Body Repair
Collision Repair
Specifications

Dimensions - Body

Point-to-Point Measurements

Point-to-point measurements are for reference only. All measurements are given in millimeters. Use these measurements for diagnosing and estimating. Point-to-point measurements are duplicated with tram bar pointers set at equal lengths. All die marks, holes, slots, and fasteners are measured to the center. All dimensions are symmetrical unless otherwise specified.

Front End — Part 1

Front End — Part 2
Front Seat Mounting Points
### Visual Identification

#### Structure Identification

**View Front**

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<td><strong>High Strength Low Alloy Steel</strong></td>
<td>Front Wheelhouse Front Panel Replacement</td>
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<tr>
<td>2</td>
<td>Front Wheelhouse Panel</td>
<td><strong>Mild Steel</strong></td>
<td>Front Wheelhouse Panel Replacement</td>
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<tr>
<td>3</td>
<td>Front Rail</td>
<td>• <strong>Mild Steel</strong></td>
<td>Front Rail Replacement</td>
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<tr>
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<td>• <strong>High Strength Low Alloy Steel</strong></td>
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<td>Roof Outer Panel Replacement</td>
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<td>Center Pillar Sectioning - Outer</td>
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View Rear

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<td>4</td>
<td>Rear Wheelhouse Panel</td>
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<tr>
<td>5</td>
<td>Rear Rail</td>
<td>High Strength Low Alloy Steel</td>
<td>Rear Rail Sectioning</td>
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<tr>
<td>6</td>
<td>Rear Compartment Floor Panel</td>
<td>Mild Steel</td>
<td>Rear Compartment Floor Panel Sectioning</td>
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</tbody>
</table>
Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Locate and mark all the necessary factory welds of the headlamp mount panel (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

8. Cut the adhesive (1) with an appropriate tool.
9. Remove the headlamp mount panel (1).

**Installation Procedure**

1. Drill **8 mm (5/16 in)** for plug welding instead of the adhesive noted from the original panel.
2. Drill **8 mm (5/16 in)** for plug welding along the edges of the headlamp mount panel (1) as noted from the original panel.
3. Clean and prepare the attaching surfaces for welding.
4. Position the headlamp mount panel (1) on the vehicle.
5. Verify the fit of the headlamp mount panel.
6. Clamp the headlamp mount panel into position.

7. Plug weld the headlamp mount panel (1) accordingly.

8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.


10. Install all related panels and components.

11. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

12. Enable the SIR system. Refer to SIR Disabling and Enabling.
Front End Upper Tie Bar Support Replacement

Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

**Warning:** Refer to Approved Equipment for Collision Repair Warning

**Warning:** Refer to Glass and Sheet Metal Handling Warning

1. Disable the SIR System. Refer to SIR Disabling and Enabling
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair

6. Locate and mark all the necessary factory welds of the hood front bumper bracket (1).

7. Locate and mark all the necessary factory welds of the front end sheet metal cross panel reinforcement (1).
8. Drill all factory welds. Note the number and location of welds for installation of the service assembly.
9. Remove the front end sheet metal cross panel reinforcement (1).

10. Drill all factory welds.

11. Grind factory welds of the front end upper tie bar support (1).

12. Remove the front end upper tie bar support (1).

**Installation Procedure**
1. Position the front end upper tie bar support (1) on the vehicle.
2. Verify the fit of the front end upper tie bar support.
3. Clamp the front end upper tie bar support into position.

4. Weld accordingly (1).

5. Weld accordingly (1).

6. Grind down weld seams as needed for related panels and components.
7. Drill 8 mm (5/16 in) holes for plug welding along the edges of the front end sheet metal cross panel reinforcement as noted from the original panel (1).
8. Clean and prepare the attaching surfaces for welding.

9. Position the front end sheet metal cross panel reinforcement (1) on the vehicle.
10. Verify the fit of the front end upper tie bar.
11. Clamp the front end sheet metal cross panel reinforcement into position.

12. Plug weld accordingly (1).
13. Use factory slots for slot brazing.
14. Drill 8 mm (5/16 in) holes for plug welding as noted from the original panel (1).

15. Position the hood front bumper bracket (1) on the vehicle.

16. Clamp the hood front bumper bracket into position.

17. Plug weld accordingly (1).

18. Install front bumper impact bar before applying the sealers and anti-corrosion materials. Refer to Front Bumper Impact Bar Replacement

19. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair

20. Paint the repaired area.

21. Install all related panels and components.
22. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection

23. Enable the SIR system. Refer to SIR Disabling and Enabling
Front Wheelhouse Front Panel Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Locate and mark all the necessary factory welds of the front wheelhouse front panel (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.
8. Drill hidden factory weld (1) where front wheelhouse front panel and front wheelhouse overlap.
9. Remove the front wheelhouse front panel (1).

**Installation Procedure**

1. Drill **8 mm (5/16 in)** for plug welding along the edges of the front wheelhouse front panel (1) as noted from the original panel.

