

501-29 Side Panel Sheet Metal Repairs
Removal and Installation

2021 F-150

Procedure revision date: 10/23/2020

C-Pillar Reinforcement

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	-

Removal

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

All vehicles

 **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).

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. Depower the SRS.
Refer to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
3. Remove the side curtain air bag.
Refer to: [Side Curtain Airbag - Regular Cab](#) (501-20B Supplemental Restraint System, Removal and Installation).
Refer to: [Side Curtain Airbag - SuperCab](#) (501-20B Supplemental Restraint System, Removal and Installation).
Refer to: [Side Curtain Airbag - SuperCrew](#) (501-20B Supplemental Restraint System, Removal and Installation).

Regular Cab and SuperCrew Cab

4. Remove the door striker (front door on regular cab, rear door on SuperCrew cab).





SuperCab and SuperCrew Cab

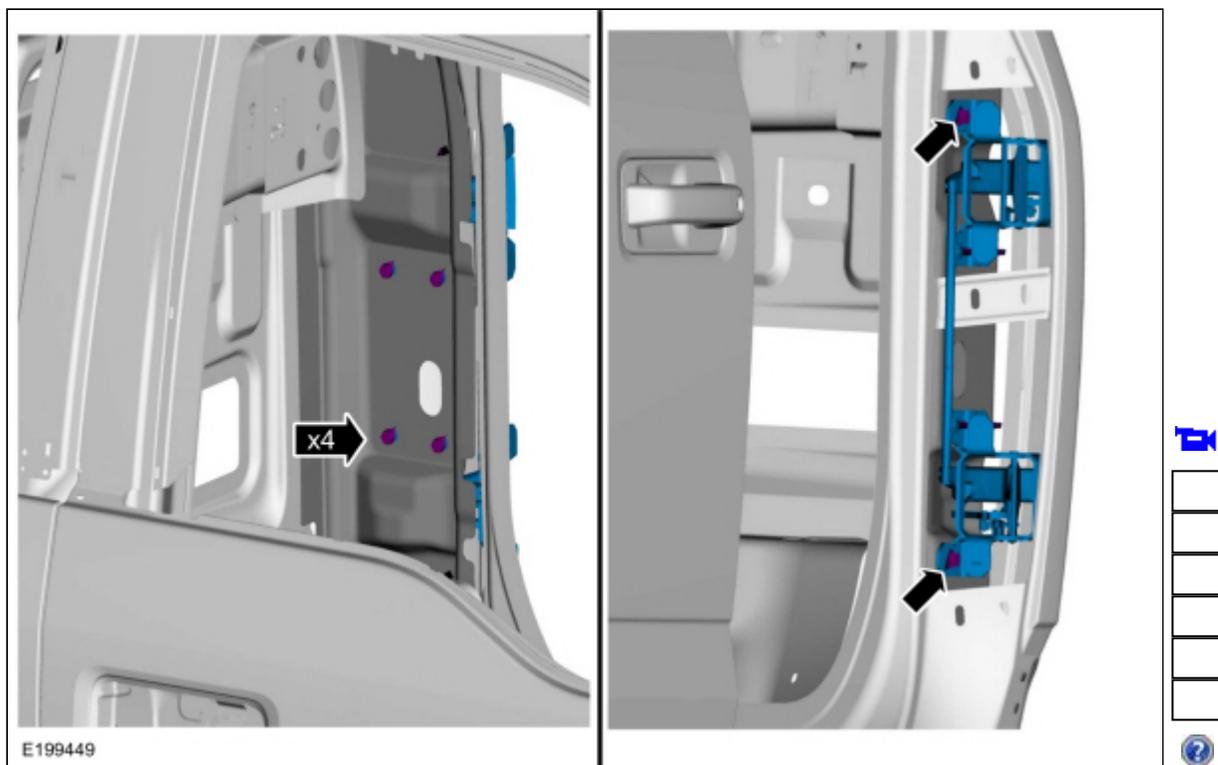
5. Remove the rear seat.
Refer to: [Rear Seat LH - SuperCab](#) (501-10B Rear Seats, Removal and Installation).
Refer to: [Rear Seat LH - SuperCrew](#) (501-10B Rear Seats, Removal and Installation).

Regular Cab

6. Remove the front seat.
Refer to: [Front Seat](#) (501-10A Front Seats, Removal and Installation).

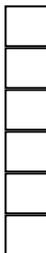
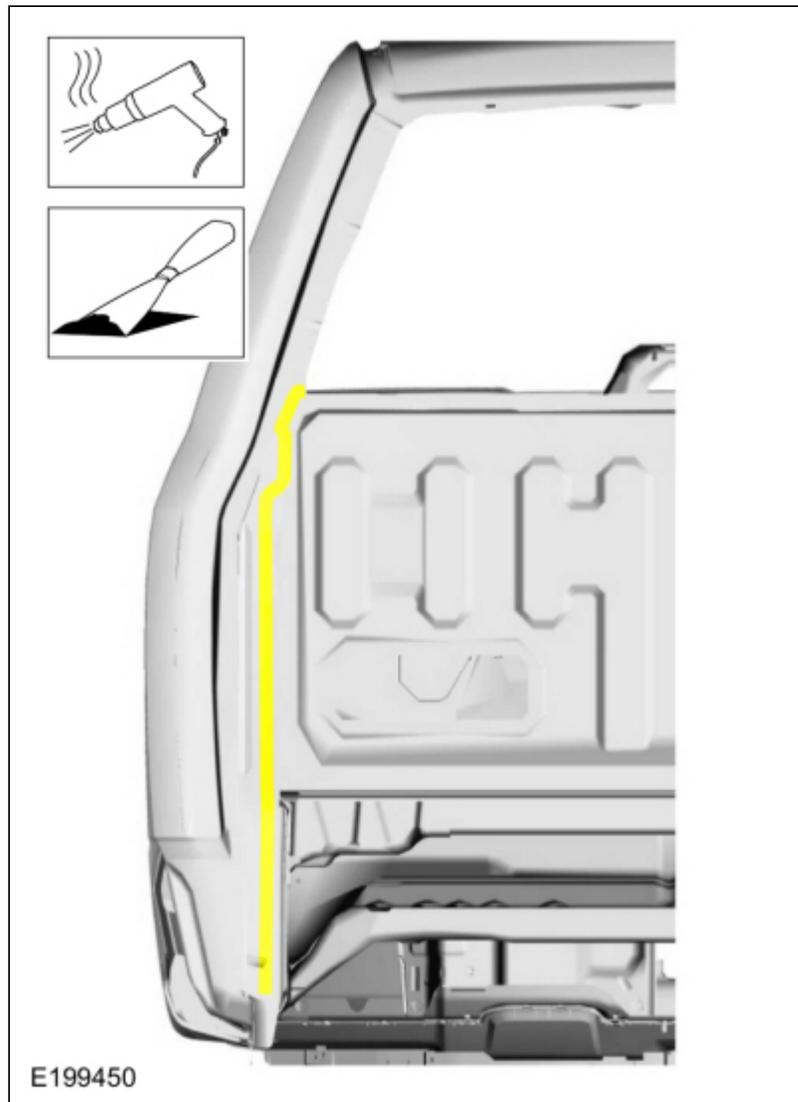
SuperCab

7. Remove the rear door hinge.

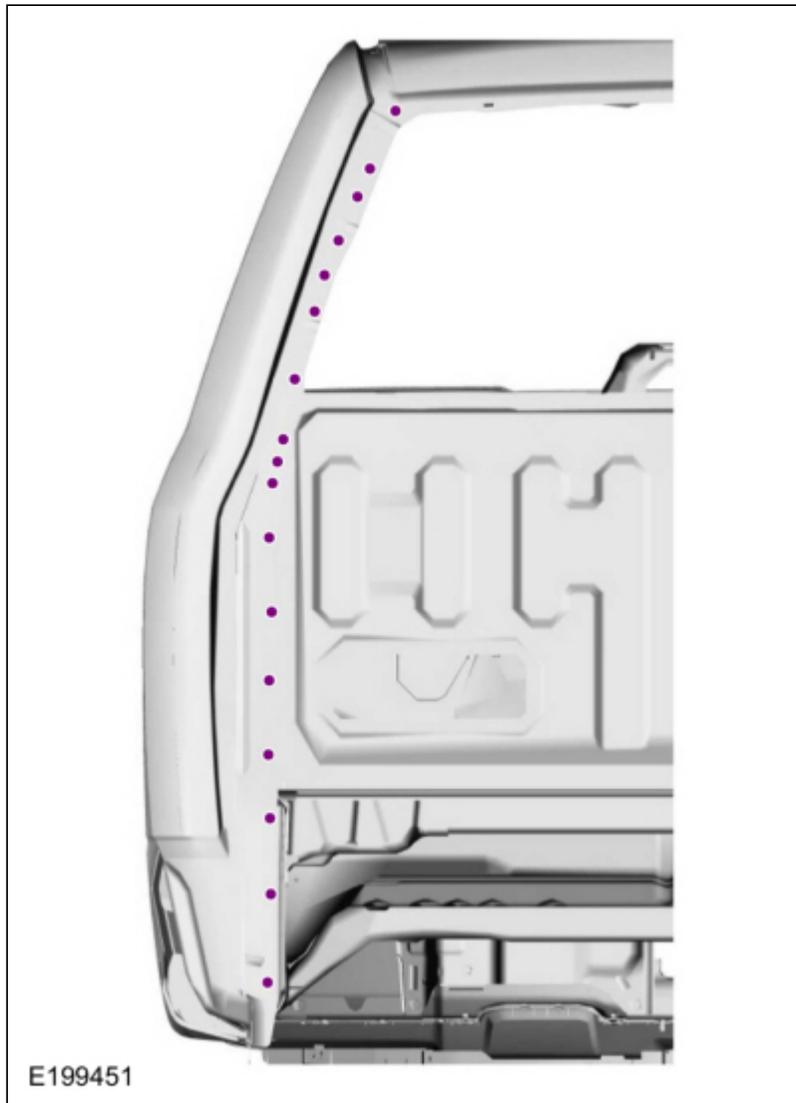
**All vehicles**

8. Remove the pickup bed.
Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Removal and Installation).
9. Remove the exterior trim.
Refer to: [Roof Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
10. Remove the safety belt.
Refer to: [Front Center Seatbelt Retractor - Regular Cab](#) (501-20A Seatbelt Systems, Removal and Installation).
Refer to: [Seatbelt Shoulder Height Adjuster - Regular Cab](#) (501-20A Seatbelt Systems, Removal and Installation).
Refer to: [Rear Seatbelt Retractor and Pretensioner - SuperCab](#) (501-20A Seatbelt Systems, Removal and Installation).
Refer to: [Rear Center Seatbelt Retractor](#) (501-20A Seatbelt Systems, Removal and Installation).
11. Remove the door opening scuff plate and position the carpeting and wiring harness aside.
12. Remove the door opening weather strip.

13. Remove the loadspace trim panel.
Refer to: [Loadspace Trim Panel - SuperCab/SuperCrew](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).
Refer to: [Loadspace Trim Panel - Regular Cab](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).
14. Remove the rear window glass.
Refer to: [Fixed Glass](#) (501-11 Glass, Frames and Mechanisms, General Procedures).
15. Remove the cab back seam sealer.
Use the General Equipment: Hot Air Gun
Use the General Equipment: Scraper for Straight Edges



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



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





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

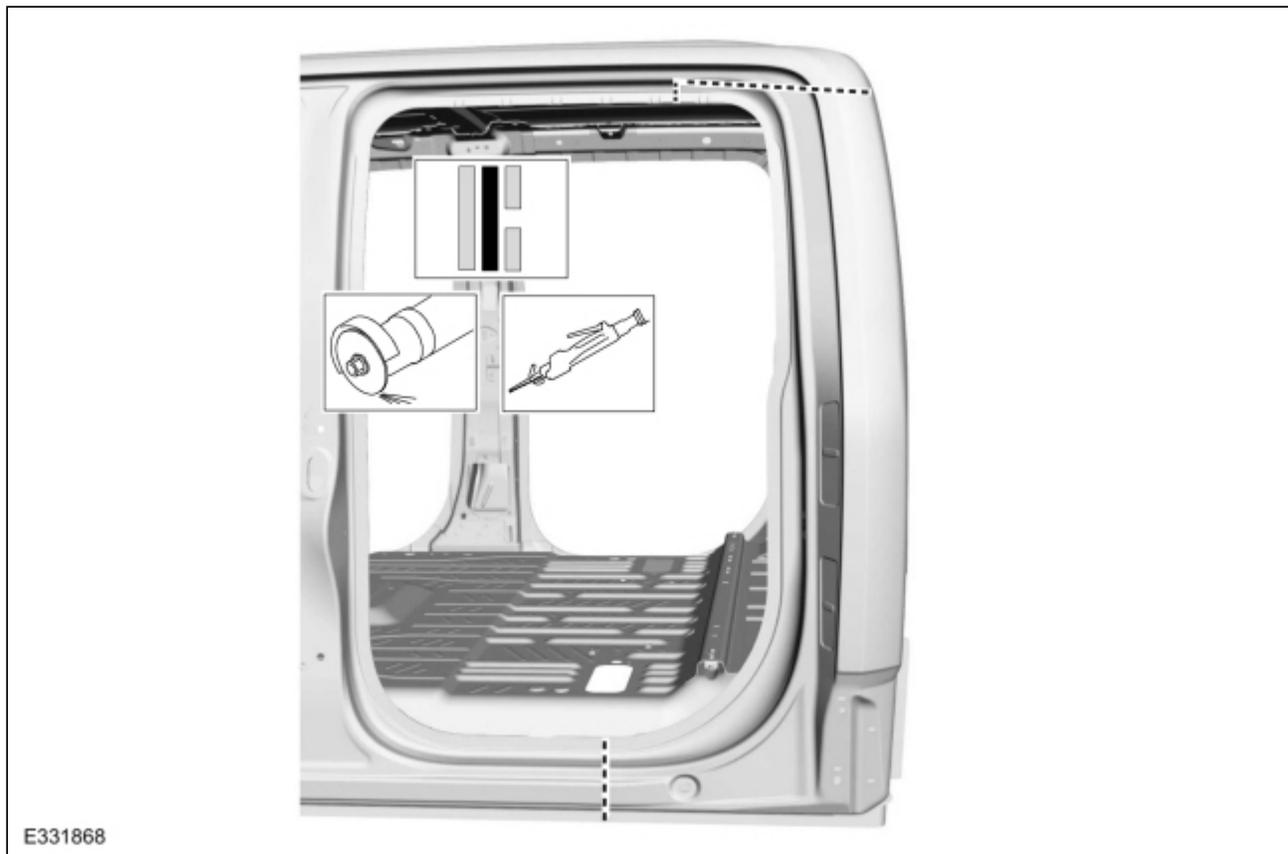
NOTE: *Body cut lines are approximate and may be adjusted for conditions.*

Carefully cut the **outer panel only**.

