



# R011

# Removable Roof

**Uniform  
Procedures For  
Collision Repair  
UPCR**

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v.4.0



## 1. Description

This procedure describes the repair and complete replacement of a metal or plastic removable roof panel.



## 2. Purpose

The purpose of this procedure is to provide industry-accepted requirements for performing high-quality repair of removable roof panels. This procedure is intended for use by professionals who are qualified through training and experience.



### 3. Referenced Documents

The following documents are considered part of this procedure by reference.

#### 3.1 Procedures

- CP01A Corrosion Protection
- CP01S Corrosion Protection
- PR11 Plastic Repair, Adhesive
- PS01 Personnel Safety
- RF01P Surface Preparation
- RF01S Surface Preparation
- RF41 Finish Application
- ST01A Stress-Relieving Heat Limitations
- ST01S Stress-Relieving Heat Limitations
- ST21A Metal Repair
- ST21S Metal Repair
- ST31 Body Fillers

#### 3.2 Other Information

- Product-specific information
- Recycled parts information
- Vehicle-specific repair information



### 4. Equipment And Material Requirements

#### 4.1 Plastic Repair Equipment And Materials

Use plastic repair equipment and materials as described in **PR11**.



## 5. Damage Analysis

### 5.1 General Damage

Inspect a removable roof panel for these conditions or types of damage:

- visible damage
- corrosion
- improper previous repairs
- damaged fasteners or latch parts
- misalignment with adjacent panels
- damaged weatherstrip or seal

Determine whether the roof panel should be repaired or replaced. Verify the availability of replacement parts. Some vehicle makers do not recommend welding tears or punctures in aluminum roofs. Follow the vehicle maker's recommendations.



## 6. Personnel Safety

### 6.1 General Safety

General safety information is in **PS01**.

### 6.2 Lifting Safety

Some removable roof panels require at least two people for removal and installation. Use proper lifting techniques to avoid injury.



## 7. Environmental Safety

Does not apply.



## 8. Vehicle Protection

### 8.1 Stress-Relieving

If heat is used for stress-relieving, use temperature-measuring methods as described in **ST01A** or **ST01S**.

Note: Some vehicle makers recommend against the use of heat for stress-relieving.

### 8.2 Roof And Adjacent Areas

Protect the roof panel and adjacent panels, glass, upholstery, and other cosmetic surfaces from damage during removal, storage, and installation.

### 8.3 Aluminum Roof Protection

To protect aluminum roofs:

- Avoid the use of a shrinking hammer or other rough or sharp-edged tools when straightening aluminum.
- Avoid contaminating the aluminum surface with steel particles.
- Avoid permanent contact between dissimilar metals, such as aluminum and steel.



## 9. Repair Procedure

### 9.1 Metal Roof Panel Repair

To straighten a metal removable roof panel:

- 1. Disconnect electrical connectors, if required.
- 2. Carefully remove the roof panel and properly support it during repairs.
- 3. Remove the headliner and backlite, if required.
- 4. Check for proper body alignment, and damage to the roof attaching and latching areas.
- 5. Repair damage using metal repair and heat shrinking procedures. Weld tears or punctures in the roof panel as required.

Note: Some vehicle makers do not recommend welding tears or punctures in aluminum roofs. Follow the vehicle maker's recommendations.

- 6. If heat is used for relieving stress, follow the vehicle maker's temperature and time recommendations.

Note: Some vehicle makers do not recommend the use of heat for stress-relieving.

- 7. Apply corrosion-resistant primer to all interior and exterior surfaces and other areas damaged by the collision or repairs.
- 8. Apply seam sealers to seal the joints and restore the appearance. Reprime if required by the product maker.
- 9. Refinish areas damaged by the collision, repairs, or anchoring, as required to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.

*(cont'd)*



## 9. Repair Procedure (cont'd)

- 10. Reinstall the backlite and headliner.
- 11. Reinstall the roof panel to check for proper fit, sealing, and latching.
- 12. Reinstall any electrical accessories.
- 13. Test for air and water leaks.

### 9.2 Plastic Roof Panel Repair

Select the repair method and perform the repairs.

To repair a plastic removable roof panel:

- 1. Disconnect electrical connectors, if required.
- 2. Carefully remove the roof panel and properly support it during repairs.
- 3. Remove the headliner and backlite, if required.
- 4. Repair any damage using plastic adhesive repair procedures.
- 5. Replace trim mounting studs or holes, if required.
- 6. Prime all interior and exterior surfaces and other areas damaged by the collision or repairs.
- 7. Apply seam sealers to seal the joints and restore the appearance. Reprime if required by the product maker.
- 8. Refinish areas damaged by the collision, repairs, or anchoring, if required to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.
- 9. Reinstall the backlite and headliner.
- 10. Replace the roof panel to check for proper fit, sealing, and latching.
- 11. Reinstall any electrical accessories.
- 12. Test for air and water leaks.



## 10. Use Of Recycled (Salvage) Parts

### 10.1 Condition Of Salvage Parts

Do not install a salvage removable roof panel having any of these defects:

- unrepairable damage
- improper previous repairs
- corrosion that has caused pitting
- damage caused by fire
- stress cracks around the latch parts or weld areas
- reinforcements that have separated from the roof panel



## 11. Inspection And Testing

### 11.1 Inspection Of A Repaired Or Replaced Removable Roof Panel

After installation or repair, inspect a removable roof panel for these conditions:

- proper alignment with adjacent panels
- proper alignment and operation of door glass
- proper latching and release
- proper lubrication
- proper weatherstrip sealing
- no air or water leaks
- proper application of seam sealers and corrosion protection
- proper operation of the dome light and other electrical parts
- proper installation of the headliner and attaching parts
- proper operation of all electrical accessories
- proper finish appearance and film thickness

Correct any defects.