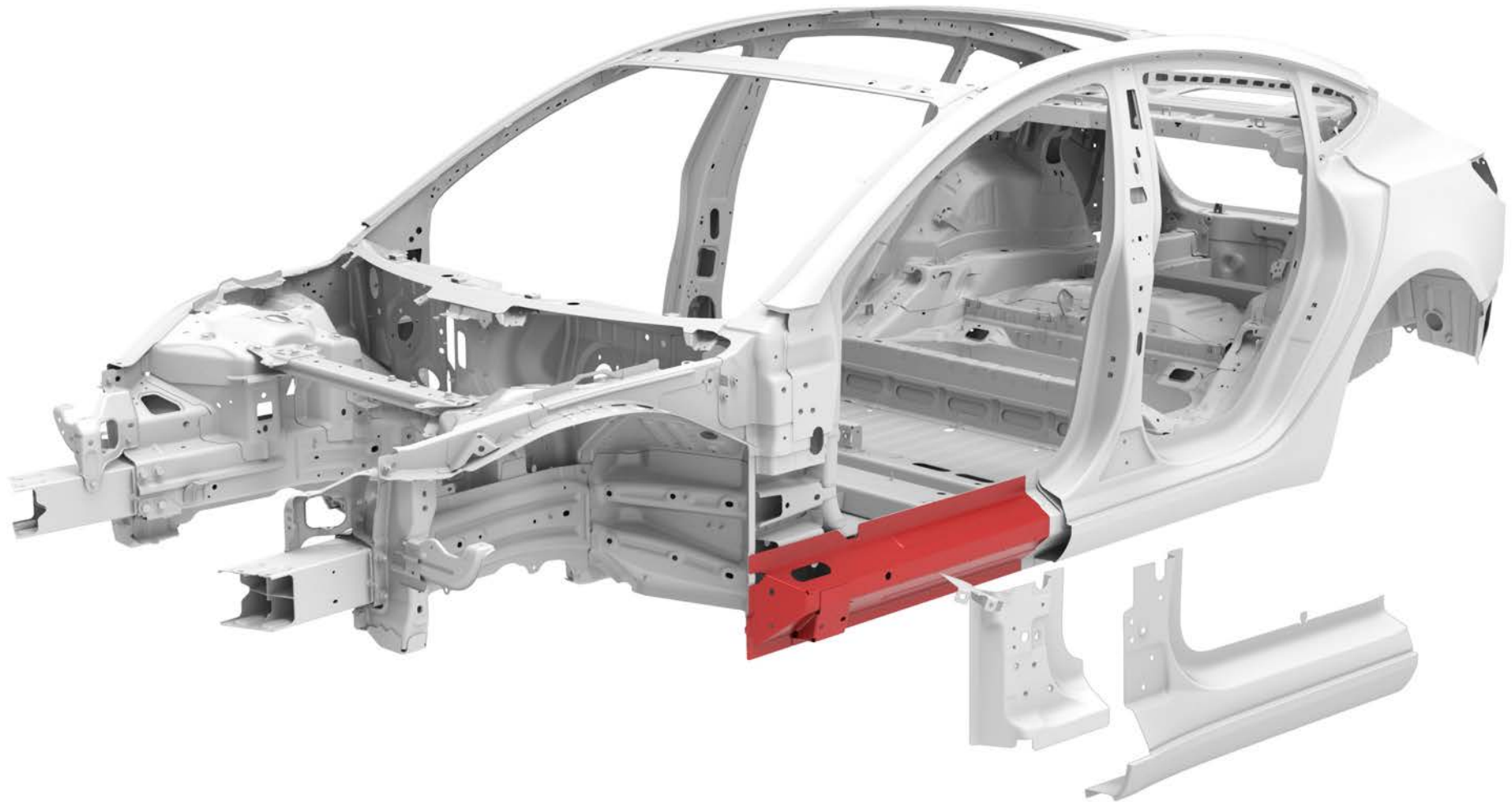

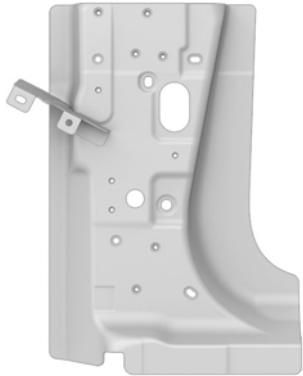
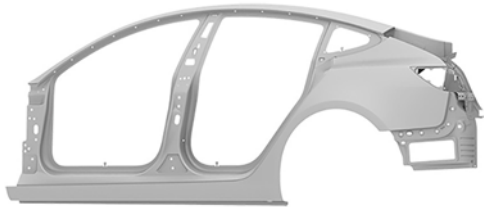


Sill Outer (Front Section)









Parts List

Quantity	Part Number	Description	Image / Notes
1	1082281-S0-A (LH) 1082282-S0-A (RH)	Sill Outer Assembly	
2	1080021-S0-A (LH) 1080022-S0-A (RH)	Hinge Pillar Assembly	 One Hinge Pillar Assembly is needed for replacement and one is needed to make a backing plate.
1	1073673-00-A (LH) 1073674-00-A (RH)	Body Side Outer (Complete)	



Parts List

Quantity	Part Number	Description	Image / Notes
23 rivets or 62 rivets needed; order 30 rivets or 70 rivets	1028408-00-A	 Structural Rivet, 6.5 mm Short	All rivets come in packages of 10; order all rivets in multiples of 10. 23 rivets are needed if the lower flange of the new Sill Outer front section can be attached to the Sill Inner with resistance spot welds. 62 rivets are needed if the lower flange of the new Sill Outer front section cannot be attached to the Sill Inner with resistance spot welds.
18 rivets needed; order 20 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.
9 rivets needed; order 10 rivets	1069327-00-A	 Structural Countersunk Rivet, 6.5 mm	All rivets come in packages of 10; order all rivets in multiples of 10.
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.
1	—	Weld-Through Primer	Source locally; not available from Tesla.
1	—	Corrosion-Resistant Epoxy Primer	Source locally; not available from Tesla.
1	—	Seam Sealer	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
<p>This procedure is for the left-hand component; the procedure is identical for the right-hand component.</p> <p>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.</p> <p>Installation fasteners that replace factory spot welds in steel-to-steel panel interfaces are specified in this procedure where an approved squeeze-type resistance spot welder with the base welding accessories might not be able to reach. If your approved welder can access a factory spot weld location where this procedure specifies a fastener, an installation spot weld is recommended in place of the specified fastener.</p>	<p>⚠ WARNING: Wear the appropriate personal protective equipment (PPE) when performing this procedure.</p> <p>⚠ CAUTION: This procedure involves both steel and aluminum components. Use the appropriate tools at each step to avoid cross-contamination.</p>	<p>The special tools listed below are required to perform this procedure:</p> <ul style="list-style-type: none">• Microstop Countersink kit• Resistance Spot Welder <p>Use only an approved resistance spot welder. Refer to BR-16-92-007, "Approved Welders" for a list of current approved resistance spot welders.</p> <ul style="list-style-type: none">• GMA welder <p>Use only an approved GMA welder. Refer to BR-16-92-007, "Approved Welders" for a list of current approved GMA welders.</p> <ul style="list-style-type: none">• Frame bench <p>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.</p>



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.

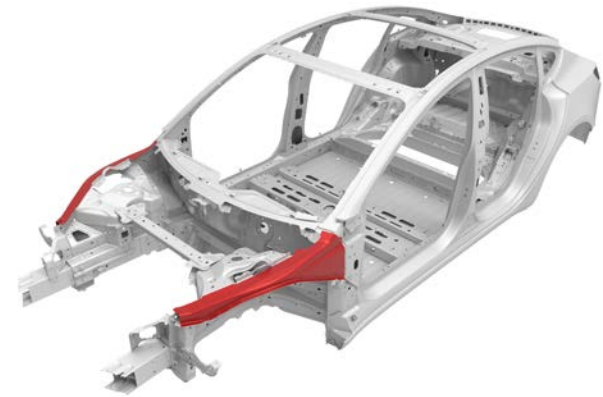




Prerequisites

2

Remove the [Shotgun Outer](#).





Removal

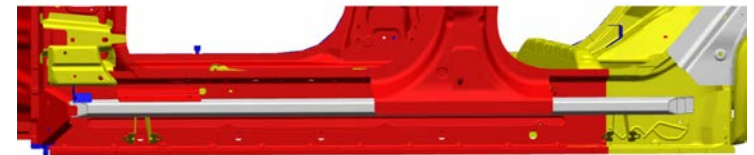
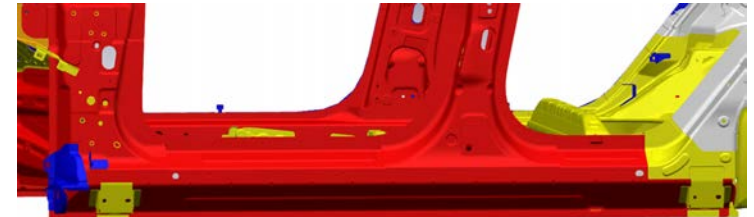
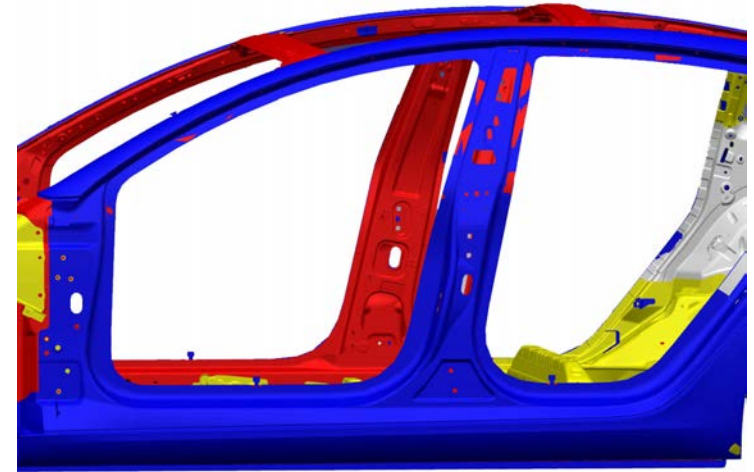
1

Identify the component materials in the repair area.

-  Aluminum
-  Mild Steel
-  High-Strength Steel
-  Ultra High-Strength Steel



NOTE: Refer to [BR-17-10-005](#), “Model 3 Body Structure Materials and Allowed Operations”, for information about the material each structural component is made from and the operations that are allowed on each type of material.



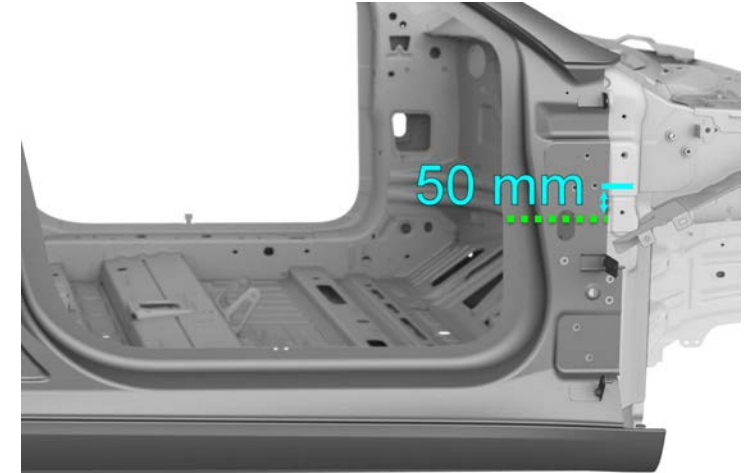


Removal

2 Remove the lower portion of the Body Side Outer in the A-Pillar area.

A Mark a cut line in the A-Pillar area 50 mm (2 in) down from the lower edge of the bolt hole shown.

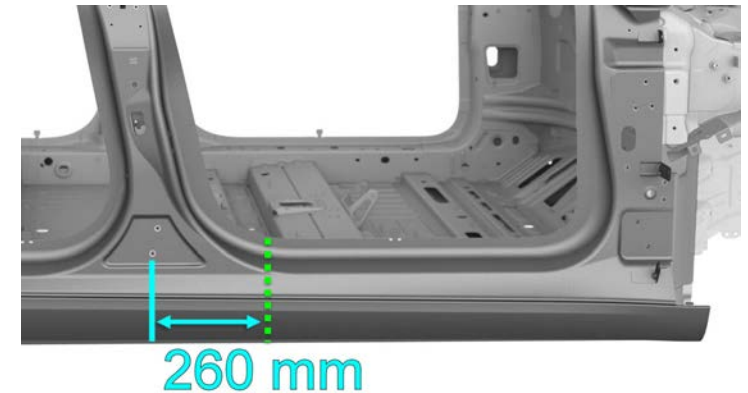
■ ■ ■ ■ Cut Line



B Mark a cut line on the lower portion of the Body Side Outer 260 mm (10-1/4 in) from the forward edge of the door hinge bolt shown.

