

Vehicle Identification, Estimating Systems, And Terminology

Self-study Narrations



Version: 2.8

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Module 1 - Damage Report Overview

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Learning Objectives

Damage reports may be handwritten or generated by a computerized estimating system. Both require knowing the system being used and understanding the terminology used in the estimating guide or computerized estimating system.

Module 1 will discuss some of the differences between a handwritten damage report and one generated by a computerized system. Module 1 will continue with discussion on estimating terminology and information found in the procedure pages (P-pages).

The learning objectives for this module include: recognizing the functions of a damage report, identifying the different types of damage reports, explaining estimating guides used for writing a damage report, using P-pages found in estimating guides.

Names For Damage Reports

Some other names that may be used for damage reports include repair estimates, damage appraisals, and visible damage quotations.

Damage Report Function

A damage report has many functions, including keeping a record of the estimated repair costs and describing the work that will be done when repairing the vehicle. Having a written record of these will help to prevent misunderstandings between the repairer and customer or insurer as to what will be done during the repair process. The damage report may be considered an agreement between the three parties as to how the vehicle will be repaired.

Damage Report Function (cont'd)

Another function of a damage report is to keep a record of the various types of information that may be needed when ordering parts and when making repairs on the vehicle. The damage report also invoices the repairs once they are completed. Most repair orders contain a fill-in blank for a customer signature to document that authorization was received to repair the vehicle as per the estimate.

Manual Damage Reports

Manual damage reports may be called hand-written damage reports or estimates. They require all entries to be manually inserted and do not include any automatic entries. The entries can either be written on paper forms or keyed-in using a computer if the repair facility is using a computer program that does manual entries. The computer-keyed programs require manual entry of each procedure done, but may do the final math tabulations automatically. Typically, computer keyed-in manual damage reports are easier to read than handwritten ones.

Estimating Guides

The estimating guides that are used to write a damage report are typically available in both print versions for writing manual damage reports and online for computerized

systems. Estimating guides typically are arranged in categories or sections that start at the front of the vehicle and work towards the rear. Examples of the different sections include, but are not limited to, the front bumper, cooling, front inner structure, doors, side body, rear body, and rear bumper.

The estimating guides contain part numbers and prices, as well as the labor units required to replace parts that are typically involved with collision repairs. If a part requires refinishing when it is replaced, the estimating guide will typically also include the labor units required for the refinishing operation. Since new models may be introduced throughout the year and part prices may change at any time, the print versions of estimating guides are typically updated on a once-per-quarter, or every three-month rotation. Online estimating guides are typically updated whenever new information is received and will have the most current information available.

Computer-Generated Estimates

Computer-generated estimates are typically written using point-and-click entry instead of manual insertion of part prices and labor units. Parts are chosen from drop-down lists or on-screen diagrams and the prices and labor units for their replacement are automatically entered. Keyboarding in entries is typically only required for customer, vehicle, and insurer information, and also for notes and entries for uncommon procedures or overrides.

One advantage of computer-generated estimates is that the automatic part price entry and cost totaling help to eliminate improper entries and math errors in the final estimate. Computer-generated damage reports also have the capability of being submitted to the insurer online, along with digital images of the vehicle and the damage. This may help to speed up the approval process, reducing cycle time for the repair.

Computer-Generated Estimates (cont'd)

Other features of computer-generated damage reports include the ability to store a variety of claim-related documentation and create a variety of different reports such as job costs, facility or technician productivity, trends between claims, and part and labor reports. These reports may help track the workflow through the facility to meet delivery deadlines.

Flat Rate (FR)

Flat rate, which may be designated with the acronym "FR," is the labor units that are estimated to perform a procedure. Flat rate units for replacing parts of a vehicle, or for doing standard tasks such as wheel alignments or air conditioning recharge, are listed in collision estimating guides. The labor units listed for replacing parts are based on the use of new, undamaged parts that are installed as a single stand-alone operation. If the labor units for replacing a part include the removal of other parts, this will be listed in a special note or in the procedure explanation section of the P-pages. Flat rate units are based on

normal working conditions. They do not take into account any additional labor that may be necessary to deal with corroded fasteners, damage that limits access for part removal, or custom modifications that may have been done to the vehicle.

Labor Rate (LR)

Labor rate may be designated by the acronym "LR." The labor rate is the dollar amount that the collision repair facility charges per flat rate unit, and is used to calculate the total labor charges for the damage report. Labor rate is a user-defined value and may vary between repair facilities and procedures. On computerized estimating systems, the labor rate is input into estimating profiles that are set up in the system. A repair facility may have multiple estimating profiles entered into the system to deal with differing labor rates for fleet customers or other special programs that require a labor rate different from their standard one.

Digital Imaging

Digital imaging is used to attach photos of the vehicle damage to the repair order or claim files. The digital images can then be transmitted along with the damage report via the Internet to the insurer. This allows the insurer's claim representative unlimited access to the claim files and photos regardless of location. This may allow viewing of supplemental damage from a remote location, eliminating the need to visit the repair facility, which may speed up the repair process.

Knowing The Estimating System

When writing a damage report, it is critical to understand how the estimating system works. For both manual and computerized systems, the appraiser should know which labor rates are shown and how to identify the proper one to use. Understanding which labor units and part prices may require overrides to the supplied values, and how these and other judgment items are generated, is also important.

Understanding the procedure explanation pages of the estimating guide and what the included and not-included operations for part replacement and refinishing is one of the most important things to writing a complete damage report. It is also critical to know how to identify the vehicle options so that any necessary additions to the damage report are included.

P-Pages

Estimating guides contain procedure pages, or P-pages, that contain the information that is necessary to properly write or interpret a damage report. The P-pages explain how to use the estimating guides when writing a damage report and what is included and not-included in the procedures that have labor units listed.

P-pages may be located in the front or back of the estimating guide, or may be available electronically for computerized systems. Some estimating systems may have the P-pages

available online for download. It is important to understand that the P-pages are specific to an estimating system. Operations, and the included and not-included tasks, may vary between estimating systems. The P-pages for one system should not be used to write or interpret an estimate from another system.

P-Pages General Information

General information that may be included in the P-pages includes explanations of the sequence that should be used when going through the guide and writing a damage report. Following a specific sequence helps to ensure that items are not missed. Information for interpreting parts illustrations, part numbers, and part prices are also typically included, as well as explanations of designations used for discontinued or remanufactured parts. Information on special pricing programs and parts that are supplied in color may also be included. General labor information, such as explanations of the different labor categories and types of procedures, is also typically included in the general information section of the P-pages.

P-Pages Specific Information

More specific information may also be included in the P-pages. This includes explanations of the various symbols used in the estimating guide and definitions of common industry terms found throughout. The P-pages may also include diagrams identifying what is commonly considered a structural part of a unitized structure. These diagrams are generic and not necessarily a representation of what the vehicle maker may consider structural.

P-pages may also contain a list of common labor additions that may be needed to complete certain repairs. Due to the wide range of damage and vehicle condition that may be encountered, certain operations that may be required to complete a procedure on one vehicle may be un-necessary on another. Therefore, these operations may not be included in the labor units listed for the procedure.

P-Pages Special Cautions

Estimating guide P-pages also typically contain a special cautions section that lists precautionary information about certain parts or procedures. Items with special caution notes may include restraint systems, structural glass replacement, steering columns with collapse mechanisms, special steels, and sectioning procedure recommendations.

P-Pages Special Cautions (cont'd)

Additional items that may have special cautions listed include one-time use parts and fasteners. Information may also be included about protecting electronic system parts and computer modules, and precautions on the presence and handling of hazardous materials. The special cautions listed in the P-pages are typically generic in nature and should not be considered vehicle specific. Refer to vehicle maker service information for vehicle-specific information and cautions.

P-Pages Procedure Explanations

Some of the most important information found in the estimating guide P-pages are the procedure explanations. The P-pages list the included and not-included operations for part replacement or removal and installation for common body repair procedures. The procedure explanations are broken into sections or parts of the vehicle, such as front bumper and grille, hood, cooling, air conditioning, front inner structure, frame, continuing to the back of the vehicle or rear bumper section. Notice that there are also procedure explanations for mechanical procedures that may be commonly done during collision repairs.

