

Collision Repair

Repair Instructions

Rail Replacement - Upper

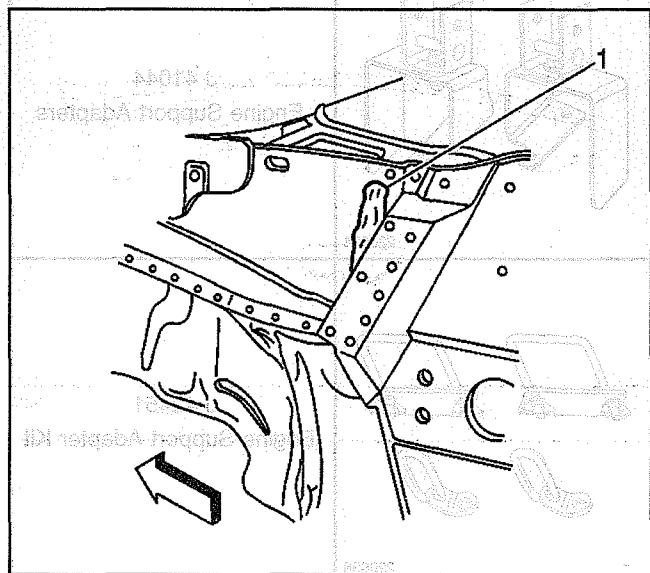
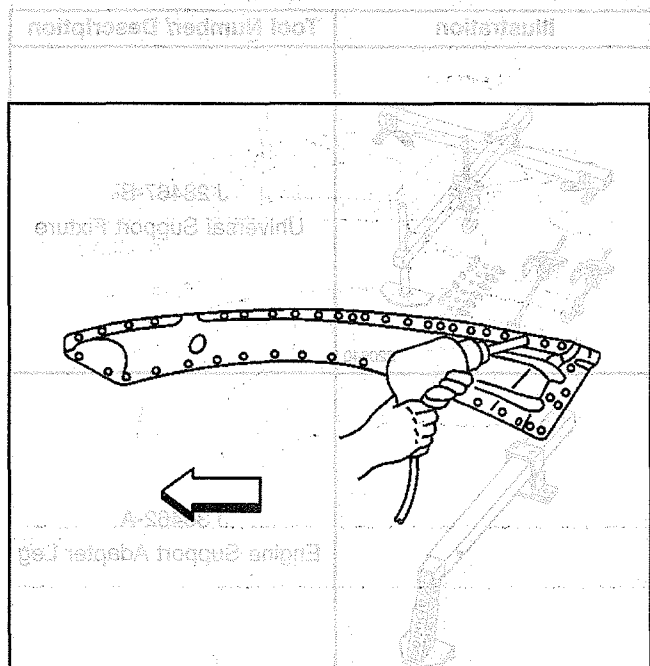
Engine Compartment Front Outer Side Rail

Before attempting to remove the engine compartment front outer side rail, visually inspect the damage and restore as much of the damage as possible to factory specifications. The engine compartment front outer side rail is attached to the front wheelhouse panel upper side rail assembly with spots welds. To remove the outer side rail, the spot welds must be drilled out. Plug weld holes must be drilled in the same location as the original spot welds. On the service part, outer side-rail, plug weld holes are not included.

Removal Procedure

Important: Note the number and location of the welds for the installation of the new outer side rail.

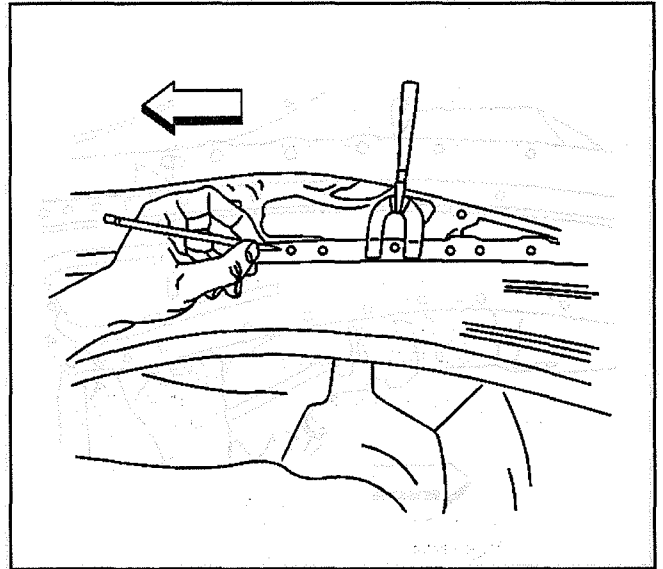
1. Remove the front fender assembly, the hood assembly and the hood hinge assembly.
2. Drill out all related factory welds.
3. Remove the outer side rail.
4. Remove the air baffle material (1) from the side rail assembly.
5. Remove sealant from side rail assembly as necessary.



349751

Installation Procedure

1. Position the new outer side rail to the inner side rail and clamp in place.
2. Mark the seven formed and pierced locations from the side rail assembly to the new outer side rail.
3. Mark the hood hinge hole locations.

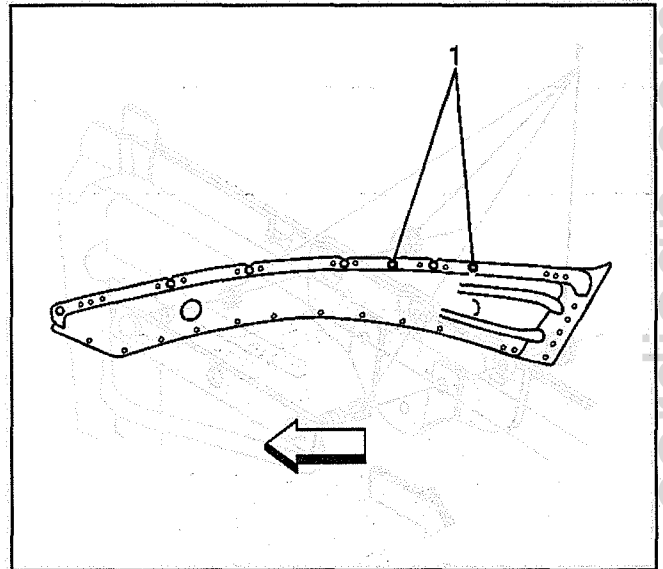


349631

4. Remove the clamps and the outer side rail.
5. Drill 1/8 in holes in marked locations on the new outer side rail at formed and pierced locations.
6. Drill two 10 mm (3/8 in) holes at hood hinge hole locations (1).
7. Drill 8 mm (5/16 in) plug weld holes in welding locations, fore and aft of the seven formed and pierced locations.

Important: If the original outer side rail is damaged beyond recognition, place holes for welding approximately 40 mm (1 1/2 in) apart.

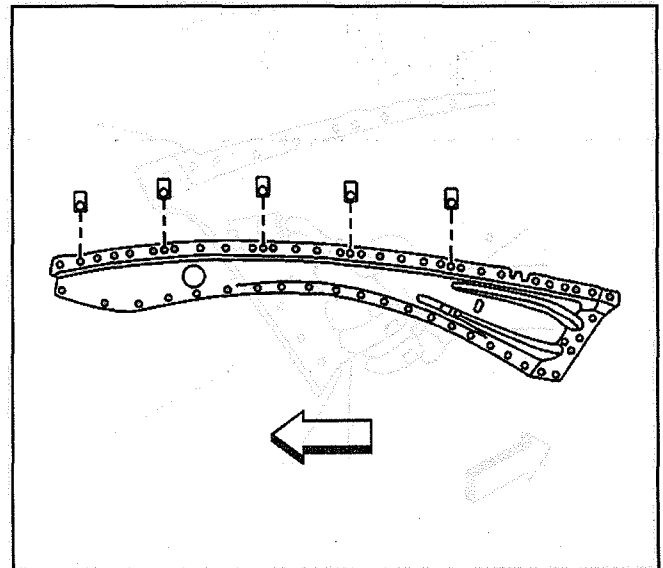
8. Drill 8 mm (5/16 in) holes through remaining locations as noted from old outer side rail.



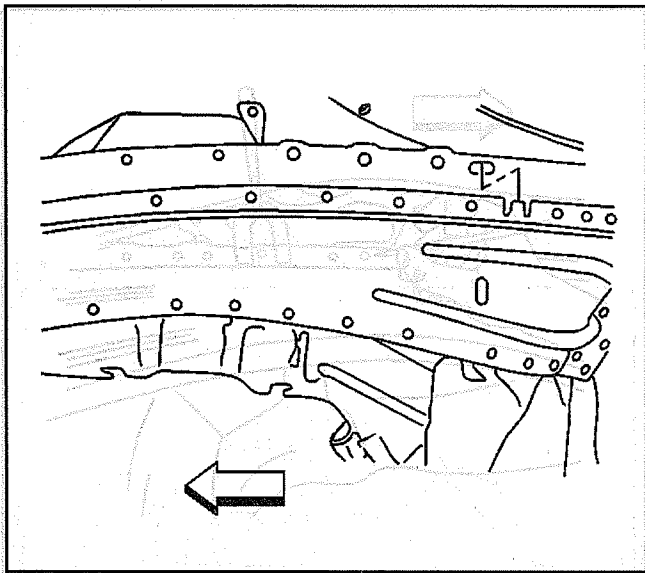
349633

Important: Two formed and pierced locations at hood hinge mounting panel do not require J-Clips.

9. Install J-Clips included with rail, GM P/N 10079170, through five formed and pierced locations.
10. Position the new outer side rail in place, insert locating tab through slot.



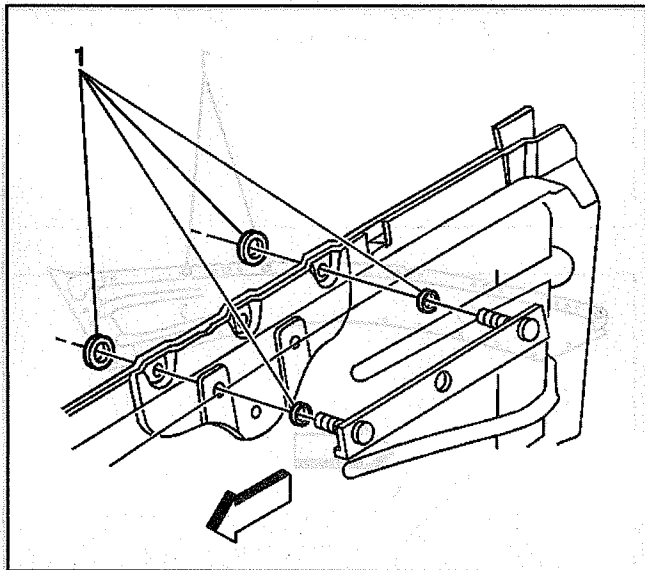
349634



349635

Important: The new outer rail may be manually positioned to accommodate the J-Clips at the five formed locations.

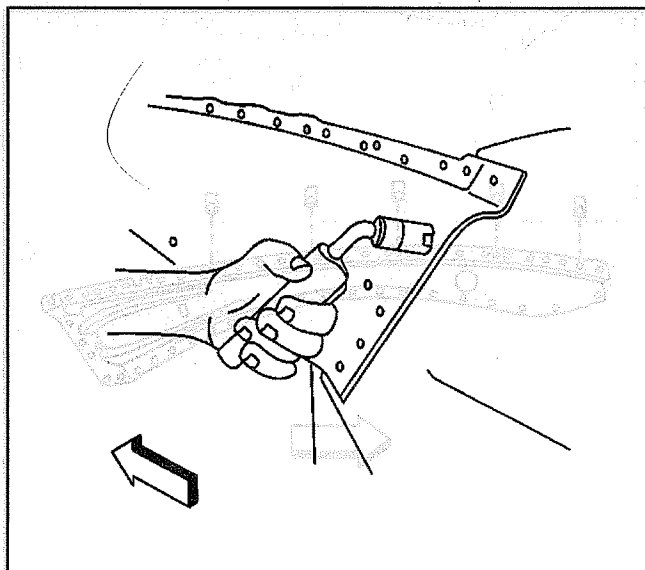
11. Install the fender mounting bolts/screws included with rail, GM P/N 11505023, at five J-Clips to secure outer side rail in place.



349636

12. Follow the next steps accordingly:

- **Outer Rail Replacement Only.** Match the new outer rail to the contour of the two formed locations at the hood hinge. (Use hood hinge bracket with original spacers intact.)
- **Inner and Outer Rail Replacement.** Replace original two spacers on hood hinge bracket bolt/screw with two washers provided (1). Install hood hinge bracket upside down, washers and bolts/screws to outer side rail assembly at hood hinge mounting panel.



349639

Important: Be sure to measure continually throughout welding process to maintain correct dimensions.

13. Using a MIG welder randomly plug weld new outer side rail in place.
14. Clean and prepare welded surfaces. Apply 3M Brushable Seam Sealer, part number 08361 or equivalent as necessary.

Important: Test a small amount of expandable foam into a disposable container to become familiar with the rate of discharge.

15. Apply HANDI FOAM to replace air baffle material. HANDI FOAM kit is available from FOMO Products Inc., 2775 Barber Rd., P.O. Box 1078, Norton, Ohio 44203 or call 1-800-321-5585 or 216-753-4585.

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

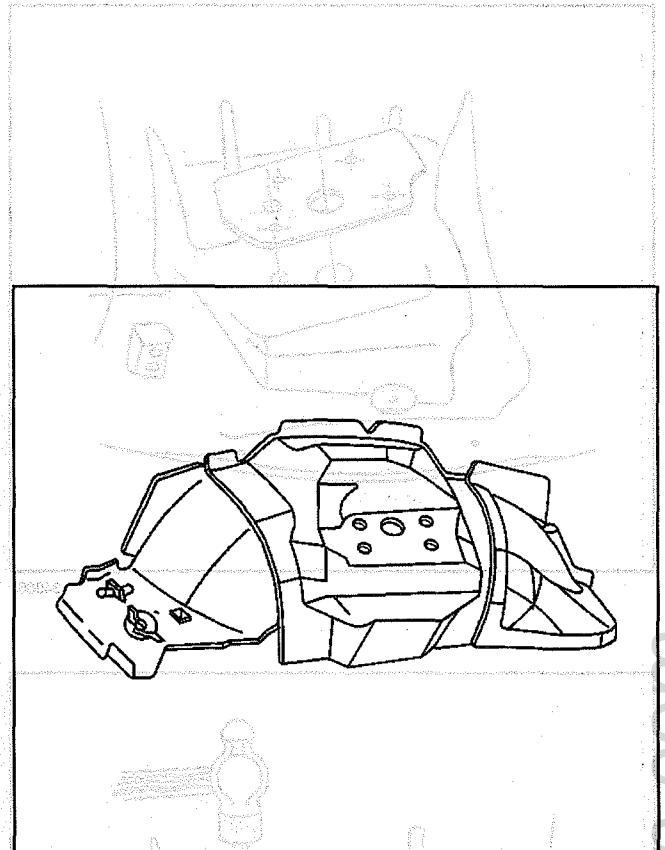
16. Prime with two-part catalyzed primer.
17. Apply anti-corrosion material as necessary.
18. Install the hood hinge assembly, the hood assembly and the front fender assembly.

Wheelhouse Replacement - Front (Complete)

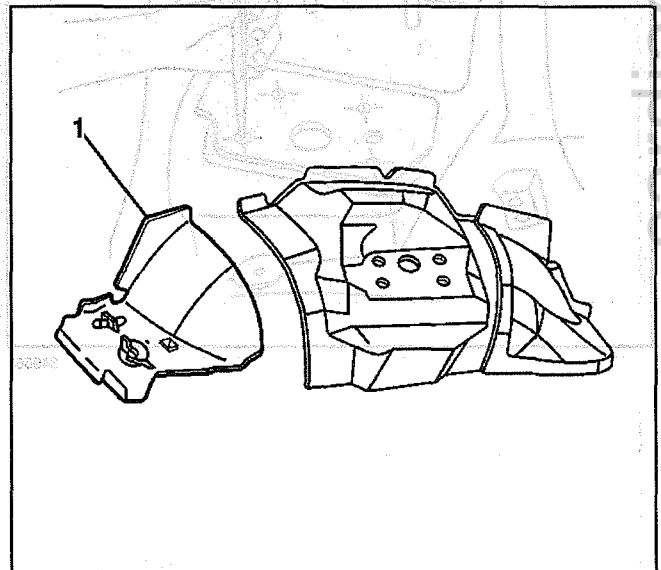
The Front Wheelhouse is available as an entire assembly, including all brackets, reinforcements and drill template.

- Installation Procedure**
1. Get the new front wheelhouse assembly on a work surface with underside up.
 2. Position the template (included in service kit) in the front wheelhouse assembly.
 3. With a center punch, locate four strut attaching holes.
 4. Remove template.

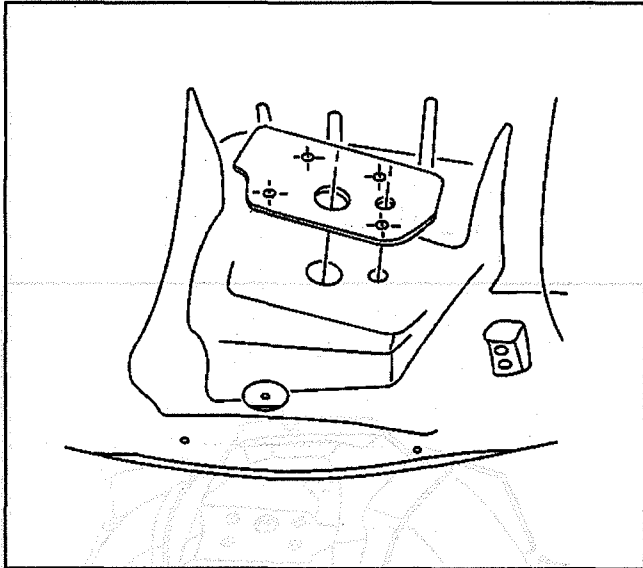
The Front Wheelhouse Apron is also available separately (1).



