Troubleshooting

1. Acid Rain – spotting, pitting, acid marks

Description

- Discolored spots in the pigment of the topcoat. Clearcoat losing transparency and/or gloss. Etching marks visible.

Causes/Origin

- Acid rain is the general term given to rain containing effluents from manufacturing, chemical industries and power stations. Some of the effluents may be acidic or alkaline in the presence of water (e.g., sulfur dioxide will dissolve in water to give an acidic solution, while a mixture of cement dust and water is strongly alkaline).

Prevention

- Avoid contaminated atmosphere, or wash surface with detergent and water as soon as possible after exposure.
- Frequent washing is the best safeguard against unseen contaminants.
- Maintain and protect the topcoat of the vehicle using a non-silicone containing polish or wax.
- Thorough cleaning of the vehicle before refinishing.

Solution

- Wash the vehicle very carefully with detergent and water using a brush and lots of water. Rub affected areas with rubbing compound and polish. In severe cases, sand the areas needed and be sure the craters are sanded away completely before refinishing.

Produced Due To/Or During

- Others: pollution – proximity of factories and power stations.

2. Bleeding – staining

Description

- Original finish discoloring, or color seeping through the new topcoat color.

Causes/Origin

- Reaction of pigments from the original finish with solvents of the coat which has been applied on top.
- Contamination – usually in the form of soluble dyes or pigments on the older finish before it was repainted. (This is especially true with older shades of red.)
- Old finish not well sealed.
- Use of too much hardener in the polyester putty.

Prevention

- Test old finish by applying a coat of the color on a small area. If bleeding is likely to occur, apply sealer.
- Use only the recommended quantity of hardener when mixing the polyester putty.

Solution

- Sand, isolate the original finish with sealer, and reapply the topcoat.

Produced Due To/Or During

- Application.
- Surface preparation.

3. Blistering – bubbling, bubbles

Description

- Bubbles or pimples appearing in the topcoat film, during or after application.

Causes/Origin

- Improper surface cleaning or preparation. Tiny specks of dirt or oil left on the surface can act as a sponge and hold moisture. When the finish is exposed to the sun (or abrupt changes in atmospheric pressure), moisture expands and pressure builds up. If the pressure is great enough, blisters form.
- Wrong thinner, reducer or Basemaker®. Use of a fast-dry thinner, reducer or Basemaker®, especially when the material is sprayed too dry or at an excessive pressure. Air or moisture can be trapped in the film.
- Excessive film thickness. Insufficient drying time between coats or too heavy an application of the undercoats may trap solvents, which escape later and blister the color coat.
- Contamination of compressed air lines. Oil, water or dirt in lines.
- Wet sanding polyester and applying topcoat without enough time for the water to evaporate.
- Incompatibility of materials.

Prevention

- Thoroughly clean areas to be painted before sanding. Be sure surface is completely dry before applying either undercoats or topcoats. Do not touch a cleaned area, as the oils in your hands will contaminate the surface.
- Select the thinner, reducer or Basemaker® most suitable for existing shop conditions.
- Allow proper drying time for undercoats and topcoats. Be sure to let each coat flash before applying the next.
- Drain and clean air pressure regulator daily to remove trapped moisture and dirt. Air compressor tank should also be drained daily.
- Clean substrate carefully.

Solution

- If damage is extensive and severe, paint must be removed down to undercoat or metal, depending on depth of blisters. Then refinish. In less severe cases, blisters may be sanded out, resurfaced and retopcoated.

Produced Due To/Or During

- Application/use/preparation of product.
- Maintenance of equipment.
- Cleaning.

4. Chipping

Description

- Small chips of a finish losing adhesion to the substrate – usually caused by impact of stones or hard objects. While the refinisher has no control over local road conditions – and thus cannot prevent such occurrences – you can take steps to minimize their effect if you know beforehand that these conditions will exist.

Solution

- For details on the causes, prevention and solution of “Chipping,” see “Peeling.” If you take these steps to do the right job, you can help to minimize “Chipping” complaints.