Use the General Equipment: Air Body Saw

Use the General Equipment: Spherical Cutter





19. **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.

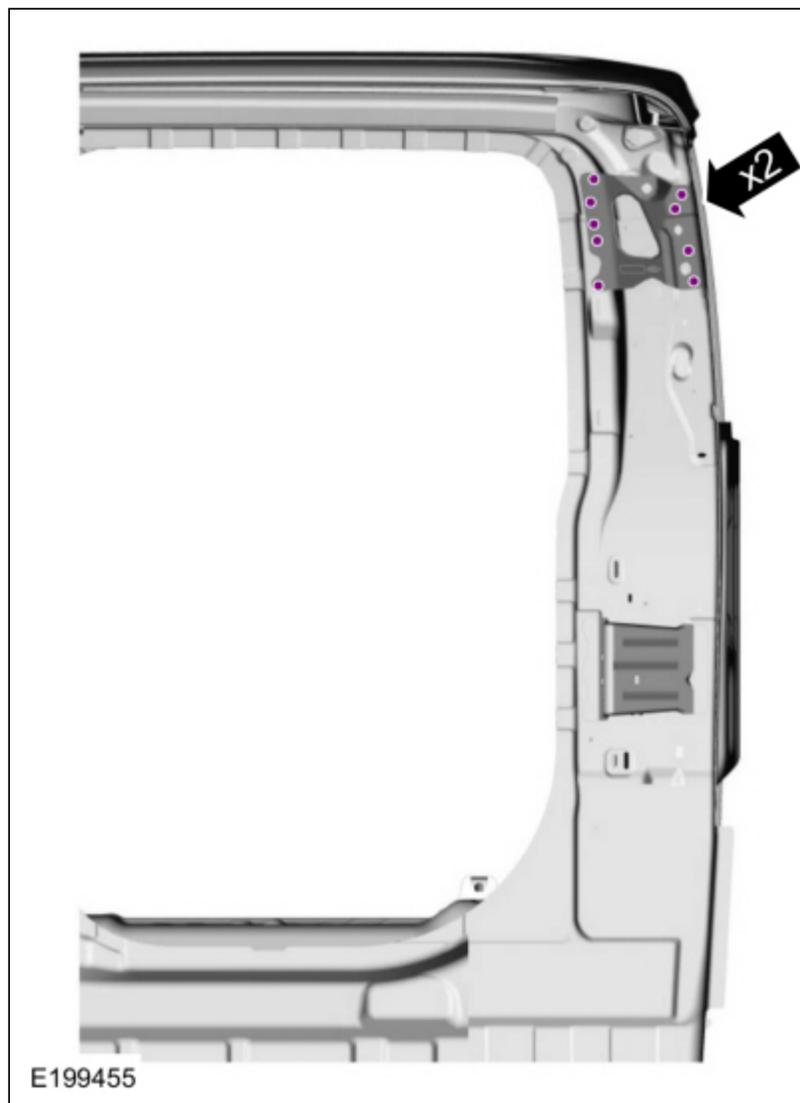




SuperCrew Cab

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

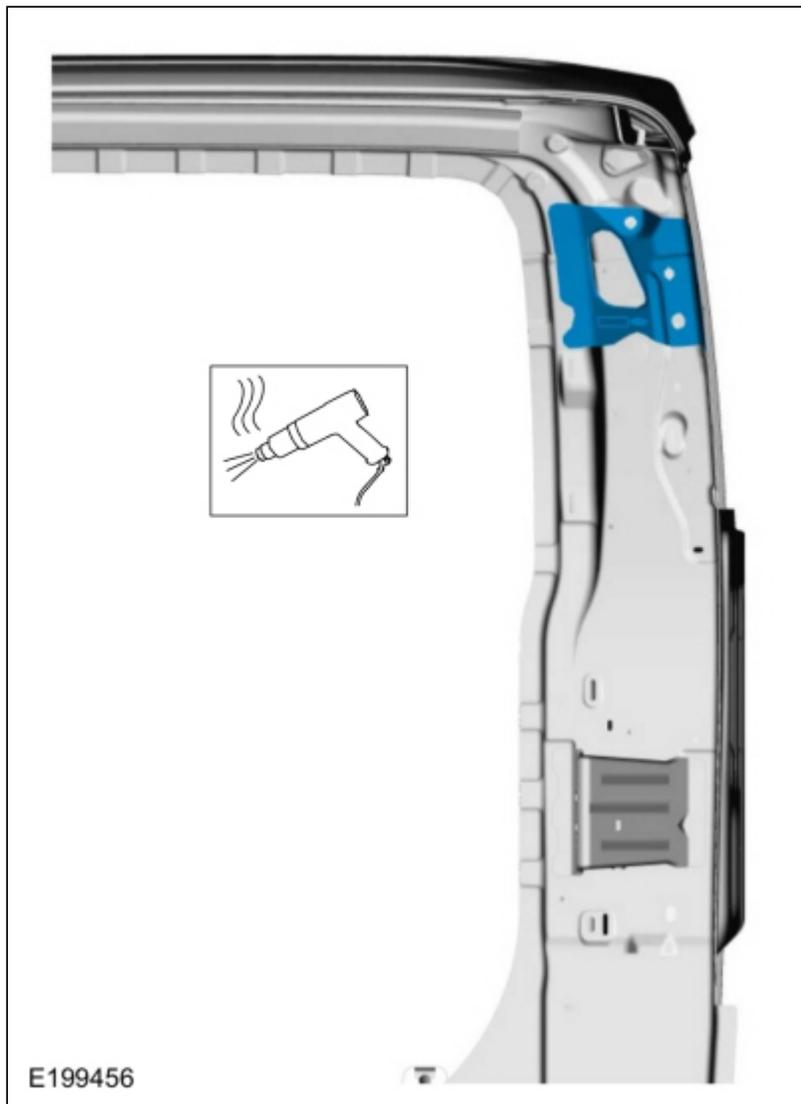




21. **NOTE:** *Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many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

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

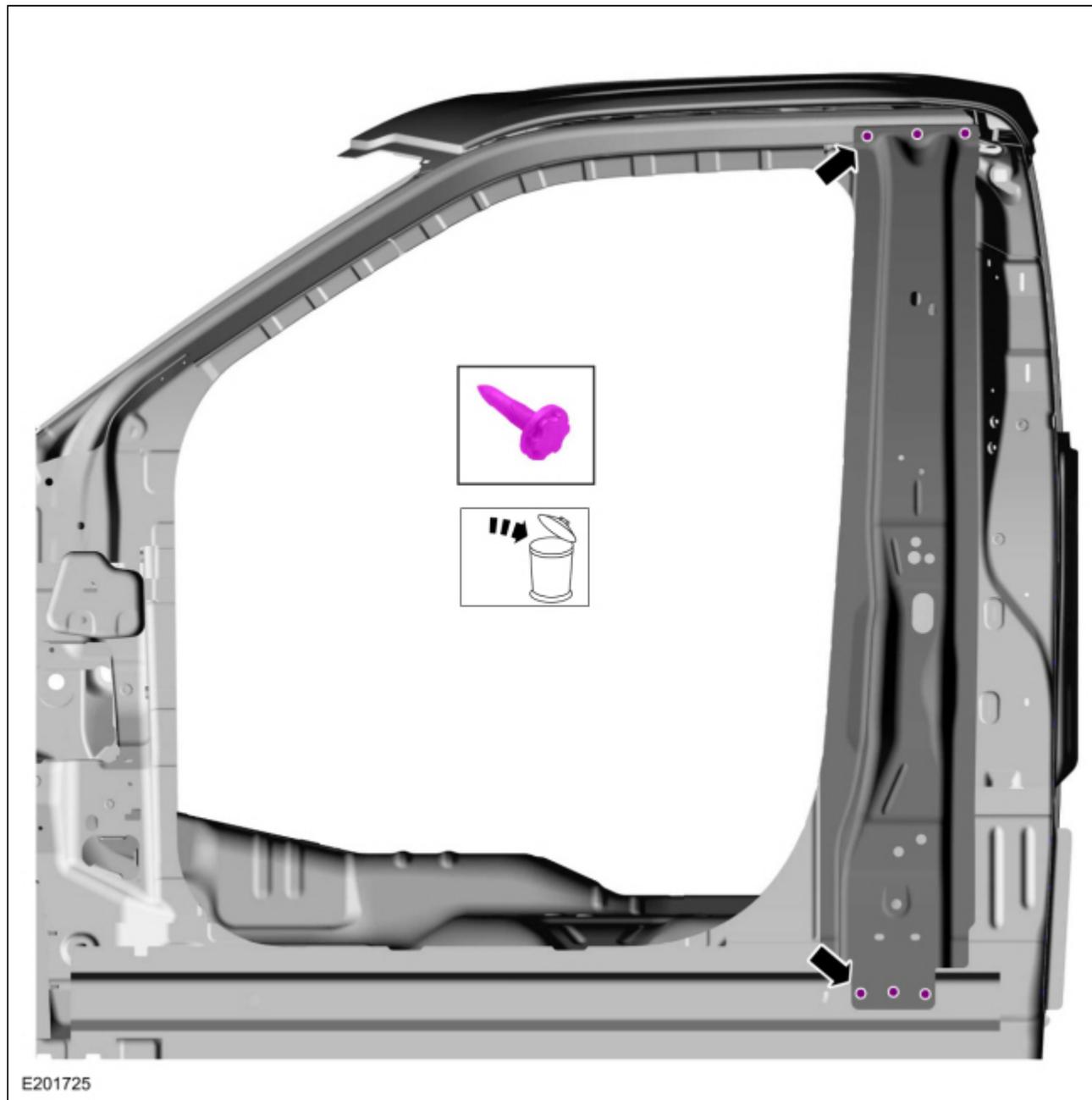




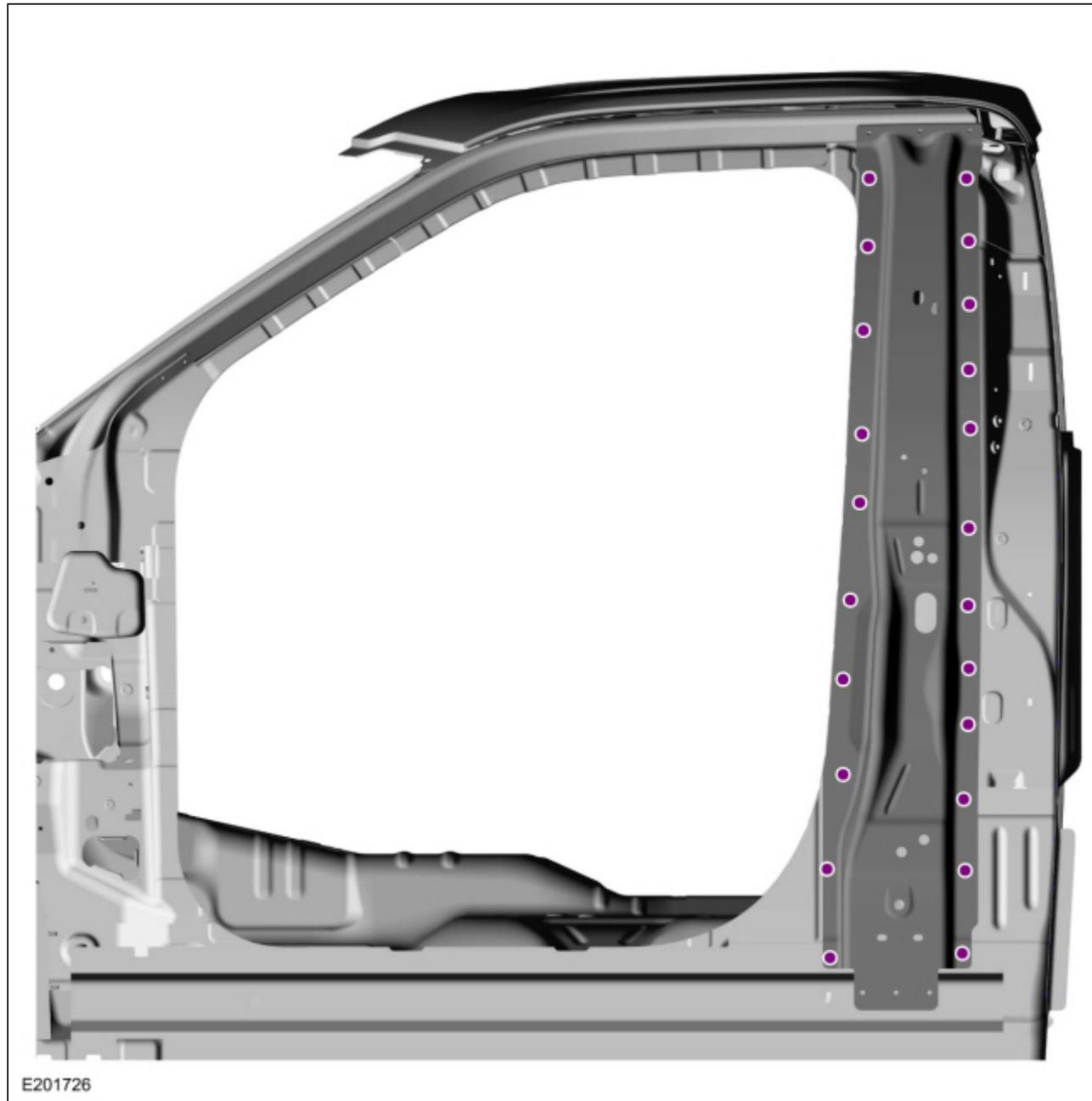
All vehicles

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



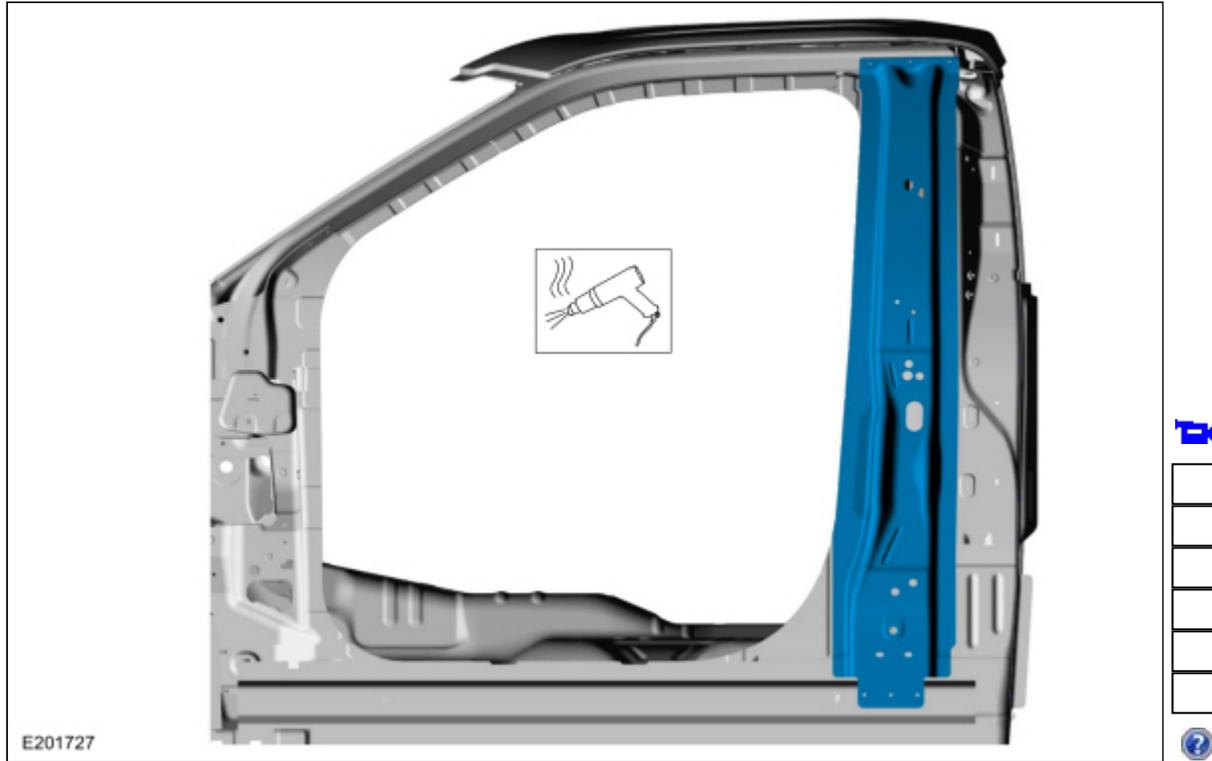


23. Remove the SPR fasteners.
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer
Use the General Equipment: Belt Sander



