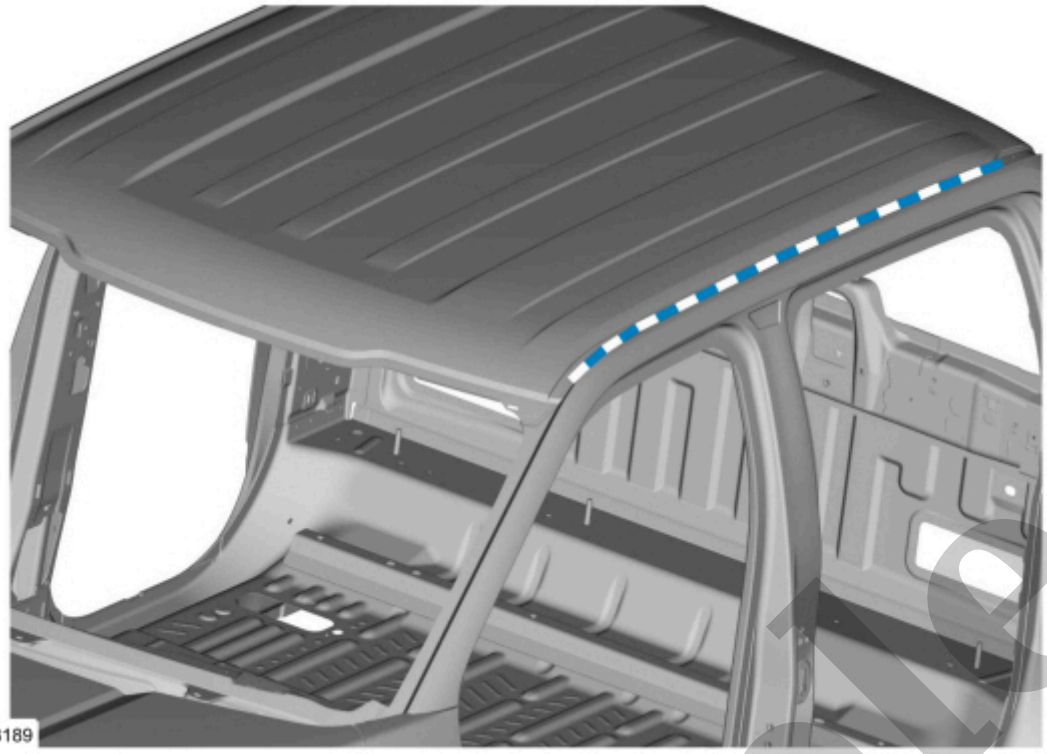
Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