5. Color Match – wrong color, off shade, mismatch, fading, off color

Description

- The color of the repaired part is different from the color originally applied on the car.

Causes/Origin

- The recommended formula was not used.
- Incorrect gun-setting and pressure.
- The original finish has faded or changed due to weathering exposure.
- Wrong application technique (especially applicable to metallics).
- The color was not well stirred.

Prevention

- Use the right formula.
- Stir colors thoroughly.
- Use an Alternate Deck to select the correct match to the OEM color.
- Polish adjacent panels to check the color.
- If necessary, follow the instructions of Shading Tips or Spectrum Shading Guide to match the old finish color.
- Use the spray technique which better adapts to the required color matching.
- Make a test on a small panel before you start painting the vehicle.

Solution

- Sand and respray the color after having chosen the right formula or tinting to match.

Produced Due To/Or During

- Use/preparation of product.
- Application.

6. Corrision – rust, rusting

Description

- The metal surface is visible with corrosion spots (brownish red for steel, and white for aluminum).

Causes/Origin

- The surface of the metal was contaminated (finger marks, water, etc.) before application.
- Paint removed by chipping, scratches, etc.
- Inadequate pretreatment of the metal surfaces.
- Rust was not completely removed before refinishing.
- Destruction of paint film by contamination.

Prevention

- Treat metals with correct metal treatment and wash primers.
- Repair all chips, scratches and damage before rust commences to develop.
- Clean the vehicle thoroughly before painting.
- Residue of water from sanding should be wiped off.

Solution

- Paint has to be stripped/sanded to bare metal. Use metal conditioner and a phosphoric acid wash primer (etch-primer), and then repaint.

Produced Due To/Or During

- Use/preparation of products.
- Cleaning.
- Surface preparation.

7. Cracking – splitting, shrinking

Description

- A series of deep cracks resembling mud cracks in a dry pond. Often in the form of three-legged stars and in no definite pattern, they are usually in the color coat and sometimes the undercoat as well.

Causes/Origin

- Excessive film thickness. (Excessively thick topcoats magnify normal stresses and strains which can result in cracking, even under normal conditions.)
- Materials not uniformly mixed.
- Insufficient flash time.
- Incorrect use of additives.
- Surface to be applied is too hot or cold.
- Use of coats incompatible with each other.
- Omitting the activator when mixing a 2K product.

Prevention

- Do not “pile on” undercoats or topcoats. Allow sufficient flash and drying time between coats. Do not dry by fanning with compressed air from the spray gun.
- Stir all pigmented undercoats and topcoats thoroughly.
- Read and carefully follow label instructions. (Additives not specifically designed for a color coat may weaken the final paint film and make it more sensitive to cracking.)

Solution

- The affected areas must be sanded to a smooth finish, or in extreme cases removed down to the bare metal, and refinished.

Produced Due To/Or During

- Application.
- Surface preparation.
- Use/preparation of products.

8. Dirt – dirt in paint, dirt inclusions, grains, specks, grit, nibs

Description

- A surface with this defect will show particles of different sizes deposited in the primer, color or clear.

Causes/Origin

- Static charge on surface of vehicle. This condition attracts dust.
- Dust and dirt from dry sanding, cloths, etc.
- Use of poor quality masking paper.
- Tack rag was not used before spraying, or not immediately before.
- Inadequate filtration of air.
- Dry spray dust settling on wet paint.
- Paint kept in dirty containers/tins.
- Paint was not strained.
- Operator's clothing bearing dirt, fibers and dust.
- Paint has exceeded shelf life.
- Inadequate filtration of compressed air.
- Activator or solvents used were incorrect.
- The car was not thoroughly cleaned.
- Tints/pigments were not sufficiently stirred.
- Spray dust accumulated on spray booth surfaces/walls.
- Use of 2K materials after the recommended pot life.

