

## SECTION : 501-11 Glass, Frames and Mechanisms

**VEHICLE APPLICATION :** 2008.0 Falcon

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## DESCRIPTION AND OPERATION

### Glass, Frames and Mechanisms

#### Front and Rear Power Windows

The five switches, located on the front driver door trim, control the four windows. Switches are also provided on the other three door trims for operation of that window only. The child lock switch on the front driver door can be used to disable the rear switches.

Auto down - the driver's window switch can be pressed and held for approximately 1 second to automatically fully lower the driver's window.

All electric windows operate with the ignition switch in the "ON" or "accessory" positions. When the key is returned to the "OFF" position, power window operation is available for one hour (or 45 seconds if a door is opened).



## DIAGNOSIS AND TESTING

### Glass, Frames and Mechanisms

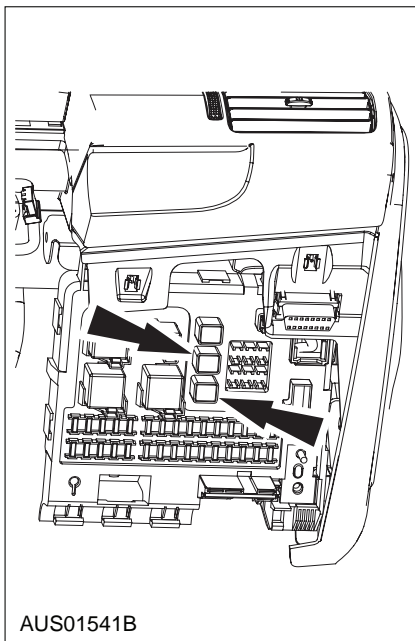
Before making any of the following trouble checks, make sure that the battery is fully charged, and turn the ignition switch to the accessory position.

#### Circuit

For wiring circuit checks refer to the wiring diagram in Section 501-11-00.

#### All Power Windows are inoperative

1. Remove the 30 amp circuit breaker in the fuse panel and check for continuity through the contacts.



2. Connect voltmeter or test light between lower circuit breaker terminal and ground to ensure electrical supply at this point.
3. Check operation of accessory relay in relay block by turning the ignition switch on and off and observe the relay operation by sound or feel. If relay is not operating, fit a new relay. Check for current at the switches.

#### A Single Power Window is inoperative

1. Check operation of accessory relay in relay block by turning the ignition switch on and off and observe the relay operation by sound or feel. If relay is not operating, fit a new relay. Check for current at the switches.
2. If the motor does not run, disconnect the wires at the motor in order to check for voltage. Attach feed wire while actuating the window switch. If there is no voltage at the motor feed terminals, check for voltage at the switch feed wire. If there is voltage at the switch, replace the switch.

#### Window inoperative in one direction

1. Check the operation with the individual and master switches. If only one switch is inoperative, replace the faulty switch.
2. If the window will not function correctly from either switch, check for defective wiring between the switch and the motor. If the wiring leads are open, replace the wiring.
3. If the window operates normally in one direction, the motor is not defective.

#### Power window operates sluggishly

1. Check the regulator and window runs for binding. Adjust the runs, repair the regulator. Lubricate the runs with silicone lubricant.
2. Check for frayed insulation where the window wires may partially ground. Check for loose connections which will cause high resistance.
3. Check motor current draw during operation (place an ammeter in series with the ground lead of the battery). Motor current draw should not exceed 12 amps during normal operation and should exceed 20 amps at stall. If the current is above 12 amps during operations of the window, readjust the glass mechanism. If the stall current is below 20 amperes at stall, look for poor electrical connections.
4. Motor current draw when disconnected from the regulator plate should not exceed 5 amps.

