

FOREWORD

This repair manual has been prepared to provide essential information on body panel repair methods (including cutting and welding operations, but excluding painting) for the TOYOTA COROLLA

Applicable models: AZE141 series
ZRE142 series

This manual consists of body repair methods, exploded diagrams and illustrations of the body components and other information relating to body panel replacement such as handling precautions, etc. However, it should be noted that the front fenders of the TOYOTA model is bolted on and require no welding.

When repairing, don't cut and join areas that are not shown in this manual. Only work on the specified contents to maintain body strength.

Body construction will sometimes differ depending on specifications and country of destination. Therefore, please keep in mind that the information contained herein is based on vehicles for general destinations.

For the repair procedures and specifications other than collision-damaged body components of the TOYOTA COROLLA refer to the repair manuals.

If you require the above manuals, please contact your TOYOTA Dealer.

All information contained in this manual is the most up-to-date at the time of publication. However, specifications and procedures are subject to change without prior notice.

TOYOTA MOTOR CORPORATION

ABOUT THIS MANUAL

Scope of the repair work explanation

- This text explains the welding panel replacement instructions from the vehicle's white body condition. We have abbreviated the explanations of the removal and reinstallation of the equipment parts up to the white body condition and of the installation, inspection, adjustment and final inspection of equipment parts after replacing the weld panel.

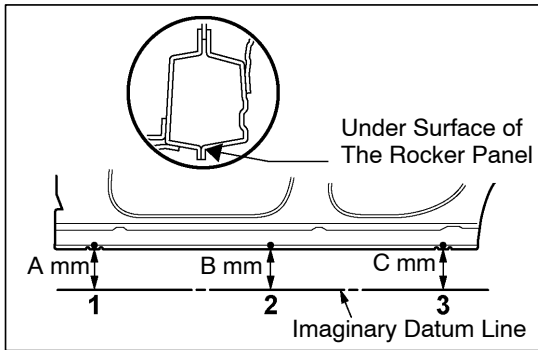
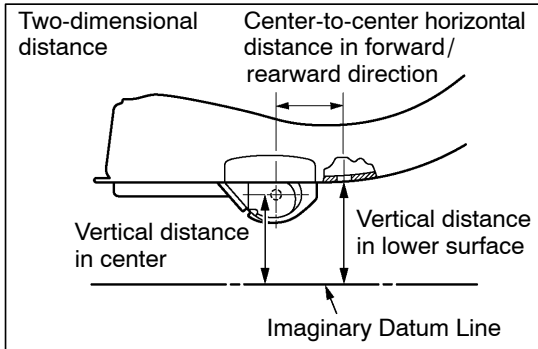
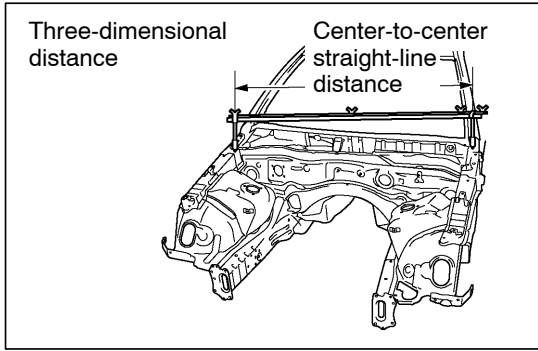
Section categories

- This manual has been divided as shown below.

Section Title	Contents	Examples
INTRODUCTION	Explanation of general body repair. Views of weld panel replacement instructions.	Precaution About this vehicle
BODY PANEL REPLACEMENT	Instructions for replacing the weld panels from the white body condition, from which bolted parts have been removed, with individual supply parts.	Front side member replacement. Quarter panel replacement.
BODY DIMENSIONS	Body aligning measurements.	Dimension diagrams.
PAINT • COATING	Scope and type of anti-rust treatment, etc. together with weld panel replacement.	Body sealer. Under coat.

Contents omitted in this manual

- Make sure to perform the following essential procedures, although they are omitted in this manual.
 - (1) Clean and wash removed parts, if necessary.
 - (2) Visual inspection



GENERAL INFORMATION

1. BASIC DIMENSIONS

(a) There are two types of dimensions in the diagram.

(1) (Three-dimensional distance)

- Straight-line distance between the centers of two measuring points.

(2) (Two-dimensional distance)

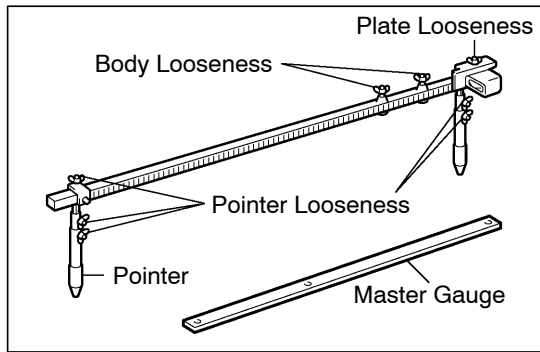
- Horizontal distance in forward/rearward direction between the centers of two measuring points.
- The height from an imaginary datum line.

(b) In cases in which only one dimension is given, left and right are symmetrical.

(c) The dimensions in the following drawing indicate actual distance. Therefore, please use the dimensions as a reference.

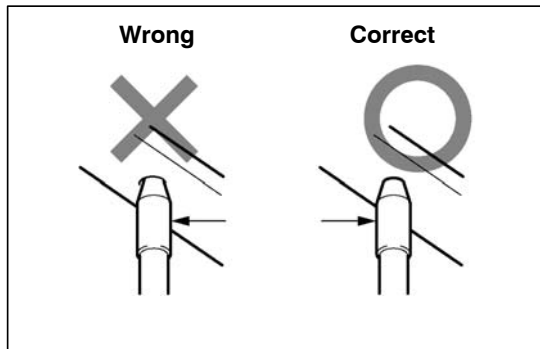
(d) The line that connects the places listed below is the imaginary datum line when measuring the height. (The dimensions are printed in the text.)

SYMBOL	Name
1	The place that was lowered A mm from the under surface of the rocker panel centered on the front jack up point.
2	The place that was lowered B mm from the under surface of the rocker panel centered between 1 and 3.
3	The place that was lowered C mm from the under surface of the rocker panel centered on the rear jack up point.



2. MEASURING

- (a) Basically, all measurements are to be done with a tracking gauge. For portions where it is not possible to use a tracking gauge, a tape measure should be used.
- (b) Use only a tracking gauge that has no looseness in the body, measuring plate, or pointers.



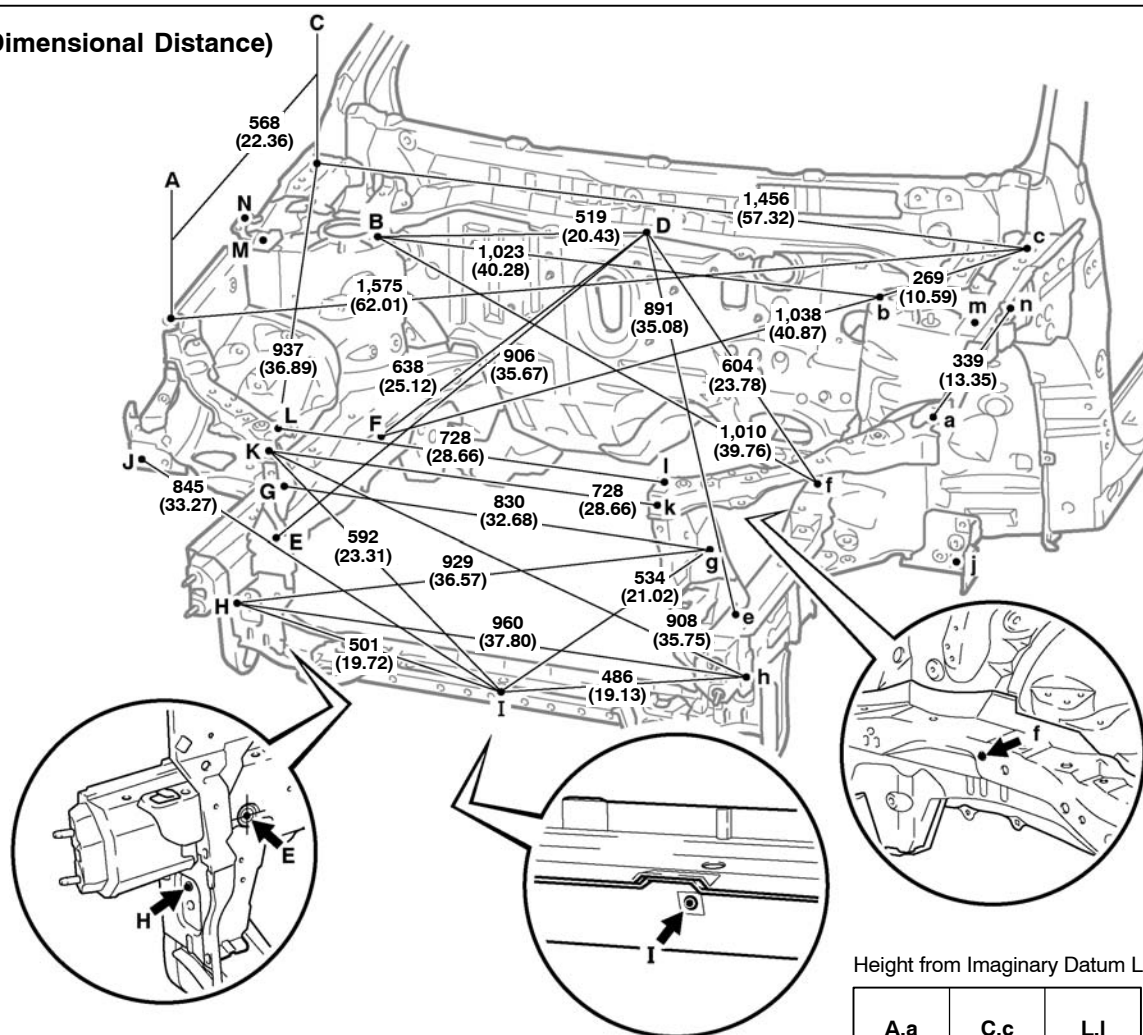
HINT:

- 1) The height of the left and right pointers must be equal.
 - 2) Always calibrate the tracking gauge before measuring or after adjusting the pointer height.
 - 3) Take care not to drop the tracking gauge or otherwise shock it.
 - 4) Confirm that the pointers are securely in the holes.
- (c) When using a tape measure, avoid twists and bends in the tape.

BODY DIMENSION DRAWINGS

ENGINE COMPARTMENT

(Three-Dimensional Distance)



Height from Imaginary Datum Line

A,a	C,c	L,l
700 (27.56)	783 (30.83)	666 (26.22)

Vehicle Dimensions

A-n or a-N	B-c or b-C	C-l or c-L	C-M or c-m	C-m or c-M	I-j	J-j	M-m
1,537 (60.51)	1,250 (49.21)	1,392 (54.80)	263 (10.35)	1,457 (57.36)	852 (33.54)	1,561 (61.46)	1,410 (55.51)

N-n	L-N or l-n	L-n or l-N
1,517 (59.72)	747 (29.41)	1,290 (50.79)

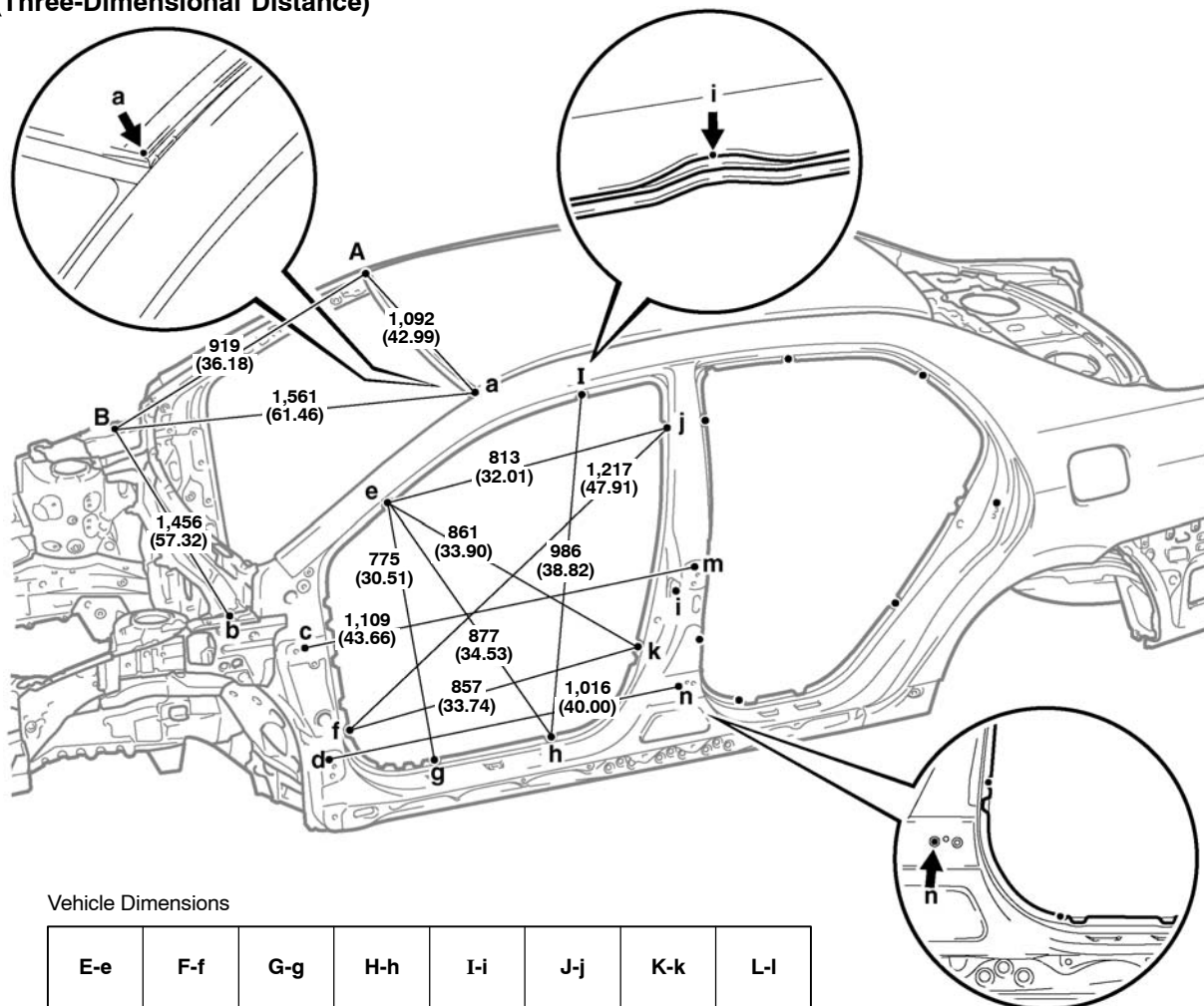
HINT: For symbols, capital letters indicate right side of vehicle,
small letters indicate left side of vehicle (seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front fender installation nut	M6 (0.24)	H, h	Front cross member side gusset standard hole	ø10 (0.39)
B, b	Front suspension support installation hole-inner	ø11 (0.43)	I	Hood lock support brace installation nut	M6 (0.24)
C, c	Hood hinge installation nut-eror	M8 (0.31)	J, j	Front fender extension standard hole	ø10 (0.39)
D	Cowl top panel center mark	—	K, k	Radiator upper support installation nut	M6 (0.24)
E, e	Front side member standard hole	ø18 (0.71)	L, l	Radiator upper support installation nut	M6 (0.24)
F	Front side member standard hole	ø12 (0.47)	M, m	Front apron to cowl side member upper standard hole	ø10 (0.39)
f	Engine mounting installation nut	M12 (0.47)	N, n	Front fender installation nut	M6 (0.24)
G, g	Radiator support standard hole	ø10 (0.39)	—	—	—

BODY OPENING AREAS (Side View: Front)

(Three-Dimensional Distance)



Vehicle Dimensions

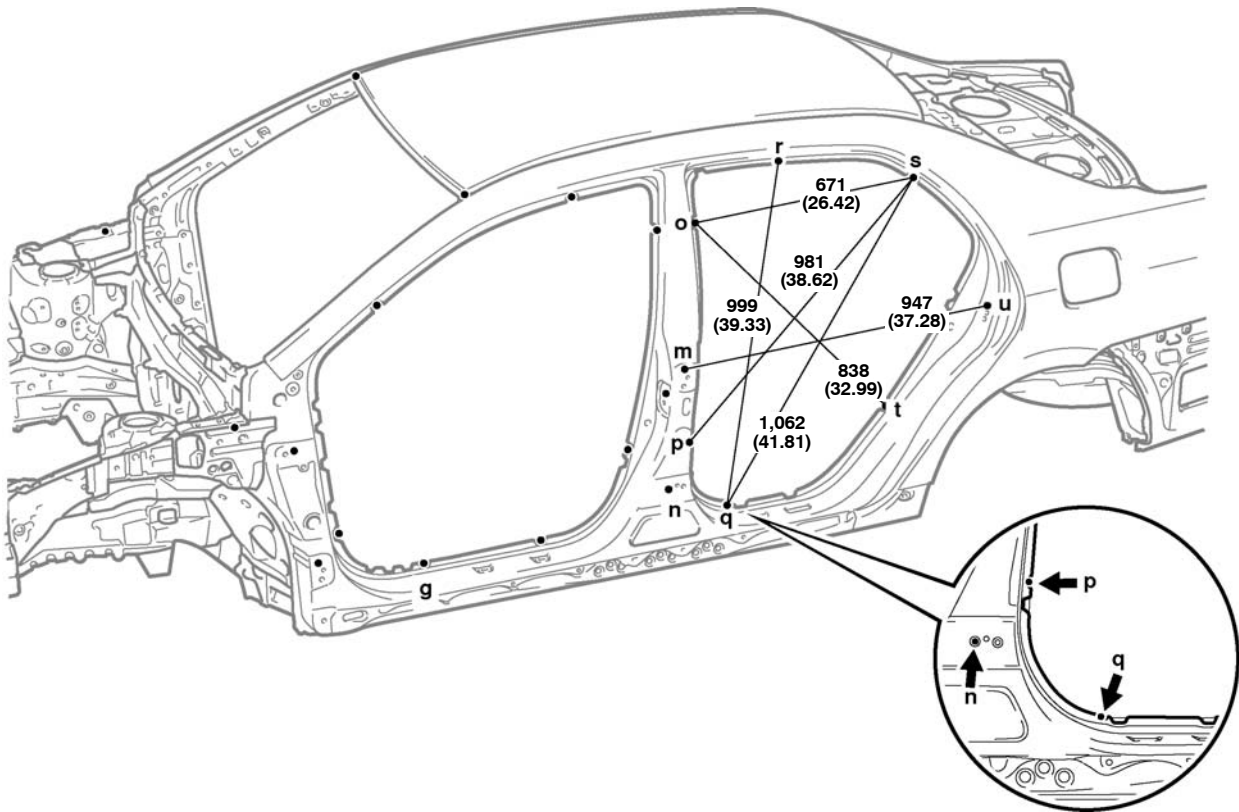
E-e	F-f	G-g	H-h	I-i	J-j	K-k	L-l
1,327 (52.24)	1,417 (55.79)	1,420 (55.91)	1,418 (55.83)	1,159 (45.63)	1,280 (50.39)	1,448 (57.01)	1,563 (61.54)

E-f or e-F	E-h or e-H	E-i or e-I	E-k or e-K	F-j or f-J	F-k or f-K	H-i or h-I	C-L or c-l	C-N or c-n	D-L or d-l	D-M or d-m	G-I or g-i
1,519 (59.80)	1,629 (64.13)	1,389 (54.68)	1,632 (64.25)	1,815 (71.46)	1,670 (65.75)	1,617 (63.66)	1,062 (41.81)	1,101 (43.35)	1,069 (42.09)	1,135 (44.68)	1,104 (43.46)

HINT: For symbols, capital letters indicate right side of vehicle,
small letters indicate left side of vehicle (seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Roof panel corner	—	H, h	Rocker panel assembly mark	—
B, b	Hood hinge installation nut-rear	M8 (0.31)	I, i	Roof side rail assembly mark	—
C, c	Front door hinge installation nut	M8 (0.31)	J, j	Center body pillar assembly mark	—
D, d	Front door hinge installation nut	M8 (0.31)	K, k	Center body pillar assembly mark	—
E, e	Front body pillar assembly mark	—	L, l	Front door lock striker installation nut	M8 (0.31)
F, f	Front body pillar assembly mark	—	M, m	Rear door hinge installation nut	M8 (0.31)
G, g	Rocker panel assembly mark	—	N, n	Rear door hinge installation nut	M8 (0.31)

BODY OPENING AREAS (Side View: Rear)**Sedan****(Three-Dimensional Distance)****Vehicle Dimensions**

O-o	P-p	Q-q	R-r	S-s	T-t	U-u
1,280 (50.39)	1,450 (57.09)	1,418 (55.83)	1,145 (45.08)	1,226 (48.27)	1,421 (55.94)	1,526 (60.08)

G-q or g-Q	O-q or o-Q	O-s or o-S	O-t or o-T	P-s or p-S	P-t or p-T	Q-r or q-R	S-t or s-T	N-U or n-u
1,702 (67.01)	1,603 (63.11)	1,421 (55.94)	1,588 (62.52)	1,656 (65.20)	1,559 (61.38)	1,619 (63.74)	1,478 (58.19)	1,066 (41.97)

HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (seen from rear).

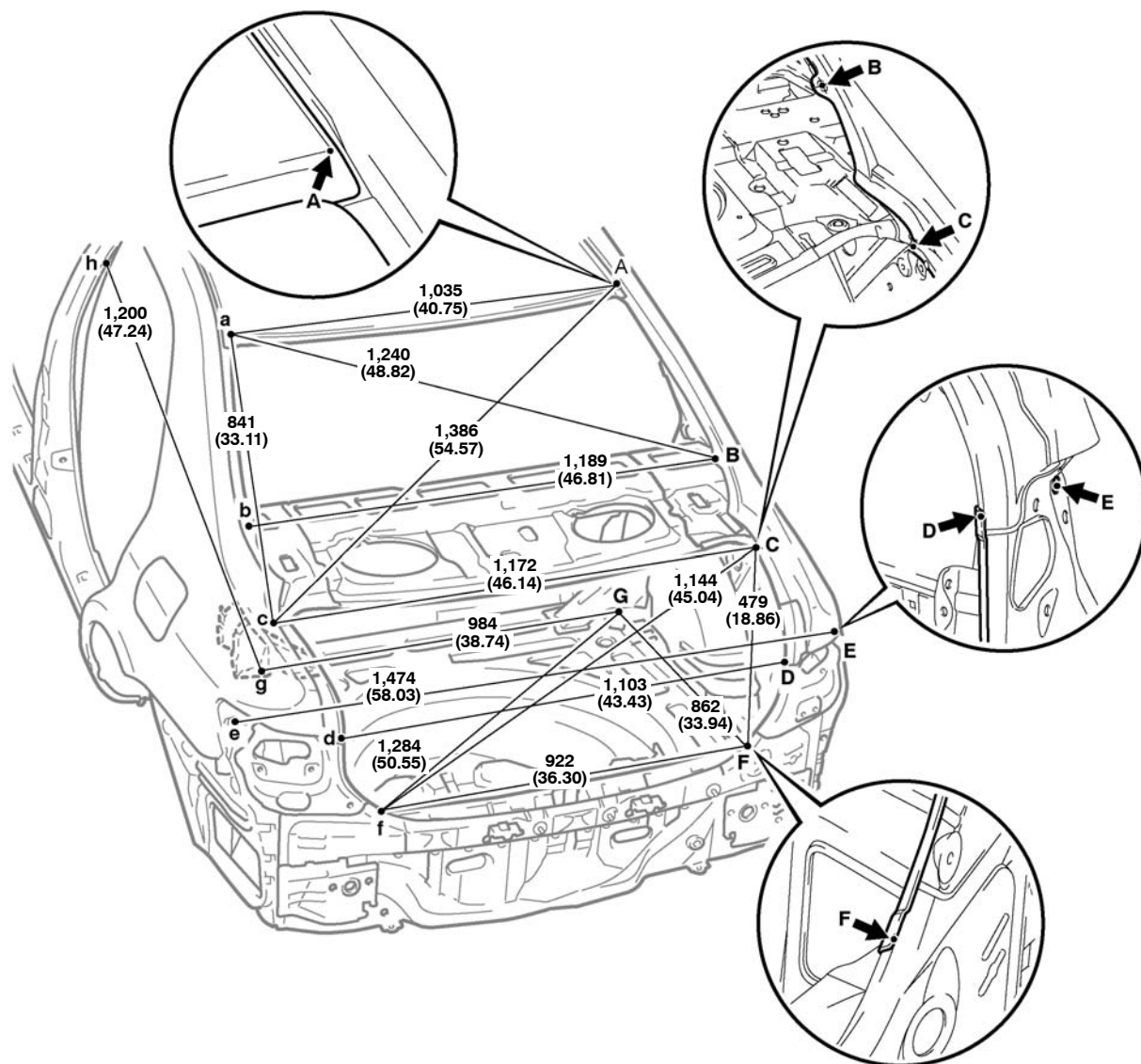
mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
G, g	Rocker panel assembly mark	—	Q, q	Rocker panel notch edge	—
M, m	Rear door hinge installation nut	M8 (0.31)	R, r	Roof side rail assembly mark	—
N, n	Rear door hinge installation nut	M8 (0.31)	S, s	Quarter panel assembly mark	—
O, o	Center body pillar assembly mark	—	T, t	Quarter panel assembly mark	—
P, p	Center body pillar assembly mark	—	U, u	Rear door lock striker installation nut	M8 (0.31)

BODY OPENING AREAS (Rear View)

Sedan

(Three-Dimensional Distance)



Vehicle Dimensions

D-c or d-C
1,284 (50.55)

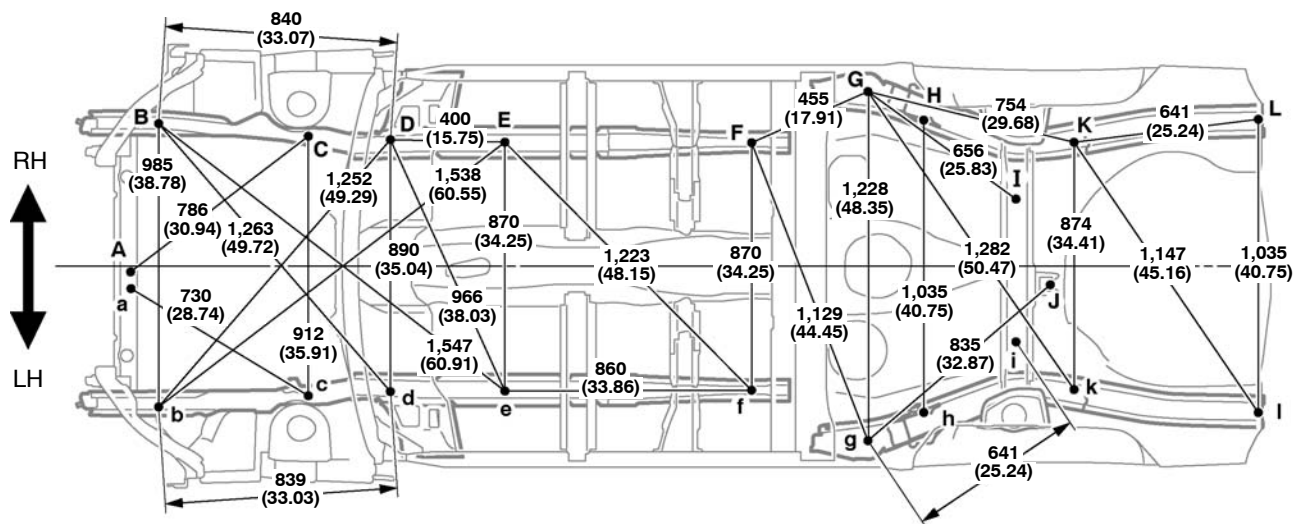
HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (seen from rear).

mm (in.)