■ Reference Line/Point

■ ■ ■ ■ Cut Line





Removal

2 Remove the lower portion of the Body Side Outer in the A-Pillar area (continued).

C Cut the Body Side Outer on the cut lines marked in the previous substeps.



CAUTION: Do not damage the surrounding components.



D Use a drill with a spot weld bit to drill out the spot welds that attach the lower portion of the Body Side Outer.

▲ Factory Spot Weld (x2)

■ Factory Spot Weld Areas



NOTE: The areas highlighted in yellow indicate multiple factory spot welds.





Removal

2 Remove the lower portion of the Body Side Outer in the A-Pillar area (continued).

D Use a drill with a spot weld bit to drill out the spot welds that attach the lower portion of the Body Side Outer (continued).





Removal

2 Remove the lower portion of the Body Side Outer in the A-Pillar area (continued).

E Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the lower portion of the Body Side Outer in the A-Pillar area. Save the lower portion to use as a template in a [later step](#).



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

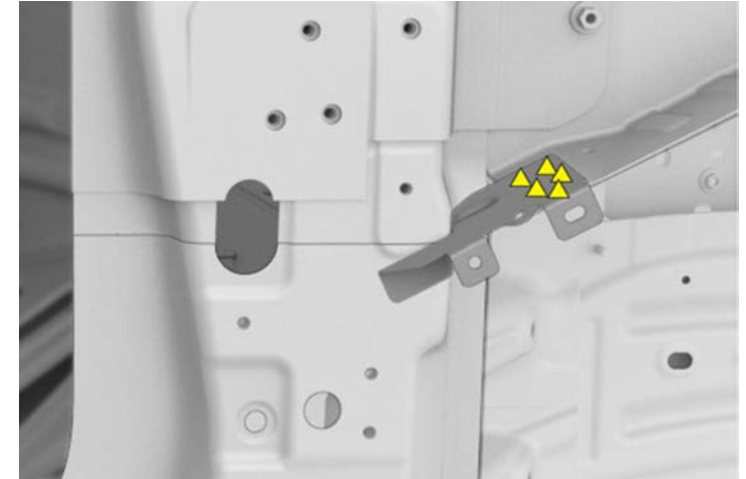
3 Remove the lower portion of the Hinge Pillar.

A Use a drill with a spot weld bit to drill out the spot welds that attach the A-Pillar to Shotgun Reinforcement.

▲ Factory Spot Weld (x8)



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





Removal

3 Remove the lower portion of the Hinge Pillar (continued).

A Use a drill with a spot weld bit to drill out the spot welds that attach the A-Pillar to Shotgun Reinforcement (continued).



B Use a hammer and chisel to remove the A-Pillar to Shotgun Reinforcement.



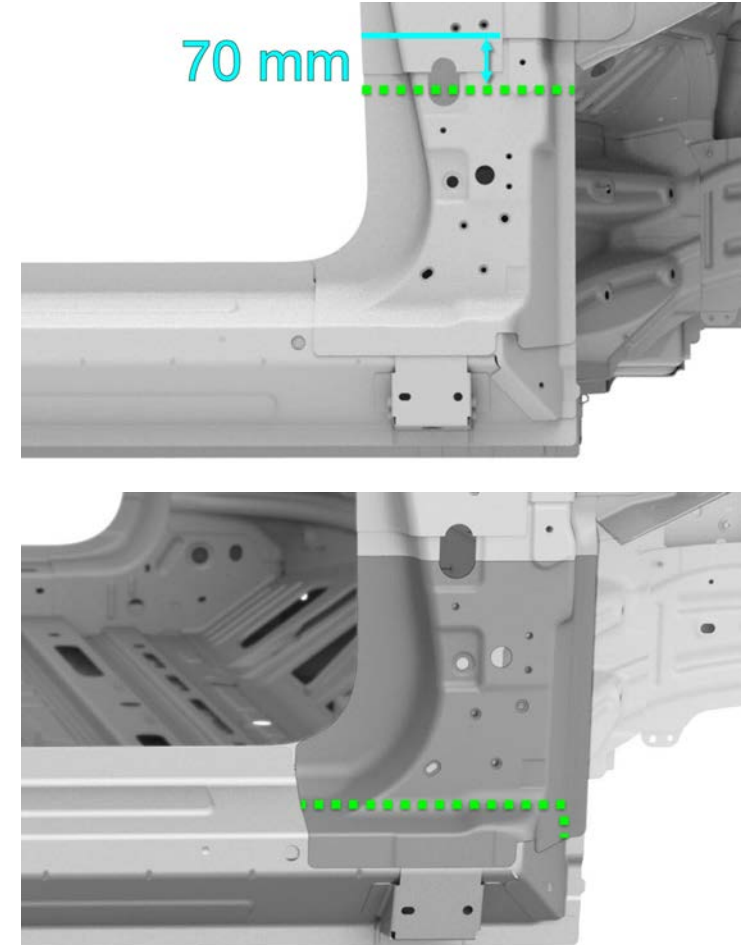


Removal

3 Remove the lower portion of the Hinge Pillar (continued).

C Mark the cut lines shown to remove the bulk of the lower portion of the Hinge Pillar.

— — — — — Cut Line





Removal

3 Remove the lower portion of the Hinge Pillar (continued).

C Mark the cut lines shown to remove the bulk of the lower portion of the Hinge Pillar (continued).



D Cut the original Hinge Pillar on the cut lines marked in the previous substep.



CAUTION: Do not damage the surrounding components.





Removal

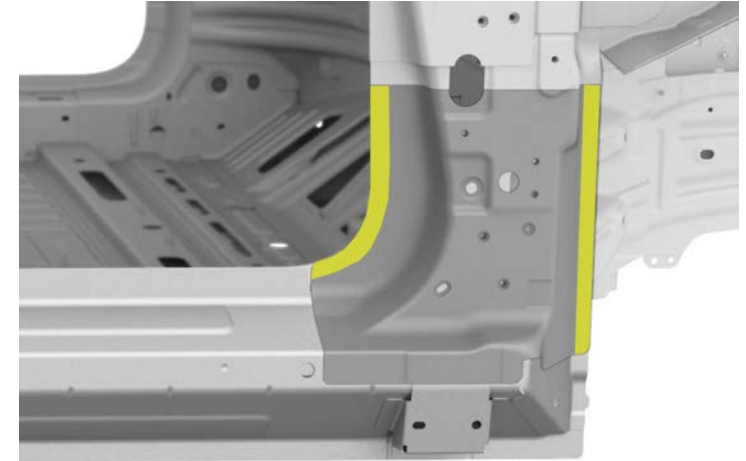
3 Remove the lower portion of the Hinge Pillar (continued).

E Use a drill with a spot weld bit to drill out the spot welds that attach the lower portion of the Hinge Pillar.

 Factory Spot Weld Areas



NOTE: The areas highlighted in yellow indicate multiple factory spot welds.





Removal

3 Remove the lower portion of the Hinge Pillar (continued).

F Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the lower portion of the Hinge Pillar.



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

4 Remove the front section of the original Sill Outer.

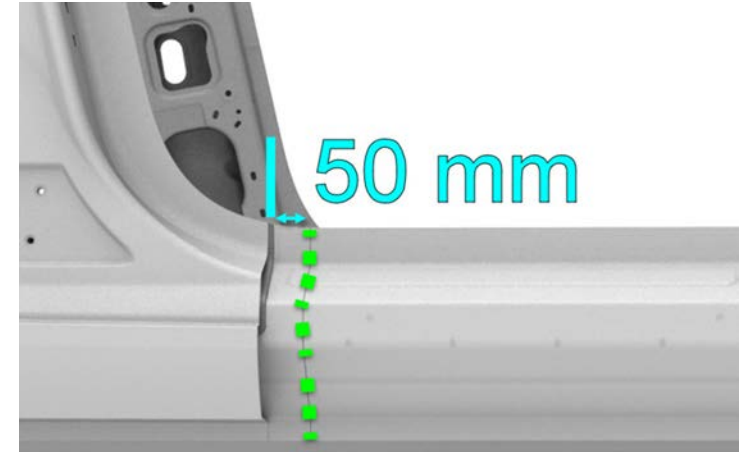
A Cut the Sill Outer 50 mm (2 in) from the front edge of the B-Pillar Outer.

 Cut Line

 Reference Line/Point



CAUTION: Do not damage the surrounding components.





Removal

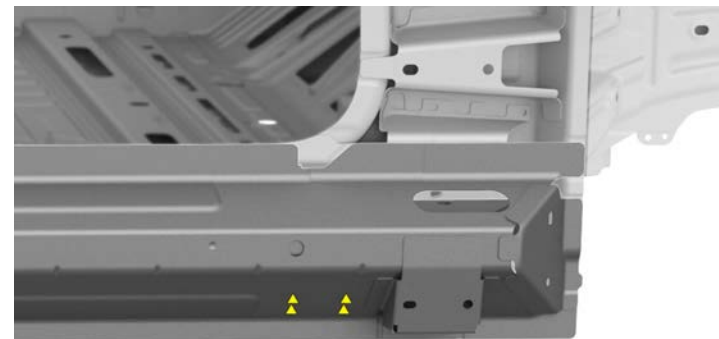
4 Remove the front section of the original Sill Outer (continued).

B Use a drill with a 6.7 mm (17/64 in) bit to drill completely through the spot welds shown.

▲ Factory Spot Weld (x2)



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





Removal

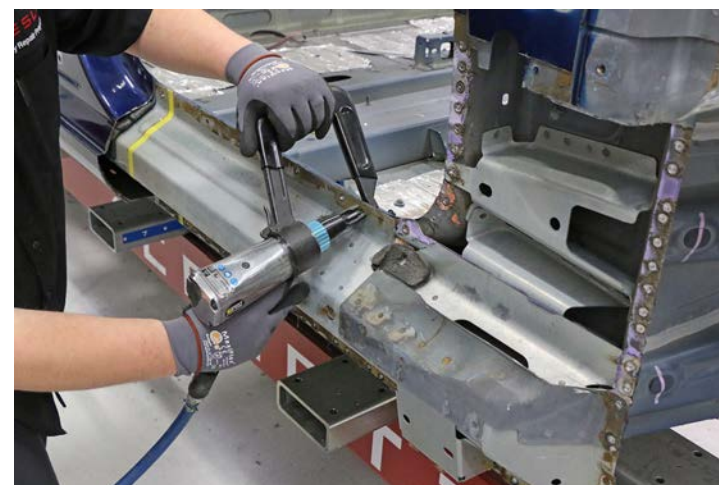
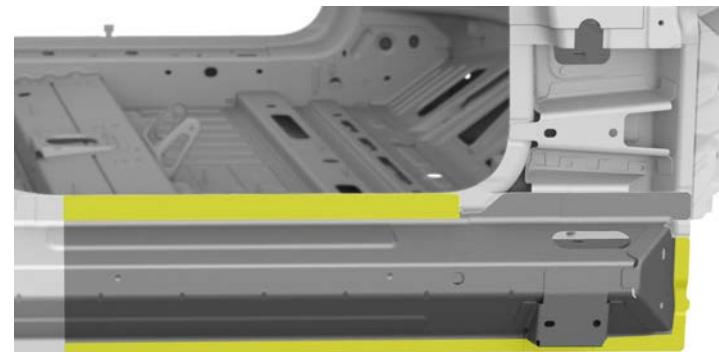
4 Remove the front section of the original Sill Outer (continued).

C Use a drill with a spot weld bit to drill out the remaining factory spot welds. Use a belt sander to sand down any factory spot welds that cannot be reached with a drill.

 Factory Spot Weld Areas



NOTE: The areas highlighted in yellow indicate multiple factory spot welds.





Removal

4 Remove the front section of the original Sill Outer (continued).

D Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the front section of the Sill Outer.



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: Save the front section to be used as a template in a [later step](#).





Removal

5

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.



