

Adjacent Weld Zones

- *Audatex – Welded-On Adjacent Panels*
- *Mitchell – Adjacent Welded Panels*
- *CCC / Motor – Adjacent Weld Zones*



▪ *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.



Adjacent Weld Zones – Definitions

- Audatex Definition

- **Welded-on Panels**

- Audatex base refinish labor does not include additional time to refinish adjacent panels that may be damaged by welding. (Page 157 Section 4-2)

- **I – Repair/Align Labor**

- This is judgment labor supplied by the estimate preparer. (Page 14 Section 2-2)

- Alignment of parts adjacent to parts being replaced. (Page 53 Section 4-2)

- Replace labor does not include additional labor to repair the replaced panel and or adjacent panels which may become distorted, burned or damaged by welding, drilling, grinding and straightening. (Page 55 Section 4-2)



Adjacent Weld Zones – Definitions

■ CCC / Motor Definition

– *WELD ZONE/ADJACENT PANEL*

• *SPECIAL NOTATION:*

- Suggested refinish operation times do not include additional time for repair of damage to adjacent panels resulting from normal cutting, welding and grinding procedures. The amount of damage can vary considerably depending upon process and technique used by the servicing technician and, therefore, is impractical to anticipate in this publication. MOTOR recommends these factors be considered before finalizing any repair cost estimate. Typical areas to be considered are illustrated below. (CCC / Motor Guide Pg. 39)
- *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. (CCC / Motor Guide Pg. 34)
- *Labor Time Premise*
 - 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. (CCC/Motor Guide Pg. G10)



Adjacent Weld Zones – Definitions

■ CCC / Motor Definition

– *INCLUDED and/or NOT INCLUDED LABOR OPERATIONS INCLUDED OPERATIONS:*

- When items or operations appear in the Guide to Estimating pages under the “Included” heading it means that the operation is performed in conjunction with another operation.

– *INCLUDED and/or NOT INCLUDED LABOR OPERATIONS – Continued NOT INCLUDED OPERATIONS:*

- Items or operations listed under “Does Not Include” were not considered in the development of published labor operation times. These operations may or may not be required depending upon the vehicle or repair process used. If any of these items or operations are required, they should be considered by the estimator. If a specific qualifier (such as R&I) appears, it means only the specified qualifier applies.



Adjacent Weld Zones – Definitions

- **Mitchell Definition**

- **Welded Panels**

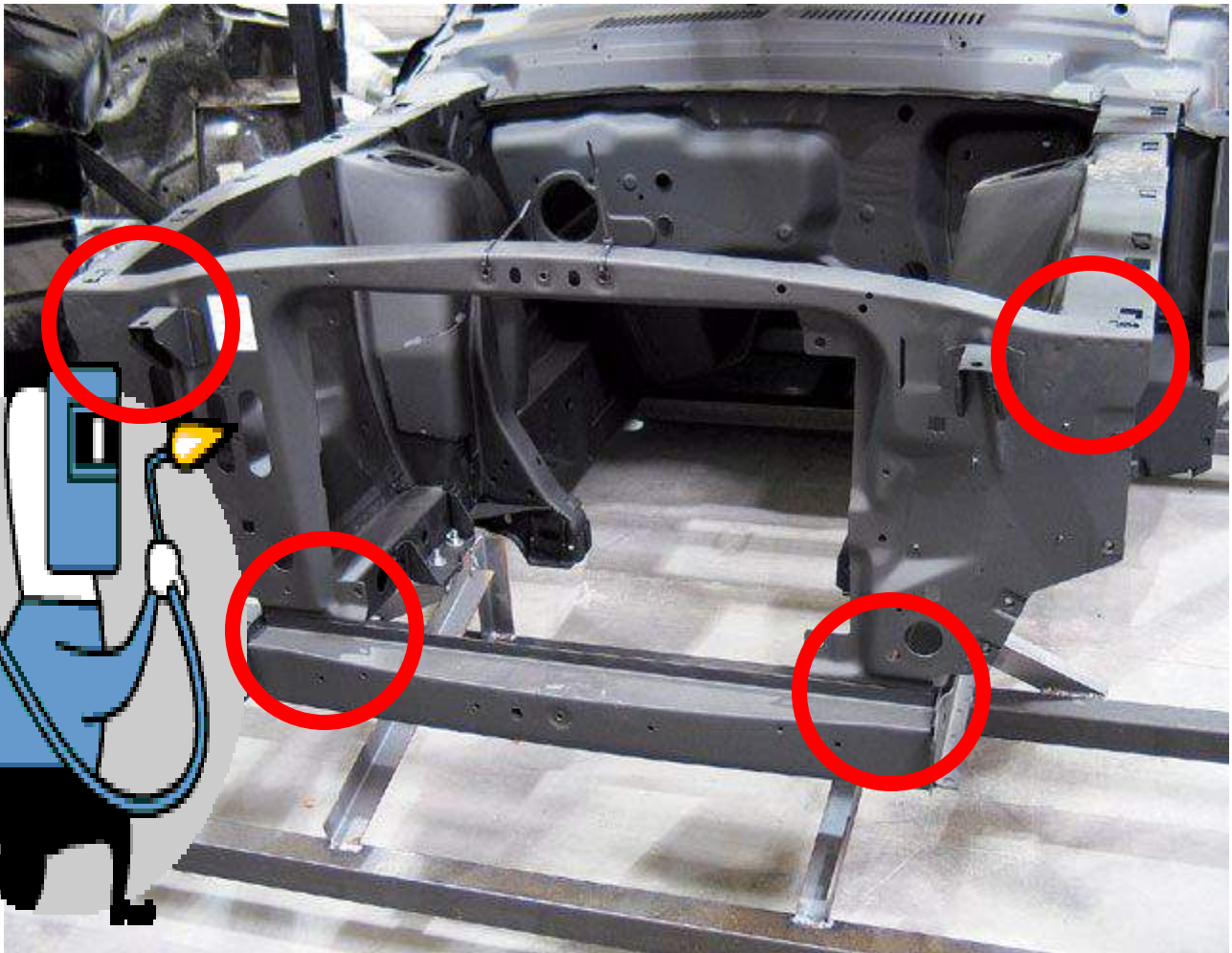
Replacement labor times for new panels that are joined by welding include the necessary use of inserts and accepted sectioning guidelines developed by OEMs, I-CAR, and TECH-COR. The labor times for welded panels include grinding, filling and final sanding with up to 150 grit sandpaper to match the original panel contour. Labor times do Not-Include the Feather, Prime and Block refinish operation. See *Procedure 28 in Procedure Explanation* section, for information on Feather, Prime and Block. (Mitchell P-Pages – Page 3)

- **Labor Times**

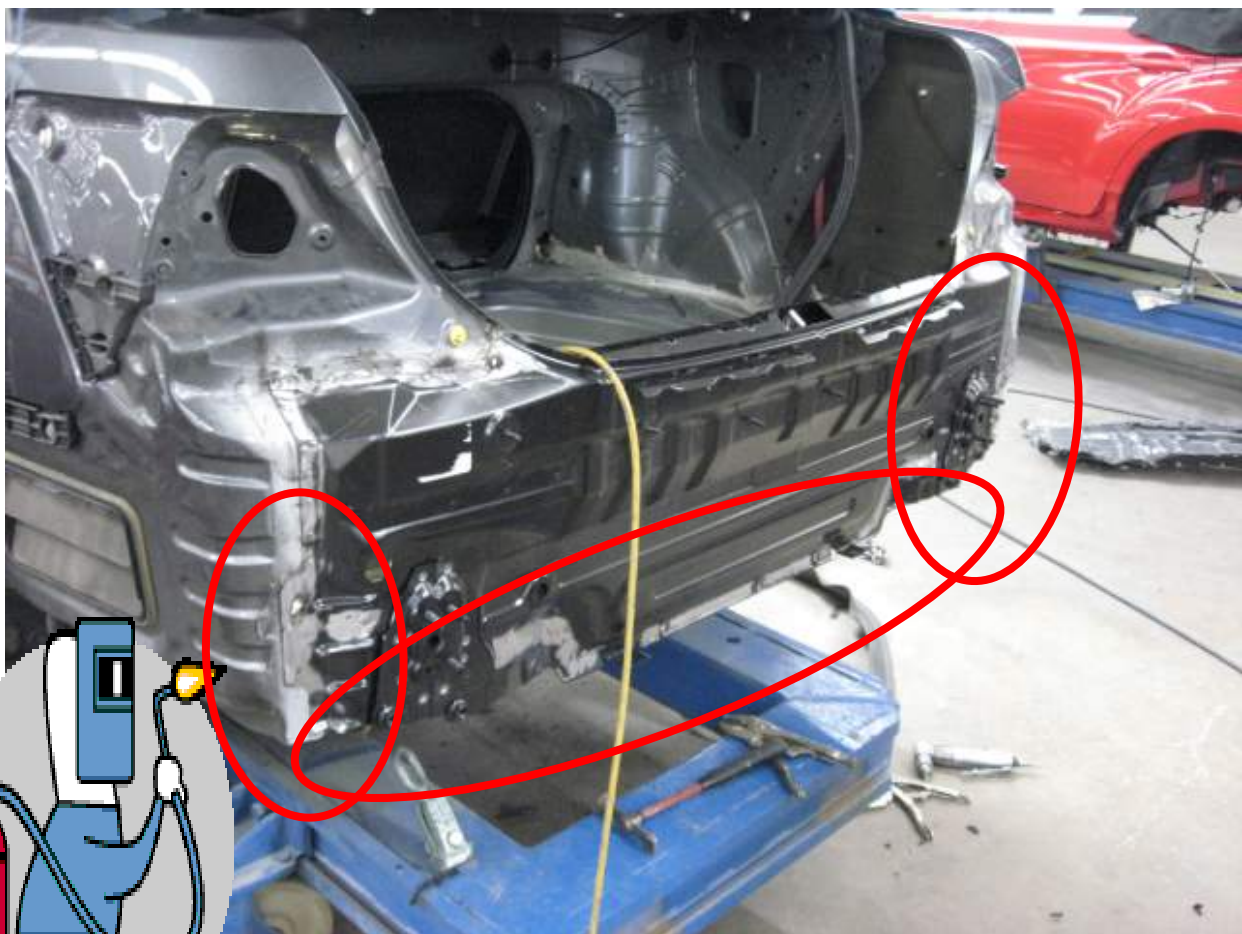
The actual time taken by individual repair facilities to replace collision damaged parts can be expected to vary due to severity of collision, vehicle condition, equipment used, etc. (Mitchell P-Pages –Page 2)



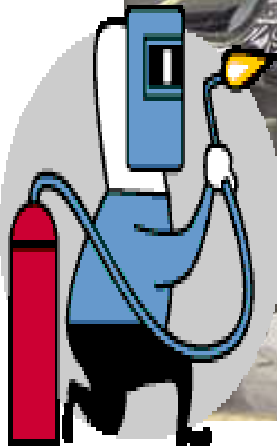
Core Support – Adjacent Weld Zones (Right & Left Aprons and Frame Rails)



Rear Body Panel – Adjacent Weld Zones (Right & Left Quarter Panels & Rail Ends and Floor Pan)



Quarter Panel –
Adjacent Weld Zones
(Rocker Panel, B-Pillar, Rear Body Panel, Wheelhouse, Floor
Pan, Deck Lid Trough, etc.)



