

501-29 Side Panel Sheet Metal Repairs  
Removal and Installation

2021 F-150

Procedure revision date: 10/23/2020

### Side Panel - Regular Cab

#### Special Tool(s) / General Equipment

6.5 mm Drill Bit
Scraper for Straight Edges
Spherical Cutter
Polydrive Bit Socket
Self-Piercing Rivet (SPR) Remover/Installer
Belt Sander
Blind Rivet Gun
Hot Air Gun
Air Body Saw
MIG/MAG Welding Equipment
Locking Pliers

#### Materials

Name	Specification
Metal Bonding Adhesive TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B	-
Seam Sealer TA-2-B, 3M™ 08308, LORD Fusor® 803DTM	-
Sika Tack ASAP Urethane Adhesive	-
Roof Ditch Sealer 3M™ 08307, LORD Fusor® 129	-
Flexible Foam Repair 3M™ 08463, LORD Fusor® 121	-

#### Removal

 **WARNING:** Electric vehicles damaged by a crash may have compromised high voltage safety systems and present a potential high voltage electrical shock hazard. Exercise caution and wear appropriate Personal Protective Equipment (PPE) safety gear, including high voltage safety gloves

and boots. Remove all metallic jewelry, including watches and rings. Isolate the HV system as directed by the Ford Emergency Response Guide for the vehicle. Failure to follow these instructions may result in serious personal injury or death.

**NOTICE:** Battery electric vehicle (BEV), hybrid electric vehicle (HEV) and plug-in hybrid electric vehicle (PHEV) contain a high-voltage battery. Before cutting or welding near the high-voltage battery it must be removed to avoid damage.

1.  **WARNING:** Before beginning any service procedure in this manual, refer to health and safety warnings in section 100-00 General Information. Failure to follow this instruction may result in serious personal injury.

Refer to: [Health and Safety Precautions](#) (100-00 General Information, Description and Operation).

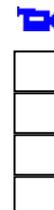
Refer to: [High Voltage System Health and Safety Precautions - Overview](#) (100-00 General Information, Description and Operation).

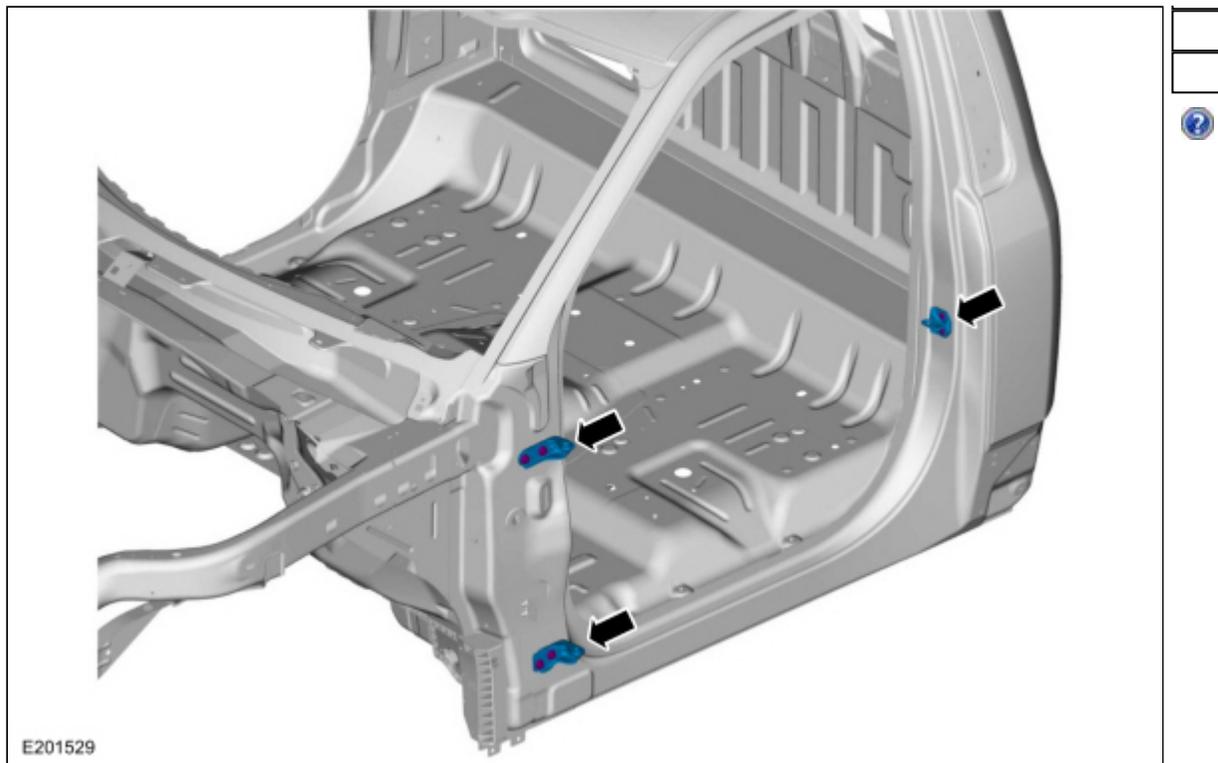
**NOTICE:** Body side sectioning is prohibited within 50 mm of door hinge, door striker and restraints anchoring points.

**NOTE:** Partial outer panel replacement is possible and reasonable depending on damage. The following procedure assumes full outer panel replacement. Removal and installation steps may be adjusted according to damage as necessary.

**NOTE:** Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many repairs areas that utilize structural adhesive may be separated after fastener removal by using a panel chisel along the joint/flange. Using heat not exceeding 425° F to loosen a bonded panel should only be done when all panels in the joint will be replaced and new adhesive applied.

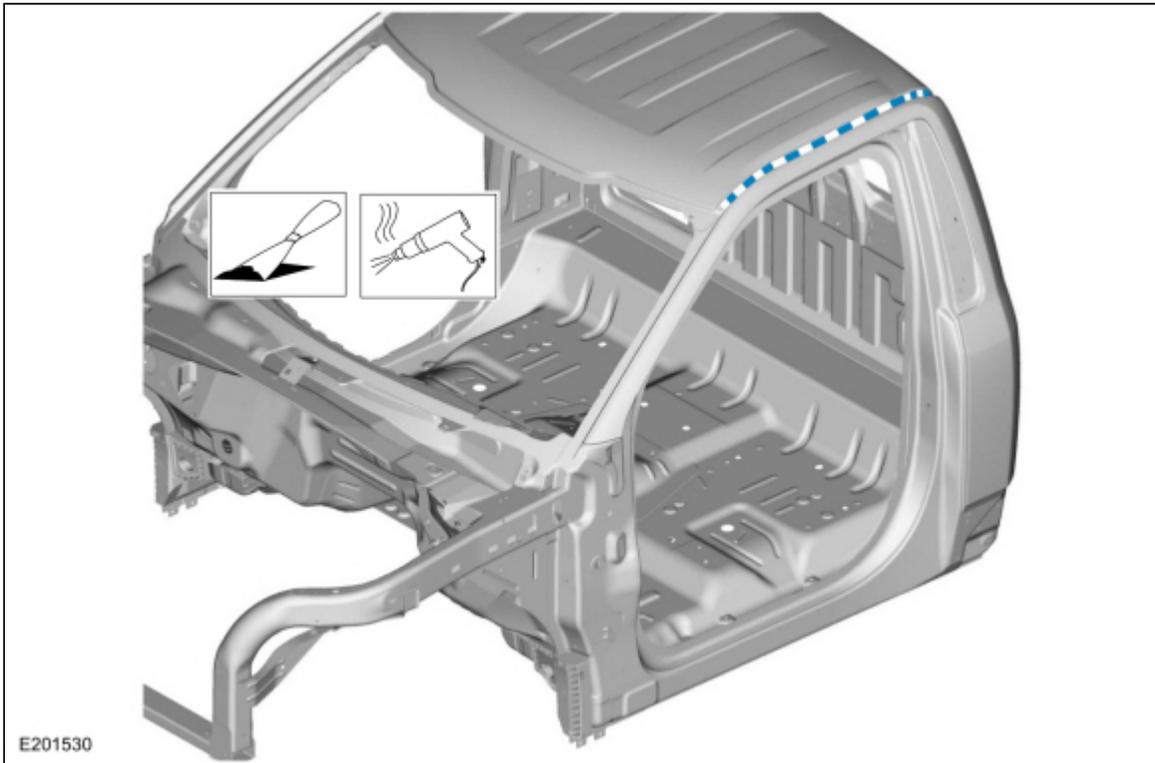
2. Possible sectioning points.  
Refer to: [Body Panel Sectioning](#) (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, General Procedures).
3. Depower the SRS.  
Refer to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
4. Remove the fender.  
Refer to: [Fender](#) (501-02 Front End Body Panels, Removal and Installation).
5. Remove the door.  
Refer to: [Front Door - Regular Cab/SuperCrew](#) (501-03 Body Closures, Removal and Installation).
6. Remove the pickup box.  
Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Removal and Installation).
7. Remove the A and C-pillar trim.  
Refer to: [B-Pillar Trim Panel - Regular Cab](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).  
Refer to: [C-Pillar Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).
8. Remove the door hinges and striker.





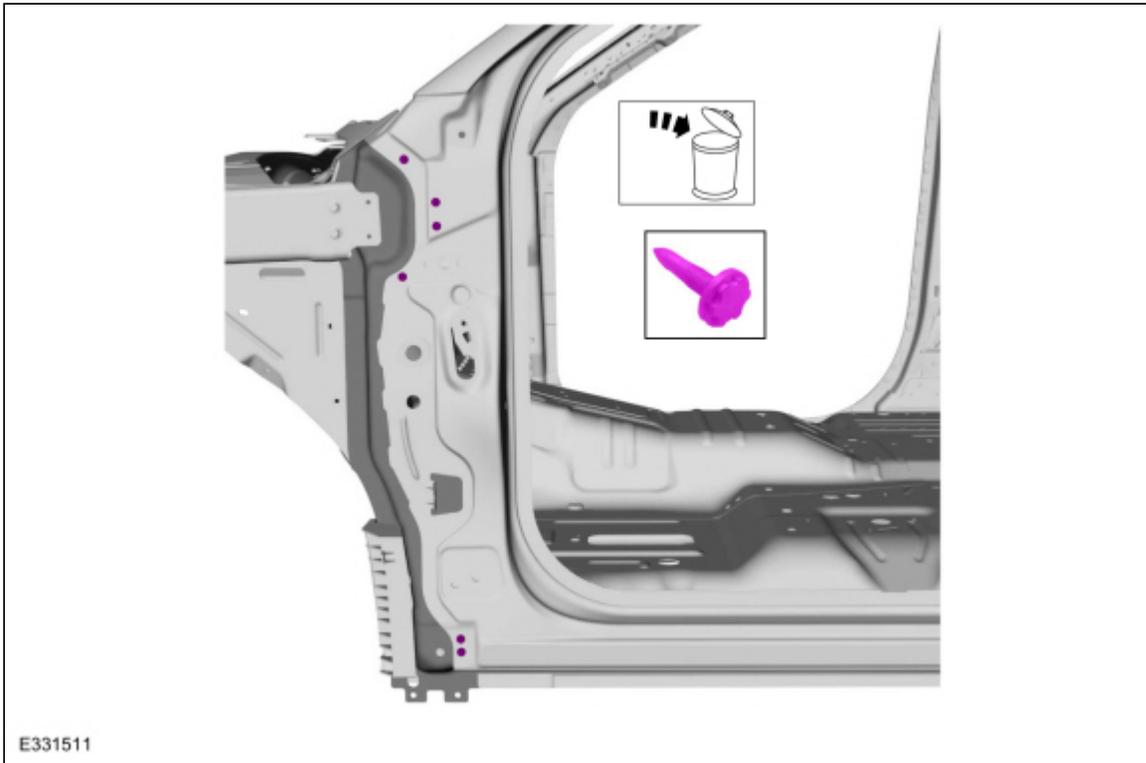
9. Remove the windshield and rear window glass.  
Refer to: [Fixed Glass](#) (501-11 Glass, Frames and Mechanisms, General Procedures).
10. Remove the outer cab trim.  
Refer to: [Roof Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).  
Refer to: [Bodyside Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).  
Refer to: [Front Door Upper Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
11. Remove the door opening scuff plate and weather strips.
12. Remove the side curtain air bag.  
Refer to: [Side Curtain Airbag - Regular Cab](#) (501-20B Supplemental Restraint System, Removal and Installation).
13. Remove the roof ditch sealer.  
Use the General Equipment: Scraper for Straight Edges  
Use the General Equipment: Hot Air Gun





