



## Body Side Outer Assembly

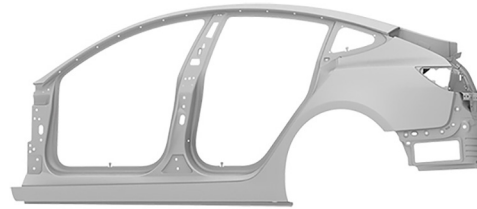




## Repair Criteria

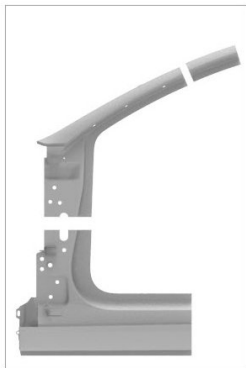
### Body Side Outer Assembly, Subassemblies, and Subassembly Sectioning

The Body Side Outer Assembly (shown below) is a single assembly, and can be replaced as a single repair:

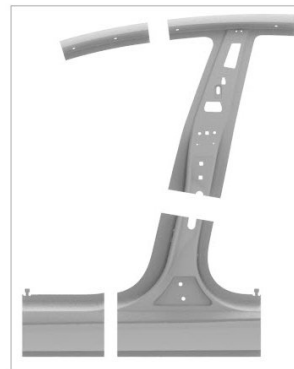


Alternatively, instead of replacing the complete Body Side Outer Assembly, areas of the Body Side Outer can be replaced using either:

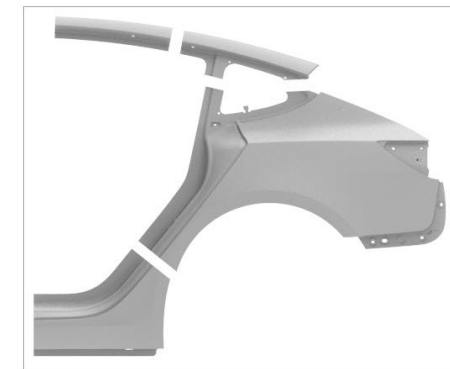
- Portions of the complete Body Side Outer Assembly using the cut lines described in this document.
- Pre-made service subassemblies or portions of a subassembly using the cut lines described in this document. The images below display the available Body Side Outer subassemblies and the sections that can be created from each service subassembly.



A Pillar Body Side Outer  
LH 1073679-S0-A,  
RH 1073680-S0-A



B Pillar Body Side Outer  
LH 1073681-S0-A,  
RH 1073682-S0-A



Rear Quarter Outer  
LH 1073677-S0-A,  
RH 1073678-S0-A



## Repair Criteria

### Using this Document

This document contains two major parts:

- 1 The Body Side Outer Section Descriptions provides information on where and how to section the Body Side Outer Assembly (or subassemblies) as necessary to replace damaged areas of the Body Side Outer panel, or to gain access to underlying parts of the vehicle structure. Use the section descriptions to determine where to successfully section the Body Side Outer Assembly as needed for the repair being performed.



**NOTE:** Sections of the Body Side Outer Assembly can be replaced individually or in any combination of sections so long as the referenced cut locations identified in this document are used.



**NOTE:** Measurements from bolt hole locations are from the center of the referenced holes unless stated differently in the section description.

- 2 The Repair Instructions portion of this document contains the information necessary to replace the entire Body Side Outer Assembly. If replacing sections of the Body Side Outer (not the entire Body Side Outer Assembly), use the relevant steps in the Repair Instructions to determine which parts are needed and the steps required to complete the repair.




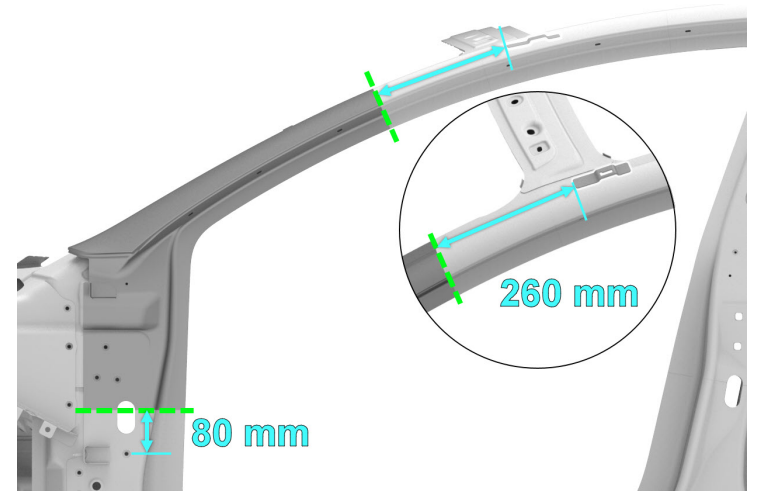
## Body Side Outer Section Descriptions

1

Upper A-Pillar section.

 Cut Line

 Reference Line/Point



2

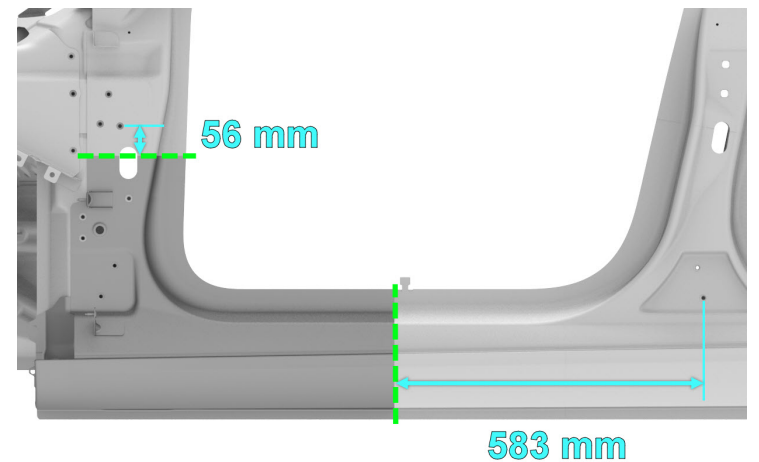
Lower A-Pillar section.

 Cut Line

 Reference Line/Point



**NOTE:** The rear cut line is where the A-Pillar Body Side Outer and the B-Pillar Body Side Outer service assemblies meet.






## Body Side Outer Section Descriptions

3

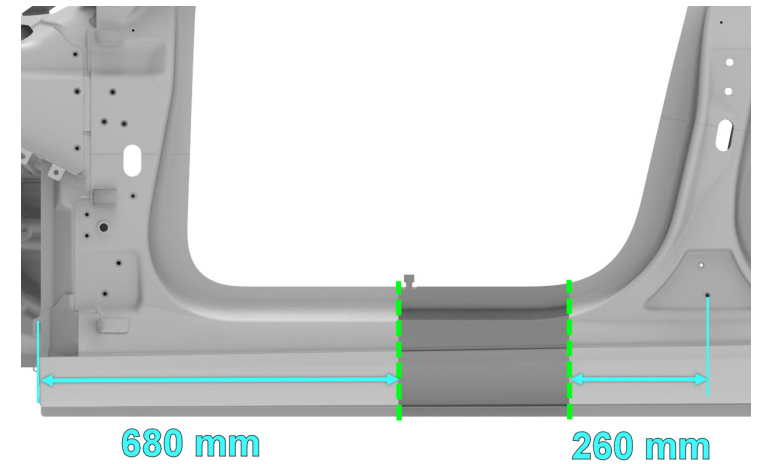
Lower Sill Forward section.

 Cut Line

 Reference Line/Point



**NOTE:** The cut line is where the A-Pillar Body Side Outer and the B-Pillar Body Side Outer service assemblies meet.



4

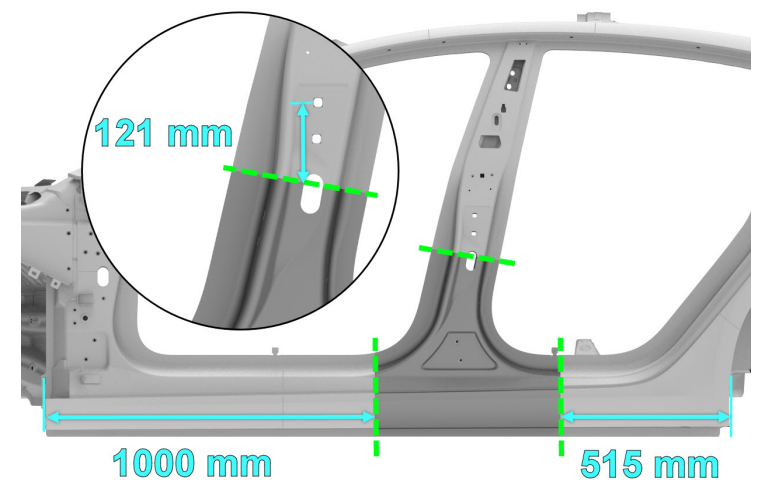
Lower B-Pillar section.