2. Drill **8 mm (5/16 in)** for plug welding (1) where front wheelhouse front panel and front wheelhouse overlap.

3. Clean and prepare the attaching surfaces for welding.
4. Position the front wheelhouse front panel (1) on the vehicle.
5. Verify the fit of the front wheelhouse front panel.
6. Clamp the front wheelhouse front panel into position.

7. Plug weld the front wheelhouse front panel (1) accordingly.

8. Plug weld (1) the joint from front wheelhouse front panel to front wheelhouse accordingly.
9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
11. Install all related panels and components.

12. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

13. Enable the SIR system. Refer to SIR Disabling and Enabling.
Front Wheelhouse Panel Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

Note: Front wheelhouse rear panel brace (1) remains to the body.

6. Locate and mark all the necessary factory welds of the front wheelhouse panel (2).

7. Drill all factory welds of the front wheelhouse panel (1). Note the number and location of welds for installation of the service assembly.
8. Cut the adhesive in the front area (1) and where the front wheelhouse and the front compartment side rail overlap (2) with an appropriate tool.

9. Remove the front wheelhouse panel (1).

Installation Procedure

1. Remove the front wheelhouse rear panel brace (1) from service panel.
2. Drill 8 mm (5/16 in) for plug welding (1) instead of the adhesive noted from the front area of the original panel.

Note: Double the number of drills at the flange where front wheelhouse panel and front compartment side rail overlap (1).

3. Drill 8 mm (5/16 in) for plug welding along the edges of the front wheelhouse panel (2) as noted from the original panel.

4. Clean and prepare the attaching surfaces for welding.

5. Position the front wheelhouse panel (1) on the vehicle.

6. Verify the fit of the front wheelhouse.

7. Clamp the front wheelhouse into position.
8. Plug weld the front wheelhouse panel (1) accordingly.

9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.


11. Install all related panels and components.

12. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

13. Enable the SIR system. Refer to SIR Disabling and Enabling.
Front Wheelhouse Panel Rear Reinforcement Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Locate and mark all the necessary factory welds of the front wheelhouse panel rear reinforcement (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

8. Remove the front wheelhouse panel rear reinforcement (1).

Installation Procedure
1. Drill 8 mm (5/16 in) for plug welding along the edges of the front wheelhouse panel rear reinforcement (1) as noted from the original panel.

2. Drill 8 mm (5/16 in) for plug welding (1) where front wheelhouse front panel and front wheelhouse panel rear reinforcement overlap.

3. Clean and prepare the attaching surfaces for welding.

4. Position the front wheelhouse panel rear reinforcement (1) on the vehicle.

5. Verify the fit of the front wheelhouse panel rear reinforcement.

6. Clamp the front wheelhouse panel rear reinforcement into position.
7. Plug weld the front wheelhouse panel rear reinforcement (1) accordingly.

8. Plug weld (1) the joint from front wheelhouse panel rear reinforcement to front wheelhouse front panel accordingly.

9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.


11. Install all related panels and components.

12. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

13. Enable the SIR system. Refer to SIR Disabling and Enabling.
Front Compartment Upper Side Rail Replacement

**Removal Procedure**

**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Glass and Sheet Metal Handling Warning](#).

1. Disable the SIR System. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

6. Locate and mark all the necessary factory welds and weld seams of the front compartment upper side rail (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

8. Grind factory weld seams (1) of the front compartment upper side rail.
9. Remove the front compartment upper side rail (1).

Installation Procedure

1. Drill 8 mm (5/16 in) for plug welding along the edges of the front compartment upper side rail (1) as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.
3. Position the front compartment upper side rail on the vehicle.
4. Verify the fit of the front compartment upper side rail.
5. Clamp the front compartment upper side rail into position.
Note: Plug weld factory slots in the front hinge pillar body area (1) as noted from the original panel.

6. Plug weld the front compartment upper side rail (2) accordingly.

7. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

8. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.

9. Install all related panels and components.

10. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

11. Enable the SIR system. Refer to SIR Disabling and Enabling.
Front Hinge Pillar Body Sectioning

Removal Procedure

**Warning:** Refer to Approved Equipment for Collision Repair Warning.

**Warning:** Refer to Collision Sectioning Warning.

**Warning:** Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.

2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

3. Remove all related panels and components.

4. Visually inspect the damage. Repair as much of the damage as possible.

5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Create cut lines on the front hinge pillar body (1).

**Note:** Do not damage any inner panels or reinforcements.

7. Cut the front hinge pillar body (1) where sectioning is to be performed.
8. Locate and mark all the necessary factory welds of the front hinge pillar body (1).

9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

10. Remove the damaged front hinge pillar body (1).

**Installation Procedure**

1. Cut the front hinge pillar body (1) in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.

2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
3. Drill 8 mm (5/16 in) along the sectioning cut on the remaining original part. Locate these holes 13 mm (1/2 in) from the edge of part and spaced 40 mm (1 1/2 in) apart.

