HYUNDAI Technical Service Bulletin

Group	PAINT
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Model	ALL MODELS

Subject

PAINT EXAMINATION, REPAIR AND PREVENTIVE STEPS FOR ENVIRONMENTAL DAMAGE

This TSB supersedes TSB# 97-99-004 to include updated information.

DESCRIPTION:

This TSB may assist in diagnosing, correcting and preventing paint conditions. Many paint conditions result from either physical damage or environmental causes. While this TSB addresses new vehicles arriving at the dealership, it also applies to customer owned vehicles and used vehicles.

Whenever a new vehicle is received at a dealership, it should be examined for signs of transit damage, water spotting, industrial fallout, iron oxide particles (rail dust), acid etchings and swirl marks. Transit damage should be reported to the transportation company. Other paint conditions may be correctable by following the procedures outlined in this TSB. Customer owned vehicles and used trade-in vehicles might exhibit similar conditions.

PROCEDURE:

The following steps are required to ensure that vehicles are delivered to customers in the best possible condition:

1. Cleaning
2. Paint Examination
3. Repair (if required)
4. Normal new vehicle preparation

CLEANING THE VEHICLE:

First, if the vehicle has PPF (Paint Protective Film), remove it. (See TSB# 98-99-001). Clean any adhesive residues with a light solvent, such as 3M Prep Solvent 70, Prepsol or ValuGard's New Car Prep.

Clean the vehicle using a mild, neutral PH, autobody shampoo to lift dirt off of the paint, applied either by spray or with a wash mitt. It should be followed by a strong blast with a wash nozzle, using clean water (deionized, reverse osmosis, etc.) Dirt should never be wiped off a vehicle without soap and water. Dry the vehicle to prevent spotting, using a quality synthetic chamois or soft, clean terry cloth towels.

LIGHTING FOR EXAMINATION:

The examination should take place both indoors and outdoors to be able to observe all types of damage. Indoor lighting will show water deposits and etch marks if they exist. Outdoor lighting, preferably under direct sunlight, will show swirl marks in the paint if they exist. Rail dust or iron oxide particles can be seen in either light, although with some colors it is easier to see the condition under one or the other type of lighting.

Outdoor lighting consists of the natural ambient light from the sun. Observation is best performed under direct sunlight, but sufficient light may be available on overcast days. Dark cloudy days provide poor lighting conditions for proper examination.

Indoor lighting is best when it consists of a mixture of fluorescent lighting and direct lighting (powerful incandescent, sodium or mercury lights). Lighting must be strong enough to illuminate the vehicle surface without shadows or shaded areas, but not so strong that it washes out the outlines of any imperfections that may exist.

EXAMINATION:

Use a mix of 50% rubbing alcohol and water (1:1), or Meguiar's Final Inspection, in a spray bottle and a soft cotton towel to clean spots that may need further inspection.

INDOOR LIGHTING:

Look at the reflection of a light source in the paint. Fish eyes, dirt inclusions, water spots and acid rain damage will be seen by the way that the reflection distorts over the imperfection.

Again, look for the iron particles and resulting rust spots from rail dust. Wipe a soft towel over the area to see if lint is caught by the particles.

OUTDOOR LIGHTING:

Look at the image of the sun reflected in the vehicle paint while moving around the vehicle.

Swirl marks will be seen as hazy patches on the paint, visible only when the light reflects at a specific angle.

Also look for small spots on light colored vehicles which feel rough to the finger. These are usually iron particles, also called rail dust, which are found in most types of industrial fallout. Large particles will catch lint when a soft towel is wiped over them.

NOTE: All colors of vehicles are subject to iron particle attachments. On light colors, the iron particles may appear as dark or reddish spots. On dark colors, they may appear as whitish or silver spots.

REPAIR PROCESSES:

NOTE: When using machines or chemical products, always wear approved eye protection and follow the procedures recommended by the manufacturer of the machine or chemical products.

CONDITION	CORRECTION
Scratches (light)	Buff and Polish
Scratches (heavy)	Apply touch-up paint (base color and clear) color sand, buff and polish
Swirl Marks	Polish using D/A polisher
Acid Rain / Rust Spots / Rail Dust	Decontamination, buff and polish **(Do not use Oxalic Acid or a "Fallout Remover" that contains Oxalic Acid as an ingredient)**
Water spots	Decontamination, polish (if necessary)
Residual Transit Plastic Film Adhesive	Lightly spray effected area with a light solvent, such as 3M Prep Solvent 70, Prepsol or ValuGard New Car Prep. Allow to sit (keep it wet!) 2 to 5 minutes. Wipe off affected area with a clean soft terry cloth towel. **NOTE:** Do not use adhesive or glue removers which contain xylene in their formulation.
Overspray	Use rubbing alcohol to verify condition is overspray and not transit coating. Use clay process, then polish.
Cavity wax expansion from door, hood, trunk cavities.	Spray effected area with a light solvent, such as 3M Prep Solvent 70, Pepsol or ValuGard's New Car Prep. Allow to sit 2 to 5 minutes. Dampen a clean soft towel with the solvent and wipe away the excess cavity wax, followed by a wipe with a second dry, soft, terry cloth towel.

