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Introduction

In response to numerous requests from valued Collision Advice customers across the US, we have created this tool to help explain, justify and substantiate time with factual documentation. The collected information and documentation are intended to help clarify whether or not specific repair processes are considered to be required repair operations and if they are included or not-included within any other labor operation. Our objective is to help our customers build a complete repair plan and to get paid for the work they do.

1. To do so, we utilize four negotiation questions and supporting documentation as described below:

2. Is it required to put the vehicle back to pre-accident condition?
   - OEM Position Statements
   - ALLDATA®, TechAdvisor and Other Similar Systems
   - Paint Manufacture Bulletins
   - Material Manufacturer Bulletins (ex. 3M, Wurth, Kent)
   - Equipment Manufacturers
   - Internet (www.YouTube.com)
   - Estimating Systems
   - Scan Tools (Ex. ASTech)
   - The Vehicle

3. Is it included in any other labor operations?
   - Estimating Systems
   - ASA Not-Included Charts
   - www.Degweb.org
   - www.Estimatescrubber.com
   - SCRS Guide to Estimating

4. Is there a pre-determined time in the database?
   - Estimating Systems
   - www.Degweb.org

5. What is it worth?
   - Do a Time Study
   - Print an Invoice
   - OEM Warranty Times
   - Equipment Manufacture Times
   - ALLDATA®, TechAdvisor and Other Similar Systems
   - Internet
Reasons Why You May Need to Tint
Reasons Why You May Need to Tint

There are several reasons you may need to tint. Here are a few reasons:

1. There are different variants at the manufacturing plant
2. Different air pressures can cause the paint to look different. A higher air pressure will result in a lighter metallic. A lower air pressure will result in a darker metallic.
3. The distance of the spray gun from the surface can affect the color match.
4. There is no formula. Several under hood or matte finishes do not have a formula. A color will need to be made from scratch.
5. You need to create a panel to panel match.
6. You may need to tint to blend.
Question 1.
Is it required?
Four Negotiation Questions

1. Is it required to tint a paint formula or mix to return the vehicle back to pre-accident condition?

Answer: Yes, it may be required to tint to achieve a blendable color match based on the following documentation.

Answer Documentation:

1. The following paint manufacturers have statements stating that it may be required to tint in order to achieve a blendable color match and to return the vehicle back to pre-accident condition:
   - Akzo Nobel
   - Axalta Coating Systems
   - BASF
   - PPG
   - Sherwin-Williams

2. The following Information Providers have statements saying that tinting may be required:
   - AudaExplore
   - CCC/MOTOR

3. Several trade magazines have articles discussing the need to tint to achieve a blendable color match, including:

The source documentation follows.
March 14, 2011

Aaron Schulenburg
Executive Director
Society of Collision Repair Specialists

Re: Tinting and Blending Procedures and Recommendations

Dear Aaron,

In response to your inquiry of February 25th, AkzoNobel is pleased to respond as noted below. For clarification, we have imbedded our response in blue type on each of your questions. Additionally, there are 3 attachments for further clarification. Thanks, and feel free to call me with any questions.

1. Is blending the basecoat recommended by your company to achieve proper color match between panels? Yes, please see attached Technical Service Bulletin (TSB) and technical reference information.

2. Is tinting the basecoat material a recommended procedure to achieve a proper color match to the vehicle's existing refinish? No, not in all cases. It is very OE/Car Manufacturer specific on how well the factory colors are held to tolerance of the "Standard" provided to us from the OE Manufacturer. Our recommendation when tinting is "tint to blend".

3. Are procedures such as tinting and blending commonly performed in conjunction with each other, or are they redundant processes? Yes they are, if you tint a color you will still need to blend in most cases (particularly special effect colors) if you want to achieve an invisible repair.

4. Does your company recommend performing one, or both, of these processes to achieve a proper color match on the repaired vehicle? Blending the color is always recommended, only tint when needed to correct flip or flop issues and when the effect (metallic / pearl) needs adjustment.

Kind Regards,

Tom Moreland
Strategic Sales Manager, North America
Automotive & Aerospace Coatings, North America

October 27, 2014

Axalta Coating Systems Basecoat Blending Recommendation for Collision Repair

Today’s vehicle owner expects a repair that is virtually undetectable. The quality of the repair increases customer satisfaction with the collision shop, and the insurance provider.

Many factors can affect the way color appears once applied to the vehicle. These include, among others, an increasingly complex Automotive OEM color palette and variability in manufacturing processes for body panels and add-on parts such as bumpers. These factors can change the appearance of the color.

The human eye can detect subtle changes in color. The complex colors on OEM automobiles often use metallic flakes, pearls, and other specialty pigments. As a result, the observed color is dependent upon the viewing angle.

Due to color complexity, and the expectation of an indiscernible repair, Axalta Coating Systems recognizes that blending of the refinish basecoat into adjacent OEM panel(s) is often the best way to achieve an acceptable color match.

Blending the basecoat provides a gradual transition of color between the repair and the undamaged OEM panel. The blending technique significantly reduces the ability of the human eye to observe color differences, making the repair virtually undetectable.

In cases where tinting of the basecoat may be required, we recommend to tint to a blendable match, i.e. to tint the basecoat and then blend into adjacent panel(s). This will typically be the most efficient way to achieve a successful repair.

Stefan Reinartz, Ph.D.
Refinish Product Manager

March 18, 2011

Mr. Aaron Schulenburg
Society of Collision Repair Specialists
Po Box 346
Smyrna, DE 19977
Dear Mr. Schulenburg:

Re: Tinting and blending for color match

BASF recommends blending into an adjacent undamaged panel whenever the panel being repaired / replaced has color applied to the entire surface, or color is applied to the part of the panel that borders an undamaged panel. This is the most cost effective and durable method to produce an undetectable color match when repairing motor vehicles.

There is a limit to the amount of color tone variance that can be overcome by blending. When the variance is too great to successfully blend, adjusting the color by adding or subtracting base pigments or “tinting” is recommended. The process of tinting a color ends when a blendable color match is achieved. At this point, the tinted color is then applied to the repaired panel(s) and blended into adjacent undamaged panels as required.

Tinting a color to an exact “panel match” is possible, but it is almost always more time consuming than blending. Additionally, the amount of time required can be unpredictable and in the end, most likely will not produce the same undetectable repair that can be achieved by blending.

Sincerely,

Joseph Skurka
Manager, OEM & Industry relations
BASF Corporation
cc: B. Koevenig
A. Farah

PPG Industries

Date: March 10, 2011

Aaron Schulenburg
SCRS Executive Director

Re: Tinting and Blending Recommendations

Dear Aaron,

Here are the answers to the questions in the letter you sent to PPG Refinish regarding tinting and blending recommendations.

1. Is blending the basecoat recommended by your company to achieve proper color match between panels?
   Answer - Yes.

2. Is tinting the basecoat material a recommended procedure to achieve a proper color match to the vehicle’s existing refinish?
   Answer - In some cases yes. Less often with the waterborne basecoats. With the solvent based basecoats tinting may be necessary a little more often.

3. Are procedures such as tinting and blending commonly performed in conjunction with each other, or are they redundant processes?
   Answer - Yes, they are used in conjunction with each other. Always plan to blend. Tint when necessary. Sometimes the color blending is contained within a panel and sometimes onto an adjacent panel.

4. Does your company recommend performing one, or both, of these processes to achieve a proper color match on the repaired vehicle?
   Answer - Always plan to blend the basecoat. Even if a sprayout shows a very close match, environmental factors such as air temperature, humidity, spray equipment and even the location and visibility of the repair almost always requires a blend to be considered an “invisible” repair.

   **Tinting may be necessary when there are variations in the OEM color from the factory and the recommended variant color is still not quite there.**

   **In summary, blending the color can be done independently of tinting but is always recommended. Tinting the color may not always be necessary but is always done in conjunction with blending. The decision whether to tint is made by the experienced and trained professional technician.**

   So the options are “blend only” or “tint and blend”.

Sincerely,

[Signature]

Robert Burgess
Director of Refinish Training and Sales Development
PPG Industries

March 29, 2011

TO:  SCRS (Society of Collision Repair Specialists)

The question has come up regarding our position on the necessity of blending basecoat to achieve an acceptable color match.

