

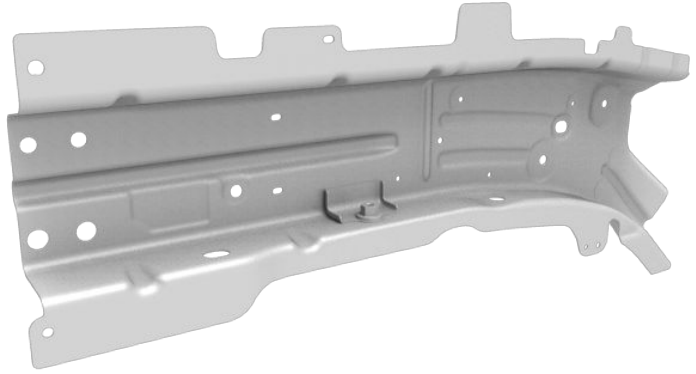


Front Frame Rail Inner (Small Front Section)





Parts List

Quantity	Part Number	Description	Image / Notes
1	1080461-SO-A (LH) 1080462-SO-A (RH)	Front Frame Rail Inner	
1	1073811-SO-A (LH) 1073812-SO-A (RH)	Front Inner Front Subframe Mount	
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.



Parts List

Quantity	Part Number	Description	Image / Notes
1	—	Corrosion-Resistant Epoxy Primer	Source locally; not available from Tesla.

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
If the damage extends beyond the specified cut line in the "Removal" section of this document, discontinue this procedure and perform the Front Frame Rail Inner (Large Front Section) procedure. This procedure is for the left-hand component; the procedure is identical for the right-hand component. The items listed in the "Prerequisites" section of this document include only the last structural component that needs to be removed before starting the repair and any other prerequisites that are not obvious. Refer to the estimating system being used for a complete list of the prerequisites that must be performed before starting the repair.	 WARNING: Wear the appropriate personal protective equipment (PPE) when performing this procedure.  CAUTION: This procedure involves only steel components. Use the appropriate tools to avoid cross-contamination.	The special tools listed below are required to perform this procedure: - Resistance Spot Welder Use only an approved resistance spot welder. Refer to BR-16-92-007, "Approved Welders" for a list of current approved resistance spot welders. - GMA welder Use only an approved GMA welder. Refer to BR-16-92-007, "Approved Welders" for a list of current approved GMA welders. - 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

Disconnect 12V and high voltage power (refer to the appropriate section in [BR-17-17-004](#), "Disconnecting 12V and High Voltage Power on Model 3").



WARNING: Before disconnecting the 12V power supply, make sure that all windows are at least slightly open. Attempting to open a door with a fully-closed window when the 12V power supply is disconnected could result in door glass shatter.



NOTE: Before disconnecting the 12V power supply, make sure that the driver's door window is fully open. Failure to lower the driver's door window before disconnecting the 12V power supply could result in vehicle lockout.

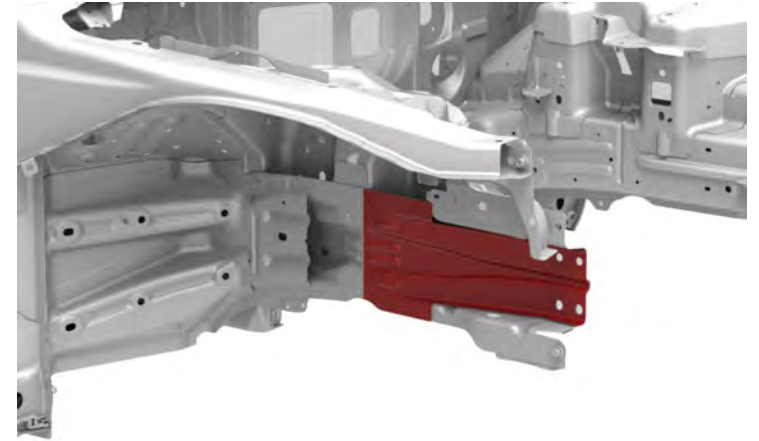




Prerequisites

2

Remove the [Front Frame Rail Inner Reinforcement \(Section\)](#).