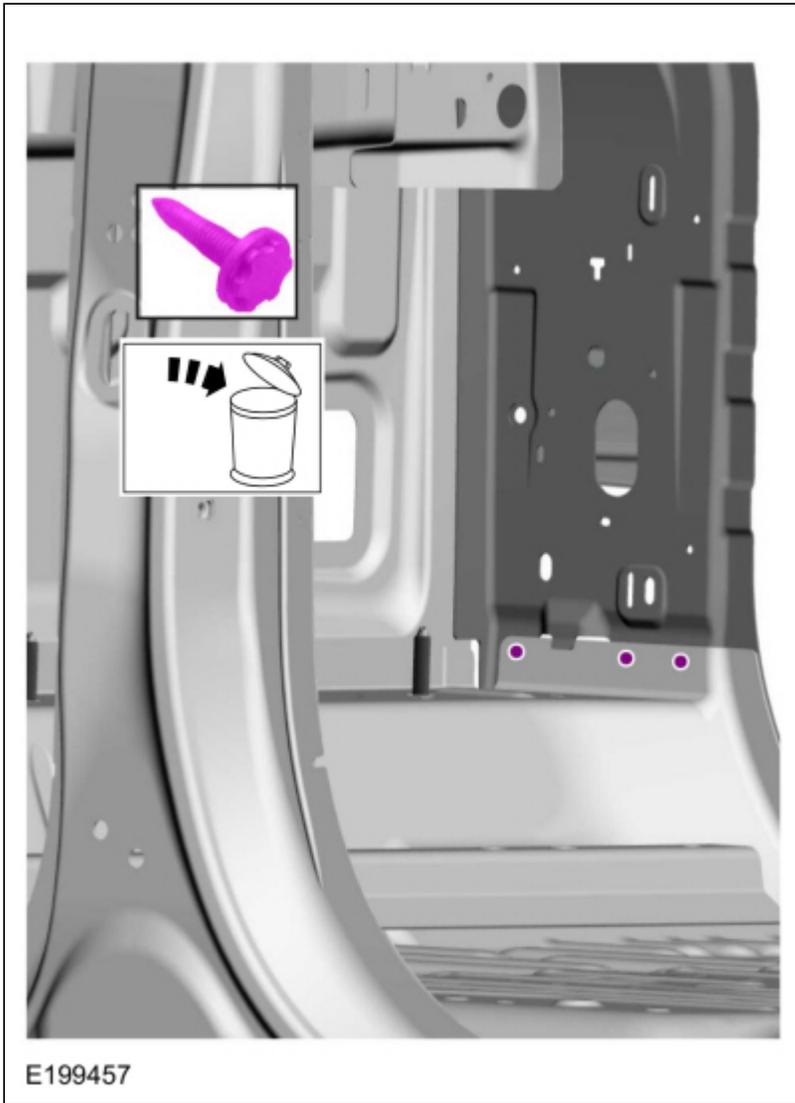
24. **NOTE:** Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many 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 inner reinforcement.
Use the General Equipment: Hot Air Gun

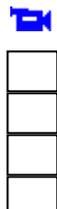


25. Remove and discard the FDS fasteners.
Use the General Equipment: Polydrive Bit Socket





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

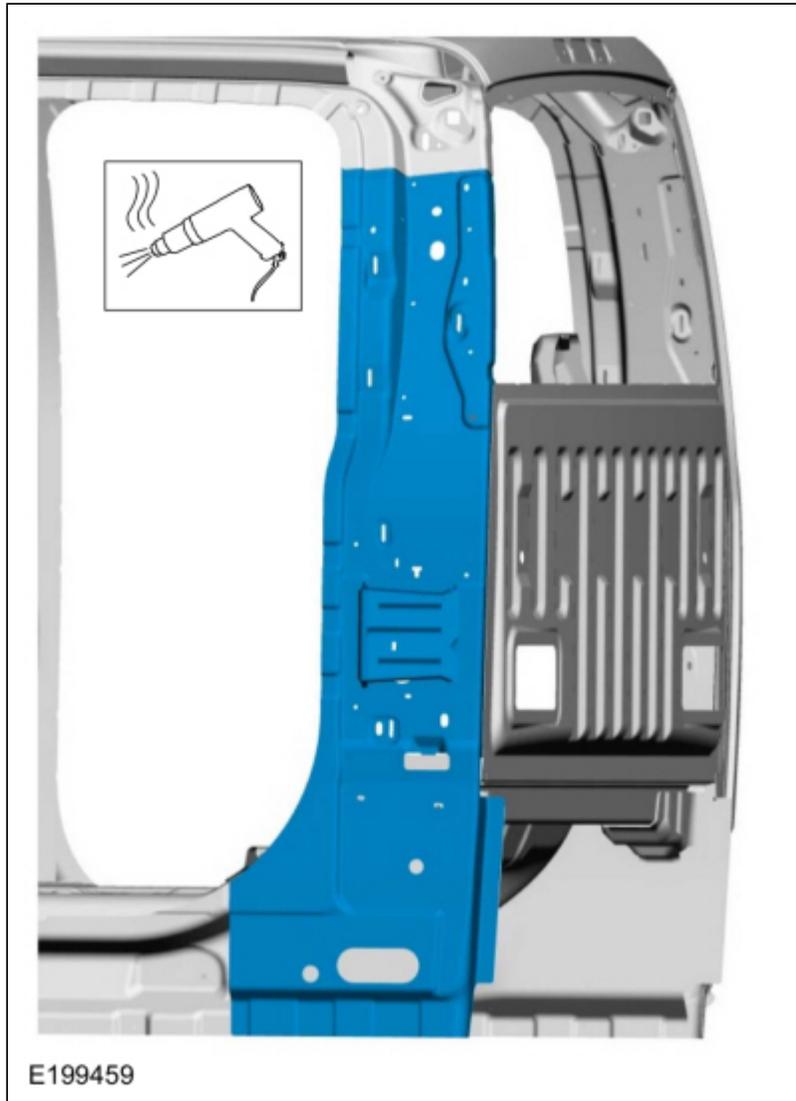




27. **NOTE:** Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many 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 C-pillar.
Use the General Equipment: Hot Air Gun





Installation

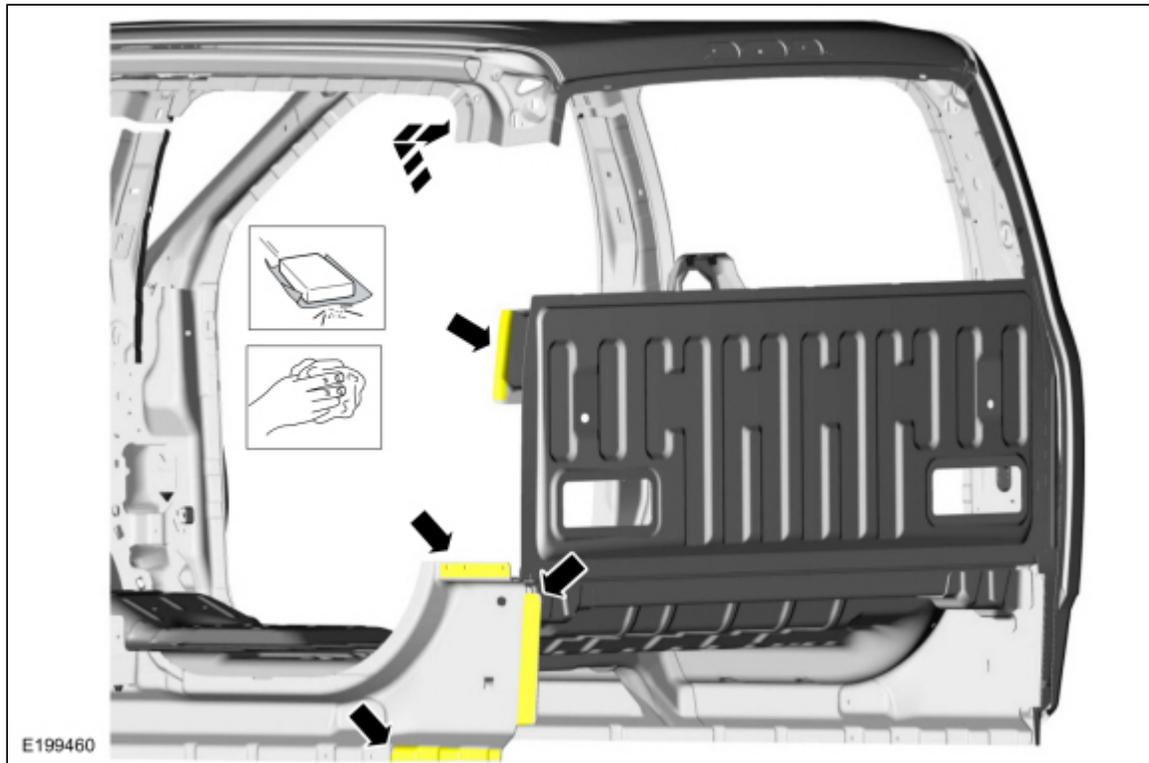
NOTICE: Body side sectioning is prohibited within 50mm of door hinge, door striker and restraints anchoring points.