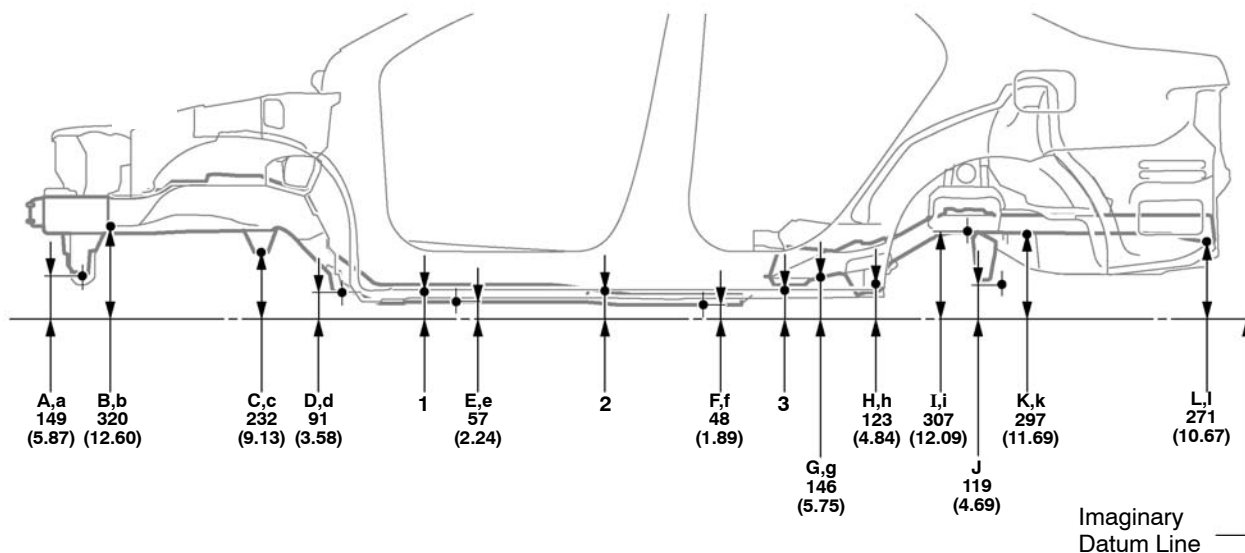
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Roof panel corner	—	E, e	Quarter panel standard hole	ø13 (0.51)
B, b	Quarter panel standard hole	13.5 x 10.5 (0.53 x 0.41)	F, f	Quarter panel end housing / Body lower back panel adjoining portion	—
C, c	Quarter panel / upper back panel adjoining portion	—	G, g	Rear suspension installation hole	ø16 (0.63)
D, d	Quarter panel end housing / Luggage compartment opening trough adjoining portion	—	H, h	Center body pillar assembly mark	—

UNDER BODY

(Three-Dimensional Distance)



Front



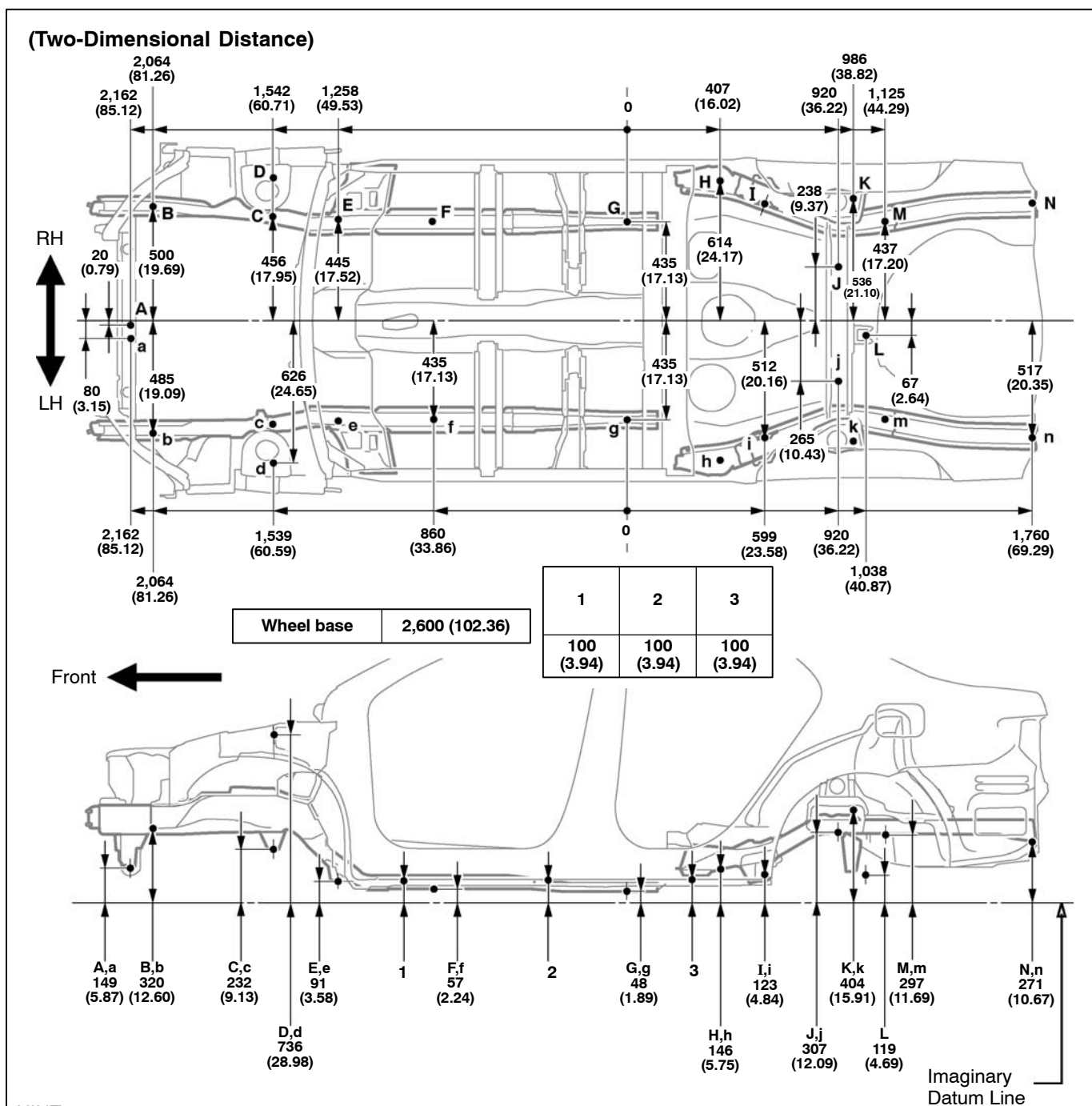
HINT:

- 1) For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (seen from rear).
- 2) Point A,a, B,b, I,i on the vehicle are asymmetrical.

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Engine mounting center member installation nut	M10 (0.39)	G, g	Rear floor side front member standard hole	ø25 (0.98)
B, b	Front side member standard hole	ø18 (0.71)	H, h	Trailing arm installation hole	ø13 (0.51)
C, c	Front suspension crossmember installation nut	M14 (0.55)	I, i	Rear floor NO. 2 crossmember standard hole	ø10 (0.39)
D, d	Front suspension crossmember installation nut	M14 (0.55)	J	Rear floor centermember NO. 4 reinforcement standard hole	ø8 (0.31)
E, e	Front side member standard hole	ø18 (0.71)	K, k	Rear floor side rear member standard hole	19 x 16 (0.75 x 0.63)
F, f	Front floor under reinforcement standard hole	ø10 (0.39)	L, l	Transport hook installation hole-rear	ø15 (0.59)

UNDER BODY



HINT:

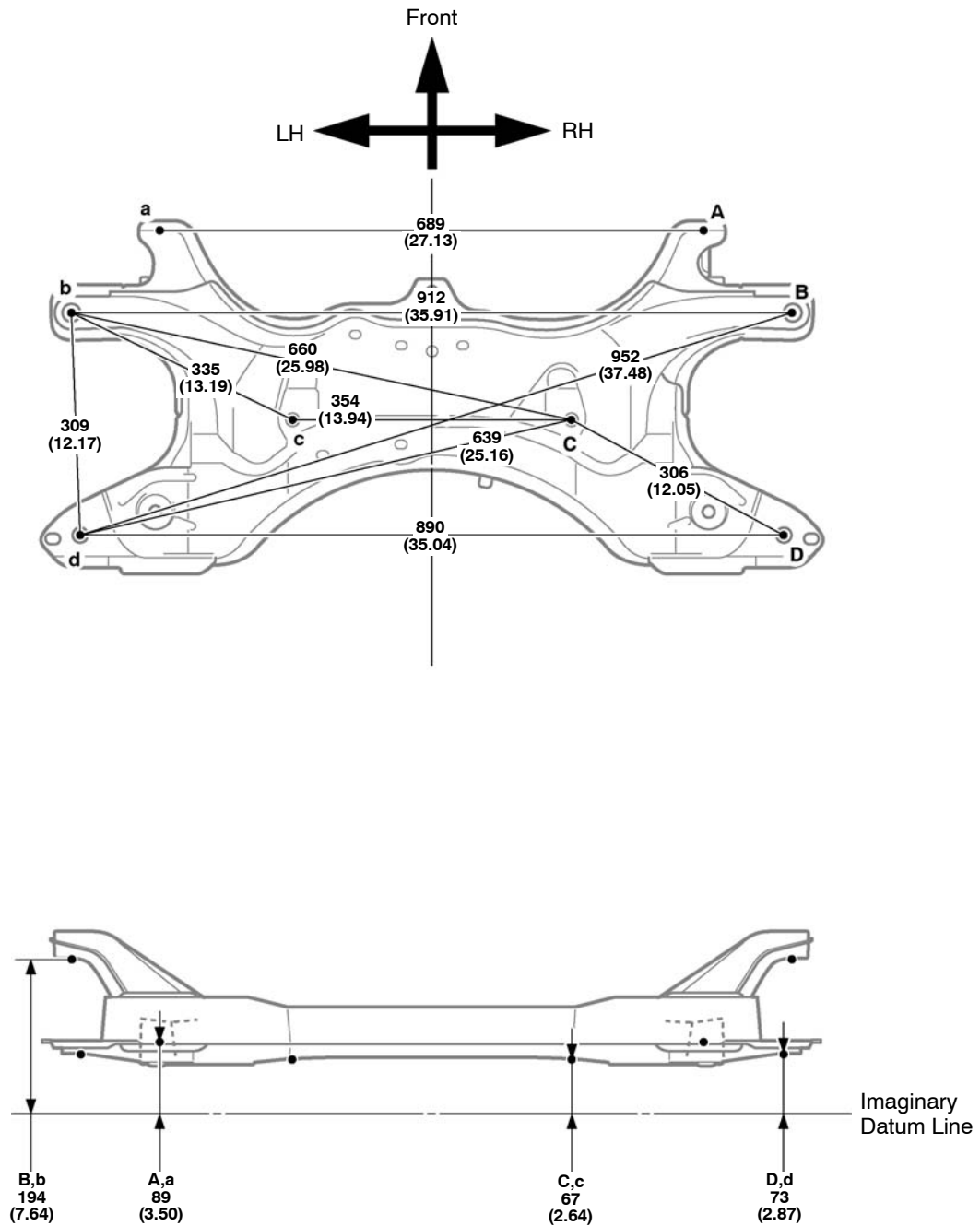
- For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (seen from rear).
- Point A,a, B,b, J,j on the vehicle are asymmetrical.

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Engine mounting center member installation nut	M10 (0.39)	H, h	Rear floor side front member standard hole	ø25 (0.98)
B, b	Front side member standard hole	ø18 (0.71)	I, i	Trailing arm installation hole	ø13 (0.51)
C, c	Front suspension crossmember installation nut	M14 (0.55)	J, j	Rear absorber mounting member standard hole	ø10 (0.39)
D, d	Front suspension support installation hole	ø11 (0.43)	K, k	Rear spring bracket installation hole	ø15 (0.59)
E, e	Front suspension crossmember installation nut	M14 (0.55)	L	Rear floor centermember NO. 4 reinforcement standard hole	ø8 (0.31)
F, f	Front side member standard holet	ø18 (0.71)	M, m	Rear floor side rear member standard hole	19 x 16 (0.75 x 0.63)
G, g	Front floor under reinforcement standard hole	ø10 (0.39)	N, n	Transport hook installation hole-rea	ø15 (0.59)

FRONT SUSPENSION CROSSMEMBER

(Three-Dimensional Distance)

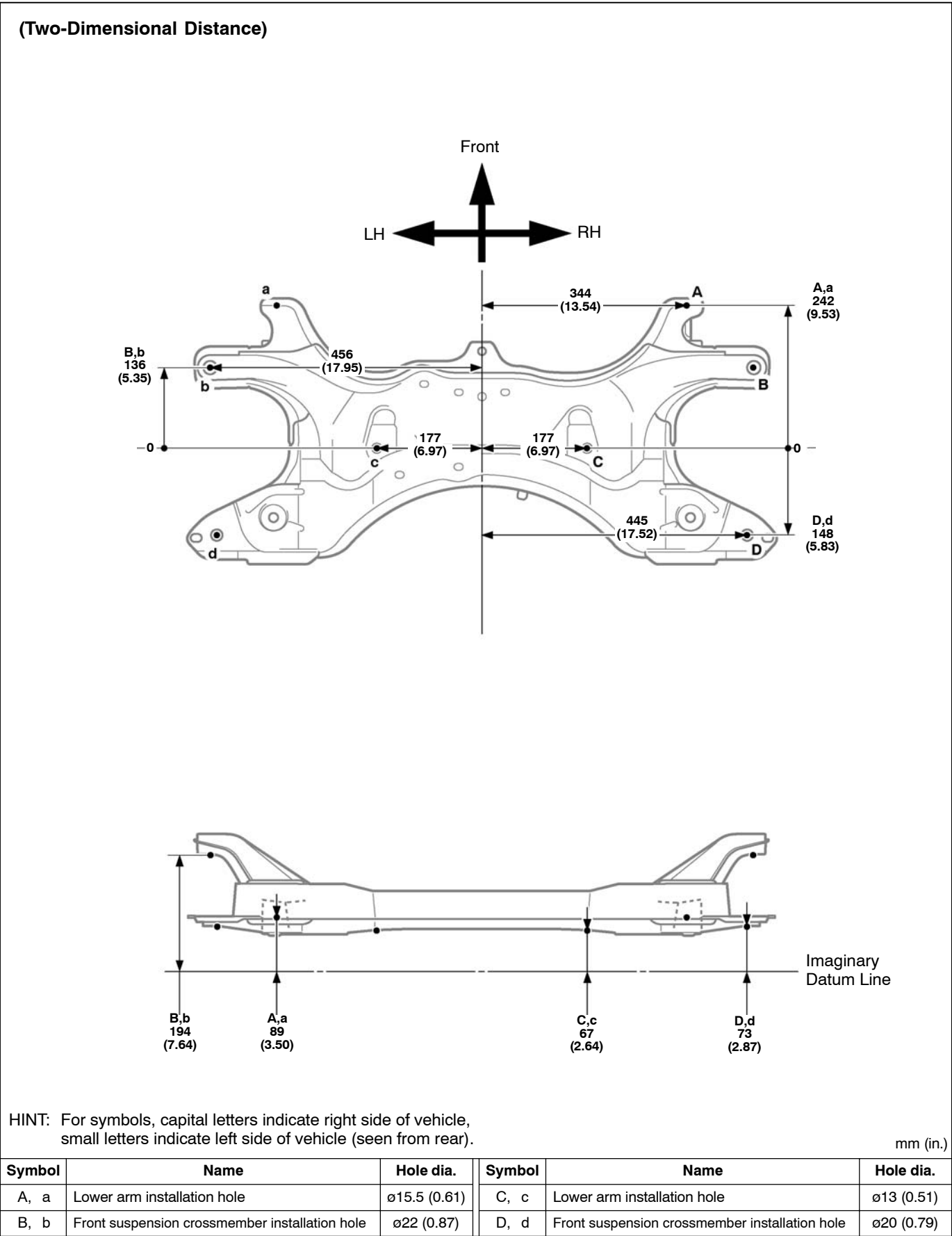


HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Lower arm installation hole	ø15.5 (0.61)	C, c	Front suspension crossmember standard hole	ø13 (0.51)
B, b	Front suspension crossmember installation hole	ø22 (0.87)	D, d	Front suspension crossmember installation hole	ø20 (0.79)

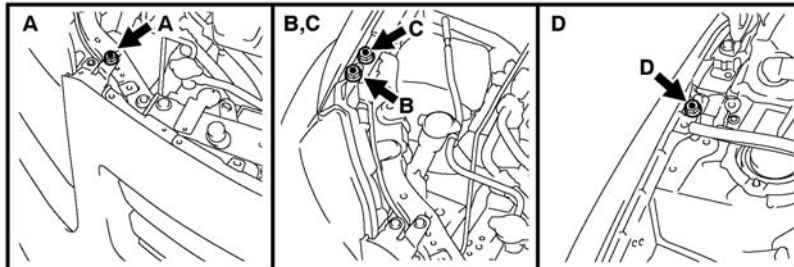
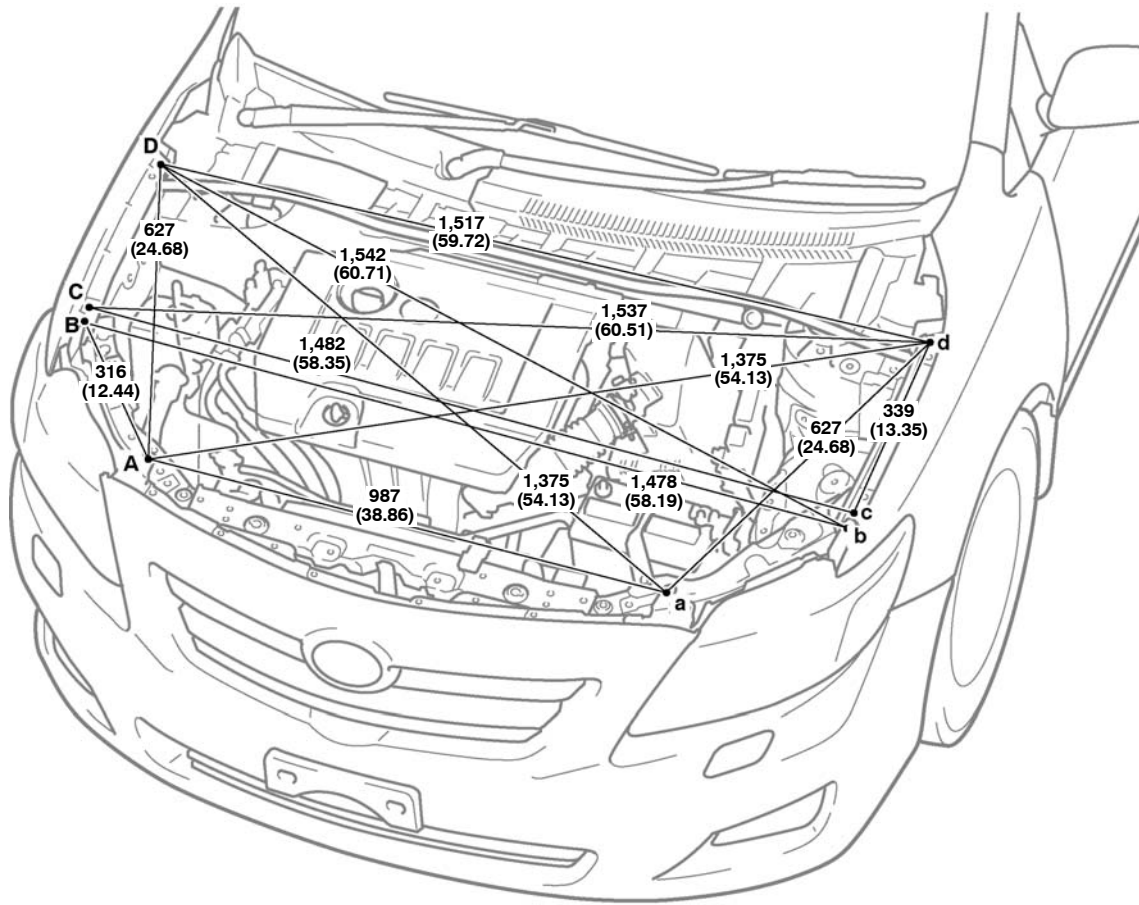
FRONT SUSPENSION CROSSMEMBER



REFERENCE VALUE

ENGINE COMPARTMENT

(Three-Dimensional Distance)



HINT:

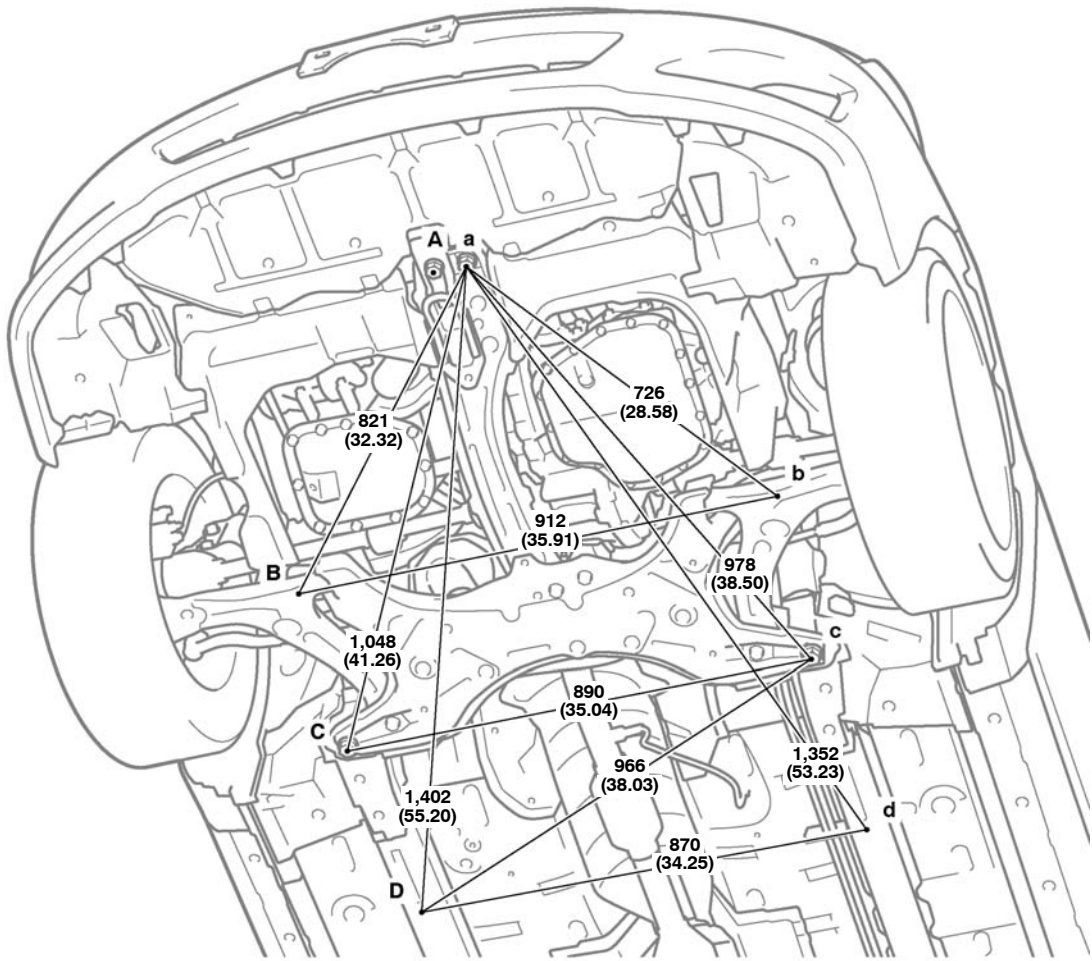
- For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (seen from rear).
- These values are actual measurements made on model. Use these reference values.

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front bumper cover installation bolt	—	D, d	Front fender installation bolt	—
B, b	Headlight installation bolt	—	E, e	Front fender installation bolt	—

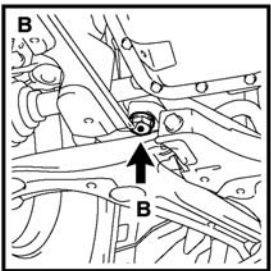
UNDER BODY

(Two-Dimensional Distance)



Vehicle Dimensions

A-B	A-b	A-C	A-c	A-D	A-d
782 (30.79)	759 (29.88)	1,020 (40.16)	1,002 (39.45)	1,382 (54.41)	1,369 (53.90)



HINT:

- 1) For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (seen from rear).
- 2) These values are actual measurements made on model. Use these reference values.