Are “Adjacent Weld Zones” ...

- *Audatex – Welded-On Adjacent Panels*
- *Mitchell – Adjacent Welded Panels*
- *CCC / Motor – Adjacent Weld Zones*

■ Are “ Adjacent Weld Zones” ...

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)

Adjacent Weld Zones

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■ Are “Adjacent Weld Zones” ...

1. *Required ?*

- *The previous definitions from the leading Information Providers state that:*
 - A. *Adjacent Weld Zones are Required Repair Operations necessary to restore damaged panels to New Undamaged Condition.*
 - B. *Refinish Labor is based on **new, undamaged parts.***

Not only are these repair operations necessary to restore panels to New Undamaged Condition, they are necessary to restore the vehicle to its initial state of Crash Worthiness.

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



1. A. Audatex Labor Overview-Returning Panel to New Undamaged Condition

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

*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.

1. A. OEM Component Replacement: Returning a vehicle back to its structural integrity is required.

GUIDE TO ESTIMATING



SPECIAL PRECAUTIONS

OEM COMPONENT REPLACEMENT - GENERAL

The collision repair facility must have the equipment, training, and experience using the latest factory/industry information and procedures. Ultimately, the safety and quality of any repair will depend not only on the equipment that is used and the procedure that is followed, but also on the skill and knowledge of the repair technicians, the steps they take to control repair quality and how well they check the details of the repair.

Some repair operations reported in this guide may be beyond the capability of the repair shop in terms of equipment, skill and knowledge, etc. In this case the repair shop should not attempt the repair.

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Extreme care and caution should always be used when performing collision repairs on any vehicle. All repairs must be of the highest quality using the latest factory recommended repair procedures with the following concerns kept in mind:

- **Passenger Protection:** Replacing damaged parts of a car designed to crush in a collision may reduce occupant protection in a future collision if the structural integrity is not restored.
- **Safety & Handling:** An improper repair can create braking, handling, vibration and noise problems. This may lead to possible safety problems.
- **Corrosion Protection:** A vehicle's ability to resist corrosion may be reduced if improper repairs are made and the manufacturer's corrosion protection is not restored. This may lead to future safety and/or resale value problems.
- **Resale Value:** The resale value of a vehicle can be reduced dramatically by improper repairs which may lead to a financial loss to the vehicle owner.

PANEL BONDING (Metal Adhesives)

OEM labor procedures for "panel bonding" requires different procedural steps versus welding, such as panel/vehicle preparation, sectioning insert/sleeve, additional panel fit and adhesive application unless otherwise specified in a footnote attached to the sectioning operation. MOTOR published welded panel replacement labor times may be applied for "panel bonding" and would include all the necessary procedure steps as outlined by the OEM. Refer to the Guide to Estimating pages for specific INCLUDED/NOT INCLUDED operations. An adjustment in time may or may not apply after an on-the-spot evaluation of required procedures. Refer to OEM for specific repair recommendations/procedures and replacement product(s).

PARTS SUPPLIED IN COLOR

Some replacement components such as instrument panels, trim panels and moldings can be ordered in various colors and therefore may not require painting. In some instances specific colors may no longer be available from the manufacturer and therefore would require painting. MOTOR recommends the availability of appropriate replacement colors be confirmed before finalizing any estimate of repairs. Refinishing time should be added if needed color is not available.

NOTE: Air bag components should never be refinished. Refinishing these components will alter the original design and change deployment characteristics.

REFINISH CLEAR COAT APPLICATION

Most major paint manufacturers recommend that when performing refinish repairs on an OEM base coat/clear coat or multi-stage finishes, the application of clear coat must be extended to the nearest panel edge or breakpoint to qualify for their lifetime refinish warranties.

RESTRAINT SYSTEM (Air Bag)

NOTE: RESTRAINT SYSTEMS, REPLACEMENT COMPONENTS and INSPECTION COMPONENTS are FOR ESTIMATING PURPOSES ONLY. Wiring repairs should only be performed in accordance with vehicle manufacturer specifications. Air bag components should never be refinished. Refinishing these components will alter the original design and change deployment characteristics. **Always refer to the vehicle manufacturer's recommended repair procedures when servicing any air bag system.**

Before repairing any air bag system, disconnect and isolate the battery cable so that any back-up power supply is discharged for the time period stipulated by the manufacturer to prevent accidental deployment when working on the vehicle. All system components and mounting areas must be inspected before energizing the system.

On some vehicles the windshield is considered an integral component of the overall system and has specific requirements regarding materials and procedures used when replacing a windshield. Factory recommended procedures must be followed when servicing this type of system. Some vehicles are equipped with dual stage air bags. The air bags are deployed at different rates depending on the severity of the crash, seat belt usage and driver position. If a dual stage air bag has deployed, it is possible that only one stage has deployed. If both stages have not deployed, there is a danger of the second stage deploying if the air bag is not properly handled. On vehicles that are equipped with dual stage air bags, ensure the air bag system is disabled before performing any repair procedures. The air bag should then be properly disposed of. Refer to the vehicle manufacturer's recommended procedures for air bag disposal.

Estimated Work Times for disabling vehicle safety restraint systems have been developed for instances where the OEM-recommended procedure steps required to disable the system are in addition to steps required to de-energize the vehicle by disconnecting the battery and/or removing a readily accessible fuse.

RESTRAINT SYSTEM (Seat Belt)

Many automobile manufacturers recommend seat belt components be replaced when subjected to stress by occupants in a collision. Check with the manufacturer for specific repair recommendations and procedures.

SECTIONING

Sectioning is an industry accepted procedure which involves replacing a vehicle's welded body panel (quarter, rocker, rail, etc.) onto the undamaged portion of a vehicle body at a location other than at a factory seam. This may or may not be a factory recommended procedure. Special care and training is required when sectioning any part due to the wide use of special steels and vehicle design. Repairs of this type should only be performed in accordance with the OEM service repair information, if available. When sectioning procedures are not available from the vehicle maker, it may be possible to section a part using vehicle-specific procedures developed by research organizations such as Tech-Cor and/or general sectioning guidelines taught by I-CAR. Please visit <http://www.i-car.com/partialreplacement> for more information.

1. A. CCC / Motor Labor Premise-Returning Vehicle to New Undamaged on New Undamaged Condition

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

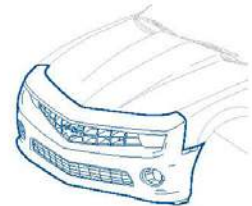
FRONT BUMPER ASSEMBLY - R&I ALL TYPES

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)



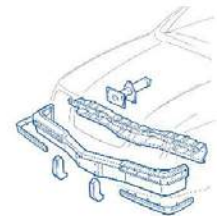
FRONT BUMPER - R&R FACE BAR TYPE

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)



1. A. Mitchell's-New Undamaged to New Undamaged Condition

P2

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 "OH" (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 Guidelines-Returning Panel to New Undamaged OEM 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.

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1. B. CCC / Motors Refinish Time Premise: Returning Panels to New Undamaged Condition.

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."

1. B. Mitchell Refinish Procedures-Return Panels to New Undamaged

P16

Procedure Explanation

Bumper Assembly O/H

Included Operations

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

Not Included Operations

- Refinish bumper
- Remove and replace impact absorbers or mounting arms
- Remove and install or replace optional accessories (example: trailer hitch, trailer connector)
- Remove and install adhesive exterior trim; add to clean and 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.

Adjacent Weld Zones

- *Audatex – Welded-On Adjacent Panels*
- *CCC / Motor – Adjacent Weld Zones*
- *Mitchell – Adjacent Welded Panels*

■ Are “Adjacent Weld Zones” ...

2. *Included or Not-Included?*

- A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are ***Not-Included*** Required Operations necessary to restore a damaged panel to new undamaged condition.

(See the following documents from the leading Information Providers)

- B. SCRS, ASA and other resources list:
- Adjacent Weld Zones 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)



2. A. According to the leading Information Providers it is the Ultimate Responsibility of the estimate preparer that all necessary operation are included in the estimate.

Section 4-3 Replacement & Recycled Operations

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

Replacement and Recycled Operations

The following is a **general overview** of operations included in Audatex's labor allowances. Each part or operation shows which specific operations are included, as well as those that are not included. Operations listed in the "Not Included" column may or may not need to be performed. To make that determination, an assessment needs to be made at the time of inspection. Review the completed estimate to see the estimate preparer's considerations and allowances for the specific vehicle repair. **It is the ultimate responsibility of the estimate preparer to ensure estimate compliance, and that all necessary operations needed are included in the estimate.**

All operations and labor allowances in the Audatex system are for like, kind, and quality panels, including new and undamaged OEM panels. **Refer to the Audatex Labor Report for operations specific to the vehicle being repaired.**

Audatex's definition of Remove and Install (R&I)

Is an operation or group of operations that are required to remove and install the part or assembly. Audatex time:

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

The installation is for the originally attached part.

Audatex's definition of Remove, Remove and Install (R, R&I)

Is an operation or group of operations that are required to remove the component part from the vehicle, remove the part from a recycled assembly being installed, and re-installing the necessary component part from the vehicle. Audatex time:

- **Includes time to remove the component part from the vehicle, remove the part from a recycled assembly being installed and re-installing the necessary component part from the vehicle (e.g. trim panel, lock cylinder, etc.)**
- **Includes normal adjustment and alignment for correct fit.**

The installation is for the part originally attached to the vehicle.

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2. A. According to the leading Information Providers Required Operations that are not listed as either Included or Not Included is usually Not-Included.

Body & Refinish Labor Operations

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.

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2. A. According to the leading Information Providers, repair and alignment labor are a judgment of the estimate preparer.

Body Labor Operation

Section 2-2 An Explanation of the Audatex Estimate

5 The Body of the Estimate - continued

OP – Operation Codes

details the part supplier and PXN part classification information such as OEM reconditioned and CAPA certified aftermarket.

ET/TE – Partial Replacement with OEM Part

The partial replacement of damaged parts using portions of a new part. Operation code “ET” reflects labor for removal of a partial section and replacement with an OEM part. This code is used for:

- sheet metal and structural component cut and splice operations.
- replacement of mouldings, stripes, overlays, and other parts that are supplied in kit form.

Operation “TE” which supplies the OEM part number and price must be used with “ET”.

IT – Partial Repair

This is judgment labor supplied by the estimate preparer for repairs to the unreplaced portion of a partially replaced panel.

I – Repair/Align Labor

This is judgment labor supplied by the estimate preparer.

SB – Sublet

Labor dollars and/or hours entered by the estimate preparer for tasks that are typically handled by a sublet repairer. Exception: The system automatically supplies R&I time for the radiator, air conditioning condenser, and fuel tank.

P – Visual Inspection

This code tells the repairer to inspect a part or system for possible damage or required service. Price or labor amount is supplied by the estimate preparer.

L – Refinish

Part descriptions and labor to refinish parts. Paint material cost is calculated automatically based on total net refinish labor multiplied by paint and material rate (Rate Code 5) as supplied by the estimate preparer. Audatex refinish labor is for new and undamaged parts (for more detailed information, see Refinish sections).

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2. A. According to leading Information Providers, alignment of parts adjacent to the parts being replaced are Not-Included Operations.

