

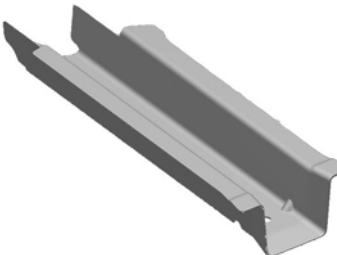


Rear Frame Rail



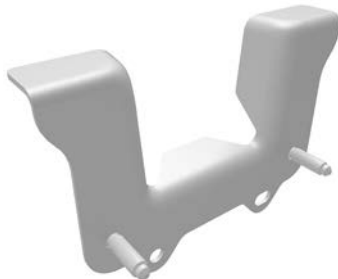


Parts List

Quantity	Part Number	Description	Image / Notes
1	1101749-S0-A (LH) 1101750-S0-A (RH)	Rear Rail Upper Assembly	
1	1127904-S0-A (LH) 1127905-S0-A (RH)	Rear Rail Lower Reinforcement	
1	1127902-S0-A (LH) 1127903-S0-A (RH)	Rear Rail Lower Assembly	



Parts List

Quantity	Part Number	Description	Image / Notes
1	1101809-S0-A	Rear Rail Lower Glove	 This component fits both left-hand and right-hand rails.
1	1083562-S0-A	Rear Rail to Bumper Plate Bracket	 This bracket fits both left-hand and right-hand rails.
12 rivets needed; order 20 rivets	1062559-00-A	● Structural Rivet, 6.5 mm Medium	All rivets come in packages of 10; order all rivets in multiples of 10.
34 rivets needed; order 40 rivets	1454538-00-A	● High Strength Structural Rivet, 6.5 mm	All rivets come in packages of 10; order all rivets in multiples of 10.
29 rivets needed; order 30 rivets	1063943-00-A	● Structural Bulb Rivet, 6.5 mm	All rivets come in packages of 10; order all rivets in multiples of 10.
8	1008770-00-A	■ Bolt, hex-head, M6 1.0x12	Rear Rail Lower Reinforcement to Rear Node Inner Reinforcement



Parts List

Quantity	Part Number	Description	Image / Notes
8	1016227-00-A	 Nut, M6 1.0x14	Rear Rail Lower Reinforcement to Rear Node Inner Reinforcement
3	1063260-00-C	 Bolt, hex-head, M8 1.25x23.5	Rear Node to Rear Rail Upper Assembly
1	—	Structural Adhesive	 WARNING: Use only Tesla-approved structural adhesive; refer to BR-15-92-008 , "Approved Structural Adhesive and Urethane Sealants" for a list of current approved structural adhesives. Refer to BR-17-92-002 , "Obtaining Adhesives, Coolant, and Other Chemicals" for information on how to obtain approved structural adhesive.

These part numbers were current at the time of publication. Use the revisions listed or later, unless otherwise specified in the [Parts Manual](#).



Repair Information

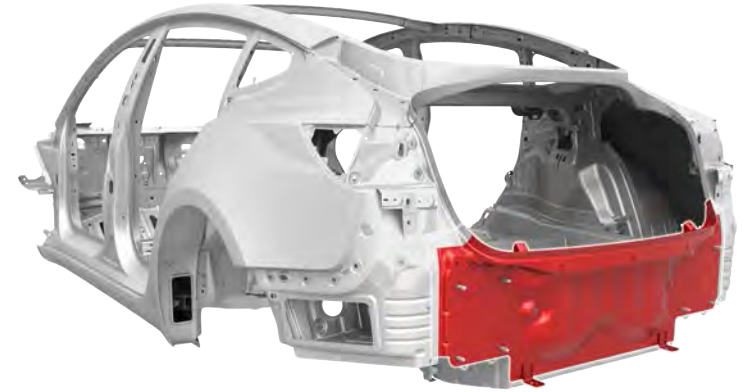
Repair Information	Warnings and Cautions	Special Tools
This procedure is for the left-hand component; the procedure is identical for the right-hand component. The Rear Rail Upper Assembly and Rear Rail Lower Assembly might come with studs installed. If these components come with studs installed, remove the studs at the appropriate step in this procedure.	 WARNING: Wear the appropriate personal protective equipment (PPE) when performing this procedure.  CAUTION: This procedure involves both steel and aluminum components. Use the appropriate tools at each step to avoid cross-contamination.	The special tool listed below is required to perform this procedure: • Frame bench The vehicle must be properly mounted on an approved frame bench to replace this component. Refer to BR-16-92-006, "Approved Frame Bench Systems" for a list of current approved bench repair systems.



Prerequisites

1

Remove the [Rear Body Panel](#).



2

Remove the [Rear Rail to Lower Quarter Extension](#).





Prerequisites

3

Remove the [Trunk Floor Assembly \(Side Panel\)](#).



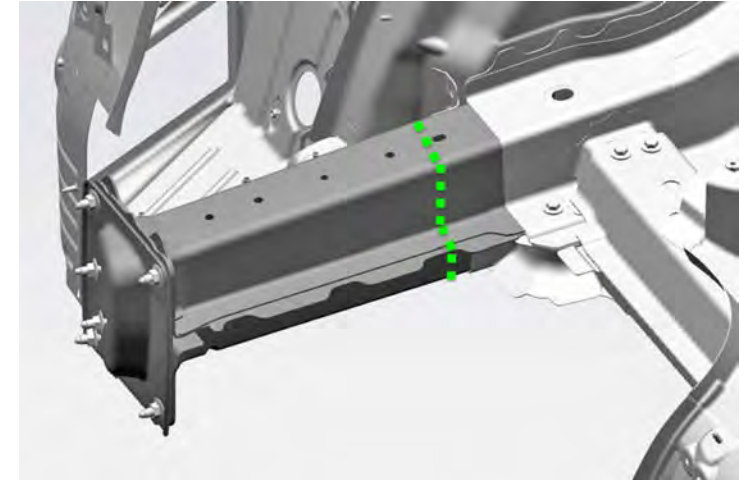


Removal

1 Remove the original component.

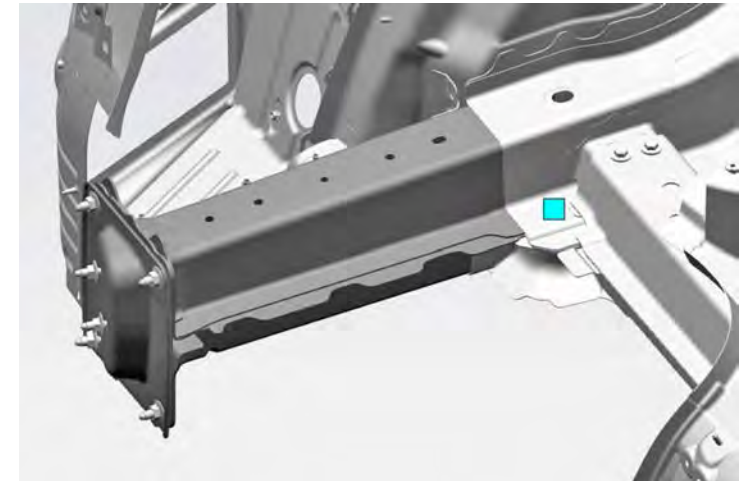
A Cut away the bulk of the original component.

 Cut Line



B Remove and discard the bolts.

 Bolt, hex-head (x3)





Removal

- 1 Remove the original component (continued).
- B Remove and discard the bolts (continued).

- C Identify the factory SPRs.