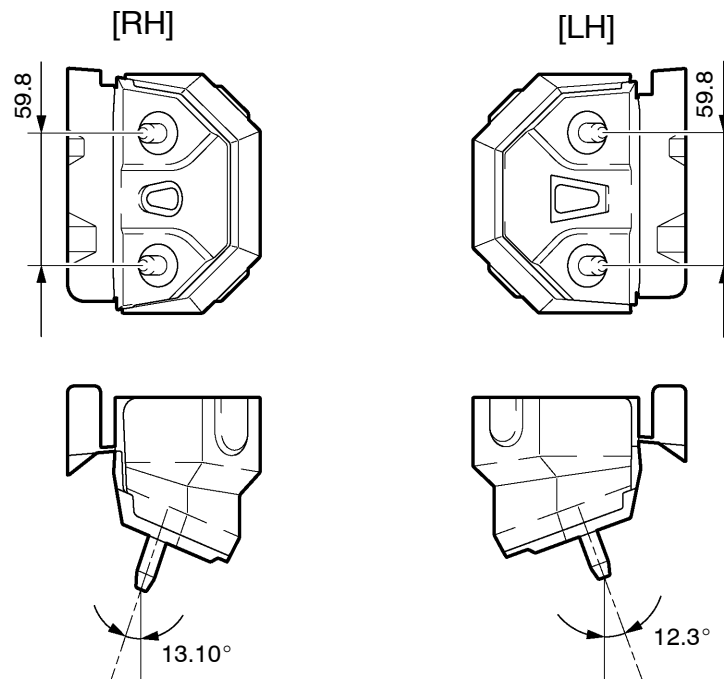
mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Center member installation bolt	—	C, c	Front suspension crossmember installation bolt	—
B, b	Front suspension crossmember installation bolt	—	D, d	Front side member installation hole	ø18 (0.71)

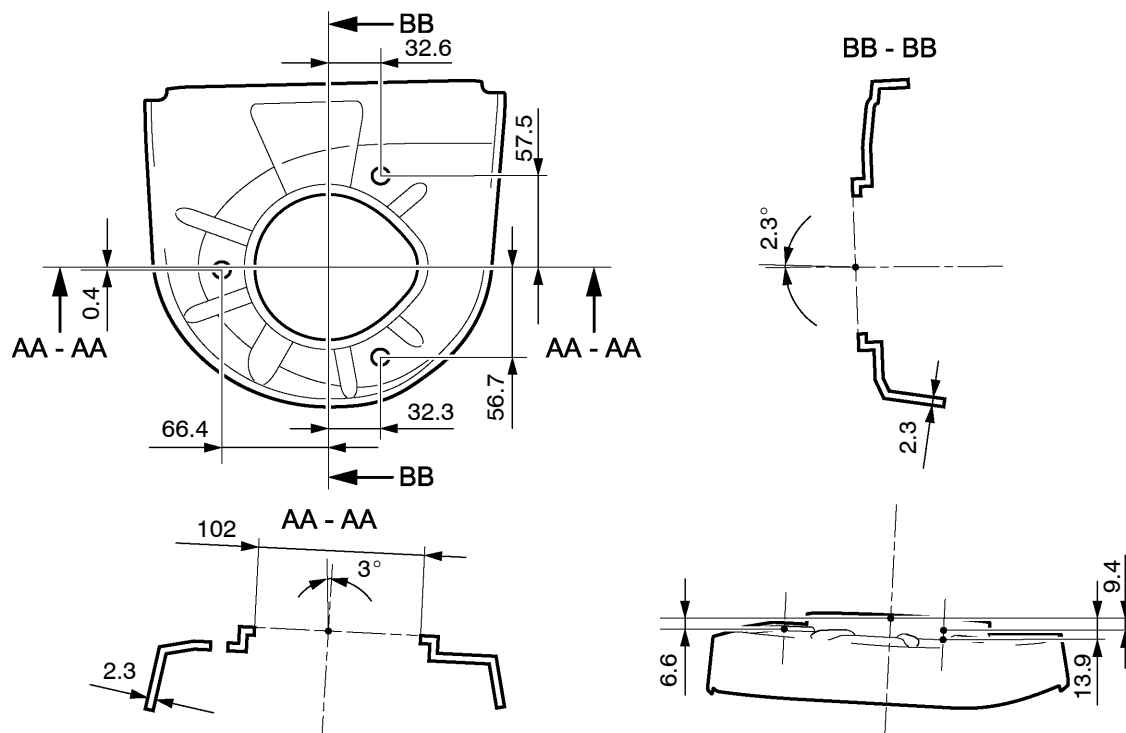
UNDER BODY

(Two-Dimensional Distance)

Front bumper reinforcement



Front suspension support

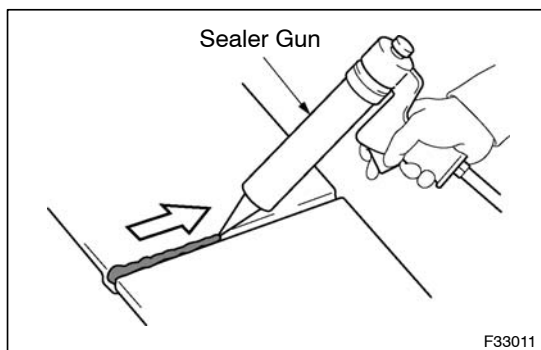


Unit: mm

MEMO

4. ANTI-RUST TREATMENT AFTER INSTALLATION

(a) BODY SEALER APPLICATION

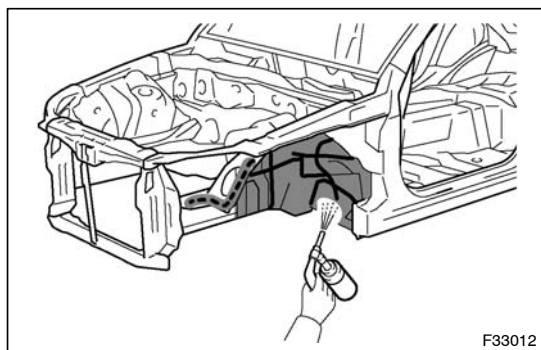
**PURPOSE:**

For water-proofing and anti-rust measures, always apply the body sealer to the body panel seams and hems of the doors, hood, etc.

NOTICE:

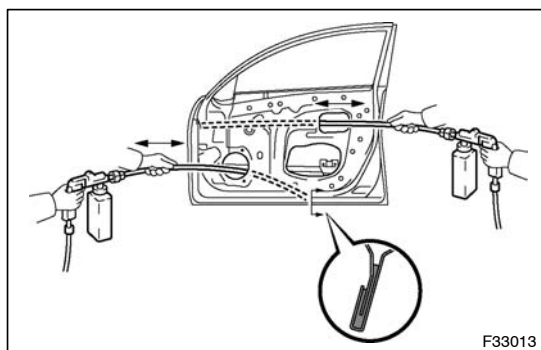
Apply body sealer neatly to parts that require a high quality appearance.

(b) UNDERCORT APPLICATION

**PURPOSE:**

To prevent corrosion and protect the body from gravel, always apply a sufficient undercoating to the areas indicated.

(c) VEHICLE BODY ANTI-RUST AGENT APPLICATION

**PURPOSE:**

The purpose is to protect areas from rust which are difficult to paint such as the backside of the box-shaped cross section frame parts.

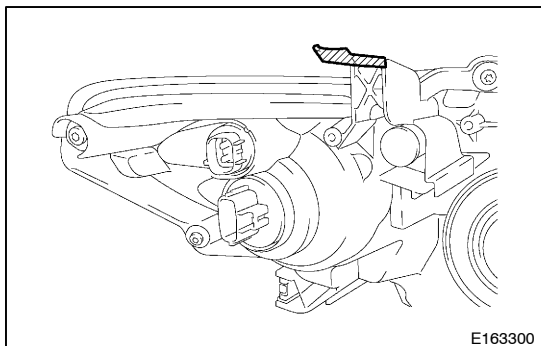
METHOD:

Apply anti-rust agent through the service holes and/or installation holes of the parts.

5. HEADLIGHT BRACKET REPAIR

HINT:

- If the installation area of the headlight assembly is damaged, use the supply retainer for low-cost repair.
- Ensure that the headlight assembly is not damaged.

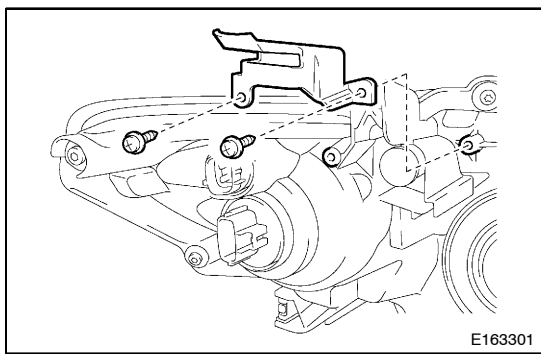


(a) INSTALL UPPER HEADLIGHT PROTECTOR RETAINER

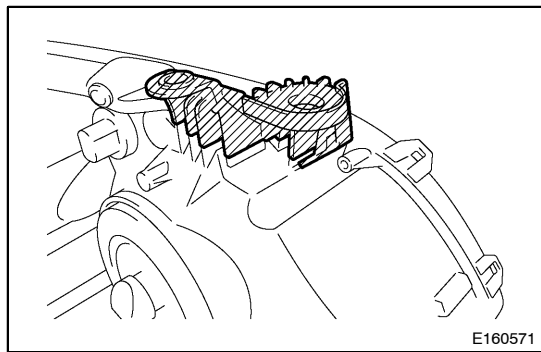
- (1) Cut off the part shaded in the illustration and smooth with sandpaper.

NOTICE:

After cutting off the part, place the upper headlight protector retainer against the bosses and gradually file away the old bracket if it interferes with the installation of the supply bracket.



- (2) Install the upper headlight protector retainer with the 2 screws.

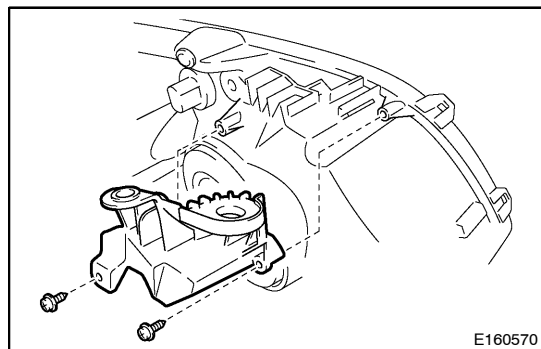


(b) INSTALL LOWER HEADLIGHT PROTECTOR RETAINER

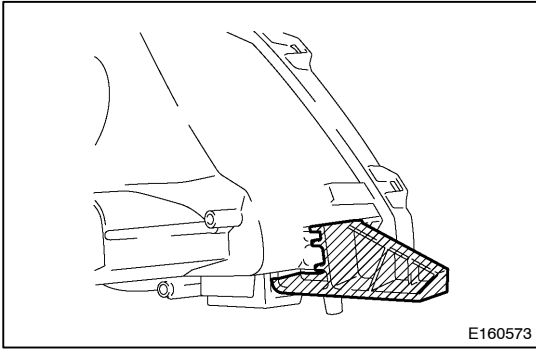
- (1) Cut off the part shaded in the illustration and smooth with sandpaper.

NOTICE:

After cutting off the part, place the lower headlight protector retainer against the bosses and gradually file away the old bracket if it interferes with the installation of the supply bracket.



- (2) Install the lower headlight protector retainer with the 2 screws.

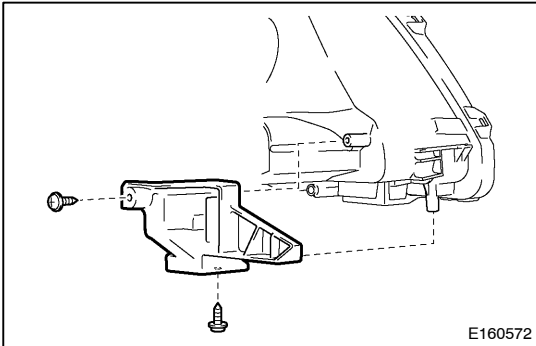


(c) INSTALL LOWER HEADLIGHT BRACKET

- (1) Cut off the part shaded in the illustration and smooth with sandpaper.

NOTICE:

After cutting off the part, place the lower headlight bracket against the bosses and gradually file away the old bracket if it interferes with the installation of the supply bracket.



- (2) Install the lower headlight bracket with the 2 screws.

6. PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED

(a) THE WORK LIST

(1) Each inspection procedure refers to the TOYOTA Repair Manual.

Replacement Part	Necessary Procedure	Effect/Inoperative Function When Necessary Procedures are not Performed	Note
ECM	Vehicle Identification Number (VIN) registration	MIL comes on	Using the Techstream.
	ECU communication ID registration	- Wireless door lock control system (*4) - Smart key system (*4) - Engine start	—
	Reset memory (*1)	- Large shift shock - The deterioration of fuel efficiency	Using the Techstream.
- Automatic transmission assembly (*1) - Engine assembly (*1)	Reset memory	- Large shift shock - The deterioration of fuel efficiency	Using the intelligent tester.
Tire pressure warning ECU	- Register transmitter IDs - Initialize tire pressure warning system	- When DTC detection conditions of "transmitter ID not received" DTC are met, TPWS indicator blinks for 1 minute, and then illuminates - Tire pressure monitoring function	—
Tire pressure warning valve and transmitter	- Register transmitter IDs - Initialize tire pressure warning system	- When DTC detection conditions of "transmitter ID not received" DTC are met, TPWS indicator blinks for 1 minute, and then illuminates - Tire pressure monitoring function of replaced wheel	Even if only one wheel is replaced, IDs for all 4 wheels must be registered.
Brake actuator assembly (Skid control ECU)	Perform yaw rate and acceleration sensor zero point calibration	- VSC OFF indicator light blinks - VSC disabled or malfunctioning	Perform yaw rate and acceleration sensor zero point calibration with the ignition switch on (engine stopped).
- Yaw rate and acceleration sensor - Front wheel alignment adjustment	- Clear zero point calibration data - Perform yaw rate and acceleration sensor zero point calibration	- VSC OFF indicator light blinks - VSC disabled or malfunctioning	Perform yaw rate and acceleration sensor zero point calibration with the ignition switch on (engine stopped).
- Power steering ECU (*2) - Steering column (*2)	Perform rotation angle sensor initialization and torque sensor zero point calibration.	- P/S warning light comes on - EPS control	DTC (C1515/C1525) will be stored when the power steering ECU is replaced.
Power steering ECU (*3)	- Assist map writing - Torque sensor zero point calibration	- P/S warning light comes on - EPS control	DTC (C1515/C1525) will be stored when the power steering ECU is replaced.
Steering column (*3)	Torque sensor zero point calibration	Steering effort is different between turning steering wheel to left and right	—

Replacement Part	Necessary Procedure	Effect/Inoperative Function When Necessary Procedures are not Performed	Note
- Door control transmitter (*5) - Door control receiver (*5)	- Perform identification code registration (key code) - Refer to wireless door lock control system "REGISTRATION" procedures	wireless door lock control system	—
Steering lock actuator (Steering lock ECU) (*4)	ECU code registration	Engine start	—
- Certification ECU (*4) - Electrical key transmitter (*4)	Key ID registration	- Wireless door lock control system - Smart key system - Engine start	—
ID code box (*4)	- ECU code registration - ECU communication ID registration	- Wireless door lock control system - Smart key system - Engine start	—
Occupant classification ECU	- Perform zero point calibration - Registration ECU data	- Occupant classification system - Passenger airbag ON/OFF indicator - Airbag system (Front passenger side) - Seat belt warning system (Front passenger side)	—
- Sliding roof drive gear (Sliding roof ECU) - Sliding roof housing - Sliding roof drive cable	Perform sliding roof drive gear reset.	- Automatic open/close function of roof glass - Jam protection function - Operation function after ignition switch off	Necessary when removed and installed (Not necessary when the sliding roof drive gear (sliding roof ECU) is removed and installed together with the sliding roof housing.)

*1: for U341E, U250E Automatic Transaxle

*2: for 2AZ-FE

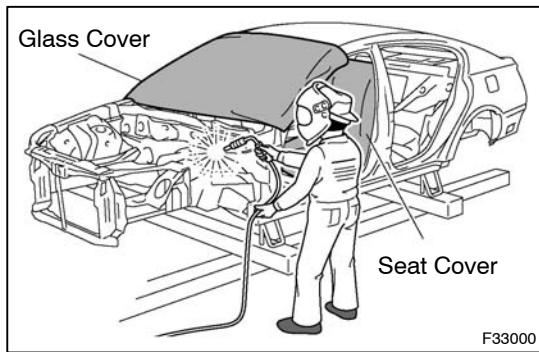
*3: for 2ZR-FE

*4: w/ Smart Key System

*5: w/o Smart Key System

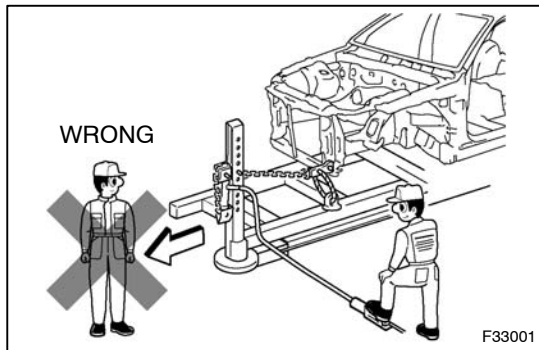
PRECAUTION

1. WORK PRECAUTIONS



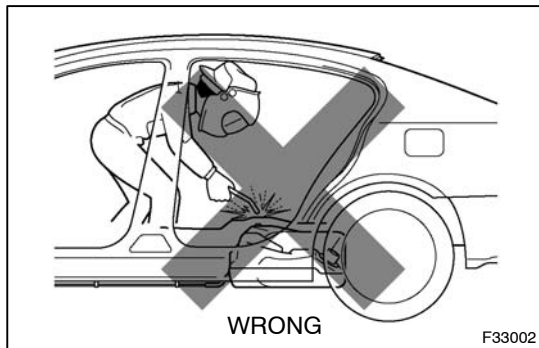
(a) VEHICLE PROTECTION

- (1) When welding, cover glass, seats, carpets, etc. with heat resistant fireproof covers to protect them.

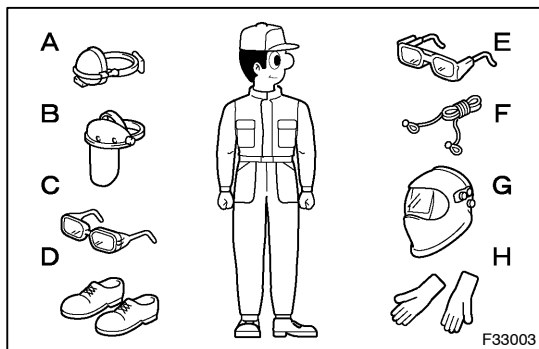


(b) SAFETY

- (1) Never stand in the path of the chain when using a puller on the body or frame, and be sure to attach a safety cable.



- (2) If it is necessary to use a frame in the area of the fuel tank, first remove the tank and plug the fuel line.



(c) SAFETY WORK CLOTHES

- (1) In addition to the usual mechanic's wear, cap and safety shoes, the appropriate gloves, head protector, welder's glasses, ear plugs, face protector, dust mask, etc. should be worn as the situation demands.

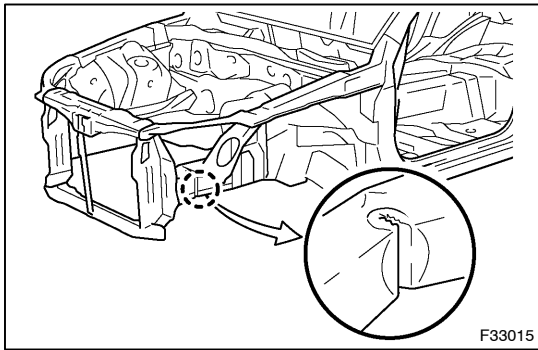
Code	Name
A	Dust mask
B	Face protector
C	Safety glasses
D	Safety shoes
E	Welder's glasses
F	Ear plugs
G	Head protector
H	Welder's gloves

2. PRECAUTIONS WHEN REPAIRING BODY FRAME PARTS (INCLUDING CRUSH BOX)



(a) PROHIBITION OF HEAT REPAIR FOR BODY FRAME PARTS

- (1) Rustproof high strength steel sheets are used for the body frame. Therefore, if these parts are heat repaired using an acetylene torch or equivalent, the crystalline structure changes, causing the strength of the steel sheets to decrease. Also, the zinc coating which is used to protect the body from rust will be damaged. This causes the surface of the steel sheets to become oxidized, which reduces their ability to resist rust.



(b) WHEN TO REPLACE FRAME PARTS

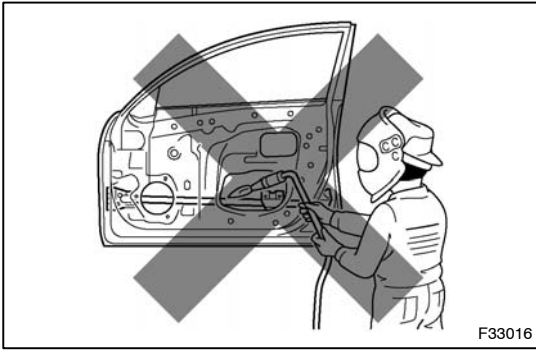
NOTICE:

Replace frame parts that have kinks.

HINT:

What is kink?

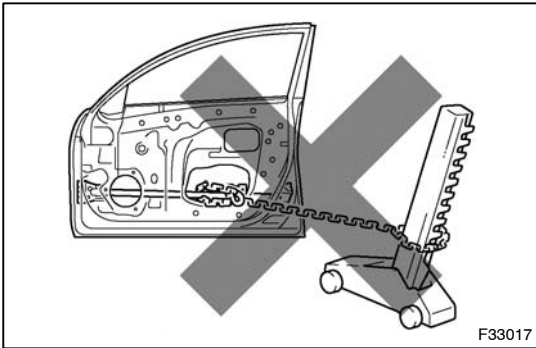
A deformation on a steel sheet that cannot be returned to its original shape by pulling or hammering due to the deformation angle being sharp.



(c) REPAIR OF DOOR SIDE IMPACT BEAM IS PROHIBITED

- (1) The impact beam is designed so that it performs at 100% in its original shape. However, if the impact beam is repaired, its performance may not be the same as before the accident.

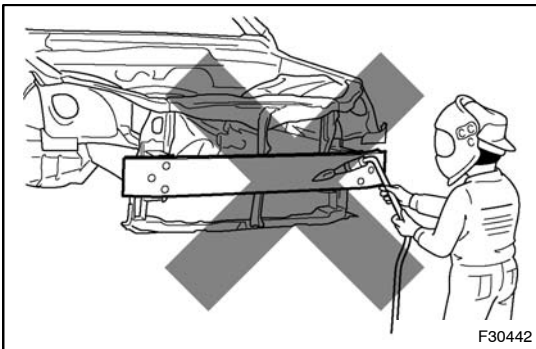
PARTS WHICH ARE PROHIBITED TO BE REPAIRED: Door side impact beam



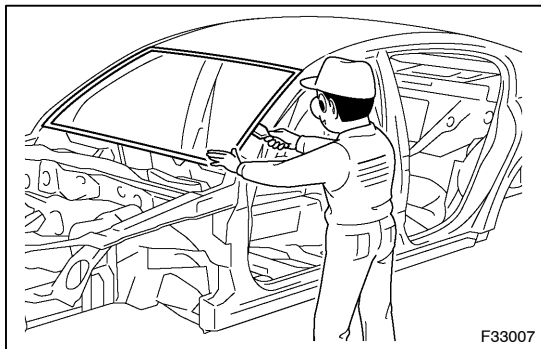
(d) REPAIR OF BUMPER REINFORCEMENT IS PROHIBITED

- (1) The bumper reinforcement is designed so that it performs at 100% in its original shape. However, if the impact beam is repaired, its performance may not be the same as before the accident.

PARTS WHICH ARE PROHIBITED TO BE REPAIRED: Bumper reinforcement



3. PRECAUTIONS FOR CORRECT REPAIR

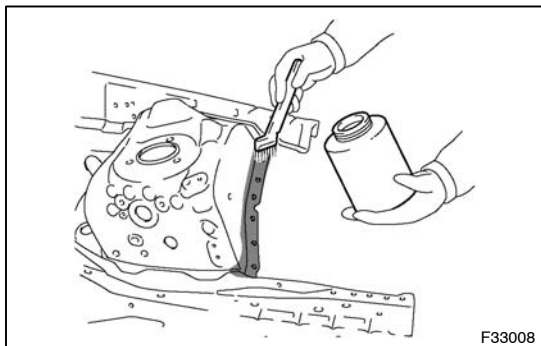


(a) REMOVAL OF ADJACENT COMPONENTS

- (1) When removing adjacent components, apply protective tape to the surrounding body and your tools to prevent damage.

NOTICE:

If the paint film is damaged, make sure to refinish the paint.

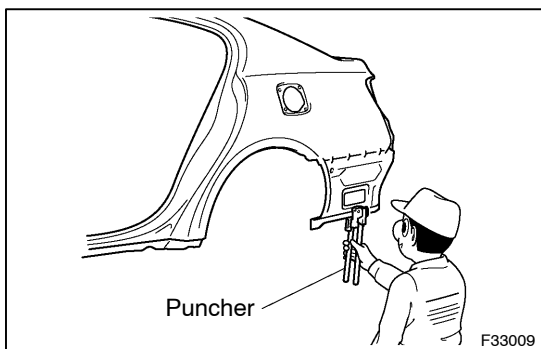


(b) ANTI-RUST TREATMENT BEFORE WELDING

- (1) Apply welding primer to the contact surfaces of the welding areas to protect them from rust.

NOTICE:

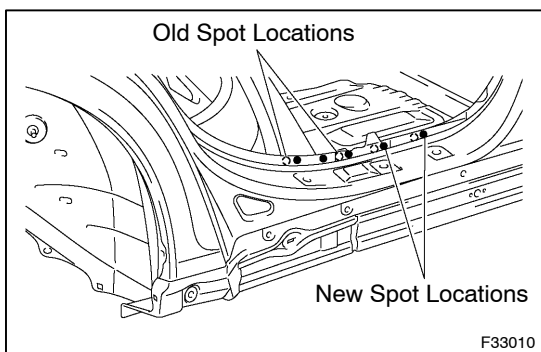
Do not apply welding primer outside of the contact surfaces.



(c) MAKING HOLES FOR PLUG WELDING

- (1) For areas where a spot welder cannot be used, use a puncher or drill to make holes for plug welding.

Thickness of welded portion	Diameter of plug hole
Under 10 mm (0.04 in.)	Over 5 mm (0.20 in.)
1.0 to 1.6 mm (0.04 to 0.06 in.)	Over 6.5 mm (0.26 in.)
1.7 to 2.3 mm (0.07 to 0.09 in.)	Over 8 mm (0.31 in.)
Over 2.4 mm (0.09 in.)	Over 10 mm (0.39 in.)



(d) WELDING PRECAUTIONS

- (1) The number of welding spots should be as follows.
 Spot weld: 1.3 X No. of manufacturer's spots
 Plug weld: More than No. of manufacturer's plugs
- (2) Spot weld locations
 Avoid welding over previously welded areas.