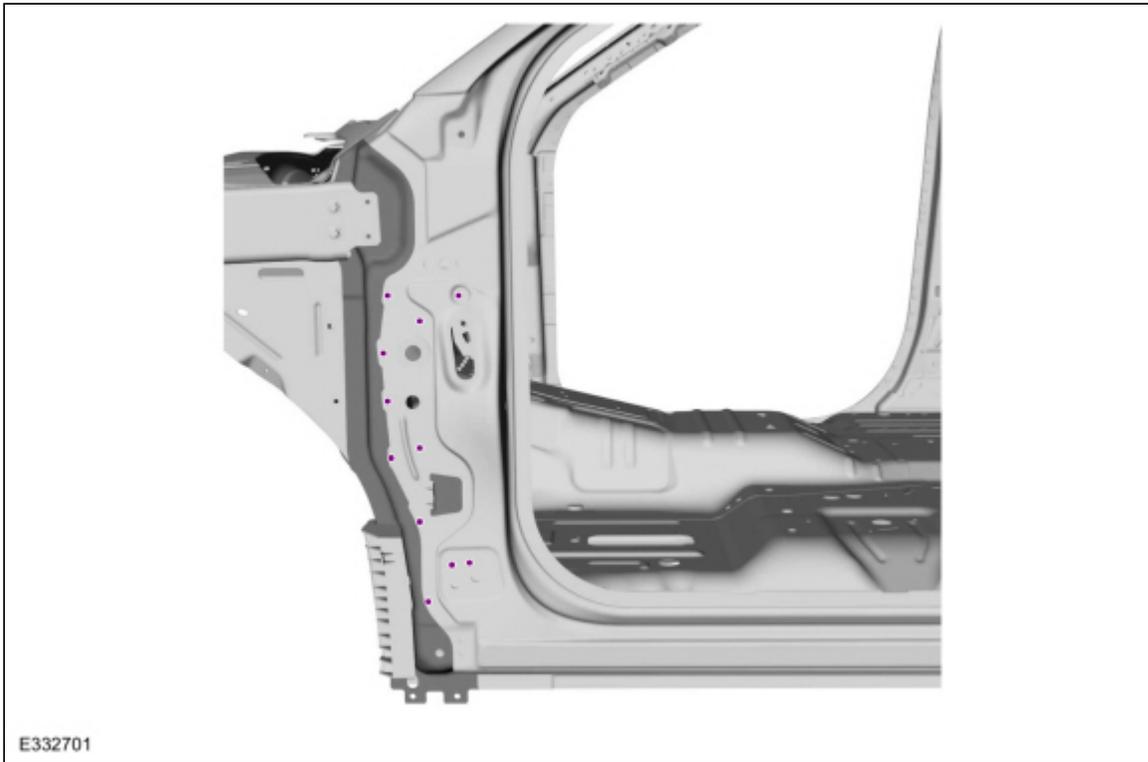
- 14. Remove and discard the FDS fasteners.  
Use the General Equipment: Polydrive Bit Socket





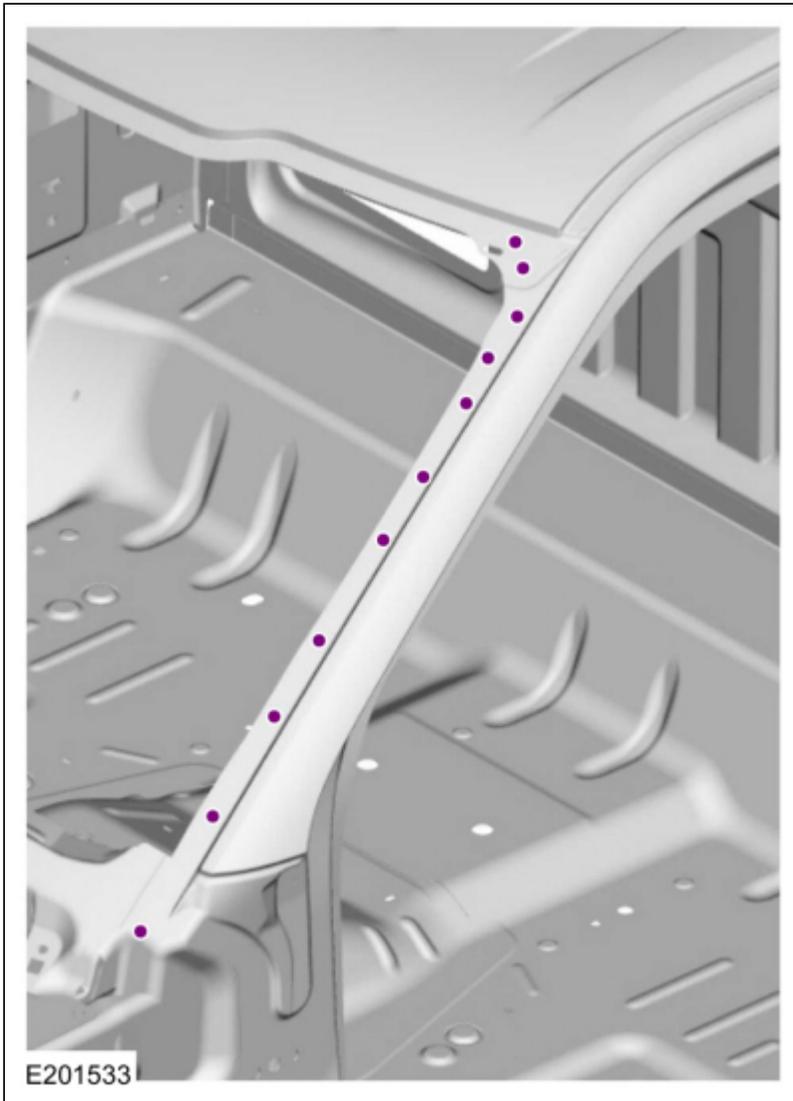
- 15. Remove the body side SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander





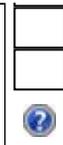
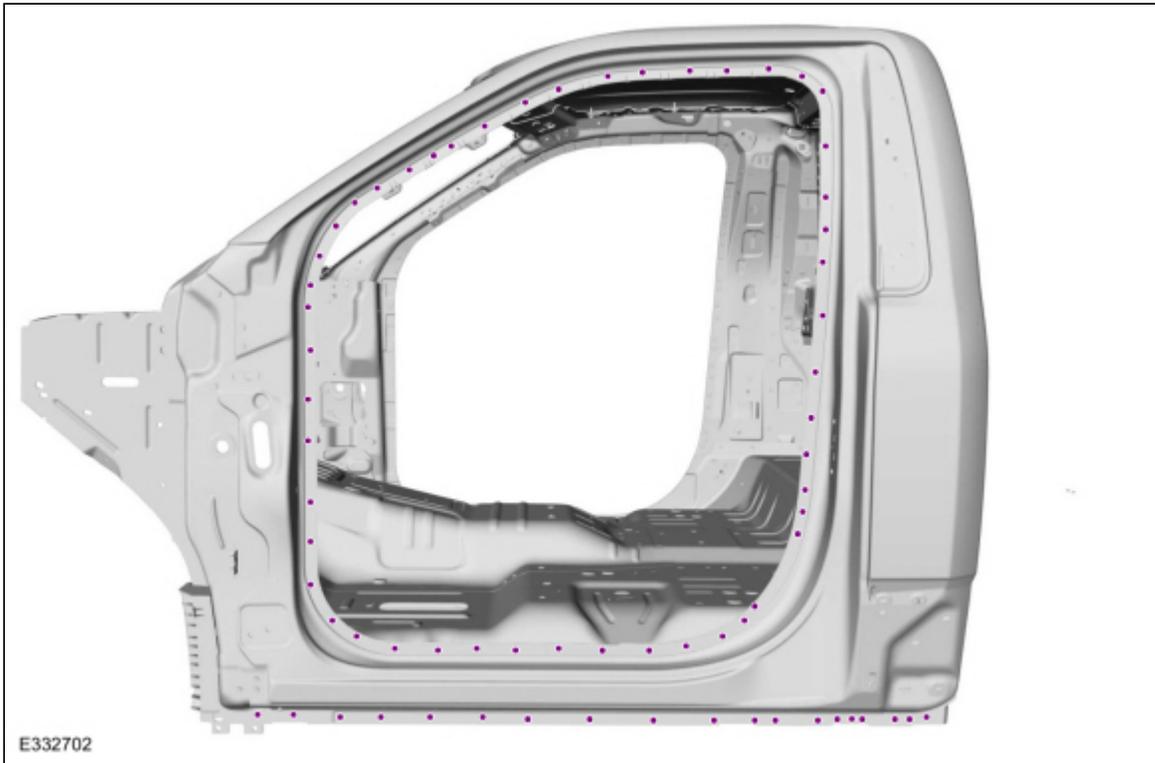
16. Remove the windshield opening channel SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander





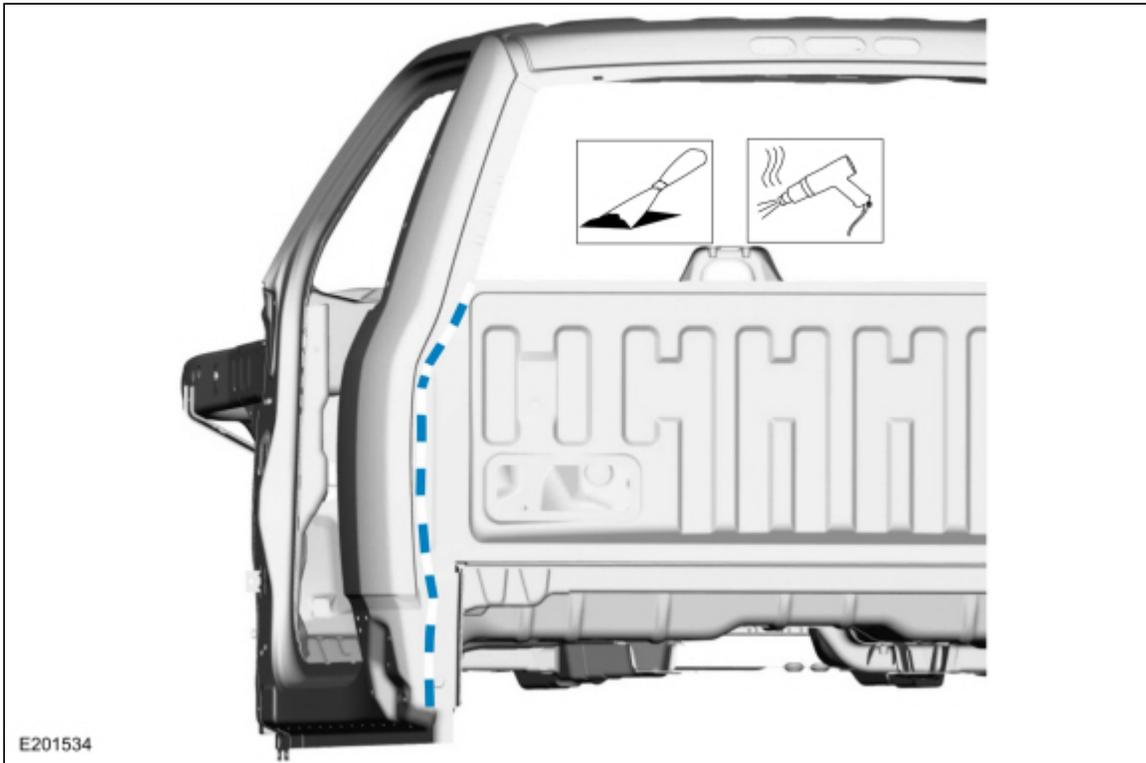
- 17. Remove the body side SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander