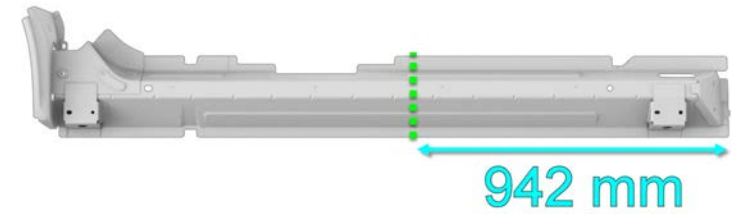


Replacement

1 Prepare the new Sill Outer front section.

A Mark a cut line 942 mm (37-1/16 in) from the front edge of the new Sill Outer.

 Cut Line





Replacement

- 1 Prepare the new Sill Outer front section (continued).
 - B Cut the new Sill Outer on the cut line marked in the previous substep.
 - C Put the new section into position and clamp it into place. If necessary, trim the new section to fit.





Replacement

2 Create a reinforcement plate for the new Sill Outer front section.

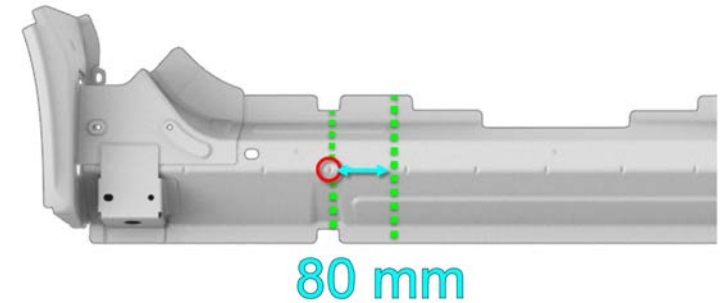
A

Cut an 80 mm (3-18 in) section from the remaining piece of the new Sill Outer.

 Cut Line



NOTE: Measure 80 mm (3-18 in) forward from the forward edge of the dimple shown (circled in red) on the remaining piece of the Sill Outer.





Replacement

2 Create a reinforcement plate for the new Sill Outer front section (continued).

A Cut an 80 mm (3-18 in) section from the remaining piece of the new Sill Outer (continued).



B Cut off the flanges from the reinforcement plate.





Replacement

3 Prepare for installation of the new Sill Outer front section.

A Put the reinforcement plate into position, centered over the butt joint between the original Sill Outer and the new Sill Outer front section, and clamp it into place.

B On the original front section of the Sill Outer that was removed in an [earlier step](#), cut a template that includes the holes made when drilling completely through 2 of the factory spot welds in an [earlier step](#).





Replacement

3

Prepare for installation of the new Sill Outer front section (continued).

C

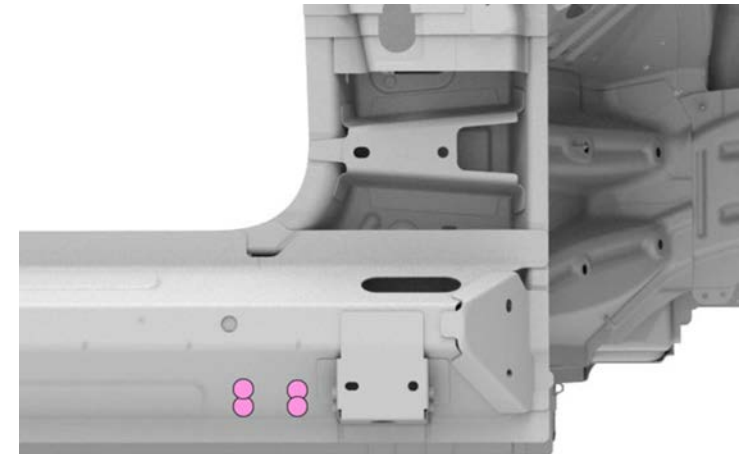
Clamp the template into position on the new Sill Outer front section.



D

Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets through the holes in the template, and then remove the template.

● Structural Rivet, 6.5 mm Short (x4)





Replacement

3 Prepare for installation of the new Sill Outer front section (continued).

D Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets through the holes in the template, and then remove the template (continued).



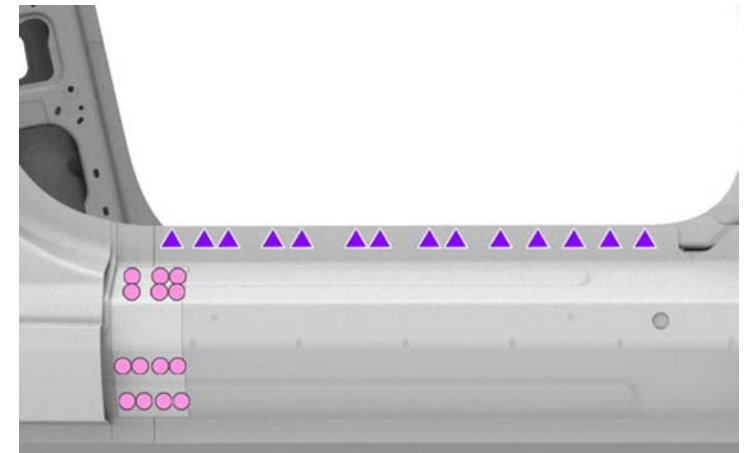
E Mark the remaining fastener locations on the new Sill Outer (front section) and the reinforcement plate.

● Structural Rivet, 6.5 mm Short (x19)

▲ Installation Spot Weld (x24)



NOTE: If the HV battery is out of the vehicle, or if the resistance spot welder being used can access the lower flange area, spot weld along the lower flange in the factory spot weld locations. Otherwise the lower flange area of the new Sill Outer front section will be secured with structural adhesive, and then structural rivets will be installed in these locations during the installation of the Body Side Outer section.

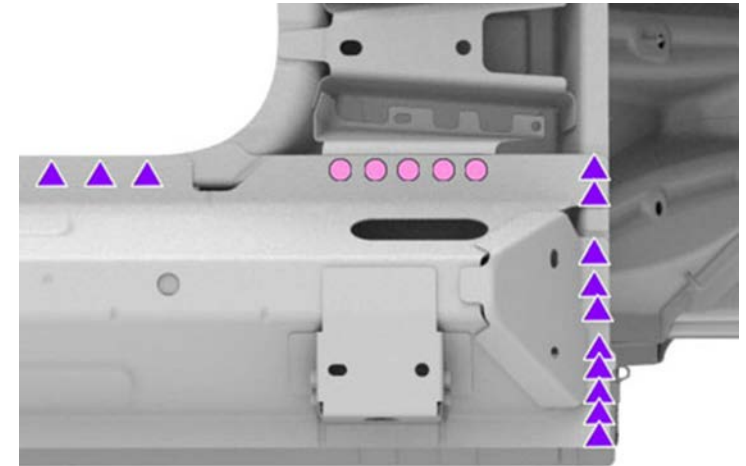




Replacement

3 Prepare for installation of the new Sill Outer front section (continued).

E Mark the remaining fastener locations on the new Sill Outer (front section) and the reinforcement plate (continued).





Replacement

3 Prepare for installation of the new Sill Outer front section (continued).

F Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets.



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



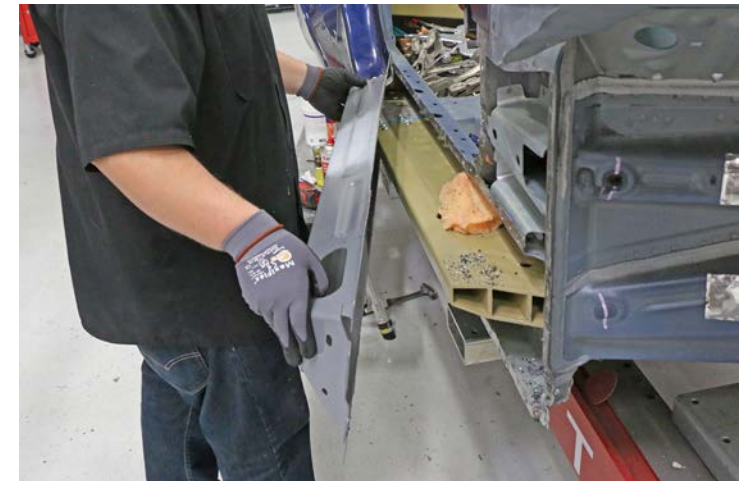


Replacement

3 Prepare for installation of the new Sill Outer front section (continued).

G Mark the surface preparation boundary lines on the vehicle and the new front section.

H Remove the reinforcement plate and the new front section.





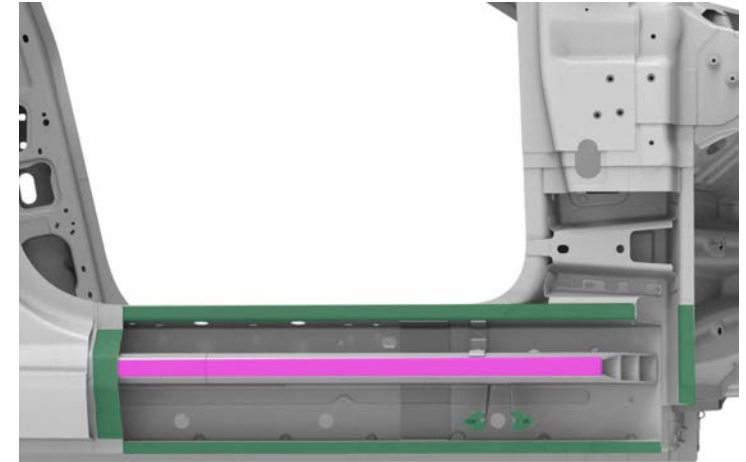
Replacement

3 Prepare for installation of the new Sill Outer front section (continued).

1 Mark the bond path areas on the reinforcement plate, the new front section, and the vehicle.

■ Steel-to-Steel Bond Path

■ Steel-to-Aluminum Bond Path





Replacement

3 Prepare for installation of the new Sill Outer front section (continued).

1 Mark the bond path areas on the reinforcement plate, the new front section, and the vehicle (continued).





Replacement

4 Prepare the surfaces to install the new Sill Outer front section.

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

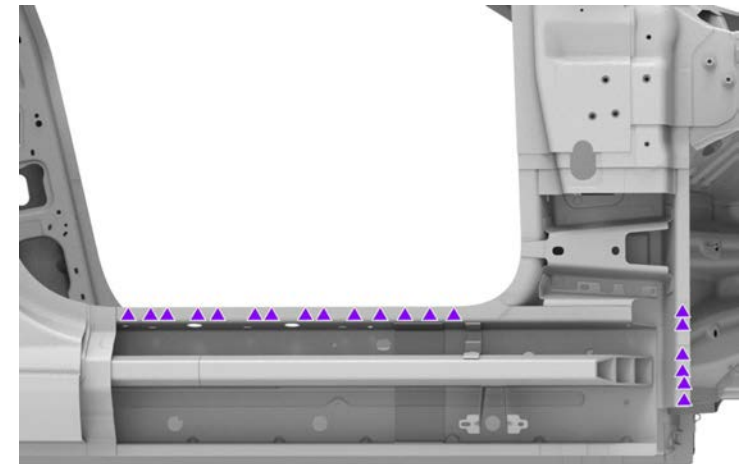


B Mark the installation spot weld locations.

▲ Installation Spot Weld



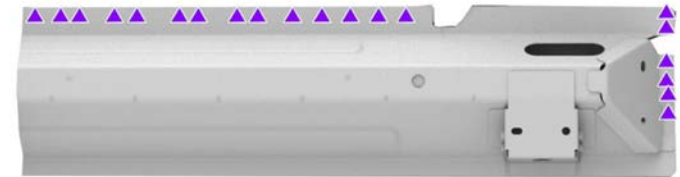
NOTE: If the HV battery is out of the vehicle, or if the resistance spot welder being used can access the lower flange area, spot weld along the lower flange in the factory spot weld locations. Otherwise the lower flange area of the new Sill Outer front section will be secured with structural adhesive, and then structural rivets will be installed in these locations during the installation of the Body Side Outer section.





Replacement

- 4 Prepare the surfaces to install the new Sill Outer front section (continued).
- B Mark the installation spot weld locations (continued).





Replacement

4 Prepare the surfaces to install the new Sill Outer front section (continued).

C Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat on the vehicle, the new Sill Outer front section, and the reinforcement in the weld areas. Use a belt sander with a medium-abrasive belt for any areas that cannot be reached with a disc sander.



