Feather, Prime & Block

- *Audatex – Feather / Prime / Block*
- *CCC / Motor – Prime & Block*
- *Mitchell – Feather, Prime & Block*

- *You've asked… Here it is.*
  - In response to numerous inquiries and requests from valued 3M customers across the US and abroad, we have collected information and documentation intended to help clarify whether or not specific repair processes in which 3M materials may be consumed are considered to be required repair operations and if they are included or not-included within any other repair procedures. Our objective is to help our customers build a complete and accurate repair plan that results in seamless repairs, improving cycle time, touch time, the overall customer experience, satisfaction and retention for key stakeholders in the Collision Repair Industry.

Feather, Prime & Block – Definitions

Feather/Prime/Block
Collision Industry Conference
April 2006

- The repair process associated with damaged painted body panels typically involves multiple operations: body repair, feather, prime, block and refinish.
- The body repair process includes metal finishing and/or the use of body fillers to return the body panel to its undamaged contour. The repaired area is finished to 150-grit and free of surface imperfections.
- Feather, prime and block are not-included refinish operations that complete the process from 150-grit to the condition of a new undamaged panel and are outlined and documented in printed and/or electronic time guides.
- The body/paint labor and materials necessary to prepare the repaired area from 150-grit to the condition of a new undamaged part are valid and required steps in the process. The labor and material allowance for these operations requires an on-the-spot evaluation of the specific vehicle and damage

3M

Feather, Prime & Block – Definitions

- Audatex Definition
  - Feather / Prime / Block
    - Audatex recognizes that Feather/Prime/Block are required operations in the panel repair process, that occurs after 150 grit, to bring the repaired panel to the condition of a new, undamaged panel for the purpose of refinish. Audatex does not provide labor allowance for repaired panels, as this is a judgment time, nor does Audatex provide 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.

Source: Audatex Database Reference Manual, Page 150

Feather, Prime & Block – Definitions

- Audatex Definition

Section 4-4 Refinish Guidelines

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.

Repaired Panel Refinish

When a repaired panel is being refinished, the estimator provides time for the repair of the panel. Consequently, 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.

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 in the panel repair process, that occurs after 150 grit, to bring the repaired panel to the condition of a new, undamaged panel for the purpose of refinish. Audatex does not provide labor allowance for repaired panels, as this is a judgment time, nor does Audatex provide 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, PenPro or Shoplink. The current version of the Database Reference Manual may also be found at www.training.audatex.us.

Source: Audatex Database Reference Manual, Page 150

Feather, Prime & Block – Definitions

- CCC / Motor Definition
  - REFINISH TIME PREMISE
    - *PRIME & BLOCK*

      Prime & block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 150-grit finish to NEW 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.

Source: CCC / CCC / Motor Guide To Estimating, Rev. 2-12, Page G34

3M

Feather, Prime & Block – Definitions

- CCC / Motor Definition

REFINISH TIME LISTINGS

All refinish times are listed in hours and tenths of an hour. A time in parentheses adjacent to the part name, such as (p3.5) indicates three and one half hours. Replacement operation time does not include time necessary to refinish the component.

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

REFINISH TIME PREMISE

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

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces. Nor do they include time which may be required to correct 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.

ANTI-THEFT LABELS (R DOT)

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

BUMPER COVERS AND OTHER FLEXIBLE COMPONENTS

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

DOOR OUTER REPAIR PANELS

Refinish times listed on the parts detail line for new repair panels (i.e. door outer repair panel, tail gate and lift gate 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, LIFT GATES AND TAIL GATES

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

REFINISH TIME PREMISE - Continued

DOOR SHELLS, LIFT GATES AND TAIL GATES - Continued

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

FENDERS, HOODS, TRUNK LIDS AND OTHER MAJOR BOLTED PANELS

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

QUARTER PANELS AND OTHER MAJOR WELDED PANELS

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

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

NEW UNDAMAGED PANEL

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

UNDERSIDE COLORS

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

PRIME & BLOCK

Prime & block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 150-grit finish to NEW 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 refinish time for this type of procedure after the damaged panel is repaired to new undamaged condition. Repaired surface preparation requires an on-the-spot evaluation for additional procedural steps such as featheredge and/or prime and block not required for new undamaged panels.

PARTIAL PANEL REFINISHING

This is NOT a BLEND-WITHIN procedure; partial panel 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 refinish requirements in question. Refer to G.T.E. "BASIC COLOR COAT APPLICATION."

Source: CCC / Motor Guide To Estimating, Dated 02-2012, Page G34

Feather, Prime & Block – Definitions

- Mitchell Definition
  - 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 *Welded Panels under Estimating Information.*

Feather, Prime & Block – Definitions

- Mitchell Definition

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Procedure Explanation

Bumper Assembly O/H

Included Operations

- Remove and install assembly
- Disassemble and replace damaged parts
- Replace or transfer parts attached except those listed in *Not Included* Section
- Remove and install or replace: License plate/bracket
- Assemble and install
- Adjust alignment to vehicle

Not Included Operations

- Refinish bumper
- Remove and replace impact absorbers or mounting arms
- Remove and install or replace optional accessories (example: trailer hitch, trailer connector)
- Remove and install adhesive exterior trim; add to clean and retape
- Replace new adhesive exterior trim; deduct one-half of R&R time
- Install stripes, decals, transfers or overlays

Procedure 28—Refinish Procedure

Refinish General Information

Complete Refinish

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

Lifetime Refinish Warranty/Clear Coat

The major paint manufacturers listed below have provided the following information: "Major refinish paint manufacturers recommend that when performing refinish warranty repairs on an OEM multi-stage or basecoat/clearcoat finish, you must extend the application of clear to the nearest panel edge or breakpoint to qualify for lifetime warranty." **AKZO — 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 handles or exterior trim, feather prime & block, masking for primer surfacer application—are not included in refinish time. The steps required for refinishing a repaired and/or used panel may vary from those required for a new panel depending on the condition of the repaired and/or used panel.

Feather, Prime & Block

Is the Not-Included 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 *Welded Panels under Estimating Information.*

SPOT REPAIR/BLEND ADJACENT PANEL

Spot Repair

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

Blend for Color Match

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

Major Panels

Major panels are those listed: **FRONT HEADER, FENDER, HOOD, 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 RATE, TAIL GATE, REAR BODY**

Overlap

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

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

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

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

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

Included Operations

- Solvent wash
- Scuff panel and clean
- Mask adjacent panels up to 36 inches or substitute with cover vehicle (bag) complete
- Prime or seal as required
- Final sanding and clean
- Mix materials
- Adjust spray equipment
- Apply color
- 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
- Additional application of soft chip primers or anti-chip undercoats
- Finish sand and buff
- Subsequent vehicle bagging when required: add .2 hour for each application & removal
- Mask interior to prevent overspray damage
- Removal of protective coatings
- Removal of release agent from OEM raw plastic components (example: non-primed bumper covers) See formula under *Raw Substrate Prep*
- Feather, Prime & Block paint damage to adjacent panel and/or panels joined by welding due to burn damage (see Feather, Prime & Block definition under *Refinish General Information*)
- Gravel guard refinish; add .5 hour for the first major panel and .3 hour for each additional panel.

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

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

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

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

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 jambs for which there is no paint color formula to achieve a color match. When necessary, reference "color match or tinting" listed above in *Not Included Operations.*

Raw Substrate Prep

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

Feather, Prime & Block

- *Audatex – Feather / Prime / Block*
- *CCC / Motor – Prime & Block*
- *Mitchell – Feather, Prime & Block*

- Is “Feather Prime & Block”…

1. *Required?*

(See the following documents from the leading Information Providers.)

2. *Included or Not-Included?*

(See the following pages from the leading Information Providers and the SCRS Guide to Complete Repair Planning for Documentation)

3. What *Documentation* do we have to show that the Repair Operation was Performed and Completed as Required?

(See the following examples of Before, During & After Photos, S.O.P.’s, Directions For Use)

Feather, Prime & Block

- *Audatex – Feather / Prime / Block*
- *CCC / Motor – Prime & Block*
- *Mitchell – Feather, Prime & Block*

- Is “Feather, Prime & Block”…

1. *Required?*
   - *The previous definitions from the leading Information Providers state that:*

A. Feather, Prime & Block *Are Required Repair Operations* necessary to restore a damaged panel from 150 grit to new undamaged condition.

B. Refinish Labor is based on *new, undamaged parts.*

C. Refinish 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.

(See the following pages from the Estimating Guides and Database Reference Manuals)

1. *A*. Feather, Prime & Block *Are Required Repair Operations* necessary to restore a damaged panel from 150 grit to new undamaged condition.

Section 4-4 Refinish Guidelines

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.

Repaired Panel Refinish

When a repaired panel is being refinished, the estimator provides time for the repair of the panel. Consequently, 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.

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 in the panel repair process, that occurs after 150 grit, to bring the repaired panel to the condition of a new, undamaged panel for the purpose of refinish. Audatex does not provide labor allowance for repaired panels, as this is a judgment time, nor does Audatex provide 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.

Source: Audatex (Shoplink) Database Reference Manual, Page 150

1. *A.* Feather, Prime & Block *Are Required Repair Operations* necessary to restore a damaged panel from 150 grit to new undamaged condition.

REFINISH TIME LISTINGS

All refinish times are listed in hours and tenths of an hour. A time in parentheses adjacent to the part name, such as (p3.5) indicates three and one half hours. Replacement operation time does not include time necessary to refinish the component.

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

REFINISH TIME PREMISE

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

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces. Nor do they include time which may be required to correct 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.

ANTI-THEFT LABELS (R DOT)

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

BUMPER COVERS AND OTHER FLEXIBLE COMPONENTS

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

DOOR OUTER REPAIR PANELS

Refinish times listed on the parts detail line for new repair panels (i.e. door outer repair panel, tail gate and lift gate 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, LIFT GATES AND TAIL GATES

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

REFINISH TIME PREMISE - Continued

DOOR SHELLS, LIFT GATES AND TAIL GATES - Continued

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

FENDERS, HOODS, TRUNK LIDS AND OTHER MAJOR BOLTED PANELS

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

QUARTER PANELS AND OTHER MAJOR WELDED PANELS

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

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

NEW UNDAMAGED PANEL

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

UNDERSIDE COLORS

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

PRIME & BLOCK

Prime & block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 150-grit finish to NEW 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 refinish time for this type of procedure after the damaged panel is repaired to new undamaged condition. Repaired surface preparation requires an on-the-spot evaluation for additional procedural steps such as featheredge and/or prime and block not required for new undamaged panels.

PARTIAL PANEL REFINISHING

This is NOT a BLEND-WITHIN procedure; partial panel 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 refinish requirements in question. Refer to G.T.E. "BASIC COLOR COAT APPLICATION."

Source: CCC / Motor Guide To Estimating , Page G34

1. *A.* Feather, Prime & Block *Are Required Repair Operations* necessary to restore a damaged panel from 150 grit to new undamaged condition.

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Procedure Explanation

Bumper Assembly O/H

Included Operations

- Remove and install assembly
- Disassemble and replace damaged parts
- Replace or transfer parts attached except those listed in *Not Included* Section
- Remove and install or replace: License plate/bracket
- Assemble and install
- Adjust alignment to vehicle

Not Included Operations

- Refinish bumper
- Remove and replace impact absorbers or mounting arms
- Remove and install or replace optional accessories (example: trailer hitch, trailer connector)
- Remove and install adhesive exterior trim; add to clean and retape
- Replace new adhesive exterior trim; deduct one-half of R&R time
- Install stripes, decals, transfers or overlays

Procedure 28—Refinish Procedure

Refinish General Information

Complete Refinish

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

Lifetime Refinish Warranty/Clear Coat

The major paint manufacturers listed below have provided the following information: "Major refinish paint manufacturers recommend that when performing refinish warranty repairs on an OEM multi-stage or basecoat/clearcoat finish, you must extend the application of clear to the nearest panel edge or breakpoint to qualify for lifetime warranty." **AKZO — 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 handles or exterior trim, feather prime & block, masking for primer surfacer application—are not included in refinish time. The steps required for refinishing a repaired and/or used panel may vary from those required for a new panel depending on the condition of the repaired and/or used panel.

