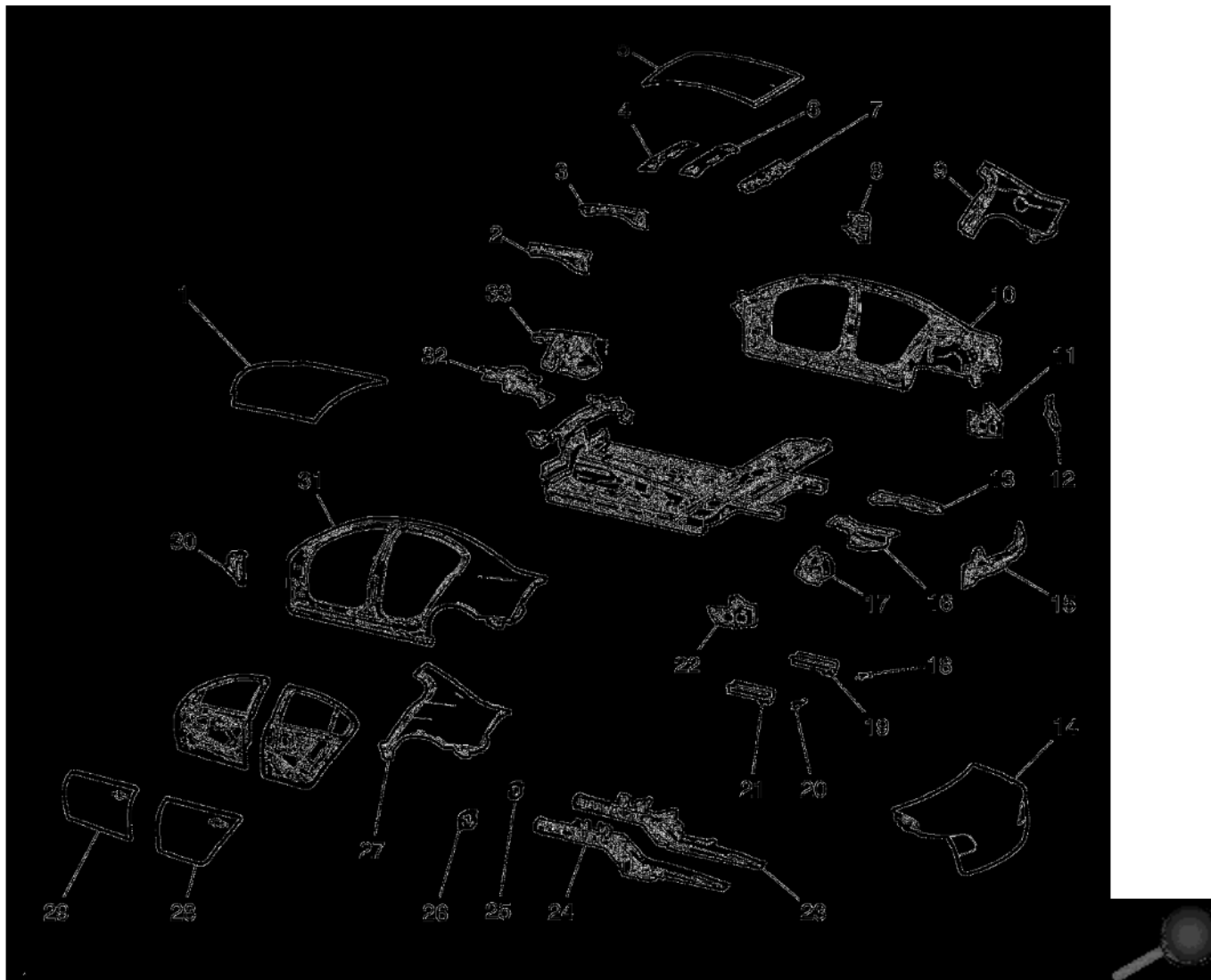


# Panel Identification

- Table 1: [Panel Identification](#)
- Table 2: [Panel Identification](#)
- Table 3: [Panel Identification](#)
- Table 4: [Panel Identification](#)
- Table 5: [Panel Identification](#)

## [Sedan – Short Wheel Base](#)



**Panel Identification**

| Number | Description                 | Material                 | Procedure                        |
|--------|-----------------------------|--------------------------|----------------------------------|
| 1      | Engine Hood                 | <a href="#">Aluminum</a> | <a href="#">Hood Replacement</a> |
|        | Front Wheelhouse Upper Rail |                          |                                  |

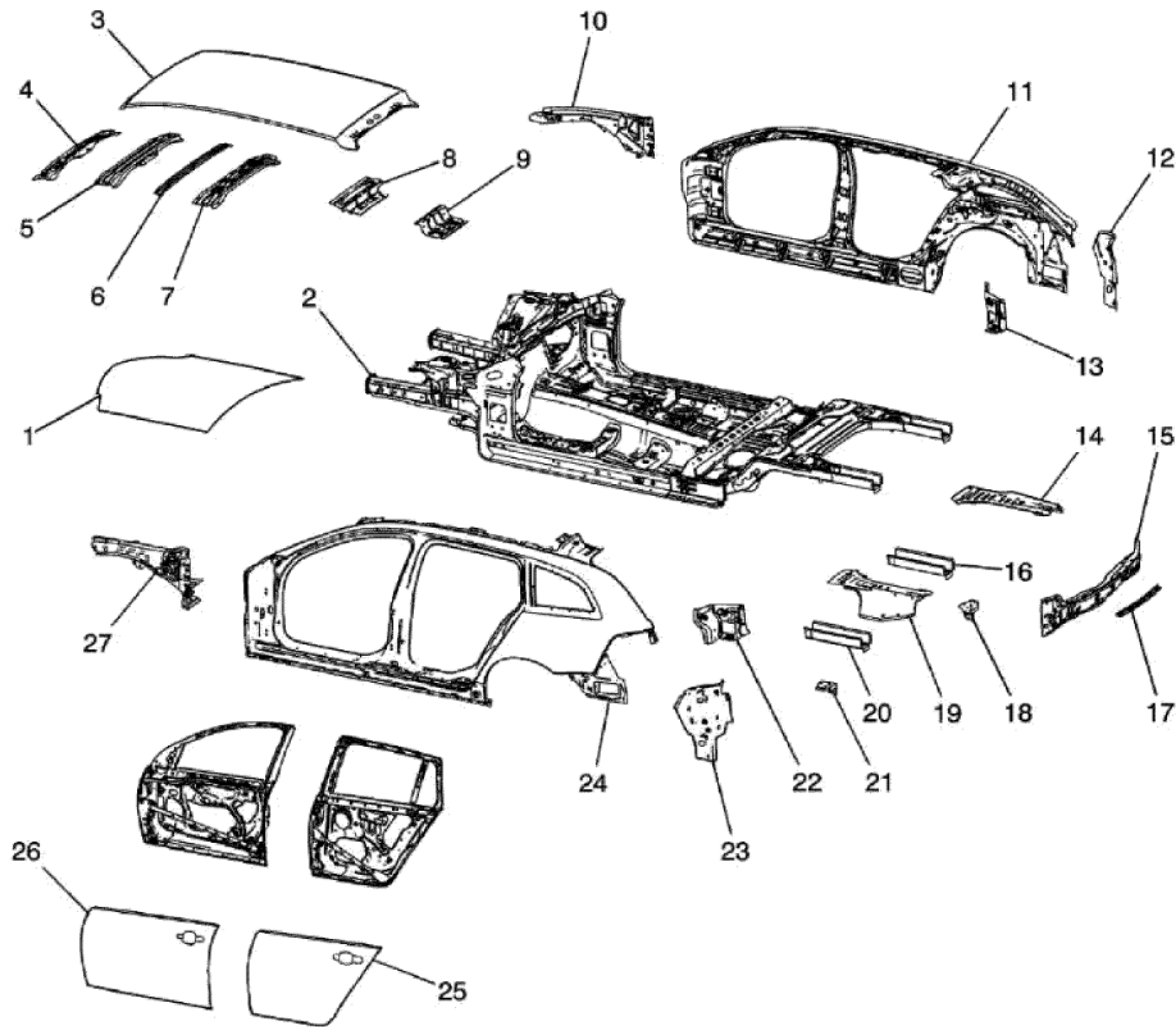


|    |                                                         |                                                                                                                                                                                              |                                                             |
|----|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 2  | - Left                                                  | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Front Wheelhouse Panel Replacement</a>          |
| 3  | Front Wheelhouse Upper Rail<br>- Right                  | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Front Wheelhouse Panel Replacement</a>          |
| 4  | Roof Front Header Panel                                 | <a href="#">Ultra High Strength Steel</a>                                                                                                                                                    | <a href="#">Roof Front Header Panel Replacement</a>         |
| 5  | Roof Panel                                              | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Panel Replacement</a>                      |
| 6  | Roof Panel Bow                                          | <a href="#">Dual Phase Steel</a>                                                                                                                                                             | <a href="#">Roof Panel Bow Replacement</a>                  |
| 7  | Roof Rear Header Panel                                  | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Rear Header Panel Replacement</a>          |
| 8  | Body Hinge Pillar Brace -<br>Right                      | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Side Door Opening Frame Replacement</a>         |
| 9  | Body Side Outer Panel Right -<br>Sectional Repair Only  | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Quarter Panel Replacement</a>                   |
| 10 | Body Side Panel Assembly -<br>Right                     | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | —                                                           |
| 11 | Body Side Outer Panel Rear<br>Lower Extension - Right   | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Outer Panel Extension Replacement</a> |
| 12 | Body Tail Lamp Filler Panel -<br>Right                  | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 13 | Rear Compartment Floor Panel<br>Outer Extension - Right | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Inner Panel Extension Replacement</a> |
| 14 | Rear Compartment Lid                                    | <a href="#">Aluminum</a>                                                                                                                                                                     | <a href="#">Rear Compartment Lid Replacement</a>            |

|    |                                                              |                                                                                                                                                                   |                                                                 |
|----|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 15 | Rear End Outer Panel                                         | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Rear End Panel Replacement</a>                      |
| 16 | Rear Compartment Floor Panel<br>Outer Extension – Left       | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Body Side Inner Panel Extension Replacement</a>     |
| 17 | Body Tail Lamp Filler – Left                                 | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Body Tail Lamp Filler Panel Replacement</a>         |
| 18 | Exhaust Muffler Hanger<br>Reinforcement – Right              | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Exhaust Muffler Rear Hanger Replacement</a>         |
| 19 | Rear Compartment Floor Panel<br>Rear Rail – Right            | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                     | <a href="#">Rear Rail Replacement</a>                           |
| 20 | Exhaust Muffler Hanger<br>Reinforcement – Left               | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Exhaust Muffler Rear Hanger Replacement</a>         |
| 21 | Rear Compartment Floor Panel<br>Rear Rail – Left             | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                     | <a href="#">Rear Rail Replacement</a>                           |
| 22 | Body Side Outer Panel Rear<br>Lower Extension – Left         | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Body Side Outer Panel Extension Replacement</a>     |
| 23 | Front Compartment Side Rail<br>Right – Sectional Repair Only | <ul style="list-style-type: none"> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Dual Phase Steel</a></li> </ul> | <a href="#">Front Compartment Side Rail Sectioning</a>          |
| 24 | Front Compartment Side Rail<br>Left – Sectional Repair Only  | <ul style="list-style-type: none"> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Dual Phase Steel</a></li> </ul> | <a href="#">Front Compartment Side Rail Sectioning</a>          |
| 25 | Front Compartment Side Rail<br>Bracket – Right               | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                     | <a href="#">Front Compartment Side Rail Bracket Replacement</a> |

|    |                                                    |                                                                                                                                                                                              |                                                                 |
|----|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 26 | Front Compartment Side Rail Bracket – Left         | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Front Compartment Side Rail Bracket Replacement</a> |
| 27 | Body Side Outer Panel Left – Sectional Repair Only | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Quarter Panel Replacement</a>                       |
| 28 | Rear Side Door Outer Panel                         | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear Side Door Outer Panel Replacement</a>          |
| 29 | Front Side Door Outer Panel                        | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Side Door Outer Panel Replacement</a>         |
| 30 | Body Hinge Pillar Brace – Left                     | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Side Door Opening Frame Replacement</a>             |
| 31 | Body Side Panel Assembly – Left                    | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | —                                                               |
| 32 | Front Wheelhouse Panel Assembly – Left             | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Wheelhouse Panel Replacement</a>              |
| 33 | Front Wheelhouse Panel Assembly – Right            | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Wheelhouse Panel Replacement</a>              |

### [Sportwagon](#)



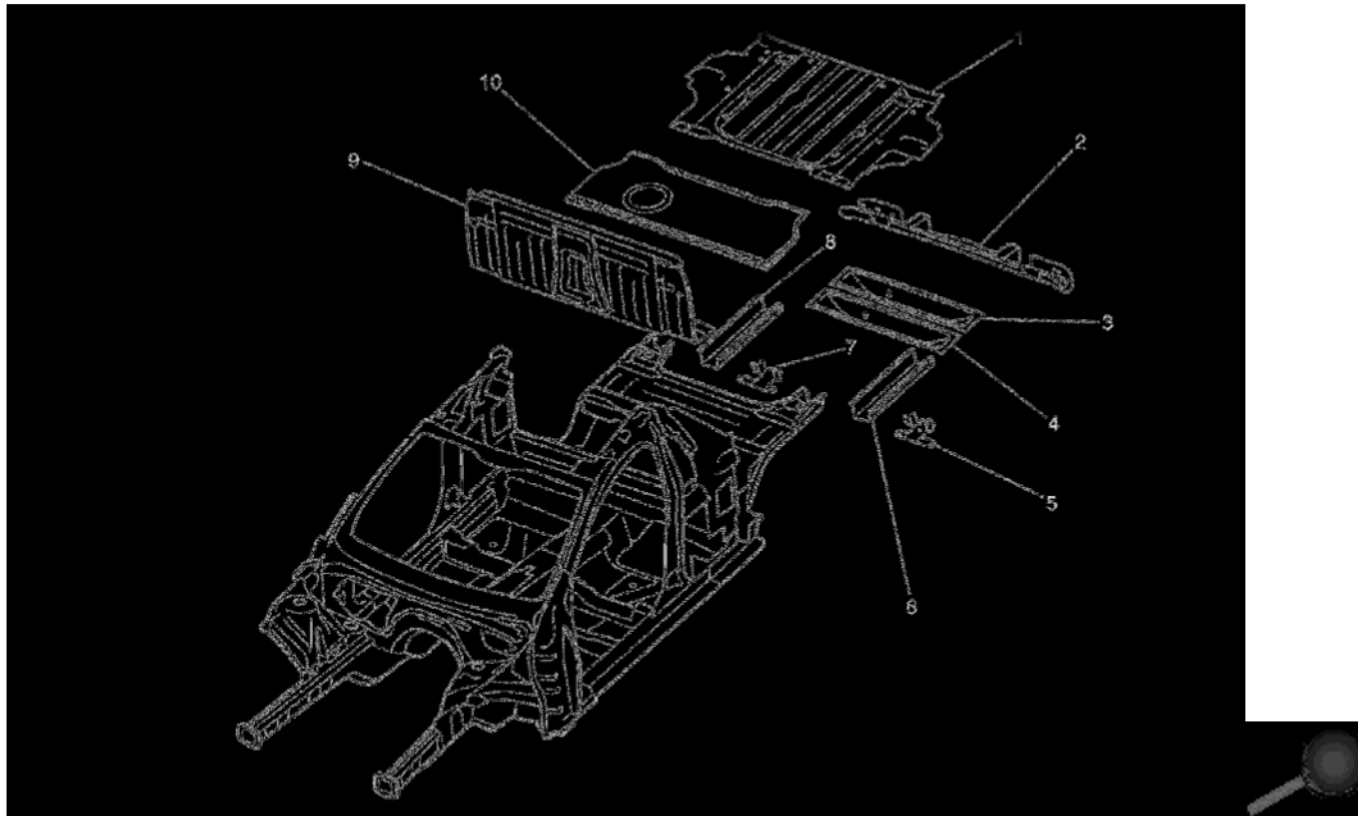
**Panel Identification**

| Number | Description        | Material                                      | Procedure                        |
|--------|--------------------|-----------------------------------------------|----------------------------------|
| 1      | Engine Hood        | <a href="#">Aluminum</a>                      | <a href="#">Hood Replacement</a> |
| 2      | Underbody Assembly | <a href="#">High Strength Low Alloy Steel</a> | —                                |

|    |                                         |                                                                                                                                                                                              |                                                             |
|----|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 3  | Roof Outer Panel                        | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Panel Replacement</a>                      |
| 4  | Roof Front Header Panel                 | <a href="#">Ultra High Strength Steel</a>                                                                                                                                                    | <a href="#">Roof Front Header Panel Replacement</a>         |
| 5  | Roof Panel Bow – Front                  | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Roof Panel Bow Replacement</a>                  |
| 6  | Roof Panel Bow – Centre                 | <a href="#">Mild Steel</a>                                                                                                                                                                   | —                                                           |
| 7  | Roof Panel Bow – Rear                   | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Panel Bow Replacement</a>                  |
| 8  | Roof Rear Header Panel – Outer          | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Rear Header Panel Replacement</a>          |
| 9  | Roof Rear Header Panel – Inner          | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Rear Header Panel Replacement</a>          |
| 10 | Front Wheelhouse Upper Rail – Right     | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | —                                                           |
| 11 | Body Side Assembly – Right              | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | —                                                           |
| 12 | Tail Lamp Filler Panel – Right          | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 13 | Rear End Panel Filler – Right           | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear End Panel Filler Replacement</a>           |
| 14 | Body Side Inner Panel Extension – Right | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Inner Panel Extension Replacement</a> |
| 15 | Rear End Panel Assembly                 | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear End Panel Replacement</a>                  |
| 16 | Rear Rail Extension – Right             | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Rear Rail Replacement</a>                       |

|    |                                        |                                                                                                                                                                                              |                                                             |
|----|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 17 | Rear Bumper Fascia Centre Support      | —                                                                                                                                                                                            | <a href="#">Rear Bumper Fascia Support Replacement</a>      |
| 18 | Exhaust Mount Bracket – Right          | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Exhaust Muffler Bracket Replacement</a>         |
| 19 | Body Side Inner Panel Extension – Left | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Inner Panel Extension Replacement</a> |
| 20 | Rear Rail Extension – Left             | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Rear Rail Replacement</a>                       |
| 21 | Exhaust Mount Bracket – Left           | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Exhaust Muffler Bracket Replacement</a>         |
| 22 | Rear End Panel Filler – Left           | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear End Panel Filler Replacement</a>           |
| 23 | Tail Lamp Filler Panel – Left          | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 24 | Body Side Assembly – Left              | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | —                                                           |
| 25 | Rear Side Door Outer Panel             | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear Side Door Outer Panel Replacement</a>      |
| 26 | Front Side Door Outer Panel            | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Side Door Outer Panel Replacement</a>     |
| 27 | Front Wheelhouse Upper Rail – Left     | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | —                                                           |

#### **Ute Rear Floor and Crossmembers**



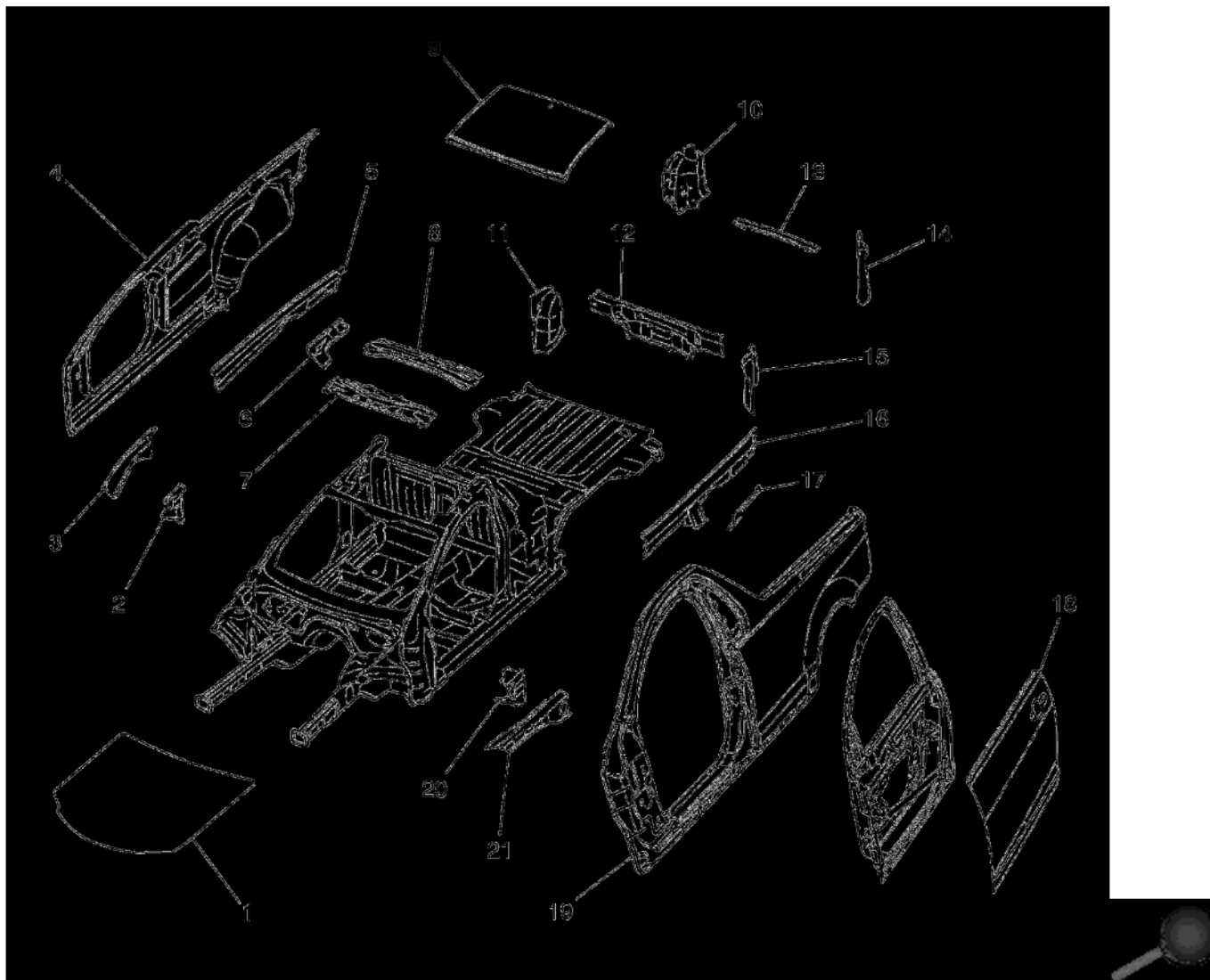
**Panel Identification**

| Number | Description                 | Material                   | Procedure                                                                                                                                                  |
|--------|-----------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Rear Floor                  | <a href="#">Mild Steel</a> | <a href="#">Rear Floor Panel Replacement</a>                                                                                                               |
| 2      | Rear Crossmember            | <a href="#">Mild Steel</a> | —                                                                                                                                                          |
| 3      | Spare Wheel Support Carrier | <a href="#">Mild Steel</a> | <a href="#">Spare Wheel Hoist Reinforcement</a>                                                                                                            |
| 4      | Spare Wheel Support Carrier | <a href="#">Mild Steel</a> | <a href="#">Spare Wheel Hoist Reinforcement</a>                                                                                                            |
| 5      | Rear Muffler Hanger Bracket | <a href="#">Mild Steel</a> | <ul style="list-style-type: none"> <li><a href="#">Exhaust Muffler Bracket Replacement</a></li> <li><a href="#">Exhaust Muffler Rear Hanger</a></li> </ul> |

|    | Assembly                             |                                                                                                                                         | <a href="#">Replacement</a>                                                                                                                                                |
|----|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6  | Rear Rail                            | <a href="#">High Strength Low Alloy Steel</a>                                                                                           | <a href="#">Rear Rail Replacement</a>                                                                                                                                      |
| 7  | Rear Muffler Hanger Bracket Assembly | <a href="#">Mild Steel</a>                                                                                                              | <ul style="list-style-type: none"> <li>• <a href="#">Exhaust Muffler Bracket Replacement</a></li> <li>• <a href="#">Exhaust Muffler Rear Hanger Replacement</a></li> </ul> |
| 8  | Rear Rail                            | <a href="#">High Strength Low Alloy Steel</a>                                                                                           | <a href="#">Rear Rail Replacement</a>                                                                                                                                      |
| 9  | Rear Seat Panel Assembly             | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> </ul> | <a href="#">Rear Seat Back Body Panel Replacement</a>                                                                                                                      |
| 10 | Load Floor Panel                     | Composite (Non Metallic) Material                                                                                                       | <a href="#">Load Floor Panel Assembly Replacement</a>                                                                                                                      |

### [Ute Side and Outer Panelling](#)





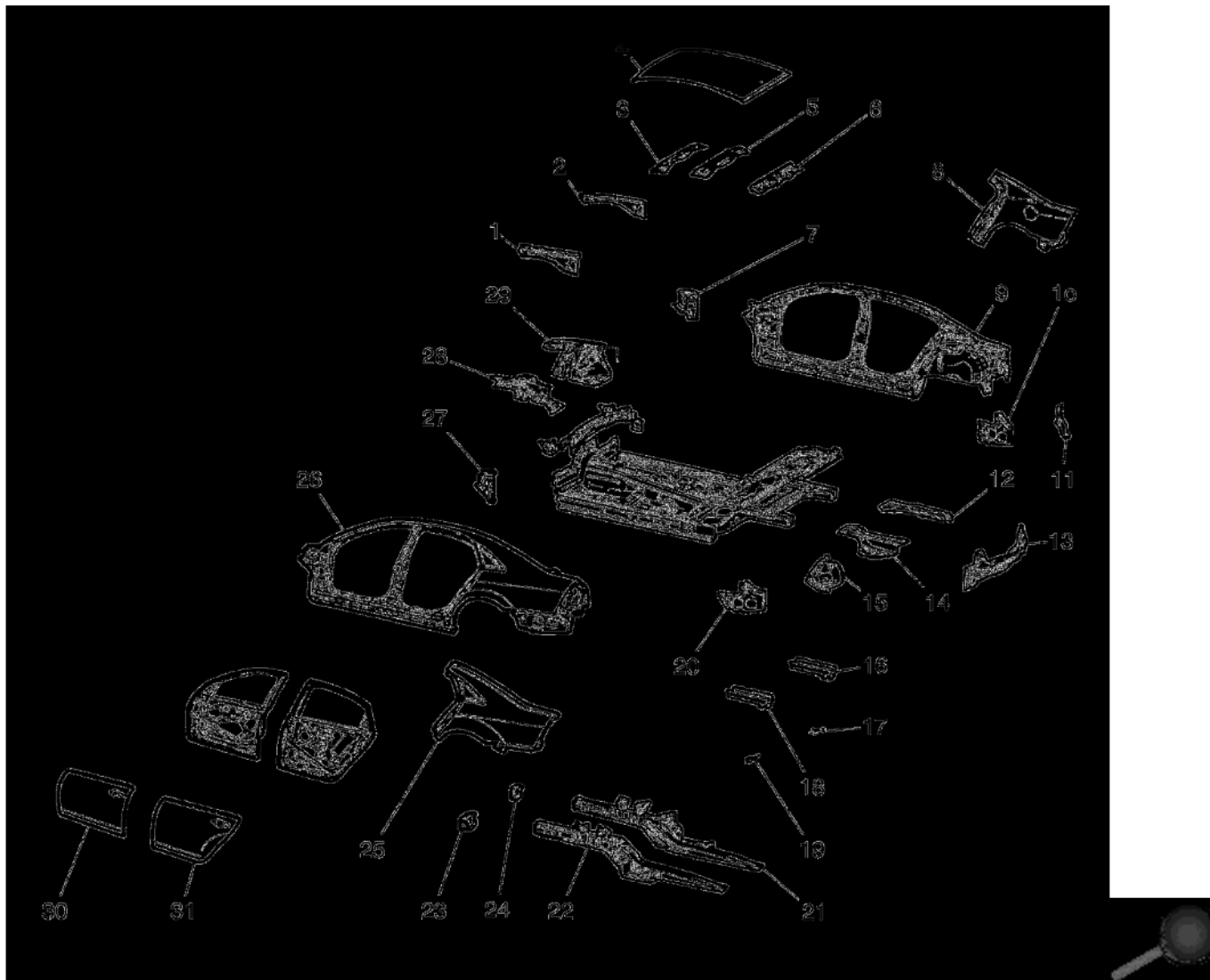
**Panel Identification**

| Number | Description        | Material                                      | Procedure                                           |
|--------|--------------------|-----------------------------------------------|-----------------------------------------------------|
| 1      | Engine Hood        | <a href="#">Aluminum</a>                      | <a href="#">Hood Replacement</a>                    |
| 2      | Front Hinge Pillar | <a href="#">High Strength Low Alloy Steel</a> | <a href="#">Side Door Opening Frame Replacement</a> |

|    |                                   |                                                                                                                                                                                              |                                                             |
|----|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 3  | Upper Wheel House Brace           | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Front Wheelhouse Panel Replacement</a>          |
| 4  | Body Side Panel Assembly          | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | <a href="#">Quarter Panel Replacement</a>                   |
| 5  | Cargo Area Inner Side Panel Brace | <a href="#">Mild Steel</a>                                                                                                                                                                   | —                                                           |
| 6  | Lower Extension – Body Side Outer | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Outer Panel Extension Replacement</a> |
| 7  | Roof Front Header Panel           | <a href="#">Ultra High Strength Steel</a>                                                                                                                                                    | <a href="#">Roof Front Header Panel Replacement</a>         |
| 8  | Roof Rear Header Panel            | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Rear Header Panel Replacement</a>          |
| 9  | Roof Outer                        | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Panel Replacement</a>                      |
| 10 | Filler Panel Tail Lamp            | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 11 | Body Tail Lamp Inner Filler Panel | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 12 | Rear End Panel                    | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear End Panel Replacement</a>                  |
| 13 | Rear Bumper Fascia Centre Support | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear Bumper Fascia Support Replacement</a>      |
| 14 | Filler Panel Tail Lamp            | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 15 | Body Tail Lamp Inner Filler Panel | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
|    | Cargo Area Inner Side Panel       |                                                                                                                                                                                              |                                                             |

|    |                                   |                                                                                                                                                                                              |                                                             |
|----|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 16 | Brace                             | <a href="#">Mild Steel</a>                                                                                                                                                                   | —                                                           |
| 17 | Lower Extension – Body Side Outer | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Outer Panel Extension Replacement</a> |
| 18 | Front Side Door Outer Panel       | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Side Door Outer Panel Replacement</a>     |
| 19 | Body Side Panel Assembly          | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | <a href="#">Quarter Panel Replacement</a>                   |
| 20 | Front Hinge Pillar                | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Side Door Opening Frame Replacement</a>         |
| 21 | Upper Wheel House Brace           | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Front Wheelhouse Panel Replacement</a>          |

#### **Sedan – Long Wheel Base**



**Panel Identification**

| Number | Description                           | Material                                      | Procedure                                          |
|--------|---------------------------------------|-----------------------------------------------|----------------------------------------------------|
| 1      | Front Wheelhouse Upper Rail<br>– Left | <a href="#">High Strength Low Alloy Steel</a> | <a href="#">Front Wheelhouse Panel Replacement</a> |
|        |                                       |                                               |                                                    |

|    |                                                      |                                                                                                                                                                                              |                                                             |
|----|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 2  | Front Wheelhouse Upper Rail – Right                  | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Front Wheelhouse Panel Replacement</a>          |
| 3  | Roof Front Header Panel                              | <a href="#">Ultra High Strength Steel</a>                                                                                                                                                    | <a href="#">Roof Front Header Panel Replacement</a>         |
| 4  | Roof Panel                                           | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Panel Replacement</a>                      |
| 5  | Roof Panel Bow                                       | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Roof Panel Bow Replacement</a>                  |
| 6  | Roof Rear Header Panel                               | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Roof Rear Header Panel Replacement</a>          |
| 7  | Body Hinge Pillar Brace – Right                      | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Side Door Opening Frame Replacement</a>         |
| 8  | Body Side Outer Panel Right – Sectional Repair Only  | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Quarter Panel Replacement</a>                   |
| 9  | Body Side Panel Assembly – Right                     | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | —                                                           |
| 10 | Body Side Outer Panel Rear Lower Extension – Right   | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Outer Panel Extension Replacement</a> |
| 11 | Body Tail Lamp Filler Panel – Right                  | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 12 | Rear Compartment Floor Panel Outer Extension – Right | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Inner Panel Extension Replacement</a> |
| 13 | Rear End Outer Panel                                 | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear End Panel Replacement</a>                  |
| 14 | Rear Compartment Floor Panel Outer Extension – Left  | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Body Side Inner Panel Extension Replacement</a> |

|    |                                                              |                                                                                                                                                                   |                                                             |
|----|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 15 | Body Tail Lamp Filler – Left                                 | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Body Tail Lamp Filler Panel Replacement</a>     |
| 16 | Rear Compartment Floor Panel<br>Rear Rail – Right            | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                     | <a href="#">Rear Rail Replacement</a>                       |
| 17 | Exhaust Muffler Hanger<br>Reinforcement – Right              | <a href="#">Mild Steel</a>                                                                                                                                        | —                                                           |
| 18 | Rear Compartment Floor Panel<br>Rear Rail – Left             | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                     | <a href="#">Rear Rail Replacement</a>                       |
| 19 | Exhaust Muffler Hanger<br>Reinforcement – Left               | <a href="#">Mild Steel</a>                                                                                                                                        | —                                                           |
| 20 | Body Side Outer Panel Rear<br>Lower Extension – Left         | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Body Side Outer Panel Extension Replacement</a> |
| 21 | Front Compartment Side Rail<br>Right – Sectional Repair Only | <ul style="list-style-type: none"> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Dual Phase Steel</a></li> </ul> | <a href="#">Front Compartment Side Rail Sectioning</a>      |
| 22 | Front Compartment Side Rail<br>Left – Sectional Repair Only  | <ul style="list-style-type: none"> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Dual Phase Steel</a></li> </ul> | <a href="#">Front Compartment Side Rail Sectioning</a>      |
| 23 | Front Compartment Side Rail<br>Bracket – Left                | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                     | —                                                           |
| 24 | Front Compartment Side Rail<br>Bracket – Right               | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                     | —                                                           |
| 25 | Body Side Outer Panel Left –<br>Sectional Repair Only        | <a href="#">Mild Steel</a>                                                                                                                                        | <a href="#">Quarter Panel Replacement</a>                   |

|    |                                         |                                                                                                                                                                                              |                                                         |
|----|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 26 | Body Side Panel Assembly – Left         | <ul style="list-style-type: none"> <li>• <a href="#">Mild Steel</a></li> <li>• <a href="#">High Strength Low Alloy Steel</a></li> <li>• <a href="#">Ultra High Strength Steel</a></li> </ul> | —                                                       |
| 27 | Body Hinge Pillar Brace – Left          | <a href="#">High Strength Low Alloy Steel</a>                                                                                                                                                | <a href="#">Side Door Opening Frame Replacement</a>     |
| 28 | Front Wheelhouse Panel Assembly – Left  | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Wheelhouse Panel Replacement</a>      |
| 29 | Front Wheelhouse Panel Assembly – Right | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Wheelhouse Panel Replacement</a>      |
| 30 | Front Side Door Outer Panel             | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Front Side Door Outer Panel Replacement</a> |
| 31 | Rear Side Door Outer Panel              | <a href="#">Mild Steel</a>                                                                                                                                                                   | <a href="#">Rear Side Door Outer Panel Replacement</a>  |

## Aluminum

This information provides repair recommendations and general guidelines for heat treatable (i.e. 6000 series) aluminum alloys.

AA6016 aluminum alloy is used for the engine hood on short wheelbase sedan, sportwagon, ute and for the rear compartment lid on short wheelbase sedan. This material has a yield strength range from 90 MPa to 140 MPa in blank form and after forming and paint oven process, increases to 120 MPa to 210 MPa.

### Recommended Repairs

- Cold repairs can be performed on this type of aluminum.
- Unlike mild steel, aluminum does not have a memory of the original shape and cannot be “kicked back” into its previous shape.
- Aluminum is more brittle than steel and excessive working and bending will damage the material causing cracks and splits.
- To avoid galvanic corrosion of the aluminum due to cross-contamination with steel, repairs to aluminum should take place using dedicated tools for use with aluminum ONLY and a dedicated work area that is clean and free of steel contamination.
- Excessive heat will weaken the material; controlled use of heat can be used to repair damage if the heat is kept between 392°F and 572°F (200°C and 300°C). Heat below 356°F (180°C) will not affect the strength of this material.
- Please note that there is no color change in aluminum when it is heated and therefore it is extremely difficult to judge temperature and care must be taken not to damage the aluminum by overheating the surface.



## Dual Phase Steel

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

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

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

### Recommended Repairs

- Cold repairs can be performed on this type of steel, unless the damage includes kinks. If the damage includes kinks, the part should be replaced.
- Sectioning or partial replacement of this type of steel is recommended only at approved locations, in a specific sectioning procedure.
- 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.

## 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.

## Metal Panel Bonding

**Note:** The application of heat can degrade the mechanical properties of certain high strength steel panels. With the exception of welding processes, do not use heat to repair or straighten the following panels:

- Centre Pillar Reinforcement
- Rocker Outer Panel
- Rocker Inner Panel
- #4 Crossbar
- Door Impact Beam

If required, the use of heat (maximum of 650°C for up to 90 sec) is acceptable for other steel body panels.

This is intended to provide general guidelines for adhesive bonding of exterior panels to partially alleviate the requirement for extensive spot welding and plug Metal-Inert Gas (MIG) welding procedures. Bonding cannot be used for butt weld type joints. Bonding is not recommended for vertical lap joints unless specified in the repair procedure. Bonding is most effective on horizontal lap joints. The benefits of panel bonding are:

- No heat or burn damage when additional welding is not required
- Corrosion protection
- Can act as a sealant
- Improved process for complicated shapes (wheelhouse area)

The scope of this specification is intended to provide the performance guidelines of structural adhesive systems used to repair (metallic) automotive bodies in the aftermarket. These types of adhesives are intended for use when bonding replacement body panels as an option to welding as the attachment means. Holden information outlines the use of room temperature cure acrylic adhesives that contain glass bead technology.

Bonding procedures in general are applicable only to a factory seams type approach.

Sectioning or partial panelling of full panels is not supported by Holden unless specifically documented in a Service Bulletin or Manual.

Applicable components for this technology are EXTERIOR PANELS ONLY, including door skins, tail end panels, roof outer panels and quarter panels.

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**Note:** Do not use adhesives for vehicle underbody or upper body structure type repairs such as structural rails, shock/strut towers, floor pans, upper fender rails, body side pillars, door rings—side or rear, rocker panels, unless specifically documented in a Holden Service Bulletin or Manual. If in doubt, use only the procedures referenced in the Service Manual for the specific vehicle being repaired.

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

Adhesives currently meeting the performance requirements include Holden materials and products manufactured by 3M, Lord Adhesives and Dow. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#).

## 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.

## Ultra High Strength Dual Phase Steel

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

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

### Note:

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

### 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.

## Ultra High Strength Steel

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

### **This includes the common steel names of**

- Ultra High Strength Dual Phase Steel (DPX)
- Martensitic Steel (M)
- Boron/Press Hardened Steel (B)
- Multi-Phase Steel (MP)
- TRIP Steel (TR)

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 only, at factory joints. Sectioning or partial replacement is not recommended.
- The use of heat to repair damage is not recommended for this type of steel.
- Stitch Welding is not recommended for this type of steel (unless replacing a factory installed stitch weld).
- This type of steel should not be used as a backing reinforcement or a sleeve for a sectioning joint.

### **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.



# Front Compartment Side Rail Bracket Replacement

## Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Safety Glasses Warning](#).

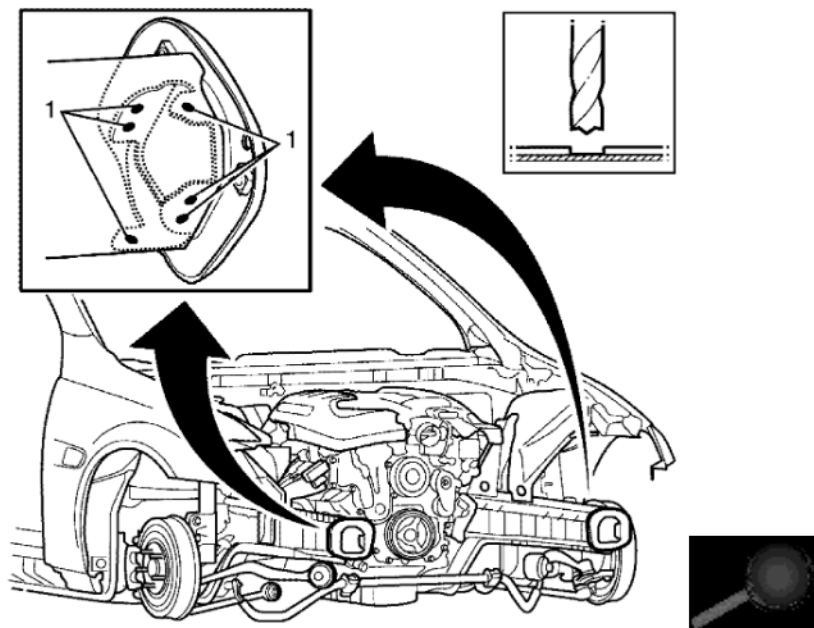
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:** Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

1. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
2. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).
3. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
4. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
5. Remove the washer solvent container. Refer to [Windshield Wiper and Washer Switch Replacement](#).
6. Remove the cooling fan and shroud. Refer to [Engine Coolant Fan Shroud Replacement](#).
7. Remove the radiator. Refer to [Radiator Replacement](#).
8. Remove the front bumper impact bar bracket. Refer to [Front Bumper Impact Bar Replacement](#).
9. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).





**Note:** Note the orientation of the front rail end crush cap for installation.

10. Locate, mark and drill out all factory welds attaching the front rail end crush cap to the front rail assembly (1).

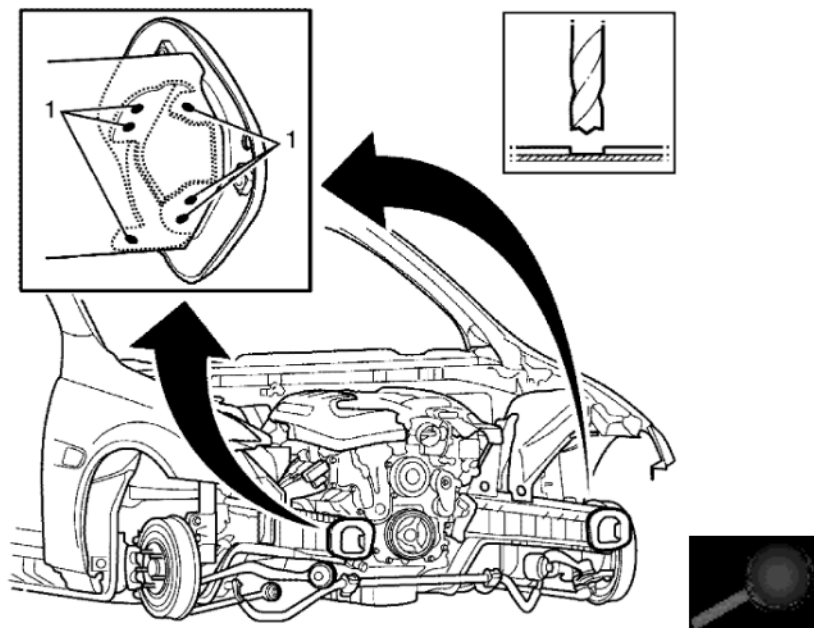
### Installation Procedure

**Note:**

- If the front rail is damaged, the only approved repair procedure is the front compartment side rail sectioning. Refer to [Front Compartment Side Rail Sectioning](#).
- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original spot weld holes cannot be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.
2. Clean and prepare the mating surfaces of both the front rail and the front rail end crush cap.

**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.



3. Align the new front rail end crush cap to the weld points marked during the removal from the front rail assembly and weld the front end crush cap to the front rail assembly (1).
4. Install the front bumper impact bar bracket. Refer to [Front Bumper Impact Bar Replacement](#).
5. Install the radiator. Refer to [Radiator Replacement](#).
6. Install the cooling fan and shroud. Refer to [Engine Coolant Fan Shroud Replacement](#).
7. Install the washer solvent container. Refer to [Windshield Wiper and Washer Switch Replacement](#).
8. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
9. Install the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
10. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#).
11. Install the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
12. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

# Front Wheelhouse Panel Replacement

## Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

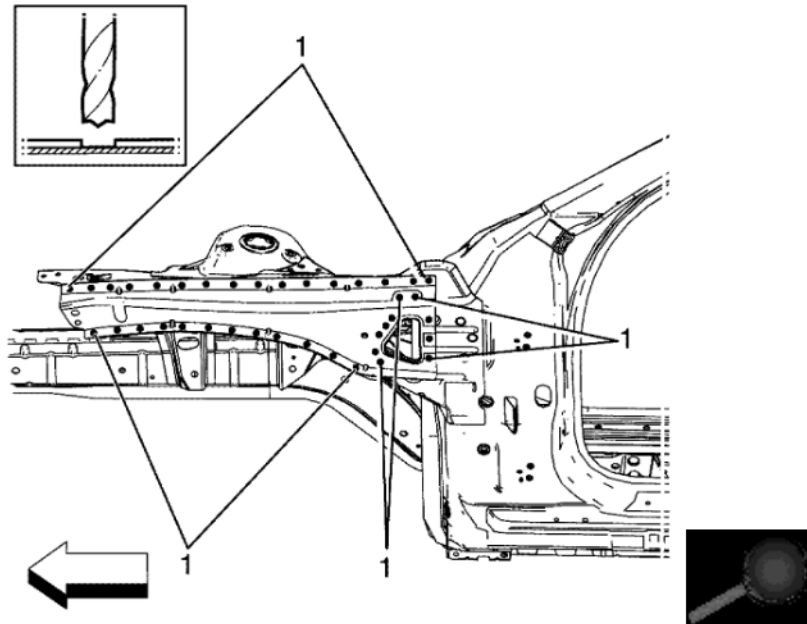
**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:** Refer to [Ultra High Strength Steel](#).

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 engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
4. Remove the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
5. Remove the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
6. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
7. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
8. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
9. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
10. Lower the vehicle.
11. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
12. Remove the fender assembly. Refer to [Front Fender Replacement](#).
13. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).
14. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
15. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
16. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).

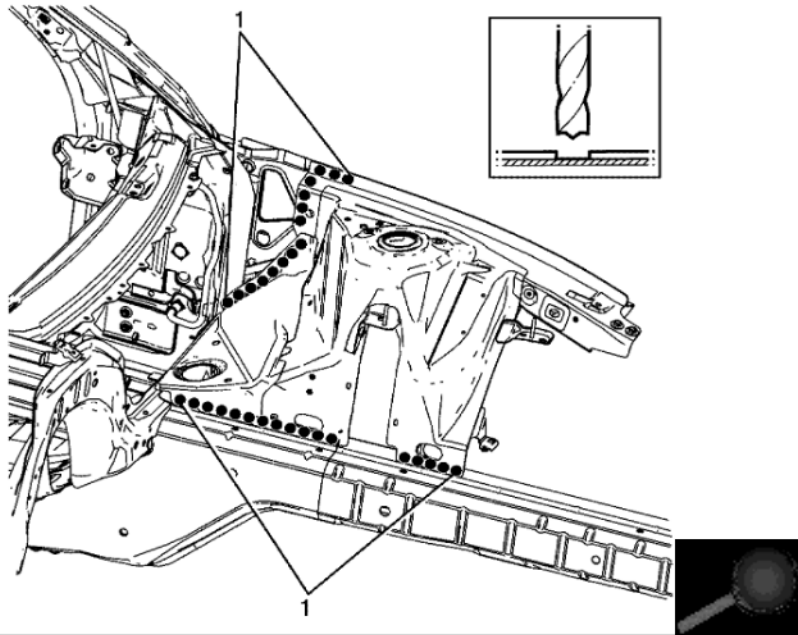
17. Remove the plenum chamber. Refer to [Air Cleaner Assembly Replacement](#) (LFW, LFX, LWR) or [Air Cleaner Assembly Replacement](#) (L77, LS3, LSA).
  18. Remove the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).
  19. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
  20. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
  21. Remove the instrument panel. Refer to [Instrument Panel Assembly Replacement](#).
  22. Remove the HVAC module. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).
  23. Remove the front floor carpet. Refer to [Floor Panel Carpet Replacement](#).
- Warning:** Refer to [Foam Sound Deadeners Warning](#).
24. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of the factory welds for installation of the service assembly.

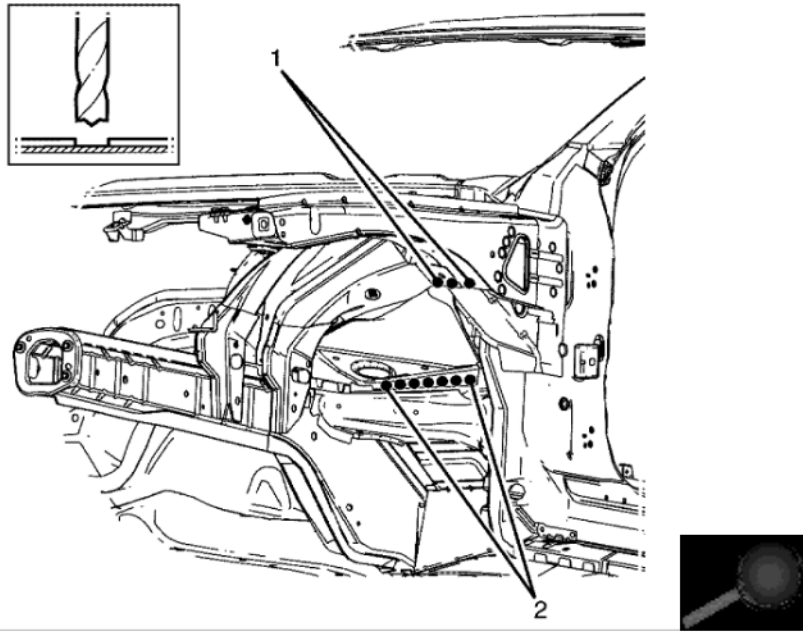
25. Locate, mark and drill out the inner factory welds (1) attaching the upper wheelhouse brace (1) to the wheelhouse assembly. The rear of the front rail is high strength steel and cannot be sectioned or altered. Refer to [Ultra High Strength Steel](#).



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of the factory welds for installation of the service assembly.

26. Locate, mark and drill out the inner factory welds (1) attaching the wheelhouse assembly to the vehicle.

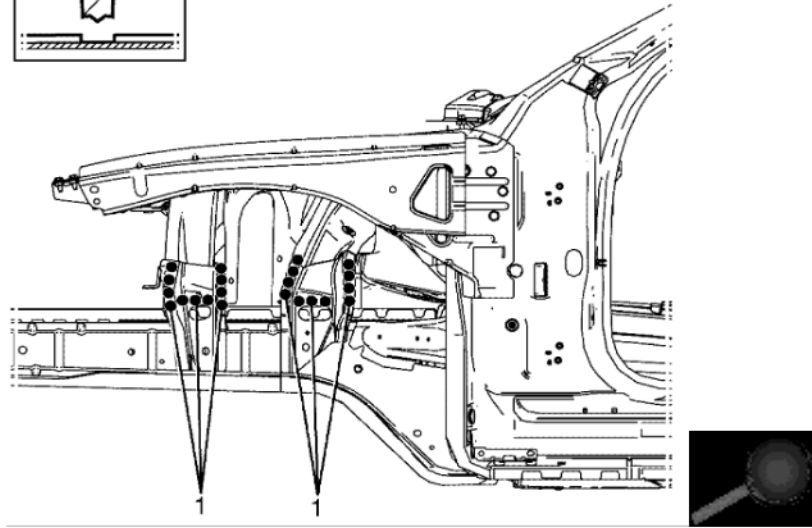
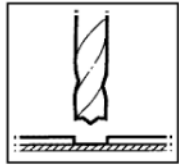


**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of the factory welds for installation of the service assembly.

27. Locate, mark and drill out the factory welds (1) attaching the wheelhouse assembly to the cowl panel.





**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of the factory welds for installation of the service assembly.

28. Locate, mark and drill out the factory welds (1) attaching the wheelhouse assembly to the front chassis rail.

29. Remove the wheelhouse assembly from the vehicle.

**Installation Procedure**

1. Clean and prepare the mating surfaces of both parts of the front chassis rail.
2. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.

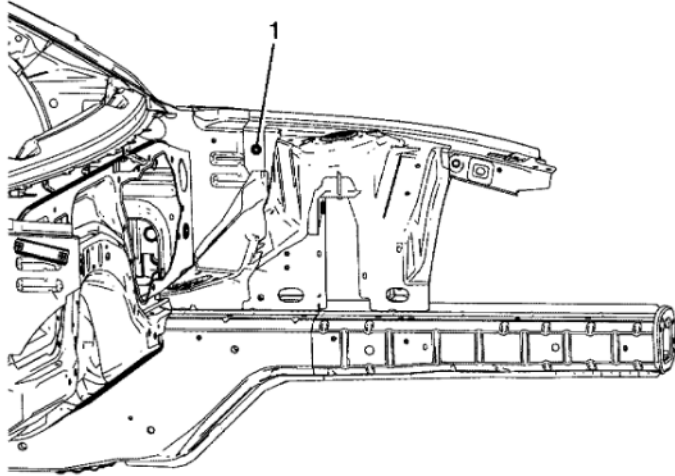
**Note:**

If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).

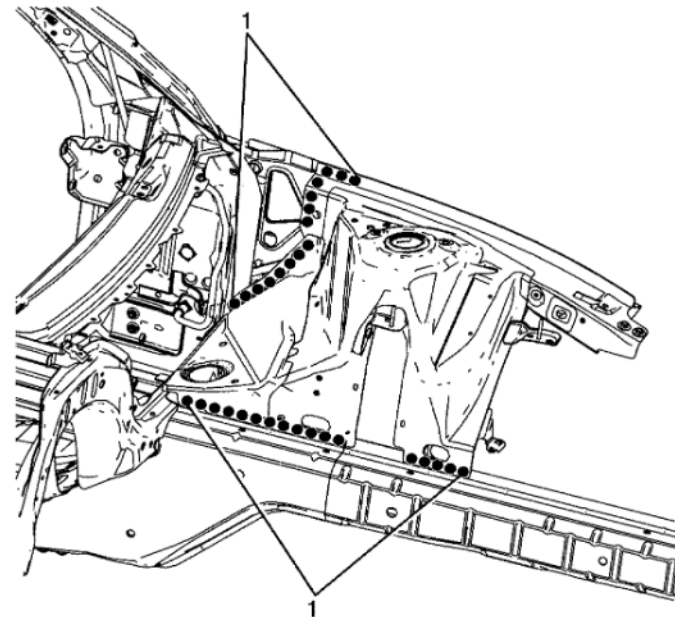
Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

Ensure all factory welds are replaced in their original locations.

Ensure all structural adhesives and sealers are replaced in their original locations.

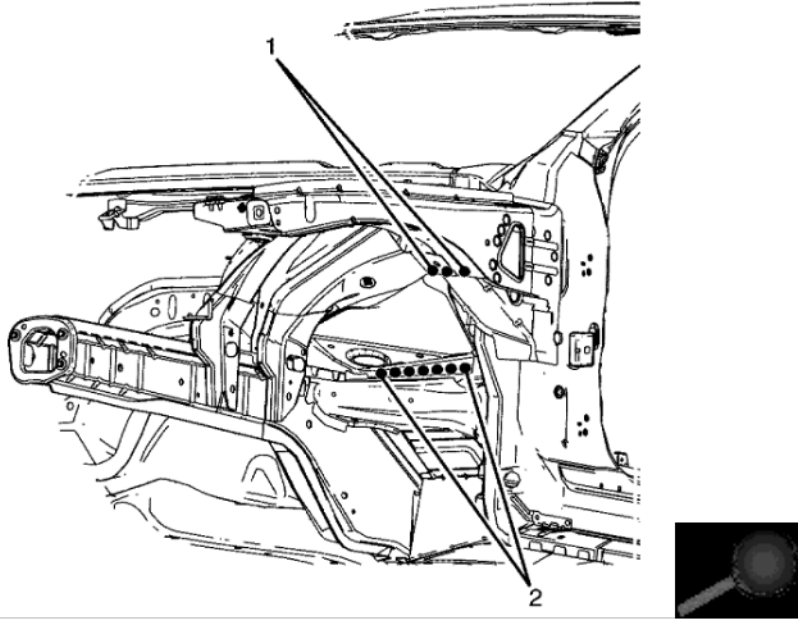


3. Align the datum point (1) on the new front wheelhouse panel assembly to the matching hole on the vehicle body hinge pillar inner lower panel. Ensure the vehicle alignment is correct. Refer to [Dimensions - Body](#).

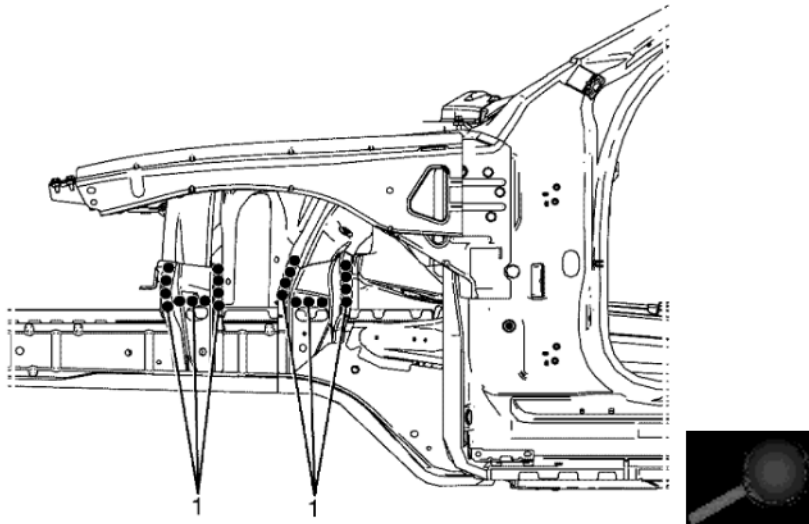




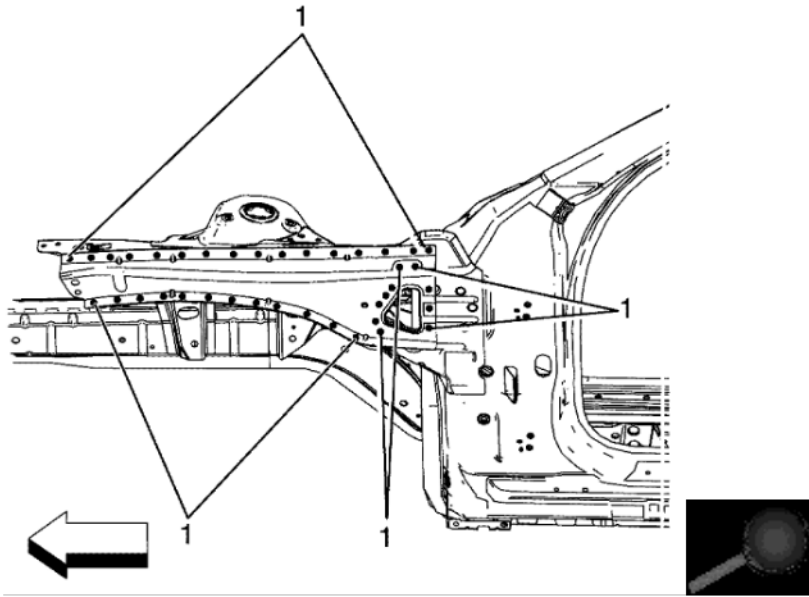
4. Weld (1) the wheelhouse assembly to the vehicle starting from the front chassis rail.



5. Weld (1) the wheelhouse assembly to the vehicle starting from the cowl panel.



6. Weld (1) the wheelhouse assembly to the vehicle starting from the front chassis rail.



7. Weld (1) the upper wheelhouse brace to the wheelhouse assembly.
8. Clean and prepare all welded surfaces.
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 the front floor carpet. Refer to [Floor Panel Carpet Replacement](#).
12. Install the HVAC module. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).
13. If re-programming is required. Refer to [Control Module References](#).
14. Install the instrument panel. Refer to [Instrument Panel Assembly Replacement](#).
15. If re-programming is required. Refer to [Control Module References](#).
16. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
17. Install the brake master cylinder. Refer to [Master Cylinder Replacement](#).
18. Install the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
19. If re-programming is required. Refer to [Control Module References](#).
20. Install the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).

21. Install the plenum chamber. Refer to [Air Cleaner Assembly Replacement](#) (LFW, LFX, LWR) or [Air Cleaner Assembly Replacement](#) (L77, LS3, LSA).
22. Install the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
23. Install the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
24. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
25. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#).
26. Install the fender assembly. Refer to [Front Fender Replacement](#).
27. Install the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
28. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
29. Install the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
30. Install the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
31. Install the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
32. Install the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
33. Lower the vehicle.
34. Install the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
35. Install the positive cable to the engine bay. Refer to [Battery Positive Cable Replacement](#).
36. Install the negative cable to the engine bay. Refer to [Battery Negative Cable Replacement](#).
37. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
38. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
39. If re-programming is required. Refer to [Control Module References](#).

# Front Compartment Side Rail Replacement

## Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

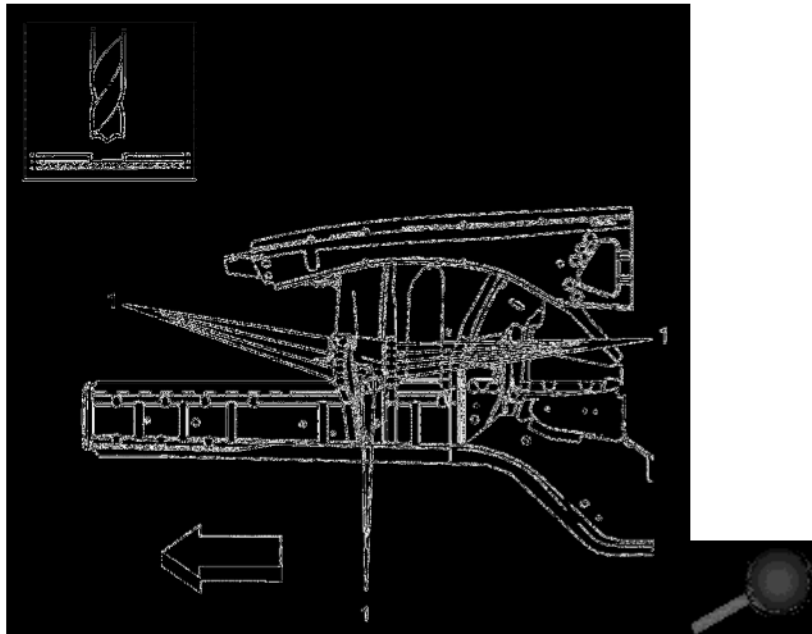
**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

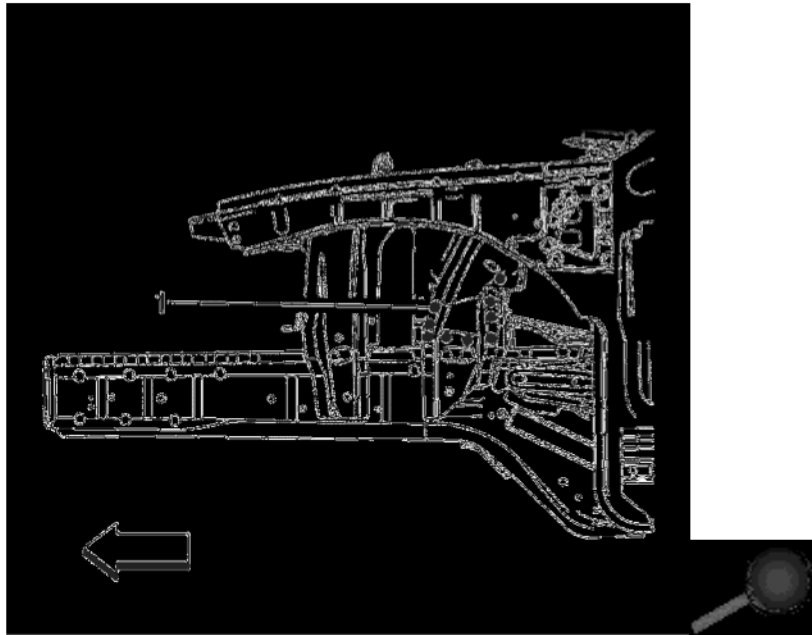
**Warning:** Refer to [Battery Disconnect Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#) in SIR.
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the engine assembly. Refer to [Engine Replacement](#).
4. Remove the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
5. Remove the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
6. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
7. Remove the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
8. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
9. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
10. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
11. Lower the vehicle.
12. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
13. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).
14. Remove the fender assembly. Refer to [Front Fender Replacement](#).
15. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
16. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).

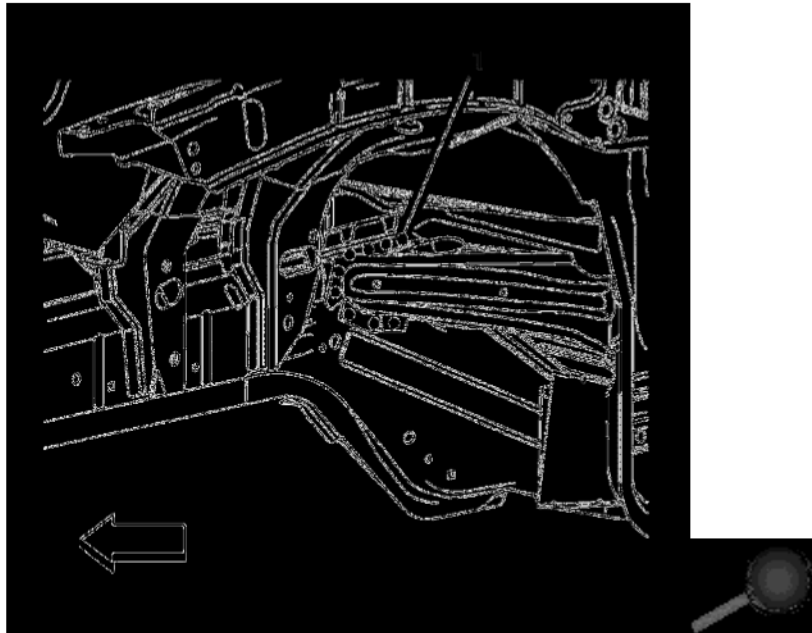
17. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
18. Remove the plenum chamber. Refer to [Air Cleaner Assembly Replacement](#).
19. Remove the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).
20. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
21. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
22. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



23. Locate, mark and drill out the front wheelhouse brace to front wheelhouse assembly spot welds (1).



24. Locate, mark and drill out the rear wheelhouse brace to front wheelhouse assembly spot welds (1).

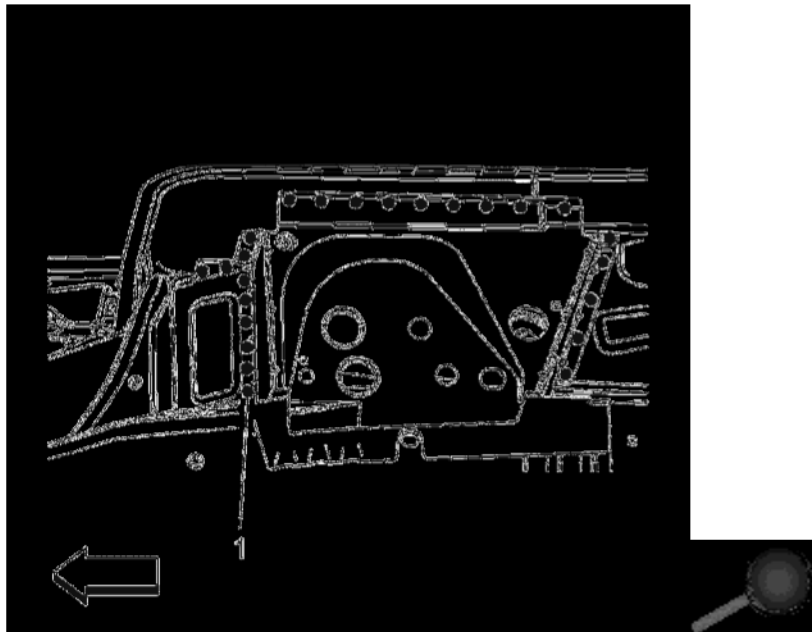


25. Locate, mark and drill out the brace floor panel to front rail outer assembly spot welds (1).



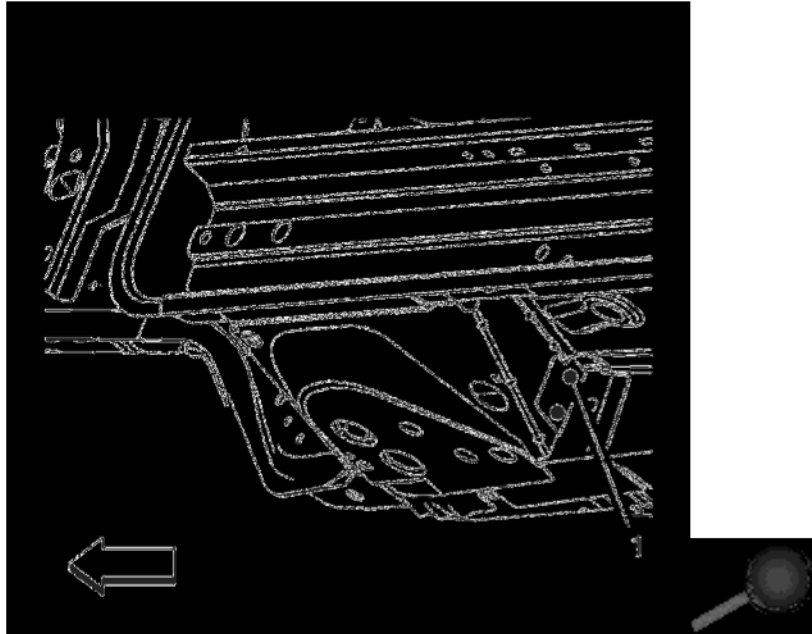
**Note:** Care must be taken not to drill a hole into the front floor panel.

26. Locate, mark and drill out the outrigger panel to front rail outer assembly spot welds (1). Remove outrigger from vehicle.



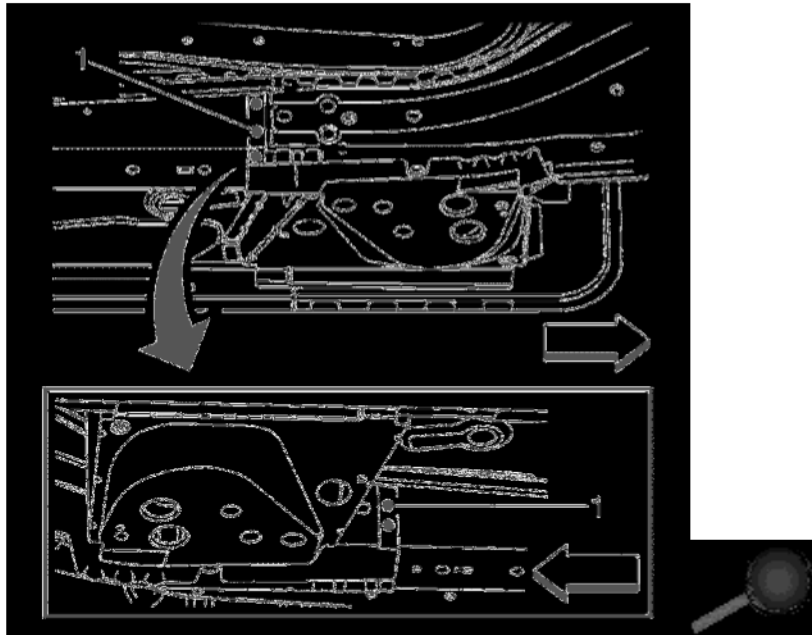
**Note:** Care must be taken not to drill a hole into the front floor panel.

27. Locate, mark and drill out the floor assembly spot welds (1).

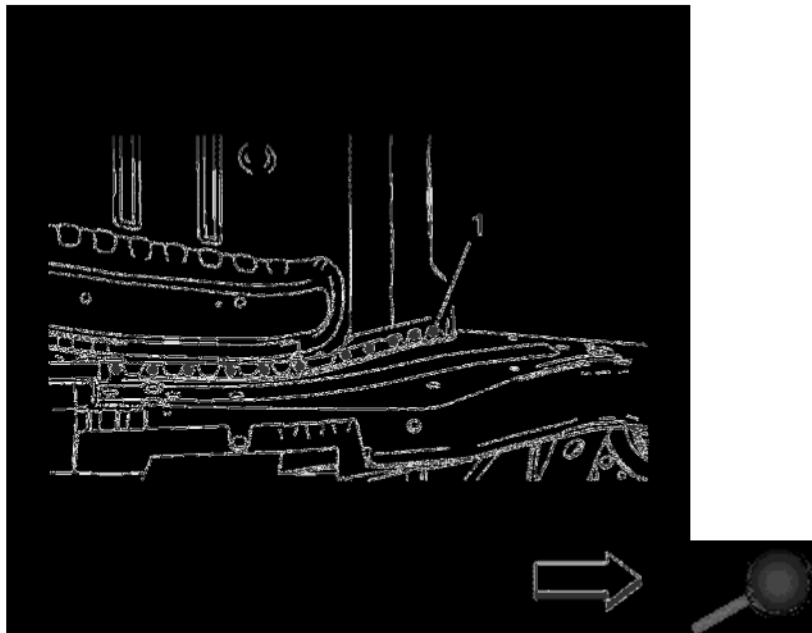


28. Locate, mark and drill out the rocker inner assembly spot welds (1).



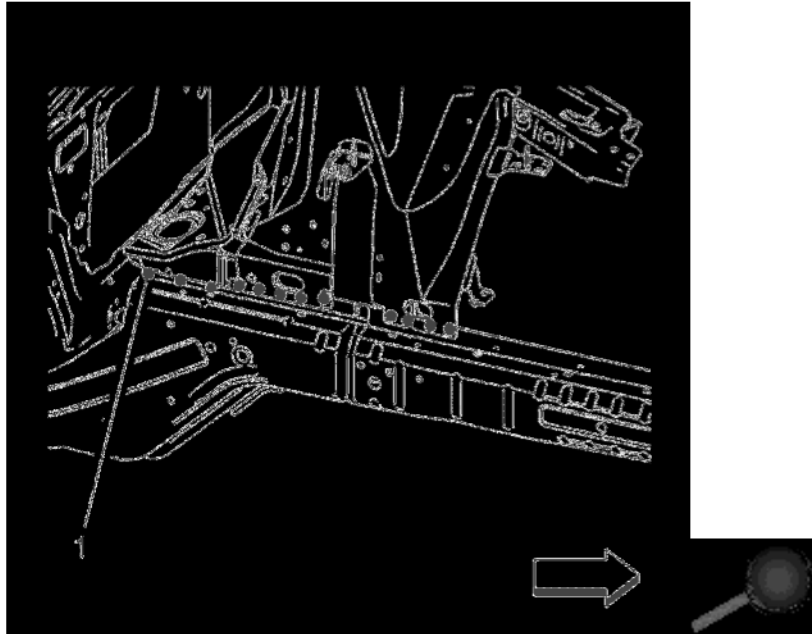


29. Locate, mark and drill out the rail extension panel to front rail assembly spot welds (1).

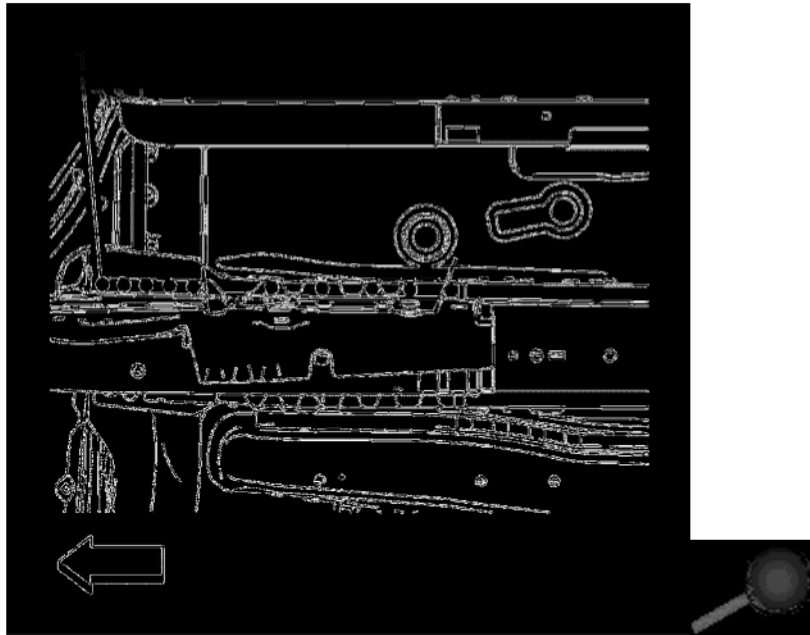


**Note:** Care must be taken not to drill a hole into the front floor panel.

30. Locate, mark and drill out the rail inner to reinforcement front compartment panel assembly spot welds (1).



31. Locate, mark and drill out the rail inner to number 1 bar, panel front wheelhouse rear and housing front suspension strut panel respective spot welds (1).



**Note:** Care must be taken not to drill a hole into the front floor panel.

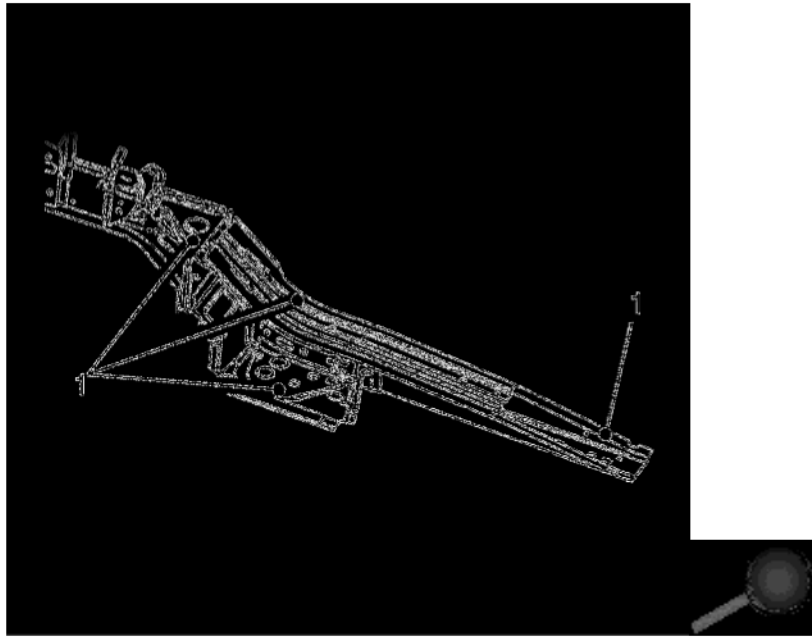
32. Locate, mark and drill out the rail outer to reinforcement front compartment panel assembly spot welds (1).
33. Remove the front rail assembly from vehicle and discard.

### Installation Procedure

**Note:**

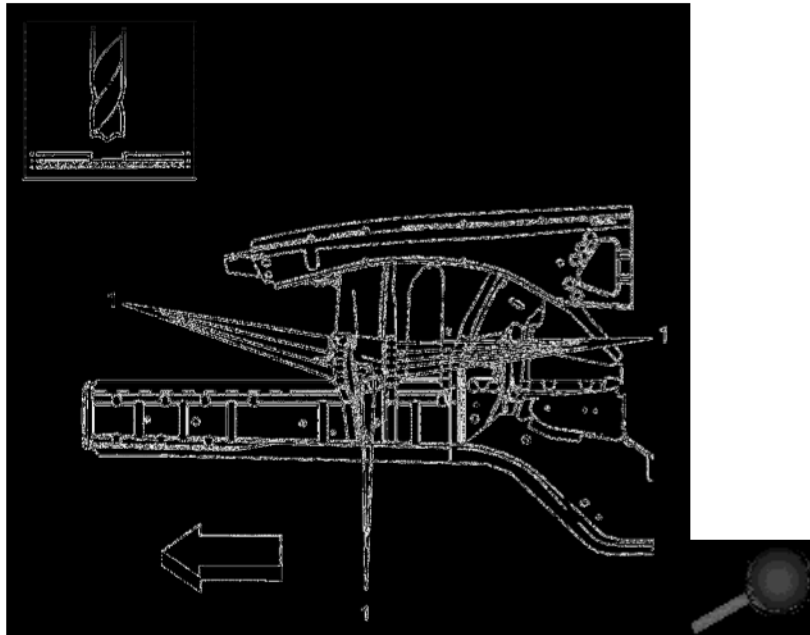
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A plug weld should be performed where your spot welder is unable reach.
- If the location of the original plug weld holes can not be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.
2. Clean and prepare the mating surfaces of both parts of the front chassis rail.

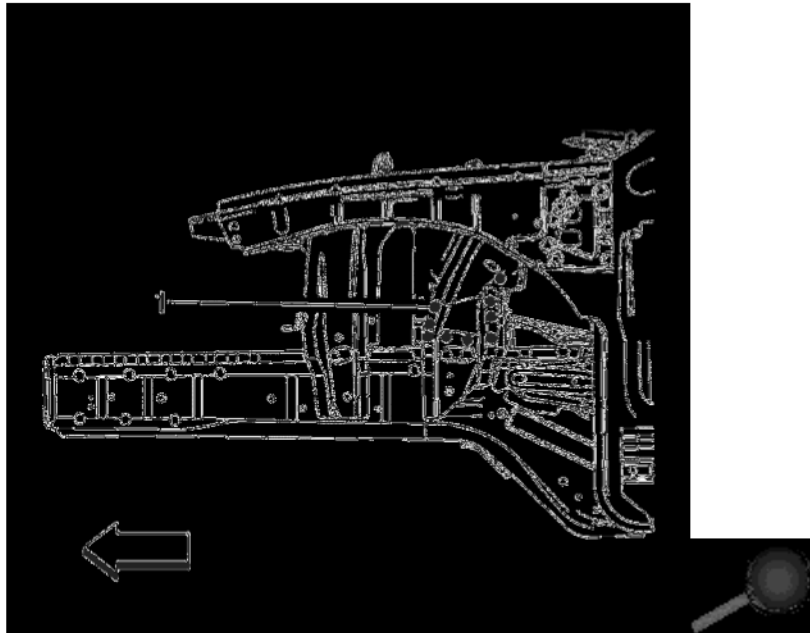


**Note:** Do not discard the outrigger panel for it will have to be welded back to the rail assembly at the end of the installation.

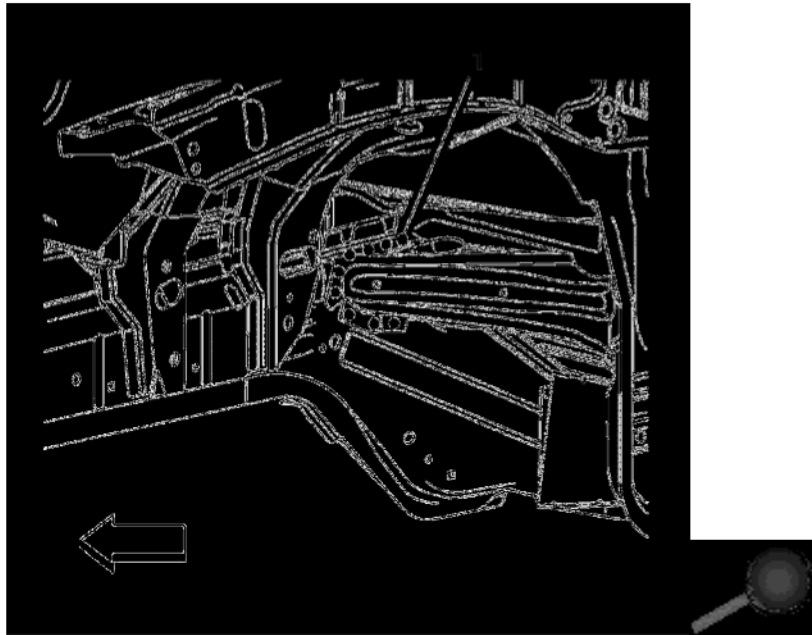
3. In order to create the rail assembly service part, remove brace floor panel, outrigger panel, rail extension panel and the reinforcement front compartment panel by marking and drilling out assembly welds (1).
4. Position the NEW front rail assembly in the vehicle, secure it in place and prepare to weld part at matching surfaces.



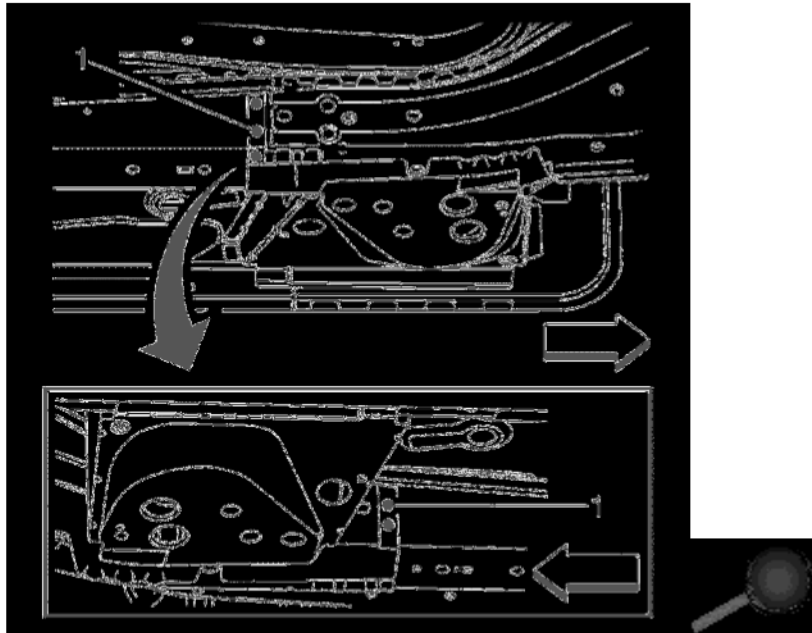
5. Weld the front wheelhouse brace to front wheelhouse assembly spot welds (1).



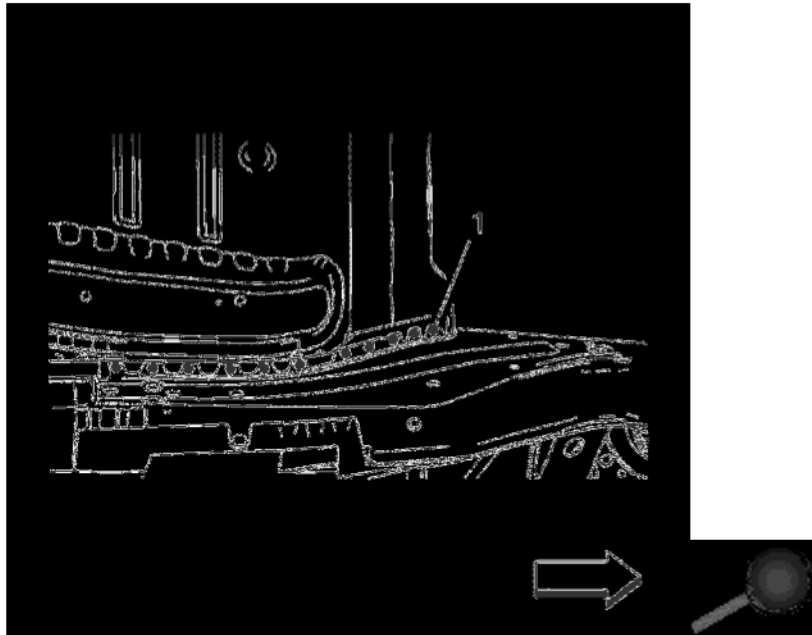
6. Weld the rear wheelhouse brace to front wheelhouse assembly spot welds (1).



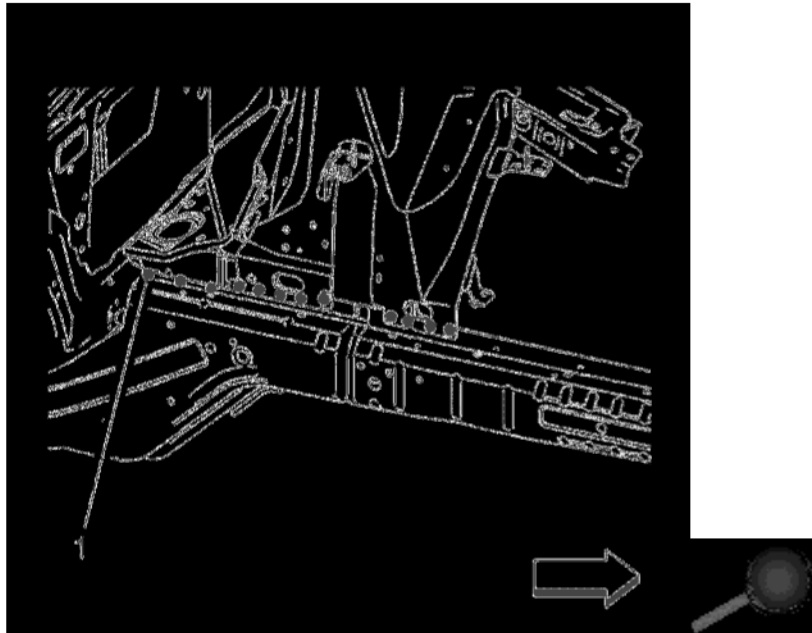
7. Weld the brace floor panel to front rail outer assembly spot welds (1).



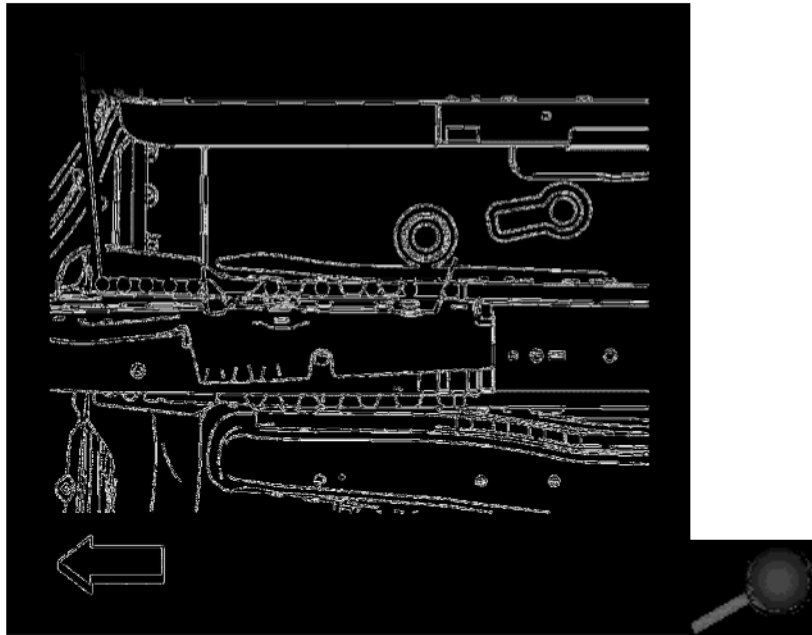
8. Weld the rail extension panel to front rail assembly spot welds (1).



9. Weld the rail inner to reinforcement front compartment panel assembly spot welds (1).



10. Weld the rail inner to number 1 bar, panel front wheelhouse rear and housing front suspension strut panel respective spot welds (1).



11. Weld the rail outer to reinforcement front compartment panel assembly spot welds (1).



12. Weld the outrigger panel to front rail outer and floor assemblies spot welds (1).







## Front Compartment Side Rail Sectioning (at Strut Tower)

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Safety Glasses Warning](#).

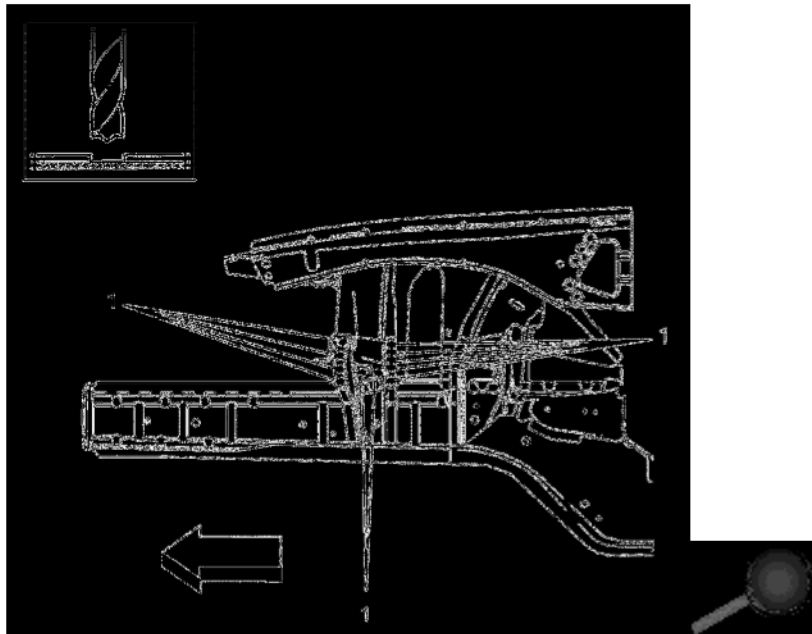
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

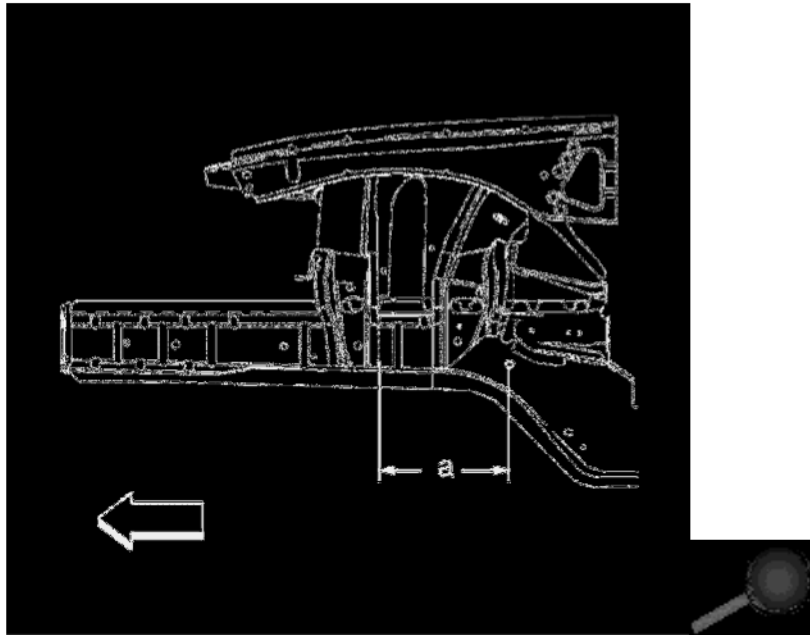
**Note:** Failure to follow the instructions may lead to improper rail sectioning, which may compromise the structural integrity of the vehicle.

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#) in SIR.
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
4. Remove the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
5. Remove the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
6. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
7. Remove the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
8. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
9. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
10. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
11. Lower the vehicle.
12. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#), [Front Brake Pipe Replacement - Left Side](#) or [Rear Brake Front Pipe Replacement](#).
13. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).

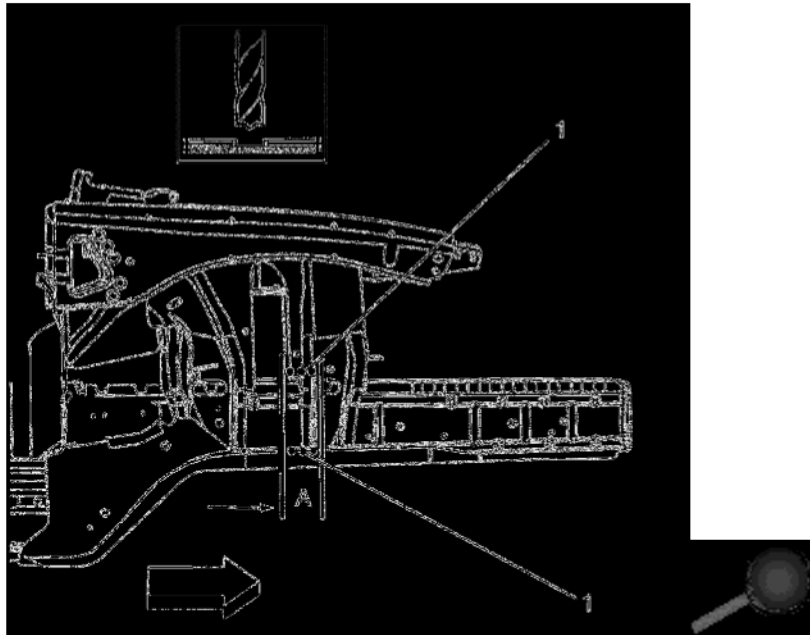
14. Remove the fender assembly. Refer to [Front Fender Replacement](#).
15. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
16. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
17. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
18. Remove the plenum chamber. Refer to [Air Cleaner Assembly Replacement](#) (LFW, LFX, or LWR) or [Air Cleaner Assembly Replacement](#) (L77, LSA or LS3).
19. Remove the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).
20. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
21. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
22. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



23. Locate, mark and drill out the front wheelhouse brace to front wheelhouse assembly spot welds (1).



24. Measure forward from the center of the 16 mm datum hole to cut point 260 mm (10.24 in) (A).
25. Using a suitable tool cut through the inner and outer rail at the measurement point.
26. Remove the front section of the front chassis rail and discard.  
Discard the front section of the front chassis rail.

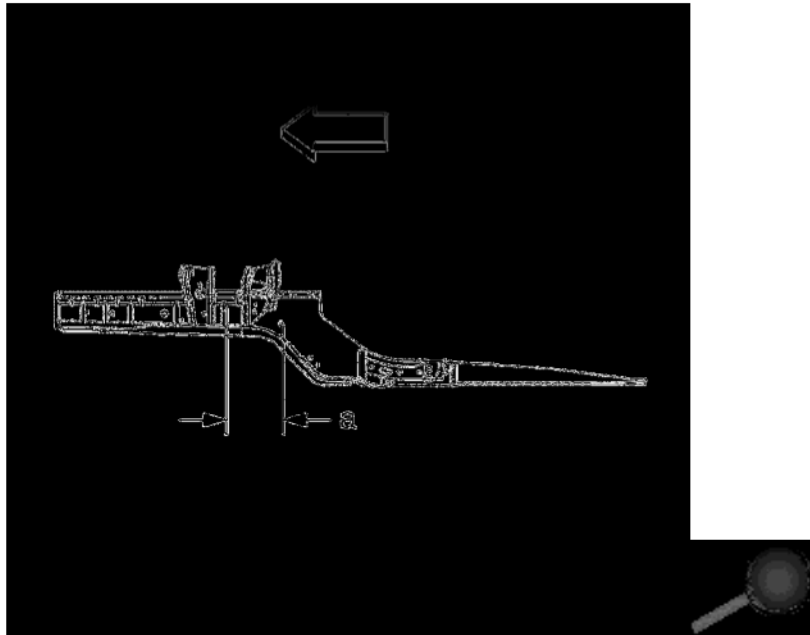


27. Measure rearward from the first cut point 50 mm (1.97 in) (A).
28. Locate, mark and drill out the spot welds (1) from the inner front chassis rail to the outer front chassis rail within the measurement made.
- Note:** Only cut the outer part of the front chassis rail to stagger the front chassis rail.
29. Using a suitable tool cut along the second cut point (A) on the outer front chassis rail and discard.  
Discard the outer section of the front chassis rail.

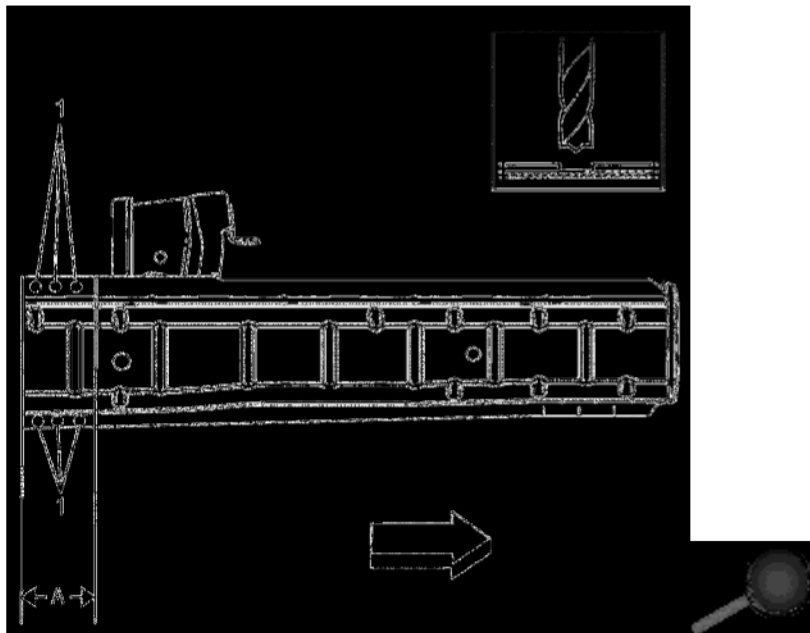
### Installation Procedure

#### **Note:**

- Spot welding is the preferred method for attaching panels and should be used wherever possible. A plug weld should be performed where your spot welder is unable reach.
  - If the location of the original plug weld holes can not be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.
  2. Clean and prepare the mating surfaces of both parts of the front chassis rail.



3. In order to create the rail section service part, cut the full rail service part at 210 mm (8.27 in) (A) forward from the center of the 16 mm datum hole.

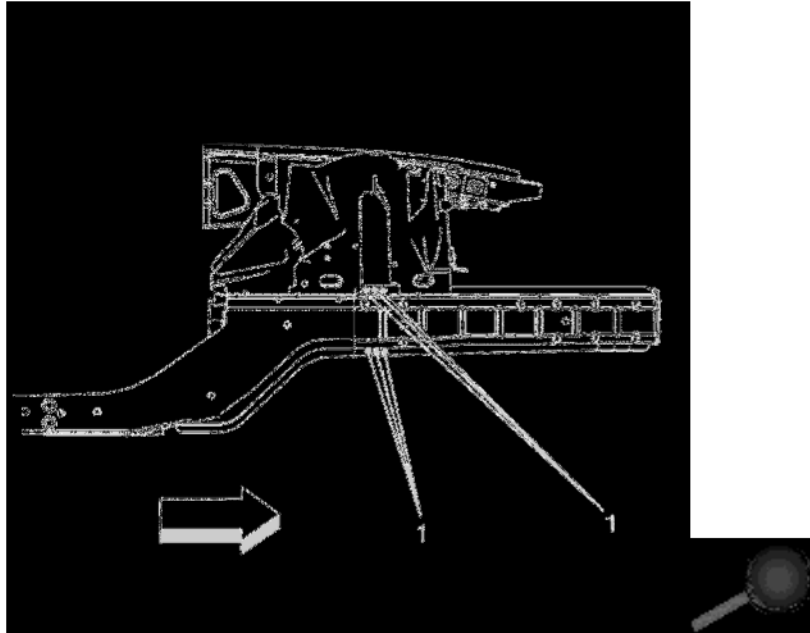


4. Measure forward from the first cut point 50 mm (1.97 in) (A) on the inner front chassis rail.

5. Locate, mark and drill out the spot welds (1) from the inner front chassis rail to the outer front chassis rail within the measurement made.

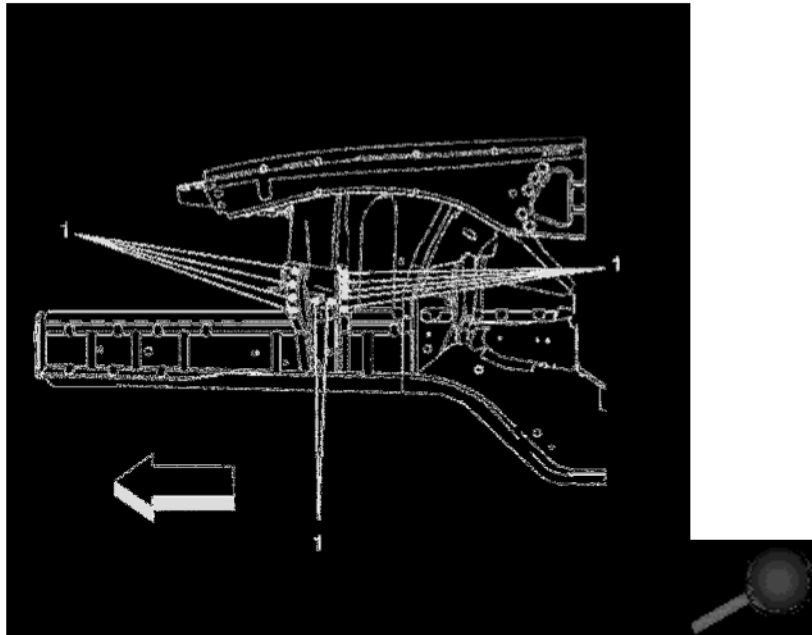
**Note:** Only cut the inner part of the front chassis rail to stagger the front chassis rail.

6. Cut along the second cut point (A) on the inner front chassis rail and discard.  
Discard the inner section of the front chassis rail.
7. Clean and prepare the mating surfaces of both parts of the front chassis rail.

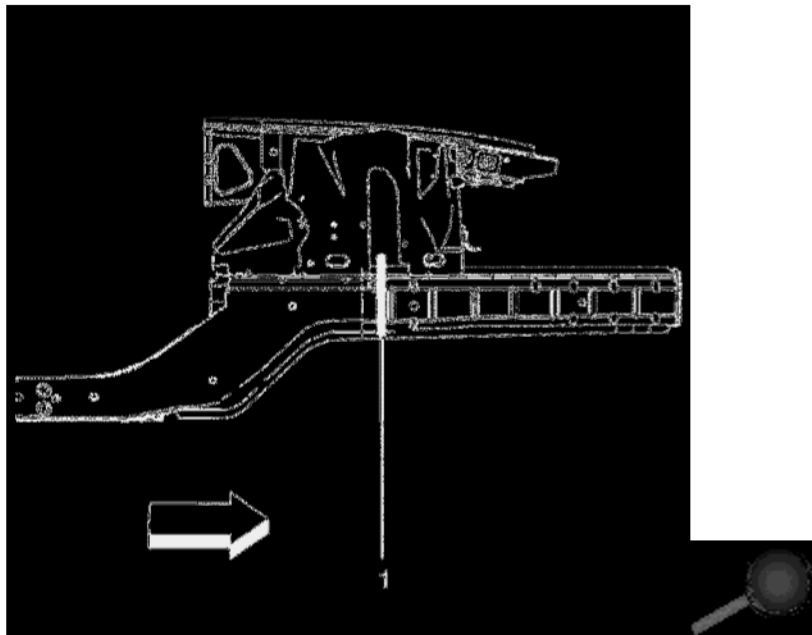


8. Position the front section of the front chassis rail to the remaining front chassis rail.
9. Weld the top and bottom(1) edges of the front chassis rail.



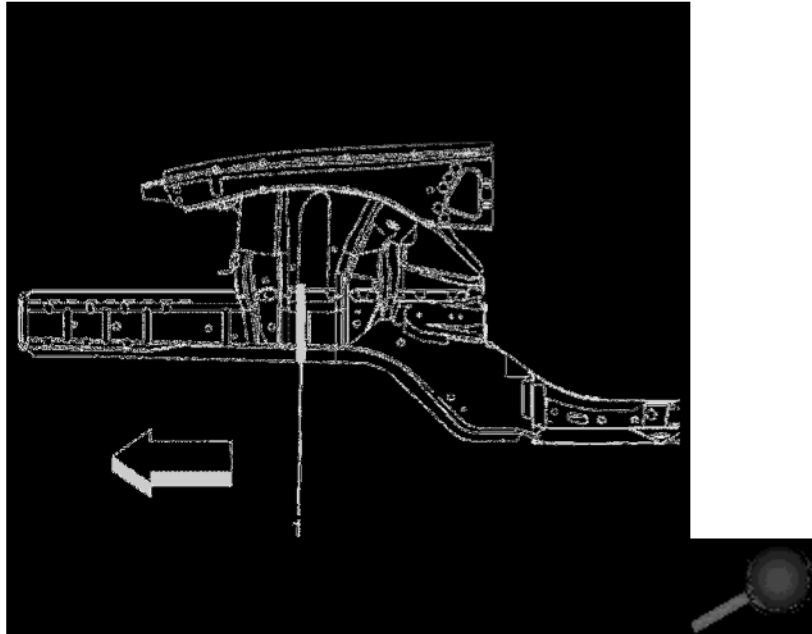


10. Weld (1) the front wheelhouse brace to front wheelhouse assembly.



**Note:** Care must be taken to minimise the heat absorbed by the panel which could lead to panel distortion.

11. Seam weld (1) the inner front portion of the chassis rail to the remaining front chassis rail.



12. Seam weld (1) the outer front portion of the chassis rail to the remaining front chassis rail.

13. Clean and prepare all of the welded surfaces.

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 the brake master cylinder. Refer to [Master Cylinder Replacement](#).

17. Install the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).

18. If re-programming is required. Refer to [Control Module References](#).

19. Install the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).

20. Install the plenum chamber. Refer to [Air Cleaner Assembly Replacement](#) (LFW, LFX, or LWR) or [Air Cleaner Assembly Replacement](#) (L77, LSA or LS3).

21. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).

22. Install the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).

23. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).

24. Install the fender assembly. Refer to [Front Fender Replacement](#).

25. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#).

26. Install the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#), [Front Brake Pipe Replacement - Left Side](#) or [Rear Brake Front Pipe Replacement](#).
27. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
28. Install the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
29. Install the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
30. Install the front wheel house liner. Refer to [Front Wheelhouse Liner Replacement](#).
31. Install the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
32. Lower the vehicle.
33. Install the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
34. Install the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
35. Install the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#)
36. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
37. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
38. If re-programming is required. Refer to [Control Module References](#).

## Front Compartment Side Rail Sectioning (Forward of Strut Tower)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

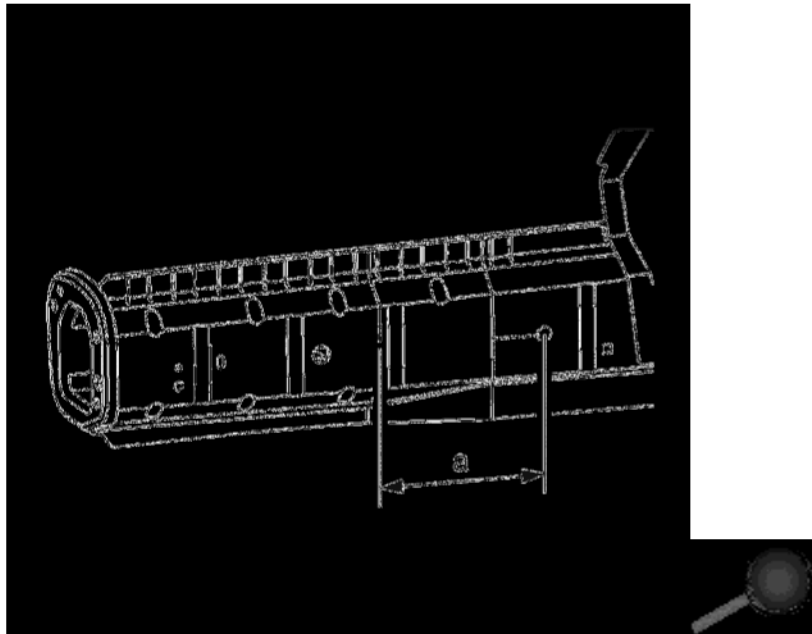
**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Note:**

- This sectioning procedure is for repairing the front compartment rail assembly when damage is limited to the front 250 mm of the rail.
- Failure to follow the instructions may lead to improper rail sectioning, which may compromise the structural integrity of the vehicle.

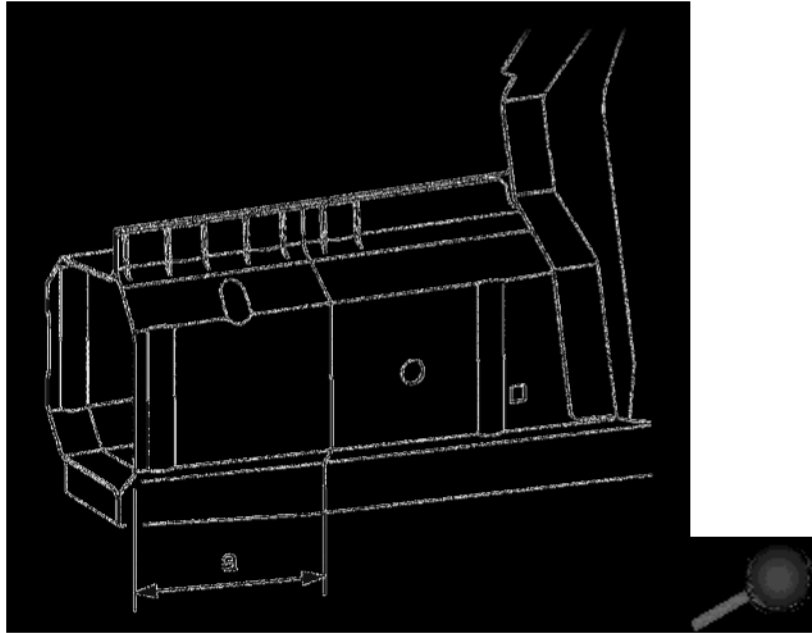
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#) in SIR.
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
4. Remove the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
5. Remove the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
6. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
7. Remove the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
8. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
9. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
10. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
11. Lower the vehicle.

12. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#), [Front Brake Pipe Replacement - Left Side](#) or [Rear Brake Front Pipe Replacement](#).
13. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).
14. Remove the fender assembly. Refer to [Front Fender Replacement](#).
15. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
16. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
17. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
18. Remove the plenum chamber. Refer to [Air Cleaner Assembly Replacement](#) (LFW, LFX, or LWR) or [Air Cleaner Assembly Replacement](#) (L77, LSA or LS3).
19. Remove the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).
20. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
21. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
22. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

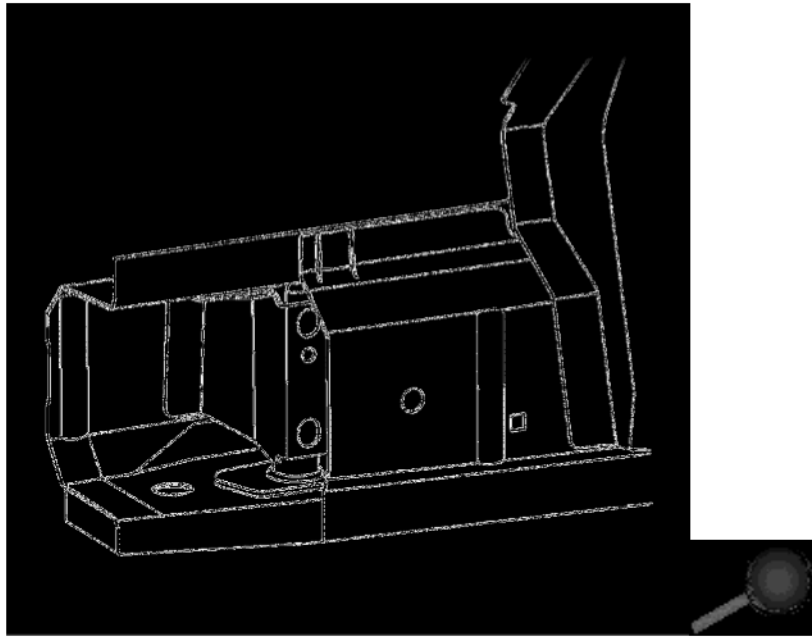


23. Measure forward from the center of the 13 mm hole to cut point 162 mm (6.37 in) (A) on the outer rail.
24. Using a suitable tool cut through the inner and outer rail at the measurement point.

25. Remove the front section of the front chassis rail and discard.  
Discard the front outer section of the front chassis rail.



26. Measure rearward from the first cut point 112 mm (4.41 in) (A) on the outer rail.



27. Locate, mark and drill out the rail inner to rail outer assembly spot welds between the first cut point and the rail outer measurement location.

**Note:** Only cut the outer part of the front chassis rail to stagger the front chassis rail.

28. Using a suitable tool, cut through only the outer rail at the measurement point.

29. Remove the front outer section of the front chassis rail and discard.

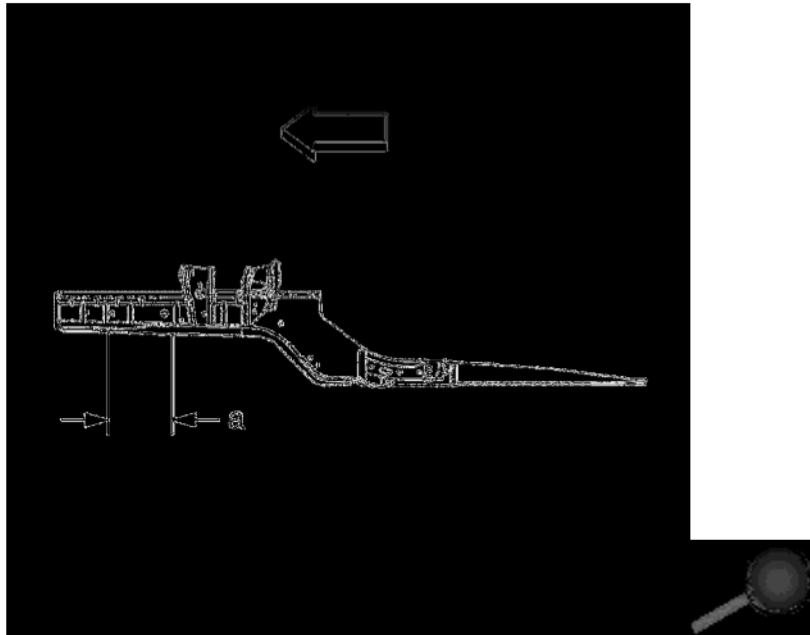
Discard the front outer section of the front chassis rail.

### Installation Procedure

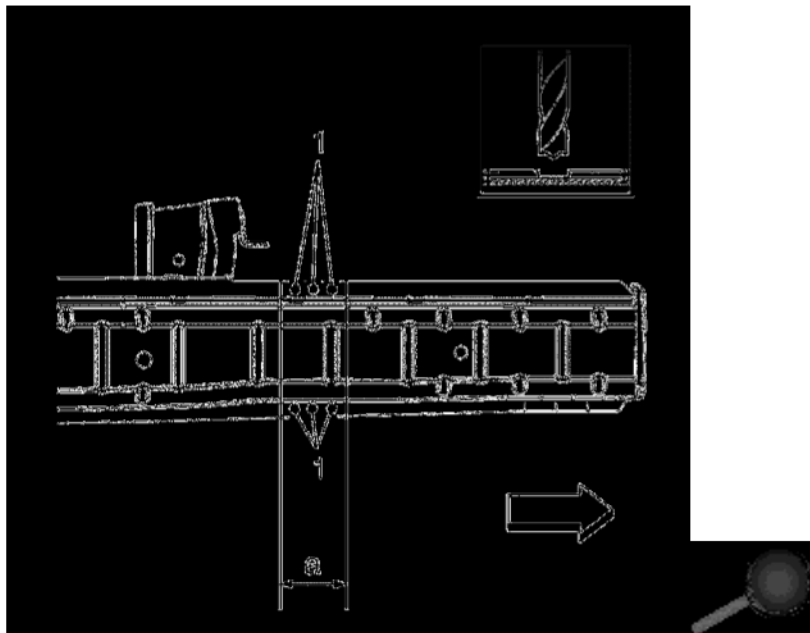
**Note:**

- Spot welding is the preferred method for attaching panels and should be used wherever possible. A plug weld should be performed where your spot welder is unable reach.
- If the location of the original plug weld holes can not be determined, space the plug weld holes every 32 mm (1¼ in).

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.
2. Clean and prepare the mating surfaces of both parts of the front chassis rail.



3. In order to create the rail section service part, cut the full rail service part at 50 mm (1.97 in) (A) forward from the center of the 13 mm datum hole.



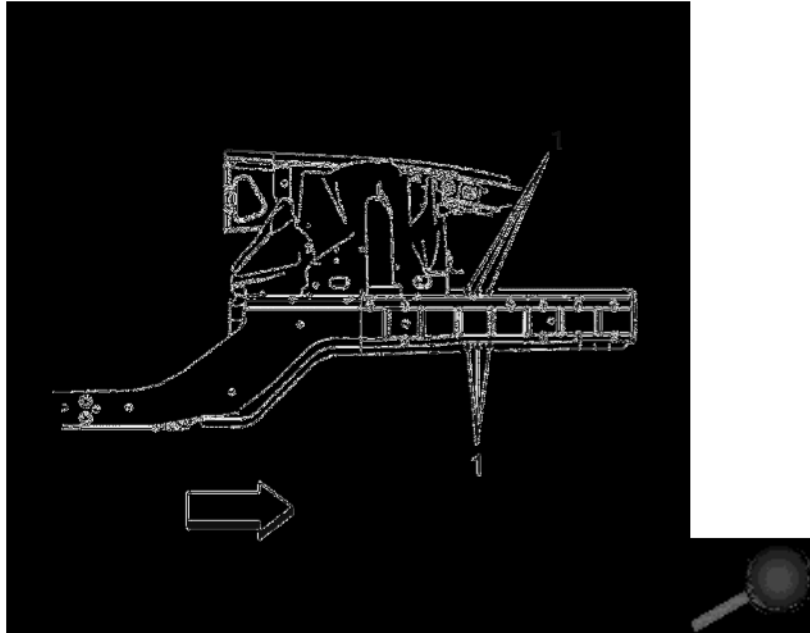
4. Measure forward from the first cut point 112 mm (4.41 in) (A) on the inner front chassis rail.



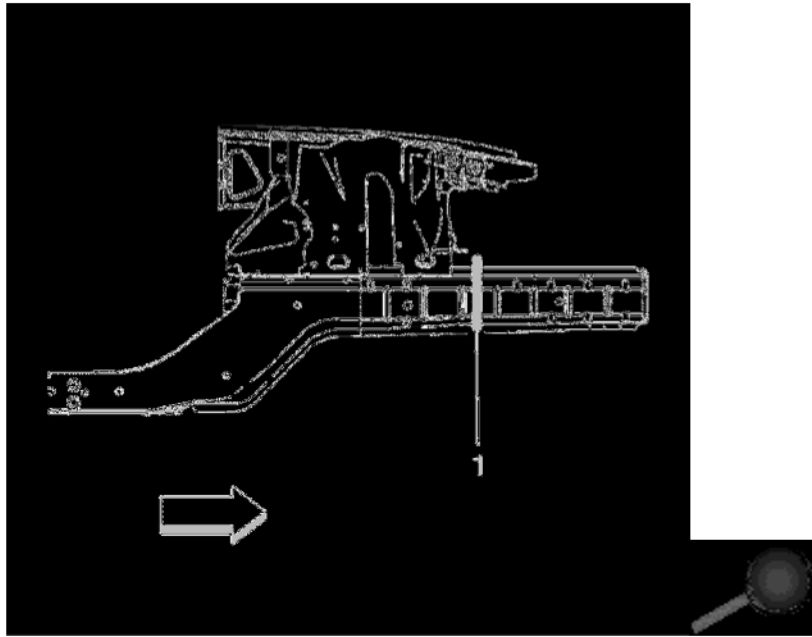
5. Locate, mark and drill out the spot welds (1) from the inner front chassis rail to the outer front chassis rail within the measurement made.

**Note:** Only cut the inner part of the front chassis rail to stagger the front chassis rail.

6. Cut along the second cut point (A) on the inner front chassis rail and discard.  
Discard the inner section of the front chassis rail.
7. Clean and prepare the mating surfaces of both parts of the front chassis rail.

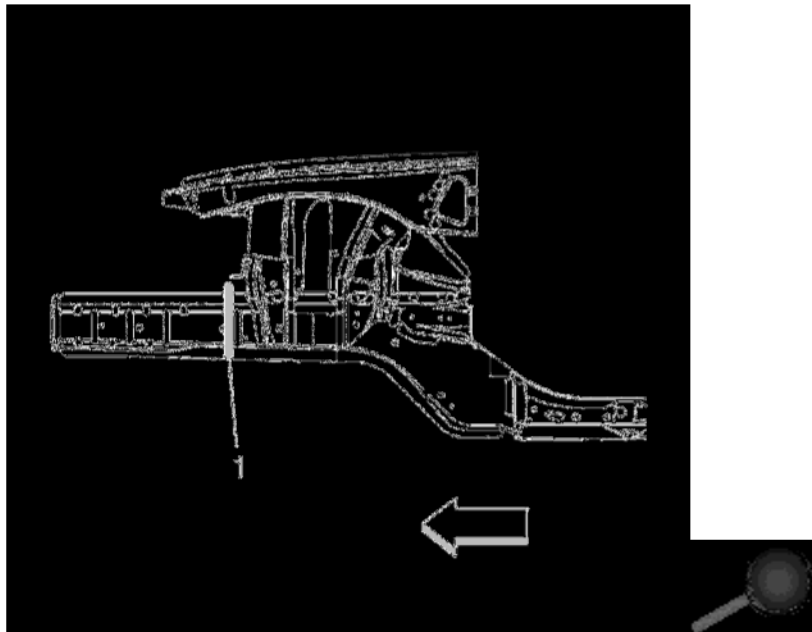


8. Position the front section of the front chassis rail to the remaining front chassis rail.
9. Weld the top and bottom(1) edges of the front chassis rail.



**Note:** Care must be taken to minimise the heat absorbed by the panel which could lead to panel distortion.

10. Seam weld (1) the inner front portion of the chassis rail to the remaining front chassis rail.



11. Seam weld (1) the outer front portion of the chassis rail to the remaining front chassis rail.
12. Clean and prepare all of the welded surfaces.
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 the brake master cylinder. Refer to [Master Cylinder Replacement](#).
16. Install the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
17. If re-programming is required. Refer to [Control Module References](#).
18. Install the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).
19. Install the plenum chamber. Refer to [Air Cleaner Assembly Replacement](#) (LFW, LFX, or LWR) or [Air Cleaner Assembly Replacement](#) (L77, LSA or LS3).
20. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
21. Install the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
22. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
23. Install the fender assembly. Refer to [Front Fender Replacement](#).
24. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#).
25. Install the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#), [Front Brake Pipe Replacement - Left Side](#) or [Rear Brake Front Pipe Replacement](#).
26. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
27. Install the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
28. Install the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
29. Install the front wheel house liner. Refer to [Front Wheelhouse Liner Replacement](#).
30. Install the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
31. Lower the vehicle.
32. Install the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
33. Install the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
34. Install the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
35. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
36. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
37. If re-programming is required. Refer to [Control Module References](#).

## Front Hinge Pillar Body Sectioning

### [Removal Procedure](#)

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

**Note:**

- Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.
- Refer to [Ultra High Strength Steel](#).

The body side outer panels are available in one-piece side frames. You can perform any one of these replacement procedures separately or in any combination, depending upon the extent of damage to the vehicle. Sectioning must take place in specified areas only. Stay away from the door and window opening radius areas. Perform sectioning only in straight areas of the openings.

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

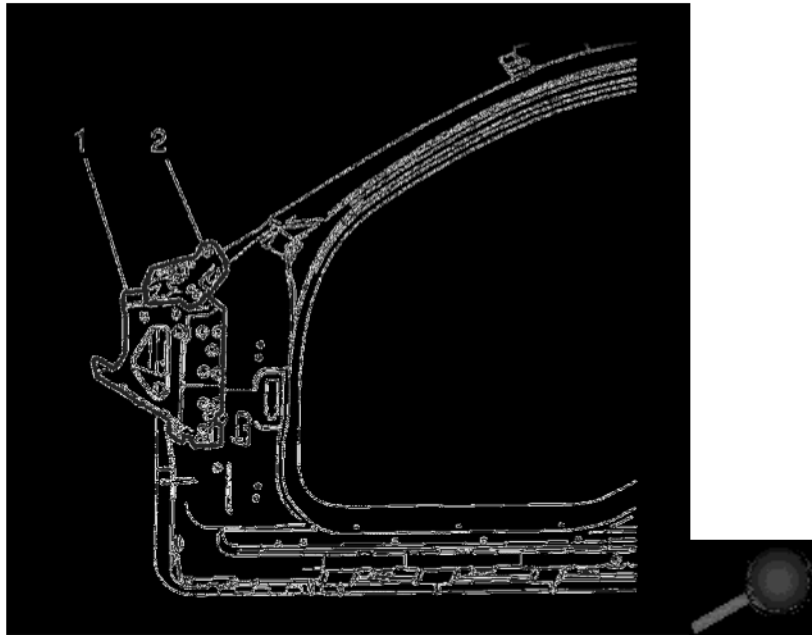
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

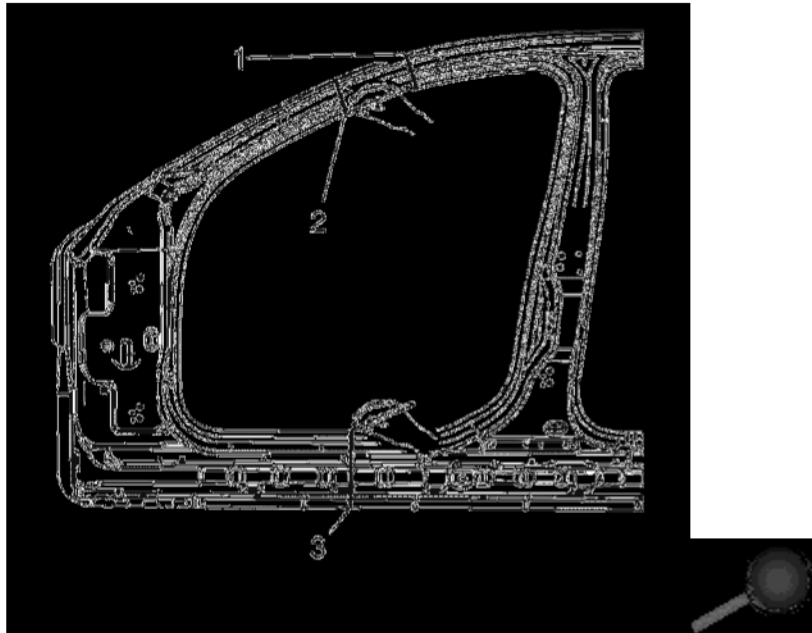
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

**Note:** The fender brackets are not included with the front hinge pillar body service part. Record the location of the fender brackets for proper installation after front hinge pillar body sectioning.

3. Remove all related panels and components.
4. Repair as much of the damaged area as possible. Refer to [Dimensions - Body](#).
5. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

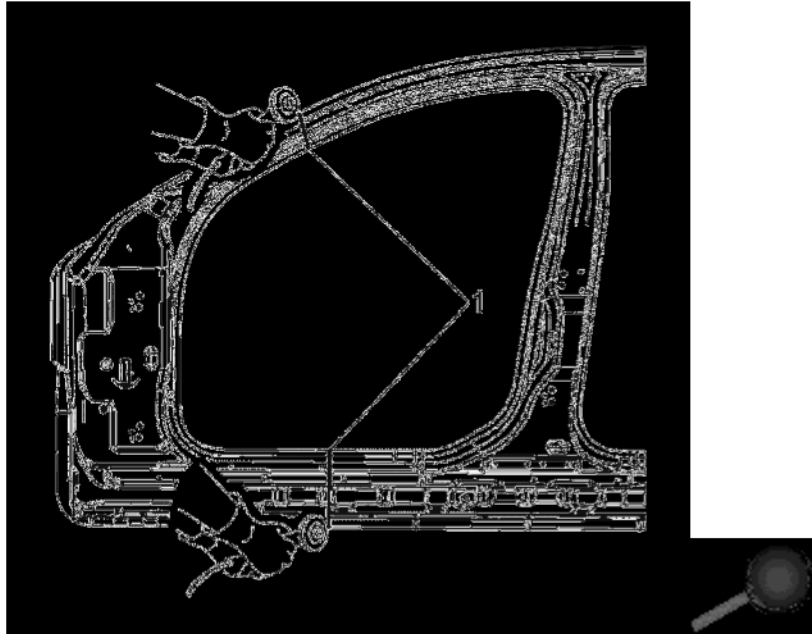


6. Drill out welds between front wheel house brace (1) and body side outer (2).

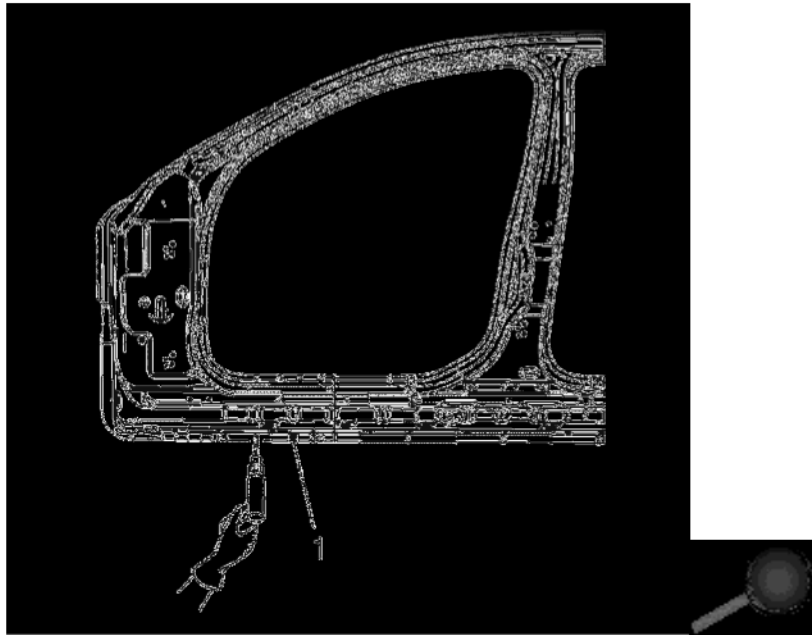


**Note:** Sectioning can be done anywhere in the straight area along the rocker panel.

7. On the "A" pillar measure down 300 mm from the roof edge (1). Mark this cut location on the front hinge pillar (2). Mark a cut location in the straight area on the rocker panel (3).

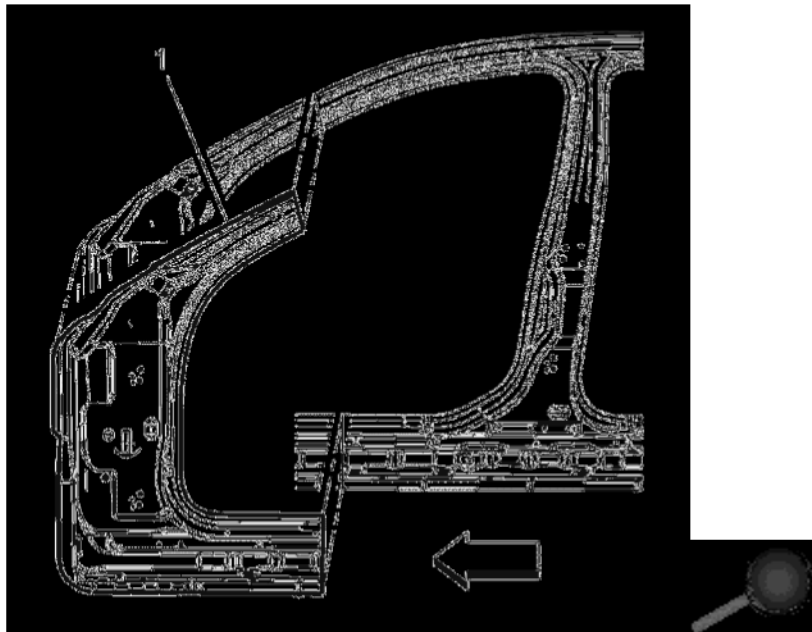


8. Cut the front hinge pillar body where sectioning is to be performed (1).
9. Locate and mark all the necessary factory welds of the front hinge pillar body.



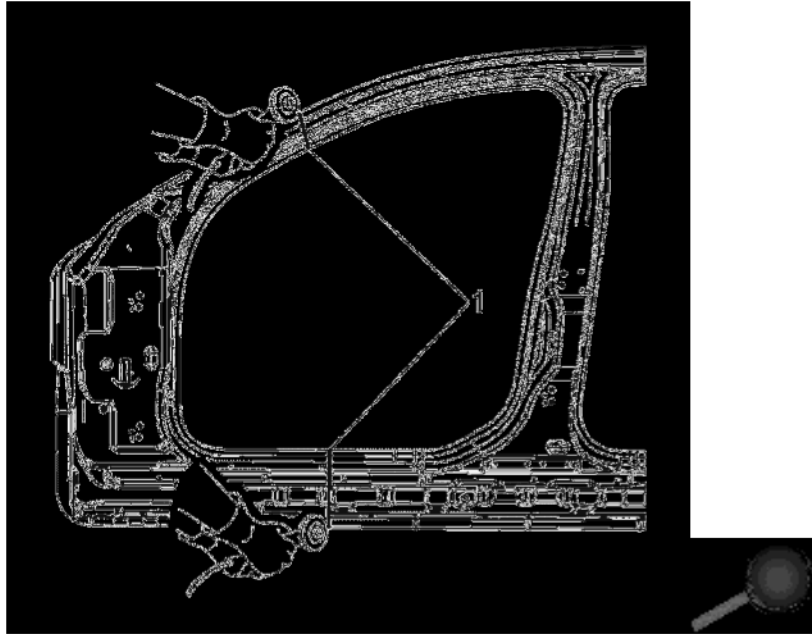
**Note:** Record the number and location of welds for installation of the service assembly.

10. Drill out all factory welds (1) the upper outer rail will need to be removed to locate 4 hidden welds on hinge pillar reinforcement.