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

All vehicles

1. Sand using 80 grit sand paper to remove old adhesive and e-coat and clean.



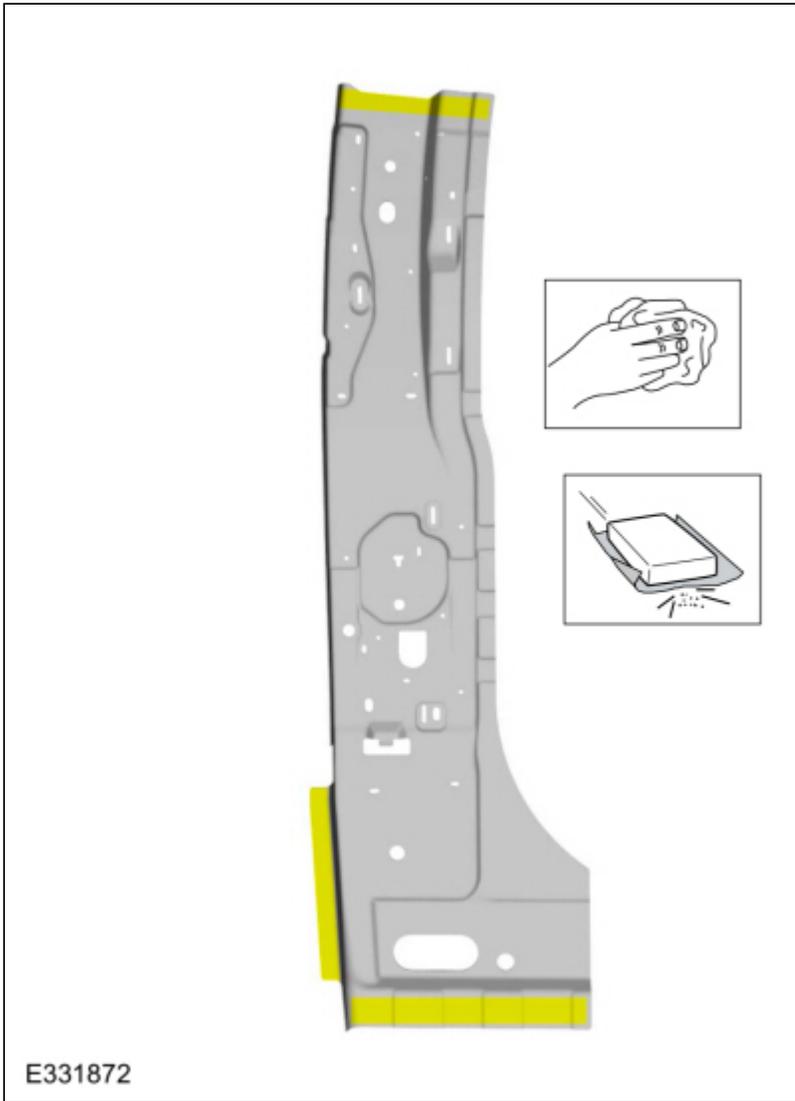




2. Sand using 80 grit sand paper to remove old adhesive and e-coat and clean.

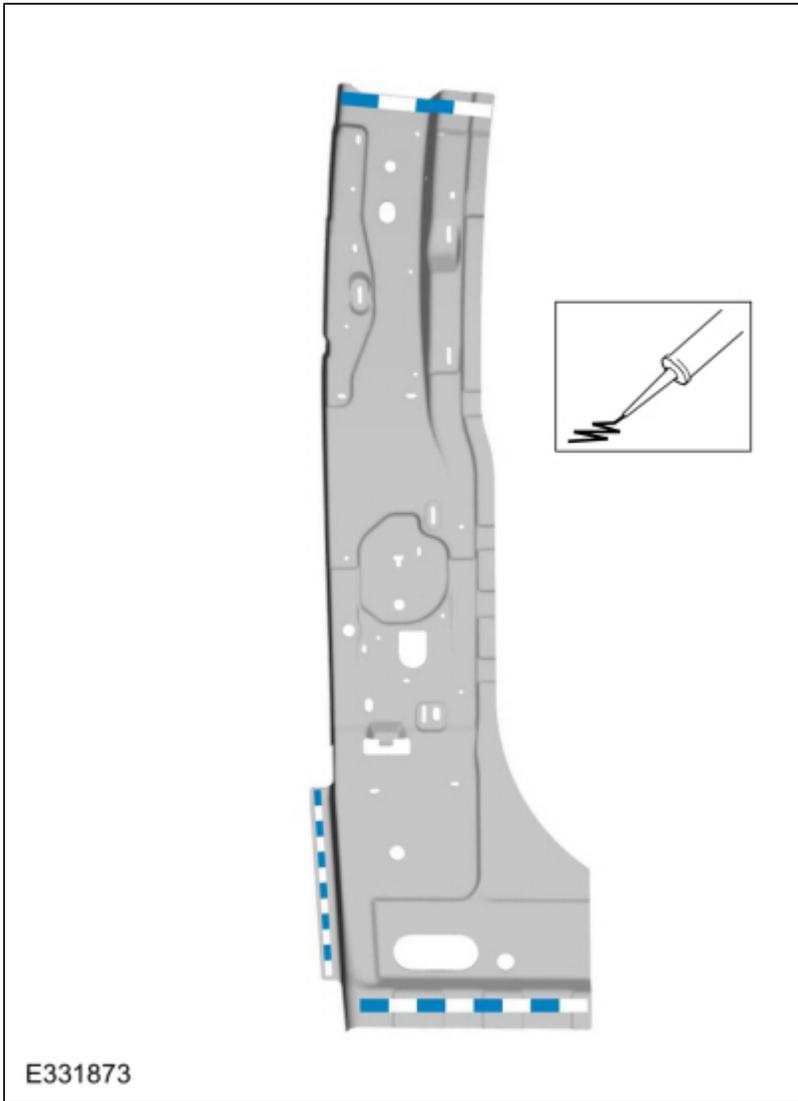






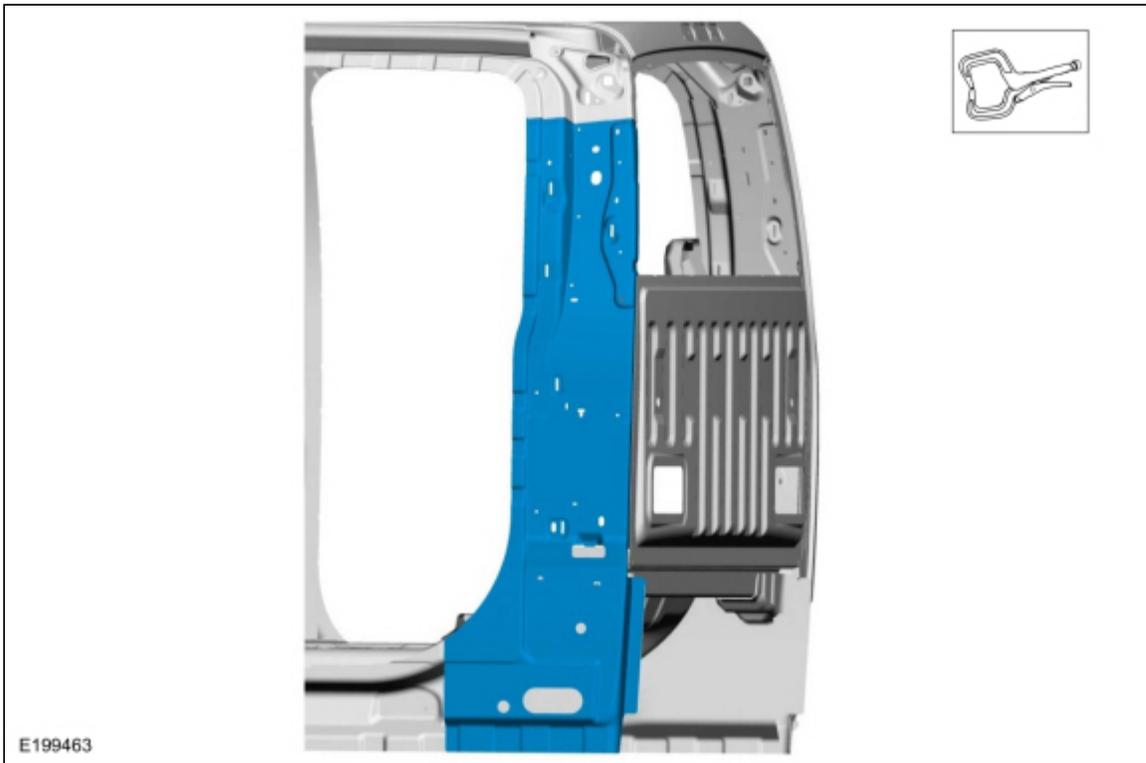
- 3. Apply adhesive to the service part mating surfaces.
Material: Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B





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

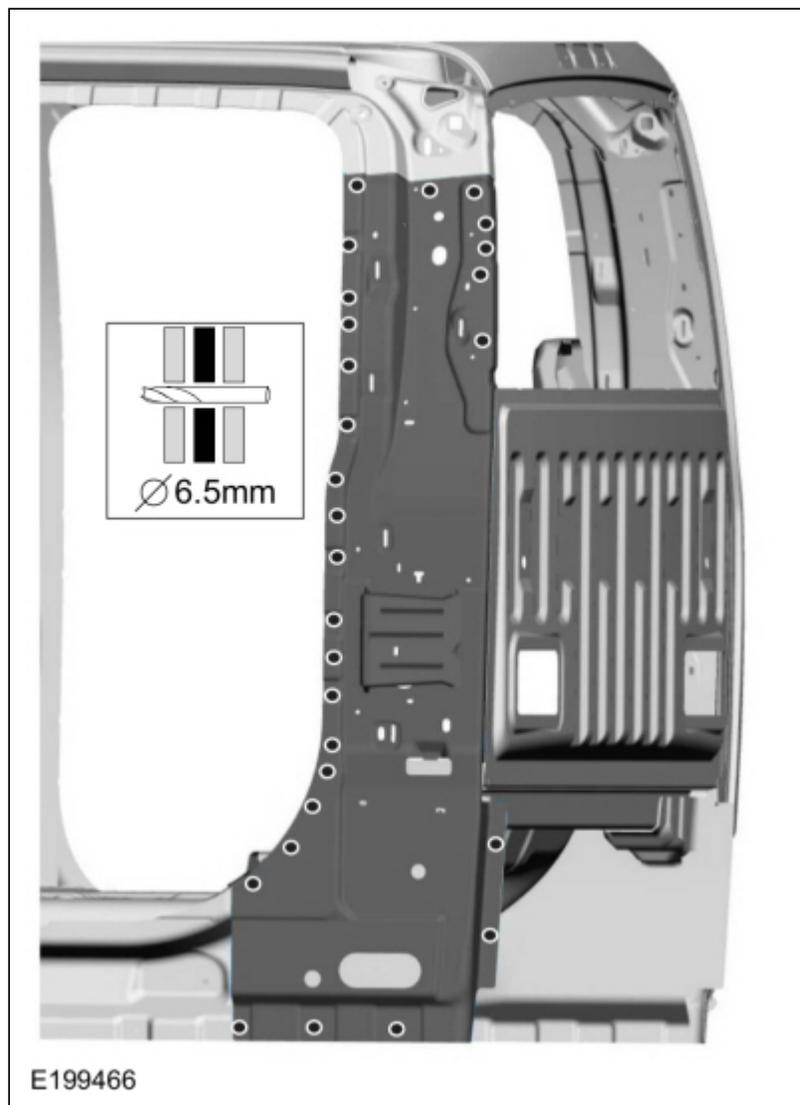




Regular Cab/SuperCrew

- 5. Drill 6.5 mm holes for fastener installation.
Use the General Equipment: 6.5 mm Drill Bit



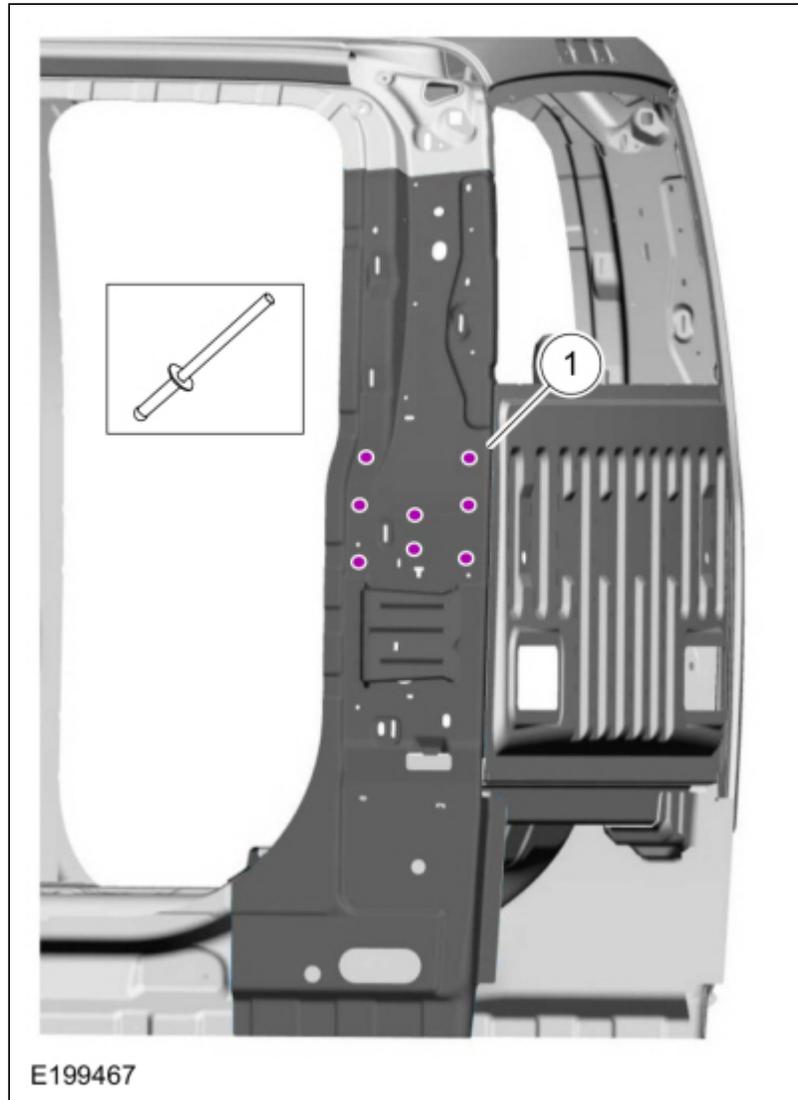


6. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be placed adjacent to original location matching original quantity.

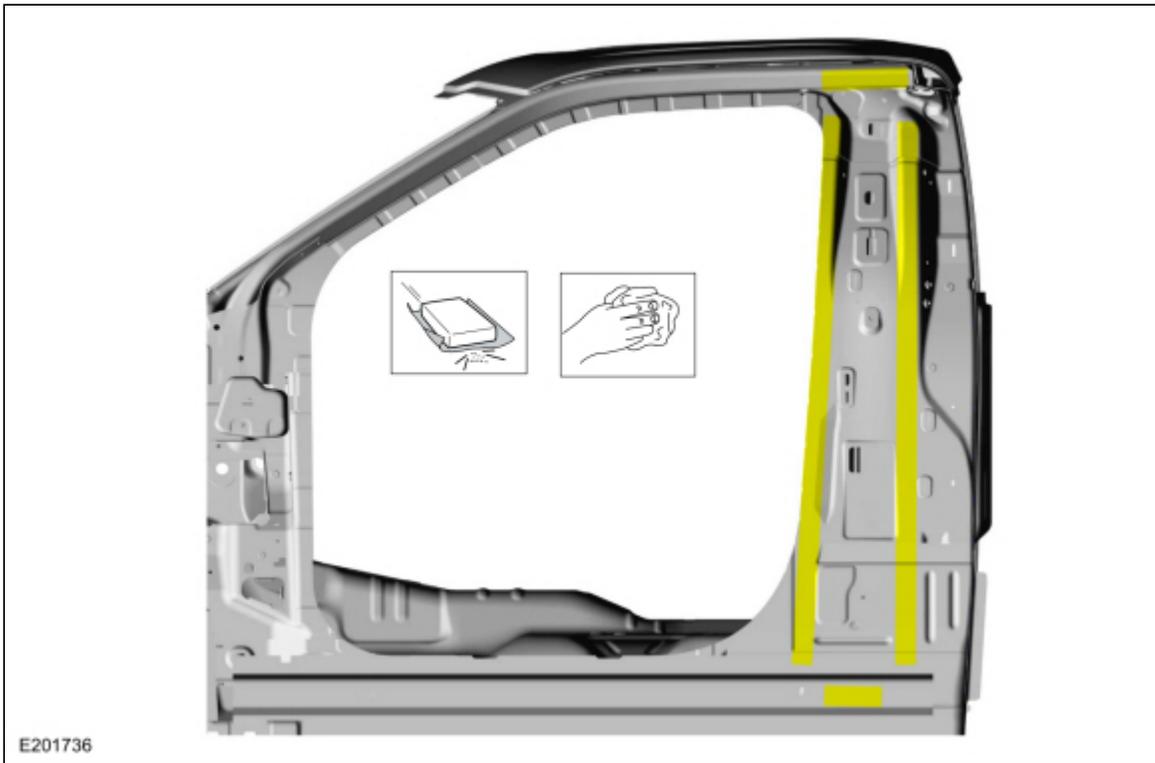
Install the fasteners.

