Process 3 – Rolled Wet Sanding

- Color Sand & Buff, Nib Sanding / De-nib
- Wet / Dry Sand Rub Out & Buff and De-nib & Polish
- Finish Sand & Buff, De-nib & Finesse
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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.

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

1. 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

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

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

4. What is it worth?
   - Do a Time Study
   - Print an Invoice
   - OEM Warranty Times
   - Equipment Manufacture Times
   - ALLDATA®, TechAdvisor and Other Similar Systems
   - Internet
Definitions
Finish Sand & Buff - Definitions

AudaExplore Definition

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 AudaExplore single-stage refinish labor (not including final wash).


Nib Sanding / De-nib
Nib sanding (or de-nib) is defined as the removal of isolated dirt and dust particles, and polishing the affected area(s).

- AudaExplore’s formula for Color Sand and Buff does not apply to this operation. Additional steps or processes that may be required should be considered during estimate preparation.


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1 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 AudaExplore Estimating, Pen Pro or Shoplink. The current version of the Database Reference Manual may also be found at www.training.AudaExplore.us.
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.
Section 4-4 Refinish Guidelines

Repaired Panel Refinish

When a repaired panel is being refinished, the estimator provides time for the repair of the panel. The estimator also determines included operations. When Audatex refinish labor is used for repaired panels, Audatex refinish times assume that the panel has been returned to the condition of a new, undamaged OEM panel or equivalent.

When the estimator enters a judgment time for refinish labor, the estimator also determines the included operations. Operations that might be considered in the repair refinish time include any steps required to bring the panel to the condition of a new, undamaged panel. This may include feather edge, blow off and clean, mask to prime, tack off, mix etch primer, prime bare metal, mix and apply primer filler, guide coat application, unmask as required, and block sand. Panel scuff to facilitate application of clear may also be considered for two- or three-stage refinish.

Feather / Prime / Block

Audatex recognizes that Feather/Prime/Block are required operations when replacing welded-on panels. Time to perform this operation is included in the Audatex time for welded panel replacement in the seamed areas, to bring the panels to the condition of a new, undamaged panel for the purpose of refinish. Although the time is included, Audatex does not provide a material allowance for the Feather/Prime/Block process. If necessary, the determination and assessment for materials is best provided by the estimate preparer for consideration and allowance during the estimate preparation process.

Audatex recognizes that Feather/Prime/Block are required operations in the panel repair process. Audatex does not provide a labor time allowance for repaired panels, as this is a judgment time. Audatex does not provide a labor time allowance for Feather/Prime/Block, as this, too, is a user judgment time. Audatex does not provide a material allowance for the Feather/Prime/Block process. The determination and assessment for this operation is best provided by the estimate preparer for consideration and allowance during the estimate preparation process.

Nib Sanding/De-nib

Nib sanding (or de-nib) is defined as the removal of isolated dirt and dust particles, and polishing the affected area(s).

- Audatex's formula for Color Sand and Buff does not apply to this operation. Additional steps or processes that may be required should be considered during estimate preparation.
CCC/Motor Definition

De-nib & Polish

SPECIAL NOTATION:

Refinished panels may or may not require a varying amount of de-nibbing, a process used to remove small particles in final finish surface. The clear coat contains ultraviolet screeners and reducing the clear coat thickness (mils) may result in early paint failure. Follow vehicle manufacturer’s recommendations when performing this type of repair. Calculations should be based upon the base refinish time outer surface only and should not include additions for clear coat, underside, inside or edges. In the event that this type of operation will be performed, MOTOR suggests the following formula be considered:

Each panel requiring de-nibbing (refinish or blend)

HOOD, ROOF, TRUNK LID, SPOILER

First panel add up to 20% of full base refinish time, each additional panel add up to 10%

FENDER, DOOR, QUARTER PANEL, BUMPER COVER

First panel add up to 10% of full base refinish time, each additional panel add up to 5%

INCLUDED:

- Panel outer surface only
- Pain nib removal as required (spot only)
- Spot polish only

DOES NOT INCLUDE:

- Acid rain damage
- Full panel polish
- Overspray removal
- Removal of residual material from recessed edges and jambs if required
- Scratch damage
- Wash, clean, wax or detail entire vehicle prior to delivery if required
- Wet sand full panel

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G39
CCC/Motor Definition

Wet / Dry Sand, Rub-out & Buff

SPECIAL NOTATION:

Refinished panels may or may not require a varying amount of wet sanding, compound rub-out or buffing operations in order to match original finish texture. The clear coat contains ultraviolet screeners and reducing the clear coat thickness (mils) may result in early paint failure. Follow vehicle manufacturer's recommendations when performing this type of repair. Calculations should be based upon the outer surface only and should not include additions for clearcoat, underside, inside or edges. Base refinish time does not include deduction for refinish overlap. In the event that this type of operation will be performed, MOTOR suggests the following formula be considered:

Refinished panels may or may not require a varying amount of wet sanding, compound rub-out or buffing operations. In the event this type of operation will be performed, MOTOR suggests the following formula be considered.

- Each panel requiring wet sand, rub-out and/or buff (refinish or blend)
  - Add 30% of full base refinish time

INCLUDED:
- Panel outer surface only
- Wet sand full panel as required
- Compound, buff and/or polish as required

DOES NOT INCLUDE:
- Acid rain damage
- Overspray removal
- Removal of residual material from recessed edges and jambs if required
- Wash, clean, wax or detail entire vehicle prior to delivery if required

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G39
GUIDE TO ESTIMATING

WE LD ZONE/ADJACENT PANEL

SPECIAL NOTATION:
Suggested refinish alteration times do not include additional
time for repair of damage to adjacent panels resulting from
normal cutting, welding and grinding procedures. The amount
of damage can vary considerably depending upon process
and technique used by the servicing technician and, there-
fore, is impractical to anticipate in this publication. MOTOR
recommends these factors be considered before finalizing
any repair cost estimate. Typical areas to be considered are
illustrated below.

DE-NIB & POLISH

SPECIAL NOTATION:
Refinished panels may or may not require a varying amount
of de-nibbing, a process used to remove small particles in
final finish surface. The clear coat contains ultraviolet screen-
ers and reducing the clear coat thickness (mil) may result in
early paint failure. Follow vehicle manufacturer’s recom-
dendations when performing this type of repair. Calculations
should be based upon the base refinish time outer surface
only and should not include additions for clear coat, under-
side, inside or edges. In the event that this type of operation
will be performed, MOTOR suggests the following formula be
considered:

Each panel requiring de-nibbing (finish or blend)
Hood, Roof, Trunk Lid, Spoiler
First panel add up to 20% of full base refinish time;
additional panel add up to 10%
Fender, Door, Quarter Panel, Bumper Cover
First panel add up to 10% of full base refinish time;
additional panel add up to 5%

INCLUDED:
• Panel outer surface only
• Panel rib removal as required (spot only)
• Spott polish only

DOES NOT INCLUDE:
• Acid rain damage
• Full panel polish
• Overspray removal
• Removal of residual material from recessed edges and
jams if required
• Scratch damage
• Wash, clean, wax or detail entire vehicle prior to delivery if
required
• Wet sand full panel

WET/DRY SAND, RUB-OUT & BUFF

SPECIAL NOTATION:
Refinished panels may or may not require a varying amount
of wet sanding, compound rub-out or buffing operations in
order to match original finish texture. The clear coat contains
ultraviolet screeners and reducing the clear coat thickness
(mil) may result in early paint failure. Follow manufacturer’s
recommendations when performing this type of repair.
Calculations should be based upon the outer surface only
and should not include additions for clear coat, underside,
inside or edges. Base refinish time does not include deduc-
tion for refinish overlap. In the event that this type of opera-
tion will be performed, MOTOR suggests the following formu-
la be considered:

• Each panel requiring wet sand, rub-out and/or buff (finish
or blend)
• Add 30% of full base refinish time

INCLUDED:
• Panel outer surface only
• Wet sand full panel as required
• Compound, buff and/or polish as required

DOES NOT INCLUDE:
• Acid rain damage
• Overspray removal
• Removal of residual material from recessed edges and
jams if required
• Wash, clean, wax or detail entire vehicle prior to delivery if
required

UNPRIMED FLEXIBLE COMPONENT
PREPARATION

• 25% of the component’s
• Base refinish time
• Maximum time allocation:
• 1.0 hours

INCLUDED:
• Removal of mold-release
agents as outlined by
manufacturer
• Masking if required
• Application of adhesion
promoter

DOES NOT INCLUDE:
• Correction of pre-existent
surfaces imperfections
• Material Costs

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

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G39
**Mitchell Definition**

**Finish Sand & Buff**

A labor time formula is provided *should it be necessary to perform this operation*. This procedure includes the removal of orange peel and any blemishes that affect paint texture in order to produce a smooth finish to the entire panel surface. This process is not limited to “nib sanding” or “finessing” which is the removal of isolated dirt/dust particles only. The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

The finish sand and buff formula is intended to be calculated as a percentage of the base refinish hours excluding overlap and clear coat. It DOES NOT APPLY to edges, jambs and undersides. For blended panels, the formulas should be applied to the full panel refinish time. No deduction for refinish overlap should be taken.