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



D Clean all the bond paths and weld areas on the vehicle, the new Sill Outer front section, and 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

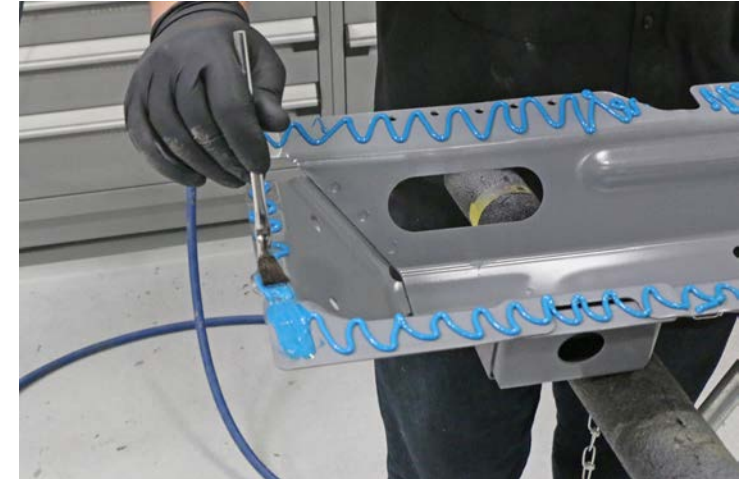
5 Apply structural adhesive to install the new Sill Outer front section.

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





Replacement

6 Install the new Sill Outer front section.

A Put the new Sill Outer front section into position and insert the structural rivets shown to hold it into place.

● Structural Rivet, 6.5 mm Short (x9)



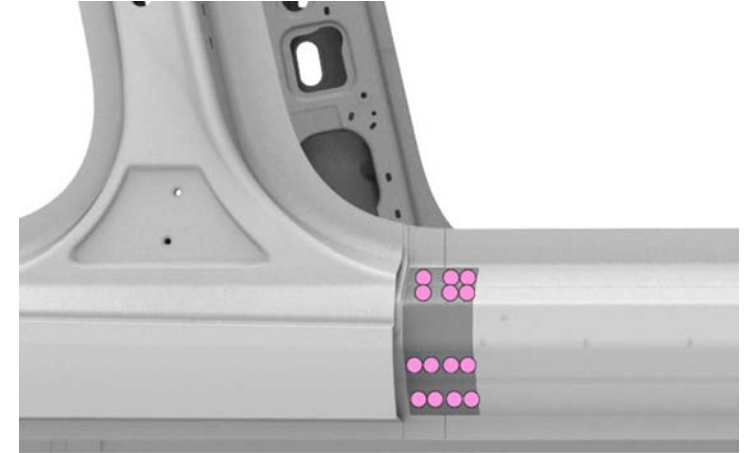


Replacement

6 Install the new Sill Outer front section (continued).

B Put the reinforcement into position and insert the structural rivets to hold it into place.

● Structural Rivet, 6.5 mm Short (x14)





Replacement

- 6 Install the new Sill Outer front section (continued).
- C Clamp the new Sill Outer front section into position.



- D Install the structural rivets.





Replacement

- 6 Install the new Sill Outer front section (continued).
- E Brush structural adhesive into the seams between the reinforcement and the Sill Outer.





Replacement

- 6 Install the new Sill Outer front section (continued).
- F Wipe off any excess adhesive.





Replacement

6 Install the new Sill Outer front section (continued).

G Perform resistance spot welding.
▲ Installation Spot Weld



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.



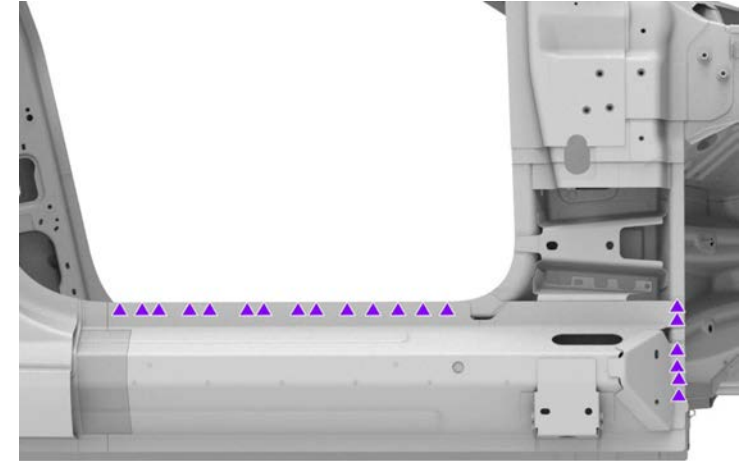
CAUTION: Do not weld on a Tesla vehicle with an energized high voltage or 12V system. Welding on a Tesla vehicle with an energized high voltage or 12V system might damage vehicle components.



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.



NOTE: If the HV battery is out of the vehicle, or if the resistance spot welder being used can access the lower flange area, spot weld along the lower flange in the factory spot weld locations.





Replacement

- 6 Install the new Sill Outer front section (continued).
- G Perform resistance spot welding (continued).
- H Clamp all areas not secured with fasteners or spot welds.





Replacement

6 Install the new Sill Outer front section (continued).

I Remove any discoloration from the weld areas.

J Prime any bare metal that will not be covered with weld-through primer or structural adhesive in a subsequent repair with a suitable corrosion-resistant epoxy primer.





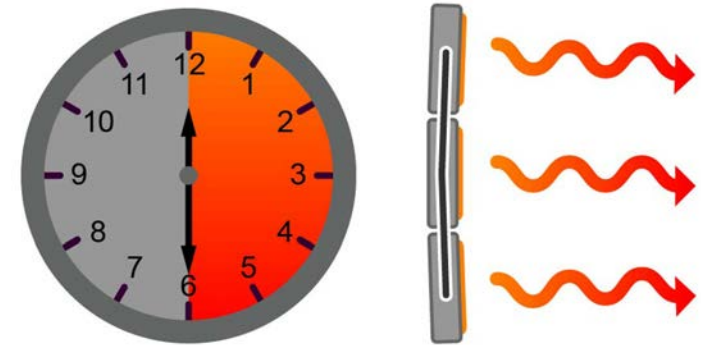
Replacement

6 Install the new Sill Outer front section (continued).

K 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

7 Prepare a backing plate for the installation of the new Hinge Pillar section.

A On the first new Hinge Pillar Assembly, use a drill with a spot weld bit to drill out the factory spot welds that attach the A-Pillar to Shotgun Reinforcement.

▲ Factory Spot Weld (x3)





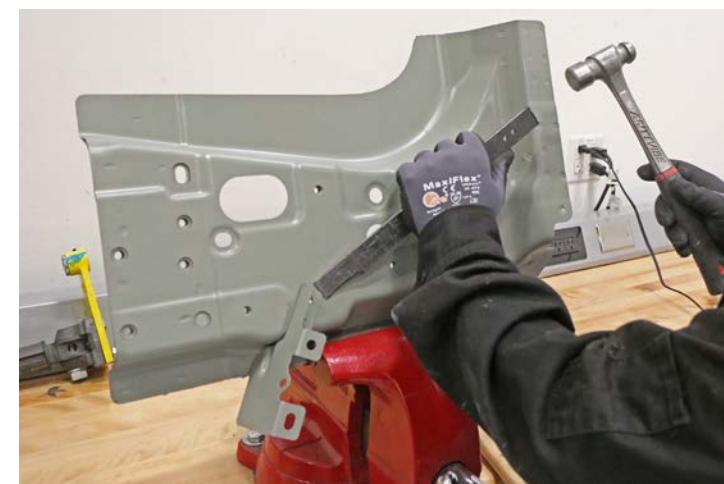
Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

A On the first new Hinge Pillar Assembly, use a drill with a spot weld bit to drill out the factory spot welds that attach the A-Pillar to Shotgun Reinforcement (continued).



B Use a hammer and chisel to remove the A-Pillar to Shotgun Reinforcement from the first new Hinge Pillar Assembly.



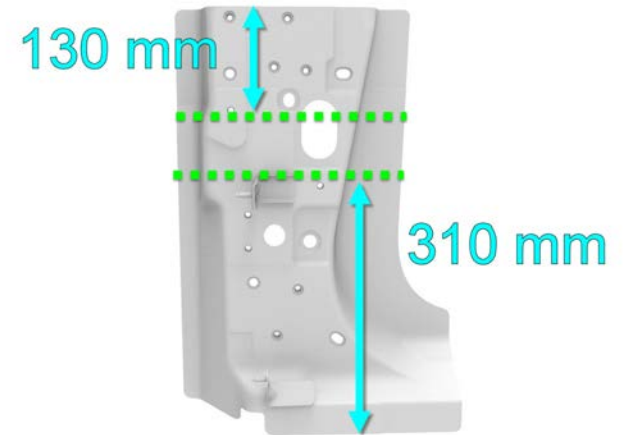


Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

C Cut the first new Hinge Pillar Assembly as shown to create a backing plate.

■ ■ ■ ■ Cut Line





Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

C Cut the first new Hinge Pillar Assembly as shown to create a backing plate (continued).

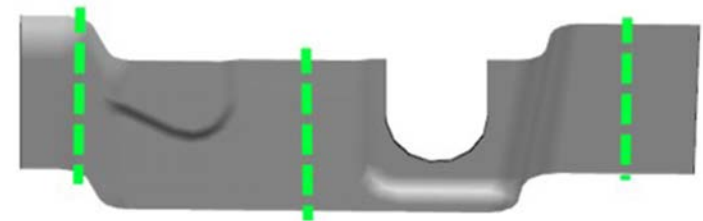


D Cut off the flanges from the backing plate, and then cut the backing plate down the middle to create 2 sections.

— — — — — Cut Line



NOTE: This allows the backing plate to fit inside the butt joint.





Replacement

- 7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).
- D Cut off the flanges from the backing plate, and then cut the backing plate down the middle to create 2 sections (continued).





Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

E Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat from the sections in the areas where the sections meet.



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



F Clean the sections of the backing 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

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

G Put the backing plate sections into position and clamp them into place.



NOTE: If necessary, trim the backing plate sections to achieve the proper fit.





Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

H

Tack weld the 2 backing plate sections 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 backing plate sections together while the sections are on the vehicle.

I

Remove the backing plate sections from the vehicle.





Replacement

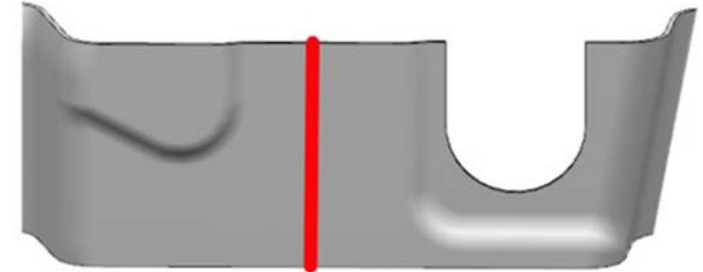
7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

J GMA weld the 2 backing plate sections together to create 1 backing plate.

 GMA Weld



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.





Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

K Use a grinding tool to grind down the weld on the backing plate.



L Put the backing plate into position and clamp it into place.





Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

M Mark the locations for the structural countersunk rivets that will attach the backing plate to the upper portion of the original Hinge Pillar Assembly.

○ Structural Countersunk Rivet, 6.5 mm (x3)



CAUTION: Make sure to locate the forward-most hole inboard enough so that it does not conflict with the fasteners used to install the A-Pillar to Shotgun Reinforcement (added to the first image for clarity) in a [later step](#).





Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

M Mark the locations for the structural countersunk rivets that will attach the backing plate to the upper portion of the original Hinge Pillar Assembly (continued).

N Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural countersunk rivets.



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





Replacement

7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).

N Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural countersunk rivets (continued).

O Use a drill with the Microstop countersink cage assembly and the appropriate-sized countersink bit to countersink the holes for countersunk rivets (Microstop Countersink Kit, Tesla p/n 1133101-00-A).



NOTE: If the depth adjustment for the Microstop countersink cage assembly has not already been set, do the procedure in the [Microstop Countersink Kit tool instructions](#) to adjust the tool.



NOTE: For the forward-most hole, the plastic foot of the Microstop countersink cage assembly must be removed to provide clearance for the tool.





Replacement

- 7 Prepare a backing plate for the installation of the new Hinge Pillar section (continued).
- Use a drill with the Microstop countersink cage assembly and the appropriate-sized countersink bit to countersink the holes for countersunk rivets (Microstop Countersink Kit, Tesla p/n 1133101-00-A) (continued).





Replacement

8 Prepare for installation of the new Hinge Pillar section.

A On the second new Hinge Pillar Assembly, use a drill with a 6.7 mm (17/64 in) bit to drill completely through the factory spot welds that attach the A-Pillar to Shotgun Reinforcement.

▲ Factory Spot Weld (x3)





Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

B Use a hammer and chisel to remove the A-Pillar to Shotgun Reinforcement from the second new Hinge Pillar Assembly.



NOTE: Save the A-Pillar to Shotgun Reinforcement for installation in a [later step](#).