 Cut Line

 Reference Line/Point



**NOTE:** The rear cut line is where the B-Pillar Body Side Outer and the Rear Quarter Outer service assemblies meet.






## Body Side Outer Section Descriptions

5

Roof Rail Forward section.

 Cut Line

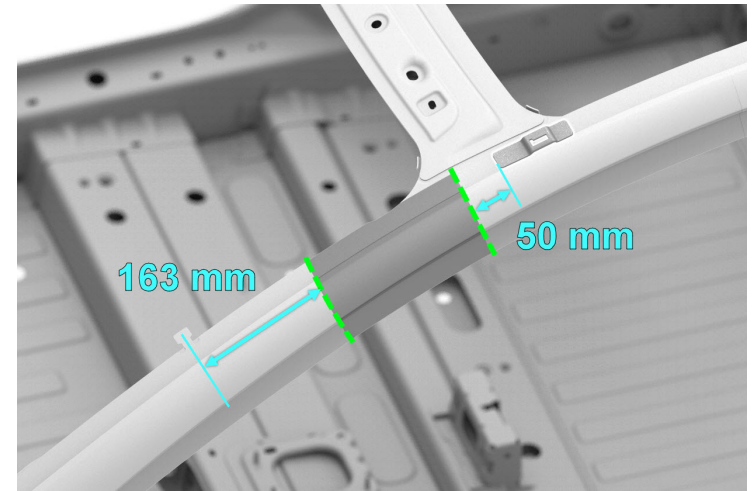
 Reference Line/Point



**NOTE:** The forward cut line is measured from the center of the stamped tab shown.



**NOTE:** The rear cut line is where the A-Pillar Body Side Outer and the B-Pillar Body Side Outer service assemblies meet.



6

Roof Rail Middle section.

 Cut Line

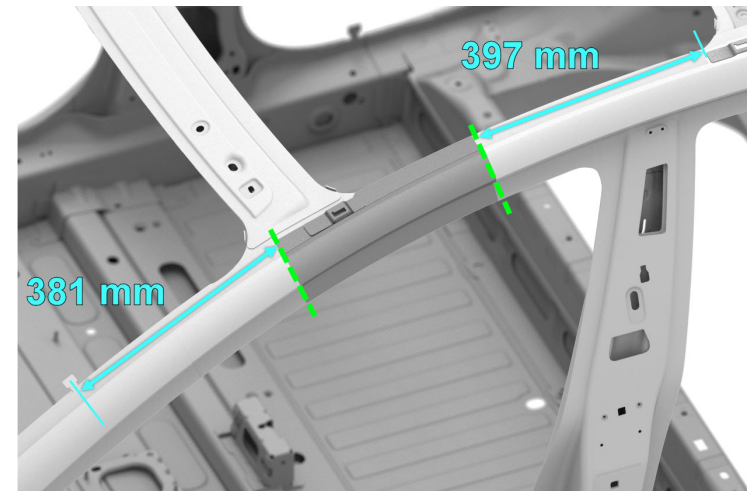
 Reference Line/Point



**NOTE:** The forward cut line is measured from the center of the stamped tab shown, and is where the A-Pillar Body Side Outer and B-Pillar Body Side Outer service assemblies meet.



**NOTE:** The rear cut line is measured from the forward edge of the Roof Rack Bracket shown.






## Body Side Outer Section Descriptions

7

B-Pillar Upper section.

 Cut Line

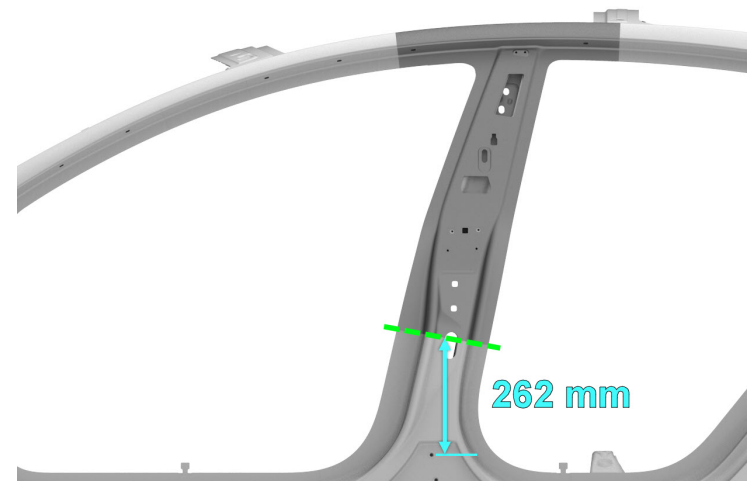
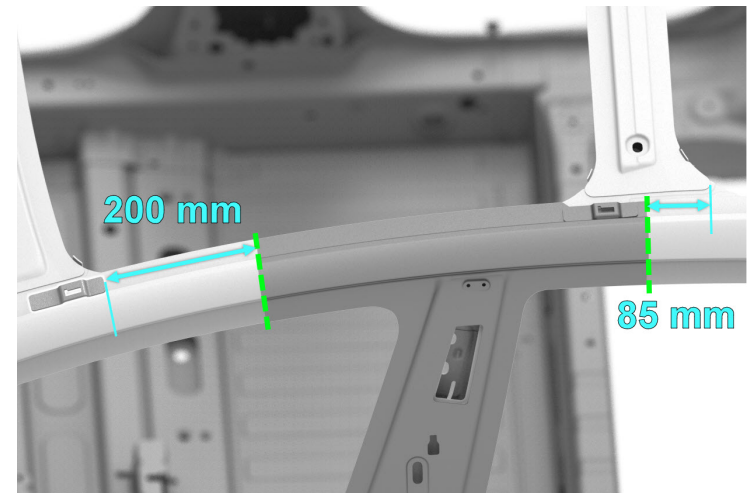
 Reference Line/Point



**NOTE:** The cut line for the B-pillar Upper section is measured on the roof rail from the rear edge of the Rear Roof Header.



**NOTE:** The rear cut line on the roof rail is where the B-Pillar Body Side Outer and the Rear Quarter Outer service assemblies meet.







# Body Side Outer Section Descriptions

8

Roof Rail Rear section.

Cut Line

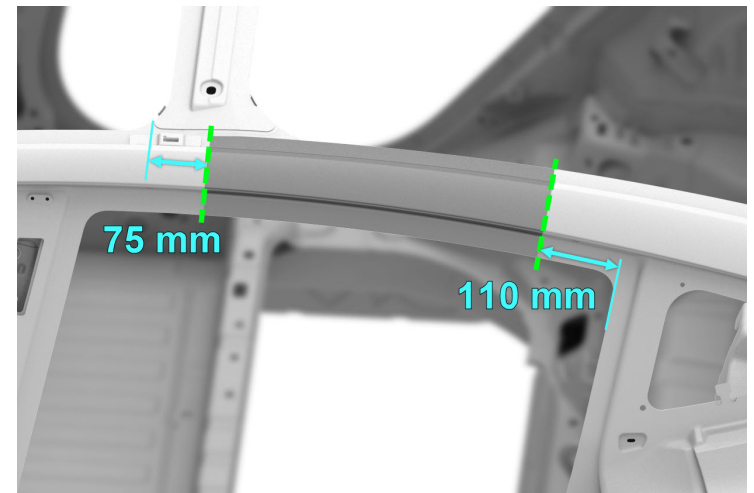
Reference Line/Point



**NOTE:** The forward cut line of the roof rail rear section is measured from the edge of the Rear Roof Header shown in this image.



**NOTE:** The forward cut line of the Roof Rail Rear section is where the B-Pillar Body Side Outer and Rear Quarter Outer service assemblies meet.