Feather, Prime & Block

Is the Not-Included 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 *Welded Panels under Estimating Information.*

SPOT REPAIR/BLEND ADJACENT PANEL

Spot Repair

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

Blend for Color Match

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

Major Panels

Major panels are those listed: **FRONT HEADER, FENDER, HOOD, 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 RATE, TAIL GATE, REAR BODY**

Overlap

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

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

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

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

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

Included Operations

- Solvent wash
- Scuff panel and clean
- Mask adjacent panels up to 36 inches or substitute with cover vehicle (bag) complete
- Prime or seal as required
- Final sanding and clean
- Mix materials
- Adjust spray equipment
- Apply color
- 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
- Additional application of soft chip primers or anti-chip undercoats
- Finish sand and buff
- Subsequent vehicle bagging when required: add .2 hour for each application & removal
- Mask interior to prevent overspray damage
- Removal of protective coatings
- Removal of release agent from OEM raw plastic components (example: non-primed bumper covers) See formula under *Raw Substrate Prep*
- Feather, Prime & Block paint damage to adjacent panel and/or panels joined by welding due to burn damage (see Feather, Prime & Block definition under *Refinish General Information*)
- Gravel guard refinish; add .5 hour for the first major panel and .3 hour for each additional panel.

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

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

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

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

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 jambs for which there is no paint color formula to achieve a color match. When necessary, reference "color match or tinting" listed above in *Not Included Operations.*

Raw Substrate Prep

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

1. *B.* Refinish Labor is based on *new undamaged parts.*

Section 4-1 Labor Overview

Introduction

Labor supplied in an Audatex estimate is intended for use as a guide for collision repair. Labor allotments suggested by Audatex estimates are for replacement of new and undamaged parts. Additional allowances are provided for optional equipment supplied by the vehicle manufacturer by selecting the appropriate options and parts. Because each vehicle's collision damage is unique, automation cannot cover every situation. The flexibility of the Audatex system, coupled with the estimate preparer's knowledge and expertise, provides for adjustment of any estimate to meet the needs presented by each collision situation.

How Labor is Determined

Audatex's labor is developed through an in-depth process that establishes incremental values for each connection point that must be accessed to replace a given part. These incremental labor values are determined in several ways that include:

- Review of manufacturer service manuals and engineering drawings to define the necessary operations
- Independent time and motion studies conducted in repair and research facilities
- Analysis of Audatex historical information, in which like operations are reviewed in existing vehicles for use in new vehicles of similar construction
- Review of technical bulletins from:
  - independent sources
  - original equipment manufacturers
  - paint manufacturers
  - research groups
- Requests from repairers and estimate preparers to review established labor and procedures (Request for Review)
- Extensive experience of the Audatex technical staff in collision repair
- Continuous training in the latest repair techniques including I-CAR training

Source: Audatex (Shoplink) Database Reference Manual, Page 49

1. B. Refinish Labor is based on *new undamaged parts.*

Section 4-4 Refinish Guidelines

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.

Repaired Panel Refinish

When a repaired panel is being refinished, the estimator provides time for the repair of the panel. Consequently, 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.

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 in the panel repair process, that occurs after 150 grit, to bring the repaired panel to the condition of a new, undamaged panel for the purpose of refinish. Audatex does not provide labor allowance for repaired panels, as this is a judgment time, nor does Audatex provide 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.

Source: Audatex (Shoplink) Database Reference Manual, Page 150

1. B. Refinish Labor is based on *new undamaged parts.*

GUIDE TO ESTIMATING

LABOR PROCEDURES

LABOR TIME LISTINGS

All operation times are listed in hours and tenths of an hour. A time listed as 3.5 indicates three and one half hours.

LABOR TIME PREMISE

The times reported in this publication are to be used as a GUIDE ONLY. Reported times include normal align procedure to insure proper fit of the individual new part being replaced. Reported times include tube/paddled OEM caulking and seam sealer removal/application on welded replacement panels. Sprayable seam sealer equipment requires preparation and adjustment before application and is NOT INCLUDED IN LABOR TIME.

Times do not apply to vehicles with equipment other than that supplied by the vehicle manufacturer as standard or regular production options. If other equipment is used, the time may be adjusted to compensate for the variables. Removal and replacement of exchanged or used parts is not considered. If additional aligning or repair must be made, such factors should be considered when developing the estimate. Items not listed under the INCLUDED/DOES NOT INCLUDE heading for any given procedure have not been considered in the estimated work time development for that procedure, unless specified by a footnote. All included/not included items for labor procedures listed between pages G10 and G33 are for component R&R and R&I procedures unless otherwise indicated in operation heading.

OPERATION TIMES LISTED ARE BASED ON NEW UNDAMAGED PARTS INSTALLED ON NEW UNDAMAGED VEHICLES AS INDIVIDUAL OPERATIONS. TIME HAS NOT BEEN CONSIDERED FOR ALIGNMENT PULLS, DAMAGE-RELATED ACCESS TIME, DAMAGED, USED, REMANUFACTURED OR AFTERMARKET PARTS. SOME OPERATION TIMES ARE APPLICABLE AFTER BOLTED, ATTACHED OR RELATED PARTS HAVE BEEN REMOVED. REFER TO SPECIFIC FOOTNOTES ATTACHED TO OPERATION TIME LISTING.

LABOR TIME DOES NOT INCLUDE:

SPECIAL NOTATION:

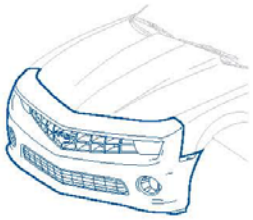
The items listed below apply to all labor procedures.

- A/C System, Evacuate and Recharge
- Aftermarket & OEM accessories
- Alignment, check or straightening related parts
- Alignment check of front or rear suspension/steering
- Anticorrosion material restoration/application
- Battery D&R/recharge
- Brackets & braces transfer
- Broken glass removal or clean up
- Brakes, bleed and adjust
- Caulk (non-OEM), sound insulate or paint inner areas
- Clean up or detailing of vehicle prior to delivery
- Computer control module D&R/relearn
- Conversion Vans (special components, equipment and trim)
- Cutting, pulling or pushing collision damaged parts for access
- Damaged or defective replacement parts
- Drain & refill fuel tank
- Drilling, modification or fabrication of mounting holes
- Fabricate templates, reinforcing inserts, sleeves or flanges
- Filling, plugging and finishing of unneeded holes in new parts
- Information label installation
- Material costs
- Pinch weld clamp damage repair
- Refinishing

LABOR TIME PREMISE - Continued

- Reset electronic memory functions after battery disconnect
- Road test vehicle
- Rusted, frozen, broken or corrosion damaged components or fasteners
- Scan tool clear/reset electronic module
- Scan tool diagnostics
- Steering Angle Sensor recalibration
- Straighten or align used, reconditioned or non-OEM parts
- Structural damage diagnosis and vehicle set up time
- Structural foam removal or application
- Test panel/spray caulk
- Undercoating, tar or grease removal
- Unprimed bumpers, removal of mold-release agents
- Waste disposal fees (all types)
- Weld through primer
- Welded seam surface finishing finer than 150 grit sandpaper
- Wheel or hub cap locks R&I

FRONT BUMPER ASSEMBLY - R&I ALL TYPES



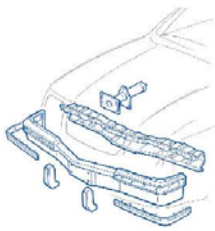
INCLUDED:

- Align to vehicle
- Face bar/bumper cover assembly R&I

DOES NOT INCLUDE:

- Air bag sensor
- Battery
- Emblems & nameplates
- Energy absorber, all types
- Lamp aiming
- Lamps (when not mounted in bumper)
- Moldings & impact strip
- Stripe tape, decals or overlays
- Valance panel/spoiler (when not mounted to bumper)

FRONT BUMPER - R&R FACE BAR TYPE



INCLUDED:

- Align to vehicle
- Emblem & nameplate
- Face bar R&I
- Guard
- Guard cushions
- Lamps (when mounted to bumper)
- Molding & impact strip

DOES NOT INCLUDE:

- Air bag sensor
- Battery
- Distance sensor
- Energy absorber, if mounted to frame rail (all types)
- Lamp aiming
- Lamps (optional equipment, or not mounted to bumper)
- License plate/bracket
- Stripe tape, decals or overlays
- Valance panel/spoiler (when not mounted to bumper)

Source: CCC / Motor Guide To Estimating , Page G10

1. B. Refinish Labor is based on *new undamaged parts.*

GUIDE TO ESTIMATING

REFINISHING PROCEDURES

REFINISH TIME LISTINGS

All refinish times are listed in hours and tenths of an hour. A time in parentheses adjacent to the part name, such as (p3.5) indicates three and one half hours. Replacement operation time does not include time necessary to refinish the component.

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

REFINISH TIME PREMISE

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

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces. Nor do they include time which may be required to correct 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.

ANTI-THEFT LABELS (R DOT)

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

BUMPER COVERS AND OTHER FLEXIBLE COMPONENTS

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

DOOR OUTER REPAIR PANELS

Refinish times listed on the parts detail line for new repair panels (i.e. door outer repair panel, tail gate and lift gate 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, LIFT GATES AND TAIL GATES

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

REFINISH TIME PREMISE - Continued

DOOR SHELLS, LIFT GATES AND TAIL GATES - Continued

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

FENDERS, HOODS, TRUNK LIDS AND OTHER MAJOR BOLTED PANELS

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

QUARTER PANELS AND OTHER MAJOR WELDED PANELS

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

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

NEW UNDAMAGED PANEL

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

UNDERSIDE COLORS

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

PRIME & BLOCK

Prime & block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 150-grit finish to NEW 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 refinish time for this type of procedure after the damaged panel is repaired to new undamaged condition. Repaired surface preparation requires an on-the-spot evaluation for additional procedural steps such as featheredge and/or prime and block not required for new undamaged panels.

PARTIAL PANEL REFINISHING

This is NOT a BLEND-WITHIN procedure; partial panel 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 refinish requirements in question. Refer to G.T.E. "BASIC COLOR COAT APPLICATION."

Source: CCC / Motor Guide To Estimating , Page G34

1. B. Refinish Labor is based on *new undamaged parts.*

Estimating Information

Guide Layout Sequence

Identify the Vehicle

Models are often combined in one service because there is enough similarity between them that a separate service for each is not necessary. Record all model identification information on the damage report. Paint code locations are found in the front of the *Guide* and/or the beginning of each service. This will save time in searching for refinish codes or touchup paint.

Use the Layout as a Guide

An alphabetized Section Index can be found at the beginning of each service. Arranged from front to rear and from outside the vehicle inward are about 30 sections for each service (example: grille, quarter panel, luggage lid). Most have illustrations in which the components are identified and described, and part numbers, part prices, and labor times are shown. The descriptions are carefully arranged to depict the most frequent kinds of collision damage.

Work Through the First Section

From the outside inward, note each part that is damaged and its attachments. For each part, list the part number, the price and the labor time.

Work Through Each Section

Use the sequence in the book as a guide and a reminder, and observe the notes that apply to specific situations. For the first few damage reports it is well worth reading through the *Procedure Explanations* to become thoroughly familiar with the approach used, and to know which parts and operations are included and which are not.

Complete the Damage Report

Add up all the labor times and calculate the total. Add up total part prices and material costs. Total, and you have a complete and accurate damage report.

Definitions

Bolted Parts and Assemblies

Refers to items bolted to inner structures, radiator supports, cowl and dash, etc., that **may** need to be removed for access. Due to the variety of these items and vehicles, time to remove and install or replace them is not included. Refer to the specific *Procedure Explanation* for examples of these items.

Disconnect & Connect

Disconnect a part or assembly by unbolting and/or unplug, and set it aside without physically removing it from the vehicle to gain access or removal of an adjacent part. The disconnected part or assembly is then reconnected during the assembly process.

High Strength Steels

Complete HSS information is not available from the vehicle manufacturers. When information is available, the components will be called out by the appropriate acronym (HSS/UHSS etc.) within the text after the name of the part identified. See *Abbreviations* in *Reference Information* for a list of acronyms and their definitions.

New Undamaged Part

Refers to a replacement part from the vehicle manufacturer without exterior or interior trim or attached parts.