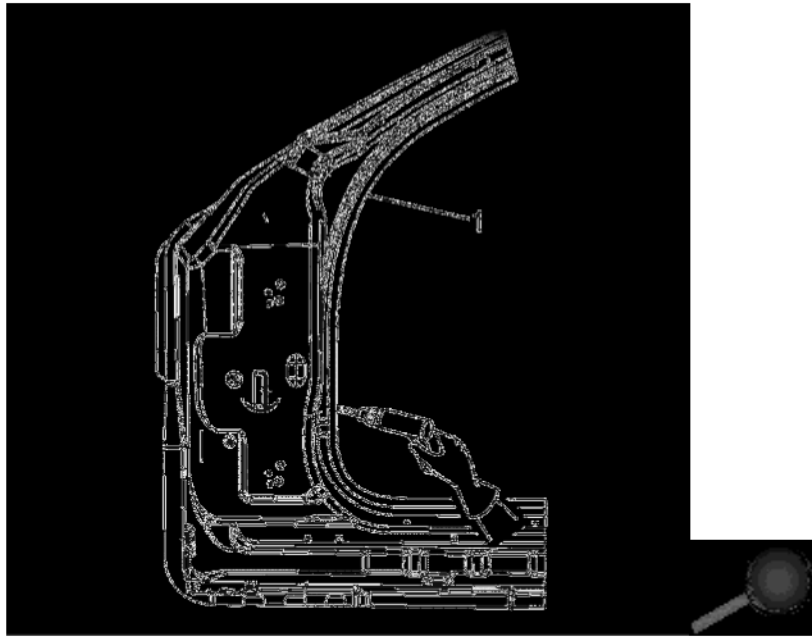
11. Remove the damaged front hinge pillar body (1).

#### Installation Procedure

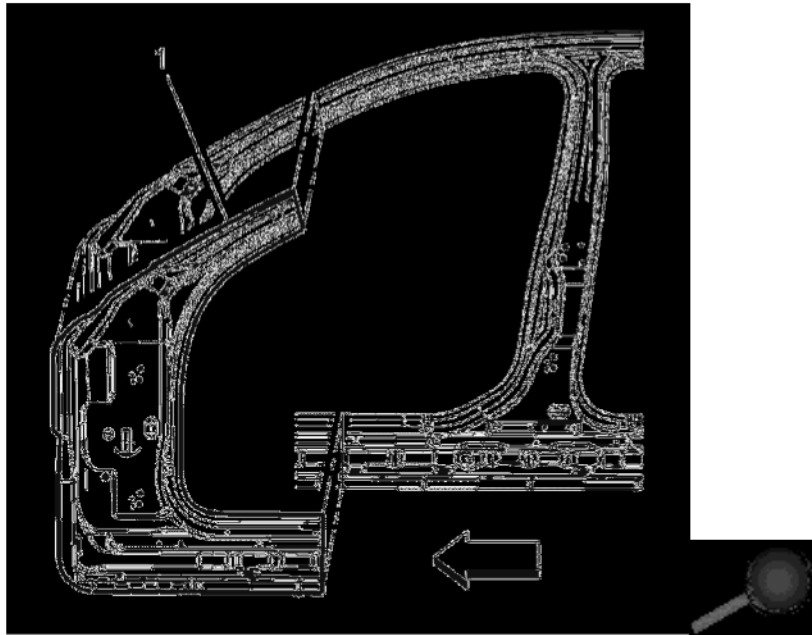


1. From the service part, cut the panel in corresponding locations to overlap the remaining original panel by 25 mm (1 in) at each joint location (1).

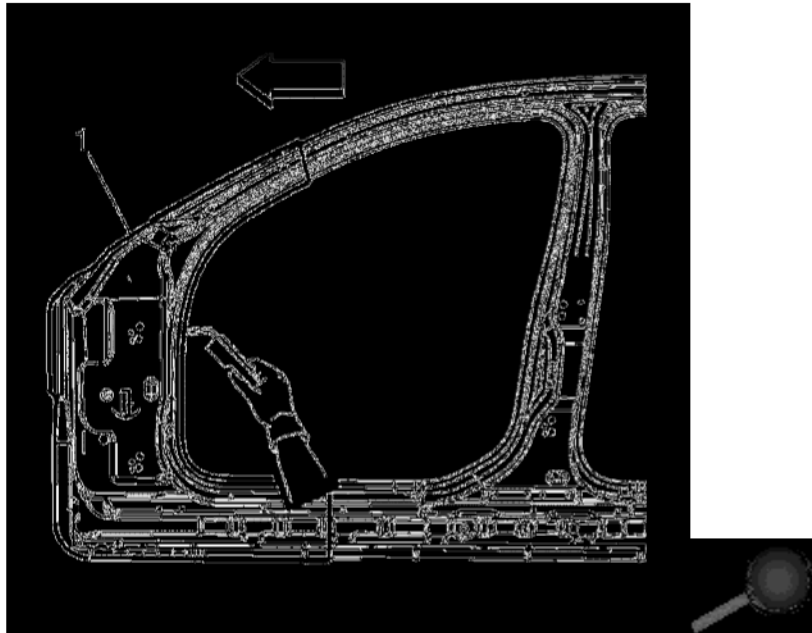




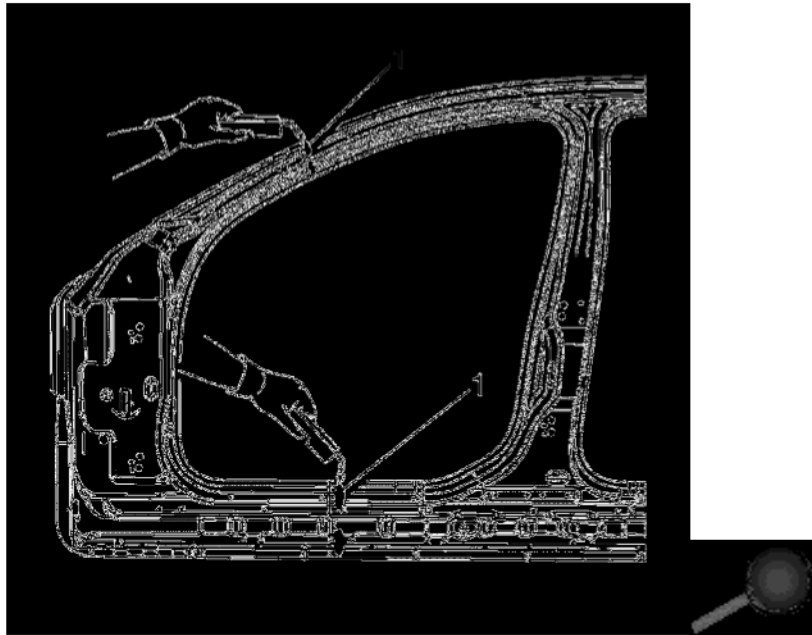
2. Drill 8 mm (5/16 in) plug weld holes in the service part (1), as necessary, in the corresponding locations noted on the original panel and along sectioned joint.
3. Prepare all mating surfaces as necessary.
4. Apply GM approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to [Anti-Corrosion Treatment and Repair](#).



5. Position the outer front pillar to the vehicle using 3-dimensional measuring equipment (1). Clamp the pillar in place.



6. Plug weld accordingly (1).



7. 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.  
**Note:** Fender brackets should be temporarily installed as previously recorded and outer panels should be checked for proper fit, prior to final welding of the brackets.
8. Clean and prepare all of the welded surfaces.
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 of the 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](#).

# Body Hinge Pillar Lower Reinforcement Replacement

## Removal Procedure

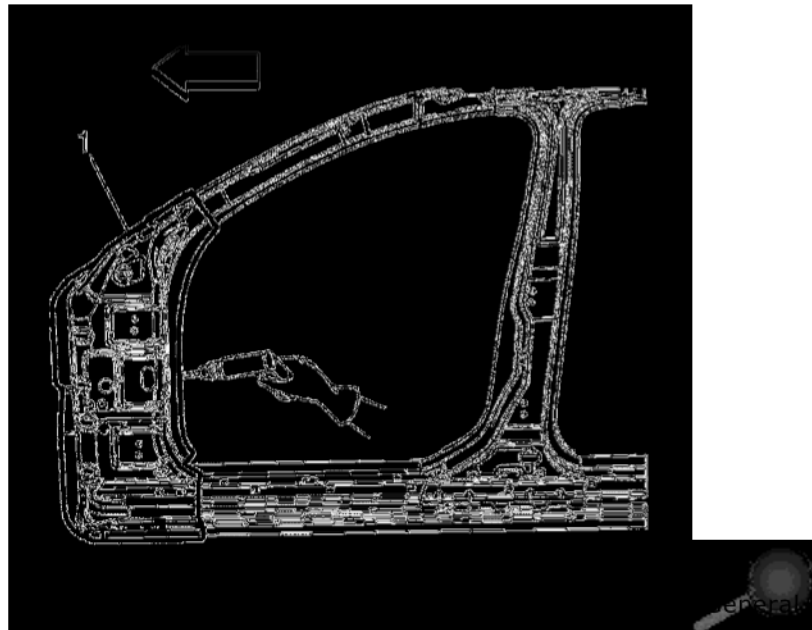
**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

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

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

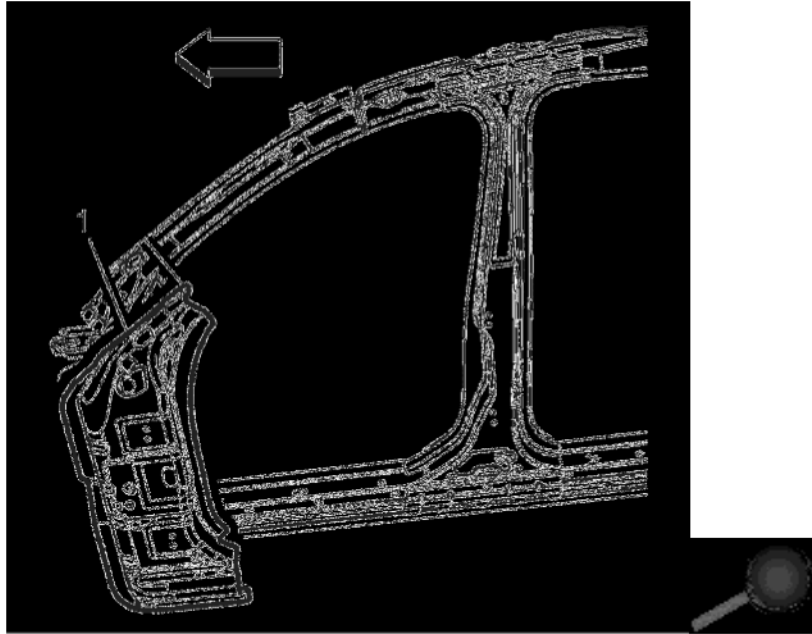
**Note:** Refer to [Ultra High Strength Steel](#).

1. Disable the SIR System. Refer to [SIR Disabling and Enabling](#).
2. Remove all related panels and components.
3. Visually inspect the damage. Repair as much of the damage as possible.
4. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
5. Section body side outer-hinge pillar area. Refer to [Front Hinge Pillar Body Sectioning](#).



General Motors. All rights reserved.

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

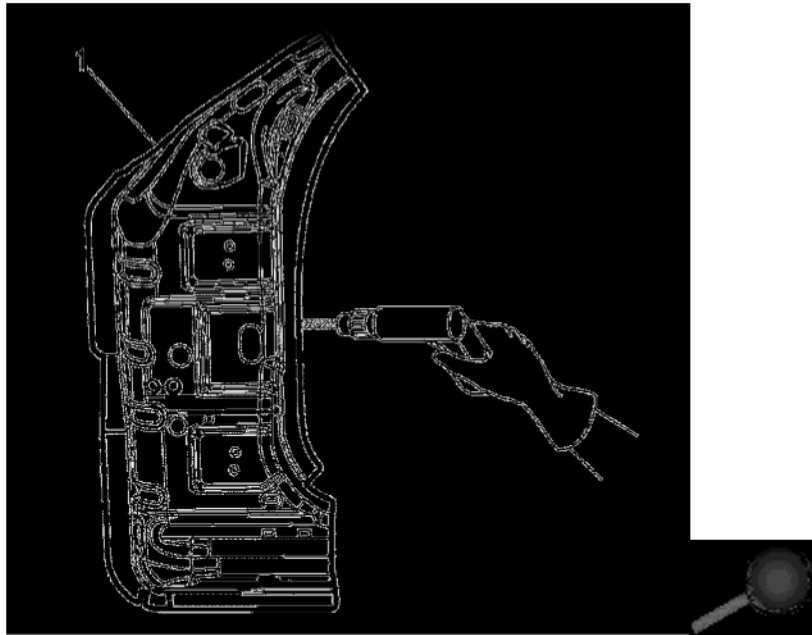


**Note:** The door hinge pillar reinforcements, check link reinforcement and expandable foam are not part of the body hinge pillar lower reinforcement service part. Record the location of the door hinge pillar reinforcements, check link reinforcement and expandable foam, for proper installation to the body hinge pillar lower reinforcement service part.

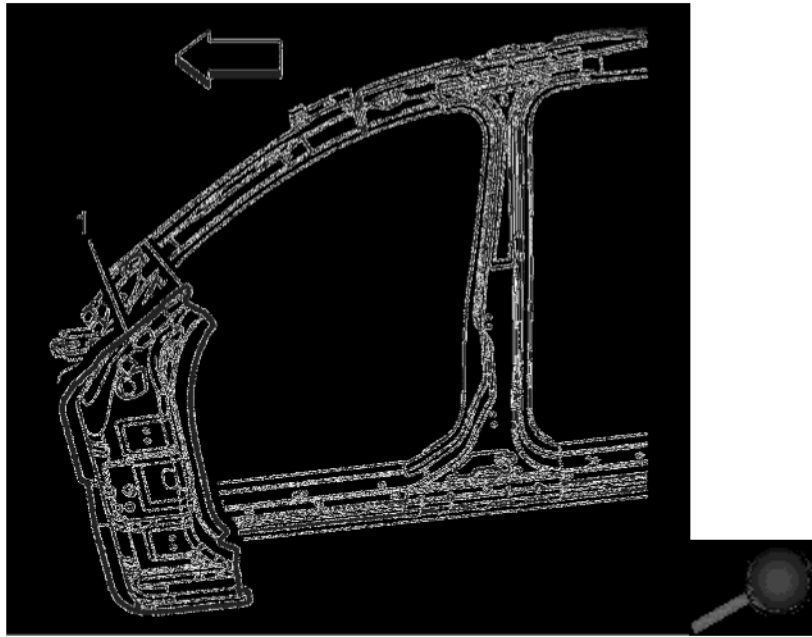
8. Remove the damaged body hinge pillar lower reinforcement (1).

### Installation Procedure

1. Prepare all mating surfaces as necessary.

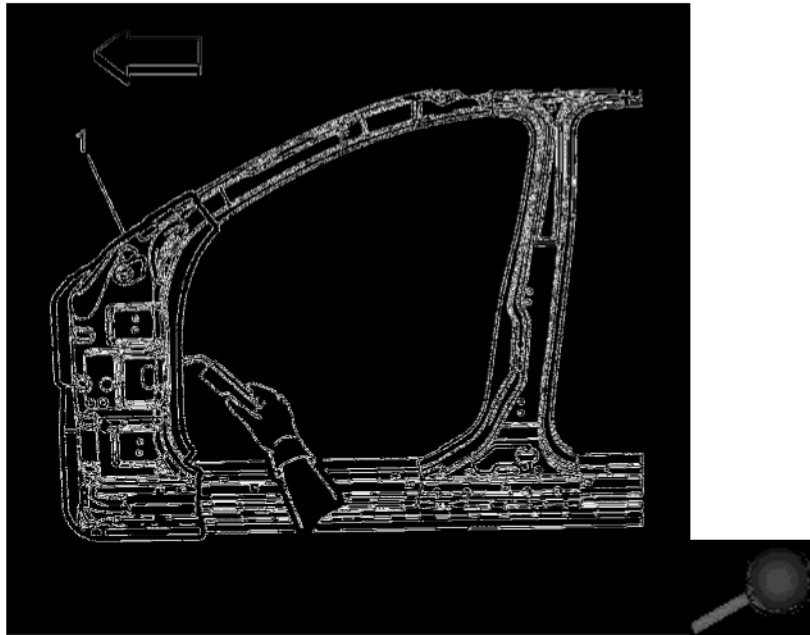


2. Drill **8 mm (5/16 in)** for plug welding along the edges of the body hinge pillar lower reinforcement (1) as noted from the original panel.
3. Clean and prepare the attaching surfaces for welding.



**Note:** Body hinge pillar reinforcements and check link reinforcement will need to be welded to the service part in the locations previously recorded, prior to the installation of the body hinge pillar lower reinforcement.

4. Position the body hinge pillar lower reinforcement (1) on the vehicle.
5. Verify the fit of the body hinge pillar lower reinforcement.
6. Clamp the body hinge pillar lower reinforcement into position.



7. Plug weld the body hinge pillar lower reinforcement (1) accordingly.

**Note:** Expandable foam will need to be added to the body hinge pillar reinforcement in the location previously recorded.

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

9. Install the bodyside outer hinge pillar section. Refer to [Front Hinge Pillar Body Sectioning](#).

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

11. Install all related panels and components.

12. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).



## Roof Front Header Panel Replacement (Sedan)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

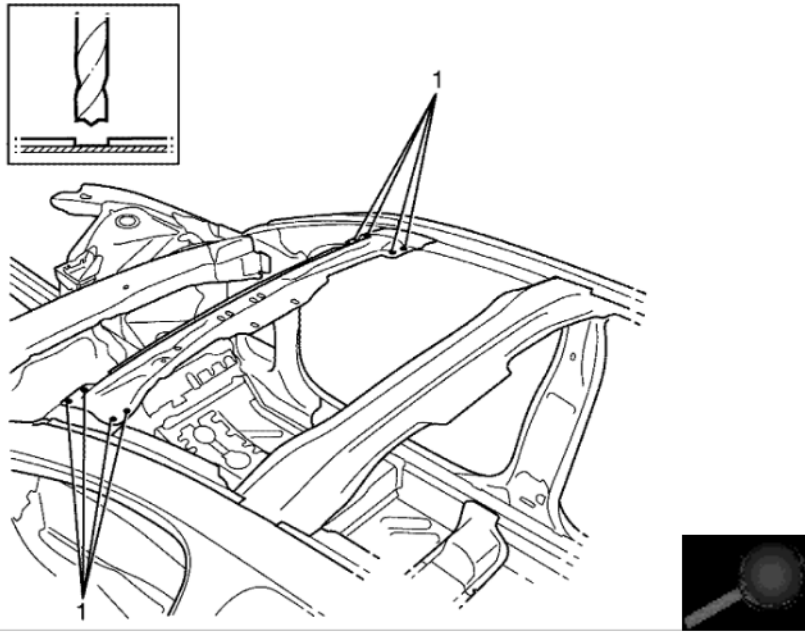
**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Note:** Refer to [Ultra High Strength Steel](#).

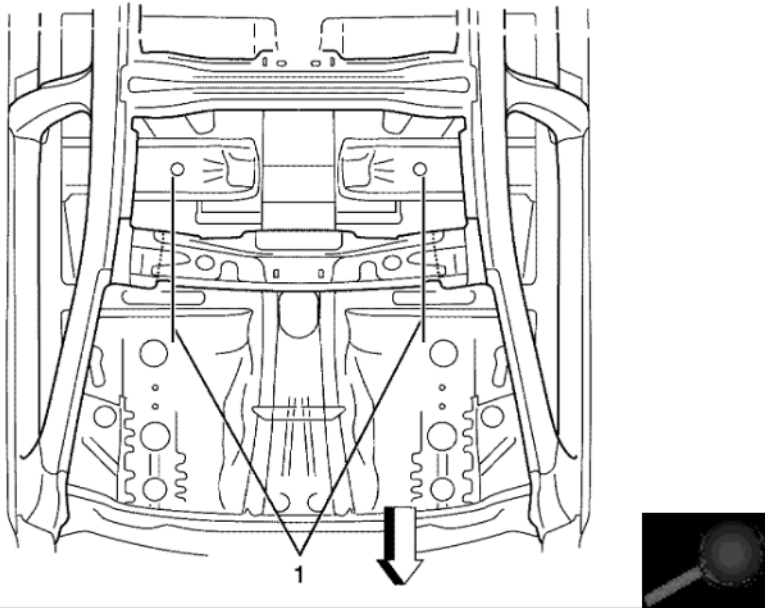
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
- Warning:** Refer to [Battery Disconnect Warning](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
5. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
6. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
7. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
8. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
9. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
10. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
11. Remove the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
12. Remove the windshield. Refer to [Windshield Replacement](#).
13. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
14. Remove the roof panel. Refer to [Roof Panel Replacement](#).
15. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:**

- The roof front header panel is attached to the upper body sides with beads of adhesive and spot-welds at each end.
- Note the number and location of factory welds (1) for installation of the new roof front header panel.
- Do not damage any other panels or reinforcements.

16. Locate, mark and drill out the factory welds (1) attaching the roof front header panel to the upper body side.



17. Mark a cut line (1) on the front roof bow panel inboard of the body side assembly.

**Note:** Cut through the roof header panel only. Do not damage any other panels or reinforcements.

18. Using a suitable tool, cut through the roof front header panel (1) inboard of the upper body side. Remove the centre portion of the roof front header panel from the vehicle and discard.

19. Using a suitable tool remove the remaining end portions of the front roof header panel from the upper body side. Ensure all traces of old adhesive are removed. Do not damage any other panels or reinforcements.

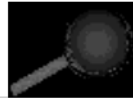
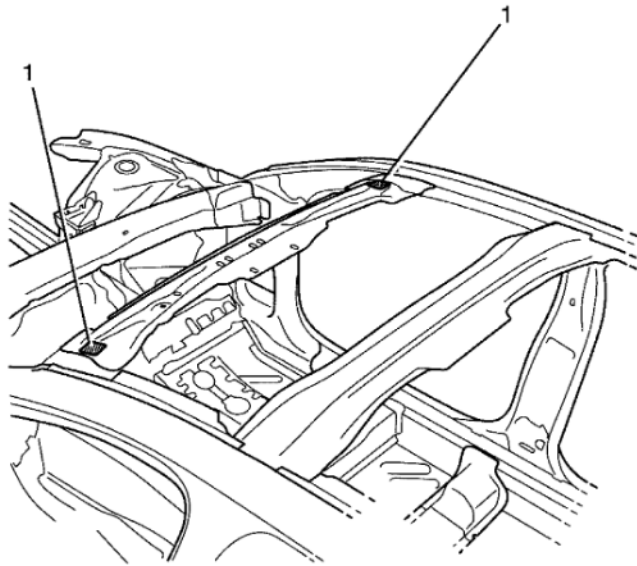
### Installation Procedure

**Note:**

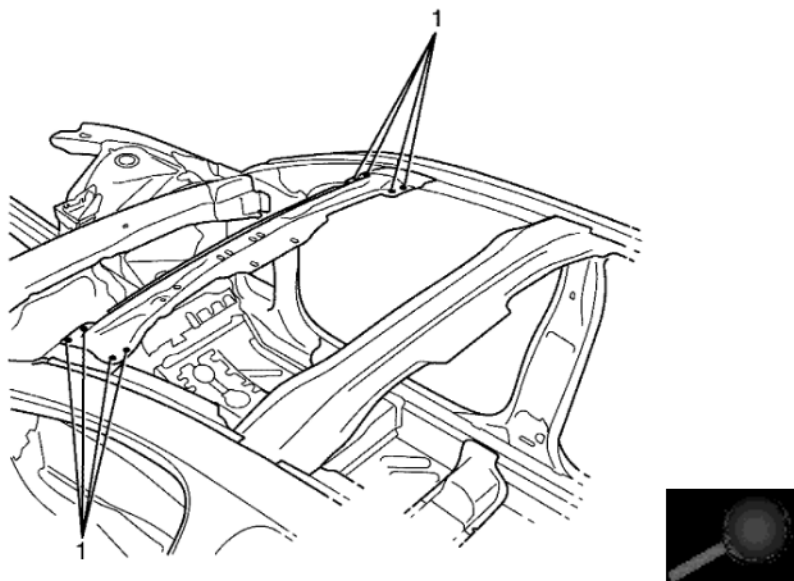
- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.

2. Clean and prepare the mating surfaces of the body side and the roof front header panel. Ensure all traces of old adhesive are removed.
3. Verify that the vehicle body structure alignment is correct. Refer to [Dimensions - Body](#).



4. Apply of approved structural adhesive (1) (GM6449G or equivalent) to the roof front header panel lower surface.  
**Note:** As the front roof header panel is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).
5. Position the roof front header panel to the body sides.
6. Align the front roof header panel using three dimensional measuring equipment. Refer to [Dimensions - Body](#).



7. Weld the front roof header panel to the body sides (1). Refer to [Ultra High Strength Steel](#).
8. Apply any sealers and anti-corrosion materials to the repair area noted on disassembly. Refer to [Anti-Corrosion Treatment and Repair](#).
9. Install the roof outer panel. Refer to [Roof Panel Replacement](#).
10. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
11. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
12. Install the windshield. Refer to [Windshield Replacement](#).
13. Install the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
14. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
15. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
16. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
17. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
18. Install the rear doors. Refer to [Rear Side Door Replacement](#).
19. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
20. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
21. Install the front doors. Refer to [Front Side Door Replacement](#).

22. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
23. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Roof Front Header Panel Replacement (Ute)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Safety Glasses Warning](#).

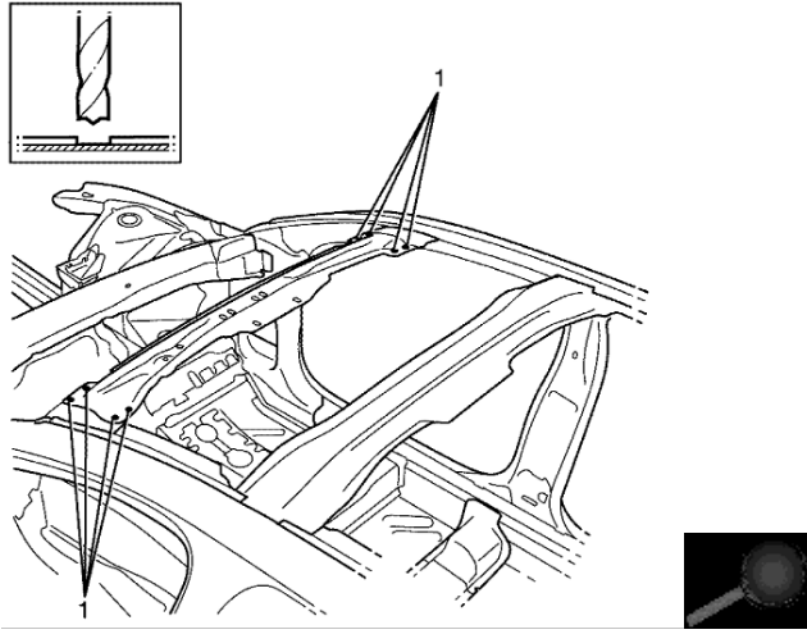
**Warning:** Refer to [SIR Warning](#).

**Note:** Refer to [Ultra High Strength Steel](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).  
**Warning:** Refer to [Battery Disconnect Warning](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
5. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
6. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
7. Remove the rear window shelf trim panel. Refer to [Rear Window Panel Trim Replacement](#).
8. Remove the remote function actuator. Refer to [Remote Control Door Lock Receiver Replacement](#).
9. Remove the positive battery cable from the vehicle. Refer to [Battery Positive Cable Replacement](#).
10. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
11. Remove the windshield pillar garnish. Refer to [Windshield Garnish Molding Replacement](#).
12. Remove the windshield. Refer to [Windshield Replacement](#).
13. Remove the rear window. Refer to [Rear Window Replacement](#).
14. Remove the rear header trim. Refer to [Rear Window Upper Reveal Molding Replacement](#).
15. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
16. Remove the rear body rail cover. Refer to [Pickup Box Cover Side Rail Replacement](#).



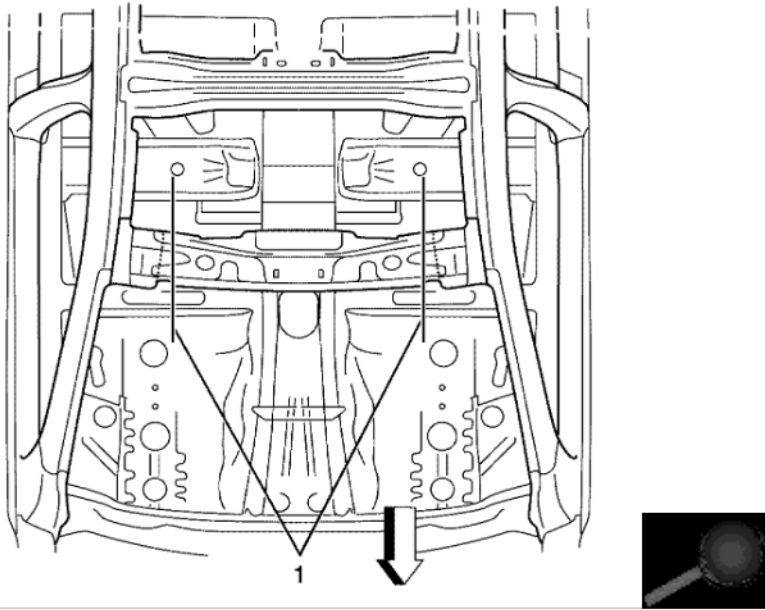
17. Remove the roof panel. Refer to [Roof Panel Replacement](#).
18. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:**

- The roof front header panel is attached to the upper body sides with beads of adhesive and spot-welds at each end.
  - Note the number and location of factory welds (1) for installation of the new roof front header panel.
  - Do not damage any other panels or reinforcements.
19. Locate, mark and drill out the factory welds (1) attaching the roof front header panel to the upper body side.





20. Mark a cut line (1) on the front roof bow panel inboard of the body side assembly.

**Note:** Cut through the roof header panel only. Do not damage any other panels or reinforcements.

21. Using a suitable tool, cut through the roof front header panel (1) inboard of the upper body side. Remove the centre portion of the roof front header panel from the vehicle and discard.
22. Using a suitable tool remove the remaining end portions of the front roof header panel from the upper body side. Ensure all traces of old adhesive are removed. Do not damage any other panels or reinforcements.

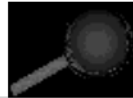
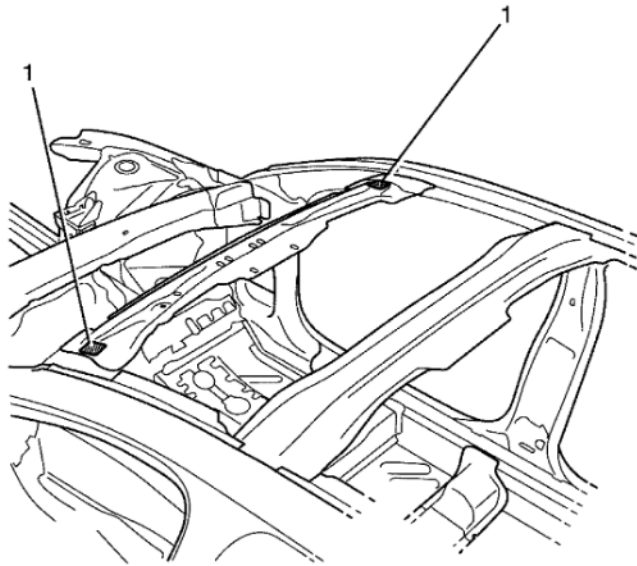
### Installation Procedure

**Note:**

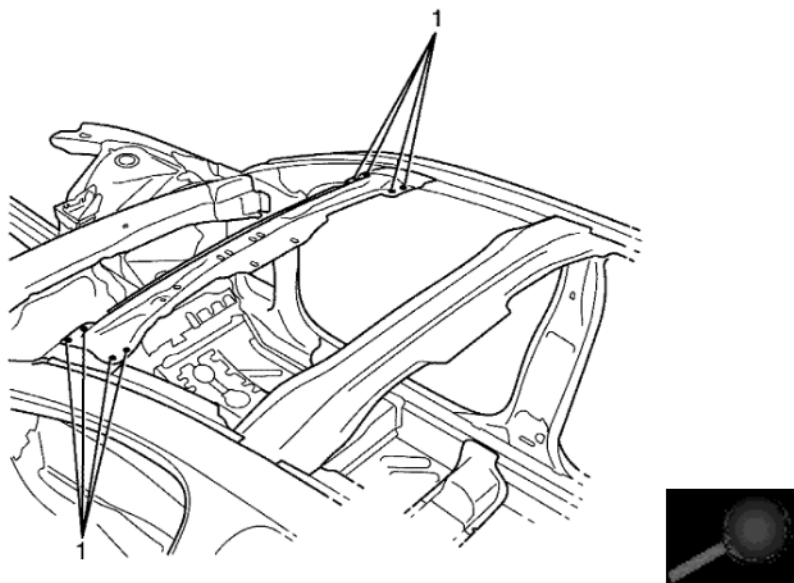
- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.

2. Clean and prepare the mating surfaces of the body side and the roof front header panel. Ensure all traces of old adhesive are removed.
3. Verify that the vehicle body structure alignment is correct. Refer to [Dimensions - Body](#).



4. Apply of approved structural adhesive (1) (GM6449G or equivalent) to the roof front header panel lower surface.  
**Note:** As the front roof header panel is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).
5. Position the roof front header panel to the body sides.
6. Align the front roof header panel using three dimensional measuring equipment. Refer to [Dimensions - Body](#).



7. Weld the front roof header panel to the body sides (1). Refer to [Ultra High Strength Steel](#).
8. Apply any sealers and anti-corrosion materials to the repair area noted on disassembly. Refer to [Anti-Corrosion Treatment and Repair](#).
9. Install the roof panel. Refer to [Roof Panel Replacement](#).
10. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
11. Install the rear body rail cover. Refer to [Pickup Box Cover Side Rail Replacement](#).
12. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
13. Install the rear header trim. Refer to [Rear Window Upper Reveal Molding Replacement](#).
14. Install the windshield. Refer to [Windshield Replacement](#).
15. Install the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
16. Install the rear window. Refer to [Rear Window Replacement](#).
17. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
18. Install the positive battery cable to the vehicle. Refer to [Battery Positive Cable Replacement](#).
19. Install the remote function actuator. Refer to [Remote Control Door Lock Receiver Replacement](#).
20. Install the rear window shelf trim panel. Refer to [Rear Window Panel Trim Replacement](#).
21. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).

22. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
23. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
24. Install the front doors. Refer to [Front Side Door Replacement](#).
25. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
26. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

## Roof Panel Bow Replacement (Front - Sedan)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Safety Glasses Warning](#).

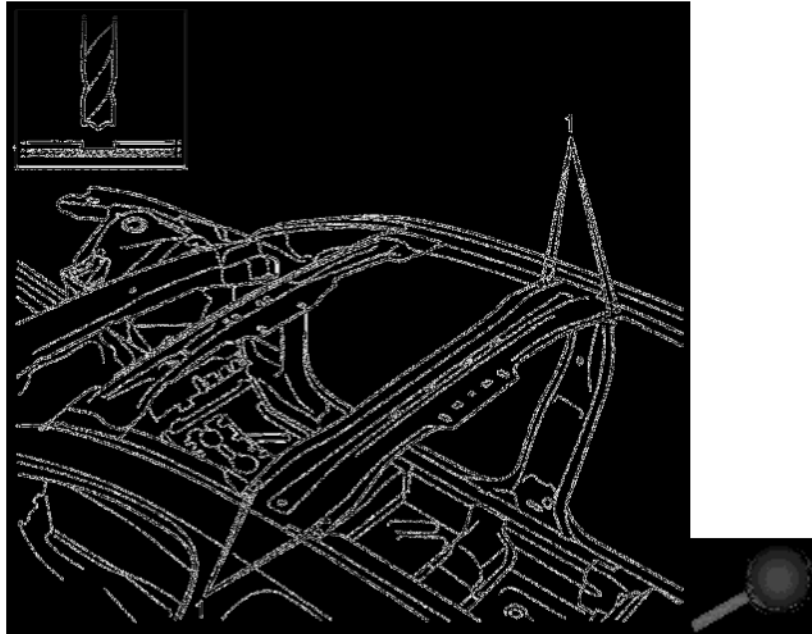
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Note:** Refer to [Ultra High Strength Steel](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
- Warning:** Refer to [Battery Disconnect Warning](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
5. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
6. Remove the front doors. Refer to [Front Side Door Replacement](#).
7. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
8. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
9. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
10. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
11. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
12. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
13. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
14. Remove the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
15. Remove the windshield. Refer to [Windshield Replacement](#).
16. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
17. Remove the roof panel. Refer to [Roof Panel Replacement](#).

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

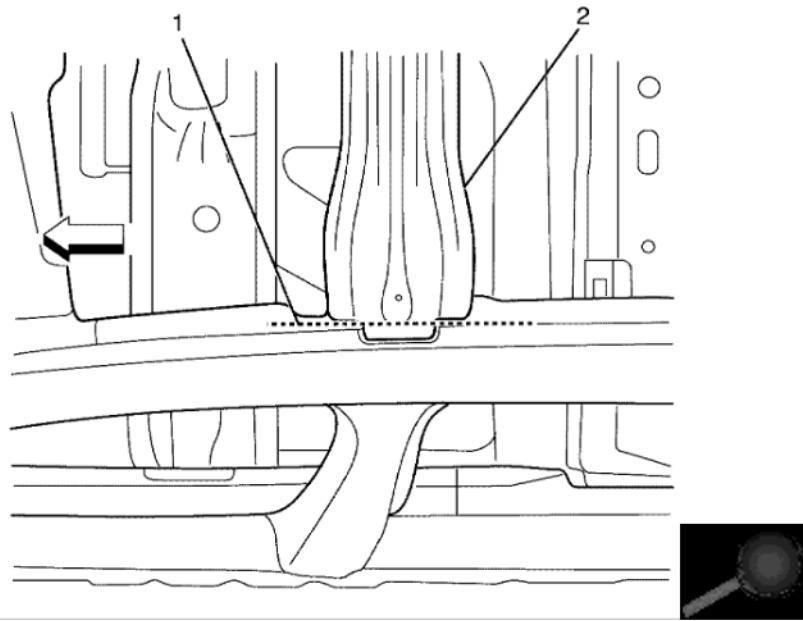
18. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary.



**Note:**

- Do not damage any inner panels or reinforcements.
- The front roof bow panel is attached to the upper body sides with beads of adhesive and spot-welds at each end.
- Note the number and location of factory welds for installation of the new front roof panel bow.

19. Locate, mark and drill out the factory welds (1) attaching the front roof panel bow to the body side.



20. Mark a cut line (1) on the front roof bow panel (2) inboard of the body side assembly.

**Note:** Cut through the front roof bow panel only. Do not damage any other panels or reinforcements.

21. Using a suitable tool, cut along the cut line (1) on the front roof bow panel (2).

22. Remove the centre portion of the front roof bow panel (2) from the vehicle.

23. Using a suitable tool, remove the remaining portions of the front roof bow panel from the vehicle. Ensure all traces of old adhesive are removed.

### Installation Procedure

**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.
- Secondary sealer must be applied to the perimeter of all flanges and over all joints.



1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of the body side and the front roof bow panel. Ensure all traces of old adhesive are removed.
3. Verify that the vehicle body structure alignment is correct. Refer to [Dimensions - Body](#).



4. Apply a 13 mm wide bead of approved structural adhesive (1) (GM6449G or equivalent) between the front roof bow and body side outer panel.
  5. Apply approved structural adhesive (2) (GM6449G or equivalent) between the front roof bow and the centre pillar upper reinforcement.
- Note:** As the front roof bow panel is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).
6. Install the front roof bow panel (1) to the body side.





7. Weld the front roof bow panel (1) to the body side. Refer to [Ultra High Strength Steel](#).
8. Apply any sealers and anti-corrosion materials to the repair area noted on disassembly. Refer to [Anti-Corrosion Treatment and Repair](#).
9. Install the roof outer panel. Refer to [Roof Panel Replacement](#).
10. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
11. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
12. Install the windshield. Refer to [Windshield Replacement](#).
13. Install the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
14. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
15. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
16. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
17. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
18. Install the rear doors. Refer to [Rear Side Door Replacement](#).
19. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
20. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
21. Install the front doors. Refer to [Front Side Door Replacement](#).

22. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
23. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Roof Panel Bow Replacement (Front - Sportwagon)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

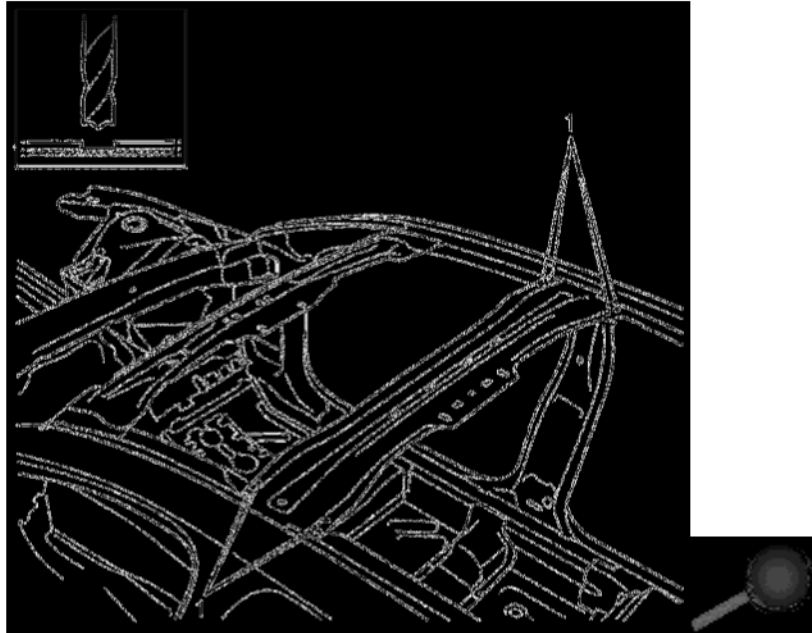
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

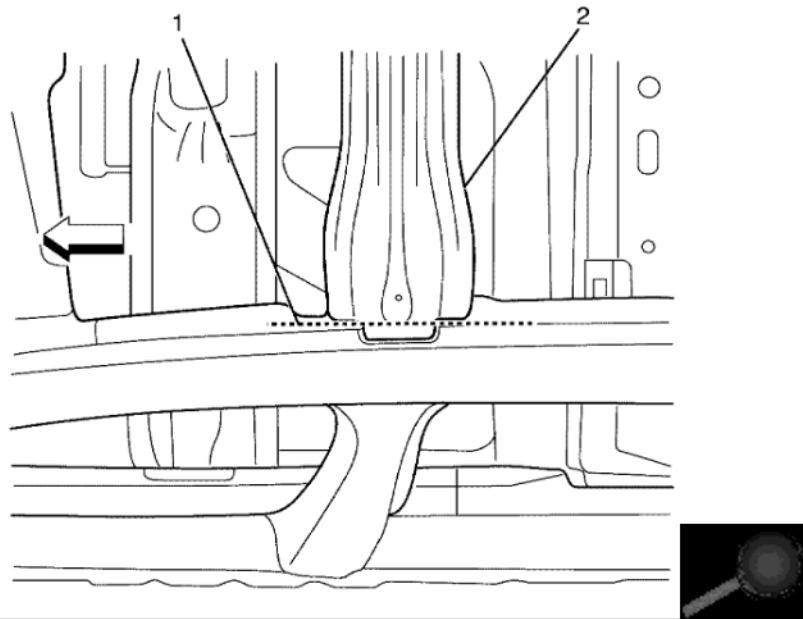
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
5. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
6. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
7. Remove the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
8. Remove the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
9. Remove the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
10. Remove the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
11. Remove the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
12. Remove the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).
13. Remove the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
14. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
15. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
16. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
17. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
18. Remove the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
19. Remove the windshield. Refer to [Windshield Replacement](#).

20. Remove the liftgate. Refer to [Liftgate Replacement](#).
  21. Remove the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
  22. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
  23. Remove the roof panel. Refer to [Roof Panel Replacement](#).
- Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).
24. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary.



**Note:**

- Do not damage any inner panels or reinforcements.
  - The front roof bow panel is attached to the upper body sides with beads of adhesive and spot-welds at each end.
  - Note the number and location of factory welds for installation of the new front roof panel bow.
25. Locate, mark and drill out the factory welds (1) attaching the front roof panel bow to the body side.



26. Mark a cut line (1) on the front roof bow panel (2) inboard of the body side assembly.

**Note:** Cut through the front roof bow panel only. Do not damage any other panels or reinforcements.

27. Using a suitable tool, cut along the cut line (1) on the front roof bow panel (2).

28. Remove the centre portion of the front roof bow panel (2) from the vehicle.

29. Using a suitable tool, remove the remaining portions of the front roof bow panel from the vehicle. Ensure all traces of old adhesive are removed.

### Installation Procedure

**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.
- Secondary sealer must be applied to the perimeter of all flanges and over all joints.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of the body side and the front roof bow panel. Ensure all traces of old adhesive are removed.
3. Verify that the vehicle body structure alignment is correct. Refer to [Dimensions - Body](#).



4. Apply a 13mm wide bead of approved structural adhesive (1) (GM6449G or equivalent) between the front roof bow and body side outer panel.
  5. Apply approved structural adhesive (2) (GM6449G or equivalent) between the front roof bow and the centre pillar upper reinforcement.
- Note:** As the front roof bow panel is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).
6. Install the front roof bow panel (1) to the body side.





7. Weld the front roof bow panel (1) to the body side.
8. Apply any sealers and anti-corrosion materials to the repair area noted on disassembly. Refer to [Anti-Corrosion Treatment and Repair](#).
9. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
10. Install the roof outer panel. Refer to [Roof Panel Replacement](#).
11. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
12. Install the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
13. Install the liftgate. Refer to [Liftgate Replacement](#).
14. Install the windshield. Refer to [Windshield Replacement](#).
15. Install the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
16. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
17. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
18. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
19. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
20. Install the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
21. Install the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).

22. Install the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
23. Install the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
24. Install the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
25. Install the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
26. Install the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
27. Install the rear doors. Refer to [Rear Side Door Replacement](#).
28. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
29. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
30. Install the front doors. Refer to [Front Side Door Replacement](#).
31. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
32. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).



## Roof Panel Bow Replacement (Rear - Sportwagon)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

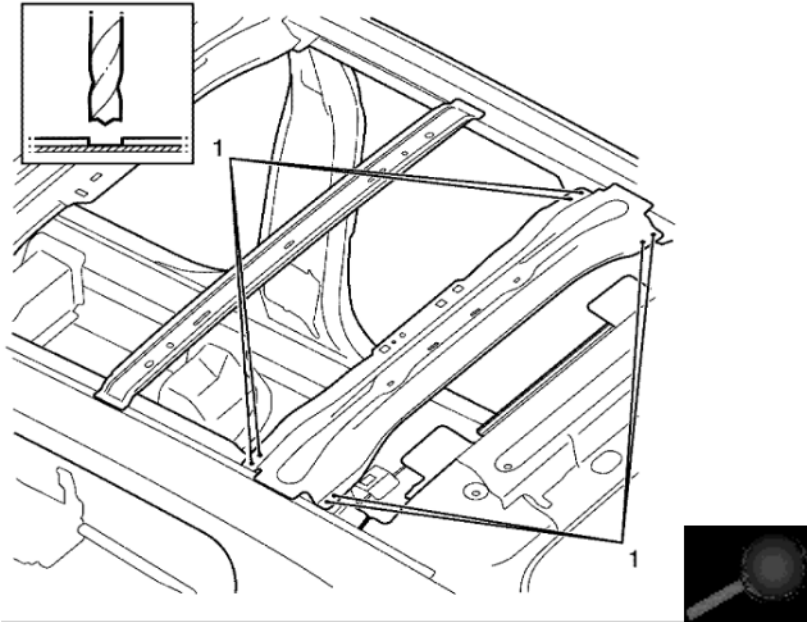
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
5. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
6. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
7. Remove the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
8. Remove the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
9. Remove the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
10. Remove the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
11. Remove the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
12. Remove the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).
13. Remove the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
14. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
15. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
16. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
17. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
18. Remove the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
19. Remove the windshield. Refer to [Windshield Replacement](#).

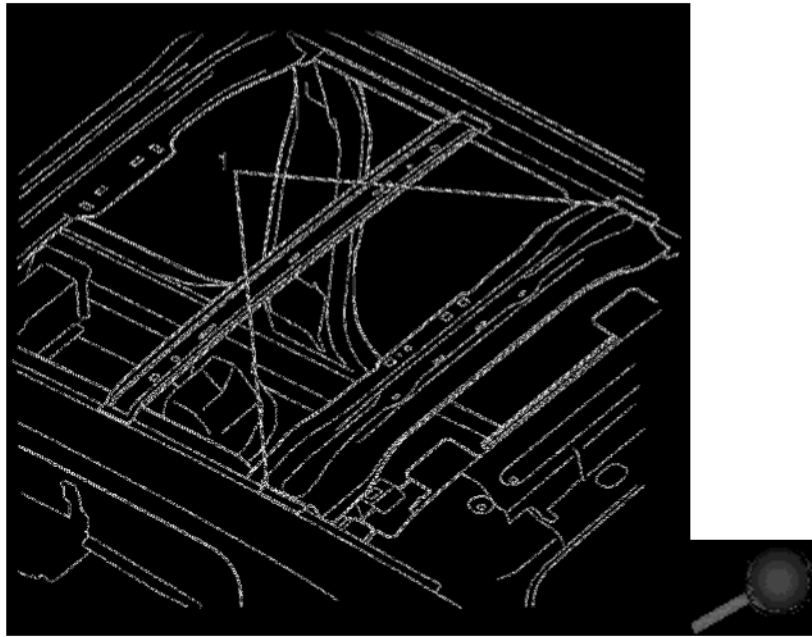
20. Remove the liftgate. Refer to [Liftgate Replacement](#).
  21. Remove the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
  22. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
  23. Remove the roof panel. Refer to [Roof Panel Replacement](#).
- Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).
24. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary.



**Note:**

- The rear roof bow panel is attached to the upper body sides with beads of adhesive and spot-welds at each end.
- Note the number and location of factory welds for installation of the new rear roof bow panel.

25. Locate, mark and drill out the factory welds (1) attaching the rear roof panel bow to the body side.



**Note:** Cut through the rear roof bow panel only. Do not damage any other panels or reinforcements.

26. Mark a cut line (1) on the rear roof bow panel (2) inboard of the body side assembly.
27. Cut along the cut line (1) on the rear roof bow panel (2) with a suitable cutting tool.
28. Remove the centre portion of the rear roof bow panel (2) from the vehicle.
29. Using a suitable tool, remove the remaining portions of the rear roof bow panel from the vehicle. Ensure all traces of old adhesive are removed.

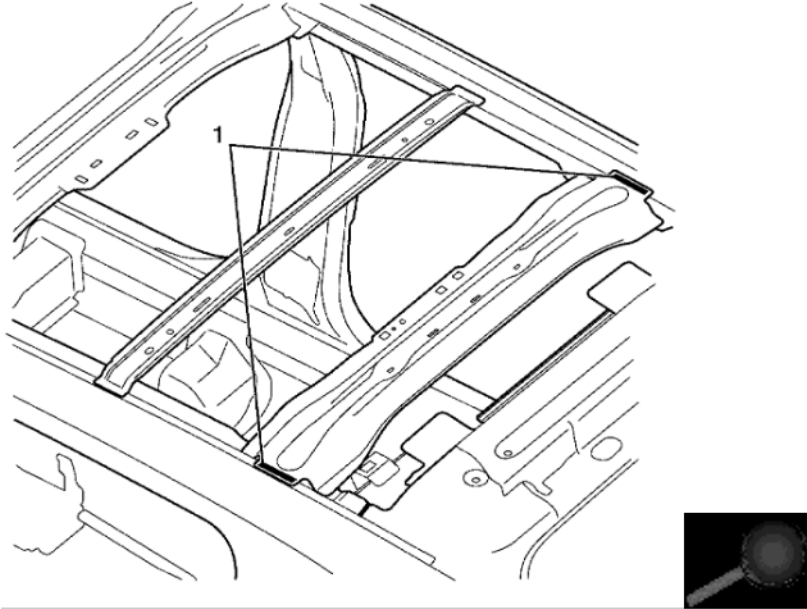
### **Installation Procedure**

**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

◦ Secondary sealer must be applied to the perimeter of all flanges and over all joints.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of the body side and the rear roof bow panel. Ensure all traces of old adhesive are removed.
3. Verify that the vehicle body structure alignment is correct. Refer to [Dimensions - Body](#).

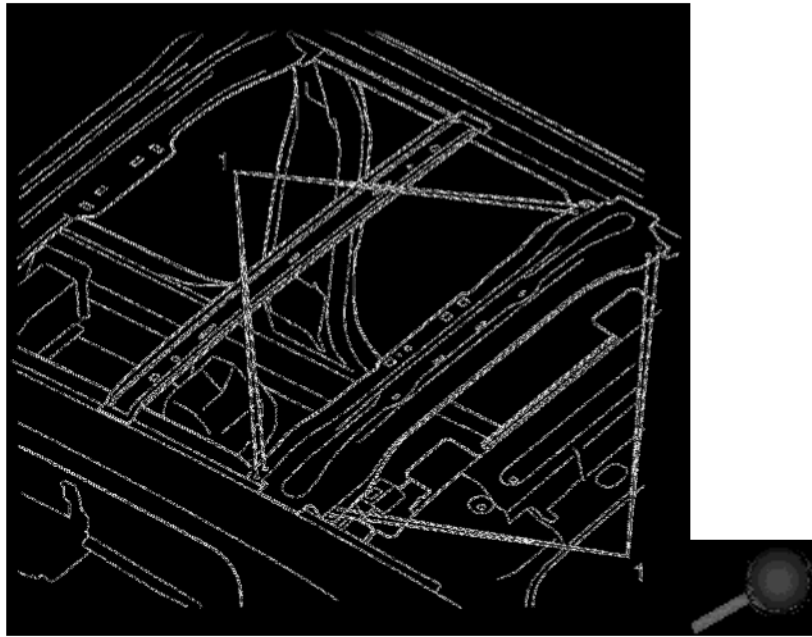


**Note:** Clean all the adhesives mating surfaces in accordance with the adhesive manufacturer's specifications.

4. Apply a 13mm wide bead of approved structural adhesive (1) (GM6449G or equivalent) to the rear roof bow panel lower surface. On assembly, the adhesive should be between the rear roof bow panel and the body side outer panel.

**Note:** As the rear roof bow panel is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

5. Install the rear roof bow panel (1) to the body side.



6. Weld the rear roof bow panel (1) to the body side.
7. Apply any sealers and anti-corrosion materials to the repair area noted on disassembly. Refer to [Anti-Corrosion Treatment and Repair](#).
8. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
9. Install the roof panel. Refer to [Roof Panel Replacement](#).
10. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
11. Install the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
12. Install the liftgate. Refer to [Liftgate Replacement](#).
13. Install the windshield. Refer to [Windshield Replacement](#).
14. Install the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
15. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
16. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
17. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
18. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
19. Install the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
20. Install the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).

21. Install the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
22. Install the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
23. Install the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
24. Install the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
25. Install the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
26. Install the rear doors. Refer to [Rear Side Door Replacement](#).
27. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
28. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
29. Install the front doors. Refer to [Front Side Door Replacement](#).
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](#).



## Roof Rear Header Panel Replacement (Sportwagon)

### Removal Procedure

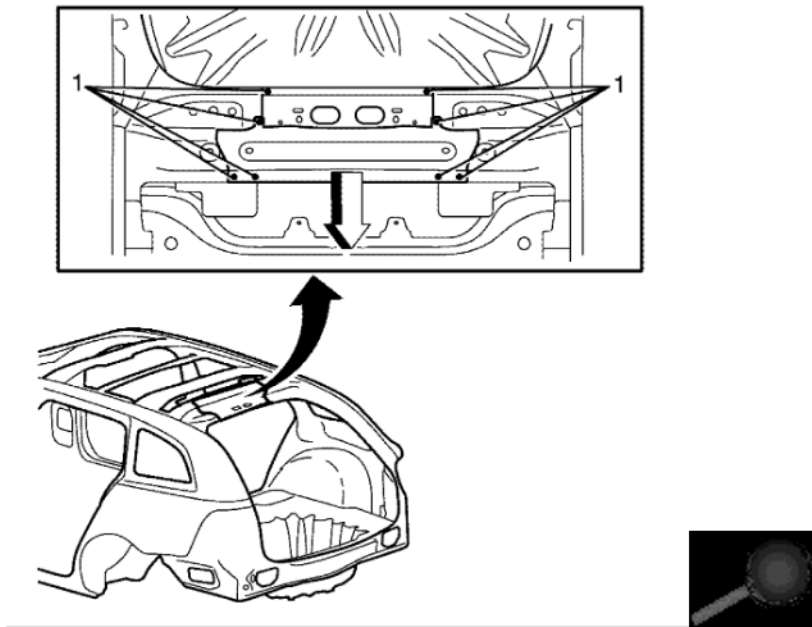
**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
- Warning:** Refer to [Battery Disconnect Warning](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
5. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
6. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
7. Remove the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
8. Remove the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
9. Remove the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
10. Remove the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
11. Remove the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
12. Remove the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).
13. Remove the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
14. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
15. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
16. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
17. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
18. Remove the windshield pillar garnish moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).

19. Remove the windshield. Refer to [Windshield Replacement](#).
20. Remove the liftgate. Refer to [Liftgate Replacement](#).
21. Remove the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
22. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
23. Remove the roof panel. Refer to [Roof Panel Replacement](#).
24. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

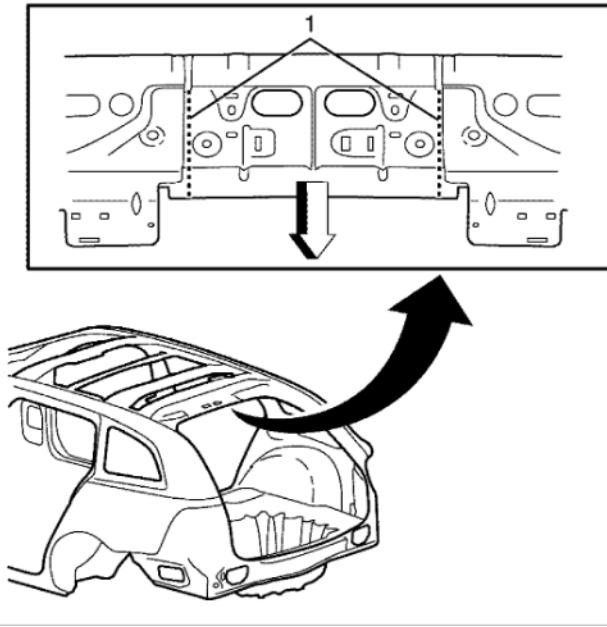


**Note:**

- Do not damage any other panels or reinforcements.
- The roof rear header panel asm consists of an inner and outer panel which are joined to the body structure with both spotwelds and adhesive.

25. Locate, mark and drill out the factory welds (1) attaching the roof rear header panel asm to the body side assembly.

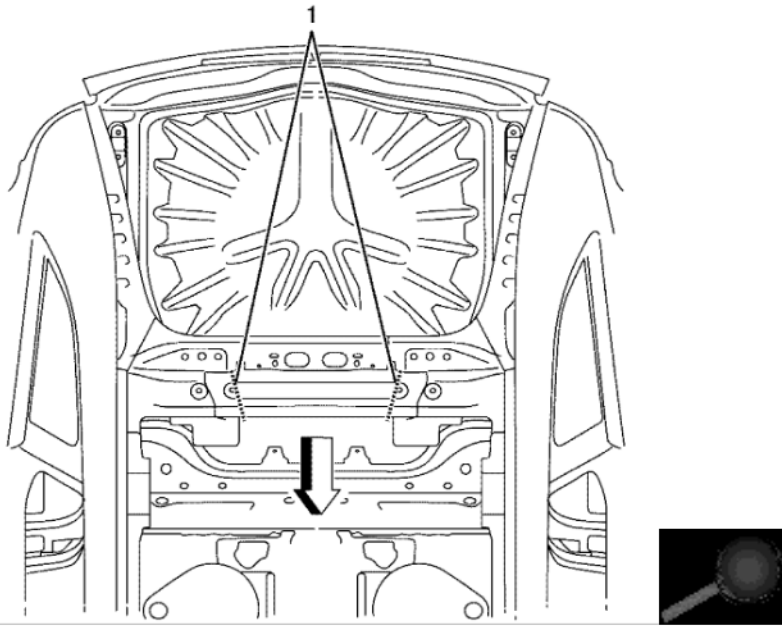




26. Mark cut lines (1) on the inner roof rear header panel inboard of the body side assembly.

**Note:** Only cut through the inner roof rear header panel. Do not damage any other panels or reinforcements.

27. Cut along the cut lines (1) on the inner roof rear header panel.



28. Mark cut lines (1) along the outer roof rear header panel inboard of the body side assembly.

**Note:**

- Use a suitable device to support the roof rear header panel assembly.
- Only cut through the outer roof rear header panel. Do not damage any other panels or reinforcements.

29. Cut along the cut lines (1) on the outer roof rear header panel.

30. Remove the centre section of the roof rear header panel assembly from the vehicle.

**Note:** Only remove the remaining portions of the roof rear header panel. Do not damage any other panels or reinforcements.

31. Using a suitable tool, remove the remaining outer portions of both the inner and outer roof rear header panel from the vehicle. Ensure that all traces of old adhesive are removed.

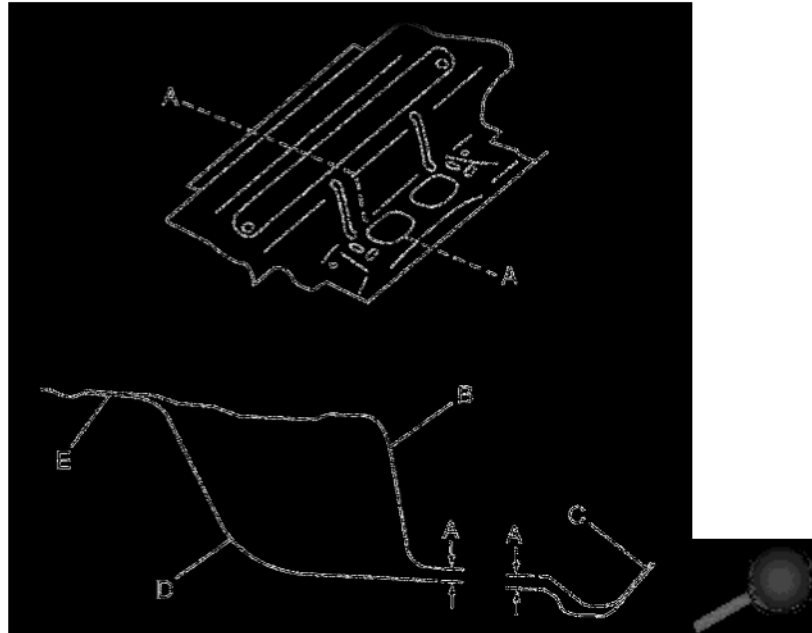
### Installation Procedure

**Note:**

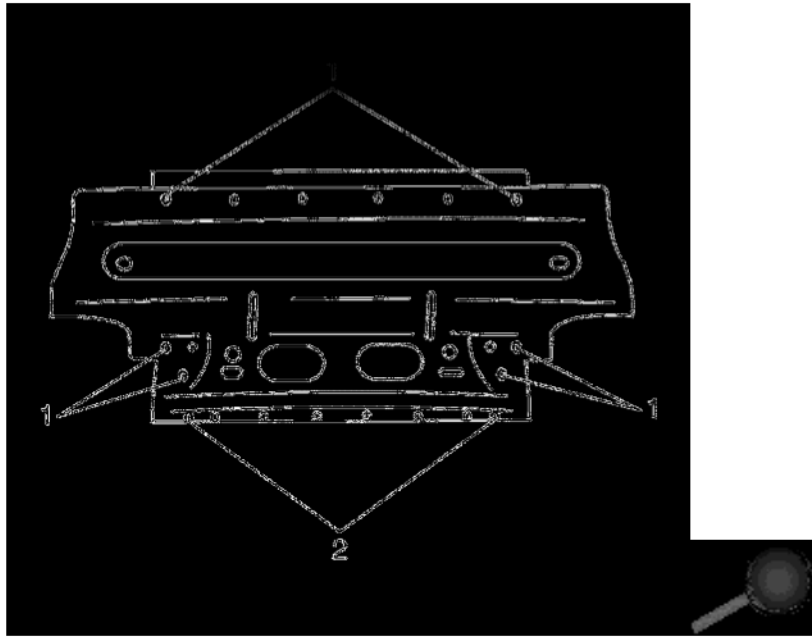
- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.

- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.
- Secondary sealer must be applied to the perimeter of all flanges and over all joints.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of the body side and the roof rear header panel assembly.

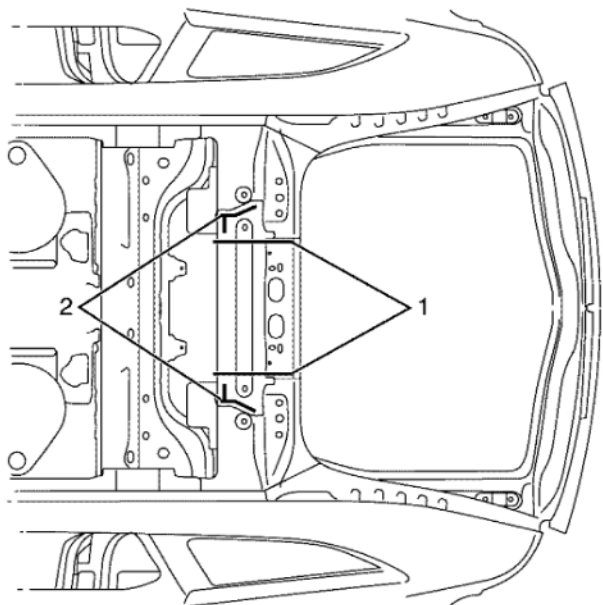


3. The roof rear header panel is supplied as separate inner and outer panels which must be welded together by the repairer. Align the inner and outer panels as shown in the diagram. Align the inner roof rear header panel, D, and the outer roof rear header panel, B, hard up against each other at locations C and E. The panels must be aligned to achieve the required gap where dimension A = 4.56mm (0.180in). This gap must be achieved symmetrically across the assembly.



**Note:** For weld locations, refer to the damaged rear roof header panel.

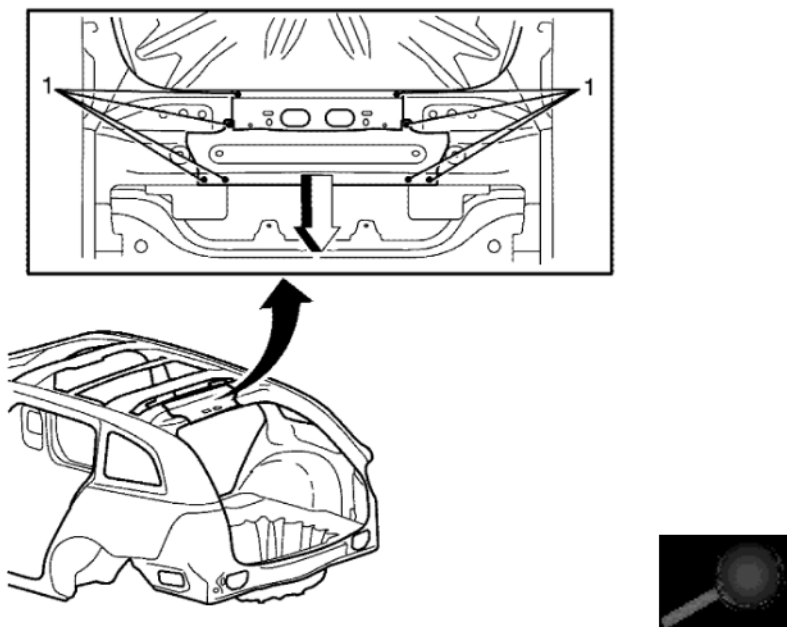
4. Weld (1) the roof rear header inner and outer panels together prior to installation to the vehicle. The welds (2) should be done when the outer roof panel is replaced. Refer to [Roof Panel Replacement](#)



5. Apply an approved structural adhesive (1) GM6449G or equivalent to the mating surface between the inner roof rear header panel and the body side assembly.
6. Apply an approved structural adhesive (2) GM6449G or equivalent to the mating surface between the outer roof rear header panel and the body side assembly.

**Note:** As the roof rear header panel is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

7. Install the roof rear header panel (1) to the body side.



8. Weld the roof rear header panel to the body side (1).
9. Install the roof panel. Refer to [Roof Panel Replacement](#).
10. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
11. Install the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
12. Install the liftgate. Refer to [Liftgate Replacement](#).
13. Install the windshield. Refer to [Windshield Replacement](#).
14. Install the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
15. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
16. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
17. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
18. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
19. Install the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
20. Install the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).
21. Install the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
22. Install the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).

23. Install the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
24. Install the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
25. Install the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
26. Install the rear doors. Refer to [Rear Side Door Replacement](#).
27. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
28. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
29. Install the front doors. Refer to [Front Side Door Replacement](#).
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](#).

## Roof Rear Header Panel Replacement (Sedan)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

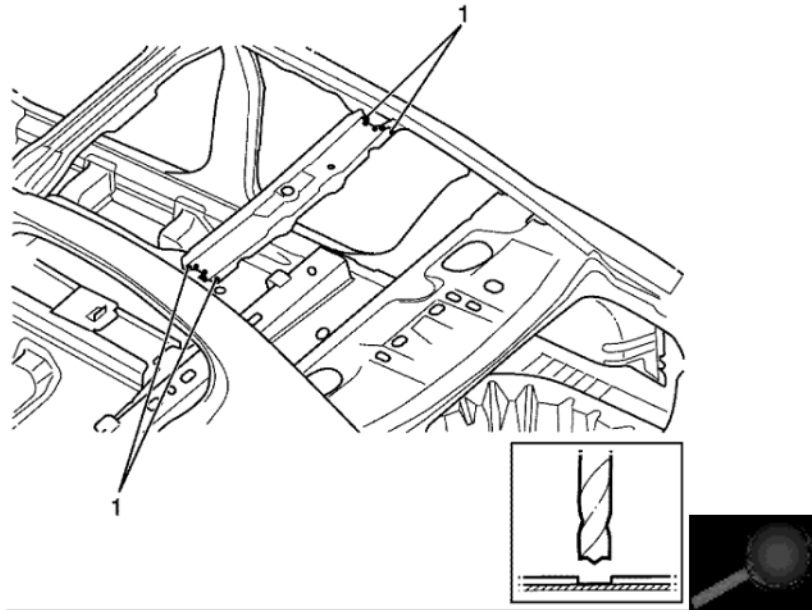
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:** Refer to [Ultra High Strength Steel](#).

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 windshield garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
4. Remove the inner rear quarter trim. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
5. Remove the inner upper centre trim. Refer to [Center Pillar Center Trim Panel Replacement](#).
6. Remove the overhead lighting panel. Refer to [Dome and Reading Lamp Replacement](#).
7. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
8. Remove the windshield. Refer to [Windshield Replacement](#).
9. Remove the rear window. Refer to [Rear Window Replacement](#).
10. Remove the roof weld moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
11. Visually inspect the damage. Repair as much of the damage as possible.
12. Apply tape to the corners of the panels and adjacent surfaces.
13. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).





**Note:**

- Do not damage any inner panels or reinforcements.
- The roof rear header panel is attached to the upper body sides with spot-welds at each end.
- Note the number and location of factory welds for installation of the new roof rear header panel.

14. Locate, mark and drill out the factory welds (1) attaching the roof rear header panel to the body side.

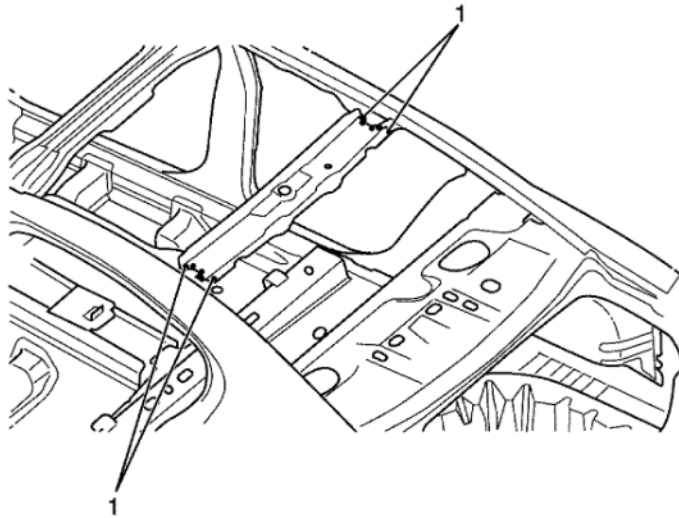
15. Remove the roof rear header panel from the vehicle.

**Installation Procedure**

**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of the body side and the roof rear header panel.
3. Verify that the vehicle body structure alignment is correct. Refer to [Dimensions - Body](#).



4. Install the roof rear header panel to the body side.
5. Weld (1) the roof rear header panel to the body side. Refer to [Ultra High Strength Steel](#).
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 the roof weld moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
9. Install the rear window. Refer to [Rear Window Replacement](#).
10. Install the windshield. Refer to [Windshield Replacement](#).
11. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
12. Install the overhead lighting panel. Refer to [Dome and Reading Lamp Replacement](#).
13. Install the inner upper centre trim. Refer to [Center Pillar Center Trim Panel Replacement](#).
14. Install the inner rear quarter trim. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
15. Install the windshield pillar moulding. Refer to [Windshield Garnish Molding Replacement](#).

16. Remove the tape to the corners of the panels and adjacent surfaces.
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](#).
19. If re-programming is required. Refer to [Control Module References](#).

## Roof Rear Header Panel Replacement (Ute)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

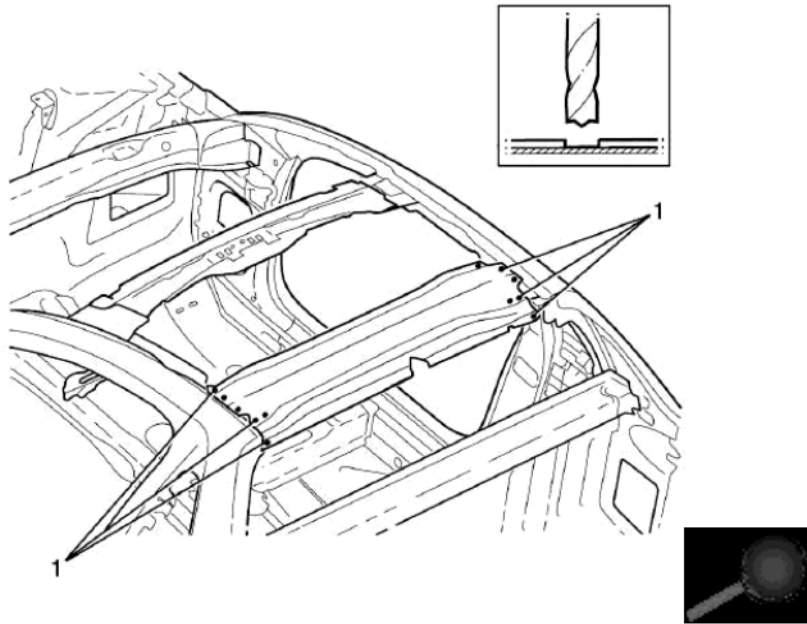
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
- Warning:** Refer to [Battery Disconnect Warning](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
5. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
6. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
7. Remove the remote function actuator. Refer to [Remote Control Door Lock Receiver Replacement](#).
8. Remove the rear window shelf trim panel. Refer to [Rear Window Panel Trim Replacement](#).
9. Remove the positive battery cable from the vehicle. Refer to [Battery Positive Cable Replacement](#).
10. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
11. Remove the windshield pillar garnish. Refer to [Windshield Garnish Molding Replacement](#).
12. Remove the windshield. Refer to [Windshield Replacement](#).
13. Remove the rear window. Refer to [Rear Window Replacement](#).
14. Remove the rear header trim. Refer to [Roof Rear Header Panel Replacement](#).
15. Remove the body side roof drip moulding. Refer to [Windshield Garnish Molding Replacement](#).
16. Remove the rear body rail cover. Refer to [Rear Rail Replacement](#).
17. Remove the roof panel. Refer to [Roof Panel Replacement](#).

18. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



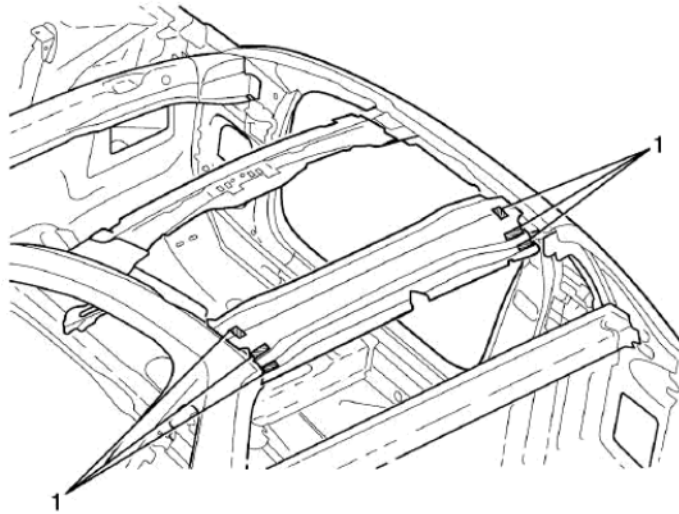
**Note:** Clean all the adhesives mating surfaces in accordance with the adhesive manufacturer's specifications.

19. Locate, mark and drill out the factory welds attaching the roof rear header panel to the body side (1).

### **Installation Procedure**

**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
  - If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
  - Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.
  - Secondary seal must be applied to the perimeter of all flanges and over all joints.
1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
  2. Clean and prepare the mating surfaces of the body side and the roof rear header panel.

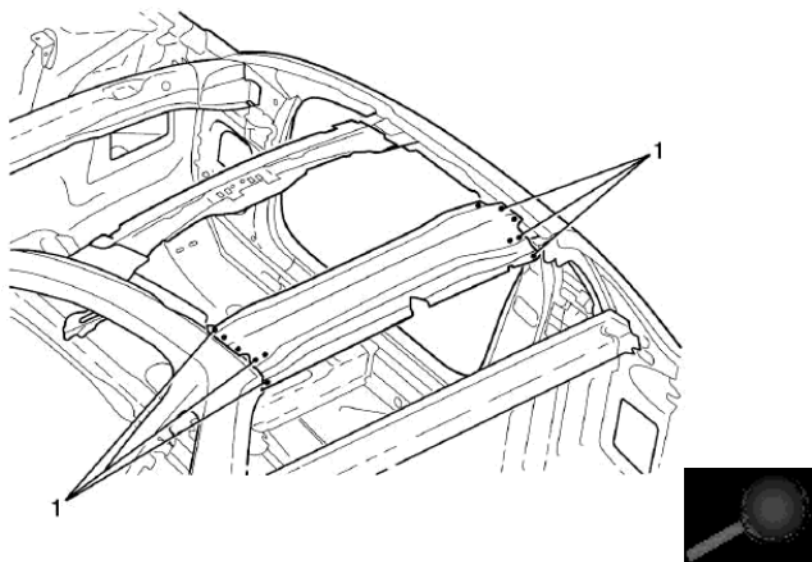


3. Apply an approved structural adhesive to the roof rear header panel lower surface (1).

**Note:** As the rear roof header panel is installed to the vehicle structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

4. Install the roof rear header panel to the body side.





5. Weld the rear roof header panel to the body side (1).
6. Install the roof panel. Refer to [Roof Panel Replacement](#).
7. Install the rear body rail cover. Refer to [Rear Rail Replacement](#).
8. Install the rear header trim. Refer to [Roof Rear Header Panel Replacement](#).
9. Install the body side roof drip moulding. Refer to [Windshield Garnish Molding Replacement](#).
10. Install the windshield. Refer to [Windshield Replacement](#).
11. Install the windshield pillar garnish. Refer to [Windshield Garnish Molding Replacement](#).
12. Install the rear window. Refer to [Rear Window Replacement](#).
13. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
14. Install the positive battery cable to the vehicle. Refer to [Battery Positive Cable Replacement](#).
15. Install the remote function actuator. Refer to [Remote Control Door Lock Receiver Replacement](#).
16. Install the rear window shelf trim panel. Refer to [Rear Window Panel Trim Replacement](#).
17. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
18. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
19. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).

20. Install the front doors. Refer to [Front Side Door Replacement](#).
21. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
22. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).



## Rocker Outer Panel Reinforcement Replacement (Sedan)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

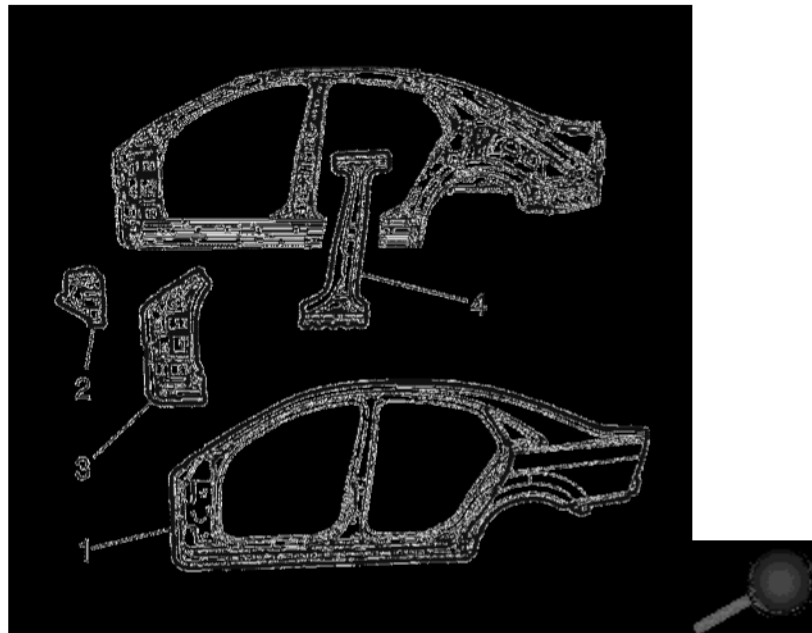
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Note:** Refer to [Ultra High Strength Steel](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

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



**Note:** Note the number and location of the factory welds for installation of reinforcements.

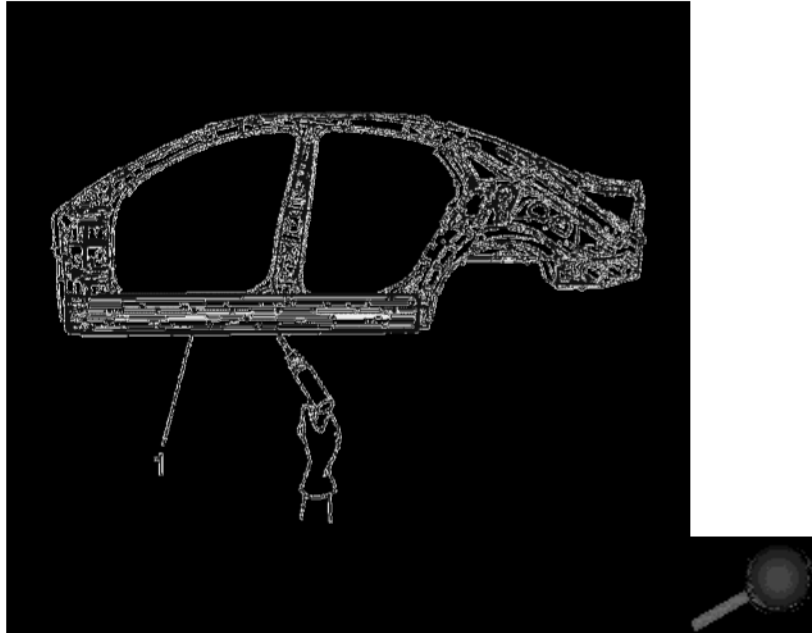
3. Remove all related panels and components. © 2014 General Motors. All rights reserved.

- Body Side Outer Panel (1)

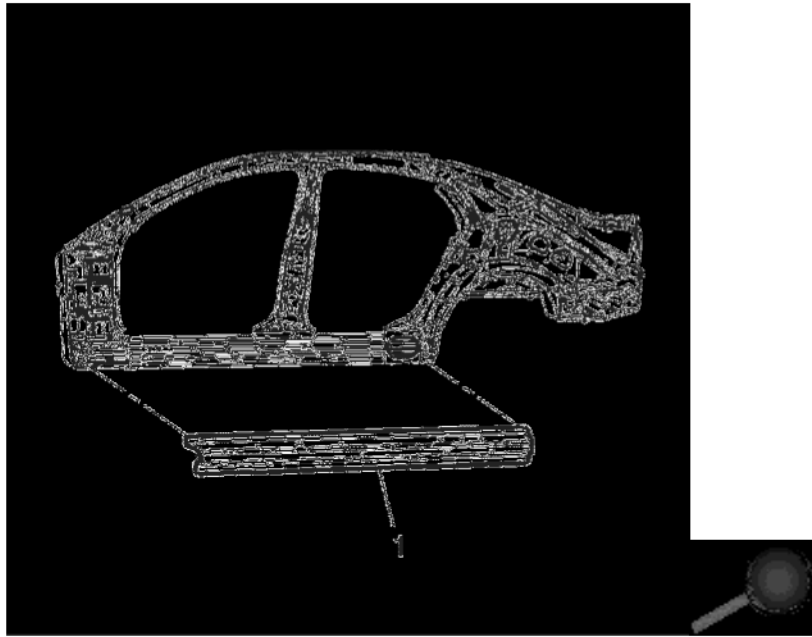
- Hinge Pillar Brace (2)
- Hinge Pillar Reinforcement (3)
- Center Pillar Reinforcement (4)

**Note:** The outer reinforcement (1) is a high strength steel and cannot be sectioned or altered. Refer to [Ultra High Strength Steel](#).

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. Drill out factory welds of the rocker panel outer reinforcement (1).

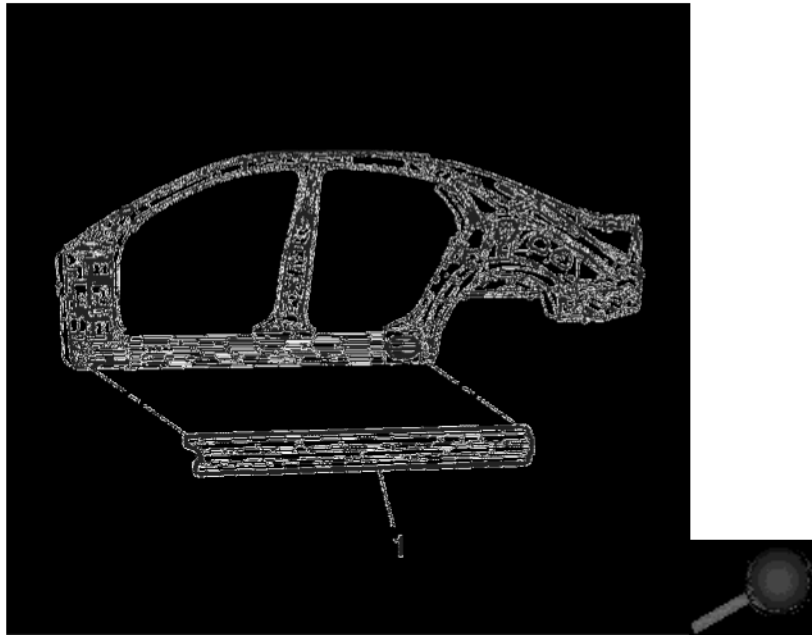


7. Remove the rocker panel outer reinforcement (1).

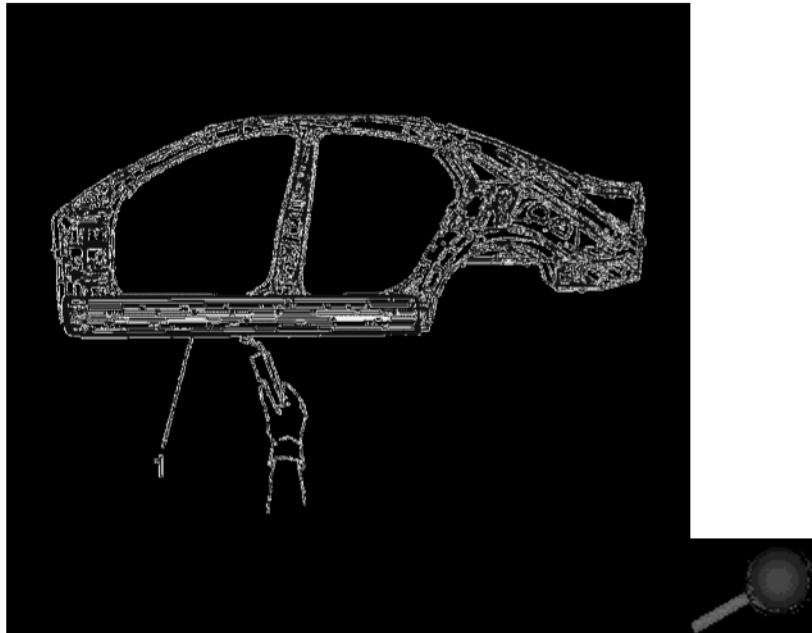
### Installation Procedure

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

1. Prepare the mating surfaces as necessary.
2. Apply GM approved weld-thru coating or equivalent. Refer to [Anti-Corrosion Treatment and Repair](#).
3. Apply foam sound deadeners and baffles as necessary.



4. Position the rocker outer reinforcement in place (1), use 3-dimensional measuring equipment, clamp in place.



5. Plug weld accordingly (1).

6. Clean and prepare all of the welded surfaces.
7. Install all of the related panels and components.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
9. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
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](#).

## Rocker Outer Panel Reinforcement Replacement (Sportwagon)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Note:** Refer to [Ultra High Strength Steel](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

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



**Note:** Note the number and location of the factory welds for installation of reinforcements.

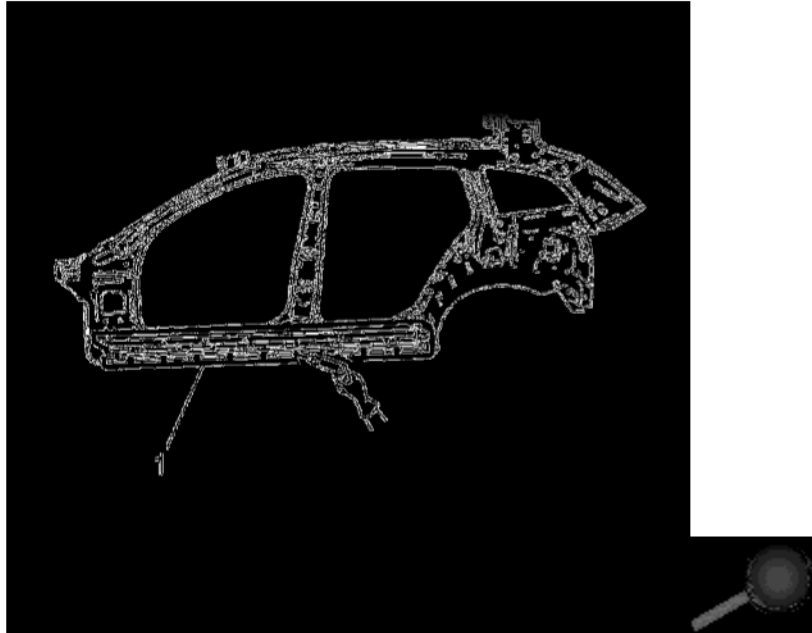
3. Remove all related panels and components. © 2014 General Motors. All rights reserved.

- Body Side Outer Panel (1)

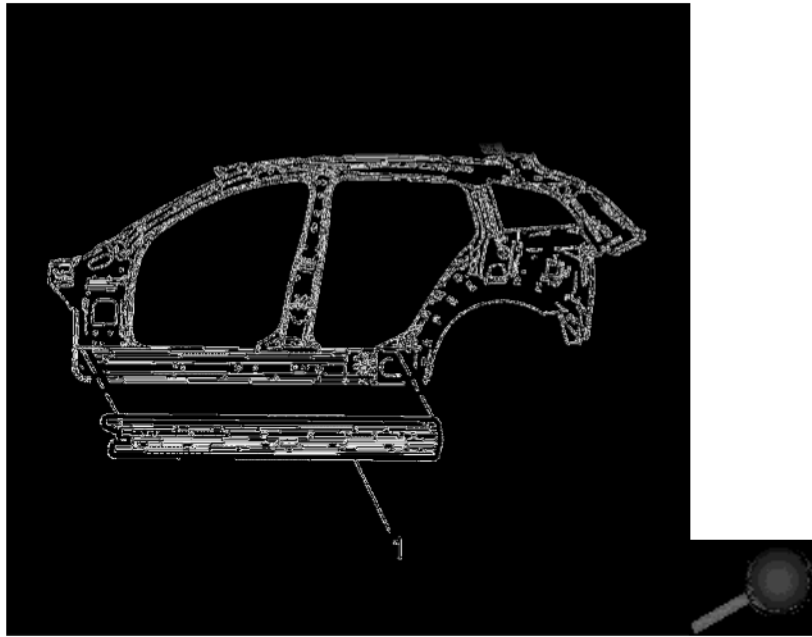
- Hinge Pillar Brace (2)
- Hinge Pillar Reinforcement (3)
- Center Pillar Reinforcement (4)

**Note:** The outer reinforcement (1) is a high strength steel and cannot be sectioned or altered. Refer to [Ultra High Strength Steel](#).

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. Drill out factory welds of the rocker panel outer reinforcement (1).



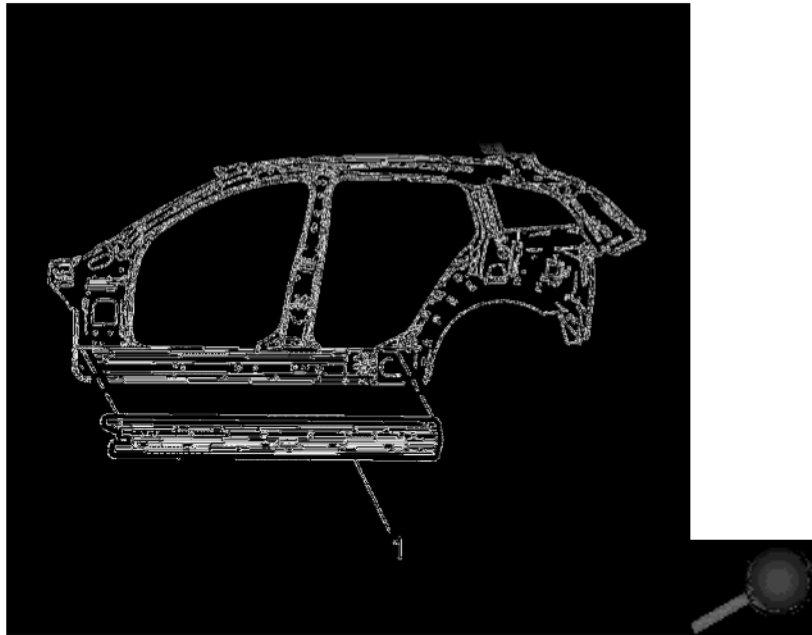
7. Remove the rocker panel outer reinforcement (1).

### Installation Procedure

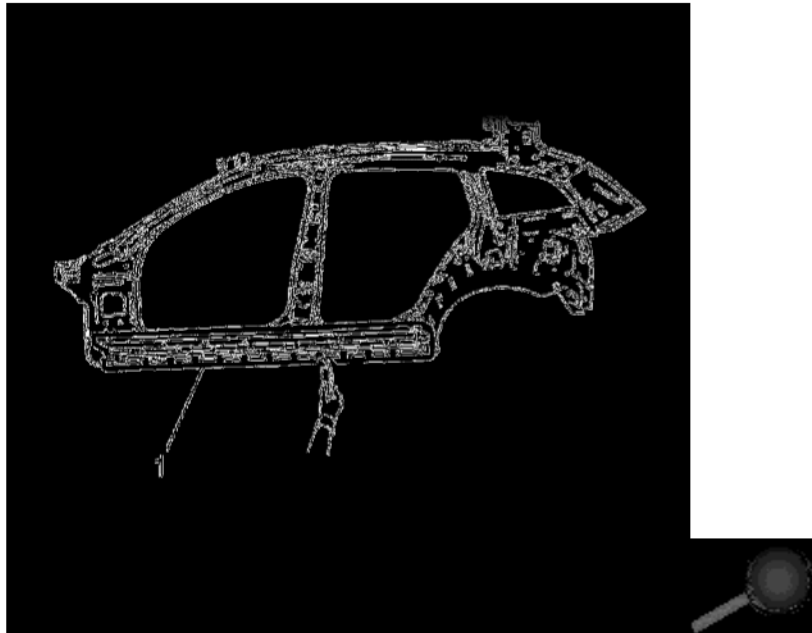
**Note:** If the location of the original plug weld holes cannot be determined, space the plug weld holes every 40 mm (1 1/2 in) apart.

1. Prepare the mating surfaces as necessary.
2. Apply GM approved weld-thru coating or equivalent. Refer to [Anti-Corrosion Treatment and Repair](#).
3. Apply foam sound deadeners and baffles as necessary.





4. Position the rocker outer reinforcement in place (1), use 3-dimensional measuring equipment, clamp in place.



5. Plug weld accordingly (1).

6. Clean and prepare all of the welded surfaces.
7. Install all of the related panels and components.
8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
9. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
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](#).

## Rocker Outer Panel Sectioning (Sedan)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

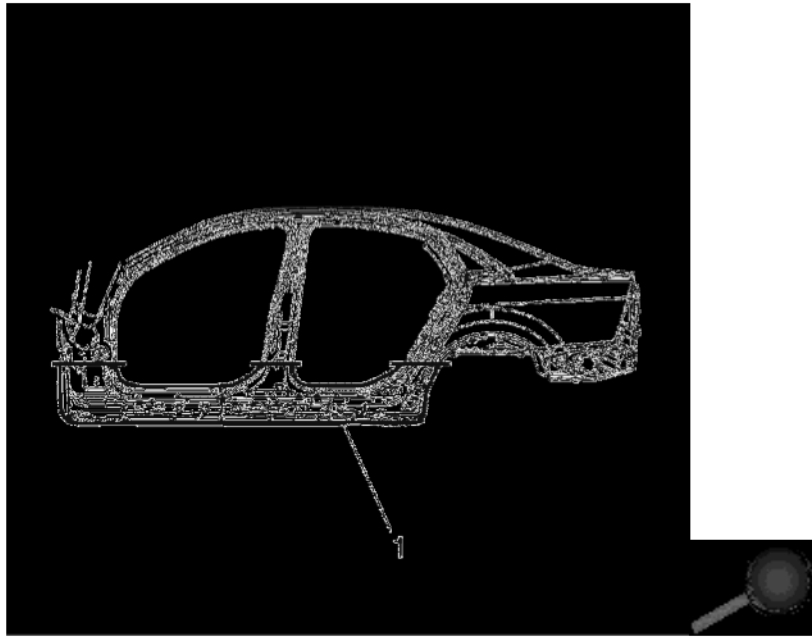
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

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

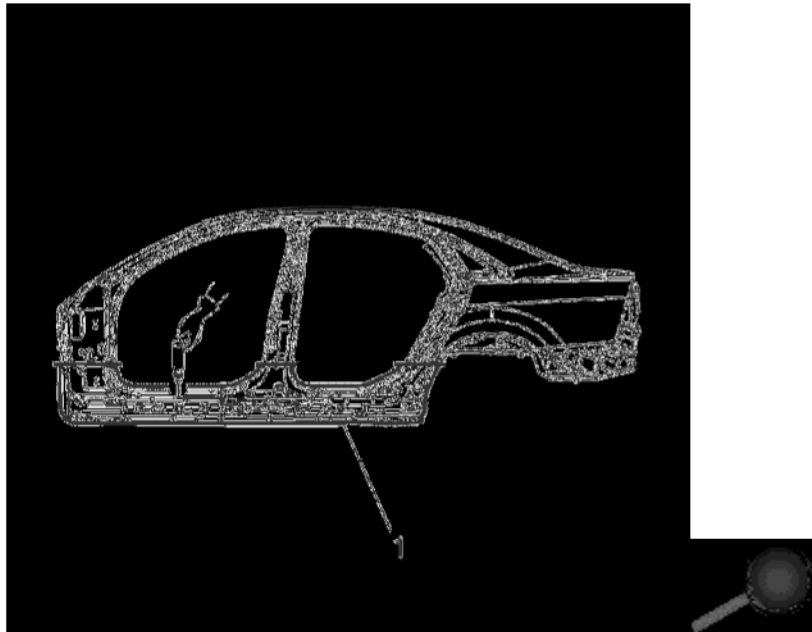
**Note:** The lower fender bracket is not included with the rocker outer panel body service part. Record the location of the fender bracket for proper installation after sectioning the rocker outer panel.

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. Perform additional sectioning procedures as needed depending on damage to vehicle. Refer to [Front Hinge Pillar Body Sectioning](#), [Quarter Panel Replacement](#), or [Center Pillar Sectioning - Outer](#).

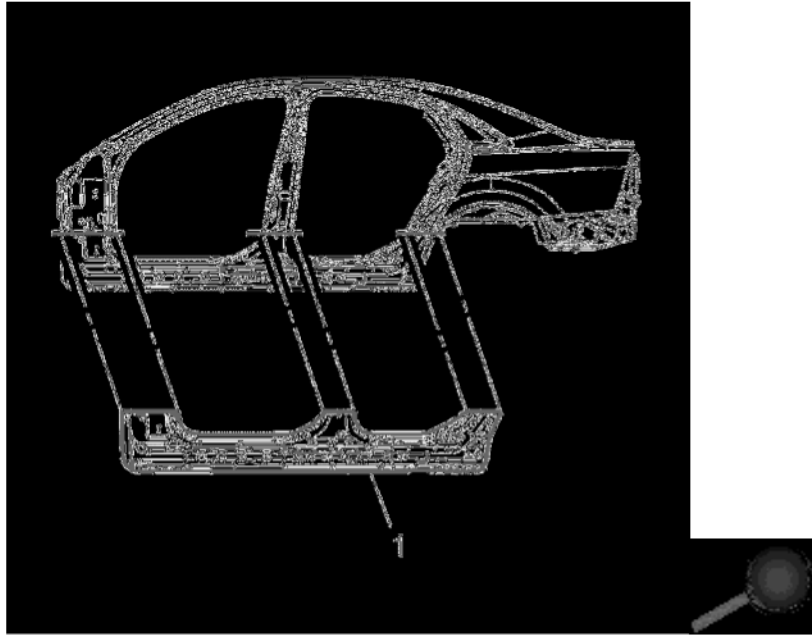


**Note:** Do not damage any inner panels or reinforcements.

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



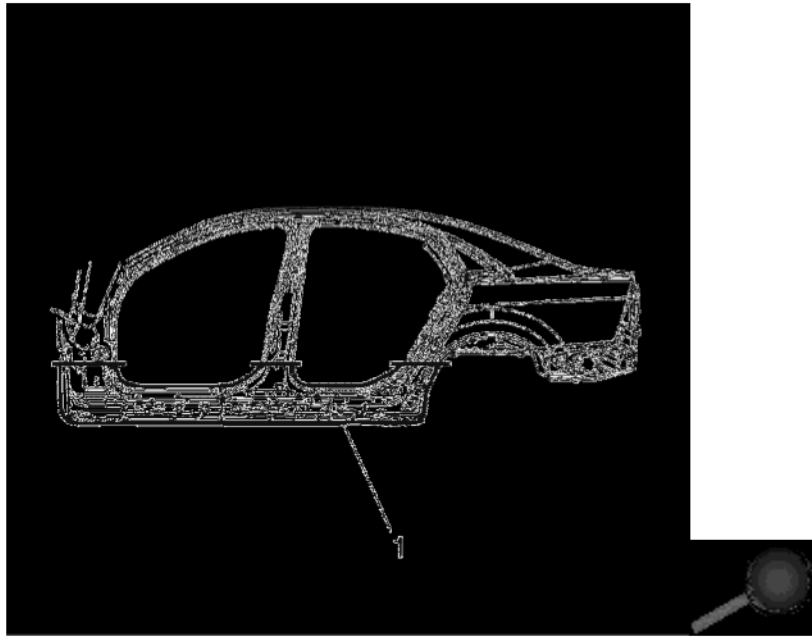
8. Drill out all the necessary factory welds of the rocker outer panel (1).



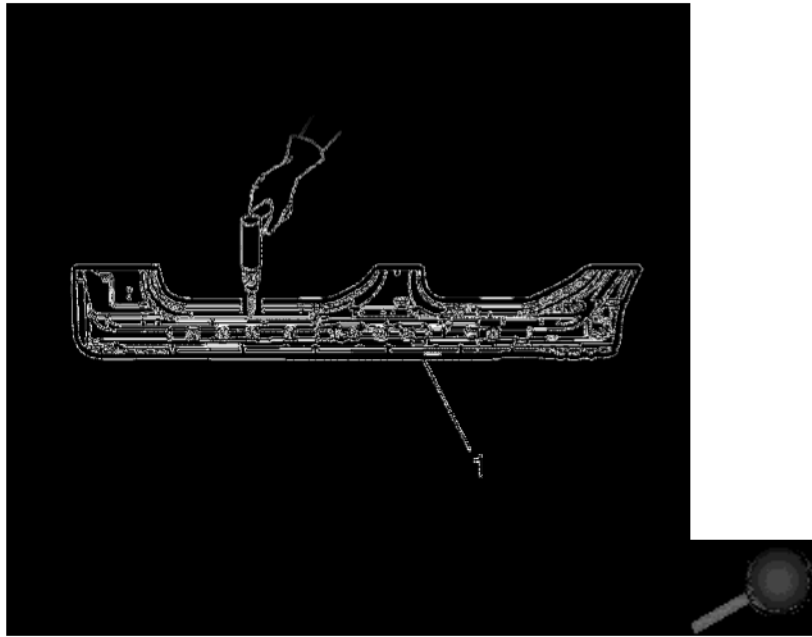
**Note:** The expandable foam should be replaced after sectioning the rocker outer panel. Record the location of the expandable foam for proper installation after sectioning the rocker outer panel.

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

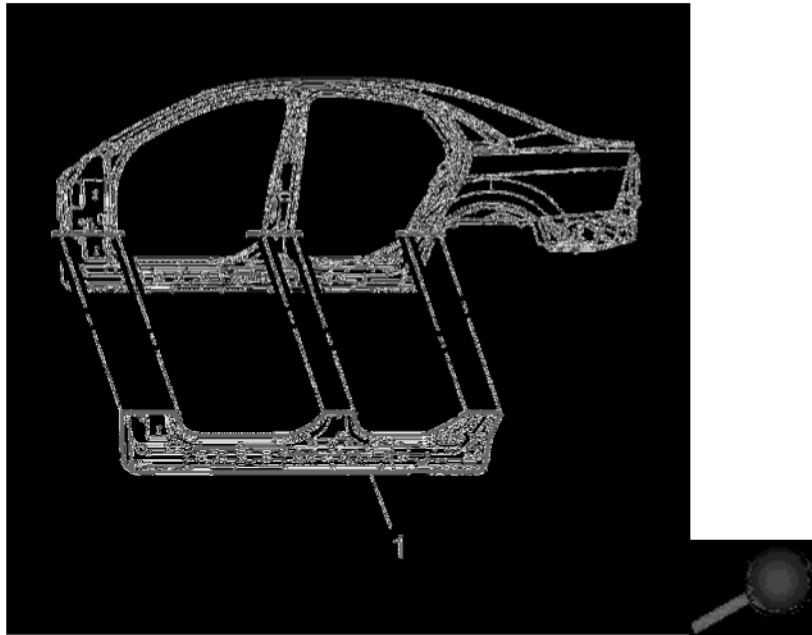
### Installation Procedure



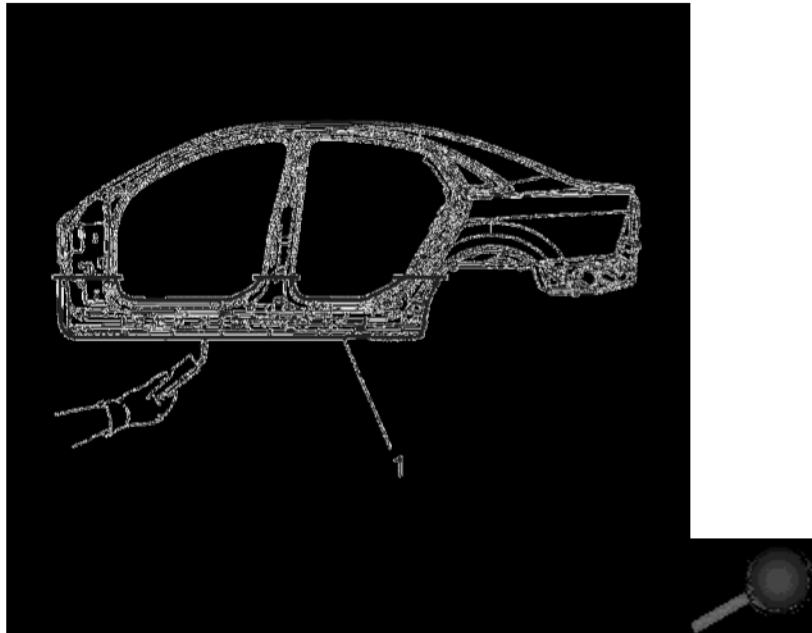
1. From the service part (1), cut the panel in corresponding locations to overlap the remaining original panel by 25 mm (1 inch) at each joint location.
2. Prepare all mating surfaces as necessary.



3. Drill 8 mm (5/16 in) plug weld holes in the service part (1), as necessary, in the corresponding locations noted on the original panel and along sectioned joint.
4. Clean and prepare the attaching surfaces for welding.
5. Apply GM approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to [Anti-Corrosion Treatment and Repair](#).

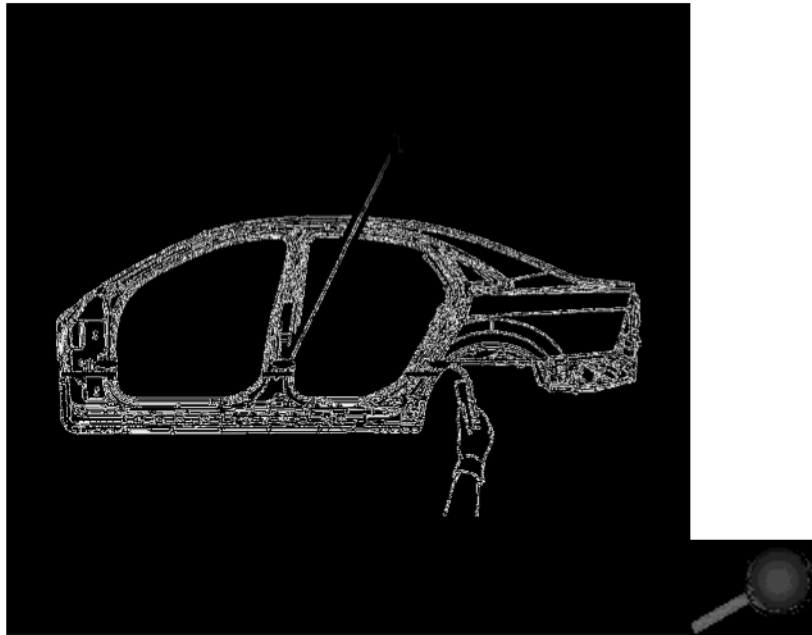


6. Position the rocker outer panel section (1) to the vehicle using 3-dimensional measuring equipment. Clamp the pillar in place.



7. Plug weld the rocker outer panel (1) 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.

**Note:**

- The lower fender bracket should be temporarily installed as previously recorded and the outer panels should be checked for proper fit, prior to the final welding of the brackets.
- Expandable foam will need to be added to the rocker outer panel in the location previously recorded.

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.
11. Install all related panels and components.
12. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Rocker Outer Panel Sectioning (Sportwagon)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

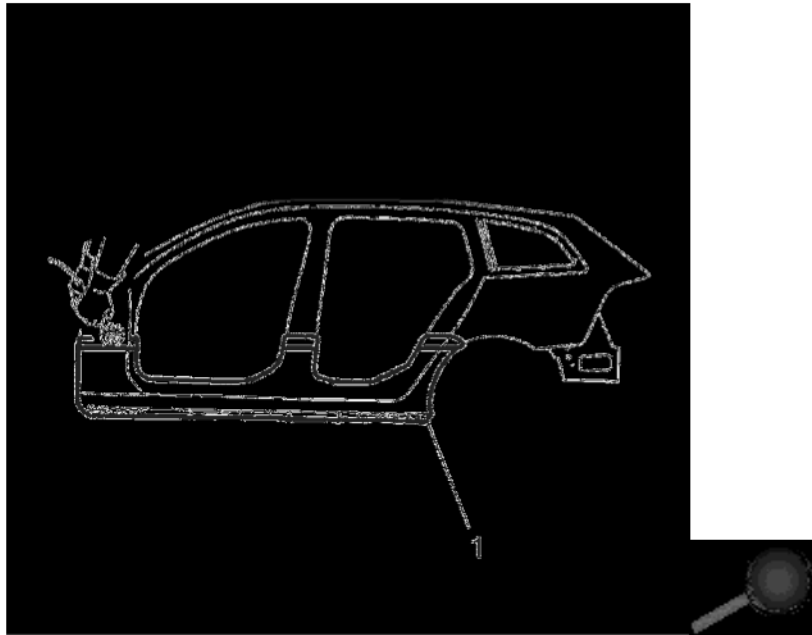
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

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

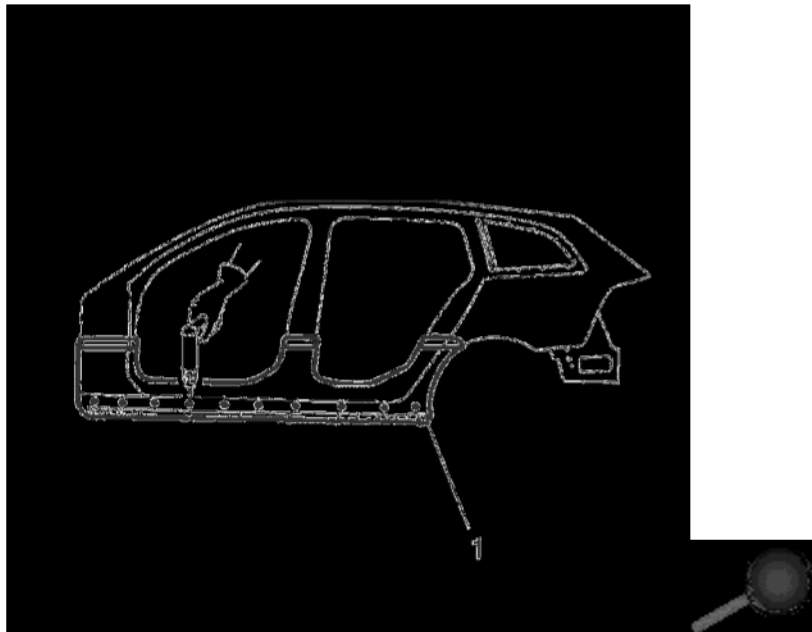
**Note:** The lower fender bracket is not included with the rocker outer panel body service part. Record the location of the fender bracket for proper installation after sectioning the rocker outer panel.

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. Perform additional sectioning procedures as needed depending on damage to vehicle. Refer to [Front Hinge Pillar Body Sectioning](#), [Quarter Panel Replacement](#), or [Center Pillar Sectioning - Outer](#).

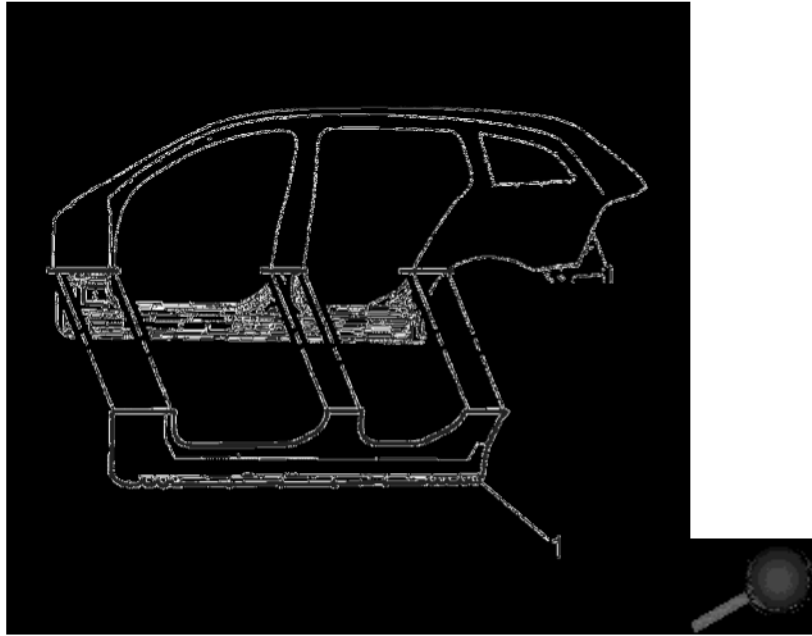


**Note:** Do not damage any inner panels or reinforcements.

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



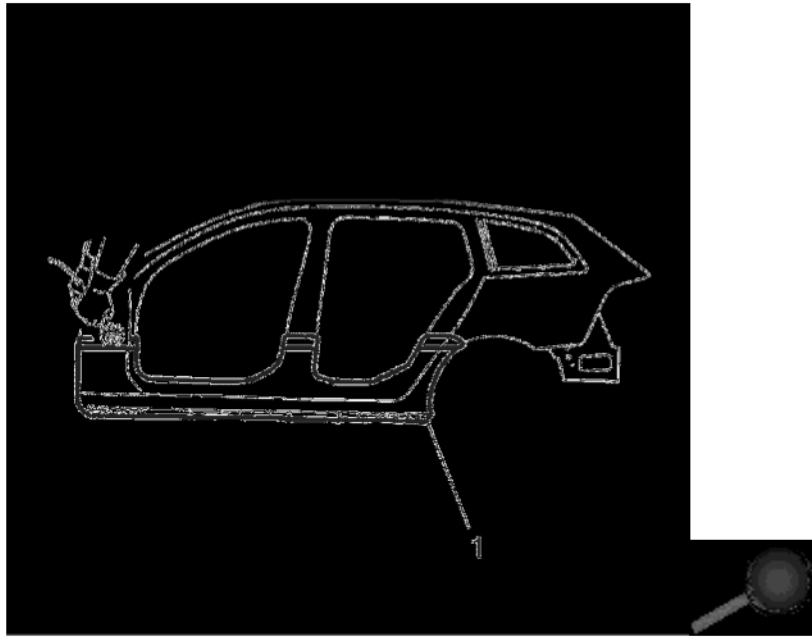
8. Drill out all the necessary factory welds of the rocker outer panel (1).



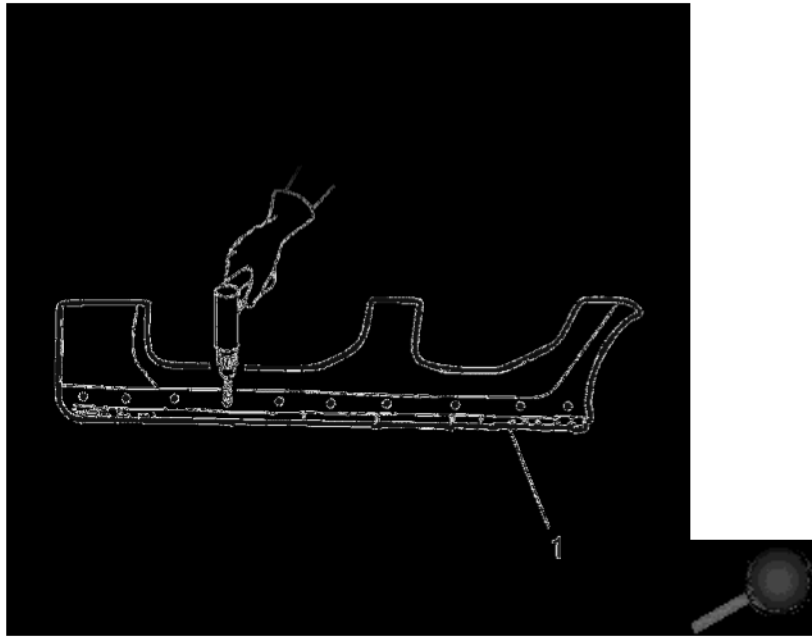
**Note:** The expandable foam should be replaced after sectioning the rocker outer panel. Record the location of the expandable foam for proper installation after sectioning the rocker outer panel.

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

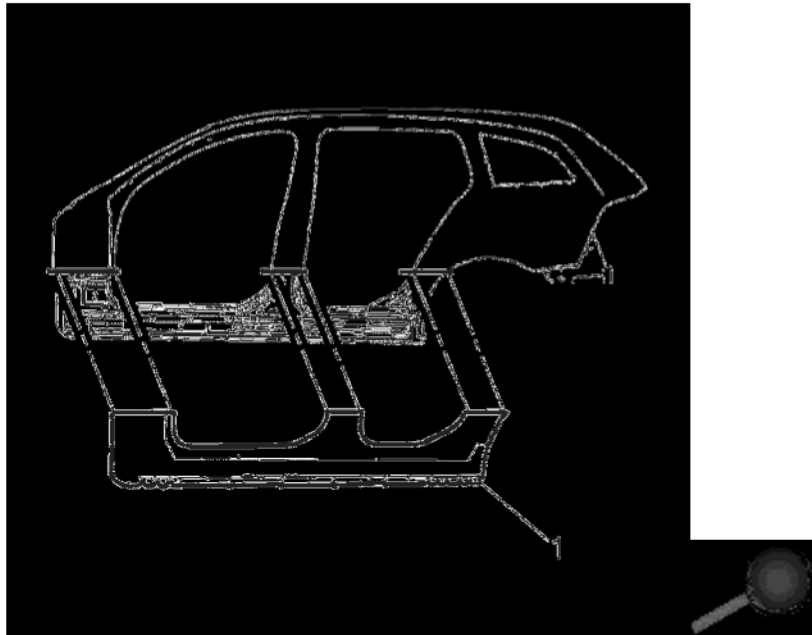
### Installation Procedure



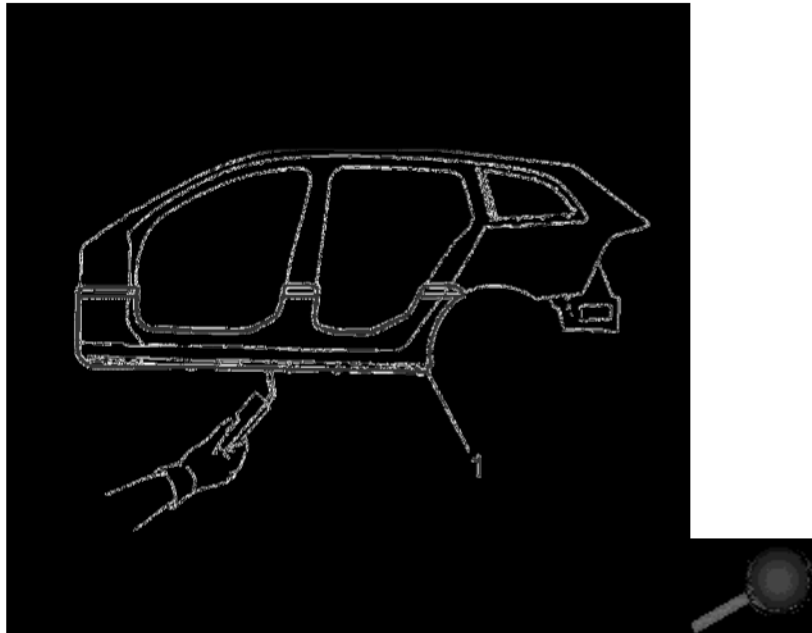
1. From the service part (1), cut the panel in corresponding locations to overlap the remaining original panel by 25 mm (1 inch) at each joint location.
2. Prepare all mating surfaces as necessary.



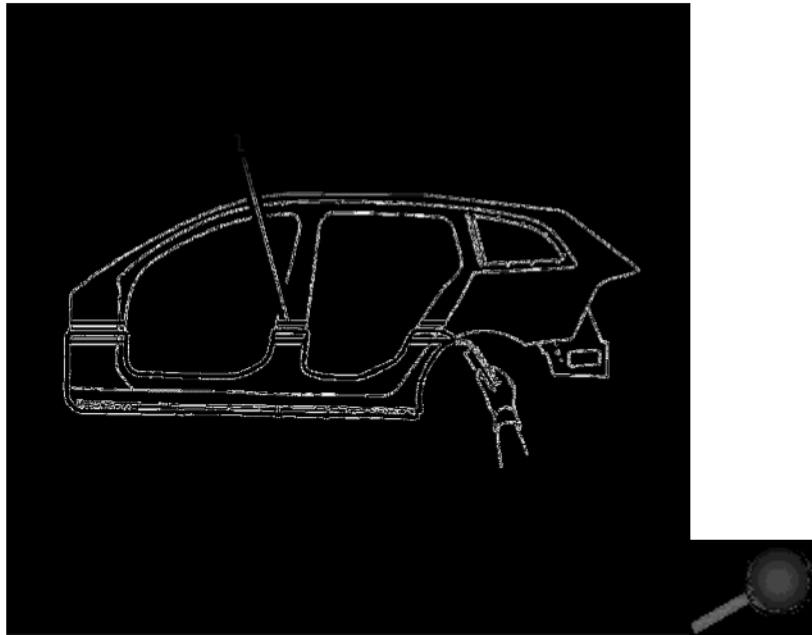
3. Drill 8 mm (5/16 in) plug weld holes in the service part (1), as necessary, in the corresponding locations noted on the original panel and along sectioned joint.
4. Clean and prepare the attaching surfaces for welding.
5. Apply GM approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to [Anti-Corrosion Treatment and Repair](#).



6. Position the rocker outer panel section (1) to the vehicle using 3-dimensional measuring equipment. Clamp the pillar in place.



7. Plug weld the rocker outer panel (1) 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.

**Note:**

- The lower fender bracket should be temporarily installed as previously recorded and the outer panels should be checked for proper fit, prior to the final welding of the brackets.
- Expandable foam will need to be added to the rocker outer panel in the location previously recorded.

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.
11. Install all related panels and components.
12. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).



# Rear Window Panel Reinforcement Replacement

## Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

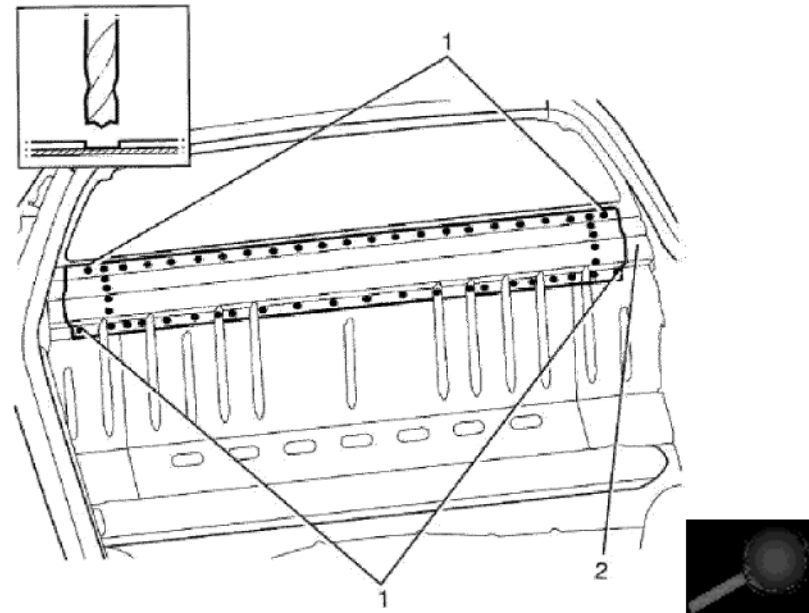
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

3. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
4. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
5. Remove the cargo box liner. Refer to [Cargo Box Liner Replacement](#).
6. Remove the tail lamp. Refer to [Tail Lamp Replacement](#).
7. Remove the fuel tank. Refer to [Fuel Tank Replacement](#).
8. Remove the child restraint tether anchor. Refer to [Child Seat Top Strap Bracket Trim Cover Replacement](#).
9. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
10. Remove the driver and passenger belts. Refer to [Front Seat Belt Retractor Replacement](#).
11. Remove the headlining trim panel. Refer to [Headlining Trim Panel Replacement](#).
12. Remove the battery. Refer to [Battery Replacement](#).
13. Remove the rear window shelf trim panel. Refer to [Rear Window Panel Trim Replacement](#).
14. Remove the remote control door lock receiver. Refer to [Remote Control Door Lock Receiver Replacement](#).
15. Remove the positive battery cable from the vehicle. Refer to [Battery Positive Cable Replacement](#).

16. Remove the body lock pillar applique. Refer to [Quarter Window Rear Reveal Molding Replacement](#).
17. Remove the roof panel rear applique. Refer to [Rear Window Upper Reveal Molding Replacement](#).
18. Remove the body lock pillar applique. Refer to [Quarter Window Rear Reveal Molding Replacement](#).
19. Remove the pickup box cover crossmember bracket. Refer to [Cargo Box Cover Bow Bracket Replacement](#).
20. Remove the rear window. Refer to [Rear Window Replacement](#).
21. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

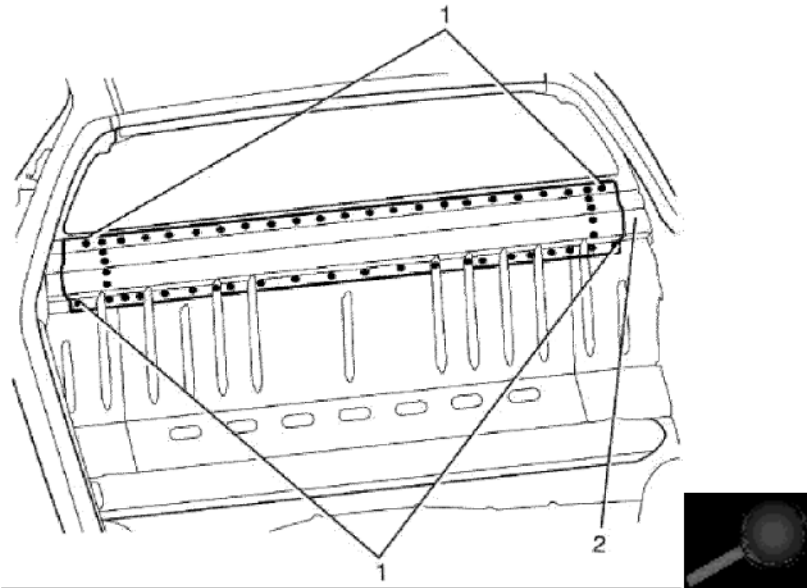


**Note:** Note the number and location of the factory welds for installation of the rear window panel reinforcement.

22. Locate, mark and drill out the spot welds in the rear window panel reinforcement (1) to the rear window panel (2).

### **Installation Procedure**

1. Clean and prepare the mating surfaces of both parts of the panel.



**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.
- Position the rear window panel reinforcement in the central position, noting the location of the original weld points.

2. Weld the rear window panel reinforcement (1) to the rear window panel (2).
3. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
4. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
5. Install the pickup box cover crossmember bracket. Refer to [Cargo Box Cover Bow Bracket Replacement](#).
6. Install the body lock pillar applique. Refer to [Quarter Window Rear Reveal Molding Replacement](#).
7. Install the roof panel rear applique. Refer to [Rear Window Upper Reveal Molding Replacement](#).
8. Install the positive battery cable to the vehicle. Refer to [Battery Positive Cable Replacement](#).
9. Install the remote control door lock receiver. Refer to [Remote Control Door Lock Receiver Replacement](#).
10. Install the headlining trim panel. Refer to [Headlining Trim Panel Replacement](#).
11. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).

12. Install the driver and passenger belts. Refer to [Front Seat Belt Retractor Replacement](#).
13. Install the child restraint tether anchor. Refer to [Child Seat Top Strap Bracket Trim Cover Replacement](#).
14. Install the tail lamp. Refer to [Tail Lamp Replacement](#).
15. Install the cargo liner. Refer to [Cargo Box Liner Replacement](#).
16. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
17. Install the fuel tank. Refer to [Fuel Tank Replacement](#).
18. Lower the vehicle.
19. Install the rear window shelf trim panel. Refer to [Rear Window Panel Trim Replacement](#).
20. Install the battery. Refer to [Battery Replacement](#).
21. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
22. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Body Side Outer Panel Extension Replacement (Ute)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Safety Glasses Warning](#).

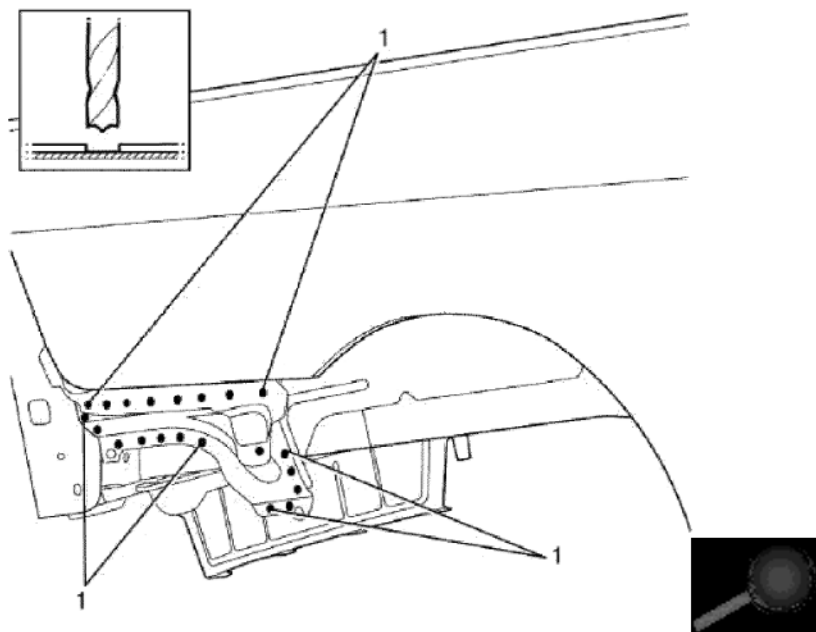
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

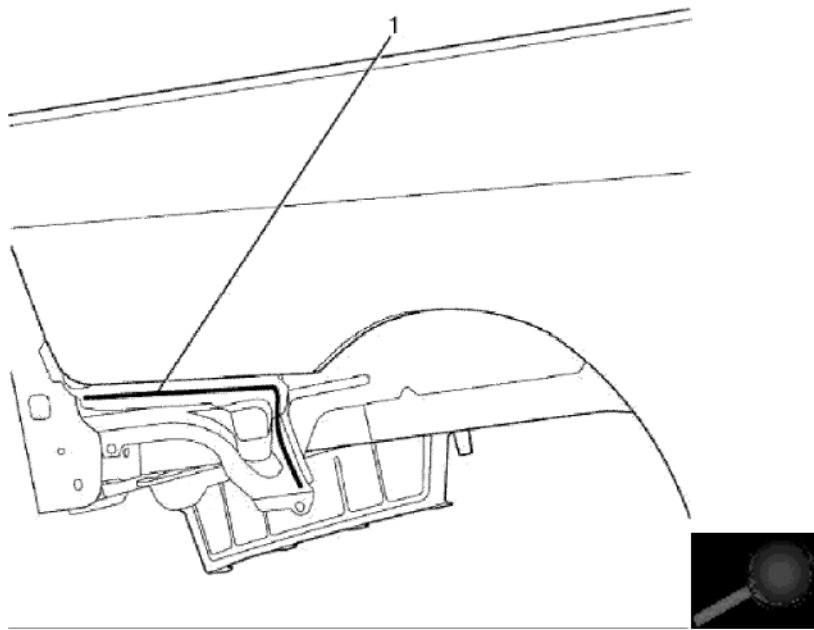
**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
4. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
5. Remove the cargo box liner. Refer to [Cargo Box Liner Replacement](#).
6. Remove the tail lamp. Refer to [Tail Lamp Replacement](#).



7. Locate, mark and drill out the spot welds in the lower extension panel to the body side (1).

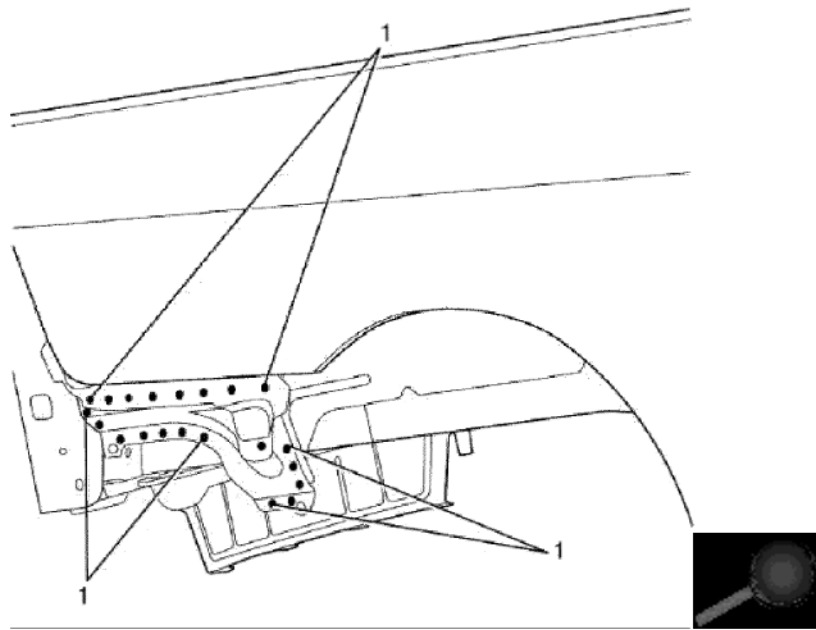
**Installation procedure**



**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

1. Apply the primary sealer along the lower extension panel to the body side (1).
2. Position the lower extension panel to the vehicle.



3. Weld the lower extension panel to the body side (1).
4. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
5. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
6. Install the tail lamp. Refer to [Tail Lamp Replacement](#).
7. Install the cargo box liner. Refer to [Cargo Box Liner Replacement](#).
8. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
9. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
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](#).



