

Rear Bumper Impact Bar

The rear bumper (impact bar) is made of Ultra-High Strength steel. The impact bar is MIG welded to the mild steel frame rails. The impact bar can be repaired if damage excludes kinks, or damage which would require the use of heat to straighten.

Replacing the bumper bar requires special procedures to access the welds attaching the bumper bar to the frame rails. This procedure was developed to facilitate this repair while maintaining the integrity of the bumper system. The rear bumper impact bar as supplied for service includes riv-nuts pre-installed (Fig. 3.68) for energy absorber mounting. Replacement riv-nuts are available from Kent Moore Tools (Riv-Nut Kit: P/N J42151), if needed.

— REMOVE OR DISCONNECT —

- 1 Remove all panels and components to gain access to the rear impact bar. This includes removing the rear bumper cover, energy absorber, and the mufflers if necessary.

Notice: Disconnect exhaust at the bolted joint just forward of the rear axle. From inside the vehicle remove trim panels and pull back the carpeting inside the rear compartment area.

Important: Save any and all brackets, mounting studs, and accessories for transfer to the new rear compartment panel.

- 2 Visually inspect and restore as much of the damage as possible to specifications using three-dimensional measuring procedures.

Notice: Use Kent Moore Tools Frame Adapter Clamp (P/N J42058) to secure the vehicle if pulling and straightening is required (Fig. 3.69).

Notice: The frame rails and bumper impact bars must be serviced as required, and returned to three-dimensional coordinates before any SMC repairs are attempted.

- 3 Remove or reposition wiring as necessary to avoid being damaged.

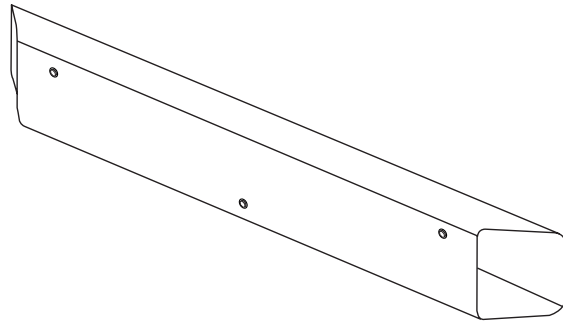


Fig. 3.68 — Ultra High-Strength Steel Beam

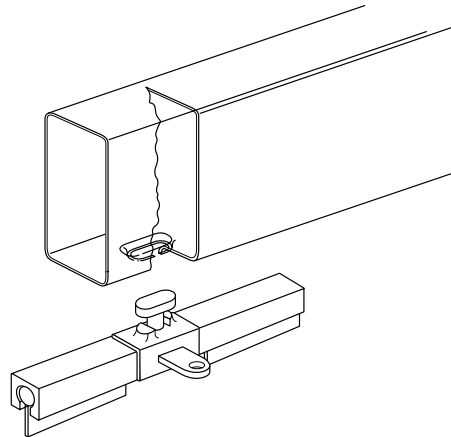


Fig. 3.69 — Adapter Flamp for Conventional Anchoring System

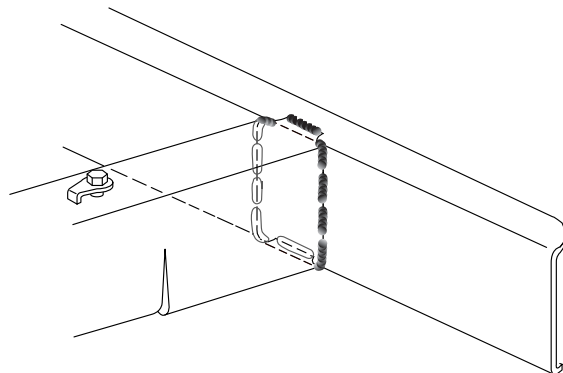


Fig. 3.70 — Mig Stitch Welded to Frame Rails

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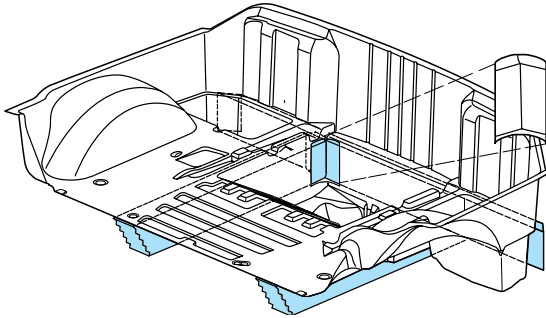


Fig. 3.71 — Cut and Remove Left and Right Corners (Right Corner Shown)