Overhaul (O/H)

Remove an assembly, disassemble, clean and visually inspect it, replace needed parts, reassemble and reinstall on the vehicle making any necessary adjustments. Items which can only be changed by using the overhaul operation are shown by placing "IOH" (Included in Overhaul) in the column. There are other items which are included in the overhaul operation that may be replaced individually. These will have a time assigned for a stand-alone operation. For verification, refer to the *Procedure Explanation* for the operation being performed.

Overlap

If adjoining parts are being replaced (example: quarter and rear body panels), there is an overlap in that both individual operations include common welded surfaces or parts attached to both panels. A deduction must, therefore, be made from the total of the individual operations to compensate for the two or more repeated operations in each sub-task. Similarly, if a part has already been removed, it makes access to other parts easier.

Remove and Install (R&I)

Remove a part or assembly, set it aside and reinstall it later. The time shown includes the alignment that can be done by shifting the part or assembly.

Remove and Replace (R&R)

Remove a part or assembly identified as included within the *Procedure Explanation* and replace the part or assembly with a new one. The time shown includes the alignment that can be done by shifting the part or assembly.

Underhood Dimensions

Engine compartment views are shown as if you are above the vehicle looking down. A centerline is provided for measuring strut widths. The illustration is an exact view of the engine compartment showing all bolts, holes, supports and other structural components. Measurements can be duplicated with tape measure or with tram bar pointers set at equal lengths. Dimensions are given, whether symmetrical or non-symmetrical. All round holes are measured to center. Oval holes are usually measured to the front or rear center. Measurements are shown in millimeters. These dimensions are for estimating purposes only. See *Vehicle Dimension* topic in the *Mitchell Information Center*.

Order by Application

Many parts vary in usage according to differences in colors, materials, engines, transmissions, VIN, year and other factors. Where there are occasional variations regarding the part price, a representative part number at times is selected and the phrase "Order By Application" is footnoted to the part's description. Consult the dealer parts department for exact price and/or part number information.

Labor General Information

IMPORTANT REMINDER: Labor related notes in the text portion override the *Procedure Explanation* pages.

Aluminum

The labor times shown for aluminum panel R&R represent replacement according to the manufacturer's recommended procedures and guidelines. Within the published labor times Mitchell has also taken into consideration these commonly asked about items; **Remove and Replace:** Rivets, Drill and de-burr rivet holes, EMC screws, Flow drill screws, **Body pretreatment:** Flame coat treatment, Application of bonding adhesives, **Welding (if applicable):** Welding equipment set-up, "Run-on" or "Cold start" tabs.

NOTE: In addition, Aluminum panel replacement follows the guidelines outlined in specific applicable panel P-Pages. e.g. Aluminum Quarter Panel replacement follows Procedure 20, Quarter Panel R&R.

IMPORTANT REMINDER: The cost of aluminum panel replacement materials is not included in panel replacement R&R times. (example: Rivets, Panel bonding, Adhesives, Bonding primer, EMC screws, Flow drill screws etc.).

Labor Times

THE LABOR TIMES SHOWN IN THE *GUIDE* ARE IN HOURS AND TENTHS OF AN HOUR (6 MINUTES) AND ARE FOR REPLACEMENT WITH NEW, UNDAMAGED PARTS FROM THE VEHICLE MANUFACTURER ON A NEW, UNDAMAGED VEHICLE. Any additional time needed for collision **DAMAGE ACCESS, ALIGNMENT PULLS, NON-ORIGINAL EQUIPMENT or USED PARTS** should be agreed upon by all parties. Times for some operations are applicable after necessary bolted, attached or related parts have been removed. Exceptional circumstances, including all the sub-operations or extra operations, are indicated as notes throughout the text or are identified in the *Procedure Explanations*. The actual time taken by individual repair facilities to replace collision damaged parts can be expected to vary due to severity of collision, vehicle condition, equipment used, etc.

1. B. Refinish Labor is based on *new undamaged parts.*

Procedure Explanation

Bumper Assembly O/H

Included Operations

- Remove and install assembly
- Disassemble and replace damaged parts
- Replace or transfer parts attached except those listed in *Not Included* Section
- Remove and install or replace: License plate/bracket
- Assemble and install
- Adjust alignment to vehicle

Not Included Operations

- Refinish bumper
- Remove and replace impact absorbers or mounting arms
- Remove and install or replace optional accessories (example: trailer hitch, trailer connector)
- Remove and install adhesive exterior trim; add to clean and retape
- Replace new adhesive exterior trim; deduct one-half of R&R time
- Install stripes, decals, transfers or overlays

Procedure 28—Refinish Procedure

Refinish General Information

Complete Refinish

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

Lifetime Refinish Warranty/Clear Coat

The major paint manufacturers listed below have provided the following information: "Major refinish paint manufacturers recommend that when performing refinish warranty repairs on an OEM multi-stage or basecoat/clearcoat finish, you must extend the application of clear to the nearest panel edge or breakpoint to qualify for lifetime warranty." **AKZO — 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 handles or exterior trim, feather prime & block, masking for primer surfacer application—are not included in refinish time. The steps required for refinishing a repaired and/or used panel may vary from those required for a new panel depending on the condition of the repaired and/or used panel.

Feather, Prime & Block

Is the Not-Included 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 *Welded Panels under Estimating Information.*

SPOT REPAIR/BLEND ADJACENT PANEL

Spot Repair

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

Blend for Color Match

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

Major Panels

Major panels are those listed: **FRONT HEADER, FENDER, HOOD, 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 RATE, TAIL GATE, REAR BODY**

Overlap

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

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

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

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

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

Included Operations

- Solvent wash
- Scuff panel and clean
- Mask adjacent panels up to 36 inches or substitute with cover vehicle (bag) complete
- Prime or seal as required
- Final sanding and clean
- Mix materials
- Adjust spray equipment
- Apply color
- 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
- Additional application of soft chip primers or anti-chip undercoats
- Finish sand and buff
- Subsequent vehicle bagging when required: add .2 hour for each application & removal
- Mask interior to prevent overspray damage
- Removal of protective coatings
- Removal of release agent from OEM raw plastic components (example: non-primed bumper covers) See formula under *Raw Substrate Prep*
- Feather, Prime & Block paint damage to adjacent panel and/or panels joined by welding due to burn damage (see Feather, Prime & Block definition under *Refinish General Information*)
- Gravel guard refinish; add .5 hour for the first major panel and .3 hour for each additional panel.

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

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

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

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

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 jambs for which there is no paint color formula to achieve a color match. When necessary, reference "color match or tinting" listed above in *Not Included Operations*.

Raw Substrate Prep

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

1. C. Refinish 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.*

Section 4-5 Refinish Operations

Refinish Operations

Audatex refinish labor generally includes time to perform all operations necessary to accomplish refinish for new and undamaged OEM or equivalent panels. Audatex refinish 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. Audatex refinish 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 jambs is a not included operation. (labor only)***
- Basic corrosion protection provided by paint system/primer applied
- 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**
- Apply and flash; color
- Inspect job and paint
- Clean gun; color
- Add flex 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 146)
- 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, hoods, etc.) are removed and refinished.***
- Mask mouldings
- Spray additional test panel
- Blending into adjacent panels (see Blending, page 143)
- Color Sand and Buff (see page 144)
- Chipguard application (see page 142)
- Gravel guard (see Chipguard, page 142)
- Additional time for two-tone (see page 142)
- Additional time for three-stage (see page 140-141)
- Custom finishes
- Tint primer or clear coat
- 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

Source: Audatex (Shoplink) Database Reference Manual, Page 166

Feather, Prime & Block

- *Audatex – Feather / Prime / Block*
- *CCC / Motor – Prime & Block*
- *Mitchell – Feather, Prime & Block*

- Is “Feather, Prime & Block”…

2. *Included or Not-Included?*

A. According to the leading Information Providers Feather Prime & Block are *Not-Included* Required Repair Operations necessary to restore a damaged panel from 150 grit to new undamaged condition.

(See the following documents from the leading Information Providers)

B. SCRS, ASA and other resources list:
   - Feather Prime & Block as *Not-Included* Required Repair Operations necessary to restore a damaged panel to new undamaged condition.

(See the following pages from the SCRS Guide to Complete Repair Planning for Documentation)

3M

2. *A.* According to the leading Information Providers Feather Prime & Block are *Not-Included* Required Repair Operations necessary to restore a damaged panel from 150 grit to *new undamaged condition.*

Section 4-3 Replacement & Recycled Operations

Refer to the Audatex Labor Report for Operations Specific to the Vehicle Being Repaired

Audatex's definition of Remove and Replace *(R&R)*

Is an operation or group of operations that are required to remove the damaged part and replace with a new OEM or new alternative part. Audatex time:

- includes normal adjustment and alignment for correct fit.
- does not include any duplicated effort.

Replace includes any operations over and above the R&I operations.

Replacement and Recycled Operations Overview

Asterisks on an estimate are used to denote user entered values. They do not imply that the operation noted is not a necessary procedure.

Manual entries on an estimate do not imply that the part/operation entered is not a necessary procedure.

Audatex labor allowances include time to fabricate sleeves when they can be made from existing parts. If the sleeve needs to be fabricated from raw stock, the time to fabricate the sleeve is not included.

Sandwiched panel replacement includes time to separate the panels by drilling out the spot welds and sliding the replacement panel in between, rewelding and smoothing welds if necessary.

A required labor operation that is not listed as either "Included" or "Not Included" is usually not included in Audatex labor times. This applies to the content of the DBRM and the specific operations listed for each vehicle through the Labor Report.

FULL PANEL REPLACEMENT

Audatex labor is for replacement at factory seams when possible. Many vehicles now have panels that may not be replaced at roof seams because of overlapping panels. If a quarter panel is designed in this manner and a "Partial" repair time is not shown, the Audatex time represents replacement of the panel at the most practical area – usually in the window openings below the roof seam. This method is considered a full panel replacement.

Welded Partial Panel Replacement

Partial Panel Replacement is the replacement of a portion of an OEM panel at either a factory seam or using a viable sectioning procedure.

Source: Audatex (Shoplink) Database Reference Manual, Page 60

2. *A.* According to the leading Information Providers Feather Prime & Block are *Not-Included* Required Repair Operations necessary to restore a damaged panel from 150 grit to *new undamaged condition.*

Section 4-4 Refinish Guidelines

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.

Repaired Panel Refinish

When a repaired panel is being refinished, the estimator provides time for the repair of the panel. Consequently, 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.

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 in the panel repair process, that occurs after 150 grit, to bring the repaired panel to the condition of a new, undamaged panel for the purpose of refinish. Audatex does not provide labor allowance for repaired panels, as this is a judgment time, nor does Audatex provide 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.

2. A. According to the leading Information Providers Feather Prime & Block are *Not-Included* Required Repair Operations necessary to restore a damaged panel from 150 grit to *new undamaged condition.*

REFINISH TIME LISTINGS

All refinish times are listed in hours and tenths of an hour. A time in parentheses adjacent to the part name, such as (p3.5) indicates three and one half hours. Replacement operation time does not include time necessary to refinish the component.

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

REFINISH TIME PREMISE

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

Refinish times do not include time which may be required to match color tints or defective finish textures on interior or exterior surfaces. Nor do they include time which may be required to correct 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.

ANTI-THEFT LABELS (R DOT)

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

BUMPER COVERS AND OTHER FLEXIBLE COMPONENTS

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

DOOR OUTER REPAIR PANELS

Refinish times listed on the parts detail line for new repair panels (i.e. door outer repair panel, tail gate and lift gate 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, LIFT GATES AND TAIL GATES

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

REFINISH TIME PREMISE - Continued

DOOR SHELLS, LIFT GATES AND TAIL GATES - Continued

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

FENDERS, HOODS, TRUNK LIDS AND OTHER MAJOR BOLTED PANELS

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

QUARTER PANELS AND OTHER MAJOR WELDED PANELS

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

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

NEW UNDAMAGED PANEL

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

UNDERSIDE COLORS

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

PRIME & BLOCK

Prime & block (high build/primer-filler) is a required procedure that restores a repaired panel surface, including the joined areas of replaced welded panels, from 150-grit finish to NEW 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 refinish time for this type of procedure after the damaged panel is repaired to new undamaged condition. Repaired surface preparation requires an on-the-spot evaluation for additional procedural steps such as featheredge and/or prime and block not required for new undamaged panels.

PARTIAL PANEL REFINISHING

This is NOT a BLEND-WITHIN procedure; partial panel 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 refinish requirements in question. Refer to G.T.E. "BASIC COLOR COAT APPLICATION."

