Select a Service Category:

- Bolted Exterior Body Panels and Closures
- Bumpers and Fascias
- Collision Repair
- Frame and Underbody
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Select a Document:

- Specifications
- Front End Upper Tie Bar Replacement
- Front Fender Front Lower Bracket Replacement
- Hood Primary Latch Release Cable Replacement
- Rear Side Door Check Replacement
- Front Side Door Adjustment
- Front Side Door Replacement
- Rear Side Door Adjustment
- Rear Side Door Replacement
- Front Fender Replacement
- Front Fender Shipping Cover Replacement
- Front Side Door Wiring Harness Replacement
- Rear Compartment Lid Wiring Harness Replacement
- Rear Side Door Wiring Harness Replacement
- Hood Primary Latch Release Cable Handle Replacement
- Front Side Door Upper Hinge and Lower Hinge Replacement
- Hood Hinge Replacement
- Rear Compartment Lid Rear Hinge Replacement
- Rear Side Door Upper Hinge and Lower Hinge Replacement
- Hood Adjustment
- Hood Replacement
- Front Fender Insulator Replacement
- Hood Insulator Replacement
- Hood Primary and Secondary Latch Replacement
- Rear Compartment Lid Adjustment
- Rear Compartment Lid Replacement
- Front Side Door Check Replacement
- Fuel Tank Filler Door Replacement
- Fuel Tank Filler Pipe Housing Replacement
- Hood Hold-Open Rod Replacement
- Rear Compartment Lid Hinge Torque Rod Replacement
- Hood Rear Weatherstrip Replacement
- Radiator Grille Reinforcement Support Replacement
- Front or Rear Side Door Lower Weatherstrip Replacement
- Front Side Door Weatherstrip Replacement - Door Side
- Front Side Door Weatherstrip Replacement - Body Side
- Rear Compartment Lid Weatherstrip Replacement
- Rear Side Door Weatherstrip Replacement - Door Side
- Rear Side Door Weatherstrip Replacement - Body Side
- Special Tools and Equipment

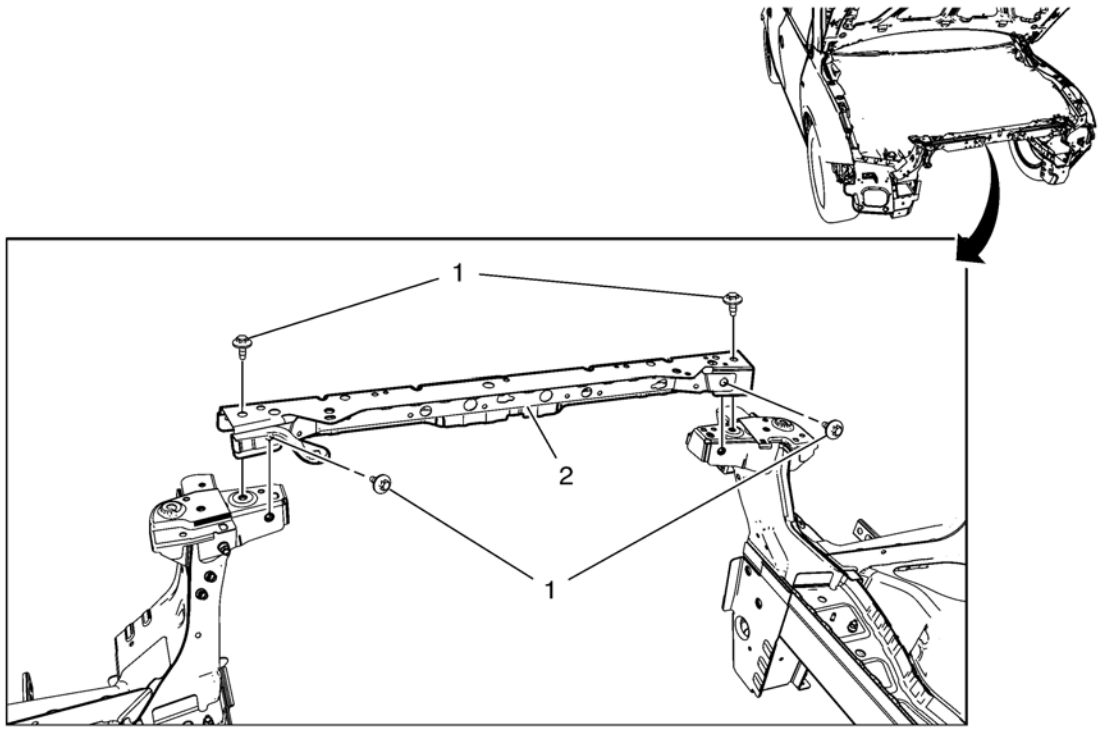
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Fastener Tightening Specifications

Application	Specification	
	Metric	English
Front Fender Bolt	8 N·m	71 lb in
Front Fender Bracket Bolt	9 N·m	80 lb in
Front Side Door Check Link Bolt	25 N·m	19 lb ft
Front Side Door Check Link Nut	9 N·m	80 lb in
Front Side Door Hinge Bolt	25 N·m	19 lb ft
Headlamp and Front Bumper Fascia Mount Panel Bolt	22 N·m	17 lb ft
Hood Hinge Bolt	26 N·m	20 lb ft
Hood Hinge Reinforcement Nut	26 N·m	20 lb ft
Rear Compartment Lid Hinge Bolt	9 N·m	80 lb in
Rear Side Door Check Link Bolt	25 N·m	19 lb ft
Rear Side Door Check Link Nut	9 N·m	80 lb in
Rear Side Door Hinge Bolt	25 N·m	19 lb ft

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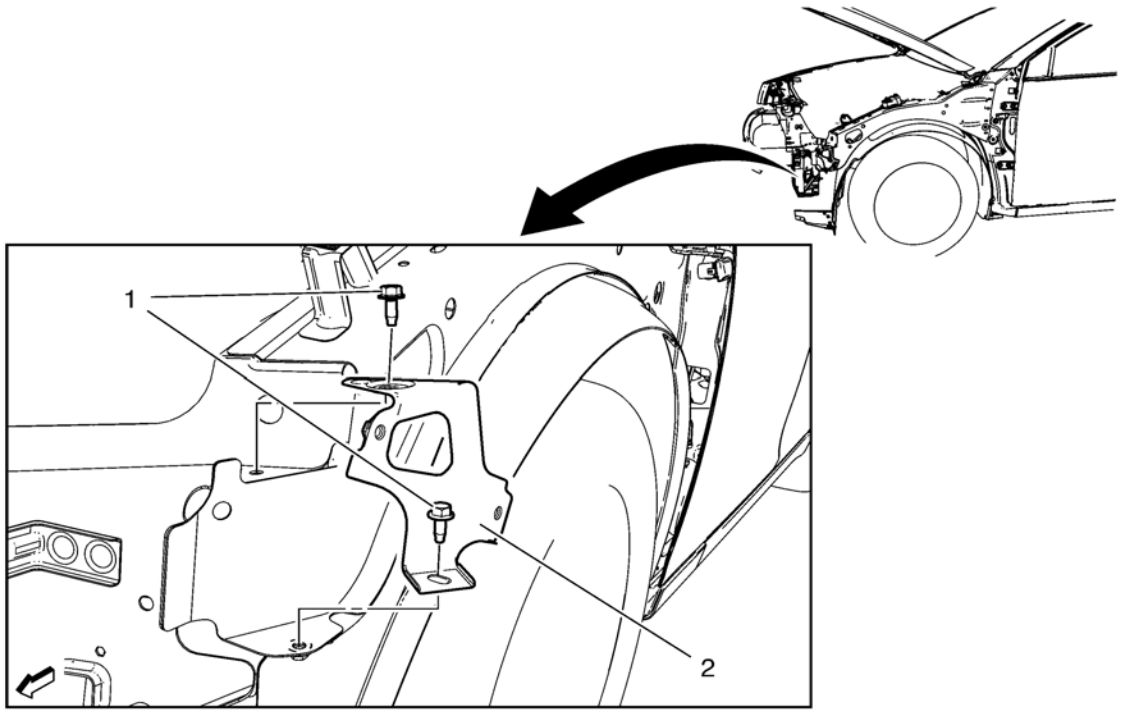
Front End Upper Tie Bar Replacement



Callout	Component Name
Preliminary Procedure 1. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement 2. Remove the radiator support bracket. Refer to Radiator Support Bracket Replacement 3. Remove the radiator grille reinforcement support. Refer to Radiator Grille Reinforcement Support Replacement 4. Remove the hood primary and secondary latch. Refer to Hood Primary and Secondary Latch Replacement	
1	Headlamp and Front Bumper Fascia Mount Panel Bolt (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 22 N·m (17 lb ft)
2	Front End Upper Tie Bar

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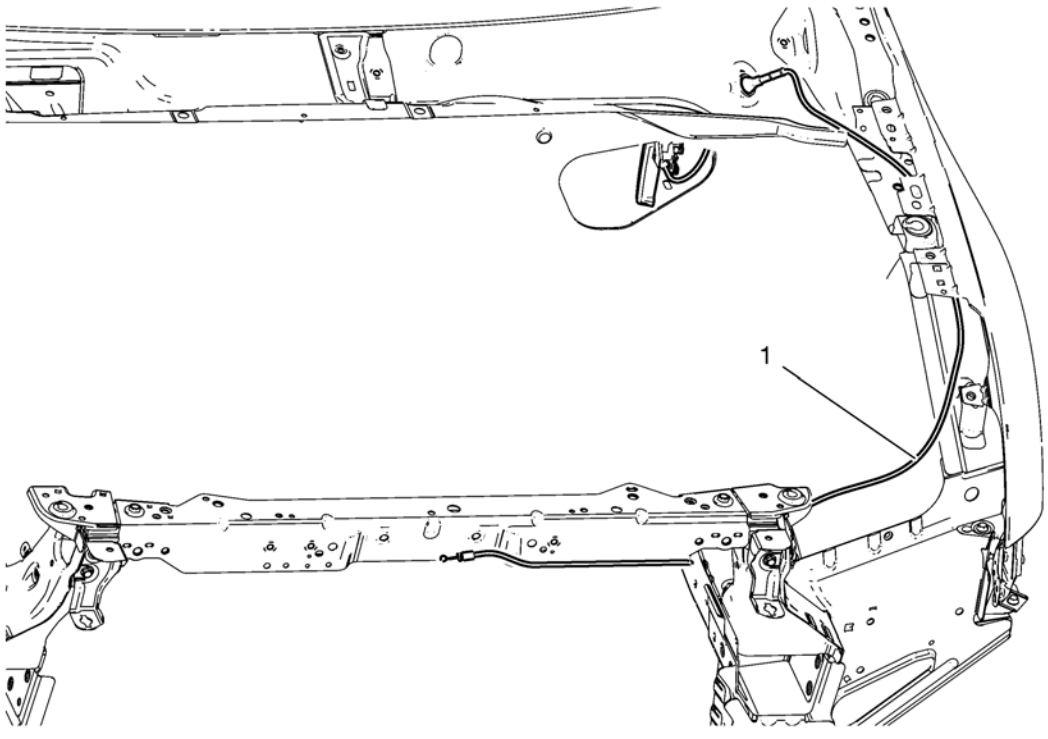
Front Fender Front Lower Bracket Replacement



Callout	Component Name
Preliminary Procedure 1. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement. 2. Remove the headlamp. Refer to Headlamp Replacement. 3. Remove the front fender. Refer to Front Fender Replacement.	
1	Front Fender Bracket Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 9 N·m(80 lb in)
2	Front Fender Front Lower Bracket

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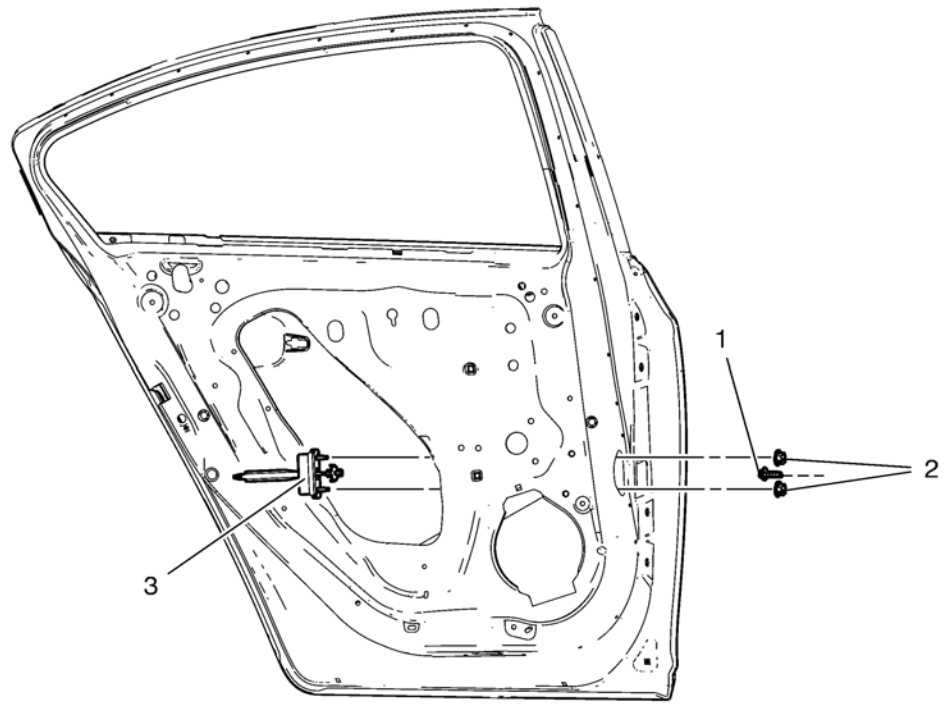
Hood Primary Latch Release Cable Replacement



Callout	Component Name
Preliminary Procedure 1. Remove hood primary latch release cable handle. Refer to Hood Primary Latch Release Cable Handle Replacement. 2. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement. 3. Remove the radiator grille support. Refer to Radiator Grille Reinforcement Support Replacement. 4. Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement.	
1	Hood Primary Latch Release Cable **Procedure** To release the hood primary latch release cable, unhook from hood primary and secondary latch.

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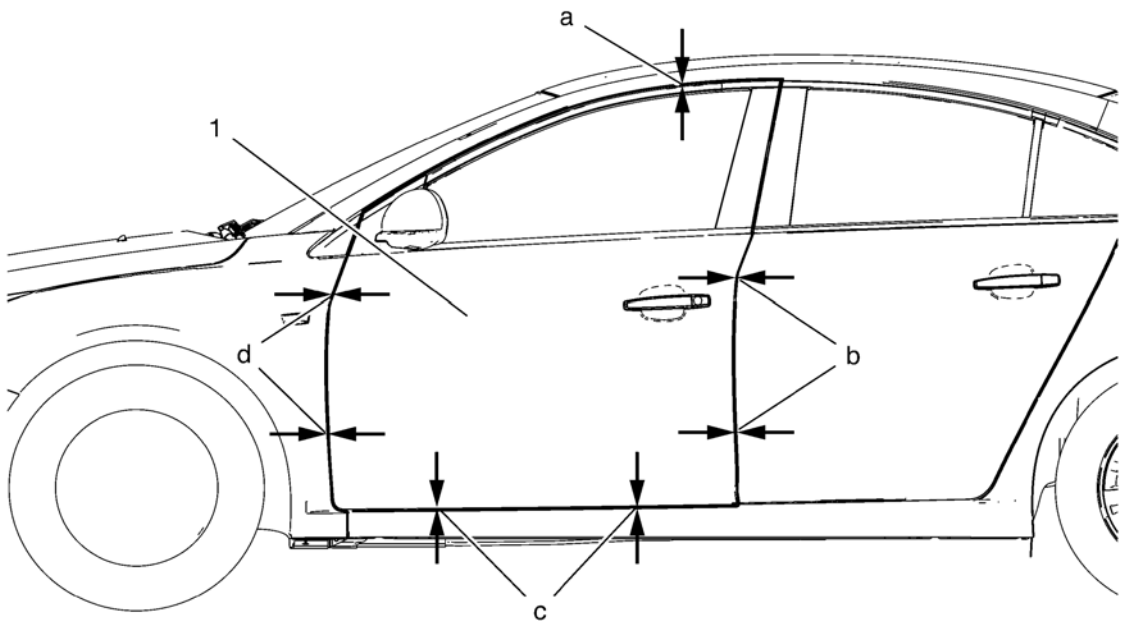
Rear Side Door Check Replacement



Callout	Component Name
Preliminary Procedure 1. Remove rear side door trim panel. Refer to Rear Side Door Trim Replacement 2. Remove the rear side door water deflector. Refer to Rear Side Door Water Deflector Replacement	
1	Rear Side Door Check Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Tip** Place the door in the full open position. **Tighten** 25 N·m (18 lb ft)
2	Rear Side Door Check Nut **Procedure** Remove the water deflector. **Tighten** 9 N·m (79 lb in)
3	Rear Side Door Check

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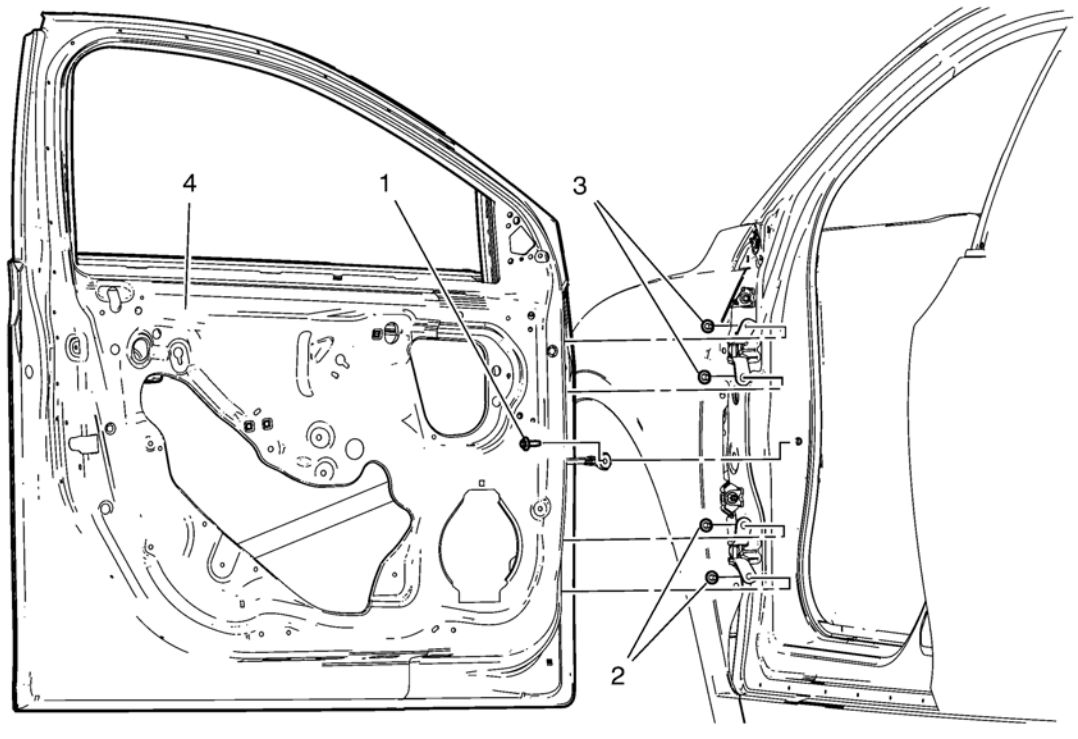
Front Side Door Adjustment



Callout	Component Name
Preliminary Procedure Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement.	
1	Front Side Door **Caution:** Refer to Fastener Caution in the Preface section. **Procedure** 1. Loosen the front side door hinge bolt (Qty: 4) to adjust the front side door. 2. Adjust the front side door in order to obtain an even gap between the front side door and the roof, the rear door, the rocker panel and the front fender and so that the front side door is flush with the roof, the rear door, the rocker panel and the front fender. **Adjustment** • Front side door to roof (a) 6.0 mm ± 1.0 mm (0.24 in ± 0.04 in) • Front side door to rear door (b) 3.5 mm ± 0.75 mm (0.14 in ± 0.03 in) • Front side door to rocker panel (c) 4.5 mm ± 1.0 mm (0.18 in ± 0.04 in) • Front side door to front fender (d) 3.5 mm ± 0.75 mm (0.14 in ± 0.03 in) **Tighten** 25 N·m (19 lb ft)

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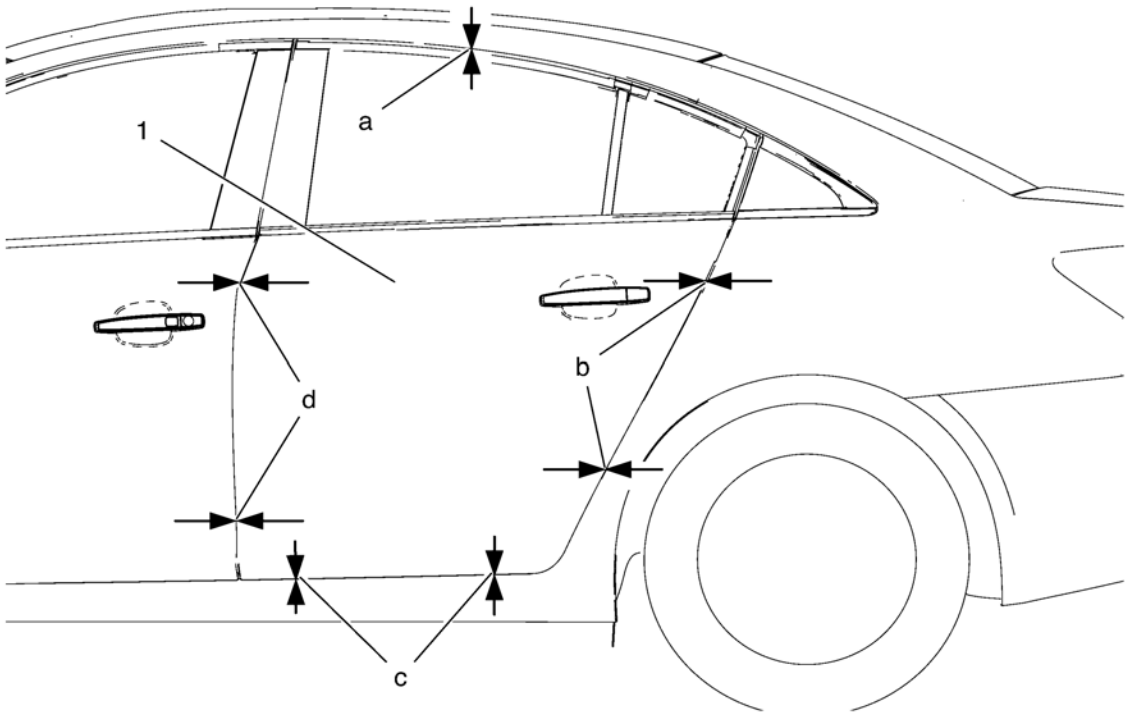
Front Side Door Replacement



Callout	Component Name
Preliminary Procedure Remove the front side door trim panel. Refer to Front Side Door Trim Replacement.	
1	Front Side Door Check Link Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Procedure** 1. Remove the water deflector. 2. Disconnect the door electrical connector. 3. Support the door before removing the hinge bolts. 4. With the aid of an assistant, remove the door. **Tighten** 25 N·m (18 lb ft)
2	Front Side Door Lower Hinge Bolt (Qty: 2) **Tighten** 25 N·m (18 lb ft)
3	Front Side Door Upper Hinge Bolt (Qty: 2) **Tighten** 25 N·m (18 lb ft)
4	Front Side Door **Procedure** 1. Transfer all of the internal components. 2. Adjust the front side door as needed. Refer to Front Side Door Adjustment.

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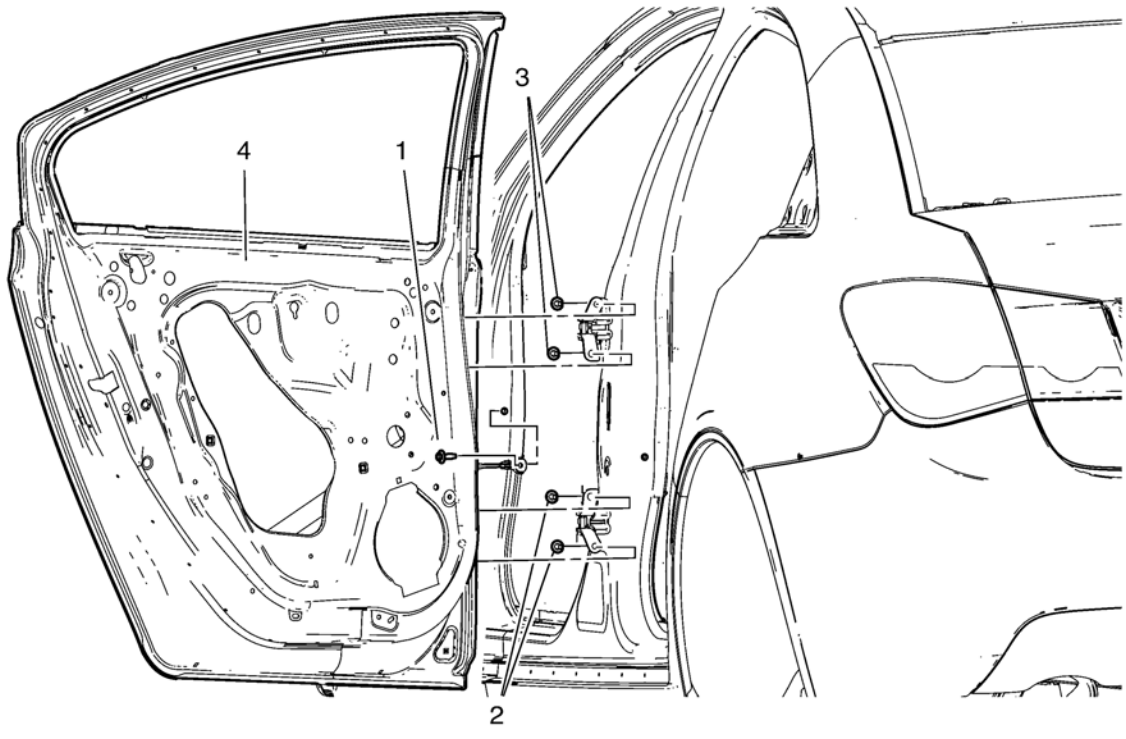
Rear Side Door Adjustment



Callout	Component Name
1	Rear Side Door **Caution:** Refer to Fastener Caution in the Preface section. **Procedure** 1. Loosen the rear door hinge bolt (Qty: 4) to adjust the rear door. 2. Adjust the rear door in order to obtain an even gap between the rear door and the roof, the quarter outer panel, the rocker panel and the front side door and so that the rear door is flush with the roof, the quarter outer panel, the rocker panel and the front side door. **Adjustment** • Rear side door to roof (a) 6.0 mm ± 1.0 mm (0.24 in ± 0.04 in) • Rear side door to quarter outer panel (b) 3.5 mm ± 0.75 mm (0.14 in ± 0.03 in) • Rear side door to rocker panel (c) 4.5 mm ± 1.0 mm (0.18 in ± 0.04 in) • Rear side door to front side door (d) 3.5 mm ± 0.75 mm (0.14 in ± 0.03 in) **Tighten** 25 N·m (19 lb ft)

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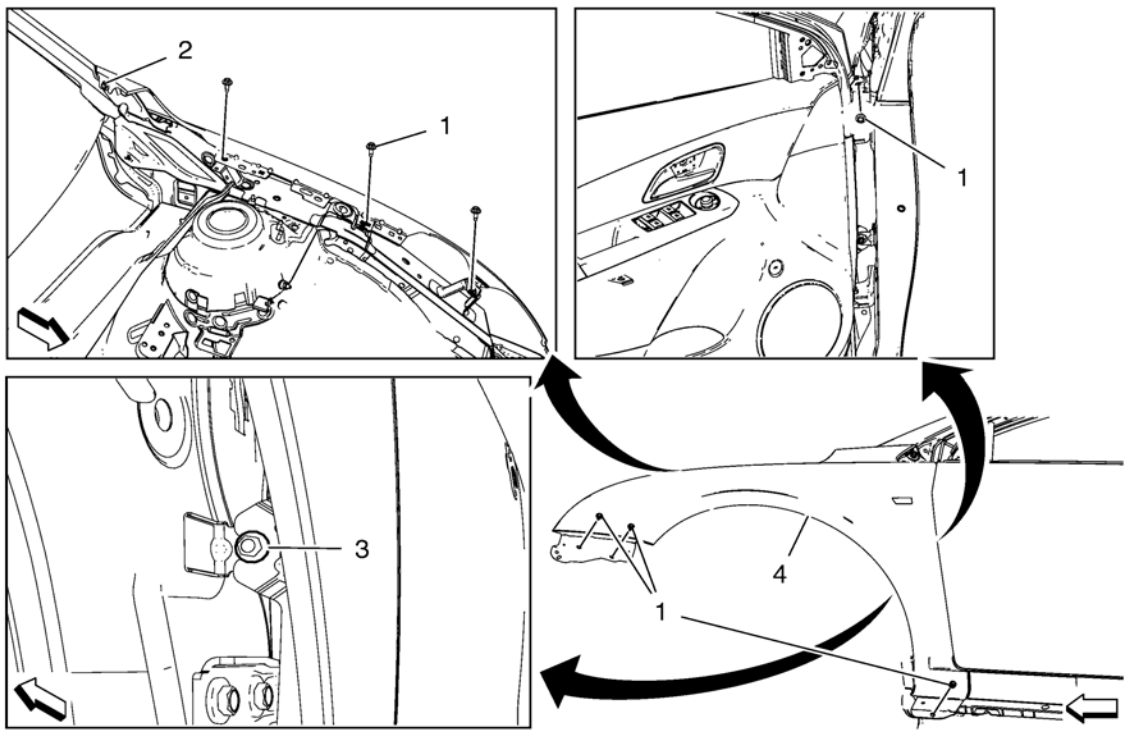
Rear Side Door Replacement



Callout	Component Name
Preliminary Procedure Remove the rear side door trim panel. Refer to Rear Side Door Trim Replacement.	
1	Rear Side Door Check Link Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Procedure** 1. Remove the water deflector. 2. Disconnect the door electrical connector. 3. Support the door before removing the hinge bolts. 4. With the aid of an assistant, remove the door. **Tighten** 25 N·m (18 lb ft)
2	Rear Side Door Lower Hinge Bolt (Qty: 2) **Tighten** 25 N·m (18 lb ft)
3	Rear Side Door Upper Hinge Bolt (Qty: 2) **Tighten** 25 N·m (18 lb ft)
4	Rear Side Door **Procedure** 1. Transfer all of the internal components. 2. Adjust the rear side door as needed. Refer to Rear Side Door Adjustment.

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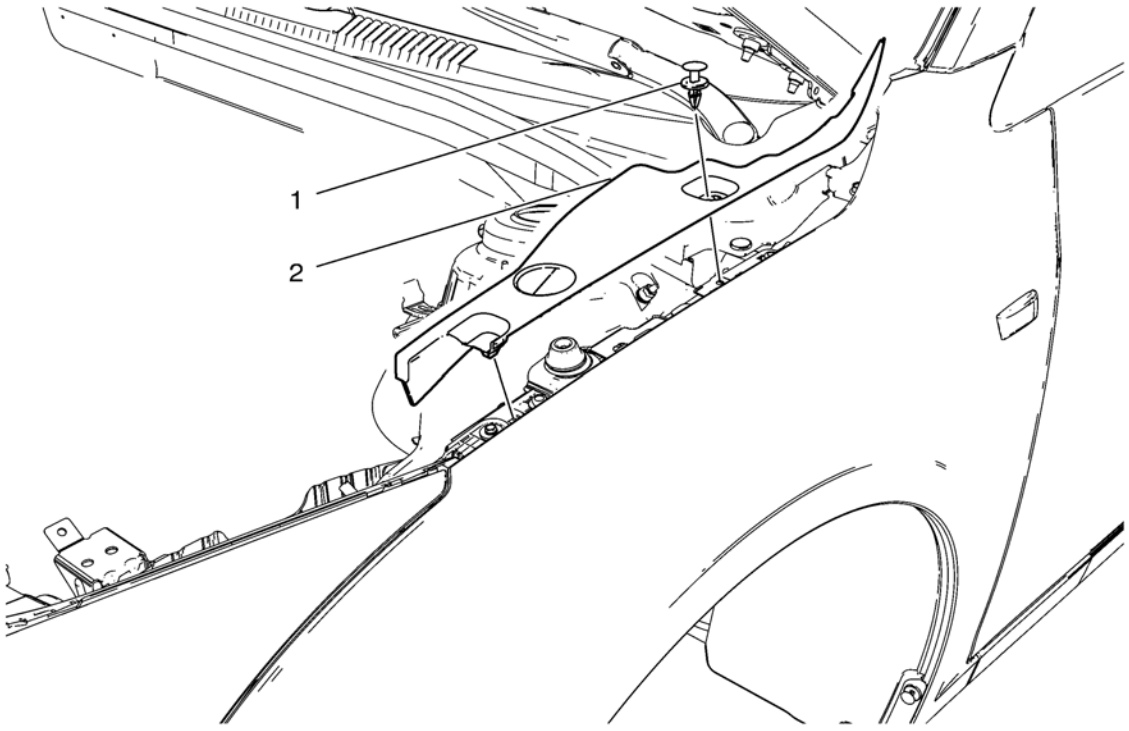
Front Fender Replacement



Callout	Component Name
Preliminary Procedure 1. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement 2. Remove front bumper fascia guide. Refer to Front Bumper Fascia Replacement 3. Remove the wheelhouse liner. Refer to Front Wheelhouse Liner Replacement 4. Remove the headlamp. Refer to Headlamp Replacement 5. Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement 6. Remove the front fender shipping cover. Refer to Front Fender Shipping Cover Replacement 7. Remove the front fender insulator. Refer to Front Fender Insulator Replacement	
1	Front Fender Bolt (Qty: 7) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 8 N·m (70 lb in)
2	Front Fender Bolt **Tighten** 8 N·m (70 lb in)
3	Front Fender Bolt **Tip** Simply loosen the bolt rather than remove. **Tighten** 8 N·m(70 lb in)
4	Front Fender

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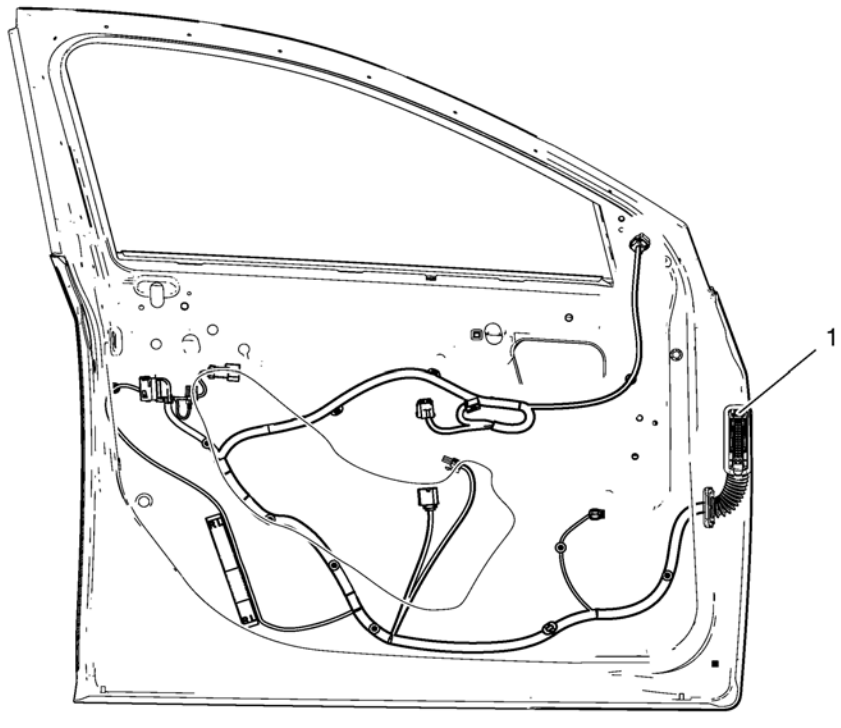
Front Fender Shipping Cover Replacement



Callout	Component Name
1	Front Fender Insulator Retainer
2	Front Fender Shipping Cover

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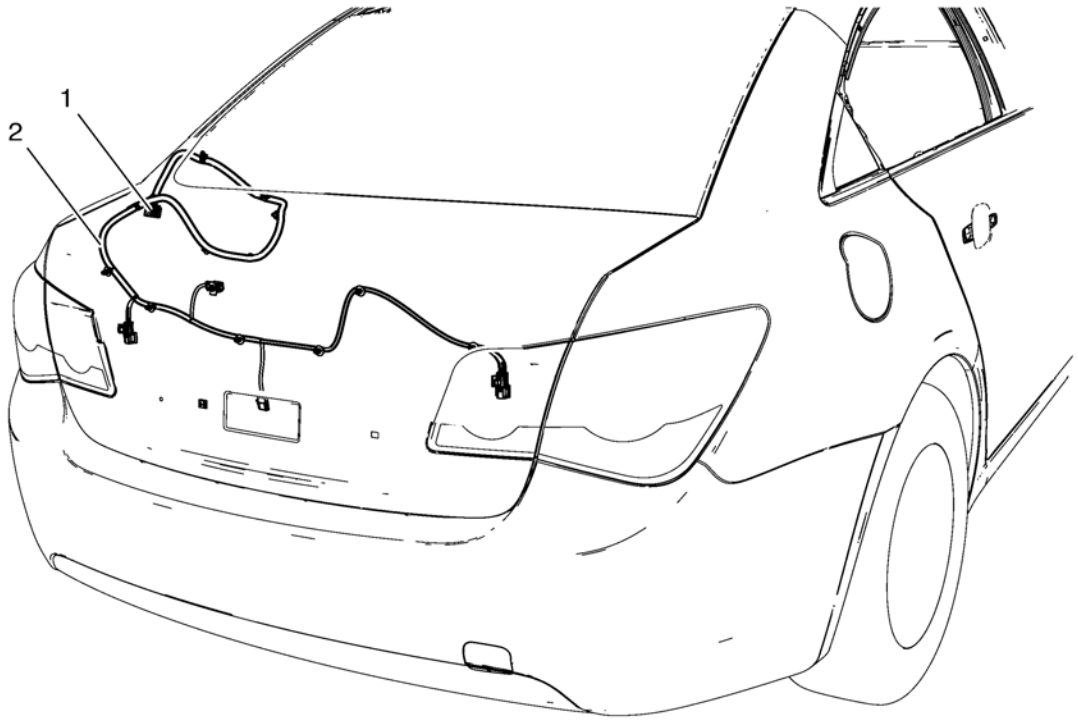
Front Side Door Wiring Harness Replacement



Callout	Component Name
Preliminary Procedure Remove the front side door inner panel trim. Refer to Front Side Door Trim Replacement.	
1	Front Side Door Wiring Harness **Warning:** Unless directed otherwise, the ignition and start switch must be in the OFF or LOCK position, and all electrical loads must be OFF before servicing any electrical component. Disconnect the negative battery cable to prevent an electrical spark should a tool or equipment come in contact with an exposed electrical terminal. Failure to follow these precautions may result in personal injury and/or damage to the vehicle or its components. For Vehicles equipped with OnStar® (UE1) with Back Up Battery: The Back Up Battery is a redundant power supply to allow limited OnStar® functionality in the event of a main vehicle battery power disruption to the VCIM (OnStar®module). Do not disconnect the main vehicle battery or remove the OnStar® fuse with the ignition key in any position other than OFF. Retained accessory power (RAP) should be allowed to time out or be disabled (simply opening the driver door should disable RAP) before disconnecting power. Disconnecting power to the OnStar® module in any way while the ignition is On or with RAP activated may cause activation of the OnStar® Back-Up Battery (BUB) system and will discharge and permanently damage the back-up battery. Once the Back-Up Battery is activated it will stay on until it has completely discharged. The BUB is not rechargeable and once activated the BUB must be replaced. **Procedure** 1. Disconnect the battery. 2. Remove the water deflector. 3. Disconnect electrical connectors as needed.

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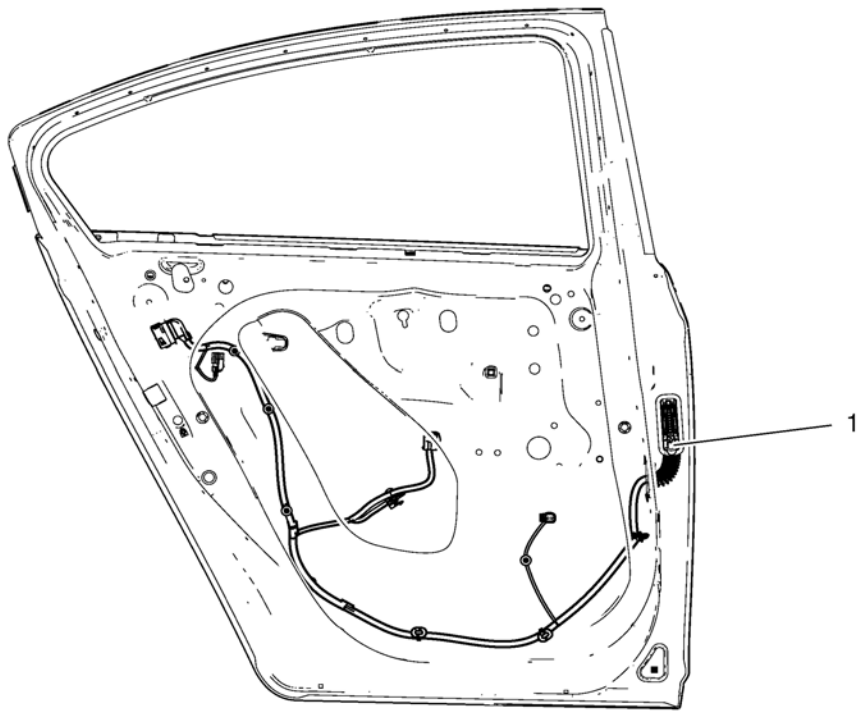
Rear Compartment Lid Wiring Harness Replacement



Callout	Component Name
Preliminary Procedure Remove the rear compartment lid inner panel trim. Refer to Rear Compartment Lid Inner Panel Trim Replacement.	
1	Rear Compartment Lid Wiring Harness Plug **Procedure** 1. Disconnect the battery. 2. Release the locking device to disconnect the wiring harness plug.
2	Rear Compartment Lid Wiring Harness

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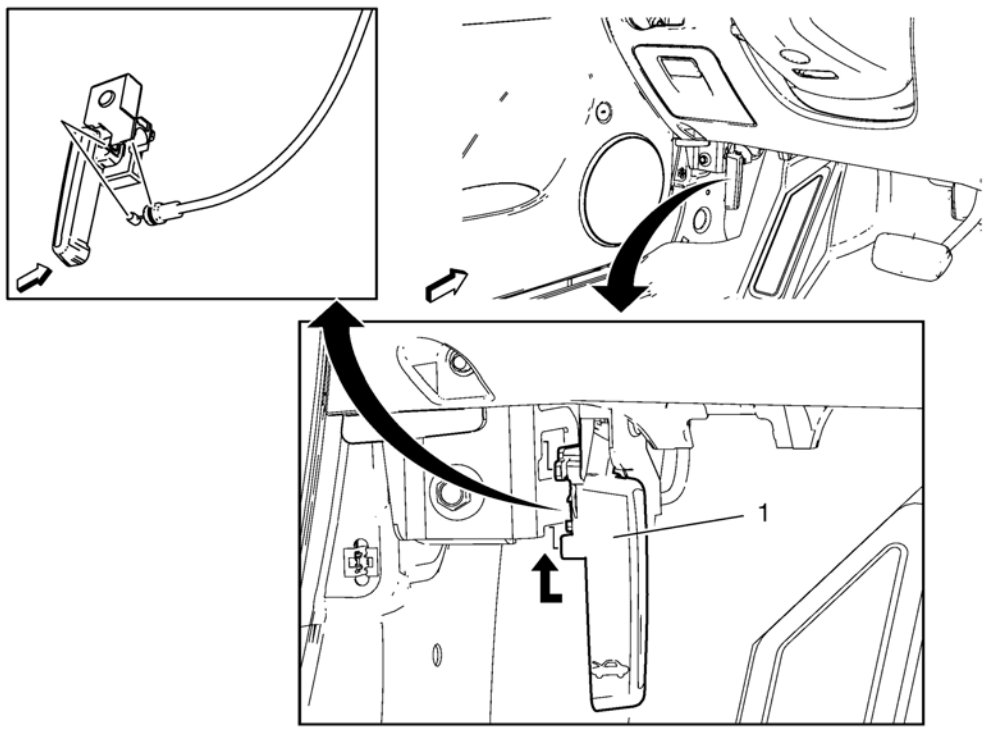
Rear Side Door Wiring Harness Replacement



Callout	Component Name
Preliminary Procedure Remove the rear side door inner panel trim. Refer to Rear Side Door Trim Replacement.	
1	Rear Side Door Wiring Harness **Warning:** Unless directed otherwise, the ignition and start switch must be in the OFF or LOCK position, and all electrical loads must be OFF before servicing any electrical component. Disconnect the negative battery cable to prevent an electrical spark should a tool or equipment come in contact with an exposed electrical terminal. Failure to follow these precautions may result in personal injury and/or damage to the vehicle or its components. For Vehicles equipped with OnStar® (UE1) with Back Up Battery: The Back Up Battery is a redundant power supply to allow limited OnStar® functionality in the event of a main vehicle battery power disruption to the VCIM (OnStar®module). Do not disconnect the main vehicle battery or remove the OnStar® fuse with the ignition key in any position other than OFF. Retained accessory power (RAP) should be allowed to time out or be disabled (simply opening the driver door should disable RAP) before disconnecting power. Disconnecting power to the OnStar® module in any way while the ignition is On or with RAP activated may cause activation of the OnStar® Back-Up Battery (BUB) system and will discharge and permanently damage the back-up battery. Once the Back-Up Battery is activated it will stay on until it has completely discharged. The BUB is not rechargeable and once activated the BUB must be replaced. **Procedure** 1. Disconnect the battery. 2. Remove the water deflector. 3. Disconnect electrical connectors as needed.

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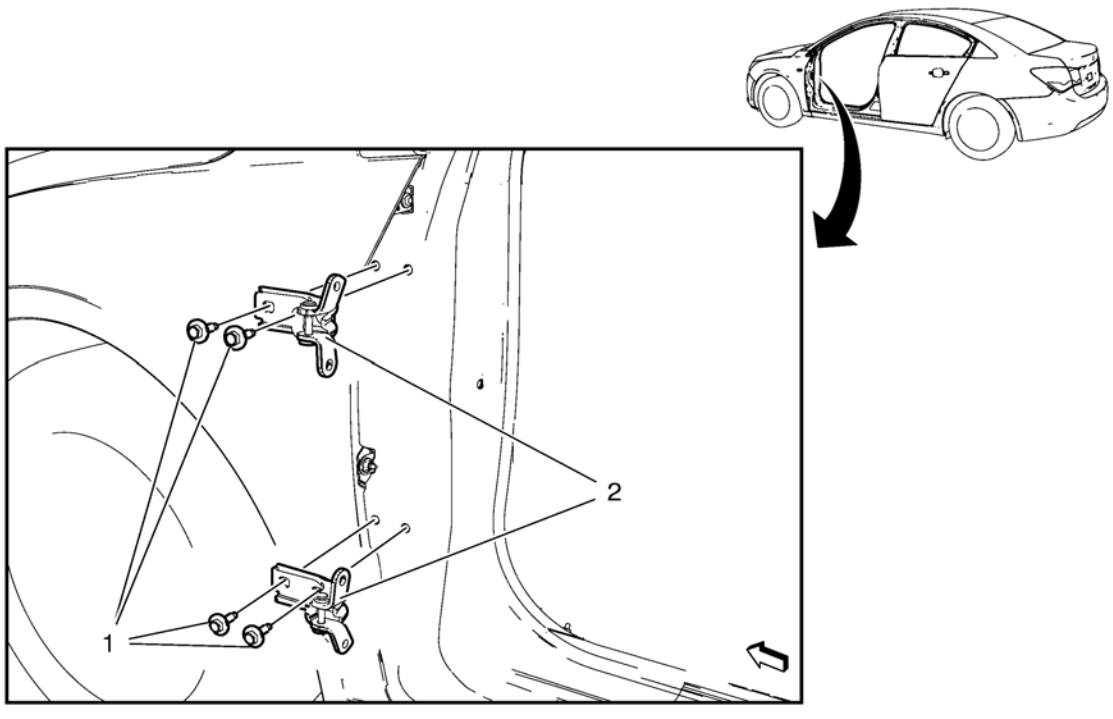
Hood Primary Latch Release Cable Handle Replacement



Callout	Component Name
Preliminary Procedure Remove the front side door sill trim plate. Refer to Front Side Door Sill Trim Plate Replacement.	
1	Hood Primary Latch Release Cable Handle **Procedure** 1. Pull down the hood primary latch release cable handle. 2. To release the handle, pull down the cable and unhook from the handle.

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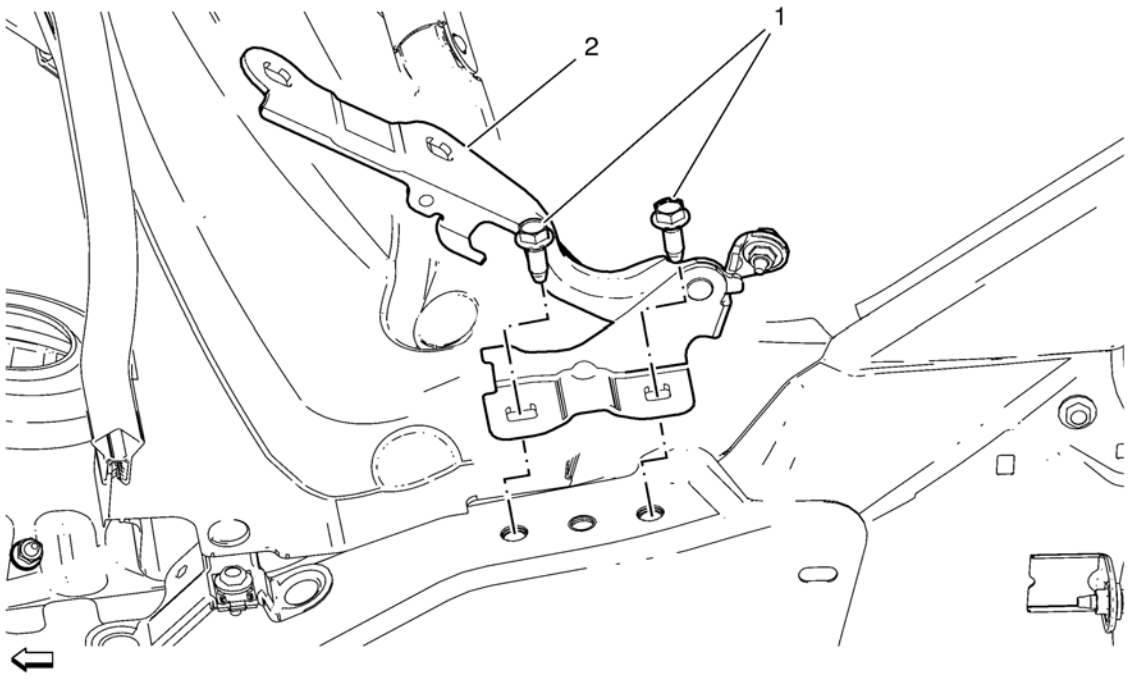
Front Side Door Upper Hinge and Lower Hinge Replacement



Callout	Component Name
Preliminary Procedure 1. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement. 2. Remove the front fender insulator. Refer to Front Fender Insulator Replacement. 3. Remove the front side door. Refer to Front Side Door Replacement.	
1	Front Side Door Hinge Bolt (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 25 N·m (19 lb ft)
2	Front Side Door Hinge **Procedure** Adjust front side door as needed. Refer to Front Side Door Adjustment.

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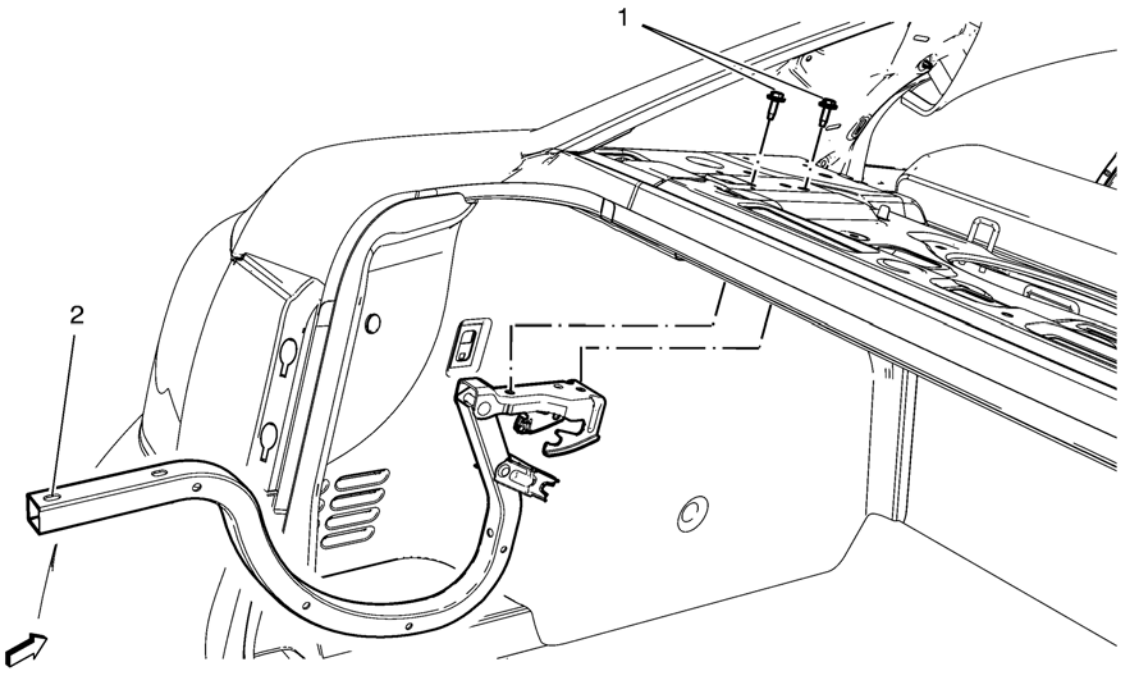
Hood Hinge Replacement



Callout	Component Name
Preliminary Procedure 1. Remove the hood. Refer to Hood Replacement. 2. Remove the front fender. Refer to Front Fender Replacement.	
1	Hood Hinge Bolt (Qty: 2) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 26 N·m (19 lb ft)
2	Hood Hinge

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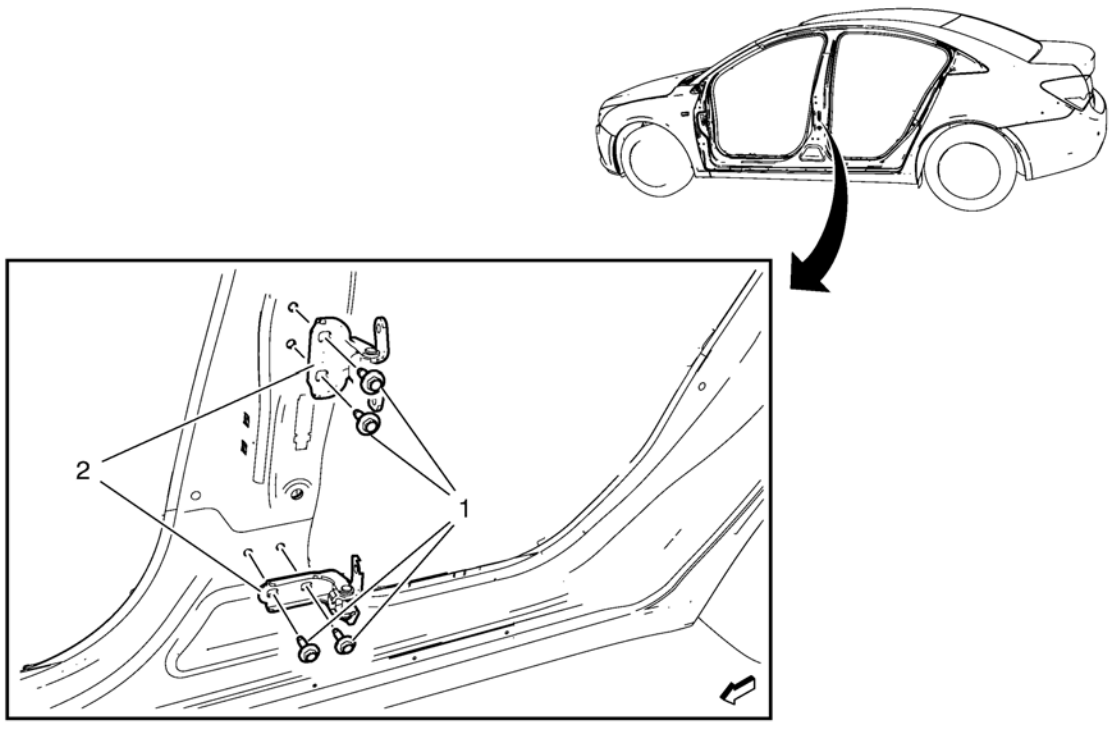
Rear Compartment Lid Rear Hinge Replacement



Callout	Component Name
Preliminary Procedure 1. Remove the rear compartment lid. Refer to Rear Compartment Lid Replacement 2. Remove the rear window panel trim. Refer to Rear Window Panel Trim Replacement	
1	Rear Compartment Lid Rear Hinge Bolt (Qty: 2) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 9 N·m (80 lb in)
2	Rear Compartment Lid Rear Hinge **Procedure** Adjust rear compartment lid as needed. Refer to Rear Compartment Lid Adjustment

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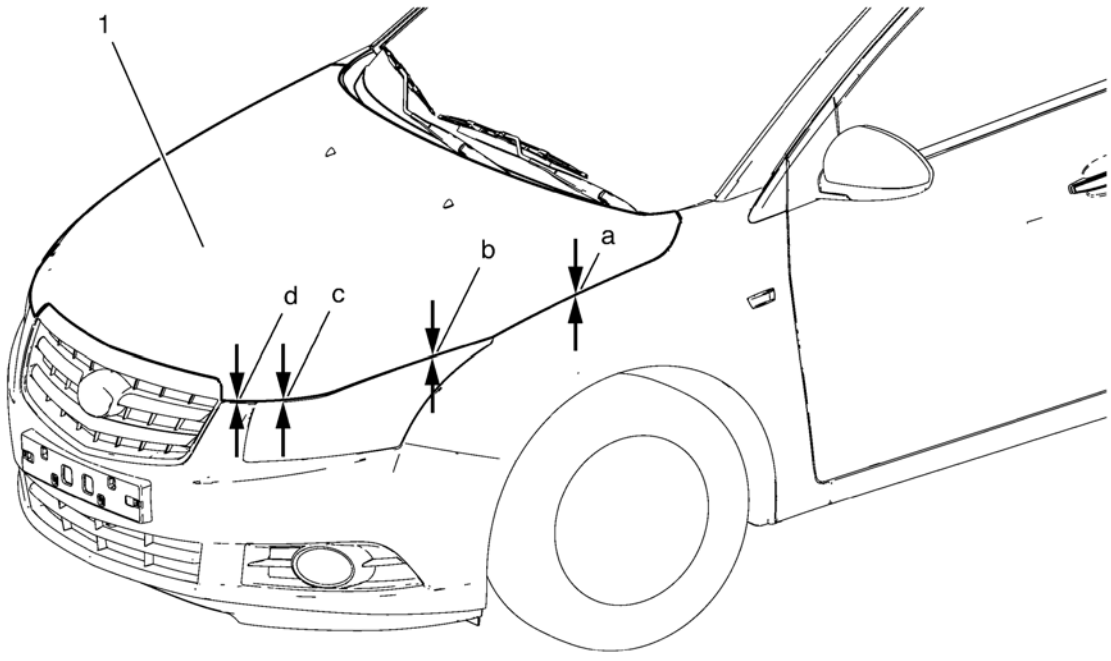
Rear Side Door Upper Hinge and Lower Hinge Replacement



Callout	Component Name
Preliminary Procedure Remove the rear side door. Refer to Rear Side Door Replacement.	
1	Rear Side Door Hinge Bolt (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 25 N·m (19 lb ft)
2	Reart Side Door Hinge **Procedure** Adjust rear side door as needed. Refer to Rear Side Door Adjustment.

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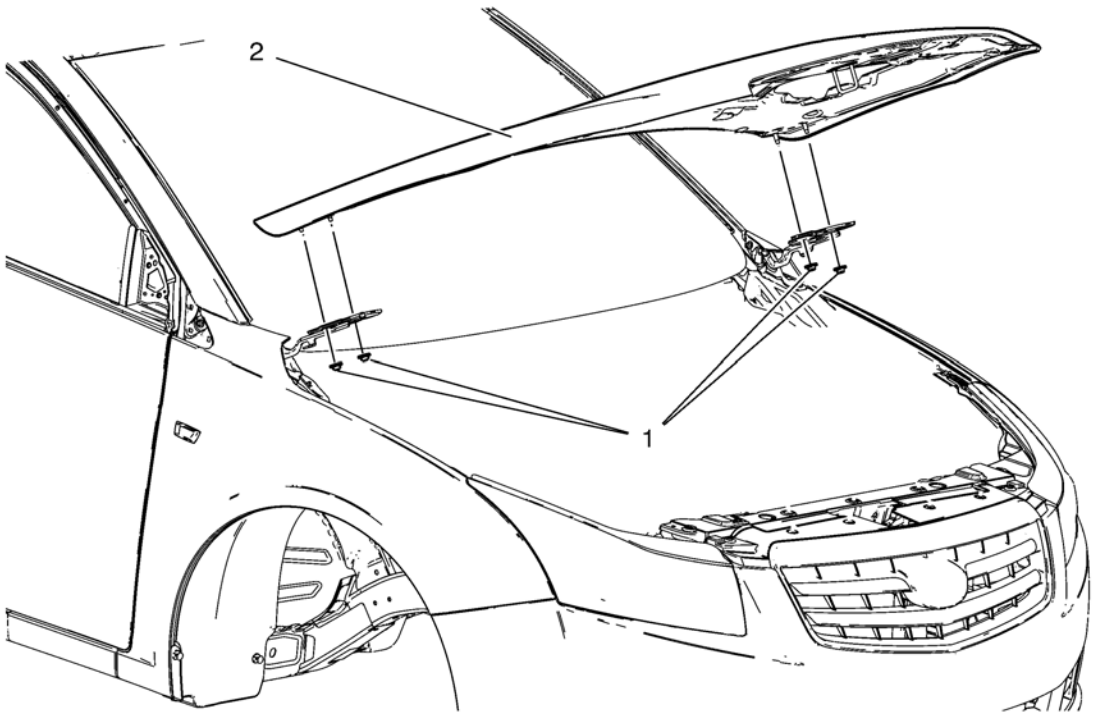
Hood Adjustment



Callout	Component Name
1	Hood **Caution:** Refer to Fastener Caution in the Preface section. **Procedure** 1. Loosen the hood hinge reinforcement nuts (Qty: 4). 2. Adjust the hood in order to obtain an even gap on both sides between the hood and the fenders, the headlamps and the front bumper fascia and so that the hood is flush with both fenders on the front edge, the front bumper fascia and the headlamps. **Adjustment** • Hood to front fender (a) 3.0 mm ± 0.75 mm (0.12 in ± 0.03 in) • Hood to headlamp (b) 3.0 mm ± 1.0 mm (0.12 in ± 0.04 in) • Hood to headlamp (c) 4.5 mm ± 1.5 mm (0.18 in ± 0.06 in) • Hood to front bumper fascia (d) 4.0 mm ± 1.0 mm (0.16 in ± 0.04 in) **Tighten** 26 N·m (20 lb ft)

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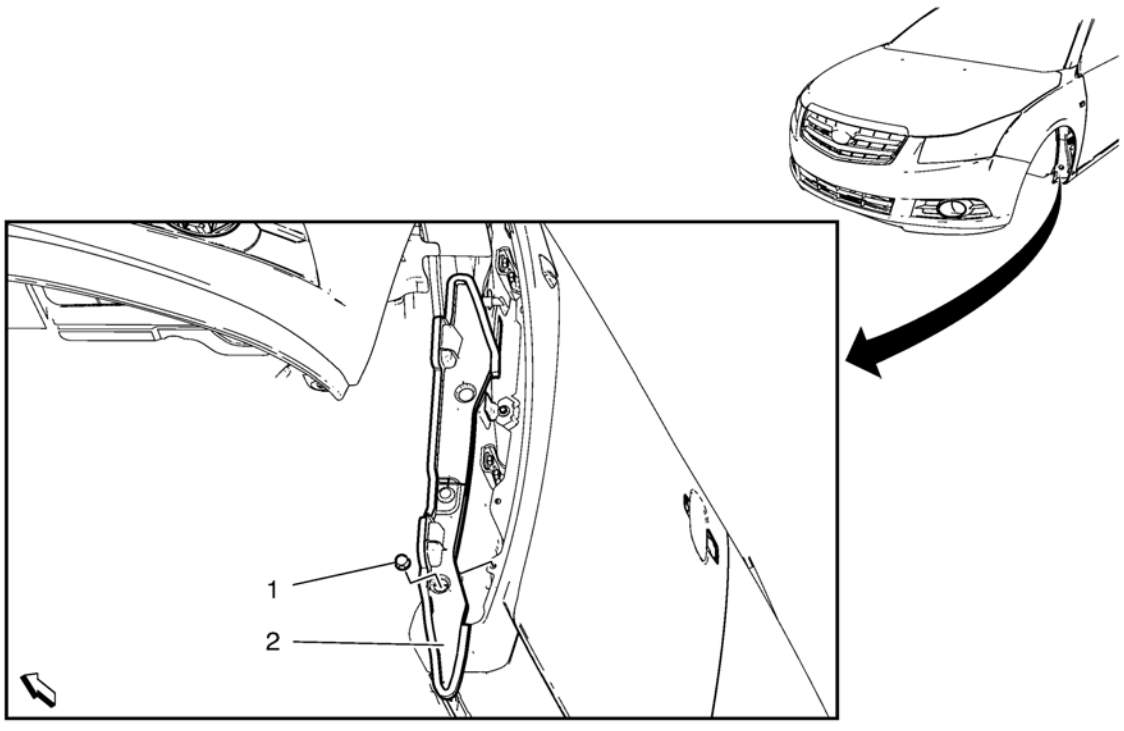
Hood Replacement



Callout	Component Name
Warning: When a hood hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury. **Preliminary Procedure** Remove the windshield washer nozzle hose. Refer to Windshield Washer Nozzle Hose Replacement.	
1	Hood Hinge Reinforcement Nut (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 26 N·m (19 lb ft)
2	Hood **Procedure** 1. Transfer components as necessary. 2. Adjust hood as needed. Refer to Hood Adjustment.

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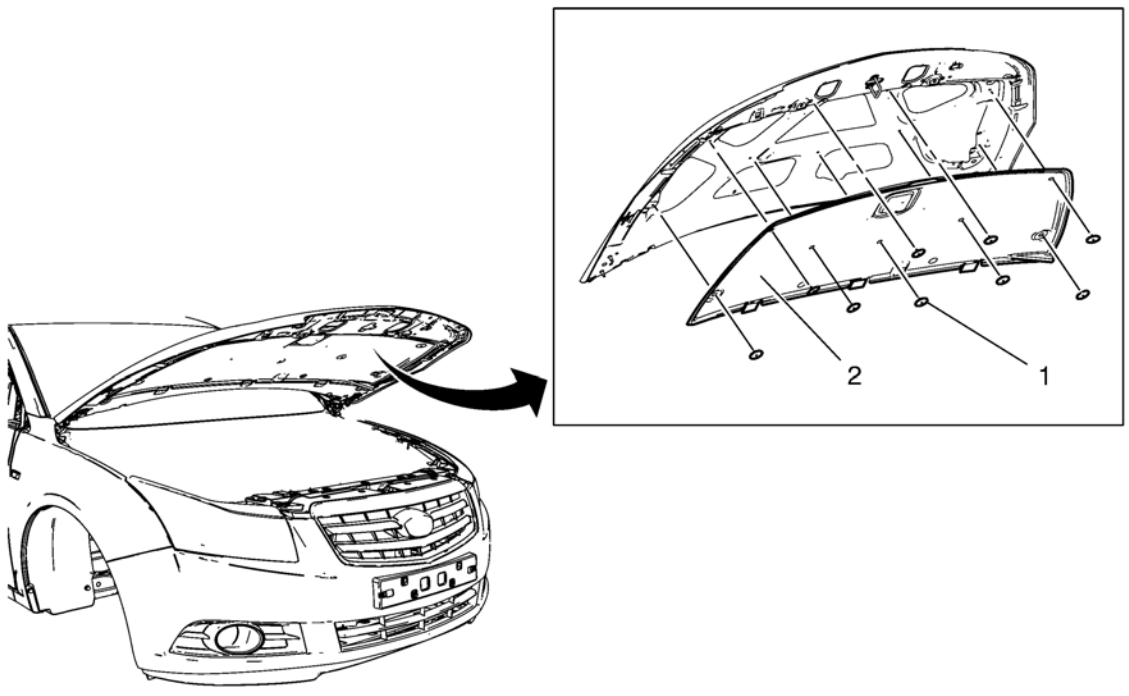
Front Fender Insulator Replacement



Callout	Component Name
Preliminary Procedure Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement.	
1	Front Fender Insulator Retainer
2	Front Fender Insulator

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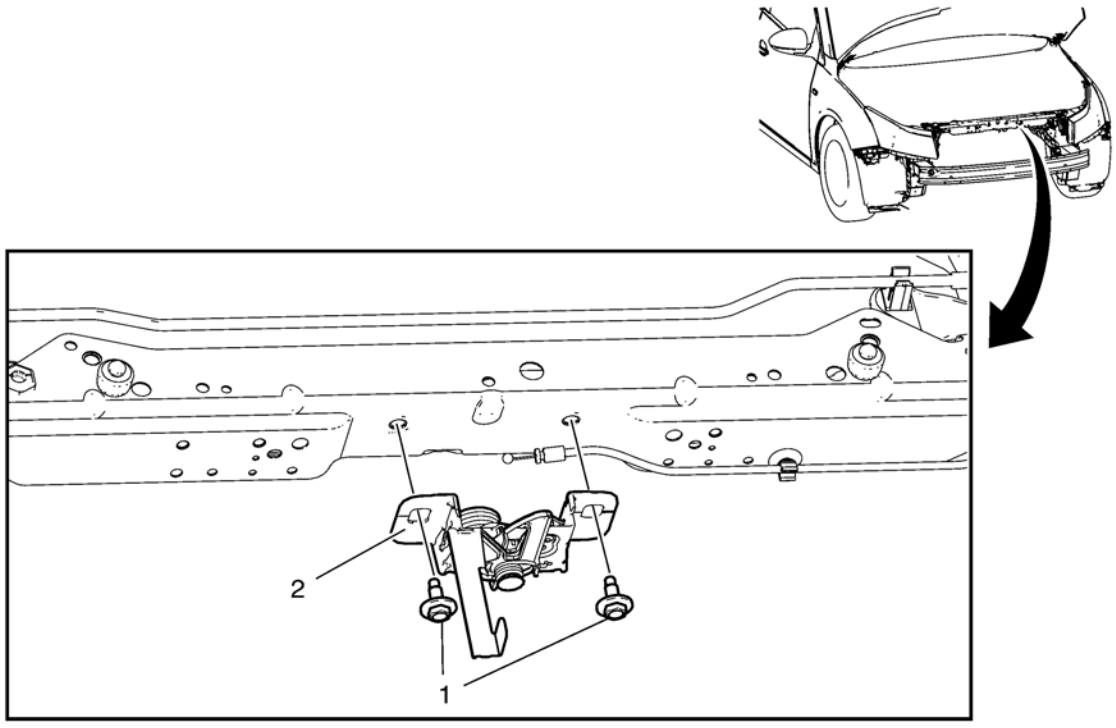
Hood Insulator Replacement



Callout	Component Name
1	Hood Insulator Retainer (Qty: 9)
2	Hood Insulator

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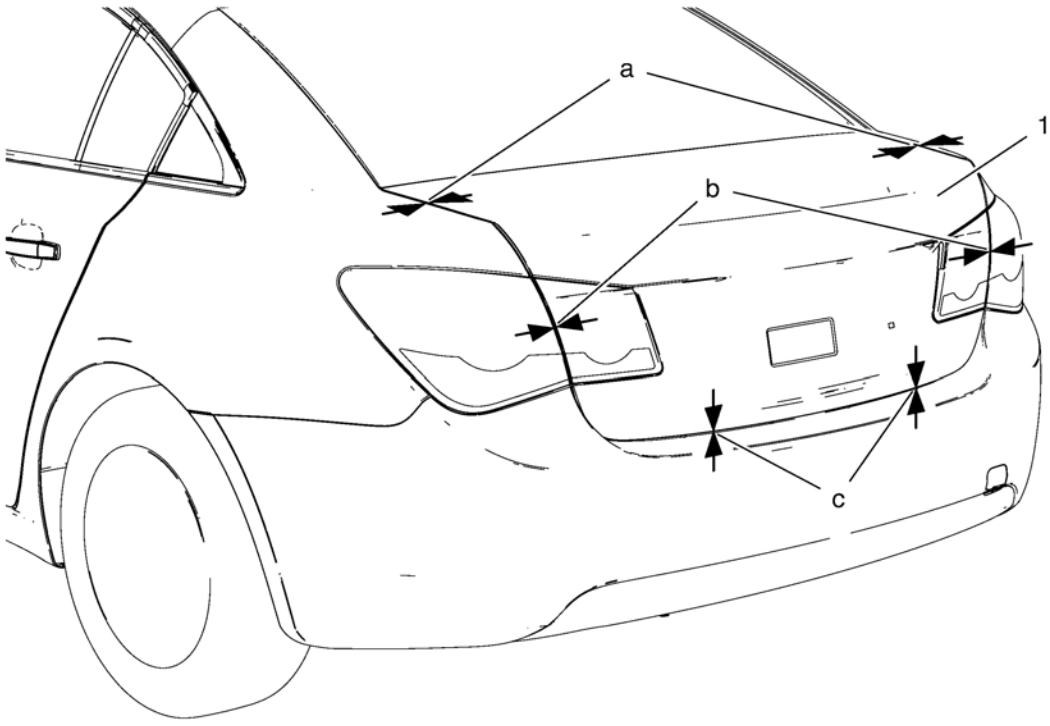
Hood Primary and Secondary Latch Replacement



Callout	Component Name
Preliminary Procedure 1. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement. 2. Remove the radiator grille support reinforcement. Refer to Radiator Grille Reinforcement Support Replacement.	
1	Hood Primary and Secondary Latch Retainer Bolt (Qty: 2) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 20 N·m (15 lb ft).
2	Hood Primary and Secondary Latch **Procedure** 1. To release the hood primary and secondary latch unhook the hood primary latch release cable. 2. Disconnect electrical connectors as needed.

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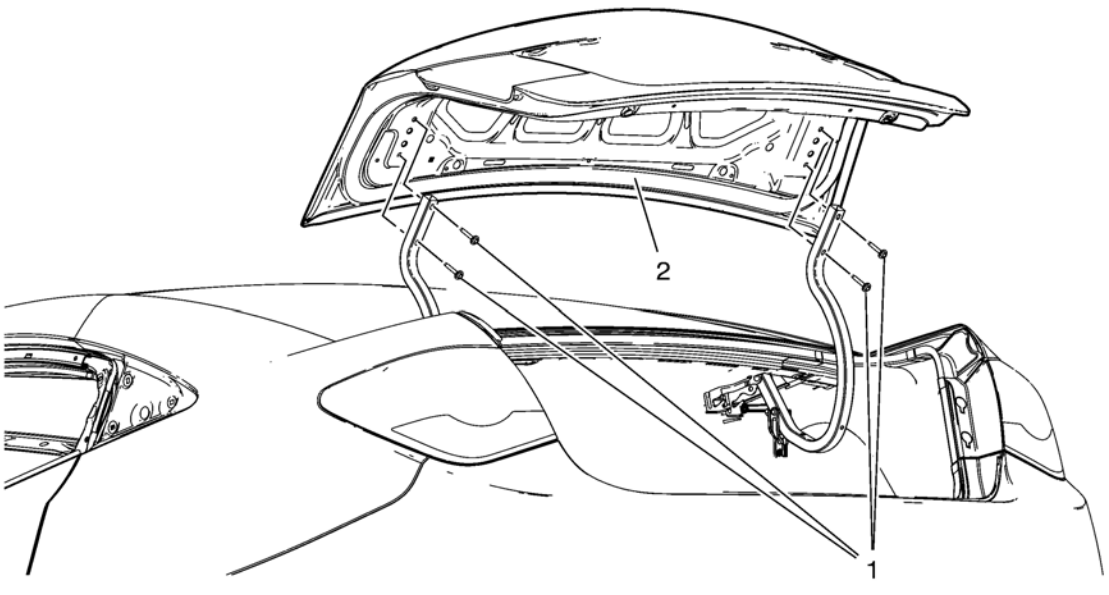
Rear Compartment Lid Adjustment



Callout	Component Name
1	Rear Compartment Lid **Caution:** Refer to Fastener Caution in the Preface section. **Procedure** 1. Loosen the rear compartment lid hinge bolt (Qty: 4) to adjust the rear compartment lid. 2. Adjust the rear compartment lid in order to obtain an even gap between the rear compartment lid and the quarter outer panel, the rear fog lamp and the rear bumper fascia and so that the rear compartment lid is flush with the quarter outer panel, the rear fog lamp and the rear bumper fascia. **Adjustment** • Rear compartment lid to quarter outer panel (a) 3.0 mm ± 0.75 mm (0.12 in ± 0.03 in) • Tail lamp to rear fog lamp (b) 4.0 mm ± 1.5 mm (0.16 in ± 0.06 in) • Rear compartment lid to rear bumper fascia (c) 5.5 mm ± 1.5 mm (0.22 in ± 0.06 in) **Tighten** 9 N·m (80 lb in)

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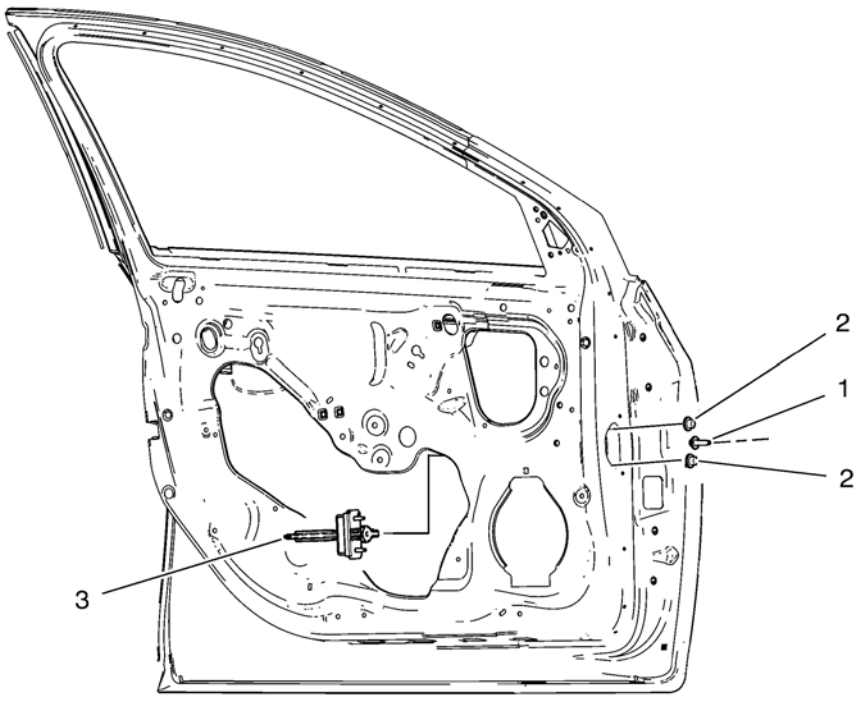
Rear Compartment Lid Replacement



Callout	Component Name
Preliminary Procedure Remove the rear compartment lid inner panel trim. Refer to Rear Compartment Lid Inner Panel Trim Replacement.	
1	Rear Compartment Lid Hinge Bolt (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 9 N·m (80 lb ft)
2	Rear Compartment Lid **Procedure** 1. Disconnect the electrical connector. 2. Adjust rear compartment as needed. Refer to Rear Compartment Lid Adjustment. 3. Transfer components as necessary.

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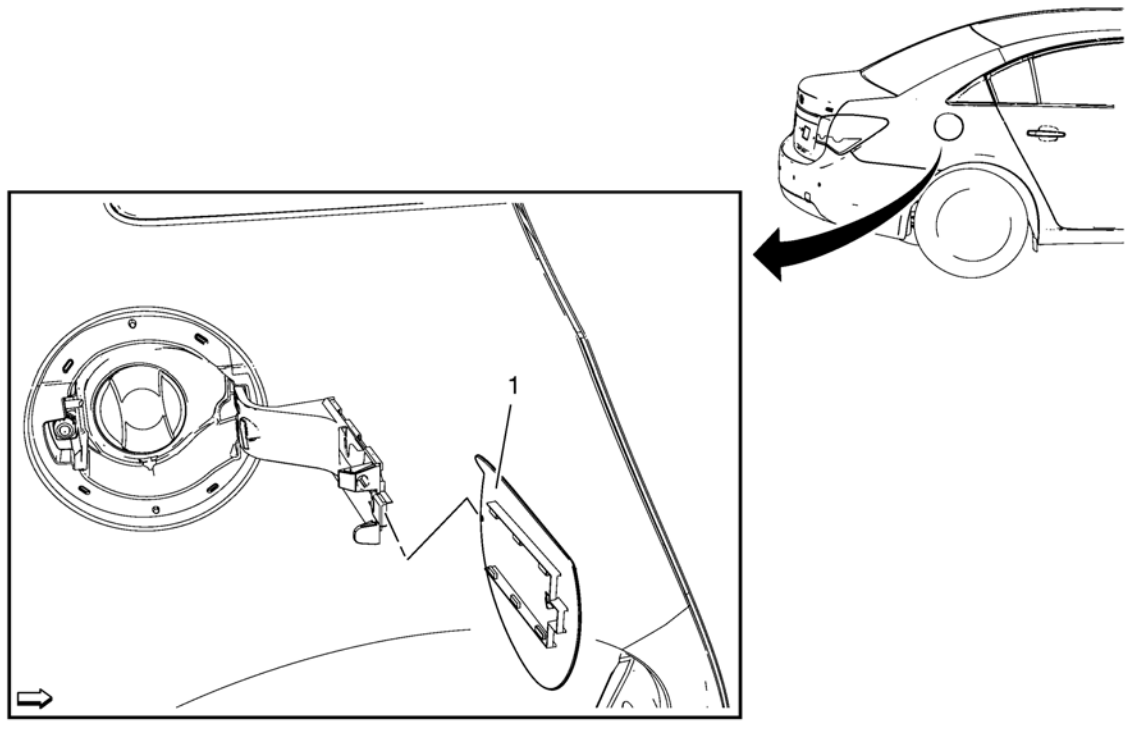
Front Side Door Check Replacement



Callout	Component Name
Prliminary Procedure 1. Remove front side door trim panel. Refer to Front Side Door Trim Replacement 2. Remove the front side door water deflector. Refer to Front Side Door Water Deflector Replacement	
1	Front Side Door Check Link Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Tip** Place the door in the full open position. **Tighten** 25 N·m (18 lb ft)
2	Front Side Door Check Link Nut **Procedure** Remove the water deflector. **Tighten** 9 N·m (79 lb in)
3	Front Side Door Check

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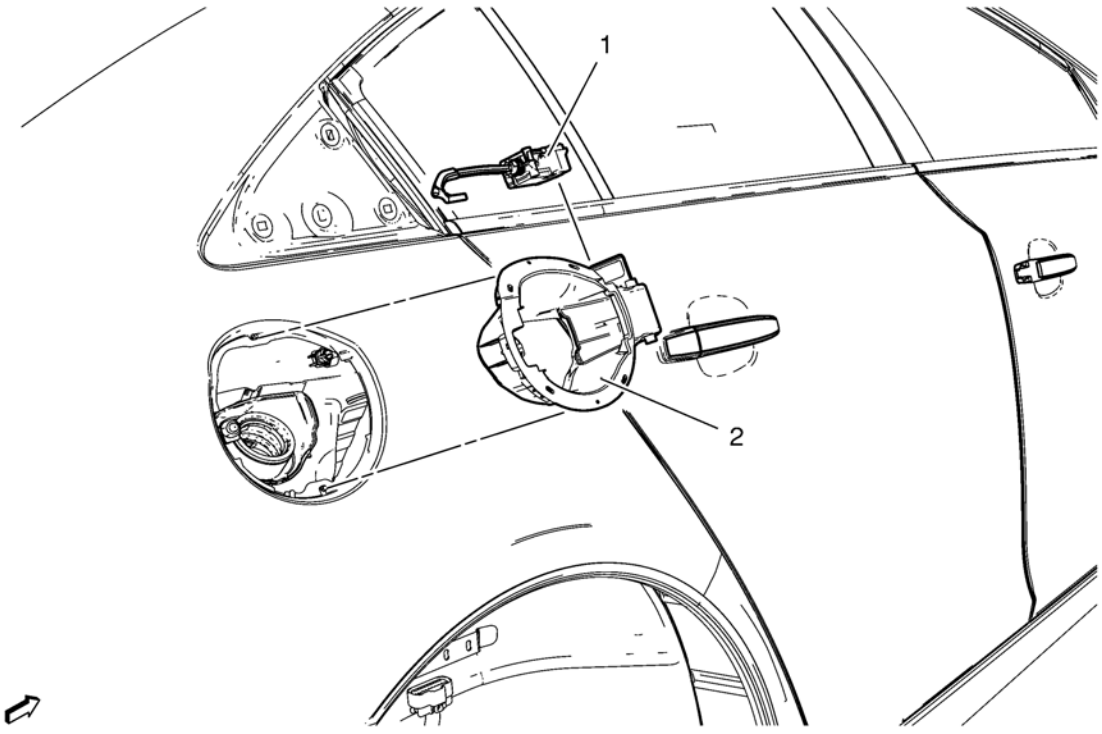
Fuel Tank Filler Door Replacement



Callout	Component Name
1	Fuel Tank Filler Door **Procedure** Open the fuel tank filler door

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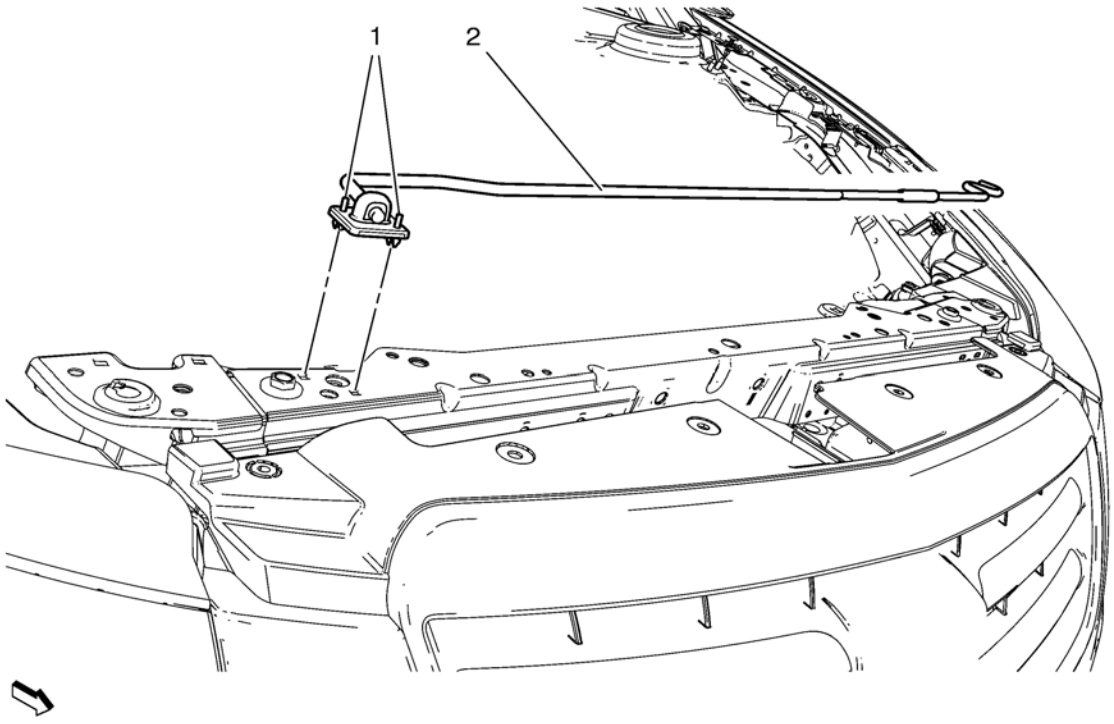
Fuel Tank Filler Pipe Housing Replacement



Callout	Component Name
Preliminary Procedure 1. Remove rear wheelhouse panel liner. Refer to Rear Wheelhouse Panel Liner Replacement. 2. Remove fuel tank filler door. Refer to Fuel Tank Filler Door Replacement.	
1	Fuel Tank Filler Door Lock Actuator **Procedure** Disconnect electrical connector.
2	Fuel Tank Filler Pipe Housing **Procedure** Unclip 4 clips and remove. **Tip** Push fuel tank filler door lock actuator locking rod in closed position.

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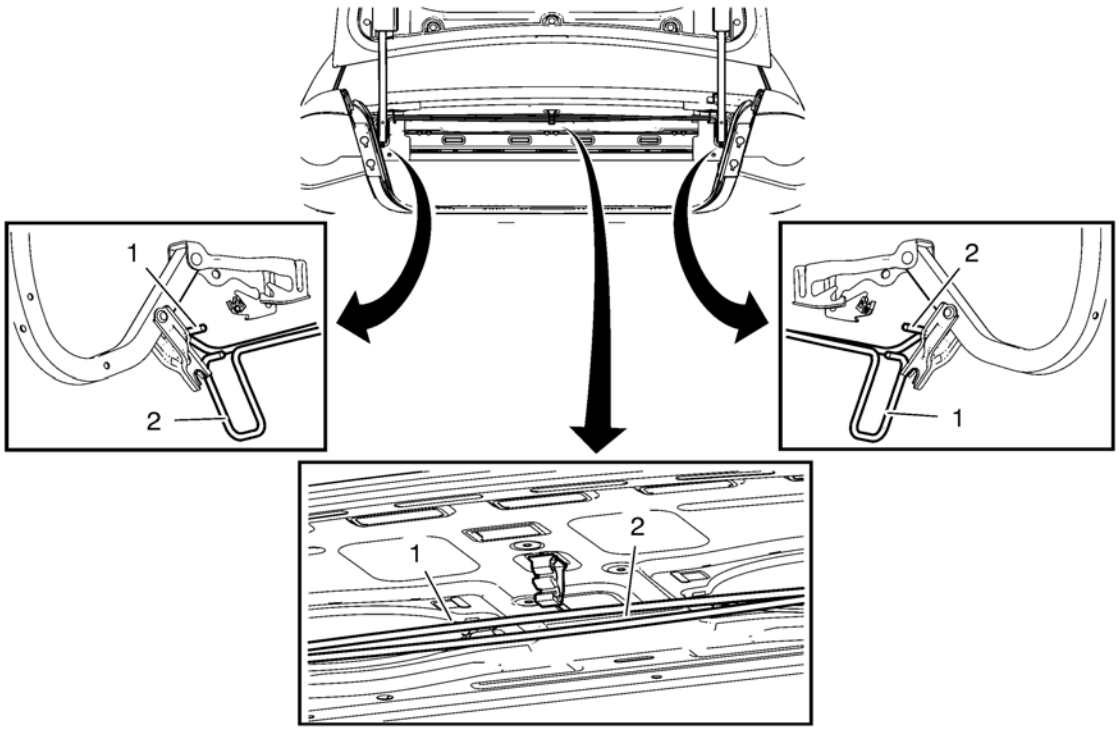
Hood Hold-Open Rod Replacement



Callout	Component Name
Warning: Refer to Hood Hold-Open Device Warning in the Preface section. **Preliminary Procedure** Remove the radiator grille reinforcement support. Refer to Radiator Grille Reinforcement Support Replacement.	
1	Hood Hold Open Rod Pivot (Qty: 2)
2	Hood Hold Open Rod

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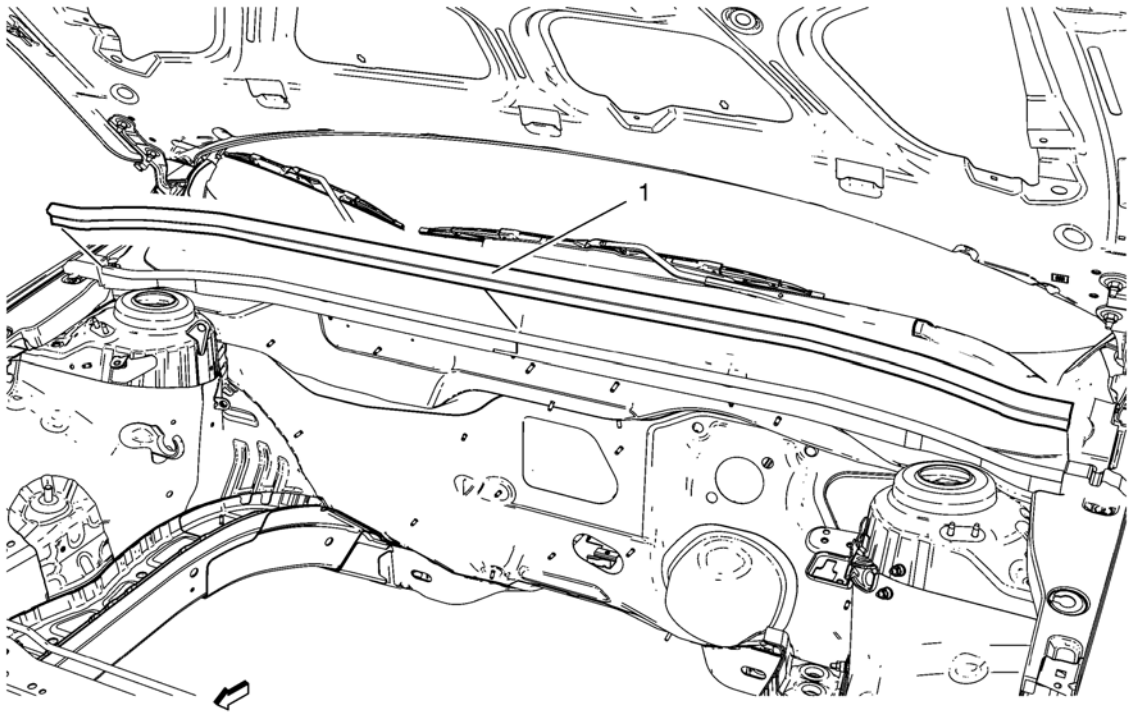
Rear Compartment Lid Hinge Torque Rod Replacement



Callout	Component Name
Preliminary Procedure Remove rear compartment lid. Refer to Rear Compartment Lid Replacement. **Special Tools** *BO-125* Torque Rod Lifter For equivalent regional tools, refer to Special Tools.	
1	Rear Compartment Lid Hinge Torque Rod - Right Side **Tip** Only use the special tool to remove and install the rear compartment lid hinge torque rod.
2	Rear Compartment Lid Hinge Torque Rod - Left Side **Tip** Only use the special tool to remove and install the rear compartment lid hinge torque rod.