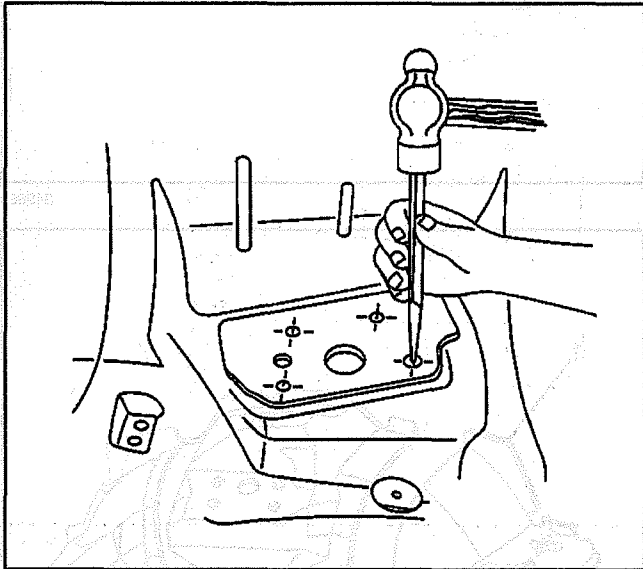
349660



349661



349663



349665

Removal Procedure

1. Remove all related panels and components.
2. Visually inspect the damaged area.
3. Restore as much of the damage as possible to factory specifications.
4. Remove sealers and anti-corrosion materials as necessary.

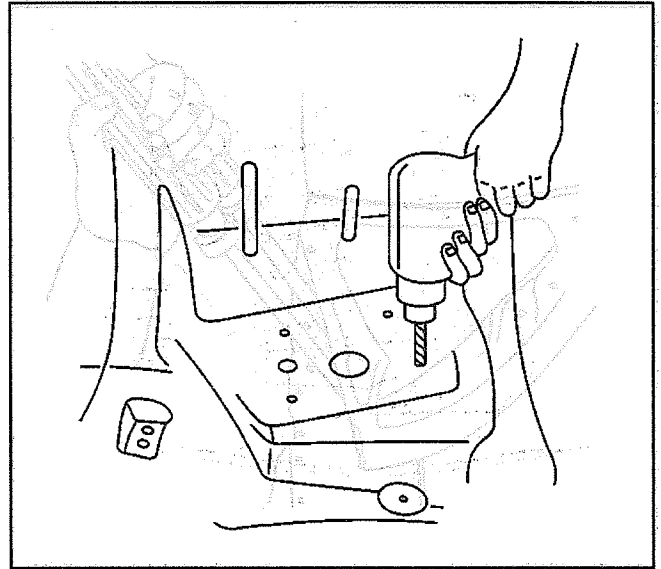
Important: Note the number and location of welds for installation of the front wheelhouse assembly.

5. Mark all factory welds.
6. Drill out all factory welds.
7. Remove the damaged wheelhouse.
8. Prepare mating surfaces for proper fit of new front wheelhouse assembly.

Installation Procedure

1. Set the new front wheelhouse assembly on a work surface with underside up.
2. Position the template (included in service kit) in the front wheelhouse assembly.
3. With a center punch, locate four strut attaching holes.
4. Remove template.

5. Drill 12 mm (15/32 in) holes in marked locations on new front wheelhouse assembly:
6. Drill 8 mm (5/16 in) plug weld holes along mating surfaces 1 1/2 in apart.
7. Position new front wheelhouse assembly in place, align and clamp.



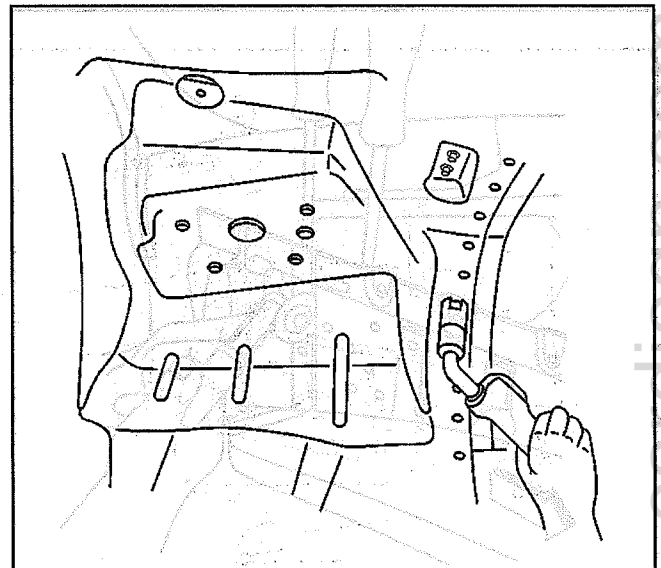
349666

Important: Be sure to measure continually throughout welding process to maintain correct dimensions.

8. Using a MIG welder, randomly plug weld the new front wheelhouse assembly in place.
9. Remove the clamps.
10. Clean and prepare the welded surfaces.

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

11. Apply 3M Brushable Seam Sealer part number 08361 or equivalent as necessary.
12. Apply anti-corrosion materials as necessary.



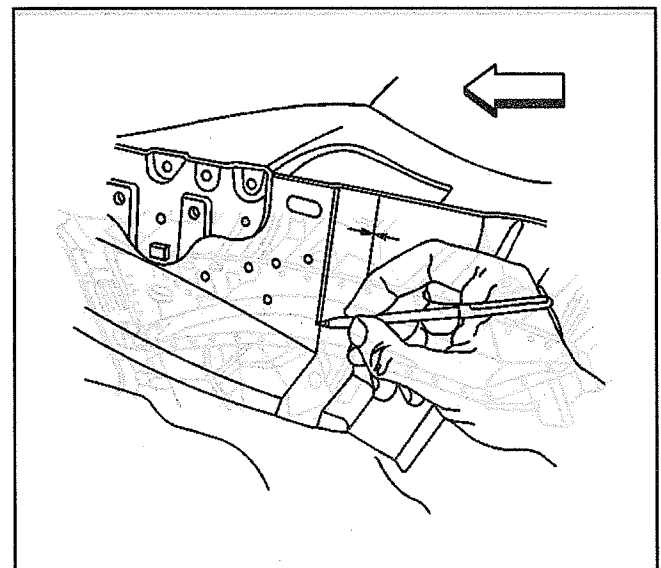
349667

Wheelhouse Replacement - Front (Panel Upper Side Rail)

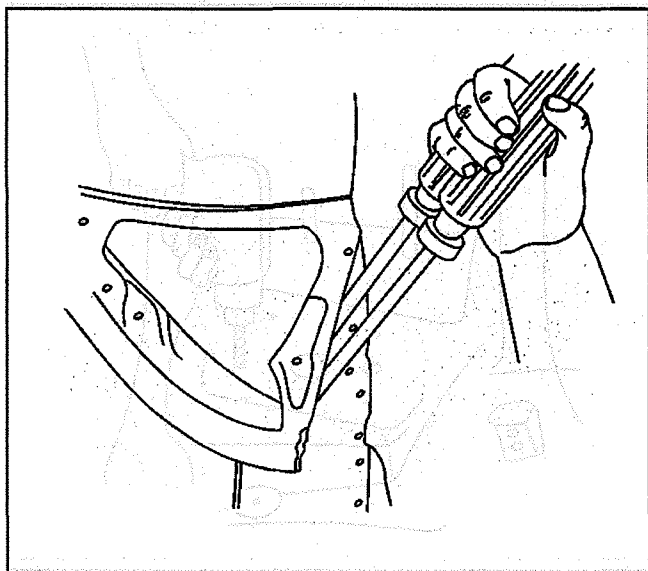
When replacing the upper side rail assembly, cut a section of the damaged side rail assembly away and section a new side rail assembly in its place. Removal of the side rail assembly requires the use of a template to help in determining the location of the cut to be made.

Removal Procedure

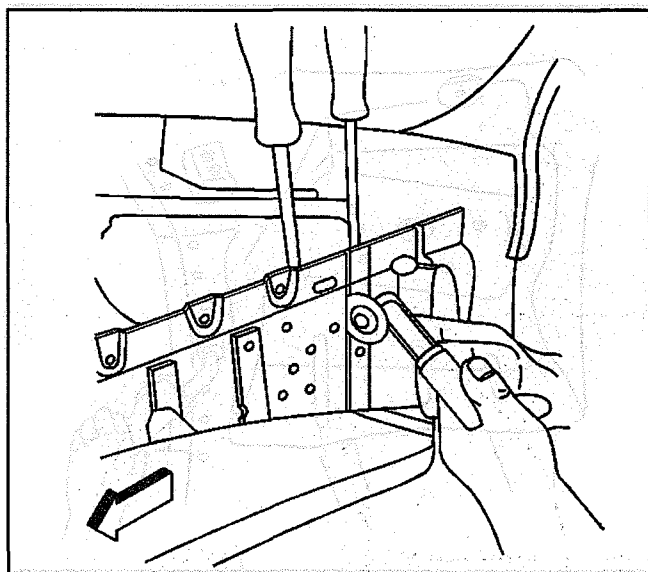
1. Remove the outer side rail. *Rail Replacement - Side*
2. Position template included with rail to side rail assembly at forward edge where indicated by arrows and scribe line onto side rail assembly.



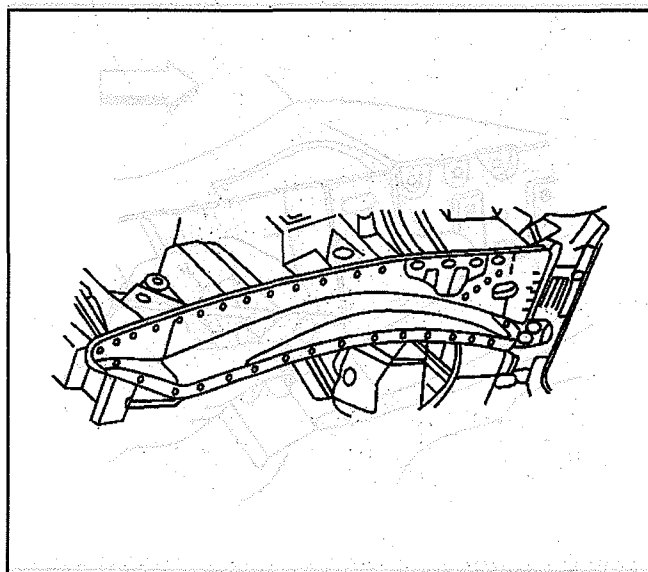
349641



349643



349645



349647

3. Drill out the welds at cowl panel. The remaining welds will hold side rail assembly in place while cutting.
4. Separate side rail assembly away from cowl panel.

Important: Note the number and the location of remaining welds for installation of new side rail assembly.

5. Cut the side rail assembly at scribed lines, being careful not to cut adjacent panels.

6. Drill out the remaining welds.
7. Remove the side rail assembly.

Installation Procedure

1. Prepare mating surfaces for proper fit of new side rail assembly.
2. Clean sealer away from mating surfaces as necessary.

Important: If original side rail assembly is damaged beyond recognition, place holes for welding 1 1/2 in apart.

3. On new side assembly drill 8 mm (5/16 in) holes along mating surfaces as noted from original side rail assembly.
4. Clean the surface of seven pierced locations on side rail assembly with mild soap and water.
5. Wipe dry.
6. Clean with wax and grease remover.

Important: Use only service kit washers provided with rail, GM P/N 12520407. Use of any other washer could cause improper positioning of side rail assembly.

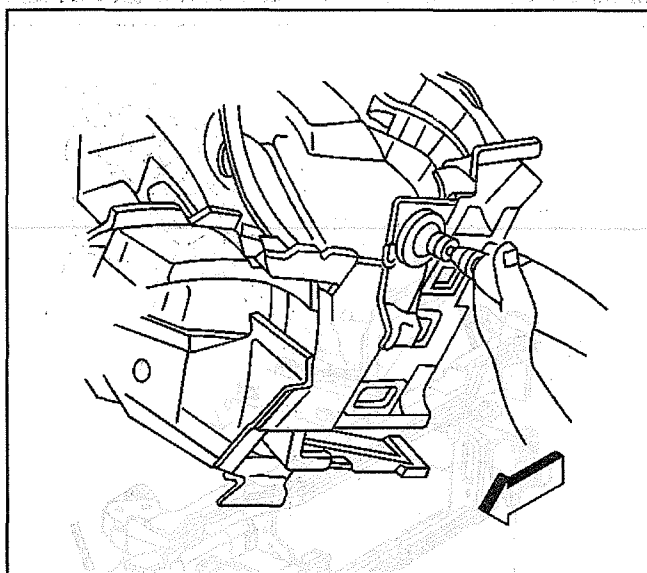
Important: The forward pierced location may need to be manually positioned according to upper body dimensions, utilizing common tools and techniques.

7. Remove backing from washers included with rail and carefully apply to motor compartment side of new side rail assembly at pierced locations.

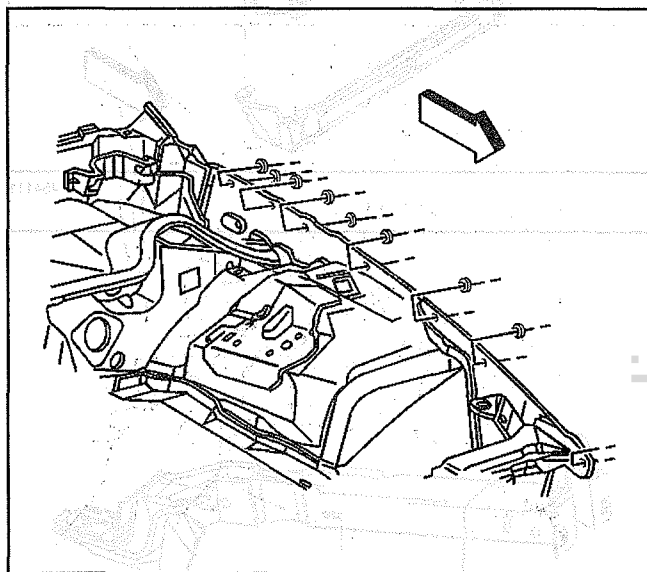
8. Position new side rail assembly to overlap remainder of original side rail assembly by 35 mm. Align to arrows on remainder of original side rail assembly and clamp.
9. Using a MIG welder, at overlap, plug weld all 8 mm pre-drilled holes in new side rail assembly in sequence shown.

Important: Be sure to measure continually throughout welding process to maintain correct dimensions.

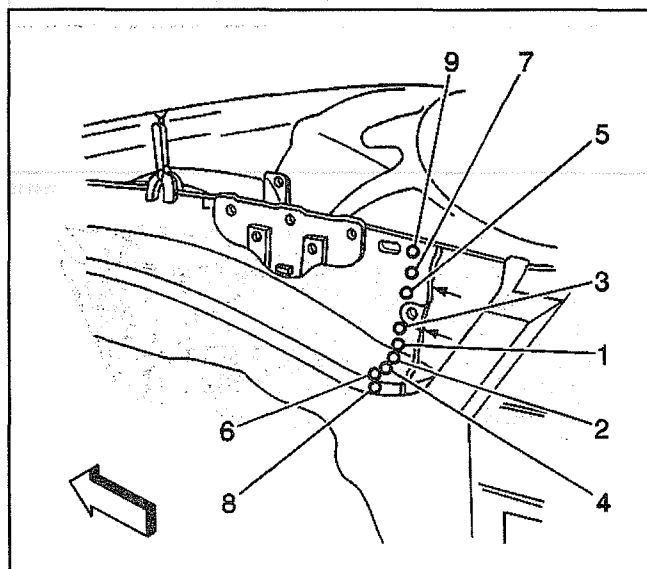
10. Using a MIG welder, randomly plug weld all remaining holes (1-9) in new side rail assembly.
11. Complete stitch welding along seam.
12. Remove the clamps.
13. Clean and prepare welded surfaces.



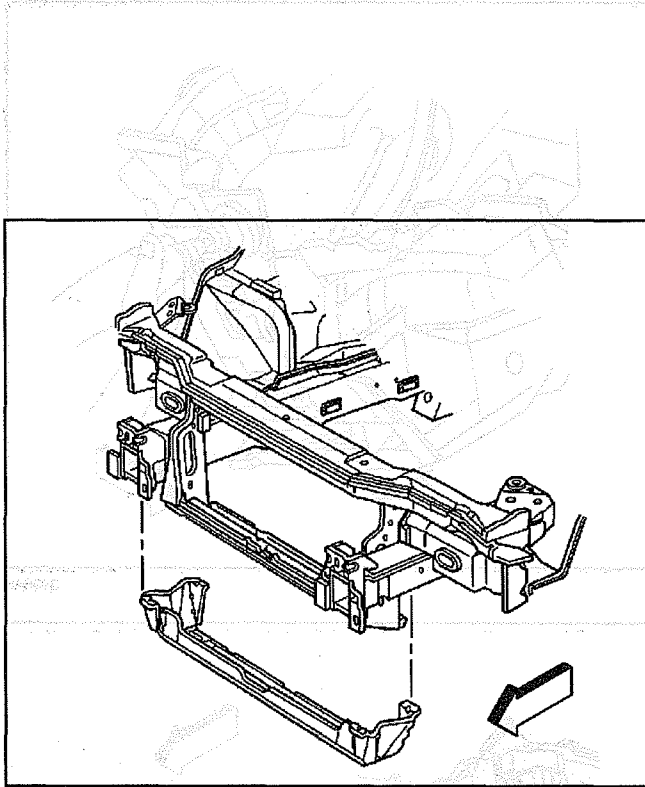
349648



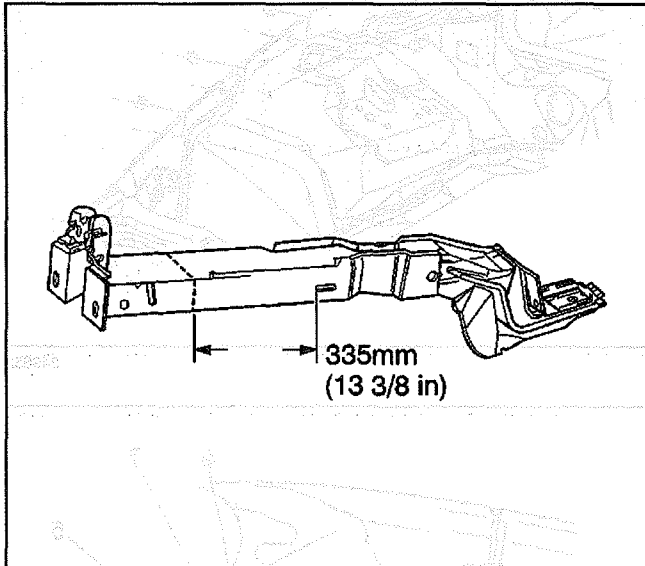
349652



349653



454111



454115

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

14. Prime with two-part catalyzed primer.
15. Install outer side rail.

Rail Sectioning - Lower (Left)

Removal Procedure

Important: Sectioning procedures have been developed to simplify repair to the lower LEFT rail, providing the majority of the damage can be returned to factory specifications. This allows the damaged front section to be replaced without performing full rail replacement. Bumper mounting brackets can be serviced separately.

