



RF01S

Surface Preparation

**Uniform
Procedures For
Collision Repair
UPCR**

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v.4.0



1. Description

This procedure describes methods for preparing repaired or replaced steel parts for refinishing. Inspection and evaluation requirements are also included.



2. Purpose

The purpose of this procedure is to provide industry-accepted requirements for performing high-quality surface preparation of steel parts. 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
- RF11 Masking
- RF21 Finish Removal
- RF81 Finish Defects

3.2 Other Information

- Equipment-specific information
- Product-specific information
- Vehicle-specific repair information



4. Equipment And Material Requirements

4.1 Equipment

The use of this equipment is included in this procedure:

- vacuum sanding system
- dual-action (DA) sanders
- paint thickness gauge
- spray gun system
- appropriate spray facility

4.2 Materials

The use of these materials is included in this procedure:

- conversion coating
- metal conditioner
- wax and grease remover
- primer-sealer
- primer-surfacer
- epoxy primer
- self-etching primer
- wash primer
- pH-neutral soap and water

Use only one product system throughout the refinishing process.



5. Damage Analysis

5.1 General Damage

To obtain proper adhesion and prevent bridging of the paint film, some parts may have to be lifted or removed in the area to be refinished.

5.2 Substrate Condition

Substrate condition information is in **RF81**.

5.3 Film Thickness

Check the paint film thickness in the repair areas with a paint thickness gauge. If the average thickness exceeds 250 microns (10 mils), plan to sand, media blast, or use chemicals to remove the excess finish, to allow refinishing without exceeding the paint maker's film thickness recommendations. All remaining substrates must be in good condition.



6. Personnel Safety

6.1 General Safety

General safety information is in **PS01**.

6.2 Safety With Finishing Materials

To prevent injury when working with finishing materials:

- Wear the proper NIOSH-approved respirator. A properly fitted, positive-pressure, fresh air-supplied respirator is required when working with materials that contain isocyanates.
- Wear solvent-resistant gloves and a paint suit to avoid skin contact with solvents or vapors.
- Wear eye protection when mixing or applying paint materials.
- Do not eat, drink, or smoke in the work area.
- Do not store flammable materials near heat or ignition sources.
- Do not use thinner, gasoline, or other solvents to clean hands, etc.
- Work in a well-ventilated area.
- Wash hands after handling materials.

6.3 Safety When Machine Sanding

To prevent injury when machine sanding:

- Wear protective clothing, goggles, gloves, and a NIOSH-approved particle respirator or dust mask.
- Work in a well-ventilated and well-lighted area.
- Direct the dust away from the face and toward the floor.
- Be aware of the air hose or electrical cord location at all times.
- Do not stand in water.
- Be aware of sharp edges on new sheet metal.
- Use vacuum sanding equipment, when available.



7. Environmental Safety

7.1 Hazardous Materials

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

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7. Environmental Safety (cont'd)

7.2 Finishing Materials

These refinishing materials may be considered hazardous waste and should be disposed of following environmental regulations:

- cloth and paper wiping rags that contain finishing materials
- masking containing overspray, including liquid masking
- paints and other coating materials
- containers with residues
- solvents, such as spray gun cleaning solvents
- spray area filters, when filled with overspray
- sanding dust and sludge

7.3 Volatile Organic Compounds (VOCs)

To limit the release of VOCs:

- Use high-transfer spray equipment.
- Use enclosed spray gun cleaners.
- Use low-VOC paint and cleaning products.
- Secure and close all containers when not in use.

In addition, follow any record-keeping requirements and other local VOC regulations.



8. Vehicle Protection

8.1 Adjacent Areas

Protect adjacent areas while preparing a substrate for refinishing. See **RF11**.