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

Source: CCC / Motor Guide To Estimating, Page G34

2. A. According to the leading Information Providers Feather Prime & Block are *Not-Included* Required Repair Operations necessary to restore a damaged panel from 150 grit to *new undamaged condition.*

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Procedure Explanation

Bumper Assembly O/H

Included Operations

- Remove and install assembly
- Disassemble and replace damaged parts
- Replace or transfer parts attached except those listed in *Not Included* Section
- Remove and install or replace: License plate/bracket
- Assemble and install
- Adjust alignment to vehicle

Not Included Operations

- Refinish bumper
- Remove and replace impact absorbers or mounting arms
- Remove and install or replace optional accessories (example: trailer hitch, trailer connector)
- Remove and install adhesive exterior trim; add to clean and retape
- Replace new adhesive exterior trim; deduct one-half of R&R time
- Install stripes, decals, transfers or overlays

Procedure 28—Refinish Procedure

Refinish General Information

Complete Refinish

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

Lifetime Refinish Warranty/Clear Coat

The major paint manufacturers listed below have provided the following information: "Major refinish paint manufacturers recommend that when performing refinish warranty repairs on an OEM multi-stage or basecoat/clearcoat finish, you must extend the application of clear to the nearest panel edge or breakpoint to qualify for lifetime warranty." **AKZO — 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 handles or exterior trim, feather prime & block, masking for primer surfacer application—are not included in refinish time. The steps required for refinishing a repaired and/or used panel may vary from those required for a new panel depending on the condition of the repaired and/or used panel.

Feather, Prime & Block

Is the Not-Included 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 *Welded Panels under Estimating Information.*

SPOT REPAIR/BLEND ADJACENT PANEL

Spot Repair

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

Blend for Color Match

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

Major Panels

Major panels are those listed: **FRONT HEADER, FENDER, HOOD, 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 RATE, TAIL GATE, REAR BODY**

Overlap

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

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

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

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

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

Included Operations

- Solvent wash
- Scuff panel and clean
- Mask adjacent panels up to 36 inches or substitute with cover vehicle (bag) complete
- Prime or seal as required
- Final sanding and clean
- Mix materials
- Adjust spray equipment
- Apply color
- 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
- Additional application of soft chip primers or anti-chip undercoats
- Finish sand and buff
- Subsequent vehicle bagging when required: add .2 hour for each application & removal
- Mask interior to prevent overspray damage
- Removal of protective coatings
- Removal of release agent from OEM raw plastic components (example: non-primed bumper covers) See formula under *Raw Substrate Prep*
- Feather, Prime & Block paint damage to adjacent panel and/or panels joined by welding due to burn damage (see Feather, Prime & Block definition under *Refinish General Information*)
- Gravel guard refinish; add .5 hour for the first major panel and .3 hour for each additional panel.

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

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

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

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

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 jambs for which there is no paint color formula to achieve a color match. When necessary, reference "color match or tinting" listed above in *Not Included Operations.*

Raw Substrate Prep

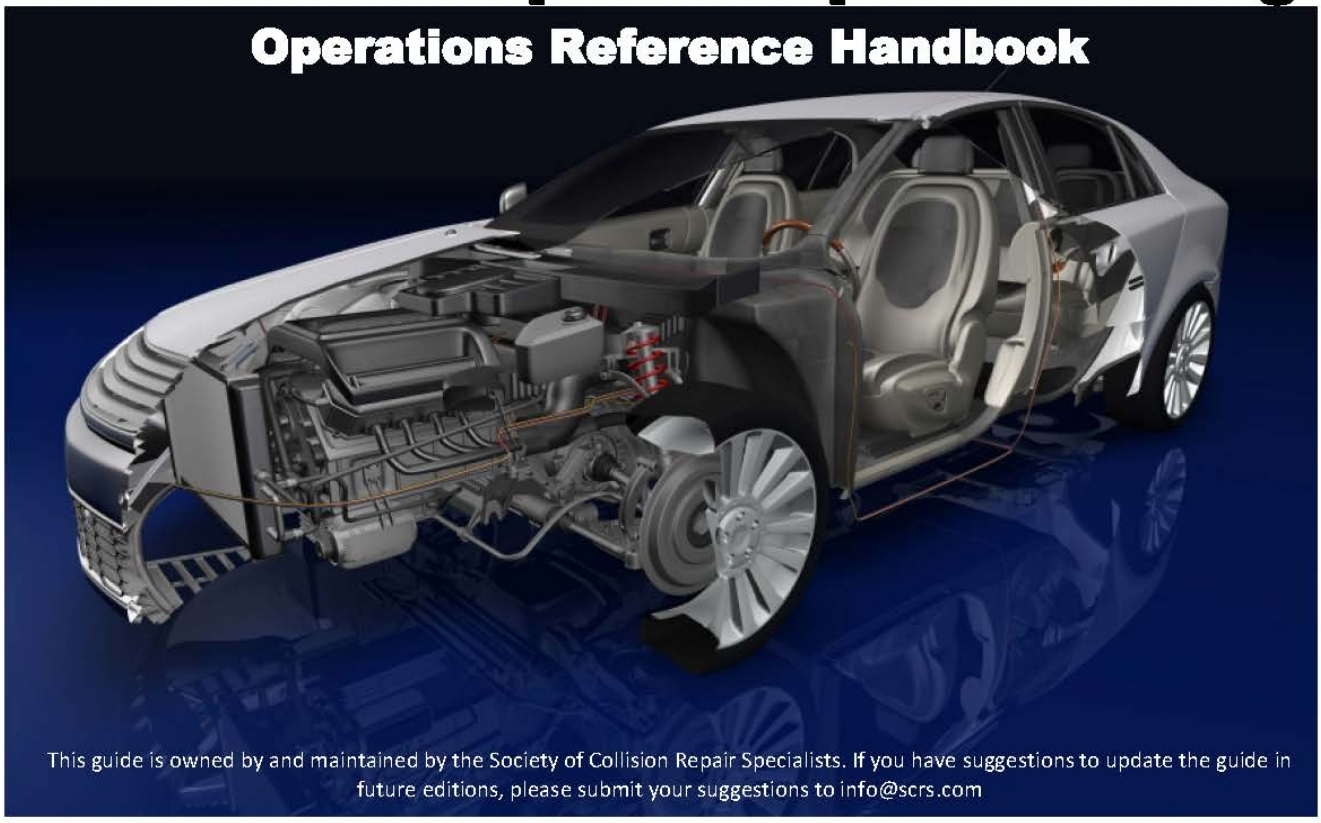
Allow .2 per refinish hour (20%) for plastic components that come from the manufacturer/supplier in a raw/un-primed state.

2. *B.* SCRS, ASA and other resources list Feather Prime & Block as ***Not-Included*** Required Repair Operations necessary to restore a damaged panel to new undamaged condition.

SCRS
REPAIRER DRIVEN

Guide to Complete Repair Planning

Operations Reference Handbook



This guide is owned by and maintained by the Society of Collision Repair Specialists. If you have suggestions to update the guide in future editions, please submit your suggestions to info@scrs.com

The Society of Collision Repair Specialists (SCRS) recognizes that there are many legitimate operations and services our technicians provide that go unrecognized in the estimate development and final billing processes. The purpose of this document is to aid repair facility personnel in formulating the most accurate repair plan in the estimate preparation process, to minimize the need or expense of a supplement. This document is intended to be used as a guide to develop and maintain processes performed in your repair facility, and serves as a reminder of steps that may be performed during the repair process. This document does not suggest, or promote, that your shop can or should charge for each item listed; and is only intended to be a reminder for repair operations that are performed in your facility.

The document does not contain pricing, quantities, labor hours or any additional information as that should be determined based on your facility's individual requirements. All recipients of this document are herewith notified that the materials presented herein are not to be construed as information or direction to take concerted actions. Information can be utilized by individuals acting within their own judgment.

2. B. SCRS, ASA and other resources list Feather Prime & Block as *Not-Included* Required Repair Operations necessary to restore a damaged panel to new undamaged condition.

Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

Table of Contents:

Description	Material Sublet Price	Minimum Labor Units
01- Front and Rear Bumpers:		
1. FEATHERFILL, SAND AND BLOCK REPAIR AREA		
2. REMOVE BUMPER MOLDING ADHESIVE		
3. DRILL FOR LICENSE PLATE		
4. R&I LICENSE PLATE		
5. LICENSE PLATE, REPAIR		
6. LOOSEN/PULL BACK BUMPER COVER		
7. BUMPER PROMPT DEDUCTION (DETERMINE IF NECESSARY TO ADD BACK OVERLAP + CLEAR)		
8. R&I FOG LAMPS		
9. R&I TRAILER HITCH (ON BUMPER)		
10. AIM FOG LAMPS		
11. R&I CAMERA AND WIRING		
12. TRIAL FIT BUMPER		
13. R&I TRAILER HITCH (FRAME BOLT-ON TYPE)		
14. R&I OR R&R SENSORS (SRS-AMBEINT TEMP - ETC.)		
15. REPAIR BUMPER BRACKET AND/OR OTHER COMPONENTS		
16. REPAIR BUMPER BRACKET MOUNT AREA		
17. REPAIR ELECTRICAL WIRING TO LAMP LIGHTS		
18. REFINISH O.E.M "RAW" BUMPER		
19. REFINISH, SECOND COLOR ON BUMPER COVER		
20. REFINISH, BLACK-OUT ON BUMPER COVER		
21. PAINT PREP & CLEAN UP USED BUMPER		
22. MASK UNPAINTED AREAS ON BUMPER COVER		
23. MASK BUMPER COVER FOR PRIMER APPLICATION		
24. FLEXIBLE PARTS ADHESION PROMOTOR APPLICATION		
25. REPLACE MINI BULBS		
26. RAW BUMPER PREP KIT		
27. BUMPER FASTENERS/RETAINERS (KIT)		

2. B. SCRS, ASA and other resources list Feather Prime & Block as *Not-Included* Required Repair Operations necessary to restore a damaged panel to *new undamaged condition.*

Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

28.	URETHANE BUMPER REPAIR KIT		
29.	FLEXIBLE PARTS ADDITIVE		
05- Hood:			
30.	R&I WINDSHIELD WASHER NOSSELS *(REPAIR SITUATION)*		
31.	R&I HOOD INSULATION		
32.	WINDSHIELD WASHER HOSE RETAINERS *(MORE THAN ONE DESIGN)*		
33.	REPAIR HOOD LATCH		
34.	REPAIR HOOD HINGES AND/OR HINGE MOUNT AREA		
35.	ACCESS TIME TO REVEAL DAMAGE		
36.	FEATHEREDGE, FILL SAND AND BLOCK *(REPAIRED HOOD)*		
37.	SEAM SEAL INNER EDGE OF NEW HOOD		
38.	R&I OR R&R HOOD HINGE		
39.	R&I COWL VENT PANEL *(ACCESS TO HINGE)*		
40.	TEST FIT HOOD		
41.	MIX PAINT FOR UNDERSIDE SECOND COLOR (Add for 3rd and 4th Color)		
42.	COLOR TINT & TEST FOR UNDER SIDE SECOND COLOR		
43.	MASK HOOD INNER EDGES		
44.	WINDSHIELD WASHER HOSE FASTENER-S *(1ST DESIGN)*		
45.	WINDSHIELD WASHER HOSE FASTENERS *(2ND DESIGN)*		
46.	HOOD INSULATION RETAINER FASTENERS, REPLACE		
47.	HOOD FRONT SEAL/ FASTENERS		
48.	HOOD REAR SEAL/ FASTENERS		
49.	HOOD LABELS (HOW MANY/WHICH ONES?)		
10 - Fender:			
50.	R&I TIRE WHEEL		
51.	R&I FENDER LINER		
52.	R&I FENDER MOLDINGS, EMBLEMS AND FLARE		
53.	R&I MUD FLAP		
54.	R&I ROCKER COVER		
55.	REPLACE ROCKER COVER FASTENERS *(TWO DESIGNS?)*		
56.	REPLACE FENDER FLARE FASTENERS		
57.	CLEAN AND RETAPE FENDER MOLDING-S AND EMBLEM		
58.	REPLACE LINER FASTENERS		
59.	FEATHEREDGE, FILL SAND AND BLOCK REPAIRED FENDER		
60.	CAVITY WAX		
61.	REMOVE FACTORY INSTALLED ADHESIVE FOR ACCESS		
62.	ALIGN ADJACENT PANEL-S TO FENDER		
63.	ANTENNA BASE CORROSION, REPAIR		
64.	MASK FENDER JAMS AND OPENINGS		
65.	FENDER MLDG CLADDING PREP FOR "RAW"		
66.	GRAVEL GUARD		
67.	REMOVE STRIPES (ERASER WHEEL)		
68.	FENDER BLACK OUT SECOND COLOR		
15 – Core Support:			
69.	ACCESS/PRE-PULLING		
70.	PROTECT ENGINE COMPARMENT COMPONENTS		
71.	REPAIR CUT WIRING		
72.	AQUIRE RADIO CODE		
73.	RESET MEMORY FUNCTIONS		
74.	MEMORY "SAVER" COLLISION TOOL		