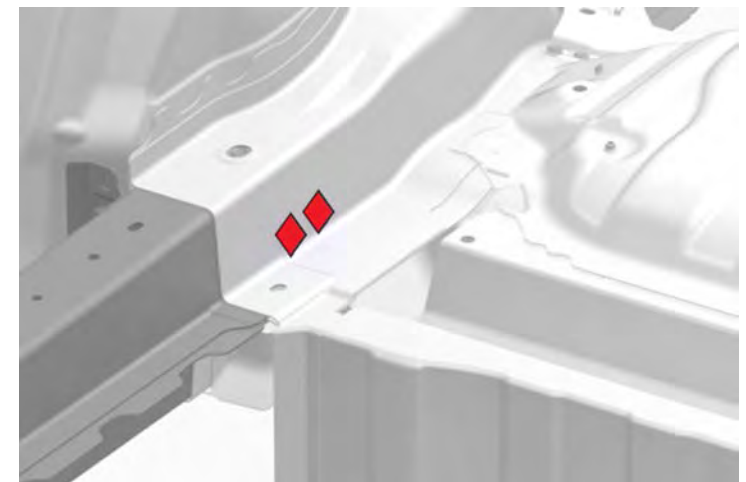
◆ Factory SPR (x36)



NOTE: The factory SPRs in the first image are hidden behind the crossmember (which has been removed from the first image for clarity) and must be ground down from the inside. No fasteners are installed in these locations.



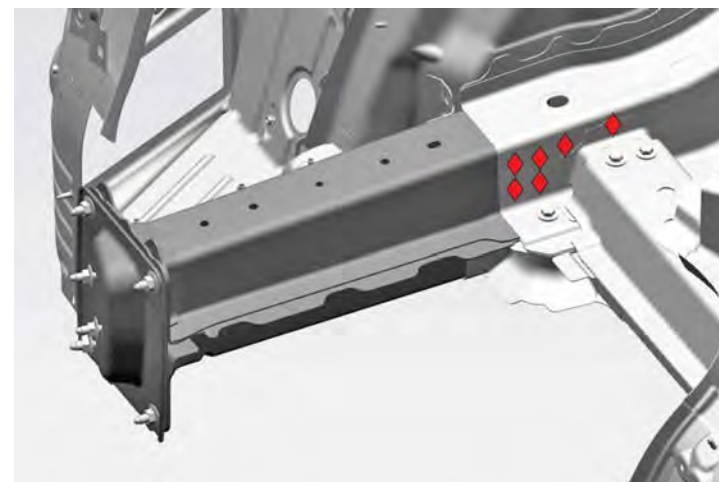
NOTE: Factory SPR locations shown are approximate. Exact SPR locations and number vary from vehicle to vehicle.





Removal

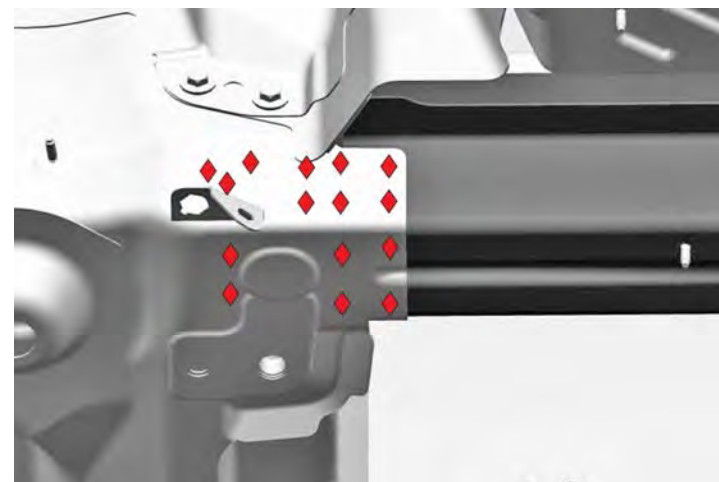
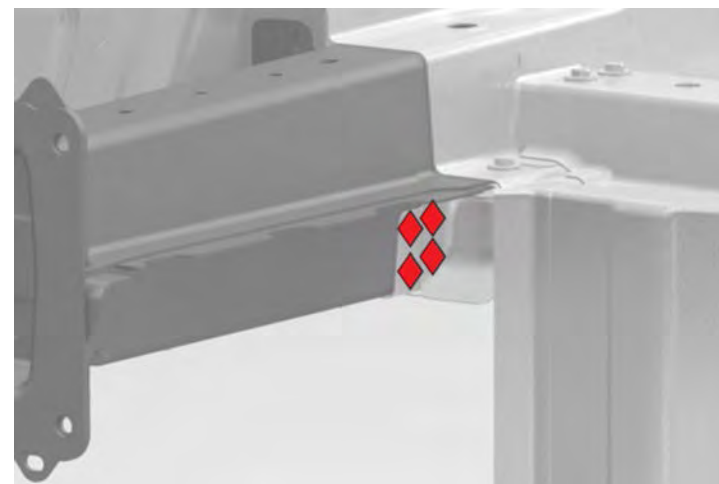
- 1 Remove the original component (continued).
- C Identify the factory SPRs (continued).





Removal

- 1 Remove the original component (continued).
- C Identify the factory SPRs (continued).





Removal

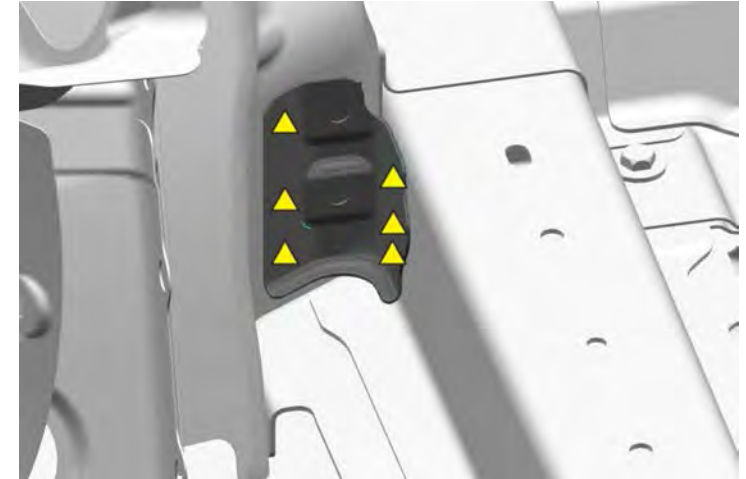
1 Remove the original component (continued).

D Grind down the spot welds to remove the bracket that connects the Rear Rail Upper Assembly to the Inner Wheelhouse.

▲ Factory Spot Weld (x6)



NOTE: The spot welds that attach the bracket to the Inner Wheelhouse can be drilled out with a 6.7 mm (17/64 in) bit. Structural bulb rivets are installed in these locations in a [later step](#).



E Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the bracket.



WARNING: Do not heat the adhesive joints above 100°C (212°F). Heating the adhesive joints above 100°C (212°F) can weaken the aluminum and compromise vehicle crash integrity.



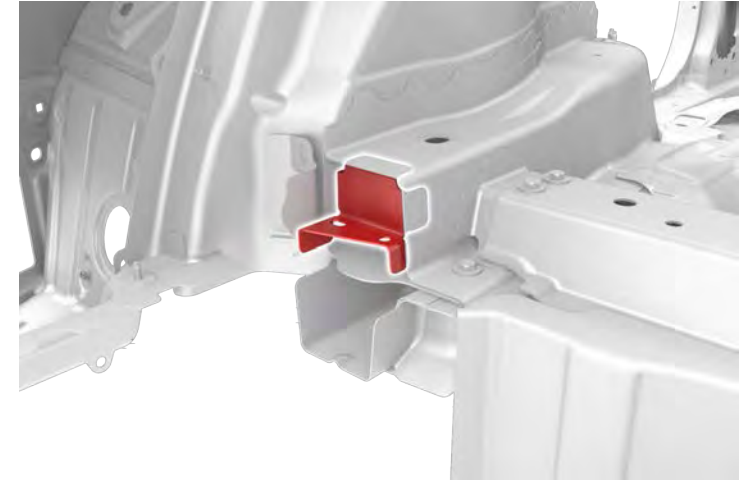
WARNING: Do not heat any adhesive joints of components that are not being removed. Heating adhesive joints weakens the adhesive bond and could compromise vehicle crash integrity.