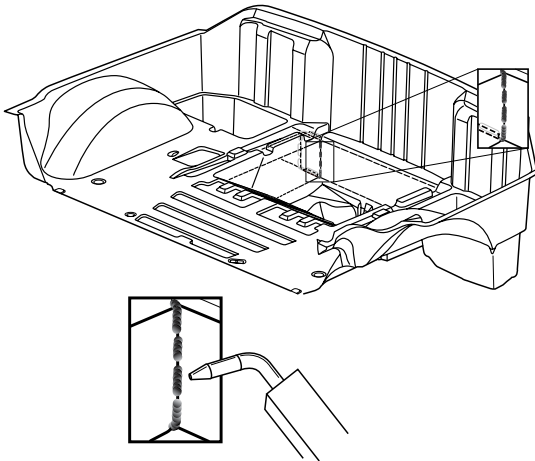


Fig. 3.72 — Create Windows to Access Welds

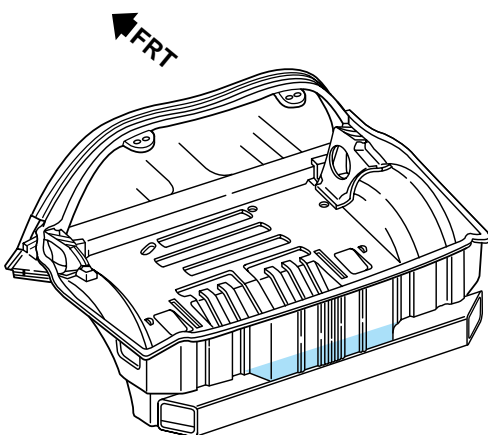


Fig. 3.73 — Bond Between Beam and Tub

- Using a die grinder or equivalent, cut the MIG welds attaching the rear impact bar to the frame rails. Cut the welds around the perimeter of the frame rail (fishmouth) ends. Cut the welds favoring the impact bar side of the joint. DO NOT cut into the frame rails.

Notice: The top and bottom welded edges, as well as the outer rail welds are accessible from outside the vehicle (Fig. 3.70).

Caution: DO NOT cut the rails when cutting 'windows' in the rear compartment panel.

- Access to the inner rail welds require modification to the rear wall of the SMC rear compartment panel. From inside the vehicle locate, mark, and cut out 'windows' in the rear compartment panel as in Fig. 3.71. The 'windows' provide access to inner MIG welds attaching the impact bar to the rails (Fig. 3.72).

Important: Save the cutouts for re-installation.

- Cut the remaining welds around the perimeter of the impact bar, favoring the impact bar side of the joint.
Notice: Be sure to protect the interior of the vehicle before cutting or grinding the SMC body, or the bumper impact bar.
- The rear impact bar is also bonded to the rear compartment panel, see Fig. 3.73. If necessary, apply heat, then pry apart to separate impact bar from rear panel. (Refer to Rear Compartment Panel Service Procedures.)

With the rear bumper impact bar removed, repair any cracks in the SMC from outside the vehicle. (Refer to SMC Repair Procedures.)

Important: Do not install the 'windows' in rear compartment yet; welding access is necessary for installing the replacement impact bar.

— INSTALL OR CONNECT —

- Straighten and deburr the rail ends as necessary to allow the service bumper impact bar to fit the rail ends properly. Remove any adhesive which is cracked or broken loose from the rails or the rear compartment panel.

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- 2 Temporarily position the impact bar and scribe lines into the primer indicating where the welds will be made. Remove the primer from the areas to be MIG welded by sanding with 80-grit paper on a 'Dual-Action' sander (DA). Do Not use a grinder to remove the primer.
- 3 Prepare all bare metal surfaces and apply weld-through primer as necessary. Be sure to apply primer to the inside of the 'fishmouth' area also.
- 4 Position the bumper impact bar using three-dimensional measuring equipment and install per the original weld locations. Stitch weld around the 'fishmouth' joint. If not trace of the original welds are present, use Fig. 3.74 as a guide for welding the side rails to the impact bar. This weld pattern will create a solid weld joint with minimal heat distortion.
- 5 Clean and prepare all welded surfaces, use 3M's Scotch-Brite Clean-N-Strip Discs (disc P/N 07460, mandrel P/N 07491), or equivalent (Fig. 3.75).

Important: Prior to refinishing, refer to GM P/N 4901 Refinish Manual for recommended products.

- 6 Apply approved anti-corrosion primer.
Notice: DO NOT top-coat any bonding surfaces.
Notice: Top surface of impact bar (where it is to be bonded to the rear compartment panel), must not be top-coated, see Fig. 3.73. The bonding area must remain a 'primer only' surface
- 7 Apply 50mm (2 inch) wide tape over the 'windows' cut in the rear compartment panel, from outside the vehicle. Apply adhesive to the inside of the tape backer, and install the previously cut-out pieces in their original locations (Fig. 3.76). (Refer to SMC repair procedures.)
Important: Use US Chemical and Plastics 82014B System 2000 Structural Adhesive, a PLIOGRIP® adhesive manufactured by Ashland Chemical Company, or equivalent. Note the 9 minute working time and 1 hour cure time.