4. Prepare all mating surfaces as necessary.

5. Fit the backing plates halfway into the sectioning joints, clamp in place and plug weld to the vehicle.

6. Align the front hinge pillar body.

7. Drill 8 mm (5/16 in) for plug welding along the edges of the front hinge pillar body (1) as noted from the original panel.

8. Clean and prepare the attaching surfaces for welding.

9. Position the front hinge pillar body on the vehicle.

10. Verify the fit of the front hinge pillar body.

11. Clamp the front hinge pillar body into position.

12. Plug weld the front hinge pillar body (1) accordingly.

13. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.

14. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

15. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.

16. Install all related panels and components.

17. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

18. Enable the SIR system. Refer to SIR Disabling and Enabling.
Body Hinge Pillar Lower Reinforcement Replacement

Removal Procedure

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Locate and mark all the necessary factory welds of the body hinge pillar lower reinforcement (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

8. Remove the damaged body hinge pillar lower reinforcement (1).

Installation Procedure

1. Prepare all mating surfaces as necessary.
2. Align the body hinge pillar lower reinforcement.
3. Drill 8 mm (5/16 in) for plug welding along the edges of the body hinge pillar lower reinforcement (1) as noted from the original panel.
4. Clean and prepare the attaching surfaces for welding.

5. Apply adhesive (1) to body hinge pillar lower reinforcement (2).
6. Position the body hinge pillar lower reinforcement on the vehicle.
7. Verify the fit of the body hinge pillar lower reinforcement.
8. Clamp the body hinge pillar lower reinforcement into position.

9. Plug weld the body hinge pillar lower reinforcement (1) accordingly.
10. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go
back and complete the stitch weld.

11. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.


13. Install all related panels and components.

14. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

15. Enable the SIR system. Refer to SIR Disabling and Enabling.
Roof Outer Panel Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
6. Locate and mark all factory welds.

7. Drill all factory welds (1). Note the number and location of welds for installation of the service assembly.
8. Cut the adhesive with an appropriate tool.

9. Remove the damaged roof panel (1).

Installation Procedure
1. Drill **8 mm** (5/16 in) for plug welding along the edges of the service panel (1) as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.
3. Apply one-part windshield urethane adhesive (1) as noted from the original panel.
4. Position the roof panel on the vehicle.
5. Verify the fit of the panel.
6. Clamp the panel into position.
7. Plug weld the roof outer panel (1) accordingly.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.


10. Install all related panels and components.

11. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

12. Enable the SIR system. Refer to SIR Disabling and Enabling.
Rocker Inner Panel Replacement

Removal Procedure

**Warning:** Refer to Approved Equipment for Collision Repair Warning.
**Warning:** Refer to Collision Sectioning Warning.
**Warning:** Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

![Illustration of rocker panel with cut lines](image)

6. Create cut lines on the body side inner panel (1).

![Illustration of cut lines](image)

**Note:** Do not damage any inner panels or reinforcements.

7. Cut the body side inner panel (1) where sectioning is to be performed.
8. Locate and mark all the necessary factory welds of the body side inner panel (1).

9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

10. Remove the body side inner panel (1).

11. Locate and mark all the necessary factory welds of the rocker inner panel (1).

12. Drill all factory welds. Note the number and location of welds for installation of the service assembly.
Installation Procedure

1. Align the rocker inner panel.

2. Drill 8 mm (5/16 in) for plug welding along the edges of the rocker inner panel (1) as noted from the original panel.

3. Clean and prepare the attaching surfaces for welding.

4. Position the rocker inner panel on the vehicle.

5. Verify the fit of the quarter outer panel.

6. Clamp the rocker inner panel into position.
7. Plug weld the rocker inner panel (1) accordingly.

8. Plug weld the body side inner panel (1) accordingly.

9. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.

10. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

11. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.

12. Install all related panels and components.

13. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

14. Enable the SIR system. Refer to SIR Disabling and Enabling.
Rocker Outer Panel Replacement

Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.
Warning: Refer to Collision Sectioning Warning.
Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Create cut lines on the rocker outer panel (1).

Note: Do not damage any inner panels or reinforcements.
7. Cut the rocker outer panel (1) where sectioning is to be performed.
8. Locate and mark all the necessary factory welds of the rocker outer panel (1).

9. Drill all factory welds.

10. Remove the damaged rocker outer panel (1).

**Installation Procedure**

1. Cut the rocker outer panel (1) in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.

2. Create 50 mm (2 in) backing plates from the unused portion of the service part.
3. Drill 8 mm (5/16 in) holes for plug welding along the sectioning cut on the remaining original part. Locate these holes 13 mm (1/2 in) from the edge of part and spaced 40 mm (1½ in) apart.
4. Prepare all mating surfaces as necessary.
5. Fit the backing plates halfway into the sectioning joints, clamp in place and weld to the vehicle.
6. Align the rocker outer panel.