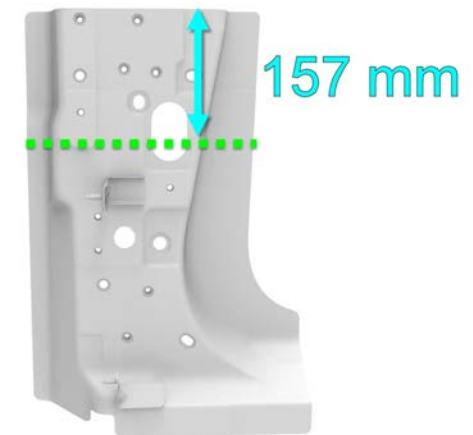


C Cut the second new Hinge Pillar Assembly on the green dashed line shown.

 Cut Line



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





Replacement

- 8 Prepare for installation of the new Hinge Pillar section (continued).
- C Cut the second new Hinge Pillar Assembly on the green dashed line shown (continued).





Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

D Put the new Hinge Pillar Assembly section into position and align it to the frame bench jig points.



NOTE: If necessary, use a 1 mm (1/16 in) shim to account for the thickness of the Body Side Outer.



NOTE: If necessary, trim the new section to achieve suitable gaps.





Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

E Put the new A-Pillar to Shotgun Reinforcement into position and insert grip screws into the holes that were drilled when the reinforcement was removed in an [earlier substep](#).

F Clamp the new A-Pillar to Shotgun Reinforcement to the Shotgun Inner.





Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

G Mark the remaining fastener locations on the new Hinge Pillar Assembly section.

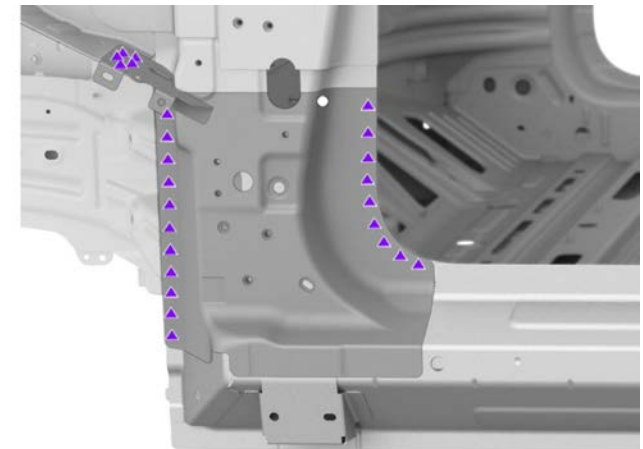
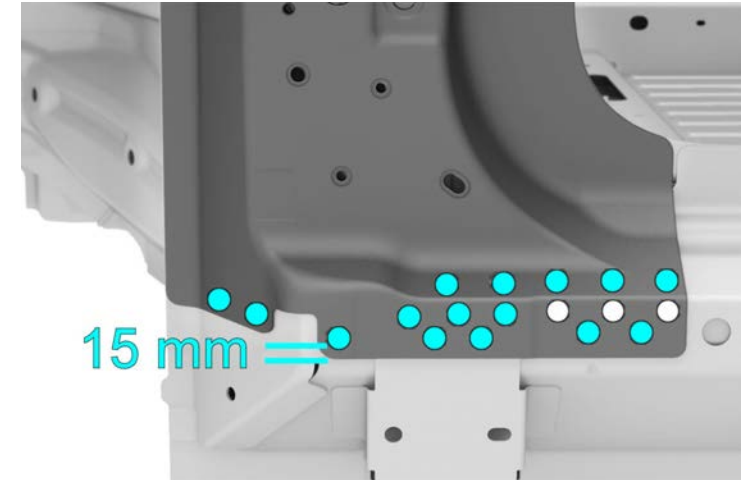
● High Strength Structural Rivet, 6.5 mm (x15)

○ Structural Countersunk Rivet, 6.5 mm (x4)

▲ Installation Spot Weld



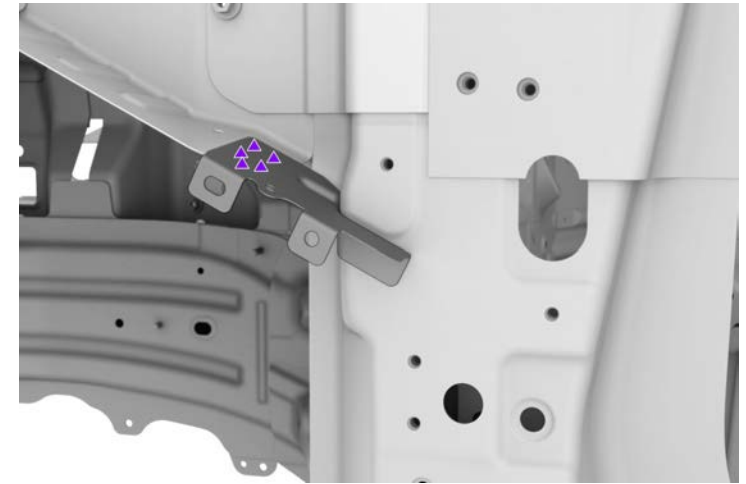
NOTE: Mark and drill the holes for the bottom row of structural countersunk rivets at least 15 mm (9/16 in) up from the bottom edge of the new section. This ensures that the rivets go through the flat face of the aluminum Sill Insert.





Replacement

- 8 Prepare for installation of the new Hinge Pillar section (continued).
- G Mark the remaining fastener locations on the new Hinge Pillar Assembly section (continued).





Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

G Mark the remaining fastener locations on the new Hinge Pillar Assembly section (continued).



H Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets and countersunk structural rivets.



CAUTION: Drill holes for countersunk rivets far enough away from the corners and any other obstructions to provide enough clearance (approximately 18 mm or 11/16 in) for the Microstop countersink cage assembly.



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





Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

H Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets and countersunk structural rivets (continued).



I Use a drill with the Microstop countersink cage assembly and the appropriate-sized countersink bit to countersink the holes for countersunk rivets (Microstop Countersink Kit, Tesla p/n 1133101-00-A).

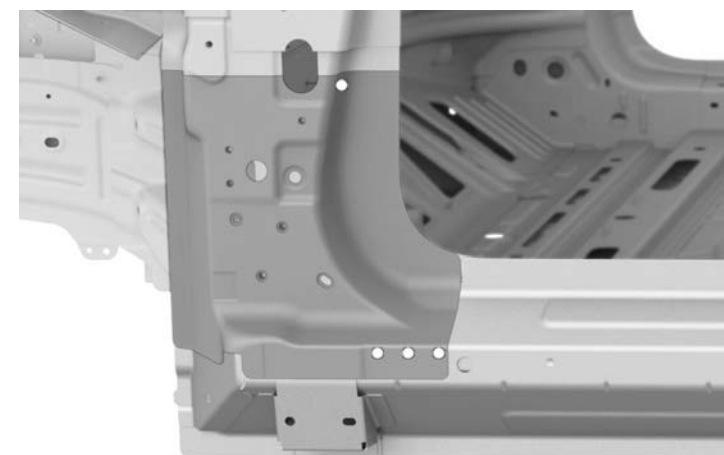
○ Structural Countersunk Rivet, 6.5 mm (x4)



NOTE: If necessary, remove the plastic foot from the countersink cage assembly to install the countersunk structural rivet circled in red.



NOTE: If the depth adjustment for the Microstop countersink cage assembly has not already been set, do the procedure in the [Microstop Countersink Kit tool instructions](#) to adjust the tool.





Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

Use a drill with the Microstop countersink cage assembly and the appropriate-sized countersink bit to countersink the holes for countersunk rivets (Microstop Countersink Kit, Tesla p/n 1133101-00-A) (continued).

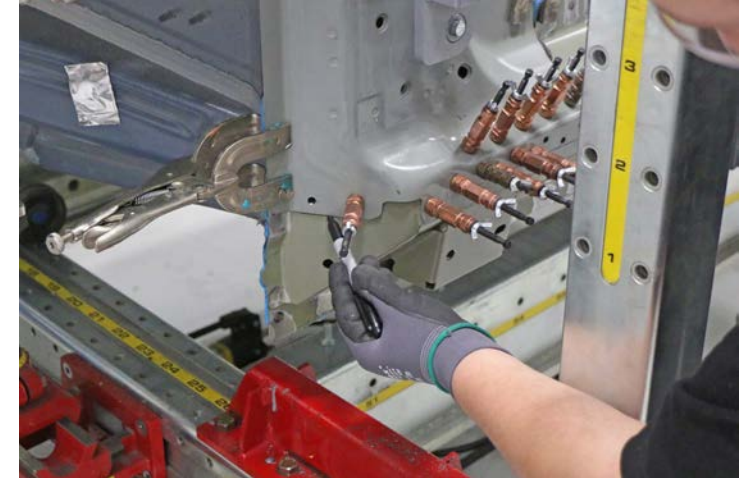




Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

J Mark the surface preparation boundary lines on the new Hinge Pillar section and the vehicle.



K Remove the new A-Pillar to Shotgun Reinforcement, the new Hinge Pillar section, and the backing plate.




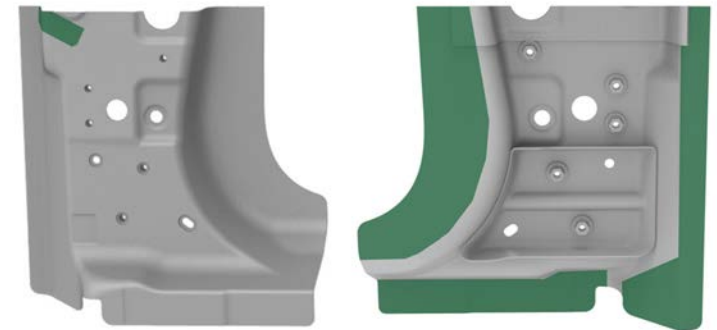
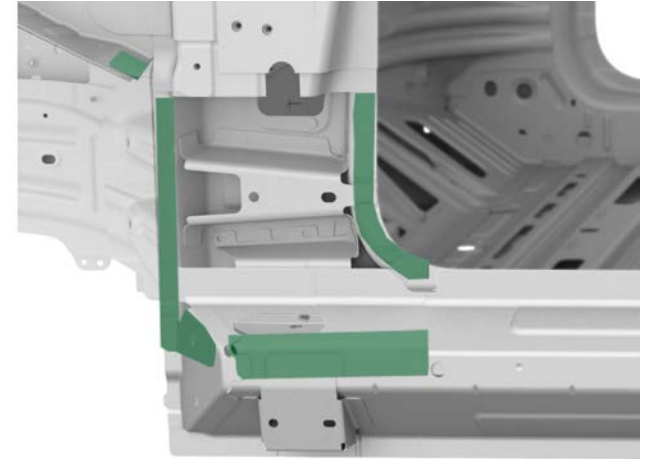


Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

L Mark the bond path areas on the new Hinge Pillar Assembly section, the new A-Pillar to Shotgun Reinforcement, the backing plate, and the vehicle.

 Steel-to-Steel Bond Path

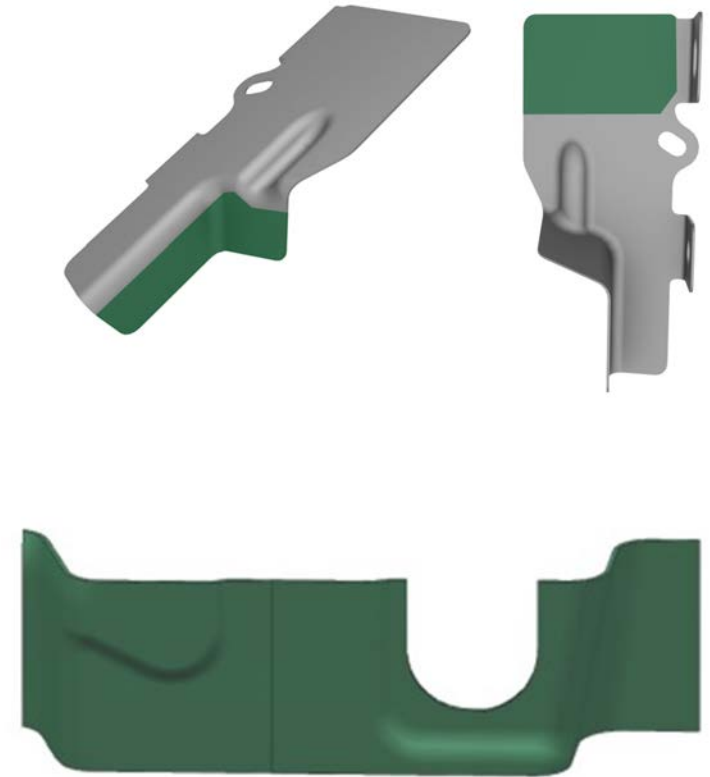




Replacement

8 Prepare for installation of the new Hinge Pillar section (continued).

L Mark the bond path areas on the new Hinge Pillar Assembly section, the new A-Pillar to Shotgun Reinforcement, the backing plate, and the vehicle (continued).