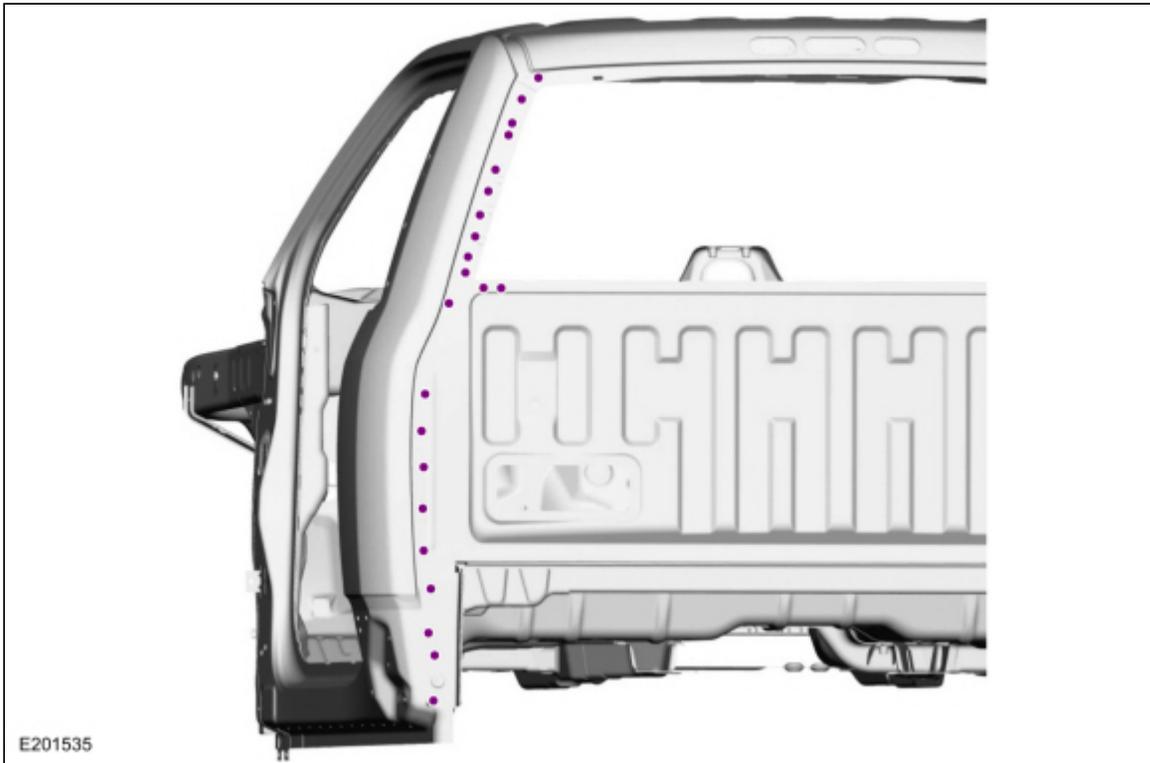
- 18. Remove the cab back seam sealer.  
Use the General Equipment: Scraper for Straight Edges  
Use the General Equipment: Hot Air Gun





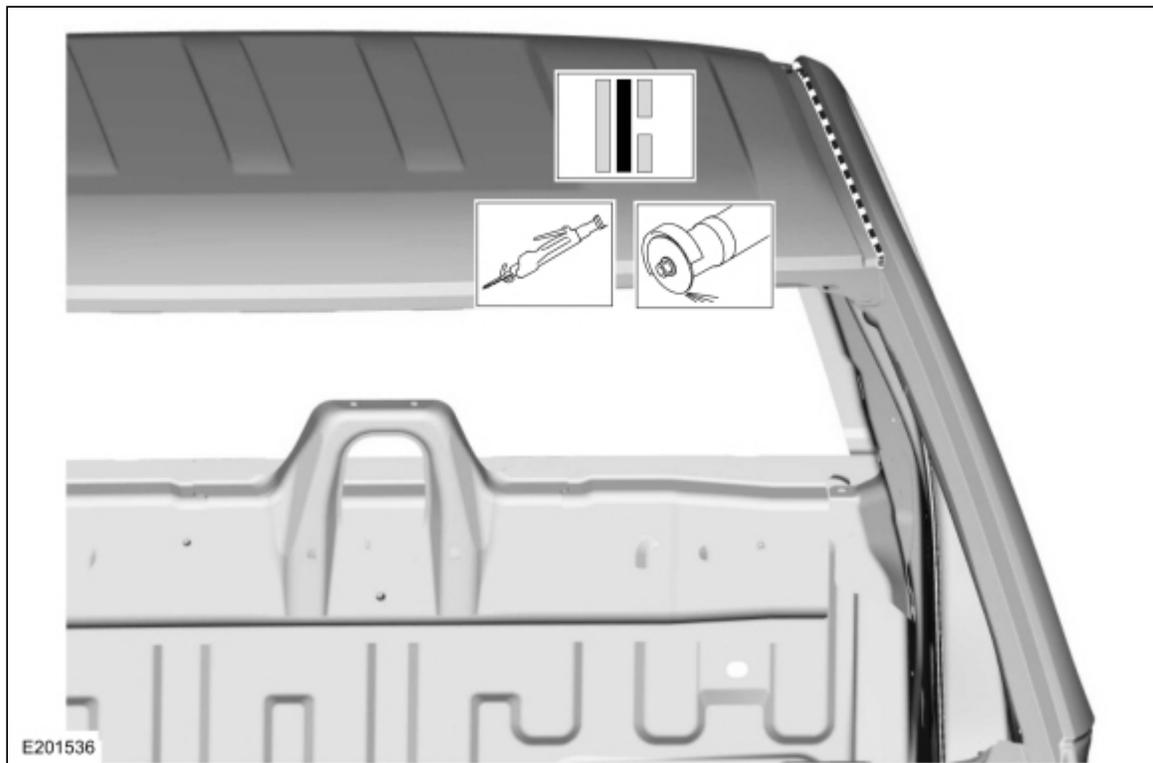
- 19. Remove the cab back SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander





- 20. Carefully cut **the outer panel only**.  
Use the General Equipment: Air Body Saw  
Use the General Equipment: Spherical Cutter





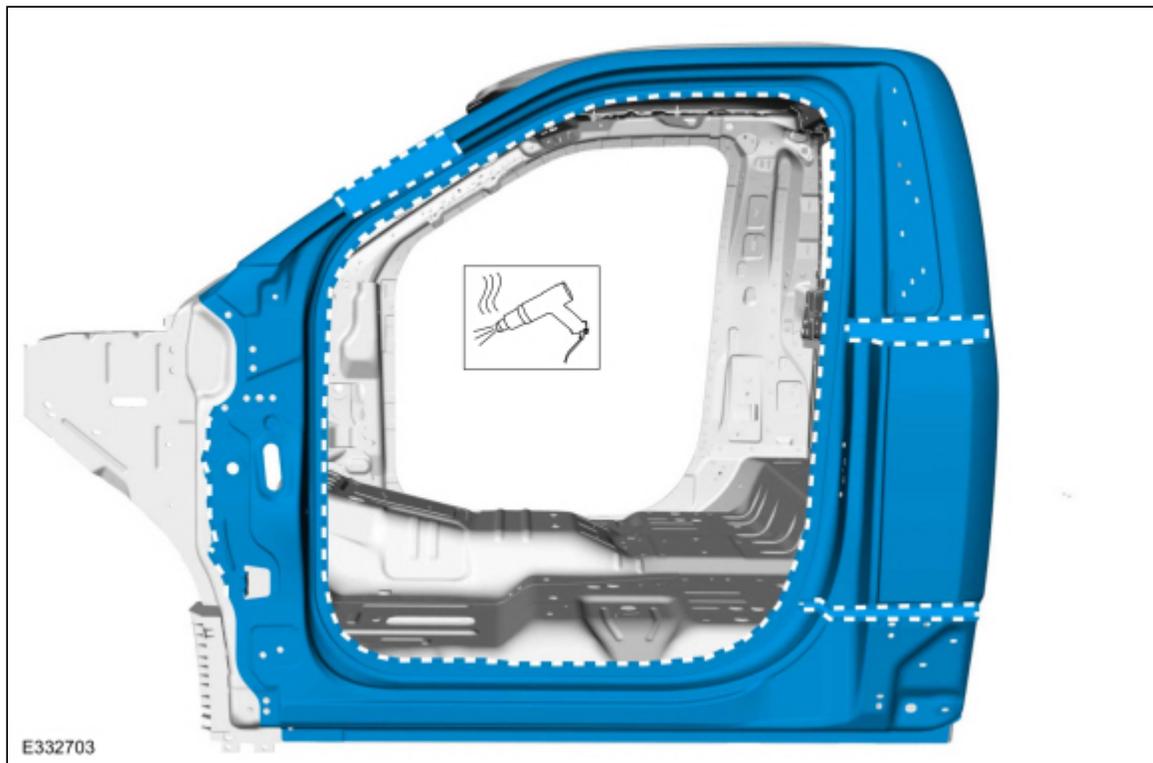
21. **NOTE:** Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many repairs areas that utilize structural adhesive may be separated after fastener removal by using a panel chisel along the joint/flange. Using heat not exceeding 425° F to loosen a bonded panel should only be done when **all panels in the joint** will be replaced and new adhesive applied.

**NOTE:** Pay particular attention to NVH baffle and foam locations to aid in assembly.

Break the adhesive bond and remove the body side panel.

Use the General Equipment: Hot Air Gun





## Installation

**NOTICE:** Body side sectioning is prohibited within 50 mm of door hinge, door striker and restraints anchoring points.

**NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be placed adjacent to original location matching original quantity.

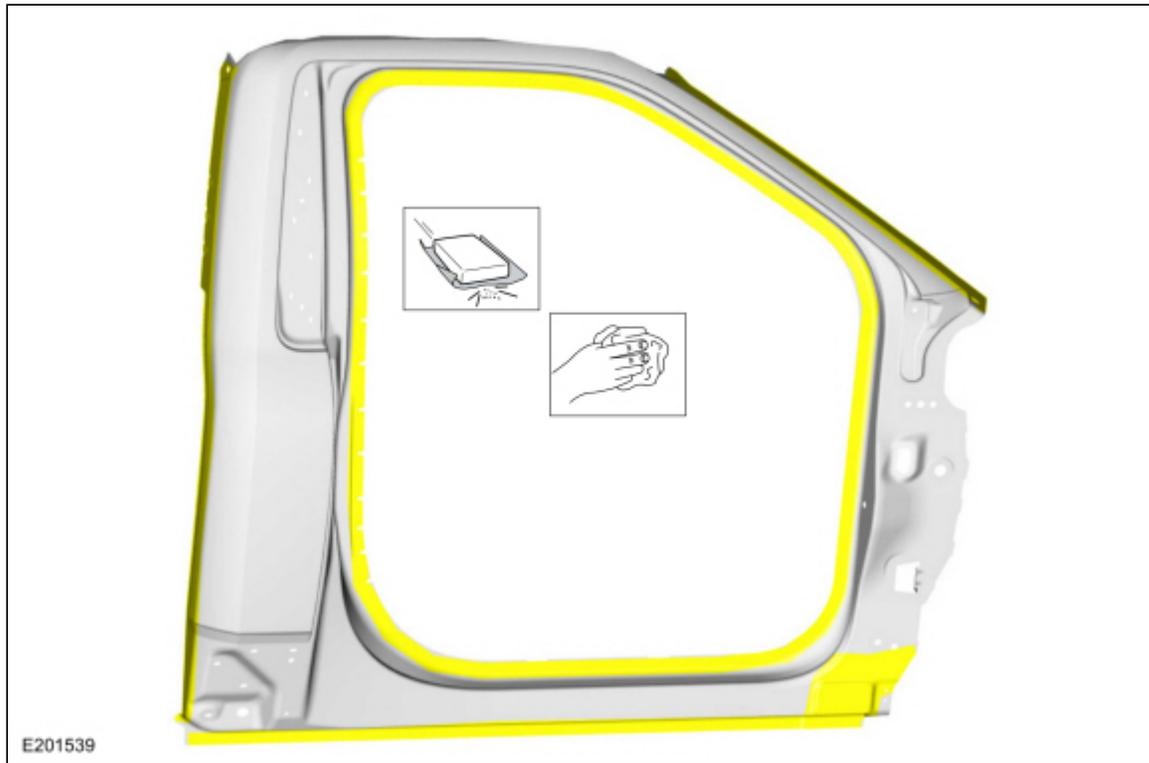
**NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

**NOTE:** The use of a backer panel when creating butt welds will produce a stronger and more uniform repair.

1. **Partial panel replacement:** Determine repair and trim service panel accordingly.
2. In butt-weld area(s), create a backer panel from unused portion(s) of the service panel and attach to the vehicle using a MIG welder set up for aluminum repair.  
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).  
Use the General Equipment: MIG/MAG Welding Equipment
3. 80-120 grit sand paper.  
Sand to remove old adhesive and clean.