9

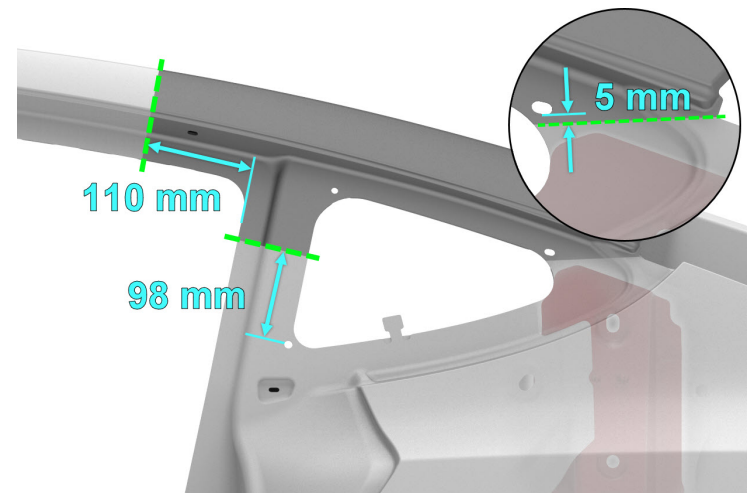
Roof Rail Rear Quarter section.

Cut Line

Reference Line/Point



**CAUTION:** Do not cut the steel Body Side Outer panel directly over the underlying aluminum Rear Wheelhouse Reinforcement panel (shown in red).








## Body Side Outer Section Descriptions

10

Quarter section.

 Cut Line

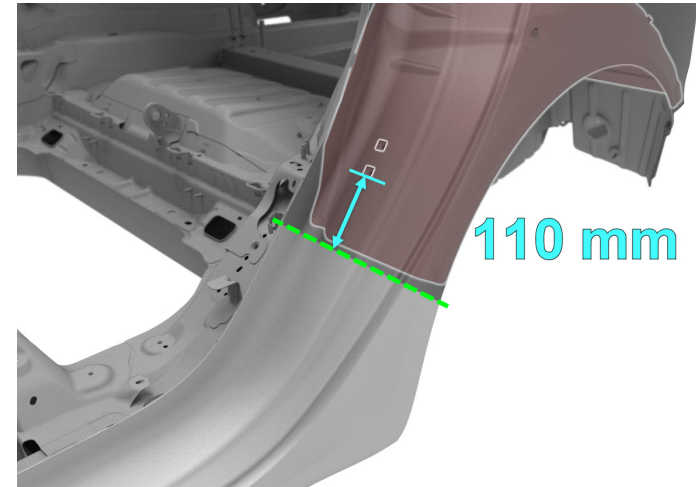
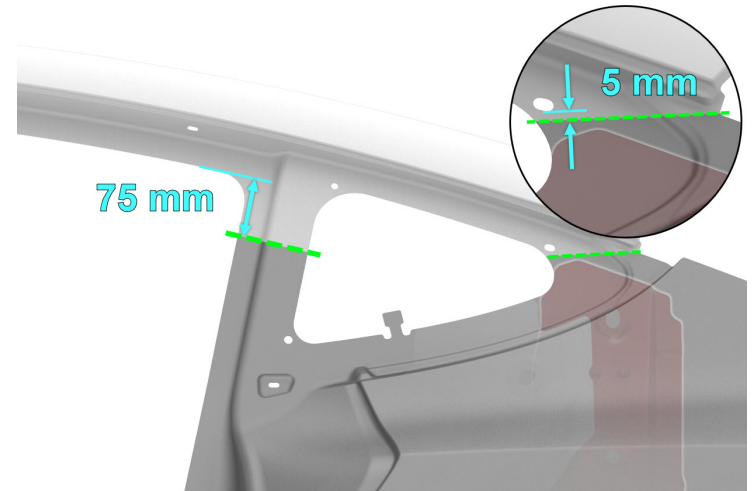
 Reference Line/Point



**NOTE:** The lower cut line of the Quarter section is measured from the bottom edge of the lower bolt hole for the Rear Door Striker



**CAUTION:** Do not cut the steel Body Side Outer panel directly over the underlying aluminum Rear Wheelhouse Reinforcement panel or the Rear Wheel Arch Assembly underneath (both shown here in red).






## Body Side Outer Section Descriptions

11

Quarter Lower section.

 Cut Line

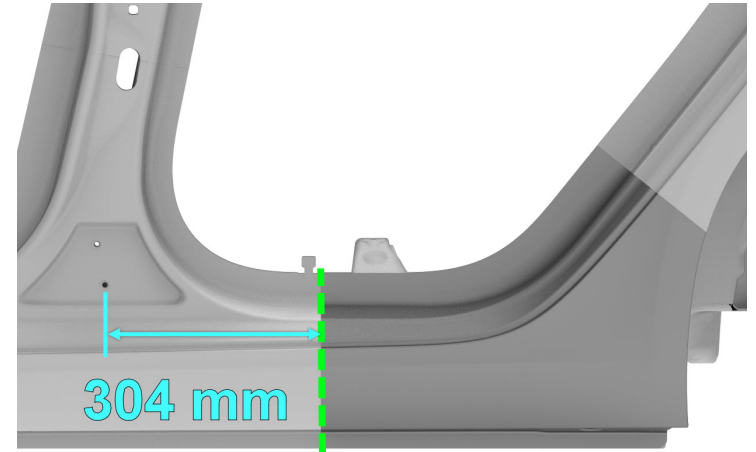
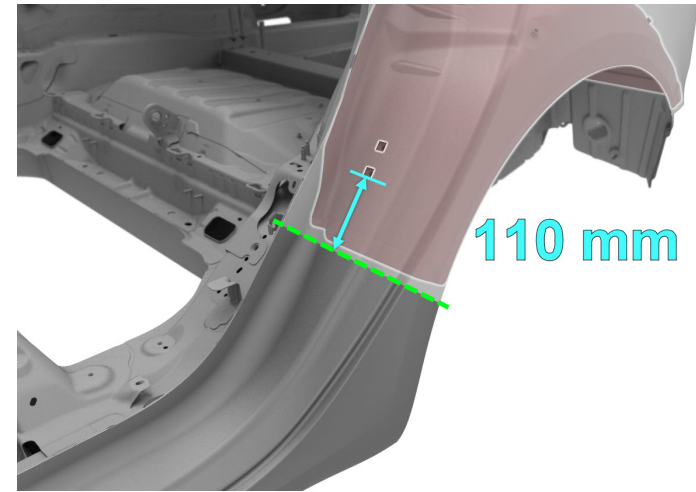
 Reference Line/Point



**CAUTION:** Do not cut the steel Body Side Outer panel directly over the underlying aluminum Rear Wheel Arch Assembly underneath (shown here in red).

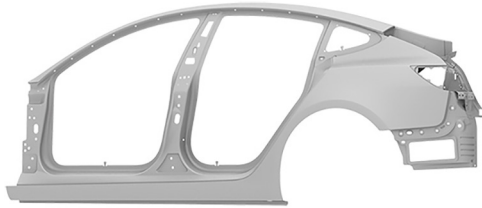


**NOTE:** The front cut line on the sill in the rear door opening is where the B-Pillar Body Side Outer and Rear Quarter Outer service assemblies meet.







## Parts List

Quantity	Part Number	Description	Image / Notes
1	1504887-S0-A (LH) 1504888-S0-A (RH)	M3 ASY, BODY SIDE OUTER	 <p><b>NOTE:</b> A pre-cut sub assembly may be used if sectioning the Body Side Outer.</p>
17 rivets needed; order 20 rivets.	1028719-00-A	● Structural Rivet, 4.8 mm	All rivets come in packages of 10; order all rivets in multiples of 10.
71 rivets needed; order 80 rivets	1028408-00-A	● Structural Rivet, 6.5 mm Short	All rivets come in packages of 10; order all rivets in multiples of 10. <b>NOTE:</b> Only required if the <a href="#">Sill Outer (Complete)</a> or the <a href="#">Sill Outer (Front Section)</a> is being replaced and the lower sill flange is not accessible with a resistance spot welder.
2 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. <b>NOTE:</b> Only required if the <a href="#">Front Hinge Pillar (Section)</a> is being replaced.
5 rivets needed; order 10 rivets.	1069308-00-A	● Countersunk Rivet, 4.8 mm Short	All rivets come in packages of 10; order all rivets in multiples of 10.
5 rivets needed; order 10 rivets.	1069328-00-A	★ Flow Form Rivet S08	All rivets come in packages of 10; order all rivets in multiples of 10.
16 rivets needed; order 20 rivets.	1069329-00-A	★ Flow Form Rivet S18	All rivets come in packages of 10; order all rivets in multiples of 10.