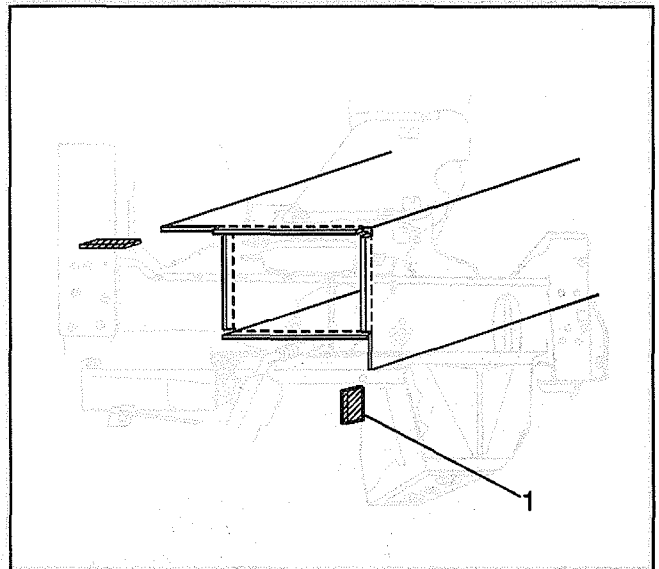
1. Visually inspect and restore as much of the damage as possible to factory specifications.
2. Remove lower tie bar support brace (1).

3. Remove all related panels and components as necessary.

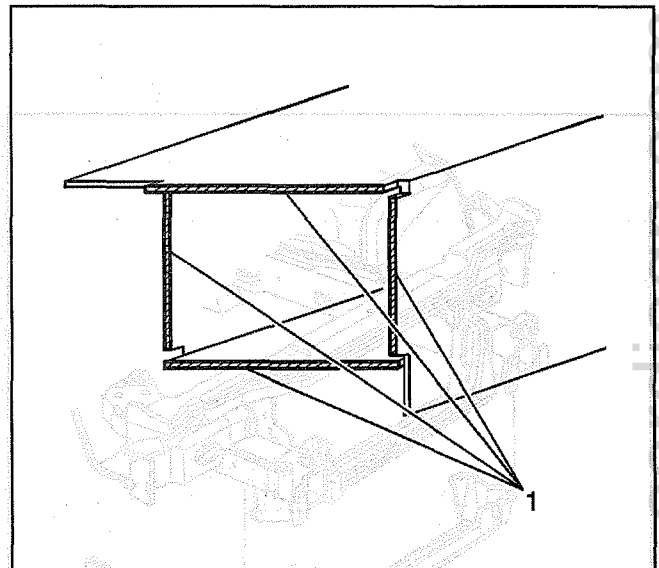
Important: Removal of the cradle and powertrain is not necessary when performing this procedure.

4. Locate the cut location on the left front rail. Use the left front cross-member cagenut slot for reference.
5. At the front edge of the slot, measure 335 mm (approximately 13-3/8 in) forward. This is the cut location on damaged part.
6. Use a straight edge to scribe a line around the rail.
7. Cut and discard the damaged portion of rail.

8. Cut and remove approximately 5 mm (1/4 in) of the outboard and downward turned flanges from the end of the original rail (1).
9. Cut a 5 mm (1/4 in) gap approximately 5 mm (1/4 in) along the corners of the original rail to create a 5 mm (1/4 in) tab for the service part to slide over.
10. Slightly bend the tabs inward to allow the replacement lower rail section to fit over the original rail (1).
11. Apply weld-through coating to all bare metal areas as necessary before fitting service part.



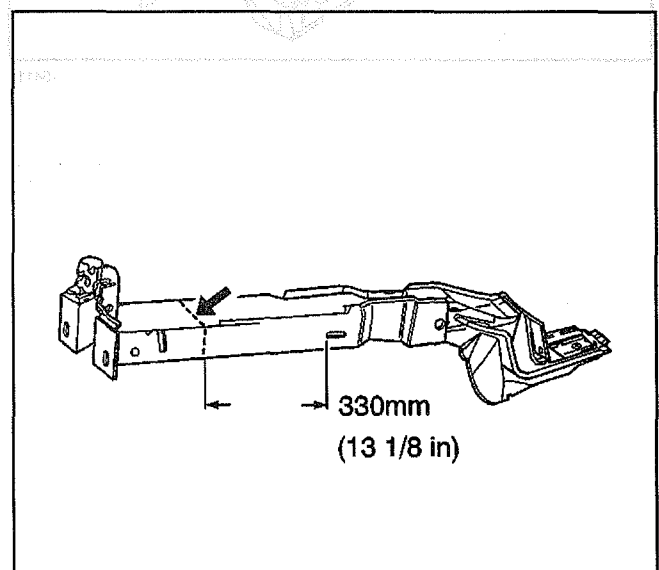
414315



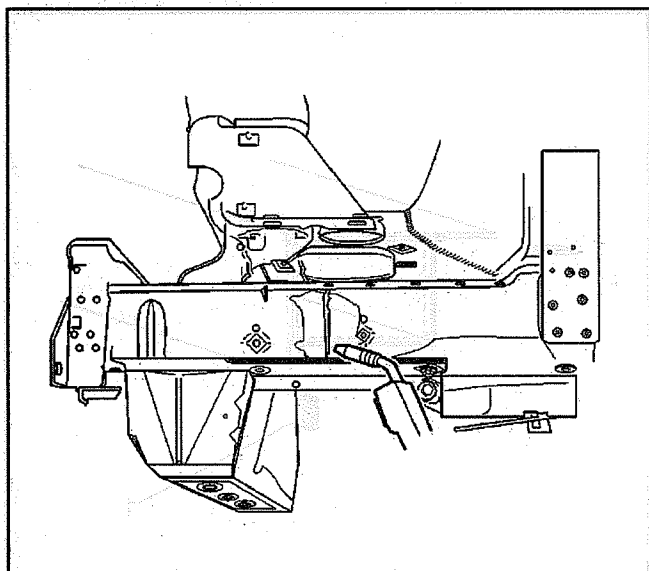
414320

Preparation of Service Part

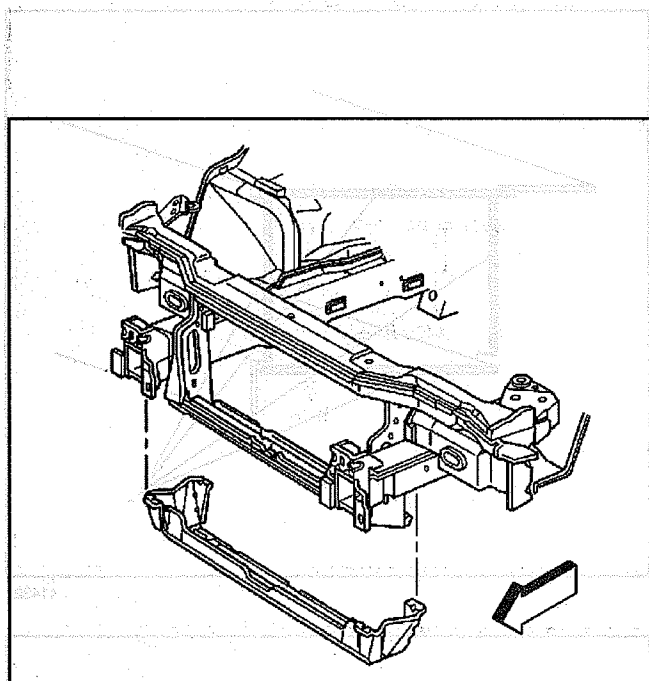
1. Locate the cut location on the service part. Use the front crossmember cagenut slot for reference.
2. Measure 330 mm (13-1/8 in) forward from front edge of slot. This will be the cut location for the service part.
3. Use a straight edge to scribe a line around the rail.
4. Cut and remove front portion of the rail.
5. Discard unused rear portion of the service part.
6. Clean burrs on inside of the rail.
7. Apply weld-thru primer to bare metal surfaces as necessary.



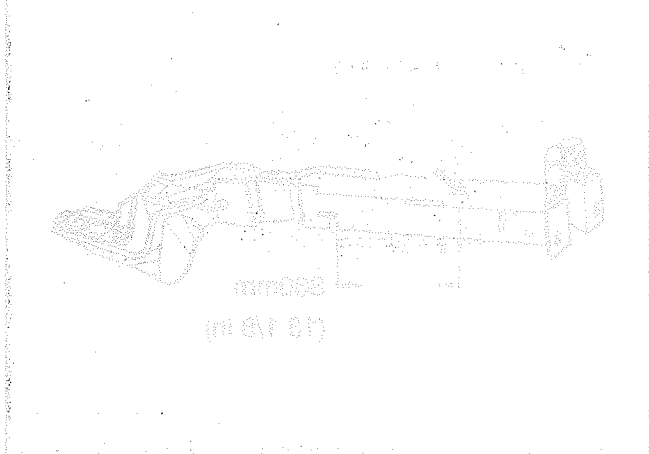
454164



454168



454111



Installation Procedure

1. Position the modified service part over the tabs of the original rail and allow 5 mm (1/4 in) of overlap.
2. Clamp in place.
3. Check fit using three-dimensional measuring equipment.
4. Stitch weld along the entire sectioning joint. Make 25 mm (1 in) welds along the seam with 25 mm (1 in) gaps between them.
5. Go back and complete the stitch weld. This will create a solid joint with minimal heat distortion.
6. Clean and prepare welded surfaces.

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

7. Apply the following:
 - two-part catalyzed primer
 - anti-corrosion protection materials
 - sealers
8. Install all related panels and components.

Rail Sectioning - Lower (Right)

Removal Procedure

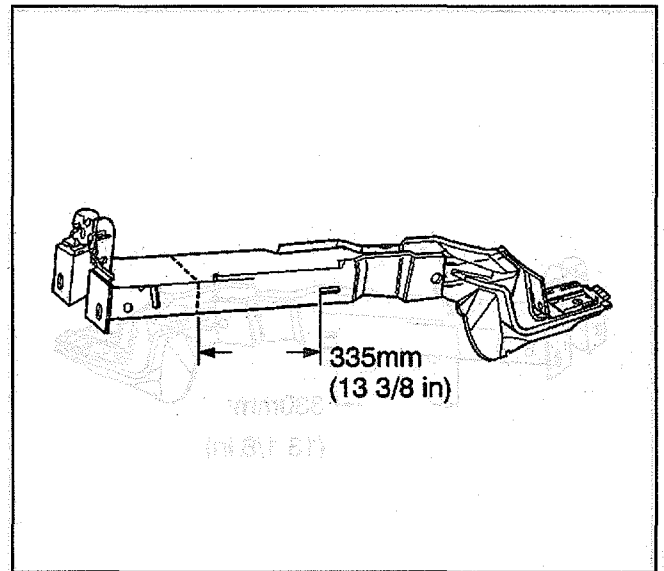
Important: Sectioning procedures have been developed to simplify repair to the lower RIGHT rail, providing the majority of the damage can be returned to factory specifications. This allows the damaged front section to be replaced without performing full rail replacement. Bumper mounting brackets can be serviced separately.

1. Visually inspect and restore as much of the damage as possible to factory specifications.
2. Remove lower tie bar support brace (1).

3. Remove all related panels and components as necessary.

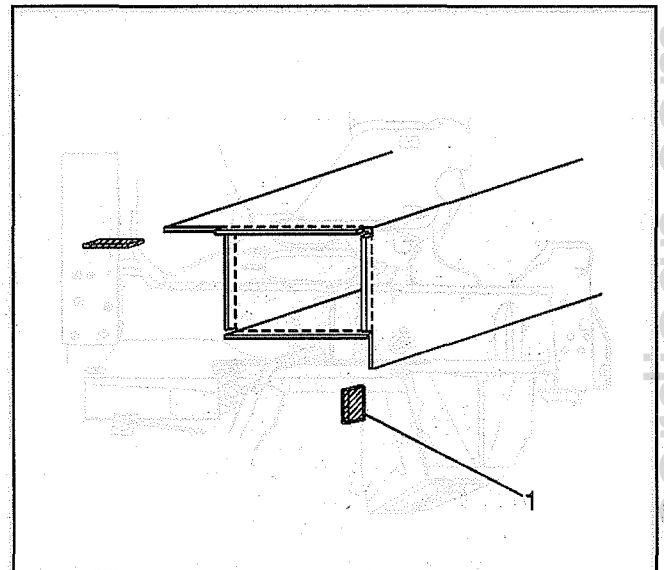
Important: Removal of the cradle and powertrain is not necessary when performing this procedure.

4. Locate the cut location on the right front rail. Use the right front cross-member cagenut slot for reference.
5. At the front edge of the slot, measure 335 mm (approximately 13-3/8 in) forward. This is the cut location on damaged part.
6. Use a straight edge to scribe a line around the rail.
7. Cut and discard the damaged portion of rail.



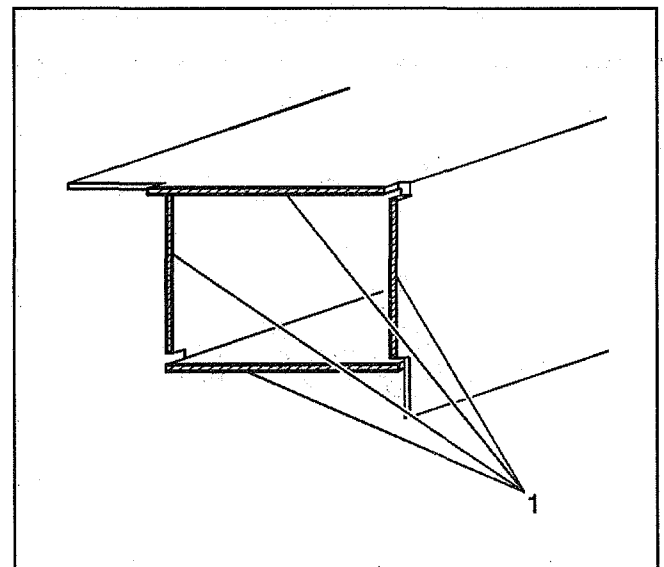
454115

8. Cut and remove approximately 5 mm (1/4 in) of the outboard and downward turned flanges from the end of the original rail (1).
9. Cut a 5 mm (1/4 in) gap approximately 5 mm (1/4 in) along the corners of the original rail to create a 5 mm (1/4 in) tab for the service part to slide over.

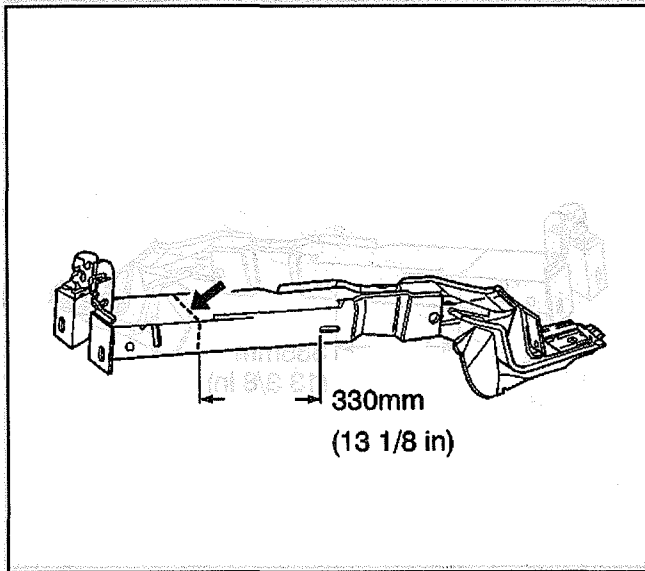


414315

10. Slightly bend the tabs inward to allow the replacement lower rail section to fit over the original rail (1).
11. Apply weld-through coating to all bare metal areas as necessary before fitting service part.