DECONTAMINATION:

Use ValuGard's "A-B-C" Product system to complete the decontamination of the paint surface. Follow the manufacturer's recommended procedures. **Hyundai does not recommend the use of oxalic acids or other "fallout removers", including clay products.** Part A is a buffered alkaline solution. Part B is a specially formulated and buffered acid solution. Part C neutralizes the residual acids remaining after using part B. It may also be used as a routine car wash soap.

VALUGARD "A-B-C" NEUTRALIZATION / IRON PARTICLE REMOVAL SYSTEM:

1. Rinse off dust with cold water. Be sure to start at the bottom and work up.
2. Prepare product "A" by mixing 1 part "A" with 8 parts cold water.
3. Use clean wash mitt and apply mixture to entire car, **starting at the top and working down to the bottom surface.** Keep car wet with the solution for 5 to 7 minutes. **Do not allow product to dry on car, and do not allow it to streak down the sides.** Re-wipe with mitt as necessary to avoid streaks.
4. Rinse car with cold water.
5. Dry the flat surfaces of the paint - hood, top, deck lid and tops of bumpers.
6. Apply product "B" directly to the contaminated surfaces ("B" is ready to use from the bottle - no mixing) using a new wax applicator pad or a clean soft small towel. Keep the areas wet with the "B" for 5 to 7 minutes - **do not allow to dry on the car.** Wipe down to the bodyline on the sides.
7. Rinse car with cold water.
8. Prepare product "C" by mixing 1 ounce with one gallon of cold water.
9. Shampoo car with "C", shampoo mixture using a clean wash mitt and then rinse with cold water. **(Do not use "C" mitt with "A" or "B" solutions - use separate mitts and always keep them separate.) Product "C" may be used as an everyday car wash soap.**
10. Inspect paint surface to see if rust particles have been removed. If rust particles have been on the car for a long time, it may be necessary to repeat each of the above steps.

OVERSPRAY REMOVAL WITH CLAY:

NOTE: This process may not work if the overspray was partially removed with chemicals or buffing. Do not use this process on flat black surfaces or on exterior lights.

1. Clean the vehicle, being careful to remove ALL dirt and debris from the vehicle. Pay special attention to corners and crevices.
2. Select a very fine grade of clay if the manufacturer offers a choice, to prevent unnecessary paint scratching.
3. Apply the recommended lubricant to the clay and a 1-foot square area to be cleaned. Flatten the clay into a small flat pancake. Lightly rub the clay on the paint, being careful not to scratch the paint. Keep the paint and the clay well lubricated. Rub the clay over the overspray spots. Use an overlapping pattern over the overspray spots until all of the overspray is removed.
4. Use a non-abrasive paint glaze, such as 3M's Imperial Hand Glaze or a light solvent, such as ValuGard's New Car Prep, on the flat black trim and the lights. Allow it to sit wet for about 3 minutes. Wipe it off. This will loosen and remove most of the overspray. Repeat as necessary until all of the overspray is removed. Flat black trim can also be re-blackened with ValuGard's ETR kit. NOTE: Do not use laquer thinner or other paint reducers since these will cause long term (future) damage to the flat black trim.
5. Use an orbital D/A buffer to polish the area treated with the clay. Select a polish from the recommended product table. Be careful not to leave any swirl marks in the paint.

BUFFING / COLOR SANDING

1. Always use the least abrasive repair procedure first. If the condition is not resolved, use the next level of abrasive. Follow the manufacturer's procedures for eliminating the swirl marks caused by the repair, using a different polishing pad for each different compound.

2. Always check the paint thickness before and after the paint repair. Take measurements in different spots on the area to be repaired, and take measurements from the same locations during the repair. **Never** remove more than 0.3 mil from the paint. If the paint changes color during the repair or the paint thickness is reduced by more than 0.3 mil, then the area to be repaired must be re-painted. Use of a quality electronic mil gauge is recommended. Magnetic/ mechanical gauges lack the necessary accuracy.

3. Use the products from one manufacturer for the complete procedure. Hyundai has evaluated and recommends the products from Meguiar's, 3M or ValuGard. Other products have not been evaluated by Hyundai, but may be equivalent.

4. Always follow the manufacturer's product sequence, finishing up with the least aggressive polishing compound to remove all swirl marks caused by the repair procedures. Use the appropriate pads with each compound, as recommended by each compound's manufacturer.