Body Labor Operation

Section 4-2 Labor Exclusions

Labor Exclusions

Because each vehicle's collision damage is unique, labor to perform some of the following operations may vary. In other cases, the operation is performed less than 80% of the time and may or may not be required due to the collision damage. To address these situations, Audatex provides:

- 'Standard Manual Entries' that are entered by the estimate preparer (for a complete listing, see Section 5-1)
- 'Additional Labor' operations which are Audatex pre-stored labor for many of these operations.

When the operation has a 'Standard Manual Entry' or an 'Additional Labor' operation available, a note will appear next to the appropriate exclusion.

- Additional labor for removal of parts that have been impeded by crash damage (access labor). (Standard Manual Entry M62 is available).
- Alignment of front or rear suspension ('Additional Labor').
- Alignment of parts adjacent to parts being replaced.
- Application of lubricant or similar material.
- Bleeding of brake, cooling, or hydraulic systems ('Additional Labor' for brake bleeding).
- Complete R&I of brake line, transmission line, or fuel line.
- Cutting and splicing of lamp wiring.
- Detailing
- Disabling and enabling of Hybrid Vehicle components (i.e. high voltage systems, battery packs, and power cables).
- Diagnosis and testing of electronic components or systems (e.g., airbags).
- Disassembly of recycled parts and assemblies.
- Disconnect and reconnect of un-deployed airbag.
- Disconnect / reconnect computer modules for welding purposes.
- Drain or refill fuel tank.
- Evacuate and recharge air conditioning system ('Additional Labor').

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2. A. According to the leading Information Providers, the repair of damaged adjacent panel due to welding, grinding, drilling, and straightening are Not-Included Operations.

Body Labor Operation

Section 4-2 Labor Exclusions

Labor Exclusions – continued

- Repair, fitting, trimming, or modification of recycled parts.
- Replace labor does not include additional labor to repair the replaced panel and or adjacent panels which may become distorted, burned or damaged by welding, drilling, grinding and straightening.
- Reset of electronic components (e.g., airbags, computers, modules, clock, radio, tire pressure monitors, adaptive cruise control, etc.). (Standard Manual Entry M67 is available).
- Restoration of corrosion-protective coatings (e.g., galvanizing, zinc coatings, E-coat 'equivalent', and other like materials). (Standard Manual Entry M14 is available). For more detailed information, see Refinish section.
- Setup of a vehicle on a frame machine, dedicated bench, or other measuring / straightening devices. Pulling time is not included (Standard Manual Entry M31 is available).
- Steam cleaning of or rust removal from fuel tanks.
- Test drive to relearn system.
- Transfer of attached items from original parts to recycled parts.
- Wheel balancing (Standard Manual Entries M22 through M25 are available).

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2. A. According to the leading Information Providers, additional refinish time for Adjacent Weld Zones are Not-Included operations.

Refinish Labor Operation

Section 4-4 Refinish Guidelines

Two-Sided Refinish Panels

Some body panels (e.g., hoods, deck lids, single-walled bedsides, and tailgates) are painted both inside and outside. Currently, when these panels are:

- replaced, Audatex automatically calculates two-sided refinish
- repaired, Audatex does not automatically calculate two-sided refinish.

Welded-on Panels

Audatex base refinish labor does not include additional time to refinish adjacent panels that may be damaged by welding.

Highly Contoured Parts

Pickup beds and large roofs (station wagons and vans) often have corrugated panels for extra strength. Their highly contoured construction makes them more difficult to sand.

Most large, flexible front and rear panels (front bumper covers, and rear bumper covers), and cowl vent panels present some additional contours (beyond the usual metal and fiberglass panels). However, these did not appear to be noticeably more difficult.

Audatex refinish labor is determined on a per-panel basis considering contours.

Part Composition

Metal is the standard for all refinish labor.

Plastic, fiberglass, and SMC refinish processes are similar to metal. Audatex recognizes that flexible panels are usually the same part types (e.g., bumper covers, and fillers). For flexible panels, Audatex refinish labor is part type specific.

Raw, Unprimed Bumper Covers and Plastic Parts

Audatex refinish allowances start with priming a part. Due to the differences in the paint manufacturers' procedures, OEM recommendations, and the unpredictable nature of the parts, any preparation required for raw, unprimed bumper covers or other plastic parts is Not Included in Audatex labor allowances. This operation may be added manually, if required.

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2. A. Audatex: Labor Exclusions are never automatically included.

Body & Refinish Labor Operation

Section 5-2 Frequently Asked Questions (FAQ's)

While using the Audatex system, questions may arise. Below you will find some of the most frequently asked questions and answers.

Question: 1
What does the term Overlap mean?

Answer:
An operation that is common to the replacement of more than one part or operation.

Question: 2
What is meant by Labor Exclusions?

Answer:
Items that are never automatically included in Audatex labor times.

Question: 3
What is the Audatex Two-Tone formula?

Answer:
Setup time of 0.4 estimate hours upon selection of the first two-tone panel, plus 30% of Audatex estimate refinish labor per panel selected. Two-tone is automated in the Audatex system and can be selected as an operation on a panel-by-panel basis.

Question: 4
What does R&I mean?

Answer:
Remove and Install, which is an operation or group of operations that are required to remove and install the part or assembly.

Question: 5
On the fender, is edging a not-included operation or an included operation?

Answer:
When replace and refinish are selected, Audatex automatically includes edge time.

Question: 6
On the door shell, are you including refinish times on the interior jambs?

Answer:
When replacing door shells, Audatex's refinish labor includes the jambs and inside.

Question: 7
On the door panel, is refinish on the jambs included?

Answer:
When replacing the outer door panels, Audatex's refinish labor includes the jambs.

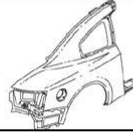
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2. A. Audatex: Adjacent Weld Zone Not-Included Example

Section 4-3 Replacement & Recycled Operations

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

Quarter Panel Replacement and Recycled



Important Reminder:

- Reveal mouldings that are mounted flush to stationary glass (e.g., Windshield, Back Glass, or Quarter Glass) are at risk of breakage when being removed.
- Stationary glass that is urethane bonded is considered a structural part of the vehicle. Replacing stationary glass requires:
 - following specific replacement procedures
 - using specified installation materials
 - returning the vehicle to OEM structural integrity for occupant safety
- When selecting Glass Kit in conjunction with the quarter panel, remember that the labor is automatically included in the quarter panel. To ensure full labor value, do not "zero out" the glass kit labor.
- Due to extensive trim variations, the following operations are not included for vans:
 - bodyside trim R&I
 - middle/rear seat R&I
- For non-assembled parts select "Replace" operation and zero out price to obtain R&I labor. For assembled parts select "Replace Recycled" operation to obtain R&I labor. For others, estimate on site.

New Part Replacement (OEM and non-OEM new parts) Operations		Recycled Part Replacement Operations		Operations
Included Operations	Not Included Operations	Included Operations	Not Included Operations	
√		√		Rear bumper R&I (if required)
√		√		Rear bumper filler R&I (if required)
√		√		Back glass R&I
√		√		Tailgate R&I (if required)
√		√		Middle/Rear seat R&I (if required)
√		√		Quarter trims R&I
√		√		Quarter glass R&I (stationary or flip out)
√			√	Bolt-on extension R&I
√			√	Fuel door R&I (if required)
√			√	Mud guard R&I (if required)
√		√		Disconnect/connect convertible top assembly at quarter
√		√		Spoiler and flare R&I (OEM only)
√			√	Detach and weld at roof panel, rocker panel, lock pillar, inner quarter, rear body and floor pan (New Part Replacement)
√		√		Application of weld-through primer (<i>Welded areas</i>)
√		√		Block sand (<i>Welded areas</i>)
√		√		Application of guide coat (<i>Welded areas</i>)
√		√		Dual action sand (<i>Welded areas</i>)
√		√		Seat belt anchor R&I
√		√		Back glass adhesive kit (labor)
√		√		Reasonable adjustment and alignment (as defined by the manufacturer using conventional fasteners and/or hardware)

Continued on next page →

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2. A. Audatex: Adjacent Weld Zone Not-Included Example

Section 4-3 Replacement & Recycled Operations

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

SUV / Van Bodyside Panel Replacement and Recycled



Important Reminder:

- Reveal mouldings that are mounted flush to stationary glass (e.g., Windshield, Back Glass, or Quarter Glass) are at risk of breakage when being removed.
 - Stationary glass that is urethane bonded is considered a structural part of the vehicle. Replacing stationary glass requires:
 - following specific replacement procedures
 - using specified installation materials
 - returning the vehicle to OEM structural integrity for occupant safety
 - When selecting Glass Kit in conjunction with the quarter panel, remember that the labor is automatically included in the quarter panel. To ensure full labor value, do not "zero out" the glass kit labor.
 - Due to extensive trim variations, the following operations are not included for **full size vans**:
 - bodyside trim R&I
 - middle/rear seat R&I
- Select appropriate part R&I operations as needed

New Part Replacement (OEM and non-OEM new parts) Operations		Recycled Part Replacement Operations		Operations
Included Operations	Not Included Operations	Included Operations	Not Included Operations	
√		√		Back door assembly R&I or Tailgate hydraulic rod R&I (if required)
√		√		Body weatherstrip pullback
√		√		Bodyside glass R&I
√		√		Bodyside trim panel (except full size van)
√		√		Carpet / insulation rollback (SUV / Mini Van only)
√		√		Cover to protect interior during repair
√			√	Detach and weld at roof panel, rear door pillar, rocker panel, inner bodyside panels, outer wheel house panel, door opening frame, and lock pillar (New Part Replacement)
√		√		Disconnect / connect battery
√		√		Disconnect / connect wiring harness for access
√			√	Door striker R&I
√		√		Driver seat assembly R&I (without sliding door)
√		√		Front sill plate R&I (without sliding door)
√			√	Fuel filler door R&I
√			√	Fuel filler pocket R&I
√			√	Mud guard R&I (if required)
√		√		Rocker panel moulding R&I (if required)
√		√		Raise and support vehicle
√		√		Rear bumper R&I (if required)
√		√		Rear sill plate R&I (with sliding door)
√		√		Rear wheel R&I

Continued on next page →

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2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.



LABOR PROCEDURES

GUIDE TO ESTIMATING

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

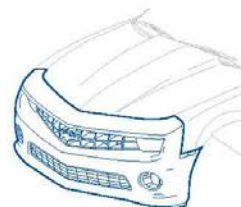
FRONT BUMPER ASSEMBLY - R&I ALL TYPES

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)



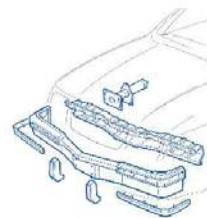
FRONT BUMPER - R&R FACE BAR TYPE

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)



2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.

GUIDE TO ESTIMATING

ADD IF REQUIRED

MOTOR Collision Estimating Data is based on the base model vehicle configuration, standard or regular production options, and/or standard replacement operations. "Add if required" operations are for extra procedures necessitated by optional factory equipment or certain collision scenarios that may be encountered. "Add if required" operations should be added to the estimate whenever applicable after an "on the spot" inspection of vehicle damage and/or vehicle options.

COMPONENT CLASSIFICATION

The purpose of classifying components is to describe physical properties of the component, and classifications may inform the estimator that specialized technician skill levels and/or tools may be required. Indicators are not intended to determine labor rates charged, or to be inclusive of all components. Any additional component classification(s) should be determined after an on-the-spot evaluation of required repair procedures.