Prevention

- Use anti-static fluid or attach the vehicle to electrical ground.
- Keep body shop as clean as possible. Always keep spray booth doors closed. Maintain proper air flow pattern in spray booth, and replace filters when necessary. Wet floor and wall if necessary.
- Wear special spray suits.
- Blow off all moldings, seams, etc.
- Blow the vehicle off before placing it in the spray booth.
- Use the tack rag immediately before applying each coat.
- Careful maintenance of equipment.
- Follow the recommendations (pressure, solvents, etc.) to avoid overspray.
- Clean the vehicle before starting the repair.
- Mix the color thoroughly, after sufficient stirring of tints.
- Do not exceed the recommended pot life of 2K materials.
- Use a fine strainer.

Solution

- Allow the finish to harden completely, fine sand and polish.
- If the defect is severe, sand and respray.

Produced Due To/Or During

- Use/preparation of products.
- Cleaning.
- Maintenance of equipment.

9. Dissolution – flake protrusion, strike-in, mottling

Description

- Metallic particles from the basecoat surface in the clearcoat. If severe, the effect can alter the tone and exaggerate the metallic appearance. (See "Mottling.")

Causes/Origin

- Tack rag was not used before applying the clearcoat.
- Basecoat and clearcoat are incompatible.
- Clearcoat was applied with insufficient flash of the basecoat, or was applied too wet.
- Air pressure was too high.
- Wrong thinner or Basemaker®.
- A coat of basecoat was too dry when the next was applied.

Prevention

- Use tack rag if possible.
- Use recommended products only, with recommended air pressure.
- Allow adequate flash of the basecoat before applying the clear.
- Use the technique that the process requires.
- Use recommended thinner, reducer or Basemaker®.

Solution

- Sanding and respray are necessary if the defect is severe.

Produced Due To/Or During

- Use/preparation of products.
- Application.

10. Dry Spray

Description

- Granular texture, generally with no gloss at all. This defect is normally limited to small areas.

Causes/Origin

- Incorrect viscosity.
- Wrong thinner/too cheap/too fast.
- Spraying too fast.
- Air pressure too high.
- Spray gun too far from surface while applying.
- Lack of solvent.
- Inadequate gun setting.

Prevention

- Use only recommended thinner, reducer or Basemaker®.
- Adjust gun setups, spray pattern, fluid feed.
- Use recommended air pressure.

Solution

- Allow the paint to dry and then sand. After sanding, and depending on the magnitude of the defect, respraying or polishing will be necessary.

Produced Due To/Or During

- Application.
- Use/preparation of products.

11. Featheredge Splitting

Description

- Appears as swelling (or cracking) along the featheredge. Occurs during or shortly after the topcoat is applied over primer-surfacer. Sometimes may take several days to appear.

Causes/Origin

- Improperly prepared featheredge because too coarse a grit sandpaper was used, and/or tapered edge was not carried out far enough.
- "Piling on" the undercoat in heavy and wet coats. (Solvent is trapped in undercoat layers which have not had sufficient time to set up.)
- Material not uniformly mixed.
- Wrong thinner, reducer or Basemaker®.
- Improper surface cleaning or preparation. (When not properly cleaned, primer-surfacer coats may crawl or draw away from the edge because of poor wetting and adhesion.)
- Improper drying. (Fanning with a spray gun after the primer-surfacer is applied will result in drying the surface before solvent or air from the lower layers is released.)
- Weak substrate: may be defined as under-cured. Suspect adhesion within the different layers of the finish, often identified by difficulty in achieving a proper featheredge.
- Excessive use (and film build) of putty.

Prevention

- Apply properly reduced primer-surfacer in thin to medium coats with enough time between coats to allow solvents and air to escape.
- Stir all pigmented undercoats and topcoats thoroughly.
- Select only thinners that are recommended for existing shop conditions.
- Thoroughly clean areas to be painted before sanding.
- Putty should be limited to filling minor imperfections. Putty applied too heavily (or too thick) will eventually shrink, causing featheredge splitting.
- A weak substrate may require two applications of primer (i.e., prime/block/prime/sand).

