



CP01A

Corrosion Protection

**Uniform
Procedures For
Collision Repair
UPCR**

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v.4.0



1. Description

This procedure describes the application of corrosion protection materials to help prevent corrosion of aluminum parts. Inspection requirements are also included.



2. Purpose

The purpose of this procedure is to provide industry-accepted requirements for protecting aluminum from corrosion. 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

HM01 Hazardous Materials
PS01 Personnel Safety
RF41 Finish Application

3.2 Other Information

Vehicle-specific repair information
Product-specific information



4. Equipment And Material Requirements

4.1 Protective Fasteners

The use of these types of protective fasteners is included in this procedure:

- non-metallic washers, spacers, and isolators
- low-carbon or non-conductive adhesives, grommets, seals, etc.
- coated fasteners
- aluminum or stainless steel rivets

4.2 Corrosion-Resistant Coatings

The use of these types of corrosion-resistant coatings is included in this procedure:

- corrosion-resistant primer systems
- anti-corrosion compounds

The coatings must be designed for automotive use, be recommended for use on aluminum, and comply with all VOC regulations.

The use of these types of primer systems is included in this procedure:

- epoxy primer
- self-etching primer
- wash primer

Use one paint system throughout the repair. Do not intermix products from more than one paint maker during the repair process.

The use of these anti-corrosion compounds is included in this procedure:

- wax-based coatings
- petroleum-based coatings

Anti-corrosion compounds must have these characteristics:

- proper viscosity to form a spray fog when applied at 16° C (60° F) or higher
- ability to penetrate pinchwelds
- ability to flow completely into hard-to-reach areas
- no lingering odor
- ability to bond to bare metal, primer, and painted surfaces
- resistant to damage by water, oil, fuel, stone chips, road salt, and chemicals
- permanent flexibility with age

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4. Equipment And Material Requirements (cont'd)

4.3 Spray Equipment

The application system required under this procedure must have these capabilities:

- spray wands of various lengths
- fan-shaped spray patterns covering 360°

4.4 Seam Sealers

The use of these seam sealers is included in this procedure:

- self-leveling
- thin-bodied
- heavy-bodied
- solid
- brushable
- sprayable

Seam sealers, depending on the application, must have these characteristics:

- bond well to primed or painted surfaces
- permanent flexibility
- paintable
- resistant to oil, fuel, and other fluids
- resistant to heat from engine and exhaust system

All seam sealers used must match the function and appearance of the vehicle maker's assembly process.



5. Damage Analysis

Plan to replace any anti-corrosion materials damaged by the collision or repairs.



6. Personnel Safety

6.1 General Safety

General safety information is in **PS01**.

6.2 Spraying Safety

To prevent injury during spraying operations, wear these protective items:

- NIOSH-approved fume respirator or fresh-air system
- protective clothing
- rubber gloves
- face shield or safety glasses

Do not spray near welding operations or open flames. Spray only in a well-ventilated area.



7. Environmental Safety

7.1 Hazardous Materials

Hazardous materials safety information is in **HM01**.

7.2 Spray Equipment And Materials

To protect the environment when applying anti-corrosion materials:

- Make sure products meet VOC regulations.
- Make sure equipment meets VOC regulations.



8. Vehicle Protection

8.1 Galvanic Corrosion

To avoid galvanic corrosion:

- Do not allow direct contact between aluminum and any other metal.
- Use grommets, insulators, adhesives, and seals that have a low-carbon content.
- Use the proper insulators and clips when installing metal fasteners and trim.
- Install all washers, spacers, and isolators, and in the proper order.
- Use the same type of coated fasteners as the original assembly.
- Replace coated fasteners if the coating is damaged.
- Follow the vehicle maker's recommendations for the type of rivets to use for each application.
- Make sure blind rivet heads are removed, if the rivet stem is not made of aluminum or stainless steel.
- Drill trim-mounting holes before applying any coatings. Coat inside edges of holes completely.

8.2 Existing Corrosion Protection

To preserve existing corrosion protection while making repairs:

- Remove only a minimum amount of paint film from damaged areas.
- Do not remove E-coat unless directed by the vehicle maker.
- Avoid scratching any part. If there is an accidental scratch, restore corrosion protection to the area.
- Protect undamaged areas from grinding, cutting, and welding.
- Cover openings in the body to prevent metal chips from entering during grinding, cutting, or welding.
- Vacuum metal chips from inside body cavities and crevices. Do not use compressed air, which may force the chips into corners.
- Keep moisture and metal-treatment chemicals out of closed body sections and crevices. Dry thoroughly.