Removal

1 Remove the original component (continued).

F Grind the backsides of the factory spot welds that attach the inner reinforcement (highlighted in red) to the Rear Rail Upper Assembly.



G Use a hammer and chisel to remove the inner reinforcement.



Removal

1 Remove the original component (continued).

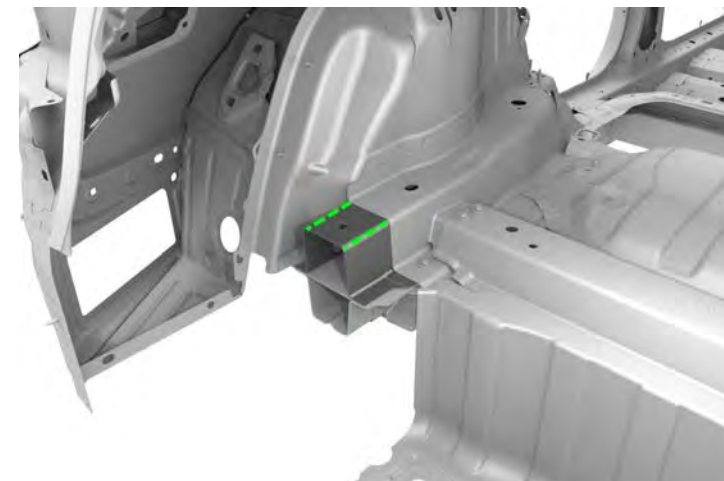
H

Cut the corners of the remaining section of the Rear Rail Upper Assembly that protrudes from the Rear Node.

 Cut Line



CAUTION: Do not damage the surrounding Rear Node components.



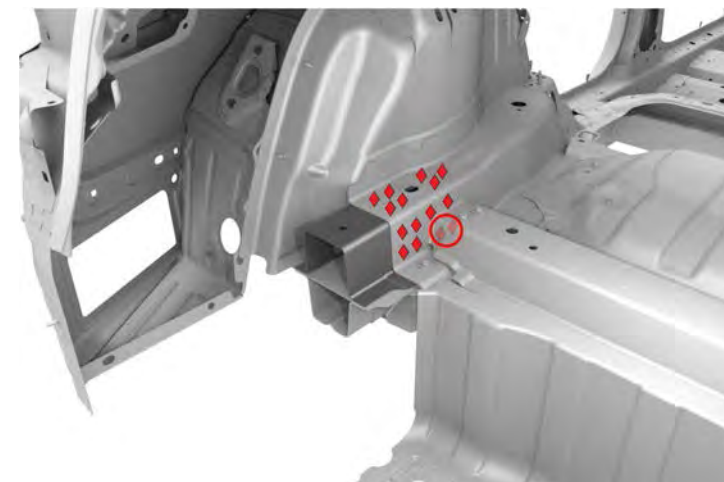
I

Use an SPR removal tool or a drill with a high-strength steel bit to remove the factory self-piercing rivets that attach the remaining portion of the Rear Rail Upper Assembly. Use a belt sander to grind off the the back side of any factory self-piercing rivets that cannot be removed with an SPR removal tool or a drill.

 Factory SPR (x15)



NOTE: The factory SPRs circled in red are hidden behind the crossmember and must be ground down from inside the rail using a belt sander. These rivets are not replaced when installing the new Rear Rail Upper.





Removal

1 Remove the original component (continued).

J

Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the remaining portion of the Rear Rail Upper Assembly.



WARNING: Do not heat any adhesive joints of components that are not being removed. Heating adhesive joints weakens the adhesive bond and could compromise vehicle crash integrity.

K

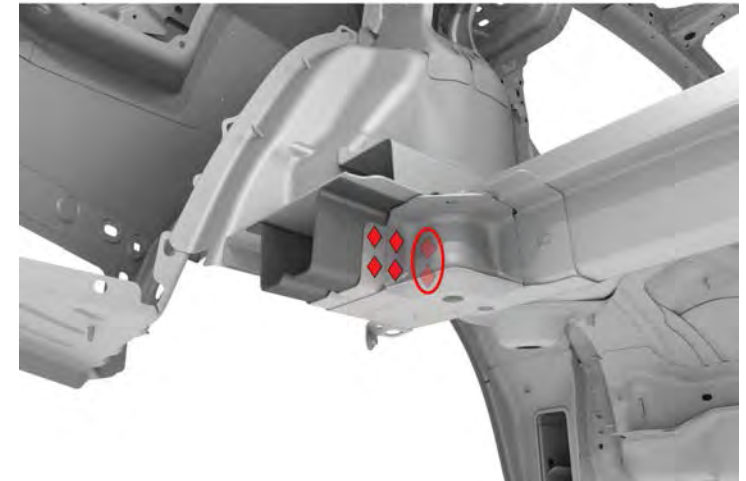
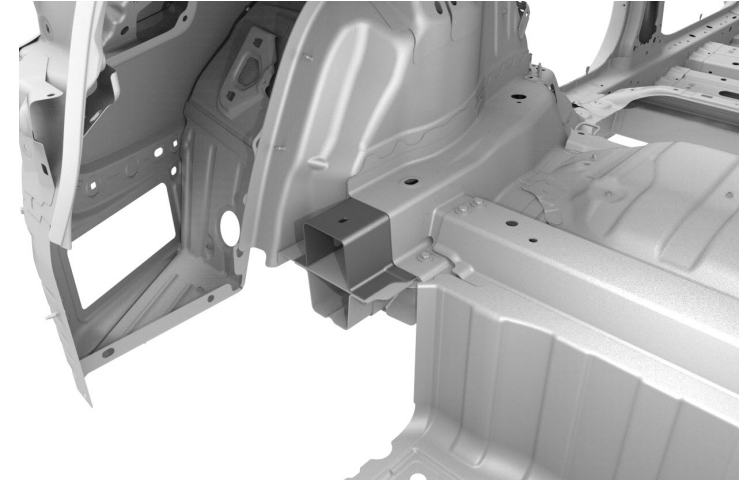
Use an SPR removal tool or a drill with a high-strength steel bit to remove the factory self-piercing rivets that attach the remaining portion of the Rear Rail Lower Assembly. Use a belt sander to grind off the back side of any factory self-piercing rivets that cannot be removed with an SPR removal tool or a drill.



Factory SPR (x21)



NOTE: The factory SPRs circled in red are hidden behind the crossmember reinforcement and must be ground down from inside the rail using a belt sander. These rivets are not replaced when installing the new Rear Rail Lower.

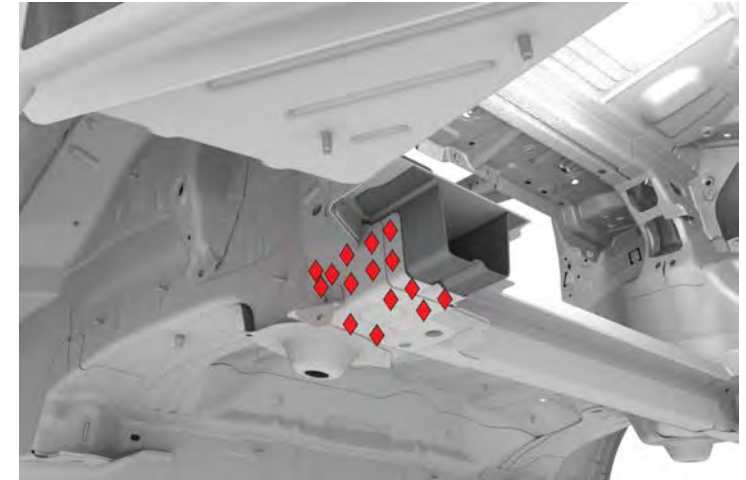




Removal

1 Remove the original component (continued).

K Use an SPR removal tool or a drill with a high-strength steel bit to remove the factory self-piercing rivets that attach the remaining portion of the Rear Rail Lower Assembly. Use a belt sander to grind off the back side of any factory self-piercing rivets that cannot be removed with an SPR removal tool or a drill (continued).





