

501-29 Side Panel Sheet Metal Repairs  
Removal and Installation

2021 F-150

Procedure revision date: 10/23/2020

### Rocker Panel Inner Reinforcement - 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	-
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.

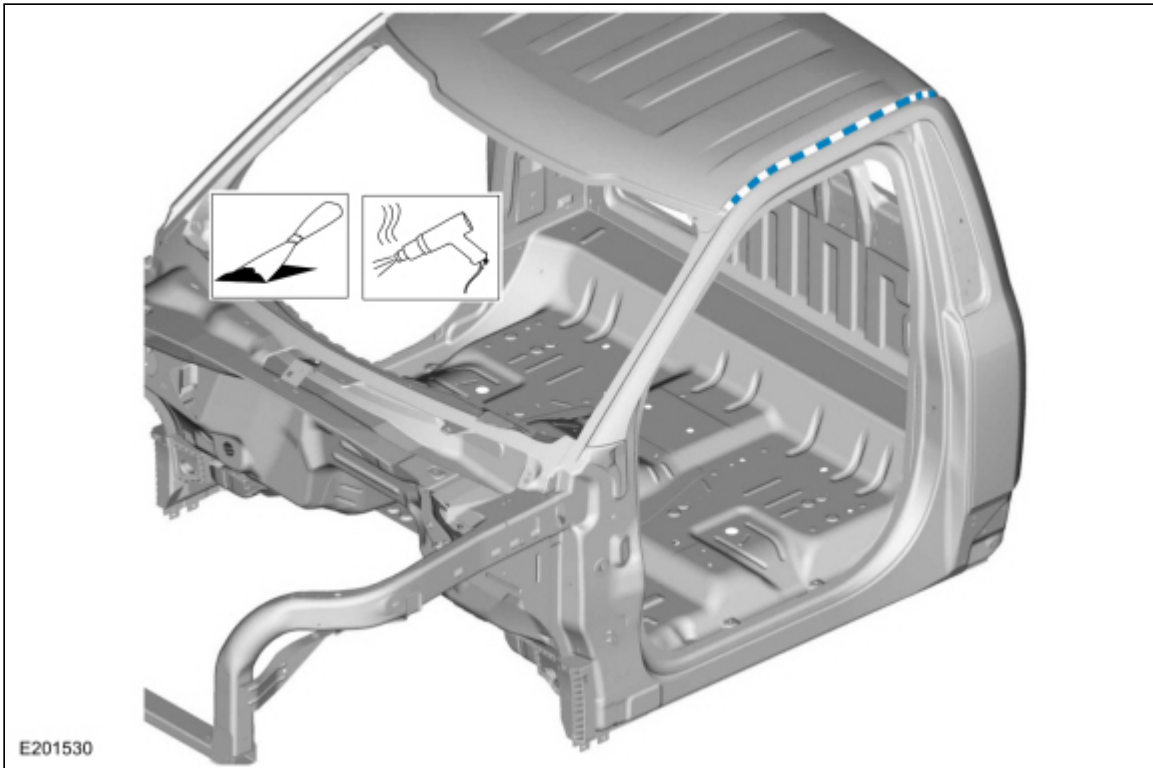
**NOTE:** Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many repairs 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:** The rear portion of the rocker panel reinforcement on the Regular Cab may be sectioned with the use of a backer plate, adhesive and rivets. The following assumes full component replacement.

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

2. Depower the SRS.  
Refer to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
3. Remove the outer body 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).
4. Remove the pickup box.  
Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Removal and Installation).
5. Remove the A-pillar reinforcement.  
Refer to: [A-Pillar Outer Panel Section and Reinforcement](#) (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
6. Remove the rear window glass.  
Refer to: [Fixed Glass](#) (501-11 Glass, Frames and Mechanisms, General Procedures).
7. Remove the roof ditch sealer.  
Use the General Equipment: Hot Air Gun  
Use the General Equipment: Scraper for Straight Edges





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

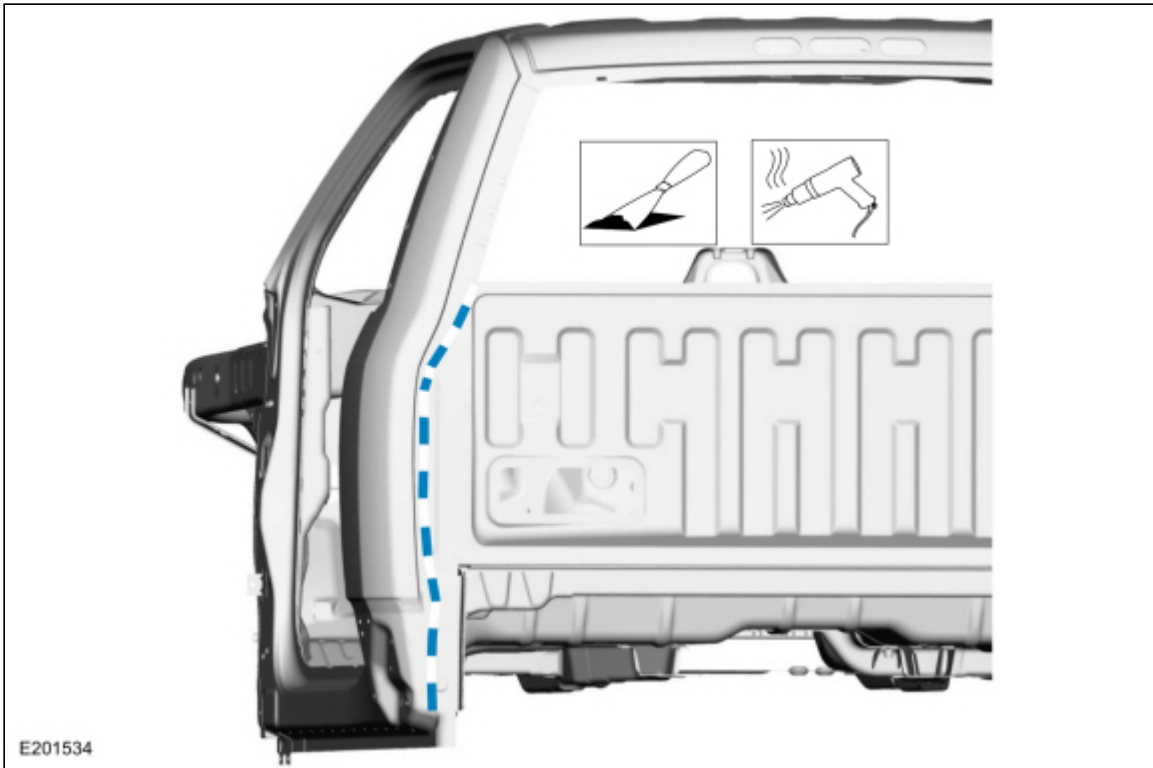




9. Remove the SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander

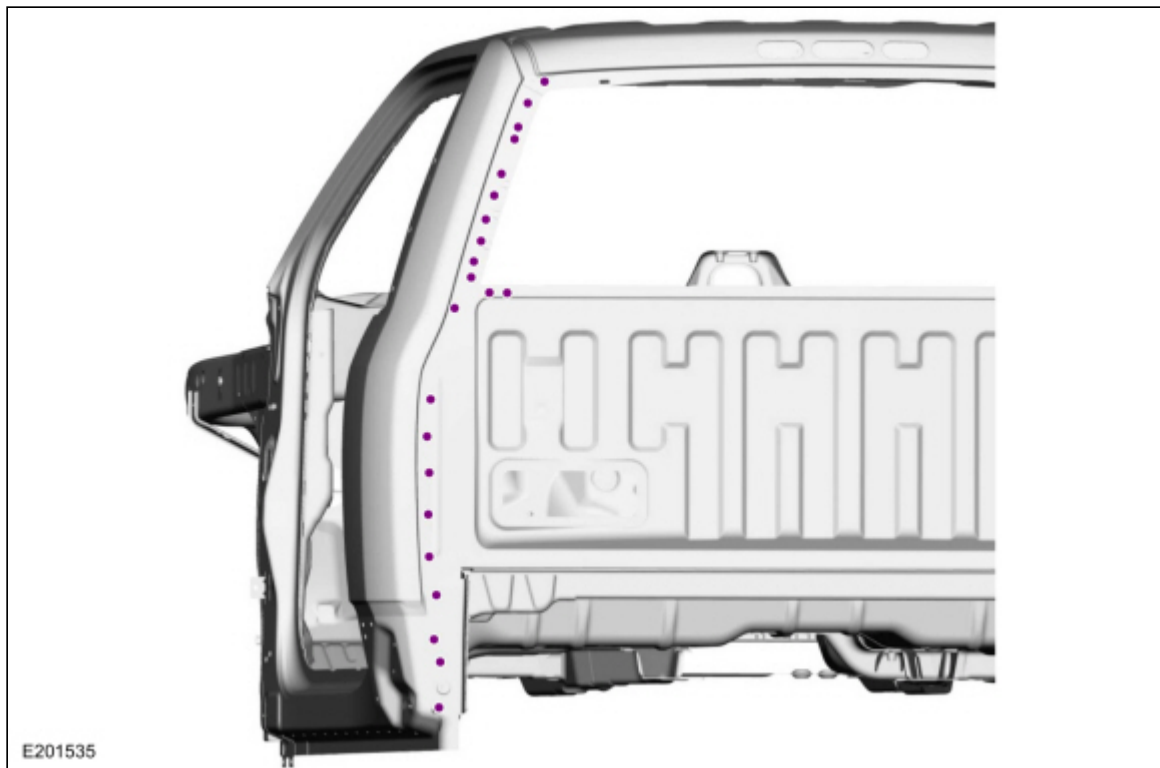


10. Remove the cab back seam sealer.  
Use the General Equipment: Scraper for Straight Edges  
Use the General Equipment: Hot Air Gun



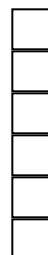
- 11. Remove the cab back to filler panel SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander

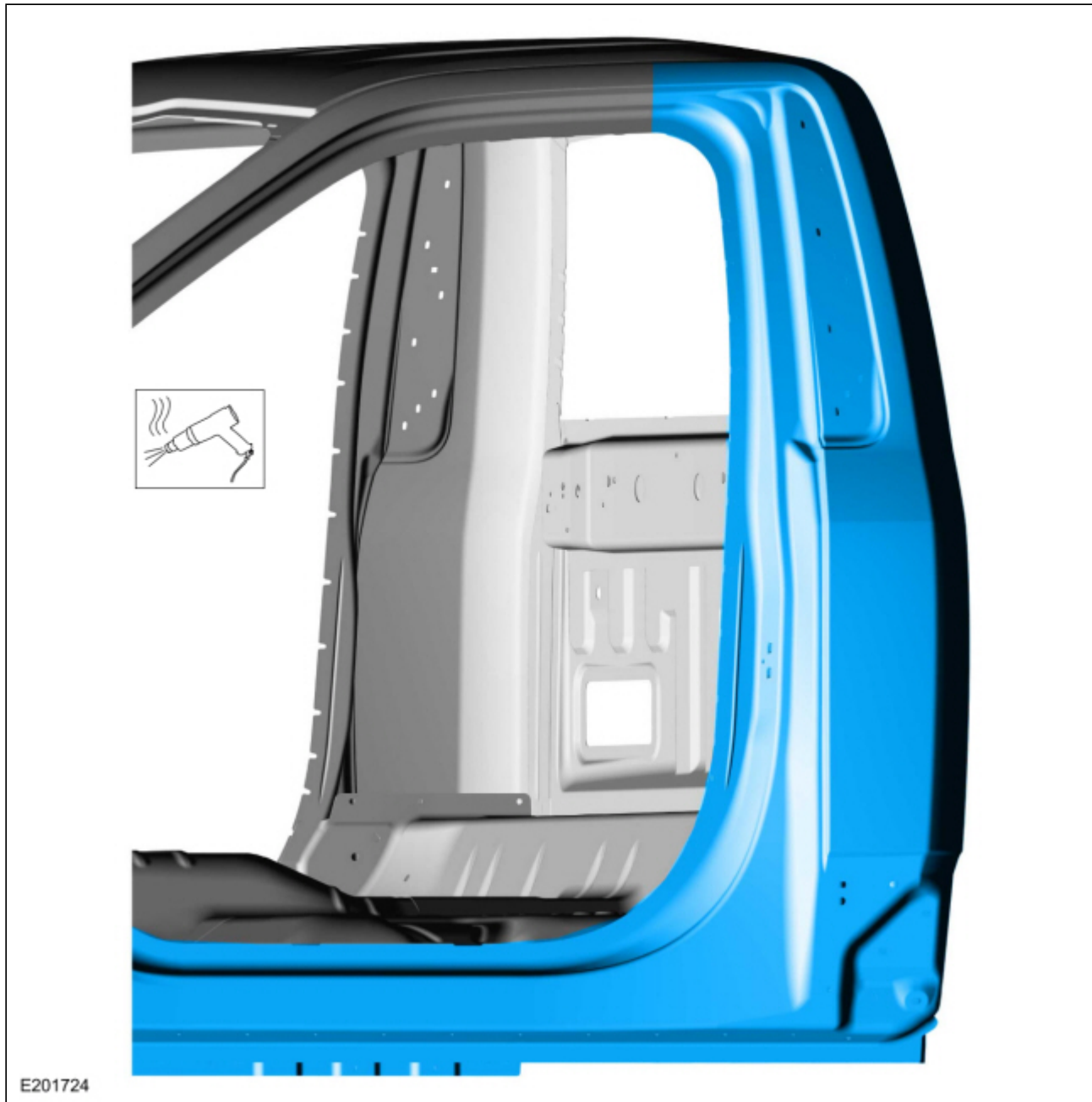




12. **NOTE:** Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many 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.

Break the adhesive bond and remove the body side section.  
Use the General Equipment: Hot Air Gun