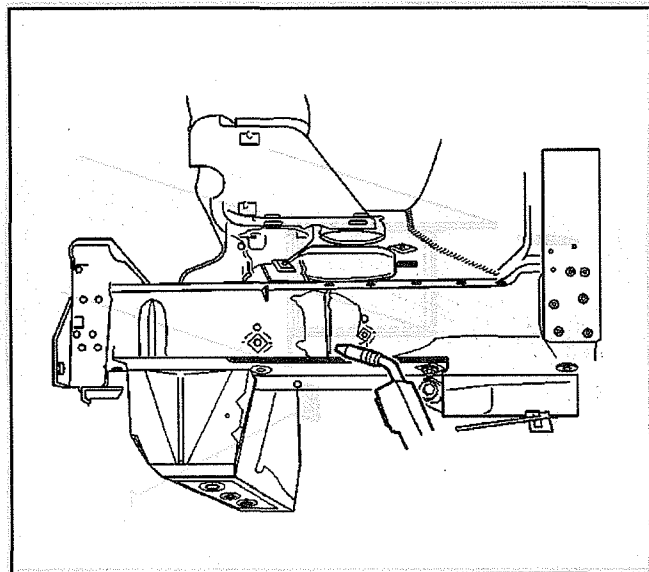
414320



454164

Preparation of Service Part

1. Locate the cut location on the service part. Use the front crossmember cagenut slot for reference.
2. Measure 330 mm (13-1/8 in) forward from front edge of slot. This will be the cut location for the service part.
3. Use a straight edge to scribe a line around the rail.
4. Cut and remove front portion of the rail.
5. Discard unused rear portion of the service part.
6. Clean burrs on inside of the rail.
7. Apply weld-thru primer to bare metal surfaces as necessary.



454168

Installation Procedure

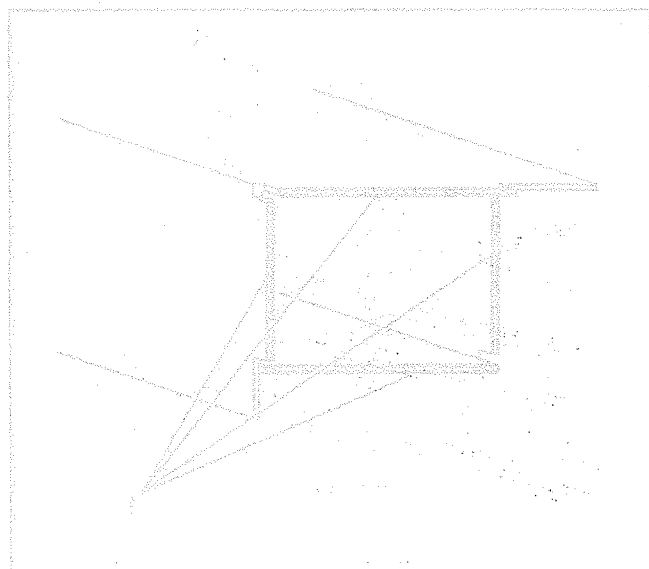
1. Position the modified service part over the tabs of the original rail and allow 5 mm (1/4 in) of overlap.
2. Clamp in place.
3. Check fit using three-dimensional measuring equipment.
4. Stitch weld along the entire sectioning joint. Make 25 mm (1 in) welds along the seam with 25 mm (1 in) gaps between them.
5. Go back and complete the stitch weld. This will create a solid joint with minimal heat distortion.
6. Clean and prepare welded surfaces.

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

7. Apply the following:

- two-part catalyzed primer
- anti-corrosion protection materials
- sealers

8. Install all related panels and components.

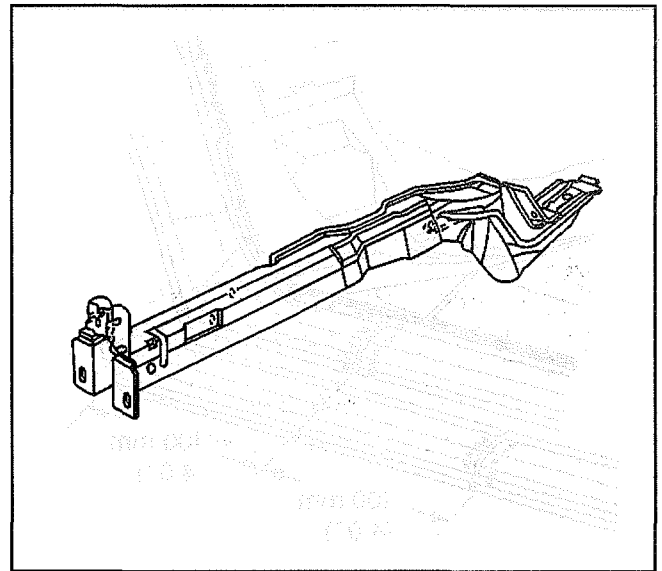


454170

Rail Replacement - Side

Replacement of the front lower rail assembly has been simplified. All attaching surfaces are easily accessible from underneath for service, which makes replacement much less complicated.

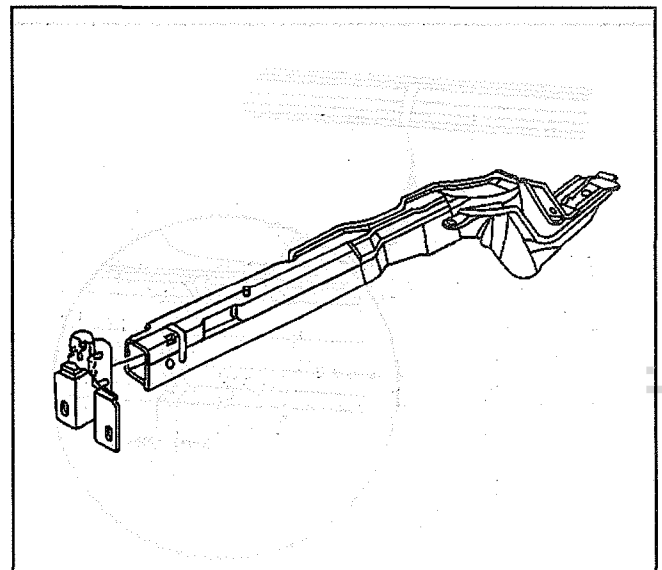
The service part comes as an entire unit including all brackets and reinforcements.



349752

The outer side rail extension (bumper bracket) is also available separately.

Sectioning of the engine compartment inner and outer side rail assemblies is not recommended as doing so could compromise the structural integrity of the vehicle.

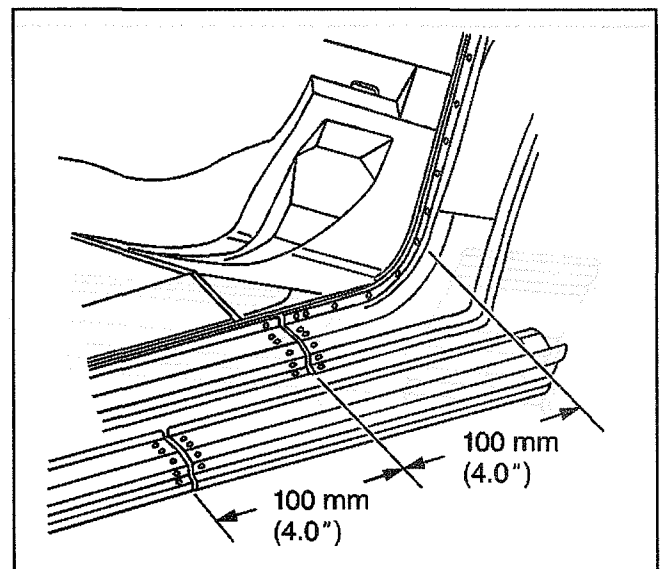


349657

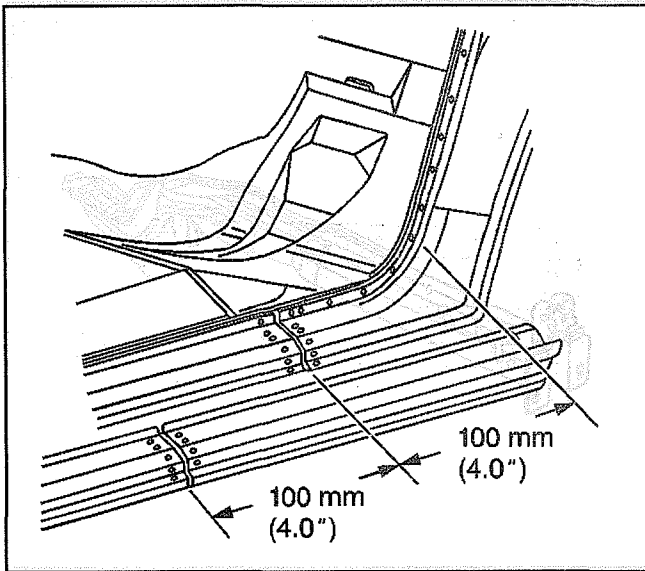
Rocker Panel Replacement (Outer)

Important: When sectioning the outer rocker panel, do not section within 100 mm (4 in) of any other sectioning on adjacent components. Do not section the outer rocker panel within 100 mm (4 in) of either inner lower curve of the door opening frame. Sectioning in these areas could jeopardize the structural integrity of the vehicle.

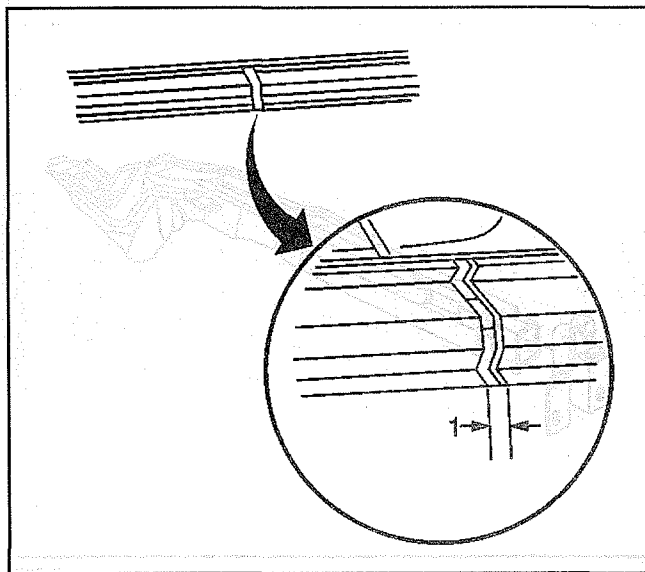
The outer rocker panel is attached to the rear quarter panel and the side door opening frame with factory welds. The outer rocker panel must be removed before servicing the side door frame. When sectioning in an area with no reinforcement, a backing plate or sleeve must be used.



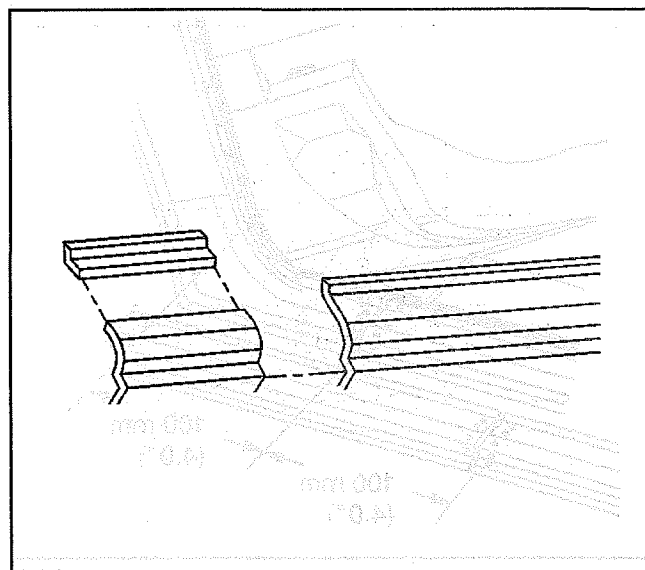
349728



349728



349729



349730

Removal Procedure

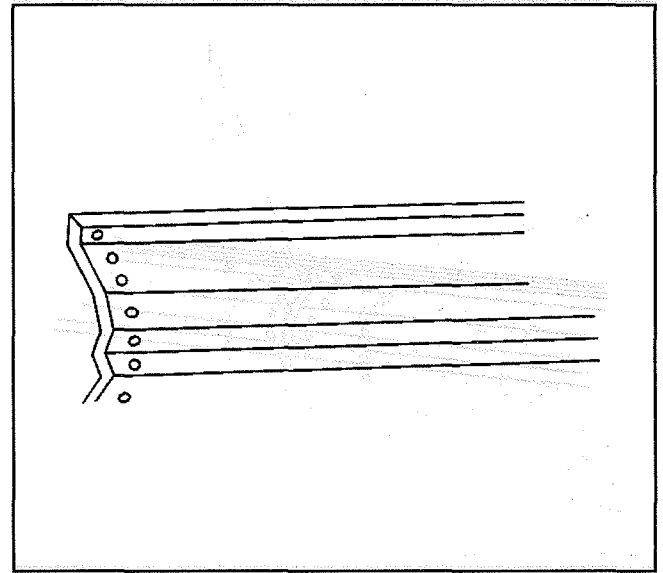
1. Remove all related panels and components.
2. Visually inspect the damaged areas.
3. Restore as much of the damage as possible to factory specifications.
4. Remove the sealers, the sound deadeners, and the anticorrosion materials as necessary.
5. Locate, mark and drill out factory welds as necessary. Note the number of welds for installation of the new assembly.
6. Measure, mark cut and remove the damaged section of the outer rocker panel, being careful in areas where there are multiple layers of steel.

Installation Procedure

Important: A gap 1 1/2 times the thickness of the metal (1) must be maintained at the joint between the old frame and replacement frame. Trim the replacement frame as required to achieve this fit.

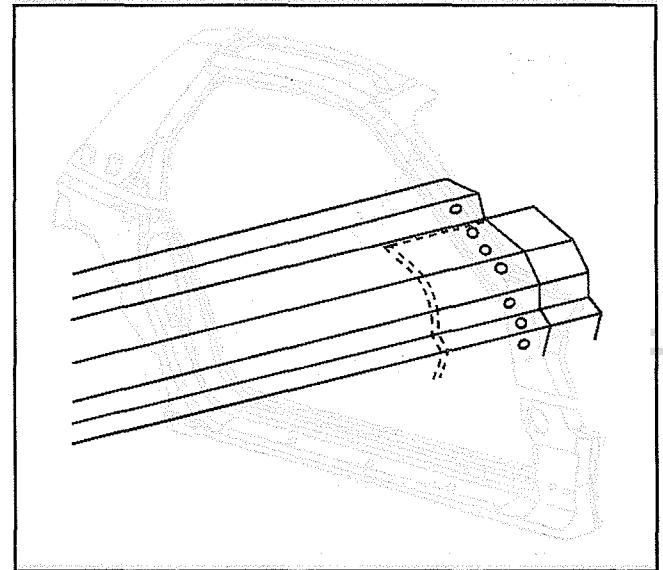
1. Prepare the new door opening frame by measuring and cutting to match the removed section. Check for proper fit.
2. In areas having no inner reinforcements, cut pieces to serve as backing plates of the same configuration from the areas where sectioning is to be done. These should be approximately 75 mm (3 in) in length. Use the damaged frame or the excess portions of the replacement frame.

3. Modify the pieces so they fit snugly to the backside of the section joints.
4. Pre-drill 5/16 in plug weld holes for installation of the new frame.



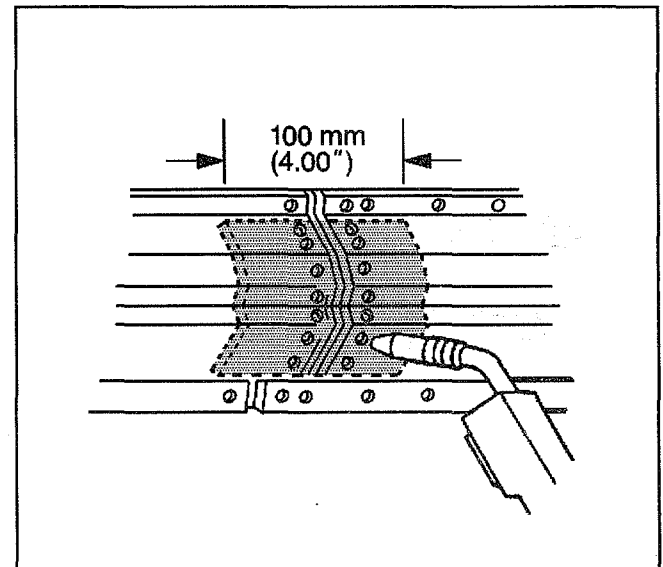
349731

5. Fit the backing plate halfway into the section joint on the vehicle. Clamp and MIG weld the backing plate to the vehicle.

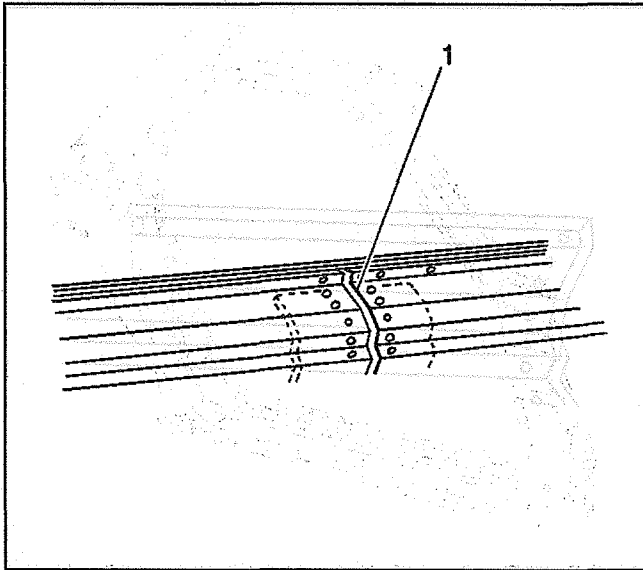


349733

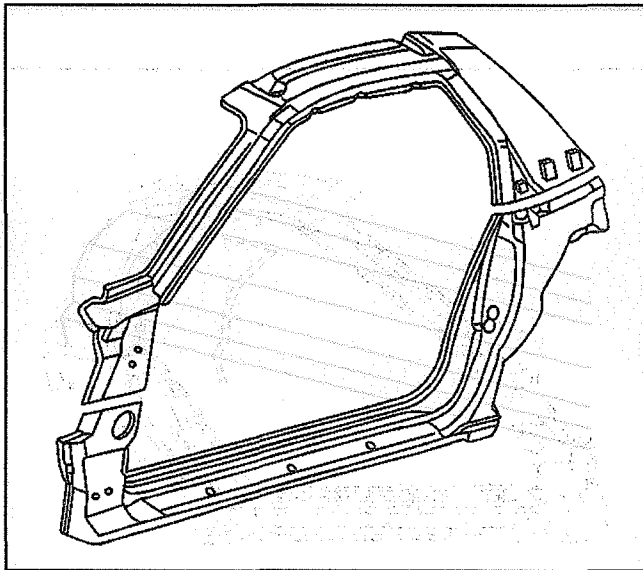
6. When all the backing plates are welded in place, reinstall the new part and check the fit using body dimensions.
7. When the replacement frame is properly fitted and aligned, clamp and MIG weld it to the backing plates. An alternating weld sequence is recommended to reduce heat and metal distortion.