Removal

1 Remove the original component (continued).

L

Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the remaining section of the Rear Rail Lower Assembly.



WARNING: Do not heat any adhesive joints of components that are not being removed. Heating adhesive joints weakens the adhesive bond and could compromise vehicle crash integrity.

M

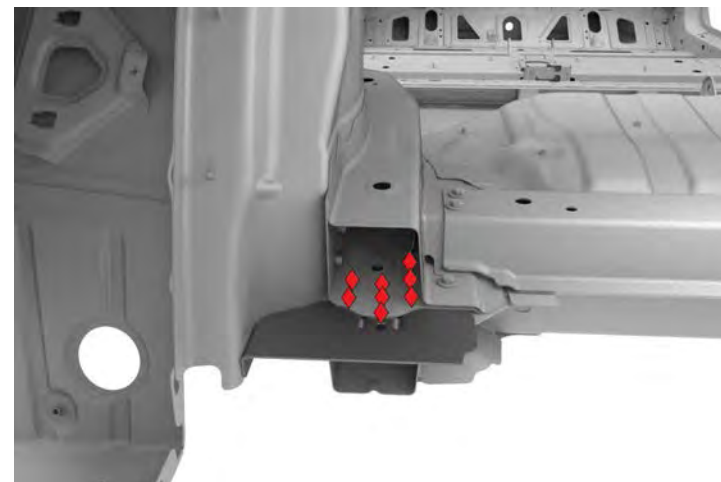
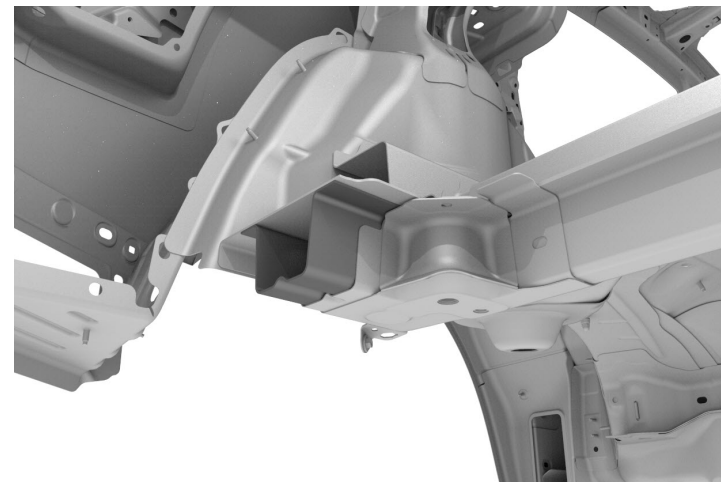
Use a belt sander to grind off the the back side of any factory self-piercing rivets that attach the remaining portion of the Rear Rail Lower Reinforcement.



Factory SPR (x8)



TIP: Use a belt sander with a suitable length extension to remove any factory SPRs that are that difficult to access.





Removal

1 Remove the original component (continued).

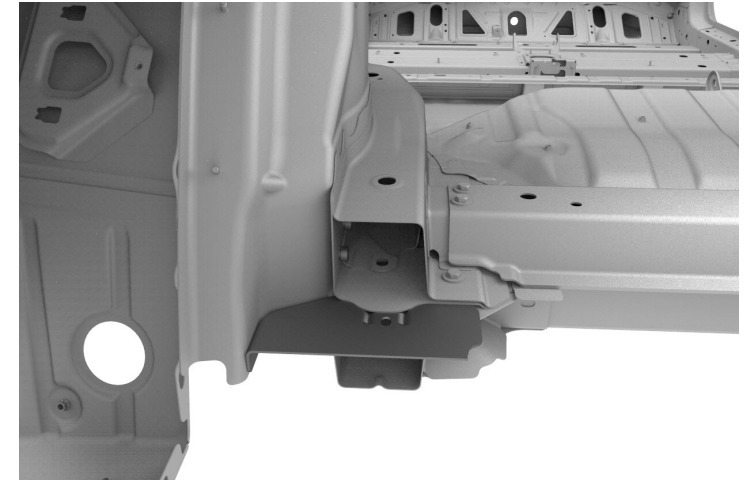
N Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the remaining piece of the Rear Rail Lower Reinforcement.



WARNING: Do not heat any adhesive joints of components that are not being removed. Heating adhesive joints weakens the adhesive bond and could compromise vehicle crash integrity.



NOTE: Keep the remaining piece to use as a template in a [later step](#).



2 Use a disc sander with a medium-abrasive surface conditioning disc to remove any remaining materials from the mating surfaces. Use a belt sander with a medium-abrasive belt for any areas that cannot be reached with a disc sander. Vacuum any adhesive dust.



WARNING: Remove the epoxy adhesive in a well-ventilated area. Wear suitable personal protective equipment.



Replacement

1 Prepare for installation.

A Clamp the remaining portion of the original Rear Rail Lower Reinforcement to the new Rear Rail Lower Reinforcement.



NOTE: This piece was removed in an [earlier step](#).

B Use the remaining portion as a template to mark holes for bolts in the new Rear Rail Lower Reinforcement.





Replacement

1 Prepare for installation (continued).

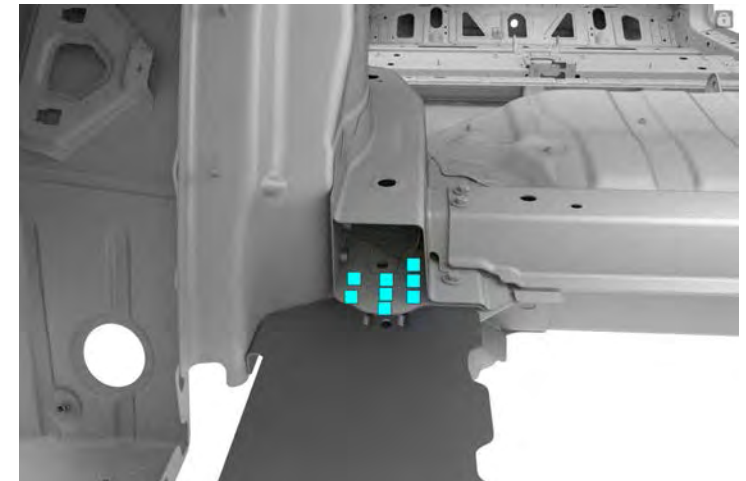
C Use a drill with a 6.7 mm (17/64 in) bit to drill holes for bolts in the new Rear Rail Lower Reinforcement.



NOTE: These holes might need to be enlarged in a [later substep](#) to achieve proper alignment.

D Put the new Rear Rail Lower Reinforcement into position and temporarily install the new bolts and nuts, but do not torque them fully at this time.

 Bolt, hex-head (x8)





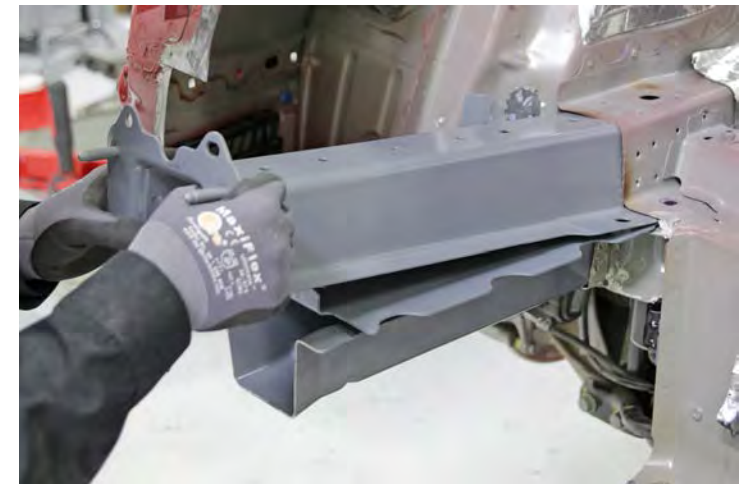
Replacement

1 Prepare for installation (continued).

E Put the new Rear Rail Lower Assembly and the new Rear Rail Upper Assembly into position.