8. PRECAUTIONS FOR RESIN PARTS

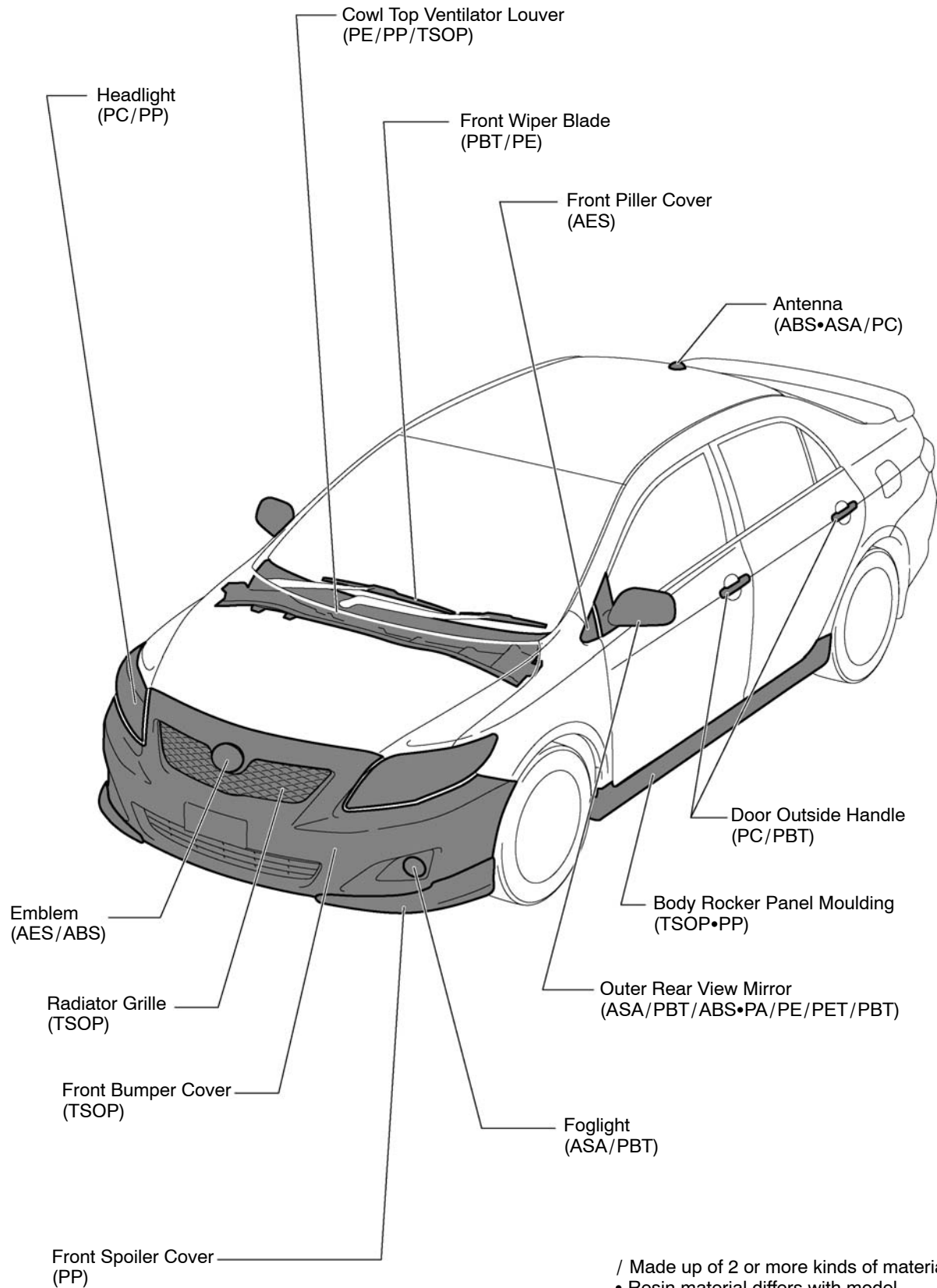
(a) PLASTIC PROPERTIES CHART

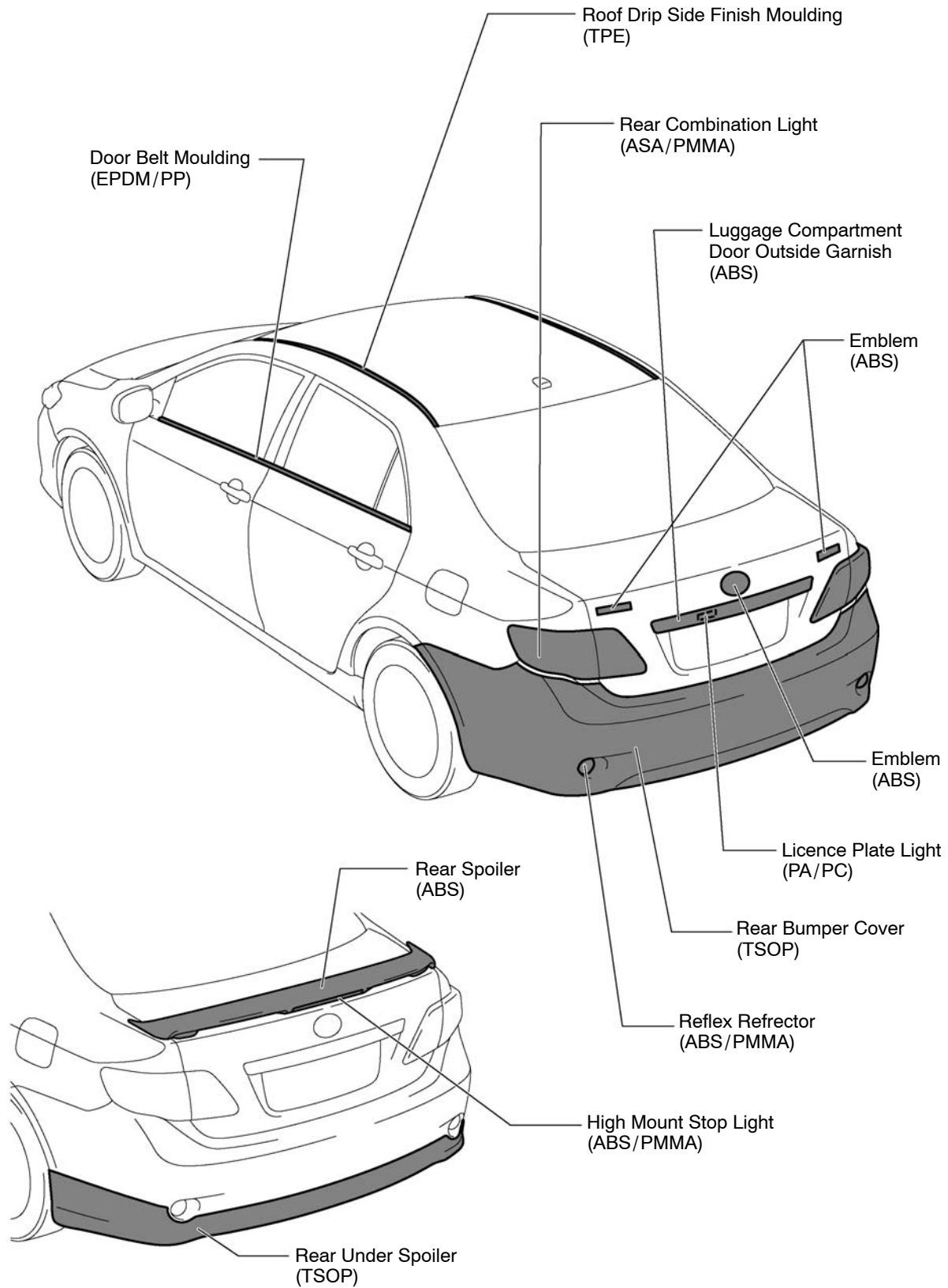
- (1) When repairing, some parts may be deformed by the heat. Therefore, confirm the properties of the plastic parts, and remove parts beforehand as necessary.

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
AES	Acrylonitrile Ethylene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
ASA	Acrylonitrile Styrene Acrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
EPDM	Ethylene Propylene	100 (212)	Alcohol is harmless. Gasoline is harmless if applied only for short time in small amounts.	Most solvents are harmless but avoid dipping in gasoline, solvents, etc.
PA	Polyamide (Nylon)	80 (176)	Alcohol and gasoline are harmless.	Avoid battery acid.
PBT	Polybutylene Terephthalate	160 (320)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PC	Polycarbonate	120 (248)	Alcohol is harmless.	Avoid gasoline brake fluid, wax, wax removers and organic solvents. Avoid alkali.
PE	Polyethylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PET	Polyethylene Terephthalate	75 (167)	Alcohol and gasoline are harmless.	Avoid dipping in water.
PMMA	Polymethyl Methacrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PP	Polypropylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PVC	Polyvinylchloride (Vinyl)	80 (176)	Alcohol and Gasoline are harmless. if applied only for short time in small amounts. (e.g., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
TPE	Thermoplastic Elastomer	80 (176)	Alcohol and Gasoline are harmless. if applied only for short time in small amounts. (e.g., quick wiping to remove grease).	Most solvents are harmless but avoid dipping in gasoline, solvents, etc.
TPO	Thermoplastic Olefine	80 (176)	Alcohol and Gasoline are harmless. if applied only for short time in small amounts. (e.g., quick wiping to remove grease).	Most solvents are harmless but avoid dipping in gasoline, solvents, etc. TSOP

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
TSOP	TOYOTA Super Olefine Polymer	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.

* Temperatures higher than those listed here may result in material deformation during repair.

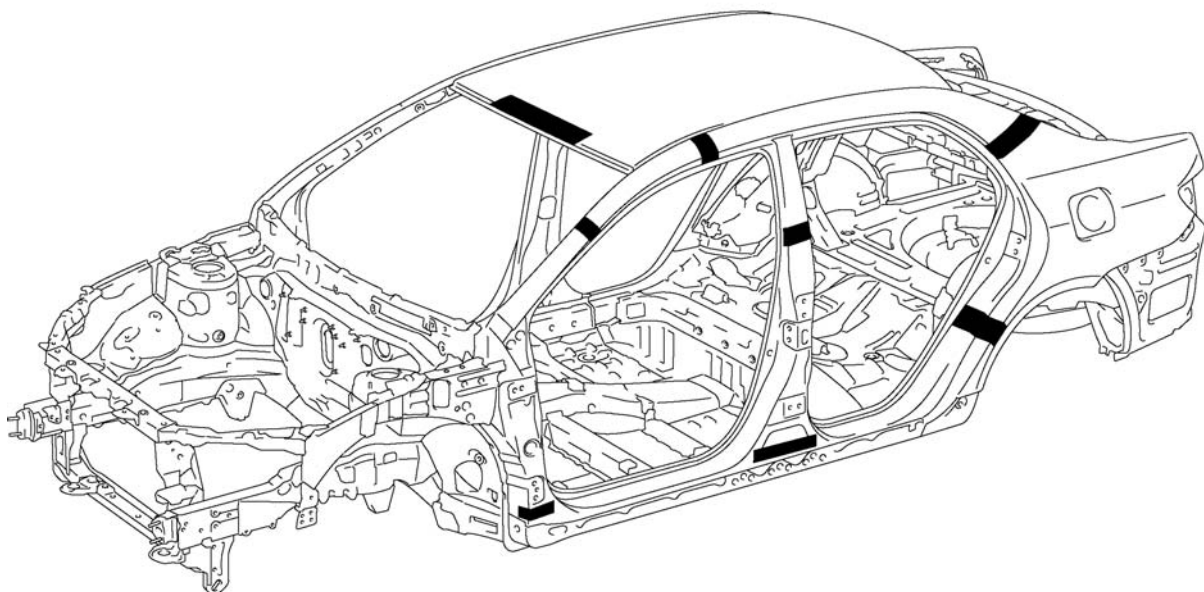
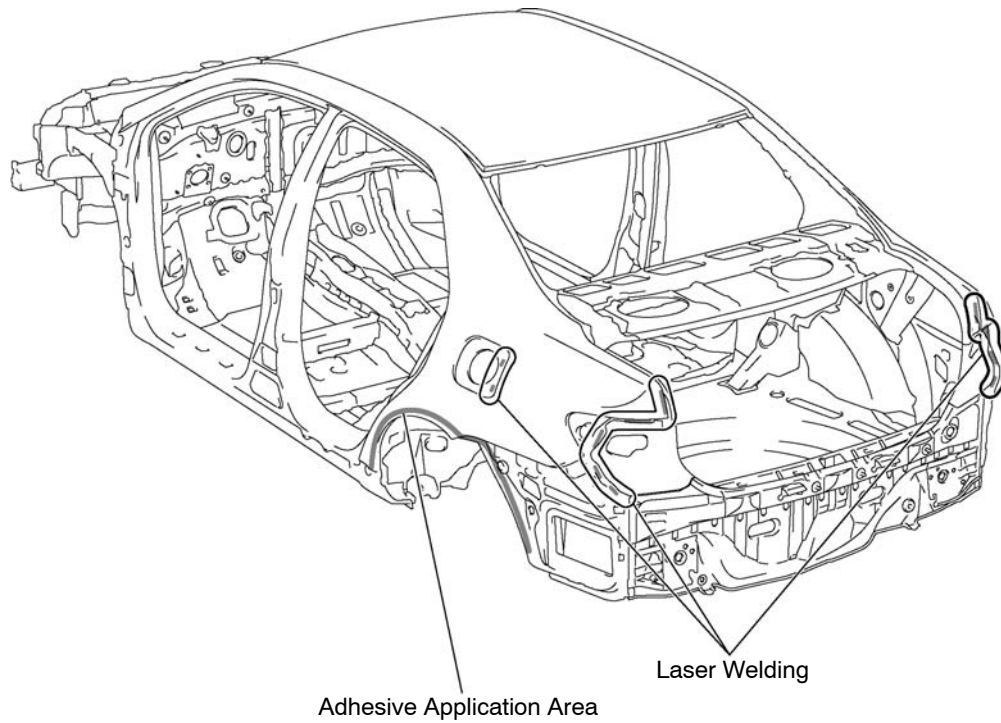




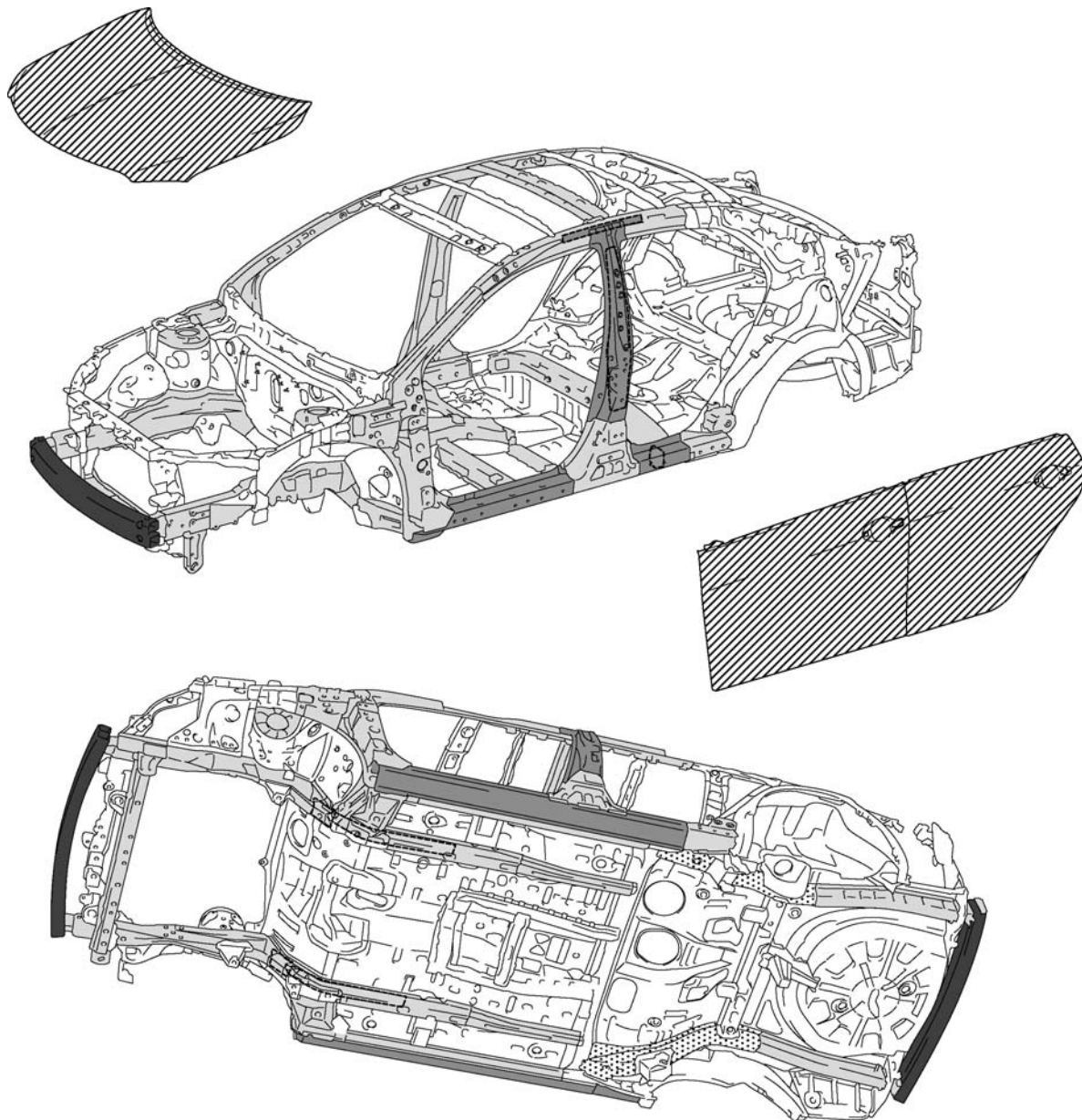
/ Made up of 2 or more kinds of materials.
 • Resin material differs with model.

ABOUT THIS VEHICLE

1. STRUCTURAL OUTLINE

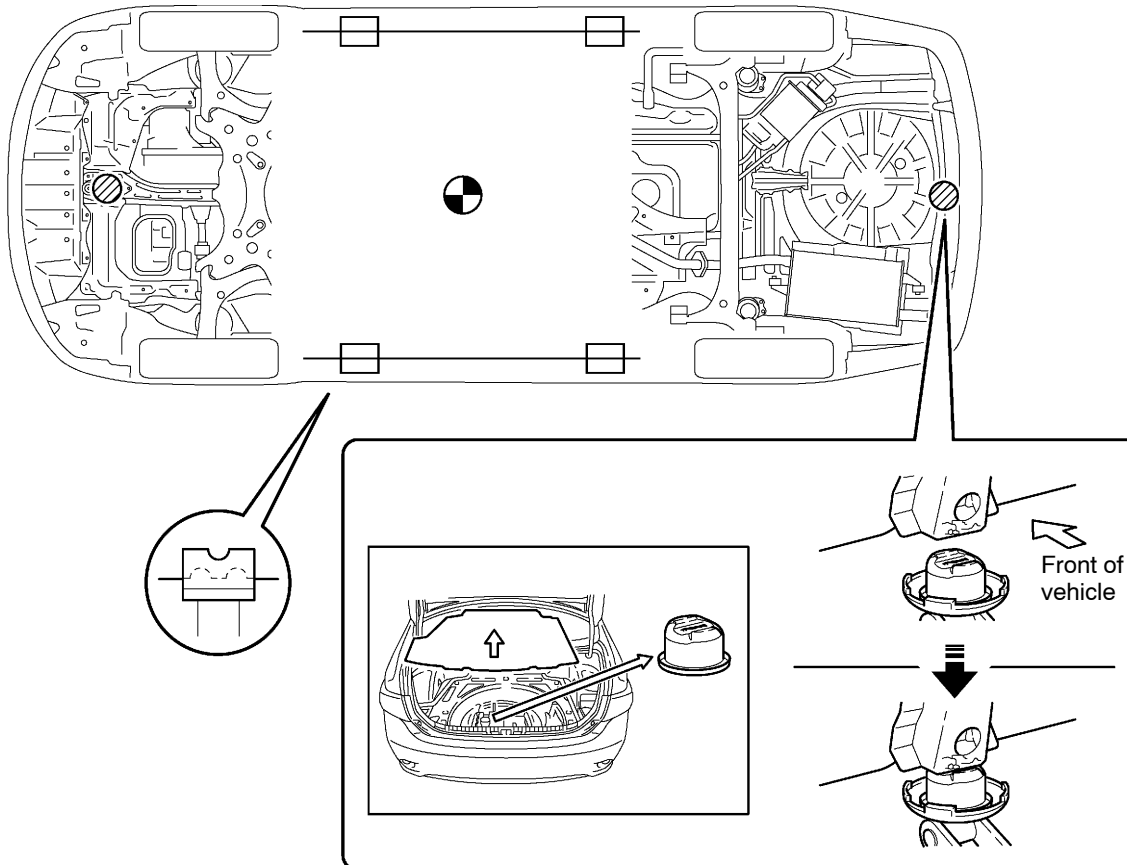


... Formed material application areas (refer to PC-8)



2. NOTICE ABOUT VEHICLE CONDITION WHEN JACKING UP VEHICLE

(a) NOTICE FOR USING JACK AND SAFETY STAND



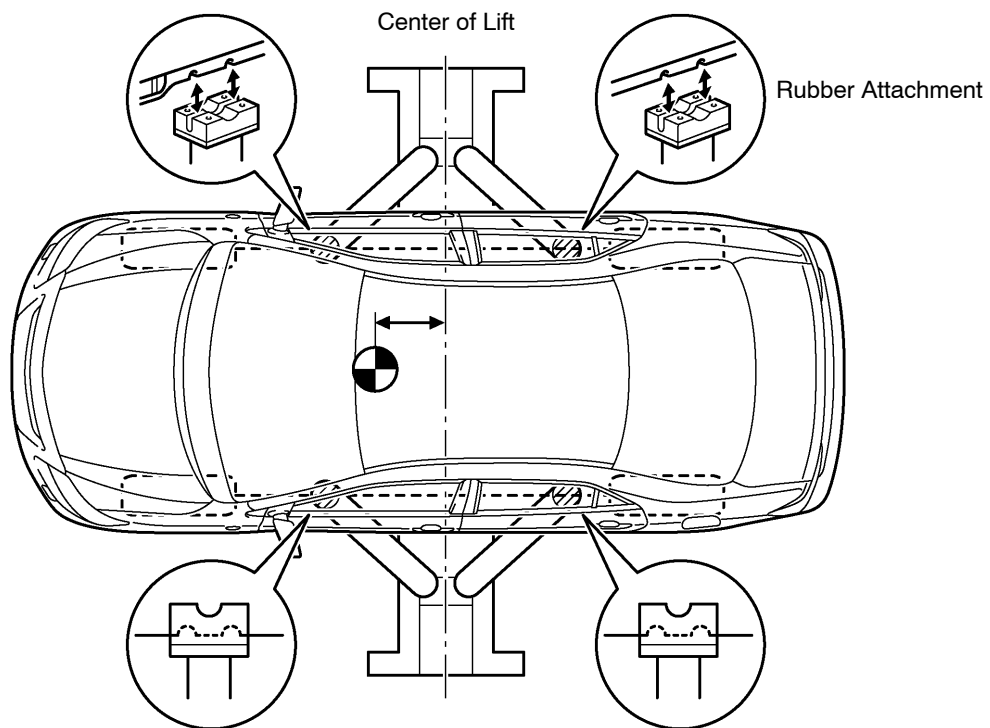
Remove the jack attachment from the the spare tire cover in the trunk, then, align the concave portion with the rear jack position and jack up the vehicle.

NOTICE: Set the jack attachment with the arrow facing towards the front of the vehicle.

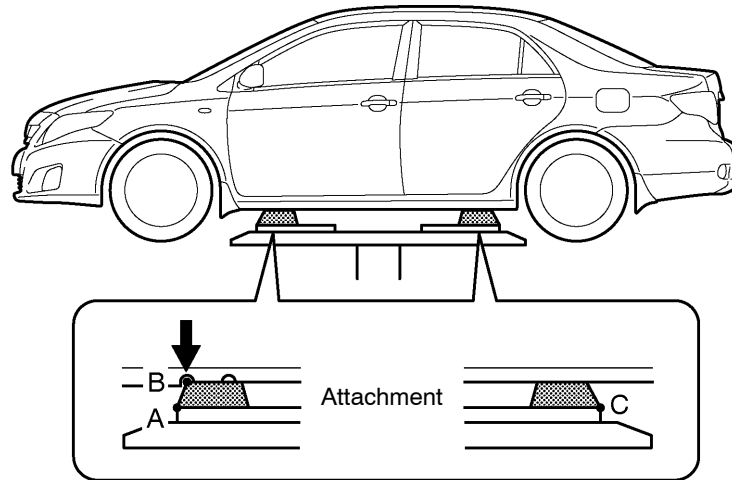
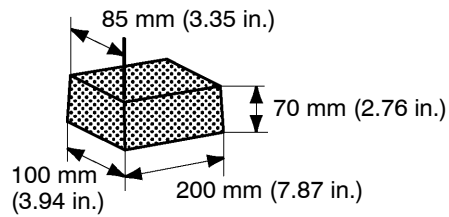
 : JACK POSITION

 : SUPPORT POSITION, PANTOGRAPH JACK POSITION

 : VEHICLE CENTER OF GRVITY (unloaded condition)

(b) NOTICE FOR USING SWING ARM TYPE LIFT

⊕ : VEHICLE CENTER OF GRAVITY (unloaded condition)

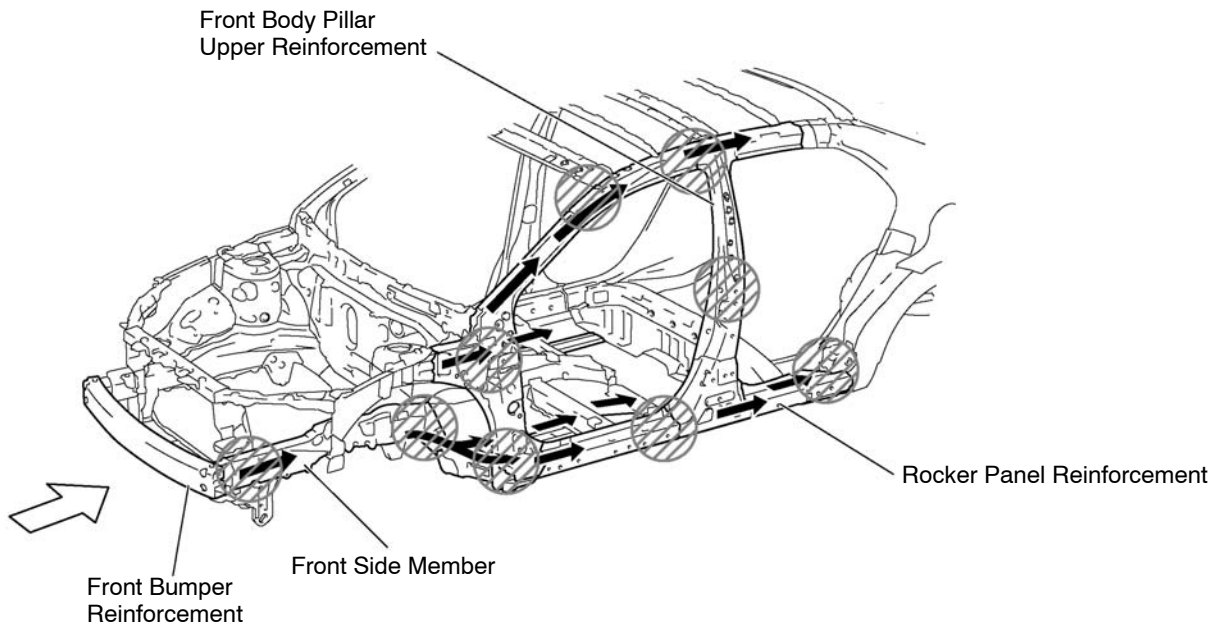
(c) NOTICE FOR USING PLATE TYPE LIFT**Attachment Dimensions**

Right and left set position	Place the vehicle over the center of the lift.
Front and rear set position	- Align the cushion ends of the plate with the attachment lower ends (A and C). - Align the attachment upper end (B) with the rocker flange front side notch.