7. Drill 8 mm (5/16 in) for plug welding along the edges of the rocker outer panel (1) as noted from the original panel.
8. Clean and prepare the attaching surfaces for welding.

9. Position the rocker outer panel (1) on the vehicle.
10. Verify the fit of the rocker outer panel.
11. Clamp the rocker outer panel into position.
12. Plug weld the rocker outer panel (1) accordingly.

13. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.

14. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

15. Paint the repaired area.

16. Install all related panels and components.

17. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

18. Enable the SIR system. Refer to SIR Disabling and Enabling.
Body Side Outer Panel Reinforcement Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Collision Sectioning Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
6. Locate and mark all the necessary factory welds of the body side outer panel reinforcement (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.
8. Remove the damaged body side outer panel reinforcement (1).

Installation Procedure

1. Align the body side outer panel reinforcement.
2. Drill 8 mm (5/16 in) for plug welding along the edges of the body side outer panel reinforcement (1) as noted from the original panel.

3. Clean and prepare the attaching surfaces for welding.

4. Position the body side outer panel reinforcement (1) on the vehicle.

5. Verify the fit of the body side outer panel reinforcement.

6. Clamp the body side outer panel reinforcement into position.

7. Plug weld the body side outer panel reinforcement (1) accordingly.

8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

10. Install all related panels and components.
11. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
12. Enable the SIR system. Refer to SIR Disabling and Enabling.
**Body Side Inner Panel Sectioning**

**Removal Procedure**

**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Collision Sectioning Warning](#).

**Warning:** Refer to [Glass and Sheet Metal Handling Warning](#).

1. Disable the SIR System. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

6. Create cut lines on the body lock pillar upper reinforcement (1).

**Note:** Do not damage any other panels or reinforcements.

7. Cut the body lock pillar upper reinforcement (1) where sectioning is to be performed.
8. Locate and mark all the necessary factory welds of the body lock pillar upper reinforcement (1).
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

10. Remove the damaged body lock pillar upper reinforcement (1).

**Note:** Cut the body side inner panel (a) 30 mm (1.2 in) above the body side outer panel reinforcement.

11. Create cut lines on the body side inner panel (1).
Note: Do not damage any other panels or reinforcements.

12. Cut the body side inner panel (1) where sectioning is to be performed.

Note: Drill hidden factory welds where body side outer rear panel drain gutter (2) and body side inner panel overlap.

13. Locate and mark all the necessary factory welds of the body side inner panel (1).

14. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

15. Remove the damaged body side inner panel (1).
1. Remove rear end upper panel extension (1) from service part.

Note: Cut the body side inner panel lower 30 mm (1.2 in) longer. It should overlap with the remaining of the original panel.

2. Cut the body side inner panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.

3. Create a 50 mm (2 in) backing plate from the unused portion of the service part.

4. Drill 8 mm (5/16 in) along the sectioning cut on the remaining original part. Locate these holes 13 mm (1/2 in) from the edge of part and spaced 40 mm (1 1/2 in) apart.

5. Prepare all mating surfaces as necessary.

6. Fit the backing plates halfway into the sectioning joints, clamp in place and plug weld to the vehicle.
7. Position the body side inner panel (1).
8. Verify the fit of the panel.
9. Clamp the body side inner panel into position.

10. Using a 7 mm (17/64 in) bit, drill the rivet attachment holes (1) into the service body side inner panel.
11. Remove the service body side inner panel.

12. Drill 8 mm (5/16 in) for plug welding along the edges of the body side inner panel (1) as noted from the original panel.
13. Prepare the bonding mating areas by grinding to bare steel the surface of the panels in the repair area.
14. Apply GM-approved weld-thru coating or equivalent to all mating surfaces. Refer to Anti-Corrosion Treatment and Repair.
15. Position the body side inner panel (1).
16. Verify the fit of the panel.
17. Clamp the body side inner panel into position.
18. Plug weld the body side inner panel (1) accordingly.
19. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.
20. Install the 14 mm (17/32 in) long rivets (1) to the body side inner panel lower.
21. Cut the body lock pillar upper reinforcement (1) in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.

22. Create a 50 mm (2 in) backing plate from the unused portion of the service part.

23. Drill 8 mm (5/16 in) along the sectioning cut on the remaining original part. Locate these holes 13 mm (1/2 in) from the edge of part and spaced 40 mm (1 1/2 in) apart.

24. Prepare all mating surfaces as necessary.

25. Fit the backing plates halfway into the sectioning joints, clamp in place and plug weld to the vehicle.

26. Align the body lock pillar upper reinforcement.

27. Drill 8 mm (5/16 in) for plug welding along the edges of the body lock pillar upper reinforcement (1) as noted from the original panel.

28. Clean and prepare the attaching surfaces for welding.
29. Position the body lock pillar upper reinforcement (1).
30. Verify the fit of the panel.
31. Clamp the body lock pillar upper reinforcement into position.