NOTE: If necessary, use a rubber mallet to tap the new components into position.



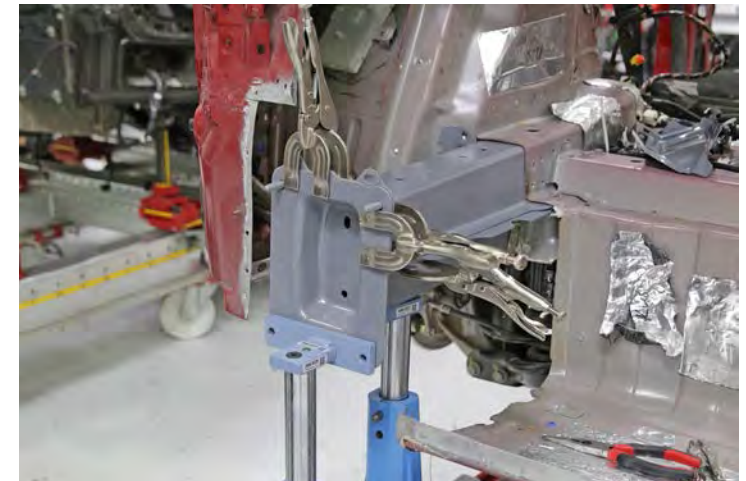


Replacement

1 Prepare for installation (continued).

F Put the new Rear Rail to Bumper Plate Bracket and the new Rear Rail Lower Glove into position.

G Align the new components to the frame bench jig points, and then clamp the new components into place.



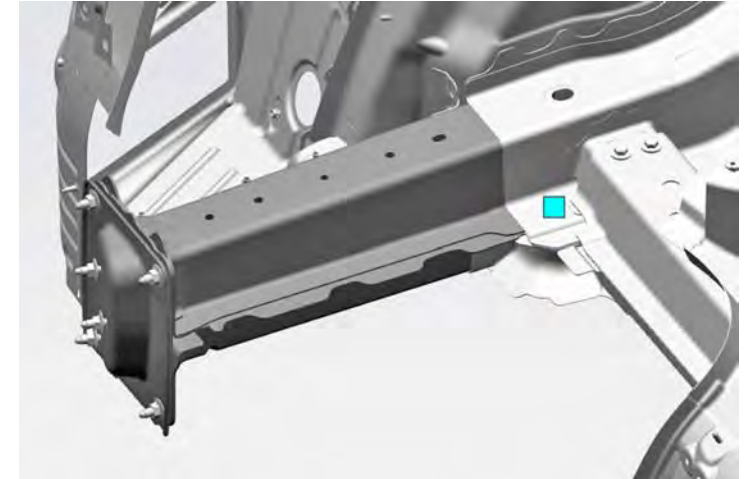


Replacement

1 Prepare for installation (continued).

H Temporarily install the new bolts that attach the new components to the Rear Node and to the Inner Wheelhouse, but do not torque them fully at this time.

■ Bolt, hex-head (x3)





Replacement

1 Prepare for installation (continued).

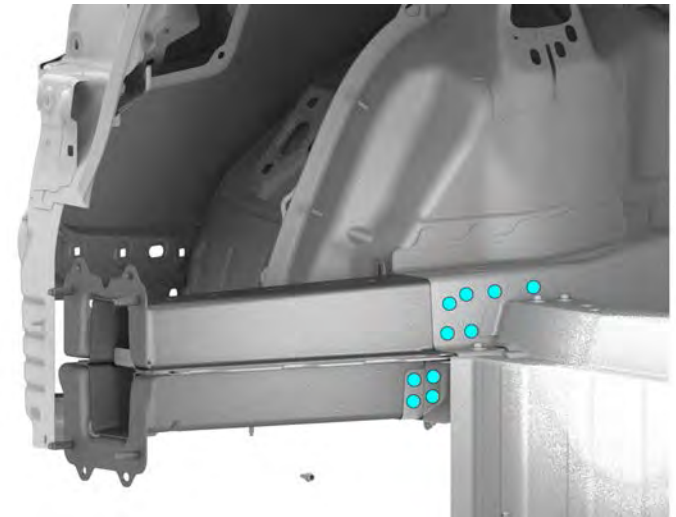
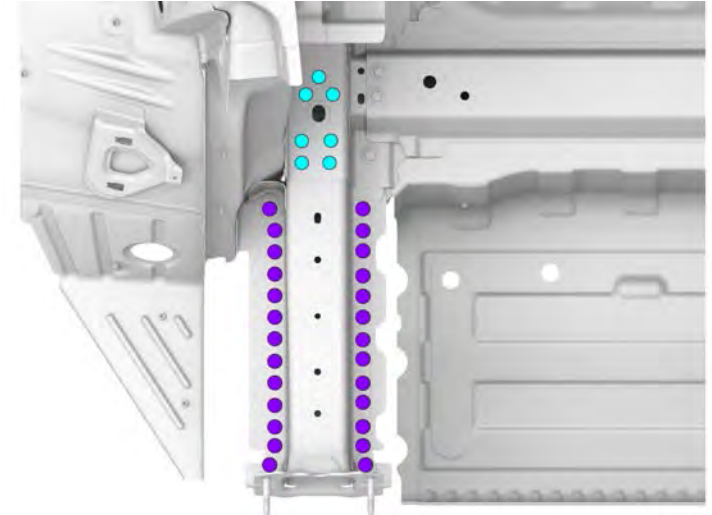
Mark the structural rivet locations.

● Structural Bulb Rivet, 6.5 mm (x29)

● High Strength Structural Rivet, 6.5 mm (x34)



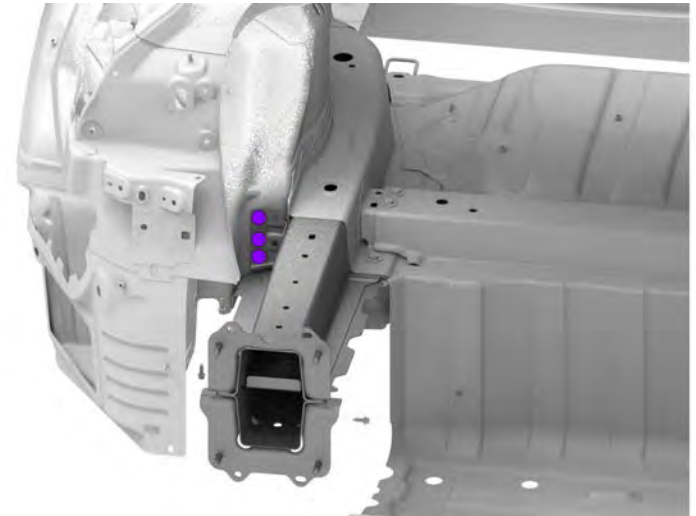
NOTE: The number and location of rivets shown in the following diagrams may differ from the number and location of original factory self piercing rivets, and may vary from vehicle to vehicle. To secure the frame rail components, replace each original factory SPR with a Structural Bulb rivet. To secure the rail components to the node, replace each original factory SPR with a High Strength rivet.





Replacement

- 1 Prepare for installation (continued).
- 1 Mark the structural rivet locations (continued).





Replacement

1 Prepare for installation (continued).

J Use a drill with a 6.7 mm (17/64 in) bit to drill holes for high strength structural rivets and structural bulb rivets.



NOTE: Using the existing factory SPR holes on the vehicle as a guide to drill the holes in the new component.