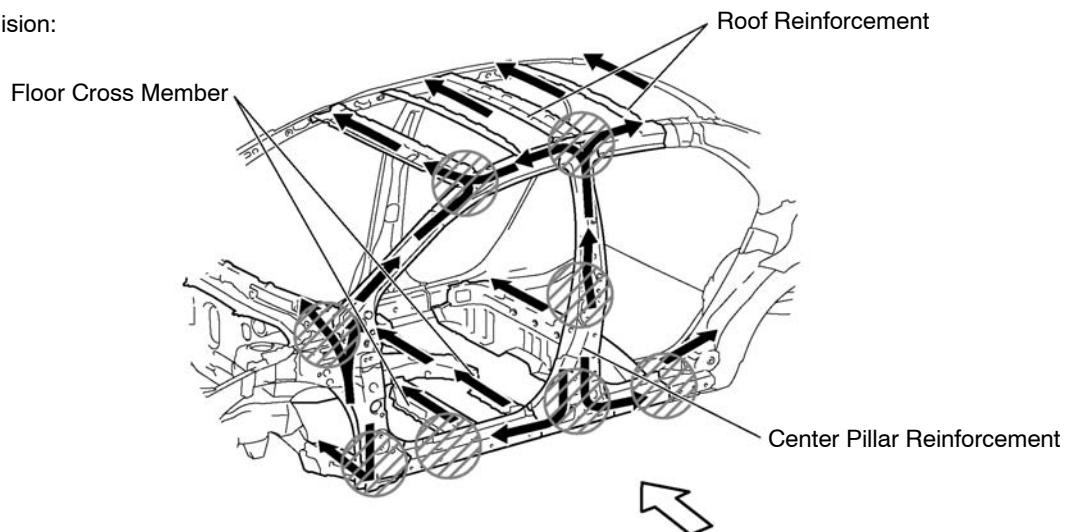
3. DAMAGE DIAGNOSIS

● Confirmation Point ➞ Collision Direction ➞ Collision Force Absorption Direction

Head-on Collision:

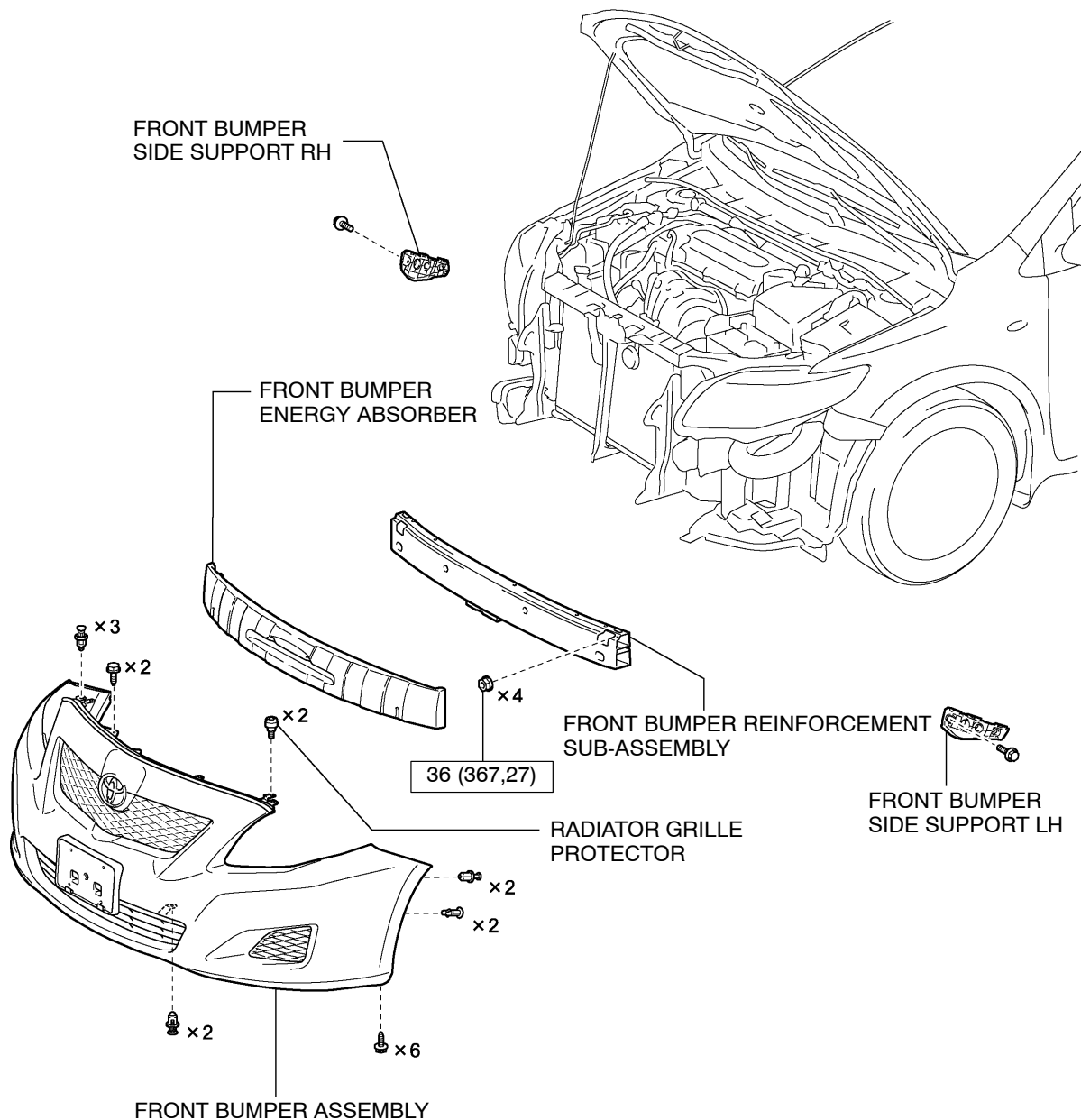


Side Collision:



4. COMPONENTS

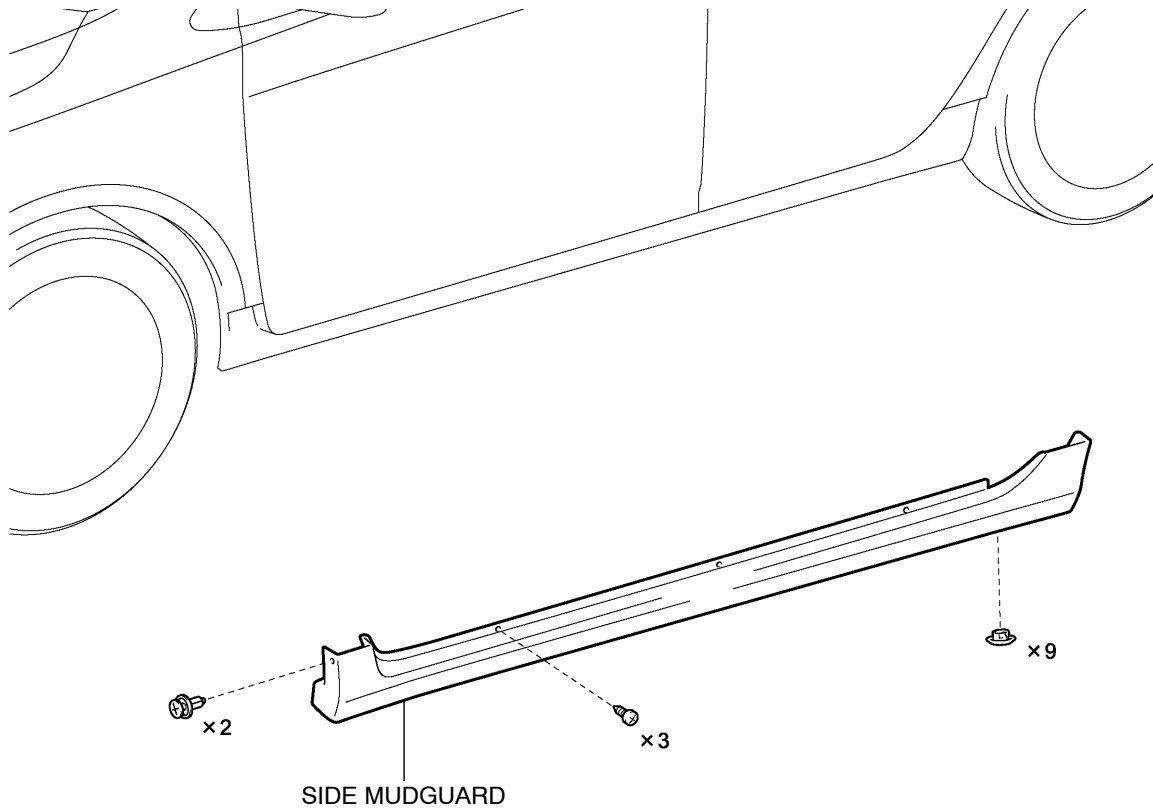
(a) Front bumper



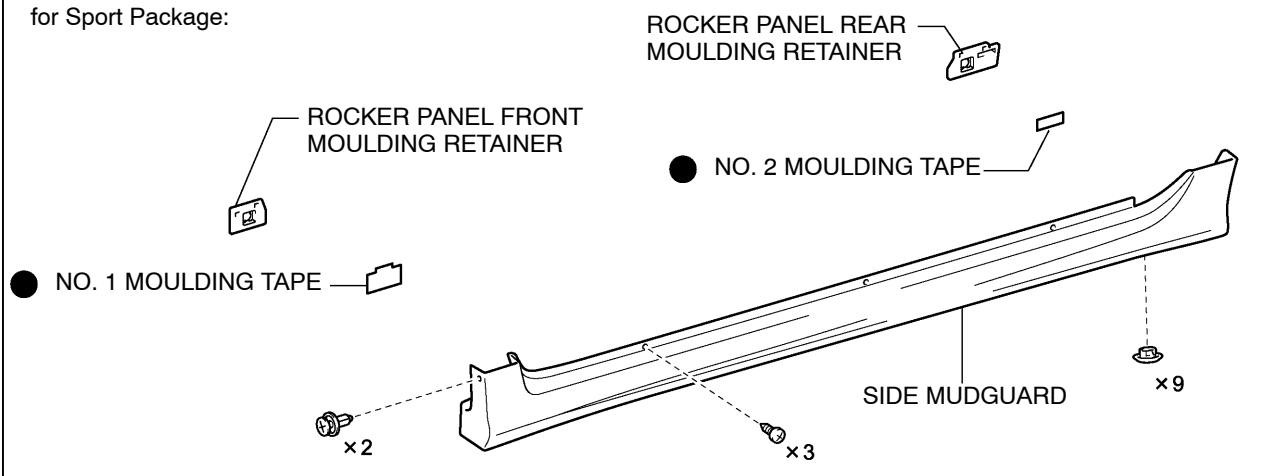
CAUTION:

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

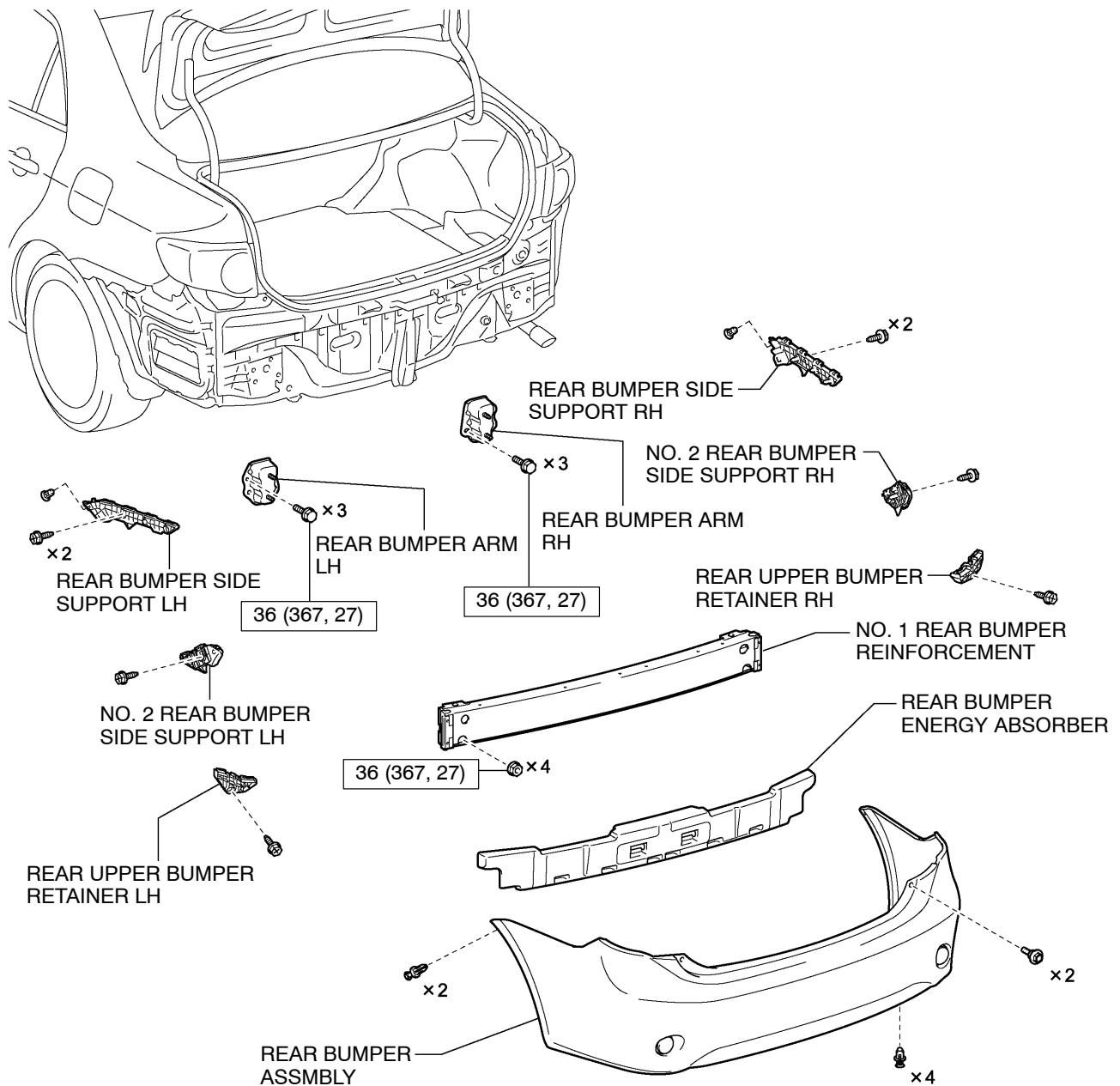
(b) Side Mudguard

for Sport Package:

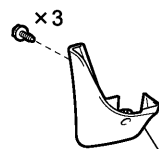


● Non-reusable part

(c) Rear bumper



w/ Rear Fender Mudguard:

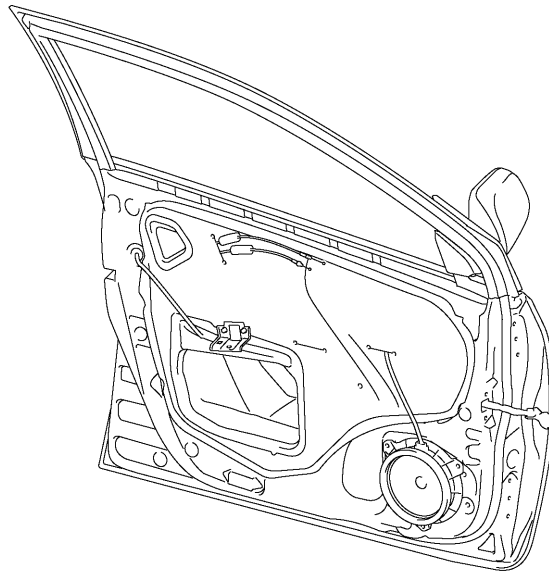
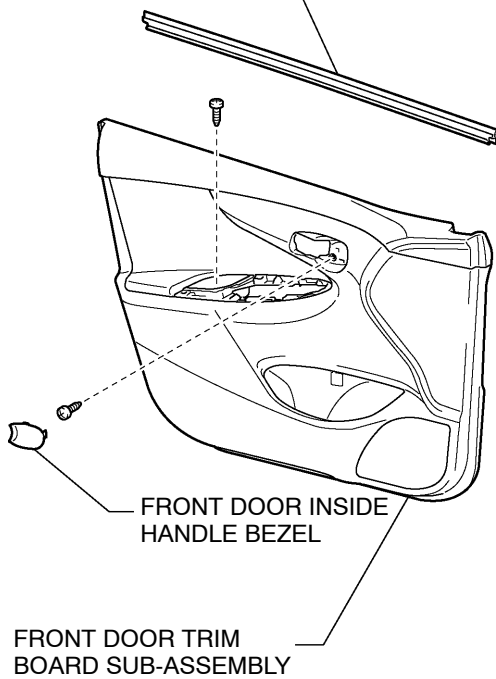
REAR QUARTER
PANEL MUDGUARD LHREAR QUARTER
PANEL MUDGUARD RH**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

(d) Door

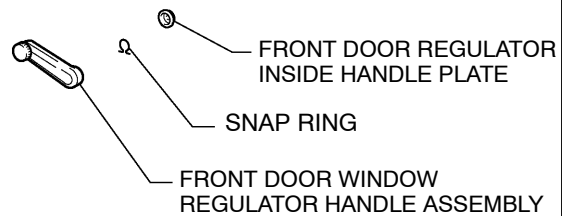
FRONT DOOR INNER
GLASS WEATHERSTRIP



FRONT DOOR INSIDE
HANDLE SUB-ASSEMBLY

w/o Power Window:

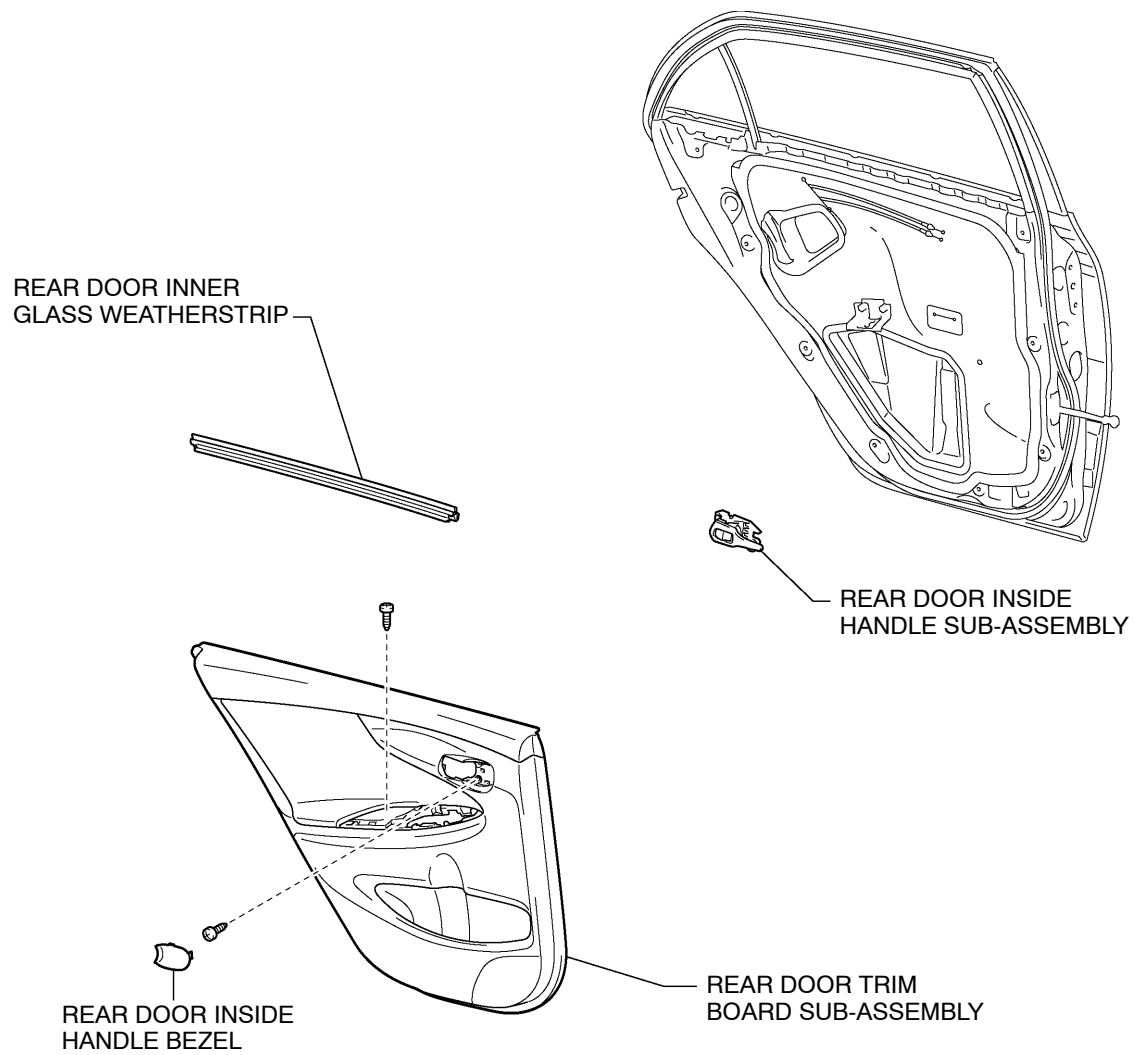
FRONT ARMREST UPPER
BASE PANEL



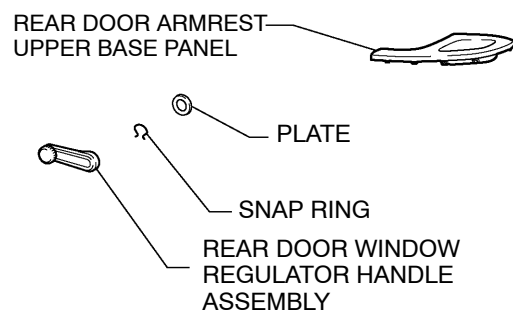
w/ Power Window:

FRONT ARMREST
UPPER BASE PANEL

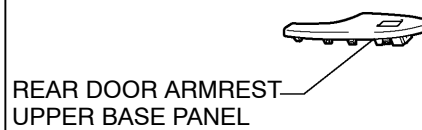


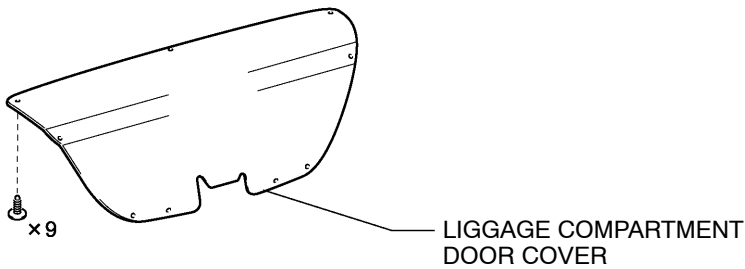
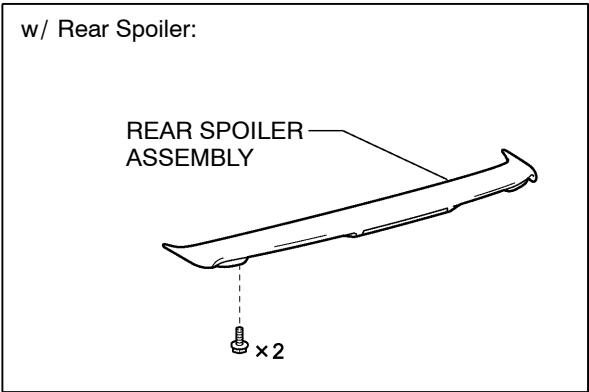
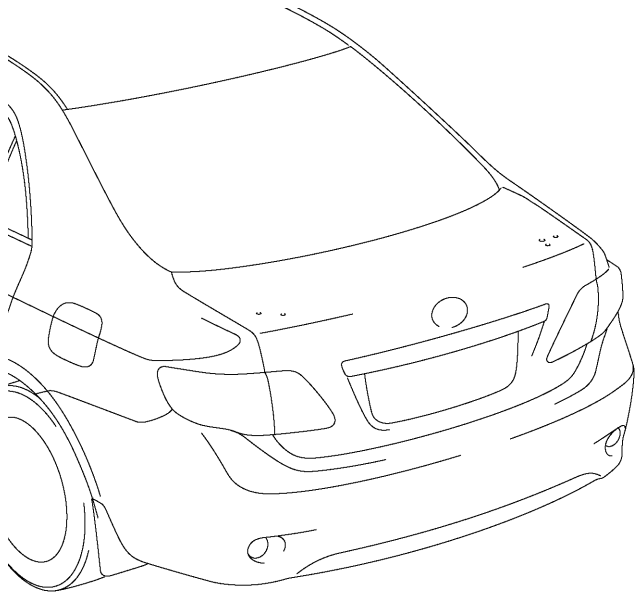


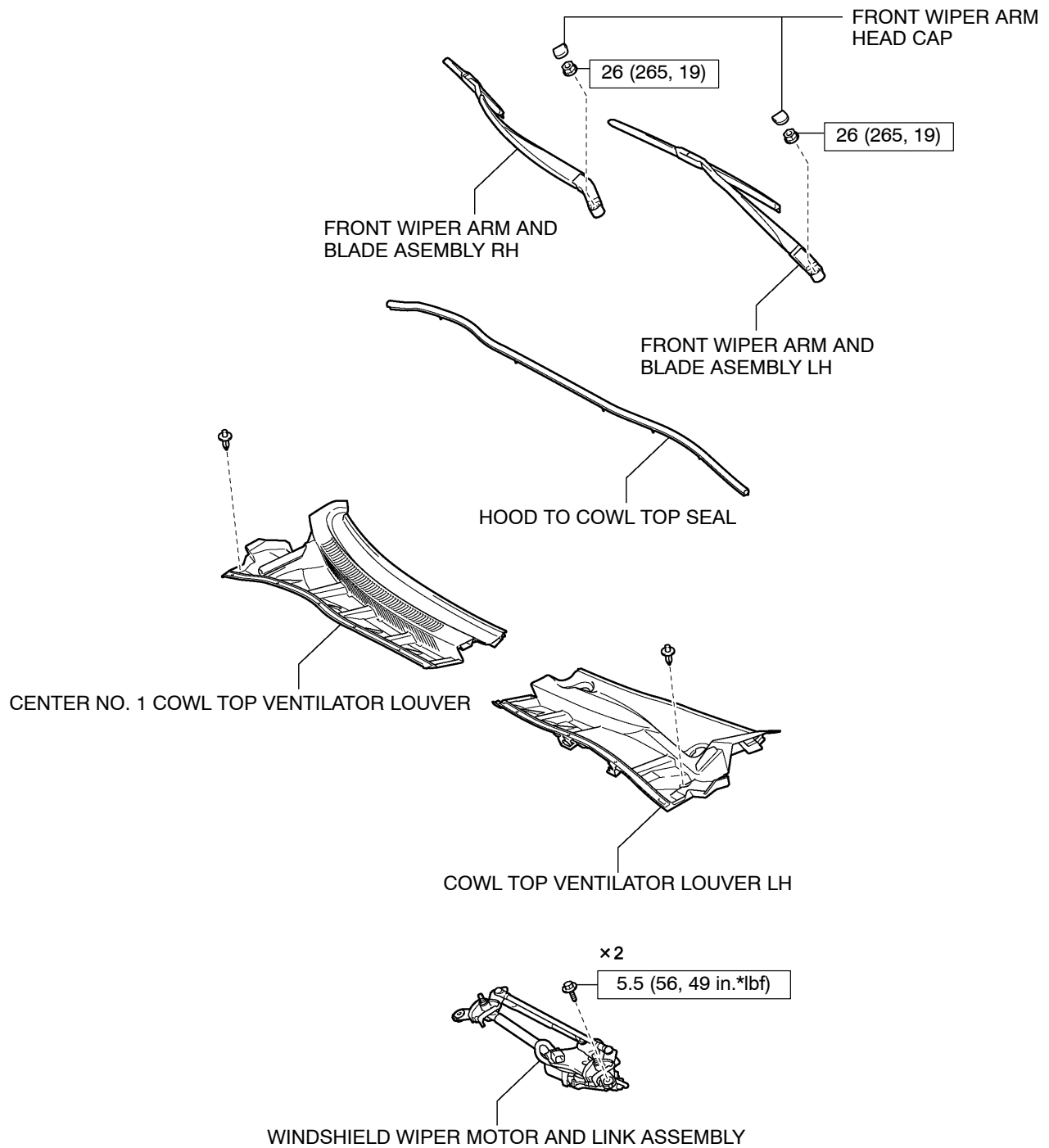
w/o Power Window:



w/ Power Window:

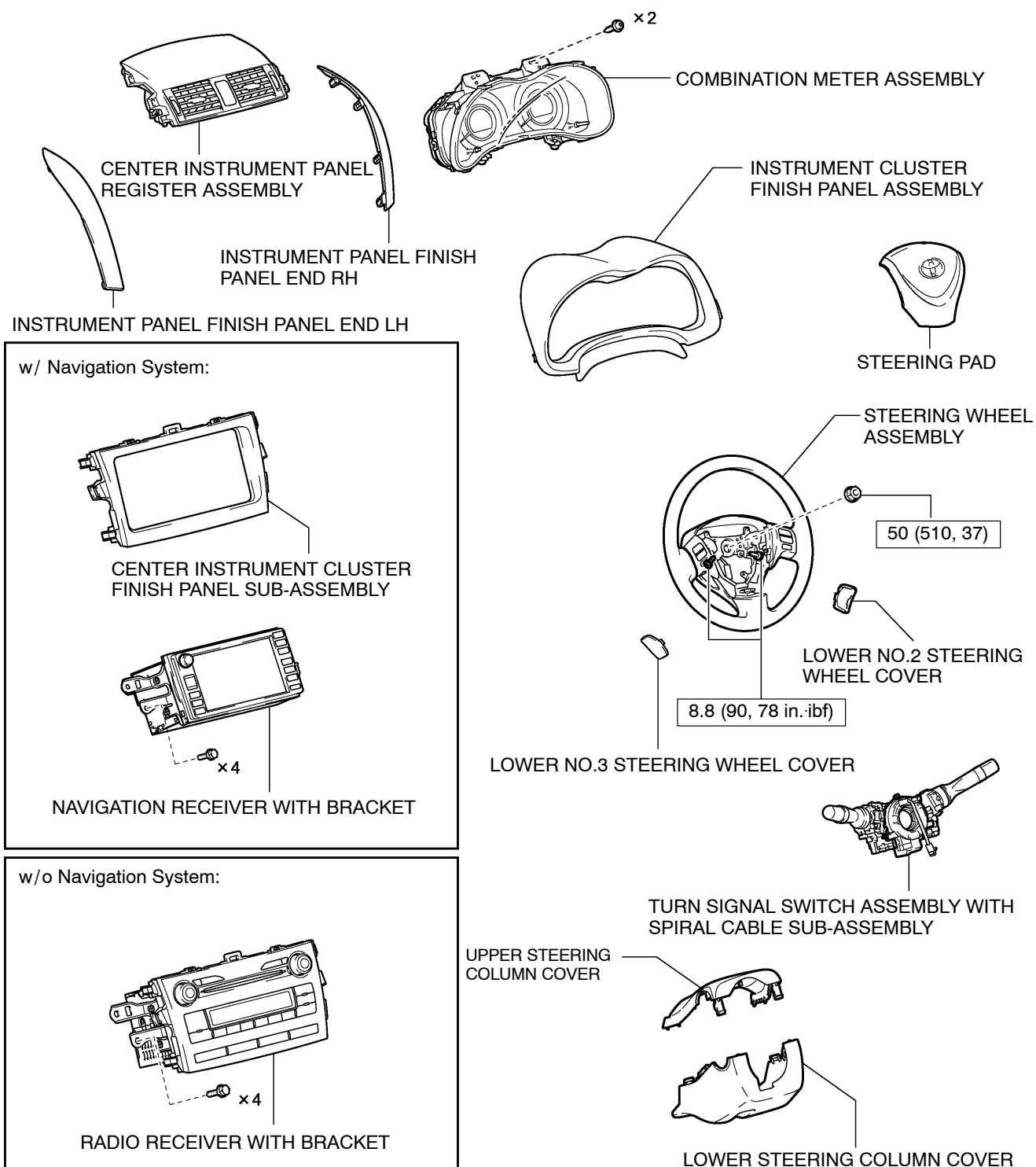




(e) Cowl Top Ventilator Louver**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft.·lbf) : Specified torque

(f) Instrument panel**CAUTION:**

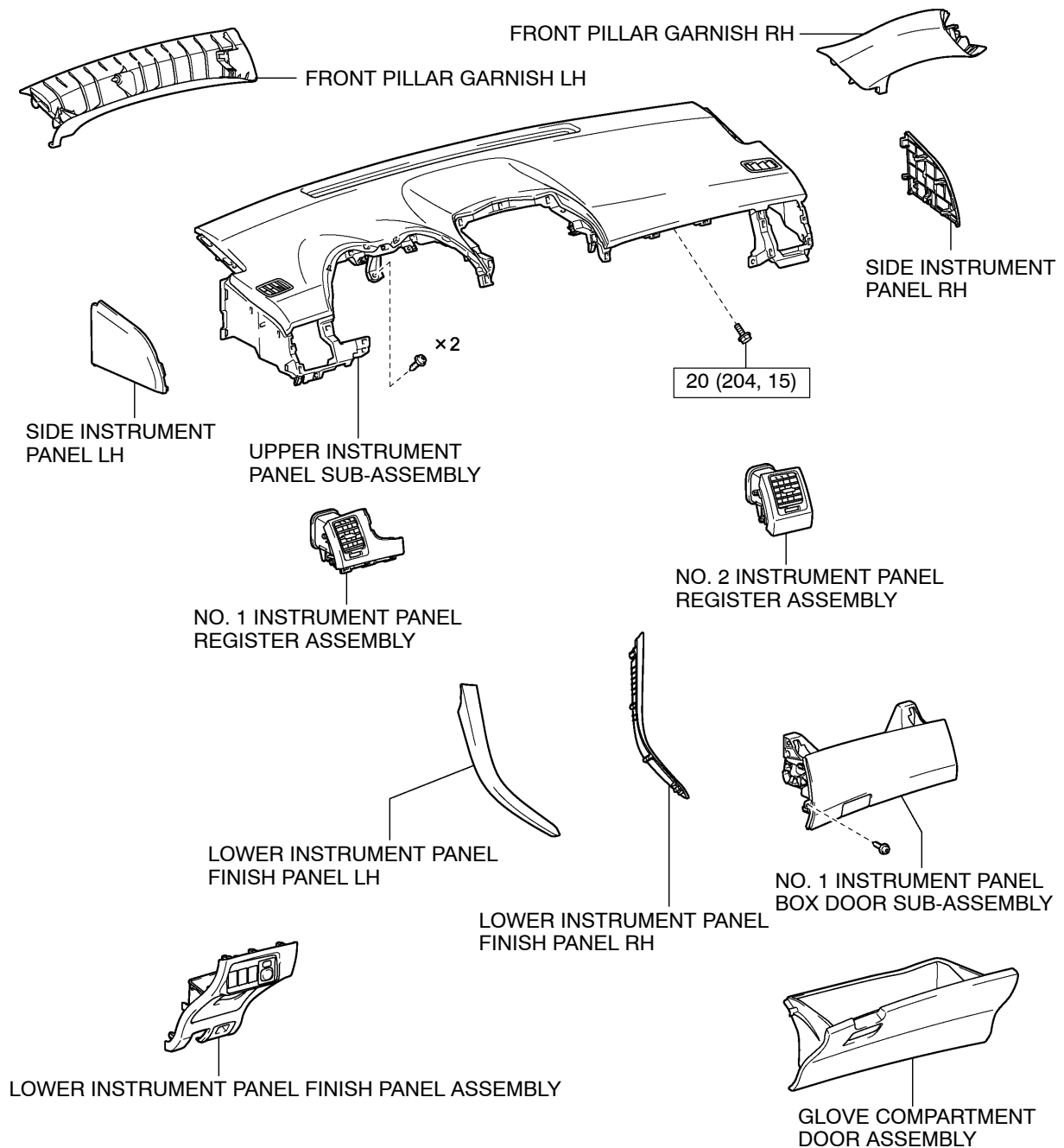
The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft.·lbf) : Specified torque

w/ Curtain Shield Airbag:

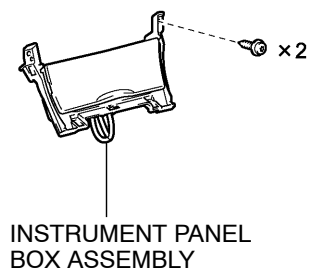
● FRONT PILLAR
GARNISH CLIP

w/ Curtain Shield Airbag:

● FRONT PILLAR
GARNISH CLIP**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

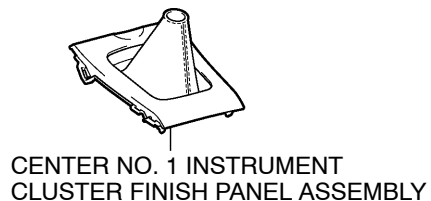
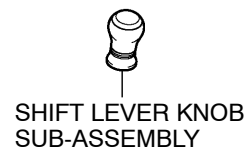
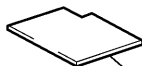
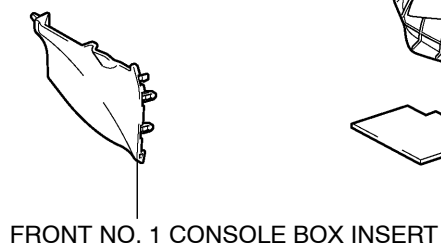
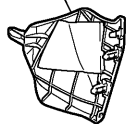
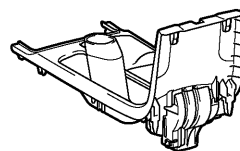
N·m (kgf·cm, ft·lbf) : Specified torque ● Non-reusable part



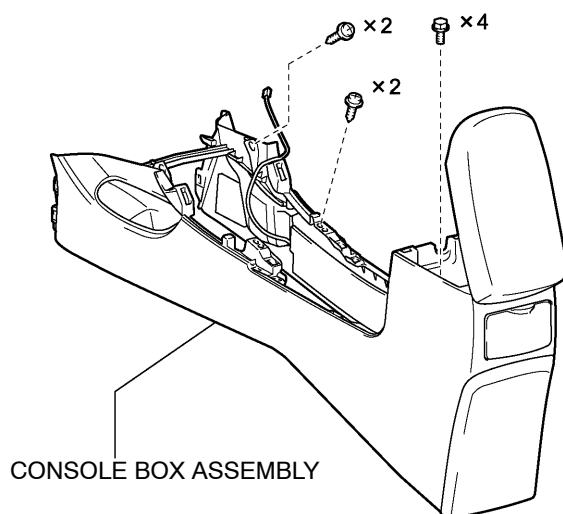
for Automatic Transaxle:



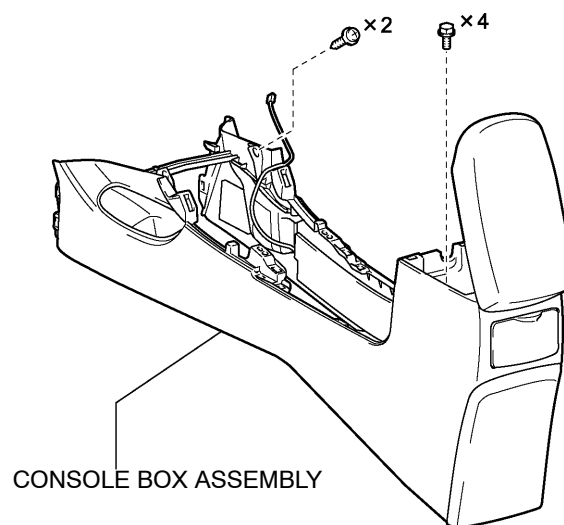
for Manual Transaxle:

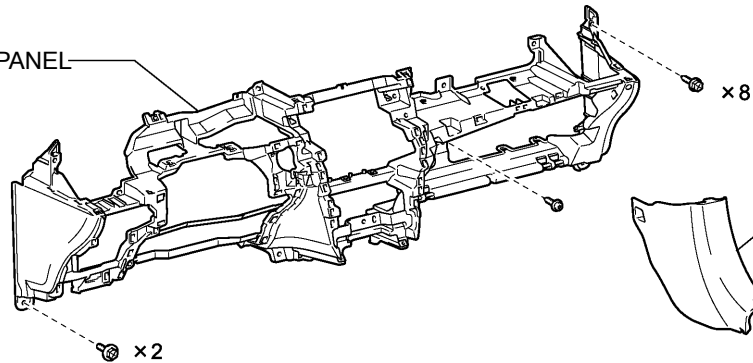
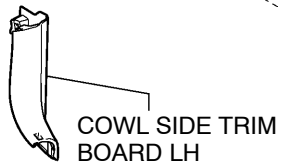
FRONT NO. 2 CONSOLE
BOX INSERTCONSOLE BOX
CARPETUPPER CONSOLE PANEL
SUB-ASSEMBLY

for Automatic Transaxle:



for Manual Transaxle:



LOWER INSTRUMENT PANEL
SUB-ASSEMBLYCOWL SIDE TRIM
BOARD RHFRONT DOOR
SCUFF PLATE RHCOWL SIDE TRIM
BOARD LHFRONT DOOR
SCUFF PLATE LH

w/ Smart Key System:

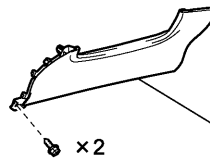


NO. 1 SWITCH HOLE BASE

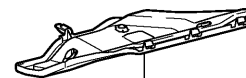
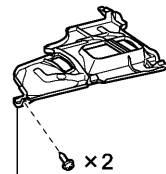
w/o Smart Key System:



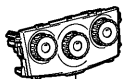
NO. 1 SWITCH HOLE BASE

LOWER INSTRUMENT PANEL
FINISH PANEL SUB-ASSEMBLY

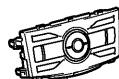
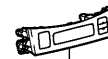
w/ Instrument Panel Under Cover:

NO. 2 INSTRUMENT PANEL
UNDER COVER SUB-ASSEMBLYNO. 1 INSTRUMENT PANEL
UNDER COVER SUB-ASSEMBLY

for Manual Air Conditioning System:

AIR CONDITIONING
CONTROL ASSEMBLY

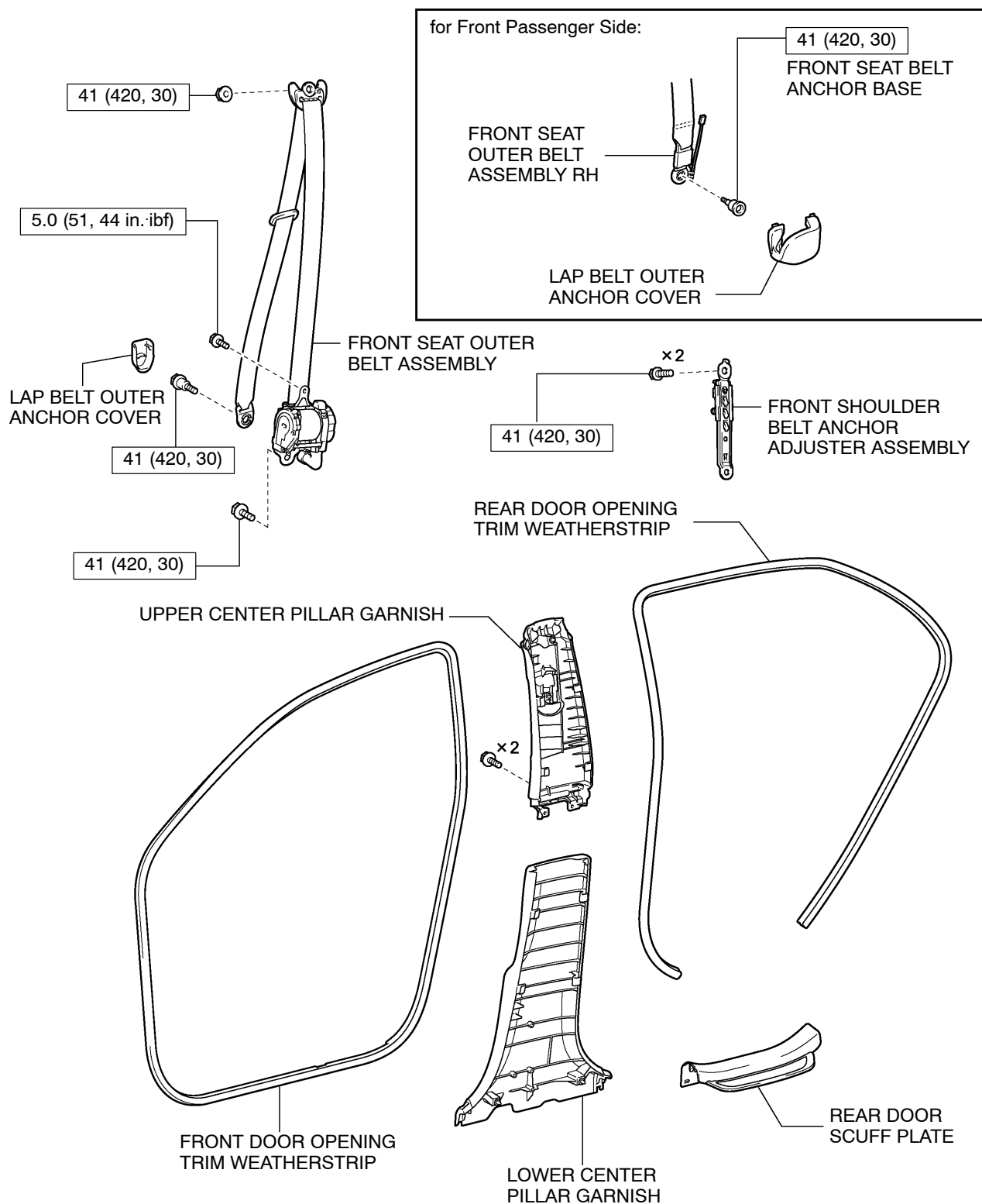
for Automatic Air Conditioning System:

AIR CONDITIONING
PANEL ASSEMBLYINSTRUMENT PANEL
HOLE COVER**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

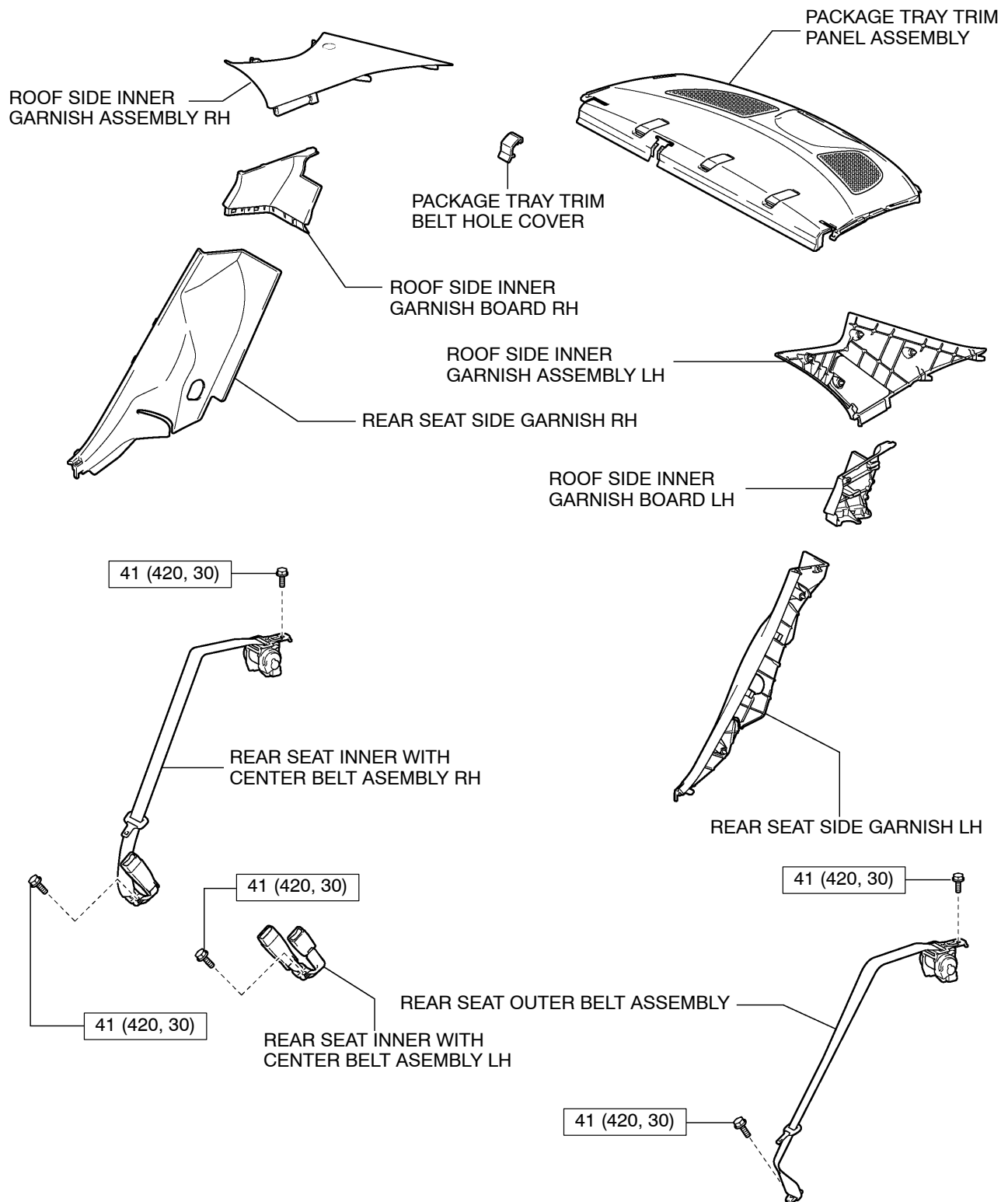
N·m (kgf·cm, ft.·lbf) : Specified torque

(g) Interior trim

**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft.·lbf) : Specified torque

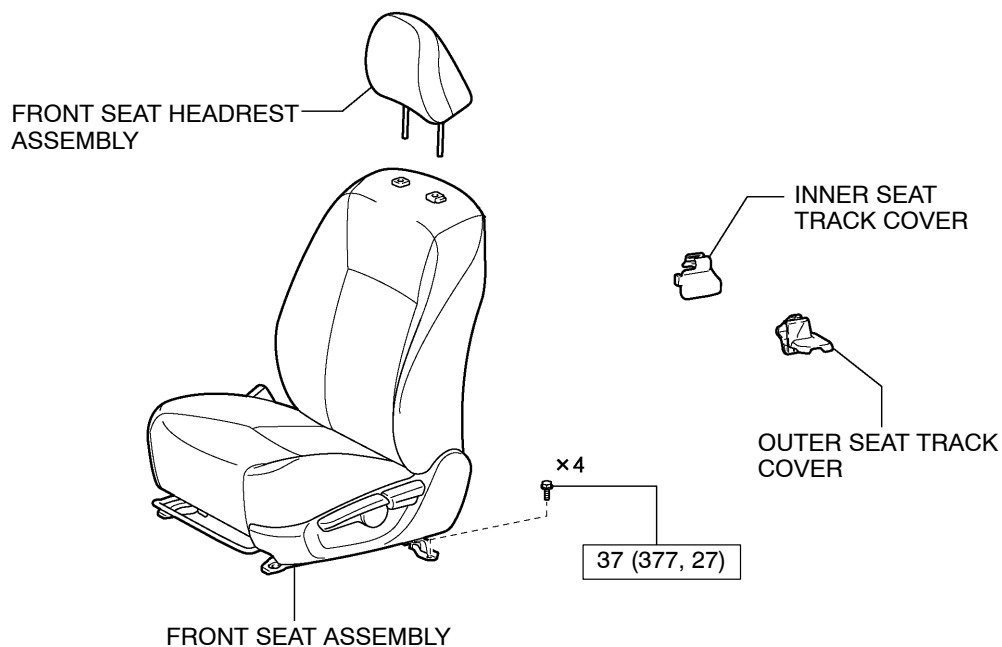
**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

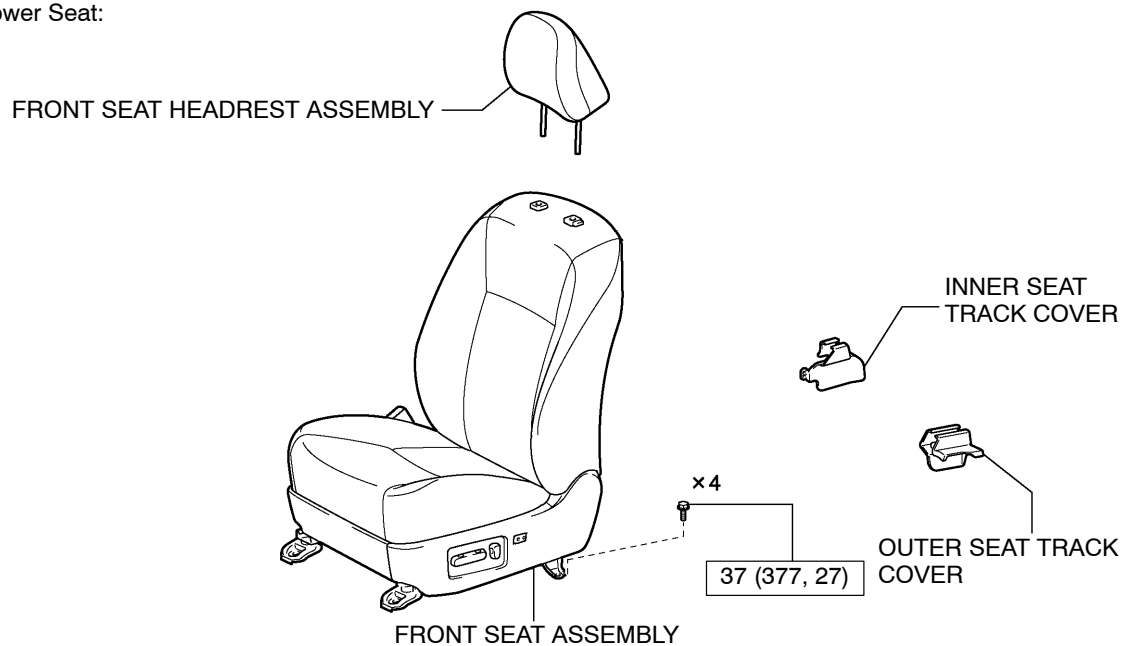
N·m (kgf·cm, ft·lbf) : Specified torque

(h) Seat

for Manual Seat:

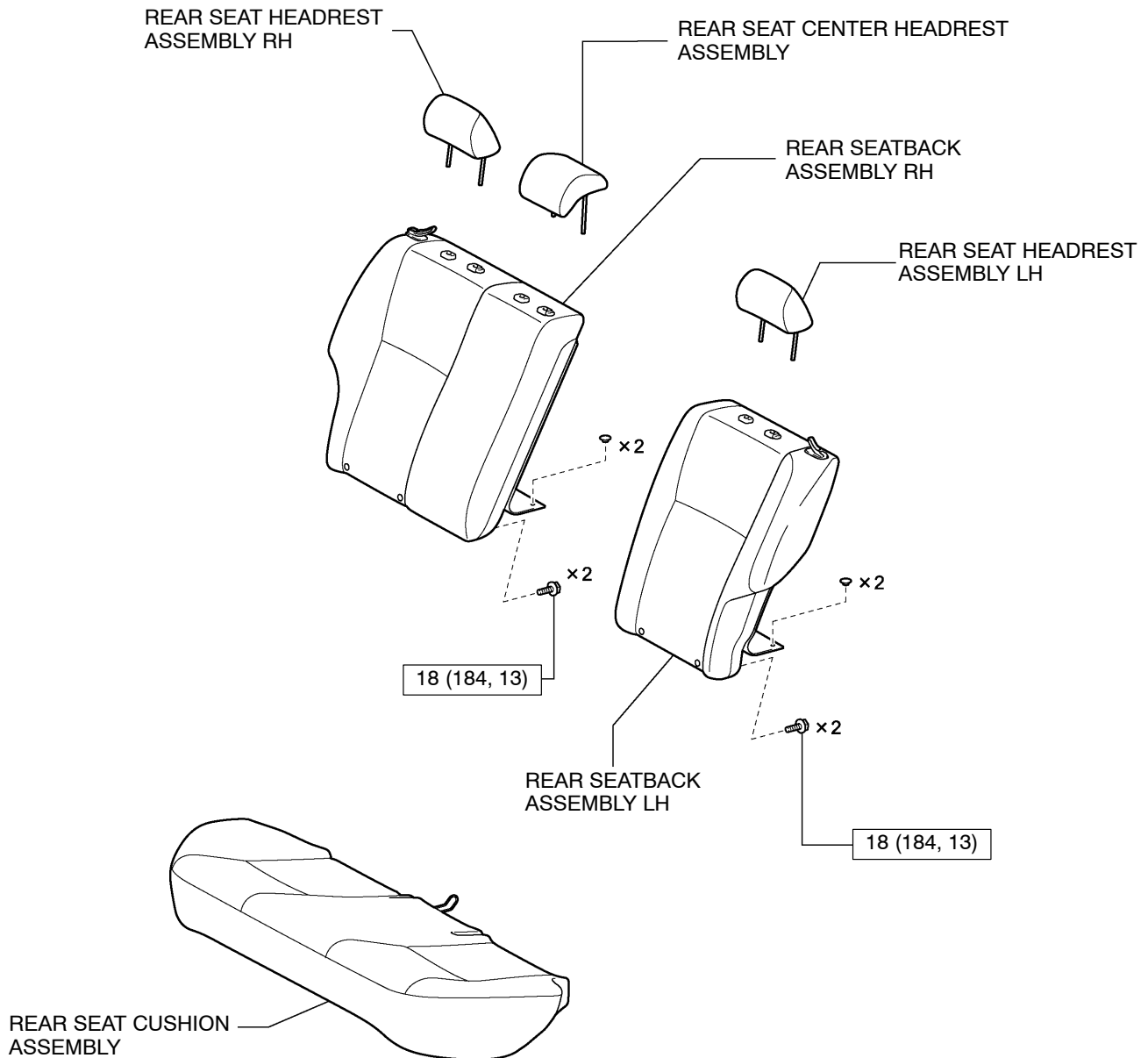


for Power Seat:

**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

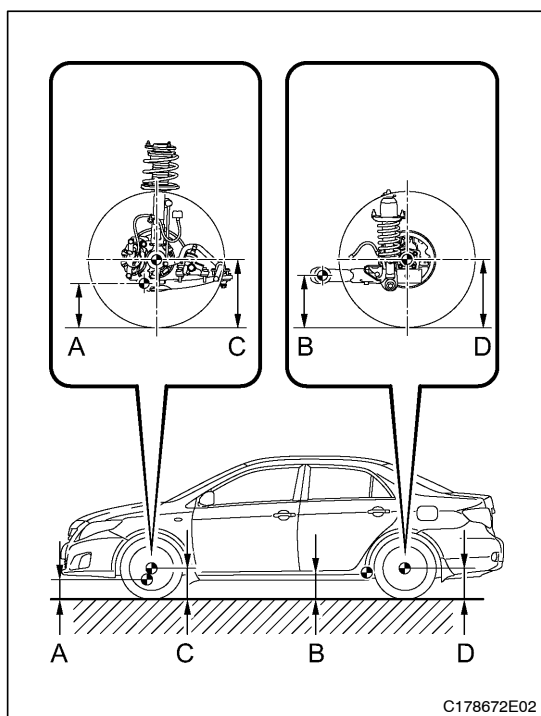
**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

5. WHEEL ALIGNMENT STANDARD

(a) FRONT WHEEL ALIGNMENT



(1) Vehicle Height (Unloaded Vehicle)

NOTICE:

- Before inspecting the wheel alignment, adjust the vehicle height to the specified value.
- Be sure to perform measurement on a level surface.
- If it is necessary to go under the vehicle for measurement, confirm that the parking brake is applied and the vehicle is secured with chocks.

