

lower voltage reading indicates a loose ground connection.

4.

Contact a good ground point with the negative lead of the meter. The voltage reading should not change.

5.

With the negative lead of the meter grounded, touch each grid line of the heated rear window glass at its midpoint with the positive lead. A reading of approximately 6 volts indicates the line is good. A reading of 0 volt indicates the line is broken between the midpoint and the B+ side of the grid line. A reading of 12 volts indicates the circuit is broken between the midpoint of the grid line and ground.

6.

Pinpointing the exact position of the break can be accomplished (if the voltmeter reads 0 volt when the midpoint of the grid line is touched with the positive lead of the voltmeter) by moving the positive lead of the voltmeter toward the B+ side of the grid line and touching the grid line until the voltmeter reads 12 volts. If the voltmeter reads 12 volts when the midpoint of the grid line is touched with the positive lead of the voltmeter, simply move the positive lead of the voltmeter toward the ground connection of the grid line and touch the grid line until the voltmeter reads 0 volt.

GENERAL PROCEDURES > FIXED GLASS

Special Tool(s) / General Equipment

Glass Cut-Out Wire
Power Caulk Gun
Power Fixed Glass Removal Tool
Cold Knife
Knife
Vacuum Cleaner

Materials

Name	Specification
Betaseal™ Express Dow Urethane Adhesive	-
Sika Tack ASAP Urethane Adhesive	-
Dow Urethane One Step Glass Primer Betaprime™ 5500/5500A/5500SA	-
Sika Urethane Metal and Glass Primer Sika 206 G+P	-
Motorcraft® Ultra-Clear Spray Glass Cleaner ZC-23	ESR-M14P5-A
Bare Metal Etch Primer BETAPRIME 5201	-
Body Primer BETASEAL™ 43538	-

Repair

1.



NOTE: Some interior trim, exterior trim and/or components may require removal based on the tools and removal method used.



NOTE: In some instances repair methods may be combined to achieve the best results.

Choose the best repair method for the type of glass being replaced.

1.

Cold knife method - uses the cold knife to cut the urethane from the outside of a vehicle provided the blade can reach the bead. Use the General Equipment: Cold Knife

2.

Power tool method - uses various power tools from inside the vehicle using a cutting or paddle type blade. Use the General Equipment: Power Fixed Glass Removal Tool

3.

Piano wire method - uses the piano wire to cut the urethane from inside and outside of a vehicle using an assistant. Use the General Equipment: Glass Cut-Out Wire

2.

When using the cold knife method, apply tape to protect the perimeter of the window opening from paint damage. Multiple layers of tape may be required.

3.



NOTE: New fixed glass must be installed within 2 hours of cutting the urethane adhesive. Cut or scraped urethane becomes oxidized and inactive beyond 2 hours, reducing the effectiveness of the repair bond.



NOTE: To avoid rust formation, use extreme care not to scratch the paint or primer or

damage the pinch weld during glass removal.



NOTE: Take precautions to prevent damage to other components when cutting urethane.



NOTE: Fixed glass must be discarded once removed except for the rear window glass. A new fixed glass is required.



NOTE: Fixed glass may have locating pins that vary in location. It may be necessary to cut these pins with a utility knife.

Remove the fixed glass and discard. Use the General Equipment: Power Fixed Glass Removal Tool
Use the General Equipment: Cold Knife Use the General Equipment: Knife

4.



WARNING: Repair any corrosion found on the pinch weld. The pinch weld is a structural component of the vehicle. Corrosion left unrepaired may reduce the structural integrity of the vehicle. Failure to follow this instruction may result in serious injury to vehicle occupant(s).



NOTE: Avoid scratching the pinch weld. Repair all minor scratches or exposed metal on the pinch weld following manufacturer's instructions for the product being used. Use the same brand pinch weld primer, glass primer and urethane adhesive.



NOTE: Touching the adhesive surface impairs the rebonding.



NOTE: Make sure the mating surfaces are clean and free of foreign material.

Prep the pinch weld area to install the new fixed glass.

1.

Trim the original urethane adhesive using a utility knife, leaving a 1 mm to 2 mm (0.04 in to 0.08 in) base on the pinch weld.

2.

Remove any foreign material or dirt from the pinch weld using a soft brush or vacuum. Use the General Equipment: Vacuum Cleaner

5.



NOTE: Minimize applying bare metal primer over areas with remaining urethane adhesive and observe a minimum flash time of 30 minutes.

If the paint layer was damaged on the pinch weld extending into bare metal, apply bare metal primer to those areas only.

Material

: Bare Metal Etch Primer / BETAPRIME 5201

6.



NOTE: Minimize applying body primer over areas with remaining urethane adhesive and observe a minimum flash time of 30 minutes.