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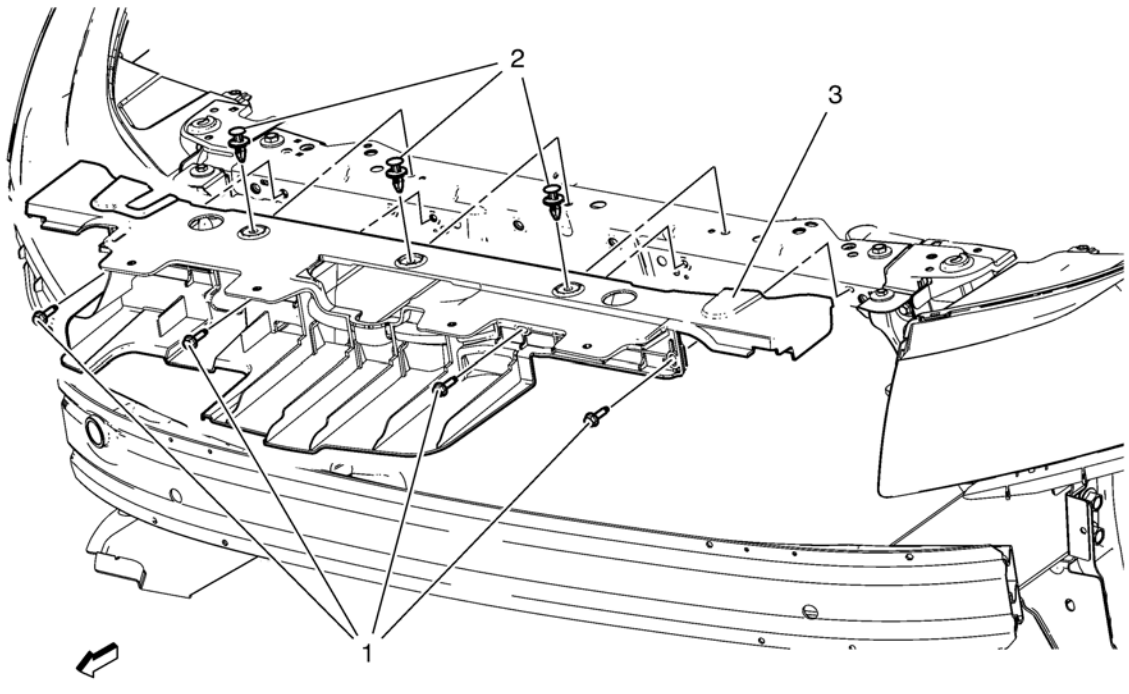
Hood Rear Weatherstrip Replacement



Callout	Component Name
1	Hood Rear Weatherstrip

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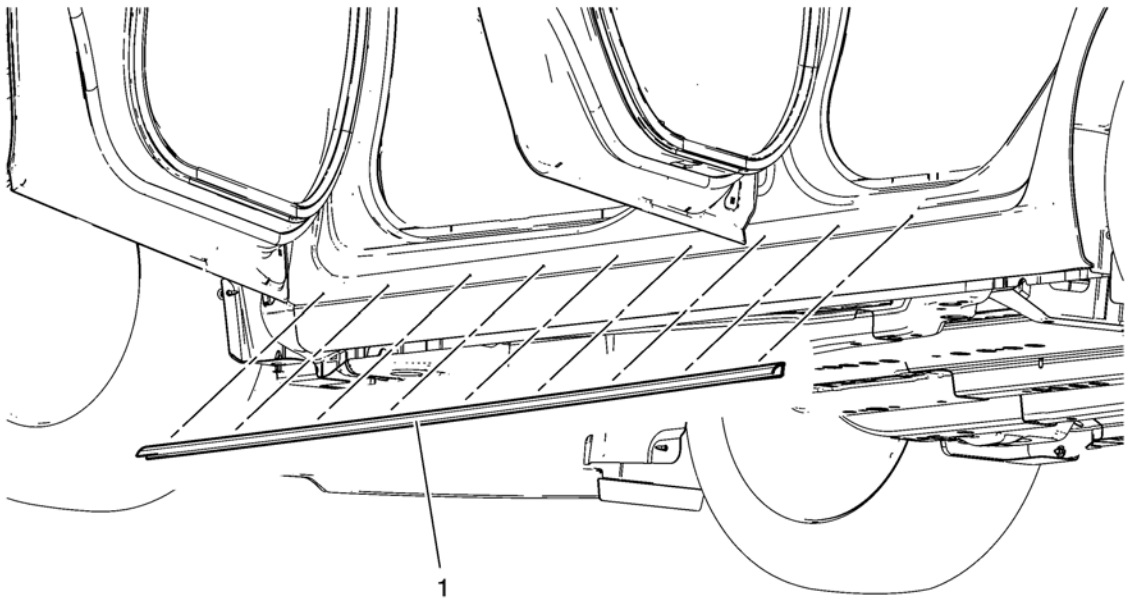
Radiator Grille Reinforcement Support Replacement



Callout	Component Name
Preliminary Procedure Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement.	
1	Radiator Grille Reinforcement Support Bolt (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 10 N·m (89 lb in).
2	Radiator Grille Reinforcement Support Retainer (Qty: 3)
3	Radiator Grille Reinforcement Support

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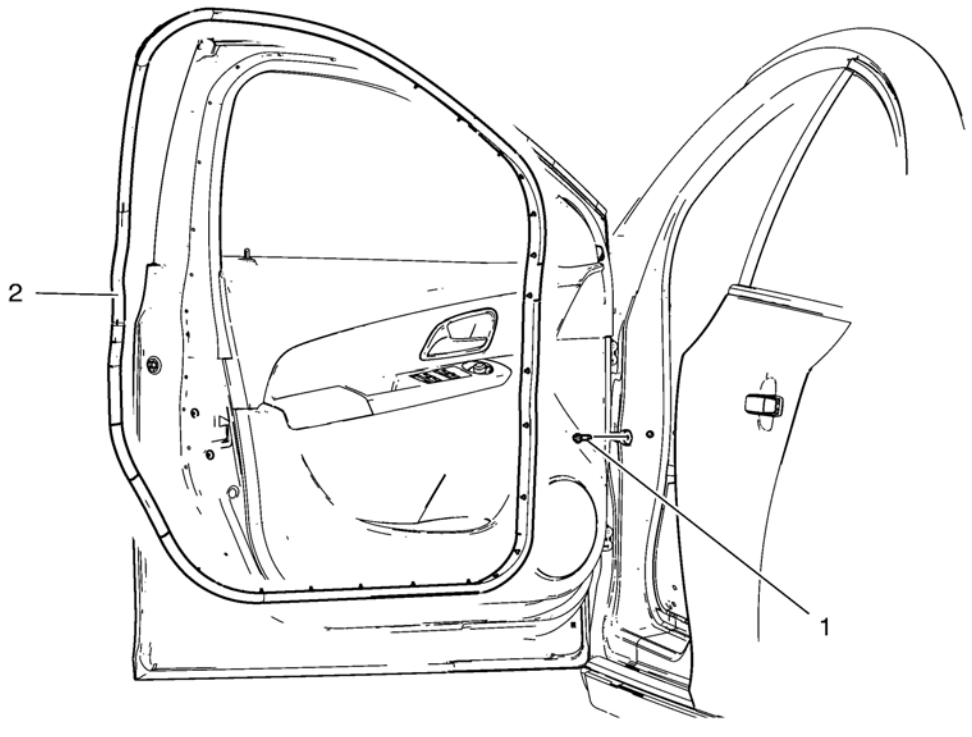
Front or Rear Side Door Lower Weatherstrip Replacement



Callout	Component Name
1	Front and Rear Side Door Lower Weatherstrip **Procedure** 1. Open the side doors at full opening position. 2. Unclip the front and rear side door lower weatherstrip from the rocker outer panel.

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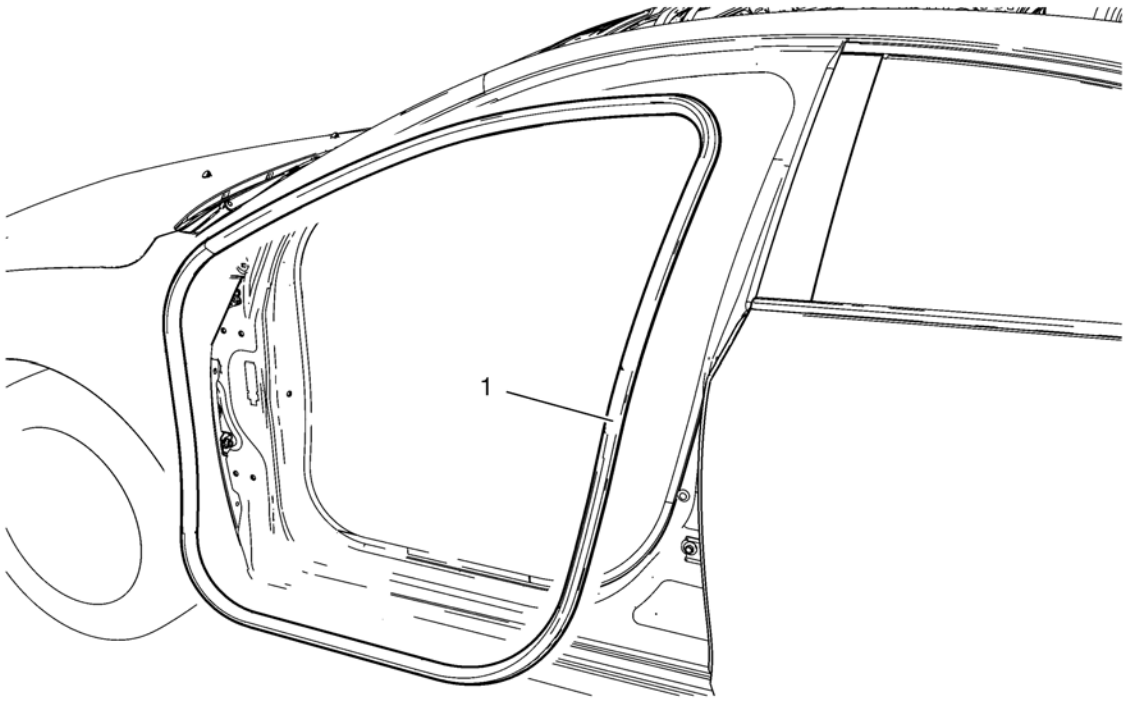
Front Side Door Weatherstrip Replacement - Door Side



Callout	Component Name
1	Front Side Door Check Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 25 N·m (19 lb ft)
2	Front Side Door Weatherstrip - Door Side **Procedure** 1. Unclip weatherstrip from front side door. 2. When removing protective liners from adhesive tape, be careful not to touch tape with hands and do not allow tape to come in contact with dirt or any foreign matter prior to adhesion.

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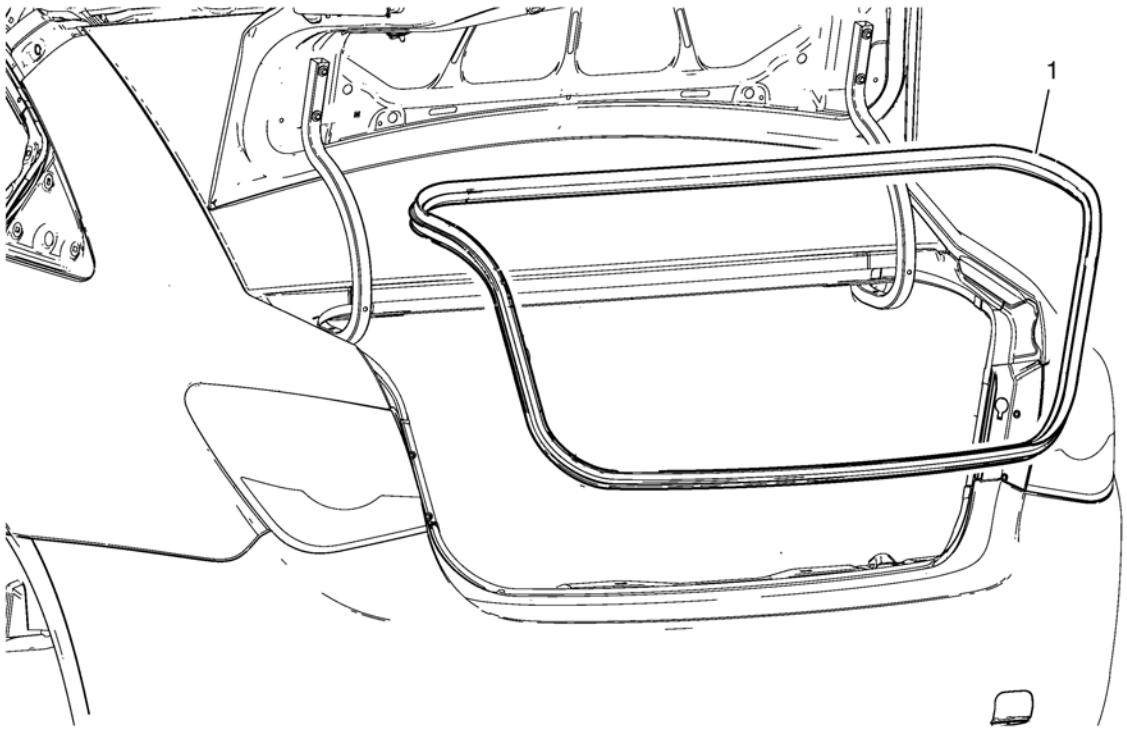
Front Side Door Weatherstrip Replacement - Body Side



Callout	Component Name
1	Front Side Door Weatherstrip - Body Side **Procedure** 1. Start at the rear upper corner of the door opening and pull the weatherstrip away from the door opening flange. 2. Position the weatherstrip in the upper corner of the center pillar. 3. Working downward along the front edge, install the weatherstrip on the door opening flange ensuring that the carrier is fully seated in the corners. 4. Using a rubber mallet, ensure that the weatherstrip is seated on the entire door opening flange.

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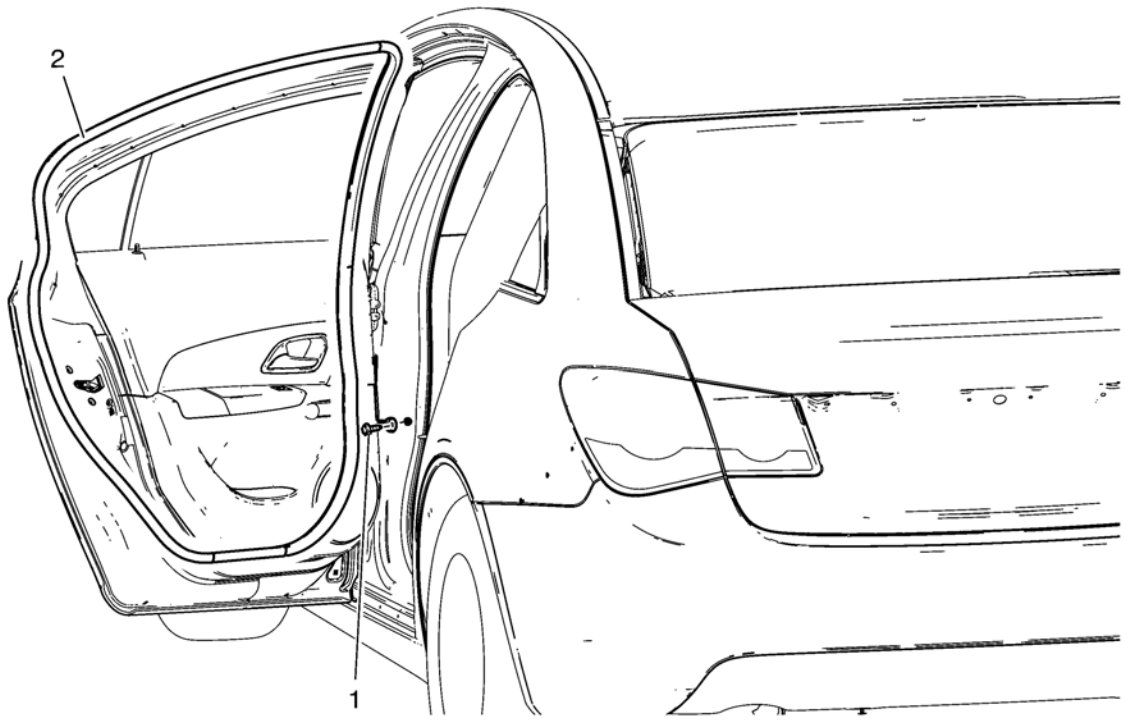
Rear Compartment Lid Weatherstrip Replacement



Callout	Component Name
1	Rear Compartment Lid Weatherstrip **Procedure** 1. Start at the upper corner of the rear compartment opening and pull the weatherstrip away from the rear compartment opening flange. 2. Position the weatherstrip in the upper corner of the rear compartment opening. 3. Working downward along the edge, install the weatherstrip on the rear compartment opening flange ensuring that the carrier is fully seated in the corners. 4. Using a rubber mallet, ensure that the weatherstrip is seated on the entire trunk opening flange.

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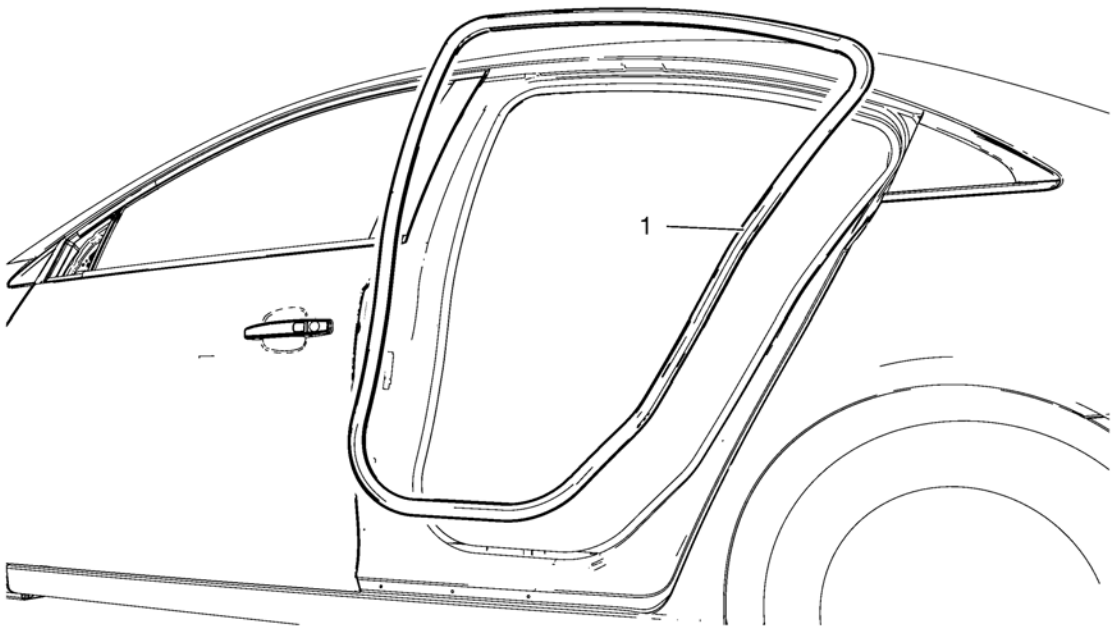
Rear Side Door Weatherstrip Replacement - Door Side



Callout	Component Name
1	Rear Side Door Check Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 25 N·m (19 lb ft)
2	Rear Side Door Weatherstrip - Door Side **Procedure** 1. Unclip weatherstrip from rear side door. 2. When removing protective liners from adhesive tape, be careful not to touch tape with hands and do not allow tape to come in contact with dirt or any foreign matter prior to adhesion.

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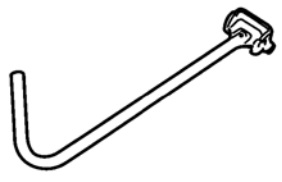
Rear Side Door Weatherstrip Replacement - Body Side



Callout	Component Name
1	Rear Side Door Weatherstrip - Body Side **Procedure** 1. Start at the front upper corner of the door opening and pull the weatherstrip away from the door opening flange. 2. Position the weatherstrip in the upper corner of the center pillar. 3. Working downward along the front edge, install the weatherstrip on the door opening flange ensuring that the carrier is fully seated in the corners. 4. Using a rubber mallet, ensure that the weatherstrip is seated on the entire door opening flange.

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Special Tools

Illustration	Tool Number/ Description
	BO-125 KM-125 Torque Rod Lifter

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Select a Document:

- Specifications
- Front Bumper Energy Absorber Replacement
- Front Bumper Energy Absorber Bracket Replacement
- Front Bumper Impact Bar Replacement
- Front Bumper Fascia Replacement
- Front Bumper Fascia Guide Replacement
- Front Bumper Fascia Opening Lower Cover Replacement
- Front Bumper Fascia Lower Stiffener Replacement
- Front Bumper Fascia Air Deflector Replacement
- Rear Bumper Fascia Replacement
- Rear Bumper Fascia Guide Replacement
- Rear Bumper Fascia Inner Guide Replacement
- Rear Bumper Fascia Outer Guide Replacement
- Rear Bumper Impact Bar Replacement
- Special Tools and Equipment

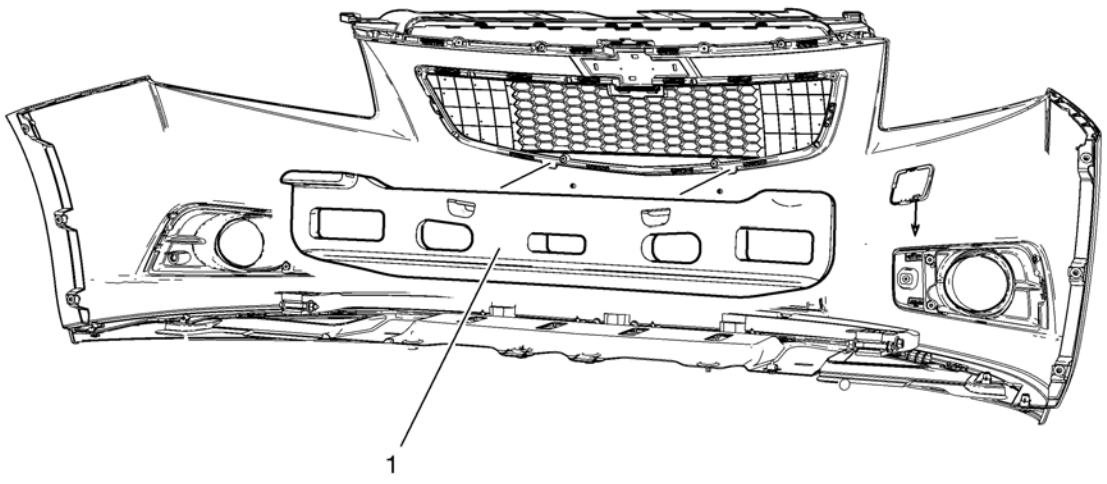
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Fastener Tightening Specifications

Application	Specification	
	Metric	English
Drivetrain and Front Suspension Frame Bolt Front	160 N·m	119 lb ft
Front Bumper Energy Absorber Bracket Bolt	22 N·m	17 lb ft
Front Bumper Fascia Air Deflector Bolt	2.5 N·m	23 lb in
Front Bumper Fascia Bolt	9 N·m	80 lb in
Front Wheelhouse Liner Bolt	2.5 N·m	23 lb in
Rear Bumper Energy Absorber Nut	40 N·m	30 lb ft
Rear Wheelhouse Liner Bolt	2.5 N·m	23 lb in

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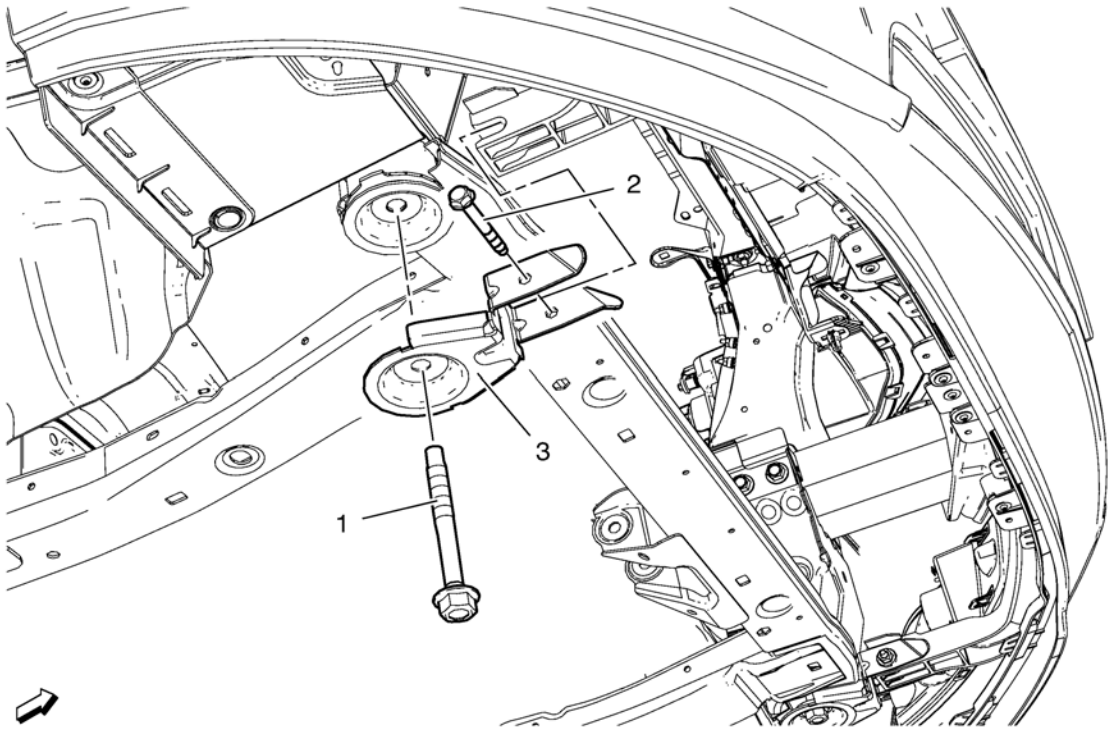
Front Bumper Energy Absorber Replacement



Callout	Component Name
Preliminary Procedure Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement.	
1	Front Bumper Energy Absorber **Procedure** Unclip from front bumper fascia.

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Front Bumper Energy Absorber Bracket Replacement



Callout	Component Name
Preliminary Procedure Remove the front bumper fascia opening cover. Refer to Front Bumper Fascia Opening Lower Cover Replacement	
1	Drivetrain and Front Suspension Frame Bolt Front **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 160 N·m (119 lb ft) **Note:** Do NOT reuse the old bolt.
2	Front Bumper Energy Absorber Bracket Bolt **Tip** For removal only loosen the bolt. **Tighten** 22 N·m (17 lb ft)
3	Front Bumper Energy Absorber Bracket **Note:** Secure the drivetrain and front suspension frame with hydraulic jack.

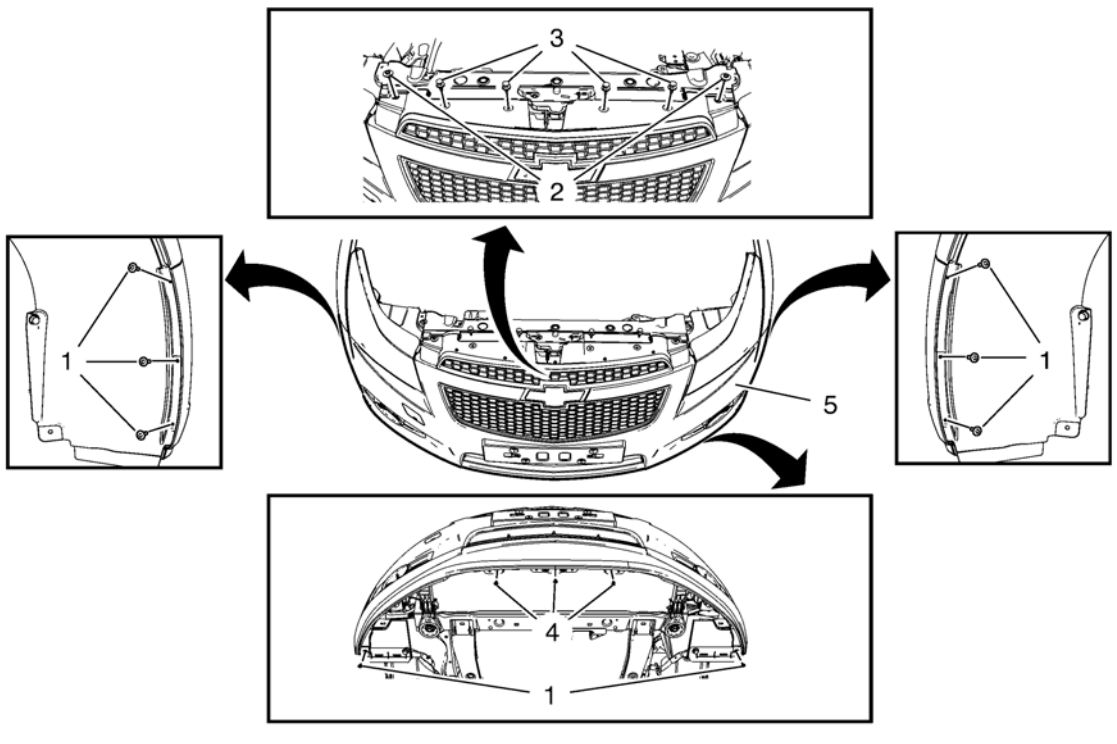
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Front Bumper Impact Bar Replacement

The front bumper impact bar is welded on, and must be replaced at the factory welds to retain structure integrity. Refer to Front Bumper Impact Bar Replacement.

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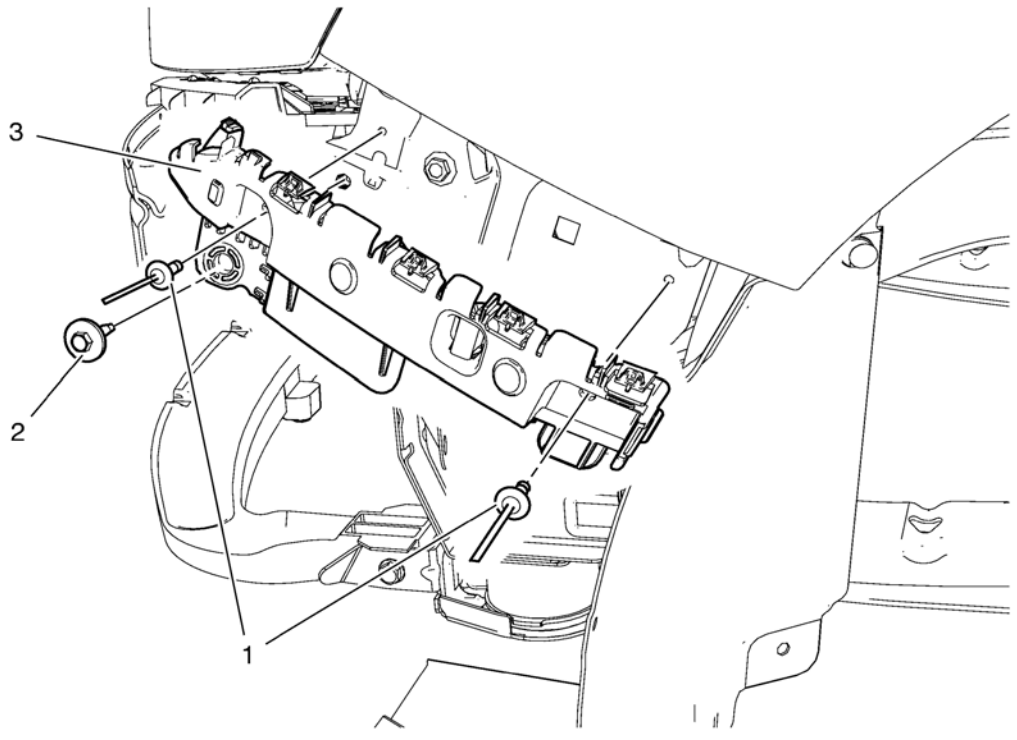
Front Bumper Fascia Replacement



Callout	Component Name
Preliminary Procedure Remove the front bumper fascia opening cover. Refer to Front Bumper Fascia Opening Lower Cover Replacement.	
1	Front Wheelhouse Liner Bolt (Qty: 8) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m(23 lb in)
2	Front Bumper Fascia Bolt (Qty: 2) **Tighten** 9 N·m(80 lb in)
3	Front Bumper Fascia Retainer (Qty: 4)
4	Front Bumper Fascia Lower Stiffener Bolt (Qty: 3) **Tip** Only loosen the bolts. **Tighten** 2.5 N·m (23 lb in)
5	Front Bumper Fascia **Procedure** 1. Unclip from front bumper fascia guides. 2. Pull forward to remove the front bumper fascia. 3. Disconnect any electrical connectors. 4. Transfer parts as needed.

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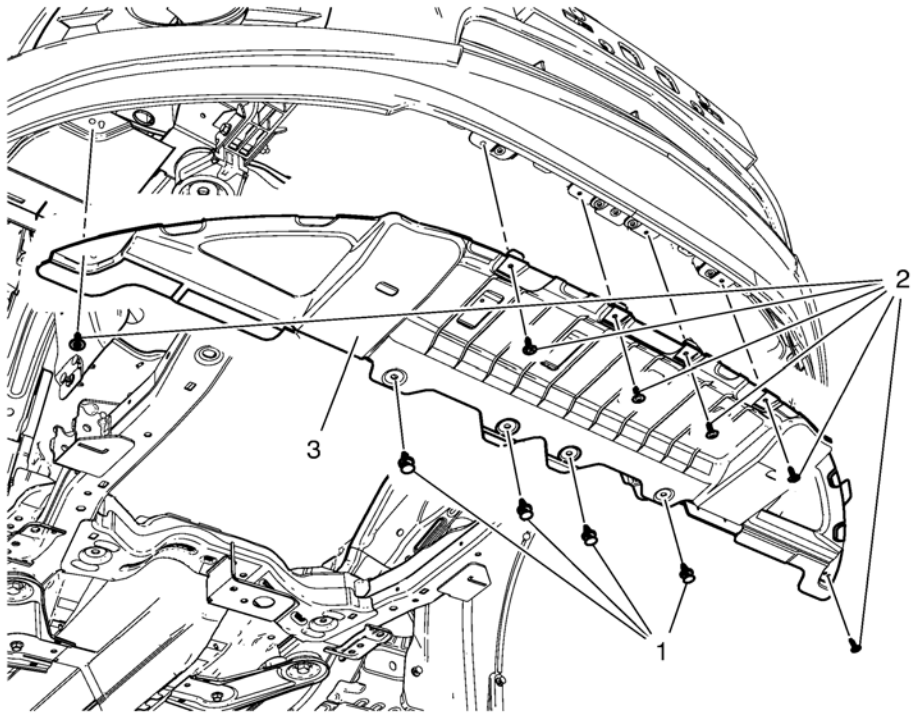
Front Bumper Fascia Guide Replacement



Callout	Component Name
Preliminary Procedure Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement.	
1	Front Bumper Fascia Guide Rivet (Qty: 2)
2	Headlamp Bolt **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m (23 lb in)
3	Front Bumper Fascia Guide

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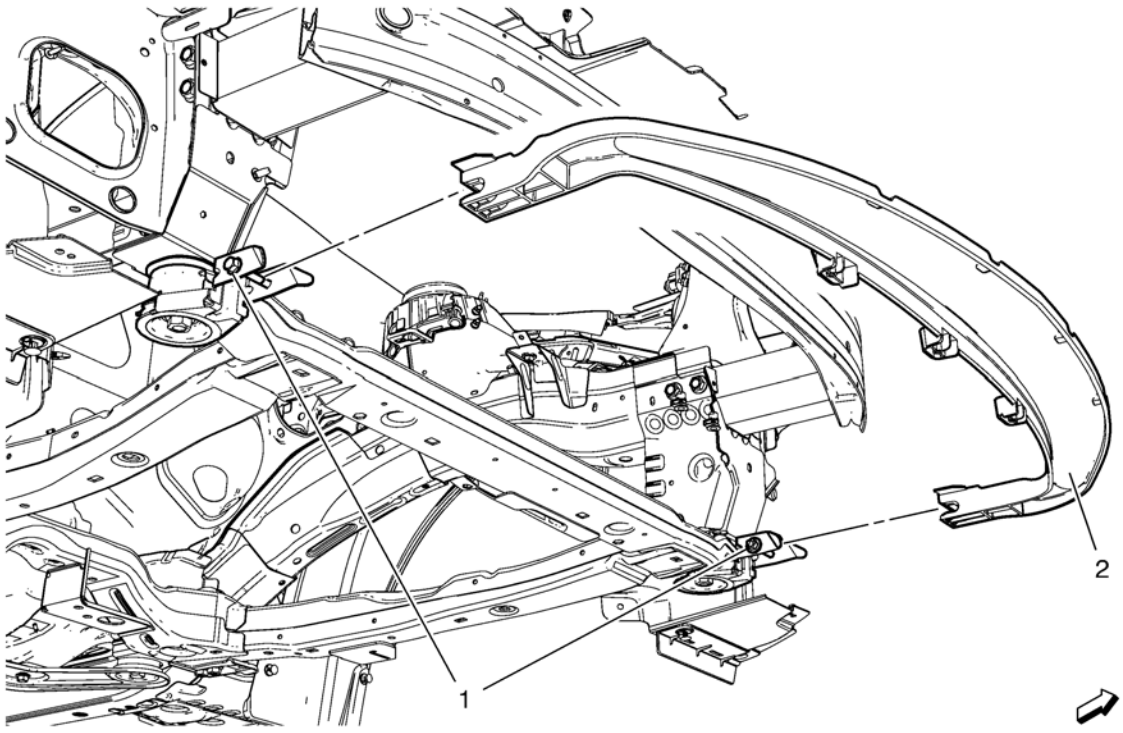
Front Bumper Fascia Opening Lower Cover Replacement



Callout	Component Name
1	Front Bumper Fascia Opening Lower Cover Retainer (Qty: 4)
2	Front Bumper Fascia Opening Lower Cover Bolt (Qty: 6) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m (23 lb in)
3	Front Bumper Fascia Opening Lower Cover

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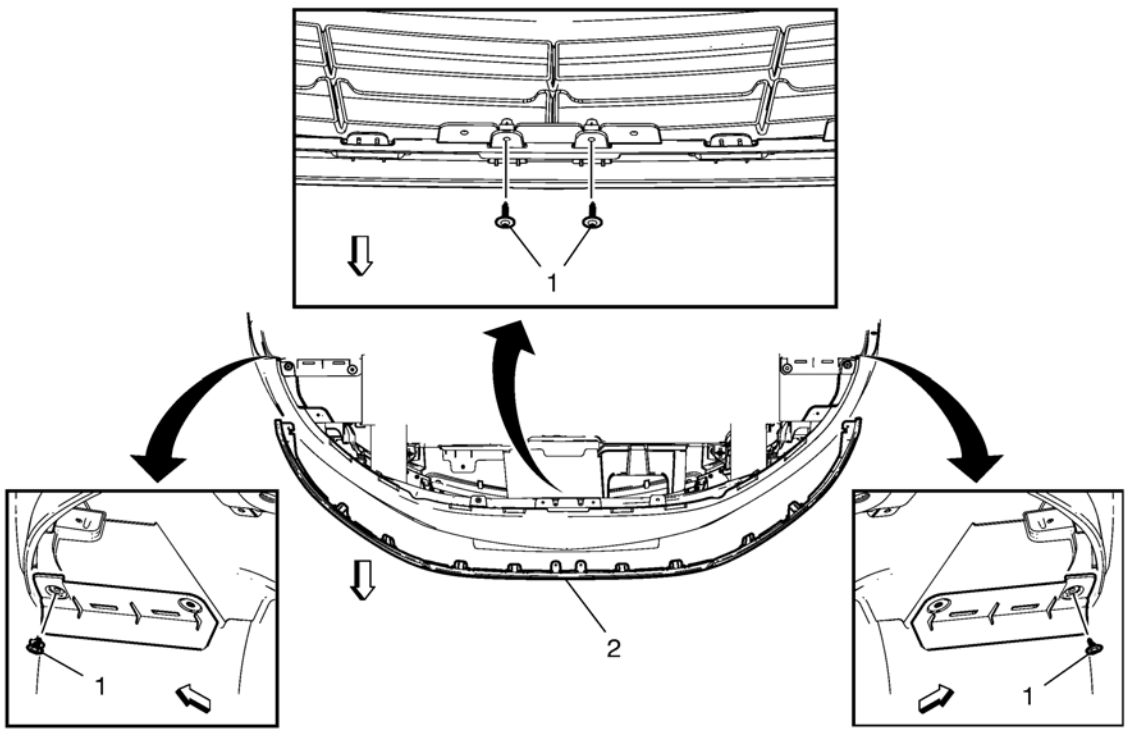
Front Bumper Fascia Lower Stiffener Replacement



Callout	Component Name
Preliminary Procedure Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement.	
1	Front Bumper Fascia Lower Stiffener Bracket Bolt (Qty: 2) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 22 N·m (17 lb ft)
2	Front Bumper Fascia Lower Stiffener

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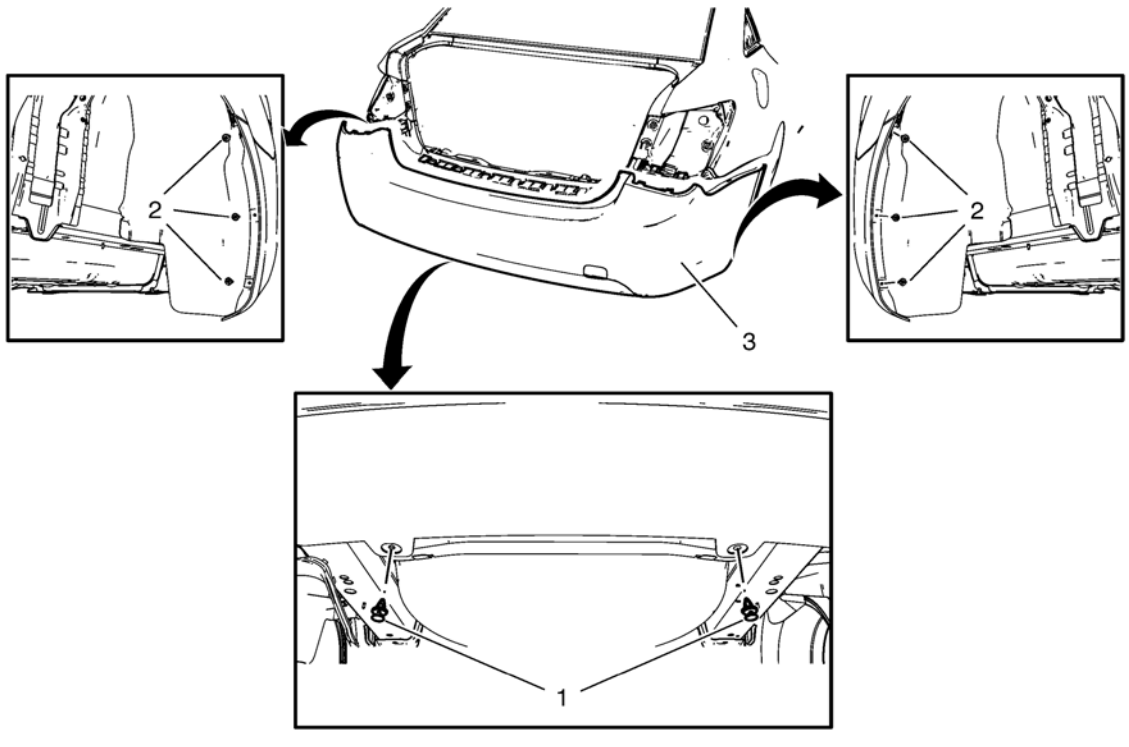
Front Bumper Fascia Air Deflector Replacement



Callout	Component Name
Preliminary Procedure Remove the front bumper fascia opening lower cover. Refer to Front Bumper Fascia Opening Lower Cover Replacement.	
1	Front Bumper Fascia Air Deflector Bolt (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m (23 lb in)
2	Front Bumper Fascia Air Deflector **Procedure** Unclip from front bumper fascia.

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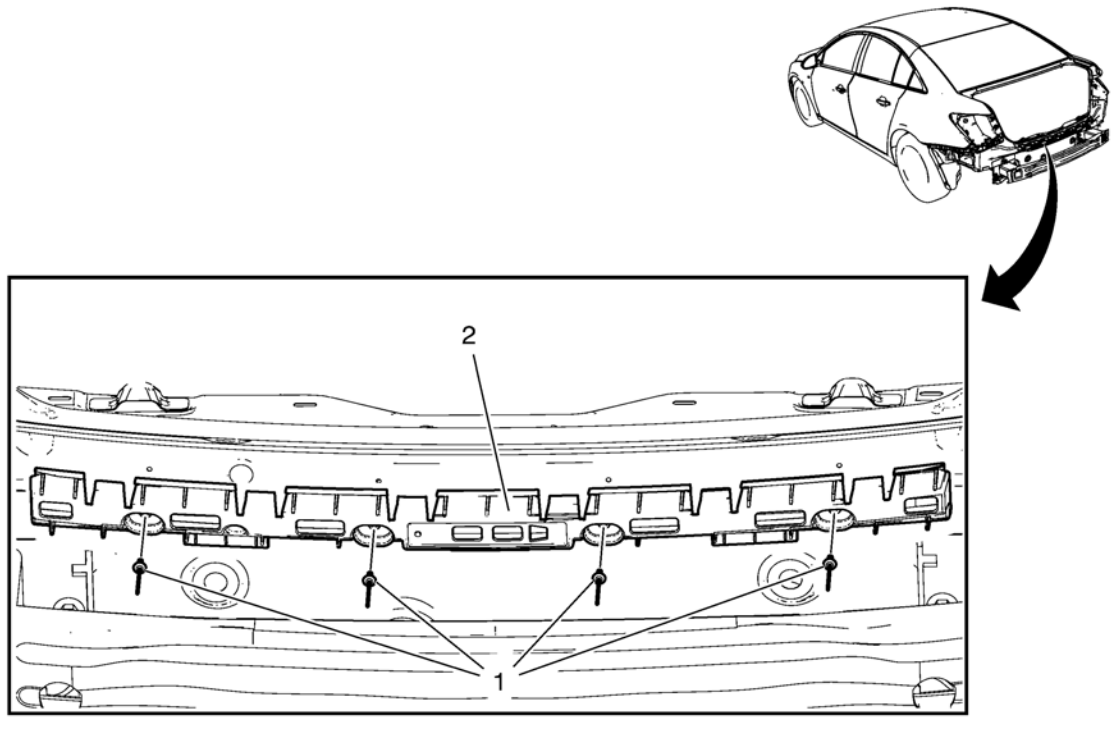
Rear Bumper Fascia Replacement



Callout	Component Name
Preliminary Procedure Remove the tail lamps. Refer to Tail Lamp Replacement.	
1	Rear Bumper Fascia Retainer (Qty: 2)
2	Rear Wheelhouse Liner Bolt (Qty: 6) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m (23 lb in)
3	Rear Bumper Fascia **Procedure** 1. Pull the rear bumper fascia rearwards at the front edge to load the three clips on the inboard fascia guides (under the tail lamp position) 2. Release the clips with an suitable tool 3. Continue to pull the rear bumper fascia rearwards until the outer edges pop outboard. 4. Disconnect any electrical connectors as needed 5. Remove the rear bumper fascia. 6. Transfer parts as needed.

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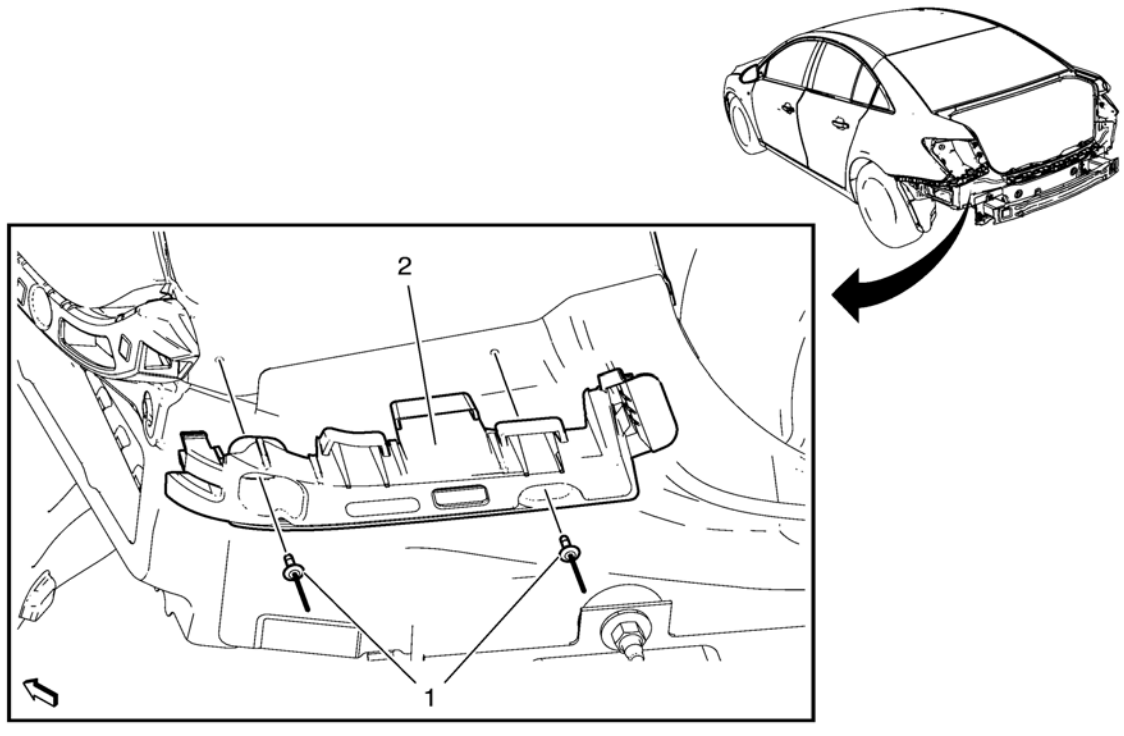
Rear Bumper Fascia Guide Replacement



Callout	Component Name
Preliminary Procedure Remove the rear bumper fascia. Refer to Rear Bumper Fascia Replacement.	
1	Rear Bumper Fascia Guide Rivet (Qty: 4) **Special Tools** *BO-594-A* Hand Rivet Tongs For equivalent regional tools, refer to Special Tools.
2	Rear Bumper Fascia Guide

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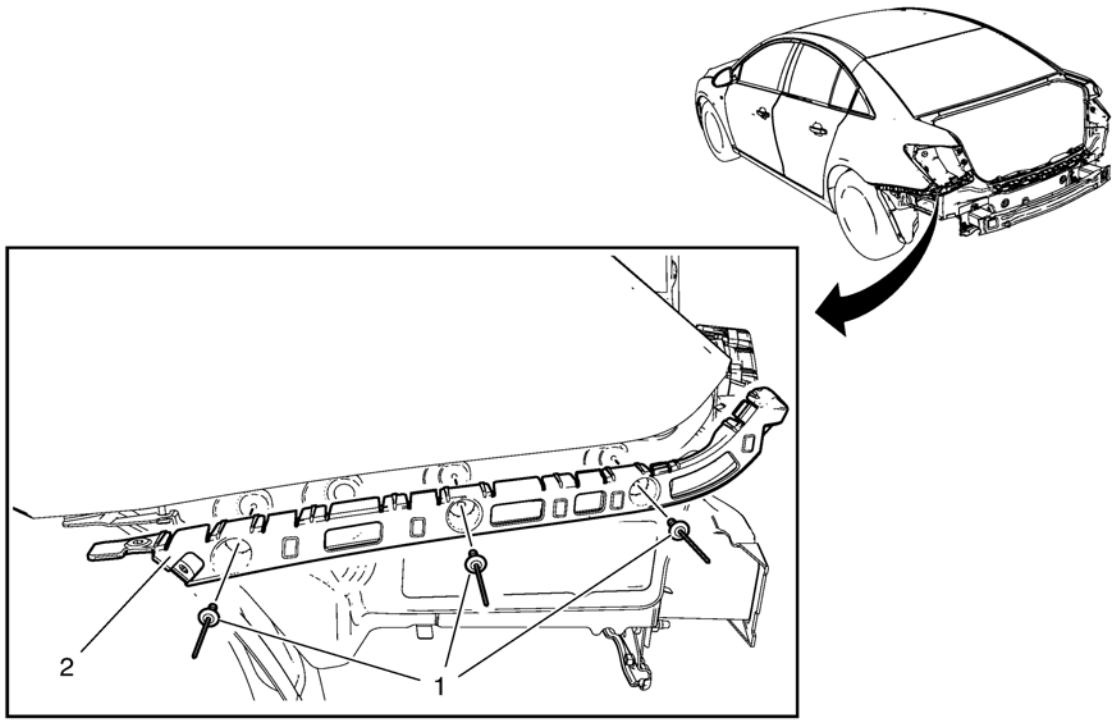
Rear Bumper Fascia Inner Guide Replacement



Callout	Component Name
Preliminary Procedure Remove the rear bumper fascia. Refer to Rear Bumper Fascia Replacement.	
1	Rear Bumper Fascia Inner Guide Rivet (Qty: 2) **Special Tools** *BO-594-A* Hand Rivet Tongs For equivalent regional tools, refer to Special Tools.
2	Rear Bumper Fascia Inner Guide.

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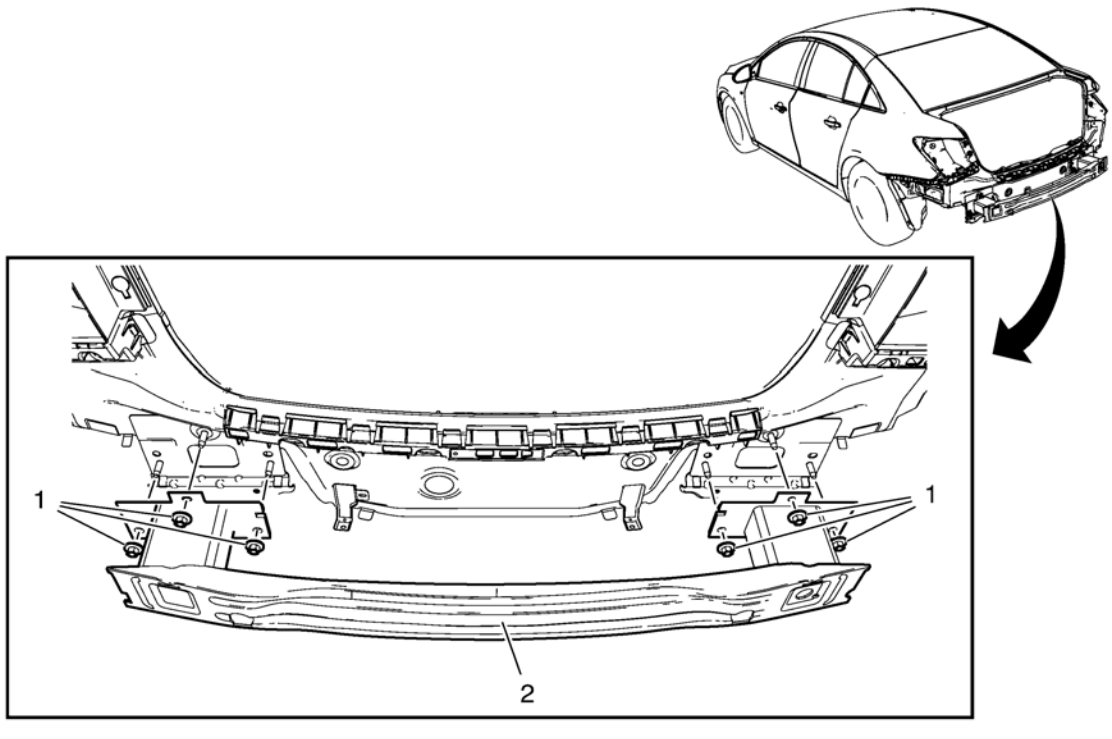
Rear Bumper Fascia Outer Guide Replacement



Callout	Component Name
Preliminary Procedure Remove the rear bumper fascia. Refer to Rear Bumper Fascia Replacement.	
1	Rear Bumper Fascia Outer Guide Rivet (Qty: 3) **Special Tools** *BO-594-A* Hand Rivet Tongs For equivalent regional tools, refer to Special Tools.
2	Rear Bumper Fascia Outer Guide

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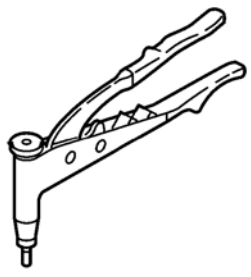
Rear Bumper Impact Bar Replacement



Callout	Component Name
Preliminary Procedure Remove the rear bumper fascia. Refer to Rear Bumper Fascia Replacement.	
1	Rear Bumper Energy Absorber Nut (Qty: 6) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 40 N·m (30 lb ft)
2	Rear Bumper Impact Bar

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Special Tools

Illustration	Tool Number/ Description
	BO-594-A MKM-594-A Hand Rivet Tongs

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Select a Document:

- Specifications
- Overlap/Backing Plate Sectioning (Welding)
- Front Bumper Impact Bar Replacement
- Headlamp Mount Panel Replacement (MAG-Welding)
- Headlamp Mount Panel Replacement (MIG-Brazing)
- Front End Upper Tie Bar Support Sectioning (MAG Welding)
- Front End Upper Tie Bar Support Sectioning (MIG Brazing)
- Front End Upper Tie Bar Replacement (MAG-Welding)
- Front End Upper Tie Bar Replacement (MIG-Brazing)
- Drivetrain and Front Suspension Frame Front Support Replacement (MAG-Welding)
- Drivetrain and Front Suspension Frame Front Support Replacement (MIG-Brazing)
- Front Wheelhouse Front Panel Replacement (MAG-Welding)
- Front Wheelhouse Front Panel Replacement (MIG-Brazing)
- Front Wheelhouse Panel Replacement (MAG-Welding)
- Front Wheelhouse Panel Replacement (MIG-Brazing)
- Front Wheelhouse Panel Rear Reinforcement Replacement (MAG-Welding)
- Front Wheelhouse Panel Rear Reinforcement Replacement (MIG-Brazing)
- Front Compartment Upper Side Rail Replacement (MAG-Welding)
- Front Compartment Upper Side Rail Replacement (MIG-Brazing)
- Front Compartment Upper Side Rail Sectioning (MAG-Welding)
- Front Compartment Upper Side Rail Sectioning (MIG-Brazing)
- Front Compartment Side Rail Sectioning (Long, MAG-Welding)
- Front Compartment Side Rail Sectioning (Long, MIG-Brazing)
- Front Compartment Side Rail Sectioning (Short, MAG-Welding)
- Front Compartment Side Rail Sectioning (Short, MIG-Brazing)
- Front Hinge Pillar Body Sectioning (MAG-Welding)
- Front Hinge Pillar Body Sectioning (MIG-Brazing)
- Body Hinge Pillar Lower Reinforcement Replacement (MAG-Welding)
- Body Hinge Pillar Lower Reinforcement Replacement (MIG-Brazing)
- Roof Outer Panel Replacement (MAG-Welding)
- Roof Outer Panel Replacement (MIG-Brazing)
- Roof Front Header Panel Replacement (MAG-Welding)
- Roof Front Header Panel Replacement (MIG-Brazing)
- Roof Rear Header Panel Replacement (MAG-Welding)
- Roof Rear Header Panel Replacement (MIG-Brazing)
- Rocker Inner Panel Replacement (MAG-Welding)
- Rocker Inner Panel Replacement (MIG-Brazing)
- Body Lock Pillar Outer Panel Sectioning (MAG-Welding)
- Body Lock Pillar Outer Panel Sectioning (MIG-Brazing)
- Body Lock Pillar Outer Panel Reinforcement Replacement (MAG-Welding)
- Body Lock Pillar Outer Panel Reinforcement Replacement (MIG-Brazing)
- Body Lock Pillar Inner Panel Replacement (MAG-Welding)
- Body Lock Pillar Inner Panel Replacement (MIG-Brazing)
- Rocker Outer Panel Sectioning (MAG-Welding)
- Rocker Outer Panel Sectioning (MIG-Brazing)
- Body Side Outer Panel Reinforcement Replacement (MAG-Welding)
- Body Side Outer Panel Reinforcement Replacement (MIG-Brazing)
- Body Side Inner Panel Sectioning (MAG-Welding)
- Body Side Inner Panel Sectioning (MIG-Brazing)
- Body Side Outer Lower Panel Replacement (MAG-Welding)
- Body Side Outer Lower Panel Replacement (MIG-Brazing)
- Rear Compartment Floor Panel Sectioning (MAG-Welding)
- Rear Compartment Floor Panel Sectioning (MIG-Brazing)
- Rear Wheelhouse Panel Replacement (MAG-Welding)
- Rear Wheelhouse Panel Replacement (MIG-Brazing)
- Quarter Outer Panel Sectioning (MAG-Welding)
- Quarter Outer Panel Sectioning (MIG-Brazing)
- Body Rear End Panel Replacement (MAG-Welding)
- Body Rear End Panel Replacement (MIG-Brazing)
- Rear Bumper Impact Bar Stud Plate Replacement (MAG-Welding)
- Rear Bumper Impact Bar Stud Plate Replacement (MIG-Brazing)
- Front Side Door Outer Panel Replacement (MAG-Welding)
- Front Side Door Outer Panel Replacement (MIG-Brazing)
- Rear Side Door Outer Panel Replacement (MAG-Welding)
- Rear Side Door Outer Panel Replacement (MIG-Brazing)
- Rear Rail Sectioning (MAG-Welding)

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- Rear Rail Sectioning (MIG-Brazing)
- Underbody Rear Side Rail Reinforcement Replacement (MAG-Welding)
- Underbody Rear Side Rail Reinforcement Replacement (MIG-Brazing)
- Rear Floor Panel Filler Replacement (MAG-Welding)
- Rear Floor Panel Filler Replacement (MIG-Brazing)
- Tail Lamp Pocket Replacement (MAG-Welding)
- Tail Lamp Pocket Replacement (MIG-Brazing)
- Dual Phase Steel
- High Strength Low Alloy Steel
- Mild Steel
- Ultra High Strength Dual Phase Steel
- Special Tools and Equipment

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Fastener Tightening Specifications

Application	Specification	
	Metric	English
Front Bumper Impact Bar Bolt	110 N·m	81 lb ft

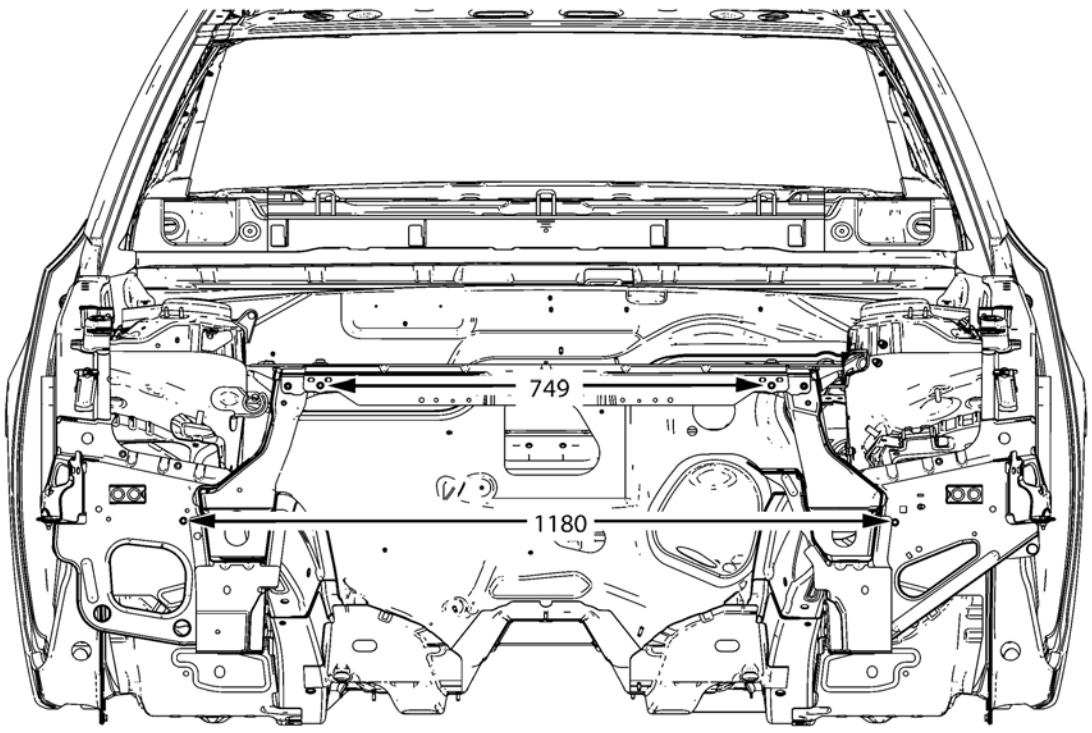
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Dimensions - Body

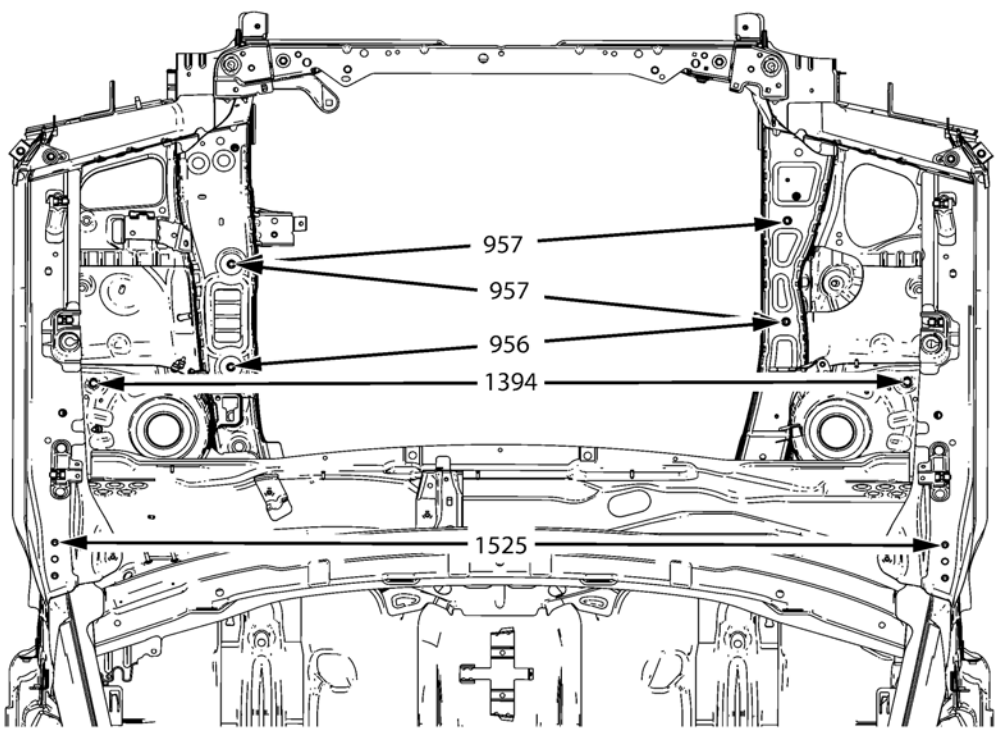
Point-to-point measurements are for reference only. All measurements are given in millimeters. Use these measurements for diagnosing and estimating. Point-to-point measurements are duplicated with tram bar pointers set at equal lengths. All die marks, holes, slots, and fasteners are measured to the center.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

Point-to-Point Measurements

Front End

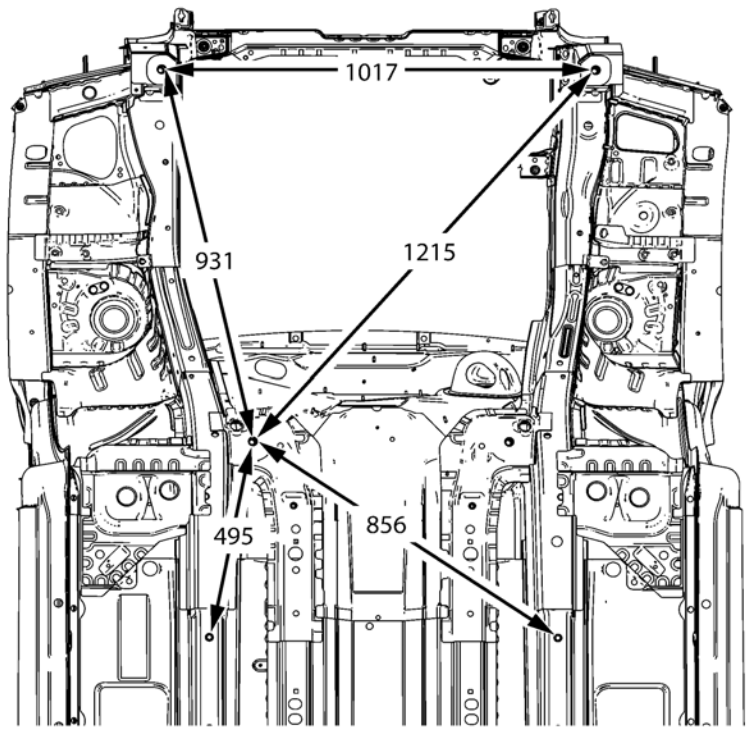


Engine Compartment

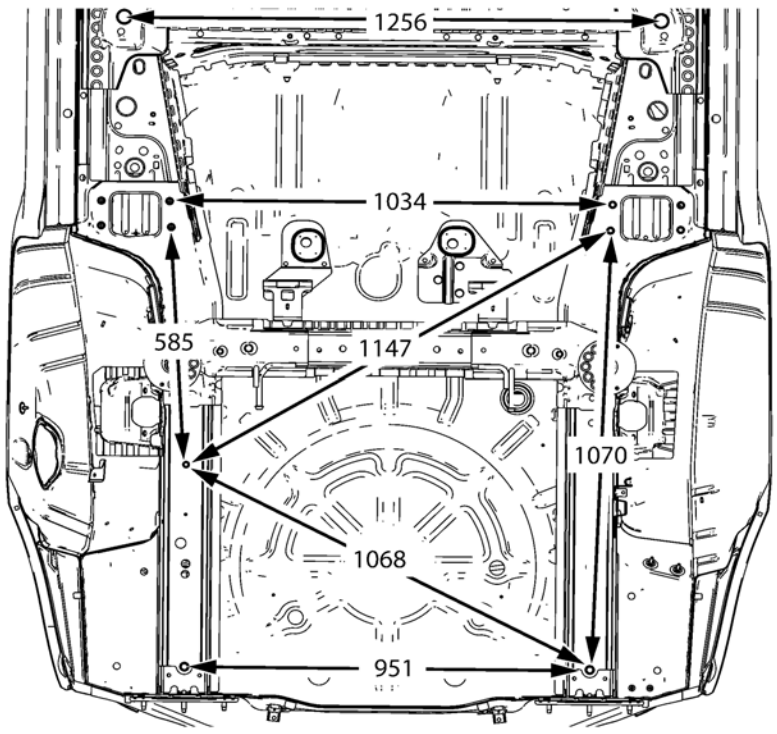


Front End Lower

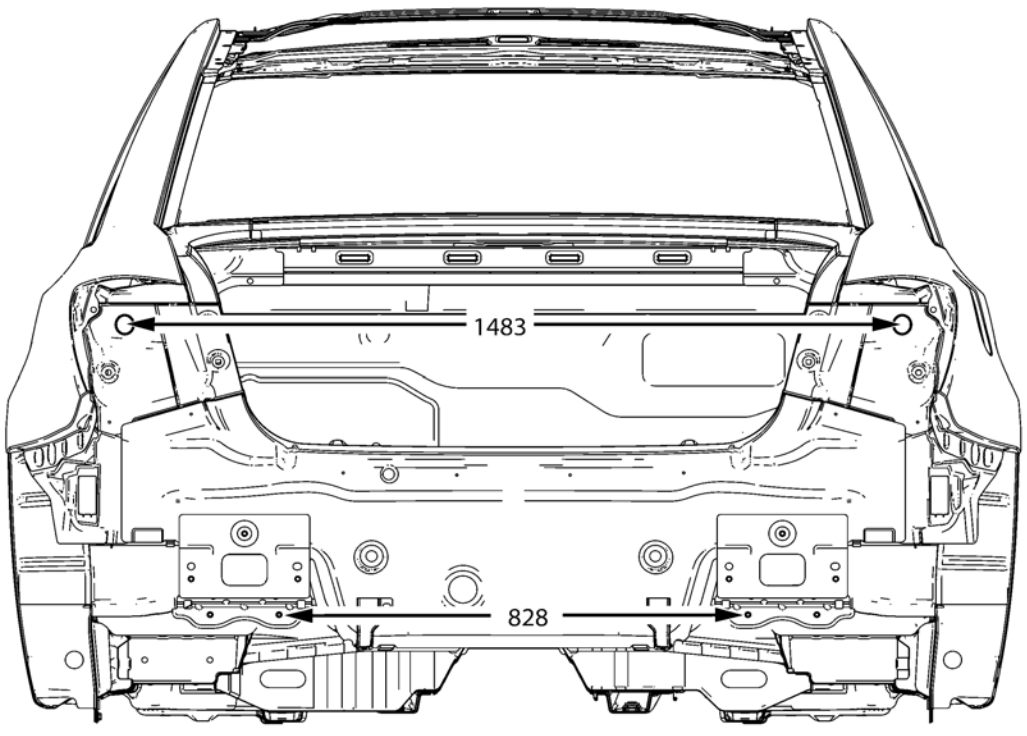
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Rear End Lower

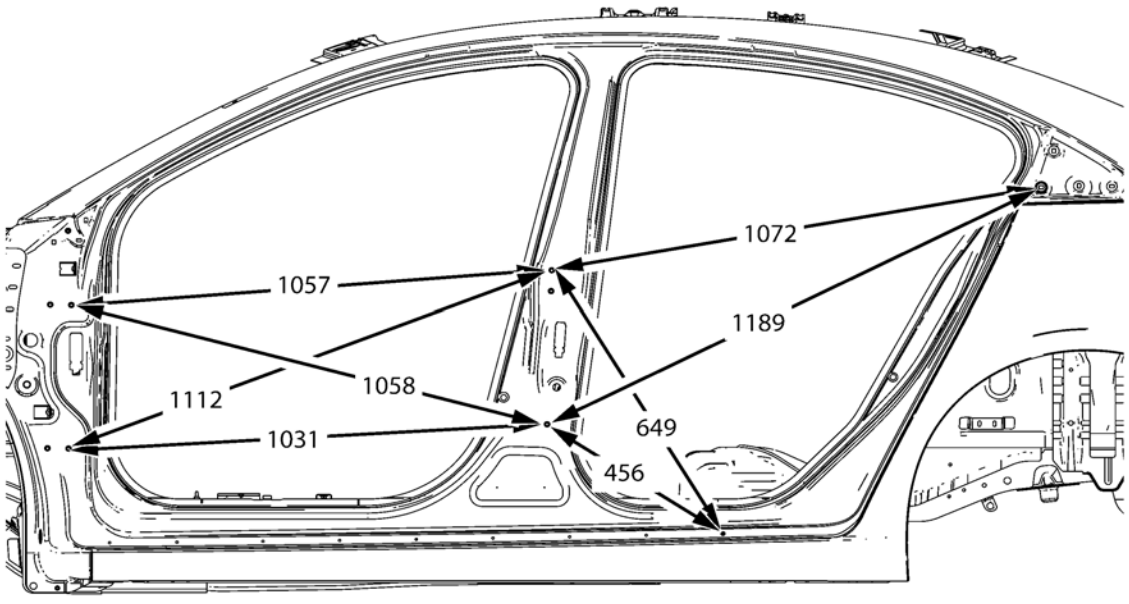


Rear End

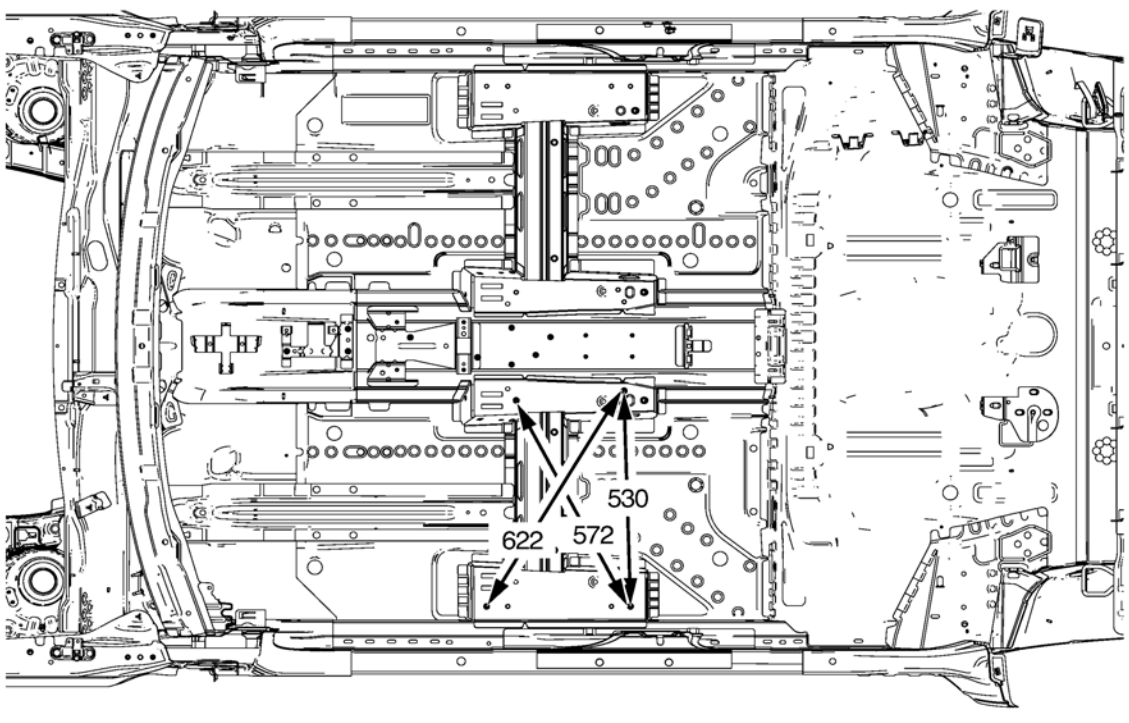


Side

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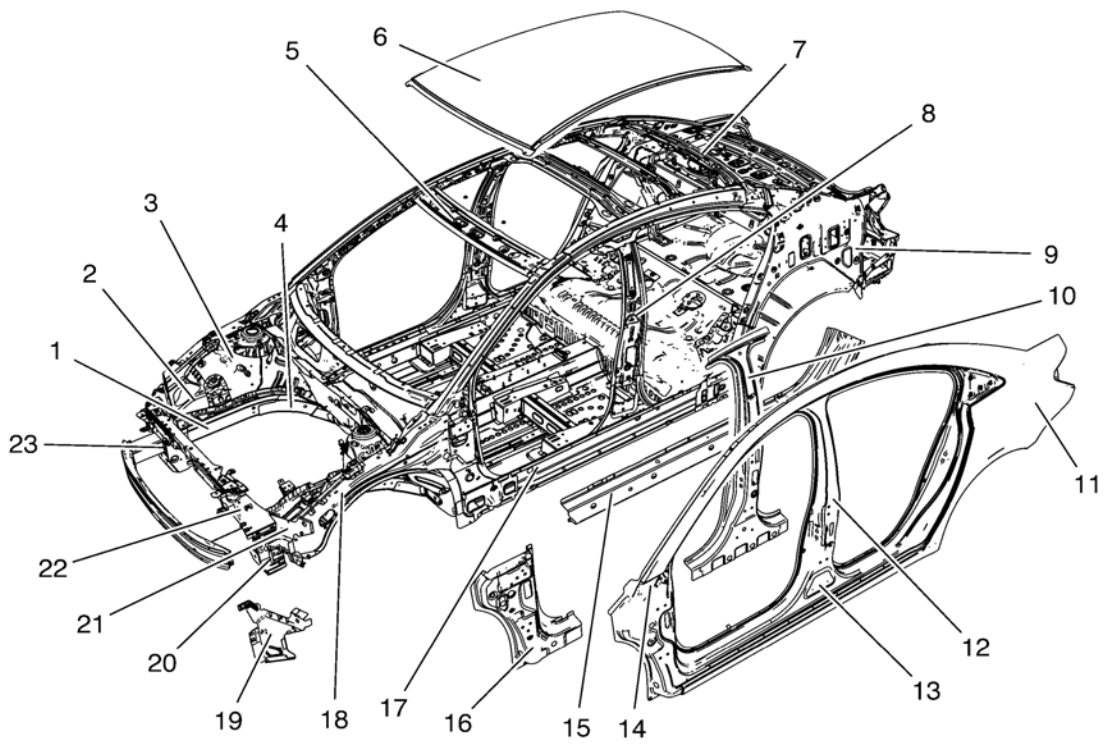


Front Seat Mounting Points



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Structure Identification

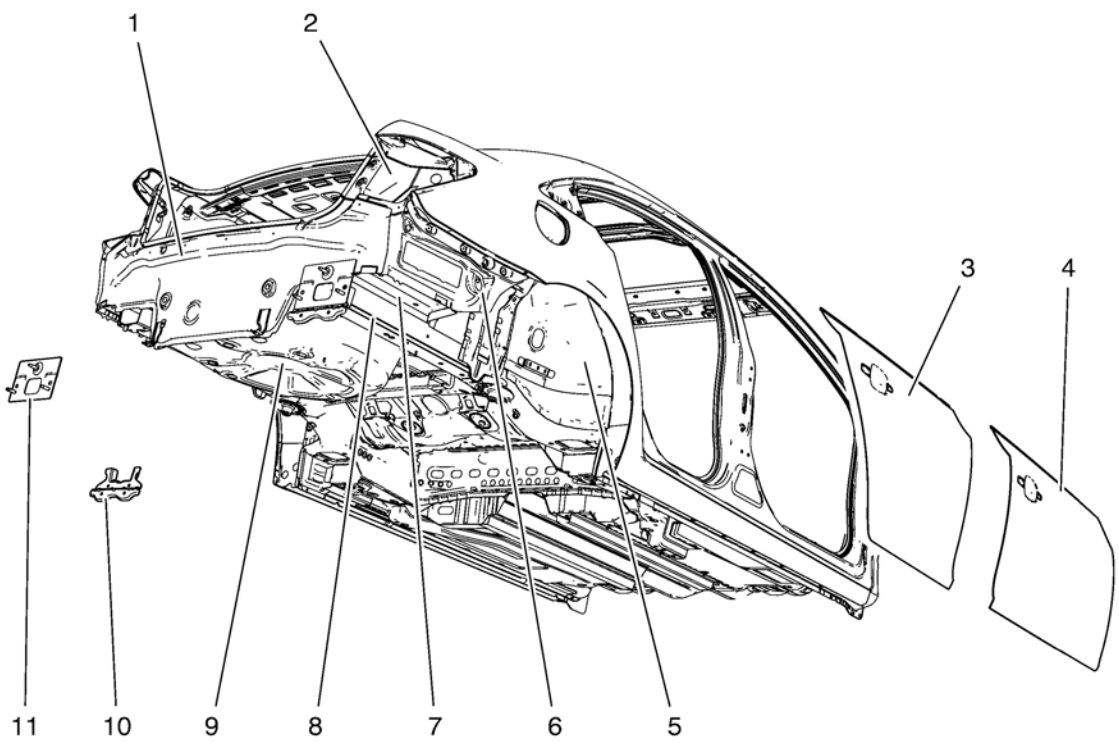


View Front

Number	Description	Material	Procedure
1	Front Compartment Side Rail (Front)	Mild Steel	Front Compartment Front Rail Sectioning
2	Front Wheelhouse Front Panel	High Strength Low Alloy Steel	Front Wheelhouse Front Panel Replacement
3	Front Wheelhouse Panel	Mild Steel	Front Wheelhouse Replacement
4	Front Compartment Side Rail (Rear)	High Strength Low Alloy Steel	Front Compartment Front Rail Sectioning
5	Roof Front Header Panel	High Strength Low Alloy Steel	Roof Front Header Panel Replacement
6	Roof Outer Panel	Mild Steel	Roof Outer Panel Replacement
7	Roof Rear Inner Panel	Mild Steel	Roof Rear Header Panel Replacement
8	Body Lock Pillar Inner Panel	Dual Phase Steel	Body Lock Pillar Inner Panel Replacement
9	Body Side Inner Panel	Mild Steel	Body Side Inner Panel Sectioning
10	Body Lock Pillar Outer Panel Reinforcement	• Outer Panel Reinforcement Mild Steel • Center Pillar Stiffener Dual Phase Steel	Body Lock Pillar Outer Panel Reinforcement Replacement
11	Quarter Outer Panel	Mild Steel	Quarter Outer Panel Sectioning
12	Body Lock Pillar Outer Panel	Mild Steel	Body Lock Pillar Outer Panel Sectioning
13	Rocker Outer Panel	Mild Steel	Rocker Outer Panel Sectioning
14	Front Hinge Pillar Body	Mild Steel	Front Hinge Pillar Body Sectioning
15	Body Side Outer Panel Reinforcement	Dual Phase Steel	Body Side Outer Panel Reinforcement Replacement

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16	Body Hinge Pillar Lower Reinforcement	Mild Steel	Body Hinge Pillar Lower Reinforcement Replacement
17	Rocker Inner Panel	Ultra High Strength Dual Phase Steel	Rocker Inner Panel Replacement
18	Front Compartment Upper Side Rail	High Strength Low Alloy Steel	• Front Compartment Upper Side Rail Replacement • Front Compartment Upper Side Rail Sectioning
19	Headlamp Mount Panel	Mild Steel	Headlamp Mount Panel Replacement
20	Drivetrain and Front Suspension Frame Front Support	High Strength Low Alloy Steel	Drivetrain and Front Suspension Frame Front Support Replacement
21	Front Wheelhouse Panel Rear Reinforcement	Mild Steel	Front Wheelhouse Panel Rear Reinforcement Replacement
22	Front End Upper Tie Bar Support	Mild Steel	Front End Upper Tie Bar Replacement
23	Front Bumper Impact Bar Steel Shoe Bracket	Mild Steel	Front Bumper Impact Bar Replacement



View Rear

Number	Description	Material	Procedure
1	Body Rear End Panel	Mild Steel	Body Rear End Panel Replacement
2	Tail Lamp Pocket	Mild Steel	Tail Lamp Pocket Replacement
3	Rear Side Door Outer Panel	Mild Steel	Rear Side Door Outer Panel Replacement
4	Front Side Door Outer Panel	Mild Steel	Front Side Door Outer Panel Replacement
5	Rear Wheelhouse Panel	Mild Steel	Rear Wheelhouse Panel Replacement
6	Body Side Outer Lower Panel	Mild Steel	Body Side Outer Panel Reinforcement Replacement
7	Rear Floor Panel Filler	Mild Steel	Rear Floor Panel Filler Replacement

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8	Underbody Rear Side Rail	High Strength Low Alloy Steel	Rear Rail Sectioning
9	Rear Compartment Floor Panel	Mild Steel	Rear Compartment Floor Panel Sectioning
10	Underbody Rear Side Rail Reinforcement	Mild Steel	Underbody Rear Side Rail Reinforcement Replacement
11	Rear Bumper Impact Bar Stud Plate	Mild Steel	Rear Bumper Impact Bar Stud Plate Replacement

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Overlap/Backing Plate Sectioning (Welding)

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

1. Fit the service panel to the vehicle to ensure a proper fit.
2. Measure and mark a line at the sail panel 120 mm (4 3/4 in) from the back glass opening and 70 mm (2 3/4 in) rearward from the rocker panel locating hole edge of the service panel.
3. Cut along the line to trim the service panel.
4. Fabricate a 50 mm (2 in) backer plate so that the panel will fit behind the sectioning joint at the sail panel.
5. Fabricate a 100 mm (4 in) backer plate for the rocker panel.
6. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original panel.
7. Bevel the sail panel and service panel edges at the sectioned area to approximately 10 degrees.
8. Grind a 50 mm (2 in) area of the outer surface on the vehicle to remove any corrosion, E-coat, primers, coatings and galvanizing that may be present.
9. At the section area on the service panel, grind a 50 mm (2 in) area of the back side to remove any corrosion, E-coat, primers, coatings and galvanizing that may be present.
10. Drill plug weld holes approximately 13 mm (1/2 in) from the edge of the cuts the sectioning areas of the service panel and the original panel.
11. Prepare all mating surfaces as necessary.
12. Apply GM-approved weld-thru coating or equivalent to all mating surfaces. Refer to Anti-Corrosion Treatment and Repair.
13. Position and clamp or screw the backer plate with half of the backer plate exposed at the sectioning joint.

    Note: Leave a gap of 1 1/2 times the thickness of the metal at the sectioning joint to the original panel.

14. Position the service panel to overlap the backer plate and 1 1/2 times the thickness up to the original panel.
15. Check for proper fit and alignment to the vehicle. Clamp the panels together.
16. Plug weld the backer plate accordingly.
17. Stitch weld along the entire sectioning joint, make 25 mm (1 in) welds along the seam with 25 mm (1 in) gaps between them.
18. Complete the stitch weld.
19. Clean and prepare all welded surfaces of the entire sectioning joint.

    Note: Always follow the system manufacturer's instructions for application, handling, and curing.

20. Apply a lightweight body filler to the backer plate area.

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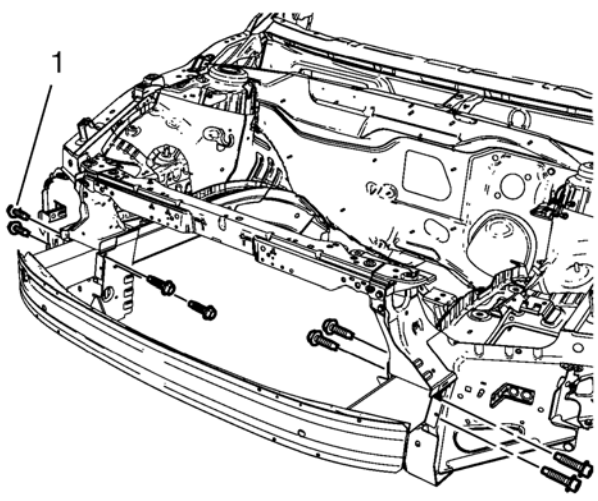
Front Bumper Impact Bar Replacement

Removal Procedure

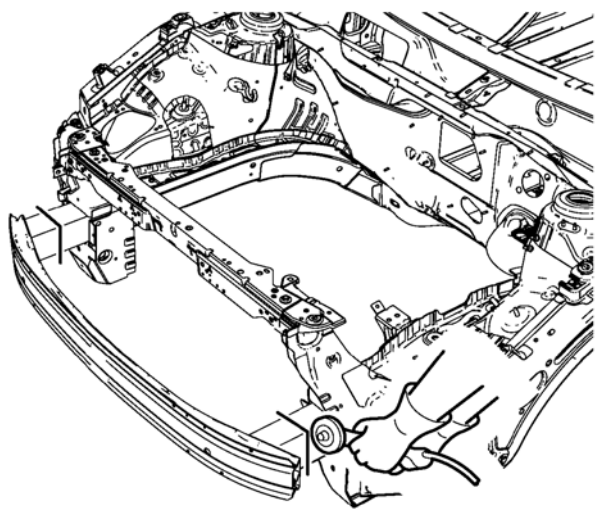
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

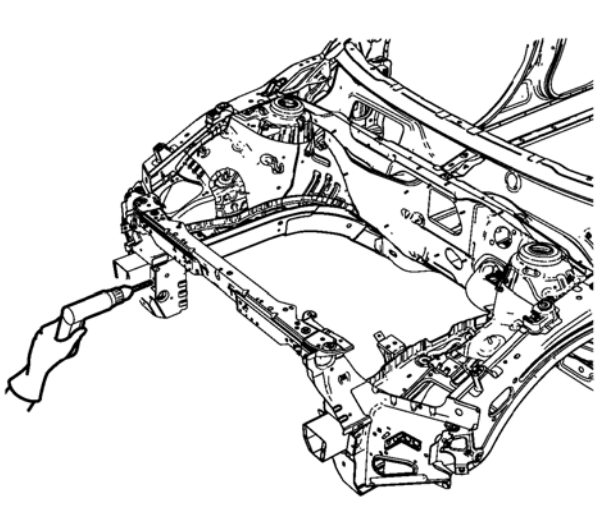
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.



4. Remove the 8 front bumper impact bar bolts (1).

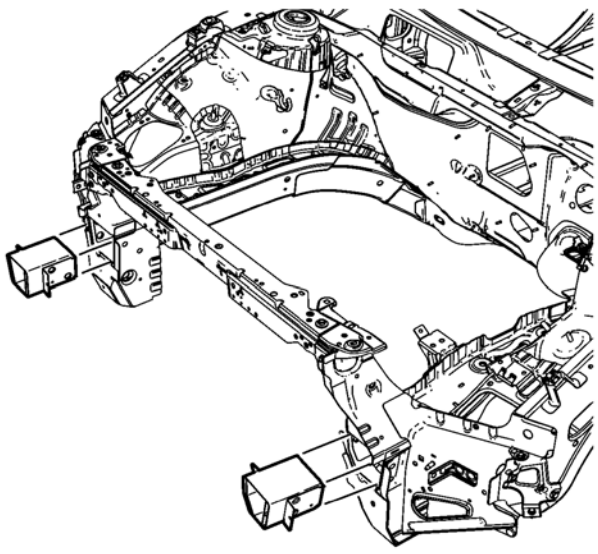


5. Cut the front bumper impact bar left and right.
6. Locate and mark all factory welds.



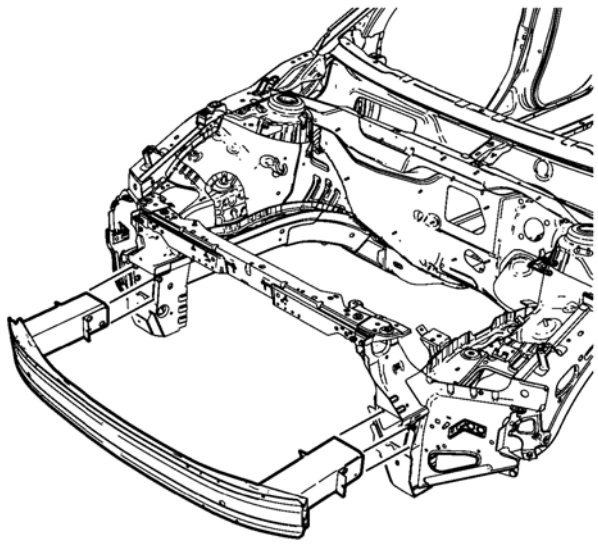
7. Drill all factory welds.

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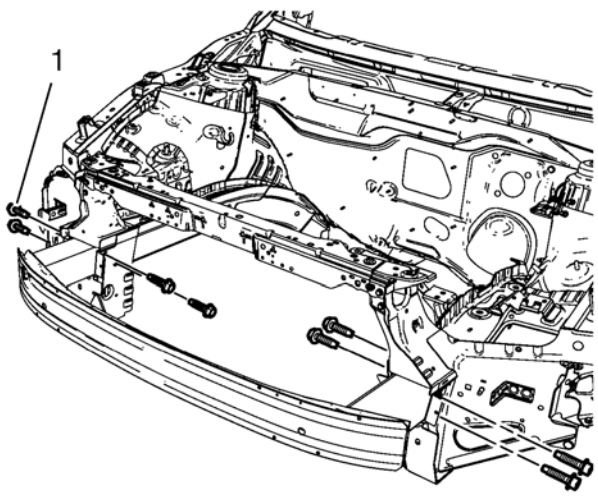
8. Remove the remaining parts of the front bumper impact bar.

Installation Procedure



1. Position the front bumper impact bar on the vehicle.

   Caution: Refer to Fastener Caution in the Preface section.



2. Install the 8 front bumper impact bar bolts (1) and tighten to **110 N·m (81 lb ft)**.

   Note: Use only the original front bumper impact bar bolts. Replace bolts if damaged.

3. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
4. Install all related panels and components.
5. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
6. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Headlamp Mount Panel Replacement (MAG-Welding)

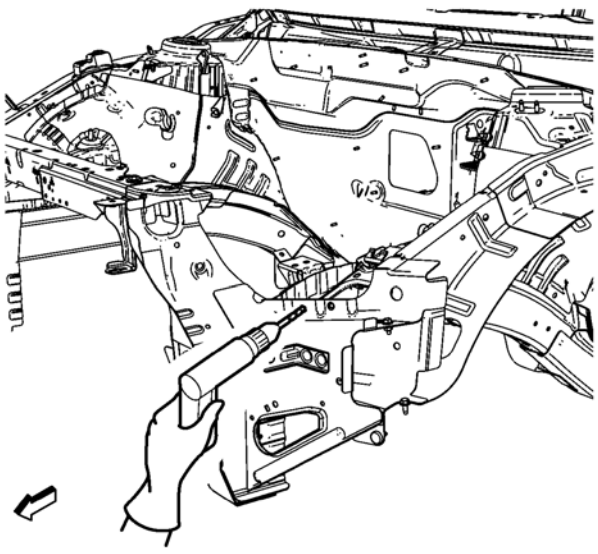
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

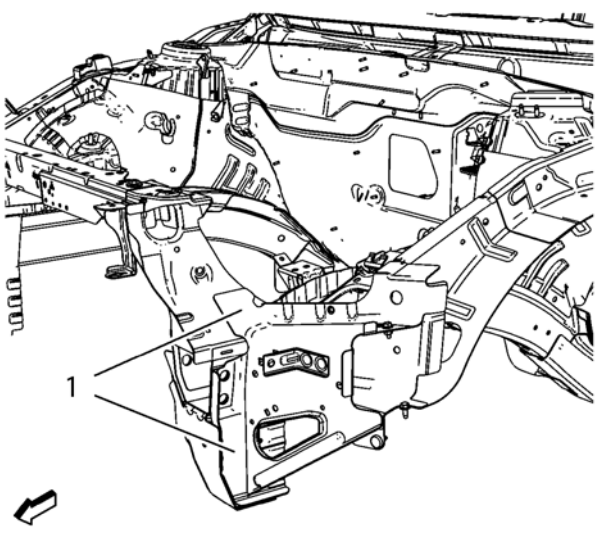
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

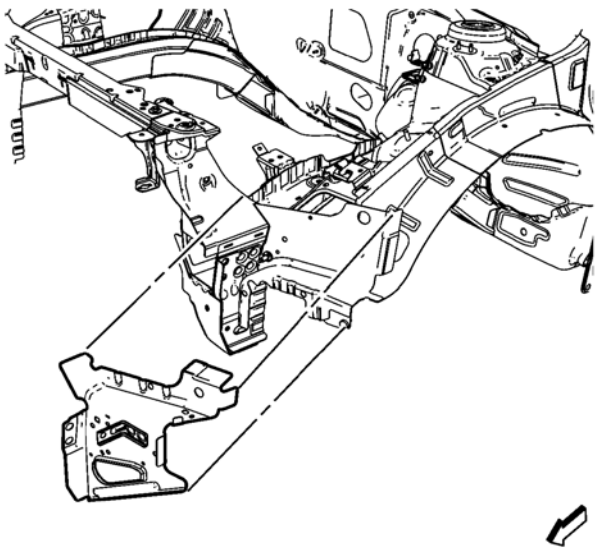
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



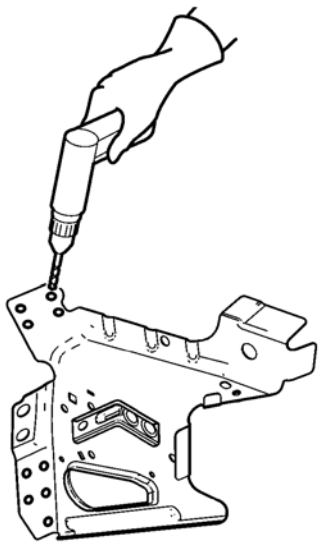
8. Cut the adhesive (1) with an appropriate tool.



