

5. FRONT LOWER RAIL

Lower Rail Sectioning

— NOTICE —

If the damage exceeds the recommended area for sectioning and the rail cannot be straightened, the complete rail must be replaced.

Sectioning procedures have been developed to simplify repair of the lower rails, providing the majority of the damage can be returned to factory specifications. This allows the damaged front section to be replaced without performing a full rail replacement. The rails are manufactured with die-marks inboard and outboard to indicate the location for the sectioning joint (figure 5-1).

— NOTICE —

Failure to follow the instructions included with the service rail may lead to improper rail sectioning, which may compromise the structural integrity of the vehicle.

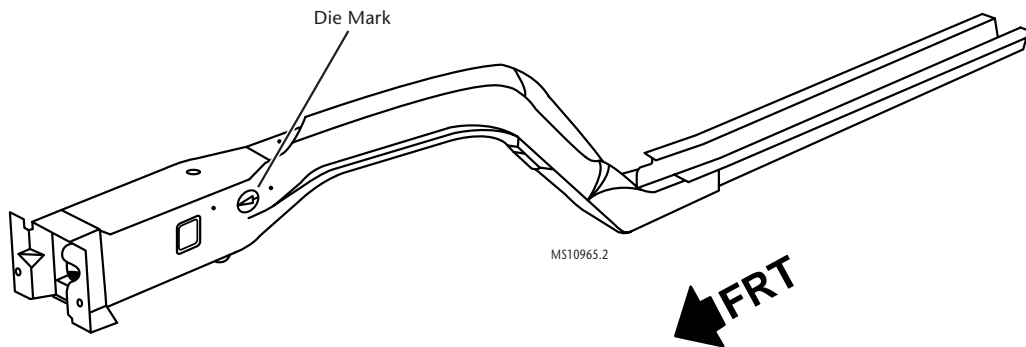


Figure 5-1:
Die Mark Indicates Sectioning Location

Lower Rail Sectioning Procedures (cont'd)

Remove or Disconnect

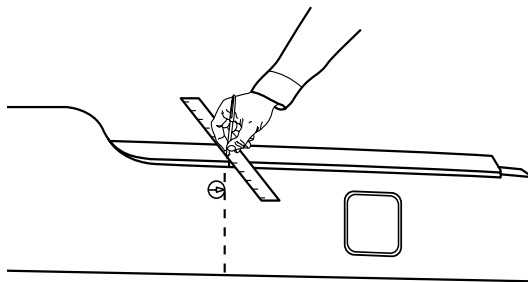
- 1 With the powertrain assembly supported, lower the cradle away from the rail.

— IMPORTANT —

It is not necessary to completely remove the powertrain or engine cradle for rail sectioning.

- 2 Remove all other related panels and components, including the strut and axle assemblies as necessary.

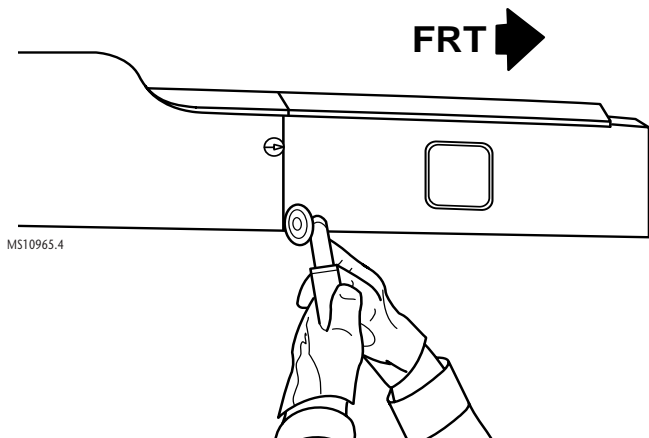
- 3 Visually inspect and restore as much of the damage as possible to factory specifications.
- 4 Remove sealers and corrosion protection materials as necessary.
- 5 Locate the die-marks in the rail. Using a straight edge to scribe lines around the rail (figure 5-2), mark and cut the damaged rail at the die-marks (figure 5-3). Remove the damaged section of the rail.