There is also a procedure explanation section for refinish procedures. The refinish procedure explanations list the operations that are included and not-included for the refinishing of parts. They include variables for refinishing with various finish types. Formulas are typically included for figuring additional refinish labor units for clearcoat and three-stage refinishes, as well as deductions for overlap when multiple parts of the same vehicle are refinished.

P-Pages Reference Information

The P-pages also typically have reference information sections that may contain a variety of useful information, including restraint system parts replacement charts. These charts typically list which parts require mandatory replacement and which require inspection after a restraint deployment. They also may provide restraint parts locations and applications for various vehicles. Other charts may list common plastic usage and identification information, VIN decoding information, and paint code label locations. Lists for common abbreviations used and material references for costs of commonly used materials may also be included in the reference information section of the P-pages.

Module Summary

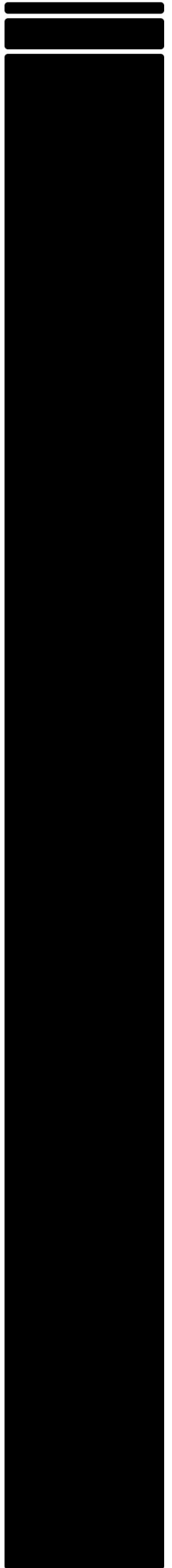
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Module 2 - Damage Analysis



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Learning Objectives

The correct fill-in information should be included on the damage report to prevent any mistakes or delays in the appraisal / repair process. This includes contact information for the repair facility, insurance company, and vehicle owner.

Module 2 will discuss what information should be included to ensure a complete damage report is written. The module will continue with information on vehicle identification numbers and labels that also contain information about the vehicle.

The learning objectives for this module include: identifying customer information that should be gathered for a damage report, identifying vehicle information that is needed on a damage report, determining where to access needed vehicle information.

Damage Report Header

If we start with a damaged vehicle and a blank sheet of paper, what should be the first items of information on the top of the page if we were making a damage report?

Pre-Printed Repair Facility Information

The damage report needs a header that includes information about the repair facility. This information would include the name of the facility as well as the address where it is located. Additionally, it should contain contact information including the mailing address, if different from the location address, and phone numbers for the main office and the receipt of faxes.

Additional Fill-In Information

The damage report form also needs blanks for the appraiser writing the estimate to fill in various information, such as the date the damage report was prepared, and the appraiser's name and contact information. The contact information should include the appraiser's direct phone extension and e-mail address, if applicable.

Starting A Damage Report

With the repair facility and appraiser information in place, what should be included next on the damage report?

Customer Information

We also need fill-in blanks for information about the vehicle owner. This may include the customer or vehicle owner's name and contact information. Blanks are typically available for the customer's address and phone numbers, including home, work, and cell, and the customer's e-mail address.

Damage Report Administration

What other information should be gathered from the customer that may help in processing the administrative part of the repair?

Insurance Company Information

Additional fill-in blanks should be included for insurance company information. These may include the name of the insurance company, and the name and contact information for the claim representative or person handling the claim from the insurance company. Contact information should include office, fax, and cell phone numbers as well as e-mail addresses. Other blanks may be included for the insurance company claim number assigned to the loss, the loss date, and the type of loss such as liability, collision, or comprehensive. If the estimate is being written by an insurance company, the header of the damage report will include this information and the fill-in information may be for the collision repair facility.

The Damaged Vehicle

What else should be included on the damage report before starting to assess the damage to the vehicle?

Vehicle Information

Fill-in blanks need to be included for information about the vehicle. These blanks may include the year, make, and model of the vehicle as well as the VIN number and body style. A fill-in blank for the production date, and enough room to include trim package identification in the model blank, are also helpful to have.

VIN Plates

Vehicle identification number or VIN plates are typically located on the instrument panel or cowl top and are visible through the lower left corner of the windshield. There also may be labels containing the VIN located on the A-pillar or driver door jamb. It is important that the VIN be correctly recorded on the damage report, as it is typically required when ordering parts. The VIN may also be needed to input into scan tools when doing diagnostics and for verifying the applicability of service bulletins and recalls.

VIN Decoding

The VIN contains a wealth of information that can be extracted by proper decoding. The VIN on all late model vehicles contains 17 characters that are either letters or numbers. The letters or numbers in each position represent different information about the vehicle. Some positions represent the same information for all vehicle makers, while other positions may represent different information from vehicle maker to vehicle maker. The VIN may be decoded using information found in the P-pages of the estimating guides, or using vehicle maker service information. Computer estimating systems may decode the VIN automatically.

VIN Decoding (cont'd)

The 17 letters and numbers in the VIN can be used to identify a wide variety of vehicle information. The first character always represents the country where the vehicle was built, and the second character the vehicle maker. The third character represents either the vehicle type or manufacturing division for the vehicle. Information in the fourth through

eighth characters may vary between vehicle makes and even models but may include the model line, body type, engine type, series, and restraint system information. The ninth character is a check digit used to verify VIN accuracy and reveals no vehicle information. The tenth character always represents the model year, and the eleventh the assembly plant where the vehicle was built. VIN positions twelve through seventeen represent the sequential serial number of the vehicle and are necessary when ordering parts.

Decoding our example VIN, 2G1WF52E149136219, reveals that the vehicle was made in Canada (2), by General Motors Chevrolet/Geo division (G1), is an Impala (WF), is a 4-door sedan (5), has dual front airbags and manual seat belts (2), is equipped with a 3.4L V6 MFI engine (E), and is a 2004 model year vehicle (4).

Additional Vehicle Information

What additional vehicle information would be beneficial to include on the damage report?

Additional Vehicle Information (cont'd)

Damage reports typically contain fill-in blanks for other important information, including the odometer reading and license number of the vehicle. Other blanks for the body color, vehicle maker's paint code, trim codes, and drivetrain information should also be included. Drivetrain information should include engine type and size, and transmission type. Other important vehicle information including the vehicle options, such as power windows and locks, sunroofs, cruise control, and air conditioning should be included. It is important that vehicle options be correctly listed, as the option designation may determine which procedure is used or which part is required.

Paint Code Label

The location of the vehicle paint code label is typically identified in the P-pages of the estimating guides. The paint code label contains the vehicle maker's paint code number and may also identify the type of paint finish used. Other information that may be found on the paint code label includes the interior color code and trim codes. The paint code label may be a part of another vehicle label, such as a service parts label or option label.

Identification And Option Labels

Other identification and option labels on vehicles may contain information such as the model designation, interior and exterior trim codes, and drivetrain type. Service part labels may contain codes for a variety of information including gear ratio, suspension options, and electronic systems, among others. Tire information labels contain information on recommended tire sizes and inflation pressures.

Labels containing emission control, tire, and other vehicle information are typically available as service parts and should be replaced when damaged or the part they are

affixed to is replaced. Laws may regulate the replacement or tampering of vehicle labels, especially those containing the VIN. Check all applicable laws before removing or otherwise tampering with a vehicle label.

Module Summary

The correct fill-in information should be included on the damage report to prevent any mistakes or delays in the appraisal / repair process. This includes contact information for the repair facility, insurance company, and vehicle owner.

Module 2 discussed what information should be included to ensure a complete damage report is written. The module continued with information on vehicle identification numbers and labels that also contain information about the vehicle.

Information discussed in this module also included: identifying customer information that should be gathered for a damage report, identifying vehicle information that is needed on a damage report, determining where to access needed vehicle information.