## Parts List

Quantity	Part Number	Description	Image / Notes
1 rivet needed; order 10 rivets	1069331-00-A	★ Flow Form Rivet S38	All rivets come in packages of 10; order all rivets in multiples of 10.  <b>NOTE:</b> Only required if Cantrail Extension Inner is being replaced.
2	1063260-00-C	■ Bolt, hex-head	<a href="#">Body Side Outer to Hinge Pillar</a>
1-4	—	Structural Adhesive	 <b>WARNING:</b> Use only Tesla-approved structural adhesive; refer to <a href="#">BR-15-92-008</a> , "Approved Structural Adhesive and Urethane Sealants" for a list of current approved structural adhesives. Refer to <a href="#">BR-17-92-002</a> , "Obtaining Adhesives, Coolant, and Other Chemicals" for information on how to obtain approved structural adhesive.
1	—	Urethane Sealant	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> <b>NOTE:</b> Any individual section or any combination of sections of the Body Side Outer Assembly can be replaced so long as the referenced cut lines from the Body Side Outer Section Descriptions portion of this document are used.</p>	<p> <b>WARNING:</b> Wear the appropriate personal protective equipment (PPE) when performing this procedure.</p> <p> <b>CAUTION:</b> This procedure involves both steel and aluminum components. Use the appropriate tools at each step to avoid cross-contamination. Refer to <a href="#">BR-17-10-005</a>, "Model 3 Body Structure Materials and Allowed Operations," for more information.</p>	<p>The special tools listed below are required to perform this procedure:</p> <ul style="list-style-type: none"><li>Countersink Drill Tool</li><li>Flow form rivet installation tool</li></ul> <p>Use only approved fastener installation tools for structural repairs. Refer to <a href="#">BR-16-92-001</a>, "Approved Fasteners and Fastener Installation Tools for Structural Repairs" for a list of current approved fastener installation tools.</p> <ul style="list-style-type: none"><li>GMA welder</li></ul> <p>Use only an approved GMA welder. Refer to <a href="#">BR-16-92-007</a>, "Approved Welders" for a list of current approved GMA welders.<li>Resistance Spot Welder</li><p>Use only an approved resistance spot welder. Refer to <a href="#">BR-16-92-007</a>, "Approved Welders" for a list of current approved resistance spot welders.</p></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.

2

**Left-hand component only:** Before working on the vehicle, make sure that high voltage current is not present (refer to the appropriate section in [BR-17-17-004](#), "Disconnecting 12V and High Voltage Power on Model 3").



**WARNING:** Only technicians who have been trained in High Voltage Awareness are permitted to perform the Vehicle Electrical Isolation procedure. Proper personal protective equipment (PPE) and insulating high voltage gloves with a minimum rating of class 0 (1000V) must be worn any time a high voltage cable is handled. Refer to [TN-15-92-003](#), "High Voltage Awareness Care Points" for additional safety information.



## Removal

1 Remove the original component.

A

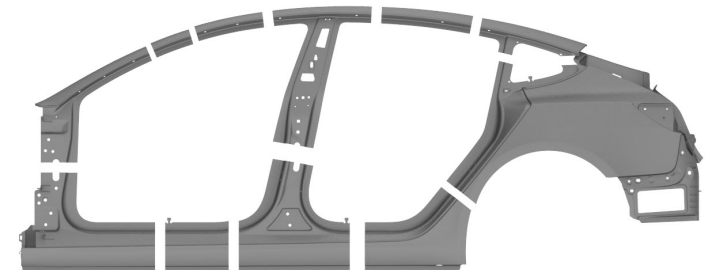
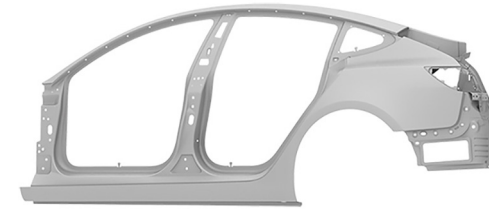
- If replacing the complete Body Side Outer Assembly, go to Step B and continue with the removal.
- If repairing a section of the Body Side Outer: Mark and cut the Body Side Outer at the section cut line locations described in the Body Side Outer Section Descriptions.



**CAUTION:** Cut outer panel only.



**NOTE:** When performing section repairs, not all steps in this document are required. Complete only the steps required for the repair being performed.






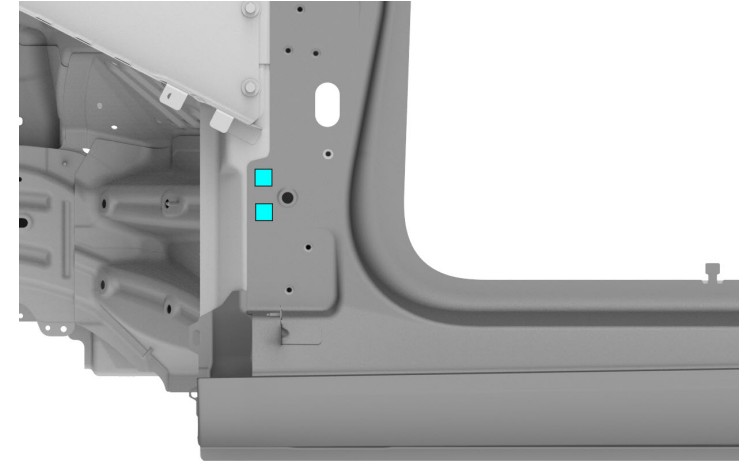


## Removal

1 Remove the original component (continued).

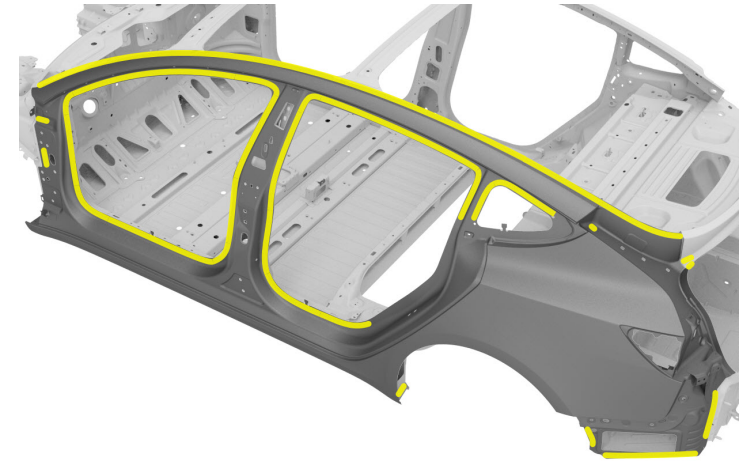
B Remove and discard the bolts.

 Bolt, hex-head (x2)



C Use a drill with a spot weld bit to drill out the 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

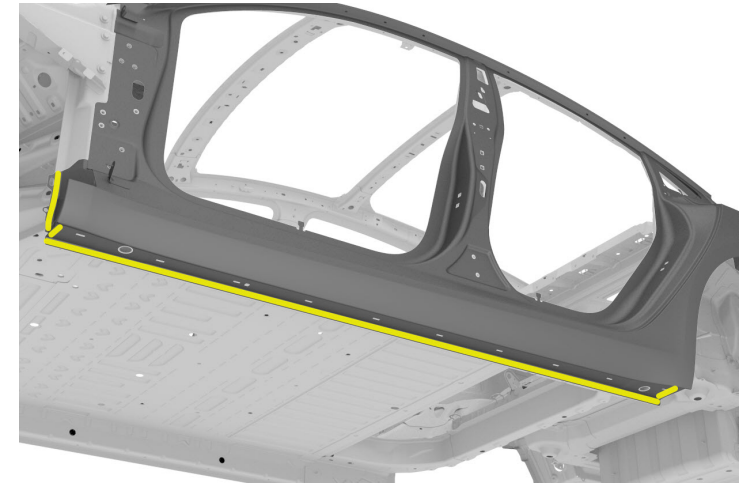




## Removal

1 Remove the original component (continued).

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

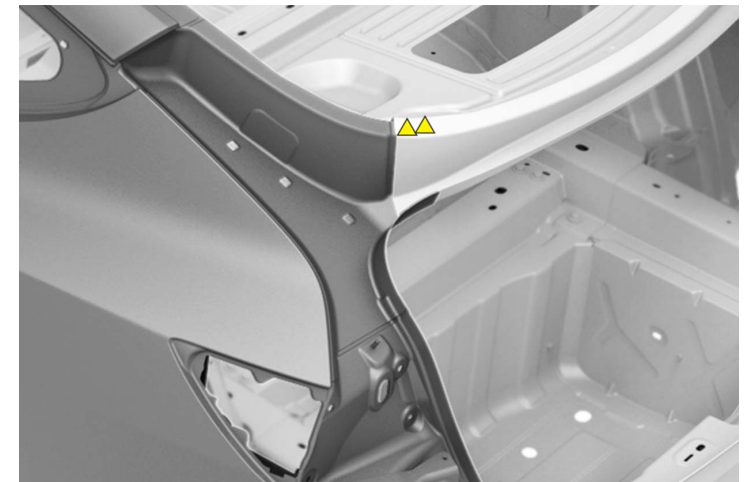


D Use a drill with a 4.8 mm bit to drill completely through the spot welds shown.