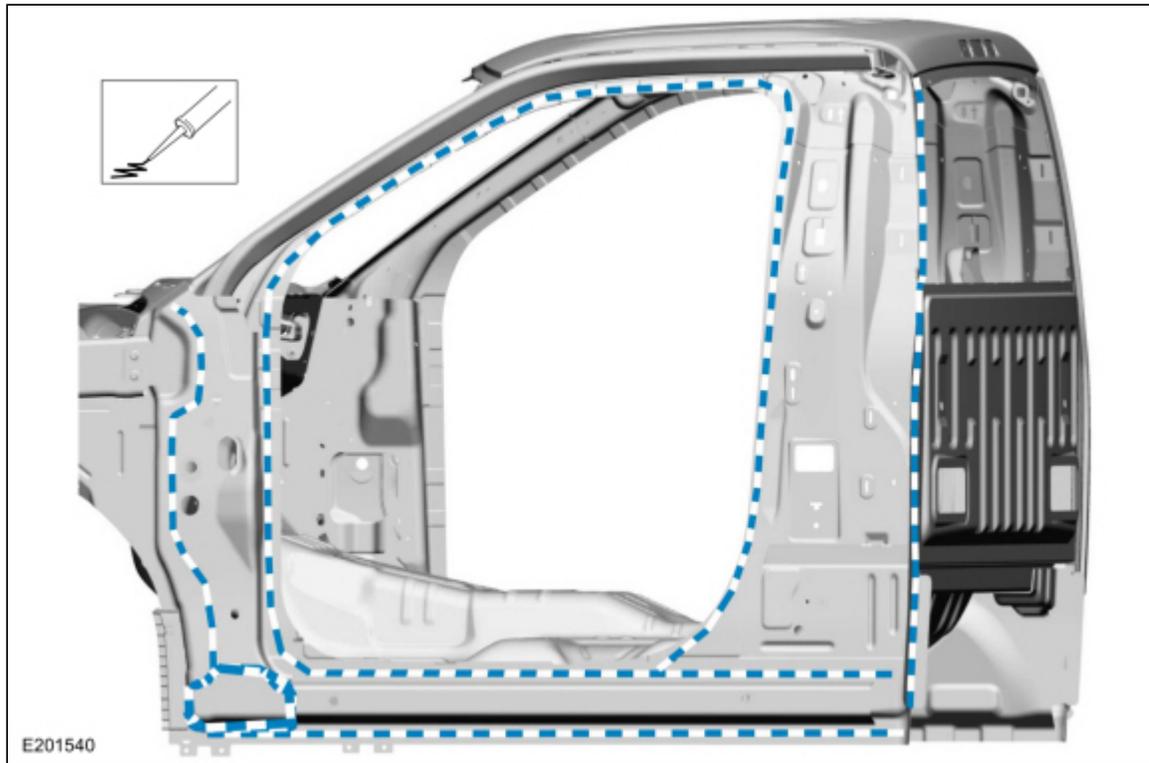


5. Install NVH baffles noted during removal.

6. Apply adhesive.

*Material:* Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B



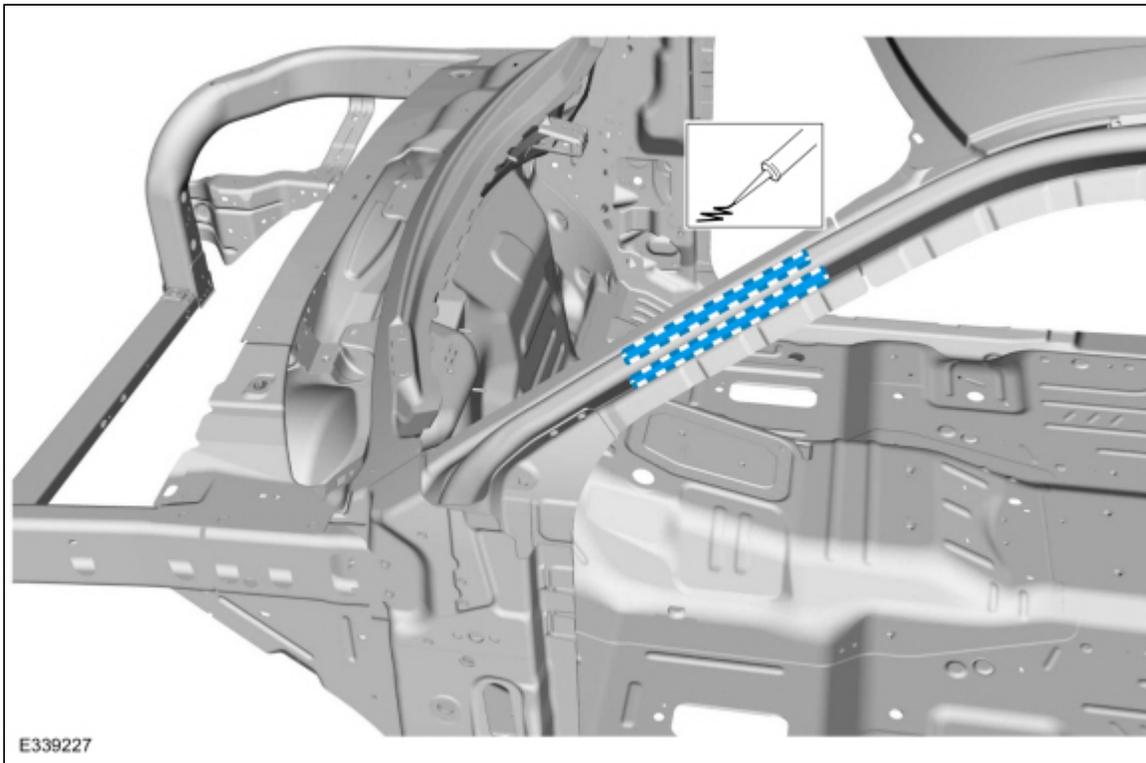


7. Apply flexible foam sealant and urethane adhesive in locations noted in disassembly.

*Material:* Sika Tack ASAP Urethane Adhesive

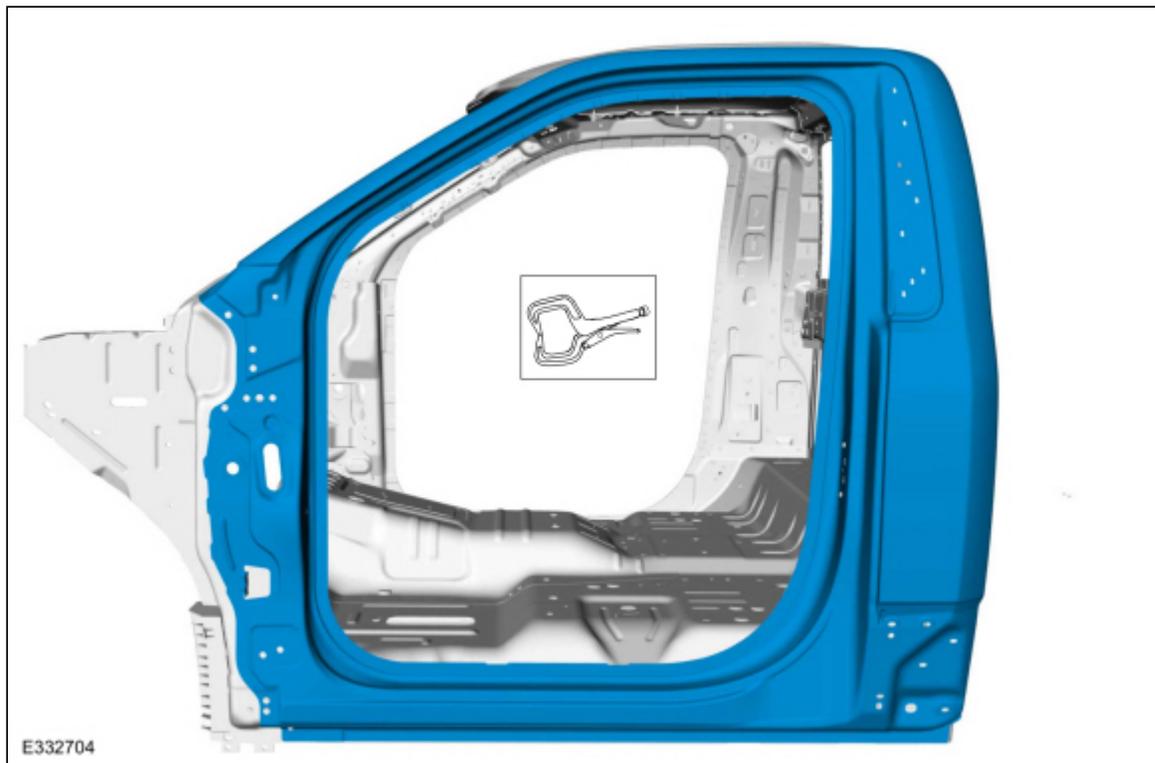
*Material:* Flexible Foam Repair / 3M™ 08463, LORD Fusor® 121





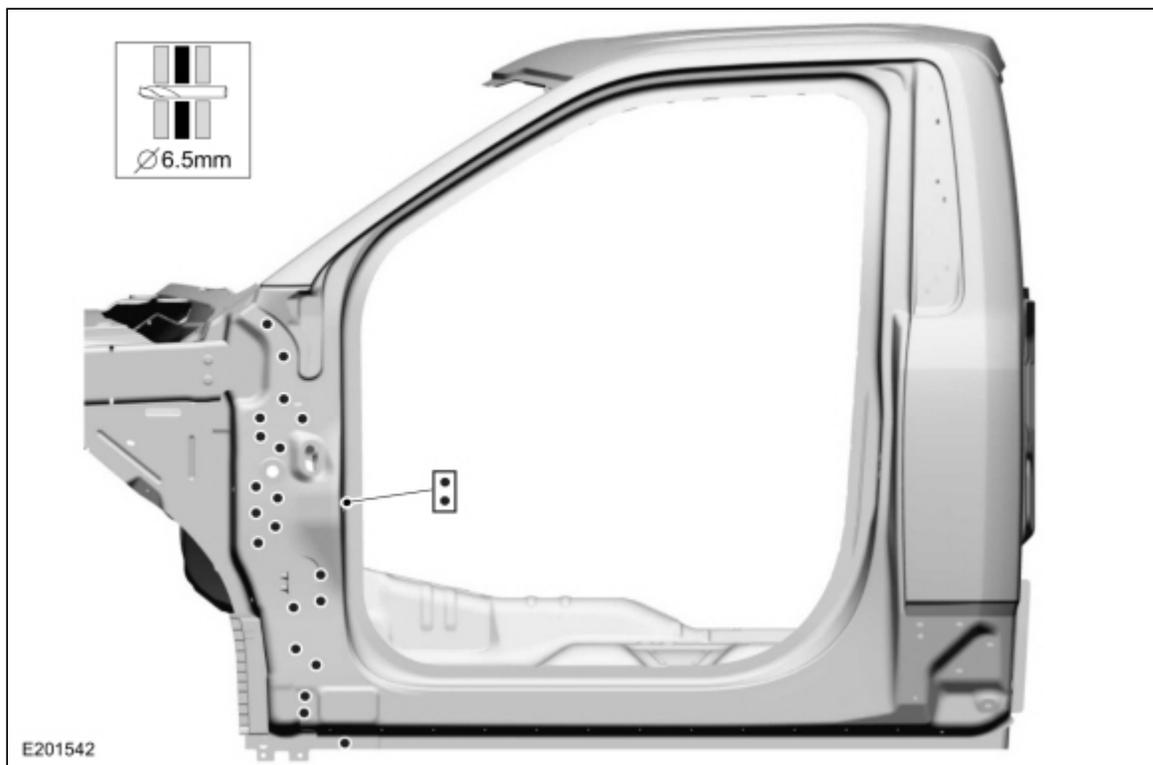
- 8. Install the body side panel and clamp in position.  
Use the General Equipment: Locking Pliers





9. **Partial panel replacement:** Complete joining of backer plates to body side panel using a **MIG** welder set up for aluminum repair. Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).  
Use the General Equipment: MIG/MAG Welding Equipment
10. Drill 6.5 mm holes for blind rivet fastener installation.  
Use the General Equipment: 6.5 mm Drill Bit