This necessity to blend is driven by the increasingly complex color palette being used by the auto manufacturers and an increased awareness on the consumer level of color match issues. The process of blending the basecoat to achieve a consistently customer-pleasing color match is nearly always necessary. Even colors like solid black exhibit such large variations from the OEM’s that blending the adjacent panel is often necessary to assure complete customer satisfaction.

During our color adjustment classes we encourage our customers to utilize all the tools available to achieve the very best color alternative. Even then, our recommendation is to blend to achieve the most cost efficient, customer pleasing repair.

Although most colors are deemed “blendable match”, there are colors that may require tinting. When tinting is indicated, our recommendation is to “tint to a blendable match”. That means that in some situations, the fastest, easiest way to achieve an acceptable match might be to tint and then blend into an adjacent panel.

Sincerely,

Craig Williams
Director of Marketing - VR, Global OEM & Services

Source: Williams, Craig. "SCRS (Society of Collision Repair Specialists).” Letter to Aaron Schulenburg. 29 Mar. 2011. MS. 4440 Warrensville Center Road, Warrensville Heights, OH.
AudaExplore

Color Tint

Audatex’s two-stage setup refinish labor includes time for standard tint. Standard tint is defined as the initial mix, check, one tint cycle and check.

Audatex’s studies revealed instances where additional time was required for the tinting process. The range of this additional time was commonly between 0.1 and 1.0 hours with an average of 0.5 hours per estimate per color.

The appearance of color match can be difficult enough to require both color tint (tinting to adjust the color) and blending. I-CAR Finish Matching (Module 2, Topic 3) recommends planning and preparing for blending before the work begins. Per I-CAR, tinting should be done only to achieve a blendable match.

Section 4-4 Refinish Guidelines

Refinish within Panel Boundaries – continued

2. The second method is to override the prestored labor to the desired time.

It is important to keep in mind when using the method that all adjacent panel and nonadjacent panel overlap will still be considered in an estimate when the panel being painted is on a lower guide number. If this method is used, and overlap is not applicable, any overlap deducted by the system should be manually included in the estimated time for the spot painting. Non-adjacent panel overlap time is 0.2 and adjacent panel overlap time is 0.4.

Therefore, when using the override method and non-adjacent panel overlap applies, add 0.2 to the spot paint time. When using the override method and adjacent panel overlap applies, add 0.4 to the refinish operation.

Color Tint

AudaTec’s two-stage-setup refinish labor includes time for standard tint. Standard tint is defined as the initial mix, check, one tint cycle, and check.

AudaTec’s studies revealed instances where additional time was required for the tinting process. The range of this additional time was commonly between 0.1 and 1.0 hours with an average of 0.5 hours per estimate per color.

The appearance of color match can be difficult enough to require both color tint (tinting to adjust the color) and blending. I-CAR Finish Matching (Module 2, Topic 3) recommends planning and preparing for blending before the work begins. Per I-CAR, tinting should be done only to achieve a blendable match.

Color Sand and Buff

This process, which may or may not be required, is defined as wet sanding the entire panel by compound buffing and mechanical or hand polishing. Color sand and buff is further defined as all of the above steps performed to the finished surface for any reason, plus cleanup.

Color Sand and Buff can be estimated at:
- 30% of AudaTec single-stage refinish labor (not including final wash).

Replaced Panel Refinish

Current AudaTec refinish labor is based on the use of new and undamaged panels. Additional steps or processes that may be required should be considered during estimate preparation.

*Any printed copy of this document may not contain the most current information. For the latest version, please refer to the Database Reference Manual accessed through the Help Menu in the current release of Tinting Estimating, ProPro or ShopLink. The current version of the Database Reference Manual may also be found at www.tinting.audatex.com.*

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REFINISH TIME PREMISE

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces.

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G34
GUIDE TO ESTIMATING

REFinish Time Listings

All refinish times are listed in hours and tenths of an hour. A time in parentheses adjacent to the part name, such as (0.5) indicates time and one-half hours. Replacement operation time does not include time necessary to refinish the component.

Operation times for the application of painted-on stripes are not covered in this publication. The time necessary to perform this type of operation should be estimated after an on-the-spot evaluation of required procedure.

REFinish Time Premise

Published refinish times are for one color applied to new undamaged replacement components, without exterior trim, interior trim or other attached components and applied in one continuous process. For damaged panels, published refinish times may be quoted after the damaged panel has been returned to a NEW UNDAMAGED condition.

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces. Nor do they include time which may be required to correct foundation cracks, or other conditions caused by improper application or omission of finishing operations such as sealers, undercoating, primers, or base coat./

ANTI-Theft Labels (R DOT)

Replacement part labels are coded with the letter “R” to show that it is a replacement part. R Dot labels should not be removed from the part. Use caution when refinishi ng, rustproofing or undercoating replacement components to avoid damaging the label.

Bumper Covers and Other Flexible Components

Refinish times listed on the parts detail line for these components are based on the items being refinished prior to installation. Refinish time listed on the parts detail line for an OEM bumper cover that has both body color and unpainted grained portion allows for the refinish of the body color only. Masking the grained, textured, or non-body color portion in preparation for body color application is an included operation. It includes exterior surface and edges refinished during one continuous process. If a separate edging procedure is utilized then the appropriate time should be estimated after an on-the-spot evaluation. Refinish times do not include removal of mold release agents from new unpainted molded components. Parts received from the OEM manufacturer without primer and some non-OEM parts with or without primer should be tested for the presence of release agents that would cause paint adhesion problems and treated accordingly. For unprimed bumper preparation time, see “Add If Required” operation(s). Preparation time for all other unpainted components should be estimated after an on-the-spot evaluation. For unpainted component preparation time, see Unprimed Flexible Component Preparation on page G39.

Door Outer Repair Panels

Refinish times listed on the parts detail line for new repair panels (i.e. door outer repair panel, tailgate and liftgate repair panels) include panel lip and immediate area. It does not include time for refinishing the entire door frame edge or interior sides. Where possible, MOTOR will publish time for those areas under a “Refinishing Notes” heading within that group.

Door Shells, Liftgates and Tailgates

Refinish times listed on the parts detail line for these components include exterior surface, edges and interior sides, unless otherwise noted in text.

REFinish Time Premise - Continued

Door Shells, Liftgates and Tailgates - Continued

Refinish times listed under the “Refinishing Notes” heading for “door outer panel only” operations do not include time for refinishing the door frame edge or interior side. Where possible, MOTOR will publish time for those areas under a “Refinishing Notes” heading within that group.

Fenders, Hoods, Trunk Lids and Other Major Bolted Panels

Refinish times listed on the parts detail line for these new panels do not include time for refinishi ng the edge or underside. Where possible, MOTOR will publish time for those areas under a “Refinishing Notes” heading within that group.

Quarter Panels and Other Major Welded Panels

Refinish times listed on the parts detail line for these new panels include exterior side, recessed edges, gutters and pockets, unless otherwise noted in text.

Refinish times listed under the “Refinishing Notes” heading for quarter panels or other major welded panels “exterior surface only” operations do not include time for refi nishing recessed edges, gutters and pockets. Where possible, MOTOR will publish time for these areas under the “Refinishing Notes” heading within that group.

NEW UNDAMAGED Panel

A component manufactured to the same exacting standards as the parts installed on new vehicles when the car was built. Exterior body panels are supplied with a smooth painted surface (e-coat).

UNDERside COLORS

Refinish times presented in this guide are developed under the premise that the underside and jamb color is the same as the exterior body color. Some vehicle manufacturers use a different color for the engine compartment, trunk compartment and/or jams. An additional paint mix is required if the underside and/or jamb color is a different color than the exterior body color. Clear coat (gloss or matte) will be required for base color coat applications. This should be considered when developing the estimate.

Prime & Block

Prime & Block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 150-grit finish to NEW UNDAM AGED condition. It is MOTOR’s position that prime and block is a process best reserved for the judgment of an estimator/appraiser following a thorough on-the-spot evaluation of the specific vehicle’s condition.

Repaired Panel Refinishing

MOTOR suggests using component(s) base refinish time for this type of procedure after the damaged panel is repaired to new undamaged condition. Repaired surface preparation requires an on-the-spot evaluation for additional procedural steps such as featheredge and/or prime and block not required for new undamaged panels.