Removal

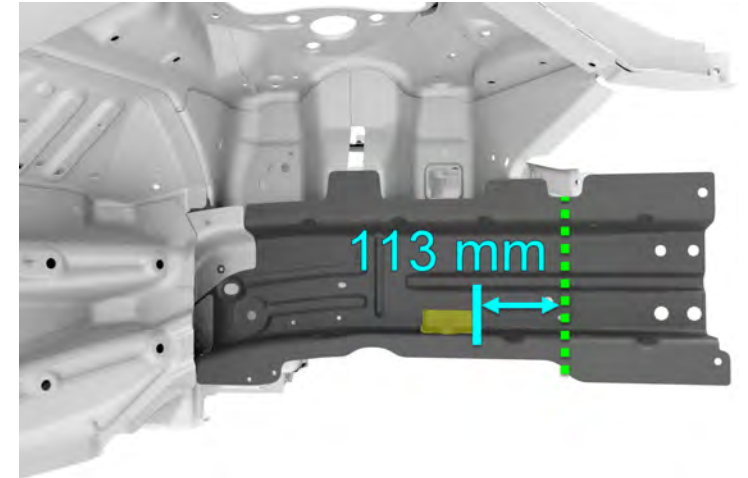
1 Remove the original component.

A Mark a cut line 113 mm (4-7/16 in) from the nut plate (highlighted) on the original Front Frame Rail Inner.

 Cut Line



NOTE: If the damage extends beyond the specified cut line, discontinue this procedure and perform the [Front Frame Rail Inner \(Large Front Section\)](#) procedure.





Removal

1 Remove the original component (continued).

B

Cut the component on the cut line marked in the previous substep.



CAUTION: Do not damage the surrounding components.





Removal

2

Use a disc sander with a medium-abrasive surface conditioning disc to remove any remaining materials from the bond paths. 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.

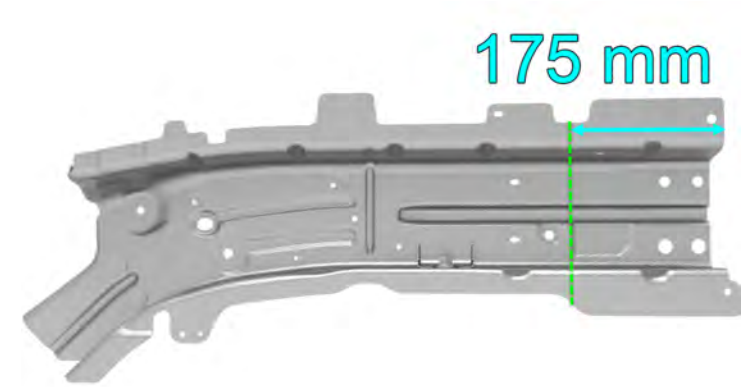


Replacement

1 Prepare the new Front Frame Rail Inner (front section) for installation.

A Mark a cut line 175 mm (6-7/8 in) from the front of the new Front Frame Rail Inner.

— — — — — Cut Line





Replacement

- 1 Prepare the new Front Frame Rail Inner (front section) for installation (continued).

B Cut the new component on the cut line marked in the previous substep.



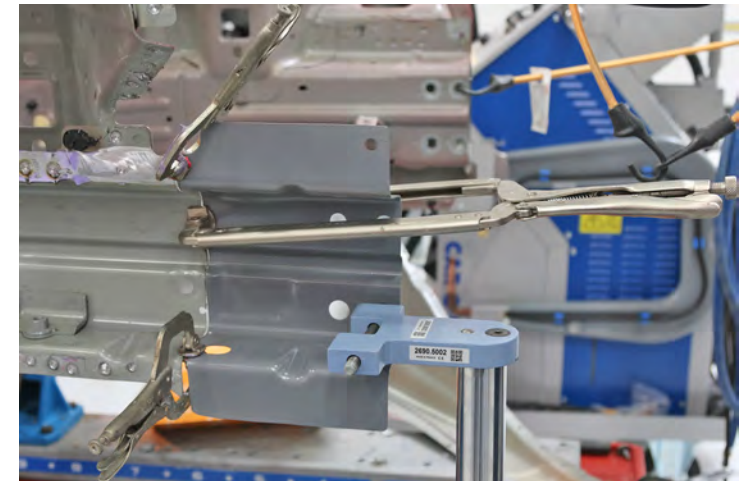
NOTE: Leave 2 - 3 mm (3/32 - 1/8 in) of extra material to be trimmed at a later step.