## Body Side Outer Panel Extension Replacement (Long Wheelbase Sedan)

### Removal Procedure

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

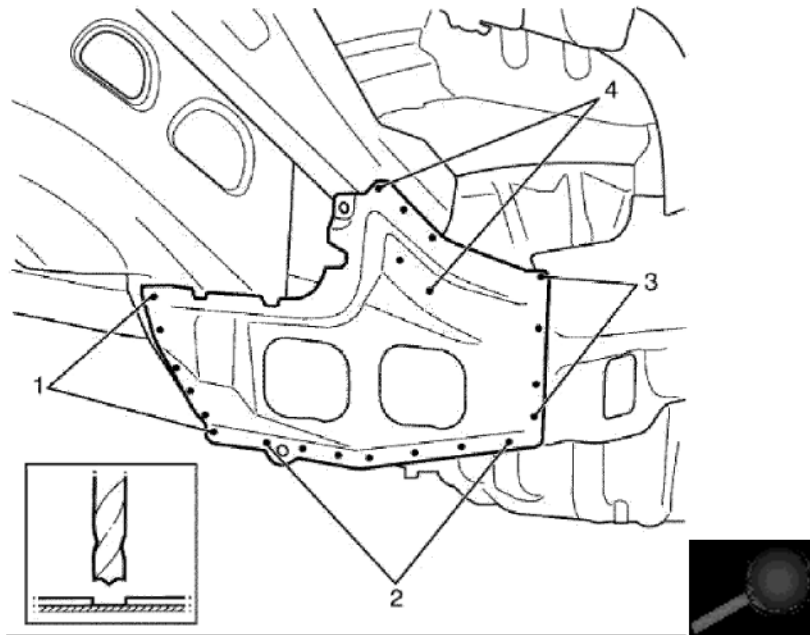
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
4. Remove the rear compartment side trims. Refer to [Rear Compartment Side Trim Panel Replacement](#).
5. Remove the battery. Refer to [Battery Replacement](#).
6. Remove the battery tray. Refer to [Battery Tray Replacement](#).

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

7. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
8. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
9. Remove the rear impact bar. Refer to [Rear Bumper Fascia Insert Replacement](#).
10. Remove the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
11. Remove the tail lights. Refer to [Tail Lamp Replacement](#).
12. Remove the rear quarter panel. Refer to [Quarter Panel Replacement](#).
13. Remove the body tail lamp filler panel. Refer to [Body Tail Lamp Filler Panel Replacement](#).



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

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

14. Locate, mark and drill out the spot welds (1) attaching the body side outer panel rear lower extension to the inner wheelhouse panel.
15. Locate, mark and drill out the spot welds (2) attaching the body side outer panel rear lower extension to the body side inner extension panel.
16. Locate, mark and drill out the spot welds (3) attaching the body side outer panel rear lower extension to the rear end panel.
17. Locate, mark and drill out the spot welds (4) attaching the body side outer panel rear lower extension to the back body pillar inner upper panel.
18. Remove the body side outer panel rear lower extension from the vehicle.
19. Remove all traces on old sealer from the remaining panels on the vehicle in the repair area.

### **Installation Procedure**

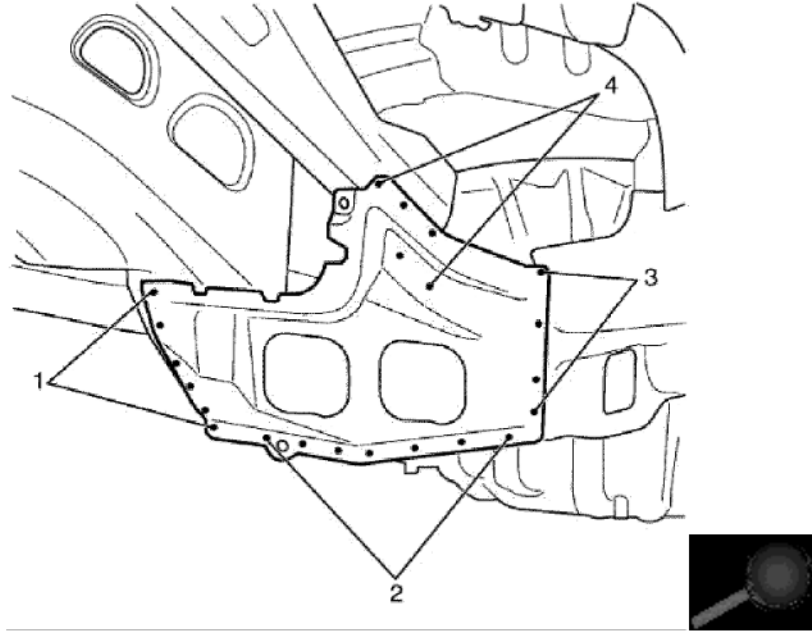
**Note:** If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).

**Note:** Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

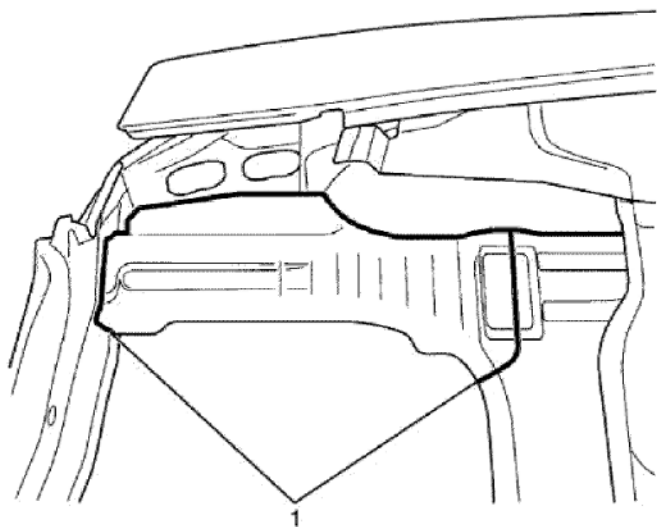
**Note:** Ensure all factory welds are replaced in their original locations.

**Note:** Ensure all structural adhesives and sealers are replaced in their original locations.

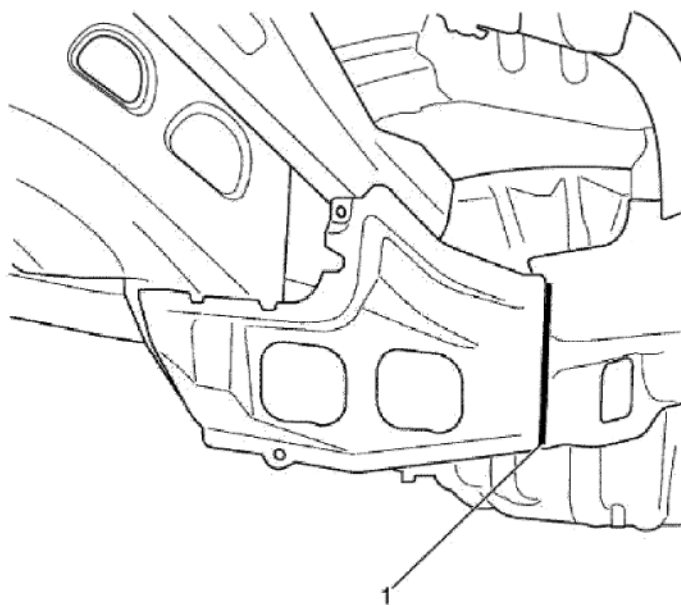
1. Position the tail lamp filler panel to the vehicle.



2. Weld (1) the body side outer panel rear lower extension to the inner wheelhouse panel.
3. Weld (2) the body side outer panel rear lower extension to the body side inner extension panel.
4. Weld (3) the body side outer panel rear lower extension to the rear end panel.
5. Weld (4) the body side outer panel rear lower extension to the back body pillar inner upper panel.



6. Apply secondary sealer (1) GM Specification 9984532 or equivalent around the perimeter of the body side outer panel rear lower extension as shown.



7. Apply secondary sealer (1) GM specification 9984532 or equivalent along the joint between the side body side outer panel rear lower

extension and the rear end panel.

8. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
9. Install the body tail lamp filler panel. Refer to [Body Tail Lamp Filler Panel Replacement](#).
10. Install the rear quarter panel. Refer to [Quarter Panel Replacement](#).
11. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
12. Install the tail lights. Refer to [Tail Lamp Replacement](#).
13. Install the pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
14. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
15. Install the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
16. Install the battery tray. Refer to [Battery Tray Replacement](#).
17. Install the battery. Refer to [Battery Replacement](#).
18. Install the rear compartment side trims. Refer to [Rear Compartment Side Trim Panel Replacement](#).
19. Install the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
- Warning:** Refer to [Battery Disconnect Warning](#).
20. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
21. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Body Side Outer Panel Extension Replacement (Short Wheelbase Sedan)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

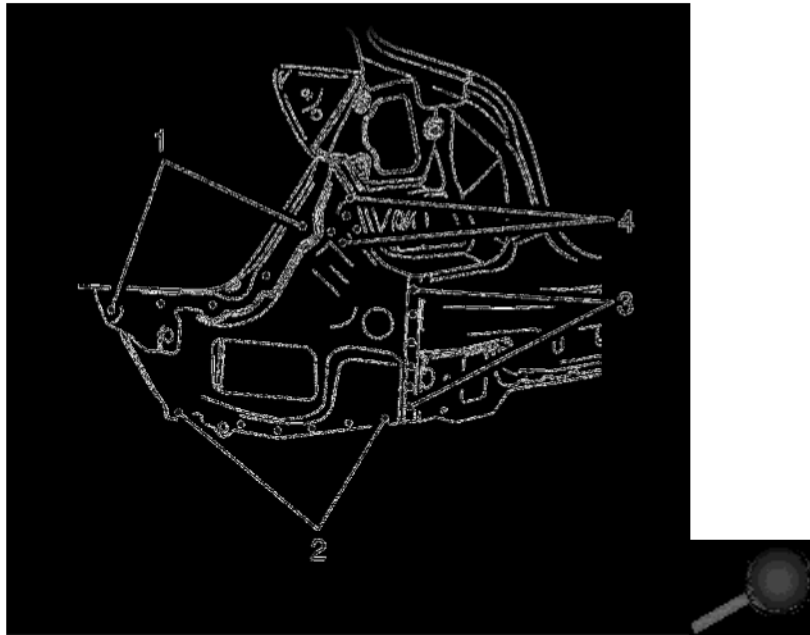
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#)

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#)
3. Remove the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#)
4. Remove the rear compartment side trims. Refer to [Rear Compartment Side Trim Panel Replacement](#)
5. Remove the battery. Refer to [Battery Replacement](#)
6. Remove the battery tray. Refer to [Battery Tray Replacement](#)

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

7. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#)
8. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#)
9. Remove the rear impact bar. Refer to [Rear Bumper Fascia Insert Replacement](#)
10. Remove the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#)
11. Remove the tail lights. Refer to [Tail Lamp Replacement](#)
12. Remove the rear quarter panel. Refer to [Quarter Panel Replacement](#).
13. Remove the body tail lamp filler panel. Refer to [Body Tail Lamp Filler Panel Replacement](#).



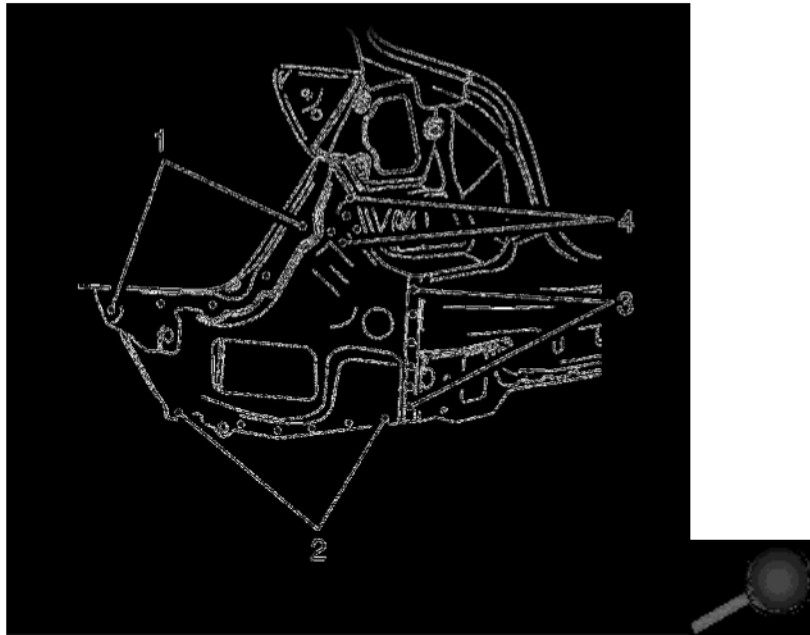
**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

14. Locate, mark and drill out the spot welds (1) attaching the body side outer panel rear lower extension to the inner wheelhouse panel.
15. Locate, mark and drill out the spot welds (2) attaching the body side outer panel rear lower extension to the body side inner extension panel.
16. Locate, mark and drill out the spot welds (3) attaching the body side outer panel rear lower extension to the rear end panel.
17. Locate, mark and drill out the spot welds (4) attaching the body side outer panel rear lower extension to the back body pillar inner upper panel.
18. Remove the body side outer panel rear lower extension from the vehicle.
19. Remove all traces on old sealer from the remaining panels on the vehicle in the repair area.

**Installation procedure**



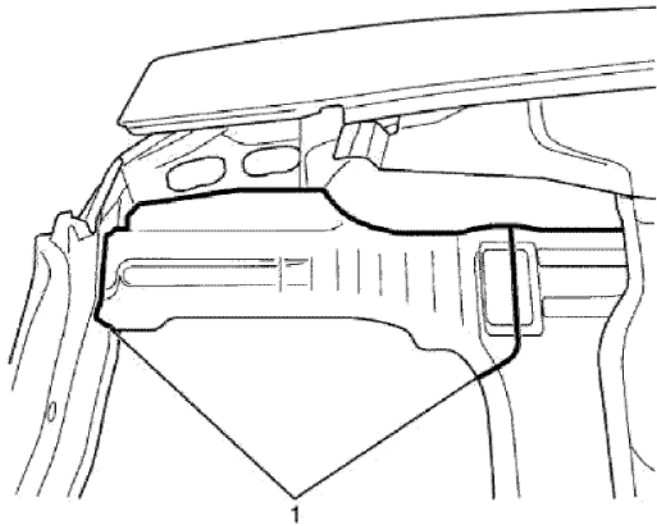


**Note:**

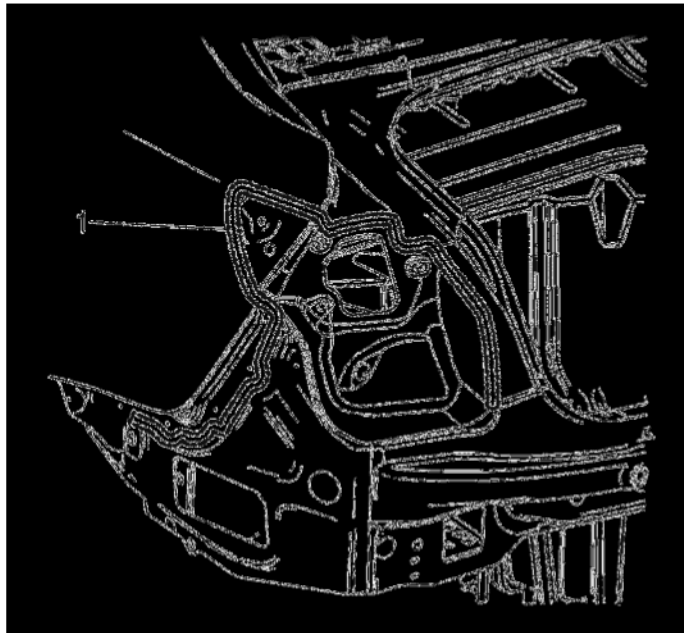
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.
- Ensure all factory welds are replaced in their original locations.
- Ensure all structural adhesives and sealers are replaced in their original locations.

1. Position the tail lamp filler panel to the vehicle.
2. Weld (1) the body side outer panel rear lower extension to the inner wheelhouse panel.
3. Weld (2) the body side outer panel rear lower extension to the body side inner extension panel.
4. Weld (3) the body side outer panel rear lower extension to the rear end panel.
5. Weld (4) the body side outer panel rear lower extension to the back body pillar inner upper panel.





6. Apply secondary sealer (1) GM Specification 9984532 or equivalent around the perimeter of the body side outer panel rear lower extension as shown.



7. Apply secondary sealer (1) GM specification 9984532 or equivalent along the joint between the side body side outer panel rear lower

extension and the rear end panel.

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 the body tail lamp filler panel. Refer to [Body Tail Lamp Filler Panel Replacement](#).
11. Install the rear quarter panel. Refer to [Quarter Panel Replacement](#).
12. Install the tail lights. Refer to [Tail Lamp Replacement](#)
13. Install the pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#)
14. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#)
15. Install the rear wheels. Refer to [Tire and Wheel Removal and Installation](#)
16. Install the battery tray. Refer to [Battery Tray Replacement](#)
17. Install the battery. Refer to [Battery Replacement](#)
18. Install the rear compartment side trims. Refer to [Rear Compartment Side Trim Panel Replacement](#)
19. Install the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#)
- Warning:** Refer to [Battery Disconnect Warning](#).
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](#)
22. If re-programming is required. Refer to [Control Module References](#)

## Body Side Outer Panel Sectioning (Ute)

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

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

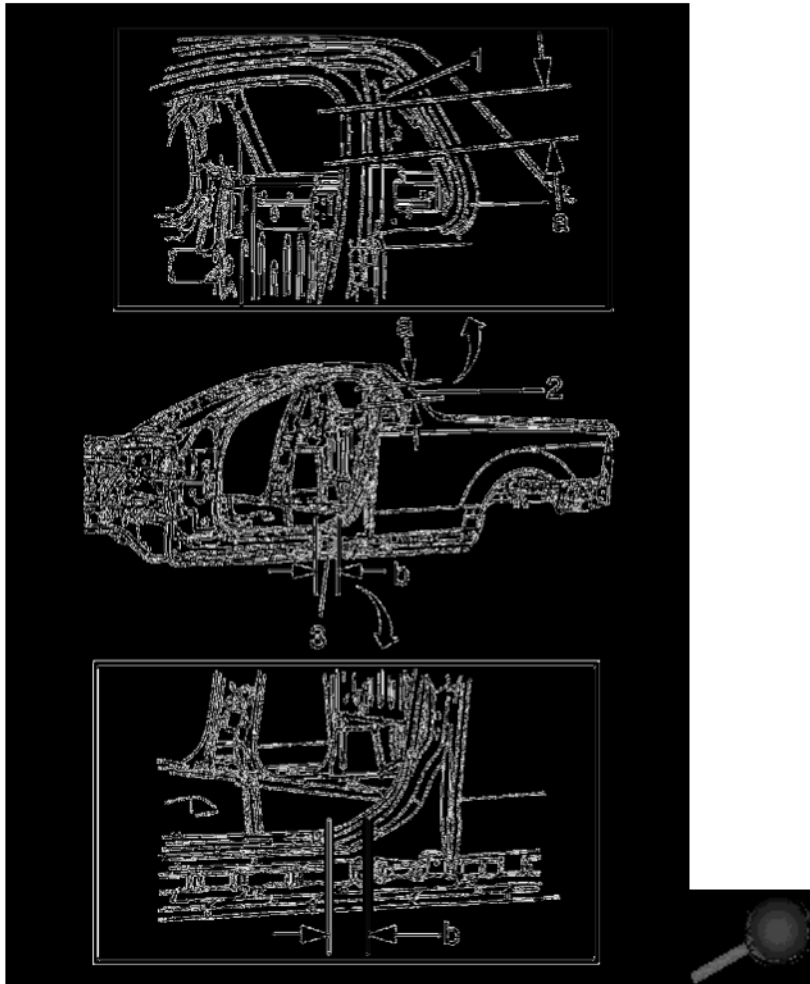
**Warning:** Refer to [Glass and Sheet Metal Handling Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

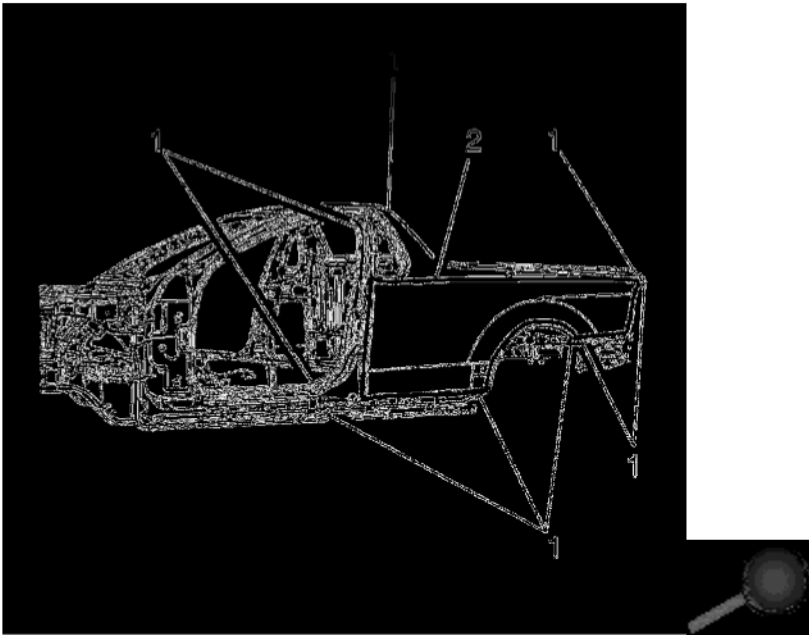
**Note:**

- This procedure only covers sectional repair of the rear portion of the body-side outer panel. The body-side outer panel is supplied as a complete panel which must be cut at the sectioning points described in this procedure prior to installation. Only the rear portion of the body-side outer panel may be replaced as described in this procedure.
- If damage has occurred to any high strength steel components, then the vehicle requires a complete body side outer assembly. Refer to [Panel Identification](#)
- Care to be taken when cutting through the outer panel that no high strength steel panels are also cut.
- Service panel must be fitted prior to pumpable sealer curing.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 40 mm (1 ½ in) apart.

1. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
2. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
3. Carry out repairs and inspections required after a collision. Refer to [Repairs and Inspections Required After a Collision](#).
4. Restore as much of the damage as possible to factory specifications. Refer to [Dimensions - Body](#).
5. Remove all related panels and components.
6. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

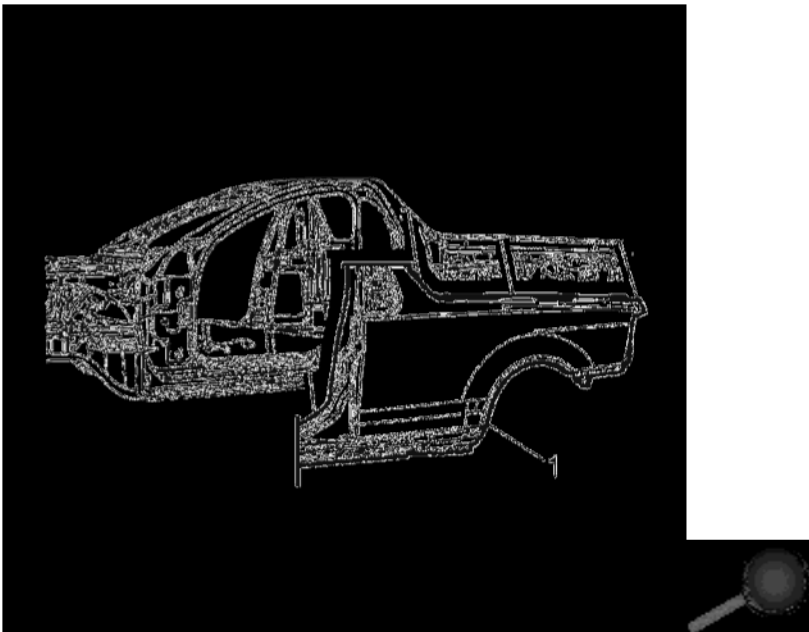


7. Mark a cut location on the B-pillar (a). Make a 90 degree cut approximately 80-100 mm (3-4 in) below the window datum point (1), through the quarter glass opening (2), keeping clear of the window attachment holes. Mark a cut location in the straight area (b). Make a 90 degree cut at least 140 mm (5 in) forward of the bottom of the door datum point (3) on the rocker panel.

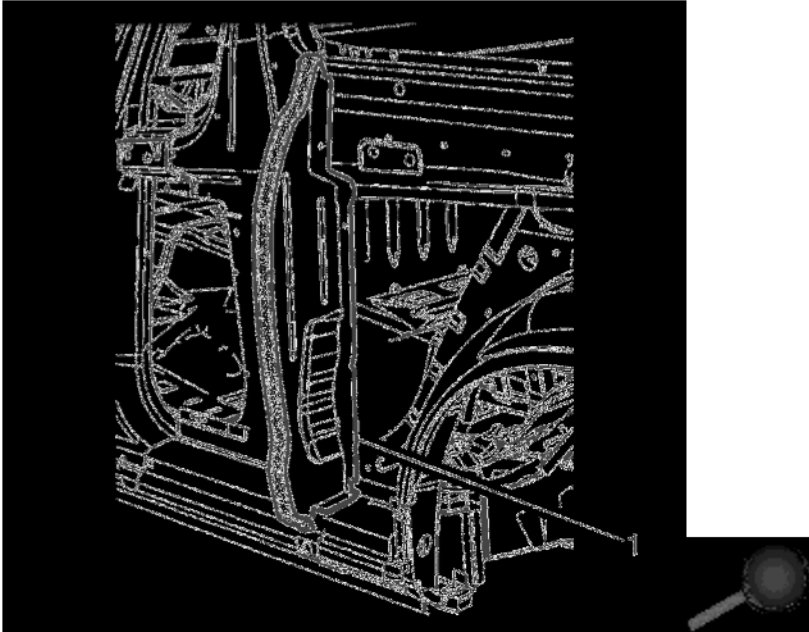


8. Cut the quarter outer panel (1) at the marked locations.

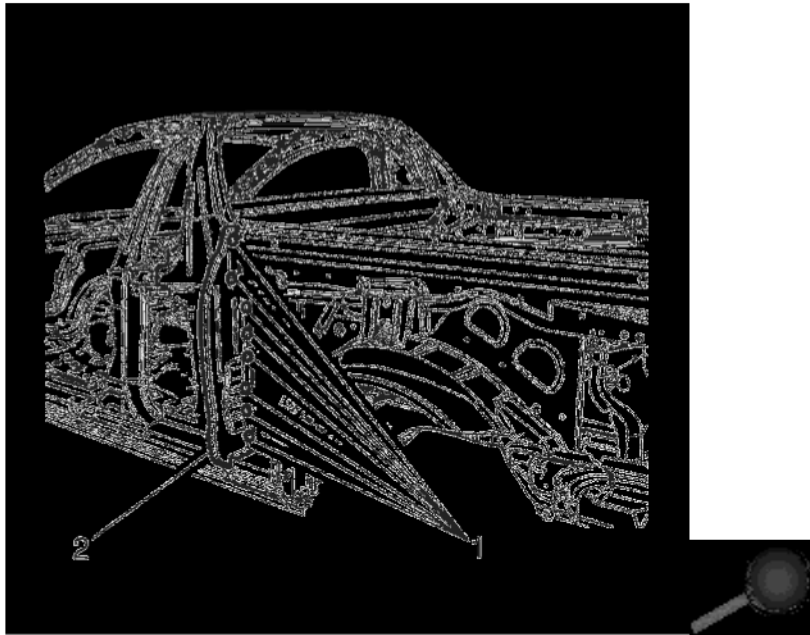
9. Locate and drill out all factory welds. Note the number and location of welds for installation of the quarter outer panel (2).



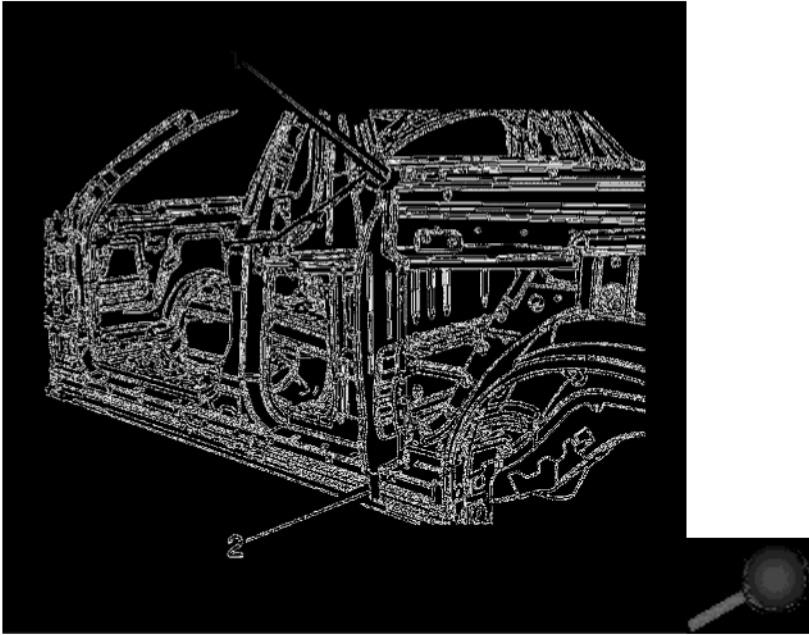
10. Remove the damaged quarter panel (1).
11. If damage has occurred to any high strength steel components, the vehicle requires a complete body side outer assembly. Refer to [Panel Identification](#).
12. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



13. Inspect the baffle (1) and replace if damaged as follows.

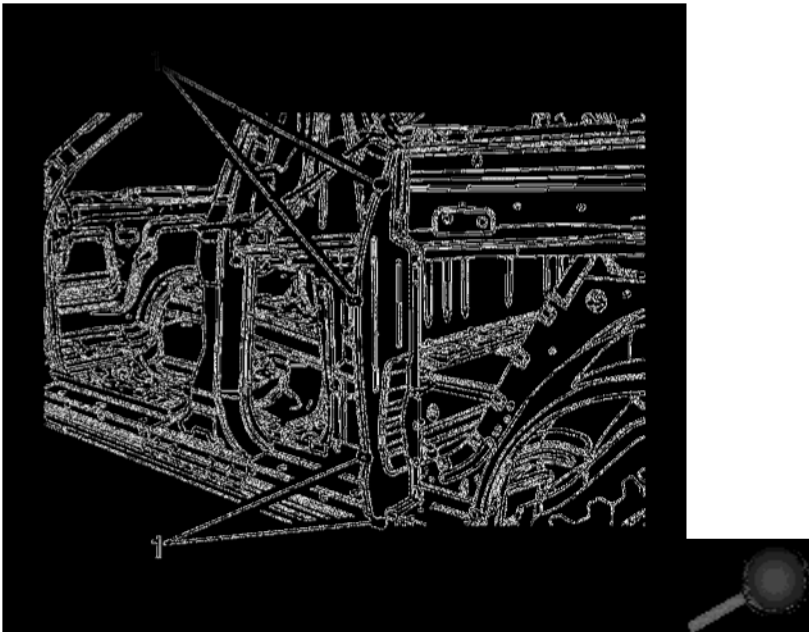


14. Locate and drill out factory welds in the approximate locations shown above (1).
15. Remove damaged metal baffle (2).
16. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary.
17. Drill 8 mm (5/16 in) plug weld holes in the service part as necessary in the locations noted from the original panel. If weld locations are not available, plug weld locations shown.
18. Apply GM approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to [Anti-Corrosion Treatment and Repair](#).
19. Clamp baffle in place ensuring the dam wall and baffle are both fixed in their original locations and plug weld baffle in place.
20. Run pumpable sealer along inside edge and base of replacement baffle. Ensure that sealer is pumped forward of any holes along the baffle edge. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#).
21. Run pumpable sealer along the seam between the body side inner, rocker and the baffle.
22. Cut 2 x 40 mm (1 ½ in) and 1 x 110 mm (4 in) strips from length of foam tape.



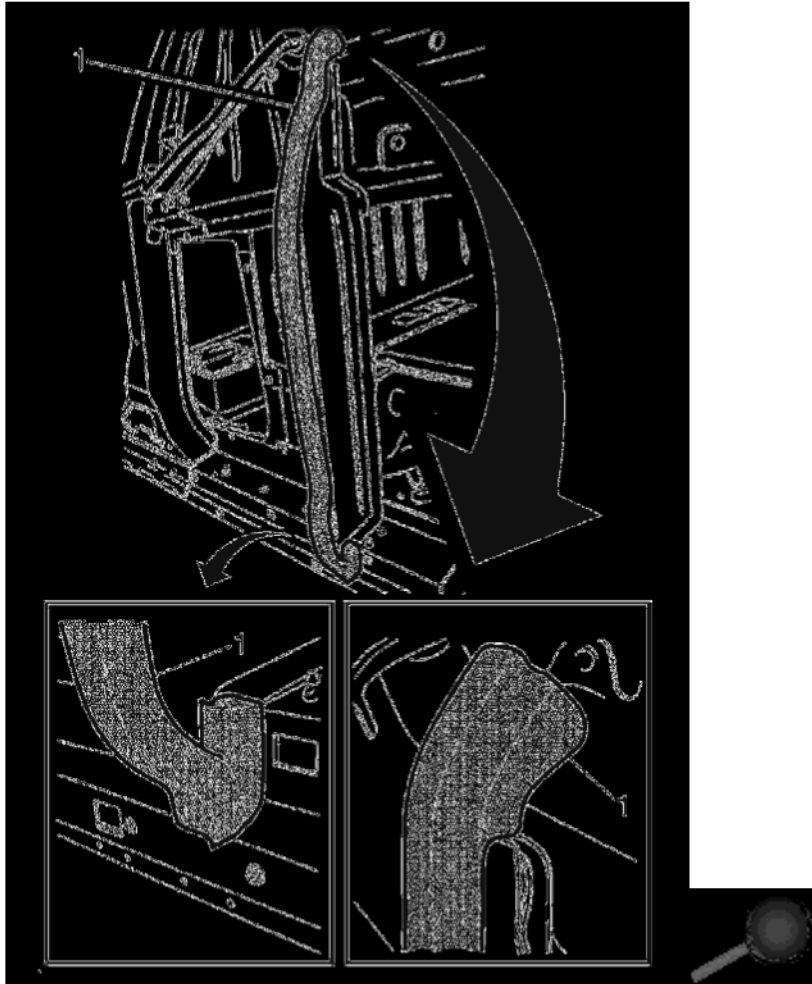
23. Apply first 40 mm (1 ½ in) strip above baffle in line with the baffle rim(1).

24. Apply second 40 mm (1 ½ in) strip at the base of the baffle between baffle rim and the rocker (2).

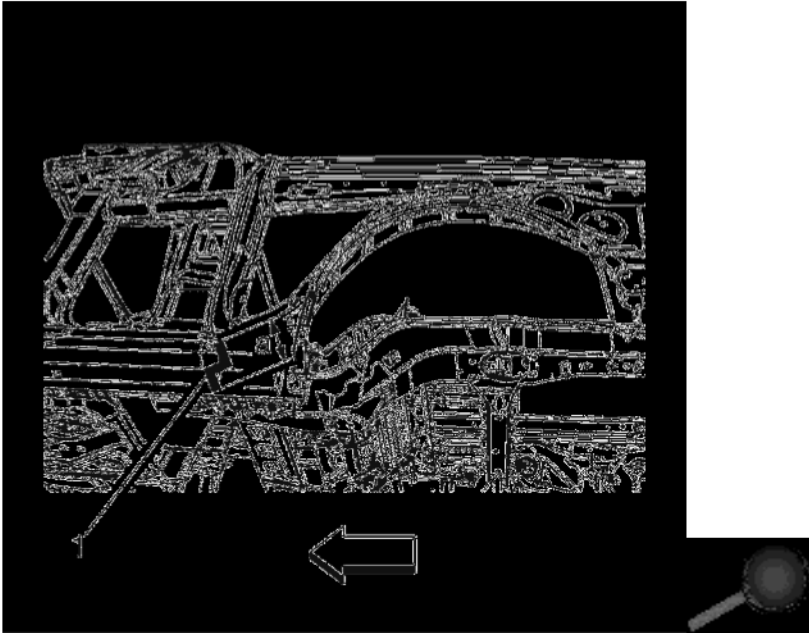




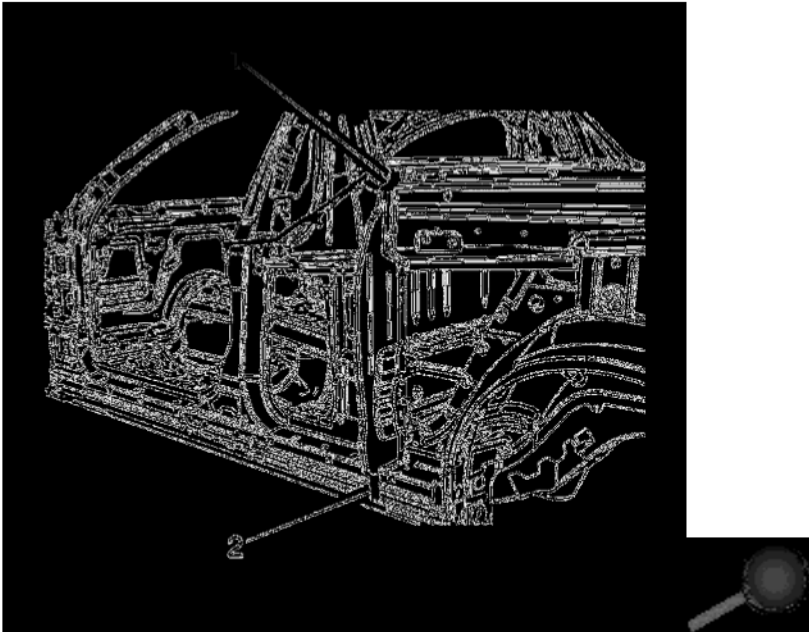
25. Cut the 4 foam retaining tabs off, located as shown, on the baffle rim(1).



26. Run remaining foam tape from the top edge of top-most foam to the base of the lower foam piece. Trim any excess tape (1).

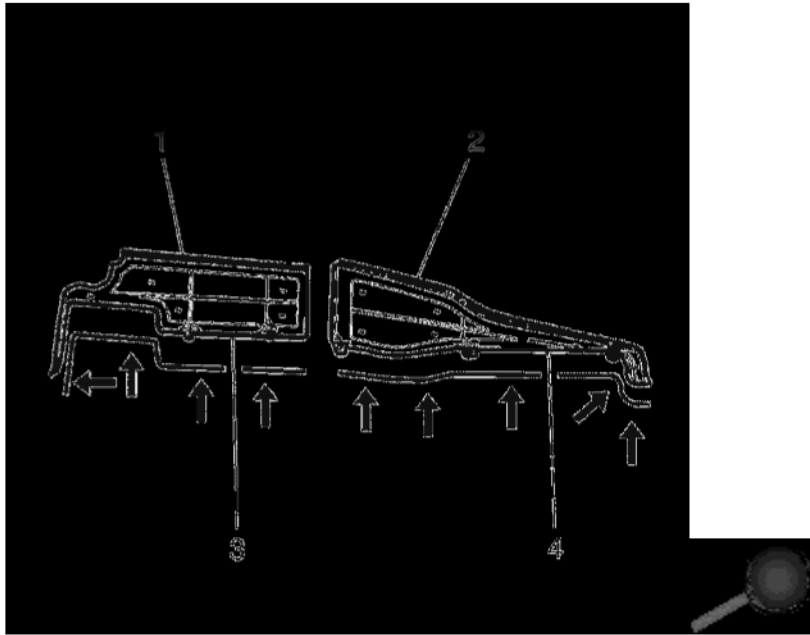


27. Apply the 110 mm (4 in) (A) of foam tape to the underside of the rocker in line with the baffle rim(1).

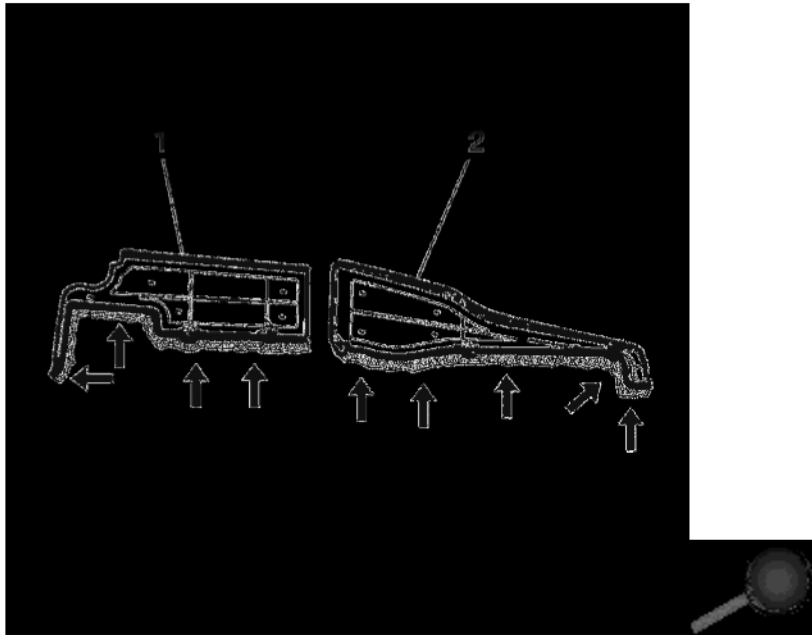


**Note:** Service panel must be fitted prior to pumpable sealer curing.

28. Seal any gaps using pumpable sealer and run sealer along the length of the foam to ensure a good seal between the baffle and the body side outer. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#).



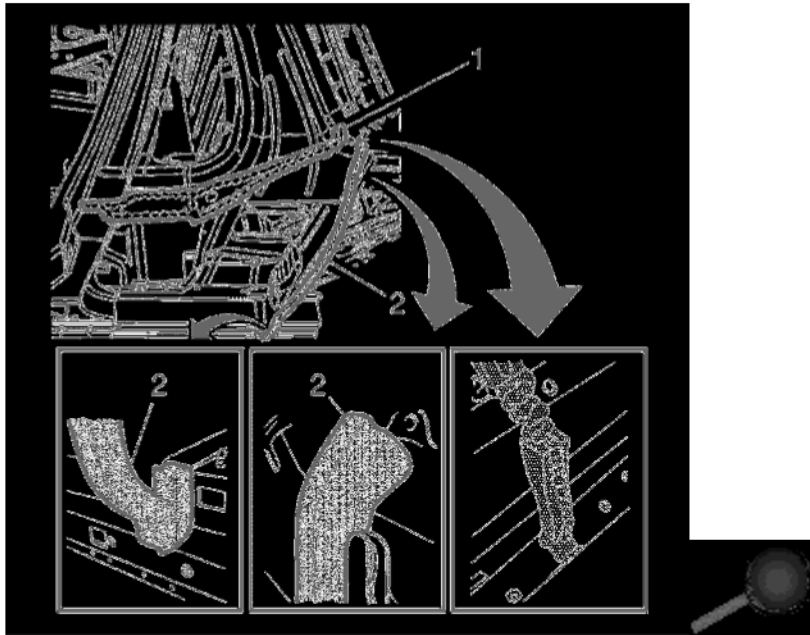
29. Remove and discard the rubber (3) and (4) attached to the plastic carriers. Remove paper backing from foam baffle (1) and fix to corresponding carrier. Use 5 mm thick foam for the inside edge, and 10 mm thick foam for the outside edge. Repeat with the second carrier (2).



30. Apply sealer along inside edge of foam baffles (1) and (2). Refer to [Adhesives, Fluids, Lubricants, and Sealers](#).

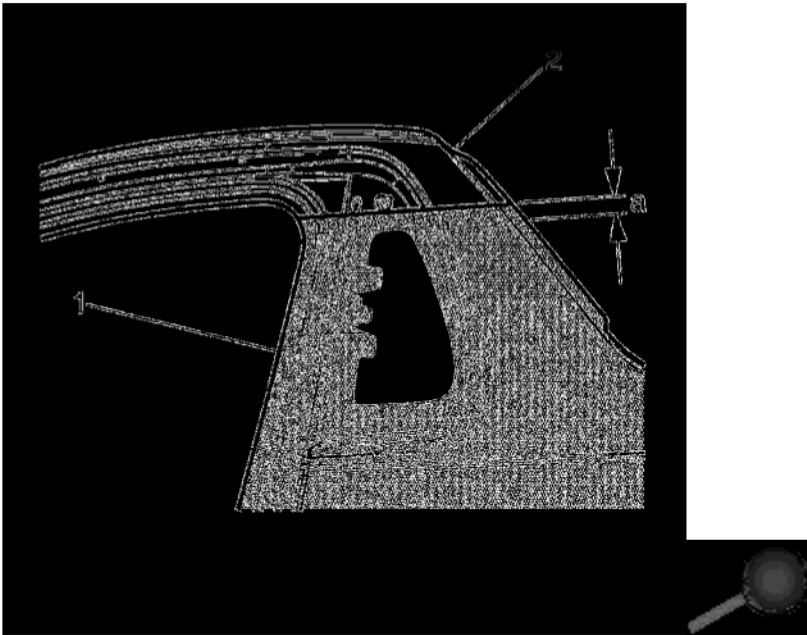


31. Clip the baffles to the body side inner upper(1).

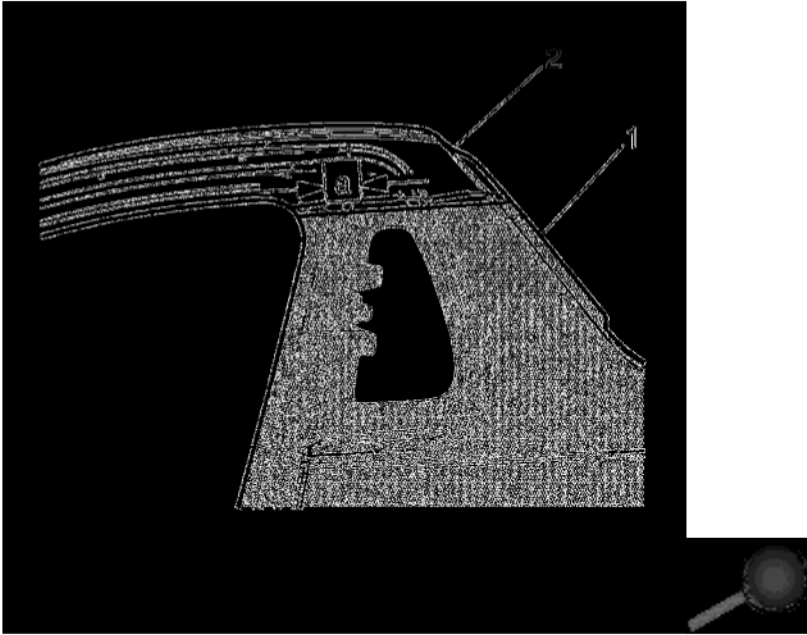


**Note:** Once the sealer is applied, the quarter panel fitment and welding must be completed within approximately one hour, to ensure the sealer provides optimum performance.

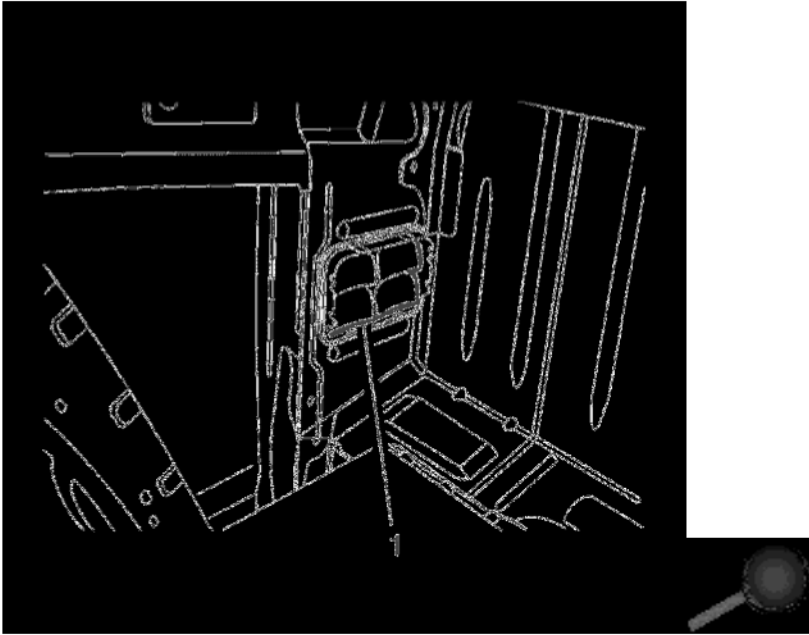
32. Seal any gaps using sealer and run along the length of the foam to ensure a good seal between the baffle and the body side outer (1) and (2). Ensure any gaps in the C-pillar reinforcement are sealed. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#).



33. From the service part (1), cut the panel in corresponding locations to overlap the remaining original panel (2) by 25 mm (1 in) (a) at each joint location, alternatively a butt joint with no overlap can be used.
34. Prepare all mating surfaces as necessary.
35. Drill 8 mm (5/16 in) plug weld holes in the service part (1), as necessary, in the corresponding locations noted on the original panel and along sectioned joint.
36. Clean and prepare the attaching surfaces for welding.
37. Apply GM approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to [Anti-Corrosion Treatment and Repair](#).
38. Position the quarter outer panel section to the vehicle using 3-dimensional measuring equipment. Clamp the quarter outer panel in place.
39. Plug weld the quarter outer panel (1) accordingly.



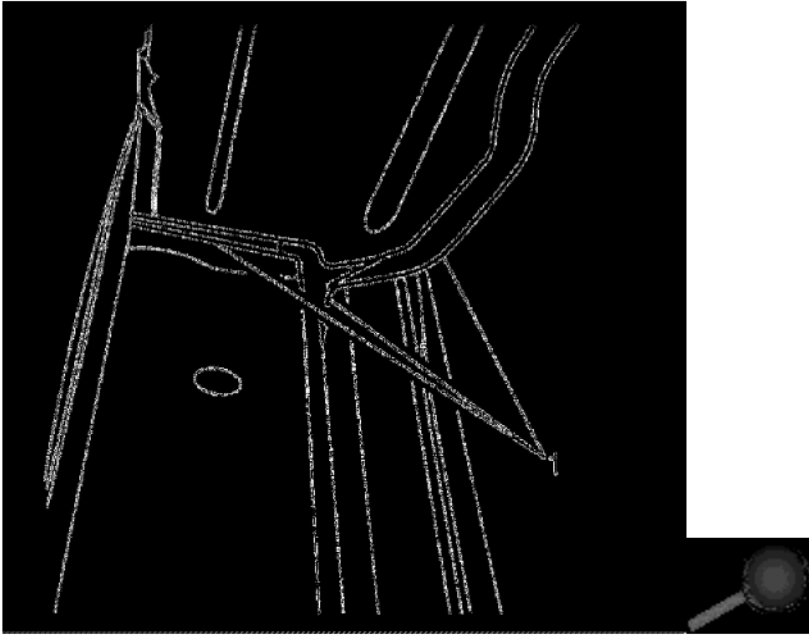
40. To create a solid weld with minimum heat distortion, make 25 mm (1 in) (a) stitch welds (2) along the seam with 25 mm (1 in) (a) gaps between them. Then go back and complete the stitch weld.
41. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:** This air leak test procedure should only to be carried out 24 hours after the body side outer panel has been fitted to allow for pumpable sealer curing.

42. Seal off both the left hand side and right hand side pressure relief valve with duct tape or equivalent (1).
43. Turn the ignition key on.
44. Turn the front compartment fan to maximum, drawing air from the outside (fresh air).
45. Close all doors and windows to allow for front compartment area to be pressurized.





46. Check for any air leaks along the newly resealed area rearward of the pressure relief valve (1).
47. Paint the repair area. Refer to [Basecoat/Clearcoat Paint Systems](#).
48. Install all related panels and components.
49. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
50. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

## Rear Floor Panel Replacement (Sedan, Sportwagon with LPG)

### Special Tools

J-36020 Stationary Glass Removal Tool

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

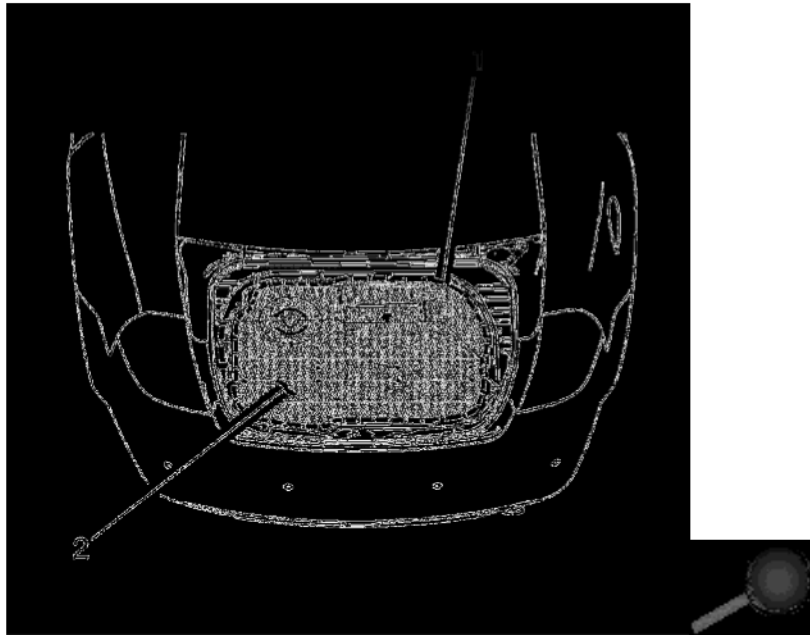
**Warning:** In order to reduce the risk of personal injury when exposed to toxic fumes while grinding, cutting, or applying repair material on any type of sheet molded compound or RIM rigid plastic, observe the following guidelines:

- 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

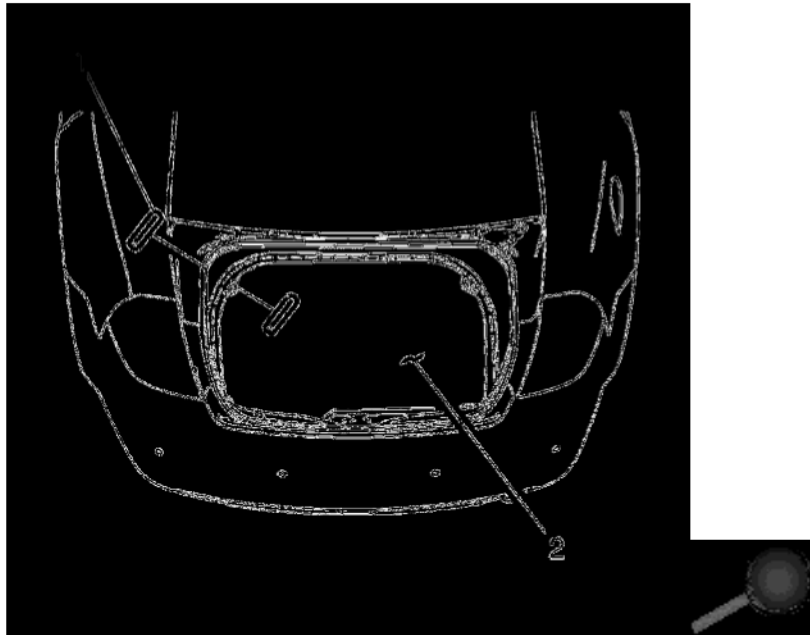
1. Remove the rear compartment floor carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
2. Remove the spare wheel and emergency kit from the rear compartment.



**Note:**

- Take care when cutting to avoid damage to adjacent panels and other parts of the vehicle.
- The spare wheel carrier panel is a single use item. The spare wheel well panel must be discarded after use.

3. Cut along the spare wheel carrier panel (1) with a suitable tool.
4. Remove the cutout section of the spare wheel carrier panel (1) from the vehicle.



**Note:**

- Stationary glass removal tool *J-36020* stationary glass removal tool (1) is used to cut the urethane adhesive between the remaining part of the spare wheel carrier panel (2) and the vehicle body (3).
- Use a suitable tool to install the piano wire of stationary glass removal tool *J-36020* stationary glass removal tool (1) through the urethane at a suitable corner of the spare wheel carrier compartment (2).

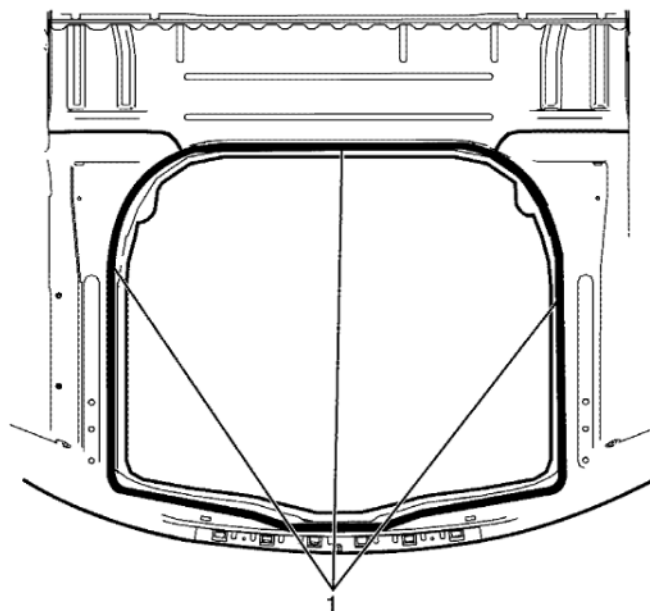
5. Install stationary glass removal tool *J-36020* stationary glass removal tool (1) to the vehicle.

**Note:** Keep the outside handle of stationary glass removal tool *J-36020* stationary glass removal tool (1) against the vehicle body (3) and cycle the full length of the piano wire to prevent heat build up.

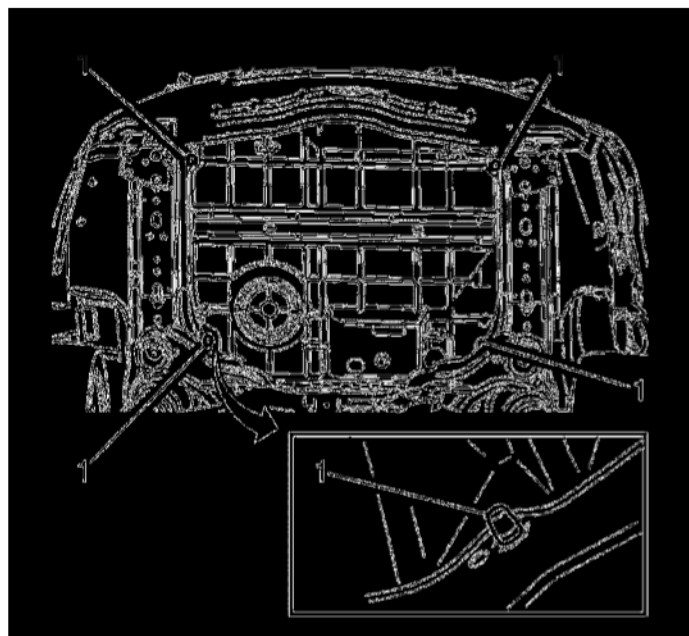
6. Cut through the urethane adhesive between the remaining part of the spare wheel carrier panel (2) and vehicle body (3) with the aid of an assistant.

Discard the remaining section of the spare wheel carrier panel.

**Installation Procedure**

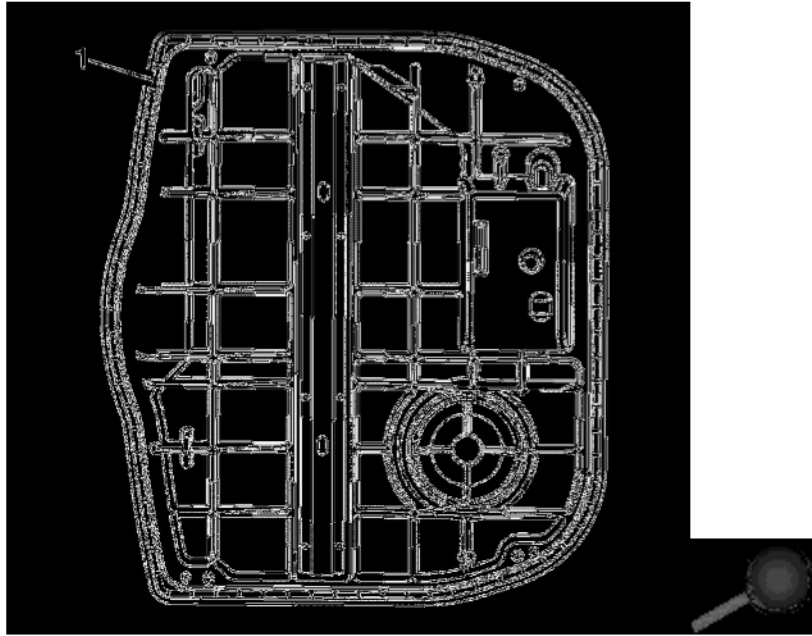


1. Clean the rear compartment panels of all remaining adhesive (1) using a suitable cleaning solution.



**Note:** Make sure that the spare wheel carrier panel datum pins (1) are correctly located in the rear compartment panels.

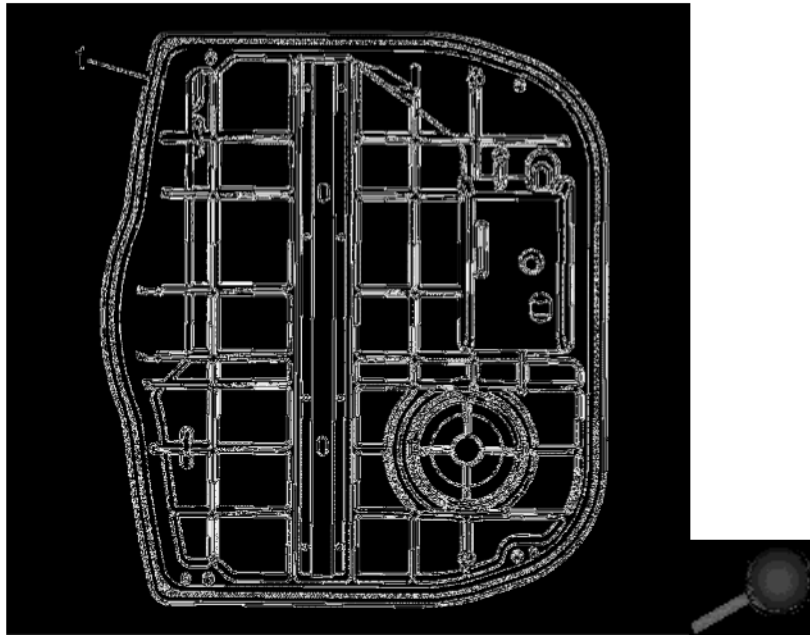
2. Test fit the spare wheel carrier panel to the rear compartment panels and carry out any adjustments as required.



**Note:**

- If air drying the primer, allow at least 60 minutes in a well ventilated area for the primer to dry fully.
- If hot drying the primer, the oven temperature needs to be between 94°C (200°F) and 121°C (250°F), for 10 minutes.

3. Thoroughly clean the bonding area of the spare wheel carrier using Isopropyl Alcohol, Prepsol or Equivalent.
4. Brush a continuous line of primer with a minimum width of 25 mm (1 in) to GM specification GM9985813 (or alternatively Lord 459X) on the bonding area of the spare wheel carrier.
5. Allow the primer to dry.



**Note:** Make sure that the rear compartment panels and the spare wheel carrier panel are free of any contaminants.

6. Apply a continuous bead of urethane GMW3041 (1) or equivalent approximately 10 mm in diameter to the bonding area of the spare wheel carrier.

**Note:**

- Fit the spare wheel carrier panel to the rear compartment panels within 30 minutes of applying the adhesive to the spare wheel carrier panel.
- Do not allow the adhesive bead to come into contact with the vehicle body until the spare wheel carrier panel is correctly aligned with the rear compartment panels.

7. With the aid of an assistant install the NEW spare wheel carrier panel to the vehicle.

8. Make sure that the adhesive all around the spare wheel carrier panel makes contact with the rear compartment panels.

**Note:**

- DO NOT drive the vehicle for 24 hours after fitting the spare wheel carrier panel to allow the adhesive to fully cure.
- Installing the spare wheel to the spare wheel carrier panel aids with the adhesion of the spare wheel carrier panel to the rear compartment panels.

9. Install the spare wheel to the spare wheel carrier panel.

10. Place one kilogram weights along the edges of the spare wheel carrier panel (3) to aid with the adhesion of the spare wheel carrier panel to the rear compartment panels.

11. Install the emergency kit to the rear compartment.
12. Install the rear compartment floor carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).



## Rear Floor Panel Replacement (UTE)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

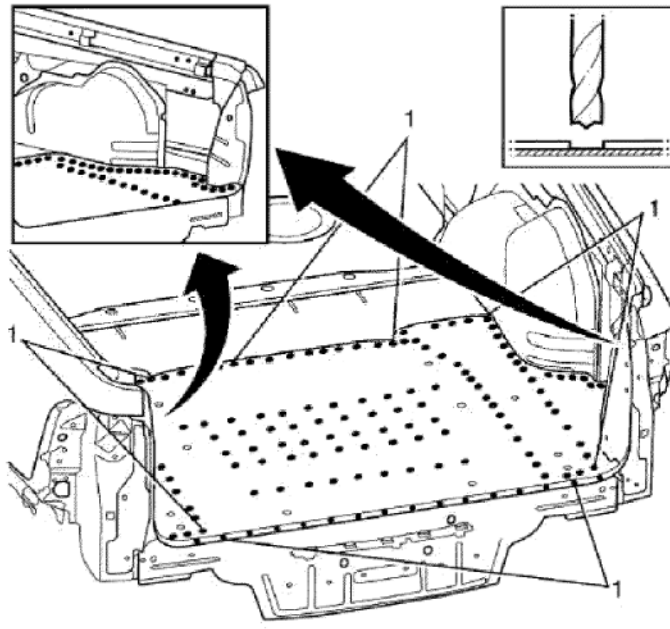
**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the cargo box liner. Refer to [Cargo Box Liner Replacement](#).
4. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
5. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
6. Remove the fuel tank. Refer to [Fuel Tank Replacement](#).
7. Remove the pickup box cover side rail end cover. Refer to [Quarter Panel Upper Rear Molding Replacement](#).
8. Remove the body side rear trim panel stowage compartment outer cover . Refer to [Pickup Box Cover Side Rail Replacement](#).
9. Remove the endgate. Refer to [Endgate Replacement](#).
10. Remove the tail lamps. Refer to [Tail Lamp Replacement](#).
11. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



12. Locate, mark and drill out the factory welds attaching the rear floor panel to the vehicle (1).

### Installation Procedure

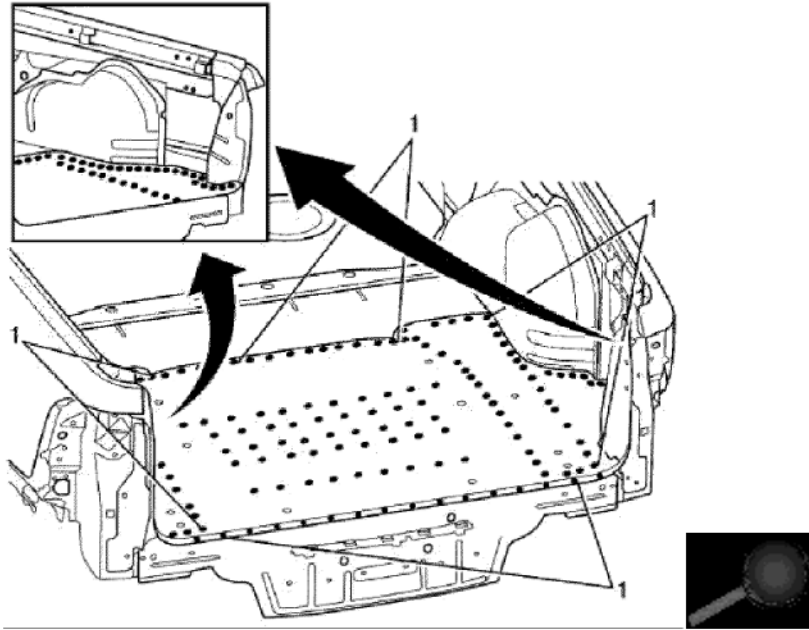
**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.

**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

2. Clean and prepare the mating surfaces of both parts of the body side panel assembly.



3. Weld the rear floor assembly to the vehicle (1).
4. Install the fuel tank. Refer to [Fuel Tank Replacement](#).
5. Install the body side rear trim panel stowage compartment outer cover . Refer to [Pickup Box Cover Side Rail Replacement](#).
6. Install the pickup box cover side rail end cover. Refer to [Quarter Panel Upper Rear Molding Replacement](#).
7. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
8. Install the endgate. Refer to [Endgate Replacement](#).
9. Install the tail lamps. Refer to [Tail Lamp Replacement](#).
10. Install the cargo box liner. Refer to [Cargo Box Liner Replacement](#).
11. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
12. Connect the negative battery cable to the vehicle. Refer to [Battery Negative Cable Disconnection and Connection](#).
13. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
14. If re-programming is required. Refer to [Control Module References](#).

## Spare Wheel Hoist Reinforcement

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

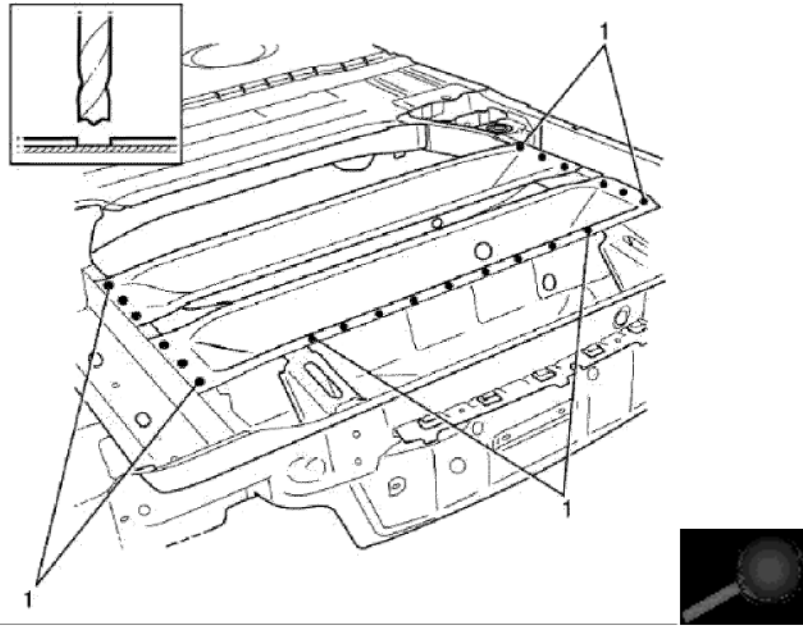
**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the cargo liner. Refer to [Cargo Box Liner Replacement](#).
4. Remove the fuel tank. Refer to [Fuel Tank Replacement](#).
5. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
6. Remove the rear floor panel. Refer to [Rear Floor Panel Replacement](#).
7. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

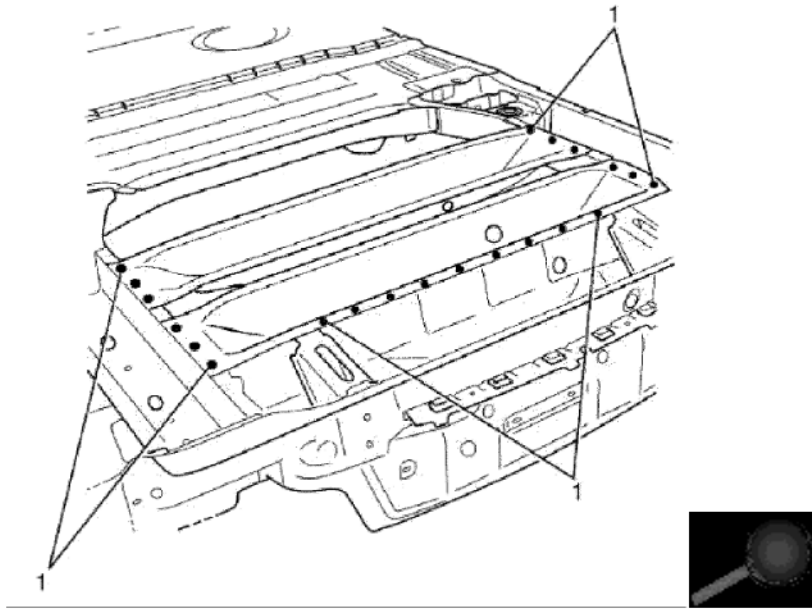


**Note:** Note the number and location of the factory welds for installation of the spare wheel support carrier.

8. Locate, mark and drill out the spot welds in the spare wheel support carrier to the rear crossmember and subframe (1).

#### Installation Procedure

1. Clean and prepare the mating surfaces of both parts.



**Note:**

- Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.
- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- Position the spare wheel support carrier assembly locating the winch hole on the right-hand side of the vehicle, note the location of the original weld points.

2. Weld the spare wheel support carrier to the rear crossmember and subframe (1).
3. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
4. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
5. Install the rear floor panel. Refer to [Rear Floor Panel Replacement](#).
6. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
7. Install the fuel tank. Refer to [Fuel Tank Replacement](#).
8. Install the cargo liner. Refer to [Cargo Box Liner Replacement](#).
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](#).

## Rear Compartment Lid Strut Stud Replacement

**Important:** The rear compartment lid strut stud is not replaceable.

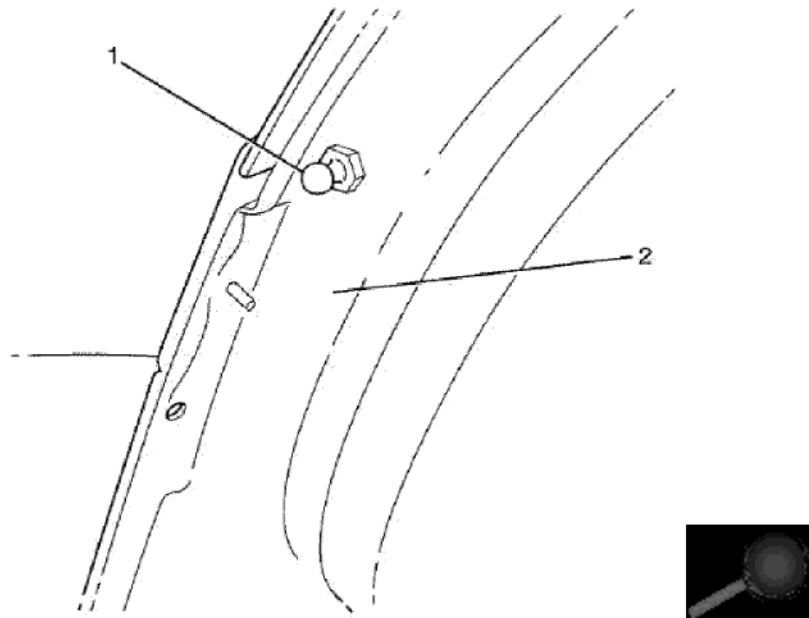
Replace the rear compartment lid hinge. Refer to [Rear Compartment Lid Hinge Replacement](#).

## Liftgate Strut Stud Replacement (Liftgate Side)

### Removal Procedure

**Note:** When a suitable hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury.

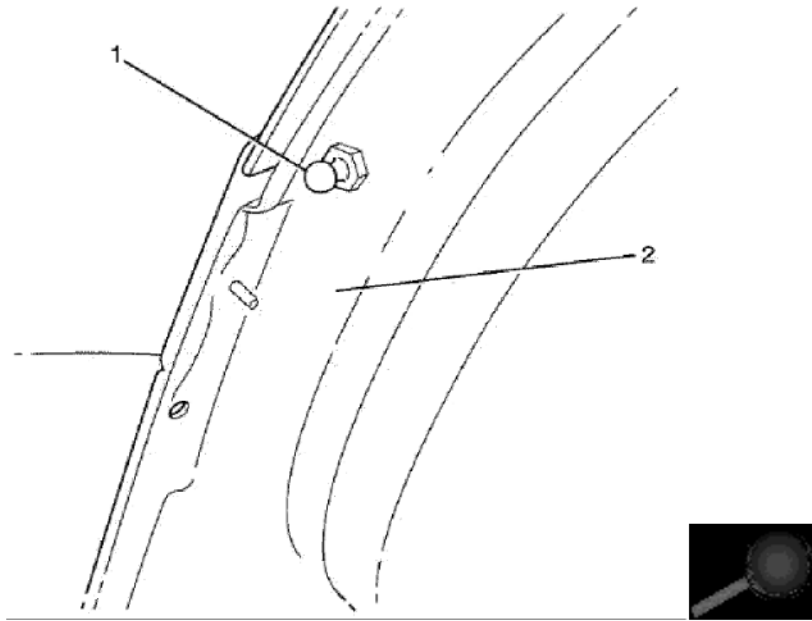
1. Install a suitable liftgate brace to the vehicle.
2. Remove the liftgate strut. Refer to [Liftgate Strut Replacement](#).



3. Remove the liftgate strut stud (1) from the liftgate (2).

### Installation Procedure





**Caution:** Refer to [Fastener Caution](#).

1. Install the liftgate strut stud (1) to the liftgate (2).

**Tighten**

Tighten the stud to 22 N•m (16 lb ft).

2. Install the liftgate strut. Refer to [Liftgate Strut Replacement](#).

**Note:** When a suitable hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury.

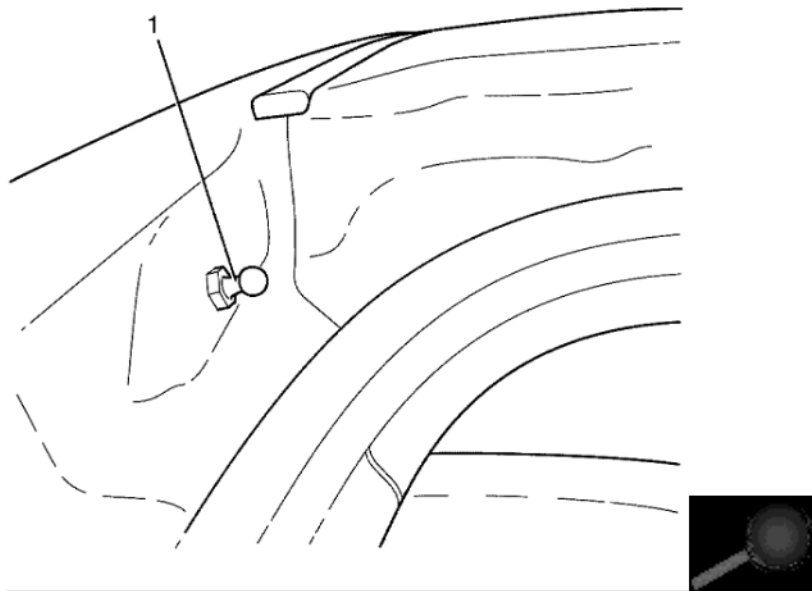
3. Remove the suitable liftgate brace from the vehicle.

## Liftgate Strut Stud Replacement (Body Side)

### Removal Procedure

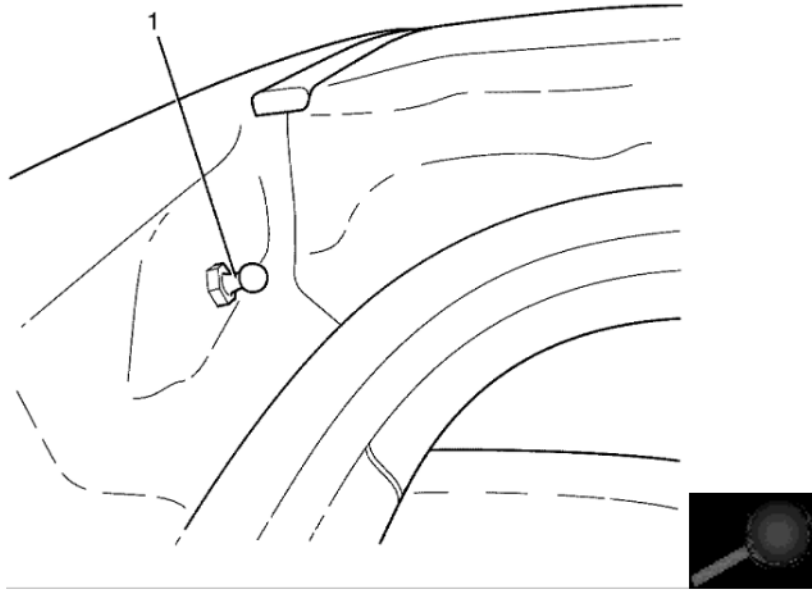
**Note:** When a suitable hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury.

1. Install a suitable liftgate brace to the vehicle.
2. Remove the liftgate strut. Refer to [Liftgate Strut Replacement](#).



3. Remove the liftgate strut stud (1) from the rear quarter panel.

### Installation Procedure



**Caution:** Refer to [Fastener Caution](#).

1. Install the liftgate strut stud (1) to the rear quarter panel.

**Tighten**

Tighten the stud to 15 N•m (11 lb ft).

2. Install the liftgate strut. Refer to [Liftgate Strut Replacement](#).

**Note:** When a suitable hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury.

3. Remove the suitable liftgate brace from the vehicle.

# Exhaust Muffler Bracket Replacement

## Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [SIR Warning](#).

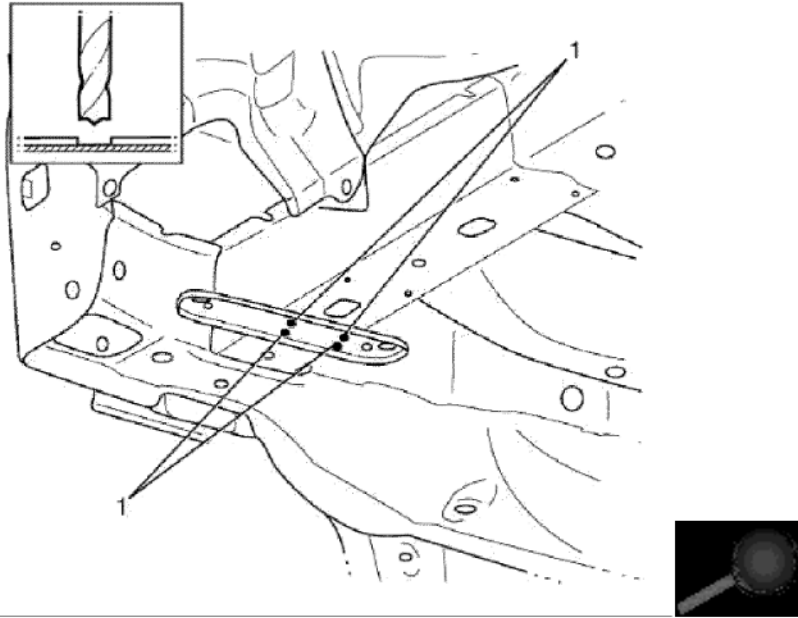
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

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

**Warning:** Refer to [Safety Glasses Warning](#).

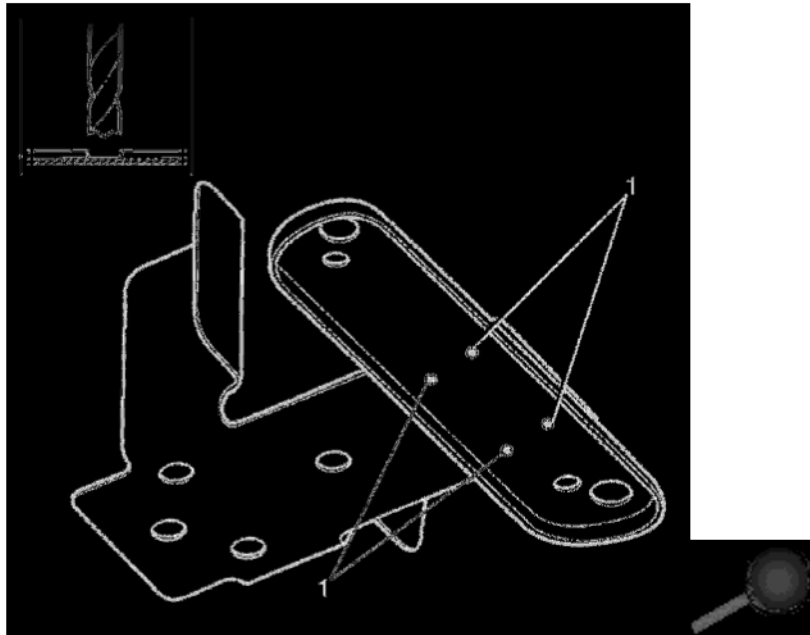
3. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
4. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
5. Remove the rear muffler assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
6. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



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

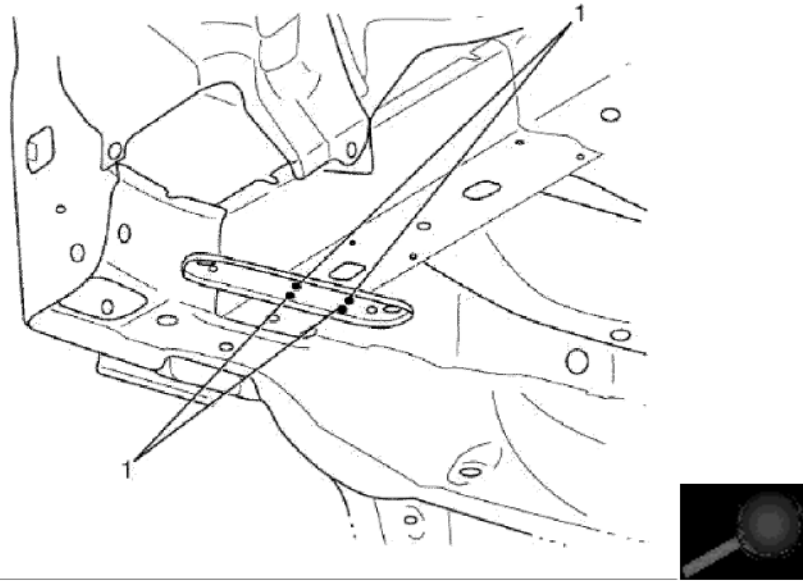
7. Locate, mark and drill out all factory welds attaching the rear muffler hanger bracket to the rear muffler hanger bracket assembly (1).
8. Remove the rear muffler hanger bracket .

#### Installation Procedure



**Note:** The muffler hanger bracket is supplied as part of the rear muffler hanger bracket assembly. The rear muffler hanger bracket needs to be removed from the rear muffler hanger bracket assembly before installation to the vehicle.

1. Locate, mark and drill out all factory welds attaching the rear muffler hanger bracket to the rear muffler hanger bracket assembly (1).



**Note:** Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.

2. Align the rear muffler hanger bracket to the weld points marked during removal from the rear muffler hanger bracket assembly on the vehicle and weld the rear muffler hanger bracket to the rear muffler hanger bracket assembly (1).
3. Apply the sealers, and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
4. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
5. Install the rear muffler assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
6. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
7. Lower the vehicle.
8. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
9. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

# Exhaust Muffler Rear Hanger Replacement

## Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

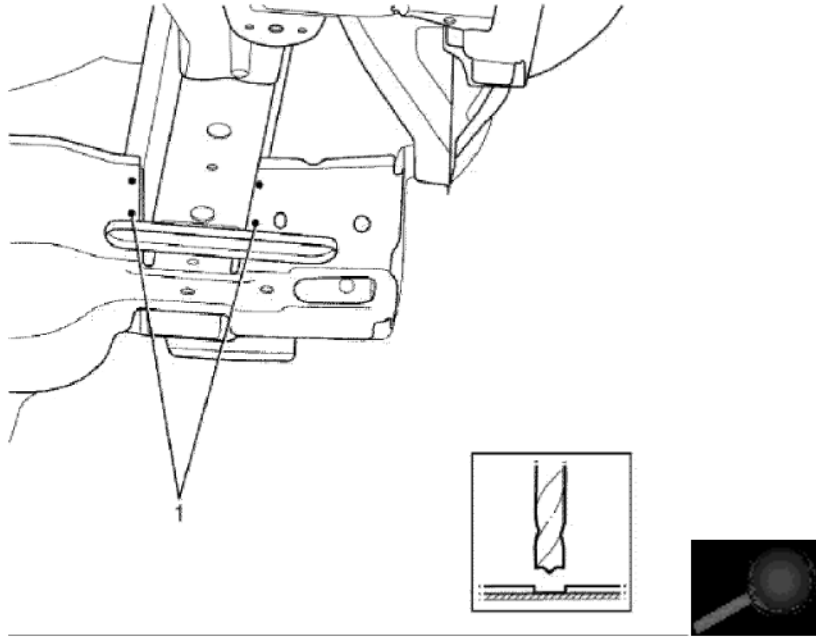
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

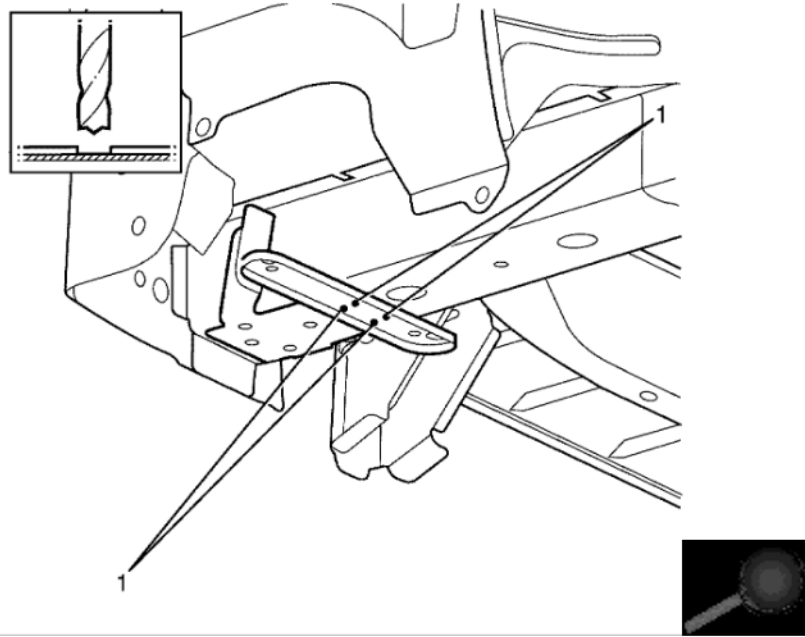
3. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
4. Remove the cargo liner. Refer to [Cargo Box Liner Replacement](#).
5. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
6. Remove the filler tube. Refer to [Filler Tube Replacement](#).
7. Remove the fuel tank. Refer to [Fuel Tank Replacement](#).
8. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
9. Remove the endgate. Refer to [Endgate Replacement](#).
10. Remove the rear muffler assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
11. Remove the floor panel number 6 cross bar. Refer to [Floor Panel Number 6 Cross Bar Replacement](#).
12. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).





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

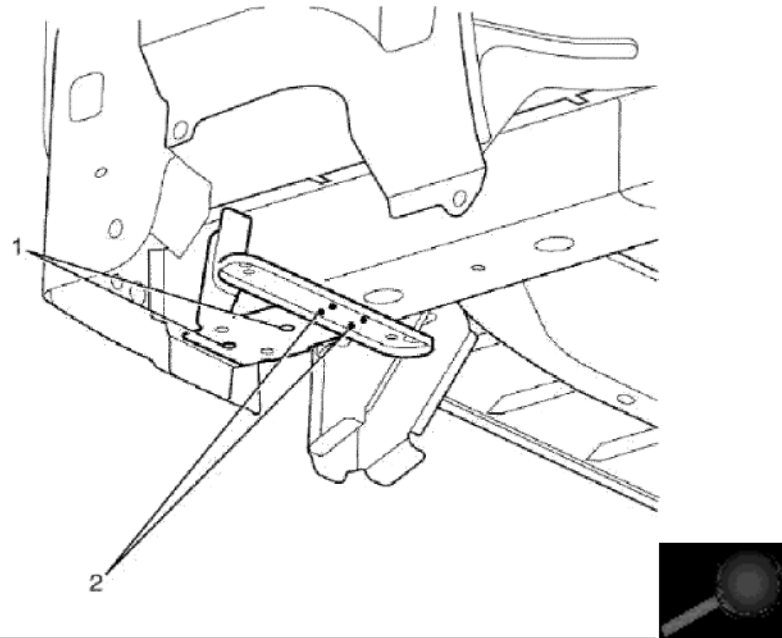
13. Locate, mark and drill out all factory welds attaching the rear muffler hanger bracket assembly to the rear crossmember (1).
14. Remove the rear muffler hanger bracket assembly.



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

15. Locate, mark and drill out all factory welds attaching the rear muffler hanger bracket assembly to the rear frame (1).
16. Remove the rear muffler hanger bracket assembly.

### Installation Procedure



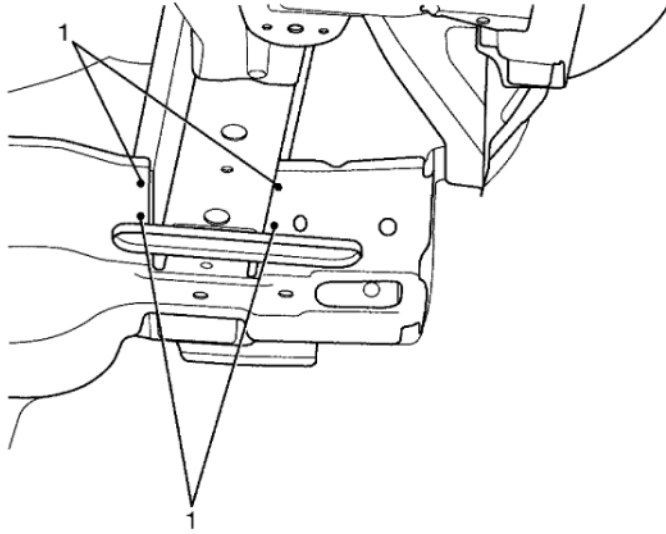
**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).

1. Align the rear muffler hanger bracket assembly using the datum points (1).

**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

2. Weld the rear muffler hanger bracket assembly to the rear frame (1).



3. Weld the rear muffler hanger bracket assembly to the rear crossmember (1).

**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

4. Apply the sealers, and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
5. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
6. Install the floor panel number 6 cross bar. Refer to [Floor Panel Number 6 Cross Bar Replacement](#).
7. Install the rear muffler assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
8. Install the endgate. Refer to [Endgate Replacement](#).
9. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
10. Install the filler tube. Refer to [Filler Tube Replacement](#).
11. Install the fuel tank. Refer to [Fuel Tank Replacement](#).
12. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
13. Lower the vehicle.
14. Install the cargo liner. Refer to [Cargo Box Liner Replacement](#).
15. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
16. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).



## Back Body Pillar Inner Upper Panel Assembly Replacement (Long Wheelbase Sedan)

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

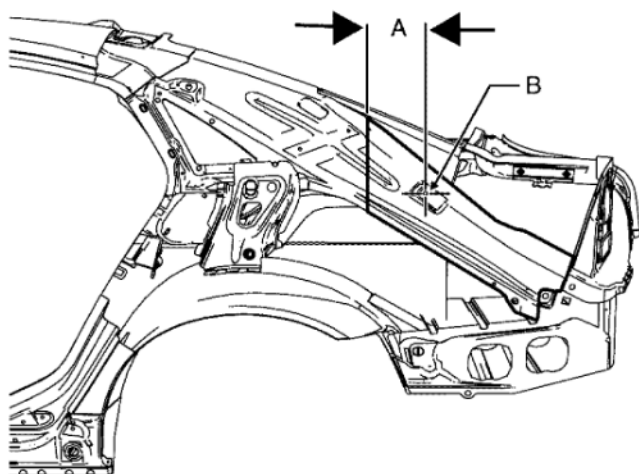
**Warning:** Refer to [Glass and Sheet Metal Handling Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

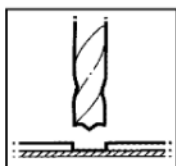
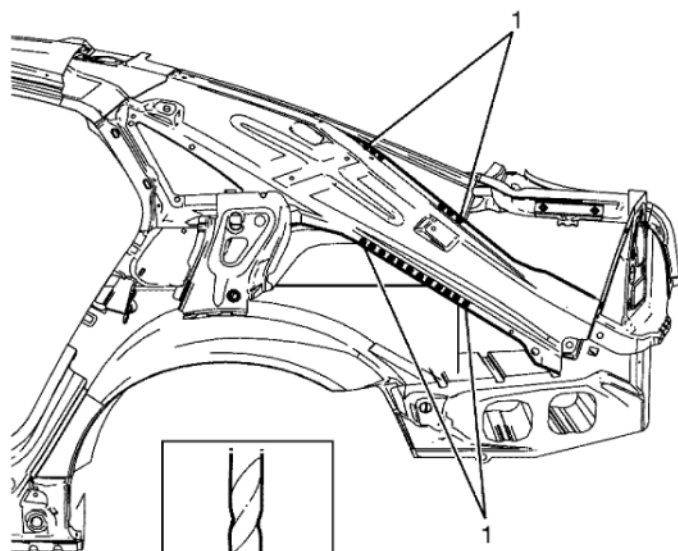
**Note:** When replacing panels that involve servicing of stationary glass, refer to [Rear Window Replacement](#) and [Windshield Replacement](#), before performing any priming or refinishing. Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.

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 battery. Refer to [Battery Replacement](#).
4. Remove the battery tray. Refer to [Battery Tray Replacement](#).
5. Remove the deck lid. Refer to [Rear Compartment Lid Replacement](#).
6. Remove the front doors. Refer to [Front Side Door Replacement](#).
7. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
8. Remove the rear door seals. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#).
9. Remove the inner rear quarter trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
10. Remove the roof lining. Refer to [Headlining Trim Panel Replacement](#).
11. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
12. Remove the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).
13. Remove the rear parcel shelf. Refer to [Rear Window Panel Trim Replacement](#).

14. Remove the deck lid release cable. Refer to [Rear Compartment Lid Latch Release Cable Replacement](#).
15. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
16. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
17. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
18. Remove the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
19. Remove the rocker panel moulds. Refer to [Rocker Panel Molding Replacement](#).
20. Remove the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
21. Remove the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#)
22. Remove the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) and/or [Exhaust Muffler Heat Shield Replacement - Right Side](#).
23. Remove the rear frame. Refer to [Rear Frame Replacement](#).
24. Remove the rear brake lines. Refer to [Rear Brake Pipe Replacement](#).
25. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
26. Remove the fuel lines. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).
27. Lower the vehicle.
28. Remove the roof moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
29. Remove the rear windshield. Refer to [Rear Window Replacement](#).
- Note:** This step is unique to the sunroof module.
30. Remove the rear roof drain tubes. Refer to [Sunroof Housing Rear Drain Hose Replacement](#).
31. Remove the tail lights. Refer to [Tail Lamp Replacement](#)
32. Remove the quarter panel. Refer to [Quarter Panel Replacement](#).
33. Repair as much of the damage as possible.
34. Remove sound deadeners as necessary and note their location.
35. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



36. Measure forward 250 mm (9.84 in) (A) horizontally from the centre of datum hole (B) and mark a vertical cut line on the back body pillar inner upper panel. Datum Hole (B) is 10.1mm dia.

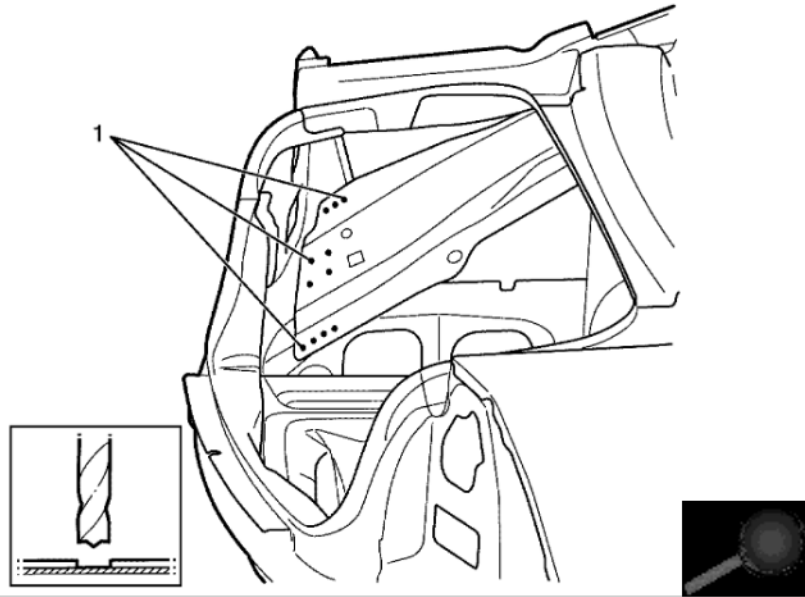




**Note:** Do not damage any inner panels or reinforcements.

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

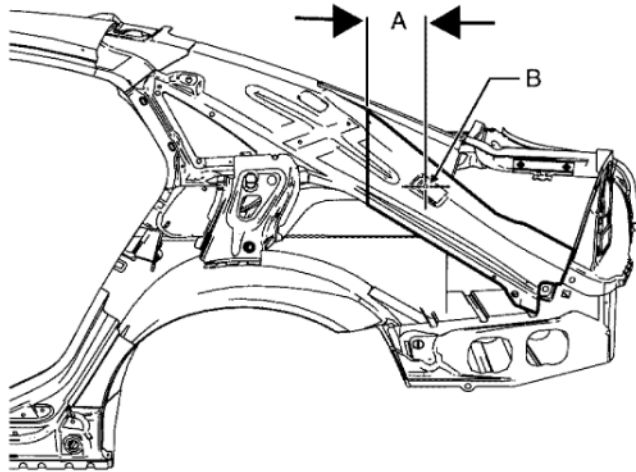
37. Locate, mark and carefully drill out the welds (1) joining the back body pillar inner upper panel to the quarter inner panel to the rear of the cut line.



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

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

38. Locate, mark and drill out the welds (1) joining the back body pillar inner upper panel to the body side outer panel rear lower extension and body tail lamp filler panel.



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

39. Measure forward 250 mm (9.84 in) (A) horizontally from the centre of datum hole (B) and locate the vertical cut line on the back body pillar inner upper panel marked out previously. Datum Hole (B) is 10.1mm dia (0.398 in).
40. Using a suitable tool cut through the back body pillar inner upper panel at the measurement point.
41. Remove the rear portion of the back body pillar inner upper panel from the vehicle.  
Discard the rear portion of the back body pillar inner upper panel.

### Installation Procedure

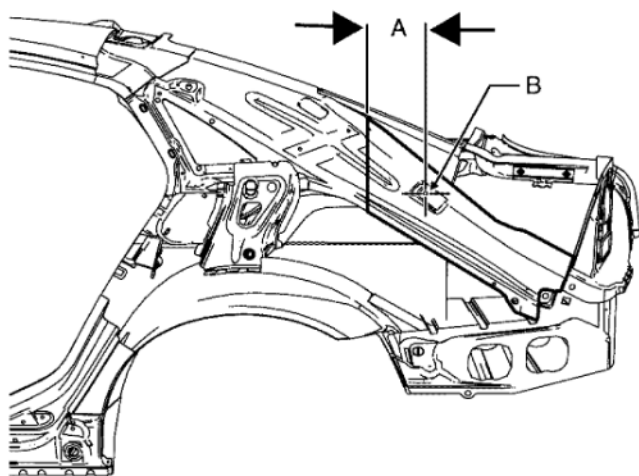
**Note:** If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).

**Note:** Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

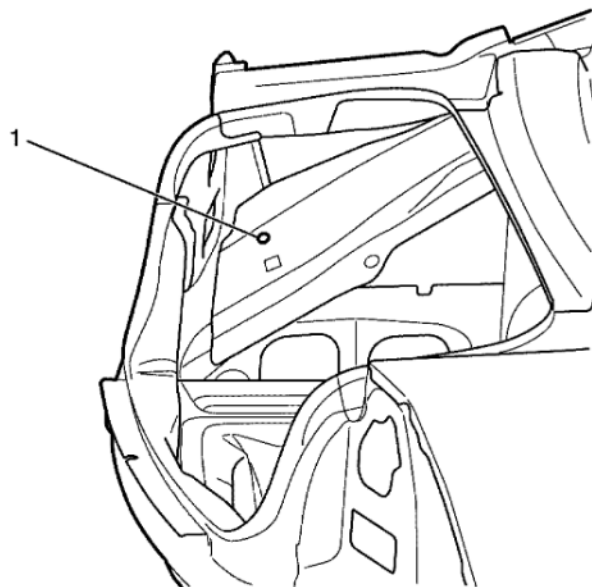
**Note:** Ensure all factory welds are replaced in their original locations.

**Note:** Ensure all structural adhesives and sealers are replaced in their original locations.

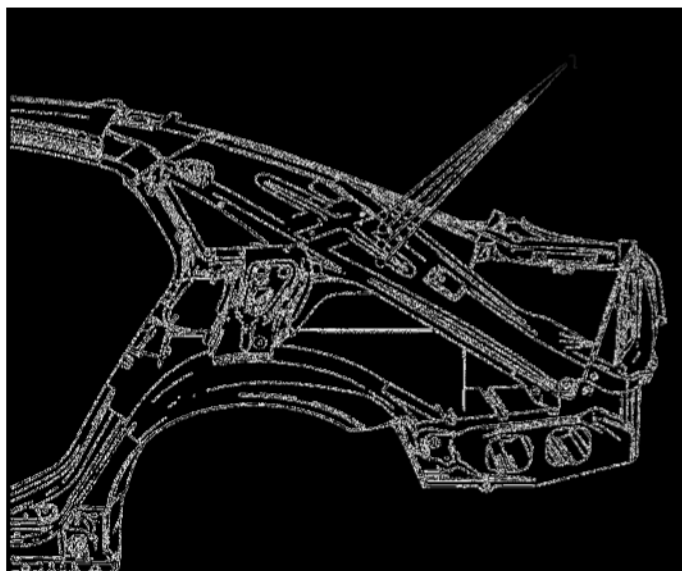
1. Drill 8 millimetres (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.



2. Measure forward 250 mm (9.84 in) (A) horizontally from the centre of datum hole (B) and mark a vertical cut line on the new back body pillar inner upper panel. Datum Hole (B) is 10.1mm dia. Cut the new service part to match the portion of the new back body pillar inner upper panel remaining on the vehicle. The service part should be trimmed to match the remaining portion of the new back body pillar inner upper panel leaving a gap of 1.5 times the metal thickness at the join.
3. Position the rear lower panel extension to the vehicle.

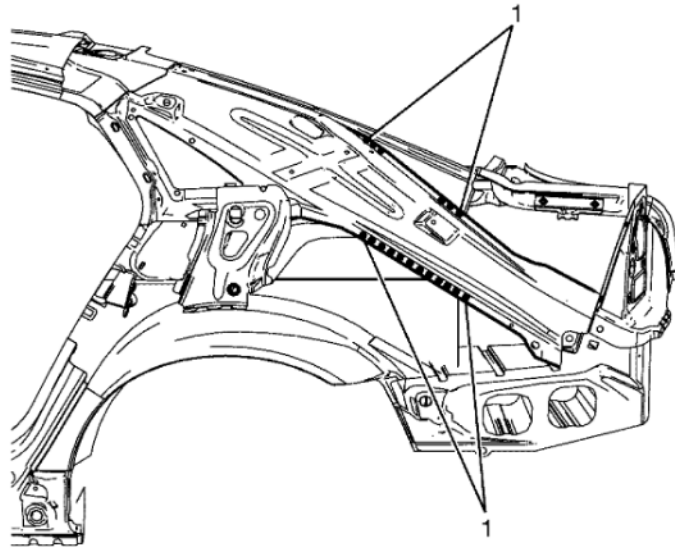


4. Position the new repair section to the vehicle. Align the datum hole (1) concentrically with the matching hole in the body side outer panel rear lower extension. Datum hole (1) is 15mm dia (0.591in).

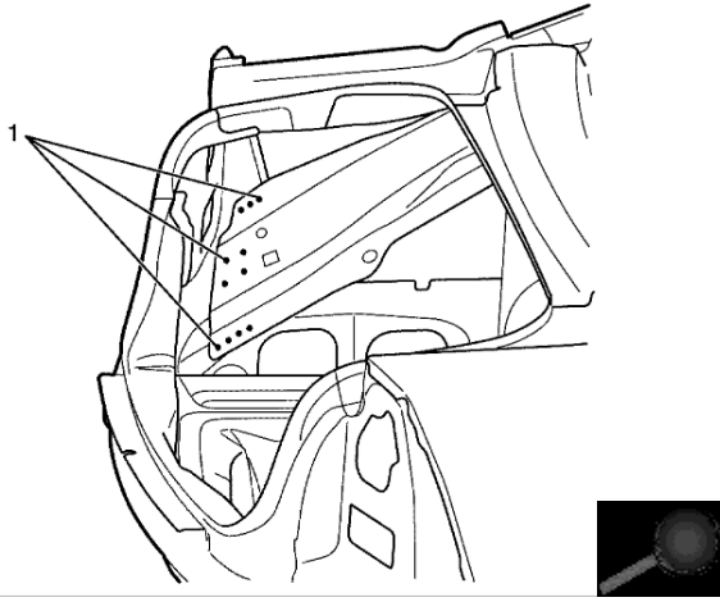


**Note:** To create a solid weld with minimum heat distortion make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between. Then go back and complete the stitch weld.

5. Weld (1) the new rear portion of the back body pillar inner upper panel assembly to the remaining part of the rear lower extension panel.



6. Weld (1) the back body pillar inner upper panel repair section to the quarter inner panel.



7. Weld (1) the back body pillar inner upper panel repair section to the body side outer panel rear lower extension and body tail lamp filler panel.
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 the quarter panel. Refer to [Quarter Panel Replacement](#).
11. Install the tail lights. Refer to [Tail Lamp Replacement](#).
- Note:** This step is unique to the sunroof module.
12. Install the rear roof drain tubes. Refer to [Sunroof Housing Rear Drain Hose Replacement](#).
13. Install the rear windshield. Refer to [Rear Window Replacement](#).
14. Install the roof moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
15. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
16. Install the fuel lines. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).
17. Install the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
18. Install the rear brake lines. Refer to [Rear Brake Pipe Replacement](#).
19. Install the rear frame. Refer to [Rear Frame Replacement](#).
20. Install the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) and [Exhaust Muffler Heat](#)

### [Shield Replacement - Right Side.](#)

21. Install the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and [Exhaust Muffler Replacement - Right Side](#).
22. Install the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
23. Install the rocker panel moulds. Refer to [Rocker Panel Molding Replacement](#).
24. Install the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
25. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
26. Install the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
27. Lower the vehicle.
28. Install the deck lid release cable. Refer to [Rear Compartment Lid Latch Release Cable Replacement](#).
29. Install the rear parcel shelf. Refer to [Rear Window Panel Trim Replacement](#).
30. Install the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).
31. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
32. Install the roof lining. Refer to [Headlining Trim Panel Replacement](#).
33. Install the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
34. Install the rear door seals. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#).
35. Install the deck lid. Refer to [Rear Compartment Lid Replacement](#).
36. Install the front doors. Refer to [Front Side Door Replacement](#).
37. Install the rear doors. Refer to [Rear Side Door Replacement](#).
38. Install the battery tray. Refer to [Battery Tray Replacement](#).
39. Install the battery. Refer to [Battery Replacement](#).
40. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
41. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Back Body Pillar Inner Upper Panel Assembly Replacement (Short Wheelbase Sedan)

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

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

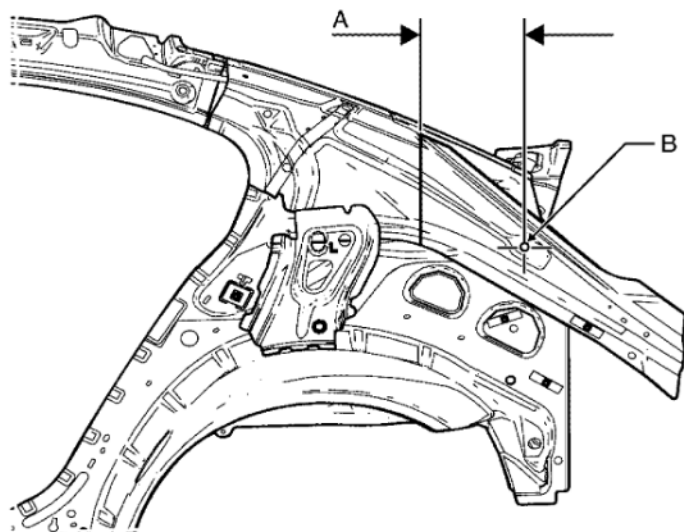
**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:** When replacing panels that involve servicing of stationary glass, refer to [Rear Window Replacement](#) and [Windshield Replacement](#), before performing any priming or refinishing. Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.

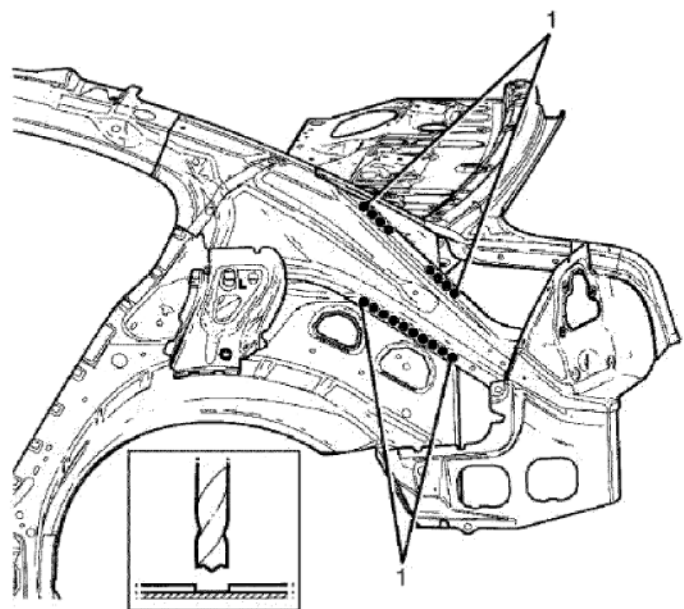
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the battery. Refer to [Battery Replacement](#).
4. Remove the battery tray. Refer to [Battery Tray Replacement](#).
5. Remove the deck lid. Refer to [Rear Compartment Lid Replacement](#).
6. Remove the front doors. Refer to [Front Side Door Replacement](#).
7. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
8. Remove the rear door seals. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#).
9. Remove the inner rear quarter trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
10. Remove the roof lining. Refer to [Headlining Trim Panel Replacement](#).
11. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
12. Remove the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).



13. Remove the rear parcel shelf. Refer to [Rear Window Panel Trim Replacement](#).
14. Remove the deck lid release cable. Refer to [Rear Compartment Lid Latch Release Cable Replacement](#).
15. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
16. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
17. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
18. Remove the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
19. Remove the rocker panel moulds. Refer to [Rocker Panel Molding Replacement](#).
20. Remove the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
21. Remove the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) or [Exhaust Muffler Replacement - Right Side](#).
22. Remove the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) or [Exhaust Muffler Heat Shield Replacement - Right Side](#).
23. Remove the rear frame. Refer to [Rear Frame Replacement](#).
24. Remove the rear brake lines. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
25. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
26. Remove the fuel lines. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).
27. Lower the vehicle.
28. Remove the roof moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
29. Remove the rear windshield. Refer to [Rear Window Replacement](#).
- Note:** This step is unique to the sunroof module.
30. Remove the rear roof drain tubes. Refer to [Sunroof Housing Rear Drain Hose Replacement](#) and [Sunroof Housing Rear Drain Hose Replacement](#).
31. Remove the tail lights. Refer to [Tail Lamp Replacement](#).
32. Remove the quarter panel. Refer to [Quarter Panel Replacement](#).
33. Repair as much of the damage as possible.
34. Remove sound deadeners as necessary and note their location.
35. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



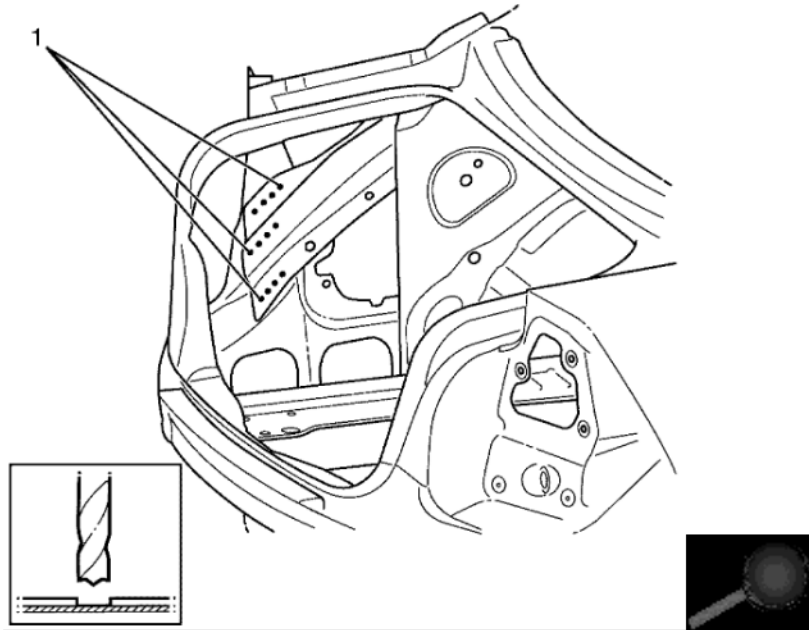
36. Measure forward 250 mm (9.84 in) (A) horizontally from the centre of datum hole (B) and mark a vertical cut line on the back body pillar inner upper panel. Datum Hole (B) is 10.1mm dia.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

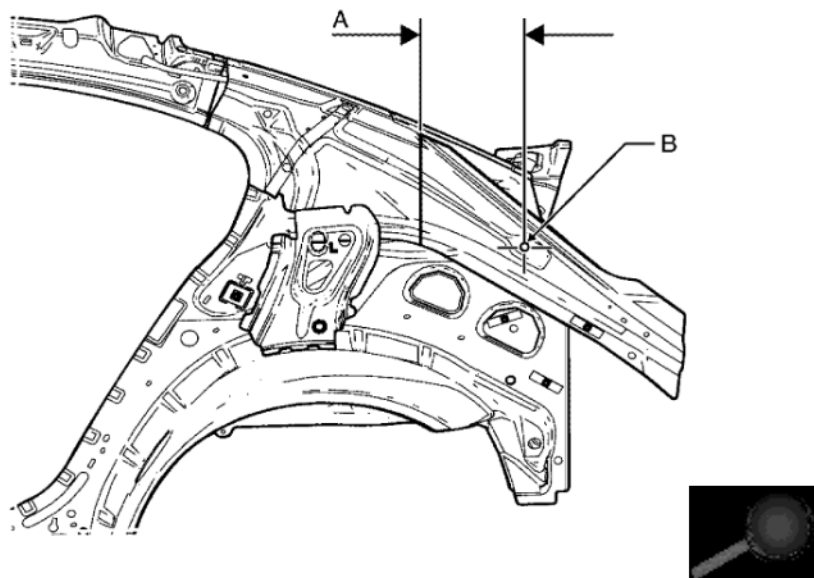
37. Locate, mark and carefully drill out the welds (1) joining the back body pillar inner upper panel to the quarter inner panel to the rear of the cut line.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

38. Locate, mark and drill out the welds (1) joining the back body pillar inner upper panel to the body side outer panel rear lower extension and body tail lamp filler panel.



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

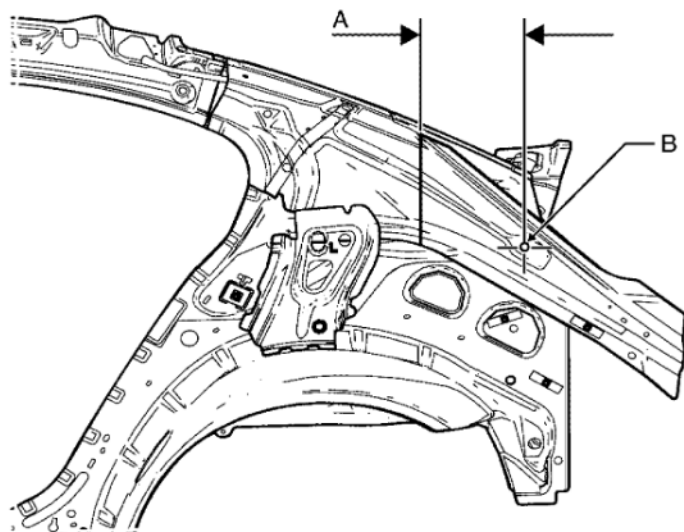
39. Measure forward 250 mm (9.84 in) (A) horizontally from the centre of datum hole (B) and locate the vertical cut line on the back body pillar inner upper panel marked out previously. Datum Hole (B) is 10.1mm dia (0.398 in).
40. Using a suitable tool cut through the back body pillar inner upper panel at the measurement point.
41. Remove the rear portion of the back body pillar inner upper panel from the vehicle.  
Discard the rear portion of the back body pillar inner upper panel.

### Installation Procedure

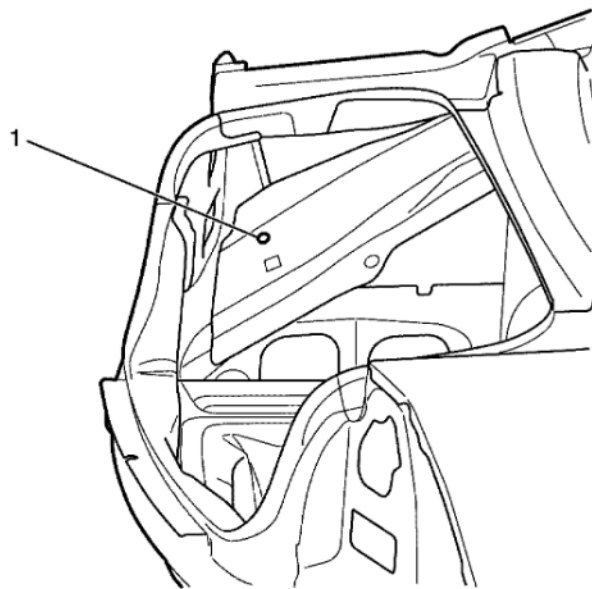
**Note:**

- Spot welding is the preferred method for attaching panels and should be used wherever possible. A plug weld should be performed where your spot welder is unable reach.
- If the location of the original plug weld holes can not be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.

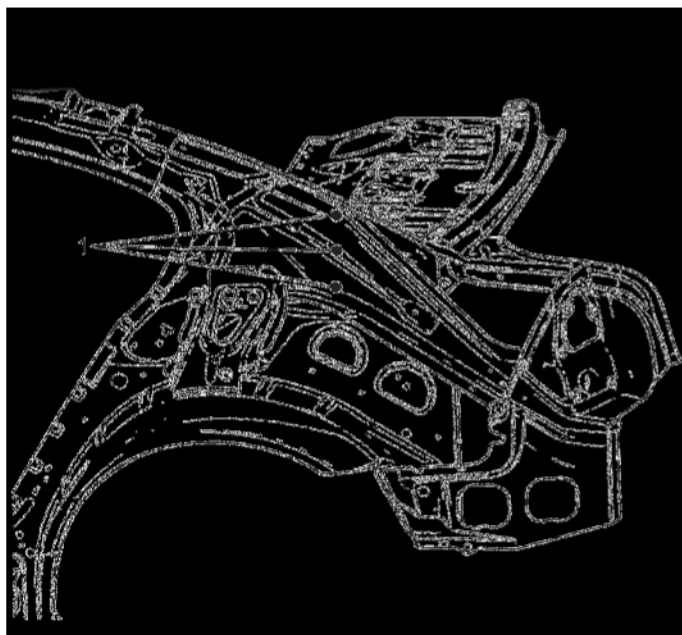
1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.



2. Measure forward 250 mm (9.84 in) (A) horizontally from the centre of datum hole (B) and mark a vertical cut line on the new back body pillar inner upper panel. Datum Hole (B) is 10.1mm dia. Cut the new service part to match the portion of the new back body pillar inner upper panel remaining on the vehicle. The service part should be trimmed to match the remaining portion of the new back body pillar inner upper panel leaving a gap of 1.5 times the metal thickness at the join.

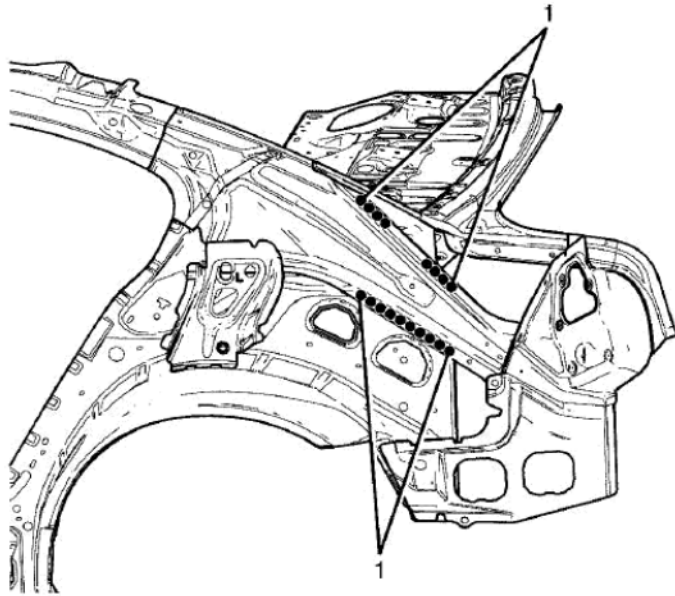


3. Position the new repair section to the vehicle. Align the datum hole (1) concentrically with the matching hole in the body side outer panel rear lower extension. Datum hole (1) is 15mm dia (0.591in).

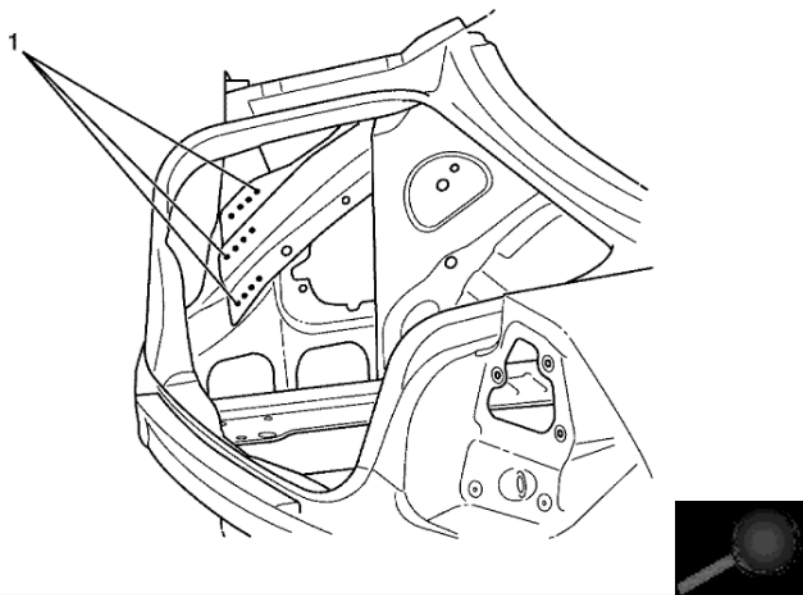


**Note:** To create a solid weld with minimum heat distortion make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between. Then go back and complete the stitch weld.

4. Weld (1) the new rear portion of the back body pillar inner upper panel to the remaining part of the back body pillar inner upper panel.



5. Weld (1) the back body pillar inner upper panel repair section to the quarter inner panel.



6. Weld (1) the back body pillar inner upper panel repair section to the body side outer panel rear lower extension and body tail lamp filler 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 the quarter panel. Refer to [Quarter Panel Replacement](#).
10. Install the tail lights. Refer to [Tail Lamp Replacement](#).
- Note:** This step is unique to the sunroof module.
11. Install the rear roof drain tubes. Refer to [Sunroof Housing Rear Drain Hose Replacement](#).
12. Install the rear windshield. Refer to [Rear Window Replacement](#).
13. Install the roof moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
14. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
15. Install the fuel lines. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).
16. Install the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
17. Install the rear brake lines. Refer to [Rear Brake Pipe Replacement](#).
18. Install the rear frame. Refer to [Rear Frame Replacement](#).
19. Install the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) and [Exhaust Muffler Heat](#)



### Shield Replacement - Right Side.

20. Install the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and [Exhaust Muffler Replacement - Right Side](#).
21. Install the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
22. Install the rocker panel moulds. Refer to [Rocker Panel Molding Replacement](#).
23. Install the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
24. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
25. Install the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
26. Lower the vehicle.
27. Install the deck lid release cable. Refer to [Rear Compartment Lid Latch Release Cable Replacement](#).
28. Install the rear parcel shelf. Refer to [Rear Window Panel Trim Replacement](#).
29. Install the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).
30. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
31. Install the roof lining. Refer to [Headlining Trim Panel Replacement](#).
32. Install the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
33. Install the rear door seals. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#).
34. Install the deck lid. Refer to [Rear Compartment Lid Replacement](#).
35. Install the front doors. Refer to [Front Side Door Replacement](#).
36. Install the rear doors. Refer to [Rear Side Door Replacement](#).
37. Install the battery tray. Refer to [Battery Tray Replacement](#).
38. Install the battery. Refer to [Battery Replacement](#).
39. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
40. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
41. If re-programming is required. Refer to [Control Module References](#).

## Quarter Inner Panel Sectioning (Long Wheelbase)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

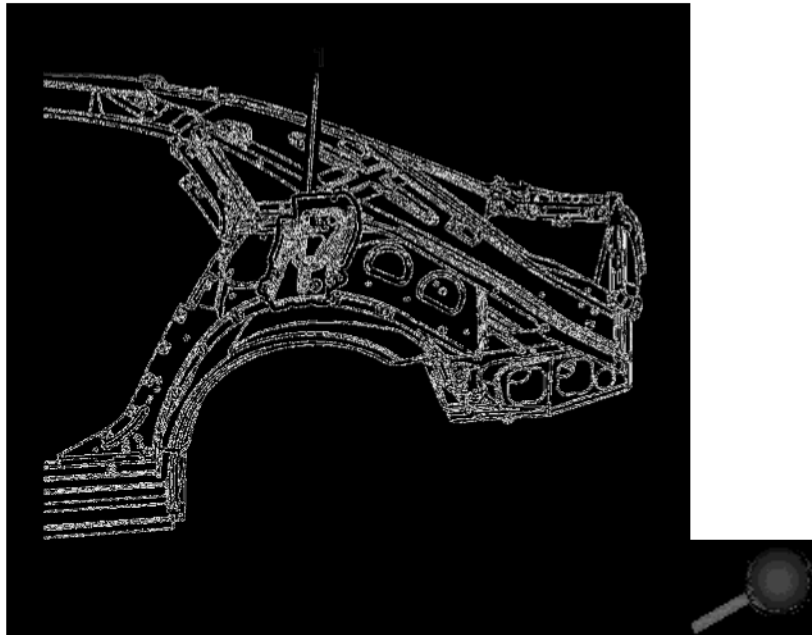
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

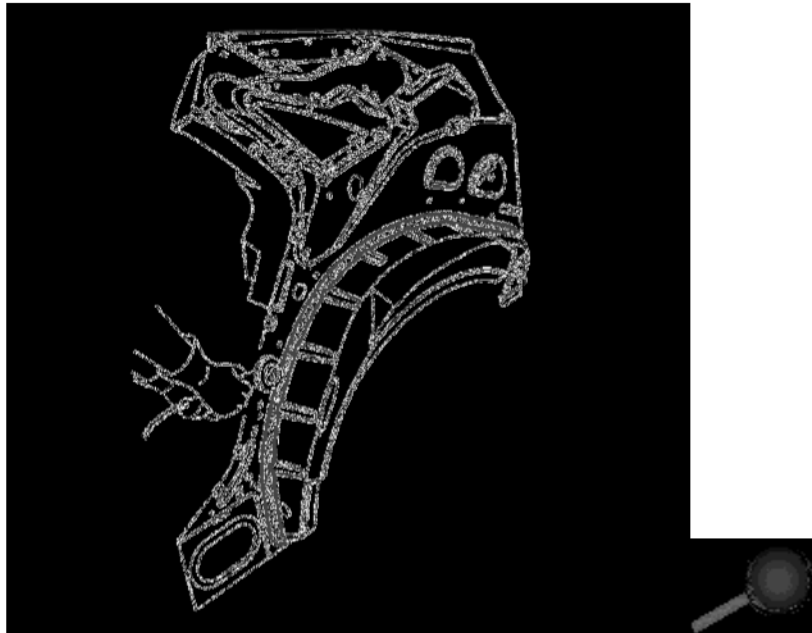
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove all related panels and components:
4. Visually inspect the damage. Repair as much of the damage as possible.

**Note:** The expandable foam is not included with the quarter inner panel service part. Record the location of the expandable foam, for proper installation after sectioning the quarter inner panel.

5. Remove the sealers and anti-corrosion materials from the repair area as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
6. Perform additional sectioning procedures as needed depending on damage to vehicle. Refer to [Quarter Panel Replacement](#).
7. Remove all related panels and components.
8. Visually inspect the damage. Repair as much of the damage as possible.
9. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



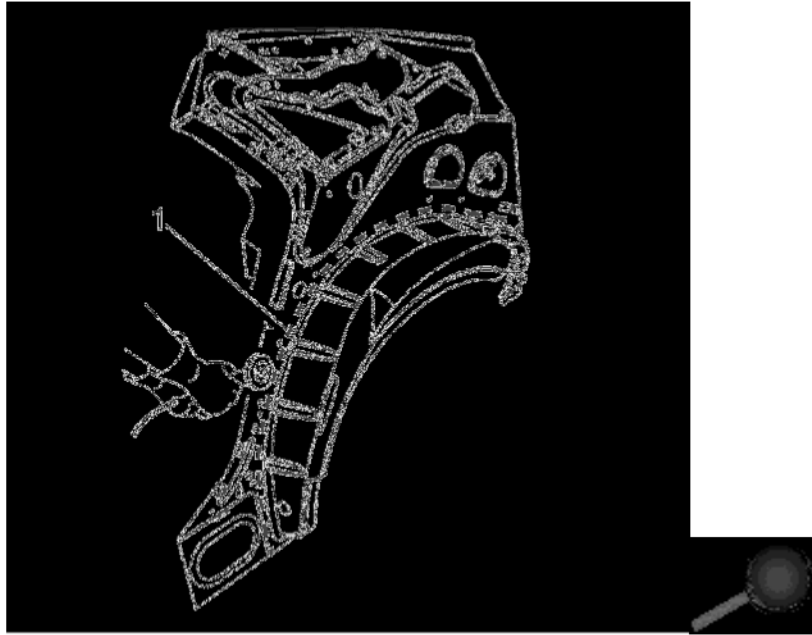
10. Remove the quarter inner panel reinforcement (1).



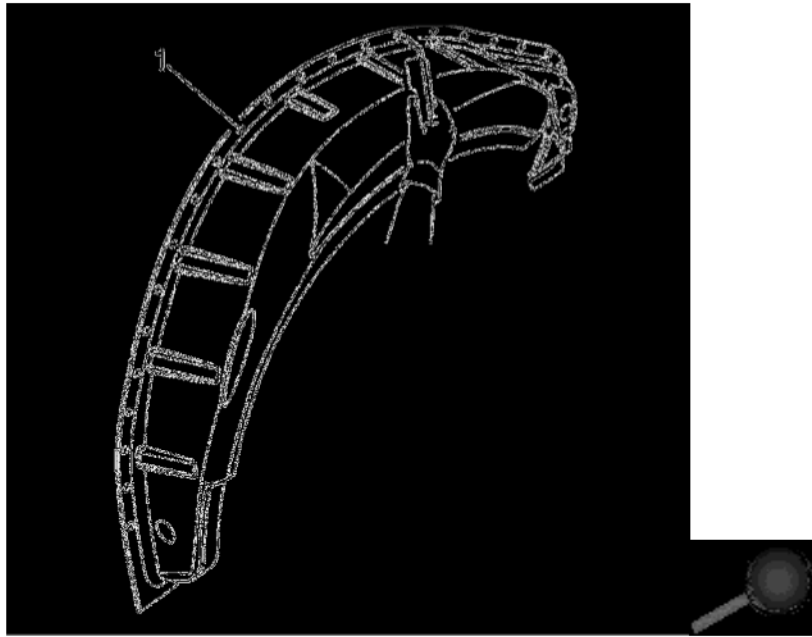
11. Cut the wheelhouse along the corner of the bend (1).

12. If necessary, apply a strip of masking tape and cut along the inboard edge.
13. Remove the damaged section of the wheelhouse.

### **Installation Procedure**



1. Trim the service part to leave approximately 25 mm (1 in) vertical flange (1).
2. Drill 8 mm (5/16 in) plug weld holes every 40 mm (1 1/2 in) along the vertical flange.
3. Prepare all mating surfaces for welding as necessary.
4. Position the rear wheelhouse rear panel on the vehicle.
5. Verify the fit of the rear wheelhouse rear panel.
6. Clamp the rear wheelhouse rear panel into position.



**Note:** Expandable baffle and foam will need to be added to the quarter inner panel in the location previously recorded.

7. Plug weld accordingly (1).
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](#).

## Quarter Inner Panel Sectioning (Short Wheelbase Sedan)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

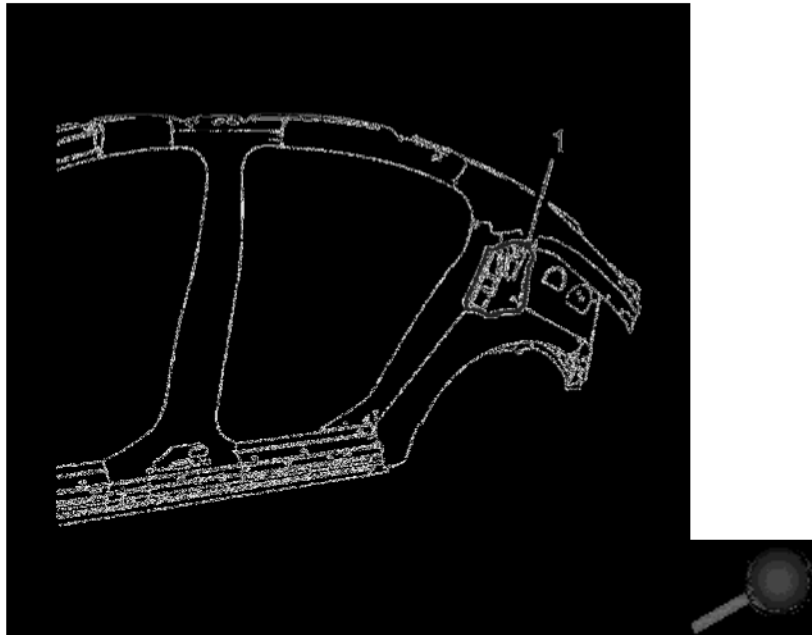
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

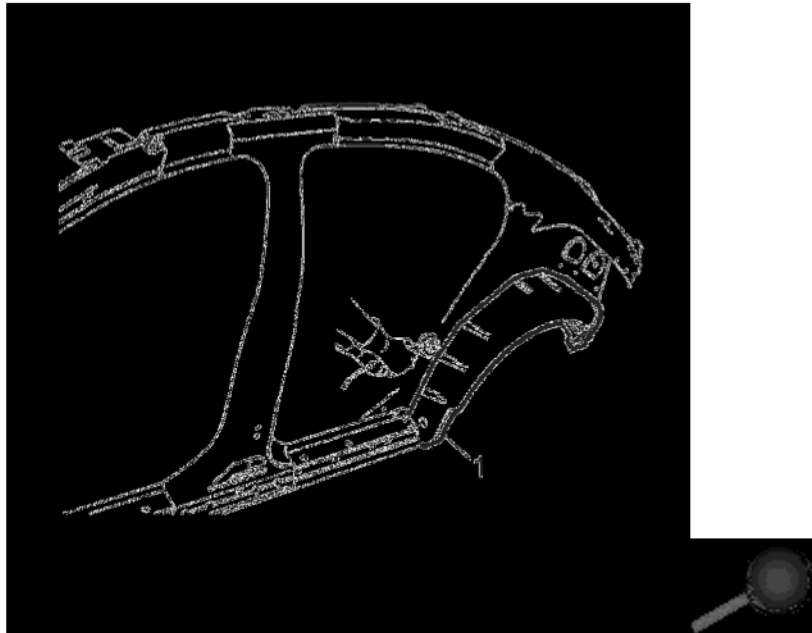
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove all related panels and components:
4. Visually inspect the damage. Repair as much of the damage as possible.