Solution

- Remove finish from the affected areas and refinish.

Produced Due To/Or During

- Application.
- Preparation/use of product.

12. Fish Eyes – silicones, poor wetting, saucering, pits, craters

Description

- Small, crater-like openings in the finish after it has been applied.

Causes/Origin

- Improper surface cleaning or preparation. (Many waxes and polishes contain silicone, the most common cause of fish eyes. Silicones adhere firmly to the paint film and require extra effort for removal. Even small quantities in sanding dust, rags, or from cars being polished nearby can cause this failure.)
- Effects of the old finish or previous repair. (Old finish or previous repair may contain excessive amounts of silicone from additives used during their application. Usually solvent wiping will not remove embedded silicone.)
- Contamination of air lines, by water or oil.
- Airborne contaminants.

Prevention

- Precautions should be taken to remove all traces of silicone by thoroughly cleaning with Prep-Sol® 3919S or Prep-Sol® II 3929S. (The use of Fish Eye Eliminator is in no way a replacement for good surface preparation.)
- Add Fish Eye Eliminator 259S or 459S for higher solids materials.
- Drain and clean air pressure regulator daily to remove trapped moisture and dirt. Air compressor tank should also be drained daily.

Solution

- After affected coat has set up, apply another double coat of color containing the recommended amount of Fish Eye Eliminator. In severe cases, affected areas should be sanded down and refinished.

Produced Due To/Or During

- Maintenance of equipment.
- Surface preparation/cleaning.

13. Flexibility – peeling, loss of adhesion, shelling, poor bond, flaking

Description

- Cracking and/or loss of adhesion between paint and plastic part.

Causes/Origin

- Improper cleaning or preparation. Failure to remove mold-release compound.
- Improper treatment.
- Wrong identification of substrate, resulting in the use of an incorrect plastic primer.
- Failure to use proper/recommended topcoat system with flexible additives.

Prevention

- Identify the type of plastic substrate and follow recommended paint system for that specific type of substrate.
- Thoroughly clean substrate to be painted, using recommended system.
- Use correct and recommended treatment for type of substrate.
- Use recommended sealer/primer using the correct mix ratio of recommended activator, flexible additive and solvent.
- Apply sealer/primer to recommended film build using recommended viscosity.
- Use topcoat as recommended for type of plastic substrate to be painted. Follow correct mix ratio for topcoats and clearcoats using activator, flexible additive and solvents.

Solution

- Remove all finish from substrate and repaint using recommended preparation and paint system for type of plastic substrate to be painted.

Produced Due To/Or During

- Cleaning.
- Surface preparation.
- Wrong process use/preparation of product application.

14. Lifting – raising, wrinkling, distortion, microwrinkling

Description

- Surface distortion or wrinkling, while the topcoat is being applied or while drying.

Causes/Origin

- Use of incompatible materials. (Solvents in new topcoat attack old surface, which results in a distorted or wrinkled effect.)
- Insufficient flash time. (Lifting will occur when the paint film is an alkyd enamel and is only partially cured. The solvents from the coat being applied cause localized swelling or partial dissolving, which later distorts the final surface.)
- Improper dry. (When synthetic enamel-type undercoats are not thoroughly dry, topcoating with lacquer can result in lifting.)
- Effect of old finish or previous repair. (Lacquer applied over a fresh air-dry enamel finish will cause lifting.)
- Improper surface cleaning or preparation. (Use of an enamel-type primer or sealer over an original lacquer finish which is to be topcoated with a lacquer will result in lifting due to a sandwich effect.)
- Wrong thinner, reducer or Basemaker®. (The use of lacquer thinners in enamel increases the amount of substrate swelling and distortion which can lead to lifting, particularly when two-toning or recoating.)
- Application of coats too heavily.
- Solvent attack or different state of cure of the two layers.

