

501-30 Rear End Sheet Metal Repairs  
Removal and Installation

2021 F-150

Procedure revision date: 09/25/2020

### Pickup Box Outer Side Panel - Raptor


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

6.5 mm Drill Bit
Self-Piercing Rivet (SPR) Remover/Installer
Belt Sander
Blind Rivet Gun
Hot Air Gun
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	-
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.

-  **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.

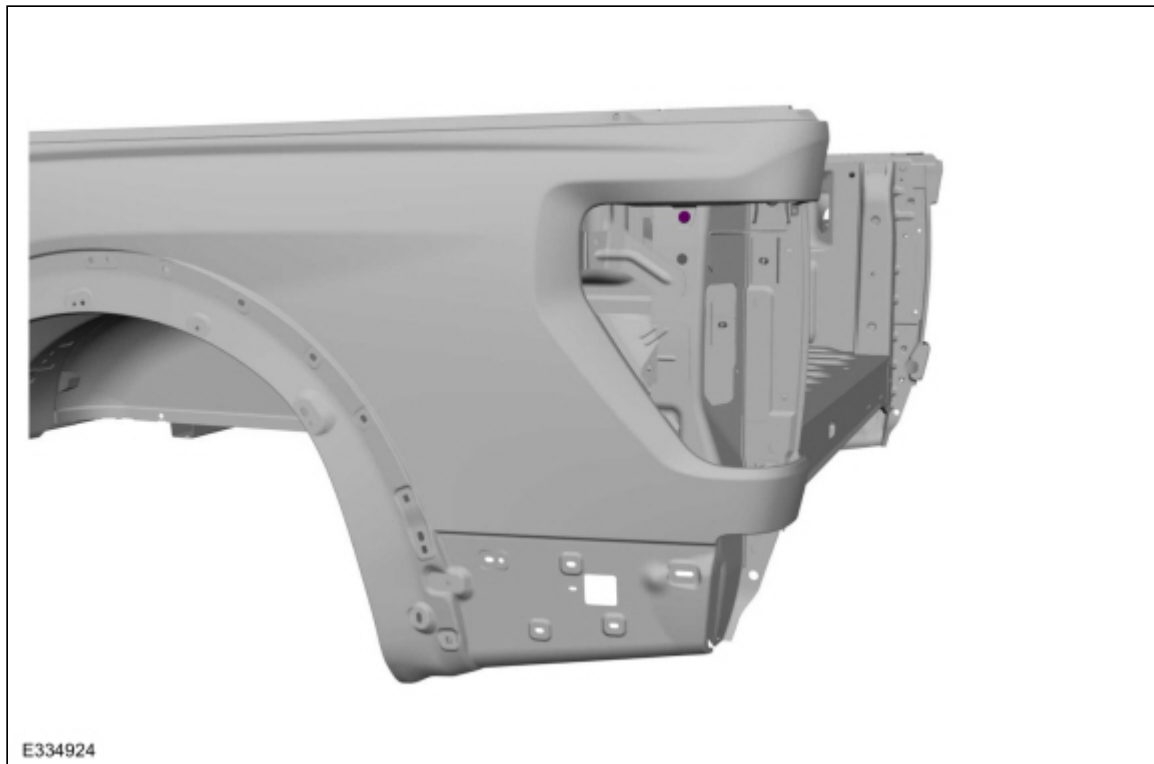
Refer to: [Health and Safety Precautions](#) (100-00 General Information, Description and Operation).

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.

**NOTE:** LH side shown, RH side does not include fuel fill.

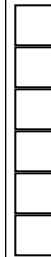
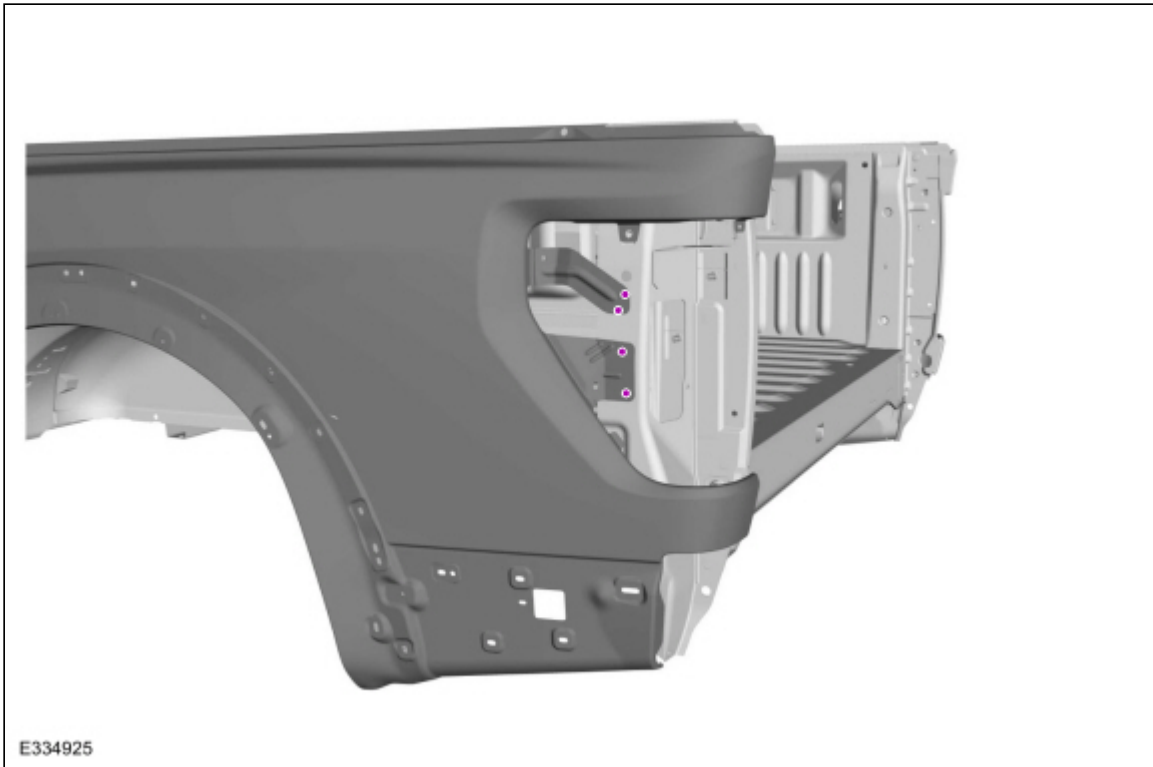
2. Remove the tailgate.
3. Remove the pickup bed.  
Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Description and Operation).
4. Remove the tail lamp assembly.  
Refer to: [Rear Lamp Assembly](#) (417-01 Exterior Lighting, Removal and Installation).
5. LH side only:  
Remove the fuel fill door and fuel fill cup.  
Refer to: [Fuel Filler Door Assembly](#) (501-03 Body Closures, Removal and Installation).  
Refer to: [Fuel Filler Door Assembly](#) (501-03 Body Closures, Removal and Installation).
6. If Equipped: Remove the top rail cover, wheel house opening and lower side trim.
7. Remove the screw.



8. Remove the fasteners.

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

Use the General Equipment: Belt Sander

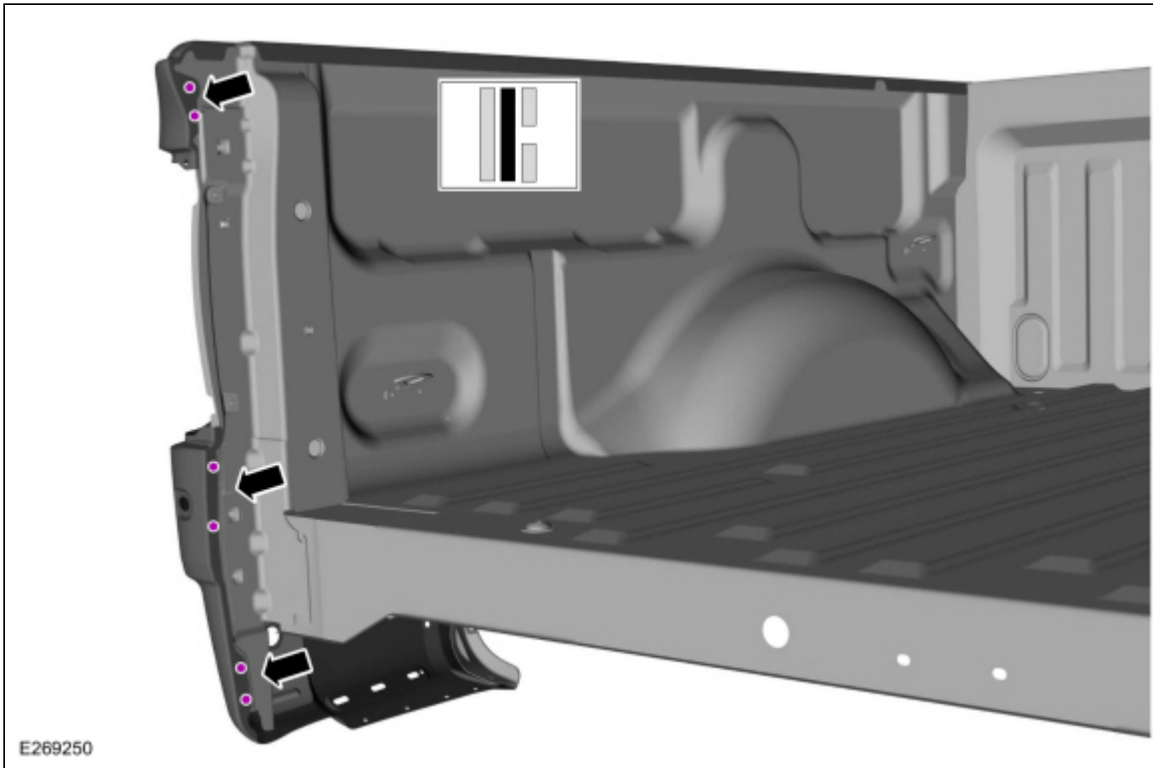


9. Remove the SPR fasteners.

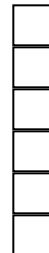
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer

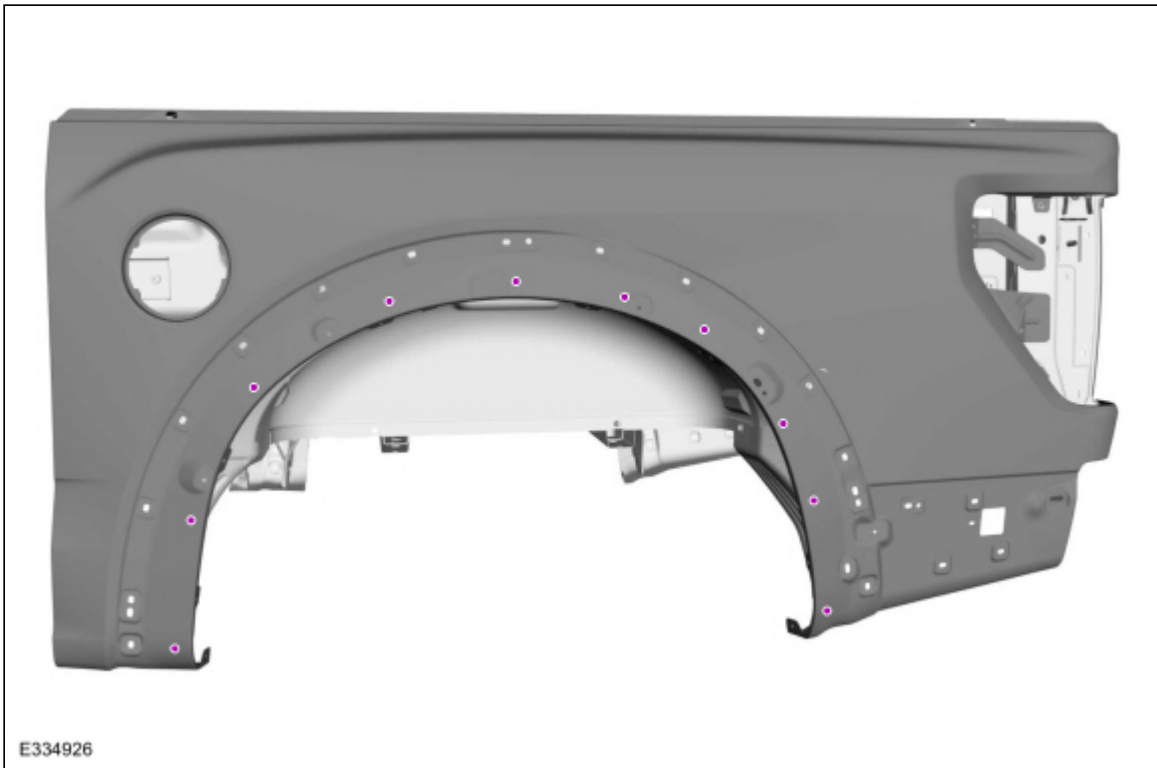
Use the General Equipment: Belt Sander



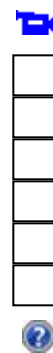


- 10. Remove the SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander





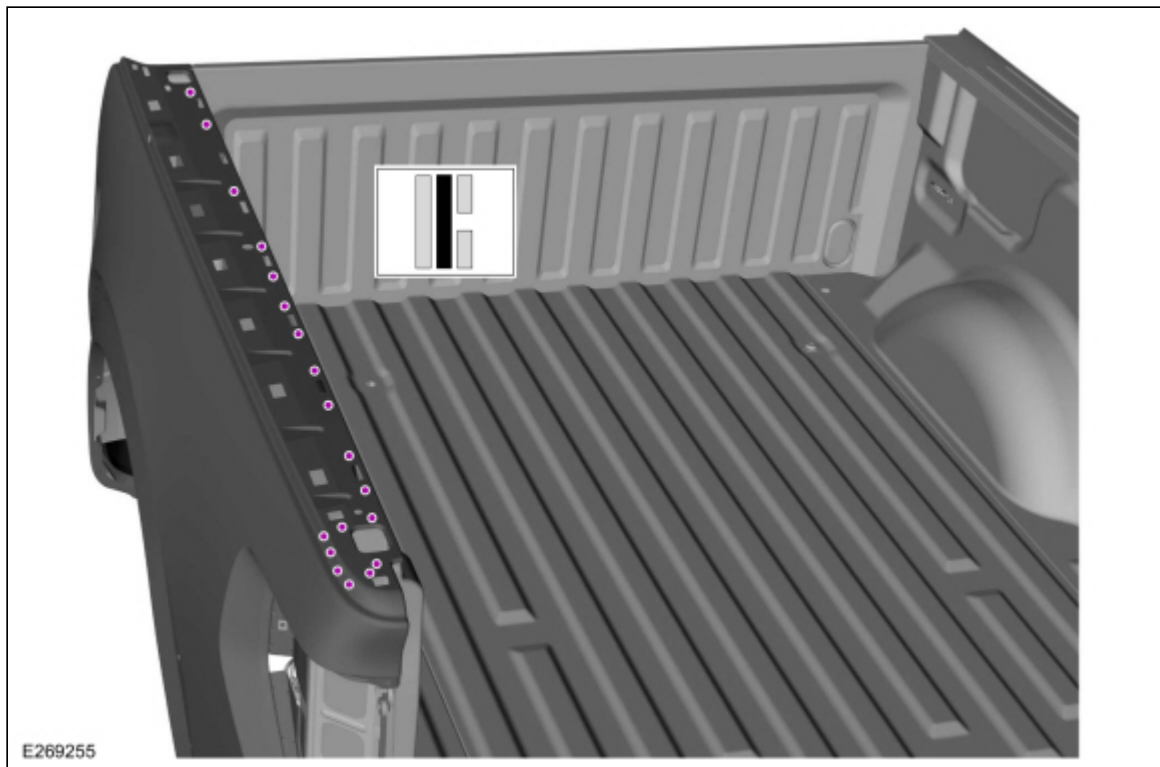
- 11. Remove the SPR fasteners.  
Use the General Equipment: Self-Piercing Rivet (SPR) Remover/Installer  
Use the General Equipment: Belt Sander