Module 3 - Assessing Vehicle Damage

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Learning Objectives

Knowing the circumstances of the collision and being able to identify structural damage will help ensure an accurate damage report is generated. It is also necessary to understand the various labor operations and identify their abbreviations. All labor operations, parts, and materials must be accounted for to ensure an accurate damage report is generated.

Module 3 will discuss how a customer consultation may provide circumstances of the collision and how to identify structural damage. The module will continue by defining various labor operations and identifying their abbreviations. Determining parts and material costs, and pre-existing damage will also be discussed.

The learning objectives for this module include: defining common industry terms, explaining common examples of the use of each term in a damage report, identifying how to use collision estimating guides, identifying additional information that should be obtained from the customer before writing a damage report.

Example Damage Report

The example damage report that we will write will have labor units and part and material prices for certain procedures. The example damage report is not intended to represent the actual costs of the procedures that are listed. The labor rates and units and part material prices that are listed are for example purposes only. If we are going to write and finalize a damage report, we need to have figures in all of the line items listed. Without some figures, we could not do the math to figure paint and material costs, taxes, or the total of the damage report. Keep in mind that the entries that we will place on the damage report is not I-CAR suggesting what should be charged for a certain procedure, part, or material.

Gathering Information

It is time to assess the damage to the vehicle. What else should we do before starting the damage report?

Customer Consultation

A customer consultation can give us valuable information about the vehicle and collision. For our example vehicle, a rear collision can damage the parking pawl in the transmission if the vehicle is parked when hit. Because of this, knowing the circumstances of the collision is important.

Obtain Information About The Collision

Information about the collision that should be obtained during a customer consultation includes what the vehicle collided with. Knowing what collided with the vehicle may be helpful when evaluating the potential for energy transfer through the vehicle during the collision. There will be a difference in the amount of energy transferred when colliding with another vehicle compared to colliding with a stationary object, such as a tree.

Along with knowing what the vehicle collided with, it may also be beneficial to know the direction and speed of the impact, as well as the road conditions and whether the brakes were applied at the time of the collision. Ask if the vehicle was drivable or was towed from the accident site. Since some vehicle makers recommend replacing seat belts that were in use during a collision, ask which seat belts were in use during the collision.

Vehicle Condition

Other valuable information that may be obtained from a customer consultation includes whether or not any temporary repairs were done after the collision. Ask if any handling problems or unusual noises have been noticed since the accident, and if any new warning lamps have illuminated or accessories have become inoperable. It may also be beneficial to learn if the vehicle has been washed since the collision. Visual damage clues such as debris in the wheels, suspension, or underbody may have been removed by washing the vehicle.

Example Vehicle Consultation

For our example vehicle, the customer consultation revealed that the vehicle was in DRIVE and stopped at a light when the collision occurred, and that a passenger spilled coffee on the carpet. It was also determined that there was previous damage to the hood, roof, left rear door, and left rocker panel molding.

Assessing Damage

With all the necessary information gathered, let us write the damage report. What is the first step in assessing the damage?

Initial Vehicle Inspection

The first step in assessing damage to the vehicle should be an initial inspection. An initial vehicle inspection gives an overall view of the damage, and allows visualizing the repair process that will be used. An initial vehicle inspection should include imagining the direction and force of the impact, consider the collision energy transfer and absorption, and should include looking for structural damage indicators.

When doing an initial vehicle inspection, think about whether or not the vehicle can be safely and economically repaired. Identify direct and indirect damage, and look for signs of previous repairs and pre-existing damage. Also be sure to check the underbody of the vehicle for damage.

Example Initial Inspection

The initial inspection of our example vehicle revealed direct damage to the left rear corner of the vehicle and indirect damage to the right quarter panel. Direct damage is the damage caused by direct impact with another object, and the buckle is considered indirect damage because it was not caused by an object impacting the quarter panel but rather by collision energy transfer. There is also pre-existing damage to the hood, roof,

and left rear door, and rocker panel molding. This damage is not in the same area as the other direct and indirect damage and was identified as pre-existing by the vehicle owner.

Complete Damage Inspection

The initial damage inspection helps us develop a plan that will be used during the more thorough and complete damage inspection. The complete damage inspection should follow the same sequence as the estimating guide. This helps to ensure that nothing is missed. A thorough and complete damage inspection may require raising the vehicle for better access to the underbody, and may require some vehicle disassembly to help locate hidden damage. Check for visual damage indicators and use measuring quick checks to verify damage to the structure and suspension when necessary. A thorough and complete damage inspection, following a set sequence, and including an accurate and complete identification of the vehicle, will help to reduce the need for supplements.

Structural Repair (SR Or FR)

Structural repairs or frame repairs may use the abbreviation “SR” or “FR” and are typically listed separately from other labor operations on the damage report. The labor rate category may be listed as “structural” or “frame” depending on the system used, or preference of the appraiser on manual estimates, and require user-entered values for repair times. Structural repair units are considered judgment times and do not have pre-set values in the estimating guides. Structural repairs are any operations used to restore vehicle dimensions to both full frame and unibody vehicles. Common structural repair procedures are anchoring, measuring, and pulling and straightening of structural parts.

Structural Damage Indicators

When writing a damage report, it must be determined if the vehicle has structural damage. Structural damage indicators include visual damage to structural parts, such as frame rails and pillars, and indirect damage that indicates large amounts of collision energy transfer through the vehicle. This may include a buckle in the roof, quarter panel, or some other panel that was not directly impacted during the collision. Ride height differences can also be a visual indication of structural damage. Although ride height differences may be caused by suspension problems, often they are a result of structural damage.

Structural Damage Indicators (cont'd)

In the example vehicle, the direct impact went over the top of the rear bumper and there is no visible damage to the frame rails. Indirect damage exists in the form of a buckle in the right quarter panel. This is an indication of possible structural damage.

Measurements

Measurements can be made during the estimating process to help identify and verify that structural damage exists. These measurements are typically quick checks designed to determine if the structure has moved, and not final measurements to determine the exact

amount of movement. Measuring quick checks may be made with a tape measure, tram gauge, a set of centering gauges, or may be made using an electronic measuring system that will provide a printed record of the results. Some electronic measuring systems can be used without having to load the vehicle onto a straightening system. However, depending on the measuring system, raising the vehicle on a lift may be required.

Measurements (cont'd)

A lower body measuring quick check on the example vehicle reveals no lower body structural damage.

Upperbody Structural Damage Indicators

The upperbody structure may also need to be checked for structural damage. Upperbody structural damage indicators for the example vehicle include tight quarter panel-to-door gaps for the left quarter panel, inconsistent quarter panel-to-deck lid gaps, and indirect damage, in the form of a buckle, to the right quarter panel.

Structural Damage Repairs Required

Structural damage repairs required for the example vehicle include setting up on the straightening equipment, measuring the structure for damage, and pulling and aligning the upperbody to specifications. We will put 3.0 labor units for setup and measure, which includes clamping the vehicle to the straightening equipment and measuring the structure for damage identification and after straightening to verify repairs. We will put 2.0 labor units for the actual straightening operations. These two operations may be combined into a single entry called "unibody-frame including setup." Let's use this designation for the example making a total of 5.0 labor units for structural repairs in the frame labor rate column.

Rear Bumper

Starting at the back of the vehicle and working forward in the estimating guide, the first section we need to address on the example is the rear bumper. The rear bumper cover is damaged and needs to be replaced. The estimating guide lists 1.9 labor units for replacing the bumper cover. The bumper cover molding is also damaged and requires replacement. The guide lists 0.3 labor units for this, with a notation that this is with the bumper cover removed. Since the bumper cover for some models does not have this molding, replacement of the molding is not-included in the bumper cover R&R.

Part Prices

Part prices are also listed in the estimating guides. The part prices are based on new OEM parts. On computer estimating systems, the part prices are automatically inserted when part replacement is selected as the labor operation. Because part prices may change periodically, it is important to use the most current estimating guide. The paper or book versions are typically updated quarterly. Computer estimating systems may have the data or estimating guide updated with a CD-ROM, but will typically have data updated online which ensures that the most current pricing information is used. For our example damage

report, using the estimating guide supplied, the price of the rear bumper cover is listed at \$429.43, and the molding is \$128.30.