C Put the new section into position and clamp it into place. Align and temporarily secure the new section to the frame bench jig points.



NOTE: If necessary, trim the new section to fit.



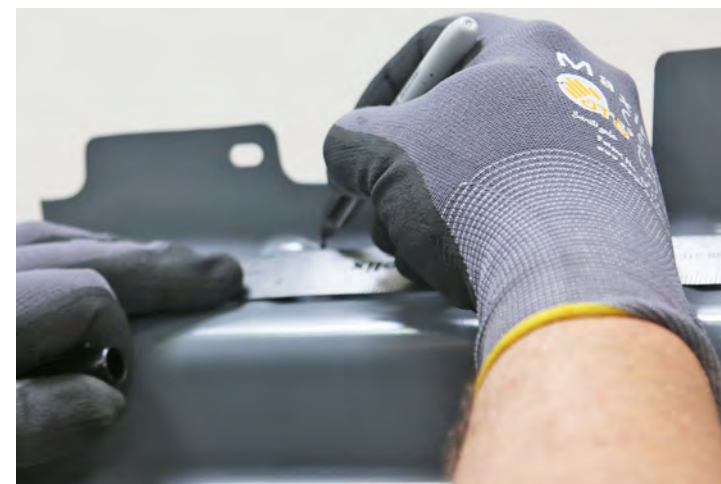
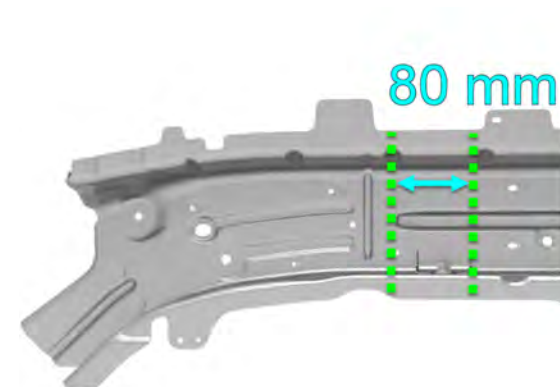


Replacement

2 Create a reinforcement plate.

A Cut an 80 mm (3-1/8 in) section from the remaining piece of the new Front Frame Rail Inner to create a reinforcement plate.

■ ■ ■ ■ Cut Line



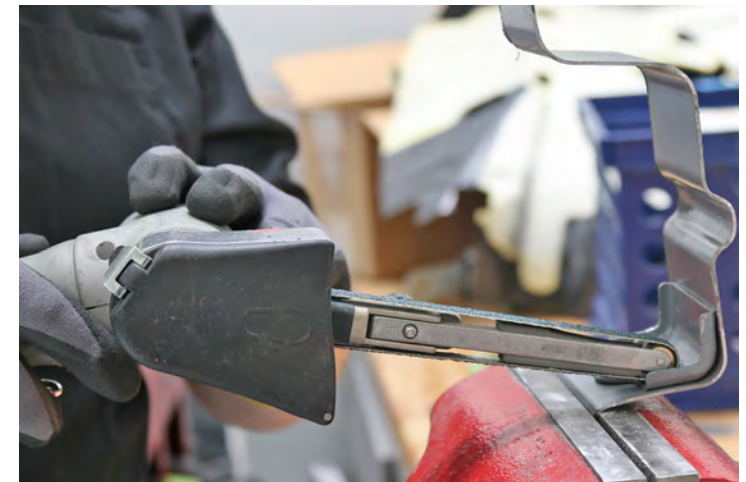
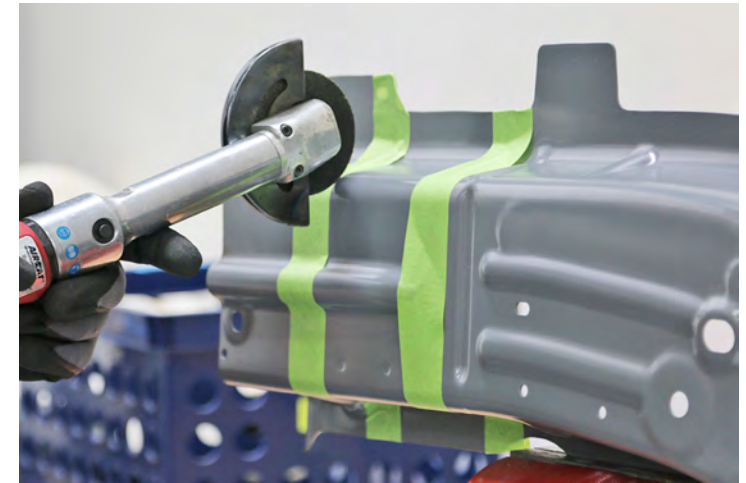