MS10965.3



Figure 5-2:
Use Straight Edge to Scribe Cut Line
at Front Edge of Die Mark



MS10965.4



Figure 5-3:
Cut the Rail for Sectioning

FRONT LOWER RAIL

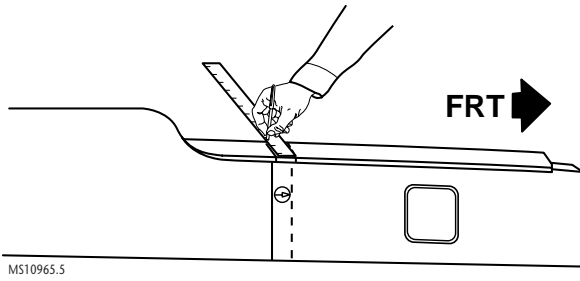


Figure 5-4:
Mark Service Part

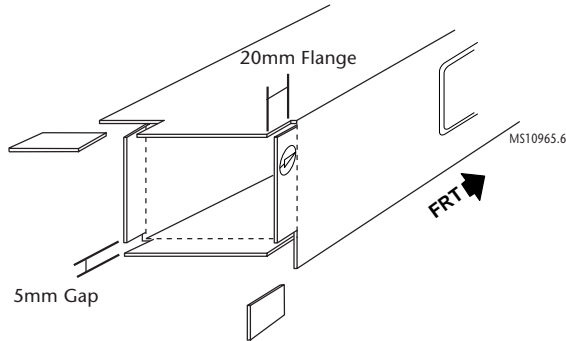


Figure 5-5:
Cut Flanges

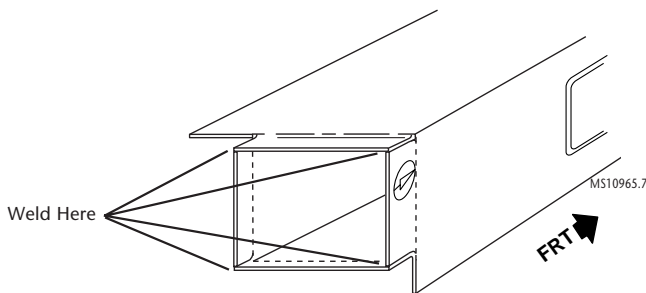


Figure 5-6:
Weld Four Corners

Lower Rail Sectioning Procedures (cont'd)

Install or Connect

- 1 Measure from the die-marks to add 20mm ($\frac{3}{4}$ in) in length to the service part. Align marks with a straight edge and scribe line for sectioning cut (figure 5-4).
- 2 Cut the service part along the marked lines.

— NOTICE —

Be sure to leave 20mm ($\frac{3}{4}$ in) added length to the service part for sectioning overlap.

- 3 Cut and remove approximately 20mm ($\frac{3}{4}$ in) of the outboard and downward turned flanges of the service part. Cut a 5mm ($\frac{3}{16}$ in) gap approximately 20mm ($\frac{3}{4}$ in) along the corners of the service part to create tabs on the four sides of the rail (figure 5-5).
- 4 Step the top, bottom and the side tabs inward to allow the service part to fit inside the original rail. Weld the tabs together along the corners of the service part (figure 5-6).

Lower Rail Sectioning Procedures (cont'd)

- 5 Drill 8mm ($\frac{5}{16}$ in) plug weld holes in the top, bottom and sides of the original rail approximately 10mm ($\frac{3}{8}$ in) from the sectioning cut (figure 5-7).
- 6 Clean and prepare the mating surfaces as necessary.
- 7 Position the stepped tabs of the modified service part inside the original rail, allowing 20mm ($\frac{3}{4}$ in) of overlap. Align and check fit using three-dimensional measuring equipment and plug weld accordingly with frequent measurements to ensure proper fit and alignment.
- 8 Stitch weld along the entire sectioning joint. Make 25mm (1 in) welds along the seam with 25mm (1 in) gaps between them (figure 5-8). Then go back and complete the stitch weld. This will create a solid joint with minimal heat distortion.
- 9 Clean and prepare welded surfaces. Prime with two-part catalyzed primer. Apply sealers and corrosion protection materials as necessary. Do not combine paint systems. Refer to paint manufacturer's recommendations.
- 10 Install all related panels and components.