2. B. SCRS, ASA and other resources list Feather Prime & Block as *Not-Included* Required Repair Operations necessary to restore a damaged panel to *new undamaged condition.*

Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

75. REMOVE CAULKING & SEAM SEALER		
76. TEST FIT PARTS ATTACHED TO CORESUPPORT		
77. PULL BACK WIRE HARNESS		
78. REPAIR WIRE HARNESS FASTENERS		
79. CLOSE/SECURE OPEN TUBES AND LINES		
80. FEATHER AND FILL WELDS AT WELD LOCATIONS		
81. R&I WHEELS		
82. R&I ROCKER COVERS AND/OR MUD FLAPS		
83. R&I FENDERS (ADD FOR SPLASH SHIELDS & FASTENERS)		
84. R&I ENGINE UNDERCOVER SHIELD		
85. R&I WINDSHIELD WASHER RESERVOIR		
86. R&I AC DRIER		
87. R&I AIR INTAKE DUCTING, AND/OR REPAIR		
88. R&I RADIATOR OVERFLOW TANK, AND/OR REPAIR		
89. R&I SECOND BATTERY		
90. R&I BATTERY TRAY		
91. R&I COMPONENTS ATTACHED BY WELDING/RIVETING		
92. REPAIR LEFT AND RIGHT APRON PANELS, AND PAINT		
93. REPAIR LEFT AND RIGHT UPPER RAILS, AND PAINT		
94. REPAIR LEFT AND RIGHT FRAME RAIL ATTACHMENT AREA		
95. AIM LIGHTS		
96. REMOVE SURFACE CORROSION/ROAD TAR/GREASE		
97. WRAP MASK WIRE HARNESS		
98. MASK BAG ENGINE		
99. MASK A/C LINES-HOSES-HARNESES & COMPONETS		
100. MIX PAINT FOR UNDERSIDE COLOR		
101. SECOND COLOR BLACK-OUT		
102. SPOT PAINT LEFT AND RIGHT FRAME AT WELDED AREAS		
103. SPOT PAINT/BLEND APRON PANEL DAMAGED BY WELDING		
104. REPLACE WIRE HARNESS FASTENERS		
105. REPLACE INFORMATION LABELS (DOCUMENT HOW MANY/WHICH ONES)		
106. REPLACE HOOD PROP GRUMMET		
107. REPLACE CAULKING AT SEAMS		
108. UNDERCOAT (SECOND COLOR)		
109. CAVITY WAX		
110. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
111. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
112. WELD-THROUGH PRIMER		
20 - Radiator, AC and Fluids:		
113. REPAIR RADIATOR		
114. REPAIR FAN SHROUD(S)		
115. REPAIR AC CONDENSER/LINES		
116. FLUSH LKQ CONDENSER/LINES		
117. FLUSH LKQ RADIATOR/LINES		
118. REPAIR AC LINES & TUBES		
119. REPLACE RADIATOR "O"-RINGS (TRANS)		
120. REPAIR TRANS COOLER/LINES		
121. REPAIR WIRING/FASTENERS ATTACHED TO FAN SHROUDS		
122. PRESSURE TEST COOLING SYSTEM		
123. BLEED COOLING SYSTEM		

2. B. SCRS, ASA and other resources list Feather Prime & Block as *Not-Included* Required Repair Operations necessary to restore a damaged panel to *new undamaged condition.*

Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

124. TEST AC SYSTEM/CONTIMANITES		
125. RECOVER AC FREON		
126. EVACUATE & RECHARGE AC SYSTEM		
127. TEST KIT REFRIGERANT RECOVERY		
128. COOLANT, OEM RECOMMENDED PER GALLON		
129. TRANMISSION FLUID (pint)		
130. STEERING FLUID (pint)		
131. WINDSHIELD WASHER FLUID		
132. R-134 FREON and OIL		
133. O-RING SEAL KIT FOR AC LINES		
25 - Apron/Upper Rail:		
134. PRE-PULL/ACCESS		
135. REMOVE CAULKING & SEAM SEALER		
136. REPLACE CAULKING AND SEAM SEALER (new part)		
137. TEXT COAT, SPRAYABLE SEALER		
138. UNDERCOAT, BLACK		
139. EXPANSION FOAM		
140. CAVITY WAX RUSTPROOFING		
141. WELD-THROUGH PRIMER		
142. TEST FIT ADJACENT PARTS		
143. R&I CRUISE CONTROL UNIT, AND/OR REPAIR		
144. R&I ELECTRONIC CONTROL MODULE, AND/OR REPAIR		
145. R&I AIR INTAKE DUCTING, AND/OR REPAIR		
146. R&I AC TUBING AND HOSE		
147. R&I SRS SENSOR		
148. R&I WINDSHIELD RESERVOIR, AND/OR REPAIR		
149. R&I BATTERY TRAY		
150. R&I FUSE BOX, AND/OR REPAIR		
151. R&I EMISSION CANISTOR AND HOSES, AND/OR REPAIR		
152. R&I CAB INTERIOR COMPONENTS (INNER TRIM, DASH, HEATER BOX / AC, Etc.)		
153. PULL BACK WIRE HARNESS		
154. FEATHER AND FILL CONTOUR REPAIR AREAS		
155. FEATHER AND FILL WELDS		
156. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
157. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
158. REPAIR ADJOINING PANELS DAMAGED BY WELDING		
159. WRAP MASK WIRE HARNESS AT APRON		
160. WRAP MASK ENGINE		
161. SECOND COLOR, ENGINE SIDE (custom color match)		
162. THIRD COLOR, FENDER SIDE (custom color match)		
163. BLACK-OUT ON APRON, SECOND OR THIRD COLOR		
164. UNDERSIDE SECOND COLORS, REFINISH		
30 - Wheels/Tires/Wheel Alignment:		
165. REPLACE VALVE STEMS AND WEIGHTS		
166. MOUNT & BALANCE TIRE		
167. R&I WHEEL COVERS		
168. TIRE DISPOSAL FEE		
169. REPAIR RIM EDGE, POLISH SKUFF MARKS		
170. ROTATE TIRES		
171. RESET TIRE PRESSURE SENSORS (WHEN REPLACING TIRES OR ROTATING FOR ALIGNMENT)		

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2. B. SCRS, ASA and other resources list Feather Prime & Block as *Not-Included* Required Repair Operations necessary to restore a damaged panel to *new undamaged condition.*

Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

172. R&I WHEEL COVERS TO MOUNT ALIGNMENT HEADS		
173. FOUR WHEEL ALIGNMENT		
174. ECENTRIC ALIGNMENT KIT (PER SIDE)		
175. INSPECT SUSPENSION COMPONENTS FOR DAMAGE		
35 - Suspension/Mechanical:		
176. BLEED BRAKES AND ADD FLUID		
177. BLEED BRAKES (ABS)		
178. RESET ABS SYSTEM WITH SCANNER		
179. SHIFT CROSSMEMBER		
180. MEMORY "SAVER" COLLISION TOOL		
181. SHIFT ENGINE CRADLE		
182. ADJUST LINKAGE-S		
183. DRAIN & TRANSFER FUEL		
184. CHECK RUN-OUT ON WHEEL (NEEDED TO FOR BALANCE)		
40 - SRS/Seat Belts:		
185. CLEAN UP DEPLOYED AIR BAG RESIDUE		
186. REPAIR SEAT FRAME		
187. INSPECT SEAT BELTS (IF USED IN LOSS, SHOULD BE REPLACED)		
188. CLEAR SRS FUNCTION CODE ON DASH		
189. INSPECT SRS WIRING		
45 - Pillars:		
190. PRE-PULL PILLAR		
191. REMOVE CAULKING AND SEAM SEALER		
192. REPLACE CAULKING AND SEAM SEALER		
193. EXPANSION FOAM		
194. CAVITY WAX RUSTPROOFING		
195. WELD-THRU PRIMER		
196. FABRICATE PILLAR SLEEVE INSERTS		
197. TEST FIT PARTS ADJACENT TO PILLAR		
198. R&I SEAT TO ACCESS PILLAR REPAIRS/REPLACEMENT		
199. PULL BACK WIRE HARNESS		
200. FEATHER & FILL CONTOUR REPAIR AREA		
201. REPAIR/DRESS WELDS AT FLANGES		
202. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
203. WRAP MASK WIRE HARNESS		
204. MASK TO PROTECT INTERIOR		
205. SPOT REFINISH INNER SIDE OF PILLAR		
206. REFINISH SECOND COLOR BLACK-OUT ON PILLAR		
50 - Rockers:		
207. PRE-PULL ROCKER		
208. REMOVE CAULKING & SEAM SEALER		
209. REPLACE CAULKING & SEAM SEALER		
210. EXPANSION FOAM		
211. TEXT COAT		
212. CAVITY WAX		
213. WELD-THRU PRIMER		
214. FABRICATE ROCKER SLEEVE INSERTS		
215. TEST FIT PARTS ADJACENT TO ROCKER		
216. GRAVEL/STONE GUARD (NOTE THE THICKNESS) PER TUBE		
217. R&I SEAT		

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Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

218. R&I SEAT BELT-S		
219. PULL BACK CARPET AND PADDING		
220. STONE GUARD DECAL		
221. PULL BACK WIRE HARNESS		
222. REPAIR/DRESS WELDS AT FLANGES		
223. REPAIR INNER ROCKER		
224. REPAIR A-PILLAR AT WELD AREA		
225. REPAIR CENTER PILLAR AT WELD AREA		
226. REPAIR FLOOR AT WELD AREA		
227. REPAIR ¼ PANEL AT WELD AREA		
228. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
229. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
230. FEATHER & FILL CONTOUR REPAIR AREAS		
231. WRAP MASK WIRE HARNESS		
232. MASK TO PROTECT INTERIOR		
233. MASK FOR PRIMER APPLICATION		
234. PREP FOR ROCKER PANEL MLDG CLADDING "RAW"		
235. REFINISH INNER ROCKER		
236. REFINISH A-PILLAR		
237. REFINISH CENTER PILLAR		
238. REFINISH FLOOR AREA		
239. REFINISH LOCK POST		
240. REFINISH ¼ PANEL AT WELD AREA		
241. REFINISH BLACK-OUT AT ROCKER		
242. TEXT COAT ROCKER, OUTER *(MASKING REQUIRED)*		
243. TEXT COAT ROCKER, BACK SIDE		
55 - Door Skin/Shell:		
244. DISCONNECT AND RECONNECT BATTERY		
245. PROTECT INTERIOR FOR PROTECTION		
246. ACQUIRE RADIO CODE & PLACE TO OFF POSITION		
247. RESET MEMORY FUNCTIONS		
248. REMOVE ADHESIVE AT INTRUSION BEAM, BELT REINFORCEMENT & DOOR EDGE		
249. REPLACE CAULKING & SEAM SEALER		
250. WELD-THRU PRIMER		
251. CAVITY WAX		
252. FLUTTER BONDING		
253. SOUND DEADENER PAD-S		
254. CLEAN & RETAPE ADHESIVE DOOR MOLDING		
255. REPLACE DOOR EDGE GUARD MOLDING		
256. REPAIR VAPOR BARRIER WEATHER SHIELD		
257. REPLACE VAPOR BARRIER, *(OEM)*		
258. REPLACE BELT MOLDING FASTENERS		
259. TEST FIT DOOR BEFOR WELD-BONDING		
260. REPAIR EDGE OF DOOR SHELL, *(REMOVAL DISTORTION)*		
261. RE-BOND INTRUSION BEAM/BELT REINSTALL FLUTTER MATERIAL		
262. DOOR SKIN BONDING KIT		
263. ADJUST/RECALIBRATE POWER DOOR LOCK SYSTEM		
264. FEATHER & FILL CONTOUR REPAIR AREAS, *(DOOR EDGE)*		
265. DRESS WELDS		
266. STONE GUARD DECAL		