Item	<u>SPR</u> Number	<u>SPR</u> Code	Henrob® 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: Self-Piercing Rivet (SPR) Remover/Installer
Use the General Equipment: Blind Rivet Gun



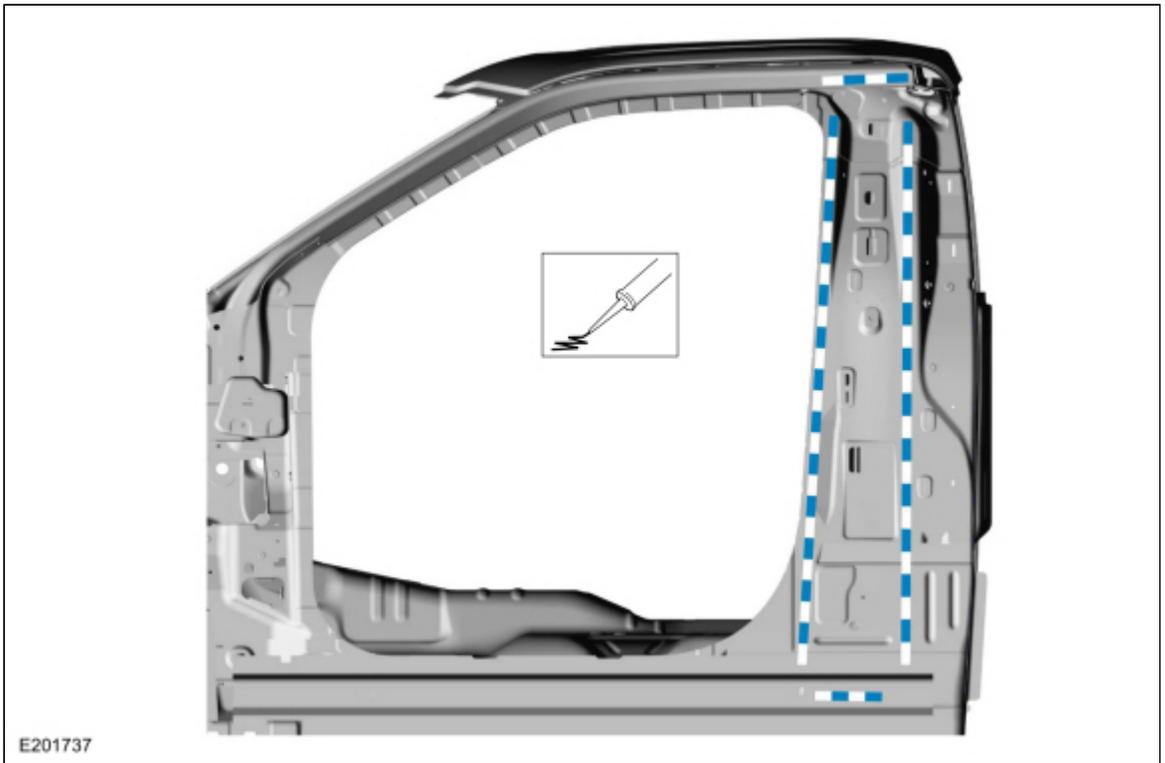
7. Sand using 80 grit sand paper to remove e-coat and clean.



8. Apply adhesive.

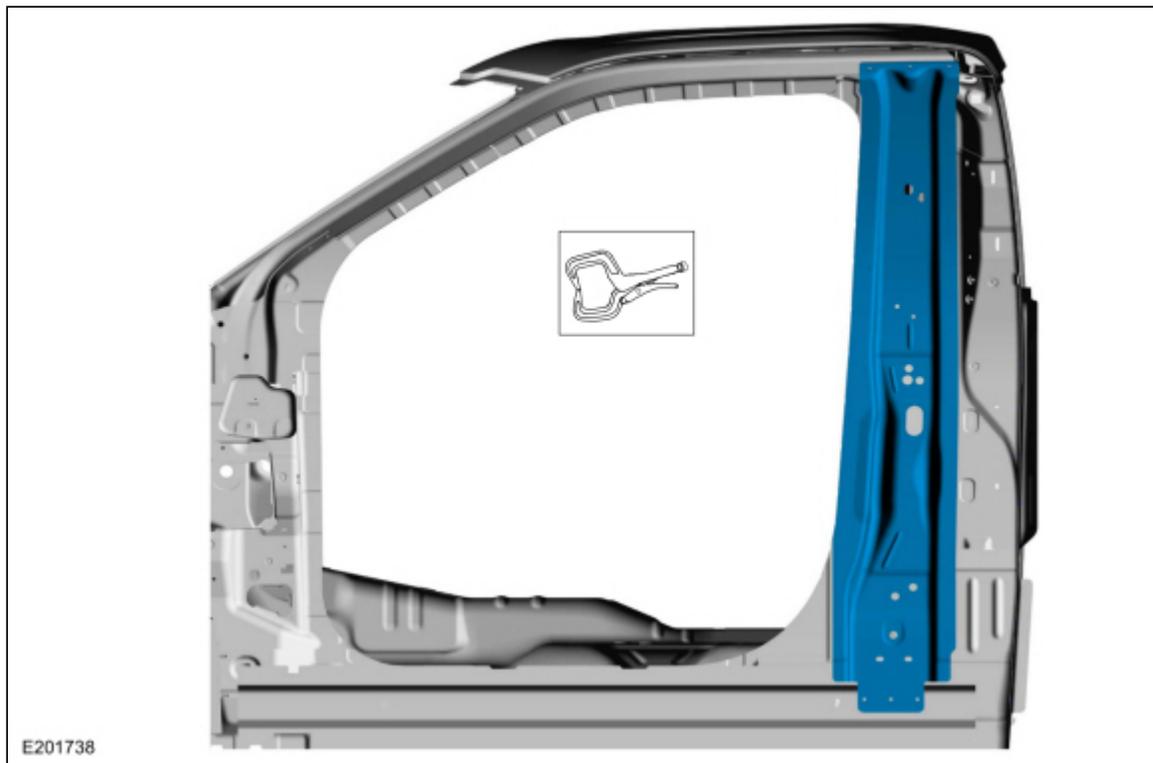
Material: Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B





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





10. Drill 6.5 mm holes for blind rivet fastener installation.
Use the General Equipment: 6.5 mm Drill Bit





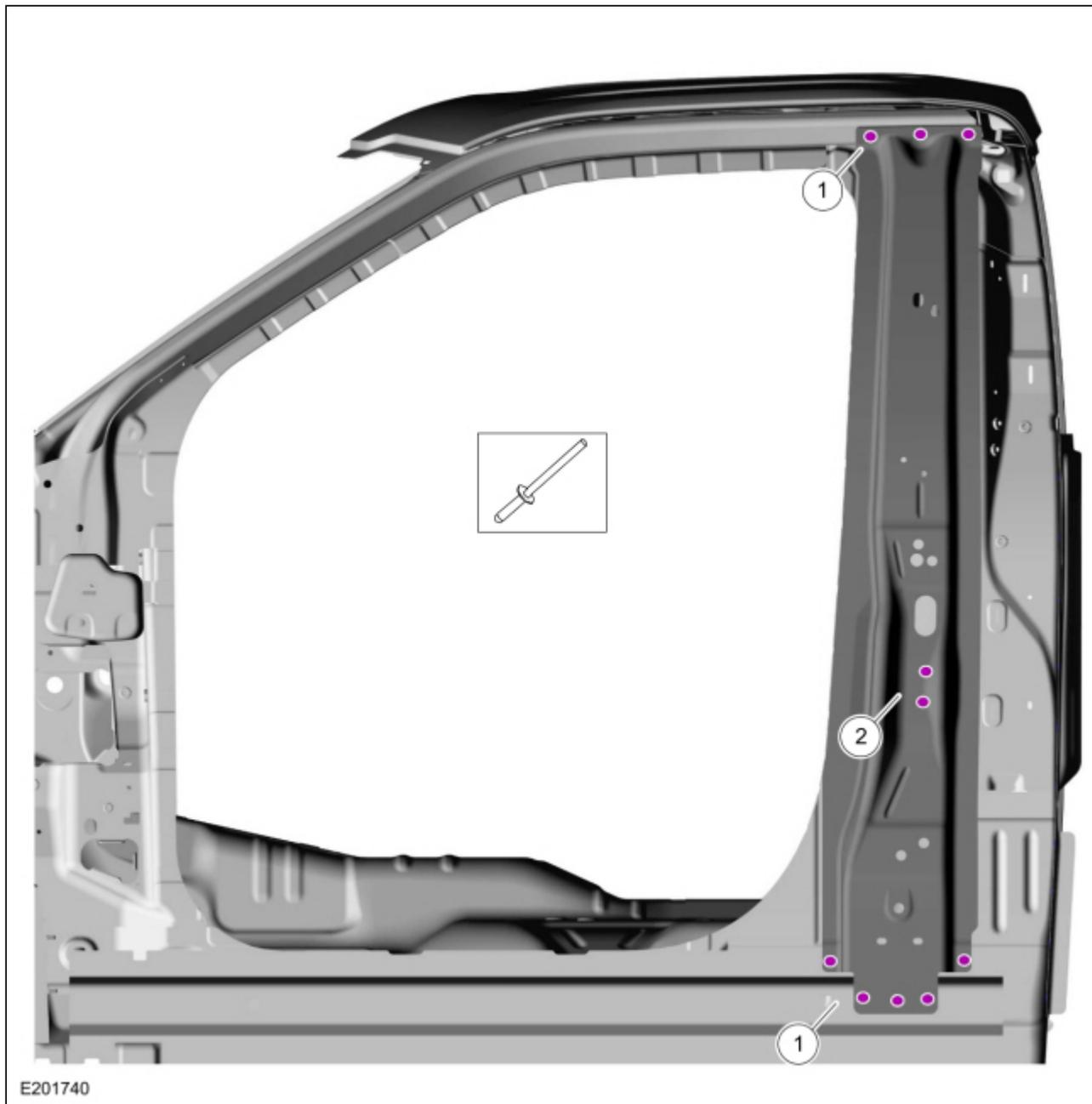
11. Install blind rivet fasteners.

Item	SPR Number	SPR Code	Henrob® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W708777-S900C	-	-
2	-	-	-	-	W702512-S900C	-	-

Use the General Equipment: Blind Rivet Gun







SuperCab

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

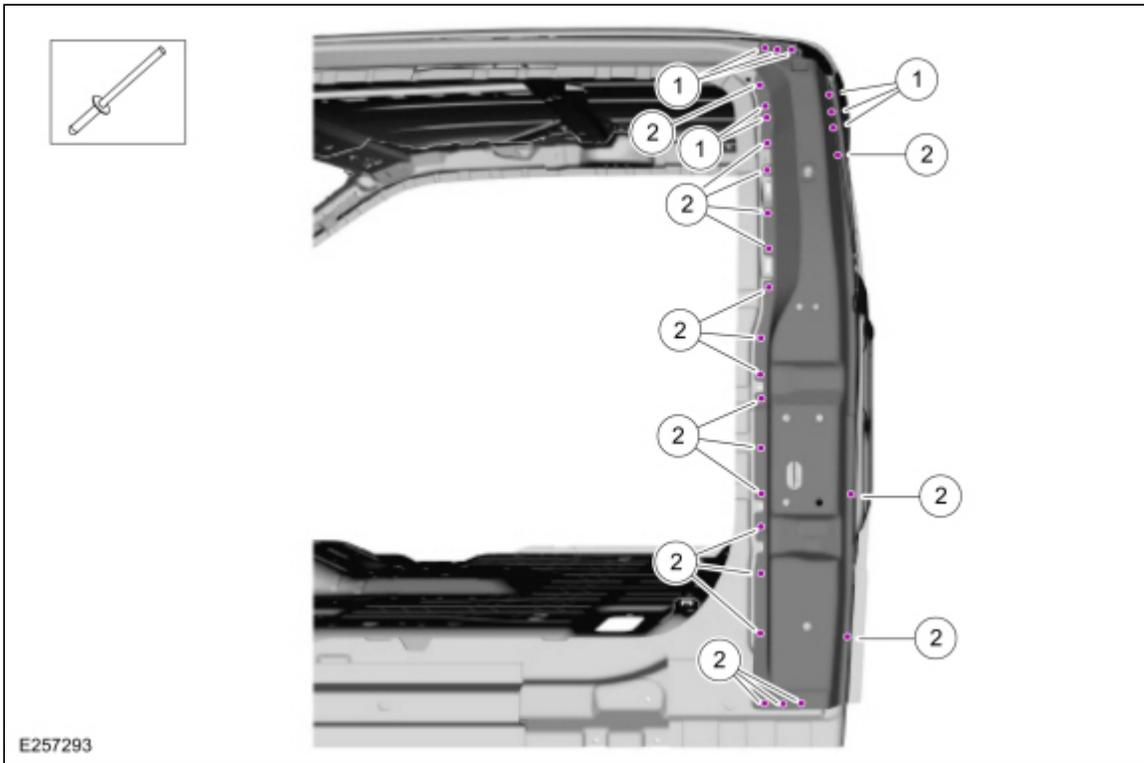


13. Install fasteners.

Item	SPR Number	SPR Code	Henrob® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W708777-S900C	-	-
2	-	-	-	-	W702512-S900C	-	-

Use the General Equipment: Blind Rivet Gun



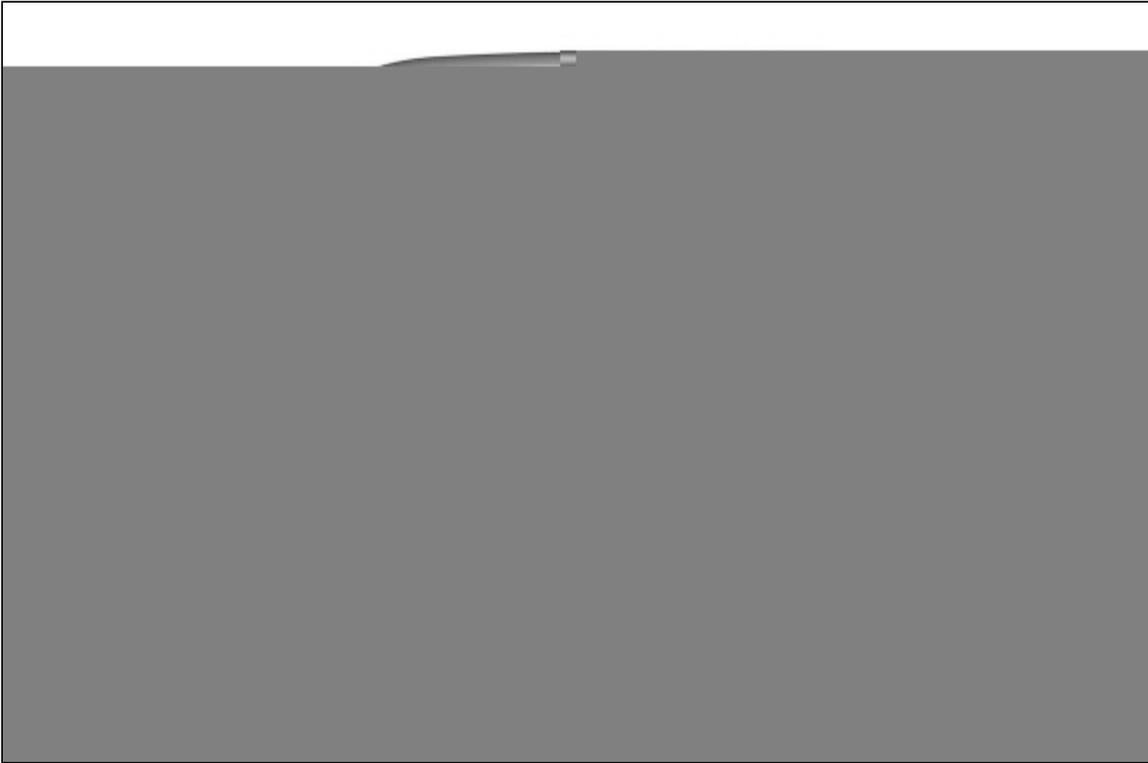


All vehicles

14. **NOTE:** *SuperCrew cab shown, regular and SuperCab similar.*

Cut the service panel to fit repair area.