Replacement

9 Prepare the surfaces to install the new Hinge Pillar Assembly section.

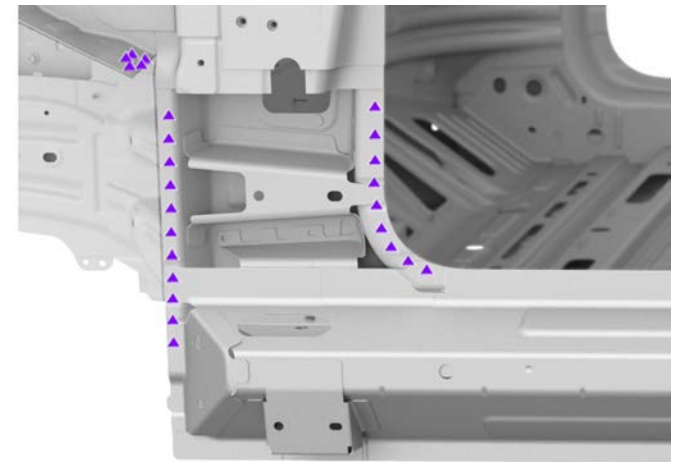
A Use a red Scotch-Brite pad to scuff the new Hinge Pillar Assembly section, the A-Pillar to Shotgun Reinforcement, the vehicle, and the outside of the backing plate in the bond path areas.



NOTE: Make sure to scuff the inside surfaces of the original Hinge Pillar Assembly on the vehicle in the areas that will contact the backing plates.

B Mark the installation spot weld locations on the new Hinge Pillar Assembly section, the A-Pillar to Shotgun Reinforcement, and the vehicle.

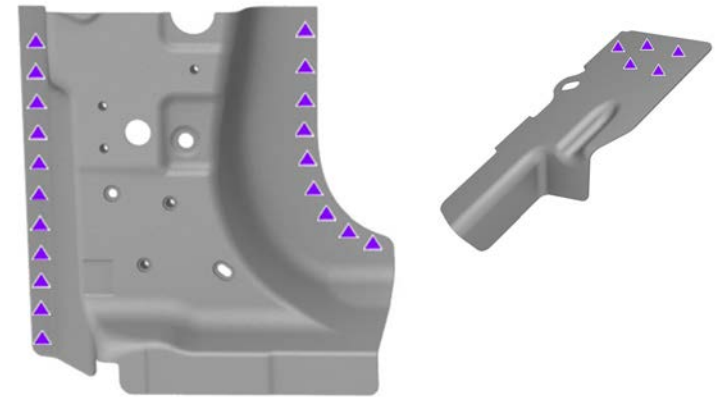
▲ Installation Spot Weld





Replacement

- 9 Prepare the surfaces to install the new Hinge Pillar Assembly section (continued).
- B Mark the installation spot weld locations on the new Hinge Pillar Assembly section, the A-Pillar to Shotgun Reinforcement, and the vehicle (continued).





Replacement

9 Prepare the surfaces to install the new Hinge Pillar Assembly section (continued).

C Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat in the weld areas.



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



CAUTION: Take the appropriate steps to minimize the cross-contamination of steel and aluminum components during the repair.



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

D

Clean all the bond paths and weld areas on the new section, the reinforcement, the backing 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

9 Prepare the surfaces to install the new Hinge Pillar Assembly section (continued).

E Apply a suitable corrosion-resistant epoxy primer to any bare metal on the backside of the backing plate (the sides of the backing plate that will be facing the inside of the vehicle when installed).

10 Apply structural adhesive to install the new Hinge Pillar Assembly section.

A Spread a thin coating of structural adhesive as a primer layer on the bond paths on the new Hinge Pillar Assembly section, the new A-Pillar to Shotgun Reinforcement, the backing 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.

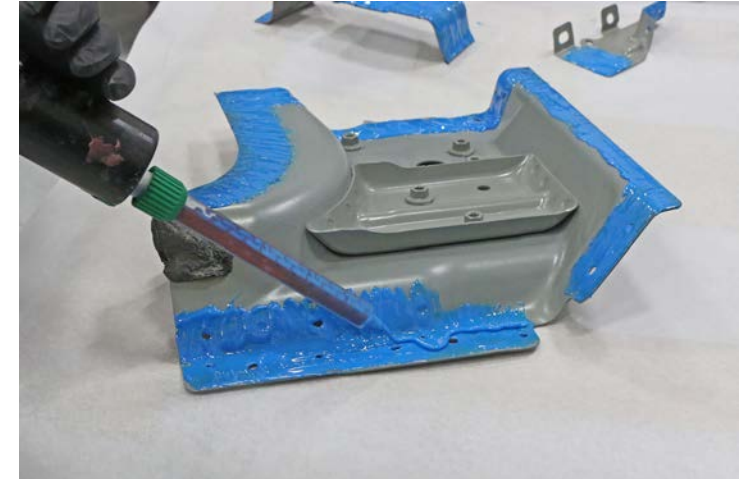




Replacement

10 Apply structural adhesive to install the new Hinge Pillar Assembly section (continued).

B While the primer layer is still wet, apply a bead of structural adhesive on top of the primer layer of the bond path areas on the new Hinge Pillar section and on the backing plate.



11 Install the new Hinge Pillar Assembly section.

A Put the backing plate for the Hinge Pillar into position and insert the countersunk structural rivets to hold it in place.

○ Structural Countersunk Rivet, 6.5 mm (x3)





Replacement

11 Install the new Hinge Pillar Assembly section (continued).

A Put the backing plate for the Hinge Pillar into position and insert the countersunk structural rivets to hold it in place (continued).



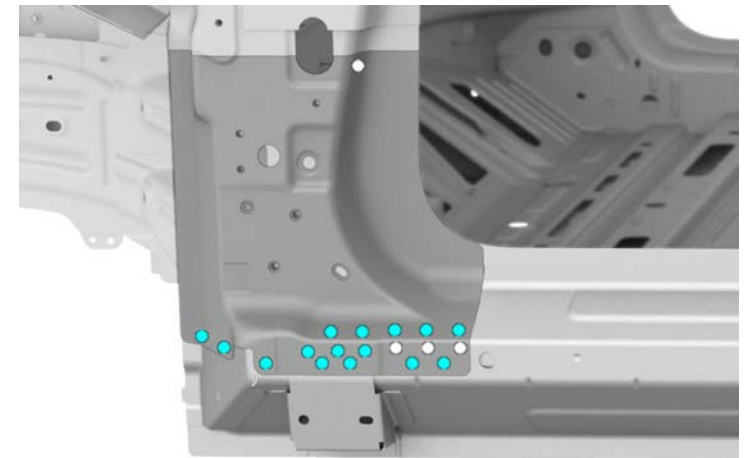


Replacement

11 Install the new Hinge Pillar Assembly section (continued).

B Put the new Hinge Pillar Assembly section into position, and insert the structural rivets and countersunk structural rivets shown.

- High Strength Structural Rivet, 6.5 mm (x15)
- Structural Countersunk Rivet, 6.5 mm (x4)





Replacement

11 Install the new Hinge Pillar Assembly section (continued).

B Put the new Hinge Pillar Assembly section into position, and insert the structural rivets and countersunk structural rivets shown (continued).



C Install the structural countersunk rivet shown.
○ Structural Countersunk Rivet, 6.5 mm (x1)



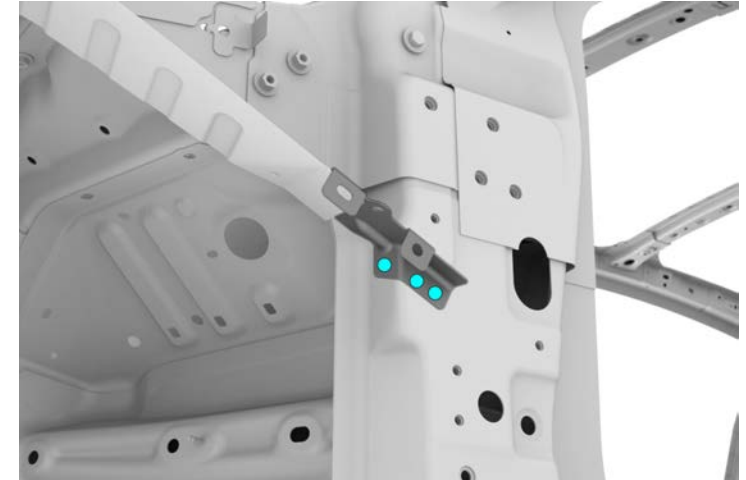


Replacement

11 Install the new Hinge Pillar Assembly section (continued).

D Put the new A-Pillar to Shotgun Reinforcement into position and insert the structural rivets.

● High Strength Structural Rivet, 6.5 mm (x3)





Replacement

11 Install the new Hinge Pillar Assembly section (continued).

E Align and temporarily secure the new Hinge Pillar section to the frame bench jig points.



NOTE: If necessary, use a 1 mm (1/16 in) shim to account for the thickness of the Body Side Outer.

F Clamp the new Hinge Pillar section in the areas that do not have fasteners.



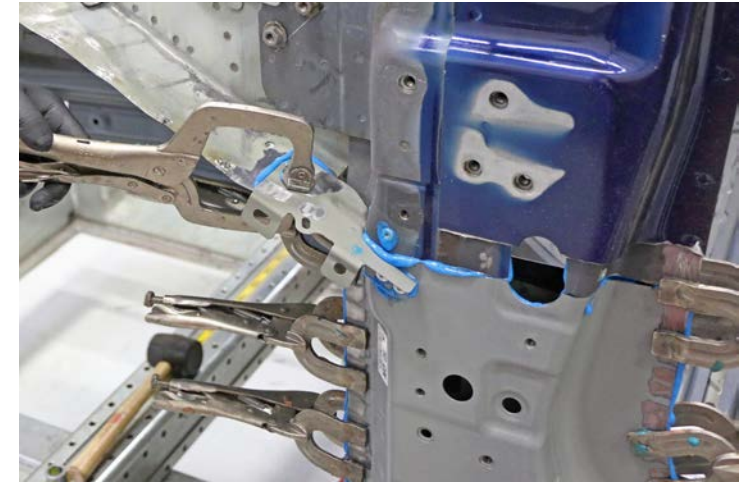


Replacement

11 Install the new Hinge Pillar Assembly section (continued).

F Clamp the new Hinge Pillar section in the areas that do not have fasteners (continued).

G Install the structural rivets and structural countersunk rivets to install the new Hinge Pillar section and the new A-Pillar to Shotgun Reinforcement.





Replacement

11 Install the new Hinge Pillar Assembly section (continued).

H Wipe off any excess adhesive.





Replacement

11 Install the new Hinge Pillar Assembly section (continued).

| Perform resistance spot welding to install the new Hinge Pillar Assembly section and A-Pillar to Shotgun Reinforcement.