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Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

267. R&I RAIN SHIELD (VENT SHADE)		
268. R&I WELDED BELT REINFORCEMENT PANEL		
269. R&I SRS AIR BAG		
270. R&I DOOR MIRROR		
271. R&I DOOR GLASS		
272. R&I AIR-SEAL WEATHER STRIP AT PERIMETER *(SOME MODELS ONLY)*		
273. R&I DOOR CHECK *(WHEN SKINNING DOOR)*		
274. R&I DOOR LATCH, *(WHEN SKINNING DOOR)*		
275. R&I DOOR CHECK		
276. R&I DOOR LATCH		
277. R&I DOOR SPEAKER		
278. R&I DOOR GLASS RUN CHANNEL		
279. WRAP/MASK WIRE HARNESS		
280. PREP DOOR CLADDING FOR "RAW" PROCESSING		
281. MASK DOOR OPENINGS & JAMS		
282. WINDOW BLACK OUT AT WINDOW FRAME, *(SECOND COLOR)*		
283. GRAVEL GUARD		
284. DOOR SKIN BONDING MATERIAL		
285. RECODE DOOR LOCK CYLINDER		
286. DOOR FASTENERS & RIVETS		
287. RR&I LKQ DOORS-CHARGE TO DISASSEMBLE BOTH DOOR		
60 - Roof:		
288. R&I ANTENNA MAST THAT IMPEDES ACCESS		
289. MASK SUN ROOF OPENING/EDGES		
290. R&I ALL INTERIOR AND EXTERIOR (ATTACHMENTS)		
291. PREPAIR FOR WELD BONDING		
292. REPAIR ADJACENT PANELS DISTORTED IN REMOVAL PROCESS		
293. FEATHER & FILL CONTOUR REPAIR AREAS		
294. REMOVE EXPANSION FOAM FROM ROOF REINFORCEMENTS		
295. REMOVE URETHANE RESIDUE ON PINCH WELDS *(FULL CUT OUT)*		
296. REPAIR DAMAGE TO PINCH WELD FROM GLASS REMOVAL KNIFE		
297. FEATHER & FILL WELDS		
298. REMOVE EXPANSION FOAM		
299. EXPANSION FOAM (PER CAN)		
300. REMOVE PANELS FOR INSTALLATION *		
301. REPAIR ADJACENT REINFORCEMENT PANEL-S		
302. R&I SEAT-S		
303. COVER AND PROTECT INTERIOR		
304. R&I WIRE HARNESS		
305. WELD-THRU PRIMER		
306. CAVITY WAX		
307. REPLACE SOUND DEADENER PADS (Each Pack)		
308. FLUTTER FOAM (Per Tube)		
309. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
310. BLEND RIGHT SIDE ROOF PILLARS		
311. BLEND LEFT SIDE ROOF PILLARS		
312. MASK FOR PRIMER APPLICATION		
313. PULLBACK/ROPE/MASK BACK GLASS MOLDING		
314. PULLBACK/ROPE/MASK WINDSHIELD MOLDING		
315. PULLBACK/ROPE/MASK LEFT QUARTER GLASS		

2. B. SCRS, ASA and other resources list Feather Prime & Block as *Not-Included* Required Repair Operations necessary to restore a damaged panel to *new undamaged condition.*

Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

316. PULLBACK/ROPE/MASK RIGHT QUARTER GLASS		
317. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
318. WINDSHIELD INSTALLATION KIT		
319. BACK GLASS INSTALLATION KIT		
320. QUARTER GLASS INSTALLATION KIT		
65 - Cab Corner, Pickup:		
321. PRE-PULL CAB CORNER AS NEEDED		
322. REMOVE CAULKING & SEAM SEALER		
323. REPLACE CAULKING & SEAM SEALER *(REPAIR AND REPLACE)*		
324. CAVITY WAX		
325. WELD-THRU PRIMER		
326. TEST FIT ADJACENT PARTS AS NEEDED		
327. FABRICATE CAB CORNER SLEEVES		
328. PULL BACK WIRE HARNESS		
329. SOUND DEADENER		
330. R&I SEAT		
331. R&I CARPET AND FLOOR INSULATION		
332. FEATHER & FILL CONTOUR REPAIR AREAS		
333. MASK FOR PRIMER APPLICATION		
334. FEATHER & FILL WELDS		
335. REPAIR ROCKER		
336. REPAIR REINFORCEMENT AND INNER PANEL		
337. MEASURE CAB FOR SQUARE		
338. REPAIR FLOOR		
339. REPAIR GLASS-OPEN FLANGES FROM CUT-OUT KNIFE DAMAGE		
340. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
341. PULL BACK /ROPE/MASK BACK GLASS		
342. PULL BACK/ROPE/MASK QUARTER GLASS		
343. REPLACE SOUND DEADENER PAD		
344. TRANSFER WELDED DOOR STRICKER PLATE		
345. REFINISH BACK SIDE OF CAB CORNER		
346. MASK WRAP WIRE HARNESS		
347. MASK/BAG INTERIOR FOR REFINISH		
348. MASK JAMS AND OPENINGS		
349. SPOT PAINT INNER SIDE OF WELDED FLANGES		
350. SPOT PAINT ROCKER		
351. SPOT PAINT BACK PANEL		
352. SPOT PAINT FLOOR		
353. GRAVEL GUARD CAB CORNER		
354. BACK GLASS INSTALLATION KIT		
355. QUARTER GLASS INSTALLATION KIT		
70 - Cab Back Panel, Pickup:		
356. PRE-PULL BACK PANEL		
357. REMOVE CAULKING & SEAM SEALER		
358. REPLACE CAULKING & SEAM SEALER		
359. CAVITY WAX COATING		
360. TEXT COAT, (SPRAY SEALER)		
361. WELD-THRU PRIMER		
362. SOUND DEADENER		
363. R&I TIRE REPLACMENT TOOLS		

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Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

364. REPAIR ADJACENT PANELS DAMAGED BY WELDING		
365. R&I SEAT		
366. R&I SEAT BELTS		
367. R&I CARPET AND INSULATION		
368. PULL BACK WIRE HARNESS		
369. FEATHER & FILL CONTOUR REPAIR AREA		
370. FEATHER & FILL WELDS		
371. REPAIR GLASS OPEN FLANGE DAMAGE FROM CUT KNIFE		
372. WRAP MASK WIRE HARNESS		
373. MASK/BAG INTERIOR FOR REFINISH		
374. MASK FOR PRIMER APPLICATION		
375. REFINISH INNER SIDE		
376. SPOT PAINT INNER CAB CORNERS		
377. SPOT PAINT FLOOR		
378. BLACK OUT ON CAB BACK PANEL		
379. CAB CORNER GLASS INSTALLATION KIT		
75 - Quarter Panel:		
380. D&R BATTERY		
381. RESET MEMORY FUNCTIONS		
382. PROTECT INTERIOR FROM REPAIR CONTAMINATION		
383. PRE-PULL QUARTER		
384. REMOVE CAULKING AND SEAM SEALER		
385. REPLACE CAULKING AND SEAM SEALER (Per Tube)		
386. UNDERCOAT AT WHEEL WELL		
387. CAVITY WAX		
388. EXPANSION FOAM (Per Tube)		
389. SOUND DEADENER TEXT COAT WITH SPRAYBLE SEALER		
390. SECOND COLOR BACK-SIDE		
391. WELD-THRU PRIMER		
392. SOUND DEADENER PADS		
393. CLEAN & RE-TAPE GLUE ON MOLDINGS		
394. REPLACE QUARTER W/O MOLDING WITH AFTERMARKET		
395. FABRICATE QUARTER AND ROCKER PANEL SLEEVES		
396. REPAIR WHEEL HOUSE, FROM ADHESIVE DISTORTION DAMAGE		
397. TEST FIT ATTACHING PARTS (TAILLAMPS, GLASSES, ETC.)		
398. PULL BACK WIRE HARNESS		
399. R&I BACK SEAT-S		
400. R&I SEAT BELTS		
401. PULL BACK CARPET & FLOOR INSTULATION		
402. FEATHER & FILL CONTOUR REPAIR AREAS, ROCKER & PILLAR		
403. DOOR OPEN FLANGE BACKSIDE, REPAIR/DRESS WELDS		
404. WHEEL OPEN BACKSIDE WELDS, REPAIR/DRESS		
405. REPAIR DECK LID TROUGH		
406. ROCKER WELDS BACKSIDE, REPAIR/DRESS		
407. REAR BODY PANEL BACKSIDE AT WELD AREA, REPAIR/DRESS		
408. GLASS FLANGE BACKSIDE OF WELD AREA, REPAIR/DRESS		
409. TRUNK FLOOR POCKET WELD AREA REAR OF TIRE, REPAIR/DRESS		
410. GRAVEL GUARD (SPRAY-ON)		
411. STONE GUARD DECAL		
412. REPLACE FOAM ADHESIVE BETWEEN WHEEL HOUSE & QTR		

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Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

413. REPAIR GLASS OPEN FLANGE DAMAGE FROM CUT KNIFE		
414. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
415. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
416. CAUTIONARY MEASURES TO PREVENT GLASS MOLDING DAMAGE		
417. MASK WRAP WIRE HARNESS		
418. MASK/BAG INTERIOR FOR REFINISH		
419. MASK QUARTER JAMBS & OPENINGS		
420. MASK FOR PRIMER APPLICATION		
421. SPOT PAINT DOOR OPEN FLANGE, BACKSIDE		
422. SPOT PAINT WHEEL OPEN BACKSIDE WELD AREA		
423. SPOT PAINT ROCKER, BACK SIDE		
424. SPOT PAINT BACKSIDE OF BACK PANEL AT WELD AREA		
425. SPOT PAINT BACKSIDE OF GLASS FLANGE WELD AREA		
426. SPOT PAINT TRUNK FLOOR WELD AREA		
427. REFINISH WELD DAMAGE AREAS (EACH DIRECTION)		
428. REFINISH TWO TONE BLACK-OUT		
429. PULL-BACK/MASK QUARTER GLASS		
430. PULL-BACK/MASK BACK GLASS		
431. PREP QUARTER PANEL CLADDING FOR "RAW" PROCESSING		
432. REPLACE QUARTER GLASS URETHANE INSTALLATION KIT		
433. REPLACE BACK GLASS URETHANE INSTALLATION KIT		
80 - Pickup Bed Side Panel:		
434. PREPULL BED SIDE PANEL		
435. PREPULL BED FLOOR PANEL		
436. STRIP SPRAY-ON BED LINER, COMPLETE		
437. REPLACE SPRAY-ON BED LINER, COMPLETE		
438. STRIP SPRAY-ON BED LINER, PARTIAL		
439. REPLACE SPRAY-ONBED LINER, PARTIAL		
440. R&I REAR BUMPER		
441. R&I BED ASSEMBLY		
442. REPLACE BED BOLTS, AS NEEDED		
443. R&I DROP-IN BED LINER		
444. R&I CAMPER SHELL		
445. R&I TONNEAU COVER		
446. REMOVE CAULKING AND SEAM SEALER		
447. REPLACE CAULKING AND SEAM SEALER		
448. REPLACE SELF LEVELING SEAM SEALER		
449. UNDERCOAT UNDERSIDE		
450. CAVITY WAX		
451. SOUND DEADENER SPRAYABLE SEALER		
452. WELD-THRU PRIMER		
453. TEST FIT PARTS ATTACHED TO BED SIDE		
454. REPLACE BONDING FOAM, UNDERSIDE OF BED RAIL		
455. REPLACE BONDING FOAM, WHEEL-WELL TO BED SIDE PNL		
456. REPLACE FLARE FASTENERS		
457. REPLACE FLARE ADHESIVE SEAL		
458. CLEAN & RETAPE ADHESIVE MOLDING-S		
459. PULL BACK WIRE HARNESS		
460. STONE GUARD DECAL		
461. FEATHER & FILL CONTOUR REPAIR AREA		

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Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