Apply body primer as necessary.

1.

Apply body primer to those areas only previously primed with bare metal primer.

Material

: Bare Metal Etch Primer / BETAPRIME 5201

2.

If the clearcoat layer was damaged on the pinch weld but not extending into bare metal, apply body primer to those areas only.

Material

: Body Primer / BETASEAL™ 43538

7.

Clean the inside of the new fixed glass with glass cleaner.

Material

: Motorcraft® Ultra-Clear Spray Glass Cleaner / ZC-23 (ESR-M14P5-A)

8.



Apply glass primer according to the manufacturer's instructions to the new fixed glass. Allow at least 6 minutes to dry.

Material

: Dow Urethane One Step Glass Primer / Betaprime™ 5500/5500A/5500SA

Material

: Sika Urethane Metal and Glass Primer / Sika 206 G+P

9.



NOTE: This step only applies to the rear window glass if reused.

Visually inspect and remove remaining urethane adhesive from the glass leaving a thin layer to bond with the new urethane adhesive bead.

10.



NOTE: This step only applies to the rear window glass if reused.

Apply glass primer according to the manufacturer's instructions to the fixed glass anywhere the urethane adhesive was completely removed. Allow at least 6 minutes to dry.

Material

: Dow Urethane One Step Glass Primer / Betaprime™ 5500/5500A/5500SA

Material

: Sika Urethane Metal and Glass Primer / Sika 206 G+P

11.



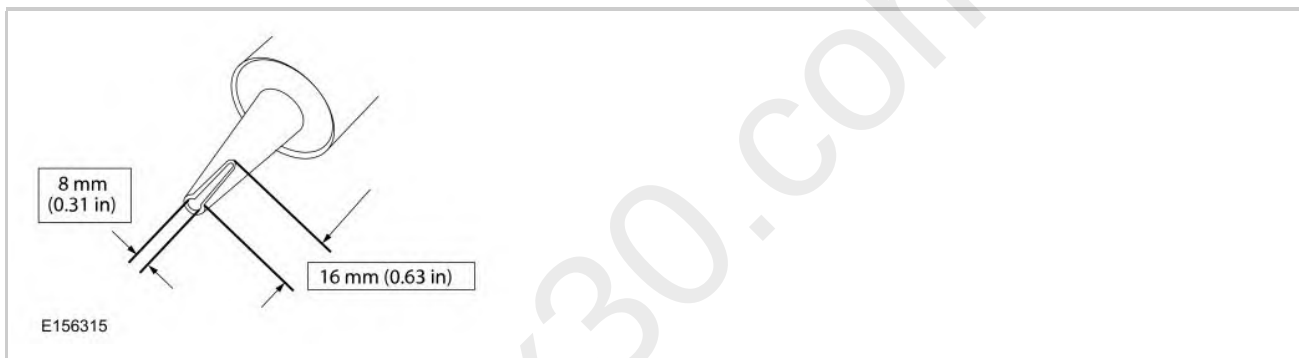
Cut the urethane adhesive applicator tip to specification.

Material

: Betaseal™ Express Dow Urethane Adhesive

Material

: Sika Tack ASAP Urethane Adhesive



12.



NOTE: Make sure the urethane bead is uniform to prevent air and water leaks.



NOTE: The fixed glass must be installed within 10 minutes of applying the urethane adhesive.



NOTE: Use a power caulk gun that applies the urethane adhesive with less effort and

a continuous bead.

Apply a urethane adhesive bead.

1.

Start and end at the original overlap points to prevent air and water leaks.

2.

 **NOTE:** Take care in applying urethane on vehicles without peripheral moldings as urethane expulsion could become an appearance issue.

Apply a urethane adhesive bead 14 mm (0.551 in) high and 8 mm (0.314 in) wide on top of the existing trimmed urethane adhesive bead on the pinch weld. Use the General Equipment: Power Caulk Gun

Material

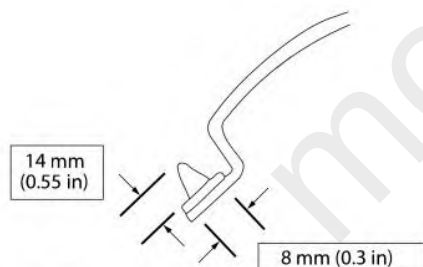
: Betaseal™ Express Dow Urethane Adhesive

Material

: Sika Tack ASAP Urethane Adhesive

3.

Make sure there are no gaps in the bead.



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13.

 **NOTE:** The door windows must be left open during the adhesive curing time.

Open the vehicle windows to prevent the air pressure of closing doors from compromising the urethane adhesive bond.

14.