**Finish sand and buff outside surface area(s):** Allow .3 per refinish hour (30%) to finish sand and buff each surface area(s).

Source: Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 18

**De-nib & Finesse**

A labor time formula is provided should it be necessary to perform this operation. This procedure includes the removal of small isolated dust particles (nibs) and the application of a finishing glaze.

The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

The de-nib and finesse formula is intended to be calculated as a percentage of the base refinish hours excluding overlap and clear coat. It DOES NOT APPLY to edges, jambs and undersides. For blended panels, the formulas should be applied to the full panel refinish time. No deduction for refinish overlap should be taken.

**De-nib and finesse outside surface area(s):** Allow .2 per refinish hour (20%) to de-nib and finesse each surface area(s).

Source: Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 18
**Procedure Explanation**

- **Remove and install or mask attached components, trim, stripes or decals on blended panel(s).**
- **Finish, sand, and buff.**

**NOTE:** Blend labor time does not apply to two-tone refinish or custom non-OEM refinish. No overlap deduction applies to blended panel(s)/refinish area(s).

**NOTE:** When calculated, the estimate will allocate 40% from the total blend time and add 15% to the three stage line item. The total sum of the blend line and the amount allocated in the three stage line will total 70% of the exterior refinish time for the panel being blended.

Example: 4 panel refinish time is 2.0 hrs. When blended, the refinish time for that panel will be displayed as: 1.4 (77% per refinish hour). Once calculated, the refinish blend line will be displayed as: .8 and 6 (40%) will be allocated to the three stage line.

**Extension of Clear Coat**

In some applications, it may be required to extend the application of clear to the nearest panel edge or breakpoint.

The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

The extension of clear coat formula is intended to be calculated as a percentage of base refinish hours excluding overlap. It DOES NOT APPLY to edges, jambs, and undersides. No deduction for overlap should be taken.

This formula DOES APPLY to the 2.5 hrs maximum clear coat allocation. Should this operation be necessary, the following formula is provided:

**Extend Clear to Adjacent Panel(s)**

Extend clear to adjacent panel(s): 
- 3.0 per refinish hour (50%) for each panel(s)/refinish area(s) cleared.

**Included Operations**
- Detergent/solvent wash
- Wet sand, scuff (Scotchbrite) or rubout (compound) panel and clean for preparation
- Mask existing adjacent panels to 36"
- Apply bonding material - if required
- Clean and tack surface
- Apply clear material

**Not Included Operations**
- Repair existing surface imperfections
- Remove and install or mask attached components, trim, stripes or decals on extended clear panel area
- Finish, sand, and buff

---

**Finish Sand & Buff**

A labor time formula is provided should it be necessary to perform this operation. This procedure includes the removal of orange peel and any blemishes that affect paint texture in order to produce a smooth finish to the entire panel surface. This process is not limited to "nib sanding" or "finesse" which is the removal of isolated dritidit particles only. The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

The finish sand and buff formula is intended to be calculated as a percentage of the base refinish hours excluding overlap and clear coat. It DOES NOT APPLY to edges, jambs, and undersides. For blended panels, the formula should be applied to the full panel refinish time. No deduction for refinish overlap should be taken.

Finish sand and buff outside surface area(s). Allow 3 per refinish hour (30%) to finish sand and buff each surface area(s).

**De-nib & Finesse**

A labor time formula is provided should it be necessary to perform this operation. This procedure includes the removal of small isolated dust particles (nibs) and the application of a finishing glaze.

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**Mask Vehicle to Prevent Overspray Damage**

The following refinish information is provided should it be necessary to perform these operations as determined by individual job requirements.

**MASK INTERIOR, ENTRYWAYS, ENGINE COMPARTMENT AND TRUNK OPENINGS**

Interior masking may be necessary when finishing exterior surfaces to stop overspray damage that is not prevented by adjacent panel perimeter masking which includes back taping or application of foam tape. Interior masking may also be used when exterior panels (door, hood, etc.) are removed while applying refinish material. The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

---

**Fig. 1: IDENTIFYING INTERIOR MASKING LOCATIONS**

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**Source:** Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 18
### Justifying Each Line on the Repair Plan

<table>
<thead>
<tr>
<th>1. Is it required?</th>
<th>2. Is it included?</th>
<th>3. Is there a predetermined time?</th>
<th>4. If not, what is it worth?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLDATA®, TechAdvisor, etc.</td>
<td>ASA Not-Included Charts</td>
<td><a href="http://www.DEGweb.org">www.DEGweb.org</a></td>
<td>Print an Invoice</td>
</tr>
<tr>
<td>Paint Manufacturer’s Bulletins</td>
<td></td>
<td><a href="http://www.DEGweb.org">www.DEGweb.org</a></td>
<td>OEM Warranty Times</td>
</tr>
<tr>
<td>Material Manufacturer’s Bulletins (3M, Wurth, Kent, etc.)</td>
<td></td>
<td><a href="http://www.estimate">www.estimate</a> scrubber.com</td>
<td>Equipment Manufacturer’s Bulletins</td>
</tr>
<tr>
<td>Equipment Manufacturer’s Bulletins</td>
<td>SCRS Guide to Complete Repair Planning</td>
<td></td>
<td>ALLDATA®, TechAdvisor, etc. Times</td>
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<tr>
<td>Scan Tools</td>
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</tr>
<tr>
<td>The Vehicle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Question 1. Is it required?
Four Negotiation Questions

1. Is “Finish Sand & Buff” required to return the vehicle back to pre-accident condition?

Answer: Yes, Finish Sand & Buff is required to return the vehicle to pre-accident condition.

Answer Documentation:

The previous definitions from the leading Information Providers state that Finish Sand & Buff may or may not be required. Therefore, we must look at other documentation sources.

Based on information received from the paint manufacturers, they all either state, recommend and/or agree that:

- “It is not likely that a repair can be made that is completely free of surface defects.”
- “Defects happen at the OEM level and will likely occur in a Collision Repair facility as well.”
- “Some detail work (de-nib and polish / wet sand and buff) can be expected.”
- “Polishing, sanding and or de-nibbing to remove dirt inclusions from refinished automotive panels” is necessary in order to match the texture appearance and overall durability of existing OEM paintwork.
- “Polishing a paint finish to remove defects is a normal and necessary operation for both OEM manufacturers and collision repair shops.”
- “Even with extreme care in cleanliness and preparation procedures, dirt and particulates can land in the clear coat film during the application and drying process.”
- “Color Sand & Buff involves a thorough sanding and polishing of the entire surface to remove surface texture to better match the OEM finish and texture. This is a necessary practice that is widely used to meet customer quality expectations as well as to return the vehicle to pre-accident condition.”

The original source documents from the Paint Manufactures follows.

Toyota / Lexus / Scion states that:

- “Customers have high expectations for automotive paint finish appearance and expect repairs to match factory color, gloss, and texture. Flawed refinish appearance is a cause of concern and will likely have a negative affect on customer satisfaction and retention.”

The original source document – Refinish Bulletin #173 from Toyota, Lexus and Scion follows.
To: Scott Simpson
From: Alan Craighead
Date: February 6, 2009
Copies to: Ed Pietrzak, E. Oesterle and T. Muldowney
Subject: De-nib and Polishing Requirements

It is not likely that a repair can be made that is completely free of surface defects. Defects happen at the OEM level and will likely occur in a Collision Repair facility as well. At the OE level defects are anticipated and high intensity lighting is used to detect flaws. When defects are located they are finessed polished from the surface. If the defects are severe the car may be repainted or rejected.

The goal in a Collision Repair facility is to minimize these errors and balance detail expectations with paint productivity. Some detail work (de-nib and polish) can be expected.