▲ Factory Spot Weld



**NOTE:** 4.8 mm countersunk rivets will be installed in these locations in a later step.





## Removal

1 Remove the original component (continued).

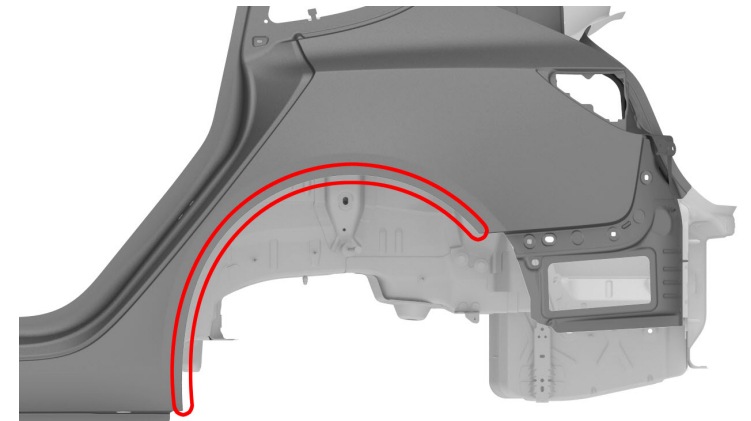
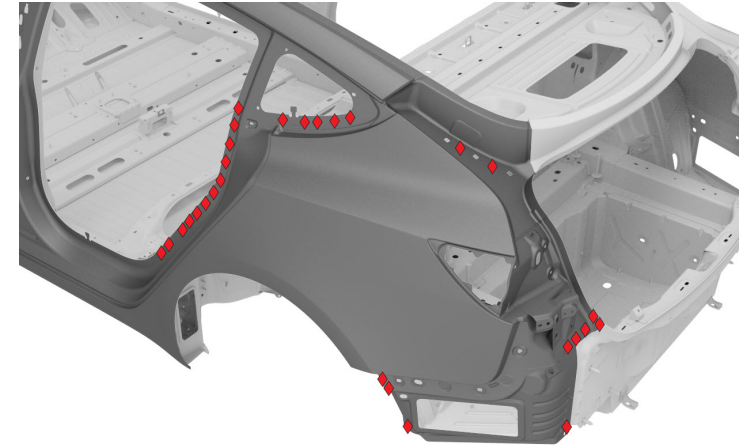
**E** Use an SPR removal tool or a drill with a high-strength steel bit to remove the factory self-piercing rivets. Use a belt sander for any factory self-piercing rivets that cannot be removed with an SPR removal tool or a drill.

◆ Factory SPR (x30)



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

**F** Use a grinding tool to grind through the hemmed wheel arch flange to separate the Quarter Outer from the Rear Wheel Arch.





## Removal

1 Remove the original component (continued).

**G** Use a heat gun to heat the adhesive joints, and then use a hammer and chisel to remove the original component.



**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.



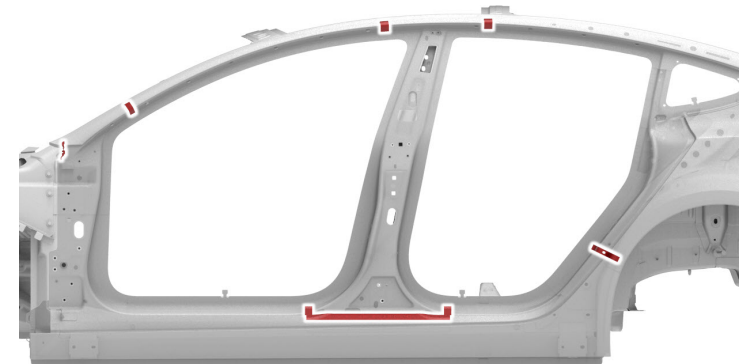
**WARNING:** Do not heat the adhesive joints above 100°C (212°F). Heating the adhesive joints above 100°C (212°F) can weaken the aluminum and compromise vehicle crash integrity.



**NOTE:** Do not damage the surrounding components, including the foam dams (highlighted in red).



**NOTE:** Use a heat gun to heat the foam dam areas to release them from the original Body Side Outer, but do not remove the foam dams from the vehicle.





## Removal

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** If repairing a section of the Body Side Outer, use the remnants of the original component as a template to mark and cut the new component.

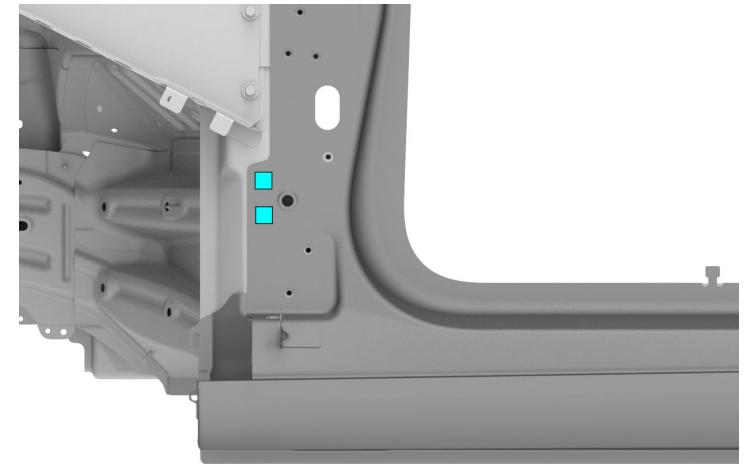
**B** Put the new component into position and secure it in place.





## Replacement

- 1 Prepare for installation (continued).
  - C If repairing a section of the Body Side Outer, trim the new component at the butt joint locations to achieve suitable gaps.
  - D Temporarily install the bolts but do not torque them at this time.
    - Bolt, hex-head (x2)







## Replacement

1 Prepare for installation (continued).

**E** Mark the fastener locations on the new component.

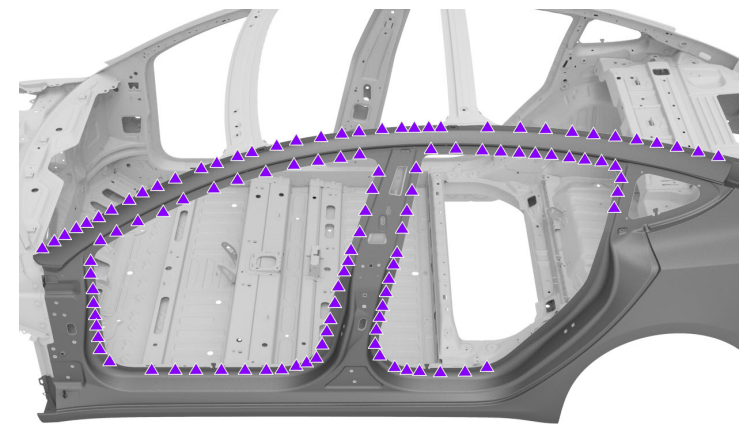
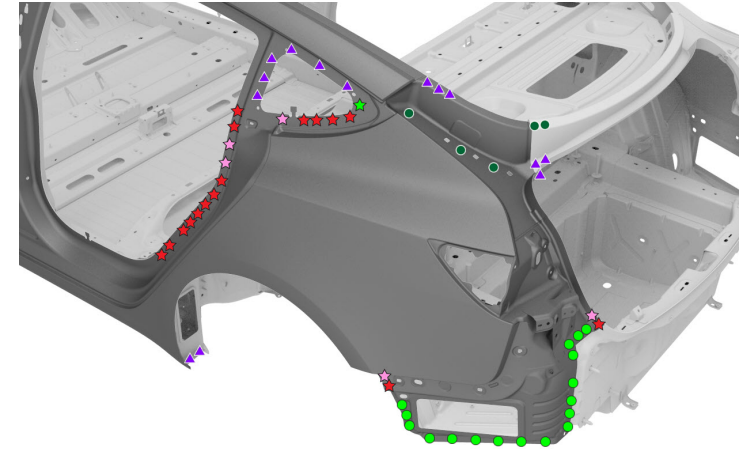
- Structural Rivet, 4.8 mm (x17)
- Countersunk Rivet, 4.8 mm Short (x5)
- ☆ Flow Form Rivet S08 (x5)
- ★ Flow Form Rivet S18 (x16)
- ★ Flow Form Rivet S38 (x1)
- ▲ Installation Spot Weld (x126)



**NOTE:** The S38 Flow Form Rivet only required if the [Cantrail Extension Inner](#) has been replaced.



**NOTE:** If only the Bodyside Outer was removed, the spot welds obstructed by the Dashboard may be omitted.





## Replacement

1 Prepare for installation (continued).

F

Mark the fastener locations on the new component.