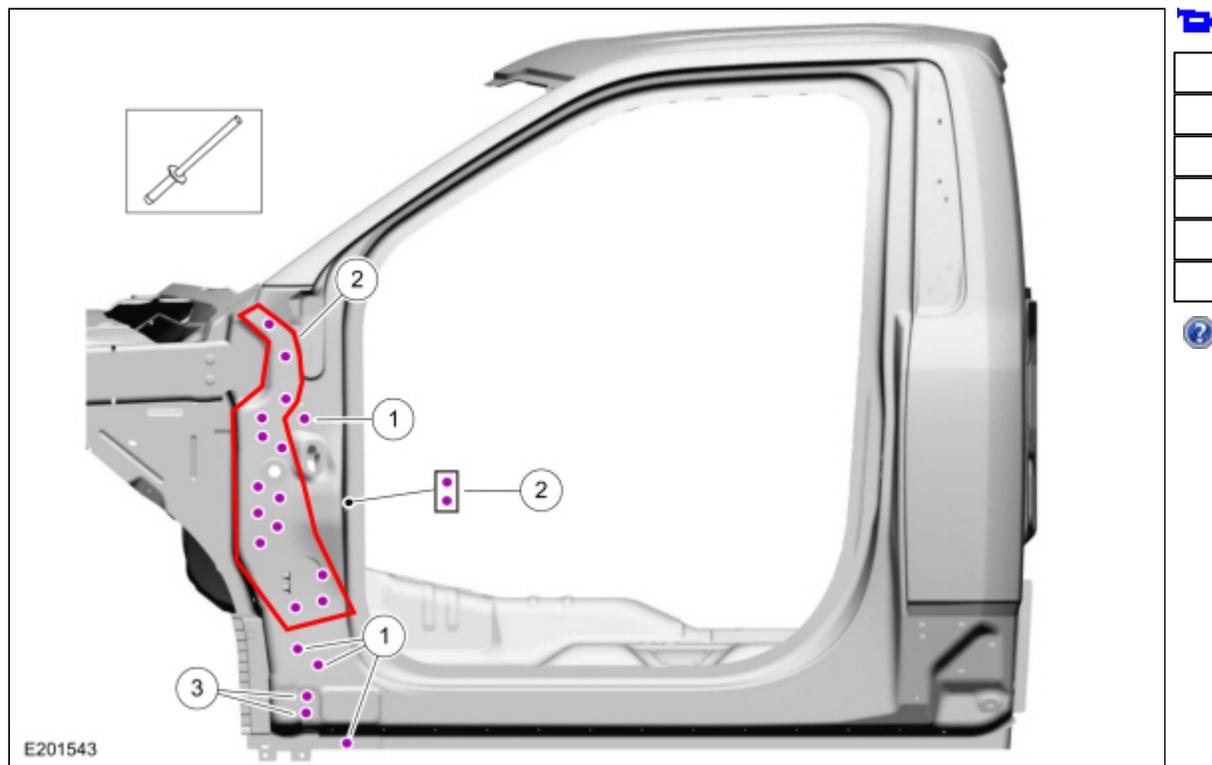


11. **NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

Item	SPR Number	SPR Code	Henrob® Car-O- Liner®, CMO®, Chief®, Spanesi® Wielande and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W708777-S900C	-	-
2	-	-	-	-	W707638-S900C	-	-
3	-	-	-	-	W702554-S900C	-	-

Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).  
Use the General Equipment: Blind Rivet Gun



12. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be adjacent to original location matching original quantity.

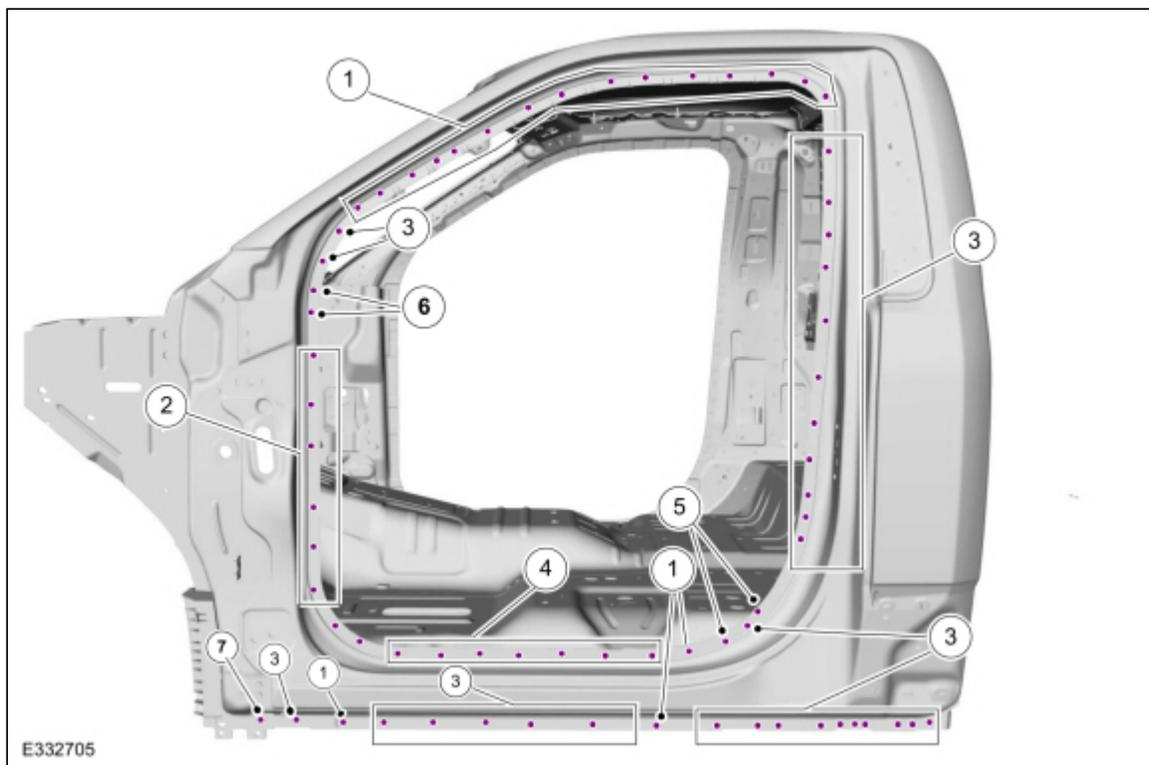
**NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

Item	SPR Number	SPR Code	Henrob® Car-O- Liner®, CMO®, Chief®, Spanesi® Wielande and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0401	-	W790376-S900	-
2	W708713-S900	AS	DP11-200/H	SA-0400/SA-0402	-	W790377-S900	-
3	W717186-S900	EN	DG11-220/H	SA-0400/SA-0402	-	W790377-S900	-
4	W717186-S900	EN	DP11-200/H	SA-0400/SA-0402	-	W790377-S900	-
5	W708717-	AW	DP11-200/H	SA-0400/SA-	-	W790377-	-

	S900			0402		S900	
6	W717185-S900	EL	DG11-220/H	SA-0400/SA-0402	-	W790377-S900	-
7	W710246-S900	BN	DP10-200/H	SA-0400/SA-0402	-	W790377-S900	-

Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).  
 Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer



13. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be adjacent to original location matching original quantity.

**NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

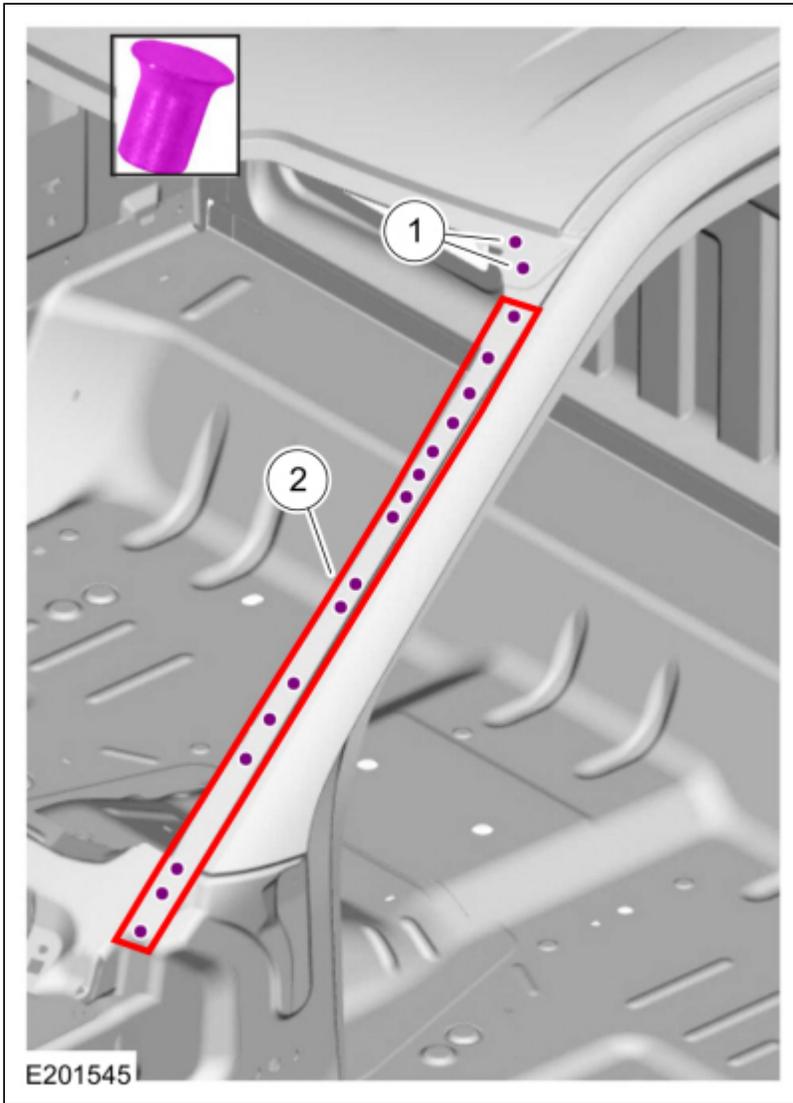
Install fasteners.

Item	SPR Number	SPR	Henrob® Car-O- Liner®, CMO®, Chief®, Spanesi® Wielande and	Pro-Spot®	Blind	Solid Rivet	Rivnut®
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		Code	Schill® Mandrel	Mandrel	Rivet		
1	W717186-S900	EN	DP11-200/H	SA-0400/SA-0402	-	W790377-S900	-
2	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0402	-	W790377-S900	-

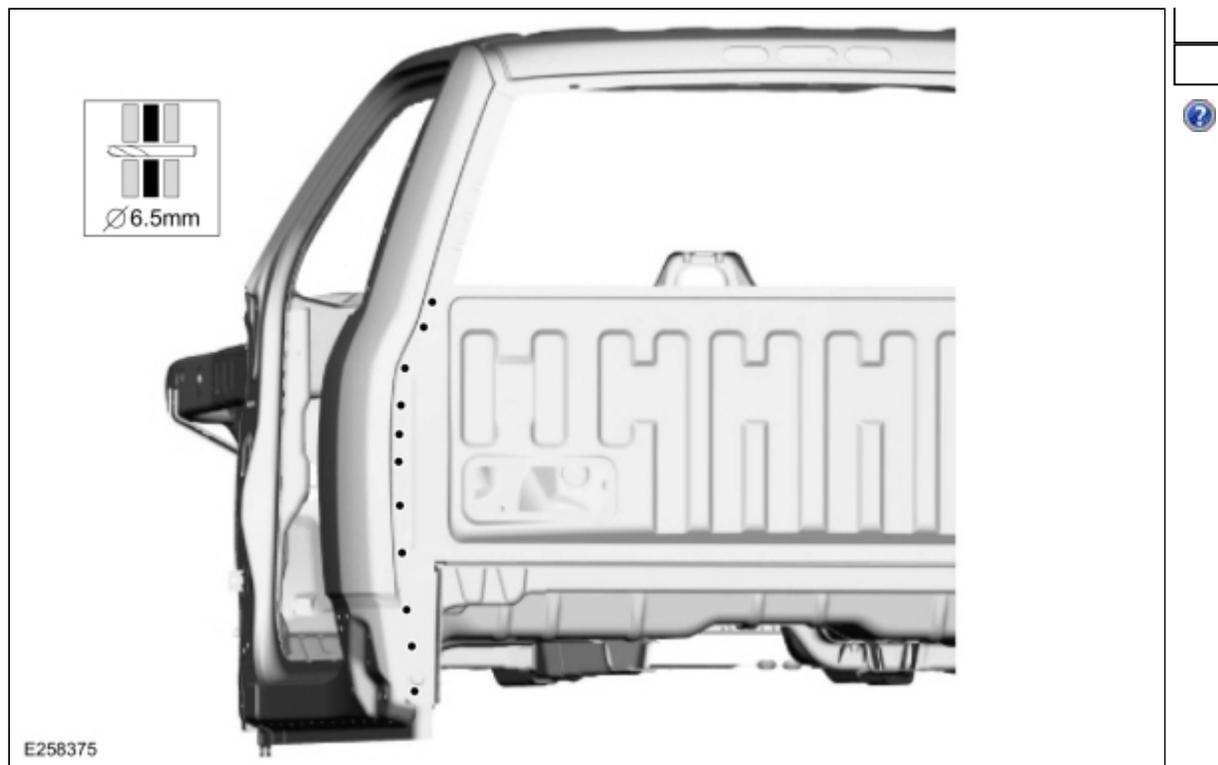
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer





- 14. Drill for fasteners.  
Use the General Equipment: 6.5 mm Drill Bit





15. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be adjacent to original location matching original quantity.