NOTE: Install a grip screw after drilling each hole to keep the panel aligned while drilling the remaining holes.

K Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets in the Rear Rail Upper Glove and Rear Rail Lower Glove.

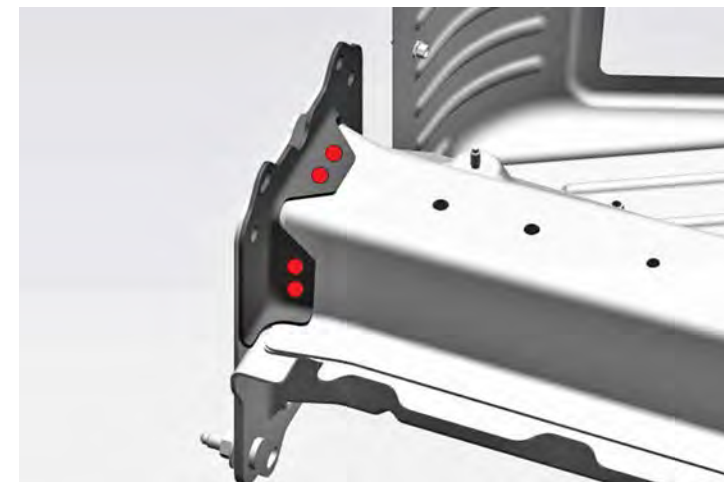
● Structural Rivet, 6.5 mm Medium (x12)



NOTE: The image shows only 2 of the 3 sides of the Rear Rail Upper Glove. Install 2 structural rivets on each of the 3 sides of the Rear Rail Upper and Lower Gloves.



NOTE: Drilling holes for the Rear Rail Upper Glove might cause the Rear Rail Upper Glove to separate from the Rear Rail Upper Assembly. If this occurs, use structural adhesive to attach the two components during installation.





Replacement

1

Prepare for installation (continued).

L

Mark boundary lines along all mating surfaces between each new component and the vehicle for surface preparation, then remove the new component from the vehicle.

2

Prepare the surfaces.

A

Use a red Scotch-Brite pad or equivalent to scuff the e-coat on all mating surfaces of the new components.



Replacement

2 Prepare the surfaces (continued).

B

Clean all the mating surfaces of the new component or components and the vehicle with isopropyl alcohol (IPA).



WARNING: Wipe off the remaining isopropyl alcohol with a clean, dry towel immediately after application. Do not let the remaining isopropyl alcohol air dry. Allowing the remaining isopropyl alcohol to air dry can compromise the adhesive bond.

3 Apply structural adhesive to install the new Rear Rail components.

A

Spread a thin coating of structural adhesive as a primer layer on the bond paths on the vehicle and the new components.



CAUTION: If any bare metal mating surfaces have been exposed for two hours or longer, abrade the mating surfaces again to remove oxidation, then clean the mating surfaces with isopropyl alcohol (IPA).



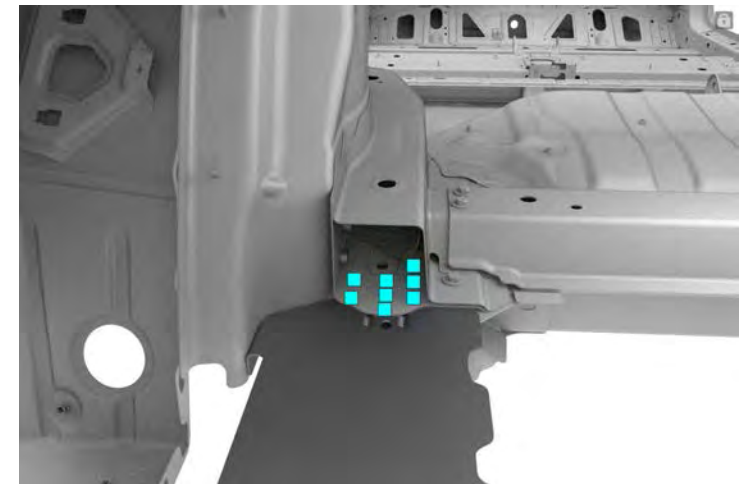
NOTE: Assembly must be performed while the primer layer is still wet. The drying time of the adhesive varies depending on temperature and humidity.



Replacement

- 3 Apply structural adhesive to install the new Rear Rail components (continued).
 - B While the primer layer is still wet, apply a bead of structural adhesive on top of the primer layer on the new components or on the vehicle.

- 4 Install the new Rear Rail Lower Reinforcement.
 - A Put the new Rear Rail Lower Reinforcement into position and install the new bolts and nuts, but do not torque them fully at this time.





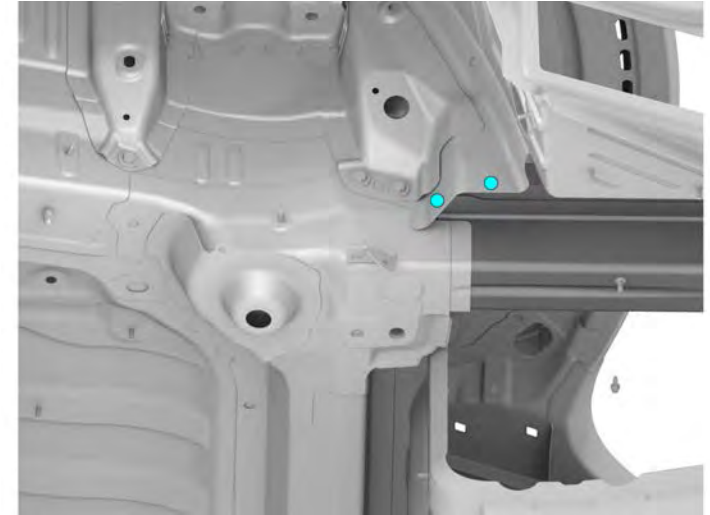
Replacement

4 Install the new Rear Rail Lower Reinforcement (continued).

B Insert the rivets.

● High Strength Structural Rivet, 6.5 mm (x2)

C Wipe off any excess adhesive.





Replacement

4 Install the new Rear Rail Lower Reinforcement (continued).

D Torque the bolts to 13 Nm (10 ft lbs).

5 Install the new Rear Rail Lower Assembly.

A Put the new Rear Rail Lower Assembly into position.



NOTE: If necessary, use a rubber mallet to tap the new component into position.





Replacement

6 Install the new Rear Rail Upper Assembly.

A

Put the new Rear Rail Upper Assembly into position.



NOTE: If necessary, use a rubber mallet to tap the new component into position.



B

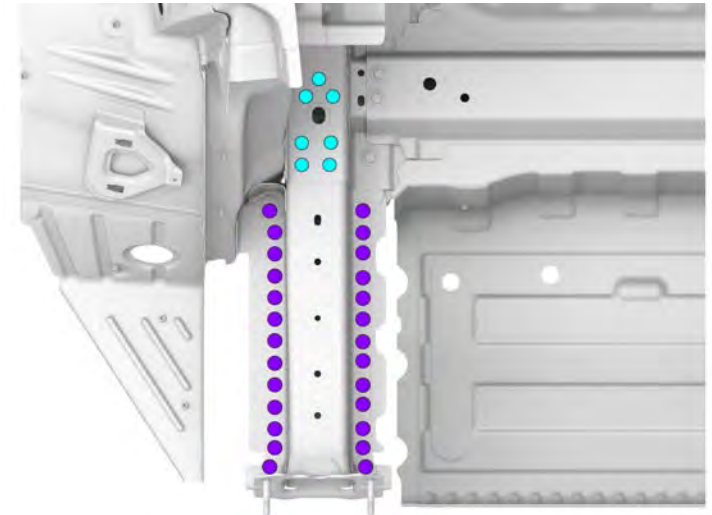
Insert the structural rivets.