Prevention

- Avoid incompatible materials such as a thinner with enamel products, or incompatible sealers and primers.
- Do not “pile on” topcoats. Allow sufficient flash and dry time. Final topcoat should be applied when the previous coat is still soluble or after it has completely dried and is impervious to topcoat solvents.
- Select thinner, reducer or Basemaker® that is correct for the finish applied and suitable for existing shop conditions.
- Follow recommended flash times for all products being used, in order to avoid any cure “windows.”

Solution

- Remove finish from affected areas and refinish.
- In very severe cases, the whole paint system has to be removed and the surface (bare metal) refinished.

Produced Due To/Or During

- Surface preparation.
- Use/preparation of product.
- Drying.
- Application.
- Not enough cleaning.

15. Mottling – shadowing, flooding, floating, misting

Description

- Occurs only in metallics, when the flakes float together to form a spotty, striped, or salt and pepper appearance.

Causes/Origin

- Wrong thinner, reducer or Basemaker®.
- Materials not uniformly mixed.
- Spraying too wet.
- Holding spray gun too close to work.
- Uneven spray pattern.
- Low shop temperature.
- The flash of the basecoat was too short before the clearcoat was applied.
- Coat affected by wet or humid air/weather.
- Coat too heavy.
- Improper equipment or gun setups.
- Color formula not properly mixed.

Prevention

- Select the thinner, reducer or Basemaker® that is suitable for existing shop conditions and mix properly. (In cold, damp weather use a faster-dry solvent.)
- Stir all pigmented topcoats, especially metallics, thoroughly.
- Use proper gun adjustments, techniques and air pressure.
- Keep your spray gun clean (especially the needle fluid tip and air cup) and in good working condition.
- Do not spray the metallic basecoat too wet.
- Follow color formula exactly. Omitting ingredients, such as flake control additives or binders, can cause severe mottling.

Solution

- Allow color coat to set up and apply a dry double-coat or two single coats, depending upon which topcoat you are applying.
- If the defect is only visible after the application of the clear, dry the clear, sand it, and reapply basecoat and clearcoat.

Produced Due To/Or During

- Preparation of product.
- Application.
- Humidity.
- Temperature.

16. Orange Peel – poor flow, poor leveling, pebbling

Description

- Uneven surface formation – much like that of the skin of an orange – which results from poor coalescence of atomized paint droplets. Paint droplets dry out before they can flow out and level smoothly together.

Causes/Origin

- Improper gun adjustment and techniques. (Too little air pressure, wide fan patterns, or spraying at excessive gun distances causes droplets to become too dry during their travel time to the work surface, and they remain as formed by the gun nozzle.)
- Extreme shop temperature. (When air temperature is too high, droplets lose more solvent and dry out before they can flow and level properly.)
- Improper dry. (Gun fanning before paint droplets have a chance to flow together will cause orange peel.)
- Improper flash or recoat time between coats. (If first coats of enamel are allowed to become too dry, solvent in the paint droplets of following coats will be absorbed into the first coat before proper flow is achieved.)
- Wrong thinner, reducer or Basemaker®. (Under-diluted paint or paint thinned with fast evaporating solvents cause the atomized droplets to become too dry before reaching the surface.) Viscosity too high.
- Too little thinner or reducer.
- Materials not uniformly mixed. (Many finishes are formulated with components that aid coalescence. If these are not properly mixed, orange peel will result.)

Prevention

- Use proper gun adjustments, techniques and air pressure.
- Schedule painting to avoid temperature and humidity extremes. Select the thinner, reducer or Basemaker® that is suitable for existing conditions. The use of slower evaporating solvents will provide good flow and leveling of the topcoat.
- Allow sufficient flash and dry time. Do not dry by fanning.
- Allow proper drying time for undercoats and topcoats. (Not too long or not too short.)
- Reduce to recommended viscosity.
- Stir all pigmented undercoats and topcoats thoroughly.

Solution

- Compounding may help – a mild polishing compound for enamel, rubbing compound for lacquer. In extreme cases, sand to smooth surface and refinish, using a slower evaporating solvent at the correct air pressure.