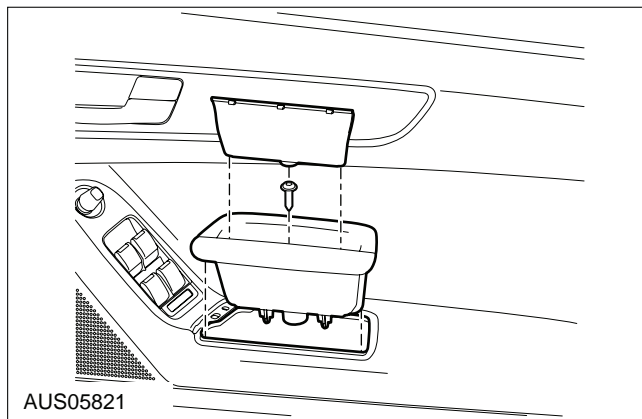


## REMOVAL AND INSTALLATION

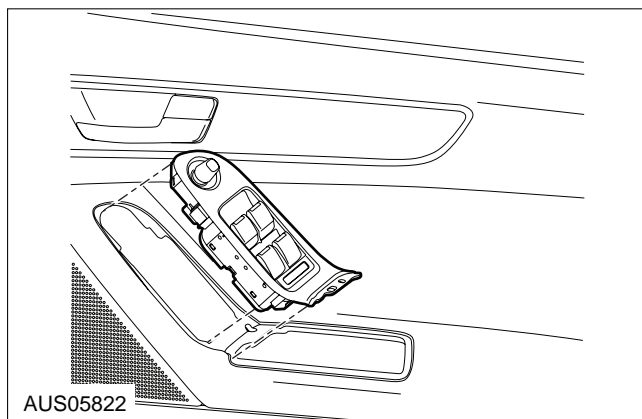
### Multi Window Control Switch (Driver's Side)

#### Removal

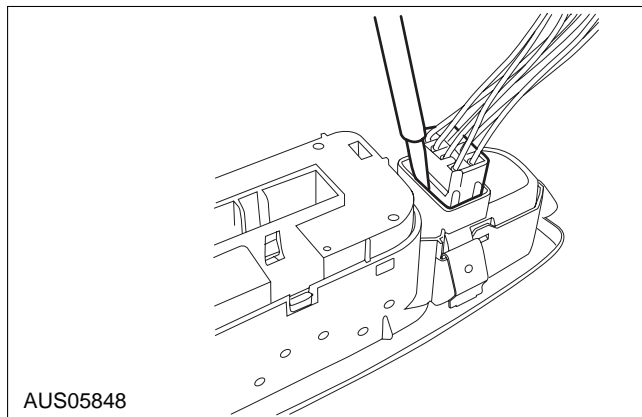
1. Remove soft feel insert from pull cup (where fitted).
2. Remove screw cap (where fitted) & screw (x1) from pull cup.
3. Remove pull cup from door trim.



4. Remove power window switch from the door trim.



5. Disconnect the wiring connectors  
**NOTE:** Please take care in removing the connector attached to the Mirror Control Switch. Use a small flat-nose screw driver to unlock the connector before removal

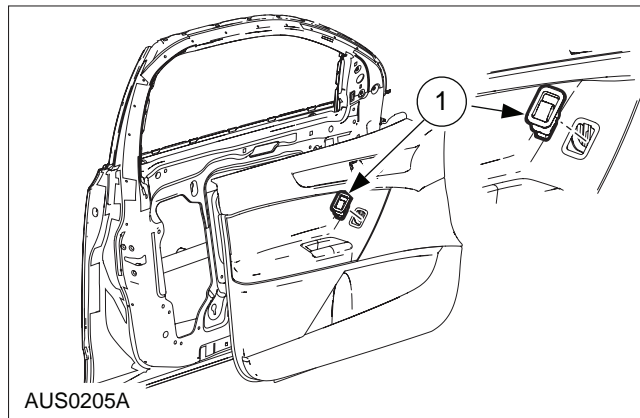


### Single Window Control Switch

#### Removal

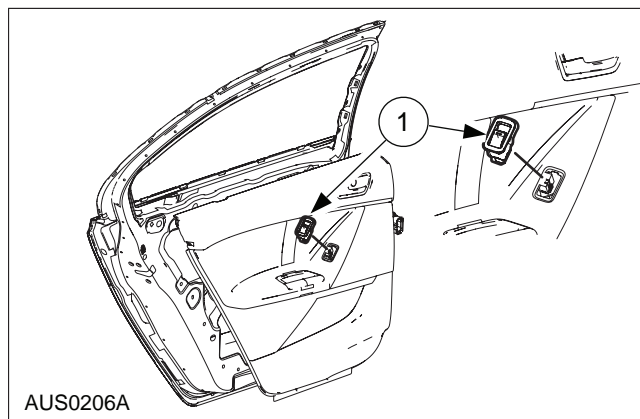
1. Remove switch panel by sliding a small flat-nose flat screw driver underneath the bottom of the switch and depressing the locking tab.
2. Disconnect wiring.