5. If sanding becomes necessary, **USE EXTREME CARE**. Always take paint thickness measurements before, during and after as noted in item 2. Always leave enough thickness to remove sanding scratches. Always use a sanding lube in the sanding water.

6. Never use a product containing silicone at a facility which performs repainting. Silicone contamination is very difficult to contain and will cause fish eyes on repainted surfaces.

POLISHING AND SWIRL REMOVAL

This is the step where you remove the swirls added by the repair, swirls from a prior buffing or other shallow marks on the paint. It is important to use the right tools and polishes so you can actually remove the swirls, not create more or cover them up.

1. Use a dual action sander (D/A sander) or D/A polisher. Meguiar's, 3M and ValuGard have back-up pads that adapt to dual action sanders.
2. Use the recommended pad for the product. Set the polisher speed as per the product instructions.
3. Verify all swirl marks have been removed. Use an alcohol and water solution (1:1 mix ratio), or Meguiar's Final Inspection, to clean the area for inspection. Inspect under direct sunlight when available.
4. After the swirl marks have been removed, apply a protectant.
5. Never use a product containing silicone at a facility which performs repainting. Silicone contamination is very difficult to contain and will cause fish eyes on repainted surfaces.

PROTECTION FROM FUTURE DAMAGE:

The repaired vehicle should always be protected from future damage with a wax or other protective coating. Care should be taken to select a product which will provide adequate protection and provide a good showroom appearance while the vehicle remains in the dealership inventory.

It is suggested that one of the products from 3M or Valugard be used, but a quality protectant from another source may be acceptable. Apply the protectant as required to protect the vehicle paint. Very few protectants will provide much protection after 30 days, regardless of the manufacturer's claims. Wax based protectants usually require more frequent applications than polymers. It is not recommended that any product containing silicone be used since silicone may make any future body repairs more difficult. If products containing silicone must be used, apply them as far away from the body shop operations as possible, to prevent contaminating the prep areas or spray booths.

Frequent cleaning of the vehicles is important to wash off the contaminants that settle on the vehicles. Use clean water (deionized, reverse osmosis, etc.) at least twice weekly, and after every rain. A soap wash, using autobody shampoo, should be completed weekly. Particular locations may require more frequent washing to protect the vehicle paint.

Following these steps should reduce the chance of any further damage to the vehicle paint and will ensure the vehicle has a good appearance in the showroom, or on the lot, and will help in your efforts to improve your dealership customer satisfaction rating for both new and used vehicles.

RECOMMENDED PRODUCTS:

The products from the following manufacturers have been evaluated and determined effective for use on Hyundai vehicles.

		MANUFACTURERS		
		3M 1-800-521-8180 Ext. 5185 John Zola	Automotive International VALUGARD 1-800-543-7156 Technical Support and Distributor Locator	Meguiar's Inc. 1-800-347-5700 Technical Hot Line
Decontamination		None	"A-B-C" System	
Overspray Removal		One Step Cleaner Waxlight Oxidation P/N 39006 or Med. Oxidation PN39066	Overspray Remover Clay and OEM One Step	Overspray Clay (C-2000) and Final Inspection (M-34)
Compounds	Coarse	PERFECT-IT II Rubbing Compound P/N 05973 with compounding pad P/N 05723, 05701 or 05711	Liquid Paint Correction Cream Cutting Pad	Compound Power Cleaner (M-84)
	Light	FINESSE-IT II Finishing Material P/N 05928 with polishing pad P/N 05705 or 05725	Liquid Paint Correction Cream Cutting Pad	Dual Action Cleaner/Polish (M-83)
	Polish	*PERFECT-IT Foam Polishing Pad Glaze P/N 05995 or 05996 with foam pad P/N 05725 and D/A back-up pad P/N 05776	PreConditioner Cleaner/ Lambswool Pad	Swirl Free Polish (M-82) or Hand Polish (M-81)
Protectant		PERFECT-IT Show Car Paste Wax P/N 39526 or Liquid Wax PN 39026. IMPERIAL Hand Glaze P/N 05990	OEM One Step or Carnauba Cream Wax	Yellow Wax (M-26)

***NOTE: For swirl mark removal with a D/A polisher or sander, use 3M back-up pad P/N 05776 with the recommended materials.**

RECOMMENDED PAINT GAUGE:

Pro Motorcar (248) 646-0666 ETG-A #5437

Also available at a discount through Kent Moore in the dealer equipment program:

Kent Moore (800) 325-2233 #147-5437

WARRANTY INFORMATION:

Normal warranty operation codes and times apply.

Paint damage due to:

- Airborne fallout, industrial fall-out, acid rain, salt, hail, wind storms or other Acts of God
- Paint scratches, dents or similar paint or body damage
- Action of road elements (sand, gravel, dust or road debris) which result in chipping of paint and glass

are not covered under warranty.