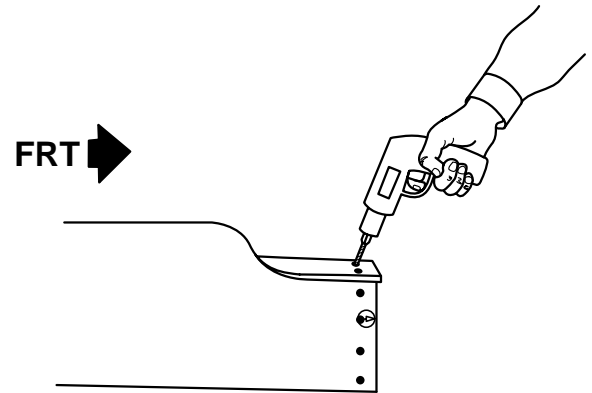


Figure 5-7:
Drill Holes for Plug Welding

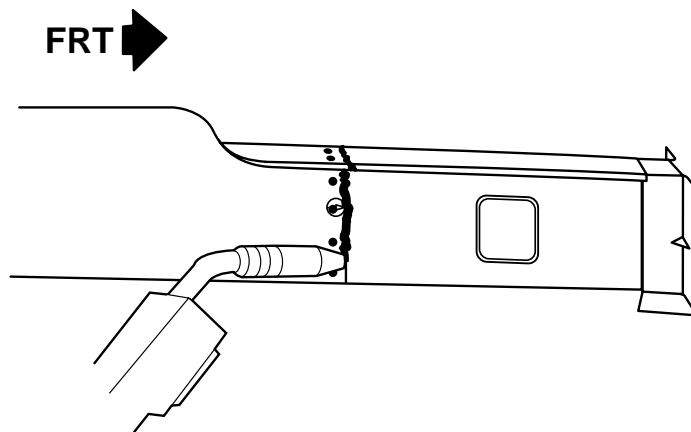


Figure 5-8:
Stitch Weld Joint

FRONT LOWER RAIL

Lower Rail Sub-Assembly

The lower rail service part comes as a sub-assembly, which consists of seven brackets and panels. Instruction sheets are also included. The front bumper brackets are available and serviced separately. Die-marks have been added to the rails to indicate sectioning locations (figure 5-9).

Lower Rail Close-Out Panel

The lower rail close-out panel is attached to the lower edge of the cowl on the outboard side of the lower rail. The mid-section of the lower rail is sandwiched between the close-out panel and the floor pan for added vehicle strength and rigidity (figure 5-9). When performing a full rail replacement, the close-out panel must be removed and installed, or replaced if necessary.

— IMPORTANT —

The mid-rail reinforcement panel must be purchased separately for full rail replacement.

