

# Uniform Procedures For Collision Repair

# QT01S—Quarter Panel

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v.2.3



## 1. Description

This procedure describes the repair and complete or partial replacement of a steel quarter panel. 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 quarter 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**

- CP01S Corrosion Protection
- PS01 Personnel Safety
- QT11S Outer Wheelhouse
- RF01S Surface Preparation
- RF41 Finish Application
- ST01S Stress-Relieving Heat Limitations
- ST21S Metal Repair
- ST31 Body Fillers
- WE01S GMA (MIG) Plug Weld
- WE11S GMA (MIG) Fillet Weld
- WE51S Squeeze-Type Resistance Spot Weld

#### **3.2 Other Information**

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



## 4. Equipment And Material Requirements

### 4.1 Welding Equipment

Use GMA (MIG) welding equipment as described in **WE01S** or **WE11S**.

Use **squeeze-type resistance spot welding (STRSW)** equipment as described in **WE51S**.

Note: Some vehicle makers recommend against the use of STRSW for replacing **spot welds**.



## 5. Damage Analysis

### 5.1 General Damage

Inspect a quarter panel for these conditions or types of damage:

- visible damage
- misalignment with adjacent panels
- improper previous repairs
- damaged finish
- broken or damaged welds
- cracked seam sealers



Determine if the quarter panel will be straightened or replaced.

Follow the vehicle maker's **sectioning** recommendations. Not all vehicle makers recommend a vertical cut line above the wheelhouse or a cut along the beltline.



## 6. Personnel Safety

### 6.1 General Safety

General safety information is in **PS01**.

### 6.2 Welding Safety

Welding safety information is in **WE01S** or **WE11S**.



## 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 **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 any electronic control modules that may be subject to impact during the repair procedure.

### 8.3 Adjacent Areas

Protect glass, upholstery, and other **cosmetic surfaces** from welding, grinding, and cutting sparks. Remove interior trim and adjacent parts that cannot be protected.

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## 8. Vehicle Protection (cont'd)

### 8.4 Vehicle Protection When Sectioning

Do not section in or near these areas:

- holes larger than 3 mm (1/8")
- compound shapes**
- areas where proper welding cannot be performed
- striker mounting locations

Note: Do not section reinforcements unless recommended by the vehicle maker.



## 9. Repair Procedure

### 9.1 Straightening

To straighten a quarter panel:

- 1. Remove or protect attached or adjacent parts, if required.
- 2. Remove the **backlite** and quarter window, if required.
- 3. Remove the fuel tank, if required for safety.
- 4. Repair damage using metal repair and heat shrinking procedures. Weld tears or punctures in the quarter panel as required. If heat is used for relieving stress, 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 relieving stress.
- 5. Replace trim-mounting studs or drill mounting holes, if required.
- 6. Apply **corrosion**-resistant primer to 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, to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.
- 9. Apply **anti-corrosion compounds** and sound deadening, if required.
- 10. Reinstall the fuel tank.
- 11. Reinstall the backlite and quarter window.
- 12. Reinstall the moldings and trim.
- 13. Reinstall the interior trim panels and other parts.
- 14. Continue vehicle reassembly.



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## 9. Repair Procedure (cont'd)

### 9.2 Complete Quarter Panel Removal

To remove a complete quarter panel:

- 1. Make sure all adjacent panels are in alignment before removing the quarter panel.
- 2. Remove the backlite and quarter window, if required.
- 3. Loosen or remove the bumper and tail lamp assemblies, if required.
- 4. Remove the fuel tank, if required for safety.
- 5. Loosen, remove, or support the deck lid, if required.
- 6. Reposition or remove any attached wiring or electronic parts.
- 7. Remove moldings and trim, if required.
- 8. Identify and mark all spot weld locations.
- 9. Determine the cut location to separate the roof-to-quarter-panel joint, if required. Follow the vehicle maker's recommendations.
- 10. Remove the spot welds. Do not damage parts attached to the quarter panel which are not to be replaced.
- 11. Remove any foam fillers or sound-deadening pads from the weld joint areas.
- 12. Cut the roof-to-quarter-panel weld joint slightly longer than the final cut location, if required. Avoid creating a large **heat-affected zone**.
- 13. Remove the damaged quarter panel.
- 14. Trim back the remaining edges to the exact cut locations, if required.
- 15. Remove any burrs or spot weld **nuggets** from the mating surfaces, and repair any damage. Avoid removing any **zinc coating**.
- 16. Straighten the mating panel edges, if required to ensure a proper fit-up with the replacement quarter panel.

