

METAL REPAIR AND PAINTING 3B

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METAL REPAIR

The information contained herein provides instructions for bulge, crease and dent repair. The terms are defined as follows:

- **Bulge**—An impression in the metal from inside to outside.
- **Crease**—A depression in the metal up to 1/2-inch to 2 inches long or longer.
- **Dent**—A depression in the metal larger than 1/4-inch by 1/4-inch.

(1) Wash damaged area with mild detergent and water to remove dirt.

(2) Clean repair area using wax and silicone remover, such as DuPont Prep-Sol, Ditzler Acryli-Clean, or equivalent.

(3) Use a grinder to remove paint and to outline damaged area.

(a) Use a grade 24 disc for initial grinding.

(b) Follow up with a grade 50 disc to prevent coarse scratches from showing up in final finish.

(4) A bulge may require application of heat to shrink metal.

(a) Heat metal bulge with an oxygen-acetylene torch and immediately upset bulge area with a hammer and dolly.

(b) Do not attempt to hammer bulge below original contour completely while metal is hot or metal will be overshrunk.

(5) To restore contour of a bulge, crease or dent after straightening and grinding, apply plastic body filler, such as DuPont Polyester Autobody Filler, Ditzler "999" Body Filler, 3M Plastic Filler, or equivalent. For best results, mix plastic body filler and hardener according to manufacturer's instructions.

(6) Apply plastic filler with a plastic spreader. Use firm pressure to aid in removing air bubbles which will show up as pinholes.

(7) Use an air file or hand file board for shaping of plastic filler.

(a) For initial shaping of plastic filler, use a grade 36 paper.

(b) For final shaping and sanding contours in plastic filler, use a grade 40 paper.

(8) Featheredge paint into bare metal area as described in following steps.

(a) For rough featheredging, use a grade 80 disc on a random disc sander.

(b) For final featheredging, use grade 180 disc on random disc sander or 220 grade paper on a hand sanding block.

PAINT REPAIR WITH ACRYLIC ENAMEL

Recent advancements in acrylic enamels have produced a repair procedure which can be used to effectively spot repair a panel or an area where panels join. This procedure should be used only on secondary surfaces of the vehicle (all surfaces below the level of the top of the wheel openings). If repair of a panel requires more than one-half the total panel area, the entire panel should be refinished.

(1) Using a mild detergent and water, wash complete panel and rinse thoroughly.

(2) Clean repair area with a wax and silicone remover, such as DuPont Prep-Sol, Ditzler Acryli-Clean, or equivalent.

(3) Remove loose paint and rust with body grinder. Featheredge area with sandpaper.

(4) Apply metal conditioner, following manufacturer's instructions.

(5) Wash area to be painted.

(6) Mask area to be painted.

(7) If bare metal is showing through paint in repair area, use following steps to prime area.

(a) Apply metal conditioner to bare metal according to manufacturer's instructions.

(b) Mix primer following manufacturer's instructions.

(c) Apply primer and allow to air dry.

(d) Remove masking and wet sand repair area.

(e) If scratches or pin holes appear in surface, apply glazing putty according to manufacturer's instructions.

(f) After glazing putty dries, wet sand and clean area. Apply final coat of primer and allow to air dry.

(g) Wet sand and clean area with an after-sanding cleaner.

(8) Mask area to be painted.

(9) Mix acrylic enamel color using a paint shaker and following manufacturer's mixing instructions.

(10) Adjust air pressure at air regulator to obtain 40 psi at spray gun and spray test panel. Adjust gun to obtain desired pattern.

(11) Apply one medium color coat to primed area and allow paint to set up for 25 minutes.

(12) Apply two or more medium color coats. Overlap edges of each coat to produce a tapered edge. Allow each coat to flash completely.

(13) Adjust air pressure at air regulator to obtain 70 psi at spray gun and spray test panel. Adjust gun as necessary to obtain desired pattern and color match.

(14) Spray one full wet color coat over entire repair area. Overlap edges of previous coat.

(15) Empty gun and fill cup with enamel reducer. Reduce air pressure at air regulator to obtain 20 psi at spray gun.

(16) Spray blend-coat over edges of old and new paint.

(17) Spray one or two medium coats over entire area.

(18) Remove all masking when paint has tacked up.

NOTE: *If a haze appears over repair area after it has dried, rub area lightly with liquid polishing compound.*

FINISHING METAL REPLACEMENT PARTS

Metal body service replacement panels or assemblies are painted with a black factory primer. For proper adhesion of acrylic enamel color coats in service, the following refinish steps are necessary.

(1) Wash part with paint finish cleaning solvent, such as DuPont Prep-Sol, Ditzler Acryli-Clean, or equivalent.

(2) Scuff sand part with 360 grade dry sandpaper. Avoid cutting through and rewash part.

(3) Mix primer/sealer following manufacturer's instructions.

(4) Apply primer/sealer and allow to air dry.

(5) Wet sand smooth and clean with after sanding cleaner.

