



QT11S

Outer Wheelhouse

**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 steel outer wheelhouse. 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 outer wheelhouses. 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
- QT01S Quarter Panel
- 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 repair 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 an outer wheelhouse for these types of damage:

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

Determine if the outer wheelhouse is to 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 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.

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.



9. Repair Procedure

9.1 Straightening

To straighten an outer wheelhouse:

- 1. Remove the fuel tank, if required for safety.
- 2. Straighten initial damage before removing the quarter panel or other welded parts.
- 3. Repair damage using metal repair and heat shrinking procedures. Weld tears or punctures in the wheelhouse 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 do not recommend the use of heat for stress-relieving.
- 4. Apply corrosion-resistant primer to all interior and exterior surfaces and other areas damaged by the collision or repairs.

(cont'd)



9. Repair Procedure (cont'd)

- 5. Apply seam sealers if required to seal the joints and restore the appearance. Reprime if required by the product maker.
- 6. Refinish areas damaged by the collision, repairs, or anchoring, as required to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.
- 7. Apply anti-corrosion compounds as required.
- 8. Continue vehicle reassembly.

9.2 Outer Wheelhouse Removal

Some vehicle makers have procedures for sectioning the outer wheelhouse. Refer to the vehicle maker's recommendations. If recommendations are not available, install the complete replacement wheelhouse.

To remove a complete outer wheelhouse:

- 1. Remove the fuel tank, if required for safety.
- 2. Make sure all adjacent panels are in alignment before removing the wheelhouse.
- 3. Locate and mark all spot weld locations.
- 4. Remove the spot welds. Do not damage any panels which are not to be replaced.
- 5. Remove the damaged wheelhouse.
- 6. Remove any burrs or spot weld nuggets from the remaining mating flanges, and repair any damage. Avoid removing any zinc coating.
- 7. Straighten the panel edges, if required to ensure a proper fit-up with the replacement part.

9.3 Outer Wheelhouse Installation

To install a complete outer wheelhouse:

- 1. Perform a trial fit of the replacement parts.
- 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.
- 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 outer wheelhouse and clamp or securely hold it in place.
- 6. Test-fit the replacement quarter panel to insure proper position of the outer wheelhouse.
- 7. Remove the replacement quarter panel and outer wheelhouse from the vehicle.

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9. Repair Procedure (cont'd)

- 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 part on the vehicle and clamp it in place.
- 11. Use adjacent panels to verify that the wheelhouse is properly aligned.
- 12. Tack weld or securely clamp, the outer wheelhouse in position.
- 13. Check the alignment to 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.
- 15. Make the required welds.
- 16. Verify with adjacent panels that the wheelhouse is still properly aligned.
- 17. Dress the welds, if required.
- 18. Apply corrosion-resistant primer to all interior and exterior surfaces and other areas 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. Replace sound-deadening pads.
- 21. Refinish areas damaged by the collision, repairs, or anchoring, as required to restore the appearance. Refinish cosmetic surfaces after all body repairs are complete.
- 22. Apply anti-corrosion compounds to all enclosed areas.
- 23. Continue vehicle reassembly.



10. Use Of Recycled (Salvage) Parts

10.1 Condition Of Salvage Parts

Do not install a salvage outer wheelhouse 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 outer wheelhouse for installation:

- Clean the part to remove dirt, wax, grease, undercoating, corrosion, etc.
- Trim the part to fit.
- Remove all heat-affected zones.
- Make sure the part is not deformed along the weld joints.



11. Inspection And Testing

11.1 Inspection Of A Repaired Or Replaced Outer Wheelhouse

After installation or repair, inspect an outer wheelhouse for these conditions:

- proper alignment with adjacent panels
- weld quality
- proper application of corrosion protection
- proper application of seam sealers
- proper application sound-deadening materials

Correct any defects.