Paint film measurements/calculations are necessary in order to determine the maximum amount of product that can be removed in the de-nib and polishing process. By only removing quantities approved by OEM and Sikkens, can you insure paint film integrity.

Maximum of .3 - .5 mils may be removed during the total de-nib and polishing process. For vertical surfaces a maximum of .3 mils of clear can be removed and .5 mils for horizontal surfaces. When performing color sanding and polishing on Sikkens clear coats be sure to follow technical reference manual recommendations for application and polishing.

To Whom it May Concern

From Alan Craighead

Date June 6, 2009

Subject De-Nib and Polish

Copies to Tom Moreland

It is not likely that a repair can be made that is completely free of surface defects. Defects happen at the OEM level and will likely occur in a Collision Repair facility as well. At the OE level defects are anticipated and high intensity lighting is used to detect flaws. When defects are located they are finished polished from the surface. If the defects are severe the car may be repainted or rejected.

The goal in a Collision Repair facility is to minimize these errors and balance detail expectations with paint productivity. Some detail work (de-nib and polish / wet sand and buff) can be expected.

Paint film measurements/calculations are necessary in order to determine the maximum amount of product that can be removed in the de-nib and polishing process. By only removing quantities approved by OEM and Sikkens, can you insure paint film integrity.

Maximum of .3 - .5 mils may be removed during the total de-nib and polishing process. For vertical surfaces a maximum of .3 mils of clear can be removed and .5 mils for horizontal surfaces. When performing color sanding and polishing on Sikkens clear coats be sure to follow technical reference manual recommendations for application and polishing.

Polishing of Refinish Topcoats

Polishing a paint finish to remove defects is a normal and necessary operation for both OEM manufacturers and collision repair shops. OEM factories reduce the need to polish because they work with clean body shells in dedicated, highly specialized paint facilities with advanced air filtration systems and robotic application processes. Collision Repair Shops are not able to duplicate the application and dirt isolation processes used by the OEMs, and therefore are face with the inevitable need to remove dust and dirt particles from the finish before the vehicle is delivered to the owner. Collision Industry suppliers and repair technicians have developed excellent polishing techniques that remove dirt and other surface imperfections, enabling the vehicle to be restored to pre-accident condition. The following process describes some finer points regarding polishing a vehicle.

Before You Start
Be certain the surface is clean and dust free. Any dirt will create scratches in the finish that will be very difficult to repair.

Optimum Times
Refer to the applicable Product Data Sheet for optimum times to polish the finish. The times range from immediately after cool down to 72 hours after the bake cycle.

Sanding
Use 1500 grit or finer to remove imperfections.

Compounding
Use finishing compound. Apply a thin ribbon of material to the area to be polished. Use a double-sided wool polishing pad. Maintain air polisher or variable speed buffer at 1200-1800 rpm. Remove excess finishing compound with a clean soft cloth prior to applying finishing polish.

Polishing
Use finishing polish (shake well before using). Apply a ribbon of material to work a 2-3 foot square area. Use a foam pad or a terry cloth cover. Maintain a variable speed buffer or an orbital polisher at 1200 – 1500 rpm. Keep the polisher/buffer moving at all times. Overlap each pass approximately 50%. As finishing polish begins to dry, stop polishing. Wipe off excess finishing polish with a clean soft cloth. Hand buff with a clean soft cloth as a finishing touch.

Tips for Success
- Always use clean water to wet sand and add a few drops of soap to help reduce clogging of the paper.
- Always use a foam interface pad with DA sanding.
- Do no use medium to heavy-duty compounds.
- Use clean cloths and pads to insure that the clear or topcoat does not get scratched with dirt particles from old or re-used cloths or pads.
- Do not wax for the first 120 days after painting.

July 1, 2009

Aaron Schuelenburg
SCRS
P.O. Box 346
Smyrna, DE 19977

RE: Sand, de-nib, polishing guidelines

Dear Aaron:

BASF recommends polishing, sanding and or de-nibing to remove dirt inclusions from refinished automotive panels. Sanding finishes to match the texture of existing paintwork is also recommended as long as the minimum amount of clearcoat thickness is maintained.

While refinish automotive panels with zero dirt inclusions is possible in theory, it rarely happens in actual practice. Following best practices for cleanliness in paint processing areas, and equipment maintenance can minimize this problem and should never be disregarded, but in the overwhelming majority of repairs, some dirt is inevitable.

Detailed guidelines for polishing clearcoats and topcoats can be found in the R-M or Glasurit technical data sheets and technical reference manuals. These documents can also be found online at BASFRefinish.com

Sincerely,

[Signature]

Joseph Skurka
Manager, OEM & Industry Relations
BASF Corporation

Clearcoat Defect Removal

Caution: Wear the proper safety protection when sanding, cleaning, mixing and spraying all materials included within this process.

PPG Automotive refinishing clearcoat finishes are designed to duplicate OEM manufacturer appearance and performance specifications when properly applied using recommended procedures undercoats and equipment.

Even with extreme care in cleanliness and preparation procedures, dirt and particulates can land in the clearcoat film during the application and drying process.

The OEM environment cannot be entirely duplicated in a collision repair facility for these and other reasons:

- The vehicle is painted at the factory as a shell before any non-painted parts are attached.
- The vehicle can be cleaned thoroughly to eliminate dust and dirt and has never been "on the road".
- The vehicle is painted with computer controlled robotics for consistent texture.

When removing dirt and particulates from the refinishing clearcoat (both rigid and flexible parts), depending on severity, the procedure will require:

- Sanding or "nibbing" the affected area to remove the dirt and particulates.
- When removing multiple spots in any given panel it may be necessary to gradually sand or level the texture away from the area from some or no texture in appearance to texture matching the OEM appearance. This procedure may entail sanding to some degree the entire panel.
- All areas sanded must be buffed and polished to bring back the desired appearance and DOI (Distinctness Of Image)

PD-0804 Repair Procedure:
Assess the repaired area to look for dust nibs or other environmental debris or defects such as runs or sags.

Clean area with an All Purpose Cleaner and Degreaser

- Sand nib with P1500 grit using a finishing DA sander with an interface backup pad. Check area visually and by hand to make sure nibs are removed.
- Refine entire sanded area with P3000 damp on a DA sander with a backup pad.
- Proceed to the compounding procedure below.

Run/sags:
- Use P1200 grit Wet-or-Dry sandpaper with hand block to remove the defects.
- Refine entire sanded area with P1500 using a DA sander with an interface pad.
- Refine entire sanded area with P3000 damp on a DA sander with a backup pad.
- Proceed to the compounding procedure below.

Cosmetic scratches in non-collision damaged paint:
Proceed to the compounding procedure below.

Compounding
Compound the entire repair area with extra cut compound with a white foam pad or a wool compounding pad.

Polishing
Polish the entire repair area with a swirl mark remover and a black foam pad.

Source: Basic Assumptions Refinishing. N.p.: PPG Training, June 2013. ASPX.
Bryan Draga  
Director of Marketing – Global VR, OEM & Services

September 13, 2013

Re: Best Demonstrated Practices for Color Sand & Buff, Tinting vs. Blending, and Clearcoat Blending

To the ASA Estimating Committee,

As a supplier of aftermarket refinsh coatings to collision repair providers, Sherwin-Williams Automotive Finishes produces guidelines and procedures called “Best Demonstrated Practices” to ensure that collision repair industry providers have the ability to produce a pre-accident condition repair. It is our intention to explain our position on Color Sand and Buff.

Color, Sand & Buff involves a thorough sanding and polishing of the entire surface to remove surface texture to better match the OEM finish and texture. This is a necessary practice that is widely used to meet customer quality expectations, as well as, to return the vehicle to pre-accident condition.

Please let me know if you have further questions. I would be more than happy to provide further elaboration.

Sincerely,

Bryan Draga  
Director of Marketing - VR, Global OEM & Services

Collision Repair Information
For the Collision Repair Professional

Title: Topcoat Sand & Polish

Section: Refinish Bulletin #173

Models: All Toyota, Lexus, and Scion

Date: April 2009

Customers have high expectations for automotive paint finish appearance and expect repairs to match factory color, gloss, and texture. Flawed refinish appearance is a cause of concern and will likely have a negative affect on customer satisfaction and retention.