9. Remove the headlamp mount panel.

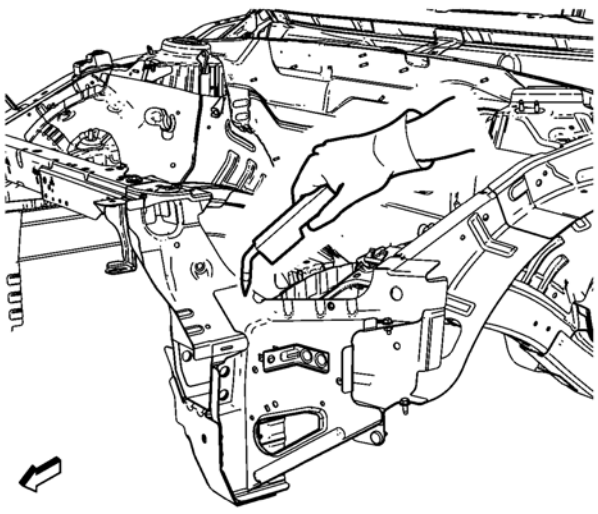
Installation Procedure

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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 as noted from the original panel.
3. Clean and prepare the attaching surfaces for welding.

4. Position the headlamp mount panel on the vehicle.
5. Verify the fit of the headlamp mount panel.
6. Clamp the headlamp mount panel into position.



7. Plug weld accordingly.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Headlamp Mount Panel Replacement (MIG-Brazing)

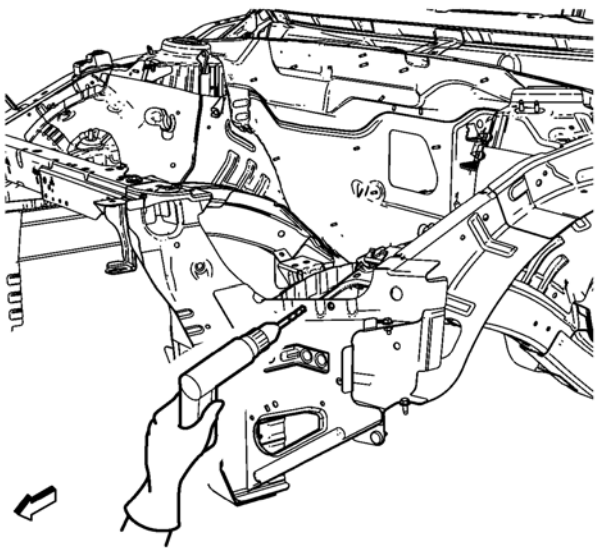
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

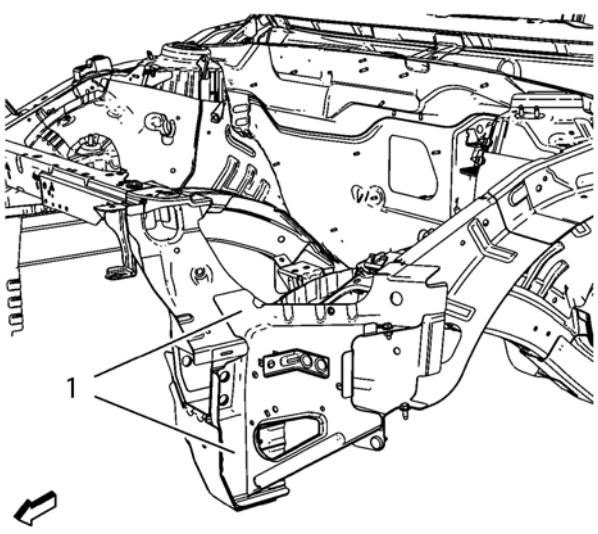
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

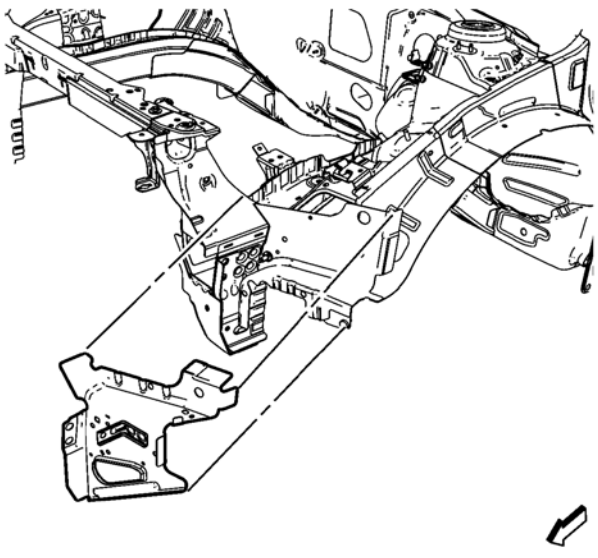
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the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

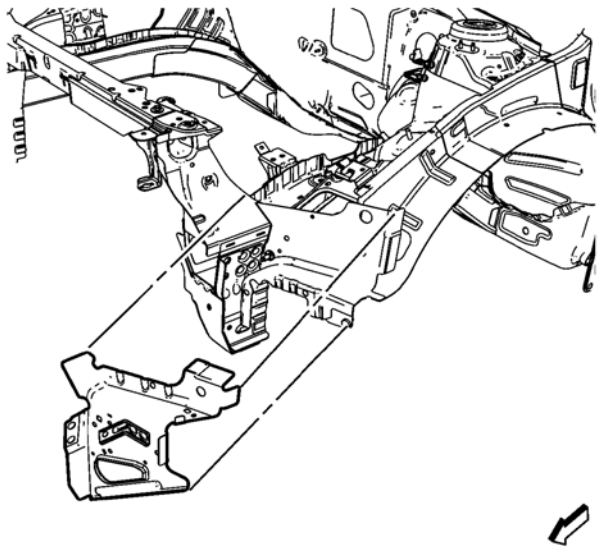


9. Remove the headlamp mount panel.

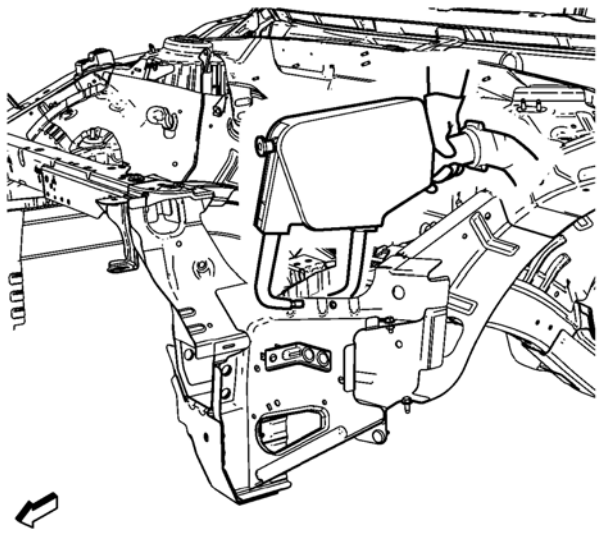
Installation Procedure

1. Clean and prepare the attaching surfaces for welding.
2. Apply structural adhesive in areas noted from the original panel.

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3. Position the headlamp mount panel on the vehicle.
4. Verify the fit of the headlamp mount panel.
5. Clamp the headlamp mount panel into position.



6. Spot weld 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.

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Front End Upper Tie Bar Support Sectioning (MAG Welding)

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

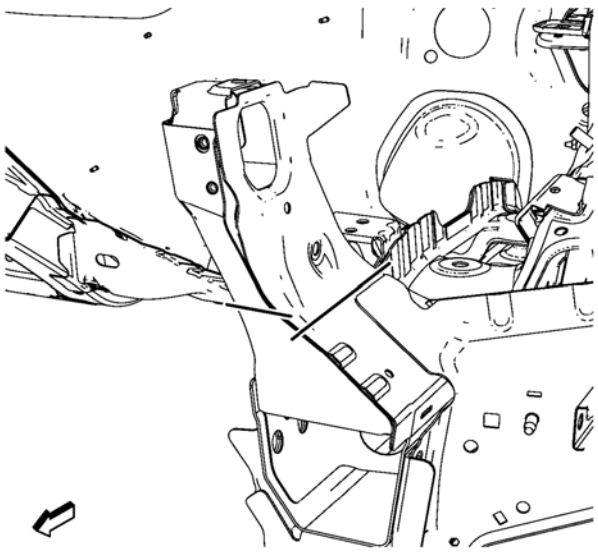
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

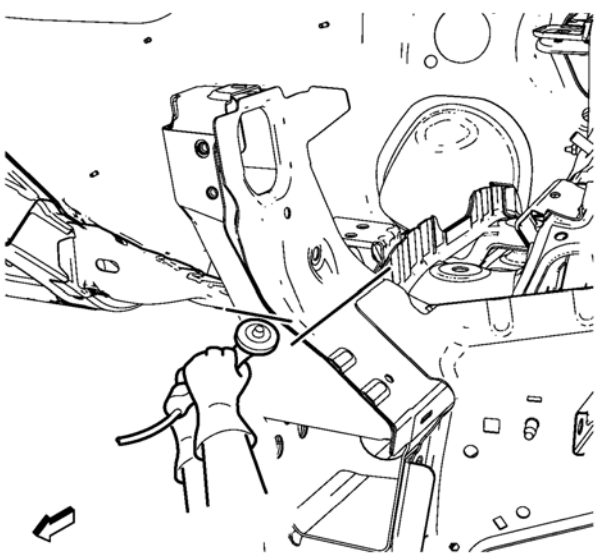
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

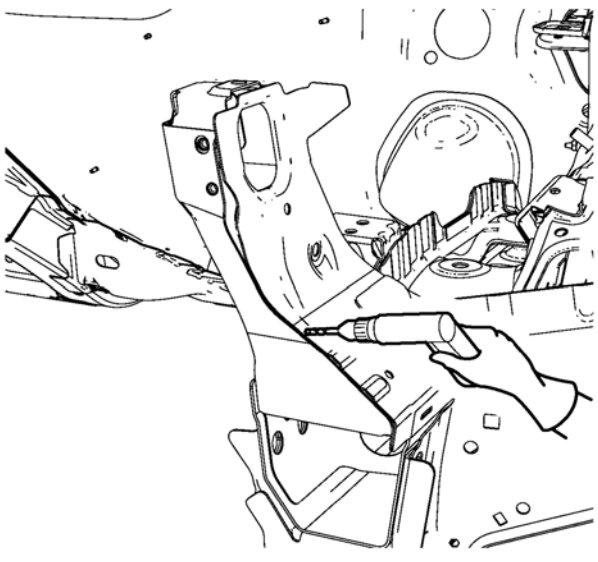


6. Create cut lines on the front end upper tie bar.



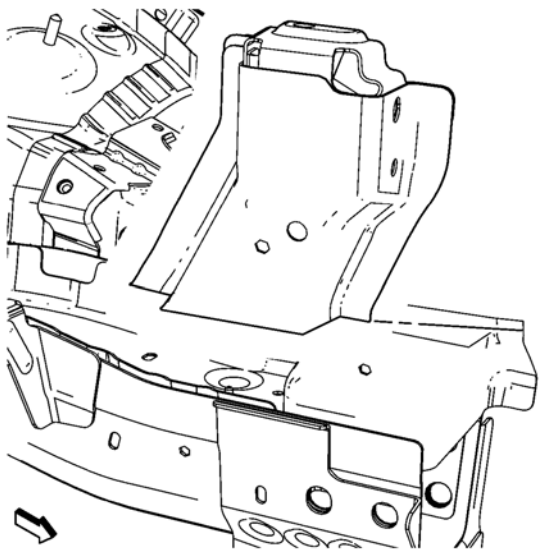
7. Cut the panel where sectioning is to be performed.

Note: Do not damage any inner panels or reinforcements.



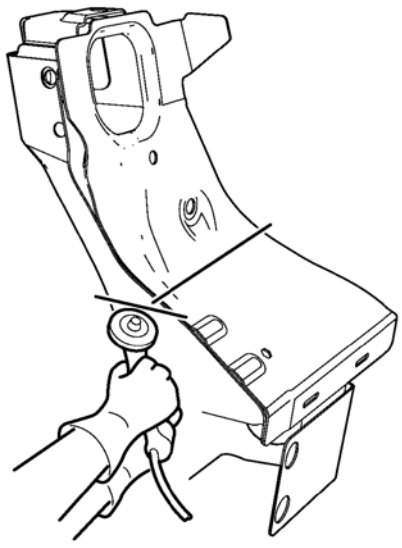
8. Locate and mark all the necessary factory welds of the front end upper tie bar.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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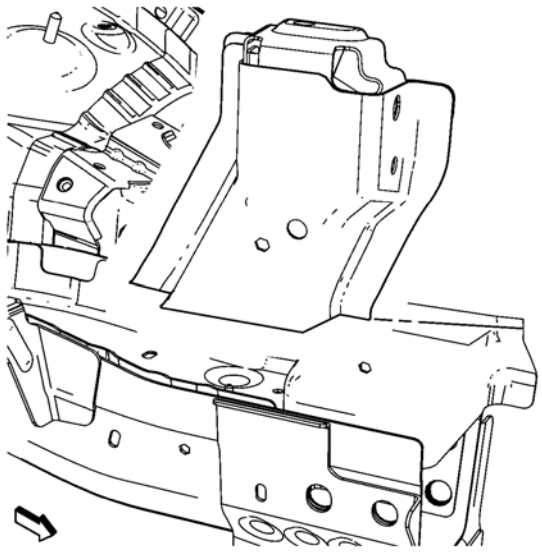


10. Remove the damaged front end upper tie bar.

Installation Procedure

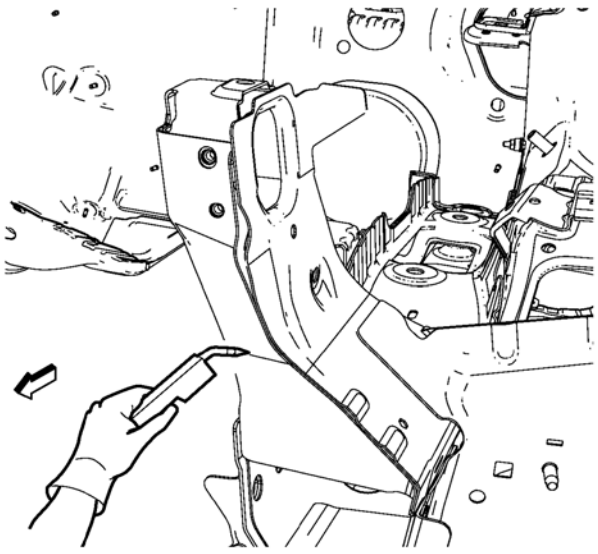


1. Cut the front end upper tie bar in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service 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 end upper tie bar.
7. Clean and prepare the attaching surfaces for welding.



8. Position the front end upper tie bar on the vehicle.
9. Verify the fit of the front end upper tie bar.
10. Clamp the front end upper tie bar into position.

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11. Plug weld accordingly.
12. 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.
13. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
14. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
15. Install all related panels and components.
16. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
17. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Front End Upper Tie Bar Support Sectioning (MIG Brazing)

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

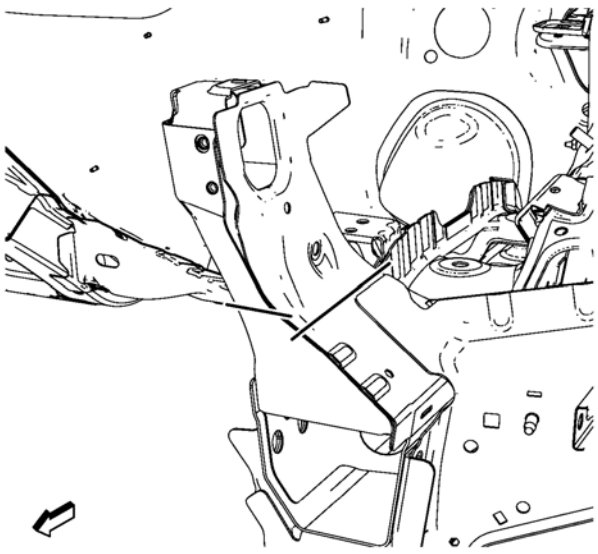
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

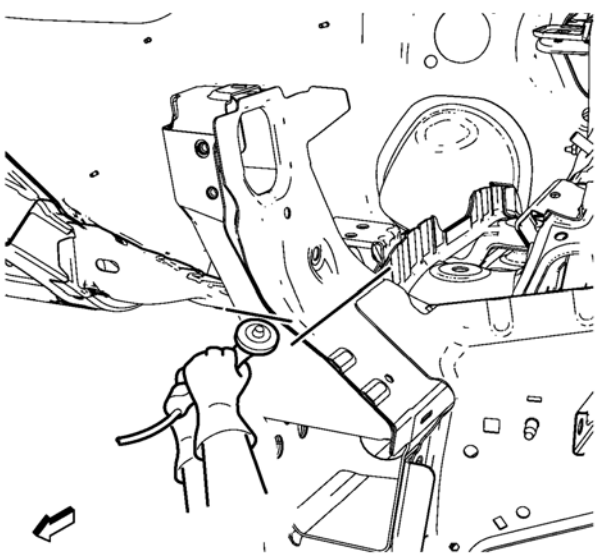
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

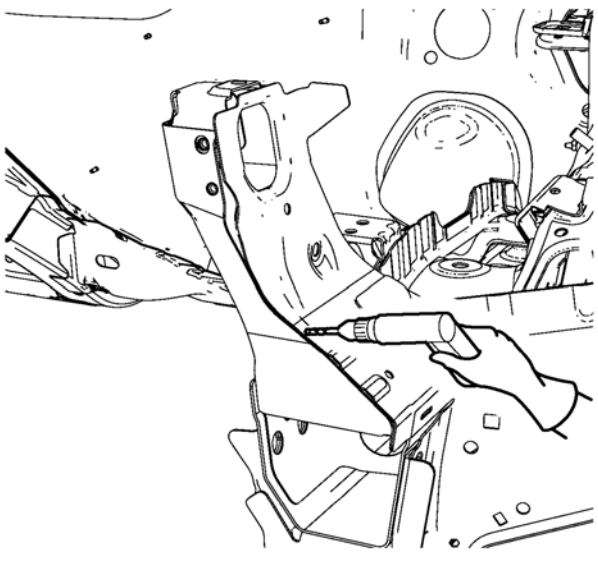


6. Create cut lines on the front end upper tie bar.



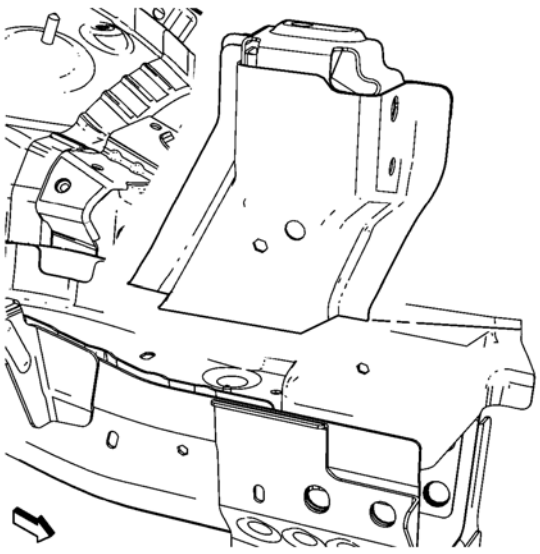
7. Cut the panel where sectioning is to be performed.

Note: Do not damage any inner panels or reinforcements.



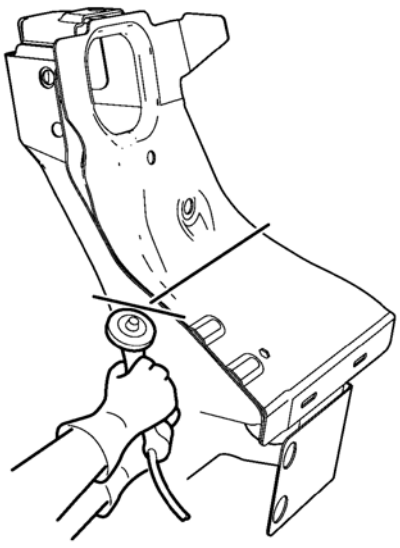
8. Locate and mark all the necessary factory welds of the front end upper tie bar.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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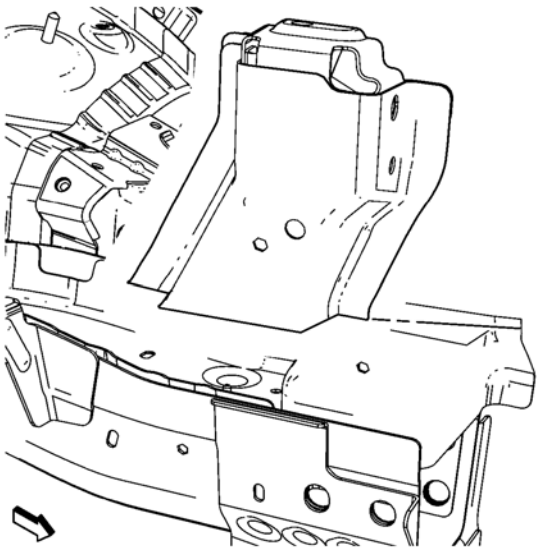


10. Remove the damaged front end upper tie bar.

Installation Procedure

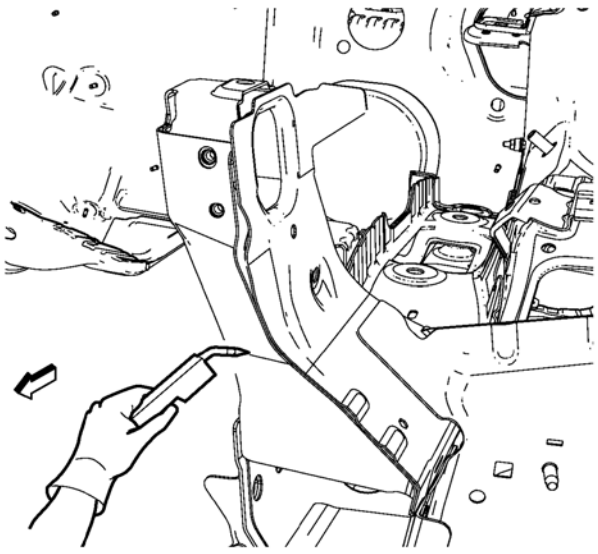


1. Cut the front end upper tie bar in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
3. Create 5 x 18 mm (4/16 x 11/16) slots for MIG-brazing 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 braze to the vehicle.
6. Align the front end upper tie bar.
7. Clean and prepare the attaching surfaces for brazing.



8. Position the front end upper tie bar on the vehicle.
9. Verify the fit of the front end upper tie bar.
10. Clamp the front end upper tie bar into position.

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11. Braze accordingly.
12. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.
13. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
14. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
15. Install all related panels and components.
16. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
17. Enable the SIR system. Refer to SIR Disabling and Enabling.

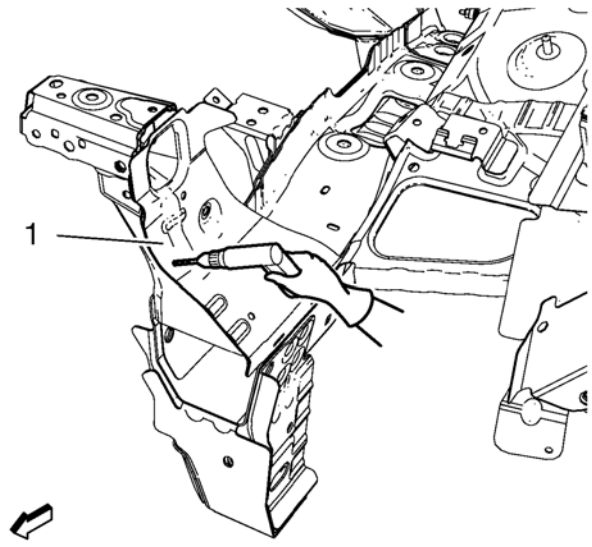
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Front End Upper Tie Bar Replacement (MAG-Welding)

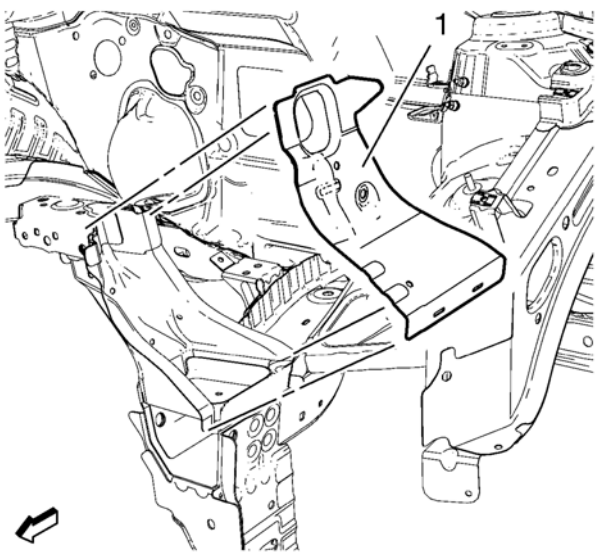
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

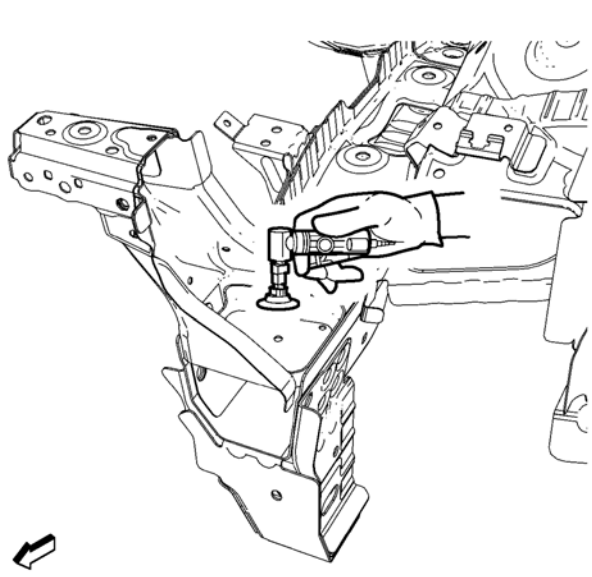
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 front end sheet metal cross panel reinforcement (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

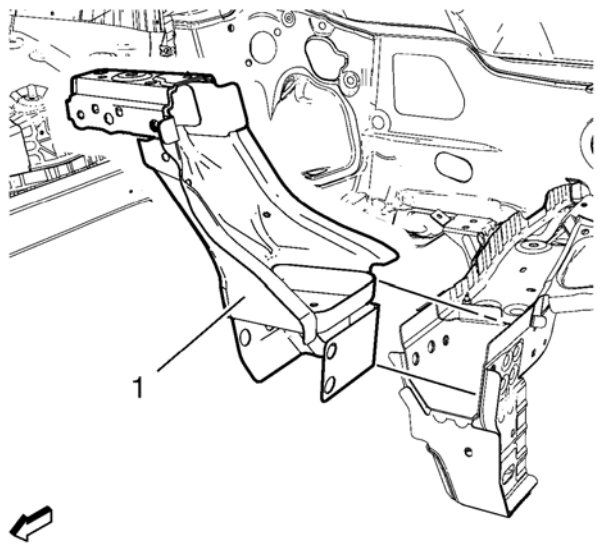


8. Remove the front end sheet metal cross panel reinforcement (1).
9. Drill all factory welds.



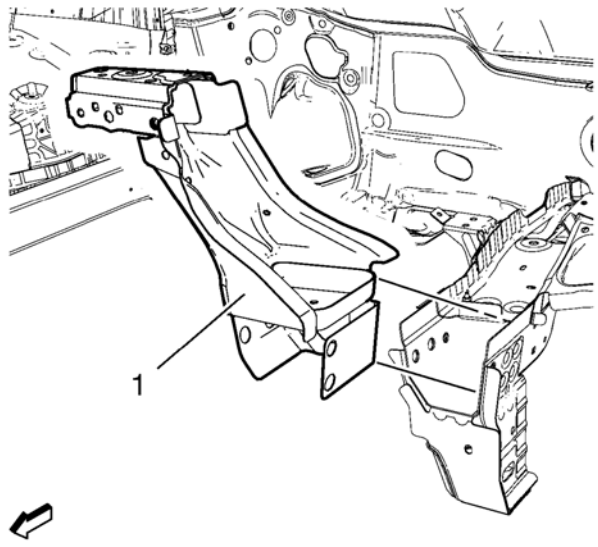
10. Grind factory welds of the front end upper tie bar.

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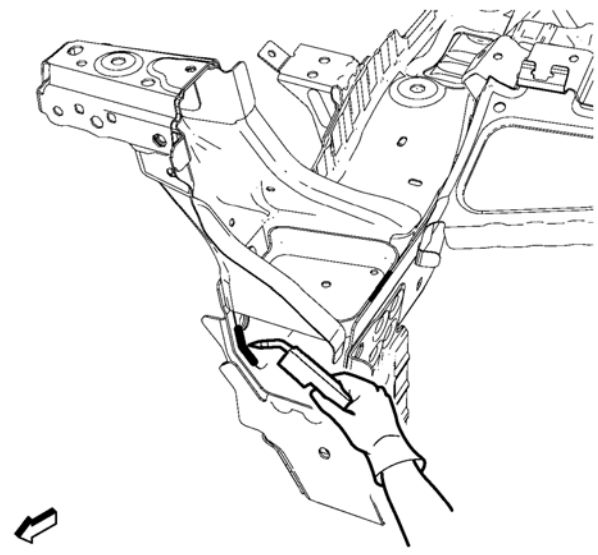


11. Remove the front end upper tie bar (1).

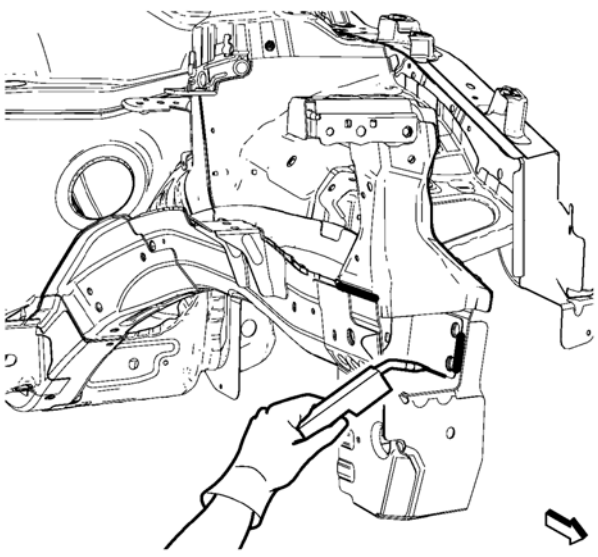
Installation Procedure



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

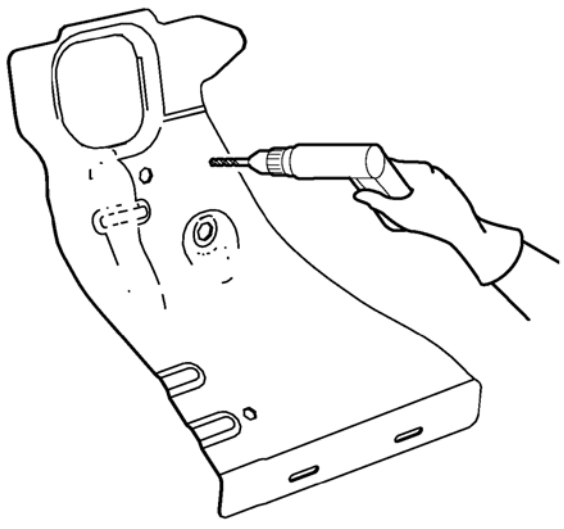


4. Weld seam accordingly.

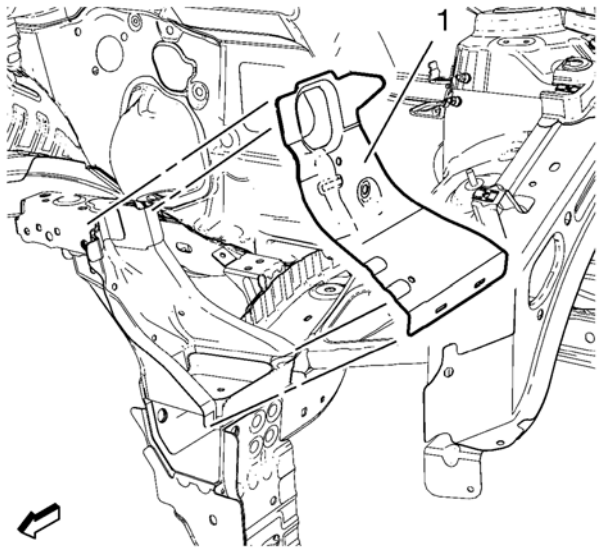


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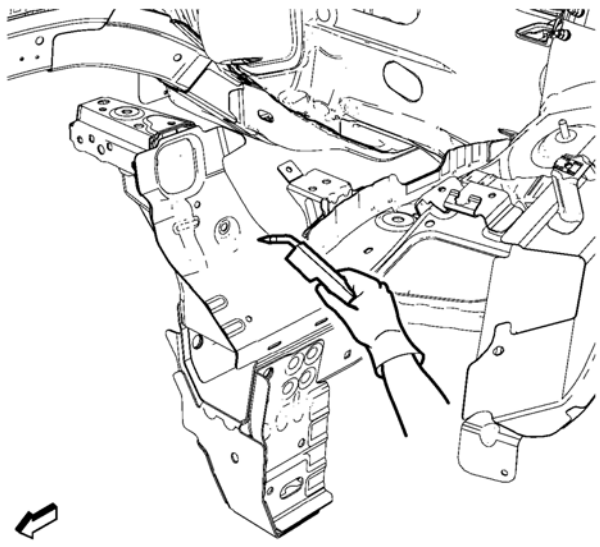
5. Weld seam accordingly.
6. Grind down weld seams as needed for related panels and components.



7. Drill 8 mm (5/16 in) for plug welding along the edges of the service panel as noted from the original panel.
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.
13. Install front bumper impact bar before applying the sealers and anti-corrosion materials.
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

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Front End Upper Tie Bar Replacement (MIG-Brazing)

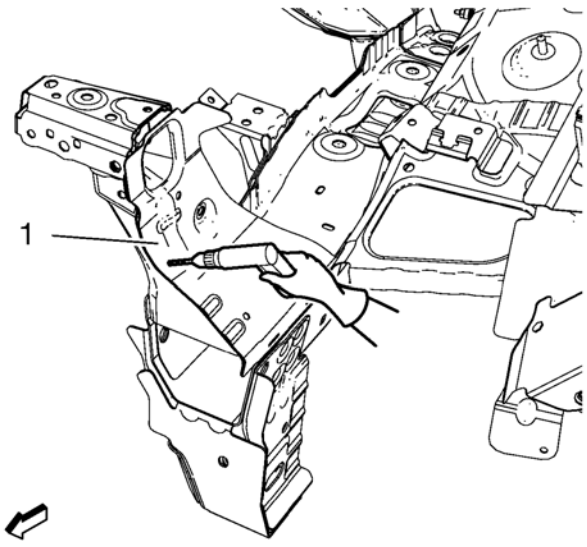
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

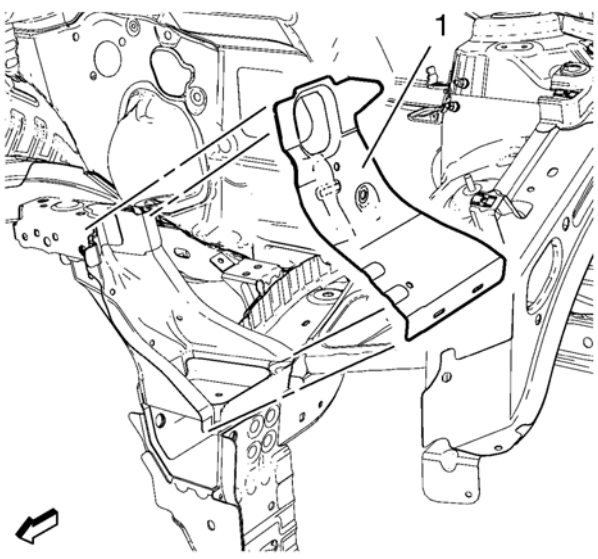
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

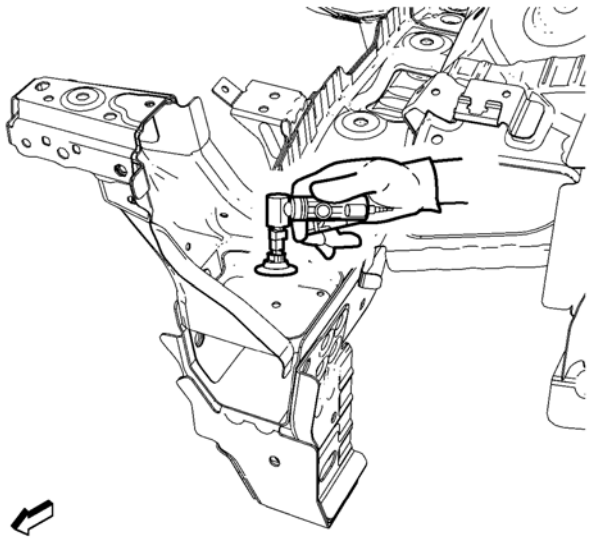
1. Disable the SIR System. Refer to SIR Disabling and Enabling
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers 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 end sheet metal cross panel reinforcement (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

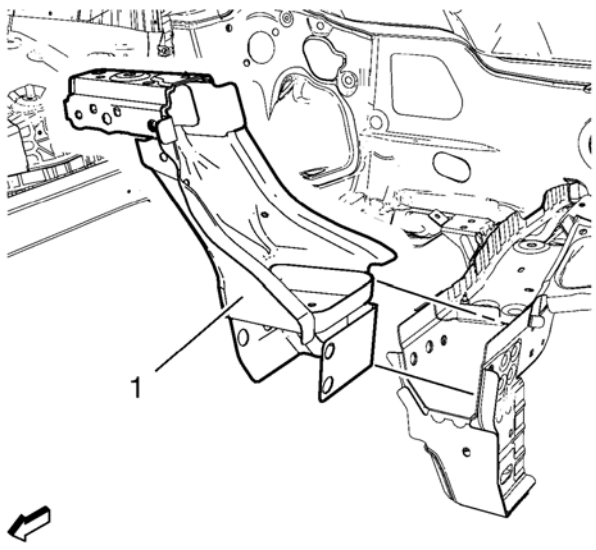


8. Remove the front end sheet metal cross panel reinforcement (1).
9. Drill all factory welds.



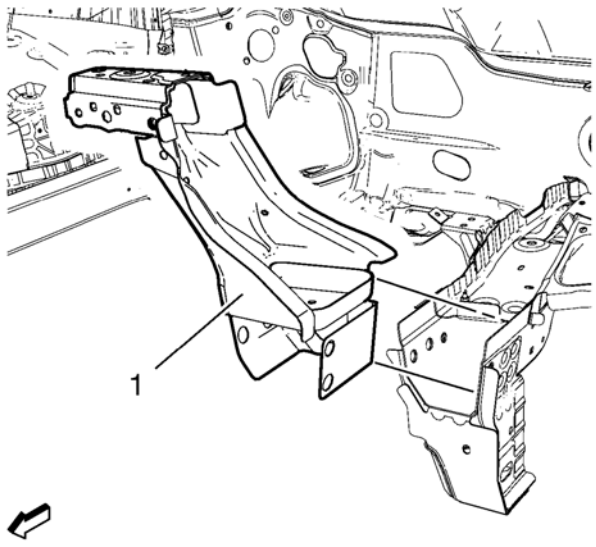
10. Grind factory welds of the front end upper tie bar.

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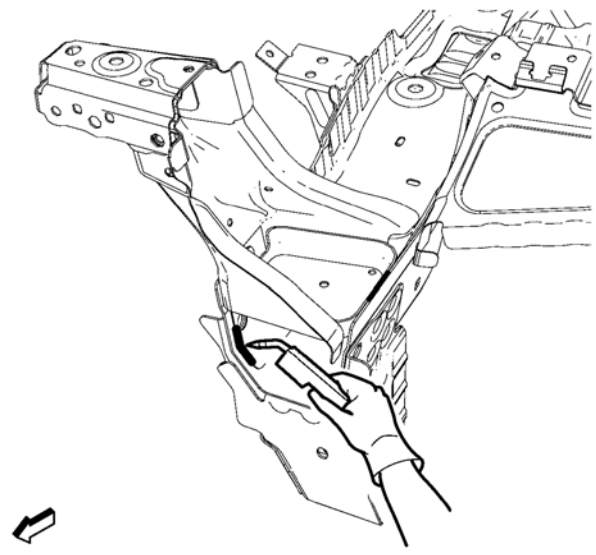


11. Remove the front end upper tie bar (1).

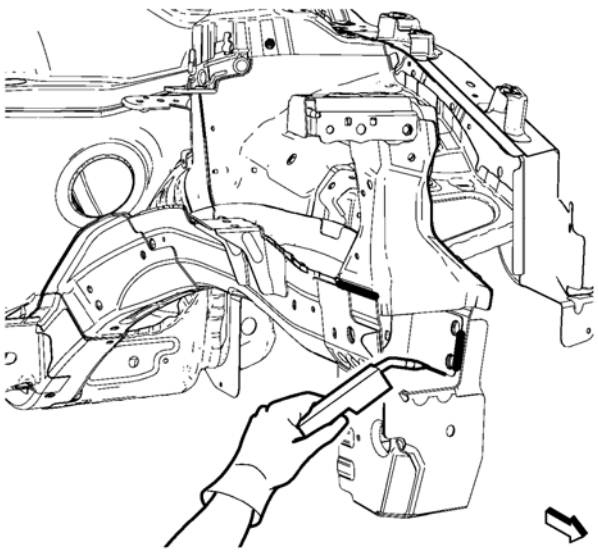
Installation Procedure



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

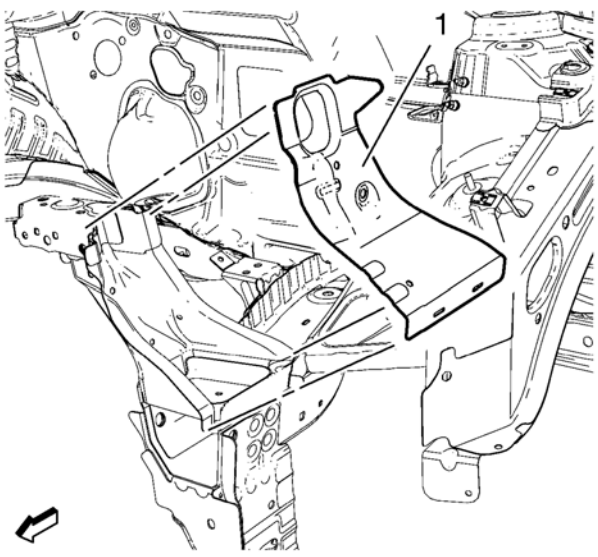


4. Braze accordingly.

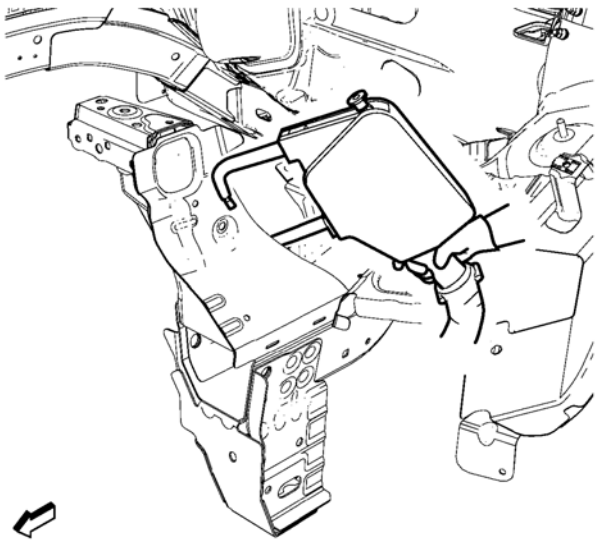


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5. Braze accordingly.
6. Grind down weld seams as needed for related panels and components.
7. Clean and prepare the attaching surfaces for welding.



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



11. Spot weld accordingly.
12. Use factory slots for slot brazing.
13. Install front bumper impact bar before applying the sealers and anti-corrosion materials.
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

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Drivetrain and Front Suspension Frame Front Support Replacement (MAG-Welding)

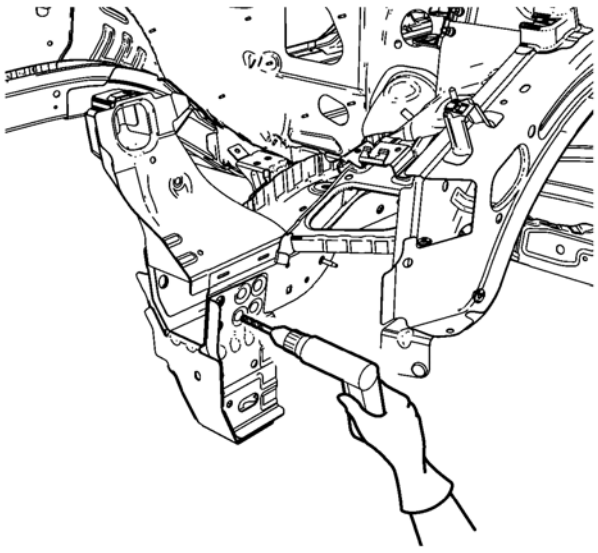
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

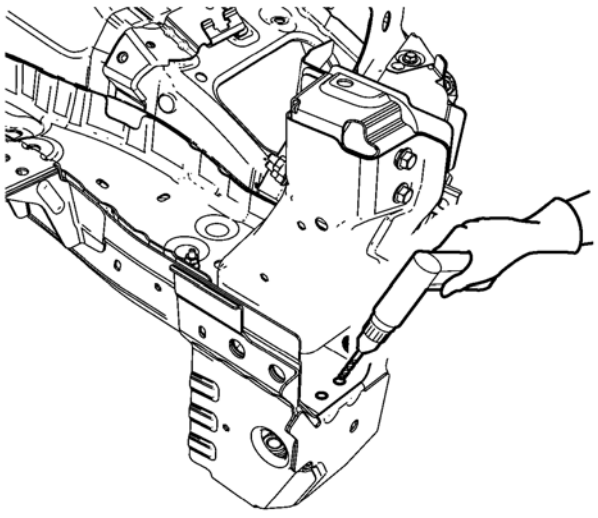
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



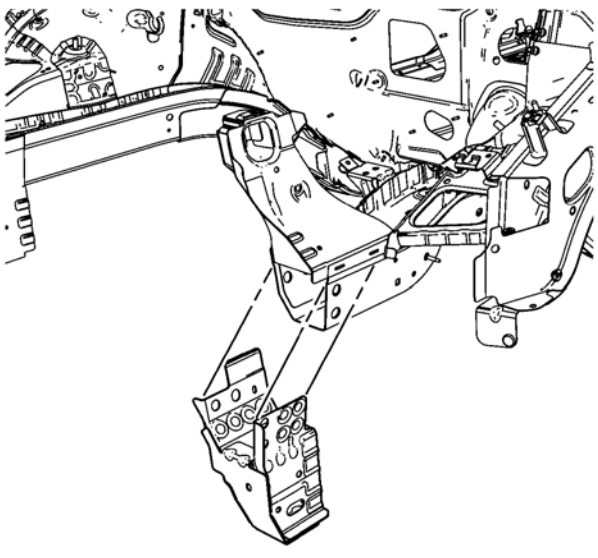
6. Locate and mark all the necessary factory welds and weld seams of the drivetrain and front suspension frame front support.



7. Drill out front flange of front suspension support frame from above through the front compartment side rail.

   Note: Drill holes are necessary for later plug welds.

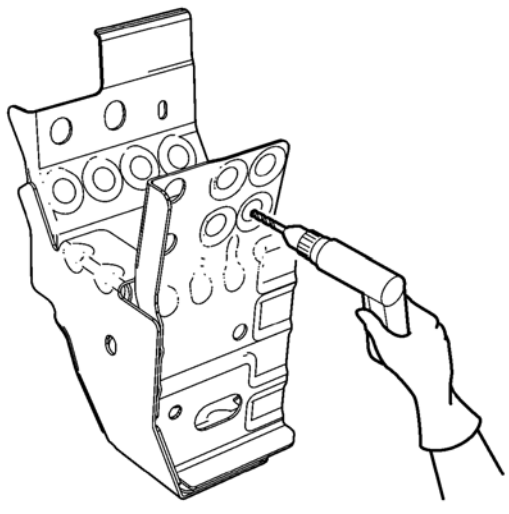
8. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



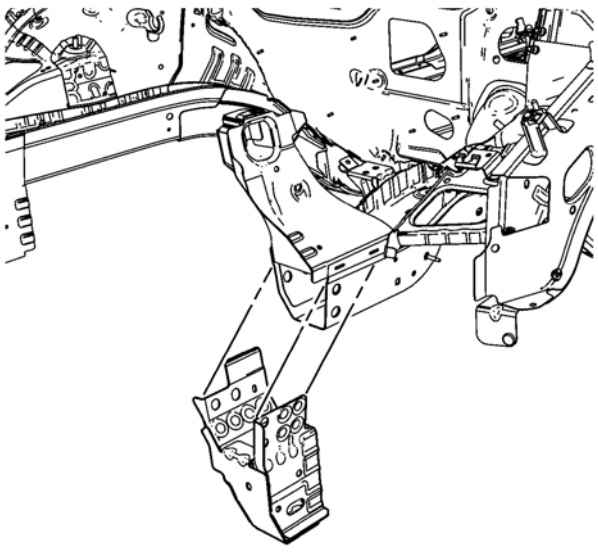
9. Remove the drivetrain and front suspension frame front support.

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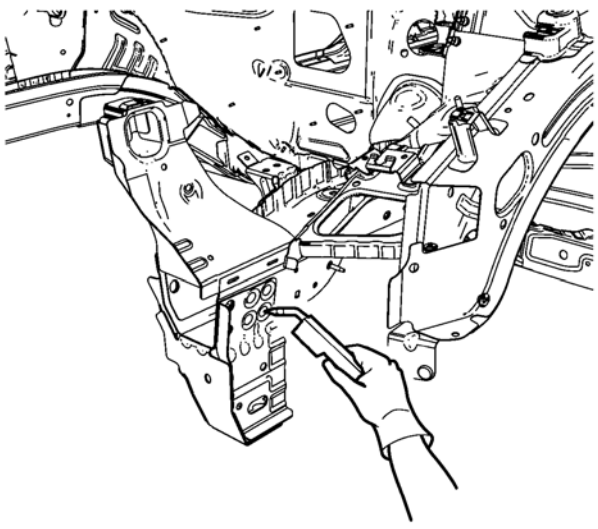
Installation Procedure



1. Drill 8 mm (5/16 in) for plug welding along the edges of the drivetrain and front suspension frame front support as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.

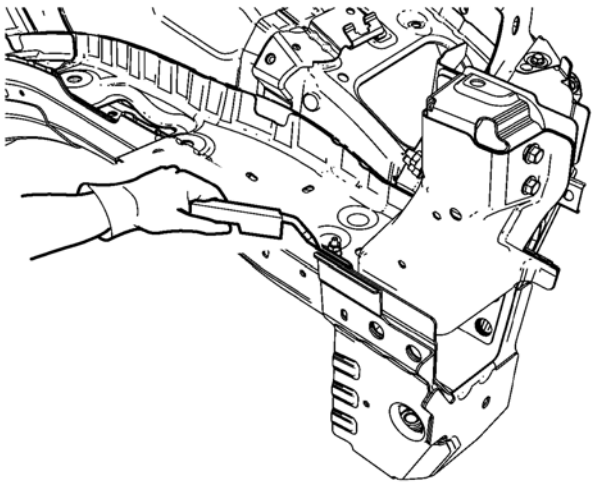


3. Position the drivetrain and front suspension frame front support on the vehicle.
4. Verify the fit of the drivetrain and front suspension frame front support.
5. Clamp the drivetrain and front suspension frame front support into position.



6. Plug weld accordingly.

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7. Weld seam as noted from the original panel from the drivetrain and front suspension frame front support to the front compartment side rail.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Drivetrain and Front Suspension Frame Front Support Replacement (MIG-Brazing)

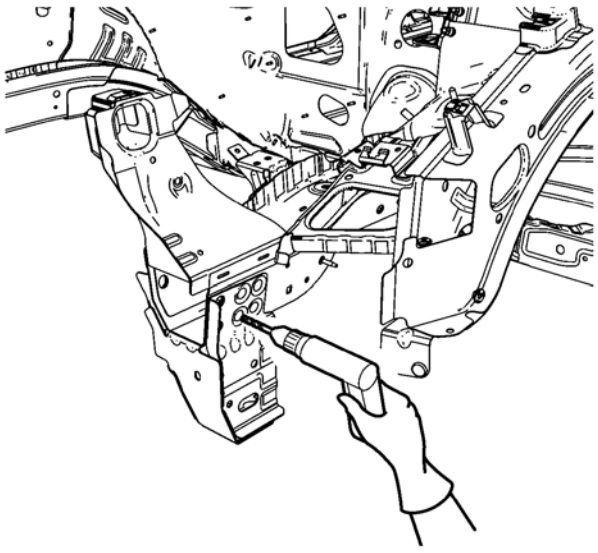
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

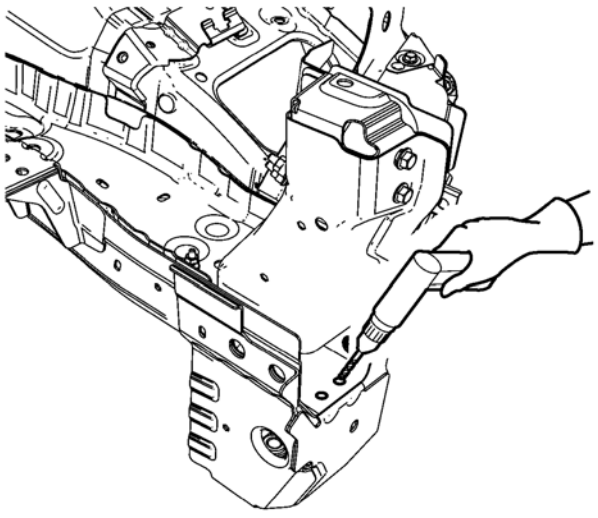
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



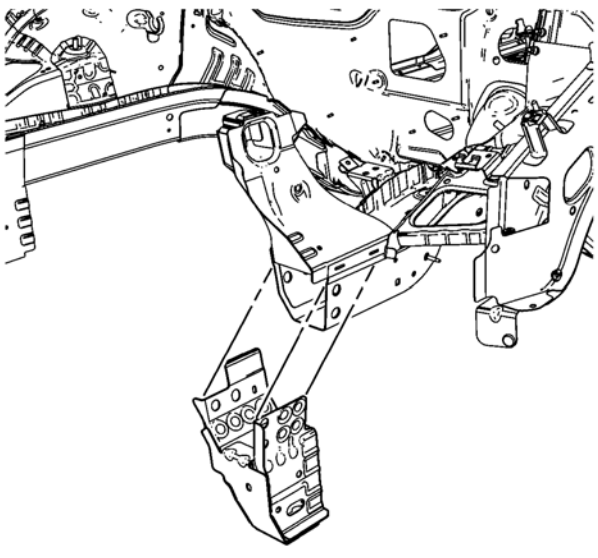
6. Locate and mark all the necessary factory welds and weld seams of the drivetrain and front suspension frame front support.



7. Drill out front flange of front suspension support frame from above through the front compartment side rail.

   Note: Create slots for MIG-Brazing out of drill holes.

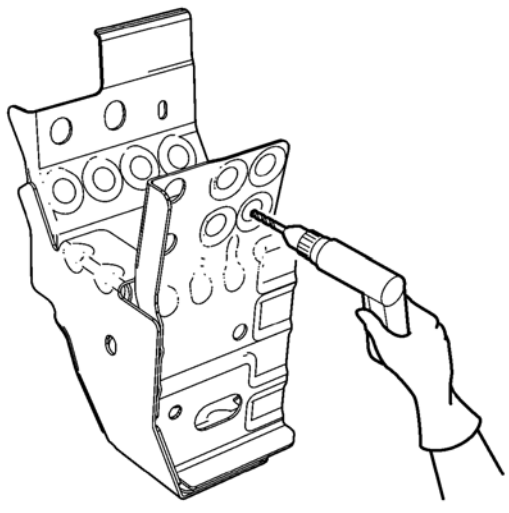
8. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



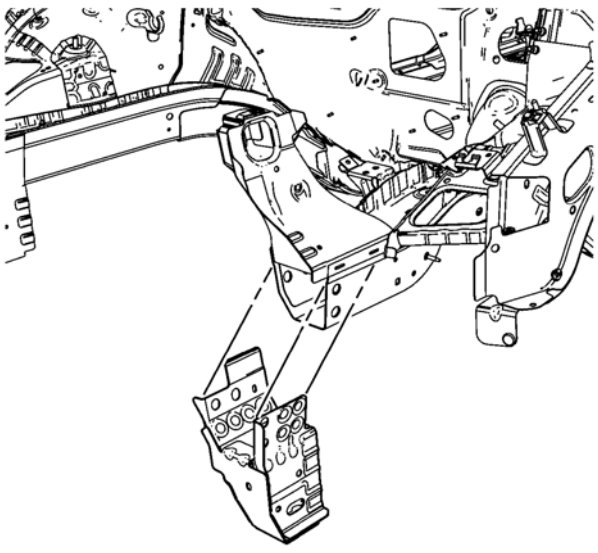
9. Remove the drivetrain and front suspension frame front support.

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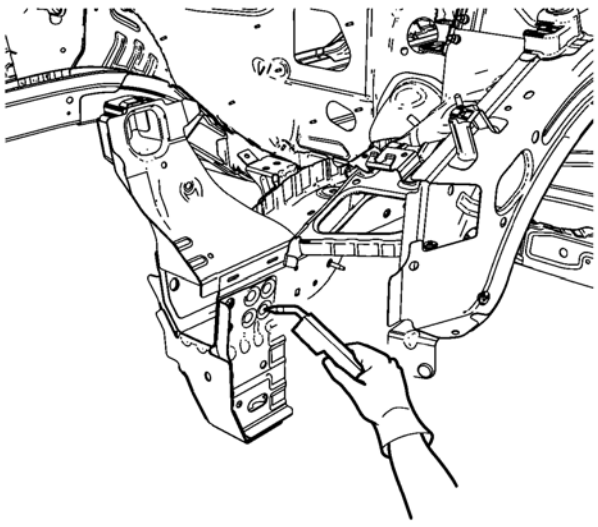
Installation Procedure



1. Create 8 x 14 mm (5/16 x 15/16 in) slots for MIG-Brazing along the edges of the drivetrain and front suspension frame front support as noted from the original panel.
2. Clean and prepare the attaching surfaces for brazing.

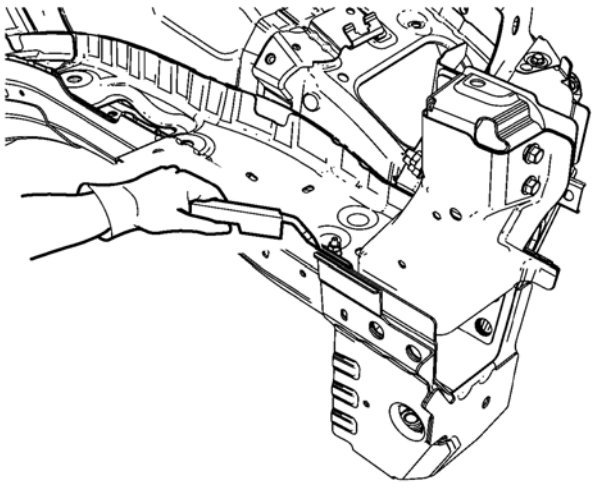


3. Position the drivetrain and front suspension frame front support on the vehicle.
4. Verify the fit of the drivetrain and front suspension frame front support.
5. Clamp the drivetrain and front suspension frame front support into position.



6. Braze accordingly.

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7. Braze seam as noted from the original panel from the drivetrain and front suspension frame front support to the front compartment side rail.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Front Wheelhouse Front Panel Replacement (MAG-Welding)

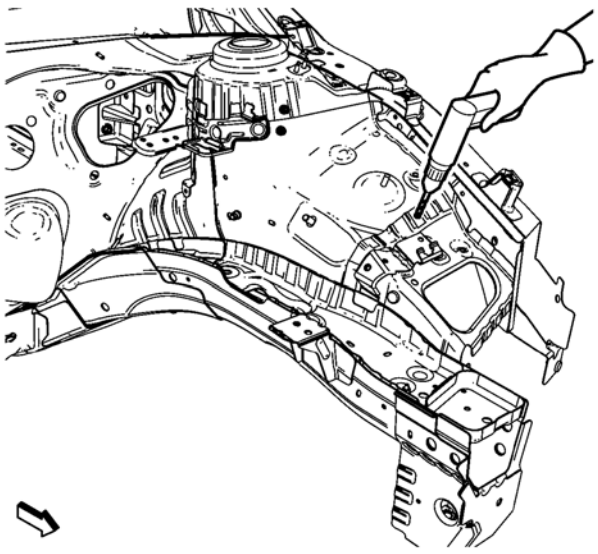
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

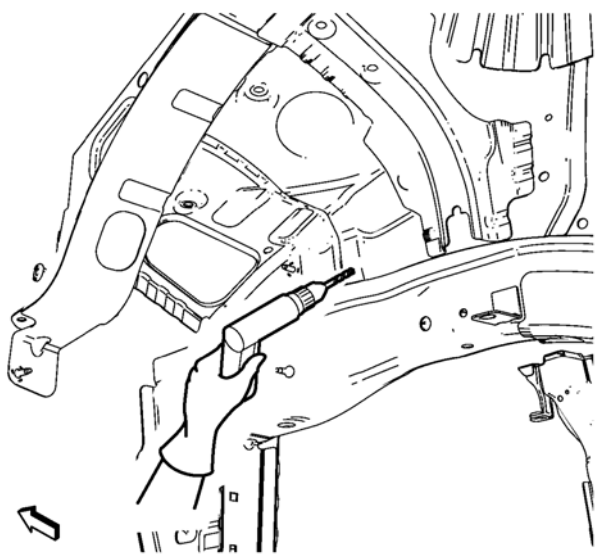
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

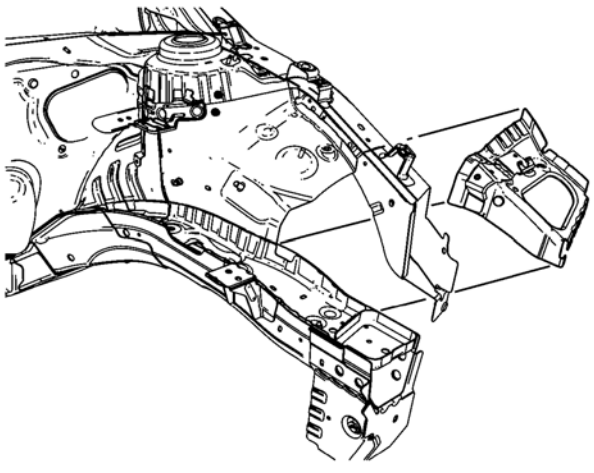
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



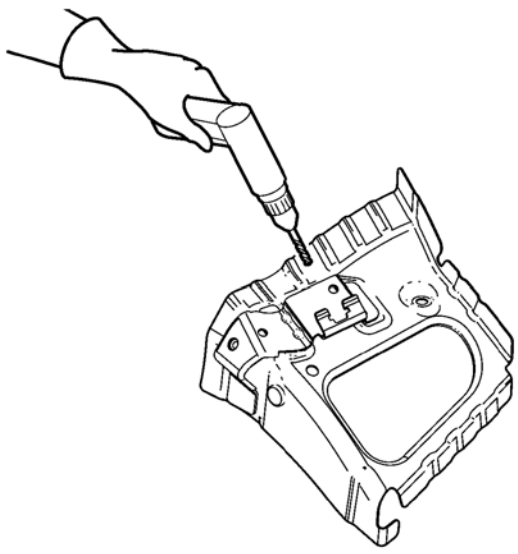
8. Drill hidden factory weld where front wheelhouse front panel and front wheelhouse overlap.



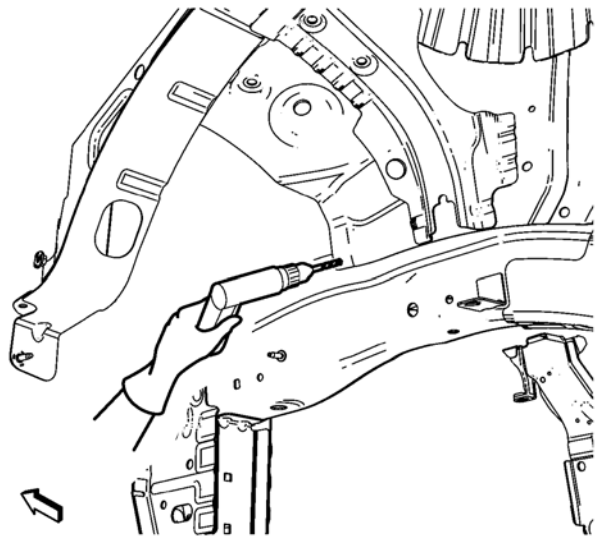
9. Remove the front wheelhouse front panel.

Installation Procedure

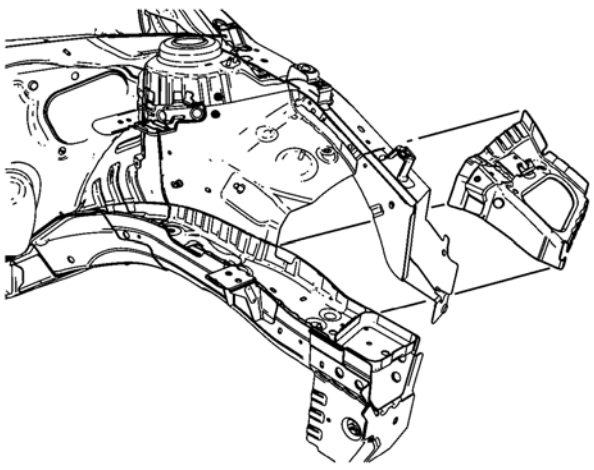
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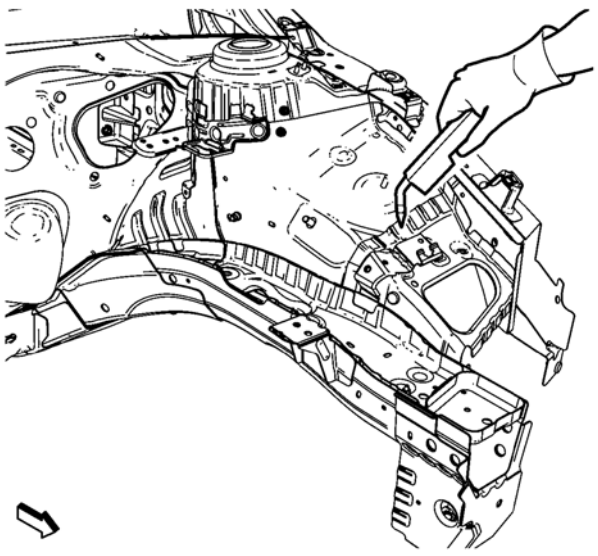
1. Drill 8 mm (5/16 in) for plug welding along the edges of the front wheelhouse front panel as noted from the original panel.



2. Drill 8 mm (5/16 in) for plug welding where front wheelhouse front panel and front wheelhouse overlap.
3. Clean and prepare the attaching surfaces for welding.

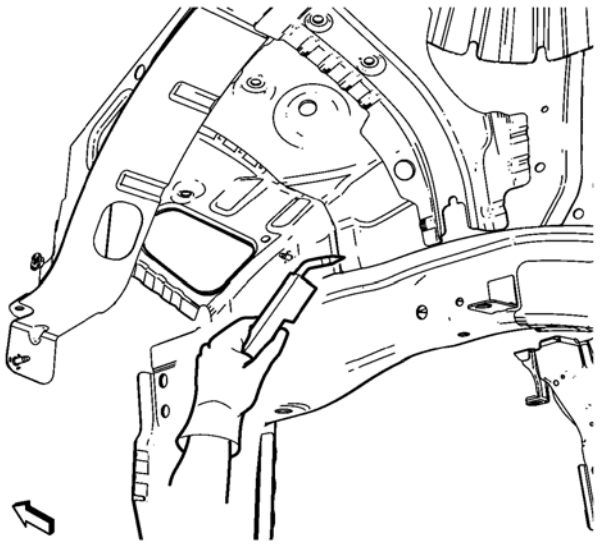


4. Position the front wheelhouse front panel on the vehicle.
5. Verify the fit of the front wheelhouse front panel.
6. Clamp the front wheelhouse front panel into position.



7. Plug weld accordingly.

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

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Front Wheelhouse Front Panel Replacement (MIG-Brazing)

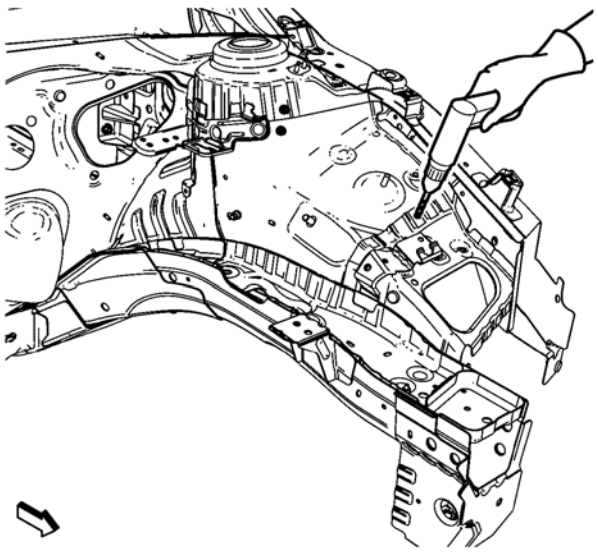
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

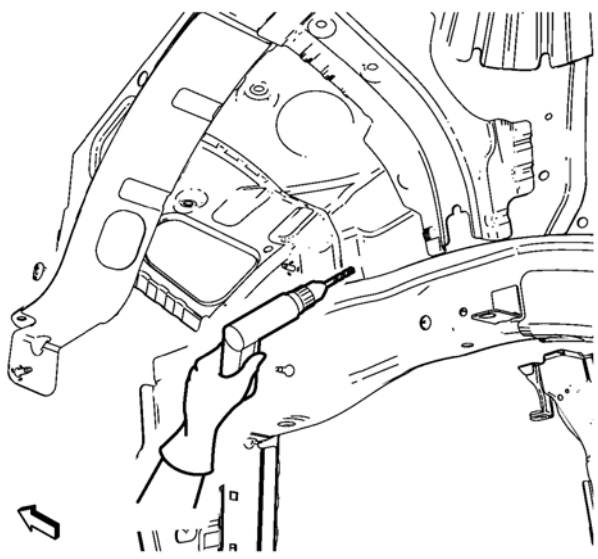
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

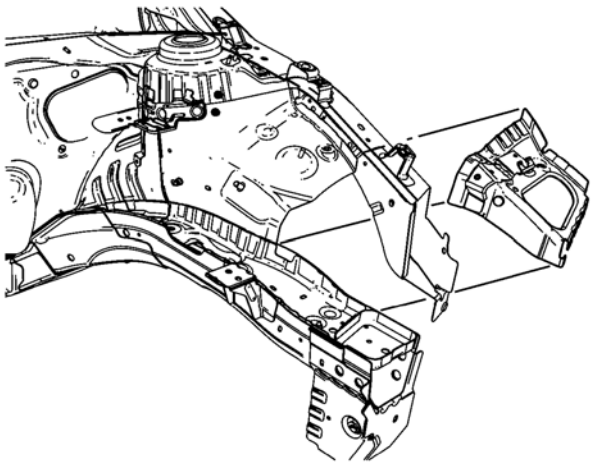
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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.
7. Drill all factory welds.



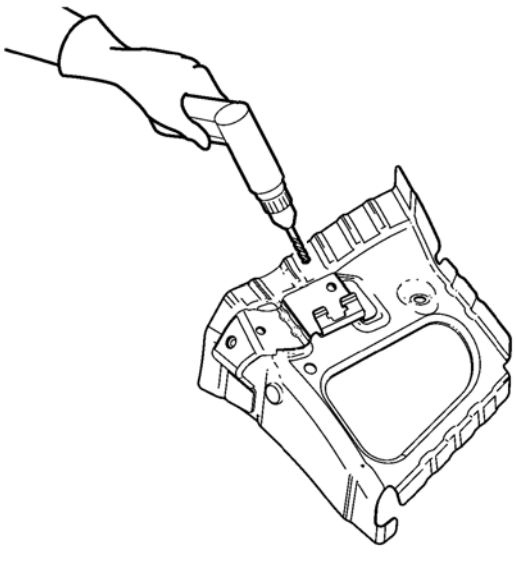
8. Drill hidden factory weld where front wheelhouse front panel and front wheelhouse overlap.



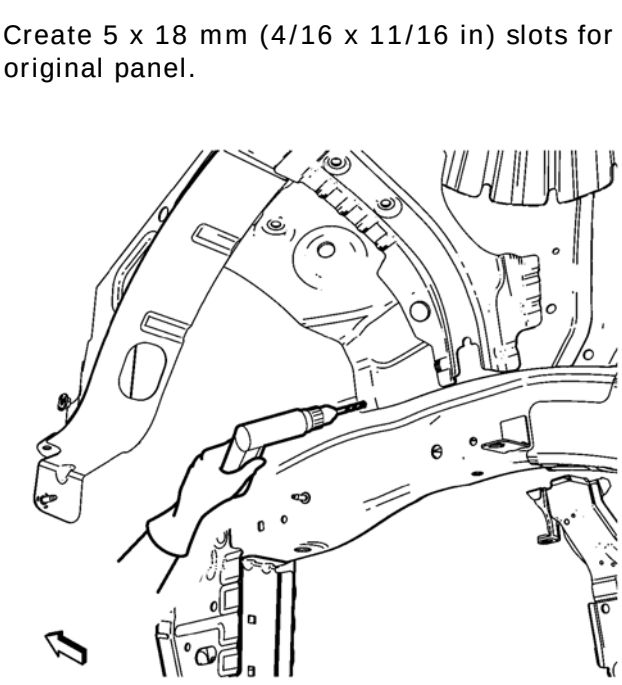
9. Remove the front wheelhouse front panel.

Installation Procedure

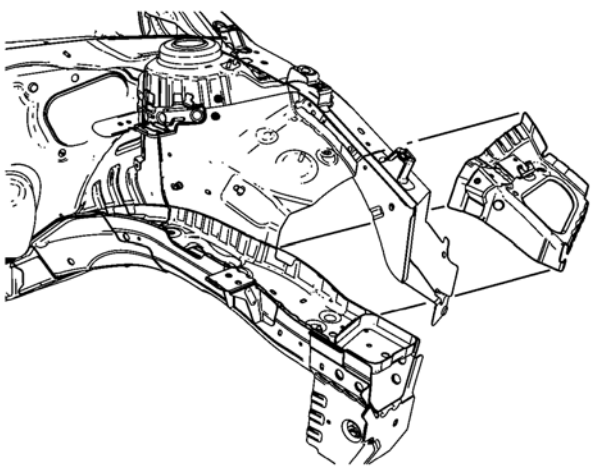
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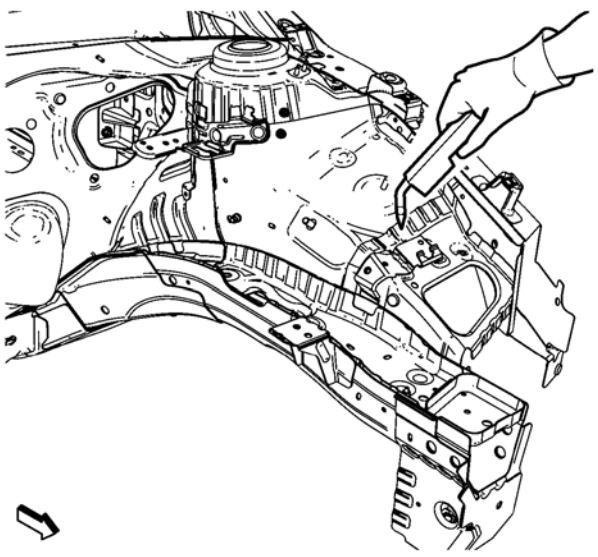
1. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-Brazing along the edges of the front wheelhouse front panel as noted from the original panel.



2. Create a 5 x 18 mm (4/16 x 11/16 in) slot for MIG-Brazing where front wheelhouse front panel and front wheelhouse overlap.
3. Clean and prepare the attaching surfaces for brazing.

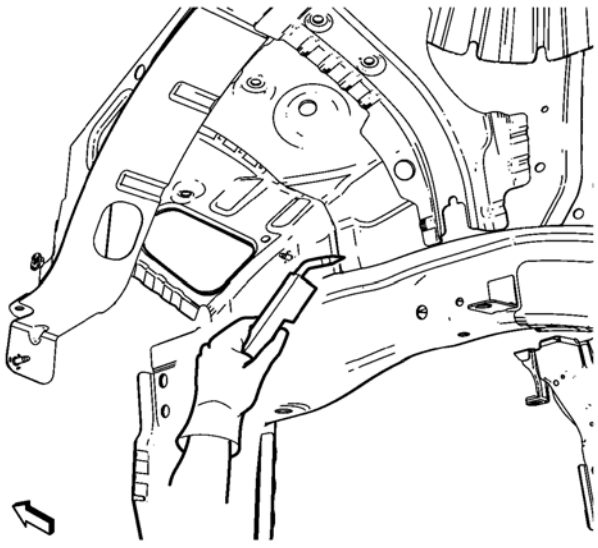


4. Position the front wheelhouse front panel on the vehicle.
5. Verify the fit of the front wheelhouse front panel.
6. Clamp the front wheelhouse front panel into position.



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7. Braze accordingly.



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

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Front Wheelhouse Panel Replacement (MAG-Welding)

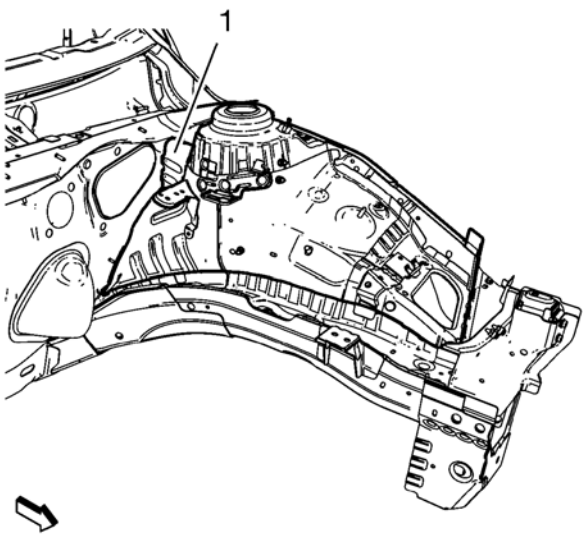
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

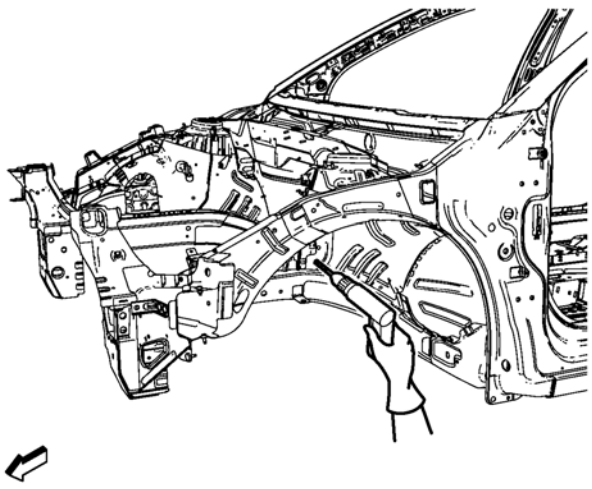
Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

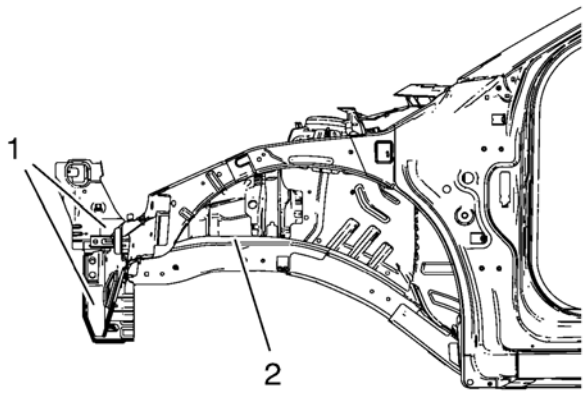


Note: Front wheelhouse rear panel brace (1) remains to the body.

6. Locate and mark all the necessary factory welds of the front wheelhouse.

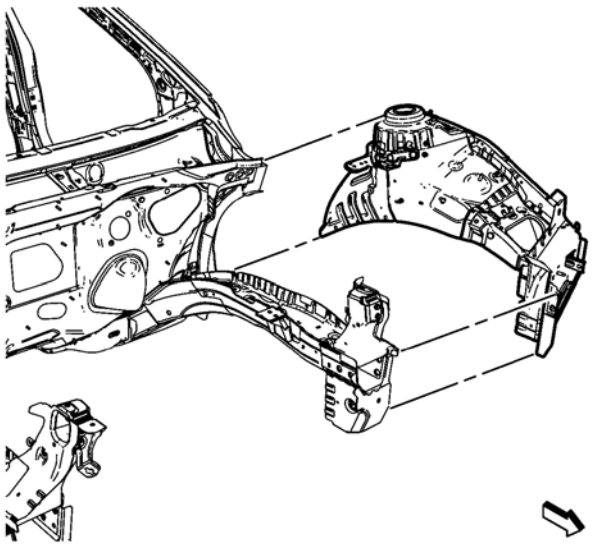


7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



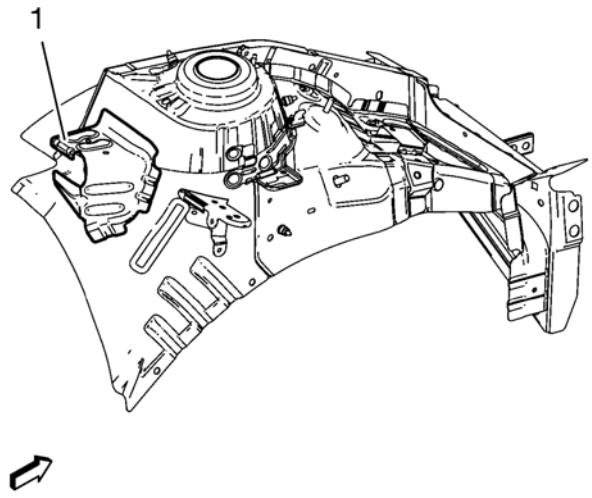
8. Cut the adhesive in the front area (1) and where the front wheelhouse and the front compartment side rail overlap (2) with an appropriate tool.

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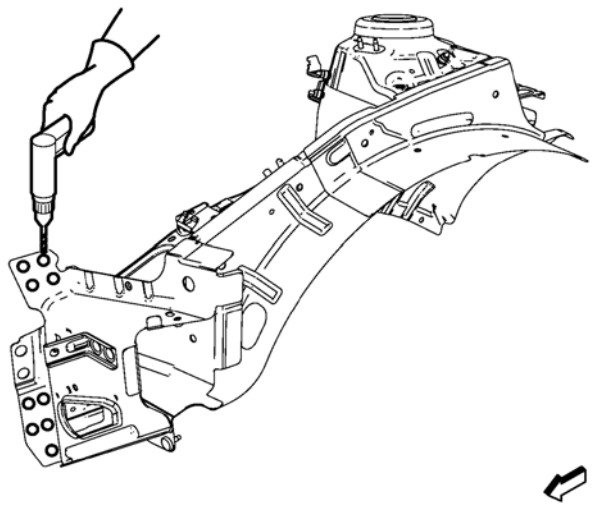


9. Remove the front wheelhouse.

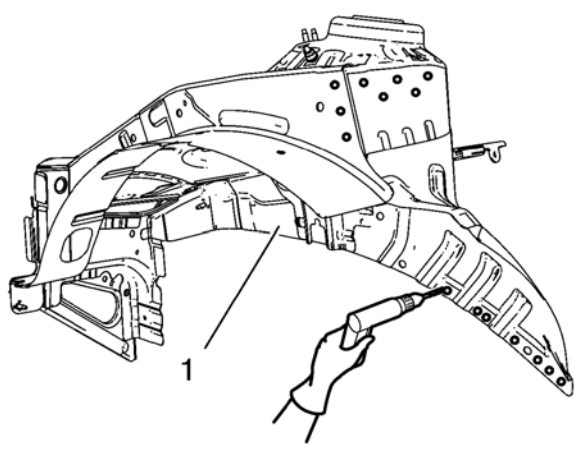
Installation Procedure



1. Remove the front wheelhouse rear panel brace (1) from service panel.



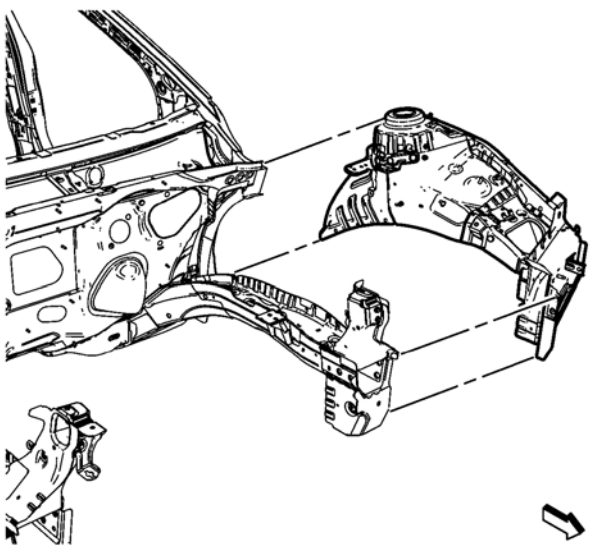
2. Drill 8 mm (5/16 in) for plug welding instead of the adhesive noted from the front area of the original panel.



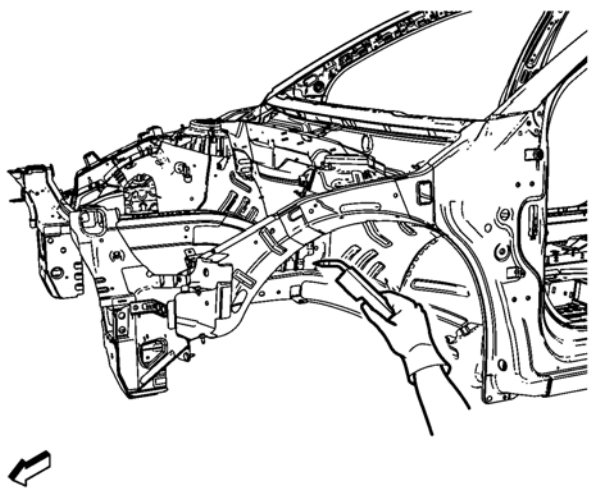
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Note: Double the number of drills at the flange where front wheelhouse panel and front compartment side rail overlap (1).

3. Drill 8 mm (5/16 in) for plug welding along the edges of the front wheelhouse as noted from the original panel.
4. Clean and prepare the attaching surfaces for welding.



5. Position the front wheelhouse on the vehicle.
6. Verify the fit of the front wheelhouse.
7. Clamp the front wheelhouse into position.



8. Plug weld accordingly.
9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
10. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Front Wheelhouse Panel Replacement (MIG-Brazing)

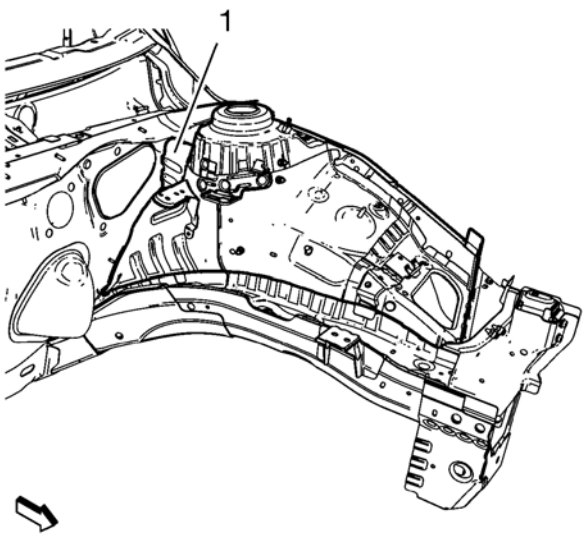
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

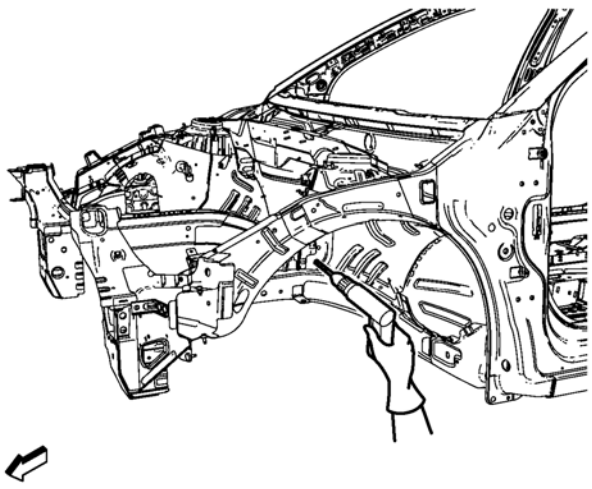
Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

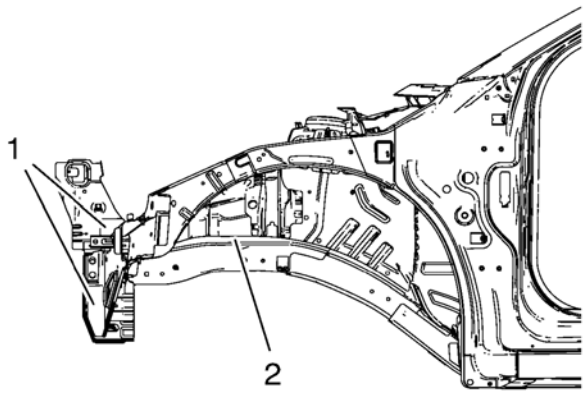


Note: Front wheelhouse rear panel brace (1) remains to the body.

6. Locate and mark all the necessary factory welds of the front wheelhouse.

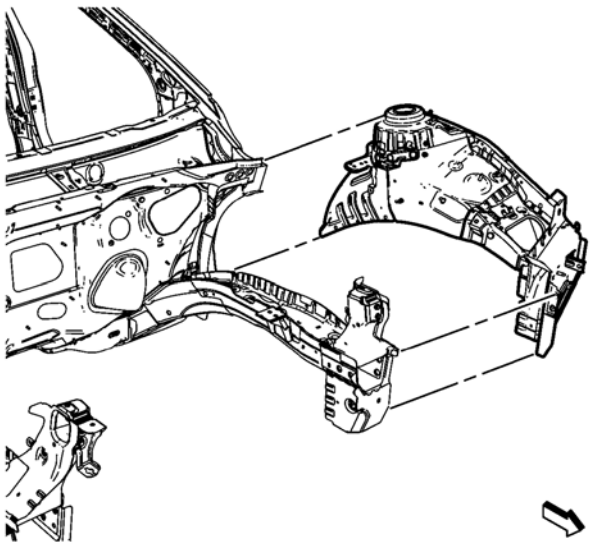


7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



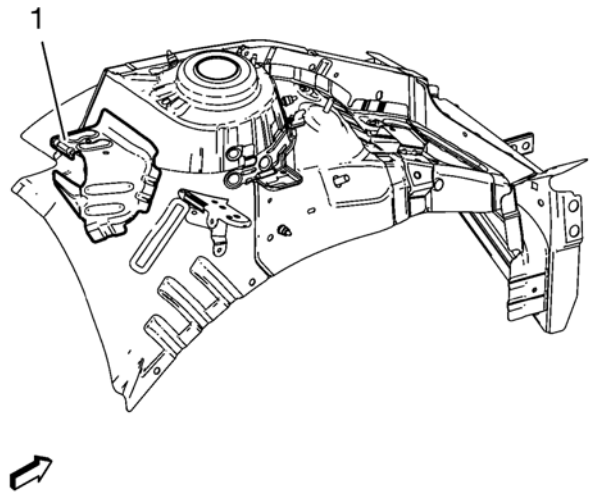
8. Cut the adhesive in the front area (1) and where the front wheelhouse and the front compartment side rail overlap (2) with an appropriate tool.

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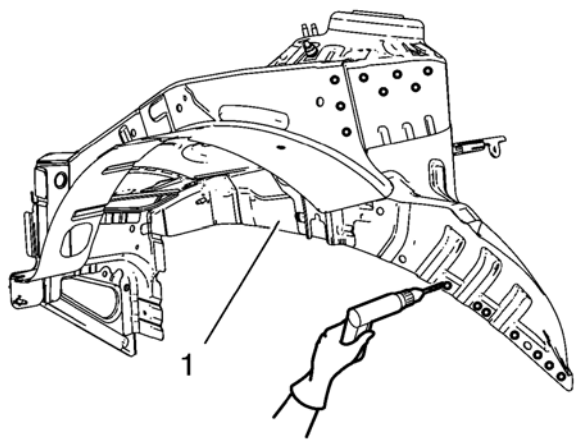


9. Remove the front wheelhouse.

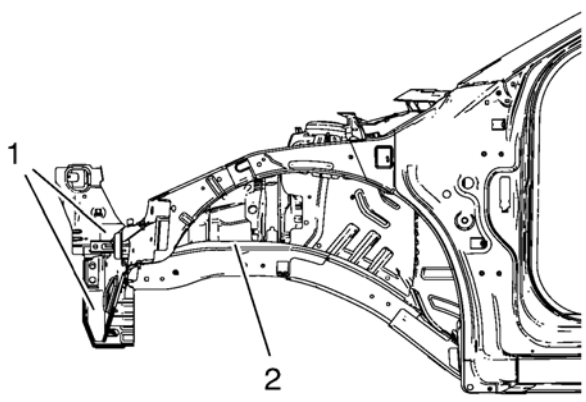
Installation Procedure



1. Remove the front wheelhouse rear panel brace (1) from service panel.



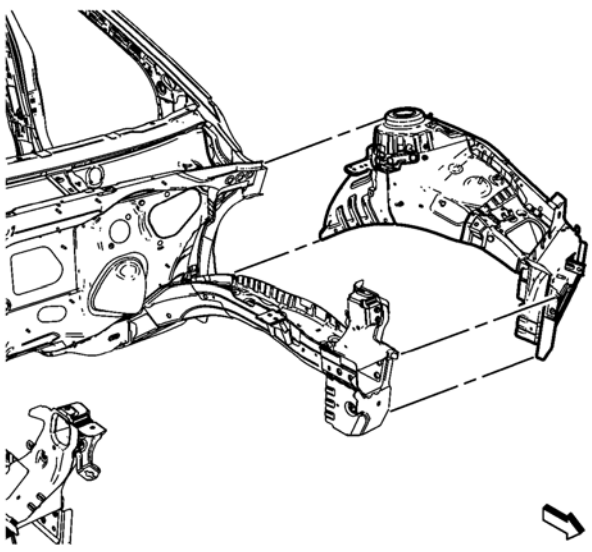
2. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing along the edges of the front wheelhouse (1).
3. Clean and prepare the attaching surfaces for brazing.



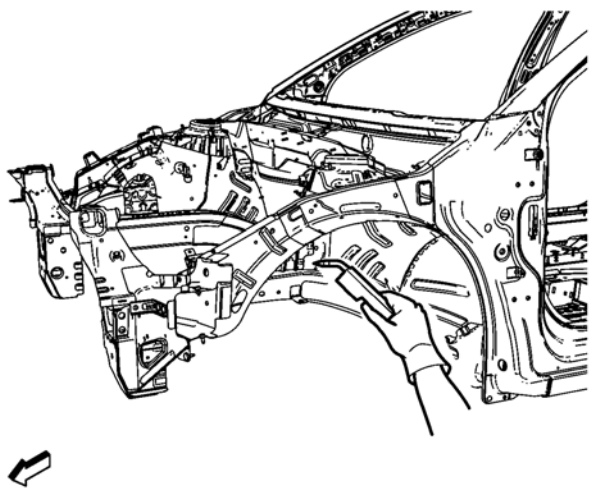
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Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

4. Apply structural adhesive on the front area (1) and create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing where the front wheelhouse and the front compartment side rail overlap (2).



5. Position the front wheelhouse on the vehicle.
6. Verify the fit of the front wheelhouse.
7. Clamp the front wheelhouse into position.