### 9.3 Complete Quarter Panel Installation

To install a complete quarter panel:

- 1. Perform a trial fit of the replacement parts. Ensure that all mating surfaces are properly aligned.
- 2. Clean the weld mating surfaces. Avoid removing any zinc coating.
- 3. Refer to the vehicle maker's body repair manual for the recommended welding method. STRSW should be used only along **factory seams** when recommended by the vehicle maker.

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## 9. Repair Procedure (cont'd)

- 4. Refer to the vehicle maker's recommendation for the location, number, and size of **plug weld** holes. If no recommendations are available, punch or drill 8 mm ( $\frac{5}{16}$ " ) holes in the outer or upper panel at the same locations used originally by the vehicle maker. If using a **lap joint**, allow for a minimum of 6 mm ( $\frac{1}{4}$ " ) overlap. If STRSW is used, refer to the vehicle maker's recommendations for the electrode diameter, weld locations and spacing, etc.
- 5. Test-fit the replacement quarter panel and clamp it in place.
- 6. Remove the replacement quarter panel from the vehicle.
- 7. Apply **weld-through primer** to all weld mating surfaces that do not have 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.
- 8. Apply weld-bond **adhesive** when recommended by the vehicle maker.
- 9. Position the part on the vehicle and clamp it in place.
- 10. Use adjacent panels to verify that the assembly is properly aligned.
- 11. Tack weld or securely clamp the quarter panel in position.
- 12. Recheck the alignment using the adjacent panels. Ensure that all panel gaps and attached parts are in proper alignment.
- 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 test 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. Make the required welds.
- 15. Verify with adjacent panels that the quarter panel is still properly aligned.
- 16. **Dress the welds**, if required.
- 17. Finish the joint areas, if required.
- 18. Apply corrosion-resistant primer to all interior and exterior surfaces damaged by the collision or repairs.
- 19. Apply seam sealers to seal the joints and restore the appearance. Reprime if required by the product maker.
- 20. Refinish areas damaged by the collision or repairs, as required to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.
- 21. Apply anti-corrosion compounds to all enclosed areas.
- 22. Replace foam fillers and sound-deadening pads.
- 23. Reinstall the fuel tank.



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## 9. Repair Procedure (cont'd)

- 24. Reinstall the backlite and quarter window.
- 25. Reinstall the moldings and trim.
- 26. Reinstall or replace the interior trim panels.
- 27. Continue vehicle reassembly.

### 9.4 Partial Quarter Panel Removal

To remove the damaged portion of a quarter panel for partial replacement:

- 1. Make sure all adjacent panels are in alignment before removing the quarter panel.
- 2. Remove the backlite and quarter window, if required.
- 3. Loosen or remove the bumper and tail lamp assemblies, if required.
- 4. Remove the fuel tank, if required for safety.
- 5. Loosen, remove, or support the deck lid, if required.
- 6. Reposition or remove any attached wiring or electronic parts.
- 7. Remove moldings and trim, if required.
- 8. Select the cut locations based on the damage and construction of the quarter panel. Follow the vehicle maker's recommendations and the sectioning location guidelines described in **8.4**. Avoid sectioning through character lines.
- 9. Measure and mark the cut locations.
- 10. Cut the undamaged portion of the quarter panel slightly longer than the final cut locations. Avoid creating a large heat-affected zone.
- 11. Remove any foam fillers or sound-deadening pads from the weld joint areas.
- 12. Identify and mark the spot weld locations on the portion to be removed.
- 13. Remove the spot welds. Do not damage the parts that are attached to the quarter panel which are not to be replaced.
- 14. Remove the cutout portion of the quarter panel from the vehicle.
- 15. Trim the remaining edges of the quarter panel back to the exact cut locations.
- 16. Remove all burrs or spot weld nuggets from the mating surfaces, and repair all damage. Avoid removing any zinc coating.
- 17. Straighten the mating panel edges, if needed to ensure a proper fit-up with the replacement portion.