Toyota recognizes the reality of paint finish application in the shop environment. In addition to color matching and blending, countermixes to remove paint process intrusion (dirt nibs) are necessary to achieve an undetectable finish match. This is also common in manufacturing plants when process intrusion is encountered. Countermixes are defined as ultra-fine sanding to level nibs followed by polishing to a level of gloss and texture consistent with the original finish. Technicians undertaking these tasks should review applicable technical data sheets for product process and handling instructions, as well as applicable safety information.

Topcoat sand and polish is one of many paint finish repair techniques covered in Toyota T101 and Lexus L101 Paint Finish Repair training. Please visit www.crrtraining.com for scheduling and registration information.

Example images of topcoat ultra-fine sanding and polishing to remove process intrusion dirt nibs - Factory and Body Shop.

Please route this bulletin to your collision repair center manager and collision repair technicians.

Negotiation Question # 1 – Summary

It has been established and proved thru the source documentation it is required to finish sand and buff in order to return the vehicle to pre-accident condition.
Question 2.
Is it included?
2. Is “Finish Sand & Buff” and “denib” included in any other labor operations?

Answer: Finish Sand & Buff and/or Denibbing are not included with any other labor operation.

Answer Documentation:
According to the major Information Providers Finish Sand & Buff and Denibbing are not included with any other labor operation.

- **AudaExplore** – “Not Included - Color sand and buff (see page 149)
- **CCC/MOTOR** – “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 finish imperfections caused by improper weather 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.”
- **CCC/MOTOR** – “Refinish Time Premise – SPECIAL NOTATION: The items or operations below were not considered during the development of any published basic refinish operation times. These operations may or may not be required depending upon the vehicle or process used. If any of these items or operations are required, they should be considered by the estimator and added to the estimate if necessary. REFINISH, WET/DRY SAND, DE-NIB and/or RUB-OUT TIME”
- **CCC/MOTOR** – “Basic Color Coat Application DOES NOT INCLUDE - wet sanding”
- **CCC/MOTOR** – “Color Blend (Adjacent Panels) DOES NOT INCLUDE - wet sand and/or buff for polishing”
- **Mitchell** – Not included operations, finish sand and buff

The original source documents from the leading Information Providers follow.

- **SCRS, ASA and other resources** list the following as not included required labor operations necessary to restore a damaged panel to new undamaged condition.

The original source documents from SCRS and ASA follow.
AudaExplore

"Not Included - Color sand and buff

Section 4-5 Refinish Operations

Refinish Operations

Audaexrefinish labor generally includes time to perform all operations necessary to accomplish refinish for new and undamaged OEM or equivalent panels. Audaexrefinish labor begins at 320 - 400 grit (dry) or 500 - 600 grit (wet) as this is the starting point for refinish of a new, undamaged panel. Audaexrefinish times are for single panels unless otherwise noted.

Two-stage

Included Operations:

- Move car
- Review estimate/work order
- Get paint code
- Order paint
- Get paint
- Gather materials, equipment and tools**
- Clean equipment and materials
- De-wax and degrease
- Prepare to sand
- Dual action sand*
- Hand/wet sand
- Mix, apply, and flash primer (for adhesion and sealing)
- Application of guide coat*
- Block sand*
- Water wash and clean panel with solvent
- Blow dry clean panels
- Prepare to spray
- Clean booth
- Booth operations
- Protect exterior of vehicle from overspray utilizing all acceptable methods of bagging, masking, masking up to 36 inches surrounding the panel and masking of glass within a panel. This includes using backtaping and/or foam tape to close out the gap between panels. If backtaping and/or foam tape does not adequately prevent overspray from entering the jamb areas, any additional masking to protect the interior and jamb is a not included operation. (labor only) *See Not Included “masking” operation
- Basic corrosion protection provided by primer/sealer and paint application
- Mix and apply flash, additives
- Tack wipe
- Mix color, spray test panel, compare to vehicle
- Initial tint, spray test panel, let down, compare to vehicle (included in refinish time, not setup)
- Apply and flash, color
- Inspect job and paint
- Clean gun, color
- Add Sex additive** (when required, labor only)
- Tack wipe (between color and clear when required)
- Apply flash clear coat
- Mix clear coat**
- Clear, Clean gun**

*Welded panel operations
**Included in setup

NOT Included:

- Body work
- Spot putty
- Panel stripping (see Panel Stripping section, page 151)
- Additional preparation or cleaning of new, unprimed panels (i.e., bumper covers)
- Removal of release agents from raw, unprimed plastic components (i.e., bumper covers)
- Moulding R&I
- Stripe R&I
- Parts R&I
- Painting of stripes
- Adhesive removal
- Masking of interior surfaces/entryways, engine compartment and trunk openings. Interior masking may be performed when necessary to ensure prevention of overspray damage that may not be prevented by adjacent panel perimeter masking (including backtaping or application of foam tape). Interior masking may be considered when exterior panels (doors, hood, etc.) are removed and refinished See Included “protect interior” operation
- Mask mouldings
- Spray additional test panel
- Blending into adjacent panels (see Blending, page 148)

- Color Sand and Buff (see page 149)

- Gravel guard (see Chipguard, page 147)
- Additional time for two-tone (see page 147)
- Additional time for three-stage (see page 145-146)
- Custom finishes
- Tint primer or clear coat
- Application of e-coat equivalent
- Application of “high build” primer
- Undercoating
- Metal preparation and corrosion protection beyond those listed in Included Operations (i.e. cavity wax)
- Final wash
- Hazardous waste removal
- Any special coatings applied to luggage compartment
- Second or third bagging or masking of vehicle
- Paint and materials

*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 Audaex Estimating, PenPro or Shoplink. The current version of the Database Reference Manual may also be found at www.carsales.audaex.com.*
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 finish imperfections caused by improper weather 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.

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

Refinish Time Premise – SPECIAL NOTATION: The items or operations below were not considered during the development of any published basic refinish operation times. These operations may or may not be required depending upon the vehicle or process used. If any of these items or operations are required, they should be considered by the estimator and added to the estimate if necessary. REFINISH, WET/DRY SAND, DE-NIB and/or RUB-OUT TIME

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G35

Basic Color Coat Application DOES NOT INCLUDE - wet sanding

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

Color Blend (Adjacent Panels) DOES NOT INCLUDE - wet sand and/or buff for polishing

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

REFINISH TIME LISTINGS

All refinishing 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 operation time does not include time necessary to refinishing the component.

Operation times for the application of paint-on surfaces 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 or damaged replacement components, without exterior trim, interior trim, or other attachment. Parts in this category are not included in one continuous operation. For damaged panel(s), published refinishing times may be applied after the damaged panel has been returned to a NEW PANEL CONDITION.

New panel replacement part labels are coded with the letter “P” to identify a new replacement part. These 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 time listed on the parts detail line is for an OEM bumper cover that has both body color and unpainted grain 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 included in the operation. It includes exterior surface and edges that were exposed during the 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 near 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 unpainted bumper and exterior surfaces, 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. For unpainted component preparation time, see Unpainted Flexible Component Preparation on page G29.

DOOR OUTER REPAIR PANELS

Refinishing times listed on the parts detail line for new repair panels in the door 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 are based on a new or damaged replacement component. Publication times are based on the exterior surface, edges, and interior side, unless otherwise noted in text.

DOOR SHELLS, LIFTGATES AND TAILGATES - Continued

Refinishing times listed under the “Refinishing Notes” heading for doors, exterior panels, and tailgates 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 those new panels do not include time for refinishing the edges or undersides. 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 and 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 a new vehicle when the car was built. Exterior body panels are supplied with a smooth painted surface (A-cost).

UNDERSIDE COLORS

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

PRIME & BLOCK

Prime and block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 156-grit finish to NEW UNDAMAGED 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 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. Prepared 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 refinishing is NOT a BLEND operation. MOTOR defines partial panel refinishing as refinishing 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."
REFINISH TIME PREMISE - Continued

SPECIAL NOTATION:
The items or operations below were not considered during the development of any published basic refinishing operation times. These operations may or may not be required depending upon the vehicle or process used. If any of these items or operations are required, they should be considered by the estimator and added to the estimate if necessary.

DOES NOT INCLUDE:
- Anti-corrosion material application
- Filling, bonding, feathering repaired panels
- Flex additive mixing time
- Flex prep application
- Material costs
- Mask inner panels: apron, cowl/pillars, tail/floor, etc.
- Molding & enamellation
- Protective coating material application
- Protective coating removal
- Sound deadening application
- Spatter paint application time
- Stripe tape, decal & overlay
- Waste disposal fees (all types)

PANEL AND/OR COMPONENT DESIGNATION

MAJOR PANELS/COMPONENTS
All panels or components with a base refinishing time of 1.0 hour or greater are generally considered by MOTOR to be major panels. Examples: grille header panel, fender, hood, cowl top panel, doors, roof panel, rocker panel, quarter panel, engine lid, trunk lid, liftgate, rear gate, rear body panel, truck cab corner and back panel, truck bed front and side panel and van side and corner panels.