Partial Panel Refinishing

This is NOT a BLEND-Within procedure; partial panel refi nishing is NOT a BLEND operation. MOTOR defines partial panel refi nishing as, refi nishing a body panel with damage that is contained within a defined border or underneath body cladding after the panel has been repaired to that of a “NEW UNDAMAGED PANEL.” It is MOTOR’s position that partial panel refinishi ng is a process best reserved for the judgment of an estimator/appraiser following a thorough on-the-spot evaluation of the specific vehicle and refi nish requirements in question. Refer to G.T.E., “BASIC COLOR COAT APPLICATION.”

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G34
Color Matching Made Easy

One of the most troublesome painting problems for any painter is color match.

Mark Clark

When the vehicle manufacturers can hold a color standard, color match will be much easier; until that time, painters will have to tint and blend many vehicles to achieve an invisible repair - the ultimate goal of any production painter.

I've been around long enough to remember many heated discussions about the desirability of blending a mismatch onto adjacent panels. "If the edge of the repainted panel doesn't actually match the edge of its neighboring ones, the customer is being cheated," said one side.

Unfortunately, chasing that elusive, dead-on color match took too much time - much more time than was allowed on the repair order. I've always believed that the best repair is the one done correctly in the least amount of time and kept invisible to the customer. With the following matching method, those are the kind of color matches you'll be able to do.

Test Panels

Any productive discussion about color match begins with the dreaded test panel. Painting the vehicle with an untested color - and then unmasking to find the color isn't right - wastes valuable time and expensive materials. Unfortunately, most painters do exactly that before they consider using a test panel.

A test panel - often a treated paper card, half black and half white - is used to determine when the color applied to the two-tone panel is shot to full hiding. When the paint covers the test panel completely, you can't see the difference between the black and white halves. In these days of translucent base colors, this may create a problem if the painter keeps shooting until the black and white card is uniformly colored. If the color in your gun doesn't want to hide very well, chances are the color at the car plant didn't hide well either. One possible solution to prevent the overridden color is to seal the test panel with the same color undercoat the auto factory used. Two or three coats of a poor hiding color over the same colored sealer the car factory used may provide the best chance of a match.

Productive Paint Matching

Making money in the paint shop means keeping the painter productively occupied while the current coat of primer/paint/clear is drying. However, there are operations that shouldn't be performed during these intervals. Machine sanding the next car in line will get the painter covered with dust; polishing the last car painted with a pad and compound will contaminate the painter's clothes also. One of the best ways to productively spend the down time between coats is to do something about the color on an upcoming job.

That something starts with looking up the complete paint-code number on the vehicle. Car manufacturers really do want you to be able to repaint their damaged automobiles quickly and correctly, so use all the information provided on the paint-code tag to locate the formula the car and paint manufacturers think will match. This "prime" or "standard" color formula will match the majority of vehicles painted with that
particular code. However, the car in your shop may not have been painted with that exact color. The paint companies watch for a measurable drift away from a color standard for any given automobile color. When they can identify enough cars painted with the "off-standard" color, they develop an alternate formula to match just those cars.

With the possibility of an off-standard color in your shop, diligent ground work by the painter includes examining all color offerings for that paint code. Sometimes, the off-standard offering is displayed on a chip; other times the color is described - but hearing a color described as "darker flop and redder face" may be less than you, as a painter, want.

Mixing the Match

The best way to proceed is to mix up a small amount of the suspect color and shoot a test panel. Mixing small amounts is a snap on a computerized mixing scale - all you need to do is specify the number of ounces you want. Another way to mix small amounts of color quickly is to simply slide the decimal point one place to the left. For example, one quart is 32 ounces, so by moving the decimal point one place to the left, you can mix 3.2 ounces of color.

Once the test quantity of color is mixed, make sure to spend enough time stirring or shaking the paint to ensure thorough mixing of the tint. Reduce the small amount of color with the same reducer you'll use to paint the car, and then spray a test panel with the same spray gun at the same air pressure you'll use when painting the actual surface. In an effort to speed this process, I recommend the painter force dry the test panel with a heat light or heat gun between coats.

As soon as possible, clear the test panel (when the original finish is base/clear) with any clear. Using the same high-solid, isocyanate-catalyzed clear that will be applied to the vehicle is not necessary on the test panel. An aerosol can of clear lacquer or clear enamel will work fine to determine a blendable color match. Not clearing the panel at all and trying to wet the basecoat with water or wax and grease remover to simulate a clearcoat is a bad plan. Any "clear" that flashes off the test panel won't provide an accurate picture when comparing the panel and the car. Aerosol clear will work fine as long as the clear in the spray can is as yellow as or as clear as the real clearcoat.

Let's say that the first off-standard color didn't look good enough to try a test panel. Your next step: try another alternate formula. Try mixing 3.2 ounces of the new color (let's say it looks more like the car) and apply the color to a test panel, drying between coats with a heat gun. Clear with an aerosol clear and compare the test color to the car. Still not close enough to blend? Now it's time to tint the color to get closer to that of the car. Remember, though, the object is to find a color that can be blended onto the adjacent panels, not to butt match the car.

Color Theory

There are three dimensions to color theory. The color wheel isn't a wheel at all but rather a globe or a ball. Part of the confusion surrounding color tinting is that the three dimensions - out the center spoke, around the outside edge, and down the north and south pole - each have several names to describe the same parameter.

For example, the measurement around the outside is correctly called cast, hue or color. The down axis is called light/dark, value or luminance. And the out-spoke on a color wheel is correctly called richness, strength, saturation, intensity or chroma (no wonder people are confused).

My method doesn't use any of these terms. Here's how it works:

There are only three primary colors - red, yellow and blue. Draw a circle and place one of the three primary colors on the color wheel. Place the remaining two colors at equal distances around the circle, in any sequence. Now, plug in the secondary colors, which are the three colors made by blending two of the three primary colors in equal parts. Most folks can tell you what color results when mixing blue and yellow - green. Fewer people can name the color made by mixing yellow and red - orange to us industry insiders. The color resulting from a combination of red and blue is the brightest for most folks to name. Depending on where and when you went to grade school, that color is either violet or purple.

Now, with the six colors marked on the circle that represents the "around dimension" of color theory, it's possible to start tinting.

The most difficult component of color matching is the out-spoke. The problem is that a color wheel is really three dimensional, not flat. Matching a color isn't as simple as moving three steps from the center of the wheel toward the edge. The color could be three steps out, two steps left and two steps up (this is why color-tinting school lasts three days).

http://www.bodyshopbusiness.com/Controls/PrinterFriendly/PrinterFriendly.aspx
The "down dimension" is the easiest to correct. Anyone walking by your paint shop can tell if a color is lighter or darker than another color. To make my abbreviated color-tinting system work, we'll ignore the down dimension for now (that was easy enough), and we'll endeavor to move the color around the wheel's edge first and fix the down (light/dark) problem last.

Methodology

The notion with my method is that a color can only be off toward its direct neighbors - the color one place left or right on the color wheel. For example, if you had a red car, your color could be off by being too orange or too violet, period. It won't be off by having too much yellow, green or blue - those aren't neighboring colors. Likewise, if you had a blue car, the color could be off by having too much violet or too much green - blue's neighboring colors.

Sometimes, the problem is determining which way to move, left or right. The solution is pretty simple. Take two identical drops of the color you've mixed up. To one drop, add a small amount of the "left" tinting color, and to the other, add a dab of the "right" tinting color. For example, if the car you're working on is green, take two drops of the green color directly from the can. To one drop, add a little of the yellow mixing color found in the formula. To the other green drop, add some of the blue mixing tint found in the formula.

Rather than producing the perfect color, this test will instead identify the tint that's obviously wrong. For example, when you stir the yellow tint color into the green drop, it will make a new color. Likewise, the green drop stirred with the blue tint color will make a new color. One of these new colors will look nothing like the color you're trying to match, so now you know it's the other tint color that needs to be added to your green color to match the car.

At this point, a light goes on in the heads of painters who have been horribly confused about color tinting. "Hey," they say, "that's easy."