**Note:** The expandable foam is not included with the quarter inner panel service part. Record the location of the expandable foam, for proper installation after sectioning the quarter inner panel.

5. Remove the sealers and anti-corrosion materials from the repair area as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
6. Perform additional sectioning procedures as needed depending on damage to vehicle. Refer to [Quarter Panel Replacement](#).
7. Remove all related panels and components.
8. Visually inspect the damage. Repair as much of the damage as possible.
9. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



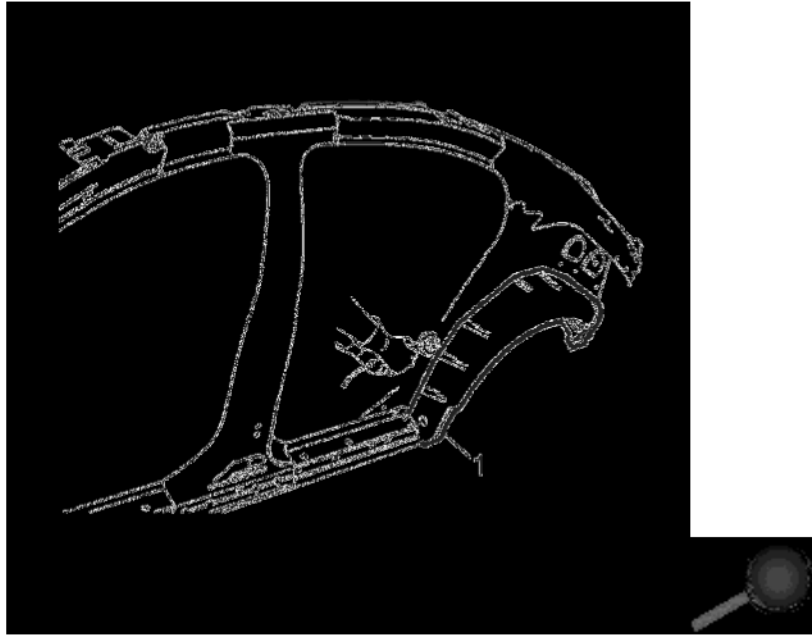
10. Remove the quarter inner panel reinforcement (1).



11. Cut the wheelhouse along the corner of the bend (1).

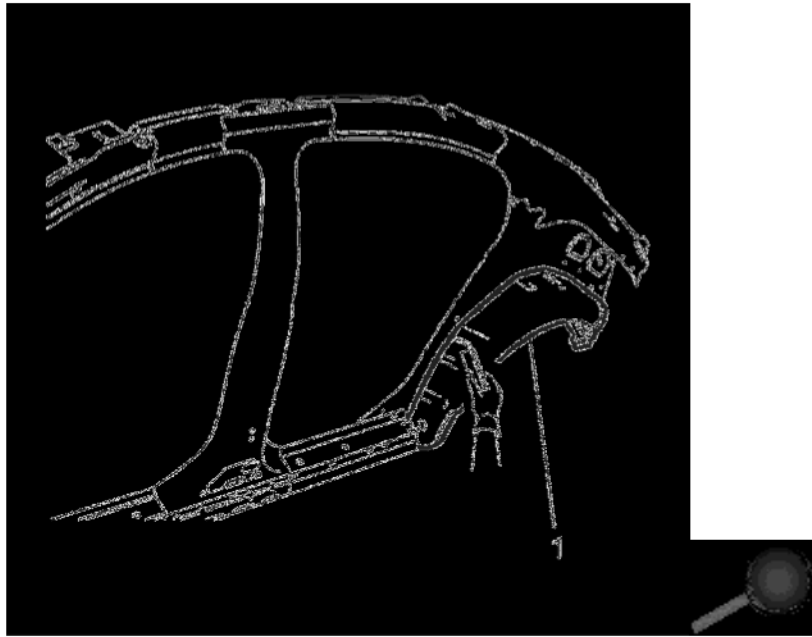
12. If necessary, apply a strip of masking tape and cut along the inboard edge.
13. Remove the damaged section of the wheelhouse.

### **Installation Procedure**



1. Trim the service part to leave approximately 25 mm (1 in) vertical flange (1).
2. Drill 8 mm (5/16 in) plug weld holes every 40 mm (1 1/2 in) along the vertical flange.
3. Prepare all mating surfaces for welding as necessary.
4. Position the rear wheelhouse rear panel on the vehicle.
5. Verify the fit of the rear wheelhouse rear panel.
6. Clamp the rear wheelhouse rear panel into position.





**Note:** Expandable baffle and foam will need to be added to the quarter inner panel in the location previously recorded.

7. Plug weld accordingly (1).
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](#).

## Quarter Inner Panel Sectioning (Ute)

### Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

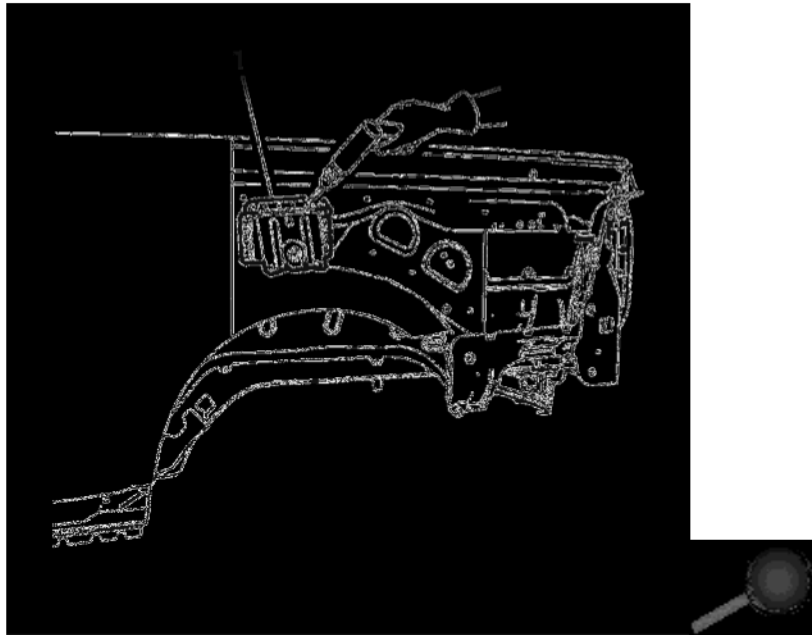
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

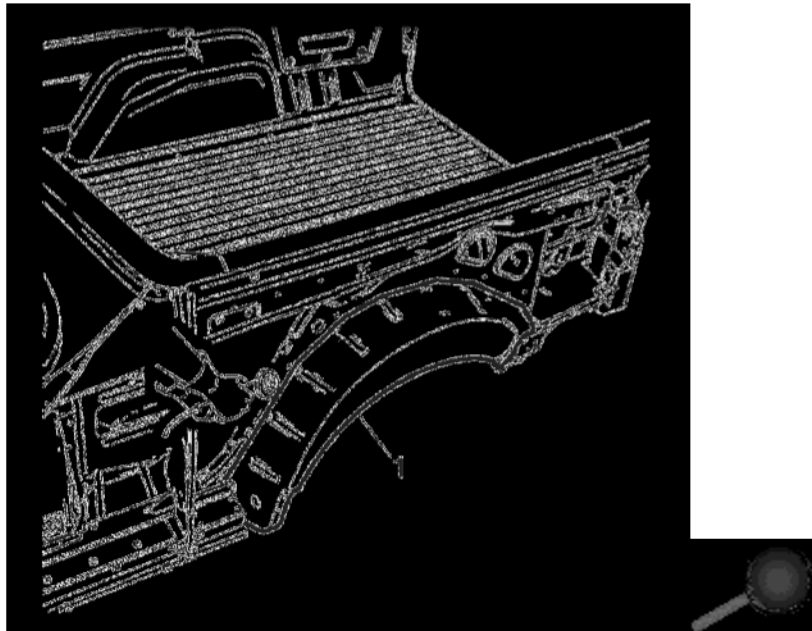
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove all related panels and components:
4. Visually inspect the damage. Repair as much of the damage as possible.

**Note:** The expandable foam is not included with the quarter inner panel service part. Record the location of the expandable foam, for proper installation after sectioning the quarter inner panel.

5. Remove the sealers and anti-corrosion materials from the repair area as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
6. Perform additional sectioning procedures as needed depending on damage to vehicle. Refer to [Quarter Panel Replacement](#).
7. Remove all related panels and components.
8. Visually inspect the damage. Repair as much of the damage as possible.
9. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

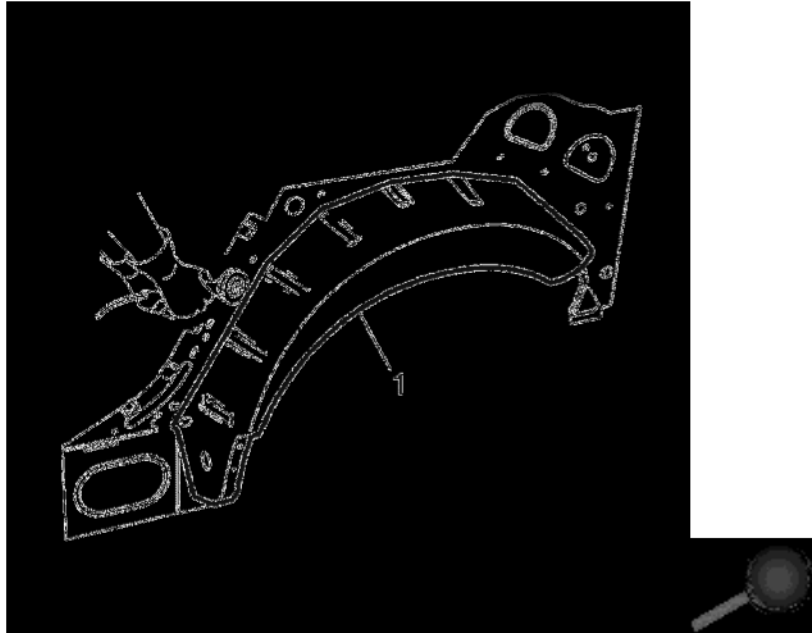


10. Locate, mark and drill out the factory welds attaching the quarter inner panel reinforcement (1) to the vehicle.
11. Remove the quarter inner panel reinforcement (1).

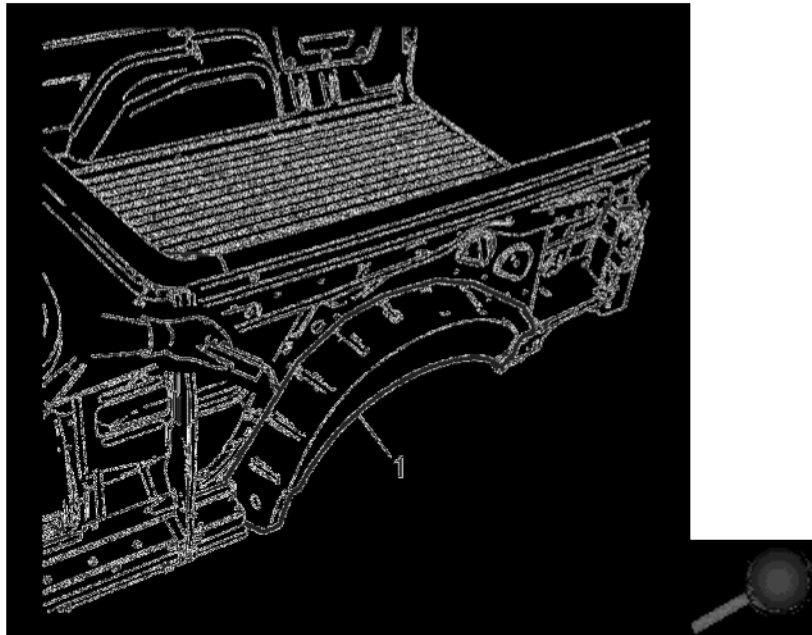


12. Cut the wheelhouse along the corner of the bend (1).
13. If necessary, apply a strip of masking tape and cut along the inboard edge.
14. Remove the damaged section of the wheelhouse.

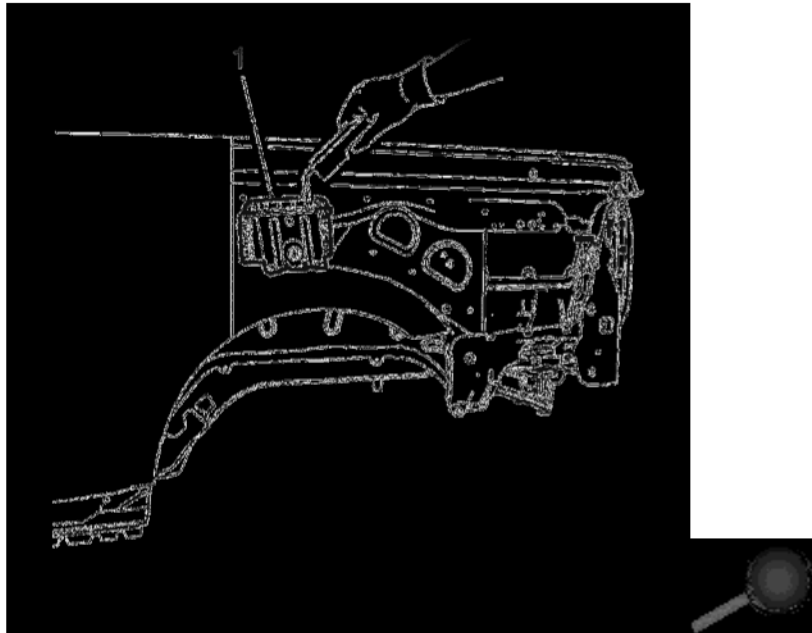
#### Installation Procedure



1. Trim the service part to leave approximately 25 mm (1 in) vertical flange (1).
2. Drill 8 mm (5/16 in) plug weld holes every 40 mm (1 1/2 in) along the vertical flange.
3. Prepare all mating surfaces for welding as necessary.
4. Position the rear wheelhouse rear panel on the vehicle.
5. Verify the fit of the rear wheelhouse rear panel.
6. Clamp the rear wheelhouse rear panel into position.



7. Plug weld accordingly (1).



8. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted during removal of the quarter inner panel reinforcement (1).

9. Prepare all mating surfaces for welding as necessary.
10. Position the quarter inner panel reinforcement (1) on the vehicle.  
**Note:** The expandable foam will need to be added to the quarter inner panel in the location previously recorded.
11. Plug weld the quarter inner panel reinforcement (1) to the vehicle.
12. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
13. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
14. Install all related panels and components.
15. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
16. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

# Fuel Tank Filler Pipe Housing Replacement

## Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

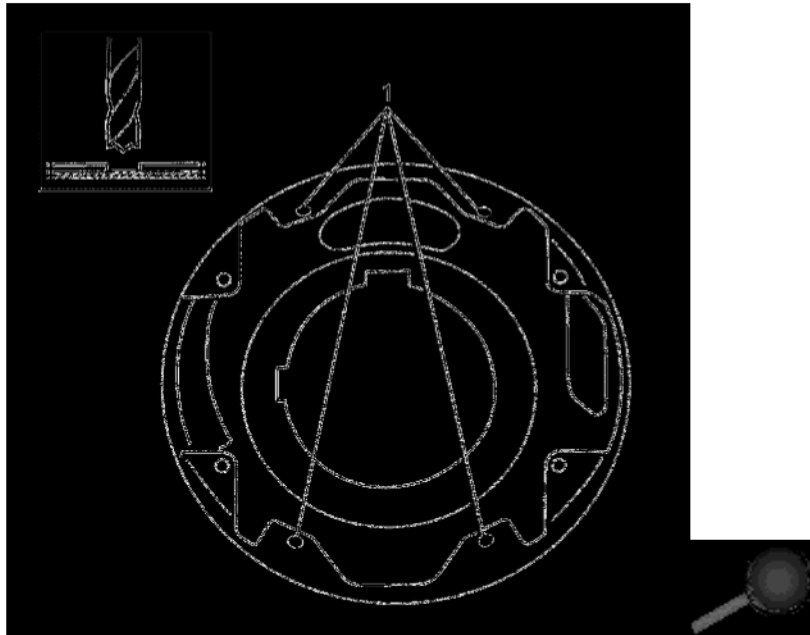
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

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

**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:** When removing the right side quarter panel the petrol filler pocket will be removed with it. The petrol filler pocket has to be removed from the old right side quarter panel and assembled on the NEW right side quarter panel.

1. Remove the right side quarter panel. Refer to [Quarter Panel Replacement](#)



Locate, mark and drill out the four spot welds (1) from the body side ring.

2. Remove the petrol filler pocket from the right side quarter panel.

### **Installation Procedure**

**Note:** Prior to fitting, ensure the gasket (if fitted) is removed from the replacement Housing Fuel Tank Filler Door Latch part and discarded. The part should also be primed prior to fitting.

**Note:**

- If the location of the original plug weld holes can not be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A plug weld should be performed where your spot welder is unable reach.

1. Clean and prepare the mating surfaces of both parts of the body side ring.

**Note:** Make sure that the alignment of the hinge and fuel filler door is correct.

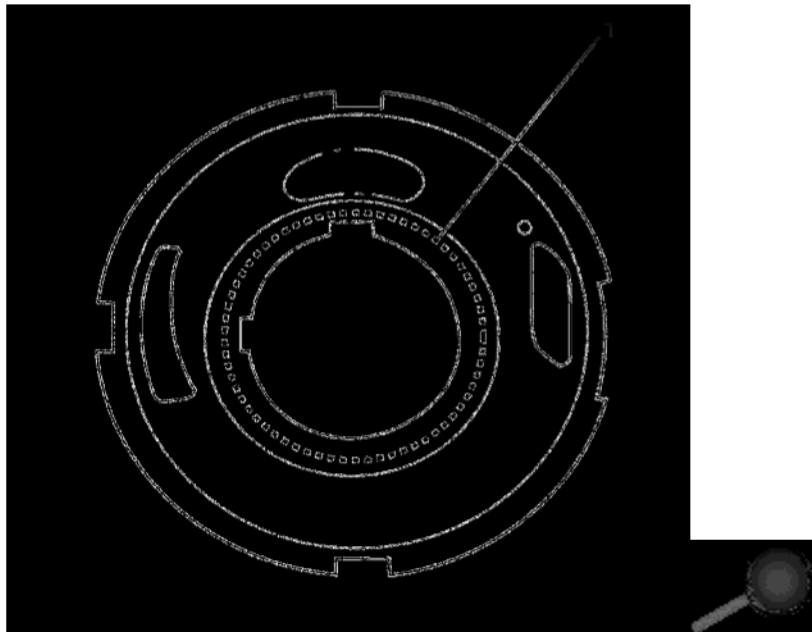
2. Position the petrol filler pocket to the NEW right side quarter panel.



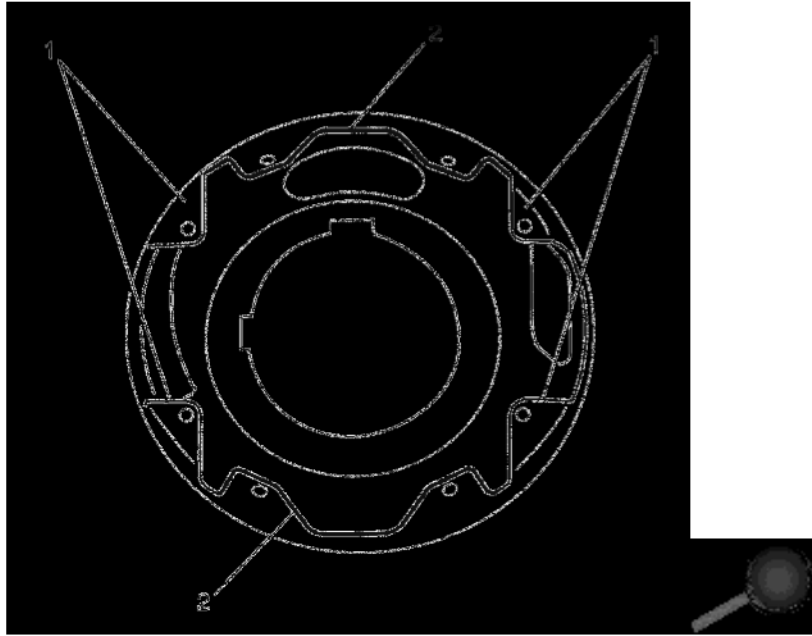


**Note:** Make sure that the alignment of the hinge and fuel filler door is correct.

3. Weld (1) the fuel filler pocket to the right side quarter panel.



4. Apply the primary sealer (1) GM6449G or equivalent along the fuel filler pocket and the inner panel.



**Note:** Seal behind the 4 tabs (1) to prevent water and fume leaks between the fuel filler pocket and the right side quarter panel.

5. Apply the secondary sealer (2) GM specification 9984532 or equivalent along the fuel filler pocket and the right side quarter panel tabs (1).
6. Install the right side quarter panel. Refer to [Quarter Panel Replacement](#)

## Floor Panel Number 6 Cross Bar Replacement

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

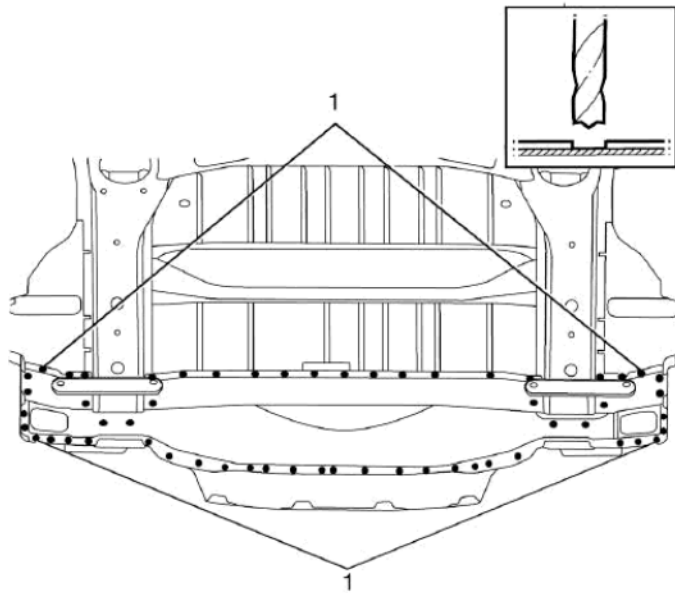
**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the cargo box liner. Refer to [Cargo Box Liner Replacement](#).
4. Remove the tail lamp. Refer to [Tail Lamp Replacement](#).
5. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
6. Remove the pickup box cover side rail end cover. Refer to [Quarter Panel Upper Rear Molding Replacement](#).
7. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:**

- Note the number and location of the factory welds for installation of the rear crossmember.
- The graphic is from underneath the vehicle looking forwards.

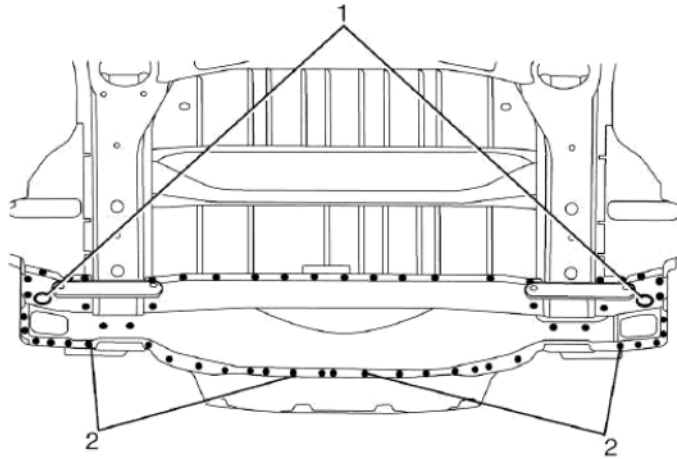
8. Locate, mark and drill out the spot welds in rear crossmember to the rear floor panel and subframe assemblies (1).

**Installation Procedure**

**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).

1. Clean and prepare the mating surfaces of both parts of the panel.



**Note:**

- Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that where originally covered by secondary sealer.
- Position the rear crossmember aligning the datum holes (1)

2. Weld the rear crossmember to the rear floor panel and subframe assembly (2).
3. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
4. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
5. Install the pickup box cover side rail end cove. Refer to [Quarter Panel Upper Rear Molding Replacement](#).
6. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
7. Install the tail lamp. Refer to [Tail Lamp Replacement](#).
8. Install the cargo box liner. Refer to [Cargo Box Liner Replacement](#).
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](#).

## Rear Underbody Replacement (Ute)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

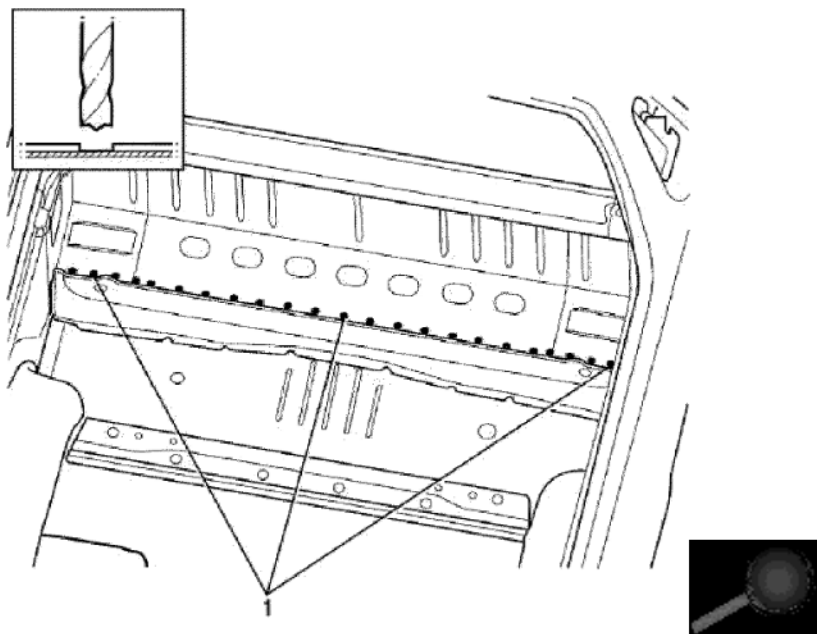
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

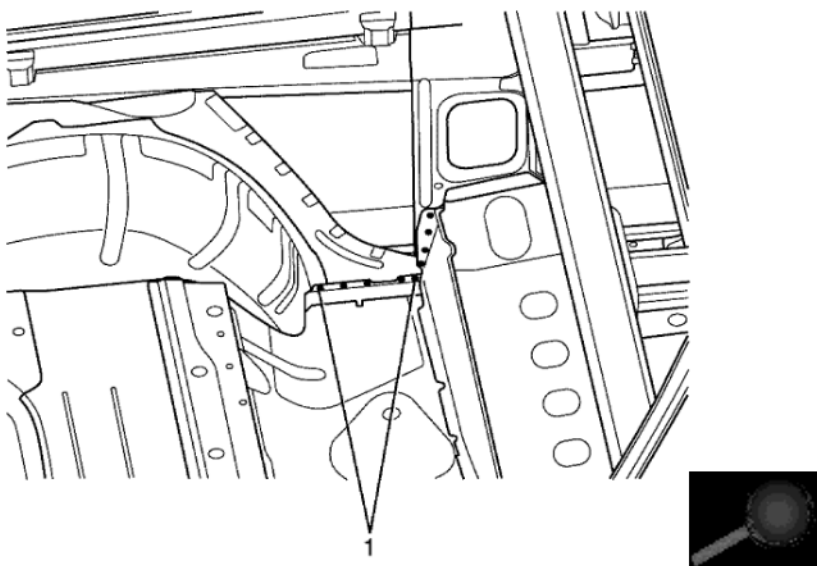
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

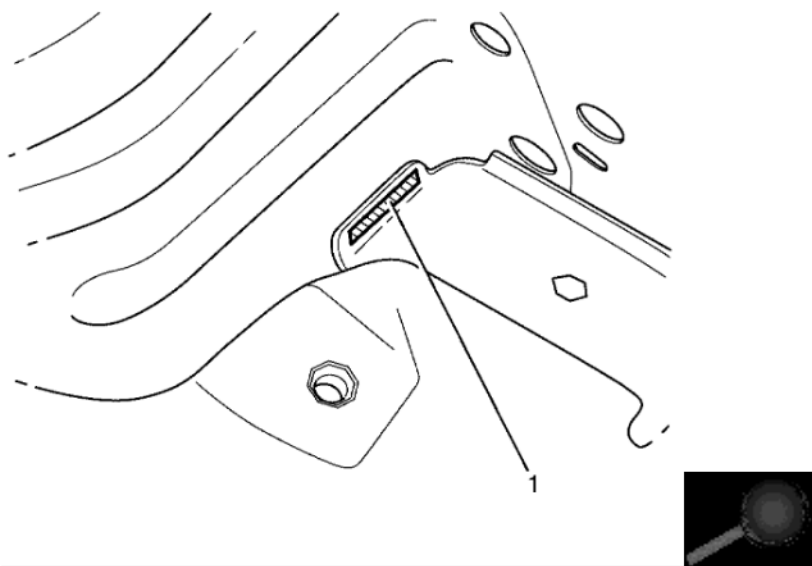
3. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
4. Remove the cargo liner. Refer to [Cargo Box Liner Replacement](#).
5. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
6. Remove the exhaust system. Refer to [Exhaust System Replacement](#).
7. Remove the fuel tank. Refer to [Fuel Tank Replacement](#).
8. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
9. Remove the endgate. Refer to [Endgate Replacement](#).
10. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



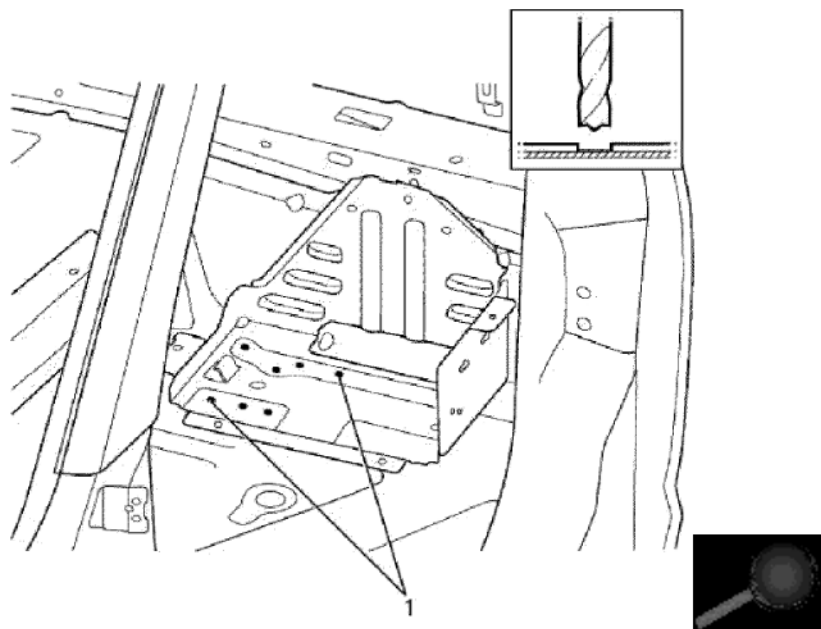
11. Locate, mark and drill out the factory welds attaching the underbody assembly to the seat back panel (1).



12. Locate, mark and drill out the factory welds attaching the underbody assembly to the body side assembly (1).

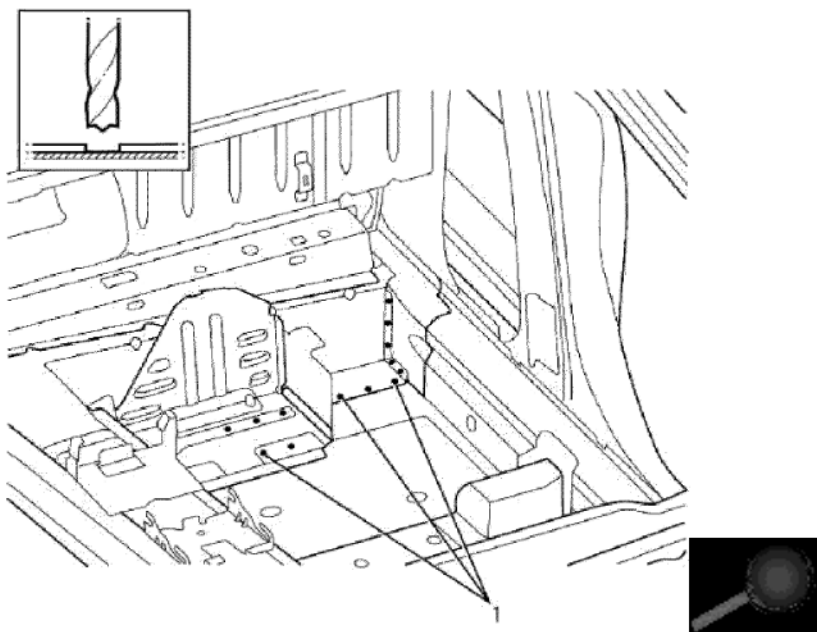


13. Note the location of the structural adhesive (1).

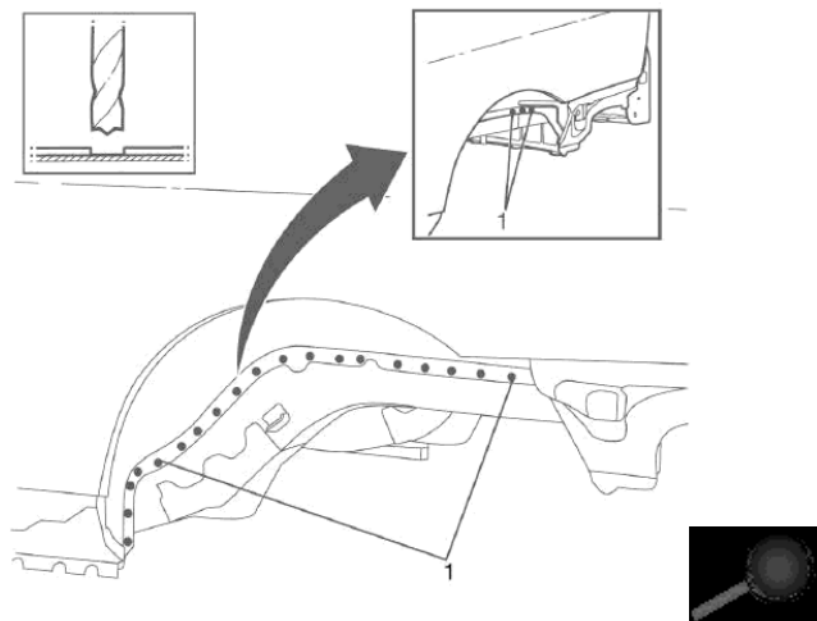


14. Locate, mark and drill out the factory welds attaching the underbody assembly to the rear frame assembly (1).

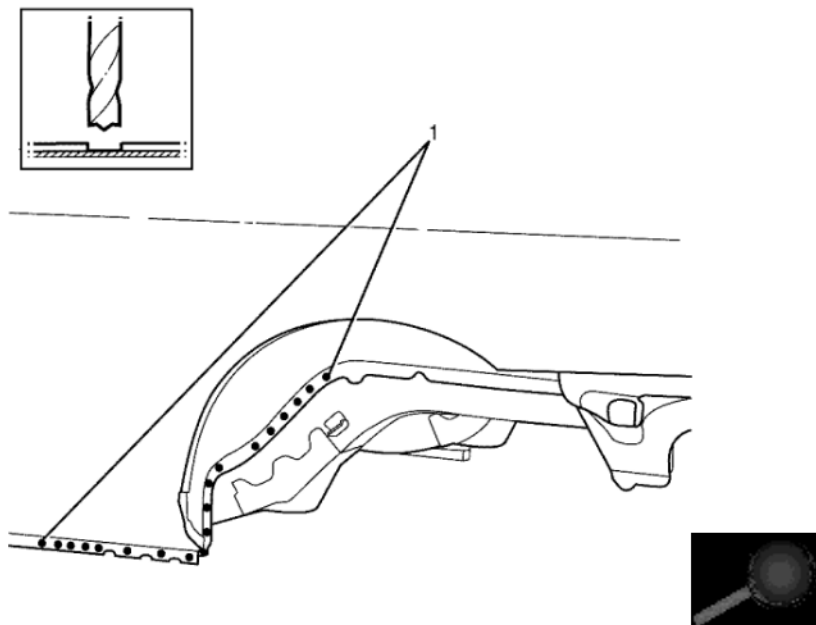




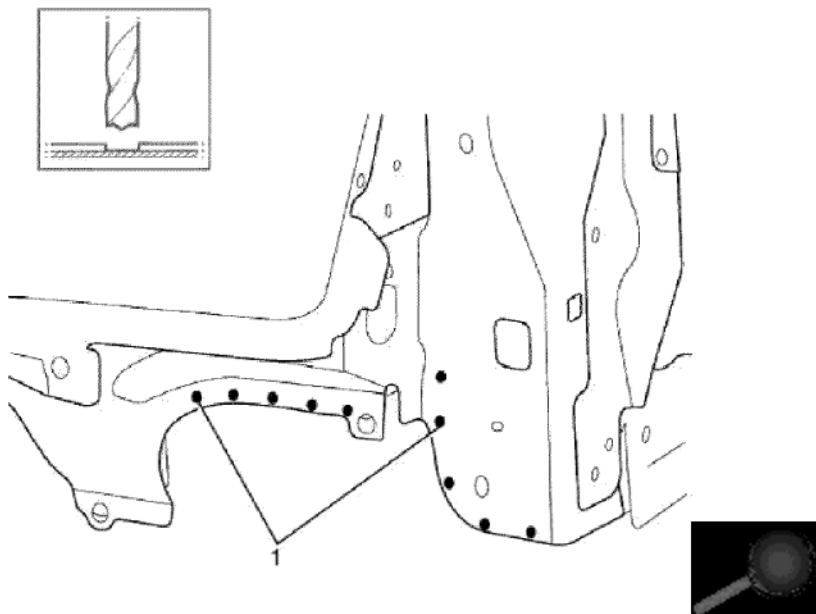
15. Locate, mark and drill out the factory welds attaching the underbody assembly to the rear frame assembly (1).



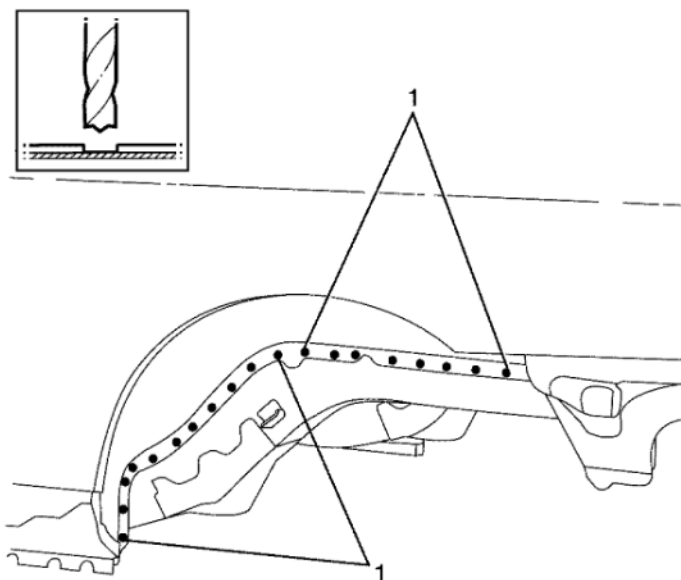
16. Locate, mark and drill out the factory welds attaching the underbody assembly to the rear frame assembly (1).



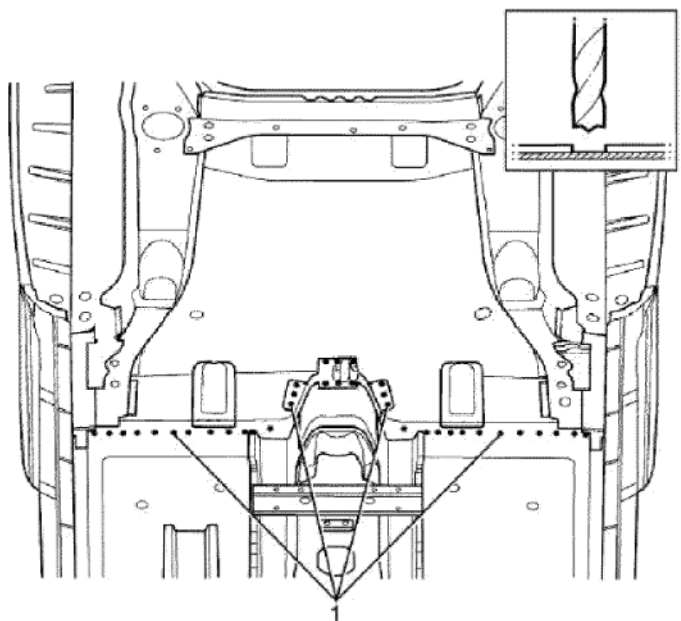
17. Locate, mark and drill out the factory welds attaching the underbody assembly to the rear frame assembly (1).



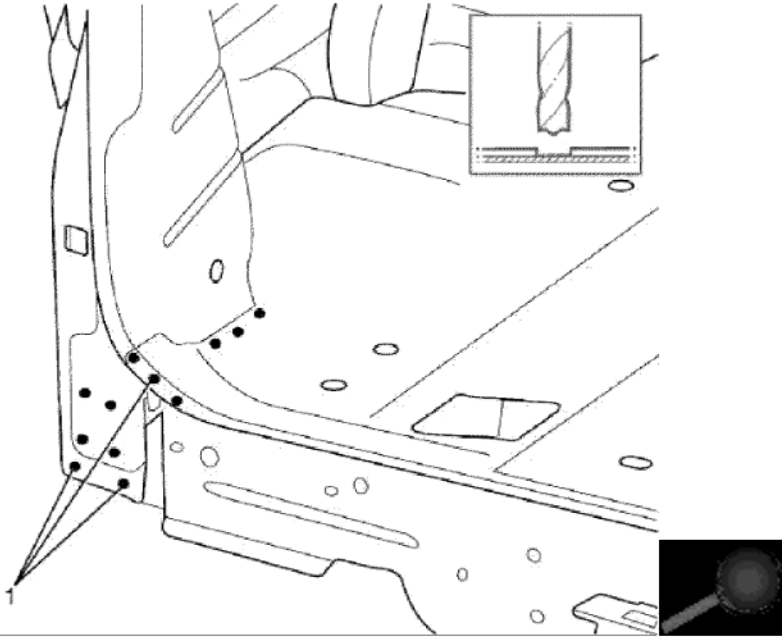
18. Locate, mark and drill out the factory welds attaching the underbody assembly to the tail lamp panel and the underbody assembly to the lower extension panel of the body side (1).



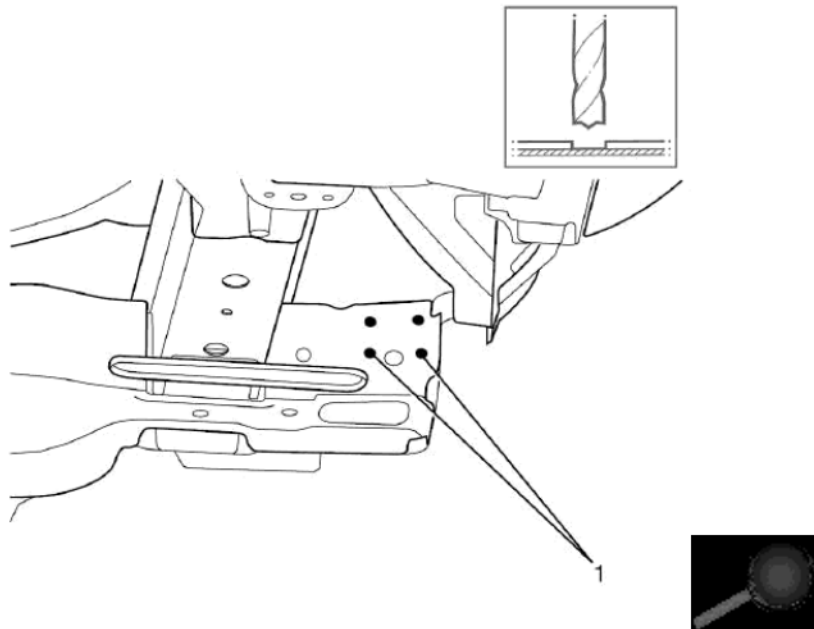
19. Locate, mark and drill out the factory welds attaching the underbody assembly to the body side assembly (1).



20. Locate, mark and drill out the factory welds attaching the underbody assembly to the rear frame assembly (1).



21. Locate, mark and drill out the factory welds attaching the underbody assembly to the rear crossmember and the underbody assembly to the rear floor panel (1).



**Note:** Clean all adhesive mating surfaces in accordance with the adhesive manufactures specifications.

22. Locate, mark and drill out the factory welds attaching the underbody assembly to the rear crossmember (1).

### Installation Procedure

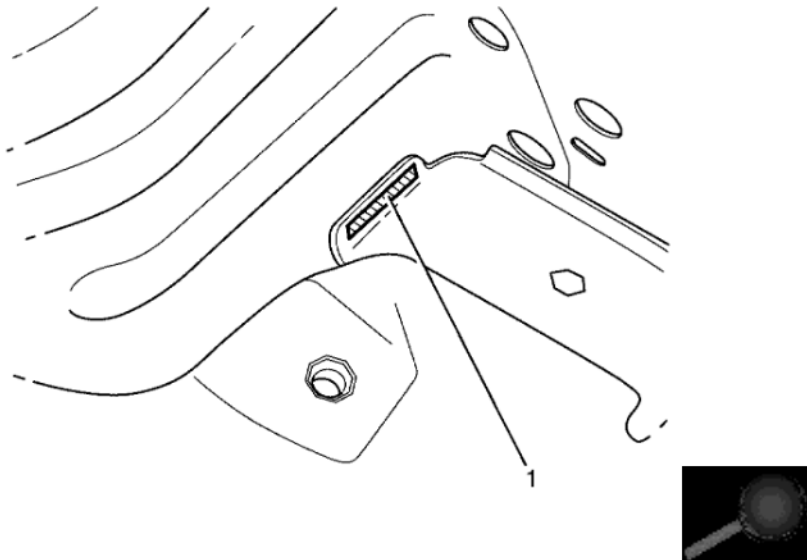
**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes can not be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

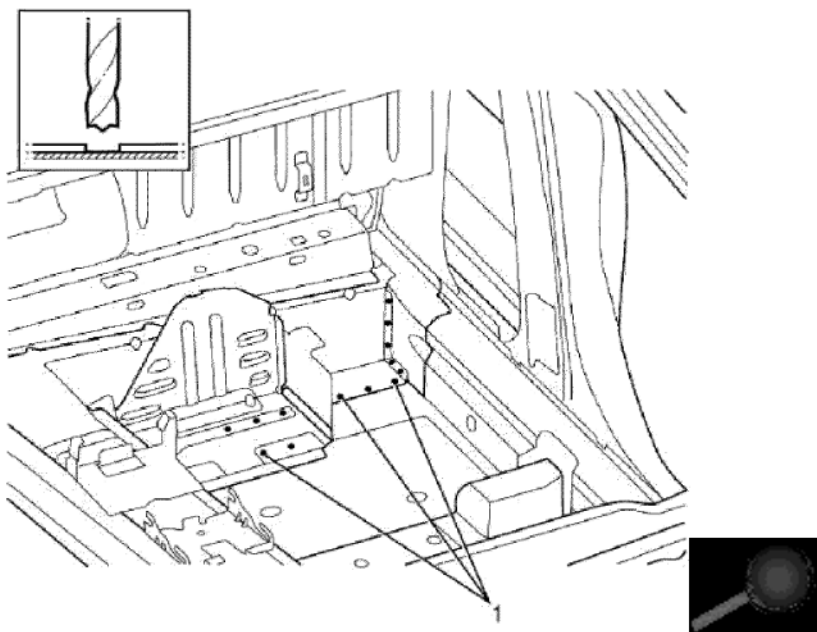
1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.

**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

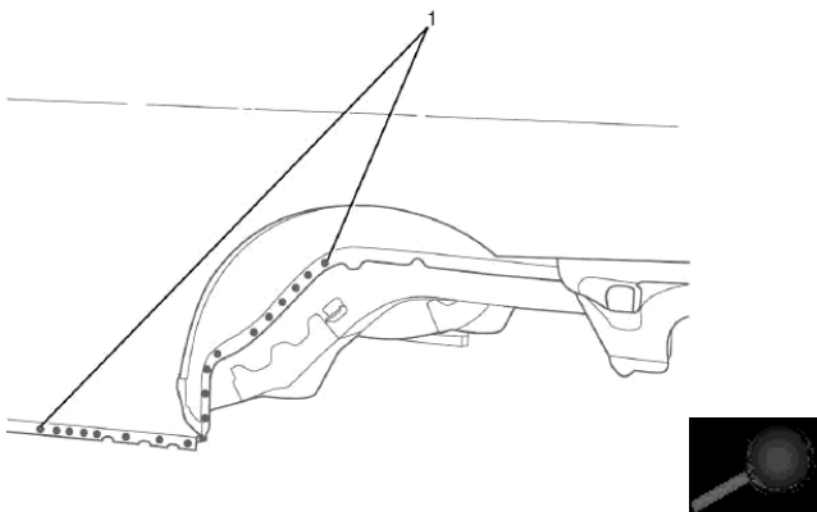
2. Clean and prepare the mating surfaces of both parts of the underbody assembly.



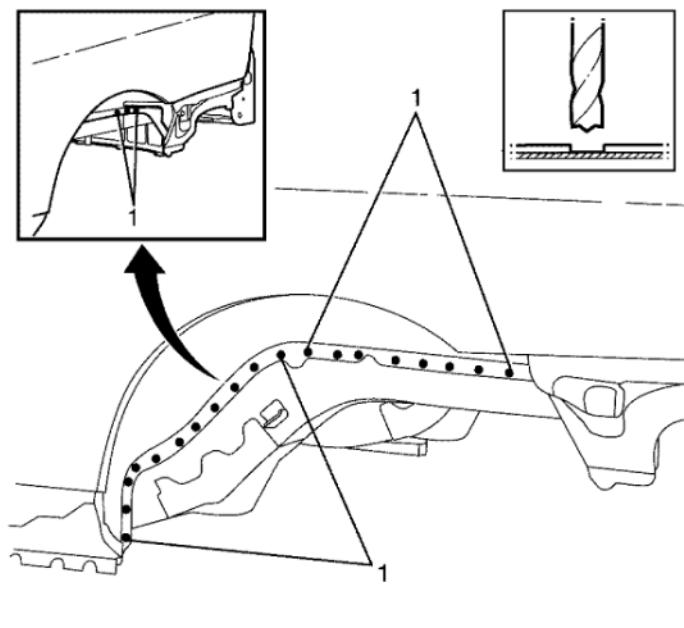
3. Apply an approved structural adhesive to the underbody assembly (1).



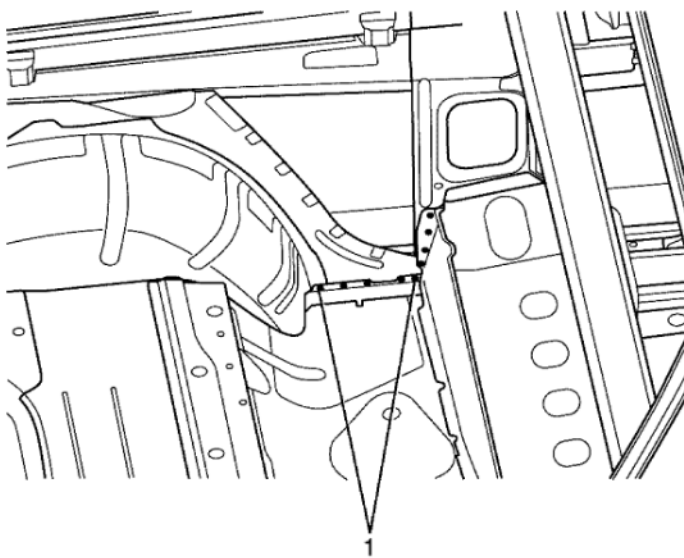
4. Weld the underbody assembly to the rear frame assembly (1) .



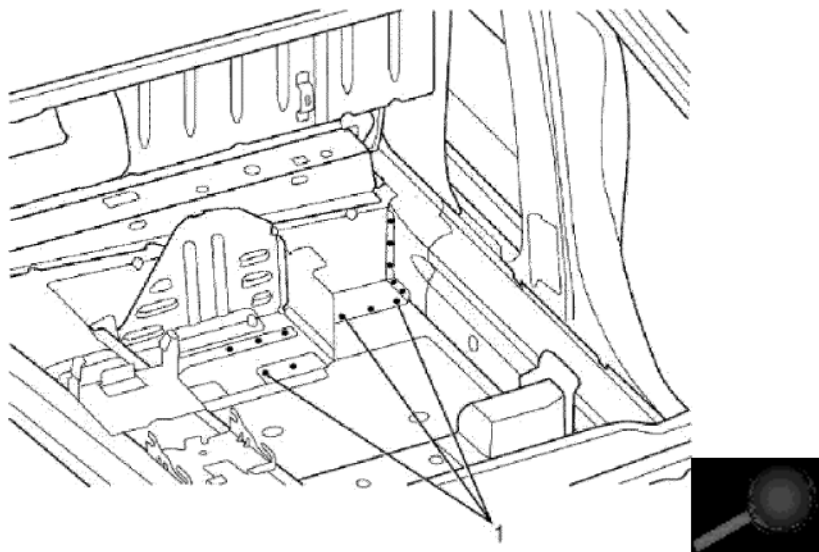
5. Weld the underbody assembly to the body side (1).



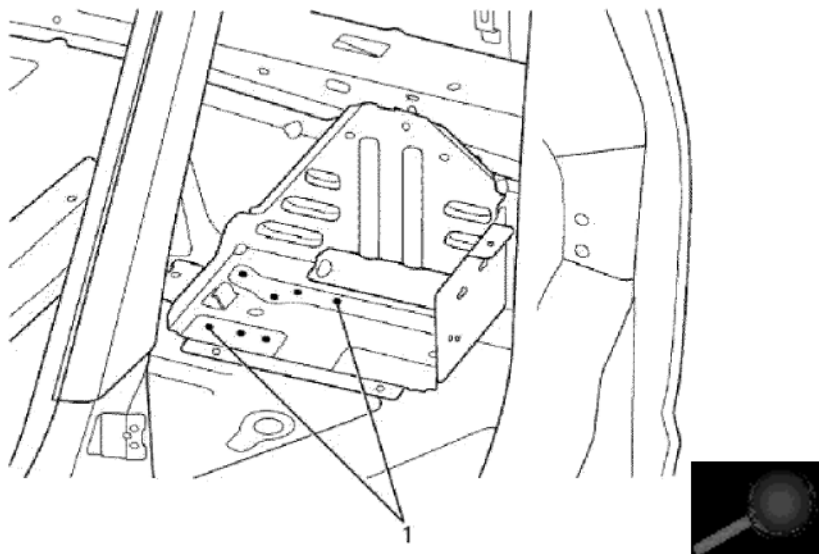
6. Weld the underbody assembly to the body side (1).



7. Weld the underbody assembly to the body side assembly (1) .

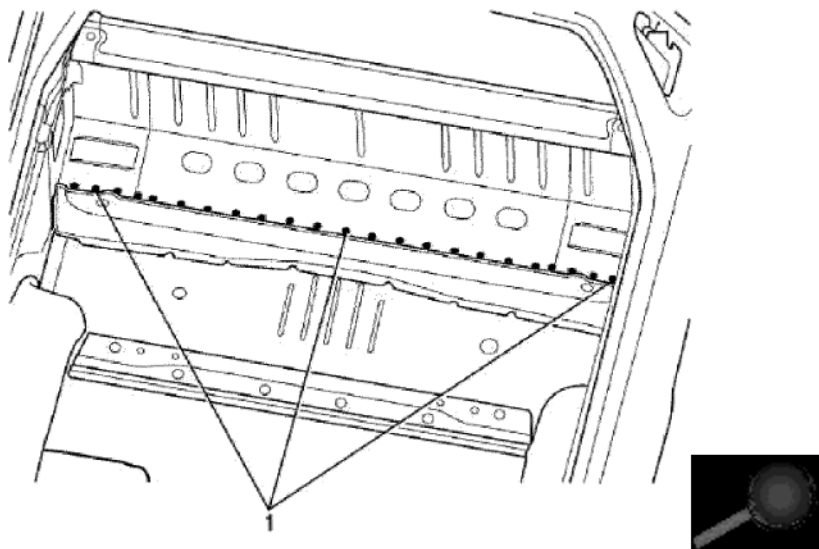


8. Weld the underbody assembly to the rear frame assembly (1).

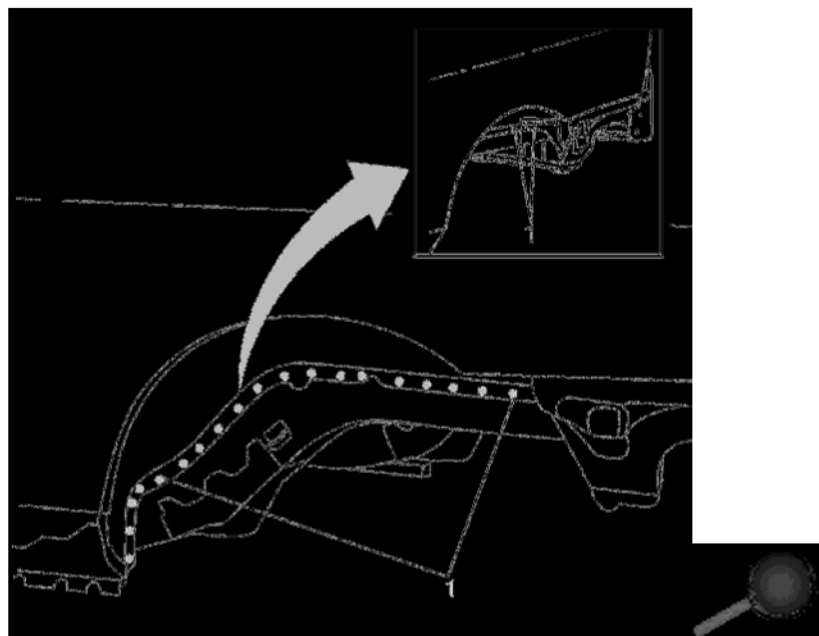


9. Weld the underbody assembly to the rear frame assembly (1).

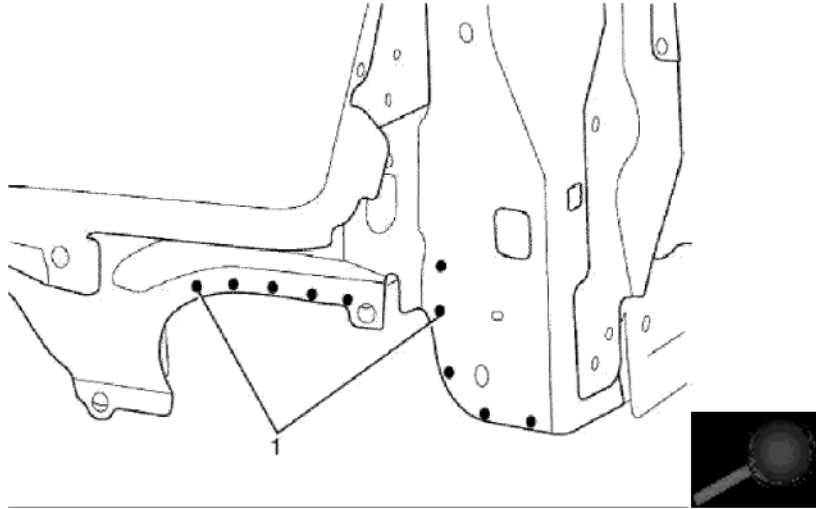




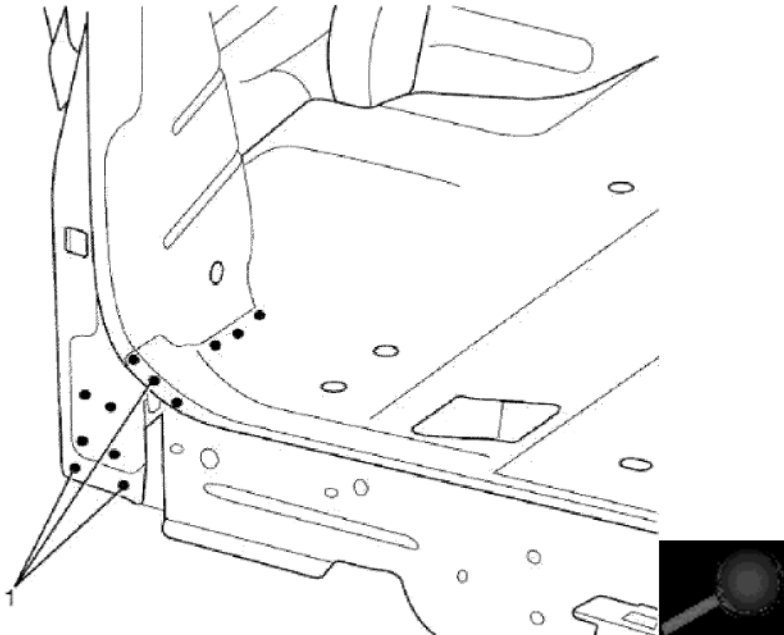
10. Weld the underbody assembly to the seat back panel (1) .



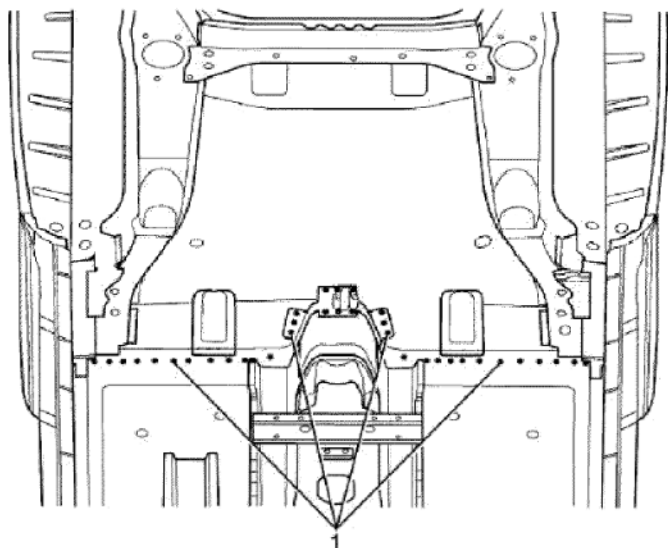
11. Weld the underbody assembly to the rear frame assembly (1).



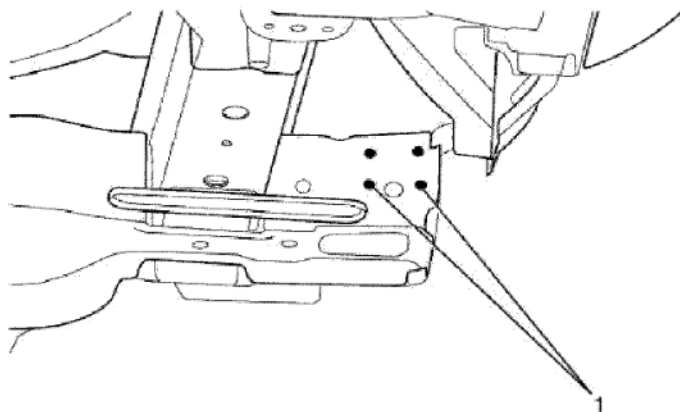
12. Weld the underbody assembly to the tail lamp panel and the underbody assembly to the lower extension panel of the body side (1).



13. Weld the underbody assembly to the rear crossmember and the underbody assembly to the rear floor panel (1).



14. Weld the underbody assembly to the rear frame assembly (1).



15. Weld the underbody assembly to the rear crossmember (1).

16. Install the fuel tank. Refer to [Fuel Tank Replacement](#).
17. Install the Filler Tube. Refer to [Filler Tube Replacement](#).
18. Install the endgate. Refer to [Endgate Replacement](#).
19. Install the cargo liner. Refer to [Cargo Box Liner Replacement](#).
20. Install the exhaust system. Refer to [Exhaust System Replacement](#).
21. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
22. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
23. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
24. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
25. If re-programming is required. Refer to [Control Module References](#).

## Body Side Inner Panel Extension Replacement (Sportwagon)

### Removal Procedure

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

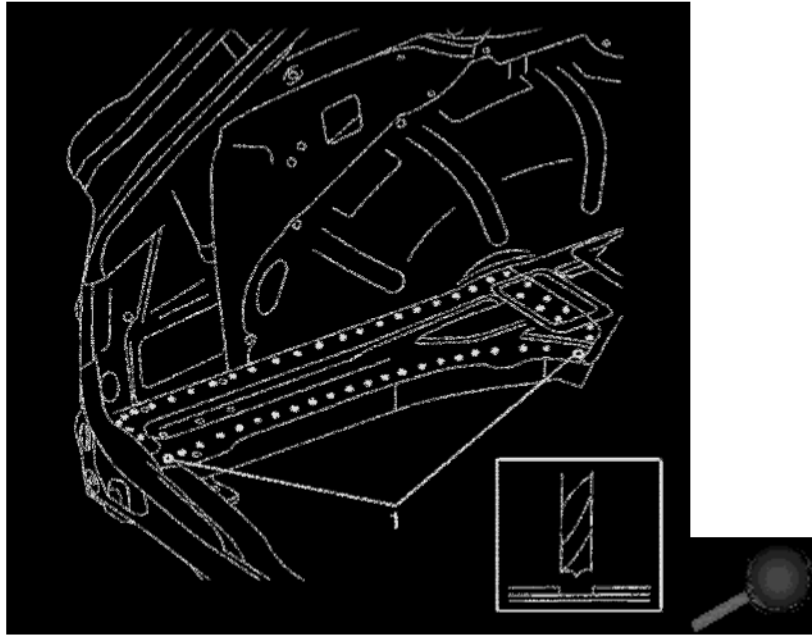
**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [SIR Warning](#).

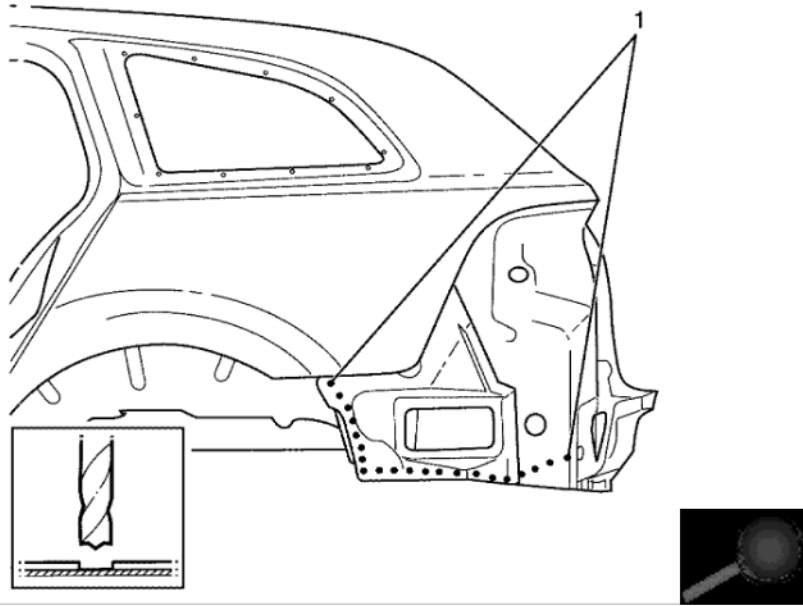
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
- Warning:** Refer to [Battery Disconnect Warning](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
4. Remove the rear bumper impact bar. Refer to [Rear Bumper Impact Bar Replacement](#).
5. Remove the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
6. Remove the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
7. Remove the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
8. Remove the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
9. Remove the rear bumper bracket. Refer to [Rear Bumper Impact Bar Bracket Replacement](#).
10. Remove the liftgate weatherstrip. Refer to [Liftgate Weatherstrip Replacement](#).
11. Remove the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
12. Remove the battery. Refer to [Battery Replacement](#).
13. Remove the battery tray. Refer to [Battery Tray Replacement](#).
14. Remove the pressure relief valve. Refer to [Body Pressure Relief Valve Replacement](#).
15. Remove the tail lamps. Refer to [Tail Lamp Replacement](#).
16. Remove the liftgate. Refer to [Liftgate Replacement](#).
17. Remove the spare wheel and emergency kit from the rear compartment.
18. Remove the spare wheel carrier. Refer to [Spare Wheel Carrier Replacement](#).

19. Remove the rear end filler panel. Refer to [Rear End Panel Filler Replacement](#).
20. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



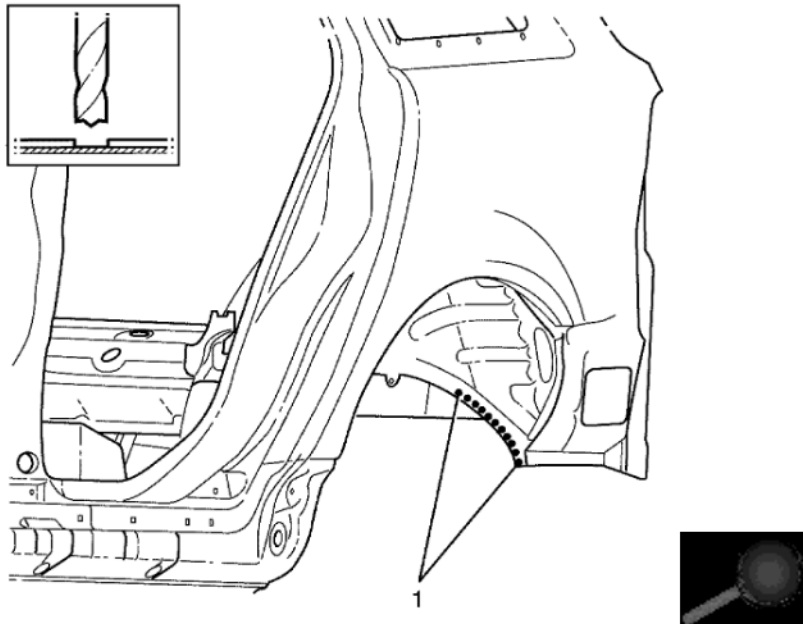
**Note:** Note the number and location of welds for installation on the new body side inner panel extension.

21. Locate, mark and drill out the spot welds (1) in the body side inner panel extension to the rear chassis rail.



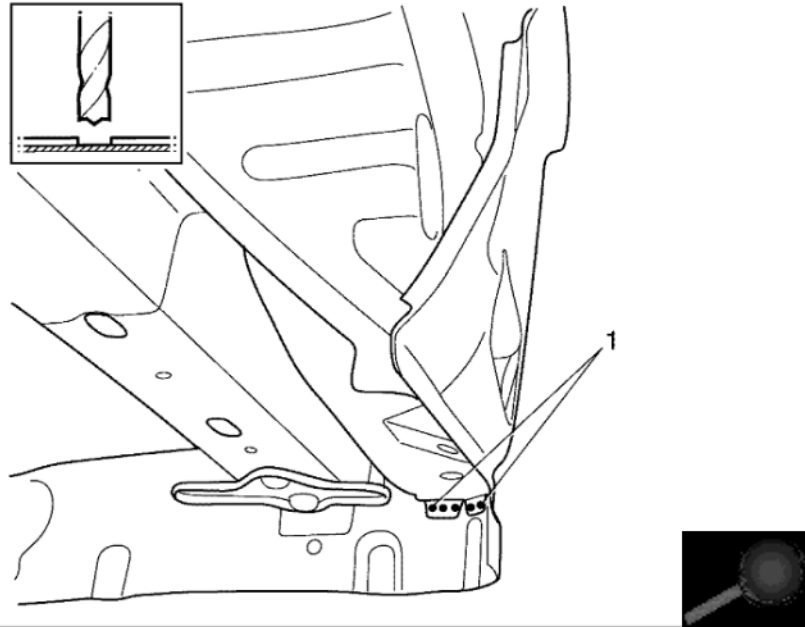
**Note:** Note the number and location of welds for installation on the new body side inner panel extension.

22. Locate, mark and drill out the spot welds (1) in the body side inner panel extension to the body side panel assembly.



**Note:** Note the number and location of welds for installation on the new body side inner panel extension.

23. Locate, mark and drill out the spot welds (1) in the body side inner panel extension to the body side panel assembly.



**Note:** Note the number and location of welds for installation on the new body side inner panel extension.

24. Locate, mark and drill out the spot welds (1) in the body side inner panel extension to the rear end panel assembly.

25. Remove the body side inner panel extension from the vehicle.

### Installation Procedure

**Note:** Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.

**Note:** Ensure that all factory welds are replaced in their original locations.

**Note:** Ensure that all structural adhesives are replaced in their original locations.

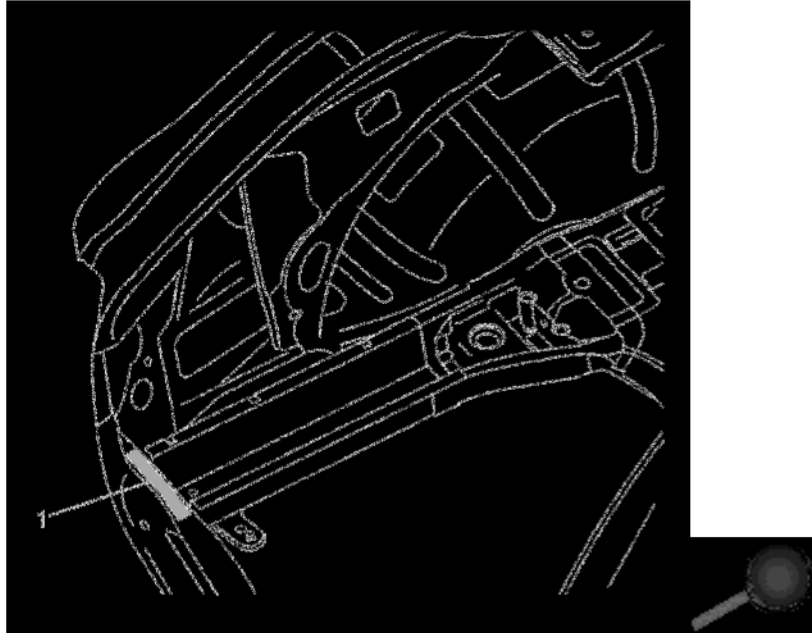
**Note:** If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).

**Note:** Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of both parts of the body side panel assembly.



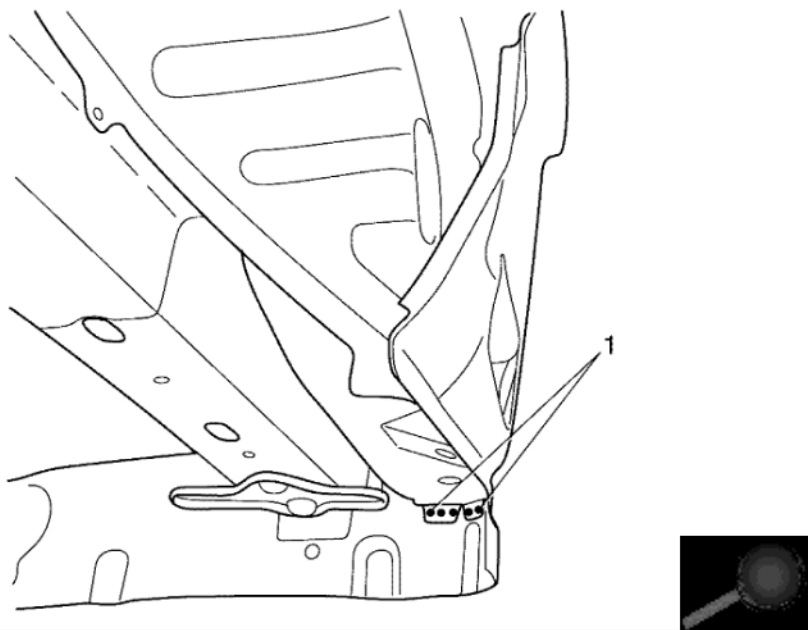
**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.



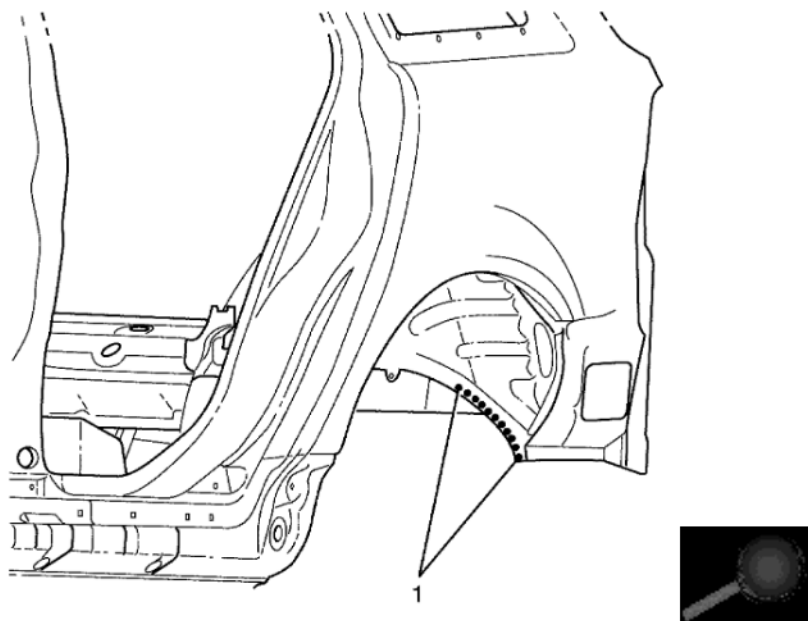
3. Apply structural adhesive (1) GM6449G or equivalent to the mating surfaces of the body side inner panel extension and rear end panel assembly.

**Note:** As the new body side inner panel extension is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

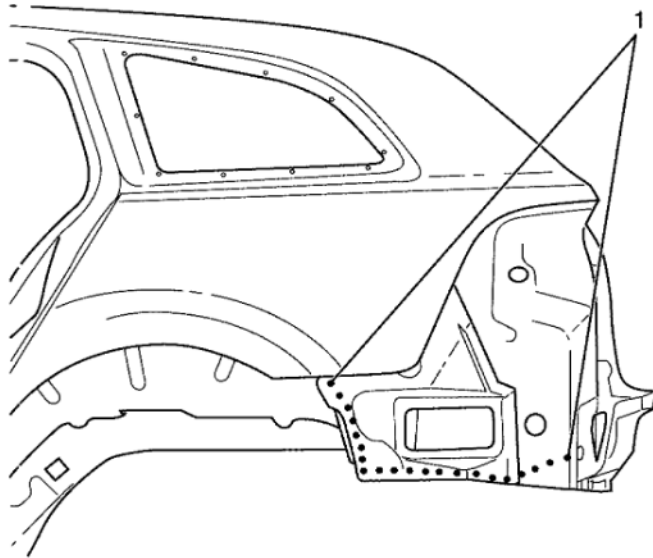
4. Position the new body side inner panel extension to the vehicle.



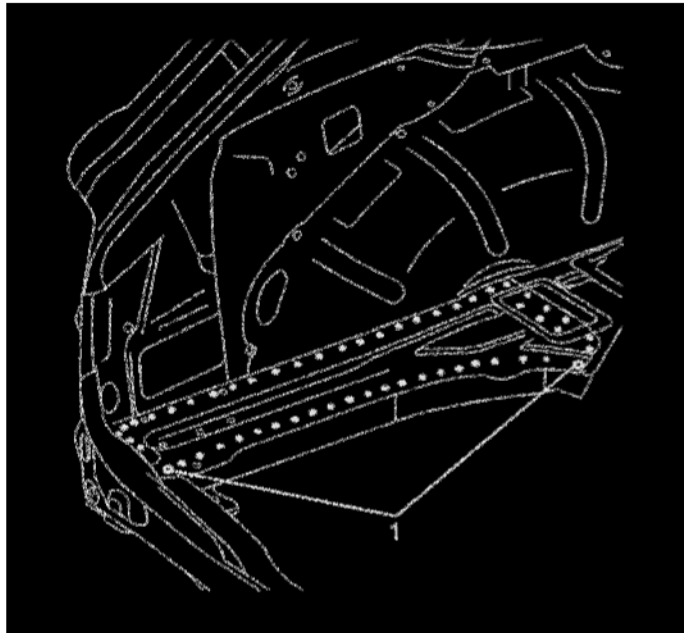
5. Weld (1) the body side inner panel extension to the rear end panel assembly.



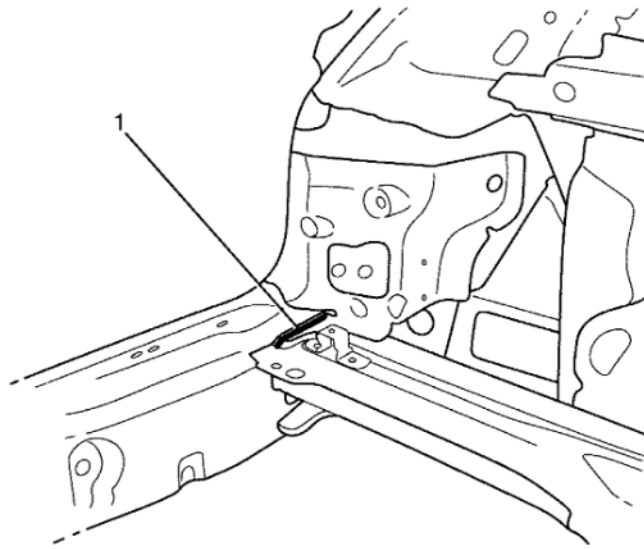
6. Weld (1) the body side inner panel extension to the body side panel assembly.



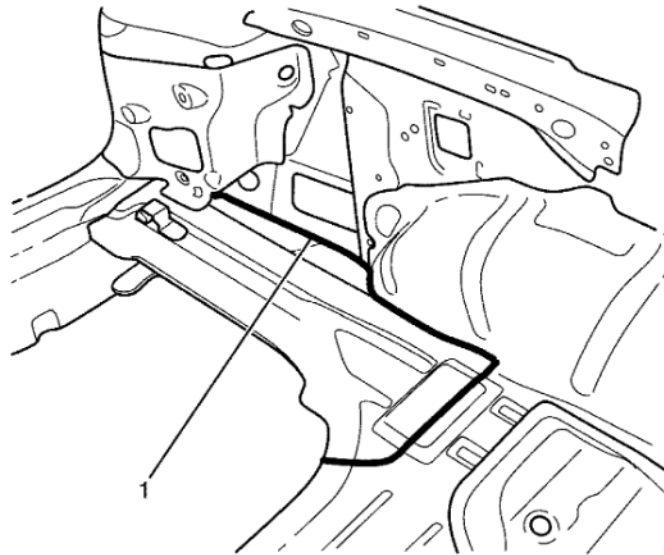
7. Weld (1) the body side inner panel extension to the body side panel assembly.



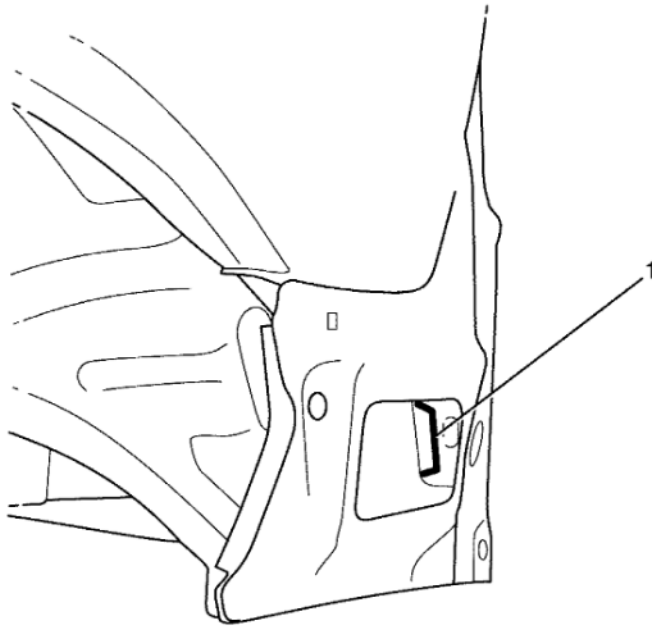
8. Weld (1) the body side inner panel extension to the rear chassis rail.



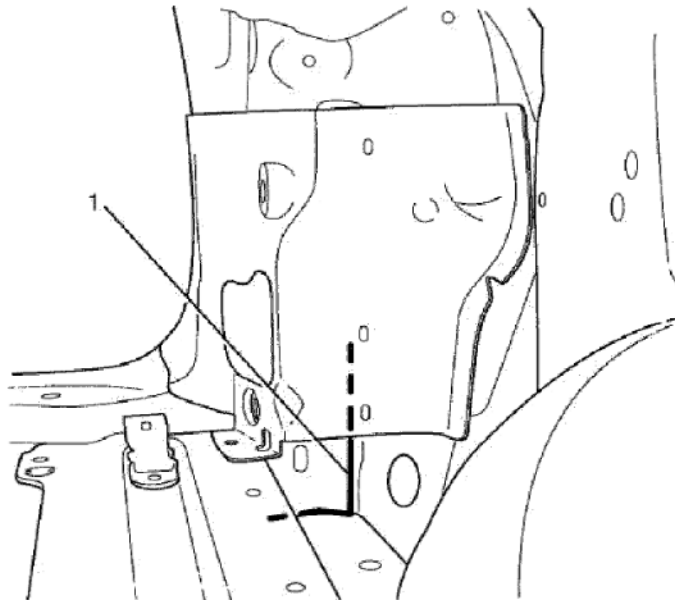
9. Apply secondary sealer (1) GM9984532 or equivalent along the rear edge of the body side inner panel extension.



10. Apply secondary sealer (1) GM9984532 or equivalent along the edge of the body side inner panel extension.



11. Apply secondary sealer (1) GM9984532 or equivalent to the rear compartment floor panel rail.



12. Apply secondary sealer (1) GM9984532 or equivalent to the body tail-lamp filler panel.

13. Install the rear end filler panel. Refer to [Rear End Panel Filler Replacement](#)
14. Apply any sealers and anti-corrosion materials to the repair area noted on disassembly. Refer to [Anti-Corrosion Treatment and Repair](#).
15. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
16. Install the spare wheel carrier. Refer to [Spare Wheel Carrier Replacement](#).
17. Install the spare wheel and emergency kit from the rear compartment.
18. Install the liftgate. Refer to [Liftgate Replacement](#).
19. Install the tail lamps. Refer to [Tail Lamp Replacement](#).
20. Install the pressure relief valve. Refer to [Body Pressure Relief Valve Replacement](#).
21. Install the battery tray. Refer to [Battery Tray Replacement](#).
22. Install the battery. Refer to [Battery Replacement](#).
23. Install the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
24. Install the liftgate weatherstrip. Refer to [Liftgate Weatherstrip Replacement](#).
25. Install the rear bumper bracket. Refer to [Rear Bumper Impact Bar Bracket Replacement](#).
26. Install the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
27. Install the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
28. Install the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
29. Install the rear end trim finish panel. Refer to [Liftgate Sill Garnish Molding Replacement](#).
30. Install the rear bumper impact bar. Refer to [Rear Bumper Impact Bar Replacement](#).
31. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
32. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
33. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Body Side Inner Panel Extension Replacement (Long Wheelbase Sedan)

### Removal Procedure

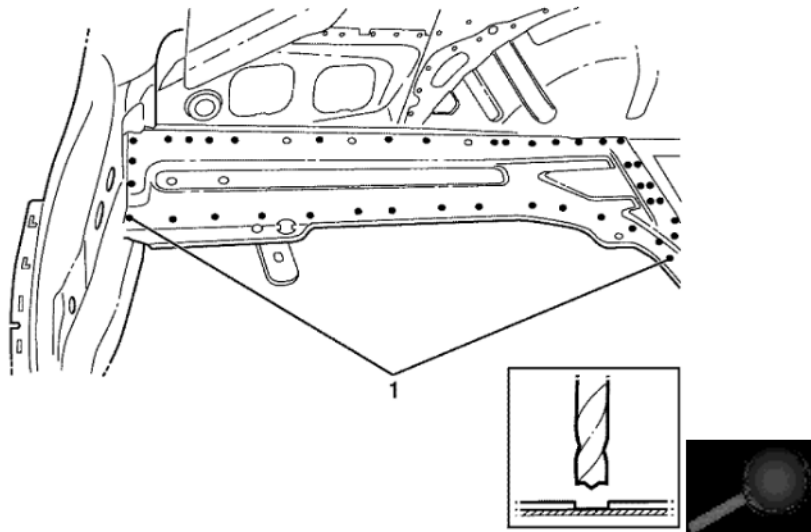
**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

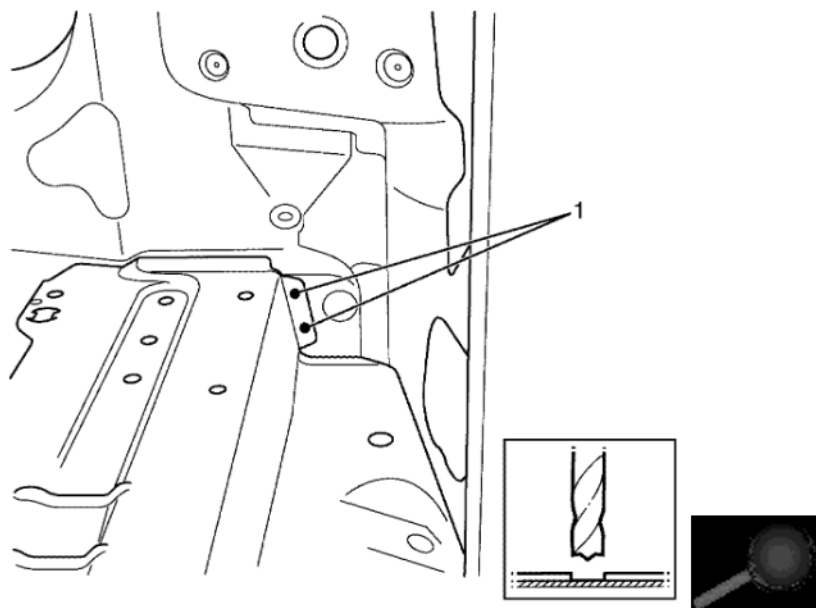
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#)

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
4. Remove the rear impact bar. Refer to [Rear Bumper Impact Bar Replacement](#).
5. Remove the tail lights. Refer to [Tail Lamp Replacement](#).
6. Remove the spare wheel and emergency kit from the rear compartment.
7. Remove the spare wheel and tyre carrier. Refer to [Spare Wheel Carrier Replacement](#).

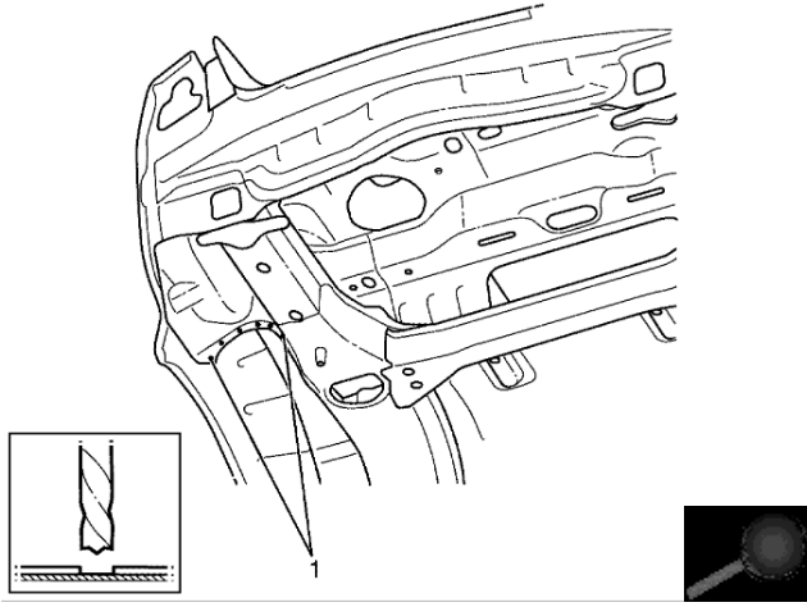


8. Locate, mark and drill out the spot welds (1) in the body side inner extension panel to the rear chassis rail.



9. Locate, mark and drill out the spot welds (1) in the body side inner extension panel to the rear extension panel.



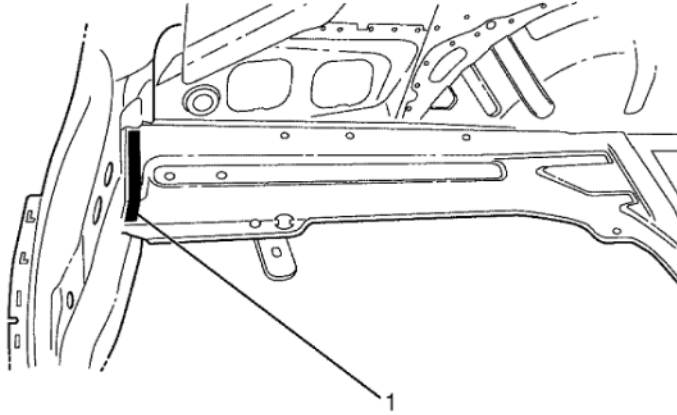


10. Locate, mark and drill out the spot welds (1) in the body side inner extension panel to the rear extension panel.
11. Remove the body side inner extension panel from the vehicle.
12. Remove all traces of old adhesive and sealer from the surrounding panels.

### Installation Procedure

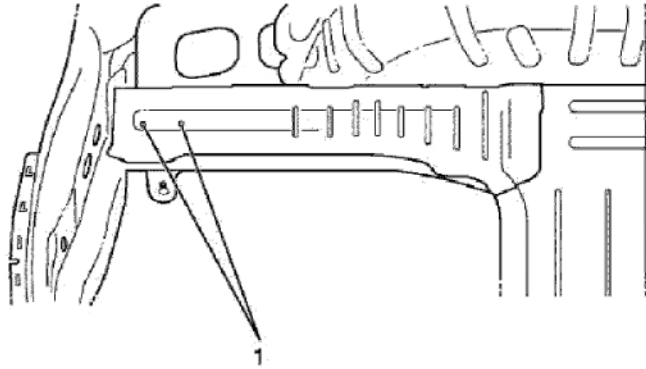
#### **Note:**

- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
  - Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.
  - Ensure all factory welds are replaced in their original locations.
  - Ensure all structural adhesives and sealers are replaced in their original locations.
1. Drill 8 mm (5/16 in ) puddle weld holes in the service part, as necessary, in the locations where puddle welding is needed.
  2. Prepare the mating surfaces, as necessary.

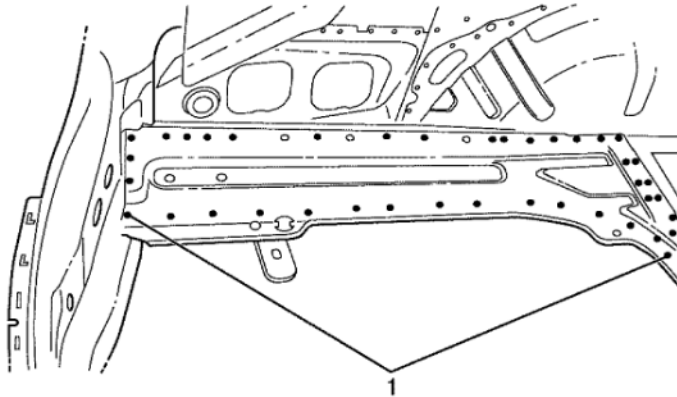


**Note:** As the rear compartment floor panel outer extension is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

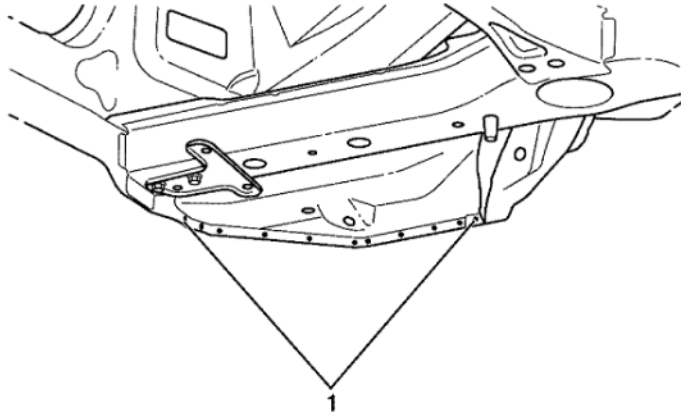
3. Apply the structural adhesive (1) GM6449G or equivalent between the body side inner extension panel and the rear end panel.



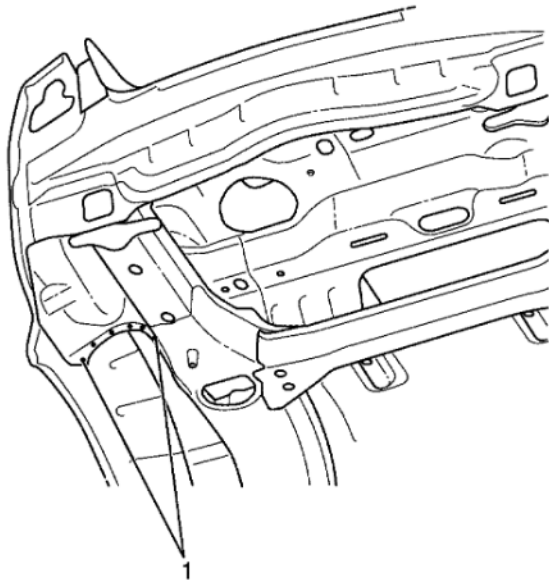
4. Align the rear compartment floor panel outer extension to the vehicle. Ensure that the bolt holes (1) align vertically with the matching holes and weld nuts in the rear compartment floor panel rear rail and exhaust muffler hanger reinforcement.



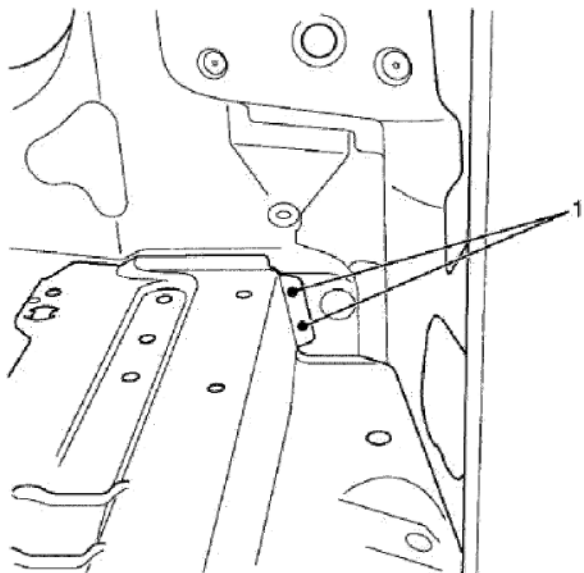
5. Weld (1) the body side inner extension panel to the rear compartment floor panel rear rail.



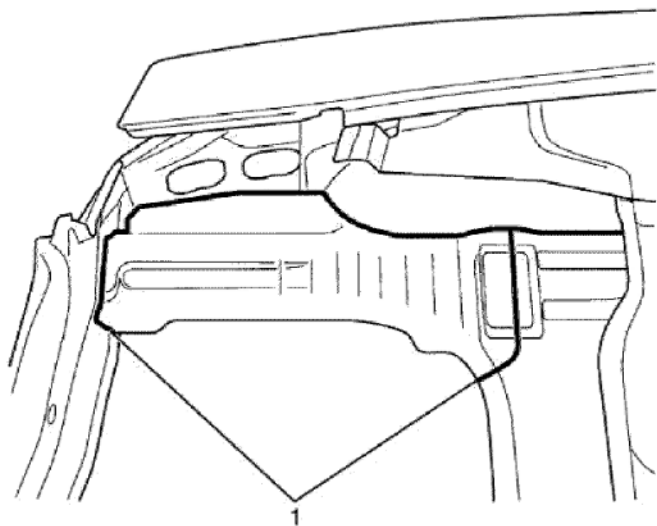
6. Weld (1) the body side inner extension panel to the body side outer panel rear lower extension.



7. Weld (1) the body side inner extension panel to the rear wheelhouse Inner panel.



8. Weld (1) the body side inner extension panel to the rear end panel.



9. Apply secondary sealer (1) GM Specification 9984532 or equivalent around the perimeter of the Body Side Inner Panel Extension as shown.

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 the spare wheel and tyre carrier. Refer to [Spare Wheel Carrier Replacement](#).
13. Install the tail lights. Refer to [Tail Lamp Replacement](#).
14. Install the rear impact bar. Refer to [Rear Bumper Impact Bar Replacement](#).
15. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
16. Install the spare wheel and emergency kit from the rear compartment.  
**Warning:** Refer to [Battery Disconnect Warning](#).
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](#).
19. If re-programming is required. Refer to [Control Module References](#).

## Body Side Inner Panel Extension Replacement (Short Wheelbase Sedan)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

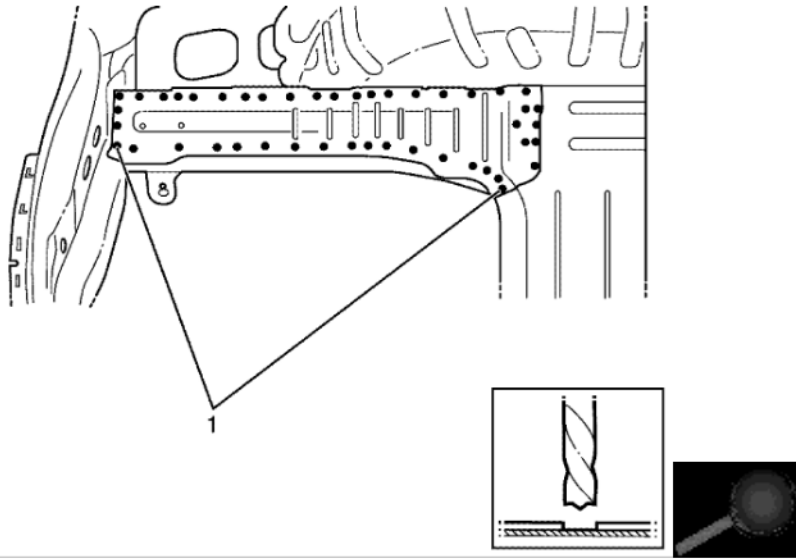
**Warning:** Refer to [Approved Equipment for Collision Repair Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#)

**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#)
3. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#)
4. Remove the rear impact bar. Refer to [Rear Bumper Impact Bar Replacement](#)
5. Remove the tail lights. Refer to [Tail Lamp Replacement](#)
6. Remove the spare wheel and emergency kit from the rear compartment.
7. Remove the spare wheel and tyre carrier. Refer to [Spare Wheel Carrier Replacement](#)

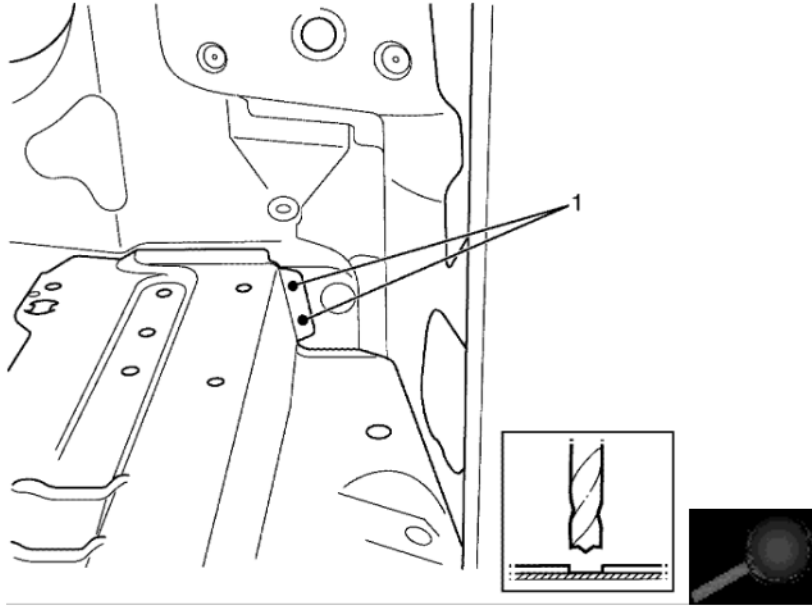


**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

8. Locate, mark and drill out the spot welds (1) attaching the body side inner extension panel to the rear chassis rail.

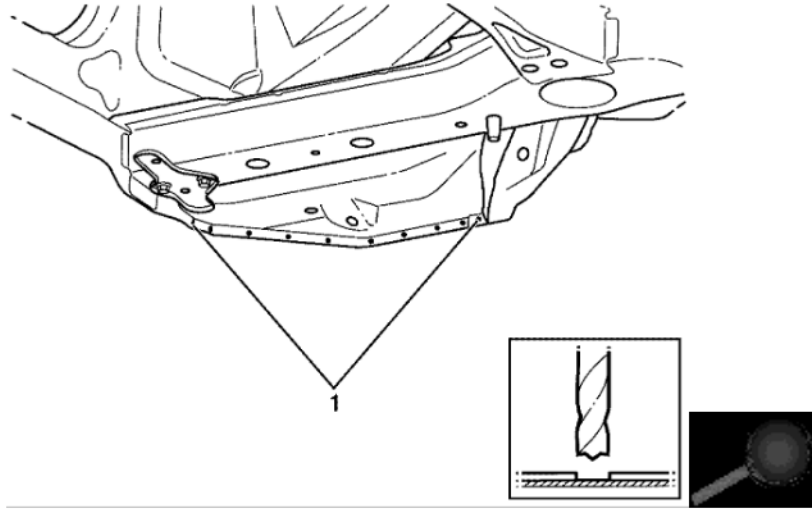




**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

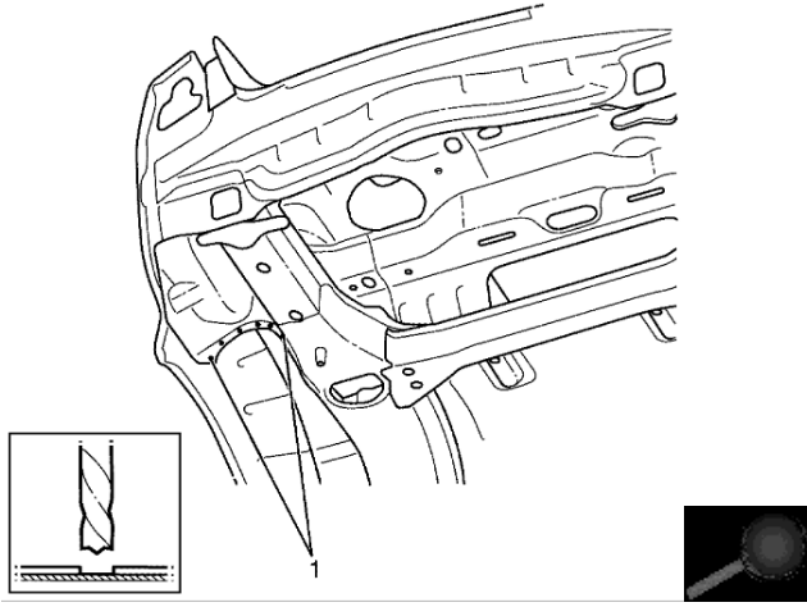
9. Locate, mark and drill out the spot welds (1) in the body side inner extension panel to the rear end panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

10. Locate, mark and drill out the spot welds (1) in the body side inner extension panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

11. Locate, mark and drill out the spot welds (1) in the body side inner extension panel to the rear extension panel.
12. Remove the side extension panel from the vehicle.
13. Remove all traces of old adhesive and sealer from the surrounding panels.

**Installation Procedure**

**Note:**

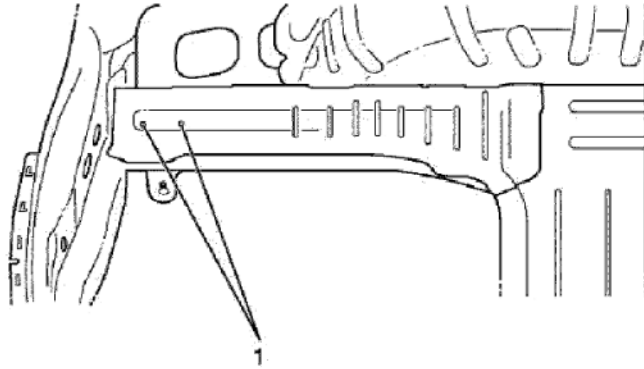
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.
- Ensure all factory welds are replaced in their original locations.
- Ensure all structural adhesives and sealers are replaced in their original locations.

1. Drill 8 mm (5/16 in ) puddle weld holes in the service part, as necessary, in the locations where puddle welding is needed.
2. Prepare the mating surfaces, as necessary.

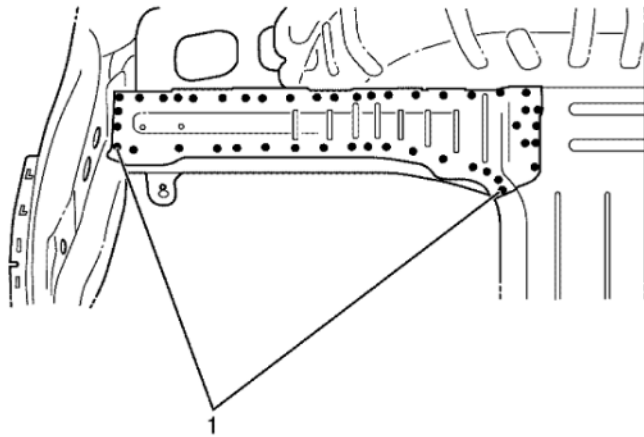


**Note:** As the rear compartment floor panel outer extension is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

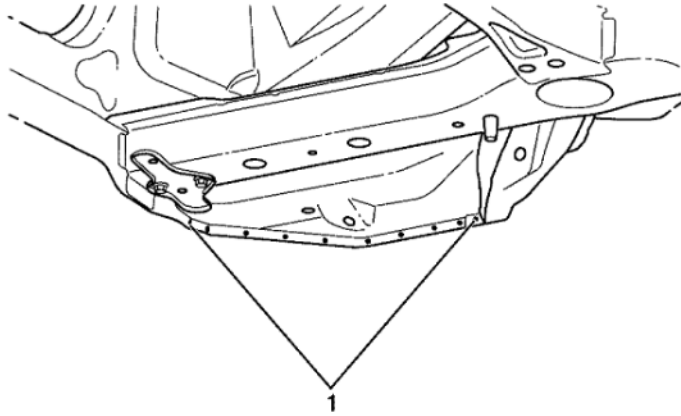
3. Apply the structural adhesive (1) GM6449G or equivalent between the body side inner extension panel and the rear end panel.



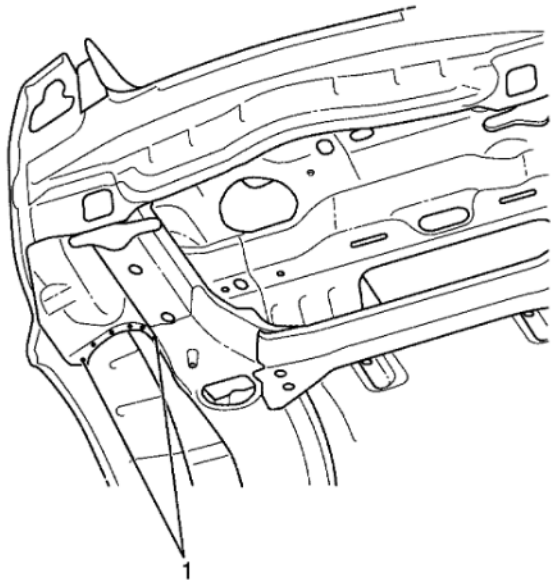
4. Align the body side inner extension panel to the vehicle. Ensure that the bolt holes (1) align vertically with the matching holes and weld nuts in the rear compartment floor panel rear rail and exhaust muffler hanger reinforcement.



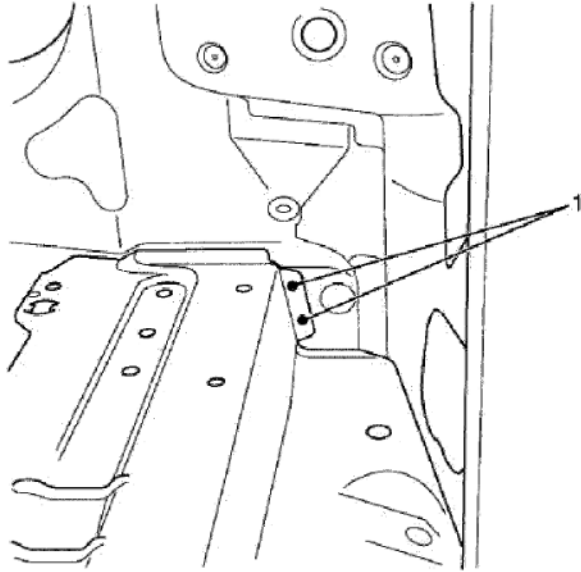
5. Weld (1) the body side inner extension panel to the rear compartment floor panel rear rail.



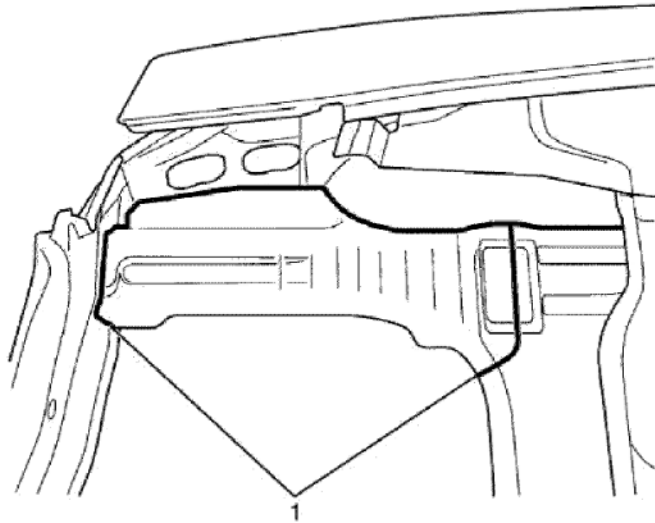
6. Weld (1) the body side inner extension panel to the body side outer panel rear lower extension.



7. Weld (1) the body side inner extension panel to the rear wheelhouse Inner panel.



8. Weld (1) the body side inner extension panel to the rear end panel.



9. Apply secondary sealer (1) GM Specification 9984532 or equivalent around the perimeter of the Body Side Inner Panel Extension as shown.

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 the spare wheel and tyre carrier. Refer to [Spare Wheel Carrier Replacement](#)
13. Install the tail lights. Refer to [Tail Lamp Replacement](#)
14. Install the rear impact bar. Refer to [Rear Bumper Fascia Insert Replacement](#)
15. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#)
16. Install the spare wheel and emergency kit to the rear compartment.  
**Warning:** Refer to [Battery Disconnect Warning](#).
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](#)
19. If re-programming is required, refer to [Control Module References](#)



# Upper Rail Replacement

## [Removal Procedure](#)

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

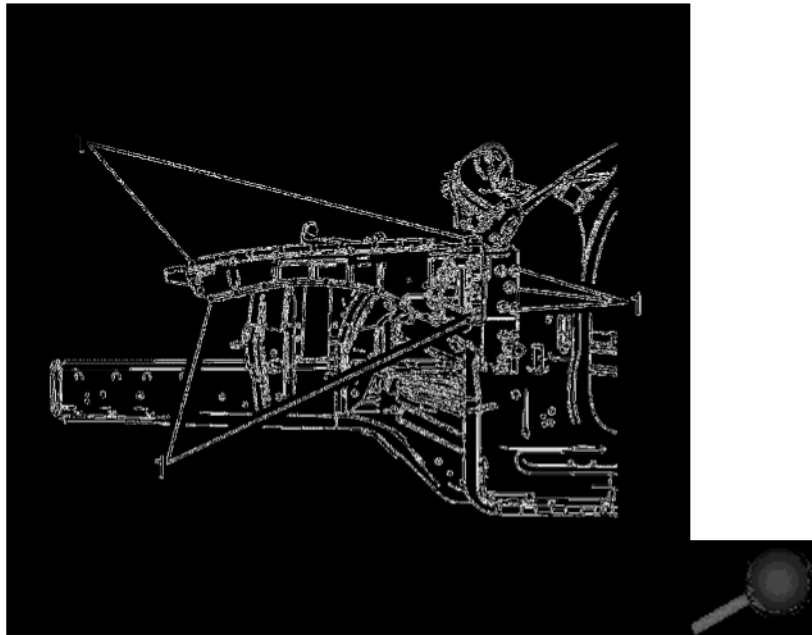
**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the engine assembly. Refer to [Engine Replacement](#) for the V6 engine or [Engine Replacement](#) for the V8 engine.
4. Remove the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
5. Remove the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

6. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
7. Remove the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
8. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
9. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
10. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
11. Lower the vehicle.
12. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
13. Remove the fender assembly. Refer to [Front Fender Replacement](#).
14. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).
15. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).

16. Remove the front end panel module carrier assembly. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
17. Remove the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
18. Remove the air inlet assembly. Refer to [Air Inlet Housing Replacement](#).
19. Remove the underhood electrical center. Refer to [Accessory Wiring Junction Block Replacement](#).
20. Remove the brake pressure modulator valve assembly. Refer to [Brake Pressure Modulator Valve Replacement](#).
21. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
22. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:**

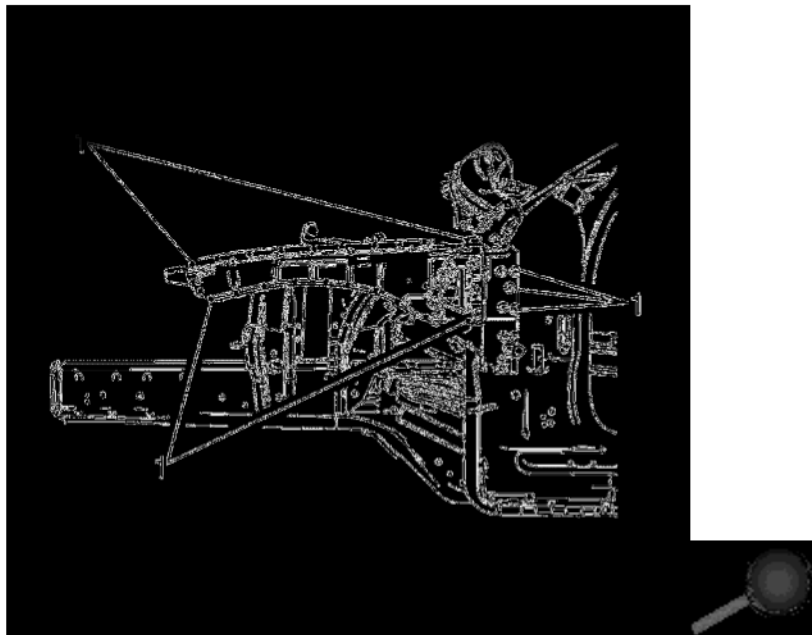
- Do not damage any inner panels or reinforcements.
  - Note the number and location of factory welds (1) for installation of the service part.
23. Locate, mark and drill out the factory welds (1) attaching the upper wheelhouse brace to the front wheelhouse assembly.
  24. Locate, mark and drill out the factory welds (1) attaching the upper rail panel to the front body hinge pillar brace.
  25. Remove the upper wheelhouse brace from the front wheelhouse assembly and discard.

**Installation Procedure**

**Note:**

- Spot welding is the preferred method for attaching panels and should be used wherever possible. A plug weld should be performed where your spot welder is unable reach.
- If the location of the original plug weld holes can not be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.
2. Clean and prepare the mating surfaces of the front wheelhouse assembly and the upper wheelhouse brace.
3. Position the new upper rail panel to the vehicle. Verify correct alignment and position using three-dimensional measuring equipment.
4. Position the upper wheelhouse brace on the vehicle. Verify correct alignment and position using three-dimensional measuring equipment.



5. Weld (1) the front upper rail panel to the front wheelhouse panel assembly. Weld (1) the front upper rail panel to the front body hinge pillar brace.
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 the brake master cylinder. Refer to [Master Cylinder Replacement](#).

9. Install the brake pressure modulator valve assembly. Refer to [Brake Pressure Modulator Valve Replacement](#).
10. If re-programming is required. Refer to [Control Module References](#).
11. Install the underhood electrical center. Refer to [Accessory Wiring Junction Block Replacement](#).
12. Install the air inlet assembly. Refer to [Air Inlet Housing Replacement](#).
13. Remove the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
14. Install the front end panel module carrier assembly. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
15. Install the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
16. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
17. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
18. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#).
19. Install the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
20. Install the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
21. Install the front wheel house liner. Refer to [Front Wheelhouse Liner Replacement](#).
22. Install the front wheels. Refer to [Tire and Wheel Removal and Installation](#).
23. Lower the vehicle.
24. Install the fender assembly. Refer to [Front Fender Replacement](#).
25. Install the engine assembly. Refer to [Engine Replacement](#) for the V6 engine or [Engine Replacement](#) for the V8 engine.
26. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
27. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
28. If re-programming is required. Refer to [Control Module References](#).

## Center Pillar Sectioning - Outer (Long Wheelbase, Short Wheelbase, Sportwagon)

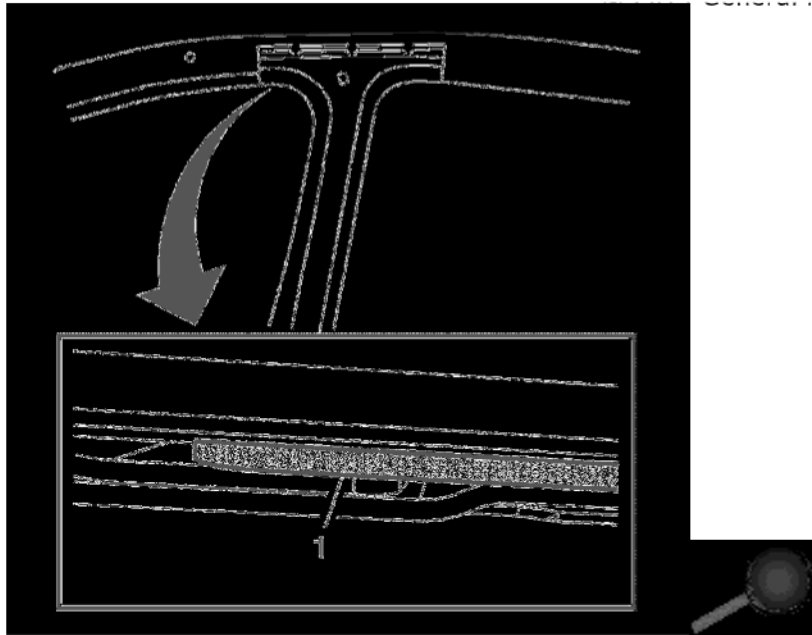
### Removal Procedure

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

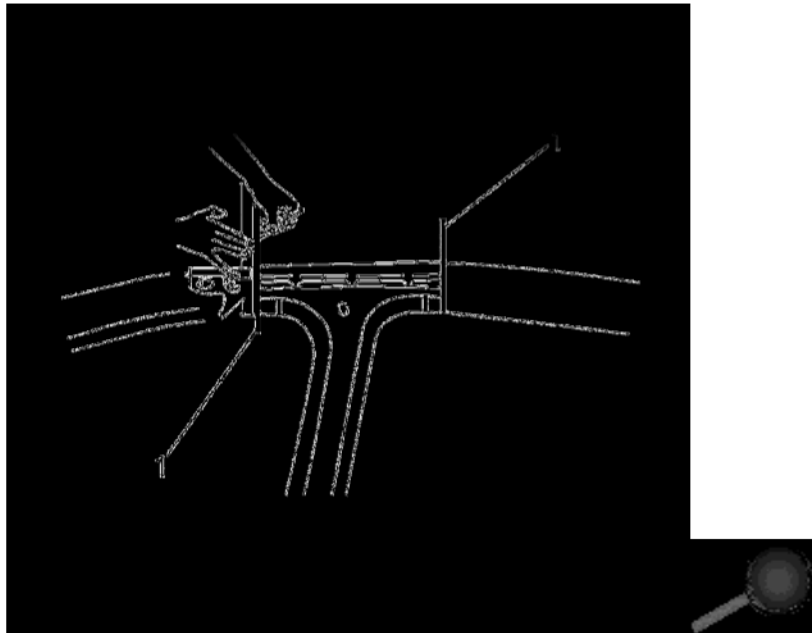
**Note:** Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.

**Note:** This procedure was developed to allow full access for the replacement of the center reinforcement pillar replacement since sectioning is not endorsed or recommended to the reinforcement due to the ultra high strength steel .

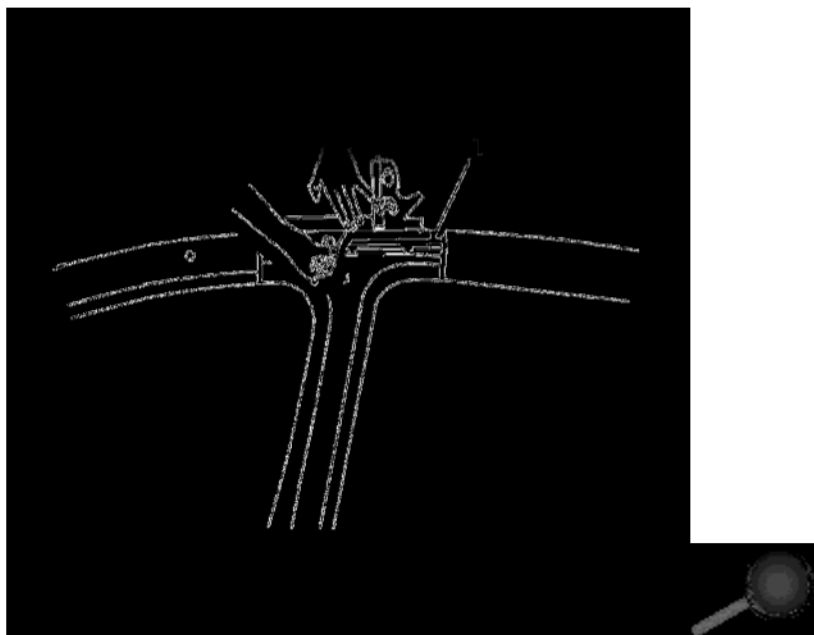
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
2. Remove all related panels and components.
3. Remove the sealers and anti-corrosion materials from the repair area, as necessary, and note their location. Refer to [Anti-Corrosion Treatment and Repair](#).
4. Repair as much of the damaged area as possible. Refer to [Dimensions - Body](#).



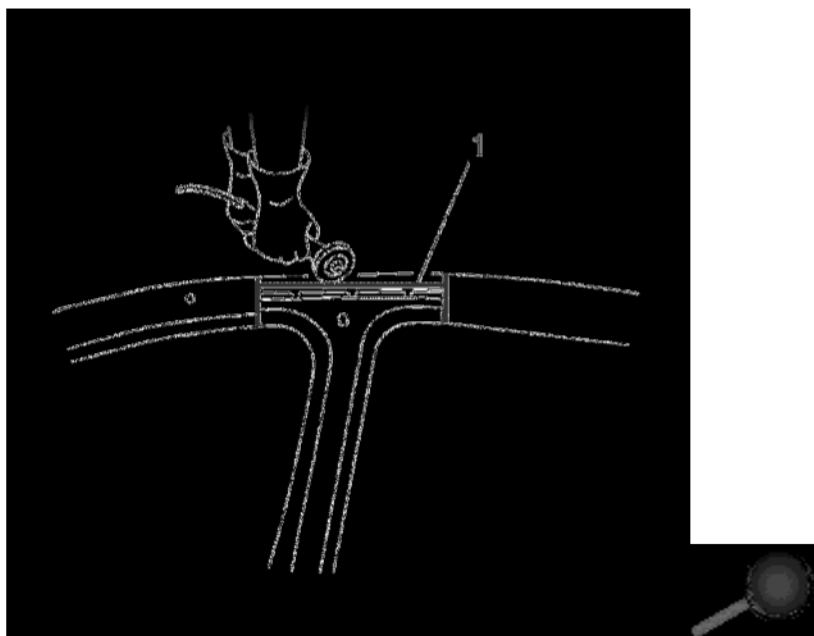
5. Remove the weatherstrip, observe the flange in the center pillar area. There will be a 3-metal stack-up. The center layer is the center pillar inner reinforcement (1).



6. Measure **13 mm (1/2 in)** from the forward and rearward edges of the center pillar inner reinforcement and mark a vertical line (1).

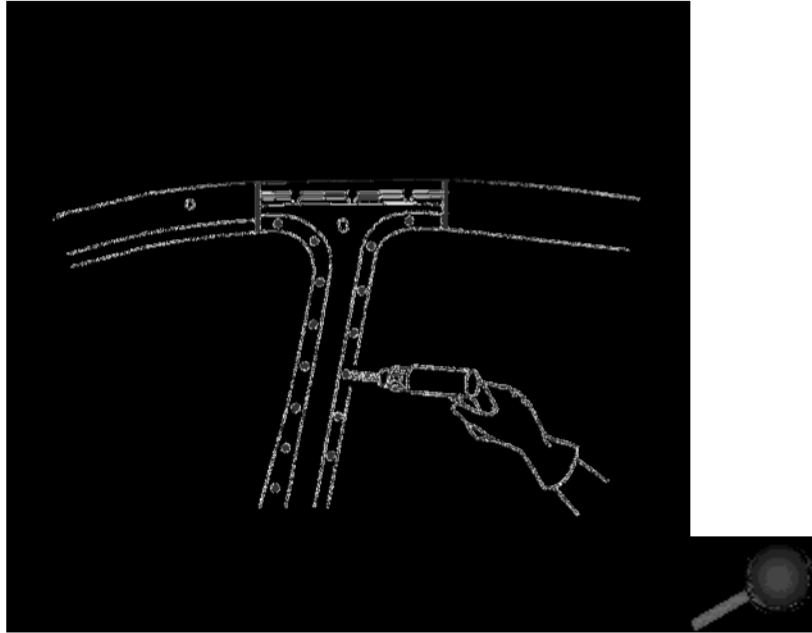


7. Measure down 25 mm (1 in) from the upper edge of the body side outer panel and mark a horizontal line (1). This is the cut line.



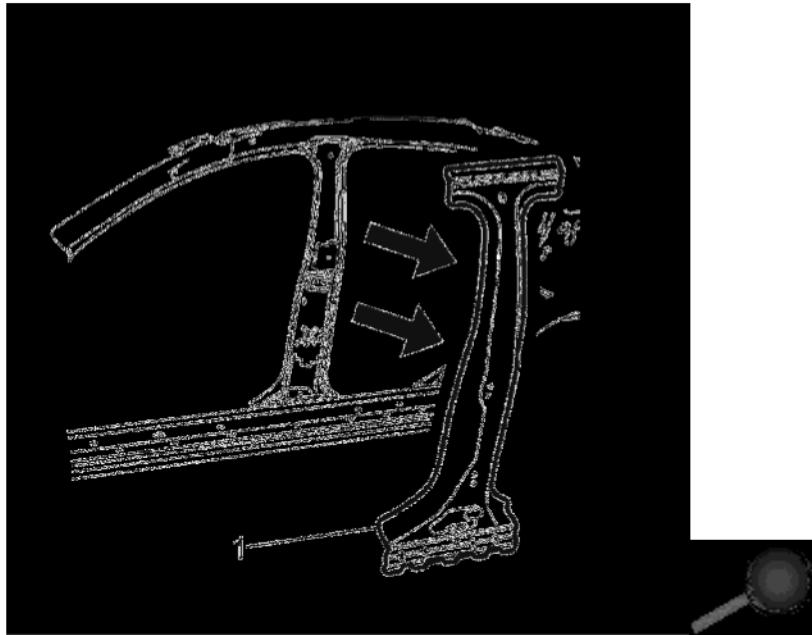
8. Cut access window (1) in the center pillar outer.

9. Perform additional sectioning procedures as needed depending on damage to vehicle. Refer to [Quarter Panel Replacement](#), [Rocker Outer Panel Sectioning](#), or [Front Hinge Pillar Body Sectioning](#).



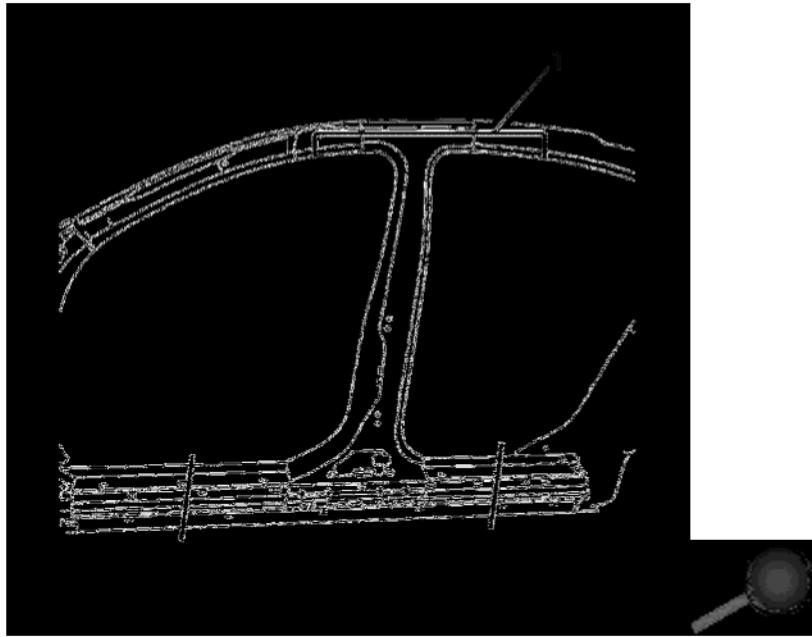
10. Locate and drill out all factory welds (1). Note the number and location of welds for installation of the service part.



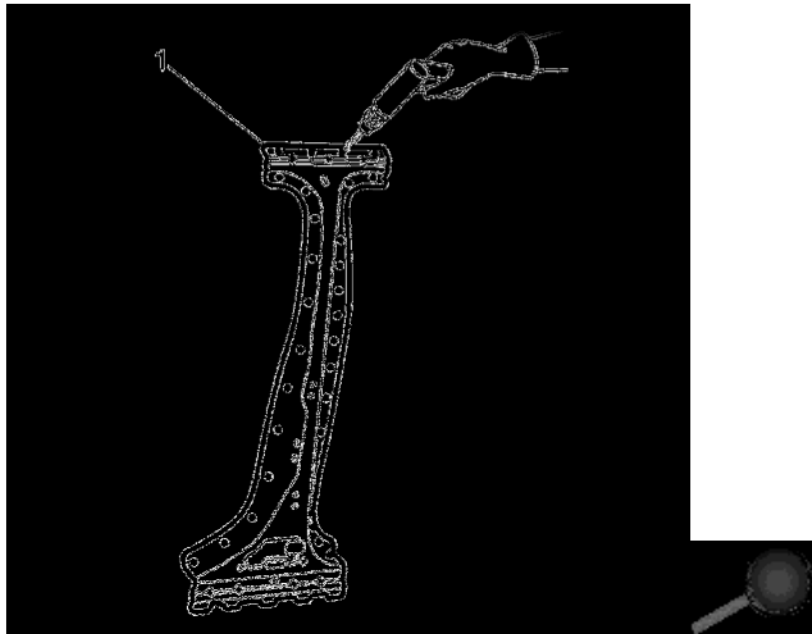


11. Remove the entire center pillar outer panel section (1). Refer to [Ultra High Strength Steel](#).

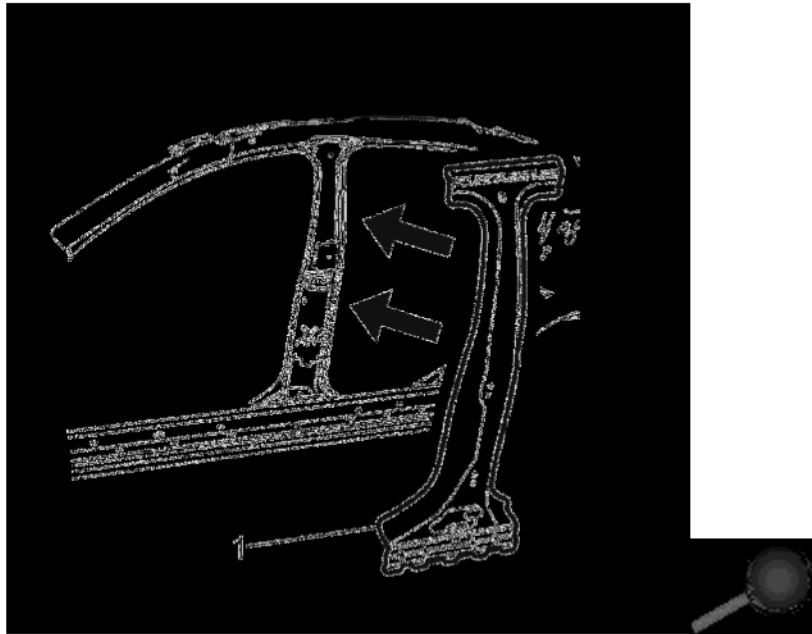
#### **Installation Procedure**



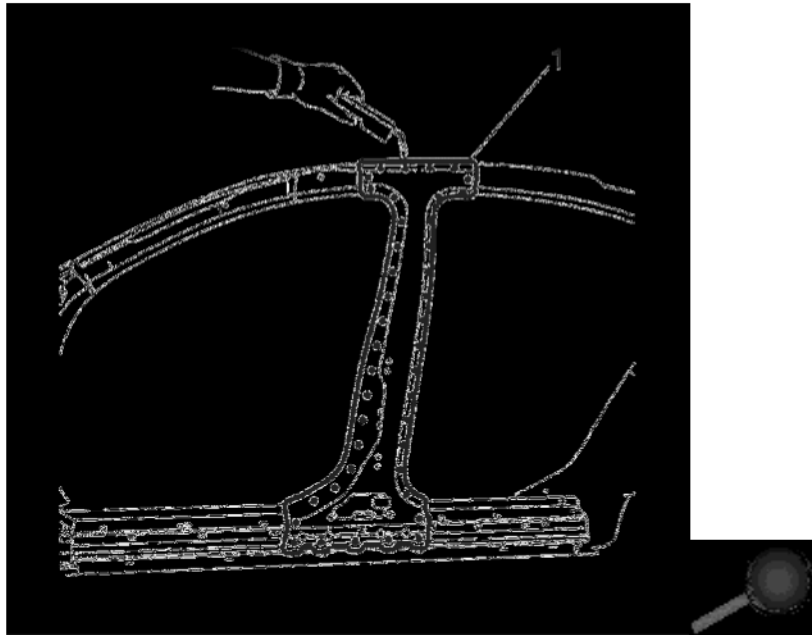
1. From the service part, cut the panel in corresponding locations to overlap the remaining original panel by **25 mm (1 in)** at each joint location (1).



