

General Information

ASSEMBLY ILLUSTRATIONS: The illustrations are typical. All illustrations may show more or fewer parts than you actually receive when you order the used part or assembly. Check included items with your supplier.

Reader Reply Card/Toll-Free Number

Your comments and suggestions are appreciated and valuable to us. A reader reply card is provided in each issue for your use to correspond with Mitchell concerning the information in this *Guide*. Just fill out the card and send it to us, or call us toll free at 800-854-7030, Extension 8220. In the 858 area call 578-6550. You will receive a response to each inquiry.

Symbols

SYMBOLS: The following symbols are used throughout this *Guide* and are explained in detail in each section.

– **LABOR FOOTNOTE:** Special labor situations or requirements are denoted with a footnote symbol. The explanation follows as closely as possible to the time referenced.

m – A designation that appears in a separate text column to the left of the labor time column to identify components for which R&I or R&R is commonly considered to be a **mechanical** operation when performed in a collision repair environment.

s – A designation that appears in a separate text column to the left of the labor time column to identify unibody **structural** components—those which support the weight of the vehicle and absorb the energy of the impact as well as road shock.

Definitions

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.

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 damaged part or assembly identified as included within the Procedure Explanation and replace it with an undamaged salvaged part or assembly. Replacement includes the alignment that can be done

by shifting the part or assembly and sealing the welded or bolted-on seams where necessary.

FRAME SETUP: This procedure includes the following: Disconnect battery or remove as necessary. Lift or jack up vehicle. Remove wheels as needed. Attach mounting brackets includes detaching or moving necessary lines, brackets or bolted on parts/assemblies for access. Lower vehicle onto machine as per manufacturer's direction. Remove vehicle from machine.

Special Cautions

STRUCTURAL GLASS: Windshields, back windows, quarter and side glass that was originally installed by the vehicle manufacturer utilizing urethane, should be reinstalled with urethane. The urethane bonds the glass to the vehicle and makes the glass part of the vehicle structure. Ensure that the vehicle manufacturer and/or I-CAR recommended installation is followed, and that the urethane is properly cured before returning the vehicle to service.

SUPPLEMENTAL RESTRAINT SYSTEMS: Vehicle manufacturer's recommended service and repair procedures must be followed when servicing an Air Bag System. Certain safety precautions and disabling procedures must be observed when performing repairs.

See *Mitchell's Air Bag Service & Repair Manual* for system description and operation checks, precautions, disabling and activating procedures, component removal and installation procedures, and diagnosis and testing information.

Caution: Never install used/salvaged Air Bag system components from another vehicle or a new part different from that specified by the manufacturer. Refer to manufacturer's recommended service procedures.

MAIN COMPUTER MODULE: When working with vehicles equipped with on-board computers, manufacturers recommend removal if the temperature is likely to exceed 80°C or 176°F. Do not apply heat from a torch or weld in the immediate vicinity of computers without protecting them. Remove if necessary.

Never connect or disconnect these units with the ignition switched on, or when charging the battery with negative battery cable connected. Before servicing, ground yourself and ground the work area to discharge stored static electricity.

SEAT BELTS: Many vehicle manufacturers advise replacement of seat belts when stressed by occupants in a collision. Refer to vehicle manufacturer or service manual for clarification.

Special Cautions (Continued)

SAFETY NOTE: Assemblies or parts should be thoroughly checked for safety, as well as for excessive wear before installation. Appearance of such items in this *Guide* does not imply any endorsement or recommendation for their use. Mitchell International assumes no responsibility for the condition of, or use of salvaged parts.

Procedure Explanations

LABOR TIMES: THE LABOR TIMES SHOWN IN THIS PUBLICATION ARE IN HOURS AND TENTHS OF AN HOUR (6 MINUTES) AND ARE FOR REPLACEMENT WITH UNDAMAGED USED PARTS.

Labor times listed in this *Guide* are to be used to estimate time needed to replace parts or assemblies with undamaged used parts or assemblies of like kind and quality. These suggested times may vary depending on vehicle condition, labor technician's experience, shop equipment, etc.

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 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 Explanation page P37, for information on Feather, Prime and Block.

SHOP MATERIAL: The labor times shown in this publication 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.

PROCEDURE REFERENCE: Throughout each vehicle "service" there are Procedure Explanation reference notes located immediately following the main section headings. Example: FRONT INNER STRUCTURE is followed by, "Use Procedure Explanations 2 and 32 with the following text." This indicates that the text portion and the Procedure Explanations for FRONT INNER STRUCTURE 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 Replacement Assemblies 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 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 damaged parts by cutting, pushing, pulling, etc.
- **AIR CONDITIONING:** Evacuate and recharge system.
- **ANTI-CORROSION RUST RESISTANT MATERIAL:** Remove and/or apply weldable zinc primers, wax, petroleum based coatings, undercoating or any type of added conditioning.
- **PAINT AND SHOP MATERIALS:** Additional costs.
- **BROKEN GLASS CLEAN UP**
- **DETAIL:** Clean vehicle to pre-accident condition.
- **DRAIN & REFILL:** Fuel (see fuel tank)
- **DRILL OR FILL TIME:** For attachment parts.
- **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.
- **FABRICATION:** Fabrication of reinforcements or inserts (new component not cut or manufactured from existing or salvaged part, but from raw stock).
- **FRAME SETUP:** See Definitions Section page P1.
- **FREE UP PARTS:** Time necessary to free up parts frozen by rust or corrosion on vehicle or replacement part.
- **MEASURE AND IDENTIFY:** Structural damage to unibody vehicles.

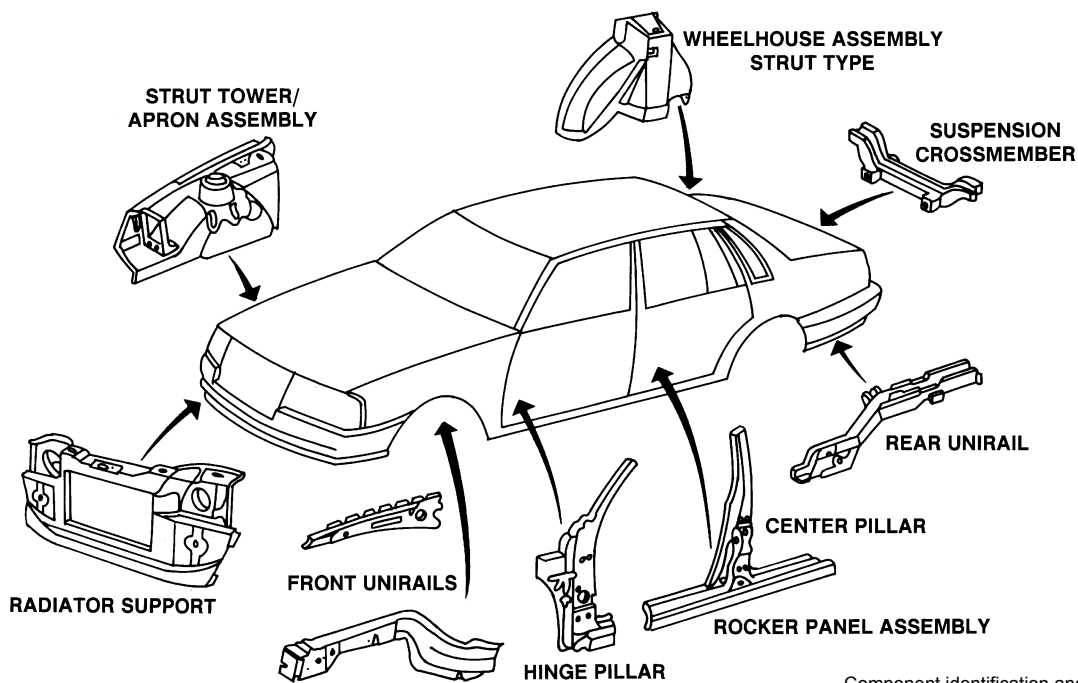
Additions to Labor Times (Continued)