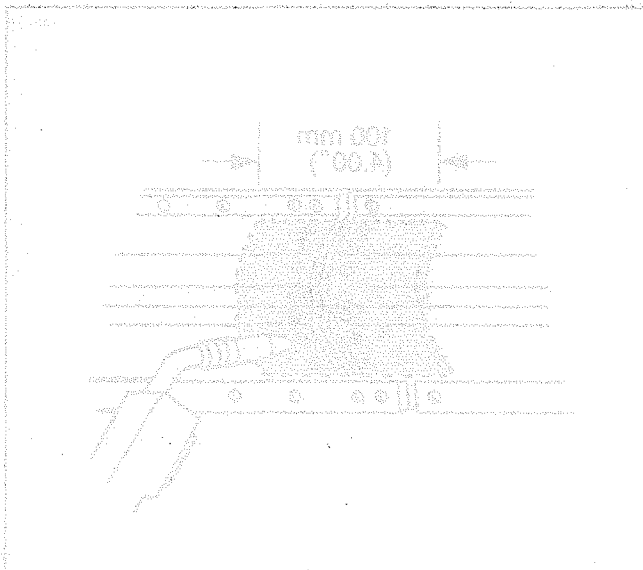
414891



349736



349669



1082-10

8. MIG weld the remaining (1) weld hole to attach the panel permanently.
9. Clean and prepare welded surfaces.
10. Prime with two-part catalyzed primer.
11. Apply sealers and anti-corrosion materials as necessary.
Do not combine paint systems.
12. Install all the related panels and components.

Door Opening Frame Replacement - Side (Coupe)

The side door opening frame on the Camaro/Firebird can be either replaced as a unit or sectioned, following the proper techniques. The service part frame will come as a complete unit and will need to be trimmed to fit each application such as coup, T-Tops, etc. Templates are provided with the service part as a guide for trimming.

The following items may need to be removed or protected before replacing or sectioning the frame, the door hinges, outer rocker panel, upper outer side rail, windshield, weather-stripping, roof outer panel and T-Tops (if applicable), quarter panel assembly and rear end deck lid assembly.

Removal Procedure

1. Remove all related panels and components.
2. Remove appropriate sealer.

Important: When drilling out welds, use caution so that the inner panels are not damaged.

3. Drill out factory welds around the frame perimeter with a 8 mm (5/16 in) drill bit.
4. Remove the frame.
5. Prepare mating surfaces for installation of new frame.
6. The recommended locations for sectioning are shown. A sectioning procedure may be performed at these locations by overlapping the original panel by 20 mm.

Installation Procedure

Important: If the original frame is damage beyond recognition, place the holes for welding 1 1/2 in apart.

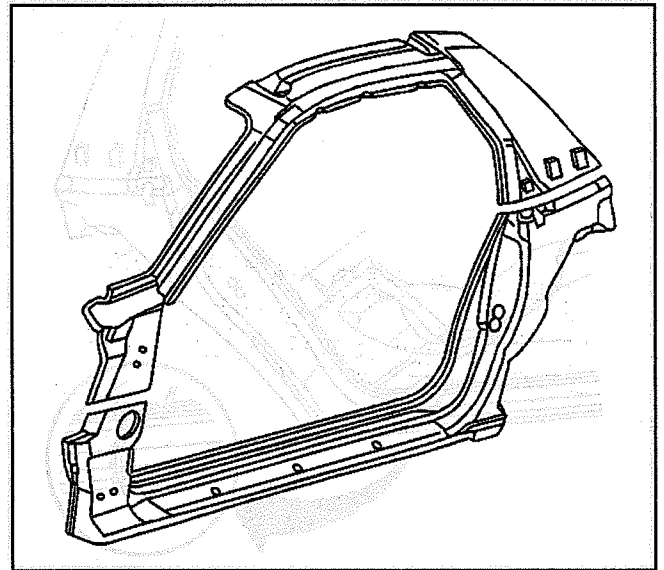
1. On the new frame, drill 8 mm (5/16 in) holes in locations as noted from the original frame.
2. Align frame and clamp to hold in place.
3. Using a MIG welder plug weld at same locations as original.

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

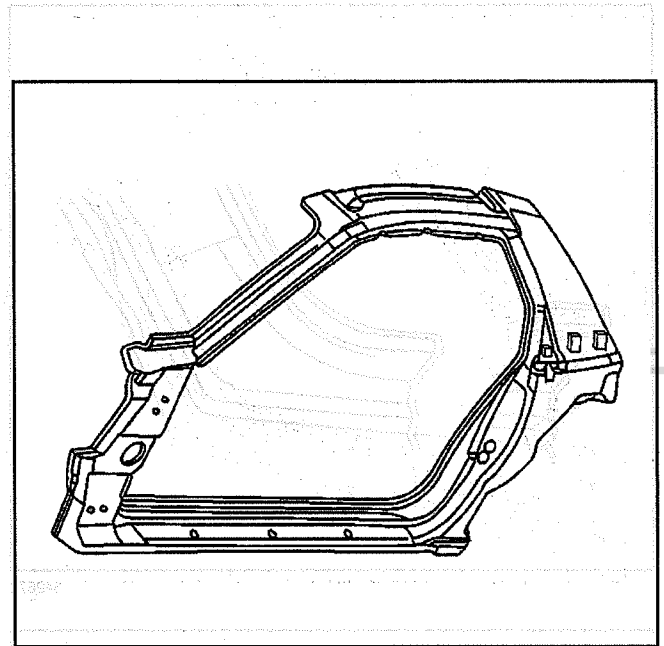
4. Clean and prepare welded surfaces. Apply Brushable Seam Sealer 3M P/N 08361 or equivalent as necessary.
5. Prime with two-part catalyzed primer.
6. Apply sealers and anti-corrosion materials as necessary.
7. Install all the related panels and components removed.

Door Opening Frame Replacement - Side (Sectioning)

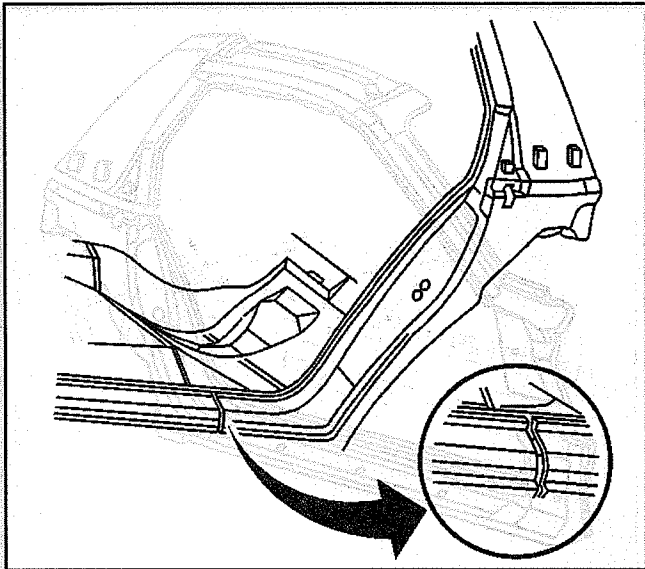
When sectioning the door opening frame, note that there are five locations where sectioning should not take place. Sectioning in these areas would jeopardize the structural integrity of the vehicle. When sectioning in an area with no reinforcement, a backing plate or sleeve must be used.



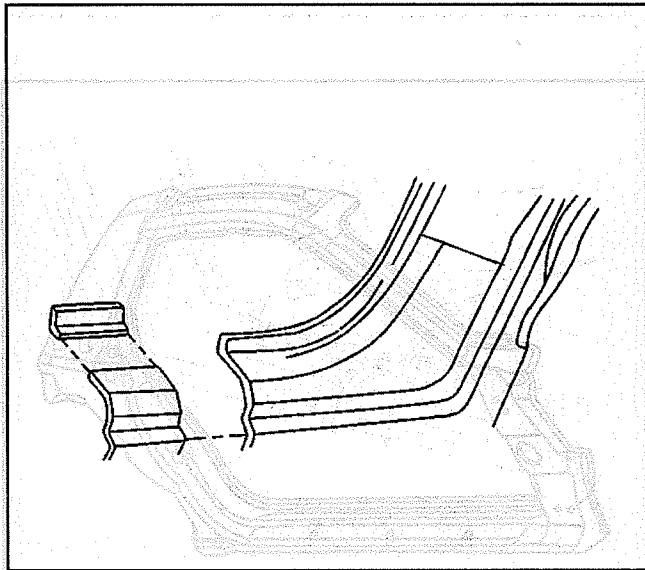
349669



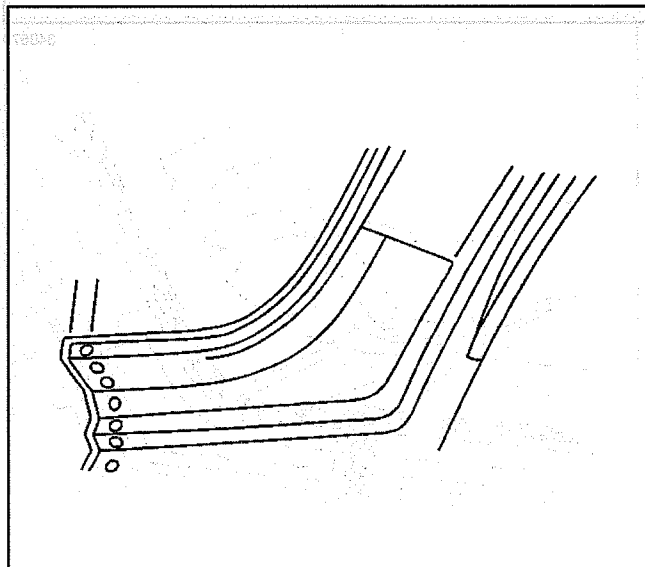
349670



349671



349672



349673

Removal Procedure

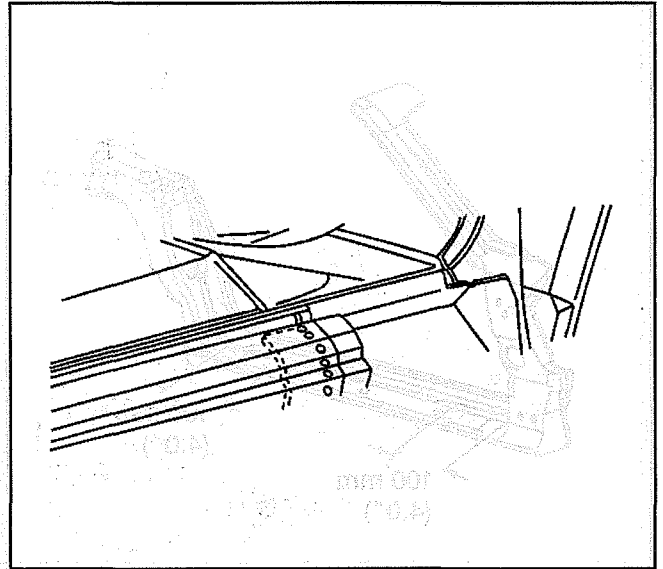
1. Remove all related panels and components.
2. Measure, mark, cut and remove the damaged panel, being careful in areas where there are multiple layers of steel.
3. Measure, mark, cut and install the new panel.
4. Check for a proper fit.

Important: A gap of 1 1/2 times the thickness of the metal must be maintained at the joint between the old panel and the replacement panel. Trim as required.

5. When the replacement panel fits properly, remove it from the vehicle and set aside.
6. In areas having no inner reinforcements, cut pieces to service as backing plates of the same configuration (approximately 3 in long) from the areas where the splices are to be made. Use the damaged panel or the excess portions of the replacement panel.

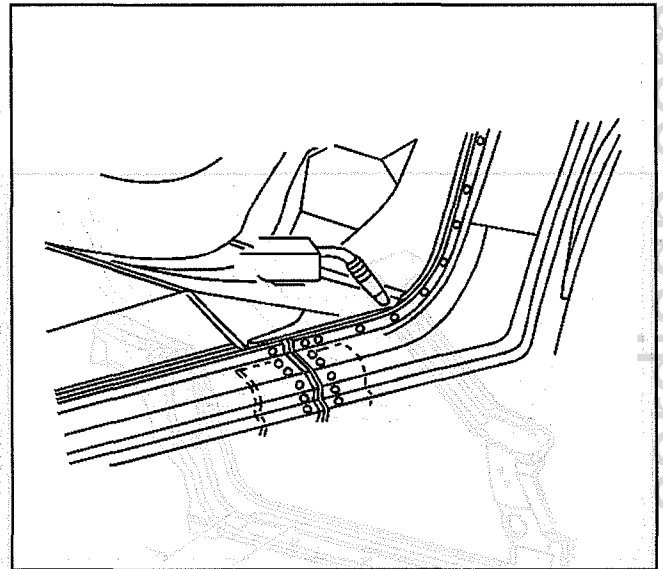
7. Modify the pieces so they fit snugly to the backside of the splice joints.
8. Pre-drill 8 mm (5/16 in) plug weld holes indicated on the illustrations for installation of a new panel.

9. Fit the backing plate halfway into the splice joint on the vehicle. Clamp and MIG weld the backing plate to the vehicle.



349675

10. When all the backing plates are welded in place, reinstall the new part.
11. Check the fit.
12. When the replacement panel is properly fit and aligned, clamp and MIG weld it to the backing plates. Use an alternating weld sequence to reduce heat and metal distortion.
13. Complete the splice joint by welding the joint gap closed using an alternating stitch MIG weld. This will minimize heat build up and distortion.



349676

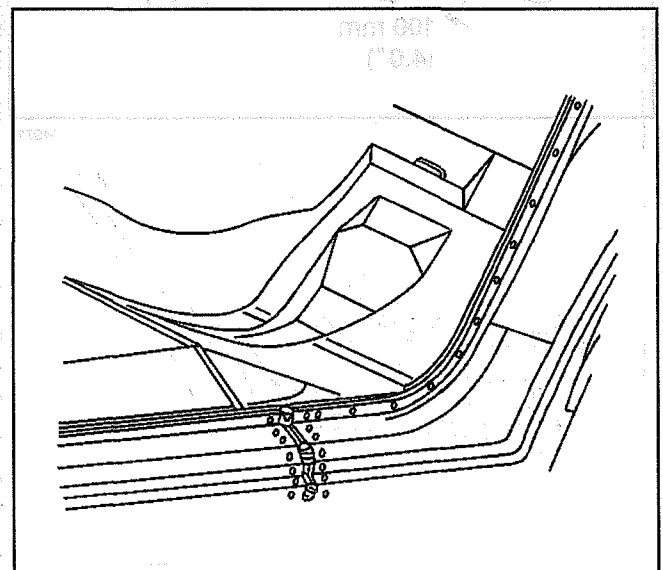
14. MIG plug weld all previously resistance-weld locations.
15. Grind excess weld off joints and inspect.

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

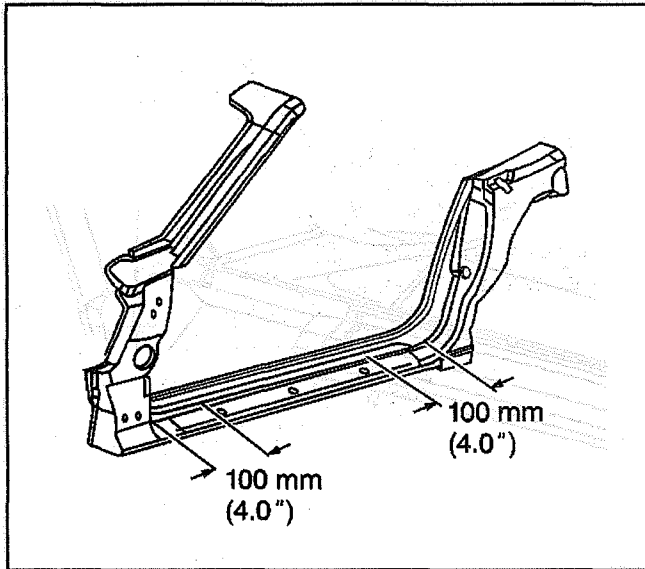
16. When satisfied that the weld and splice joints are structurally sound, proceed with the recommended finishing procedures.

Clean and prepare welded surfaces. Apply Brushable Seam Sealer 3M P/N 08361 as necessary.