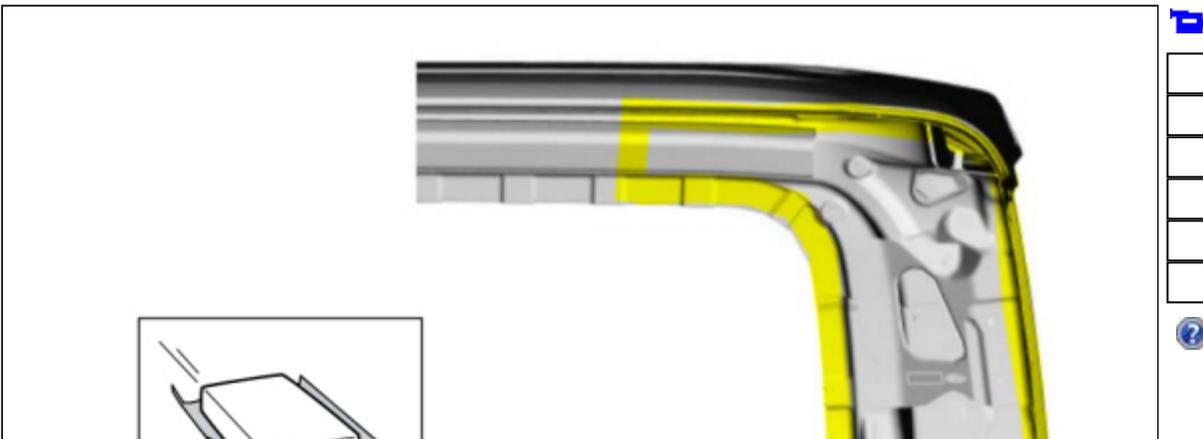


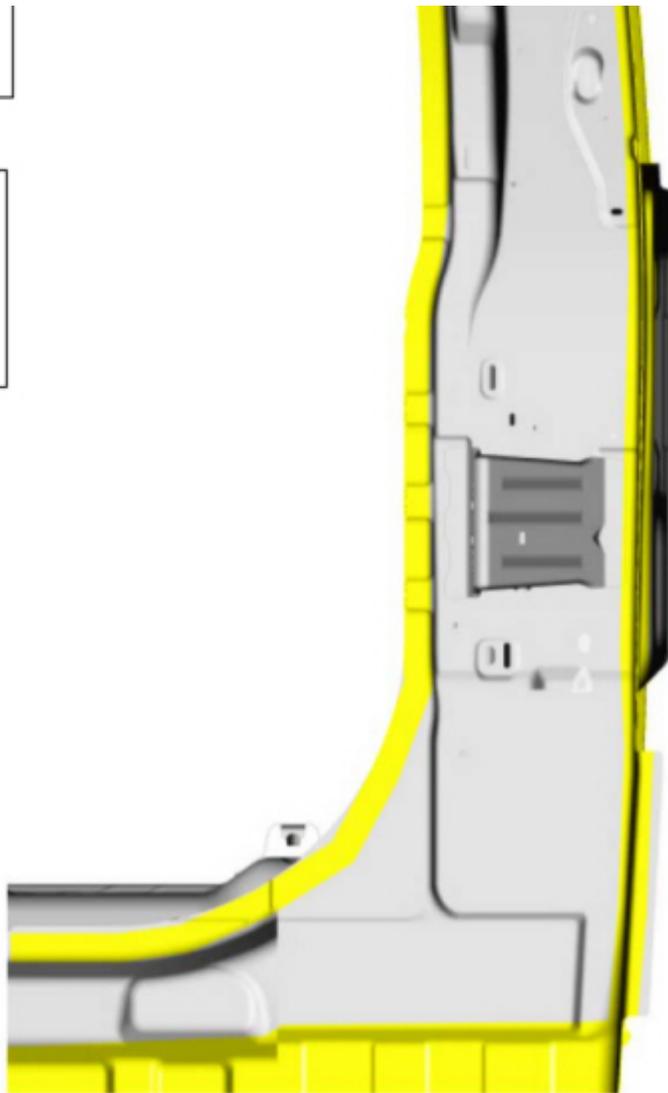
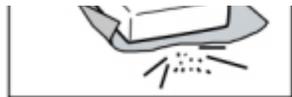
15. **NOTE:** *The use of a backer plate when creating butt-weld joints will produce a stronger and more uniform repair.*

In butt-weld areas: Create a backer plate from an unused portion of the old body panel or replacement service panel and install on the vehicle at each sectioning joint.

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

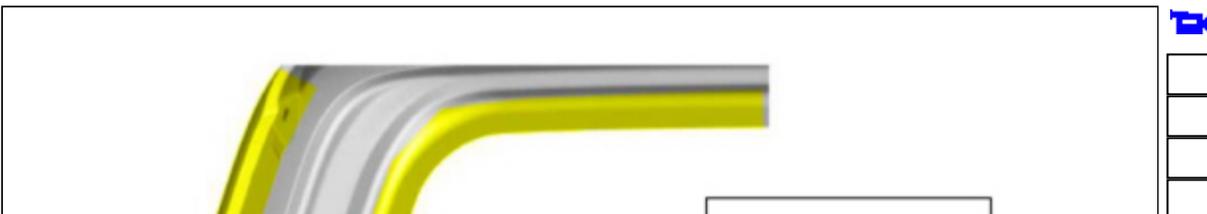
16. Sand using 80 grit sand paper to remove old adhesive or e-coat and clean.

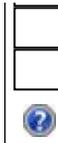
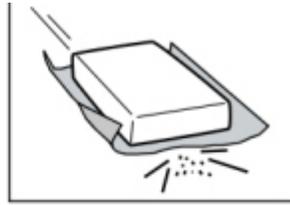
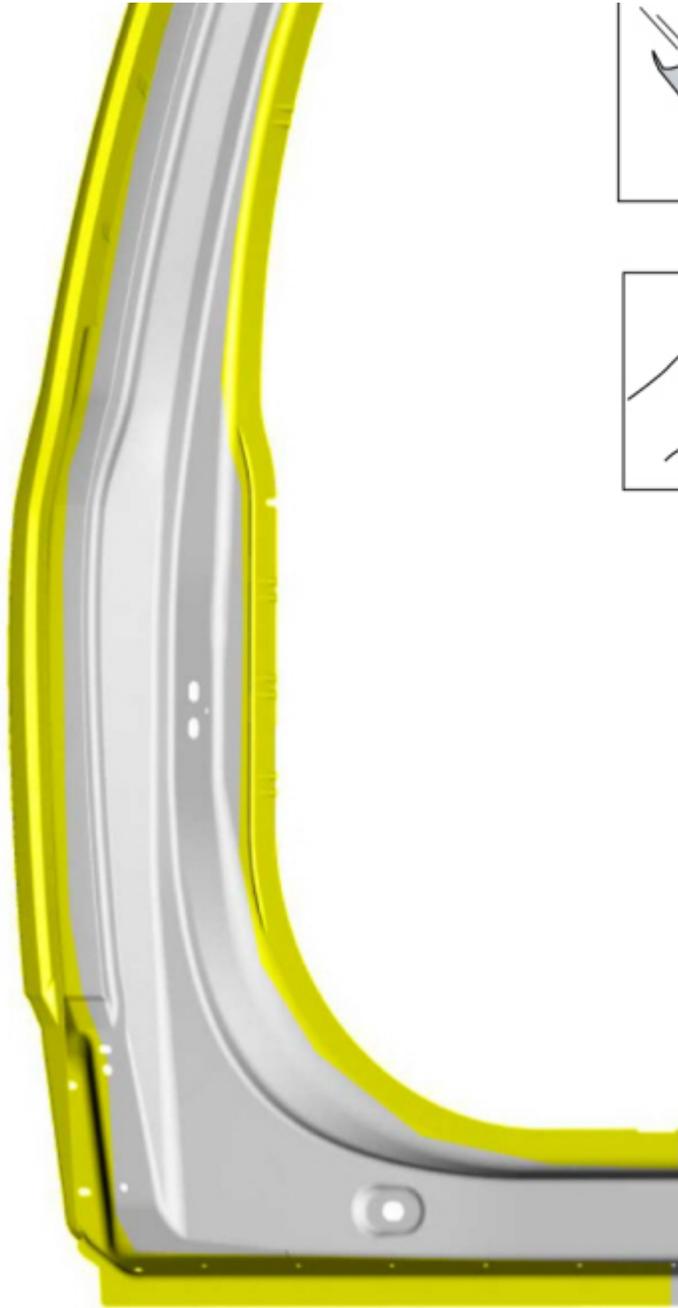




E199479

17. Sand the service panel mating surfaces using 80 grit sand paper to remove e-coat and clean.

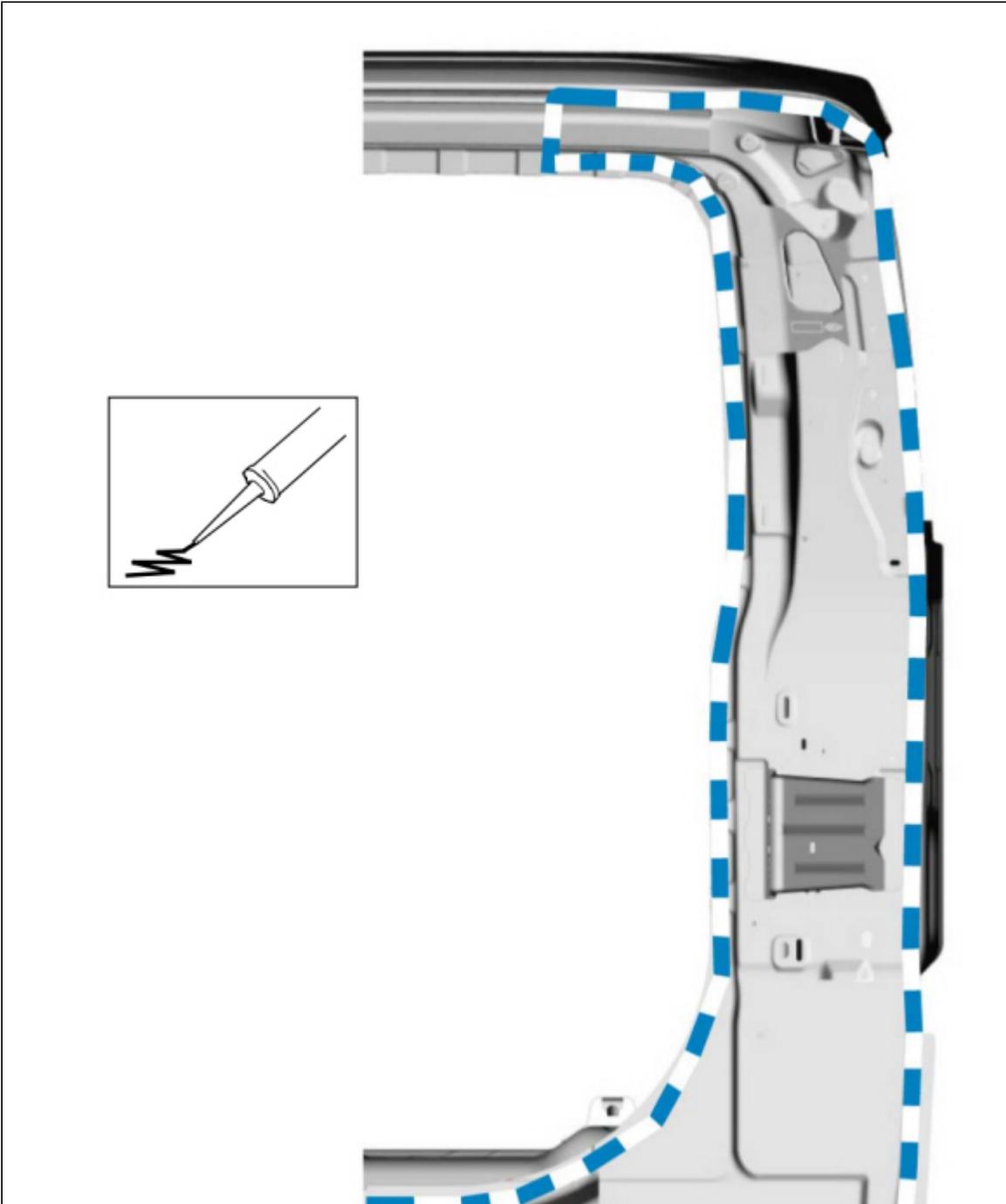




E199480

18. Apply adhesive.

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



E199481



19. Install service panel and clamp in position.
Use the General Equipment: Locking Pliers



20. Complete installation of sectioning joint backer plates to service panel.
Refer to: [Joining Techniques](#) (501-25 Body Repairs - General Information, General Procedures).
21. Completely seam weld sectioning joints using a **MIG** welder set up for aluminum repairs.
Use the General Equipment: MIG/MAG Welding Equipment



SuperCrew

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

Install the fasteners.

Item	<u>SPR</u> Number	<u>SPR</u> Code	Henrob® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0401	-	W790376-S900	-
2	W708717-S900	AW	DP11-200/H	SA-0400/SA-0402	-	W790377-S900	-
3	W717186-S900	EN	DP11-200/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





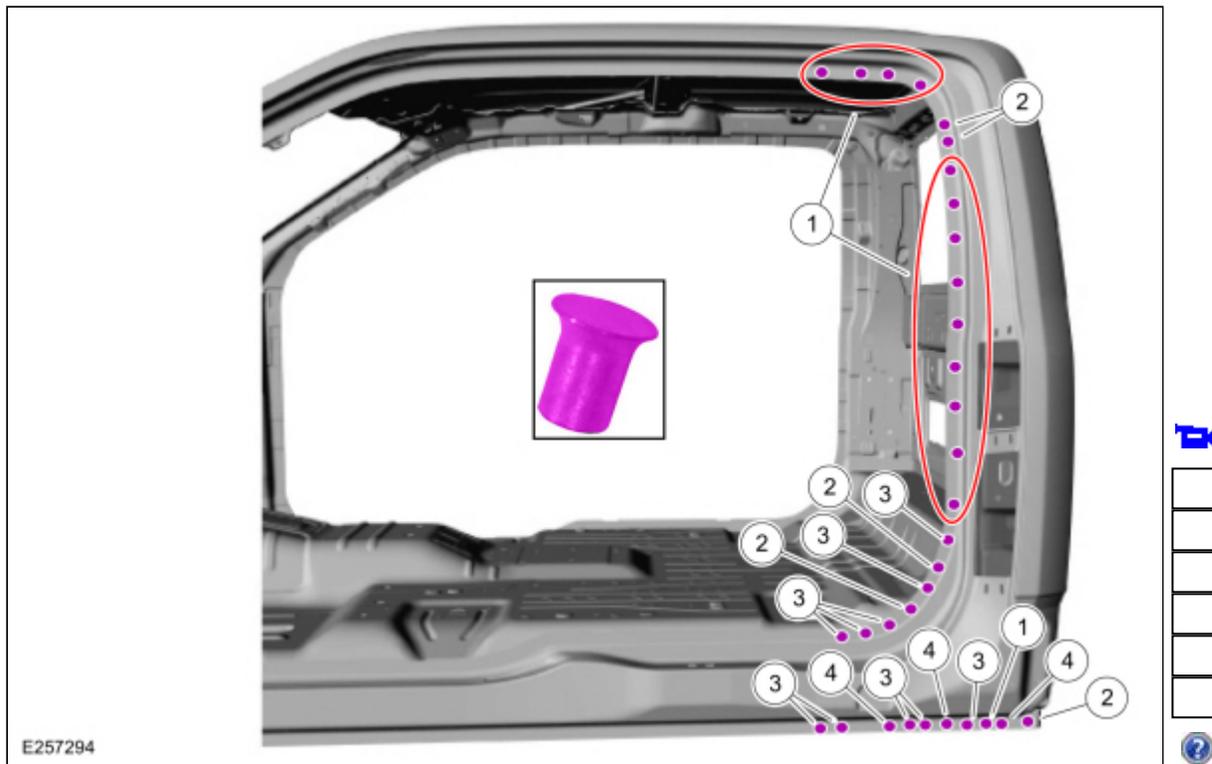
SuperCab

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

Install fasteners.