#### Front Door



Item	Description
1	Window control switch

#### Rear Door



Item	Description
1	Window control switch

#### Installation

1. Reverse the removal procedure.

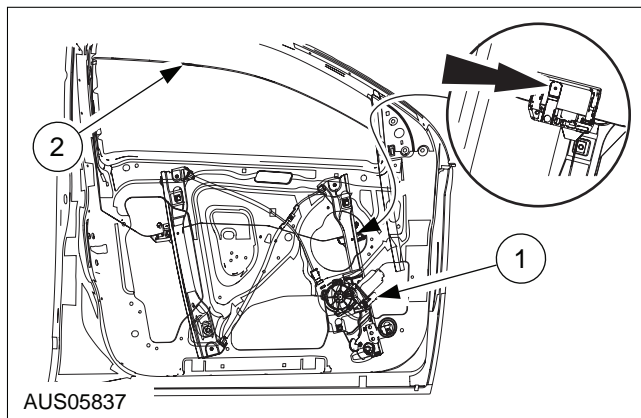
### Front Door Window Glass

#### Removal

1. Remove the front door trim. For additional information, refer to section 501-05.
2. Remove the rear view mirror. For additional information, refer to section 501-09.
3. Remove the front door outer beltline. For additional information, refer to section 501-03.
4. Temporarily reconnect the power window switch.



5. Raise the door glass until the glass to regulator retaining clips are accessible. Hold the glass at the top edge and using your hand to deflect and disengage the vertical legs of both retaining clips.  
**NOTE:** If the regulator is jammed preventing access to the retaining clips it may be necessary to cut the cable on the regulator in order to lower the glass.



Item	Description
1	Front Power Window Regulator
2	Front Door Moving Glass

6. Raise the glass in the door and disengage from the glass run. Tilt the glass forward and withdraw from the outside of the door.

#### Installation

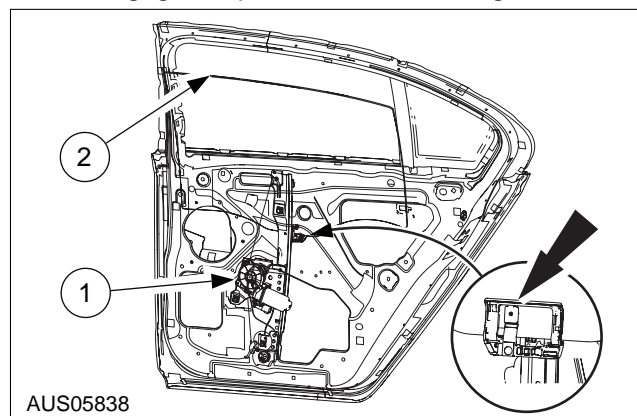
1. Insert the glass into the door, forward edge downwards from the outside. Lower glass into the door and tilt back to normal position to engage in door glass runs.
2. Align the glass to regulator. Push glass downwards to ensure engagement of retaining clips.
3. Temporarily connect the power window switch to the wiring to ensure glass moves freely in glass runs.
4. Install front door outer beltline. For additional information, refer to section 501-03.
5. Install the rear view mirror. For additional information, refer to section 501-09.
6. Install the front door trim. For additional information, refer to section 501-05.

### Rear Door Window Glass - Moveable

#### Removal

1. Remove the rear door trim. For additional information, refer to section 501-05.
2. Remove the rear door outer beltline. For additional information, refer to section 501-03.
3. Temporarily reconnect the power window switch.

4. Raise the door glass until the glass to regulator retaining clip is accessible by hand. Hold the glass at the top edge and use hand to deflect and disengage the plastic nose from the glass hole.



Item	Description
1	Rear Power Window Regulator
2	Rear Door Moving Glass

5. Withdraw the moveable door glass from the outside of the door frame.  
**NOTE:** It may be found beneficial to lower the window regulator after disengaging the glass to regulator retaining clips.

#### Installation

1. Insert the glass into the door from the outside, tilt the glass forward and lower it into the glass run.
2. Raise the window regulator and align the glass to regulator. Push glass downward and ensure engagement of retaining clip in glass hole.
3. Temporarily connect the power window switch to ensure glass moves freely in glass runs.
4. Install the rear door outer beltline. For additional information, refer to section 501-03.
5. Install the rear door trim. For additional information, refer to section 501-05.