○ Structural Countersunk Rivet, 6.5 mm (x2)

● Structural Rivet, 6.5 mm Short (x71)

▲ Installation Spot Weld (x3)



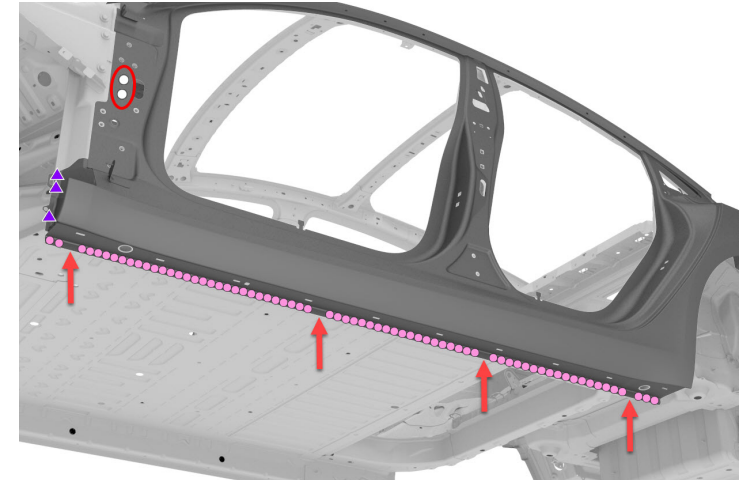
**NOTE:** The 6.5mm Structural Countersunk Rivets only required if the [Front Hinge Pillar \(Section\)](#) has been replaced.



**NOTE:** 6.5mm Short Structural Rivets only required if [Sill Outer Complete](#) or [Section](#) Assembly has been replaced and lower sill flange is not accessible with a resistance spot welder. Otherwise flange will be secured with adhesive only.



**NOTE:** Space each structural rivet on the lower Sill flange approximately 25 mm apart center to center except in the areas that would interfere with installation of the plastic rocker trim (indicated here by red arrows).





## Replacement

1 Prepare for installation (continued).

**G** Use a drill with a 6.7 mm bit to drill holes for 6.5 mm structural rivets.

- Structural Countersunk Rivet, 6.5 mm (x2)
- Structural Rivet, 6.5 mm Short (x71)



**CAUTION:** Do not drill holes for rivets in the areas that would interfere with installation of the plastic rocker trim (indicated here by red arrows).



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

**H** Drill 4.8 mm holes for structural rivets.

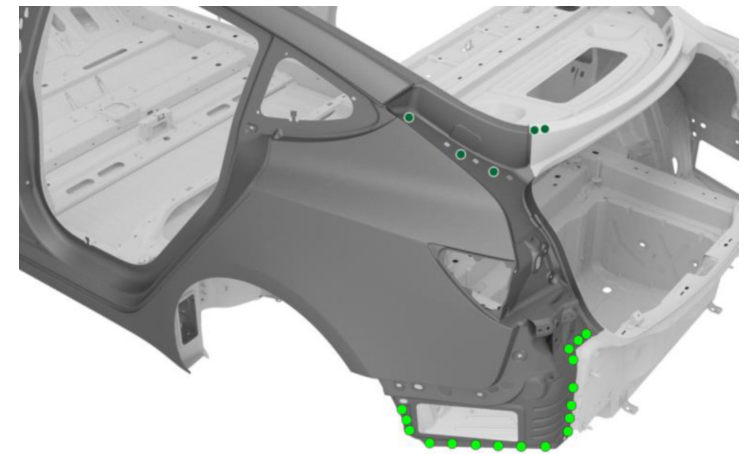
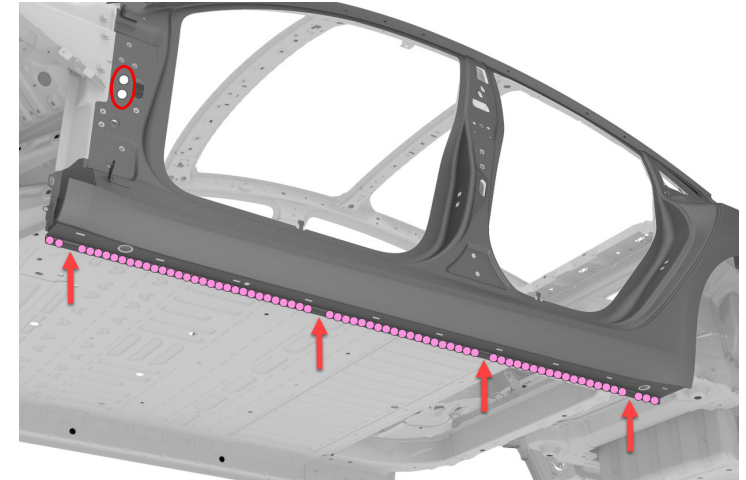
- Structural Rivet, 4.8 mm (x17)
- Countersunk Rivet, 4.8 mm Short (x5)



**CAUTION:** Drill holes for countersunk rivets far enough away from the corners and any other obstructions to provide enough clearance (approximately 18 mm) 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

1 Prepare for installation (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).



**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.

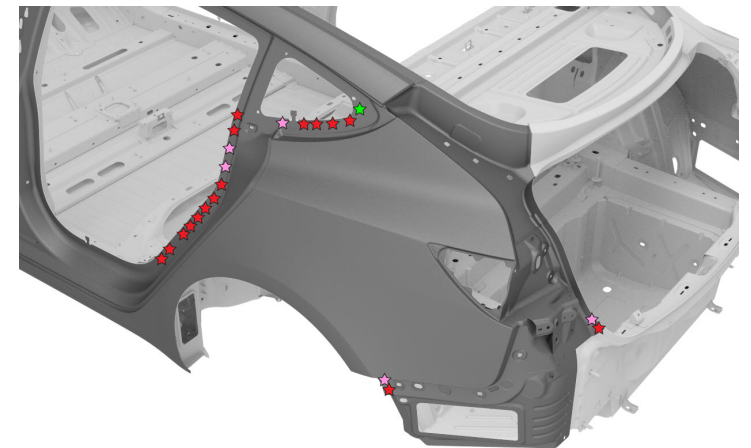
J

Create 8 mm holes for flow form rivets.

- ★ Flow Form Rivet S08 (x5)
- ★ Flow Form Rivet S18 (x16)
- ★ Flow Form Rivet S38 (x1)



**NOTE:** The S38 Flow Form Rivet only required if the [Cantrail Extension Inner](#) has been replaced.





## Replacement

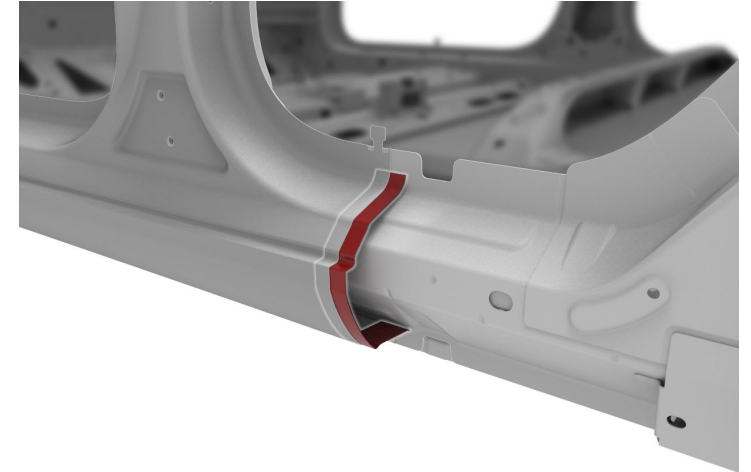
- 1 Prepare for installation (continued).
  - K Mark boundary lines along all mating surfaces between the new components and the vehicle for surface preparation.
  - L Remove the new component.



