

Door Frame Opening

Hydroformed Pillar

The hydroformed pillar is a one-piece stamped and formed tube welded between the inner and outer pillars at the front upper hinge pillar area, the hydroformed rail extends to the upper rear wheelhouse area (Fig. 4.18). Replacing the hydroformed rail requires the removal the roof, the outer door frame, and the quarter panel.

There are some areas on the rails that are best repaired using the sleeved butt-joint method. Use 25 to 50mm of material to act as a backing plate when installing the sectioned service part (Fig. 4.19).

Notice: Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.

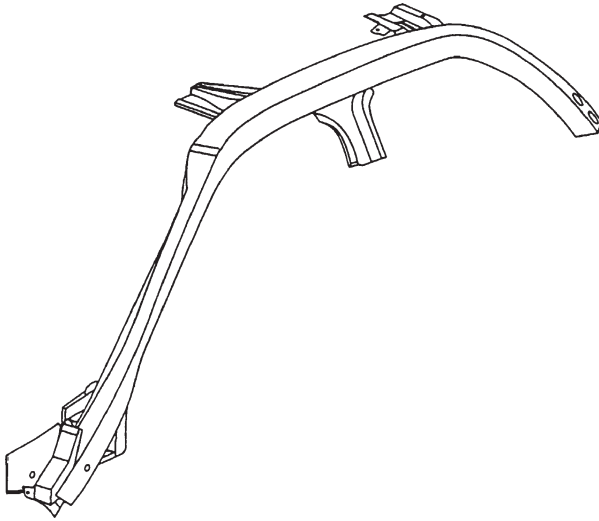


Fig. 4.18 — Hydroformed Pillar

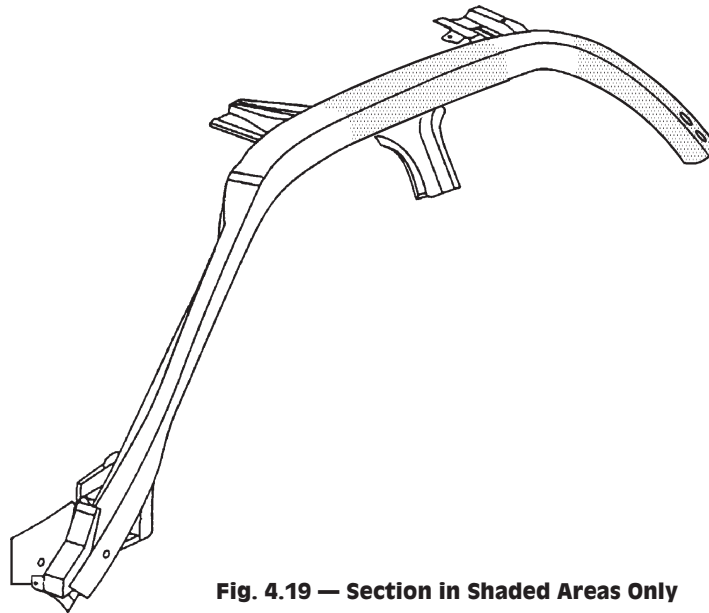


Fig. 4.19 — Section in Shaded Areas Only

Hydroformed Pillar

SLEEVED BUTT-JOINT REPAIR

- 1 Cut the service part to appropriate length (according to dimensions), to replace removed section of damaged rail.
- 2 From unused portion of service part; measure, mark, and cut 25 to 50mm of rail to be used as a sleeve (backing plate), at the sectioning joint (Fig. 4.20).
- 3 Cut through each side of the sleeve to create four individual 'L' shaped pieces that can be installed in the undamaged portion of the frame rail (Fig. 4.21).
- 4 Install the four pieces, one at a time, and trim them as necessary to provide a flush fit along the butt-joint surface. Tack-weld the sleeves into place.
- 5 Once the sleeves are in place, check fit of the service part. Grind sleeve as necessary to allow for accurate alignment of the new part.

Notice: Retain a gap of one and one half times the metal thickness at the butt-joint when attaching the service part to the vehicle.
- 6 Temporarily remove service part and prep all bare metal surfaces with a suitable weld-through primer.
- 7 Stitch weld along the entire sectioning joint. Make 25mm (1 inch) welds along the seam with 25mm (1 inch) gaps between them. Then go back and complete the stitch weld. This will create a solid joint with minimal heat distortion.
- 8 Prime all bare metal surfaces with DP90, or an equivalent anti-corrosion primer.