32. Plug weld the body lock pillar upper reinforcement (1) accordingly.
33. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
34. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
35. Install all related panels and components.
36. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
37. Enable the SIR System. Refer to SIR Disabling and Enabling.
Rear Compartment Floor Panel Sectioning

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Locate and mark all the necessary factory welds of the rear compartment floor panel (1).
7. Note the number and location of weld studs for installation of the service assembly.
8. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

9. Remove the damaged rear compartment floor panel (1).

Installation Procedure

1. Align the rear compartment floor panel.
2. Drill 8 mm (5/16 in) for plug welding along the edges of the rear compartment floor panel (1) as noted from the original panel.
3. Clean and prepare the attaching surfaces for welding.
4. Position the rear compartment floor panel on the vehicle.
5. Verify the fit of the rear compartment floor panel.
6. Clamp the rear compartment floor panel into position.

7. Plug weld the rear compartment floor (1) accordingly.
8. Weld accordingly the weld studs as noted.
9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
11. Install all related panels and components.
12. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
13. Enable the SIR system. Refer to SIR Disabling and Enabling.
Rear Wheelhouse Panel Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Locate and mark all the necessary factory welds of the rear inner wheelhouse panel (1).
7. Drill all factory welds.

   Note: Note the number and location of welds for installation of the service assembly.

8. Remove the rear inner wheelhouse panel (1).

Installation Procedure
1. Drill **8 mm (5/16 in)** for plug welding along the edges of the rear inner wheelhouse panel (1) as noted from the original panel.

   **Note:** If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1 1/2 in).

2. Clean and prepare the attaching surfaces for welding.

3. Position the rear inner wheelhouse panel (1) on the vehicle.

4. Verify the fit of the rear inner wheelhouse.

5. Clamp the rear inner wheelhouse into position.

6. Plug weld the rear wheelhouse panel (1) accordingly.
7. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
8. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
9. Install all related panels and components.
10. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
11. Enable the SIR system. Refer to SIR Disabling and Enabling.
Quarter Outer Panel Sectioning

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Collision Sectioning Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.

2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

3. Remove all related panels and components.

4. Visually inspect the damage. Repair as much of the damage as possible.

5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Create cut lines on the quarter outer panel (1).

7. Cut the quarter outer panel (1) where sectioning is to be performed.

Note: Do not damage any inner panels or reinforcements.
8. Open the wheelhouse flanging (1).

9. Locate and mark all the necessary factory welds of the quarter outer panel (1).

10. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

11. Remove the damaged quarter outer panel (1).

Installation Procedure
1. Cut the quarter outer panel (1) in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.

2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.

3. Drill 8 mm (5/16 in) along the sectioning cut on the remaining original part. Locate these holes 13 mm (1/2 in) from the edge of part and spaced 40 mm (1 1/2 in) apart.

4. Prepare all mating surfaces as necessary.

5. Fit the backing plates halfway into the sectioning joints, clamp in place and plug weld to the vehicle.

6. Align the quarter outer panel.

7. Drill 8 mm (5/16 in) for plug welding along the edges of the quarter outer panel (1) as noted from the original panel.

8. Clean and prepare the attaching surfaces for welding.
9. Apply structural adhesive (1) as noted from the original panel.
10. Position the quarter outer panel on the vehicle.
11. Verify the fit of the quarter outer panel.
12. Clamp the quarter outer panel into position.
13. Plug weld the quarter outer panel (1) accordingly.
14. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.
15. Using a hammer re-hem the hem flanges of the wheelhouse flanging of the quarter outer panel (1).
16. Continue to hammer in stages along the hem flanges.
17. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
18. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
19. Install all related panels and components.
20. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
21. Enable the SIR system. Refer to SIR Disabling and Enabling.
Body Rear End Panel Replacement

Removal Procedure

**Warning:** Refer to Approved Equipment for Collision Repair Warning.

**Warning:** Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Locate and mark all the necessary factory welds of the body rear end panel (1).

   **Note:** Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.

8. Remove the body rear end panel (1).

Installation Procedure
1. Drill **8 mm** (5/16 in) for plug welding along the edges of the body rear end panel (1) as noted from the original panel.

2. Clean and prepare the attaching surfaces for welding.

3. Position the body rear end panel (1) on the vehicle.

4. Verify the fit of the body rear end panel.

5. Clamp the body rear end panel into position.

6. Plug weld the body rear end panel (1) accordingly.

**Note:** If the location of the original plug weld holes cannot be determined, space the plug weld holes every 40 mm (1 1/2 in).
7. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

8. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).

9. Install all related panels and components.

10. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

11. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
Front Rail Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

1. Disable the SIR system. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Repair as much of the damage as possible to factory specifications. Refer to Dimensions - Body.
5. Note the location and remove the sealers and anti-corrosion materials from the repair area. Refer to Anti-Corrosion Treatment and Repair.