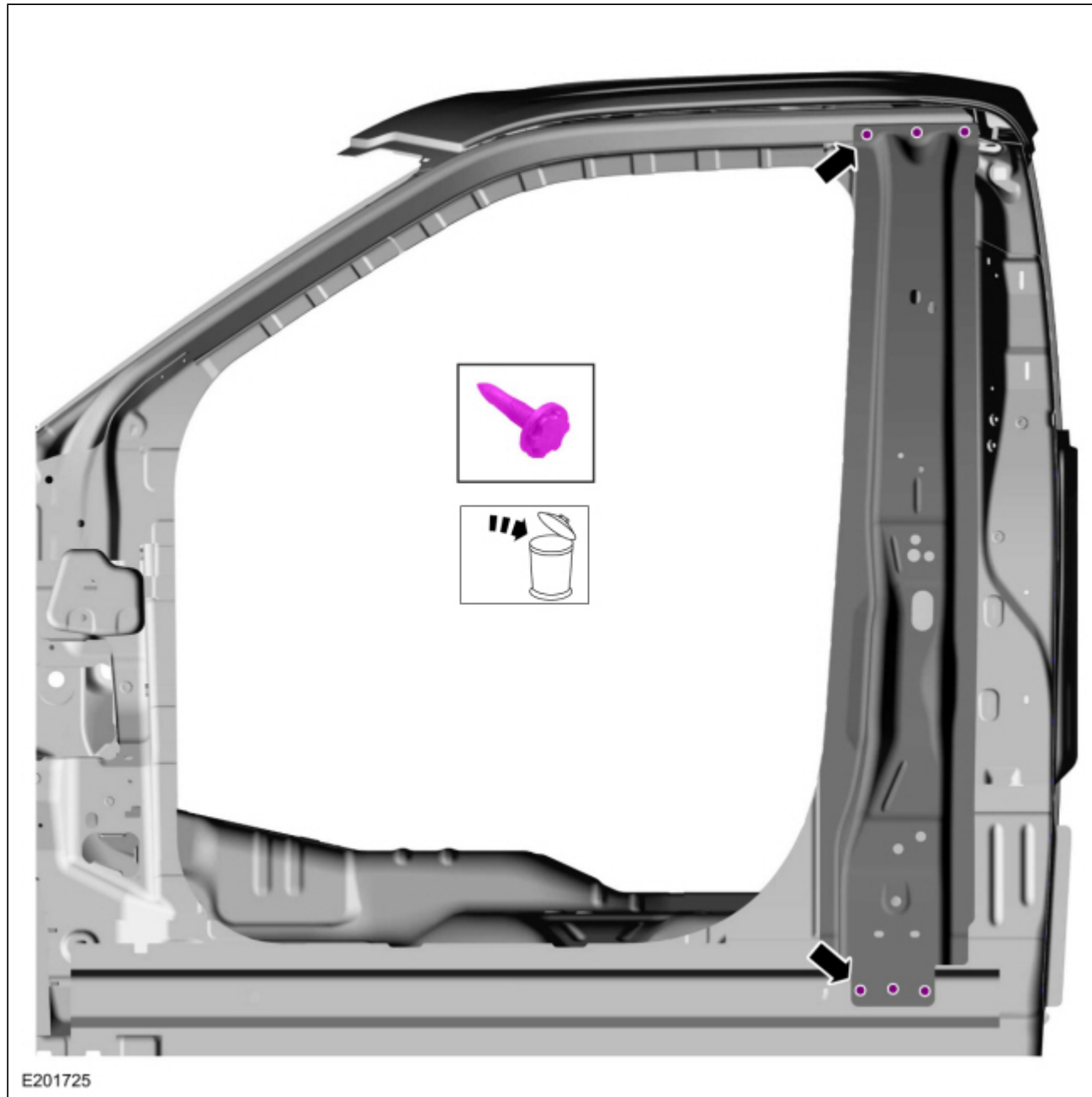




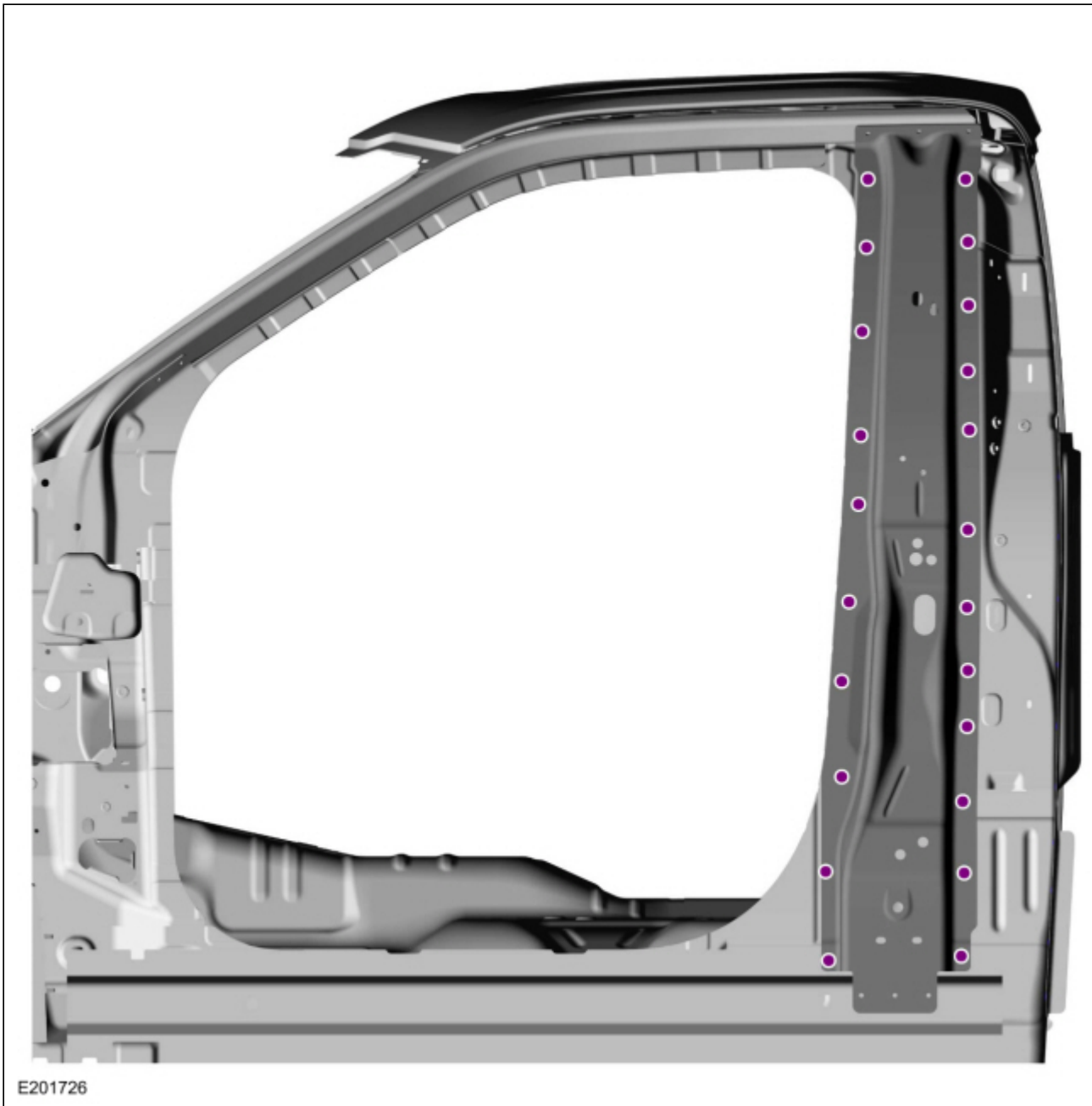
13. Remove and discard the FDS fasteners.  
Use the General Equipment: Polydrive Bit Socket





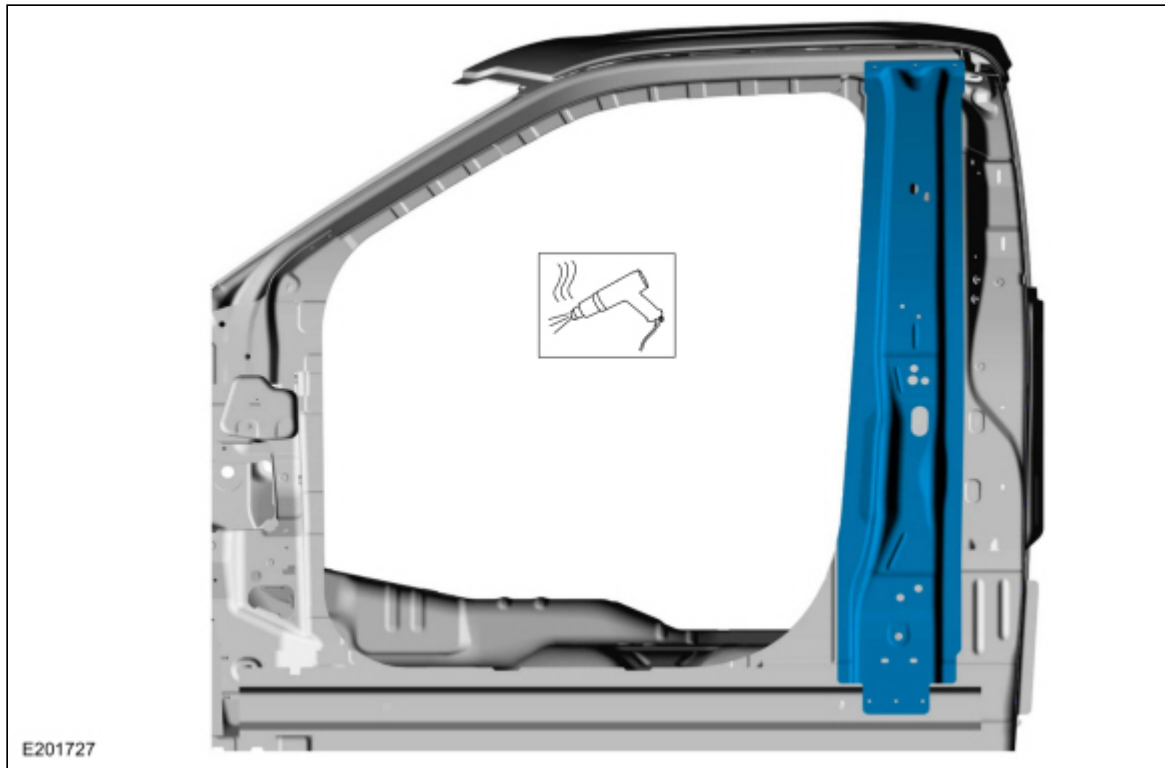


14. Remove the SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander



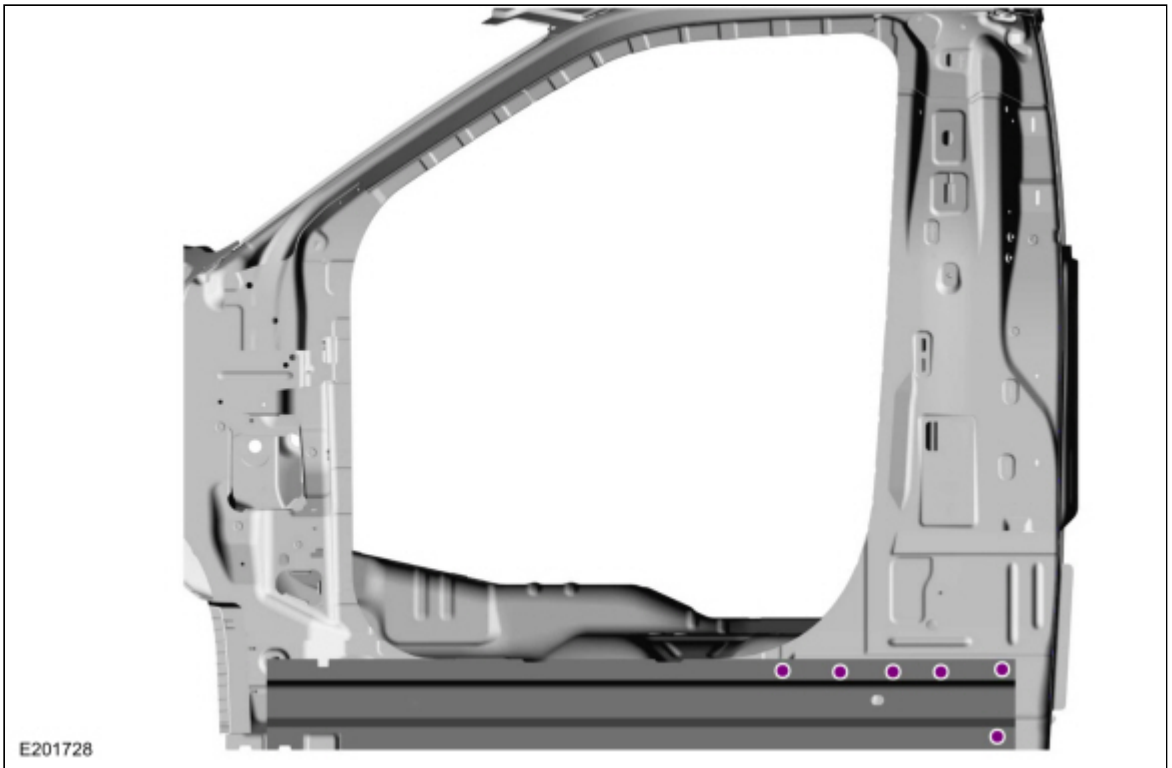
- 15. Break the adhesive bond and remove the C-pillar reinforcement.  
Use the General Equipment: Hot Air Gun





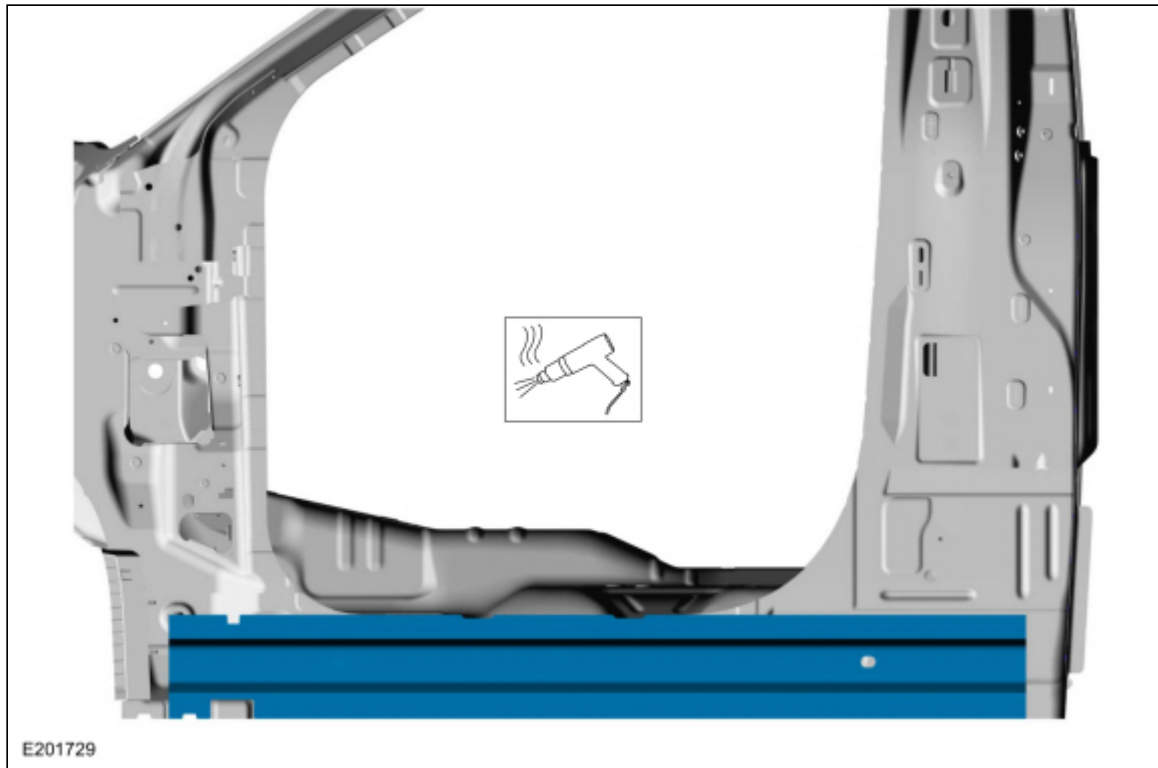
- 16. Remove the SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander





- 17. Break the adhesive bond and remove the rocker panel reinforcement.  
Use the General Equipment: Hot Air Gun





### Installation

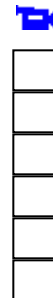
**NOTICE:** Body side sectioning is prohibited within 50 mm of door hinge, door striker and restraints anchoring points.

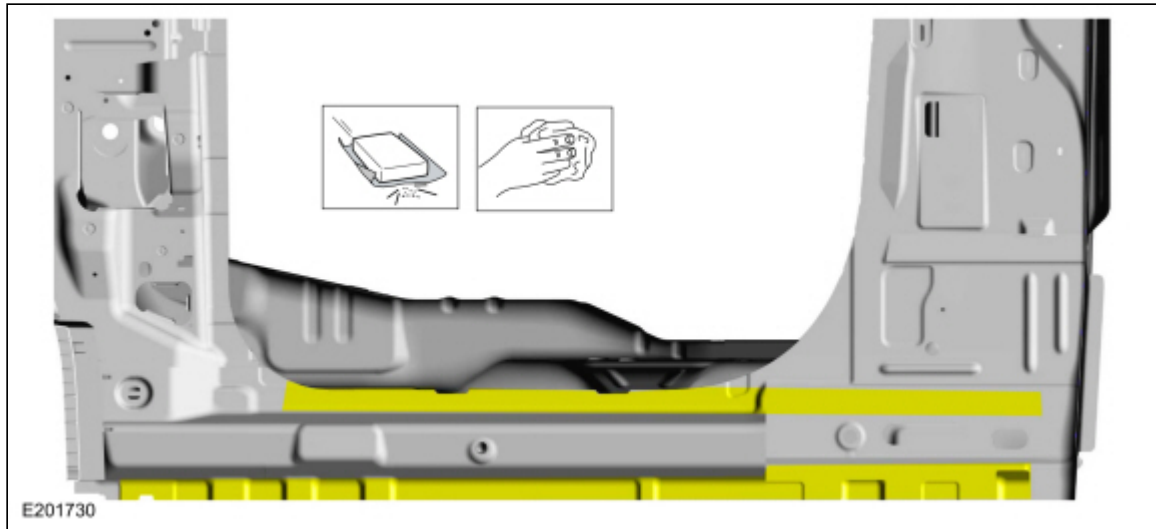
**NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be placed adjacent to original location matching original quantity.

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

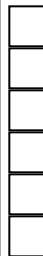
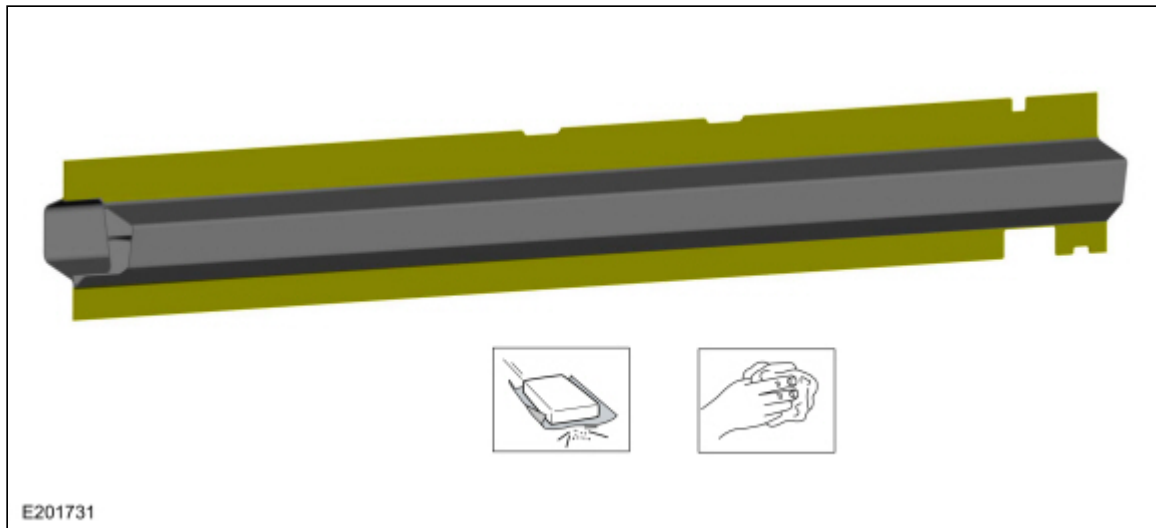
**NOTE:** The use of a backer panel when creating butt welds will produce a stronger and more uniform repair.

1. 80-120 grit sandpaper.  
Sand to remove adhesive on the mating surfaces and clean.



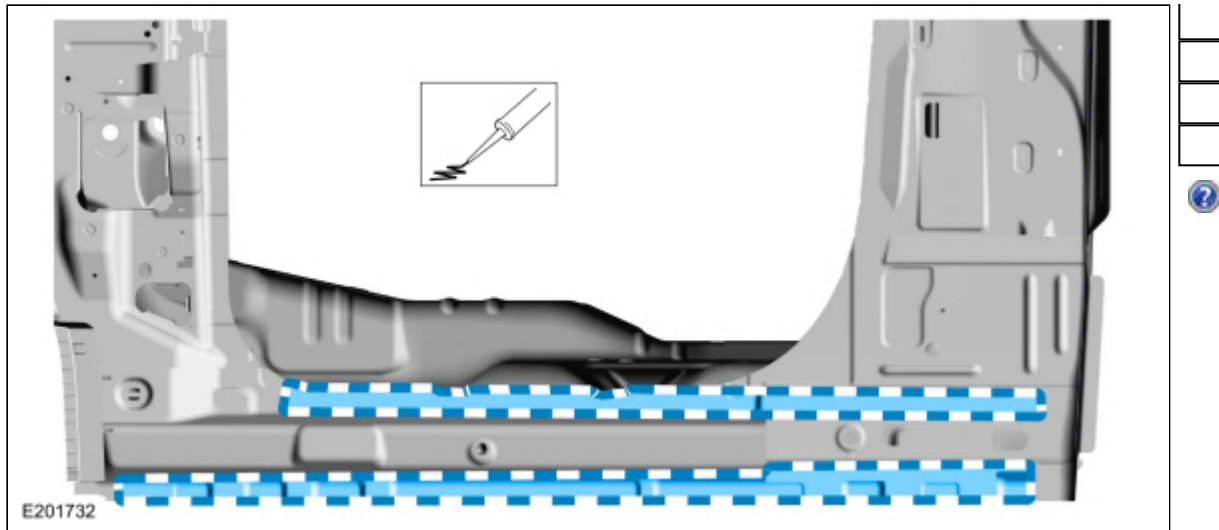


- 2. 80-120 grit sandpaper.  
Sand to remove e-coat and clean.