MINOR PANELS/COMPONENTS
All panels or components with a base refinishing time of less than 1.0 hour.

FLEXIBLE PANELS/COMPONENTS
All panels or components for which paint systems require a flex agent added to the paint mix. EXAMPLE: fascia covers, fenders, extensions, spoilers, etc.

No overlap deduction should be taken when calculating refinishing time for a single item from this category. A combination of items from this category refinishing during a single, continuous procedure should be subject to the appropriate “Adjacent” or “Non-Adjacent” overlap formula deduction. When a flex agent or a separate paint mix procedure is required and when the flexible component is refinishing during the same procedure with major or minor components, then flexible components should be considered the same designation as major or minor components for the purpose of calculating refinishing overlap deductions and/or multi-stage refinishing additions.

INDIVIDUAL PROCEDURE ITEMS/AREAS
Areas of a panel or component that are part of a main component, but are refinishing during a procedure separate from the main component. Examples: edges, jambs, hinges, inside panels and the underbelly of hoods, deck lids, liftgates, etc.

No overlap deduction should be taken when calculating refinishing time for items from this category.

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.

DDUCTIONS TO BASIC REFINISH TIMES (Refinish Overlap)

OVERLAP - NON-ADJACENT PARTS:
- First major panel: - Use full published time
- Each additional part: - Deduct 0.2 per part

OVERLAP - ADJACENT PARTS:
- First major panel: - Use full published time
- Each additional part with a base time of 1.0 hour or greater: - Deduct 0.4 per part
- Each additional part with a base time less than 1.0 hour:
- Deduct 0.2 per part

OVERLAP - INNER PANEL COMPONENTS:
- First inner panel: - Use full published time
- Each additional inner part with a base time of 0.5 hour or greater:
- Deduct 0.2 per part
- Inner part with a base time less than 0.5 hour:
- No deduction

BASIC COLOR COAT APPLICATION

INCLUDED:
- Black tape opening (handle, lock, cylinder, mirror)
- Clean component (solvent wash)
- Clean sprayer
- Color coat application
- Initial dry sand (as recommended by paint manufacturer)
- Light buff, lacquer paint only
- Load sprayer
- Mask/adjacent panels (three-foot perimeter)
- Mask/clear gap between adjacent panels up to foam tape (overspray)
- Mask glass opening
- Mask/protect grille radiator opening (overspray)
- Mix paint (color with necessary solvents)
- Primer-sealer coat application
- Primer-sealer coat final dry
- Primer-sealer coat final application
- Remove masking
- Retrieve accurate color information, including paint chip

DOES NOT INCLUDE:
- Adhesion promoter (unprimed flexible component)
- Backside refinishing
- Blending into adjacent panels
- Cover mask engine compartment to prevent overspray
- Color matching to adjacent panels
- Cover/mask for prime and block
- Cover/mask for cut-in
- Cover/mask recessed edges/jambs/weatherstrips

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G35
GUIDE TO ESTIMATING

BASIC COLOR COAT APPLICATION - Continued

DOES NOT INCLUDE (continued):
- Cover/mask trunk/comartment to prevent overspray
- Cover/mask entire exterior of vehicle to prevent overspray damage
- Cover/mask interior of vehicle to prevent overspray damage
- Edge refining
- Grind, fill, & smooth welded seams (up to 150 grit sandpaper)
- Paint or material costs
- Prime & block (high build/primer-filler)
- Test spray-out panel
- Tinting Primer-Sealer
- Tinting to achieve color match
- Underside refining

- Sanding adjacent panels to adjacent panels

BAGGING (Cover Entire Vehicle Exterior)

Published refinishing times include time necessary to mask external or surface adjacent to the refinishing area to a perimeter of 30 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. If entire 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:
  - First major panel:
  - Add 40% to refinish time
- Each additional panel:
  - Add 20% to refinish time
- Maximum time allocation: 2.5 hours

INCLUDED:
- All components clear coated during a single, continuous procedure
- Apply clear coat
- Clean spray gun (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

THREE-STAGE FINISHES
(Base/Mica/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 deduction for overlap and additions for underside and edges, if required (if three-stage finish from factory).

- First major panel:
  - Add 70% to refinish time
- Each additional panel:
  - Add 40% to refinish time

INCLUDED:
- Back tape opening (handle, lock, cylinder, mirror)
- Mask/close 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 cost 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 taken precedence over, information in the Guide to Estimating pages for the operation indicated.

G36

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

Finish Sand and Buff Negotiation Tool
Version 2.0, January 4, 2016
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CLEAR COAT UNDAMAGED PANEL - Continued

INCLUDED:
- Stock 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 scuff
- 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
- Seal of attached parts

COLOR BLEND (Adjacent Panels) - Continued

DOES NOT INCLUDE:
- Correction of pre-existent surface imperfections
- Cover/mask recessed edges/panels/weatherstrips
- Damage repair
- Masking of attached parts
- Material costs
- Seal 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 basic refinishing 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 (glass 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
- Misting 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 undersides, inside or edges of the blend panel. There should be no overlap deduction between blend panel(s) and/or refinished 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 formula 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 reflation time

INCLUDED:
- Stock 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 scuff (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 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 G37
Mitchell

Not included operations, finish sand and buff

Source: Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 16
P16

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 relape
- Replace new adhesive exterior trim; deducted 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 — DuPont — Sherwin Williams — BASF — PPG

Repaired/Used Panels
Labor times related to repaired and/or used panels—example: Remove and install or masking of glass, outside handle 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 refinish 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 Vested 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, COWL 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 GATE, 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 4.5 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 valence panel, pillars, door jams, underside of hood, underside of luggage lid or underside of gate, inner panels, fitter 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
- Clean equipment

Not Included Operations
- Blending into adjacent panel and/or panels, or nearest breaking point
- Color match or tinting
- Applying anti-corrosion rust resistant materials
- Stripping or anti-chip undercoats
- Painters or LVMP
- VESTED PANELS

■ Finish sand and buff required: add .2 hour for each application and removal
- Mask interior to prevent overspray damage
- Removal of protective coatings
- Removal of release agent from OEM raw plastic components (example: non-primer 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, paint 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.

NOTE: 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
Allow 2 per refinish hour (20%) for plastic components that come from the manufacturer/supplier in a raw/un-primed state.

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

- Remove and install or mask attached components, trim, stripes or decals on blended panel area.
- Finish, sand, and buff.

**NOTE:** Blend labor time does not apply to two-tone refinishing or custom non-OEM refinishing. No overlap deduction applies to blended panel(s)/refinish area(s).

**NOTE:** When calculated, the estimate will allocate 40% from the total blend line and apply it to the three stage line item. The total sum of the blend line and the amount allocated in the three stage line will total 70% of the exterior refinishing time for the panel being blended.

Example: A panel refinishing time is 2.0 hrs. When blended, the refinishing time for that panel will be displayed as 1.4 (7 per refinishing hour). Once calculated, the refinishing line will be displayed as 8 and 6 (40%) will be allocated to the three stage line.

**Extension of Clear Coat**

In some applications, it may be required to extend the application of clear to the nearest panel edge or breakpoint.

The performance of this operation is NOT INCLUDED in the Mitchell refinishing labor time.

The extension of clear coat formula is intended to be calculated as a percentage of base refinishing hours excluding overlap.

It **DOES NOT APPLY** to edges, jams, and undersides. No deduction for overlap should be taken.

This formula **DOES APPLY** to the 2.5 hours maximum clear coat allocation.

**Should this operation be necessary, the following formula is provided:**

**Extend Clear to Adjacent Panel(s)**

Extend clear to adjacent panel(s); Allow .5 per refinishing hour (50%) for each panel(s)/refinish area(s) cleared.