Note: Do not damage any inner panels or reinforcements.

6. Locate and drill out all factory welds. Note the number and location of the welds for installation of the front rail (1).

Installation Procedure

7. Remove the damaged front rail (1).
Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1½ in) apart.

Some panels may have structural weld-thru adhesive. Replace the weld-thru adhesive with an additional spot weld between each factory spot weld.

1. Drill 8 mm (5/16 in) plug weld holes in the service part front rail (1) as necessary in the locations noted from the original panel.
2. Prepare all mating surfaces as necessary.
3. Apply GM-approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to Anti-Corrosion Treatment and Repair.

4. Position the front rail (1) to the vehicle using 3-dimensional measuring equipment. Clamp the rail in place.

5. Plug weld the front rail (1) accordingly.
6. Clean and prepare all welded surfaces.
7. Install all related panels and components.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
10. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
11. Enable the SIR system. Refer to SIR Disabling and Enabling.
Center Pillar Inner Panel Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
6. Locate and mark all factory welds.

7. Drill all factory welds lower of the center pillar inner panel (1). Note the number and location of welds for installation of the service assembly.

8. Drill all factory welds upper of the center pillar inner panel (1). Note the number and location of welds for installation of the service assembly.
9. Remove the damaged center pillar inner panel (1).

**Installation Procedure**

1. Drill **8 mm (5/16 in)** for plug welding along the edges of the center pillar inner panel (1) as noted from the original panel.

2. Clean and prepare the attaching surfaces for welding.

3. Position the center pillar inner panel (1) on the vehicle.

4. Verify the fit of the panel.

5. Clamp the center pillar inner panel into position.
6. Plug weld accordingly center pillar inner panel (1) upper and lower.
7. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
8. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
9. Install all related panels and components.
10. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
11. Enable the SIR system. Refer to SIR Disabling and Enabling.
Center Pillar Reinforcement Replacement

Removal Procedure

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

Installation Procedure

1. Prepare all mating surfaces as necessary.
2. Align the center pillar reinforcement.
3. Drill 8 mm (5/16 in) for plug welding along the edges of the center pillar reinforcement (1) as noted from the original panel.

4. Clean and prepare the attaching surfaces for welding.

5. Position the center pillar reinforcement (1) on the vehicle.

6. Verify the fit of the center pillar reinforcement.

7. Clamp the center pillar reinforcement into position.

8. Plug weld the center pillar reinforcement (1) accordingly.

9. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.
10. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

11. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.

12. Install all related panels and components.

13. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

14. Enable the SIR system. Refer to SIR Disabling and Enabling.
Center Pillar Sectioning - Outer

Removal Procedure

**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Collision Sectioning Warning](#).

**Warning:** Refer to [Glass and Sheet Metal Handling Warning](#).

1. Disable the SIR System. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

6. Create cut lines on the center pillar (1).

**Note:** Do not damage any inner panels or reinforcements.

7. Cut the center pillar (1) where sectioning is to be performed.
8. Locate and mark all the necessary factory welds of the center pillar (1).

9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

10. Remove the damaged center pillar (1).

Installation Procedure

1. Cut the center pillar (1) in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.

2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
3. Drill **8 mm (5/16 in)** along the sectioning cut on the remaining original part. Locate these holes **13 mm (1/2 in)** from the edge of part and spaced **40 mm (1 1/2 in)** apart.

4. Prepare all mating surfaces as necessary.

5. Fit the backing plates halfway into the sectioning joints, clamp in place and plug weld to the vehicle.

6. Align the center pillar.

7. Drill **8 mm (5/16 in)** for plug welding along the edges of the center pillar (1) as noted from the original panel.

8. Clean and prepare the attaching surfaces for welding.

9. Position the center pillar (1) on the vehicle.

10. Verify the fit of the center pillar.

11. Clamp the center pillar into position.
12. Plug weld the center pillar (1) accordingly.

13. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.

14. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

15. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.

16. Install all related panels and components.

17. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

18. Enable the SIR system. Refer to SIR Disabling and Enabling.
Front Side Door Outer Panel Replacement

Removal Procedure

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove the front side door. Refer to Front Side Door Replacement.
4. Remove the front side door outside handle. Refer to Front Side Door Outside Handle Replacement (with Keyless Entry)Front Side Door Outside Handle Replacement (without Keyless Entry).
5. Remove the outside rearview mirror. Refer to Outside Rearview Mirror Replacement.
6. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
7. Grind the edges of the front side door outer panel (1) to separate the outer door panel from the door shell.
8. Remove the front side door outer door panel (1).
9. Note the location of the adhesive for installation of the service assembly.
10. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
11. Straighten the edges of the door shell.

Installation Procedure
1. Apply urethane adhesive (1) to the front side door as noted from the original panel.
2. Align the front side door outer panel.
3. Verify the fit of the front side door outer panel.
4. Clamp the front side door outer panel into position.
5. Using a hammer re-hem the hem flanges around the door shell.