Item	<u>SPR</u> Number	<u>SPR</u> Code	Henrob® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0401	-	W790376-S900	-
2	W708717-S900	AW	DG10-220/H	SA-0400/SA-0402	-	W790377-S900	-
3	W717186-S900	EN	DP11-200/H	SA-0400/SA-0402	-	W790377-S900	-
4	W710246-S900	BN	DP10-200/H	SA-0400/SA-0402	-	W790377-S900	-

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



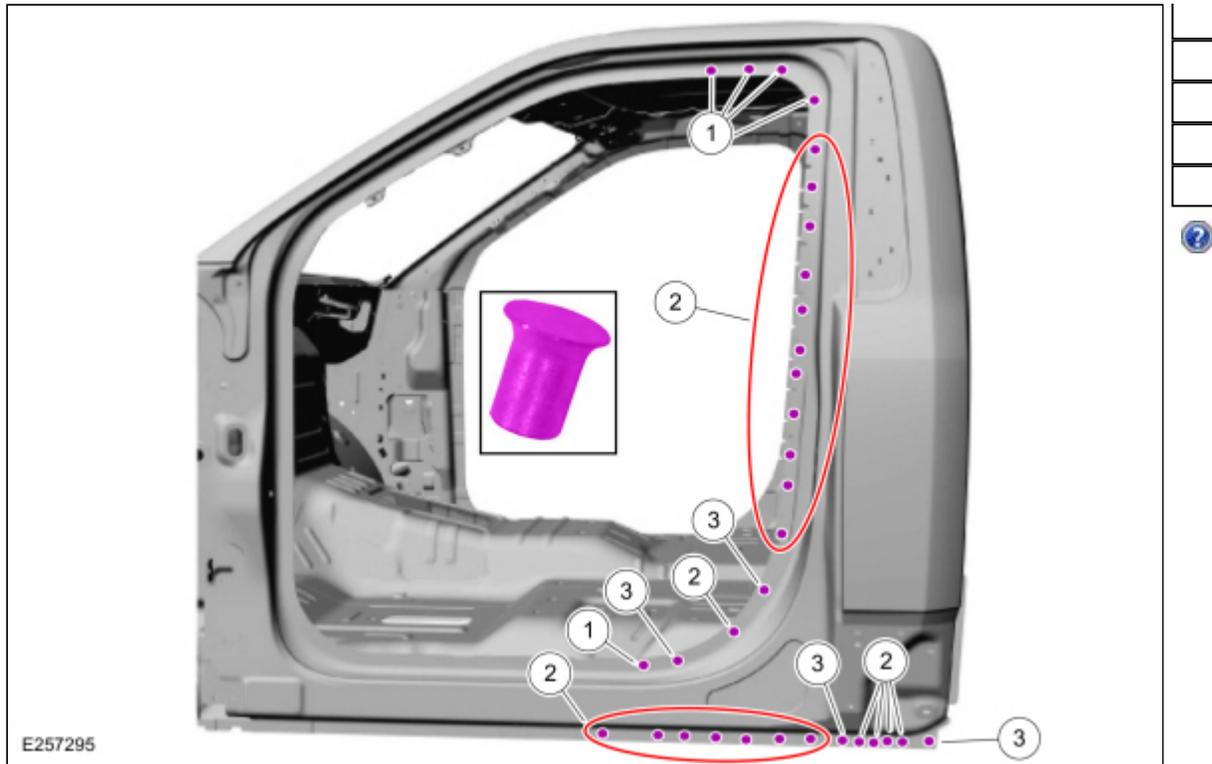
Regular Cab

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

Install fasteners.

Item	SPR Number	SPR Code	Henrob® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	W708713-S900	AS	DZ09-025/H	SA-0400/SA-0401	-	W790376-S900	-
2	W717186-S900	EN	DG11-220/H	SA-0400/SA-0402	-	W790377-S900	-
3	W708717-S900	AW	DP11-200/H	SA-0400/SA-0402	-	W790377-S900	-

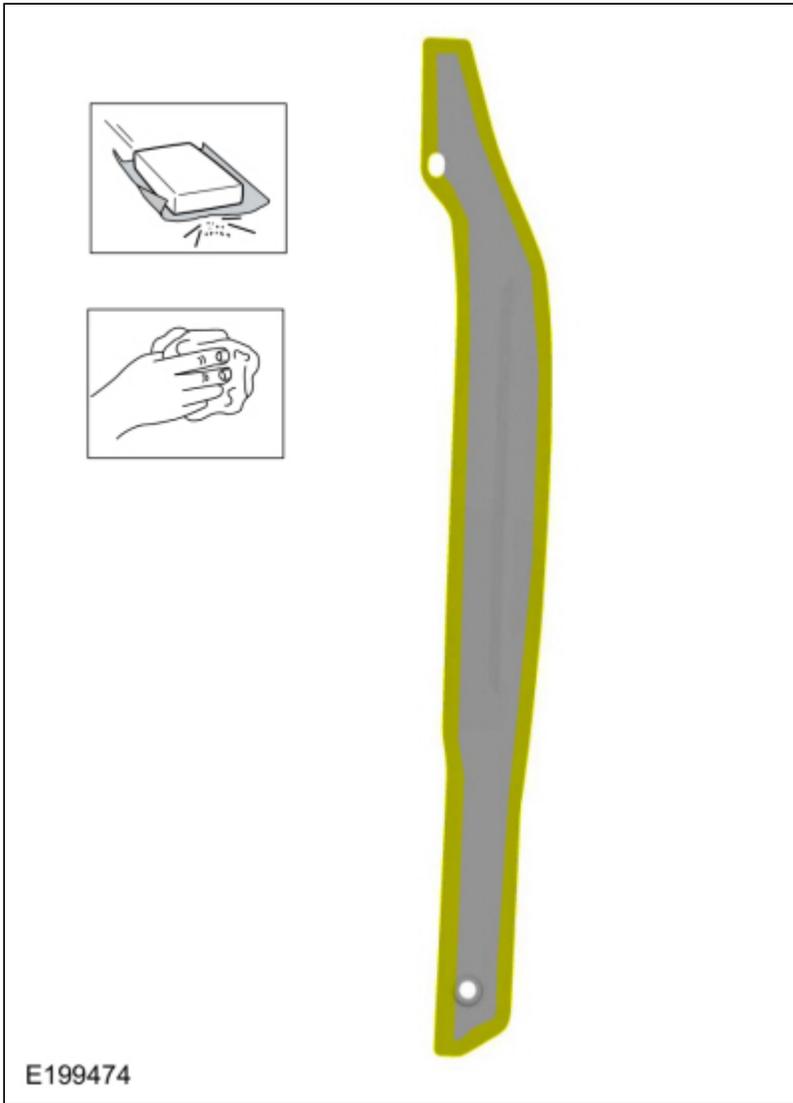
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer



All vehicles

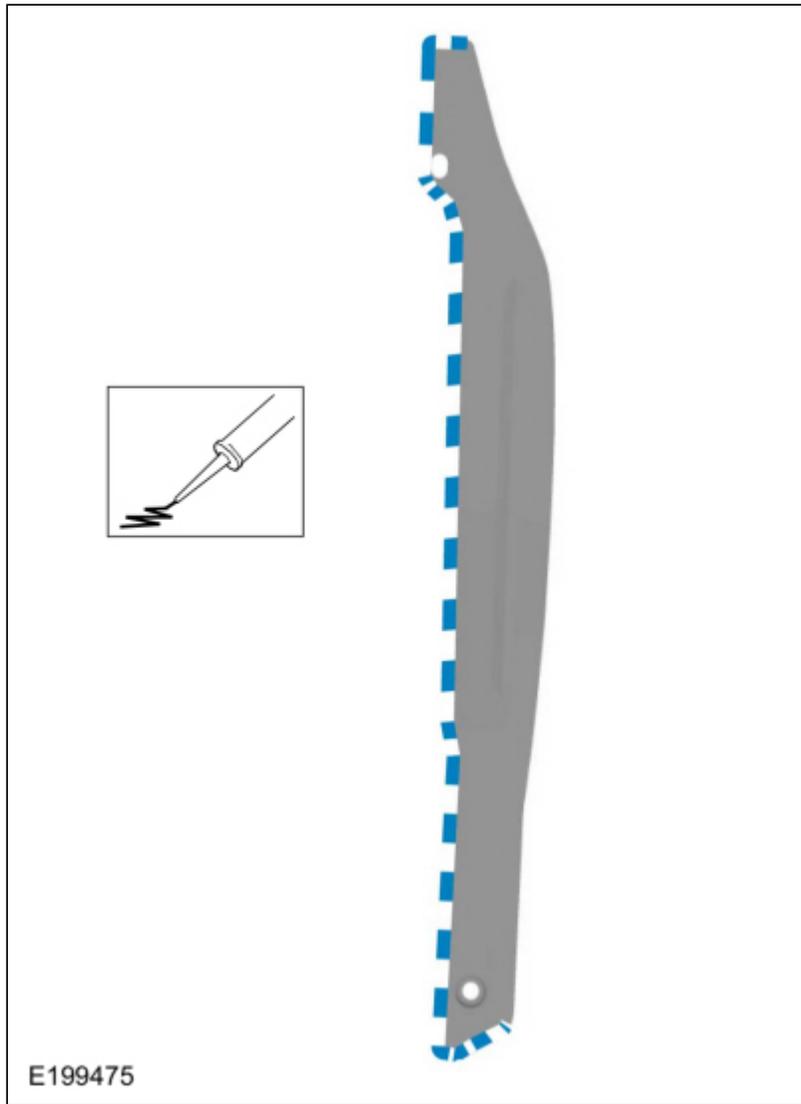
25. Sand using 80 grit sand paper to remove e-coat and clean.



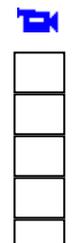


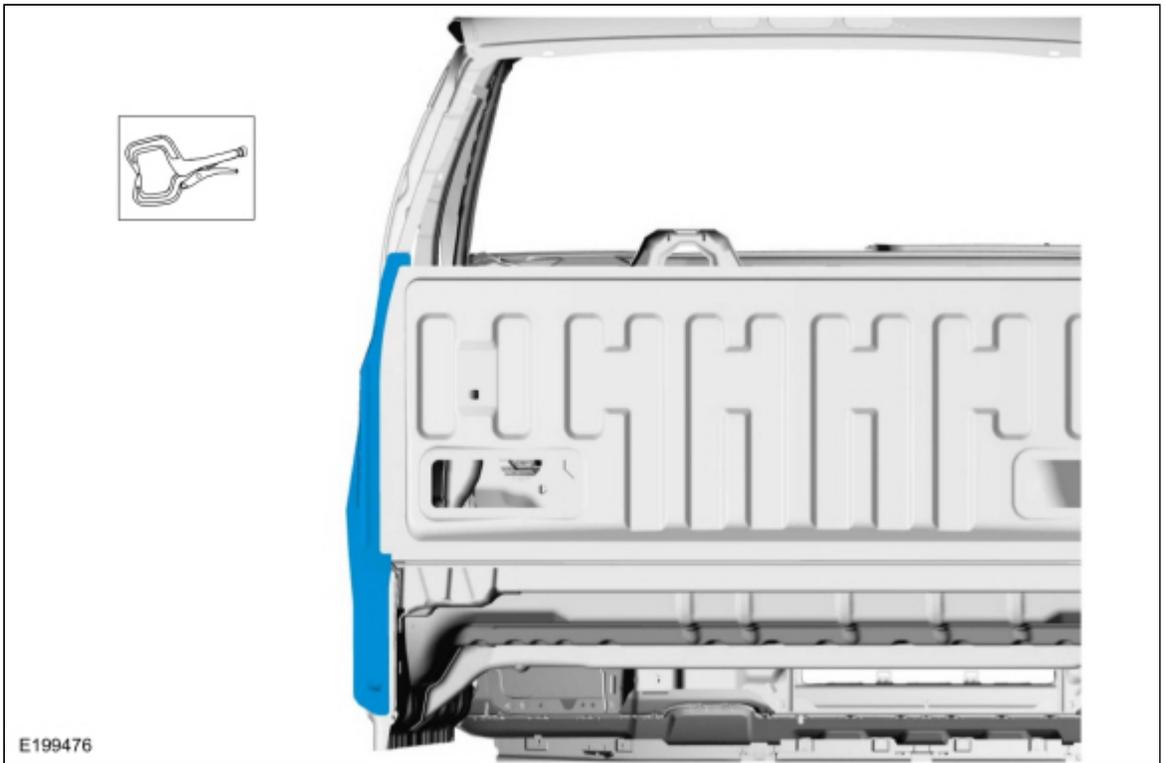
26. Apply adhesive as indicated to the cab back filler panel mating surface.
Material: Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B



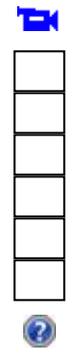
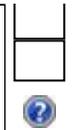