- **METAL TRIMMING:** Trimming of welded assemblies to be installed.
- **MOULDING OR NAMEPLATES:** Time to remove and replace, install, or clean and retape.
- **REPAIR OR ALIGN:** Parts adjacent to parts or assemblies being replaced.
- **REWORK PARTS:** To fit a particular year or model (example: cutting holes for lamps, modifying a radiator support).
- **STRIPES, DECALS, LABELS, WARNINGS, OR OVERLAYS:** Time to remove or install these items.
- **TAR AND GREASE:** Removal of these or any other materials that would interfere with operation.
- **TRANSFER TIME:** To remove a damaged part from salvage assembly, remove undamaged part from damaged assembly and reinstall that part on the salvage assembly (R&R&R). Example: lights, trim, mirror.
- **WIRING AND WIRING HARNESS:** Time to remove and install or replace, unless otherwise noted.

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. Not all unibody vehicles have rear strut wheelhouse assemblies. An illustrated listing of these components appears below.

Certain body styles may have components in addition to those listed below that the vehicle manufacturer has identified as structural. These are noted in the text. To ensure the integrity of the repaired vehicle, particular care should be taken in the replacement of any structural component.



Component identification and illustration courtesy of TECH-COR, Inc.

1



Front Bumper/ Sheet Metal

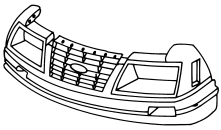
Bumper Assembly R&R

Included Operations

- Remove assembly from frame, impact absorbers or mounting arms
- Replace as an assembly
- Remove and replace impact absorbers
- Adjust alignment to vehicle

Not Included Operations

- Refinish bumper
- Remove and install or replace:
 - Mouldings, nameplates, lamps, etc.
- Optional accessories (example: auxiliary lamps, brush guard, fog lamps, headlamp washer systems, laser/radar cruise control sensors, parking aid sensors, spoilers)



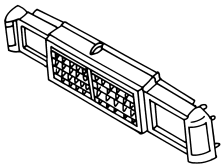
Bumper/Grille Assembly R&R

Included Operations

- Remove assembly from frame, impact absorbers or mounting arms
- Replace as an assembly
- Remove and replace impact absorbers
- Adjust alignment to vehicle

Not Included Operations

- Refinish cover
- Aim lamps
- Remove and install or replace:
 - Mouldings, nameplates, lamps, etc.
- Optional accessories (example: auxiliary lamps, brush guard, fog lamps, headlamp washer systems, laser/radar cruise control sensors, parking aid sensors, spoilers)



Front Panel R&R

Included Operations

- Remove and replace as an assembly
- Align to adjacent parts

Not Included Operations

- Refinish front panel
- Aim lamps
- Remove and install or replace:
 - Bumper assembly
 - Lamps attached to panel
 - Grille assembly
 - Mouldings, nameplates, etc.

Front Bumper/ Sheet Metal



1

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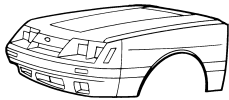
Front Sheet Metal R&R (Bolt-On) Frame Type

Included Operations

- Remove and replace as an assembly:
 - Radiator
 - Radiator support
 - Impact absorbers or brackets
 - Fenders
 - Bumper assembly
 - Front panel
 - Hood
 - Grille assembly
 - Headlamp assemblies

Not Included Operations

- Refinish sheet metal
- Aim lamps
- Remove and install or replace:
 - Battery
 - Mouldings, nameplates, etc.
 - Bolted on parts that are included in the salvaged assembly (example: radiator, fenders, headlamp assemblies, etc.)
 - Wiring and/or wire harness
 - Wheel



Front Sheet Metal R&R (Bolt-On) Unibody

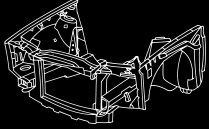
Included Operations

- Remove and replace:
 - Bumper assembly
 - Impact absorbers or brackets
 - Fenders
 - Hood
 - Front panel
 - Grille assembly
 - Headlamp assemblies

Not Included Operations

- Refinish assembly
- Aim lamps
- Remove and replace or install:
 - Battery
 - Mouldings, nameplates, etc.
 - Rocker moulding
 - Bolted on parts that are included in the salvaged assembly (example: fenders, grille assembly, headlamp assemblies, etc.)
 - Wheel

2



Front Inner Structure

Front Assembly R&R

Included Operations

- Remove and replace radiator support and both apron/rails
- Remove and install:
 - Cowl trim if necessary
- Remove and install or replace:
 - Shroud and radiator assembly
 - Impact absorbers or mounting arms if necessary to perform operation
- Loosen and pull back carpet and insulation as required and if necessary
- Remove and replace caulking for standard factory application

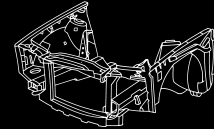
IMPORTANT REMINDER: Labor times for inner panels, rails or reinforcements are with outer panels removed.

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish front assembly
- Aim lamps
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install:
 - Bumper assembly
 - Hood panel
 - Front panel
 - Front fenders
 - Engine
 - Wiring and/or wiring harness
 - Hard shell cowl panel insulation
- Remove and replace:
 - Radiator hoses
 - Fan, pulley, fan clutch or belts
 - Decals (example: EPA, body identification, caution/danger)
- Remove and install or replace:
 - Suspension assemblies
 - Bolted parts and assemblies (example: fluid reservoirs and coolers, vapor canister, cruise control, air conditioning components)
 - Instrument panel and center console
 - Seat assemblies
 - Windshield and mouldings
 - Air safety bag
 - Upper reinforcements
- Wheel alignment
- Frame set up (see Definitions page P1, estimate time required)
- Trimming of welded assembly to be installed

Front Inner Structure



2

(continued)

Partial Front Assembly R&R

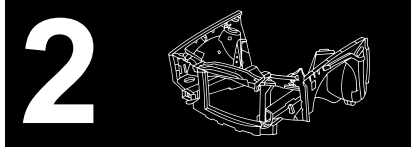
Included Operations

- Remove and replace radiator support and one apron/rail
- Remove and install:
 - Cowl trim
- Remove and install or replace:
 - Shroud and radiator assembly
 - Impact absorbers or mounting arms if necessary to perform operation
- Loosen and pull back carpet and insulation as required
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Labor times for inner panels, rails or reinforcements are with outer panels removed.

