normal operation.

Door glass channel setting procedure

1. **1.** Remove the door trim panel as necessary.
REFER to: [Front Door Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation) / [Rear Door Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).



E45509

2. • **NOTE:** Do not remove the door window glass channel.
2. Release the door window glass channel retaining bolt.
3. **3.** Lower the door window glass.

4. **4.** Tighten the door window glass channel retaining bolt.
5. **5.** Check the system for normal operation.

mcx30.com

Glass, Frames and Mechanisms - Door Window Motor Initialization

General Procedures

1. NOTE: After the battery has been disconnected it is necessary to initialize each door window motor separately to operate the "one-touch" up function.

• **NOTE:** Make sure a minimum of 2 minutes from initial disconnect of battery has elapsed prior to reconnecting the battery. The initialising of the window glass motor must be conducted with the engine running.

Operate the window control switch until the door window glass is in the fully closed position, continue to operate the window control switch for a further two seconds.

2. Release the window control switch.

3. Operate the window control switch in the closed position and continue to operate the window control switch for a further two seconds.

4. Operate the window control switch until the door window glass is in the fully open position ("one-touch" down).

5. NOTE: If the door window motor initialization has been completed correctly, when the window control switch is operated, the door window glass should move to the fully closed position ("one-touch" up) automatically.

• **NOTE:** If the door window glass does not fully close automatically ("one-touch" up), repeat the complete procedure.

Operate the window control switch once to the close position.

6. Repeat the door window motor initialization for each door window motor.

Glass, Frames and Mechanisms - Front Door Window Glass

Removal and Installation

Special Tool(s)

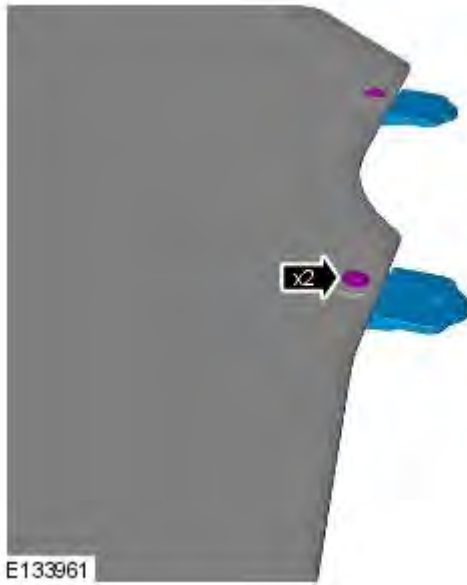
 E54200	501-114 Release Lever, Door Glass
---	--------------------------------------

Removal

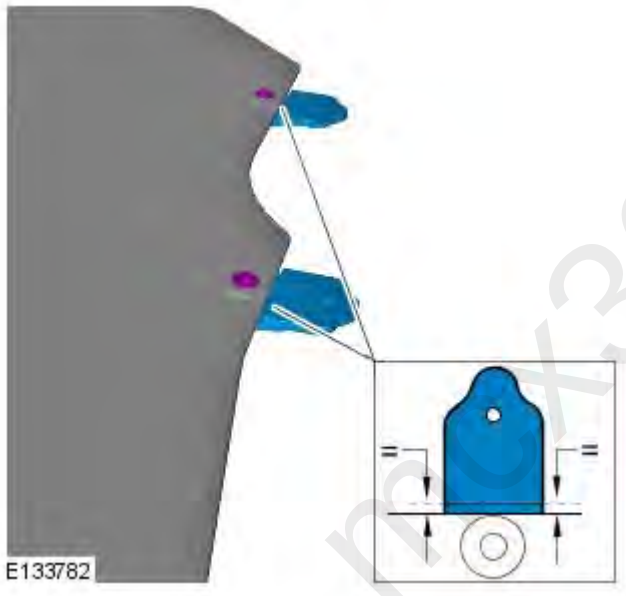
1. *Special Tool(s)*: [501-114](#)



2.

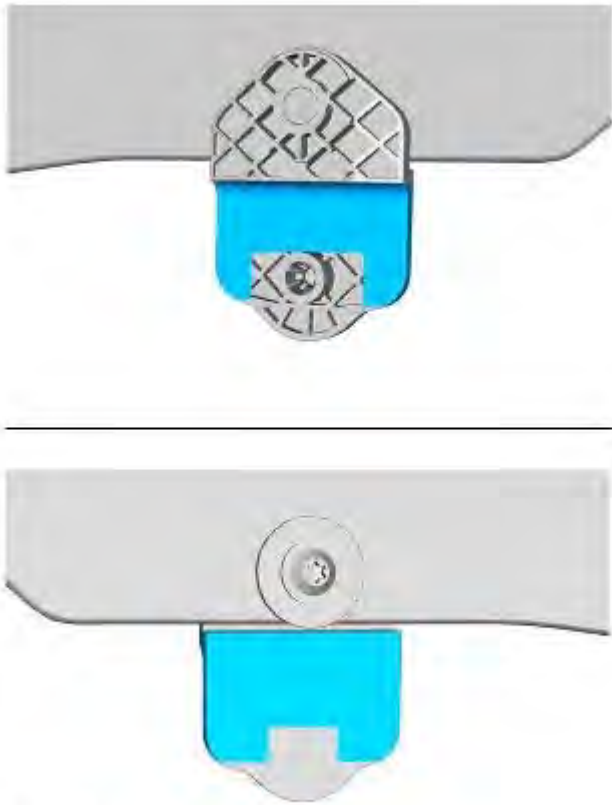


Installation



1.  **CAUTION:** Make sure that the door glass retaining brackets are pushed to the edge of the door window glass to achieve minimum parallel gap.
- **NOTE:** This operation must be done for both retaining brackets.

Torque: 6 Nm



E140674

2. **2. CAUTIONS:**



Make sure that any grease or lubricant is removed from the retaining brackets prior to installation of the anti-rattle pads.



Make sure that the anti-rattle pad is installed in the orientation illustrated.

- **NOTE:** This operation must be done for both retaining brackets.