The hard part comes in determining how much of that tinting color - once chosen - should be added. Color tinting is a time-consuming process. This simple method will get you off in the right direction, but the actual tinting task is still difficult and tedious. Tint small amounts of color at one time and measure the amount of tint you're adding on a scale.

After moving your color in the right tinting direction, you may still need to lighten or darken the color. One choice is to move the color around the wheel first, then do the light/dark adjustment. Sometimes, it's beneficial to alternate "hits" to the color between the left (or right) tint and the tint that will lighten/darken the color. Use aluminum or pearl to lighten reflecting colors; use white to lighten solid colors. Avoid using black to darken colors that don't contain black in the formula. Instead, try using the darkest shade of the major tint in the formula. Shoot test panels when you think the tinted color is close enough to blend.

Note: The matching method described won't be much help when your color-match problem is white, silver or brown. White and silver aren't found on the color wheel, and the entire center of the wheel is brown.

Applying Theory to Practice

The good news is that this simple system of three primary colors drawn on a circle will lead you to a blendable color match - most of the time.

As you recall, we skipped the most difficult part of color tinting, the "out" dimension. As a result, the method I've just described will only produce a blendable color about 80 percent of the time. The other one in five cars will need to address the third color dimension - the cut-spoke - to achieve a blendable match.

No matter what color car you're painting or how many color-wheel dimensions you must explore to get a color match, remember that blending is the goal - not butt matching. Don't make your job any harder. Once a color is close enough to blend, stop tinting. It's as easy as that.

Mark Clark, owner of Clark Supply Corporation in Waterloo, Iowa, is a contributing editor to BodyShop Business.

Check It Out

Chasing that elusive, dead-on color match can take a lot of time - much more time than is allowed on a repair order. To get the best blendable match in the least amount of time, remember the following color-matching points.

http://www.bodyshopbusiness.com/Controls/PrinterFriendly/PrinterFriendly.aspx
A test panel is often a treated paper card, half black and half white. It's used to determine when the color applied to the two-tone panel is shot to full hiding.

Start your color-matching process by looking up the complete paint-code number on the vehicle. This "prime" or "standard" color formula is the one the car and paint manufacturers think will match the majority of vehicles.

When paint companies can identify enough cars painted with an "off-standard" color, they develop an alternate formula to match those cars. Sometimes, the off-standard offering is displayed on a chip or is described.

Mix up a small amount of the suspect color and shoot a test panel. If you don't have a computerized mixing scale, mix small amounts of color by sliding the decimal point one place to the left.

If your first color doesn't look good enough to try a test panel, try an alternate formula. If it's still not close enough to blend, tint the color. Remember, the object is to find a color that can be blended onto the adjacent panels, not to butt match the car.

To begin tinting, draw a circle and place the three primary colors - red, yellow and blue - at equal distances on it. Between these colors, place their secondary colors - green, orange and purple. These six colors marked on the circle represent the "around dimension" of color theory.

With my method, a color can only be off toward its direct neighbors - the color one place left or right on the color wheel. For example, if you had a red car, your color could be off by being too orange or too violet, period.

To determine which way to move, left or right, take two identical drops of the color you've mixed up. To one drop, add a little of one of the tinting colors; to the other drop, add a little of the other tinting color. This will identify the improper tinting color.

Avoid using black to darken colors that don't contain black in the formula. Instead, try using the darkest shade of the major tint in the formula.

This simple method will get you off in the right direction, but the actual tinting task is still difficult and tedious. Tint small amounts of color at one time and measure the amount of tint you're adding on a scale.

SCRS Offers Documentation on Tinting to a Blendable Match

In response to a growing number of instances where insurance carriers have limited claims settlements for either "tinting" or "blending" individually, but not reimbursed for the operations mutually, the Society of Collision Repair Specialists (SCRS) polled the refinish manufacturers on tint and blend procedures and posted their responses on its website to help repairers substantiate the processes they undertake to perform proper and undetectable refinish repairs.

SCRS asked the following four questions of the refinish manufacturers:

1. Is blending the basecoat recommended by your company to achieve proper color match between panels?

2. Is tinting the basecoat material a recommended procedure to achieve a proper color match to the vehicle's existing refinish?

3. Are procedures such as tinting and blending commonly performed in conjunction with each other, or are they redundant processes?

4. Does your company recommend performing one, or both, of these processes to achieve a proper color match on the repaired vehicle?

The SCRS said that the overall conclusions from the responses were consistent with SCRS's position on this issue; that research of the color code and existing variations provided by the refinish manufacturer and blending of the color coat are both recommended operations to perform an acceptable match. Also, if the refinish technician performing the repair determines that the color variance requires adjustment, it's a consistent recommendation to tint to a blendable match. Finally, when tinting is necessary for color adjustment, it's always done in conjunction with blending.

SCRS has posted the responses from each refinish manufacturer on its website (click HERE).

SCRS researched this topic due to feedback received from its membership. The initial notification came from membership in the Northeast and indicated that several large-size carriers had made the determination on "tint or blend" within a relatively short time period of one another and had begun to implement the approach within the marketplace.

Upon polling other markets, SCRS discovered that the practice was growing across the country.

"In our refinish department, it's not unusual to both tint and blend the paint to achieve a proper color match," said Shannon Chambers, head painter at Dingman's Collision Center in Omaha, Neb. "In talking with our estimators, I know they're getting more and more pressure to reduce the estimate costs, but these are operations that I have to perform to live up to our customer's expectations of our shop. In addition to the tinting and blending, I have more time spent than ever researching the color tools and indexes that we have; these are steps that I have to go through if I want to do repairs the right way."

"The insurance companies that aren’t willing to pay for the necessary operations like these are trying to lower the industry standard simply because it adds to their bottom line," said Kye Yeung, owner and head

Question 2.
Is it included
2. Is tinting the paint formula included in any other labor operations?

Answer: No, tinting is not included in any other labor operation based on the following documentation.

Answer Documentation:

1. The Information Providers have statements saying tinting to achieve a blendable color match is not included in any other operation:
   – AudaExplore
   – CCC/MOTOR
   – Mitchell

2. The following DEG Database Taskforce inquiries support that tinting to achieve a blendable color match is not included in any other labor operation:
   – DEG Inquiry #693
   – DEG Inquiry #1579
   – DEG Inquiry #1687
   – DEG Inquiry #3638
   – DEG Inquiry #4486
   – DEG Inquiry #5811
   – DEG Inquiry #7613

The original source documents follow.
AudaExplore

Color Tint

Audaexx’s two-stage setup refinish labor includes time for standard tint. Standard tint is defined as the initial mix, check, one tint cycle and check.

Audaexx’s studies revealed instances where additional time was required for the tinting process. The range of this additional time was commonly between 0.1 and 1.0 hours with an average of 0.5 hours per estimate per color.

The appearance of color match can be difficult enough to require both color tint (tinting to adjust the color) and blending. I-CAR Finish Matching (Module 2, Topic 3) recommends planning and preparing for blending before the work begins. Per I-CAR, tinting should be done only to achieve a blendable match.

Section 4-4 Refinish Guidelines

Refinish within Panel Boundaries – continued

2. The second method is to override the prestored labor to the desired time.

It is important to keep in mind when using the method that all adjacent panel and nonadjacent panel overlap will still be considered in an estimate when the panel being painted is on a lower guide number. If this method is used, and overlap is not applicable, any overlap deducted by the system should be manually included in the estimated time for the spot painting. Non-adjacent panel overlap time is 0.2 and adjacent panel overlap time is 0.4.

Therefore, when using the override method and non-adjacent panel overlap applies, add 0.2 to the spot paint time. When using the override method and adjacent panel overlap applies, add 0.4 to the refinish operation.

Color Tint

Audatex’s two-stage setup refinish labor includes time for standard tint. Standard tint is defined as the initial mix, check, one tint cycle, and check.

Audatex’s studies revealed instances where additional time was required for the tinting process. The range of this additional time was commonly between 0.1 and 1.0 hours with an average of 0.5 hours per estimate per color.

The appearance of color match can be difficult enough to require both color tint (tinting to adjust the color) and blending. I-CAR Finish Matching (Module 2, Topic 3) recommends planning and preparing for blending before the work begins. Per I-CAR, tinting should be done only to achieve a blendable match.