CLASSIFICATION INDICATORS ARE PROVIDED FOR YOUR CONVENIENCE AND MUST ONLY BE CONSIDERED A HELPFUL GUIDE.

MOTOR component classifications are defined as follows:

(M) **Mechanical:** Components that transform one form of motion or energy into another. Mechanical components would likely be serviced at a mechanical service facility rather than a body repair facility if that component failed during normal operation. Mechanical components will likely require a specialized technician skill level and/or specialized tools.

(S) **Structural:** Components that provide a load bearing foundation for the purpose of safety and/or stability

(no classification) **Body:** Components that do not fall under the mechanical or structural classification

D&R (Disconnect & Reconnect)

Some labor procedures require disconnecting (unplug and/or unbolt) of a component/assembly at the point where it is attached to the subject part. The component assembly is not completely removed from the vehicle. The component is reconnected during the assembly procedure. Due to various configurations and type of parts that may be involved in the D&R operations and considering that the times involved are generally not definable in tenths of hours, time for D&R is not provided. When D&R is necessary to perform a labor operation, it is included in that labor operation's time.

INCLUDED and/or NOT INCLUDED LABOR OPERATIONS

INCLUDED OPERATIONS:

When items or operations appear in the Guide to Estimating pages under the "Included" heading it means that the operation is performed in conjunction with another operation. For example, Steering Wheel R&I is an individual operation, but when replacing a steering column, steering wheel R&I is also performed and therefore included in Steering Column R&R.

If an item is listed without a qualifier, it means all labor has been considered within the indicated labor procedure. If a specific qualifier (such as R&I) appears, it means only the specified qualifier applies.

INCLUDED and/or NOT INCLUDED LABOR OPERATIONS - Continued

NOT INCLUDED OPERATIONS:

Items or operations listed under "Does Not Include" were not considered in the development of published labor operation times. These operations may or may not be required depending upon the vehicle or repair process used. If any of these items or operations are required, they should be considered by the estimator. If a specific qualifier (such as R&I) appears, it means only the specified qualifier applies.

NAGS - GLASS PRICES

Glass Prices: We include, when available, both the vehicle manufacturer and the NAGS benchmark prices as applicable to each make and model. All NAGS part numbers and benchmark prices are provided from National Auto Glass Specifications, a division of Mitchell International, Inc. Labor operation times listed on the line with the NAGS information are MOTOR suggested labor operation times; NAGS labor operation times are not included.

OEM (Original Equipment Manufacturer)

Used to define original vehicle manufacturer.

OVERHAUL

Remove an assembly from the vehicle, disassemble, clean, inspect, replace parts as needed, reassemble, install and adjust (except wheel/suspension alignment). Overhaul time should be used only if the time for individual parts (less overlap) is more than the overhaul time. Overhaul operations include component R&R procedure steps and inclusions unless otherwise noted.

OVERLAP

When replacing two or more components the duplication of included labor procedures is known as overlap. Labor procedures (R&R/R&I/D&R) that create overlap include, but are not limited to, mechanical attachment, welding, bonding and/or technician preparation.

For example, when replacing a quarter panel and rear body panel on the same vehicle, the common required labor procedures necessary to remove and replace or reinstall these components is known as overlap.

When a labor overlap condition exists, less time is required to replace adjoining components collectively than is required when they are replaced individually.

Overlap labor information is generally included at the beginning of each group or subgroup within each chapter.

R&I (Remove & Reinstall)

Item is removed, set aside and later reinstalled and aligned for proper fit (does not include Suspension/Wheel alignment). Generally used to gain access to another part.

If an R&I time is not available, published R&R times can be used when the steps required to R&R a component are the same procedure steps required to R&I a component. For example, bolt- or clip-on moldings, ornamentation, mirrors, trim, door handles, locks, cylinders, latches and many single-piece components. In addition, an equal sign (=) printed after an R&R time indicates MOTOR has evaluated an operation and determined that the R&R time may be used as the R&I time.



2. A. According to the leading Information Providers , Adjacent Weld Zone refinish time are Not-included Operations.



GUIDE TO ESTIMATING

REFINISH TIME LISTINGS

All refinish times are listed in hours and tenths of an hour. A time in parentheses adjacent to the part name, such as (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 those 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 jamba. 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 refinishing requirements in question. Refer to G.T.E. "BASIC COLOR COAT APPLICATION."

2. A. CCC / Motor Adjacent Weld Zone Not-Included Example.

GUIDE TO ESTIMATING

FENDER - INNER PANEL (Welded Apron & Rails) - Continued

- Electrical wiring
- Energy absorber
- Engine
- Front suspension assembly
- Hood hinges & support cylinder
- Horns
- Outer sheet metal
- Pulling or straightening time
- Reservoir
- Set up on frame machine & diagnosis
- Steering components
- Suspension/wheel alignment
- Washer/Coolant reservoir
- Welded brackets & braces transfer

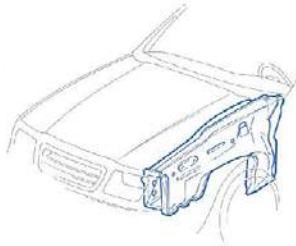
FENDER - FRONT RAILS

INCLUDED:

- Adhesive application if required (all types)
- Carpet & insulation turn back
- Caulk/seam sealer
- Cowl trim
- Cutting & welding as necessary

DOES NOT INCLUDE:

- Adjacent panels
- Battery
- Bolted-on parts
- Bumper assembly
- Carpet, insulation or seat R&I
- Decals/labels
- Electrical wiring
- Energy absorber
- Engine
- Exhaust system
- Front suspension
- Outer sheet metal
- Pulling or straightening time
- Set up on frame machine & diagnosis
- Steering components
- Suspension/wheel alignment
- Welded bracket & braces transfer



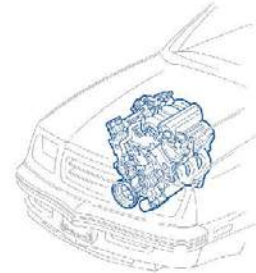
ENGINE/TRANSAXLE ASSEMBLY R&I

INCLUDED:

- Air cleaner
- Hoist or lift attach
- Splash shields (if necessary)

DOES NOT INCLUDE:

- A/C condenser
- Drain & replace oil and fluids
- Evacuate & recharge A/C system
- Linkage adjustments
- Radiator
- Replacement of any parts
- Road test vehicle



ROAD WHEEL - R&R

SPECIAL NOTATION:

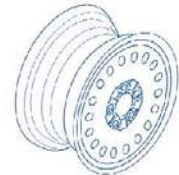
When required, an additional 0.3 hrs. may be necessary to remove a spare tire from its storage location and install it on the hub and to later remove the spare tire from hub and return it to the original storage location.

INCLUDED:

- Raise & support vehicle
- Remove & reinstall wheel/tire assembly
- Transfer tire
- Lower vehicle
- TPMS sensor, if attached to valve stem
- Valve stem

DOES NOT INCLUDE:

- Balancing
- Cost of valve stems or weights
- Lock type lug nuts
- Lock type wheel covers
- Scan tool clear/reset
- Tire disposal fee



BLEED BRAKE HYDRAULIC SYSTEM

SPECIAL NOTATION:

Bleed Brake System operation times are based upon other suspension and/or brake work already being performed and the Bleed Brake System Operation performed in conjunction with those other operations.

INCLUDED:

- Bleed brake system
- Add fluid to master cylinder reservoir

DOES NOT INCLUDE:

- Brakes adjust
- Cost of brake fluid



LABOR PROCEDURES

2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.



GUIDE TO ESTIMATING

BASIC COLOR COAT APPLICATION - Continued

DOES NOT INCLUDE (continued):

- Cover/mask trunk/compartments to prevent overspray
- Cover/mask entire exterior of vehicle to prevent overspray damage
- Cover/mask interior of vehicle to prevent overspray damage
- Edge refinishing
- Grind, fill, & smooth welded seams (up to 150 grit sandpaper)
- Paint or material costs
- Prime & block (high build/primer-filler)
- Test spray-out panel
- Tinting Primer-Sealer
- Tinting to achieve color match
- Underside refinishing
- Weld, grind or sanding damage to adjacent panels
- Wet sanding

BAGGING (Cover Entire Vehicle Exterior)

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

APPLY AND REMOVE VEHICLE COVER (BAGGING)

- Add 0.2 each time a cover is applied and removed

CLEAR COAT FINISHES (Base Coat/Clear Coat)

SPECIAL NOTATION:

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

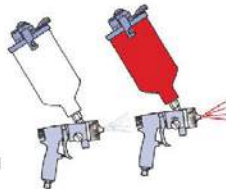
- First major panel:
 - Add 40% to refinish time
- Each additional panel:
 - Add 20% to refinish time
- Maximum time allocation:
 - 2.5 hours

INCLUDED:

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

DOES NOT INCLUDE:

- Any component clear coated as a separate procedure
- Any operation previously excluded in "Refinish time Premise" and/or "Basic Color Coat Applications" groups
- Material costs



THREE STAGE FINISHES (Base/Mica/Clear Coat)

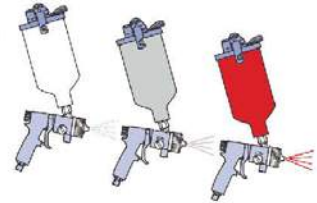
SPECIAL NOTATION:

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

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

INCLUDED

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



DOES NOT INCLUDE

- Any component clear coated as a separate procedure
- Any operation previously excluded in "Refinish Time Premise" and/or "Basic Color Coat Application" groups
- Material costs
- Test spray-out panel

CLEAR COAT UNDAMAGED PANEL

SPECIAL NOTATION:

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

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

2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.

GUIDE TO ESTIMATING

CLEAR COAT UNDAMAGED PANEL - Continued

INCLUDED:

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



DOES NOT INCLUDE:

- Correction of pre-existent surface imperfections
- Damage repair
- De-nib/wet sand and/or buff for polishing
- Masking of attached parts
- Material costs
- R&I of attached parts

COLOR BLEND (Adjacent Panels)

SPECIAL NOTATION:

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

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

- Each blended adjacent panel or area
– 50% of blend panel's base refinish time

INCLUDED:

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

COLOR BLEND (Adjacent Panels) - Continued

DOES NOT INCLUDE:

- Correction of pre-existent surface imperfections
- Cover/mask recessed edges/jamb/weatherstrips
- Damage repair
- Masking of attached parts
- Material costs
- R&I of attached parts
- Wet sand and/or buff for polishing

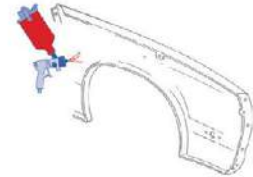
EDGES OF NEW PARTS (Edging)

SPECIAL NOTATION:

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

INCLUDED:

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



DOES NOT INCLUDE:

- Clear coat
- Color tinting
- Mixing a different edge color

THREE STAGE COLOR BLEND (Adjacent Panels)

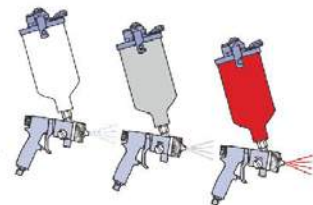
SPECIAL NOTATION:

Calculations for blending are based upon the outer surface only and should not include additions for underside, inside or edges of the blend panel. There should be no overlap deductions between blend panel(s) refinish time. Blending may be necessary for adjacent body components to avoid noticeable color variation between newly applied paint and the existing paint of adjacent components or areas. The following formula may be considered in the event this type of procedure is required on an undamaged panel:

- Each blended adjacent panel or area
70% of blend panel's base refinish time

INCLUDED:

- Back tape opening (handle, lock cylinder, mirror)
- Blend coat application



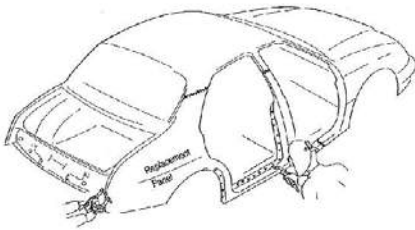
2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.