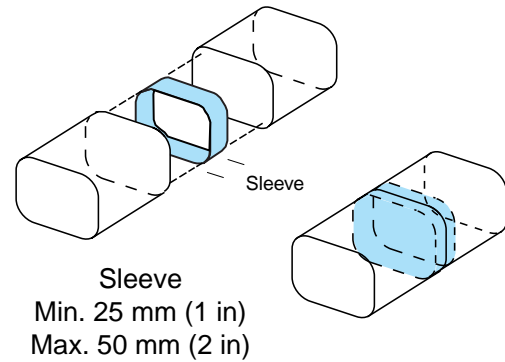


Fig. 4.20 — Sleeved Butt-Joint

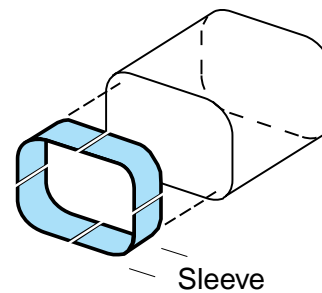


Fig. 4.21 — Sleeve Created to Control Weld

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Outer Door Frame Service

The outer door frame can be replaced as a complete service part or various segments can be sectioned (Fig. 4.22). Complete service part replacement requires the removal of the quarter panel. Sectioning the outer and inner door frame reinforcement is usually much faster and more cost effective. Since the outer door frame is manufactured as a single component, service parts for sectioning must be cut from the service panel and modified as necessary.

Notice: When replacing panels that involve servicing stationary glass, refer to GM Service Bulletin no. 43-10-48 before performing any priming or refinishing.

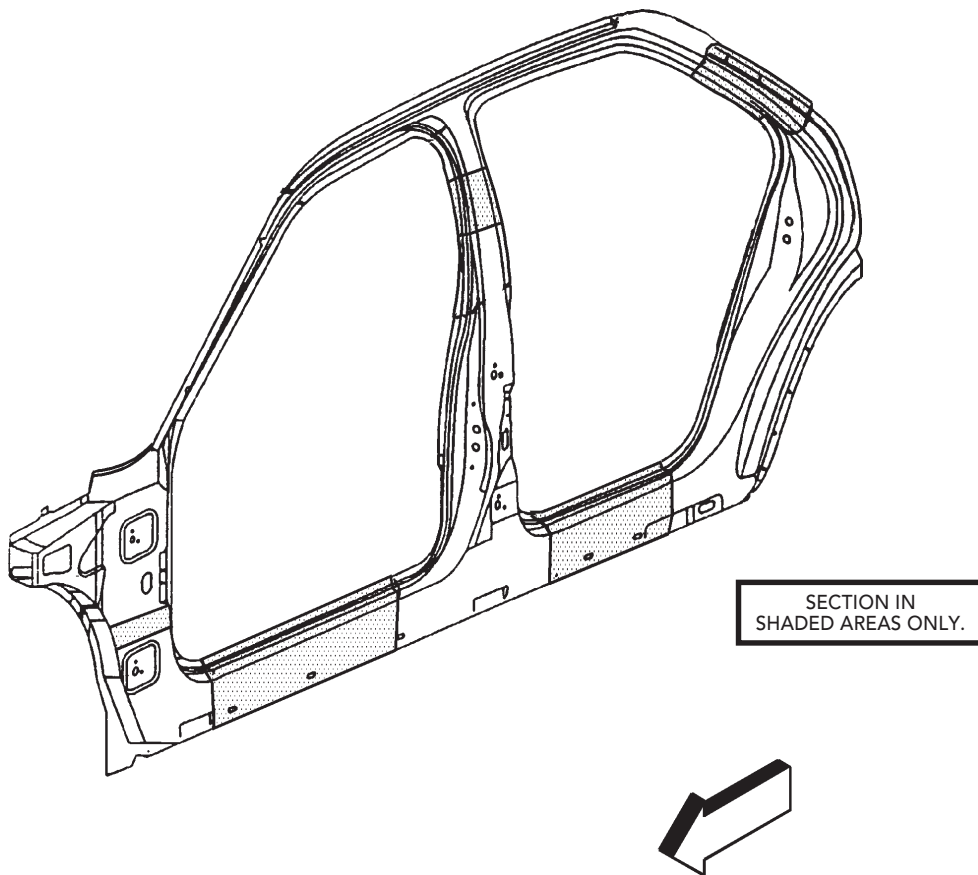


Fig. 4.22 — Door Frame Opening Service Parts

OUTER DOOR FRAME SECTIONING PROCEDURES

Notice: The specific areas to be sectioned are determined by the extent of the damage to the vehicle. Sectioning should take place only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle.

— REMOVE OR DISCONNECT —

- 1 Remove all panels and components necessary for access.
- 2 Restore as much of the damage as possible to factory specifications.
- 3 Remove sealers, sound deadeners, and anti-corrosion materials as necessary.
- 4 Locate the sectioning joint as necessary to replace the damaged portion of the door

frame. (If sectioning the front hinge pillar, measure down 80mm (3-1/4inch) from the bottom of the large wiring harness hole in the hinge pillar (Fig. 4.23), if sectioning the center pillar, locate the sectioning joint 200mm (8inches) down from the edge of the roof gutter, and mark a horizontal line.) Cut the door frame along this line for sectioning (Fig. 4.24).

Important: The inner reinforcement will be used as a backing plate on the "A pillar."

- 5 Locate, mark and drill out all necessary factory welds. Note the number and location of welds for installation of the service panel.
- 6 Remove the damaged section of the door frame opening.