Painting Tips

- Use only one brand of refinish materials on each repair.
- Follow manufacturing instruction for use of refinish materials.
- Use recommended reducer according to shop temperature and humidity conditions.
- Mix paint thoroughly.
- Spray a test panel and adjust gun to obtain desired color before attempting to spray vehicle.
- When matching colors:
 - A given color can be darkened by:
 1. decreasing air pressure
 2. increasing fluid setting on gun
 3. moving gun closer to surface
 - A given color can be lightened by:
 1. increasing air pressure
 2. decreasing fluid setting on gun
 3. moving gun farther from surface

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Metallic Color Guide

To Lighten a Metallic Color:

- Use a Fast-Drying Thinner
- Add More Reducer
- Raise Air-Pressure
- Apply Dryer Coats
- Wait Longer Between Coats
- Mist Coat
- Adjust Fluid Valve on Gun (Close)
- Adjust Air Valve on Gun (Open)
- Hold Gun Further From the Surface

To Darken a Metallic Color:

- Use a Slow-Drying Thinner
- Use Less Reducer than Normal
- Lower Air-Pressure
- Apply Wetter Coats
- Allow Less Waiting Time Between Coats
- Use Retarder in Paint
- Open Fluid Adjustment on Gun
- Close Air Adjustment on Gun
- Hold Gun Closer to the Surface

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(6) Apply acrylic enamel color coats as required.

(7) If part is a replacement fender, perform additional following steps:

(a) Clean inside of replacement fender and allow to dry.

(b) Apply 1/8-inch thick film of spray undercoating, using 3M Body Schutz Rubberized Coating (or equivalent) and 3M Applicator Gun (or equivalent), or a double coat of air-dry acrylic enamel to entire inside surface of fender.

FINISHING PLASTIC TRIM PARTS

General

Paintable plastic interior trim parts can be divided into three general types:

- Polypropylene plastic (Rigid)
- ABS plastic (Rigid)
- Vinyl plastic (Flexible)

It is important to be able to identify each plastic in order to paint it satisfactorily.

The purpose of the following test is to determine the identity of a given plastic so that proper paint procedures and materials can be used.

Test for Polypropylene and ABS Plastic

To determine if a service part to be painted is Polypropylene or ABS plastic, perform the following burn test:

(1) From hidden backside of part, remove a sliver of plastic with a sharp knife.

(2) Hold sliver of plastic with needlenose pliers and ignite plastic.

(3) Observe burning plastic closely.

(a) Polypropylene burns with a clear blue flame which has a yellow tip and no readily visible smoke. When extinguished, it gives off a white smoke with a odor of paraffin.

(b) ABS plastic burns with an orange flame and readily visible black, sooty smoke which hangs temporarily in air.

Test for Vinyl Plastic

To determine if a part to be painted is vinyl plastic, a copper wire test may be performed as follows:

(1) Heat a copper wire in a suitable flame such as a propane torch until wire glows (red).

(2) Touch heated wire to backside or hidden surface of part being tested in a manner so as to retain some of plastic material on wire.

(3) Return wire and retained plastic to flame and observe for a green turquoise blue flame. A flame in this color range indicates that plastic being tested is vinyl.

Procedure for Painting Rigid Polypropylene Plastic Parts

The system for painting polypropylene parts involves the use of a special primer. Since polypropylene plastic is rigid, it can be color coated after prime with appropriate Jeep color interior spray paint (plastic and vinyl) or equivalent.

CAUTION: *It is essential that the service part be primed first with a coating of Jeep 8993626 polypropylene primer (or equivalent) according to the instructions. Failure to use the required primer as directed will result in the color coat lifting or peeling.*

(1) Wash part thoroughly with paint finish cleaning solvent, such as DuPont Prep-Sol, Ditzler Acryli-Clean, or equivalent.

(2) Apply a thin, wet coat of polypropylene primer according to instructions on label. Wetness of primer is determined best by observing gloss reflection of spray application in adequate lighting. Be sure primer application includes all edges.

(3) Allow primer to flash completely.

(4) Apply appropriate color coat of interior spray paint and allow to air dry before installing part.

Procedure for Painting Rigid ABS Plastic Parts

Rigid ABS plastic requires no primer. Jeep color interior spray paint (plastic and vinyl) or equivalent will adhere satisfactorily to rigid ABS plastics.

(1) Wash part thoroughly with a paint finish cleaning solvent, such as DuPont Prep-Sol, Ditzler Acryli-Clean, or equivalent.

(2) Color coat part using appropriate Jeep color interior spray paint (plastic and vinyl) or equivalent.

(3) Allow to dry and then install part.

NOTE: *Apply only sufficient color for proper hiding to avoid washout of grain effect.*

Procedure for Painting Flexible Vinyl Plastic Parts

The paint system for flexible vinyl plastic involves the use of Jeep interior spray paint (plastic and vinyl) or equivalent.

NOTE: *No special primer is required when painting flexible vinyl plastic parts.*

(1) Wash part thoroughly with a vinyl cleaner. Wipe off cleaner while still wet with a clean, lint-free cloth.

(2) Immediately after wiping surface dry, apply appropriate Jeep color interior spray paint (plastic and vinyl) or equivalent in wet coats allowing sufficient flash time between coats.

(3) Allow to dry completely before installing part.

NOTE: *Apply only sufficient color for proper hiding to avoid washout of grain effect.*