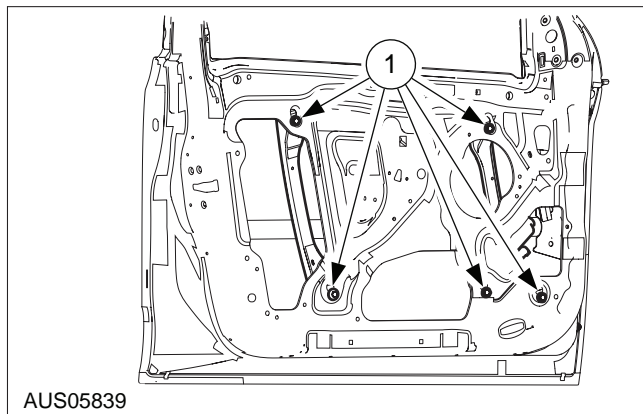
### Front Door Window Regulator

#### Removal

1. Remove the front door trim. For additional information, refer to section 501-05.
2. Remove the rear view mirror. For additional information, refer to section 501-09.
3. Remove the front door outer beltline. For additional information, refer to section 501-03.
4. Raise the door glass until the glass to regulator retaining clips are accessible. Hold the glass at the top edge and using your hand to deflect and disengage the vertical legs of both retaining clips.  
**NOTE:** If the regulator is jammed preventing access to the retaining clips it may be necessary to cut the cable on the regulator in order to lower the glass.



5. Raise the glass by hand and support the glass in the fully raised position.
6. Remove the 5 retaining bolts attaching the regulator to the inner panel.



7. Remove the regulator assembly.  
**NOTE:** The regulator assembly is a non-serviceable item and must be replaced if faulty.

### Installation

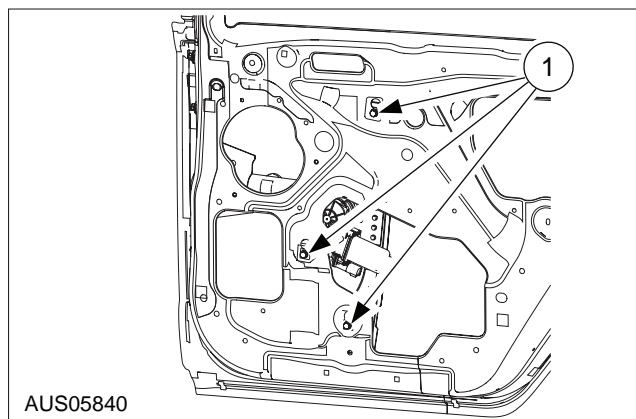
1. Position the regulator into the door and install the retaining nuts and bolts.
2. Align the glass to regulator. Push glass downwards to ensure engagement of retaining clips.
3. Temporarily connect the power window switch to the wiring to ensure glass moves freely in glass runs.
4. Install the front door outer beltline. For additional information, refer to section 501-03.
5. Install the rear view mirror. For additional information, refer to section 501-09.
6. Install the front door trim. For additional information, refer to section 501-05.

## Rear Door Window Regulator

### Removal

1. Remove the rear door trim. For additional information, refer to section 501-05.
2. Remove the rear door outer beltline. For additional information, refer to section 501-03.
3. Temporarily reconnect the power window switch.
4. Raise the door glass until the glass to regulator retaining clips are accessible. Hold the glass at the top edge and using your hand to deflect and disengage the vertical legs of both retaining clips.
5. Raise the glass by hand and support the glass in the fully raised position.

6. Remove the bolts and nuts attaching the regulator to the door inner panel.

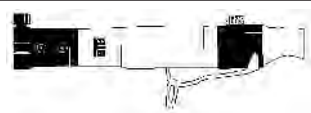


7. Remove the regulator assembly.  
**NOTE:** The regulator assembly is a non-serviceable unit and must be replaced as an assembly.

### Installation

1. Position the regulator into the door and install the retaining nuts and bolts.
2. Align the glass to regulator. Push glass downwards to ensure engagement of retaining clips.
3. Temporarily connect the power window switch to the wiring to ensure glass moves freely in glass runs.
4. Install the rear door outer beltline. For additional information, refer to section 501-03.
5. Install the rear door trim. For additional information, refer to section 501-05.