**Included Operations**

- Detergent/solvent wash
- Wet sand, scuff (ScotchBrite) or rubout (compound) panel and clean for preparation
- Mask existing adjacent panels to 36"
- Apply bonding material - if required
- Clean and tack surface
- Apply clear material

**Not Included Operations**

- Repair existing surface imperfections
- Remove and install or mask attached components, trim, stripes or decals on extended clear panel area.
- Finish, sand, and buff
- Nib sand and finesse

**Finish Sand & Buff**

A labor time formula is provided should it be necessary to perform this operation. This procedure includes the removal of orange peel and any blemishes that affect panel texture in order to produce a smooth finish to the entire panel surface. This process is limited to “nib sanding” or “finesse” which is the removal of isolated debris/dust particles only.

The performance of this operation is **NOT INCLUDED** in the Mitchell refinishing labor time.

The finish sand and buff formula is intended to be calculated as a percentage of the base refinishing hours excluding overlap and clear coat. It **DOES NOT APPLY** to edges, jams, and undersides. For blended panels, the formula should be applied to the full panel refinishing time. No deduction for refinishing overlap should be taken.

**Finish sand and buff outside surface area(s).** Allow .3 per refinishing hour (30%) to finish sand and buff each surface area(s).

**De-nib & Finesse**

A labor time formula is provided should it be necessary to perform this operation. This procedure includes the removal of small isolated dust particles (nibs) and the application of a finishing glaze.

The performance of this operation is **NOT INCLUDED** in the Mitchell refinishing labor time.

The de-nib and finesse formula is intended to be calculated as a percentage of the base refinishing hours excluding overlap and clear coat. It **DOES NOT APPLY** to edges, jams, and undersides. For blended panels, the formula should be applied to the full panel refinishing time. No deduction for refinishing overlap should be taken.

De-nib and finesse outside surface area(s); Allow .2 per refinishing hour (20%) to de-nib and finesse each surface area(s).

**Mask Vehicle to Prevent Overspray Damage**

The following refinishing information is provided should it be necessary to perform these operations as determined by individual job requirements.

**MASK INTERIOR, ENTRYWAYS, ENGINE COMPARTMENT AND TRUNK OPENINGS**

Interior masking may be necessary when refinishing exterior surfaces to stop overspray damage that is not prevented by adjacent panel perimeter masking which includes back taping or application of foam tape. Interior masking may also be used when exterior panels (door, hood, etc.) are removed while applying refinishing material. The performance of this operation is **NOT INCLUDED** in the Mitchell refinishing labor time.

**Fig. 1:** IDENTIFYING INTERIOR MASKING LOCATIONS

Source: Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 18
### Labor Category Legend – By Color:

- Body
- Paint
- Structural
- Mechanical
- Detail
- Other

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>607</td>
<td>SPOT PAINT CENTER FLOOR AREA</td>
</tr>
<tr>
<td>608</td>
<td>SPOT PAINT CROSSMEMBER</td>
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<tr>
<td>609</td>
<td>SPOT PAINT FLOOR EXTENSIONS</td>
</tr>
<tr>
<td>610</td>
<td>SPOT PAINT RAILS AT WELD AREA, UNDERSIDE</td>
</tr>
<tr>
<td>611</td>
<td>SPOT PAINT WHEEL HOUSE AT WELD AREA</td>
</tr>
<tr>
<td>612</td>
<td>FLOOR TWO TONE AND/OR BLACK-OUT</td>
</tr>
</tbody>
</table>

#### 105 - Protection & Safety:

- D&R HYBRID BATTERY
- HYBRID BATTERY PROTECTIVE STORAGE
- D&R BATTERY
- RESET ELECTRONIC MEMORY, RADIO
- RESET ELECTRONIC MEMORY, SEAT/STEERING WHEEL
- DIAGNOSE SRS DISPLAY
- DISABLE/ENABLE SRS
- DIAGNOSE ALARM CODES
- MASK ELECTRONIC CONNECTIONS
- R&F FUEL TANK
- DRAIN FUEL FROM TANK

#### 110 - Paint Prep:

- REMOVE OIL, TAR & GREASE
- REMOVE CORROSION PROTECTION MATERIAL
- RESTORE CORROSION PROTECTION
- REMOVE MOLDING ADHESIVE

#### 115 - Refinish Process:

- DIFFICULT COLOR, TINTING & TESTING (INACCURATE VARIANCE)
- MASK FOR PRIMING
- SPOT PAINT CORESUPPORT AFTER INSTALLED (SECOND PAINT)
- SPRAY OUT TEST PANEL
- SPRAY OUT LET-DOWN PANEL FOR THREE STAGE
- SPRAY OUT LET-DOWN PANEL FOR TRANSPARENT COLOR
- COLOR TINT & TEST TO BLENDABLE MATCH
- COLOR TINT SECOND COLOR
- GRAVEL GUARD FIRST PANEL
- GRAVEL GUARD SECOND PANEL
- GRAVEL GUARD THIRD PANEL
- GRAVEL GUARD SPRAY-OUT TEST PANEL
- HAZARDOUS WASTE DISPOSAL
- UNDERSIDE COLOR TINTING & TESTING (CORESUPPORT & TRUNK AREAS)
- UNDERSIDE COLOR REFINISH
- COVER VEHICLE (FOR REFINISHING ONE TIME)
- REFINISHING JAMBS (SEPARATE COLOR THAN EXTERIOR-EACH COLOR*)
- MASKING JAMBS

### 120 - Color-Sand & Polish:

- COLOR SAND & POLISH, 1st PANEL (MATERIALS AND LABOR)
- COLOR SAND & POLISH, 2nd PANEL (MATERIALS AND LABOR)
- COLOR SAND & POLISH, 3rd PANEL (MATERIALS AND LABOR)
- COLOR SAND & POLISH, 4th PANEL (MATERIALS AND LABOR)
- COLOR SAND & POLISH, 5th PANEL (MATERIALS AND LABOR)
- COLOR SAND & POLISH, 6th PANEL (MATERIALS AND LABOR)
- COLOR SAND & POLISH, 7th PANEL (MATERIALS AND LABOR)

Finish Sand & Buff
Negotiation Question # 2 – Summary

It has been established and proved thru the source documentation that additional labor operations is not included to finish sand and buff.
Question 3.
Is there a pre-determined time?
3. Are there pre-determined times for “Finish Sand & Buff?”

Answer: Yes, there are pre-determined times for “Finish Sand & Buff.”

Answer Documentation:
The leading Information Providers include times for Finish Sand & Buff and Denibbing as follows:

**AudaExplore**

**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 AudaExplore single-stage refinish labor (not including final wash).


**Nib Sanding / De-nib**

Nib sanding (or de-nib) is defined as the removal of isolated dirt and dust particles, and polishing the affected area(s).

- AudaExplore’s formula for Color Sand and Buff does not apply to this operation. Additional steps or processes that may be required should be considered during estimate preparation.


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2 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 AudaExplore Estimating, Pen Pro or Shoplink. The current version of the Database Reference Manual may also be found at [www.training.AudaExplore.us](http://www.training.AudaExplore.us).
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.
Section 4-4 Refinish Guidelines

Repaired Panel Refinish

When a repaired panel is being refinished, the estimator provides time for the repair of the panel. The estimator also determines included operations. When Audatex refinish labor is used for repaired panels, Audatex refinish times assume that the panel has been returned to the condition of a new, undamaged OEM panel or equivalent.

When the estimator enters a judgment time for refinish labor, the estimator also determines the included operations. Operations that might be considered in the repair refinish time include any steps required to bring the panel to the condition of a new, undamaged panel. This may include feather edge, blow off and clean, mask to prime, tack off, mix etch primer, prime bare metal, mix and apply primer filler, guide coat application, unmask as required, and block sand. Panel scuff to facilitate application of clear may also be considered for two- or three-stage refinish.

Feather / Prime / Block

Audatex recognizes that Feather/Prime/Block are required operations when replacing welded-on panels. Time to perform this operation is included in the Audatex time for welded panel replacement in the seamed areas, to bring the panels to the condition of a new, undamaged panel for the purpose of refinish. Although the time is included, Audatex does not provide a material allowance for the Feather/Prime/Block process. If necessary, the determination and assessment for materials is best provided by the estimate preparer for consideration and allowance during the estimate preparation process.

Audatex recognizes that Feather/Prime/Block are required operations in the panel repair process. Audatex does not provide a labor time allowance for repaired panels, as this is a judgment time. Audatex does not provide a labor time allowance for Feather/Prime/Block, as this, too, is a user judgment time. Audatex does not provide a material allowance for the Feather/Prime/Block process. The determination and assessment for this operation is best provided by the estimate preparer for consideration and allowance during the estimate preparation process.