Produced Due To/Or During

- Application/gun adjustment.
- Use/preparation of product.
- Others: temperature/humidity.

17. Overspray

Description

- Areas with paint particles adhering to the surface of the paint or not completely absorbed into the paint, causing reduction of the gloss.

Causes/Origin

- Excessive air pressure.
- Poor masking.
- Wet finish sprayed with dry spray dust.
- Incorrect selection of product for the size or type of repair.

Prevention

- Use correct thinner, reducer or Basemaker® for the temperature and size of the repair area.
- Mask carefully.
- Organize the sequence of application before starting to prevent dry spray on wet areas.

Solution

- Polishing will solve the problem.

Produced Due To/Or During

- Application.

18. Peeling – loss of adhesion, poor bond, delamination, flaking, poor adhesion

Description

- Loss of adhesion between paint and substrate (topcoat to primer and/or old finish, or primer to metal).

Causes/Origin

- Improper cleaning or preparation. (Failure to remove sanding dust and other surface contaminants will stop the finish coat from coming into proper contact with the substrate.)
- Improper metal treatment. Metal conditioner and/or wash primer was not used.
- Materials not uniformly mixed.
- Failure to use proper sealer.
- Paint film too thick.
- Application too wet or too dry.
- Film was too dry when the masking tape was removed.
- Flash times too short.
- Wrong process.
- Cheap thinner.
- Poor sanding.
- Surface temperature too low/too high when applying.
- Incompatible coatings.

Prevention

- Thoroughly clean areas to be painted.
- Use correct metal conditioner and conversion coating.
- Stir all pigmented undercoats and topcoats thoroughly.
- In general, sealers are recommended to improve adhesion of topcoats. In certain cases (i.e., alkyd enamels over lacquer finishes) sealers are required to prevent peeling.
- Do not apply coats that are too thick, and follow recommendations concerning flash times between coats. Be sure air flow in the paint booth is adequate.
- Sand adequately.
- Use only recommended thinner, reducer or Basemaker®.
- Apply at recommended viscosity.

Solution

- Remove finish from an area slightly larger than the affected area and refinish.

Produced Due To/Or During

- Cleaning.
- Surface preparation.
- Wrong process.
- Use/preparation of product.
- Application.

19. Pinholing – solvent retention, pock marks, pitting, pops, pin pricks

Description

- Tiny holes or groups of holes in the finish, or in putty or primer, usually the result of trapped solvents, air or moisture. Pinholes are small blisters whose surface has been broken during drying. (See "Popping.")

Causes/Origin

- Improper surface cleaning or preparation. (Moisture left on primer-surfacers will pass through the wet topcoat to cause pinholing.)
- Contamination of air lines. (Moisture or oil in air lines will enter paint while being applied and cause pinholes when released during the drying stage.)
- Wrong gun adjustment or technique. (If adjustments or techniques result in application which is too wet, or if the gun is held too close to the surface, pinholes will occur when the air or excessive solvent is released during dry.)
- Wrong thinner, reducer or Basemaker®. (The use of a solvent that is too fast for shop temperature tends to make the refinisher spray too close to the surface in order to get adequate flow. When the solvent is too slow, it is trapped by subsequent topcoats.)
- Improper drying. (Fanning a newly applied finish can drive air into the surface or cause a skin to form – both of which result in pinholing when solvents retained in lower layers come to the surface.)
- Improper application of body filler or putty.

Prevention

- Thoroughly clean all areas to be painted. Be sure surface is completely dry before applying undercoats or topcoats.
- Drain and clean air pressure regulator daily to remove trapped moisture and dirt. Air compressor tank should also be drained daily.
- Use proper gun adjustments, techniques and air pressure.
- Select the thinner, reducer or Basemaker® that is suitable for existing shop conditions. If the weather is cold or humid, heat the spray booth.
- Allow sufficient flash and dry time. Do not dry by fanning.

Solution

- Sand affected area to a smooth finish and refinish.