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



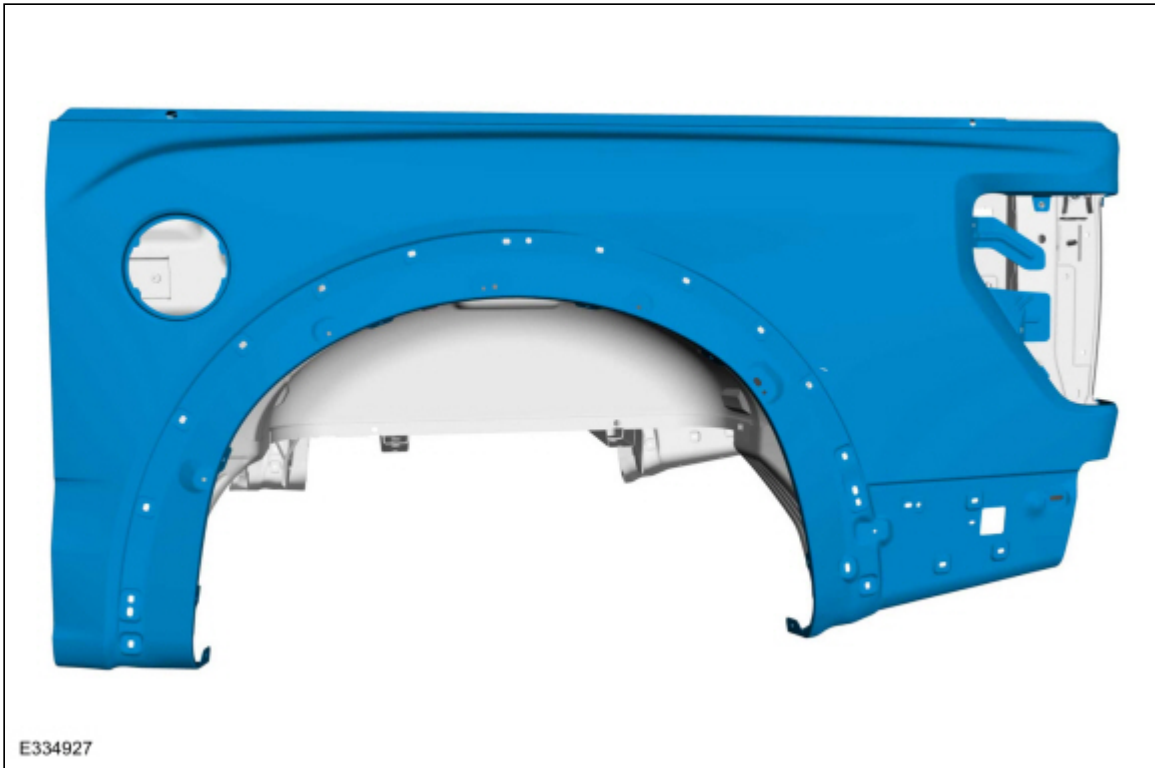


13. **NOTE:** Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers used in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many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

Break the adhesive bond and remove the pickup box outer side panel.  
Use the General Equipment: Hot Air Gun





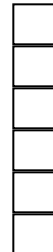
### Installation

**NOTE:** *LH side shown, RH side does not include fuel fill.*

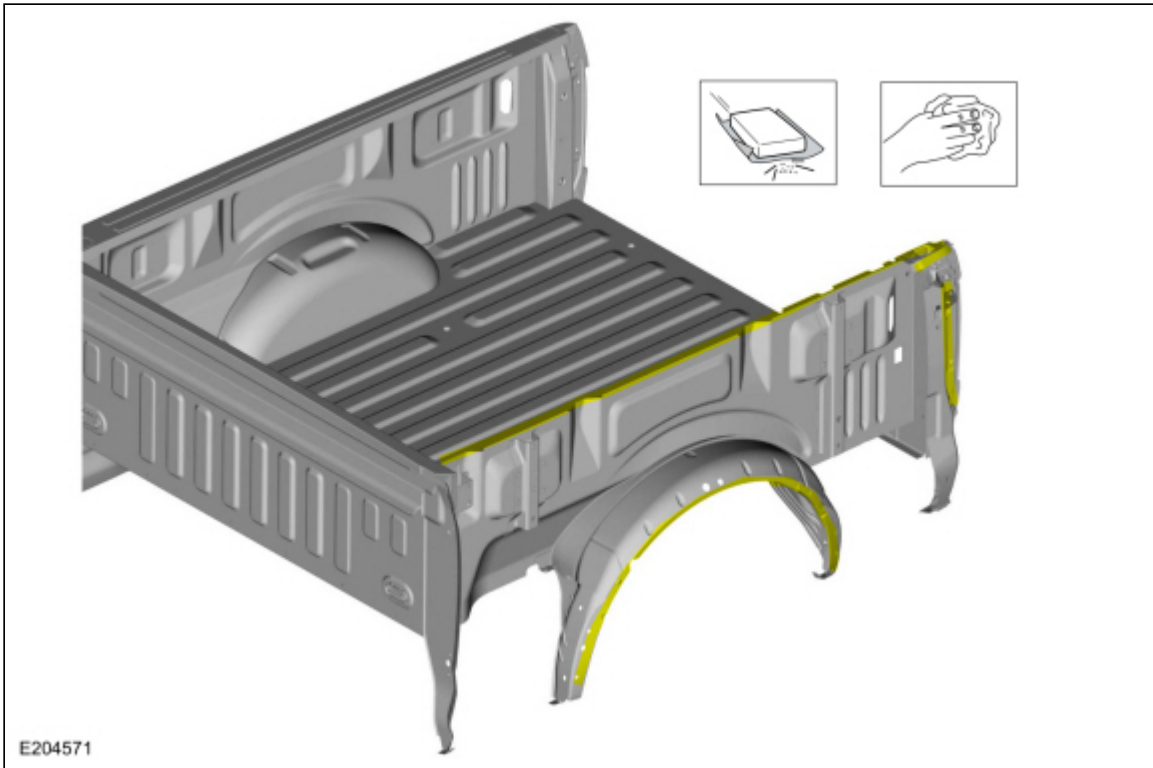
**NOTE:** *Blind rivets, solid rivet fasteners or aluminum MIG plug welds may be used in place of SPR fasteners after enlarging holes to 6.5 mm.*

### Rivet-Bonding

1. 80-120 grit sand paper.  
Sand to remove old adhesive and NVH sealer and clean.

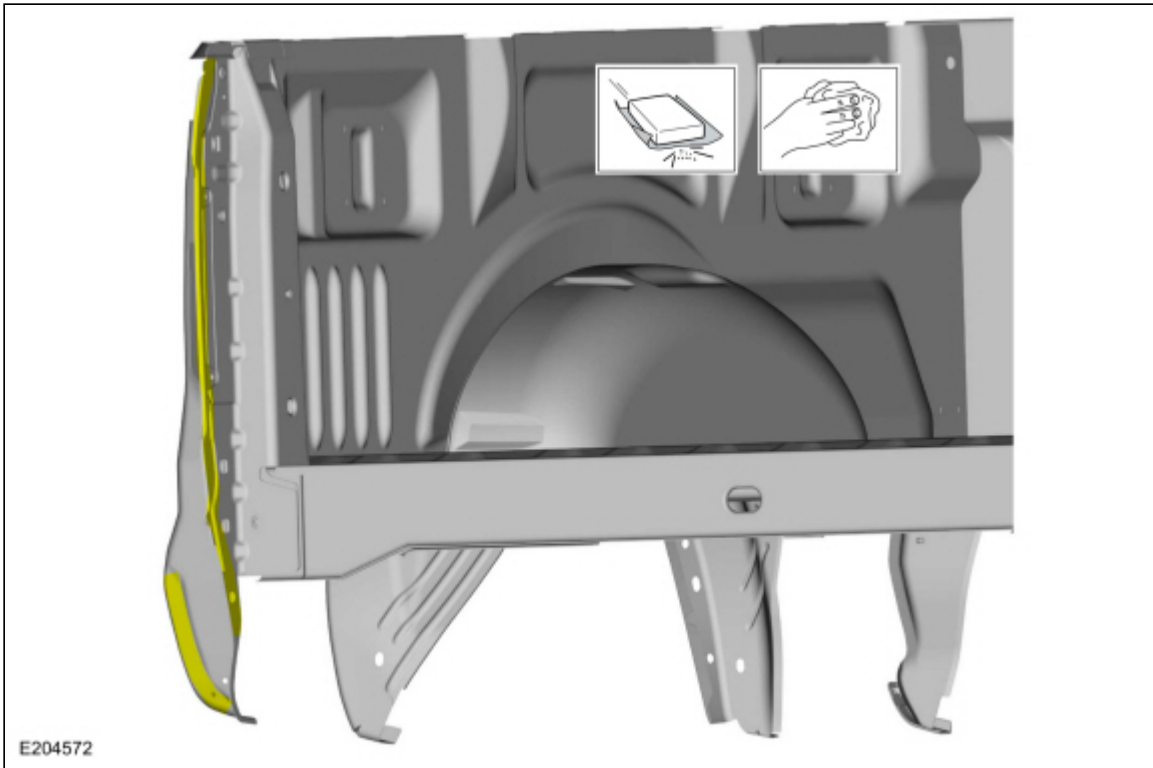






- 2. 80-120 grit sand paper.  
Sand to remove old adhesive and clean.

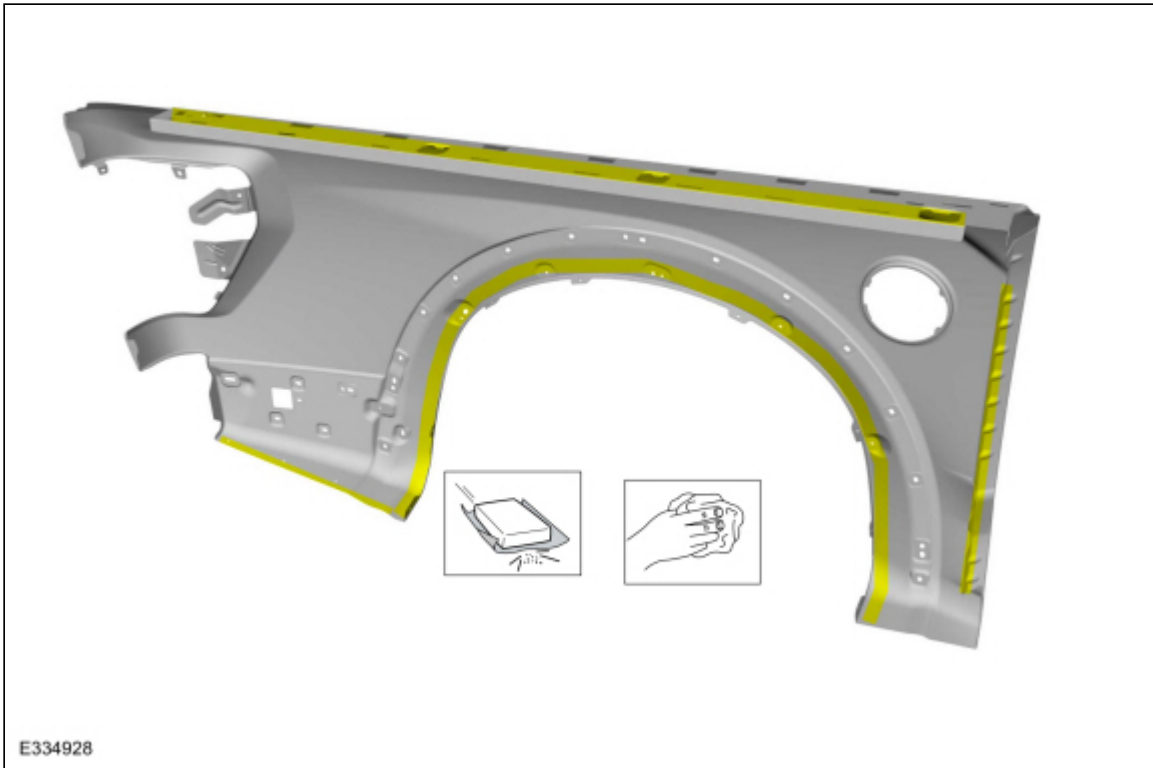




- 3. 80-120 grit sand paper.  
Sand to remove e-coat and clean.