## Fixed (Stationary) Glass Replacement

Special Tool(s)	
	BTB Glass Removal tool WK 10 HD
SST-WK10HD	

**CAUTION:** ⚠ Do not slam vehicle doors within 24 hours of fixed glass replacement unless vehicle windows are open 150mm minimum. Vehicles should not be driven until urethane sealant has cured for a minimum of 6 hours.

**NOTE:** The stationary glass, which is bonded to the body aperture flanges by urethane sealant, forms part of the body structure. The replacement of any stationary glass requires that urethane sealant be used to maintain the integrity of the structure.





**Stationary glass is fitted to:**

- Windshield (laminated with a tinted band).
- Rear Window Glass (Sedan)
- Rear Window Glass (Ute)
- Rear Door Fixed Glass
- Ute Quarter Glass

**Two alternative methods may be used in the replacement of stationary glass, depending on certain criteria.**

**1. Short method**

- The short method is used where the original urethane adhesive is retained on the body opening flanges after the glass is removed and serves as a base for the replacement glass. The operator should remove the glass ensuring the maximum amount of urethane is retained on the body flanges. This method may be used to replace cracked windscreens or glass which is still intact.

**2. Long method**

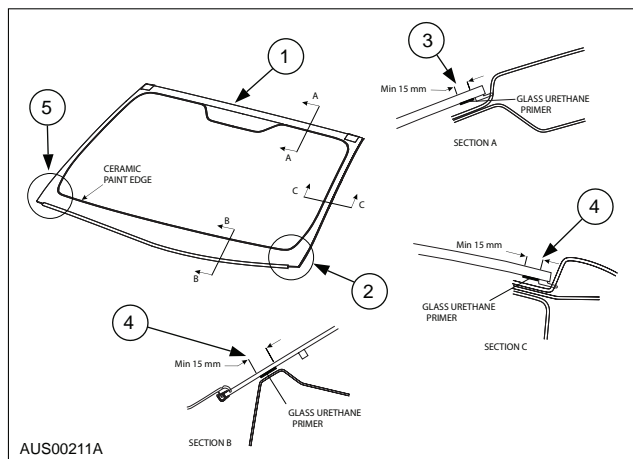
- In the long method, the urethane adhesive is completely removed from the body aperture flanges and replaced with new adhesive. This method used where the adhesive cannot serve as a base for the replacement glass or body and paint repairs are required. All remaining urethane adhesive must be removed from the body aperture flanges.

**Front Windshield Glass****Removal**


**CAUTION:**  **Gloves and protective eyewear should be worn at all times.**

- Place covers on vehicle fenders, seats and instrument panel. Remove interior mirror.
- Remove the wiper arm and blade assemblies. For additional information, refer to Section 501-16.
- Raise the engine hood and remove the cowl top vent grille panel. For additional information, refer to Section 501-08.
- Prepare to remove the windshield glass by applying masking tape to the body in line with the glass edges. This will protect the vehicle paintwork should the cutting tool used in removal slip or cut through the urethane.
- Cut EPDM Windlace moulding lip away level with edge of glass.

- Cut EPDM Windlace moulding lip away level with edge of glass.



Item	Description
1	Primer <b>NOTE:</b> Width of primer at top edges of windshield
2	Primer Overlap Area
3	EPDM on Windlace Moulding. <b>NOTE:</b> Width of primer along bottom edge of windshield
4	<b>NOTE:</b> Width of primer at side edge of windshield
5	Primer Overlap Area

- Clean glass thoroughly to allow visibility of the cutting operation, and trim excess sealant material from the edge of glass using a suitable blade.
- Use BTB glass removal air tool (Part no:WK 10 HD). Spray into the flange from outside, & as close as possible to the urethane from inside. Use a combination of Baby shampoo & water as this will not stain IP etc. This aids the cutting tool to slide through the urethane. Cut the Sides & Top externally using 90° external blade.
- Using the long flat blade from inside the vehicle cut away the Bottom & Free top corners. Take care not to damage sheet metal & the IP Top as it is not replaceable.
- When cutting operation is completed (be sure there are no areas where sealant is still attached to glass, as one such hold-up will cause breakage of the windscreen on removal) attach suction cups to glass and lift clear of aperture.  
**WARNING:**  **Be careful not to damage IP top surface (not replaceable).**

