

# Uniform Procedures For Collision Repair

# H011—Hinge, Welded-On

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v.2.3



## 1. Description

This procedure describes the removal, repair, and replacement of welded-on steel or aluminum hood hinges. 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 welded-on hood hinges. 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
- HO21P Hood
- HO21S Hood
- PS01 Personnel Safety
- RF01S Surface Preparation
- RF41 Finish Application
- WE01S GMA (MIG) Plug Weld

#### **3.2 Other Information**

- Recycled parts information
- Vehicle-specific repair information



## 4. Equipment And Material Requirements

### 4.1 Welding Equipment

**GMA (MIG) welding** equipment is described in **WE01A** or **WE01S**.



## 5. Damage Analysis

### 5.1 General Damage

Inspect welded-on hood hinges for these conditions:

- visible damage
- damaged finish
- damaged fasteners
- worn or damaged hinge pins or bushings
- misalignment
- damaged springs or hydraulic supports
- corrosion**
- damaged safety stops



Raise and lower the hood slowly to determine if the hinges operate without binding.



## 6. Personnel Safety

### 6.1 General Safety

General safety information is in **PS01**.

### 6.2 Welding Safety

Welding safety information is in **WE01S**.

### 6.3 Hinge Replacement Safety

Make sure a raised hood is properly supported to prevent accidental closure.

Some hinges have attached springs under tension. Use caution when removing and replacing them.



## 7. Environmental Safety

Does not apply.



## 8. Vehicle Protection

### 8.1 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 in an area to be welded or heated.

### 8.2 Hood And Adjacent Areas

When removing or replacing hood hinges:

- Properly handle and store the hood to prevent damage.
- Protect adjacent parts from damage.
- Use welding blankets to protect glass, upholstery, or panels from damage caused by welding or cutting sparks.



## 9. Repair Procedure

### 9.1 Repair

Small bends in the arms of the hinges may be straightened by hand, with the hinges on the vehicle. Otherwise, the hinge should be replaced.

If a hinge pin or bushing is damaged, replace the hinge.

### 9.2 Removal

To remove welded-on hood hinges:

- 1. Raise and support the hood. Avoid damaging the windshield, cowl, or fenders.
- 2. Disconnect the support rods, electrical connectors, windshield washer hoses, and the insulator as necessary.
- 3. Mark the hinge position on the hood and body side before removal.
- 4. Protect the windshield and cowl.
- 5. Unbolt, remove, and carefully store the hood. Note the location of any shims.
- 6. Inspect fasteners for damage. On aluminum hoods, inspect the coatings on the fasteners and discard the fasteners if the coating is damaged. If the fasteners are being replaced, use fasteners that are the same size, type, and strength as the original fasteners. Ensure that all coatings and spacers are installed to prevent **galvanic corrosion**.
- 7. Identify all hinge weld locations.
- 8. Protect adjacent parts from damage.
- 9. Remove the spot welds.
- 10. Remove the hinges from the vehicle.
- 11. Remove any burrs or **spot-weld nuggets**. Avoid removing any zinc coating.

### 9.3 Installation

To install welded-on hood hinges:

- 1. Follow the vehicle maker's recommendations for the location, number, and size of **plug weld** holes. If no recommendations are available, punch or drill 8 mm ( $5/16$ " ) holes through the hinge in the same location used by the vehicle maker.
- 2. Position the hinges on the vehicle and clamp them in place.
- 3. Temporarily hold the hinges in place by drilling a 3 mm ( $1/8$ " ) hole and securing the hinge with a sheet metal screw or other temporary fastener.

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## 9. Repair Procedure (cont'd)

- 4. Support the hood on the hinges, and loosely install the fasteners. Reinstall any removed shims.
- 5. Lower the hood slowly. Make sure it does not contact the cowl or fenders. It may be helpful to remove the latch.
- 6. Check the horizontal alignment with the cowl and fenders. Adjust the position at the hinges as needed.
- 7. Adjust the height at the hinges as needed. Adjust the height at the front, using the adjustable stops.
- 8. Remove the hood.
- 9. Mark the hinge positions on the hood and body sides.
- 10. Remove the hinges.
- 11. Apply **weld-through primer** to all weld mating surfaces that do not have a **zinc coating**, or where the zinc coating was removed. Follow the vehicle maker's recommendations. Due to the poor adhesion property of some weld-through primers, it may have to be removed from all exposed surfaces after welding, before applying other coatings and sealants.
- 12. Reinstall the hinges aligning them to the marks.
- 13. Make test welds, before welding on the vehicle, using the same type and thickness metal that will be welded on the vehicle. Make the welds in the same position as the welds on the vehicle, using weld-through primer if applicable. Visually inspect and **destructively test** the welds before welding on the vehicle.
- 14. Remove any flammable materials from the weld area.
- 15. **Tack weld** or securely hold the hinge in position and recheck the alignment of the hood on the vehicle.
- 16. Make the required welds.
- 17. **Dress the welds**, if necessary.
- 18. Apply corrosion-resistant **primer** to all surfaces.
- 19. Apply **seam sealer** as necessary to seal the joints and restore the appearance.
- 20. Refinish the repair area as required to restore the appearance.
- 21. Support the hood on the hinges, and loosely install the fasteners. Reinstall any removed shims.
- 22. Lower the hood slowly. Make sure it does not contact the cowl or fenders. It may be helpful to remove the latch.
- 23. Check the horizontal alignment with the cowl and fenders. Adjust the position at the hinges as needed.
- 24. Adjust the height at the hinges as needed. Adjust the height at the front, using the adjustable stops.
- 25. Raise the hood and install the support rods. Torque all fasteners to the vehicle maker's recommendations.
- 26. Close the hood and recheck the alignment.

(cont'd)



## 9. Repair Procedure (cont'd)

- 27. Reinstall the latch.
- 28. Test for proper latching. Lower the hood slowly to see if the striker squarely enters the latch assembly without forcing the hood out of alignment. Align the latch assembly, or the striker as needed.
- 29. Check alignment of occupant hood safety stops.
- 30. Reconnect any hoses or electrical connectors.
- 31. Install the hood insulator.
- 32. Spot-paint hinges and fasteners as necessary.
- 33. Install trim, labels, insulators, weatherstripping, seals, etc.
- 34. Lubricate the hinges and latch as necessary.



## 10. Use Of Recycled (Salvage) Parts

### 10.1 Condition Of **Salvage Parts**

Do not install salvage hinges having any of these defects:

- unrepairable damage
- corrosion that has caused pitting
- worn or damaged hinge pins or bushings



## 11. Inspection And Testing

### 11.1 Replaced Welded-On Hinges

After installation, inspect the welded-on hood hinges for these conditions:

- weld quality
- proper installation of fasteners
- appearance

After installation of the welded-on hood hinges, inspect the hood for these conditions:

- proper alignment with adjacent panels
- proper latching and release, including the safety catch
- proper finish appearance
- proper installation of all trim, labels, and fasteners
- proper operation of the support rods
- proper installation of hoses, electrical connectors, and insulators
- proper operation and aiming of the windshield washer nozzles
- proper operation of the security system, if applicable
- proper alignment of safety stops
- proper operation of the hood release
- proper lubrication of the hinges and latch
- proper operation of the underhood convenience light



Correct any defects.