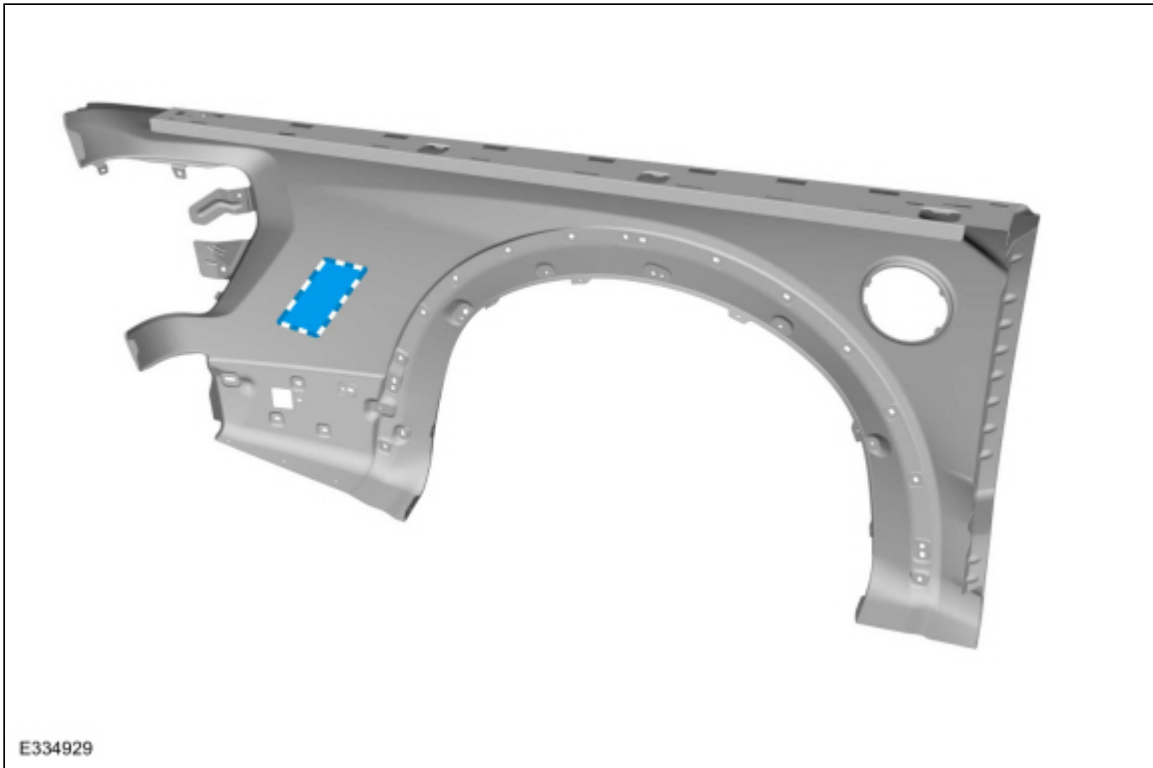




4. Install a locally obtained NVH pad.

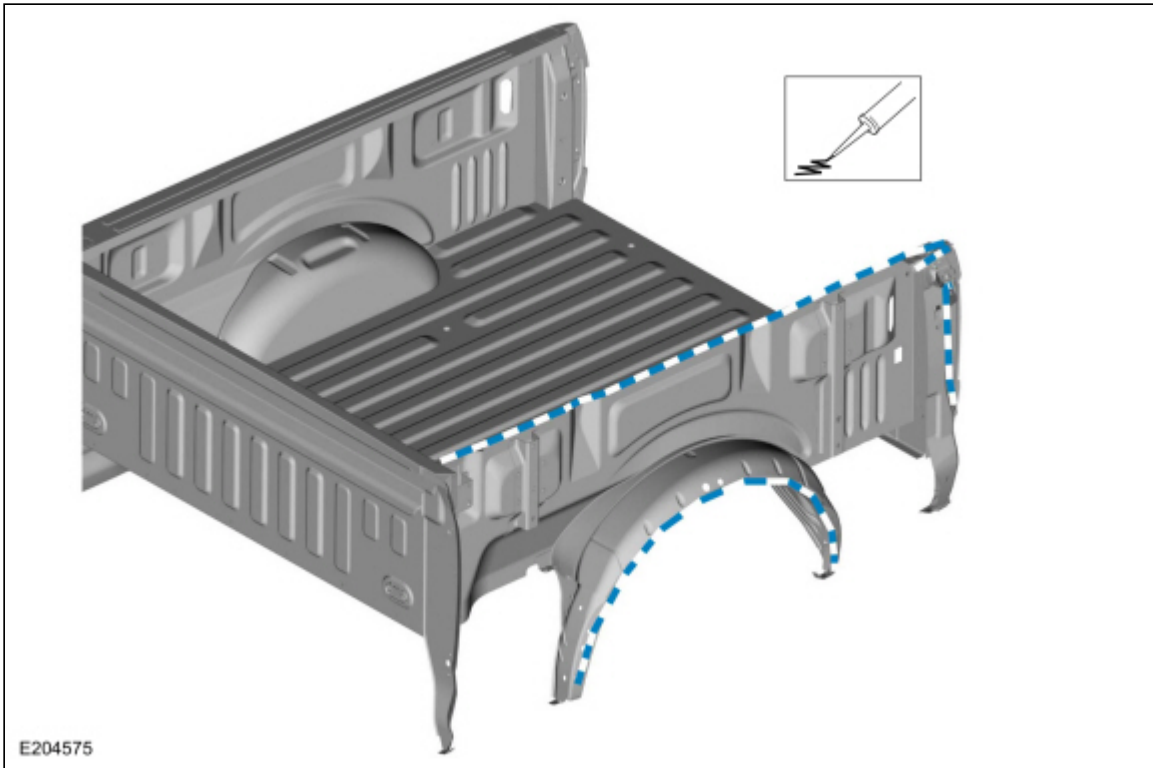




5. Apply adhesive.

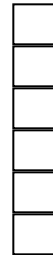
*Material:* Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B

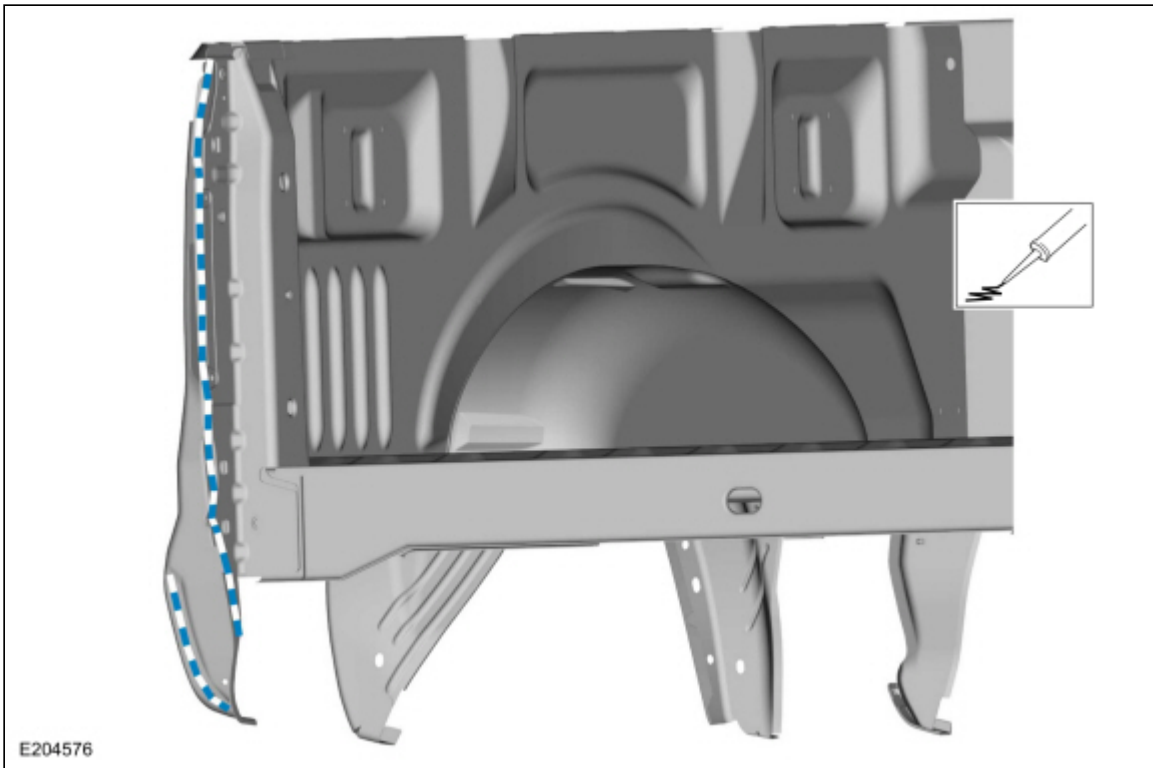




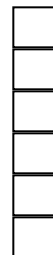
6. Apply adhesive.

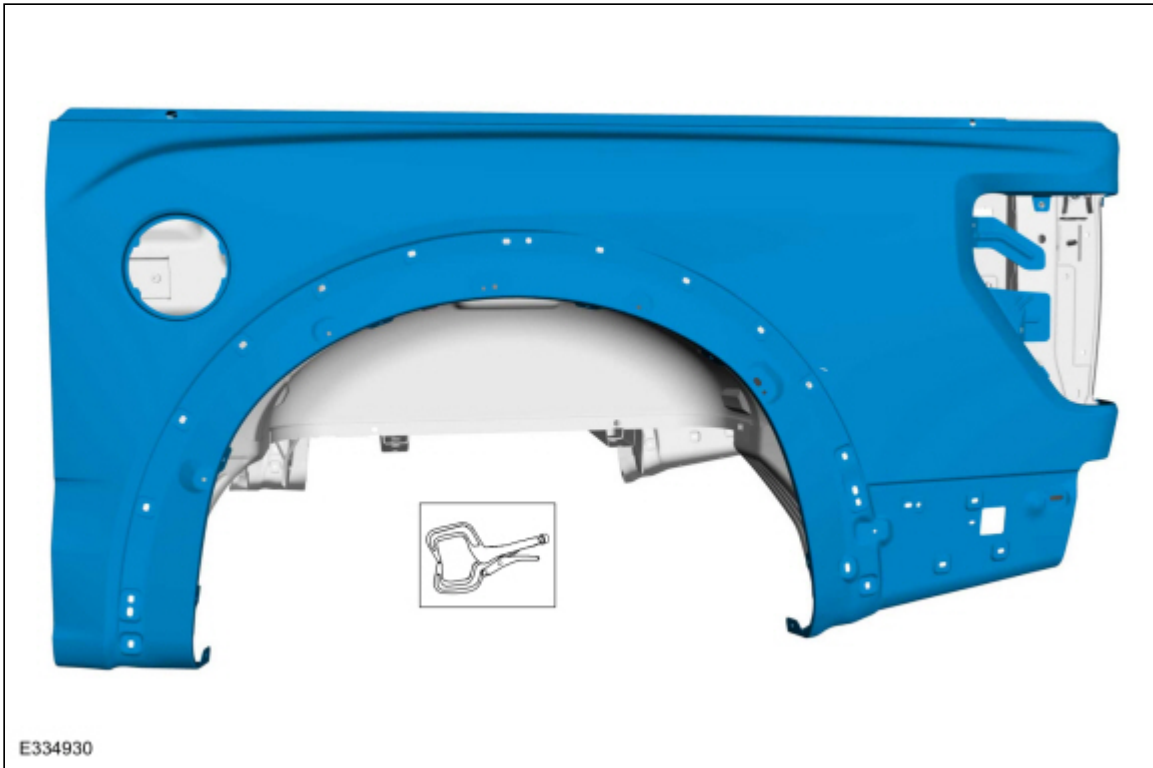
*Material:* Metal Bonding Adhesive / TA-1, TA-1-B, 3M™ 08115, LORD Fusor® 108B





7. Install the replacement pickup box outer side panel and clamp in position.  
Use the General Equipment: Locking Pliers

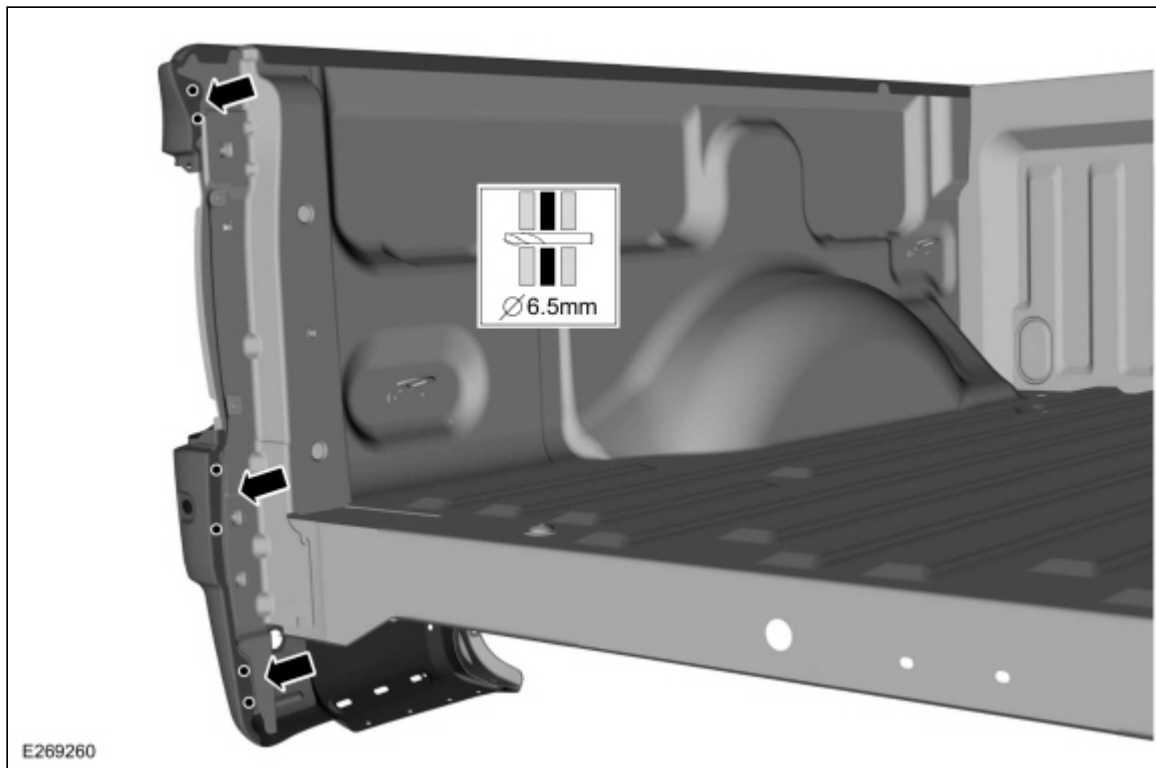




8. **NOTE:** *Blind rivets, solid rivet fasteners or aluminum MIG plug welds may be used in place of SPR fasteners after enlarging holes to 6.5 mm.*