Replacement

2 Create a reinforcement plate (continued).

A Cut an 80 mm (3-1/8 in) section from the remaining piece of the new Front Frame Rail Inner to create a reinforcement plate (continued).

B Use a belt sander to remove the spot welds on the nut plate on the reinforcement plate.





Replacement

2

Create a reinforcement plate (continued).

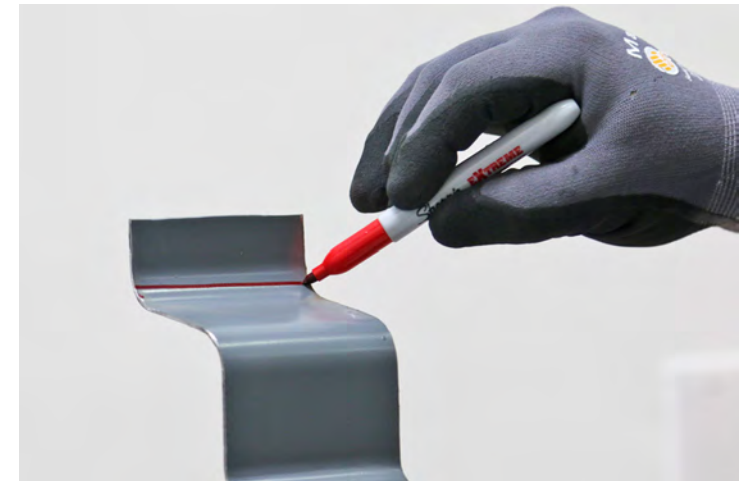
C

Use a hammer and chisel to remove the nut plate. Discard the nut plate.



D

Cut off the flanges on the reinforcement plate.





Replacement

2

Create a reinforcement plate (continued).

D

Cut off the flanges on the reinforcement plate (continued).



E

Cut the reinforcement plate in half horizontally to create 2 sections.



NOTE: This allows the sections to fit more closely to the Front Frame Rail Inner sections.





Replacement

2 Create a reinforcement plate (continued).

F Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat on the reinforcement plate sections in the areas where the two sections meet.



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



G Clean the sections of the reinforcement plate 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.



Replacement

2 Create a reinforcement plate (continued).

H Put the sections of the reinforcement plate into position, and clamp them into position. If necessary, trim the sections of the reinforcement plate to fit.





Replacement

2 Create a reinforcement plate (continued).

I

Tack weld the sections of the reinforcement plate together.



WARNING: Failure to follow all welding safety precautions, including the use of personal protective equipment, could result in serious injury or property damage. Only technicians who have successfully met Tesla's requirements for welding training are authorized to weld structural components on Tesla vehicles.



CAUTION: Do not weld on a Tesla vehicle with an energized high voltage or 12V system. Welding on a Tesla vehicle with an energized high voltage or 12V system might damage vehicle components.



NOTE: Do not fully weld the reinforcement plate sections together while the plate is on the vehicle.

J

Remove the reinforcement plate.



Replacement

2 Create a reinforcement plate (continued).

K

Weld the sections of the reinforcement plate together.



WARNING: Failure to follow all welding safety precautions, including the use of personal protective equipment, could result in serious injury or property damage. Only technicians who have successfully met Tesla's requirements for welding training are authorized to weld structural components on Tesla vehicles.



WARNING: To maintain vehicle crash integrity, use only Bohler Union X96 welding wire and an approved GMA welder to perform steel GMA welding on high-strength steel and ultra high-strength steel components.