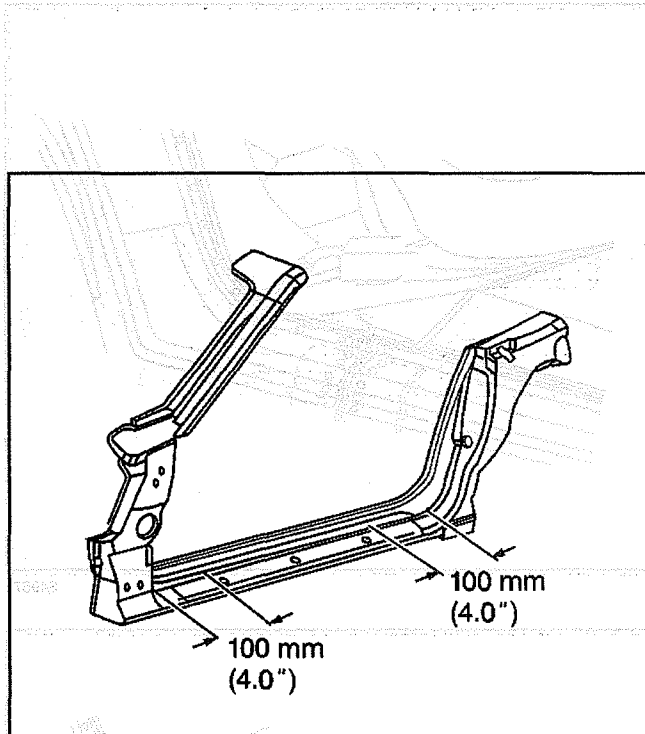
17. Prime with two-part catalyzed primer.
18. Apply sealers and anti-corrosion materials as necessary.
19. Install all related panels and components.



349682



349713



349713

Door Opening Frame Replacement - Side (Convertible)

When sectioning the door opening (1) frame on the Camaro/Firebird convertible there are three locations where sectioning should not take place. Sectioning in these areas could jeopardize the structural integrity of the vehicle. The door ring service panel is unique for convertibles. The panel can be installed as a complete assembly or modified for sectioning. When sectioning in an area with no reinforcement, a backing plate or sleeve must be used.

Removal Procedure

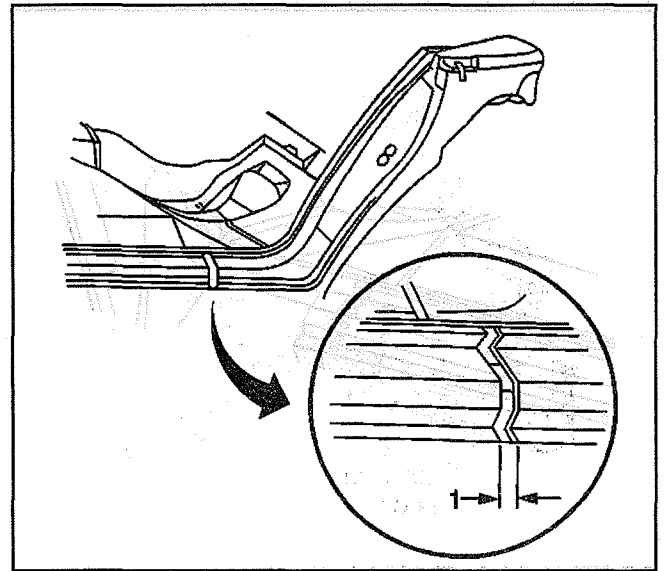
1. Remove all related panels and components.
2. Visually inspect the damaged areas.
3. Restore as much of the damage as possible to factory specifications.
4. Remove the sealers, the sound deadeners, and the anticorrosion materials as necessary.
5. Locate, mark and drill out factory welds as necessary. Note the number of welds for installation of the new assembly.
6. Measure, mark, cut and remove the damaged section of the frame, being careful in areas where there are multiple layers of steel.

Installation Procedure

Important: Do not section within 100 mm (4 in) of either inner lower curve of the door opening frame or outer rocker panel sectioning.

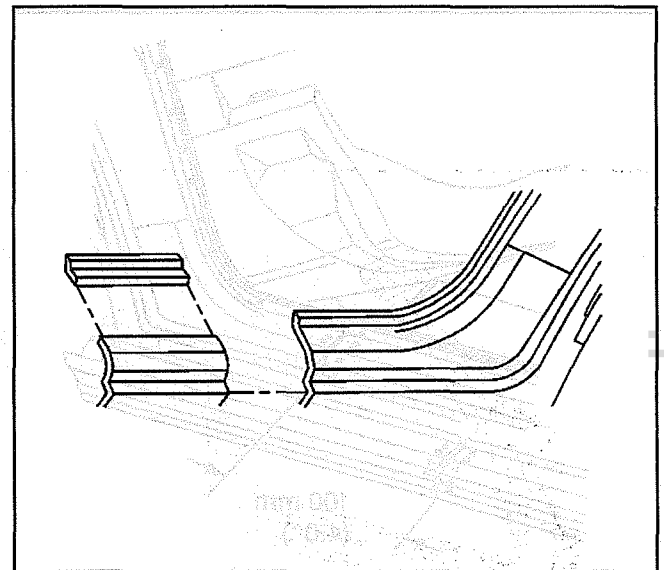
1. Prepare the new door opening frame by measuring and cutting to match the removed section. Check for proper fit.

2. A gap 1 1/2 times the thickness of the metal (1) must be maintained at the joint between the old frame and replacement frame. Trim the replacement frame as required to achieve this fit.



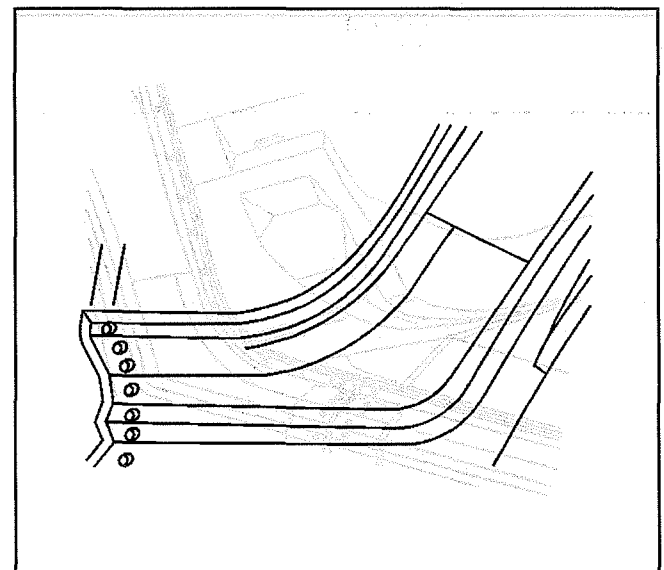
349717

3. In areas having no inner reinforcements, cut pieces to serve as backing plates of the same configuration from the areas where sectioning is to be done. These should be approximately 75 mm (3 in) length. Use the damaged frame or the excess portions of the replacement frame.

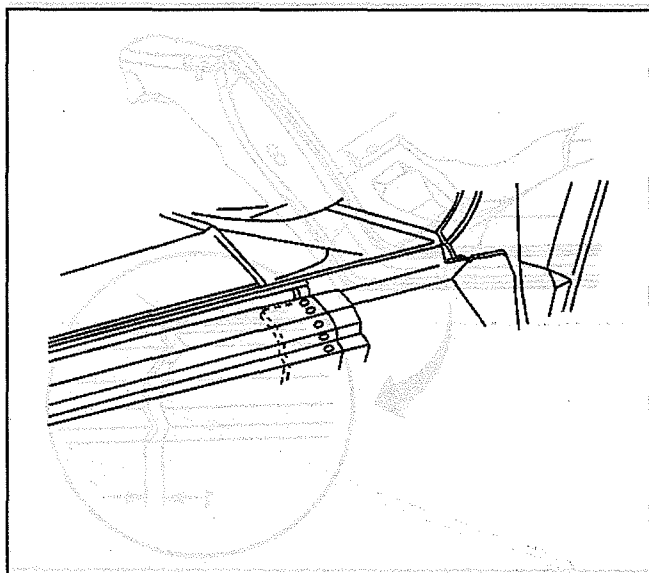


349721

4. Modify the pieces so they fit snugly to the backside of the section joints.
5. Pre-drill 8 mm (5/16 in) plug weld holes for installation of the new frame.

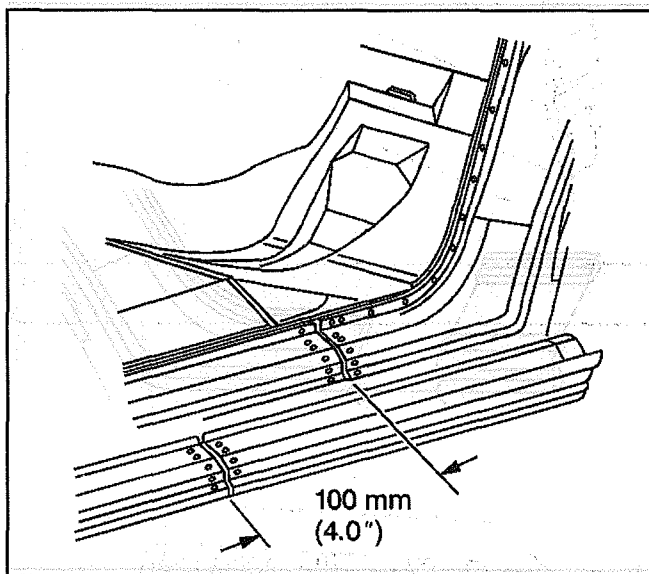


349722



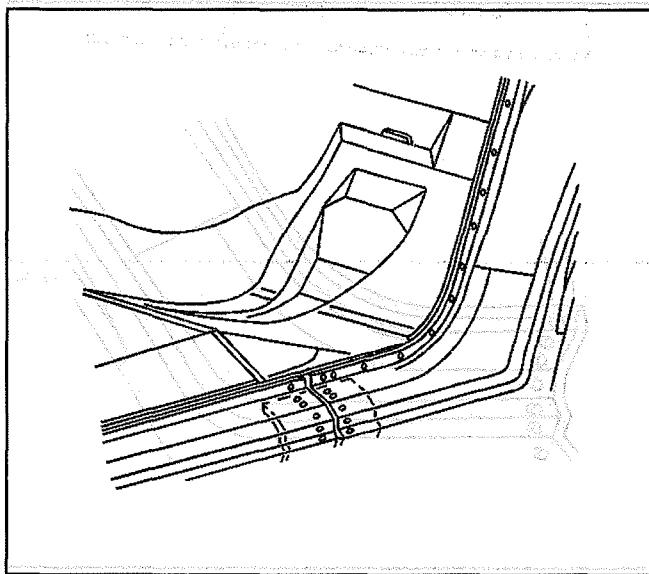
349724

6. Fit the backing plate halfway into the section joint on the vehicle. Clamp and MIG weld the backing plate to the vehicle.



349725

7. When all the backing plates are welded in place, reinstall the new part and check the fit using body dimensions.
8. When the replacement frame is properly fitted and aligned, clamp and MIG weld it to the backing plates. An alternating weld sequence to reduce heat and metal distortion.



349727

9. MIG plug weld all previously resistance-welded locations.

10. Clean and prepare welded surfaces.

Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual for recommended products. Do not combine paint systems. Refer to paint manufacturer's recommendations.

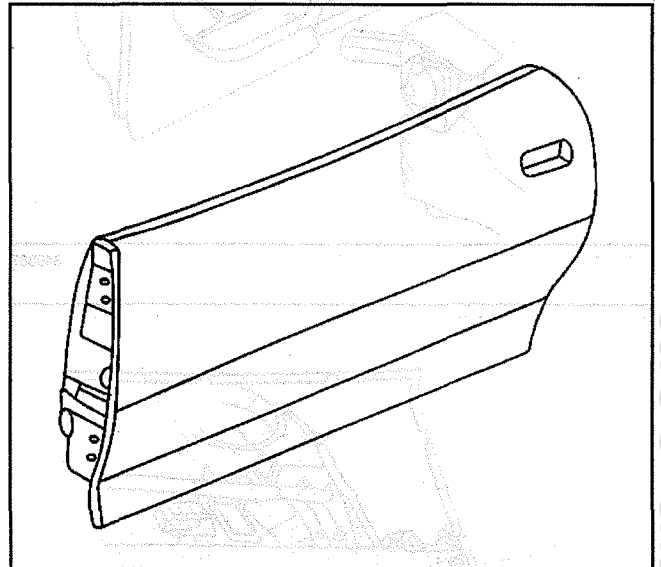
11. Prime with two-part catalyzed primer.

12. Apply sealers and anti-corrosion materials as necessary.

13. Reinstall all the related panels and components.

Door Service

The inner and the outer door panels on the new Camaro/Firebird are composed of sheet molded compound (SMC). Repair of the door assembly can be performed using conventional procedures.



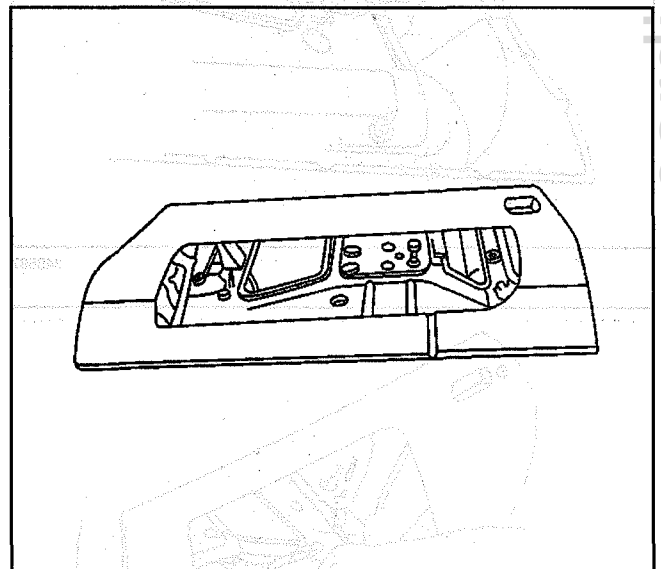
349683

Door Outer Panel Replacement

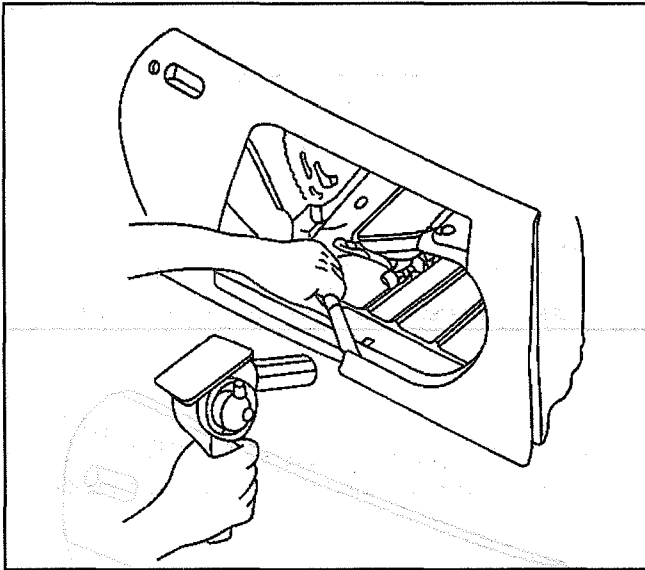
The Door outer panels (skins) are serviced separately for convenience. When a door outer panel requires replacement, remove it from the vehicle and place it on a suitable surface, the door outer panel facing up, being careful not to damage the door assembly.

Removal Procedure

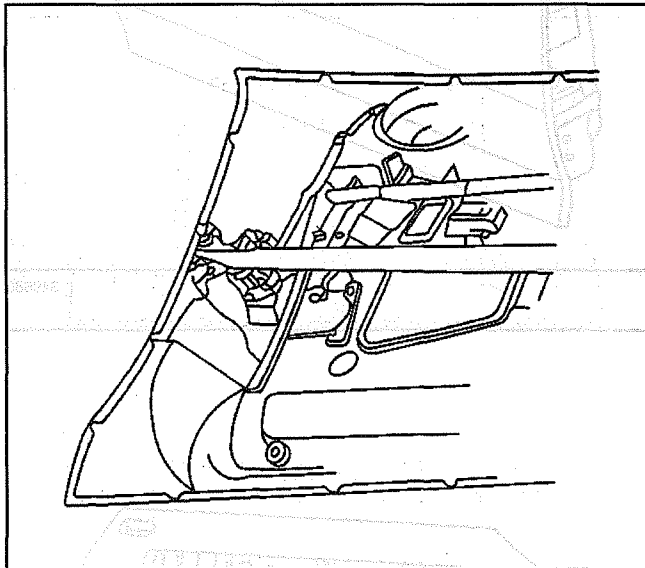
1. Using the Chicago Pneumatic Pneu-knife CP 838 or equivalent, cut an access hole into the bottom of the door panel. Cut through the outer panel, being careful not to cut into the inner panel.



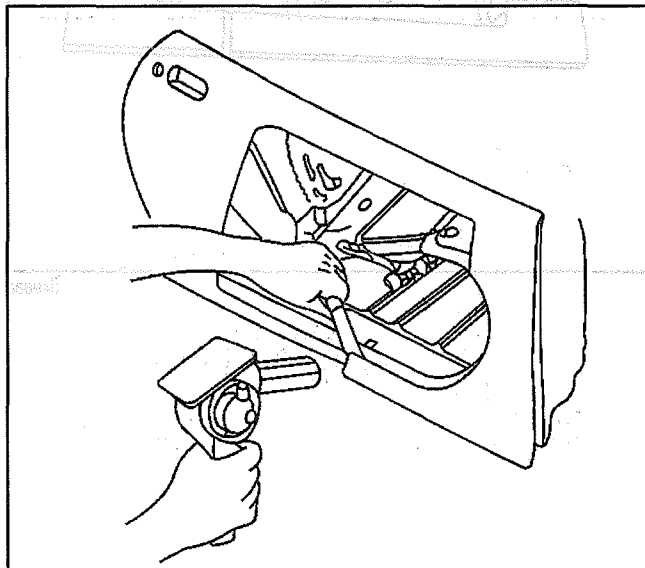
349686



349687



349697



349687

Important: Do not heat the door inner panel more than necessary as this will soften the panel and cause damage.

2. Using a heat gun, apply the heat to the door outer panel while prying with a putty knife. When the adhesive reaches approximately 400°F, the bond will begin to break.

3. Continue applying heat and prying with the putty knife until the entire panel is removed.
4. After the door panel has been removed, clean off any excess adhesive left on the inner panel.