8.3 Protection Of Mechanical And Electrical Parts

Do not apply anti-corrosion compounds to these mechanical and electrical parts:

- seat belt retractors and seat belt guide rails
- hidden headlamp assemblies
- window regulators, motors, speakers, and wiring
- drain holes
- engine and related parts
- air filter and intake tube
- shock absorbers

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8. Vehicle Protection (cont'd)

- transmission parts
- shift linkages
- speedometer cables
- brake and suspension parts
- locks, key cylinders, and door latches
- power antenna
- driveshafts, drive axles, and CV boots
- exhaust system parts

8.4 Protection Of Vehicle Labels

Protect vehicle labels and identification numbers, such as anti-theft labels, when applying corrosion-resistant coatings.



9. Repair Procedure

9.1 Exterior Surface Preparation

If a primer will be used that does not require metal conditioner and conversion coating, apply undercoats following the paint maker's recommendations.

To treat bare metal surfaces:

1. Clean the repair area with the proper surface cleaner and wipe dry.
2. Apply metal conditioner and conversion coating, as required. Follow the paint maker's recommendations.
3. Apply undercoats. Follow the paint maker's recommendations.

Metal conditioners and conversion coatings are not recommended for weld areas. See **9.2**.

Metal conditioners and conversion coatings are not recommended for application inside enclosed areas after assembly. See **9.3**.

9.2 Treatment Of Weld Areas

To treat weld areas:

1. Clean mating surfaces and inside sections of enclosed parts with the proper surface cleaner.
2. Use a stainless steel brush, designated for use on aluminum only, to remove aluminum oxide from the weld locations.

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9. Repair Procedure (cont'd)

- 3. After welding, remove all welding residue. A plastic abrasive or captive sandblaster is recommended for cleaning weld areas.
- 4. Dress exposed welds on cosmetic surfaces. Do not reduce the thickness of the surrounding metal.
- 5. Apply a self-etching, wash, or epoxy primer.
- 6. Treat exposed seams. See **9.4**.
- 7. Apply topcoat to cosmetic surfaces to restore appearance.

9.3 Treatment Of Enclosed Parts

To treat enclosed parts, such as rails, rocker panels, and pillars:

- 1. Clean the panels with the proper surface cleaner before assembly.
- 2. Apply metal conditioner and conversion coating before assembly. Do not use these materials in weld areas or areas where acids cannot be rinsed away or neutralized. Metal conditioner and conversion coating may not be necessary with some primers. Follow the paint maker's recommendations.
- 3. Prepare the weld surfaces. See **9.2**.
- 4. Set the spray pattern and pressure so that the material can be applied to the entire length of the enclosed part.
- 5. Apply corrosion resistant primer inside the enclosed area. Use a wand to cover all areas completely.
- 6. Clear all drain holes after application.
- 7. Treat exposed seams. See **9.4**.
- 8. Apply an anti-corrosion compound. See **9.5**.

9.4 Treatment Of Exposed Seams

To treat exposed seams:

- 1. Thoroughly clean the joint areas.
- 2. Apply corrosion-resistant primer to the joint areas and allow to dry. Follow the product maker's recommendations.
- 3. Apply an appropriate seam sealer to the exposed seams. See **4.3**. Follow the vehicle maker's recommendations.
- 4. Apply primer over the seam sealer, if required by the product maker.
- 5. Apply topcoat to the exposed areas.

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9. Repair Procedure (cont'd)

9.5 Application Of Anti-Corrosion Compounds

To apply anti-corrosion compounds:

- 1. Adjust the spray pattern and pressure on the spray system for the type of anti-corrosion compound that will be applied.
- 2. Apply anti-corrosion compound to enclosed interior surfaces and underbody areas. Apply the material by making slow, even passes along the surface. Use the same access locations used for applying primer. The entire surface must be covered with a continuous film.
- 3. Repair any other damage to the existing corrosion-protection coatings.
- 4. Install required sound-deadening materials, following the vehicle maker's recommendations.



10. Use Of Recycled (Salvage) Parts

Does not apply.



11. Inspection And Testing

11.1 Inspection Of Repaired Areas

Inspect repaired areas for these conditions:

- no dissimilar metals in contact
- proper use and application of low-carbon, or non-conductive grommets, adhesives, seals, etc.
- restoration of corrosion protection in areas where clamping and anchoring devices were installed, and where metal working was performed.
- no signs of corrosion
- complete and even coverage of coatings
- no overspray on mechanical or electrical parts, or cosmetic surfaces
- proper application of sound-deadening materials
- proper dressing of welds
- complete sealing
- coated wand-access holes
- open drain holes