3. To install, reverse the removal procedure.

Glass, Frames and Mechanisms - Rear Door Window Glass

Removal and Installation

Removal

- NOTE: Once the rear door window fixed glass has been removed the rear door glass can be simply lifted and removed from the door.
- NOTE: The door glass should be lowered by approximately one third.

1. Remove the rear door window fixed glass.
For additional information, refer to: [Rear Door Fixed Window Glass](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).

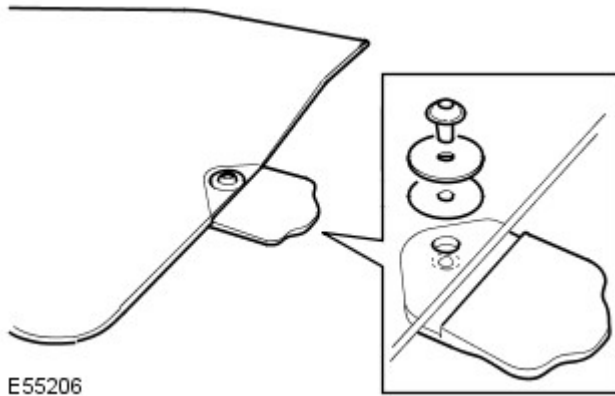
2. Remove the rear door window glass.

3. NOTE: Do not disassemble further if the component is removed for access only.

- NOTE: Note the fitted position.

Remove the glass retaining clip.

- Remove the Torx bolt.
- Remove the spacer washer.
- Remove the flat washer.



Installation

1. Install the glass retaining clip.
 - Install the spacer.
 - Install the washer.
 - Tighten the Torx screws to 8 Nm (6 lb.ft).

2. Install the rear door window glass.

3. Install the rear door window fixed glass.
For additional information, refer to: [Rear Door Fixed Window Glass](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).

Glass, Frames and Mechanisms - Liftgate Window Glass

Removal and Installation

Removal

• CAUTIONS:



Always protect paintwork and glass when removing exterior components.



Always protect the interior components when removing body glass.



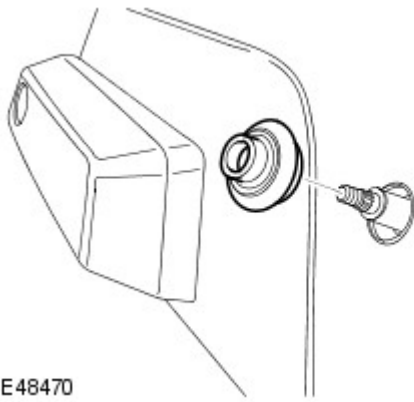
Lay the glass on felt covered supports. Do not stand on edge as this can cause chips which subsequently develop into cracks.

• NOTE: The following equipment is required: I Cutting wire and handles I Kent knife I Glazing knife I Glass replacement kit I Sealant applicator gun I Suction cups I A felt covered table or stand to support glass

1. Remove the rear wiper arm.

For additional information, refer to: [Rear Wiper Pivot Arm](#) (501-16 Wipers and Washers, Removal and Installation).

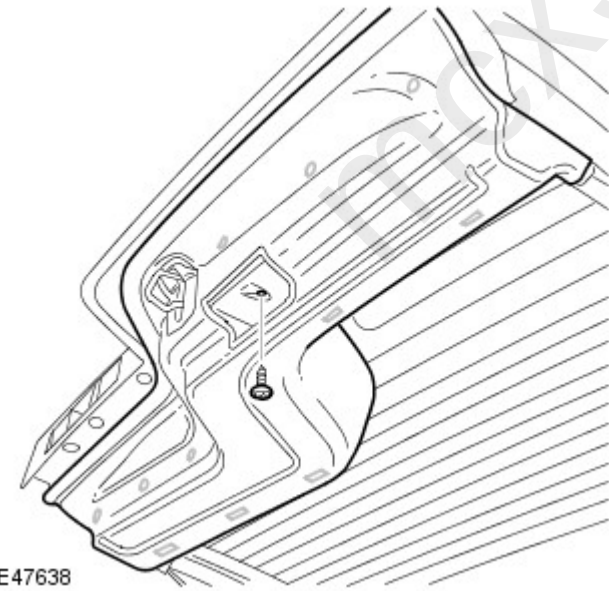
2. Remove the rear wiper drive spindle seal.



E48470

3. Remove the liftgate lower trim panel.

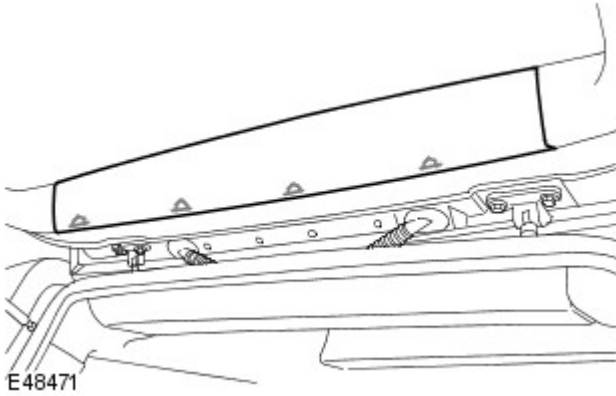
For additional information, refer to: [Liftgate Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).



E47638

4. Remove the liftgate upper trim panel.

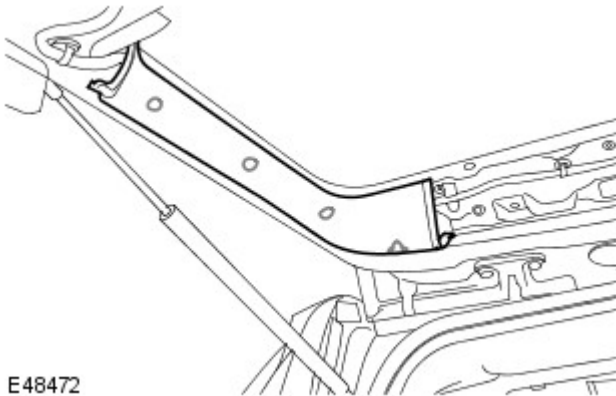
- Release the 4 clips.