1999 FORD Econovan OEM Service and Repair Workshop Manual

Go to manual page



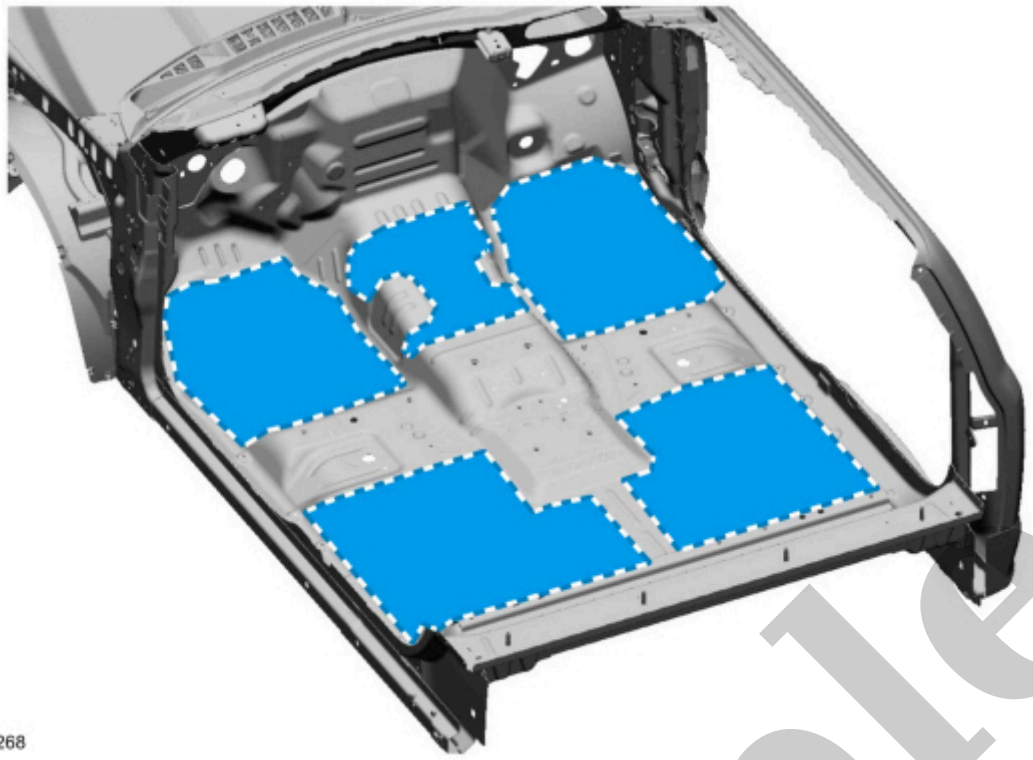
E188189

Rocker Panel Stone Chip Sealer

NOTE

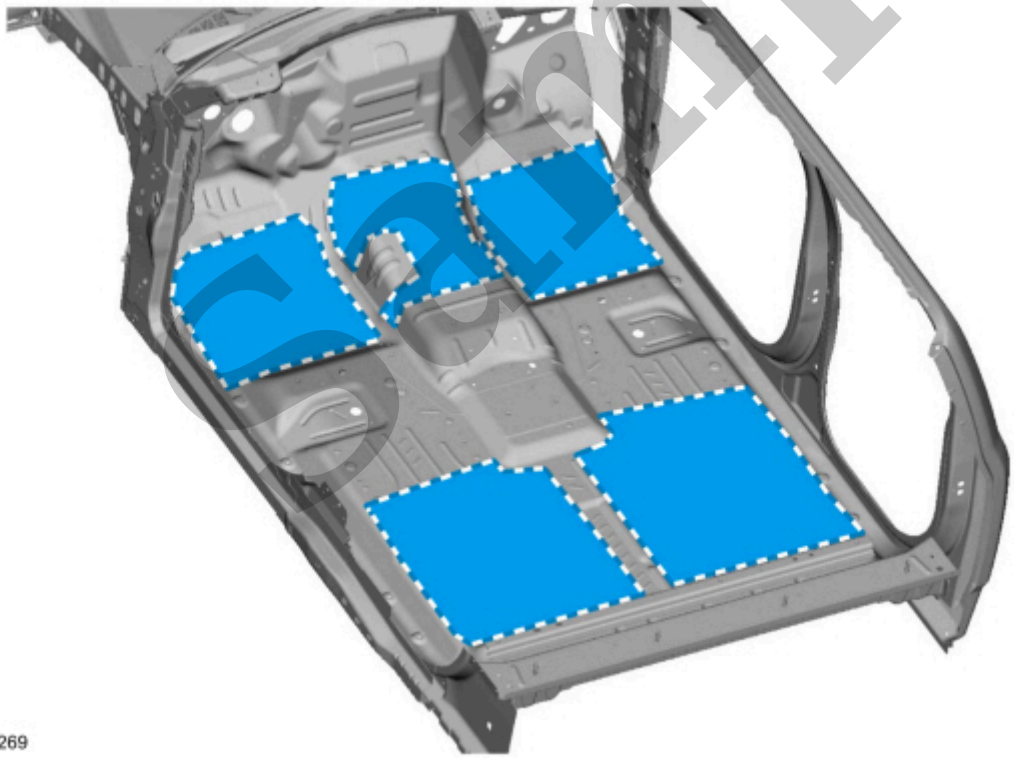
SuperCrew cab shown regular cab and SuperCab similar.