Not Included Operations

- Refinish partial front assembly
- Aim lamps
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install:
 - Bumper assembly
 - Hood panel
 - Front panel
 - Front fenders
 - Engine
 - Wiring and/or wiring harness
 - Hard shell cowl panel insulation
- Remove and replace:
 - Radiator hoses
 - Fan, pulley, fan clutch or belts
 - Decals (example: EPA, body identification, caution/danger)
- Remove and install or replace:
 - Suspension assemblies
 - Bolted parts and assemblies (example: fluid reservoirs and coolers, vapor canister, cruise control, air conditioning components)
 - Instrument panel and center console
 - Seat assemblies
 - Windshield and mouldings
 - Air safety bag
 - Upper reinforcements
- Wheel alignment
- Frame set up (see Definitions page P1, estimate time required)
- Trimming of welded assembly to be installed



Front Inner Structure

(continued)

Short Front Assembly R&R

Included Operations

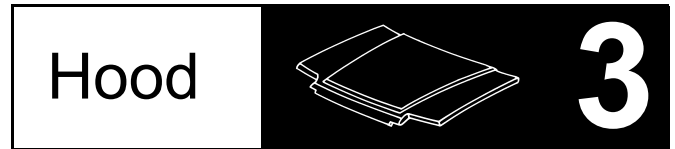
- Remove and replace radiator support and both aprons forward of the shock towers
- Remove and install or replace:
 - Shroud and radiator assembly
 - Impact absorbers or mounting arms if necessary to perform operation
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Labor times for inner panels, rails or reinforcements are with outer panels removed.

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish short front assembly
- Aim lamps
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install:
 - Bumper assembly
 - Hood panel
 - Front panel
 - Front fenders
 - Engine
 - Wiring and/or wiring harness
- Remove and replace:
 - Frame rails
 - Radiator hoses
 - Fan, pulley, fan clutch or belts
 - Decals (example: EPA, body identification, caution/danger)
- Remove and install or replace:
 - Suspension assemblies
 - Bolted parts and assemblies (example: fluid reservoirs and coolers, vapor canister, cruise control, air conditioning components)
 - Air safety bag
 - Upper reinforcements
- Frame set up (see Definitions page P1, estimate time required)
- Trimming of welded assembly to be installed



Hood Panel R&R

Included Operations

- Remove and replace as an assembly
- Align to adjacent parts

Not Included Operations

- Refinish hood
- Remove and install or replace:
 - Hinges
 - Gas prop rod
 - Insulator
 - Lamps
 - Decals, labels
 - Mouldings, nameplates, etc.
 - Grille
 - Washer nozzles



Front Fender, Rear Fender or Fender/Wheelhouse R&R

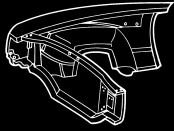
Included Operations

- Remove and replace as an assembly
- Align to adjacent parts

Not Included Operations

- Refinish fender
- Aim lamps
- Remove and install or replace:
 - Bumper assembly
 - Lamps attached to fender
 - Front panel
 - Wheel
 - Mouldings, nameplates, etc.

5



Front Fender & Radiator Support

Front Fender & Radiator Support R&R (Non-Welded)

Included Operations

- Remove and replace as an assembly
- Align to adjacent parts
- Remove and replace or install:
Radiator

Not Included Operations

- Refinish fender radiator support
- Aim lamps
- Remove and replace or install:
 - Bumper assembly
 - Lamps attached to fender
 - Front panel
 - Grille
 - Valance panel
 - Filler panels
 - Battery
 - A/C condenser or receiver/drier
 - Hood
 - Parts and assemblies attached to wheelhouse
 - Hoses
 - Wheel
 - Mouldings, nameplates, etc.
- Transfer or replace labels, decals, or warnings

6



Frame

Frame Assembly R&R

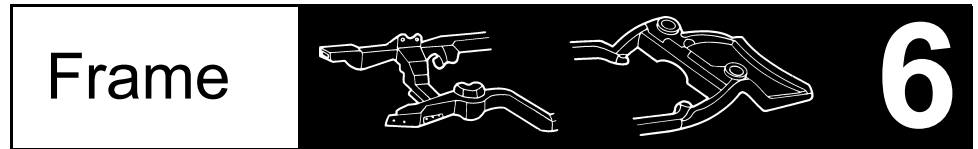
Included Operations

- Remove and install:
 - Front and rear bumpers
 - Front sheet metal as an assembly
 - Body assembly
 - Pickup bed
 - Mechanical assemblies (example: engine, transmission, suspension, fuel tank, differential and components)
- Remove and install or replace:
 - Engine mounts/absorbers
 - Wiring and/or wiring harness if necessary

Not Included Operations

- Overhaul assemblies or replace parts of assemblies that are transferred
- Remove and install or replace:
 - Welded or riveted assemblies of the frame (see Note)
 - Optional accessories (example: auxiliary lamps and fuel tanks, brush guard, lift kit, bed liner, trailer hitch, trailer connector)
- Wheel alignment
- Adjust control linkage
- Bleed brakes if necessary
- Evacuate and recharge Air Conditioning if so equipped and necessary
- Refrigerant recovery if necessary

NOTE: It may be necessary to transfer parts from the damaged frame to the used frame assembly. This cannot be determined until you see the used frame assembly. The additional time needed for this operation must be estimated.



(continued)

Frame Section—Front or Rear R&R

Included Operations

- Replace used frame section with necessary components intact
- Cut and remove damaged frame section
- Remove and replace frame mounted steering gear

NOTE: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Adjust transmission linkage
- Bleed brakes if necessary
- Wheel alignment
- Remove and install or replace:
 - Sheet metal
 - Bumper assembly
 - Suspension
 - Engine
 - Fuel tank
 - Fluid lines
- Evacuate and recharge Air Conditioning if so equipped and necessary
- Refrigerant recovery if necessary



Adjust Front Alignment

Included Operations

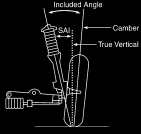
- Position vehicle on alignment rack and check/adjust tire pressure
- Check ride height and adjust to vehicle manufacturer specifications
- Set-up gauges on all 4 wheels and check wheel run out and front suspension for wear
- Determine vehicle tracking by checking thrust angle to vehicle center line
- Center steering wheel
- Adjust front caster, camber and toe-in where applicable
- Perform vehicle manufacturer recommended shimming procedures if necessary
- Remove vehicle from alignment equipment
- Verify alignment by road test

Not Included Operations

- Diagnostic road test to determine if alignment operations are necessary
- Straighten or replace suspension parts and/or structural components
- Shift or align engine subframe/crossmember and/or axle housing
- R&I steering wheel
- Non-vehicle manufacturer shimming
- Adjust wheel bearings
- Adjust rear wheel alignment

NOTE: Labor times for Wheel Alignment are based on the use of Four Wheel Alignment equipment to ensure that a minimum Thrust Angle Alignment is provided in all instances where a Four Wheel Alignment cannot be performed. If other than Four Wheel Alignment equipment is used, some adjustments in labor times may be appropriate.