▲ Installation Spot Weld



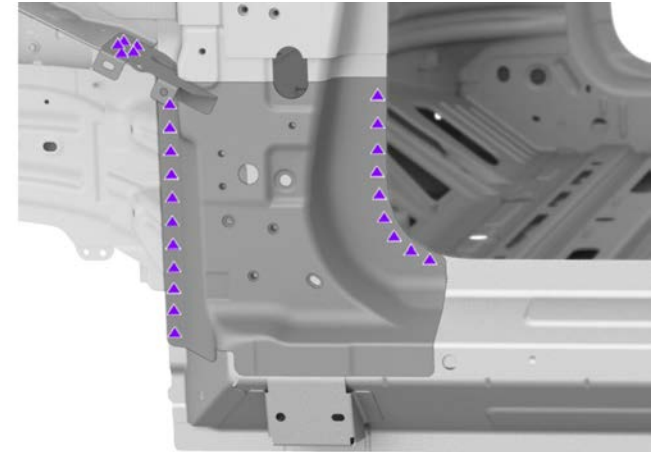
WARNING: Failure to follow all welding safety precautions, including the use of personal protective equipment, could result in serious injury or property damage. Only technicians who have successfully met Tesla's requirements for welding training are authorized to weld structural components on Tesla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

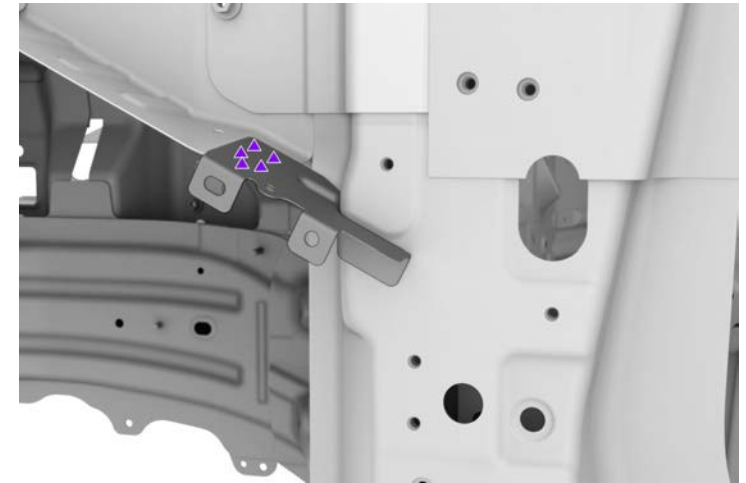




Replacement

11 Install the new Hinge Pillar Assembly section (continued).

Perform resistance spot welding to install the new Hinge Pillar Assembly section and A-Pillar to Shotgun Reinforcement (continued).





Replacement

11 Install the new Hinge Pillar Assembly section (continued).

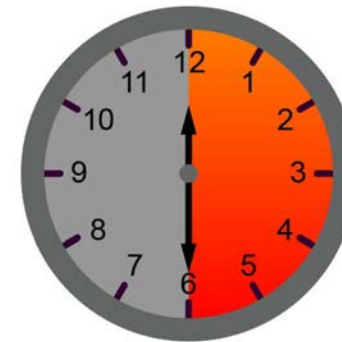
J Remove any discoloration from the weld areas.



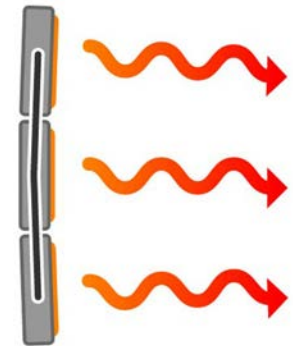
K Bake the structural adhesive so that the bonded panels reach a temperature of 60°C–80°C (140°F–176°F) for at least 30 minutes to achieve full strength.



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

12

Prime any bare metal that will not be covered with weld-through primer or structural adhesive in a subsequent repair with a suitable corrosion-resistant epoxy primer.

13

Prepare the new Body Side Outer section for installation.

A

Clamp the remaining piece of the original Body Side Outer to the new Body Side Outer, and use it as a template to mark cut lines at each butt joint. Remove the template.

 Cut Line



NOTE: The remaining piece of the original Body Side Outer was removed in an [earlier step](#).



Replacement

13 Prepare the new Body Side Outer section for installation (continued).

B Cut the new Body Side Outer on the cut lines 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 Body Side Outer section into position and check for suitable gaps. If necessary, trim the new Body Side Outer section. Remove the new Body Side Outer section.





Replacement

14 Create and install backing plates for the Body Side Outer butt joints.

A Cut 40 mm (1-9/16 in) sections from the remaining piece of the new A-Pillar Body Side Outer to create backing plates for the 2 butt joints.



NOTE: This piece was cut off of the new Body Side Outer in an [earlier step](#).

B Trim the excess material from each section to match the backing plates shown.





Replacement

14 Create and install backing plates for the Body Side Outer butt joints (continued).

B Trim the excess material from each section to match the backing plates shown (continued).



C Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat on the outward surface of the backing plates (the sides of the backing plates that will be facing the outside of the vehicle when installed).



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





Replacement

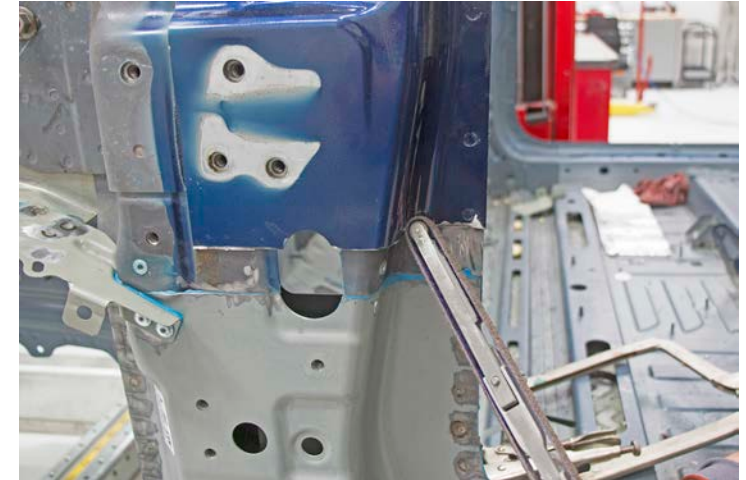
14 Create and install backing plates for the Body Side Outer butt joints (continued).

D Use a belt sander with a medium-abrasive belt to remove the paint from the butt joint areas on the vehicle.



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

E Wipe the insides of the flanges with isopropyl alcohol (IPA) to remove any cavity wax.





Replacement

14 Create and install backing plates for the Body Side Outer butt joints (continued).

F Use a drill with an 8 mm (5/16 in) bit to drill holes for plug welds.



G Use sandpaper or a disc sander with a medium-abrasive surface conditioning disc to remove any remaining epoxy adhesive from the inside surfaces of the flanges.



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



NOTE: Pry up the flanges where necessary to gain access to the adhesive.





Replacement

14 Create and install backing plates for the Body Side Outer butt joints (continued).

H Apply a suitable weld-through primer to any bare metal on the backsides of the backing plates (the sides of the backing plates that will be facing the inside of the vehicle when installed).



CAUTION: Only use zinc weld-through primers. Other primers might cause corrosion and compromise the integrity of the repair.

I Put the backing plates into position and clamp them into place. If necessary, trim them to fit.





Replacement

14 Create and install backing plates for the Body Side Outer butt joints (continued).

J

Plug weld the backing plates.



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.

K

Use a grinding tool to grind down the plug welds until they are flush with the panel.




Replacement

15 Prepare for the installation of the new Body Side Outer section.

A Put the new Body Side Outer section into position and clamp it into place.

B Temporarily install the door hinge bolts.

 Bolt, hex-head (x5)





Replacement

15 Prepare for the installation of the new Body Side Outer section (continued).

B Temporarily install the door hinge bolts (continued).



C Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets and structural countersunk rivets.

● Structural Rivet, 6.5 mm Short (x39)

○ Structural Countersunk Rivet, 6.5 mm (x2)



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



NOTE: If the Sill Outer front section was resistance spot welded to the Sill Inner, do not install structural rivets on the lower flange. This area will be secured with structural adhesive and clamps during installation.





Replacement

15 Prepare for the installation of the new Body Side Outer section (continued).

C Use a drill with a 6.7 mm (17/64 in) bit to drill holes for structural rivets and structural countersunk rivets (continued).



D Use a drill with the Microstop countersink cage assembly and the appropriate-sized countersink bit to countersink the holes for countersunk rivets (Microstop Countersink Kit, Tesla p/n 1133101-00-A).

○ Structural Countersunk Rivet, 6.5 mm (x2)



NOTE: If the depth adjustment for the Microstop countersink cage assembly has not already been set, do the procedure in the [Microstop Countersink Kit tool instructions](#) to adjust the tool.



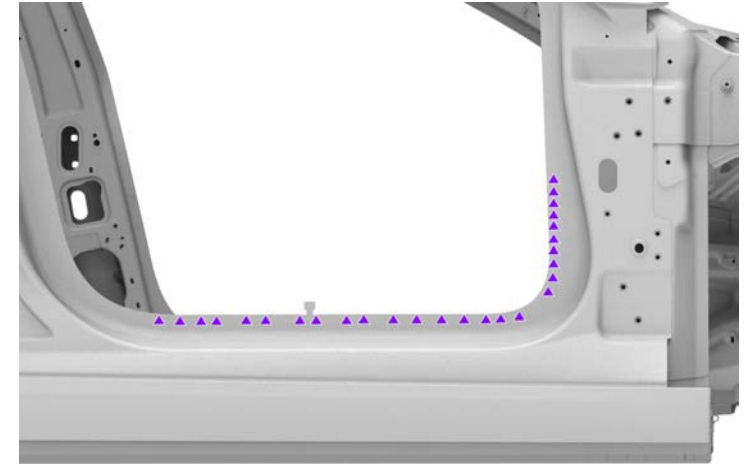


Replacement

15 Prepare for the installation of the new Body Side Outer section (continued).

E Mark the installation spot weld locations on the new Body Side Outer section.

▲ Installation Spot Weld





Replacement

15 Prepare for the installation of the new Body Side Outer section (continued).

F Mark the surface preparation boundary lines on the new Body Side Outer section and on the vehicle.

G Remove the new Body Side Outer section.




Replacement

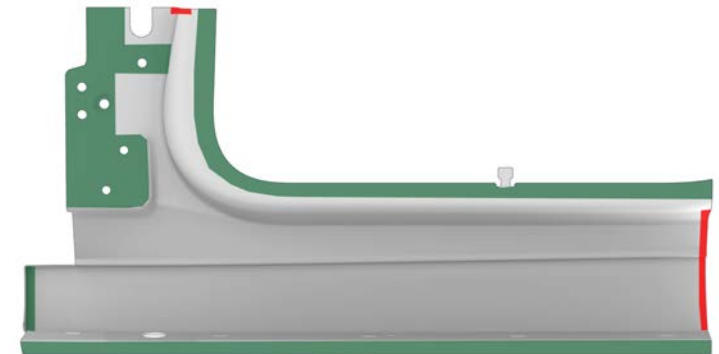
15 Prepare for the installation of the new Body Side Outer section (continued).

H

Mark the bond path and weld areas on the new component and the vehicle. These areas will be prepared for bonding and welding in the next step.

 Steel-to-Steel Bond Path

 GMA Weld

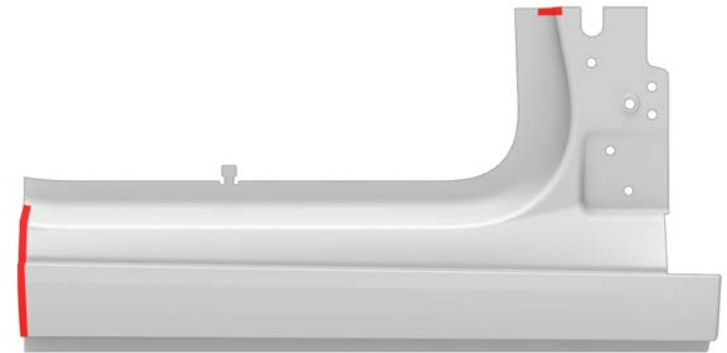




Replacement

15 Prepare for the installation of the new Body Side Outer section (continued).

H Mark the bond path and weld areas on the new component and the vehicle. These areas will be prepared for bonding and welding in the next step (continued).





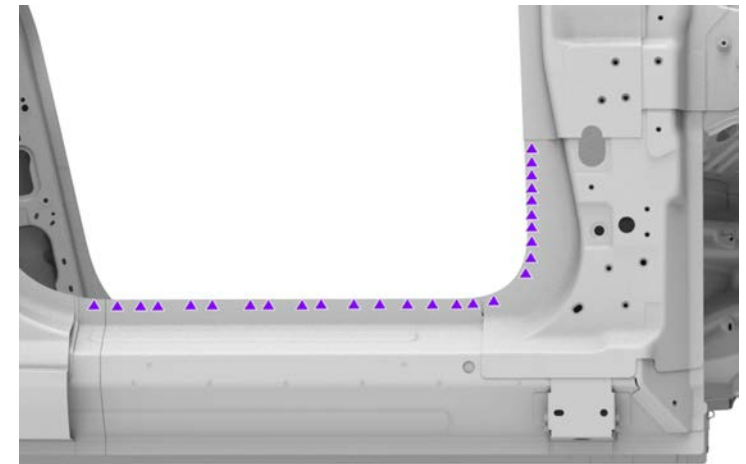
Replacement

16 Prepare the surfaces to install the new Body Side Outer Section.

A Use a red Scotch-Brite pad to scuff the new Body Side Outer section and the vehicle in the bond path areas.