Produced Due To/Or During

- Surface preparation/cleaning/application.
- Maintenance of equipment.
- Use/preparation of products.

20. Poor Hiding – transparent film, poor opacity

Description

- When the primer or substrate is visible through the film of topcoat. May also appear as poor color match.

Causes/Origin

- Inadequate lighting in the spray booth.
- Color was not mixed/stirred well.
- Too much thinner was used.
- Substrate's color was not correct.
- Insufficient film thickness.

Prevention

- Use recommended thinner, reducer or Basemaker®.
- Install good lighting equipment.
- Check gun setting.
- Mix/stir all colors/tints thoroughly.
- Apply sufficient coats of color – use check/hide stickers to verify.
- Use ValueShade™ in undercoat or groundcoat.

Solution

- Allow the finish to dry, then sand and respray.

Produced Due To/Or During

- Use/preparation of product.
- Application.

21. Popping – boiling, solvent boil

Description

- Blisters on the paint surface caused by trapped solvents in the topcoats or primer-surfacer – a situation which is further aggravated by force drying or uneven heating. (See "Pinholing.")

Causes/Origin

- Improper surface cleaning or preparation.
- Wrong thinner, reducer or Basemaker®. (The use of fast-dry solvents, especially when the material is sprayed too dry or at excessive pressure, can cause solvent popping by trapping air in the film.) Thinner too cheap.
- Excessive film thickness. (Insufficient drying time between coats, and too heavy an application of the undercoats may trap solvents, causing popping of the color coat as they later escape.)
- Infrared equipment too close.
- Too low or too high air pressure.
- Baking was started too soon after application.
- Baking temperature too high.
- Purge time is too long (i.e., film begins to tack prior to heat).

Prevention

- Thoroughly clean all areas to be painted.
- Select the thinner, reducer or Basemaker® that is suitable for existing shop conditions.
- Do not "pile on" undercoats or topcoats. Allow sufficient flash time and proper drying time for undercoats and topcoats. Allow each coat of primer-surfacer to flash off naturally – do not fan.
- Follow recommended purge time, bake time and temperature.

Solution

- If damage is extensive and severe, paint must be removed down to undercoat or metal, depending on depth of pops; then refinish. In less severe cases, sand out, resurface and retopcoat.

Produced Due To/Or During

- Surface Preparation.
- Cleaning.
- Application.
- Use/preparation of product.
- Drying.

22. Runs – overloading, curtains, gun spits, sags, sagging, drips, drapes

Description

- Heavy application of sprayed material that fails to flow uniformly over the surface.

Causes/Origin

- Wrong thinner, reducer or Basemaker®.
- Too much thinner, reducer or Basemaker®.
- Lighting in the spray booth is not accurate and the painter is unable to apply correctly.
- Surface is contaminated by oil, grease, etc.
- Shop or surface too cold.
- Low air pressure (causing lack of atomization), holding gun too close, or making too slow a gun pass.
- Incorrect technique of application.
- Paint drops from the gun.
- Incorrect equipment or improper gun setups.

Prevention

- Allow vehicle surface and paint to warm up to at least 75˚F/25˚C before attempting to refinish. Maintain an appropriate shop temperature for painting areas and paint storage areas.
- Use proper gun adjustment, techniques and air pressure.
- Do not “pile on” finishes. Allow sufficient flash and drying time between coats.
- Read and carefully follow label instructions.
- Select the thinner, reducer or Basemaker® that is suitable for existing shop conditions.
- Install accurate lighting systems in the spray booth.

Solution

- Wash off the affected area or let dry until you can sand affected area to a smooth surface and refinish.
- For solid colors and clearcoats, sanding and polishing is recommended. In the case of a basecoat, refinishing after sanding is necessary.

Produced Due To/Or During

- Application.
- Use/preparation of product.
- Cleaning.
- Others: temperature.

23. Sandscratch Swelling – flatting marks, sanding marks, scratch swelling

Description

- Enlarged sandscratches caused by swelling action of topcoat solvents.