7 Wheel Alignment



(continued)

Adjust Four-Wheel Alignment

Included Operations

- Position vehicle on alignment rack and check/adjust tire pressure
- Check ride height and adjust to vehicle manufacturer specifications
- Set-up gauges on all 4 wheels and check wheel run out and suspension for wear
- Determine vehicle tracking by checking thrust angle to vehicle center line
- Center steering wheel
- Adjust front and rear caster, camber and toe-in where applicable
- Perform vehicle manufacturer recommended shimming procedures if necessary
- Remove vehicle from alignment equipment
- Verify alignment by road test

Not Included Operations

- Diagnostic road test to determine if alignment operations are necessary
- Straighten or replace suspension parts and/or structural components
- Shift or align engine subframe/crossmember and/or axle housing
- Shift or align rear suspension axle assembly, carrier and/or housing
- R&I steering wheel
- Non-vehicle manufacturer shimming
- Adjust wheel bearings

Adjust Rear Alignment

Included Operations

- Position vehicle on alignment rack and check/adjust tire pressure
- Check ride height and adjust to vehicle manufacturer specifications
- Set-up gauges on all 4 wheels and check wheel run out and rear suspension for wear
- Determine vehicle tracking by checking thrust angle to vehicle center line
- Adjust rear caster, camber and toe-in where applicable
- Perform vehicle manufacturer recommended shimming procedures if necessary
- Remove vehicle from alignment equipment
- Verify alignment by road test

Not Included Operations

- Diagnostic road test to determine if alignment operations are necessary
- Straighten or replace suspension parts and/or structural components
- Shift or align rear suspension axle assembly carrier and/or housing
- R&I or center steering wheel
- Non-vehicle manufacturer shimming
- Adjust wheel bearings
- Adjust front wheel alignment

NOTE: If Front Wheel Adjustment is necessary, cancel Adjust Rear Alignment procedure and use Adjust Four Wheel Alignment procedure.

Front or Rear Suspension



8

Suspension R&R

Included Operations

- Remove and replace as an assembly
- Remove and install wheel

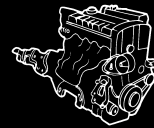
CAUTION: Check state laws regarding the use of used suspension and/or brake components

IMPORTANT REMINDER: Due to the design of suspension on unibody vehicles, it may be necessary to perform four wheel alignment.

Not Included Operations

- Wheel alignment
- Bleed brakes if necessary

Engine



9

Engine & Transmission R&I

Included Operations

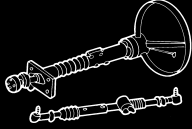
- Disconnect and connect:
Necessary components to remove and install engine/ transmission as an assembly
- Remove and install hood assembly

NOTE: Labor times shown in the text are only to remove and install the engine and/or transmission assembly to facilitate other work and are not for engine or transmission replacement.

Not Included Operations

- Remove and install:
Radiator if necessary
Any parts on engine if necessary
- Adjust linkage if adjustable type
- Evacuate and recharge air conditioning if so equipped and necessary
- Refrigerant recovery if necessary

10



Steering Gear and Column

Steering Gear & Column R&R

Included Operations

- Each operation identified is considered to be a stand alone operation
- Column assembly is with steering wheel intact
- Remove and install or replace:
 - Lock cylinder

Not Included Operations

- Refinish column
- Wheel alignment
- Recode lock cylinder
- Remove from salvaged assembly:
 - Lock cylinder
 - Air bag module

NOTE: Refer to “Safety Note” in Special Cautions on Estimating Information page P1.

11



Glass and Interior

Instrument Panel R&R

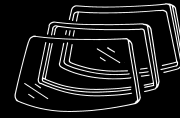
Included Operations

- Disconnect and connect:
 - Necessary wiring, hoses and cables
- Remove and replace as an assembly
- Loosen steering column for access
- Test all necessary functions of electrical components for correct operation and reset as required

Not Included Operations

- Refinish instrument panel or crash pad
- Remove and install:
 - Front seats
 - Steering column
 - Main wiring harness
- Remove and install or replace:
 - Control cables (example: hood release, remote mirrors)
 - Optional equipment (example: electronic components, center console, cruise control)
 - Remote mirrors
 - Air bag module
- Repair/Rework parts (example: cut holes for modification)
- Drill holes for installing trim
- Transfer instruments

Glass and Interior



11

(continued)

Windshield/Back Window R&R

Included Operations

- Remove and replace:
 - Reveal mouldings
 - Garnish mouldings
 - Wiper arms
 - Rear view mirror
- Replace weatherstrip
- Clean up old adhesive as necessary
- Test for leaks

Not Included Operations

- Remove and install or replace:
 - High mount stop lamp
- Remove and replace:
 - Aftermarket window tint
- Broken glass clean up

IMPORTANT REMINDER: No windshield or flush mounted reveal moulding can be removed without the possibility of breakage. Unintentional damage to glass that is considered a structural member by the vehicle manufacturer may occur when attempting alignment pulls to correct unibody collision damage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I, and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

Cowl Side and Door Post



12

Cowl Side & Door Post R&R

Included Operations

- Remove and replace as an assembly
- Cut in windshield opening and at base of door post
- Remove and install or replace:
 - Front Door
 - Cowl side trim
 - Weathercords
 - Weatherstrips
 - Sill plates
- Loosen and pull back carpet and insulation as required
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish cowl side and door post
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Front fender
 - Windshield, seals or mouldings
 - Restraint systems
 - Instrument panel, instruments, etc.
- Trimming of welded assembly to be installed

IMPORTANT REMINDER: No windshield or flush mounted reveal moulding can be removed without the possibility of breakage. Unintentional damage to glass that is considered a structural member by the vehicle manufacturer may occur when attempting alignment pulls to correct unibody collision damage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I, and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

13



Rocker Panel

Rocker Panel R&R

Included Operations

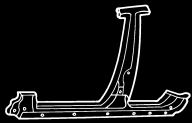
- Remove and replace inner and outer panels
- Cut at door posts, center pillar, lock pillar or dog leg
- Remove and install or replace:
 - Cowl side trim
 - Center pillar trim
 - Quarter trim at sill
 - Sill plates
 - Seats
- Loosen and pull back carpet and insulation as required
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish rocker panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Front and rear doors
 - Rocker moulding
 - Control cables (latch release, etc.)
 - Fluid lines
 - Restraint systems
- Remove and replace or loosen rear edge of front fender
- Trimming of welded assembly to be installed

14



Rocker Panel and Center Pillar

Rocker Panel & Center Pillar R&R

Included Operations

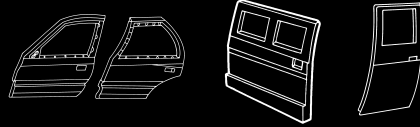
- Remove and replace inner and outer rocker panel and center pillar
- Cut center pillar below roof and rocker panel at base of door post and dog leg
- Remove and install or replace
 - Rear Door
 - Cowl side trim
 - Center pillar trim
 - Sill plates
 - Seats
 - Quarter trim at sill
- Loosen and pull back carpet and insulation as required
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish rocker and center pillar
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Front door
 - Rocker panel moulding
 - Control cables (latch release, etc.)
 - Restraint systems
 - Fluid lines
 - Headliner
- Remove and replace or loosen rear edge of front fender
- Trimming of welded assembly to be installed

Front/Rear/Side Cargo or Back Door



15

Door Assembly R&R

Included Operations

- Remove and replace as an assembly
- Remove and install or replace:
 - Trim panel
 - Lock cylinder
 - Water/dust barrier

IMPORTANT REMINDER: No side or back glass (non-removable) or flush mounted reveal moulding can be removed without the possibility of breakage. Agree *beforehand* who will incur the charge for damage occurring during normal removal and installation.