Installation Procedure

Important: GM Goodwrench Structural Bonding Epoxy P/N 12345726 material is recommended.

1. Check the fit of the new outer panel. Apply adhesive to the door inner panel.

Important: To avoid unnecessary work, be sure the clamps do not distort the outer door panel.

2. Set the outer panel in place and clamp until the adhesive is cured.
3. Clean up excess adhesive.
4. Reinstall door to vehicle.

Roof Outer Replacement (Panel)

Removal Procedure

1. The roof outer panel assembly is composed of sheet molded comount (SMC). It attaches to the steel roof structure with urethane adhesive. Repair of the roof outer panel assembly can be performed using conventional procedures.

Important: When cutting use care to protect the adjacent panels, the glass, the weather-strip and the moldings.

2. Using the Chicago pneumatic knife with a panel blade, cut roof outer panel 76 mm (3 in) from edges and lift off.
3. With a Chicago pneumatic knife with a urethane blade or service wire or Equalizer Magnum, cut the urethane adhesive and remove remaining roof outer panel.
4. Remove all loose or damaged urethane as necessary.

Installation Procedure

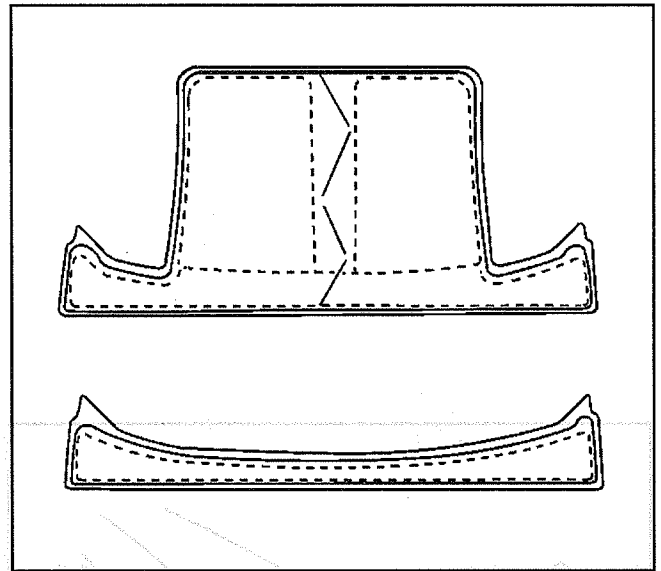
1. Temporarily set the new roof outer panel into place and check alignment.
2. Remove the roof outer panel and set aside.

Important: Do not prime over remaining urethane adhesive.

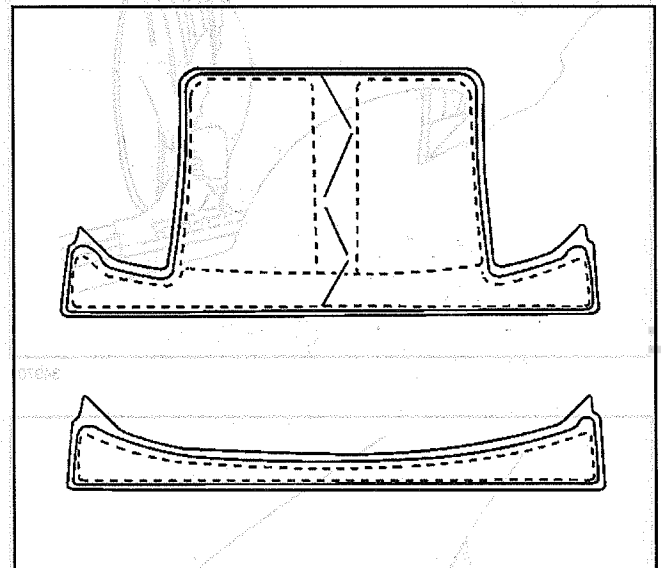
3. Apply urethane adhesive GM P/N 12346284 approximately 10 mm (3/8 in) in diameter around the perimeter of the roof outer panel.
4. With the aid of a helper install new roof outer panel and press firmly to set adhesive.
5. Install surrounding weather-strips and moldings while the roof outer panel cures.

Quarter Panel Replacement (Coupe)

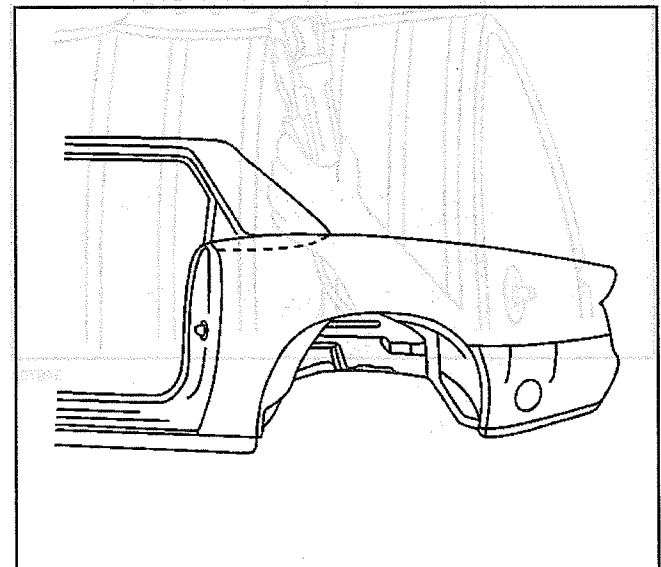
The quarter assembly has been specially designed for improved serviceability. Additional panels have been added allowing for easier and faster service. The quarter panel assembly is attached to the structure with resistance welds. To remove the quarter panel assembly, the welds must be drilled out using an 8 mm (5/16 in) drill bit. The roof outer panel covers a section of the quarter panel assembly at the top and must be positioned out of the way to provide access to the welds. At the bottom of the quarter panel assembly at the rocker panel, there are four hidden welds. They can only be accessed after all the other welds have been drilled out. The quarter panel assembly can be pulled forward and the welds drilled from inside.



349699



349699



349700

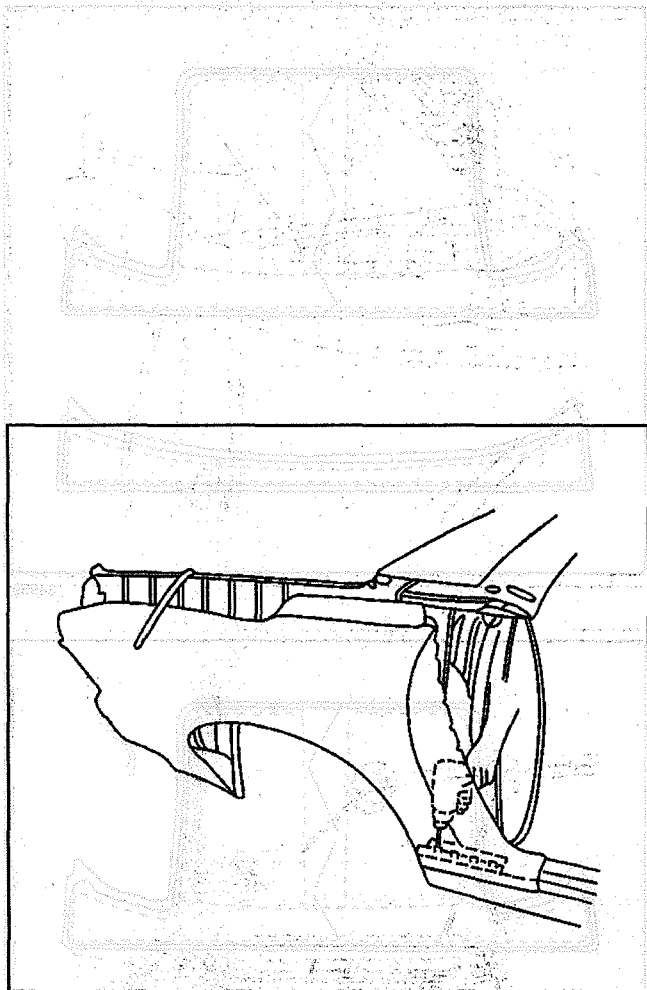
Removal Procedure

Important: Care must be taken when working around the roof outer panel. Failure to use care may result in damage to the roof outer panel. In this case, additional time will be needed in repairing it. Refer to Rigid Plastic Repair procedures.

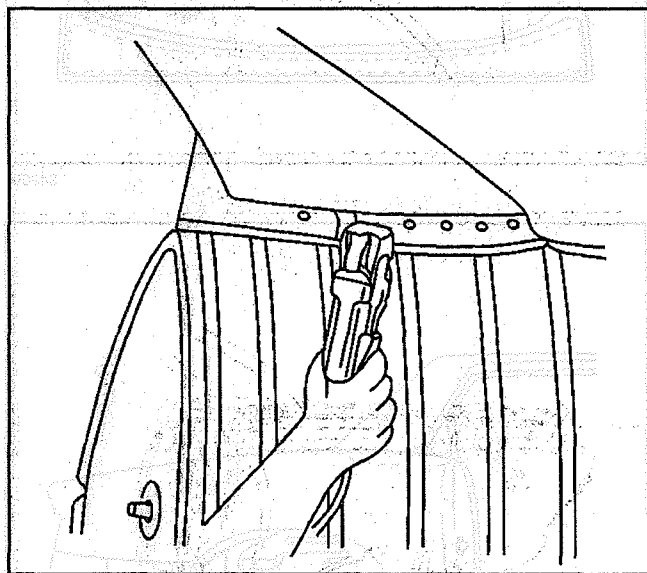
Important: Service of the quarter panel assembly by splicing a joint just below the roof panel is not recommended. The panel is structural in this area, and splicing will reduce the integrity of the vehicle.

1. Make a cut at the top of the quarter panel assembly as close to the roof panel overlap as possible without damage it.
2. Drill out visible plug welds around the quarter panel assembly. Be sure to note the number and location of welds for the new quarter panel assembly.
3. Cut inboard flanges fore and aft of the lower quarter panel assembly at the rocker panel assembly.
4. Pull upper portion of the quarter panel assembly away from the vehicle and drill out the four inner plug welds at the rocker panel assembly.

5. Remove the quarter panel assembly.
6. With a hammer and a flat punch, flatten the quarter panel flange remaining at the roof line.
7. With a Chicago pneumatic knife using the 3 1/2 in offset blade, P/N KF-140665 or the Equalizer Magnum, cut the urethane adhesive at the bottom edge of the roof outer panel.

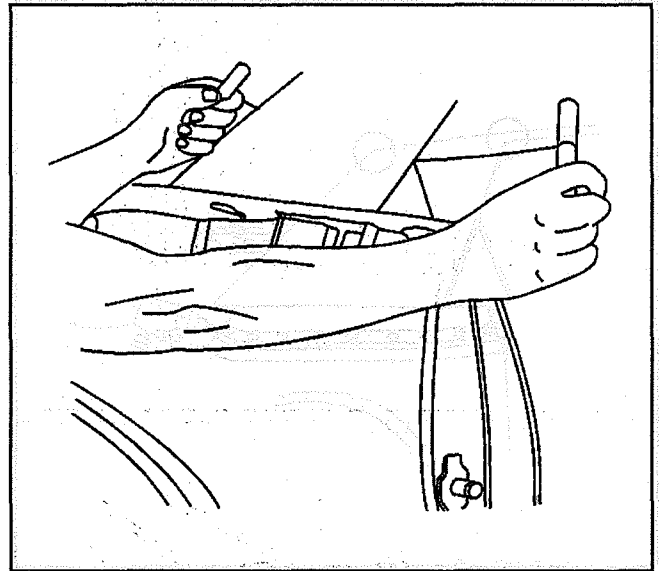


349701



349703

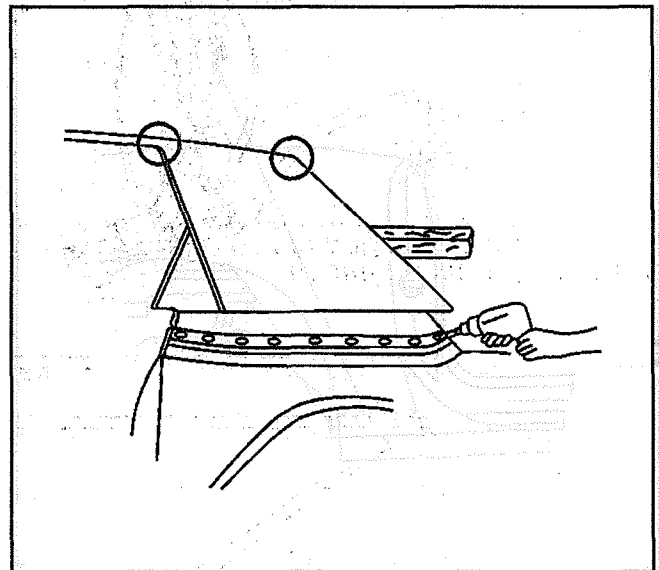
8. With a service wire, using upward movements, saw urethane from the roof panel away from the B pillar area. Cut to the top of the roof outer panel using caution to avoid damage.



349707

Important: Use caution when lifting the roof panel. Damage to the panel may occur at top radius.

9. To reveal hidden welds, pull the roof outer panel outward. Support it out of the way. Be careful not to lift the panel too far since damage to the roof outer panel may occur.
10. Drill out exposed welds to remove the flange.



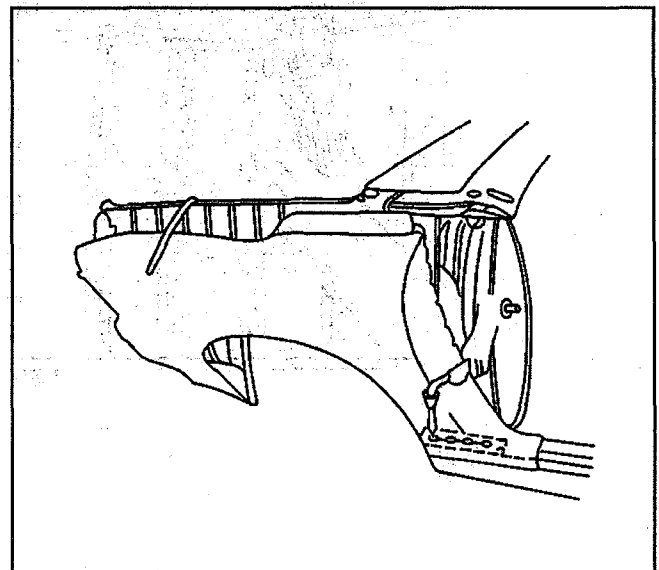
349709

Installation Procedure

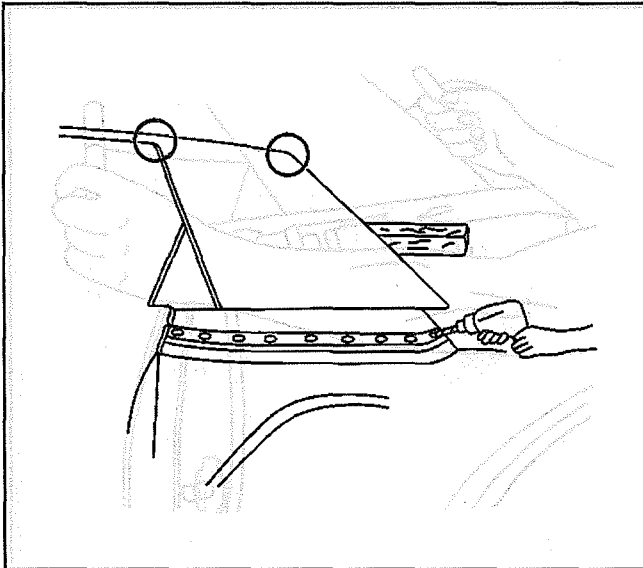
1. Prepare mating surfaces for installation of the new quarter panel assembly.

Important: If original is beyond recognition place holes for welding 38 mm (1 1/2 in) apart.

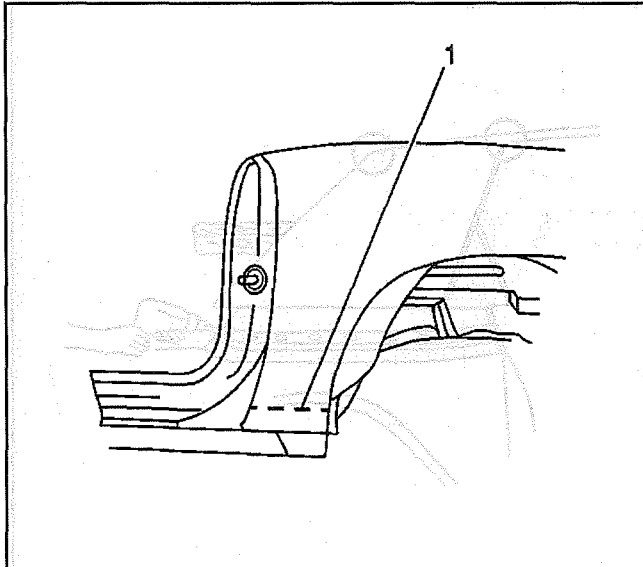
2. Drill the holes in locations as noted from the original quarter panel assembly.
3. Align the new quarter panel assembly and measure.
4. With the upper quarter panel assembly pulled away from the vehicle, use a MIG welder to replace the welds in the bottom at the rocker panel.