Energy Absorber

The foam energy absorber is broken and has missing pieces, which requires it to be replaced. This also requires the cover to be removed first. The price of the energy absorber is \$155.31 and where the labor units would be there is the acronym "IOH" which stands for "included in overhaul." Could all of the tasks on the rear bumper be included in one operation?

Overhaul (O / H)

Multiple operations commonly done to an assembly or part may be listed as a single operation called overhaul. Overhaul may be designated by the acronym "O / H." Overhaul includes removing an assembly from the vehicle, disassembling it, cleaning and inspecting the various parts for damage, and replacing any damaged parts with new ones. After reassembling the cleaned and replaced parts back together, the assembly is installed and aligned back to the vehicle.

Rear Bumper Overhaul

The labor allowance in the estimating guide for overhaul of the rear bumper on the example vehicle is 2.2 units. Let us include this entry on our example damage report.

Commonly Overhauled Assemblies

Some assemblies that are commonly overhauled include bumpers, suspension systems, steering columns, steering gears, and engines.

LKQ Parts

Sometimes a damage report may include something other than a new OEM part for a replacement part. Replacement parts that are not new OEM may be called "LKQ" or "like kind and quality parts." Parts that may have the LKQ designation include aftermarket parts, recycled or used parts, and reconditioned or rebuilt parts. Designation for LKQ parts may vary between estimating systems.

Aftermarket parts may be designated with the acronym "AM" and may have prices from major national suppliers included in online databases for computerized systems. For manual estimates, and for parts obtained from a source not in an online database, the prices will require sourcing from the company that sells the parts. Reconditioned parts include plastic bumper covers and chrome bumper bars, and common rebuilt parts are engine transmissions and A/C compressors.

Included Operations (IO)

The labor units listed in the estimating guides for a procedure may include more than one task or operation to complete the procedure. The separate tasks that are required to

complete a procedure and are included in the labor units listed for the procedure are called “included operations” and may be designated by the acronym “IO.” The included operations for a procedure are listed in the procedure sections of the P-pages in the estimating guides or computer system. It should be noted that the included operations for a specific procedure may vary between estimating systems. Understanding what the included operations are for the estimating system being used will help to ensure a complete and accurate damage report.

Common Included Operations

Common included operations of procedures for replacing or overhauling parts include removing the part or assembly from the vehicle, and installing and aligning a new part or overhauled assembly back onto the vehicle. Any welding operations that are required to install a part are also typically considered included operations. Another common included operation is the transfer of undamaged parts from the damaged part or assembly to the replacement part. An example of this would be transferring the latch, outside handle, glass, and glass regulator from a damaged door shell to a new replacement door shell.

Bumper O / H Included Operations

Using the P-pages from the supplied estimating guides for reference, the included operations for the rear bumper overhaul on the example vehicle include removing the bumper assembly, cleaning and inspecting the various parts of the assembly, replacing any damaged parts, and installing and aligning the assembly back onto the vehicle.

Not-Included Operations (NIO)

Not-included operations may be designated by the acronym “NIO” and are separate tasks that are not included in the labor allowance for a procedure, but that may be required to complete the procedure. For our example, the bumper cover molding is not included with the bumper overhaul because not every trim level of the vehicle has the molding. The molding, however, needs to be replaced so this is a not-included operation. As with included operations, not-included operations are listed in the P-pages for various common procedures and may vary between estimating systems.

Common Not-Included Operations

Common not-included operations include part refinishing, installing optional accessories, and installing adhesive trim, stripes, decals, and overlays. Wheel alignments, aiming of lamps, and recoding replacement lock cylinders are also typically not-included operations.

Bumper O / H Not-Included Operations

For the rear bumper overhaul in our example, the not-included operations are refinishing of the cover and replacement of the molding. Because the molding is an option and is not included in the overhaul labor units, replacing the molding is listed as a separate line item on the damage report. Refinish operations will be discussed later in the program.

Remove And Replace (R&R)

The combination lamp assemblies on the left quarter panel and deck lid of the example vehicle need to be replaced. This operation is called remove and replace or “R&R” and is listed at 0.3 labor units for the quarter panel lamp and 0.4 labor units for the deck lid lamp. Part prices from the sample estimating guide for the parts are \$152.25 for the lamp on the quarter panel and \$318.60 for the lamp on the deck lid. Notice that in the estimating guide, the quarter panel combination lamp has a first and second design listed. This is why it is important to have the build date and VIN information to ensure that the correct part is obtained.

Remove And Replace (R&R) (cont’d)

Operations that are typically included in the R&R procedure are removing the damaged part from the vehicle, transferring any necessary parts to the new replacement part, and installing and aligning the new part on the vehicle or assembly. An example of parts that would require transferring from the damaged part to the replacement part would be the movable glass, glass regulator, latch, and outside handle when replacing a door shell.

R&R Rear Body Panel

The rear body panel on the example vehicle is damaged and requires replacement. The part price listed is \$305.08. The estimating guide shows 6.6 units of labor with a 2.0 unit deduction for each quarter panel that will be removed. What is this deduction for?

Common Surfaces And Included Operations

The deduction in labor units for the R&R of the rear body panel when a quarter panel is also replaced is for common surfaces and included operations. When replacing two adjacent welded-on panels on a vehicle, there may be some redundant operations between each panel. For the example vehicle, some surfaces are common to both the quarter panel and rear body panel. These surfaces are the flanges where the quarter panel and rear body panel are welded together. Removal and replacement of both panels includes some common operations such as spot weld and seam sealer removal where the two panels are joined, and making the replacement spot welds in these same areas.

Deck Lid

Continuing to follow the estimating guide layout from back to front, the next necessary operation listed for the example vehicle would be R&R of the deck lid. The deck lid is called a luggage lid in the estimating guide for this application. R&R of the deck lid in the sample estimating guide is listed at 1.3 labor units and \$682.27 for the part. What is included and not-included in the R&R of the deck lid?

Deck Lid R&R Included Operations

Using the sample estimating guide, applicable included operations for R&R of the deck lid on the example vehicle include R&I of the latch, lock cylinder, combination lamp assemblies and high-mount stop lamp. The acronym “R&I” stands for “remove and install.” We have already included R&R of the right side combination lamp assembly on

the deck lid in an earlier line item. Since the labor for removing and installing this part is included in replacing the deck lid, we can replace the 0.4 labor units listed for the replacement of that part with the abbreviation “inc”, which stands for “included.” Another way to handle this would be to leave the labor units on the combination lamp assembly R&R and deduct the 0.4 from the deck lid R&R time.

Remove And Install (R&I)

Operations included in the R&I procedure include removal of the part or assembly and installation and alignment of the part or assembly back to the vehicle or part that it is attached to. Removal of the part may be needed for access or as part of the R&R of another part or assembly. For an R&I operation, the removed part or assembly is set aside with no further disassembly.

Deck Lid R&R Not-Included Operations

There are also some applicable not-included operations for the R&R of the deck lid on the example vehicle. These include refinishing of the deck lid, and replacement or R&R of the adhesively attached nameplate. Let’s add a separate line item to the damage report for the nameplate R&R. The estimating guide lists \$10.44 for the part and 0.2 labor units for this. However, the P-pages for R&R of the deck lid specifies to deduct one-half of the R&R time for new adhesive on exterior trim. This is because the deck lid is being replaced and there will be no removal of the nameplate and existing adhesive. Replacement or R&I of the deck lid hinges is not-included in the deck lid R&R, but inspection of the hinges reveals no damage, so no additions need to be made to the damage report.

Deck Lid Weatherstripping

The deck lid weatherstripping is found to be damaged during the damage inspection. Let’s insert R&R of the deck lid weatherstripping in the damage report, and add \$51.36 for the part. The labor to replace it is included in the rear body panel R&R, so no labor units are added and the abbreviation “inc” is placed in the body labor column.

Example Damage Report

This is what our example damage report looks like at this point.

Pre-Existing Damage

Continuing to work forward in the estimating guide, the next applicable section is the side body exterior trim. The damage to the left rocker molding and rear door is identified as pre-existing damage through a customer consultation.