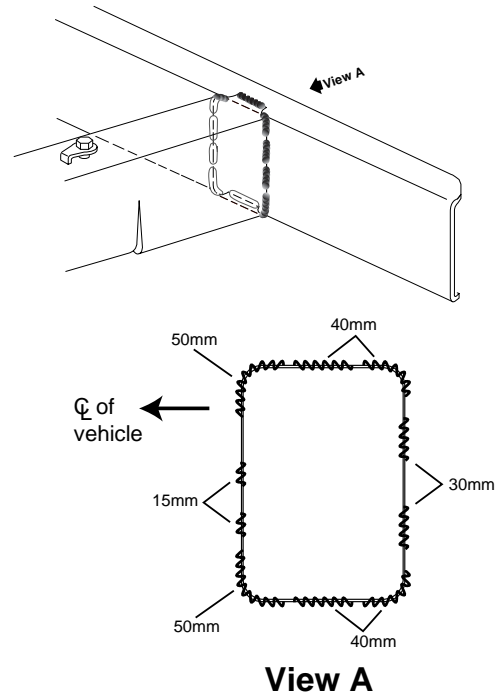


Fig. 3.74 — Weld Perimeter of Joint, as Indicated

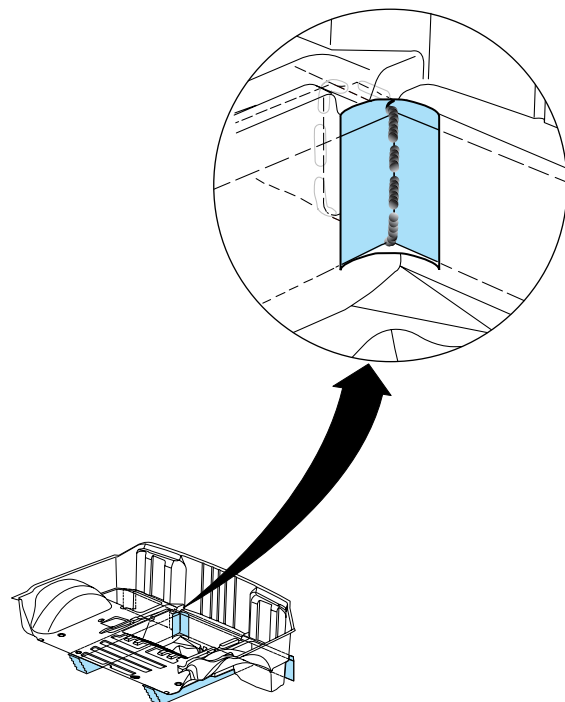


Fig. 3.75 — Prime Bare Metal Areas Before Installing Window Cutouts

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- 8 Apply a thin coat of Goodwrench Structural Bonding Epoxy (part no. 1234526), or equivalent, to the entire repair area extending across the cut lines, use tacky mesh tape or an equivalent reinforcement matting. Apply enough bonding epoxy to fully 'wet out' reinforcement matting. Allow to cure as necessary. (Refer to *SMC Repair Procedures*.)
- 9 Scuff all bonding surfaces to ensure proper adhesion. (Refer to *SMC Repair Procedures*.)
- 10 Clean and prepare all bonding surfaces as necessary. (Refer to *SMC Repair Procedures*.)
- 11 Apply a bead of urethane adhesive to bond the impact bar to the rear compartment as shown in Fig. 3.76. This is a structural bond, and care must be used to ensure that the adhesive fills the gap adequately.
- 12 Finish and feather-edge the repair areas as necessary to resemble OEM.
- 13 Prime the SMC repair areas with a suitable primer. Apply appropriate sealers .
- 14 Apply top-coat over all repaired areas. Refer to paint manufacturer's recommendations. Do not combine paint systems.
- 15 Install all related panels and components.

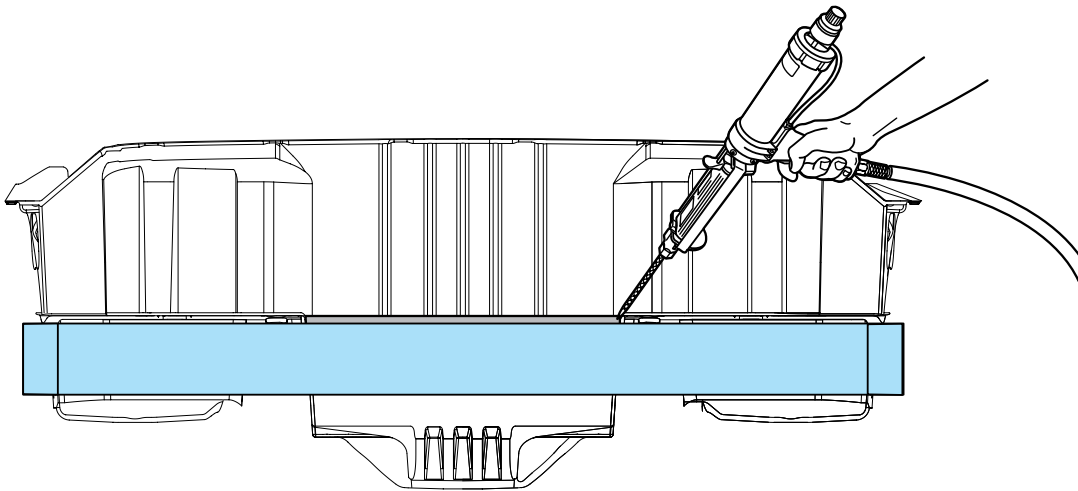


Fig. 3.76 — Bond Rear Compartment Panel to Top Side at Impact Bar