E48471

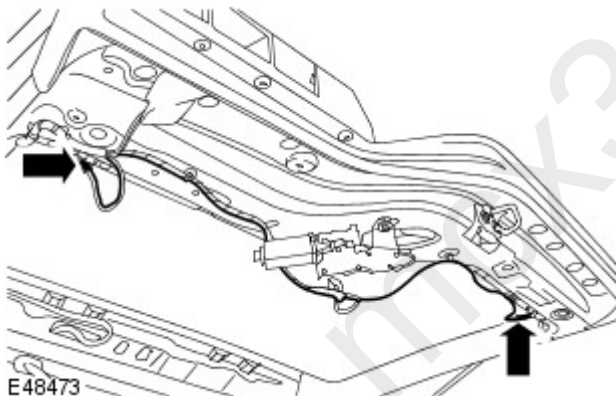
5. Remove the liftgate side trim panel.

- Release the 4 clips.
- Repeat the above procedure for the other side.



E48472

6. Disconnect both heated rear window electrical connectors.

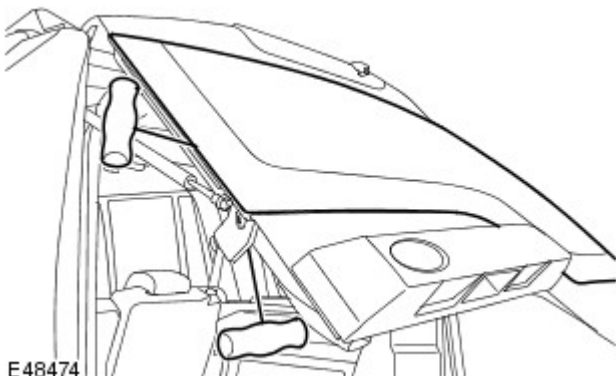


E48473

7. **WARNING:** Eye protection must be worn.

With assistance, remove the liftgate window glass.

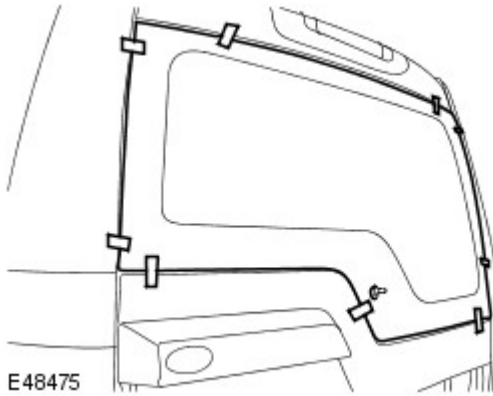
- Carefully cut through the sealant using a glazing knife or cutting wire.
- Attach the suction cups.
- Noting fitted position, remove the 5 spacers.



E48474

Installation

1. Carefully remove the sealant from the body to leave a smooth surface.



2. Install the liftgate window glass.

- Install the spacers equally as shown.
- Use masking tape to establish reference marks as an alignment aid.

3. Remove the liftgate window glass.

- Clean the component mating faces.

4. Apply etch primer to any bare metal.

5. Apply primer over the etch primer.

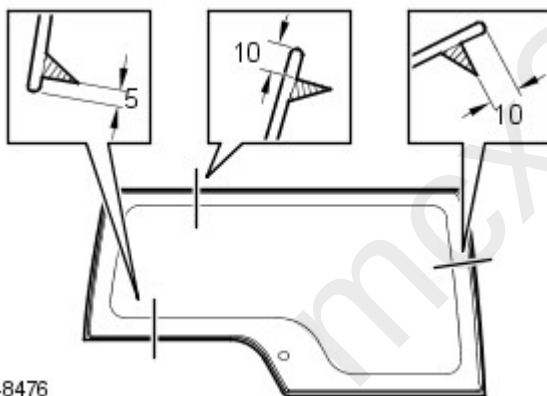
6. Apply glass primer to the sealant face on the liftgate window glass and allow to cure.

7. Apply activator over the old sealant on the liftgate and allow to cure.

8. Fit a pre-cut nozzle to the sealer cartridge, remove the lid, shake out the crystals and fit the cartridge to the applicator gun.

- Modify the nozzle to achieve a bead section in the shape of a right angle triangle with a base of 8 mm and a vertical height of 12 mm.

9. Apply a continuous bead of sealant to the liftgate window glass as shown.



10. With assistance, install and align the liftgate window glass.

- Lightly press the window glass to seat the sealer.

11. Test the sealer for leaks, apply additional sealer if necessary. If water is used, allow sealer to dry before testing. Spray water around the glass and check for leaks. Mark any area that leaks. Dry the glass and sealer then apply additional sealer.

12. Connect the heated rear window electrical connectors.

13. Install the liftgate side trim panel.

- Secure with the clips.
- Repeat the above procedure for the other side.

14. Install the liftgate upper trim panel.

- Secure with the clips.

15. Install the liftgate lower trim panel.

For additional information, refer to: [Liftgate Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and

Installation).

16. Install the rear wiper drive spindle seal.

17. Install the rear wiper arm.

For additional information, refer to: [Rear Wiper Pivot Arm](#)
(501-16 Wipers and Washers, Removal and Installation).

mcx30.com

Glass, Frames and Mechanisms - Rear Door Fixed Window Glass

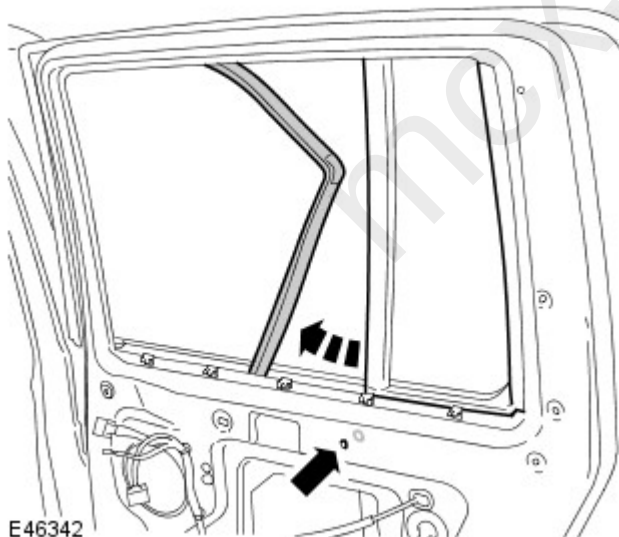
Removal and Installation

Removal

1. Remove the rear door window motor and regulator assembly.
For additional information, refer to: [Rear Door Window Regulator and Motor](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).
2. Lower the rear door glass to the bottom of the door.
 - Remove the wedge.
3. Remove the rear door frame trim.
 - Release the 2 clips.
 - Carefully release the door trim.
4. Carefully remove the inner waist seal.