8. Braze accordingly.
9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
10. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Front Wheelhouse Panel Rear Reinforcement Replacement (MAG-Welding)

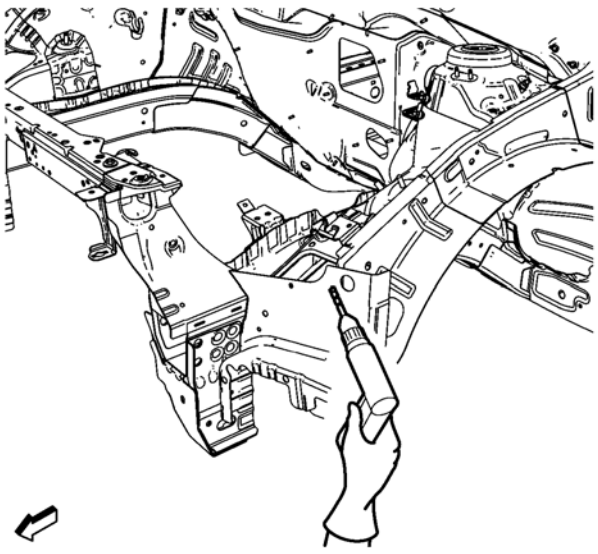
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

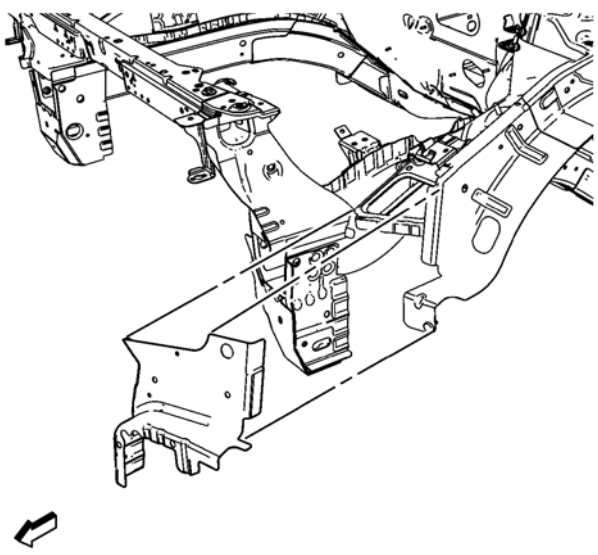
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

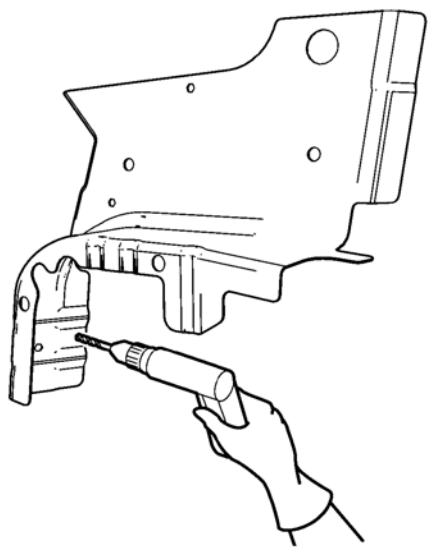


6. Locate and mark all the necessary factory welds of the front wheelhouse panel rear reinforcement.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



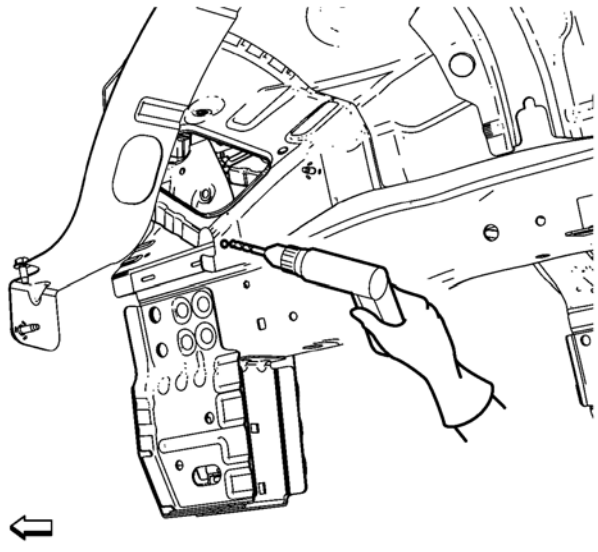
8. Remove the front wheelhouse panel rear reinforcement.

Installation Procedure

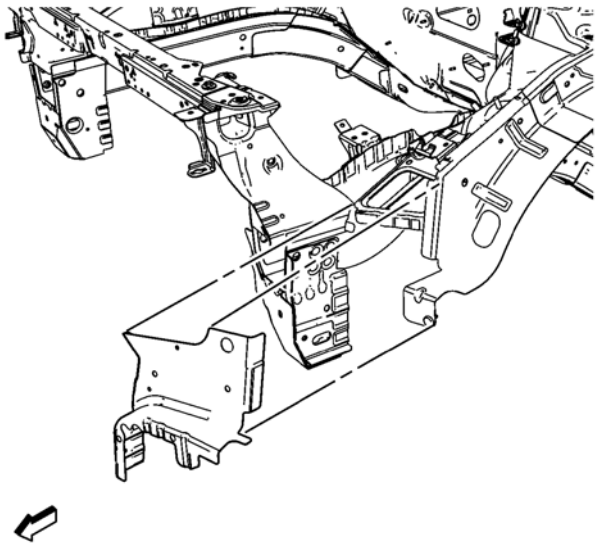


1. Drill 8 mm (5/16 in) for plug welding along the edges of the front wheelhouse panel rear reinforcement as noted from the original panel.

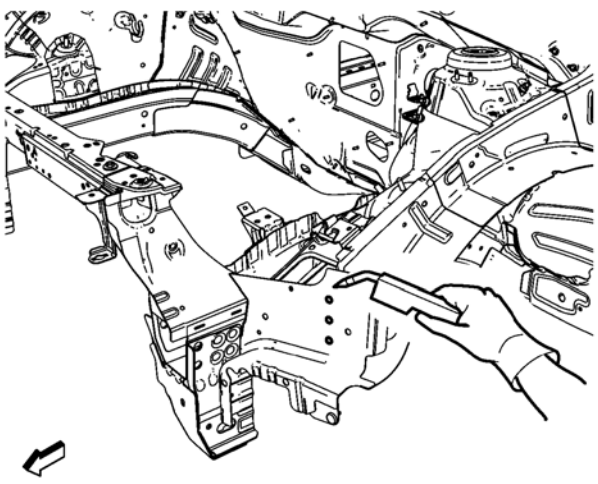
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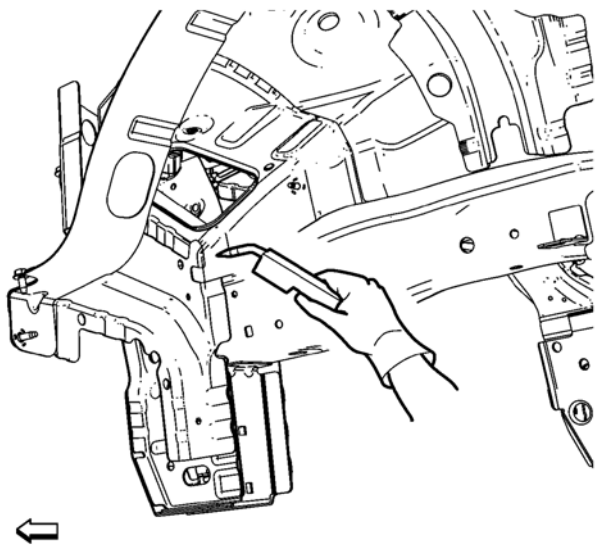
2. Drill 8 mm (5/16 in) for plug welding where front wheelhouse front panel and front wheelhouse panel rear reinforcement overlap.
3. Clean and prepare the attaching surfaces for welding.



4. Position the front wheelhouse panel rear reinforcement 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 accordingly.



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

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9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
10. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Front Wheelhouse Panel Rear Reinforcement Replacement (MIG-Brazing)

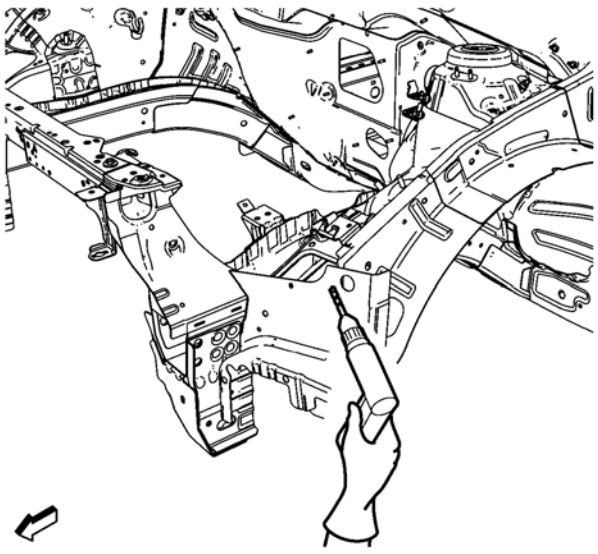
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

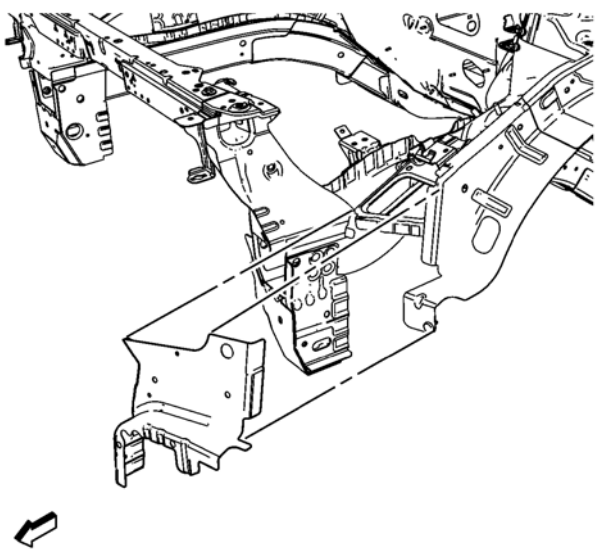
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

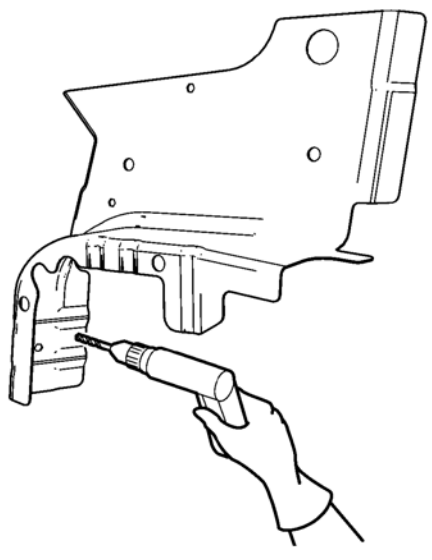


6. Locate and mark all the necessary factory welds of the front wheelhouse panel rear reinforcement.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



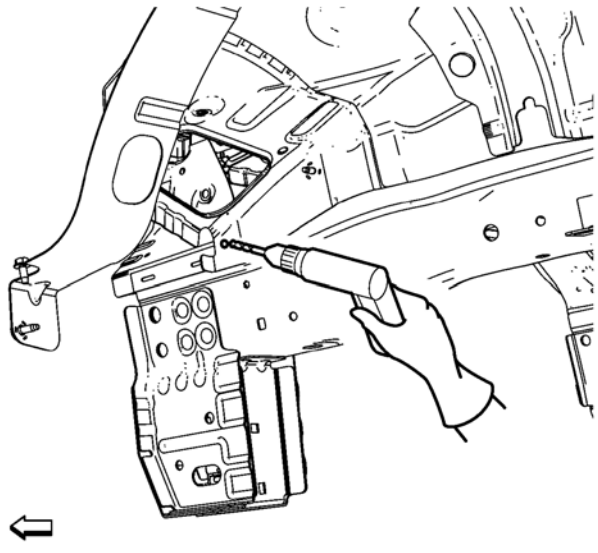
8. Remove the front wheelhouse panel rear reinforcement.

Installation Procedure

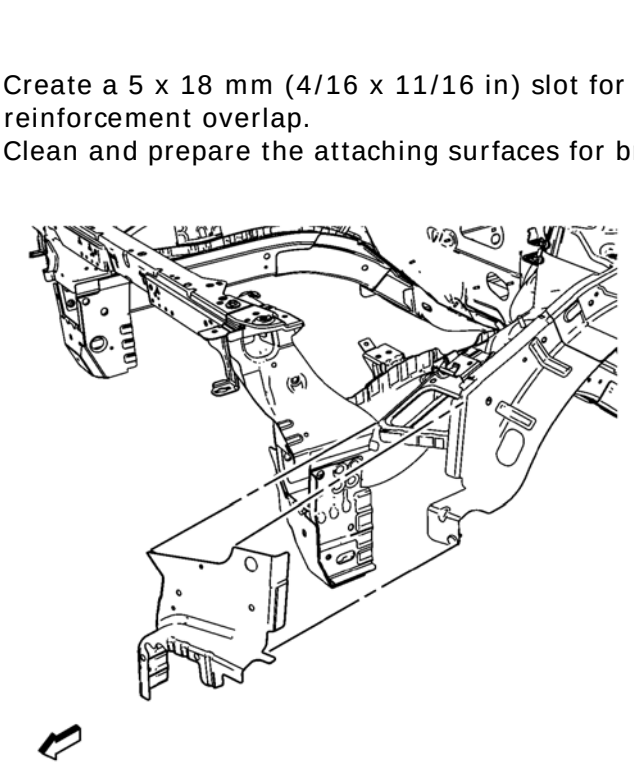


1. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-Brazing along the edges of the front wheelhouse panel rear reinforcement as noted from the original panel.

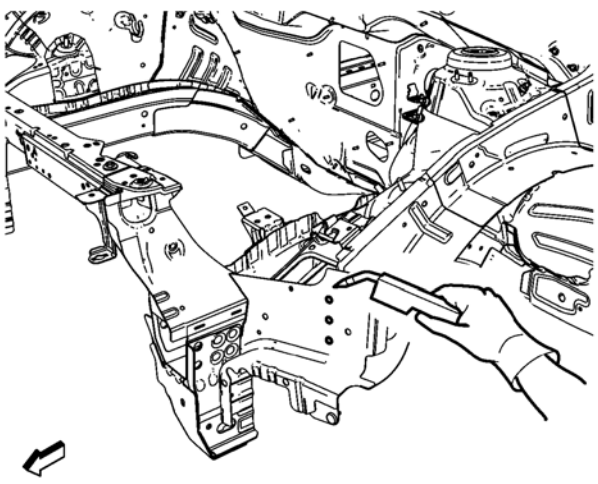
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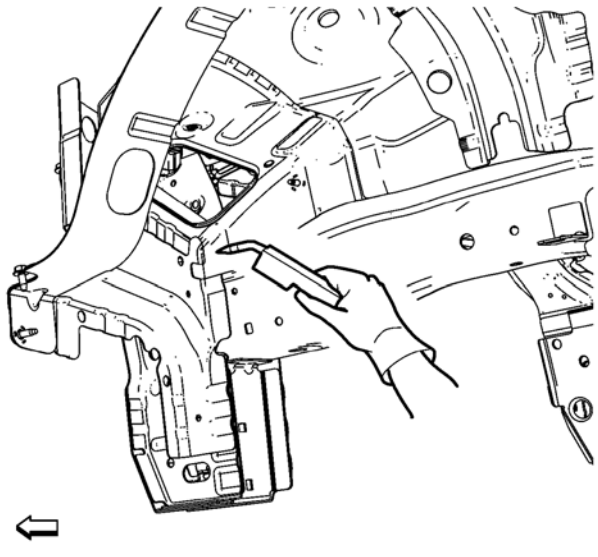
2. Create a 5 x 18 mm (4/16 x 11/16 in) slot for MIG-Brazing where front wheelhouse front panel and front wheelhouse panel rear reinforcement overlap.
3. Clean and prepare the attaching surfaces for brazing.



4. Position the front wheelhouse panel rear reinforcement 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. Braze accordingly.



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

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Front Compartment Upper Side Rail Replacement (MAG-Welding)

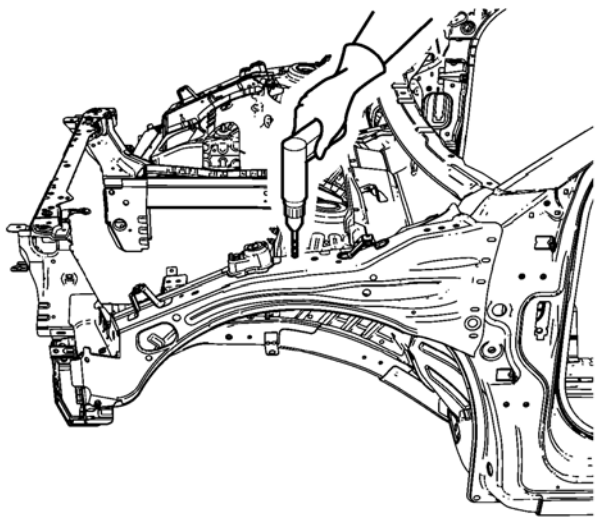
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

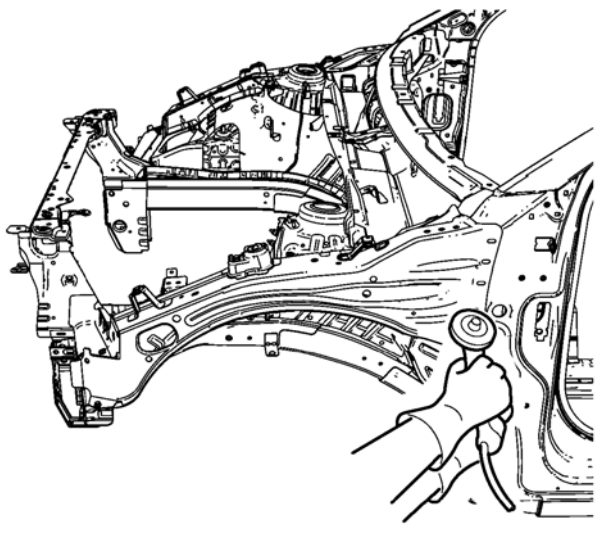
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

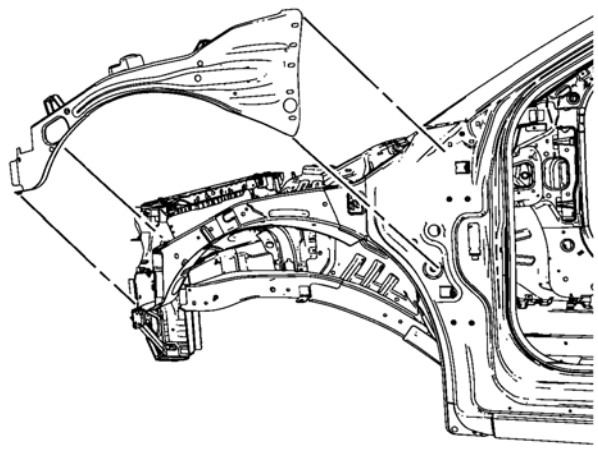
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



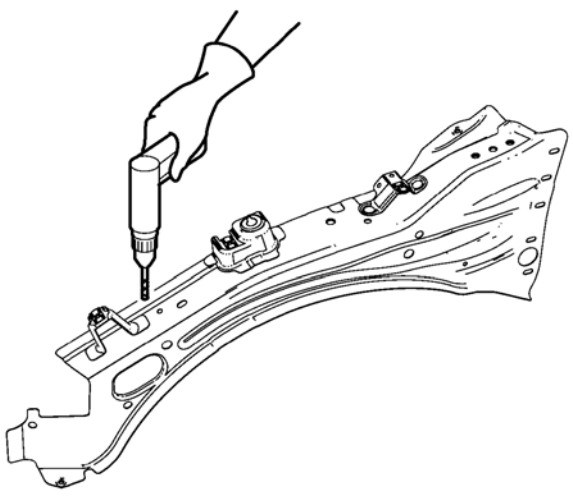
8. Grind factory weld seams.



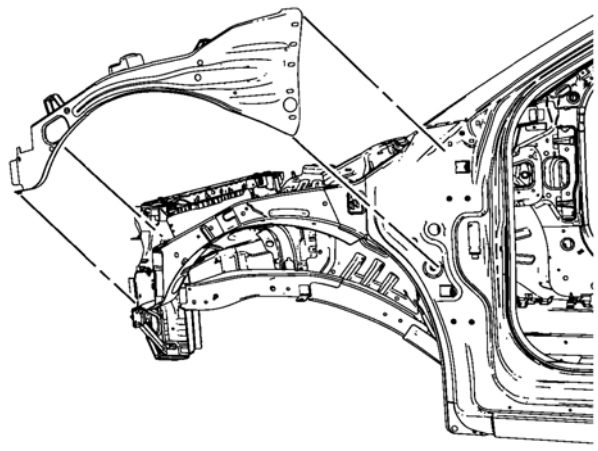
9. Remove the front compartment upper side rail.

Installation Procedure

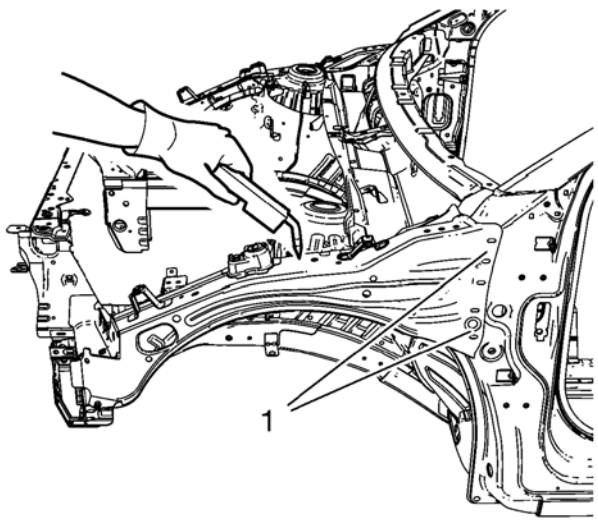
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1. Drill 8 mm (5/16 in) for plug welding along the edges of the front compartment upper side rail as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.



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 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.

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Front Compartment Upper Side Rail Replacement (MIG-Brazing)

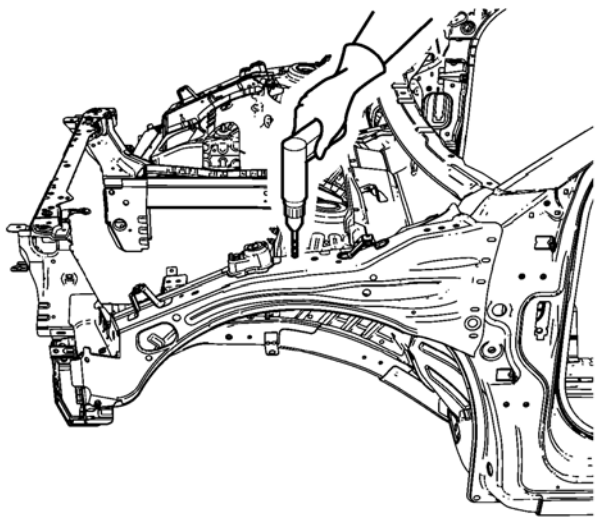
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

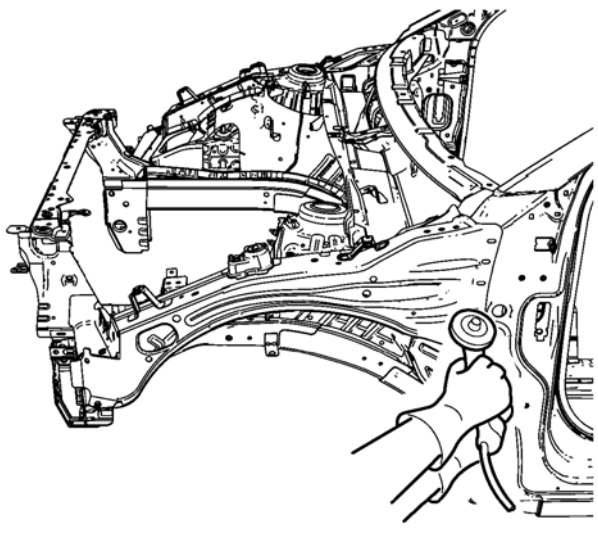
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

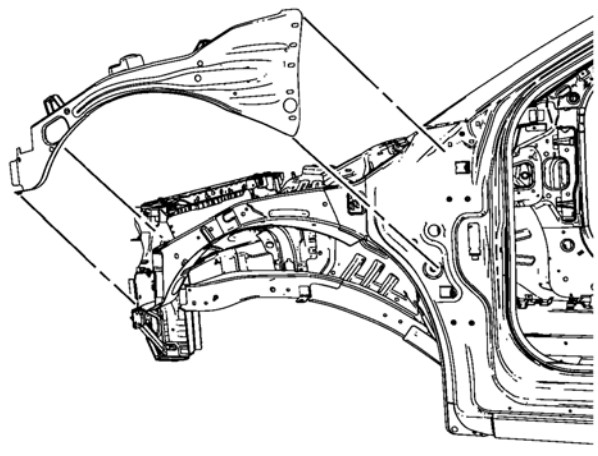
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



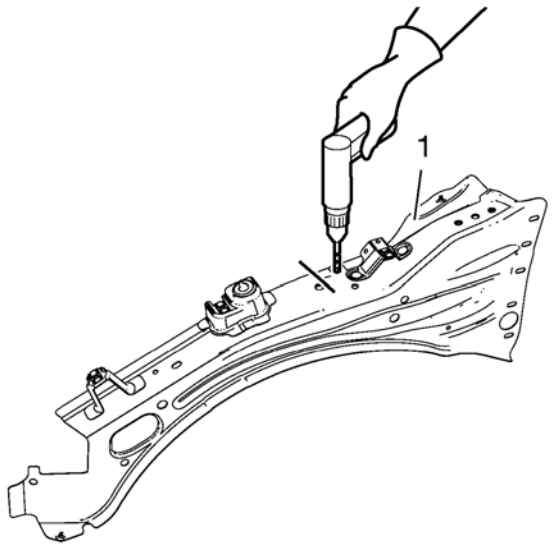
8. Grind factory weld seams.



9. Remove the front compartment upper side rail.

Installation Procedure

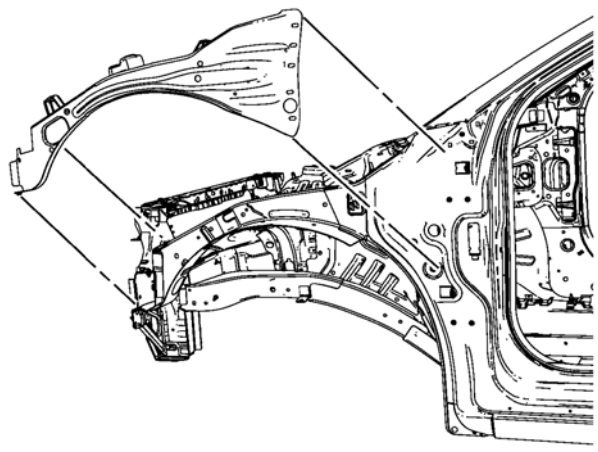
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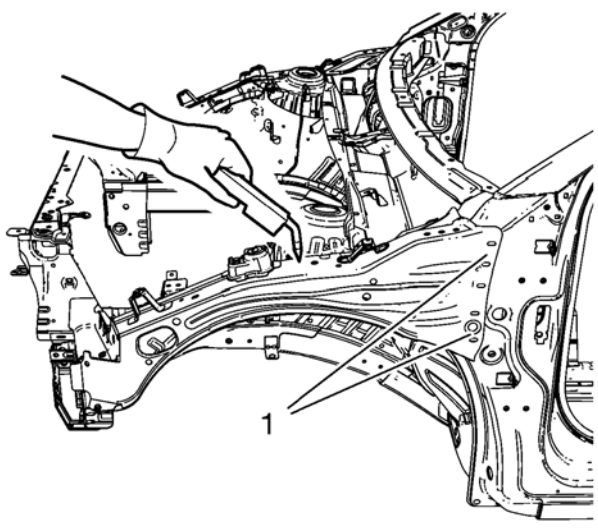
1. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing (1).
2. Clean and prepare the attaching surfaces for spot welding and brazing.

Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

3. Apply structural adhesive to all attaching surfaces.



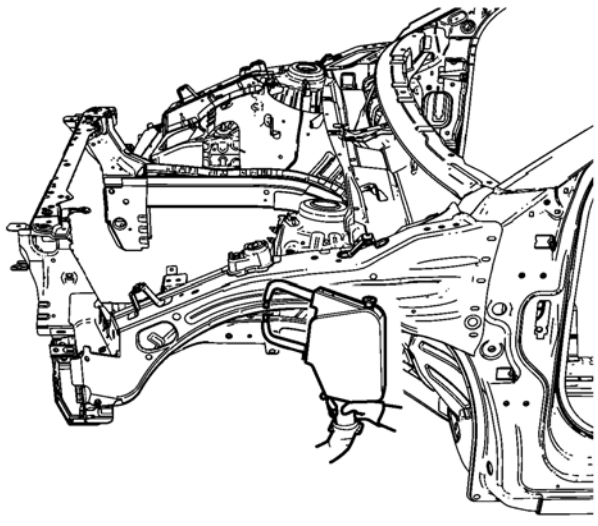
4. Position the front compartment upper side rail on the vehicle.
5. Verify the fit of the front compartment upper side rail.
6. Clamp the front compartment upper side rail into position.



Note: MIG-braze factory slots in the front hinge pillar body area (1) as noted from the original panel.

7. Braze accordingly.

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8. Spot weld accordingly.
9. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
10. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Front Compartment Upper Side Rail Sectioning (MAG-Welding)

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

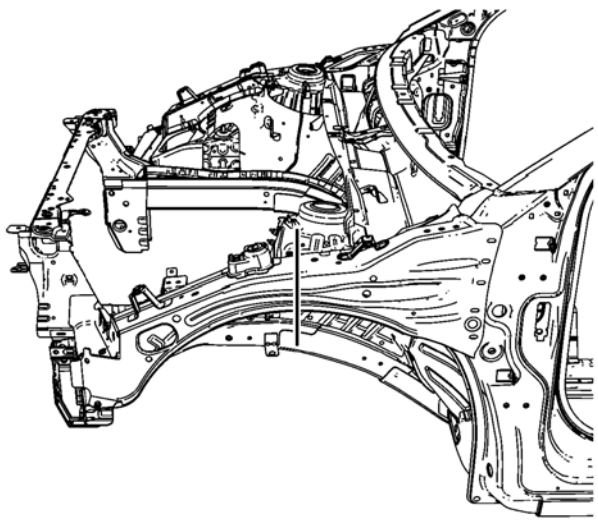
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

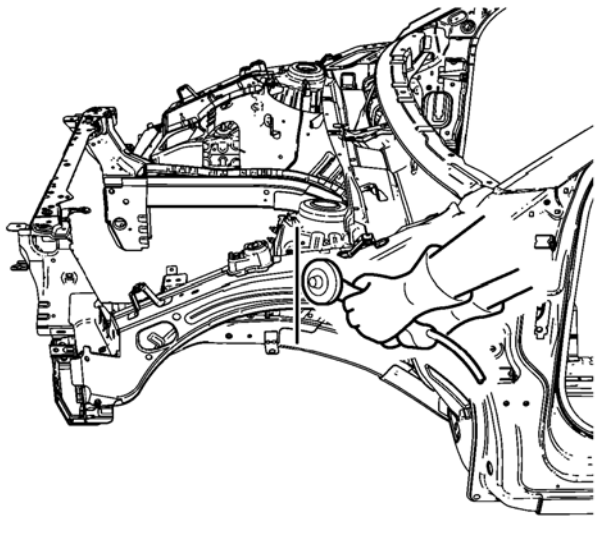
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

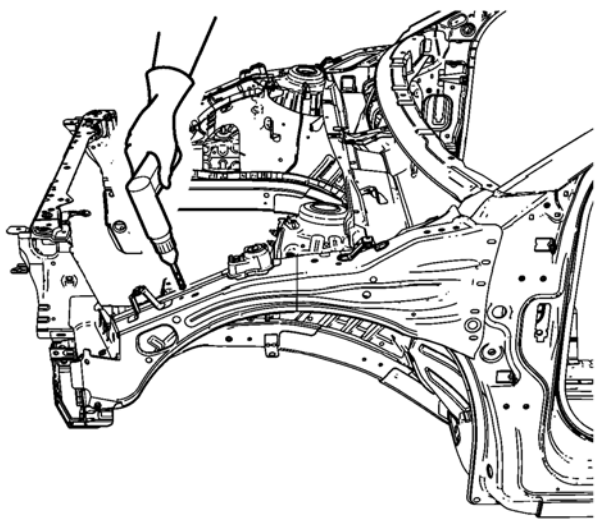


6. Create cut lines on the front compartment upper side rail.



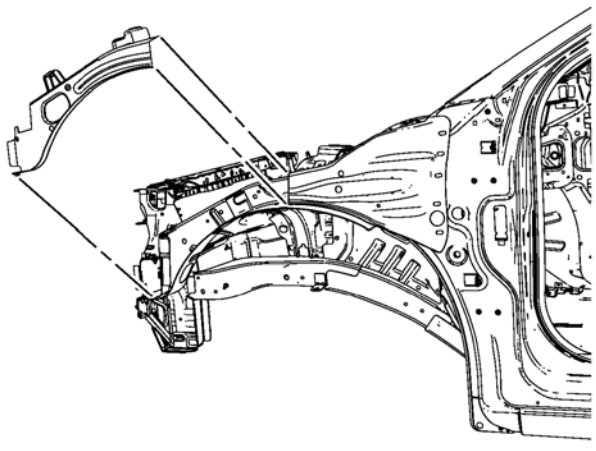
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



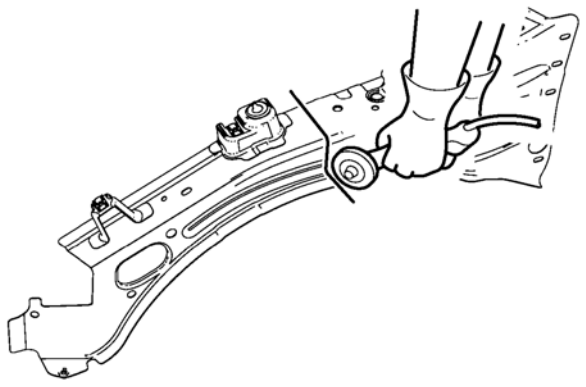
8. Locate and mark all the necessary factory welds of the front compartment upper side rail.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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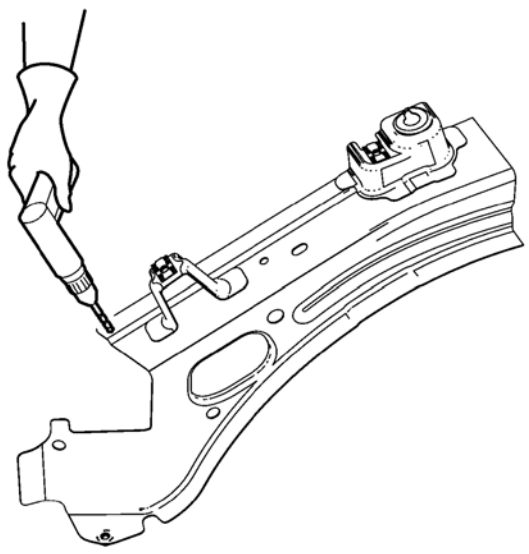


10. Remove the damaged front compartment upper side rail.

Installation Procedure

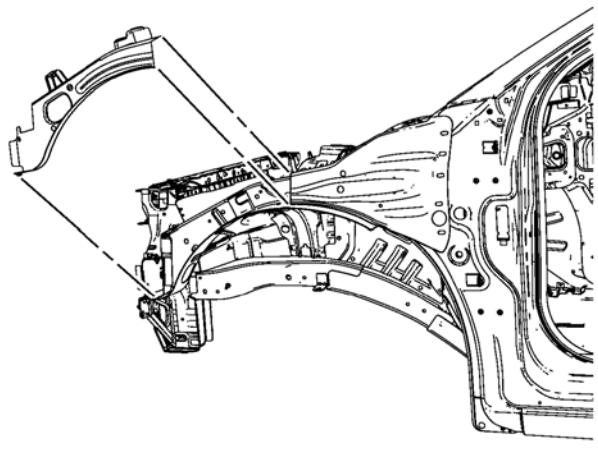


1. Cut the front compartment upper side rail in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the 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 compartment upper side rail.

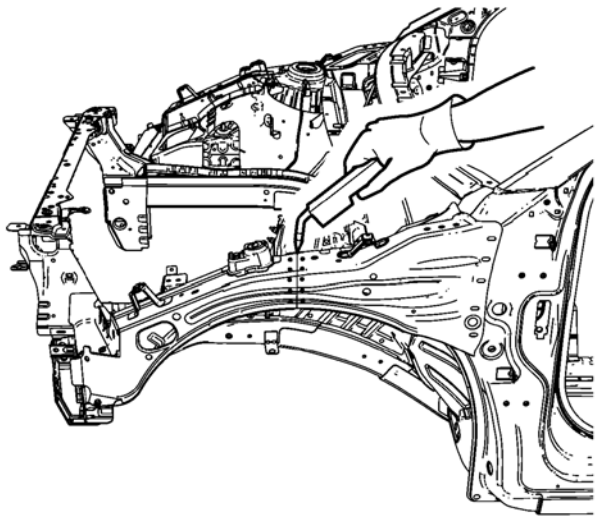


7. Drill 8 mm (5/16 in) for plug welding along the edges of the front compartment upper side rail as noted from the original panel.
8. Clean and prepare the attaching surfaces for welding.

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9. Position the front compartment upper side rail on the vehicle.
10. Verify the fit of the front compartment upper side rail.
11. Clamp the front compartment upper side rail into position.



12. Plug weld 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.

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Front Compartment Upper Side Rail Sectioning (MIG-Brazing)

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

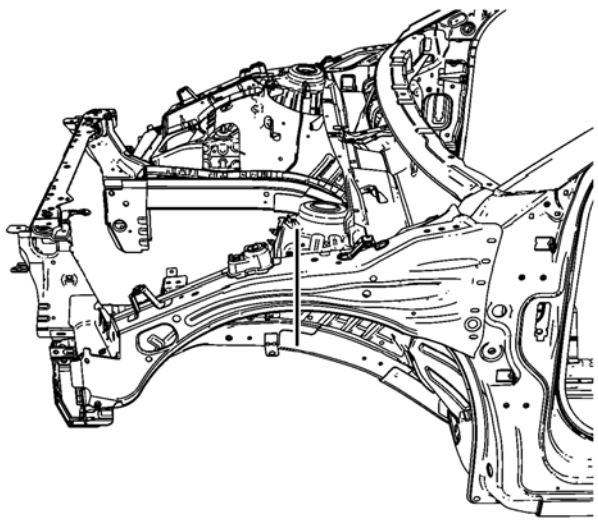
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

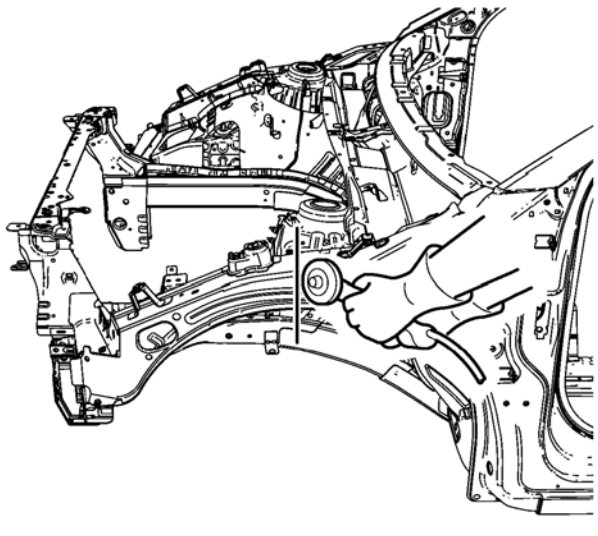
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

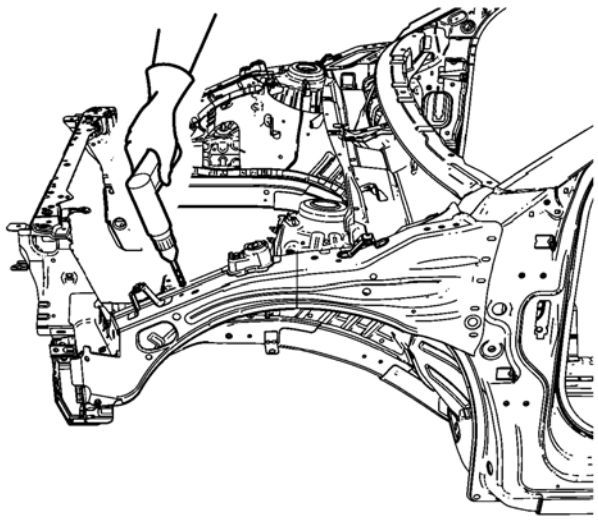


6. Create cut lines on the front compartment upper side rail.



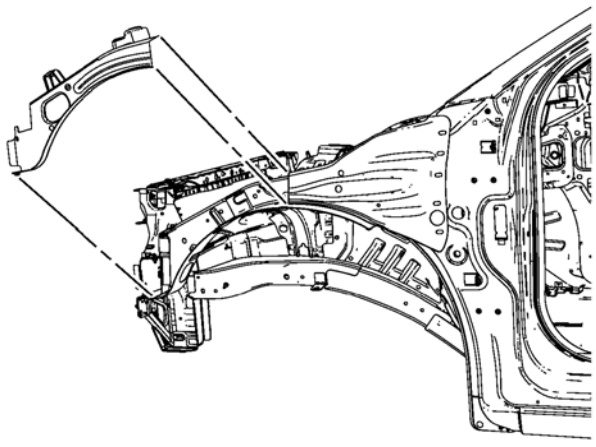
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



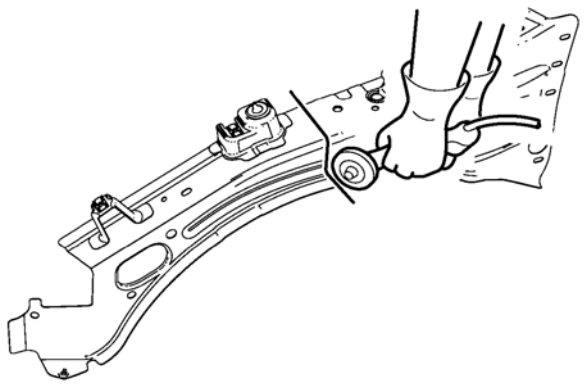
8. Locate and mark all the necessary factory welds of the front compartment upper side rail.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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10. Remove the damaged front compartment upper side rail.

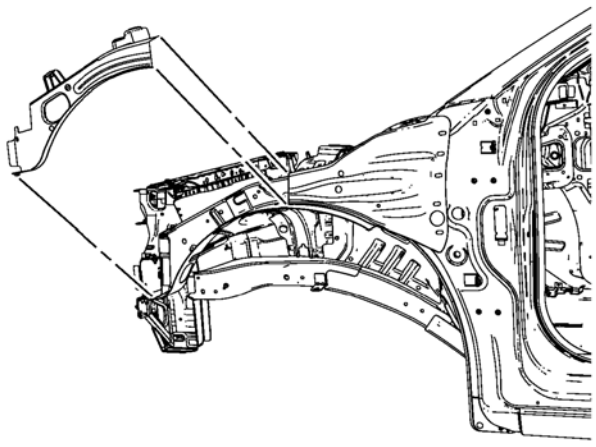
Installation Procedure



1. Cut the front compartment upper side rail 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. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing 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 braze to the vehicle.
6. Align the front compartment upper side rail.
7. Clean and prepare the attaching surfaces for spot welding and brazing.

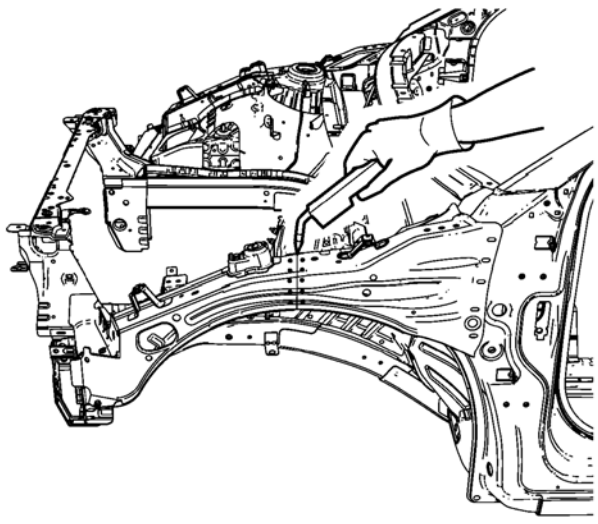
   Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

8. Apply structural adhesive to all attaching surfaces.

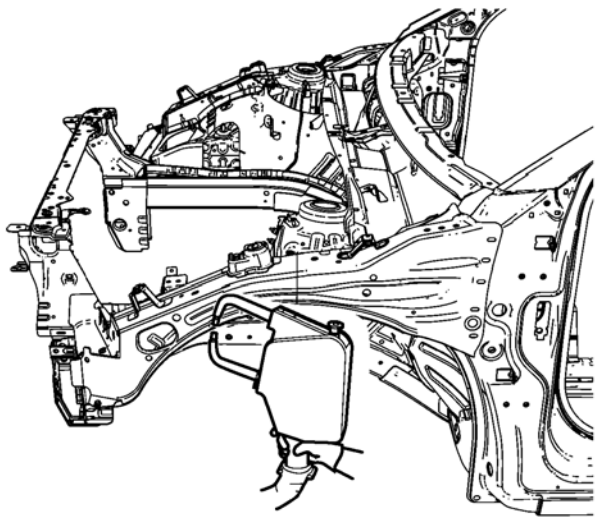


9. Position the front compartment upper side rail on the vehicle.
10. Verify the fit of the front compartment upper side rail.
11. Clamp the front compartment upper side rail into position.

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12. Braze accordingly.



13. Spot weld accordingly.
14. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the braze.
15. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
16. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
17. Install all related panels and components.
18. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
19. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Front Compartment Side Rail Sectioning (Long, MAG-Welding)

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

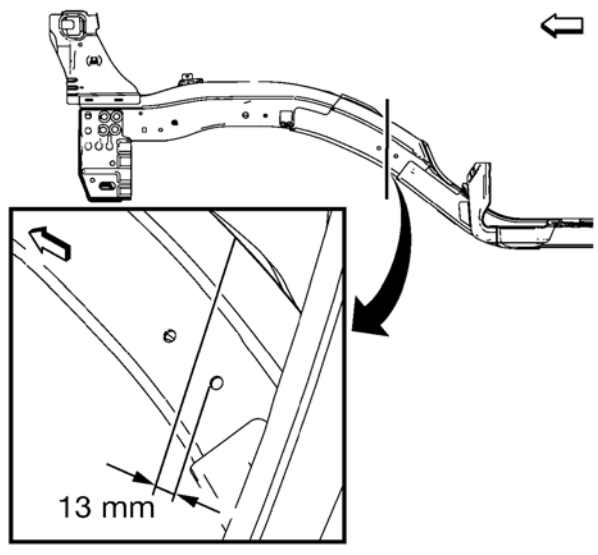
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

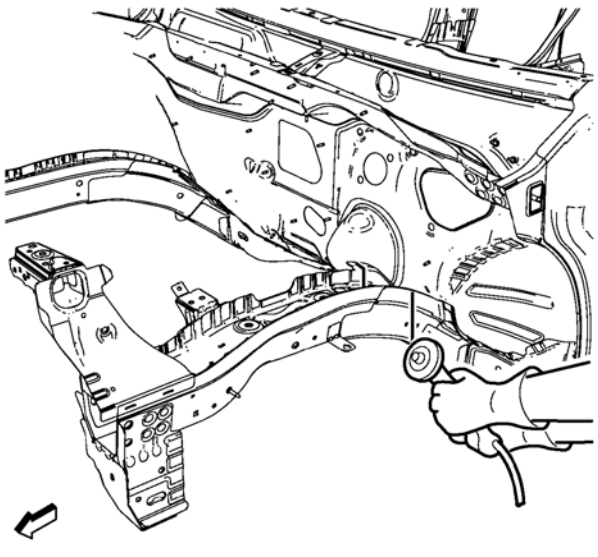
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

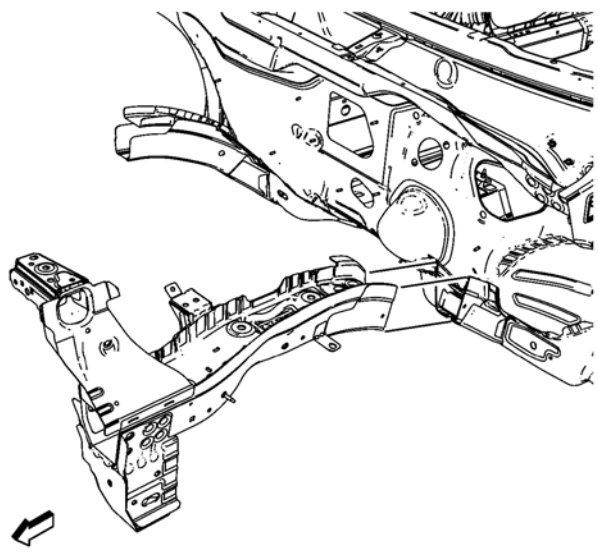


6. Create cut lines on the front compartment front rail.



Note: Do not damage any other panels or reinforcements.

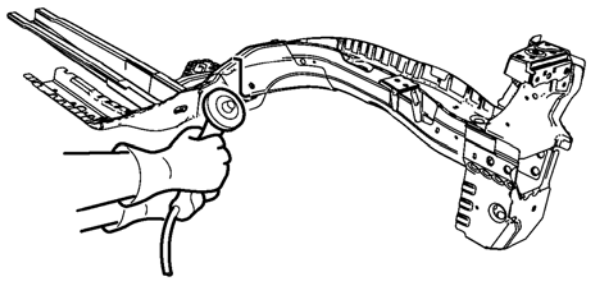
7. Cut the panel where sectioning is to be performed.



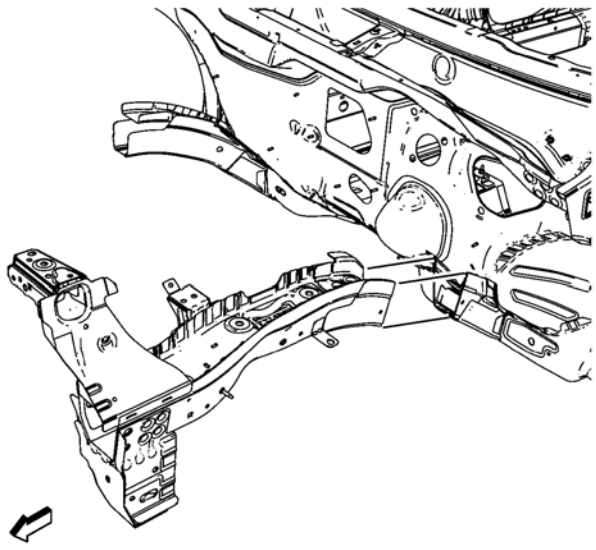
8. Remove the damaged front compartment front rail.

Installation Procedure

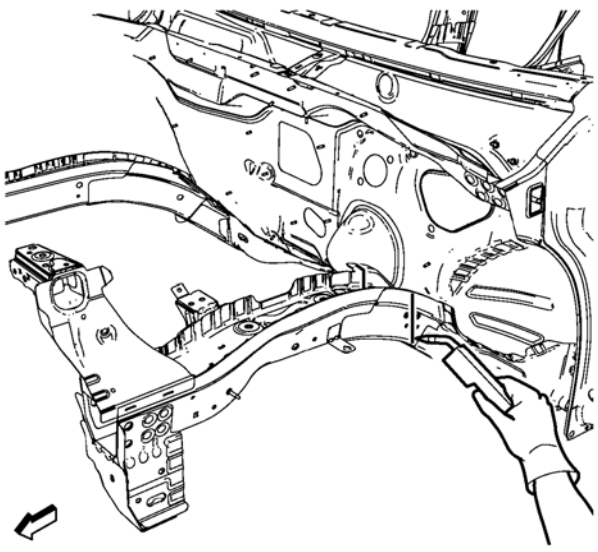
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1. Cut the front compartment front rail in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part and use where possible.
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 compartment front rail.
7. Clean and prepare the attaching surfaces for welding.



8. Position the front compartment front rail on the vehicle.
9. Verify the fit of the front compartment front rail.
10. Clamp the front compartment front rail into position.



11. Plug weld accordingly.
12. 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.
13. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
14. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
15. Install all related panels and components.
16. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
17. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Front Compartment Side Rail Sectioning (Long, MIG-Brazing)

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

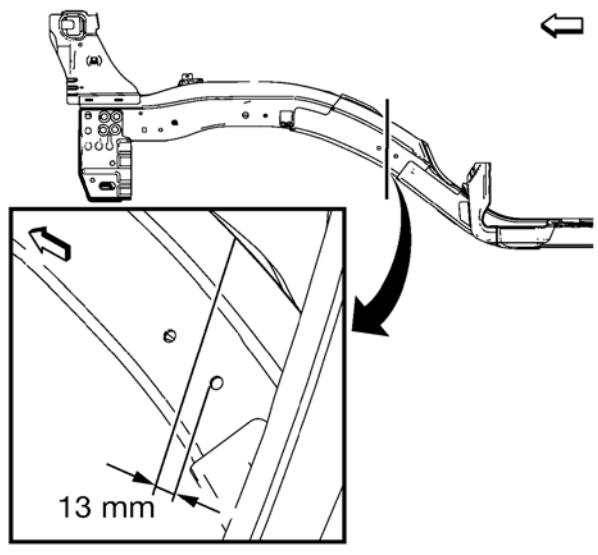
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

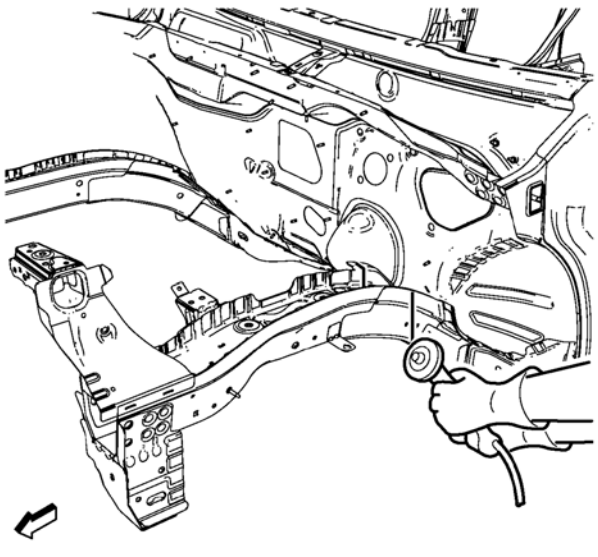
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

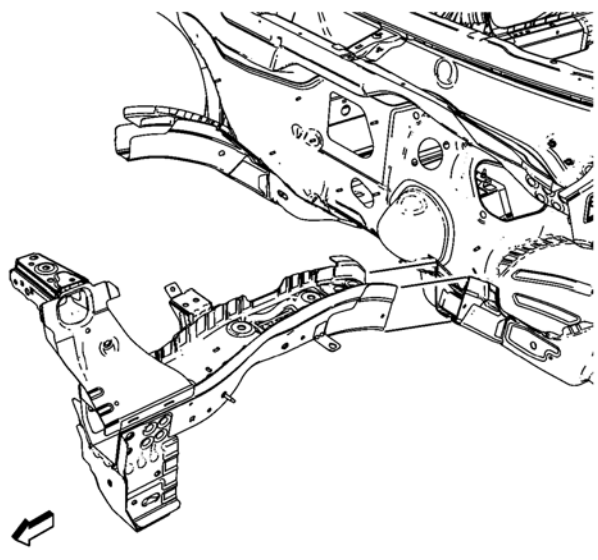


6. Create cut lines on the front compartment front rail.



Note: Do not damage any other panels or reinforcements.

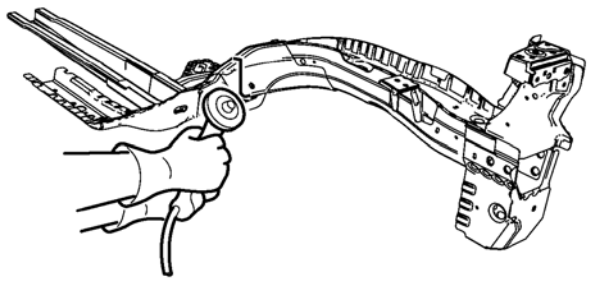
7. Cut the panel where sectioning is to be performed.



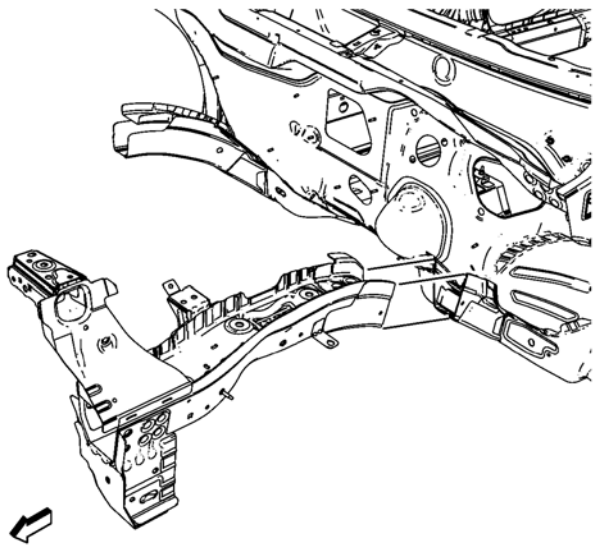
8. Remove the damaged front compartment front rail.

Installation Procedure

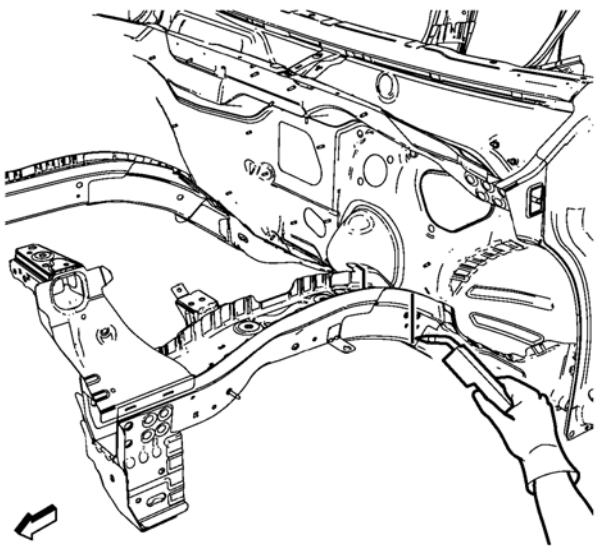
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1. Cut the front compartment front rail in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part and use where possible.
3. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing 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 braze to the vehicle.
6. Align the front compartment front rail.
7. Clean and prepare the attaching surfaces for brazing.



8. Position the front compartment front rail on the vehicle.
9. Verify the fit of the front compartment front rail.
10. Clamp the front compartment front rail into position.



11. Braze accordingly.
12. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.
13. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
14. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
15. Install all related panels and components.
16. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
17. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Front Compartment Side Rail Sectioning (Short, MAG-Welding)

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

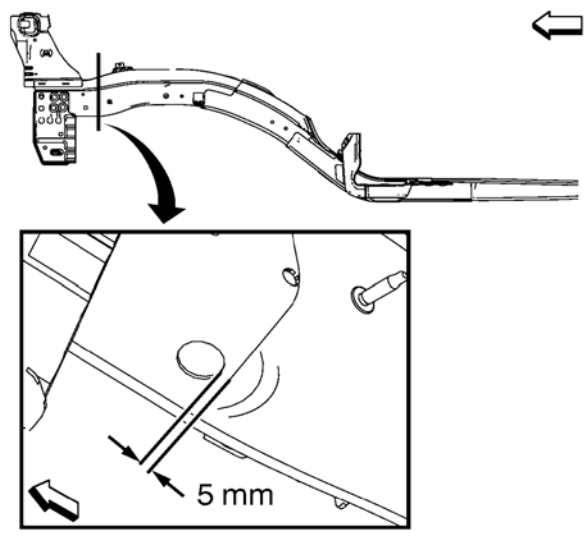
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

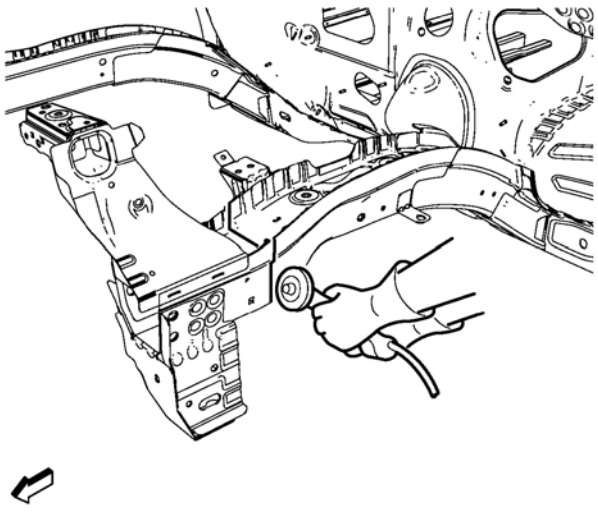
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

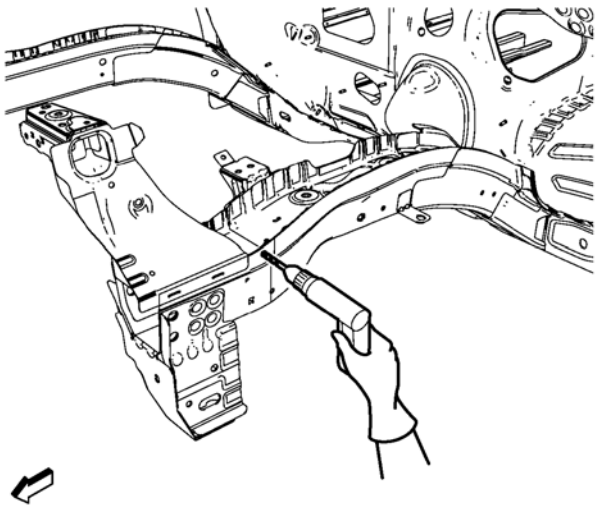


6. Create cut lines on the front compartment front rail.



Note: Do not damage internal reinforcement of front compartment side rail.

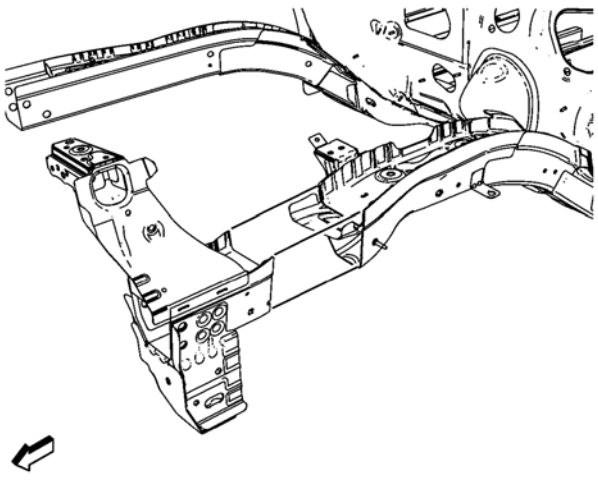
7. Cut the panel where sectioning is to be performed.



Note: Left side only.

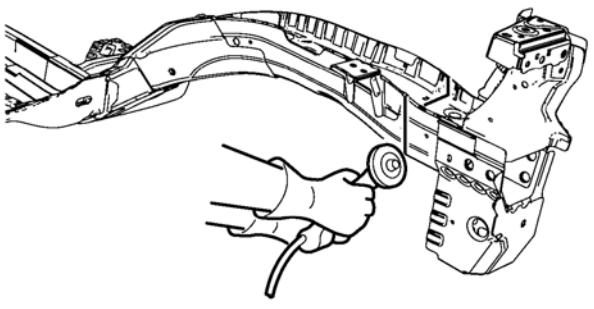
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8. Locate and mark all the necessary factory welds of the front compartment front rail.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



10. Remove the damaged front compartment front rail.

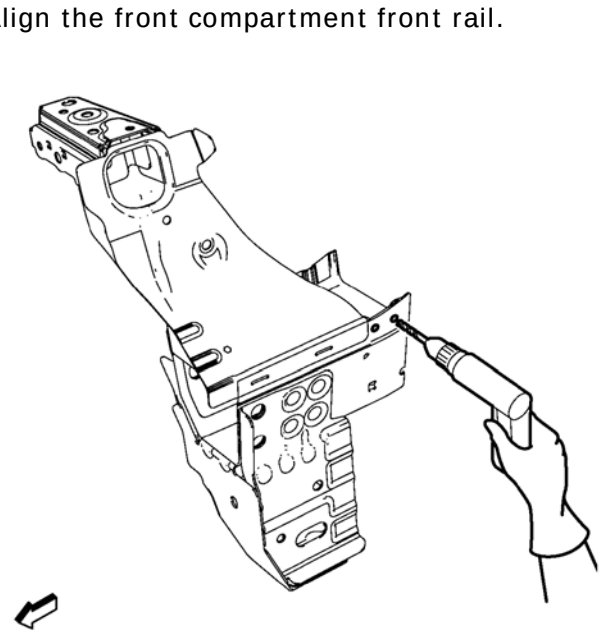
Installation Procedure



1. Cut the front compartment front rail 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.

Note: Place backing plate only in areas where adequate space is available.

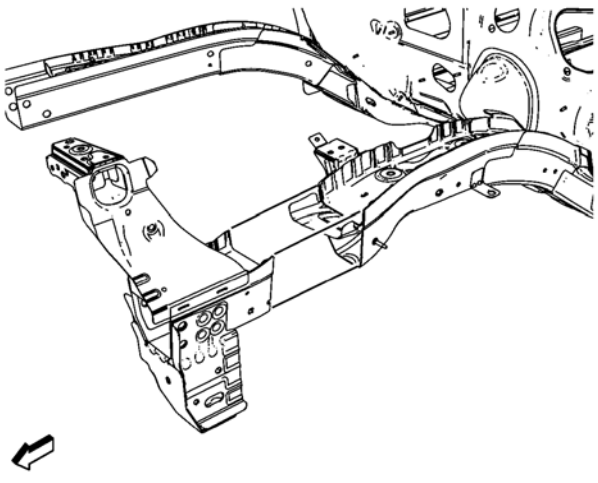
3. Drill 8 mm (5/16 in) along the sectioning cut on the remaining original part. Locate these holes 13 mm (1/2 in) from the edge of part and spaced 40 mm (1 1/2 in) apart.
4. Prepare all mating surfaces as necessary.
5. Fit the backing plates halfway into the sectioning joints, clamp in place and plug weld to the vehicle.
6. Align the front compartment front rail.



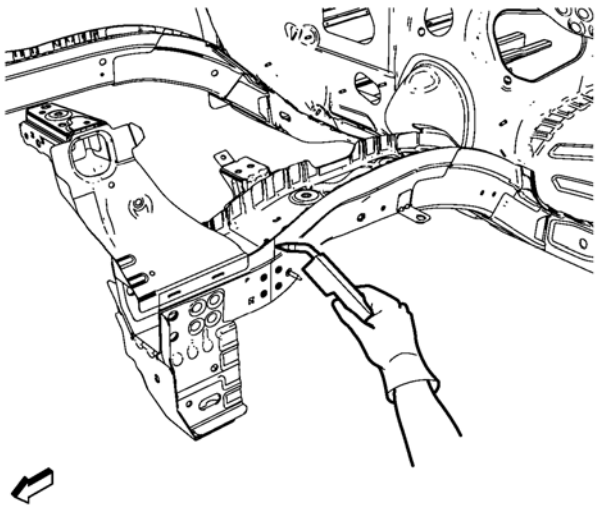
Note: Left side only.

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

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9. Position the front compartment front rail on the vehicle.
10. Verify the fit of the front compartment front rail.
11. Clamp the front compartment front rail into position.



12. Plug weld 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.

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Front Compartment Side Rail Sectioning (Short, MIG-Brazing)

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

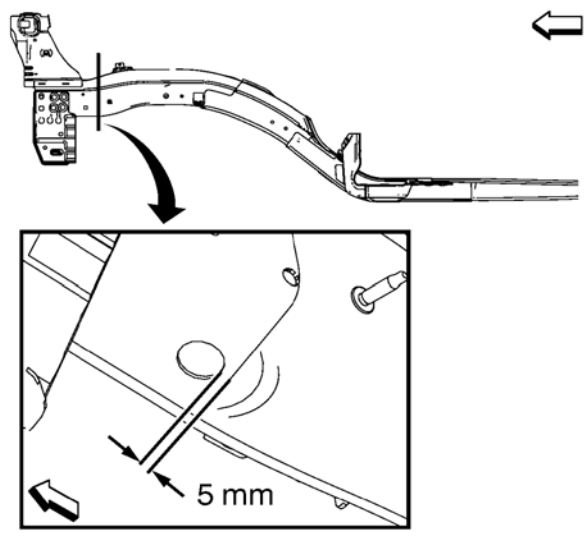
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

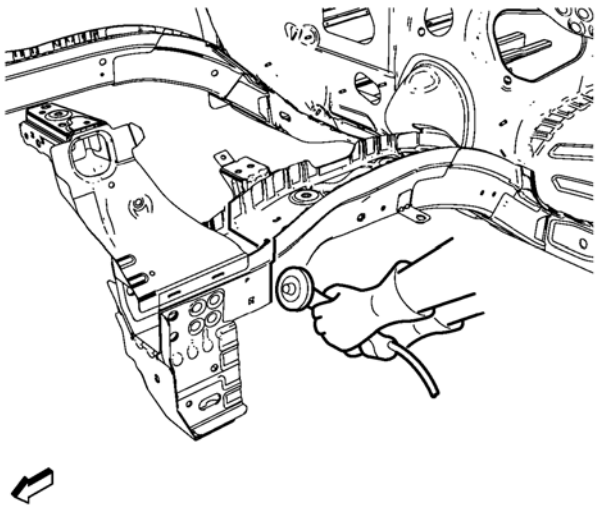
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

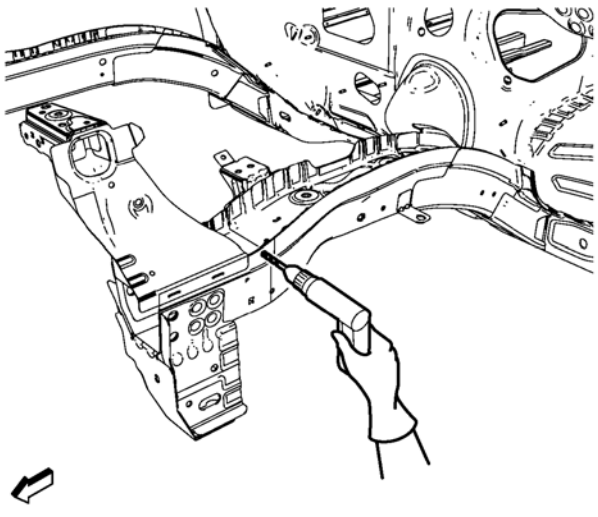


6. Create cut lines on the front compartment front rail.



Note: Do not damage internal reinforcement of front compartment side rail.

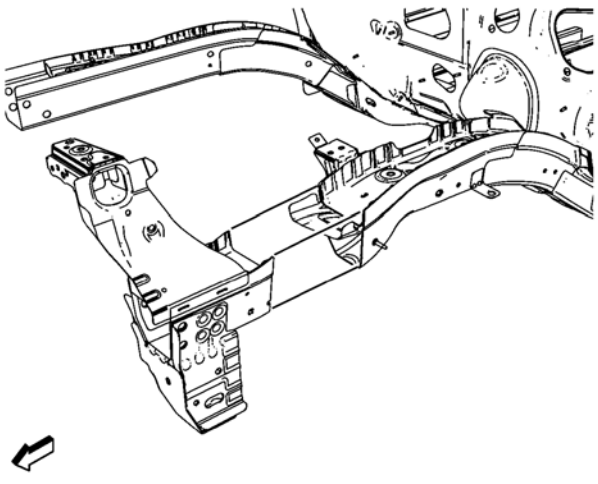
7. Cut the panel where sectioning is to be performed.



Note: Left side only.

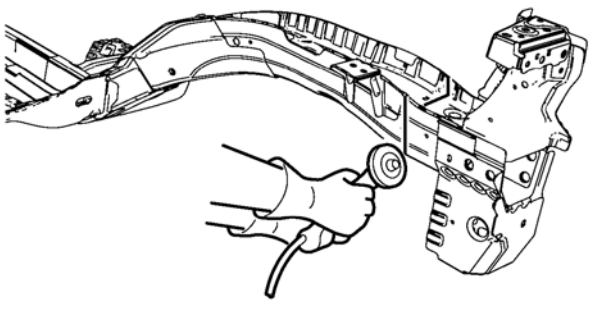
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8. Locate and mark all the necessary factory welds of the front compartment front rail.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



10. Remove the damaged front compartment front rail.

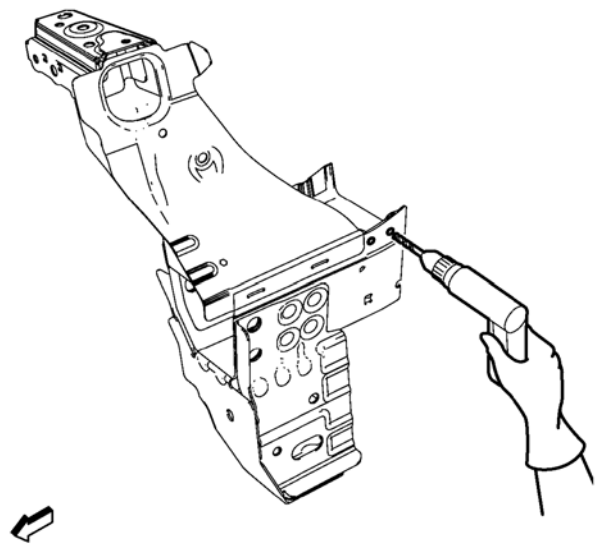
Installation Procedure



1. Cut the front compartment front rail 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.

   Note: Place backing plate only in areas where adequate space is available.

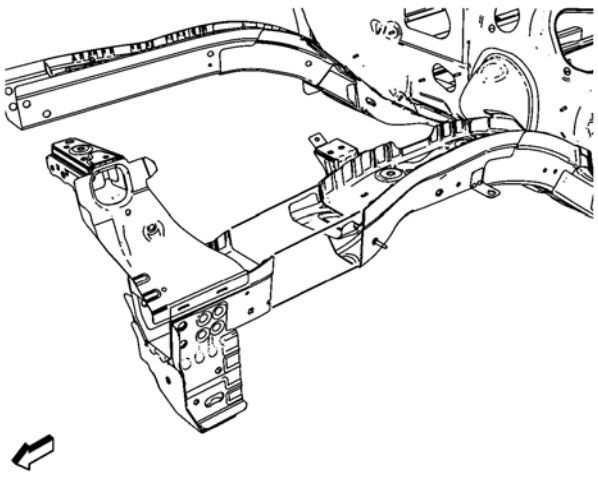
3. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing along the sectioning cut on the remaining original part. Locate these holes 13 mm (1/2 in) from the edge of part and spaced 40 mm (1 1/2 in) apart.
4. Prepare all mating surfaces as necessary.
5. Fit the backing plates halfway into the sectioning joints, clamp in place and braze to the vehicle.
6. Align the front compartment front rail.



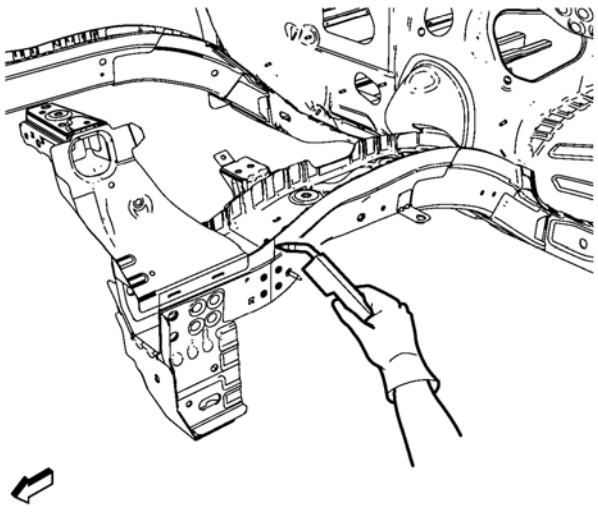
Note: Left side only.

7. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing along the edges of the front compartment front rail as noted from the original panel.
8. Clean and prepare the attaching surfaces for brazing.

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9. Position the front compartment front rail on the vehicle.
10. Verify the fit of the front compartment front rail.
11. Clamp the front compartment front rail into position.



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

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Front Hinge Pillar Body Sectioning (MAG-Welding)

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

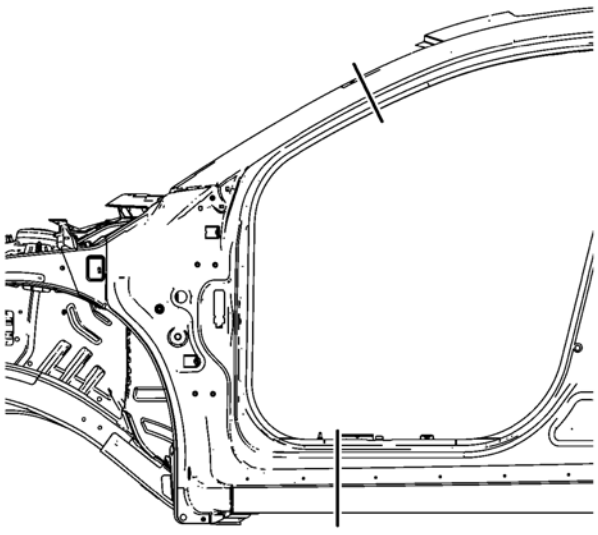
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

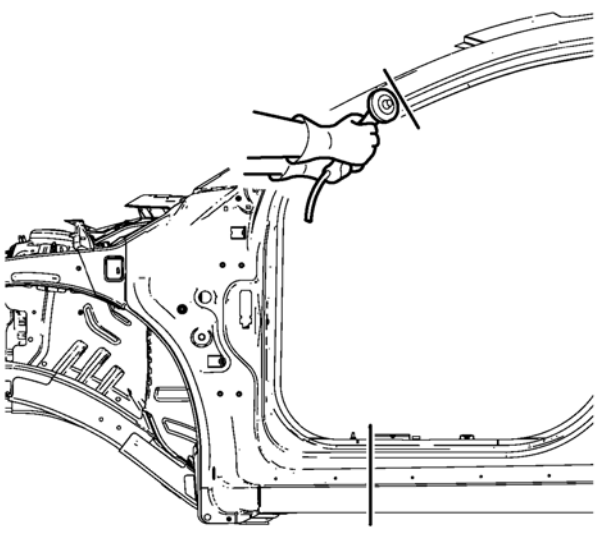
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

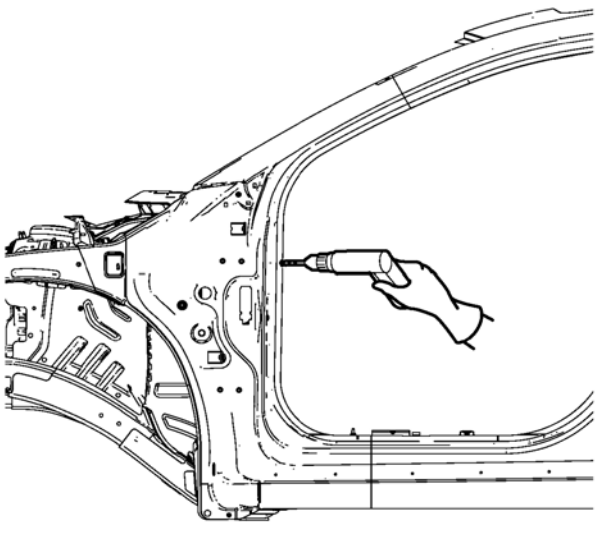


6. Create cut lines on the front hinge pillar body.



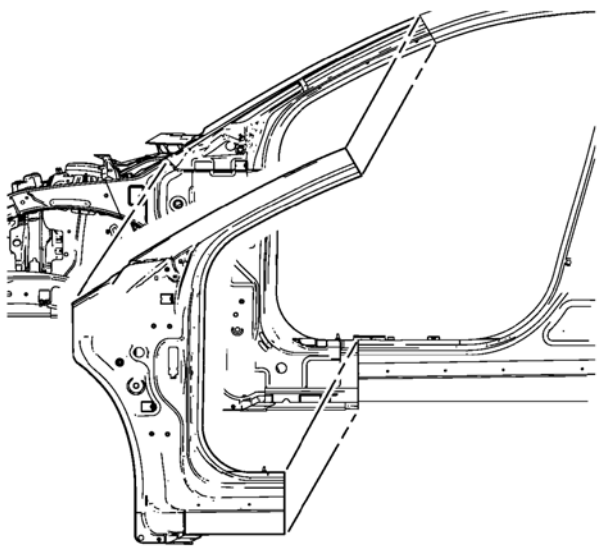
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



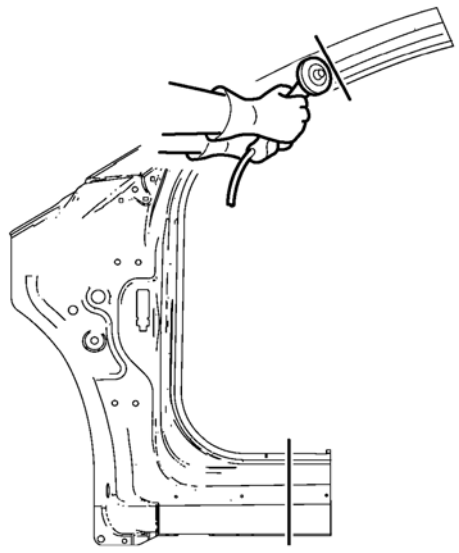
8. Locate and mark all the necessary factory welds of the front hinge pillar body.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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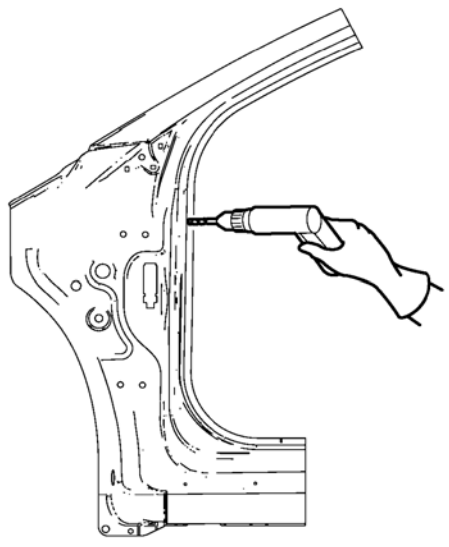


10. Remove the damaged front hinge pillar body.

Installation Procedure

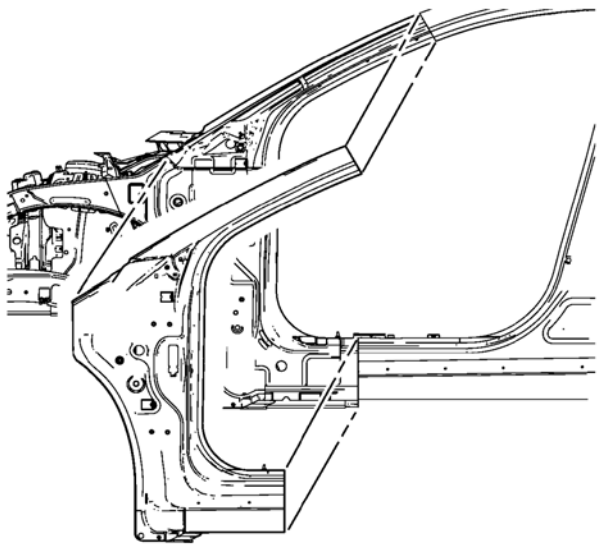


1. Cut the front hinge pillar body in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service 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 (1½ 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.

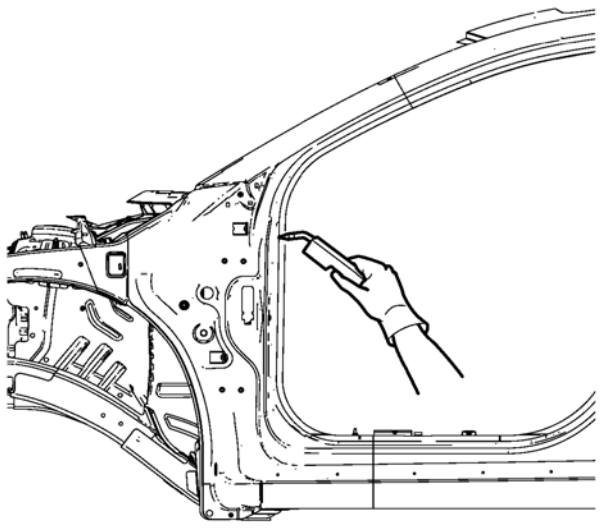


7. Drill 8 mm (5/16 in) for plug welding along the edges of the front hinge pillar body as noted from the original panel.
8. Clean and prepare the attaching surfaces for welding.

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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 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.

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Front Hinge Pillar Body Sectioning (MIG-Brazing)

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

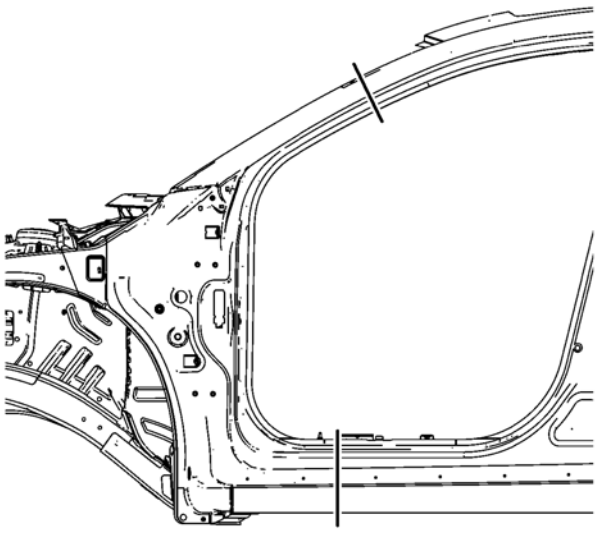
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

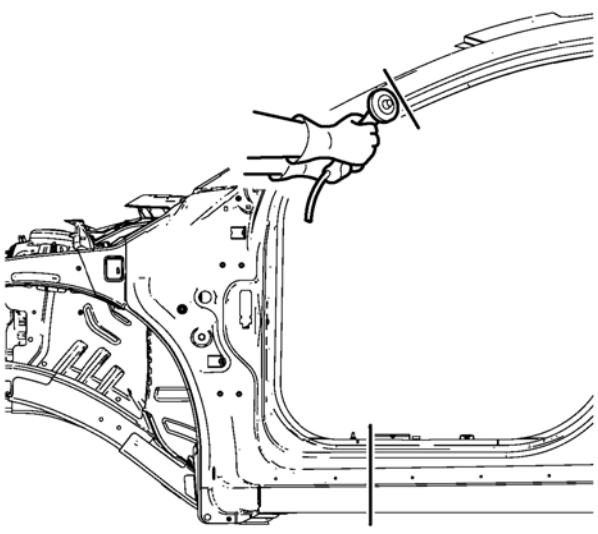
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

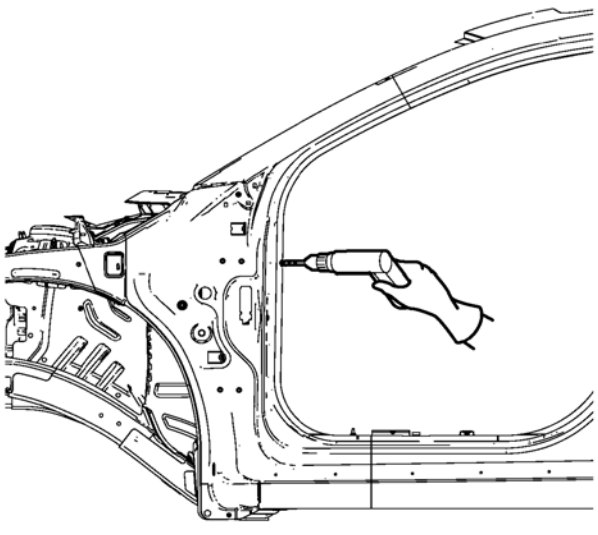


6. Create cut lines on the front hinge pillar body.



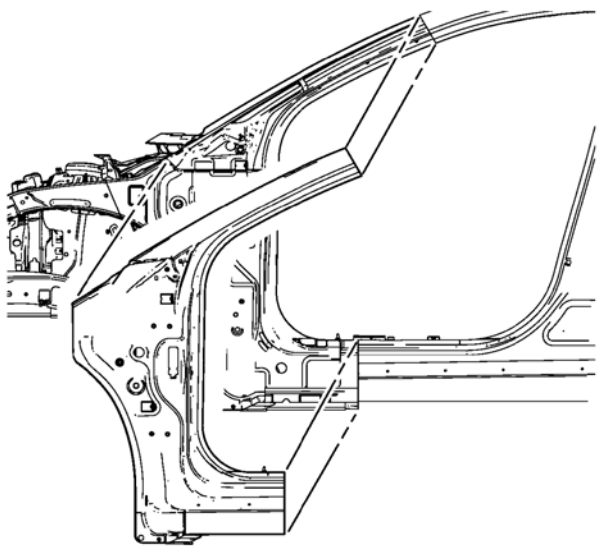
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



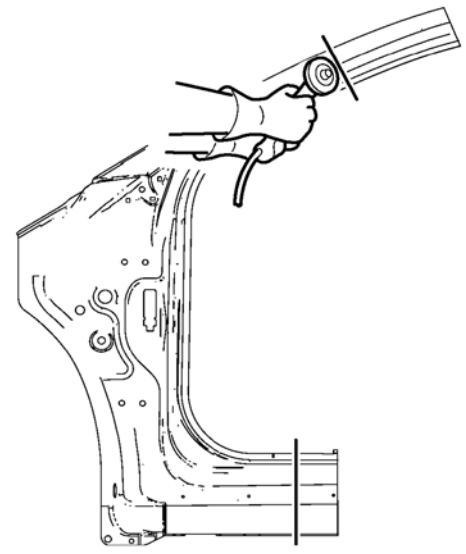
8. Locate and mark all the necessary factory welds of the front hinge pillar body.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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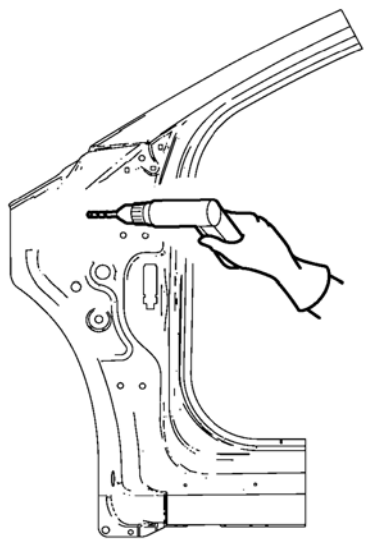


10. Remove the damaged front hinge pillar body.

Installation Procedure



1. Cut the front hinge pillar body 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. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing 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 braze to the vehicle.
6. Align the front hinge pillar body.

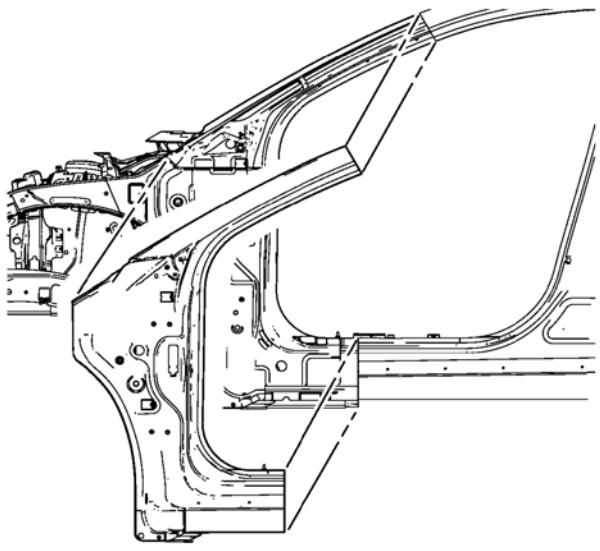


7. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing in locations where you can not apply a resistance spot welder.
8. Clean and prepare the attaching surfaces for brazing.

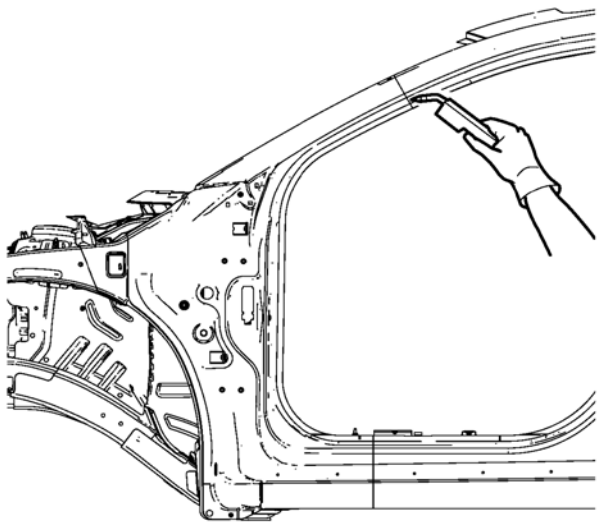
   Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

9. Apply structural adhesive to all attaching surfaces.

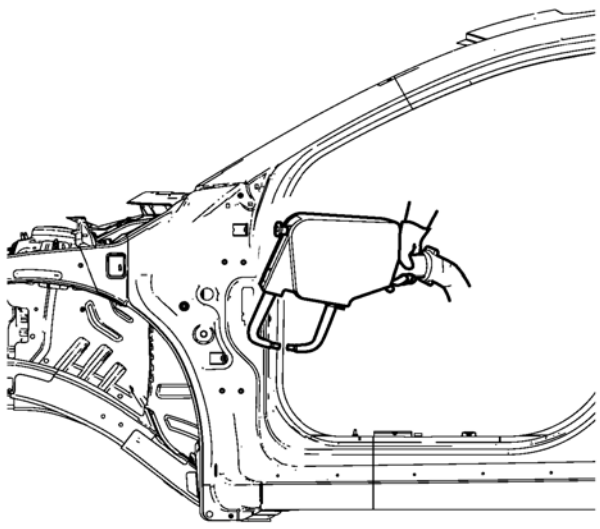
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10. Position the front hinge pillar body on the vehicle.
11. Verify the fit of the front hinge pillar body.
12. Clamp the front hinge pillar body into position.



13. Plug weld accordingly.



14. Spot weld accordingly.
15. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.
16. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
17. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
18. Install all related panels and components.
19. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
20. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Body Hinge Pillar Lower Reinforcement Replacement (MAG-Welding)

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

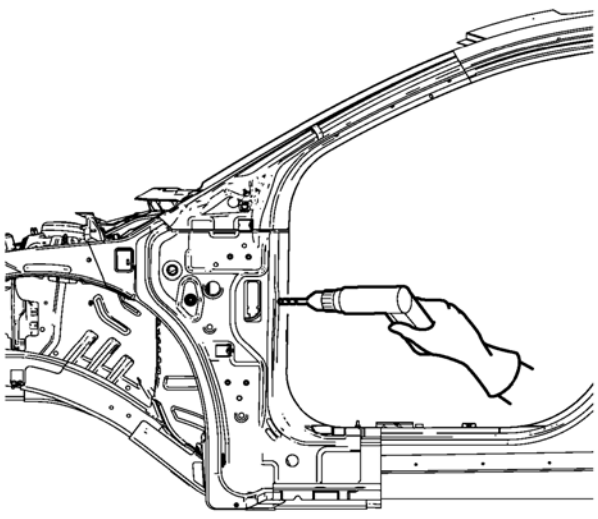
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

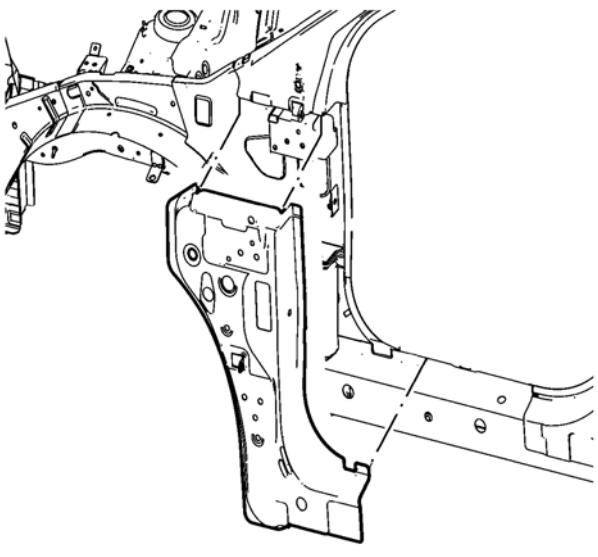
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



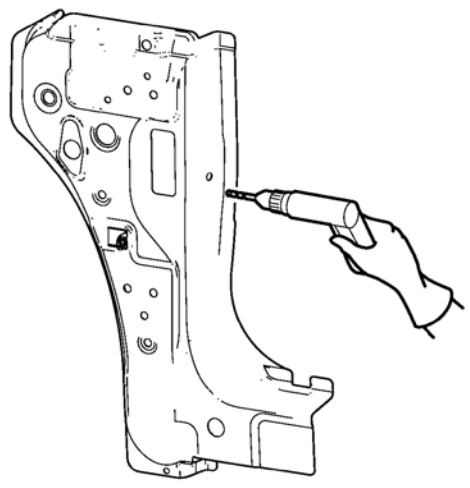
6. Locate and mark all the necessary factory welds of the front hinge pillar body.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



8. Remove the damaged front hinge pillar body reinforcement.

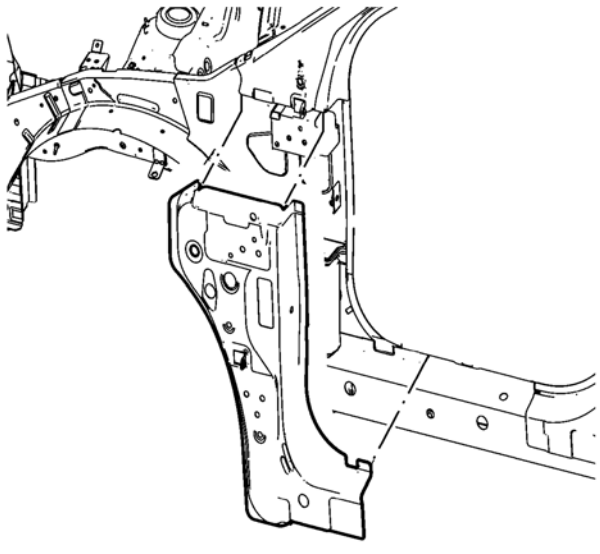
Installation Procedure

1. Prepare all mating surfaces as necessary.
2. Align the front hinge pillar body reinforcement.

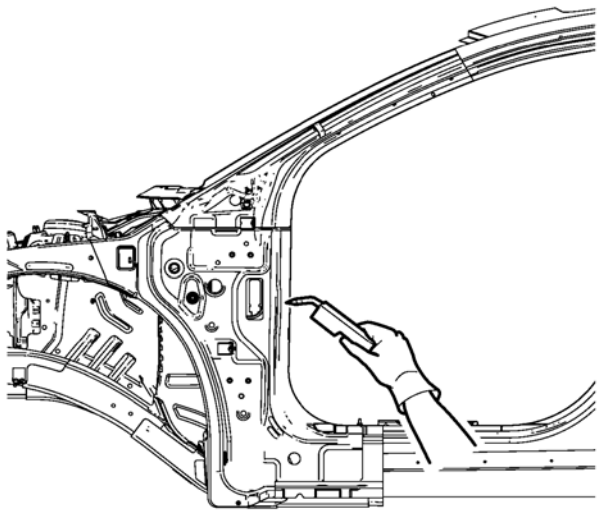


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3. Drill 8 mm (5/16 in) for plug welding along the edges of the front hinge pillar body as noted from the original panel.
4. Clean and prepare the attaching surfaces for welding.