E188190



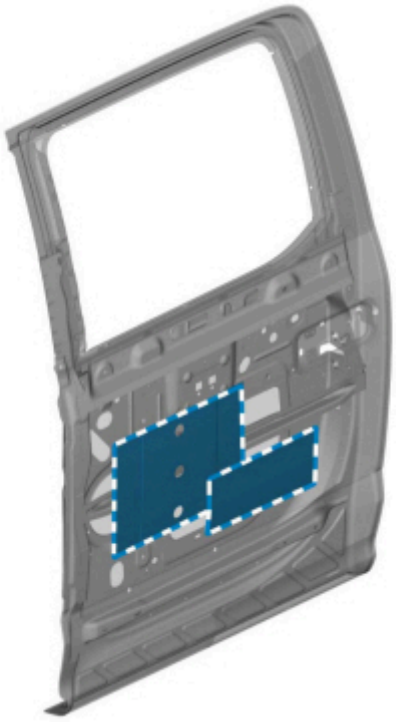
E188268

SuperCrew Cab Floor Pan



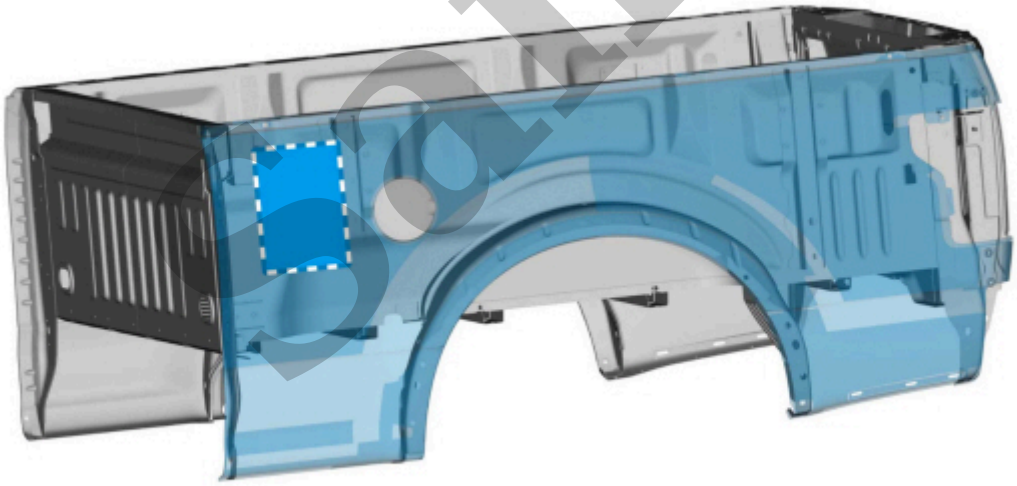
E188269

Front Door



E188266

6.5 Foot Pickup Box



E188270

8.0 Foot Pickup Box

Special Repair Considerations for Aluminum Repairs

501-25 Body Repairs - General Information	***2022 F-150***
Description and Operation	***Procedure revision date: 09/30/2014***

Special Repair Considerations for Aluminum Repairs

Repair of aluminum vehicle components requires some specialized handling and the proper isolation of the work area from steel repairs and dedicated hand and power tools that will be used only for aluminum repair. The following details some of these considerations.

Isolation of Work Area

Galvanic corrosion is caused through dissimilar metals remaining in contact with one another. Eventually, the softer or more corrosively reactive metal will act as a sacrificial anode and accelerated corrosion will result. Working with dissimilar metals in the same environment increases the potential for galvanic corrosion which can cause repair and paint failures for either steel or aluminum systems

Because of this, it is necessary to create an isolation area dedicated to aluminum repairs. This isolation area can consist of an area walled off through the use of curtain walls, or a dedicated and separate working room or preparation booth.