462. FEATHER & FILL WELDS		
463. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
464. LOOSEN AND FREE RUSTED/STUCK BOLTS		
465. REPAIR CAP-RAIL FLANGE, REMOVAL DISTORTION		
466. EXPANSION FOAM (Per Tube)		
467. REPAIR FRONT BED PANEL		
468. REPAIR INNER BED PANEL		
469. REPAIR REAR SILL PANEL		
470. SPOT PAINT INNER BED PANEL		
471. MASK WRAP WIRE HARNESS		
472. MASK BED INTERIOR		
473. MASK FOR PRIMER APPLICATION		
474. SPOT PAINT FRONT BED PANEL		
475. SPOT PAINT REAR SILL PANEL		
476. REFINISH TWO TONE BLACK OUT		
477. GRAVEL GUARD		
85 - Van/SUV Side Panel:		
PRE-PULL SIDE PANEL		
478. CAUTIONARY MEASURES TO PREVENT QUARTER GLASS DAMAGE		
479. GLASS OPEN FLANGE DAMAGE FROM CUT KNIFE, REPAIR		
480. QUARTER GLASS INSTALLATION KIT		
481. REMOVE CAULKING AND SEAM SEALER		
482. REPLACE CAULKING AND SEAM SEALER (Per Tube)		
483. UNDERCOAT SIDE PANEL		
484. CAVITY WAX		
485. WELD-THRU PRIMER		
486. SOUND DEADENER SPRAYABLE SEALER		
487. EXPANSION FOAM (Per Tube)		
488. CLEAN & RETAPE ADHESIVE MOLDINGS		
489. REPLACE WHEEL FLARE FASTENERS & ADHESIVE STRIP		
490. FABRICATE SIDE PANEL SLEEVES		
491. TEST FIT PARTS ATTACHED/ADJACENT TO SIDE PANEL		
492. R&I SPECIALITY INTERIOR		
493. PULL BACK WIRE HARNESS		
494. R&I SEAT-S		
495. R&I SEAT BELT-S		
496. RECOVER FREON (UP TO FOUR POUNDS)		
497. EVACUATE & RECHARGE AC (SEPARATE FROM FRONT A/C)		
498. R&I REAR HEATER/AC COMPONENTS		
499. PULL-BACK CARPET AND FLOOR INSULATION		
500. REAR SILL AT WELD AREA, REPAIR		
501. FILL & FEATHER WELDS		
502. INNER PANEL DISTORTION DUE TO ADHESIVE, REPAIR		
503. WHEEL OPEN INNER STRUCTURE, REPAIR		
504. FILL & FEATHER CONTOUR REPAIR AREAS		
505. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
506. STONE GUARD DECAL		
507. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
508. MASK WRAP WIRE HARNESS		
509. MASK/BAG INTERIOR FOR PROTECTION		

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Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

510. MASK JAMBS & OPENINGS		
511. MASK FOR PRIMER APPLICATION		
512. SPOT PAINT FLOOR AT WELDS		
513. SPOT PAINT BACK SIDE OF ROCKER		
514. SPOT PAINT REAL SILL		
515. ROOF DRIP WELDS, DRESS		
516. REFINISH ROOF		
517. REFINSH TWO TONE BLACK OUT		
518. PREP CLADDING FOR "RAW" PROCESSING		
519. GRAVEL GUARD		
520. PULL BACK/ROPE-MASK SIDE PANEL GLASS MOLDING		
90 - Deck Lid:		
521. ACCESS PULLING & CUTTING, ACCESS TO COMPONENTS		
522. R&I LICENSE PLATE		
523. REPAIR LICENSE PLATE		
524. DRILL FOR LICENSE PLATE BRACKET		
525. REPAIR DECK LID HINGES		
526. REPAIR HINGE MOUNT AREA		
527. TRIAL FIT AND POSITION		
528. R&I AUTO LOCK		
529. REFINISH TWO TONE BLACK OUT		
530. RE-CODE DECK LID CYLINDER		
531. SEAM SEAL INNER EDGE		
532. CAVITY WAX		
533. MINI BULBS		
534. WIRE HARNESS REPAIR		
535. DRILL TEMPLATE FOR SPOILER		
536. LOCK LINKAGE REPAIR		
537. PREP DECK LID CLADDING FOR "RAW" PROCESSING		
95 - Rear Body Panel:		
538. PRE-PULL REAR BODY PANEL		
539. REMOVE CAULKING AND SEAM SEALER		
540. REPLACE CAULKING AND SEAM SEALER		
541. UNDERCOATING REAR BODY PANEL		
542. CAVITY WAX		
543. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
544. SELF LEAVELING SEAM SEALER		
545. WELD-THRU PRIMER		
546. SOUND DEADENER, SPRAYABLE SEALER		
547. R&I LICENSE PLATE		
548. REPAIR LICENSE PLATE		
549. DRILL FOR LICENSE PLATE BRACKET		
550. MOVE TO PROTECT OR R&I EXHAUST		
551. R&I SPARE TIRE AND TOOLS		
552. TEST FITS PARTS ATTACHED/ADJACENT TO BODY PANEL		
553. FEATHER & FILL CONTOUR REPAIR AREA		
554. BRAZING, COPPER SILIUM MIG BRAZING		
555. FEATHER & FILL WELDS		
556. REPAIR INNER SIDE OF BODY PANEL AT WELD AREAS		
557. REPAIR LEFT QUARTER PANEL REPAIR AT WELD AREA		

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Labor Category Legend – By Color:

• Body • Paint • Structural • Mechanical • Detail • Other

558. REPAIR RIGHT QUARTER PANEL REPAIR AT WELD AREA		
559. REPAIR FLOOR WELD DAMAGE		
560. REPAIR FLOOR		
561. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
562. WIRE HARNESS, REPAIR		
563. WIRE HARNESS FASTENERS, REPLACE		
564. RE-CODE LOCK CYLINDER		
565. PULL BACK WIRE HARNESS		
566. WRAP/MASK WIRE HARNESS		
567. MASK BAG INTERIOR FOR REFINISH		
568. MASK JAMS AND EDGES OF BODY PANEL		
569. SPOT PAINT INNER SIDE OF ADJACENT PANELS AT WELD AREAS		
570. REFINISH BACK SIDE OF BODY PANEL (SECOND COLOR?)		
571. SPOT PAINT TOP SIDE OF FLOOR PANEL		
572. SPOT PAINT UNDERSIDE OF FLOOR PANEL		
573. SPOT PAINT INNER SIDES OF QUARTER PANELS AT WELD AREA		
574. REFINISH TWO TONE BLACK OUT		
100 - Floor:		
575. PRE-PULL FLOOR PANEL		
576. REMOVE CAULKING AND SEAM SEALER		
577. REPLACE CAULKING AND SEAM SEALER (PER TUBE)		
578. UNDERCOAT		
579. CAVITY WAX		
580. WELD-THRU PRIMER		
581. COBALT DRILL BIT (BORON-TRIP-UZI Bor)		
582. SOUND DEADENER, SPRAYABLE SEALER		
583. COLATERAL DAMAGE FROM THE REPAIR PROCESS (Build Sequence)		
584. R&I EXHAUST		
585. R&I SPARE TIRE AND TOOLS		
586. TEST FIT PARTS ATTACHED/ADJACENT TO FLOOR PANEL		
587. R&I ELECTRONIC COMPONENTS AT FLOOR AREA (CD, AMP, SRS, ETC.)		
588. R&I EMMISIONS COMPONENTS AT FLOOR AREA		
589. R&I TRUNK INTERIOR (INDIVIDUAL COMPONENTS)		
590. PULL BACK WIRE HARNESS		
591. EXPANSION FOAM		
592. FEATHER & FILL AREAS ATTACHED BY WELDING		
593. R&I BOLTED SUSPENTION (ALL COMPONENTS)		
594. CROSSMEMBER AT WELD AREA, REPAIR/DRESS		
595. SIDE FLOOR EXTENSIONS, REPAIR		
596. FRAME RAIL FLANGE REPAIR AT WELD AREA		
597. WHEEL HOUSE(S) REPAIR AT WELD AREA		
598. PULL BACK MASK LINES AND CABLES AT FLOOR AREA		
599. R&I FUEL TANK		
600. DRAIN FUEL FROM TANK		
601. WRAP MASK WIRE HARNESS		
602. MASK & PROTECT INTERIOR		
603. REFINISH TOP SIDE OF FLOOR		
604. REFINISH UNDERSIDE OF FLOOR		
605. SPOT PAINT UNDERSIDE ADJACENT PANELS AT WELD AREA		
606. CENTER FLOOR AT WELD AREA, REPAIR/DRESS		

Feather, Prime & Block

3. What *Documentation* do we have to show that the Repair Operation was Performed and Completed as Required?

Documentation for Feather, Prime & Block

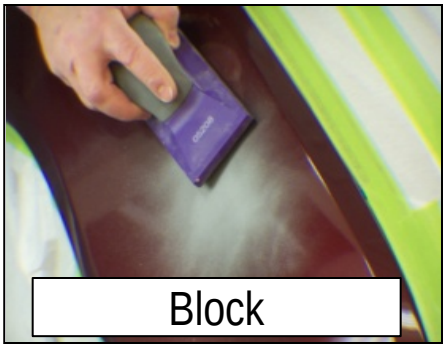
(Examples of Before, During & After Photos)

- *Audatex – Feather / Prime / Block*
- *CCC / Motor – Prime & Block*
- *Mitchell – Feather, Prime & Block*