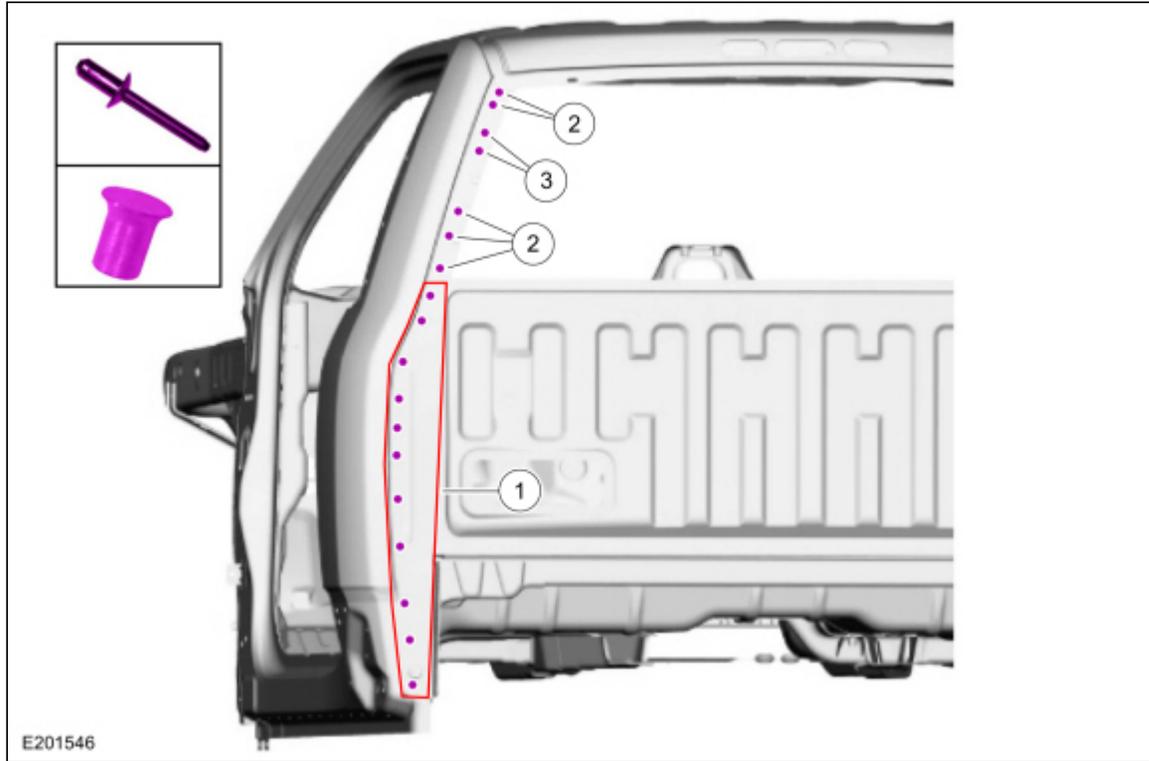
**NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

Item	SPR Number	SPR Code	Henrob® Car-O- Liner®, CMO®, Chief®, Spanesi® Wielande and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W708777-S900C	-	-
2	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0402	-	W790377-S900	-
3	W708717-S900	AW	DG10-220/H	SA-0400/SA-0402	-	W790377-S900	-

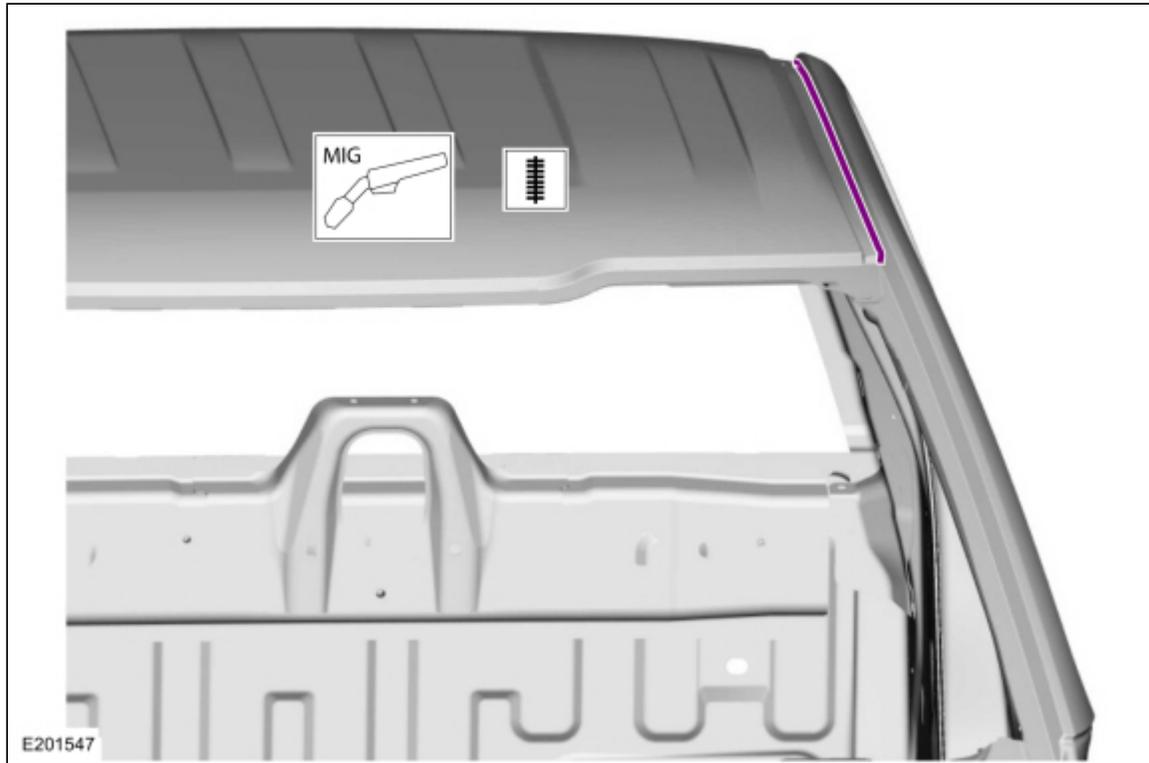
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).

Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Blind Rivet Gun



16. Seam weld the roof to body side joint using a MIG welder set up for aluminum repair.  
Use the General Equipment: MIG/MAG Welding Equipment



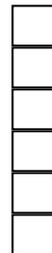


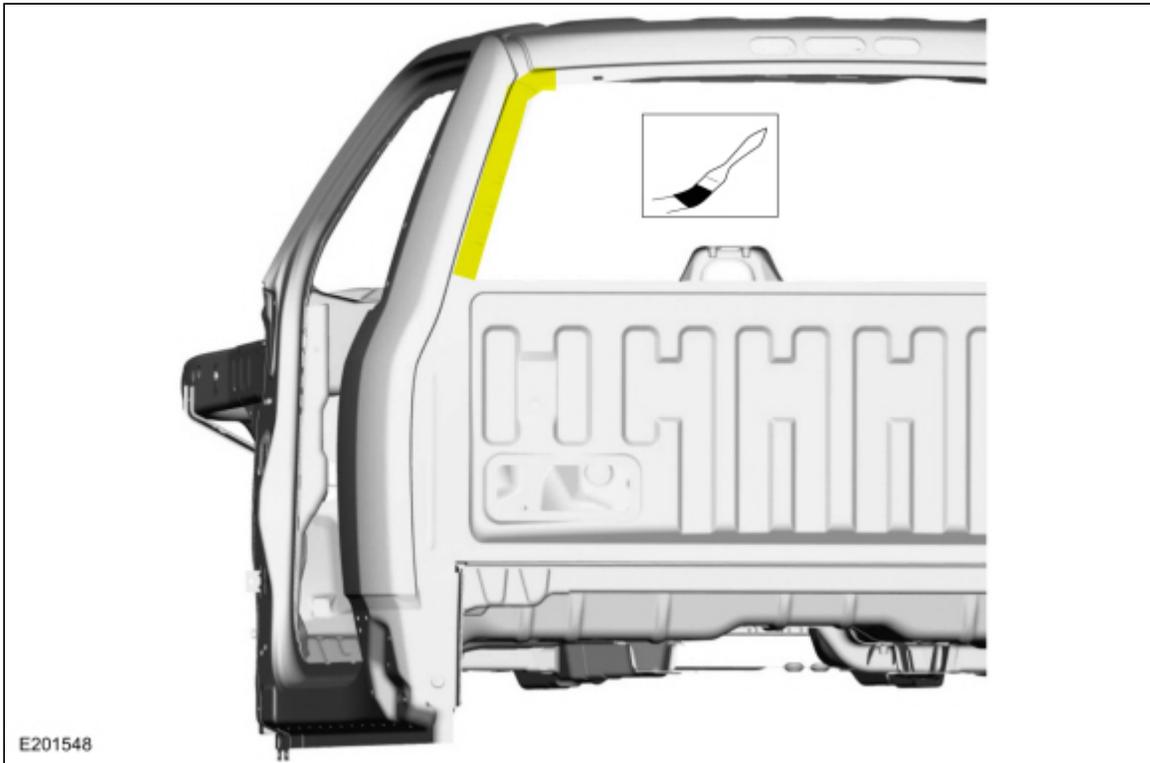
17. Metal finishing:

Metal finish all seams using typical aluminum metal finishing techniques and a fiber-based body filler.

Refer to: [Special Repair Considerations for Aluminum Repairs](#) (501-25 Body Repairs - General Information, Description and Operation).

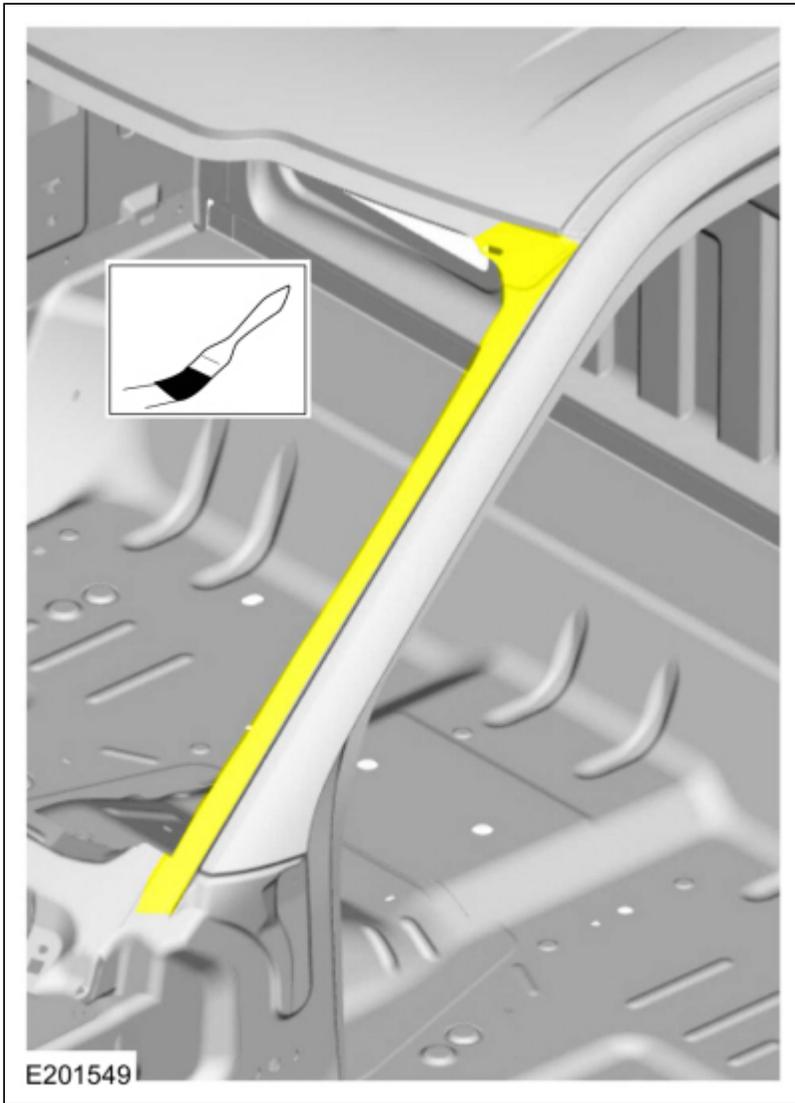
18. Apply a Ford approved epoxy-based primer to the rear window glass opening channel.