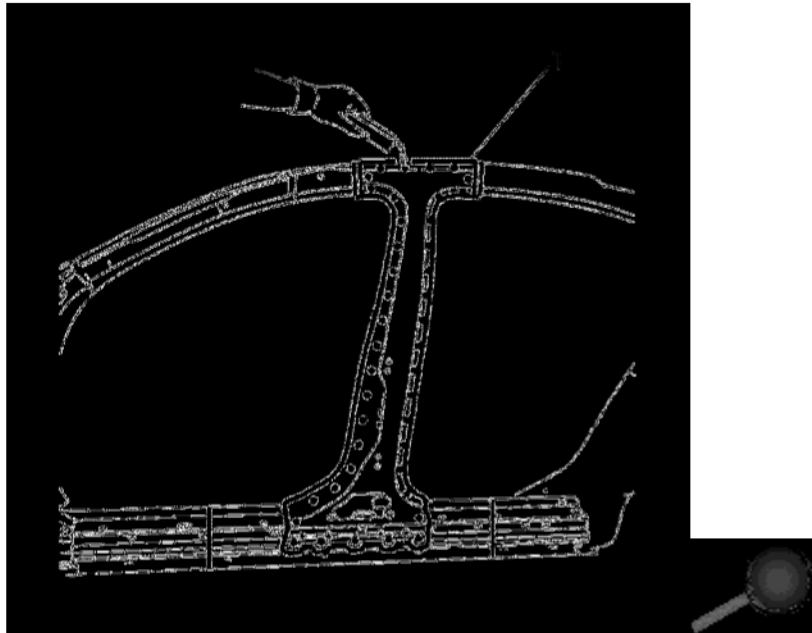
2. Drill **8 mm (5/16 in)** plug weld holes in the service part (1), as necessary, in the corresponding locations noted on the original panel and along sectioned joint.
3. Prepare all mating surfaces for welding, as necessary.
4. Apply GM approved Weld-Thru Coating or equivalent to all mating surfaces. Refer to [Anti-Corrosion Treatment and Repair](#).



5. Position the outer center pillar (1) to the vehicle using 3-dimensional measuring equipment. Clamp the pillar in place.



6. Plug weld accordingly (1).



7. To create a solid weld with minimum heat distortion, make a **25 mm (1 in)** stitch weld along the seam with gaps of **25 mm (1 in)** gaps between them. Go back and complete the stitch weld (1).



## Side Door Opening Frame Replacement (Long Wheelbase Sedan)

### Note:

- This procedure refers ONLY to the replacement of the entire body side service assembly.
- This procedure does NOT allow for the replacement of the body side outer skin panel.

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
5. Remove the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
6. Remove the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
7. Remove the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
8. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).

**Note:** This step is unique to the right body side assembly.

9. Remove the Filler Tube. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).

**Note:** This step is unique to the right body side assembly.

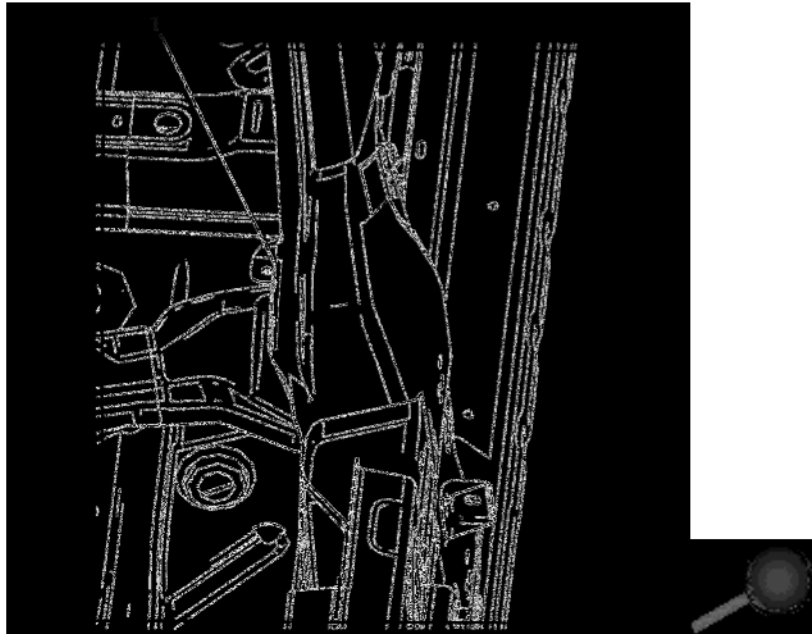
10. Remove the fuel filler door. Refer to [Fuel Tank Filler Door Latch Replacement](#).

**Note:** This step is unique to the right body side assembly.

11. Remove the fuel filler actuator. Refer to [Fuel Tank Filler Door Latch Replacement](#).

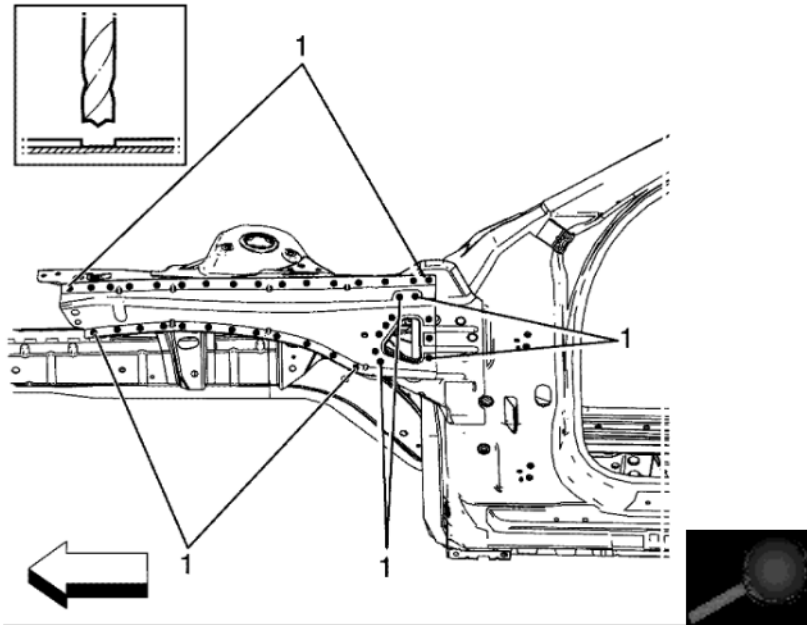
12. Remove the fuel lines. Refer to [Fuel Line Replacement - Chassis](#) or [Fuel Line Replacement - Chassis](#).
13. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
14. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
15. Remove the rear frame assembly. Refer to [Rear Frame Replacement](#).
16. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
17. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
18. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
19. Lower the vehicle.
20. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
21. Remove the fender assembly. Refer to [Front Fender Replacement](#).
22. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).
23. Remove the rear fascia. Refer to [Rear Bumper Fascia Replacement](#).
24. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
25. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
26. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
27. Remove the plenum chamber. Refer to [Air Inlet Housing Replacement](#).
28. Remove the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).
29. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
30. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
31. Remove the instrument panel. Refer to [Instrument Panel Assembly Replacement](#).
32. Remove the HVAC. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).
33. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
34. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
35. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
36. Remove the rear window shelf trim. Refer to [Rear Window Panel Trim Replacement](#).
37. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
38. Remove the rear seat belts. Refer to [Rear Seat Belt Retractor Replacement](#).
39. Remove the roof rail module. Refer to [Airbag Roof Side Rail Module Replacement](#).
40. Remove the spare wheel and emergency kit from the rear compartment.

41. Remove the rear compartment floor carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
42. Remove the battery tray. Refer to [Battery Tray Replacement](#).
43. Remove the positive cable from the vehicle. Refer to [Battery Positive Cable Replacement](#).
- Note:** This step is unique to the sunroof.
44. Remove the sunroof module. Refer to [Sunroof Module Assembly Replacement](#).
45. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



46. Remove the body side assembly to upper dash panel body sealer (1).



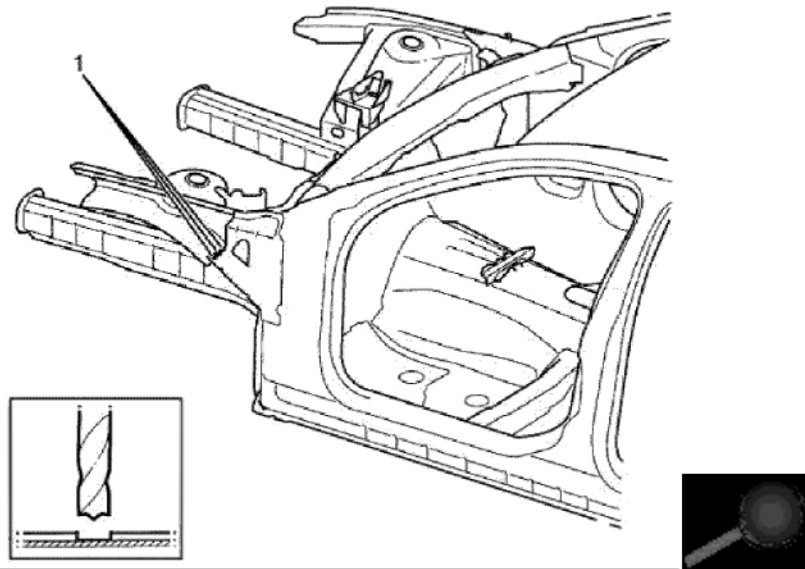


**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

47. Locate, mark and drill out the factory welds (1) attaching the upper wheelhouse brace to the front wheelhouse assembly.

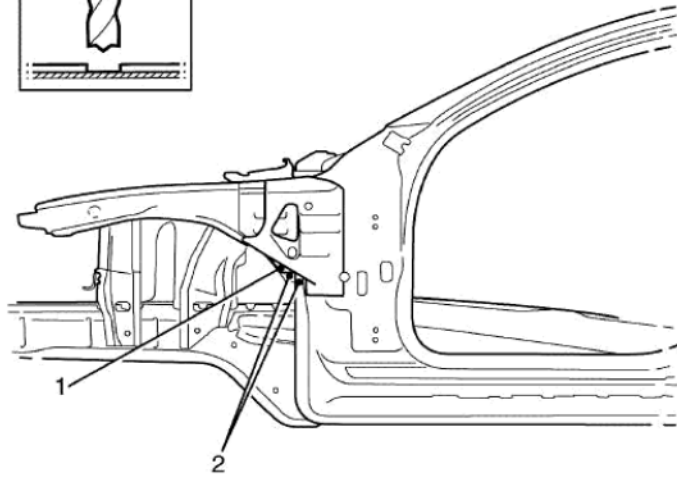
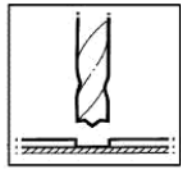
48. Remove the upper wheelhouse brace from the front wheelhouse assembly.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

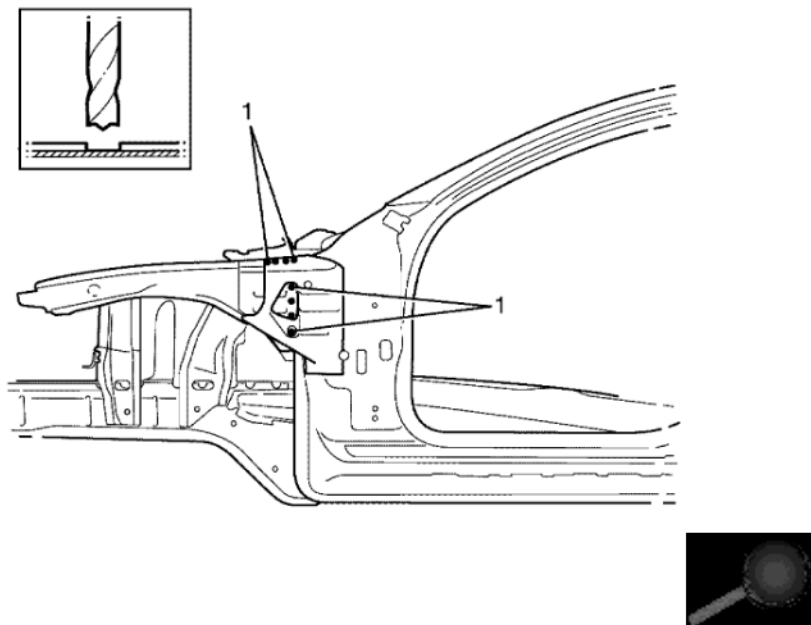
49. Locate, mark and drill out the factory welds (1) attaching the upper wheelhouse brace to the front hinge pillar.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

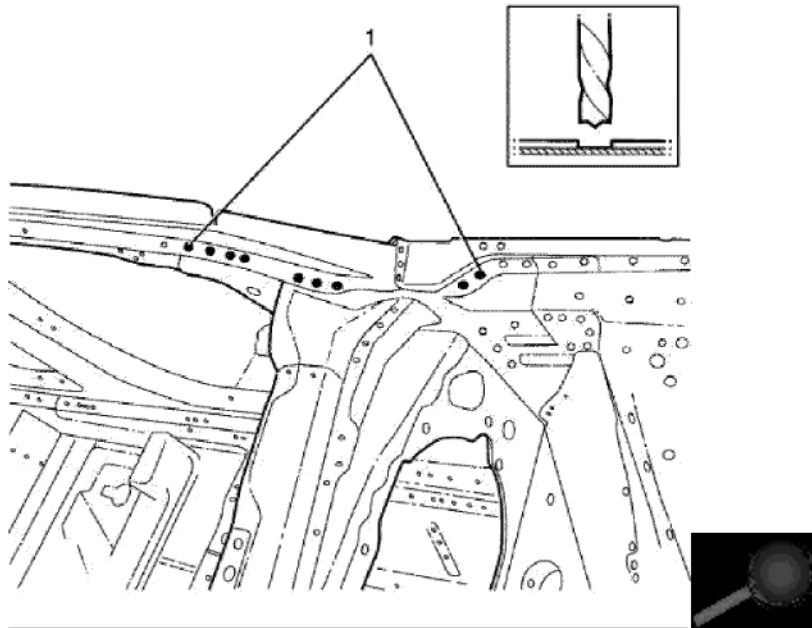
50. Locate, mark and drill out the factory weld (1) attaching the body hinge pillar brace to the body hinge pillar inner lower panel.  
Locate, mark and drill out the factory welds (2) attaching the body side outer assembly to the body hinge pillar inner lower panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

51. Locate, mark and drill out the factory welds (1) attaching the body hinge pillar brace to the body hinge pillar inner lower panel. Locate, mark and drill out the factory welds (2) attaching the body side outer assembly to the body hinge pillar inner lower panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

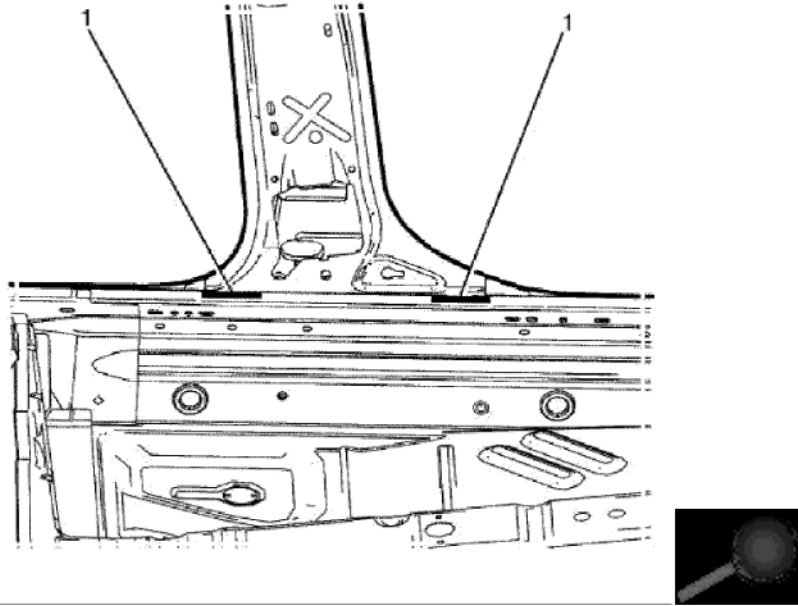
52. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the front hinge pillar.

53. Remove the roof outer panel. Refer to [Roof Panel Replacement](#).

54. Remove the roof front header panel. Refer to [Roof Front Header Panel Replacement](#).

55. Remove the roof rear header panel. Refer to [Roof Rear Header Panel Replacement](#).

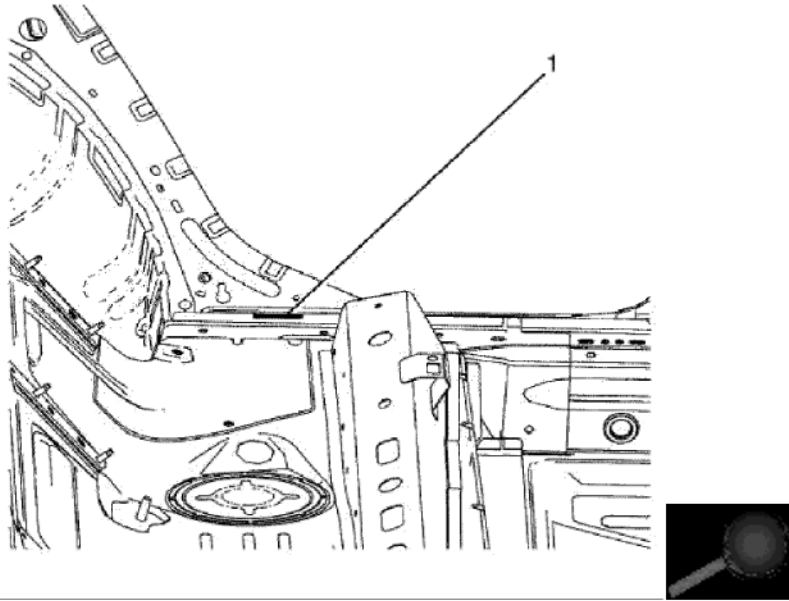
56. Remove the roof panel bow. Refer to [Roof Panel Bow Replacement](#).



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

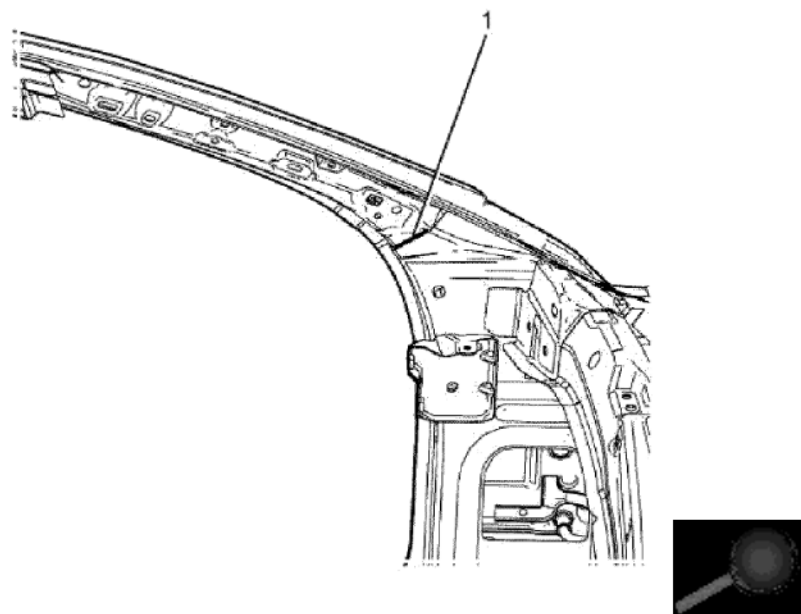
57. Locate, mark and remove the factory seam welds (1) attaching the body side assembly centre pillar to the inner rocker panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly .

58. Locate, mark and remove the factory seam welds (1) attaching the body side assembly to the rear inner wheelhouse.

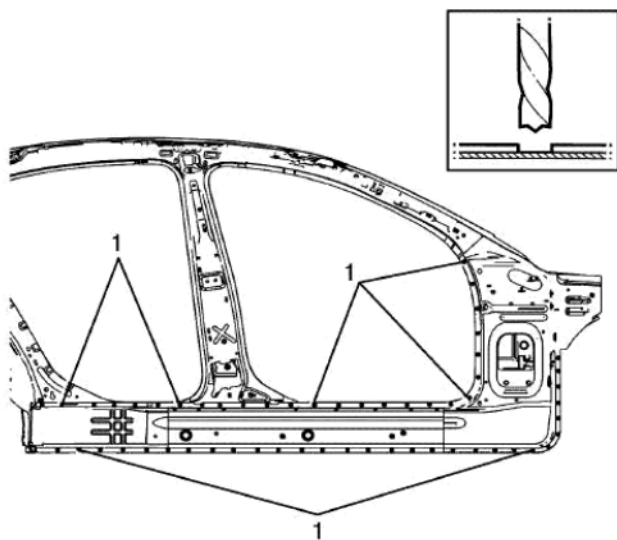


**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

59. Locate, mark and remove the factory seam weld (1) attaching the body side assembly to the front hinge pillar.

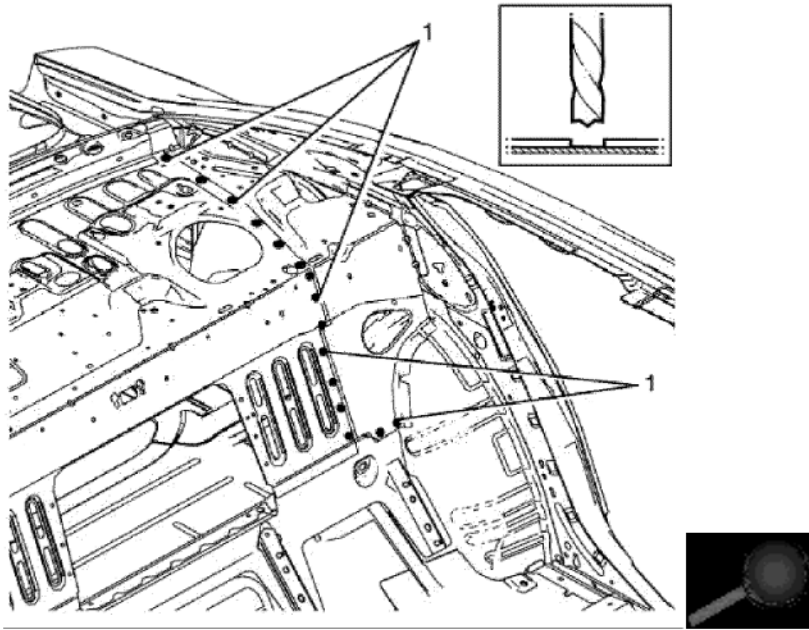




**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

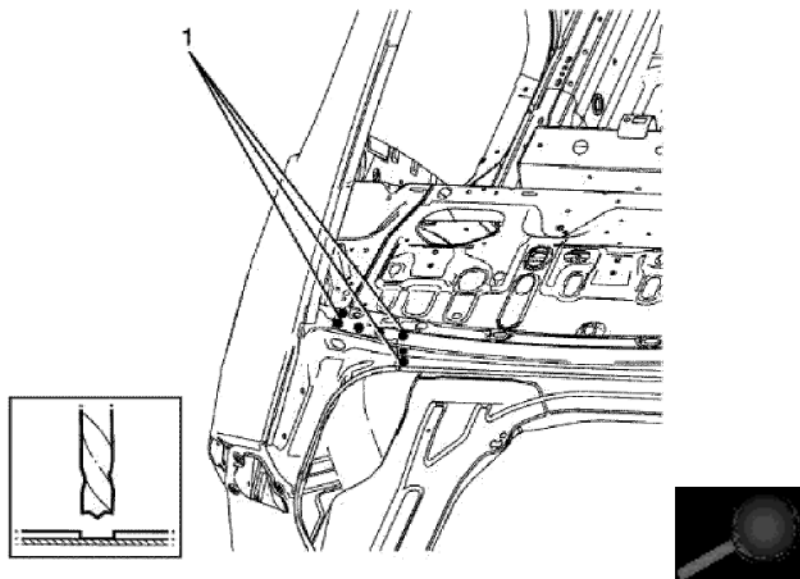
60. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the vehicle.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

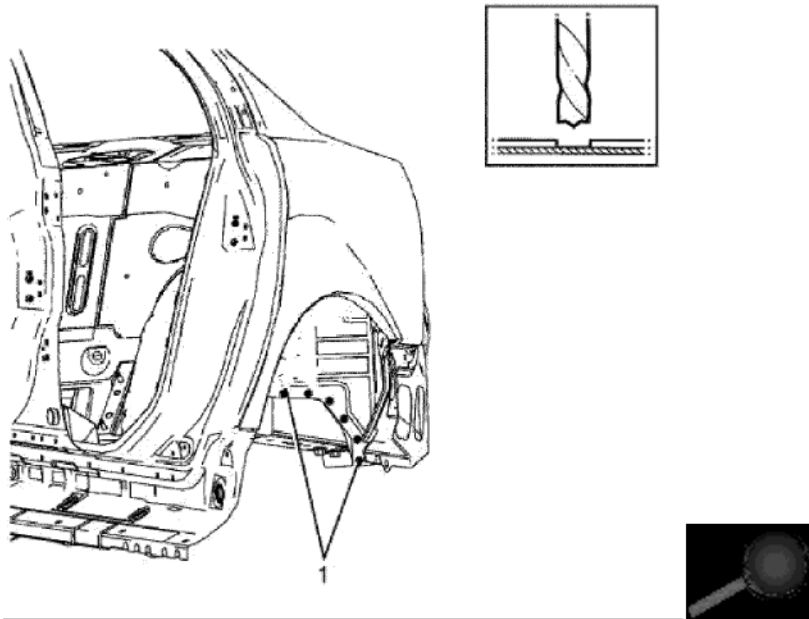
61. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the parcel shelf assembly.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

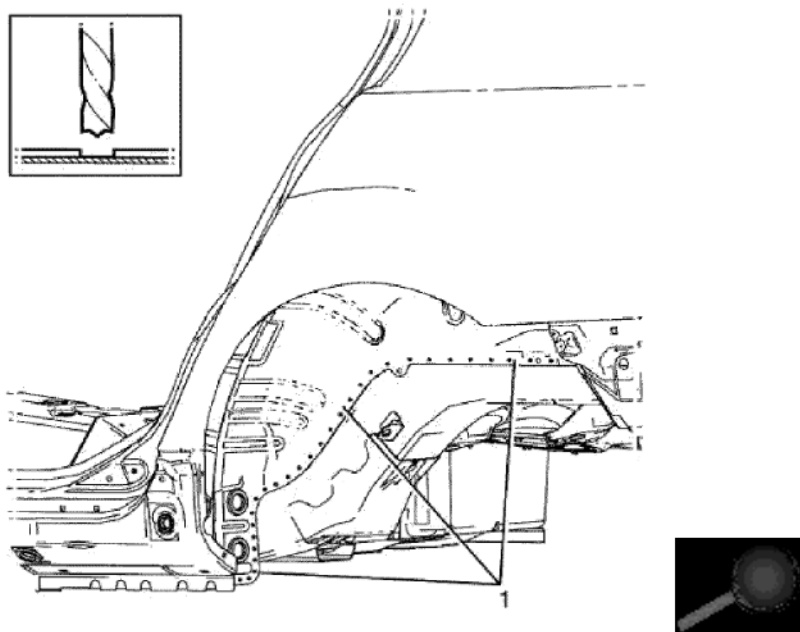
62. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the upper parcel shelf assembly.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

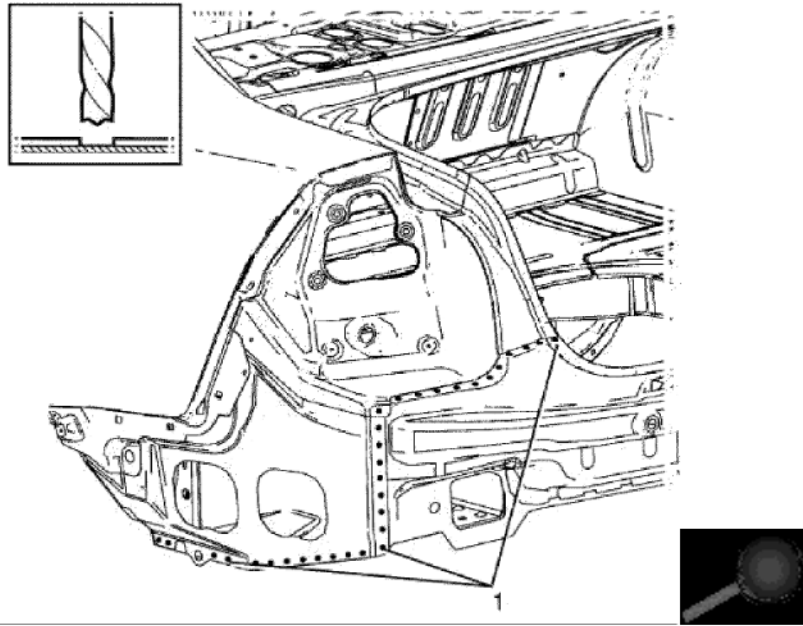
63. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the inner rear wheelhouse.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

64. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the inner rear wheelhouse.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

65. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the rear end panel.

66. Remove the body side assembly from the vehicle.

67. Remove all traces of old sealers and adhesives from the remaining panels in the repair area.

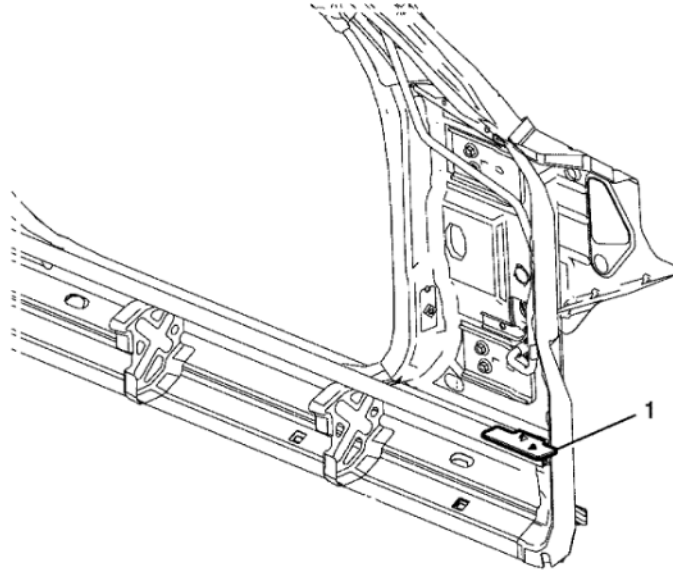
**Installation Procedure**

**Note:**

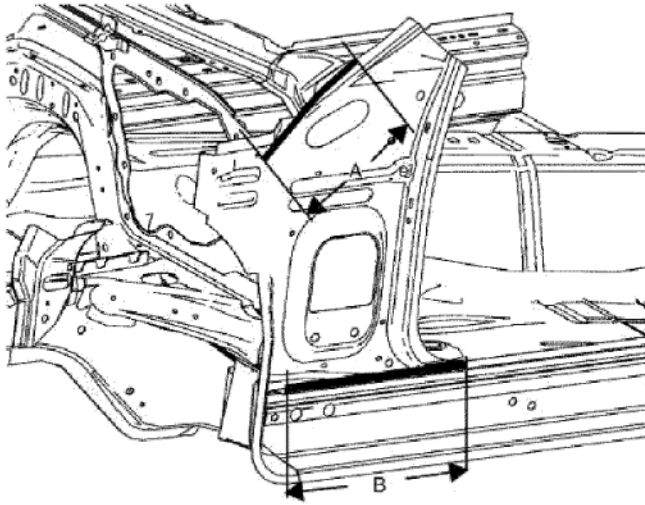
- This procedure refers ONLY to the replacement of the entire body side service assembly.
- This procedure does NOT allow for the replacement of the body side outer skin panel.
- This part has structural weld-thru adhesive in the joint areas. Replace this with additional spot welds at the attachment points. This can be accomplished by adding an additional weld between each factory weld in all areas.
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

- Ensure all factory welds are replaced in their original locations.
- Ensure all structural adhesives and sealers are replaced in their original locations.

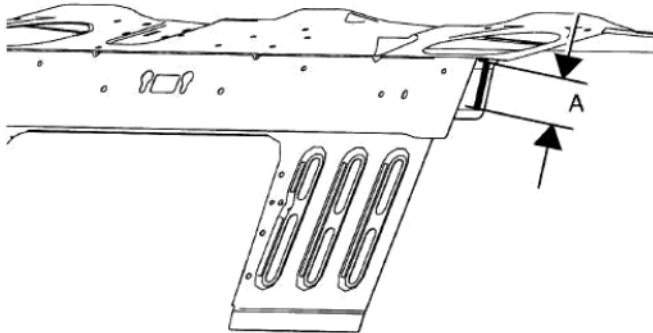
1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.
2. Clean and prepare the mating surfaces of both parts of the body side assembly.



3. Remove the unexpanded noise baffle (1) from the body side assembly.

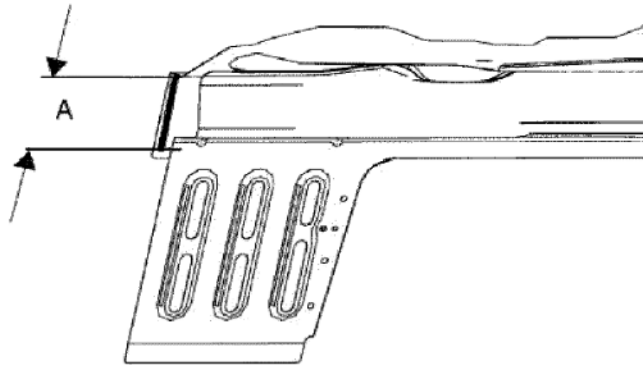


4. Apply structural adhesive (1) GM6449G or equivalent 260 mm (10.24 in) (A) to the top edge of the inner hinge pillar.
5. Apply structural adhesive (1) GM6449G or equivalent 400 mm (15.75 in) (B) to the inner rocker panel.

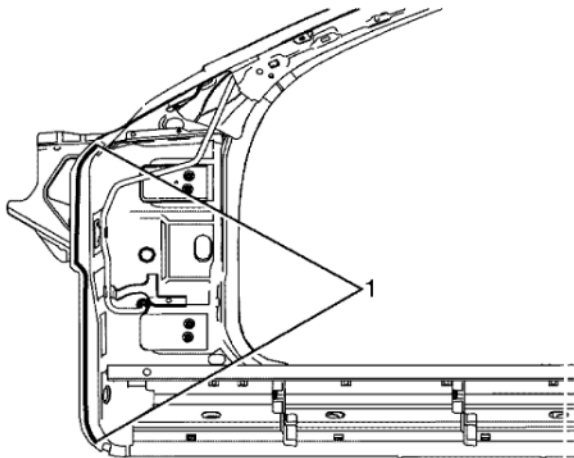




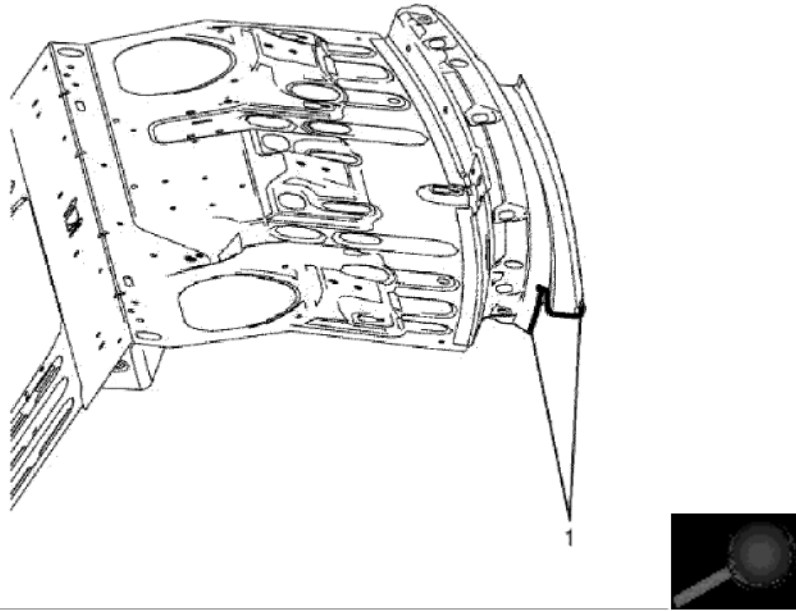
6. Apply structural adhesive (1) GM6449G or equivalent 50 mm (1.97 in) (A) to the rear seat back on the forward facing surface.



7. Apply structural adhesive (1) GM6449G or equivalent 110 mm (4.33 in) (A) to the parcel shelf.

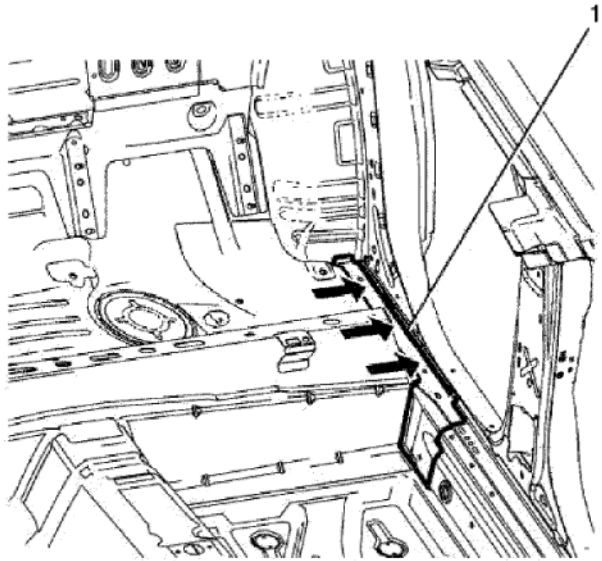


8. Apply the primary sealer (1) GM6449G or equivalent along the lower hinge pillar.

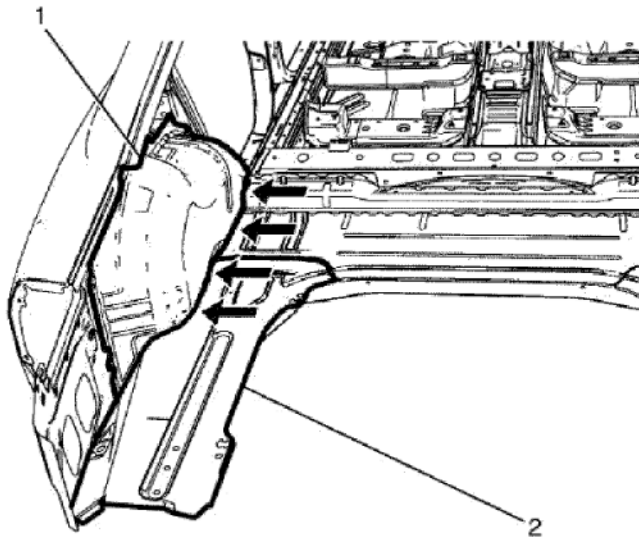


9. Apply the primary sealer (1) GM6449G or equivalent along the rear edge of the parcel shelf panel.

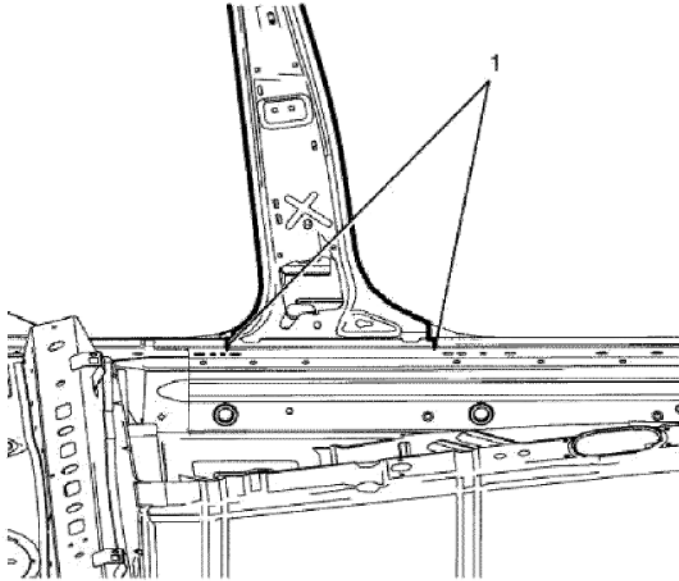
10. Position the replacement body side assembly on the vehicle. Verify correct alignment and position using three-dimensional measuring equipment. Refer to [Dimensions - Body](#).



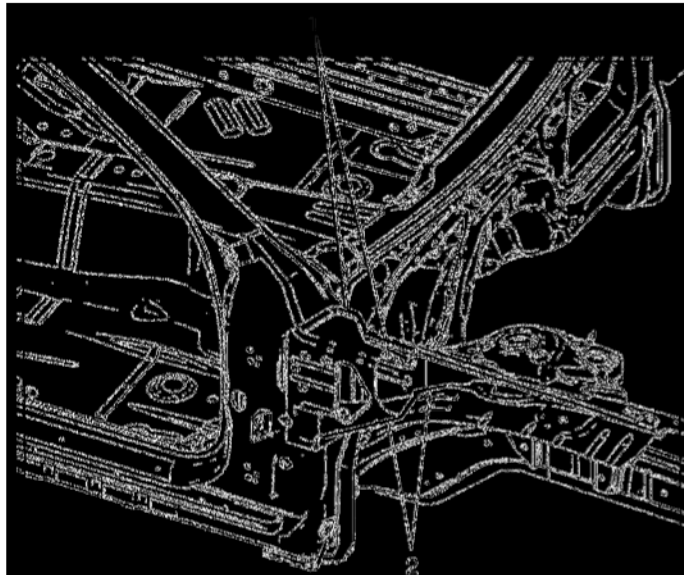
11. Align the body side assembly to the inner rocker flange tab (1).



12. Align the inner rear wheelhouse (1) to side extension panel (2).

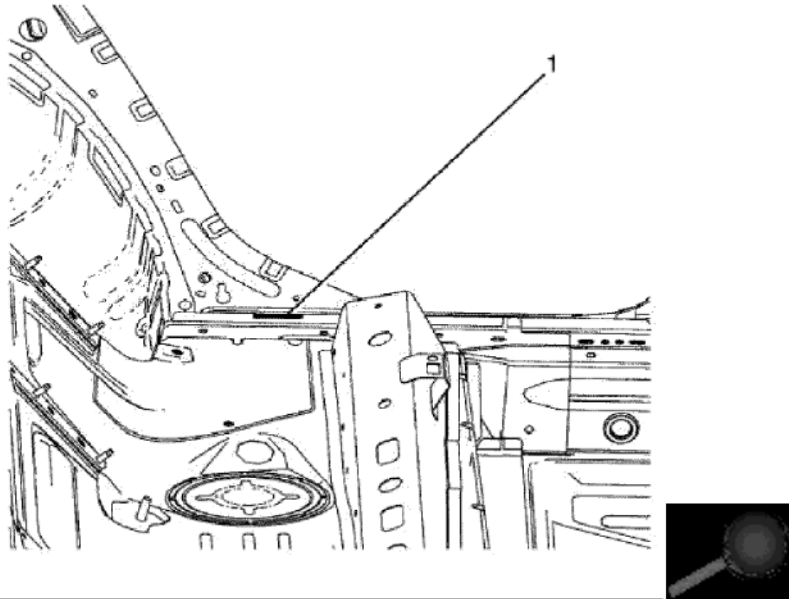


13. Align the body side assembly centre pillar to the indented flange (1) on the inner rocker panel.

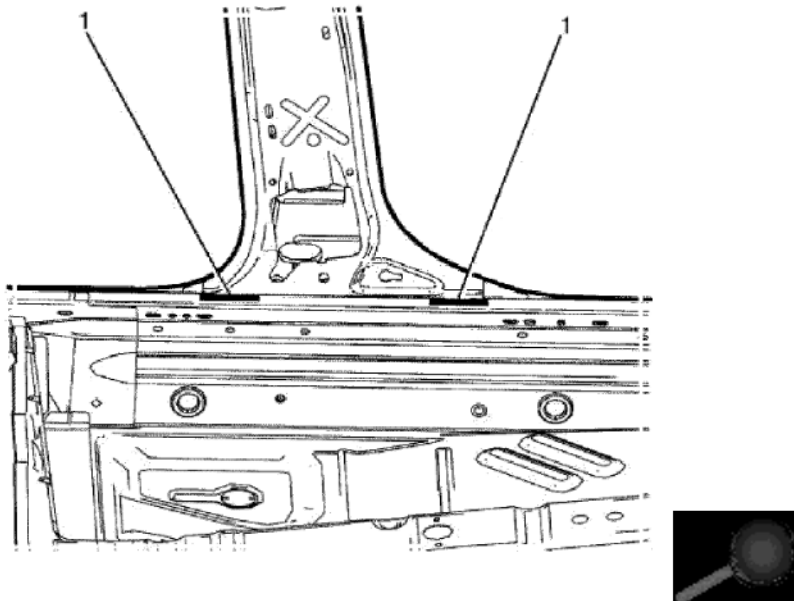


14. Align the body side assembly hinge pillar (2) to the wheelhouse assembly.

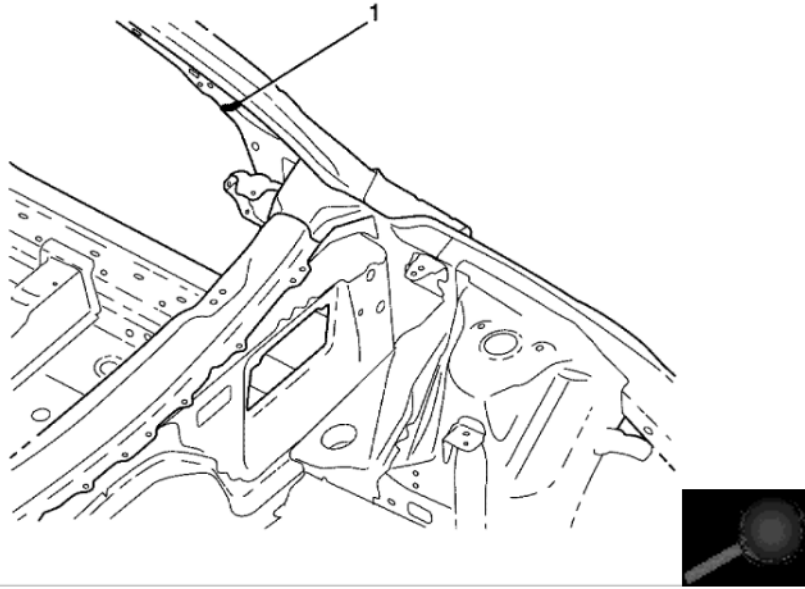
15. Align the body side assembly hinge pillar (1) to the inner lower hinge pillar.



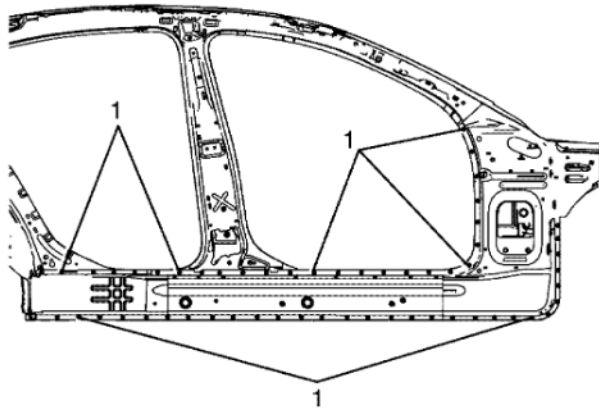
16. Seam weld the inner lower hinge pillar to inner upper hinge pillar 60 mm (2.36 in) (1) using a metal inert gas (MIG) welder.



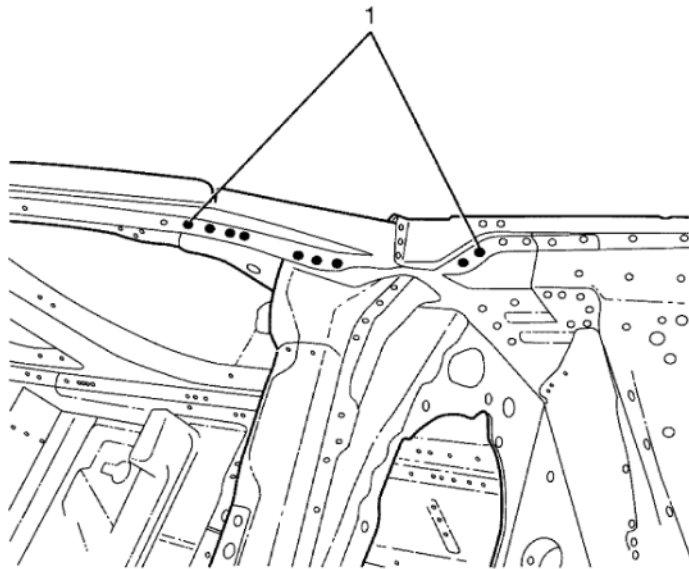
17. Seam weld the centre pillar to inner rocker panel in two places 50 mm (1.97 in) (1) across the locating tags using a MIG welder.
18. Install the roof. Refer to [Roof Panel Replacement](#).



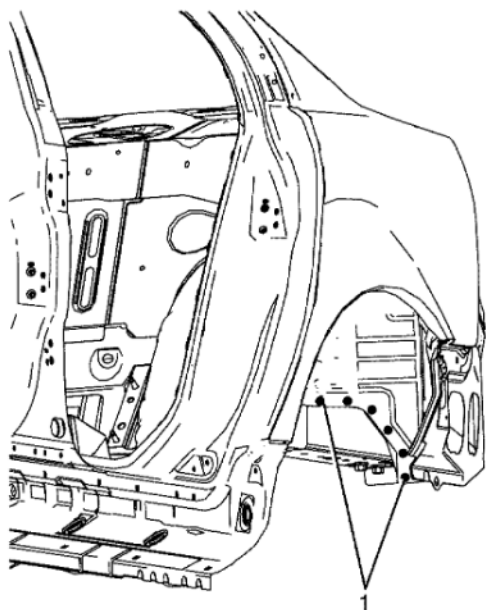
19. Seam weld the inner lower hinge pillar to inner upper hinge pillar (1) 60 mm (2.36 in) using a MIG welder.



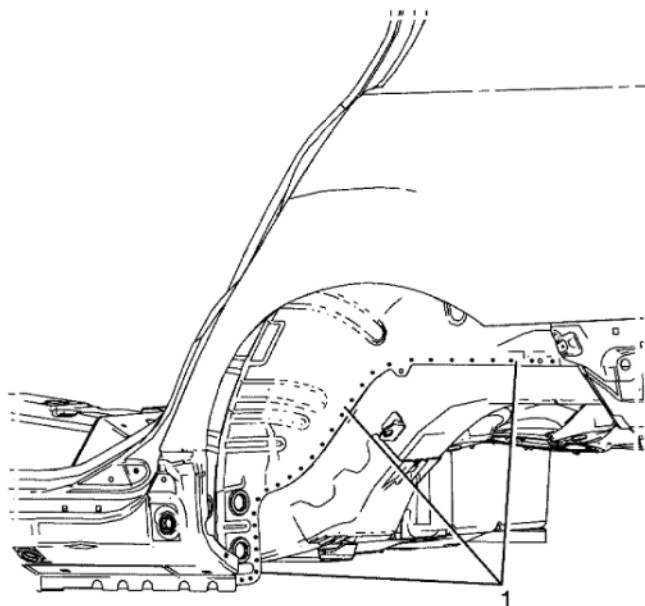
20. Weld (1) the body side assembly to the vehicle.



21. Weld (1) the body side assembly to the front hinge pillar.

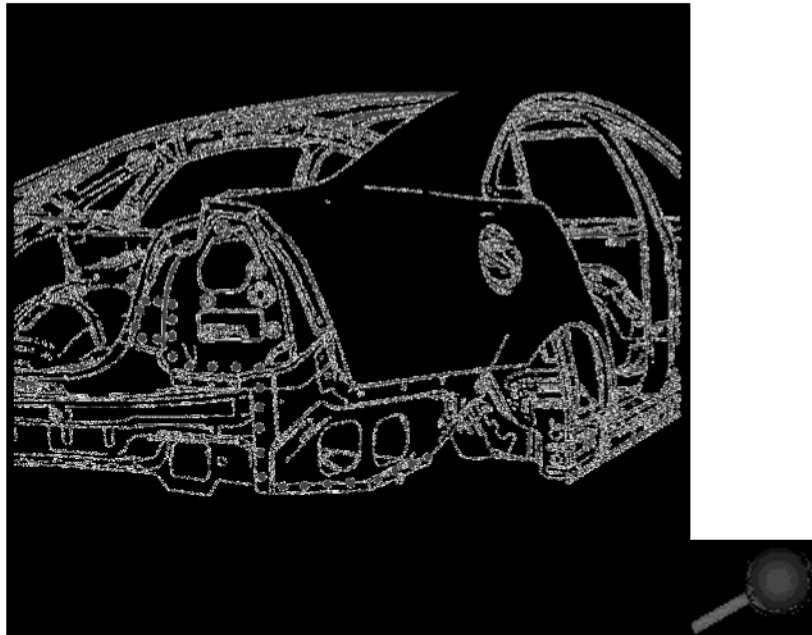


22. Weld (1) the body side assembly to the inner rear side extension panel.

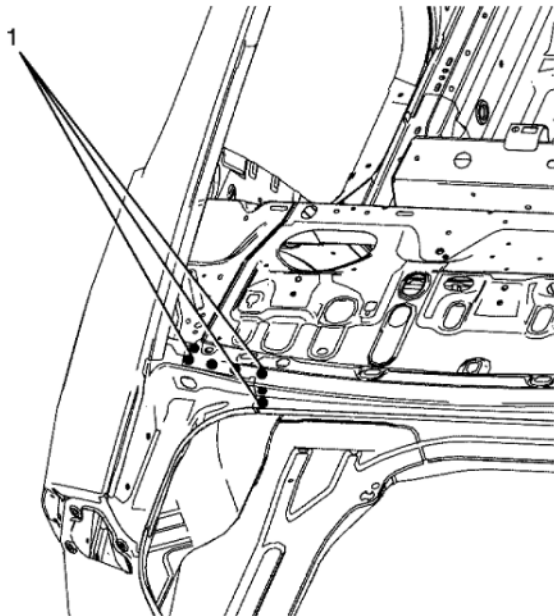


23. Weld (1) the body side assembly to the inner rear wheelhouse.

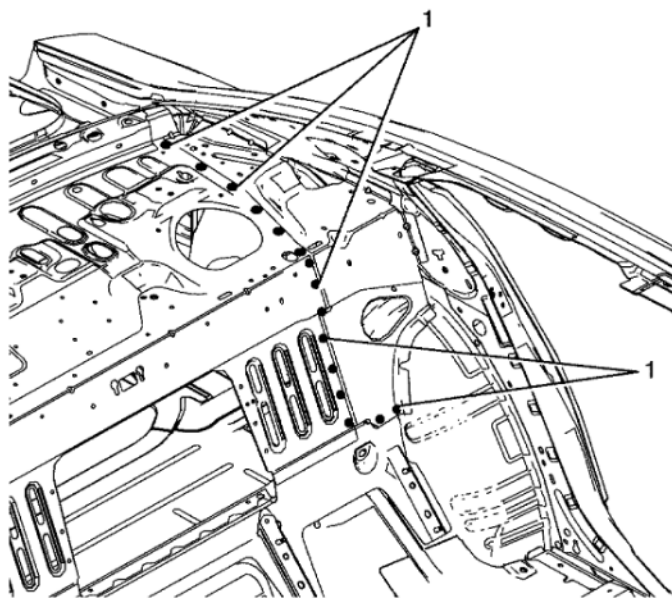




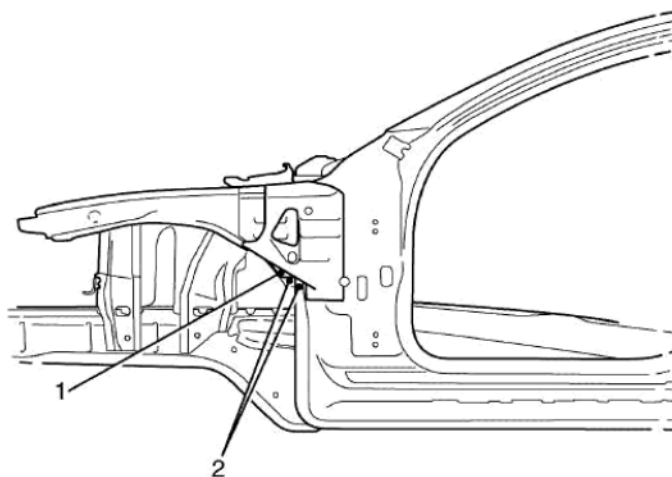
24. Weld (1) the body side assembly to the rear end panel.



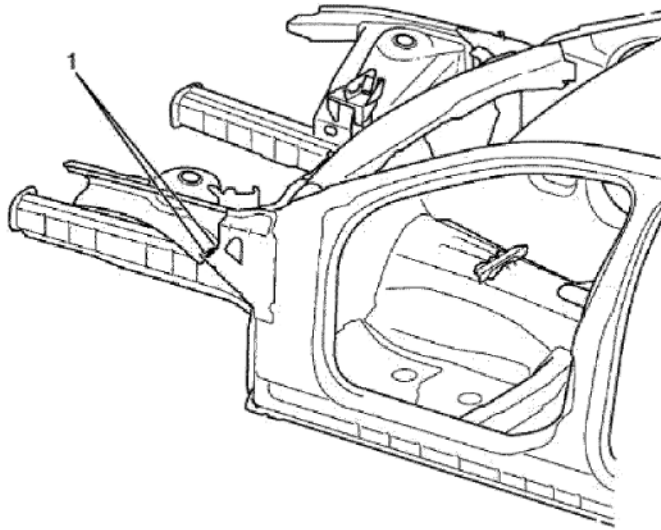
25. Weld (1) the body side assembly to the upper parcel shelf assembly.



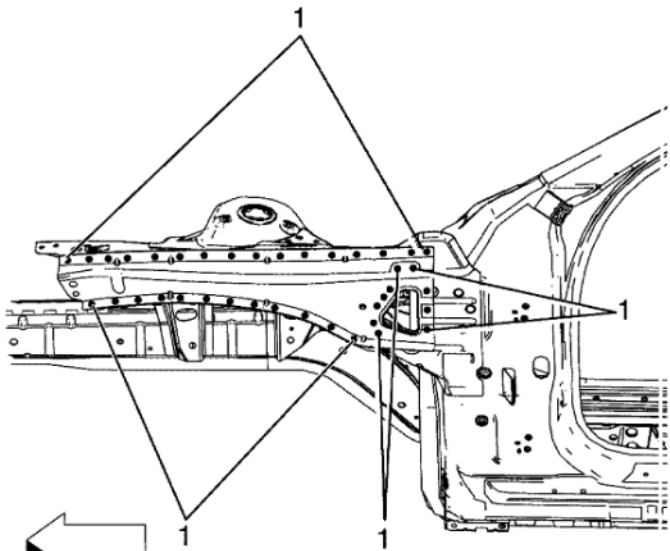
26. Weld (1) the body side assembly to the parcel shelf assembly.



27. Weld (1) the upper wheelhouse brace to the front hinge pillar.

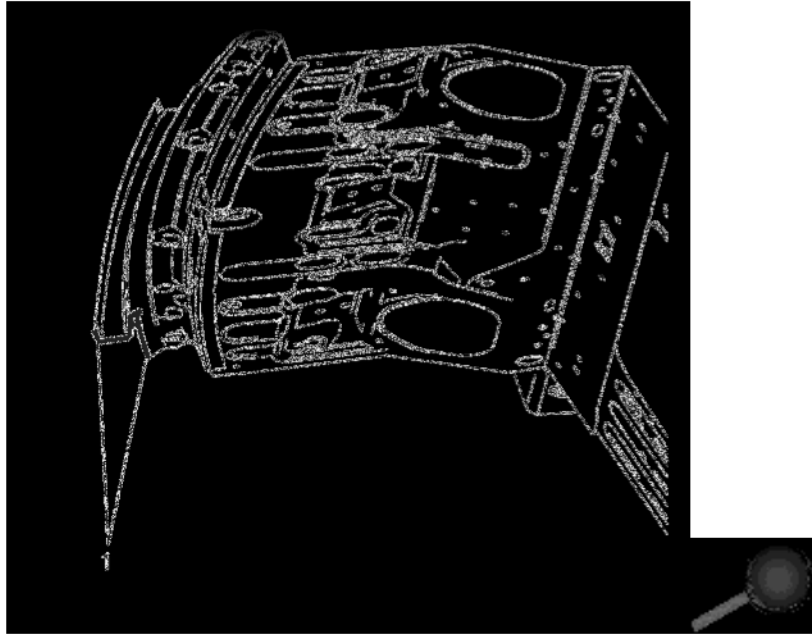


28. Weld (1) the upper wheelhouse brace to the front hinge pillar.

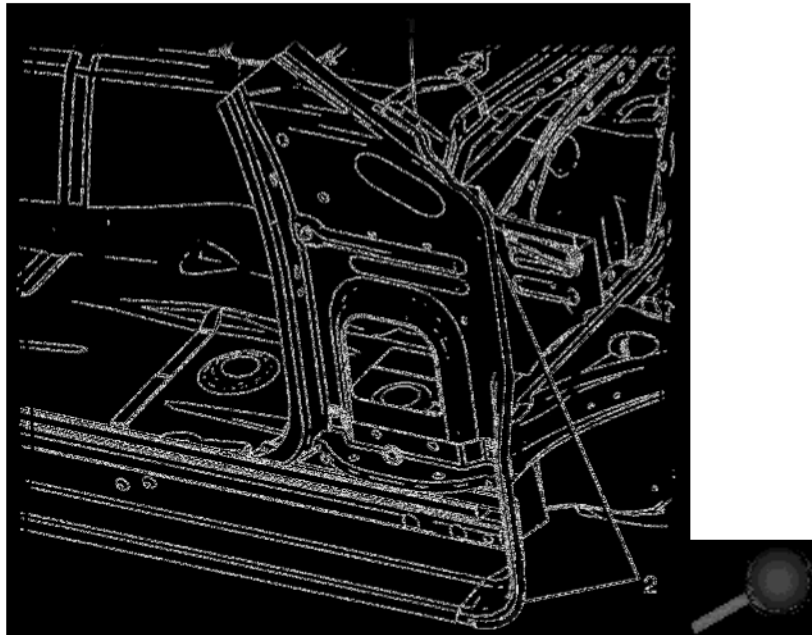


29. Weld (1) the upper wheelhouse brace to the front wheelhouse assembly.

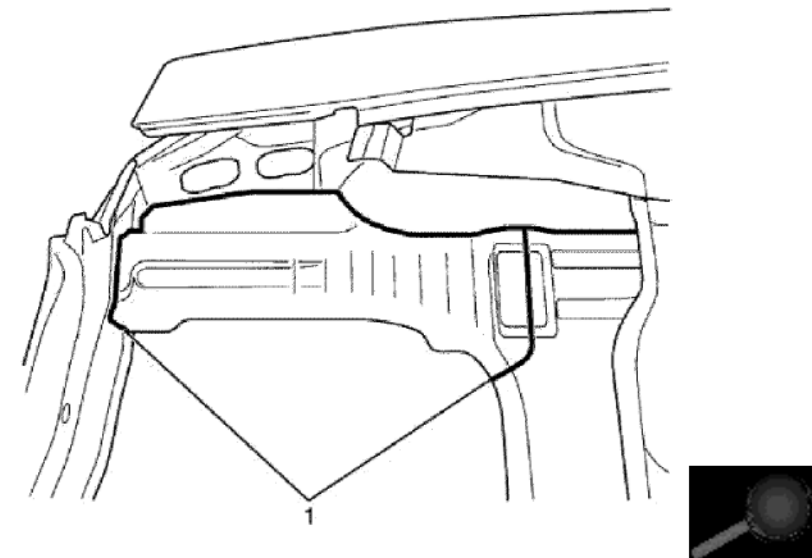
30. Install the roof panel bow. Refer to [Roof Panel Bow Replacement](#).
31. Install the roof front header panel. Refer to [Roof Front Header Panel Replacement](#).
32. Install the roof rear header panel. Refer to [Roof Rear Header Panel Replacement](#).
33. Install the roof outer panel. Refer to [Roof Panel Replacement](#).



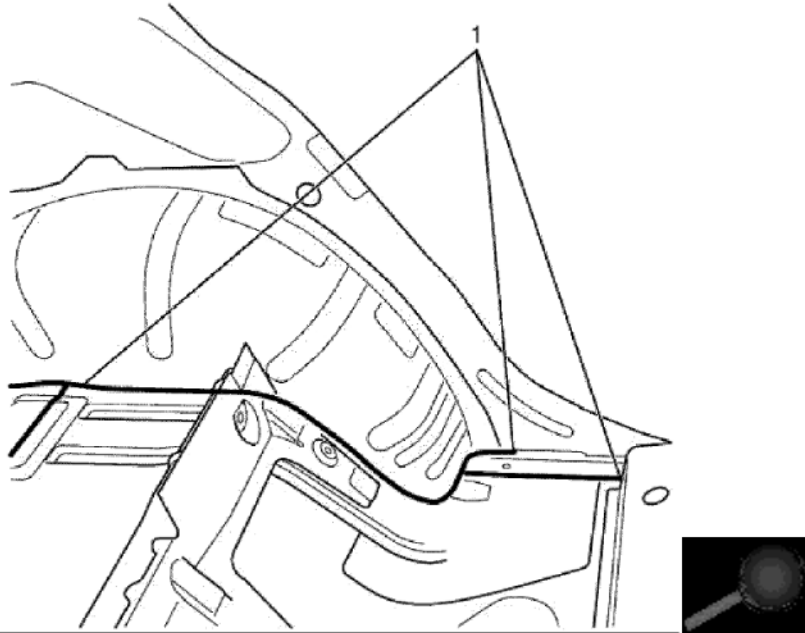
34. Apply the secondary sealer (1) GM specification 9984532 or equivalent along the rear edge of the parcel shelf panel.



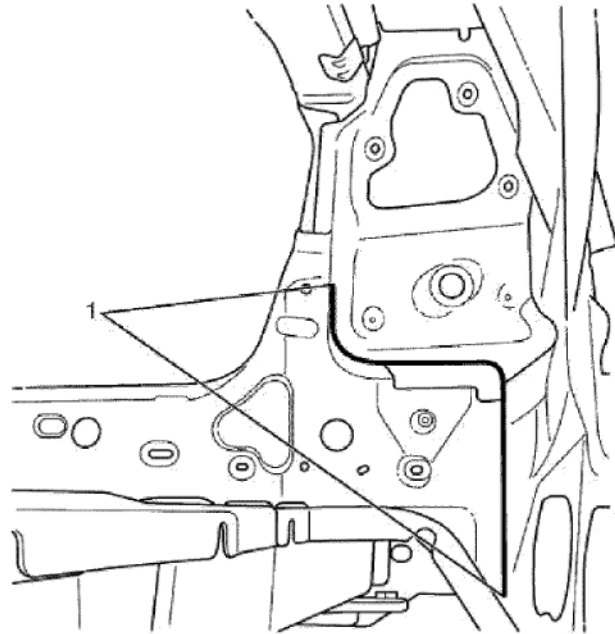
35. Apply the secondary sealer (1) GM specification 9984532 or equivalent to the front plenum panel.
36. Apply the secondary sealer (2) GM specification 9984532 or equivalent to the lower hinge pillar.



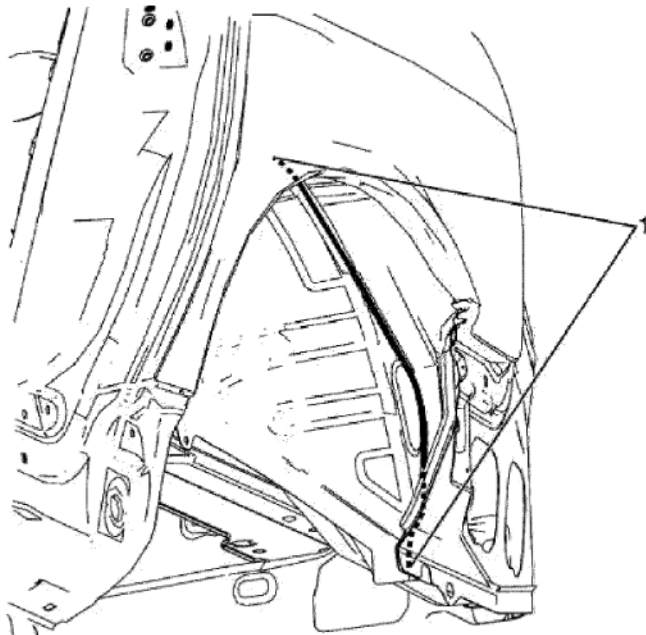
37. Working inside the rear compartment, apply secondary sealer (1) GM Specification 9984532 or equivalent along the join between the body side assembly and the underbody.



38. Apply secondary sealer (1) GM Specification 9984532 or equivalent along the join between the body side assembly and the underbody.

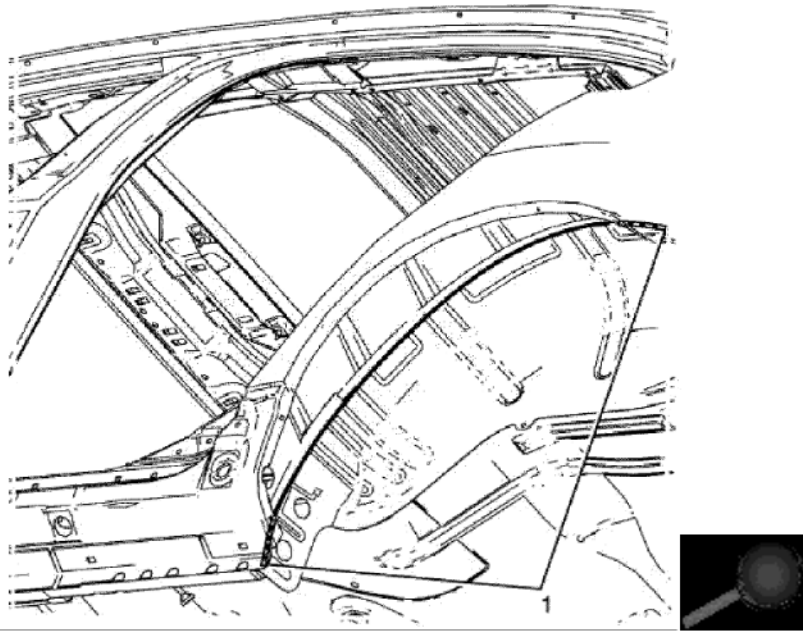


39. Working inside the rear compartment, apply secondary sealer (1) GM specification 9984532 or equivalent along the tail lamp filler panel to rear end panel.



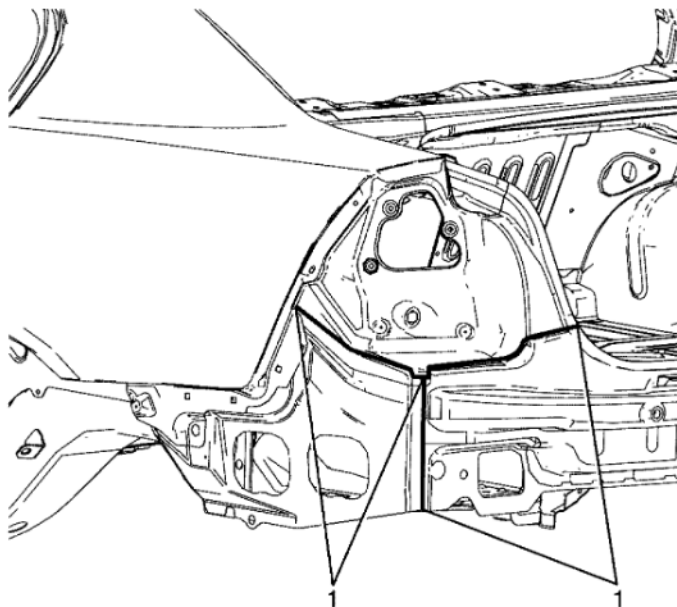
40. Apply the secondary sealer (1) GM specification 9984532 or equivalent between the outer rear wheelhouse assembly and the inner

rear wheelhouse assembly.

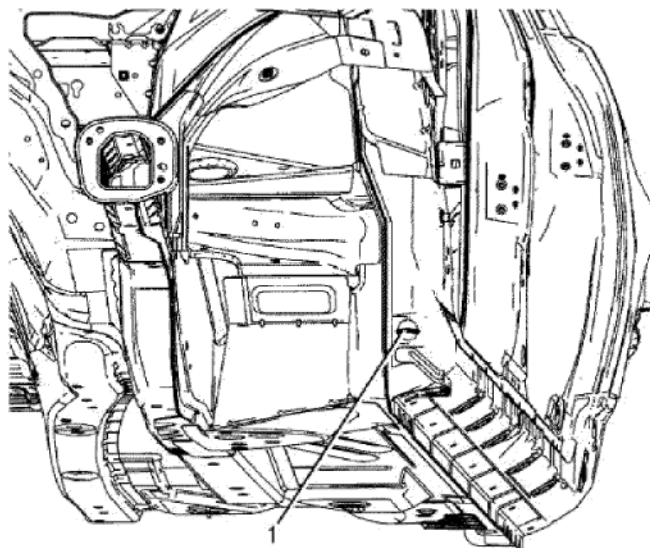


41. Apply the secondary sealer (1) GM specification 9984532 or equivalent between the outer rear wheelhouse assembly and the inner rear wheelhouse assembly.

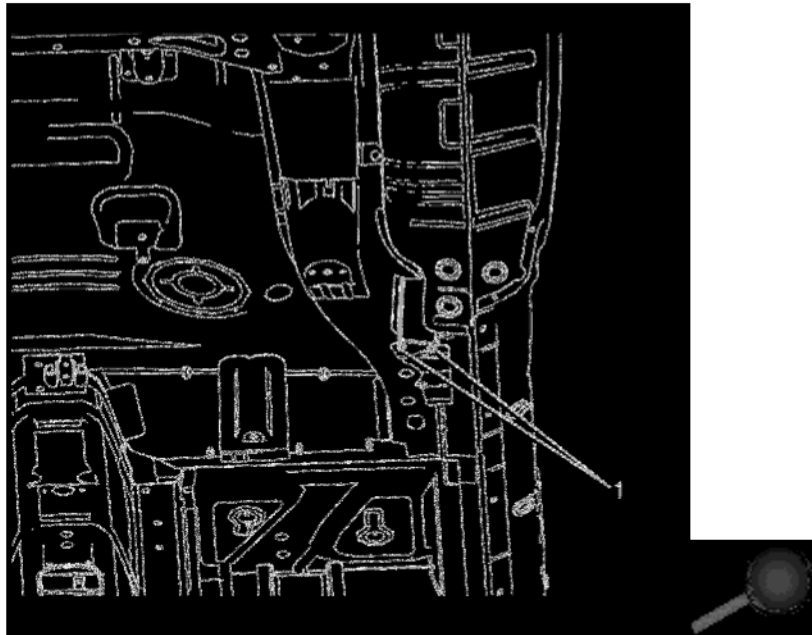




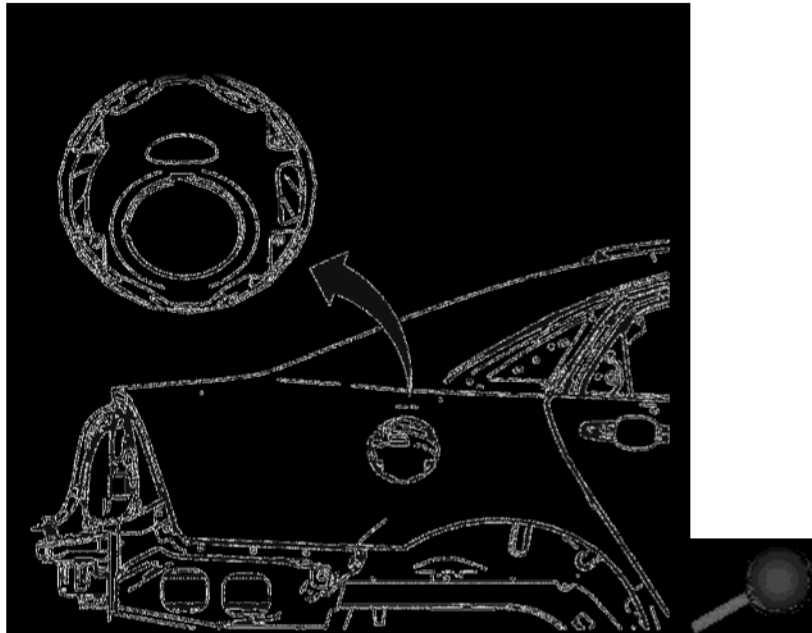
42. Apply secondary sealer (1) GM specification 9984532 or equivalent along the tail lamp filler panel to the rear end panel.



43. Apply expanding foam sealer GM9982296 or equivalent to the front lower hinge pillar through the access hole (1).



44. Apply expanding foam sealer GM9982296 or equivalent through the two access holes (1) in the rear wheelhouse assembly.



**Note:** This step is unique to the right body side assembly.

45. Apply the secondary sealer (1) GM specification 9984532 or equivalent to the fuel filler pocket.

**Note:** All joints and welds must be checked for water leaks before the vehicle is fully reassembled.

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

**Note:** This step is unique to the sunroof.

47. Install the sunroof module. Refer to [Sunroof Module Assembly Replacement](#).

48. Install the positive cable to the vehicle. Refer to [Battery Positive Cable Replacement](#).

49. Install the battery tray. Refer to [Battery Tray Replacement](#).

50. Install the rear compartment floor carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).

51. Install the spare wheel and emergency kit from the rear compartment.

52. Install the roof rail module. Refer to [Airbag Roof Side Rail Module Replacement](#).

53. Install the rear seat belts. Refer to [Rear Seat Belt Retractor Replacement](#).

54. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).

55. Install the rear window shelf trim. Refer to [Rear Window Panel Trim Replacement](#).

56. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).

57. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).

58. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).

59. Install the HVAC. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).

60. Install the instrument panel. Refer to [Instrument Panel Assembly Replacement](#).

61. Install the brake master cylinder. Refer to [Master Cylinder Replacement](#).

62. Install the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).

63. Install the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).

64. Install the plenum chamber. Refer to [Air Inlet Housing Replacement](#).

65. Install the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).

66. Install the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).

67. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).

68. Install the fender assembly. Refer to [Front Fender Replacement](#).

69. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#).

70. Install the rear fascia. Refer to [Rear Bumper Fascia Replacement](#).

71. Install the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).

72. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
73. Install the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
74. Install the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
75. Install the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
- Note:** This step is unique to the right body side assembly.
76. Install the fuel lines. Refer to [Fuel Line Replacement - Chassis](#) or [Fuel Line Replacement - Chassis](#).
- Note:** This step is unique to the right body side assembly.
77. Install the fuel filler actuator. Refer to [Fuel Tank Filler Door Latch Replacement](#).
- Note:** This step is unique to the right body side assembly.
78. Install the fuel filler door. Refer to [Fuel Tank Filler Door Latch Replacement](#).
- Note:** This step is unique to the right body side assembly.
79. Install the Filler Tube. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).
80. Install the rear frame assembly. Refer to [Rear Frame Replacement](#).
81. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
82. Install the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
83. Lower the vehicle.
84. Install the front doors. Refer to [Front Side Door Replacement](#).
85. Install the rear doors. Refer to [Rear Side Door Replacement](#).
86. Install the positive cable to the engine bay. Refer to [Battery Positive Cable Replacement](#).
87. Install the negative cable to the engine bay. Refer to [Battery Negative Cable Replacement](#).
88. Install the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
89. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
90. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Side Door Opening Frame Replacement (Short Wheelbase Sedan)

### Note:

- This procedure refers ONLY to the replacement of the entire body side service assembly.
- This procedure does NOT allow for the replacement of the body side outer skin panel.

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front doors. Refer to [Front Side Door Replacement](#).
4. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
5. Remove the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
6. Remove the negative cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
7. Remove the positive cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
8. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).

**Note:** This step is unique to the right body side assembly.

9. Remove the filler tube. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).

**Note:** This step is unique to the right body side assembly.

10. Remove the fuel filler door. Refer to [Fuel Tank Filler Door Latch Replacement](#).

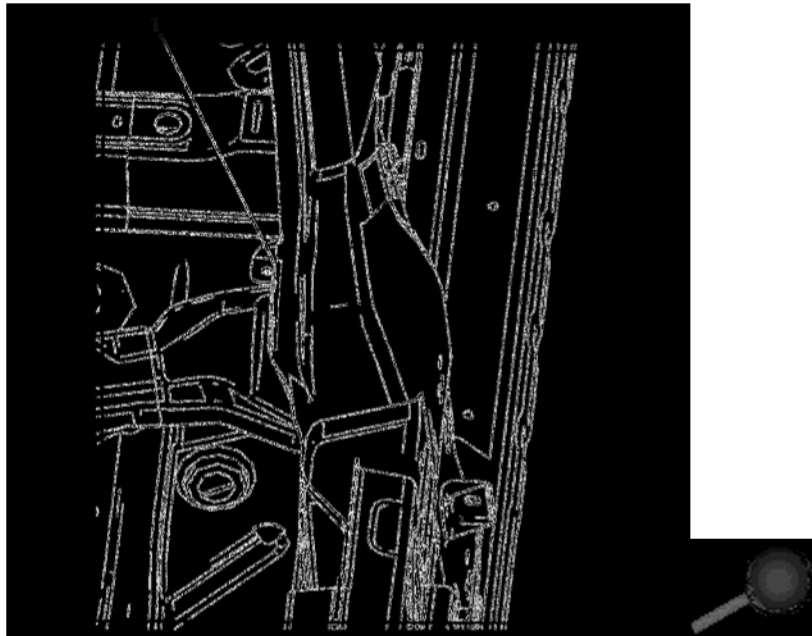
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**Note:** This step is unique to the right body side assembly.

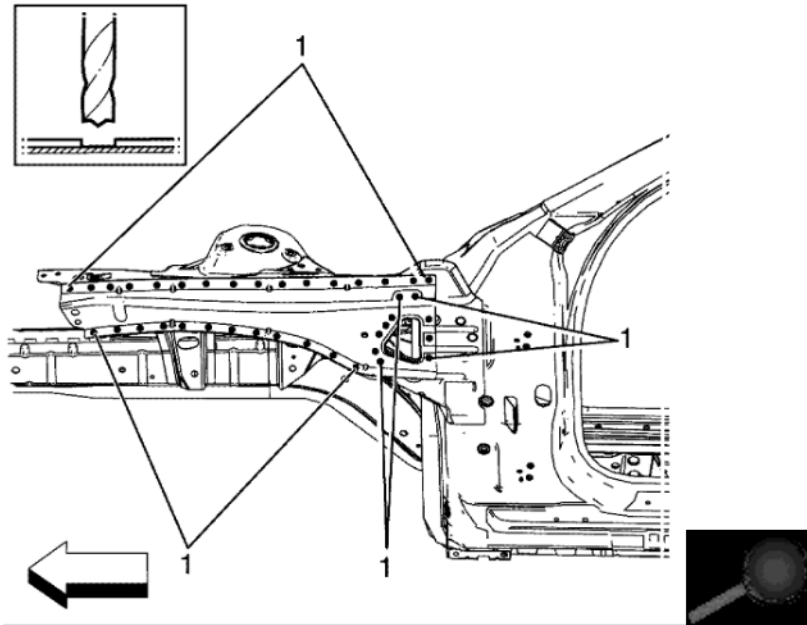


11. Remove the fuel filler actuator. Refer to [Fuel Tank Filler Door Latch Replacement](#).
12. Remove the fuel lines. Refer to [Fuel Line Replacement - Chassis](#) or [Fuel Line Replacement - Chassis](#).
13. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
14. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
15. Remove the rear frame assembly. Refer to [Rear Frame Replacement](#).
16. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
17. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
18. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
19. Lower the vehicle.
20. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
21. Remove the fender assembly. Refer to [Front Fender Replacement](#).
22. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#).
23. Remove the rear fascia. Refer to [Rear Bumper Fascia Replacement](#).
24. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
25. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
26. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
27. Remove the plenum chamber. Refer to [Air Inlet Housing Replacement](#).
28. Remove the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).
29. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
30. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
31. Remove the instrument panel. Refer to [Instrument Panel Assembly Replacement](#).
32. Remove the HVAC. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).
33. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
34. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
35. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
36. Remove the rear window shelf trim. Refer to [Rear Window Panel Trim Replacement](#).
37. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
38. Remove the rear seat belts. Refer to [Rear Seat Belt Retractor Replacement](#).
39. Remove the roof rail module. Refer to [Airbag Roof Side Rail Module Replacement](#).

40. Remove the spare wheel and emergency kit from the rear compartment.
  41. Remove the rear compartment floor carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
  42. Remove the battery tray. Refer to [Battery Tray Replacement](#).
  43. Remove the positive cable from the vehicle. Refer to [Battery Positive Cable Replacement](#).
- Note:** This step is unique to the sunroof.
44. Remove the sunroof module. Refer to [Sunroof Module Assembly Replacement](#).
  45. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



46. Remove the body side assembly to upper dash panel body sealer (1)

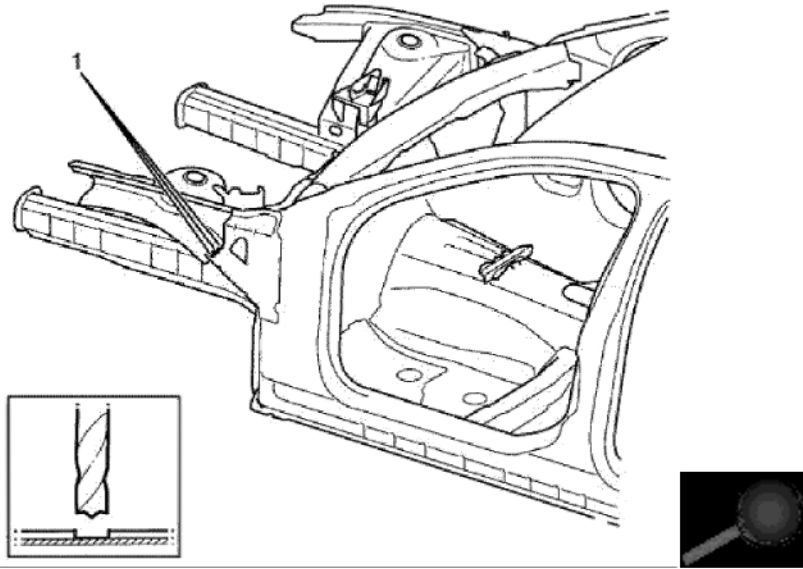


**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

47. Locate, mark and drill out the factory welds (1) attaching the front wheelhouse panel brace to the front wheelhouse assembly.
48. Remove the front wheelhouse panel brace from the front wheelhouse assembly.

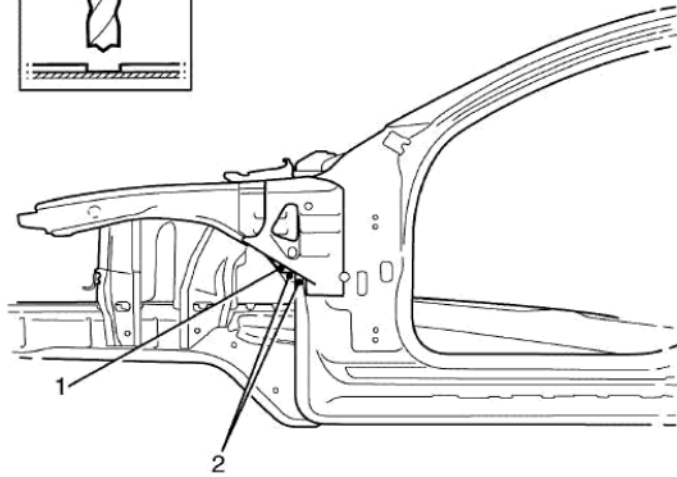
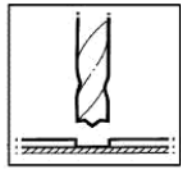




**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

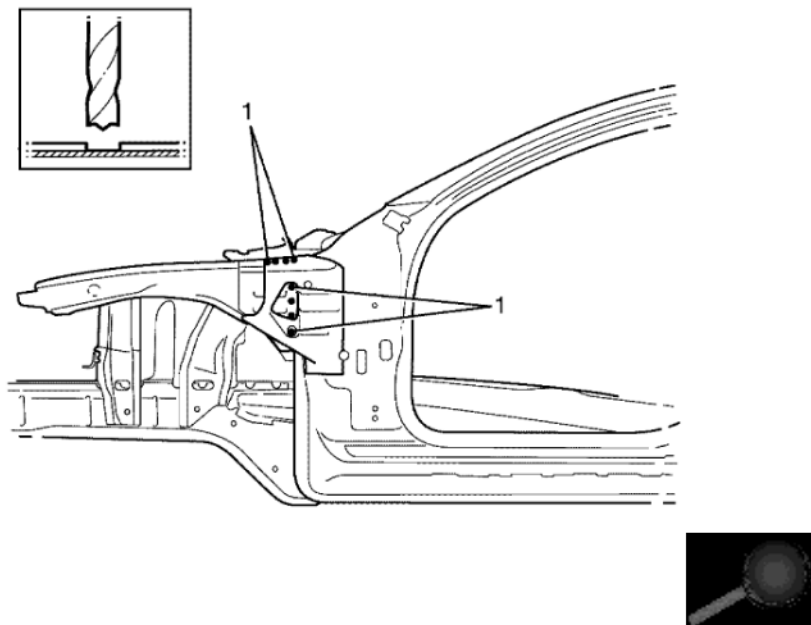
49. Locate, mark and drill out the factory welds (1) attaching the body hinge pillar brace the front wheel house assembly.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

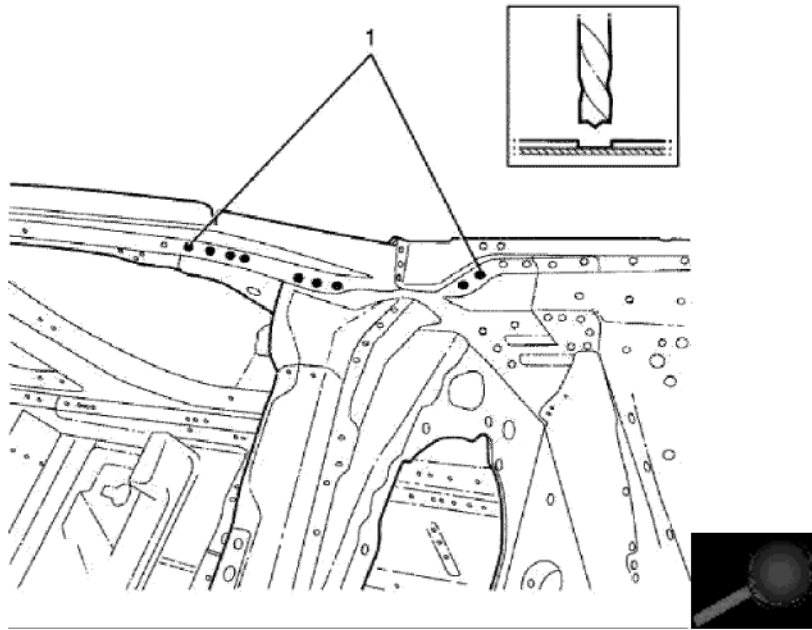
50. Locate, mark and drill out the factory weld (1) attaching the body hinge pillar brace to the body hinge pillar inner lower panel.  
Locate, mark and drill out the factory welds (2) attaching the body side outer assembly to the body hinge pillar inner lower panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

51. Locate, mark and drill out the factory welds (1) attaching the body hinge pillar brace to the body hinge pillar inner lower panel. Locate, mark and drill out the factory welds (2) attaching the body side outer assembly to the body hinge pillar inner lower panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

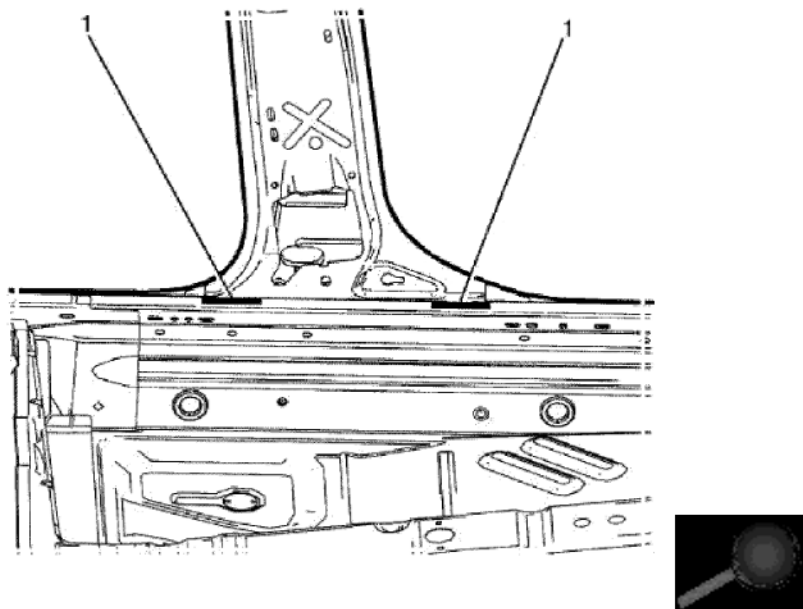
52. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the front hinge pillar.

53. Remove the roof outer panel. Refer to [Roof Panel Replacement](#).

54. Remove the roof front header panel. Refer to [Roof Front Header Panel Replacement](#).

55. Remove the roof rear header panel. Refer to [Roof Rear Header Panel Replacement](#).

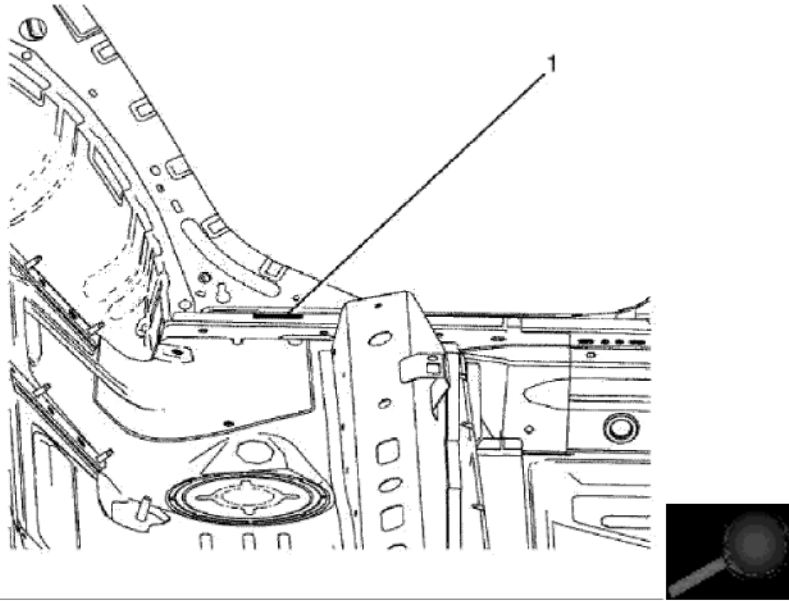
56. Remove the roof panel bow. Refer to [Roof Panel Bow Replacement](#).



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

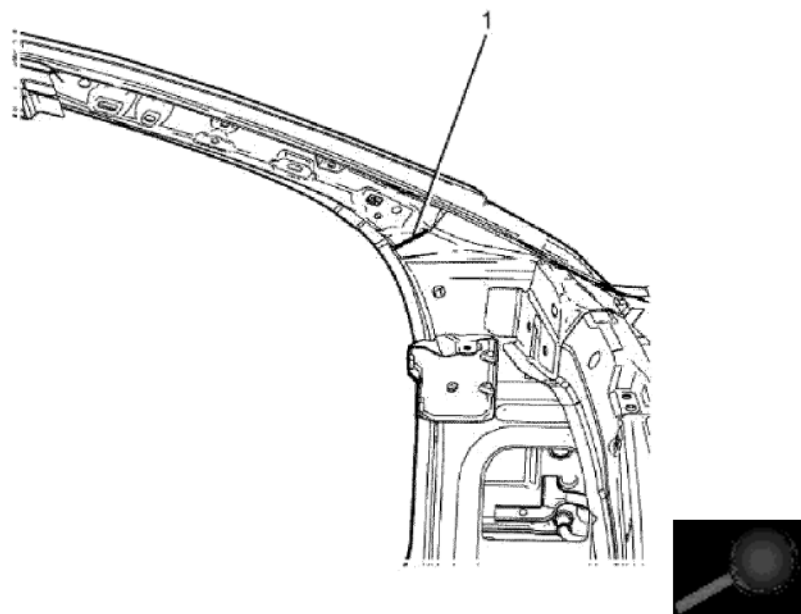
57. Locate, mark and remove the factory seam welds (1) attaching the body side assembly centre pillar to the inner rocker panel.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

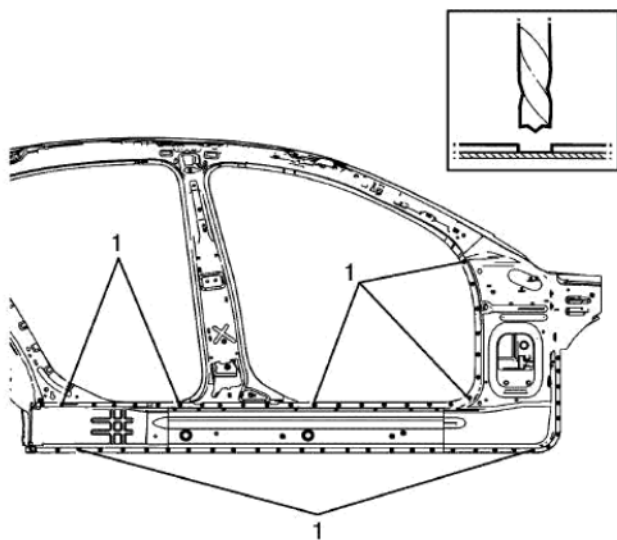
58. Locate, mark and remove the factory seam welds (1) attaching the body side assembly to the rear inner wheelhouse.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

59. Locate, mark and remove the factory seam weld (1) attaching the body side assembly to the front hinge pillar.

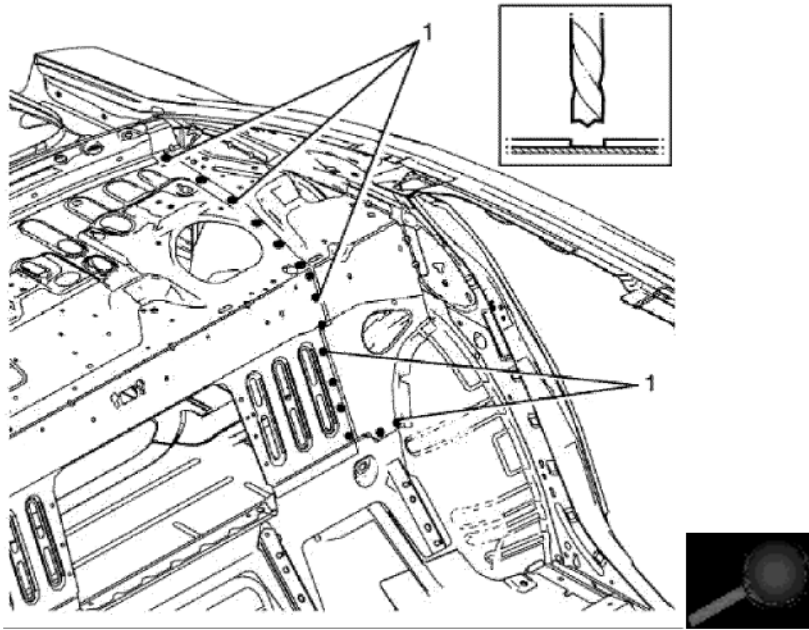


**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

60. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the vehicle.

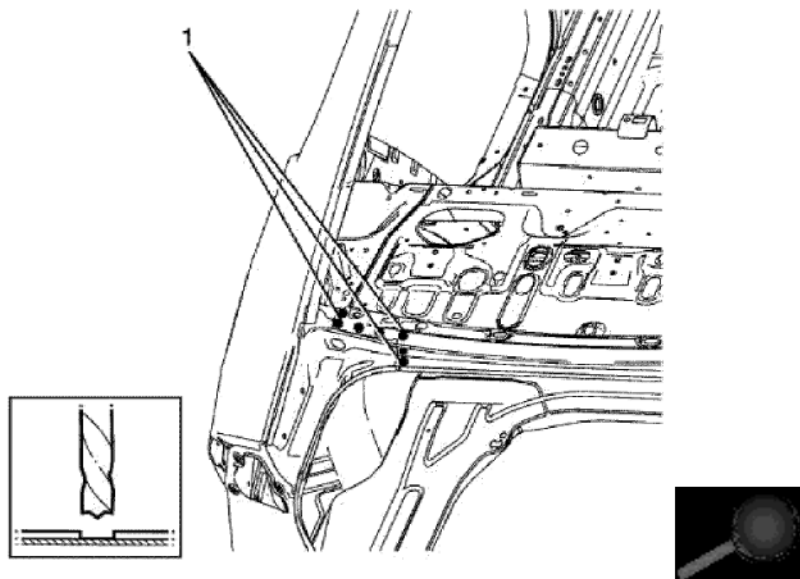




**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

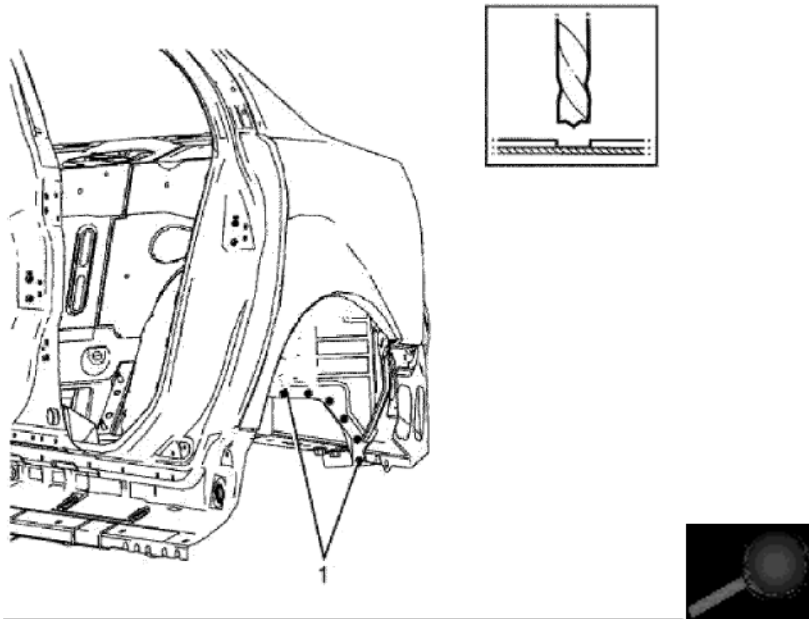
61. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the parcel shelf assembly.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

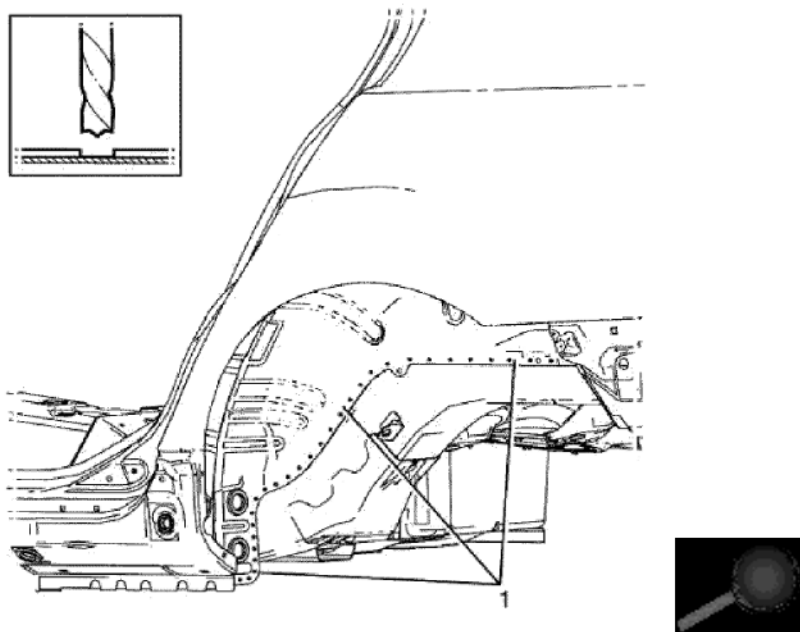
62. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the upper parcel shelf assembly.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

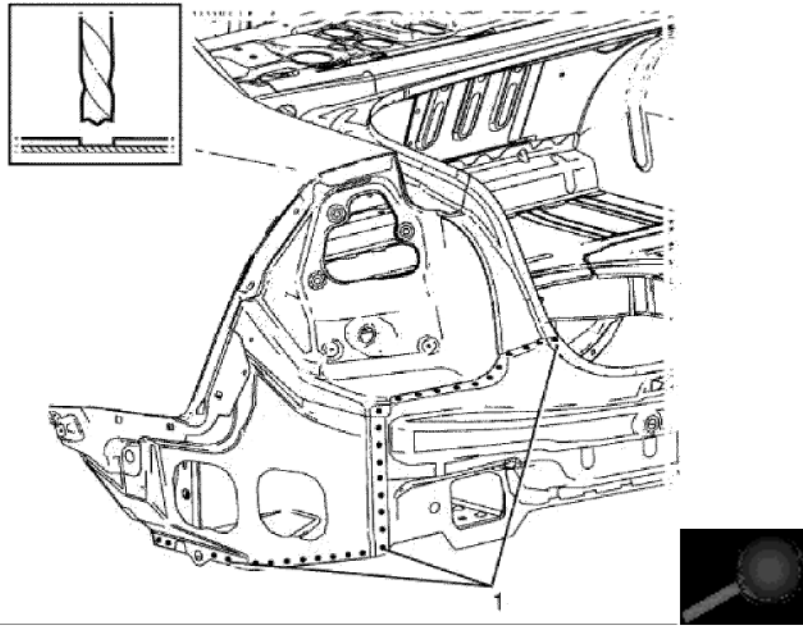
63. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the inner rear wheelhouse.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

64. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the inner rear wheelhouse.



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the body side service assembly.

65. Locate, mark and drill out the factory welds (1) attaching the body side assembly to the rear end panel.

66. Remove the body side assembly from the vehicle.

67. Remove all traces of old sealers and adhesives from the remaining panels in the repair area.

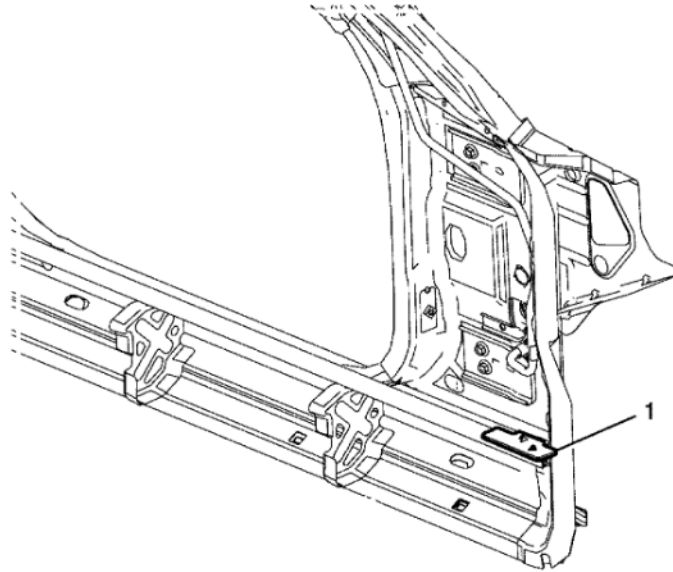
**Installation Procedure**

**Note:**

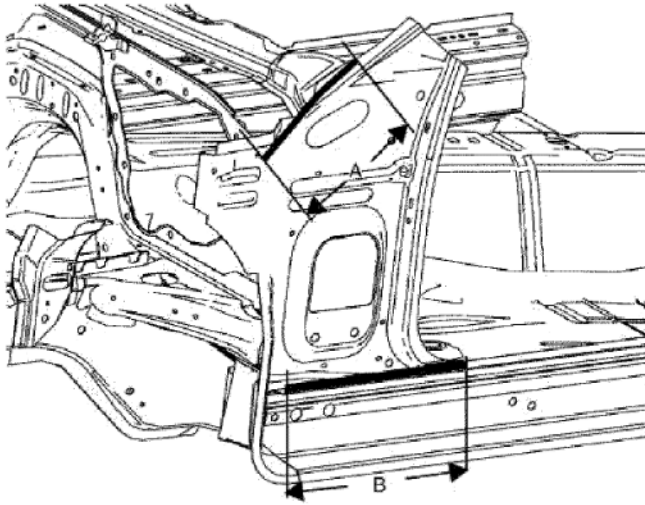
- This procedure refers ONLY to the replacement of the entire body side service assembly.
- This procedure does NOT allow for the replacement of the body side outer skin panel.
- This part has structural weld-thru adhesive in the joint areas. Replace this with additional spot welds at the attachment points. This can be accomplished by adding an additional weld between each factory weld in all areas.
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

- Ensure all factory welds are replaced in their original locations.
- Ensure all structural adhesives and sealers are replaced in their original locations.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted from the original assembly.
2. Clean and prepare the mating surfaces of both parts of the body side assembly.

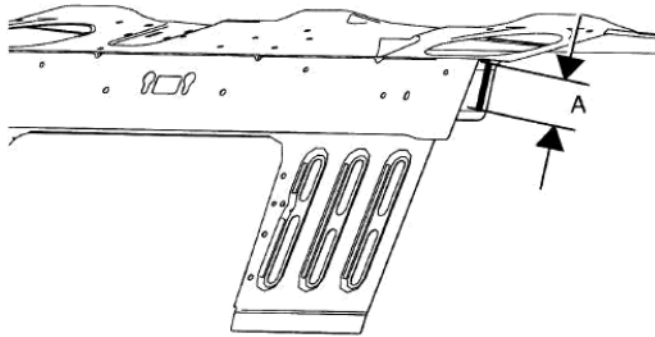


3. Remove the unexpanded noise baffle (1) from the body side assembly.



**Note:** As the new body side assembly is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

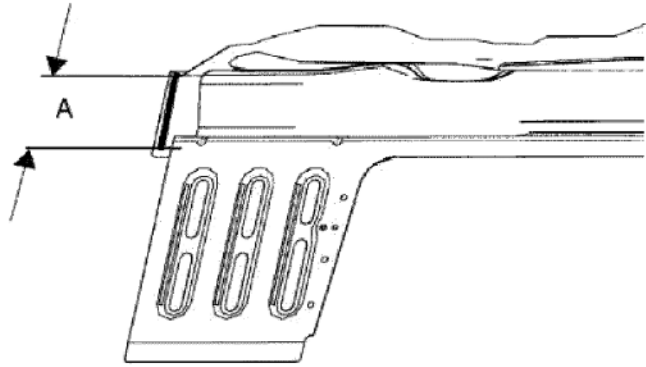
4. Apply structural adhesive (GM6449G or equivalent) 260 mm (10.24 in) (A) to the top edge of the inner hinge pillar.
5. Apply structural adhesive GM6449G or equivalent 400 mm (15.75 in) (B) to the inner rocker panel.



**Note:** As the new body side assembly is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

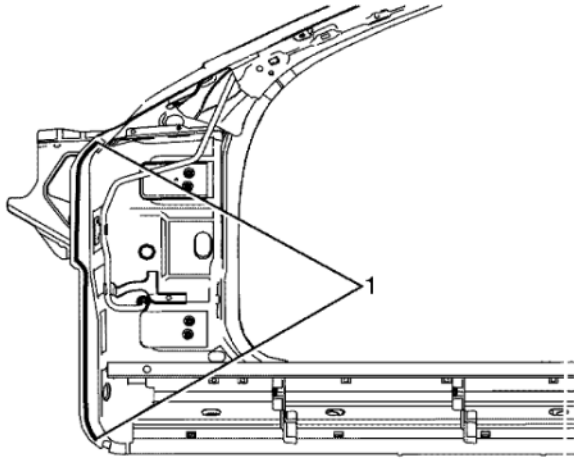
6. Apply structural adhesive (GM6449G or equivalent) 50 mm (1.97 in) (A) to the rear seat back on the forward facing surface.





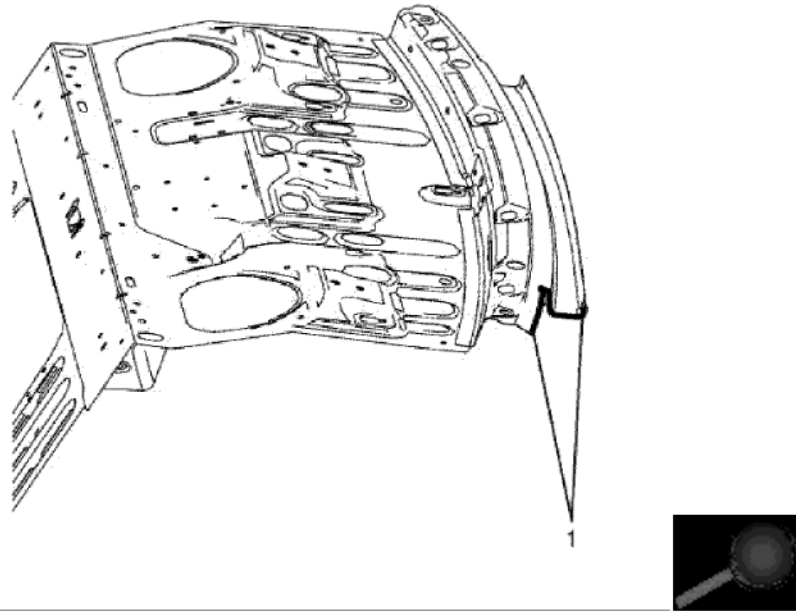
**Note:** As the new body side assembly is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

7. Apply structural adhesive (GM6449G or equivalent) 110 mm (4.33 in) (A) to the parcel shelf.



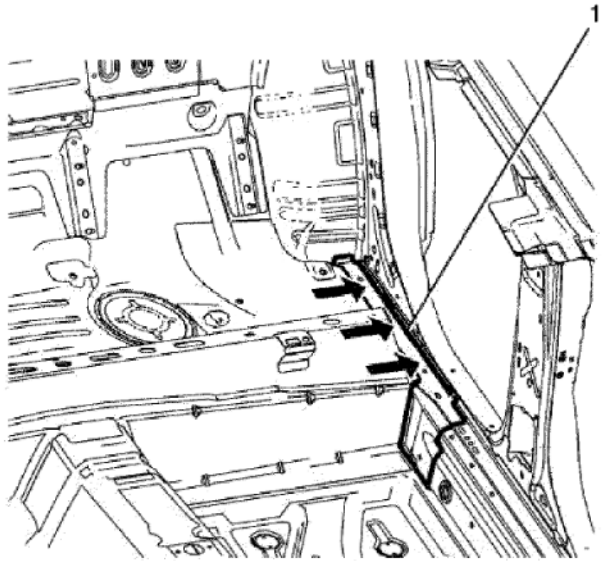
**Note:** As the new body side assembly is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

8. Apply the primary sealer (1) (GM6449G or equivalent) along the lower hinge pillar.

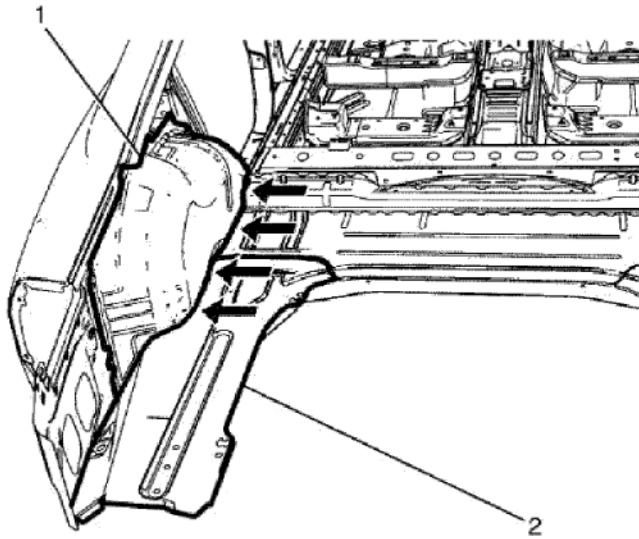


**Note:** As the new body side assembly is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together).

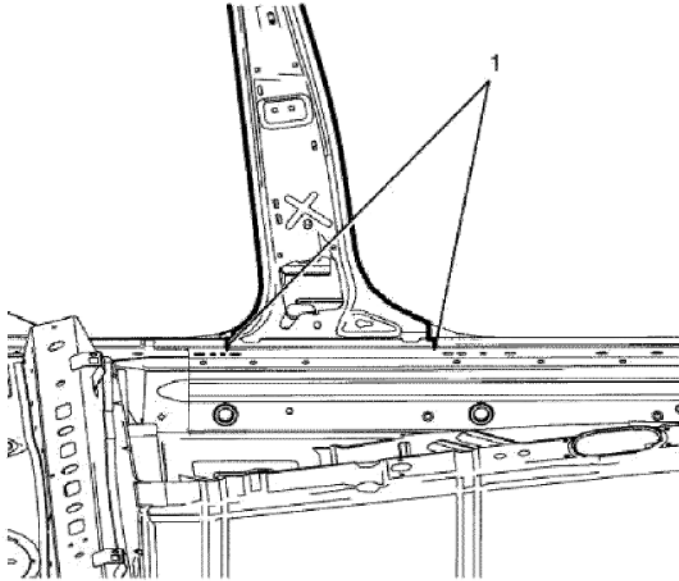
9. Apply the primary sealer (1) (GM6449G or equivalent) along the rear edge of the parcel shelf panel.
10. Position the replacement body side assembly on the vehicle. Verify correct alignment and position using three-dimensional measuring equipment. Refer to [Dimensions - Body](#).



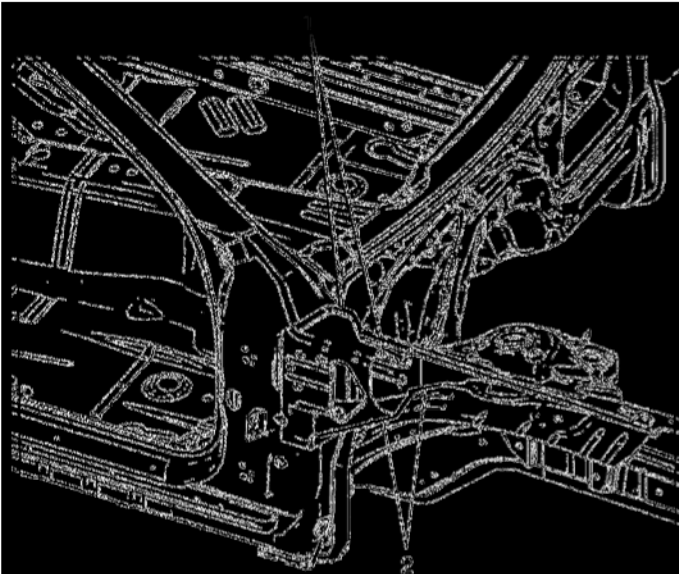
11. Align the body side assembly to the inner rocker flange tab (1).



12. Align the inner rear wheelhouse (1) to side extension panel (2).

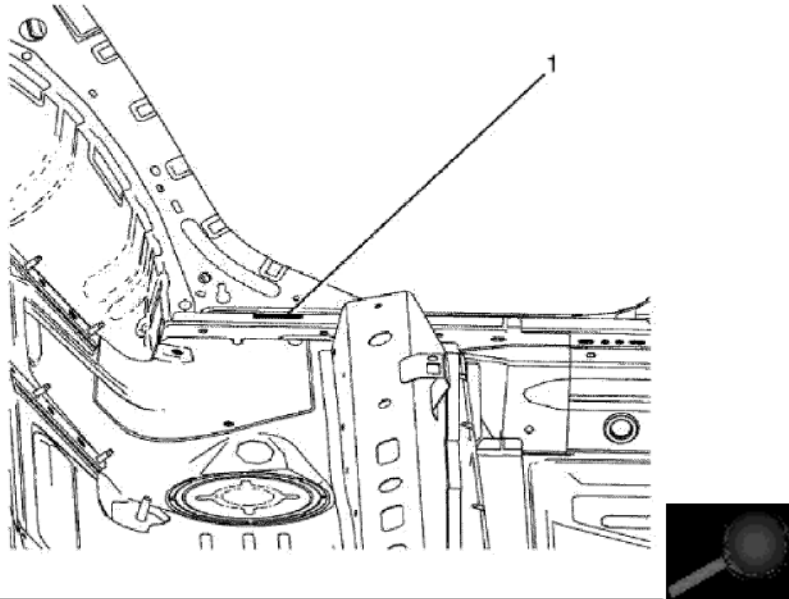


13. Align the body side assembly centre pillar to the indented flange (1) on the inner rocker panel.

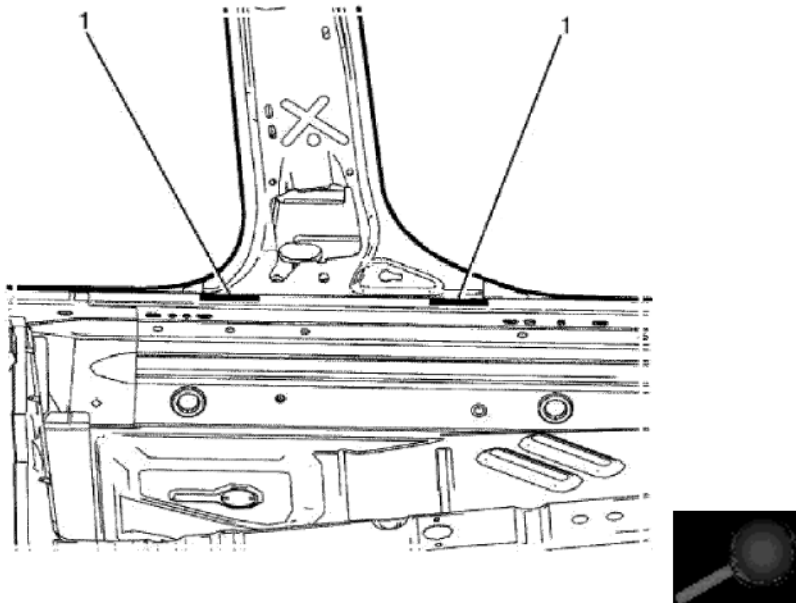


14. Align the body side hinge pillar (2) to the wheelhouse assembly.

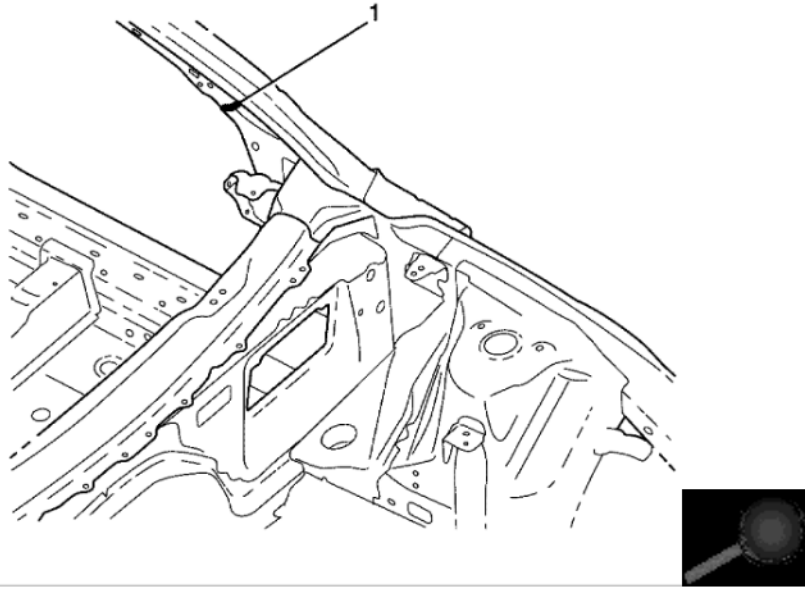
15. Align the body side hinge pillar (1) to the inner lower hinge pillar.



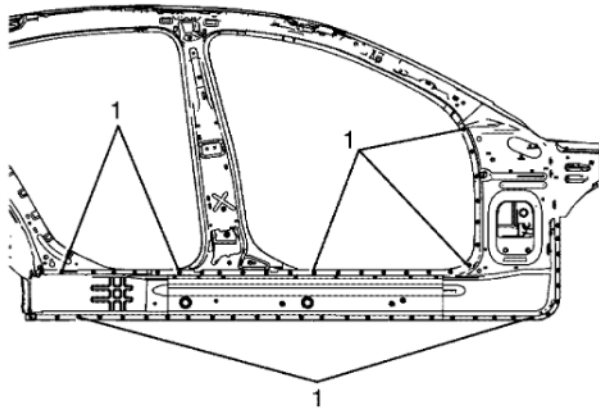
16. Seam weld the inner lower hinge pillar to inner upper hinge pillar 60 mm (2.36 in) (1) using a (Metal Inert Gas) MIG welder.



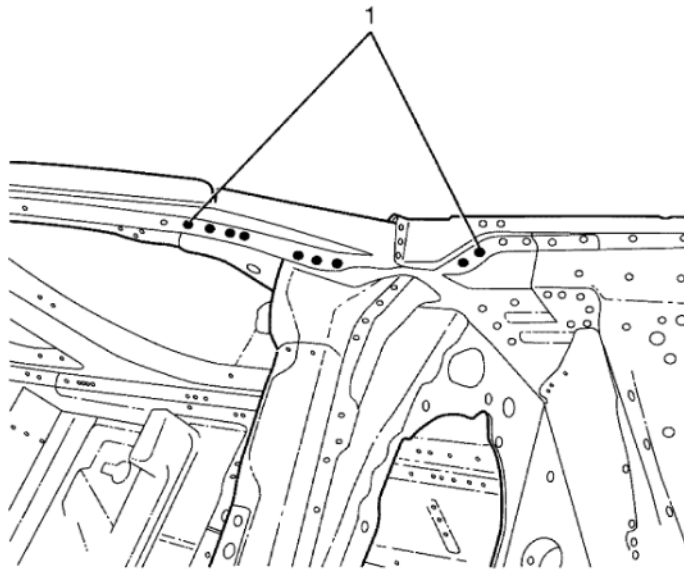
17. Seam weld the centre pillar to inner rocker panel in two places 50 mm (1.97 in) (1) across the locating tags using a MIG welder.
18. Install the roof. Refer to [Roof Panel Replacement](#).



19. Seam weld the inner lower hinge pillar to inner upper hinge pillar (1) 60 mm (2.36 in) using a MIG welder.

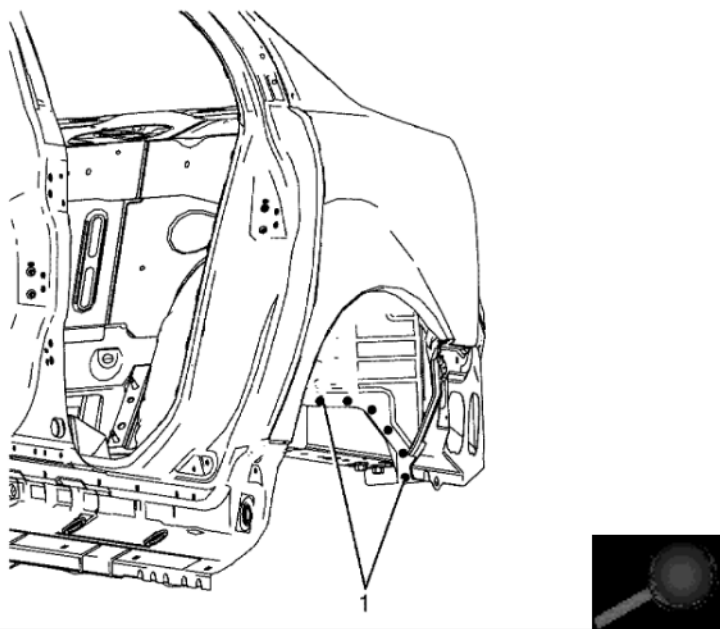


20. Weld (1) the body side assembly to the vehicle.

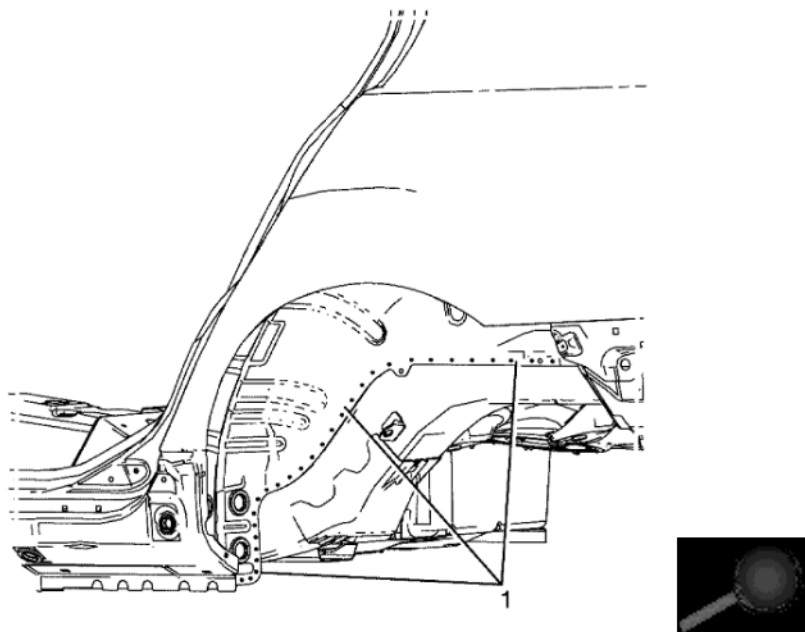


21. Weld (1) the body side assembly to the front hinge pillar.

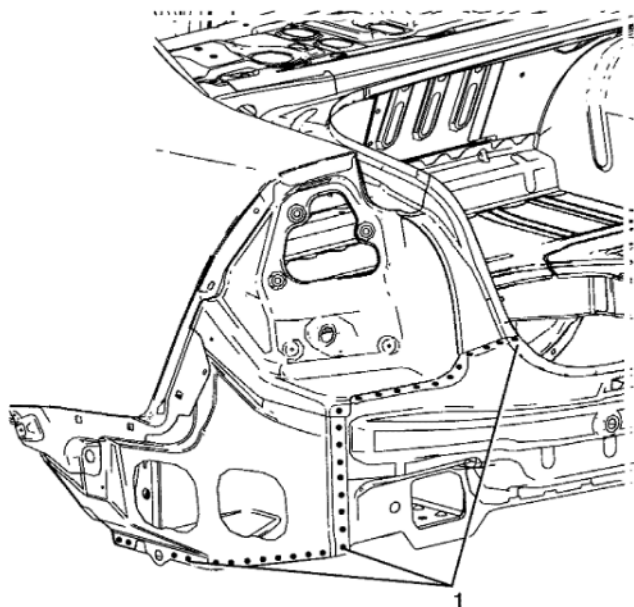




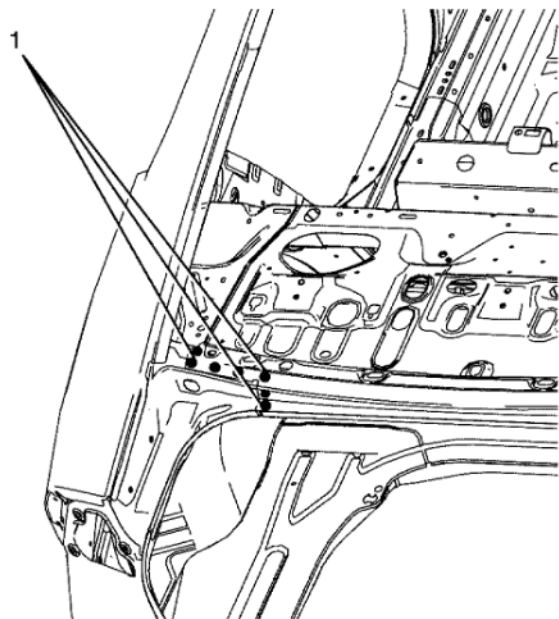
22. Weld (1) the body side assembly to the inner rear side extension panel.



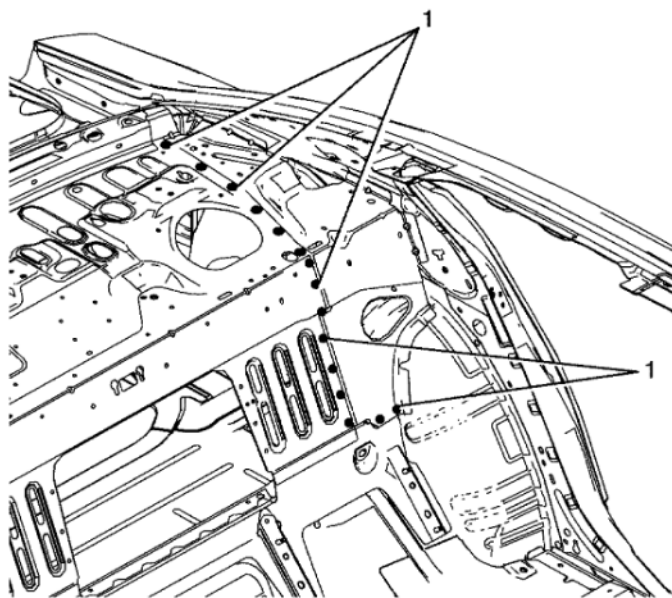
23. Weld (1) the body side assembly to the inner rear wheelhouse.



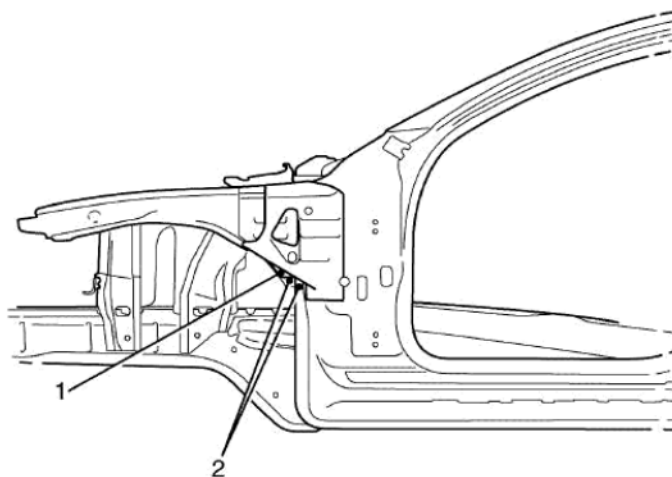
24. Weld (1) the body side assembly to the rear end panel.



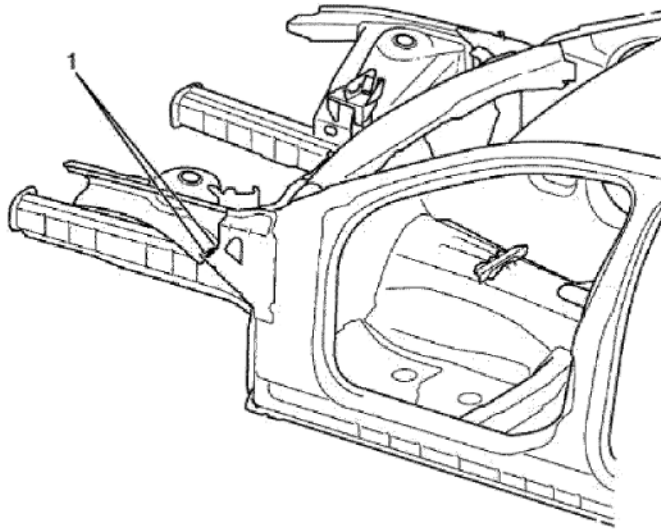
25. Weld (1) the body side assembly to the upper parcel shelf assembly.



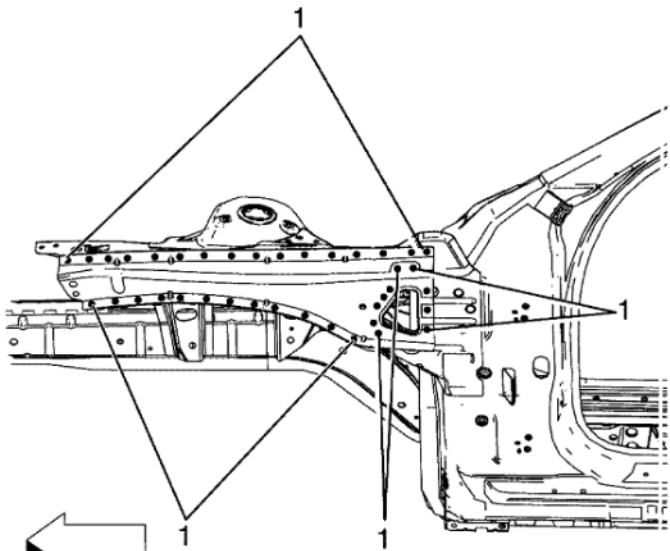
26. Weld (1) the body side assembly to the parcel shelf assembly.