Not Included Operations

- Refinish door
- Remove and replace:
 - Outside mirrors
 - Aftermarket window tint
- Remove and install or replace:
 - Restraint systems
- Replace or transfer parts attached to door (example: outside handle, glass, run channels, regulator, vent assembly, weatherstrip)
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panel
 - Lock cylinder

Door Glass R&R

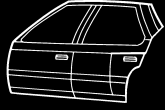
Included Operations

- Remove and install:
 - Trim panel
 - Garnish mouldings
- Remove and install or replace:
 - Belt moulding if necessary
 - Outside rear view mirror if necessary
 - Parts attached to glass
 - Water/dust barrier
- Replace weatherstrip if so attached
- Replace necessary adhesive/urethane
- Clean up old adhesive in opening area
- Align glass
- Test for leaks

Not Included Operations

- Remove and install or replace:
 - Glass regulator and motor
- Remove and replace:
 - Aftermarket window tint
- Broken glass clean up

16

Doors and
Center Pillar

Doors & Center Panel R&R

Included Operations

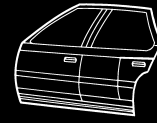
- Cut center pillar below roof and at base
- Remove and install or replace:
 - Center pillar trim
 - Door trim panels
 - Lock cylinder
 - Sill plates
 - Front and rear doors
 - Water/dust barrier
- Loosen and pull back carpet and insulation as required
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle

Not Included Operations

- Refinish doors and center pillar
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Control cables (latch release, etc.)
 - Restraint systems
 - Fluid lines
 - Mouldings, nameplates, etc.
 - Outside mirror
 - Headliner
- Replace or transfer parts attached to door (example: outside handle, glass, run channels, regulator, vent assembly, weatherstrip)
- Remove and replace or loosen rear edge of front fender
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinder
- Trimming of welded assembly to be installed

Doors/Center Pillar and Rocker



17

Doors/Center Pillar & Rocker R&R

Included Operations

- Remove and replace inner and outer rocker panels and center pillar
- Cut center pillar below roof and rocker panel at base of door posts and dog leg
- Remove and install or replace:
 - Front and rear doors
 - Cowl side trim
 - Center pillar trim
 - Quarter trim at sill
 - Door trim panels
 - Lock cylinder
 - Sill plates
 - Seats
 - Water/dust barrier
- Loosen and pull back carpet and insulation as required
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish doors, center pillar and rocker panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Mouldings, nameplates, etc.
 - Control cables (latch release, etc.)
 - Restraint systems
 - Fluid lines
 - Outside mirror
 - Headliner
- Replace or transfer parts attached to door (example: outside handle, glass, run channels, regulator, vent assembly, weatherstrip)
- Remove and replace or loosen rear edge of front fender
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinder
- Trimming of welded assembly to be installed

18

Doors/Center Pillar/
Rocker and Quarter

Doors/Center Pillar/Rocker & Quarter R&R

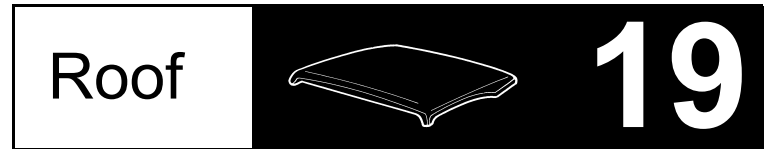
Included Operations

- Remove and replace center pillar, rocker and quarter as an assembly
- Cut through window opening and at base of front door post, includes wheelhouse
- Remove and install:
 - Luggage compartment trim
 - Cowl side trim
 - Center pillar trim
 - Quarter trim
 - Plastic wheelhouse liner
 - Door trim panels
 - Lock cylinder
 - Sill plates
 - Seats
 - Tail lamp
 - Rear bumper
 - Filler panel
 - Stone deflector
 - Lower valance
 - Parcel shelf trim
- Remove and install or replace:
 - Side and back glass, seals or mouldings
 - Front and rear doors
 - Water/dust barriers
- Loosen and pull back cloth type headliner, carpet and insulation as required
- Remove and replace caulking for standard factory application

Not Included Operations

- Refinish doors, center pillar, rocker and quarter panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install:
 - Headliner (all types)
 - Restraint systems
- Remove and install or replace:
 - Fuel tank
 - Antenna
 - Control cables (latch release, etc.)
 - Fluid lines
 - Mouldings, nameplates, etc.
 - Suspension assembly
 - Luggage lid
 - Outside mirror
- Replace or transfer parts attached to door (example: outside handle, glass, run channels, regulator, vent assembly, weatherstrip)
- Recode lock cylinder
- Remove or replace or loosen rear edge of fender
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinder
- Trimming of welded assembly to be installed

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.



Roof Section R&R

Included Operations

- Cut in windshield and back glass openings
- Remove and install or replace:
 - Windshield, seals or mouldings
 - Side and back glass, seals or mouldings
 - Headliner (All types)
 - Sunvisors or grip handles
 - Front and rear seats (Passenger/Pickup vehicles)
 - Front seats (Van/Utility vehicles)
 - Lift gate
 - Quarter trim
 - Weathercords
 - Windshield pillar trim
 - Center pillar trim
- Remove and replace caulking for standard factory application

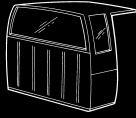
IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish roof section
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Restraint systems
 - Luggage rack
 - Roof cap and/or vinyl cover
 - Adhesive exterior trim
 - Stripes, decals, transfers or overlays
 - Drip mouldings
 - Sound deadener
- Trimming of welded assembly to be installed

IMPORTANT REMINDER: No windshield, back or quarter glass (if applicable), or flush mounted reveal mouldings can be removed without the possibility of breakage. Unintentional damage to glass that is considered a structural member by the vehicle manufacturer may occur when attempting alignment pulls to correct unibody collision damage. Agree *beforehand* who will incur the charge for damage occurring during normal R&R or R&I, and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

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Roof and Back Panel

Roof & Back Panel R&R

Included Operations

- Cut in windshield opening and at base of lock pillars
- Remove and install:
 - Windshield, seals or mouldings
 - Seats
 - Headliner (All types)
 - Interior trim (base model only)
 - Sill plates
 - Lock strikers
- Remove and replace caulking for standard factory application

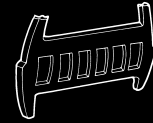
IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish roof and back panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install:
 - Back glass and mouldings
 - Quarter glass and mouldings
 - Pickup bed assembly
 - Restraint systems
 - Fuel tank
- Remove from salvaged assembly:
 - Interior trim panels
- Trimming of welded assembly to be installed