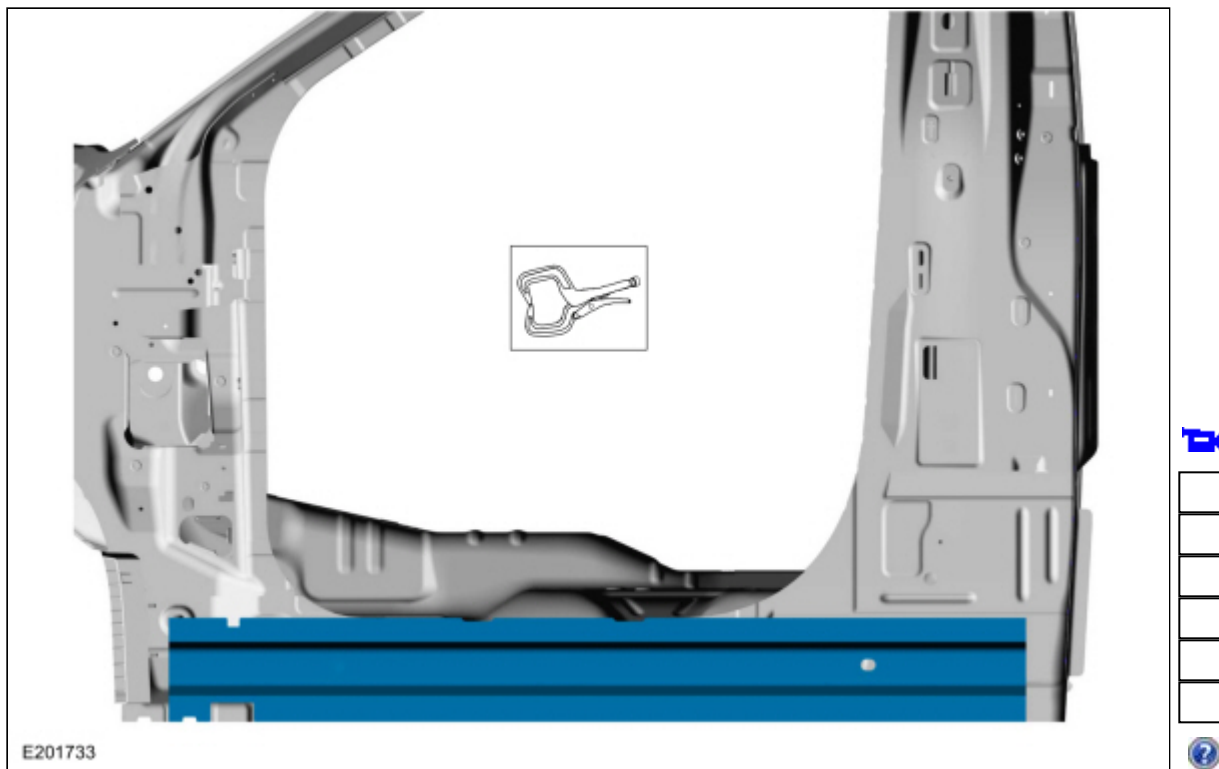


- 3. Apply adhesive.  
*Material:* Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B

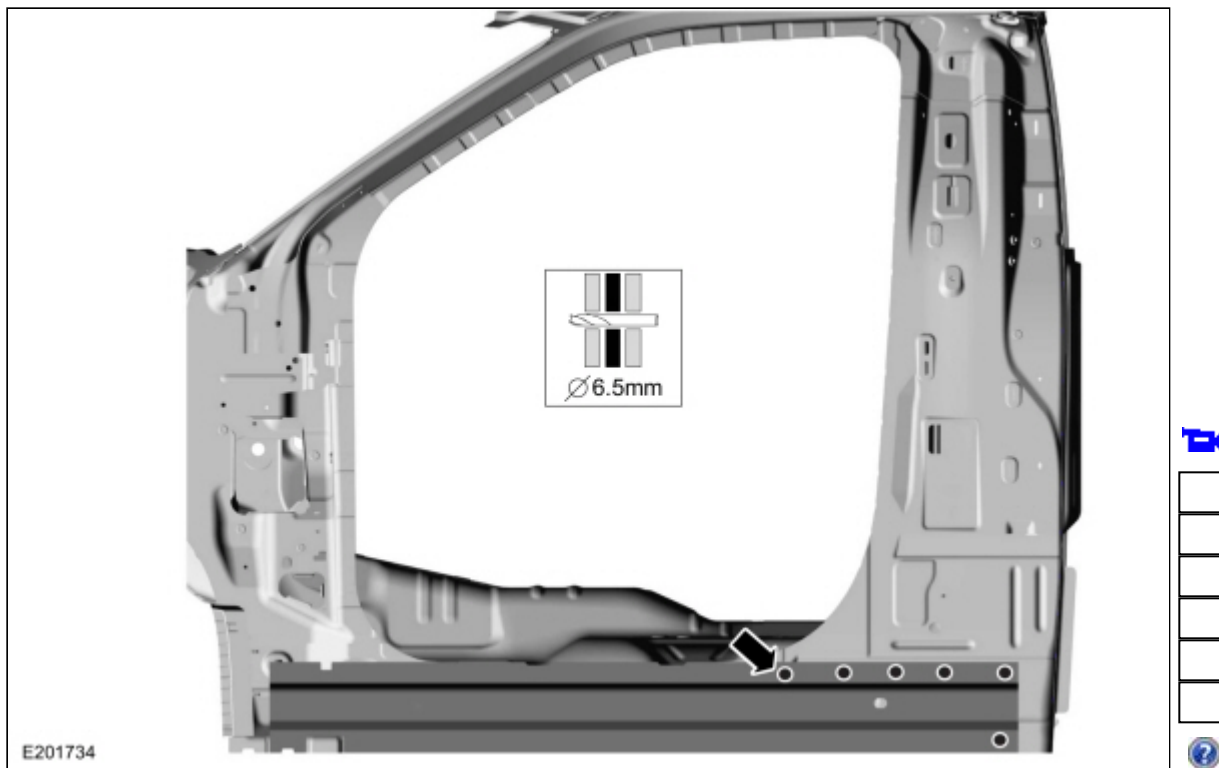




- 4. Install the reinforcement and clamp in position.  
Use the General Equipment: Locking Pliers



5. Drill 6.5 mm holes for blind rivet fasteners.  
Use the General Equipment: 6.5 mm Drill Bit



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

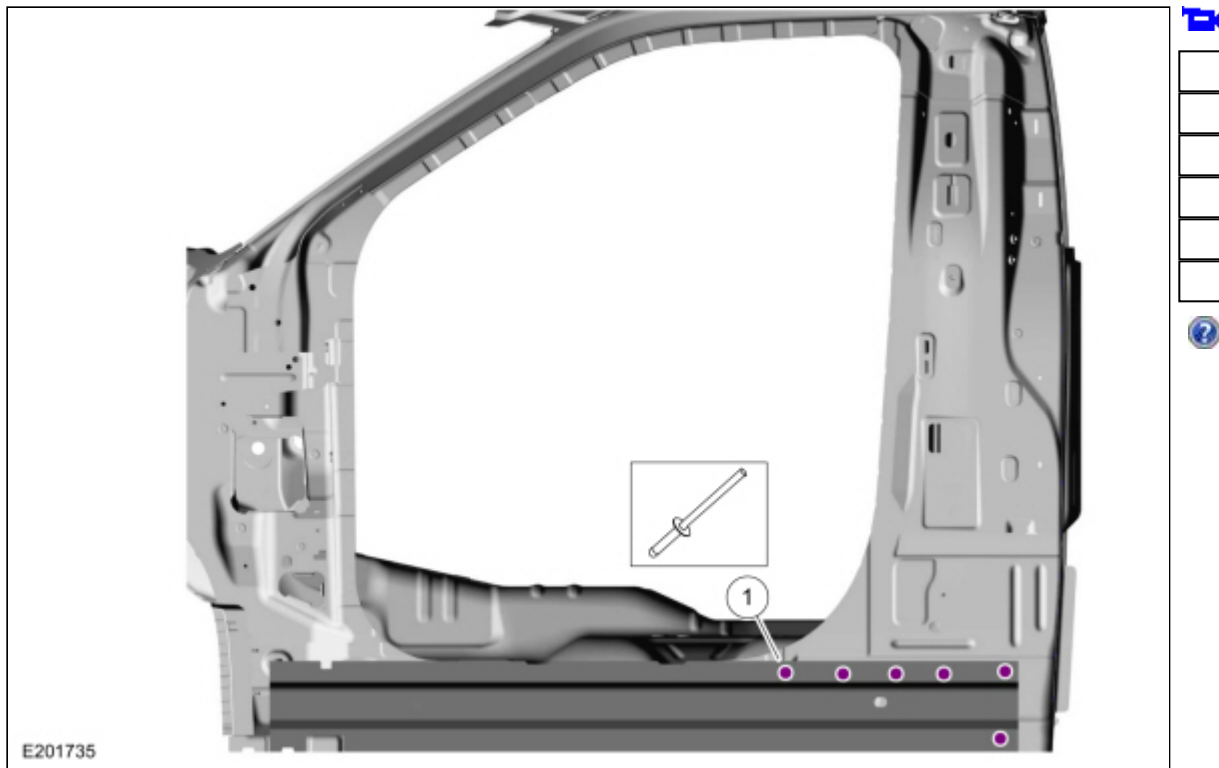
**NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

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	-	-	-	-	W702512-S900C	-	-

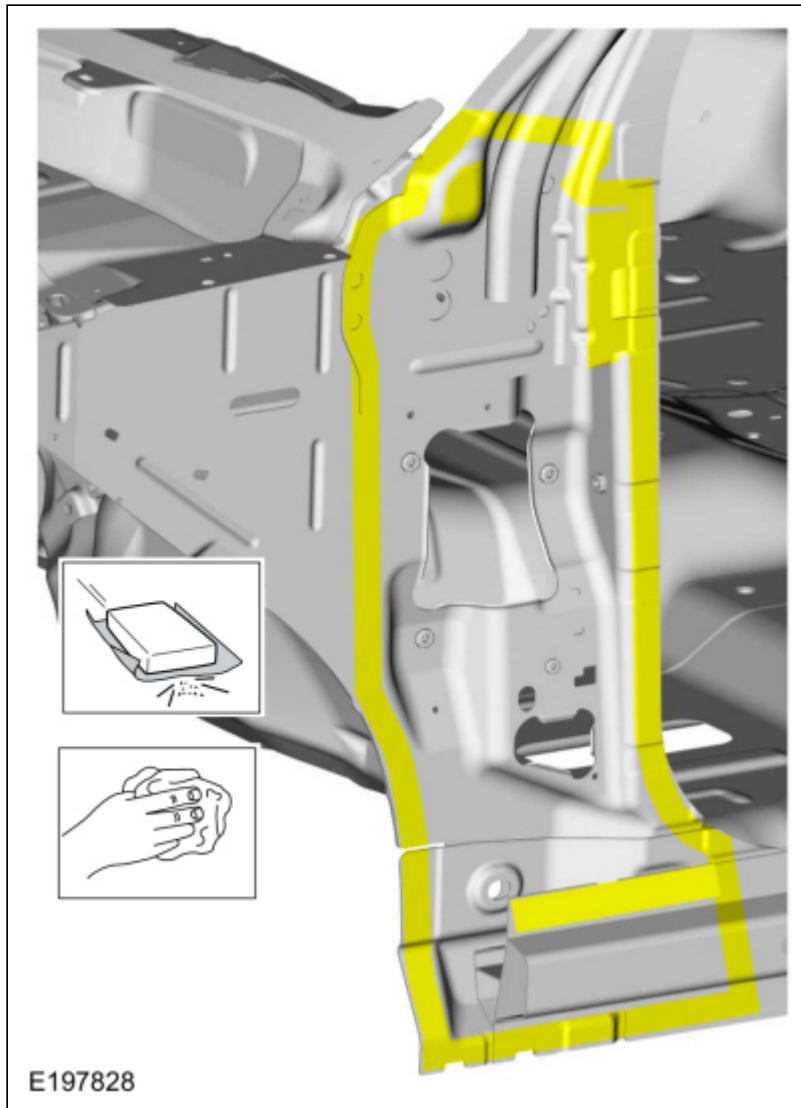
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).  
Use the General Equipment: Blind Rivet Gun





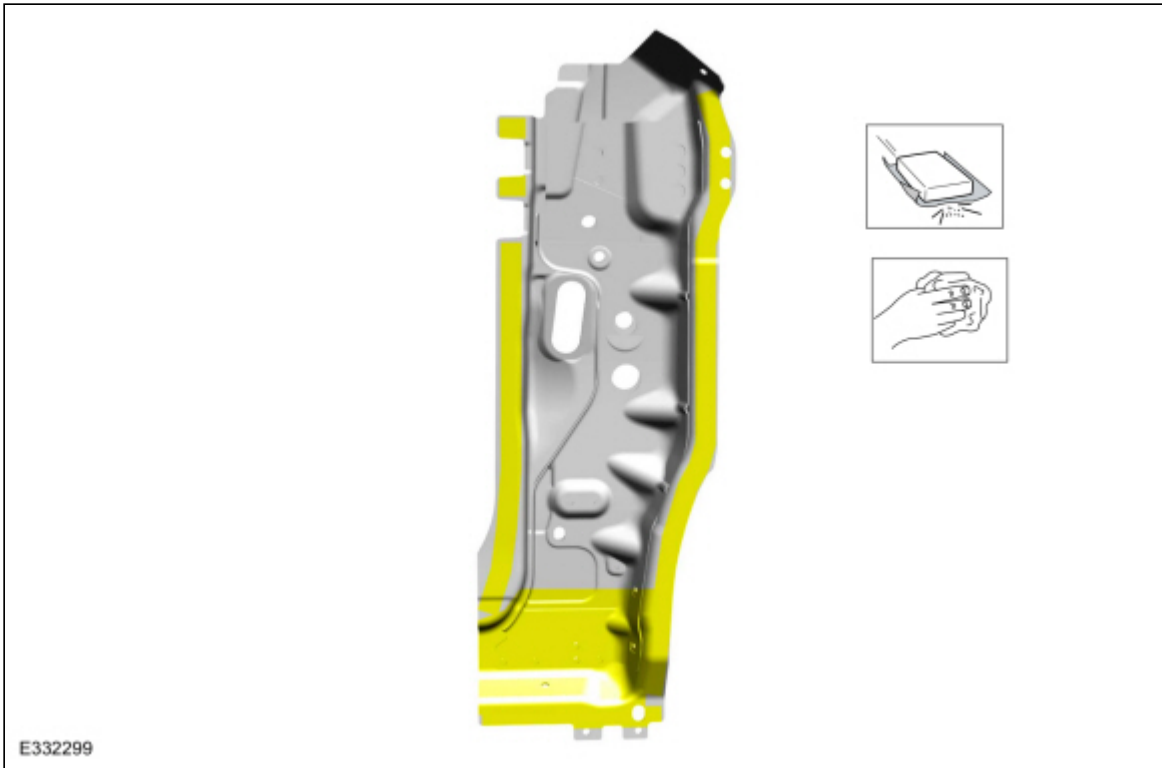
- 7. 80-120 grit sandpaper.  
Sand to remove old adhesive and e-coat and clean.





- 8. 80-120 grit sand paper.  
Sand to remove e-coat and clean.

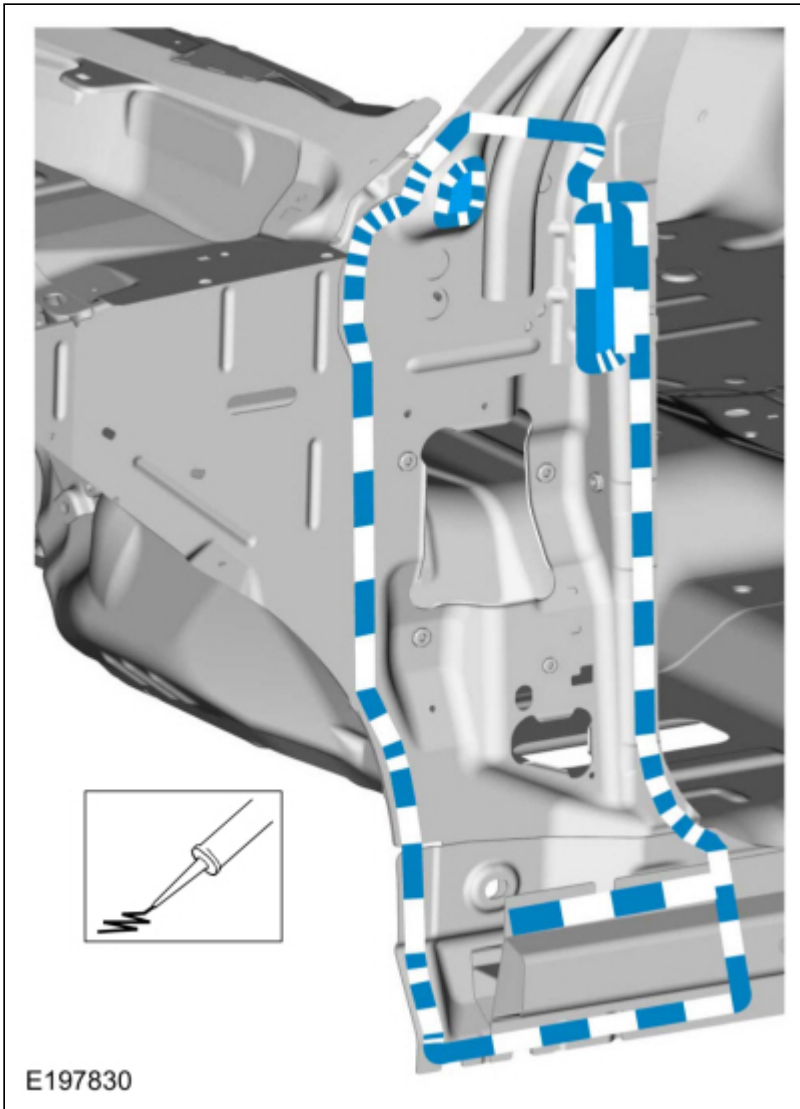




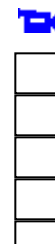
9. Apply adhesive.