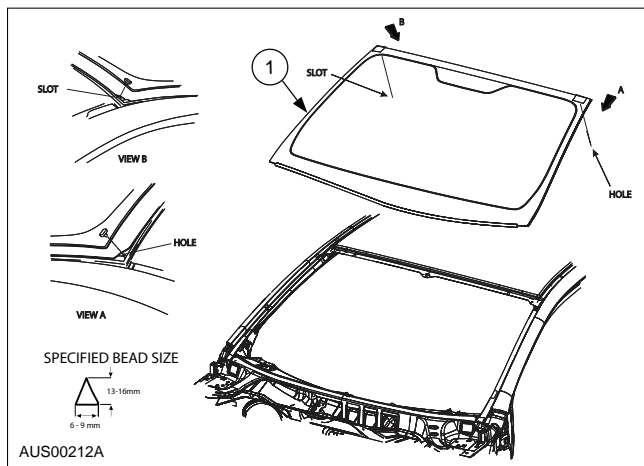


## Installation

**NOTE:** Determine which installation method is appropriate under the circumstances. Refer to the criteria for each method given earlier on this page.

### Short Method

- Trim the urethane sealant bed on the windshield aperture flange until it is relatively smooth, and remove any loose urethane pieces. Exposed body surfaces should be cleaned with X55 solvent (or equivalent) and primed with urethane primer.



Item	Description
1	Glass Assembly - Windshield

- Apply urethane sealant to exposed areas to achieve an even sealant bed.
- Clean periphery of glass with urethane cleaner (ESB M5B 280 A or equivalent). Wipe cleaner off immediately.
- Apply urethane glass primer to the glass surface ensuring no light is visible through the primer. Allow the primer to cure.  
**NOTE:** Thoroughly shake and stir the urethane glass primer to ensure uniform pigment mixing prior to application.
- Apply a 13-15 High X 9-11 Wide triangular bead of urethane sealant to the primed surface of the glass for the entire perimeter. Ensure it is positioned within the sealant areas shown.
- Attach suction cups to the windshield glass and lift into position on primed body flange.  
**NOTE:** Glass must be centred in windshield opening so the side clearances vary by not more than 3mm.
- Secure the windshield by pressing upward until the upper moulding is firmly contacting the roof rebate.  
**NOTE:** If any primer and/or urethane adheres to the body or trim, other than where required, it must be removed immediately or the surface may be damaged if removed when dry.

- Position the cowl top grille panel and install attaching screws.
- Position the wiper arm and blade assemblies and install the retaining nuts.
- Attach the interior rear view mirror bracket to the windshield in position as shown in Fig. 20 using the Motorcraft Adhesive Kit or equivalent.
- Assemble the interior rear view mirror to the bracket and tighten the mirror retaining grub screws.

## Installation

### Long Method

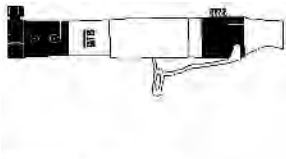
- Clean all hardened Urethane from the flange. Remove all dirt, dust etc. and clean flanges with X55 solvent or equivalent to remove grease etc. Wear light cotton gloves to avoid finger prints and apply cleaner with a lint free cloth.
- Using a clean brush, apply urethane body primer to the flanges ensuring that no paint is visible through the primer. Overlap primer in bottom LH and RH corners. Primer application is sufficient when appearance is glossy and free of streaks. Allow 30 minutes for primer to cure.  
**NOTE:** Do not touch primed surfaces or allow surfaces to be contaminated prior to glass fitment.
- Clean all dirt, dust etc. from windshield glass inner surface.
- Using a lint free cloth wipe the outer 25mm. of inside windshield perimeter with urethane glass cleaner.  
**NOTE:** Remove glass cleaner immediately after application because it flash dries.
- Using a clean brush, apply urethane glass primer to the glass surface with no light visible through the primer. Allow to dry for 5 minutes.  
**NOTE:** Thoroughly shake and stir the urethane glass primer to ensure uniform pigment mixing prior to application.
- Apply a bead of urethane sealant around the perimeter of the glass on the primed surface. The sealant bead should be approximately 13-15mm high with a base width of 9-11mm and triangular in shape.
- Attach suction cups to the windshield glass and lift into position on primed body flange. Use the locating pins to position the glass.  
**NOTE:** If any primer and/or urethane adheres to the body or trim, other than where required, it must be removed immediately or the surface may be damaged if removed when dry.
- Position the wiper arm and blade assemblies and install the retaining nuts.
- Install the cowl top grille panel support brackets.
- Position the cowl top grille panel and install attaching screws.