IMPORTANT REMINDER: No windshield, back or quarter glass can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

Back Panel



21

Back Panel R&R

Included Operations

- Cut in window opening, corner panel seams and base of lock pillar
- Remove and install:
 - Seats
 - Trim (base model only)
 - Back or quarter glass, seals or mouldings
- Loosen and pull back cloth type headliner, carpet and insulation as required
- Remove and replace caulking for standard factory application

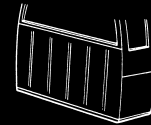
IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish back panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install:
 - Pickup bed assembly
 - Headliner (All types)
 - Restraint systems
 - Fuel tank
- Remove from salvaged assembly:
 - Interior trim panels
- Trimming of welded assembly to be installed

IMPORTANT REMINDER: No back glass or flush mounted reveal mouldings can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

Back and Corner-Side Panel



22

Back & Corner Side-Panels R&R

Included Operations

- Cut in window opening, seam of back panel and base of lock pillar
- Remove and install:
 - Seats
 - Interior trim (base model only)
 - Sill plates
 - Lock strikers
 - Quarter glass, seals or mouldings
- Remove and replace:
 - Back glass, seals or mouldings
- Loosen and pull back cloth type headliner, carpet and insulation as required
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish back and corner panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Pickup bed assembly
 - Headliner (All types)
 - Restraint systems
 - Fuel tank
- Remove from salvaged assembly:
 - Interior trim panels
- Trimming of welded assembly to be installed

IMPORTANT REMINDER: No back or quarter glass (if applicable) or flush mounted reveal mouldings can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

23



Cab Assembly

Cab Assembly R&R

Included Operations

- Remove and install:
 - Cab as an assembly
 - Headliner (All types)
 - Interior trim (base model only)
 - Seats
 - Lock cylinders

IMPORTANT REMINDER: No windshield, back or quarter glass (if applicable) or flush mounted reveal mouldings can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish cab assembly
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Front sheet metal
 - Windshield, seals or mouldings
 - Quarter glass, seals or mouldings
 - Back glass, seals or mouldings
 - Pickup bed assembly
 - Mouldings, nameplates, etc.
 - Instrument panel
 - Steering column
 - Fuel tank
 - Outside mirrors
 - Restraint systems
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinders

Rear Section



24

Rear Section R&R

Included Operations

- Cut at base of roof line and at base of lock pillar or dog legs
- Remove and install or replace:
 - Quarter trim
 - Plastic wheelhouse liners
 - Side and back glass, seals or mouldings
 - Rear seat
 - Sill plates
 - Bumper assembly
 - Luggage compartment trim
 - Lock cylinder
 - Lock strikers
 - Water/dust barriers
- Loosen and pull back cloth type headliner, carpet or insulation as required
- Remove and replace caulking for standard factory application

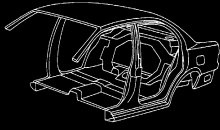
IMPORTANT REMINDER: No back glass or flush mounted reveal mouldings can be removed without the possibility of breakage. Unintentional damage to glass that is considered a structural member by the vehicle manufacturer may occur when attempting alignment pulls to correct unibody collision damage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I, and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish rear section
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Headliner (All types)
 - Mouldings, nameplates, etc.
 - Restraint systems
 - Suspension assembly
 - Antenna
 - Fuel tank
 - Control cables (latch release, etc.)
 - Fluid lines
 - Convertible top
 - Removable hard top
 - Exhaust system
 - Lift gate
 - Lamp assemblies
 - Center console
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinder
- Trimming of welded assembly to be installed

25



Rear Section and Roof

Rear Section & Roof R&R

Included Operations

- Cut in windshield openings and front door openings
- Remove and install or replace:
 - Quarter trim
 - Plastic wheelhouse liners
 - Windshield, seals or mouldings
 - Rear seat
 - Front seats
 - Center pillar trim
 - Sill plates
 - Bumper assembly
 - Luggage compartment trim
 - Lock cylinder
 - Lock strikers
 - Water/dust barriers
- R&I carpet and insulation as required
- Remove and replace caulking for standard factory application

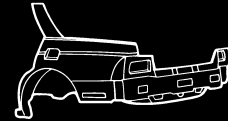
IMPORTANT REMINDER: No windshield, back or quarter glass (if applicable) or flush mounted reveal mouldings can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish rear section
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Headliner (All types)
 - Restraint systems
 - Suspension assembly
 - Back glass, seals or mouldings
 - Antenna
 - Fuel tank
 - Mouldings, nameplates, etc.
 - Control cables (latch release, etc.)
 - Fluid lines
 - Front and rear doors
 - Exhaust system
 - Lamp assemblies
 - Center console
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinder
- Trimming of welded assembly to be installed

Quarter and Back Panel



26

Quarter & Back Panel R&R

Included Operations

- Cut in window openings at base or door post or dog legs, includes wheelhouse
- Remove and install or replace:
 - Side and back glass, seals or mouldings
 - Quarter glass, seals or mouldings
 - Rear seat
 - Sill plates
 - Parcel shelf trim
 - Quarter trim
 - Plastic wheelhouse liner
 - Tail lamps
 - Bumper assembly
 - Luggage compartment trim
 - Lock cylinder
 - Lock strikers
 - Filler panel, stone deflector or rear lower valance
 - Water/dust barrier
- Remove and replace caulking for standard factory application
- Loosen or pull back cloth type headliner, carpet and insulation as required
- Loosen convertible top

IMPORTANT REMINDER: No back or quarter glass (non-movable) or flush mounted reveal mouldings can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish quarter and back panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Headliner (All types)
 - Restraint systems
 - Suspension assembly
 - Antenna
 - Fuel tank
 - Control cables (latch release, etc.)
 - Fluid lines
 - Luggage lid
 - Liftgate
 - Wheel
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinder
- Remove and replace:
 - Floor pan
- Trimming of welded assembly to be installed

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Quarter and Rocker Panel

Quarter & Rocker Panel R&R

Included Operations

- Cut in window openings and rocker panel as necessary, includes wheelhouse
- Remove and install or replace:
 - Quarter trim
 - Plastic wheelhouse liner
 - Side and back glass, seals or mouldings
 - Seats
 - Parcel shelf trim
 - Cowl side trim
 - Filler panels, stone deflector, or lower valance panel
 - Sill plates
 - Bumper assembly
 - Lock strikers
 - Tail lamp
 - Luggage compartment trim
 - Water/dust barrier
- Loosen or pull back cloth type headliner, carpet and insulation as required
- Remove and replace caulking for standard factory application
- Loosen convertible top at quarter

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish quarter and rocker panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Headliner (All types)
 - Restraint systems
 - Suspension assembly
 - Luggage lid
 - Antenna
 - Liftgate
 - Fuel tank
 - Control cables (latch releases, etc.)
 - Fluid lines
 - Mouldings, nameplates, etc.
 - Wheel
- Remove from salvaged assembly:
 - Interior trim panels
- Trimming of welded assembly to be installed