5. Release the lining from the glass rear channel.
6. Remove the rear door window fixed glass.
 - Remove the grommet.
 - Loosen the Torx screw, but do not remove it completely at this stage.
 - Pull the lower edge of the glass forward to release it from the door frame.



Installation

1. Install the rear door window fixed glass.
 - Make sure the locating peg on the fixed glass has engaged with the door frame.
 - Tighten the Torx screw to 10 Nm (7 lb.ft).
2. Install the channel lining.
3. Install the inner waist seal.
4. Install the door frame trim.

- Clean the component mating faces.
- Remove backing tape from adhesive strip.
- Secure the clips.

5. NOTE: Wedge the glass in this position.

Raise the rear door glass fully.

- Engage the door glass with the channel.

6. Install the rear door window motor and regulator assembly.
For additional information, refer to: [Rear Door Window Regulator and Motor](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).

mcx30.com

Glass, Frames and Mechanisms - Windshield Glass

Removal and Installation

Removal

• CAUTIONS:



Always protect paintwork and glass when removing exterior components.



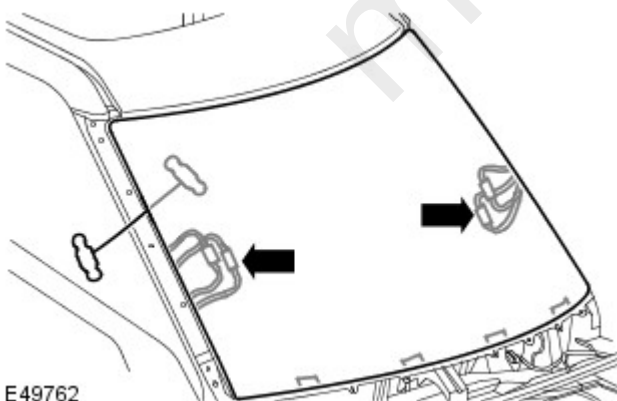
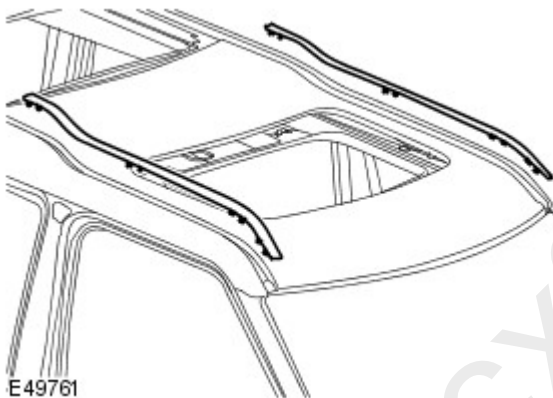
Always protect the interior components when removing body glass.



Lay the glass on felt covered supports. Do not stand on edge as this can cause chips which subsequently develop into cracks.

• NOTE: The following equipment is required: I Cutting wire and handles I Kent knife I Glazing knife I Windshield replacement kit I Sealant applicator gun I Suction cups I A felt covered table or stand to support glass

1. Remove the plenum chamber panel.
For additional information, refer to: [Plenum Chamber](#) (412-01 Air Distribution and Filtering, Removal and Installation).
2. Remove both A-pillar upper trim panels.
For additional information, refer to: [A-Pillar Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).
3. Remove the rain sensor.
For additional information, refer to: [Rain Sensor](#) (501-16 Wipers and Washers, Removal and Installation).
4. Remove the roof moulding.
 - Release the 6 clips.
 - Repeat the above procedure for the other side.



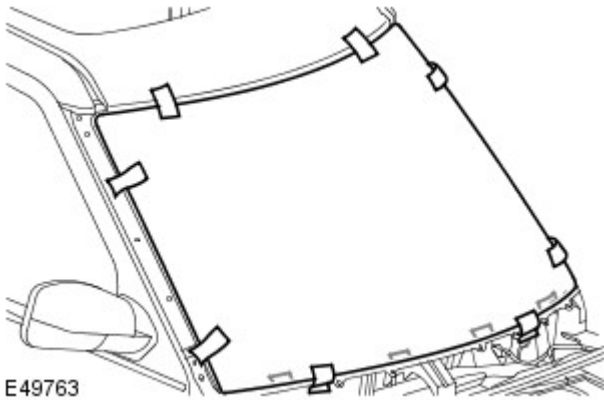
5. WARNING: Eye protection must be worn.

With assistance, remove the windshield glass.

- If installed, disconnect the 4 electrical connectors.
- Carefully cut through the sealant using a glazing knife or cutting wire.
- Attach the suction cups.
- Noting fitted position, remove the 4 spacers.

Installation

1. Carefully remove the sealant from the body to leave a smooth surface.



2. Install the windshield glass.

- Install the spacers equally as shown.
- Use masking tape to establish reference marks as an alignment aid.

3. Remove the windshield glass.

- Clean the component mating faces.

4. Apply etch primer to any bare metal.

5. Apply primer over the etch primer.

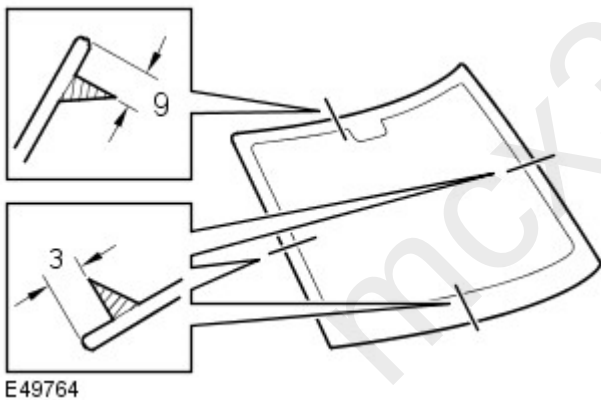
6. Apply glass primer to the sealant face on the windshield glass and allow to cure.