Measuring points:

A: No. 1 lower suspension arm bushing set bolt ground clearance

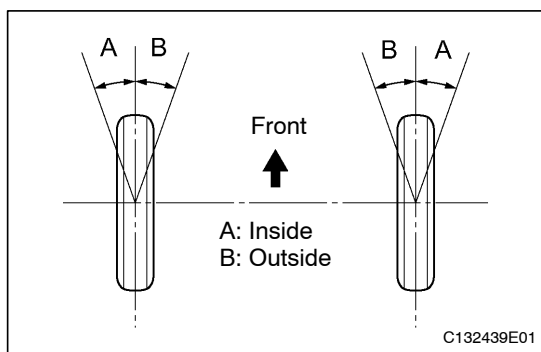
B: Rear axle beam set bolt ground clearance

C: Front wheel center ground clearance

D: Rear wheel center ground clearance

—	Engine	Front C – A	Rear D – B
for TMC Made	2ZR-FE	92 mm (3.62 in.)	45 mm (1.77 in.)
except TMC Made	2ZR-FE	92 mm (3.62 in.) 80 mm (3.15 in.)*	45 mm (1.77 in.) 32 mm (1.26 in.)*
	2AZ-FE	96 mm (3.78 in.) 81 mm (3.19 in.)*	51 mm (2.01 in.) 36 mm (1.42 in.)*

*for vehicle height for Mexico, add 15 mm (0.591 in.)

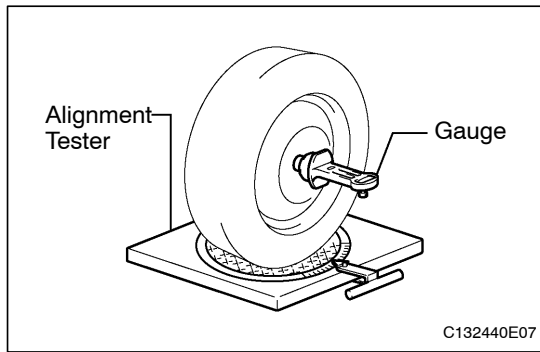


(2) Wheel Angle (Unloaded Vehicle)

—	Engine	Tire Size	Inside Wheel	Outside Wheel Reference
for TMC Made	2ZR-FE	195/65R15	38° 13' +/- 2° (38.22° +/- 2°)	32° 50' (32.83°)
		205/55R16		
except TMC Made	2ZR-FE	195/65R15	38° 13' +/- 2° (38.22° +/- 2°) 38° 29' +/- 2° (38.48° +/- 2°)*	32° 50' (32.83°) 33° 04' (33.07°)*
		205/55R16	38° 13' +/- 2° (38.22° +/- 2°) 38° 31' +/- 2° (38.52° +/- 2°)*	32° 50' (32.83°) 33° 04' (33.07°)*
	2AZ-FE	205/55R16*	37° 19' +/- 2° (37.32° +/- 2°)*	32° 18' (32.30°)*
		215/45R17	36° 59' +/- 2° (36.98° +/- 2°)	32° 01' (32.02°)

*for vehicle height for Mexico, add 15 mm (0.591 in.)

If the angles are not as specified, check and adjust the right and left rack end lengths.



(3) Camber (Unloaded Vehicle)

—	Engine	Tire Size	Camber Inclination	Right-Left Difference
for TMC Made	2ZR-FE	195/65R15	-0°35' (-0.58°)	45' (0.75°) or less
		205/55R16		
except TMC Made	2ZR-FE	195/65R15	-0°34' (-0.57°)	
			-0°26' (-0.43°)*	
	2AZ-FE	205/55R16	-0°35' (-0.58°)	
			-0°26' (-0.43°)*	
		205/55R16*	-0°27' (-0.62°)*	
		215/45R17	-0°37' (-0.62°)	

* for vehicle height for Mexico, add 15 mm (0.591 in.)

(4) Caster (Unloaded Vehicle)

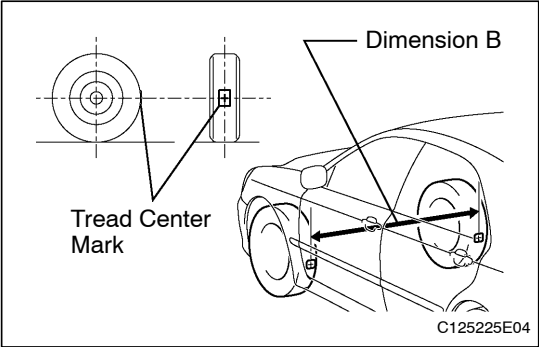
—	Engine	Tire Size	Camber Inclination	Right-Left Difference
for TMC Made	2ZR-FE	195/65R15	2°50' +/-45' (2.83° +/-0.75°)	45' (0.75°) or less
		205/55R16	2°51' +/-45' (2.85° +/-0.75°)	
except TMC Made	2ZR-FE	195/65R15	2°50' +/-45' (2.83° +/-0.75°)	
			2°40' +/-45' (2.67° +/-0.75°)*	
	2AZ-FE	205/55R16	2°50' +/-45' (2.83° +/-0.75°)	
			2°41' +/-45' (2.68° +/-0.75°)*	
		205/55R16*	2°45' +/-45' (2.75° +/-0.75°)*	
		215/45R17	2°55' +/-45' (2.92° +/-0.75°)	

* for vehicle height for Mexico, add 15 mm (0.591 in.)

(5) Steering Axis Inclination (Unloaded Vehicle)
except TMC Made:

—	Engine	Tire Size	Steering Axis Inclination
for TMC Made	2ZR-FE	195/65R15	12°32' (12.53°)
		205/55R16	
except TMC Made	2ZR-FE	195/65R15	12°32' (12.53°)
			12°13' (12.22°)*
	2AZ-FE	205/55R16*	12°16' (12.27°)*
		215/45R17	12°37' (12.62°)

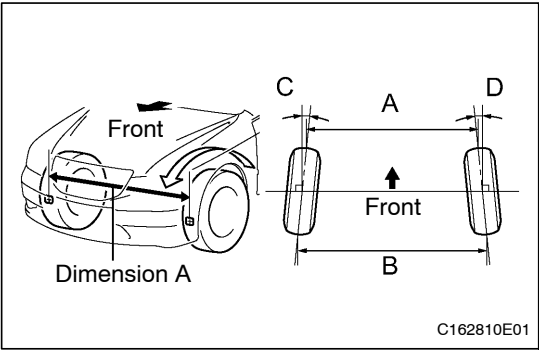
* for vehicle height for Mexico, add 15 mm (0.591 in.)



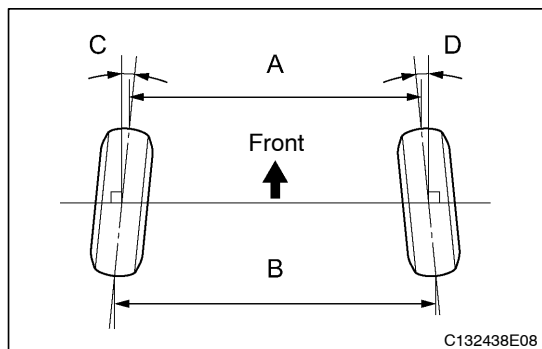
(6) Toe-in

HINT:

- Measure “B - A” only when “C + D” cannot be measured.
- If toe-in is not within the specified range, adjust it at the rack ends.



Specified Condition
C + D: 0°00' +/-0°12' (0° +/-0.2°) B - A: 0 +/-2.0 mm (0 +/-0.08 in.)

(b) REAR WHEEL ALIGNMENT**(6) Toe-in (Unloaded Vehicle)**

- Measure "B - A" only when "C + D" cannot be measured.

—	Grade	Specified Condition	Right-Left Difference
for TMC Made	except XRS	C + D: 0° 16' +/- 0° 15' (0.27° +/- 0.25°)	45' (0.75°) or less
		B - A: 2.5 +/- 2.5 mm (0.098 +/- 0.098 in.)	—
except TMC Made	except XRS	C + D: 0° 16' +/- 0° 15' (0.27° +/- 0.25°)	45' (0.75°) or less
		C + D: 0° 16' +/- 0° 15' (0.27° +/- 0.25°)*	—
	for XRS	B - A: 2.6 +/- 2.5 mm (0.102 +/- 0.098 in.)	—
		B - A: 2.0 +/- 2.5 mm (0.0787 +/- 0.098 in.)*	45' (0.75°) or less

* for vehicle height for Mexico, add 15 mm (0.591 in.) If the toe-in is not within the specified range, inspect the suspension parts and replace them if necessary.

(2) Camber (Unloaded Vehicle)**HINT:**

Camber is not adjustable. If the measurement is not within the specified range, inspect the suspension parts for damage and/or wear, and replace them if necessary.

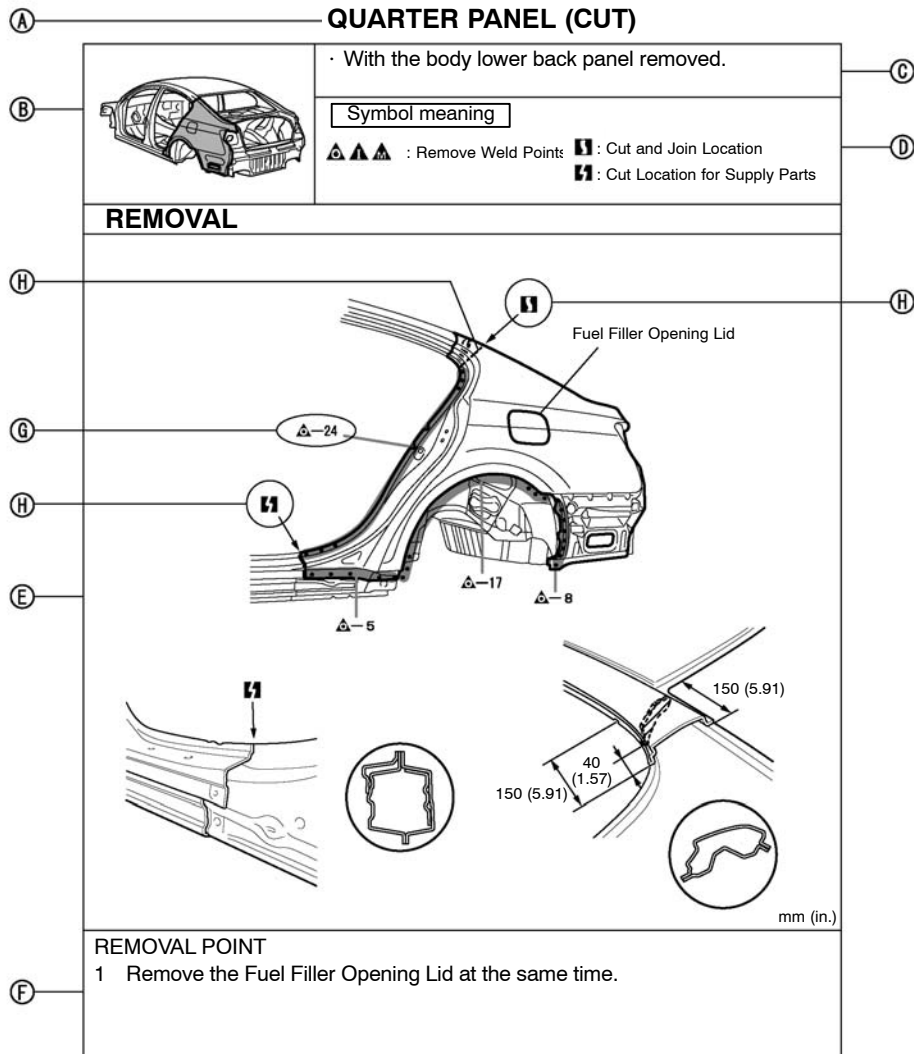
—	Grade	Specified Condition	Right-Left Difference
for TMC Made	except XRS	-1° 28' +/- 30' (-1.47° +/- 0.50°) 30' (0.50°) or less	30' (0.50°) or less
except TMC Made	except XRS	-1° 27' +/- 30' (-1.45° +/- 0.50°) 30' (0.50°) or less	
	for XRS	-1° 28' +/- 30' (-1.47° +/- 0.50°) 30' (0.50°) or less	

HOW TO USE THIS MANUAL

1. BODY PANEL REPLACEMENT IN THIS MANUAL

BODY PANEL REPLACEMENT

BP-34



REPLACEMENT PART
QUARTER PANEL (CUT)

Replacement method
 (ASSY) ...Assembly replacement
 (CUT) ...Major cutting (less than 1/2 of part used)
 (CUT-H) ...Half cutting (about 1/2 of part used)
 (CUT-P) ...Partial cutting (most of part used)
 Replacement part

WELDING EXPLANATION (See page IN-46)

SYMBOLS (See page IN-44)

PART LOCATION

REMOVAL AND INSTALLATION CONDITIONS

SYMBOL MEANING

REMOVAL DIAGRAM

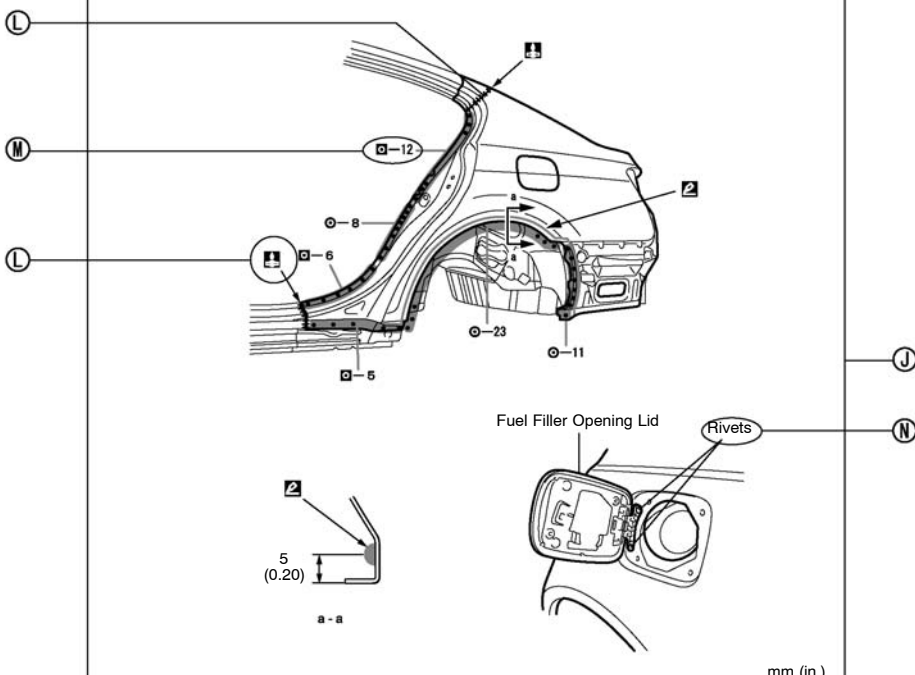
REMOVAL GUIDE

BP-38

BODY PANEL REPLACEMENT

Symbol meaning	
  	Mig Plug Weld
	Body Sealer
	Spot Weld
	Butt Weld

INSTALLATION



mm (in.)

INSTALLATION POINT

- Before temporarily installing the new parts, apply body sealer to the wheel arch.

HINT:

- 1) Apply body sealer evenly about 5 mm (0.20 in.) from the flange, avoiding any oozing.
- 2) Apply sealer evenly, about 3 – 4 mm (0.12 – 0.16 in.) in diameter.

- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- After welding, apply body sealer and undercoating to the corresponding parts.

① SYMBOLS

② INSTALLATION DIAGRAM

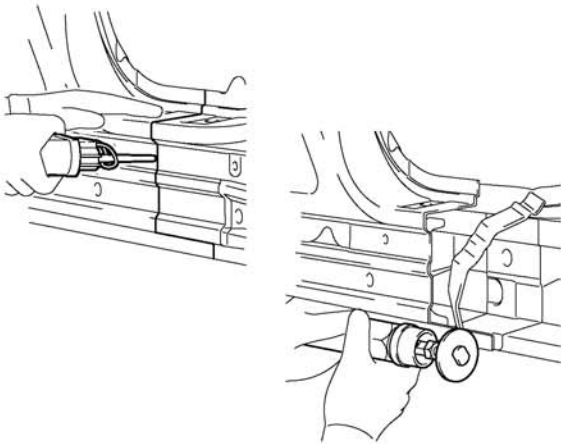
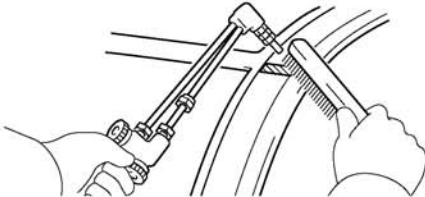
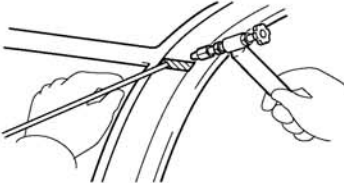
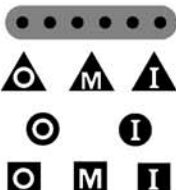
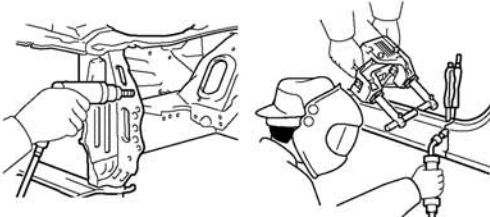
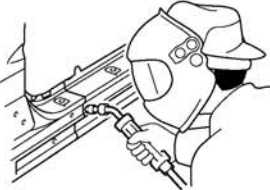
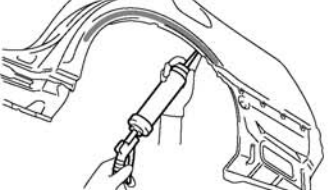
③ INSTALLATION GUIDE

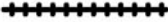
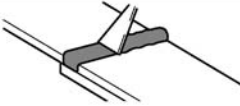
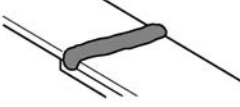
④ SYMBOLS (See page IN-44)

⑤ INSTALLATION OF WELD POINTS (See page IN-46)

⑥ PART NAME

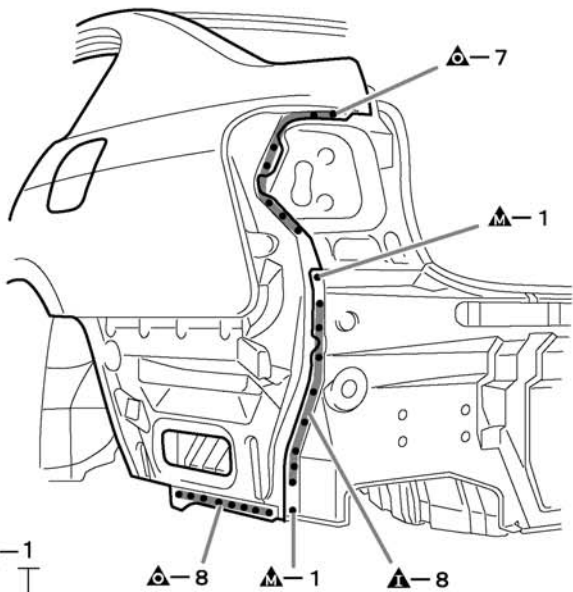
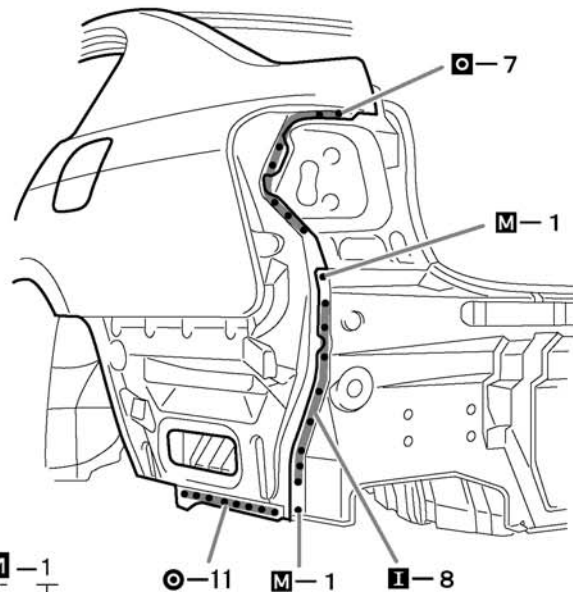
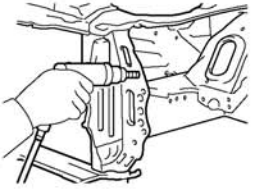
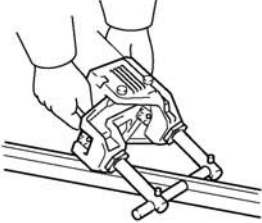
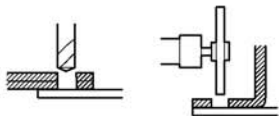
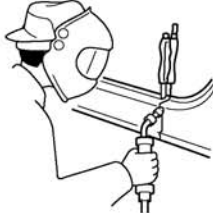
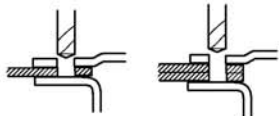
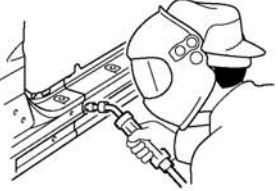
2. SYMBOLS

REPAIR AREA INDICATOR SYMBOLS		REPAIR METHOD INDICATOR SYMBOLS		ILLUSTRATION
-----	CUT		CUT AND JOIN LOCATION (Saw Cut)	
			CUT AND JOIN LOCATION (Cut Location for Supply Parts)	
			CUT LOCATION	
			CUT WITH DISC SANDER ETC.	
////	BRAZE		BRAZING OR ARC BRAZING FOR REMOVAL	
oooo	BRAZE		BRAZE	
	WELD POINTS	—	SPOT WELD OR PLUG WELD (refer to "ILLUSTRATION OF WELD POINT SYMBOLS")	
++++	WELDING		BUTT WELD	
			FILLET WELD	
	SEALER		BODY SEALER	

REPAIR AREA INDICATOR SYMBOLS		REPAIR METHOD INDICATOR SYMBOLS		ILLUSTRATION
—	ASSEMBLY MARK		STANDARD HOLE FOR INSTALLATION	—
	BODY SEALER	—	FLAT FINISHING	
			NO FLAT FINISHING	

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3. ILLUSTRATION OF WELD POINT SYMBOLS

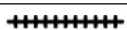
REMOVAL			INSTALLATION		
 Weld points Position of panels that are removed			 Weld points Welding method and panel position		
SYMBOLS	MEANING	ILLUSTRATION	SYMBOLS	MEANING	ILLUSTRATION
▲	Remove Weld Points		●	Spot Welding	
○	Position of Panel Being Replaced is on Outside		■	Plug Welding	
M	Position of Panel Being Replaced is in Center		+	Spot MIG Welding	
I	Position of Panel Being Replaced is on Inside				

BODY PANEL SEALING AREAS

Be sure to apply body sealer to the body panel joints and door edges (tip of outer panel folded part), etc., to water-proof and rustproof them.

HINT:

- 1) Apply degreasing agent to a clean cloth and clean the sealer application areas.
- 2) After removing the applied spot sealer from the sealer application areas using thinner or equivalent, rust-proof the areas by applying primer or equivalent. Then apply body sealer.
- 3) If sealer is unnecessarily applied to an area, apply degreasing agent to a clean cloth and clean off the sealer immediately.