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





9. **NOTE:** Blind rivets, solid rivet fasteners or aluminum MIG plug welds may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

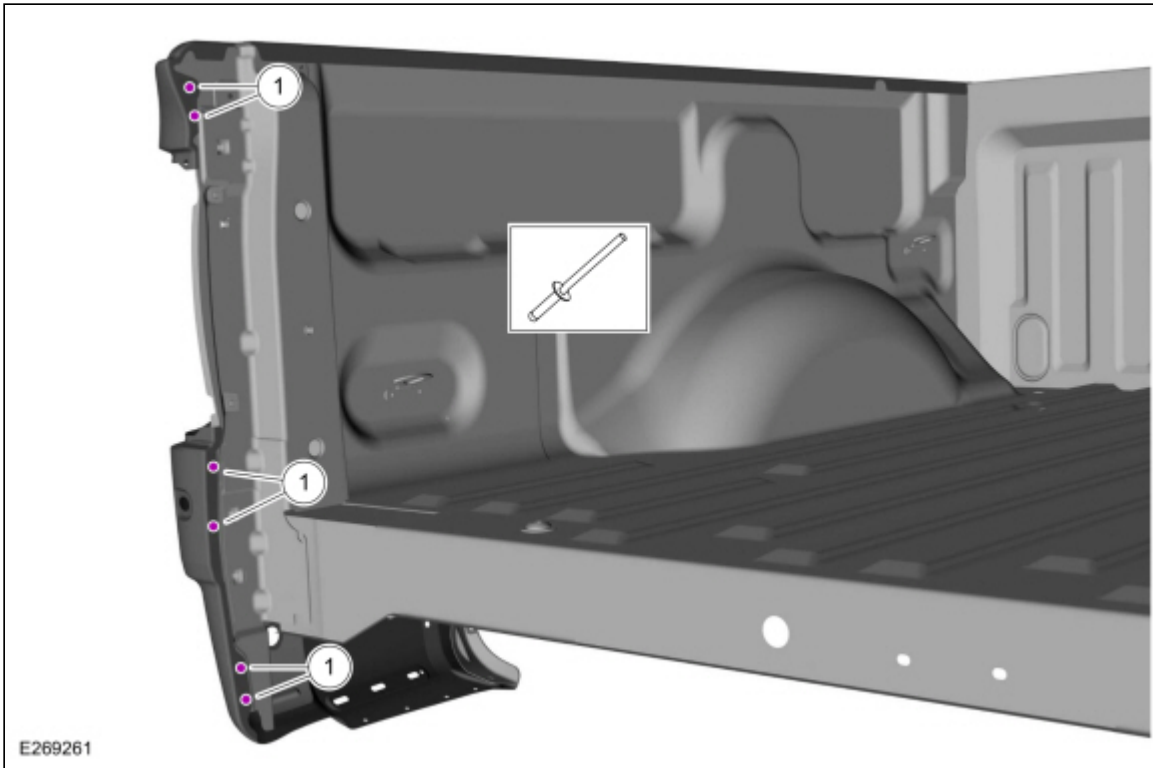
Install fasteners.

Item	SPR Number	SPR Code	Henrob®, Car-OLiner®, CMO®, Chief®, Spanesi®, Wielander and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W707638-S900C	-	-

Use the General Equipment: Blind Rivet Gun

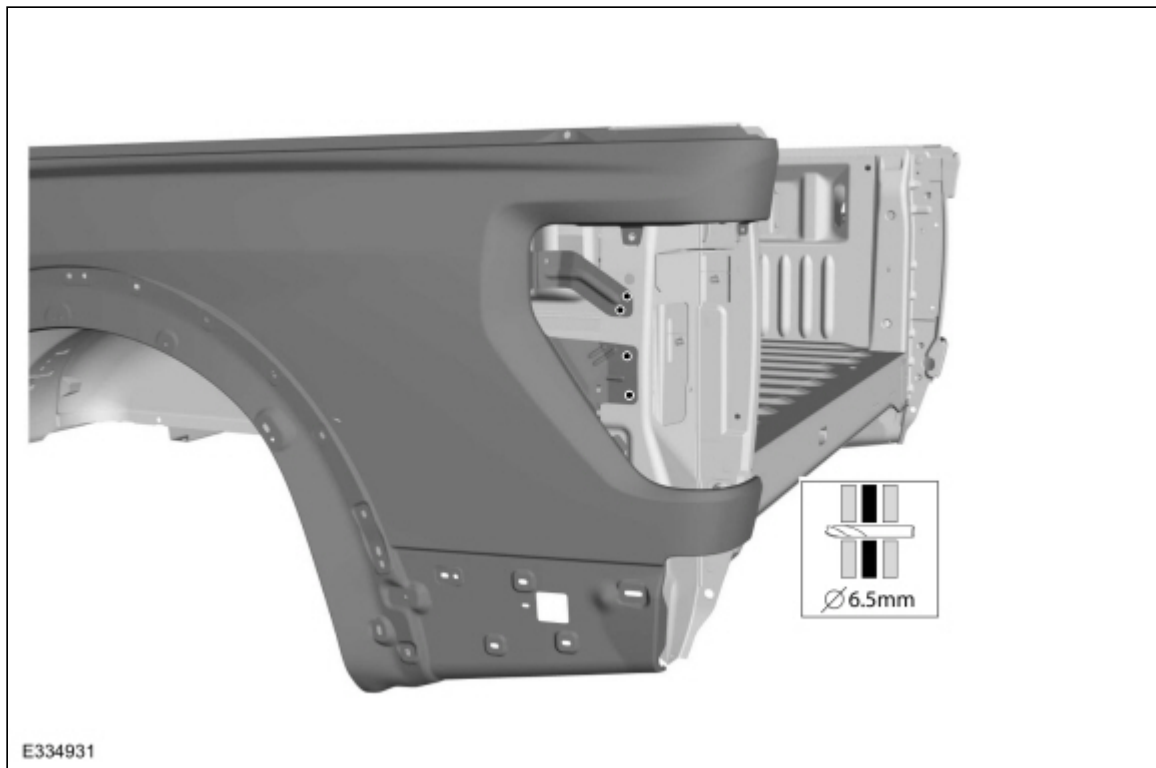






- 10. Drill for fastener installation.  
Use the General Equipment: 6.5 mm Drill Bit





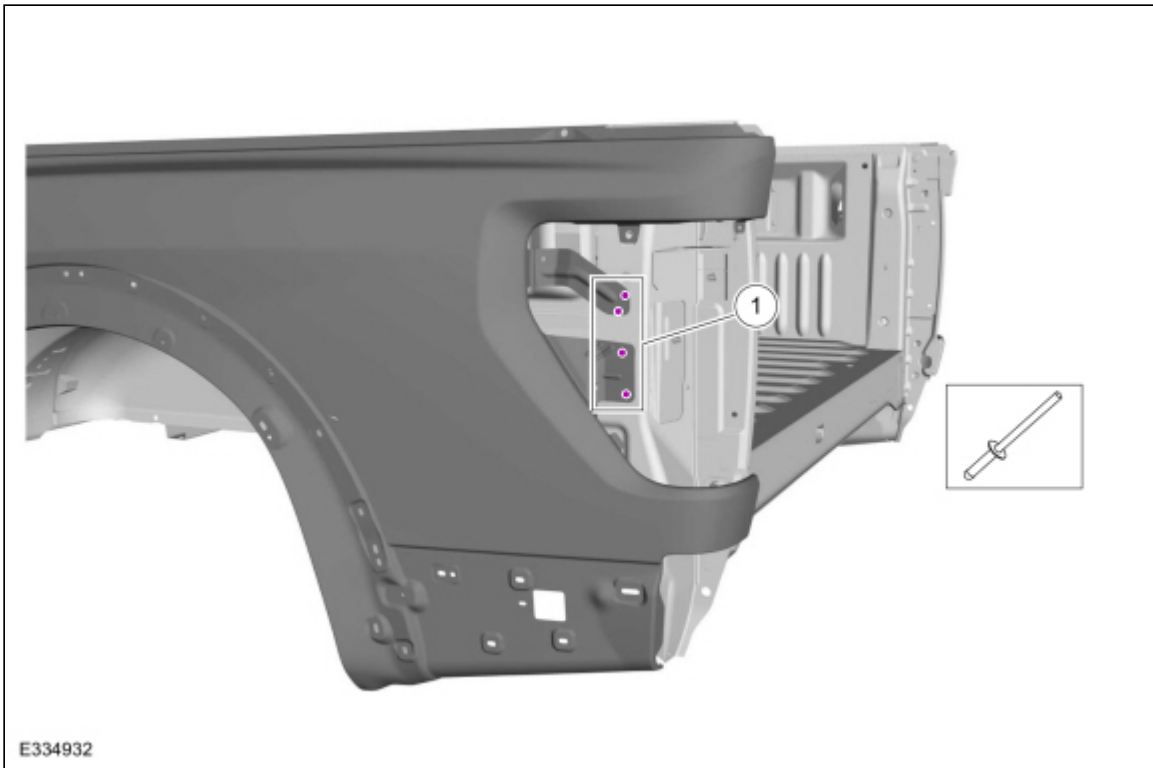
11. **NOTE:** Blind rivets, solid rivet fasteners or aluminum MIG plug welds may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

Item	SPR Number	SPR Code	Henrob®, Car-OLiner®, CMO®, Chief®, Spanesi®, Wielander and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W707637-S900C	-	-

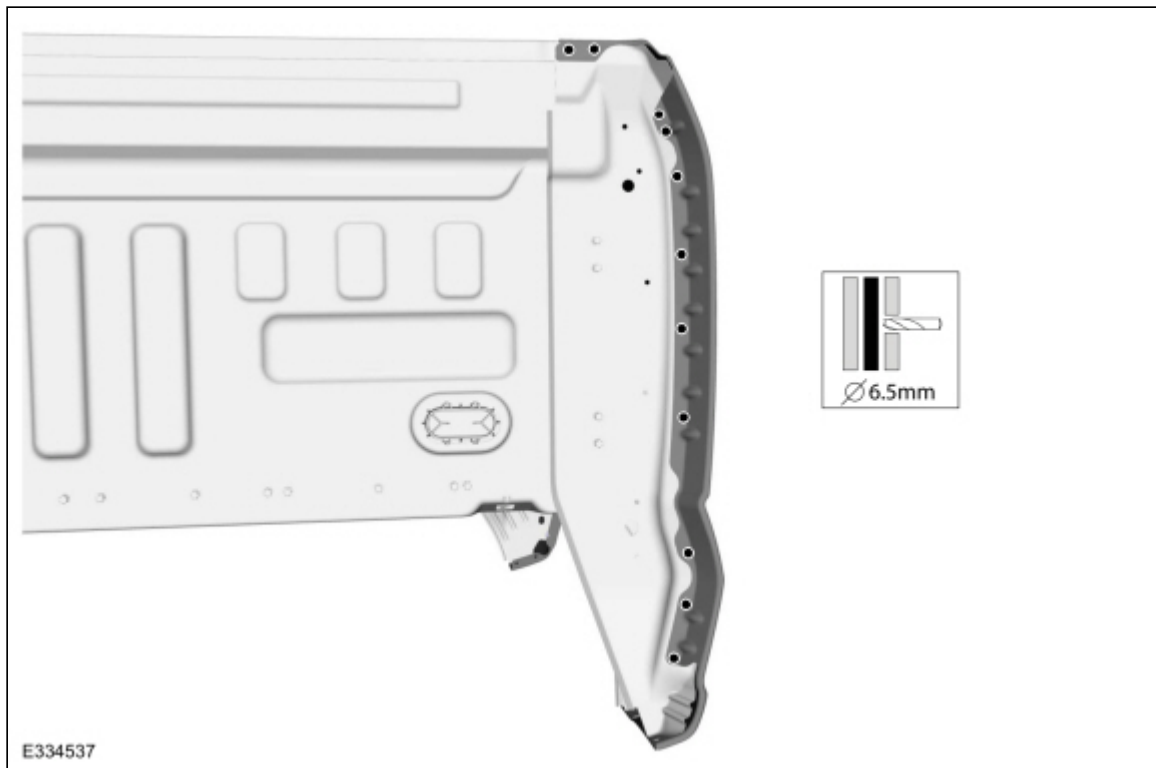
Use the General Equipment: Blind Rivet Gun





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





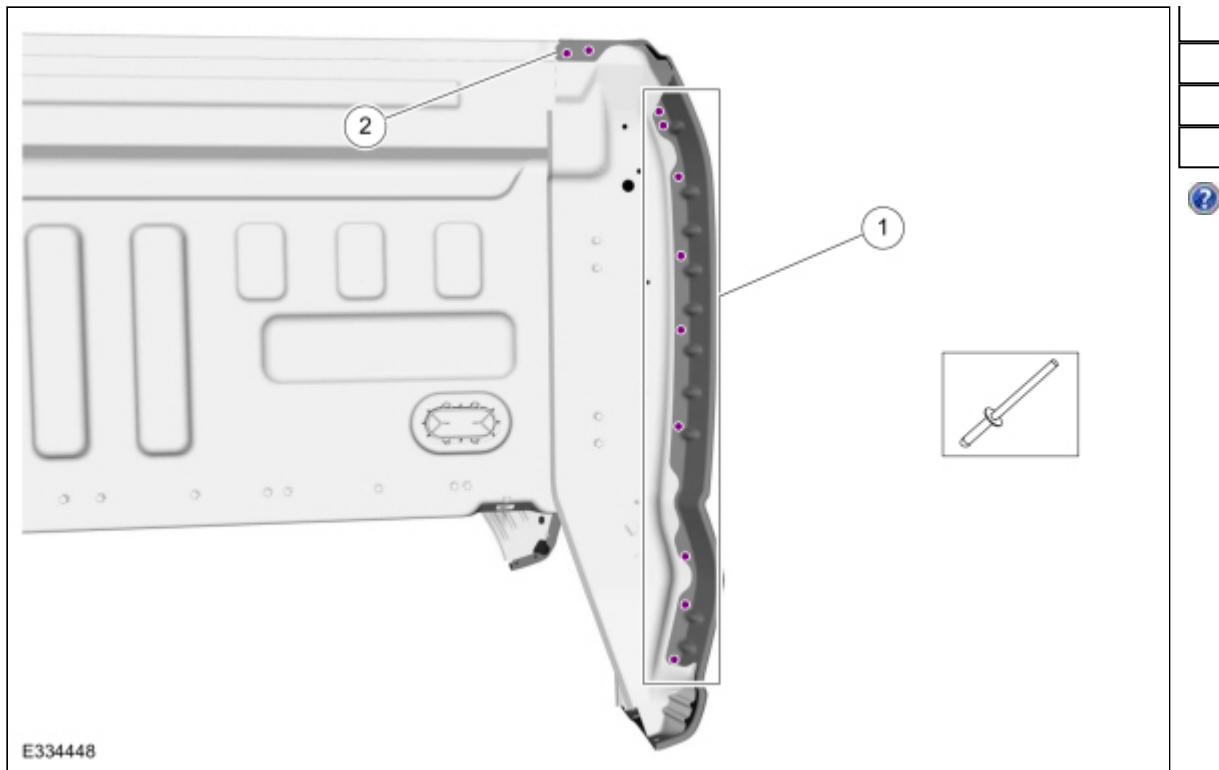
13. **NOTE:** Blind rivets, solid rivet fasteners or aluminum MIG plug welds may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