Causes/Origin

- Improper surface cleaning or preparation. (Use of too coarse a sandpaper or omitting a sealer in panel repairs greatly exaggerates swelling caused by thinner penetration.)
- Improper thinner, reducer or Basemaker® (especially a slow-dry solvent when sealer has been omitted.)
- Under-reduced or wrong thinner (too fast) used in primer-surfacer causes “bridging” of scratches.
- Primer not well dried, before application of color.
- Application of undercoat too heavy.
- Application of color when the original finish is too sensitive to paint solvents used.
- Weak substrate.

Prevention

- Use appropriate grits of sanding materials for the topcoats you are using.
- Seal to eliminate sandscratch swelling. Select thinner, reducer or Basemaker® suitable for existing shop conditions.
- Use proper thinner and reducer for primer-surfacer.
- Do not apply coats of primer too heavily.
- Use compatible paint systems.

Solution

- Sand affected area down to smooth surface and apply appropriate sealer before refinishing.

Produced Due To/Or During

- Surface preparation.
- Use/preparation of product.
- Drying.
- Application.
- Cleaning.

24. Scratches – marring

Description

- The topcoated, glossy surface has lost its gloss/DOI and has hair-fine lines/scratches overall.

Causes/Origin

- The problem is normally caused by car washing using abrasive brushes.

Prevention

- Maintain and protect the topcoat of the vehicle using a non-silicone containing polish or wax.

Solution

- Thorough polishing by machine using a good polish without silicone. In severe cases, sand and repaint.

Produced Due To/Or During

- Others: external mechanical abrasion of brushes and scrubs, removing thick layers of dirt by hand washing.

25. Slow Dry Or Cure

Description

- The paint takes too long before getting hard (i.e., slow to tack, touch, tape, dry or cure).

Causes/Origin

- Wrong activator (too little or too much).
- Heavy application.
- Thinner too slow/too cheap.
- Poor drying conditions: cool temperature (<60°F), inadequate air flow, etc.
- Insufficient flash time between coats.

Prevention

- Use recommended thinner, reducer or Basemaker®.
- Use correct mix ratios for all materials, and stir thoroughly before use.
- Apply to recommended film thickness.
- Allow enough flash time.
- Spraying and drying conditions must be improved.

Solution

- Place the vehicle in a ventilated/warm area.
- The drying process may be accelerated with the application of heat.

Produced Due To/Or During

- Use/preparation of products.
- Drying.

26. Staining Or Etching – spotting, pitting, blistering, insect marks, acid marks, bird droppings

Description

- Etching marks in the topcoat. It may show discolored spots in the pigment of the paint.

Causes/Origin

- Contamination from agricultural and horticultural sprays. The problem is seasonal/regional and affected by the bird/insect population. The organic etching is accelerated by intensified heat such as from sunlight. Time and temperature dramatically increase the concentration of acid. The damage is more visible on darker colors due to heat absorption.

Prevention

- Frequent washing is the best safeguard against unseen contamination.
- Maintain and protect the topcoat of the vehicle using a non-silicone containing polish or wax.

Solution

- Wash the vehicle very carefully with detergent and water using a brush and lots of water. Rub affected areas with rubbing compound and polish. In severe cases, sand the areas needed and be sure the craters are sanded away completely before refinishing.

Produced Due To/Or During

- Others: external contamination.

27. Water Spotting

Description

- General dulling of gloss in spots or masses of spots.

Causes/Origin

- Water evaporating on finish before it is thoroughly cured.
- Washing finish in bright sunlight.

Prevention

- Do not apply water to fresh paint job, and keep newly-finished car out of rain. Allow sufficient drying time or bake time and temperature before delivering car to customer.
- Wash car in shade and wipe completely dry. Do not allow water beads to evaporate on freshly painted surface.

Solution

- Compound or polish with rubbing or polishing compound. In severe cases, sand affected areas and refinish.

Produced Due To/Or During

- Others: post-drying defect.

Troubleshooting Index