Nib Sanding/De-nib

Nib sanding (or de-nib) is defined as the removal of isolated dirt and dust particles, and polishing the affected area(s).

- Audatex’s formula for Color Sand and Buff does not apply to this operation. 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, PanPro or ShopLink. The current version of the Database Reference Manual may also be found at www.training.audatex.us.*

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De-nib & Polish

SPECIAL NOTATION:

Refinished panels may or may not require a varying amount of de-nibbing, a process used to remove small particles in final finish surface. The clear coat contains ultraviolet screeners and reducing the clear coat thickness (mils) may result in early paint failure. Follow vehicle manufacturer’s recommendations when performing this type of repair. Calculations should be based upon the base refinish time outer surface only and should not include additions for clear coat, underside, inside or edges. In the event that this type of operation will be performed, MOTOR suggests the following formula be considered:

Each panel requiring de-nibbing (refinish or blend)

HOOD, ROOF, TRUNK LID, SPOILER
First panel add up to 20% of full base refinish time, each additional panel add up to 10%

FENDER, DOOR, QUARTER PANEL, BUMPER COVER
First panel add up to 10% of full base refinish time, each additional panel add up to 5%

INCLUDED:

- Panel outer surface only
- Pain nib removal as required (spot only)
- Spot polish only

DOES NOT INCLUDE:

- Acid rain damage
- Full panel polish
- Overspray removal
- Removal of residual material from recessed edges and jambs if required
- Scratch damage
- Wash, clean, wax or detail entire vehicle prior to delivery if required
- Wet sand full panel

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G39
Wet / Dry Sand, Rub-out & Buff

SPECIAL NOTATION:

Refinished panels may or may not require a varying amount of wet sanding, compound rub-out or buffing operations in order to match original finish texture. The clear coat contains ultraviolet screeners and reducing the clear coat thickness (mils) may result in early paint failure. Follow vehicle manufacturer’s recommendations when performing this type of repair. Calculations should be based upon the outer surface only and should not include additions for clearcoat, underside, inside or edges. Base refinish time does not include deduction for refinish overlap. In the event that this type of operation will be performed, MOTOR suggests the following formula be considered:

Refinished panels may or may not require a varying amount of wet sanding, compound rub-out or buffing operations. In the event this type of operation will be performed, MOTOR suggests the following formula be considered.

- Each panel requiring wet sand, rub-out and/or buff (refinish or blend)
  - Add 30% of full base refinish time

**INCLUDED:**
- Panel outer surface only
- Wet sand full panel as required
- Compound, buff and/or polish as required

**DOES NOT INCLUDE:**
- Acid rain damage
- Overspray removal
- Removal of residual material from recessed edges and jambs if required
- Wash, clean, wax or detail entire vehicle prior to delivery if required

Source: CCC/Motor Guide to Estimating, Rev. 9-14, Page G39
GUIDE TO ESTIMATING

WELD ZONE/ADJACENT PANEL

SPECIAL NOTATION:
Suggested refinishing operations do not include additional
time for repair of damage to adjacent panels resulting from
normal cutting, welding, and grinding procedures. The amount
of damage can vary considerably depending upon process
and technique used by the servicing technician and, there-
fore, is impractical to anticipate in this publication. MOTOR
recommends these factors be considered before finalizing
any repair cost estimate. Typical areas to be considered are
illustrated below.

WET/DRY SAND, RUB-OUT & BUFF

SPECIAL NOTATION:
Refinished panels may or may not require a varying amount
of wet sanding, compound rub-out or buffing operations in
order to match original finish texture. The clear coat contains
ultraviolet screeners and reducing the clear coat thickness
(mils) may result in early paint failure. Follow manufacturer’s
recommendations when performing this type of repair.
Calculations should be based upon the outer surface only
and should not include additions for clear coat, underside,
inside or edges. Base refinish time does not include deduc-
tion for refinish overlap. In the event that this type of opera-
tion will be performed, MOTOR suggests the following formu-
la be considered:

Refinished panels may or may not require a varying amount
of wet sanding, compound rub-out or buffing operations. In the event
this type of operation will be performed, MOTOR suggests the fol-
lowing formula be considered:

- Each panel requiring wet sand, rub-out and/or buff refinish
- Add 35% of full base refinish time

INCLUDED:
- Panel outer surface only
- Wet sand full panel as required
- Compound, buff and/or polish as required

DOES NOT INCLUDE:
- Acid rain damage
- Overspray removal
- Removal of residual material from recessed edges and
jamb if required
- Wash, clean, wax or detail entire vehicle prior to delivery if
required

DE-NIB & POLISH

SPECIAL NOTATION:
Refinished panels may or may not require a varying amount
of de-nibbing, a process used to remove small particles in
final finish surface. The clear coat contains ultraviolet screen-
ers and reducing the clear coat thickness (mils) may result in
early paint failure. Follow vehicle manufacturer’s recommen-
dations when performing this type of repair. Calculations
should be based upon the base refinish time outer surface
only and should not include additions for clear coat, under-
side, inside or edges. In the event that this type of operation
will be performed, MOTOR suggests the following formula be
considered:

Each panel requiring de-nibbing (refinish or blend)
HOOD, ROOF, TRUNK LID, SPOILER
First panel add up to 20% of full base refinish time,
each additional panel add up to 10%
FENDER, DOOR, QUARTER PANEL, BUMPER COVER
First panel add up to 10% of full base refinish time,
each additional panel add up to 5%

INCLUDED:
- Panel outer surface only
- Paint n/b removal as required (spot only)
- Spot polish only

DOES NOT INCLUDE:
- Acid rain damage
- Full panel dents
- Overspray removal
- Removal of residual material from recessed edges and
jamb if required
- Scratch damage
- Wash, clean, wax or detail entire vehicle prior to delivery if
required
- Wet sand full panel

UNPRIMED FLEXIBLE COMPONENT
PREPARATION

- 25% of the component’s base refinish time
- Maximum time allocation: 1.0 hours

INCLUDED:
- Removal of mold-release agents as outlined by
manufacturer
- Masking (if required)
- Application of adhesion promoter

DOES NOT INCLUDE:
- Correction of pre-existent surface imperfections
- Material Costs

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 G39
**Finish Sand & Buff**

A labor time formula is provided **should it be necessary to perform this operation.** This procedure includes the removal of orange peel and any blemishes that affect paint texture in order to produce a smooth finish to the entire panel surface. This process is not limited to “nib sanding” or “finessing” which is the removal of isolated dirt/dust particles only. The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

The finish sand and buff formula is intended to be calculated as a percentage of the base refinish hours excluding overlap and clear coat. It DOES NOT APPLY to edges, jambs and undersides. For blended panels, the formulas should be applied to the full panel refinish time. No deduction for refinish overlap should be taken.

**Finish sand and buff outside surface area(s):** Allow .3 per refinish hour (30%) to finish sand and buff each surface area(s).

Source: Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 18

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**De-nib & Finesses**

A labor time formula is provided should it be necessary to perform this operation. This procedure includes the removal of small isolated dust particles (nibs) and the application of a finishing glaze.

The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

The de-nib and finesse formula is intended to be calculated as a percentage of the base refinish hours excluding overlap and clear coat. It DOES NOT APPLY to edges, jambs and undersides. For blended panels, the formulas should be applied to the full panel refinish time. No deduction for refinish overlap should be taken.

**De-nib and finesse outside surface area(s):** Allow .2 per refinish hour (20%) to de-nib and finesse each surface area(s).

Source: Portions Copyright 2012, Mitchell International, Inc. – Mitchell P-Pages, Rev. 10-09. Page 18
Procedure Explanation

- Remove and install or mask attached components, trim, stripes or decals on blended panel/area
- Finish, sand, and buff

**Note:** Blend labor time does not apply to two-tone refinish or custom non-OEM refinish. No overlap deduction applies to blended panel(s)/refinish area(s).

**Note:** When calculated, the estimated will allocate 40% from the total blend time and apply it to the three stage line item. The total sum of the blend line and the amount allocated in the three stage line will total 70% of the exterior finish time for the panel being blended.

Example: A panel refinish time is 2.0 hrs. When blended, the refinishing time for that panel will be displayed as 1.4 (.7 per refinishing hour). Once calculated, the refinishing blend line will be displayed as .8 and .6 (40%) will be allocated to the three stage line.

**Extension of Clear Coat**

In some applications, it may be required to extend the application of clear to the nearest panel edge or breakpoint.