8.2 Machine Sanding

To protect the vehicle when machine sanding:

- Keep the sander moving on the surface.
- Keep the sander flat on large panels or surfaces.
- Remove dirt caught between the finish and the sandpaper.
- Do not machine sand too close to trim and moldings.
- Do not machine sand style lines or panel edges.
- Protect or remove trim, decals, glass, and emblems. See **RF11**.
- Do not remove body filler.
- Avoid removing any zinc coating.
- Use vacuum sanding equipment, when available.
- Immediately protect any bare metal from flash corrosion. See **9.4**.



9. Repair Procedure

9.1 Surface Cleaning

To clean the repair area before sanding:

- 1. Wash the repair area with a pH-neutral soap and water. Rinse and wipe dry.
- 2. Clean the repair area with the proper wax and grease remover, as recommended by the paint maker.

9.2 Surface Preparation

To prepare the repair area:

- 1. Remove or lift exterior trim, hardware, stripes, decals, etc. from the repair area, as necessary to obtain proper adhesion and prevent bridging.
- 2. Protect any areas that should not be sanded.
- 3. Choose a sanding method and grit for the surface. Follow the paint and abrasive product makers' recommendations.
- 4. Sand the surface, keeping the repair area as small as possible.
- 5. Change to progressively finer grits to remove any sandscratches.
- 6. Perform a solvent test to identify sensitive substrates. See **9.3**.

9.3 Solvent Test

To perform a solvent test:

- 1. Wet a cloth with a strong, slow solvent.
- 2. Hold the cloth on a featheredged area for 30–60 seconds. On a new part, hold the cloth on a primed area.
- 3. Check the cloth for material transfer.
- 4. Check the substrate layers for softness.
- 5. If there is material transfer or the substrates are soft, correct the condition, as recommended by the paint and vehicle makers.
- 6. If the substrates are sound, metal-treat any bare spots and apply undercoats. On a new part, scuff-sand the entire part before applying undercoats. See **9.4** and **9.5**.

9.4 Metal Treatment

Immediately treat bare metal surfaces to protect them from flash corrosion. To treat bare metal surfaces:

- 1. Clean the repair area with the proper wax and grease remover, as recommended by the paint maker.

Note: If a self-etching, epoxy, or wash primer that does not require a metal conditioner or conversion coating will be used, go to **9.5**.

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9. Repair Procedure (cont'd)

- 2. Apply metal conditioner and conversion coating, as required. Follow the paint maker's recommendations.
- 3. Apply undercoats.

9.5 Applying Undercoats

To apply undercoats:

- 1. Mask adjacent areas to protect the vehicle from overspray.
- 2. Thoroughly clean the surface, following the paint or vehicle maker's recommendations.
- 3. Apply the proper primer, following the paint or vehicle maker's recommendations.
- 4. Reprime if further surface leveling is necessary.
- 5. Sand the repair area and prepare blend areas, following the paint and vehicle makers' recommendations.
- 6. Remove and replace all contaminated masking materials before applying final topcoats.
- 7. Proceed with the finish application.

9.6 Preparing A New Part

To prepare a new part for finishing:

- 1. Wash the part with a pH-neutral soap and water. Rinse and wipe dry.
- 2. Clean the part with the proper wax and grease remover as recommended by the paint maker.
- 3. If the part is not primed, apply metal treatment and undercoats, following the paint, vehicle, or part maker's recommendations. See **9.4** and **9.5**.
- 4. If the part is primed, perform a solvent test, following the paint, vehicle, or part maker's recommendations. See **9.3**.



10. Use Of Recycled (Salvage) Parts

10.1 Condition Of Salvage Parts

Inspect the finish on salvage parts for these defects:

- surface defects
- unsound paint film
- film thickness greater than 250 microns (10 mils)
- improper previous repairs or refinishing

Prepare the part for refinishing. See **9.1**. If the finish must be removed, see **RF21**.



11. Inspection And Testing

11.1 Inspection Of Prepared Areas

Inspect prepared areas for these conditions:

- removal or lifting of all tight fitting parts that would result in the bridging of the paint film
- smooth and level primed surfaces
- proper preparation of the surrounding areas to be refinished
- clean surface
- proper sanding