In addition, a wet mix vacuum and air filtration system should be employed in the isolated work area to remove contaminates or dust particles caused by sanding and grinding, further reducing the potential for repair failures. The use of compressed air should also be avoided for cleaning (when possible) in all areas of the shop to reduce cross contamination of systems.

Specialized Tools

The hand and power tools utilized in the aluminum work area should be dedicated for use with aluminum only, and should be labeled and stored in a separate tool box. This will help minimize the potential for galvanic corrosion, which may create paint and repair failure.

Hand Tools

E189466

FDS (flow drill screw)

This type of fastener is used in manufacturing only. These are a 1 use fastener and when removed are discarded and replaced with a solid rivet or a Hemlock® blind fastener. Whenever a FDS (flow drill screw) is removed, the remaining hole is enlarged to 6.5 mm before the replacement rivet is installed.

E189467

SPR (self-piercing rivet)

A SPR (self-piercing rivet) is the fastener most used in body construction. As its name implies, it is self-piercing, no pre-drilled hole is required. A SPR (self-piercing rivet) pierces the outer and any mid panels without exiting the lower panel. It enters the lower panel and expands to secure all affected sheet metal panels. This type of fastener results in a completely flush exterior surface when joining two or more body panels. A SPR (self-piercing rivet) cannot be reused. They are removed and installed with specialized equipment. In addition, if a SPR (self-piercing rivet) is to be installed during a repair, it must be placed adjacent to the original SPR (self-piercing rivet) . If no adjacent area is available, a solid rivet or Henrob® blind rivet must be used after enlarging the hole to 6.5 mm.

Corrosion Prevention

501-25 Body Repairs - General Information	***2022 F-150***
General Procedures	***Procedure revision date: 05/7/2019***

Corrosion Prevention

Repair

NOTE

Undercoating

NOTE

The following illustrations are not vehicle specific and are intended for reference only.

1. **WARNING**

   Before beginning any service procedure in this section, REFER to Safety Warnings in section 100-00 General Information. Failure to follow this instruction may result in serious personal injury.

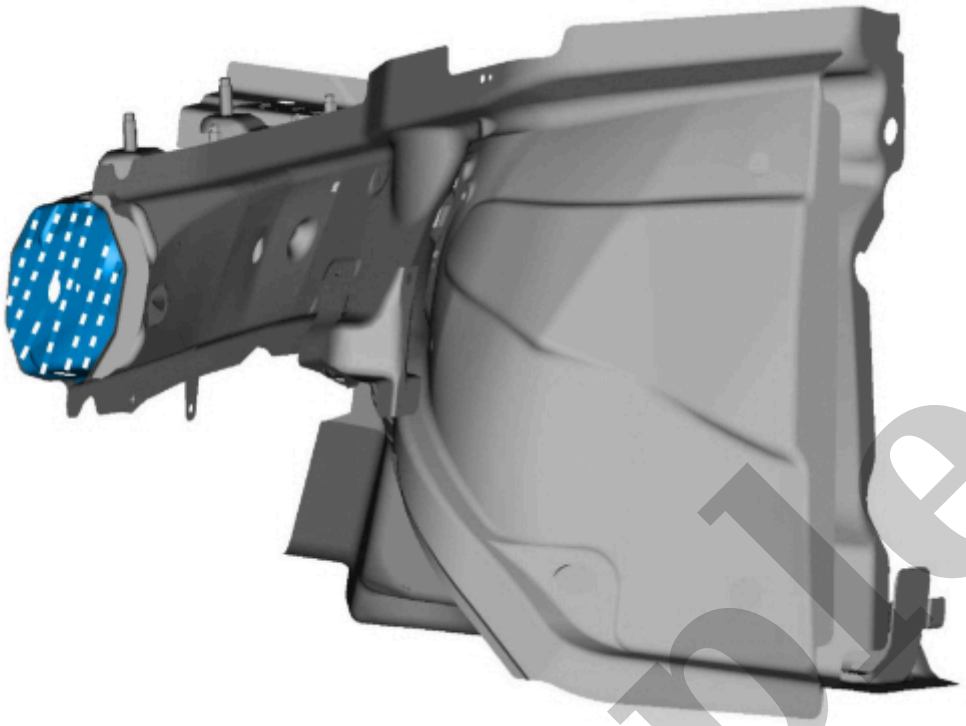
   Refer to: Body Repair Health and Safety and General Precautions(100-00 General Information, Description and Operation).