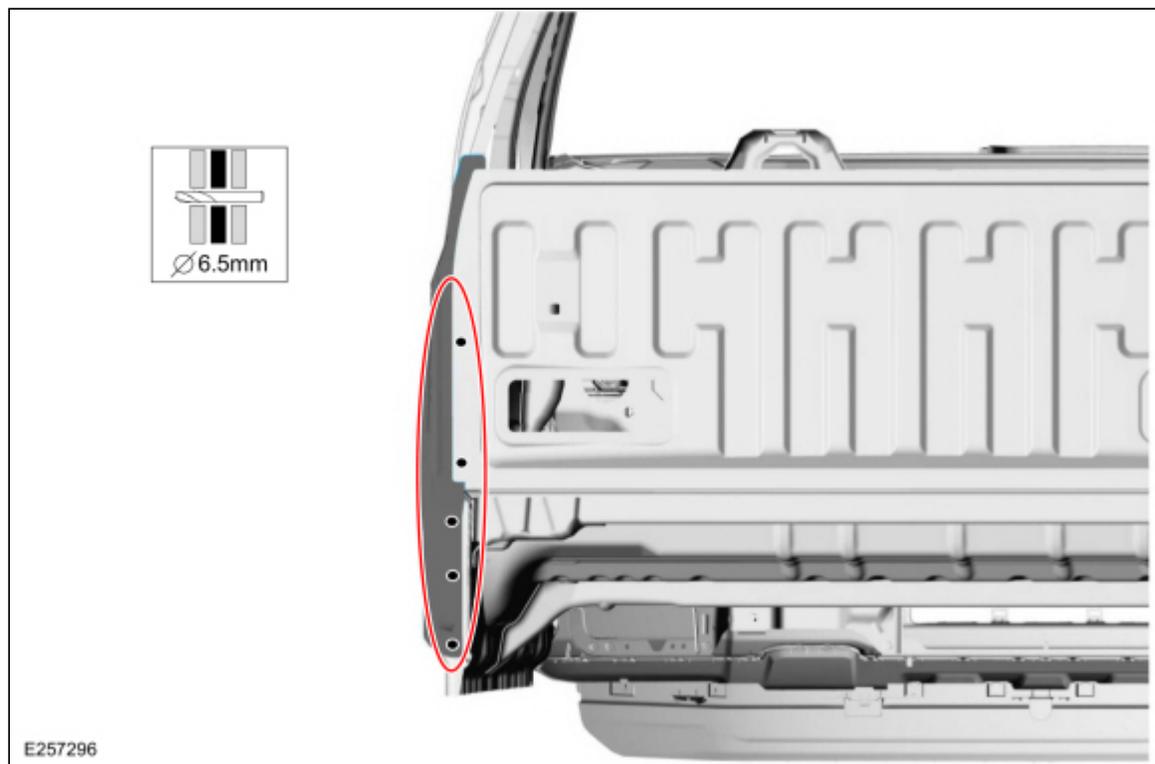
27. Install the cab back filler panel and clamp in position.
Use the General Equipment: Locking Pliers





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





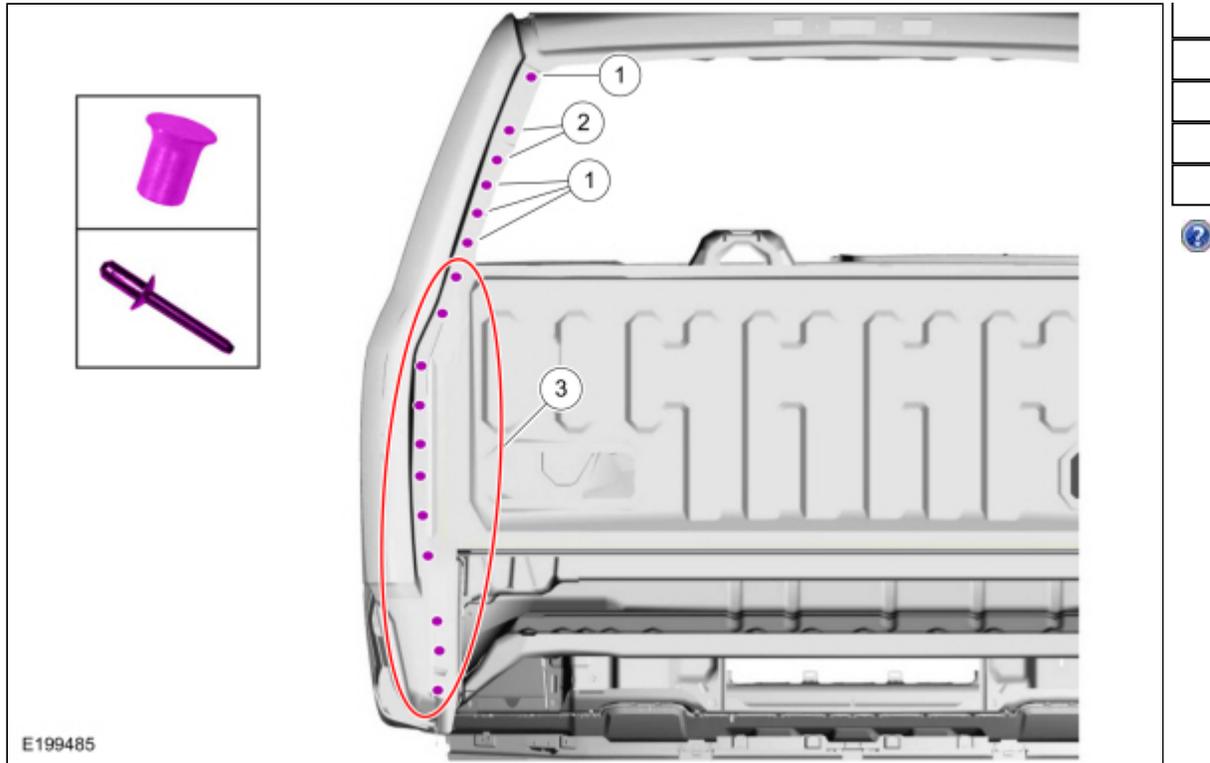
29. **NOTE:** SPR fasteners may not be placed directly over original SPR location. They must be placed adjacent to original location matching original quantity.

Install the fasteners.

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





30. Metal finish all sectioning seams using typical aluminum metal finishing techniques and a fiber-based filler.
Refer to: [Special Repair Considerations for Aluminum Repairs](#) (501-25 Body Repairs - General Information, Description and Operation).

31. **Epoxy Primer:**
Prime the rear window opening channel using a Ford approve epoxy-based primer.





32. Mask the rear window opening channel.



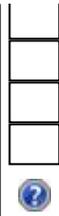
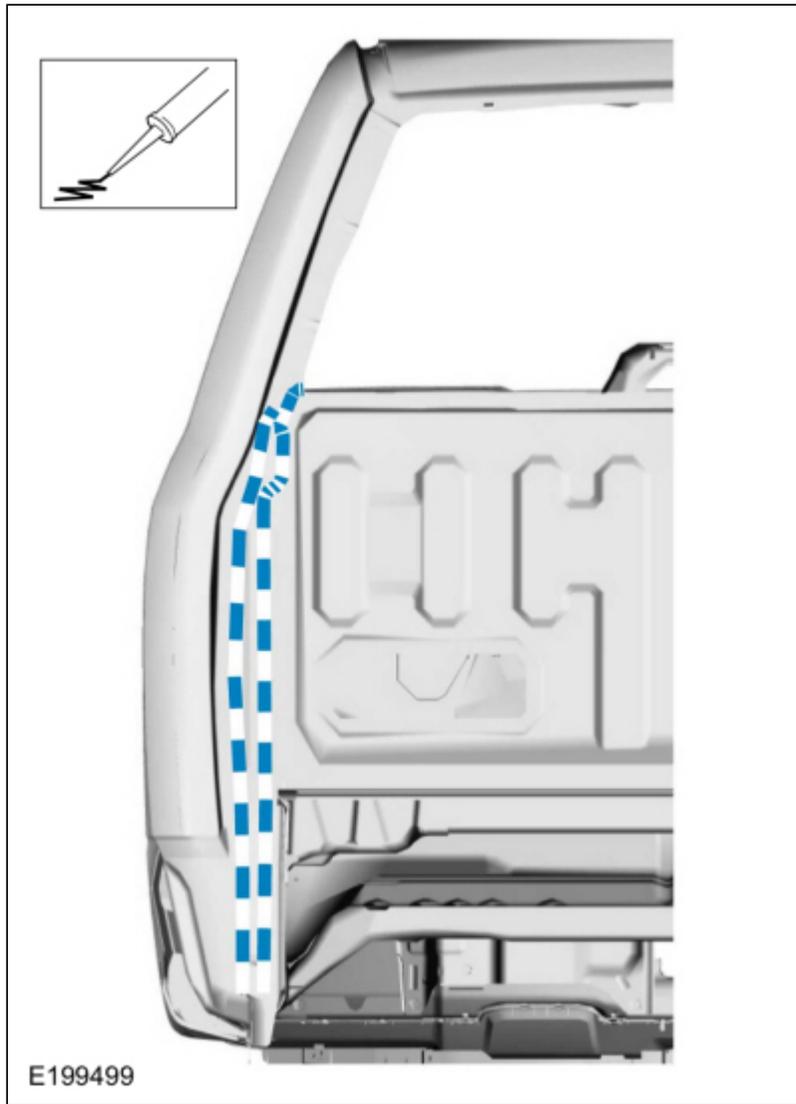


33. Prime the entire repair using a Ford approved paint system.

34. **Seam Sealing:**

All seams must be sealed to production level.

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



- 35. Refinish the entire repair using a Ford approved paint system and typical refinishing techniques.
- 36. Unmask the rear window opening channel.





37. Install the side curtain air bag.

Refer to: [Side Curtain Airbag - Regular Cab](#) (501-20B Supplemental Restraint System, Removal and Installation).

Refer to: [Side Curtain Airbag - SuperCab](#) (501-20B Supplemental Restraint System, Removal and Installation).

Refer to: [Side Curtain Airbag - SuperCrew](#) (501-20B Supplemental Restraint System, Removal and Installation).

38. Install the rear window.

Refer to: [Fixed Glass](#) (501-11 Glass, Frames and Mechanisms, General Procedures).

39. Reposition the wiring harness and carpeting.

40. Install the door opening weather strip.

41. Install the door opening scuff plate.

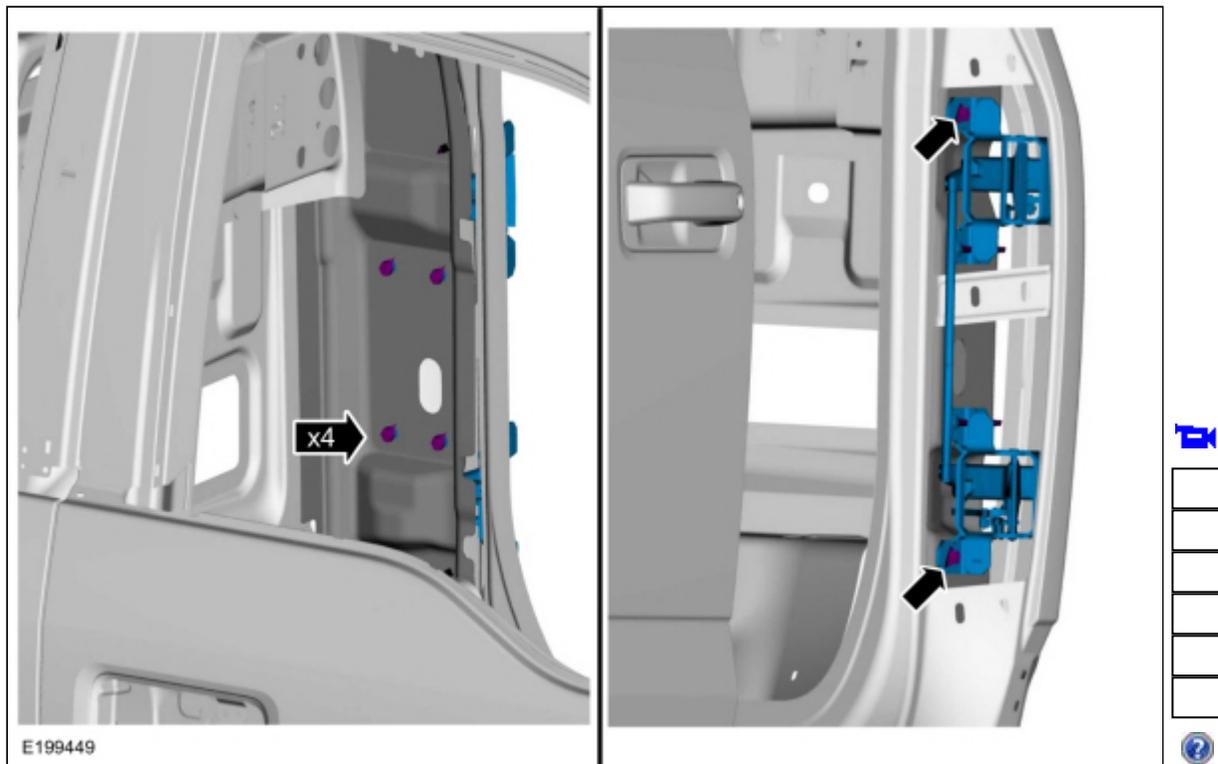
Regular Cab and SuperCrew Cab

42. Install the door striker (front door on regular cab, rear door on SuperCrew cab).
Torque: 18 lb.ft (25 Nm)



SuperCab

43. Install the rear door hinge.
Torque: 21 lb.ft (28 Nm)



SuperCab and SuperCrew Cab

44. Install the rear seat.
 Refer to: [Rear Seat LH - SuperCab](#) (501-10B Rear Seats, Removal and Installation).
 Refer to: [Rear Seat LH - SuperCrew](#) (501-10B Rear Seats, Removal and Installation).

Regular Cab

45. Install the front seat.
 Refer to: [Front Seat](#) (501-10A Front Seats, Removal and Installation).

All vehicles

46. Install the safety belt.
 Refer to: [Front Seatbelt Retractor and Pretensioner - Regular Cab](#) (501-20A Seatbelt Systems, Removal and Installation).
 Refer to: [Front Seatbelt Retractor and Pretensioner - SuperCab](#) (501-20A Seatbelt Systems, Removal and Installation).
 Refer to: [Front Seatbelt Retractor and Pretensioner - SuperCrew](#) (501-20A Seatbelt Systems, Removal and Installation).
 Refer to: [Rear Seatbelt Retractor and Pretensioner - SuperCab](#) (501-20A Seatbelt Systems, Removal and Installation).
 Refer to: [Rear Seatbelt Retractor and Pretensioner - SuperCrew](#) (501-20A Seatbelt Systems, Removal and Installation).
47. Install the loadspace trim panel.
 Refer to: [Loadspace Trim Panel - Regular Cab](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

Refer to: [Loadspace Trim Panel - SuperCab/SuperCrew](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

48. Install the exterior 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).

49. Install the pickup bed.

Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Removal and Installation).

50. Repower the SRS.

Refer to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).

© Copyright 2021, Ford Motor Company.