7. Apply activator over the old sealant on the windshield glass and allow to cure.

8. Fit a pre-cut nozzle to the sealer cartridge, remove the lid, shake out the crystals and fit the cartridge to the applicator gun.

- Modify the nozzle to achieve a bead section in the shape of a right angle triangle with a base of 8 mm and a vertical height of 12 mm.

9. Apply a continuous bead of sealant to the windshield glass as shown.



10. With assistance, install the window glass.

- Lightly press the window glass to seat the sealer.
- Connect the electrical connectors.

11. Test the sealer for leaks, apply additional sealer if necessary. If water is used, allow sealer to dry before testing. Spray water around the glass and check for leaks. Mark any area that leaks. Dry the glass and sealer then apply additional sealer.

12. Install the roof mouldings.

- Secure with the clips.

13. Install the rain sensor.

For additional information, refer to: [Rain Sensor](#) (501-16 Wipers and Washers, Removal and Installation).

14. Install both A-pillar upper trim panels.

For additional information, refer to: [A-Pillar Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

15. Install the plenum chamber panel.

For additional information, refer to: [Plenum Chamber](#) (412-01 Air Distribution and Filtering, Removal and Installation).

mcx30.com

Glass, Frames and Mechanisms - Glass Roof Panel

Removal and Installation

Removal

• CAUTIONS:



Always protect paintwork and glass when removing exterior components.



Always protect the interior components when removing body glass.



Lay the glass on felt covered supports. Do not stand on edge as this can cause chips which subsequently develop into cracks.

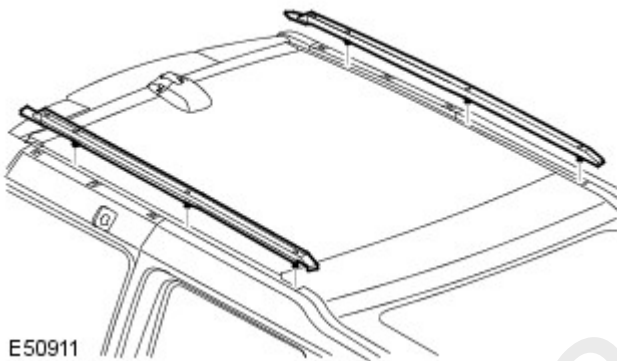
• NOTE: The following equipment is required: I Cutting wire and handles I Kent knife I Glazing knife I Glass replacement kit I Sealant applicator gun I Suction cups I A felt covered table or stand to support glass

1. Remove the headliner.

For additional information, refer to: [Headliner](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

2. Remove the roof moulding.

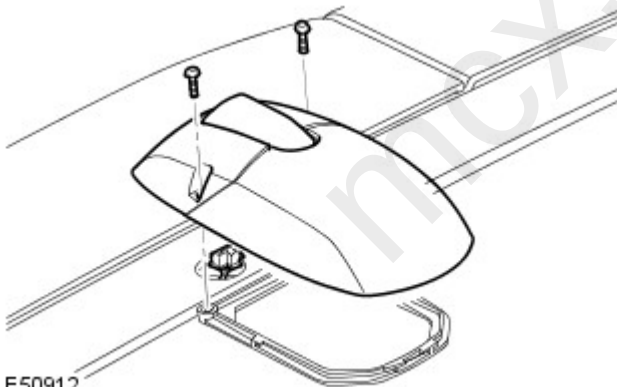
- Release the 3 clips.
- Repeat the above procedure for the other side.



E50911

3. Remove the antenna.

- Disconnect the cable.
- Remove the 2 screws.

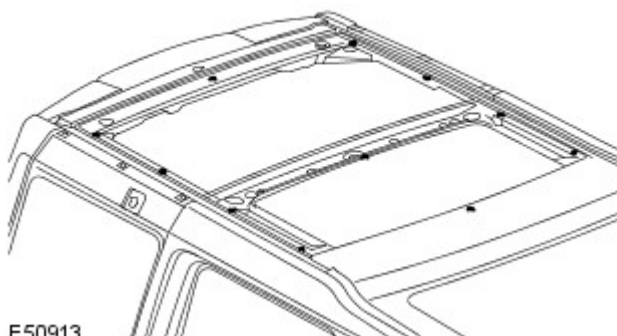


E50912

4. WARNING: Eye protection must be worn.

With assistance, remove the roof panel fixed glass.

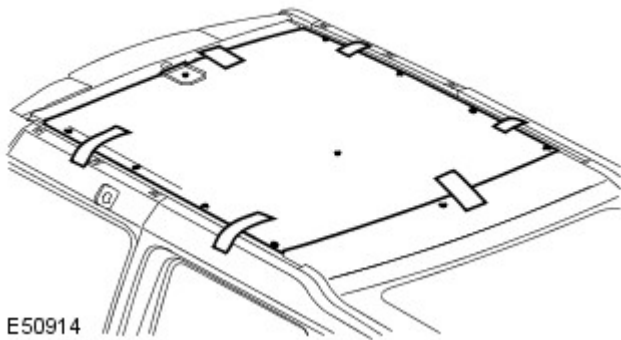
- Carefully cut through the sealant using a glazing knife or cutting wire.
- Attach the suction cups.
- Noting fitted position, remove the 11 spacers.