5. Position the front hinge pillar body reinforcement on the vehicle.
6. Verify the fit of the front hinge pillar body reinforcement.
7. Clamp the front hinge pillar body reinforcement into position.



8. Plug weld 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.

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Body Hinge Pillar Lower Reinforcement Replacement (MIG-Brazing)

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

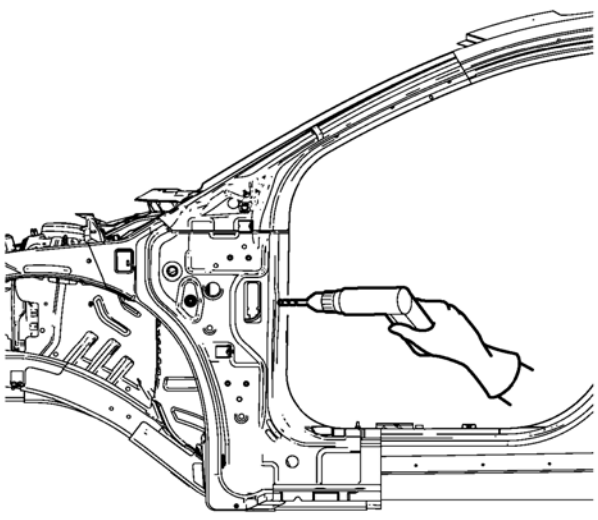
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

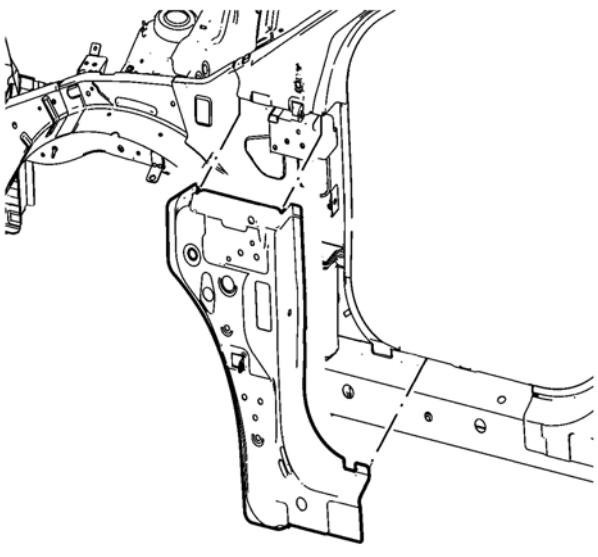
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



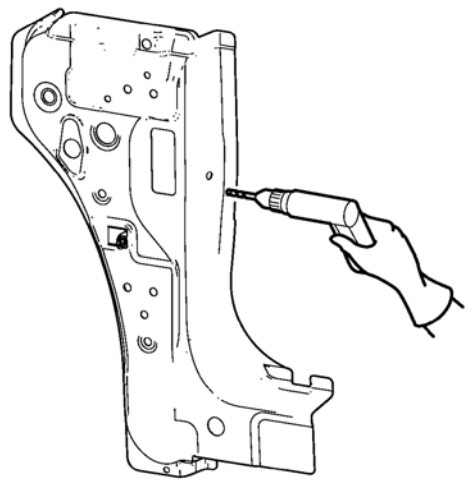
6. Locate and mark all the necessary factory welds of the front hinge pillar body.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



8. Remove the damaged front hinge pillar body reinforcement.

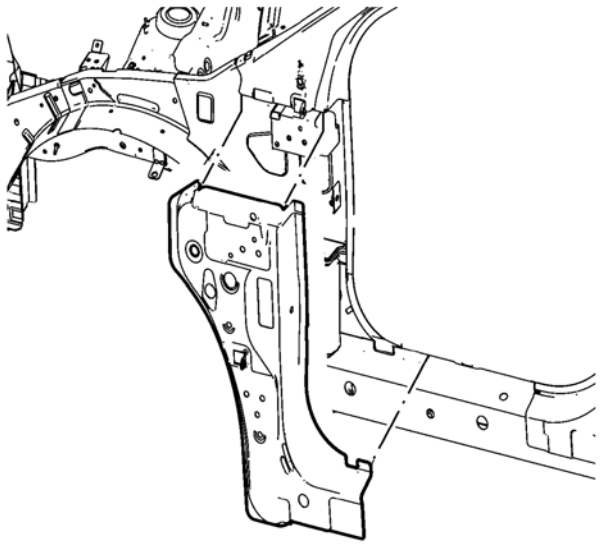
Installation Procedure

1. Prepare all mating surfaces as necessary.
2. Align the front hinge pillar body reinforcement.

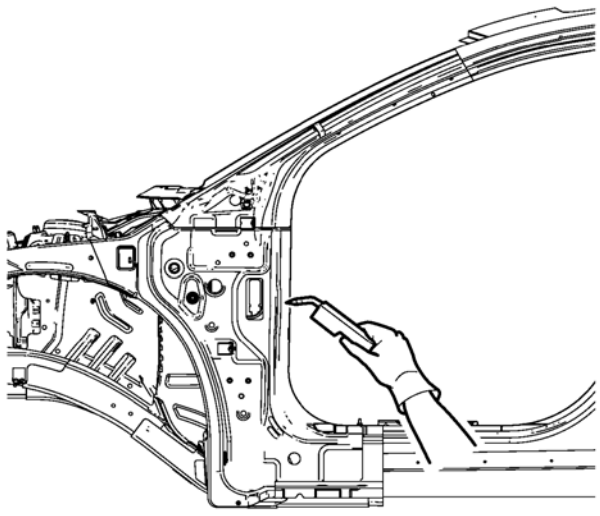


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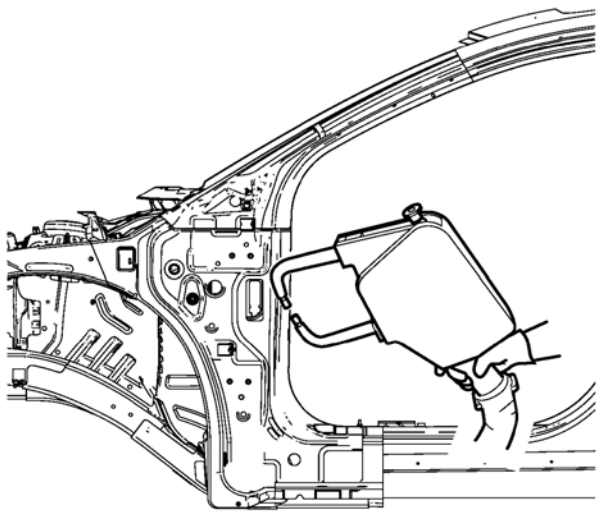
3. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing in locations where you can not apply a resistance spot welder.
4. Clean and prepare the attaching surfaces for spot welding and brazing.



5. Position the front hinge pillar body reinforcement on the vehicle.
6. Verify the fit of the front hinge pillar body reinforcement.
7. Clamp the front hinge pillar body reinforcement into position.



8. Plug weld accordingly.



9. Spot weld accordingly.
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.

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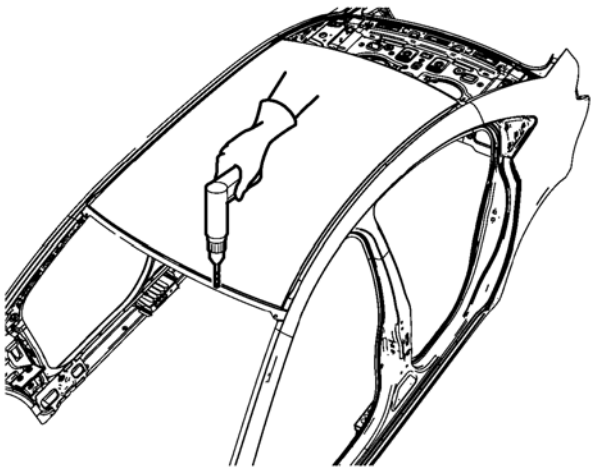
Roof Outer Panel Replacement (MAG-Welding)

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

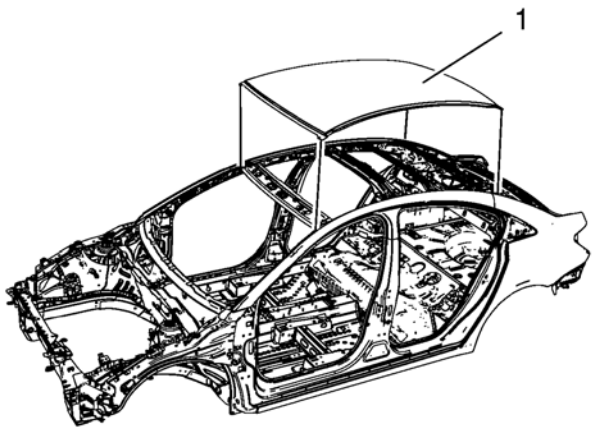
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

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.

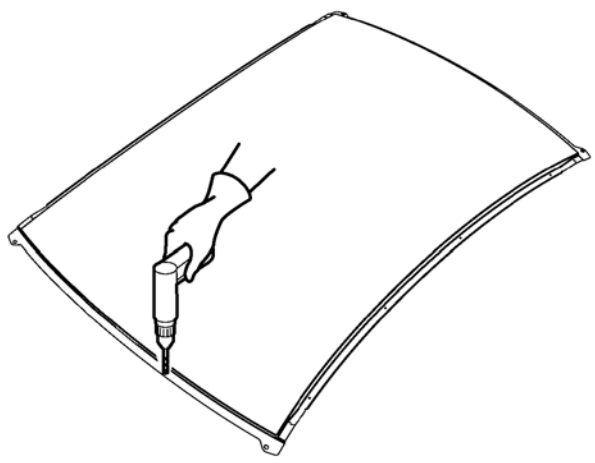


7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.
8. Cut the adhesive with an appropriate tool.



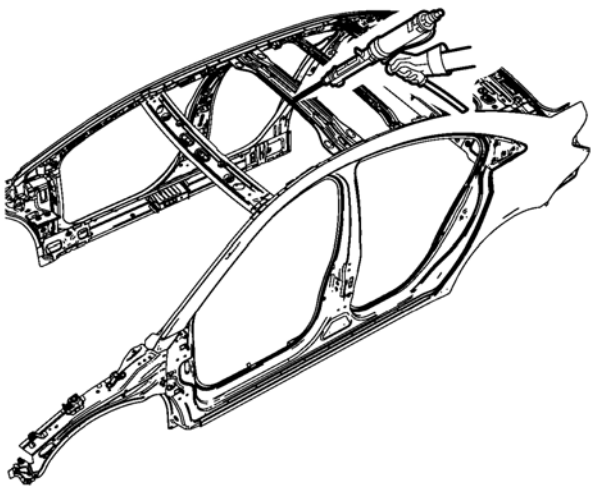
9. Remove the damaged roof panel (1).

Installation Procedure

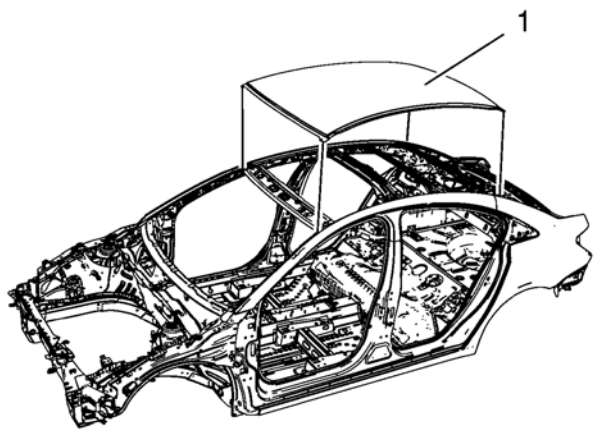


1. Drill 8 mm (5/16 in) for plug welding along the edges of the service panel as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.

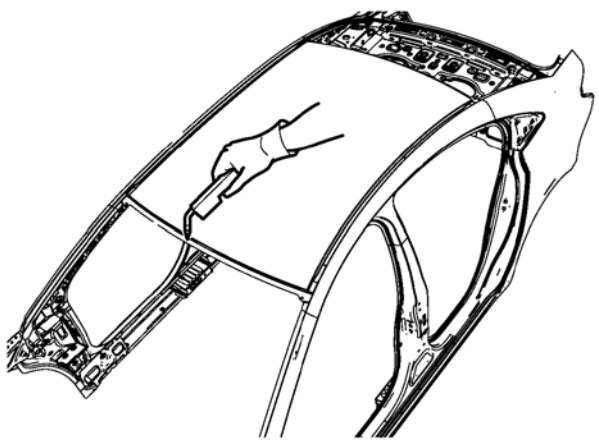
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3. Apply one-part windshield urethane adhesive as noted from the original panel.



4. Position the roof panel (1) on the vehicle.
5. Verify the fit of the panel.
6. Clamp the panel into position.



7. Plug weld accordingly.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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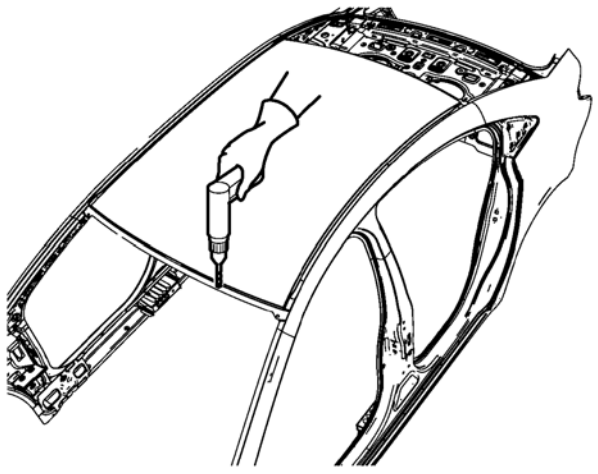
Roof Outer Panel Replacement (MIG-Brazing)

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

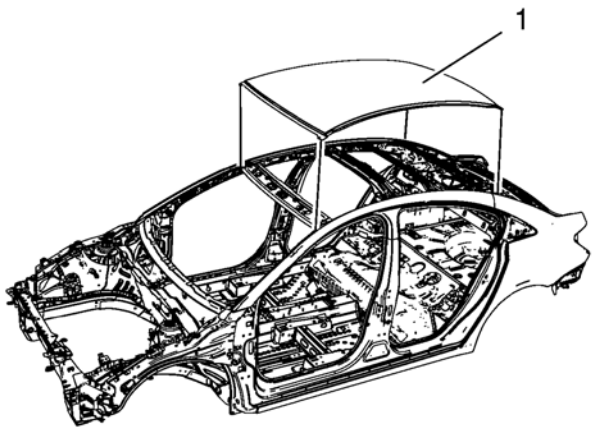
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

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.



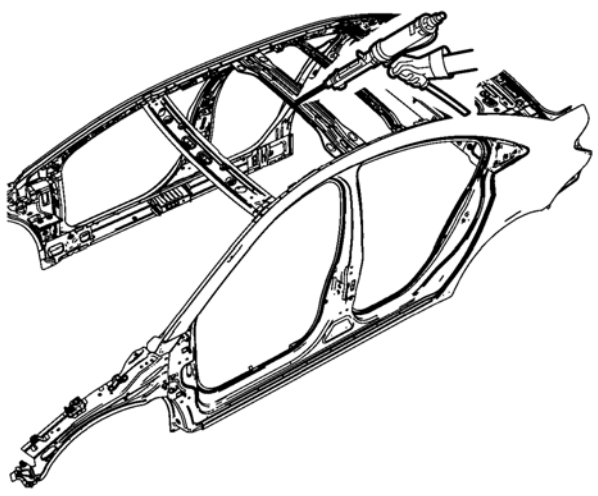
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.
8. Cut the adhesive with an appropriate tool.



9. Remove the damaged roof panel (1).

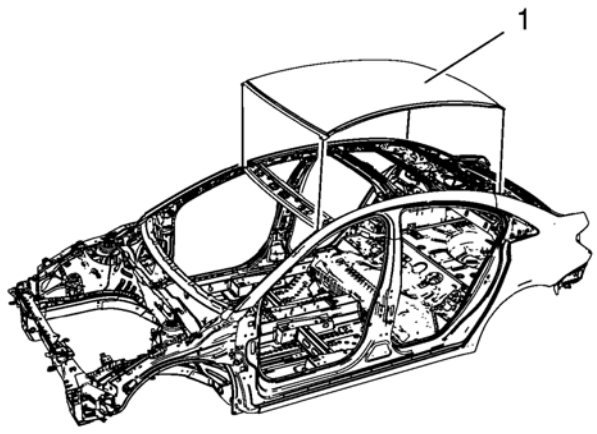
Installation Procedure

1. Clean and prepare the attaching surfaces for welding.

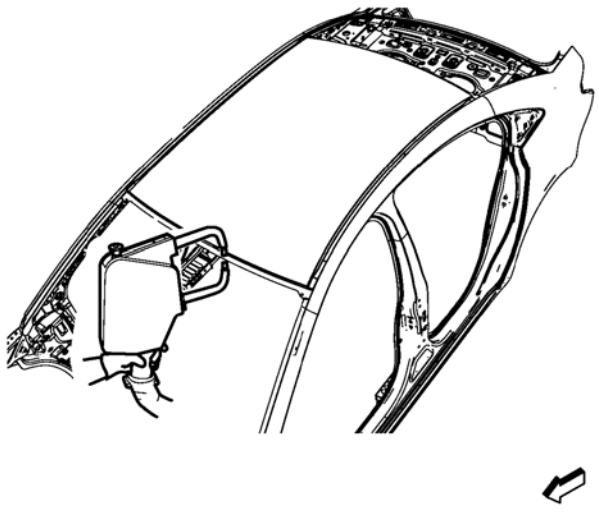


2. Apply one-part windshield urethane adhesive as noted from the original panel.

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3. Position the roof panel (1) on the vehicle.
4. Verify the fit of the panel.
5. Clamp the panel into position.



6. Spot weld accordingly as noted from the original panel.
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.

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Roof Front Header Panel Replacement (MAG-Welding)

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

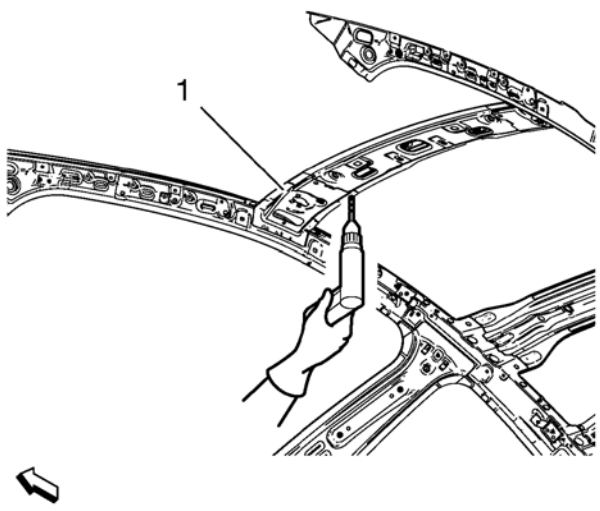
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

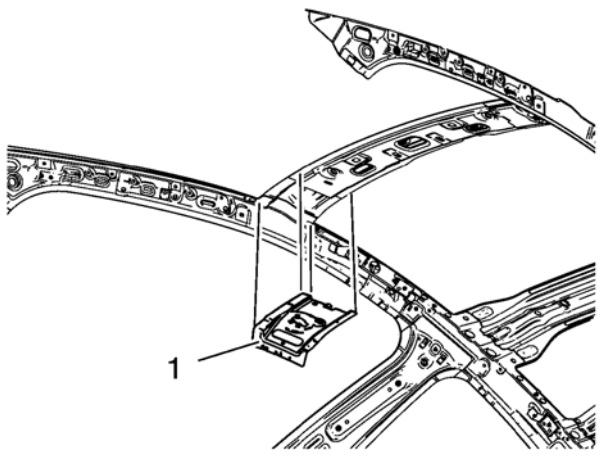
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

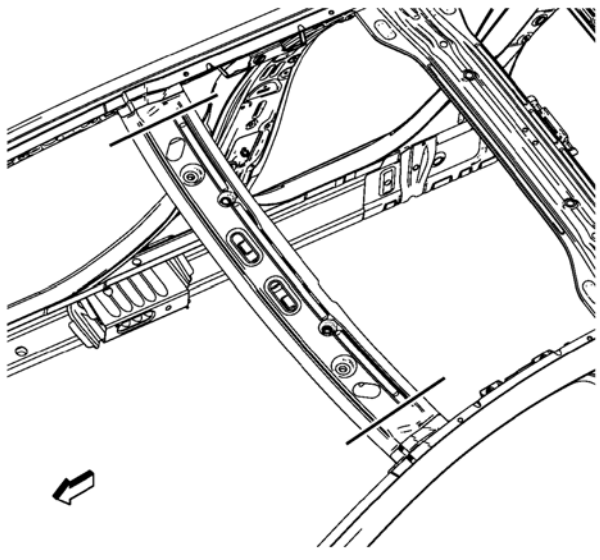
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 roof panel front bracket right (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

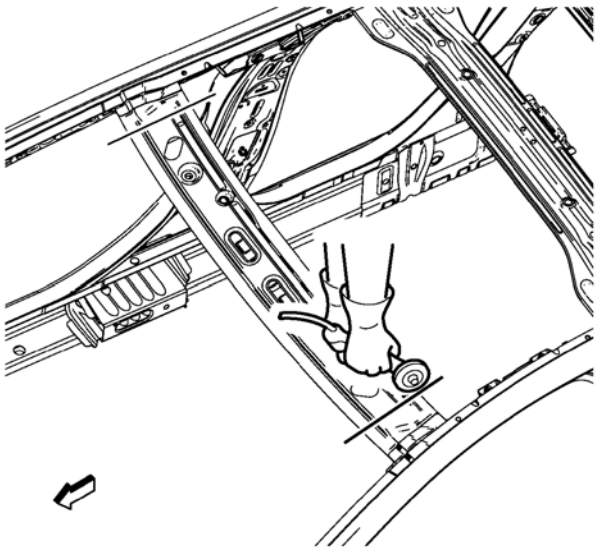


8. Remove the roof panel front bracket right (1).
9. Proceed the same way with the roof panel front bracket left.

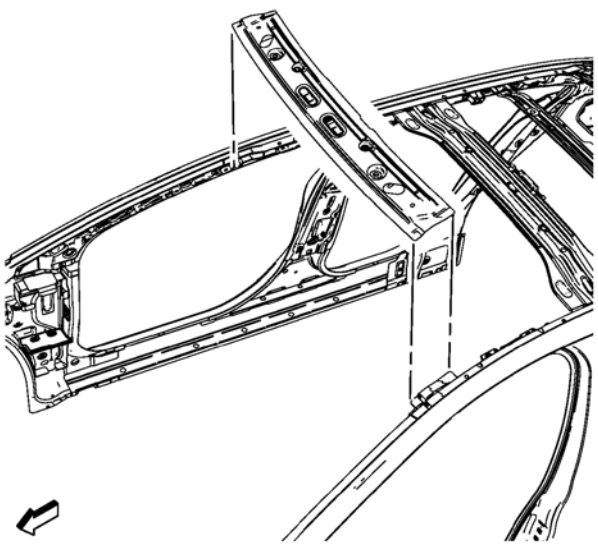


10. Create cut lines on the roof front header panel.

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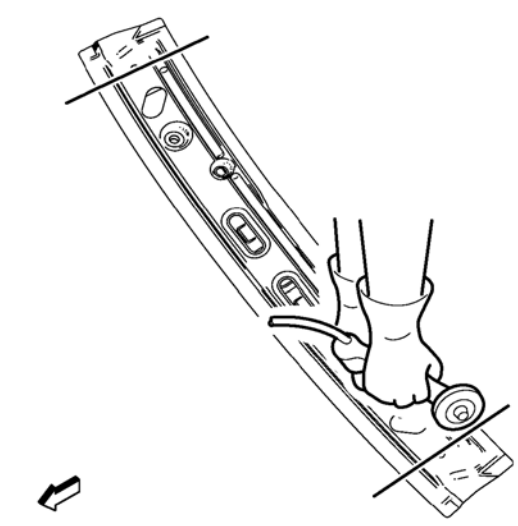


11. Cut the panel where sectioning is to be performed.



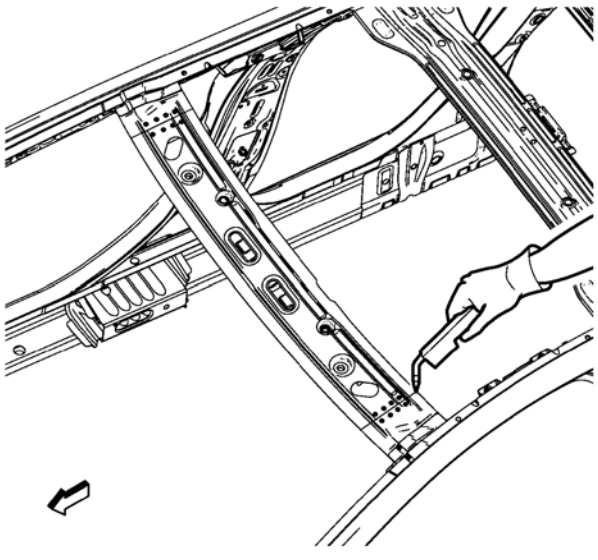
12. Remove the damaged roof front header panel.

Installation Procedure

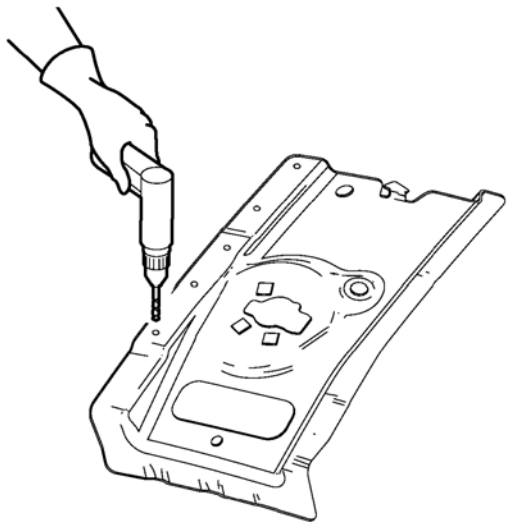


1. Cut the roof front header panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service 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 roof front header panel.

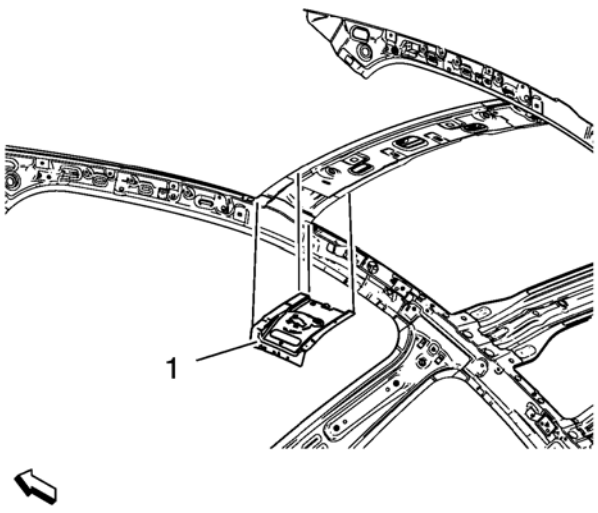
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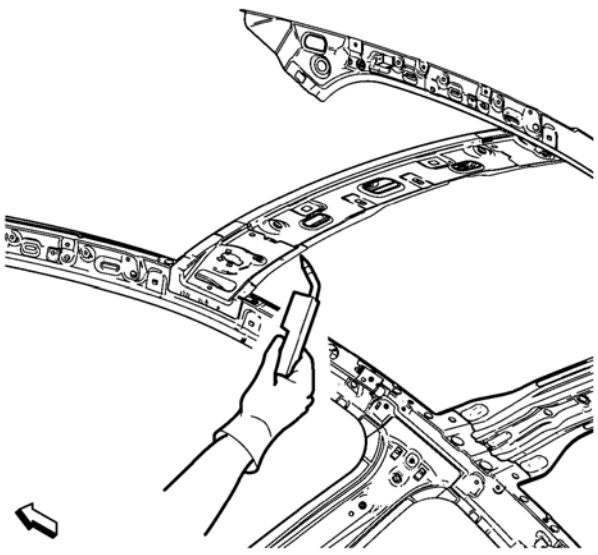
7. Plug weld accordingly.
8. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.



9. Drill 8 mm (5/16 in) for plug welding along the edges of the roof panel front bracket right as noted from the original panel.
10. Clean and prepare the attaching surfaces for welding.



11. Position the roof panel front bracket right (1) on the vehicle.
12. Verify the fit of the roof panel front bracket.
13. Clamp the roof panel front bracket right into position.



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14. Plug weld accordingly.
15. Proceed the same way with the roof panel front bracket left.
16. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
17. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
18. Install all related panels and components.
19. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
20. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Roof Front Header Panel Replacement (MIG-Brazing)

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

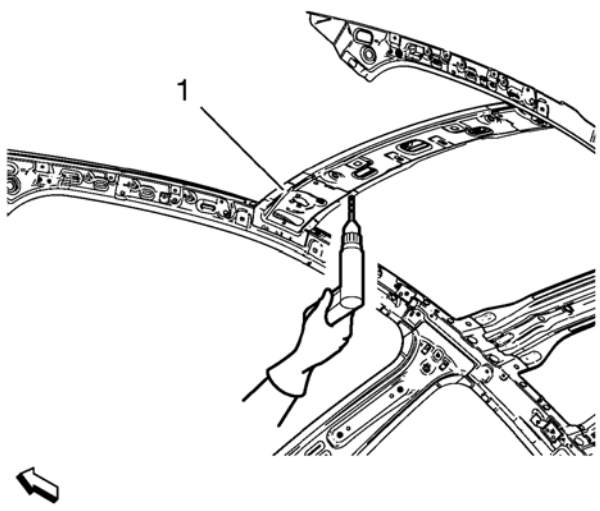
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

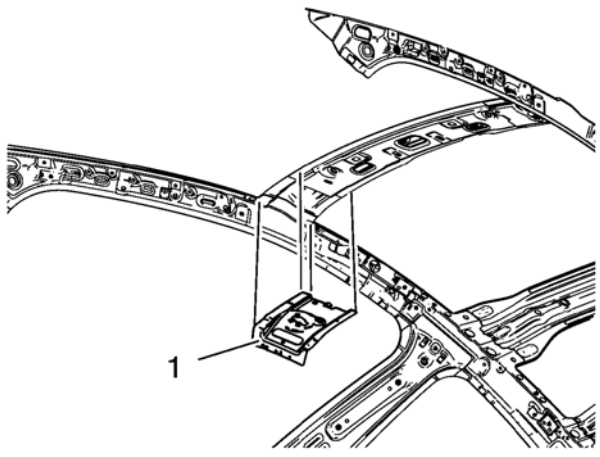
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

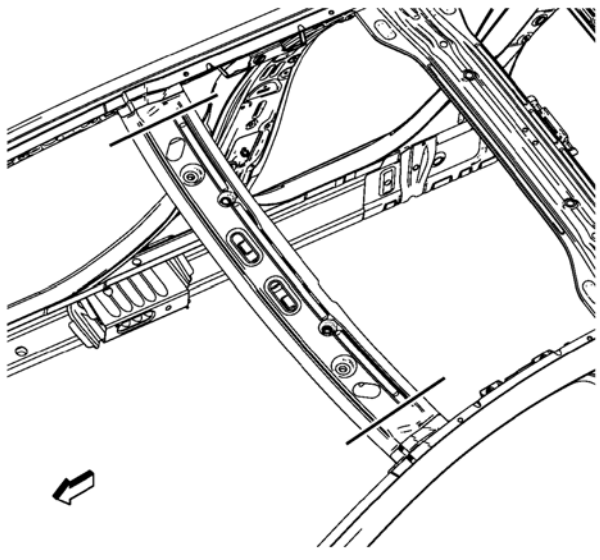
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 roof panel front bracket right (1).
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

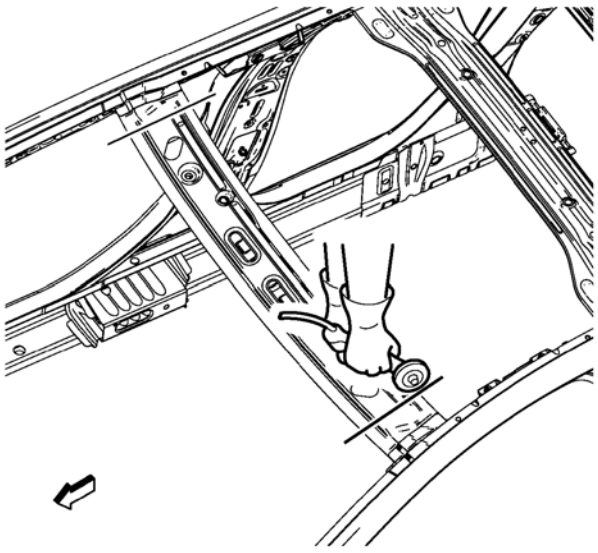


8. Remove the roof panel front bracket right (1).
9. Proceed the same way with the roof panel front bracket left.

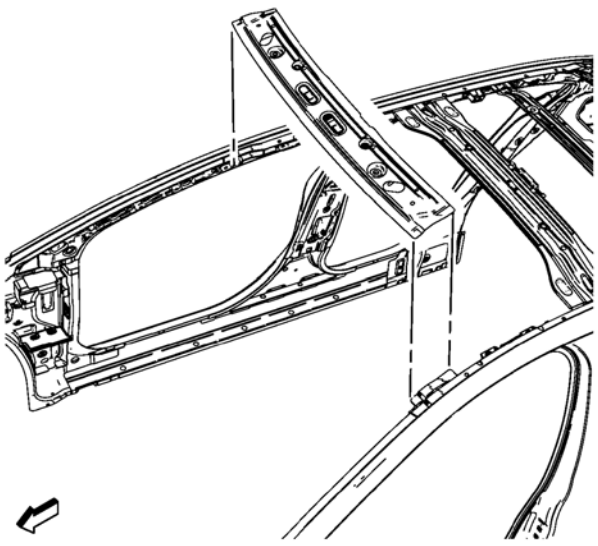


10. Create cut lines on the roof front header panel.

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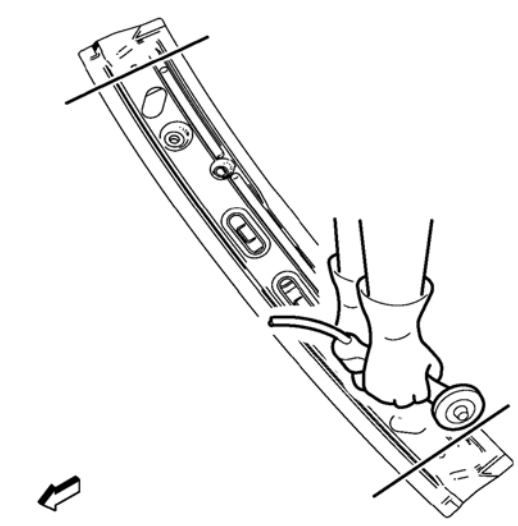


11. Cut the panel where sectioning is to be performed.



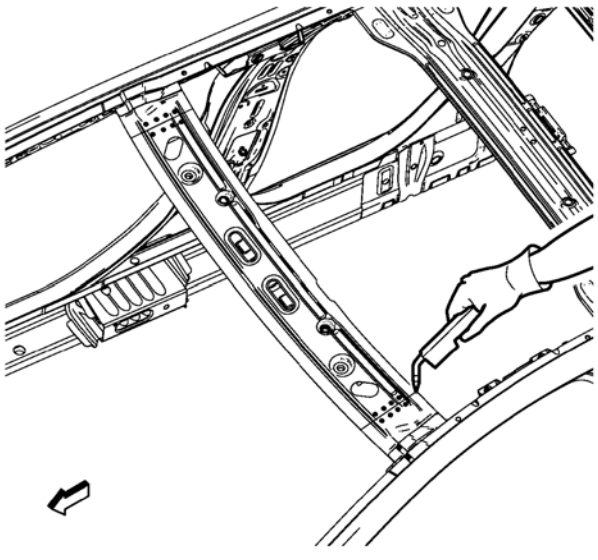
12. Remove the damaged roof front header panel.

Installation Procedure

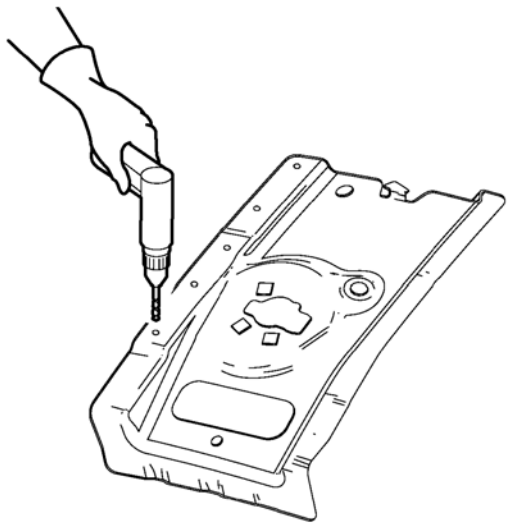


1. Cut the roof front header panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service 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 braze to the vehicle.
6. Align roof front header panel.

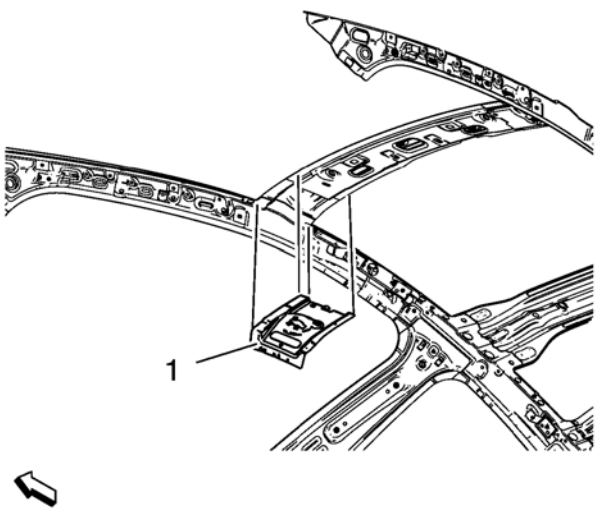
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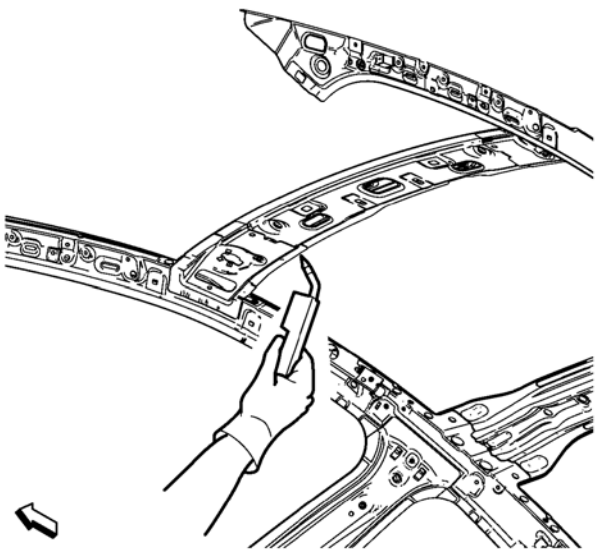
7. Braze accordingly.
8. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.



9. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing along the edges of the roof panel front bracket right.
10. Clean and prepare the attaching surfaces for brazing.



11. Position the roof panel front bracket right (1) on the vehicle.
12. Verify the fit of the roof panel front bracket.
13. Clamp the roof panel front bracket right into position.



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14. Braze accordingly.
15. Proceed the same way with the roof panel front bracket left.
16. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
17. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
18. Install all related panels and components.
19. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
20. Enable the SIR system. Refer to SIR Disabling and Enabling.

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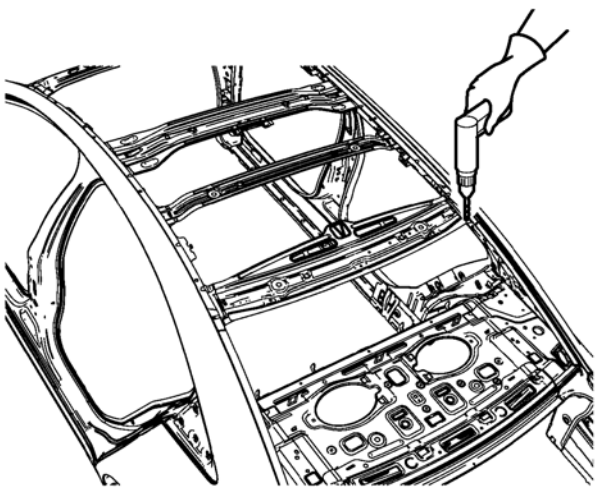
Roof Rear Header Panel Replacement (MAG-Welding)

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

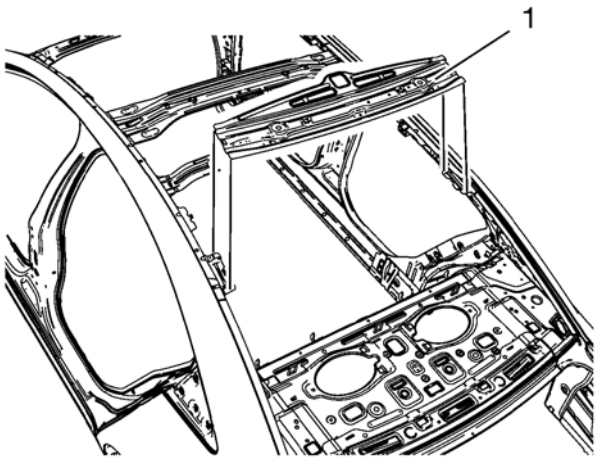
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

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.

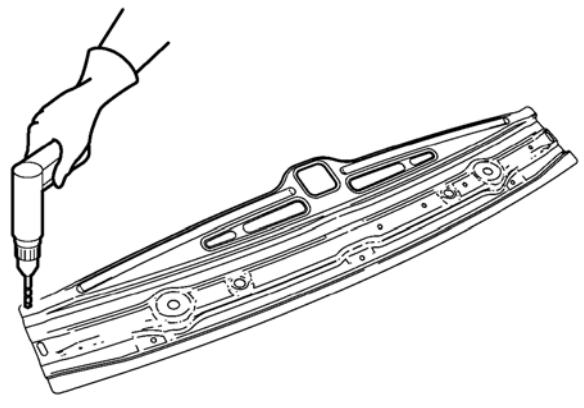


7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



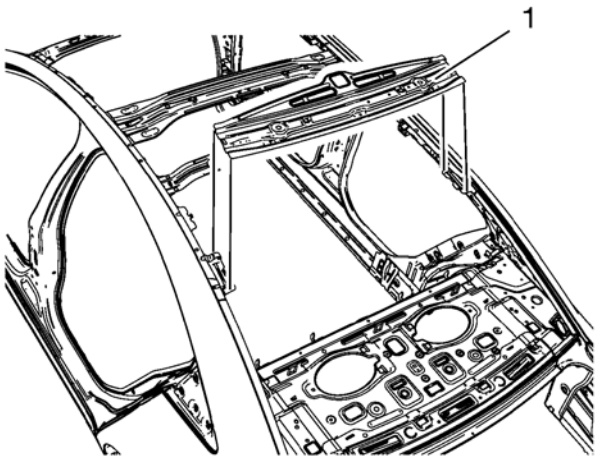
8. Remove the damaged roof rear header panel (1).

Installation Procedure

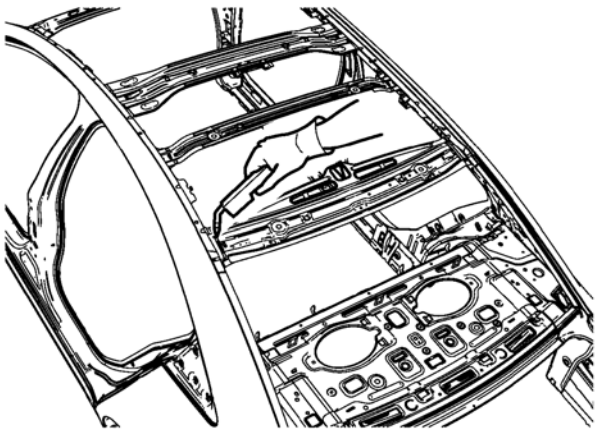


1. Drill 8 mm (5/16 in) for plug welding along the edges of the service panel as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.

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3. Position the roof rear header (1) panel on the vehicle.
4. Verify the fit of the panel.
5. Clamp the roof rear header panel into position.



6. Plug weld 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.

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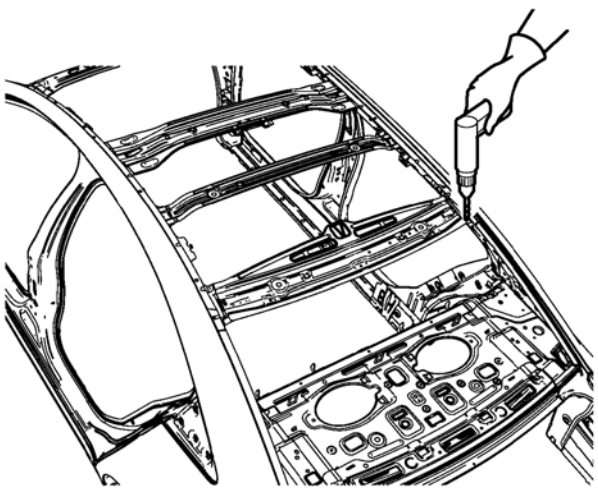
Roof Rear Header Panel Replacement (MIG-Brazing)

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

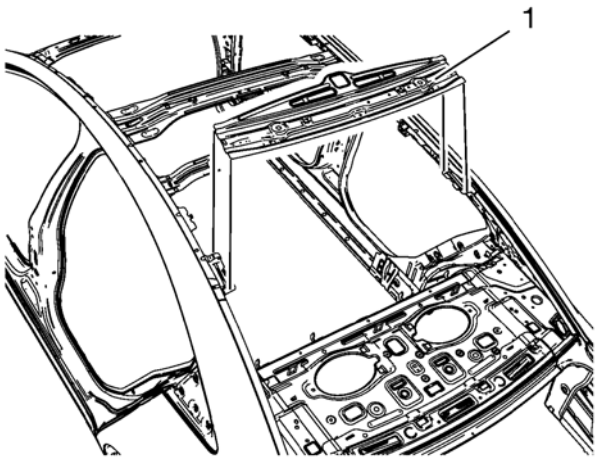
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

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.



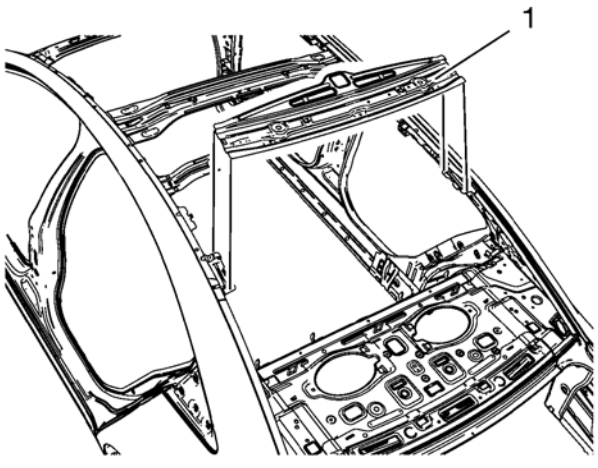
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



8. Remove the damaged roof rear header panel (1).

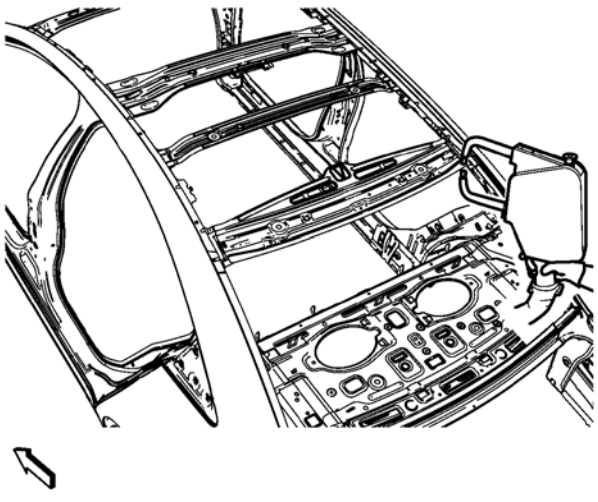
Installation Procedure

1. Clean and prepare the attaching surfaces for welding.



2. Position the roof rear header panel (1) on the vehicle.
3. Verify the fit of the panel.
4. Clamp the roof rear header panel into position.

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5. Spot weld accordingly as noted from the original panel.
6. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
7. Paint the repaired 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.

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Rocker Inner Panel Replacement (MAG-Welding)

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

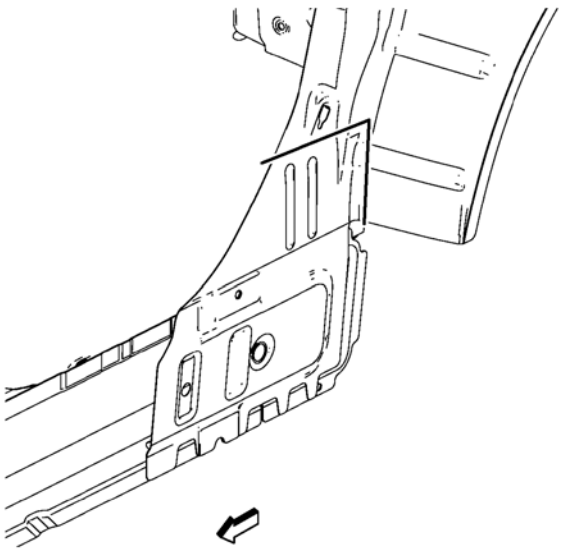
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

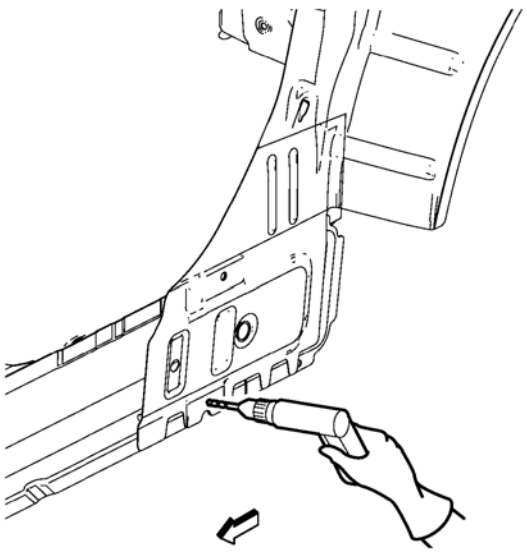


6. Create cut lines on the body side inner panel.



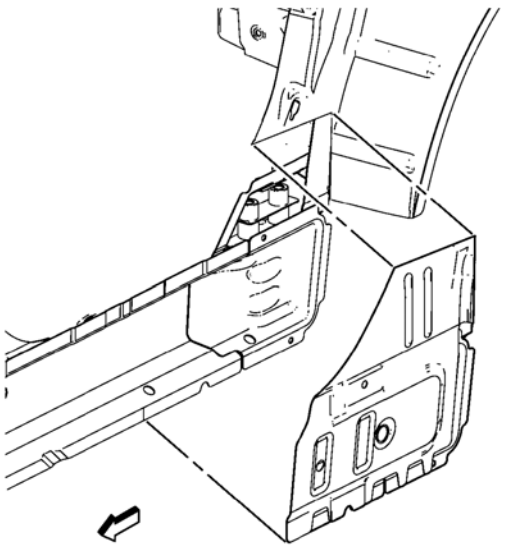
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.

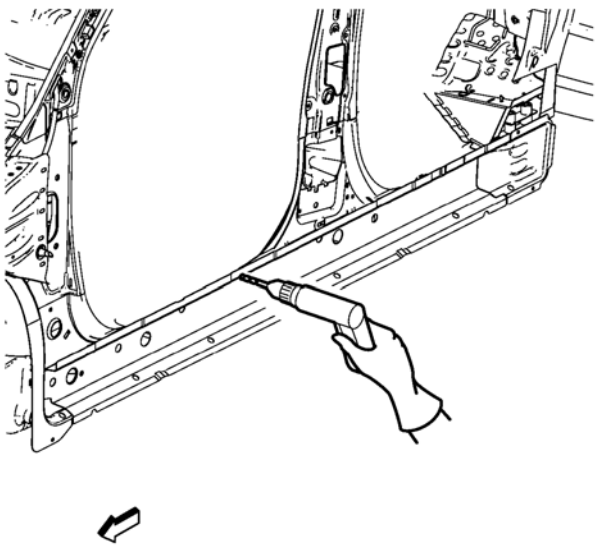


8. Locate and mark all the necessary factory welds of the body side inner panel.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

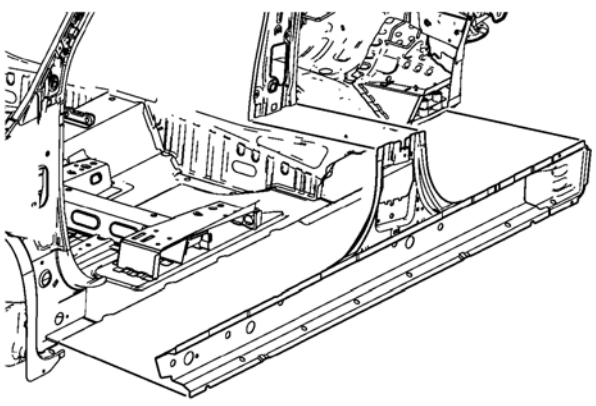
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10. Remove the body side inner panel.



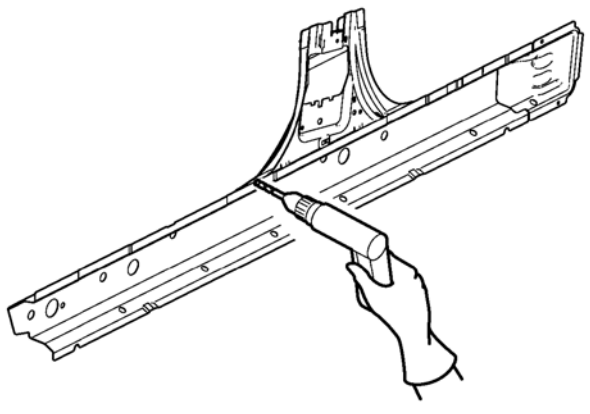
11. Locate and mark all the necessary factory welds of the rocker inner panel.
12. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



13. Remove the damaged rocker inner panel.

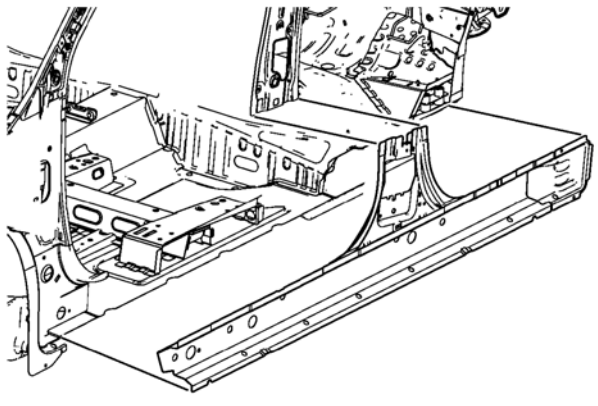
Installation Procedure

1. Align the rocker inner panel.

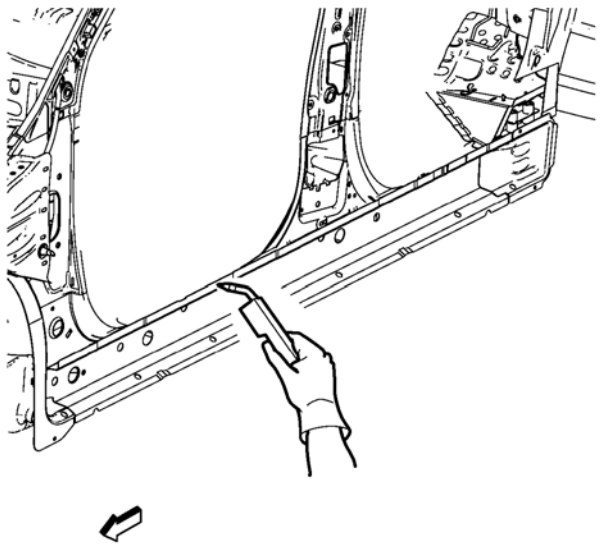


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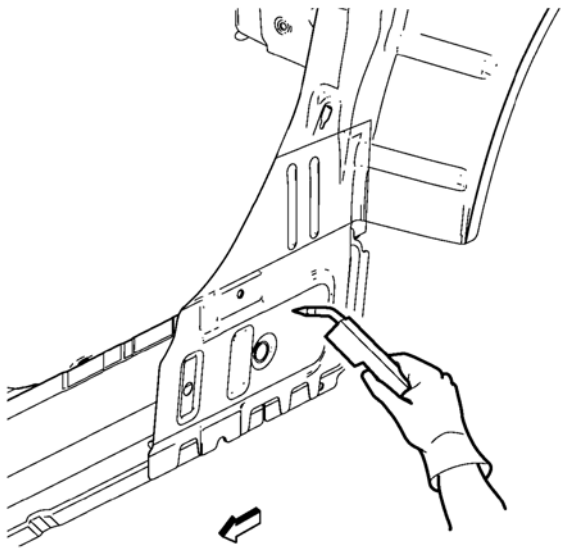
2. Drill 8 mm (5/16 in) for plug welding along the edges of the quarter outer panel as noted from the original panel.
3. Clean and prepare the attaching surfaces for welding.



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 accordingly.



8. Plug weld 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.

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Rocker Inner Panel Replacement (MIG-Brazing)

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

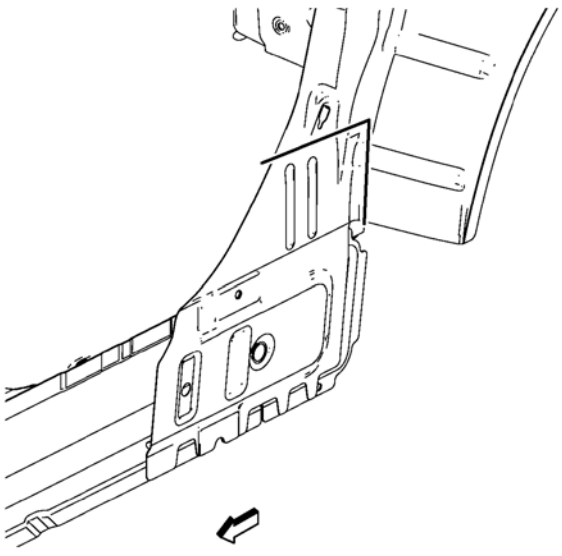
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

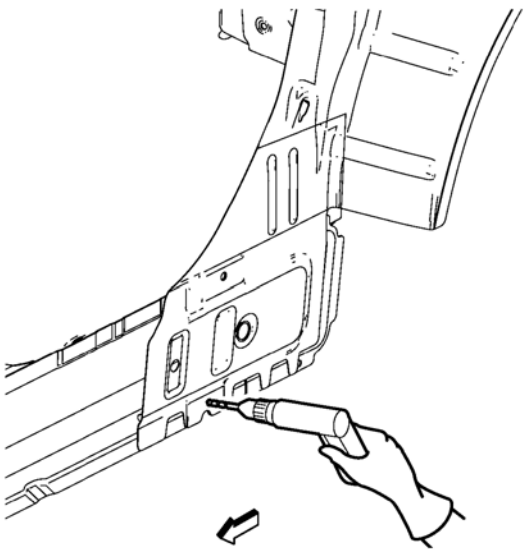


6. Create cut lines on the body side inner panel.



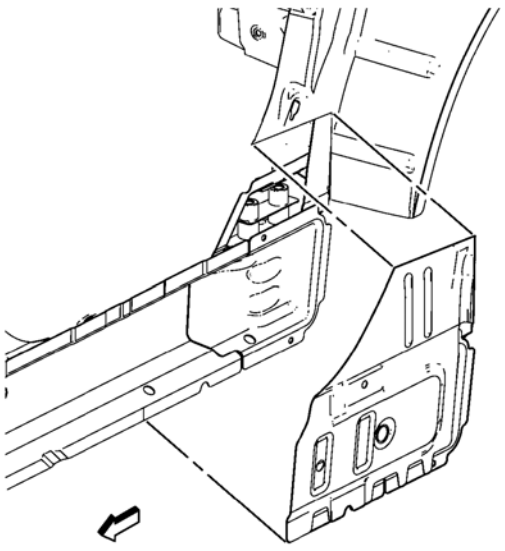
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.

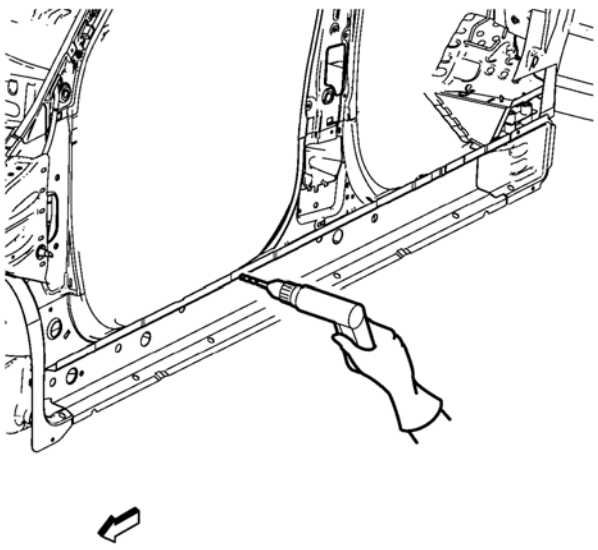


8. Locate and mark all the necessary factory welds of the body side inner panel.
9. Drill all factory welds.

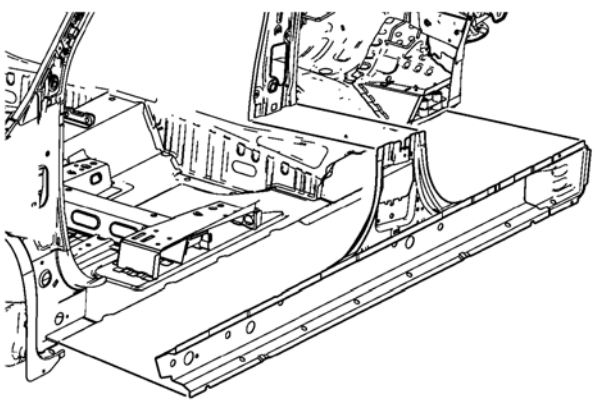
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10. Remove the body side inner panel.



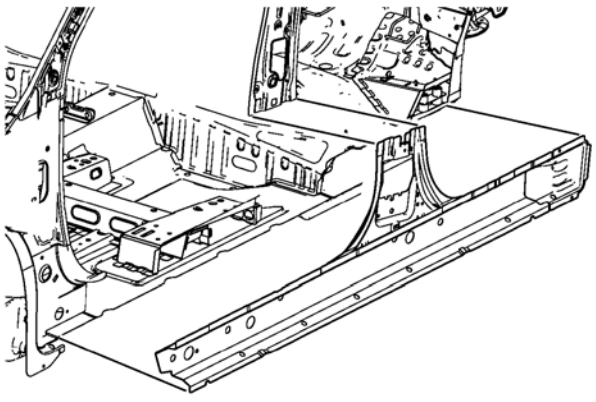
11. Locate and mark all the necessary factory welds of the rocker inner panel.
12. Drill all factory welds.



13. Remove the damaged rocker inner panel.

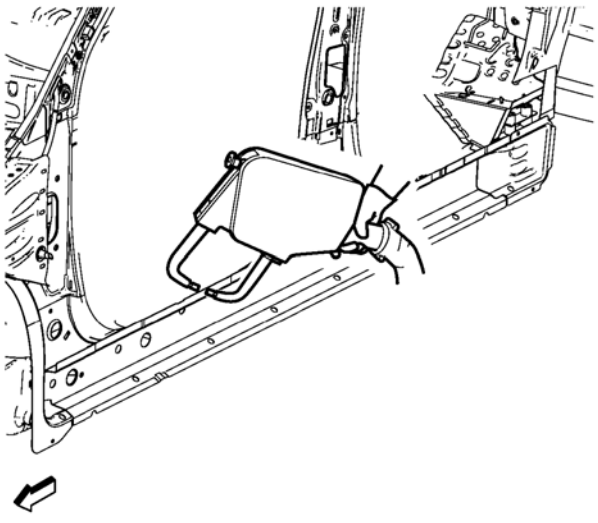
Installation Procedure

1. Align the rocker inner panel.
2. Clean and prepare the attaching surfaces for spot welding.
3. Apply structural adhesive to all attaching surfaces.

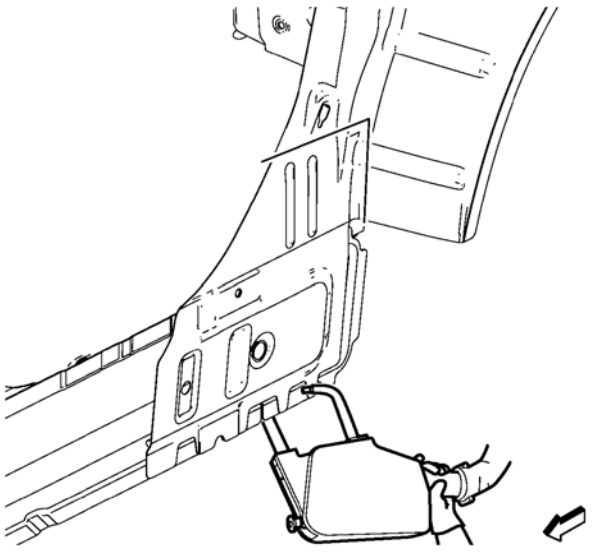


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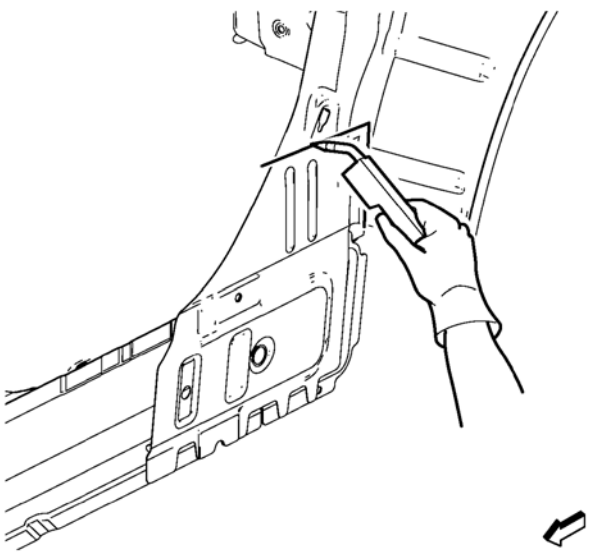
4. Position the rocker inner panel on the vehicle.
5. Verify the fit of the quarter outer panel.
6. Clamp the rocker inner panel into position.



7. Spot weld accordingly.



8. Spot weld accordingly.



9. Braze accordingly.
10. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.
11. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
12. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Body Lock Pillar Outer Panel Sectioning (MAG-Welding)

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

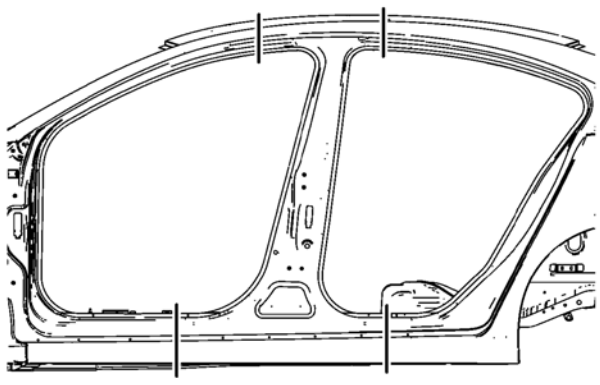
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

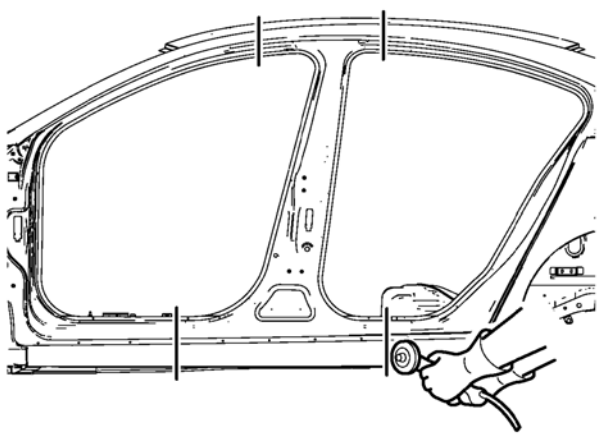
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

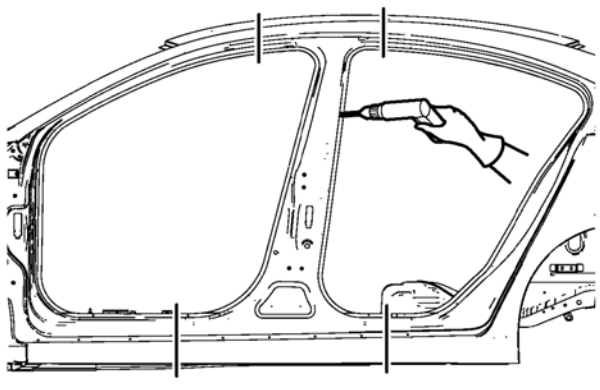


6. Create cut lines on the body lock pillar outer panel.



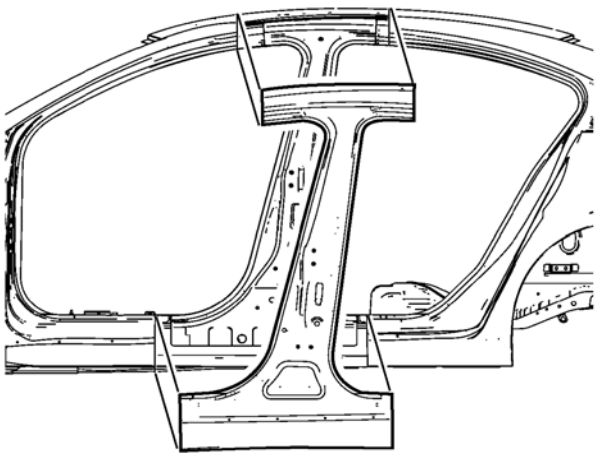
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



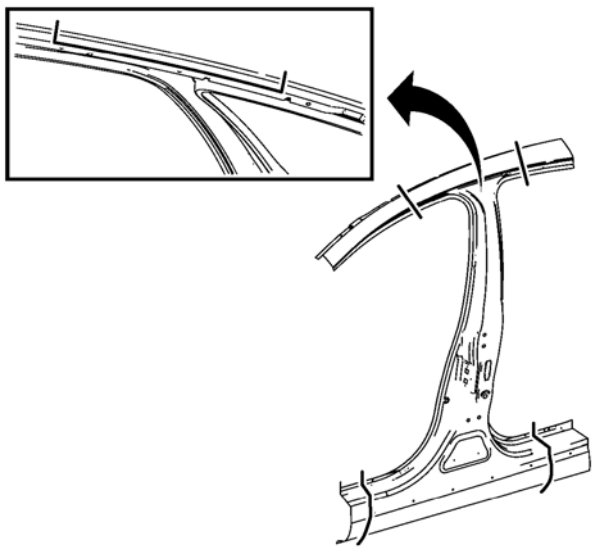
8. Locate and mark all the necessary factory welds of the body lock pillar outer panel.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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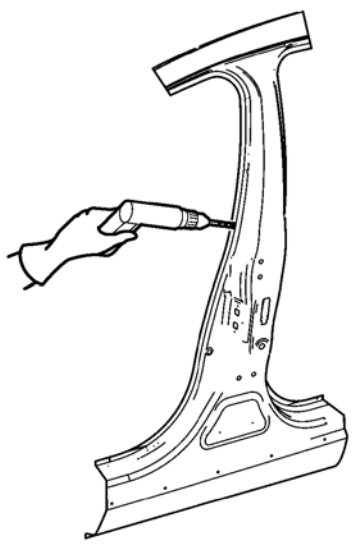


10. Remove the damaged body lock pillar outer panel.

Installation Procedure

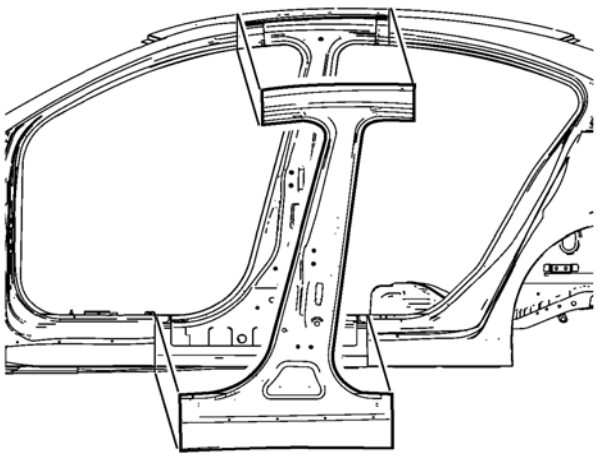


1. Cut the body lock pillar outer panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service 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 body lock pillar outer panel.

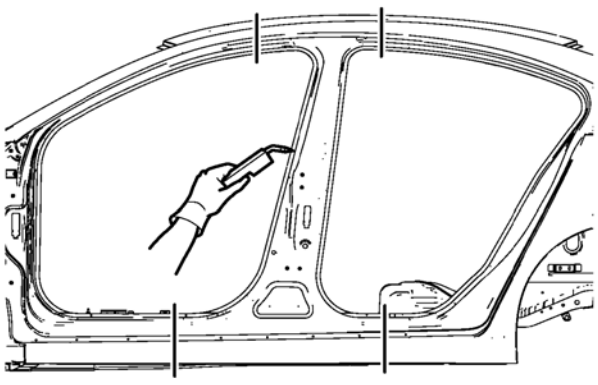


7. Drill 8 mm (5/16 in) for plug welding along the edges of the body lock pillar outer panel as noted from the original panel.
8. Clean and prepare the attaching surfaces for welding.

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9. Position the body lock pillar outer panel on the vehicle.
10. Verify the fit of the body lock pillar outer panel.
11. Clamp the body lock pillar outer panel into position.



12. Plug weld 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.

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Body Lock Pillar Outer Panel Sectioning (MIG-Brazing)

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

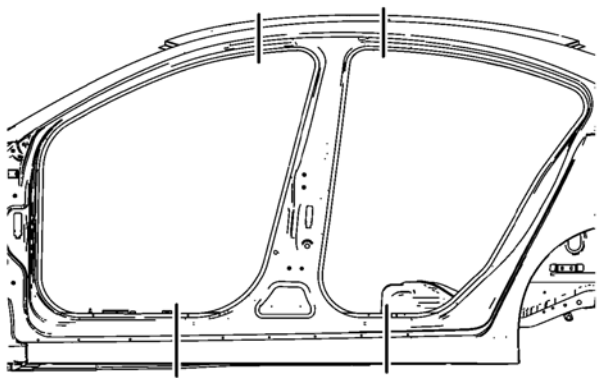
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

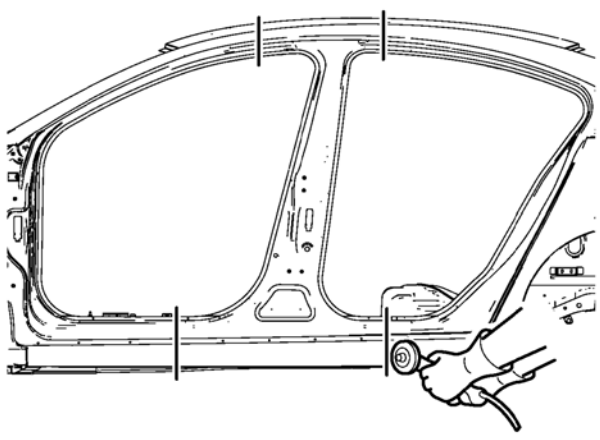
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

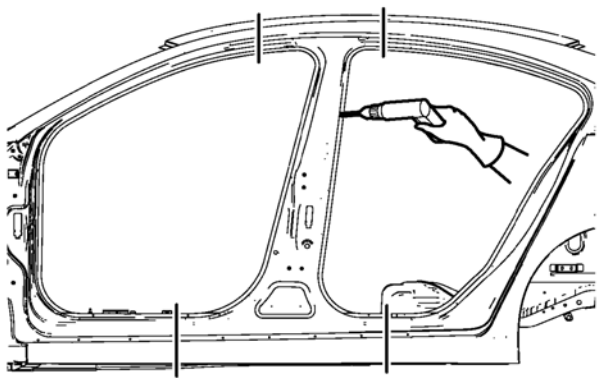


6. Create cut lines on the body lock pillar outer panel.



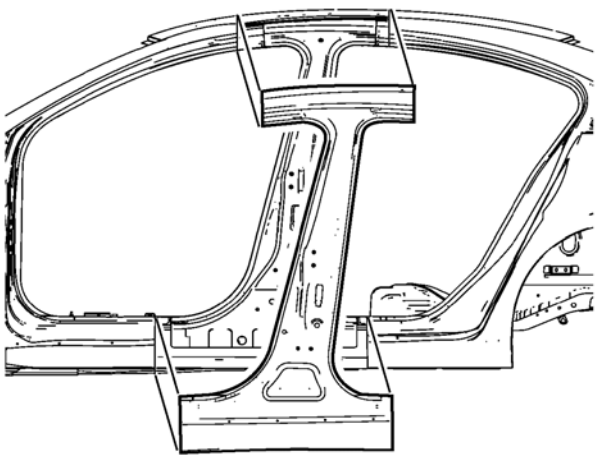
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



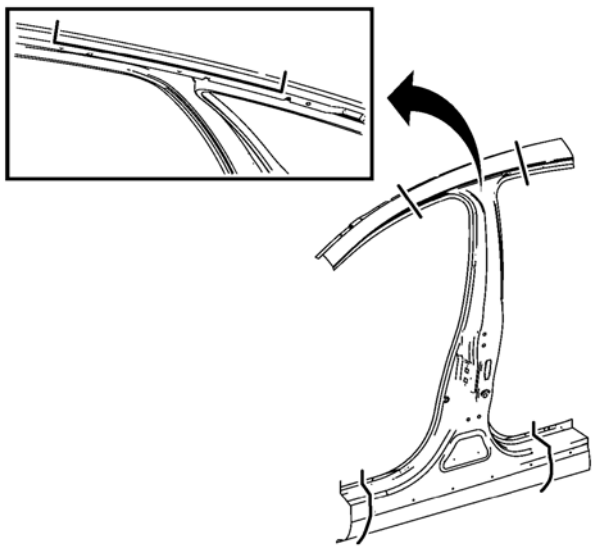
8. Locate and mark all the necessary factory welds of the body lock pillar outer panel.
9. Drill all factory welds.

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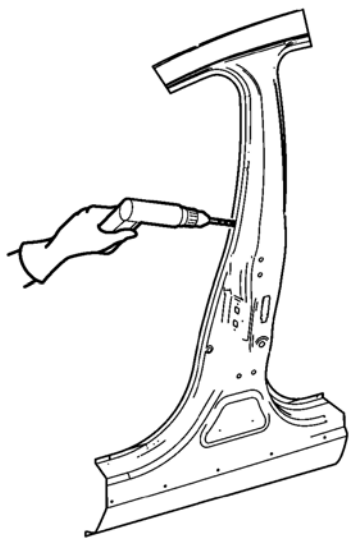


10. Remove the damaged body lock pillar outer panel.

Installation Procedure



1. Cut the body lock pillar outer 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.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
3. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing 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 braze to the vehicle.
6. Align the body lock pillar outer panel.

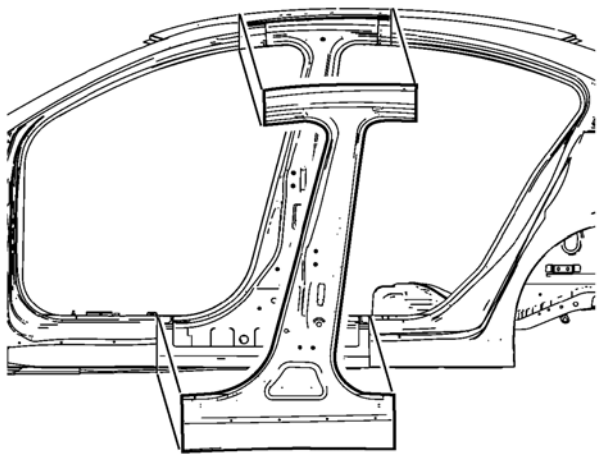


7. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing in locations where you can not apply a resistance spot welder.
8. Clean and prepare the attaching surfaces for spot welding and brazing.

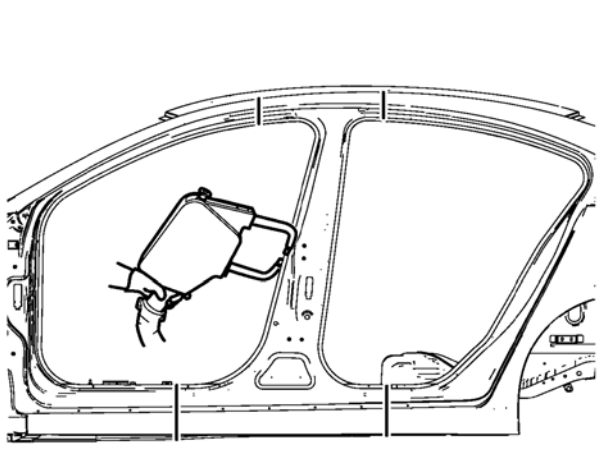
   Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

9. Apply structural adhesive to all attaching surfaces.

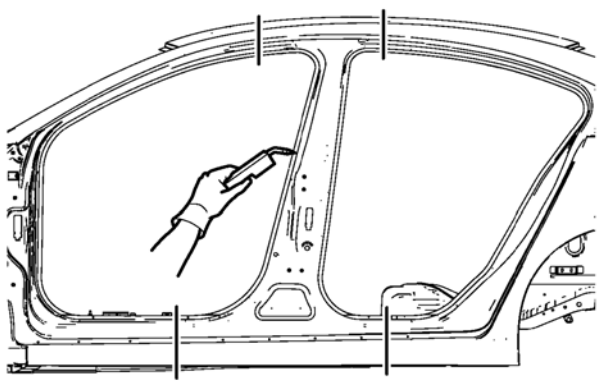
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10. Position the body lock pillar outer panel on the vehicle.
11. Verify the fit of the body lock pillar outer panel.
12. Clamp the body lock pillar outer panel into position.



13. Spot weld accordingly.



14. Braze accordingly.
15. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.
16. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
17. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
18. Install all related panels and components.
19. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
20. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Body Lock Pillar Outer Panel Reinforcement Replacement (MAG-Welding)

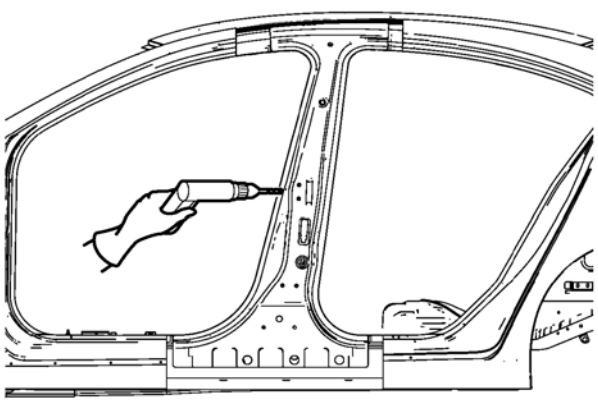
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

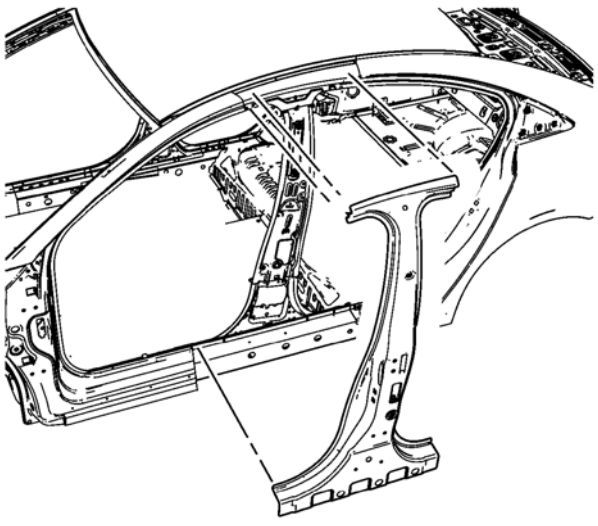
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



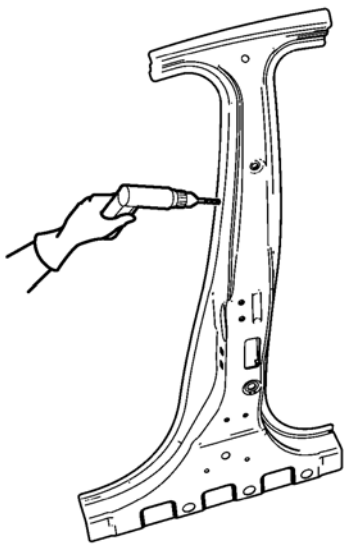
6. Locate and mark all the necessary factory welds of the body lock pillar outer panel reinforcement.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



8. Remove the damaged body lock pillar outer panel reinforcement.

Installation Procedure

1. Prepare all mating surfaces as necessary.
2. Align the body lock pillar outer panel reinforcement.

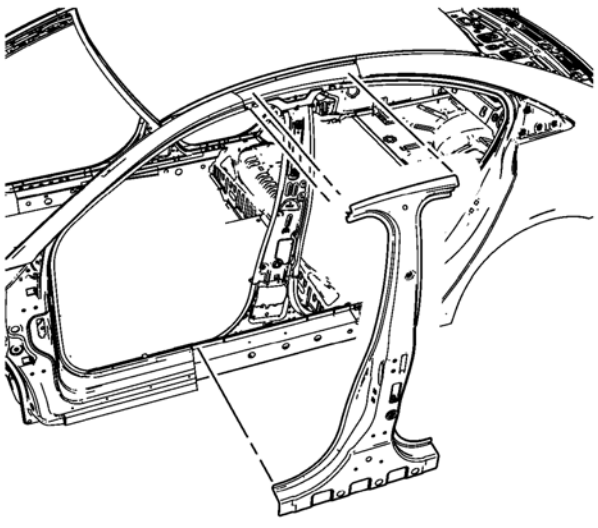


3. Drill 8 mm (5/16 in) for plug welding along the edges of the body lock pillar outer panel reinforcement as noted from the original

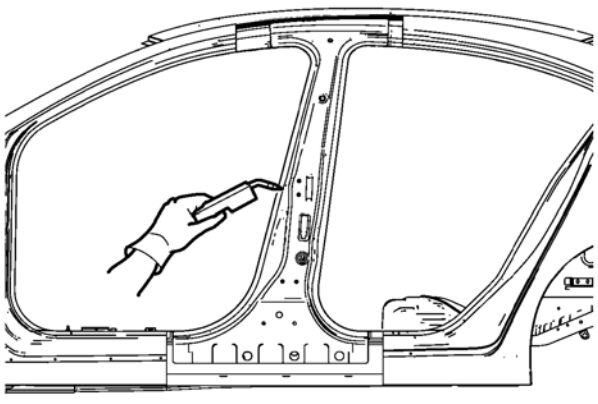
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panel.

4. Clean and prepare the attaching surfaces for welding.



5. Position the body lock pillar outer panel reinforcement on the vehicle.
6. Verify the fit of the body lock pillar outer panel reinforcement.
7. Clamp the body lock pillar outer panel reinforcement into position.



8. Plug weld 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.

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Body Lock Pillar Outer Panel Reinforcement Replacement (MIG-Brazing)

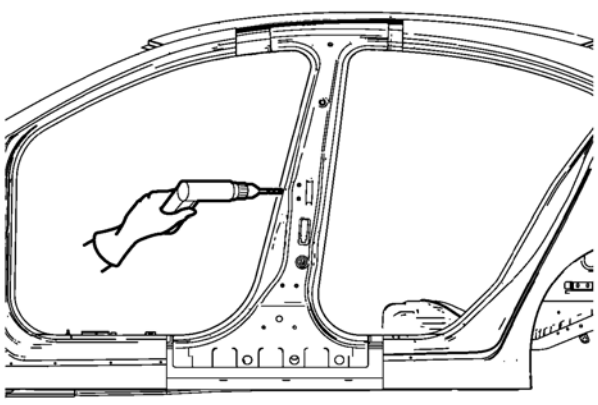
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

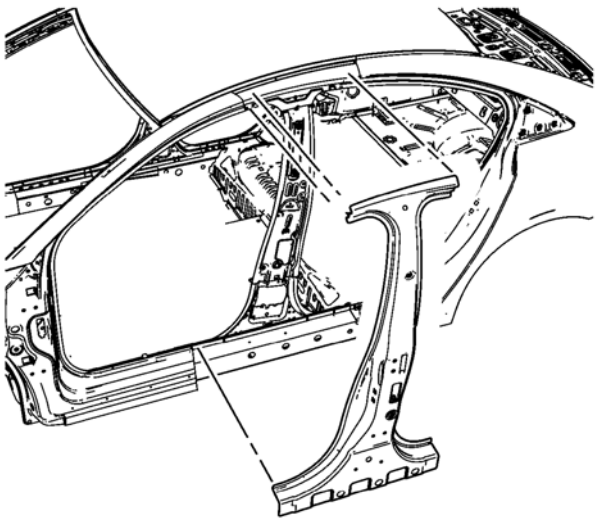
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



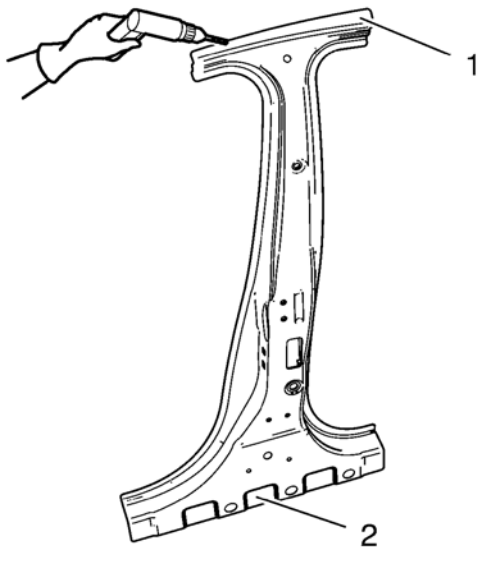
6. Locate and mark all the necessary factory welds of the body lock pillar outer panel reinforcement.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



8. Remove the damaged body lock pillar outer panel reinforcement.

Installation Procedure

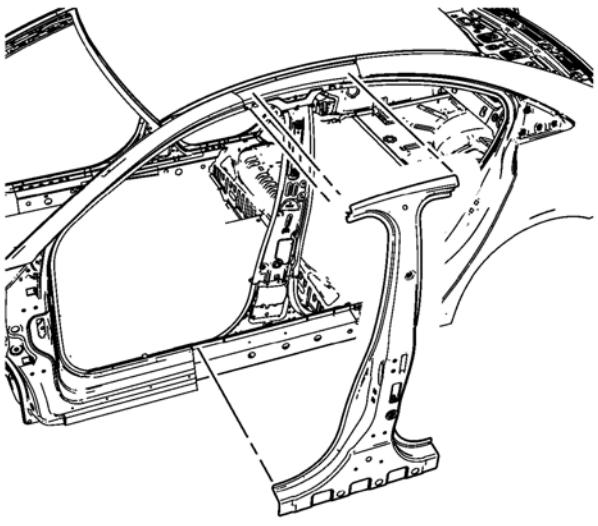
1. Prepare all mating surfaces as necessary.
2. Align the body lock pillar outer panel reinforcement.



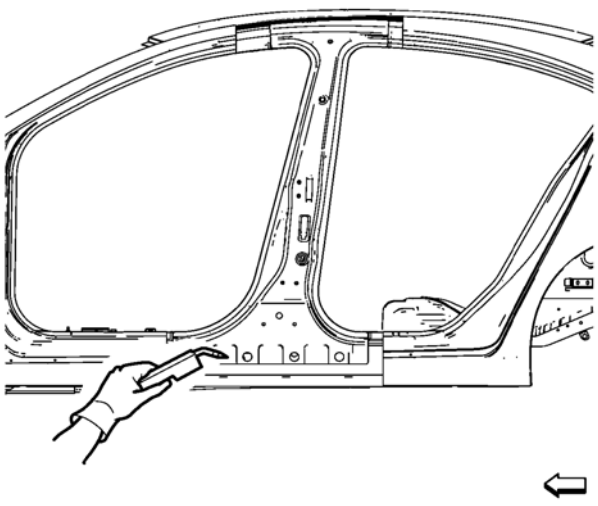
3. Create 8 x 24 mm (5/16 x 15/16 in) slots for MIG-brazing upper (1) and lower (2).

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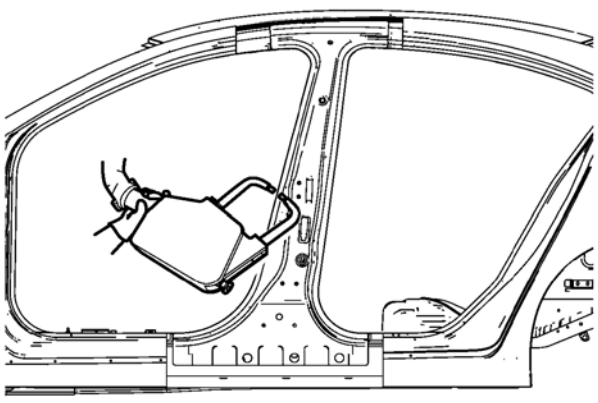
4. Clean and prepare the attaching surfaces for spot welding and brazing.



5. Position the body lock pillar outer panel reinforcement on the vehicle.
6. Verify the fit of the body lock pillar outer panel reinforcement.
7. Clamp the body lock pillar outer panel reinforcement into position.



8. Braze accordingly.



9. Spot weld accordingly.
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.

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Body Lock Pillar Inner Panel Replacement (MAG-Welding)

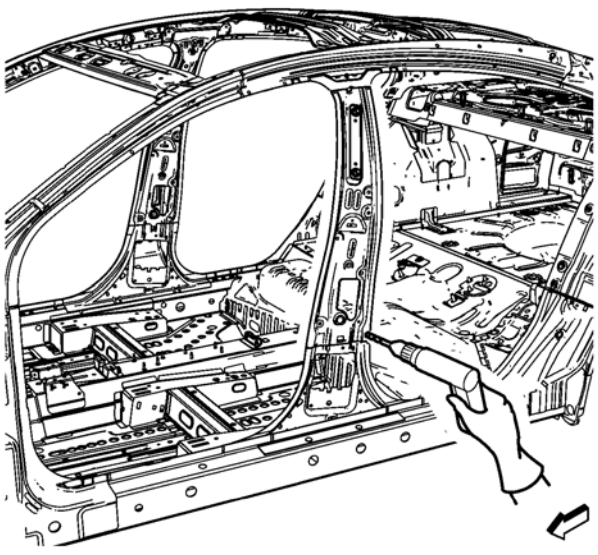
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

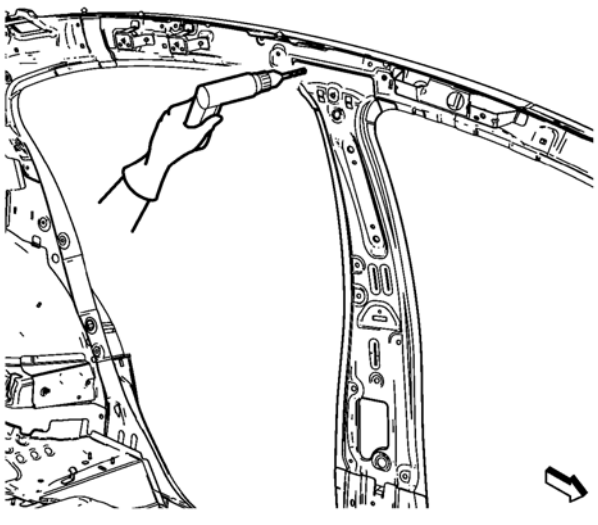
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

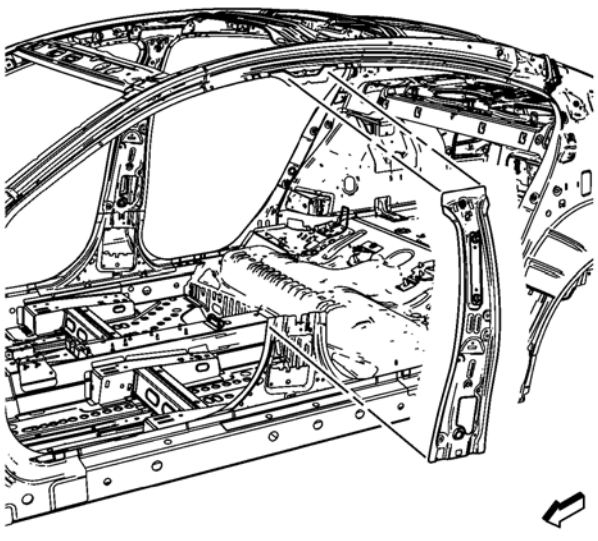
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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. Note the number and location of welds for installation of the service assembly.