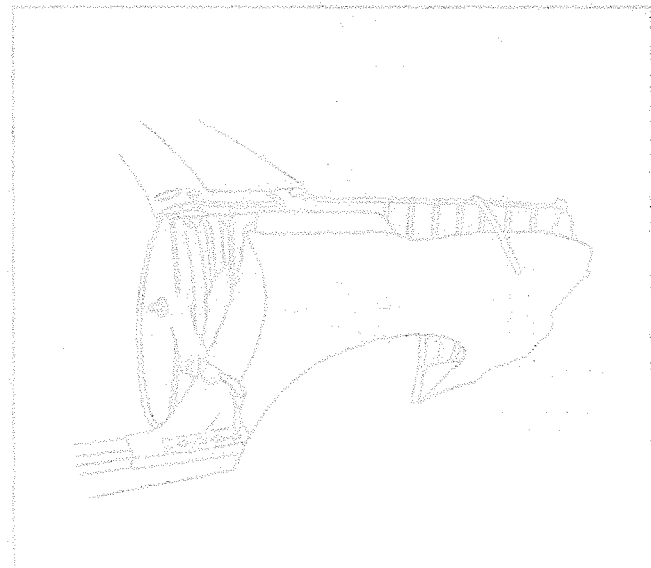
349711



349709



349737



349738

5. Align the remainder of the quarter panel assembly and clamp in place.
6. Plug weld remaining locations.
7. At the roof outer panel, remove loose adhesive and clean all surfaces for refinishing as necessary.

Important: Be careful not to prime over existing or remaining urethane.

8. Prime with an anticorrosion-type primer to restore damaged ELPO surface. If additional primer for adhesive area is required, see package for appropriate primer.
9. Rebond roof outer panel using GM Urethane P/N 12345633 or equivalent.

Quarter Panel Replacement (Convertible)

Removal Procedure

The Camaro/Firebird convertible quarter panel assembly is specially designed for added strength and rigidity. Additional panels have been added to the service part to permit easier and faster service. The quarter panel assembly is attached to the vehicle structure with factory welds. To remove the quarter panel assembly, the welds must be drilled out.

Replacement procedures for the quarter panel assembly on convertibles are not the same as for the hardtop. On convertibles, the OEM quarter panel assembly must be cut just above where it is welded to the rocker panel. The service part is then trimmed and plug welded to the flange of the OEM panel.

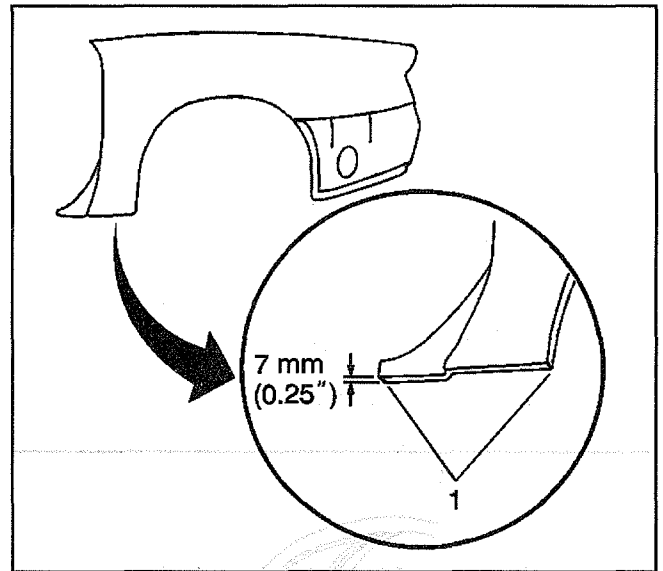
1. Remove all related panels and components.
2. Visually inspect the damaged area.
3. Restore as much of the damage as possible to factory specifications.

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

4. Remove sealers and anti-corrosion materials as necessary.
5. Locate all factory welds.
6. Mark all factory welds.
7. Drill out all factory welds.
8. Apply a piece of one-inch tape at the bottom of the front lower section of the original quarter panel where it attaches to the rocker panel (1).
9. Cut the original quarter panel at the top edge of the tape.
10. Remove the panel from the vehicle.
11. Remove the tape from the flange.
12. Bend the remaining portion of the original quarter panel assembly up and inboard. This will allow the new panel to be positioned properly when it is installed.

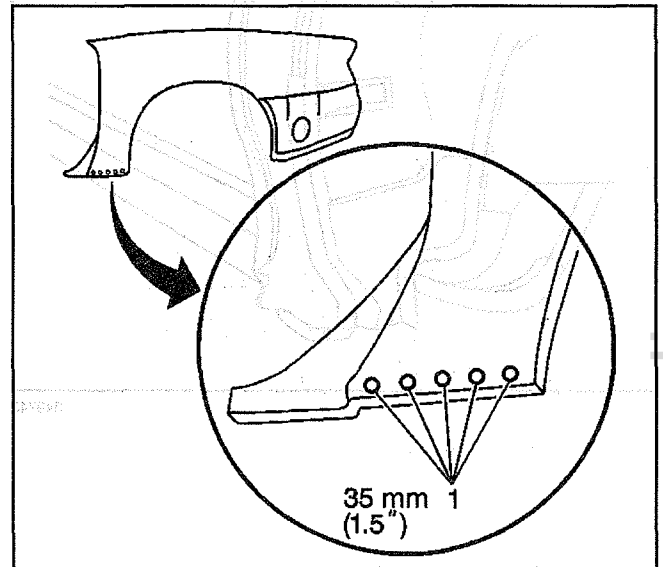
Installation Procedure

1. Prepare the new quarter panel assembly by trimming the inner flange on the lower front section (1) to 7 mm (1/4 in).
2. Prepare the mating surfaces.
3. Position the new quarter panel to overlap the roof panel at the pillar.
4. Check for proper fit.



349738

5. Drill 8 mm (5/16 in) holes in the face of the front lower portion of the new quarter panel assembly. Space the holes evenly across the front surface approximately 35 mm (1 1/2 in) apart (1).



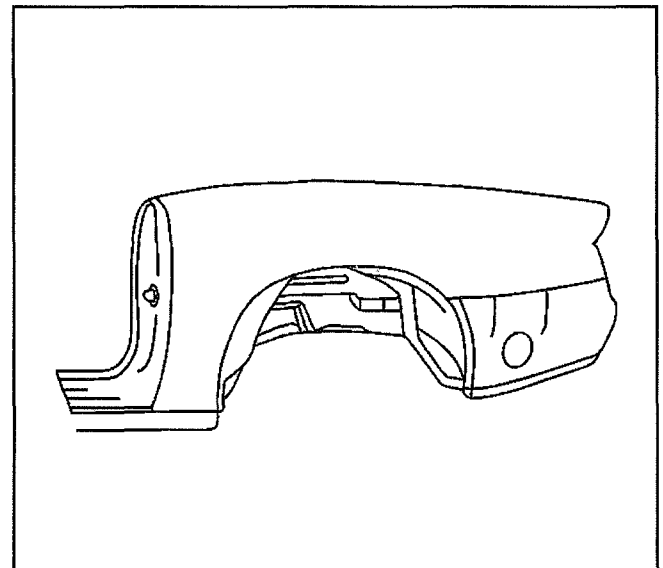
349739

Important: If the original component is damaged beyond recognition or the location for replacement welds is unknown, locate the weld holes 35 mm (1 1/2 in) apart.

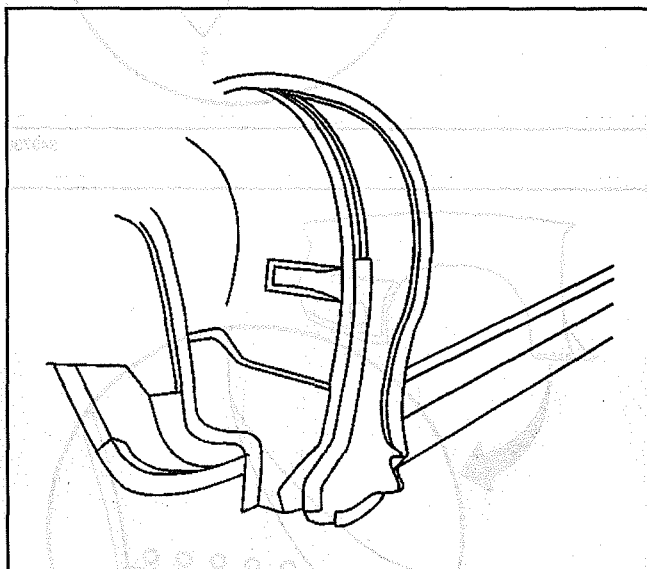
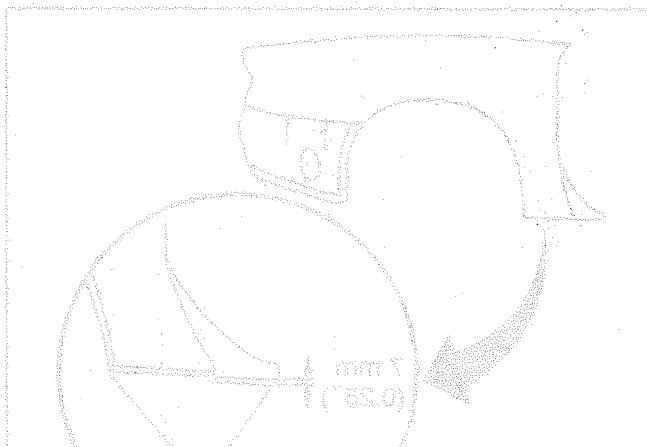
6. Drill holes in the remaining locations as noted from the original quarter panel assembly.

Important: Do not stitch weld at the front edge of the quarter where it contacts the rocker panel (1).

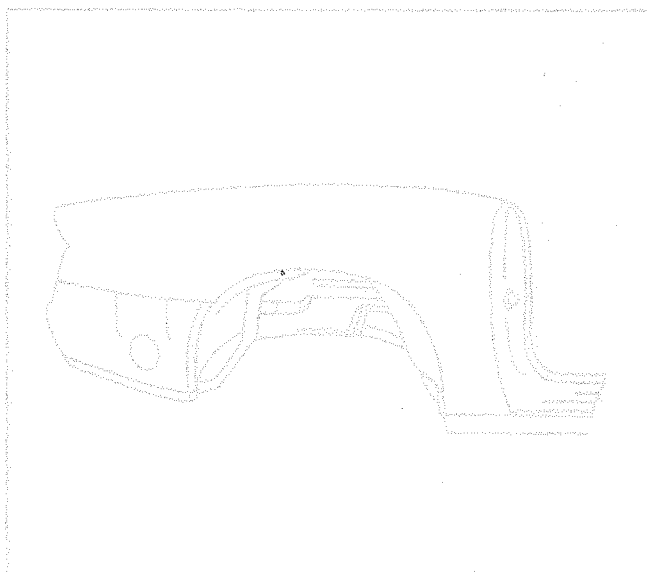
7. Position the new assembly.
8. Mig plug weld all previously welded locations including five additional areas at the front lower portion of the new quarter panel.
9. Clean and prepare all welded surfaces.



349741



349743



Important: Prior to refinishing, refer to GM 4901MD-99 Refinish Manual. Do not combine paint systems. Refer to paint manufacturer's recommendations.

10. Prime with two-part catalyzed primer.

Important: When you replace the quarter panel ensure that the fuel filler neck is properly sealed. Use SPO Sealing Strip (P/N 312399117) between the quarter panel and the filler neck. Install using the provided instructions.

11. Apply the sealers and the anti-corrosion materials as necessary.

12. Install all related panels and components.

Wheelhouse Replacement - Rear

Inner Rear Wheelhouse

The Camaro/Firebird convertible inner rear wheelhouse assembly is replaced at the factory seams.

Outer Rear Wheelhouse

The Camaro/Firebird convertible outer rear wheelhouse assembly is a one-piece assembly consisting of the wheelhouse with a forward flange that attaches to the door opening frame and inner rocker reinforcement.

To simplify service when the vehicle is only damaged in the rear portion of the wheelhouse assembly, sectioning can be used to install the service part. The procedure requires removing the forward flange from the new assembly so it can be installed onto the still-attached flange of the original part.

Removal Procedure

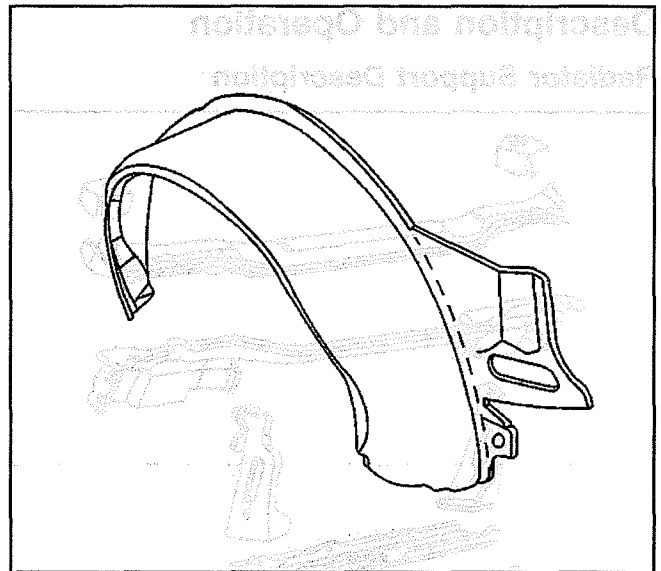
1. Remove all related panels and components including the quarter panel.
2. Visually inspect the damaged area.
3. Restore as much of the damage as possible to factory specifications.
4. Remove the sealers, the sound deadeners and the corrosion materials as necessary.

Important: Note the number of welds for installation of the new assembly.

5. Locate, mark and drill out factory welds as necessary.
6. Apply a strip of 25 mm (1 in) wide masking tape along the inner surface of front wheelhouse, approximately 380 mm (15 in) up from the base of the wheelhouse.
7. Cut the wheelhouse along the outer edge of the tape.
8. Remove the damaged section of the wheelhouse, leaving the forward flange.

Installation Procedure

1. Prepare the new rear wheelhouse assembly by removing the forward flange. Leave approximately 7 mm (1/4 in) on the lip running along the outer surface of the wheelhouse.
2. Prepare the mating surfaces of the new assembly.
3. Check for proper fit.
4. Cut the new wheelhouse along the corner of the bend.
5. Remove the unused section of the wheelhouse.



349744

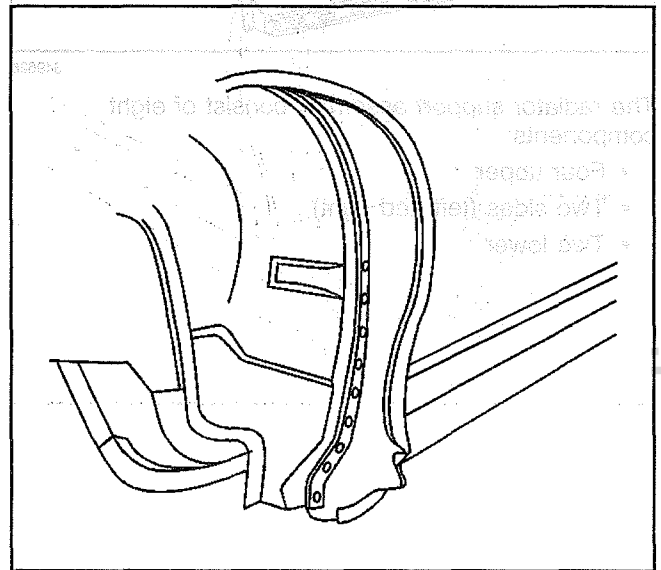
6. Drill approximately ten 8 mm (5/16 in) holes for plug welding every 40 mm (1.5 in) along the cut edge on the new wheelhouse.

Important: If the original component is damaged beyond recognition, and the location for replacement welds is unknown, locate the weld holes 35 mm (1 1/2 in) apart.

7. Drill holes in the remaining locations as noted from the original wheelhouse panel assembly.
8. Position the new assembly.
9. Check for proper fit.
10. Plug the weld wheelhouse.
11. Clean and prepare welded surfaces.
12. Apply the sealers and the anti-corrosion materials as necessary.

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

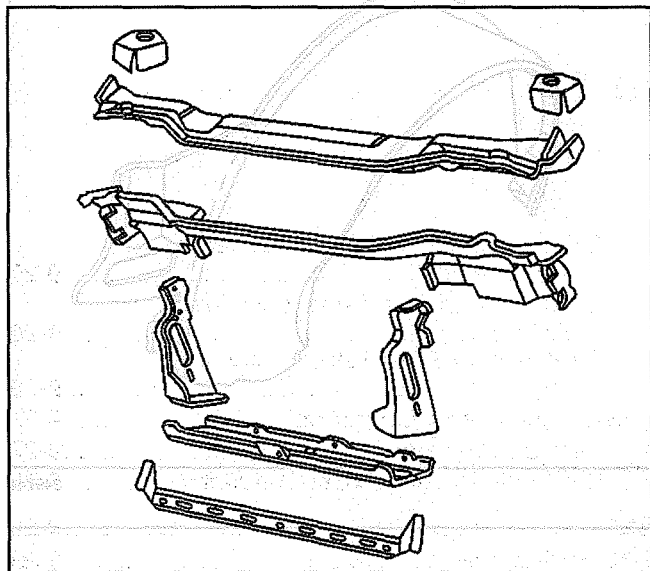
13. Prime with two-part catalyzed primer.
14. Install all related panels and components.



349747

Description and Operation

Radiator Support Description



349626

The radiator support assembly consists of eight components:

- Four upper
- Two sides (left and right)
- Two lower

Radiator Support

The radiator support is available as an entire unit including all brackets and reinforcements.

Lower Outer Support

The lower outer support is serviced separately. The lower left, right and inner support are also available separately.

2. Drill approximately ten 8 mm (5/16 in) holes for plug welding every 40 mm (1.5 in) along the cut edges on the new wheelhouse.

Important: If the original component is damaged beyond recognition, and the location for replacement welds is unknown, locate the weld holes 35 mm (1.375 in) apart.

7. Drill holes in the remaining locations as noted from the original wheelhouse panel assembly.

8. Position the new assembly.

9. Check for proper fit.

10. Plug the weld wheelhouse.

11. Clean and prepare welded surfaces.

12. Apply the sealers and the anti-corrosion materials as necessary.

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

13. Prime with two-part catalyzed primer.

14. Install all related panels and components.