Color Sand and Buff

This process, which may or may not be required, is defined as wet sanding the entire panel by compound buffing and mechanical or hand polishing. Color sand and buff is further defined as all of the above steps performed to the finished surface for any reason, plus cleanup.

Color sand and buff can be estimated at:
- 30% of Audatex single-stage refinish labor (not including final wash).

Replaced Panel Refinish

Current Audatex refinish labor is based on the use of new and undamaged panels. Additional steps or processes that may be required should be considered during estimate preparation.

*Any printed copy of this document may not contain the most current information. For the latest version, please refer to the Database Reference Manual accessed through the Help Menu in the current release of Audatex Estimating, PenPro or Shoplink. The current version of the Database Reference Manual may also be found at www.training.audatex.co.*

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EDGES OF NEW PARTS (Edging)

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinish operation times. If any of these items or operations are required, they should be considered by the estimator. An additional paint mix is required if the edge color is a different color than the exterior body color. Clear coat (gloss or matte) will be required for base color coat applications.

INCLUDED:
- Refer to specific parts text for estimated time allowance
- Use full refinishing time without deduction for overlap

DOES NOT INCLUDE:
- Clear coat
- Color tinting
- Mixing a different edge color

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G37
GUIDE TO ESTIMATING

CLEAR COAT UNDAMAGED PANEL - Continued

INCLUDED:
- Back tape opening (handle, lock cylinder, mirror)
- Bonding/adhesion coat application (if required)
- Clear coat application
- Clean component (solvent/detergent wash)
- Clean in preparation for material application
- Initial wet sand or buff
- Mask adjacent panels (three foot perimeter)
- Mask/close gap between adjacent panels up to foam tape (overspray)
- Mask glass opening
- Mask/protect grille radiator opening (overspray)
- Remove masking
- Tack wipe surface (when required)

DOES NOT INCLUDE:
- Correction of pre-existent surface imperfections
- Damage repair
- De-nib/wet sand and/or buff for polishing
- Masking of attached parts
- Material costs
- R&I of attached parts

COLOR BLEND (Adjacent Panels) - Continued

DOES NOT INCLUDE:
- Correction of pre-existent surface imperfections
- Cover/mask recessed edges/jambs/weatherstrips
- Damage repair
- Masking of attached parts
- Material costs
- R&I of attached parts
- Wet sand and/or buff for polishing

EDGES OF NEW PARTS (Edging)

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published finish refinish operation times. If any of these items or operations are required, they should be considered by the estimator. An additional paint mix is required if the edge color is a different color than the exterior body color. Clear coat (gloss or matte) will be required for base color coat applications.

INCLUDED:
- Refer to specific parts text for estimated time allowances
- Use full refinishing time without deduction for overlap

DOES NOT INCLUDE:
- Clear coat
- Color tinting
- Mixing a different edge color

THREE-STAGE COLOR BLEND (Adjacent Panels)

SPECIAL NOTATION:
Calculations for blending are based upon the outer surface only and should not include additions for underside, inside or edges of the blend panel. There should be no overlap deduction between blend panel(s) and/or refinishing panel(s). This formula is not applicable to SINGLE-STAGE, 3-STAGE, 4-STAGE or TWO-TONE type finishes. Finishes of this type should be negotiated after an on-the-spot evaluation. Estimation of material cost should be based upon the full blended panel(s).

Blending may be necessary for adjacent body components to avoid noticeable color variation between newly applied paint and the existing paint of adjacent components or areas. The following formulas may be considered in the event this type of procedure is required on an UNDAMAGED panel:

- Each blended adjacent panel or area = 50% of blend panel's base refinishing time

INCLUDED:
- Back tape opening (handle, lock cylinder, mirror)
- Blend coat application
- Bonding/adhesion coat application
- Clean component (solvent/detergent wash)
- Clean in preparation for material application
- Clear coat application (full blend panel if required)
- Initial wet sand or buff (when required)
- Mask adjacent panels (three-foot perimeter)
- Mask/close gap between adjacent panels up to foam tape (overspray)
- Mask glass opening
- Mask/protect grille radiator opening (overspray)
- Remove masking

Footnotes found in a chapter contain vehicle-specific information. The context of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.
BASIC COLOR COAT APPLICATION - Continued

DOES NOT INCLUDE (continued):

- Tinting Primer-Sealer
- Tinting to achieve color match

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G36
GUIDE TO ESTIMATING

BASIC COLOR COAT APPLICATION - Continued

DOES NOT INCLUDE (continued):
- Cover/mask trunk compartment to prevent overspray
- Cover/mask entire exterior of vehicle to prevent overspray damage
- Cover/mask interior of vehicle to prevent overspray damage
- Edge refinishing
- Grind, fill, & smooth welded seams (up to 150 grit sandpaper)
- Paint or material costs

- Test spray-out panel
- Tinting Primer-Sealer
- Tinting to achieve color match

- Wash, grind, or sanding damage to adjacent panels
- Wet sanding

BAGGING (Cover Entire Vehicle Exterior)

Published refinishing times include time necessary to mask exterior or surface adjacent to the refinishing area to a perimeter of 36 inches, or 3 feet. When the process of perimeter masking is substituted for an entire vehicle bagging procedure, then no additional time should be added. All vehicle bagging is used along with perimeter masking, then the following formula may be considered:

APPLY AND REMOVE VEHICLE COVER (BAGGING)
- Add 0.2 each time a cover is applied and removed

CLEAR COAT FINISHES (Base Coat/Clear Coat)

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinishing operation times. If any of these items or operations are required, they should be considered by the estimator. Calculations should be made after deductions for overlap and additions for underside and edges, if required.

- First major panel: – Add 20% to refinishing time
- Each additional panel: – Add 20% to refinishing time
- Maximum time allocation: – 2.5 hours

INCLUDED:
- All components clear coated during a single, continuous procedure
- Apply clear coat
- Clean sprayer (one time)
- Mix clear coat (one time)
- Tack wipe surface (when required)

DOES NOT INCLUDE:
- Any component clear coated as a separate procedure
- Any operation previously excluded in "Refinish Time Premise" and/or "Basic Color Coat Application" groups
- Material costs
- Test spray-out panel

SPECIAL NOTATION:
The following items or operations were not considered during the development of any published basic refinishing operation times. If any of these items or operations are required, they should be considered by the estimator. Calculations should be made after deductions for overlap and additions for underside and edges, if required (if three-stage finish from factory).

- First major panel:
  - Add 70% to refinishing time
- Each additional panel:
  - Add 45% to refinishing time

INCLUDED:
- Back tape opening (handle, lock cylinder, mirror)
- Mask/vacuum gap between adjacent panels up to foam tape (overspray)
- Mask glass opening
- Mask/protect grille radiator opening (overspray)
- Retrieve accurate color information, including paint chip

DOES NOT INCLUDE:
- Any component clear coated as a separate procedure
- Any operation previously excluded in "Refinish Time Premise" and/or "Basic Color Coat Application" groups
- Material costs
- Test spray-out panel

CLEAR COAT UNDAMAGED PANEL

SPECIAL NOTATION:
Calculations for clear coating an undamaged panel are based upon the outer surface only and should not include additions for underside, inside or edges of the clear-coated panel. There should be no overlap deduction between refinished or clear-coated panel(s), nor should this procedure be applied towards the maximum clear coat allocation. Clear coating may be necessary for adjacent body panel(s) to nearest break point (see G 8). The following formula may be considered in the event this type of procedure is required on an undamaged panel:

- Each clear coated panel(s)
  - 40% of panel’s Base Refinish Time

Footnotes found in a chapter contain vehicle-specific information. The content of footnotes is in addition to, and takes precedence over, information in the Guide to Estimating pages for the operation indicated.

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G36
REFINISH TIME PREMISE

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces.

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G34
GUIDE TO ESTIMATING

REFINISH TIME LISTINGS

All refinishes times are listed in hours and tenths of an hour. A time in parentheses adjacent to the part name, such as (3.5) indicates three and one half hours. Replacement time does not include time necessary to refresh the component.

Operation times for the application of painted-on stripes are not covered in this publication. The time necessary to perform this type of operation should be estimated after an on-the-spot evaluation of required procedure.