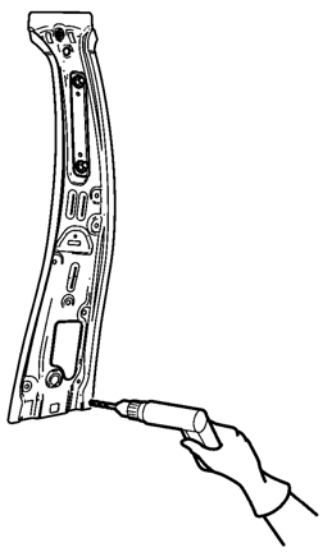
8. Drill all factory welds upper. Note the number and location of welds for installation of the service assembly.



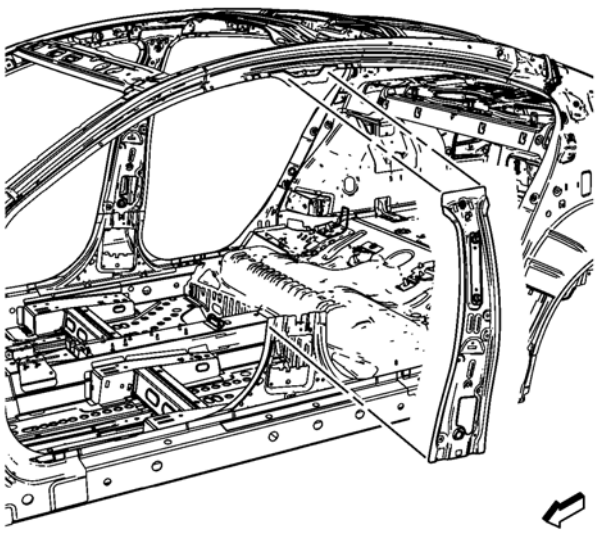
9. Remove the damaged body lock pillar inner panel.

Installation Procedure

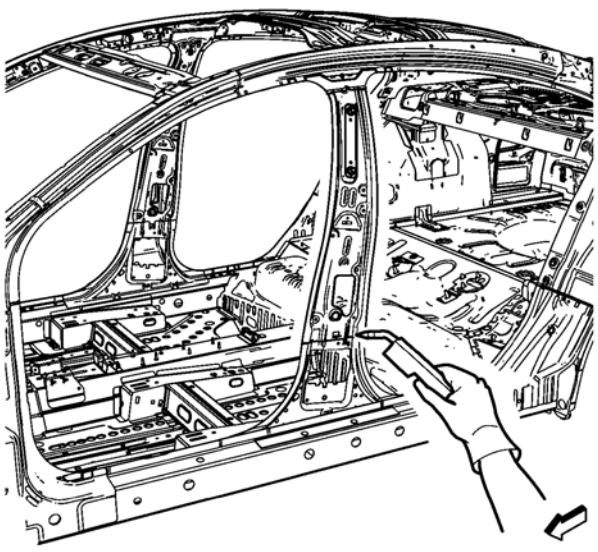
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1. Drill 8 mm (5/16 in) for plug welding along the edges of the service panel as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.



3. Position the body lock pillar inner panel on the vehicle.
4. Verify the fit of the panel.
5. Clamp the body lock pillar inner panel into position.



6. Plug weld accordingly body lock pillar inner panel 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.

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Body Lock Pillar Inner Panel Replacement (MIG-Brazing)

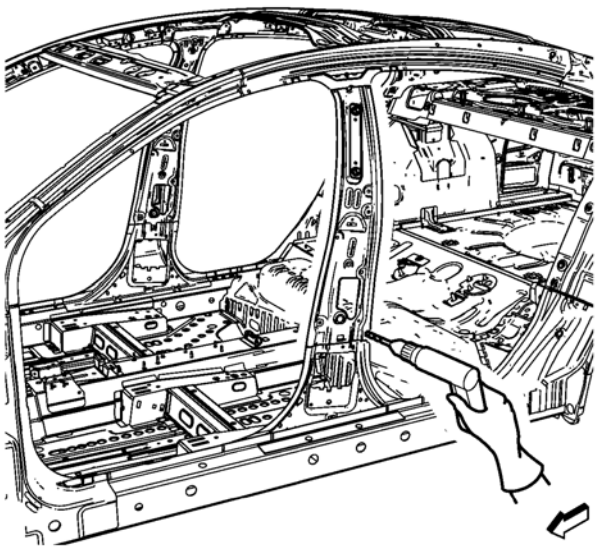
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

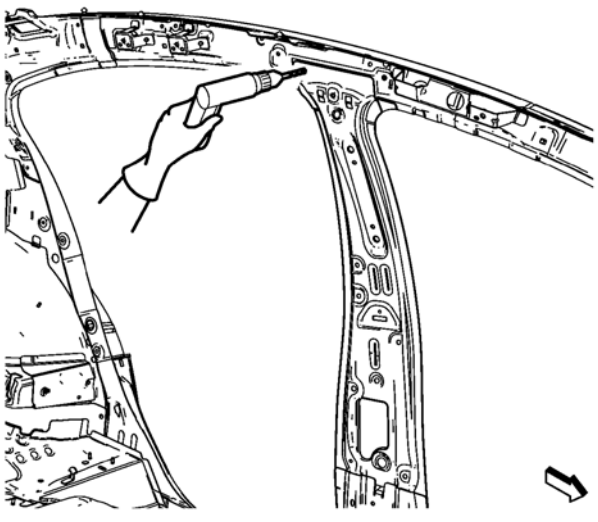
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

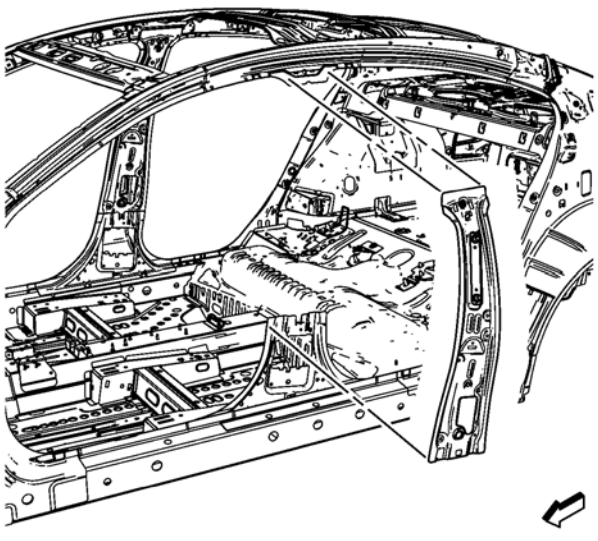
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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. Note the number and location of welds for installation of the service assembly.



7. Drill all factory welds lower.



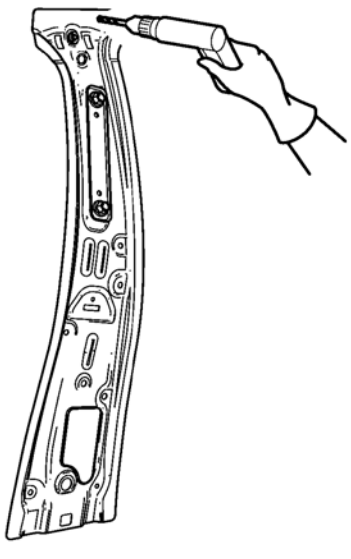
8. Drill all factory welds upper.



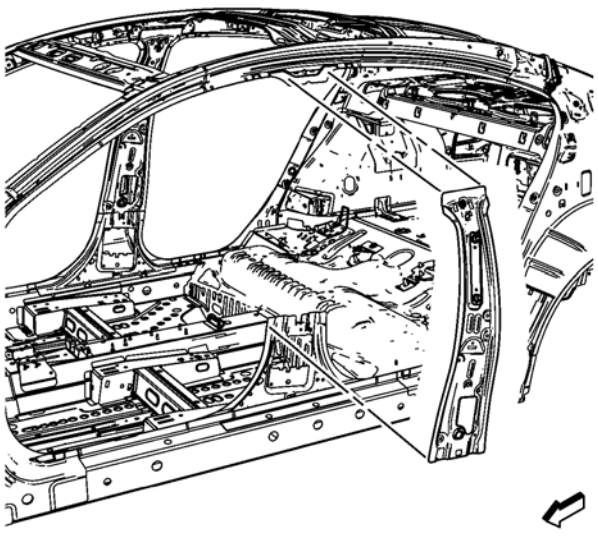
9. Remove the damaged body lock pillar inner panel.

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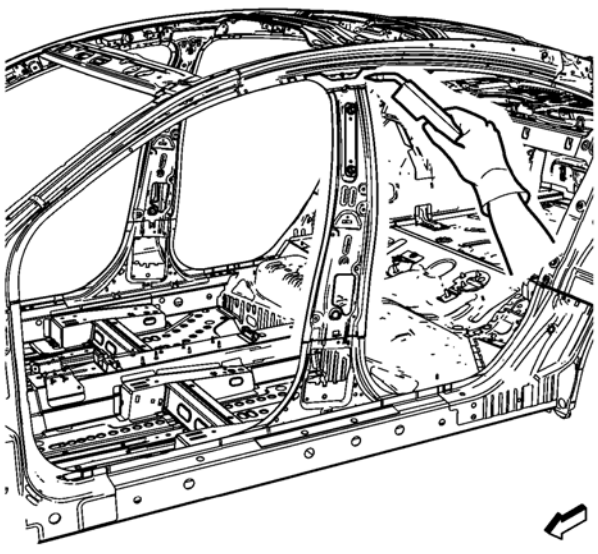
Installation Procedure



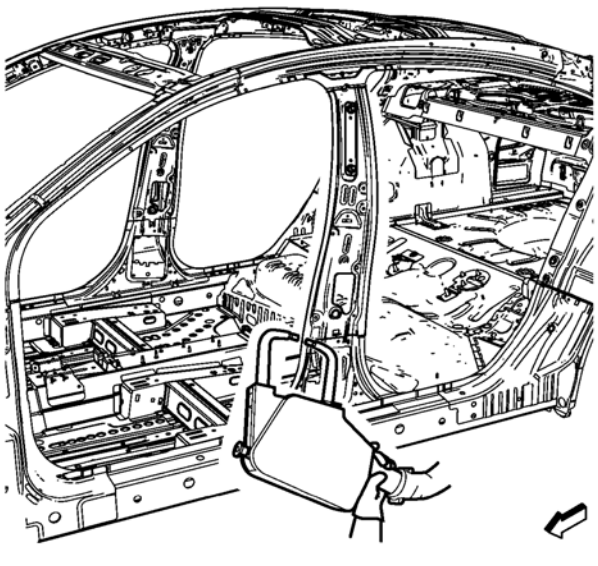
1. Create 6 x 20 mm (4/16 x 11/16 in) slots for MIG-brazing along the upper edges of the service panel as noted from the original panel.
2. Clean and prepare the attaching surfaces for brazing and spot welding.



3. Position the body lock pillar inner panel on the vehicle.
4. Verify the fit of the panel.
5. Clamp the body lock pillar inner panel into position.



6. Braze accordingly the body lock pillar inner panel upper.



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7. Spot weld accordingly the body lock pillar inner panel lower.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Rocker Outer Panel Sectioning (MAG-Welding)

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

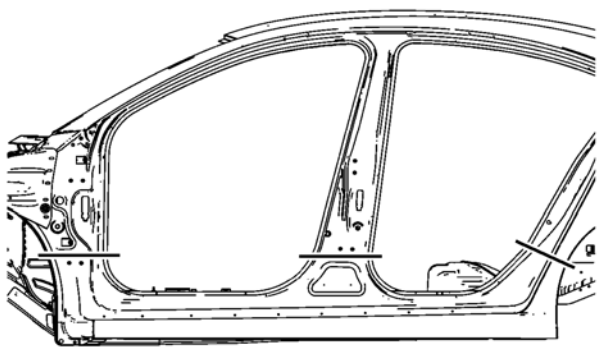
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

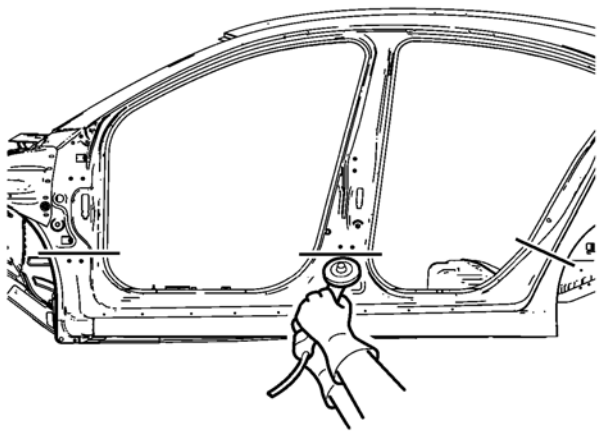
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

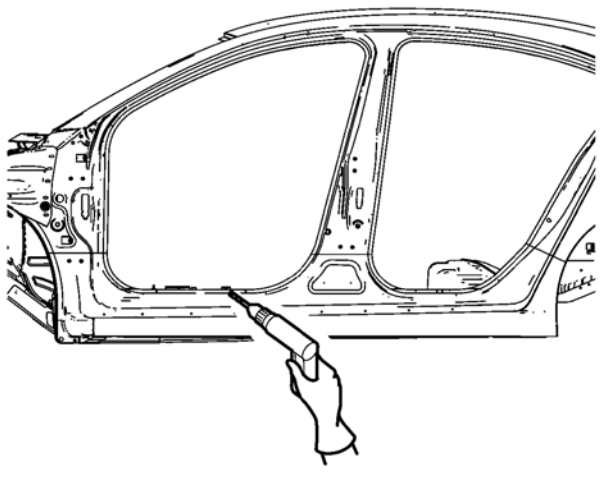


6. Create cut lines on the rocker outer panel.



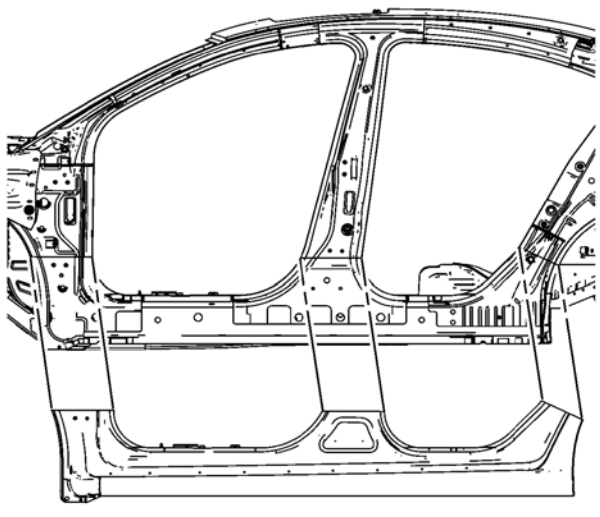
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



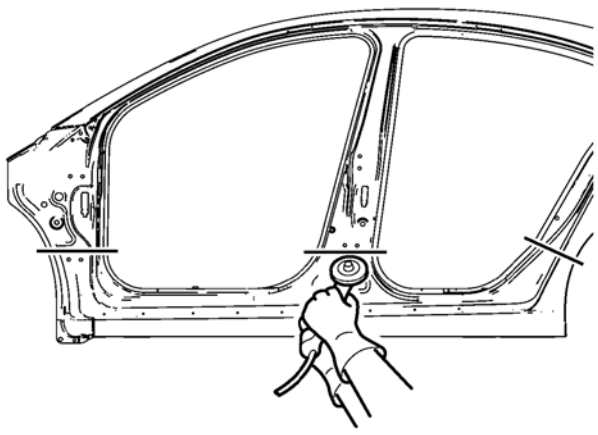
8. Locate and mark all the necessary factory welds of the rocker outer panel.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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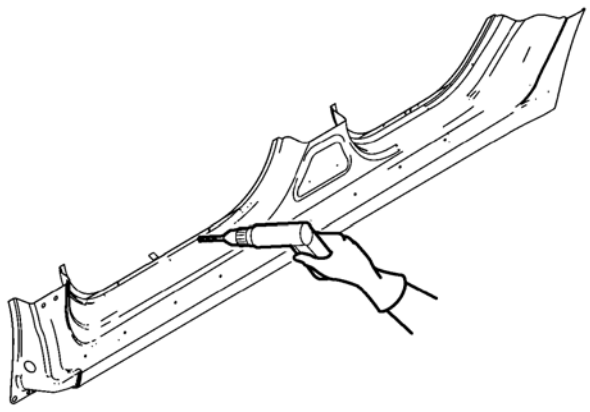


10. Remove the damaged rocker outer panel.

Installation Procedure

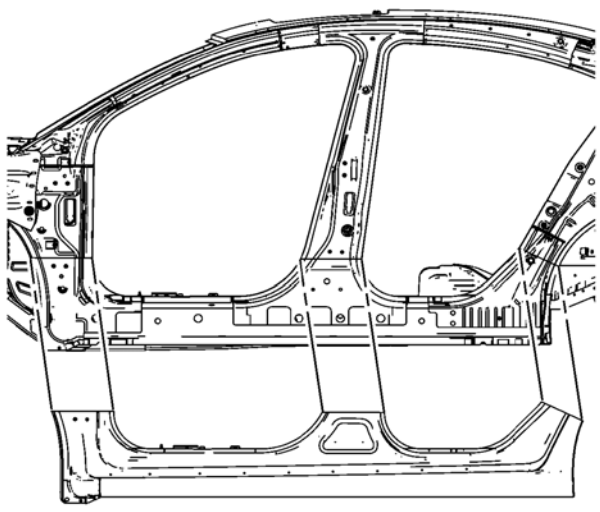


1. Cut the rocker outer panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
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 (1½ 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 rocker outer panel.

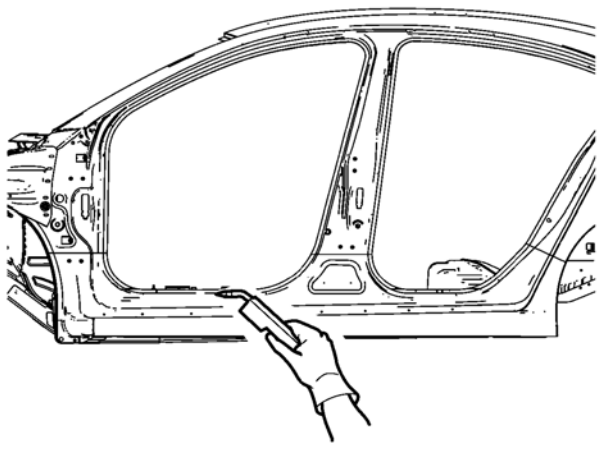


7. Drill 8 mm (5/16 in) for plug welding along the edges of the rocker outer panel as noted from the original panel.
8. Clean and prepare the attaching surfaces for welding.

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9. Position the rocker outer panel on the vehicle.
10. Verify the fit of the rocker outer panel.
11. Clamp the rocker outer panel into position.



12. Plug weld 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.

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Rocker Outer Panel Sectioning (MIG-Brazing)

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

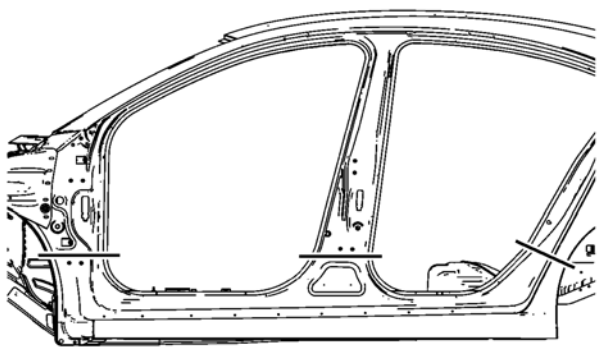
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

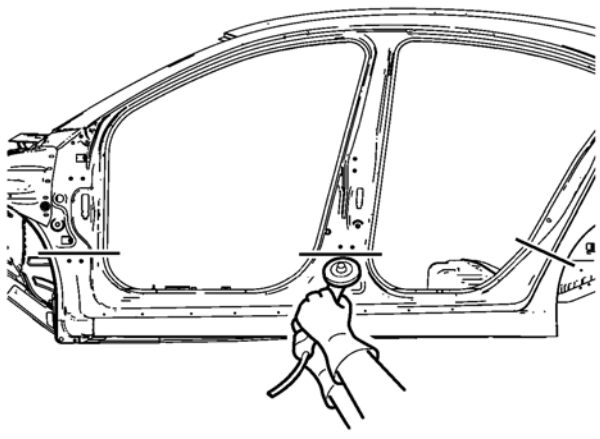
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

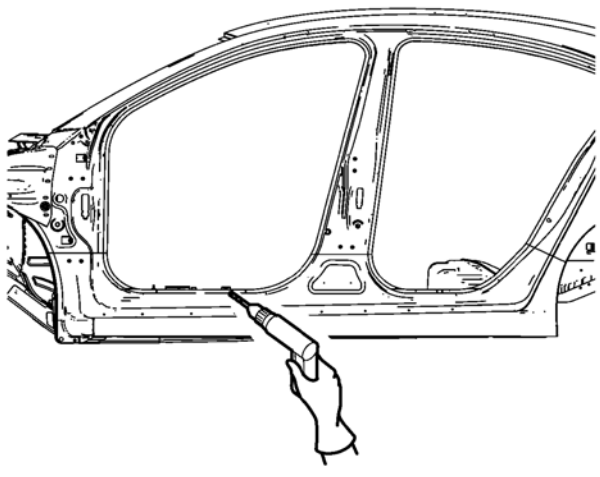


6. Create cut lines on the rocker outer panel.



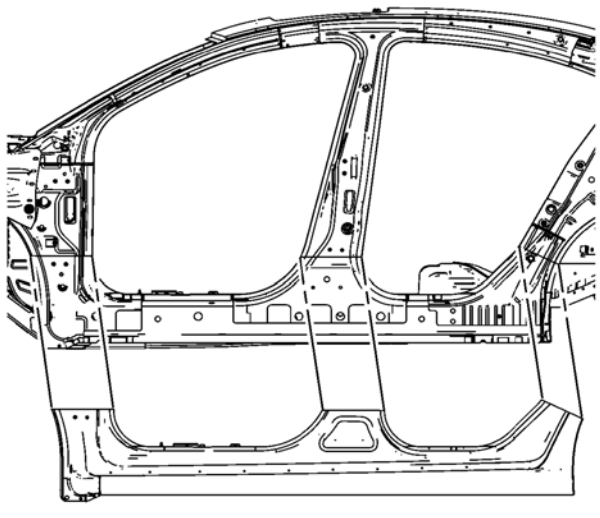
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



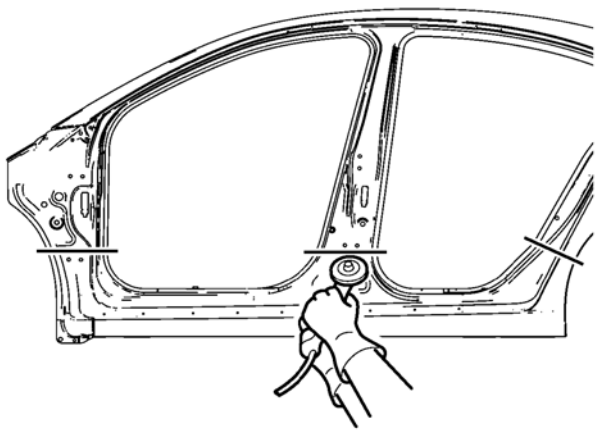
8. Locate and mark all the necessary factory welds of the rocker outer panel.
9. Drill all factory welds.

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10. Remove the damaged rocker outer panel.

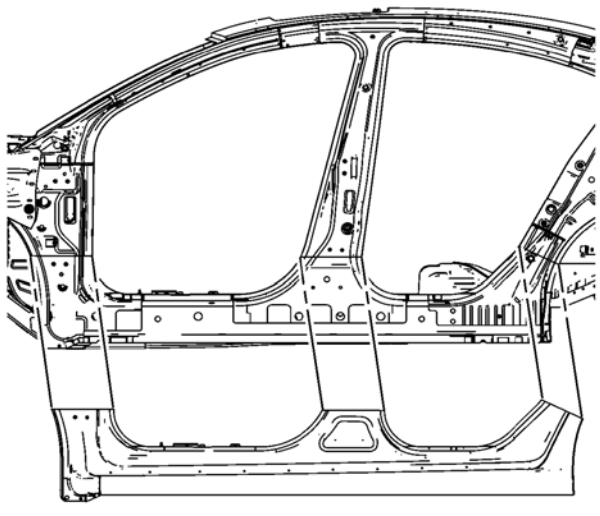
Installation Procedure



1. Cut the rocker outer 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.
2. Create 50 mm (2 in) backing plates from the unused portion of the service part.
3. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing along the sectioning cut on the remaining original part. Locate these slots 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 braze to the vehicle.
6. Align the rocker outer panel.
7. Clean and prepare the attaching surfaces for spot welding.

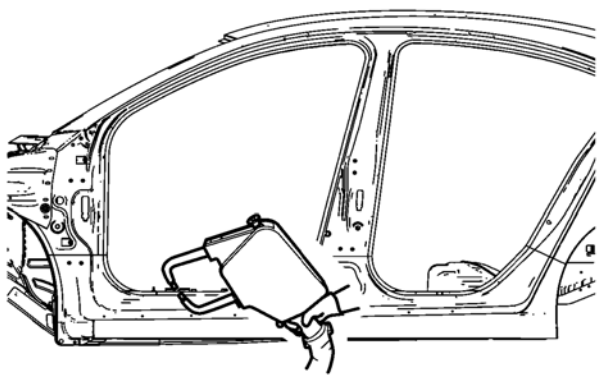
Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

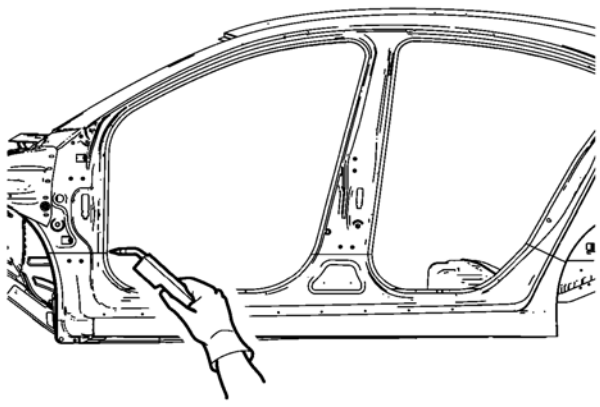
8. Apply structural adhesive to the attaching surfaces.



9. Position the rocker outer panel on the vehicle.
10. Verify the fit of the rocker outer panel.
11. Clamp the rocker outer panel into position.

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

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Body Side Outer Panel Reinforcement Replacement (MAG-Welding)

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

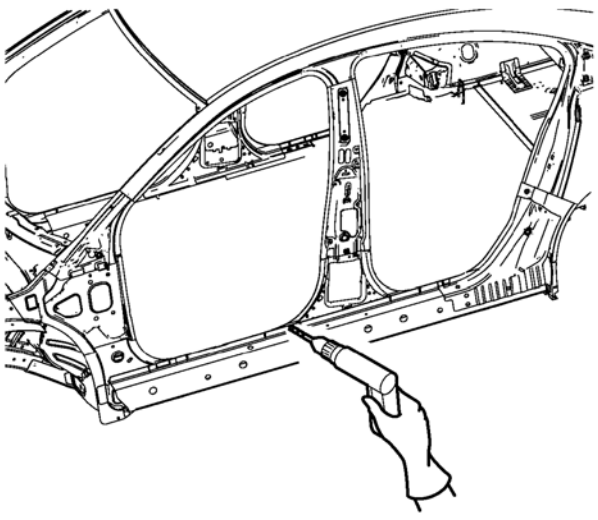
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

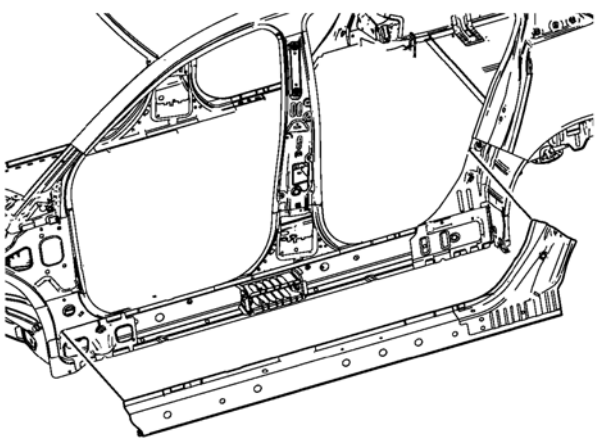
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



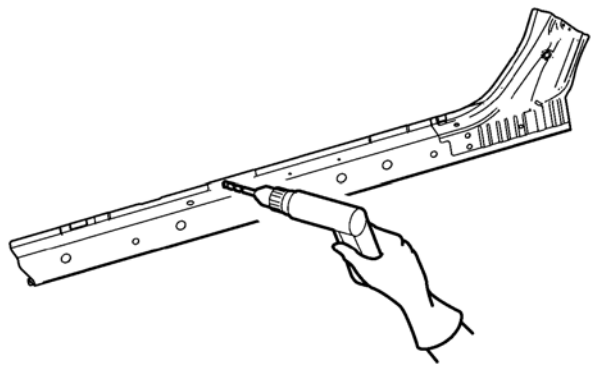
6. Locate and mark all the necessary factory welds of the body side outer panel reinforcement.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



8. Remove the damaged body side outer panel reinforcement.

Installation Procedure

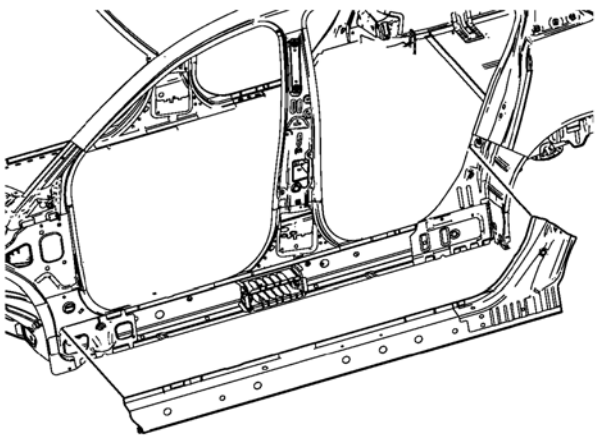
1. Align the body side outer panel reinforcement.

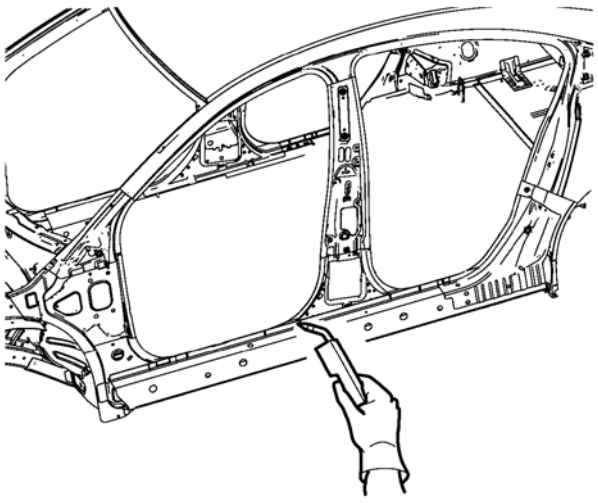


2. Drill 8 mm (5/16 in) for plug welding along the edges of the body side outer panel reinforcement as noted from the original panel.

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3. Clean and prepare the attaching surfaces for welding.





4. Position the body side outer panel reinforcement 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 accordingly.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Body Side Outer Panel Reinforcement Replacement (MIG-Brazing)

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

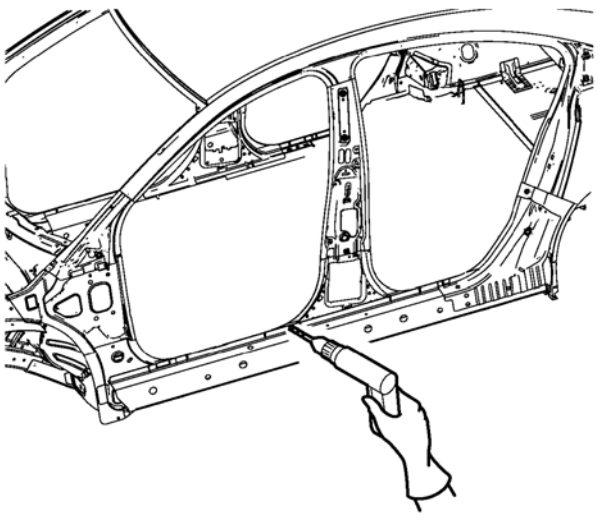
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

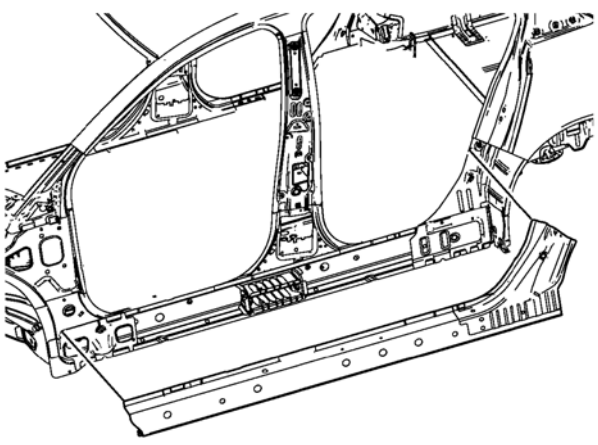
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



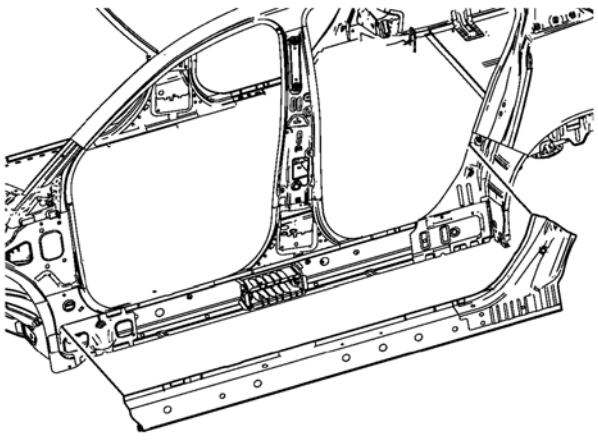
6. Locate and mark all the necessary factory welds of the body side outer panel reinforcement.
7. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



8. Remove the damaged body side outer panel reinforcement.

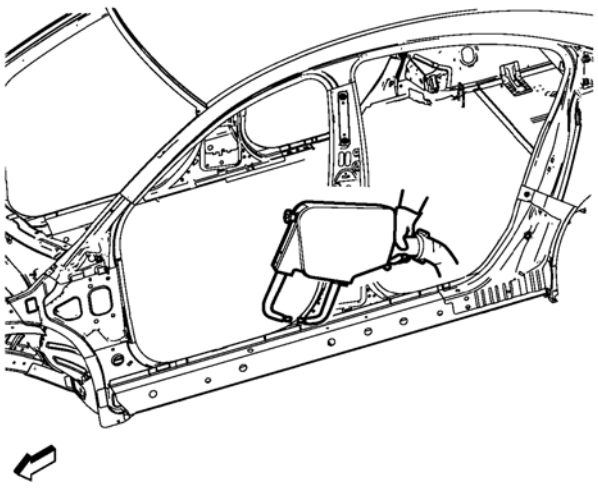
Installation Procedure

1. Align the body side outer panel reinforcement.
2. Clean and prepare the attaching surfaces for welding.



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3. Position the body side outer panel reinforcement on the vehicle.
4. Verify the fit of the body side outer panel reinforcement.
5. Clamp the body side outer panel reinforcement into position.



6. Spot weld 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.

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Body Side Inner Panel Sectioning (MAG-Welding)

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

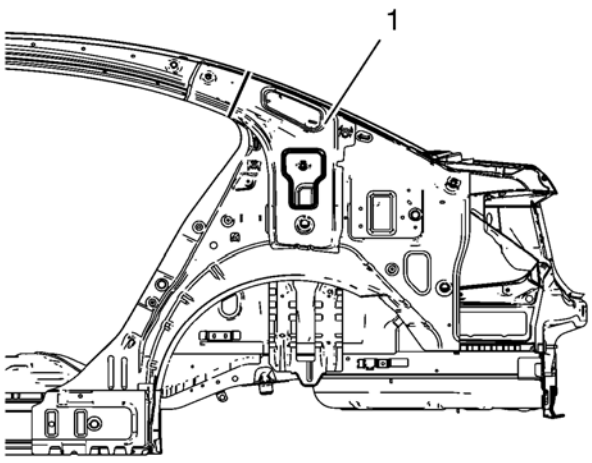
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

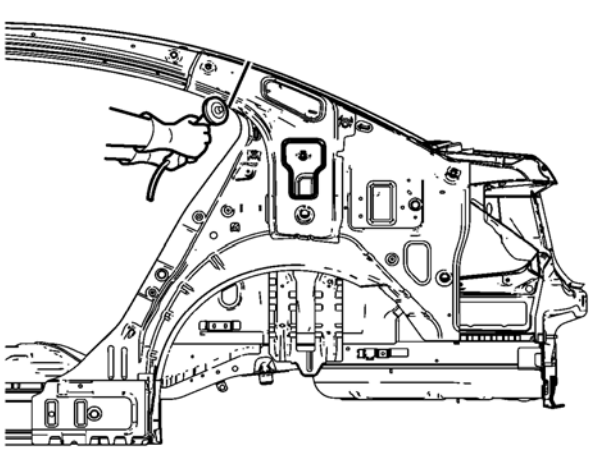
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

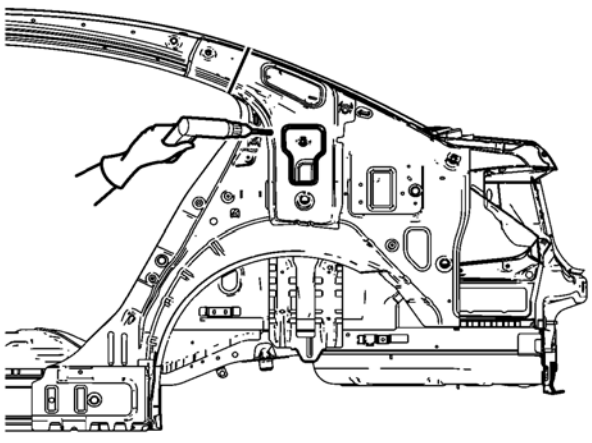


6. Create cut lines on the body lock pillar upper reinforcement (1).



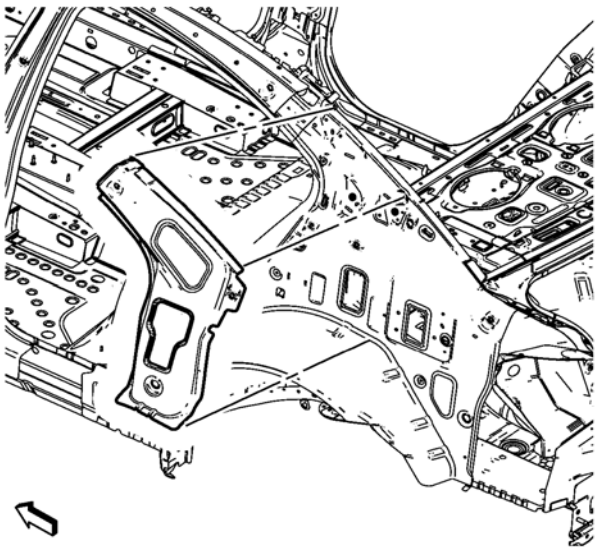
Note: Do not damage any other panels or reinforcements.

7. Cut the panel where sectioning is to be performed.

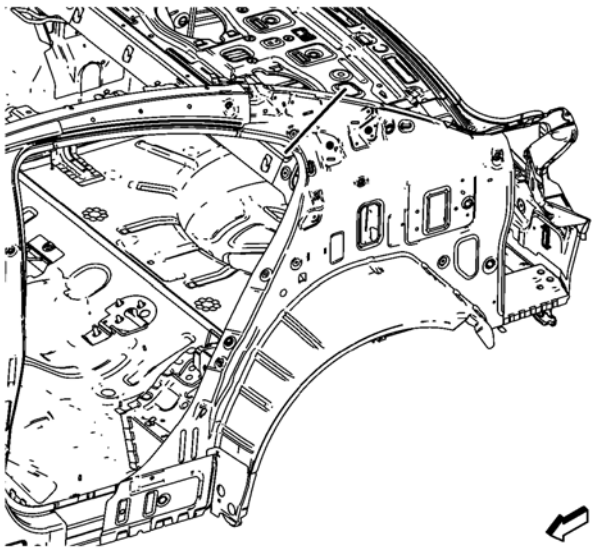


8. Locate and mark all the necessary factory welds of the body lock pillar upper reinforcement.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

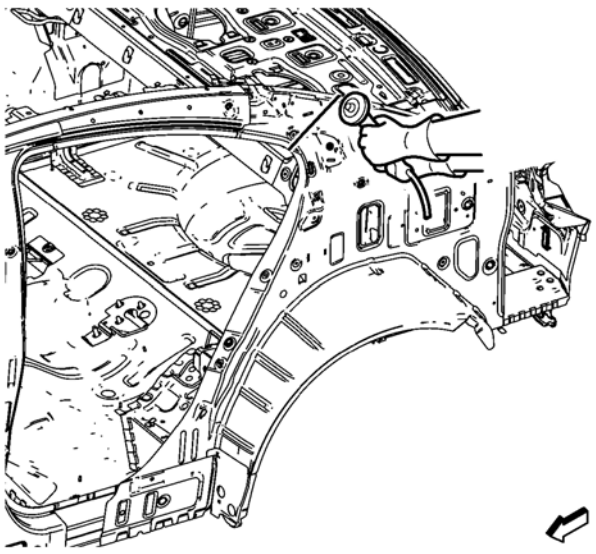
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10. Remove the damaged body lock pillar upper reinforcement.

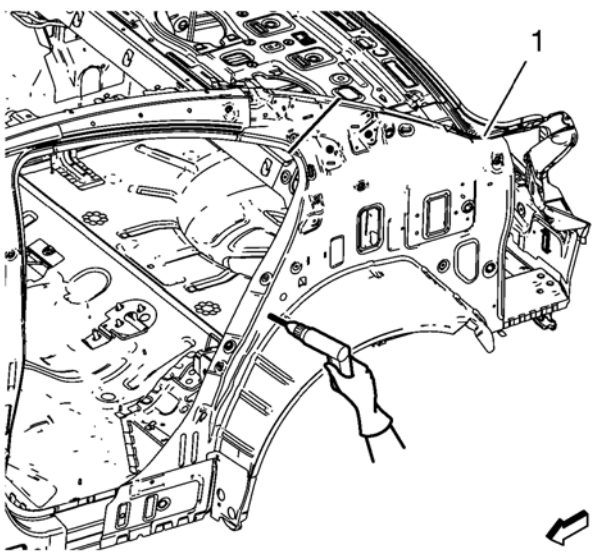


11. Create cut lines on the body side inner panel.



Note: Do not damage any other panels or reinforcements.

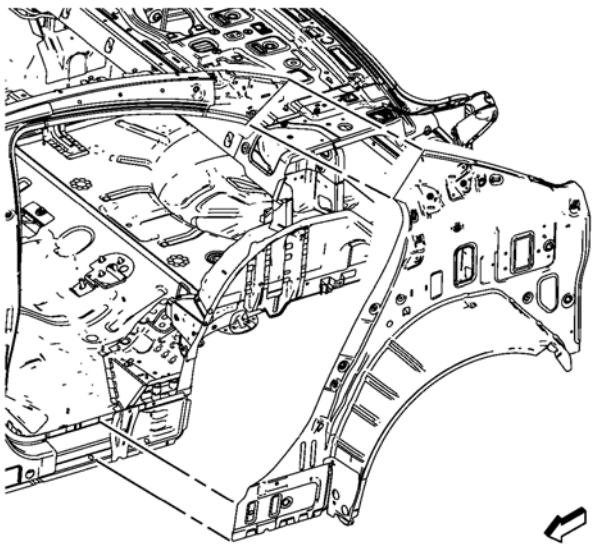
12. Cut the panel where sectioning is to be performed.



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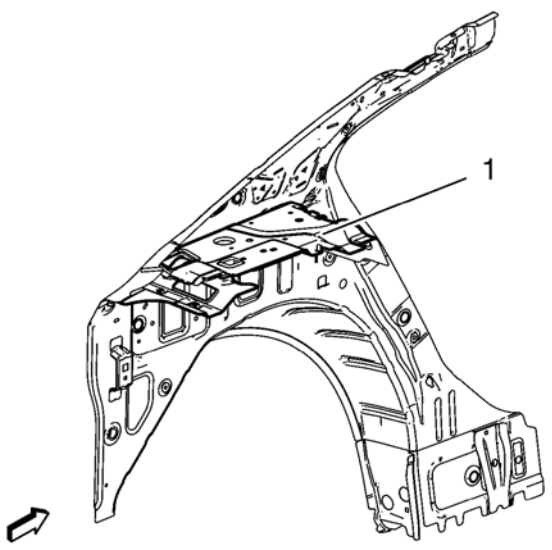
Note: Drill hidden factory welds where body side outer rear panel drain gutter (1) and body side inner panel overlap.

13. Locate and mark all the necessary factory welds of the body side inner panel.
14. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

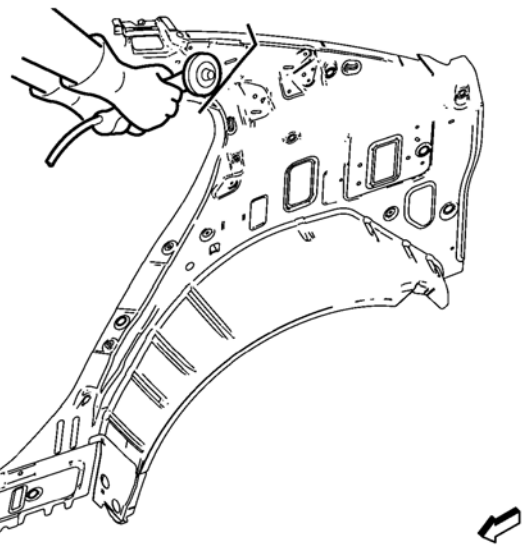


15. Remove the damaged body side inner panel.

Installation Procedure

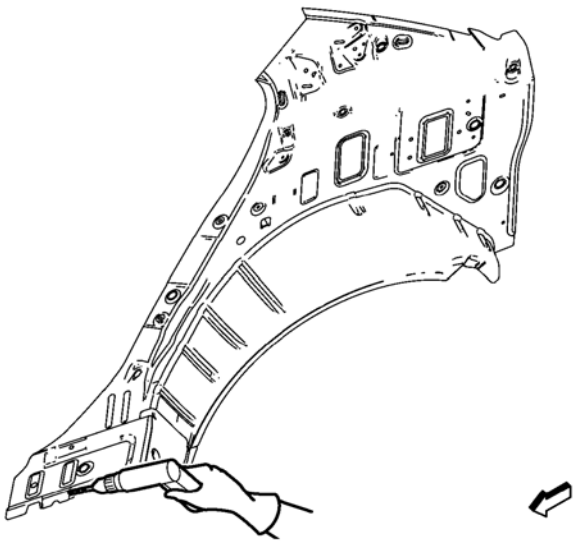


1. Remove rear end upper panel extension (1) from service part.

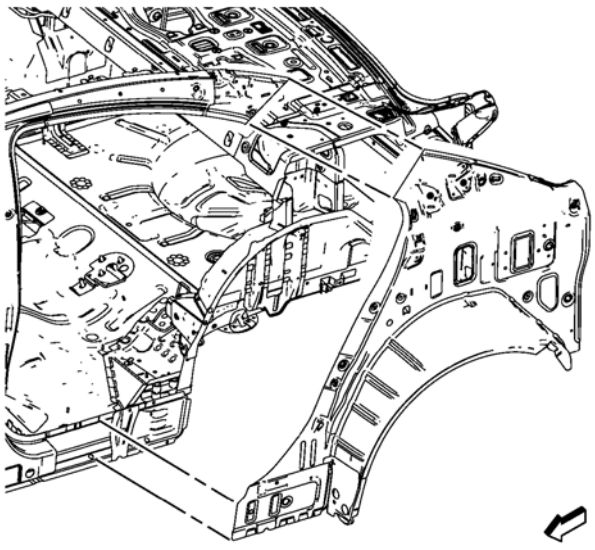


2. Cut the body side inner panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
3. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
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. Align the body side inner panel.

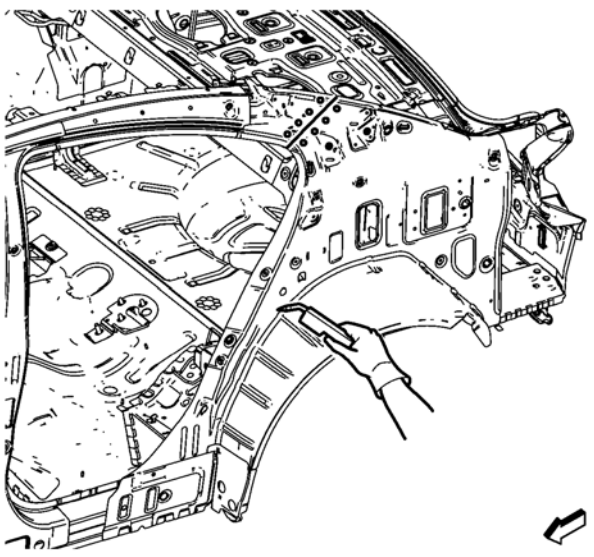
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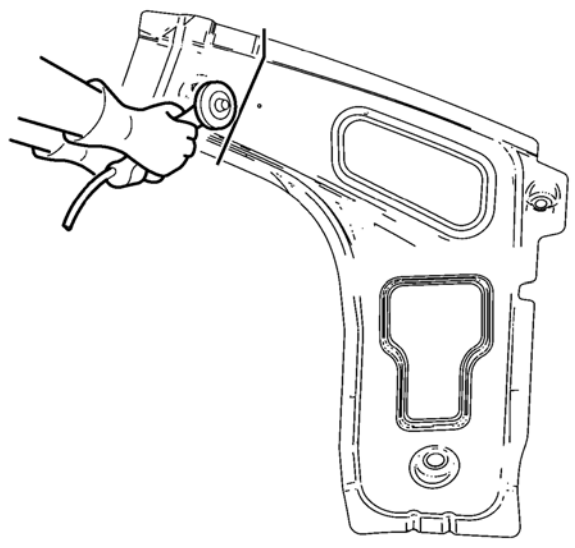
8. Drill 8 mm (5/1 in) for plug welding along the edges of the body side inner panel as noted from the original panel.
9. Clean and prepare the attaching surfaces for welding.



10. Position the body side inner panel.
11. Verify the fit of the panel.
12. Clamp the body side inner panel into position.

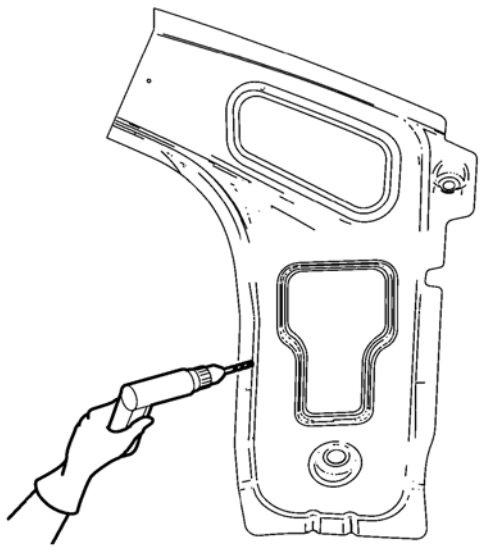


13. Plug weld accordingly.
14. To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch weld.

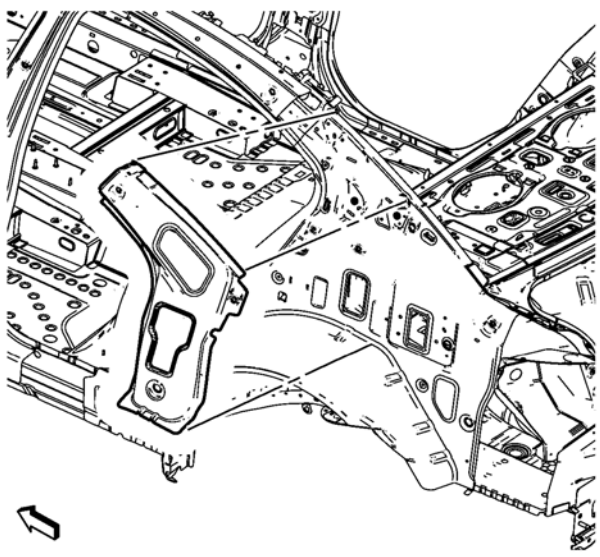


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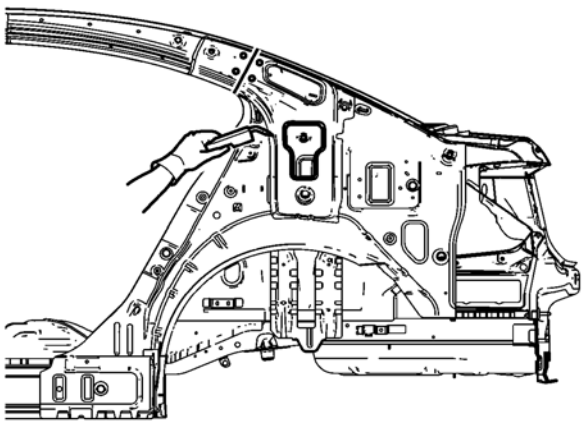
15. Cut the body lock pillar upper reinforcement in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
16. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
17. 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.
18. Prepare all mating surfaces as necessary.
19. Fit the backing plates halfway into the sectioning joints, clamp in place and plug weld to the vehicle.
20. Align the body lock pillar upper reinforcement.



21. Drill 8 mm (5/1 in) for plug welding along the edges of the body lock pillar upper reinforcement as noted from the original panel.
22. Clean and prepare the attaching surfaces for welding.



23. Position the body lock pillar upper reinforcement.
24. Verify the fit of the panel.
25. Clamp the body lock pillar upper reinforcement into position.



26. Plug weld accordingly.
27. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
28. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
29. Install all related panels and components.
30. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
31. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Body Side Inner Panel Sectioning (MIG-Brazing)

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

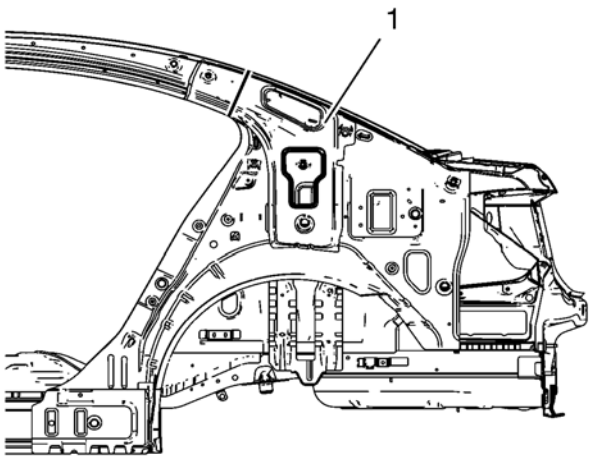
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

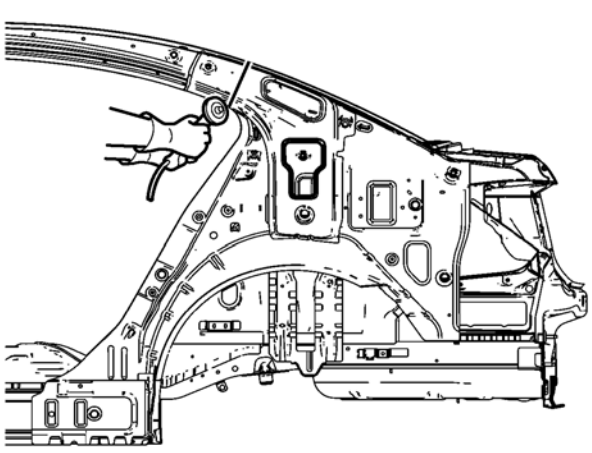
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

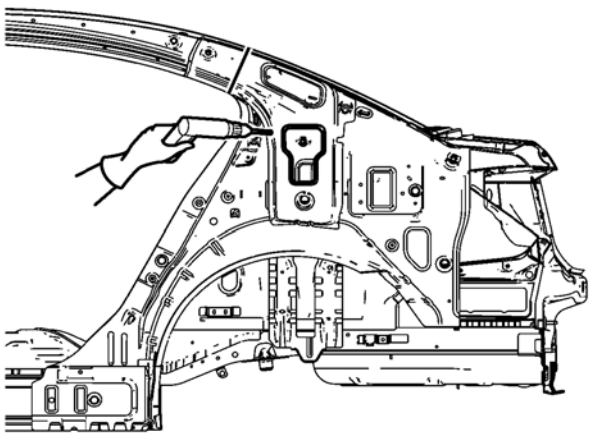


6. Create cut lines on the body lock pillar upper reinforcement (1).



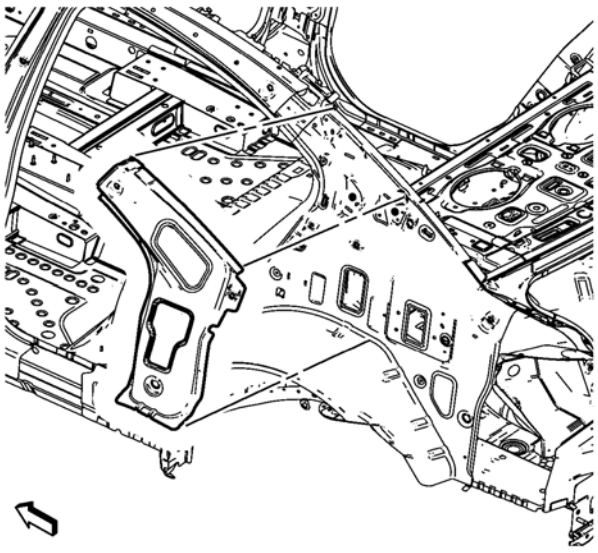
Note: Do not damage any other panels or reinforcements.

7. Cut the panel where sectioning is to be performed.

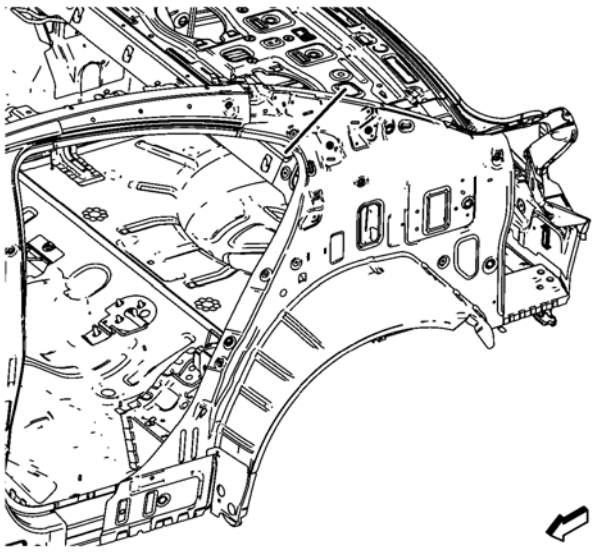


8. Locate and mark all the necessary factory welds of the body lock pillar upper reinforcement.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

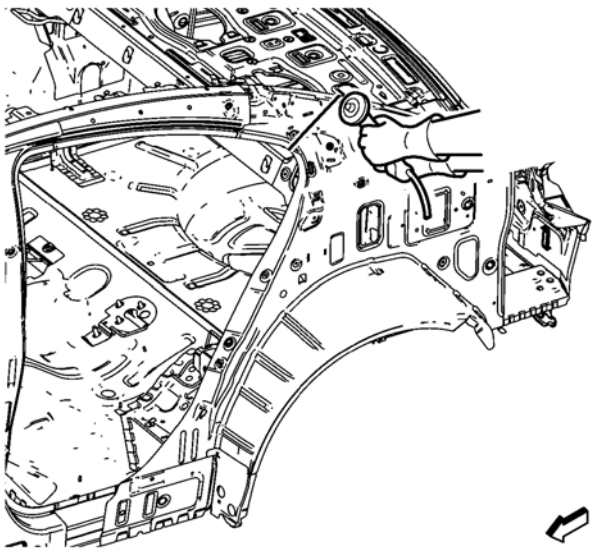
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10. Remove the damaged body lock pillar upper reinforcement.

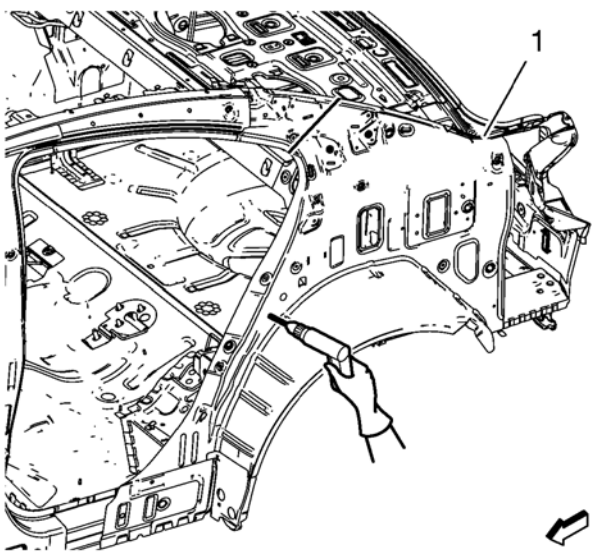


11. Create cut lines on the body side inner panel.



Note: Do not damage any other panels or reinforcements.

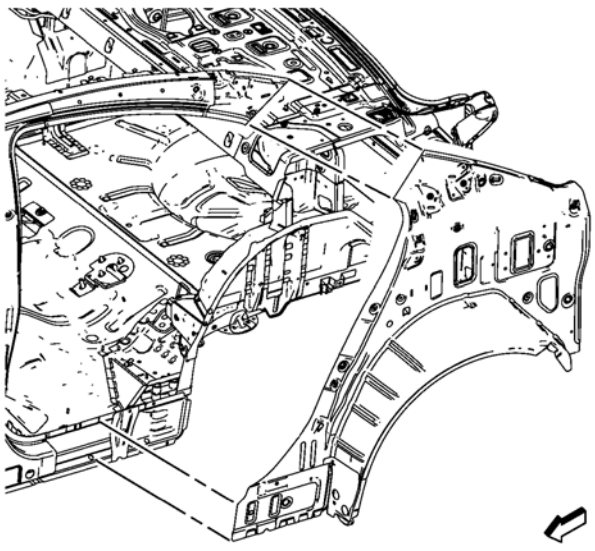
12. Cut the panel where sectioning is to be performed.



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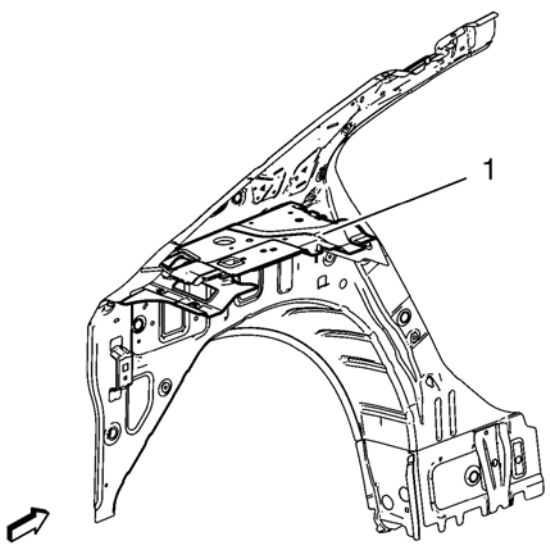
Note: Drill hidden factory welds where body side outer rear panel drain gutter (1) and body side inner panel overlap.

13. Locate and mark all the necessary factory welds of the body side inner panel.
14. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

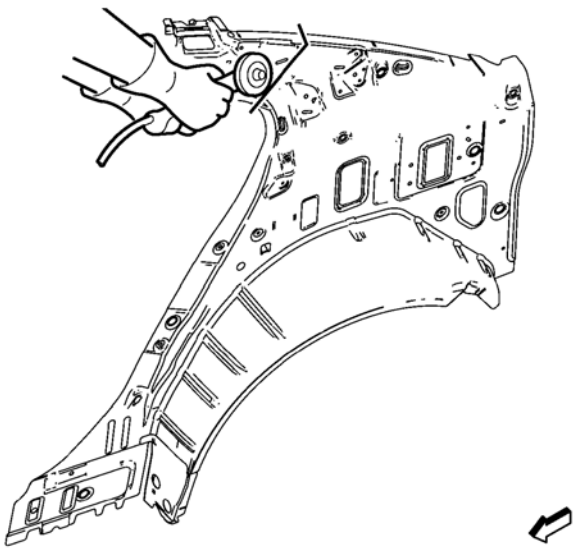


15. Remove the damaged body side inner panel.

Installation Procedure

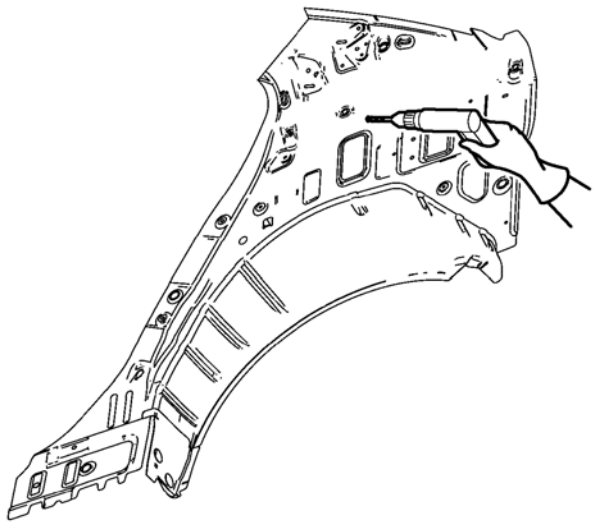


1. Remove rear end upper panel extension (1) from service part.



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. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing 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. Align the body side inner panel.

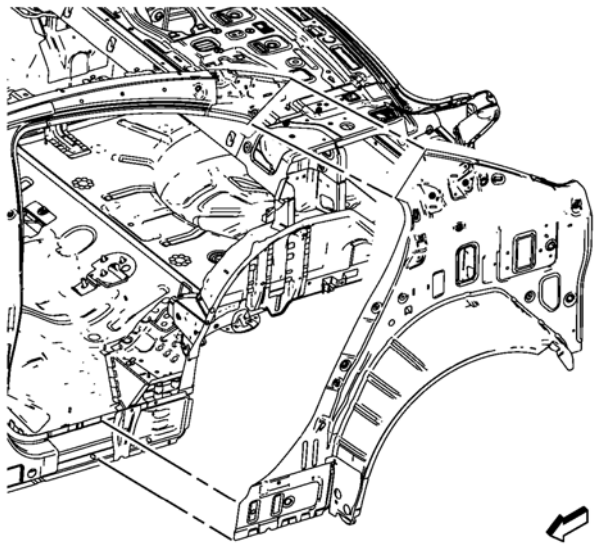
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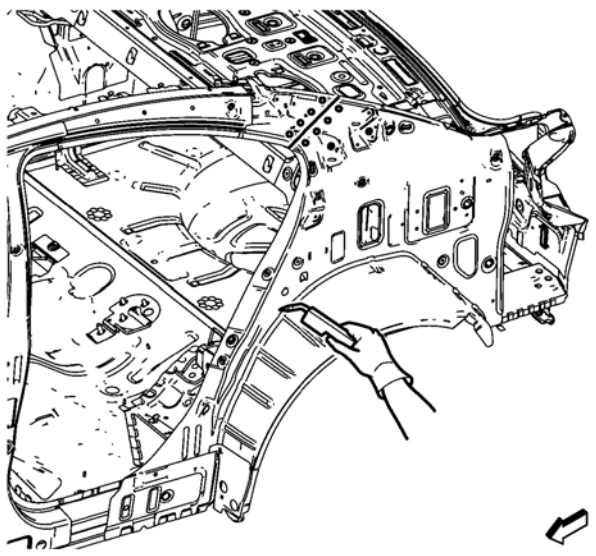
8. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing in locations where you can not apply a resistance spot welder.
9. Clean and prepare the attaching surfaces for spot welding and brazing.

   Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

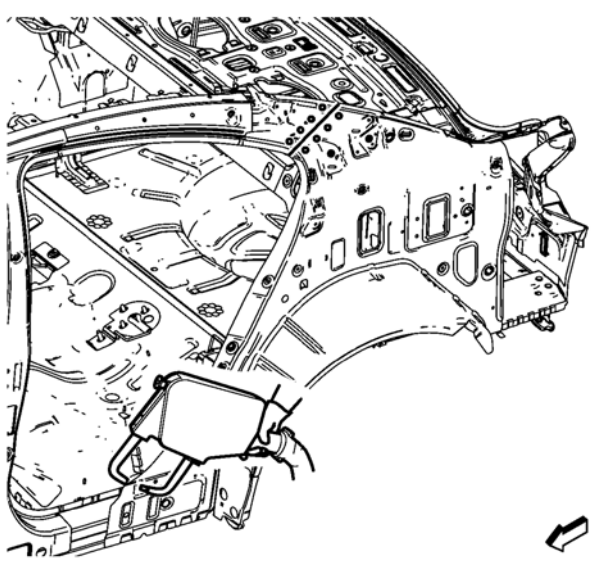
10. Apply structural adhesive to all attaching surfaces



11. Position the body side inner panel.
12. Verify the fit of the panel.
13. Clamp the body side inner panel into position.

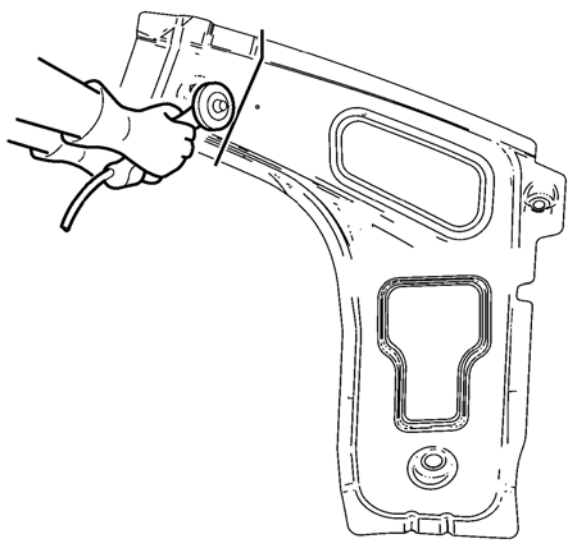


14. Braze accordingly.

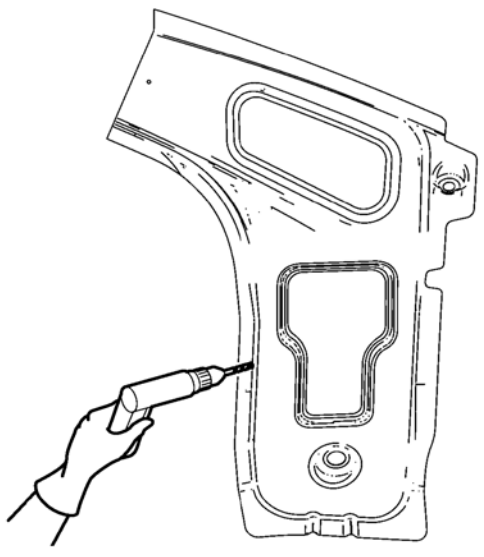


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15. Spot weld accordingly
16. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.



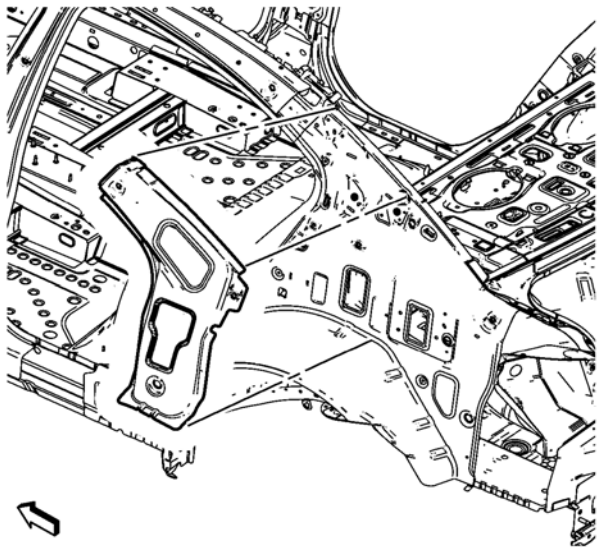
17. Cut the body lock pillar upper reinforcement in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
18. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
19. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing 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.
20. Prepare all mating surfaces as necessary.
21. Fit the backing plates halfway into the sectioning joints, clamp in place and braze to the vehicle.
22. Align the body lock pillar upper reinforcement.



23. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing in locations where you can not apply a resistance spot welder.
24. Clean and prepare the attaching surfaces for spot welding and brazing.

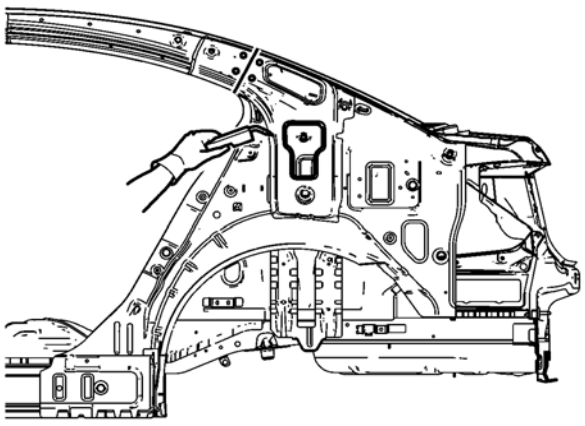
    Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

25. Apply structural adhesive to all attaching surfaces

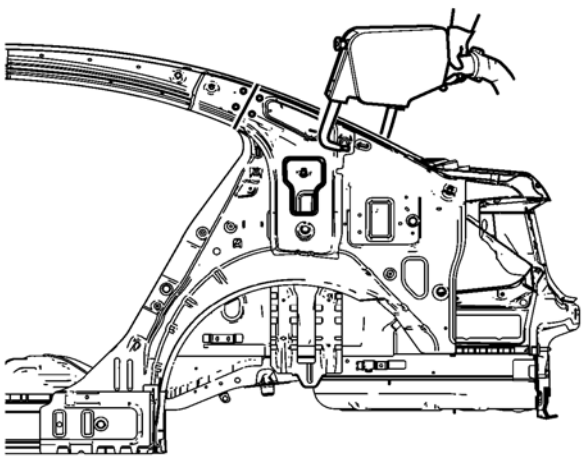


26. Position the body lock pillar upper reinforcement.
27. Verify the fit of the panel.
28. Clamp the body lock pillar upper reinforcement into position.

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29. Braze accordingly.



30. Spot weld accordingly.
31. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
32. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
33. Install all related panels and components.
34. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
35. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Body Side Outer Lower Panel Replacement (MAG-Welding)

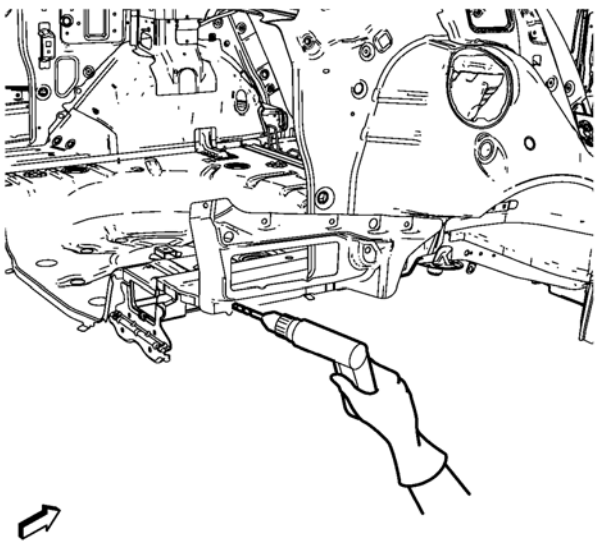
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

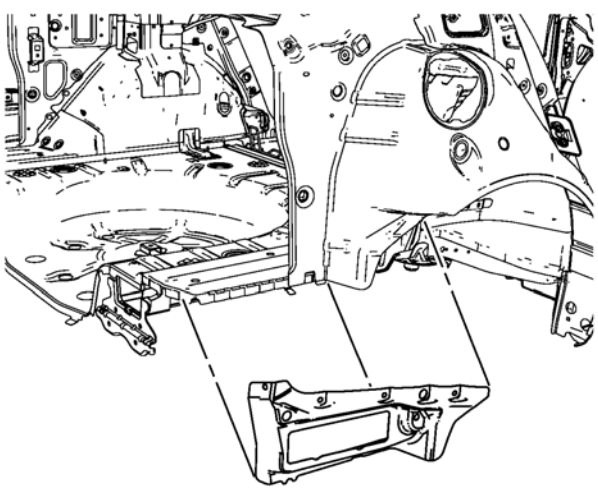
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 lower panel.

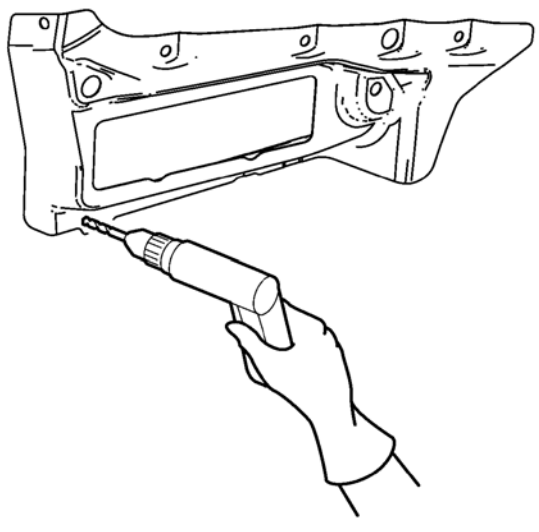
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the body side outer lower panel.

Installation Procedure

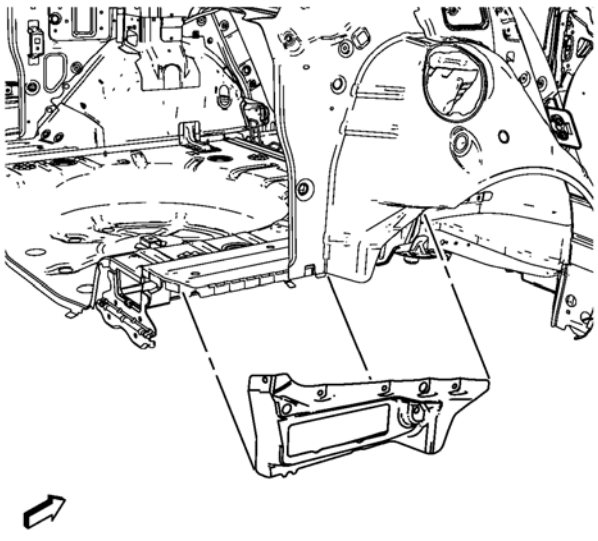


1. Drill 8 mm (5/16 in) for plug welding along the edges of the body side outer lower panel as noted from the original panel.

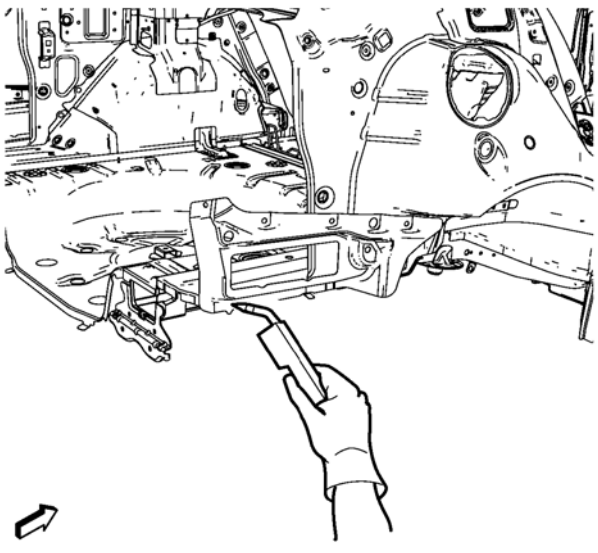
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Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1½ in).

2. Clean and prepare the attaching surfaces for welding.



3. Position the body side outer lower panel on the vehicle.
4. Verify the fit of the body side outer lower panel.
5. Clamp the body side outer lower panel into position.



6. Plug weld 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.

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Body Side Outer Lower Panel Replacement (MIG-Brazing)

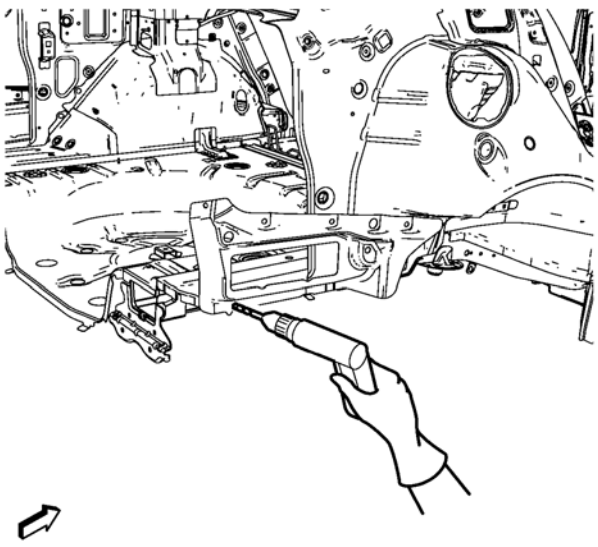
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

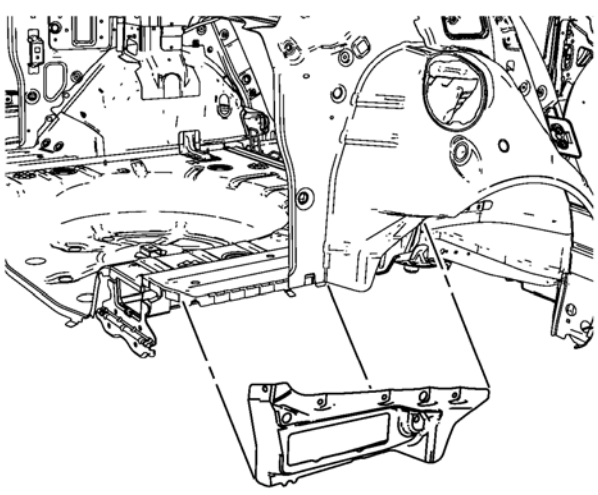
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 lower panel.

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

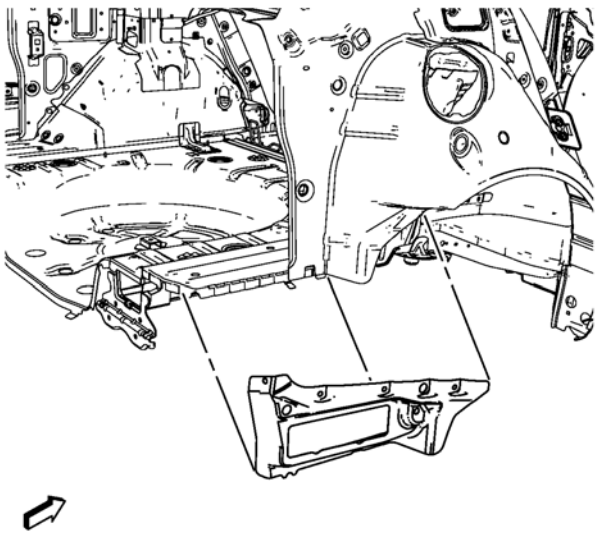
7. Drill all factory welds.



8. Remove the body side outer lower panel.

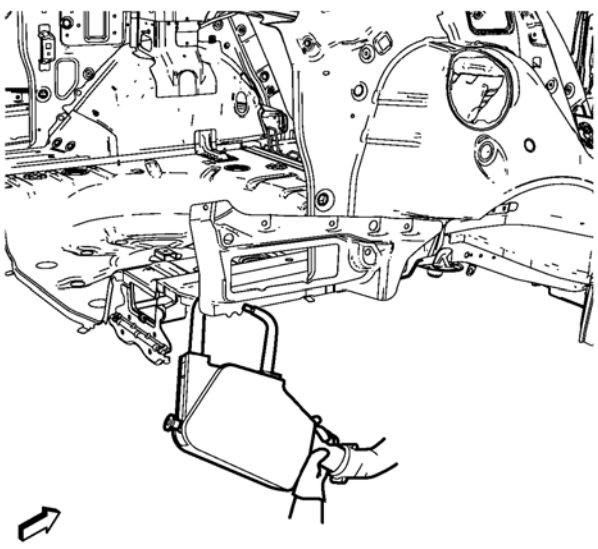
Installation Procedure

1. Clean and prepare the attaching surfaces for welding.
2. Apply structural adhesive to the attaching flanges.



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3. Position the body side outer lower panel on the vehicle.
4. Verify the fit of the body side outer lower panel.
5. Clamp the body side outer lower panel into position.



6. Spot weld 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.

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Rear Compartment Floor Panel Sectioning (MAG-Welding)

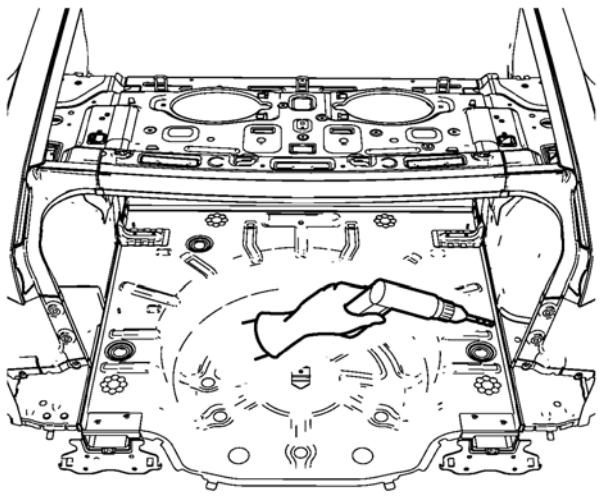
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

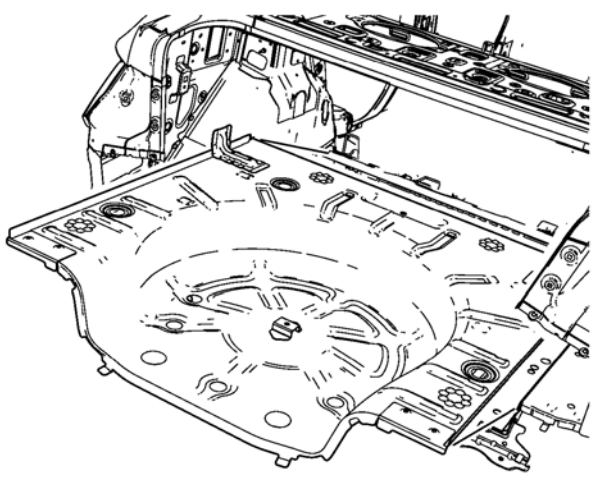
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



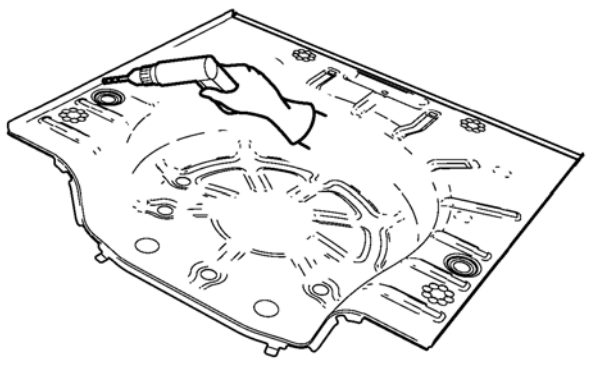
6. Locate and mark all the necessary factory welds of the rear compartment floor panel.
7. Note the number and location of weld studs for installation of the service assembly.
8. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



9. Remove the damaged rear compartment floor panel.

Installation Procedure

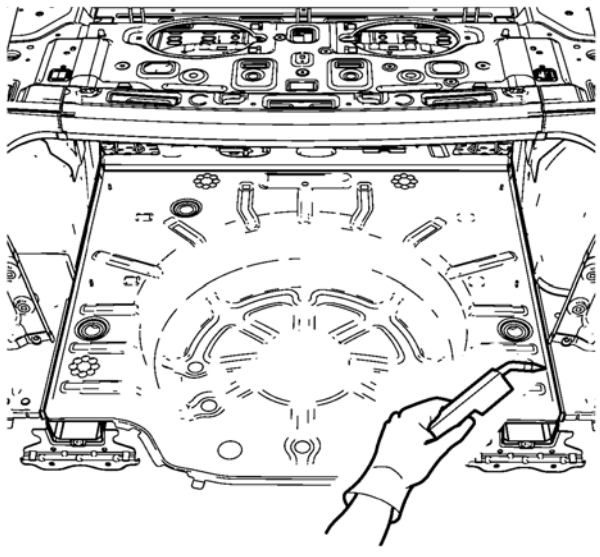
1. Align the rear compartment floor panel.



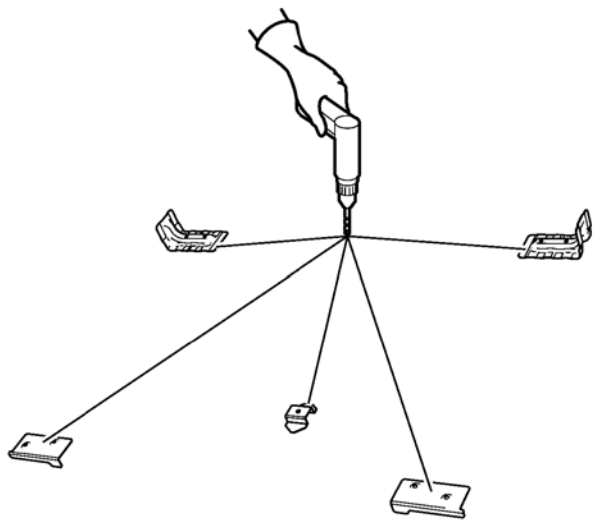
2. Drill 8 mm (5/16 in) for plug welding along the edges of the rear compartment floor panel as noted from the original panel.

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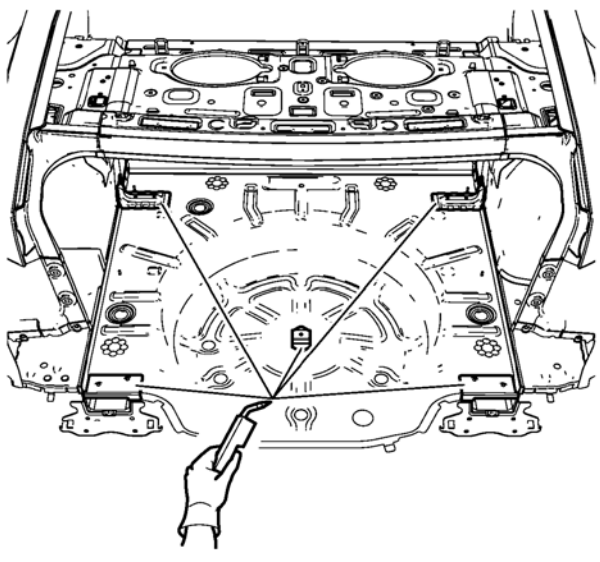
3. Clean and prepare the attaching surfaces for welding.
4. Position the rear compartment floor panel on the vehicle.
5. Verify the fit of the rear compartment floor panel.
6. Clamp the rear compartment floor panel into position.



7. Plug weld accordingly.



8. Drill 8 mm (5/16 in) for plug welding along the edges of the floor panel rear reinforcement, the spare wheel carrier bracket and the rear wheelhouse panel rear brace as noted from the original panel.
9. Clean and prepare the attaching surfaces for welding.
10. Position the floor panel rear reinforcement, the spare wheel carrier bracket and the rear wheelhouse panel rear brace on the vehicle.
11. Verify the fit of the floor panel rear reinforcement, the spare wheel carrier bracket and the rear wheelhouse panel rear brace.



12. Plug weld accordingly.
13. Weld accordingly the weld studs as noted.
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.

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Rear Compartment Floor Panel Sectioning (MIG-Brazing)

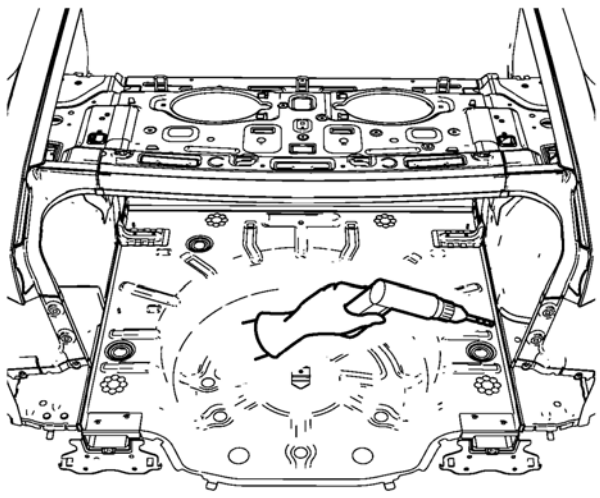
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

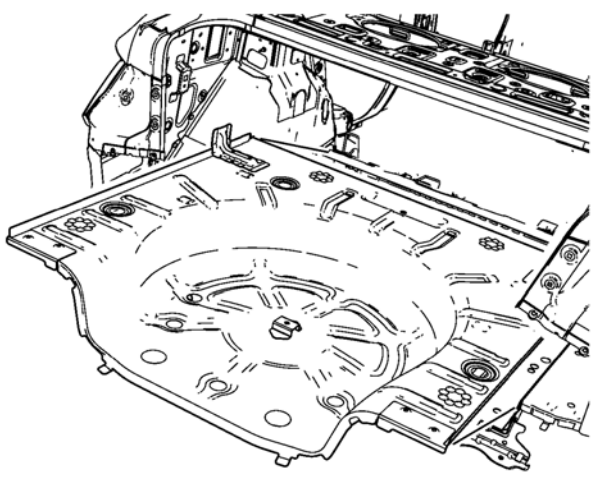
Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



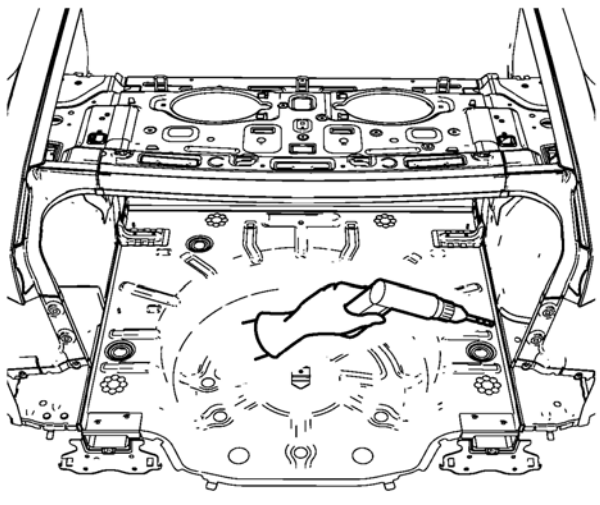
6. Locate and mark all the necessary factory welds of the rear compartment floor panel.
7. Note the number and location of weld studs for installation of the service assembly.
8. Drill all factory welds.



9. Remove the damaged rear compartment floor panel.

Installation Procedure

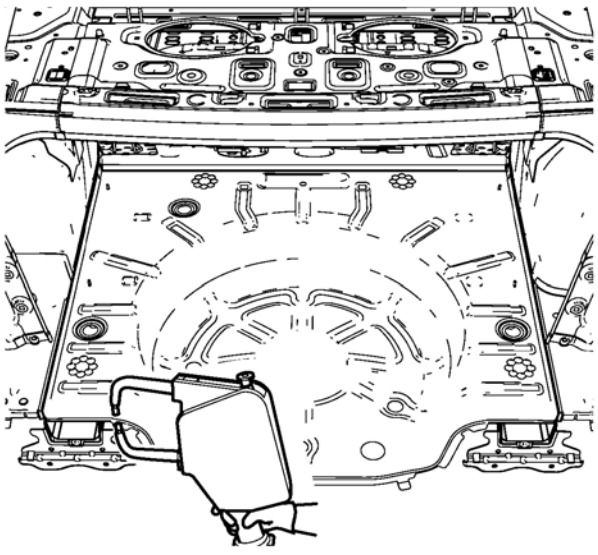
1. Align the rear compartment floor panel.