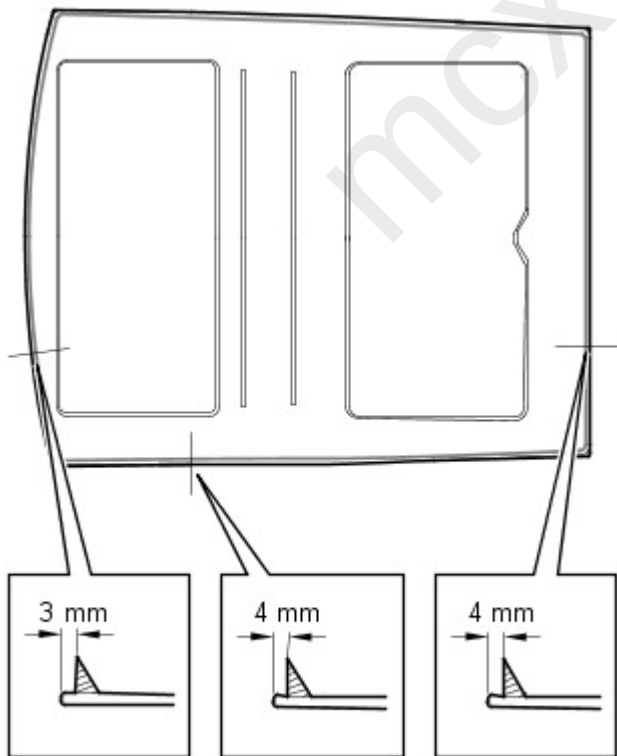
E50913

Installation

1. Carefully remove the sealant from the body to leave a smooth surface.
2. Install the roof panel fixed glass.
 - Install the spacers equally as shown.
 - Use masking tape to establish reference marks as an alignment aid.



3. With assistance, remove the roof panel fixed glass.
 - Clean the component mating faces.
4. Apply etch primer to any bare metal.
5. Apply primer over the etch primer.
6. Apply glass primer to the sealant face on the roof panel fixed glass and allow to cure.
7. Apply activator over the old sealant on the roof panel and allow to cure.
8. Fit a pre-cut nozzle to the sealer cartridge, remove the lid, shake out the crystals and fit the cartridge to the applicator gun.
 - Modify the nozzle to achieve a bead section in the shape of a right angle triangle with a base of 8 mm and a vertical height of 12 mm.
9. Apply a continuous bead of sealant to the roof panel fixed glass as shown.



10. With assistance, install and align the roof panel fixed glass.

- Lightly press the roof panel fixed glass to seat the sealer.

11. Test the sealer for leaks, apply additional sealer if necessary. If water is used, allow sealer to dry before testing. Spray water around the glass and check for leaks. Mark any area that leaks. Dry the glass and sealer then apply additional sealer.

12. Install the antenna.

- Tighten the screws.
- Connect the cable.

13. Install the roof mouldings.

- Secure with the clips.

14. Install the headliner.

For additional information, refer to: [Headliner](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

mcx30.com

Glass, Frames and Mechanisms - Rear Quarter Window Glass

Removal and Installation

Removal

• CAUTIONS:



Always protect paintwork and glass when removing exterior components.



Always protect the interior components when removing body glass.

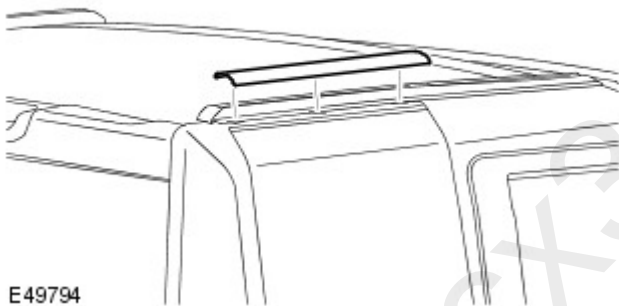


Lay the glass on felt covered supports. Do not stand on edge as this can cause chips which subsequently develop into cracks.

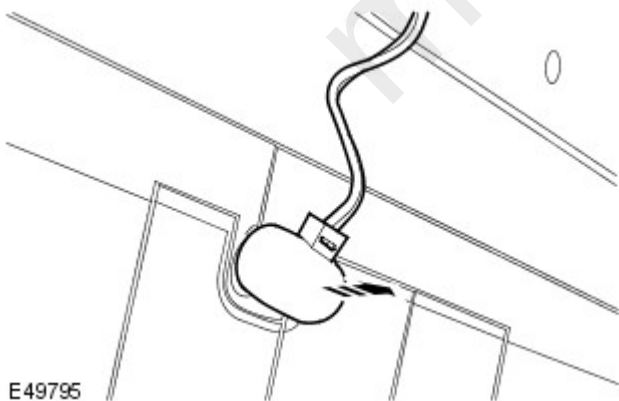
• NOTE: The following equipment is required:

- Cutting wire and handles
- Kent knife
- Glazing knife
- Glass replacement kit
- Sealant applicator gun
- Suction cups
- A felt covered table or stand to support glass

1. Remove the D-pillar upper trim panel.
For additional information, refer to: [D-Pillar Trim Panel](#) (501-05 Interior Trim and Oramentation, Removal and Installation).
2. Remove the rear quarter window glass panel.
 - Release the 3 clips.

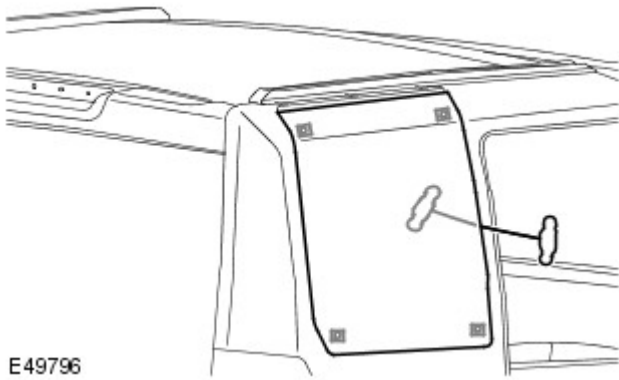


E49794



E49795

3. Disconnect the rear quarter window glass antenna connector.



E49796

4.  **WARNING:** Eye protection must be worn.

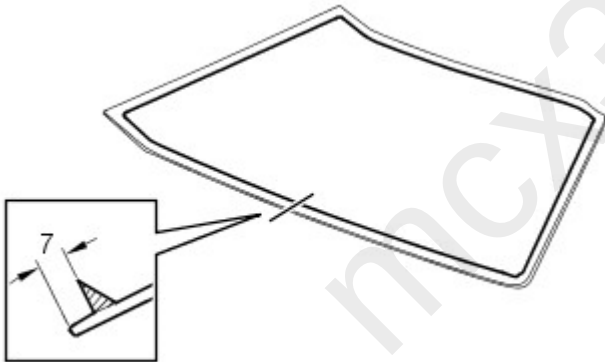
 **CAUTION:** Care must be taken not to damage the air bag curtain module when cutting through the sealant.