NOTE: Do not weld the reinforcement plate sections together while the plate is on the vehicle.

L

Use a grinding tool to grind down the welds.





Replacement

3 Prepare for installation.

A



Put the reinforcement plate into position. If necessary, trim it to fit.

NOTE: Perform the steps to create a Front Frame Rail Inner section in the Front Frame Rail Inner (Section) procedure and test fit the new section. If necessary, trim the reinforcement plate to fit.

B

Perform the steps to create a new Front Frame Rail Inner Reinforcement section in the [Front Frame Rail Inner Reinforcement \(Section\)](#) procedure.





Replacement

3

Prepare for installation (continued).

C

Put the new Front Frame Rail Inner Reinforcement section in place. If necessary, trim the reinforcement plate for the Front Frame Rail Inner to fit.



D

Remove the new Front Frame Rail Inner Reinforcement section.

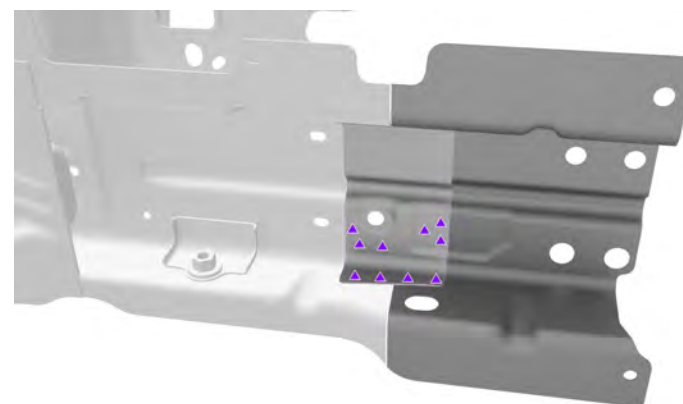
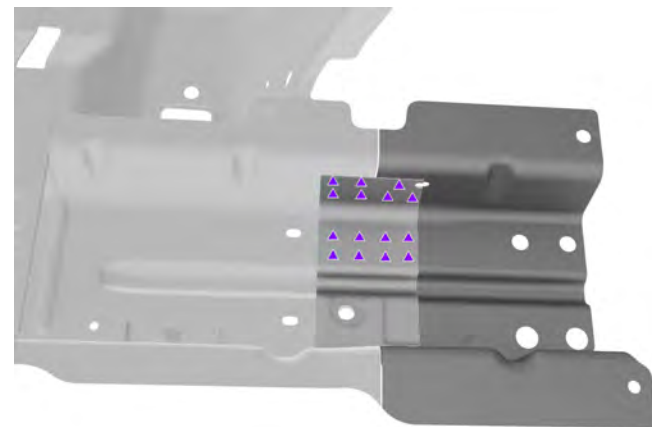


Replacement

3 Prepare for installation (continued).

E Mark the installation spot weld locations.

▲ Installation Spot Weld (x25)





Replacement

3 Prepare for installation (continued).

F Mark the surface preparation boundary lines on the original Front Frame Rail Inner and on the new Front Frame Rail Inner front section.

G Remove the reinforcement plate.



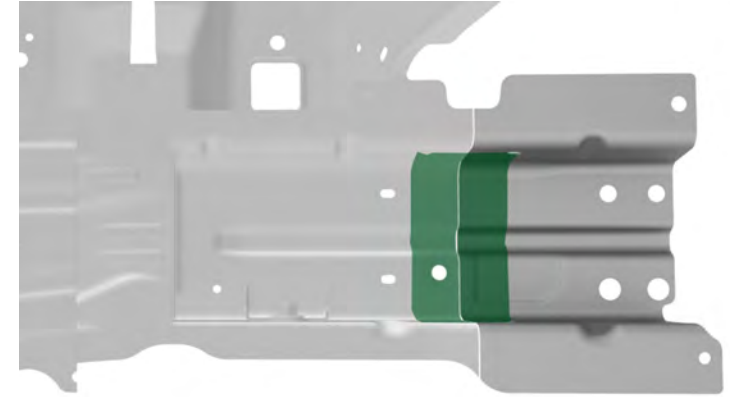


Replacement

3 Prepare for installation (continued).

H Mark the bond path areas on the new Front Frame Rail Inner section, the inside surface of the reinforcement plate, and the vehicle.