27. Weld (1) the upper wheelhouse brace to the front hinge pillar.

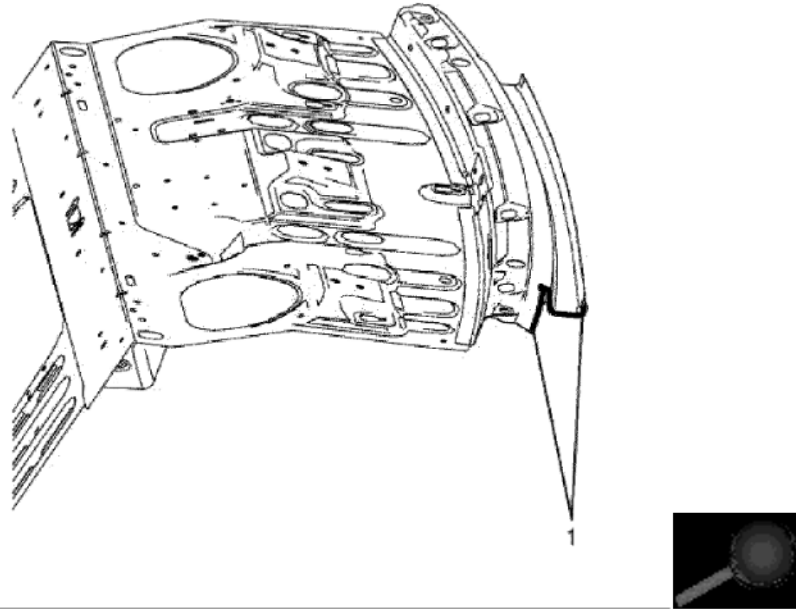


28. Weld (1) the upper wheelhouse brace to the front hinge pillar.

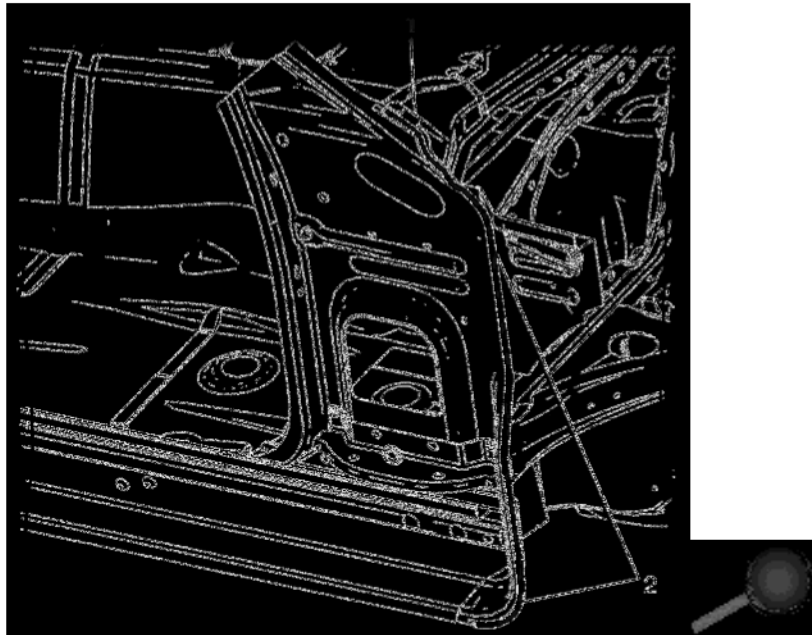


29. Weld (1) the upper wheelhouse brace to the front wheelhouse assembly.

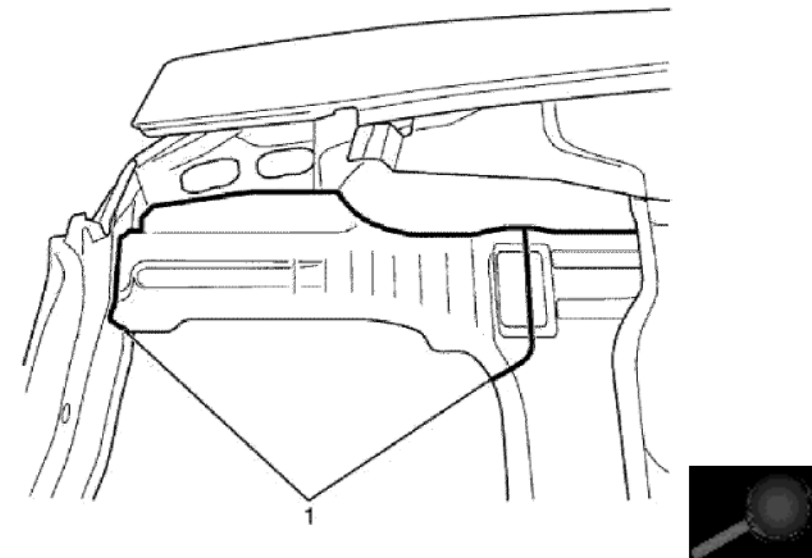
30. Install the roof panel bow. Refer to [Roof Panel Bow Replacement](#).
31. Install the roof front header panel. Refer to [Roof Front Header Panel Replacement](#).
32. Install the roof rear header panel. Refer to [Roof Rear Header Panel Replacement](#).
33. Install the roof outer panel. Refer to [Roof Panel Replacement](#).



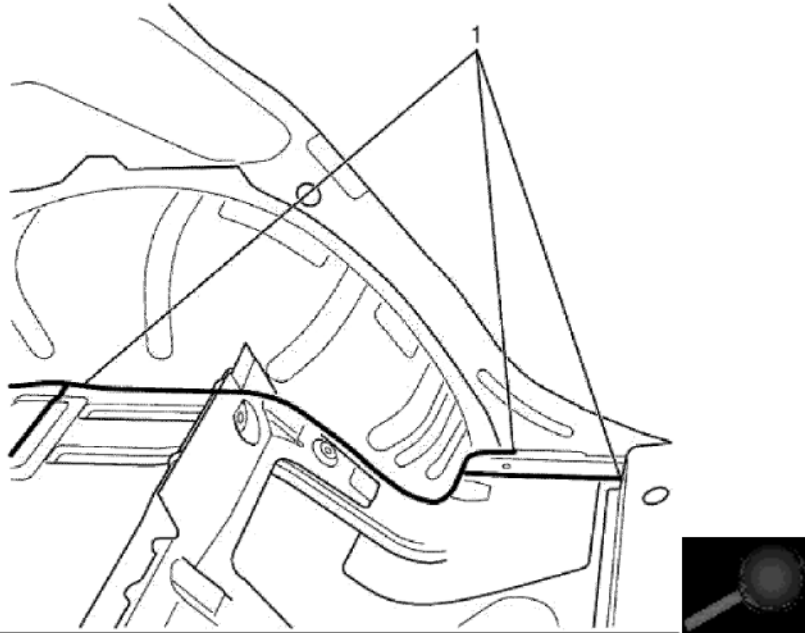
34. Apply the secondary sealer (1) GM specification 9984532 or equivalent along the rear edge of the parcel shelf panel.



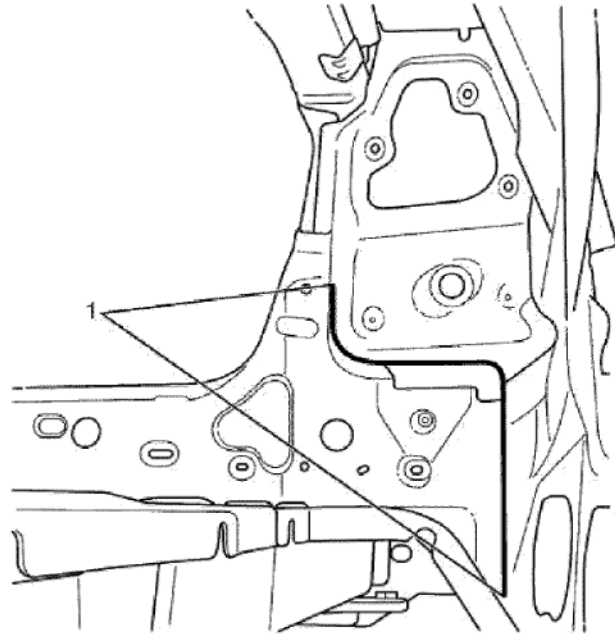
35. Apply the secondary sealer (1) GM specification 9984532 or equivalent to the front plenum panel.
36. Apply the secondary sealer (2) GM specification 9984532 or equivalent to the lower hinge pillar.



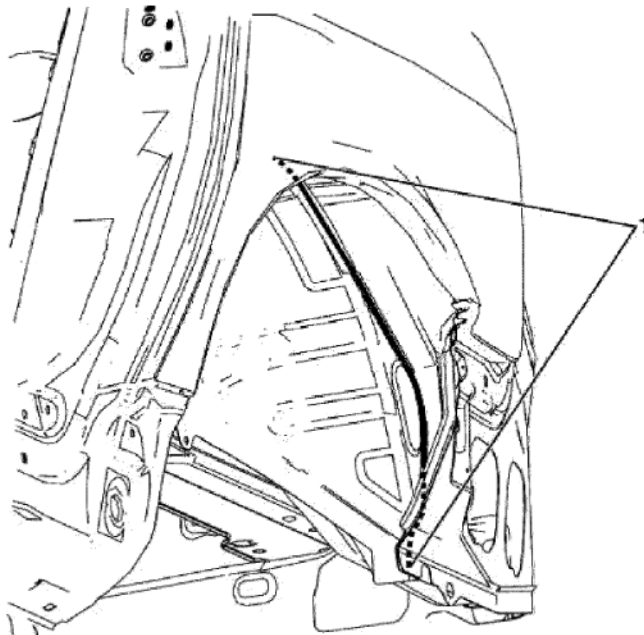
37. Working inside the rear compartment, apply secondary sealer (1) GM Specification 9984532 or equivalent along the join between the body side assembly and the underbody.



38. Apply secondary sealer (1) GM Specification 9984532 or equivalent along the join between the body side assembly and the underbody.



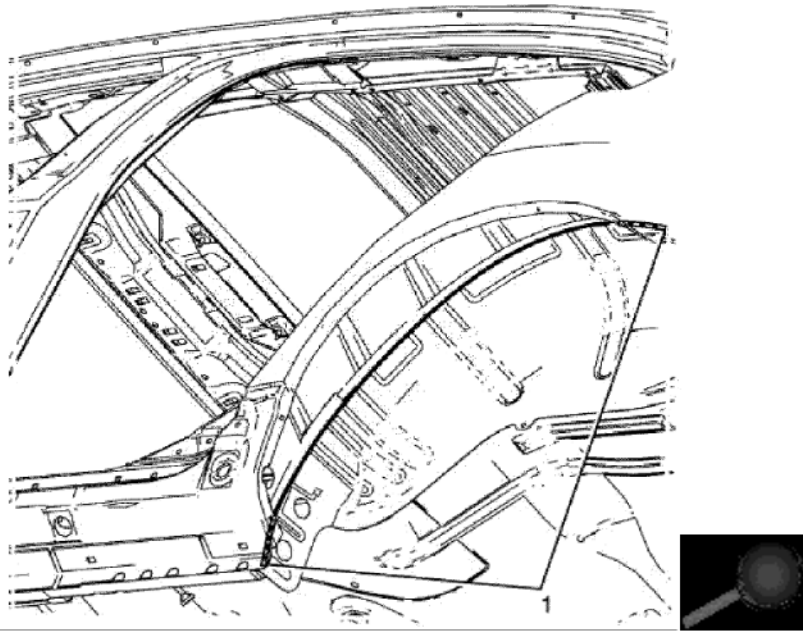
39. Working inside the rear compartment, apply secondary sealer (1) GM specification 9984532 or equivalent along the tail lamp filler panel to rear end panel.



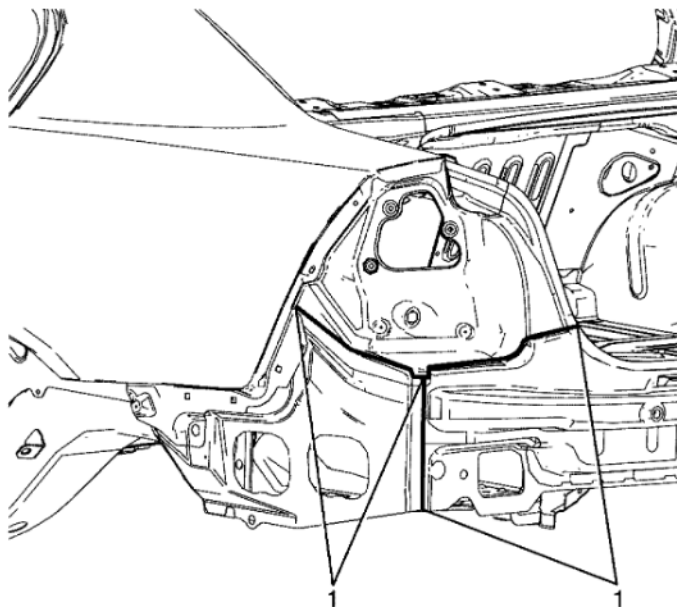
40. Apply the secondary sealer (1) GM specification 9984532 or equivalent between the outer rear wheelhouse assembly and the inner



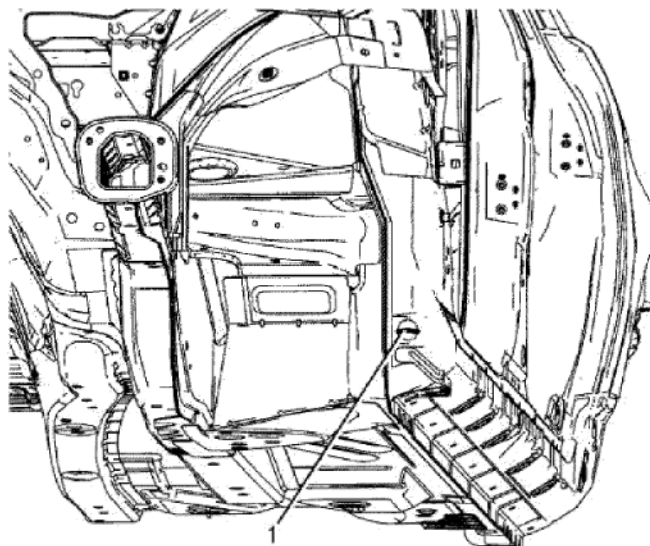
rear wheelhouse assembly.



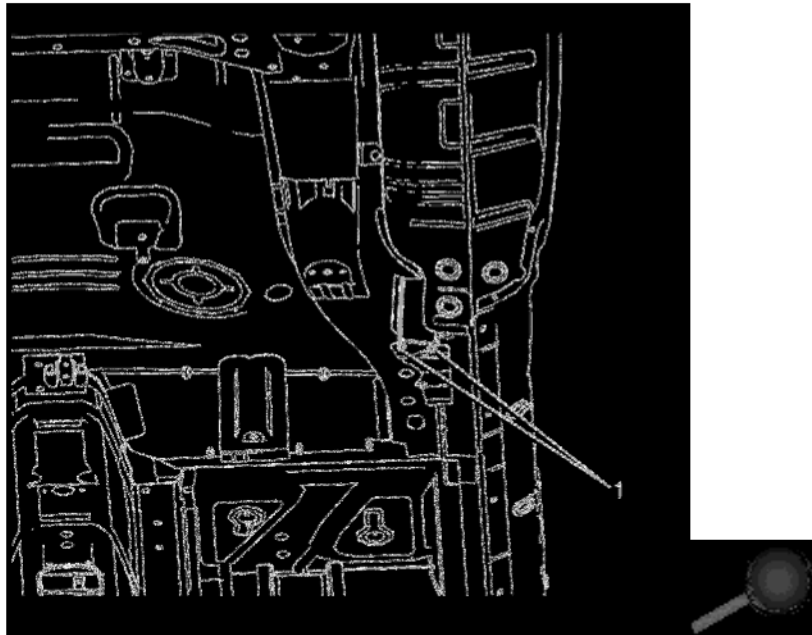
41. Apply the secondary sealer (1) GM specification 9984532 or equivalent between the outer rear wheelhouse assembly and the inner rear wheelhouse assembly.



42. Apply secondary sealer (1) GM specification 9984532 or equivalent along the tail lamp filler panel to the rear end panel.



43. Apply expanding foam sealer GM specification 9982296 or equivalent to the front lower hinge pillar through the access hole (1).



44. Apply expanding foam sealer GM specification 9982296 or equivalent through the two access holes (1) in the rear wheelhouse assembly.



**Note:** This step is unique to the right body side assembly.

45. Apply the secondary sealer (1) GM specification 9984532 or equivalent to the fuel filler pocket.

**Note:** All joints and welds must be checked for water leaks before the vehicle is fully reassembled.

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

**Note:** This step is unique to the sunroof.

47. Install the sunroof module. Refer to [Sunroof Module Assembly Replacement](#).

48. Install the positive cable to the vehicle. Refer to [Battery Positive Cable Replacement](#).

49. Install the battery tray. Refer to [Battery Tray Replacement](#).

50. Install the rear compartment floor carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).

51. Install the spare wheel and emergency kit from the rear compartment.

52. Install the roof rail module. Refer to [Airbag Roof Side Rail Module Replacement](#).

53. Install the rear seat belts. Refer to [Rear Seat Belt Retractor Replacement](#).

54. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).

55. Install the rear window shelf trim. Refer to [Rear Window Panel Trim Replacement](#).

56. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).

57. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).

58. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).

59. Install the HVAC. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).

60. If re-programming is required. Refer to [Control Module References](#).

61. Install the instrument panel. Refer to [Instrument Panel Assembly Replacement](#).

62. If re-programming is required. Refer to [Control Module References](#).

63. Install the brake master cylinder. Refer to [Master Cylinder Replacement](#).

64. Install the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).

65. If re-programming is required. Refer to [Control Module References](#).

66. Install the relay box. Refer to [Accessory Wiring Junction Block Replacement](#).

67. Install the plenum chamber. Refer to [Air Inlet Housing Replacement](#).

68. Install the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).

69. Install the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).

70. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).

71. Install the fender assembly. Refer to [Front Fender Replacement](#).
72. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#).
73. Install the rear fascia. Refer to [Rear Bumper Fascia Replacement](#).
74. Install the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
75. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
76. Install the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
77. Install the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
78. Install the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
- Note:** This step is unique to the right body side assembly.
79. Install the fuel lines. Refer to [Fuel Line Replacement - Chassis](#) or [Fuel Line Replacement - Chassis](#).
- Note:** This step is unique to the right body side assembly.
80. Install the fuel filler actuator. Refer to [Fuel Tank Filler Door Latch Replacement](#).
- Note:** This step is unique to the right body side assembly.
81. Install the fuel filler door. Refer to [Fuel Tank Filler Door Latch Replacement](#).
- Note:** This step is unique to the right body side assembly.
82. Install the Filler Tube. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).
83. Install the rear frame assembly. Refer to [Rear Frame Replacement](#).
84. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
85. Install the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
86. Lower the vehicle.
87. Install the front doors. Refer to [Front Side Door Replacement](#).
88. Install the rear doors. Refer to [Rear Side Door Replacement](#).
89. Install the positive cable to the engine bay. Refer to [Battery Positive Cable Replacement](#).
90. Install the negative cable to the engine bay. Refer to [Battery Negative Cable Replacement](#).
91. Install the engine assembly. Refer to [Engine Replacement](#) or [Engine Replacement](#).
92. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
93. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
94. If re-programming is required. Refer to [Control Module References](#).

## Side Door Opening Frame Replacement (Sportwagon)

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

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

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

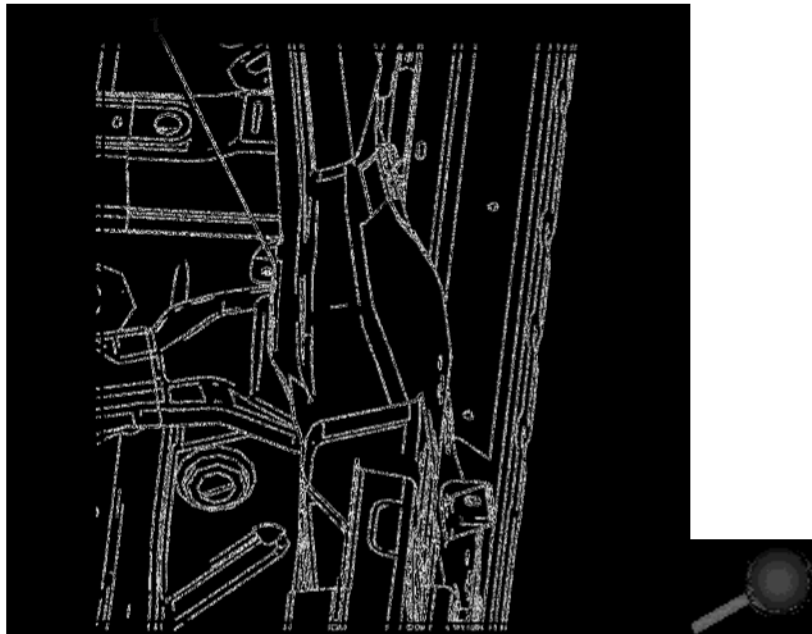
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
- Warning:** Refer to [Battery Disconnect Warning](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the engine assembly. Refer to [Engine Replacement](#) for the 3.6L Engine or [Engine Replacement](#) for the 6.0L Engine.
4. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
5. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
6. Remove the vacuum brake booster. Refer to [Power Vacuum Brake Booster Replacement](#).
7. Remove the engine control module. Refer to [Engine Control Module Replacement](#) for the 3.6L Engine or [Engine Control Module Replacement](#) for the 6.0L Engine.
8. Remove the underhood electrical centre. Refer to [Accessory Wiring Junction Block Replacement](#).
9. Remove the negative battery cable. Refer to [Battery Negative Cable Replacement](#).
10. Remove the positive battery cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
11. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
12. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
13. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
14. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
15. Remove the front bumper fascia. Refer to [Front Bumper Fascia Replacement](#).
16. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).



17. Remove the front fender assembly. Refer to [Front Fender Replacement](#).
18. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
19. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
20. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
21. Remove the rear frame assembly. Refer to [Rear Frame Replacement](#).
- Note:** This step is unique to the right side body ring.
22. Remove the filler tube. Refer to [Filler Tube Replacement](#) for the V6 Engine or [Filler Tube Replacement](#) for the V8 Engine.
- Note:** This step is unique to the right side body ring.
23. Remove the fuel filler door. Refer to [Fuel Tank Filler Door Replacement](#).
- Note:** This step is unique to the right side body ring.
24. Remove the fuel filler door release actuator. Refer to [Fuel Tank Filler Door Latch Replacement](#).
25. Remove the fuel lines. Refer to [Fuel Line Replacement - Chassis](#) for the V6 Engine or [Fuel Line Replacement - Chassis](#) for the V8 Engine.
26. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) for the V6 Engine or [Fuel Tank Replacement](#) for the V8 Engine.
27. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
28. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
29. Remove the plenum chamber. Refer to [Air Inlet Housing Replacement](#).
30. Remove the front doors. Refer to [Front Side Door Replacement](#).
31. Remove the rear doors. Refer to [Rear Side Door Replacement](#).
32. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
33. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
34. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
35. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
36. Remove the rear seat belts. Refer to [Rear Seat Belt Retractor Replacement](#).
37. Remove the instrument panel carrier. Refer to [Instrument Panel Assembly Replacement](#).
38. Remove the HVAC module assembly. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).
39. Remove the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
40. Remove the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
41. Remove the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
42. Remove the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim](#)

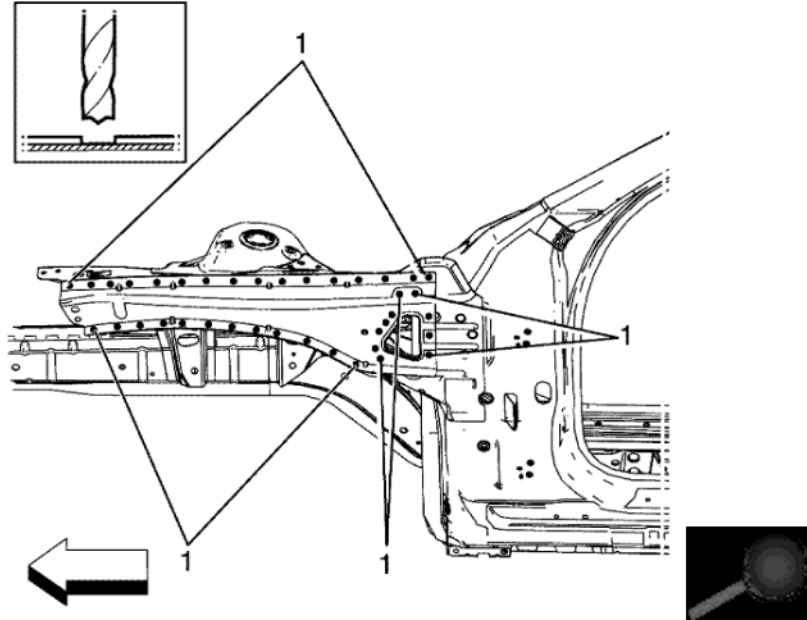
### [Finish Panel Replacement - Left Side.](#)

43. Remove the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).
44. Remove the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
45. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
46. Remove the body side stationary window. Refer to [Quarter Window Replacement](#).
47. Remove the remote function actuator. Refer to [Remote Control Door Lock Receiver Replacement](#).
48. Remove the positive battery cable from the vehicle. Refer to [Battery Positive Cable Replacement](#).
49. Remove roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
50. Remove the rocker panel moulding. Refer to [Rocker Panel Molding Replacement](#).
51. Remove the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
52. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
53. Remove the liftgate. Refer to [Liftgate Replacement](#).
54. Note the location and remove sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

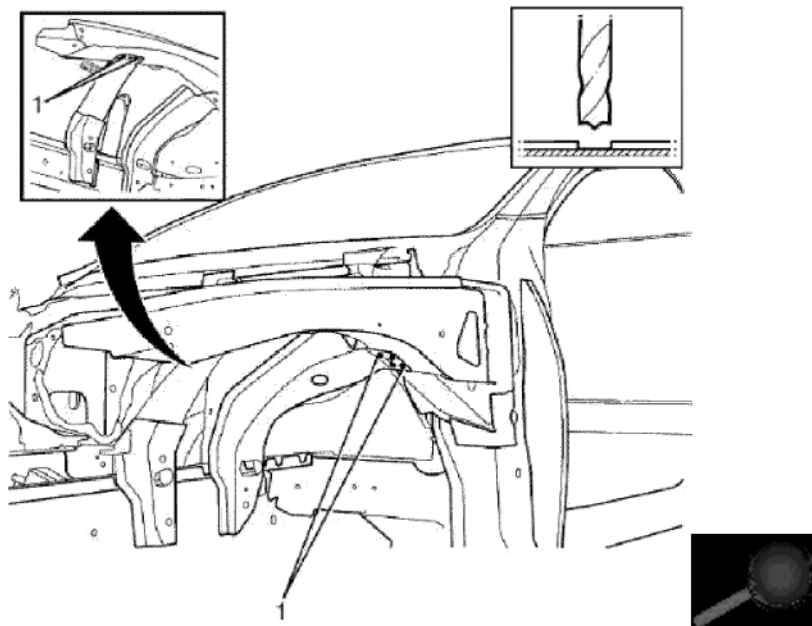




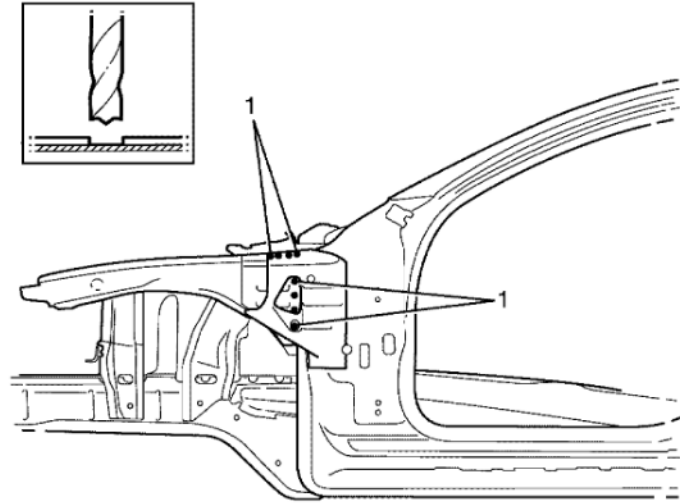
55. Remove the body side panel to upper dash panel body sealer (1).



56. Locate, mark and drill out the factory welds attaching the upper wheel house brace to the front wheelhouse assembly (1).

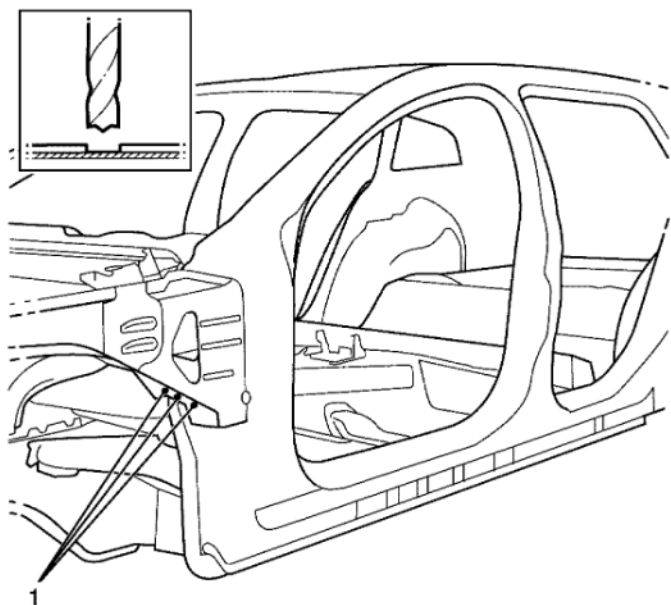


57. Locate, mark and drill out the factory welds attaching the upper wheelhouse brace to the front hinge pillar (1).

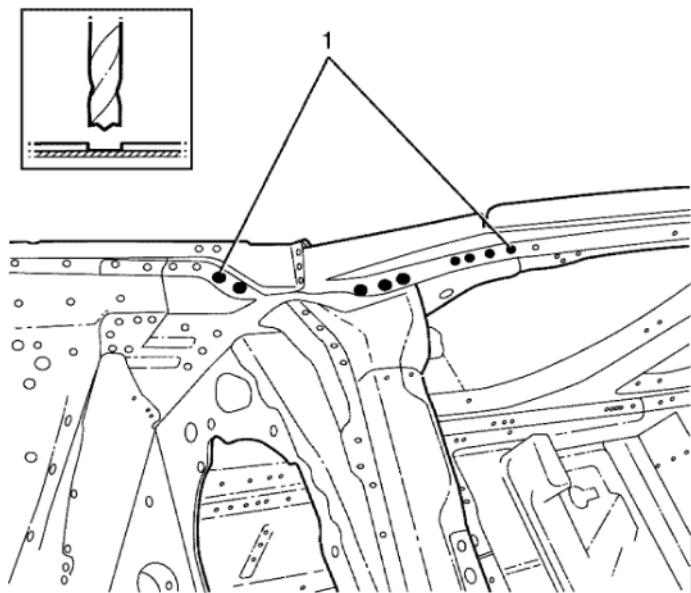


58. Locate, mark and remove the factory seam welds attaching the body side panel assembly to the front hinge pillar (1).

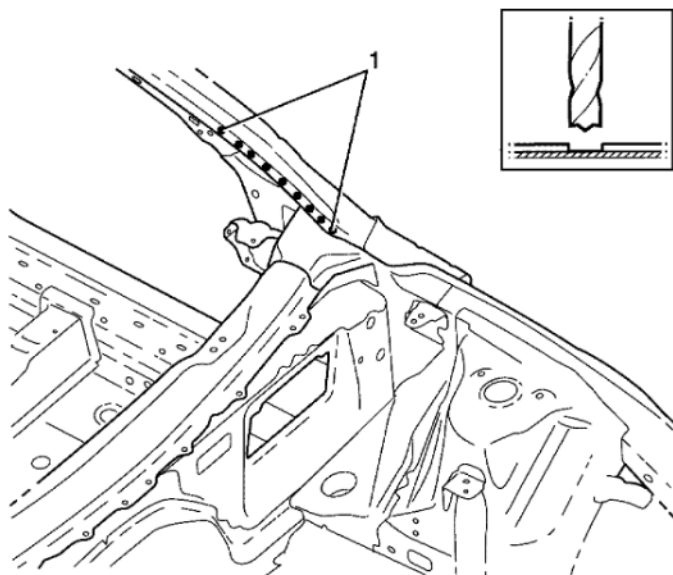
59. Remove the upper wheelhouse brace from the front wheelhouse assembly.



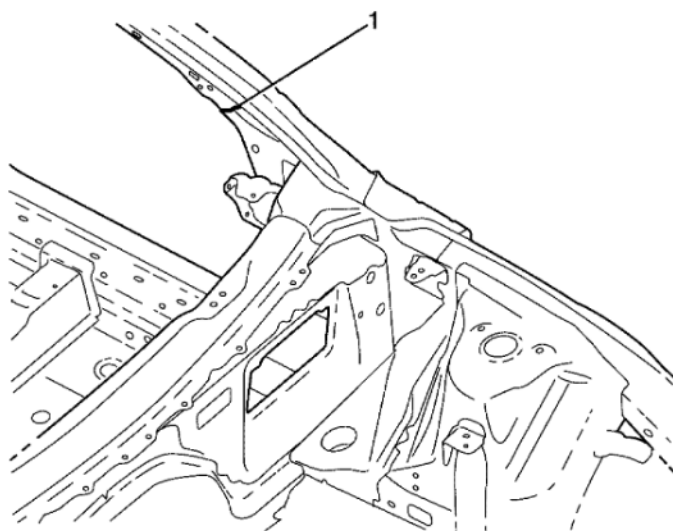
60. Locate, mark and drill out the factory welds attaching the upper wheelhouse brace to the front hinge pillar (1).



61. Locate, mark and drill out the factory welds attaching the body side panel assembly to the front hinge pillar (1).

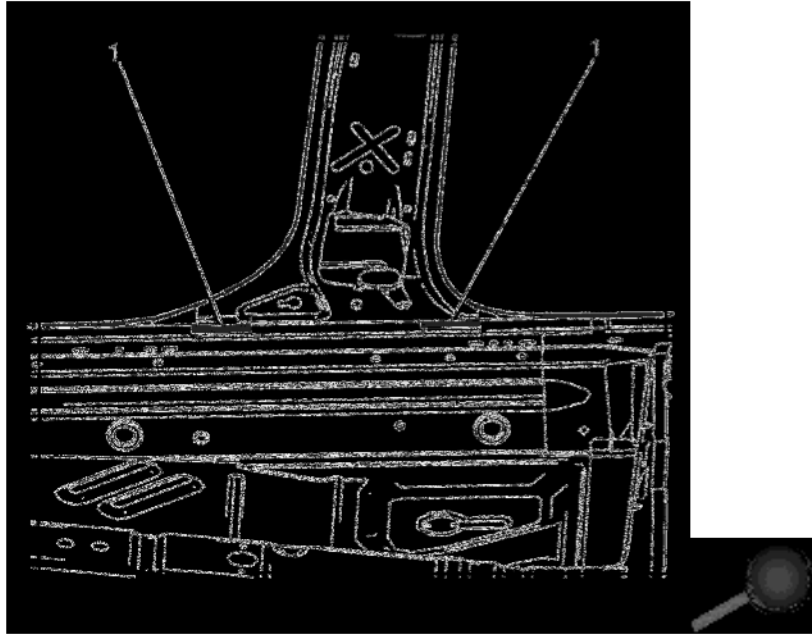


62. Locate, mark and drill out the factory welds attaching the body side panel assembly to the vehicle (1).

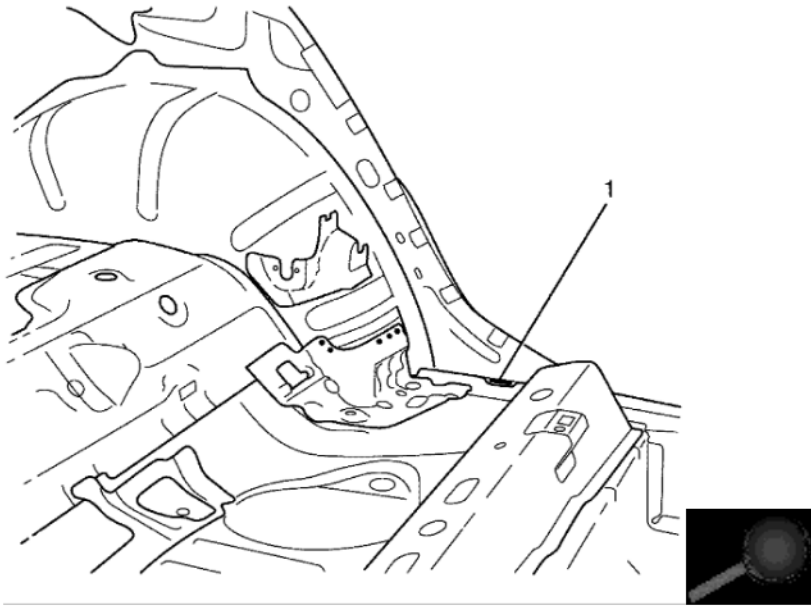


63. Locate, mark and remove the factory welds attaching the body side panel assembly to the vehicle (1).

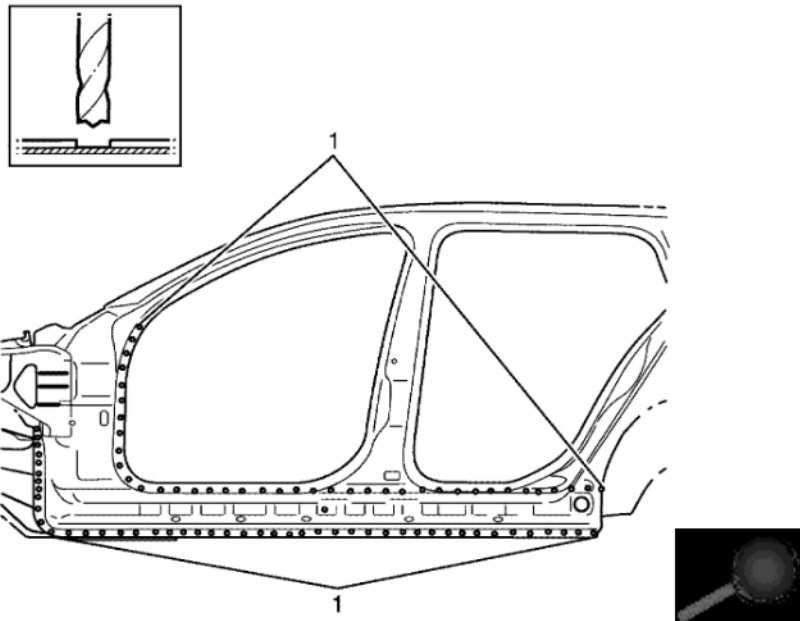
64. Remove the Roof Rear Header Panel. Refer to [Roof Rear Header Panel Replacement](#).
65. Remove the Roof Front Header Panel. Refer to [Roof Front Header Panel Replacement](#).
66. Remove the Front Roof Panel Bow. Refer to [Roof Panel Bow Replacement](#).
67. Remove the Rear Roof Panel Bow. Refer to [Roof Panel Bow Replacement](#).



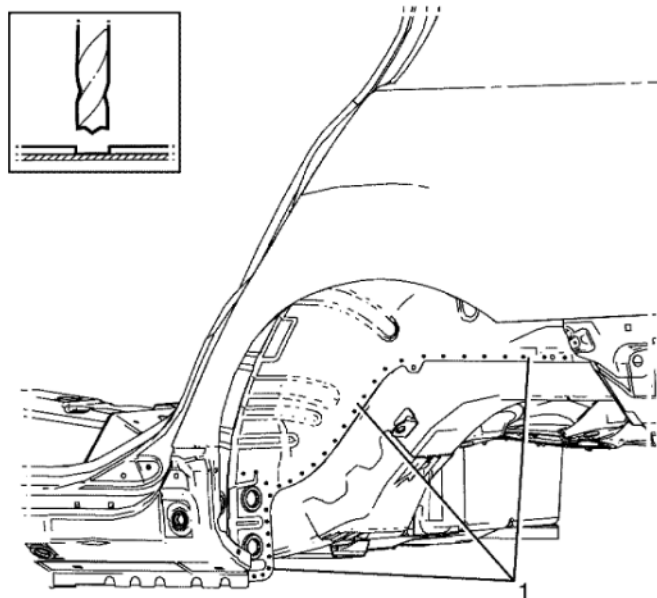
68. Locate, mark and remove the factor seam welds (1) attaching the body side panel assembly to the inner rocker panel.



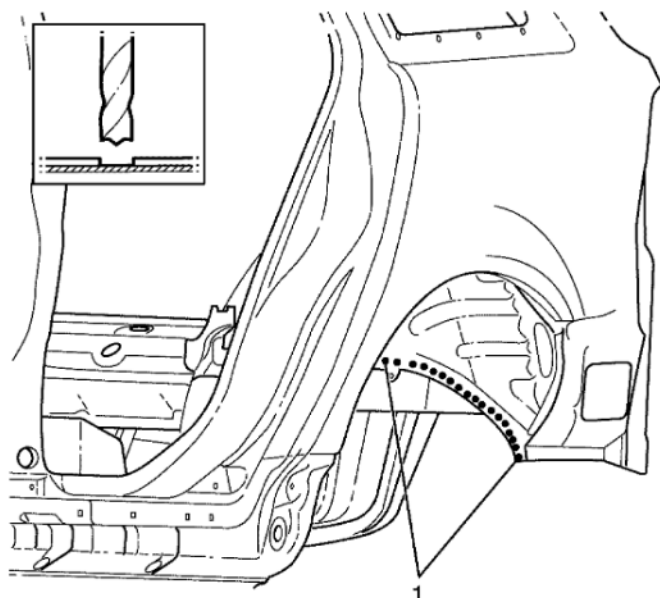
69. Locate, mark and remove the factory seam welds (1) attaching the body side panel assembly to the rear inner wheelhouse.



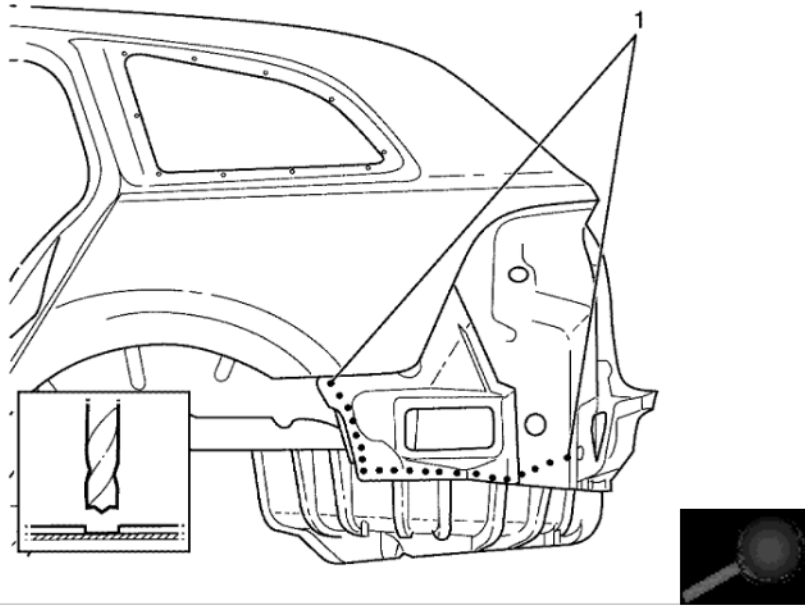
70. Locate, Mark and drill out the factory welds (1) attaching the body side panel assembly to the vehicle.



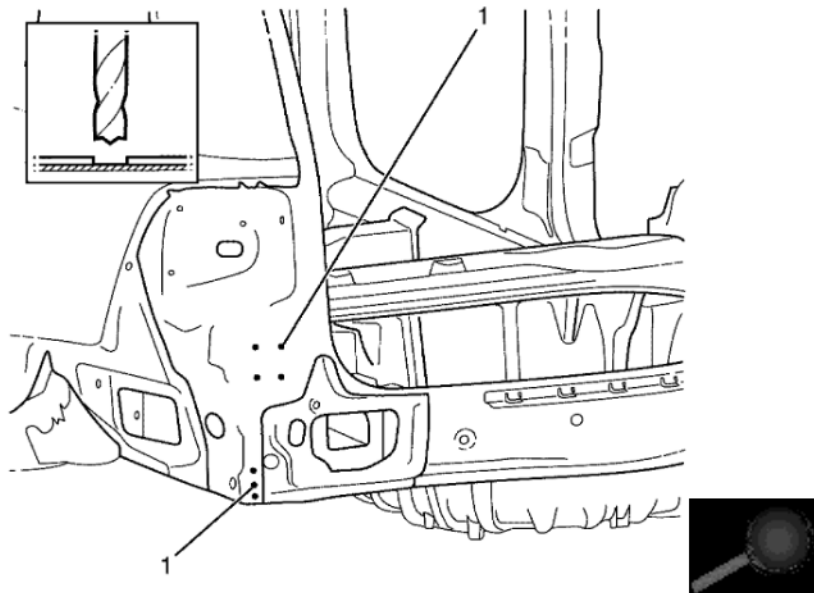
71. Locate, mark and drill out the factory welds (1) attaching the body side panel assembly to the rear floor panels.



72. Locate, mark and drill out the factory welds (1) attaching the body side panel assembly to the rear floor panels.

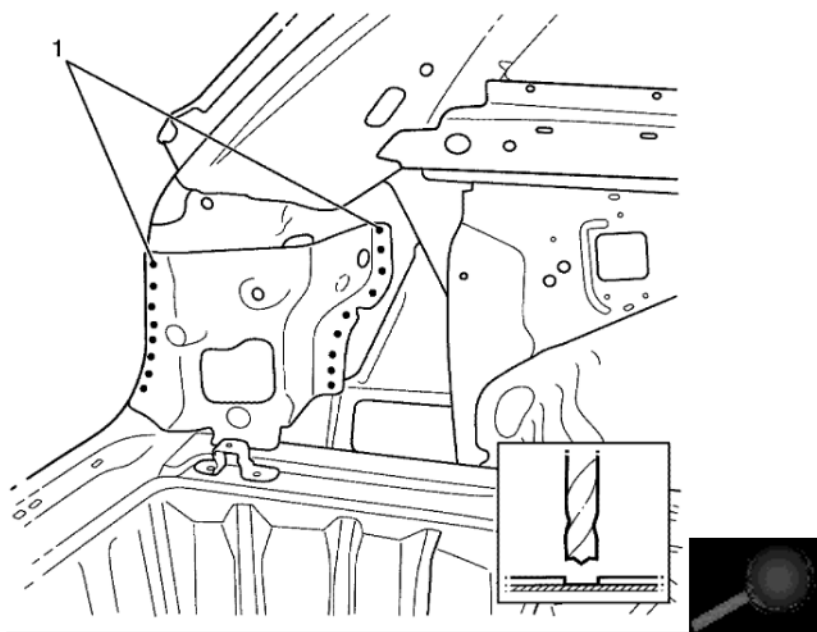


73. Locate, mark and drill out the factory welds (1) attaching the body side panel assembly to the rear floor panels.

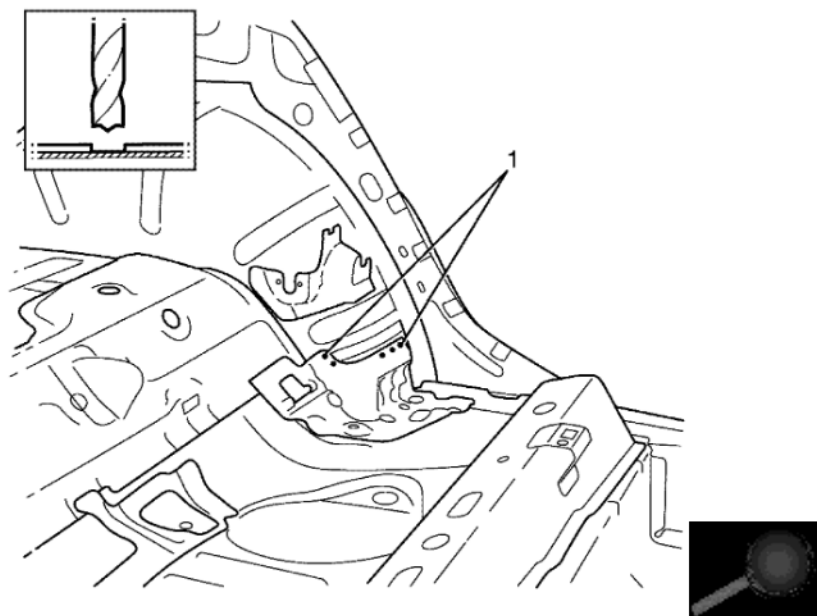


74. Locate, mark and drill out the factory welds (1) attaching the body side panel assembly to the rear floor panels.



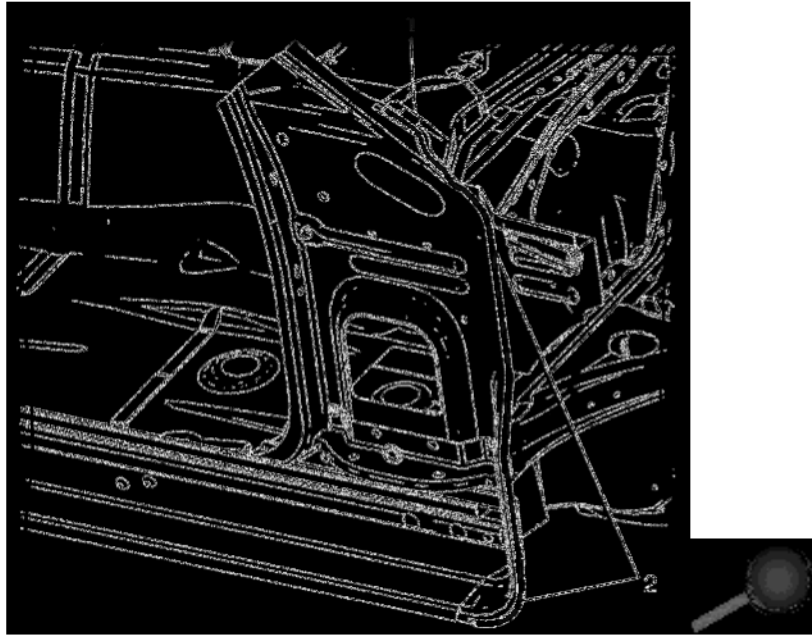


75. Locate, mark and drill out the factory welds (1) attaching the body side panel to the back body pillar inner lower panel.



76. Locate, mark and drill out the factory welds (1) attaching the body side panel assembly to the rear wheelhouse inner panel front reinforcement.

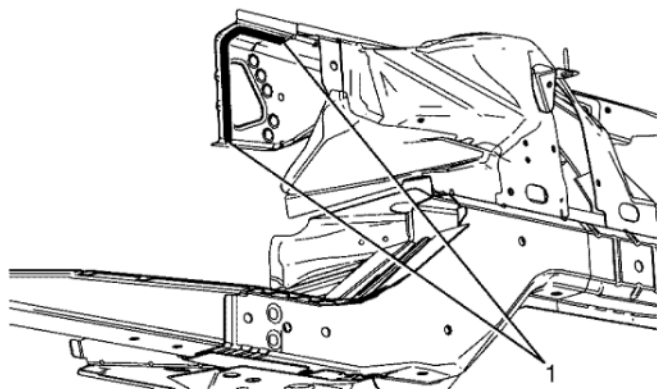
77. Remove the body side panel assembly from the vehicle.



**Note:** Clean all adhesive mating surfaces in accordance with the adhesive manufacturer's specifications.

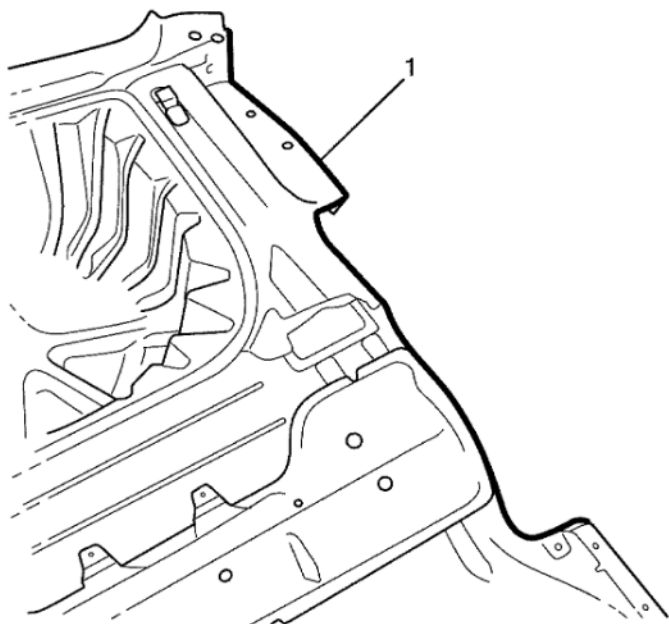
78. Remove the sealer (1) from the front plenum panel.

79. Remove the seam sealer (2) from the body side.



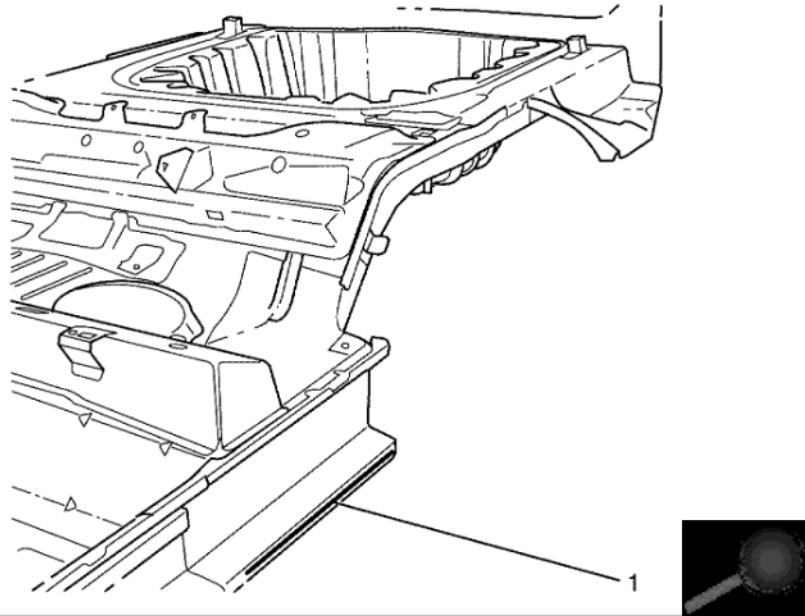
**Note:** Clean all adhesive mating surfaces in accordance with the adhesive manufacturer's specifications.

80. Remove the sealer (1) from the rear edge of the upper wheelhouse brace.



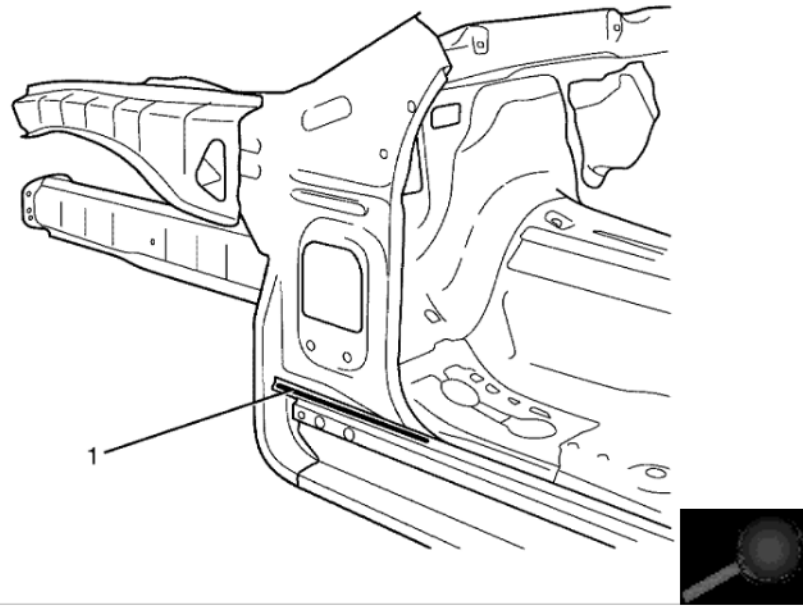
**Note:** Clean all adhesive mating surfaces in accordance with the adhesive manufacturer's specifications.

81. Remove the sealer (1) from the rear floor pan assembly.



**Note:** Clean all adhesive mating surfaces in accordance with the adhesive manufacturer's specifications.

82. Remove the sealer (1) from the inner quarter panel.



**Note:** Clean all adhesive mating surfaces in accordance with the adhesive manufacturer's specifications.

83. Remove the sealer (1) from the top edge of the inner hinge pillar.

### Installation Procedure

**Note:** Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.

**Note:** Ensure that all factory welds are replaced in their original locations.

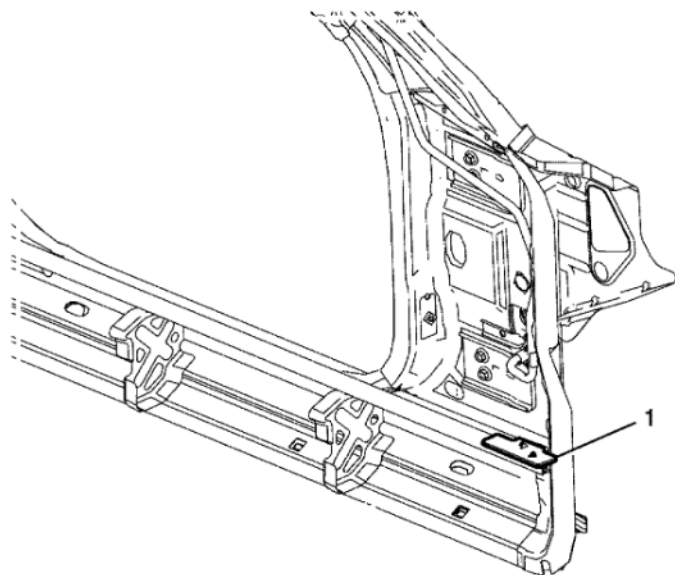
**Note:** Ensure that all structural adhesives and sealers are replaced in their original locations.

**Note:** If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).

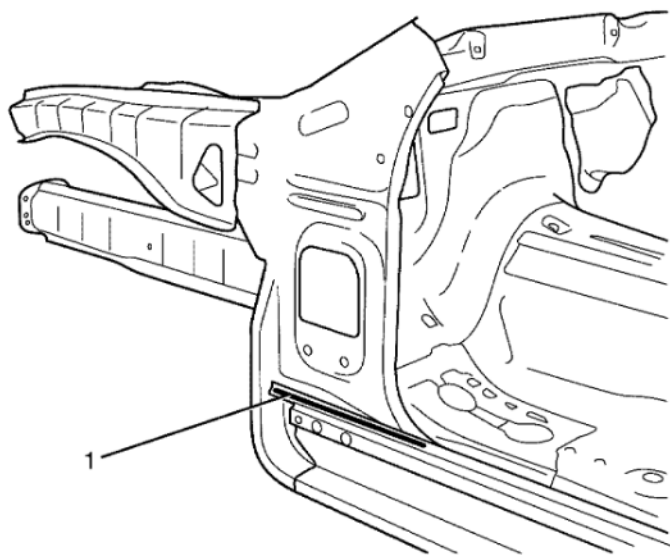
**Note:** Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of both parts of the body side panel assembly.

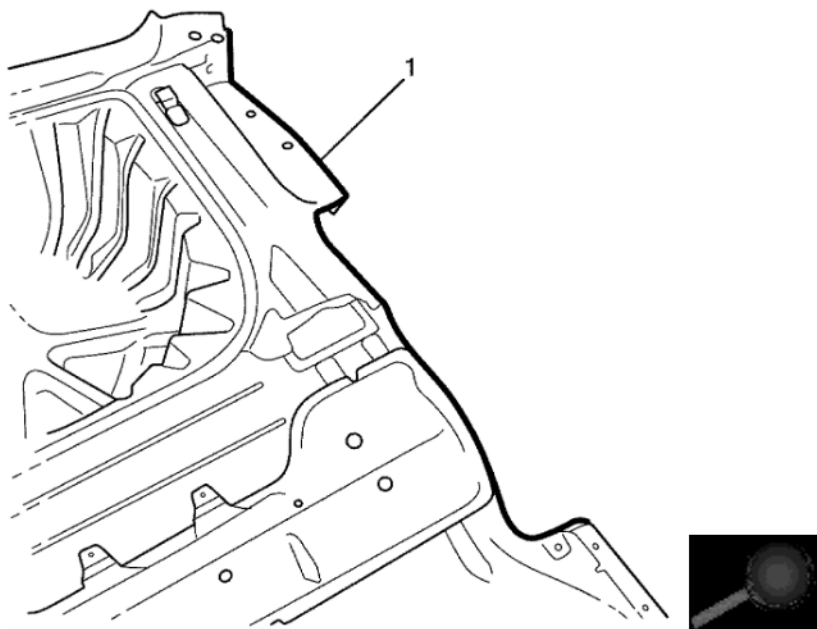
**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.



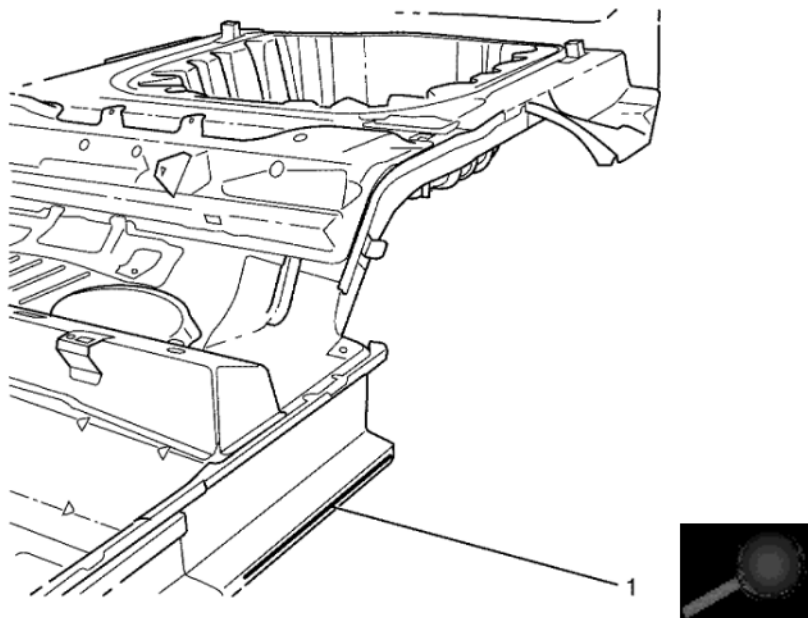
3. Install the un-expanded noise baffle (1) to the body side panel assembly.



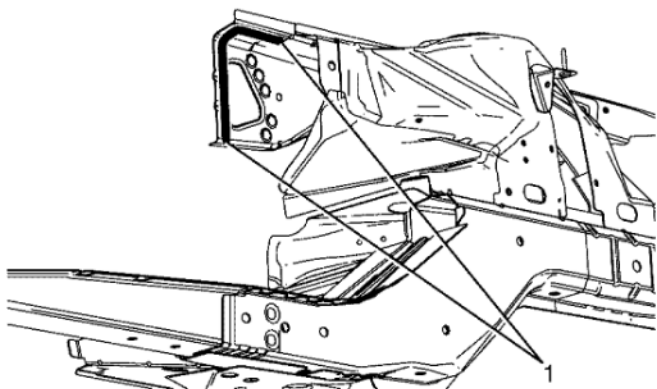
4. Apply the primary sealer to the top edge of the inner hinge pillar (1).



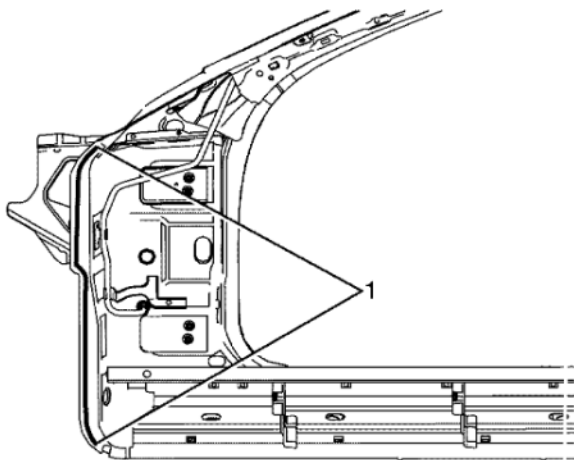
5. Apply the secondary sealer along the rear floor pan assembly (1).



6. Apply the primary sealer (1) between the inner rocker panel and the inner quarter panel.

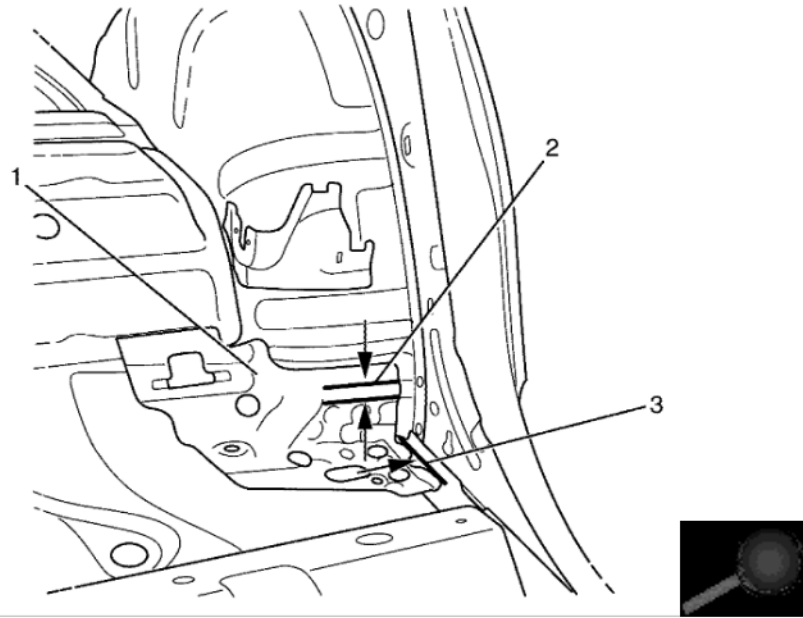


7. Apply the primary sealer along the rear edge of the upper wheelhouse brace (1).

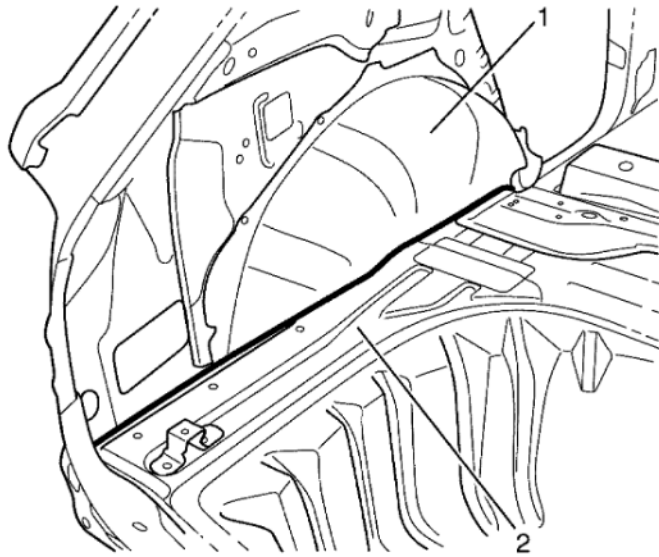


8. Apply the primary sealer along the lower hinge pillar (1).

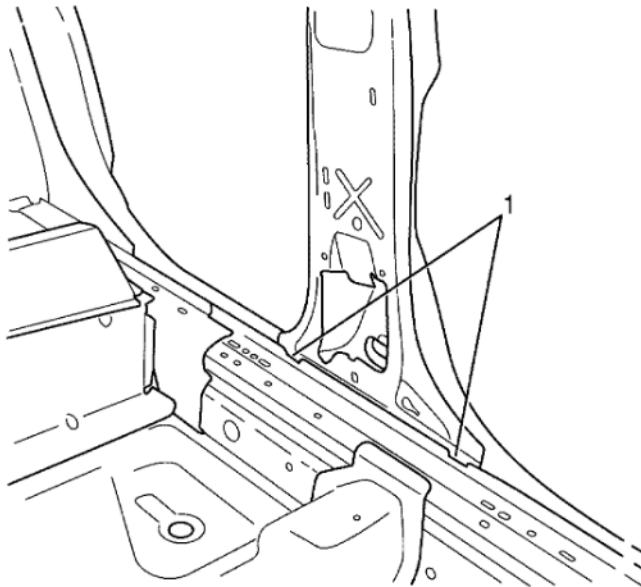




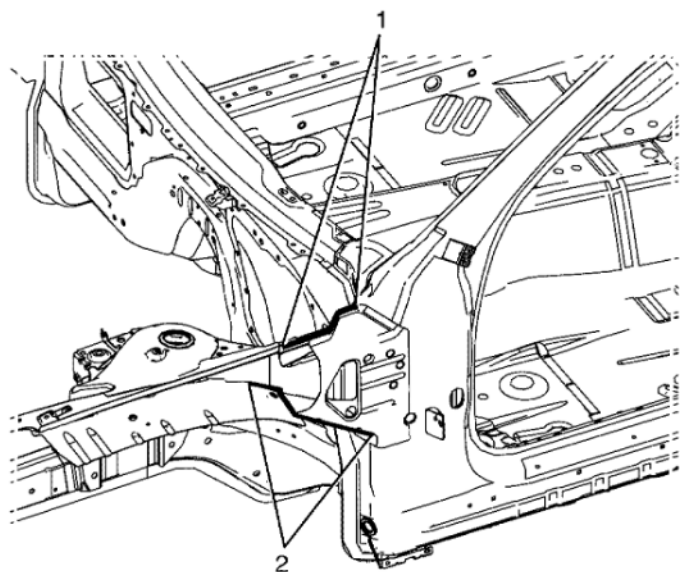
9. Align the body side panel assembly by positioning the rear wheelhouse inner panel front reinforcement flange (1) up against the inner rocker panel flange (3).
10. Align the body side panel assembly by positioning the rib in the rear wheelhouse inner panel front reinforcement (1) with the corresponding rib (2) in the rear wheelhouse inner panel.



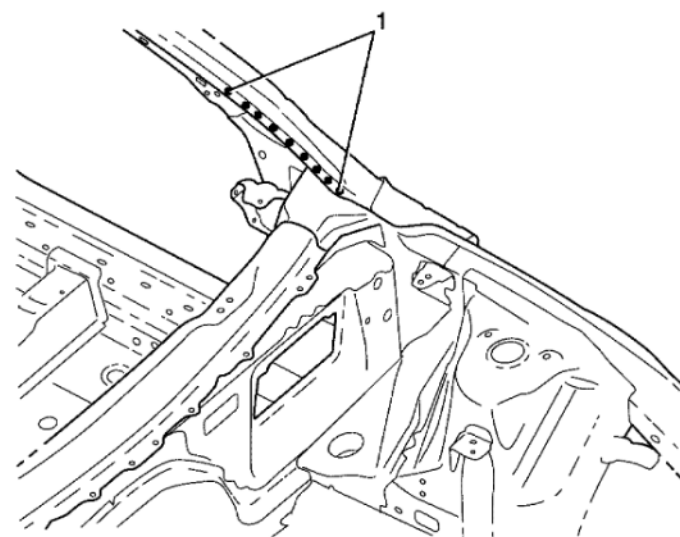
11. Align the body side panel assembly by positioning the inner wheelhouse panel (1) up against the rear floor panel (2).



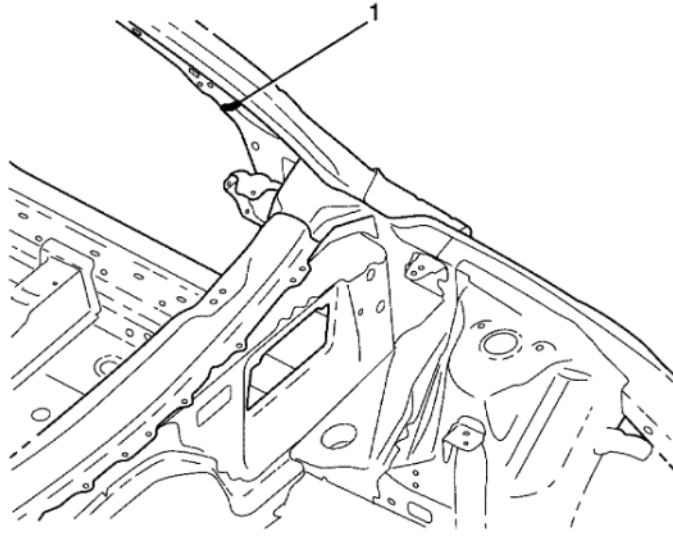
12. Align the body side panel assembly centre pillar to the indented flange on the inner rocker panel (1).



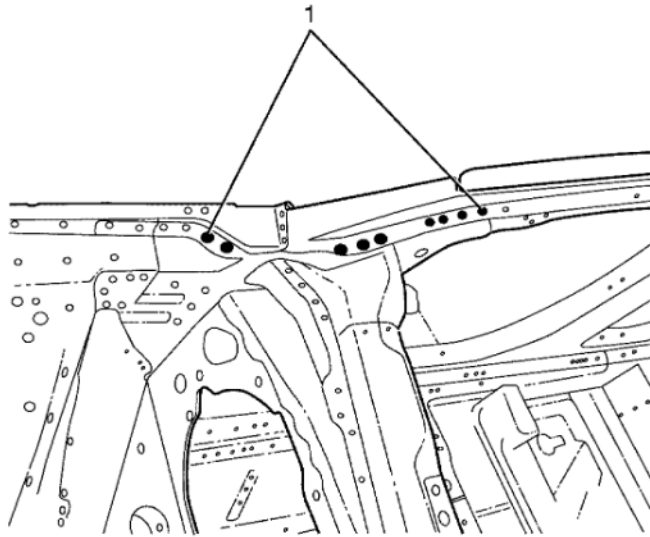
13. Align the body side panel hinge pillar (1) to the inner lower hinge pillar (2).



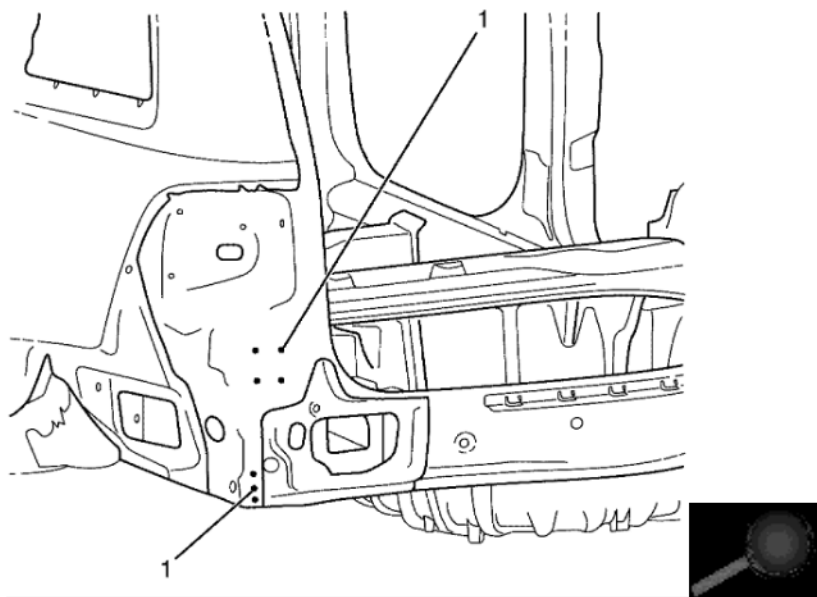
14. Weld the body side panel assembly to the front hinge pillar (1).



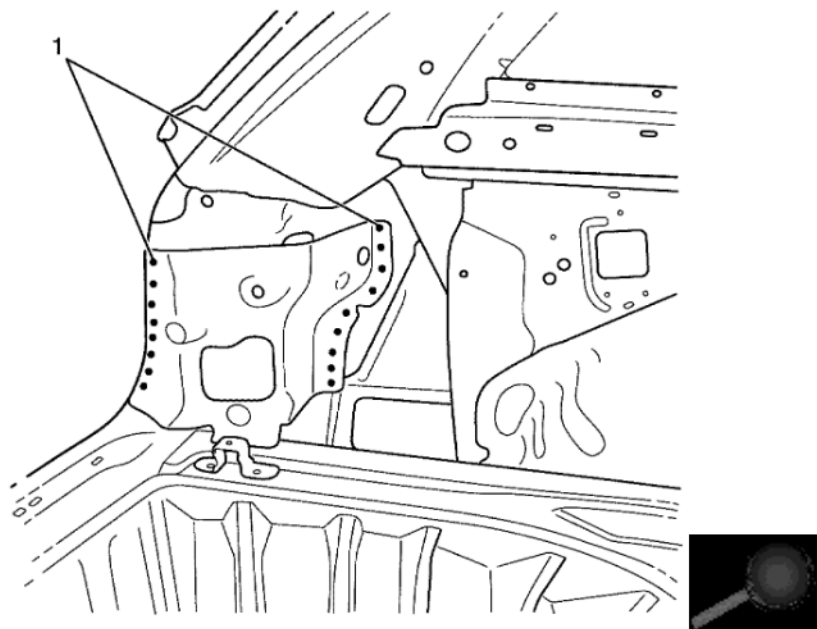
15. Seam weld the inner lower hinge pillar to inner upper hinge pillar (1) 60 mm (2.36 in) using a metal inert gas (MIG) welder.



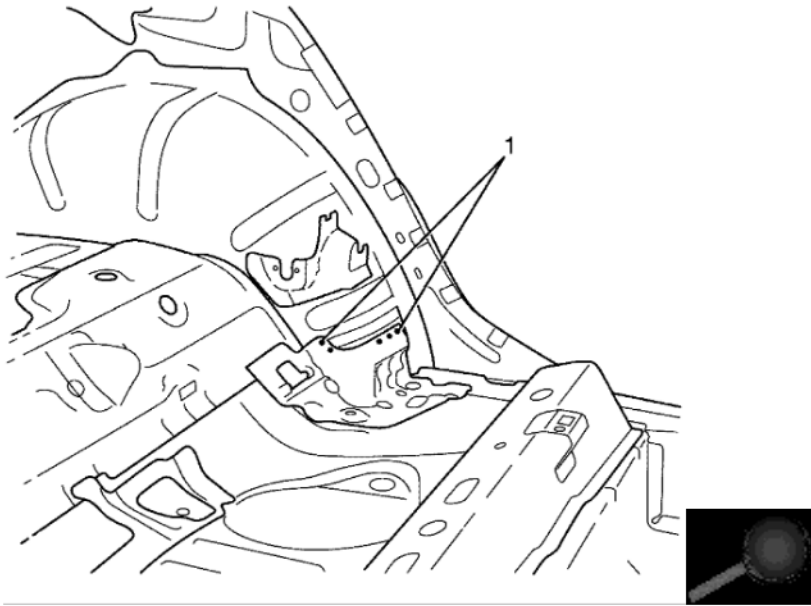
16. Weld the body side panel assembly to the front hinge pillar (1).



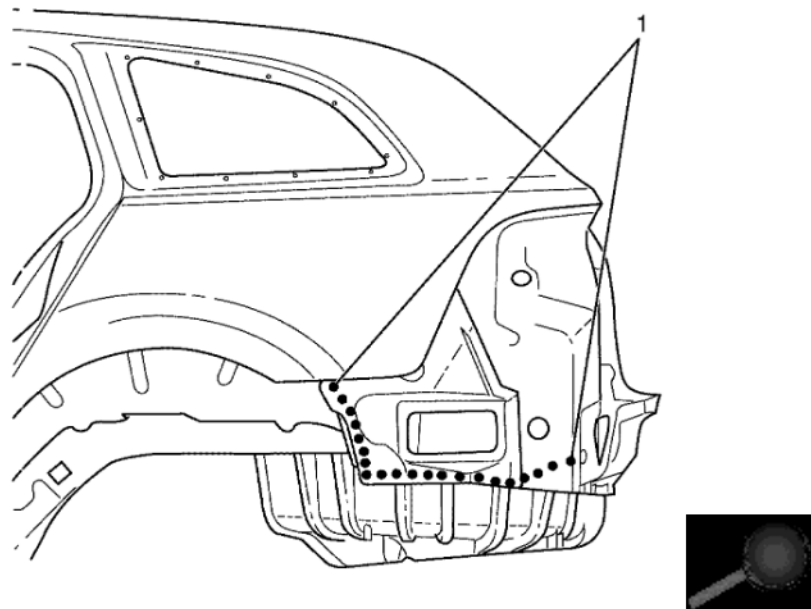
17. Weld the body side panel assembly to the rear floor panels (1).



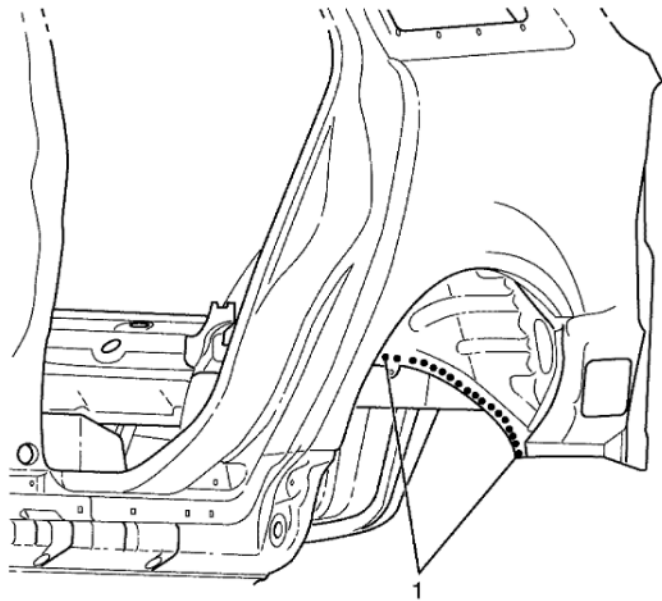
18. Weld the body side panel to the back body pillar inner lower panel (1).



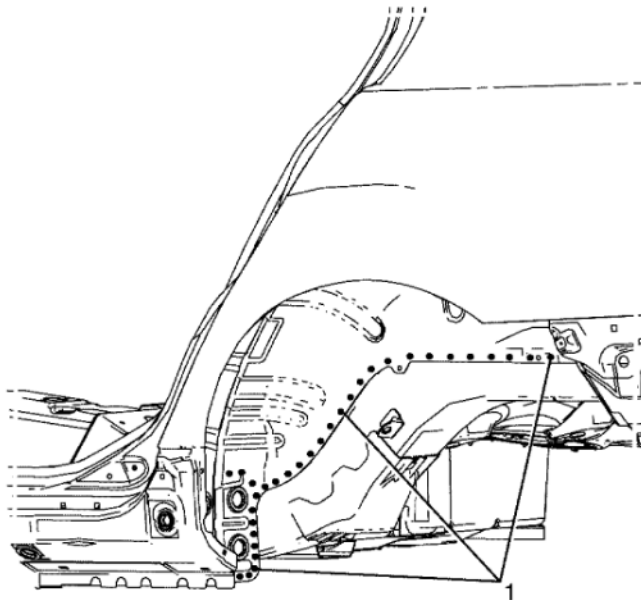
19. Weld the body side panel assembly to the rear wheelhouse inner panel front reinforcement (1).



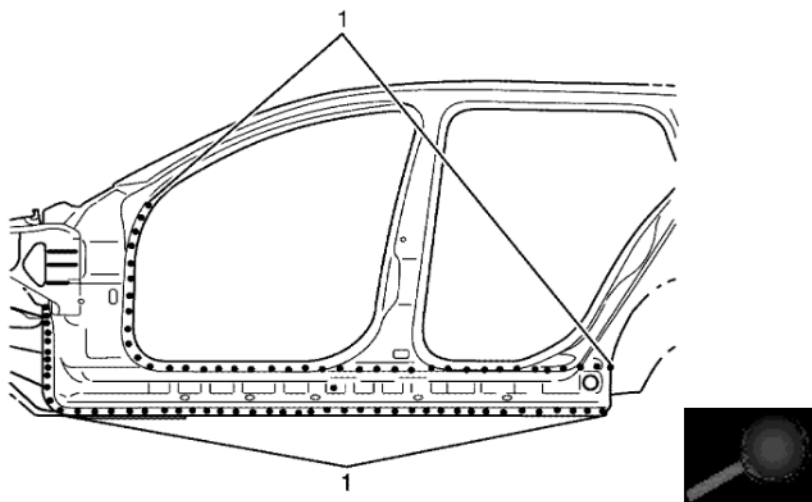
20. Weld the body side panel assembly to the rear floor panels (1).



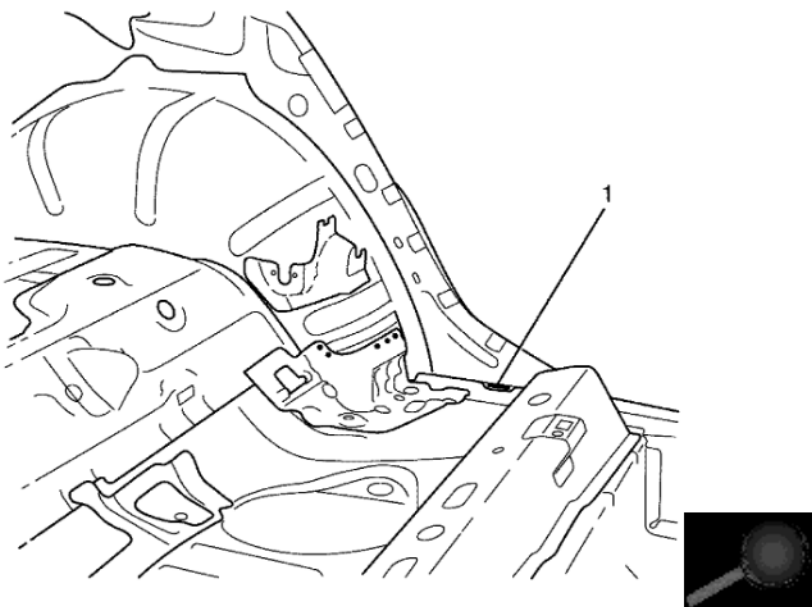
21. Weld the body side panel assembly to the rear floor panels (1).



22. Weld the body side panel assembly to the rear floor panels (1).

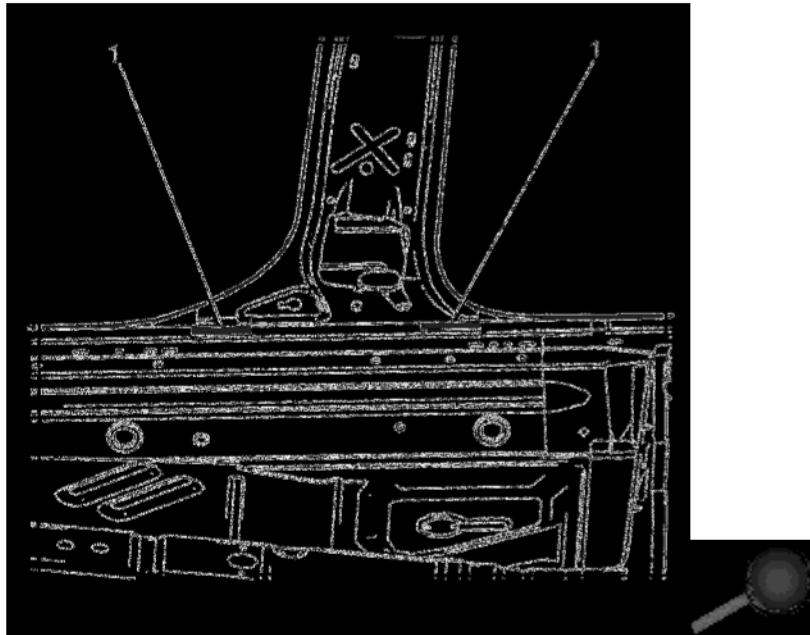


23. Weld the body side panel assembly to the vehicle (1).



24. Seam weld the body side panel assembly to the rear inner wheelhouse (1).





25. Seam weld the body side panel assembly to the inner rocker panel (1).
26. Install the Roof Rear Header Panel. Refer to [Roof Rear Header Panel Replacement](#).
27. Install the Roof Front Header Panel. Refer to [Roof Front Header Panel Replacement](#).
28. Install the Front Roof Panel Bow. Refer to [Roof Panel Bow Replacement](#).
29. Install the Rear Roof Panel Bow. Refer to [Roof Panel Bow Replacement](#).











## Side Door Opening Frame Replacement (Ute)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

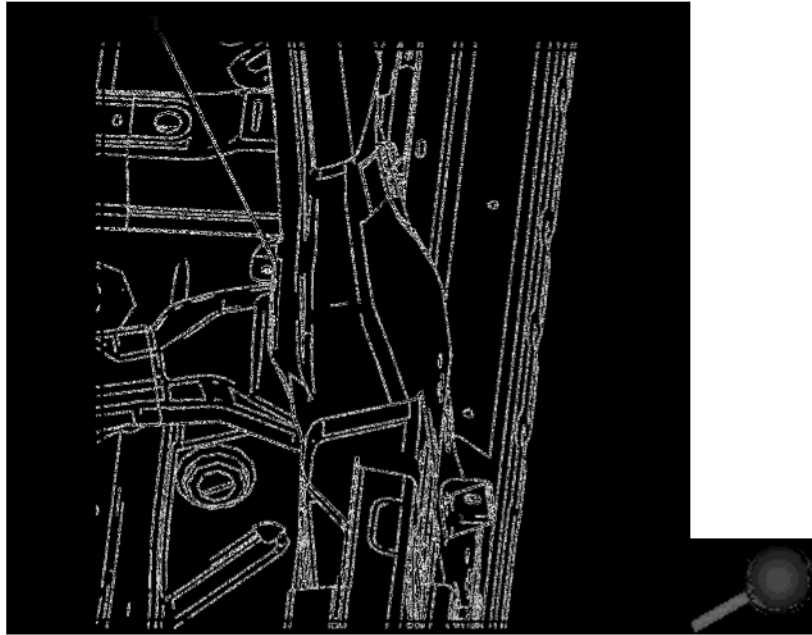
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the engine assembly. Refer to [Engine Replacement](#) for the V6 Engine or [Engine Replacement](#) for the V8 Engine.
4. Remove the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
5. Remove the brake master cylinder. Refer to [Master Cylinder Replacement](#).
6. Remove the vacuum brake booster. Refer to [Power Vacuum Brake Booster Replacement](#).
7. Remove the engine control module. Refer to [Engine Control Module Replacement](#) for the V6 Engine or [Engine Control Module Replacement](#) for the V8 Engine.
8. Remove the underhood electrical centre. Refer to [Accessory Wiring Junction Block Replacement](#).
9. Remove the negative battery cable from the engine bay. Refer to [Battery Negative Cable Replacement](#).
10. Remove the positive battery cable from the engine bay. Refer to [Battery Positive Cable Replacement](#).
11. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
12. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
13. Remove the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
14. Remove the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
15. Remove the front bumper fascia. Refer to [Front Bumper Fascia Replacement](#).
16. Remove the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
17. Remove the front fender assembly. Refer to [Front Fender Replacement](#).

18. Remove the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
19. Remove the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
20. Remove the cargo liner. Refer to [Cargo Box Liner Replacement](#).
21. Remove the exterior vent outlet valve. Refer to [Quarter Inner Panel Access Hole Cover Replacement](#).
22. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
23. Remove the rear frame assembly. Refer to [Rear Frame Replacement](#).
24. Remove the filler tube. Refer to [Filler Tube Replacement](#).
25. Remove the fuel filler door. Refer to [Fuel Tank Filler Door Replacement](#).
26. Remove the fuel filler door release actuator. Refer to [Fuel Tank Filler Door Latch Replacement](#).
27. Remove the fuel lines. Refer to [Fuel Line Replacement - Chassis](#) for the V6 Engine or [Fuel Line Replacement - Chassis](#) for the V8 Engine.
28. Remove the fuel tank. Refer to [Fuel Tank Replacement](#).
29. Remove the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
30. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
31. Remove the plenum chamber. Refer to [Air Inlet Housing Replacement](#).
32. Remove the front doors. Refer to [Front Side Door Replacement](#).
33. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
34. Remove the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
35. Remove the instrument panel carrier. Refer to [Instrument Panel Assembly Replacement](#).
36. Remove the HVAC module assembly. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).
37. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
38. Remove the remote control door lock receiver. Refer to [Remote Control Door Lock Receiver Replacement](#).
39. Remove the positive battery cable from the vehicle. Refer to [Battery Positive Cable Replacement](#).
40. Remove the roof outer panel. Refer to [Roof Panel Replacement](#).
41. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
42. Remove the rocker panel moulding. Refer to [Rocker Panel Molding Replacement](#).
43. Remove the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
44. Remove the rear header trim. Refer to [Roof Rear Header Panel Replacement](#).
45. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding](#)

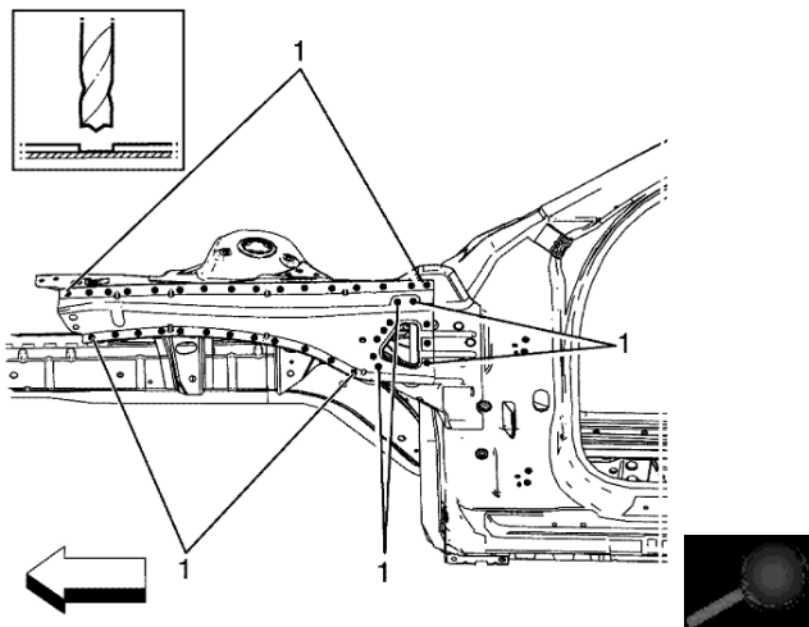


[Replacement.](#)

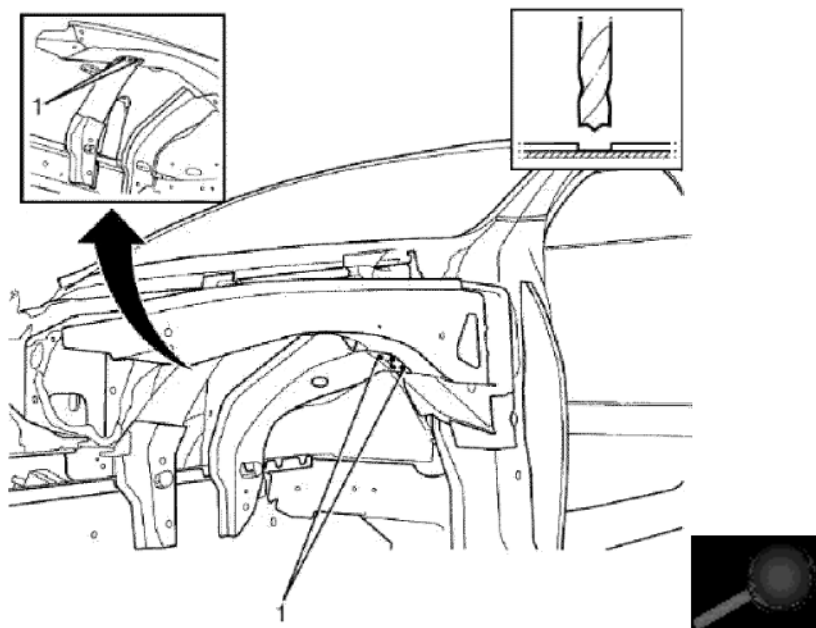
46. Remove the body lock pillar trim. Refer to [Quarter Window Rear Reveal Molding Replacement](#).
47. Remove the endgate. Refer to [Endgate Replacement](#).
48. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



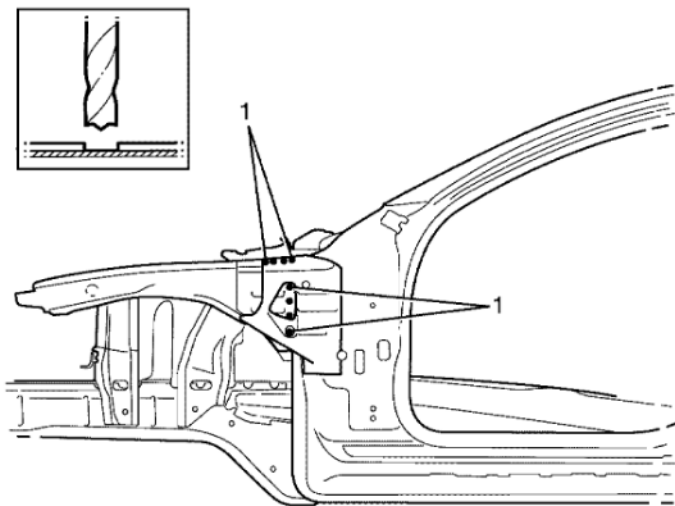
49. Remove the body side panel to upper dash panel body sealer (1).



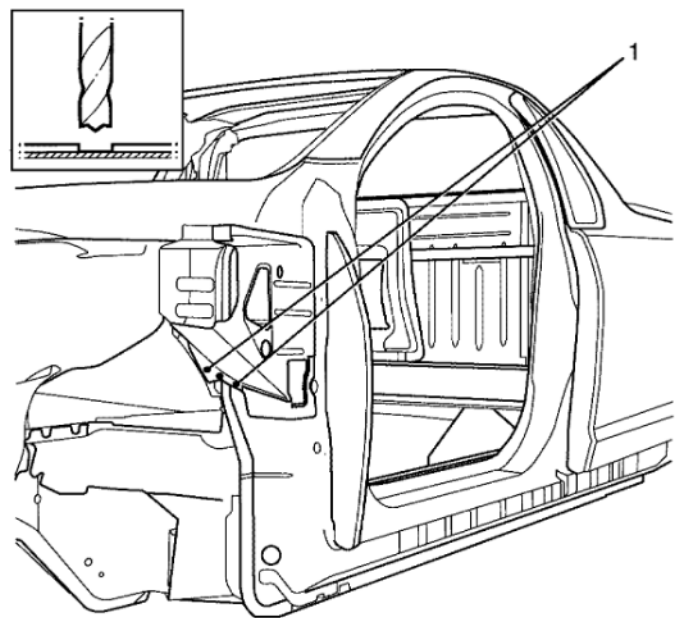
50. Locate, mark and drill out the factory welds attaching the upper wheelhouse brace to the front wheelhouse assembly (1).



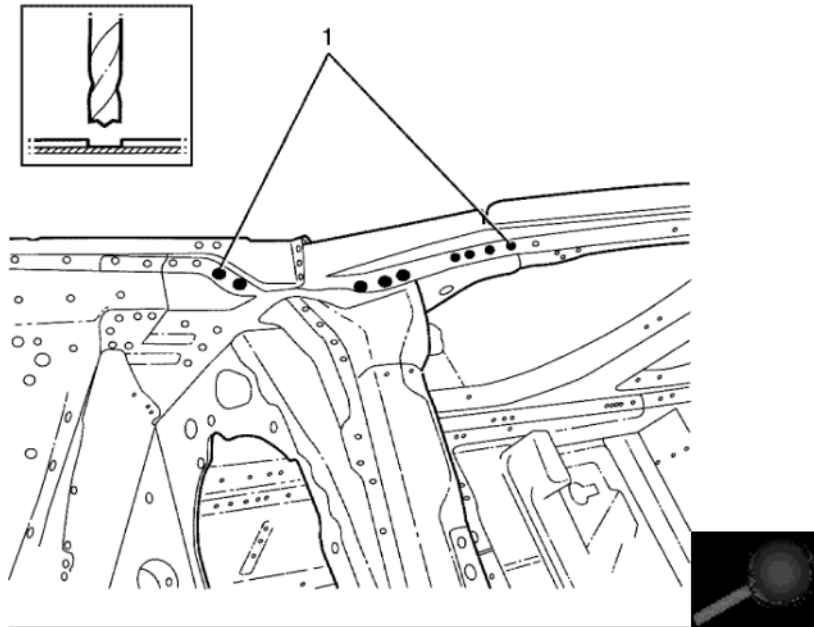
51. Locate, mark and drill out the factory welds attaching the upper wheelhouse brace to the front hinge pillar (1).



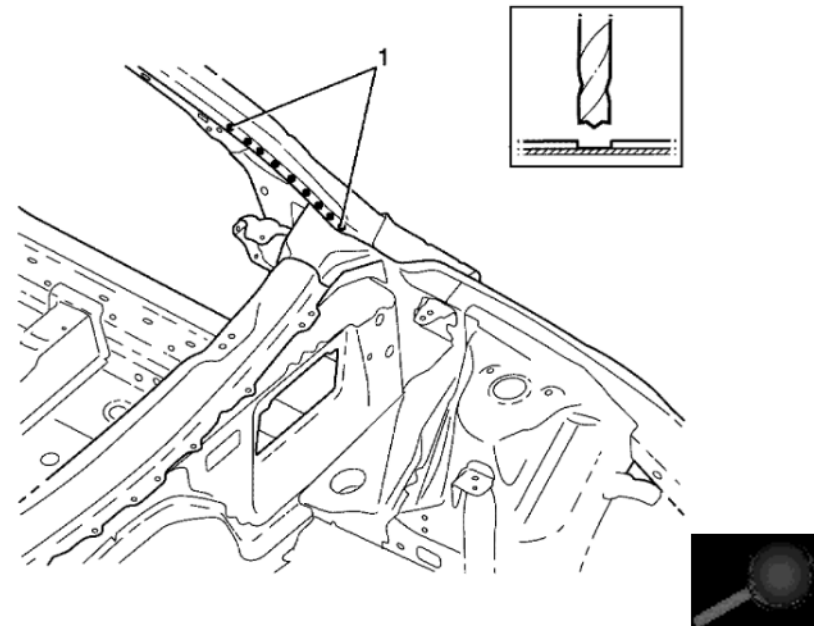
52. Locate, mark and remove the factory seam welds attaching the body side panel assembly to the front hinge pillar(1).
53. Remove the upper wheelhouse brace from the front wheelhouse assembly.



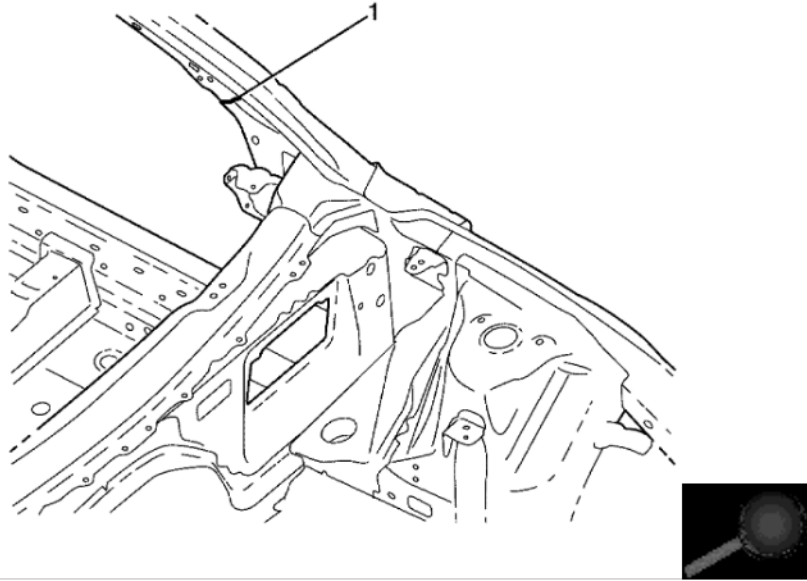
54. Locate, mark and drill out the factory welds attaching the upper wheelhouse brace to the front hinge pillar (1).



55. Locate, mark and drill out the factory welds attaching the body side panel assembly to the front hinge pillar (1).



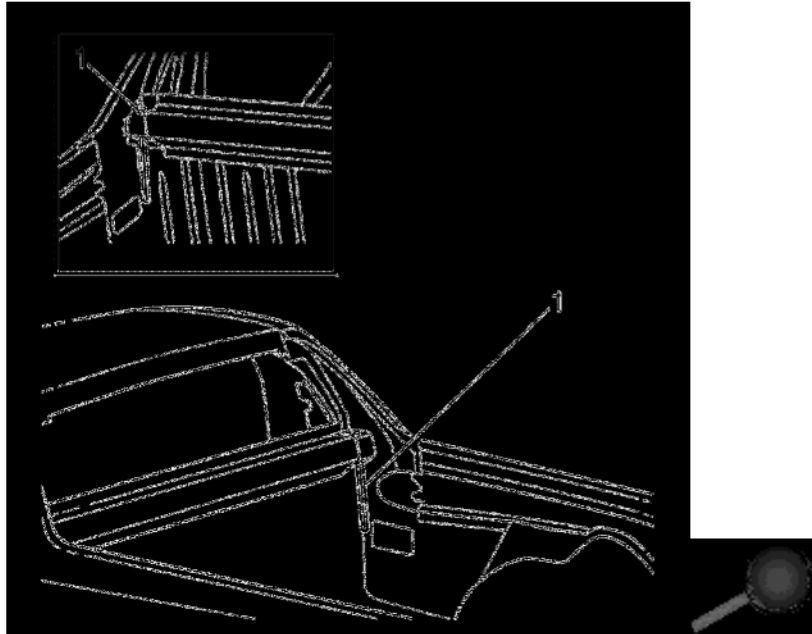
56. Locate, mark and drill out the factory welds attaching the body side panel assembly to the vehicle (1).



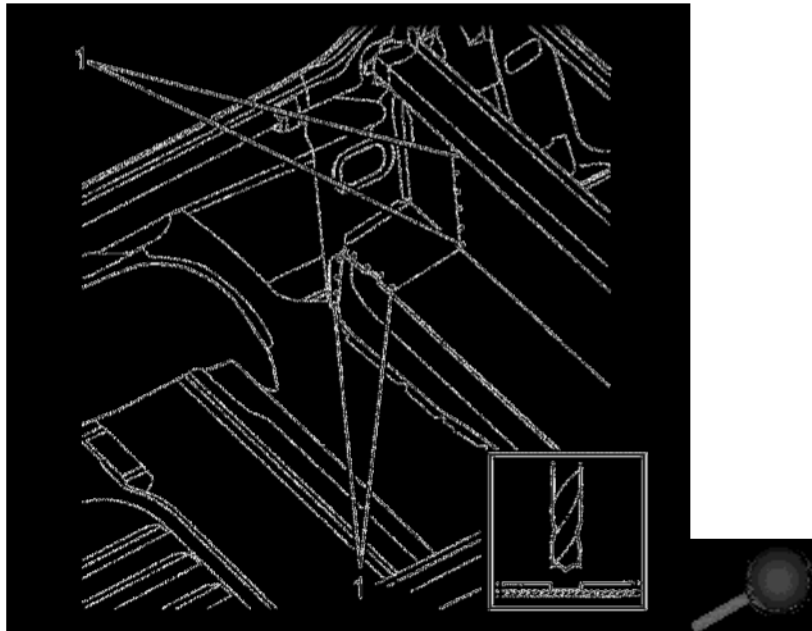
57. Locate, mark and remove the factory welds attaching the body side panel assembly to the vehicle (1).



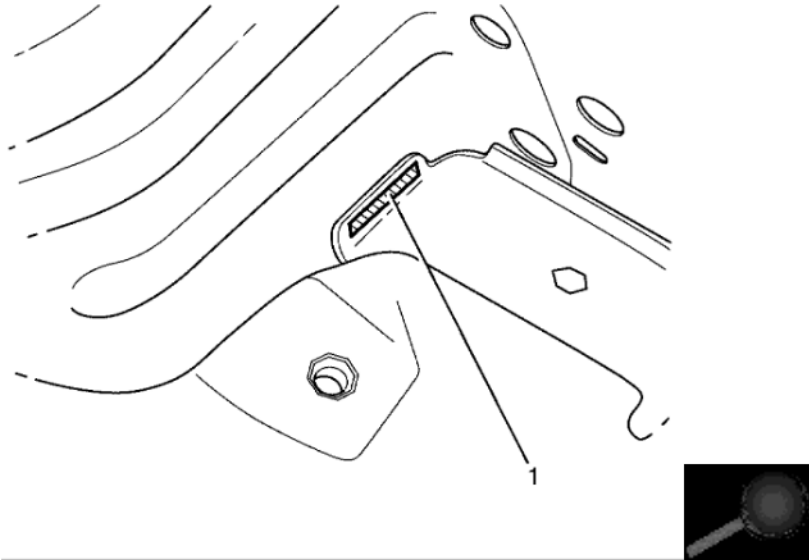
58. Locate, mark and drill out the factory welds attaching the body side panel assembly to both roof header panels (1).



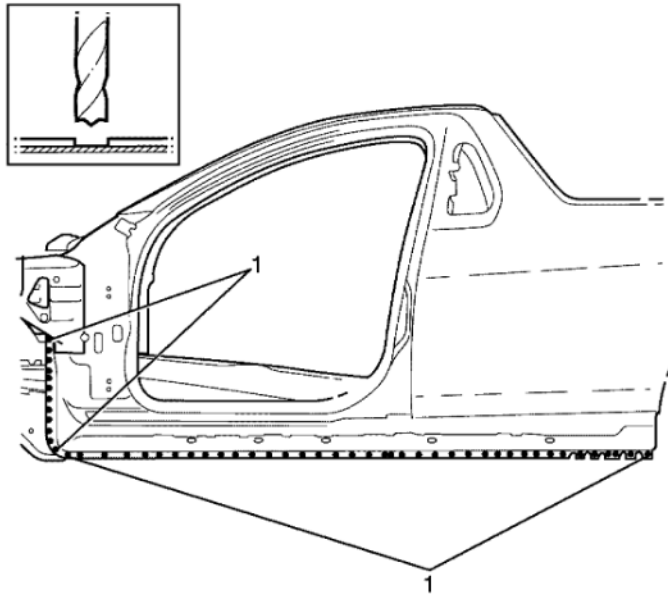
59. Remove the rear window panel drain tube (1) from the rear window panel reinforcement.



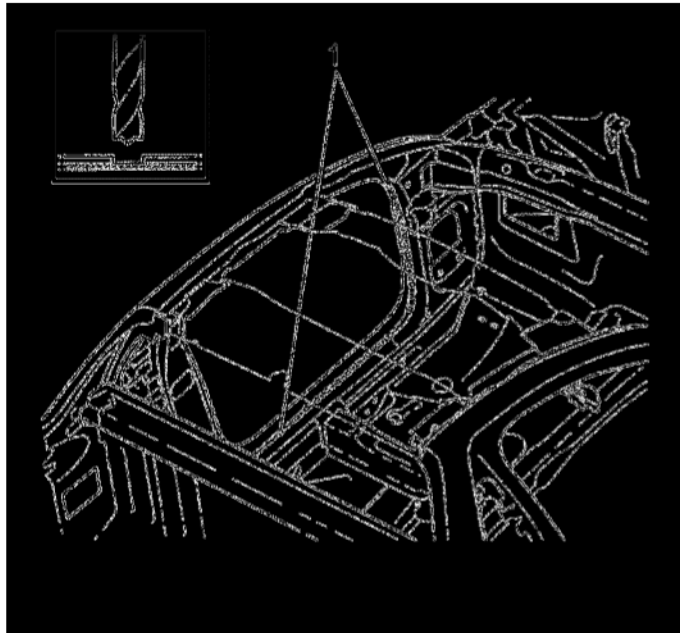
60. Locate, mark and drill out the factory welds attaching the body side panel assembly to the seat back panel assembly and the underbody assembly (1).



61. Locate, mark and remove the structural adhesive (1) attaching the body side panel assembly to the inner guard assembly.

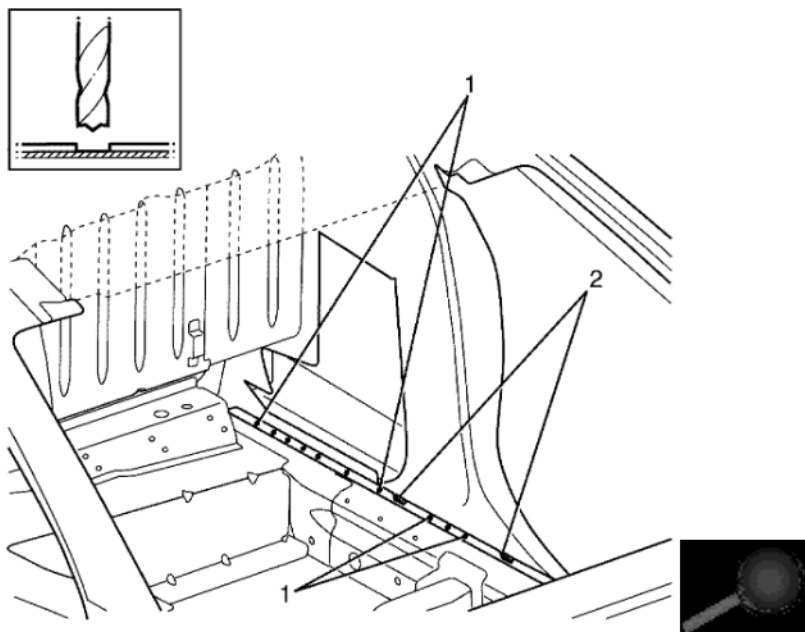


62. Locate, mark and drill out the factory welds attaching the body side panel assembly to the vehicle (1).

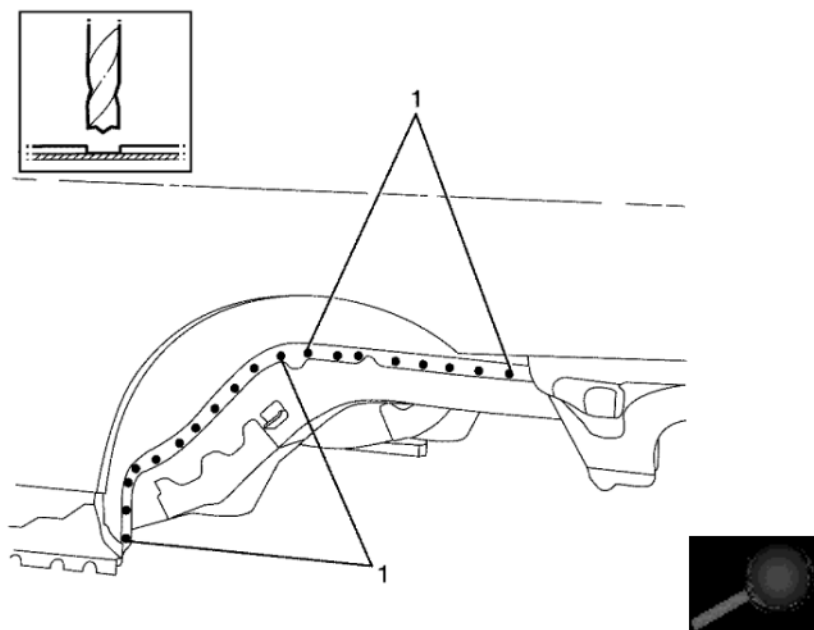


63. Locate, mark and drill out the factory welds attaching the body side panel assembly to the vehicle (1).

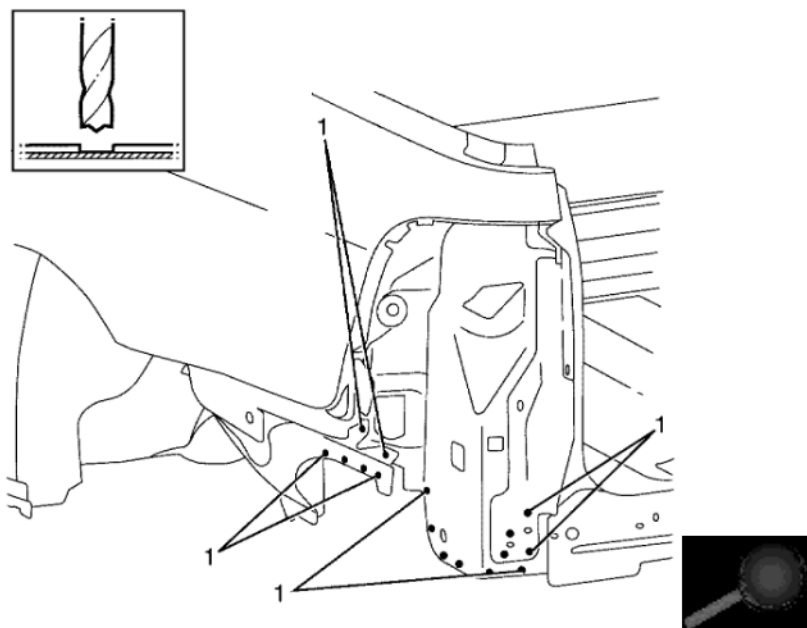




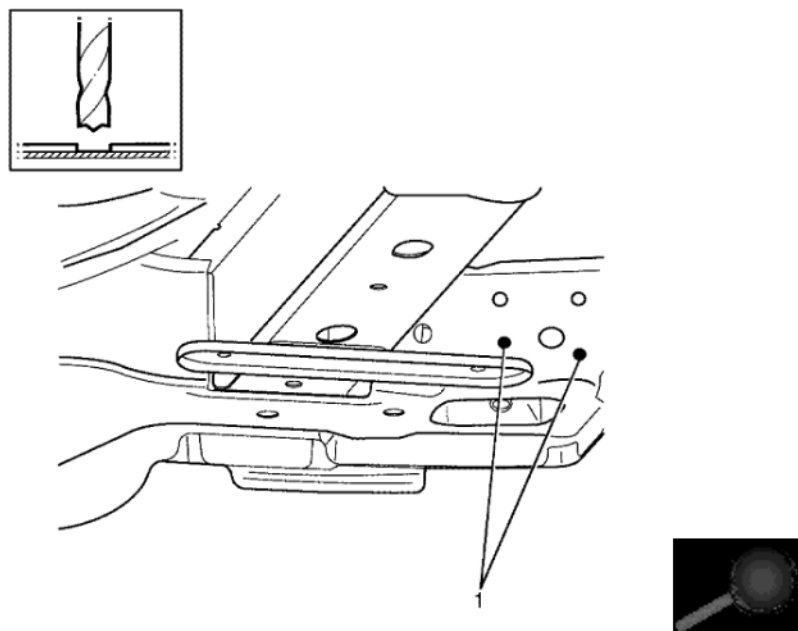
64. Locate, mark and drill out the factory welds attaching the body side panel assembly to the body side (1). Locate, mark and remove the factory welds attaching the body side panel assembly to the body side (2).



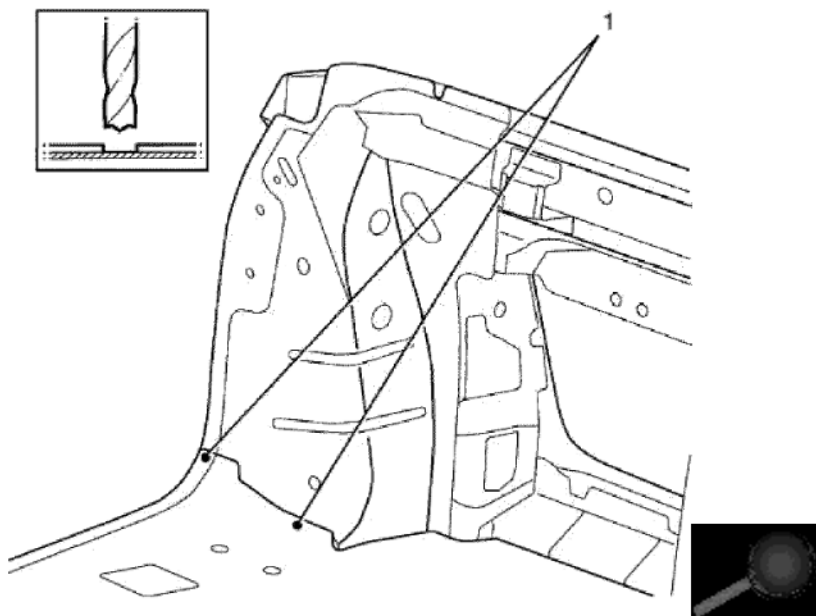
65. Locate, mark and drill out the factory welds attaching the body side panel assembly to the inner rear wheelhouse (1).



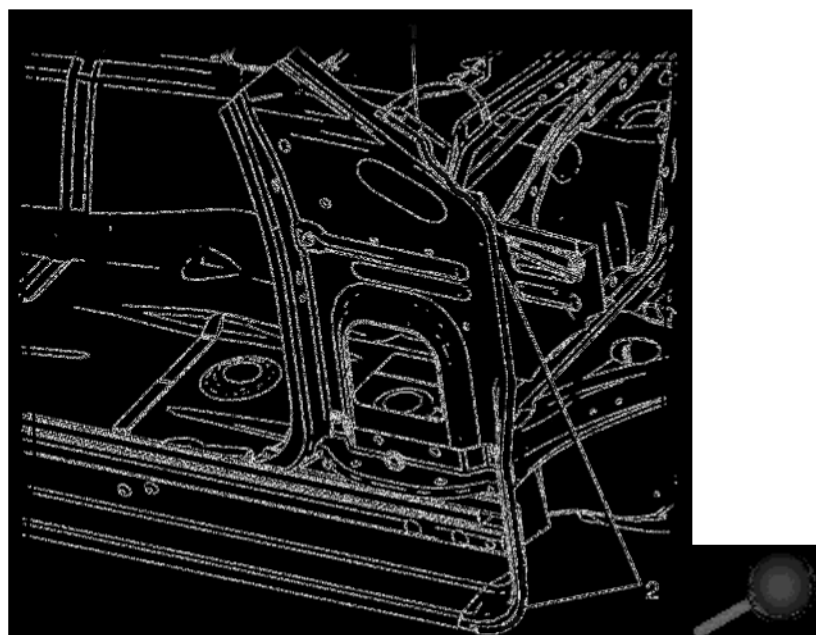
66. Locate, mark and drill out the factory welds attaching the body side panel assembly to the rear end panel (1).



67. Locate, mark and drill out the factory welds attaching the body side panel assembly to the rear crossmember (1).



68. Locate, mark and drill out the factory welds attaching the body side panel assembly to the rear floor panel (1).
69. Remove the body side panel from the vehicle.



**Note:** Clean all adhesive mating surfaces in accordance with the adhesive manufacturer's specifications.

70. Remove the sealer (1) from the front plenum panel.

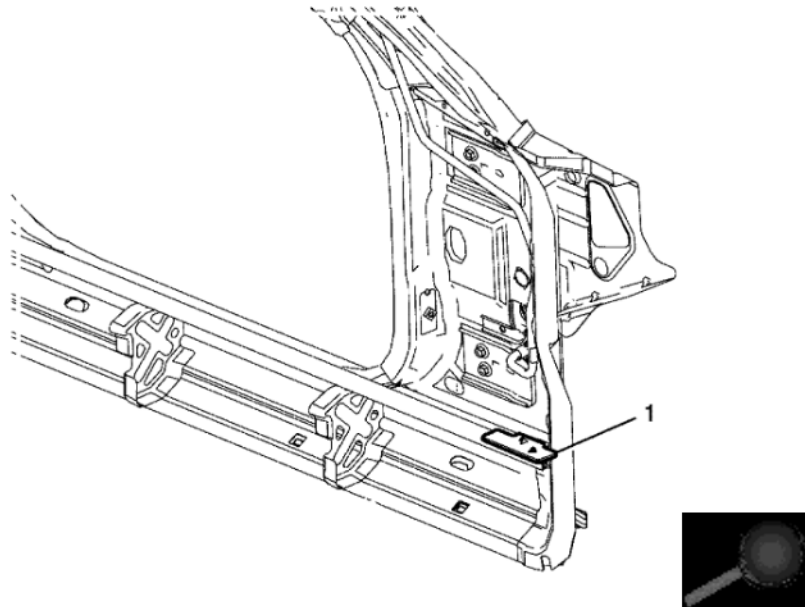
71. Remove the seam sealer (2) from the body side.

### Installation Procedure

**Note:**

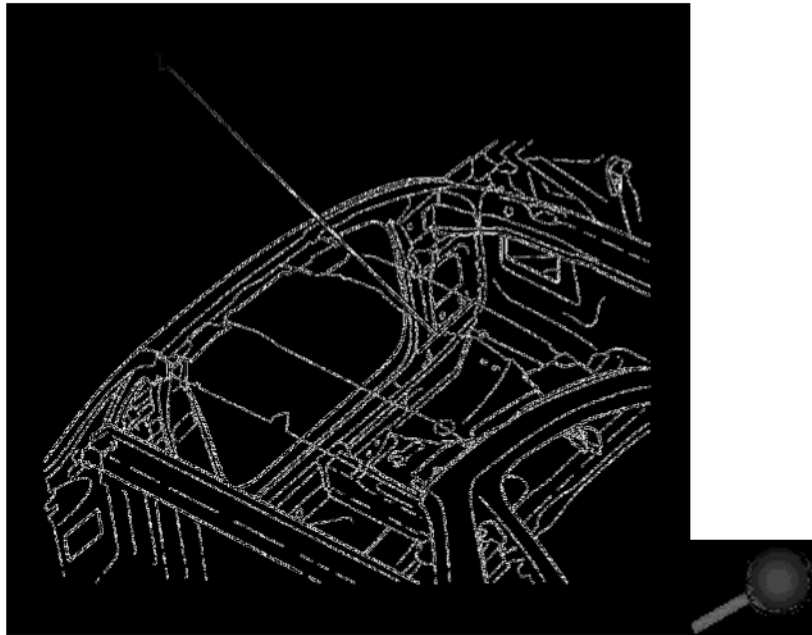
- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of both parts of the body side panel assembly.

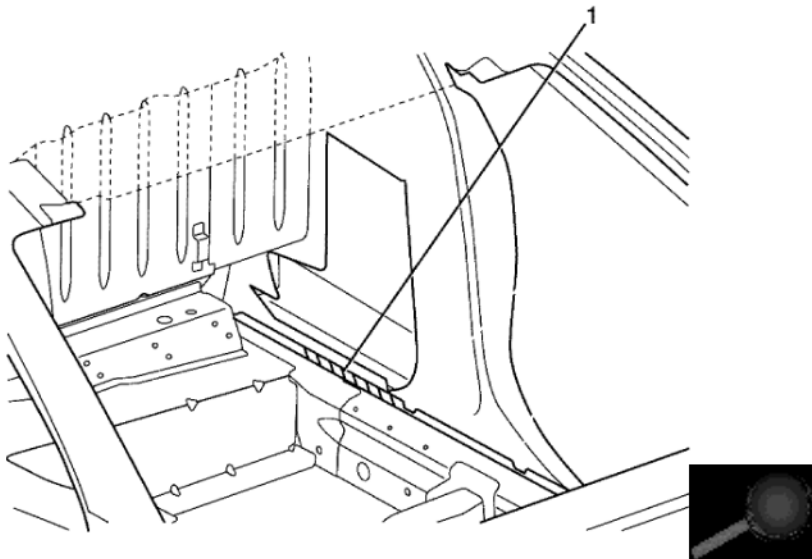


**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

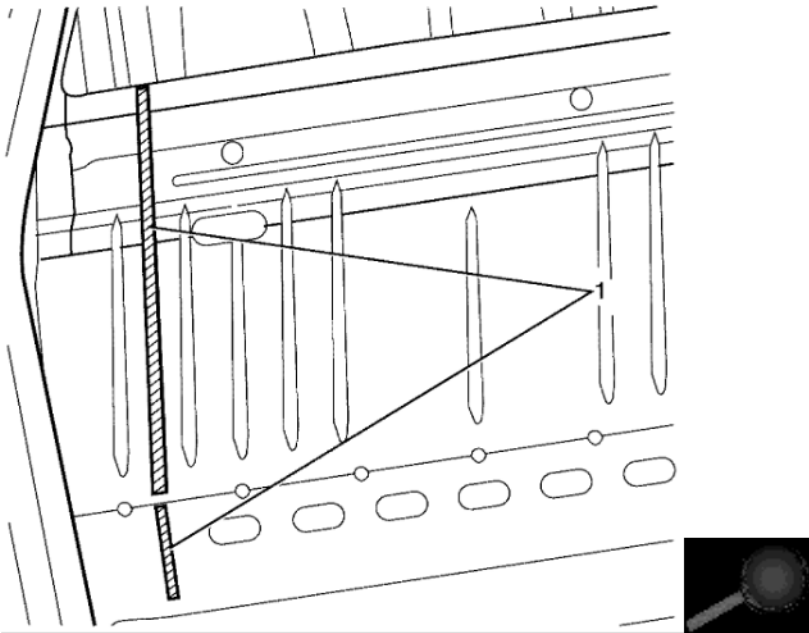
3. Install the un-expanded noise baffle (1) to the body side panel assembly.



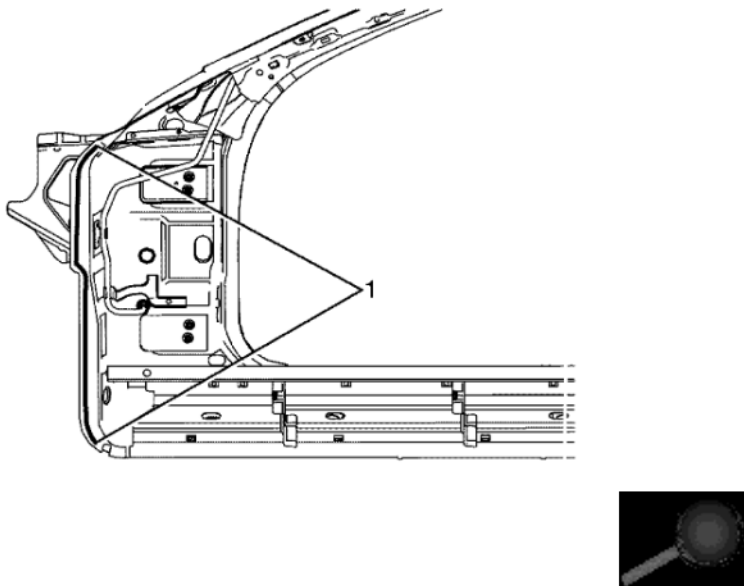
4. Apply an approved structural adhesive to the top edge of the inner hinge pillar (1).



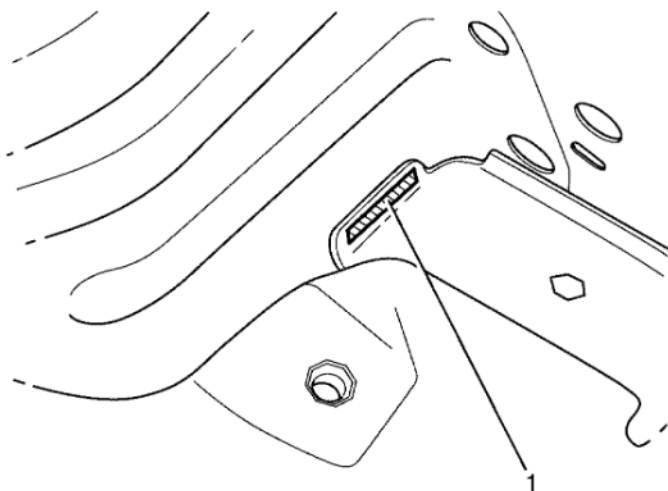
5. Apply an approved structural adhesive to the body side (1).



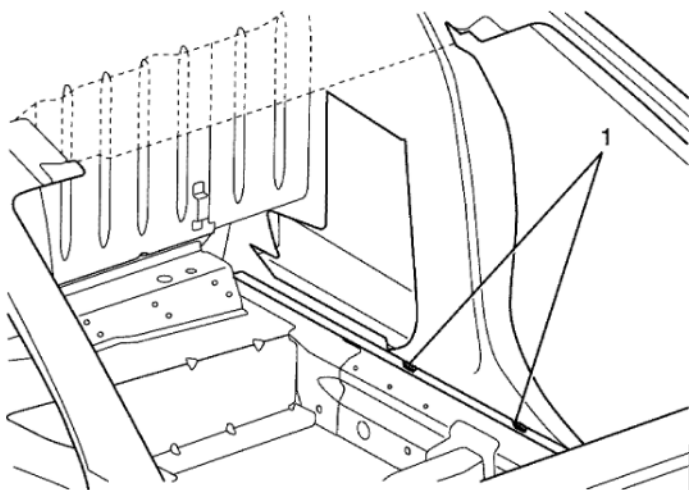
6. Apply an approved structural adhesive to the seat back panel assembly and the underbody assembly (1).



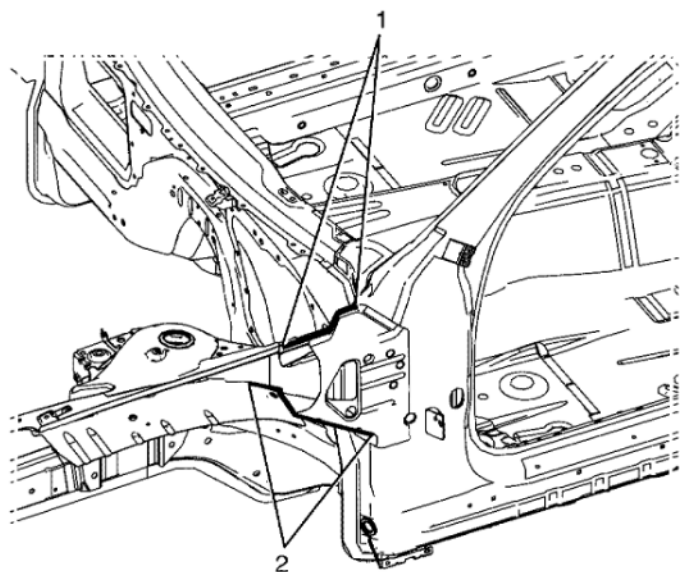
7. Apply the primary sealer along the lower hinge pillar (1).



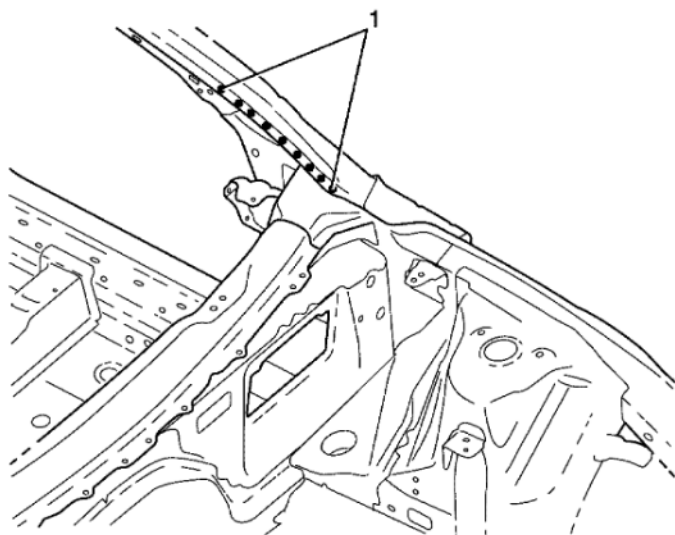
8. Apply an approved structural adhesive to the inner wheelhouse (1).