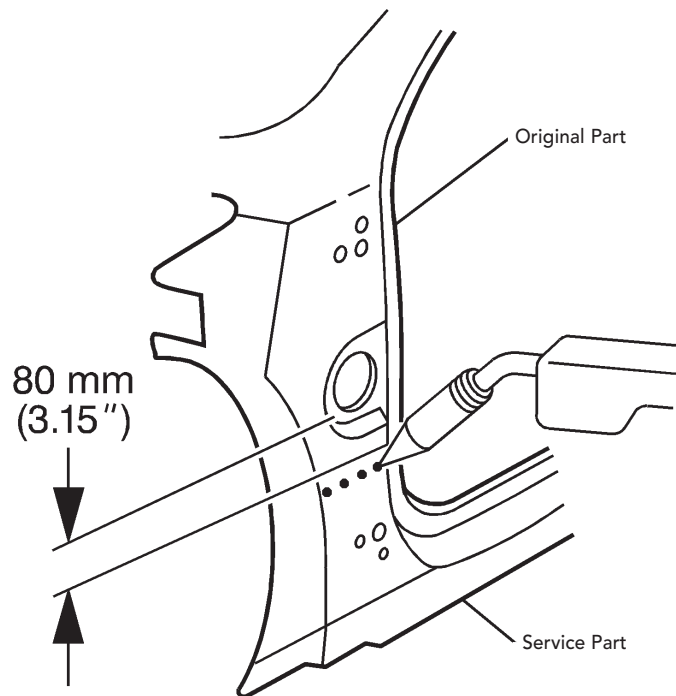


Fig. 4.23 — Sectioning of the outer door frame at the front hinge pillar

Door Frame Opening

— INSTALL OR CONNECT —

- 1 On the service part, mark a horizontal line to leave a gap of one and one-half times the thickness of the metal at the sectioning joint. Cut the service panel along this line.
- 2 Cut a 50mm (2 inch), (100mm (4 inch) if sectioning the rocker panel area), piece from the unused portion of the service part for a backing plate. Remove the flange on each side of the backing plate so that it will fit behind the sectioning joint (Fig. 4.24).
- 3 Drill 8mm (5/16 inch) holes for plug welding in the service part in the locations noted from the original panel. Also, drill holes for plug welding along the sectioning cut on the service part. Locate these holes approximately 13mm (1/2 inch) from the edge of the sectioning cut.
- 4 Prepare the mating surfaces and position the backing plates with 25mm (1 inch), (leave 50mm (2 inches) exposed if sectioning the rocker panel area), of the backing plate exposed, and plug weld. Position the service part to overlap the exposed portion of the backing plate, check fit using three-dimensional measuring equipment, and plug weld accordingly (Fig. 4.24).
- 5 Stitch weld along the entire joint. Make 25mm (1 inch) welds along the seam with 25mm (1 inch) gaps between. Then go back and complete the stitch weld. This will create a solid joint with minimal heat distortion.
- 6 Complete all other welds and sectioning procedures as necessary.
- 7 Clean and prepare all bare metal surfaces. Apply as necessary:
 - sealers and anti-corrosion materials
 - sound deadeners
 - two-part catalyzed primer
 - top-coat
- 8 Install the panels and components previously removed for access.

Important: Do not combine paint systems. Refer to paint manufacturer's recommendations.

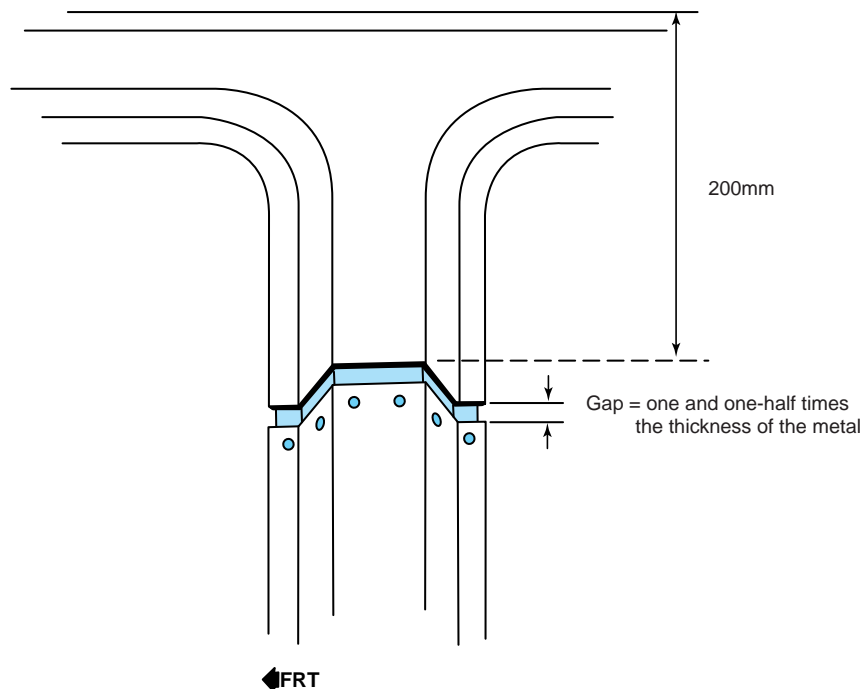


Fig. 4.24 — General sectioning of outer door frame