 Steel-to-Steel Bond Path



4 Prepare the surfaces.

A Use a red Scotch-Brite pad or equivalent to scuff the e-coat on the new section, the reinforcement plate, and the vehicle in the bond path areas.

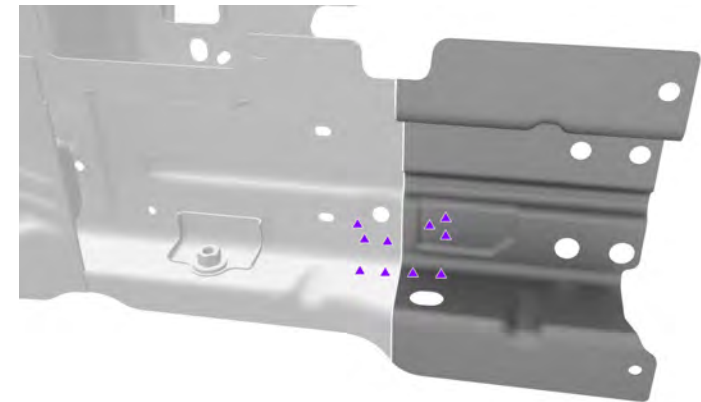
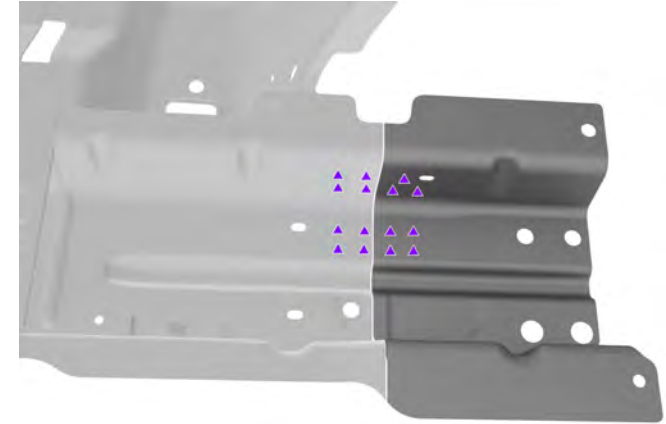


Replacement

4 Prepare the surfaces (continued).

B Mark the installation spot weld locations on the new section, the reinforcement plate, and the vehicle.

▲ Installation Spot Weld





Replacement

4 Prepare the surfaces (continued).

B Mark the installation spot weld locations on the new section, the reinforcement plate, and the vehicle (continued).





Replacement

4 Prepare the surfaces (continued).

C Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat on the new section, the reinforcement plate, and the vehicle in the weld areas.



D Clean all the bond path areas and weld areas on the new section, the reinforcement plate, 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.





Replacement

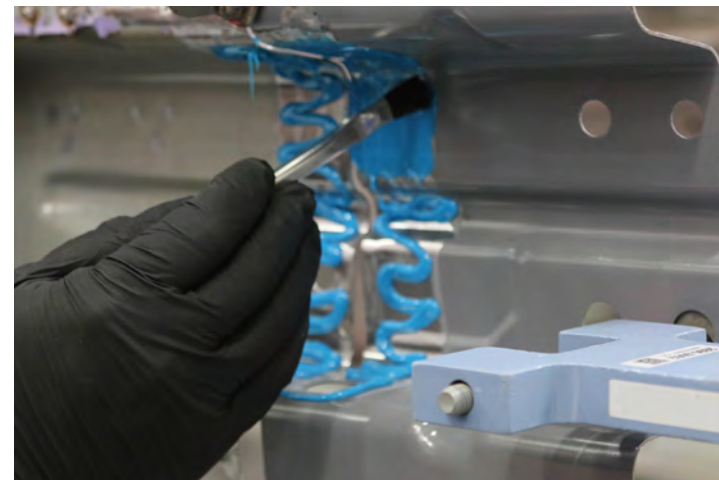
5 Apply structural adhesive.