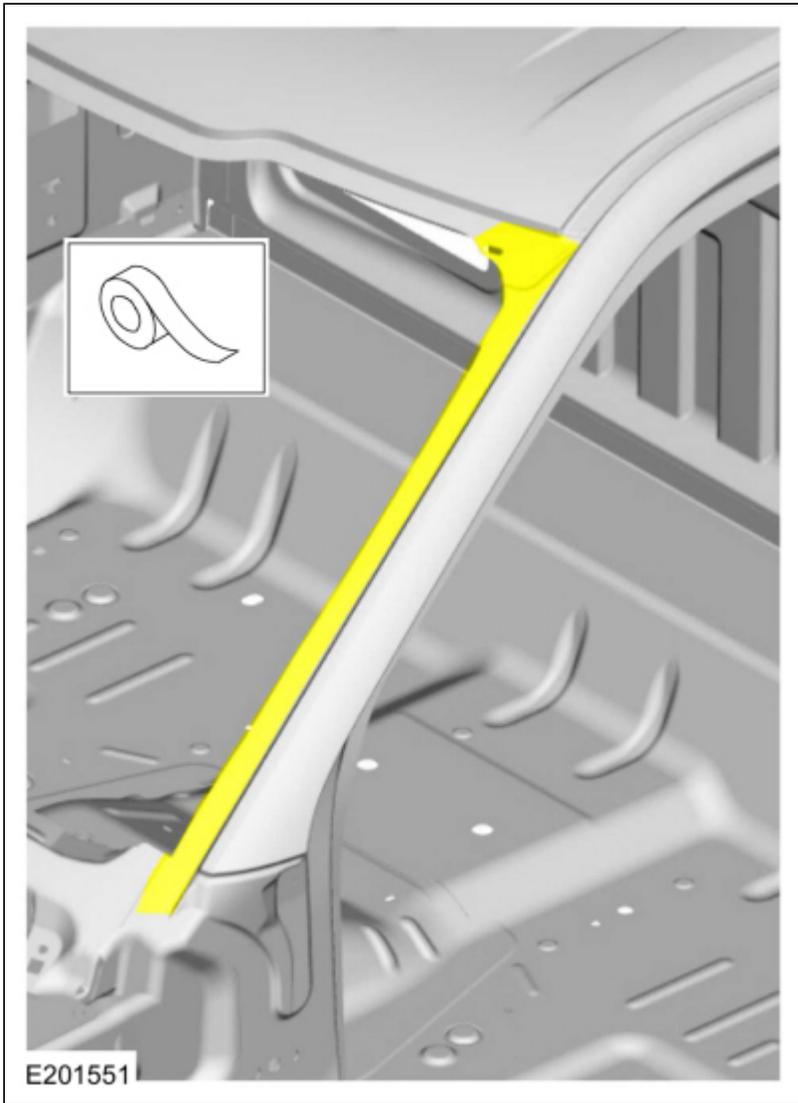
19. Apply a Ford approved epoxy-based primer to the windshield opening channel.





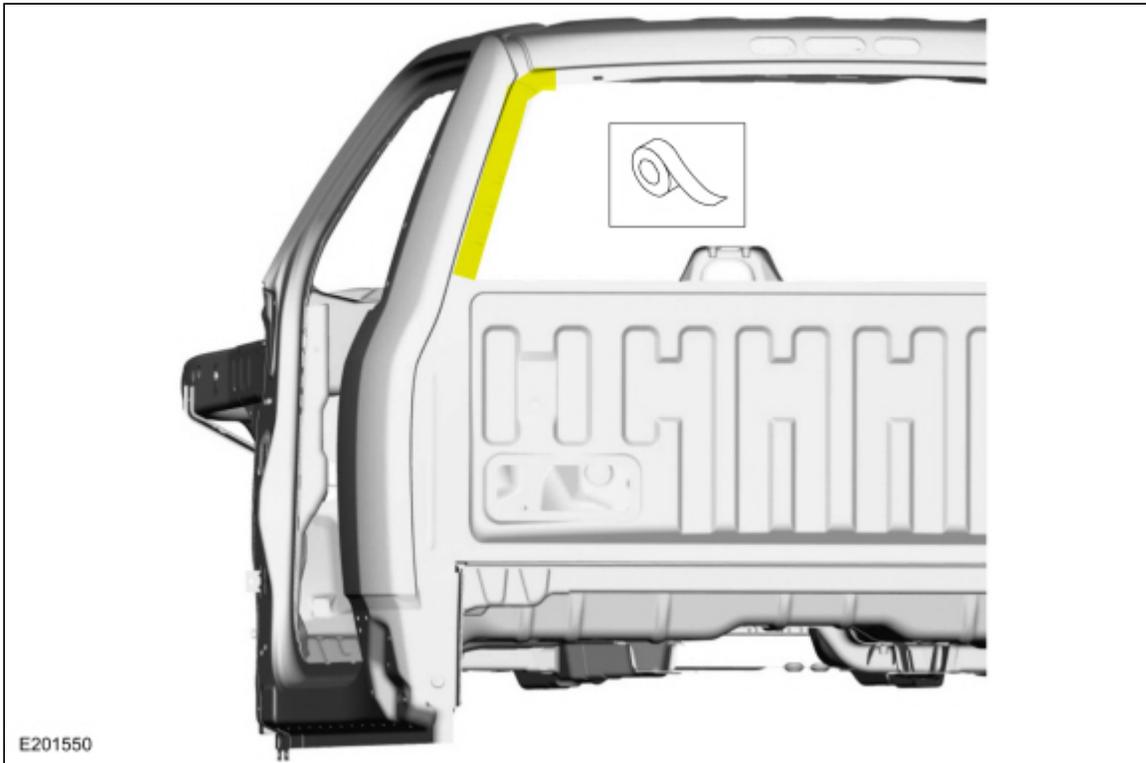
20. Mask the windshield opening channel.





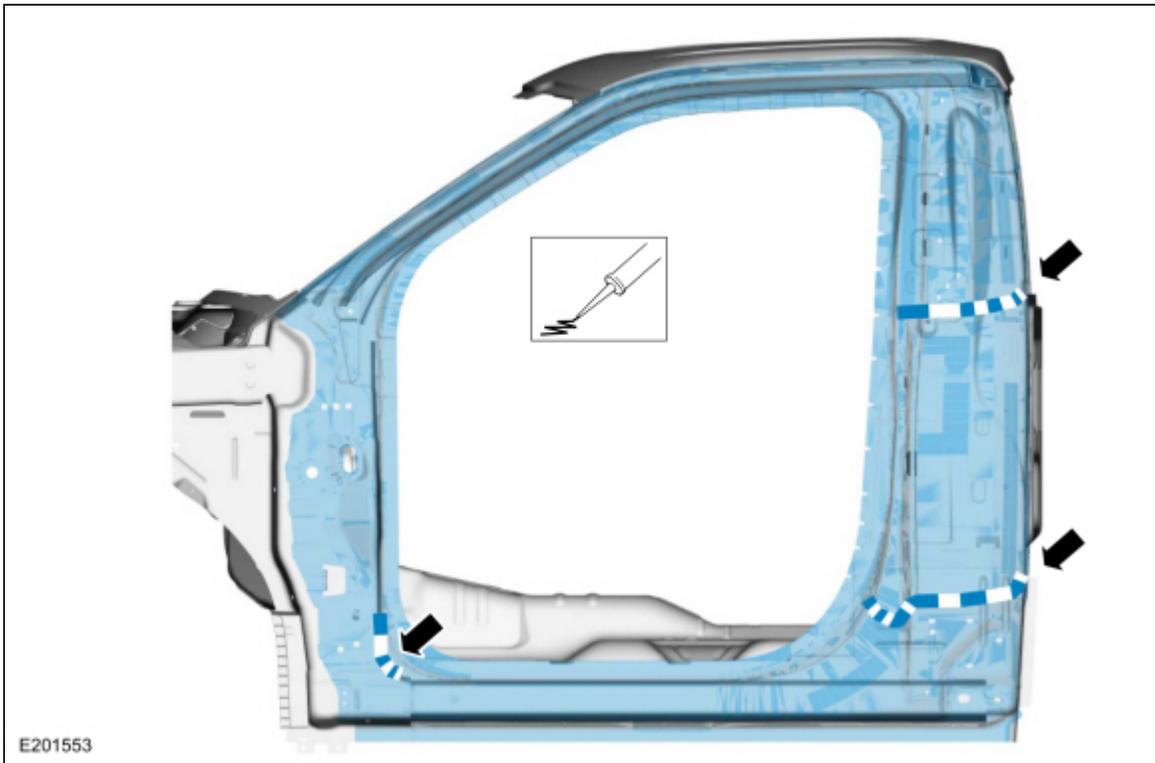
21. Mask the rear window glass opening channel.





- 22. Apply NVH foam to all locations noted during removal to assure complete sealing.  
*Material:* Flexible Foam Repair / 3M™ 08463, LORD Fusor® 121

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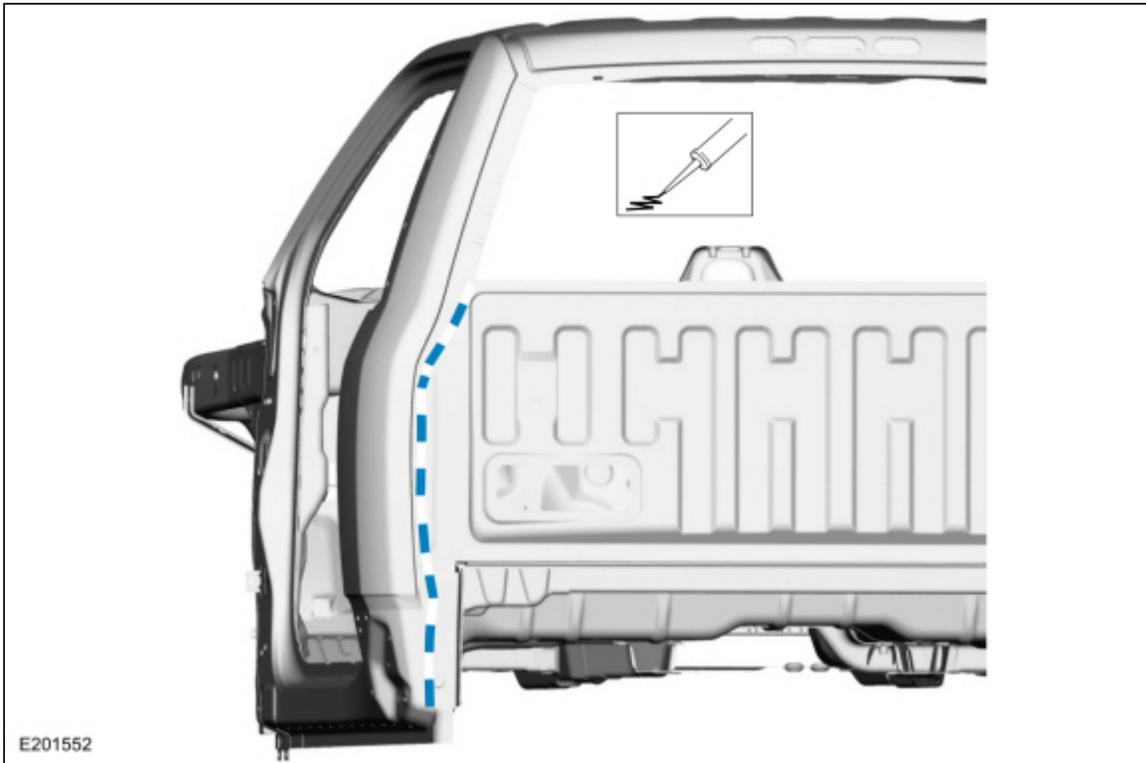


23. Seam Sealing:

All seams must be sealed to production level.