IMPORTANT REMINDER: No back or quarter glass (non-movable) or flush mounted reveal mouldings can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

Quarter Panel Assy



28

Quarter Panel R&R

Included Operations

- Cut in window openings and at base of door post or dog legs, includes wheelhouse
- Remove and install or replace:
 - Side and back glass, seals or mouldings
 - Water/dust barrier
 - Quarter glass, seals or mouldings
 - Rear seat
 - Sill plates
 - Parcel shelf trim
 - Quarter trim
 - Plastic wheelhouse liner
 - Lock striker
 - Tail lamp
 - Bumper assembly
 - Luggage compartment trim
 - Filler panel, stone deflector or lower valance
- Loosen and pull back cloth type headliner, carpet and insulation as necessary
- Loosen convertible top at quarter
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

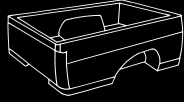
IMPORTANT REMINDER: No back, quarter glass (non-movable) or flush mounted reveal mouldings can be removed without the possibility of breakage. Unintentional damage to glass that is considered a structural member by the vehicle manufacturer may occur when attempting alignment pulls to correct unibody collision damage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I, and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

IMPORTANT REMINDER: Quarter panel R&R is intended to be performed as an assembly including the wheelhouse, and not the outer skin sheet metal by itself. However, due to a variety of unforeseen reasons (e.g. the unavailability of a new quarter panel outer skin for an older model vehicle) utilizing a salvaged quarter panel outer skin may be the only repair option available. In these situations, all additional time for metal trimming to separate the outer skin from the assembly will need to be added to the assembly R&R allowance.

Not Included Operations

- Refinish quarter panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Headliner (All types)
 - Restraint systems
 - Suspension assembly
 - Luggage lid
 - Antenna
 - Liftgate
 - Wheel
 - Fuel tank
 - Control cables (latch release, etc.)
 - Fluid lines
 - Mouldings, nameplates, etc.
- Remove from salvaged assembly:
 - Interior trim panels
- Trimming of welded assembly to be installed

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Pickup Bed Assembly/
Side Panel

Pickup Bed Assembly/Side Panel R&R

Included Operations

- Remove and install as an assembly, including tail gate
- Remove and install:
 - Bumper assembly
 - Plastic wheelhouse liners
 - Fuel filler pipe
 - Tailgate
 - Bed assembly
- Remove and replace caulking for standard factory application

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish bed or side assembly
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Bed liner
 - Camper shell
 - Fuel tank
 - Fluid lines
 - Optional accessories
 - Rear fenders
 - Mouldings, nameplates, etc.
 - Stripes or decals
 - Wheel
 - Lamps
- Trimming of welded assembly to be installed

Van Side Panel



30

Van Side Panel R&R

Included Operations

- Cut in window openings and at base of door posts, includes wheelhouse
- Remove and install:
 - Quarter glass, seals, or mouldings
 - Plastic wheelhouse liner
 - Side and rear doors
 - Sill plates
 - Lock striker
 - Bumper assembly
 - Tail lamp
 - Water/dust barrier
- Loosen and pull back cloth type headliner, carpet and insulation as necessary
- Remove and replace caulking for standard factory application

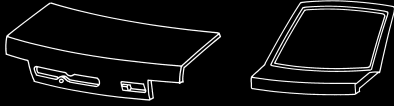
IMPORTANT REMINDER: No quarter glass (non-movable) or flush mounted reveal mouldings can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor time will be required to perform R&I operations on glass secured by urethane.

IMPORTANT REMINDER: Sectioning of a panel may or may not be recommended by vehicle manufacturer. This procedure should only be performed when a qualified and knowledgeable technician has determined that the operation does not jeopardize the integrity of the vehicle.

Not Included Operations

- Refinish side panel
- Remove and/or apply:
 - Anti-corrosion rust resistant materials
- Remove and install or replace:
 - Headliner (All types)
 - Interior trim panels
 - Restraint systems
 - Suspension
 - Fuel tank
 - Fluid lines
 - A/C or heater components
 - Seats
 - Mouldings, nameplates, etc.
 - Stripes or decals
 - Wheel
- Trimming of welded assembly to be installed

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Luggage Lid/Lift Gate/
Bumper/Rear Lamps

Luggage Lid R&R

Included Operations

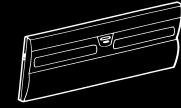
- Remove and install as an assembly
- Remove and install or replace:
 - Lock cylinder
 - Trim panel

IMPORTANT REMINDER: No back glass or flush mounted reveal moulding can be removed without the possibility of breakage. *Agree beforehand* who will incur the charge for damage occurring during normal R&R or R&I and whether additional labor will be required to perform R&I operations on glass secured by urethane.

Not Included Operations

- Refinish luggage lid
- Remove and install:
 - Latch or controls
 - Mouldings, nameplates, etc.
 - Hinges
 - Gas prop rod
 - Spoiler
 - Stripes or decals
 - Lamps
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panel
 - Lock cylinder

Luggage Lid/Lift Gate/ Bumper/Rear Lamps



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(continued)

Rear Gate/Liftgate R&R

Included Operations

- Remove and install as an assembly
- Remove and install or replace:
 - Lock cylinder
 - Interior trim panels
 - Water/dust barrier

Not Included Operations

- Refinish rear gate/liftgate
- Remove and install or replace:
 - Hinges or links
 - Gas prop rod
 - Latch or controls
 - Wiper and washer
 - Handle
 - Spoiler
 - Mouldings, nameplates, etc.
 - Stripes or decals
 - Rear glass, seals or mouldings
 - Lamps
- Recode lock cylinder
- Remove from salvaged assembly:
 - Interior trim panels
 - Lock cylinder

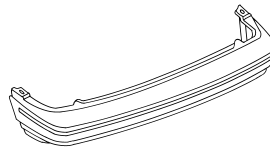
Bumper Assembly R&R

Included Operations

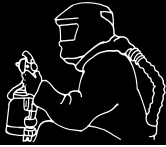
- Remove assembly from frame, impact absorbers or mounting arms
- Replace as an assembly
- Adjust alignment to vehicle
- Remove and replace impact absorbers

Not Included Operations

- Refinish bumper
- Remove and install optional accessories (example: parking aid sensors, spoilers, trailer hitch, trailer connector)



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Refinish Procedure

Major Panels or Assemblies

Major panels or assemblies are those listed below:

FRONT PANEL	BACK AND CORNER-SIDE PANELS
FRONT SHEET METAL	CAB ASSEMBLY
FENDER	REAR SECTION
FENDER AND RADIATOR SUPPORT	REAR SECTION AND ROOF
HOOD	QUARTER AND BACK PANEL
ROCKER	QUARTER AND ROCKER PANEL
ROCKER AND CENTER PILLAR	QUARTER PANEL
DOOR	PICKUP BED
DOORS AND CENTER PILLAR	PICKUP BED SIDE
DOORS/CENTER PILLAR AND ROCKER	VAN SIDE PANEL
DOORS/CENTER PILLAR/ROCKER AND QUARTER	LUGGAGE LID
ROOF	LIFTGATE
ROOF AND BACK PANEL	TAILGATE
BACK PANEL	

Overlap

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

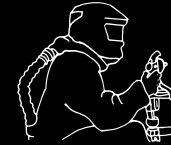
Adjacent major panel or assembly example: Front sheet metal 8.5 hours (full time) and right front door 2.5 hours minus .4 hour overlap for a total of 10.6 hours.