11. Attach the interior rear view mirror bracket to the windshield in position as shown in Figure using the Motorcraft Adhesive Kit or equivalent.
12. Assemble the interior rear view mirror to the bracket and tighten the mirror retaining grub screw.
13. Clean windshield, remove covers from fenders, seats and instrument panel.

### Rear Windshield Glass - Sedan

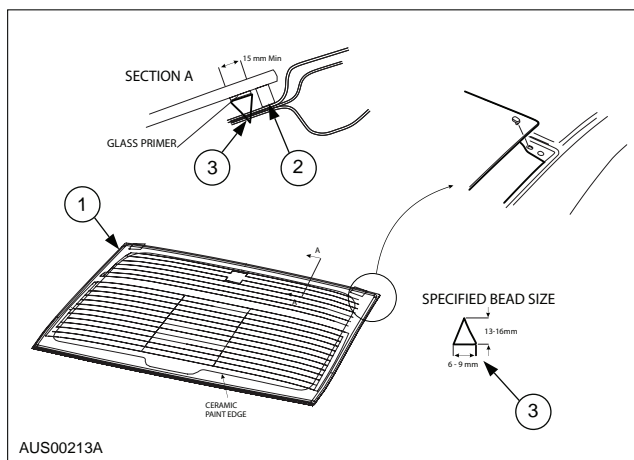
Special Tool(s)	
	BTB Glass Removal Air Tool
	WK 10HD

#### Removal

**CAUTION** ⚠ **Gloves and protective eyewear should be worn at all times.**

1. Place covers on the rear parcel shelf, seats and rear quarter panels.
2. Remove the heated rear glass wiring connectors.
3. Remove rear interior trim panels surrounding rear windscreen. For additional information refer to Section 501-08.
4. Prepare to remove the rear glass by applying masking tape to the body in line with the glass edges. This will help to protect the vehicle paintwork should the cutting tool used in removal slip or cut through the urethane.

**CAUTION:** ⚠ **When cutting the urethane near the corners of the glass, cut inwards from the corners to avoid vehicle bodywork damage when cutting from inside. Be careful not to damage sheet metal.**



Item	Description
1	Rear Windshield
2	Body Sheetmetal
3	Urethane Sealant

5. Use a lubricant such as Baby shampoo & water applied inside the flange to aid air tool to slide when cutting urethane. Use glass removal air tool to cut all four sides around the perimeter of the glass, externally using external blades. Free top corners using long flat blade & cut from inside the vehicle.
6. Attach suction cups to the rear glass and lift it clear of the aperture.

#### Installation

For installation procedures refer to the windshield long or short installation procedures. And also follow these steps:

1. Urethane bead 6-10 wide and 13-16 high.
2. Make the 2 electrical connections from rear glass Fly-Lead to aerial amplifier module box and demister on left hand side.
3. Make the electrical connection from earth lead to glass terminal right hand side.
4. Because it will effect on glass antenna performance.

**NOTE:** Ensure that no urethane contacts silver paint grid lines.

### Rear Windshield Glass - Ute

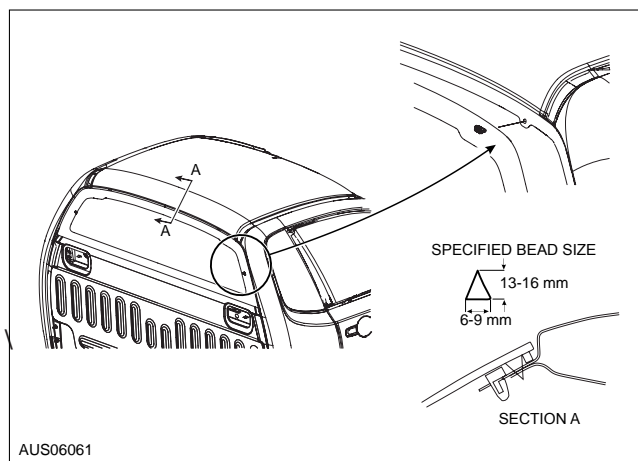
#### Removal

**CAUTION:** ⚠ **Gloves and protective eyewear should be worn at all times.**

1. Place covers on the rear parcel shelf, seats and rear quarter panels.
2. Remove the heated rear glass wiring connectors.
3. Remove rear interior trim panels surrounding rear windscreen. For additional information refer to Section 501-08
4. Prepare to remove the rear glass by applying masking tape to the body in line with the glass edges. This will help to protect the vehicle paintwork should the cutting tool used in removal slip or cut through the urethane.
5. Cut the urethane around the perimeter of the glass, on the inside of the vehicle, using a sharp long-bladed knife.