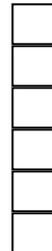
*Material:* Seam Sealer / TA-2-B, 3M™ 08308, LORD Fusor® 803DTM

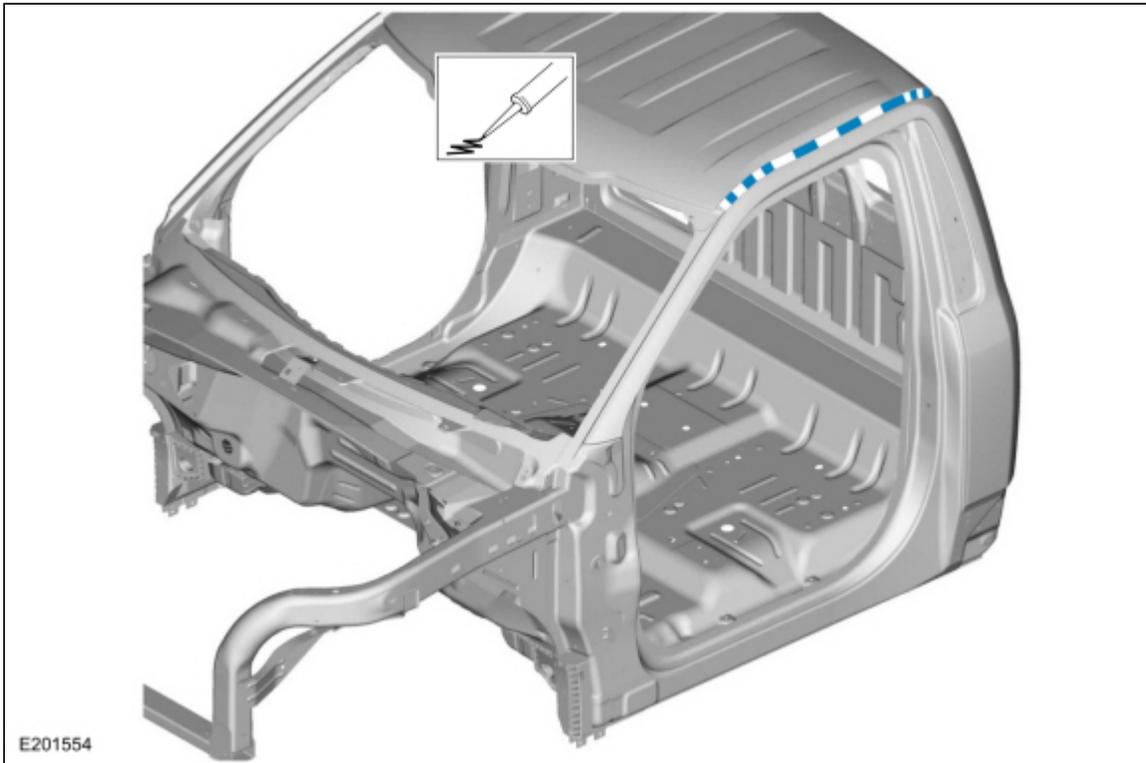




24. Apply roof ditch sealer.

*Material:* Roof Ditch Sealer / 3M™ 08307, LORD Fusor® 129

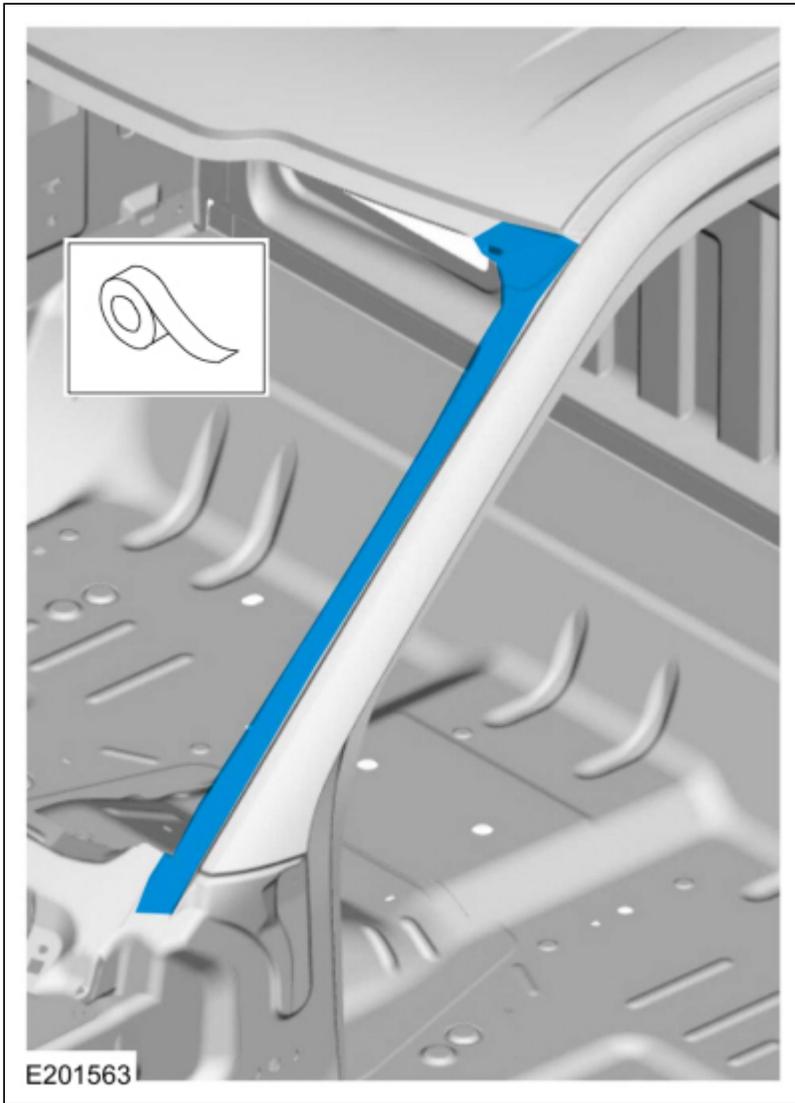




25. Refinish the entire repair area using a Ford approved paint system and typical refinishing techniques.

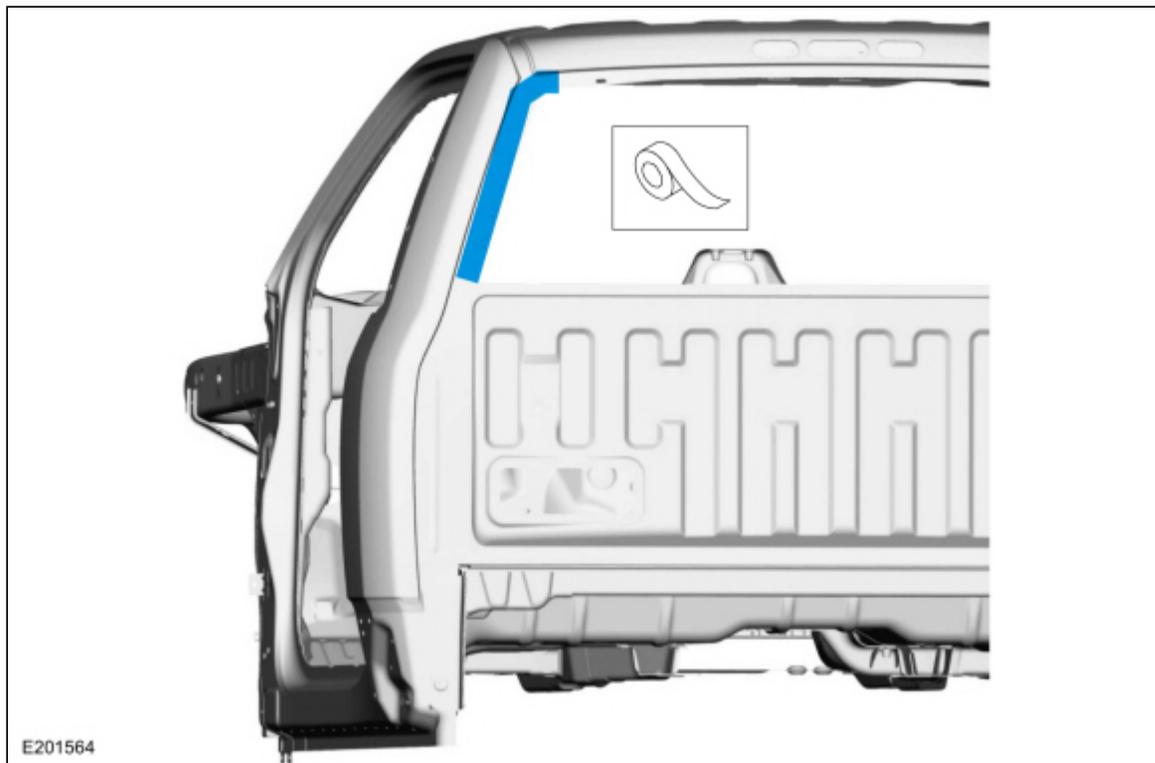
26. Unmask the windshield opening channel.



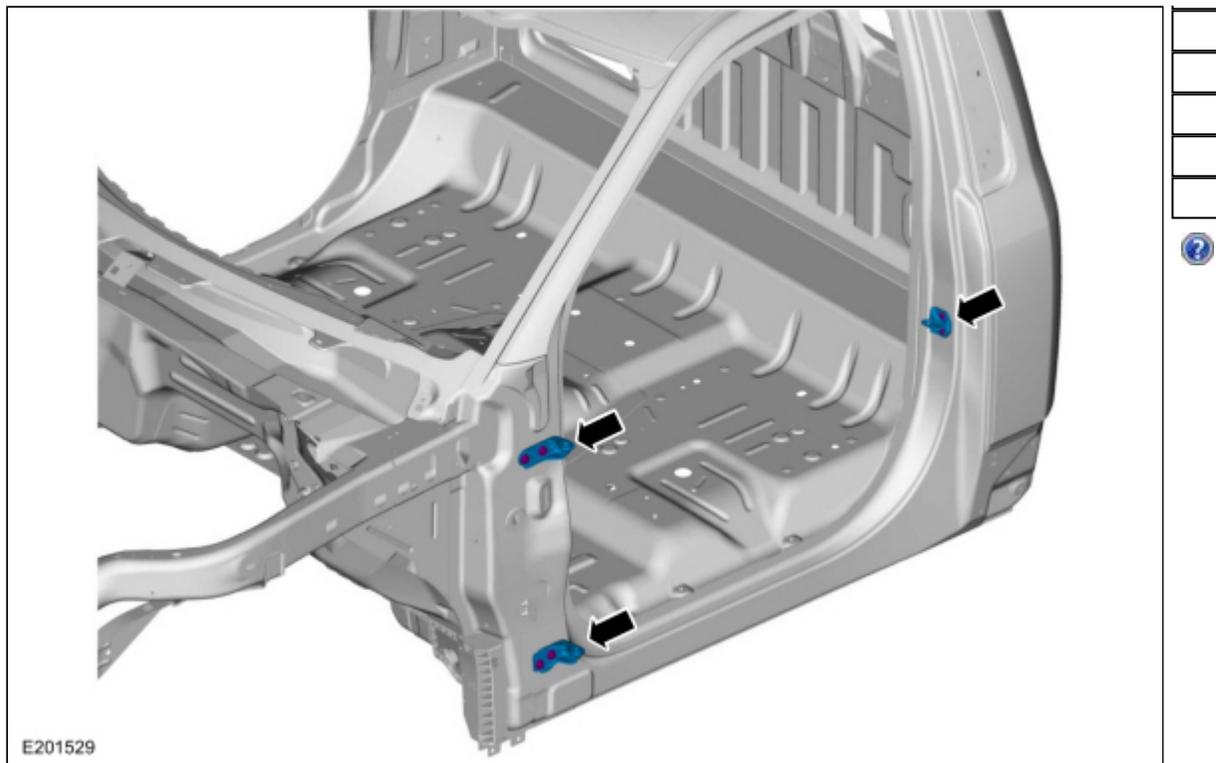


27. Unmask the rear window glass opening channel.





28. Install the side curtain air bag.  
Refer to: [Side Curtain Airbag - Regular Cab](#) (501-20B Supplemental Restraint System, Removal and Installation).
29. Install the door opening weather strips and scuff plate.
30. Install the windshield and rear window glass.  
Refer to: [Fixed Glass](#) (501-11 Glass, Frames and Mechanisms, General Procedures).
31. Install the outer cab trim.  
Refer to: [Roof Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).  
Refer to: [Bodyside Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).  
Refer to: [Front Door Upper Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
32. Install the door hinges and striker.
  - Door hinges.  
*Torque:* 21 lb.ft (28 Nm)
  - Striker.  
*Torque:* 18 lb.ft (25 Nm)



33. Install the A and C-pillar trim.  
Refer to: [A-Pillar Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).  
Refer to: [C-Pillar Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).
34. Install the fender.  
Refer to: [Fender](#) (501-02 Front End Body Panels, Removal and Installation).
35. Install and align the door.  
Refer to: [Front Door - Regular Cab/SuperCrew](#) (501-03 Body Closures, Removal and Installation).  
Refer to: [Front Door Alignment - Regular Cab/SuperCrew](#) (501-03 Body Closures, General Procedures).
36. Install the pickup box.  
Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Removal and Installation).
37. Repower the SRS.  
Refer to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).

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