## Replacement

**2** If repairing a section of the Body Side Outer, create and install backing plates.

**A** Cut 40 mm wide sections from the remaining pieces of the original or the new component to create backing plates similar to the one shown here in red for the section locations.



**B** Trim the flanges from the backing plates as necessary to allow them to fit inside the butt joints.



**NOTE:** The backing plates should take up all available space between the Body Side Outer Panel and the underlying panels.



## Replacement

**2** If repairing a section of the Body Side Outer, create and install backing plates (continued).

**C** Put the backing plates in position and test fit the new component on the vehicle to ensure the plates do not affect component fitment.

**D** Use a drill with an 8 mm bit to drill holes for plug welds that will secure the backing plates.





## Replacement

**2** If repairing a section of the Body Side Outer, create and install backing plates (continued).

**E** Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat or paint from the outside surface of the backing plates and the weld areas on the vehicle.



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



**NOTE:** The lower sill area may contain cavity wax and require cleaning with isopropyl alcohol.

**F** Put the backing plates into position and secure them in place.



## Replacement

**2** If repairing a section of the Body Side Outer, create and install backing plates (continued).

**G**

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.

**H**

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



## Replacement

3 Prepare the surfaces.

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

B Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat from the weld areas of the new components and the vehicle. Use a belt sander with a medium-abrasive belt for any areas that cannot be reached with a disc sander.

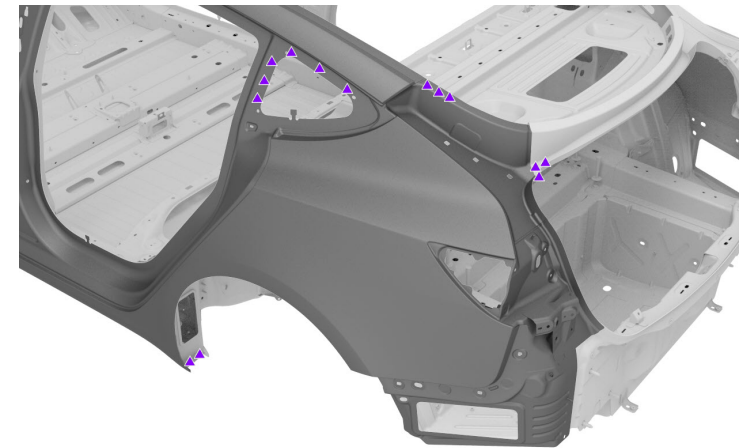
▲ Installation Spot Weld (x14)



**WARNING:** Do not remove e-coat in areas where steel and aluminum make direct contact.



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





## Replacement

3 Prepare the surfaces (continued).

C Use a disc sander with a medium-abrasive surface conditioning disc to remove the e-coat from the weld areas of the new components and the vehicle. Use a belt sander with a medium-abrasive belt for any areas that cannot be reached with a disc sander.

▲ Installation Spot Weld (x115)



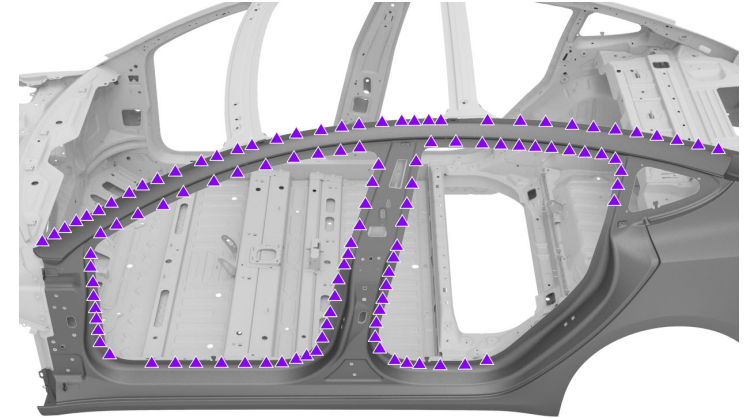
**WARNING:** Do not remove e-coat in areas where steel and aluminum make direct contact.



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



**NOTE:** If only the Bodyside Outer was removed, the spot welds obstructed by the Dashboard may be omitted.





## Replacement

3 Prepare the surfaces (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.

4 Apply structural adhesive.

A Spread a thin coating of structural adhesive as a primer layer on the mating surfaces of the vehicle, the backing plate, and the new component.



## Replacement

4 Apply structural adhesive (continued).

A

Spread a thin coating of structural adhesive as a primer layer on the mating surfaces of the vehicle, the backing plate, and the new component (continued).



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



**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.

B

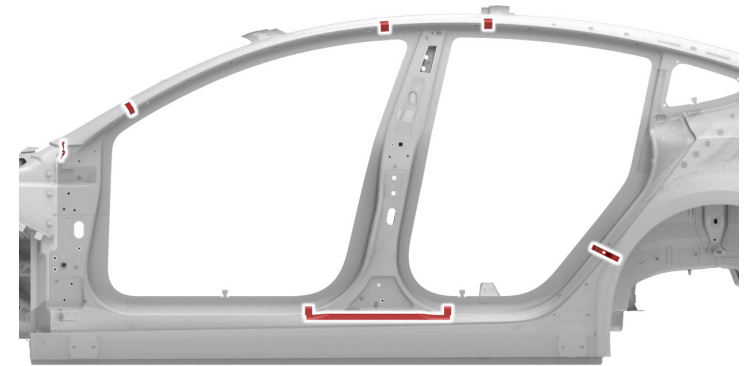
While the primer layer is still wet, apply a bead of structural adhesive on top of the primer layer on the vehicle.



## Replacement

5 Install the new component.

A Apply a bead of urethane sealant to the foam dam edges.



B Put the new component into position and secure it in place.

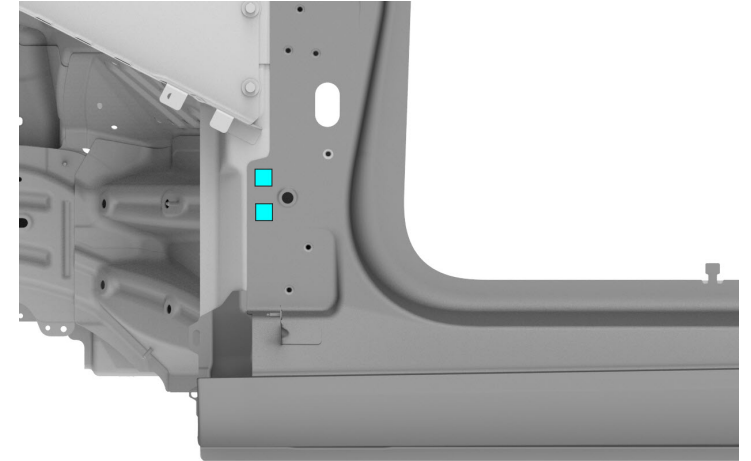




## Replacement

5 Install the new component (continued).

- C Temporarily install the bolts but do not torque them at this time.
- Bolt, hex-head (x2)







## Replacement

5 Install the new component (continued).

D

Insert the structural, countersunk, and flow form rivets.