A Spread a thin coating of structural adhesive as a primer layer on the bond paths on the new section, the reinforcement plate, and the vehicle.



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

B While the primer layer is still wet, apply a bead of structural adhesive on top of the primer layer on the new section and the vehicle.





Replacement

6 Install the new section.

A Put the reinforcement plate into position and clamp it into place.

B Wipe off any excess adhesive.





Replacement

6 Install the new section (continued).

C Perform resistance spot welding.

▲ Installation Spot Weld (x25)



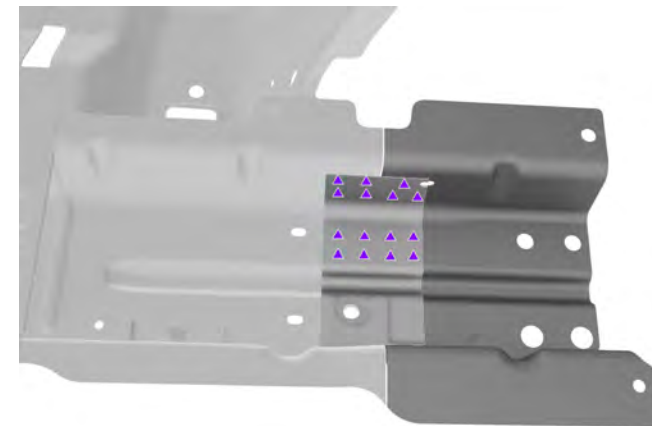
WARNING: Failure to follow all welding safety precautions, including the use of personal protective equipment, could result in serious injury or property damage. Only technicians who have successfully met Tesla's requirements for welding training are authorized to weld structural components on Tesla vehicles.



CAUTION: Do not weld on a Tesla vehicle with an energized high voltage or 12V system. Welding on a Tesla vehicle with an energized high voltage or 12V system might damage vehicle components.



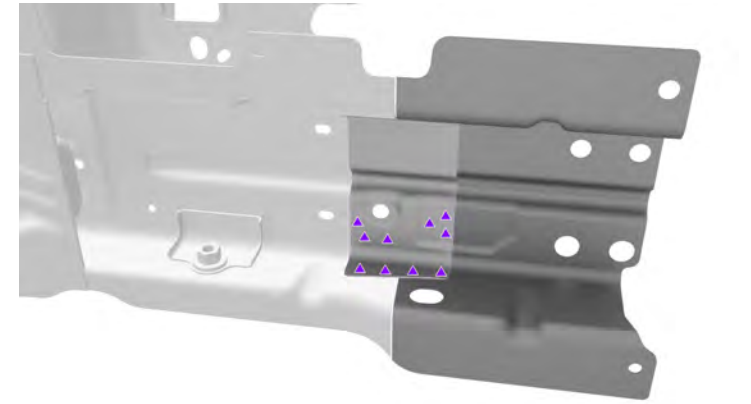
CAUTION: Use only insulated clamps within 200 mm (8 in) of resistance spot weld locations. Do not perform resistance spot welding when there is an uninsulated clamp within 200 mm (8 in) of the spot weld location.





Replacement

- 6 Install the new section (continued).
- C Perform resistance spot welding (continued).





Replacement

7 Install the new Front Inner Front Subframe Bracket.

A

Put the new bracket into position and clamp it into place.

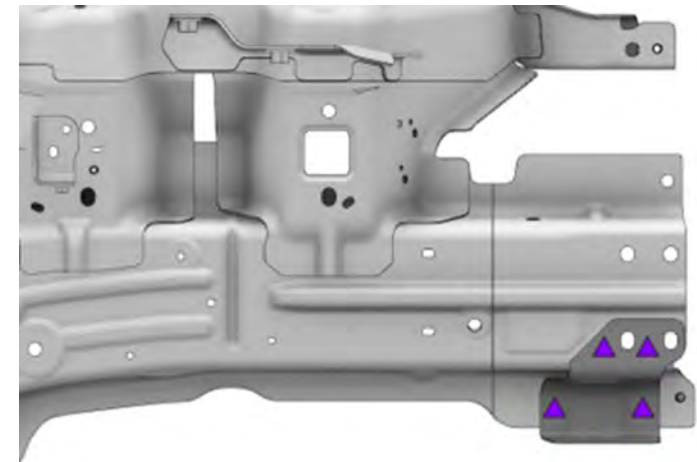


NOTE: Align the holes in the bracket with the holes in the Front Frame Rail Inner.