REFINISH TIME PREMISE

Published refinishing times are for one color applied to new undamaged replacement components, without exterior trim, interior trim or other attached components and applied in one continuous process. For damaged panels, published refinishing times may be applied after the damaged panel has been returned to a NEW UNDAMAGED PANEL.

Unattainable conditions:

Refinishing times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces. Nor do they include time which may be required to compensate for any adverse condition caused by improper specific conditions, application or environmental contamination such as dust, dirt, grease, etc. MOTOR advises all parties consider these factors beforehand to determine mutually acceptable provisions in the event such conditions exist or occur.

ANTI-THEFT LABELS (R DOT)

Replacement part labels are coded with the letter “R” to show that it is a replacement part. R Dot labels should not be removed from the part. Use caution when refinishing, rustproofing or undercoating replacement components to avoid damaging the label.

BUMPER COVERS AND OTHER FLEXIBLE COMPONENTS:

Refinishing times listed on the parts detail line for these components are based on the items being refinishing prior to installation. Refinishing times listed on the parts detail line for an OEM bumper cover that has both body color and unpainted grained portion allows for the refinishing of the body color only. Masking the grained, textured, or non-body color portions in preparation for body color application is an included operation. It includes exterior surface and edges refinishing during one continuous process. If a separate edging procedure is utilized then the appropriate time should be estimated after an on-the-spot evaluation. Refinishing times do not include removal of mold release agent from new unpainted molded components. Parts received from the OEM manufacturer without primer and some non-OEM parts with or without primer should be treated for the presence of release agents that would cause paint adhesion problems and treated accordingly. For unprimed bumper preparation time, see “Add If Required” operation(s). Preparation time for all other unpainted components will be estimated after an on-the-spot evaluation. For unprimed component preparation time, see Unprimed Flexible Component Preparation on page G39.

DOOR OUTER REPAIR PANELS

Refinishing times listed on the parts detail line for new repair panels (i.e. door outer repair panel, tailgate and liftgate repair panels) include panel lip and immediate area. It does not include time for refinishing the entire door frame edge or interior side. Where possible, MOTOR will publish time for those areas under a “Refinishing Notes” heading within that group.

DOOR SHELLS, LIFTGATES AND TAILGATES:

Refinishing times listed on the parts detail line for these new components include exterior surface, edges and interior sides, unless otherwise noted in text.

DOOR SHELS, LIFTGATES AND TAILGATES - Continued

DOORS SHELS, LIFTGATES AND TAILGATES - Continued

Refinishing times listed under the “Refinishing Notes” heading for “door outer panel only” operations do not include time for refinishing the door frame edge or interior side. Where possible, MOTOR will publish time for those areas under a “Refinishing Notes” heading within that group.

FENDERS, HOODS, TRUNK LIDS AND OTHER MAJOR BOLTED PANELS

Refinishing times listed on the parts detail line for these new panels do not include time for refinishing the edge or underside. Where possible, MOTOR will publish time for those areas under a “Refinishing Notes” heading within that group.

QUARTER PANELS AND OTHER MAJOR WELDED PANELS

Refinishing times listed on the parts detail line for these new panels include exterior side, recessed edges, gutters and pockets, unless otherwise noted in text.

Refinishing times listed under the “Refinishing Notes” heading for quarter panels or other major welded panels “exterior surface only” operations do not include time for refinishing recessed edges, gutters and pockets. Where possible, MOTOR will publish time for these areas under the “Refinishing Notes” heading within that group.

NEW UNDAMAGED PANEL

A component manufactured to the same exacting standards as the parts installed on new vehicles when the car was built. Exterior body panels are supplied with a smooth painted surface (e-coat).

UNDERSIDE COLORS

Some vehicle manufacturers use a different color for the engine compartment and/or the deck. An additional paint mix is required if the underside and/or jack color is a different color from the exterior body color. Clear coat (gloss or matte) will be required for base color applications. This should be considered when developing the estimate.

PRIME & BLOCK

Prime & Block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the included areas of replaced welded panels, from 150-grit finish to NEW UNDAMAGED condition. MOTOR's position that prime and block is a process best reserved for the judgment of an estimator/appraiser following a thorough on-the-spot evaluation of the specific vehicle and damage in question.

REPAIRED PANEL REFINISHING

MOTOR suggests using component(s) base refinishing time for this type of procedure after the damaged panel is repaired to new undamaged condition. Repaired surface preparation requires an on-the-spot evaluation for additional procedural steps such as featheredge and/or prime and block not required for new undamaged panels.

PARTIAL PANEL REFINISHING

This is NOT a BLEND-BY-NEXTION procedure; partial panel refinishing is NOT a BLEND operation. MOTOR defines partial panel refinishing as finishing a body panel with damage that is contained within a defined border or underneath body cladding after the panel has been repaired to that of a “NEW UNDAMAGED PANEL.” It is MOTOR’s position that partial panel refinishing is a process best reserved for the judgment of an estimator/appraiser following a thorough on-the-spot evaluation of the specific vehicle and refinishing requirements in question. Refer to G.T.E. "BASIC COLOR COAT APPLICATION."
Mitchell

Not Included Operations

• Color match or tinting

Source: Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 16
Procedure Explanation

Bumper Assembly O/H
Included Operations
• Remove and install assembly
• Disassemble and replace damaged parts
• Replace or transfer parts attached except those listed in Not Included Section
• Remove and install or replace: License plate bracket
• Assemble and install
• Adjust alignment to vehicle

Not Included Operations
• Refinish bumper
• Remove and replace impact absorbers or mounting arms
• Remove and install or replace optional accessories (example: trailer hitch, trailer connector)
• Remove and install adhesive exterior trim; add to clean and retape
• Replace new adhesive exterior trim; deduct one-half of R&R time
• Install stripes, decals, transfers or overlays

Procedure 28—Refinish Procedure

Refinish General Information
Complete Refinish
Refinish times in this Guide pertain to NEW, UNDAMAGED PARTS and are not intended for calculating complete vehicle refinish—single- or multi-stage. An estimate of this nature would suggest all new panels have been fitted to the vehicle.

Lifetime Refinish Warranty/Clear Coat

The major paint manufacturers listed below have provided the following information: “Major refinish paint manufacturers recommend that when performing refinish warranty repairs on an OEM multi-stage or basecoat/clearcoat finish, you must extend the application of clear to the nearest panel edge or breakpoint to qualify for lifetime warranty.”

AKZO DePONT — Stervin Williams — BASF — PPG

Repaired/Used Panels
Labor times related to repaired and/or used panels—example: Remove and install or masking of glass, outside handles or exterior trim. Feather prime & block, masking for primer surfacer application—are not included in refinish time. The steps required for refinishing a repaired and/or used panel may vary from those required for a new panel depending on the condition of the repaired and/or used panel.

Feather, Prime & Block

Is the Not-Included operation that completes bodywork repair from 150 grit smoothness to the condition of a new undamaged panel, and the point at which refinish labor time begins. The labor and materials associated with feather, prime and block may vary depending upon the size of the repair area, and should be evaluated when determining the work to be performed. See Welded Panels under Estimating Information.

SPOT REPAIR/BLEND ADJACENT PANEL

Spot Repair

Spot repair is defined as applying color to the repaired area of a damaged panel to obtain full coverage of undercoats, and blending that color into the original panel finish so that no transition can be detected. The goal is to keep the actual repair as small as possible to avoid having newly applied color directly next to an undamaged adjacent panel(s). Clear coat is then applied to the entire panel. This refinish process minimizes color mismatch.

Blend for Color Match

Blending is defined as applying color, without necessity to cover undercoats, to less than the full surface area of an adjacent undamaged panel. Paint manufacturers recommend blending adjacent panels when a panel is replaced, or repaired and color applied to the full surface areas, or to the area that borders the adjacent undamaged panel(s). Clear coat is then applied to the entire blended panel.

Major Panels

Major panels are those listed: FRONT HEADER, FENDER, HOOD, COIL TOP, DOOR, ROCKER, ROOF, PICKUP CAB CORNER, PICKUP CAB

BACK, QUARTER, PICKUP BED FRONT, PICKUP BED SIDE, VAN SIDE, VAN REAR CORNER, ENGINE LID, LUGGAGE LID, LIFT GATE, REAR RATE, TAIL GATE, REAR BODY

Overlap

Deduct .4 hour from refinish time for each ADJACENT MAJOR PANEL and deduct .2 hour from time for each NON-ADJACENT MAJOR PANEL. There is no overlap deduction taken for the first major panel.