The performance of this operation is NOT INCLUDED in the Mitchell finish labor time.

The extension of clear coat formula is intended to be calculated as a percentage of base refinishing hours excluding overlap.

It DOES NOT APPLY to edges, jambs, and undersides. No deduction for overlap should be taken.

This formula DOES APPLY to the 2.5 hours maximum clear coat allocation. Should this operation be necessary, the following formula is provided:

**Extend Clear to Adjacent Panel(s)**

Extend clear to adjacent panel(s): Allow .5 per refinishing hour (50%) for each panel(s)/refinish area(s) cleared.

**Included Operations**

- Detergent/solvent wash
- Wait sand, scuff (ScotchBrite) or rubout (compound) panel and clean for preparation
- Mask existing adjacent panels to 36’
- Apply bonding material - if required
- Clean and tack surface
- Apply clear coat

**Not Included Operations**

- Repair existing surface imperfections
- Remove and install or mask attached components, trim, stripes or decals on extended clear panel/area
- Finish, sand, and buff

**Finish Sand & Buff**

A labor rate formula is provided should it be necessary to perform this operation. This procedure includes the removal of orange peel and any blemishes that affect paint texture in order to produce a smooth finish to the entire panel surface. This process is limited to “rub sanding” or “finishing” which is the removal of isolated chipped particles only. The performance of this operation is NOT INCLUDED in the Mitchell finish labor time.

The finish sand and buff formula is intended to be calculated as a percentage of the base refinishing hours excluding overlap and clear cost. It DOES NOT APPLY to edges, jambs, and undersides. For blended panels, the formula should be applied to the full panel refinishing time. No deduction for refinishing overlap should be taken.

**Finish sand and buff outside surface area(s): Allow .3 per refinishing hour (10%) to finish sand and buff each surface area.**

**De-nib & Finesse**

A labor rate formula is provided should it be necessary to perform this operation. This procedure includes the removal of small isolated dust particles (mop) and the application of a finishing paste.

The performance of this operation is NOT INCLUDED in the Mitchell finish labor time.

The de-nib and finesse formula is intended to be calculated as a percentage of the base refinishing hours excluding overlap and clear coat. It DOES NOT APPLY to edges, jambs, and undersides. For blended panels, the formula should be applied to the full panel refinishing time. No deduction for refinishing overlap should be taken.

**De-nib and finesse outside surface area(s): Allow .2 per refinishing hour (20%) to de-nib and finesse each surface area(s).**

**Mask Vehicle to Prevent Overspray Damage**

The following refinishing information is provided should it be necessary to perform these operations as determined by individual job requirements:

**Mask Interior, Entryways, Engine Compartment and Trunk Openings**

Interior masking may be necessary when refinishing exterior surfaces to stop overspray damage that is not prevented by adjacent panel perimeter masking which includes back taping or application of foam tape. Interior masking may also be used when exterior panels (door, hood, etc.) are removed while applying refinishing material. The performance of this operation is NOT INCLUDED in the Mitchell finish labor time.

**Fig. 1: IDENTIFYING INTERIOR MASKING LOCATIONS**

**NOTE:** The times shown in the illustration are for interior masking of that panel and/or opening. Labor time includes all pillars, jamb, weatherstrips, edges, entryways and openings as necessary. Deduct 1 hour overlap for each interior masked adjacent panel and/or opening.

The Mitchell REFINISHING MATERIALS GUIDE has the Latest Available Costs for Materials Used in Single and Multi-Stage Refinishing, and is an Accurate Source for Determining Costs.
Negotiation Question # 3 – Summary

Pre-determined times for finish sand and buff has been clearly identified by the Information Providers.
Question 4.
What is it worth?
4. What is it worth?

Answer: The Information Providers all provide formulas to calculate what it is worth.

Answer Documentation:

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<tr>
<th></th>
<th>AudaExplore</th>
<th>CCC/MOTOR</th>
<th>Mitchell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formula</td>
<td>30% of AudaExplore single-stage refinish labor</td>
<td>For each panel, add 30% of full base refinish</td>
<td>Allows.3 per refinish hour (30%) to finish</td>
</tr>
<tr>
<td></td>
<td>(not including final wash)</td>
<td>time</td>
<td>sand and buff each surface area</td>
</tr>
<tr>
<td>Included</td>
<td>• Panel outer surface only</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wet sand full panel as required</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Compound, buff and/or polish as required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Included</td>
<td>• Acid rain damage</td>
<td></td>
<td>Does not apply to edges, jambs and underside</td>
</tr>
<tr>
<td></td>
<td>• Overspray removal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Removal of residual material from recessed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>edges and jambs if required</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wash, clean, wax or detail entire vehicle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>prior to delivery if required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AudaExplore</td>
<td>CCC/MOTOR</td>
<td>Mitchell</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td><strong>Denib</strong></td>
<td>Nib Sanding / Denib</td>
<td>Denib &amp; Polish</td>
<td>Denib &amp; Finesse</td>
</tr>
</tbody>
</table>
| **Formula** | No formula | HOOD, ROOF, TRUNK LID, SPOILER  
First panel add up to 20% of full base refinish time, each additional panel add up to 10%  
FENDER, DOOR, QUARTER PANEL, BUMPER COVER  
First panel add up to 10% of full base refinish time, each additional panel add up to 5% | Denib and finesse outside surface area(s): Allow .2 per refinish hour (20%) to de-nib and finesse each surface area |
| **Included** | • Panel outer surface only  
• Pain nib removal as required (spot only)  
• Spot polish only |  |
| **Not Included** | • Acid rain damage  
• Full panel polish  
• Overspray removal  
• Removal of residual material from recessed edges and jambs if required  
• Scratch damage  
• Wash, clean, wax or detail entire vehicle prior to delivery if required  
• Wet sand full panel | Does not apply to edges, jambs and undersides. |
# 3M Paint Finish Small Area Process – Paint Department Procedures

## Paint Finish Small Area Process

<table>
<thead>
<tr>
<th>Step</th>
<th>Process</th>
<th>Product List</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initial Defect Removal</td>
<td><img src="image1" alt="Product Image" /></td>
</tr>
<tr>
<td>2</td>
<td>Scratch Refinement P3000</td>
<td><img src="image2" alt="Product Image" /></td>
</tr>
<tr>
<td>3</td>
<td>Scratch Refinement S0000</td>
<td><img src="image3" alt="Product Image" /></td>
</tr>
<tr>
<td>4</td>
<td>Machine Polish</td>
<td><img src="image4" alt="Product Image" /></td>
</tr>
<tr>
<td>5</td>
<td>Ultrafine Machine Polish</td>
<td><img src="image5" alt="Product Image" /></td>
</tr>
<tr>
<td>6</td>
<td>Final Detail</td>
<td><img src="image6" alt="Product Image" /></td>
</tr>
</tbody>
</table>

---

# 3M Paint Finish Denibbing Process

<table>
<thead>
<tr>
<th>Paint Finish Denibbing Process</th>
<th>Product List</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Defect Removal</strong></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, White: PN 087020</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Black: PN 087300</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Blue: PN 087301</td>
</tr>
<tr>
<td><strong>Scratch Refinement</strong></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, White: PN 087020</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Black: PN 087300</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Blue: PN 087301</td>
</tr>
<tr>
<td><strong>Apply Polish</strong></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, White: PN 087020</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Black: PN 087300</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Blue: PN 087301</td>
</tr>
<tr>
<td><strong>Machine Polish</strong></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, White: PN 087020</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Black: PN 087300</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Blue: PN 087301</td>
</tr>
<tr>
<td><strong>Swirl Elimination (Option A)</strong></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, White: PN 087020</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Black: PN 087300</td>
</tr>
<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Blue: PN 087301</td>
</tr>
<tr>
<td><strong>Swirl Elimination (Option B)</strong></td>
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<tr>
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<td>- 3M Perfect-It™ 4” Elliptical Pad, Black: PN 087300</td>
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<tr>
<td></td>
<td>- 3M Perfect-It™ 4” Elliptical Pad, Blue: PN 087301</td>
</tr>
</tbody>
</table>

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Additional Thoughts
Additional Thoughts

- Sanding and polishing may be required for a variety of reasons to include, but not limited to:
  - Intrusion removal (i.e. dirt nibs)
  - Sand and polish due to clear coat puddles or build-up in chips
  - Swelling caused by acid rain or industrial fallout
  - Match OE texture (i.e. too orange peel)
- 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.