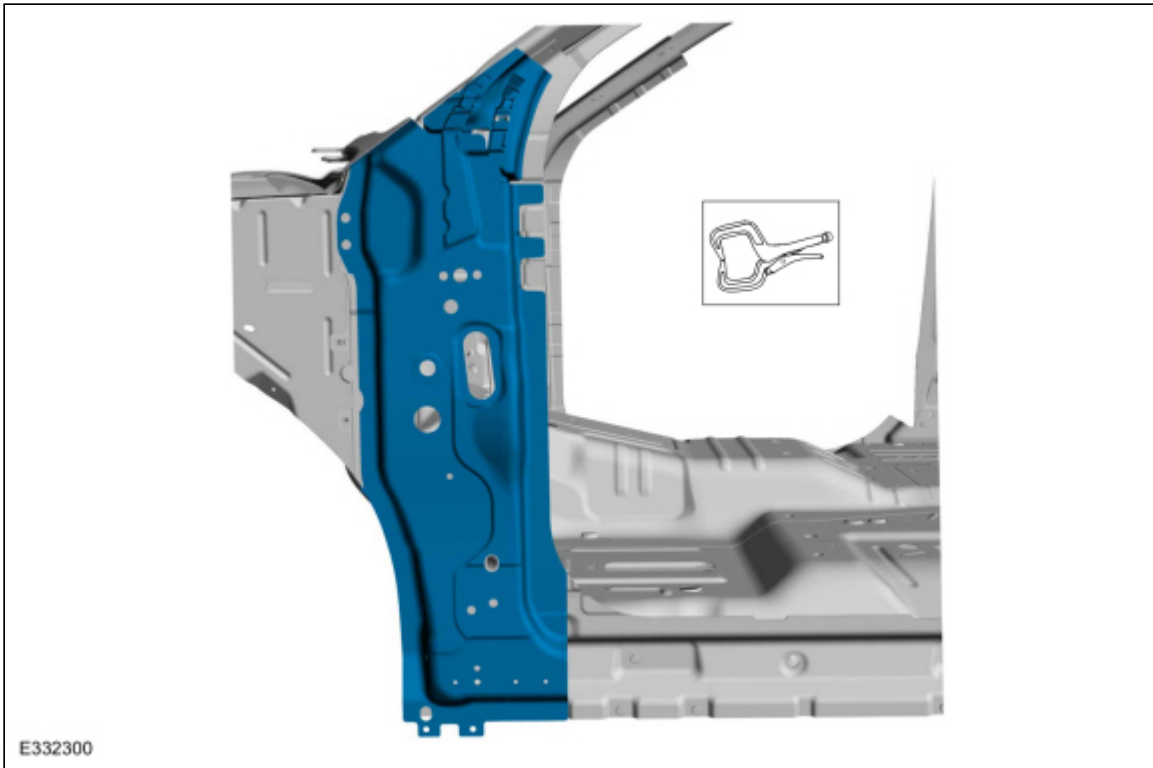
*Material:* Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B





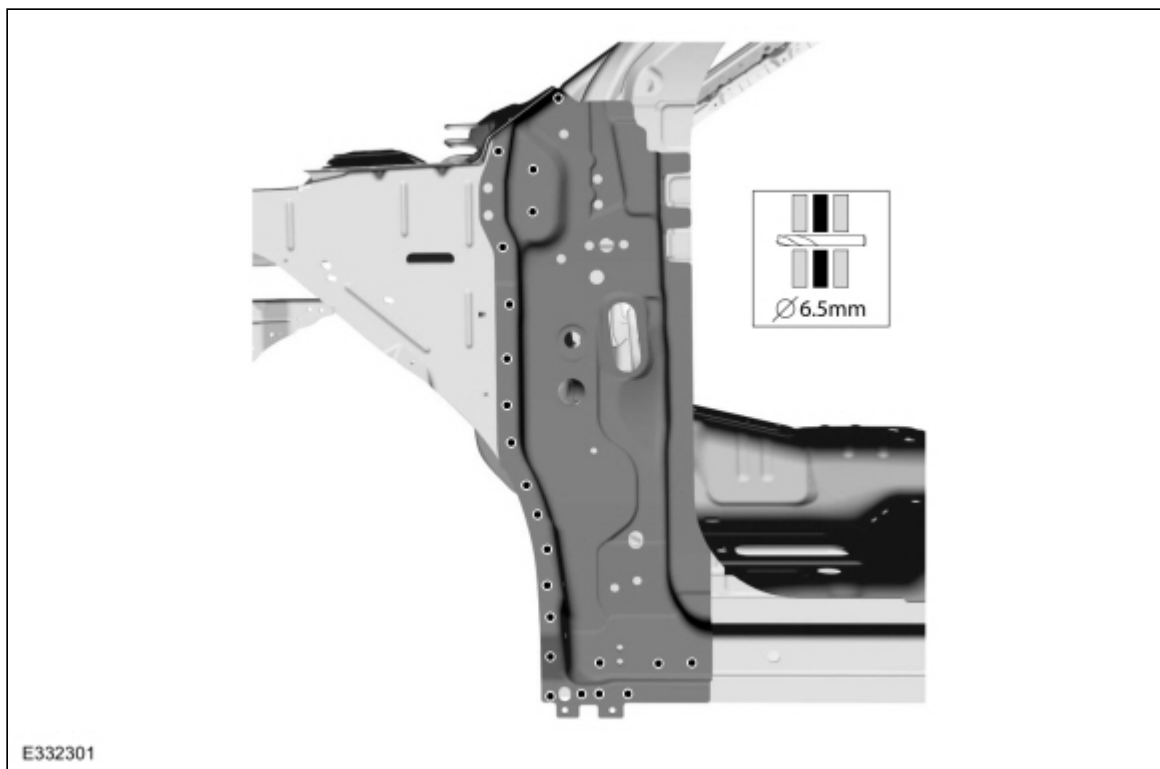
- 10. Install the A-pillar reinforcement and clamp in position.  
Use the General Equipment: Locking Pliers





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





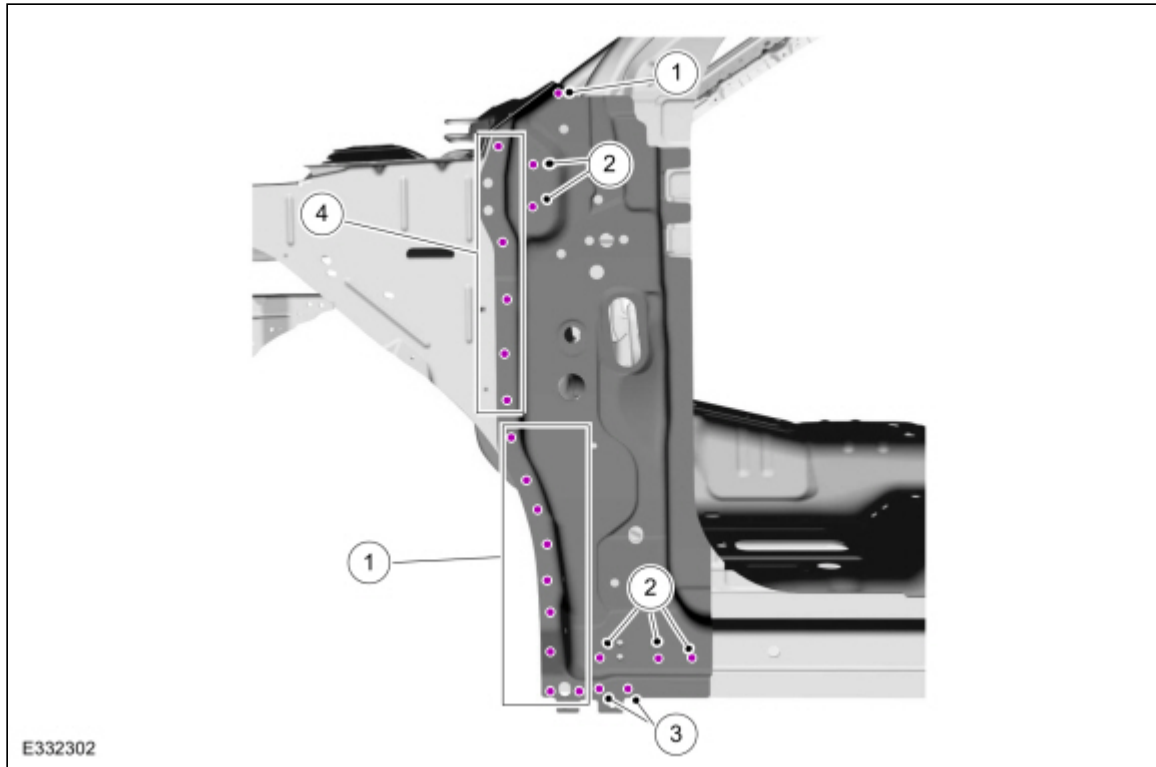
12. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be placed adjacent to original location matching original quantity.

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

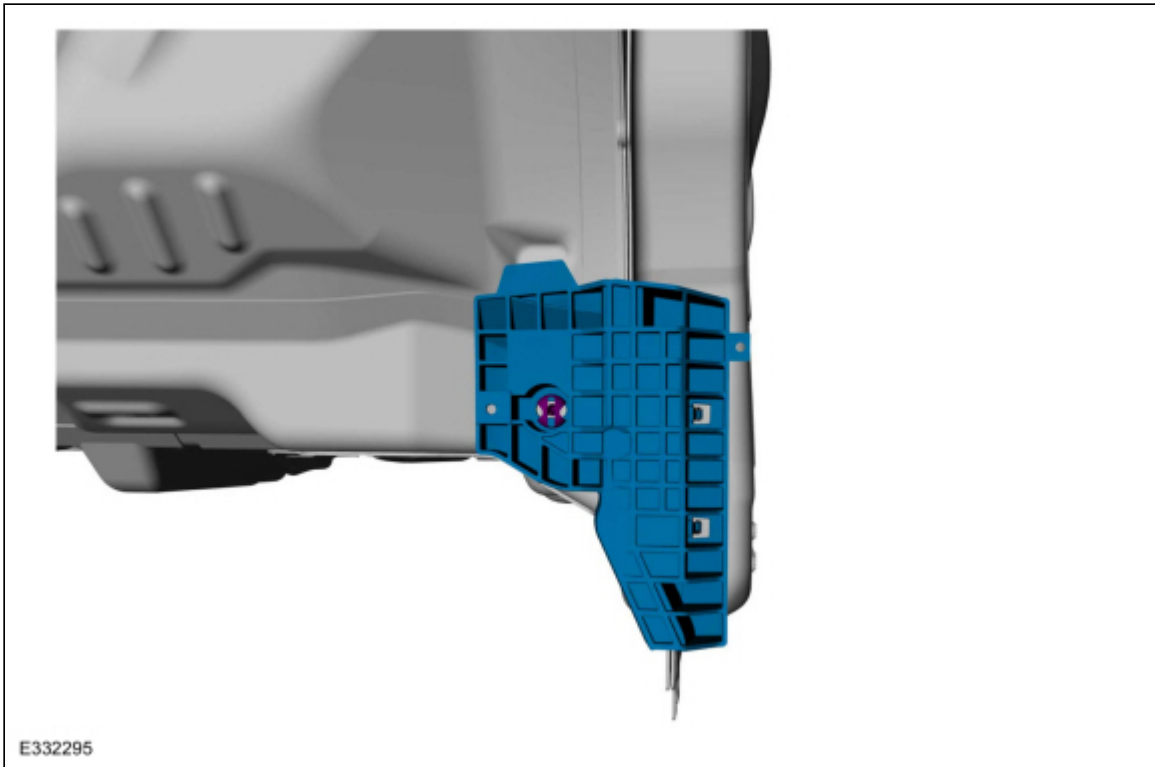
Install fasteners.

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	W717182-S900	QC	DP10-200/H	SA-0400/SA-0402	W708777-S900C	-	-
2	-	-	-	-	W708777-S900C	-	-
3	W717186-S900	EL	DP11-200/H	SA-0400/SA-0402	W708777-S900C	-	-
4	-	-	-	-	W702512-S900C	-	-

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



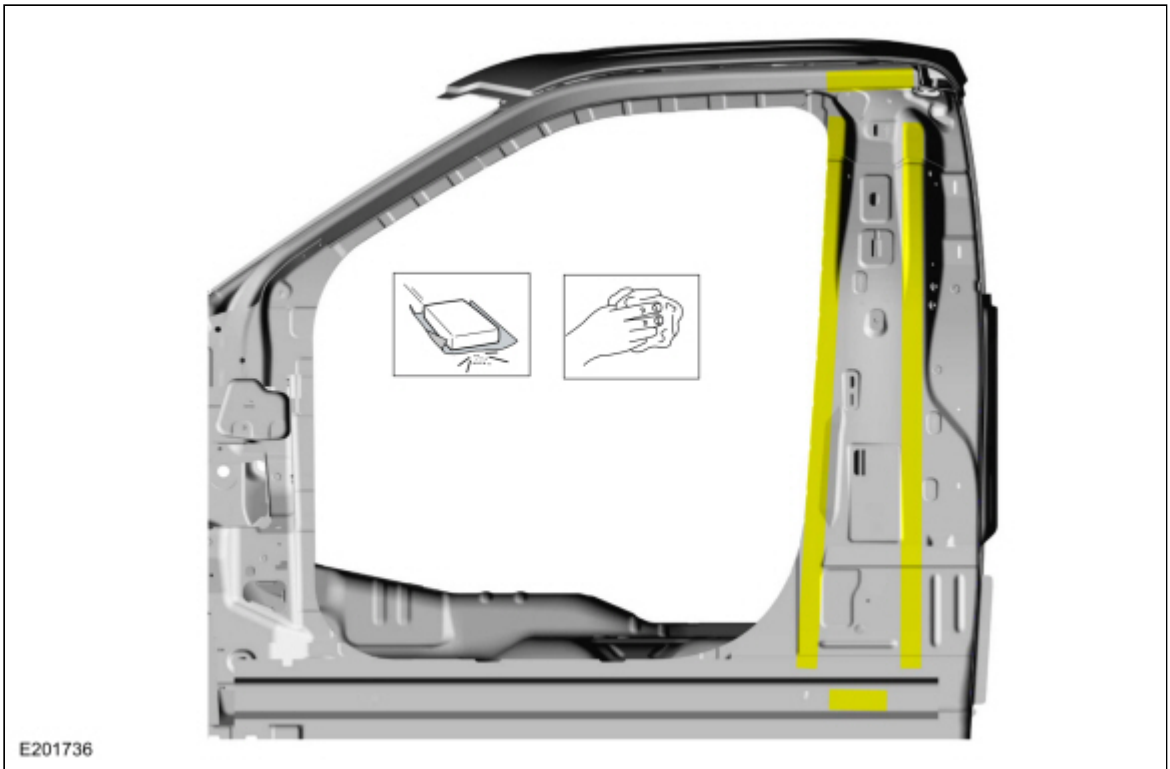
13. Install the reinforcement pad.



14. Install the fender apron panel.  
Refer to: [Fender Apron Panel Reinforcement](#) (501-27 Front End Sheet Metal Repairs, Removal and Installation).
15. 80-120 grit sandpaper.  
Sand to remove old adhesive and clean.



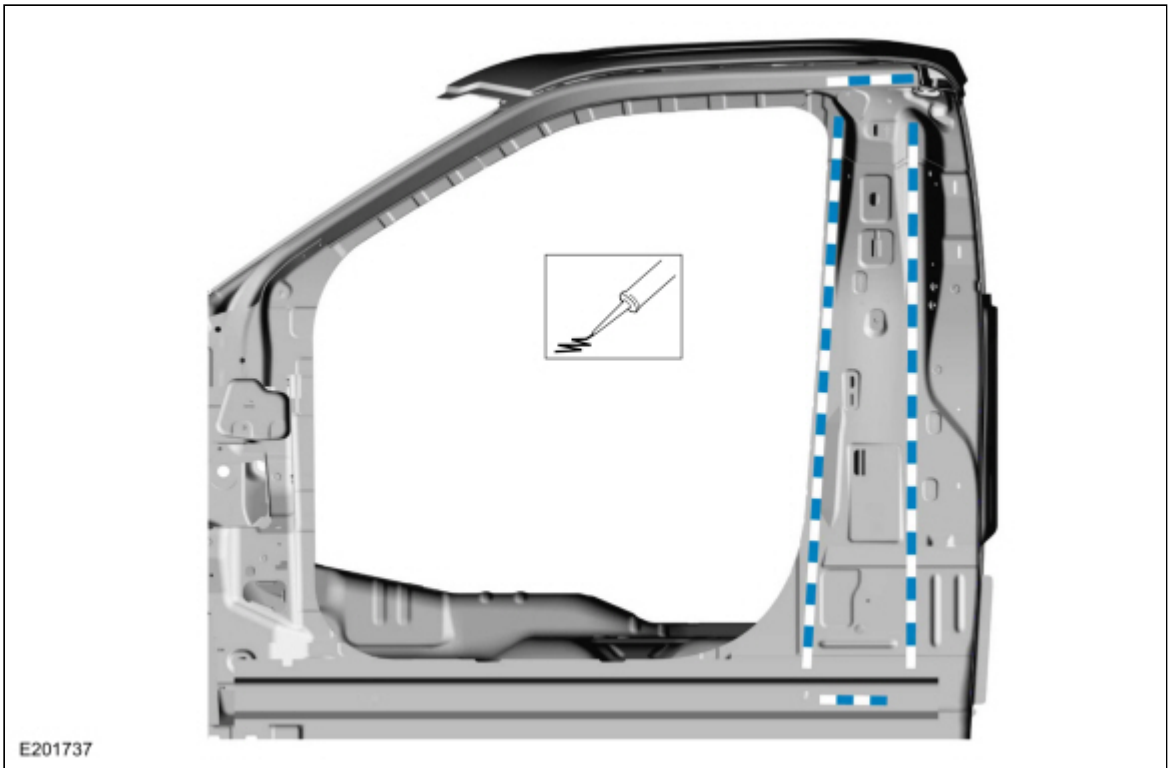




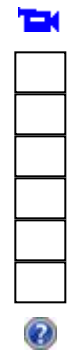
16. Apply adhesive.