Adjacent major panel example: Right front fender 2.5 hours (full time) and right front door 2.5 hours minus .4 hour overlap for a total of 4.6 hours.

Non-adjacent major panel example: Right front fender 2.5 hours (full time) and left front fender 2.5 hours minus .2 hour overlap for a total of 4.8 hours.

No overlap deductions for valance panel, pillars, door jams, underside of hood, underside of luggage lid or underside of gate, inner panels, filler panels, soft bumper covers or bolt-on finish panels.

NOTE: Refinish times are for outside surfaces only unless stated otherwise in text (example: add for underside, add to edge).

Included Operations
• Solvent wash
• Scuff panel and clean
• Mask adjacent panels up to 36 inches or substitute with cover vehicle (bag) complete
• Prime or seal as required
• Final sanding and clean
• Mix materials
• Adjust spray equipment
• Apply color
• Clear coat

Not Included Operations
• Blending into adjacent panel and/or panels, or nearest breaking point
• Color match or tinting
• Additional application of fill-chip primer or fill-chip primers

Seasonal Preparation

• Mixed sand and buff
• Subsequent vehicle bagging when required: add .2 hour for each application & removal
• Mask interior to prevent overspray damage
• Removal of protective coatings
• Removal of release agent from OEM raw plastic components (example: non-primed bumper covers) See formula under Raw Substrate Prep
• Feather, Prime & Block paint damage to adjacent panel and/or panels joined by welding due to burn damage (see Feather, Prime & Block definition under: Refinish General Information)
• Gravel guard refinish: add .5 hour for the first major panel and .3 hour for each additional panel

NOTE: The included operation of mask adjacent panels is inclusive of any necessary back tape masking to prevent overspray.

IMPORTANT REMINDER: Refinish times are for NEW, UNDAMAGED PARTS without exterior or interior trim or attached components. Refinish times may vary depending on individual procedures, product and/or weather conditions.

A small percentage of colors are identified by the paint manufacturers as highly transparent. These colors may require additional application coats to achieve visual hiding. In instances where four or more color coats are necessary to achieve adequate hiding, some adjustment in refinish times may be appropriate.

IMPORTANT REMINDER: The cost of paint and materials is not included in refinish time.

Gravel Guard application and appropriate refinish may be necessary beyond the actual replacement area to achieve a “texture” match.

It may be necessary to tint or otherwise modify non-exterior colors applied to undersides, edges and/or jams for which there is no paint color formula to achieve a color match. When necessary, reference “color match or tinting” listed above in Not Included Operations.

Raw Substrate Prep

Apply .2 per refinish hour (20%) for plastic components that come from the manufacturer/supplier in a raw/un-primed state.
DEG Inquiry #693

Color Match & Tint

Issue Summary // insurance company denied time to color match & tint stating that this procedure is included with the cost of paint materials. Can you please define if this is an included operation and is it the labor that is included or the labor and materials?

DEG Response

Called Customer 9/12/08

Discussed/Informed Customer regarding refinish procedural pages (p-28) that color tint / matching is not an included operation.

No Labor changes.

### DEG Database Inquiry

**Track #** | Estimating Platform | Inquiry Category | Year Make Model | Resolution Status | Origination Date | Submission Date | Resolution Date | Total Time to Resolve
--- | --- | --- | --- | --- | --- | --- | --- | ---

**Inquiry Description**

- Issue Summary: Insurance company denied time to color match & tint stating that this procedure is included w/ the cost of paint materials. Can you please define if this is an included operation and if the labor that is included, or the labor and materials.

**Resolution Description**

- IP Explanation:
  - CALLED CUSTOMER 9/12/08
  - DISCUSSED/INFORMED CUSTOMER REGARDING REFINISH PROCEDURAL PAGES (P-28) THAT COLOR TINT/MATCHING IS NOT AN INCLUDED OPERATION.
  - NO LABOR CHANGES.

DEG Inquiry #1579

Hood / Radiator Support

Issue Summary: Interior surface of hood and radiator support are painted semi gloss black and vehicle exterior is a bright blue. Insurance provider claims this would not require a tone allowance. There is both blue and black paint on these panels from the factory. Please review current database information for refinishing these panels and clarify if the two colors (interior/exterior) were considered when current database refinish times were generated.

IP Explanation

Response:
THE REFINISH ALLOWANCE FOR THE RADIATOR SUPPORT INCLUDES PAINTING INSIDE AND OUT ONE COLOR.

THE P-PAGES IN PROCEDURE 28 UNDER THE NOT INCLUDED OPERATION SIDE HAS THE FOLLOWING STATEMENT: "IT MAY BE NECESSARY TO TINT OR OTHERWISE MODIFY NONEXTERIOR COLORS APPLIED TO UNDERSIDES, EDGES AND/OR JAMBS FOR WHICH THERE IS NO PAINT COLOR FORMULA TO ACHIEVE A COLOR MATCH. WHEN NECESSARY, REFERENCE COLOR MATCH OR TINTING LISTED ABOVE IN NOT INCLUDED OPERATIONS".

### DEG DATABASE INQUIRY

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<th>Year Make Model</th>
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### Inquiry Description

**Hood / Radiator Support**

Issue: Summary/Interior surface of hood and radiator support are painted semi gloss black and vehicle exterior is a bright blue. Insurance provider claims this would not require to tone allowance. There is both blue and black paint on these panels from the factory. Please review current database information for refinishing these panels and clarify if the two colors (interior/ exterior) were considered when current database refresh times were generated.

### Resolution Description

**Response:**

The refinish allowance for the radiator support includes painting inside and out one color.

The P-Pages in Procedure 28 under the Not Included Operation SIDE has the following statement: "It may be necessary to tint or otherwise modify non-exterior colors applied to undersides, edges and/or jambs for which there is no paint color formula to achieve a color match. When necessary, reference color match or tinting listed above in not included operations."
DEG Inquiry #1687

Mix Paint

Issue Summary // The current P-Page notes state "mix paint" time is included in the refinish labor allowances. Based on the attached response from Motor their definition of "mix paint" is the addition of hardners, thinners, etc. not the mixing of the toners to create the actual paint color. We have a local insurance field appraiser pointing to the CCC p-page information and claiming the time to mix toners to create the color is included in CCC/Motor refinish times.

Suggested Action // Please clarify the fact that CCC refinish times are a based on the use of "factory pack" pre mixed paint and the process of mixing the paint color at the shop level is NOT an included item. Also please clarify the P-page statement about "mix paint" so the CCC/Motor definition of "mix paint" is it is clear to it\'s users.

IP Explanation

Research Response: MOTOR stated:
\'According to the Guide to Estimating, tinting (adding toner) to achieve color match is not included with the Basic Color Coat application. Please refer to the supporting document and the Guide to Estimating for more information. No changes at this time. However, we will evaluate this topic during the next Guide To Estimating review.\'

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### Resolution Description

IP Explanation

Research Response: MOTOR stated:
\nAccording to the Guide to Estimating, tinting (adding toner) to achieve color match is not included with the Basic Color Coat application. Please refer to the supporting document and the Guide to Estimating for more information.

No changes at this time. However, we will evaluate this topic during the next Guide To Estimating review.\n
DEG Inquiry #3638

Tint Three Stage

Issue Summary // Is color tint labor included in the three-stage refinishing procedure during test panel application?

Suggested Action // Delineate if color tinting is an included operation for three-stage.

IP Explanation

Estimated Release Date: Closed
Research Response: In the MOTOR Guide To Estimating, Refinish Time Premise, second paragraph, it states, "Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces".

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### Inquiry Description

- **Tint Three Stage**
  - IssueSummary//Is color tint labor included in the three-stage refinishing procedure during test panel application?
  - SuggestedAction//Delineate if color tinting is an included operation for three-stage.

### Resolution Description

- **IP Explanation**
  - Estimated Release Date: Closed
  - Research Response: In the MOTOR Guide To Estimating, Refinish Time Premise, second paragraph, it states, "Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces."