Item	SPR Number	SPR Code	Henrob®, Car-OLiner®, CMO®, Chief®, Spanesi®, Wielander and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W707638-S900C	-	-
2	-	-	-	-	W702512-S900C	-	-

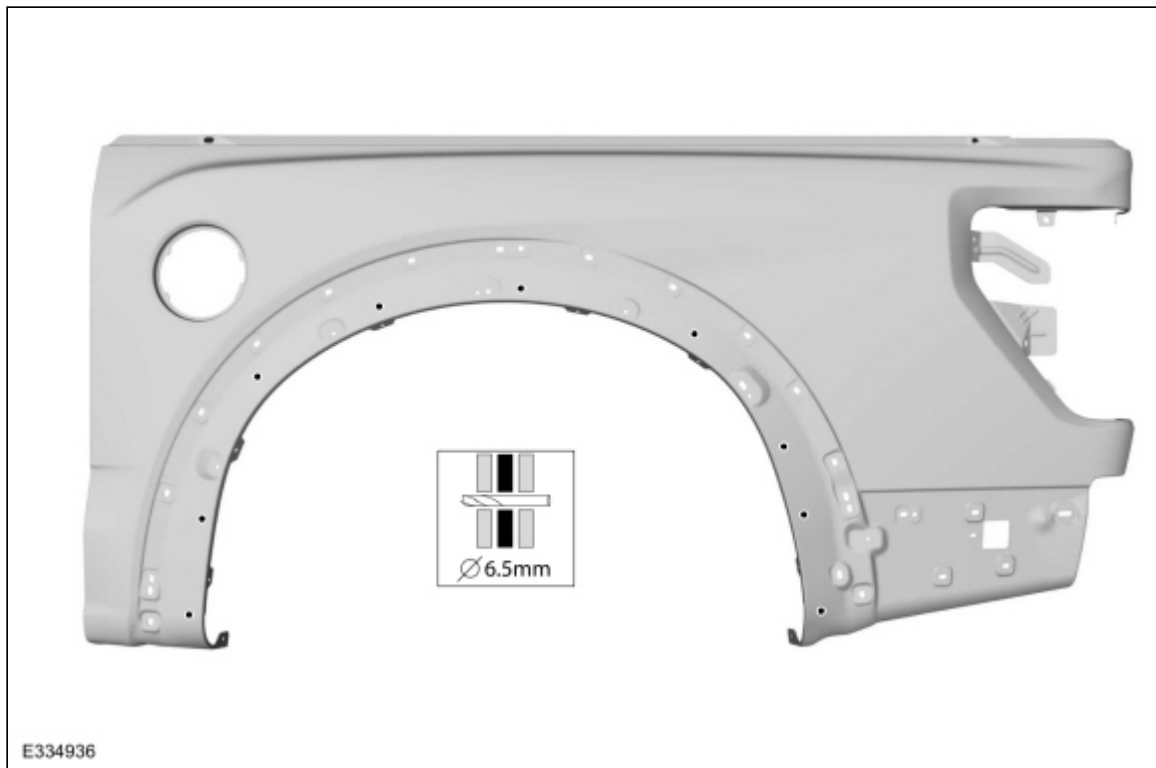
Use the General Equipment: Blind Rivet Gun





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





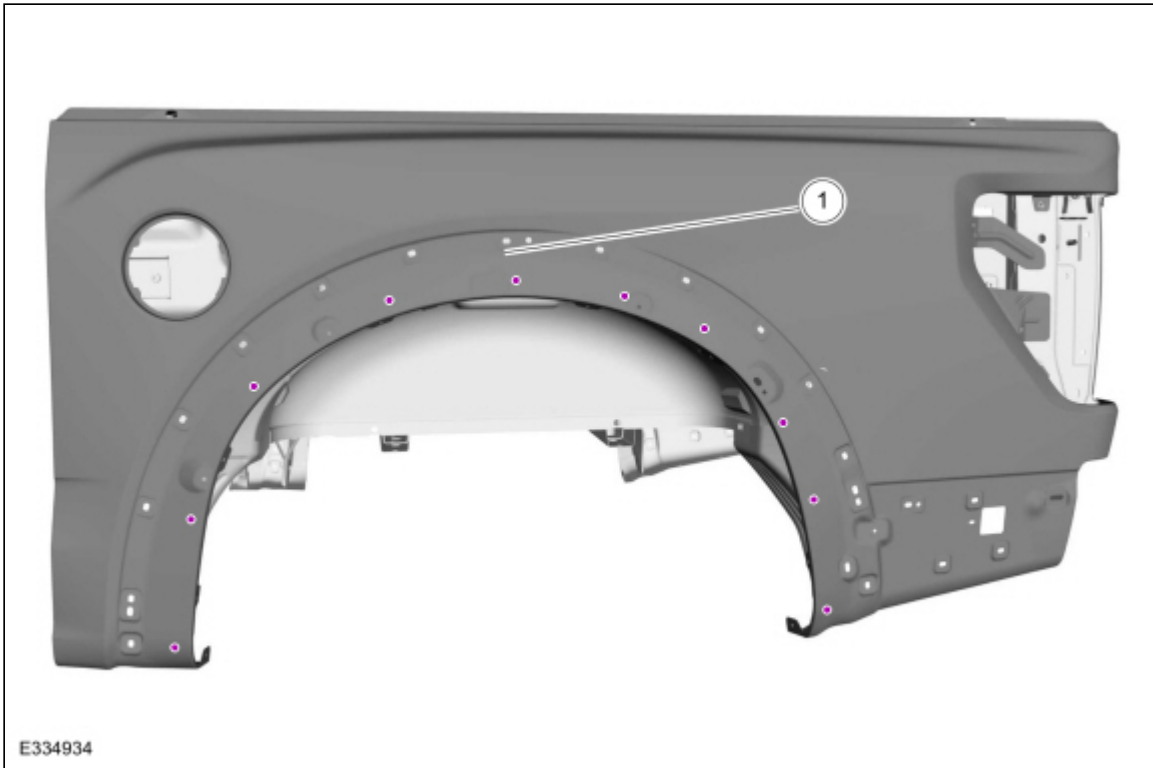
15. **NOTE:** Blind rivet, solid rivet fasteners or aluminum MIG plug welds may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

Item	SPR Number	SPR Code	Henrob®, Car-OLiner®, CMO®, Chief®, Spanesi®, Wielander and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W707638-S900C	-	-

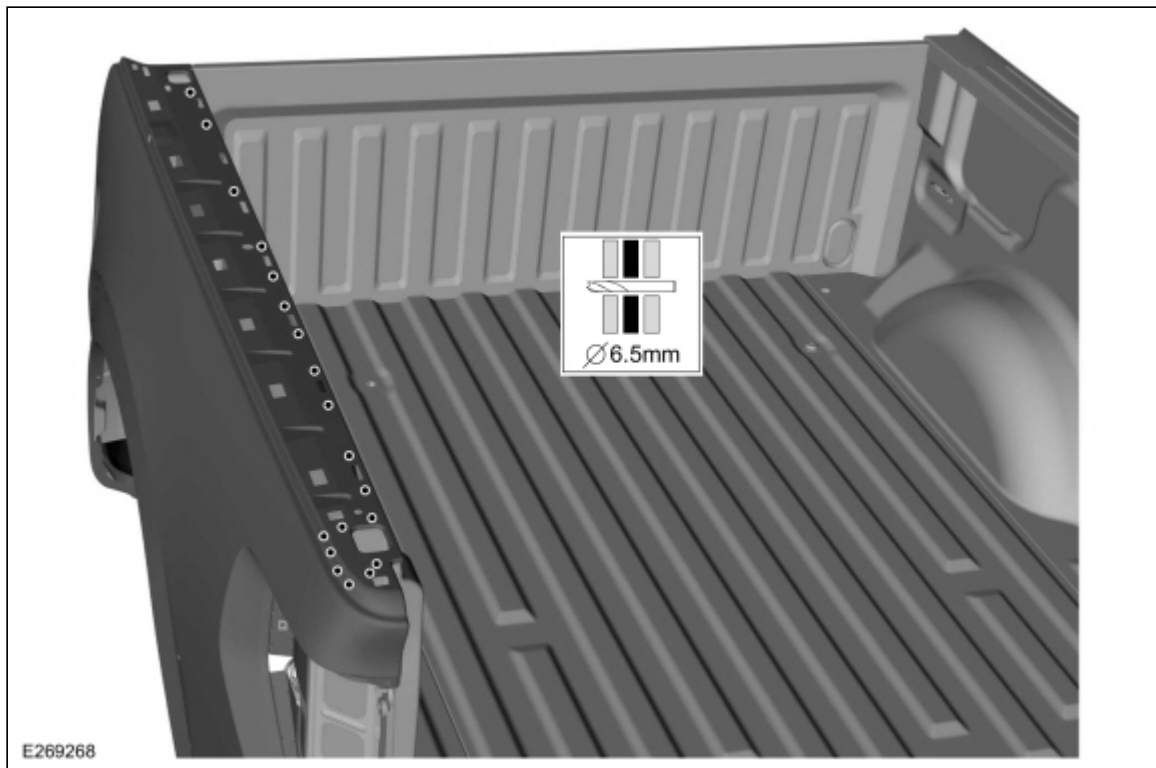
Use the General Equipment: Blind Rivet Gun





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





17. **NOTE:** Blind rivets, solid rivet fasteners or aluminum MIG plug welds may be used in place of SPR fasteners after enlarging holes to 6.5 mm.

Install fasteners.

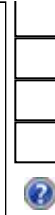
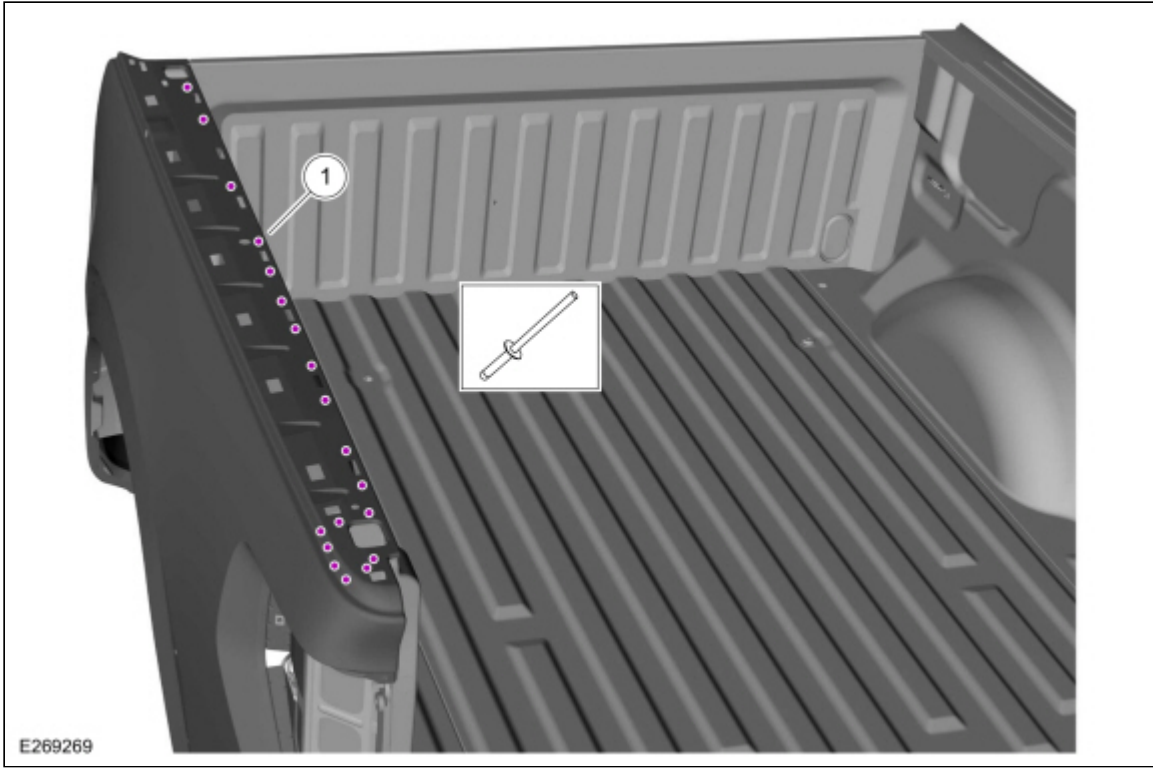
Item	SPR Number	SPR Code	Henrob®, Car-OLiner®, CMO®, Chief®, Spanesi®, Wielander and Schill® Mandrel	Pro-Spot® Mandrel	Blind Rivet	Solid Rivet	Rivnut®
1	-	-	-	-	W707638-S900C	-	-

Use the General Equipment: Blind Rivet Gun

18.