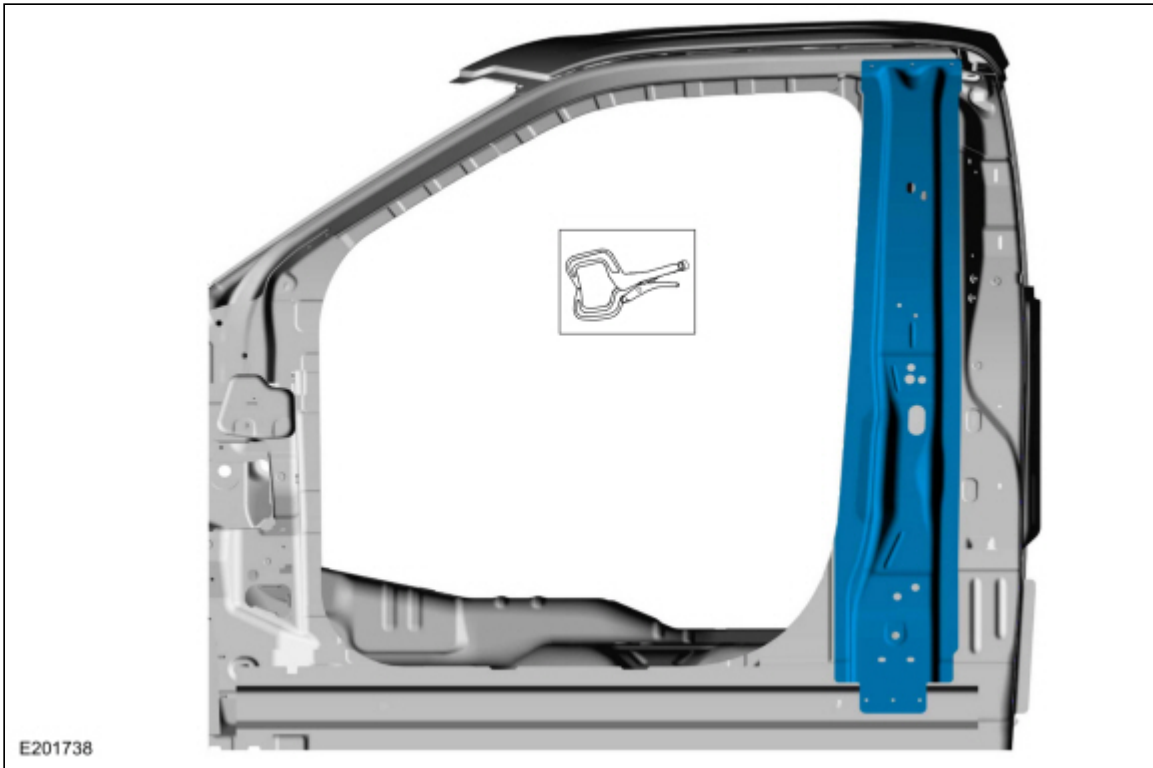
*Material:* Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B





- 17. Install the C-pillar reinforcement and clamp in position.  
Use the General Equipment: Locking Pliers





- 18. Drill 6.5 mm holes for blind rivet fasteners.  
Use the General Equipment: 6.5 mm Drill Bit





E257849

19. Install blind rivet 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	-	-	-	-	W702554-S900C	-	-
3	W717337-S900	PX	DG10-200/H	SA-0400/SA-0402	-	W790377-S900	-
4	-	-	-	-	W708777-S900C	-	-

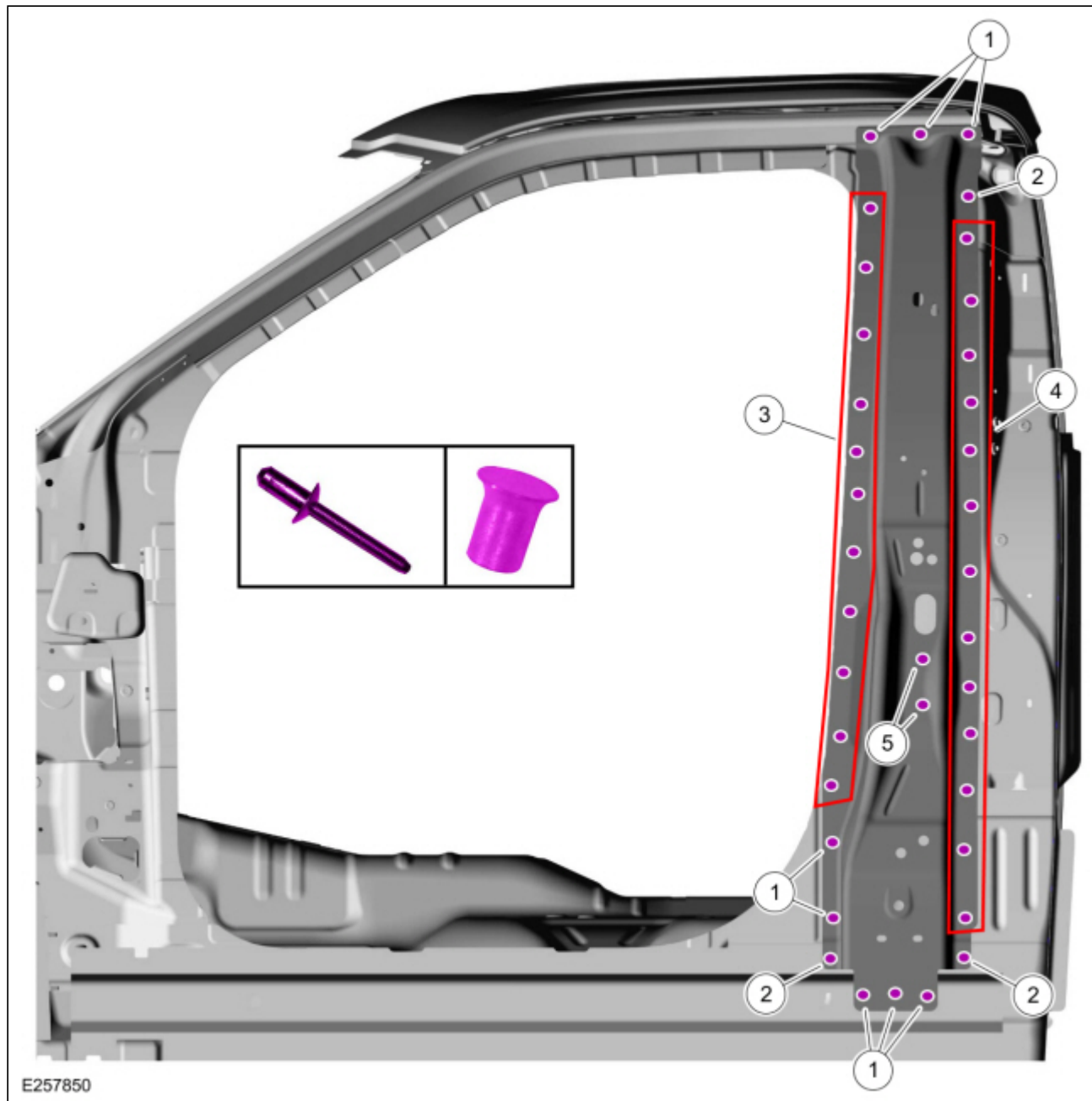
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).

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

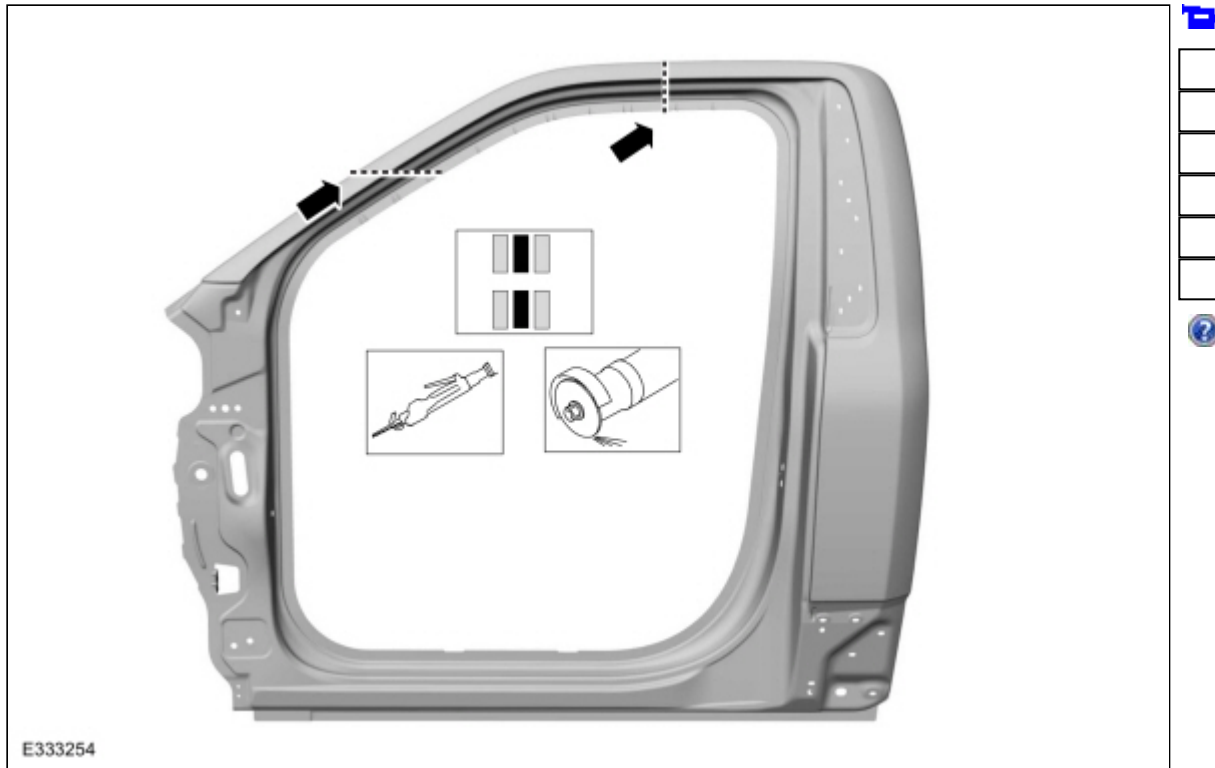
Use the General Equipment: Blind Rivet Gun

Use the General Equipment: Blind Rivet Gun

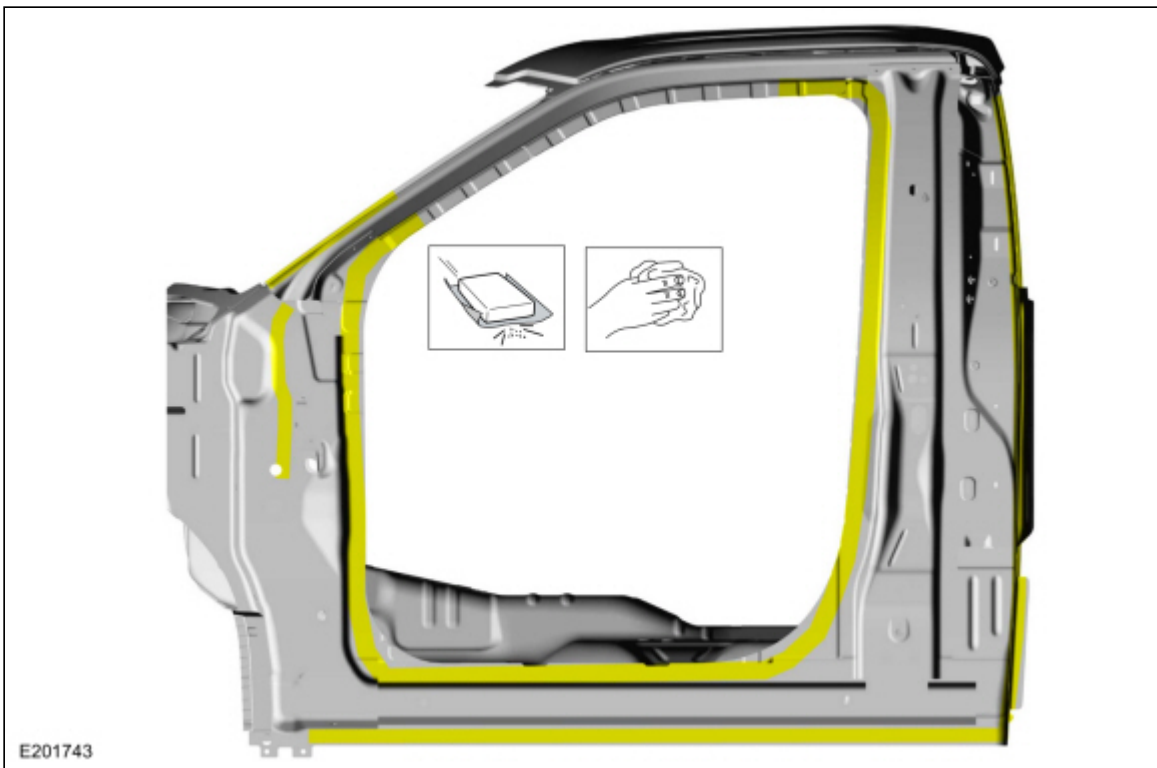




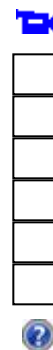
20. Cut the body side service panel to fit repair.  
Use the General Equipment: Air Body Saw  
Use the General Equipment: Spherical Cutter



21. Create backing plates from unused portions of the service panel for each sectioning joint and attach to vehicle.  
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).
22. 80-120 grit sandpaper.  
Sand to remove old adhesive and e-coat and clean.



23. 80-120 grit sandpaper.  
Sand to remove e-coat and clean.





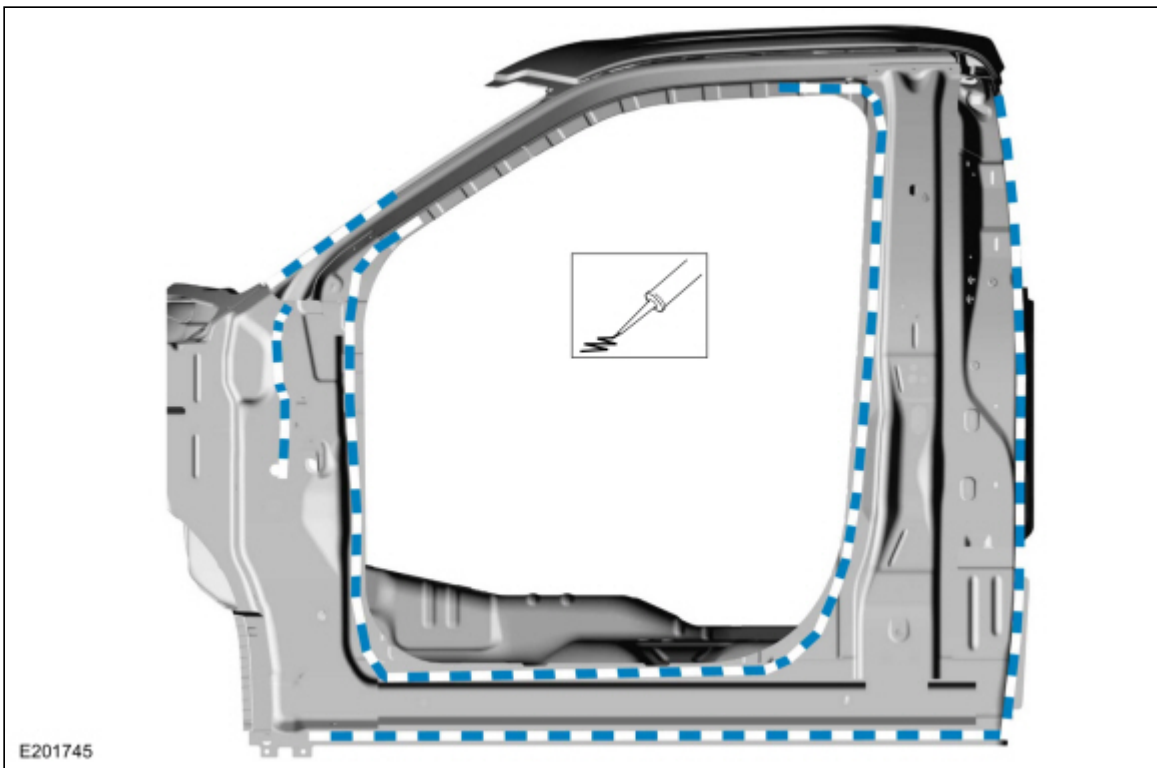


24. Install all NVH baffles noted during removal.

25. Apply adhesive.

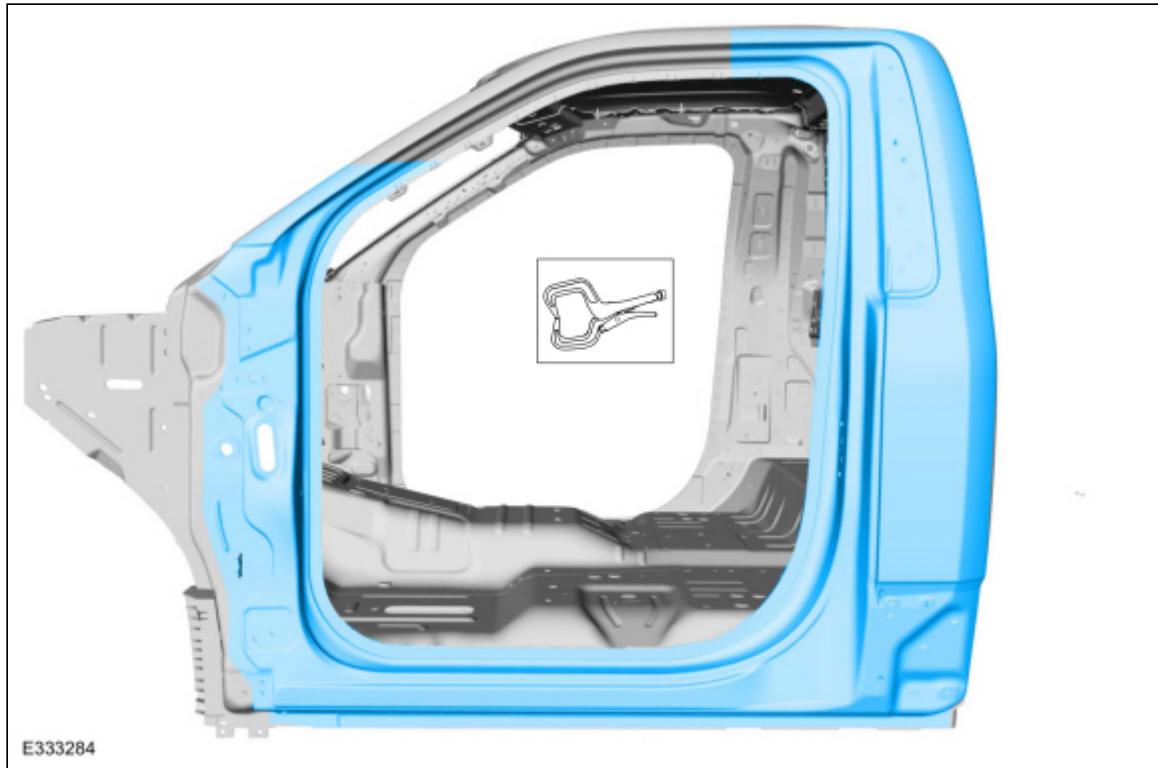
*Material:* Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B