DEG Inquiry #4486

Paint Mix

AreaVehicle//Refinish

IssueSummary//Is mixing of toners included in the refinish labor allowance? Please define "mix paint".

SuggestedAction//Inclusion of additional time and explanation to reflect actual standard procedures

IP Explanation

Estimated Release Date: Closed
Proposed Resolution: MOTOR stated: After review, the statement, "Mix paint (color and necessary solvents)" found on page G35 of the Guide To Estimating, will be changed to "Mix paint (color with necessary solvents)." Please note this change will occur during the Guide To Estimating update in Fall 2012.

No changes at this time.

Motor Crash Estimating Data refinish allowance is developed based on a premixed color (factory pack). This does include retrieving accurate color information (code), including paint chip. The mixing of additives (ex: thinner / reducer / hardener etc.) to the premixed color is included in Motor Crash Estimating Data refinish allowance; this is referred to as "mix paint" in our Guide To Estimating pages (G53). Test spray-out panel and tinting to achieve color match is not included in Motor Crash Estimating Data refinish allowance (G53).

Mixing Systems enables refinishers to mix the desired color by combining paint toners; this formulation of color is not included in Motor Crash Estimating Data refinish allowance.

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#### Inquiry Description

- **Paint Mix**
  - AreaVehicle//Refinish
  - IssueSummary//Is mixing of toners included in the refinish labor allowance? Please define "mix paint".
  - SuggestedAction//Inclusion of additional time and explanation to reflect actual standard procedures

#### Resolution Description

- **IP Explanation**
  - Estimated Release Date: Closed
  - Proposed Resolution: MOTOR stated: After review, the statement, "Mix paint (color and necessary solvents)" found on page G35 of the Guide To Estimating, will be changed to "Mix paint (color with necessary solvents)." Please note this change will occur during the Guide To Estimating update in Fall 2012.
  - No changes at this time.
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  - Mixing Systems enables refinishers to mix the desired color by combining paint toners; this formulation of color is not included in Motor Crash Estimating Data refinish allowance.

DEG Inquiry #5811

Different Paint Times
Section6_AreaVehicle
Front bumper cover

Section6_IssueSummary
CCC gives 2.8 paint + 1.1 clear coat for the front bumper.
Audatex gives 3.7 paint.. broken down it is 2.6 surface, .6 2 stage set up, and .5 two stage.
Shouldn't Audatex give more time since they say tinting the color is and included operation?

DEG Response
It is not possible to compare the times between different estimating systems because each information provider has a different methodology when it comes to creating labor times. What's included with one system may not be included in another. An example would be the tint operation is included in Audatex as the inquiry states and another is that CCC does not allocate time to mix the toners before refinish. They allocate time to mix the final paint color with solvents.

### DEG Inquiry #5811

#### DEG DATABASE INQUIRY

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#### Inquiry Description

#### Resolution Description

**Different Paint Times**

- Section6_AreaVehicle
  - Front bumper cover

- Section6_IssueSummary
  - CCC gives 2.8 paint + 1 clear coat for the front bumper.
  - Audatex gives 3.7 paint.. broken down it is 2.6 surface, .6 2 stage set up, and .5 two stage. Shouldn't Audatex give more time since they say tinting the color is and included operation?

**DEG Response**

It is not possible to compare the times between different estimating systems because each information provider has a different methodology when it comes to creating labor times. What's included with one system may not be included in another. An example would be the tint operation is included in Audatex as the inquiry states and another is that CCC does not allocate time to mix the toners before refinish. They allocate time to mix the final paint color with solvents.

DEG Inquiry #7613

Matte Finish

AreaVehicle
Rear Bumper, lower Applique Molding

Section6_IssueSummary
Need Additional labor and paint materials to do a "Matte" finish.

Section6_Special
This lower applique raw plastic part has a factory "matte" finish. We need to a flattener agent to the clear coat, and then do spray outs to verify that the gloss retention matches the OEM finish

Section6_EstimatedSurface
approx 200 sq inches

Section6_SuggestedAction
Let us know if there is a place in the estimating system that we can add time and materials when we are doing a Matte finish. Is there an existing protocol, or guidance anywhere regarding this? Thank you!

IP Explanation

Estimated Release Date: Closed
Proposed Resolution: MOTOR stated:
After review, any additional spray outs, clear additives and tinting are not included operations for the clear coat operation. MOTOR suggests using an on the spot evaluation to determine an appropriate additional estimated work time.

No changes required.

DEG Inquiry #7613

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**Inquiry Description**

- Matte Finish
  - Area: Vehicle
  - Rear Bumper, Lower Applique Molding
  - Section6_IssueSummary
    - Need Additional labor and paint materials to do a "Matte" finish.
  - Section6_Special
    - This lower applique raw plastic part has a factory "matte" finish. We need to a flatterner agent to the clear coat, and then do spray outs to verify that the gloss retention matches the OEM finish.
  - Section6_EstimatedSurface
    - approx 200 sq inches
  - Section6_SuggestedAction
    - Let us know if there is a place in the estimating system that we can add time and materials when we are doing a Matte finish. Is there an existing protocol, or guidance anywhere regarding this? Thank you!

**Resolution Description**

- IP Explanation
  - Estimated Release Date: Closed
  - Proposed Resolution: MOTOR stated:
    - After review, any additional spray outs, clear additives and tinting are not included operations for the clear coat operation. MOTOR suggests using an on the spot evaluation to determine an appropriate additional estimated work time.
  - No changes required.
Question 3.
Is there a pre-determined time?
3. Are there pre-determined times for tinting?

Answer: Audatex is the only Information Provider that provides a pre-determined time to tint.

However, if there is not a time, it does not mean that it is included. If there is not a time, you may need to do a manual entry.
AudaExplore

Color Tint

Audatex’s two-stage setup refinish labor includes time for standard tint. Standard tint is defined as the initial mix, check, one tint cycle and check.

Audatex’s studies revealed instances where additional time was required for the tinting process. The range of this additional time was commonly between 0.1 and 1.0 hours with an average of 0.5 hours per estimate per color.

The appearance of color match can be difficult enough to require both color tint (tinting to adjust the color) and blending. I-CAR Finish Matching (Module 2, Topic 3) recommends planning and preparing for blending before the work begins. Per I-CAR, tinting should be done only to achieve a blendable match.

Section 4-4 Refinish Guidelines

Refinish within Panel Boundaries – continued

2. The second method is to override the prestored labor to the desired time.

It is important to keep in mind when using the method that all adjacent panel and nonadjacent panel overlap will still be considered in an estimate when the panel being painted is on a lower guide number. If this method is used, and overlap is not applicable, any overlap deducted by the system should be manually included in the estimated time for the spot painting. Non-adjacent panel overlap time is 0.2 and adjacent panel overlap time is 0.4.

Therefore, when using the override method and non-adjacent panel overlap applies, add 0.2 to the spot paint time. When using the override method and adjacent panel overlap applies, add 0.4 to the refinish operation.

Color Tint

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Color Sand and Buff

This process, which may or may not be required, is defined as wet sanding the entire panel by compound buffing and mechanical or hand polishing. Color sand and buff is further defined as all of the above steps performed to the finished surface for any reason, plus cleanup.

Color sand and buff can be estimated at:
- 30% of Audatex single-stage refinish labor (not including final wash).

Replaced Panel Refinish

Current Audatex refinish labor is based on the use of new and undamaged panels. Additional steps or processes that may be required should be considered during estimate preparation.
Question 4.
What is it worth?
4. If not, what is it worth?

Answer: The Repair Planner will have to use judgment times on these items since no database times are given by the Information Providers.

The following items are included as justification:

- Conduct your own time study:
  - Create a time study form
  - Create a video of the time study
- Axalta Work Standard for The Paint Mixing Process
Additional Thoughts
Additional Thoughts

- When you tint, you may be required to blend.
- I-CAR Finish Matching (Module 2, Topic 3) recommends planning and preparing for blending before work begins.
- Per I-CAR, tinting should be done only to achieve a blendable color match.
- TIP: If you save the P-pages as a PDF and search for terms in the document by going to Edit, then Find or by hitting Ctrl+F.