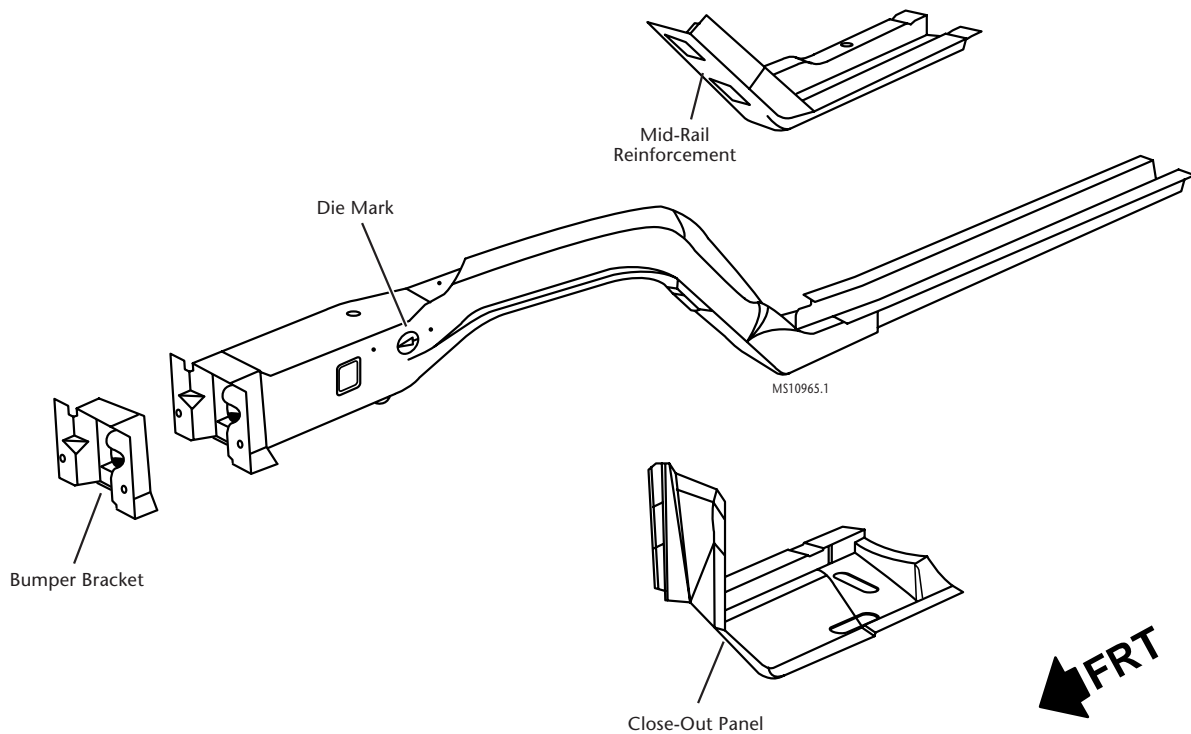


Figure 5-9:
Front Lower Rail Service Parts

Lower Rail Replacement Procedures

Remove or Disconnect

— IMPORTANT —

The powertrain and engine cradle must be removed from the vehicle to perform the full rail replacement.

- 1 Remove all other related panels and components, including the strut and axle assemblies as necessary.
- 2 Visually inspect and restore as much of the damage as possible to factory specifications.
- 3 Remove sealers, sound deadeners, and corrosion protection materials as necessary.
- 4 The close-out panel must be removed to access all of the factory welds attaching the rail to the vehicle (figure 5-9).
- 5 Locate, mark, and drill out all factory welds. Note the number and location of welds for installation of the service rail and components.
- 6 Remove the damaged rail.

Install or Connect

- 1 Prepare the mating surfaces as necessary.
- 2 Position the service rail sub-assembly on the vehicle. Check fit using three-dimensional measuring equipment.

— IMPORTANT —

Position the mid-rail reinforcement to the new service rail and plug weld as necessary as noted from the original rail (figure 5-9).

- 3 When the service rail is correctly positioned, plug weld accordingly, with frequent measurements to ensure proper fit and alignment.
- 4 Position the front bumper mounting brackets using three-dimensional measuring equipment and weld accordingly.

— IMPORTANT —

Two of the bumper mounting holes are provided. The third hole is to be located using three-dimensional measuring equipment. Mark and drill accordingly.

- 5 Clean and prepare all welded surfaces. Prime with two-part catalyzed primer. Apply sealers and corrosion protection materials as necessary.
- 6 Apply sound deadening materials, as necessary. Use Dominion Sure Seal Paintable Sound Deadening Pads (part #110900, order by phoning 1-800-265-0790), or equivalent.
- 7 Do not combine paint systems. Refer to paint manufacturer's recommendations.
- 8 Install all related panels and components.