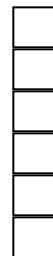


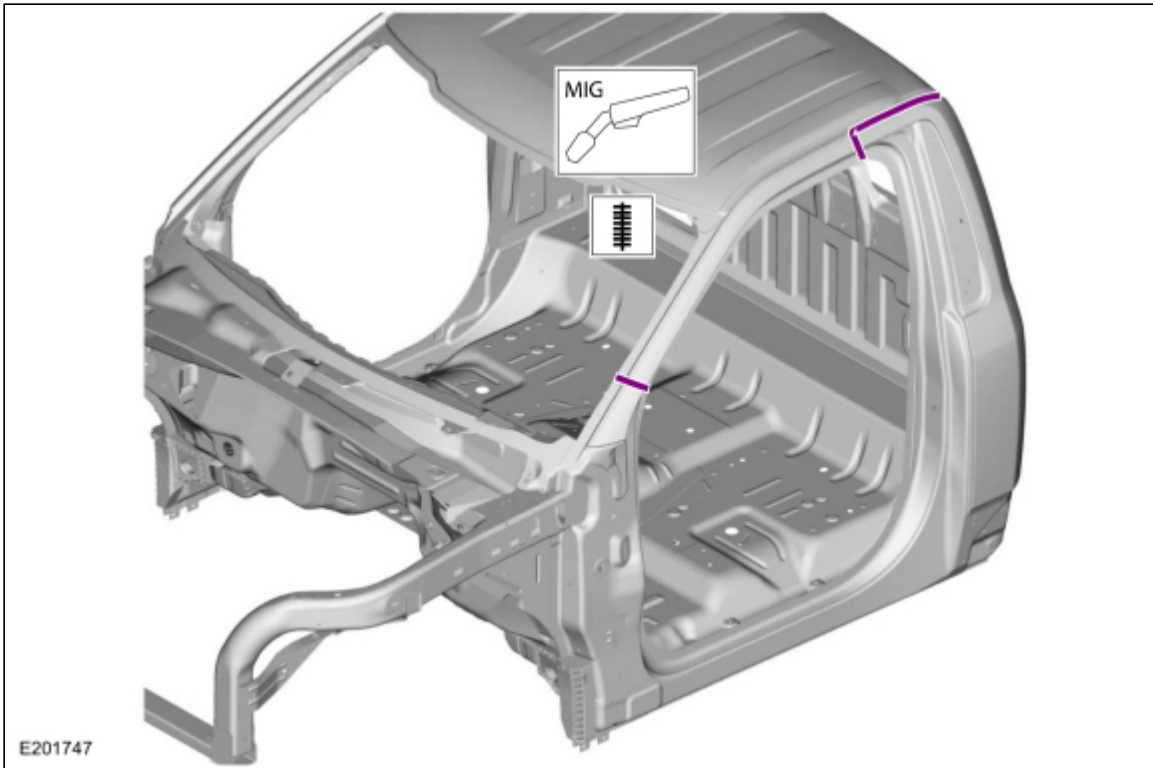
26. Install the body side service panel and clamp in position.  
Use the General Equipment: Locking Pliers





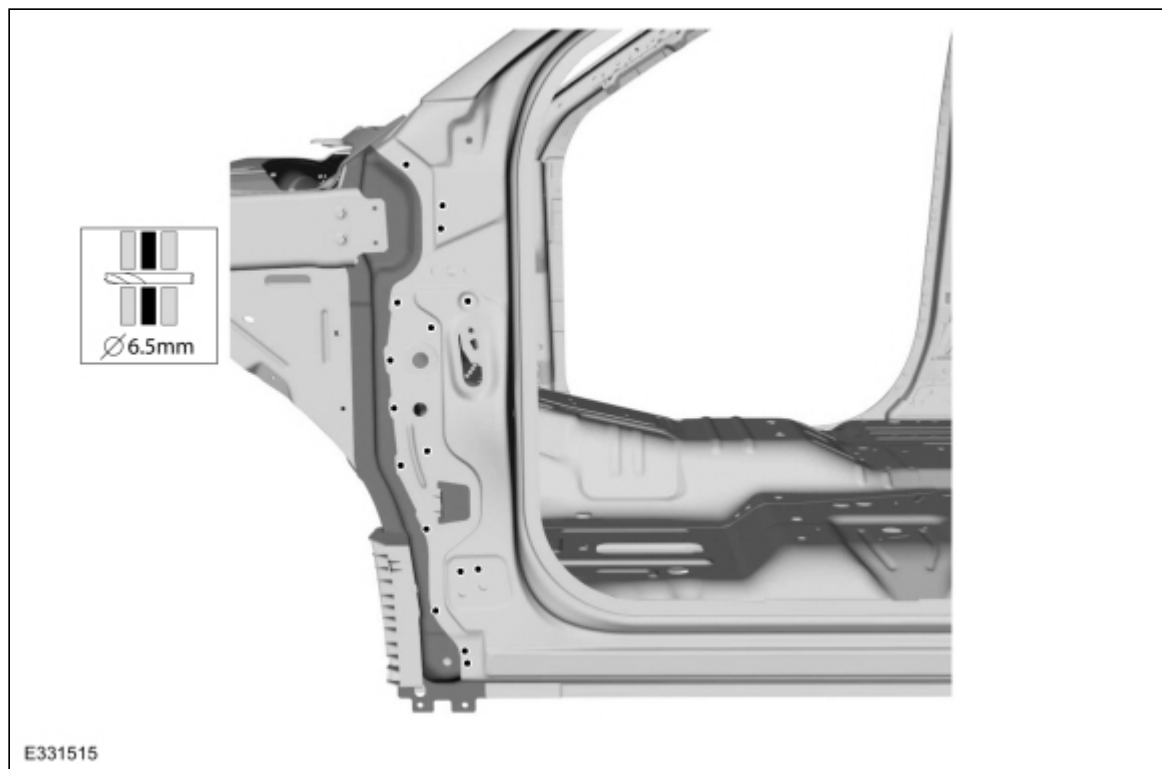
27. Complete joining of backer plates to the body side service panel.  
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).  
Use the General Equipment: MIG/MAG Welding Equipment
28. Completely seam-weld all sectioning joints using a **MIG** welder set up for aluminum repair.  
Use the General Equipment: MIG/MAG Welding Equipment





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





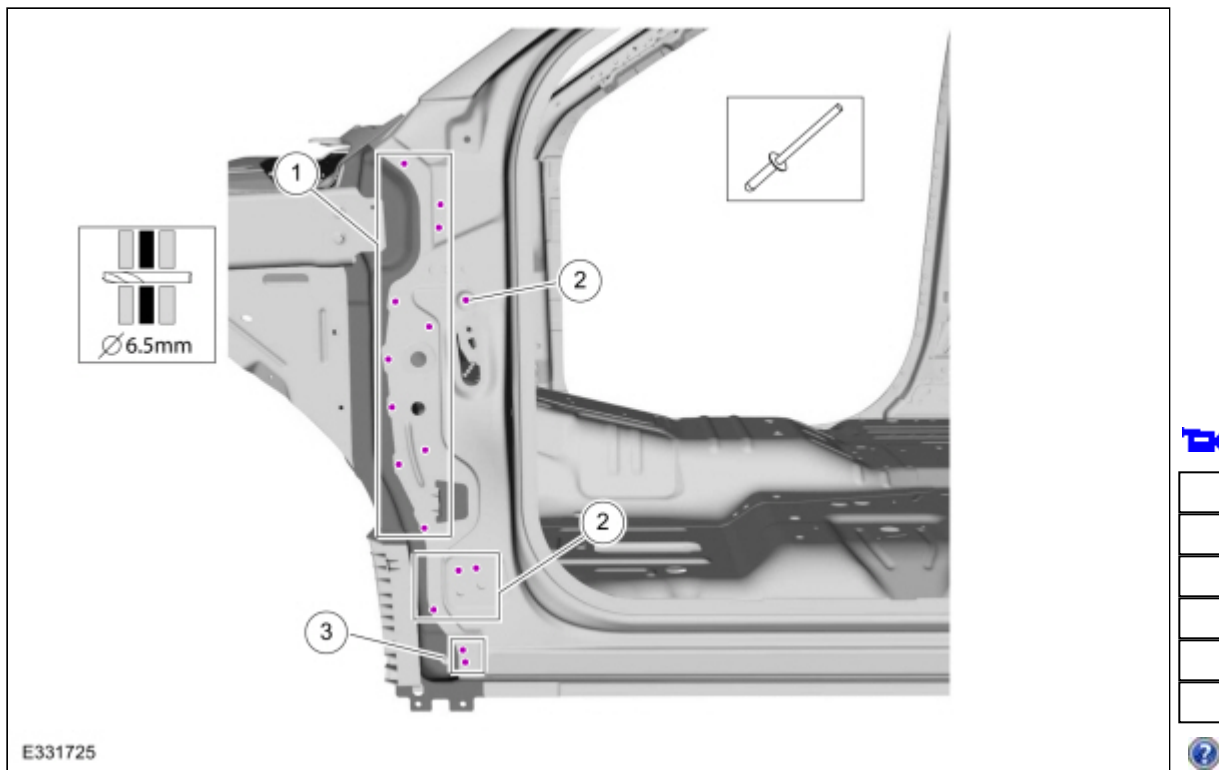
30. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be placed adjacent to original location matching original quantity.

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

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	-	-	-	-	W707638-S900C	-	-
2	-	-	-	-	W708777-S900C	-	-
3	-	-	-	-	W702554-S900C	-	-

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



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

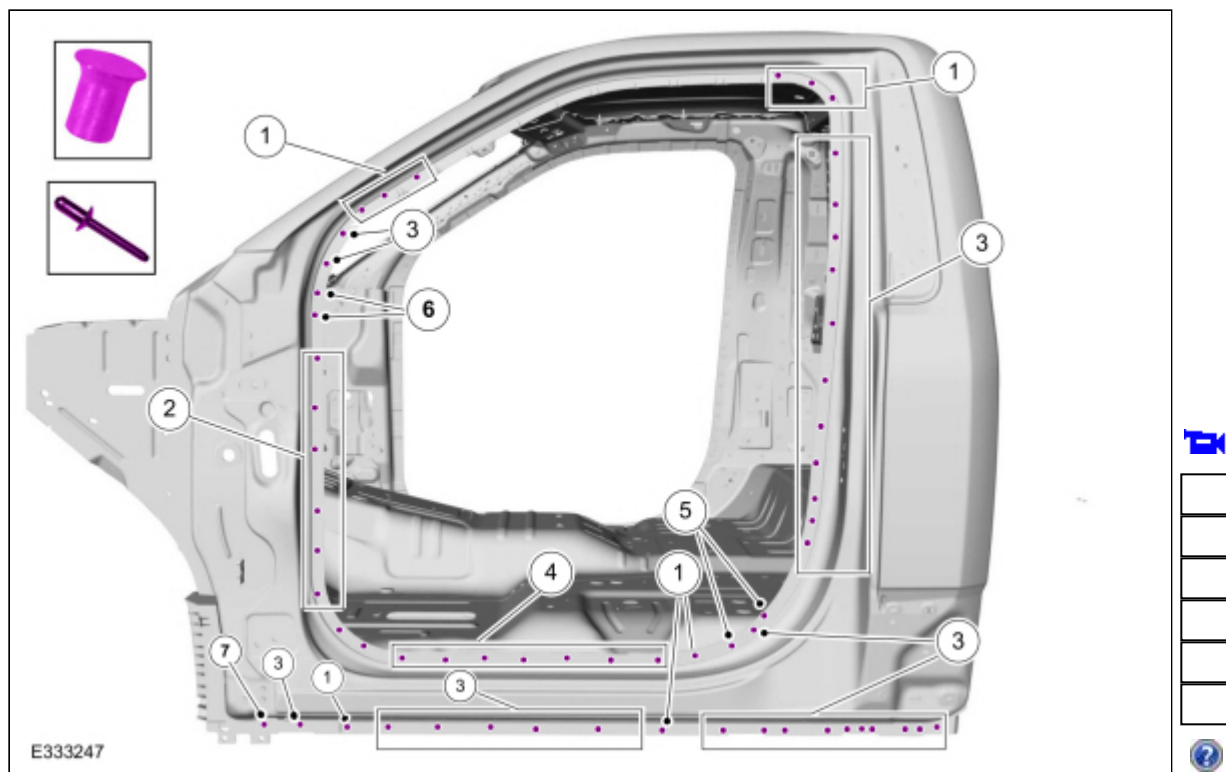
**NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

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  
 Use the General Equipment: Blind Rivet Gun



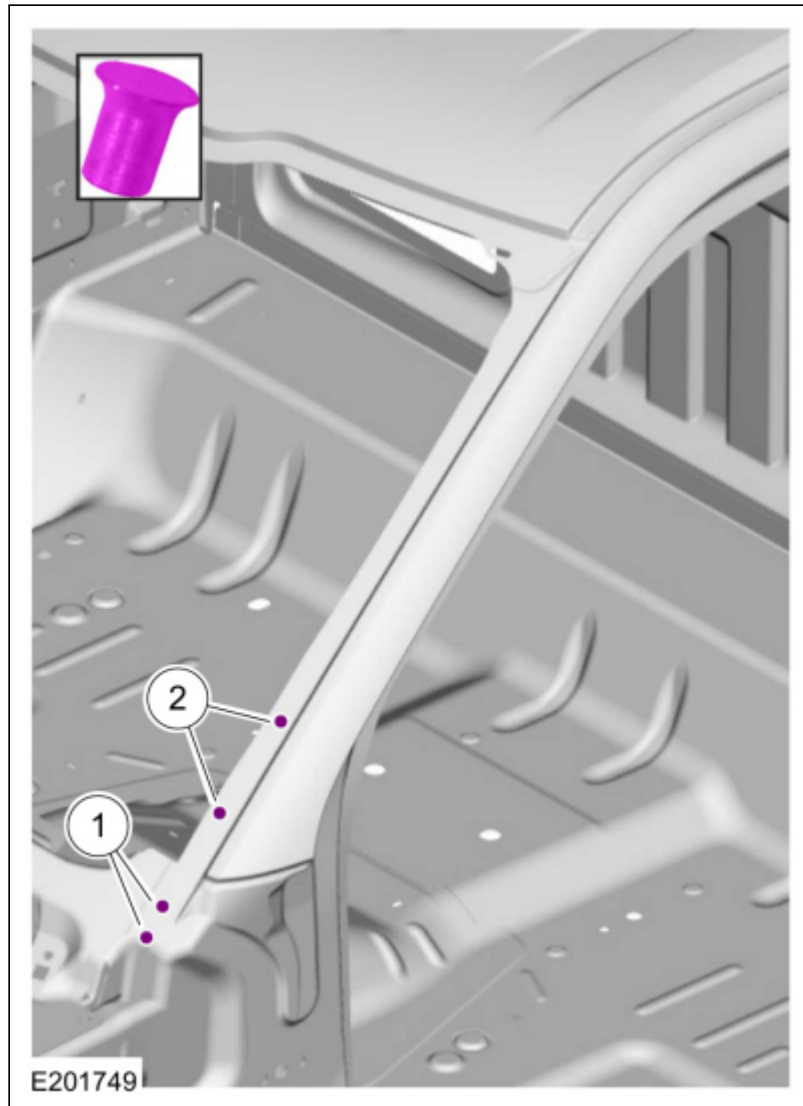
32. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be placed adjacent to original location matching original quantity.

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

Install fasteners.