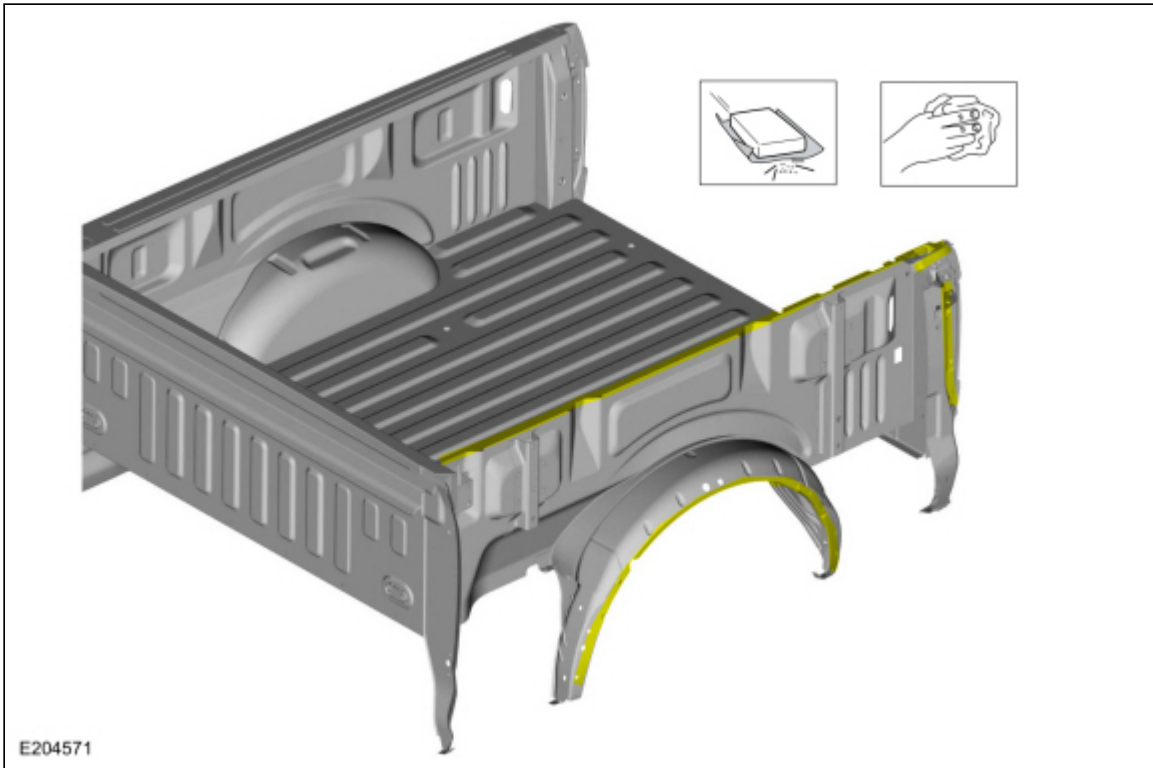




**Plug-Welds**

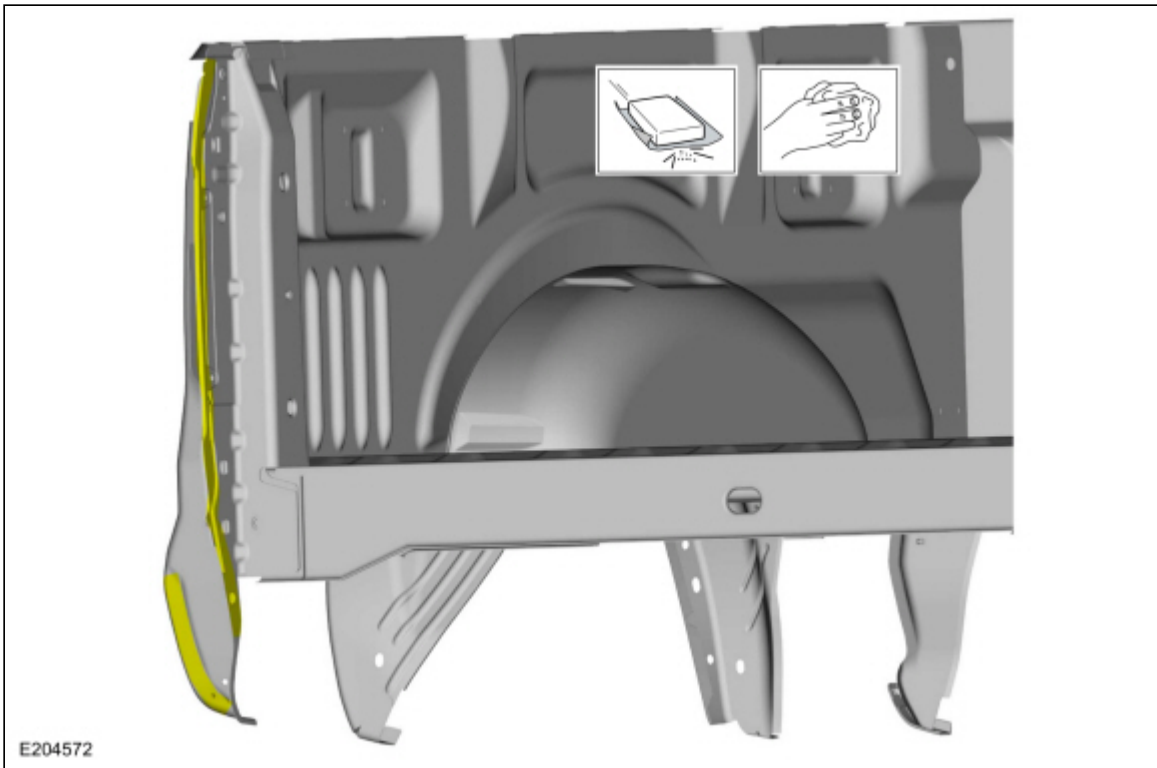
19. Sand to remove old adhesive and NVH sealer and clean.



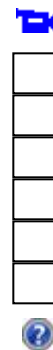


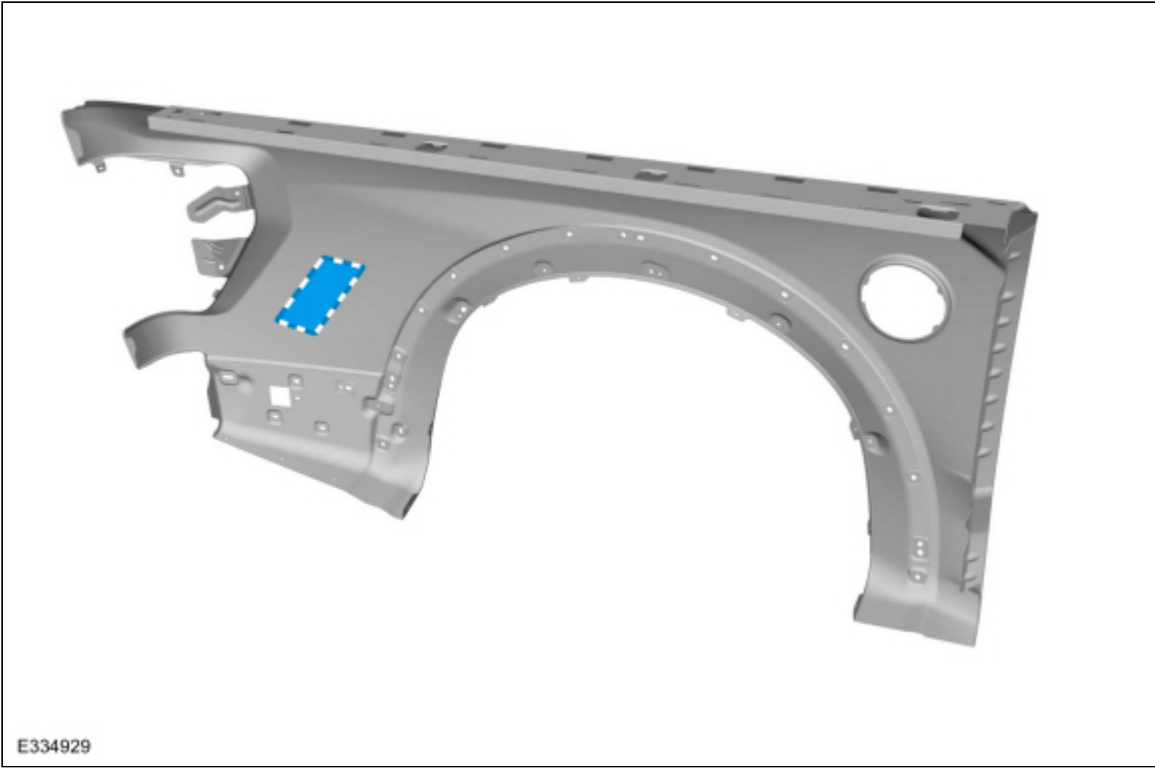
20. Sand to remove old adhesive and clean.





21. Install a locally obtained NVH pad as noted during removal.





22. Drill for plug welds.  
Use the General Equipment: 6.5 mm Drill Bit

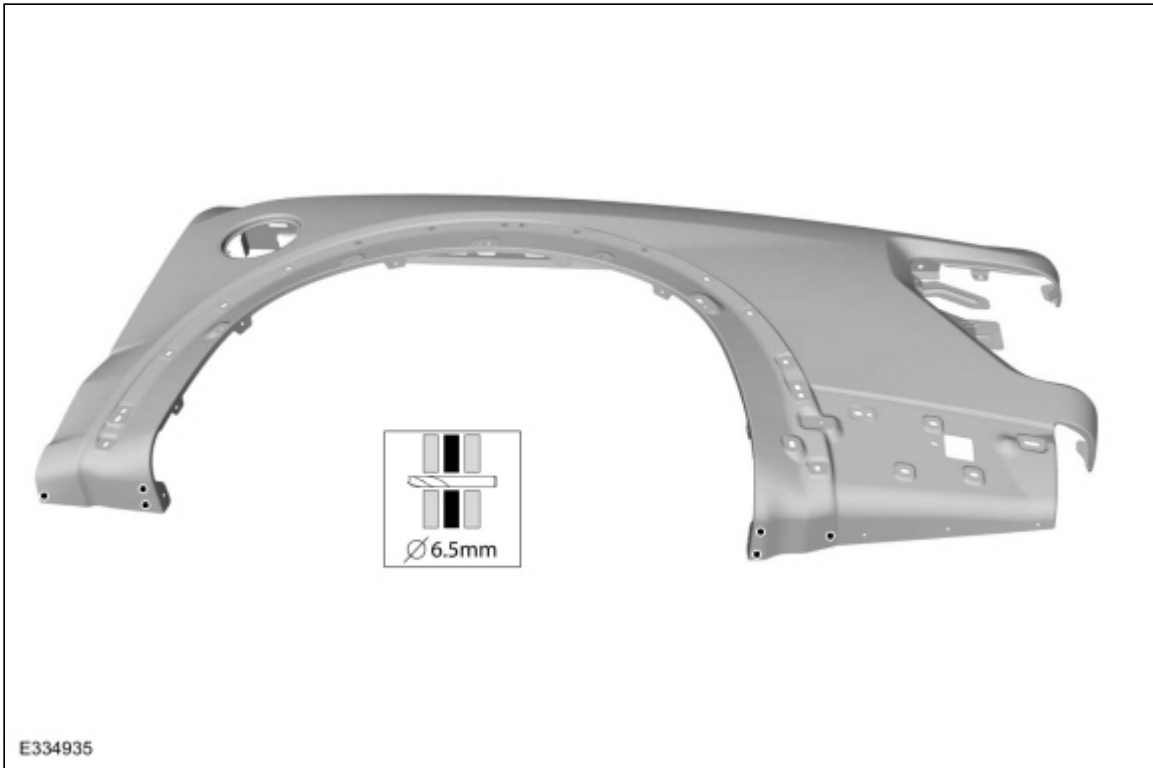


- 23. Drill for plug welds.  
Use the General Equipment: 6.5 mm Drill Bit



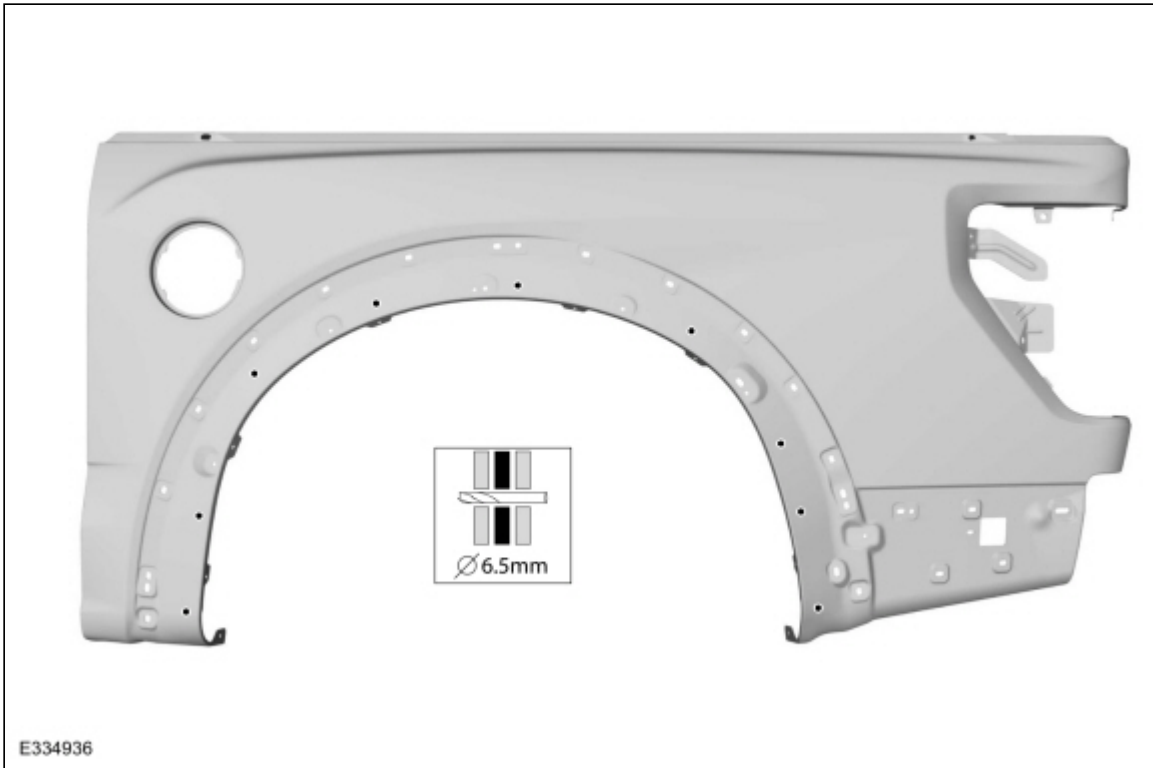
- 24. Drill for plug welds.  
Use the General Equipment: 6.5 mm Drill Bit