Pre-Existing Damage (cont’d)

Pre-existing damage is damage not caused by the collision that is the subject of the current claim, and may be called prior damage. Prior damage is typically broken into two different categories, unrelated prior damage and related prior damage. Unrelated prior damage is when the part that is damaged is outside of the repair area for the current claim. The part would not require any work for the repair of the claim. Related prior

damage is when the part is in or directly adjacent to the repair area for the claim being written and would require work for that claim.

Related Prior Damage

For the example vehicle, the damage to the left rocker molding is related prior damage because removal of the part is required to replace the quarter panel, which is part of this claim. Labor to R&I the part is included in the R&R of the quarter panel, but replacing the part is not. So if the rocker molding were replaced while this repair was done, the labor would be part of this claim and the cost of the part would be a separate claim.

Related Prior Damage (cont'd)

For our example vehicle, the paint damage to the back of the left rear door is also related prior damage. This is because the paint finish on the door would be blended for this repair, but repairing the paint damage by removing the scratches and priming would not be included.

Prior Damage Question

There is also damage to the hood and roof noticed during the inspection. It is identified as pre-existing by the owner of the vehicle. Would these be related or unrelated prior damage?

Unrelated Prior Damage

Unrelated prior damage is damage that is not in or adjacent to the repair area, and that requires no work to be done for current damage repair. The part does not require R&I, refinishing, or blending. Unrelated prior damage may not be included in the damage report being written. It may, however, be included and a separate total amount listed for prior damage repairs when the damage report is finalized. For simplicity, let's leave the prior damage off of the example estimate.

Appearance Allowance

Something else that may be on a damage report is an appearance allowance. An appearance allowance is when the customer is paid an allowance for leaving minor cosmetic damage unrepaired. Appearance allowances should never be given for anything that may be a safety concern, and must be noted on the damage report.

Appearance allowances are prohibited by law in some states. As of May 2010, New York state law prohibits an automobile insurer from offering the vehicle owner an appearance allowance as an alternative to repairing or replacing a damaged part.

Quarter Panel R&R

The left quarter panel on our example requires replacement and is only supplied with the complete side body panel assembly. What are the options for replacing the quarter panel?

Partial Replacement

There is a labor operation for a quarter panel section listed in the reference notes of the side body section in the estimating guide. Labor units listed to replace the quarter panel section of the assembly are 13.5. Let's add \$705.03 for the part and 13.5 units of labor for R&R of the quarter panel section.

Partial Replacement Considerations

When deciding to do a partial replacement of a part or assembly, the main consideration is the vehicle maker recommendations. Determine whether or not the vehicle maker has a sectioning procedure for the part, or if the part is supplied as a partial part. Also check for any generic position statements made by the vehicle maker on the sectioning of parts. Other considerations include whether the part is a structural or non-structural part, and corrosion protection issues. Any sectioning done must allow for the proper application of corrosion protection. Do not section in areas that do not have proper access for corrosion protection of the joint.

Quarter Panel Applicable NIO

Using the sample estimating guide P-pages for reference, the not-included operations for the quarter panel R&R include removing and applying corrosion protection, R&I of the wheel and adhesive emblem, and additions for an undamaged backglass. R&R of the backglass is an included operation in quarter panel R&R, but we need to R&I the glass instead of R&R since it is not damaged. Labor units listed in the estimating guide to R&I the glass are 0.3 units higher than R&R of the glass, so we need to add the additional 0.3 labor units to the damage report. R&I of the wheel has 0.2 labor units listed in the estimating guide so this will also be added. There is no R&I operation listed for the emblem, but R&R is listed at 0.2 labor units. For the R&I, let's use this plus an additional 0.2 labor units for cleaning up old adhesive and applying new adhesive, making a total of 0.4 labor units for the emblem R&I.

Additional Labor Operations

Why is there a 0.3 labor allowance difference between the R&R and R&I of the backglass?

Additional Labor Operations (cont'd)

The additional labor units are for the additional labor operations needed for precautionary measures to ensure that glass is not damaged during removal and for the cleanup of the old adhesive on the original glass.

Additional Parts

We also need to add for the urethane adhesive needed to reinstall the backglass. Let's add \$25.00 to the parts column of our damage report for this.

Disconnect And Reconnect (D&R)

Another additional labor operation that may be seen on some damage reports is "disconnect and reconnect" or "D&R." D&R includes disconnecting, unplugging, or

unbolting a part at the connection point, but not removing it from the vehicle. When the necessary repairs are completed, the part is reconnected, plugged back in, or removed fasteners are reinstalled. Let's add 0.1 labor units to our example damage report for D&R of the battery. This needs to be done to protect electronics during welding operations.

Common D&R Examples

Common examples of parts that may be disconnected and reconnected include batteries, brake lines, radiator hoses, engine mounts, and wiring connectors.

Access Time (AT)

Another additional labor operation that may be used on damage reports is access time, which may be designated by the acronym "AT." Access time is additional time required when part removal is impeded by the severity of the damage. An example would be a damaged fender that requires cutting damaged parts away to access the bolts. The additional labor involved in cutting away the damaged parts to access the bolts is access time.

Panel Repair

The right quarter panel is damaged, but it is determined that it can be repaired rather than replaced. There are no labor units listed for repairing panels, so how are these units determined?

Judgment Labor Time

This would be a judgment labor time. Judgment labor times are user-determined and inserted labor units for an operation such as panel repair times. Other examples of judgment labor times are overrides to supplied data in the estimating guides. Judgment labor times are typically denoted with an asterisk beside the labor units in the damage report. Let us place an asterisk after the labor units for R&I of the quarter panel emblem and D&R of the battery, as both of these operations do not have labor units listed in the estimating guide and are judgment times.

Override

An override is a user change to listed times or part prices in the estimating guide. They may be designated by an asterisk or pound sign next to the labor units. Typical reasons for an override include custom paint or body work, a change to part pricing from a part increase or LKQ part usage, or a necessary labor addition not listed separately as additional labor.

Right Quarter Panel Repair

For example purposes, let's put 4.0 units of labor for the repair of the right quarter panel. Since this is a judgment time, an asterisk is also placed after the labor units. We also need to list R&I of the emblem on the quarter panel. This is listed as 0.2 units for R&R, so let's use that figure plus 0.2 labor units to clean up the old adhesive on the emblem and apply new adhesive. This entry would also have an asterisk, denoting a user-inserted entry.

Example Damage Report

This is what the damage report for the example vehicle should look like at this point.

Paint Repairs

After the structural and cosmetic body repairs are done, what else needs to be done to a vehicle to complete the repair of the collision damage?

Module Summary

Knowing the circumstances of the collision and being able to identify structural damage will help ensure an accurate damage report is generated. It is also necessary to understand the various labor operations and identify their abbreviations. All labor operations, parts, and materials must be accounted for to ensure an accurate damage report is generated.

Module 3 discussed how a customer consultation may provide circumstances of the collision and how to identify structural damage. The module continued by defining various labor operations and identifying their abbreviations. Determining parts and material costs, and pre-existing damage were also discussed.

Information discussed in this module also included: defining common industry terms, explaining common examples of the use of each term in a damage report, identifying how to use collision estimating guides, identifying additional information that should be obtained from the customer before writing a damage report.

Module 4 - Refinish Operations



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Learning Objectives

Whether parts are repaired or replaced, most will require painting. There are various operations involved in refinishing parts. Some operations are included in the labor units specified for a specific part and some are not-included. Some operations are redundant and only need to be performed one time when refinishing multiple parts.

Module 4 will discuss common included and not-included operations for refinish procedures. Deductions for redundant operations will also be discussed. Additional operations, such as blending and adding clearcoat units, will be discussed as well.

The learning objectives for this module include: identifying the types of OEM finishes, identifying the processes involved in refinishing vehicle parts, identifying the terms used in damage reports for various refinish operations, explaining the importance of corrosion protection.

Refinishing

The replaced and repaired parts of the vehicle need to be painted. This may be called refinishing. What are the listed refinish labor units in the sample estimating guide for the applicable parts of the example vehicle?