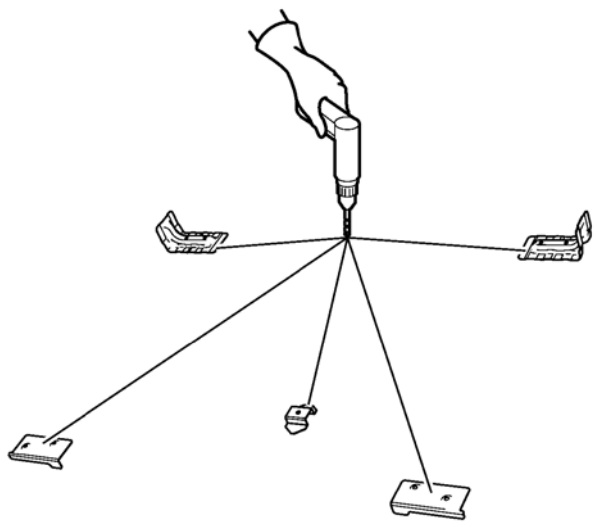
2. Drill 4 mm (3/16 in) for rivets along the edges of the rear compartment floor were you cant apply a resistance spot welder.

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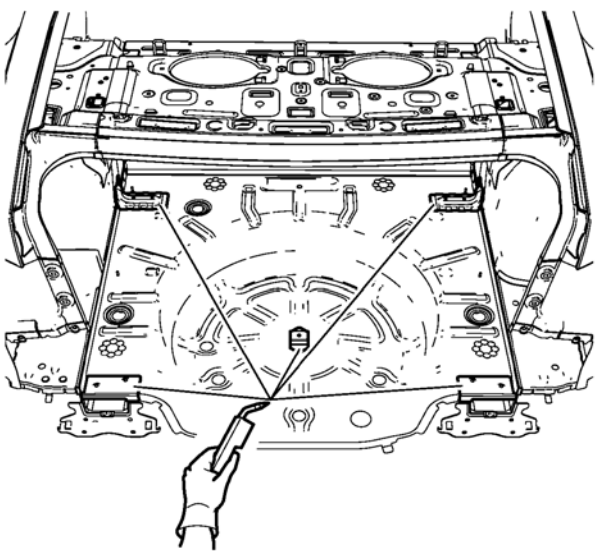
3. Clean and prepare the attaching surfaces for spot welding and riveting.
4. Apply structural adhesive to all attaching surfaces.
5. Position the rear compartment floor panel on the vehicle.
6. Verify the fit of the rear compartment floor panel.
7. Clamp the rear compartment floor panel into position.
8. Rivet the rear compartment floor panel.



9. Spot weld accordingly.



10. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing along the edges of the floor panel rear reinforcement, the spare wheel carrier bracket and the rear wheelhouse panel rear brace as noted from the original panel.
11. Clean and prepare the attaching surfaces for brazing.
12. Position the floor panel rear reinforcement, the spare wheel carrier bracket and the rear wheelhouse panel rear brace on the vehicle.
13. Verify the fit of the floor panel rear reinforcement, the spare wheel carrier bracket and the rear wheelhouse panel rear brace.



14. Braze accordingly.
15. Weld accordingly the weld studs as noted.
16. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
17. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
18. Install all related panels and components.
19. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
20. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Rear Wheelhouse Panel Replacement (MAG-Welding)

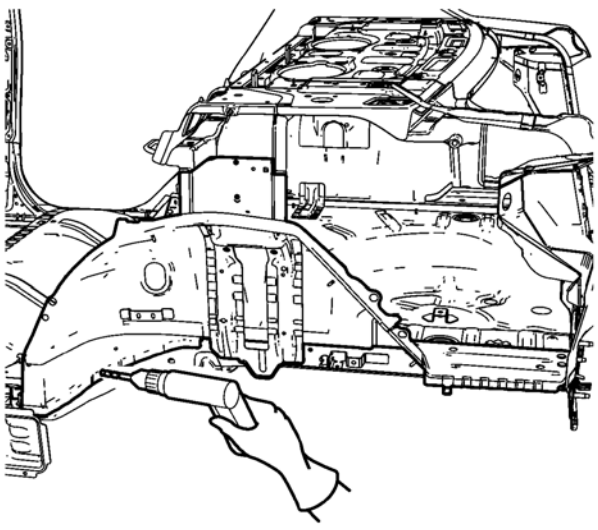
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

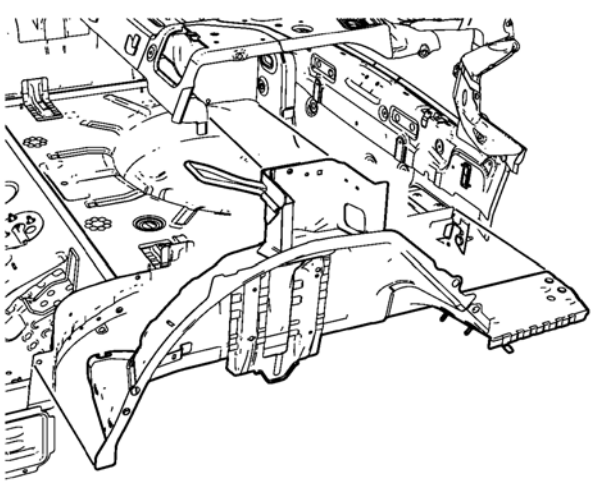
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the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

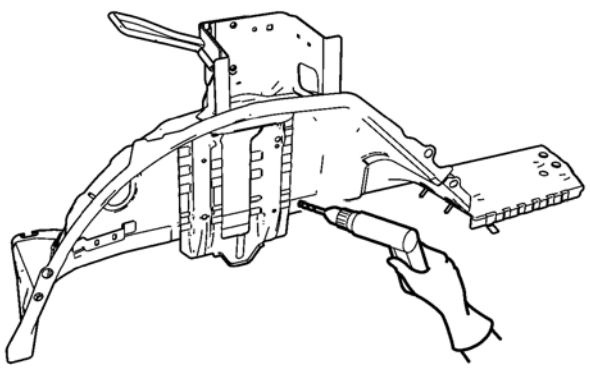
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the rear inner wheelhouse.

Installation Procedure

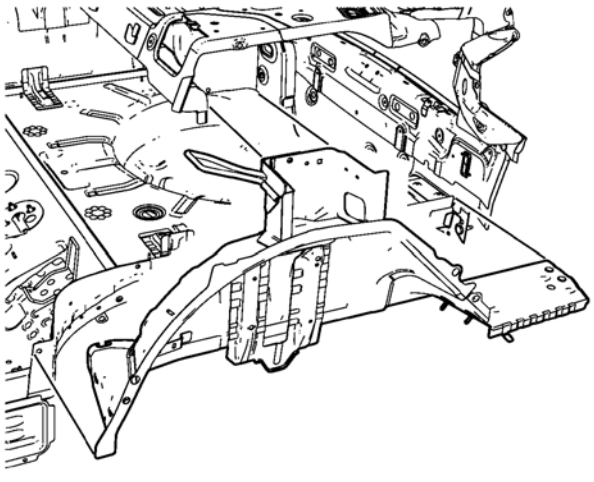


1. Drill 8 mm (5/16 in) for plug welding along the edges of the rear inner wheelhouse as noted from the original panel.

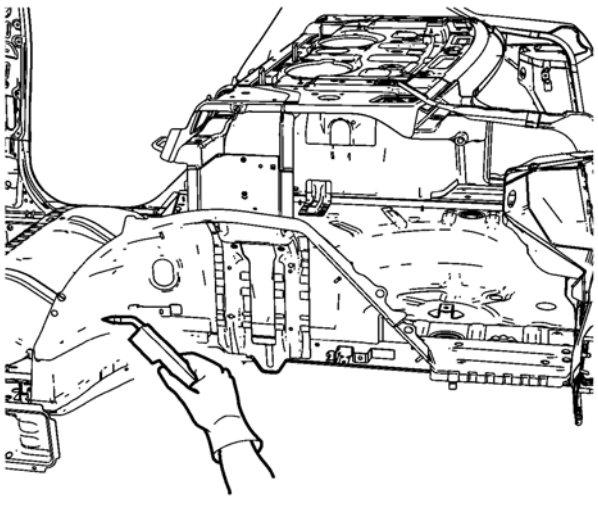
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Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1½ in).

2. Clean and prepare the attaching surfaces for welding.



3. Position the rear inner wheelhouse on the vehicle.
4. Verify the fit of the rear inner wheelhouse.
5. Clamp the rear inner wheelhouse into position.



6. Plug weld 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.

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Rear Wheelhouse Panel Replacement (MIG-Brazing)

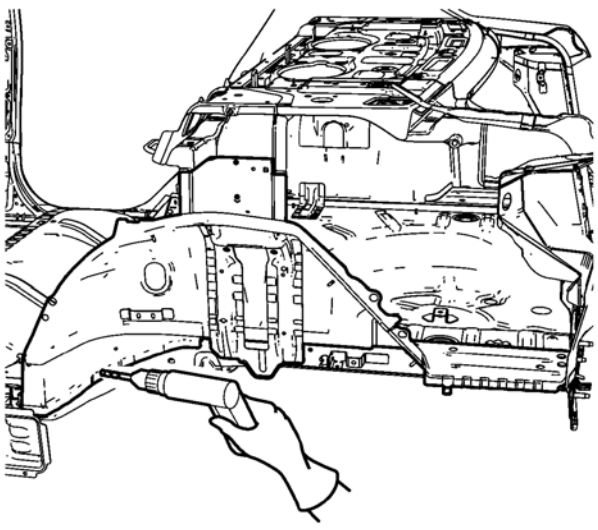
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

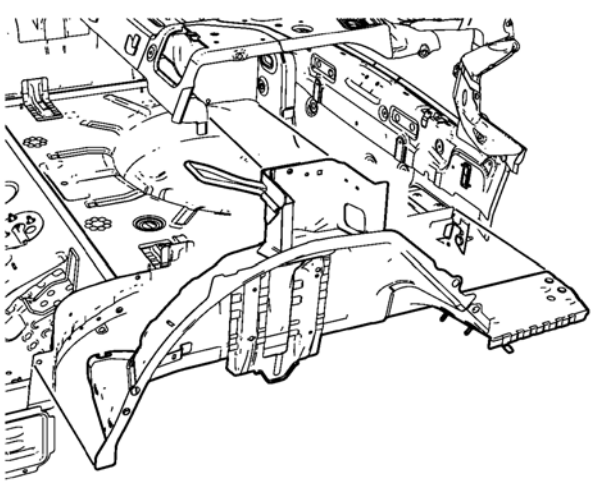
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the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

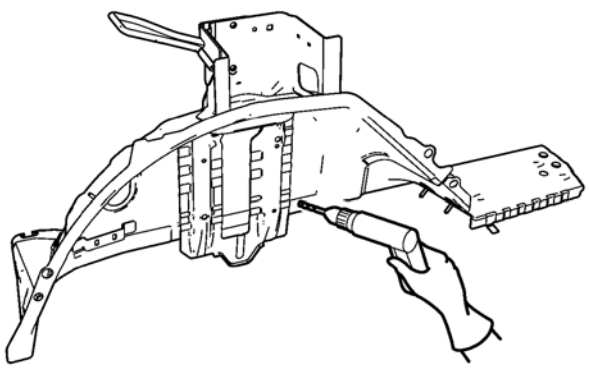
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the rear inner wheelhouse.

Installation Procedure



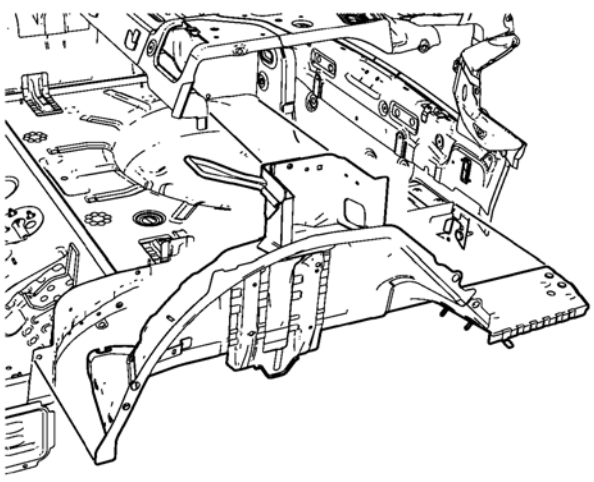
1. Create 6 x 20 mm (4/16 x 12/16 in) slots for MIG-brazing along the edges of the rear inner wheelhouse as noted from the original

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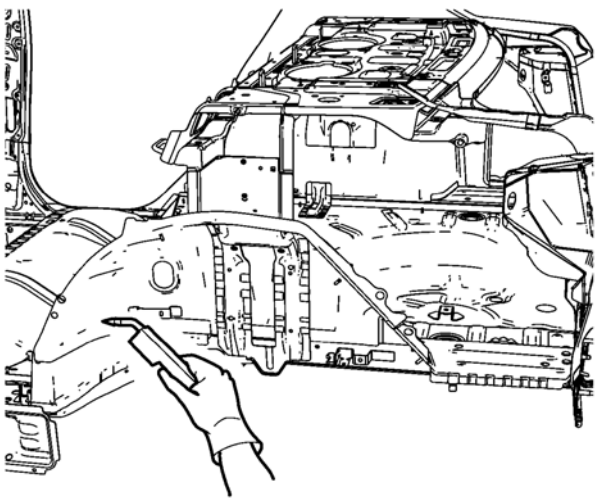
panel.

Note: If the location of the original plug weld holes can not be determined, space the slots every 40 mm (1½ in).

2. Clean and prepare the attaching surfaces for welding.



3. Position the rear inner wheelhouse on the vehicle.
4. Verify the fit of the rear inner wheelhouse.
5. Clamp the rear inner wheelhouse into position.



6. Braze 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.

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Quarter Outer Panel Sectioning (MAG-Welding)

Special Tools

- *BO-6396* Bonding Pliers
- *BO-6392* Flanging Tool Kit

For equivalent regional tools, refer to Special Tools.

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

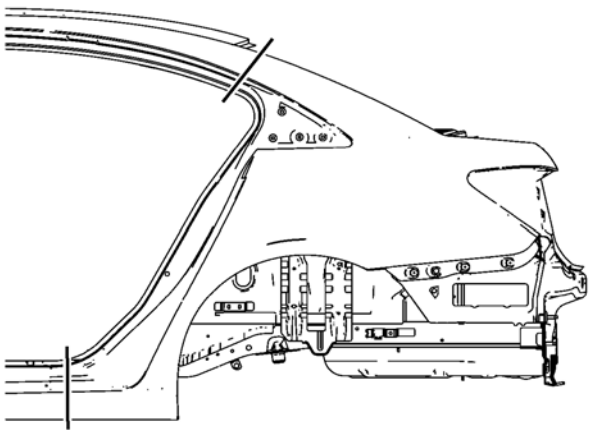
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

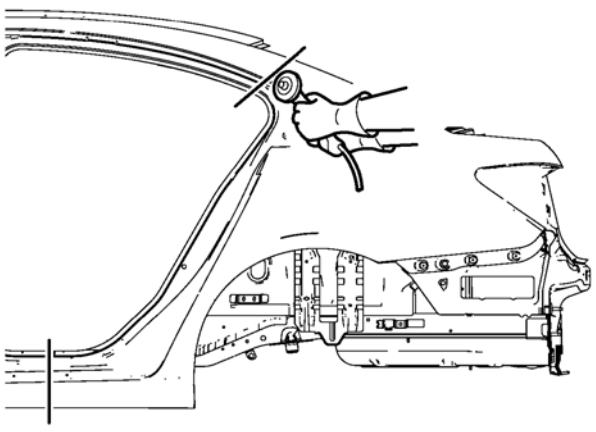
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



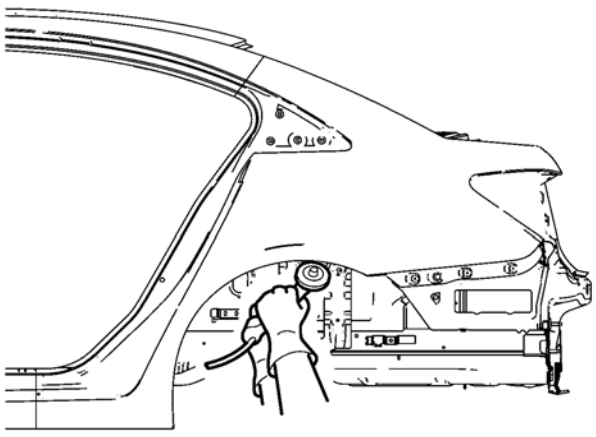
6. Create cut lines on the quarter outer panel.



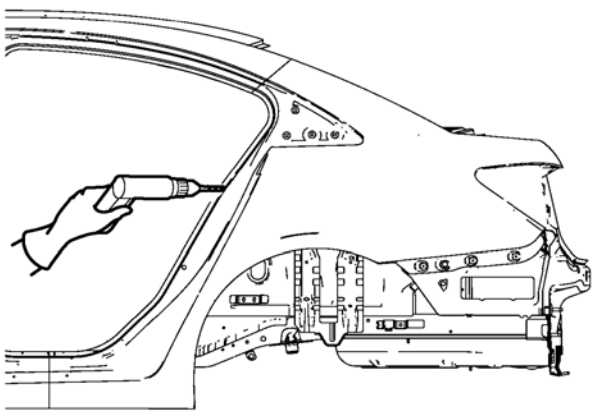
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.

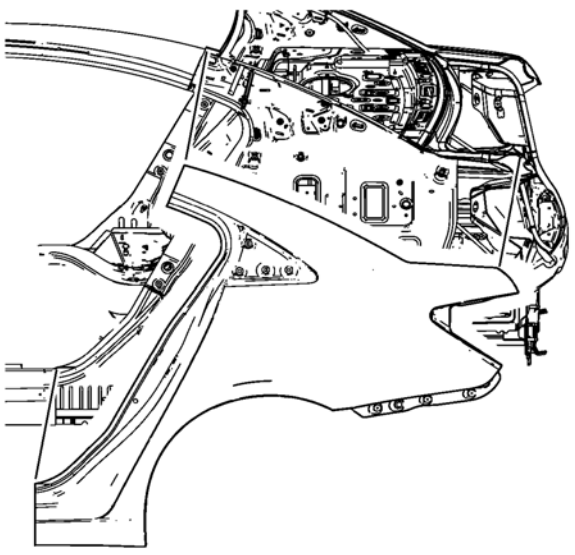
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8. Open the wheelhouse flanging.

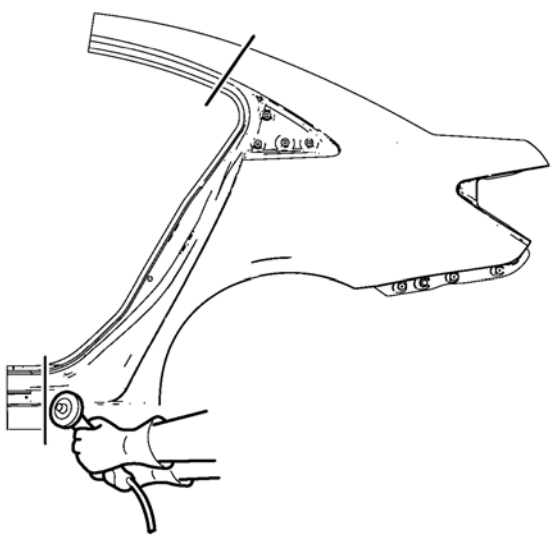


9. Locate and mark all the necessary factory welds of the quarter outer panel.
10. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



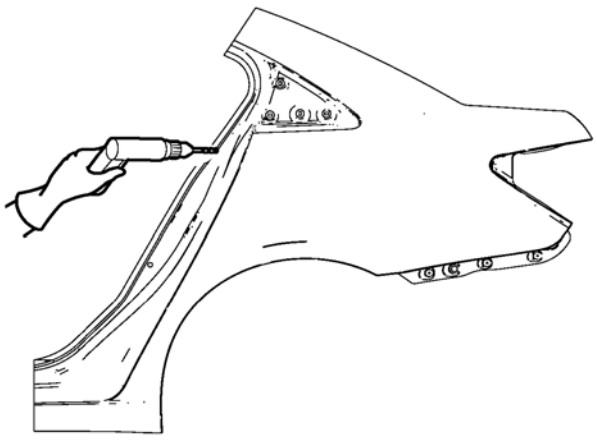
11. Remove the damaged quarter outer panel.

Installation Procedure

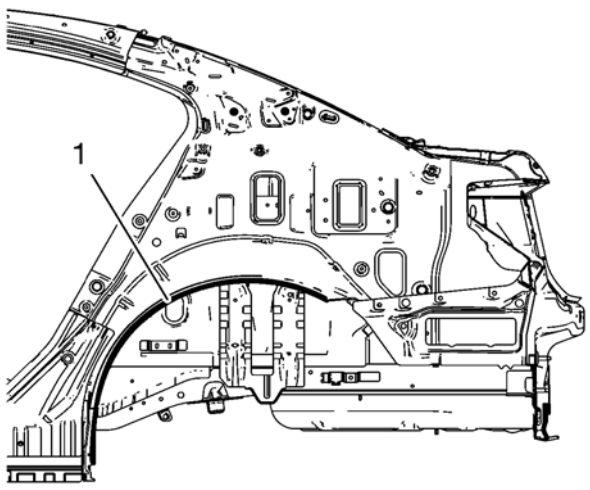


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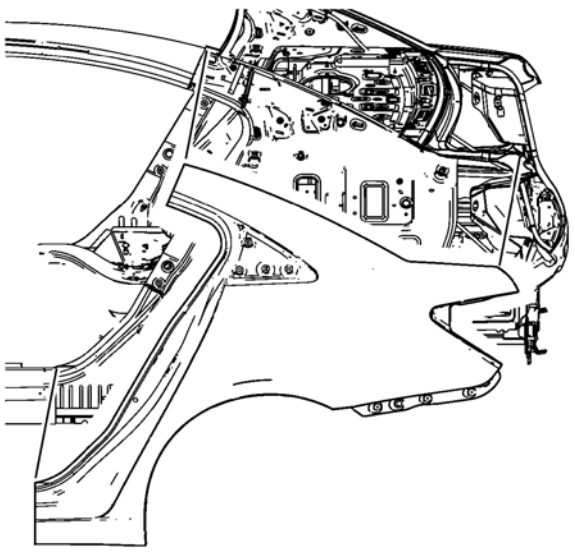
1. Cut the quarter outer panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
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 as noted from the original panel.
8. Clean and prepare the attaching surfaces for welding.

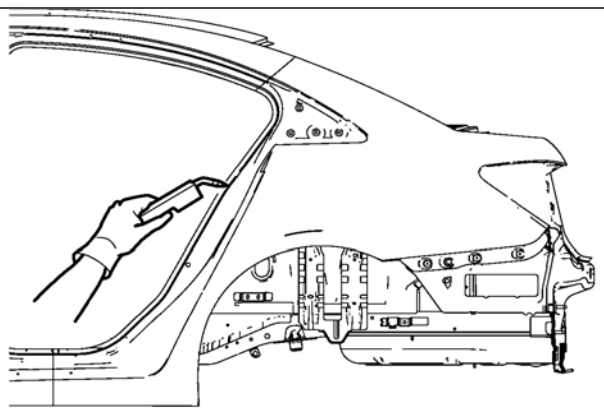


9. Apply one-part windshield urethane adhesive (1) as noted from the original panel.

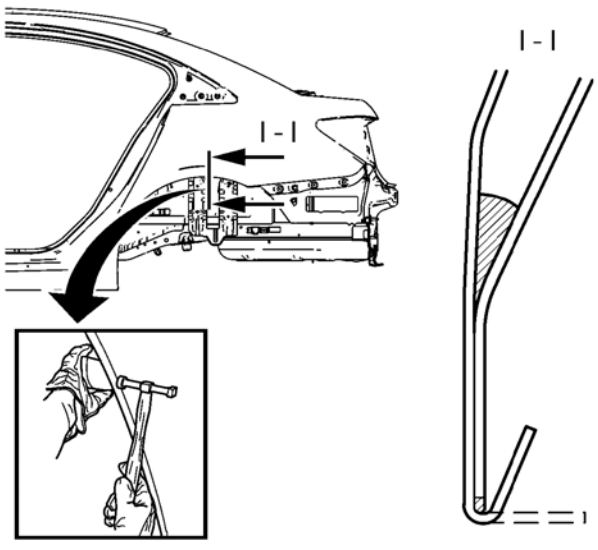


10. Position the quarter outer panel on the vehicle.
11. Verify the fit of the quarter outer panel.
12. Clamp the quarter outer panel into position.

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13. Plug weld 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. Pre-flanging the flange with *BO-6396* pliers and *BO-6392* tool kit .



16. Finish closing the wheelhouse flanging.
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.

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Quarter Outer Panel Sectioning (MIG-Brazing)

Special Tools

- *BO-6396* Bonding Pliers
- *BO-6392* Flanging Tool Kit

For equivalent regional tools, refer to Special Tools.

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

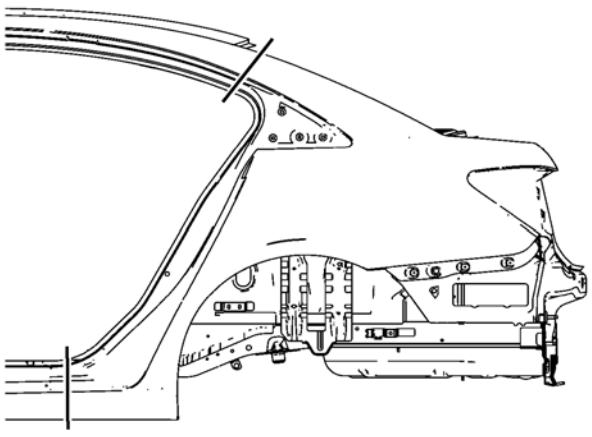
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

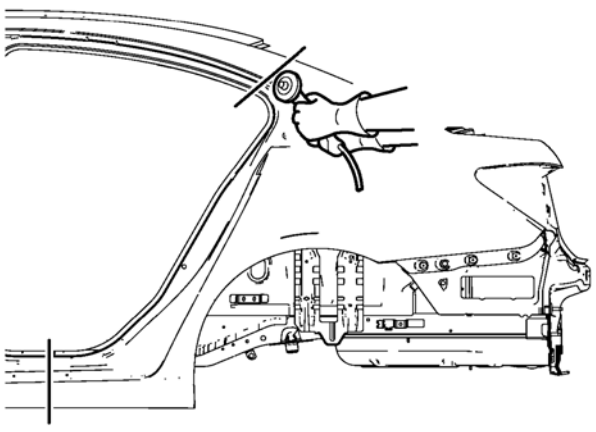
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.



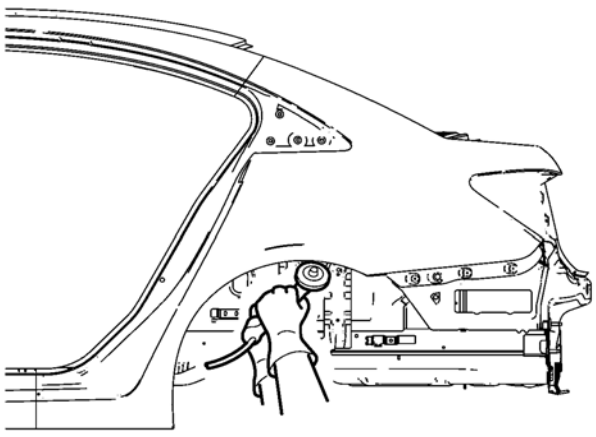
6. Create cut lines on the quarter outer panel.



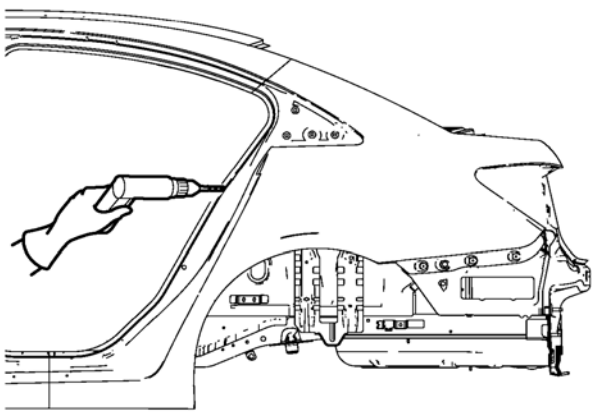
Note: Do not damage any inner panels or reinforcements.

7. Cut the panel where sectioning is to be performed.

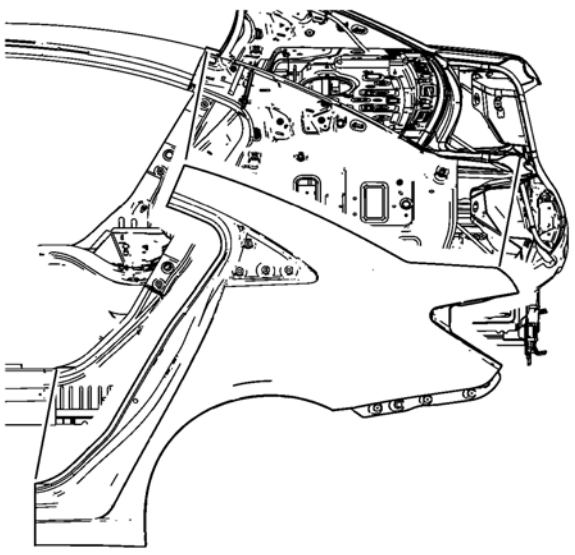
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8. Open the wheelhouse flanging.

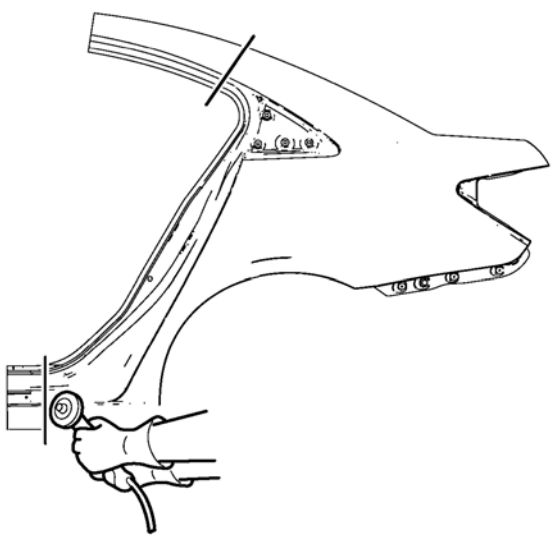


9. Locate and mark all the necessary factory welds of the quarter outer panel.
10. Drill all factory welds. Note the number and location of welds for installation of the service assembly.



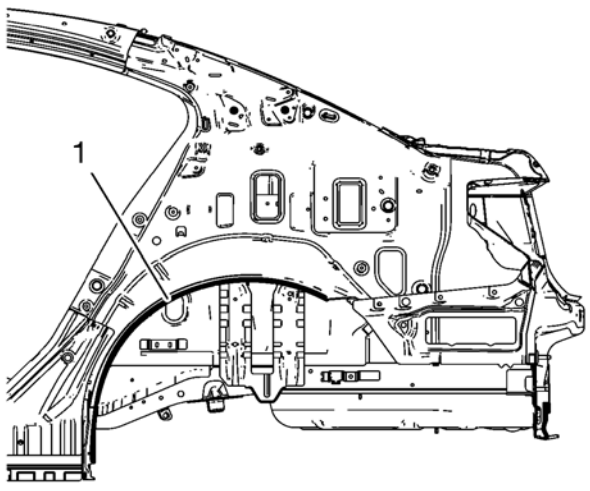
11. Remove the damaged quarter outer panel.

Installation Procedure



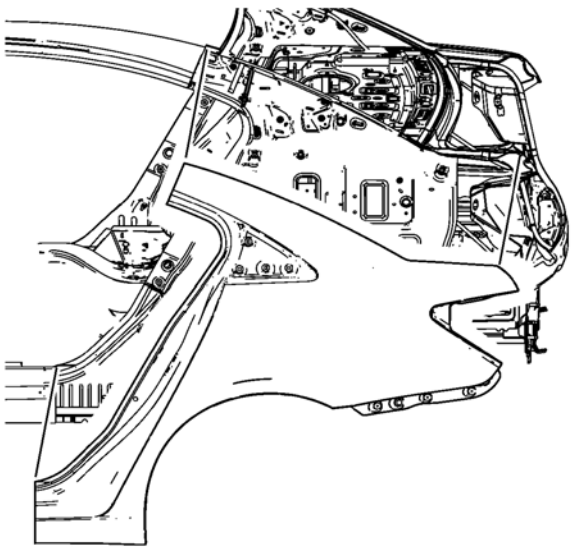
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1. Cut the quarter outer panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
3. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing 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 braze to the vehicle.
6. Align the quarter outer panel.
7. Clean and prepare the attaching surfaces for spot welding.

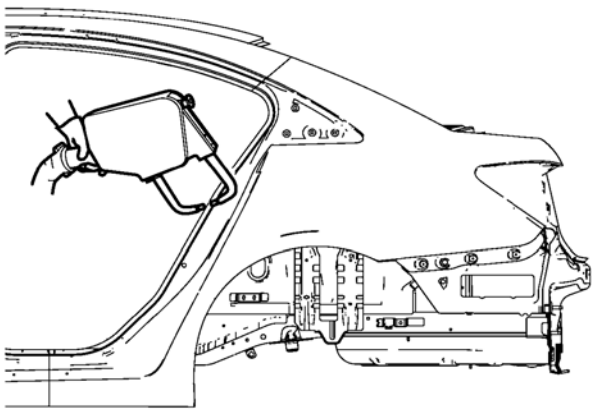


Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

8. Apply structural adhesive in the wheelhouse area (1) as noted from the original panel and to all attaching surfaces.



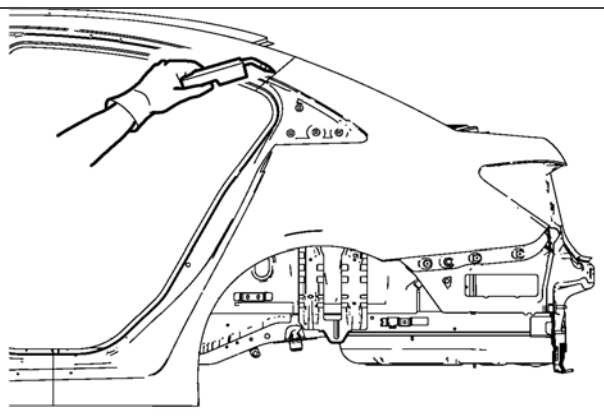
9. Position the quarter outer panel on the vehicle.
10. Verify the fit of the quarter outer panel.
11. Clamp the quarter outer panel into position.



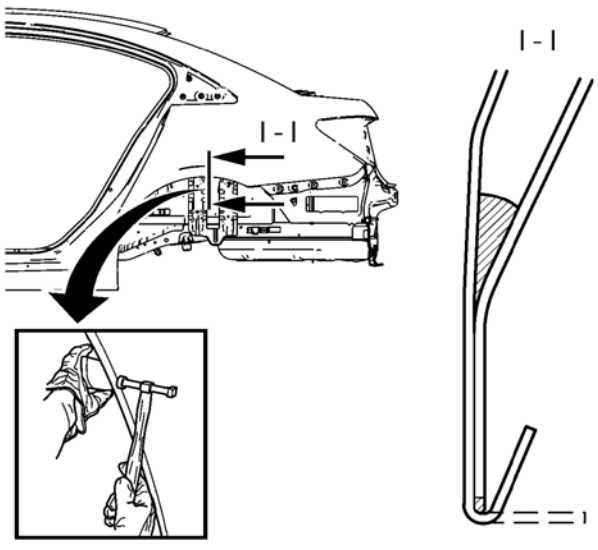
⇦

12. Spot weld accordingly.

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13. Braze accordingly.
14. To create a solid braze with minimum heat distortion, make 25 mm (1 in) stitch brazes along the seam with 25 mm (1 in) gaps between them. Then go back and complete the stitch braze.
15. Pre-flanging the flange with *BO-6396* pliers and *BO-6392* tool kit .



16. Finish closing the wheelhouse flanging.
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.

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Body Rear End Panel Replacement (MAG-Welding)

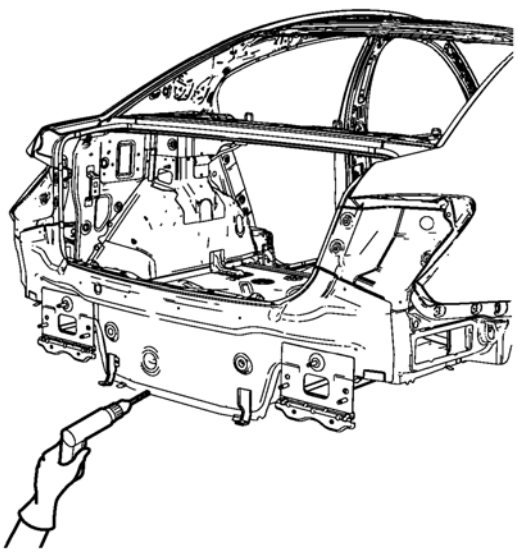
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

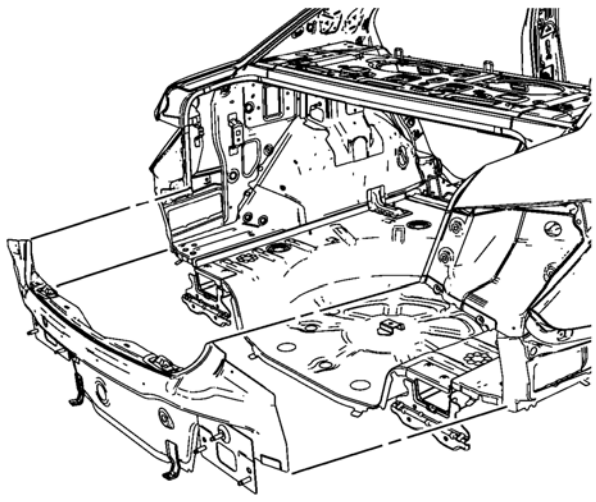
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the sealers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

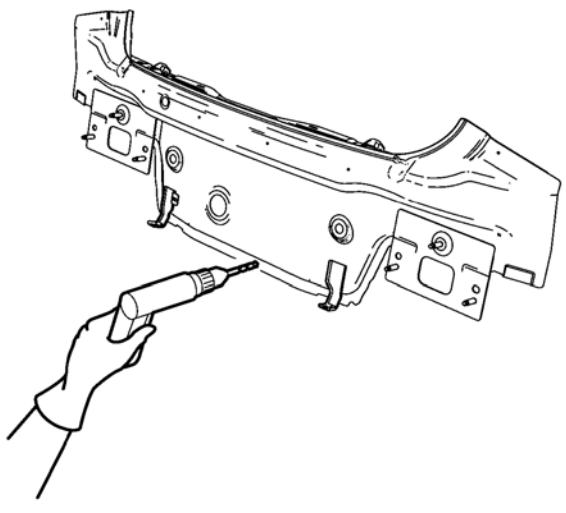
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the body rear end panel.

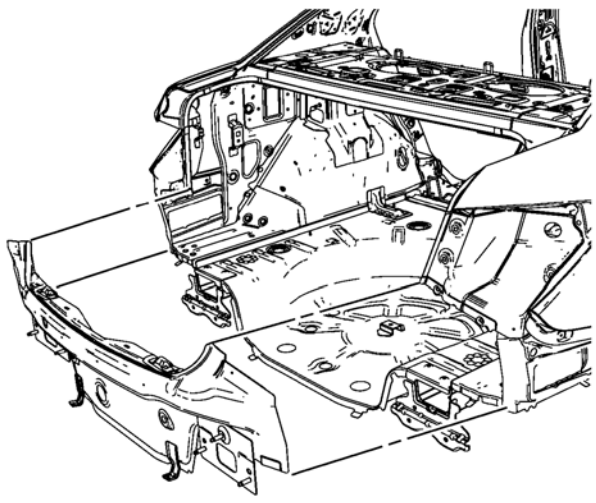
Installation Procedure



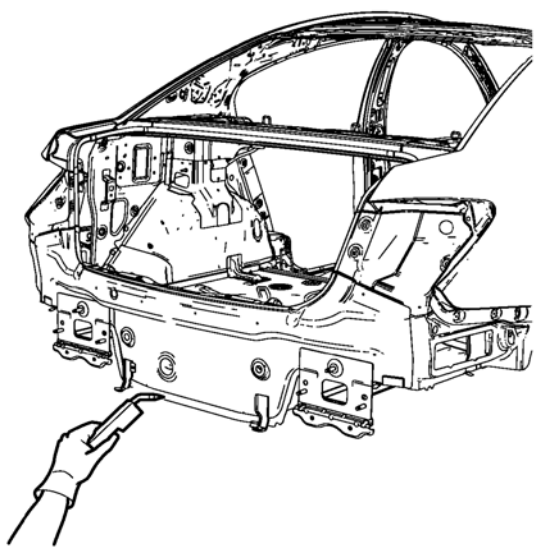
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Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1½ in).

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



3. Position the body rear end panel 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 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.

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Body Rear End Panel Replacement (MIG-Brazing)

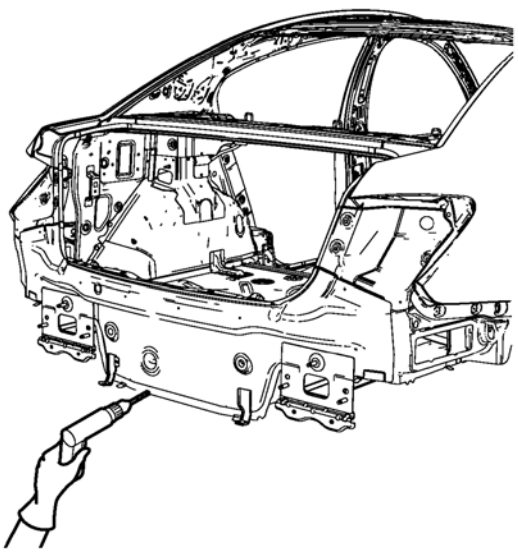
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

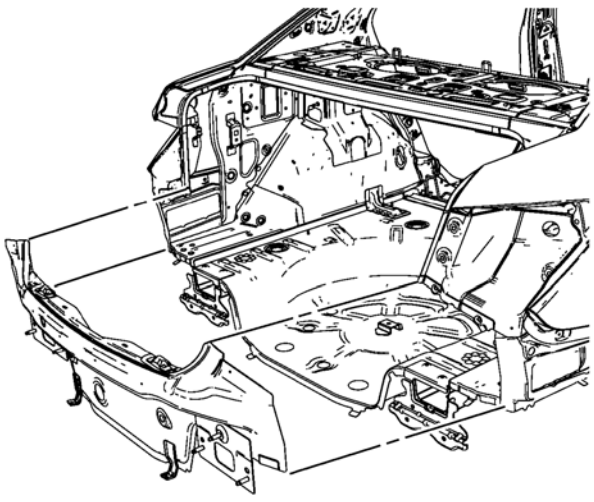
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the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

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

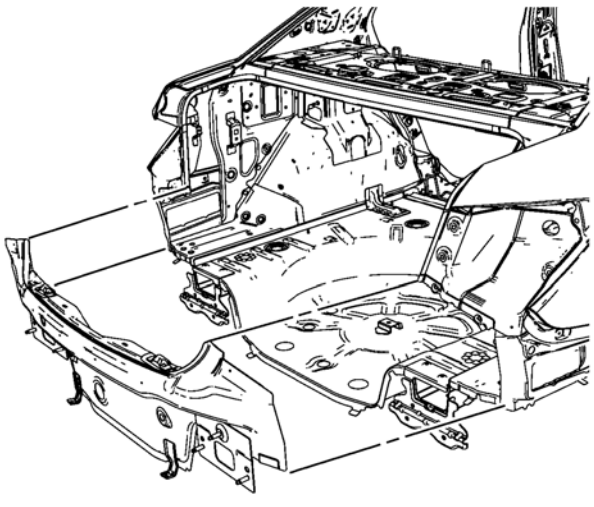
7. Drill all factory welds.



8. Remove the body rear end panel.

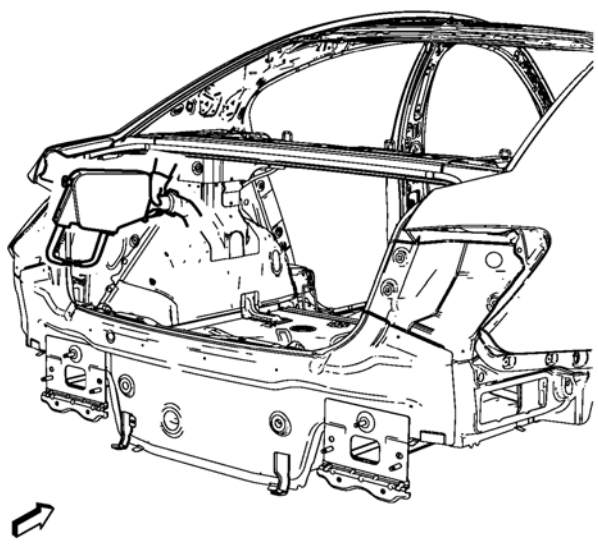
Installation Procedure

1. Clean and prepare the attaching surfaces for welding.
2. Apply structural adhesive to the attaching surfaces.



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3. Position the body rear end panel on the vehicle.
4. Verify the fit of the body rear end panel.
5. Clamp the body rear end panel into position.



6. Spot weld accordingly as noted from the original part.
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.

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Rear Bumper Impact Bar Stud Plate Replacement (MAG-Welding)

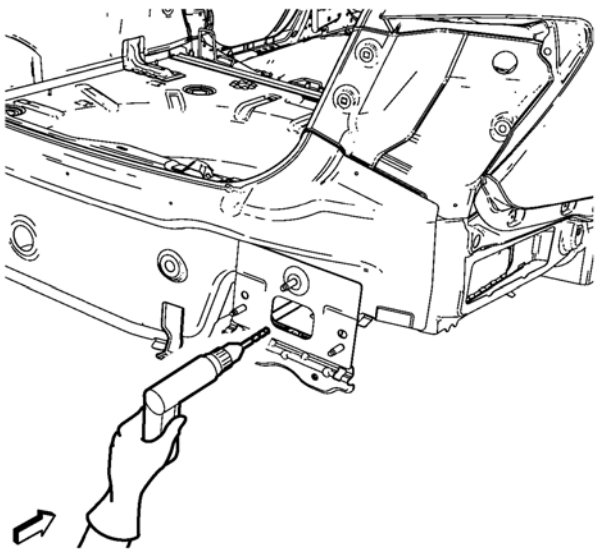
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

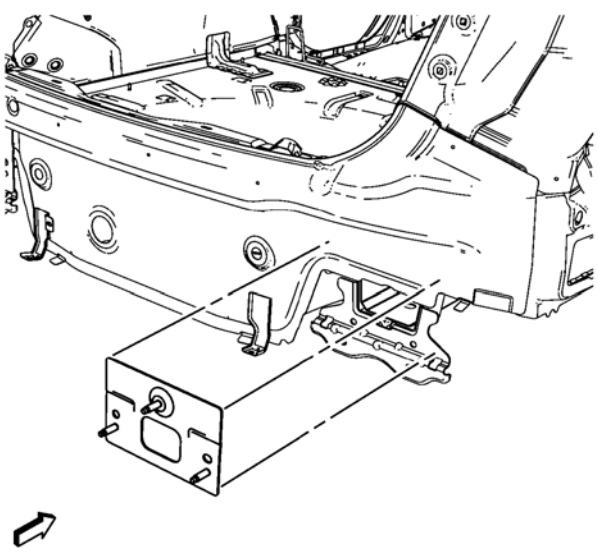
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 bumper impact bar stud plate.

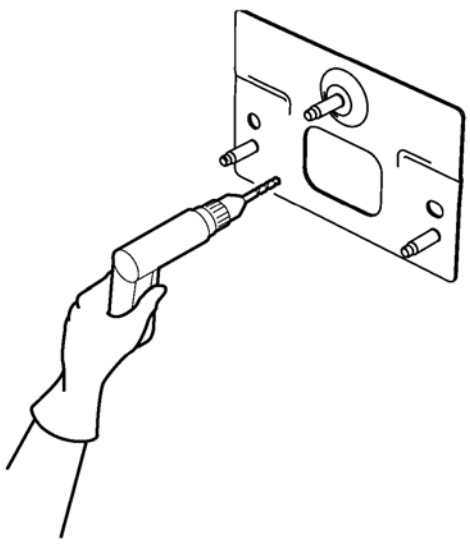
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the rear bumper impact bar stud plate.

Installation Procedure

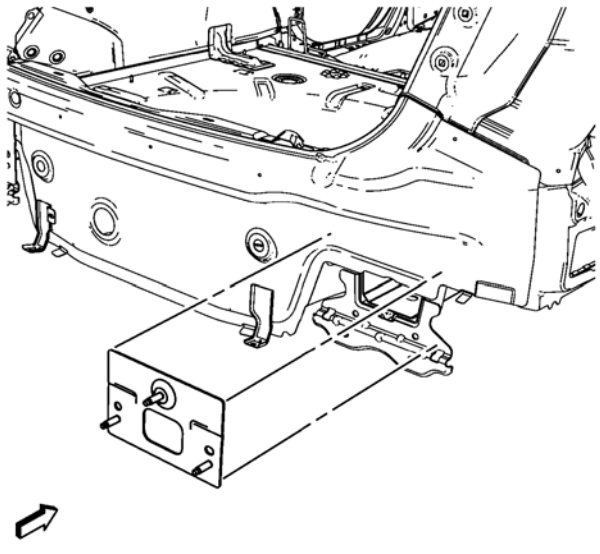


1. Drill 8 mm (5/16 in) for plug welding along the edges of the rear bumper impact bar stud plate as noted from the original panel.

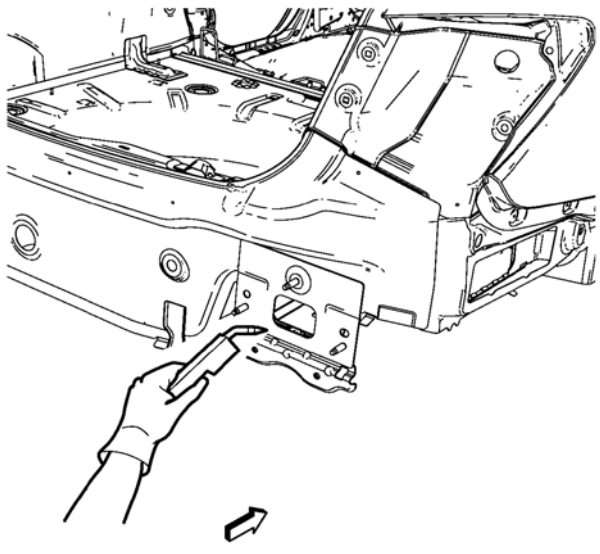
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Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1½ in).

2. Clean and prepare the attaching surfaces for welding.



3. Position the rear bumper impact bar stud plate on the vehicle.
4. Verify the fit of the rear bumper impact bar stud plate.
5. Clamp the rear bumper impact bar stud plate into position.



6. Plug weld 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.

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Rear Bumper Impact Bar Stud Plate Replacement (MIG-Brazing)

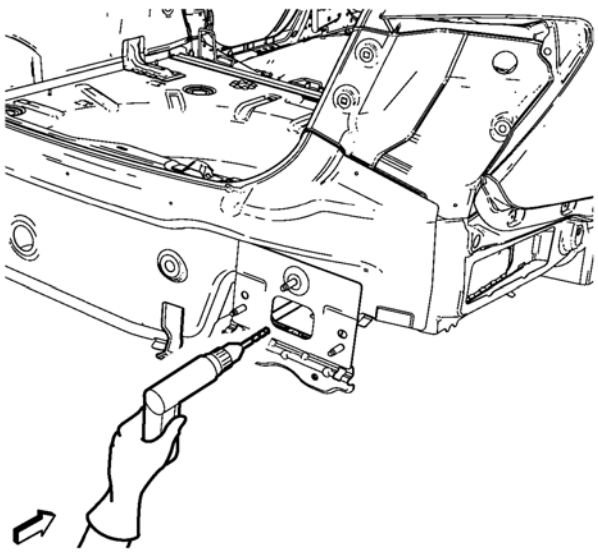
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

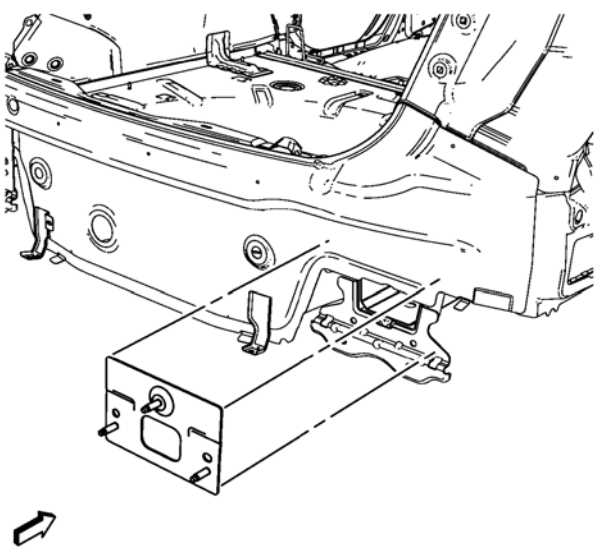
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 bumper impact bar stud plate.

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

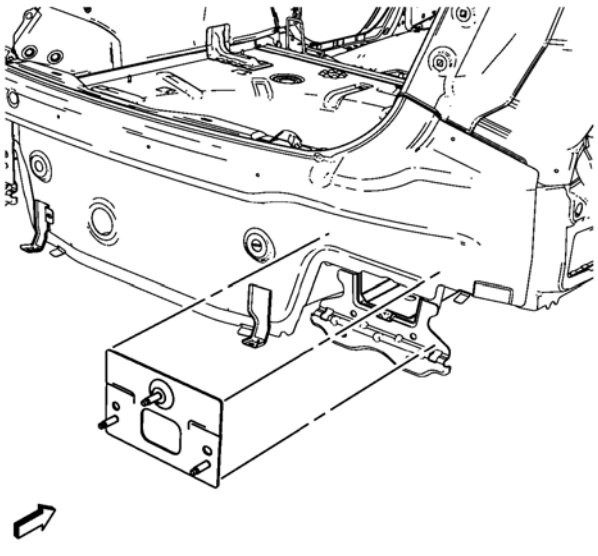
7. Drill all factory welds.



8. Remove the rear bumper impact bar stud plate.

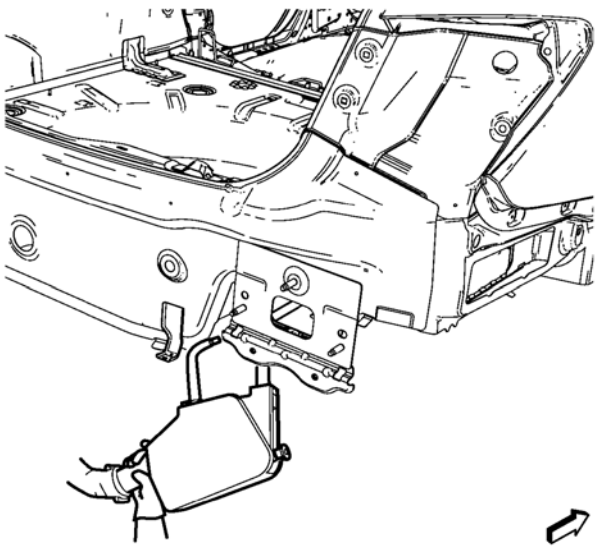
Installation Procedure

1. Clean and prepare the attaching surfaces for brazing.
2. Apply structural adhesive to the attaching surfaces.



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3. Position the rear bumper impact bar stud plate on the vehicle.
4. Verify the fit of the rear bumper impact bar stud plate.
5. Clamp the rear bumper impact bar stud plate into position.



6. Spot weld 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.

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Front Side Door Outer Panel Replacement (MAG-Welding)

Special Tools

- *BO-6396* Bonding Pliers
- *BO-6392* Flanging Tool Kit

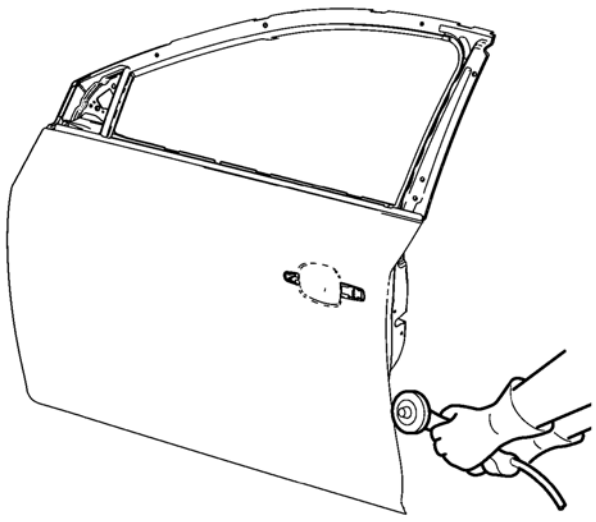
For equivalent regional tools, refer to Special Tools

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

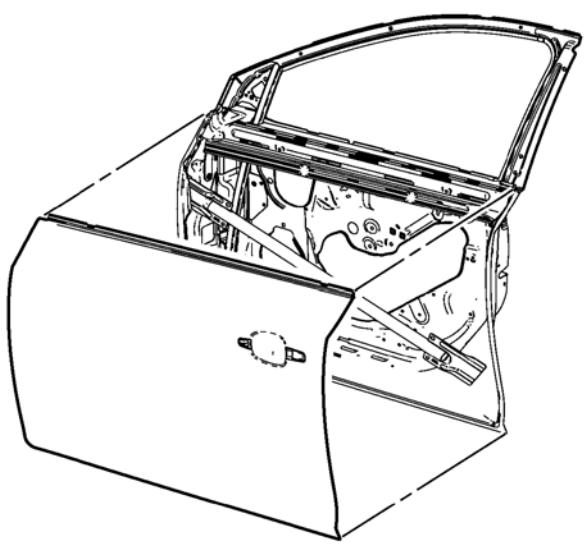
Removal Procedure

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.
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 to separate the outer door panel from the door shell.

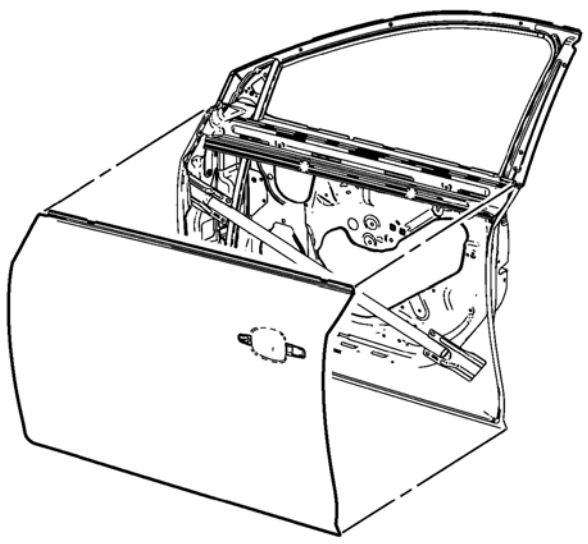


8. Remove the front side door outer door panel.
9. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
10. Straighten the edges of the door shell.

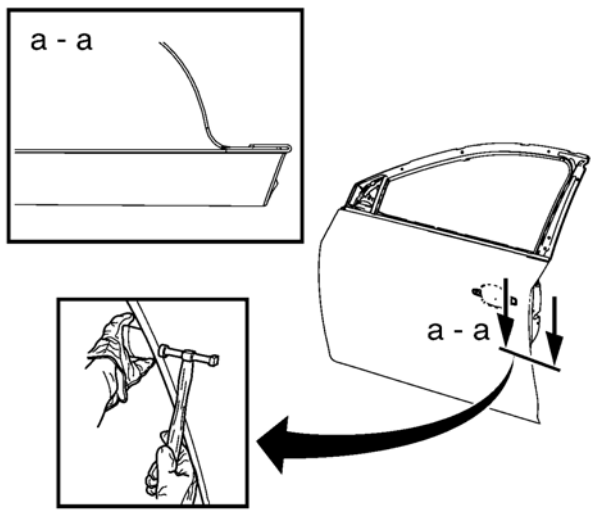
Installation Procedure

1. Align the front side door outer panel.
2. Verify the fit of the front side door outer panel.

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3. Clamp the front side door outer panel into position.
4. Pre-flanging the flange with *BO-6396* pliers and *BO-6392* tool kit .



5. Continue to hammer in stages along the hem flanges.
6. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
7. Install the outside rearview mirror. Refer to Outside Rearview Mirror Replacement.
8. Install the front side door outside handle. Refer to Front Side Door Outside Handle Replacement
9. Install the front side door. Refer to Front Side Door Replacement.
10. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Front Side Door Outer Panel Replacement (MIG-Brazing)

Special Tools

- *BO-6396* Bonding Pliers
- *BO-6392* Flanging Tool Kit

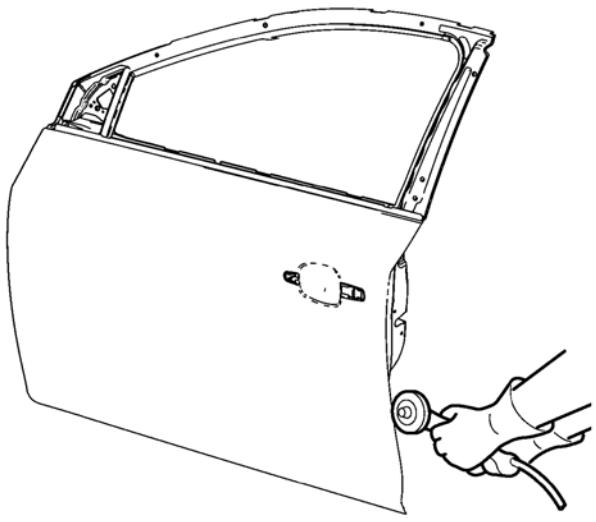
For equivalent regional tools, refer to Special Tools.

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

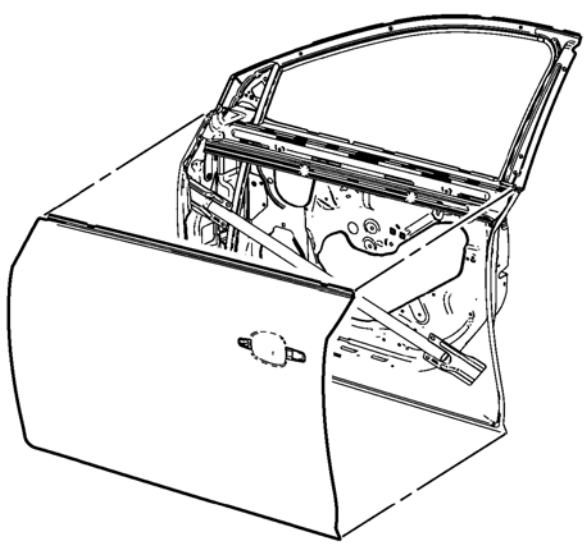
Removal Procedure

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.
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 to separate the outer door panel from the door shell.

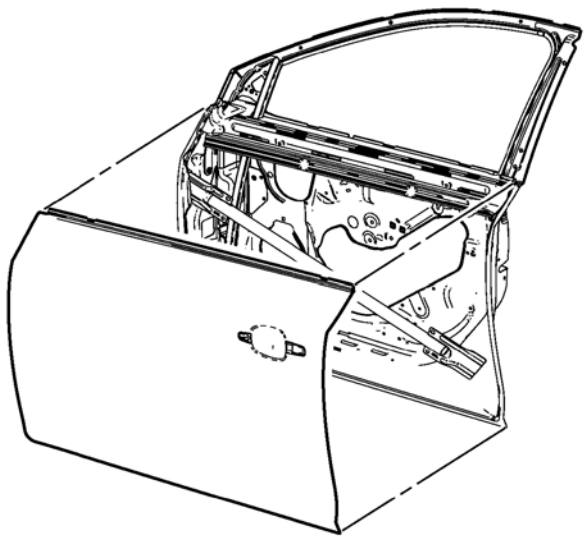


8. Remove the front side door outer door panel.
9. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair
10. Straighten the edges of the door shell.

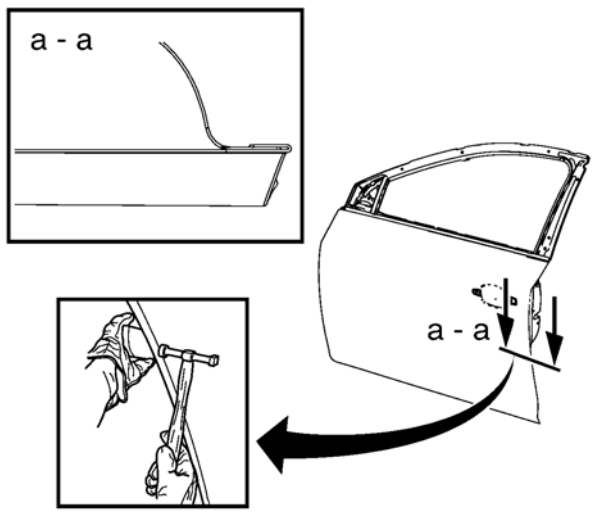
Installation Procedure

1. Apply structural adhesive on the flanges of the front side door inner panel where the front side door outer panel bears on.
2. Align the front side door outer panel.
3. Verify the fit of the front side door outer panel.

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4. Clamp the front side door outer panel into position.
5. Pre-flanging the flange with *BO-6396* pliers and *BO-6392* tool kit .



6. Continue to hammer in stages along the hem flanges.
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.
10. Install the front side door. Refer to Front Side Door Replacement.
11. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Rear Side Door Outer Panel Replacement (MAG-Welding)

Special Tools

- *BO-6396* Bonding Pliers
- *BO-6392* Flanging Tool Kit

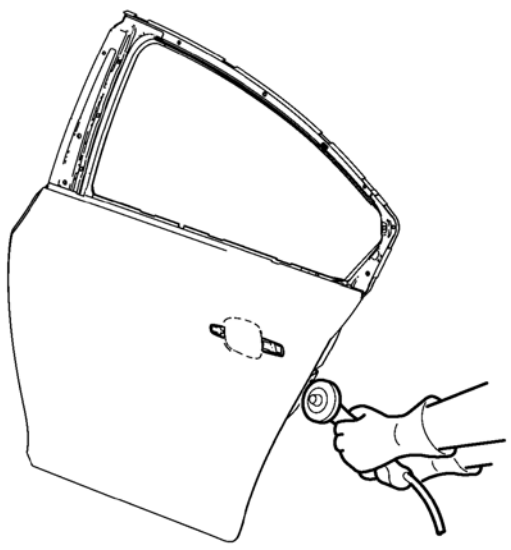
For equivalent regional tools, refer to Special Tools.

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

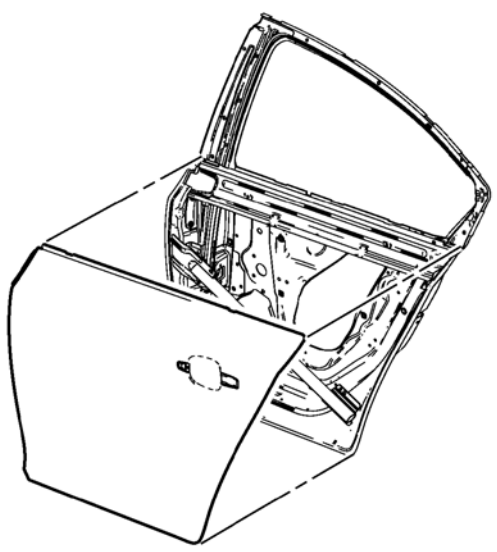
Removal Procedure

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.
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 to separate the outer door panel from the door shell.

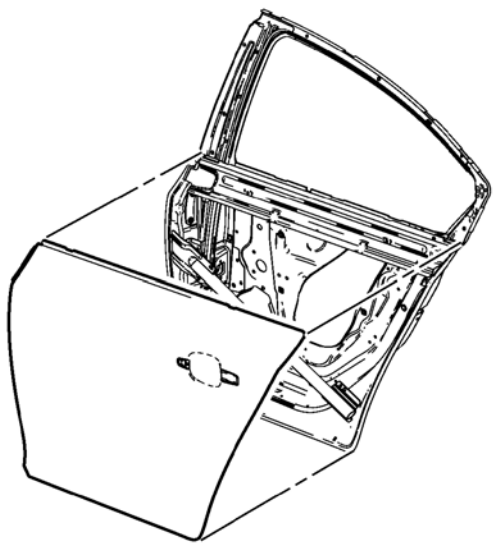


7. Remove the rear side door outer door panel.
8. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Straighten the edges of the door shell.

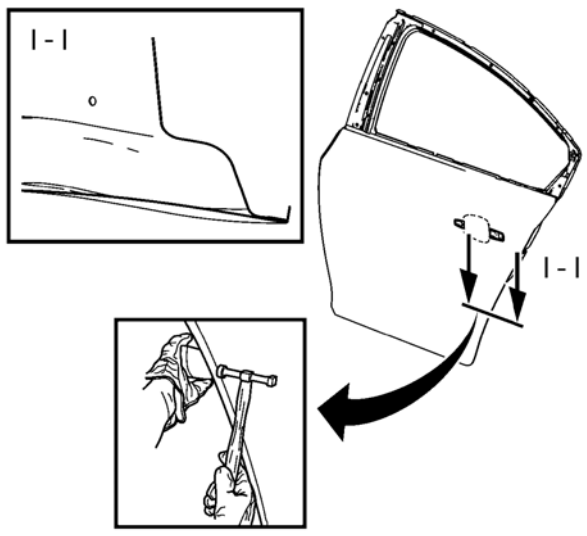
Installation Procedure

1. Align the rear side door outer panel.
2. Verify the fit of the rear side door outer panel.

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3. Clamp the rear side door outer panel into position.
4. Pre-flanging the flange with *BO-6396* pliers and *BO-6392* tool kit .



5. Continue to hammer in stages along the hem flanges.
6. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
7. Install the rear side door outside handle. Refer to Rear Side Door Outside Handle Replacement.
8. Install the rear side door. Refer to Rear Side Door Replacement.
9. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Rear Side Door Outer Panel Replacement (MIG-Brazing)

Special Tools

- *BO-6396* Bonding Pliers
- *BO-6392* Flanging Tool Kit

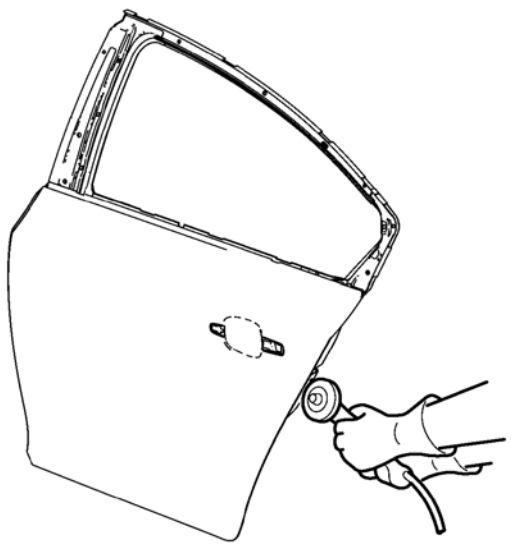
For equivalent regional tools, refer to Special Tools.

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

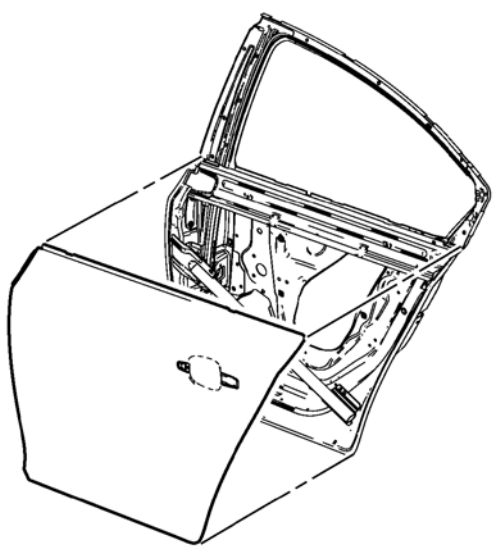
Removal Procedure

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.
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 to separate the outer door panel from the door shell.

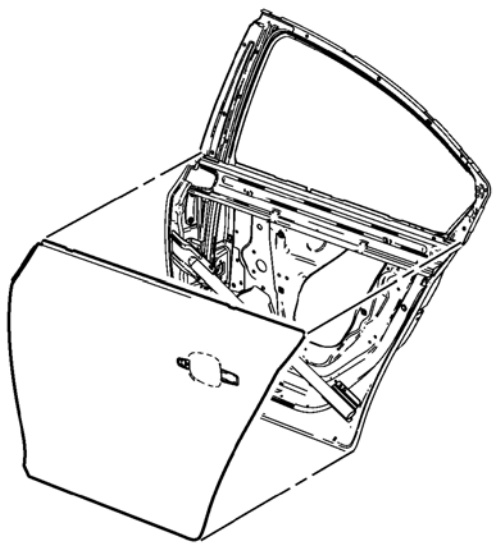


7. Remove the rear side door outer door panel.
8. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
9. Straighten the edges of the door shell.

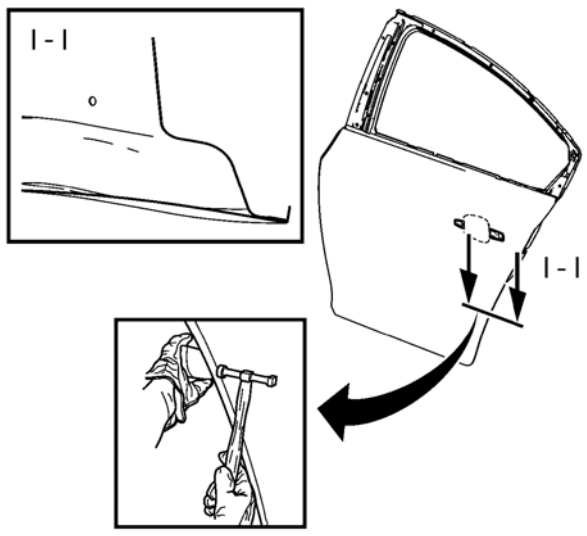
Installation Procedure

1. Apply structural adhesive on the flanges of the rear side door inner panel where the rear side door outer panel bears on.
2. Align the rear side door outer panel.
3. Verify the fit of the rear side door outer panel.

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4. Clamp the rear side door outer panel into position.
5. Pre-flanging the flange with *BO-6396* pliers and *BO-6392* tool kit .



6. Continue to hammer in stages along the hem flanges.
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.
9. Install the rear side door. Refer to Rear Side Door Replacement.
10. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
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.

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Rear Rail Sectioning (MAG-Welding)

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

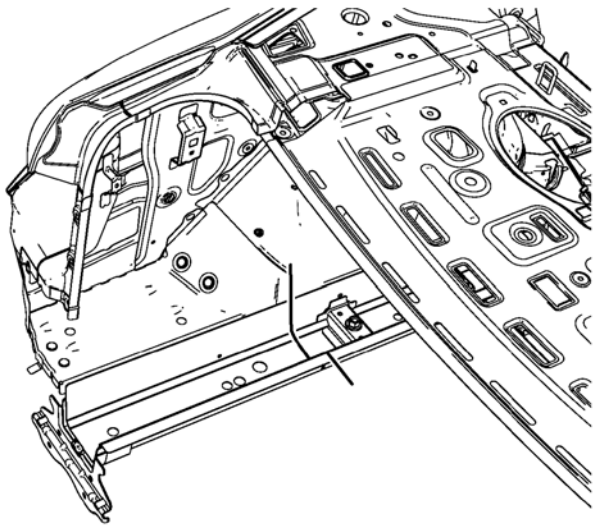
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

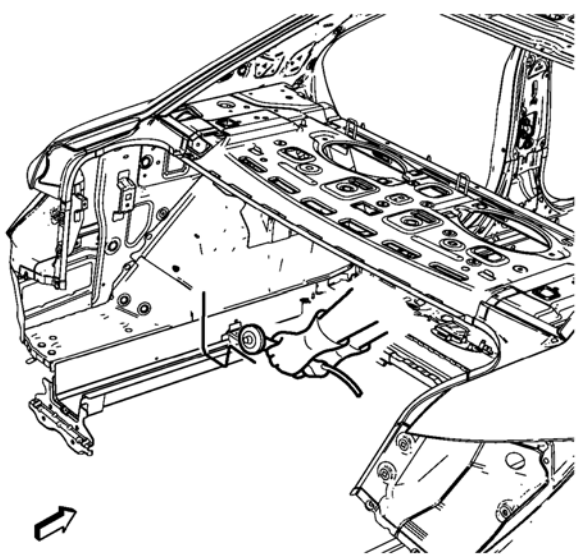
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

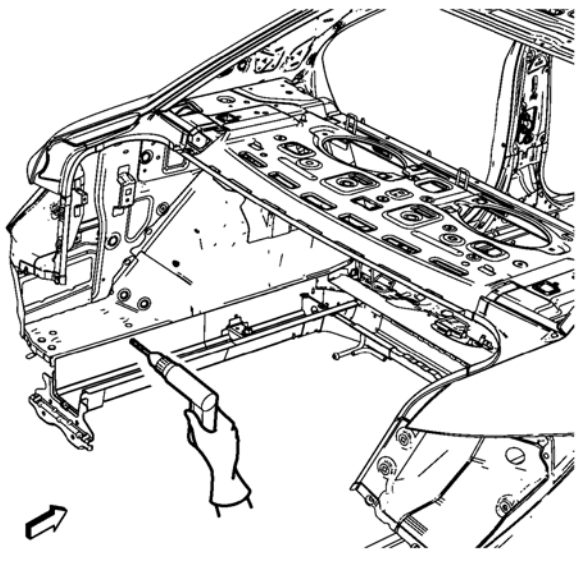


6. Create cut lines on the rear side rail.



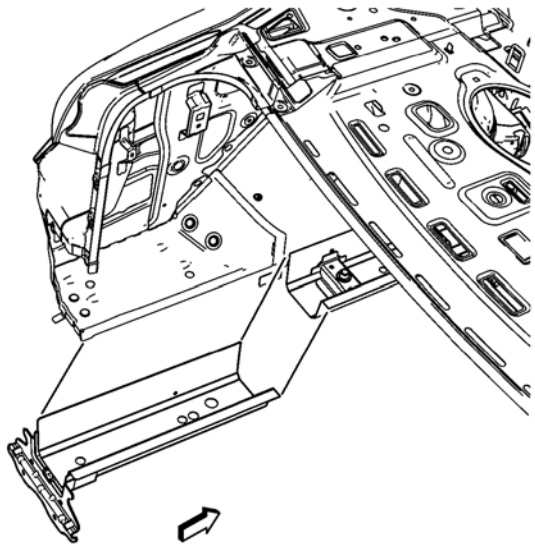
Note: Do not damage any other panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



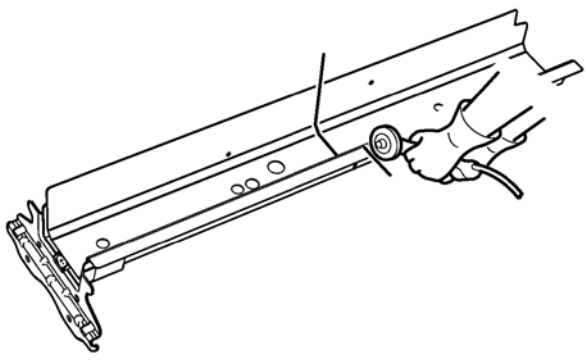
8. Locate and mark all the necessary factory welds of the rear side rail.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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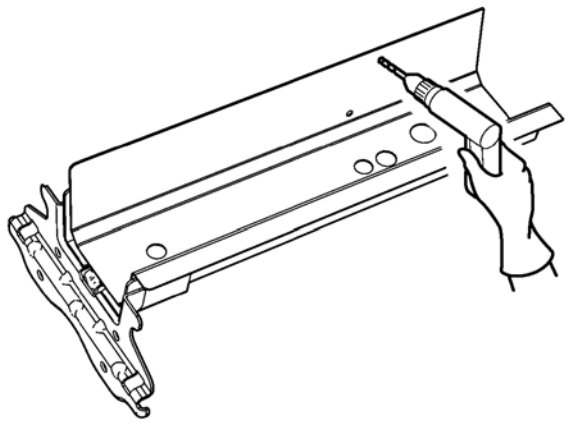


10. Remove the damaged rear side rail.

Installation Procedure

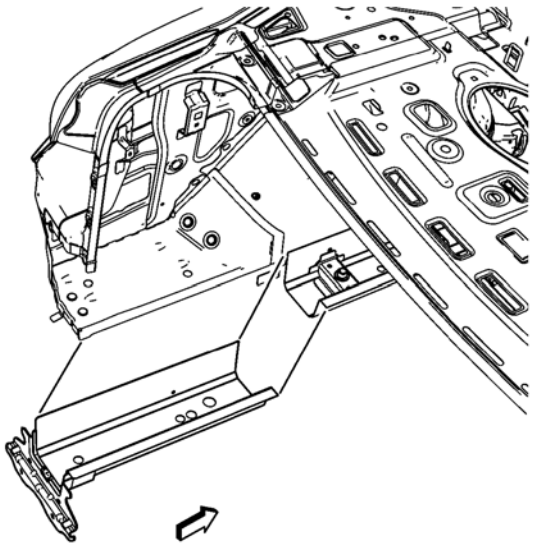


1. Cut the rear side rail in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
2. Create a 50 mm (2 in) backing plate from the unused portion of the service part.
3. 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 (1½ 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 rear side rail.

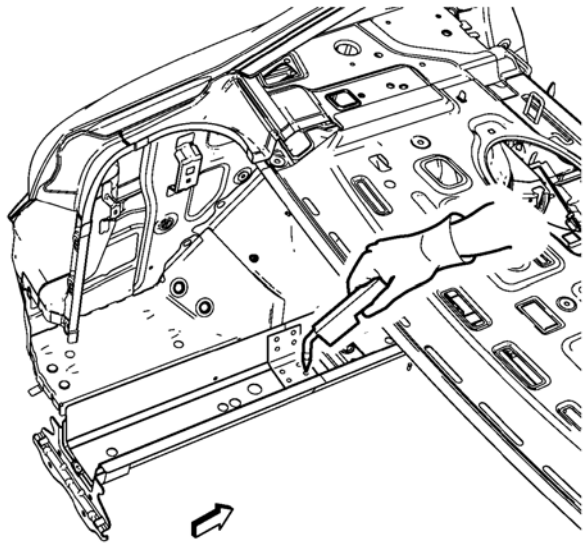


7. Drill 8 mm (5/1 in) for plug welding along the edges of the rear side rail as noted from the original panel.
8. Clean and prepare the attaching surfaces for welding.

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9. Position the rear side rail on the vehicle.
10. Verify the fit of the rear side rail.
11. Clamp the rear side rail into position.



12. Plug weld 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.

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Rear Rail Sectioning (MIG-Brazing)

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

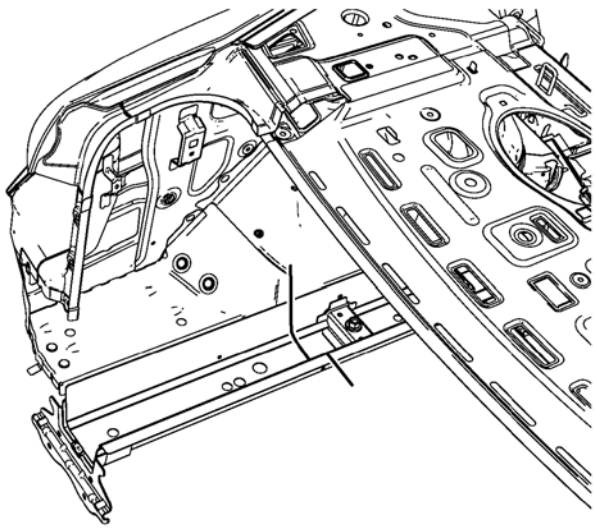
Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

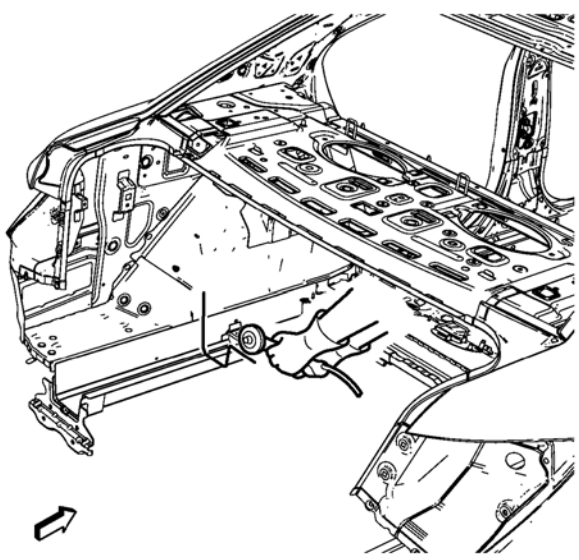
Warning: Refer to Collision Sectioning Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

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.

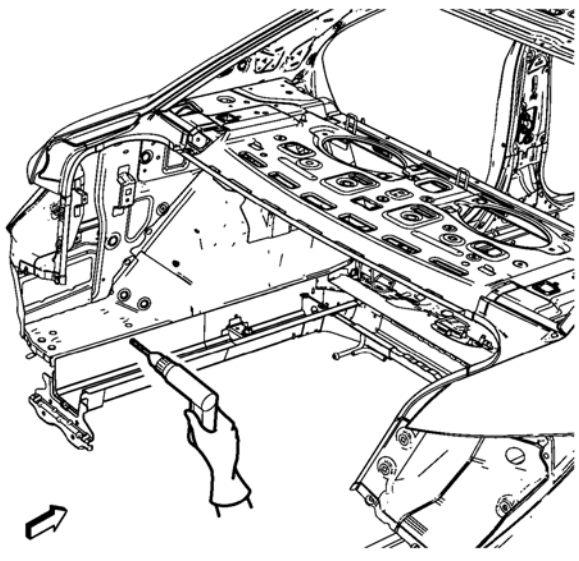


6. Create cut lines on the rear side rail.



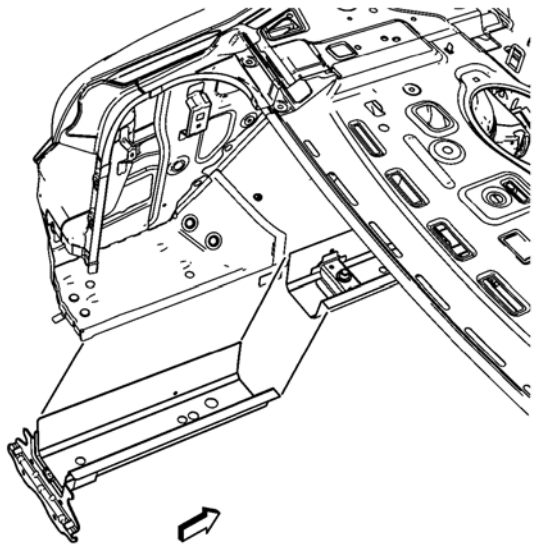
Note: Do not damage any other panels or reinforcements.

7. Cut the panel where sectioning is to be performed.



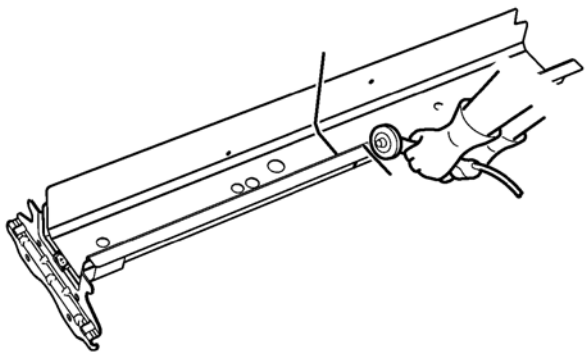
8. Locate and mark all the necessary factory welds of the rear side rail.
9. Drill all factory welds. Note the number and location of welds for installation of the service assembly.

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10. Remove the damaged rear side rail.

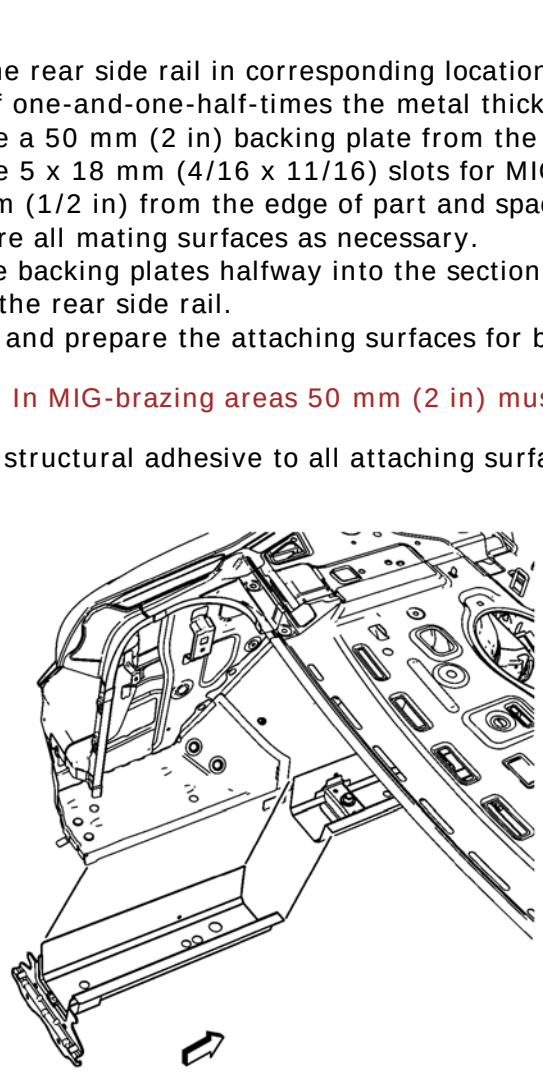
Installation Procedure



1. Cut the rear side rail 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. Create 5 x 18 mm (4/16 x 11/16) slots for MIG-brazing 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 braze to the vehicle.
6. Align the rear side rail.
7. Clean and prepare the attaching surfaces for brazing and spot welding.

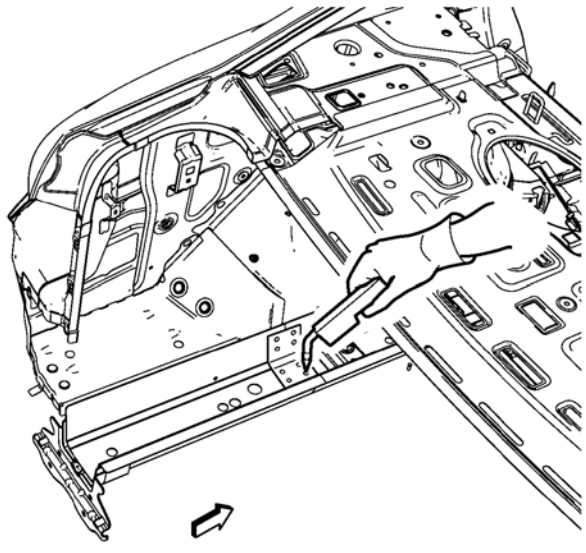
   Note: In MIG-brazing areas 50 mm (2 in) must be kept clear of structural adhesive.

8. Apply structural adhesive to all attaching surfaces.

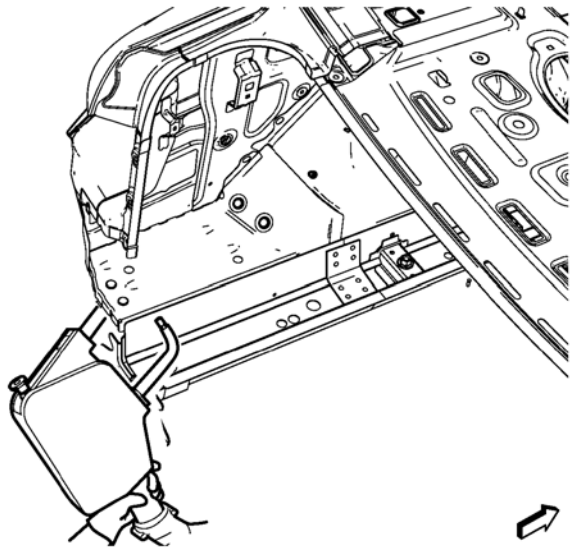


9. Position the rear side rail on the vehicle.
10. Verify the fit of the rear side rail.
11. Clamp the rear side rail into position.

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



14. Spot weld accordingly.
15. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to Anti-Corrosion Treatment and Repair.
16. Paint the repaired area. Refer to Basecoat/Clearcoat Paint Systems.
17. Install all related panels and components.
18. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
19. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Underbody Rear Side Rail Reinforcement Replacement (MAG-Welding)

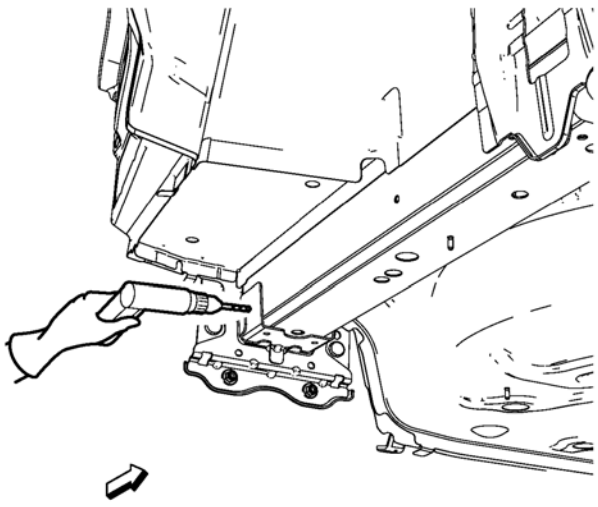
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

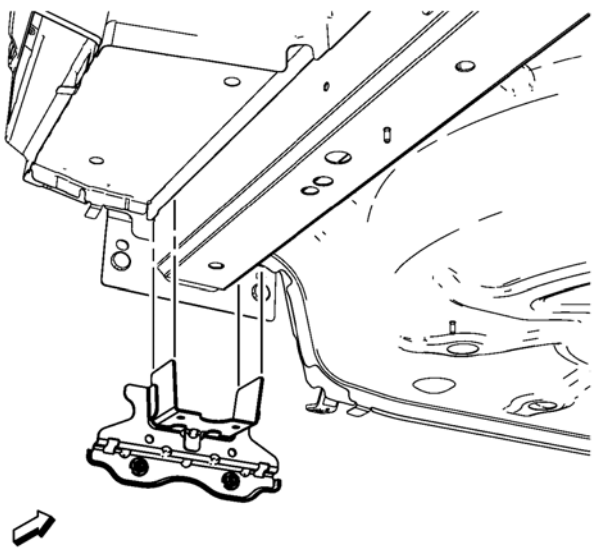
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 end panel plate.

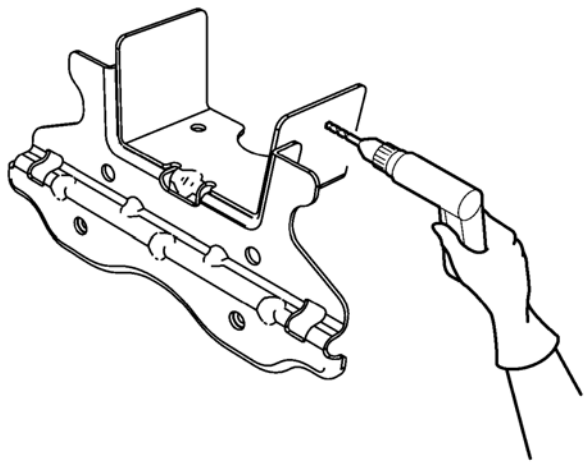
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the underbody rear side rail reinforcement.

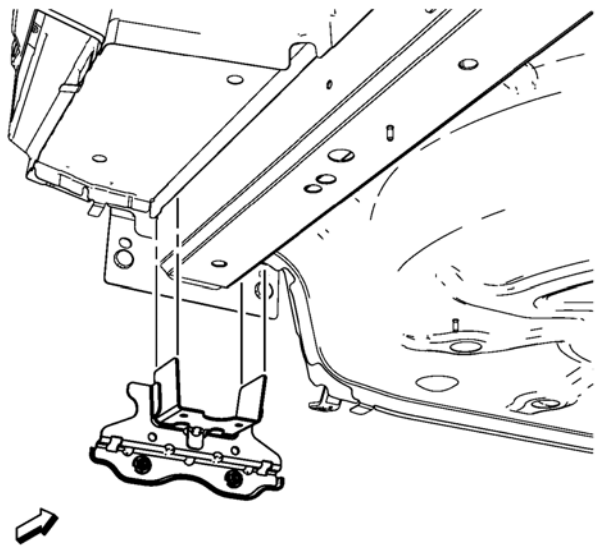
Installation Procedure



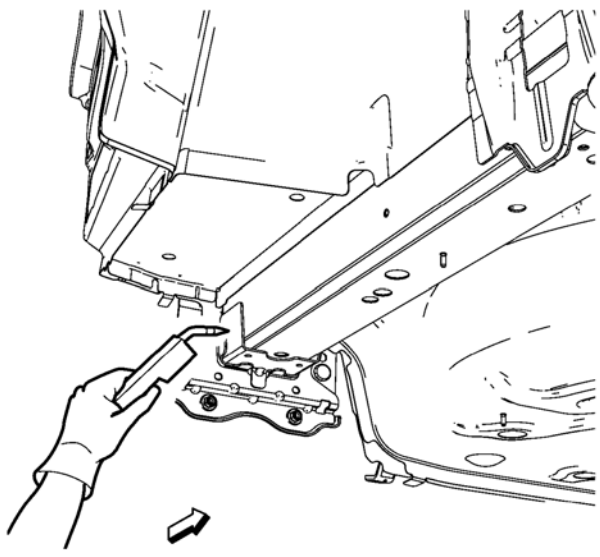
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Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1½ in).