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

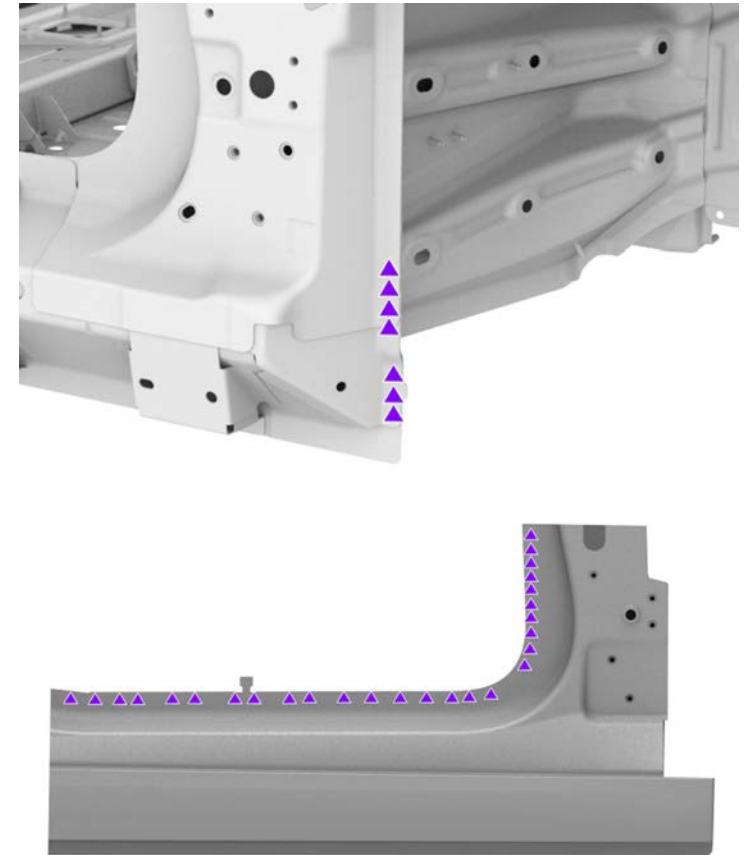
▲ Installation Spot Weld





Replacement

- 16 Prepare the surfaces to install the new Body Side Outer Section (continued).
- B Mark the installation spot weld locations on the new section and on the vehicle (continued).





Replacement

16 Prepare the surfaces to install the new Body Side Outer Section (continued).

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

C Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat in the GMA weld areas and the installation spot weld locations.



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



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





Replacement

16 Prepare the surfaces to install the new Body Side Outer Section (continued).

D

Clean all the bond paths and weld areas on the new component or components 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.

17 Apply structural adhesive to install the new Body Side Outer section.

A

Spread a thin coating of structural adhesive as a primer layer on the bond paths on the new Body Side Outer section and the vehicle, including the butt joint areas not directly above the backing plates.



WARNING: Do not apply structural adhesive within 25 mm (1 in) of the GMA weld locations. Applying structural adhesive within 25 mm (1 in) of the GMA weld locations can cause weld failure.



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

17 Apply structural adhesive to install the new Body Side Outer section (continued).

B While the primer layer is still wet, apply a bead of structural adhesive on top of the primer layer of the bond path areas on the vehicle.

18 Install the new Body Side Outer section.


A Put the new Body Side Outer section into position and clamp it into place.



Replacement

18 Install the new Body Side Outer section (continued).

- B Temporarily install the door hinge bolts.

 Bolt, hex-head (x5)







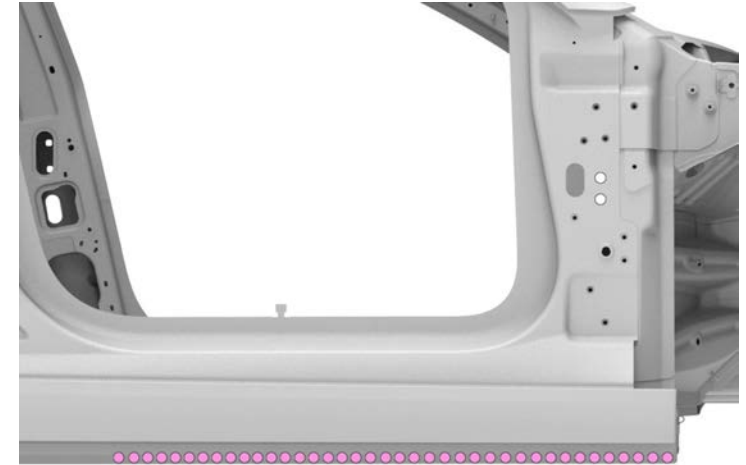
Replacement

18 Install the new Body Side Outer section (continued).

C Insert the structural rivets and structural countersunk rivets.

 Structural Rivet, 6.5 mm Short (x39)

 Structural Countersunk Rivet, 6.5 mm (x2)



D Install the structural rivets and structural countersunk rivets.



Replacement

18 Install the new Body Side Outer section (continued).

E

Perform resistance spot welding.

▲ Installation Spot Weld



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.



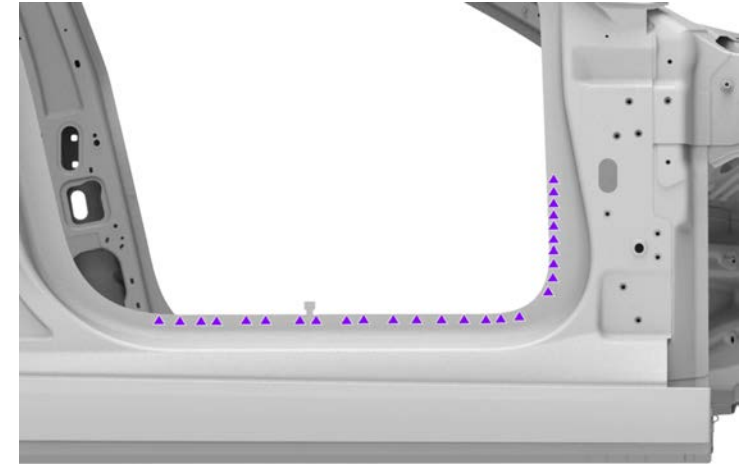
CAUTION: Do not weld on a Tesla vehicle with an energized high voltage or 12V system. Welding on a Tesla vehicle with an energized high voltage or 12V system might damage vehicle components.



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.



NOTE: Weld panel at preexisting spot weld locations to avoid contamination issues with cured adhesive.





Replacement

18 Install the new Body Side Outer section (continued).

E Perform resistance spot welding (continued).

F Remove any discoloration from the weld areas.





Replacement

18 Install the new Body Side Outer section (continued).

G Clamp all bond path areas that are not secured with welds or fasteners.



NOTE: If the Sill Outer front section was attached to the Sill Inner with resistance spot welds, make sure to clamp the lower flange area.

H Wipe off any excess adhesive.





Replacement

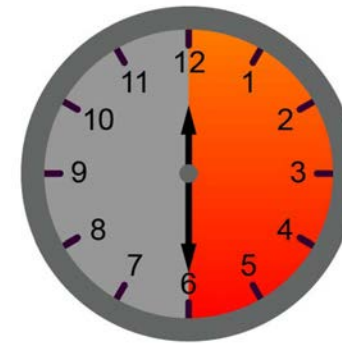
18 Install the new Body Side Outer section (continued).

I

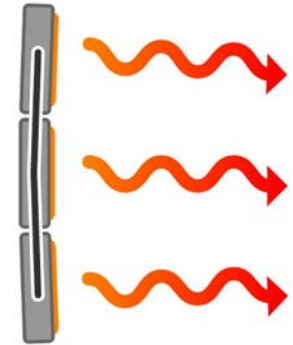
Bake the structural adhesive so that the bonded panels reach a temperature of 60°C–80°C (140°F–176°F) for at least 30 minutes to achieve full strength.



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

19 GMA weld the Body Side Outer butt joints.

A

Perform GMA welding in the butt joint areas directly above the backing plates.

 GMA Weld



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 ER70S-6 or Bohler Union X96 welding wire and an approved GMA welder to perform steel GMA welding on mild steel components.



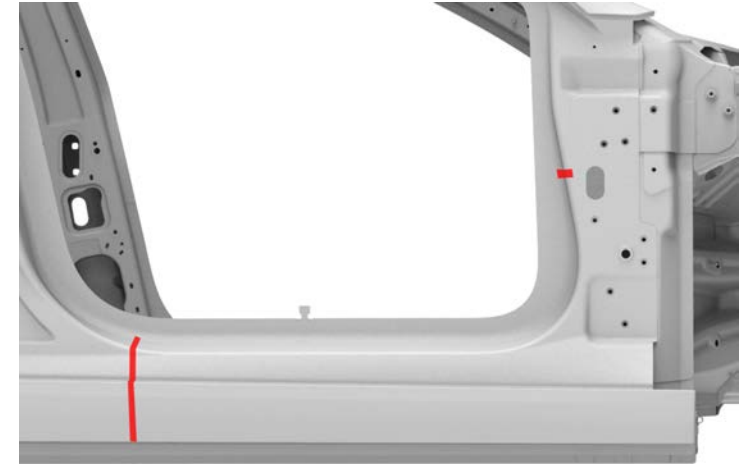
WARNING: Before GMA welding, make sure that the structural adhesive is dry to the touch. If the structural adhesive is not dry to the touch before GMA welding, the strength of the adhesive bond might be compromised.



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: Before GMA welding, a test weld using material of the same gauge and type should be performed to make sure that the welding equipment settings produce a satisfactory joint.





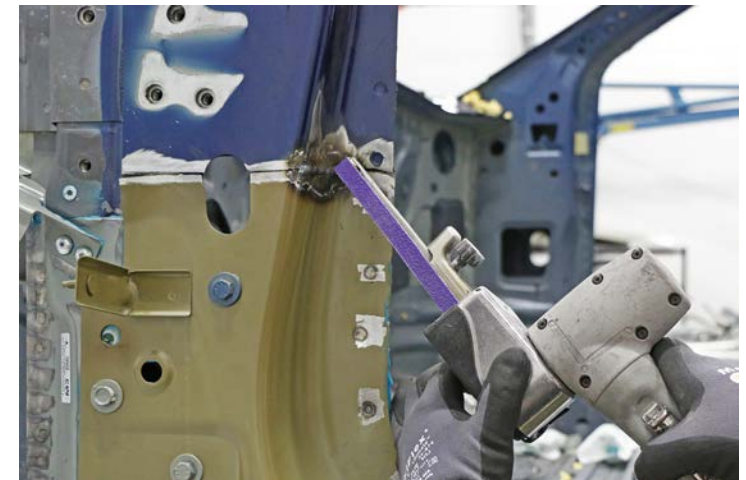
Replacement

19 GMA weld the Body Side Outer butt joints (continued).

A Perform GMA welding in the butt joint areas directly above the backing plates (continued).



B Grind down welds to restore all components to their original dimensions.






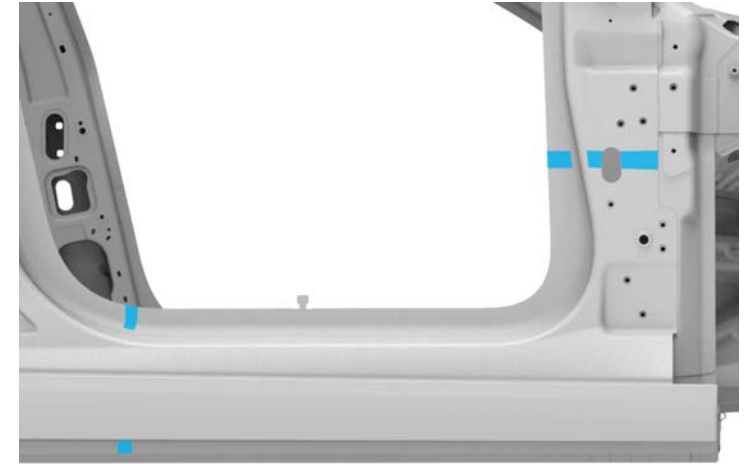
Replacement

20 Secure the butt joint flanges.

A

Pry up the flanges of the original Body Side Outer on both sides of each butt joint weld in preparation to apply structural adhesive.

 Structural Adhesive



B

Apply structural adhesive underneath the flanges that were pried up in the previous substep.



Replacement

20 Secure the butt joint flanges (continued).

C Clamp the flanges back into position.

21 If required, apply a suitable body filler to the joints and finish for paint.



Replacement

22

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

23

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



Replacement

- 24 After refinishing, use a 360-degree spray wand of suitable length to apply corrosion-proofing material on the inside of the butt joints to prevent corrosion.



- 25 Install the new Shotgun Outer.