9. Align the body side panel assembly centre pillar to the indented flange on the inner rocker panel (1).

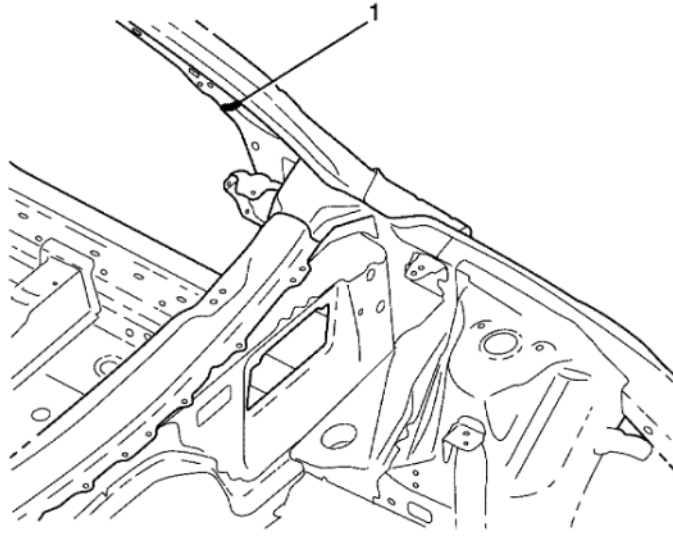


10. Align the body side panel hinge pillar (1) to the inner lower hinge pillar (2).

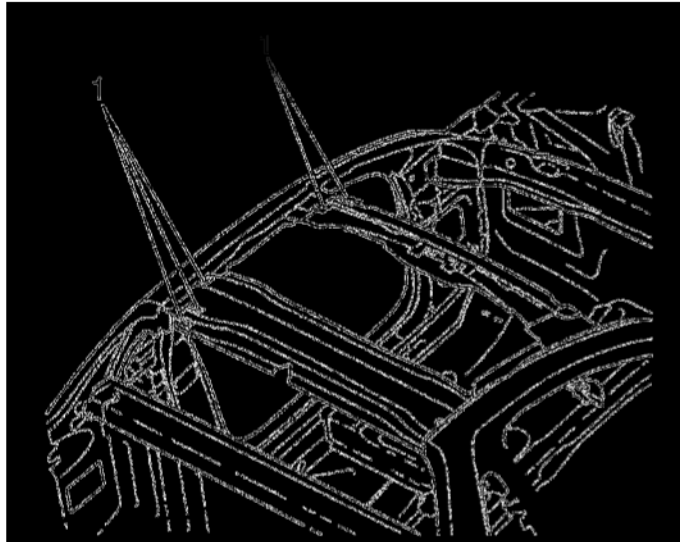


11. Weld the body side panel assembly to the front hinge pillar (1).

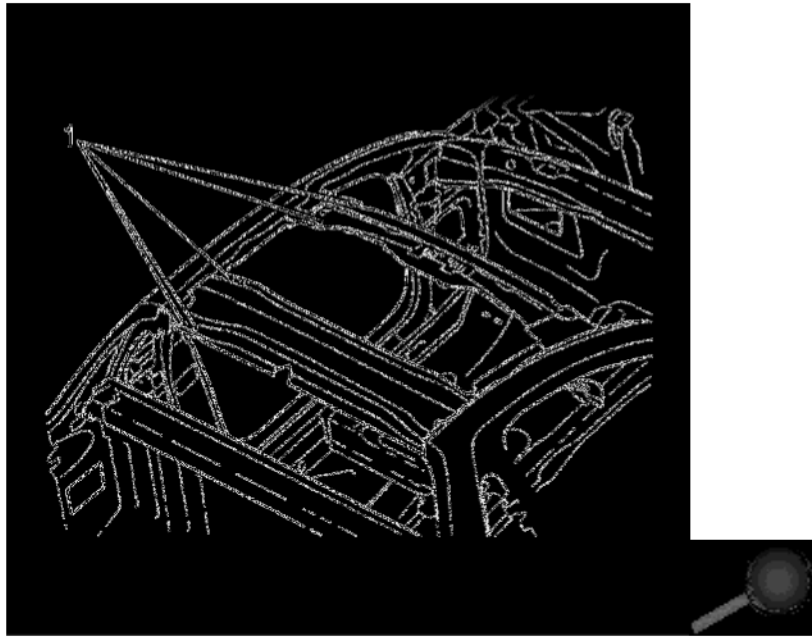




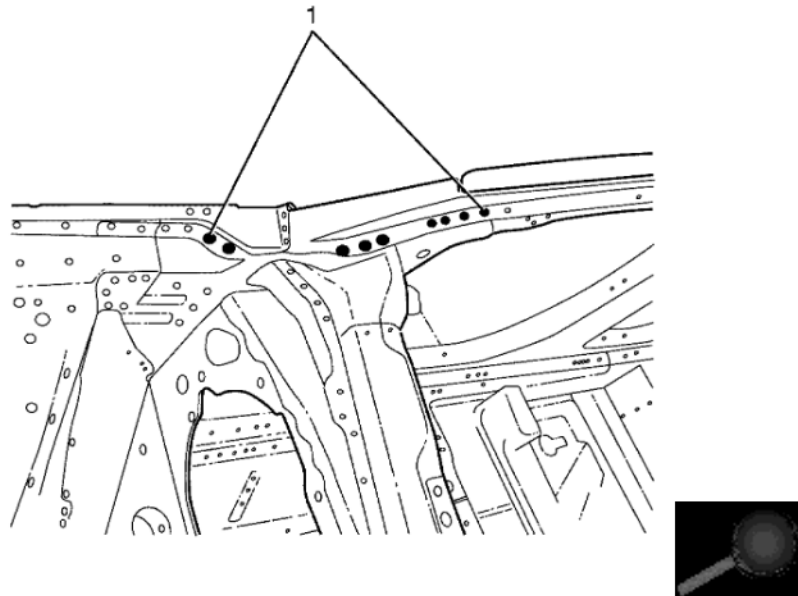
12. Seam weld the inner lower hinge pillar to inner upper hinge pillar (1) 60 mm (2.36 in) using a metal inert gas (MIG) welder.



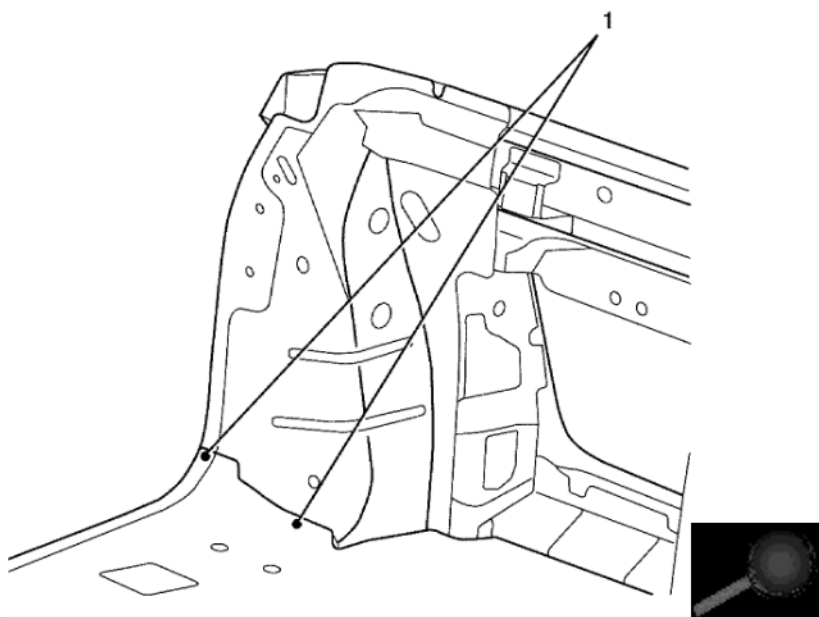
13. Apply an approved structural adhesive to the bottom edge of roof header panels (1).



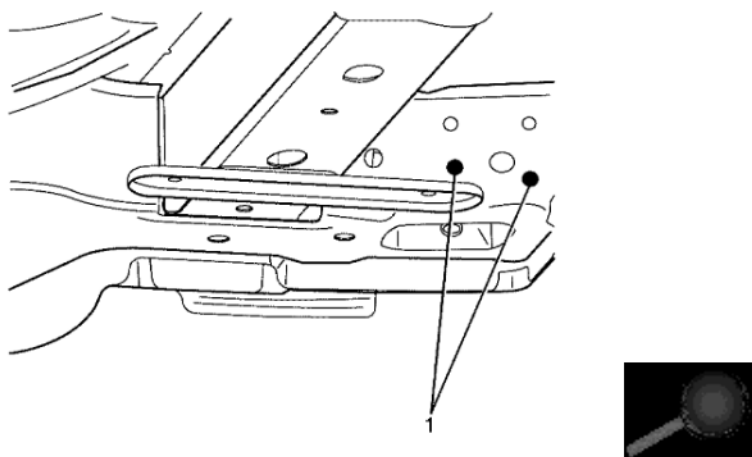
14. Weld the body side panel assembly to both roof header panels (1).



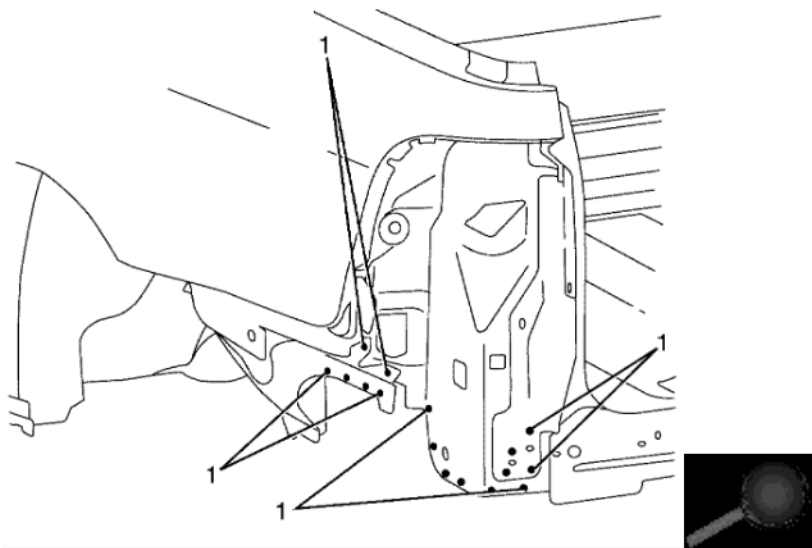
15. Weld the body side panel assembly to the front hinge pillar (1).



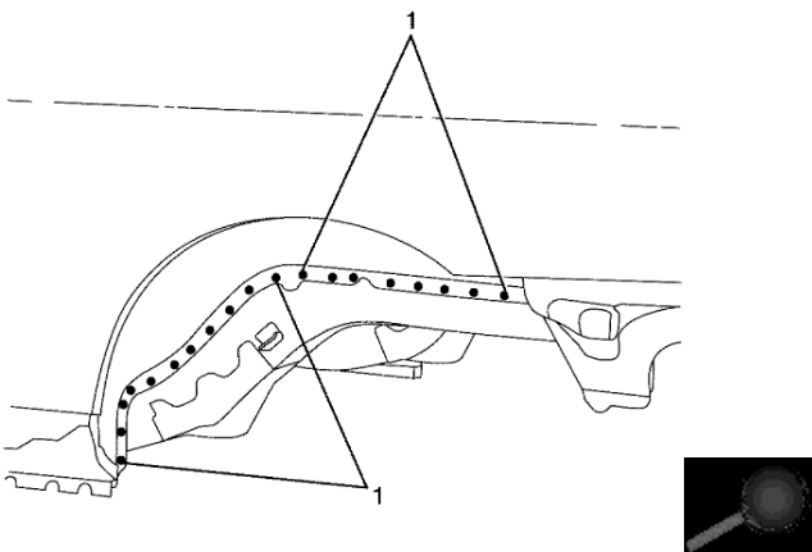
16. Weld the body side panel assembly to the rear floor panel (1).



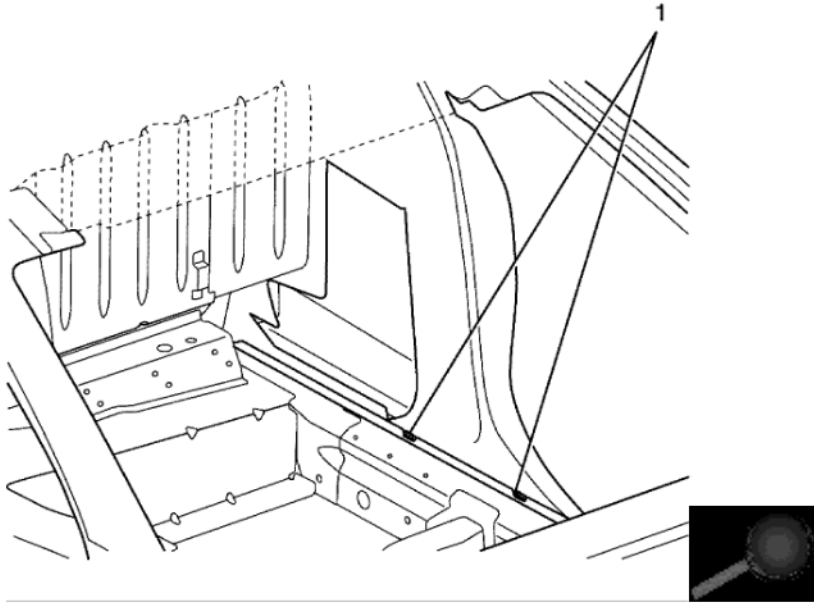
17. Weld the body side panel assembly to the rear crossmember (1).



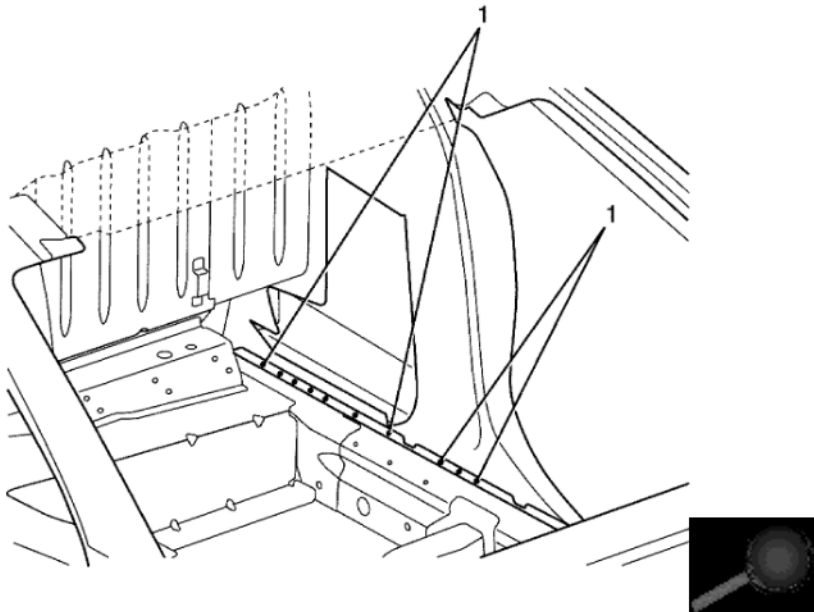
18. Weld the body side panel assembly to the rear end panel (1).



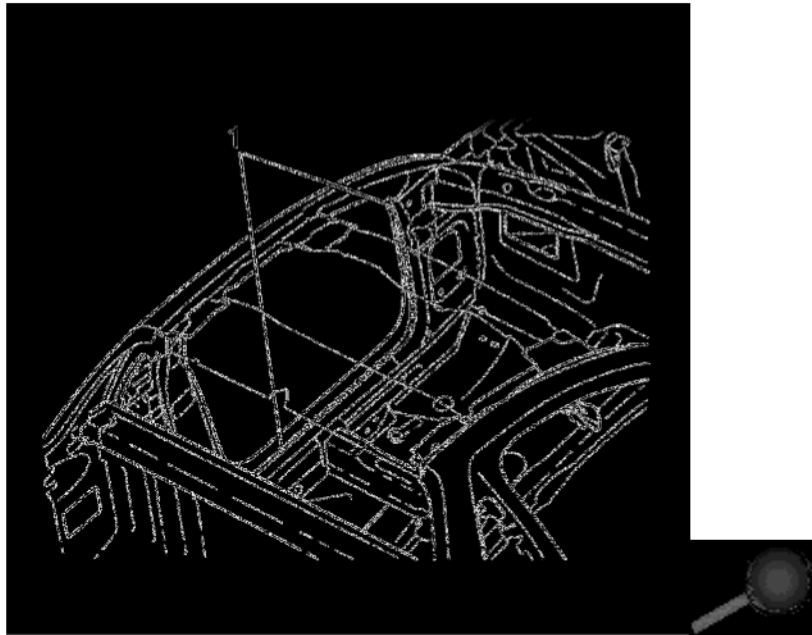
19. Weld the body side panel assembly to the inner rear wheelhouse (1).



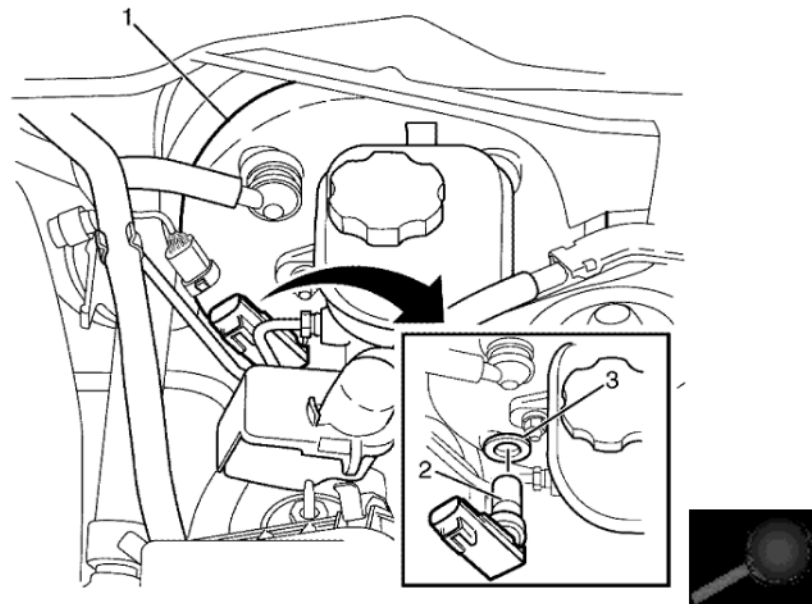
20. Puddle weld the body side panel assembly to the body side (1).



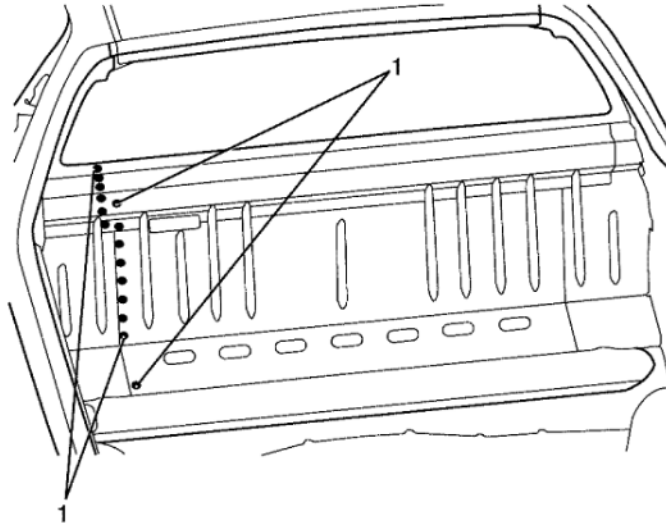
21. Weld the body side panel assembly to the body side (1).



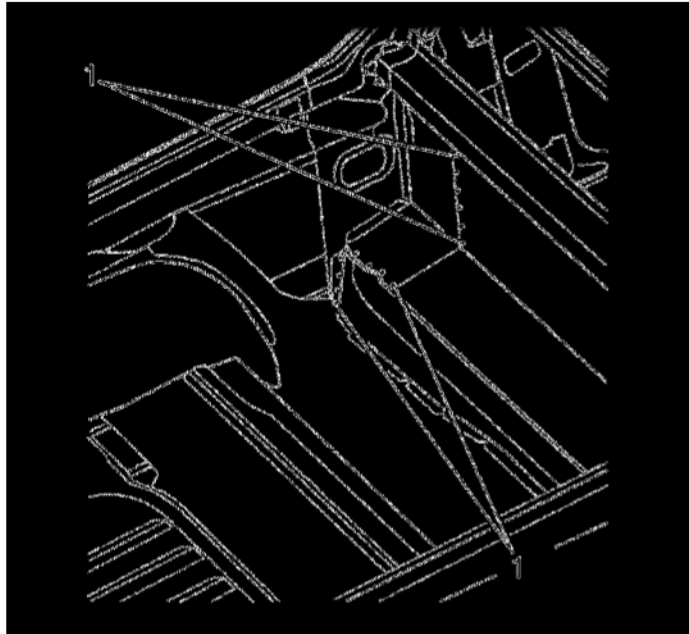
22. Weld the body side panel assembly to the body side (1).



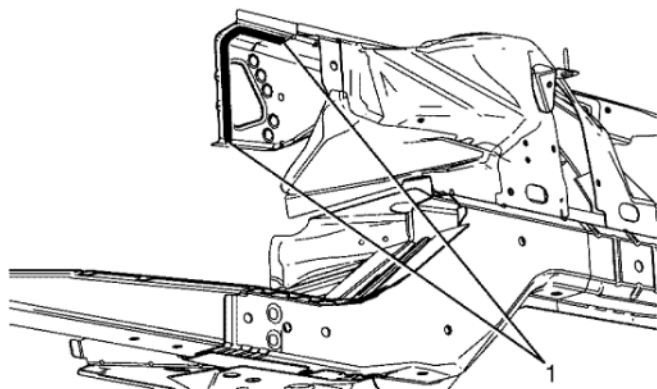
23. Weld the body side panel assembly to the body side (1).



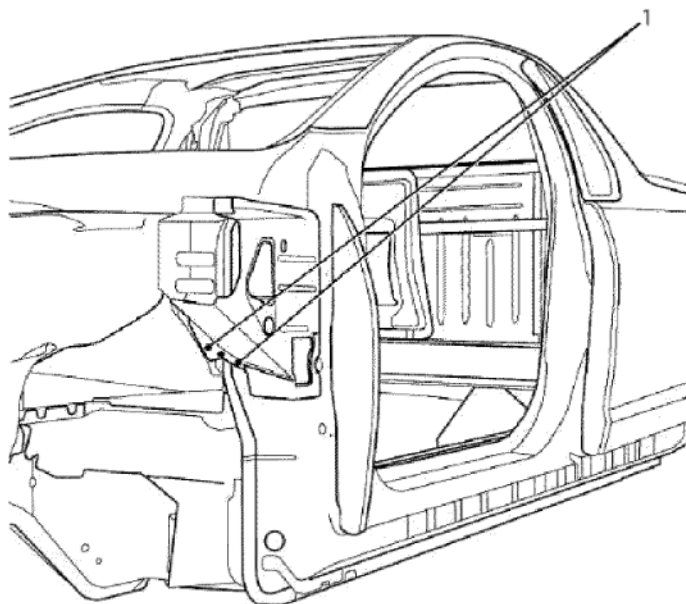
24. Weld the body side panel assembly to the seat back panel assembly and the underbody assembly (1).



25. Weld the body side panel assembly to the seat back panel assembly and the underbody assembly (1).

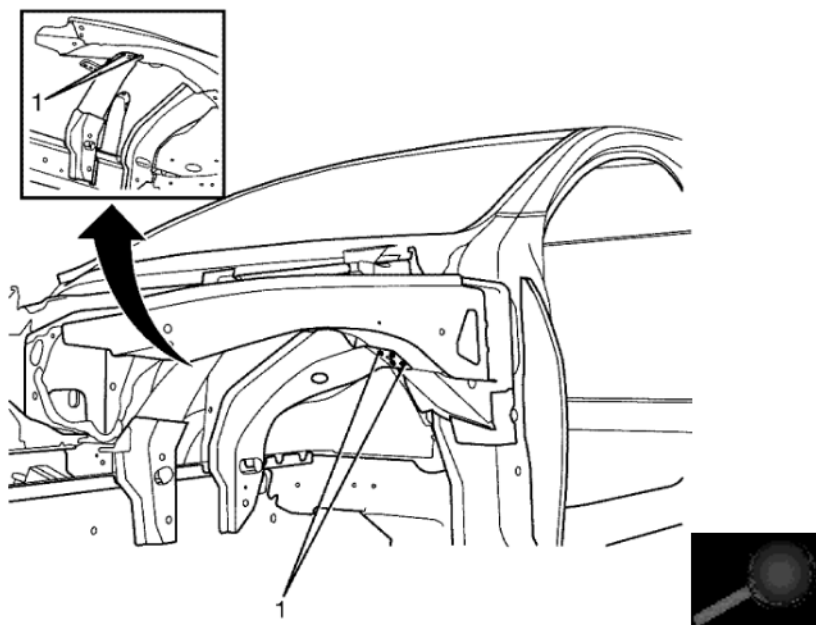


26. Apply the primary sealer along the rear edge of the upper wheelhouse brace (1) .

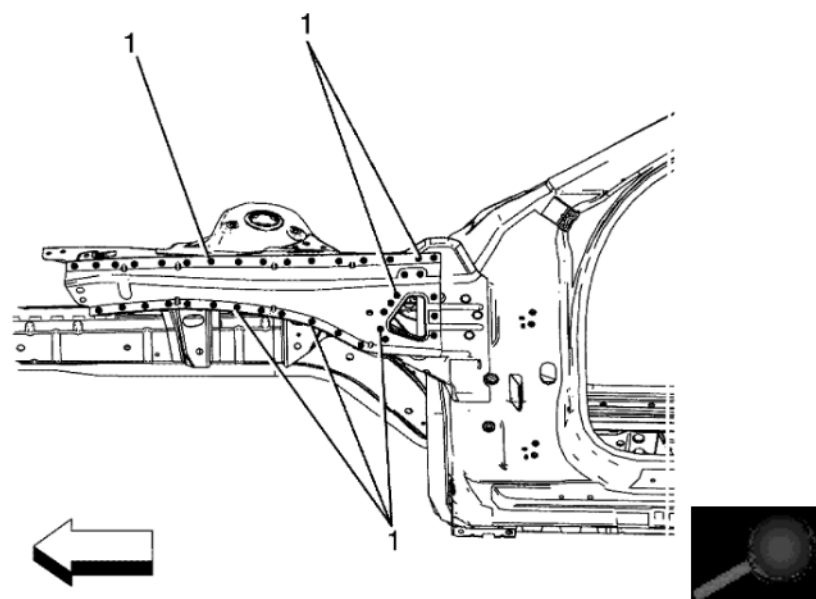


27. Weld the upper wheelhouse brace to the front hinge pillar (1).

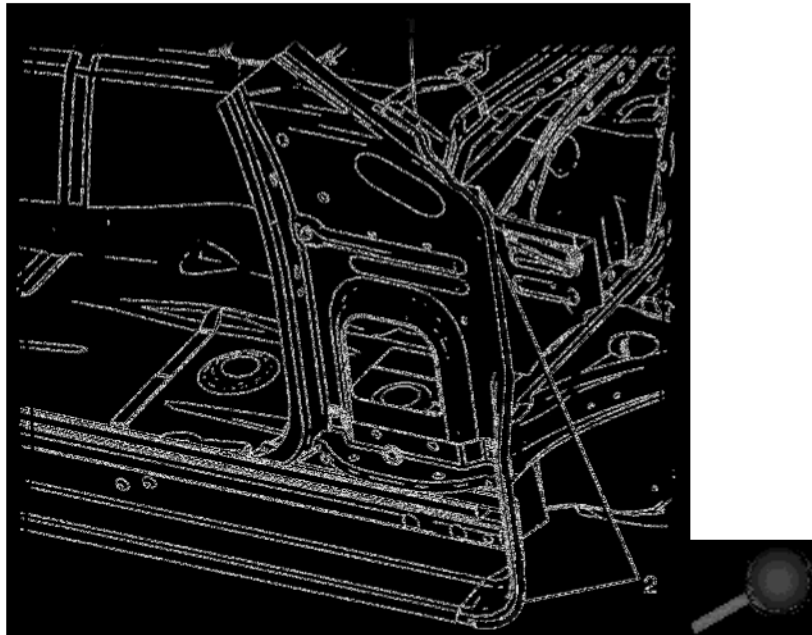




28. Weld the upper wheelhouse brace to the front hinge pillar (1).

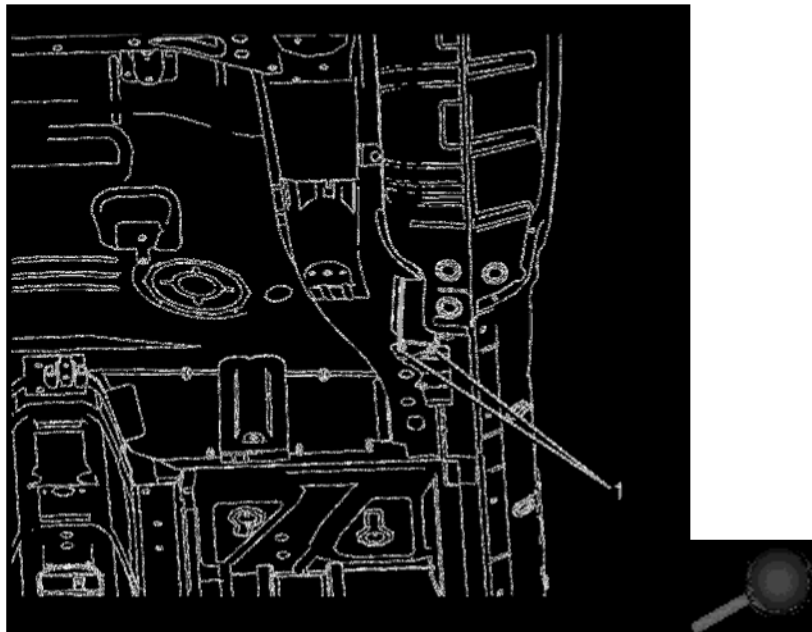


29. Weld the upper wheelhouse brace to the front wheelhouse assembly (1).

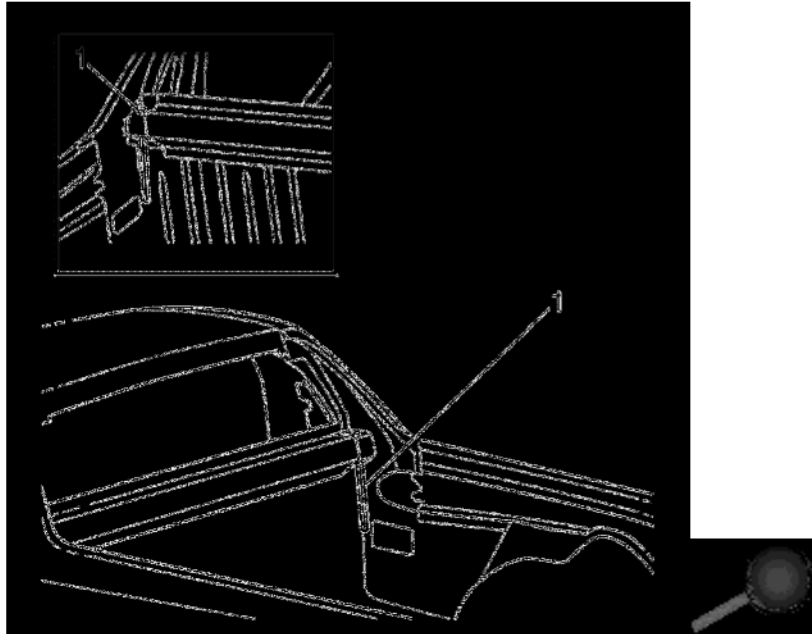


30. Apply the secondary sealer (1) to the front plenum panel.

31. Apply the secondary sealer (2) to the lower hinge pillar.



32. Apply an approved expanding foam sealer through the two access holes (1) in the rear wheelhouse assembly.



33. Install the rear window panel drain tube (1) to the rear window panel reinforcement.

**Note:** All joints and welds must be checked for water leaks before the vehicle is fully reassembled.

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

35. Install the endgate. Refer to [Endgate Replacement](#).

36. Install the body lock pillar trim. Refer to [Quarter Window Rear Reveal Molding Replacement](#).

37. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).

38. Install the rear header trim. Refer to [Roof Rear Header Panel Replacement](#).

39. Install the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).

40. Install the rocker panel moulding. Refer to [Rocker Panel Molding Replacement](#).

41. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).

42. Install the roof outer panel. Refer to [Roof Panel Replacement](#).

43. Install the positive cable to the vehicle. Refer to [Battery Positive Cable Replacement](#).

44. Install the remote control door lock receiver. Refer to [Remote Control Door Lock Receiver Replacement](#).

45. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).

46. Install the HVAC. Refer to [Heater and Air Conditioning Evaporator and Blower Module Removal and Installation](#).

47. Install the instrument panel carrier. Refer to [Instrument Panel Assembly Replacement](#).
48. Install the front seat belts. Refer to [Front Seat Belt Retractor Replacement](#).
49. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
50. Install the front doors. Refer to [Front Side Door Replacement](#).
51. Install the plenum chamber. Refer to [Air Inlet Housing Replacement](#).
52. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
53. Install the brake lines. Refer to [Front Brake Pipe Replacement - Right Side](#) or [Front Brake Pipe Replacement - Left Side](#).
54. Install the fuel tank. Refer to [Fuel Tank Replacement](#).
55. Install the fuel lines. Refer to [Fuel Line Replacement - Chassis](#) for the V6 Engine or [Fuel Line Replacement - Chassis](#) for the V8 engine.
56. Install the fuel filler door release actuator. Refer to [Fuel Tank Filler Door Latch Replacement](#).
57. Install the fuel filler door. Refer to [Fuel Tank Filler Door Replacement](#).
58. Install the filler tube. Refer to [Filler Tube Replacement](#).
59. Install the rear frame assembly. Refer to [Rear Frame Replacement](#).
60. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
61. Install the exterior vent outlet valve. Refer to [Quarter Inner Panel Access Hole Cover Replacement](#).
62. Install the cargo liner. Refer to [Cargo Box Liner Replacement](#).
63. Install the front strut assembly. Refer to [Strut Assembly Removal and Installation](#).
64. Install the front wheel hub assembly. Refer to [Front Wheel Bearing and Hub Replacement](#).
65. Install the front fender assembly. Refer to [Front Fender Replacement](#).
66. Install the front end module. Refer to [Front End Panel Module Carrier Assembly Replacement](#).
67. Install the front bumper fascia. Refer to [Front Bumper Fascia Replacement](#).
68. Install the coolant reservoir. Refer to [Coolant Recovery Reservoir Replacement](#).
69. Install the front wheelhouse liner. Refer to [Front Wheelhouse Liner Replacement](#).
70. Install the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
71. Install the positive battery cable to the engine bay. Refer to [Battery Positive Cable Replacement](#).
72. Install the negative battery cable to the engine bay. Refer to [Battery Negative Cable Replacement](#).
73. Install the underhood electrical centre. Refer to [Accessory Wiring Junction Block Replacement](#).
74. Install the engine control module. Refer to [Engine Control Module Replacement](#) for the V6 engine or [Engine Control Module](#)

[Replacement](#) for the V8 engine.

- 75. Install the vacuum brake booster. Refer to [Power Vacuum Brake Booster Replacement](#).
- 76. Install the brake master cylinder. Refer to [Master Cylinder Replacement](#).
- 77. Install the ABS unit. Refer to [Brake Pressure Modulator Valve Replacement](#).
- 78. Install the engine assembly. Refer to [Engine Replacement](#) for the V6 engine or [Engine Replacement](#) for the V8 engine.
- 79. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
- 80. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
- 81. If re-programming is required. Refer to [Control Module References](#).

## Front Side Door Outer Panel Replacement

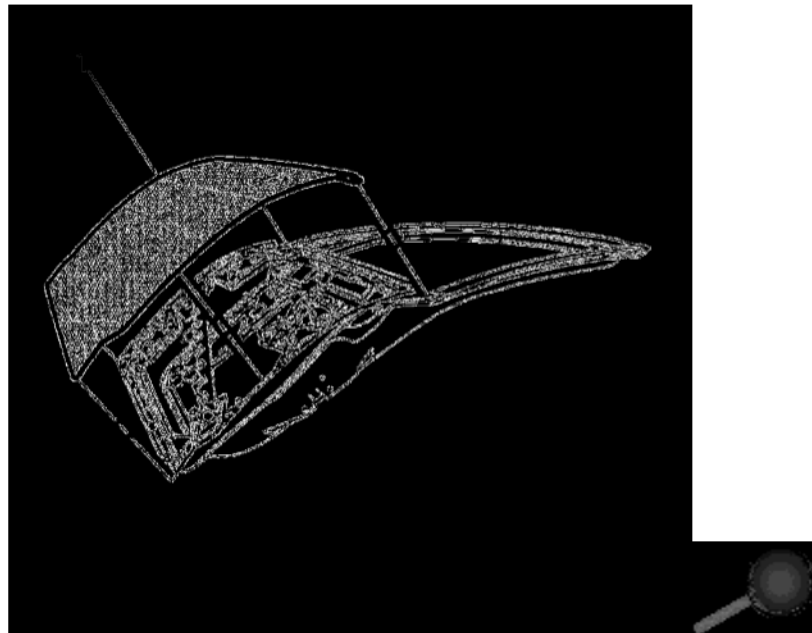
### Removal Procedure

**Warning:** Inspection of the door guard beam for damage must be performed before replacement of the door outer panel. If damage to the door guard beam is found the door must be replaced. Failure to do so may compromise the structural integrity of the vehicle and may cause personal injury if the vehicle is involved in a collision.

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

**Note:** Before beginning the repair, refer to [Metal Panel Bonding](#) for proper adhesive applicator preparations and general information.

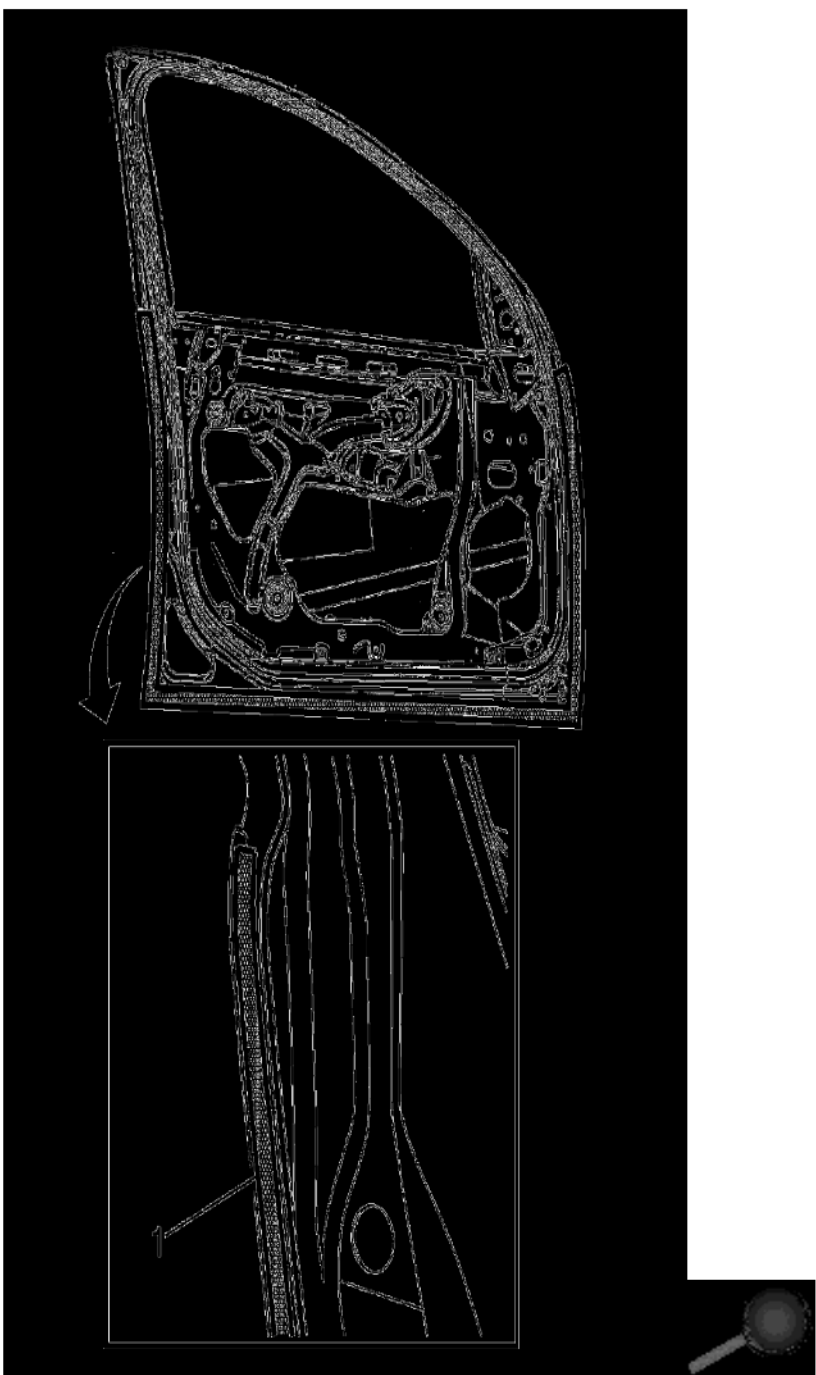
1. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
2. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
3. Remove the door from the vehicle. Refer to [Front Side Door Replacement](#).
4. Remove all related panels and components.



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

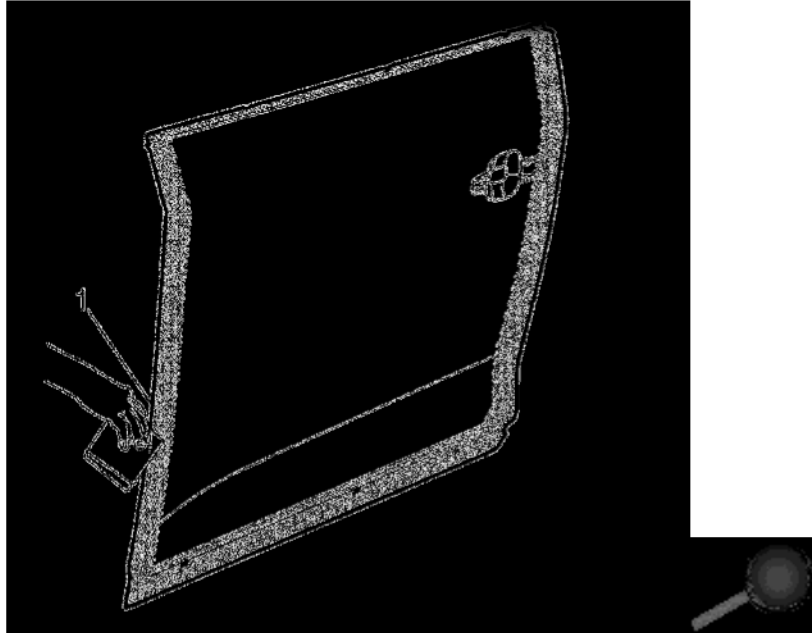
7. Remove the sealers and anti-corrosion materials from the bonding area on the door shell hem flange .
8. Remove the flexible anti-flutter foam materials from the reinforce area on the door shell.
9. Straighten the edges of the door shell hem flange bonding area.

#### **Installation Procedure**

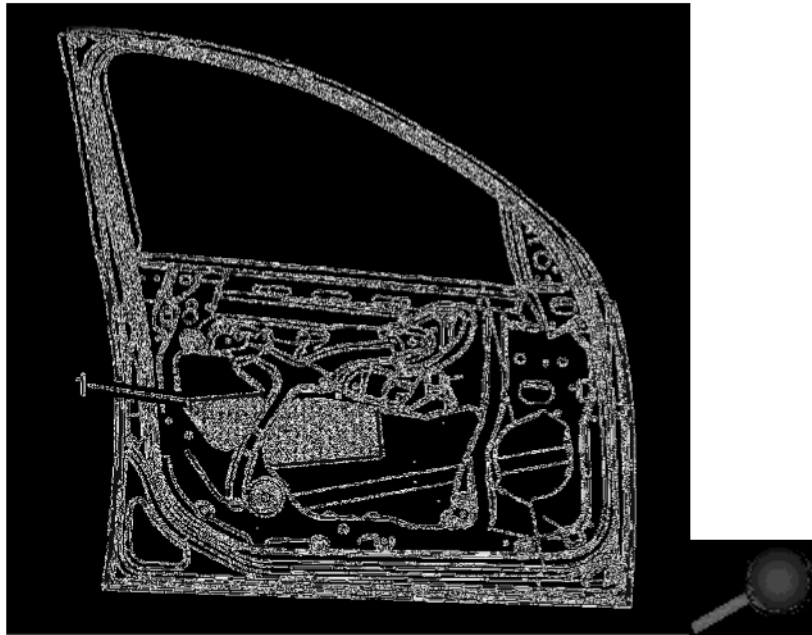




1. Apply sealers and anti-corrosion materials to the hem flange edge and the door panel area as necessary (1). Refer to [Anti-Corrosion Treatment and Repair](#).
2. Position the new outer door panel to the door shell and inspect the fit of the outer door panel to the door shell.
3. Add alignment positions points for the outer door panel to the door shell installation procedure.



4. Scuff the opposing mating surfaces of the door outer panel to remove the gloss of the E-Coat (1).
5. Clean the mating surfaces.



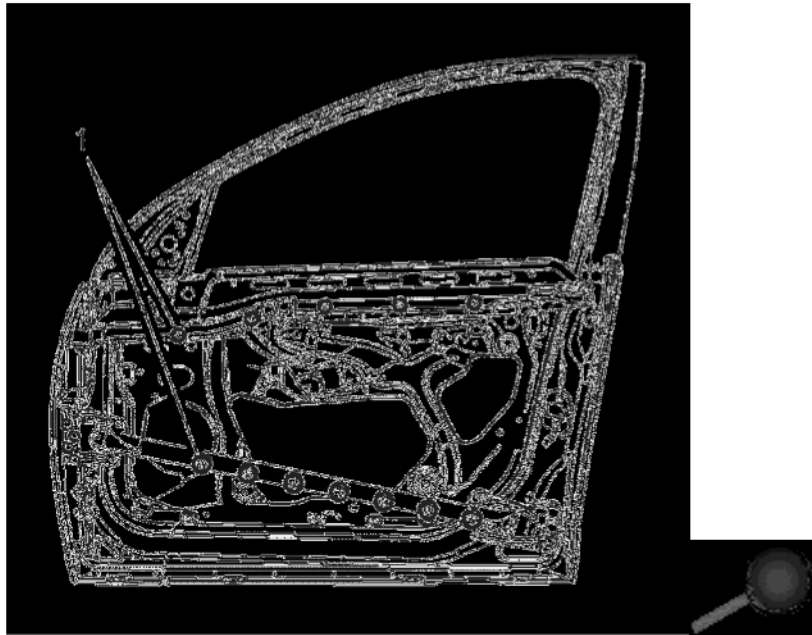
6. Install a front side door deadener to the inner door panel (1).

**Note:** Do not allow the adhesive to totally cure off the vehicle, as proper alignment of the door outer panel to the door shell will be difficult.

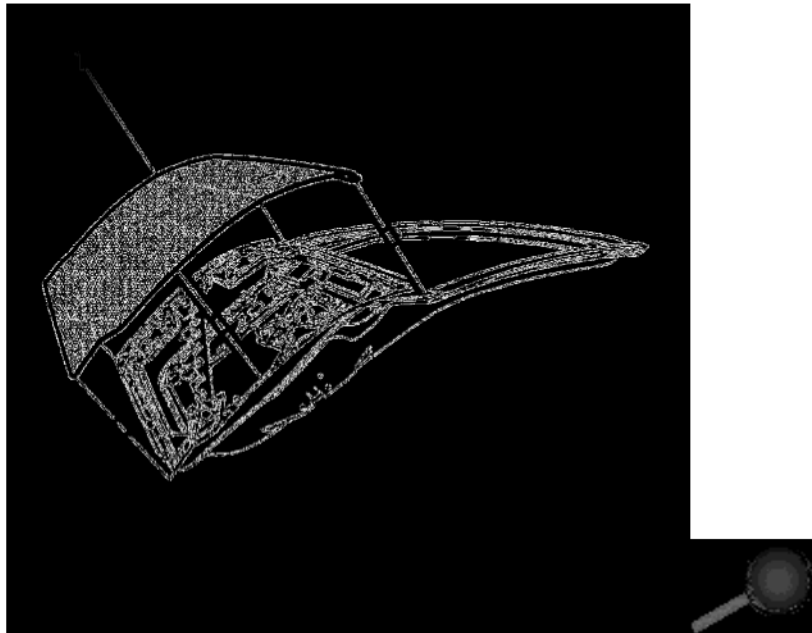
7. Apply a 3–6 mm (1/8–1/4 in) bead of metal panel bonding adhesive to both of the mating surfaces.

8. Using a small suitable brush, spread a coat of metal panel bonding adhesive to cover all the bare metal surfaces to ensure corrosion protection.

9. Apply a 9–13 mm (3/8–1/2 in) bead of metal panel bonding adhesive to the door shell hem flange of the front door outer panel.



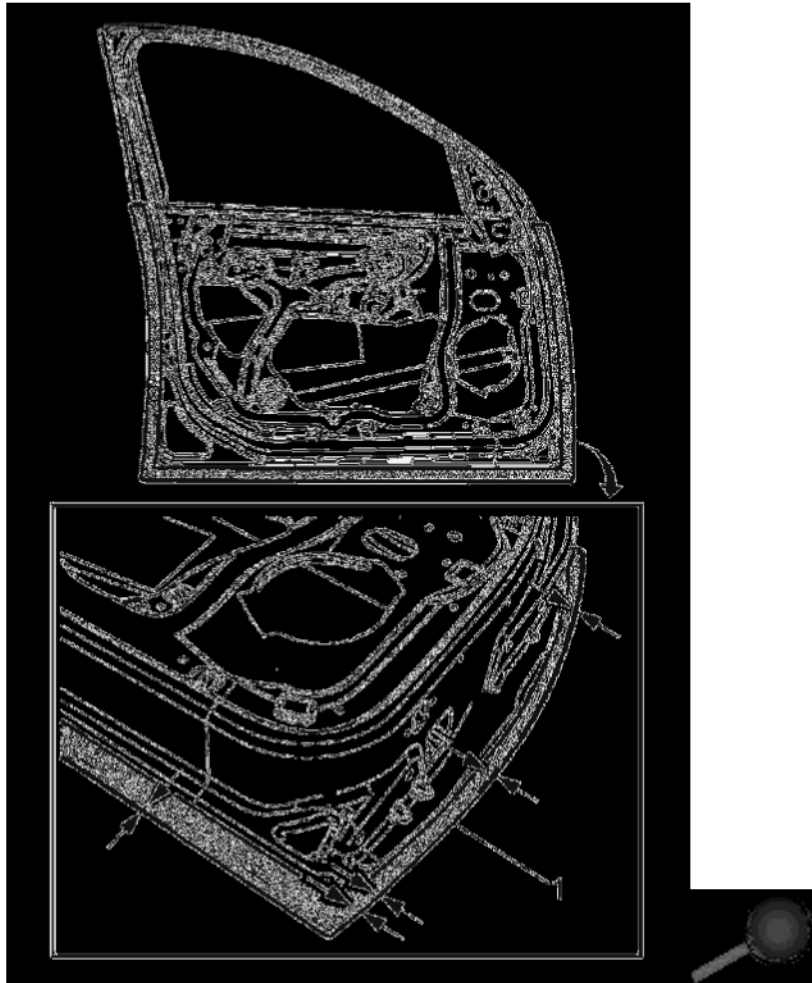
10. Apply Fusor super flexible anti-flutter foam – fast set, Fusor P/N 121/124 or equivalent in previous locations between the door outer panel and the inner safety beam and the upper belt reinforcement (1).



**Note:** Do NOT pull the panels apart after joined together. Slide the panels against each other to realign the panels.

11. Position the door outer panel to the door shell alignment locations (1).

12. Clamp the door outer panel into position as required.



13. Re-hem the front door outer panel hem flange around the entire door shell (1).

14. Using a suitable solvent remove the excess adhesive from the door panel area.

15. Install the door to the vehicle and inspect the door outer panel for proper alignment.

16. Adjust the door alignment as required. Refer to [Front Side Door Replacement](#).

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

18. Install all related panels and components.
19. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
20. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

## Rear Side Door Outer Panel Replacement

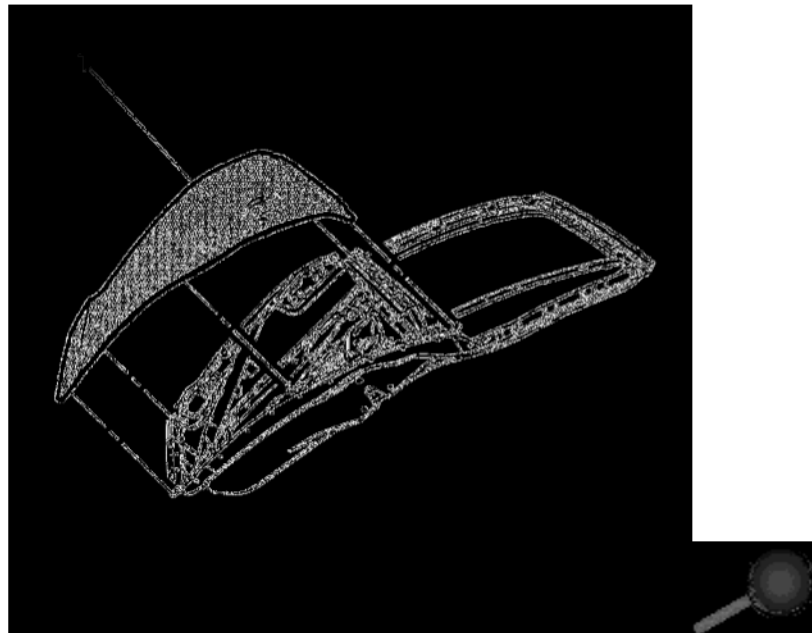
### Removal Procedure

**Warning:** Inspection of the door guard beam for damage must be performed before replacement of the door outer panel. If damage to the door guard beam is found the door must be replaced. Failure to do so may compromise the structural integrity of the vehicle and may cause personal injury if the vehicle is involved in a collision.

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

**Note:** Before beginning the repair, refer to [Metal Panel Bonding](#) for proper adhesive applicator preparations and general information.

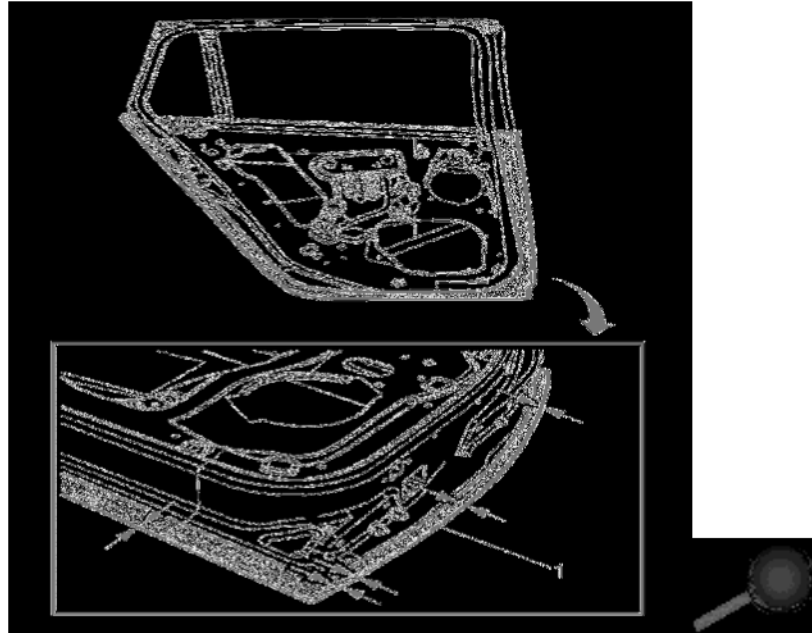
1. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
2. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
3. Remove the door from the vehicle. Refer to [Rear Side Door Replacement](#).
4. Remove all related panels and components.



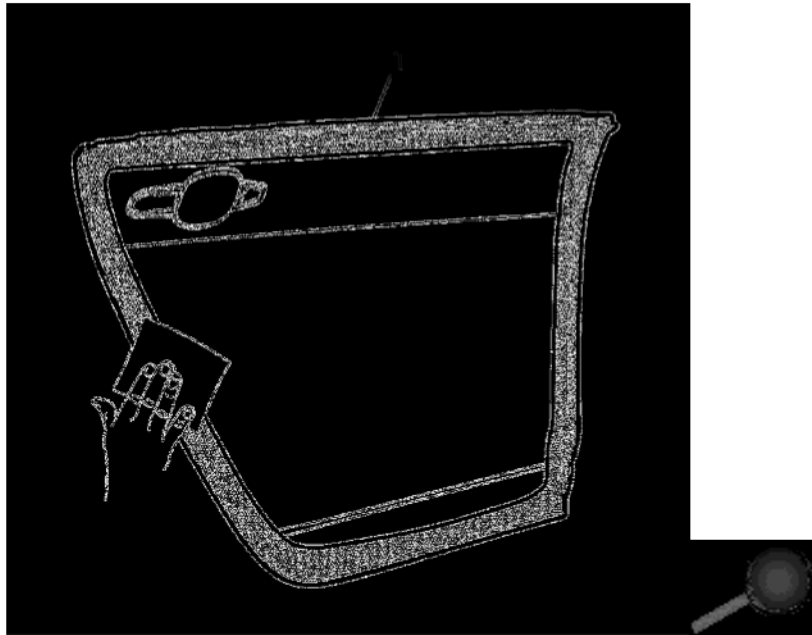
5. Grind the edges of the door outer panel to separate the outer door panel from the door shell (1).
6. Remove the outer door panel.

7. Remove the sealers and anti-corrosion materials from the bonding area on the door shell hem flange .
8. Remove the flexible anti-flutter foam materials from the reinforce area on the door shell.
9. Straighten the edges of the door shell hem flange bonding area.

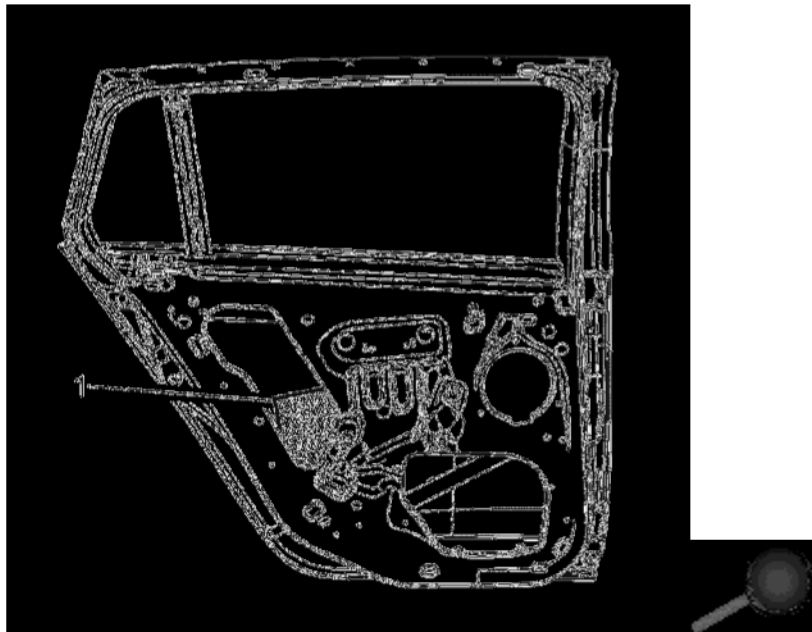
### **Installation Procedure**



1. Apply sealers and anti-corrosion materials to the hem flange edge and the door panel (1) area as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
2. Re-hem the front door outer panel hem flange around the entire door panel (1).
3. Position the new outer door panel to the door shell and inspect the fit of the outer door panel to the door shell.
4. Add alignment positions points for the outer door panel to the door shell installation procedure.



5. Scuff the opposing mating surfaces of the door outer panel to remove the gloss of the E-Coat (1).
6. Clean the mating surfaces.





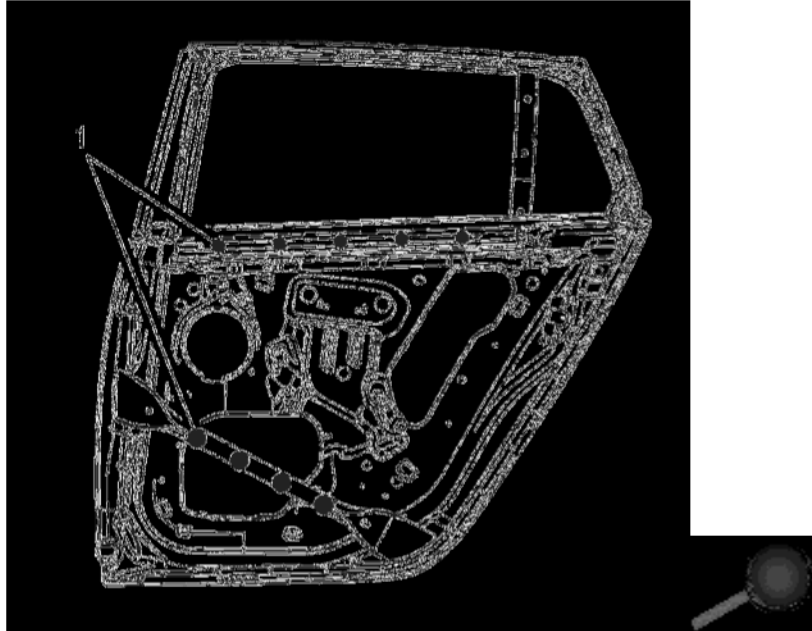
7. Install a front side door deadener to the inner door panel (1).

**Note:** Do not allow the adhesive to totally cure off the vehicle, as proper alignment of the door outer panel to the door shell will be difficult.

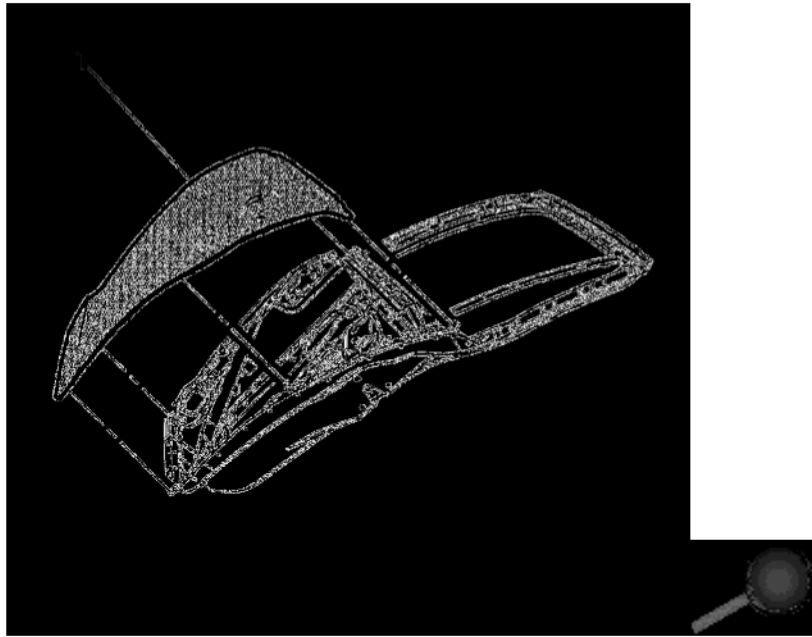
8. Apply a 3–6 mm (1/8–1/4 in) bead of metal panel bonding adhesive to both of the mating surfaces.

9. Using a small suitable brush, spread a coat of metal panel bonding adhesive to cover all the bare metal surfaces to ensure corrosion protection.

10. Apply a 9–13 mm (3/8–1/2 in) bead of metal panel bonding adhesive to the door shell hem flange of the front door outer panel.



11. Apply Fusor super flexible anti-flutter foam – fast set, Fusor P/N 121/124 or equivalent in previous locations between the door outer panel and the inner safety beam and the upper belt reinforcement (1).



**Note:** Do NOT pull the panels apart after joined together. Slide the panels against each other to realign the panels.

12. Position the door outer panel to the door shell alignment locations (1).
13. Clamp the door outer panel into position as required.
14. Using a suitable solvent remove the excess adhesive from the door panel area.
15. Install the door to the vehicle and inspect the door outer panel for proper alignment.
16. Adjust the door alignment as required. Refer to [Rear Side Door Replacement](#).
17. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
18. Install all related panels and components.
19. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
20. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).

## Roof Panel Replacement (Sedan without CF5)

### Removal Procedure

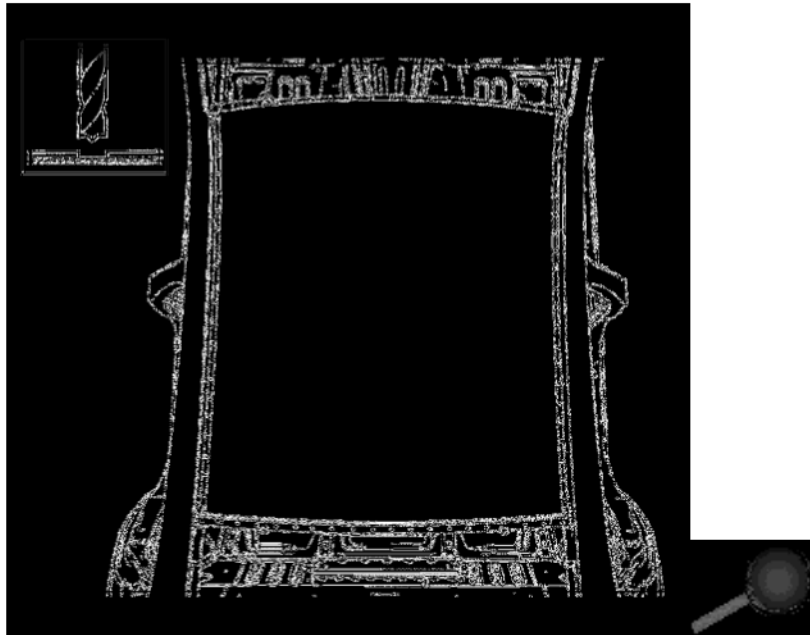
**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

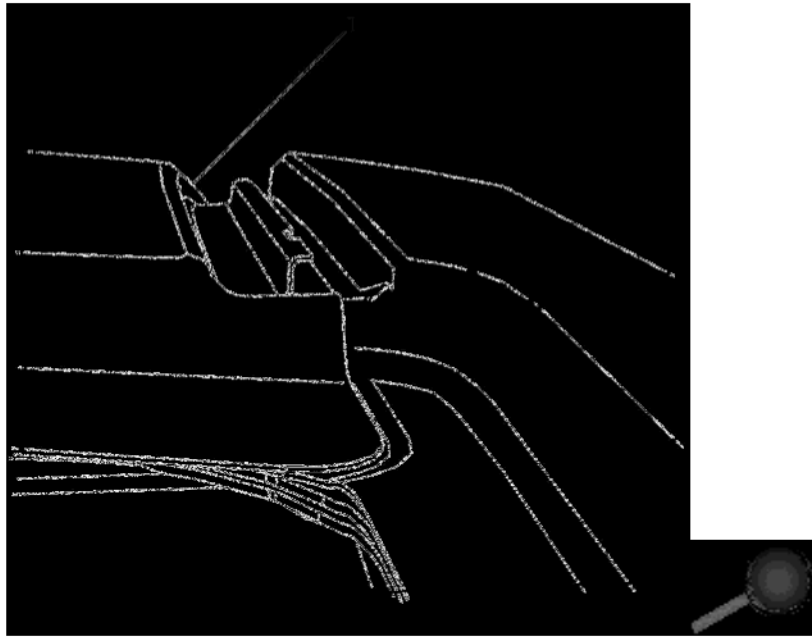
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#) in SIR.
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the windshield garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
4. Remove the inner rear quarter trim. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
5. Remove the inner upper centre trim. Refer to [Center Pillar Center Trim Panel Replacement](#).
6. Remove the overhead lighting panel. Refer to [Dome and Reading Lamp Replacement](#).
7. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#) in Interior Trim.
8. Remove the windshield. Refer to [Windshield Replacement](#).
9. Remove the rear window. Refer to [Rear Window Replacement](#).
10. Remove the roof weld moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
11. Visually inspect the damage. Repair as much of the damage as possible.
12. Apply tape to the corners of the panels and adjacent surfaces.
13. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:**

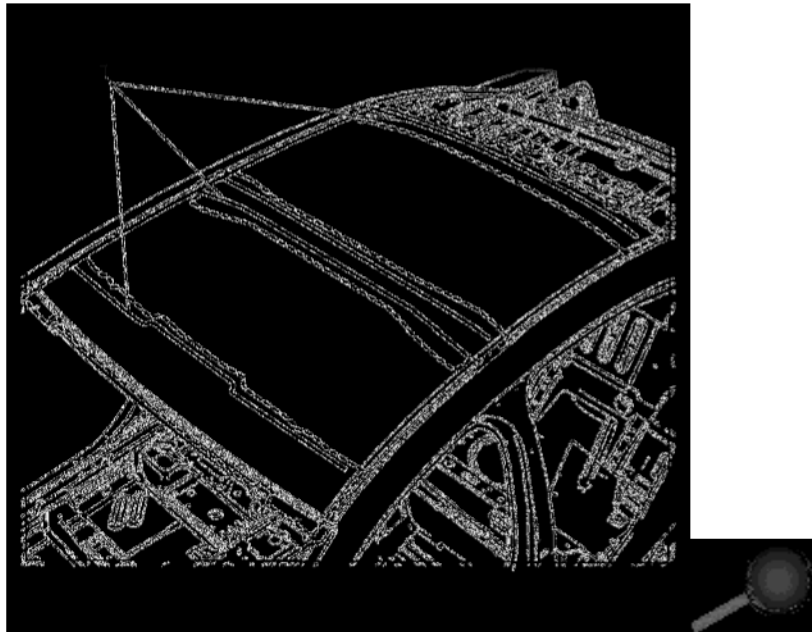
- The roof panel is attached to the steel roof structure with beads of adhesive on the sides and spot-welds on the side rail, windshield and back-glass flanges. Replacement of the roof panel can be performed using conventional procedures, however, the windshield and back glass must be removed.
- The roof outer panel is secured to the body side panel with adhesive and spot welds, it cannot be removed by cutting the spot welds alone.

14. Locate, mark and drill all factory welds. Note the number and location of welds for installation of the service assembly.



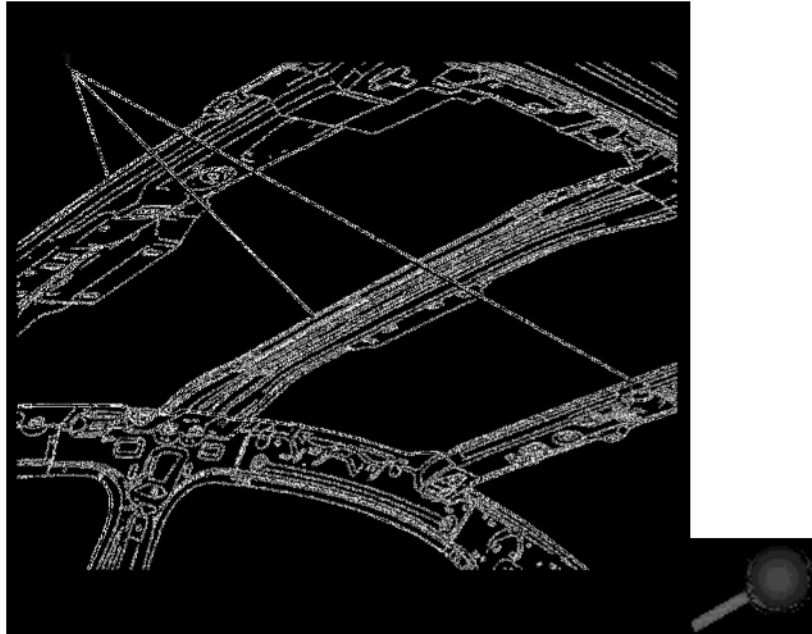
**Note:** Take care when cutting to protect adjacent panels. Cut inboard of the roof structure.

15. Using a suitable tool, cut through the roof outer panel along the inner side of the roof channel (1). Repeat for opposite side.



**Note:** Heating the 'anti-flutter' adhesive softens it making it easier to cut through.

16. Heat the 'anti-flutter' adhesive between the roof panel and the roof bows (1).



**Note:** The 'anti-flutter' adhesive (1) is between the roof bows and the roof outer panel.

17. Cut the 'anti-flutter' adhesive (1) with a suitable tool.
18. Remove the roof outer panel from the vehicle.



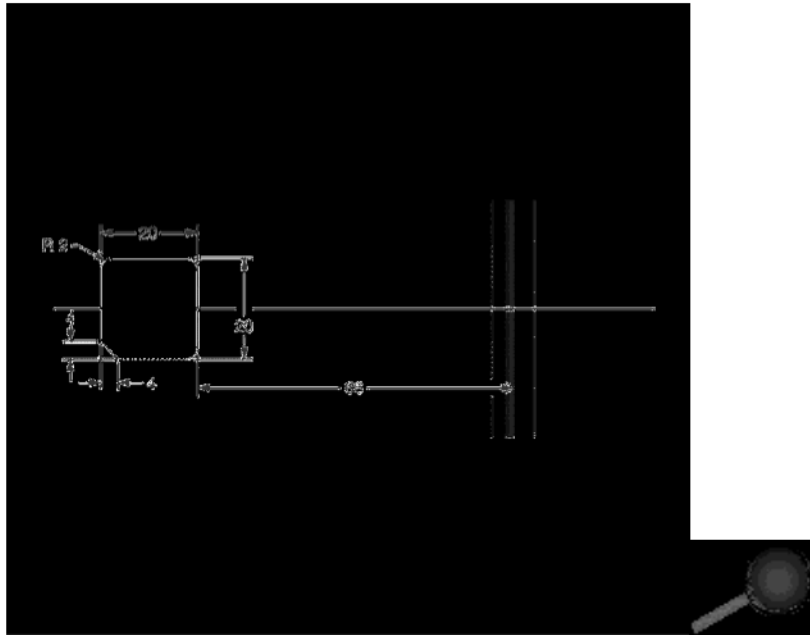
19. Using a suitable tool remove the remaining strip of roof panel (1) from the body side ring. repeat for opposite side.

### Installation Procedure

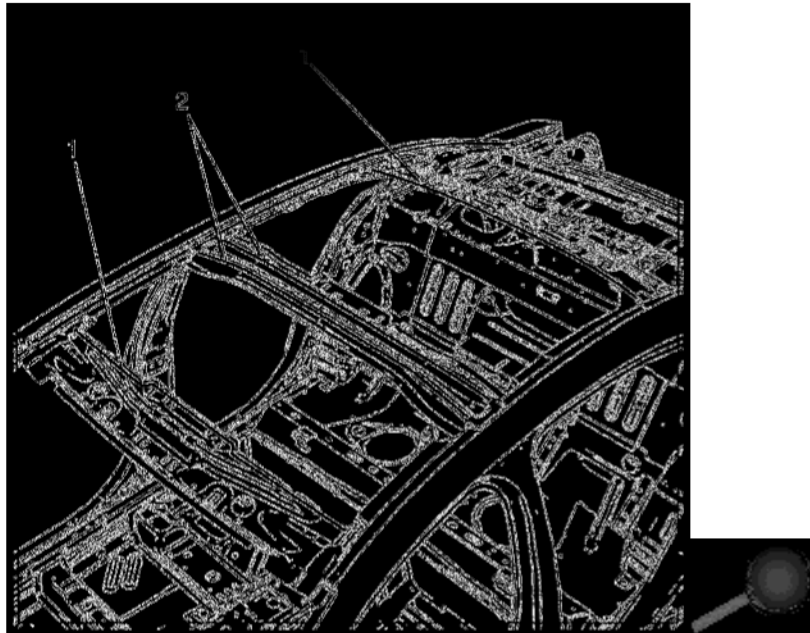
**Note:**

- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

1. Clean and prepare the attaching surfaces for welding.
2. Clean the remaining anti-flutter adhesive from the front, centre and rear bow surfaces.
3. Drill 8 mm (5/16 in ) puddle weld holes in the NEW roof outer panel in the locations to be puddle welded.



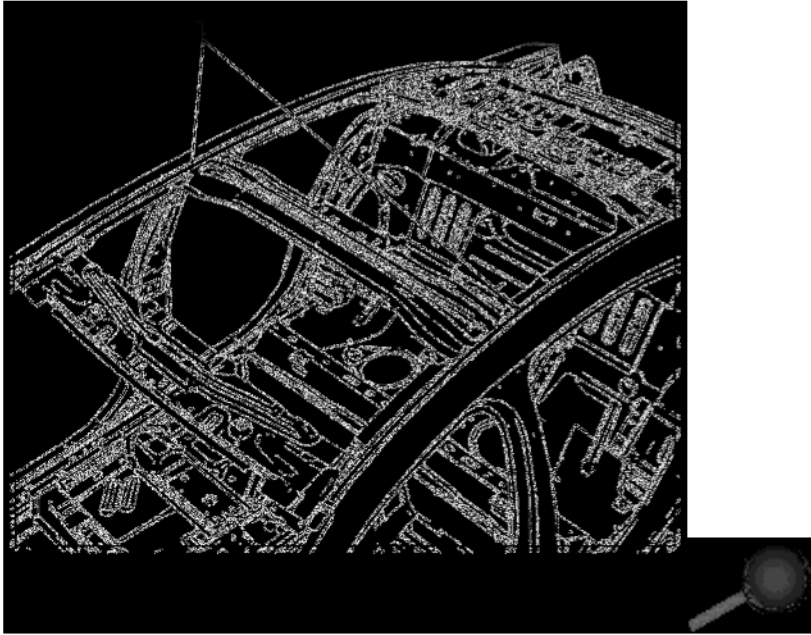
4. Cut antenna hole in the NEW roof as per the location template.



5. Apply two full beads of structural adhesive GM6449G or equivalent to the center bow (2).



6. Apply a full bead of structural adhesive GM6449G or equivalent to the front and rear bows (1).

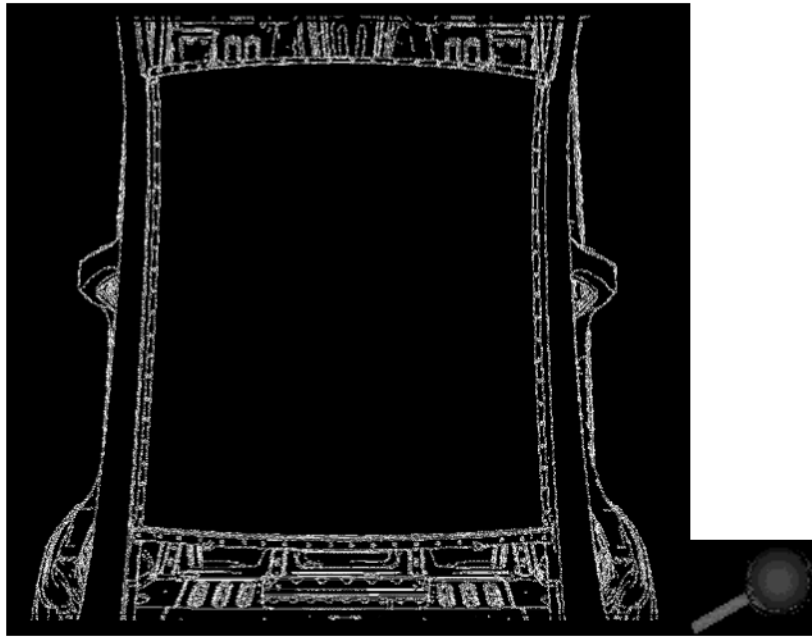


7. Apply structural adhesive GM6449G or equivalent to the mating surfaces of the roof panel and body side panel (1).

8. Position the NEW roof outer panel to the vehicle.

9. Inspect the fit.

10. Clamp roof outer panel into correct position.



**Note:** Care must be taken to minimise the heat absorbed by the panel which could lead to panel distortion.

11. Spot weld or puddle weld the roof outer panel on both sides using the same number of welds as per original build.
12. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
13. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
14. Install the roof weld moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
15. Install the rear window. Refer to [Rear Window Replacement](#).
16. Install the windshield. Refer to [Windshield Replacement](#).
17. Install the headliner. Refer to [Headlining Trim Panel Replacement](#) in Interior Trim.
18. Install the overhead lighting panel. Refer to [Dome and Reading Lamp Replacement](#).
19. Install the inner upper centre trim. Refer to [Center Pillar Center Trim Panel Replacement](#).
20. Install the inner rear quarter trim. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
21. Install the windshield pillar moulding. Refer to [Windshield Garnish Molding Replacement](#).
22. Remove the tape to the corners of the panels and adjacent surfaces.
23. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
24. Enable the SIR system. Refer to [SIR Disabling and Enabling](#) in SIR.

25. If re-programming is required. Refer to [Control Module References](#).

## Roof Panel Replacement (Sedan with CF5)

### Roof Outer Replacement (With Sunroof) Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

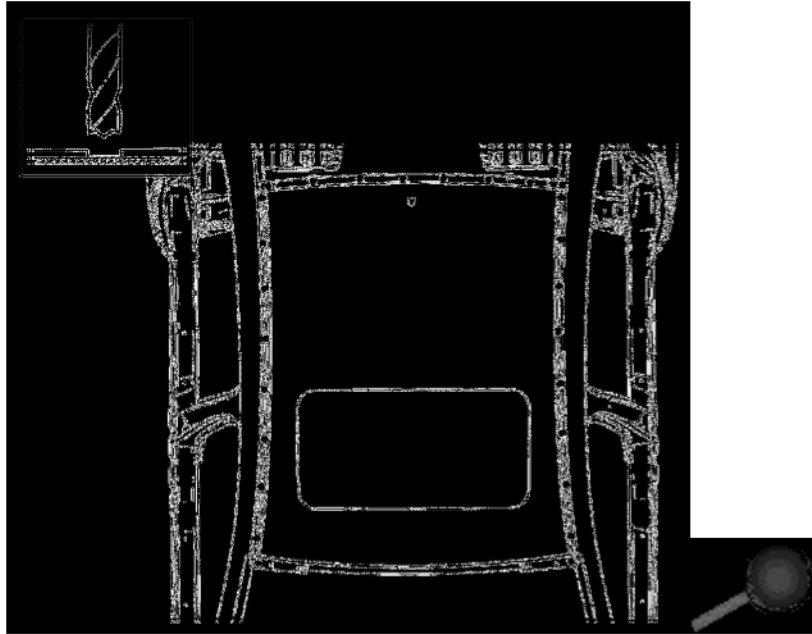
**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:**

- Use care when cutting to protect adjacent panels. Cut inboard of the roof structure.
- The roof panel is attached to the steel roof structure with beads of adhesive on the sides and spot-welds on the side rail, windshield and back-glass flanges. Replacement of the roof panel can be performed using conventional procedures, however, the windshield and back glass must be removed.

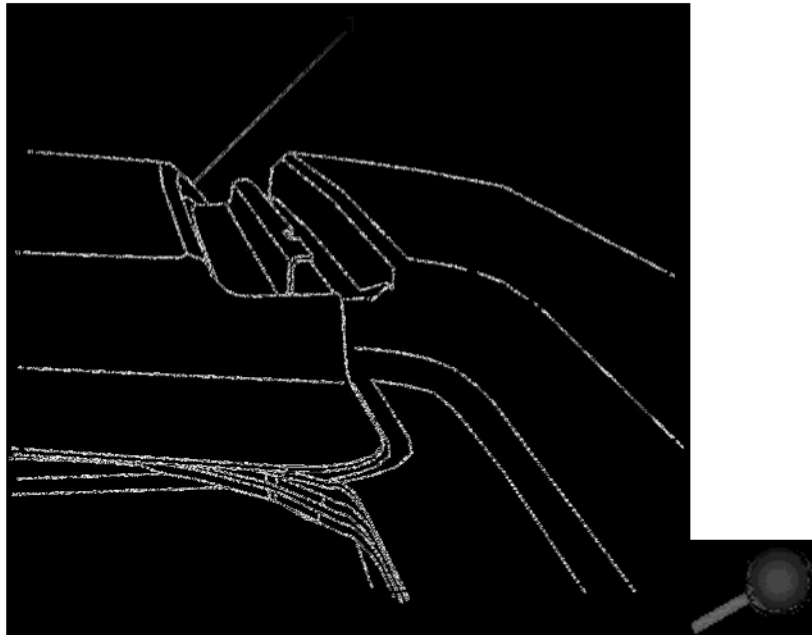
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Apply tape to the corners of the panels and adjacent surfaces.
4. Remove the interior windshield garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
5. Remove the inner rear quarter trim. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
6. Remove the inner upper centre trim. Refer to [Center Pillar Center Trim Panel Replacement](#).
7. Remove the over head lighting panel. Refer to [Dome and Reading Lamp Replacement](#).
8. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#) in Interior Trim.
9. Remove the windshield. Refer to [Windshield Replacement](#).
10. Remove the rear window. Refer to [Rear Window Replacement](#).
11. Remove the roof weld moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
12. Remove the sunroof module. Refer to [Sunroof Module Assembly Replacement](#).
13. Remove the front sunroof drain hose. Refer to [Sunroof Housing Front Drain Hose Replacement](#).
14. Remove the rear sunroof drain hose. Refer to [Sunroof Housing Rear Drain Hose Replacement](#).
15. Visually inspect the damage. Repair as much of the damage as possible.

16. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
17. Locate and mark all factory welds.

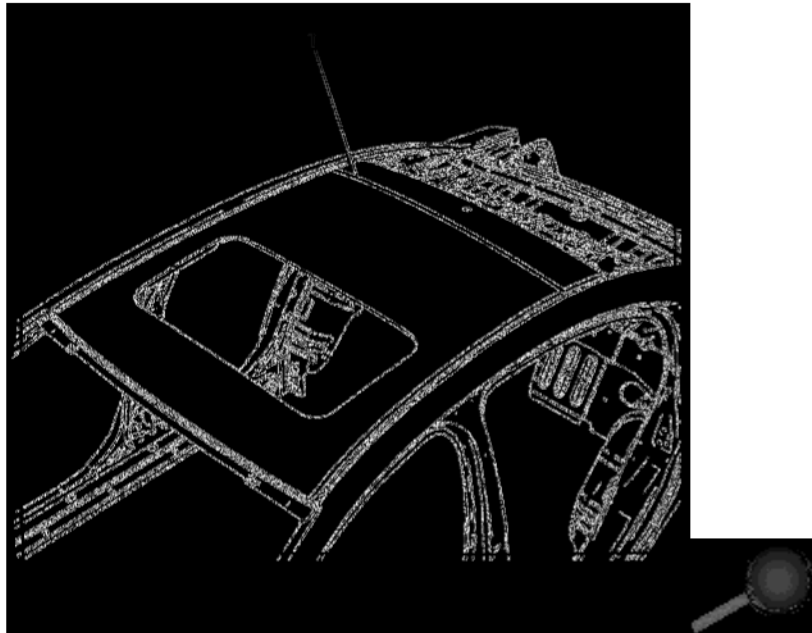


**Note:** The roof outer panel is secured to the body side panel with adhesive and spot welds, it cannot be removed by cutting the spot welds alone.

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

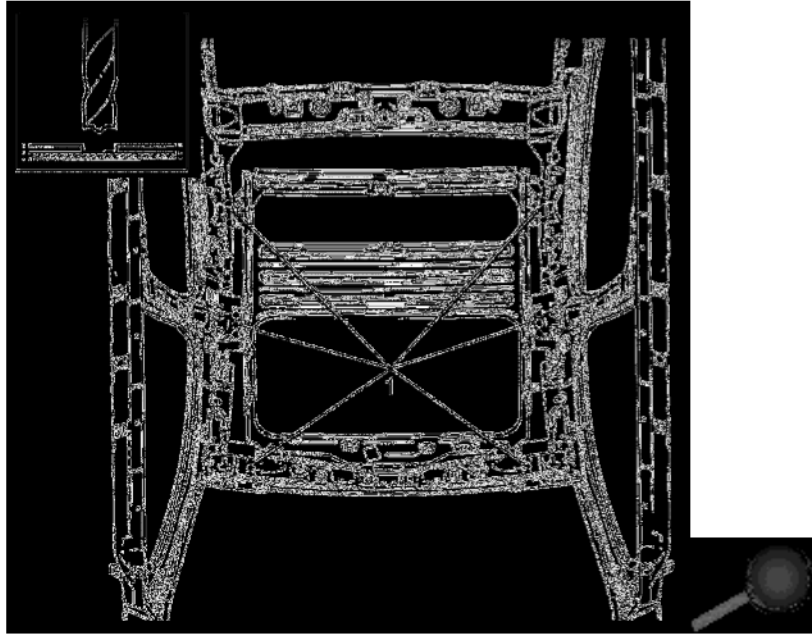


19. Using a suitable tool, cut through the roof outer panel along the side of the roof channel (1).



**Note:** Heating the 'anti-flutter' adhesive softens it making it easier to cut through.

20. Heat the 'anti-flutter' adhesive between the roof panel and the rear roof bow (1).



21. Locate, mark, and drill out the factory welds (1) attaching the roof panel assembly to the body side rings.

22. Remove the roof outer panel assembly from the vehicle.



23. Using a suitable tool remove the remaining strip of roof panel (1) from the body side panel.

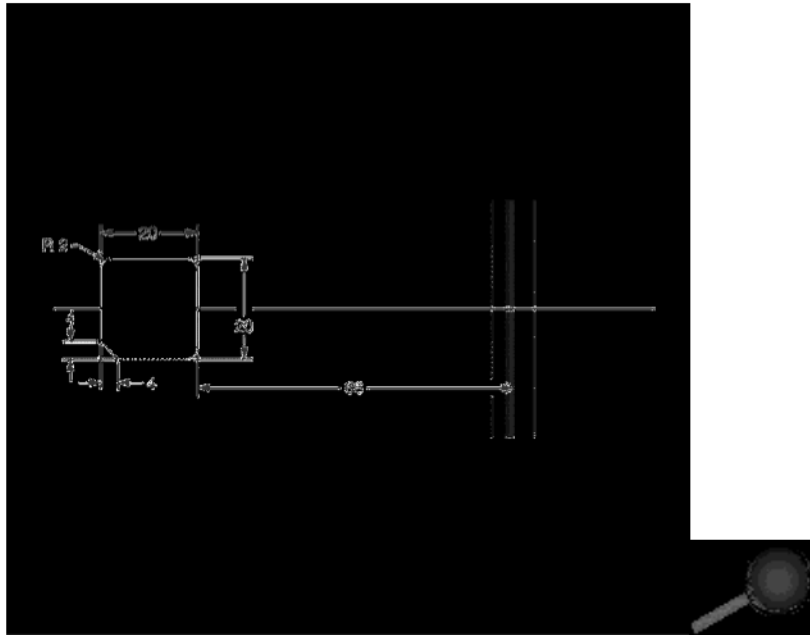
### Roof Outer Replacement (With Sunroof) Installation Procedure

**Note:**

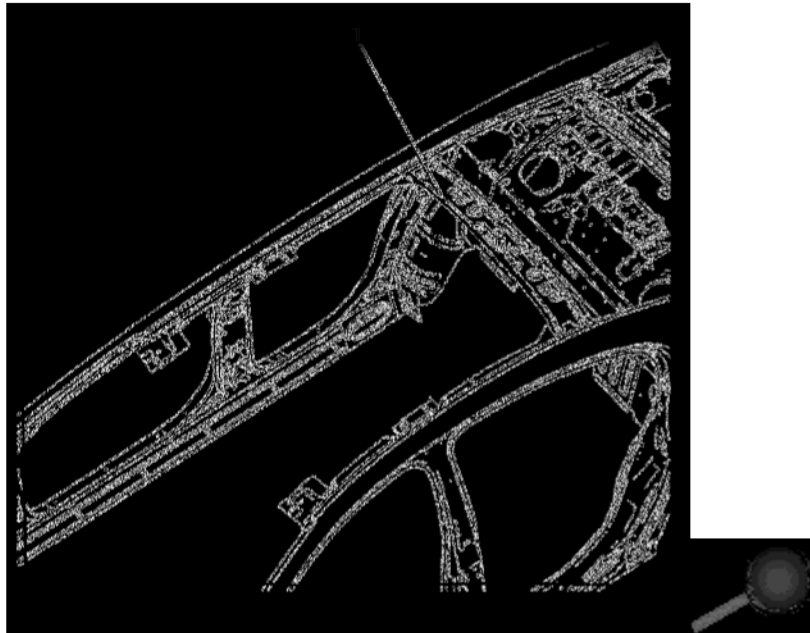
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

1. Clean and prepare the attaching surfaces for welding.
2. Clean the remaining anti-flutter adhesive from the front, centre and rear bow surfaces.
3. Mark the NEW roof outer panel with drilling locations, where puddle welding is necessary.
4. Drill 8 mm (5/16 in ) puddle weld holes in the NEW roof outer panel in the locations to be puddle welded.

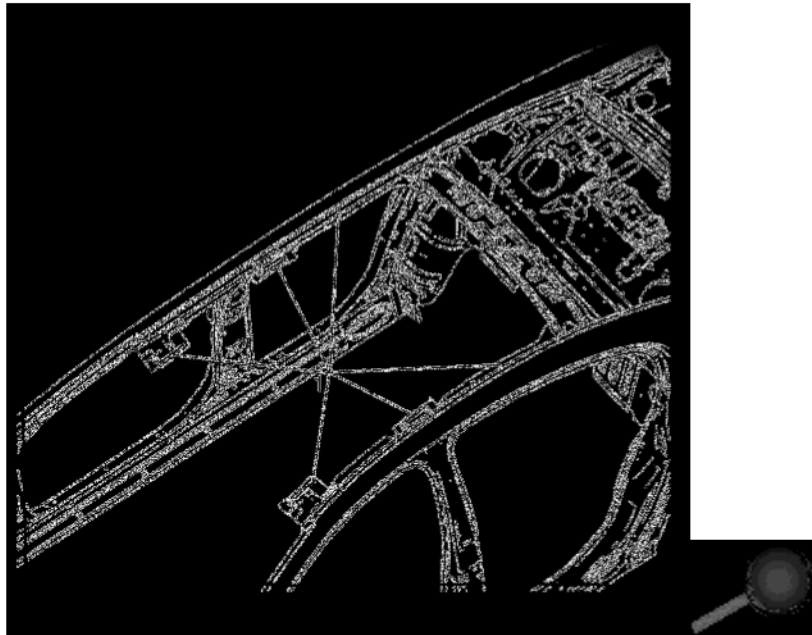




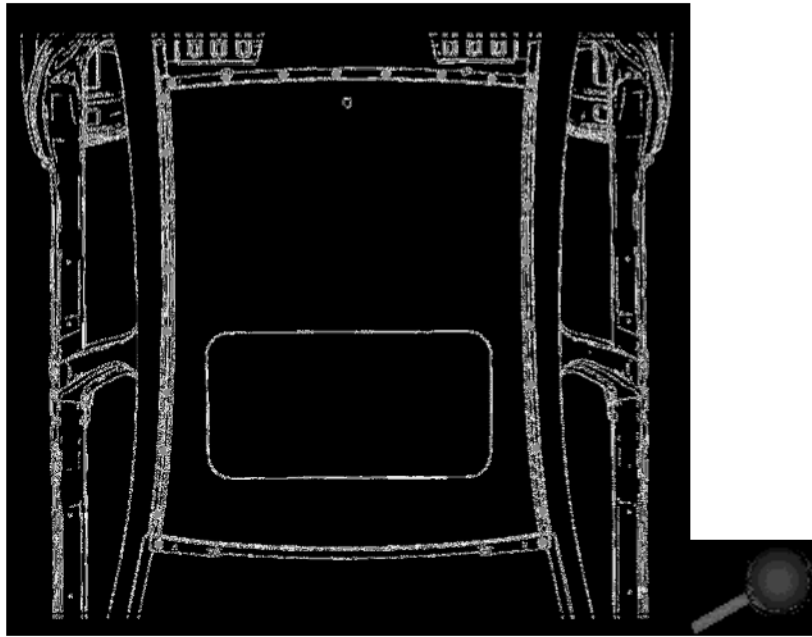
5. Cut antenna hole in the NEW roof as per the location template.



6. Apply a full bead of structural adhesive GM6449G or equivalent to the rear roof bow (1).



7. Apply structural adhesive GM6449G or equivalent to the mating surfaces of the roof panel and body side rings (1).
8. Position the NEW roof outer panel assembly to the vehicle.
9. Inspect for proper fitment.
10. Clamp roof outer panel into correct position.



**Note:** Care must be taken to minimise the heat absorbed by the panel which could lead to panel distortion.

11. Spot weld or puddle weld the roof outer panel on both sides using the same number of welds as per original build.
12. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
13. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
14. Install the upper rear sunroof drain hose. Refer to [Sunroof Housing Rear Drain Hose Replacement](#).
15. Install the front sunroof drain hose. Refer to [Sunroof Housing Front Drain Hose Replacement](#).
16. Install the sunroof module. Refer to [Sunroof Module Assembly Replacement](#).
17. If re-programming is required. Refer to [Control Module References](#).
18. Install the roof weld moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
19. Install the rear window. Refer to [Rear Window Replacement](#).
20. Install the windshield. Refer to [Windshield Replacement](#).
21. Install the headliner. Refer to [Headlining Trim Panel Replacement](#) in Interior Trim.
22. Install the over head lighting panel. Refer to [Dome and Reading Lamp Replacement](#).
23. Install the inner upper centre trim. Refer to [Center Pillar Center Trim Panel Replacement](#).
24. Install the inner rear quarter trim. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).

25. Install the interior windshield pillar moulding. Refer to [Windshield Garnish Molding Replacement](#).
26. Remove the tape to the corners of the panels and adjacent surfaces.
27. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
28. Enable the SIR system. Refer to [SIR Disabling and Enabling](#) in SIR.
29. If re-programming is required. Refer to [Control Module References](#).

## Roof Panel Replacement (Ute)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

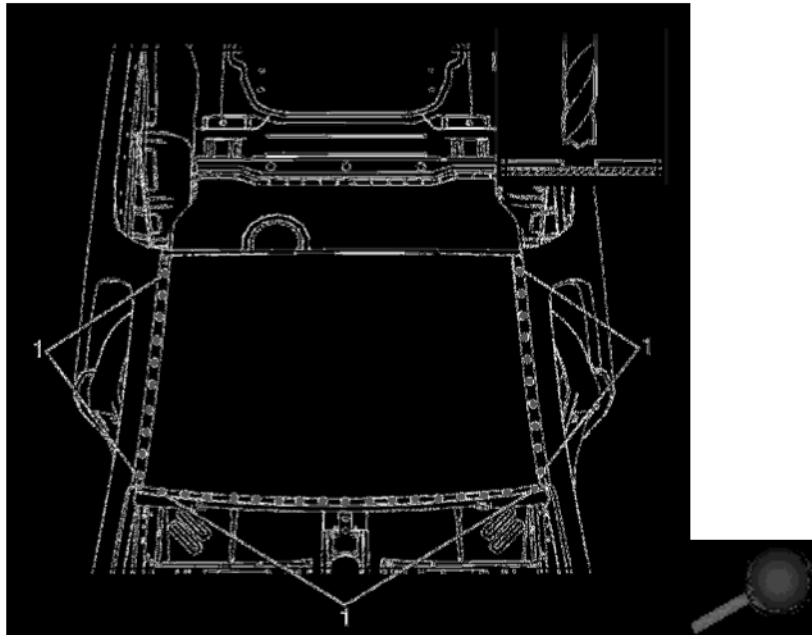
**Warning:** Refer to [Safety Glasses Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

**Warning:** Refer to [Battery Disconnect Warning](#).

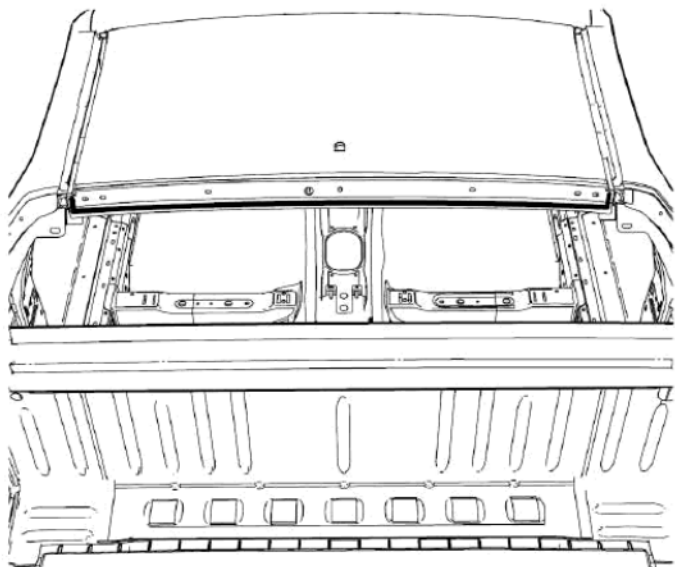
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the windshield pillar garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
4. Remove the rear quarter upper trim panel. Refer to [Rear Window Panel Trim Replacement](#).
5. Remove the body hinge pillar trim panel . Refer to [Center Pillar Center Trim Panel Replacement](#).
6. Remove the dome lamp assembly. Refer to [Dome and Reading Lamp Replacement](#).
7. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
8. Remove the windshield. Refer to [Windshield Replacement](#).
9. Remove the rear window. Refer to [Rear Window Replacement](#).
10. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
11. Apply tape to the corners of the panels and adjacent surfaces.
12. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



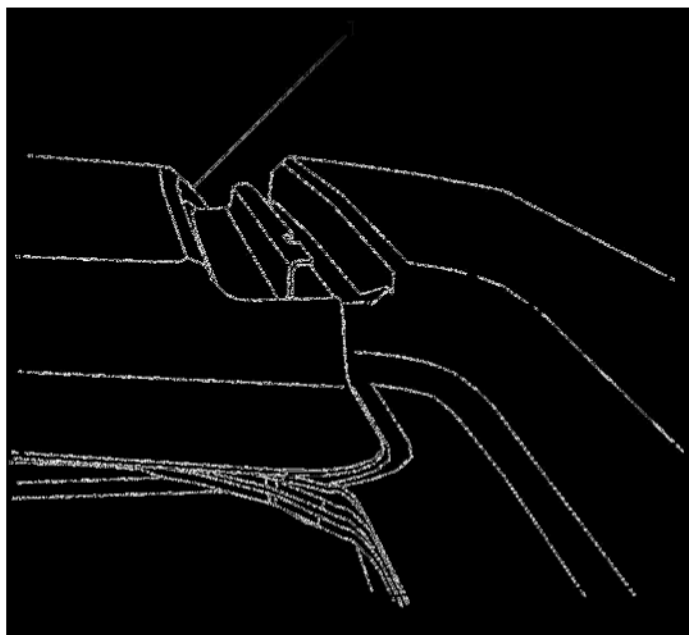
**Note:**

- The roof panel is attached to the steel roof structure with beads of adhesive on the sides and spot-welds on the side rail, windshield and back-glass flanges. Replacement of the roof panel can be performed using conventional procedures, however, the windshield and back rear glass must be removed.
- The roof outer panel is secured to the body side panel with adhesive and spot welds, it cannot be removed by removing the spot welds alone.

13. Locate, mark and drill out the factory welds attaching the roof outer panel to the vehicle (1). Note the number and location of welds for installation of the service assembly.

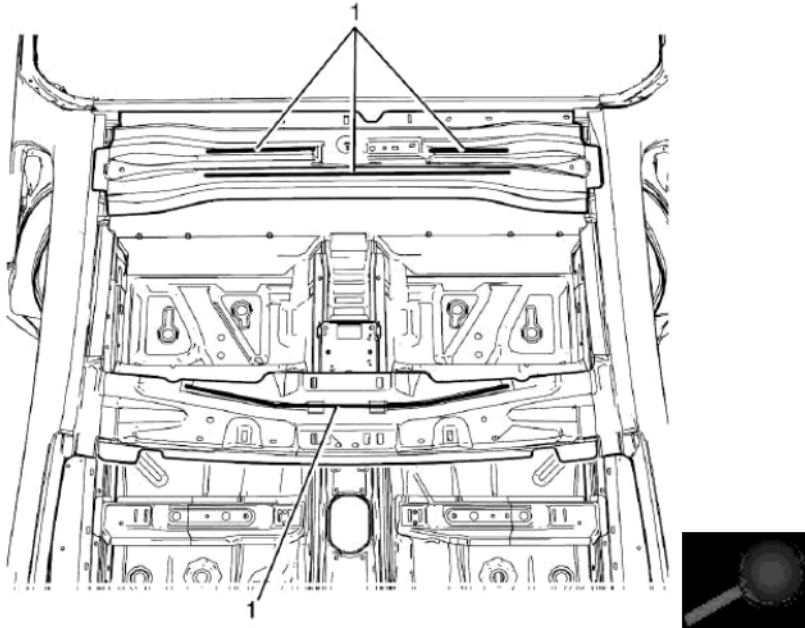


14. Locate, mark and drill out the factory welds attaching the rear section of the roof to the vehicle (1). Note the number and location of welds for installation of the service assembly.



**Note:** Take care when cutting along the roof outer panel to protect adjacent panels. Cut inboard of the roof structure.

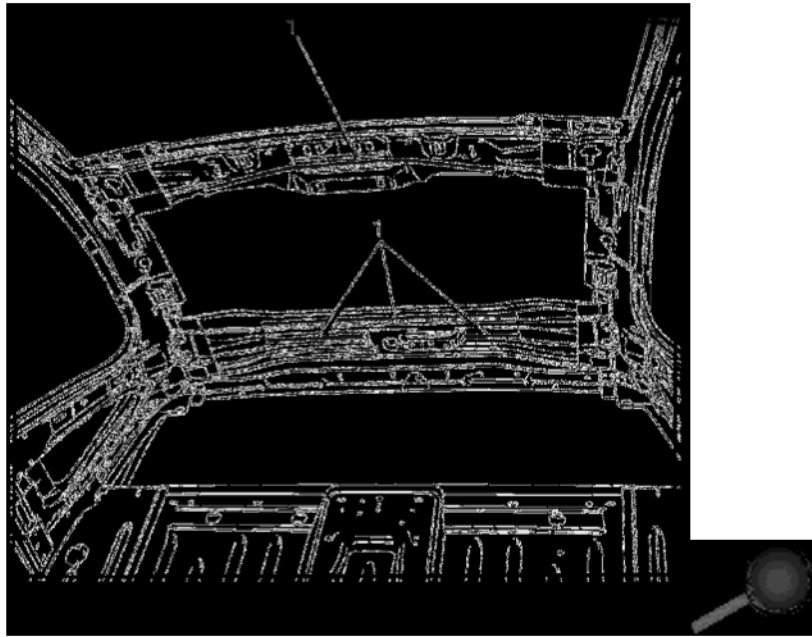
15. Using a suitable tool, cut through the roof outer panel along the inner side of the roof channel (1). Repeat for opposite side.



**Note:** Heating the 'anti-flutter' adhesive softens it making it easier to cut through.

16. Using a suitable tool heat the 'anti-flutter' adhesive between the roof panel and the roof bows (1).





**Note:** The 'anti-flutter' adhesive (1) is between the roof bows and the roof outer panel.

17. Cut the 'anti-flutter' adhesive (1) with a suitable tool.
18. Remove the roof outer panel from the vehicle.



19. Using a suitable tool remove the remaining strip of roof panel (1) from the body side panel assembly. Repeat for the opposite side.

### Installation Procedure

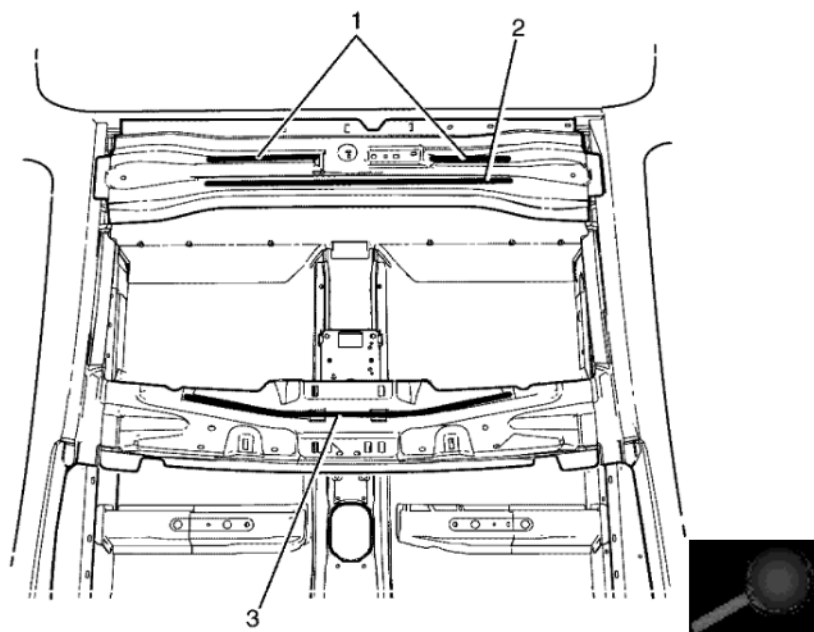
#### **Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- If the location of the original spot weld holes cannot be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

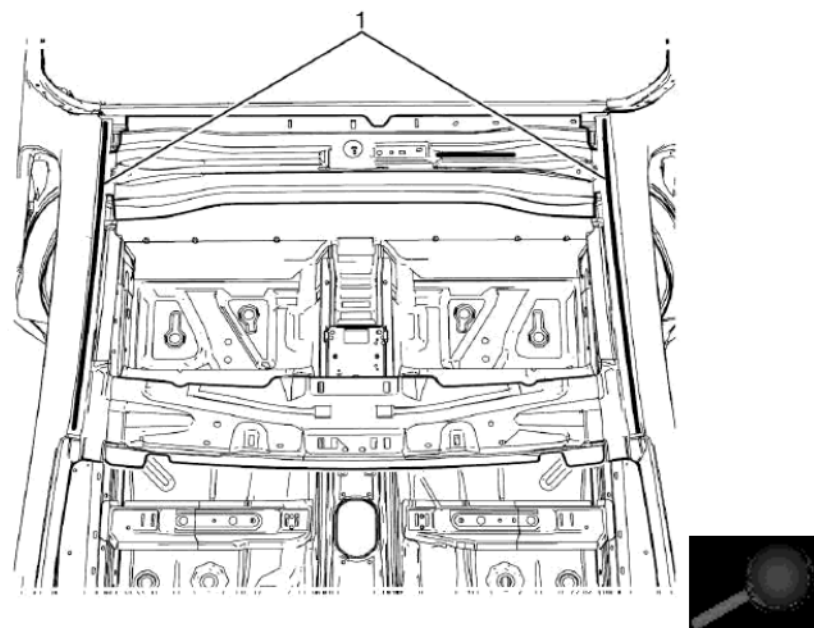
1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.
2. Clean and prepare the mating surfaces of both parts of the body side panel assembly.

**Note:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

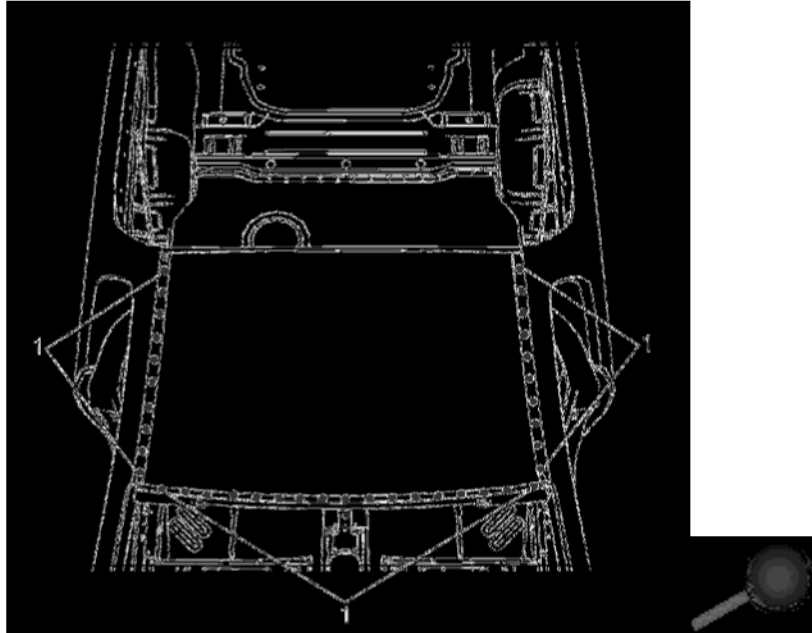
3. Clean the remaining anti-flutter adhesive from the front, centre and rear bow surfaces.
4. Drill 8 mm (5/16 in ) puddle weld holes in the NEW roof outer panel in the locations to be puddle welded.



5. Apply two full beads of approved adhesive to the roof rear header (2).
6. Apply a full bead of approved adhesive to the roof front header (1).

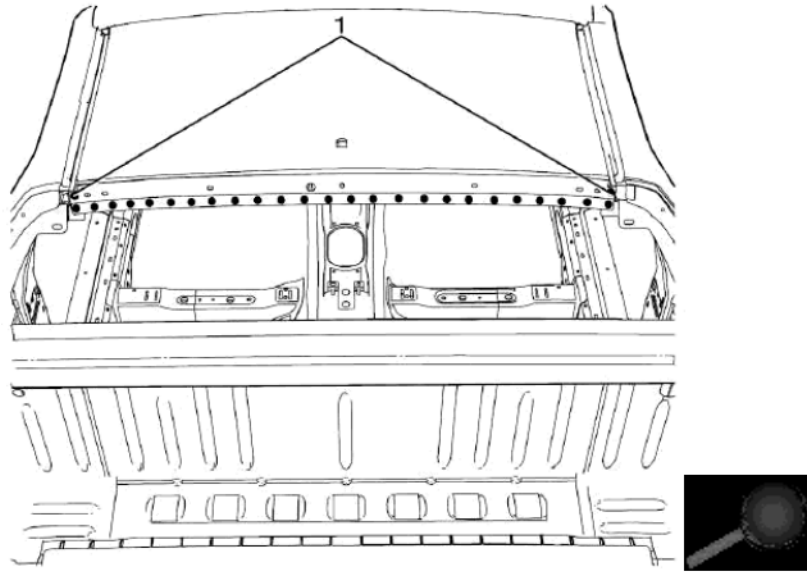


7. Apply approved adhesive to the mating surfaces of the roof panel and body side panel (1).
8. Position the NEW roof outer panel to the vehicle.
9. Inspect the fit.
10. Clamp roof outer panel into correct position.



**Note:** Excessive heat may cause panel distortion. Care must be taken to avoid excessive heat absorption into the roof outer panel when welding.

11. Weld the roof outer panel on to both sides of the vehicle (1).



12. Weld the roof outer panel to the vehicle (1).
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 the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
16. Install the rear window. Refer to [Rear Window Replacement](#).
17. Install the windshield. Refer to [Windshield Replacement](#).
18. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
19. Install the dome lamp assemblies. Refer to [Dome and Reading Lamp Replacement](#).
20. Install the rear quarter upper trim panel. Refer to [Rear Window Panel Trim Replacement](#).
21. Install the body hinge pillar trim panel . Refer to [Center Pillar Center Trim Panel Replacement](#).
22. Install the windshield pillar moulding. Refer to [Windshield Garnish Molding Replacement](#).
23. Remove the tape from the corners of the panels and adjacent surfaces.
24. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
25. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

# Roof Panel Replacement (Sportwagon)

## Removal Procedure

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

**Warning:** Refer to [Safety Glasses Warning](#).

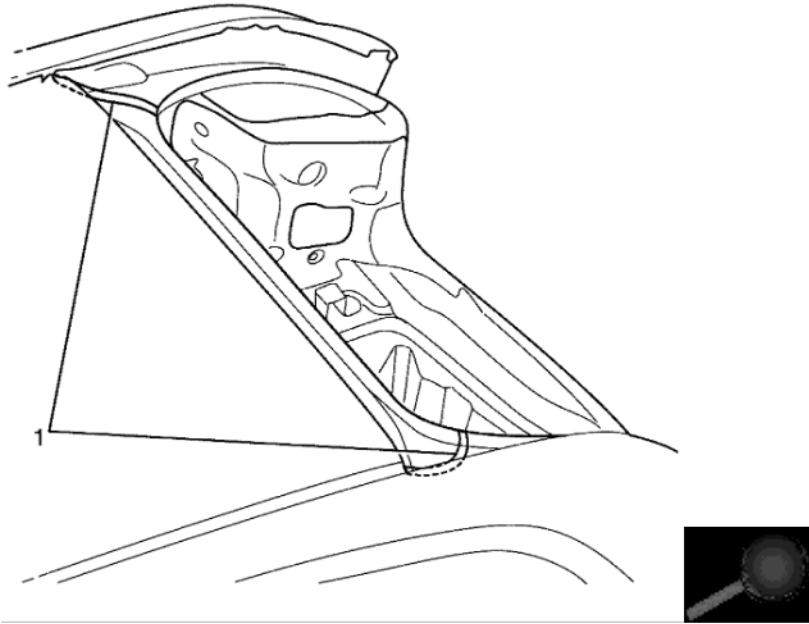
**Warning:** Refer to [Foam Sound Deadeners Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

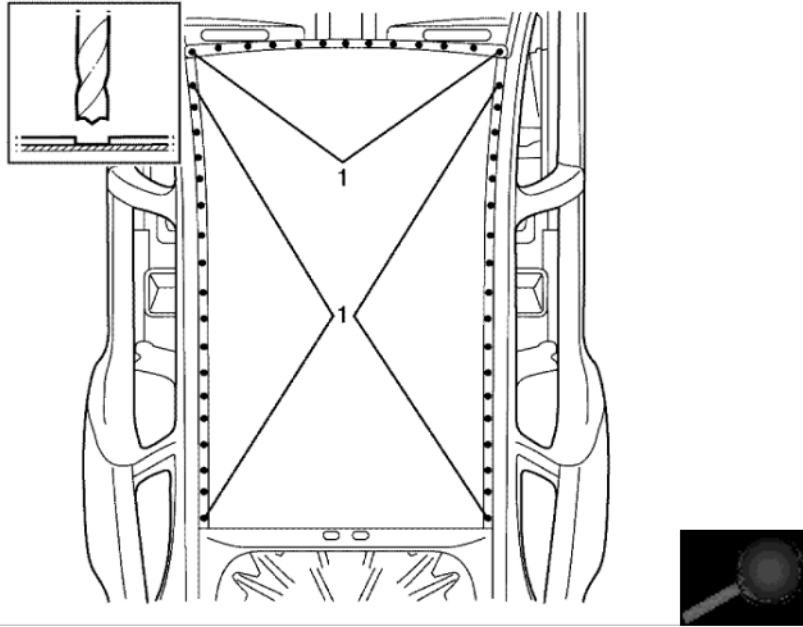
**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
4. Remove the front seat belts. Refer to [Rear Seat Belt Buckle Replacement](#).
5. Remove the liftgate sill garnish molding. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
6. Remove the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
7. Remove the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
8. Remove the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
9. Remove the liftgate weatherstrip. Refer to [Liftgate Weatherstrip Replacement](#).
10. Remove the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
11. Remove the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).
12. Remove the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
13. Remove the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
14. Remove the rear seat back. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).
15. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
16. Remove the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
17. Remove the windshield garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
18. Remove the windshield. Refer to [Windshield Replacement](#).

19. Remove the liftgate. Refer to [Liftgate Replacement](#).
20. Remove the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
21. Remove the liftgate weatherstrip. Refer to [Liftgate Weatherstrip Replacement](#).
22. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
23. Visually inspect the damage. Repair as much of the damage as possible.
24. Apply tape to the corners of the panels and adjacent surfaces.
25. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



26. Remove the sealer patches (1) from the joint between the roof panel and the gutter panel. Note the location of sealer patches for later installation.



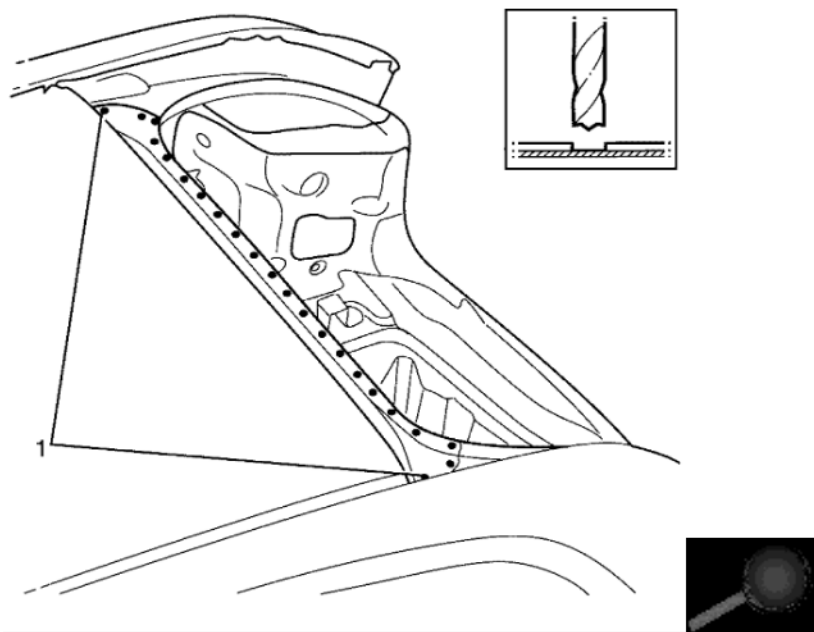
**Important:** The roof panel is attached to the steel roof structure with beads of adhesive on the sides and spot-welds on the side rail, windshield flange and rear roof header panel. Replacement of the roof panel can be performed using conventional procedures, however, the windshield and liftgate must be removed.

**Important:** The roof outer panel is secured to the body side panel with adhesive and spot welds, it cannot be removed by cutting the spot welds alone.

**Important:** Note the number and location of the factory welds for installation of the new roof outer panel assembly.

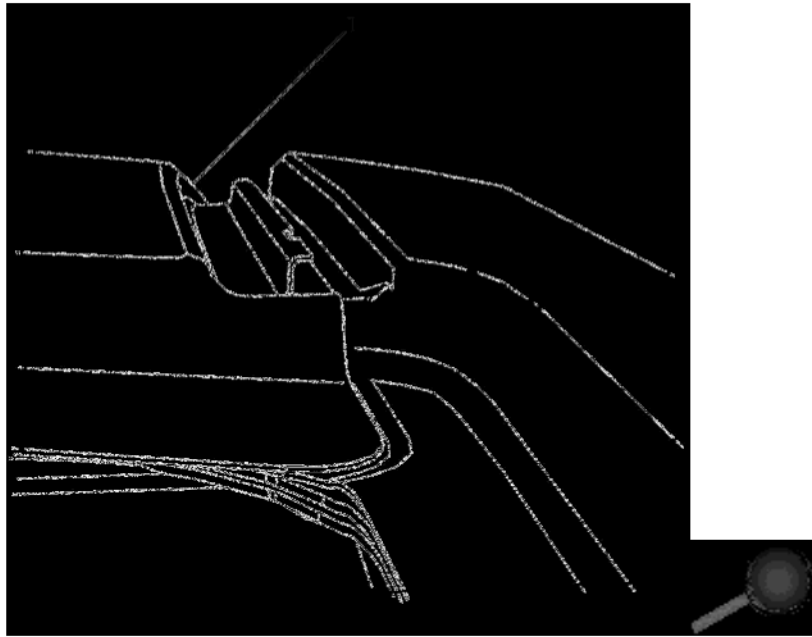
27. Locate, mark and drill out the factory welds attaching the roof outer panel to the vehicle (1). Note the number and location of welds for installation of the service assembly.





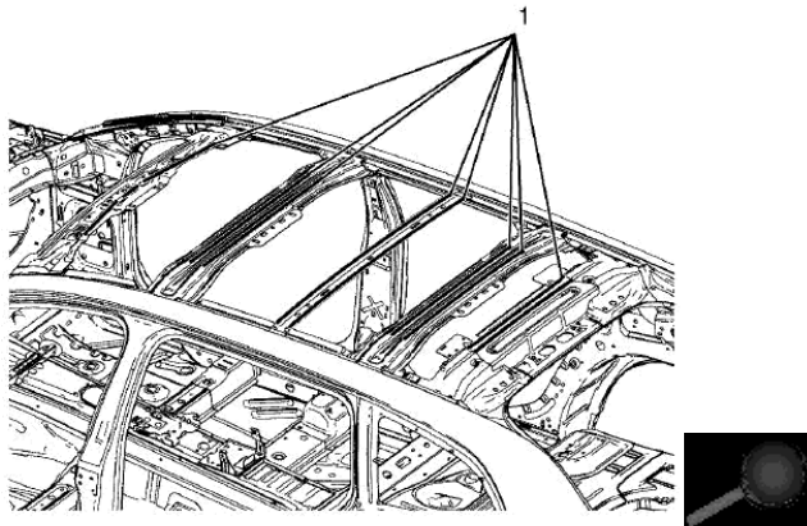
**Important:** Note the number and location of the factory welds for installation of the new roof outer panel assembly.

28. Locate, mark and drill out the factory welds attaching the roof outer panel to the roof rear header (1). Note the number and location of the welds for the installation of the service assembly.



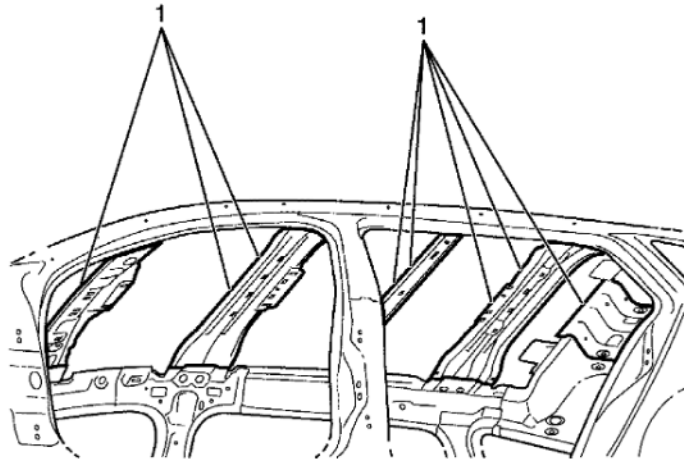
**Important:** Take care when cutting to protect adjacent panels. Cut inboard of the roof structure.

29. Using a suitable tool, cut through the roof outer panel along the inner side of the roof channel (1). Repeat for opposite side.



**Important:** Heating the 'anti-flutter' adhesive softens it making it easier to cut through.

30. Heat the 'anti-flutter' adhesive between the roof panel and the roof bows (1).



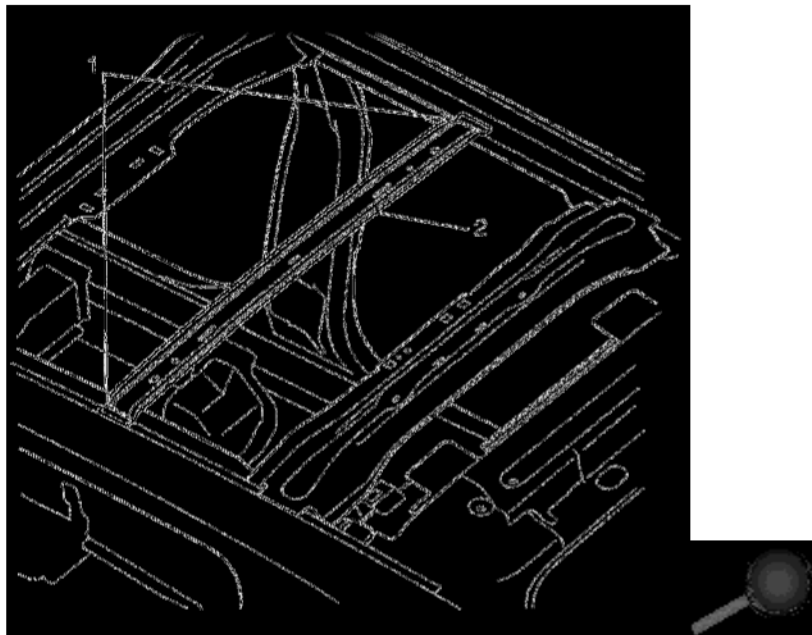
**Important:** The 'anti-flutter' adhesive (1) is between the roof bows and the roof outer panel.

31. Cut the 'anti-flutter' adhesive (1) with a suitable tool.

32. Remove the roof outer panel from the vehicle.



33. Using a suitable tool remove the remaining strip of roof panel (1) from the body side ring. repeat for opposite side.



**Important:** The centre roof bow panel is supplied welded to the roof outer panel. The centre roof bow panel is removed in this

procedure as it will be replaced when the new roof outer panel is installed.

34. Mark a cut line (1) on the centre roof bow panel (2) inboard of the body side.

**Important:** Cut through the centre roof bow panel only. Do not damage any other panels or reinforcements.

35. Cut along the cut line (1) on the centre roof bow panel (2) with a suitable cutting tool.

36. Remove the centre portion of the centre roof bow panel (2) from the vehicle.

37. Using a suitable tool, remove the remaining outer portions of the centre roof bow panel from the vehicle. Ensure all traces of old adhesive are removed.

### Installation Procedure

**Important:** Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.

**Important:** Ensure that all factory welds are replaced in their original locations.

**Important:** Ensure that all structural adhesives are replaced in their original locations.

**Important:** If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).

**Important:** Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

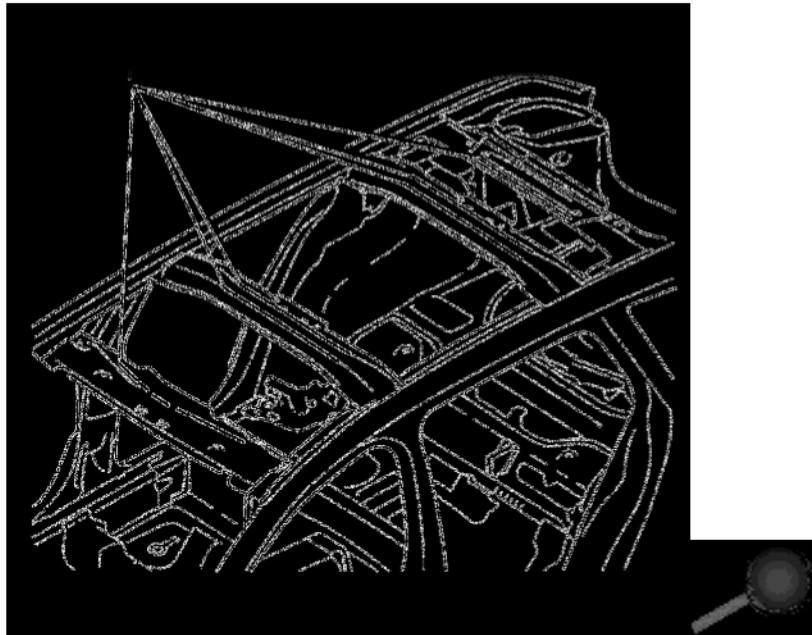
1. Drill 8 mm (5/16 in) plug weld holes as necessary in the locations noted when disassembling.

2. Clean and prepare the mating surfaces of both parts of the body side panel assembly.

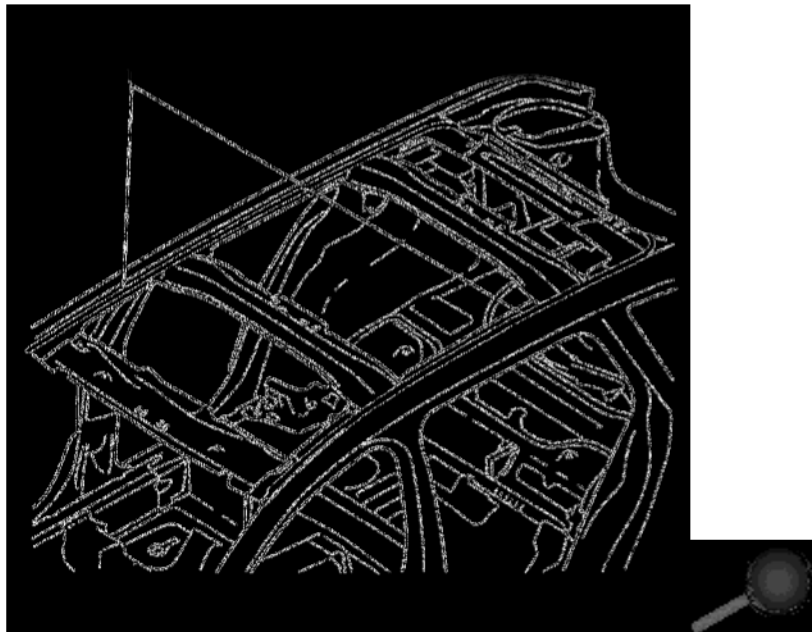
**Important:** Secondary sealer must be applied to the perimeter of all flanges. Secondary sealer must be applied to all welds/joints that were originally covered by secondary sealer.

3. Clean any remaining anti-flutter adhesive from the front, centre and rear roof bow and front/rear roof header surfaces.

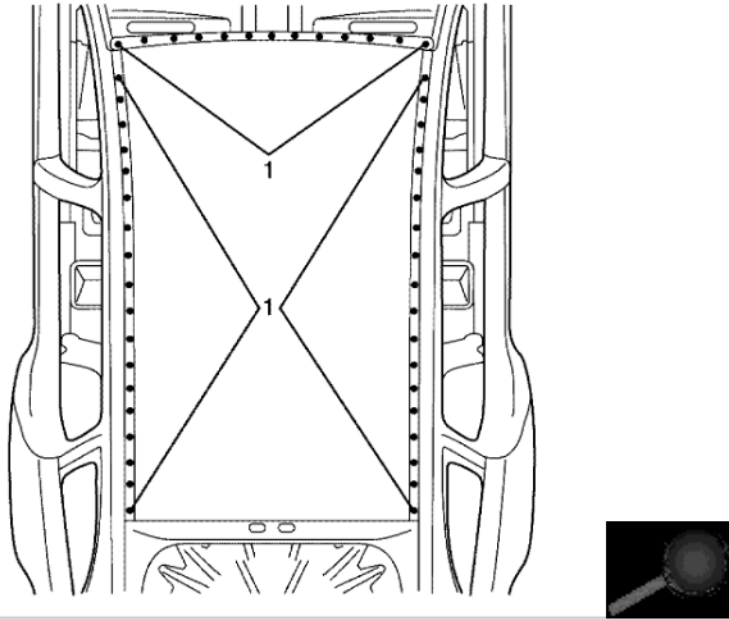
4. Drill 8 mm (5/16 in ) puddle weld holes in the NEW roof outer panel in the locations to be puddle welded.



5. Apply two full beads (6mm dia) of approved anti-flutter adhesive to each of the roof bow panels (1).
6. Apply a full bead (6mm dia) of approved anti-flutter adhesive to the roof front and rear header panel (1).

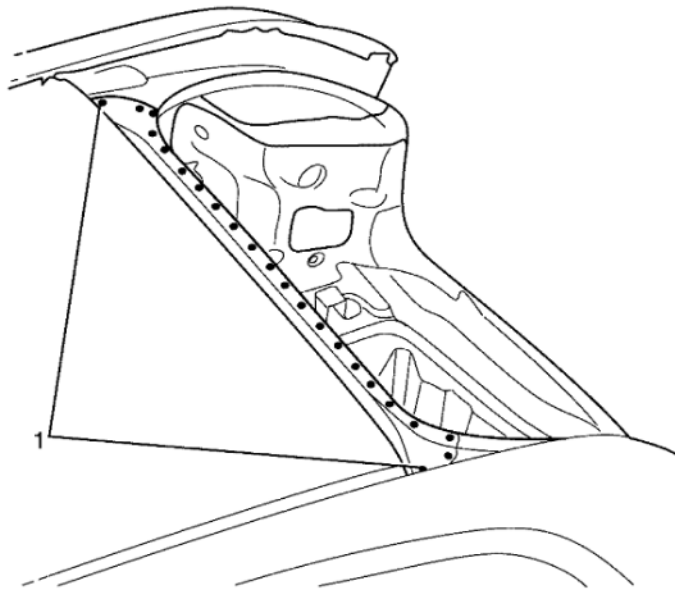


7. Apply an 8mm wide bead of structural adhesive (GM6449G or equivalent) to the mating surfaces of the Roof Outer Panel and Body Side Panel (1).
8. Position the NEW roof outer panel to the vehicle. Inspect the fit and clamp roof outer panel into correct position.

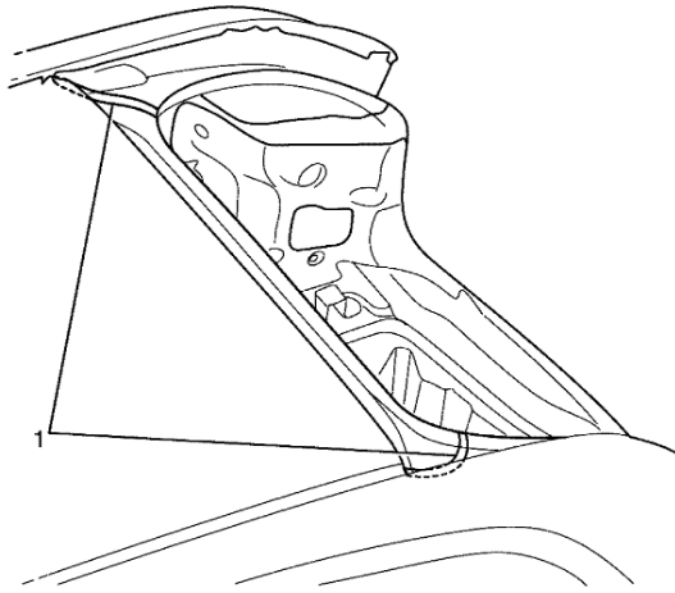


**Important:** Care must be taken to minimise the heat absorbed by the panel which could lead to panel distortion.

9. Weld the roof outer panel on to both sides and to the front roof header panel of the vehicle (1).



- Important:** Care must be taken to minimise the heat absorbed by the panel which could lead to panel distortion.
10. Weld the roof outer panel on to the rear roof header panel of the vehicle (1).





11. Apply secondary sealer (GM specification 9984532 or equivalent) (1) over the joint between the roof panel and gutter panel.
12. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
13. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
14. Install the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
15. Install the liftgate hinges. Refer to [Liftgate Hinge Replacement](#).
16. Install the liftgate. Refer to [Liftgate Replacement](#).
17. Install the windshield. Refer to [Windshield Replacement](#).
18. Install the windshield garnish moulding. Refer to [Windshield Garnish Molding Replacement](#).
19. Install the roof weld joint reveal moulding. Refer to [Roof Panel Joint Finish Molding Replacement](#).
20. Install the headliner. Refer to [Headlining Trim Panel Replacement](#).
21. Install the rear seat back. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).
22. Install the rear seat cushion. Refer to [Rear Seat Cushion Removal and Installation](#).
23. Install the body side window rear garnish moulding. Refer to [Body Side Rear Window Garnish Molding Replacement](#).
24. Install the headlining rear trim panel retainer. Refer to [Liftgate Upper Center Trim Finish Panel Replacement](#).
25. Install the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
26. Install the liftgate weatherstrip. Refer to [Liftgate Weatherstrip Replacement](#).
27. Install the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
28. Install the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
29. Install the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
30. Install the liftgate sill garnish molding. Refer to [Liftgate Sill Garnish Molding Replacement](#).
31. Install the front seat belts. Refer to [Rear Seat Belt Buckle Replacement](#).
32. Install the front seats. Refer to [Driver or Passenger Seat Removal and Installation](#).
33. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
34. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).

## Quarter Panel Replacement (Ute)

### Removal Procedure

**Danger:** Engine exhaust contains Carbon Monoxide (CO) which cannot be seen or smelled. Exposure to CO can cause unconsciousness and even death.

Exhaust may enter the vehicle if:

- **The vehicle idles in areas with poor ventilation (parking garages, tunnels, deep snow that may block underbody airflow or tail pipes).**
- **The exhaust smells or sounds strange or different.**
- **The exhaust system leaks due to corrosion or damage.**
- **The vehicles exhaust system has been modified, damaged or improperly repaired.**
- **There are holes or openings in the vehicle body from damage or after-market modifications that are not completely sealed.**

If unusual fumes are detected or if it is suspected that exhaust is coming into the vehicle:

- **Drive it only with the windows completely down.**
- **Have the vehicle repaired immediately.**

Never park the vehicle with the engine running in an enclosed area such as a garage or a building that has no fresh air ventilation.