1. Drill 8 mm (5/16 in) for plug welding along the edges of the underbody rear side rail reinforcement as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.



3. Position the underbody rear side rail reinforcement on the vehicle.
4. Verify the fit of the underbody rear side rail reinforcement.
5. Clamp the underbody rear side rail reinforcement into position.



6. Plug weld 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.

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Underbody Rear Side Rail Reinforcement Replacement (MIG-Brazing)

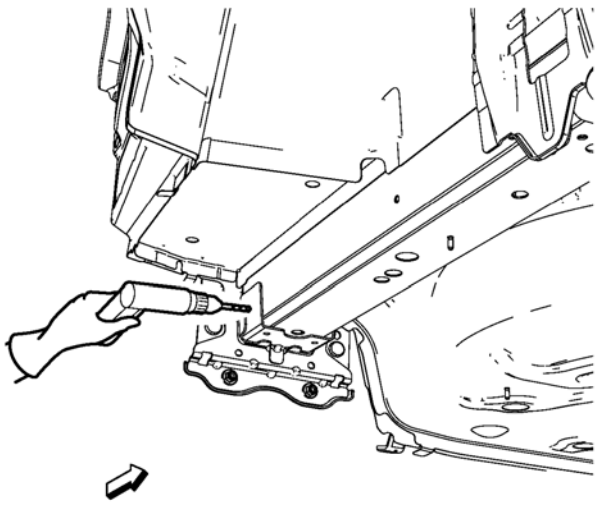
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

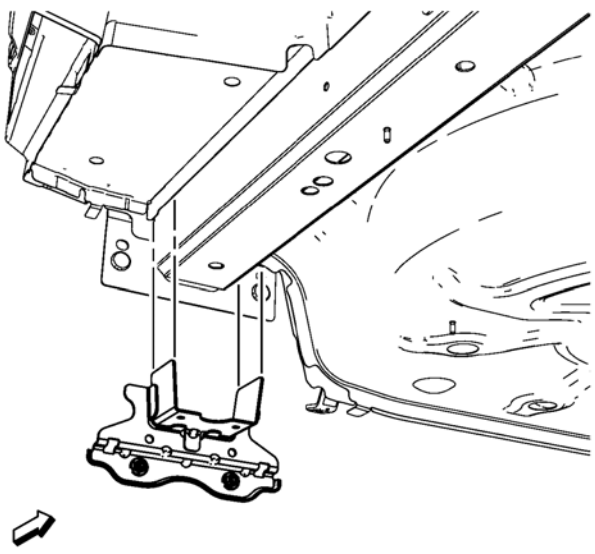
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 end panel plate.

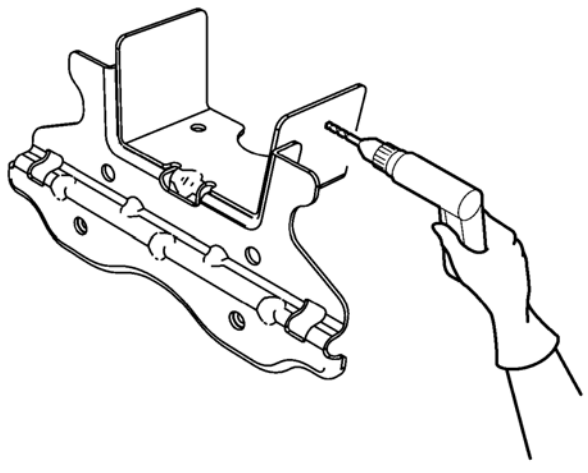
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the underbody rear side rail reinforcement.

Installation Procedure

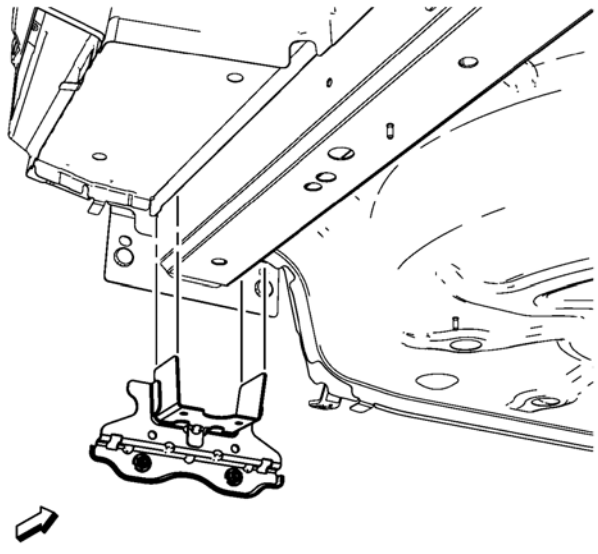


1. Create 8 24 mm (5/16 x 15/16 in) slots for MIG-brazing along the edges of the underbody rear side rail reinforcement as noted from

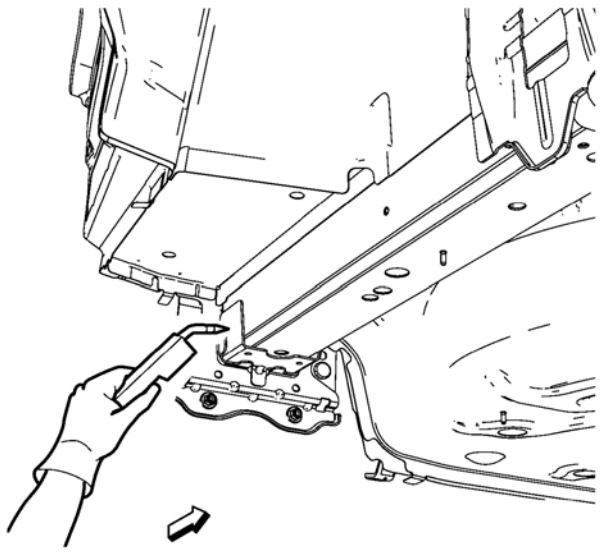
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the original panel.

2. Clean and prepare the attaching surfaces for brazing.



3. Position the underbody rear side rail reinforcement on the vehicle.
4. Verify the fit of the underbody rear side rail reinforcement.
5. Clamp the underbody rear side rail reinforcement into position.



6. Braze 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.

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Rear Floor Panel Filler Replacement (MAG-Welding)

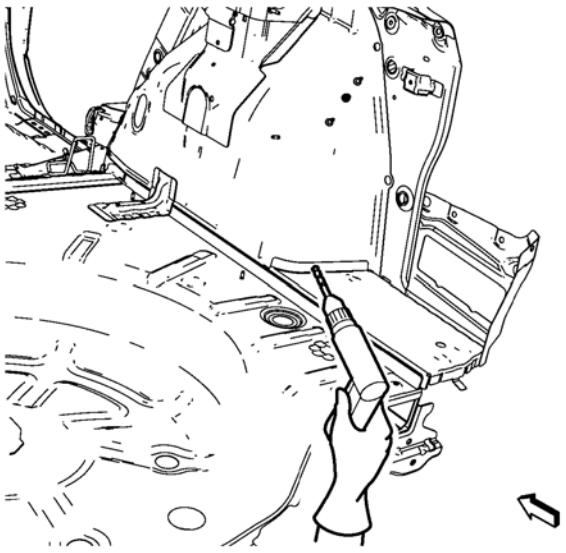
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

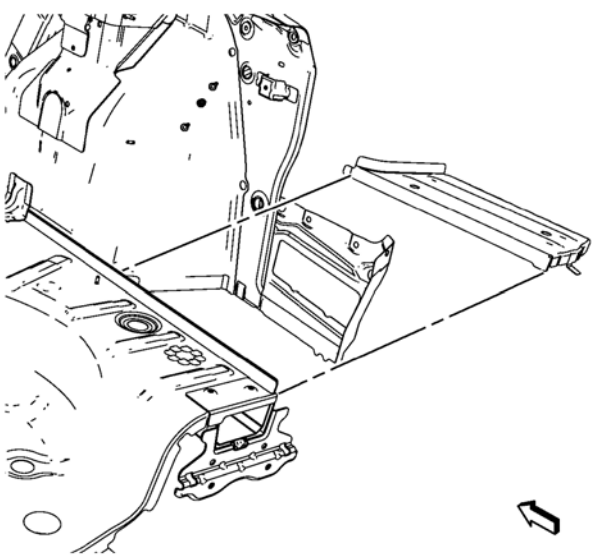
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 floor panel filler.

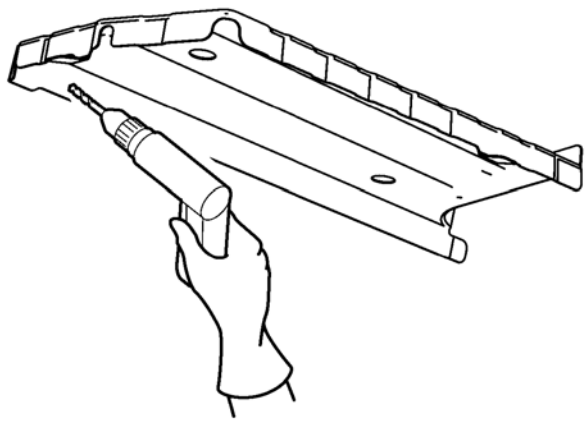
   Note: Note the number and location of welds for installation of the service assembly.

7. Drill all factory welds.



8. Remove the rear floor panel filler.

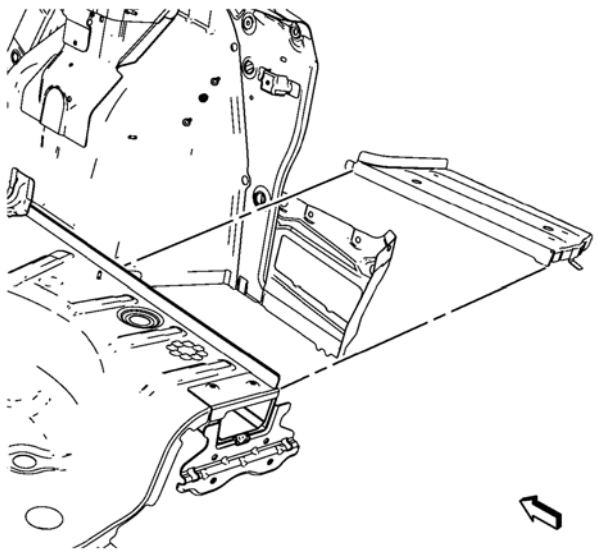
Installation Procedure



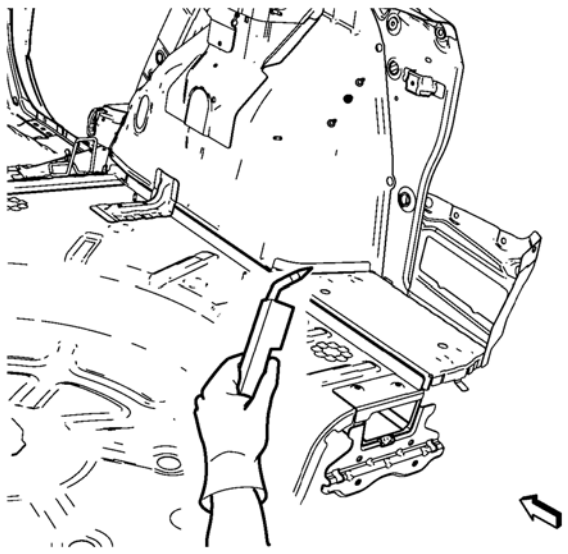
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Note: If the location of the original plug weld holes can not be determined, space the plug weld holes every 40 mm (1½ in).

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



3. Position the rear floor panel filler on the vehicle.
4. Verify the fit of the rear floor panel filler.
5. Clamp the rear floor panel filler into position.



6. Plug weld 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.

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Rear Floor Panel Filler Replacement (MIG-Brazing)

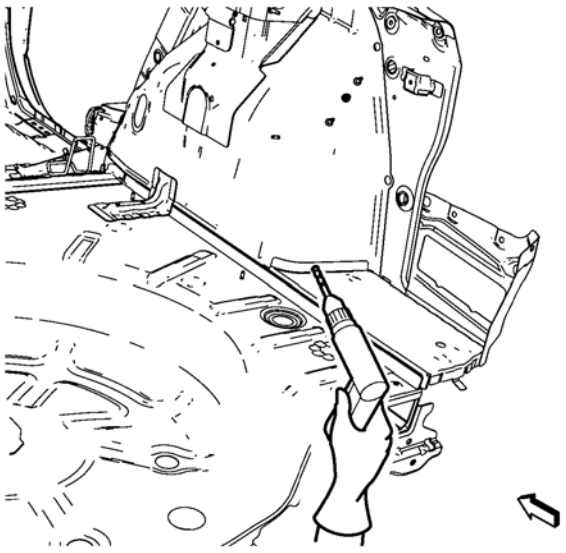
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

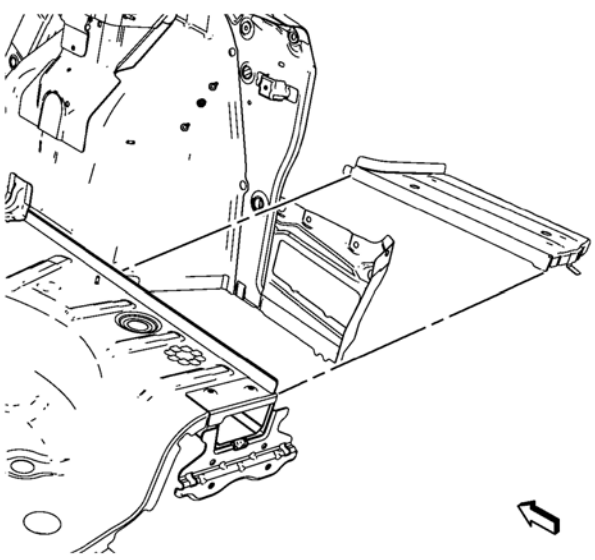
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the 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 floor panel filler.

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

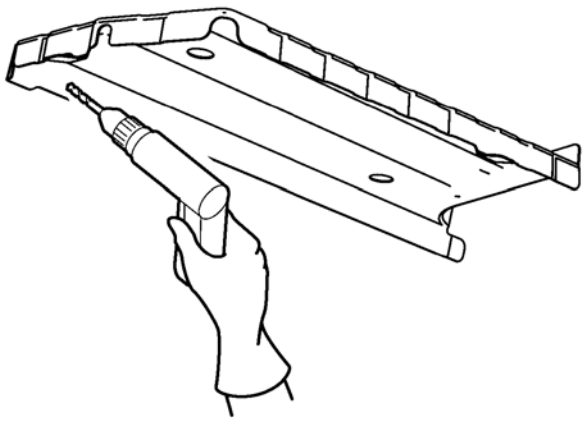
7. Drill all factory welds.





8. Remove the rear floor panel filler.

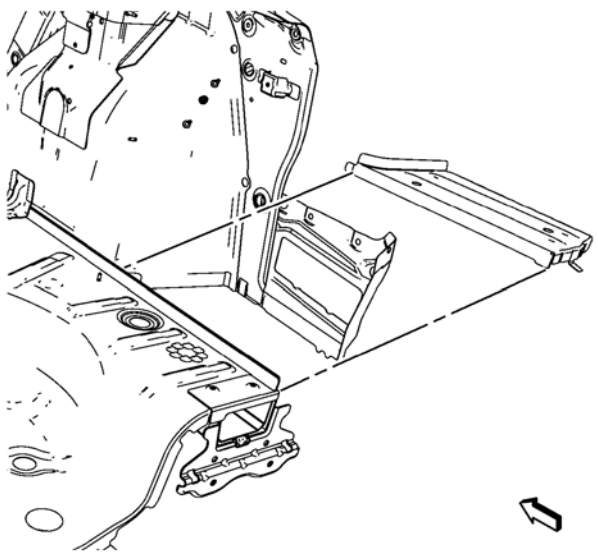
Installation Procedure



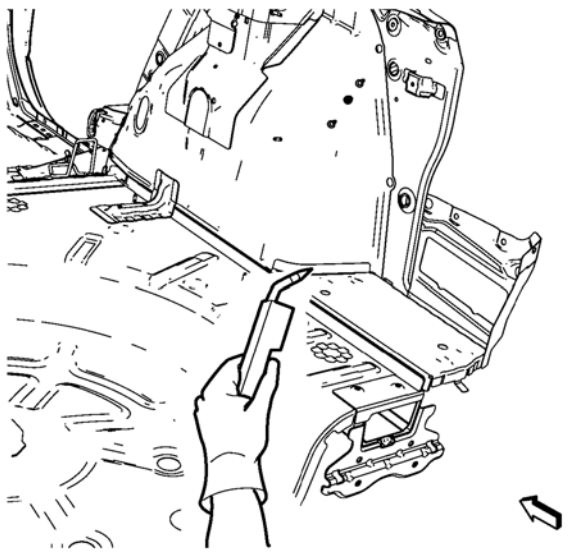
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Note: If the location of the original plug weld holes can not be determined, space the braze holes every 40 mm (1½ in).

1. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing along the edges of the rear floor panel filler as noted from the original panel.
2. Clean and prepare the attaching surfaces for welding.



3. Position the rear floor panel filler on the vehicle.
4. Verify the fit of the rear floor panel filler.
5. Clamp the rear floor panel filler into position.



6. Braze 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.

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Tail Lamp Pocket Replacement (MAG-Welding)

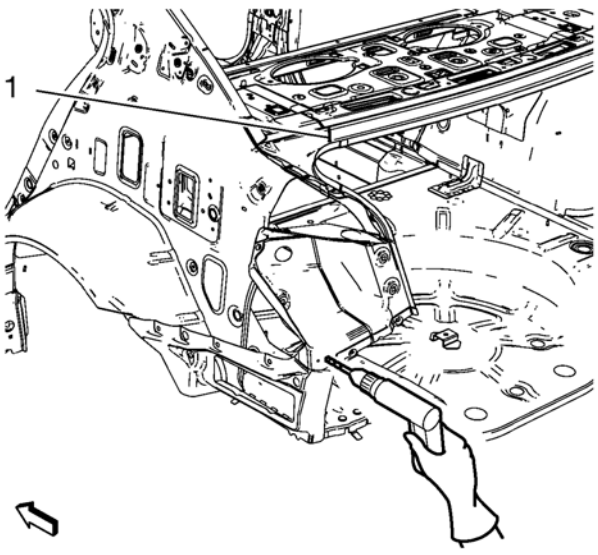
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

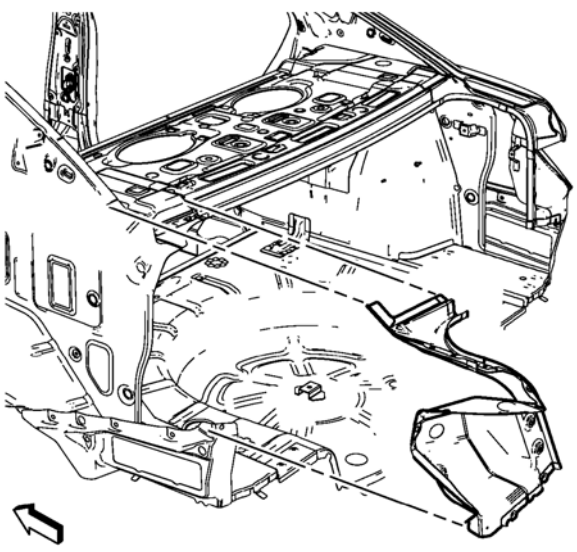
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the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

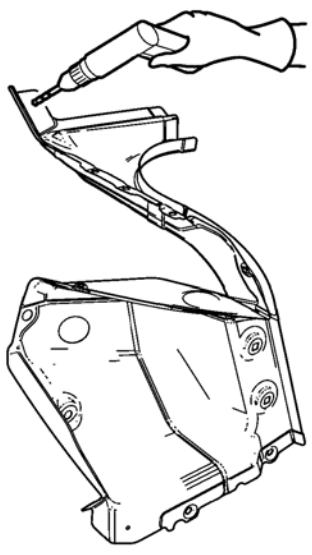
   Note: Drill factory welds in area of the rear end upper panel reinforcement (1) from above. Drill holes are necessary for later plug welds.

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



8. Remove the tail lamp pocket.

Installation Procedure

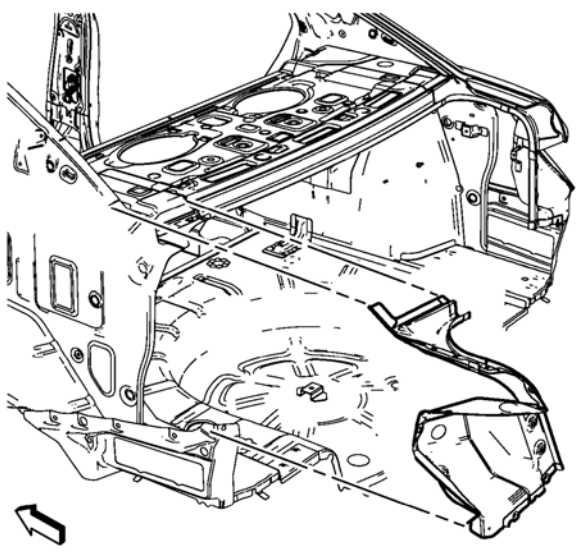


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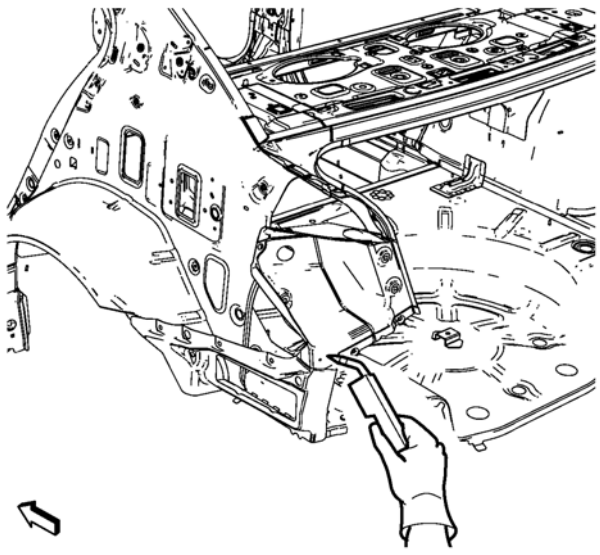
1. Drill 8 mm (5/16 in) for plug welding along the edges of the tail lamp pocket as noted from the original panel.

   Note:

2. Clean and prepare the attaching surfaces for welding.



3. Position the tail lamp pocket on the vehicle.
4. Verify the fit of the tail lamp pocket.
5. Clamp the tail lamp pocket into position.



6. Plug weld 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.

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Tail Lamp Pocket Replacement (MIG-Brazing)

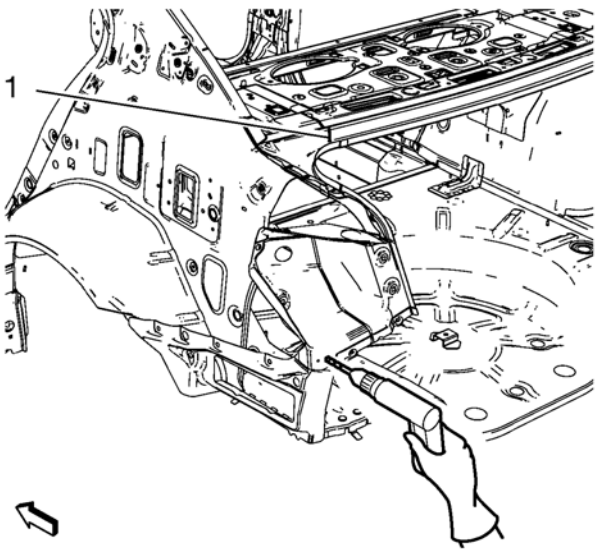
Note: According to different corrosion warranties, only the regional mandatory joining methods are allowed.

Removal Procedure

Warning: Refer to Approved Equipment for Collision Repair Warning in the Preface section.

Warning: Refer to Glass and Sheet Metal Handling Warning in the Preface section.

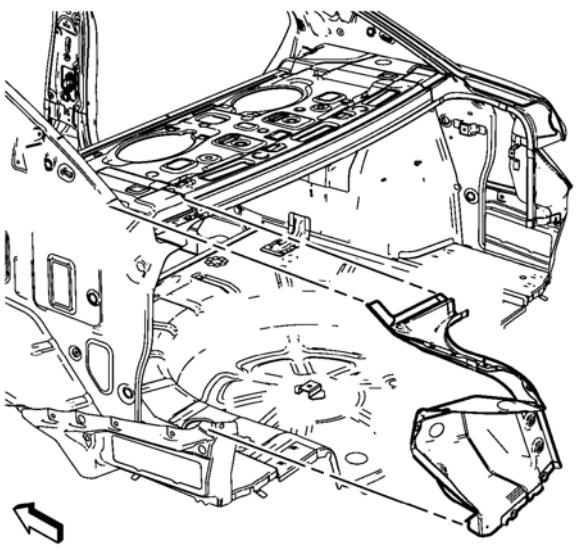
1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Remove all related panels and components.
4. Visually inspect the damage. Repair as much of the damage as possible.
5. Remove the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

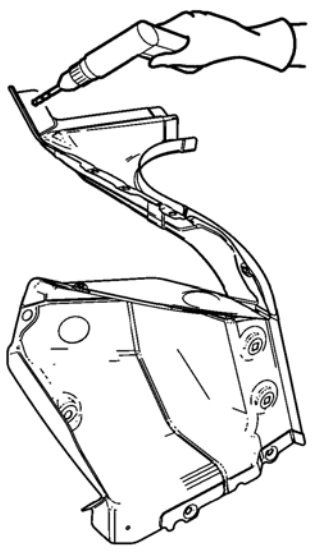
   Note: Drill factory welds in area of the rear end upper panel reinforcement (1) from above. Create slots out of the drill holes for later brazing.

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



8. Remove the tail lamp pocket.

Installation Procedure

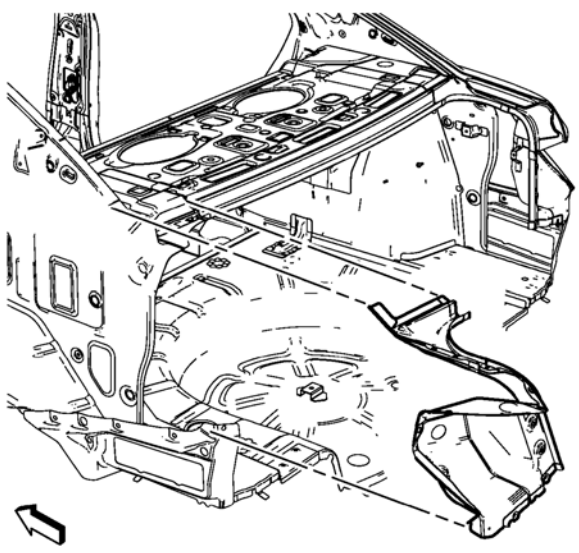


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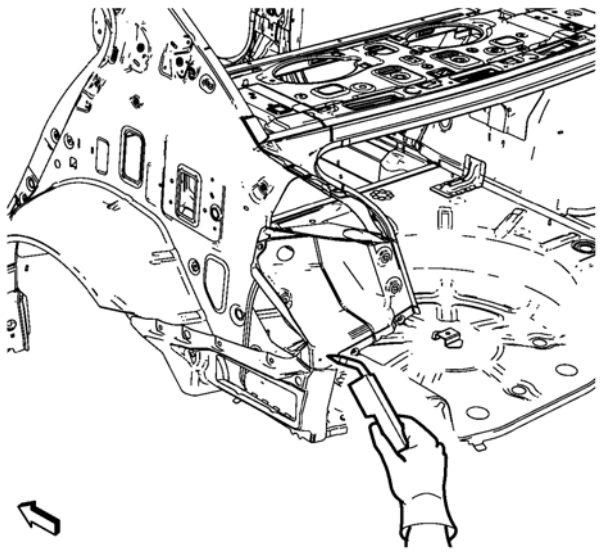
1. Create 5 x 18 mm (4/16 x 11/16 in) slots for MIG-brazing along the edges of the tail lamp pocket as noted from the original panel.

   Note:

2. Clean and prepare the attaching surfaces for brazing.



3. Position the tail lamp pocket on the vehicle.
4. Verify the fit of the tail lamp pocket.
5. Clamp the tail lamp pocket into position.



6. Braze 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.

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Dual Phase Steel

This information provides repair recommendations and general guidelines for steel classified as Dual Phase Steel (Dual Phase Steel with a tensile strength up to and including 800 MPa), also known as DP.

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.
- This type of steel can be used as a sleeve, or backer plate, when recommended in a specific sectioning procedure.
- 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.

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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.
- This type of steel can be used as a sleeve, or backer plate, during sectioning procedures.
- 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.

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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.
- This type of steel can be used as a sleeve, or backer plate, when recommended in a specific sectioning procedure.
- 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.

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Ultra High Strength Dual Phase Steel

This information provides repair recommendations and general guidelines for steel classified as Ultra High Strength Dual Phase Steel (Dual Phase Steel with a tensile strength greater than 800 MPa), also known as DPX.

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

Note:

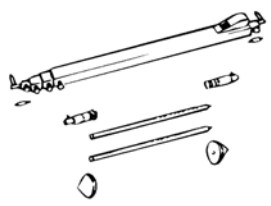
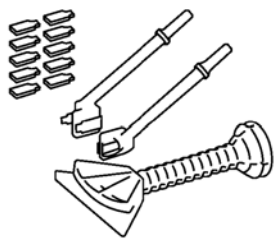
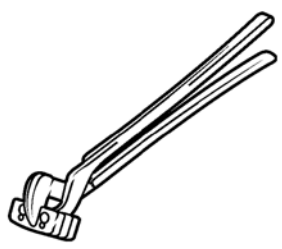
- Repair of this type of steel is not recommended.
- This type of steel should be replaced at factory joints only. Sectioning or partial replacement is not recommended.
- The use of heat to repair damage is not recommended for this type of steel.
- Stitch Welding is not recommended for this type of steel.
- This classification of steel can not be used as a backing reinforcement or a sleeve for a sectioning joint, unless a specific procedure is available.

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.

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Special Tools

Illustration	Tool Number / Description
	BO-642-A MKM-642-A Telescope Measuring Instrument
	BO-6392 MKM-6392 Flanging Tool Kit
	BO-6396 KM-6396 Bonding Pliers

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Select a Document:

- Specifications
- Engine Shield Replacement
- Front Compartment Insulator Replacement
- Front Compartment Splash Shield Replacement
- Drivetrain and Front Suspension Frame Replacement
- Drivetrain and Front Suspension Frame Insulator Replacement
- Front Wheelhouse Liner Replacement
- Rear Wheelhouse Panel Liner Replacement
- Front Fog Lamp Bezel Replacement
- Special Tools and Equipment

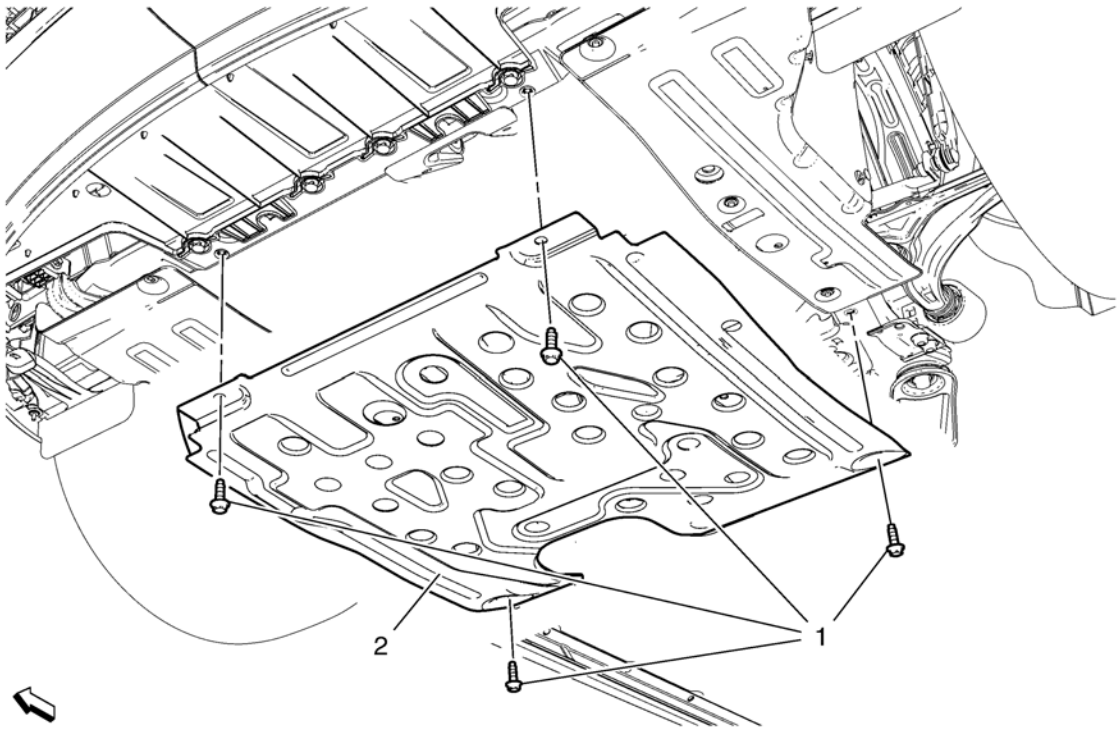
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Fastener Tightening Specifications

Application	Specification	
	Metric	English
Drivetrain and Front Suspension Frame Bolt Front	160 N·m	118 lb ft
Drivetrain and Front Suspension Frame Bolt Rear	160 N·m	118 lb ft
Front Compartment Insulator Bolt	3 N·m	27 lb in
Front Compartment Splash Shield Bolt	3 N·m	27 lb in
Front Wheelhouse Liner Bolt	2.5 N·m	22 lb in
Power Steering Fluid Cooling Pipe Bolt	9 N·m	80 lb in
Power Steering Inlet and Outlet Hose Bolt	11 N·m	97 lb in
Rear Wheelhouse Liner Bolt	2.5 N·m	22 lb in
Steering Linkage Tie Rod Nut	35 N·m	26 lb ft
Transmission Front Mount Bolt	100 N·m	74 lb ft
Transmission Rear Mount Bracket Bolt	100 N·m	74 lb ft

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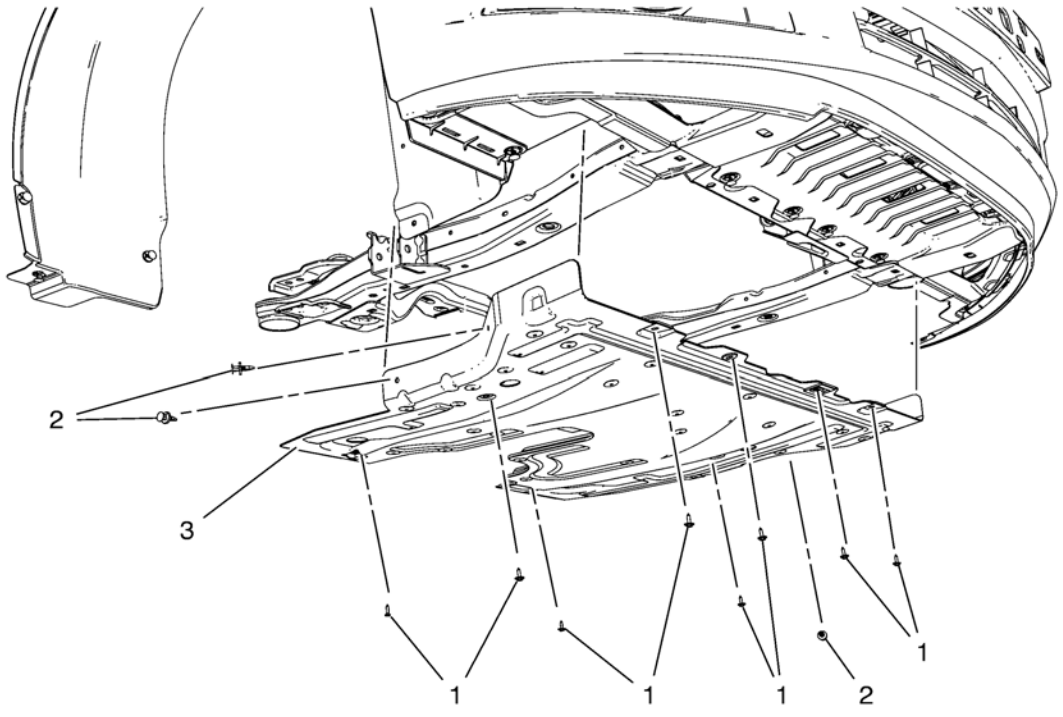
Engine Shield Replacement



Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.	
1	Engine Shield Bolt (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 40 N·m (30 lb ft)
2	Engine Shield

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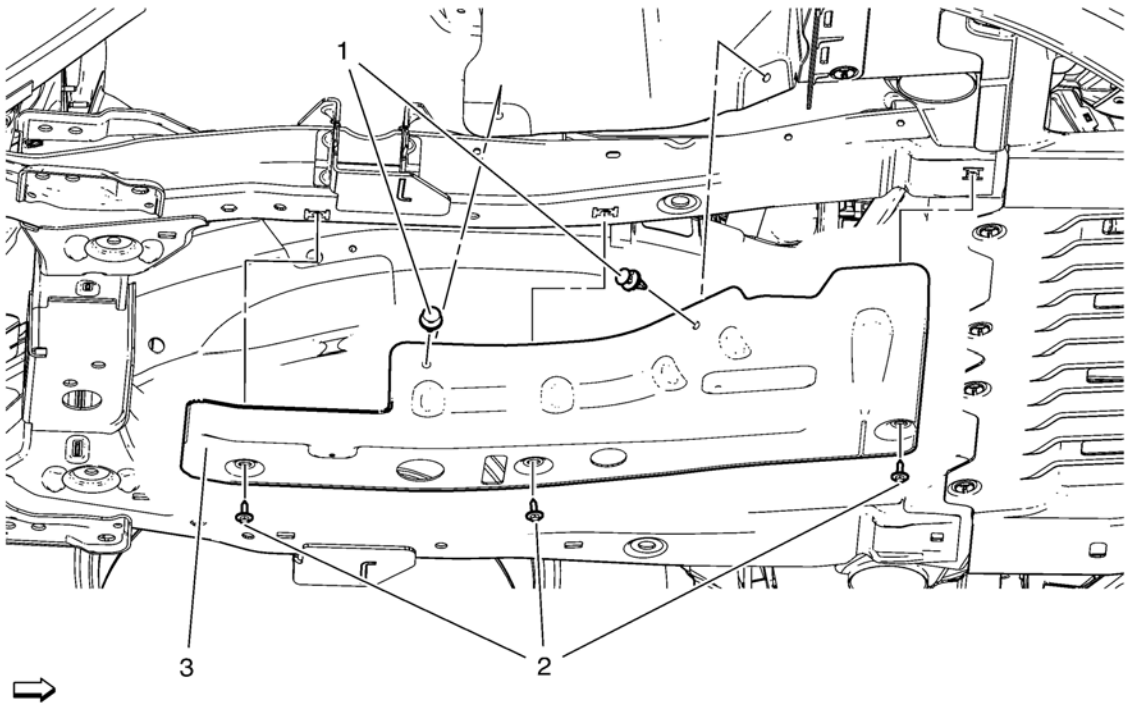
Front Compartment Insulator Replacement



Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.	
1	Front Compartment Insulator Screw (Qty: 8) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 3 N·m (3 lb in)
2	Front Compartment Insulator Plastic Retainer (Qty: 3)
3	Front Compartment Insulator

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Front Compartment Splash Shield Replacement



Callout	Component Name
1	Front Compartment Splash Shield Retainer (Qty: 2)
2	Front Compartment Splash Shield Bolt (Qty: 3) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 3 N·m (27 lb in)
3	Front Compartment Splash Shield

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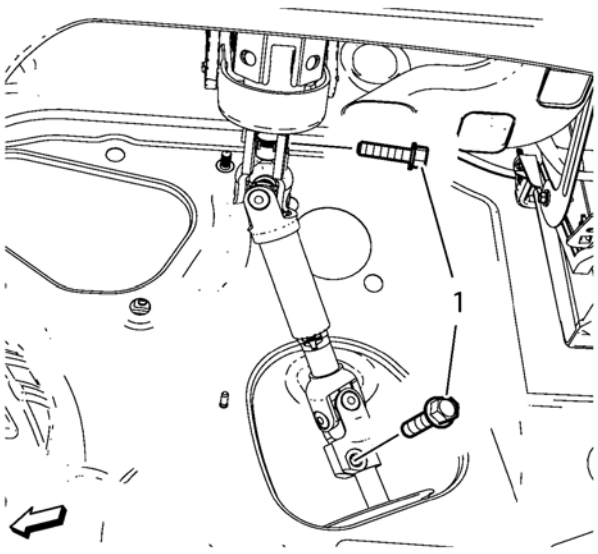
Drivetrain and Front Suspension Frame Replacement

Special Tools

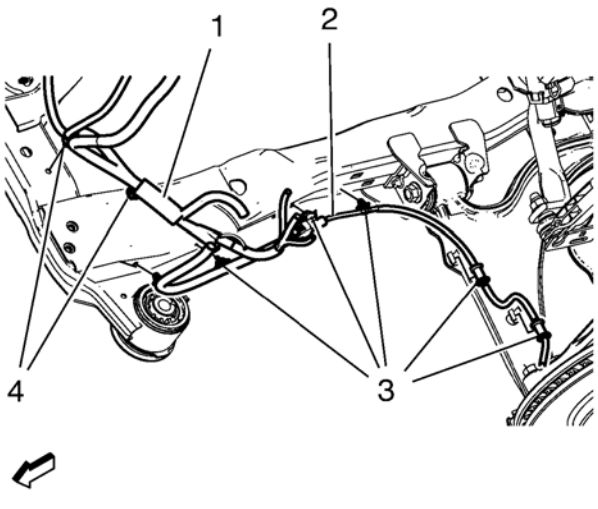
- *CH 904* Underframe
- *CH 49289* Centering Adapter

For equivalent regional tools, refer to Special Tools.

Removal Procedure



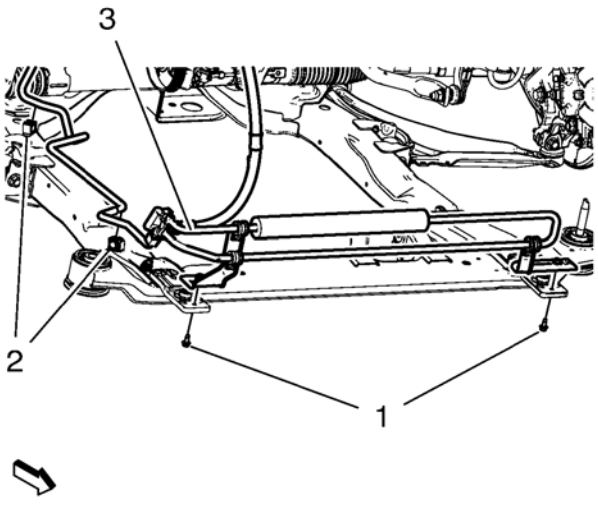
1. Support the radiator and condenser from above using the condenser tabs on each side.
2. Remove the lower steering intermediate shaft bolt (1).
3. Raise the vehicle on a hoist. Refer to Lifting and Jacking the Vehicle.
4. Remove the tire and wheel assemblies. Refer to Tire and Wheel Removal and Installation.
5. Remove the exhaust flexible pipe. Refer to Exhaust Flexible Pipe Replacement.
6. Remove the front compartment splash shield. Refer to Front Compartment Splash Shield Replacement.
7. Remove the front compartment insulator, if equipped. Refer to Front Compartment Insulator Replacement.



8. Remove the wheel speed sensor wiring harness (2) from the frame on both sides.

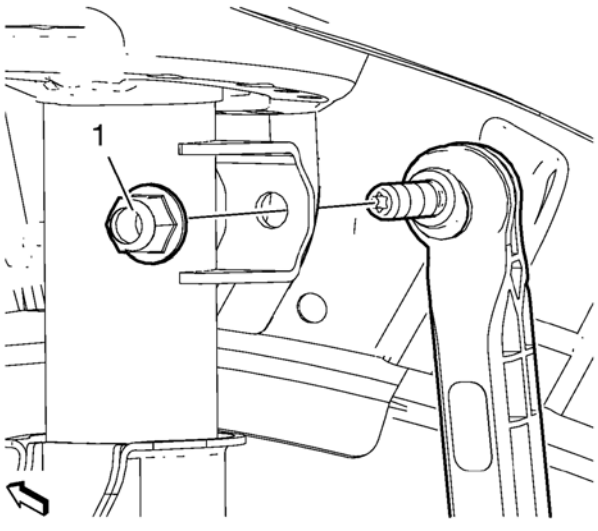
   Remove the wiring harness retainers (3) from the frame and the lower control arm.
9. Remove the radiator wiring harness (1) from the frame.

   Remove the wiring harness retainers (4) from the frame.

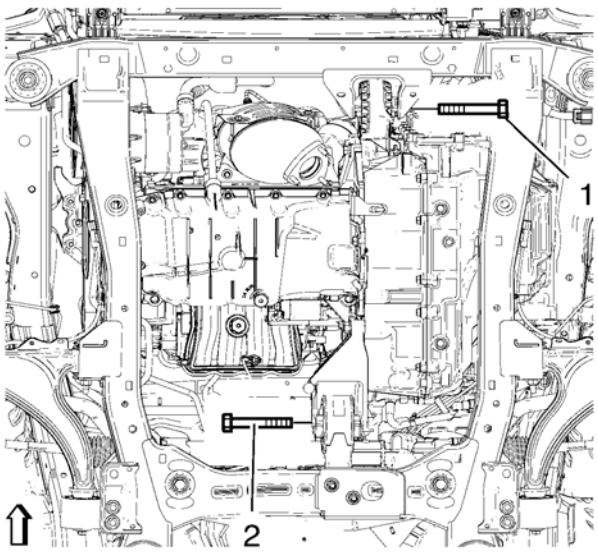


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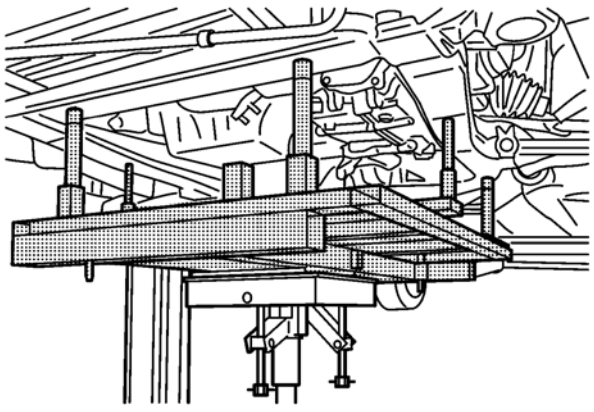
10. Remove the power steering fluid cooling pipe bolt (1), clip out (2) and securing the power steering fluid cooling pipe (3) to the vehicle.
11. Remove the lower ball joints from the steering knuckles. Refer to Lower Control Arm Replacement.



12. Remove the stabilizer link nut (1) from the strut.
13. Remove the outer tie rods and tie rod nuts from the steering knuckles. Refer to Steering Linkage Outer Tie Rod Replacement.

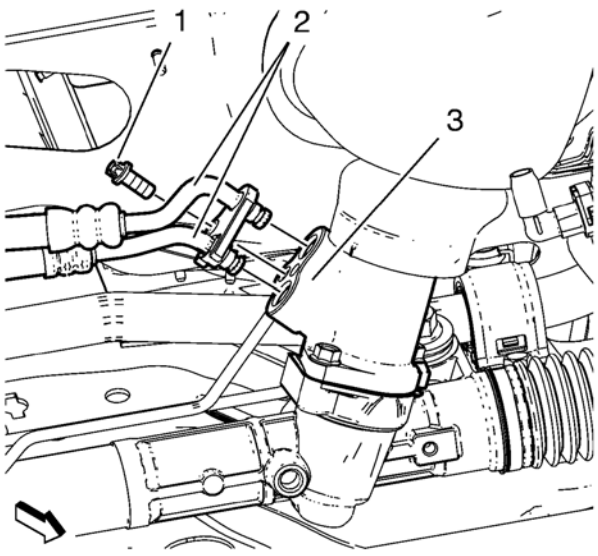


14. Remove the front (1) and the rear (2) transmission mount bracket bolts.

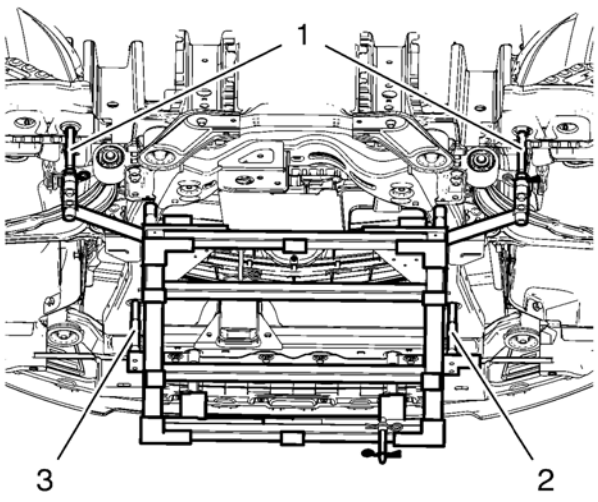


15. Raise the *CH 904* frame and *CH 49289* adapter with the hydraulic jack until it contacts the frame.
16. Turn the front wheels to the straight forward position and secure the steering wheel from moving.

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17. Remove the power steering gear inlet and outlet hose bolts (1). Remove the inlet and outlet hose (2) from the steering gear (3).



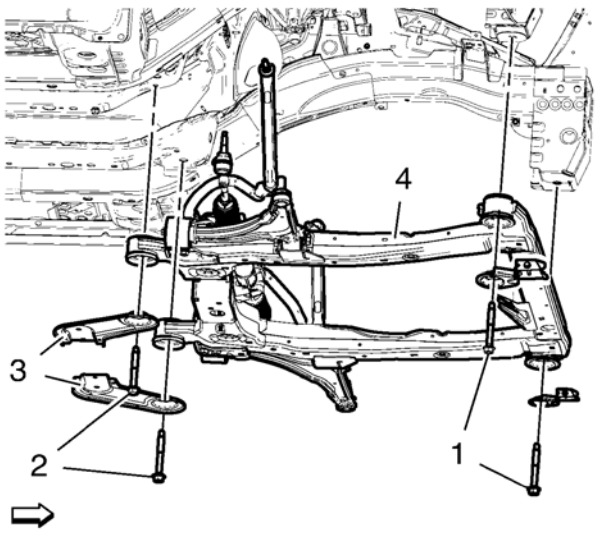
Note: Positioning pins (2, 3) of *CH 49289* adapter MUST stick into holes of drivetrain frame.

18. Check if wheel alignment is required.

    Move out position pins (1) and try to insert into underbody holes.

    If guide pins can NOT be inserted, the Wheel Alignment Measurement is required after installation of the drive train frame.

19. Loosen the front bumper energy absorber bracket bolt. Refer to Front Bumper Energy Absorber Bracket Replacement.
20. Secure the power steering gear to the vehicle.



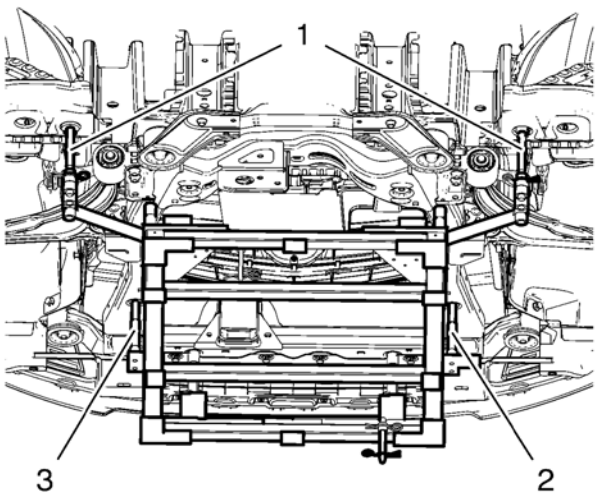
21. Remove and discard the frame front bolts (1).
22. Remove and discard the frame rear bolts (2).
23. Remove the frame reinforcements (3).
24. Remove the frame (4) from the vehicle.
25. Remove the following components if replacing the frame:
    - The lower control arms--Refer to Lower Control Arm Replacement.
    - The stabilizer shaft--Refer to Stabilizer Shaft Replacement.
    - The radiator support brackets.
    - The steering gear--Refer to Steering Gear Replacement.

Installation Procedure

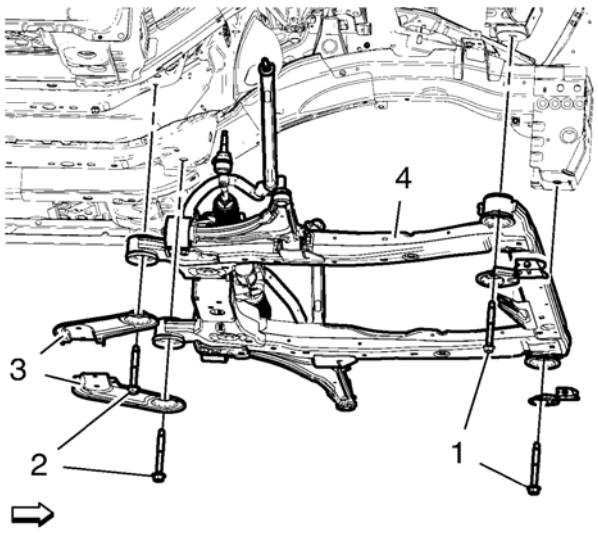
1. Install the following components on the drivetrain and front suspension frame if removed:
    - The radiator support brackets.
    - The stabilizer shaft--Refer to Stabilizer Shaft Replacement.

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- The lower control arms--Refer to Lower Control Arm Replacement.
- The steering gear--Refer to Steering Gear Replacement.



Note: Positioning pins (1) of *CH 49289* adapter MUST be extended in order to guide into underbody holes.



2. Raise the frame (4) carefully, using *CH 49289* adapter .
3. Install the frame reinforcements (3).

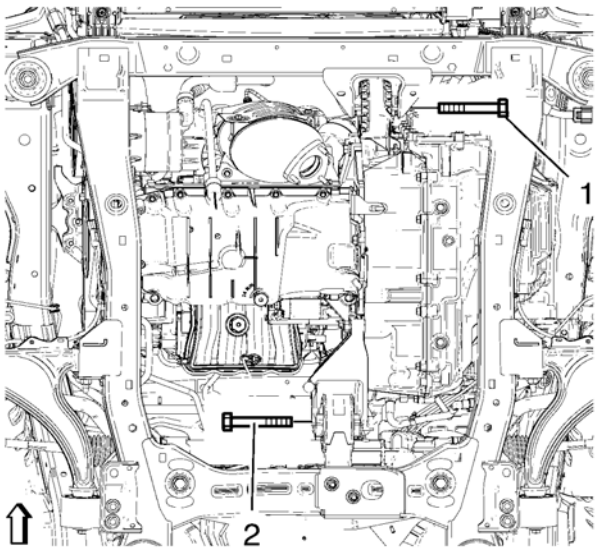
   Caution: Refer to Fastener Caution in the Preface section.

   Note: Do NOT reuse old bolts.

4. Install the NEW frame rear bolts (2) and tighten to **160 N·m (118 lb ft)**.

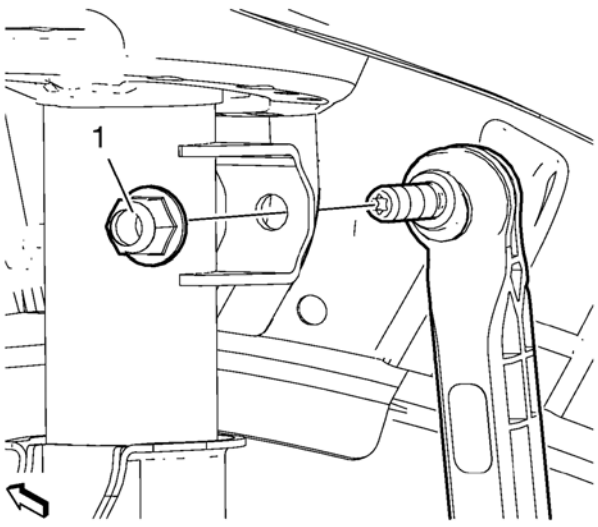
   Note: Do NOT reuse old bolts.

5. Install the NEW frame front bolts (1) and tighten to **160 N·m (118 lb ft)**.
6. Remove the support of the power steering gear.
7. Install the front bumper energy absorber bracket bolt. Refer to Front Bumper Energy Absorber Bracket Replacement.

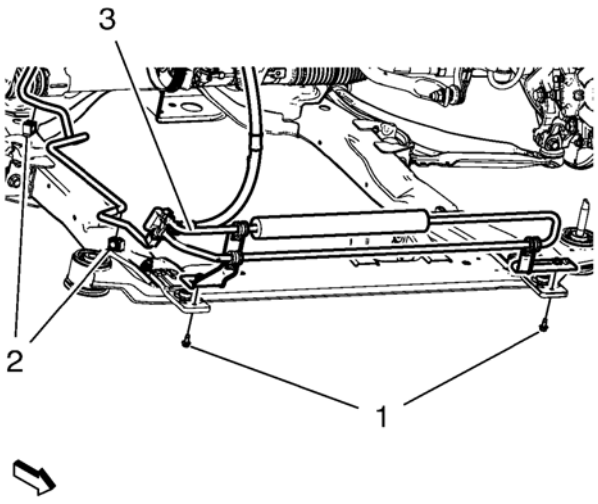


8. Install the front transmission mount bolt (1) and tighten to **100 N·m (74 lb ft)**.
9. Install the rear transmission mount bracket bolt (2) and tighten to **100 N·m (74 lb ft)**.
10. Install the outer tie rods and tie rod nuts to the steering knuckles. Refer to Steering Linkage Outer Tie Rod Replacement.

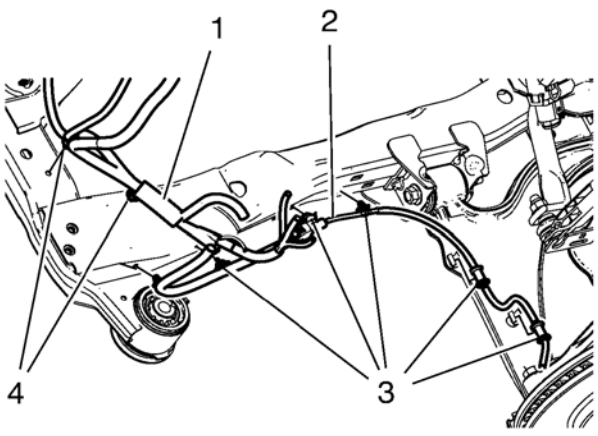
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11. Install the steering linkage tie rod. Tighten the steering linkage tie rod nut to **35 N·m (26 lb ft)**.
12. Install the lower ball joints to the steering knuckles. Refer to Lower Control Arm Replacement.



13. Install the power steering fluid cooling pipe (3) to the frame, install the power steering fluid cooling pipe bolt (1) and clip in (2). Tighten the power steering fluid cooling pipe bolt to **9 N·m (80 lb in)**.

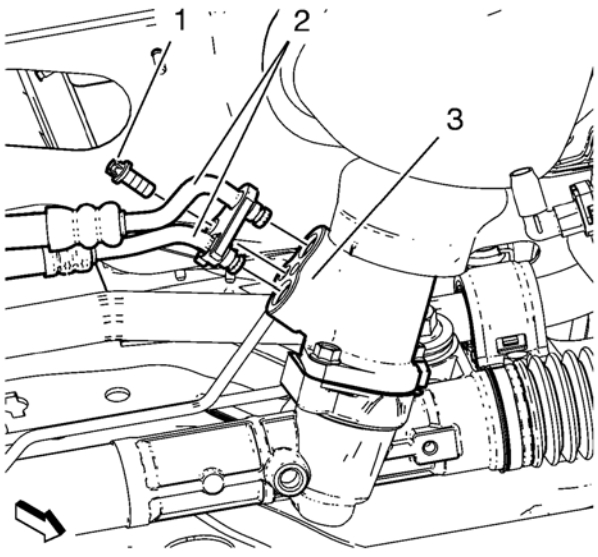


14. Install the wheel speed sensor wiring harness (2) to the frame on both sides.

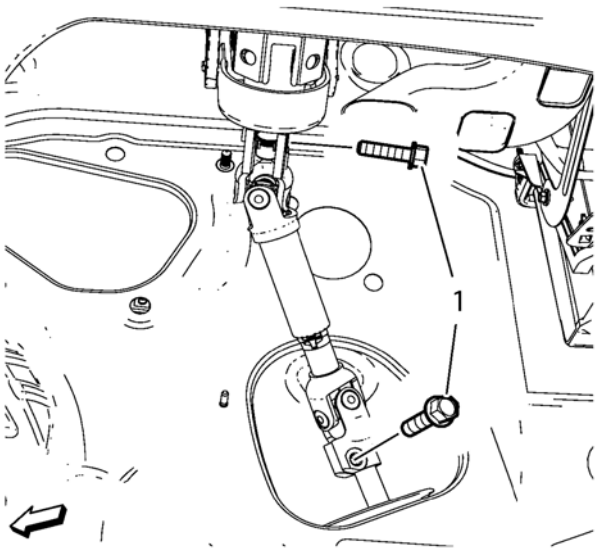
    Install the wiring harness retainers (3) to the frame and the lower control arm.
15. Install the radiator wiring harness (1) to the frame.

    Install the wiring harness retainers (4) to the frame.

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16. Install the inlet and outlet hose (2) to the steering gear (3).
17. Install power steering gear inlet and outlet hose bolts (1) and tighten to **11 N·m (97 lb in)**.



18. Install the lower steering intermediate shaft (1) bolt and tighten to **34 N·m (25 lb ft)**.
19. Remove the support of the radiator and condenser.
20. Lower the vehicle on a hoist. Refer to Lifting and Jacking the Vehicle.
21. Install the tire and wheel assemblies. Refer to Tire and Wheel Removal and Installation.
22. Install the exhaust flexible pipe. Refer to Exhaust Flexible Pipe Replacement.
23. Install the front bumper fascia opening lower cover. Refer to Front Bumper Fascia Opening Lower Cover Replacement.
24. Install the engine splash shields. Refer to Front Compartment Splash Shield Replacement.
25. Install the front compartment insulator, if equipped. Refer to Front Compartment Insulator Replacement.
26. If replacing the frame, check the wheel alignment. Refer to Wheel Alignment Measurement.

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Drivetrain and Front Suspension Frame Insulator Replacement

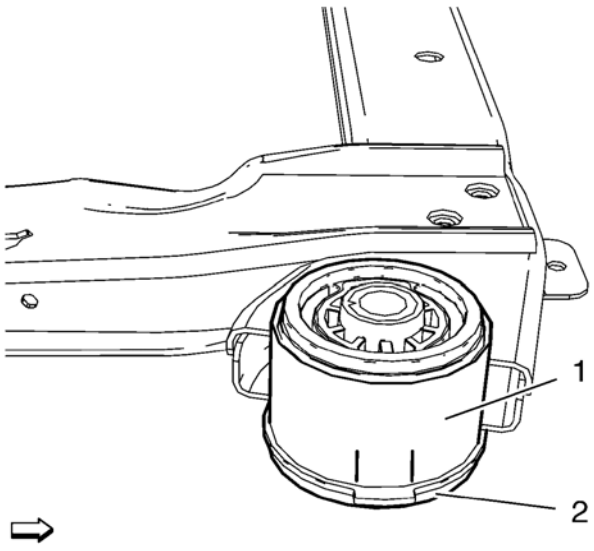
Special Tools

- *CH 49460-1* Adapter
- *CH 49460-2* Adapter
- *CH 6616* Hydraulic Hand Pump
- *CH 6615-10* Hydraulic Cylinder
- *CH-48377-1* Chisel

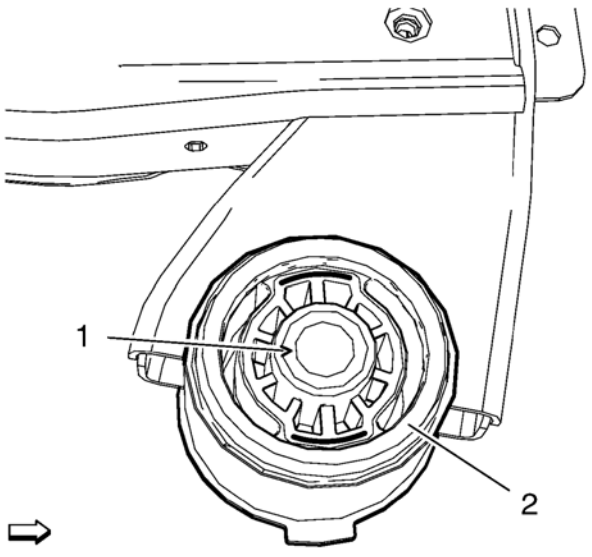
For equivalent regional tools. Refer to Special Tools.

Removal Procedure

1. Remove the drivetrain and front suspension frame. Refer to Drivetrain and Front Suspension Frame Replacement.

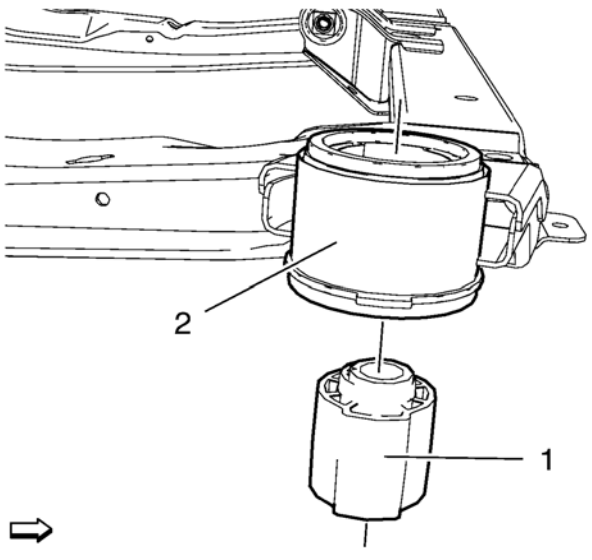


2. Mark Installation position of insulator (2) at frame (1).



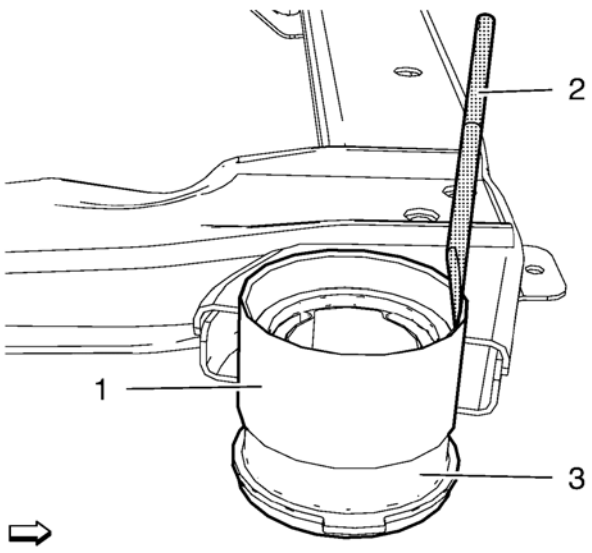
3. Cut out frame insulator core (1) from frame insulator (2).

Note: On the rear insulator drill holes into the rubber in order to gain free access for jigsaw.



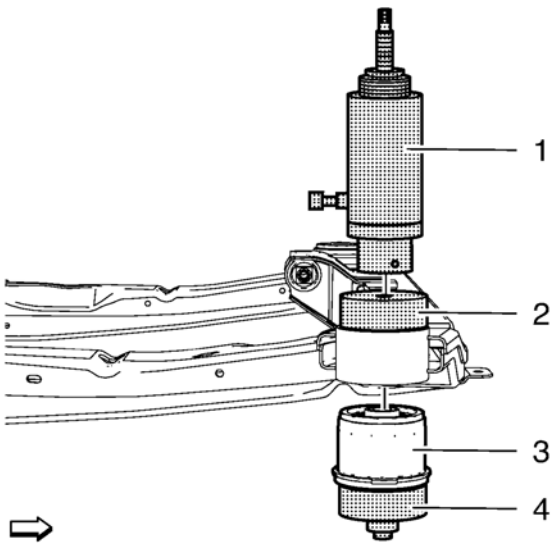
4. Remove frame insulator core (1) from outer frame insulator (2).

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5. Cast out frame insulator (3) from drivetrain and front suspension frame (1) with *CH-48377-1* chisel (2).

Installation Procedure

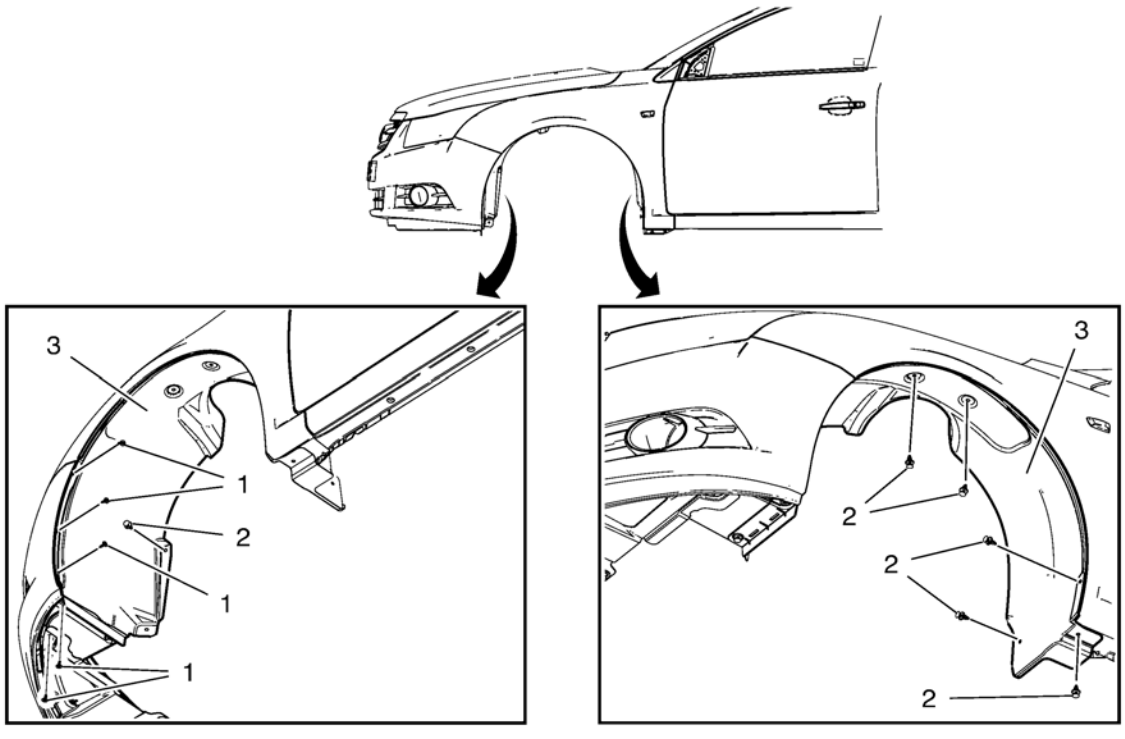


1. Install the following components on the drivetrain and front suspension frame:
   - *CH 49460-1* adapter (2).
   - *CH 49460-2* adapter (4).
   - *CH 6615-10* hydraulic cylinder (1).
   - NEW frame insulator (3)

   Note: Check marking of frame insulator.
2. Press carefully the frame insulator in to the front suspension frame, using *CH 6616* hand pump .
3. Remove the following components from the drivetrain and front suspension frame:
   - *CH 49460-1* adapter .
   - *CH 49460-2* adapter .
   - *CH 6615-10* hydraulic cylinder .
4. Install the drivetrain and front suspension frame. Refer to Drivetrain and Front Suspension Frame Replacement.

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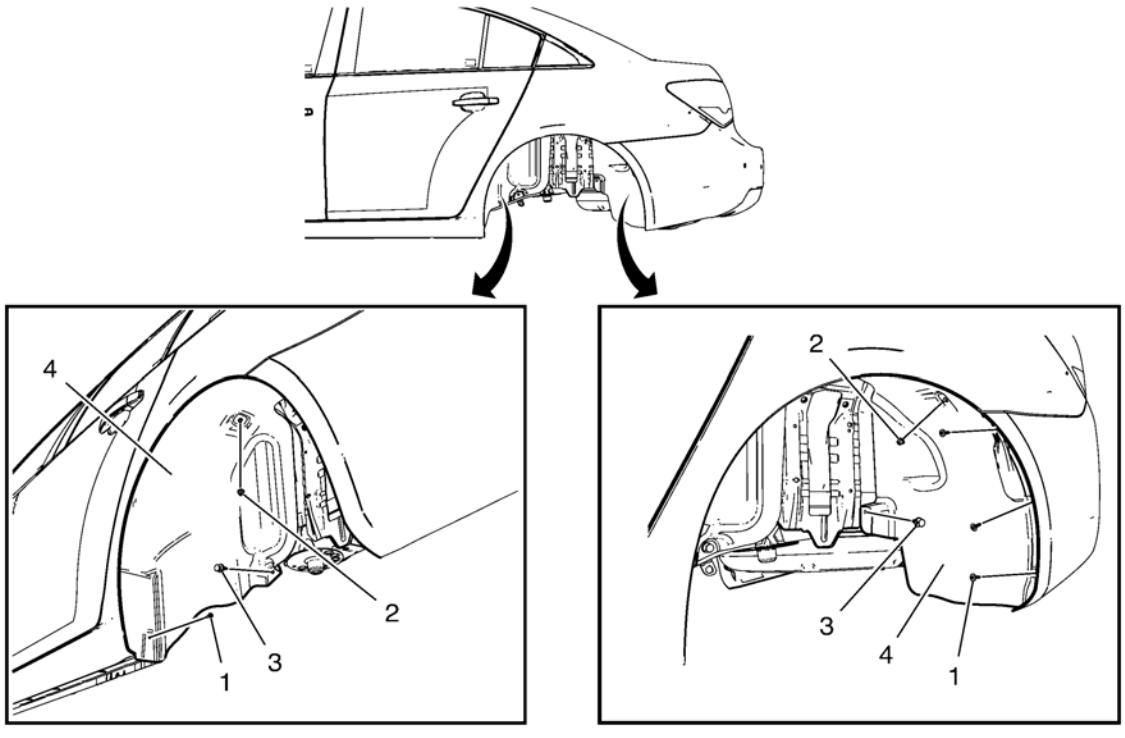
Front Wheelhouse Liner Replacement



Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation.	
1	Front Wheelhouse Liner Screw (Qty: 5) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m (23 lb in)
2	Front Wheelhouse Liner Plastic Retainer (Qty: 7)
3	Front Wheelhouse Liner

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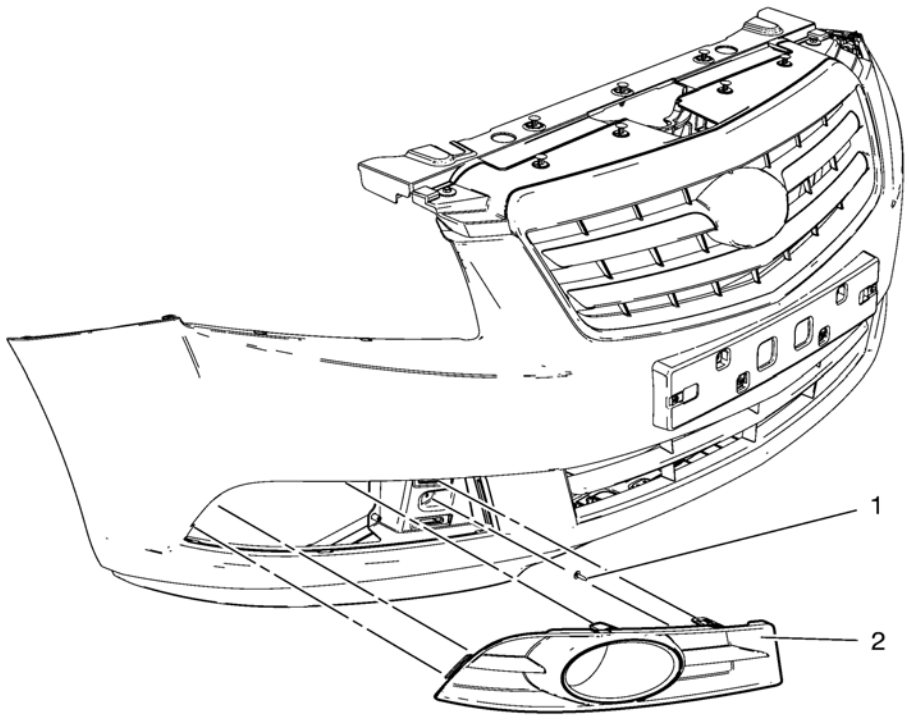
Rear Wheelhouse Panel Liner Replacement



Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation.	
1	Rear Wheelhouse Panel Liner Screw (Qty: 4) **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m (23 lb in)
2	Rear Wheelhouse Panel Liner Nut (Qty: 2) **Tighten** 2.5 N·m (23 lb in)
3	Rear Wheelhouse Panel Liner Plastic Retainer (Qty: 2)
4	Rear Wheelhouse Panel Liner

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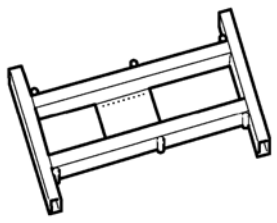
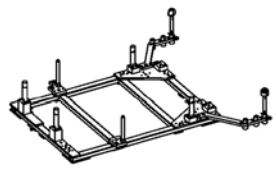
Front Fog Lamp Bezel Replacement



Callout	Component Name
Preliminary Procedure 1. Remove front bumper fascia. Refer to Front Bumper Fascia Replacement. 2. Remove front fog lamp. Refer to Front Fog Lamp Replacement.	
1	Front Fog Lamp Bezel Screw **Caution:** Refer to Fastener Caution in the Preface section. **Tighten** 2.5 N·m (23 lb in)
2	Front Fog Lamp Bezel **Procedure** 1. Disengage the 4 inner retainer tabs securing the bezel to the front bumper fascia. 2. Pull outward from the outer edge in order to release the outer retention clips securing the bezel to the front bumper fascia. 3. Remove the front fog lamp bezel.

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Special Tools

Illustration	Tool Number / Description
	CH-904 KM-904 83 95 188 Underframe
	CH-49289 Centering Adapter

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Select a Document:

- Basecoat/Clearcoat Paint Systems
- Anti-Corrosion Treatment and Repair (Base)
- Environmental Fallout (Acid Rain)
- Paint Gauges
- Clearcoat Thickness
- Rail Dust Damage Repair

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Basecoat/Clearcoat Paint Systems

Warning: Exposure to isocyanates during paint preparation and application processes can cause severe breathing problems. Read and follow all of the instructions from the manufacturers of painting materials, equipment, and protective gear.

All paint finish repairs of rigid exterior surfaces must meet GM standards. Refer to the latest revision of the GM Approved Refinish Materials book to identify the paint systems you may use that have been engineered to meet GM standards. The GM Approved Refinish Materials book supplies all approved products, including volatile organic compound (VOC) compliant regulations recommended by the individual manufacturer, and detailed procedures for materials used in their paint system.

The latest revision of the GM Approved Refinish Materials booklet is located on the Goodwrench website at www.gmgoodwrench.com.

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Anti-Corrosion Treatment and Repair (Base)

Warning: When applying sound deadeners, or anti-corrosion materials due care and preventative measures must be exercised to prevent any material from being sprayed into door and quarter panel mechanisms such as door locks, window run channels, window regulators and seat belt retractors, as well as any moving or rotating mechanical or suspension parts on the underbody, particularly the parking brake cable. After material application, be sure that all body drain holes are open. Improper application may increase chance of corrosion damage or limit the operation of moving parts, resulting in personal injury.

Any procedure that disturbs these special treatments, such as panel replacement or collision damage repair operations, may leave the metal unprotected and result in corrosion. Proper recoating of these surfaces with service-type anti-corrosion material is essential.

After repair and/or replacement parts are installed, all accessible bare metal surfaces must be treated with metal conditioner and reprimed. Refer to the GM Approved Refinish Materials book which identifies the paint systems you may use.

The latest revision of the GM Approved Refinish Materials booklet is located on the Goodwrench website at www.gmgoodwrench.com.

Anti-corrosion compounds are light-bodied materials designed to penetrate between metal-to-metal surfaces, such as pinch-weld joints, hem flanges, and integral panel attaching points where metal surfaces are difficult to coat with conventional undercoating materials, and are inaccessible for painting. The materials that are suitable for interior and exterior are listed in the chart below. Conventional undercoating is recommended in order to coat large areas, such as replacement door and quarter outer panels, floor pan sections, lids, hoods, fenders, etc. During undercoating operations, care should be taken to prevent the material from being sprayed into door and quarter panel hardware mechanisms, such as door locks, window run channels, window regulators, and seat belt retractors. On the underbody, the material should not be applied to any moving or rotating part, energy absorbing bumper components, or shock absorbers. After undercoating, ensure that all body drain holes are open.

Interior Protectant

The following products are available from GM Dealer Equipment. For technical information, call 187-Permatex (1-877-376-2839):

Permatex Part Number	Description
310-JDI-UCA1	Permatex Canister and Wand Assembly
310-81881	Permatex Amber Rust Proofing (24 oz) (Qty of 12)
310-81882	Permatex Amber Rust Proofing (1 gal)

Exterior Protectants

The following product is available from *ECP, Inc. Contact them at 1-800-323-3521 or www.ecpinc.net.

Part Number	Description
178660	Nox Rust X-121B (12 cans per case)

The following products are available from your local *3M® distributor, or call 1-800-521-8180, ext. 779-5165.

3M® Part Number	Description
08804	Water-Based Undercoat
08801	No Clean-Up Applicator Gun
05917	Weld-Thru Coating
08891	Rust Fighter-I

The following product is available from *Transtar Autobody Technologies. Contact the company at 1-800-824-2843 or www.tat-co.com

Part Number	Description
4353	Weld-Through Primer

*We believe these sources and their products to be reliable. There may be additional manufacturers of such material. General Motors does not endorse, indicate any preference for, or assume any responsibility for the products from these firms, or for any such items which may be available from other sources.

These sealers are intended to prevent water and dust from entering the vehicle and also are anti-corrosion barriers. Sealers are applied to such areas as rear compartment lid hem flanges, wheelhouse, quarter outer, floor, cowl, roof, and various other panel to panel attaching points. The originally sealed joints are obvious and any damage to these sealed locations should be corrected by resealing. Attaching points of new replacement panels should be resealed. Replacement lids and doors will also require sealing in the hem flange areas.

Flanged joints, overlap joints, and seams should be sealed using a quality sealer of medium-bodied consistency. The sealer used must retain its flexible characteristics after curing and be paintable.

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Open joints which require bridging of the sealer in order to close a gap should be sealed using a heavy-bodied caulking material. Follow the label directions for the material selected.

Color application may be required in order to restore repaired areas such as hood, fenders, doors, quarters, lid, roof, engine compartment, underbody, and inner panels to original appearance. When this is necessary, conventional refinishing preparation, undercoat buildup, and color application techniques should be followed.

Deadener materials, spray-on type, are used on various metal panels in order to provide corrosion resistance and joint sealing. They control the general noise level inside the passenger area of the vehicle. When deadeners are disturbed because of damage, are removed during repair operations, or a new replacement panel is installed, the deadener material must be replaced by a service equivalent material. The application pattern and location of deadener materials can be determined by observing the original production installation.

Cleaning of the interior and underbody panel surfaces is necessary when original galvanized or other anti-corrosion materials have been burned off during welding or heating operations. Removal of the residue from burning will require additional care in such areas as interior surfaces of box-type construction and when configurations of the metal panels limit access to interior surfaces.

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Clearcoat Repair without Repainting

Repair Procedure

1. Thoroughly wash the repair area with a GM approved Liquid Wash and Wax kit.
2. Environmental damage may be corrected. Refer to Environmental Fallout (Acid Rain) or Rail Dust Damage Repair.

   Important: Follow all of the instructions from the manufacturer of the polishing material.

3. Use a paint gauge before, during, and after sanding and/or polishing, to avoid removing too much clearcoat. Refer to Paint Gauges.

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Environmental Fallout (Acid Rain)

Caution: Refer to Clearcoat/Ultraviolet Screeners Caution in the Preface section.

Note: Always refer to the manufacturer's packaged instructions for the detailed procedures of materials used for compounding and/or polishing.

Since the severity of the condition varies from area to area, proper diagnosis of the contamination extent is critical to the success of the repairs. Perform the diagnosis under high intensity fluorescent lighting on the horizontal surfaces (hood, roof panel, rear compartment lid), after the surfaces have been properly cleaned by washing the vehicle with a GM approved Liquid Wash and Wax kit.

There are 3 basic types of acid rain damage:

Surface Level Contamination: May be repaired by simply washing the vehicle, cleaning the surface with a silicone wax and grease remover, neutralizing acidic residue, and finesse polishing--Refer to Surface Level Contamination Repair.

Clearcoat Etching: Slight etching is still noticeable after the above washing and finesse polishing procedure. Refer to Slight Clearcoat Damage - Wet Sanding, Finesse Polishing.

Basecoat Etching: Severe etching beyond the clearcoat into the basecoat in the affected areas will require refinishing. Refer to Basecoat/Clearcoat Paint Systems.

Surface Level Contamination Repair

1. Thoroughly wash and dry the contaminated area with a GM approved Liquid Wash and Wax kit.
2. Clean the affected area with silicone, wax and grease remover.
3. Remove and neutralize acidic residue by cleaning the contaminated areas with a mixture of baking soda and water (1 tablespoon of baking soda per 1 liter or 1 quart of water). Rinse thoroughly and dry the panel completely.
4. Apply finesse-type polish with a foam panel. If damage has been repaired, remove any swirl marks with a dual action orbital polisher and foam pad.
5. If some damage remains, refer to Slight Clearcoat Damage - Wet Sanding, Finesse Polishing.

Slight Clearcoat Damage - Wet Sanding, Finesse Polishing

1. Select a small contaminated test area.
2. Film thickness should be taken prior to the sanding and polishing. Refer to Paint Gauges.
3. Wet sand and finesse polish the contaminated test area. If during the polishing you suspect or observe that etching has penetrated into the basecoat, too much clearcoat has been removed during sanding, or base color is transferred to the polishing pad during polishing, then the affected areas will require refinishing. Refer to Basecoat/Clearcoat Paint Systems.

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Paint Gauges

Paint thickness gauge. measure the total thickness of the vehicle finish. It is important to accurately measure the thickness of the finish on each vehicle as the thickness of the finish will vary on each vehicle. Use a paint gauge before the sanding process in order to accurately measure how much finish there is to remove before, during, and after the sanding process. Paint gauge. range from magnetic pull type to sophisticated electronic types, and are available from a variety of sources. The older magnetic type gauge., at best have a 5 percent accuracy range and are not sensitive enough to detect removal of 0.02 mm 0.5 mil (0.0005 in) clearcoat. The newer type magnetic gauge. have improved accuracy ranges. Most gauge. are confined to checking either ferrous metal, steel, non-ferrous metal, or aluminum panel. At this time, there are no viable gauge. for reading film thickness on composite (SCM doors, RIM fenders) panels. The more sophisticated (ETG) electronic paint thickness gauge. digital type gauge. are able to read film thickness on both ferrous and non-ferrous metal panel. Digital ETG gauge. may have an accuracy range of 1 percent and include thickness standards for recalibration. The following paint thickness gauge. are available. Call 1-800-GM-TOOLS for information:

Paint Thickness Gauges

- 147-5437-ETG Standard model
- 147-5437-ETG-P Standard model with print option
- 147-5437-N-ETG-N Non-ferrous model for aluminum panels
- 147-5437-NP-ETG-NP Non-ferrous model with print option
- 147-54437-SD-ETG Steel and aluminum gauge

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Clearcoat Thickness

The clearcoat on the vehicle is typically 0.059-0.078 mm (1.5-2 mils [0.0015-0.0020 in]) thick. The clearcoat contains ultraviolet screeners. Removing more than 0.5 mils (0.019 in) of the clearcoat may result in early paint failure.

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Rail Dust Damage Repair

Warning: Refer to Eye Protection Warning in the Preface section.

Note: If rail dust has penetrated into the basecoat, the panel requires refinishing. Ensure all the rail dust has been removed prior to refinishing or the rust spots will return.

Rail dust damage comes from the tiny iron particles produced from the friction between the train wheels and the track. It can also be deposited on vehicles if stored near any operation producing iron dust (i.e., steel ore yards). This dust can either lay on top of, or embed into the paint surface. It is usually diagnosed as bumps in the paint surface or rust colored spots in the paint.

1. Move the vehicle to a cool shaded area and ensure the vehicle surfaces are cool during the removal process.
2. Thoroughly wash the repair area with a GM approved Liquid Wash and Wax kit
3. Wipe the area dry.
4. Clean the affected area with silicone, wax and grease remover.
5. Perform the removal process according to the manufacturer's directions of the type of repair material used (Gel Type Oxalic Acid or Clay Type Non-Acid Based). If, upon inspection, some particles are still present, the process may be repeated. If the damage has been repaired, complete the repair to the entire panel.
6. Polish the entire panel after the removal process. If small pits remain in the clearcoat after all of the damage has been repaired, refer to Clearcoat Repair without Repainting.

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Select a Document:

- General Plastic Repair
- How To Indentify Plastic Parts
- Plastic Identification and Refinishing Systems

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General Plastic Repair

Warning: In order to reduce the risk of personal injury when exposed to toxic fumes while grinding, cutting, or applying repair material on any type of sheet molded compound or RIM rigid plastic, observe the following guidelines:

- Work in a properly ventilated area
- Apply protective cream to any exposed skin
- Remove any mixture that comes into contact with skin
- Wash skin with cold water to remove glass and resin dust
- Use a sander with a vacuum attachment
- Follow the repair material manufacturer's instructions

Also, always wear the following:

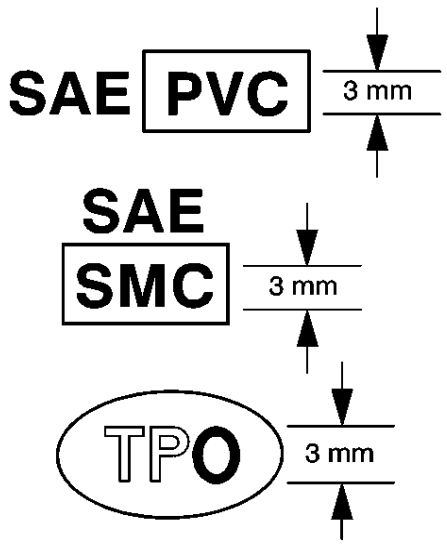
- An approved respirator, or air supplied respirator
- Eye protection
- Rubber gloves
- Earplugs
- Protective clothing

The following procedures should be followed when repairing all types of thermoset plastic:

- Follow the manufacturer's application and curing recommendations.
- Do not intermix systems. Use the supplies and the repair materials from the same manufacturer.
- Clean the inner and outer surfaces of the repair area with a soap impregnated scouring pad in order to remove any dirt or mold release agent.
- Clean the area with a wax and grease remover, using only enough of the remover to dampen a cloth. Allow the panel to dry thoroughly.
- Remove the surface finish from the area to be repaired. Adhesives are designed to adhere to the plastic substrate, not the finish.
- Prime a metal surface before applying the repair material.
- Inspect the rear side of the work area before making repairs in order to avoid possible damage to wires, motors, etc.

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How to Identify Plastic Parts



Plastic parts can be identified by the SAE code, which is usually found on the rear of the part, and/or by the characteristics of the plastic. Knowing the type of plastic aids in selecting the proper repair materials and in selecting the proper repair procedure.

Look for the SAE code stamped into the part.

Code Found

Match the code to those in the plastic identification chart to determine whether the plastic is thermoplastic or thermoset plastic, and whether the plastic is rigid or flexible. Refer to Plastic Identification and Refinishing Systems.

No Code Found

Warning: Do NOT use a plastic burn test to distinguish the type of plastic. The burn test produces vapors which are harmful.

Perform one or both of the following tests to determine if the part is thermoplastic polyolefin or thermoset non-polyolefin.

Float Test

1. Cut a shaving of plastic from the back of the part.

   The shaving should be free of mold release agents and paint.

2. Place the shaving in a container of water.
   - Thermoplastic polyolefin floats.
   - Thermoset non-polyolefin sinks.

Abrasion Test

- Sand a spot near the damaged area with Grade 36 Roloc Disc.
- Thermoplastic polyolefin material melts or frays when sanded.
- Thermoset non-polyolefin material sands cleanly.

Thermoplastic and thermoset plastics can be either rigid or flexible. Thermoplastic plastic parts are best repaired with a hot iron plastic material-feed welder, but are usually replaced. Thermoset plastic can be repaired with epoxy or other more rigid 2 package repair material. For general repair instructions, refer to General Plastic Repair.

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Plastic Identification and Refinishing Systems

Identifying Symbol - Old Symbol in ( )s	Chemical Composition or Plastic Family Name	Typical Area(s) Where Part is Used	Examples of Common/Trade Names	Type of Plastic
ABS	Acrylonitrile/ Butadiene-Styrene	Armrest Support, Console, IPC, Steering Column Bracket/Jacket, Trim Molding	ABS, Absafil, Magnum, Cycolac, Dyel, Kralastic, Lustran	Thermoplastic
ABS + PC	Acrylonitrile/ Butadiene-Styrene + Polycarbonate	Instrument Panel, IPC	Bayblend, Cycoloy, KHA, Pulse	Rigid
ABS/PVC	ABS/Vinyl (Soft)	Head Rest Cover, Instrument Panel Pad, Trim Molding/Panel	ABS Vinyl	Flexible, Vinyl
EPDM	Ethylene Propylene Diene Monomer	Body Panel, Bumper Impact Strip	EPDM, Nordel	Rigid
EVA (EVAC)	Ethylene/Vinyl Acetate	Head Rest Cover, Misc Soft Trim	Elvax, Microthane	Flexible
PA	Polyamide	Headlamp Bezels, Quarter Panel Extensions, Exterior Finish Trim Panels	Nylon, Capron, Zytel, Rilsan, Minion, Vydyne, Welland	Rigid
PA, PAG, PAGG	Polyamide	Exterior Finish Trim Panel, Headlamp Bezel, Quarter Panel Extension	Capron, Minlon, Nylon, Rilsan, Vydyne, Wellamid, Zytel	Rigid, Thermoset
PA + PPE	Polymide + Polypheneylene Ether	Exterior Trim, Fender	GTX	Rigid, Thermoset
PBT + TEEE (PBTP + EEBC)	Polybutylene, Terephthalate + Ether, Ester Block Compound	Fascia, Rocker Panel Molding	Bexloy M	Rigid
PC	Polycarbonate	Interior Rigid/Hard Trim Panel, Valance Panel	Calibre, Lexan, Merlon, Makrolon	Rigid, Thermoset
PC + PETP	Polycarbonate + Polybutylene, Terephthalate	Bumper Fascia	Macroblend, Valox, Xenoy	Flexible, Thermoset
PE	Polyethylene	Fuel Tank Shield, Inner Fender Panel, Interior Trim Panel, Seat Belt Cover, Spoiler, Valance	Alathon, Dylan, Foriflex, Hi-fax, Hosalen, Marlex, Paxon	Rigid, Thermoplastic
PF	Phenol Formaldehyde	Ashtray	Amberol, Bakelite, Durez, Genal, Phenolic, Plyophen, Resinox	Rigid, Thermoset
PP	Polypropylene	Bumper Fascia, Cowl Panel, Deflector Panel, Door Panel, Inner Fender, Interior Molding, Kick Panel, Load Floor, Radiator Shroud, Wheel Cover	Azdel, Daplen, Escorene, Marlex, Novolen, Oleflo, Profax, Tenite	Flexible, Thermoplastic
PPE (PPO)	Polyphenylene Ether	Bezels, Chromed Plastic, Headlamp Door, Ornaments	Noryl, Oleflo, Prevex	Rigid, Thermoset
PS	Polystyrene	Dash Panel, Door Panel	Durathon, Dylan, Lustrex, Polystyrol, Styron	Flexible, Soft
PUR	Polyurethane, Thermoset (Unsaturated)	Bumper Fascia, Filler Panel, Front/Rear Body Panel, Pickup Box	Bayflex, Castethane, RIM, RRIM, SRIM	Thermoset
PVC	Polyvinyl Chloride (Vinyl)	Interior Soft Trim, I/P Skins, Roof Cover	Geon, Pliovic, Unichem, Vinoflex, Vinyl, Vinylite	Flexible, Vinyl
SAN (SA)	Styrene Acrylonitrite	Center Console, Glove Box Door, Interior Trim Panel	Foracryl, Lustran, Tyril	Rigid

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TEO (EP, EPM, TPO)	Ethylene/Propylene (Rubber)	Air Dam, Bumper Fascia, Valance Panel	EPI, EPII, TPO, TPR (Thermoplastic Rubber)	Flexible, Thermoplastic
TPO	Thermal Plastic Oletin	Bumper Covers	TPO	Flexible Thermoplastic
TPU (TPUR)	Polyurethane, Polyolefin	Bumper Fascia, Gravel Deflector, Soft Filler Panel, Window Molding	Estane, Pellethane, Roylar, Toxin	Flexible, Thermoplastic
UP	Polyester/Thermoset	Air Scoop, Air Spoiler, Fascia Extension, Hood, Instrument Housing, Rear Compartment Lid, Roof, Ventilation Grid	Fiberglass, Premi-glass, Selectron, SMC, Vibrinmat	Rigid, Thermoset
For symbols not listed in this table, contact the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096-0001.				

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