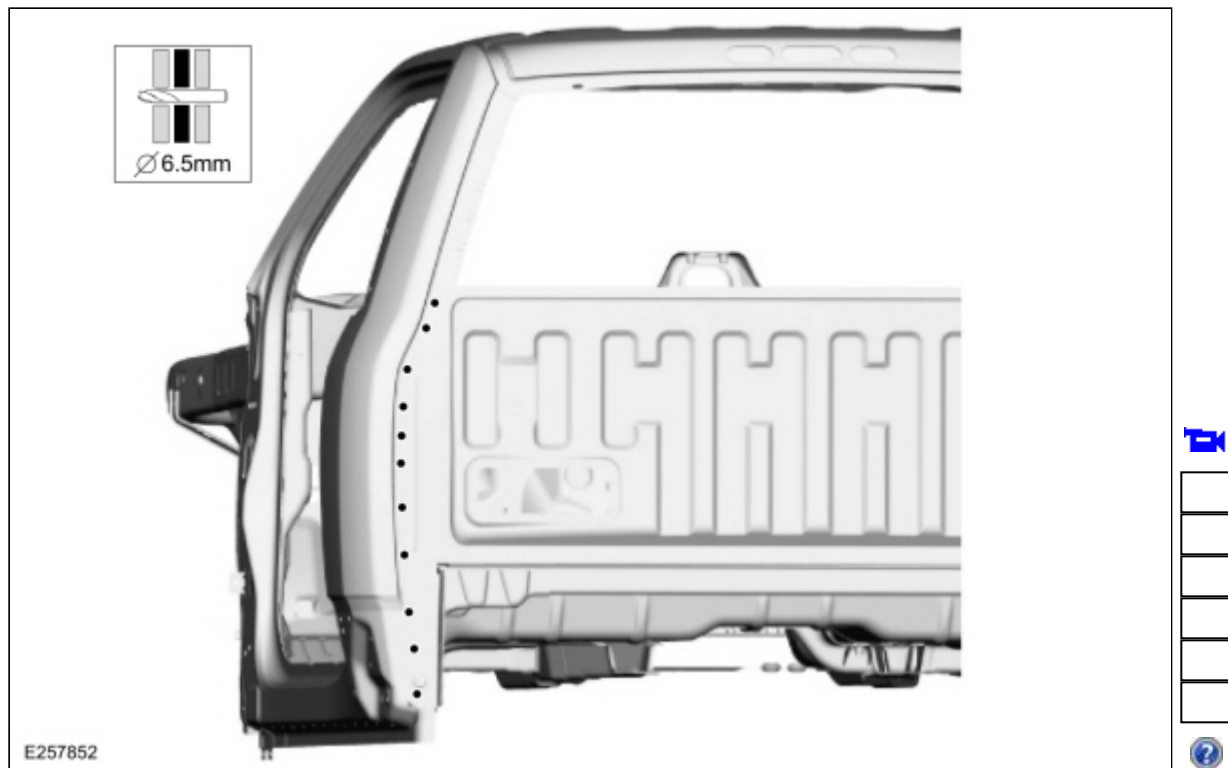
Item,	SPR Number	SPR Code	Henrob® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	W717186-S900	EN	DP11-200/H	SA-0400/SA-0402	-	W790377-S900	-
2	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0402	-	W790377-S900	-

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





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



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

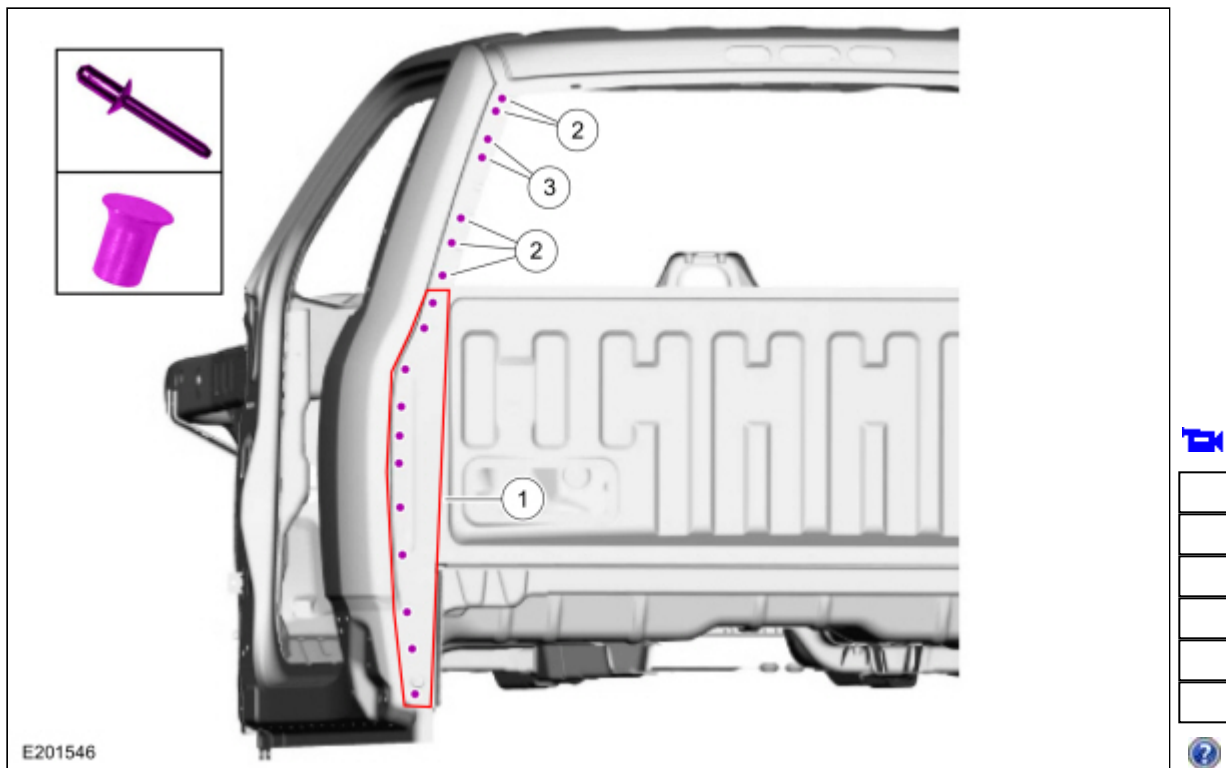
**NOTE:** Blind or solid rivet fasteners may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

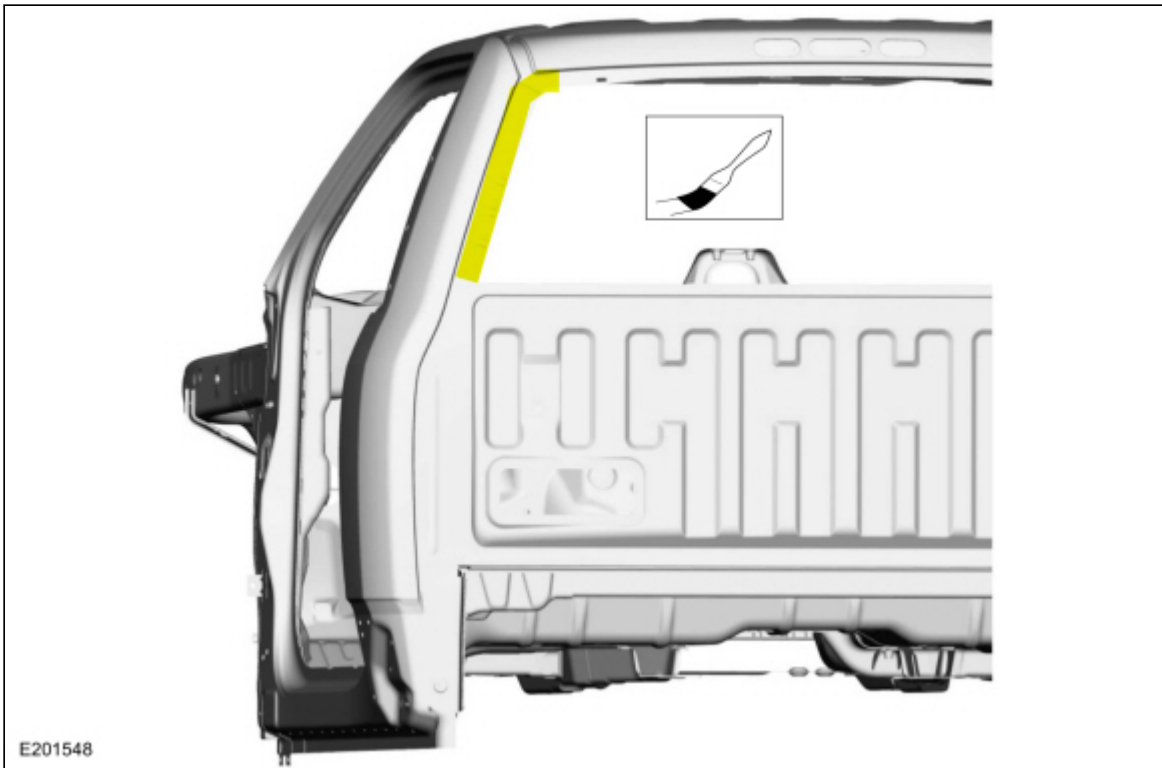
Item	<u>SPR</u> Number	<u>SPR</u> Code	Henrob® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W708777-S900C	-	-
2	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0402	-	W790377-S900	-
3	W708717-S900	AW	DG10-220/H	SA-0400/SA-0402	-	W790377-S900	-

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

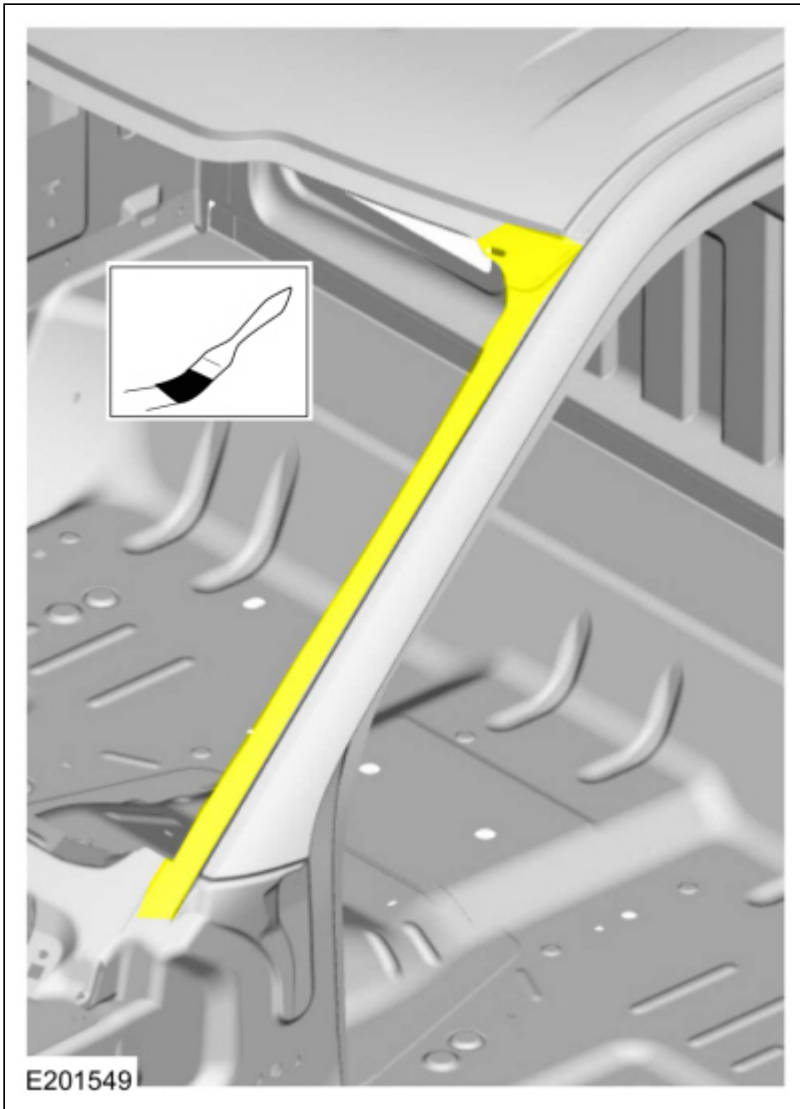


35. Metal finish all sectioning seams using typical aluminum repair techniques and a fiber-based body filler.  
 Refer to: [Special Repair Considerations for Aluminum Repairs](#) (501-25 Body Repairs - General Information, Description and Operation).
36. Epoxy prime.  
 Prime the rear window glass opening channel using a Ford approved epoxy-based primer.



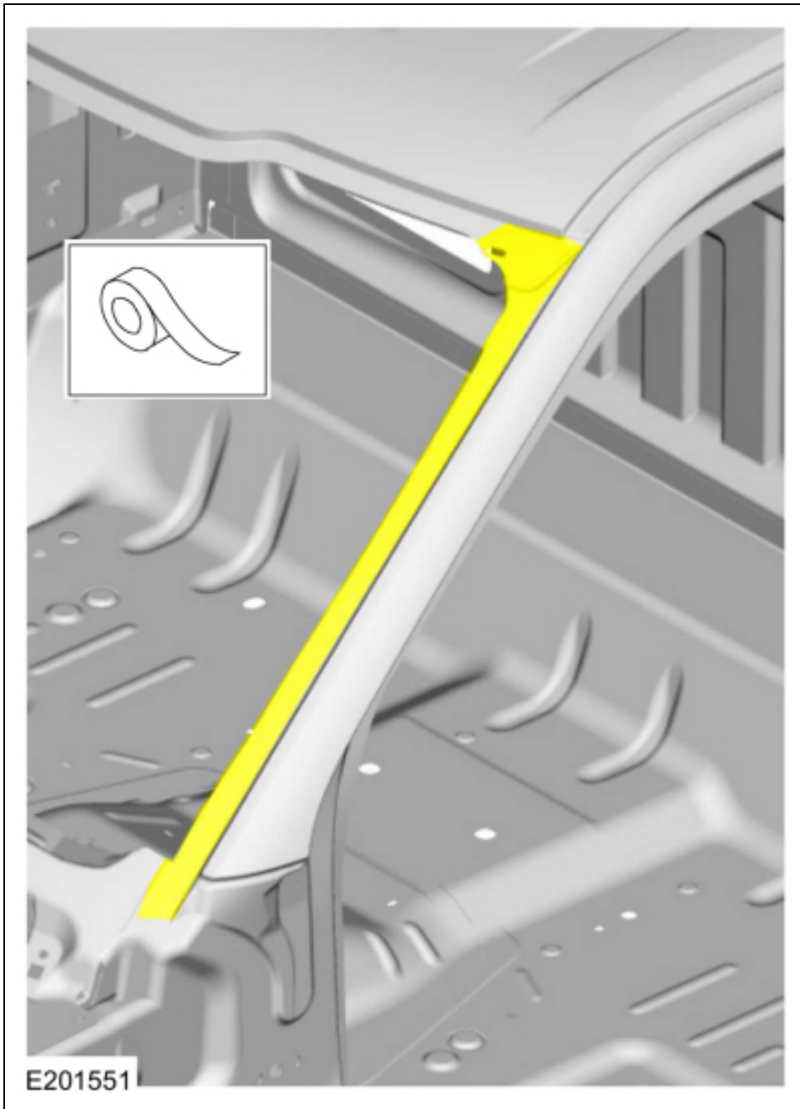
- 37. Epoxy prime.  
Prime the windshield glass opening channel using a Ford approved epoxy-based primer.





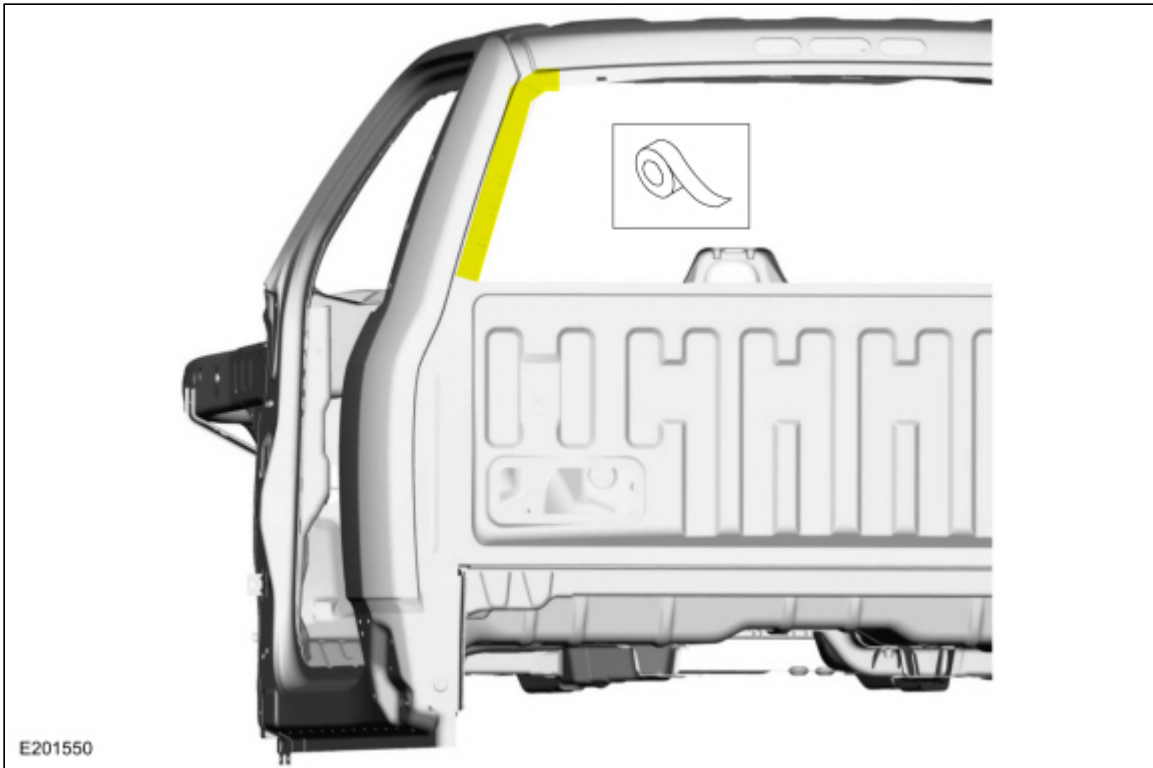
38. Mask the windshield glass opening channel.