● Structural Bulb Rivet, 6.5 mm (x29)

● High Strength Structural Rivet, 6.5 mm (x37)



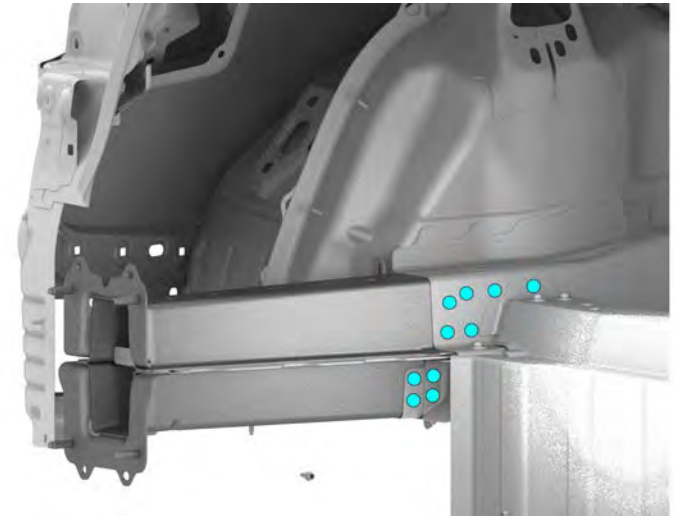
NOTE: Insert all structural bulb rivets from above to properly align the components, but do not install them at this time. In a [later step](#), the structural bulb rivets will be installed in an alternating pattern (1 from above and then 1 from below).





Replacement

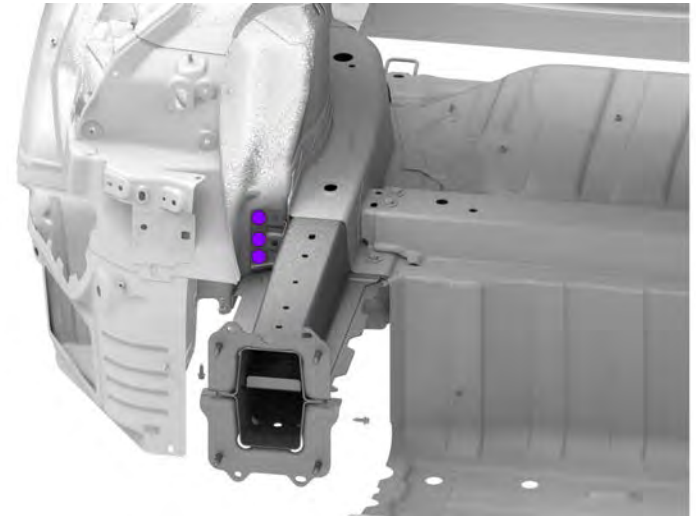
- 6 Install the new Rear Rail Upper Assembly (continued).
- B Insert the structural rivets (continued).





Replacement

- 6 Install the new Rear Rail Upper Assembly (continued).
- B Insert the structural rivets (continued).



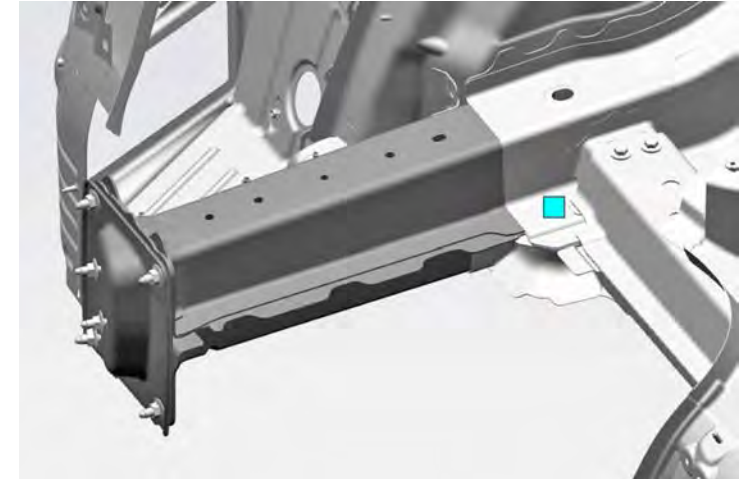


Replacement

6 Install the new Rear Rail Upper Assembly (continued).

C Temporarily install the new bolts that attach the new components to the Rear Node and to the Inner Wheelhouse, but do not torque them fully at this time.

■ Bolt, hex-head (x3)





Replacement

7 Install the new Rear Rail to Bumper Plate Bracket.

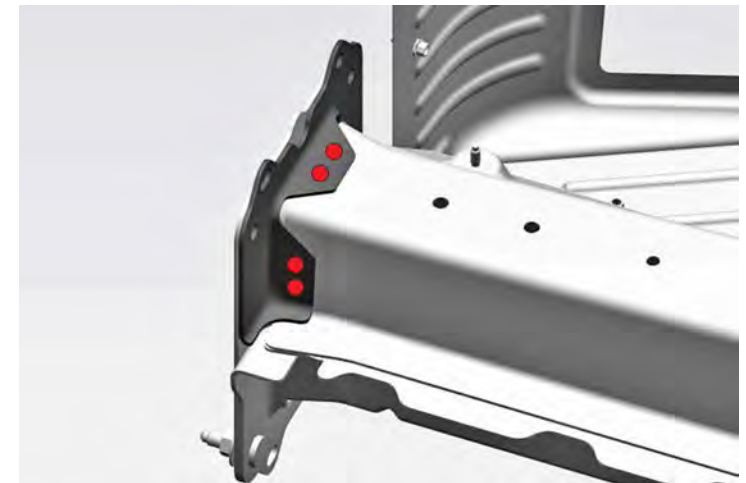
A Put the new Rear Rail Lower Glove and Rear Rail to Bumper Plate bracket into position.

B Insert the structural rivets that attach the Rear Rail Upper and Lower Gloves to the new components.

● Structural Rivet, 6.5 mm Medium (x12)



NOTE: The image shows only 2 of the 3 sides of the Rear Rail Upper Glove. Install 2 structural rivets on each of the 3 sides of the Rear Rail Upper and Lower Gloves.





Replacement

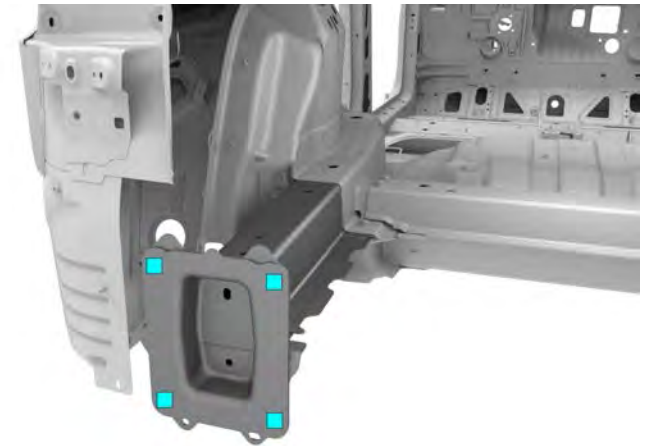
7 Install the new Rear Rail to Bumper Plate Bracket (continued).

C Align and temporarily secure the new components to the frame bench jig points.

D Temporarily install the new bolts and nuts in the holes not being used for frame bench fixture bolts, but do not torque them fully at this time.



NOTE: These new bolts and nuts are listed in the [Rear Body Panel procedure](#). Refer to that procedure for part numbers for these items.





Replacement

8 Complete the installation of the new components.

A Clamp any area of the new component not already secured by fasteners into position.