25. Drill for plug welds.  
Use the General Equipment: 6.5 mm Drill Bit





26. Drill for plug welds.  
Use the General Equipment: 6.5 mm Drill Bit

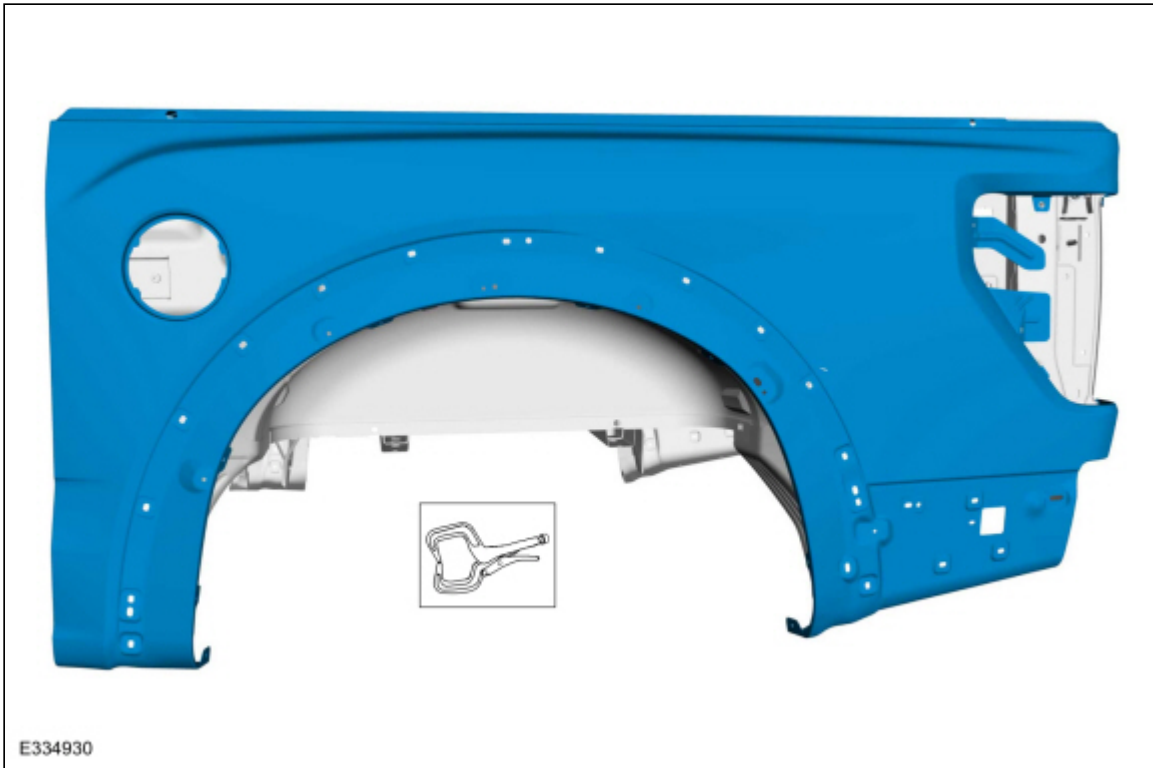




27. Install the replacement pickup box outer panel and clamp in position.  
Use the General Equipment: Locking Pliers



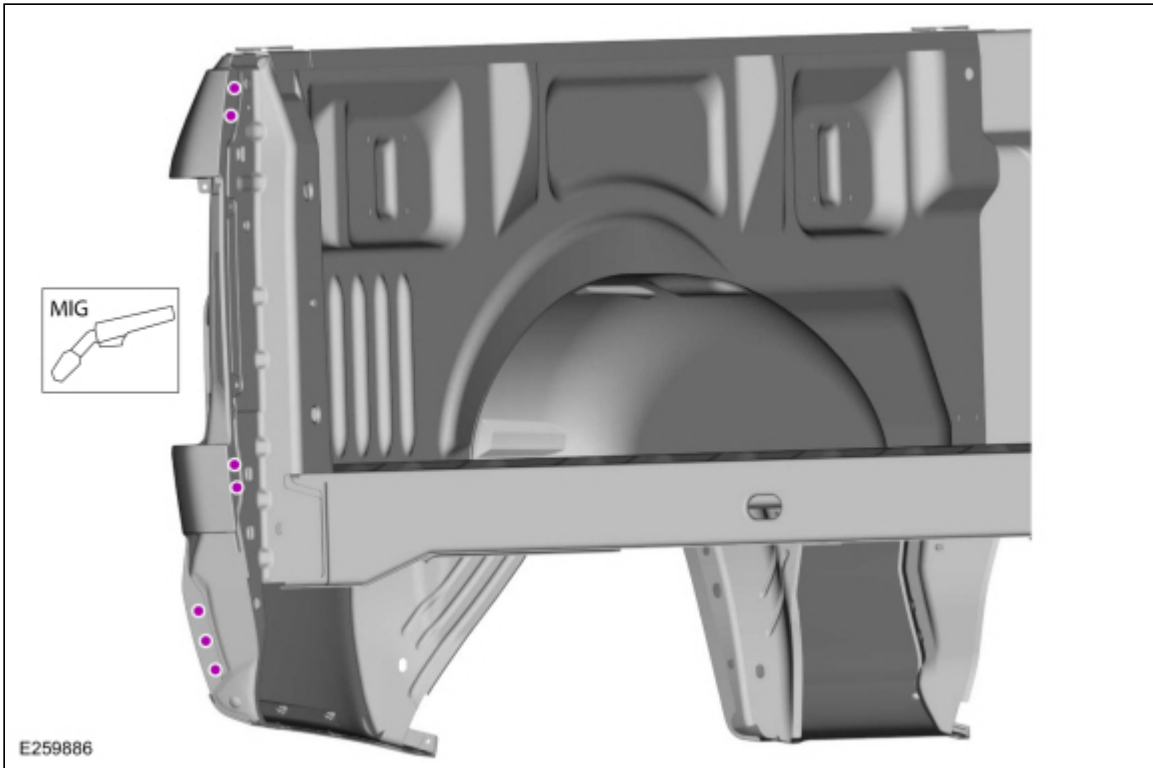




28. Install aluminum MIG plug welds.  
Use the General Equipment: MIG/MAG Welding Equipment

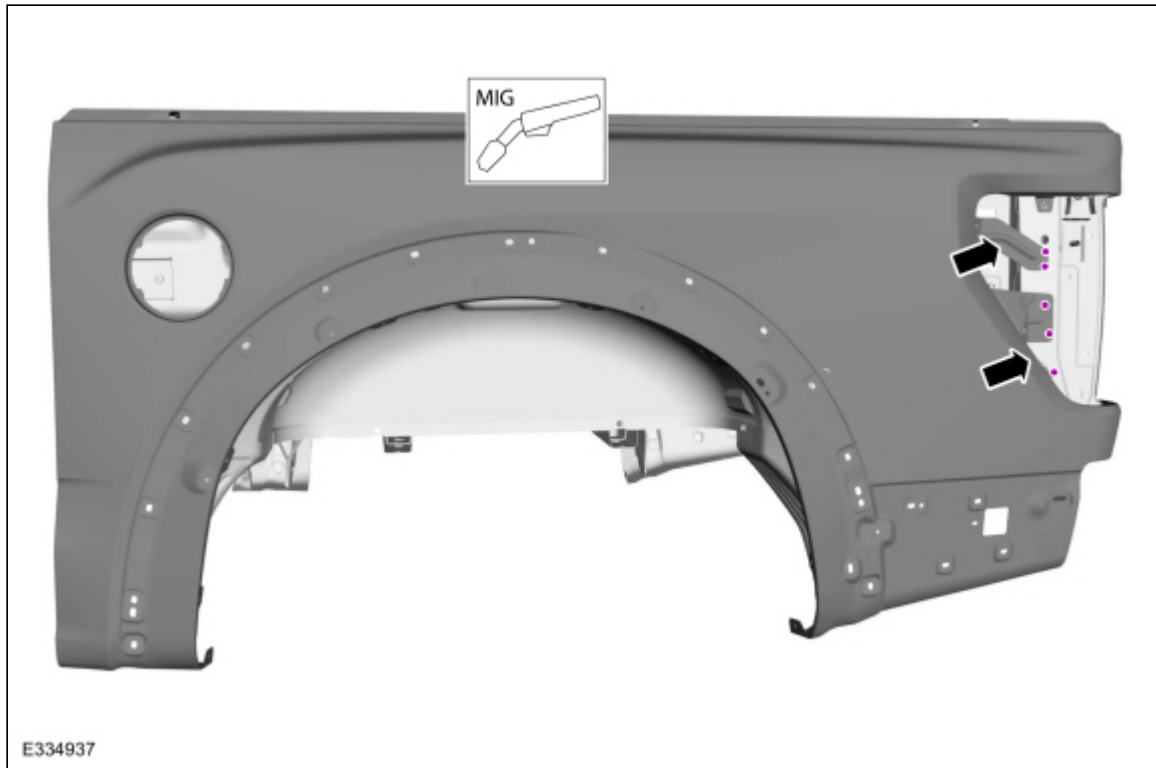




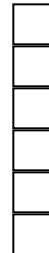



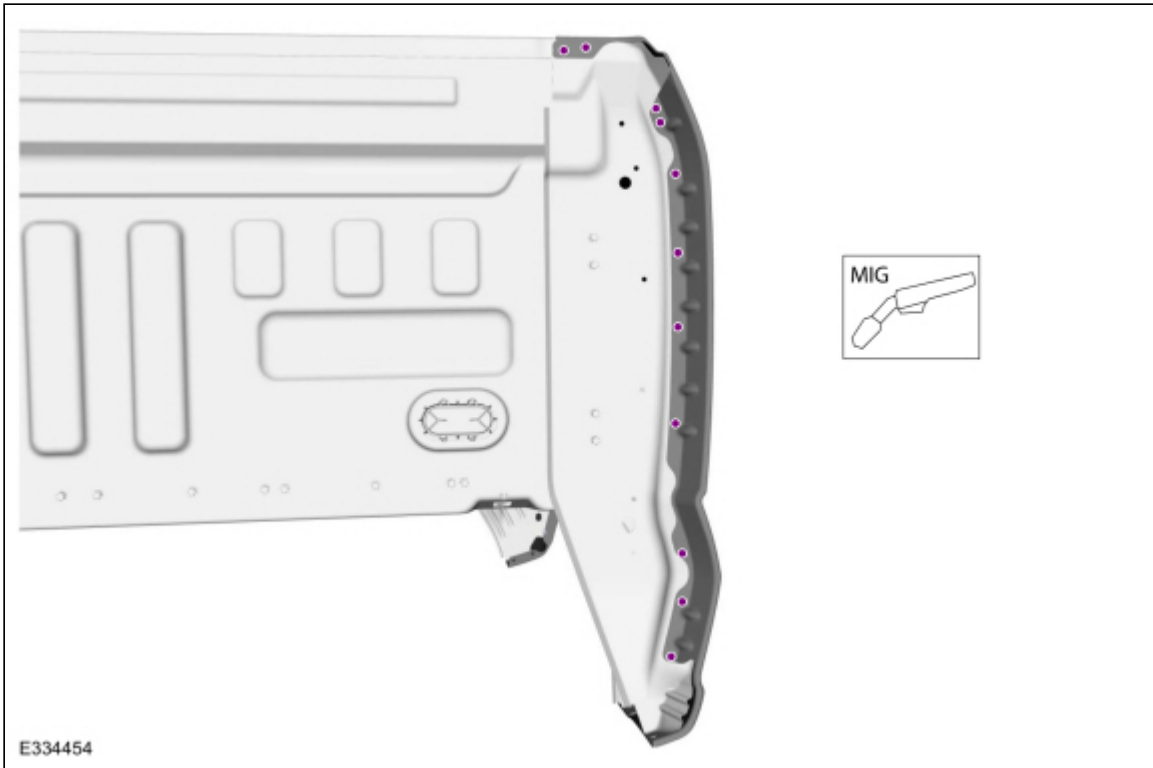
29. Install aluminum MIG plug welds.  
Use the General Equipment: MIG/MAG Welding Equipment





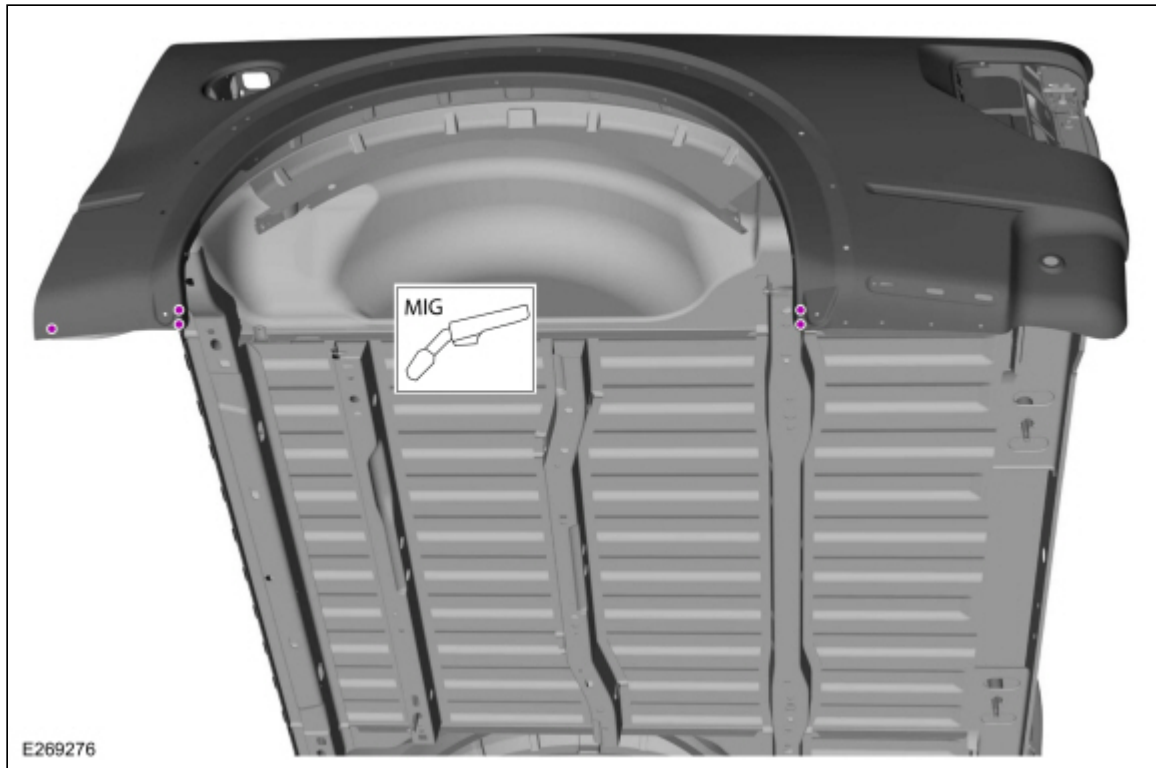
30. Install aluminum MIG plug welds.  
Use the General Equipment: MIG/MAG Welding Equipment