Refinish Labor Units

The labor units listed in the estimating guide for the refinish required on the example vehicle are 2.6 units for the rear bumper cover, 2.3 units for the rear body panel, and 3.3 units for the deck lid. The 2.6 units for the rear body panel are figured by adding the 1.5 units listed for the outside with the 0.8 units listed for the inside. For the deck lid the estimating guide lists 2.2 units for the outside and 1.1 units for the underside. Since these parts are being replaced with new parts, both the outside and inside will require refinishing.

Refinish Labor Units (cont'd)

The labor units from the estimating guide for additional parts of the vehicle that require refinishing are 2.4 units for each quarter panel outside, and 2.2 units for the left rear door. Since the left quarter panel is being replaced, we also need to add 0.5 refinish labor units for the trunk jamb edges, and 0.5 units for the C-pillar inner jamb. This increases the total refinish labor units for the left quarter panel to 3.4. If the previous damage to the roof and hood are going to be repaired, refinish labor units for those parts are 2.8 for the roof and 2.9 for the hood outside.

Refinish Operations

What is included in the labor units for refinishing each part of the vehicle?

Refinish Included Operations

From the estimating guide P-pages, included operations for the refinish procedure include solvent washing the area, scuffing and cleaning parts, masking adjacent panels, and

applying primer or primer-sealer. Masking operations include back-taping of panel edges and interiors where required. Mixing materials is also included in the application of primers and sealers.

Refinish Included Operations (cont'd)

Additional refinish included operations listed in the P-pages include final sanding and cleaning of parts, mixing refinish materials, adjusting spray equipment, applying up to three color coats, and cleaning the spray and mixing equipment when done. Poor hiding colors may require application of additional color coats. These additional color coats are typically a not-included operation. Poor hiding colors can be identified as such by the paint maker. Included refinish operations may vary between estimating systems. Use the P-pages to determine included and not-included operations for the estimating system being used.

Redundant Operations

Since we are refinishing more than one part at a time, which of these included operations would not need repeating for each part?

Redundant Operations (cont'd)

There are some redundant operations when refinishing two or more parts on the same vehicle including mixing of materials, adjusting spray equipment, and cleaning mixing and spray equipment after use. Because it is not necessary to mask the body gap between them, the amount of masking required to paint two or more adjacent panels would also be less than if the panels were refinished at separate times. Masking of two non-adjacent panels would not include any redundant operations.

Overlap

“Overlap” is duplicate labor when refinishing two or more major parts of a vehicle. Labor units for the redundant operations need to be deducted from the refinish time for major parts beyond the first major part that is refinished. Overlap labor is deducted from the refinish labor total. It is typically deducted automatically from each panel that it applies to on computerized systems.

Major Parts

“Major parts” are typically defined as parts with a base refinishing time of one unit or more. Computerized systems figure major parts automatically based on this criteria. Check the P-pages of the estimating system used to identify the criteria for major parts on manual estimates.

Determining Overlap Deduction

When determining the overlap deduction, use the estimating guide P-pages, as amounts may vary depending on whether the parts are adjacent or not adjacent, and some parts such as bumper covers may be exempt from overlap deductions. This is because they are typically refinished separately. Deduct the overlap from the individual refinish time

for each applicable part, or add a separate line item for the entire overlap deduction taken. Overlap deductions on computerized estimating systems are typically figured automatically, and deducted from individual part refinish times.

Example Overlap Deduction

Using the P-page information in the demonstration estimating guide, the applicable overlap deductions for the example vehicle are 0.4 units for the deck lid, each quarter panel, left rear door, and roof. There would be no overlap deduction for the rear body panel as it is considered the first major part. The rear bumper cover also has no overlap deduction as it will be refinished off of the vehicle separately and is therefore an exempt part from overlap. Because it is nonadjacent to any other major part being refinished, the overlap deduction for the hood would be 0.2 labor units.

Panel Refinish Units For Example

After deducting for overlap, the refinish units for parts of our example vehicle are 2.9 units for the deck lid, 3.0 units for the left quarter panel, 2.0 units for the right quarter panel, 1.8 units for the left rear door, 2.4 units for the roof, and 2.7 units for the hood. These are figured by deducting the 0.4 unit overlap from the base refinishing time for the part, except for the hood where 0.2 units was deducted. For example, the refinish time for the deck lid was figured by deducting 0.4 labor units from the 3.3 labor units listed in estimating guide, leaving 2.9 labor units. Labor units for the rear bumper cover (2.6), and rear body panel (2.3) are unchanged as there is no overlap deduction for these parts.

Although the refinish times for the pre-existing damage are included here for example purposes, for simplicity sake they will be left off our sample damage report.

Refinish Not-Included Operations

Refinish operations that may be necessary, but are not-included in the refinish labor units listed in the estimating guide, include two- or three-stage refinish. Refinish labor units are based on spraying single-stage color on the part. Since most new vehicles are now refinished with basecoat/clearcoat, additional labor units for two-stage refinish may be automatically figured in on computer systems, unless it is overridden.

Tinting of the color to match may also be a not-included refinish time. However, some estimating systems include time for tinting. Two-stage refinish setup labor for the Audatex estimating system includes time for the initial mix, color check, one tint cycle, and rechecking the color.

Other not-included operations that may be necessary include blending of color coats to adjacent panels, and finish and defect removal where applicable. Examples of this would be removing runs, chips, or acid rain spotting in the original finish when prepping the part for refinishing and finish removal where there is excessive film build.

Refinish Not-Included Operations (cont'd)

Other not-included refinish operations may include color sanding and buffing of the finish. This may be necessary to match the original finish texture of some vehicles. Masking the interior of panels to be refinished, or back-taping may also be a not-included operation. In our example P-pages, this is included for adjacent panels but not for the panels being refinished. Back-taping may be necessary to protect the interior and jambs that were painted before parts are installed on the vehicle. Application of any necessary gravel or chip guard and corrosion protection materials is also not included in refinish labor units for a part

Previous Repairs

During the vehicle inspection, indications of a previous repair to the front of the vehicle were noticed. The finish on the hood and fenders contains dirt. What are some of the indications of previous repairs and what considerations do they add to the repairs?

Previous Repair Indicators

Previous repair indicators include overspray on trim or panel jambs and interiors, and visible tape lines. Dirt in the paint finish and visible sandscratches are also indications of previous repairs, as is a noticeable color or texture mismatch of the finish. Be aware, however, that bumper covers and other plastic parts may have a slight color mismatch from the factory. Chips in the finish that reveal a different color underneath, and excessive film thickness also indicate previous repairs have been done.

Identifying Excessive Film Thickness

Excessive film thickness can easily be identified using a film thickness gauge on magnetic parts. Other methods include using a lighted magnifier to look at chips or scratches, and reading the layers of a featheredge during repairs.

Total Film Thickness

Total film thickness of OEM finishes varies. Single-stage OEM finishes are typically four-to-five mils thick, basecoat / clearcoat finishes may be four-to-six mils thick, and multi-stage finishes may be from six-to-eight mils thick. Total film thickness should typically be less than 12 mils for an OEM basecoat / clearcoat finish. More than 12 mils total on basecoat / clearcoat finishes may void the paint maker warranty. If refinishing a part will make the total film thickness exceed 12 mils, it may be necessary to remove at least some of the existing finish before refinishing the part.

Inspecting For Other Finish Damage

Before refinishing, the existing finish should also be inspected for other types of pre-existing finish damage including ultraviolet (UV) light exposure damage, acid rain damage, organic fallout damage, industrial fallout damage, and damage from natural causes such as bird droppings or tree sap. If any of these types of finish damage exist, it may require finish removal before refinishing the part.

Finish Removal

The finish on the hood of the example vehicle is about 9 mils thick. If this panel is to be refinished for the damage report being written, at least partial removal of the finish may be considered, since an additional 4 to 5 mils would make the total be over the recommended maximum of 12.

Additional Refinish Operations

What else do we need to add to the damage report related to refinishing of the repair areas?

Color Blending

Color blending may be a necessary addition to many damage reports. Color blending allows the original finish to show through part of the refinish coating. Color blending is done on most repairs. However some solid colors, especially black, may not require color blending to achieve an acceptable color match. Color blending helps to disguise slight differences in color, and reduces any visible color difference between the original finish color and the refinish color. It will not, however, hide a severe color mismatch. The color needs to be close for blending to be successful in hiding the mismatch.