2. Wire brush the area and make sure the surfaces are free of oil, dirt and other foreign material. Carry out the undercoating process in the following sequence.

3. Thoroughly clean and degrease metal surfaces to remove wax and grease.

   Material : Motorcraft® Metal Surface Prep Wipes / ZC-31-B

Apply Rust Inhibitor to the inner surfaces of the rail after carrying out welding process. Depress trigger and wait 2-3 seconds and slowly pull the wand to make sure the area is completely fogged.



E145243

Click here to learn about symbols, color coding, and icons used in this manual.

12. **NOTE**

Full frame vehicle, front rail-to-mid rail section repair shown.

Apply Premium Undercoating to the exposed surfaces after carrying out the welding process. Make sure to completely cover any bare metal areas.

6. Use the appropriate length wand when spraying enclosed areas. Insert the wand as far as possible into the access hole, pull the trigger and wait 2-3 seconds and slowly pull the wand out of the access hole. Apply the material in light mist coats. Material displaces moisture.

7. Clean up any overspray with a mild solvent such as mineral spirits or bug and tar remover.

8. **NOTE**

   Door assembly lower view.

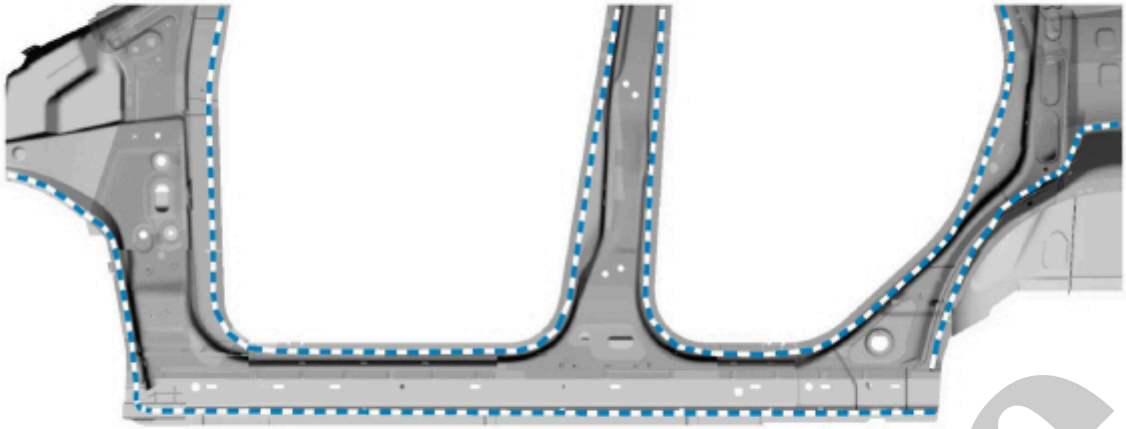
   Apply as shown to the inside of the door shell on all the interior metal surfaces using the most suitable applicator wand. Apply material to the exposed edges after carrying out the welding process. Make sure horizontal surfaces are well protected as they are more susceptible to corrosion. Keep door drain holes clear to prevent moisture buildup.

   Material : ValuGard™ Rust Inhibitor / VG104, VG104A

Click here to learn about symbols, color coding, and icons used in this manual.

9. **NOTE**

   Quarter panel inner view.



E145247

Click here to learn about symbols, color coding, and icons used in this manual.