GUIDE TO ESTIMATING

WELD ZONE/ADJACENT PANEL

SPECIAL NOTATION:

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



DE-NIB & POLISH

SPECIAL NOTATION:

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

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

INCLUDED:

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

DOES NOT INCLUDE:

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

WET/DRY SAND, RUB-OUT & BUFF

SPECIAL NOTATION:

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

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

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

INCLUDED:

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

DOES NOT INCLUDE:

- Acid rain damage
- Overspray removal
- Removal of residual material from recessed edges and jams if required
- Wash, clean, wax or detail entire vehicle prior to delivery if required

UNPRIMED FLEXIBLE COMPONENT PREPARATION

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

INCLUDED:

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

DOES NOT INCLUDE:

- Correction of pre-existent surface imperfections
- Material Costs



2. A. CCC / Motor Adjacent Weld Zone Not-Included Example.



LABOR PROCEDURES

GUIDE TO ESTIMATING

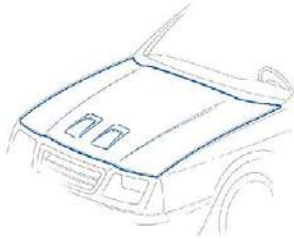
HOOD

SPECIAL NOTATION:

Some replacement components may or may not be supplied with duplicated OEM caulk/seam sealer. This is not included in R&R time and requires an on-the-spot evaluation. Disconnect hood at hinges.

INCLUDED:

- Air inlet system (if necessary)
- Align to vehicle
- Grille (if attached)
- Hood lamp
- Hood panel R&R
- Insulation
- Scoop
- Safety catch
- Striker
- Washer hoses & nozzle (mounted to hood)
- Weatherstrips & seals (mounted to hood)



DOES NOT INCLUDE:

- Emblems & nameplates
- Hinge
- Hood lock
- Moldings & ornamentation
- Stripe tape, decals or labels

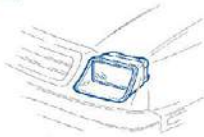
LAMPS (Composite Type)

INCLUDED:

- Bulb(s)

DOES NOT INCLUDE:

- Lamp aiming
- Headlamp door/bezel



LAMPS (Sealed Beam Type)

INCLUDED:

- Mount ring
- Retainer ring
- Sealed beam

DOES NOT INCLUDE:

- Lamp aiming
- Headlamp door/bezel



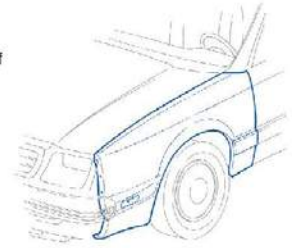
FENDER - OUTER PANEL

INCLUDED:

- Align to vehicle
- Fillers (if mounted to fender)
- Cornering lamps (if mounted to fender)
- Fender liner
- Scoop
- Side marker
- Side repeater lamp (if mounted to fender)

DOES NOT INCLUDE:

- Antenna
- Bumper R&I
- Battery
- Emblems & nameplates
- Grille
- Header panel
- Hood
- Inner panels
- Lamp aiming
- Mirror
- Moldings
- Mud guard
- Road wheel
- Spoilers & flares
- Stripe tape, decals or overlays



FENDER - INNER PANEL (Welded Apron & Rails)

SPECIAL NOTATION:

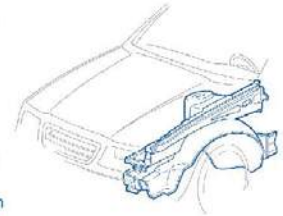
Detach and weld at floor pan, radiator support, hinge pillar and cowl panel.

INCLUDED:

- Adhesive application if required (all types)
- Battery tray
- Carpet & insulation turn back
- Caulk/seam sealer
- Cowl trim
- Cutting & welding as necessary
- Grind, fill and smooth welded seams (up to 150 grit sandpaper)

DOES NOT INCLUDE:

- Adjacent panels
- Air inlet system (if necessary)
- Attached standard items
- Battery
- Bolted-on parts
- Bumper assembly
- Carpet, insulation or seat R&I
- Cruise control
- Dash panel
- Decals/labels



2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.

Estimating Information

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Labor Categories

The labor times shown in the *Guide* fall into various categories (for example, body, frame, mechanical) as determined by the repair facility's operating procedures. As a guide, components for which R&I or R&R is commonly considered to be a mechanical operation when performed in a collision repair environment are designated with the letter "m" in the text. These designations are only a guide. They are not necessarily all inclusive, nor do they suggest the application of a labor rate.

Welded Panels

Replacement labor times for new panels that are joined by welding include the necessary use of inserts and accepted sectioning guidelines developed by OEMs, I-CAR, and TECH-COR. The labor times for welded panels include grinding, filling and final sanding with up to 150 grit sandpaper to match the original panel contour. Labor times do Not-Include the Feather, Prime and Block refinish operation. See *Procedure 28* in *Procedure Explanation* section, for information on Feather, Prime and Block.

Adhesive Panel Bonding

Replacement labor times for panel bonding include all necessary weld applications identified by adhesive material manufacturers and OEM guidelines. Users should reference best practices procedures from bonding material manufacturers and/or OEM guidelines before selecting this replacement method option.

Shop Material

The labor times shown in the *Guide* do not take into account the cost of any materials, or the cost of hazardous materials recycling or disposal.

Disable and Enable Air Bag System

The labor times shown in the *Guide* represent the procedures necessary to disable and enable the air bag system in order to replace air bag system components and/or to perform repairs not related to the air bag system, e.g., welding. This procedure includes visually monitoring the air bag warning light to verify proper system functionality. The allowance does not include troubleshooting of the system if proper system functionality is not present.

Diagnose Air Bag System

The labor times shown in the *Guide* to diagnose air bag systems include system disable and enable, removal and installation of air bag module(s) (where required), installation of appropriate simulators, and retrieving and clearing of trouble codes. Time for specific troubleshooting of Diagnostic Trouble Codes (DTCs) is not included.

Glass Labor Times

The labor times shown in the *Guide* for glass listed with the NAGS part numbers are Mitchell times, not times from NAGS. Glass labor times are for remove and replace (R&R), i.e., removal of the existing glass and its replacement with new glass. Some glass labor times are also shown for removal and the later installation (R&I) of the same glass.

Stripes, Decals and Overlays

The labor times shown in the *Guide* for these items refer to installation only.

TECH-COR Repair Information

The labor times shown in the *Guide* for TECH-COR repair procedures are supplied by Mitchell. TECH-COR does not endorse, sanction or otherwise approve such times. TECH-COR publications are copyrighted material. However, reproduction of TECH-COR bulletins is permitted as long as the bulletin is reproduced in its entirety, including source attribution. TECH-COR bulletins may be obtained by contacting: TECH-COR, Inc., Technical Communications Dept., 100 East Palatine Road, Wheeling, IL 60090; Phone: 847-667-2341.

Base Model Vehicle

Vehicle with the minimal level of equipment available from the manufacturer.

Types of Vehicles

The types of vehicles covered are regular production models only.

Comprehensive Labor Time

While completeness is strived for in each *Guide*, there will be instances, however, in which a labor time has not been established for an operation at the time of publication. If an item requires replacement and can be replaced as an individual item but shows no time, a time should be agreed upon among all parties and recorded on the damage report. It also should not be inferred that a component with no established Mitchell labor time has been included in another component's replacement allowance.

Procedure Reference

Throughout each vehicle "service" there are *Procedure Explanation* reference notes located immediately following the main section headings. Example: BUMPER/FRONT PANEL is followed by, "Use *Procedure Explanations 1, 3 and 28* with the following text." This indicates that the text portion and the *Procedure Explanations* for Front Bumper, Front Panel and Refinish should be used in conjunction with one another when writing a damage report. **LABOR RELATED NOTES IN THE TEXT PORTION OVERRIDE THE PROCEDURE EXPLANATION PAGES.**

Procedures

The *Procedure Explanations* on the following pages outline the operations which are or are not included in the labor time listed in each vehicle "service." You are encouraged to become familiar with these procedure pages to be sure you have a thorough understanding of the Mitchell approach to collision estimating.

The left **Included Operations** column means that the labor time shown in the *Mitchell Collision Estimating Guide* text includes that particular operation or operations.

The right **Not Included Operations** column means that the labor time in the text does not include that particular operation or operations. Performance of one or more of these operations may or may not be necessary as determined by the individual job requirements. If an add-on time has been established for any of these operations it will be shown in the text. If a time has not been established or if the add-on time is dependent on conditions that vary due to collision damage (example: access time, free up parts), the additional time should be recorded on the damage report. Labor times relating to the repair of a damaged panel or the use of used parts would come under this category.

Additions to Labor Times

Due to the wide range of collision damage and vehicle conditions, labor times for the following operations are **not included** in the *Guide*.

Access Time

Remove extensively damaged parts by cutting, pushing, pulling, etc.

Anti-Corrosion Rust Resistant Material

Remove and/or apply weldable zinc primers, wax, petroleum based coatings, undercoating or any type of added conditioning.

Broken Glass Clean Up

Clean vehicle of all broken glass.

Detail

Clean vehicle to pre-accident condition.

Drain & Refill

Fuel (see fuel tank)

Electronic Components

- Time to remove and install as necessary; includes wiring and/or wiring harness and computer module.
- Time to reset memory code function (example: seat position, radio presets) when battery has been disconnected to perform repairs.
- Time to complete computer relearn procedures for proper operation of vehicle systems (example: power sunroof, power window) when battery has been disconnected to perform repairs.

2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.

Body Labor Operation

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Estimating Information

Fabrication

Fabrication of reinforcements or inserts (new component not cut or manufactured from existing or new part, but from raw stock).

Free Up Parts

Time necessary to free up parts frozen by rust or corrosion.

Measure and Identify

Structural damage by comparing vehicle underbody, underhood, and upper-body reference points to accepted, OEM-based dimension specification to identify damage to unibody vehicles.

Plug and Finish Holes

Time to plug and finish unneeded holes on parts being installed.

Repair or Align

Parts or adjacent to parts being replaced.

Rework Parts

To fit a particular year or model (example: cutting holes for lamps, modifying a radiator support).

Tar and Grease

Removal of these or any other materials that would interfere with operation.