Determining Blend Labor

Blend refinish labor is determined using a formula in the P-pages of the estimating guide. The formula is typically different for three-stage refinish blending than for basecoat / clearcoat finishes and is a percentage of the complete refinish labor for the panel being blended. Color blending labor units typically apply only to undamaged adjacent panels that are blended for color match.

Determining Blend Labor (cont'd)

For the example vehicle, we should include a blend of the left rear door. The formula in the sample P-pages is 50% of total refinish time for the blended panel. Total refinish units for the left rear door are 2.2, so at 50% the blend would require 1.1 labor units.

Trim Removal

Panels that are going to be refinished or blended may require removal of trim that sets against the paint finish. Trim removal from the left rear door of the example vehicle would include R&I of the belt molding and outside door handle. R&I of the belt molding is listed at 0.7 units of labor in the estimating guide, and includes R&I of the interior trim panel. R&I of the outside door handle is listed at 0.7 units of labor in the estimating guide and also includes R&I of the interior trim panel, so we need to subtract 0.4 units for trim panel R&I since we have already done this, making the handle R&I 0.3 labor units.

Finish Type

To write the proper refinish procedures on the damage report, we need to know what type of finish is on the vehicle. How can we determine what type of OEM finish is on the vehicle?

Types Of OEM Finishes

Types of OEM finishes include single-stage, basecoat / clearcoat, and three-stage finishes. Basecoat / clearcoat finishes may be designated by the acronym "BC" forward slash "CC." Basecoat / clearcoat finishes are the most common OEM finishes used. Three-stage or multi-stage finishes have a basecoat, a tinted clear mid-coat, and a clearcoat.

Identifying Finish Type

Determining the finish type on a vehicle may be done a number of different ways. Checking the paint code label on the vehicle to see if it specifies that the vehicle has a basecoat / clearcoat finish is one way. Checking the paint code and looking up the color in the P-pages of the estimating guide or in a paint maker's color book is another. VIN decoding on computerized systems may automatically recognize the finish type, or the VIN can be decoded fully by a vehicle dealer to indicate the information. Damaged panels may also be sanded to check for clearcoat. Vehicles that have been previously refinished may have a basecoat / clearcoat finish even if the OEM finish was not basecoat / clearcoat.

Clearcoat Refinish

Our example vehicle has a basecoat / clearcoat finish and refinish times in the P-pages include spraying of color coats only. We need to add a separate refinish operation for applying the clearcoat.

Determining Clearcoat Units

Labor units for clearcoat refinish are figured using formulas found in the P-pages of the estimating guides. Clearcoat labor units should be figured after overlap is deducted. They may be figured automatically for each part by computerized estimating systems. There may be no separate entry for clearcoat labor units, as the additional labor units may simply be included in the listed refinish labor units for the part. Manual damage reports may however list clearcoat labor units as a single entry on a separate line item. Three-stage refinish is figured similarly, using a formula found in the P-pages.

Clearcoat Included Operations

Included operations for the clearcoat of the first major panel in the example P-pages include mixing clearcoat materials, cleaning and tacking the surface, applying clearcoat material, and cleaning any additional necessary equipment that was used.

Clearcoat Included Operations (cont'd)

After the first major panel, included operations for the clearcoat operation of additional panels may include cleaning and tacking the surface and applying the clearcoat material. Mixing the clearcoat material and cleaning of equipment only needs to be done once, so it is not included for panels after the first major panel.

Determining Clearcoat Units For Example

The formulas from the sample P-pages used to determine clearcoat units for the example vehicle are 0.4 units per refinish labor unit on soft bumper covers and the exterior and

applicable interior surfaces of the first major panel, and 0.2 units per refinish labor unit for the exterior and applicable interior surfaces of each additional panel. For our example, let us make the first major panel the rear body panel. Clearcoat units are not figured for the interior of the rear body panel since it was not clearcoated at the factory. Clearcoat units would be included for the left quarter panel edge and pillar since they are clearcoated at the factory. Since the bumper cover would require the addition of flex additive to the clearcoat material, it is considered separately. Remember that overlap should be deducted before figuring clearcoat units.

Individual Panel Clearcoat Units

Using the formula, the individual panel clearcoat units for our example vehicle are 1.04 units for the bumper cover, 0.6 units for the rear body panel, 0.36 units for the deck lid, 0.6 units for the left quarter panel, 0.4 units for the right quarter panel, 0 units for the left rear door, and 0.58 units for the hood. Rounding each entry off to the nearest tenth makes 1.0 labor unit for the bumper cover, 0.4 for the deck lid, 0.6 for the left quarter panel, and 0.4 for the right quarter panel.

No units are given to the left rear door because application of clearcoat is listed as an included operation for blending adjacent panels. 0.6 would be given for the hood if it were included on the estimate.

Total Clearcoat Units For Example

Notice the P-pages list for a maximum for the total clearcoat units. The maximum listed in our sample P-pages is 2.5 units, not including parts that are clearcoated separately. For our example vehicle, add 1.0 unit for the bumper cover and 0.2 units for the quarter panel edge. These are not included in the maximum because they are clearcoated separately from the rest of the vehicle parts. We then add either the total clearcoat units of the rest of the panels, or 2.5 units, using whichever amount is less. Total clearcoat labor units for the example are 3.6 units.

Associated Items

What other items relating to refinish operations need to be added to the damage report?

Paint And Materials

Charges need to be added for the paint and materials used in the repair. Paint and material charges include the materials used to refinish necessary panels and any additional materials used to prepare the vehicle for refinishing. Paint and material charges are typically figured as a dollar amount per unit of total refinish labor. The dollar amount used to figure the charges is user-inserted and may vary.

Hazardous Waste Disposal

Another charge typically added to a damage report is a hazardous waste disposal or EPA charge. A hazardous waste disposal charge is typically a set figure added to each damage report that has refinish operations listed. Fluids such as antifreeze, oils, and refrigerants

may also require hazardous waste disposal when they are collected. Hazardous waste disposal charges are an amount defined by the person preparing a damage report. These charges typically are not listed in the estimating guides. Hazardous waste disposal can also be pre-programmed into the profiles on computerized systems so that they are automatically inserted into each estimate written.

Example Damage Report

For our example damage report, we will add 30-dollars per refinish labor unit for refinishing materials charges and a four-dollar hazardous waste disposal fee.

Additional Operations

What else might we need to add to the damage report to help ensure long-term customer satisfaction of the repair?

NVH Foam Application

Another additional operation that may be required on some repairs is the application of NVH foam material. NVH foam application or other sound-deadening material, is a not-included operation for the quarter panel R&R. Application of foams and sound-deadening material is typically a user-entered value for both the labor units and the materials required.

NVH Foam Application (cont'd)

The vehicle maker procedure for the quarter panel replacement on the example vehicle identifies NVH foam usage. We'll add 0.5 units and a 25-dollar part charge for the application of NVH foam in the replacement quarter panel

Chip-Resistant Coatings

Application of chip-resistant coatings is another additional refinish procedure that may be required on some repairs. Chip-resistant coatings may include chip guard, gravel guard, or vinyl coatings. They cushion the finish against stone chips and may be applied either over or under the topcoats. Identification of the presence of chip-resistant coatings may require service information. Some chip-resistant coatings can be identified by the texture on the finish, but some are smooth, making visual identification difficult.

There are no chip-resistant coatings on the back part of the example vehicle so we do not need any additions for this on our sample damage report.

Durability Of Repair

Is there anything else that we need to add to the damage report associated with the durability of the repair?

Corrosion Protection

Corrosion protection operations also need to be added to the damage report before we can finalize it.

Corrosive Hot Spots

Corrosive hot spots can be created by collision damage, as well as collision repair processes such as welding, cutting, drilling, or straightening procedures. Contaminants on the bare metal also create corrosive hot spots. This can result from touching bare metal surfaces with a bare hand, which leaves oils and acids on the surface.