- Structural Rivet, 4.8 mm (x17)
- Countersunk Rivet, 4.8 mm Short (x5)
- Structural Countersunk Rivet, 6.5 mm (x2)
- Structural Rivet, 6.5 mm Short (x71)
- ☆ Flow Form Rivet S08 (x5)
- ★ Flow Form Rivet S18 (x16)
- ★ Flow Form Rivet S38 (x1)



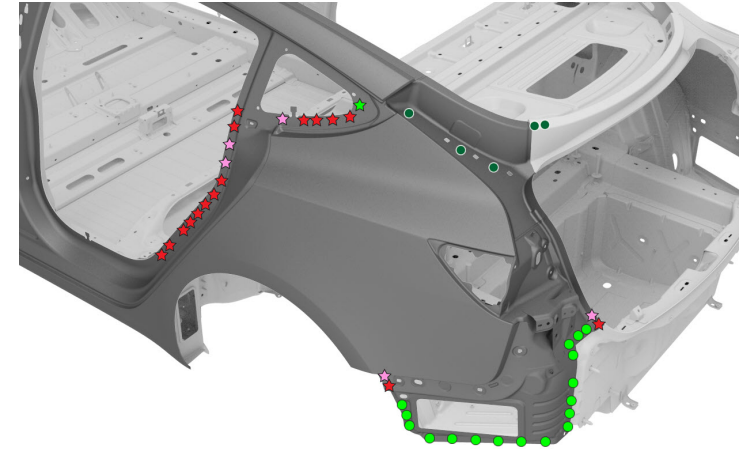
**NOTE:** The 6.5mm Structural Countersunk Rivets only required if the [Front Hinge Pillar \(Section\)](#) has been replaced.



**NOTE:** 6.5mm Short Structural Rivets only required if Sill Outer [Complete](#) or [Section](#) Assembly has been replaced and lower sill flange is not accessible with a resistance spot welder.



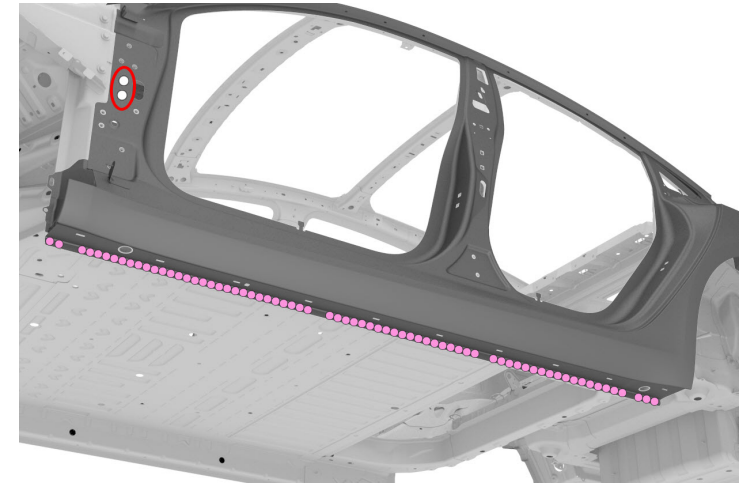
**NOTE:** The S38 Flow Form Rivet only required if the [Cantrail Extension Inner](#) has been replaced.





## Replacement

- 5 Install the new component (continued).
- D Insert the structural, countersunk, and flow form rivets (continued).



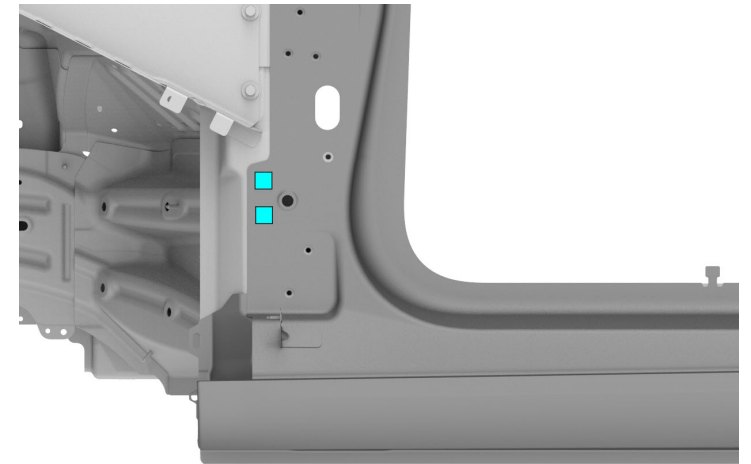
- E Clamp all bonded areas that are not secured with a fastener.



## Replacement

- 5 Install the new component (continued).
- F Install the structural, countersunk, and flow form rivets.

- G Torque the bolts to 24 Nm.
- Bolt, hex-head (x2)





## Replacement

5 Install the new component (continued).

H Perform resistance spot welding.  
▲ Installation Spot Weld (x129)



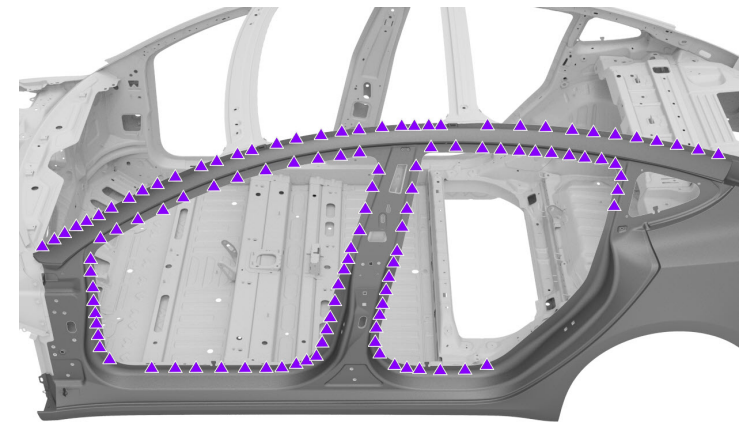
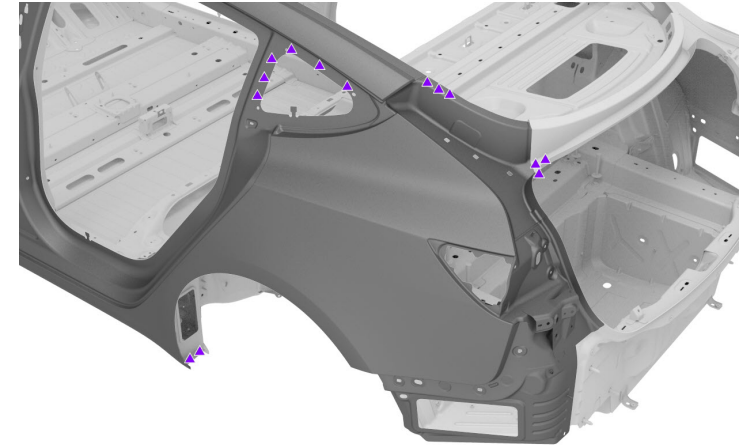
**WARNING:** Failure to follow all welding safety precautions, including the use of personal protective equipment, could result in serious injury or property damage. Only technicians who have successfully met Tesla's requirements for welding training are authorized to weld structural components on Tesla 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:** If only the Bodyside Outer was removed, the spot welds obstructed by the Dashboard may be omitted.





## Replacement

5 Install the new component (continued).

H Perform resistance spot welding (continued).

I Wipe off any excess adhesive.





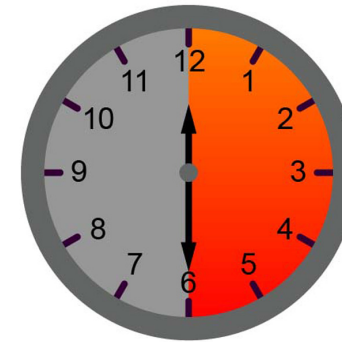
## Replacement

5 Install the new component (continued).

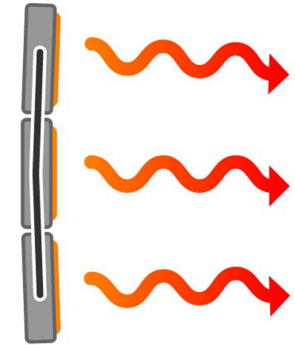
J Bake the structural adhesive so that the bonded panels reach a temperature of 60°C–80°C (140°F–176°F) for at least 30 minutes to achieve full strength.



**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

6 If repairing a section of the Body Side Outer, GMA weld the butt joints

A Perform GMA welding.



## Replacement

6 If repairing a section of the Body Side Outer, GMA weld the butt joints (continued).

A

Perform GMA welding (continued).



**WARNING:** Do not weld the panel where it directly contacts the high strength panels underneath. The heat from welding might weaken the strength of the underlying high strength steel structure.



**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 approved welding wire and an approved GMA welder to perform GMA welding on Tesla vehicles. Refer to [BR-15-92-010](#), "Approved GMA Welding Wires for Structural Repairs" for information on approved welding wire and [BR-16-92-007](#), "Approved Welders" for information on approved GMA welders.



**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

- 6 If repairing a section of the Body Side Outer, GMA weld the butt joints (continued).
  - B Use a grinding tool to grind down the welds until they are flush with the panel.

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