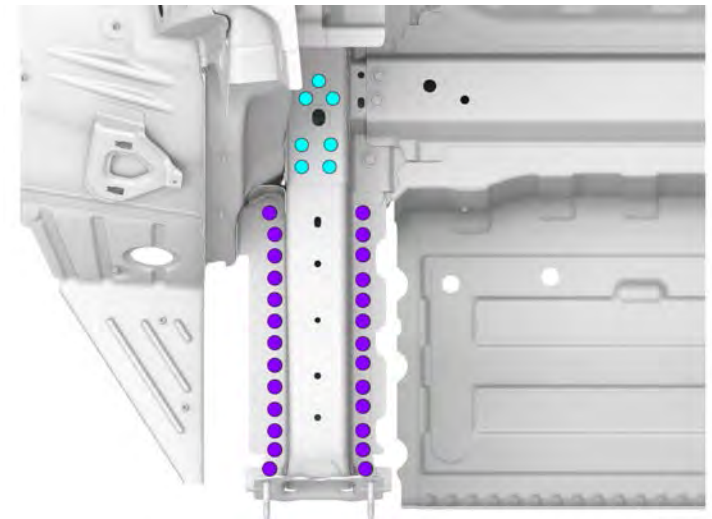
B Install the structural rivets.

● Structural Bulb Rivet, 6.5 mm

● High Strength Structural Rivet, 6.5 mm



NOTE: Structural bulb rivets are installed in the flanges on each side of the rail. Install the structural bulb rivets in an alternating pattern: 1 from above and then 1 from below.

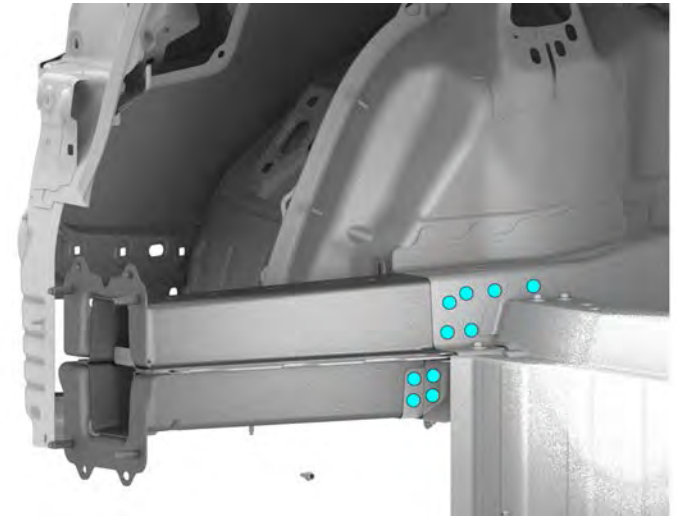




Replacement

8 Complete the installation of the new components (continued).

B Install the structural rivets (continued).

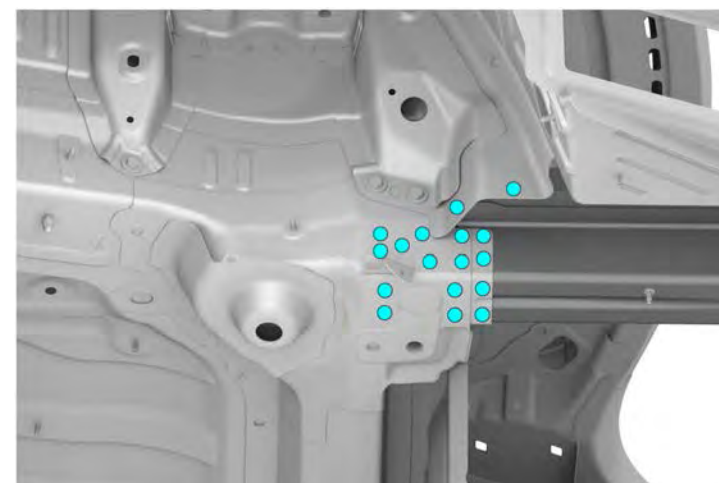
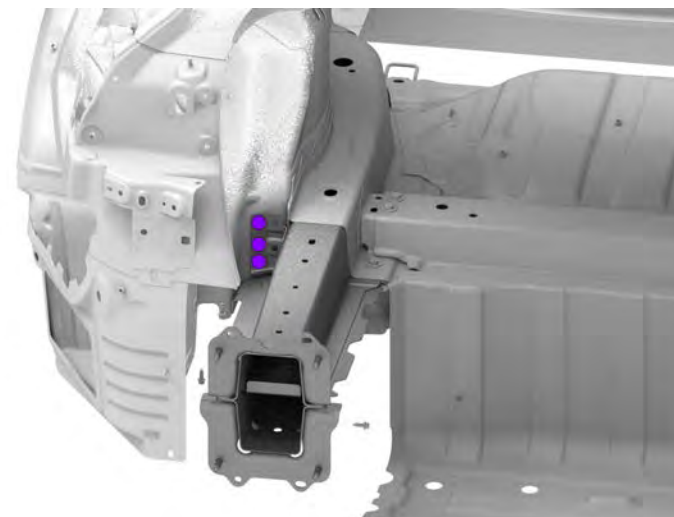




Replacement

8 Complete the installation of the new components (continued).

B Install the structural rivets (continued).





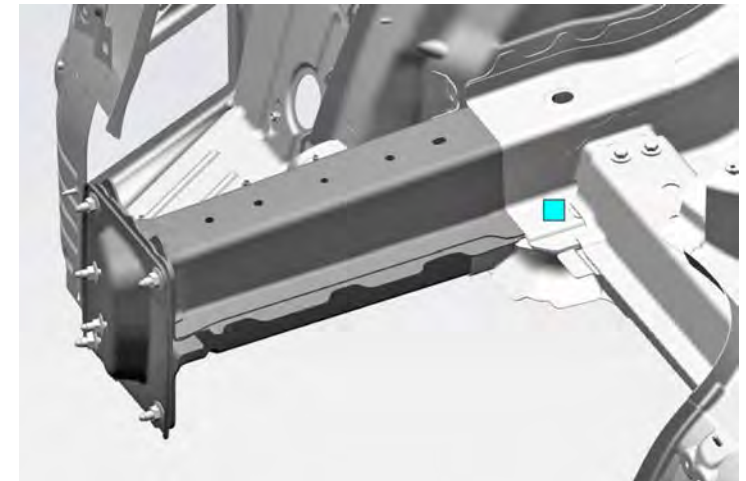
Replacement

8 Complete the installation of the new components (continued).

C Wipe off any excess adhesive.

D Torque the bolts to 24 Nm (18 ft lbs).

 Bolt, hex-head





Replacement

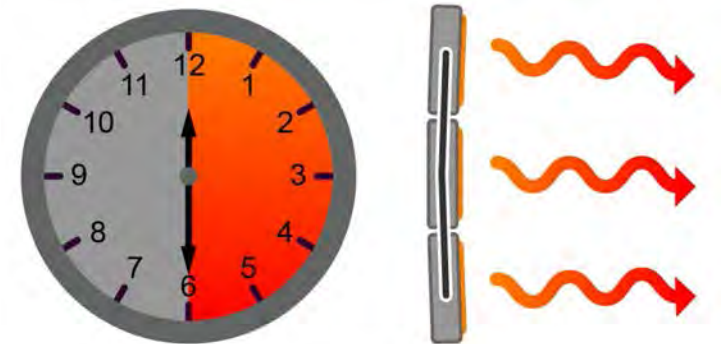
- 8 Complete the installation of the new components (continued).
- D Torque the bolts to 24 Nm (18 ft lbs) (continued).



- E Bake the structural adhesive so that the bonded panels reach a temperature of 60°C–80°C (140°F–176°F) for at least 30 minutes to achieve full strength.



WARNING: Do not allow the High Voltage Battery to reach a temperature above 74°C (165°F). Heating the High Voltage Battery above 74°C (165°F) for an extended period could result in injury to personnel and/or damage to the battery.



00:30:00+

60°C–80°C



Replacement

9

Seal the seams in the factory locations, and as necessary.

10

Install the new [Trunk Floor Assembly \(Side Panel\)](#).





Replacement

11

Install the new [Rear Rail to Lower Quarter Extension](#).



12

Install the new [Rear Body Panel](#).