Corrosion Protection During Repairs

Corrosion protection during repairs includes preserving the original corrosion protection coatings wherever possible. Do not remove the factory zinc coating unless specified in a repair procedure. Always apply corrosion-resistant primers to all bare metal areas and apply anti-corrosion compounds to the inside surfaces of panels and assemblies, especially panels that have been welded, such as frame rails, side structures, and quarter panels.

Corrosion Protection Entries

For the example damage report, we'll add 0.5 units of labor for applying corrosion protection. Since corrosion protection materials are not included in paint materials, a 15-dollar part charge is also added to the damage report for corrosion protection materials.

Module Summary

Whether parts are repaired or replaced, most will require painting. There are various operations involved in refinishing parts. Some operations are included in the labor units specified for specific parts and some are not-included. Some operations are redundant and only need to be performed one time when refinishing multiple parts.

Module 4 discussed common included and not-included operations for refinish procedures. Deductions for redundant operations was also discussed. Module 4 continued with information on additional operations such as blending and adding clearcoat units.

Information discussed in this module also included: identifying the types of OEM finishes, identifying the processes involved in refinishing vehicle parts, identifying the terms used in damage reports for various refinish operations, explaining the importance of corrosion protection.

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Module 5 - Finalizing The Damage Report

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Learning Objectives

Cleaning the vehicle, replacing broken glass, and replacing restraint system parts may also have to be included on the final damage report. Sometimes, changes need to be made to the damage report due to hidden damage or a change in part prices.

Module 5 will discuss some additional operations that may need to be added to the damage report. The module will continue with information on creating supplements and how parts that require routine maintenance are figured.

The learning objectives for this module include: defining common industry terms not already covered, explaining the common causes of supplements, determining restraint system parts that need to be included in damage reports, explaining common examples of the use of each term in a damage report.

Finalizing The Damage Report

What else might we need to add before we finalize the damage report?

Detailing (DET)

Detailing, which may be designated by the acronym “DET,” is cleaning the vehicle to remove any collision-related stains, dirt, or debris. Our example vehicle needs to have the coffee stains removed from the carpet. Let us add a charge of one-half labor units to the damage report for this.

Common Detailing Procedures

Common detailing procedures include vacuuming the interior, shampooing interior parts, removing exterior surface defects, polishing the finish or chrome parts, and degreasing of underhood parts.

Sublet Repairs

Other additional charges that may be added to a damage report include sublet repairs. Sublet repairs are any repair done by another company and paid for by the repair facility. The repair may be done either inside or outside of the collision repair facility. Sublet repairs are added to the damage report or repair order as a separate line item and may be designated with an “SB” or “SUB” acronym.

Common Sublet Items

Common items that may be listed as sublet on a damage report include towing, glass replacement, wheel alignments, and interior trim repairs. Towing charges may also be listed as a separate line in the totals section of the damage report.

Glass Replacement

Glass replacement may use National Auto Glass Specifications or “NAGS” pricing, which is an aftermarket glass pricing structure. Part prices and labor units will be listed

separately with NAGS pricing. Insurance networks may be used for glass replacement charges. This is typically listed as a sublet operation with one amount that includes both the part price and labor for installation.

Mechanical Repairs (MR)

Another operation that may be found on a damage report is mechanical repairs, which may be denoted by an "MR" or "M" next to the labor units on the damage report. Mechanical repairs are labor operations normally done in an automotive service facility and are typically listed in a separate labor column than body and paint repairs.

Common Mechanical Repairs

Common mechanical repairs that may be included on collision repair damage reports include wheel alignments, suspension repairs, driveline repairs, air conditioning system repairs, brake repairs, cooling system repairs, and restraint system repairs.

Subtotals

Damage reports typically have subtotal columns for various items. Subtotals are typically figured for total part prices, total labor units in each labor subheading, and applicable additional or sublet charges. After the total labor units are figured they are multiplied by the appropriate labor rate. Total refinish labor units are then used to figure paint and materials costs. For our example damage report, let us use \$50.00 for the frame labor rate and \$50.00 for the body and paint labor rates when figuring subtotals.

Taxes

Before finalizing the damage report, we need to determine all applicable taxes including local, state, or provincial taxes. Computerized systems may figure taxes automatically, the appropriate percentages are input into the estimating profile and are then automatically included in the estimate. For our example damage report, let us use 5% as the tax rate on both parts and labor subtotals.

Finalizing Example Damage Report

This is what our example damage report looks like now.

Hidden Damage

During repairs of our example vehicle, it is discovered that the wiring to the left tail lamp is damaged and requires repair. This is an example of what may be called "hidden damage."

Hidden Damage (cont'd)

Hidden damage is damage not visible when the damage report is first written. It is typically found after disassembly or once repairs have been started. Hidden damage may delay completion of repairs and cause potential conflicts between the repair facility and the vehicle owner or insurance company. Every attempt should be made to locate and include as much of the damage as possible when the damage report is first written.

Hidden Damage (cont'd)

What do we need to do if hidden damage is found after repairs are started?

Supplements (S)

We need to write a supplement to the damage report that lists repair of the tail lamp wiring. Supplements may be designated by an "S" next to the appropriate line item, and are changes made to the damage report after it has been finalized. Supplements may be additions or subtractions that are made because of errors in the original damage report or hidden damage found after the damage report has been finalized. They also may be caused by a change in part prices between when the damage report was written and the vehicle is repaired.

The changes made to a computerized damage report will typically have the "S" designation after each line item that was added or changed. Manual damage report supplements may be written on a separate sheet that only includes the supplemental items and any associated changes to the original damage report. The additions may also be added to a new copy of the complete damage report and be designated with an "S" before the new line items.

Supplements (S) (cont'd)

Supplements may require a re-inspection by the insurer, which may delay the repairs, and therefore should be identified as soon as possible in the repair process. This is because a supplement may push the total repair cost into the range of a total loss. Another reason for identifying a supplement as soon as possible is to try to avoid causing a delay in completing the repairs. Supplements, however, may be unavoidable on some repairs due to hidden damage or part price changes.

Restraints Deployment

When a vehicle has had a restraints deployment, how can we determine what needs to be added to the damage report for restraint system repairs?

Airbag Part Replacement Charts

Airbag part replacement charts can typically be found in the estimating guides. They may be located in the P-pages section or brought up automatically on computerized systems when airbag parts are selected. They may also be accessed through online sources, such as the I-CAR web site or the vehicle maker's service information web site. The charts may include a part locations section and give inspection guidelines for which parts must be inspected after an airbag deployment, as well as listing mandatory part replacement requirements after an airbag deployment.

Normal Wear

When a vehicle has a damaged part that is a maintenance item that requires periodic replacement, how might that be handled on an estimate?

Betterment

“Betterment” is another term that can be found on a damage report. Betterment is the increase in the value when a worn or previously damaged part is replaced. This increase in value is then deducted from the amount of the damage report. An example of this would be a vehicle that has tires with 40,000 miles and the tires were damaged in a collision. Another example would be a rusted chrome bumper that is damaged in a collision and is replaced. Betterment is where the insurer pays a portion of the replacement cost of the part, and the customer pays a portion of the replacement cost of the part. Local laws may apply to the application of betterment. Depending on local laws, betterment may be limited to describe the increase in the value of the entire vehicle, while other laws may allow for an adjustment for the increase in value of the damaged part itself.

Depreciation

“Depreciation” is a term that may be found on a damage report that is similar to betterment. Instead of listing a worn tire as a betterment item, the damage report may list a depreciation amount for the value of the worn tire. Depreciation is an adjustment to the amount paid by the insurer for worn or damaged parts that are being replaced. Betterment and depreciation are basically interchangeable terms. The term that is used may depend on the estimating system or the preference of the appraiser writing the damage report. As with betterment, depreciation may be dependent on local laws.

Module Summary

Cleaning the vehicle, replacing broken glass, and replacing restraint system parts may also have to be included on the final damage report. Sometimes, changes need to be made to the damage report due to hidden damage or a change in part prices.

Module 5 discussed some additional operations that may need to be added to a damage report. The module continued with information on creating supplements and how parts that require routine maintenance are figured.

Information discussed in this module also included: defining common industry terms not already covered, explaining the common causes of supplements, determining restraint system parts that need to be included in damage reports, explaining common examples of the use of each term in a damage report.