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## 9. Repair Procedure (cont'd)

### 9.5 Partial Quarter Panel Installation

To install a partial quarter panel section:

1. Measure across the area to be sectioned using three or more reference points, such as holes, notches, weld seams, or feature lines. If no **reference points** exist on the replacement part, make reference marks on both parts.
2. Cut the replacement quarter panel to the proper length and shape for the type of joint recommended by the vehicle maker.
3. Clean the mating surfaces. Avoid removing any zinc coating.
4. Refer to the vehicle's body repair manual for the recommended welding method. STRSW should only be used along factory seams when recommended by the vehicle maker.
5. Refer to the vehicle maker's recommendation for the location, number, and size of plug weld holes for each part of the assembly. If no recommendations are available, punch or drill 8 mm ( $\frac{5}{16}$ " ) holes in the outer panel at the same locations used originally by the vehicle maker. If using a lap joint, allow for a minimum of 6 mm ( $\frac{1}{4}$ " ) overlap. If STRSW is used, refer to the vehicle maker's recommendations for the electrode diameter, weld locations and spacing, etc.
6. Test-fit the replacement partial quarter panel and clamp it in place.
7. Remove the replacement partial quarter panel from the vehicle.
8. Apply weld-through primer to all weld mating surfaces that do not have 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.
9. Apply weld-bond adhesive when recommended by the vehicle maker.
10. Position the partial quarter panel on the vehicle and clamp it in place.
11. Use adjacent panels to verify that the assembly is properly aligned.
12. Tack weld or securely hold the partial quarter panel in position.
13. Recheck the alignment using the adjacent panels.
14. Make test welds, before welding on the vehicle, using the same type and thickness metal that will be welded on the vehicle. Make the test 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.



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## 9. Repair Procedure (cont'd)

- 15. Make the required welds.
- 16. Verify with adjacent panels that the quarter panel is still properly aligned.
- 17. Dress the welds, if required.
- 18. Finish the weld area, if required.
- 19. Apply corrosion-resistant primer to all interior and exterior surfaces damaged by the collision, repairs, or anchoring.
- 20. Apply seam sealers to seal the joints and restore the appearance. Reprime if required by the product maker.
- 21. Refinish areas damaged by the collision, repairs, or anchoring, to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.
- 22. Apply anti-corrosion compounds to all enclosed areas.
- 23. Replace foam fillers and sound-deadening pads.
- 24. Reinstall the fuel tank.
- 25. Reinstall the backlite and quarter window.
- 26. Reinstall the moldings and trim.
- 27. Reinstall or replace the interior trim panels and other parts as necessary.
- 28. Continue vehicle reassembly.



## 10. Use Of Recycled (Salvage) Parts

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

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

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

Plan to transfer or replace any required bodyside moldings, stripes, decals, emblems, or other exterior trim.

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## 10. Use Of Recycled (Salvage) Parts (cont'd)

### 10.2 Preparation Of Salvage Parts

To prepare a salvage quarter panel for installation:

- Remove any trim or moldings that are to be reused or replaced.
- Make any necessary repairs.
- Clean the part to remove dirt, wax, grease, undercoating, corrosion, etc.
- Remove any excessive paint film thickness.
- Trim the part to fit.
- Remove all heat-affected zones.
- Make sure the part is not deformed along the weld joints.
- Remove or install trim-mounting studs and drill or fill trim-attachment holes, as required.



## 11. Inspection And Testing

### 11.1 Inspection Of A Repaired Or Replaced Quarter Panel

After installation or repair, inspect a steel quarter panel for these conditions:

- weld quality
- proper alignment with adjacent parts
- proper application of corrosion protection and sound-deadening materials
- proper operation of attached electrical and electronic parts
- proper installation of all fasteners
- proper installation of all trim
- proper installation of the fuel tank and filler neck
- proper finish appearance and film thickness
- proper seal and absence of leaks



Correct any defects.