Non-adjacent major panel or assembly example: Front sheet metal 8.5 hours (full time) and right rear door 2.5 hours minus .2 hour overlap for a total of 10.8 hours.

No overlap deductions for valance panel, pillars, inner panels, filler panels, soft bumper covers or bolt-on finish panels.

NOTE: Refinish overlap within assemblies has been factored. Do not take any additional overlap for panels within assemblies

Refinish Procedure



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(continued)

Included Operations

- Detergent/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

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 **UNDAMAGED SALVAGED PARTS AND/OR ASSEMBLIES.**

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

IMPORTANT REMINDER: Remove and install or masking of glass, outside handles or exterior trim, featheredge-fill-sand and block, and masking for surface fill application are not included in refinish time. 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.

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

Not Included Operations

- Applying anti-corrosion rust resistant materials
- Blending into adjacent panel and/or panels, or nearest breaking point
- Clear coat
- Color match or tinting
- Finish sand and buff
- Subsequent vehicle bagging when required: add .2 hour for each application & removal
- Mask interior to prevent overspray damage
- Featheredge rock chips, scratches or other imperfections, or the application of primer surfacer and block sanding of the same
- Gravel guard refinish; add .5 hour for the first major panel and .3 hour for each additional panel
- Paint removal if necessary
- Removal of protective coatings
- Remove and install or mask:
 - Bolted parts and assemblies (example: reservoirs, canisters, door handles, moldings, mirrors, name plates, cruise control, air conditioning and heater components, etc.)
 - Glass and trim
 - Decals (example: EPA, body identification, etc.)
 - Wiring and/or wiring harness for access to refinish
- Special coating of luggage compartment
- Steam cleaning of replacement panels to remove contaminants or other materials that would interfere with refinish operation
- Two tone refinish

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 in *Not Included Operations*.

32 Refinish Procedure

(continued)

Clear Coat/Two Stage Refinish

First major panel, assembly 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), assembly(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

Three Stage Refinish

First major panel, assembly 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), assembly(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

Refinish Procedure



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(continued)

Finish Sand & Buff

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

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

Finish sand and buff outside surface area(s):

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

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 Estimating Information page P-2 for information on Welded Panels.

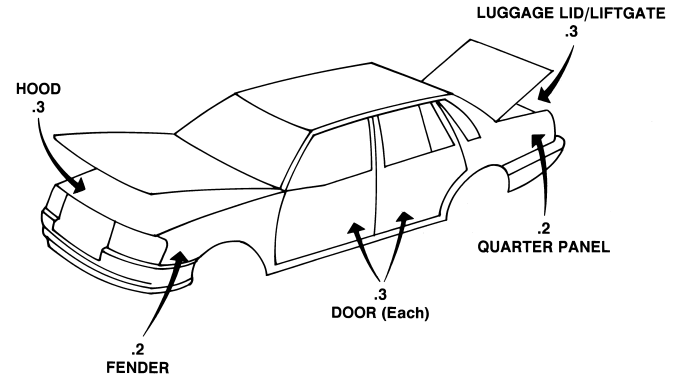
Mask Vehicle to Prevent Overspray Damage

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

MASK INTERIOR ENTRYWAYS, ENGINE COMPARTMENT AND TRUNK OPENINGS

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

MASK INTERIOR OPENINGS, JAMBS



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

The Mitchell REFINISHING MATERIALS GUIDE, with the Latest Available Costs for Materials Used in Single and Multi-Stage Refinishing, is an Accurate Source for Determining Costs. Information on the REFINISHING MATERIALS GUIDE and Other Collision Estimating and Repair Publications is Provided at the Front of this Guide.

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Plastic Identification

(continued)

Plastic Markings

Vehicle manufacturers generally mark major plastic parts to identify the type of plastic material used in the item's production. These are in the form of letter-coded groups molded on the backs of parts as identified below. Wherever possible, these parts are identified in the text.

Handling Precautions For Plastics

When repairing and painting metal body parts adjacent to plastic parts, consider their characteristics (i.e., influence of heat and solvent) and remove them if necessary, or take suitable measures to protect them. Plastic parts should be repaired and painted using methods suiting the materials. Depending on the severity of damage, the repair cost should not exceed the cost of replacing the part.

<u>Abbrev.</u>	<u>Material Name</u>	<u>Heat Resisting Temp °F (°C)</u>	<u>Location</u>	<u>Notes</u>
AAS	Acrylonitrile acrylic rubber styrene	176 (80)	Trim panel, side marker lamp, door, outside mirror	Avoid gas and solvents.
ABS	Acrylonitrile butadiene styrene	176 (80)	Grille, garnish moulding, speaker grill, vent louver, trim panel, safety pad, outside mirror	Avoid gas and solvents.
AES	Acrylonitrile ethylene styrene	176 (80)	Grille	Avoid gas and solvents.
EDPM	Ethylene propylene rubber	212 (100)	Bumper impact strip	Gas and most solvents are harmless (wipe quickly).
FRP	Fibre reinforced plastics	338 (170)	Headlamp cover	Gas and most solvents are harmless.
PA	Polyamide (nylon)	176 (80)	Exterior finish panel	Gas and most solvents are harmless.
PC	Polycarbonate	248 (120)	Instrument panel, lens, grille	Avoid gas and solvents.
PE	Polyethylene	176 (80)	Fender skirt, interior trim, headliner, valance, spoiler, sill cover	Gas and most solvents are harmless. Flammable.
PMMA	Polymethyl methacrylate	176 (80)	Lens	Avoid gas and solvents.
PP	Polypropylene	176 (80)	Instrument panel, interior trim, grille, center console, scuff plate, exterior trim, fender, skirt, heater/evaporator case, coolant tank	Gas and most solvents are harmless. Flammable.
PPC	Polypropylene composite	239 (115)	Center console box	Gas and most solvents are harmless. Flammable.
PPO	Polypropylene oxide	212 (100)	Grille, headlamp, door, bezel, ornament (chrome)	Avoid gas and solvents.
PUR	Polyurethane	176 (80)	Bumper cover	Gas and most solvents are harmless (wipe quickly).
PVC	Polyvinyl chloride	176 (80)	Headliner, interior trim, side protect moulding, safety pad	Gas and most solvents are harmless (wipe quickly). Poison gas emitted when burned.
SAN	Styrene acrylonitrile resin	176 (80)	Instrument panel gauge lens	Avoid gas and solvents.
TPO	Thermoplastic olefin	176 (80)	Mudguard	Gas and most solvents are harmless (wipe quickly).
TPR	Thermoplastic rubber	176 (80)	Valance panel, filler panel, mudguard	Avoid gas and solvents.
TPU	Thermoplastic polyurethane	176 (80)	Bumper cover, gravel deflector, soft filler panel	Avoid gas and solvents.