1. Apply urethane adhesive (1) to the front side door as noted from the original panel.
2. Align the front side door outer panel.
3. Verify the fit of the front side door outer panel.
4. Clamp the front side door outer panel into position.
5. Using a hammer re-hem the hem flanges around the door shell.

6. Continue to hammer in stages along the hem flanges of the front side door outer panel (1).
7. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
8. Install the outside rearview mirror. Refer to Outside Rearview Mirror Replacement.
9. Install the front side door outside handle. Refer to Front Side Door Outside Handle Replacement (with Keyless Entry)Front Side Door Outside Handle Replacement (without Keyless Entry).
10. Install the front side door. Refer to Front Side Door Replacement.
11. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
12. Install all related panels and components.
13. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
14. Enable the SIR system. Refer to SIR Disabling and Enabling.
Rear Side Door Outer Panel Replacement

Removal Procedure

Warning: Refer to Glass and Sheet Metal Handling Warning.

1. Disable the SIR System. Refer to SIR Disabling and Enabling.

2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

3. Remove the rear side door. Refer to Rear Side Door Replacement.

4. Remove the rear side door outside handle. Refer to Rear Side Door Outside Handle Replacement (with Keyless Entry) and Rear Side Door Outside Handle Replacement (without Keyless Entry).

5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

6. Grind the edges of the rear side door outer panel (1) to separate the outer door panel from the door shell.

7. Remove the rear side door outer door panel (1).

8. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

9. Straighten the edges of the door shell.

Installation Procedure
1. Apply urethane adhesive (1) to the rear side door as noted from the original panel.
2. Align the rear side door outer panel.
3. Verify the fit of the rear side door outer panel.
4. Clamp the rear side door outer panel into position.
5. Using a hammer re-hem the hem flanges around the door shell.

6. Continue to hammer in stages along the hem flanges of the rear side door outer panel (1).
7. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
8. Install the rear side door outside handle. Refer to Rear Side Door Outside Handle Replacement (with Keyless Entry) Rear Side Door Outside Handle Replacement (without Keyless Entry).
9. Install the rear side door. Refer to Rear Side Door Replacement.
11. Install all related panels and components.
12. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
13. Enable the SIR system. Refer to SIR Disabling and Enabling.
**Rear Rail Sectioning**

**Removal Procedure**

**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Collision Sectioning Warning](#).

**Warning:** Refer to [Glass and Sheet Metal Handling Warning](#).

1. Disable the SIR System. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

6. Create cut lines on the rear side rail (1).

**Note:** Do not damage any other panels or reinforcements.

7. Cut the panel (1) where sectioning is to be performed.
8. Locate and mark all the necessary factory welds of the rear side rail (1).

9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

10. Remove the damaged rear side rail (1).

**Installation Procedure**

1. Cut the rear side rail (1) in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.

2. Prepare all mating surfaces as necessary.
3. Align the rear side rail.

4. Drill 8 mm (5/16 in) for plug welding along the edges of the rear side rail (1) as noted from the original panel.

5. Clean and prepare the attaching surfaces for welding.

6. Position the rear side rail (1) on the vehicle.

7. Verify the fit of the rear side rail.

8. Clamp the rear side rail into position.

9. Plug weld the rear side rail (1) accordingly.

10. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go
back and complete the stitch weld.

11. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.


13. Install all related panels and components.

14. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

15. Enable the SIR System. Refer to SIR Disabling and Enabling.
Resistance Spot Welded Full Panel Replacement

Note: Use this procedure for all panels that are replaced at the factory seams, unless a specific procedure exists in the Collision Repair section of this vehicle's service information.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

1. Disable the SIR system. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Repair as much of the damage as possible to factory specifications.

Warning: Refer to Foam Sound Deadeners Warning.

5. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

Note: Do not damage any inner panels or reinforcements.

6. Locate and drill out all factory welds (1). Note the number and location of the welds for installation of the service part.

Installation Procedure

Note: If the location of the original plug weld holes cannot be determined, space the plug weld holes every 40 mm (1 1/2 in) apart. Where structural adhesive was present, space the plug weld holes every 20 mm (3/4 in) apart.

1. Prepare all mating surfaces as necessary.
2. Apply GM-approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to Anti-Corrosion Treatment and Repair.

3. Position the service part. Clamp in place.

4. Apply welds accordingly (1).

5. Clean and prepare all welded surfaces.

6. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

7. Paint the repair area. Refer to Basecoat/Clearcoat Paint Systems.

8. Install all related panels and components.

9. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

10. Enable the SIR system. Refer to SIR Disabling and Enabling.
MIG Welded Full Panel Replacement

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning.

Note: Use this procedure for all panels that are replaced at the factory seams, unless a specific procedure exists in the Collision Repair section of this vehicle’s service information.

1. Disable the SIR system. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Repair as much of the damage as possible to factory specifications.