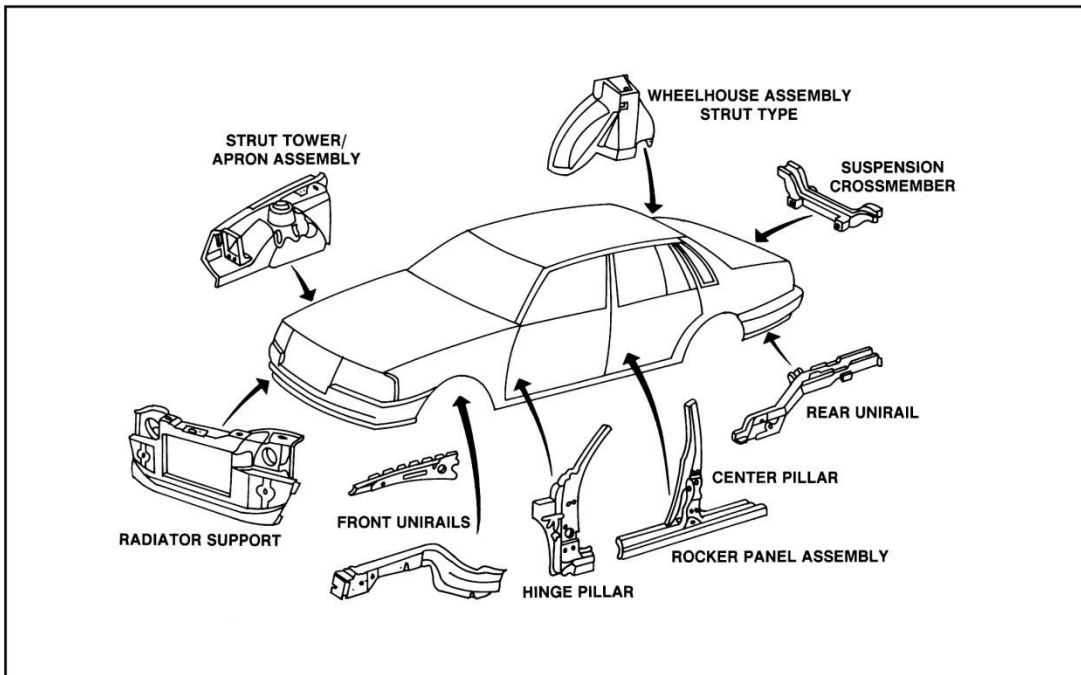
Transfer Time

For welded, riveted or bonded brackets, braces or reinforcements from old part to new part.

Unibody Structural Components

Unibody structural components are parts which support the weight of the vehicle and absorb the energy of the impact as well as road shock. These components are designated with the letter "s" in the text. The components are the radiator support, front and rear unirails, apron and wheelhouse (strut type) assemblies, rocker panel assemblies and suspension crossmembers. Body pillars, while not primary load-bearing structures, also require special treatment and are considered structural components.

Fig. 1: Component Identification & Illustration—Courtesy of TECH-COR, Inc.



Rev. 2-10

2. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel 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. A. According to the leading Information Providers Repair & Refinish of Adjacent Weld Zones are *Not-Included* Required Operations necessary to restore a damaged panel to new undamaged condition.

Procedure Explanation

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Included Operations

- Detergent wash
- Alcohol/plastic cleaner wash
- Additional solvent wash
- Application of specialized adhesion promoter
- Clean Equipment

Clear Coat/Two Stage Refinish

First major panel or soft bumper/fascia cover: Add .4 per refinish hour (40%), then add .4 per refinish hour for jamb, jamb and interior, edge panel, and/or underside (when necessary).

Included Operations

- Mix material
- Clean and tack surface
- Apply material
- Clean equipment

NOTE: Some OEMs now utilize a matte clear coat on non-exterior colors applied to undersides, edges, and/or jambs.

Additional panel(s) and/or other refinish area(s): Deduct overlap (if applicable); add .2 per refinish hour (20%), then add .2 per refinish hour for jamb, jamb and interior, edge panel, and/or underside (when necessary).

Included Operations

- Clean and tack surface
- Apply material

NOTE: For **NEW, UNDAMAGED PARTS**, a total of no more than 2.5 hours should be necessary to perform the four Clear Coat Refinish Included Operations listed above. This calculation DOES NOT APPLY to bumper covers, ground effects, special package equipment, interior edges, jambs, entryways, undersides and additional time that may be required for repaired and/or used panels. It DOES NOT APPLY to complete vehicle refinish. *It is not intended to determine the quantity or cost of materials required for the application of clear.*

Three Stage Refinish

First major panel or soft bumper/fascia cover: Add .7 per refinish hour (70%), after time has been added for jamb, jamb and interior, edge panel, and/or underside (when necessary).

Included Operations

- Mix pearl/mica toner
- Apply toner to test panel
- Mix clear
- Clean and tack surface
- Apply clear to test panel
- Repeat application to surface being refinished
- Clean equipment

Additional panel(s) and/or other refinish area(s): Deduct overlap (if applicable); add .4 per refinish hour (40%), after time has been added for jamb, jamb and interior, edge panel, and/or underside (when necessary).

Included Operations

- Apply pearl/mica toner
- Clean and tack surface
- Apply clear

NOTE: With three stage paints, it may be necessary to blend into larger areas of adjacent panels or complete sides of vehicles, otherwise known as zone painting.

NOTE: Some OEMs now utilize a matte clear coat on non-exterior colors applied to undersides, edges, and/or jambs.

Two Tone Refinish

First major panel: Add .5 per refinish hour (50%)

Included Operations

- Mask panel
- Scuff panel
- Mix material
- Apply material

- Clean equipment

Additional panel(s) and/or other refinish area(s): Deduct overlap (if applicable); add .3 per refinish hour (30%)

Included Operations

- Mask panel
- Scuff panel
- Apply material

Blend Adjacent Panel(s)

With some colors, it may be necessary to blend color into adjacent panels to obtain an acceptable color match.

A blend labor time formula is provided should it be necessary to perform this operation. The performance of this operation is NOT INCLUDED in the Mitchell refinish labor time.

The blend times are for existing undamaged adjacent surfaces. The blend labor time includes the application of clear coat to the entire panel on which color is blended. On some panels, the clear may be stopped at natural body lines or be blended into acceptable design configuration areas.

Single Stage/Two Stage Colors

Blend adjacent panel(s): Allow .5 per refinish hour (50%) for each panel(s)/refinish area(s) blended.

Included Operations

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

Not Included Operations

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

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

NOTE: When calculated, the estimate will allocate 20% from the total blend time and apply it to the clear coat line item. The total sum of the blend line and the amount allocated to the clear coat line will total 50% of the exterior refinish time for the panel being blended.

Example: A panel refinish time is 2.0 hrs. When blended, the refinish time for that panel will be displayed as 1.0 (.5 per refinish hour). Once calculated, the refinish blend line will be displayed as .8 and .2 (20%) will be allocated to the clear coat line.

Three Stage Colors

Blend adjacent panel(s): Allow .7 per refinish hour (70%) for each panel(s)/refinish area(s) blended.

Included Operations

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

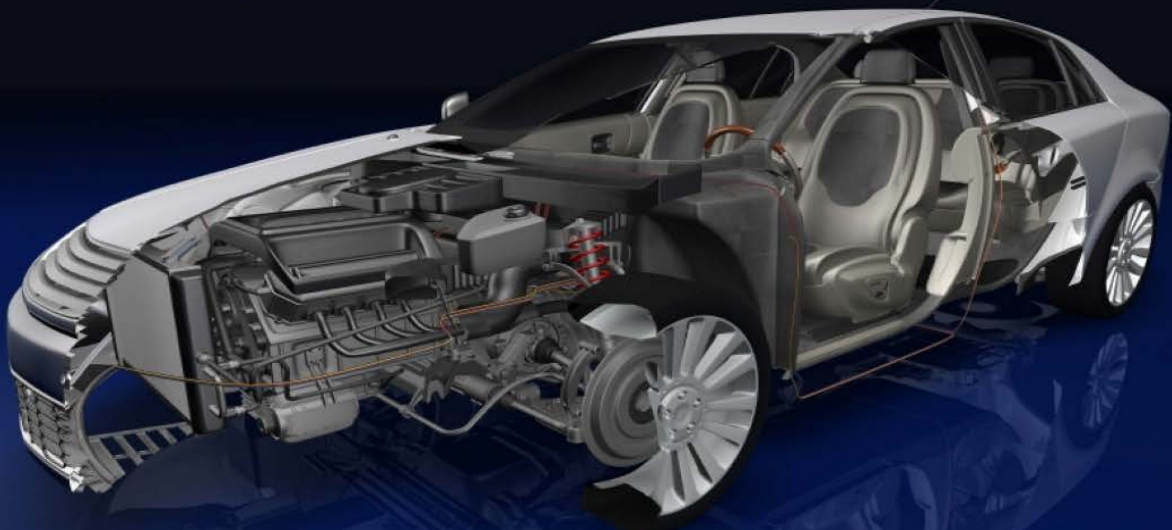
Not Included Operations

- Repair existing surface imperfections

2. B. SCRS and other resources list Repair & Refinish of Adjacent Weld Zones as Not-Included Required Repair Operations necessary to restore a damaged panel to new undamaged condition.



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.

SCRS-Core Support Non-Included Operations



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-HARNESSES & COMPONENTS		
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		

SCRS-Apron/Upper Rail Non-Included Operations



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. TRANSMISSION 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)		

SCRS-Pillars Non-Included Operations



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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SCRS-Rocker Panels Non-Included Operations



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		

SCRS-Roof Non-Included Operations



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		

SCRS-Pick-Up Cab Corner Non-Included Operations



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 REPLACEMENT TOOLS		

SCRS-Pick-Up Cab Back Panel Non-Included Operations



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-ON BED 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		

SCRS-Pick-up Bed Side Panel & Van/SUV Side Panel Non-Included Operations



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		

SCRS-SUV/Van Side Panel & Quarter Panels Non-Included Operations



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		

SCRS-Quarter Panels & Rear Body Panels Non-Included Operations



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		

SCRS-Rear Body Panels & Floor Pan Non-Included Operations



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		

SCRS-Floor Pan Non-Included Operations



Labor Category Legend – By Color:

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

607. SPOT PAINT CENTER FLOOR AREA		
608. SPOT PAINT CROSSMEMBER		
609. SPOT PAINT FLOOR EXTENSIONS		
610. SPOT PAINT RAILS AT WELD AREA, UNDERSIDE		
611. SPOT PAINT WHEEL HOUSE AT WELD AREA		
612. FLOOR TWO TONE AND/OR BLACK-OUT		
105 - Protection & Safety:		
613. D&R HYBRID BATTERY		
614. HYBRID BATTERY PROTECTIVE STORAGE		
615. D&R BATTERY		
616. RESET ELECTRONIC MEMORY, RADIO		
617. RESET ELECTRONIC MEMORY, SEAT/STEERING WHEEL		
618. DIAGNOSE SRS DISPLAY		
619. DISABLE/ENABLE SRS		
620. DIAGNOSE ALARM CODES		
621. MASK ELECTRONIC CONNECTIONS		
622. R&I FUEL TANK		
623. DRAIN FUEL FROM TANK		
110 - Paint Prep:		
624. REMOVE OIL, TAR & GREASE		
625. REMOVE CORROSION PROTECTION MATERIAL		
626. RESTORE CORROSION PROTECTION		
627. REMOVE MOLDING ADHESIVE		
115 - Refinish Process:		
628. DIFFICULT COLOR, TINTING & TESTING (INACCURATE VARIANCE)		
629. MASK FOR PRIMING		
630. SPOT PAINT CORESUPPORT AFTER INSTALLED (SECOND PAINT)		
631. SPRAY OUT TEST PANEL		
632. SPRAY OUT LET-DOWN PANEL FOR THREE STAGE		
633. SPRAY OUT LET-DOWN PANEL FOR TRANSPARENT COLOR		
634. COLOR TINT & TEST TO BLENDABLE MATCH		
635. COLOR TINT SECOND COLOR		
636. GRAVEL GUARD FIRST PANEL		
637. GRAVEL GUARD SECOND PANEL		
638. GRAVEL GUARD THIRD PANEL		
639. GRAVEL GUARD SPRAY-OUT TEST PANEL		
640. HAZARDOUS WASTE DISPOSAL		
641. UNDERSIDE COLOR TINTING & TESTING (CORESUPPORT & TRUNK AREAS)		
642. UNDERSIDE COLOR REFINISH		
643. COVER VEHICLE (FOR REFINISHING ONE TIME)		
644. REFINISHING JAMBS (SEPARATE COLOR THAN EXTERIOR-EACH COLOR ⁹)		
645. MASKING JAMBS		
120 - Color-Sand & Polish:		
646. COLOR SAND & POLISH, 1 ST PANEL (MATERIALS AND LABOR)		
647. COLOR SAND & POLISH, 2 ND PANEL (MATERIALS AND LABOR)		
648. COLOR SAND & POLISH, 3 RD PANEL (MATERIALS AND LABOR)		
649. COLOR SAND & POLISH, 4 TH PANEL (MATERIALS AND LABOR)		
650. COLOR SAND & POLISH, 5 TH PANEL (MATERIALS AND LABOR)		
651. COLOR SAND & POLISH, 6 TH PANEL (MATERIALS AND LABOR)		
652. COLOR SAND & POLISH, 7 TH PANEL (MATERIALS AND LABOR)		

Last Updated 04-2011

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Adjacent Weld Zones

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

A. Documentation for Adjacent Weld Zones

(Examples of Before, During & After Photos)

B. Additional Documentation

(Ford, GM, Toyota & DEG Weld Zone Inquiries)

- *Audatex – Welded-On Adjacent Panels*
- *CCC / Motor – Adjacent Weld Zones*
- *Mitchell – Adjacent Welded Panels*

Dressing Welds – Spot Welds – Outside

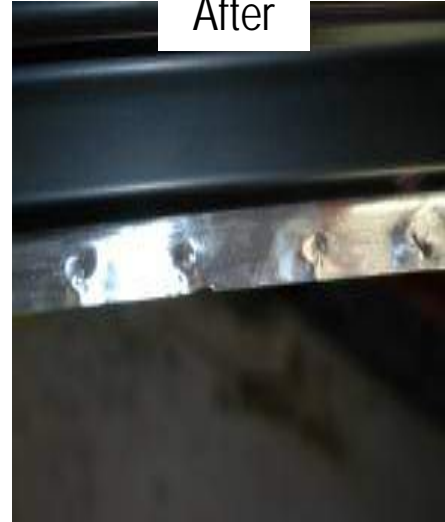
Before



During



After



Dressing Welds – Spot Welds – Inside

Before



After



During



Dressing Welds

Plug Welds – Outside

Before



During



After

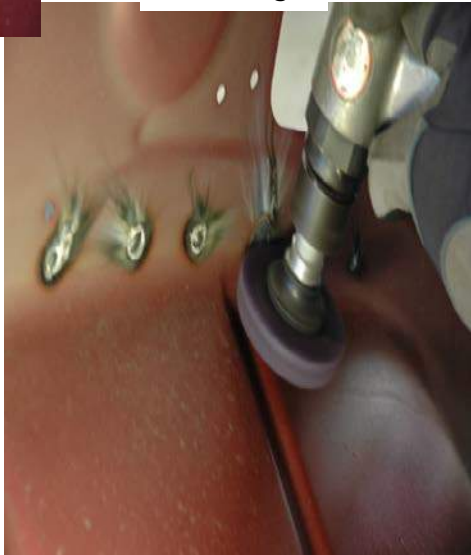


Dress Welds Plug Welds - Inside

Before




During



After





Additional Documentation (Ford, GM, Toyota and DEG Inquiries)

Ford Provides Repairers Information on Steel Reparability

Ford Motor Company has released a Steel Reparability Matrix that outlines the auto manufacturer's recommended procedures for repairing several grades of steel that are found on current and future Ford vehicles.

In addition to following the repair guidelines in the matrix, repairers should also reference Ford vehicle repair manuals, which can be accessed at www.OEM1STOP.com, the automotive original equipment manufacturer technical information resource.



Ford-Recommended Steel Reparability Matrix

Grade	Trade Descriptions	Welding Method			Cold Repairs	Use of Heat for Repair	Temperature Range	Maximum Heat
		MIG	RSW	MIG Braze				
Mild Steel	Mild	Yes	Yes	NA	Yes**	Yes	Up to 1200°F (650°C)	90 sec. X 2
Laminate Steel	Quiet Steel	No	Yes	No	Yes**	No	N/A	N/A
Bake Hardened	BH 180, BH 210, BH 250, BH 280	Yes	Yes	Yes	Yes**	Yes	Up to 1200°F (650°C)	90 sec. X 2
Solid Solution-Strengthened		Yes	Yes	Yes	Yes**	Yes	Up to 1200°F (650°C)	90 sec. X 2
High Strength, Low Alloy	HSLA 250, HSLA 350, HSLA 550	Yes	Yes	Yes	Yes**	Yes	Up to 1200°F (650°C)	90 sec. X 2
Dual Phase <= 600 Mpa UTS (particular to 780 and 980 grades)***	DP 500, DP 600	Yes*	Yes	Yes	Yes**	No	N/A	N/A
UHSS Martensitic Boron****	Bare Boron USIBOR	Yes* (plug weld only)	Yes	Yes	No	No	N/A	N/A
TRIP	TRIP 590, TRIP 780, TRIP 980	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTE: MIG Braze allowed for non-structural applications only.






* Mig Plug Only, NO STITCH WELDING.

** Cold repairs can be performed if damage excludes kinks. May section only if Workshop Manual procedure allows.

*** Dual phase Steels DP 700, DP 780 and DP 980 must be replaced at factory joints, no sectioning unless Workshop Manual procedure allows.

**** Boron components must be replaced at factory joints, no sectioning allowed.

Recommended GM Steel Reparability Matrix

Steel ID Stamping Symbols ⁵	Grade	GM Specifications	Welding Method			Cold repair	Use of Heat for repair	Temp. Range	Maximum Heat
			MIG	RSW	MIG Braze ¹				
	Mild Steel Laminate steel	GM6409M (all) GMW2M (all)	Yes NO	Yes Yes	Yes NO	Yes ² Yes ²	Yes NA	Up to 1200 °F (650 °C)	90 sec. x 2
	Bake Hardened	GM6093M (all) GMW3032M (all)	Yes	Yes	Yes	Yes ²	Yes	Up to 1200 °F (650 °C)	90 sec. x 2
	Solid Solution-Strengthened		Yes	Yes	Yes	Yes ²	Yes	Up to 1200 °F (650 °C)	90 sec. x 2
	High Strength, Low Alloy	GM6208M (all), GM6218M (all), GM3032M (HR CR grades)	Yes	Yes	Yes	Yes ²	Yes	Up to 1200F (650 °C)	90 sec. x 2
DP 	Dual Phase ≤799 MPA min. UTS	GMW3032M (HR DP and CR DP grades) GMW3399M (HR DP, CR DP and HR HE grades with TS<800MPa)	Yes	Yes	Yes	Yes ²	No	N/A	N/A
DPX  ≥800MPA	Dual Phase ≥800 MPA min. UTS ⁴	GMW3399M (all other HR DP, CR DP and HR HE Grades)	Yes ⁴	Yes	Yes ⁴	No	No	N/A	N/A
M  B 	UHSS ⁴ Martensitic ⁴ Boron (PHS/Hot-Stamped) ⁴	GM6123M (all) GMW3399M (all MS grades) GMW14400	Yes ⁴ Yes ⁴	Yes Yes	Yes ⁴ Yes ⁴	No	No	N/A	N/A
TR 	TRIP	GMW3399M (HR TR and CR TR grades)	NA	NA	NA	NA	NA	N/A	N/A

¹ Must use 8mm x16mm slotted holes ²NO STITCH WELDING. These steels may NOT be used as a backer for stitch welding. This also includes flanges. NOTE. Deviation from this chart is ONLY allowed if there has been a crash analysis completed by the Design Engineer and a Service procedure has been written

² Cold repairs can be performed if damage excludes kinks.

³Dual phase Steels up to DP 800 may be sectioned with a sleeve or backer plate.

⁴ Mig Plug Only, NO STITCH WELDING. These steels may NOT be used as a backer for stitch welding. NOTE. Deviation from this chart is ONLY allowed if there has been a crash analysis completed by the Design Engineer and a Service procedure has been written. NOTE number values are tensile strength

⁵ ISO Symbol for repair.

UPDATED 4-07-09 Dotterer

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Note: GM does not endorse repair of door impact beams

UPDATED 4-07-09 Dotterer

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Descriptions of GM Steel

Grade	Alloy Content	Heat Treatment	Typical Applications	Comments
Mild Steel, Bake Hardened, Solid Solution Strengthened	Low	Fully Annealed/Dead Soft	Body Panels (Closures, floor pan, dash panel, etc.)	
High Strength Low Alloy	Low	Fully Annealed/Dead Soft	Rails, Structural Members	Strengthened with fine particles and small grain size
Dual Phase	Medium (Manganese, Silicon, Molybdenum, Chromium)	Fully Annealed/Partially Hardened	Rails, Structural Members	15-50% of structure is "hard" martensite
Ultra High Strength Steel (Martensitic, Boron)	Low	Fully Hardened	Rocker reinforcements, door beams, bumper beams	100% of structure is "hard" martensite
TRIP (Transformation Induced Plasticity) Steel	High (Manganese, Phosphorus, Silicon, Aluminum)	Fully Annealed/Partially Hardened	TBD	Complex microstructure for high strength and ductility

UPDATED 4-07-09 Dotterer

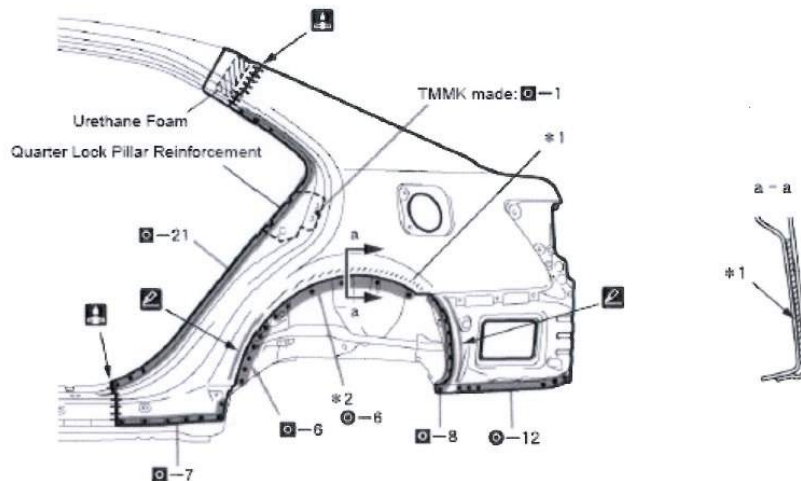
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COLLISION REPAIR INFORMATION

FOR THE COLLISION REPAIR PROFESSIONAL

TITLE: PANEL ADHESIVE
SECTION: EXTERIOR BULLETIN #158
MODELS: ALL TOYOTA, LEXUS, and SCION
DATE: OCTOBER 2007

The application or use of panel adhesive is limited to the approved procedures published in Toyota, Lexus, and Scion model-specific Collision Damage Repair Manuals. The following illustration is an example of specifications that include the use of adhesive. Please review collision repair manuals (www.techinfo.toyota.com) for complete instructions and symbol translations.