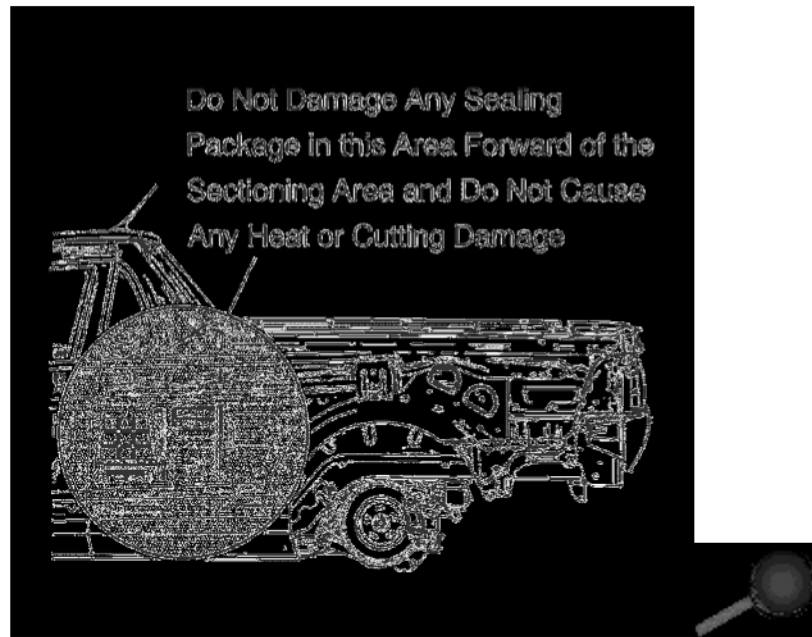
**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

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

**Warning:** Refer to [Battery Disconnect Warning](#).

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



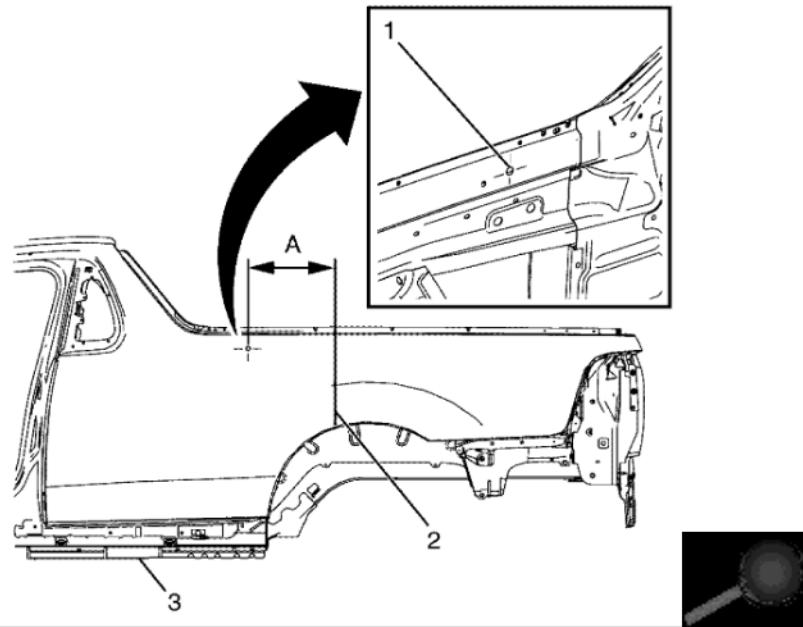
**Note:**

- This procedure only covers sectional repair of the rear portion of the body-side outer panel. The repair of any other portion of the body-side outer panel must be completed as described in [Body Side Outer Panel Sectioning](#) or [Side Door Opening Frame Replacement](#).
- There are a number of critical sealers and panels contained within the body side assembly forwards of the sectioning line that are designed to prevent exhaust gas intrusion into the vehicle cabin. Any damage to these sealers or panels WILL require the replacement of the body side outer panel sectioning. Refer to [Body Side Outer Panel Sectioning](#). This procedure only covers sectional repair of the rear portion of the body-side outer panel.

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. Carry out repairs and instructions required after a collision. Refer to [Repairs and Inspections Required After a Collision](#).
4. Restore as much of the damage as possible to factory specifications. Refer to [Dimensions - Body](#).
5. Remove all related panels and components as required.

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

6. Note the location and remove the sealers and anti-corrosion materials from the repair area as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

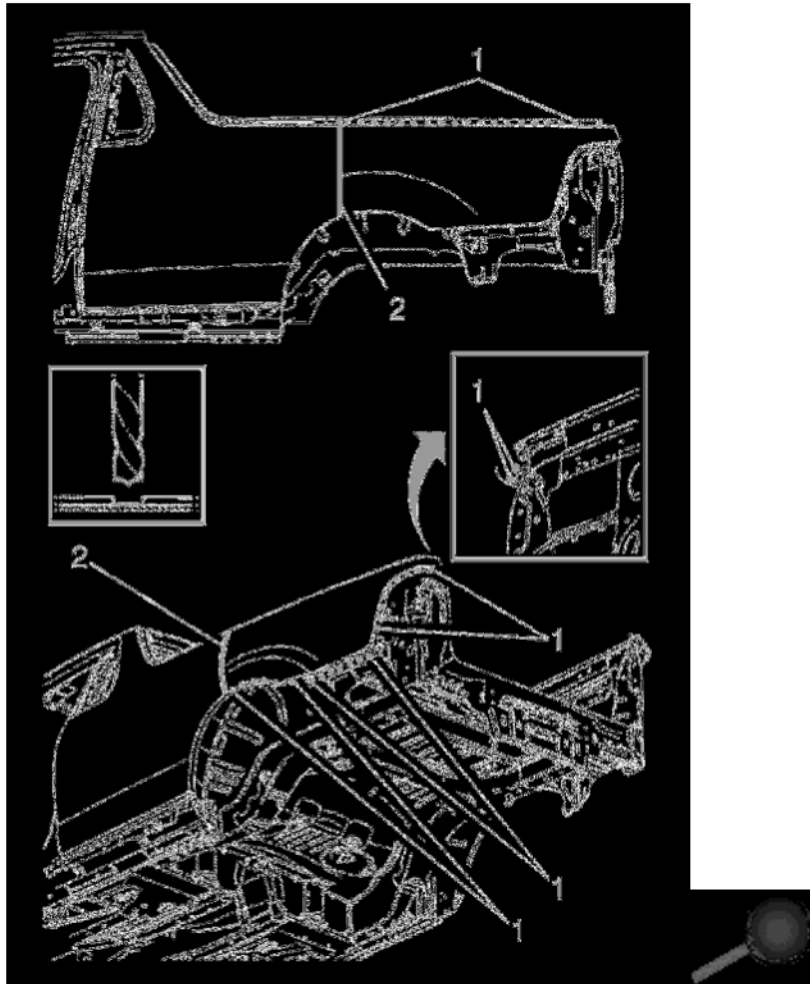


**Note:**

- Measure horizontally towards the rear of the vehicle from the centre of the datum hole (1) to create an accurate vertical cut line.
- Datum hole (1) is a 16.1 mm dia hole in the body side inner upper rail.
- Horizontal measurements are to be made parallel to the rocker panel assembly lower flange (3).

7. Mark a vertical cut line 333 mm (13.1 in) (Dimension A) measured horizontally to the rear of datum point (1).

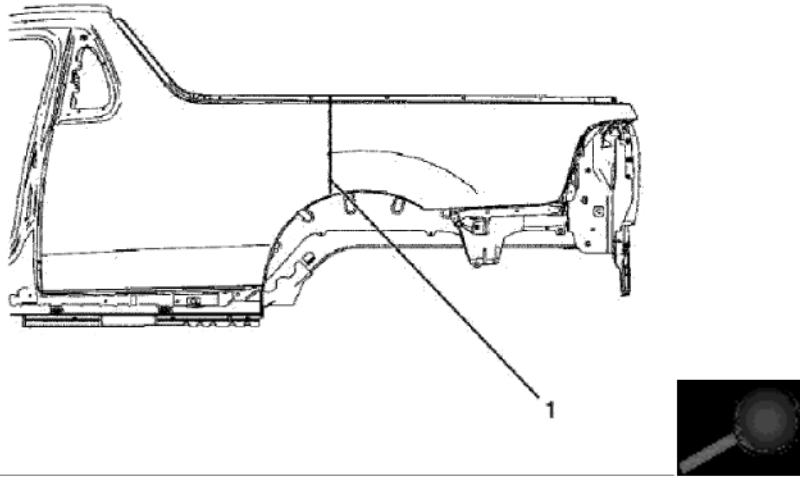
8. If there is any damage forward of the vertical cut line (2), the body side outer panel MUST be replaced. Refer to [Body Side Outer Panel Sectioning](#).



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of the factory welds for installation of the rear quarter panel repair section.

9. Locate, mark and drill out the factory welds (1) to the rear of the vertical cut line (2) attaching the outer quarter panel rear section to the body side assembly.



**Note:**

- Only cut through the body side outer panel. DO NOT damage any inner panels or reinforcements.
- Use a cutting method that minimizes heat. Any damage to surrounding panels and sealers caused by heat cannot be repaired and will require the replacement of the entire body side assembly, or body side outer panel.

10. Cut along the vertical cut line (1) on the body side outer panel with a suitable cutting tool.
11. Carefully remove the damaged rear portion of the body side outer panel.
12. For the right side quarter panel, remove the fuel tank filler pipe housing from the old quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#).

**Installation Procedure**

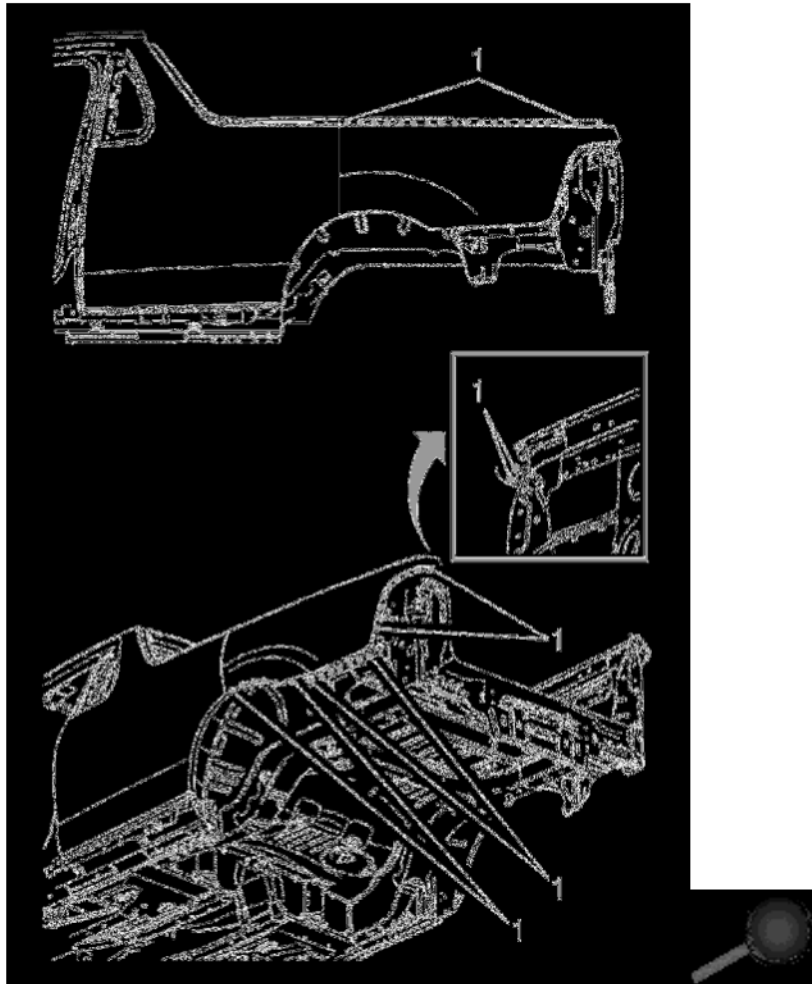
**Note:**

- Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).



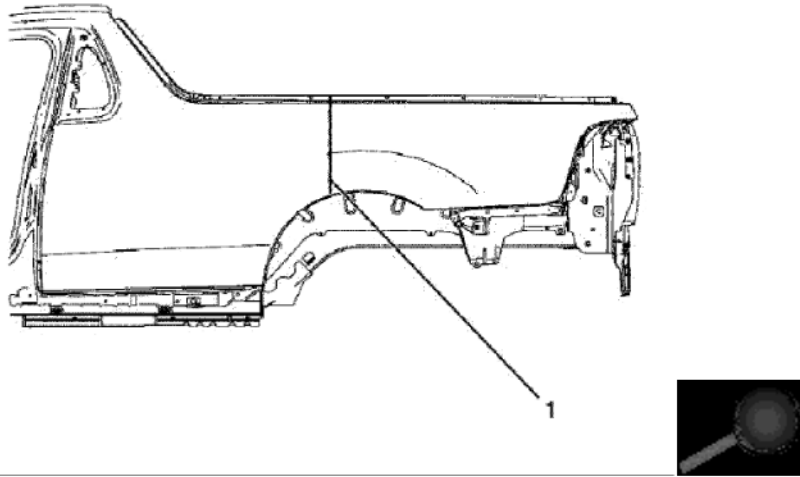
- Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

1. Prepare all mating surfaces as necessary.
  2. Drill 8 mm (5/16 in) puddle weld holes in the service parts as necessary in the locations noted from the original panel.
  3. Cut the new body side 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.
  4. For the right side quarter panel, install the fuel tank filler pipe housing to the new quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#).
  5. Apply approved structural adhesive GM6449G or equivalent to all mating surfaces between the rear quarter panel repair section and the vehicle body side. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#).
- Note:** As the rear end panel assembly is installed to the vehicle, structural adhesive should be visible on the outside edges of both surfaces (squeezed out when pushed together)
6. Position and align the rear body side outer panel repair section to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#).



7. Weld (1) the body side outer panel repair section to the body side assembly.





**Note:**

- Use a welding method that minimizes heat. Any damage to surrounding panels and sealers caused by heat cannot be repaired and will require the replacement of the entire body side assembly.
- 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 and then go back and complete the weld.

8. Stitch weld the quarter panel repair section to the body side outer panel at the sectioning location (1).
9. Clean and prepare all of the welded surfaces.
10. Apply the sealers and anti-corrosion materials to the repair area, as noted in removal. 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](#).

## Quarter Panel Replacement (Long Wheelbase Sedan)

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

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

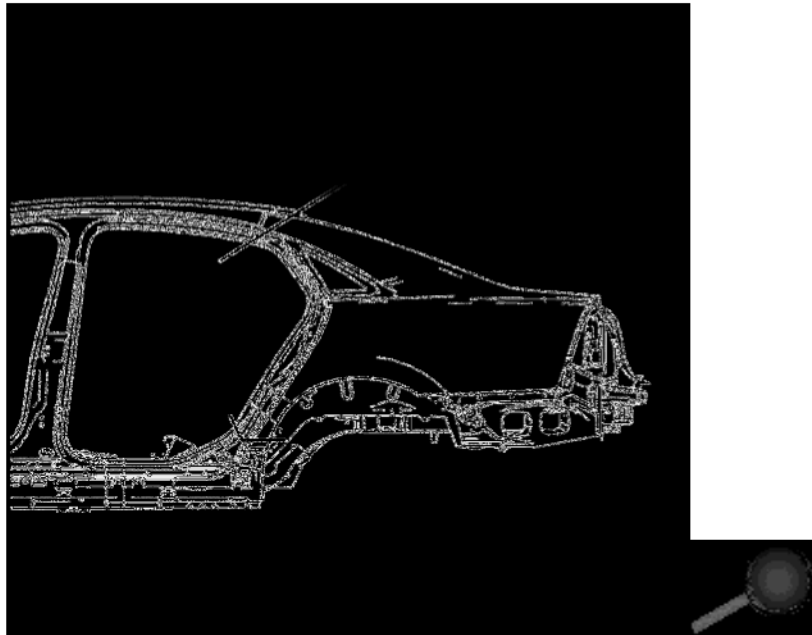
**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:** This procedure only covers sectional repair of the rear portion of the body-side outer panel. The body-side outer panel is supplied as a complete panel which must be cut at the sectioning points described in this procedure prior to installation. Only the rear portion of the body-side outer panel may be replaced as described in this procedure.

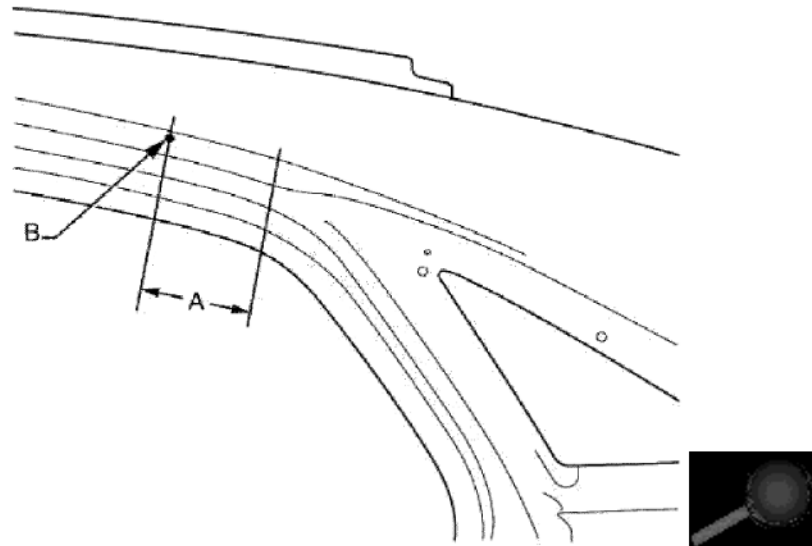
1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#)
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#)
3. Remove the battery. Refer to [Battery Replacement](#)
4. Remove the battery tray. Refer to [Battery Tray Replacement](#)
5. Remove the deck lid. Refer to [Rear Compartment Lid Replacement](#)
6. Remove the rear door seals. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#)
7. Remove the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#)
8. Remove the roof lining. Refer to [Headlining Trim Panel Replacement](#)
9. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#)
10. Remove the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#)
11. Remove the rear parcel shelf. Refer to [Rear Window Panel Trim Replacement](#)
12. Remove the deck lid release cable. Refer to [Rear Compartment Lid Latch Release Cable Replacement](#)

**Note:** When replacing panels that involve servicing of stationary glass, refer to [Rear Window Replacement](#) Rear Window Replacement and [Windshield Replacement](#) Windshield Replacement. Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.

13. Remove the rear window. Refer to [Rear Window Replacement](#)
14. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#)
15. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#)
16. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#)
17. Remove the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#)
18. Remove the rocker panel moulds. Refer to [Rocker Panel Molding Replacement](#)
19. Remove the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
20. Remove the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#)
21. Remove the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) and/or [Exhaust Muffler Heat Shield Replacement - Right Side](#)
22. Remove the rear frame. Refer to [Rear Frame Replacement](#)
23. Remove the rear brake lines. Refer to [Rear Brake Pipe Replacement](#)
24. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#)
25. Remove the fuel lines. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#)
26. Lower the vehicle.
27. Remove the roof moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#)  
**Note:** This step is unique to the sunroof module.
28. Remove the rear sunroof drain tubes. Refer to [Sunroof Housing Rear Drain Hose Replacement](#)
29. Remove the tail lights. Refer to [Tail Lamp Replacement](#)
30. Repair as much of the damage as possible.
31. Remove sound deadeners as necessary and note their location.
32. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#)

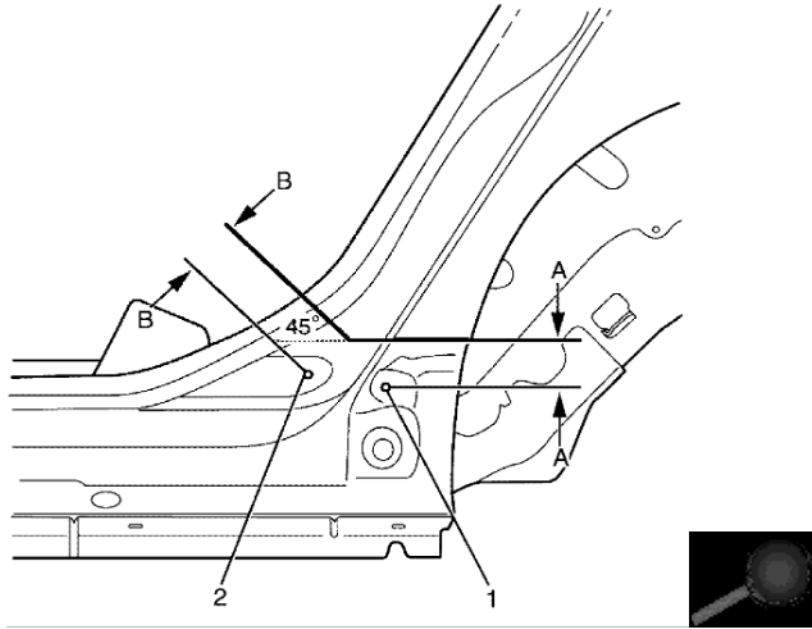


33. Create cut lines on the rocker panel and rear quarter panel within the approved sectioning locations.



**Note:** Measure from the centre of the datum hole to create an accurate cut line.

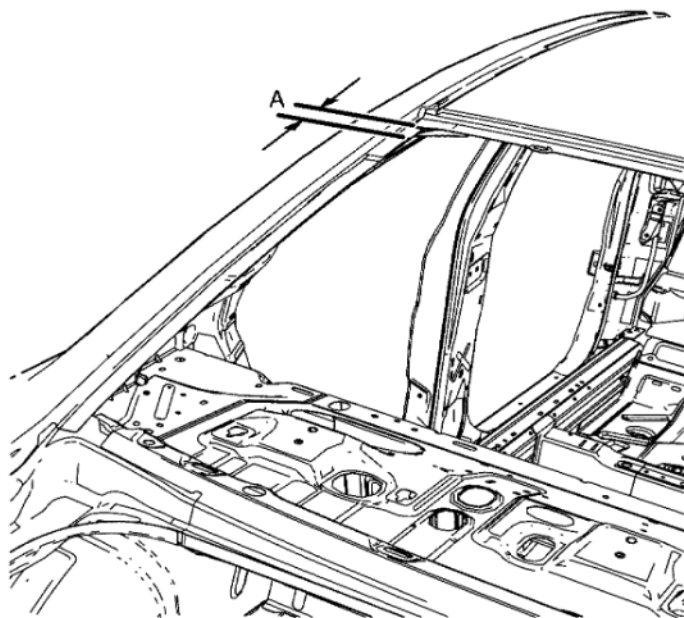
34. Mark a cut line 100 mm (3.94 in) (Dimension A) from datum point (1).



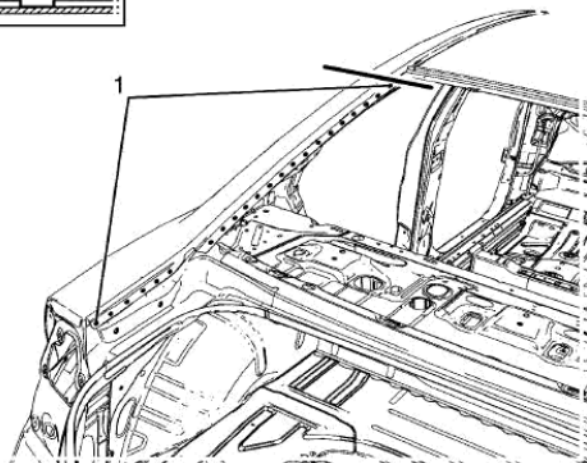
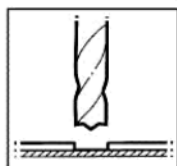
**Note:** Measure from the centre of the datum hole to create an accurate cut line.

35. Mark a horizontal cut line 42 mm (1.65 in) (dimension A) above datum point (1).

36. Mark a cut line 47 mm (1.85 in) (dimension B) from datum point (2) at an angle of 45 degrees to the horizontal.



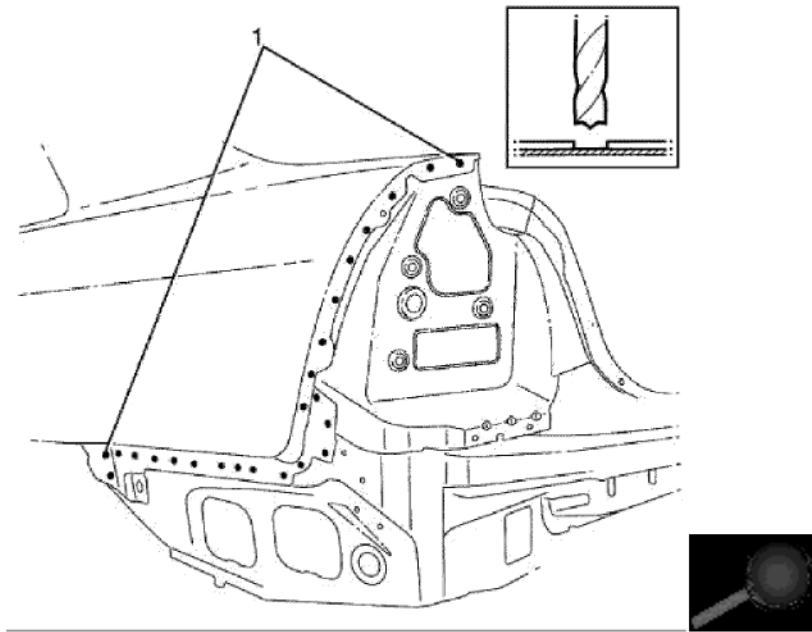
37. In the rear window opening, mark a cut line 10 mm (0.39 in) (dimension A) rearward from the rear edge of the roof.
38. Mark a cut line to the door opening.



**Note:** Take care not damage any inner panels or reinforcements.

**Note:** Note the number and location of factory welds for installation of the rear quarter panel repair section.

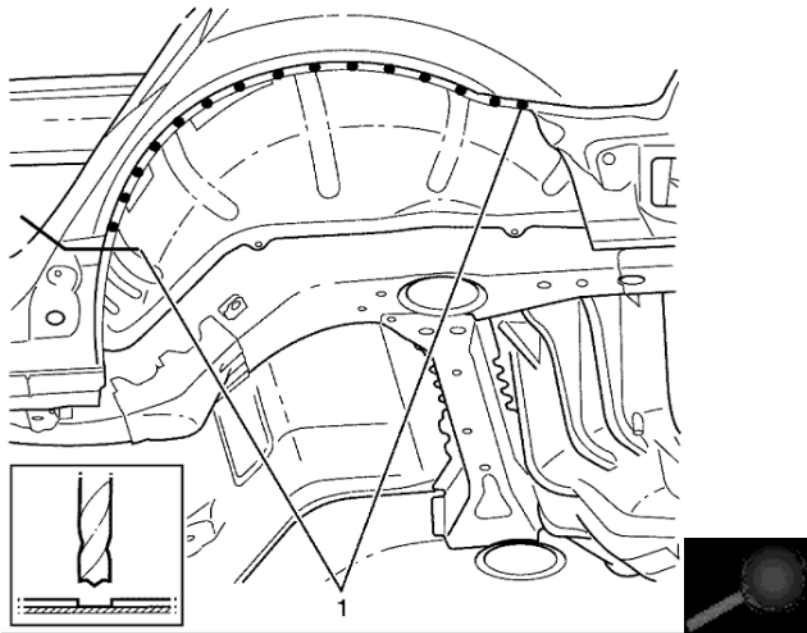
39. Locate, mark and drill out all the necessary factory welds (1) inside the cut lines on the quarter panel to rear window sill.



**Note:** Note the number and location of the factory welds for installation of the quarter panel.

**Note:** Note the number and location of factory welds for installation of the rear quarter panel repair section.

40. Locate, mark, and drill out the factory welds (1) attaching the body side outer panel to the tail lamp panel and extension panel.

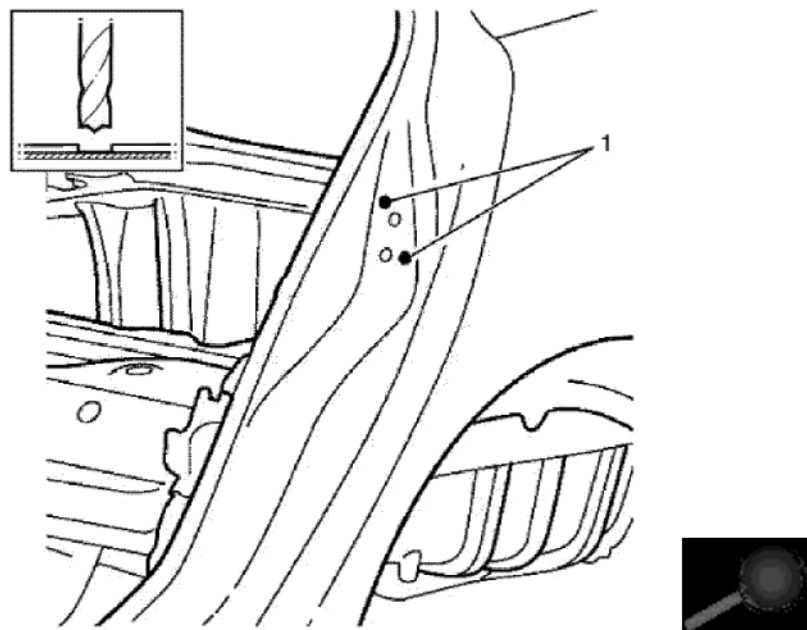


**Note:** Note the number and location of the factory welds for installation of the quarter panel.

**Note:** Note the number and location of factory welds for installation of the rear quarter panel repair section.

41. Locate, mark and drill out factory welds (1) attaching the body side outer panel to the inner wheelhouse panel.

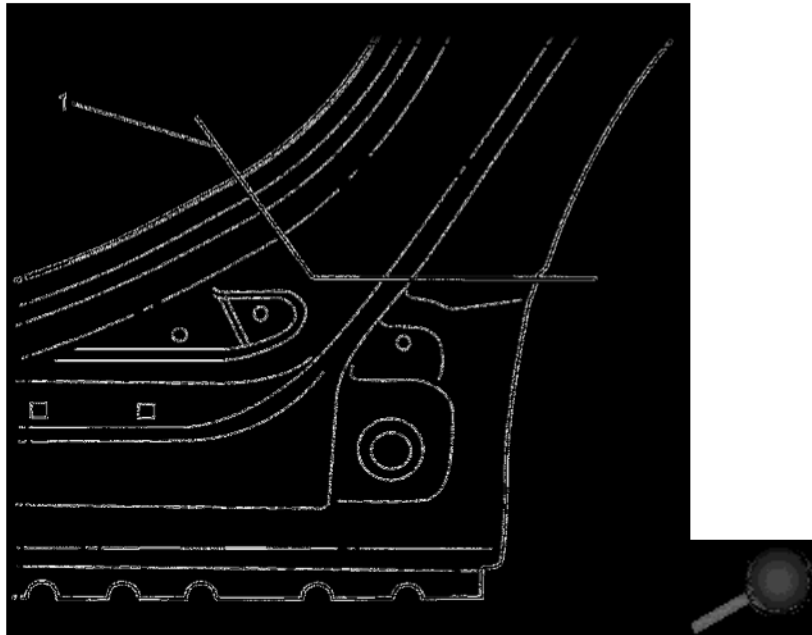




**Note:** Note the number and location of the factory welds for installation of the quarter panel.

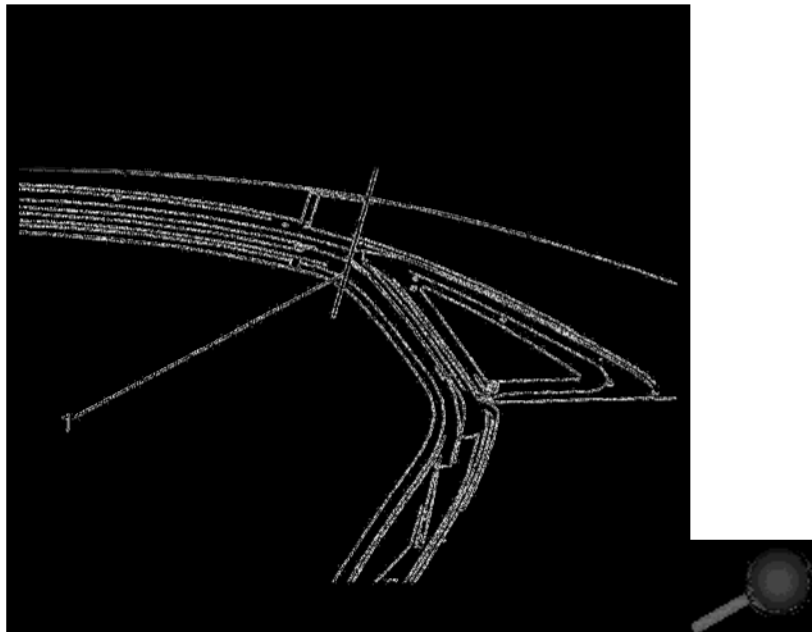
**Note:** Note the number and location of factory welds for installation of the rear quarter panel repair section.

42. Locate, mark and drill out the factory welds (1) attaching the body side outer panel to the rear door striker reinforcement bracket.



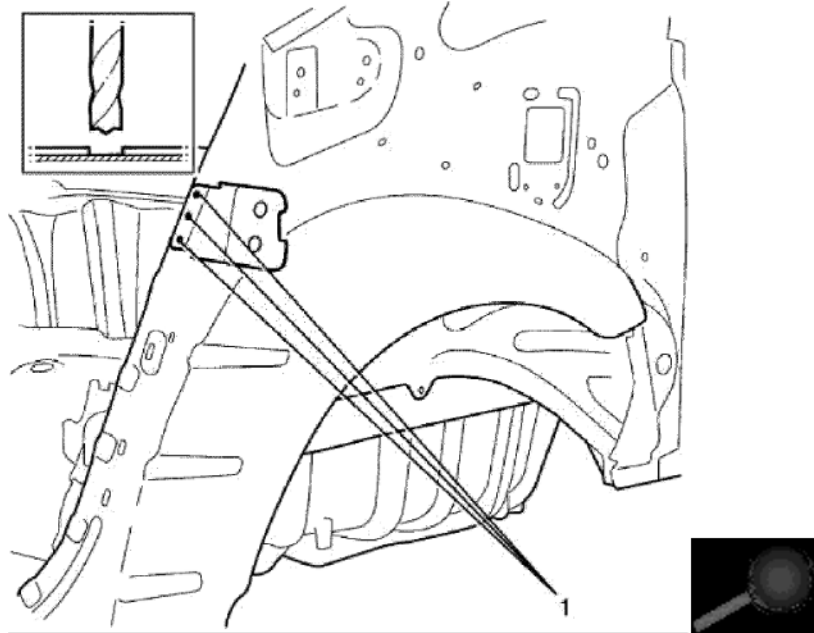
**Note:** Only cut through the body side outer panel. Do not damage any inner panels or reinforcements.

43. Cut along the cut line (1) on the body side outer panel with a suitable cutting tool.



**Note:** Only cut through the skin panel, outer panel. Do not damage any inner panels or reinforcements.

44. Cut along the cut line (1) on the body side outer panel with a suitable cutting tool.
45. Remove the damaged rear quarter portion of the body side outer panel.
46. For the right side quarter panel, remove the fuel tank filler pipe housing from the old quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#)



**Note:** The following step is only required if the rear door striker reinforcement bracket is also to be replaced.

**Note:** Note the number and location of the factory welds for installation of the quarter panel.

**Note:** Note the number and location of factory welds for installation of the rear quarter panel repair section.

47. Locate, mark and drill out the factory welds (1) attaching the rear door striker reinforcement bracket to the body ring. Remove the rear door striker reinforcement bracket from the vehicle and discard.

### **Installation Procedure**

**Note:** Spot welding is the preferred method for attaching panels and should be used whenever possible. A plug weld should only be performed where spot welding is not possible.

**Note:** Ensure that all factory welds are replaced in their original locations.

**Note:** Ensure that all structural adhesives and sealers are replaced in their original locations.

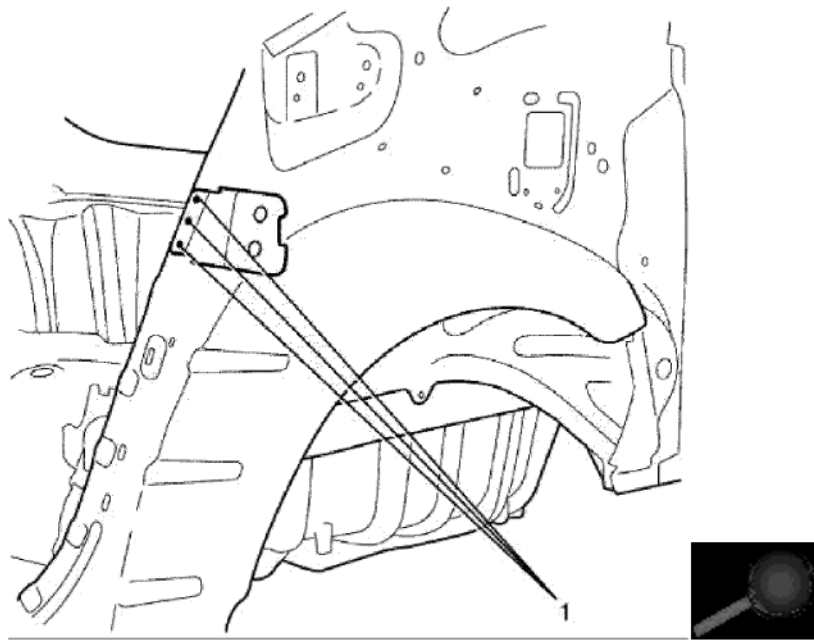
**Note:** If the location of the original plug weld holes cannot be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).

**Note:** Follow the adhesive manufacturer's instructions during the assembly process. Heat must be applied as per the manufacturer's specifications to cure the adhesives and to expand the sealing baffles.

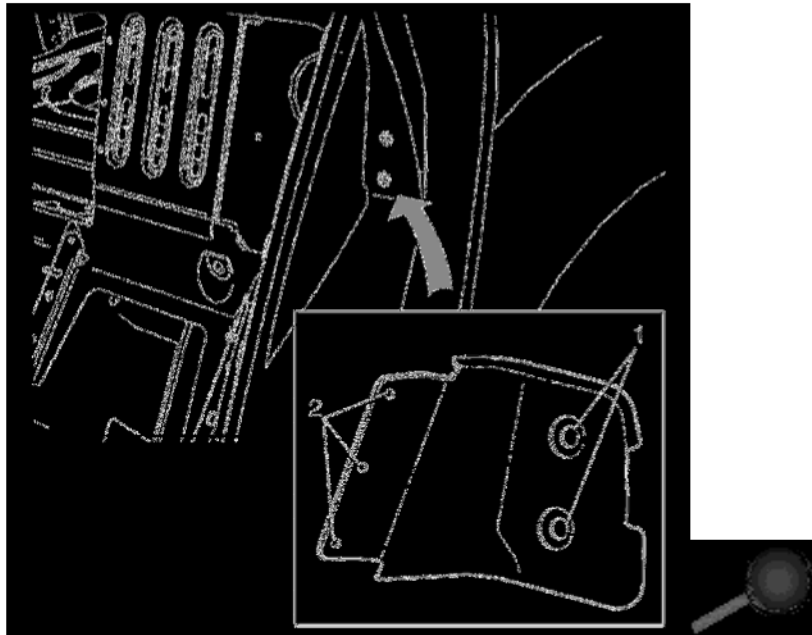
1. Prepare all mating surfaces as necessary.
2. Drill 8 mm (5/16 in) puddle weld holes in the service parts as necessary in the locations noted from the original panel.

**Note:** The following step is only required if the rear door striker reinforcement bracket is also to be replaced.

3. Position and align the rear door striker reinforcement bracket to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#)

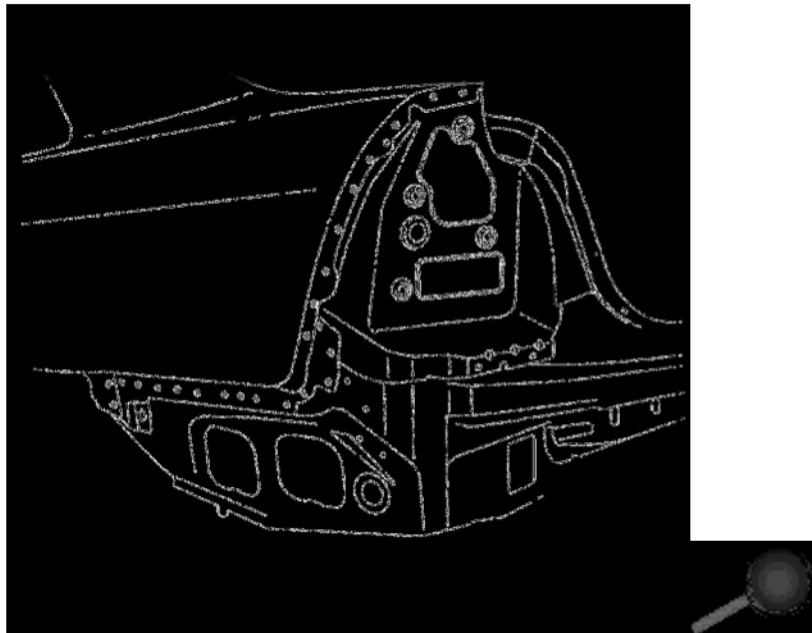


4. Weld the rear door striker reinforcement bracket (1) to the body ring.
5. Cut the new body side outer panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
6. For the right side quarter panel, install the fuel tank filler pipe housing to the new quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#)
7. Position and align the rear body side outer panel repair section to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#)

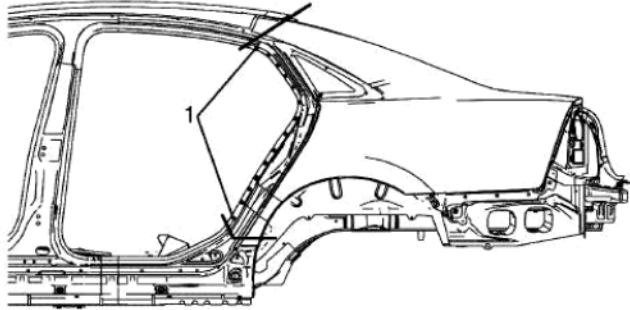


Align the bolt holes (1) for the rear door striker with holes in the body side outer.

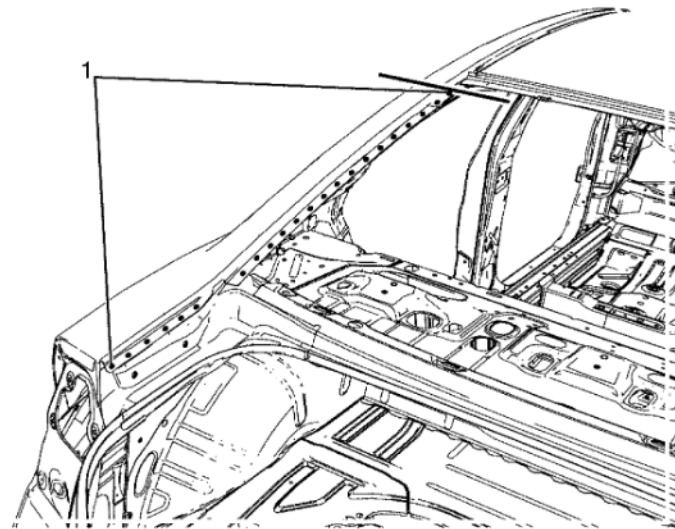
8. Install the rear door striker into the bolt holes in the rear door striker reinforcement through the quarter panel repair section.



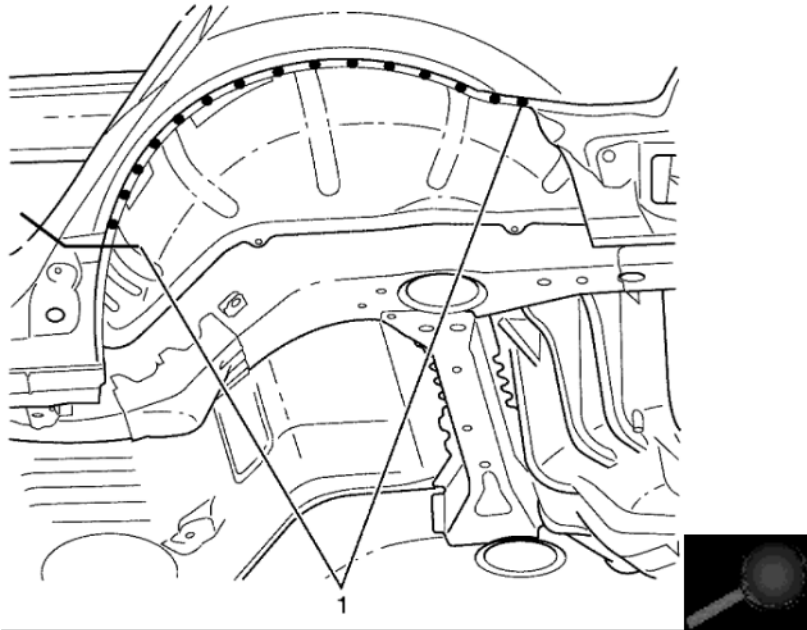
9. Weld (1) the body side outer panel repair section to the tail lamp filler panel and the inner side extension.



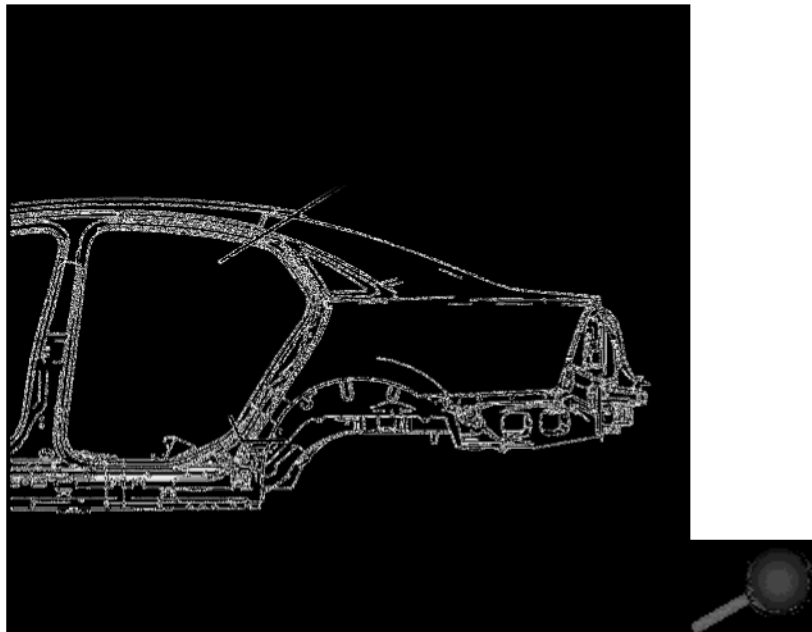
10. Weld the rear body side outer panel repair section to the body side ring.



11. Weld the quarter panel to the rear window sill.

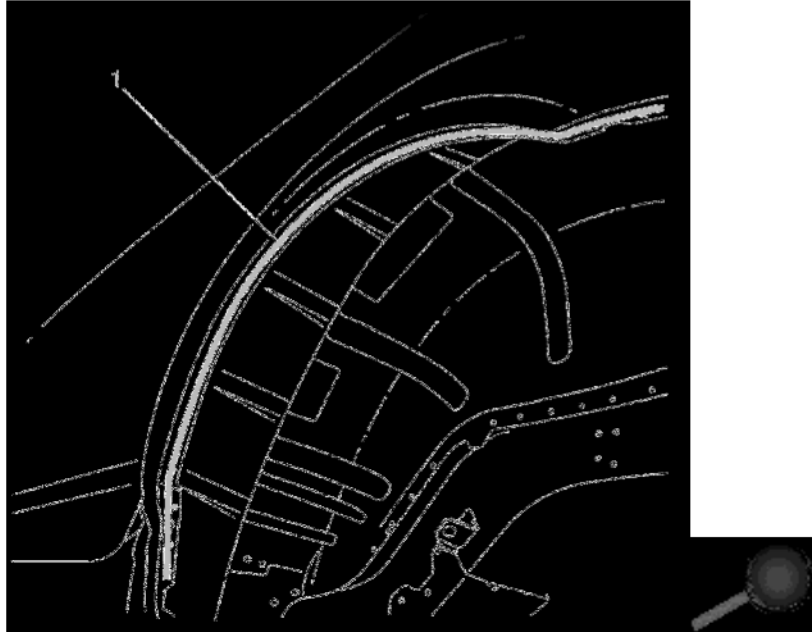


12. Weld (1) the quarter panel to the inner rear wheelhouse.



**Note:** 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 and then go back and complete the weld.

13. Stitch weld the quarter panel repair section to the body side outer panel at the three sectioning locations (1), (2).
14. Clean and prepare all of the welded surfaces.
15. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#)



16. Apply the secondary sealer (1) GM specification 9984532 or equivalent along the rear quarter panel to the rear wheel arch.









## Quarter Panel Replacement (Short Wheelbase Sedan)

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

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

**Warning:** Refer to [Battery Disconnect Warning](#).

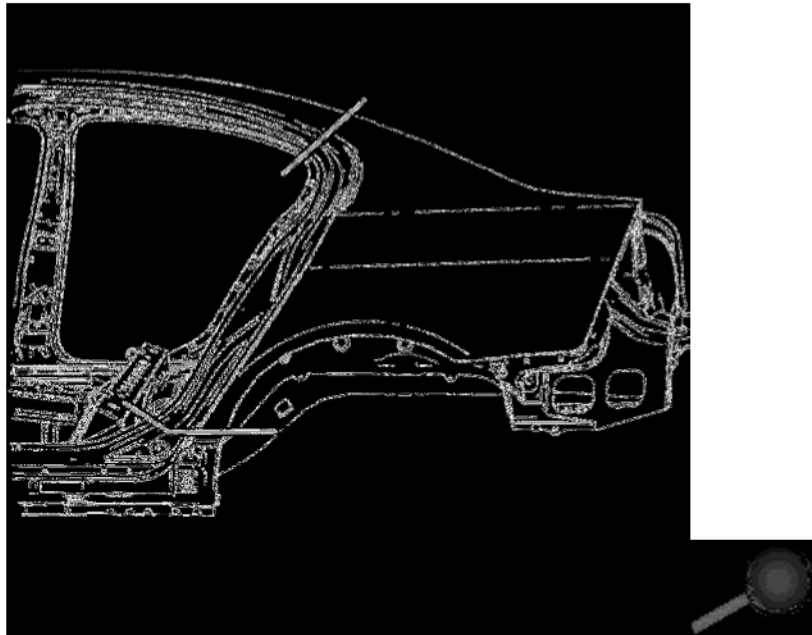
**Note:** This procedure only covers sectional repair of the rear portion of the body-side outer panel. The body-side outer panel is supplied as a complete panel which must be cut at the sectioning points described in this procedure prior to installation. Only the rear portion of the body-side outer panel may be replaced as described in this procedure. The repair of any other portion of the body side outer panel is not permitted and will require replacement of the complete body side assembly.

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 battery. Refer to [Battery Replacement](#).
4. Remove the battery tray. Refer to [Battery Tray Replacement](#).
5. Remove the deck lid. Refer to [Rear Compartment Lid Replacement](#).
6. Remove the rear door seals. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#).
7. Remove the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
8. Remove the roof lining. Refer to [Headlining Trim Panel Replacement](#).
9. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
10. Remove the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).
11. Remove the rear parcel shelf. Refer to [Rear Window Panel Trim Replacement](#).
12. Remove the deck lid release cable. Refer to [Rear Compartment Lid Latch Release Cable Replacement](#).

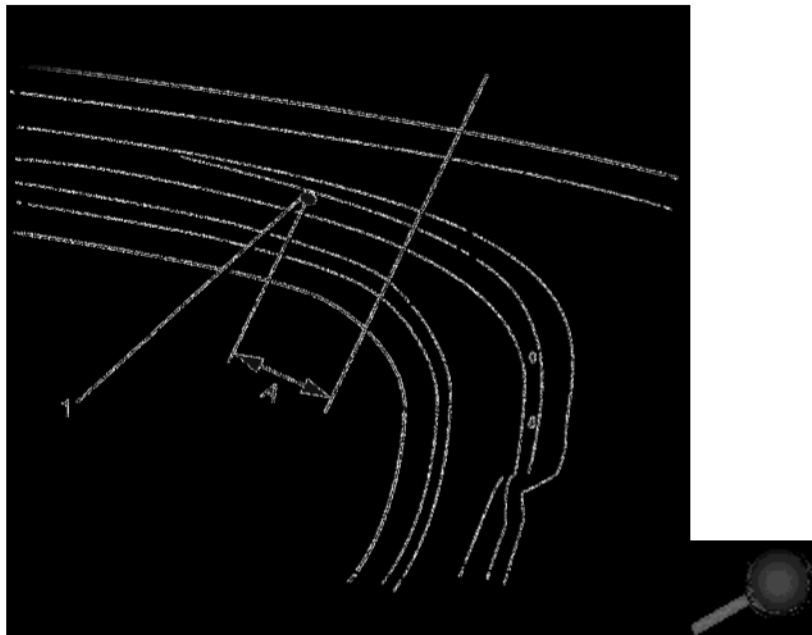
**Note:** When replacing panels that involve servicing of stationary glass, refer to [Rear Window Replacement](#) and [Windshield](#)

**Replacement.** Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.

13. Remove the rear window. Refer to [Rear Window Replacement](#).
  14. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
  15. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
  16. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
  17. Remove the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
  18. Remove the rocker panel moulds. Refer to [Rocker Panel Molding Replacement](#).
  19. Remove the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
  20. Remove the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
  21. Remove the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) and/or [Exhaust Muffler Heat Shield Replacement - Right Side](#).
  22. Remove the rear frame. Refer to [Rear Frame Replacement](#).
  23. Remove the rear brake lines. Refer to [Rear Brake Pipe Replacement](#).
  24. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) for the V6 engines or [Fuel Tank Replacement](#) for the V8 engines.
  25. Remove the fuel lines. Refer to [Filler Tube Replacement](#) for the V6 engines or [Filler Tube Replacement](#) for the V8 engines.
  26. Lower the vehicle.
  27. Remove the roof moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
- Note:** This step is unique to the sunroof module.
28. Remove the rear sunroof drain tubes. Refer to [Sunroof Housing Rear Drain Hose Replacement](#).
  29. Remove the tail lights. Refer to [Tail Lamp Replacement](#).
  30. Repair as much of the damage as possible.
  31. Remove sound deadeners as necessary and note their location.
  32. Remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).

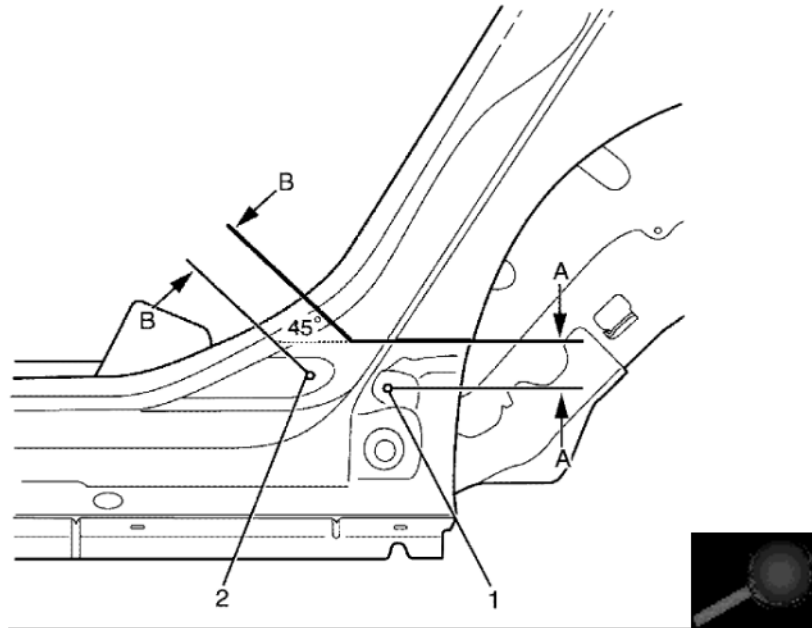


33. Create cut lines on the rocker panel and rear quarter panel within the approved sectioning locations.



**Note:** Measure from the centre of the datum hole to create an accurate cut line.

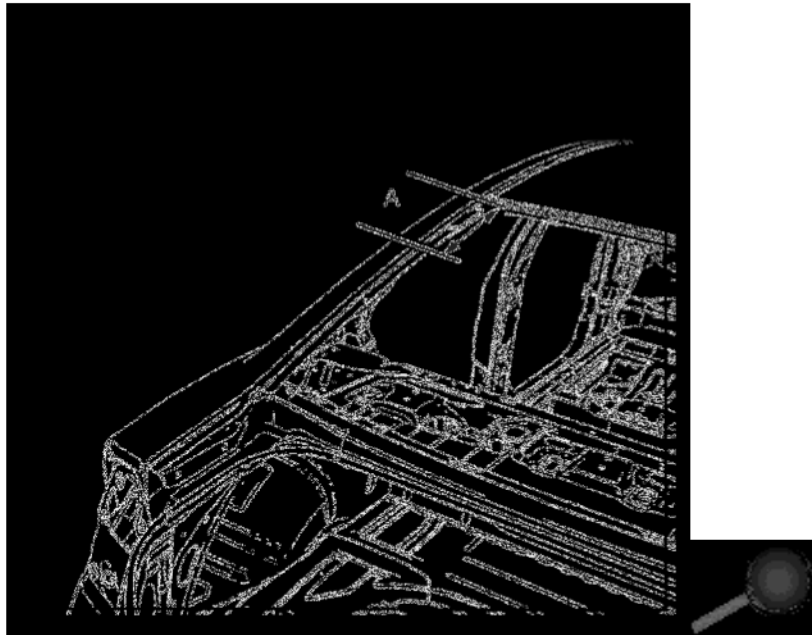
34. Mark a cut line 75 mm (2.95 in) from datum point (1).



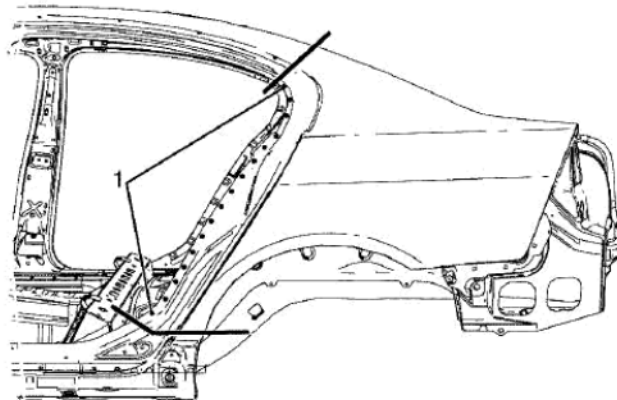
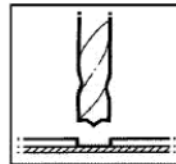
**Note:** Measure from the centre of the datum holes to create an accurate cut line. Datum holes (1) and (2) are 9 mm dia holes in the body side outer panel.

35. Mark a horizontal cut line 42 mm (1.65 in) (dimension A) above datum point (1).

36. Mark a cut line 47 mm (1.85 in) (dimension B) from datum point (2) at an angle of 45 degrees to the horizontal.



37. In the rear window opening, measure down 10 mm (0.39 in) from the rear edge of the roof (A).

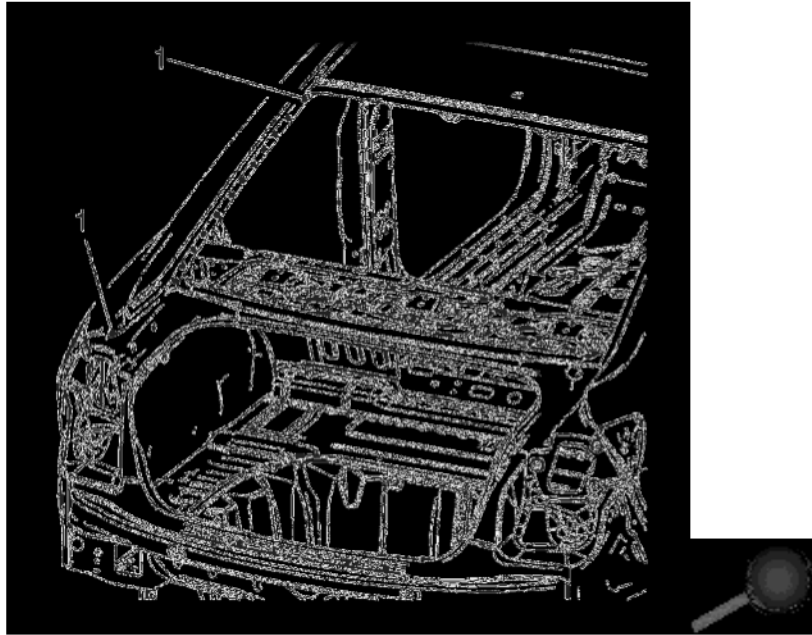


**Note:**



- Take care not damage any inner panels or reinforcements.
- Note the number and location of factory welds (1) for installation of the rear quarter panel repair section.

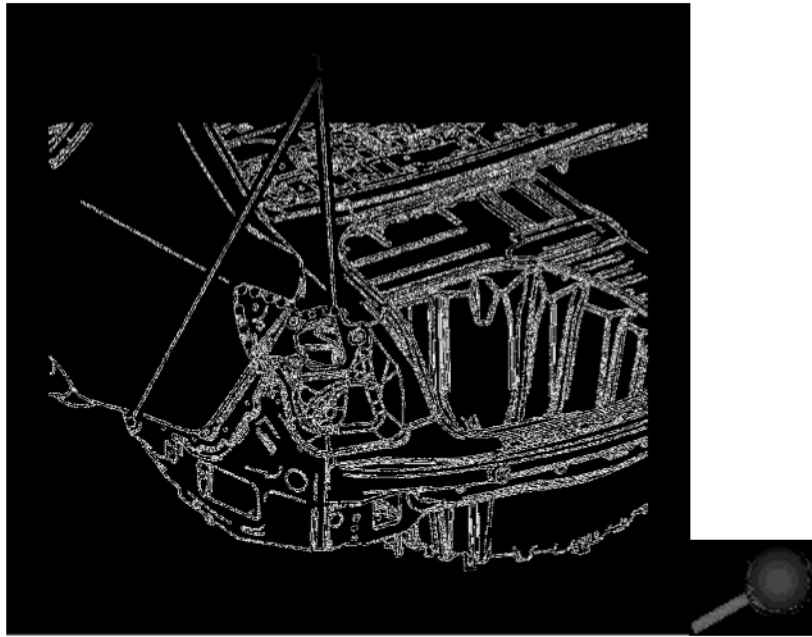
38. Locate, mark and drill out all the factory welds (1) inside the cut lines on the quarter panel to body ring.



**Note:**

- Take care not damage any inner panels or reinforcements.
- Note the number and location of factory welds for installation of the rear quarter panel repair section.

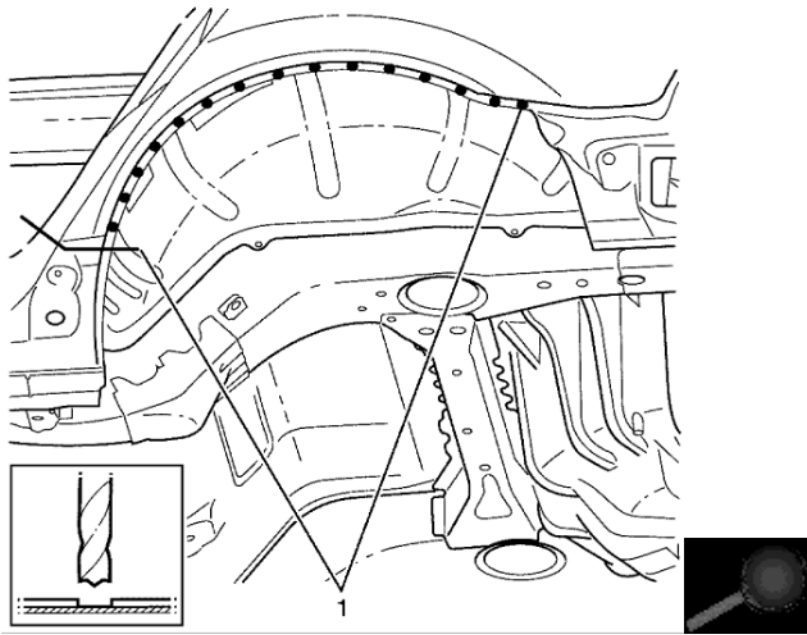
39. Locate, mark and drill out all the necessary factory welds (1) inside the cut lines on the quarter panel to rear window sill.



**Note:**

- Take care not damage any inner panels or reinforcements.
- Note the number and location of factory welds for installation of the rear quarter panel repair section.

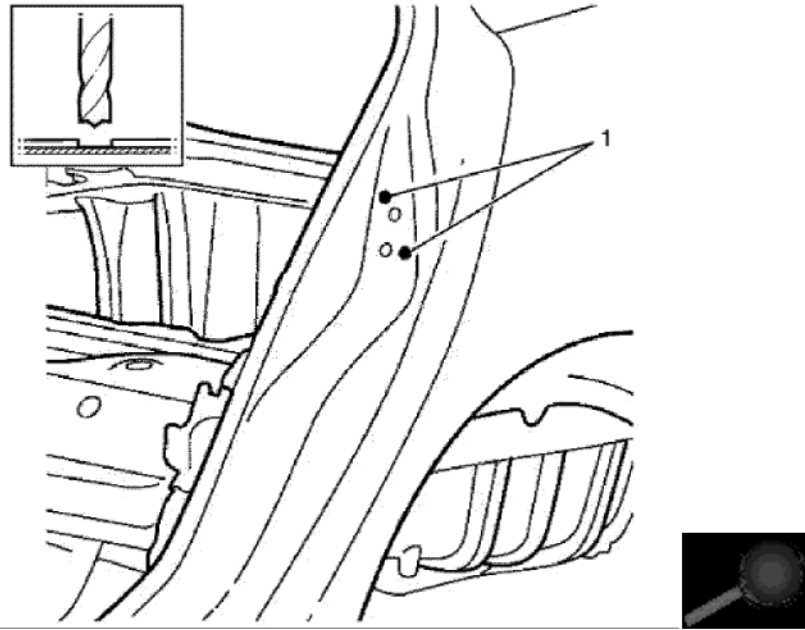
40. Locate, mark, and drill out the factory welds (1) attaching the body side outer panel to the tail lamp panel and extension panel.



**Note:** Take care not damage any inner panels or reinforcements.

**Note:** Note the number and location of factory welds for installation of the rear quarter panel repair section.

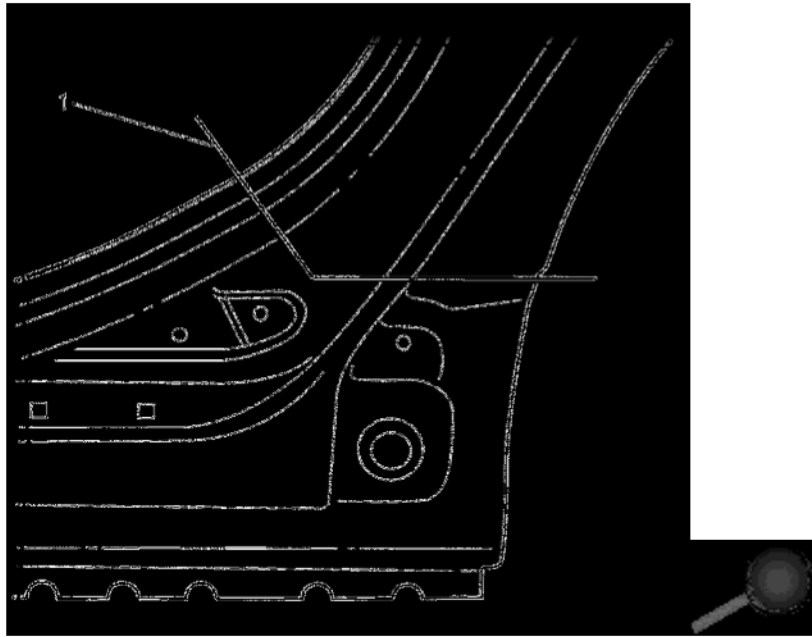
41. Locate, mark and drill out factory welds (1) attaching the body side outer panel to the inner wheelhouse panel.



**Note:**

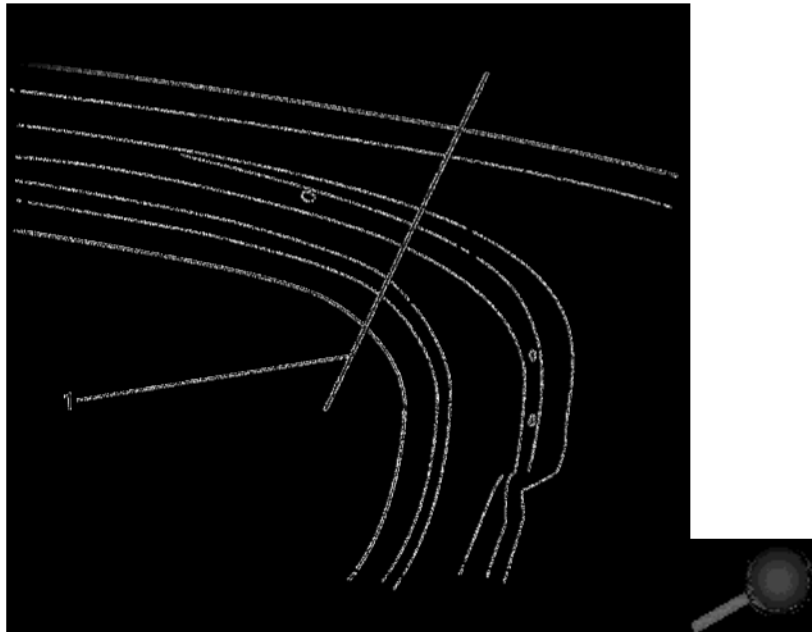
- Take care not damage any inner panels or reinforcements.
- Note the number and location of factory welds for installation of the rear quarter panel repair section.

42. Locate, mark and drill out the factory welds (1) attaching the body side outer panel to the rear door striker reinforcement bracket.



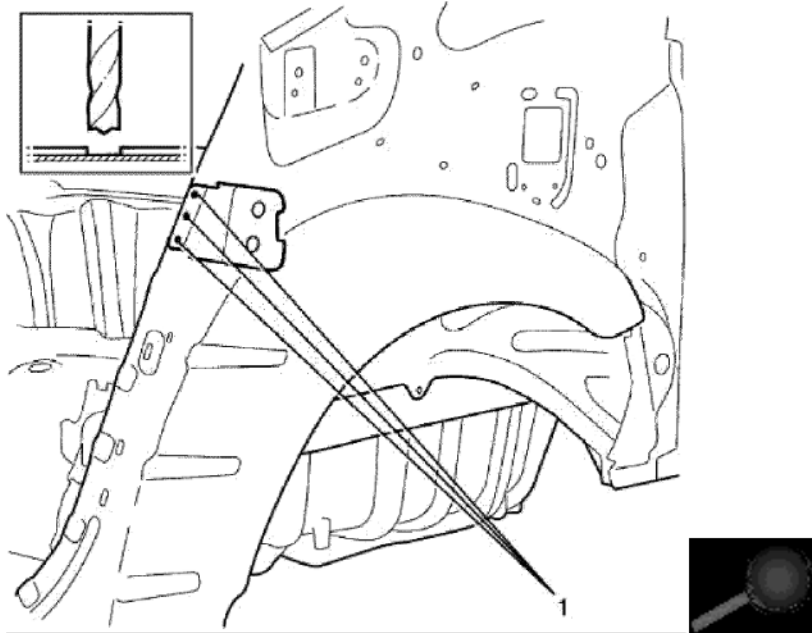
**Note:** Only cut through the body side outer panel. Do not damage any inner panels or reinforcements.

43. Cut along the cut line (1) on the body side outer panel with a suitable cutting tool.



**Note:** Only cut through the skin panel, outer panel. Do not damage any inner panels or reinforcements.

44. Cut along the cut line (1) on the body side outer panel with a suitable cutting tool.
45. Remove the damaged rear quarter portion of the body side outer panel.
46. For the right side quarter panel, remove the fuel tank filler pipe housing from the old quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#)



**Note:**

- The following step is only required if the rear door striker reinforcement bracket is also to be replaced.
  - Note the number and location of the factory welds for installation of the quarter panel.
  - Note the number and location of factory welds for installation of the rear quarter panel repair section.
47. Locate, mark and drill out the factory welds (1) attaching the rear door striker reinforcement bracket to the body ring. Remove the rear door striker reinforcement bracket from the vehicle and discard.

### Installation Procedure

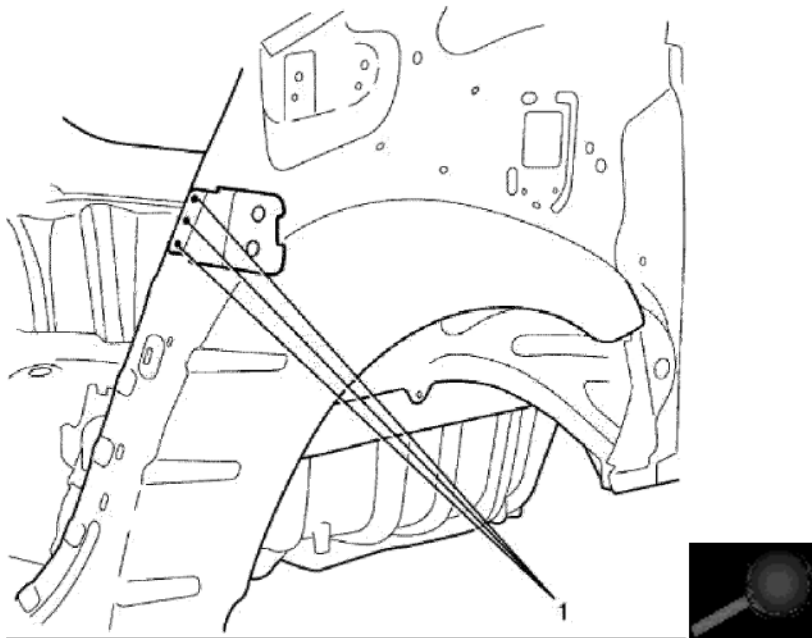
**Note:**

- This part has structural weld-thru adhesive in the joint areas. Replace this with additional spot welds at the attachment points. This can be accomplished by adding an additional weld between each factory weld in all areas.
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space

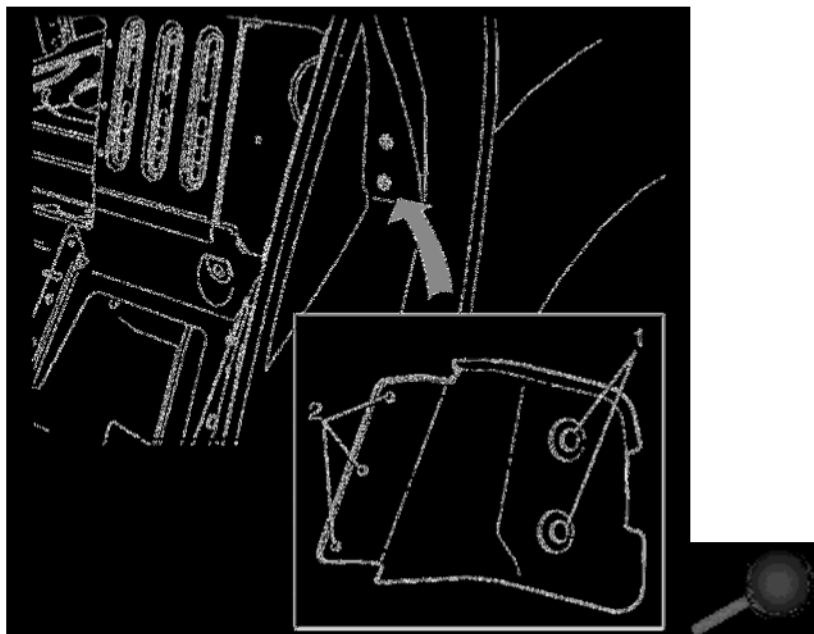
the puddle weld holes every 32 mm (1¼ in).

- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.

1. Prepare all mating surfaces as necessary.
2. Drill 8 mm (5/16 in) puddle weld holes in the service parts as necessary in the locations noted from the original panel.
3. Position and align the rear door striker reinforcement bracket to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#).

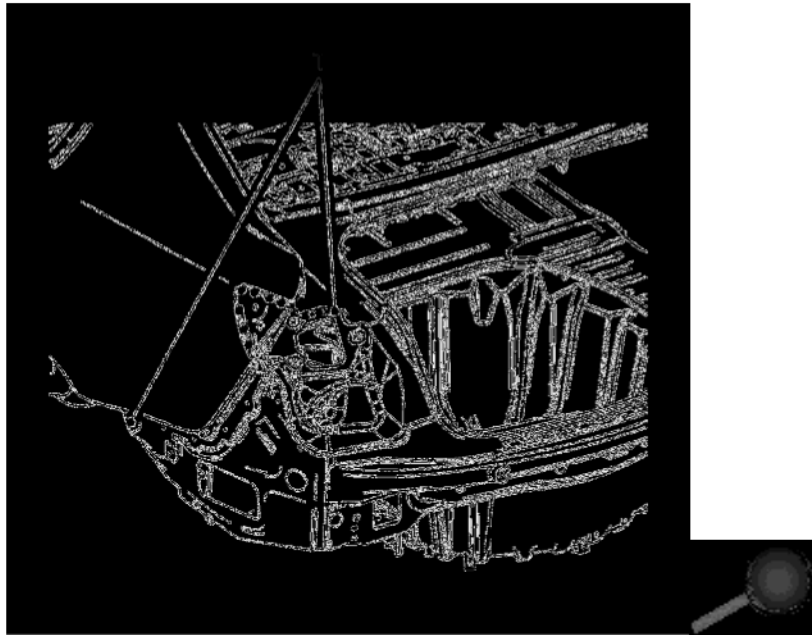


4. Weld the rear door striker reinforcement bracket (1) to the body ring.
5. Cut the new body side outer panel in corresponding locations to fit the remaining original panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
6. For the right side quarter panel, install the fuel tank filler pipe housing to the new quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#)
7. Position and align the rear body side outer panel repair section to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#).

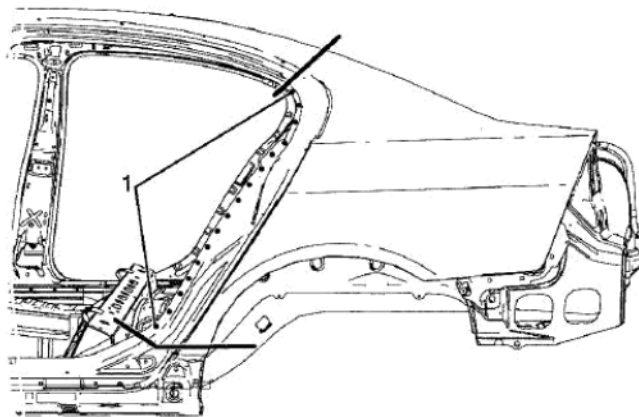


8. Align the bolt holes (1) for the rear door striker with holes in the body side outer.
9. Install the rear door striker into the bolt holes in the rear door striker reinforcement through the quarter panel repair section.

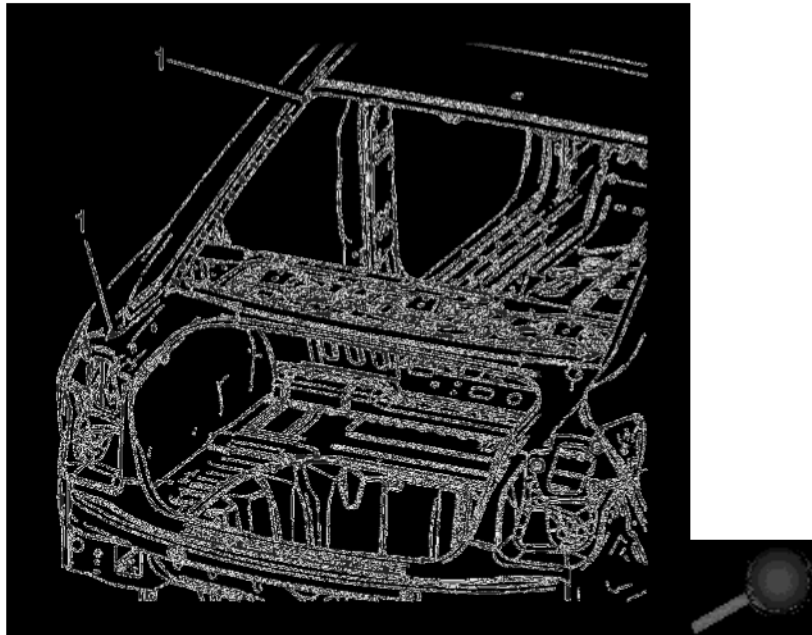




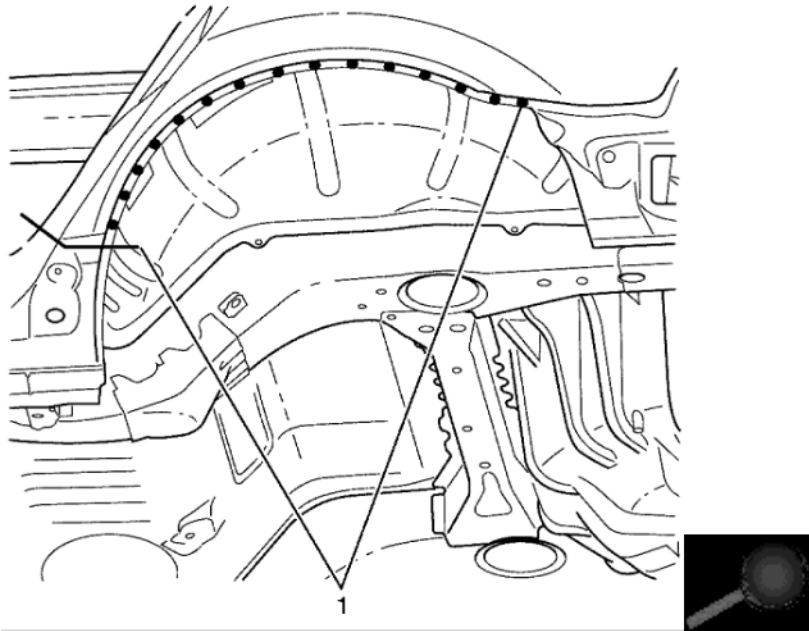
10. Weld (1) the body side outer panel repair section to the tail lamp filler panel and the inner side extension.



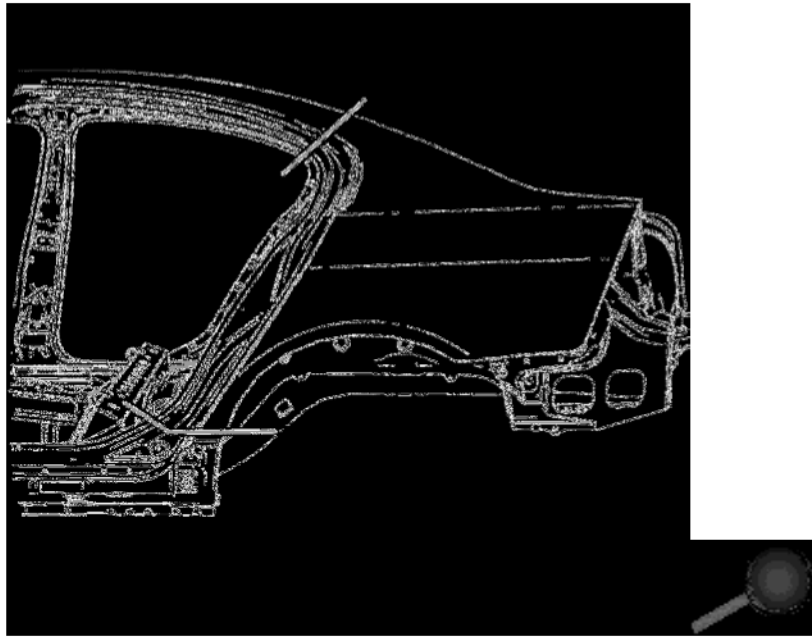
11. Weld the rear body side outer panel repair section to the body side ring.



12. Weld (1) the quarter panel to the rear window sill.

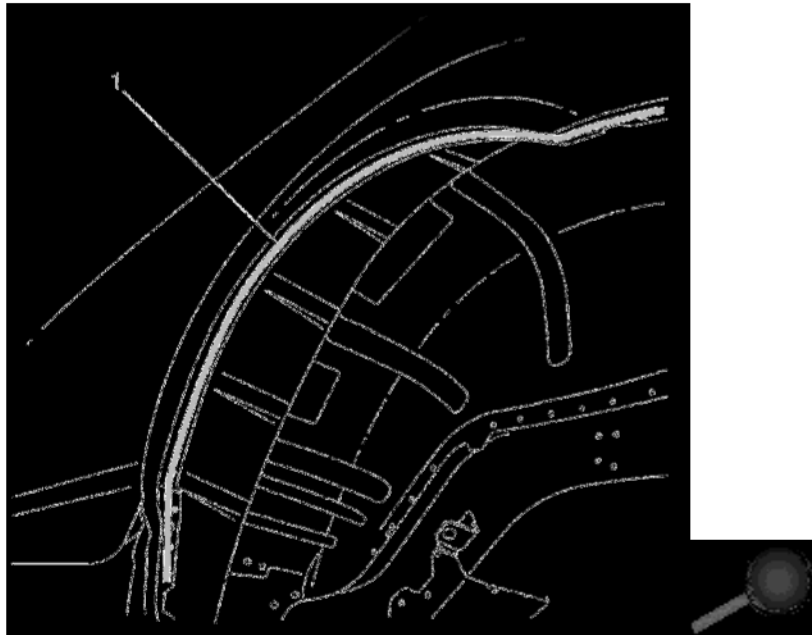


13. Weld (1) the quarter panel to the inner rear wheelhouse.

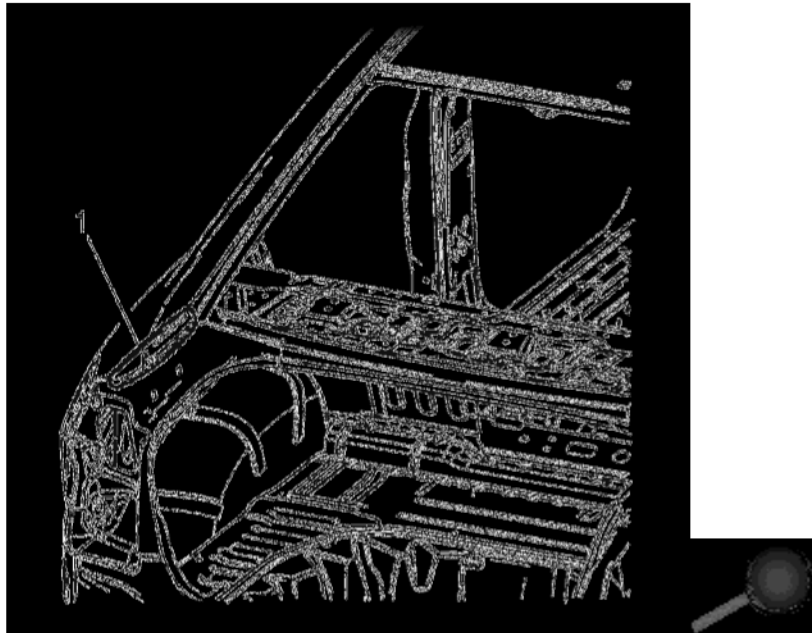


**Note:** To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them then go back and complete the weld.

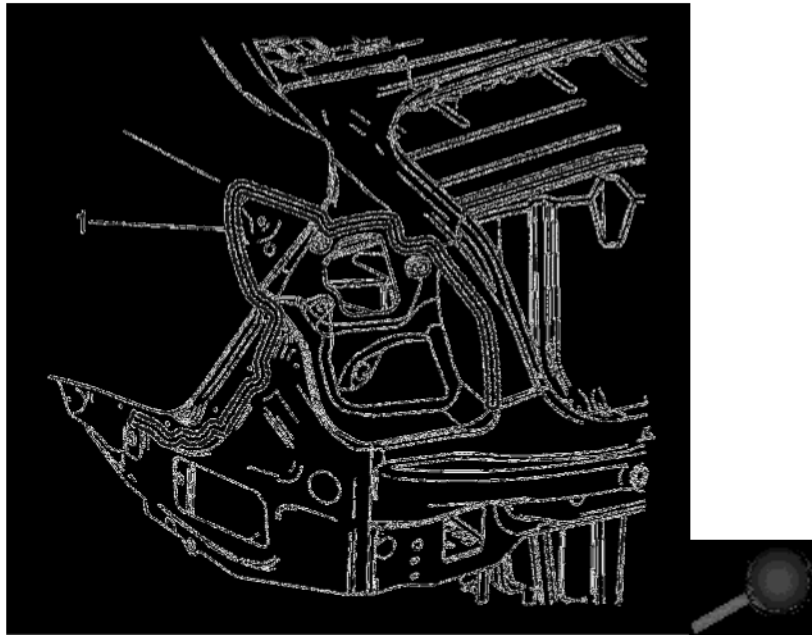
14. Stitch weld the quarter panel repair section to the body side outer panel at the two sectioning locations (1), (2).
15. Clean and prepare all of the welded surfaces.
16. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



17. Apply the secondary sealer (1) GM specification 9984532 or equivalent along the rear quarter panel to the rear wheel arch.



18. Apply the secondary sealer (1) GM specification 9984532 or equivalent along the rear quarter panel to the body side ring outer.



19. Apply the secondary sealer (1) GM specification 9984532 or equivalent along rear quarter panel to the tail lamp filler panel and side extension panel.
20. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
21. Install the tail lights. Refer to [Tail Lamp Replacement](#).
- Note:** This step is unique to the sunroof module.
22. Install the rear roof drain tubes. Refer to [Sunroof Housing Rear Drain Hose Replacement](#).
23. Install the rear window. Refer to [Rear Window Replacement](#).
24. Install the roof moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
25. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
26. Install the fuel lines. Refer to [Filler Tube Replacement](#) for the V6 engines or [Filler Tube Replacement](#) for the V8 engines.
27. Install the fuel tank. Refer to [Fuel Tank Replacement](#) for the V6 engines or [Fuel Tank Replacement](#) for the V8 engines .
28. Install the rear brake lines. Refer to [Rear Brake Pipe Replacement](#).
29. Install the rear frame. Refer to [Rear Frame Replacement](#).
30. Install the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) and [Exhaust Muffler Heat Shield Replacement - Right Side](#).
31. Install the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and [Exhaust Muffler Replacement - Right Side](#).

32. Install the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
33. Install the rocker panel mouldings. Refer to [Rocker Panel Molding Replacement](#).
34. Install the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
35. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
36. Install the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
37. Lower the vehicle.
38. Install the deck lid release cable. Refer to [Rear Compartment Lid Latch Release Cable Replacement](#).
39. Install the rear parcel shelf. Refer to [Rear Window Panel Trim Replacement](#).
40. Install the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).
41. Install the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
42. Install the roof lining. Refer to [Headlining Trim Panel Replacement](#).
43. Install the rear interior trims. Refer to [Body Lock Pillar Upper Trim Panel Replacement](#).
44. Install the rear door seals. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#).
45. Install the deck lid. Refer to [Rear Compartment Lid Replacement](#).
46. Install the battery tray. Refer to [Battery Tray Replacement](#).
47. Install the battery. Refer to [Battery Replacement](#).
48. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
49. Enable the SIR system. Refer to [SIR Disabling and Enabling](#).
50. If re-programming is required, refer to [Control Module References](#).

## Quarter Panel Replacement (Sportwagon)

### Removal Procedure

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

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

**Warning:** Refer to [Battery Disconnect Warning](#).

**Note:** This procedure only covers sectional repair of the rear portion of the body-side outer panel. The body-side outer panel is supplied as a complete panel which must be cut at the sectioning points described in this procedure prior to installation. Only the rear portion of the body-side outer panel may be replaced as described in this procedure. The repair of any other portion of the body-side outer panel is not permitted and will require replacement of the complete body-side assembly.

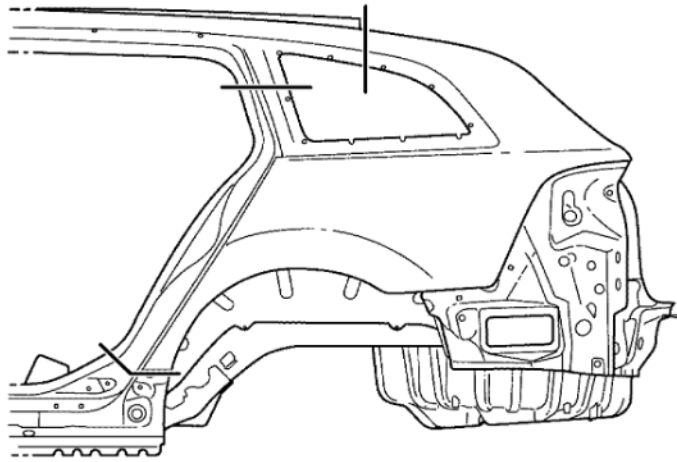
**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#) in SIR.
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the liftgate sill garnish molding. Refer to [Liftgate Sill Garnish Molding Replacement](#).
4. Remove the rear compartment floor panel carpet. Refer to [Rear Compartment Floor Panel Carpet Replacement](#).
5. Remove the load floor stationary panel carpet. Refer to [Load Floor Stationary Panel Carpet Replacement](#).
6. Remove the load floor front panel carpet. Refer to [Load Floor Front Panel Carpet Replacement](#).
7. Remove the liftgate weatherstrip. Refer to [Liftgate Weatherstrip Replacement](#).
8. Remove the quarter inner trim finish panel. Refer to [Quarter Inner Trim Finish Panel Replacement - Right Side](#) or [Quarter Inner Trim Finish Panel Replacement - Left Side](#).
9. Remove the battery. Refer to [Battery Replacement](#).
10. Remove the battery tray. Refer to [Battery Tray Replacement](#).
11. Remove the liftgate. Refer to [Liftgate Replacement](#).
12. Remove the rear side door seal. Refer to [Rear Side Door Weatherstrip Replacement - Body Side](#).

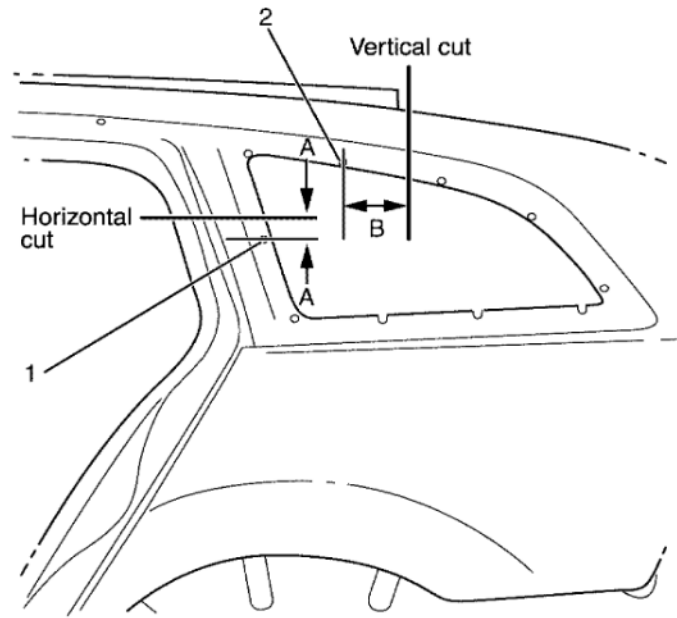


13. Remove the body side roof drip moulding. Refer to [Front and Rear Side Door Outer Opening Frame Upper Reveal Molding Replacement](#).
14. Remove the rear interior trims. Refer to [Quarter Window Trim Finish Panel Replacement](#).
15. Remove the headliner. Refer to [Headlining Trim Panel Replacement](#).
16. Remove the rear seat back. Refer to [Rear Seat Back Cushion Removal and Installation](#).
17. Remove the rear seats. Refer to [Rear Seat Cushion Cover and Pad Replacement](#).  
**Note:** When replacing panels that involve servicing of stationary glass, refer to [Rear Window Replacement](#) and [Windshield Replacement](#). Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.
18. Remove the rear window. Refer to [Rear Window Replacement](#).
19. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
20. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
21. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
22. Remove the rear pressure relief valves. Refer to [Body Pressure Relief Valve Replacement](#).
23. Remove the rocker panel moulds. Refer to [Rocker Panel Molding Replacement](#).
24. Remove the rear wheelhouse liners. Refer to [Rear Wheelhouse Liner Replacement](#).
25. Remove the rear exhaust assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
26. Remove the rear exhaust muffler heat shields. Refer to [Exhaust Muffler Heat Shield Replacement - Left Side](#) and/or [Exhaust Muffler Heat Shield Replacement - Right Side](#).
27. Remove the rear frame. Refer to [Rear Frame Replacement](#).
28. Remove the rear brake lines. Refer to [Rear Brake Pipe Replacement](#).
29. Remove the fuel tank. Refer to [Fuel Tank Replacement](#) or [Fuel Tank Replacement](#).
30. Remove the fuel lines. Refer to [Filler Tube Replacement](#) or [Filler Tube Replacement](#).
31. Lower the vehicle.
32. Remove the tail lamps. Refer to [Tail Lamp Replacement](#).
33. Repair as much of the damage as possible.
34. Remove sound deadeners as necessary and note their location.
35. Remove the sealers and anti-corrosion materials from the repair area and note their location. Refer to [Anti-Corrosion Treatment and Repair](#).



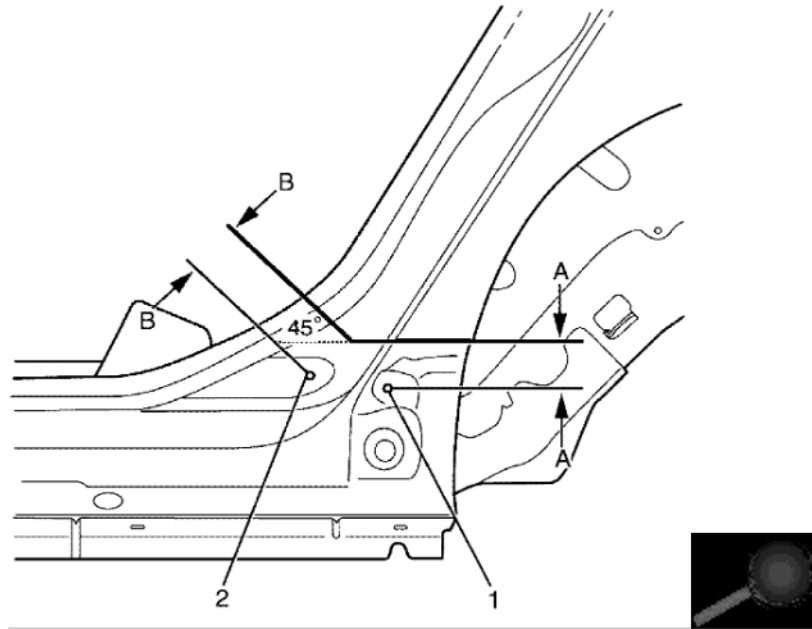


36. Create cut lines on the body side outer panel at the approved sectioning locations.



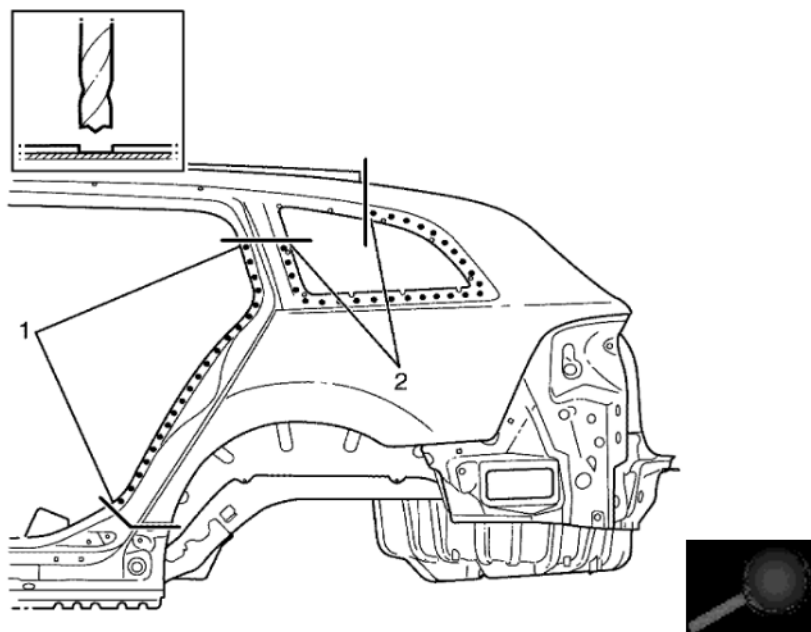
**Note:** Measure from the datum hole to create an accurate cut line.

37. Mark a horizontal cut line 35 mm (1.38 in) (Dimension A) above datum point (1).
38. Mark a vertical cut line 95 mm (3.74 in) (Dimension B) rearward of datum point (2).



**Note:** Measure from the datum holes to create an accurate cut line. Datum holes (1, 2) are 9mm dia holes in the body side outer panel.

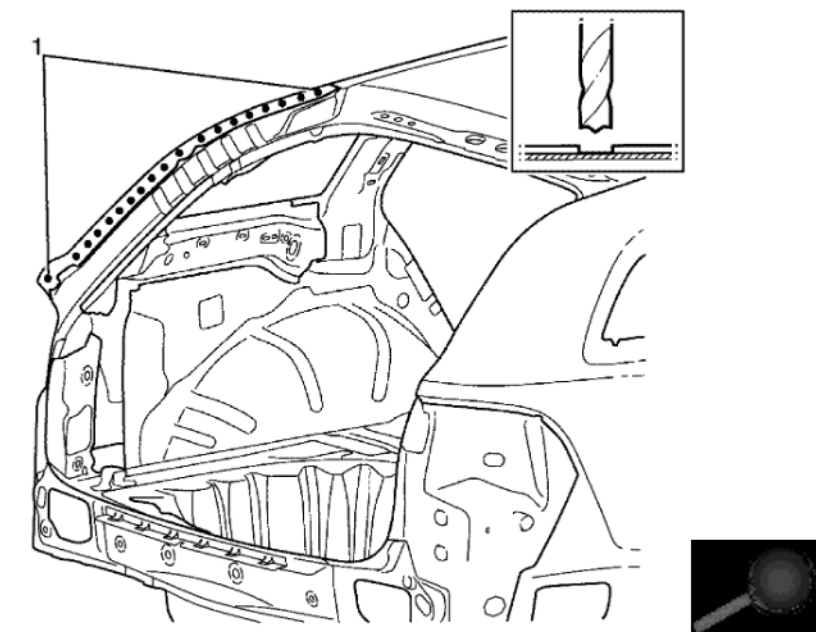
39. Mark a horizontal cut line 42 mm (1.65 in) (Dimension A) above datum point (1).
40. Mark a cut line 47 mm (1.85 in) (Dimension B) from datum point (2) measured at an angle of 45 degrees to the horizontal.



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

**Note:** Note the number and location of the factory welds for installation of the rear quarter panel repair section.

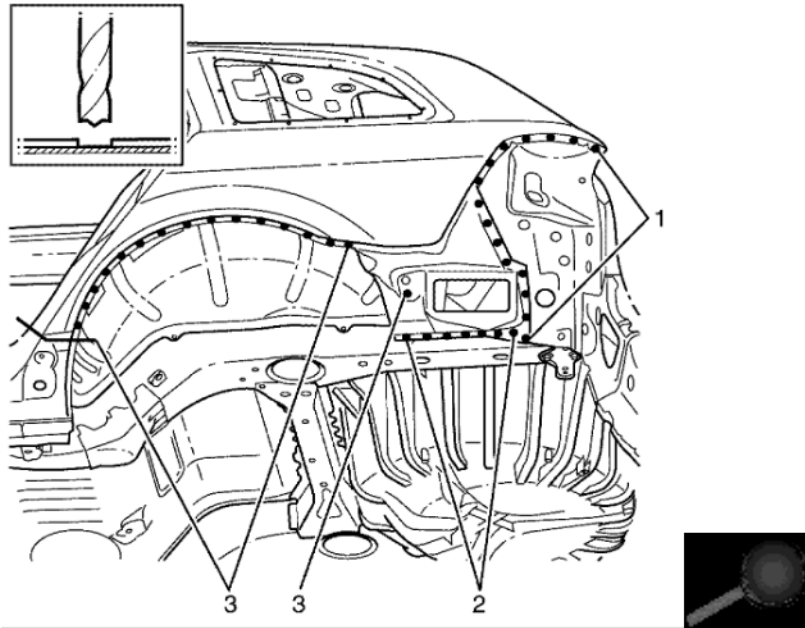
41. Locate, mark and drill out the factory welds (1) inside the cut lines on the body side outer panel to body ring.
42. Locate, mark and drill out the factory welds (2) inside the cut lines around the rear quarter window.



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

**Note:** Note the number and location of the factory welds for installation of the rear quarter panel repair section.

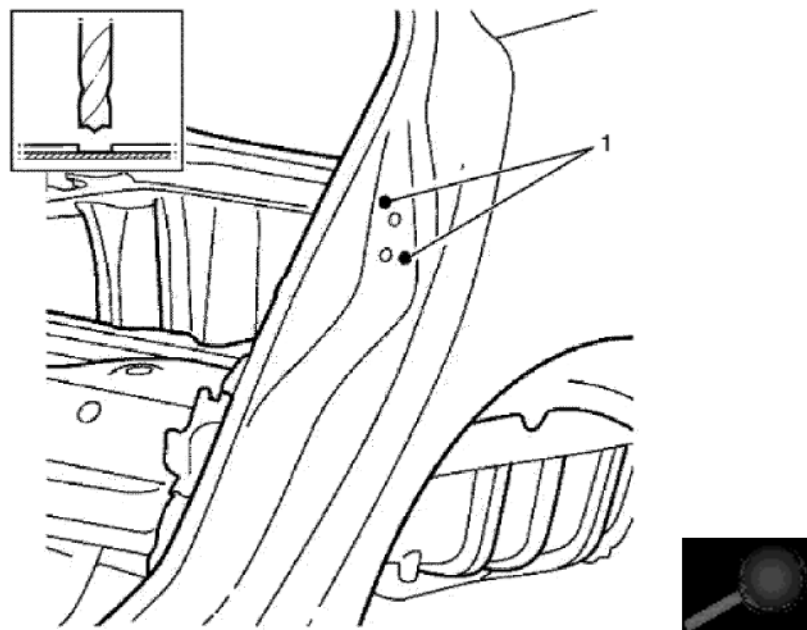
43. Locate, mark and drill out all the necessary factory welds (1) inside the cut lines on the body side outer panel to rear gutter panel.



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

**Note:** Note the number and location of the factory welds for installation of the rear quarter panel repair section.

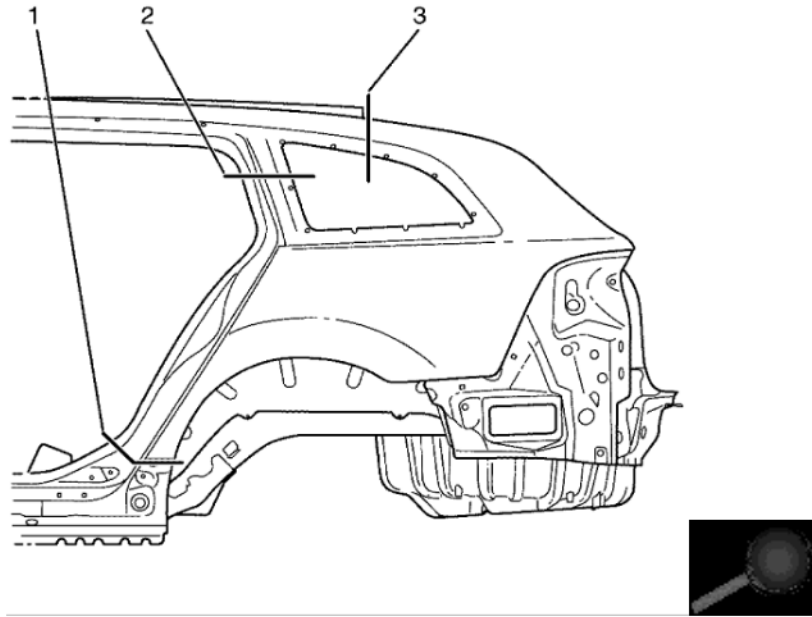
44. Locate, mark, and drill out the factory welds (1) joining the body side outer panel to the body tail lamp filler panel.
45. Locate, mark and drill out the factory welds (2) joining the body side outer panel to the body side inner panel extension.
46. Locate, mark and drill out the factory welds (3) joining the body side outer panel to the inner wheelhouse panel.



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

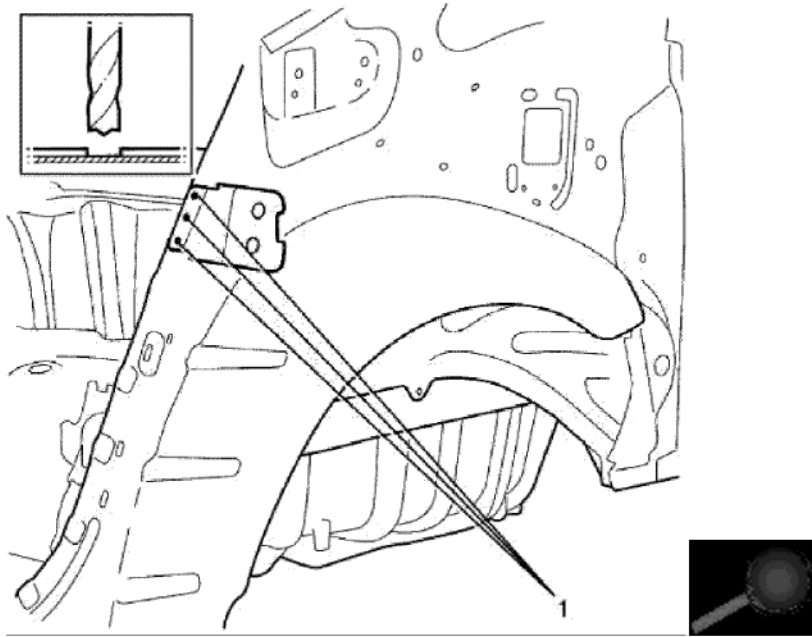
**Note:** Note the number and location of the factory welds for installation of the quarter panel repair section.

47. Locate, mark, and drill out the factory welds (1) joining the body side outer panel to the rear door lock striker reinforcement bracket.

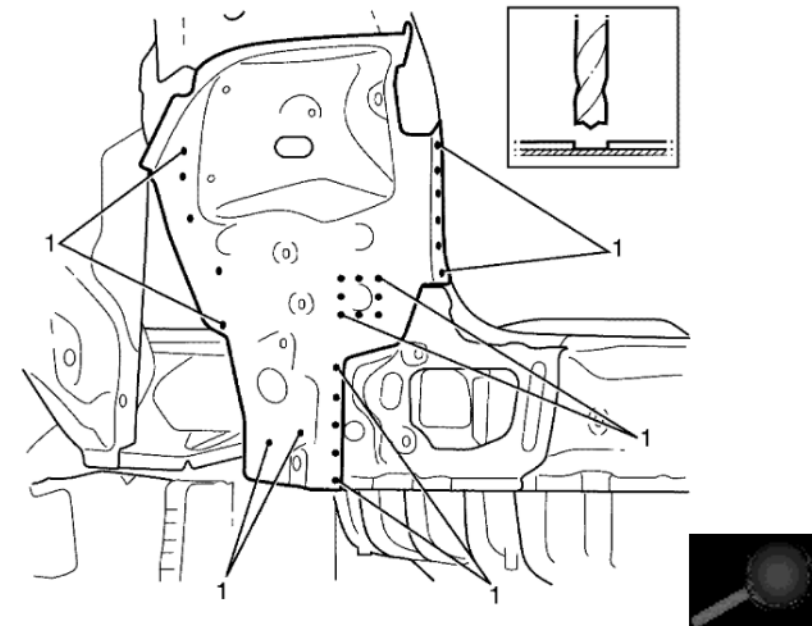


**Note:** Only cut through the body side outer panel. Do not damage any inner panels or reinforcements.

48. Cut along the cut line (1) on the body side outer panel with a suitable cutting tool.
49. Cut along the cut line (2) on the body side outer panel with a suitable cutting tool.
50. Cut along the cut line (3) on the body side outer panel with a suitable cutting tool.
51. Remove the damaged quarter portion of the body side outer panel.
52. For the right side quarter panel, remove the fuel tank filler pipe housing from the old quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#).



**Note:** Note the number and location of the factory welds for installation of the quarter panel repair section.  
 53. Locate, mark and drill out the welds (1) joining the rear door striker reinforcement bracket to the body ring.





**Note:**

- This step is only required if the body tail lamp filler panel is also to be replaced.
- Note the number and location of the factory welds for installation of the rear quarter panel repair section.

54. Locate, mark and drill out the factory welds (1) joining the body tail lamp filler panel to the vehicle.

55. Remove the damaged tail lamp filler panel from the vehicle.

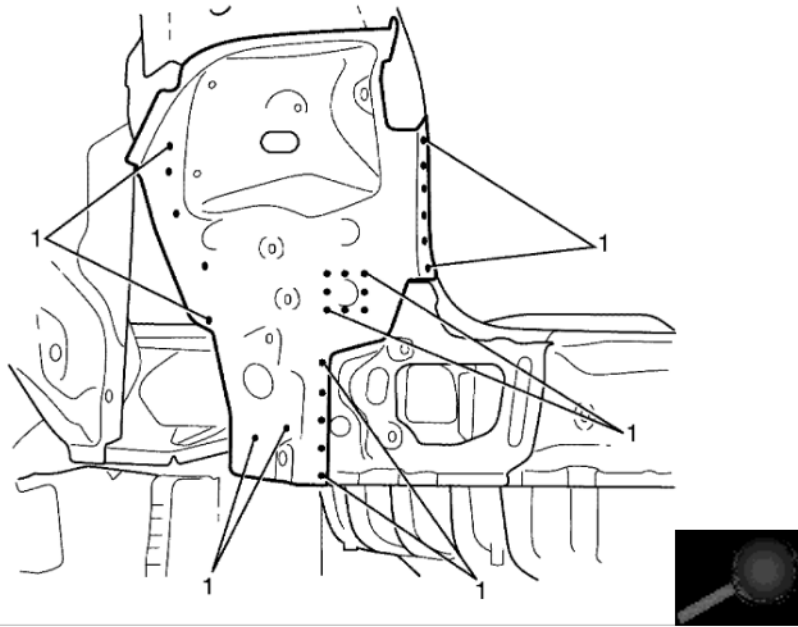
**Installation Procedure****Note:**

- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- This step is only required if the body tail lamp filler panel is also to be replaced.

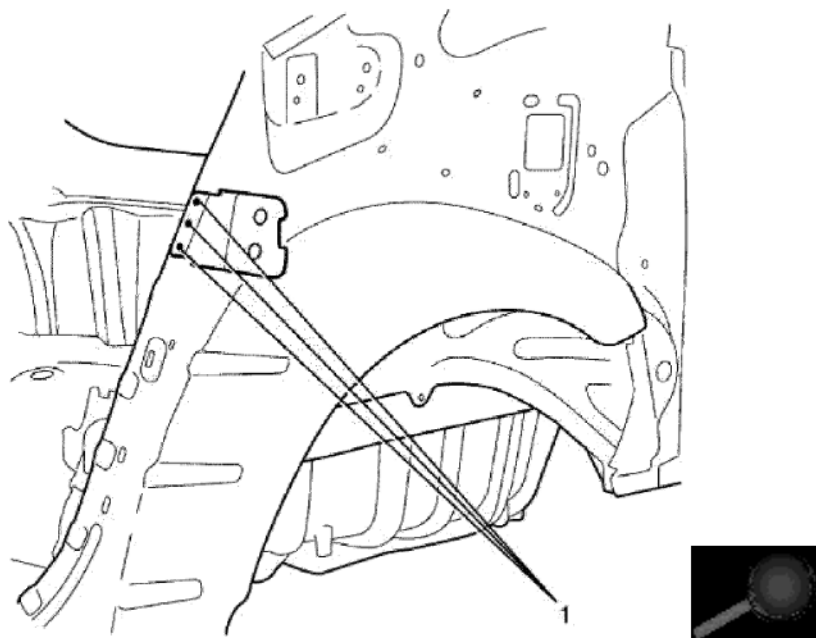
1. Prepare all mating surfaces as necessary.

2. Drill 8 mm (5/16 in) puddle weld holes in the service part as necessary in the locations noted from the original panel.

3. Align the body tail lamp filler panel to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#).

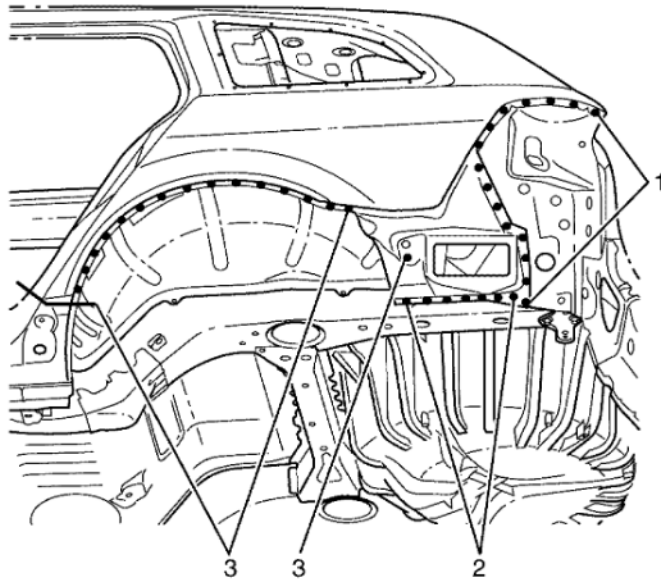


4. Weld the body tail lamp filler panel to the vehicle (1).
5. Drill 8 mm (5/16 in) puddle weld holes in the service part as necessary in the locations noted from the original panel.
6. Position and align the rear door striker reinforcement bracket to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#).

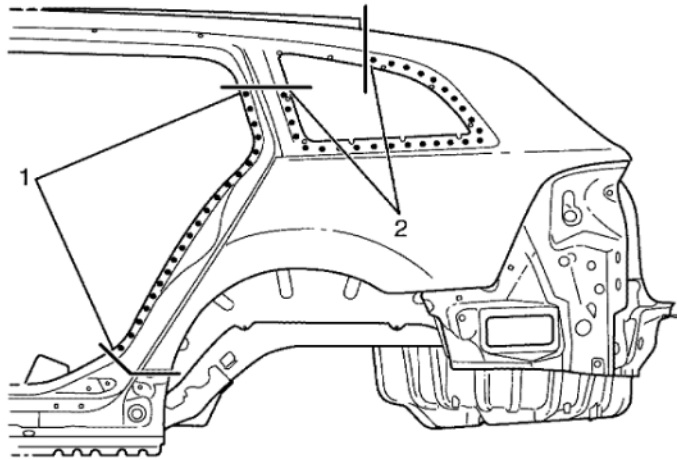


7. Weld the rear door reinforcement bracket (1) to the body ring.
8. Cut the new body side outer panel in corresponding locations to fit the remaining original body side outer panel. The sectioning joint should be trimmed to allow a gap of one-and-one-half-times the metal thickness at the sectioning joint.
9. For the right side quarter panel, install the fuel tank filler pipe housing to the new quarter panel section. Refer to [Fuel Tank Filler Pipe Housing Replacement](#).
10. Prepare all mating surfaces as necessary.
 

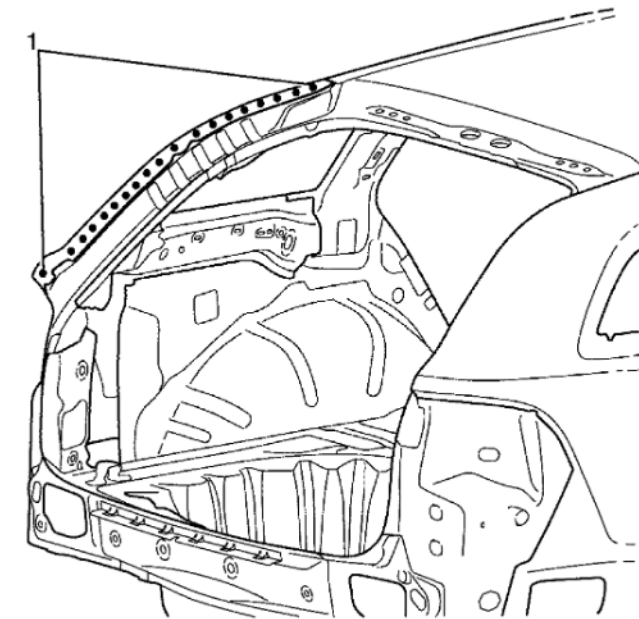
**Note:** If the location of the original plug weld holes can not be determined, or if structural weld-thru adhesive is present, space the plug weld holes every 32 mm (1¼ in).
11. Drill 8 mm (5/16 in) puddle weld holes in the service part as necessary in the locations noted from the original panel.
12. Position and align the quarter panel repair section to the vehicle using three dimensional measuring equipment. Refer to [Dimensions - Body](#).
13. Install the rear door striker into the bolt holes in the rear door striker reinforcement through the quarter panel repair section. Refer to [Rear Side Door Lock Striker Replacement](#).



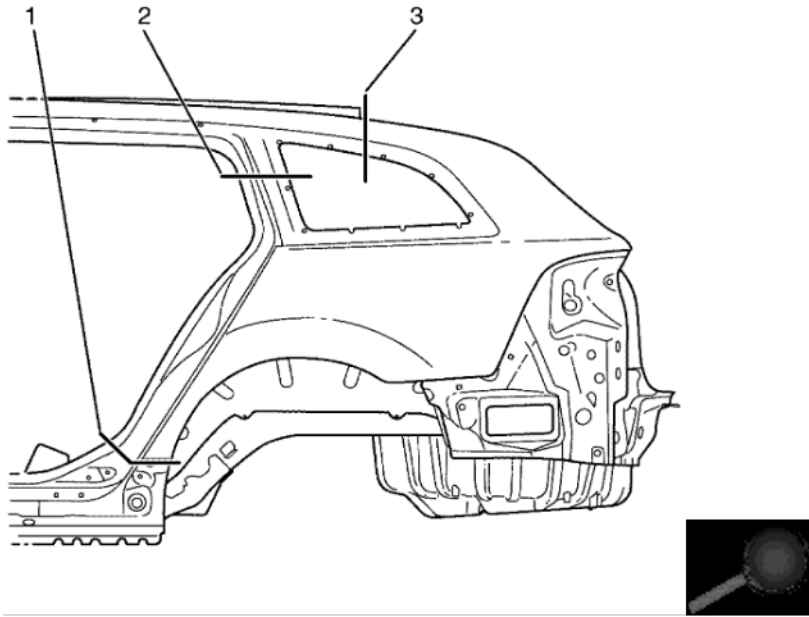
14. Weld (1) the quarter panel repair section to the body tail lamp filler panel.
15. Weld (2) the quarter panel repair section to the body side inner panel extension.
16. Weld the (3) the quarter panel repair section to the inner wheelhouse panel.



17. Weld (1) the quarter panel repair section to the body side ring outer panel.
18. Weld (2) the quarter panel repair section to the vehicle around the rear quarter window.



19. Weld (1) the quarter panel repair section to the rear gutter rail.

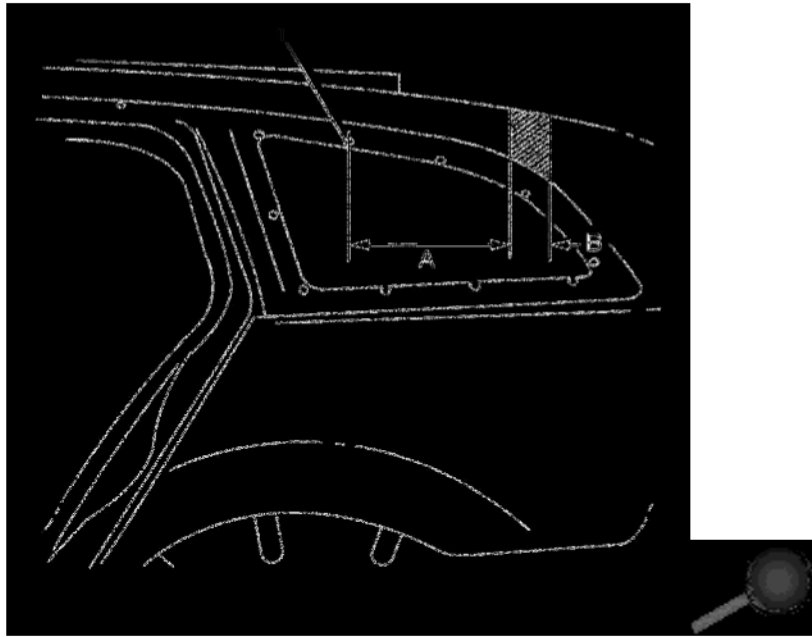


**Note:** To create a solid weld with minimum heat distortion, make 25 mm (1 in) stitch welds along the seam with 25 mm (1 in) gaps between them.

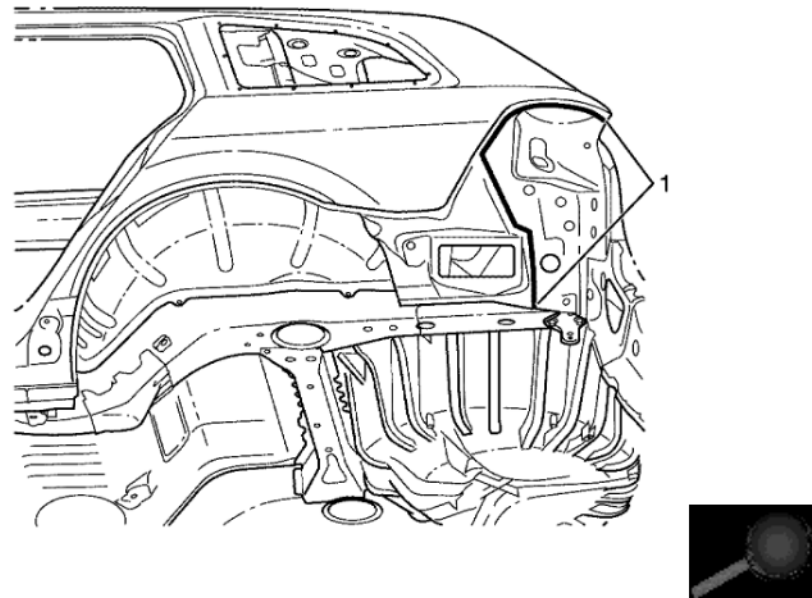
20. Stitch weld the quarter panel repair section to the body side outer panel at the three sectioning locations (1, 2, 3).

21. Clean and prepare all of the welded surfaces.

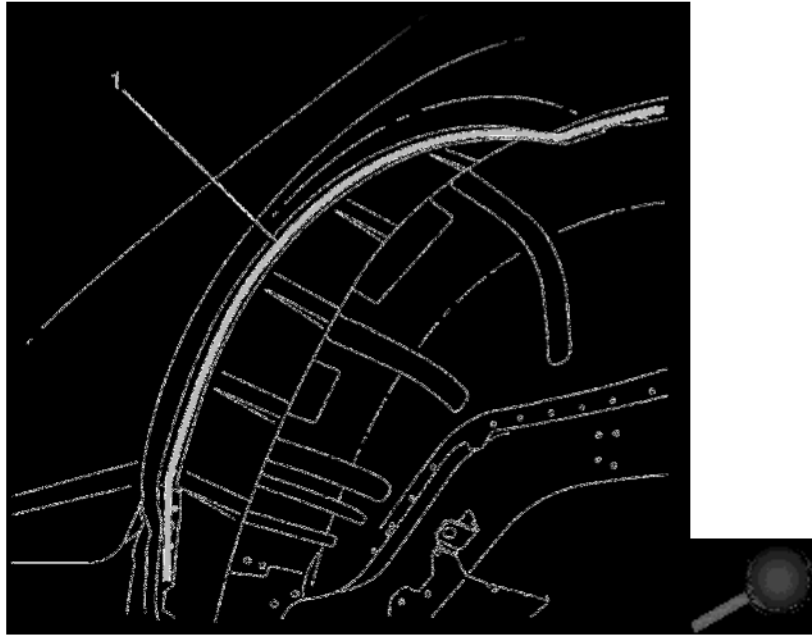
22. Apply the sealers and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



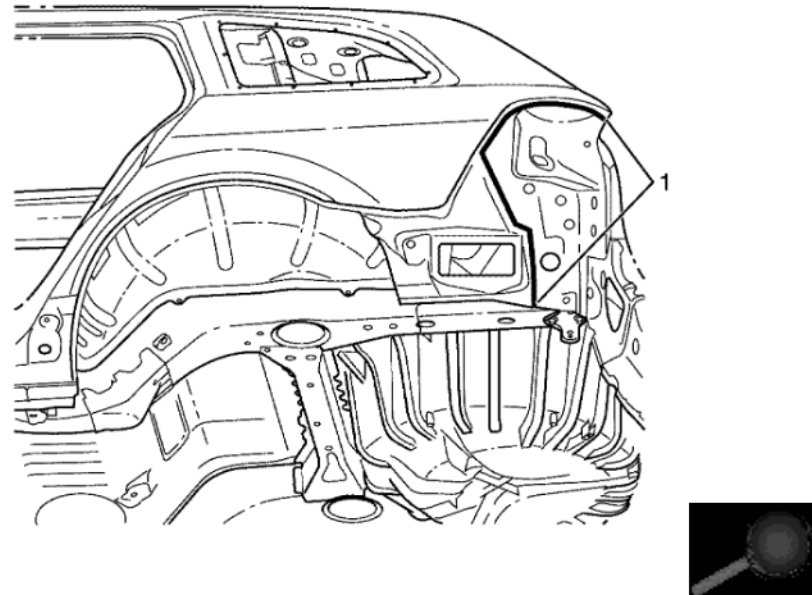
23. Apply expanding foam (GM9982296 or equivalent) to fill the space between the body side outer panel and the inner panels as shown by the shaded region in the illustration. The expanding foam is required for noise reduction. Dimension A=272 mm (10.7 in); Dimension B= 80mm (3.1 in); Measure rearward from datum point 1.



24. Apply the primary sealer (1) GM6449G or equivalent along the quarter panel to the tail lamp filler panel and side extension panel.

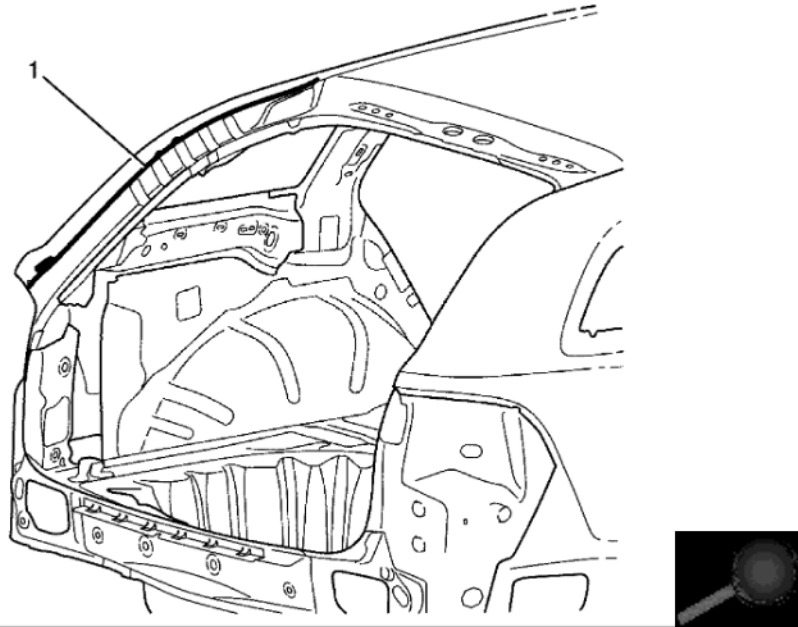


25. Apply the primary sealer (1) GM6449G or equivalent along the rear quarter panel to the rear wheel arch.





26. Apply the secondary sealer (1) GM specification 9984532 or equivalent along rear quarter panel to the tail lamp filler panel and side extension panel.



27. Apply the secondary sealer (1) GM specification 9984532 or equivalent along the rear quarter panel to the body side ring outer panel.







## Rear Rail Replacement (Ute)

### Removal Procedure

**Warning:** Refer to [Liquefied Petroleum Gas \(LPG\) Warning](#).

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

**Warning:** Refer to [Foam Sound Deadeners Warning](#).

**Warning:** Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).

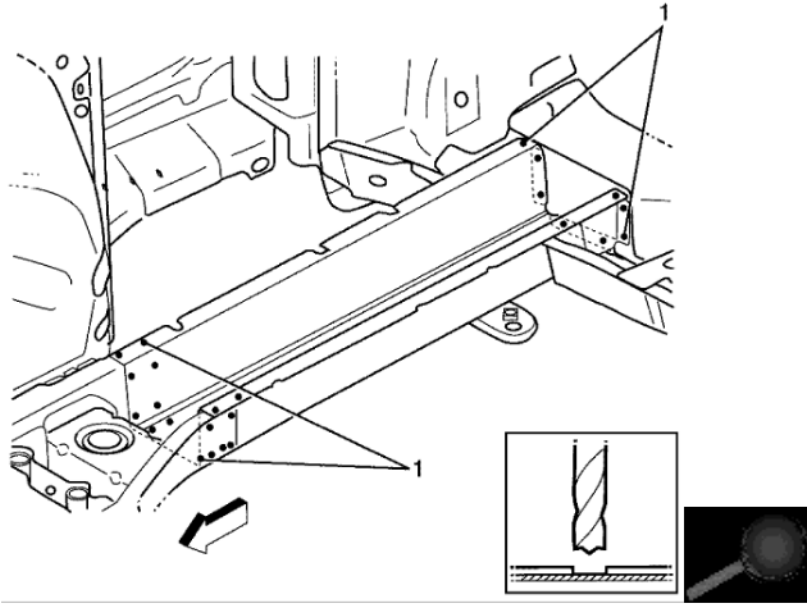
**Warning:** Refer to [Battery Disconnect Warning](#).

2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#).
3. Remove the cargo liner. Refer to [Cargo Box Liner Replacement](#).

**Warning:** Refer to [Safety Glasses Warning](#).

**Danger:** To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

4. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
5. Remove the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
6. Remove the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
7. Remove the endgate. Refer to [Endgate Adjustment](#).
8. Remove the rear muffler assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
9. Remove the rear muffler hanger bracket. Refer to [Exhaust Hanger Mounting Bracket Replacement](#).
10. Remove the rear floor. Refer to [Rear Floor Panel Replacement](#).
11. Remove the spare wheel support carrier. Refer to [Spare Wheel Hoist Reinforcement](#).
12. Note the location and remove the sealers and anti-corrosion materials from the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).



**Note:**

- Do not damage any inner panels or reinforcements.
- Note the number and location of welds for installation of the service assembly.

13. Locate, mark and drill out the factory welds (1) attaching the rear rail to the vehicle.

14. Remove the rail section from the vehicle.

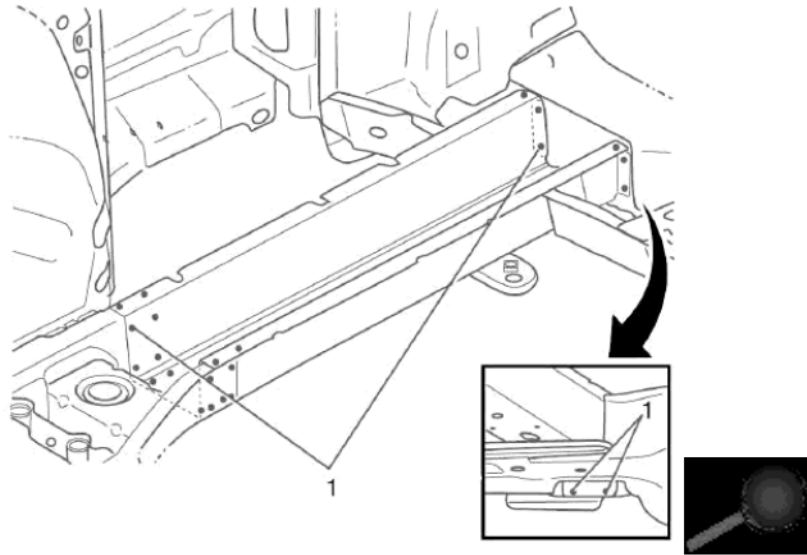
**Installation Procedure**

**Note:**

- This part has structural weld-thru adhesive in the joint areas. Replace this with additional spot welds at the attachment points. This can be accomplished by adding an additional weld between each factory weld in all areas.
- If the location of the original spot weld holes can not be determined, or if structural weld-thru adhesive is present, space the puddle weld holes every 32 mm (1¼ in).
- Spot welding is the preferred method for attaching panels and should be used wherever possible. A puddle weld should be performed where your spot welder is unable to reach.
- Ensure that all factory welds are replaced in their original locations.
- Ensure that all structural adhesives and sealers are replaced in their original locations.

1. Prepare the mating surfaces, as necessary.

2. Apply 3M Weld-Thru Coating or equivalent to all mating surfaces.
3. Align the rear rail extension to the vehicle using 3 dimensional measuring equipment. Refer to [Dimensions - Body](#) Vehicle Dimensions.



4. Weld the rear rail to the vehicle (1) .
5. Apply the sealers, and anti-corrosion materials to the repair area, as necessary. Refer to [Anti-Corrosion Treatment and Repair](#).
6. Install the rear floor. Refer to [Rear Floor Panel Replacement](#).
7. Install the spare wheel support carrier. Refer to [Spare Wheel Hoist Reinforcement](#).
8. Install the rear muffler hanger bracket. Refer to [Exhaust Hanger Mounting Bracket Replacement](#).
9. Install the rear muffler assembly. Refer to [Exhaust Muffler Replacement - Left Side](#) and/or [Exhaust Muffler Replacement - Right Side](#).
10. Paint the repaired area. Refer to [Basecoat/Clearcoat Paint Systems](#).
11. Install the endgate. Refer to [Endgate Adjustment](#).
12. Install the rear bumper fascia. Refer to [Rear Bumper Fascia Replacement](#).
13. Install the rear wheelhouse liner. Refer to [Rear Wheelhouse Liner Replacement](#).
14. Lower the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
15. Install the cargo liner. Refer to [Cargo Box Liner Replacement](#).
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](#).