**CAUTION:** ⚠ **When cutting the urethane near the corners of the glass, cut inwards from the corners to avoid vehicle bodywork damage.**





- Attach suction cups to the rear glass and lift it clear of the aperture.

### Installation

**NOTE:** For installation procedures refer to the windshield long or short installation procedures.

- Reconnect the heater rear glass wiring connectors.

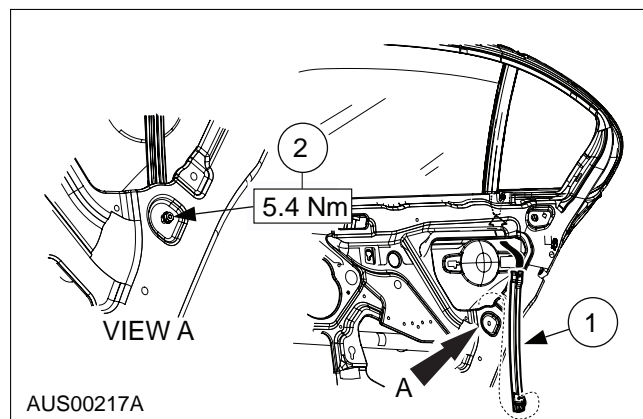
**NOTE:** Ensure that no urethane contacts silver paint grid lines.

### Rear Door Fixed Glass - Sedan

#### Removal

**CAUTION:** **Gloves and protective eyewear should be worn at all times.**

- Remove inner door trim. Refer to Section 501-05.
- Remove movable rear door window glass from the rear door. Refer to the procedure in this section.



Item	Description
1	Division Bar
2	Division Bar Retaining Bolt.

- Remove the door frame moulding. Refer to Section 501-03.

- Loosen the upper division bar retaining bolt located at the base of the division bar to the belt line.
- Unhook top clip from upper door frame.  
**NOTE:** To avoid causing damage to the clip. Squeeze clip tip together from on top of the door frame to remove clip from door frame.
- Unhook the rear retention clip from the door frame.
- Remove rear door quarter window glass from the door.

### Installation

- Reversal of the removal instructions.

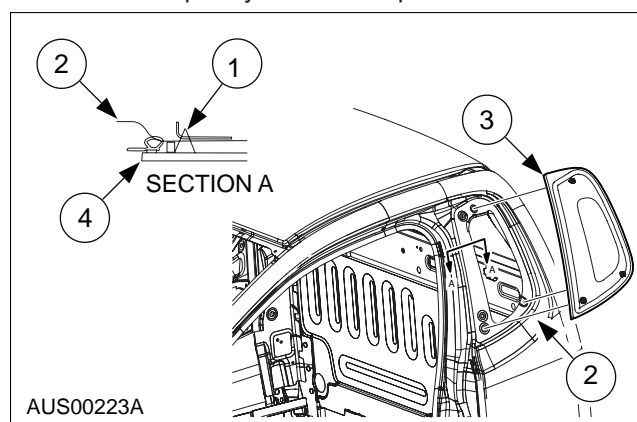
**NOTE:** It may require the fitment of a new door frame moulding. Refer to Section 501-03.

### Rear Door Quarter Glass - Ute

#### Removal

**CAUTION:** **Gloves and protective eyewear should be worn at all times.**

- Remove interior C-pillar trim. For additional information refer to Section 501-05
- Cut urethane bead from behind glass and prise glass from panel.
- Remove up butyl/foam from painted sheetmetal.



Item	Description
1	Glass Primer Urethane
2	Panel Assembly
3	B-pillar margin seal
4	Glass

### Installation

- Clean urethane from glass and panels.
- Prime glass and apply a continuous urethane bead around the perimeter of the glass.
- Reposition glass in panel and push home to secure the retention clips.