With assistance, remove the rear quarter window glass.

- Carefully cut through the sealant using a glazing knife or cutting wire.
- Attach the suction cups.
- Noting fitted position, remove the 4 spacers.

Installation

1. Carefully remove the sealant from the body to leave a smooth surface.
2. Apply etch primer to any bare metal.
3. Apply primer over the etch primer.
4. Apply glass primer to the sealant face on the rear quarter window glass and allow to cure.
5. Apply activator over the old sealant on the rear quarter window glass and allow to cure.
6. Fit a pre-cut nozzle to the sealer cartridge, remove the lid, shake out the crystals and fit the cartridge to the applicator gun.
 - Modify the nozzle to achieve a bead section in the shape of a right angle triangle with a base of 8 mm and a vertical height of 12 mm.
7. Apply a continuous bead of sealant to the rear quarter window glass as shown.



E49797

8. With assistance, install and align the rear quarter window glass.
 - Install the spacers equally as shown.
 - Lightly press the window glass to seat the sealer.
9. Test the sealer for leaks, apply additional sealer if necessary. If water is used, allow sealer to dry before testing. Spray water around the glass and check for leaks. Mark any area that leaks. Dry the glass and sealer then apply additional sealer.
10. Connect the rear quarter window glass antenna connector.
 - Clean the component mating faces.
11. Install the rear quarter window glass panel.
 - Secure with the clips.
12. Install the D-pillar upper trim panel.

For additional information, refer to: [D-Pillar Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

Glass, Frames and Mechanisms - Front Door Window Regulator and Motor

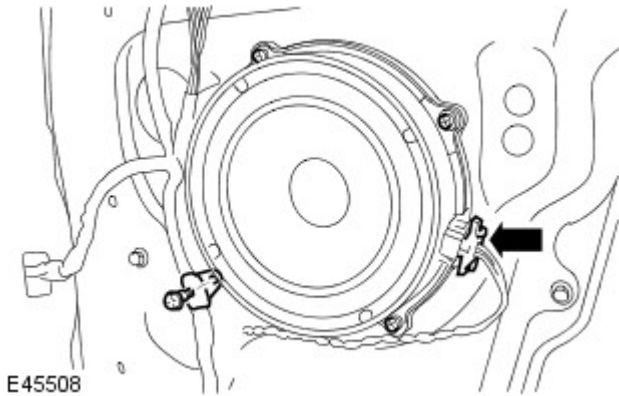
Removal and Installation

Removal

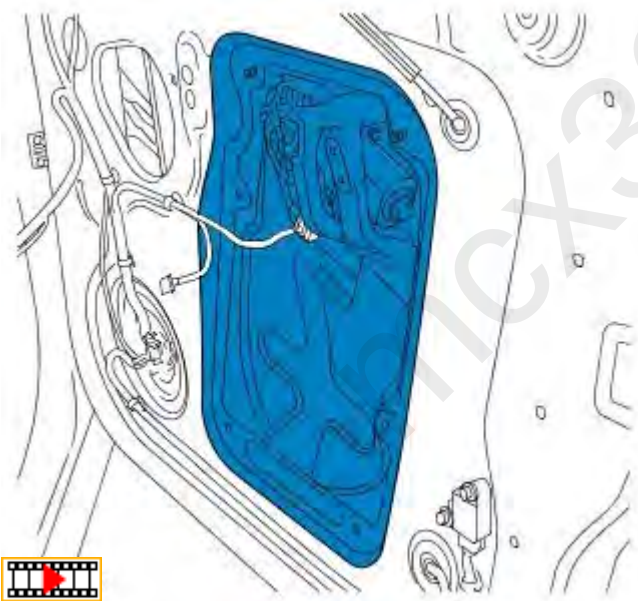
- NOTE: Removal steps in this procedure may contain installation details.

1. Refer to: [Front Door Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).
2. Refer to: [Front Door Window Glass](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).

3.



4. Torque:

Front door window regulator and motor retaining bolts 10 NmFront door window regulator and motor retaining nuts 10 NmDoor window glass guide channel retaining bolt 10 Nm

Installation

1. To install, reverse the removal procedure.

Glass, Frames and Mechanisms - Rear Door Window Regulator and Motor

Removal and Installation

Special Tool(s)	
 501-114 E54200	Door glass release lever
	501-114

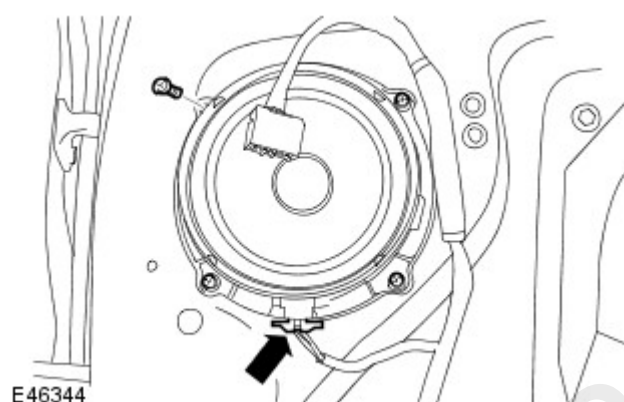
Removal

- NOTE: The door glass should be lowered by approximately one third.

1. Remove the rear door trim panel.
For additional information, refer to: Rear Door Trim Panel (501-05, Removal and Installation).