Warning: Refer to Foam Sound Deadeners Warning.

5. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.

Note: Do not damage any inner panels or reinforcements.

6. Locate and drill out all factory welds (1). Note the number and location of the welds for installation of the service part.

Note: Do not damage any inner panels or reinforcements.

7. Remove the damaged part (1).

Installation Procedure
Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1 1/2 in) apart. Where structural adhesive was present, space the plug weld holes every 20 mm (3/4 in) apart.

1. Drill 8 mm (5/16 in) plug weld holes in the service part as necessary in the locations noted from the original panel (1).
2. Prepare all attachment surfaces as necessary.
3. Prepare all mating surfaces as necessary.
4. Apply GM-approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to Anti-Corrosion Treatment and Repair.
5. Position the service part. Clamp in place.

6. Plug weld accordingly (1).
7. Clean and prepare all welded surfaces.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
10. Install all related panels and components.
11. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
12. Enable the SIR system. Refer to SIR Disabling and Enabling.
Description and Operation

Dual Phase Steel

This information provides repair recommendations and general guidelines for steel classified as Dual Phase Steel, also known as DP. This type of steel normally has a tensile strength below 780 MPa.

General Motors recommends the following when repairing or replacing this type of steel during collision repair.

**Note:** The use of heat to repair damage is not recommended for this classification of steel.

**Recommended Repairs**

- Cold repairs can be performed on this type of steel, unless the damage includes kinks. If the damage includes kinks, the part should be replaced.
- Sectioning or partial replacement of this type of steel is recommended only at approved locations, in a specific sectioning procedure.
- When recommended in a specific sectioning procedure, this type of steel can be used as a weld plate for reinforcing the sectioning location.
- Squeeze Resistance Spot Welding can be used to replace factory spot welds, where applicable.
- MIG plug welding and MIG stitch welding can be used on this type of steel.
- MIG Brazing can be used on this type of steel.
High Strength Low Alloy Steel

This information provides repair recommendations and general guidelines for steel classified as High Strength Low Alloy Steel, also known as HSLA. This type of steel normally has a tensile strength range from 300–700 MPa.

General Motors recommends the following when repairing or replacing this type of steel during collision repair.

Recommended Repairs

- Cold repairs can be performed on this type of steel, unless the damage includes kinks. If the damage includes kinks, the part should be replaced.
- Controlled use of heat can be used to repair damage, if the heat does not exceed 650°C (1200°F). The heat should be applied a maximum of 2 times, for up to 90 seconds.
- Sectioning or partial replacement of this type of steel is recommended only at approved locations, in a specific sectioning procedure.
- When recommended in a specific sectioning procedure, this type of steel can be used as a weld plate for reinforcing the sectioning location.
- Squeeze Resistance Spot Welding can be used to replace factory spot welds, where applicable.
- MIG plug welding and MIG stitch welding can be used on this type of steel.
- MIG Brazing can be used on this type of steel.
Mild Steel

This information provides repair recommendations and general guidelines for steel classified as Mild Steel. This type of steel normally has a tensile strength less than 270 MPa. This includes the common steel names of:

- Mild Steel
- Bake Hardenable Steel (BH)
- Solid Solution Strengthened Steel

General Motors recommends the following when repairing or replacing this type of steel during collision repair.

**Recommended Repairs:**

- Cold repairs can be performed on this type of steel, unless the damage includes kinks. If the damage includes kinks, the part should be replaced.
- Controlled use of heat can be used to repair damage, if the heat does not exceed 650°C (1200°F). The heat should be applied a maximum of 2 times, for up to 90 seconds.
- Sectioning or partial replacement of this type of steel is recommended only at approved locations, in a specific sectioning procedure.
- When recommended in a specific sectioning procedure, this type of steel can be used as a weld plate for reinforcing the sectioning location.
- Squeeze Resistance Spot Welding can be used to replace factory spot welds, where applicable
- MIG plug welding and MIG stitch welding can be used on this type of steel.
- MIG Brazing can be used on this type of steel.
Ultra High Strength Dual Phase Steel

This information provides repair recommendations and general guidelines for steel classified as Ultra High Strength Dual Phase Steel, also known as DPX. This type of steel normally has a tensile strength of 780 MPa, or greater.

General Motors recommends the following when repairing or replacing this type of steel during collision repair.

Note:

- Repair of this type of steel is not recommended.
- This type of steel should be replaced at factory joints only. Sectioning or partial replacement is not recommended.
- The use of heat to repair damage is not recommended for this type of steel.
- Stitch Welding is not recommended for this type of steel (unless replacing a factory installed stitch weld).
- This type of steel should not be used as a weld plate for reinforcing the sectioning location.

Recommended Repairs:

- Squeeze Resistance Spot Welding can be used to replace factory spot welds, where applicable.
- MIG plug welding can be used to replace factory spot welds.
- MIG Brazing can be used to replace factory spot welds.