1. Before

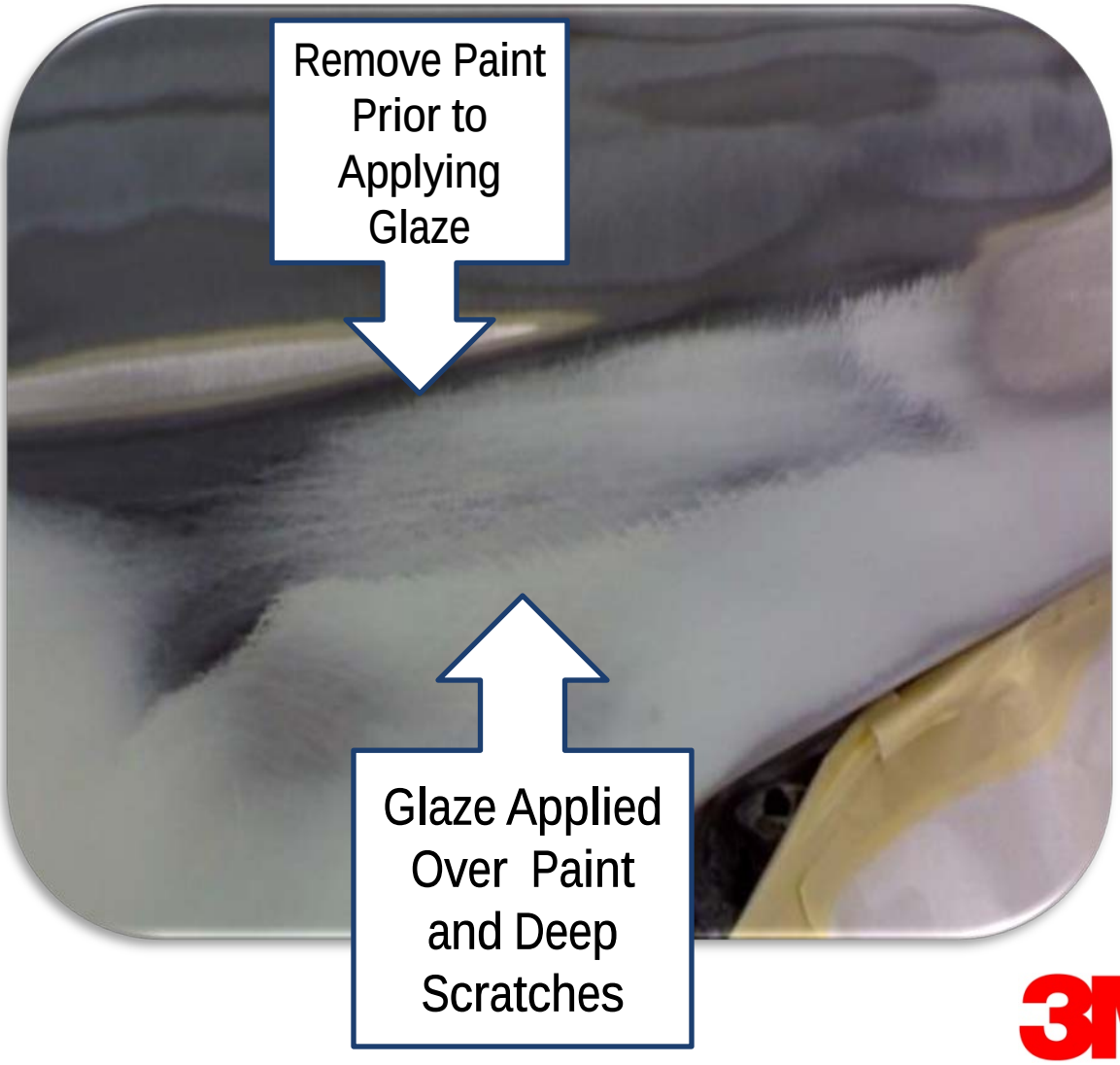
2. During

3. After



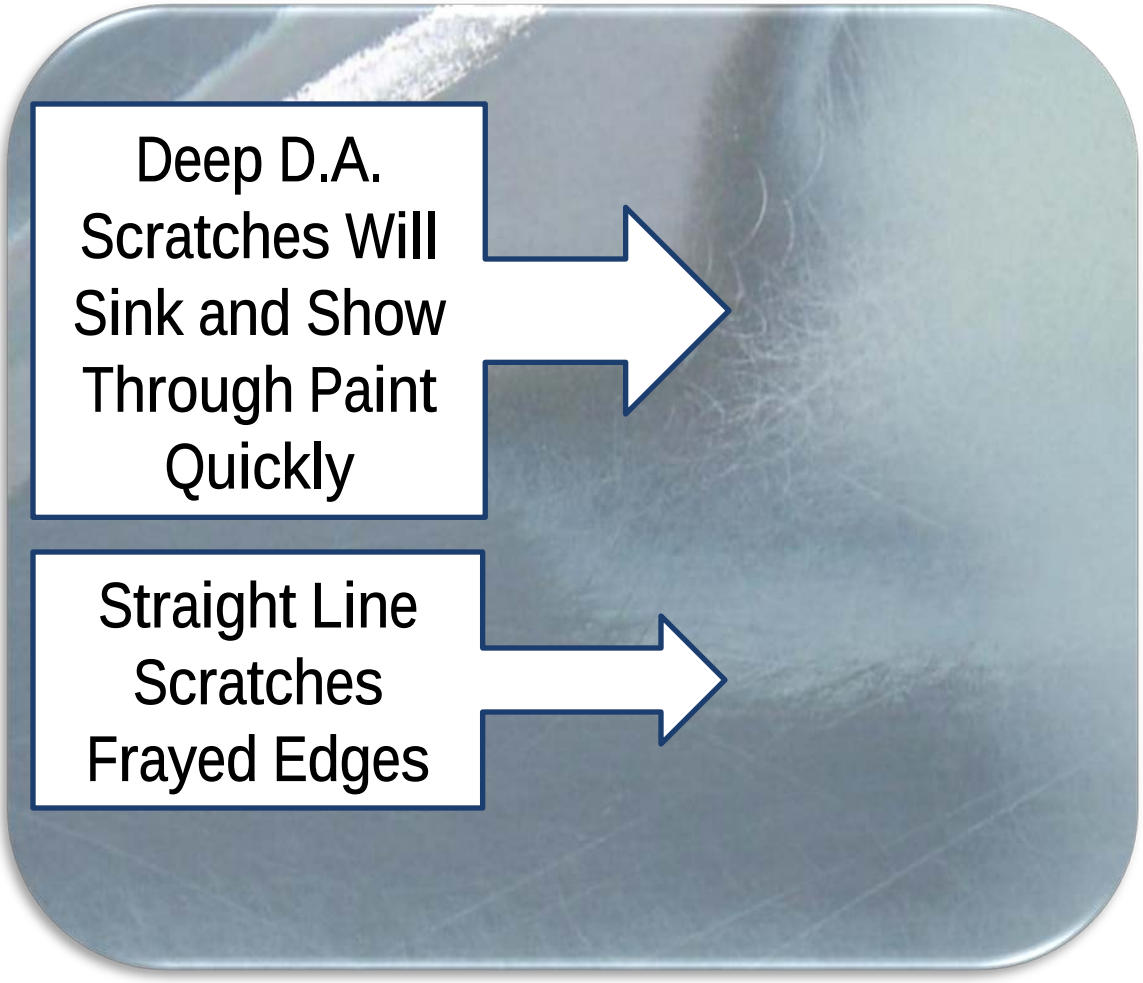
Feather, Prime & Block

- Certain Edge Mapping – High potential for Re-work, Re-do and / or Come-back
- Avoid applying Filler & Glaze over Featheredge Area, Paint Edge and Deep Coarse Sand-scratches



Feather, Prime & Block

- Certain Edge Mapping – High potential for Re-work, Re-do and / or Come-back



Feather, Prime & Block

No Straight Line or D.A. Sand-scratches. Featheredge Area, Filler & Glaze are Properly Refined and Ready for Primer Application

Standard Operating Procedures

Body Repair

Small Damage Repair

1	Clean the Damaged Area		Clean the repair area with soap and water, followed by a VOC compliant surface cleaner.		• For this cleaning step, use a recommended VOC compliant surface cleaner
2	Initial Prep Sand		DA sand the repair area using P80, removing paint beyond damage by 2 to 4 in. Blow off with clean, dry air and re-clean with surface cleaner.		• 3M™ Purple Clean Sanding Hookit™ Disc, PN 01820 6 in., P80E, 50 discs/box • 3M™ Purple Clean Sanding Hookit™ Disc, PN 30283 3 in., P80E, 50 discs/box
3	Mix and Apply Filler		Mix and apply body filler per manufacturer's recommendation or use the 3M™ Dynamic Mixing System. Keep the body filler within the primer feather edge area. Cure the body filler 15 to 20 minutes at 75ºF.		• 3M™ Platinum™ Plus Body Filler, PN 01131 1 gal., can • 3M™ Platinum™ Plus for DMS, PN 05863 10.3 oz., cartridge
4	Sand Filler		Using a hand block, shape sand the body filler with P80 abrasive. Apply dry guide coat and finish block sanding with P150 abrasive. DA feather edge the repair area with P180 abrasive disc. Inspect the repair for quality, if glaze is not required, continue to step seven.		• 3M™ Hookit™ Purple Clean Sanding Sheet Roll, PN 30713, 70 mm x 12 m, P80E • 3M™ Hookit™ Purple Clean Sanding Sheet Roll, PN 30710, 70 mm x 12 m, P150 • 3M™ Purple Clean Sanding Hookit™ Disc, PN 01816, 6 in., P180, 50 discs/box • 3M™ Dry Guide Coat. PN 05861, 50 g applicator kit
5	Mix and Apply Glaze		Blow off the repair area completely removing sanding dust from the surface. Mix and apply glaze if required per manufacturer's recommendation or using the 3M™ Dynamic Mixing System. Keep the glaze with in the primer feather edge area. Cure glaze for 15 to 20 minutes at 75ºF.		• 3M™ Platinum™ Plus Finishing Glaze, PN 31180 30 oz., container • 3M™ Platinum™ Glaze for DMS, PN 05862 10.3 oz., cartridge
6	Sand Glaze		Sand polyester glaze with P180. Use 3M™ Dry Guide Coat between sanding steps to highlight imperfections.		• 3M™ Hookit™ Purple Clean Sanding Sheet Roll, PN 30709, 70 mm x 12 m, P180 • 3M™ Purple Clean Sanding Hookit™ Disc, PN 01816, 6 in., P180, 50 discs/box • 3M™ Dry Guide Coat. PN 05861, 50 g applicator kit
7	Final Sand and Inspect		Blow off the repair area. Re-apply 3M™ Dry Guide Coat. Finish sand the repair area and the surrounding area using P320 abrasive. Inspect the repair for quality.		• 3M™ Purple Clean Sanding Hookit™ Disc, PN 01812 P320, 25 discs/box • 3M™ Dry Guide Coat. PN 05861 50 g applicator kit

Watch the video at www.3MCollision.com

For ordering information, contact your 3M Sales Representative

Think About Your Health

3M™ E-A-R™ Skull Screws™ Ear Plug, PN P1300

3M™ Half Facepiece Respirator, PN 07182

3M™ Lexa™ Protective Eyewear, PN 15200

Standard Operating Procedures

Body Repair

Large Damage Repair

1	Clean the Damaged Area		Clean the repair area with soap and water, followed by a VOC compliant surface cleaner.		• For this cleaning step, use a recommended VOC compliant surface cleaner
2	Initial Prep Sand		DA sand the repair area using P80 abrasive removing paint beyond the damaged area by 2 to 4 in. Blow off the repair area with clean, dry air & re-clean the repair area with a VOC compliant surface cleaner.		• 3M™ Purple Clean Sanding Hookit™ Disc, PN 01820 6 in., P80E, 50 discs/box
3	Initial Grinding		Grind "low spots" using a 3 in. 50 grit 3M™ Roloc™ Grinding Disc to remove paint, welding nuggets or other surface imperfections. Blow off with clean, dry air and re-clean with surface cleaner.		• 3M™ Imperial™ Roloc™ Disc, PN 01345 3 in., 50, 15 discs/box
4	Mix and Apply Filler		Mix and apply polyester filler per manufacturer's recommendation or use the 3M™ Dynamic Mixing System. Keep the filler within the paint to primer feather edge area. Cure 15 to 20 minutes at 75ºF.		• 3M™ Platinum™ Plus Body Filler, PN 01131, 1 gal., can • 3M™ Platinum™ Plus Body Filler, for DMS, PN 05863,10.3 oz., cartridge • 3M™ Dent Filling Compound Body Filler for DMS, PN 05859, 95°, 10.3 oz., cartridge
5	Initial Sand Filler		Block shape sand filler with P40 abrasive, followed by P80. DA rough feather edge area with P80 abrasive. Use 3M™ Dry Guide Coat between sanding steps to highlight imperfections. Re-apply 3M™ Dry Guide Coat as necessary.		• 3M™ Hookit™ Purple Clean Sanding Sheet Roll, PN 30715, 70 mm x 12 m, P40E • 3M™ Hookit™ Purple Clean Sanding Sheet Roll, PN 30713, 70 mm x 12 m, P80E • 3M™ Purple Clean Sanding Hookit™ Disc, PN 01820, 6 in., P80E, 50 discs/box • 3M™ Dry Guide Coat, PN 05861 50 g applicator kit
6	Final Sand Filler		Final block sand the filler with P150 abrasive. DA fine feather edge sand the repair area with P180 abrasive and blow off the area with clean, dry air. Use 3M™ Dry Guide Coat between sanding steps to highlight imperfections.		• 3M™ Hookit™ Purple Clean Sanding Sheet Roll, PN 30710 70 mm x 12 m, P150 • 3M™ Purple Clean Sanding Hookit™ Disc, PN 01816 6 in., P180, 50 discs/box • 3M™ Dry Guide Coat. PN 05861, 50 g applicator kit
7	Mix and Apply Glaze		Blow off the repair area completely, removing any remaining sanding dust from the surface. Mix and apply polyester glaze per manufacturer's recommendation or use the 3M™ Dynamic Mixing System. Keep the glaze application within the primer feather edge area. Cure 15 to 20 minutes at 75ºF.		• 3M™ Platinum™ Plus Finishing Glaze, PN 31180 30 oz., container • 3M™ Platinum™ Glaze for DMS, PN 05862 10.3 oz., cartridge
8	Sand Glaze		Block sand the polyester glaze area with P180 abrasive. Use 3M™ Dry Guide Coat to highlight imperfections. Re-apply glaze as necessary to fill minor imperfections.		• 3M™ Hookit™ Purple Clean Sanding Sheet Roll, PN 30709, 70 mm x 12 m, P180 • 3M™ Dry Guide Coat. PN 05861 50 g applicator kit
9	Final Sand and Inspect		Blow off repair area, re-apply 3M™ Dry Guide Coat, and finish sand repair and surrounding area using P320. Inspect for quality.		• 3M™ Purple Clean Sanding Hookit™ Disc, PN 01812 P320, 25 discs/box • 3M™ Dry Guide Coat. PN 05861 50 g applicator kit

Product List

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