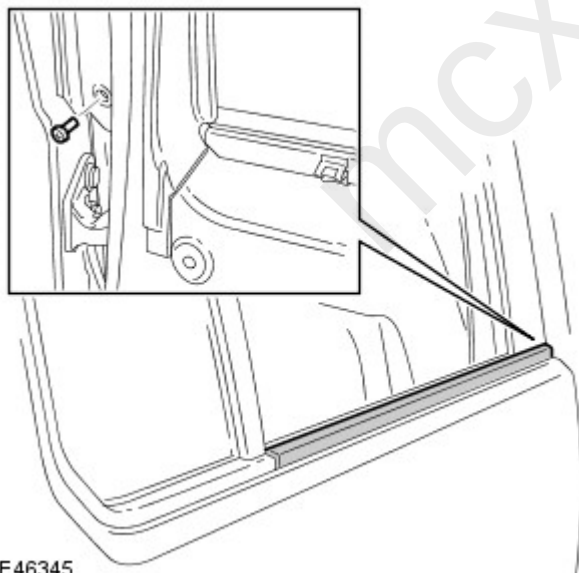
2. Remove the speaker.

- Disconnect the electrical connector.
- Remove the 4 screws.



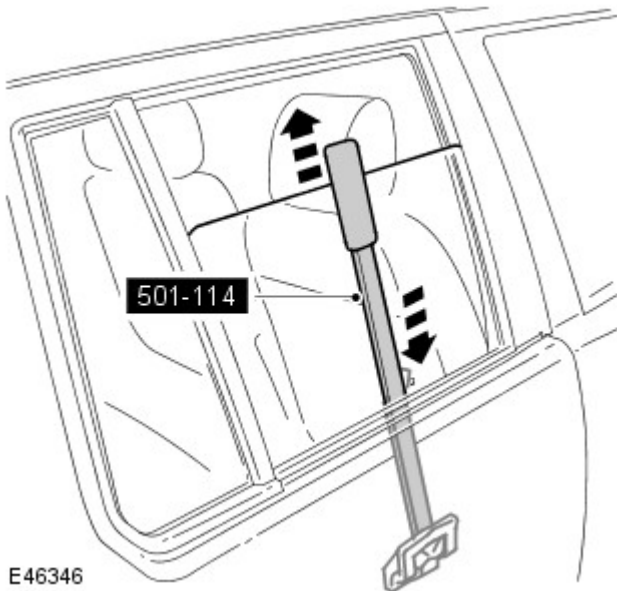
3. Carefully remove the outer waist seal.

- Remove the screw.



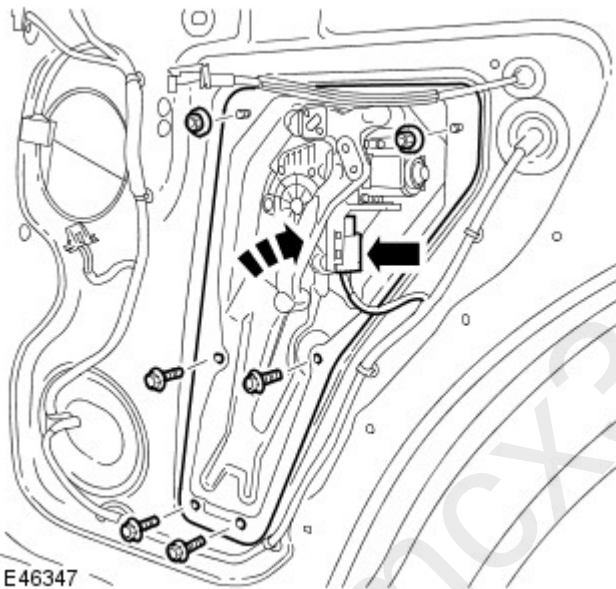
4. NOTE: Wedge the glass in this position.

Using the special tool, release the clip and lift the glass to the top of the door frame.



5. Remove the window motor and regulator assembly.

- Disconnect the electrical connector.
- Remove the 4 bolts.
- Remove the 2 nuts.
- Rotate the assembly 90 degrees clockwise, to remove the upper part of the assembly from the rear side of the aperture first.



Installation

1. Install the window motor and regulator assembly.

- Tighten the bolts and nuts to 10 Nm (7 lb.ft).
- Connect the electrical connector.

2. Secure the glass to the glass regulator.

- Remove the wedge.
- Lower the glass.

3. Install the outer waist seal.

4. Install the speaker

- Tighten the screws.
- Connect the electrical connector.

5. Install the rear door trim panel.

For additional information, refer to: Rear Door Trim Panel (501-05, Removal and Installation).

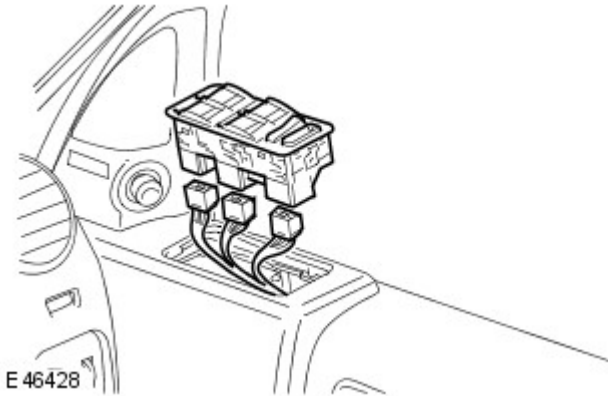
Glass, Frames and Mechanisms - Front Door Window Control Switch

Removal and Installation

Removal

1. Remove the window control switch.

- Carefully release the switch.
- Disconnect the 3 electrical connectors.



Installation

1. To install, reverse the removal procedure.

mcx30.com

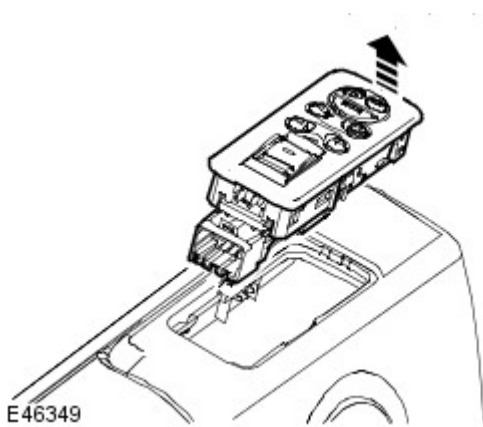
Glass, Frames and Mechanisms - Rear Door Window Control Switch

Removal and Installation

Removal

1. Remove the window control switch.

- Carefully release the front of the switch.
- Disconnect the electrical connector.



Installation

1. To install, reverse the removal procedure.