INSTALLATION POINT

- Apply adhesive (3M™ Automix™ Panel Bonding adhesive #8115) to the area indicated by *1.
- Perform spot-welding on the flange indicated by *2.

Note: Panel-bonding and weld-bonding are not approved procedures.

Definitions:

- Panel-bonding is a substitution of any specified welds with adhesive material.
- Weld-bonding is squeeze-type resistant spot-welding through adhesive.

PLEASE ROUTE THIS BULLETIN TO YOUR COLLISION REPAIR CENTER
MANAGER AND COLLISION REPAIR TECHNICIANS



00408-03000-158

Toyota Collision Repair Information

For The Collision Repair Professional

CRIB #158 and as well as the model-specific Repair Manuals for Collision Damage call-outs for 3M PN08115 can be found in the Toyota Information System (TIS) located at www.techinfo.toyota.com, or via ALLDATA at collision.alldata.com.

Bulletin #158

MODELS: ALL TOYOTA, LEXUS, and SCION

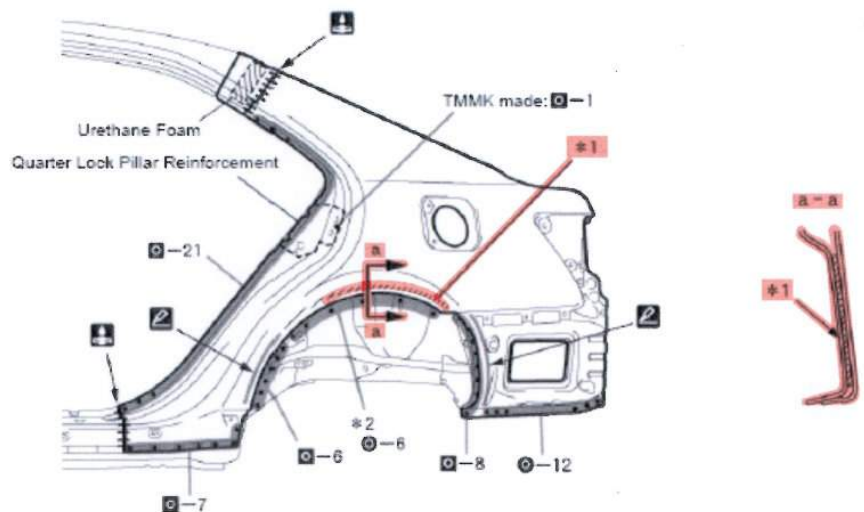
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Database Enhancement Gateway (DEG)

Adjacent Weld Zone Inquiries

Getting Paid for Weld Damage

Weld Damage is Not Included.

A few blogs ago (Included or Not Included) I touched on a few items that are not included in the labor times that are provided in the estimating systems for an operation. These items are frequently needed and sometimes are challenged by the insurance companies and we, the repairer, have to educate them on the included and not included items needed during the repair process.

Weld damage was one of the items discussed in the blog and the DEG receives several inquiries each month in reference to weld damage. Weld damage is damage that occurs to the adjacent panels during the welding process and is not included in the labor time provided in the estimating systems. All three information providers mention weld damage in their P-Pages and estimating guides.

Motors and CCC reference weld damage in the Guide to Estimating on Page G39:

WELD ZONE/ADJACENT PANEL

SPECIAL NOTATION:

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

Audatex references weld damages in the Database Reference Manual in section 4-2 Labor Exclusions as:

Replace labor does not include additional labor to repair the replaced panel or adjacent panels which may become distorted, burned, or damaged by welding drilling, grinding and straightening .

Mitchell references weld damage on page P-16 under not included operations as:

Feather, Prime & Block paint damage to adjacent panel and/or panels joined by welding due to burn damage

Below are a few examples of inquiries that have been submitted to the DEG on weld damage and the explanation from the information provider. You can click on the inquiry number to see the actual DEG inquiry.

DEG Inquiry number [3271](#)

Weld Damage

Shop was advised by insurance company that additional repair time to adjoining panels (i.e. rockers, sills, inner floor panel, etc.) is included w/listed replacement time. Additional refinish is allowed but not additional repair time.

According to various sources (i.e. body techs, shop owners, etc.), the additional repair time (.3 to .5) should be allowed in addition to additional refinish time

IP Explanation

Research Response: Per the MOTOR Guide To Estimating, the components referenced in the inquiry, are not included with the Quarter Panel repair.

DEG inquiry number [3288](#)

Weld Damage

Adjuster told us their Audatex trainer advised them all repairs other than refinishing are included when replacing a panel. Not in line with the "Labor Exclusions" guide. Such as rear body panel, LFT floor extension, etc. Also trimming of rocker panel and sail panel was included operation.

Need to repair adjacent panels when removing quarter panel from damaged vehicle. Need to repair adjacent panel beyond mating surfaces. Need to trim adjacent panels when fitting replacement part. Need to test fit at least once prior to welding. Need to perform test panel for welder set-up

Explanation of not included operation when replacing quarter panel.

DEG inquiry number **3331**

Weld Damage

Shop denied repair time to adjacent panels damaged by drilling, cutting and welding new rear body panel. Shop advised that such repair time is included w/Mitchells replacement time for part.

Additional refinish time was granted but additional repair time was not. Carrier advised shop that feather, sand and block is for paint dept and is considered a paint operation. Shop believes and has been advised by peers in industry that damage that creates distortion to adjacent panels that requires repair time to eliminate the distortion and bring back to a paintable condition is not included in Mitchells listed replacement time.

IP Explanation

REPAIR TIME TO ADJACENT PANELS DAMAGED BY DRILLING, CUTTING AND REMOVING THE REAR BODY PANEL HAS BEEN INCLUDED TO THE EXTENT THAT ROUTINE ALIGNMENT OR DOLLYING OF A PANEL IS SUFFICIENT TO STRAIGHTEN AND ALLIGN THE AREA OF THE ADJACENT PANEL BEING JOINED WITH THE REPLACED PANEL.

NOT INCLUDED WOULD BE ANY REPAIR TIME TO ADJACENT PANELS DAMAGED BY AGGRESSIVE REMOVAL OF A DAMAGED PANEL.

PLEASE REFERENCE THE FOLOWING FROM THE PROCEDURE PAGES P-28 NOT INCLUDED OPERATIONS:

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)

ALSO THE FOLLOWING FROM PROCEDURE REFIISH PROCEDURE 28 -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

DEG DATABASE INQUIRY

6/27/2011

Track_#	Estimating Platform	Inquiry Category	Year Make Model	Resolution Status	Origination Date	Submission Date	Resolution Date	Total Time to Resolve
3271	CCC	- Welded Panel Operations	2004 INFINITY G35	Submitted	4/12/2011 5:14:48 PM	4/16/2011 10:04:00 AM	4/18/2011 3:37:00 PM	02 Days

Inquiry Description	Resolution Description
<p>Weld Damage IssueSummary// Shop was advised by insurance company that additional repair time to adjoining panels (i.e. rockers, sails, inner floor panel, etc.) is included w/listed replacement time. Additional refinish is allowed but not additional repair time.</p> <p>SuggestedAction// According to various sources (i.e. body techs, shop owners, etc.), the additional repair time (.3 to .5) should be allowed in addition to additional refinish time</p>	<p>IP Explanation Research Response: Per the MOTOR Guide To Estimating, the components referenced in the inquiry, are not included with the Quarter Panel repair.</p>

DEG DATABASE INQUIRY

6/27/2011

Track_#	Estimating Platform	Inquiry Category	Year Make Model	Resolution Status	Origination Date	Submission Date	Resolution Date	Total Time to Resolve
3288	Audatex	- Welded Panel Operations	2005 Toyota Avalon	Resolved	4/15/2011 9:32:01 AM	4/16/2011 10:53:00 AM	4/19/2011 10:20:00 AM	01 Days

Inquiry Description	Resolution Description
<p>Weld Damage IssueSummary// Adjuster told us their Autatex trainer advised them all repairs other than refinishing are included when replacing a panel. Not in line with the "Labor Exclusions" guide. Such as rear body panel, LFT floor extension, etc. Also Trimming of rocker panel and sail panel was included operation.</p> <p>ProcedureSteps// Need to repair adjacent panels when removing quarter panel from damaged vehicle. Need to repair adjacent panel beyond mating surfaces. Need to trim adjacent panels when fitting replacement part. Need to test fit at least once prior to welding. Need to perform test panel for welder set-up</p> <p>SuggestedAction// Explanation of not included operation when replacing quarter panel.</p>	<p>IP Explanation We have reviewed your inquiry for the quarter panel replacement on the 2005 Toyota Avalon and the labor report would provide the included operations for this particular vehicle. The reference manual in section 4-2 Labor Exclusions, states repairs to the adjacent panel are not included in our labor times. The test fitting of the replacement quarter panel is also covered in reference manual in section 4-3 Quarter Panel Replacement. The welder setup test panel is not included in our labor times due to the various experience levels of the technician performing the repairs</p>

DEG DATABASE INQUIRY

6/27/2011

Track_#	Estimating Platform	Inquiry Category	Year Make Model	Resolution Status	Origination Date	Submission Date	Resolution Date	Total Time to Resolve
3331	Mitchell	- Procedure Page Issue	2008 Scion TC	Resolved	4/27/2011 6:39:39 PM	4/28/2011 9:01:00 AM	5/23/2011 9:44:00 AM	14 Days

Inquiry Description	Resolution Description
<p>Weld Damage IssueSummary// Shop denied repair time to adjacent panels damaged by drilling, cutting and welding new rear body panel. Shop advised that such repair time is included w/Mitchells replacement time for part.</p> <p>SuggestedAction// Additional refinish time was granted but additional repair time was not. Carrier advised shop that feather, sand and block is for paint dept and is considered a paint operation. Shop believes and has been advised by peers in industry that damage that creates distortion to adjacent panels that requires repair time to eliminate the distortion and bring back to a paintable condition is not included in Mitchells listed replacement time.</p>	<p>IP Explanation REPAIR TIME TO ADJACENT PANELS DAMAGED BY DRILLING, CUTTING AND REMOVING THE REAR BODY PANEL HAS BEEN INCLUDED TO THE EXTENT THAT ROUTINE ALIGNMENT OR DOLLYING OF A PANEL IS SUFFICIENT TO STRAIGHTEN AND ALLIGN THE AREA OF THE ADJACENT PANEL BEING JOINED WITH THE REPLACED PANEL.</p> <p>NOT INCLUDED WOULD BE ANY REPAIR TIME TO ADJACENT PANELS DAMAGED BY AGGRESSIVE REMOVAL OF A DAMAGED PANEL.</p> <p>PLEASE REFERENCE THE FOLOWING FROM THE PROCEDURE PAGES P-28 NOT INCLUDED OPERATIONS: 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)</p> <p>ALSO THE FOLLOWING FROM PROCEDURE REFIISH PROCEDURE 28 -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</p>



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