



# CS11S

# Radiator Core Support, Bolted-On

**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 bolted-on radiator core support. Inspection and evaluation requirements are also included.



## 2. Purpose

The purpose of this procedure is to provide industry-accepted requirements for performing high-quality repair of bolted-on radiator core supports. 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

- CP01S Corrosion Protection
- EM01 Emission Label
- ME01 Three-Dimensional Measuring
- PS01 Personnel Safety
- RF01S Surface Preparation
- ST01S Stress Relieving Heat Limitations
- ST11 Multiple Pulls

### 3.2 Other Information

- Vehicle-specific repair information
- Vehicle-specific dimension specifications



## 4. Equipment And Material Requirements

### 4.1 Straightening And Measuring Equipment

Use straightening equipment as described in **ST11**.

Use measuring equipment as described in **ME01**.



## 5. Damage Analysis

### 5.1 General Damage

Inspect a bolted-on radiator core support for these types of damage:

- visible damage
- corrosion
- improper previous repairs
- dimensional misalignment
- damage to mounting locations or fasteners

Determine whether the bolted-on radiator core support should be repaired or replaced. Verify the availability of replacement parts.



## 6. Personnel Safety

### 6.1 General Safety

General safety information is in **PS01**.

### 6.2 Pulling Safety

Pulling safety information is in **ST11**. Does not apply.



## 7. Environmental Safety

Does not apply.



## 8. Vehicle Protection

### 8.1 Stress-Relieving

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

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

### 8.2 Electronic Parts

To protect computers and other sensitive parts from damage:

- Follow the vehicle maker's recommendations for recording and resetting electronic memories.
- Ensure that the ignition switch is in the LOCK position, and the key is removed.
- Disconnect and isolate the negative battery cable, and disarm the passive restraint system. Follow the vehicle maker's recommendations.
- Carefully remove computer modules when welding or heating within 300 mm (12"), or a greater distance when recommended by the vehicle maker.
- Protect computer modules, connectors, and wiring from dirt, heat, static electricity, and moisture.
- Loosen or remove any wiring harnesses or electrical parts that could be damaged during the repair process.

Remove the battery if it is near an area to be heated.



## 9. Repair Procedure

### 9.1 Straightening

To straighten a bolted-on radiator core support:

- 1. Make sure the vehicle is properly anchored to the straightening systems.
- 2. Make measurements to determine the location of the core support.
- 3. Locate airbag sensor mounting locations, as specified by the vehicle maker.
- 4. Use multiple pulls and stress-relieving to return the radiator core support to proper dimensions. Follow the tolerance recommendations of the vehicle maker. If no recommendations are given, use a tolerance of  $\pm 3$  mm ( $\frac{1}{8}$ " ). Use a three-dimensional measuring system and adjacent panels to verify that the part is properly aligned.
- 5. If heat is used for stress-relieving, follow the vehicle maker's temperature and time recommendations. If the part cannot be identified as mild steel, treat it like high-strength steel (HSS). Note: Some vehicle makers recommend against the use of heat for stress-relieving.
- 6. Plan to replace any part that is kinked, has stress cracks, or develops cracks during straightening. If replacement is required, see **9.2** and **9.3**.
- 7. Apply corrosion-resistant primer to all interior and exterior surfaces damaged by the collision, repairs, or anchoring.
- 8. Apply seam sealers, as necessary, to seal the joints and restore the appearance. Reprime if required by the product maker.
- 9. Apply anti-corrosion compounds to all enclosed areas.
- 10. Refinish areas damaged by the collision, repairs, or anchoring, as required to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.
- 11. Continue vehicle reassembly.

### 9.2 Removal

To remove a bolted-on radiator core support:

- 1. Perform underhood and upperbody measurements and adjacent panel alignment and straightening. See **9.1**.
- 2. Remove the radiator core support mounting fasteners. Inspect all fasteners that will be reused.
- 3. Remove the radiator core support from the vehicle. Do not discard any labels until replacements are obtained.

### 9.3 Installation

To install a bolted-on radiator core support:

- 1. Perform a trial fit of the replacement parts.
- 2. Apply corrosion-resistant primer to all interior and exterior surfaces damaged by the collision, repairs, or anchoring.

**(cont'd)**



## 9. Repair Procedure (cont'd)

- 3. Apply seam sealers as necessary to seal the joints and restore the appearance. Reprime if required by the vehicle maker.
- 4. Refinish as required to restore the appearance.
- 5. Install any braces or brackets that are bolted to the inside of the radiator core support. Torque fasteners to the vehicle maker's recommendations.
- 6. Position the radiator core support on the vehicle.
- 7. Reinstall the mounting cushions and fasteners. Some vehicle makers may require the installation of new fasteners. Use shims as necessary to level the core support. Follow the vehicle maker's recommendations.
- 8. Use a three-dimensional measuring system and adjacent panels to verify that the part is properly aligned.
- 9. Torque fasteners to the vehicle maker's recommendations.
- 10. Use the three-dimensional measuring system and adjacent panels to verify that the part is still properly aligned.
- 11. Apply anti-corrosion compounds to all enclosed areas.
- 12. Install any labels previously removed.
- 13. Continue vehicle reassembly.



## 10. Use Of Recycled (Salvage) Parts

### 10.1 Condition Of Salvage Parts

Do not install a salvage bolted-on core support having any of these defects:

- unrepairable damage
- corrosion that has caused pitting
- improper previous repairs

### 10.2 Preparation Of Salvage Parts

To prepare a salvage bolted-on radiator core support for installation:

- Clean the part to remove dirt, wax, grease, undercoating or corrosion.



# 11. Inspection And Testing

## 11.1 Inspection Of A Repaired Or Replaced Core Support

Inspect a repaired or replaced bolted-on radiator core support for these conditions:

- dimensional alignment
- proper alignment to adjacent panels
- fasteners torqued to the vehicle maker's recommendations
- proper finish appearance and film thickness
- proper application of corrosion protection
- proper installation of all labels