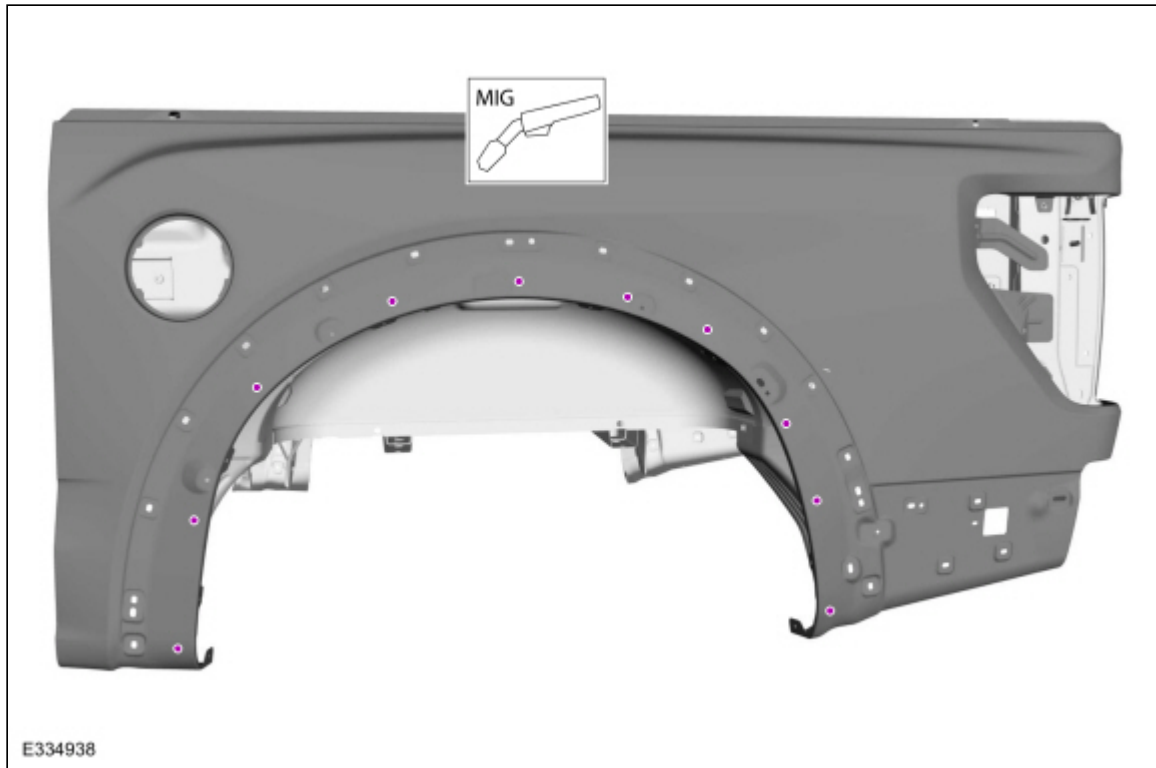
- 31. Install aluminum MIG plug welds.  
Use the General Equipment: MIG/MAG Welding Equipment





- 32. Install aluminum MIG plug welds.  
Use the General Equipment: MIG/MAG Welding Equipment

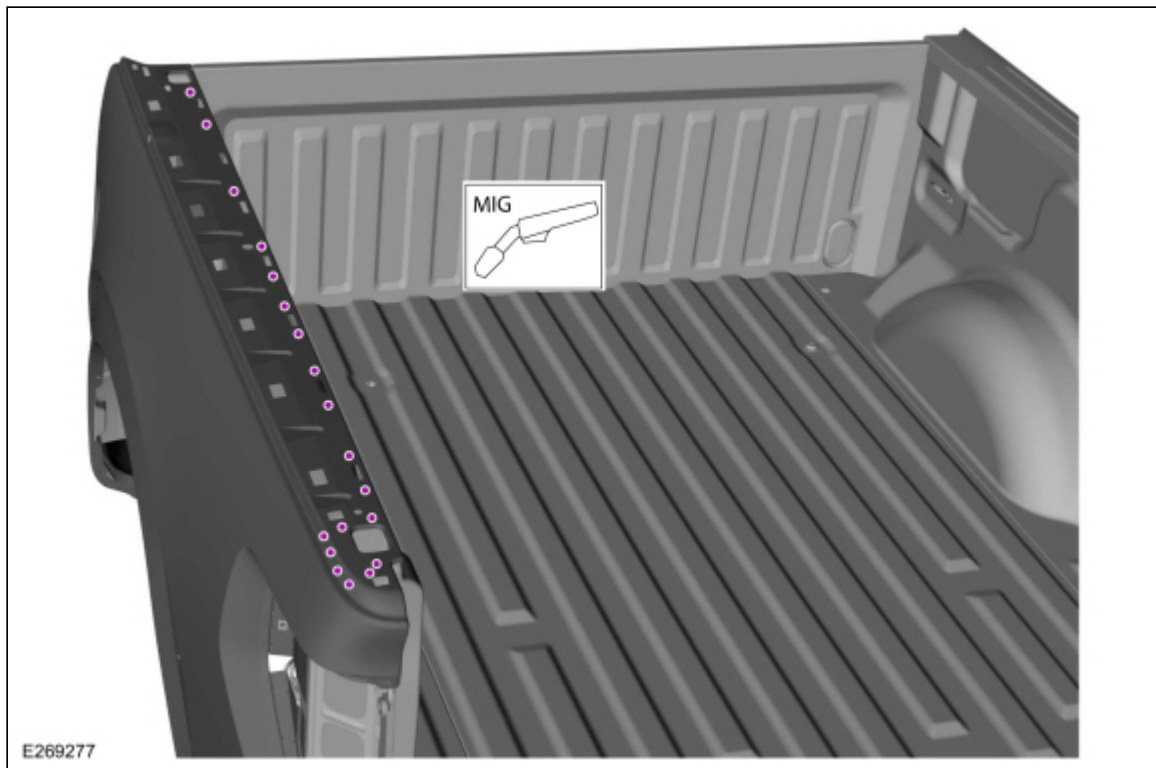




- 33. Install aluminum MIG plug welds.  
Use the General Equipment: MIG/MAG Welding Equipment





34. Metal Finishing:

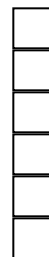
Metal finish as necessary using typical techniques and materials.

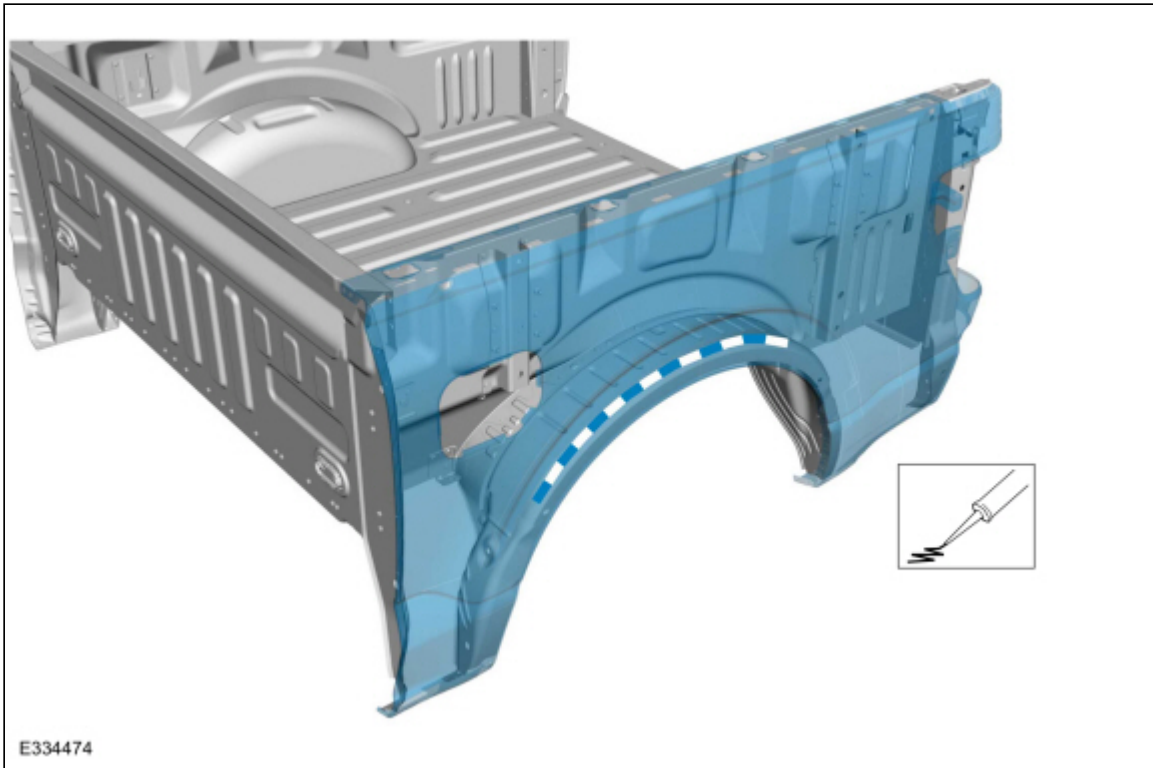
Refer to: [Special Repair Considerations for Aluminum Repairs](#) (501-25 Body Repairs - General Information, Description and Operation).

**All vehicles**

35. Apply NVH foam in locations noted during removal.

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

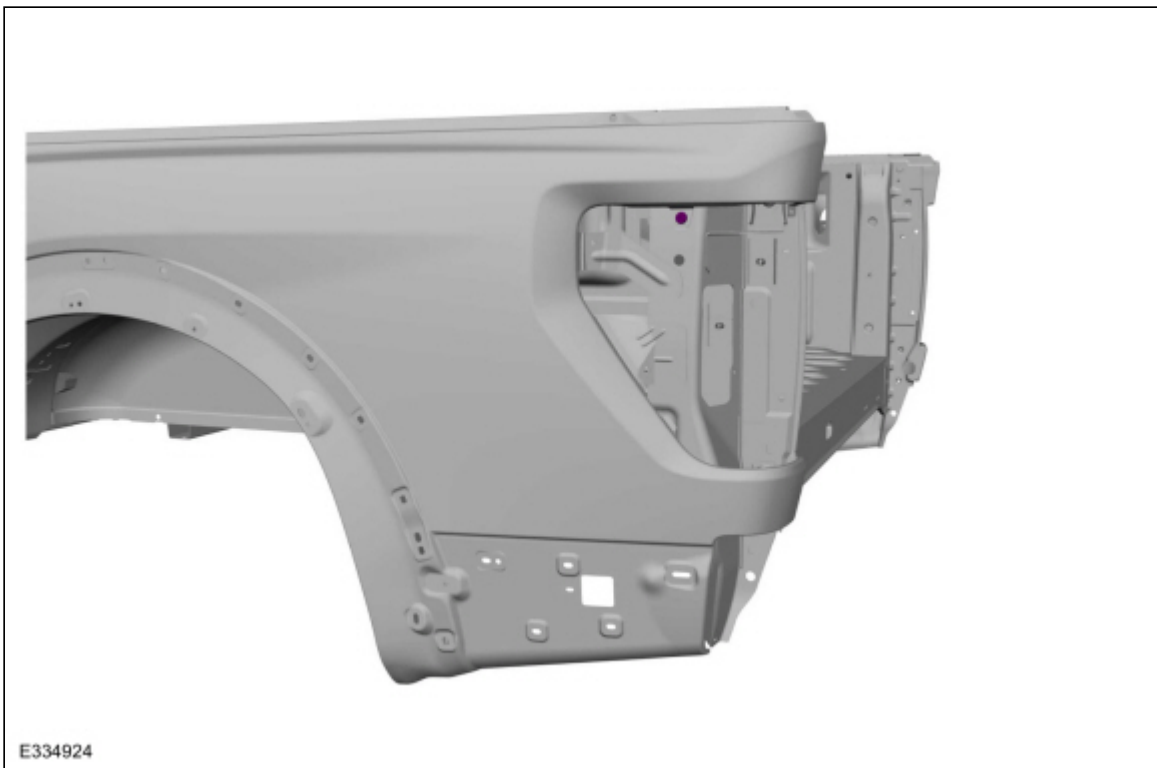




36. Install the screw  
*Torque: 177 lb.in (20 Nm)*







37. Seam Sealing: All seams must be sealed to production level.  
*Material:* Seam Sealer / TA-2-B, 3M™ 08308, LORD Fusor® 803DTM
38. Refinish the entire repair using a Ford approved paint system and typical refinishing techniques.
39. Install the pickup bed.  
Refer to: [Pickup Bed](#) (501-04 Pickup Bed and Platform Body, Removal and Installation).
40. LH side only:  
Install the fuel fill door and fuel fill cup.  
Refer to: [Fuel Filler Door](#) (501-03 Body Closures, Removal and Installation).  
Refer to: [Fuel Filler Door](#) (501-03 Body Closures, Removal and Installation).
41. Install the tail lamp assembly.  
Refer to: [Rear Lamp Assembly](#) (417-01 Exterior Lighting, Removal and Installation).
42. **If Equipped:** Install the top rail cover, wheel house opening and lower side trim.
43. Install the tailgate.

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