B

Mark the surface preparation boundary lines and installation spot weld locations.

▲ Installation Spot Weld (x4)





Replacement

- 7 Install the new Front Inner Front Subframe Bracket (continued).
- C Remove the new bracket.
- D Use a red Scotch-Brite pad or equivalent to scuff the e-coat on the new bracket and on the vehicle in the bond path areas.



Replacement

7 Install the new Front Inner Front Subframe Bracket (continued).

E Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat on the new bracket and on the vehicle in the weld areas.



NOTE: Use a belt sander with a medium-abrasive belt for any areas that cannot be reached with a disc sander.

F Clean all the bond paths and weld areas on the new bracket and on 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.



Replacement

7 Install the new Front Inner Front Subframe Bracket (continued).

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

H While the primer layer is still wet, apply a bead of structural adhesive on top of the primer layer on the vehicle.



Replacement

7 Install the new Front Inner Front Subframe Bracket (continued).

I

Put the new bracket into position and clamp it into place.



NOTE: Align the holes in the bracket with the holes in the Front Frame Rail Inner.

J

Wipe off any excess adhesive.



Replacement

7 Install the new Front Inner Front Subframe Bracket (continued).

K Perform resistance spot welding.
▲ Installation Spot Weld (x4)



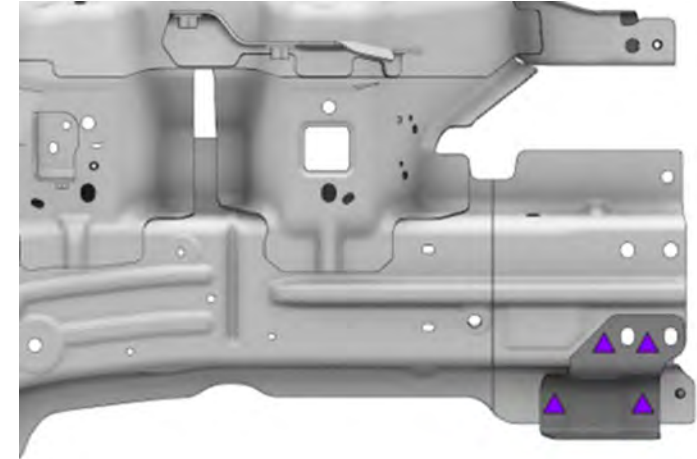
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CAUTION: Do not weld on a Tesla vehicle with an energized high voltage or 12V system. Welding on a Tesla vehicle with an energized high voltage or 12V system might damage vehicle components.



CAUTION: Use only insulated clamps within 200 mm (8 in) of resistance spot weld locations. Do not perform resistance spot welding when there is an uninsulated clamp within 200 mm (8 in) of the spot weld location.





Replacement

8

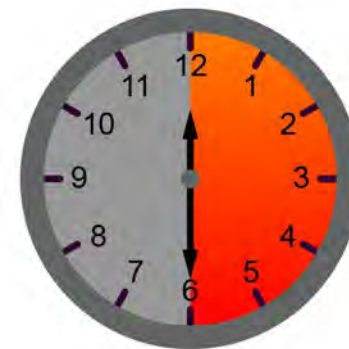
Remove any discoloration from the weld areas.

9

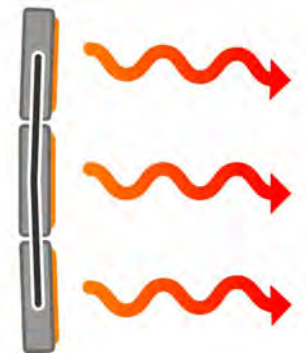
Bake the structural adhesive so that the bonded panels reach a temperature of 60°C–80°C (140°F–176°F) for at least 30 minutes to achieve full strength.



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

10

Prime any bare metal with a suitable corrosion-resistant epoxy primer.



11

Install a new [Frunk Bracket](#).





Replacement

12

Install the new [Front Frame Rail Inner Reinforcement section](#).