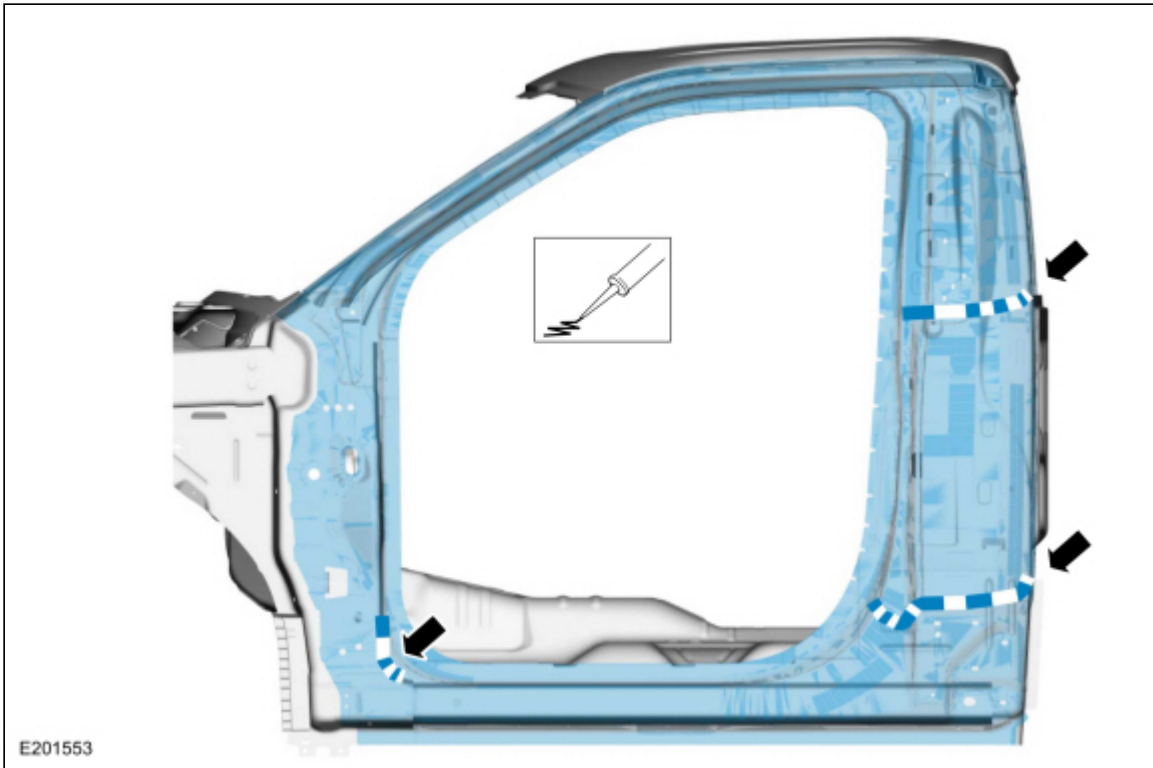
39. Mask the rear window glass opening channel.





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

Navigation icons: a small square, a blue question mark icon, a blue icon with a white 'H', a vertical stack of six empty square boxes, and another blue question mark icon.

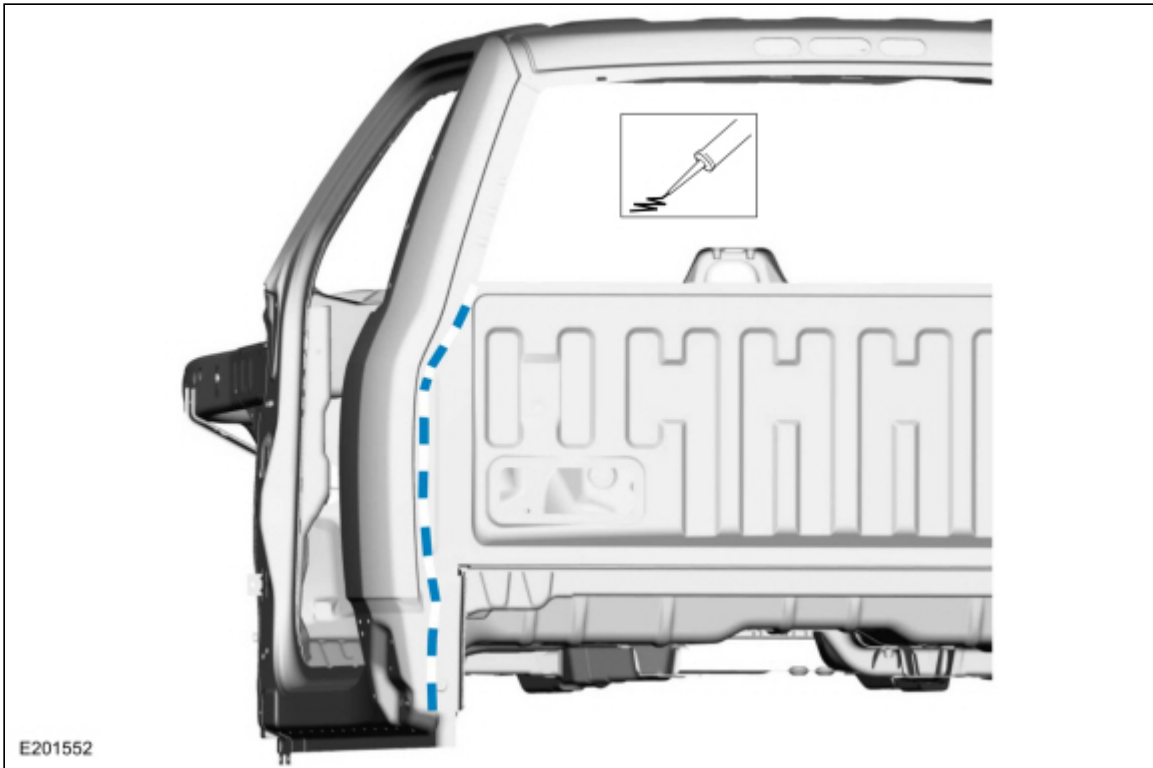


41. Seam Sealing:

All seams must be sealed to production level.

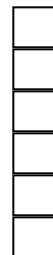
*Material:* Seam Sealer / TA-2-B, 3M™ 08308, LORD Fusor® 803DTM



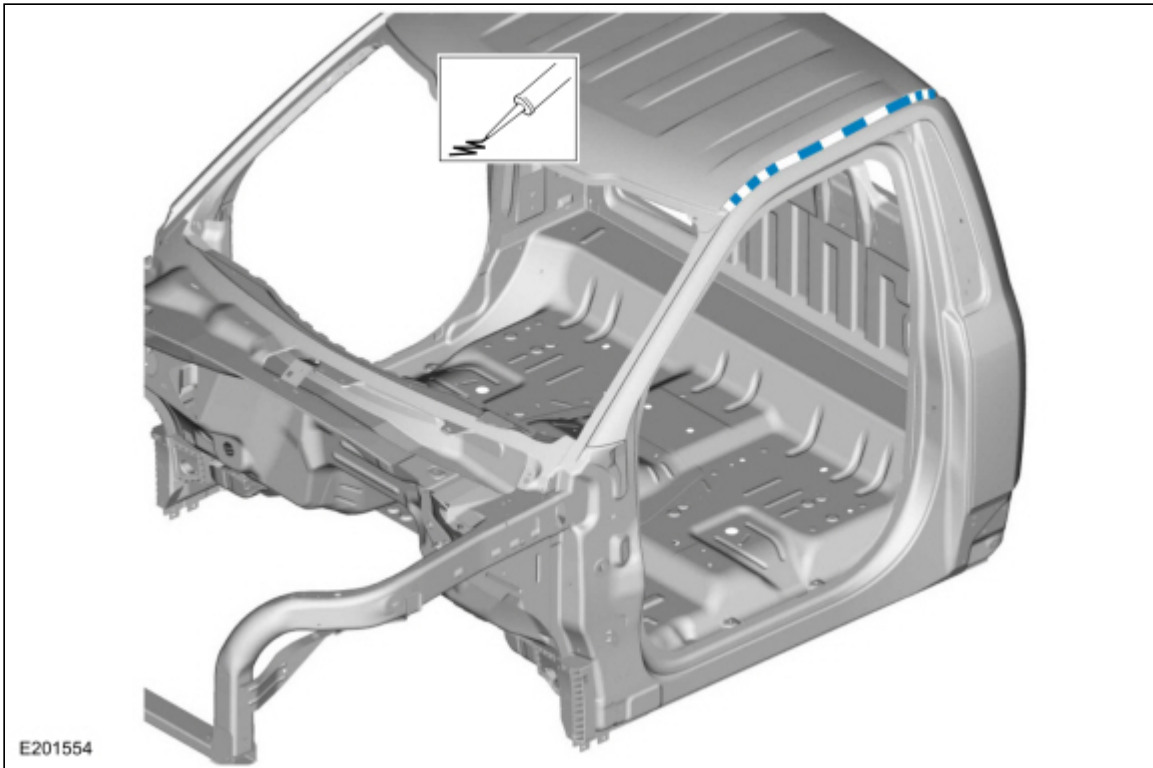


42. Apply roof ditch sealer.

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



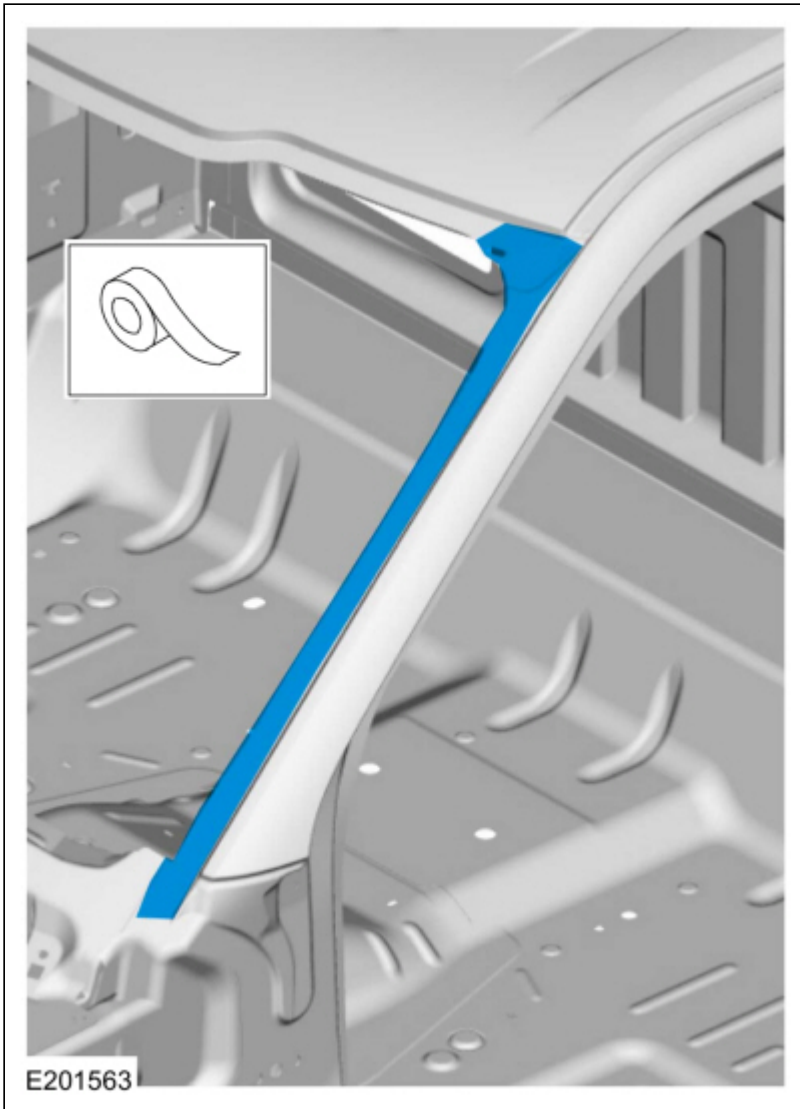




43. Refinish the entire repair using a Ford approved paint system and typical refinishing techniques.

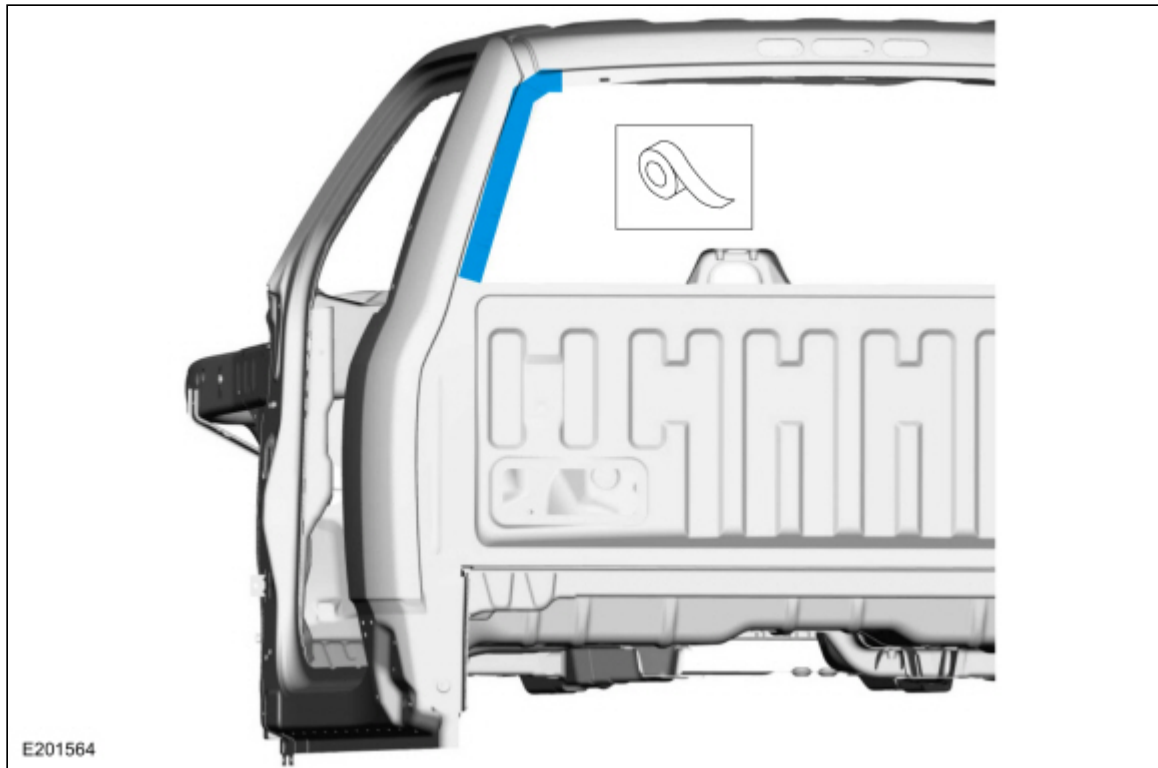
44. Unmask the windshield glass opening channel.



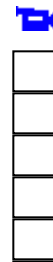


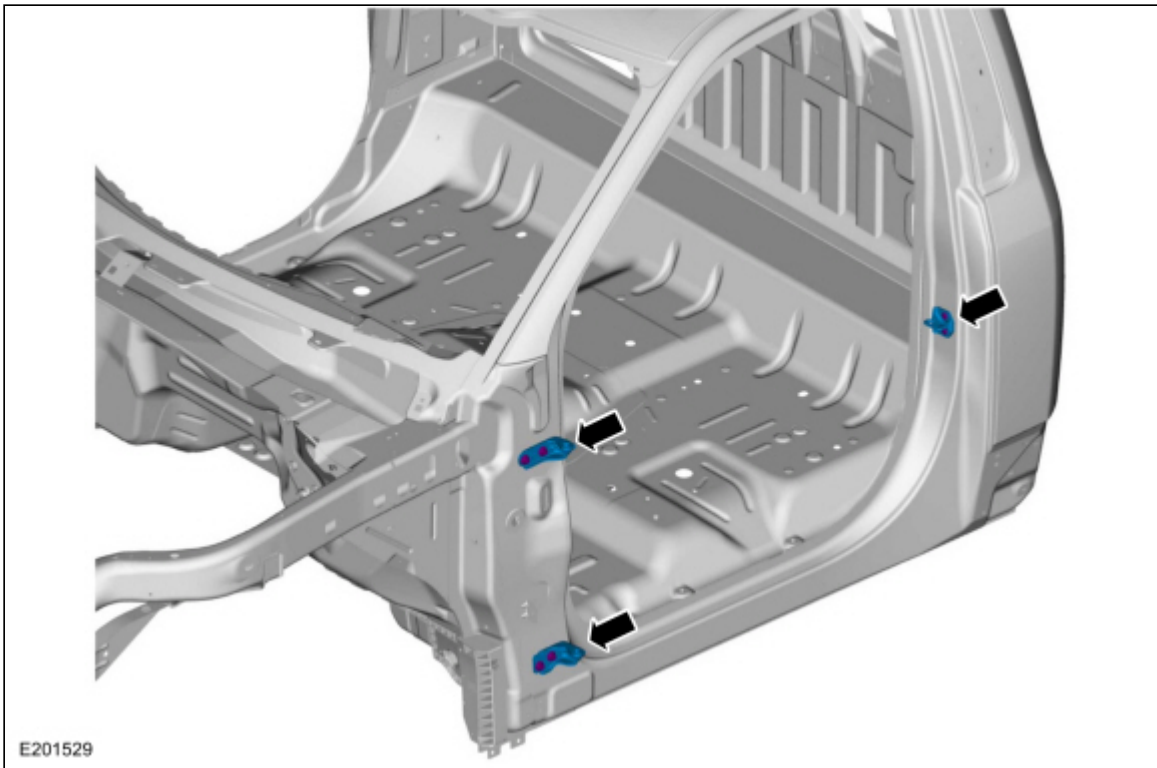
45. Unmask the rear window glass opening channel.





46. Install the side curtain air bag.  
Refer to: [Side Curtain Airbag - Regular Cab](#) (501-20B Supplemental Restraint System, Removal and Installation).
47. Install the door opening weather strips and scuff plate.
48. Install the windshield and rear window glass.  
Refer to: [Fixed Glass](#) (501-11 Glass, Frames and Mechanisms, General Procedures).
49. Install the door hinges and striker.
  - Door hinges.  
*Torque:* 21 lb.ft (28 Nm)
  - Striker.  
*Torque:* 18 lb.ft (25 Nm)





50. 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).
51. Install the outer body trim.  
Refer to: [Bodyside Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).  
Refer to: [Roof Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
52. Install the pickup box.  
Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Removal and Installation).
53. Install the fender.  
Refer to: [Fender](#) (501-02 Front End Body Panels, Removal and Installation).
54. 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).
55. Repower the SRS.  
Refer to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).