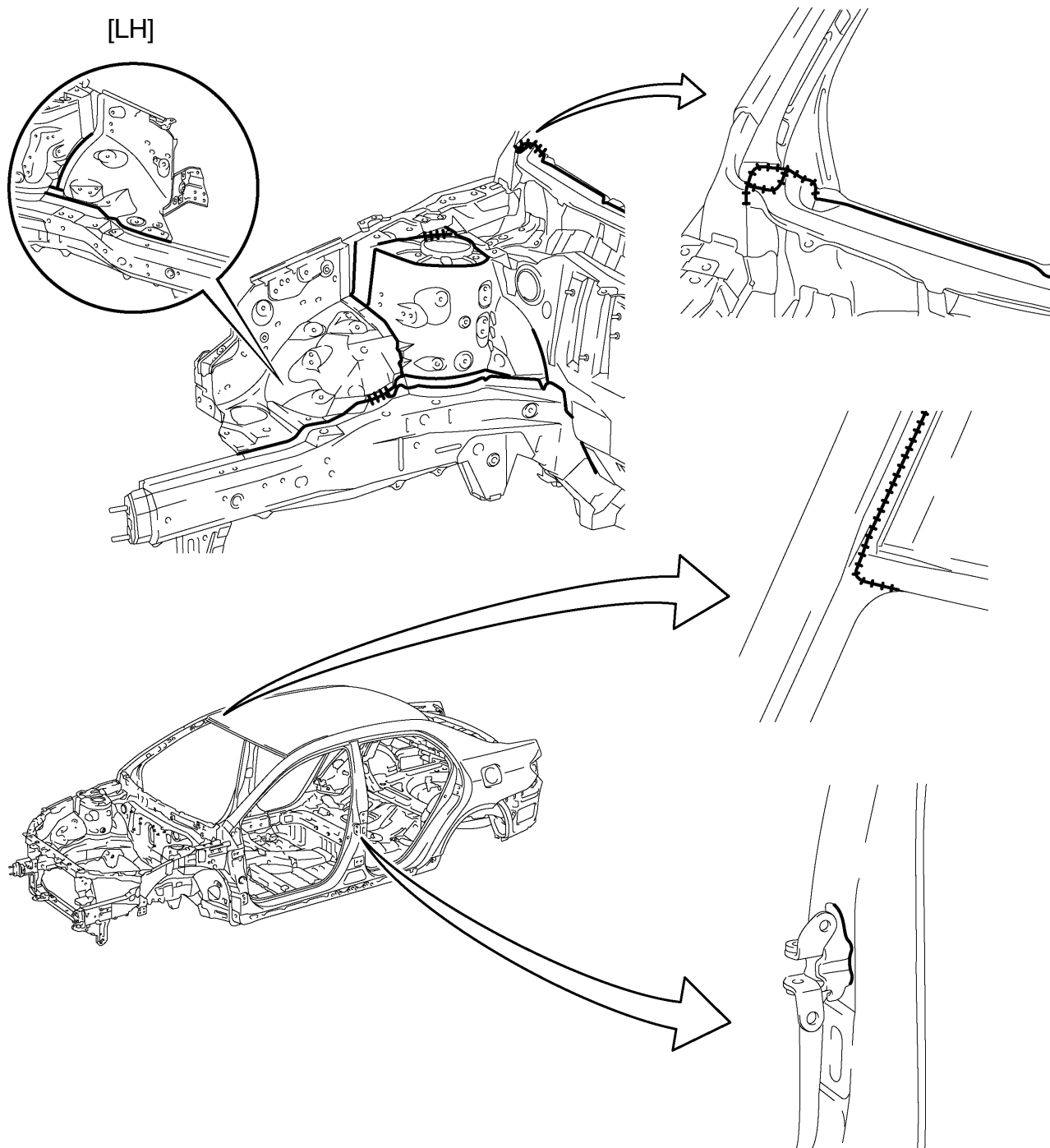


Flat Finishing

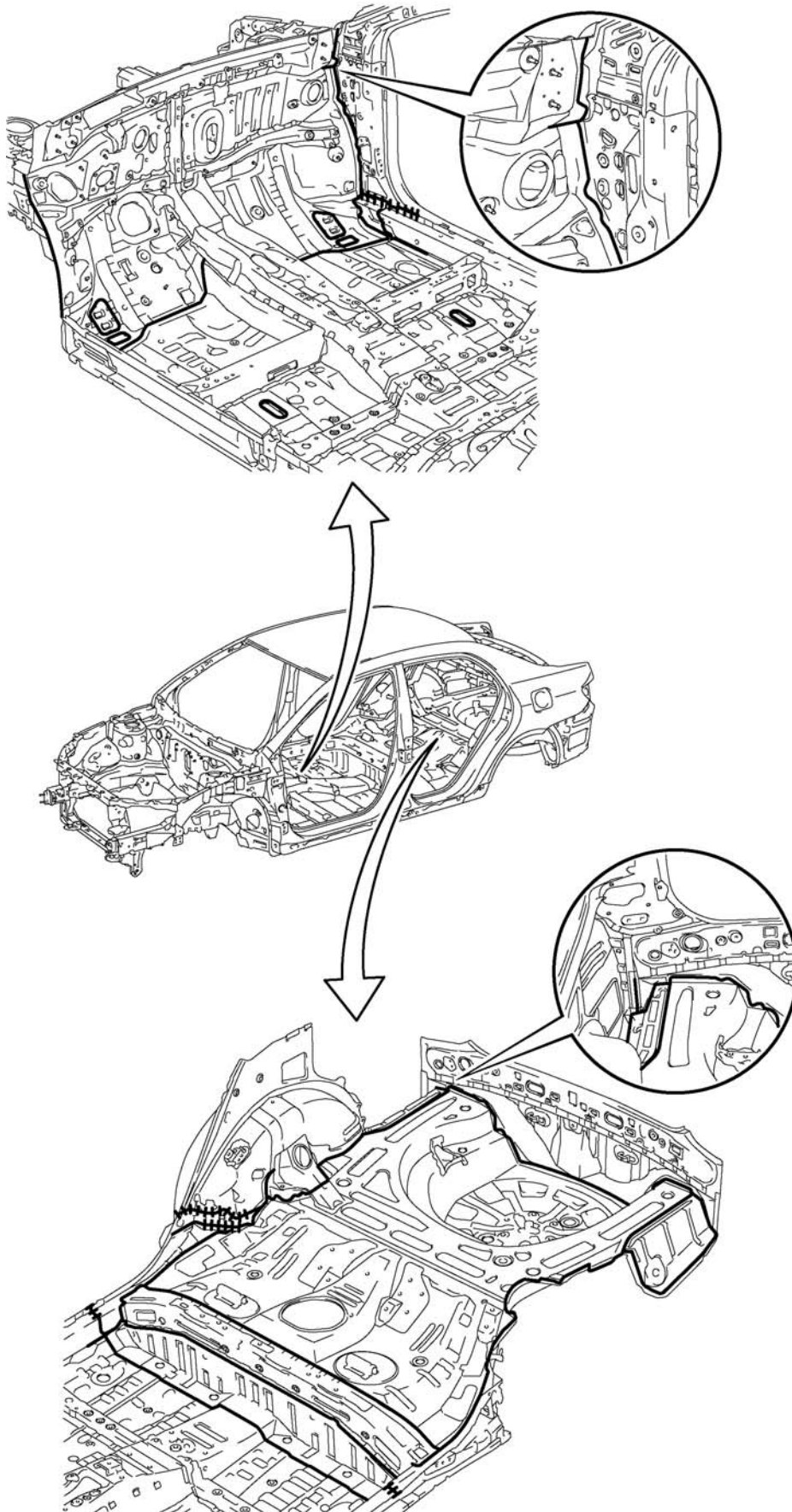


No Flat Finishing

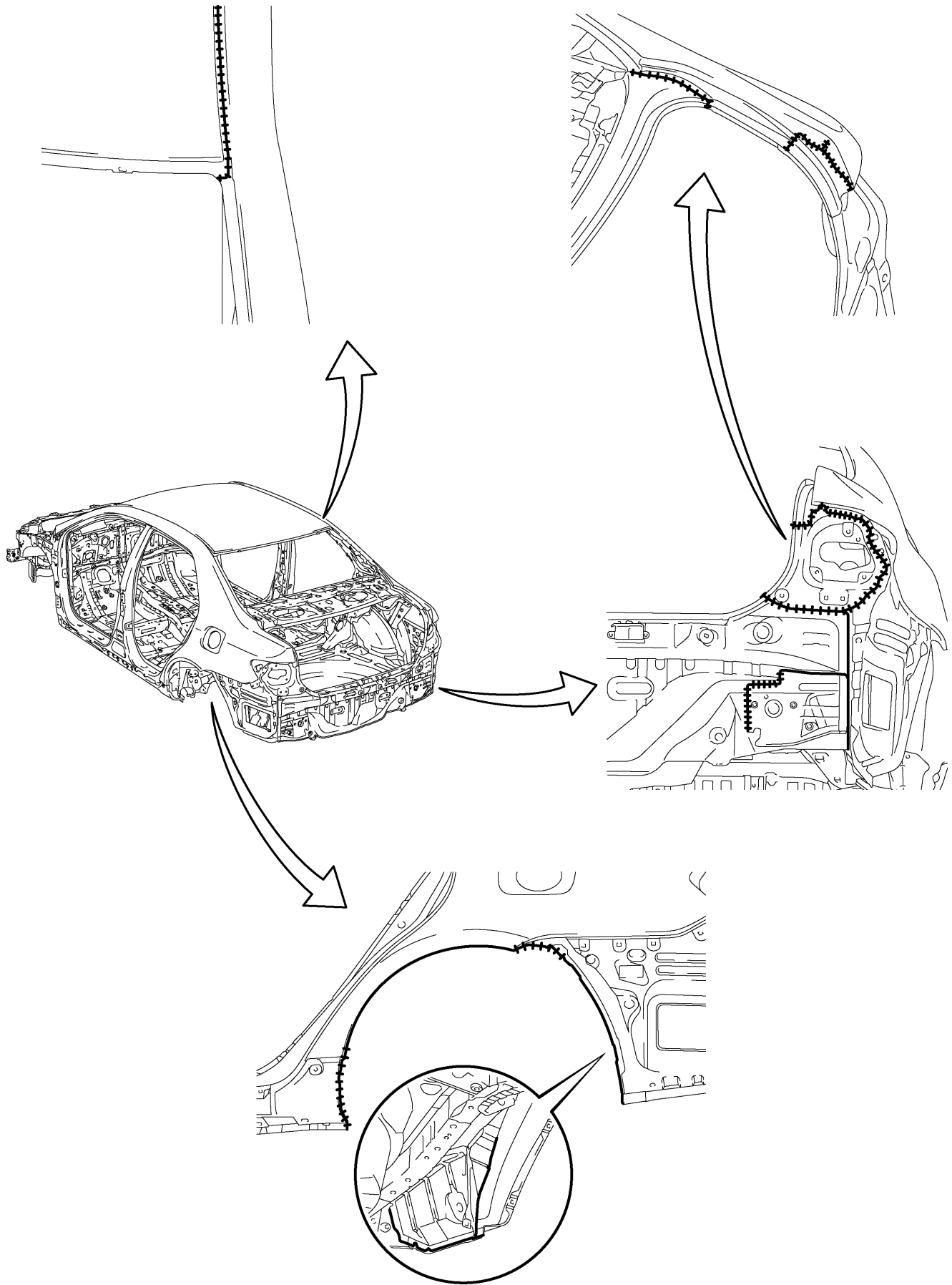
1. ENGINE COMPARTMENT

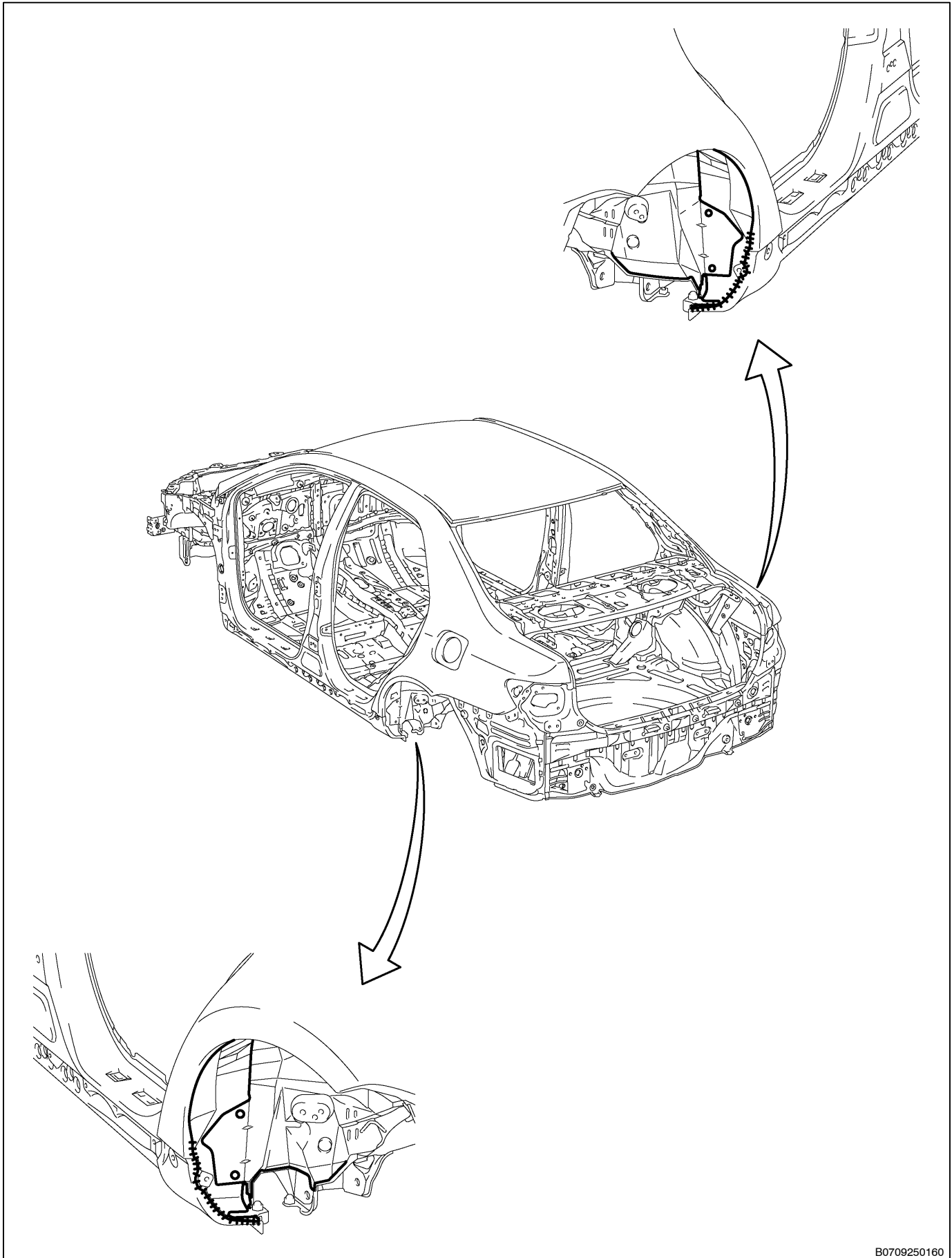


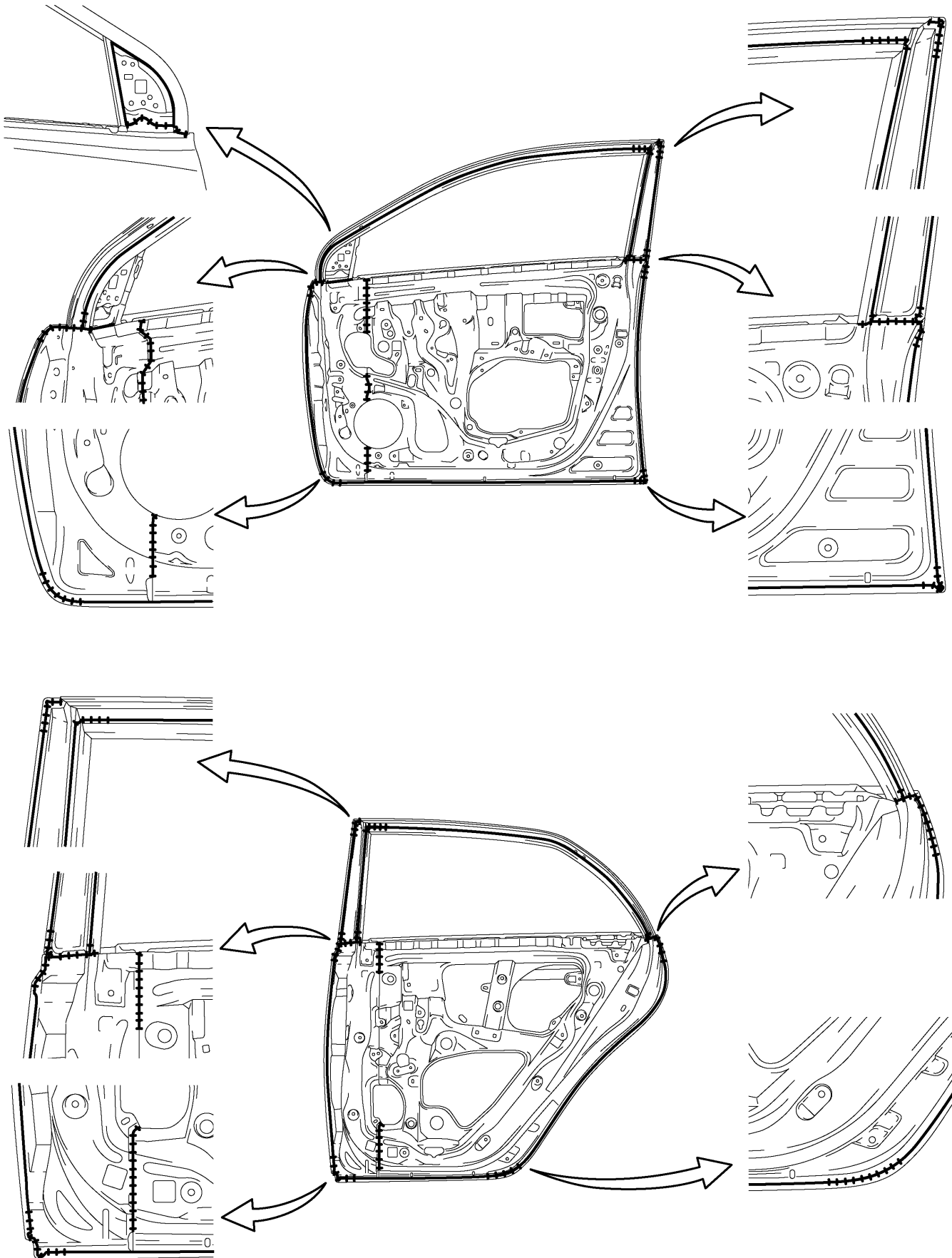
2. INSIDE

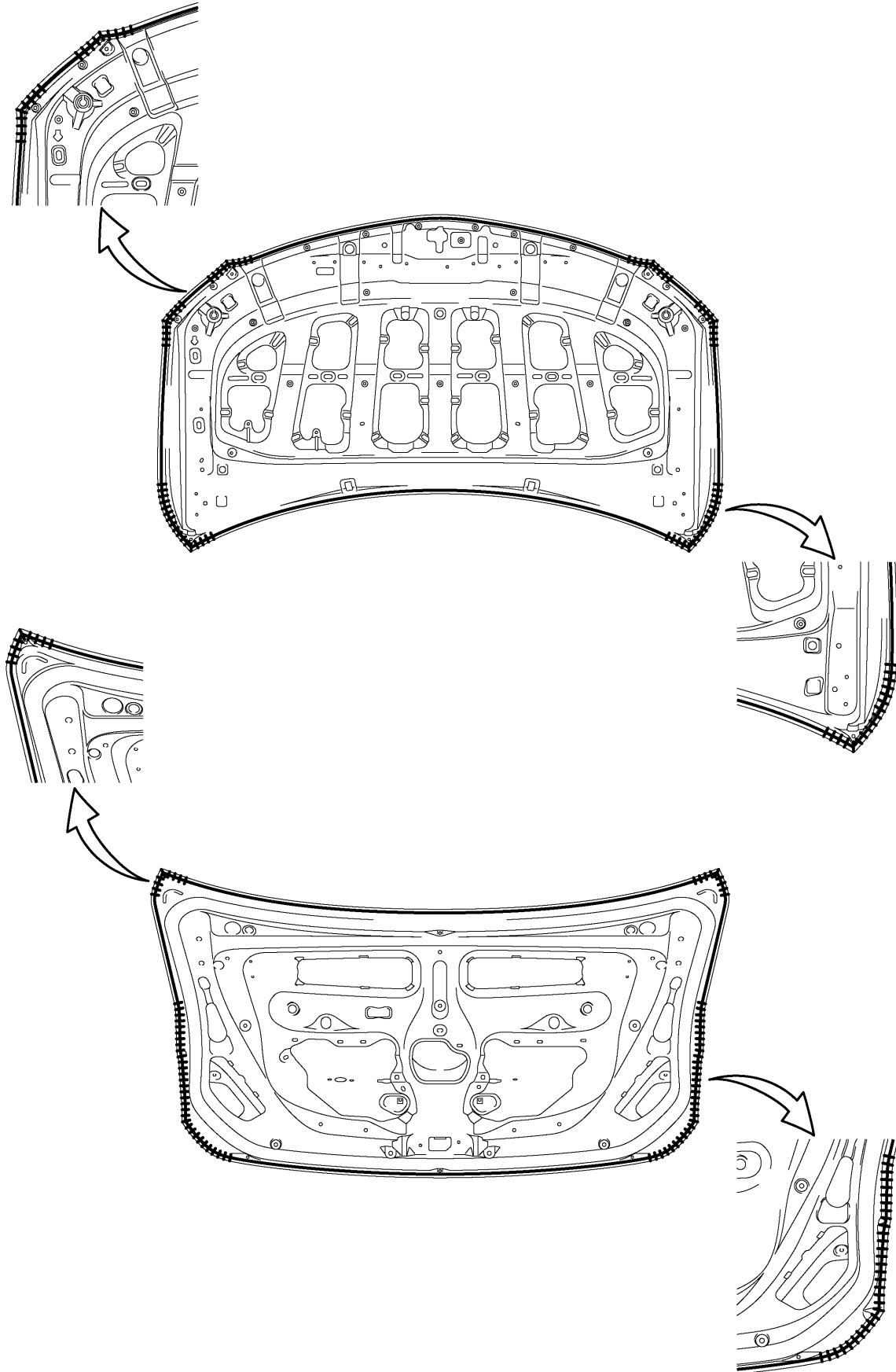


3. OUTSIDE





4. DOOR PARTS



BODY PANEL UNDERCOATING AREAS

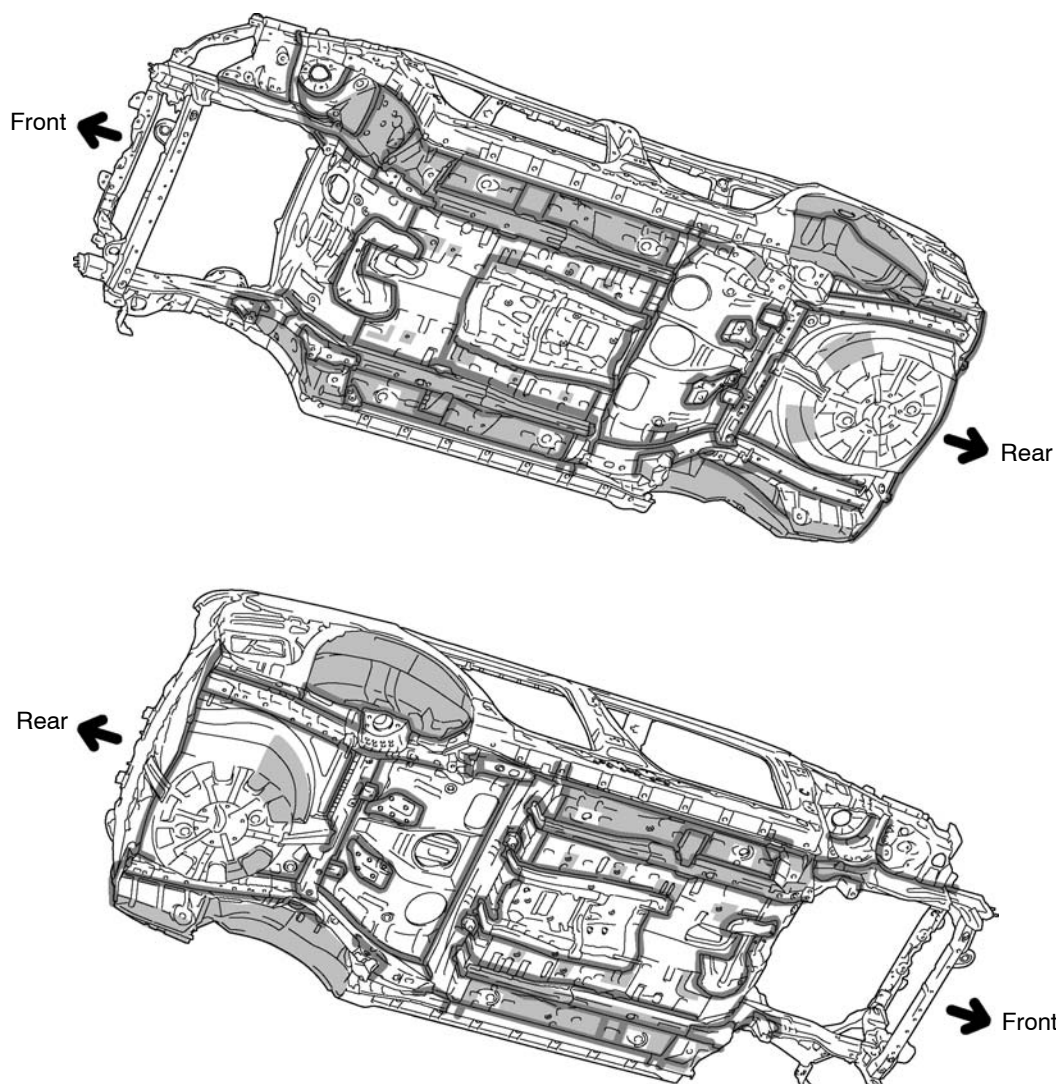
Apply PASTAR UWE or PASTAR UC to the chassis, floor underside, sheet metal fitting weld points of the body, and inside of the wheel house to prevent rust and noise, as well as protect the body from flying rocks.

HINT:

- 1) Work must be performed while wearing the appropriate protective gear and in a well-ventilated area.
- 2) Apply degreasing agent to a clean cloth and clean any dirt and oil from the application areas.
- 3) Cover the surrounding areas of the application areas with masking paper to avoid coating unnecessary areas.
- 4) Do not coat high temperature areas, such as the tailpipe, or moving parts, such as the driveshaft.
- 5) Do not leave any gaps between the panel joints.
- 6) Apply sealer to the panel joints in advance.

HINT:

- 1) Parts coated using the PASTAR UWE should be left until dry to the touch in a 25°C environment for 60 to 75 minutes. Parts coated using PASTAR UC should be left until dry to the touch in a 25°C environment for 15 to 30 minutes.
- 2) If using a PASTAR gun, one spray applies a 0.5 mm thick coating.
- 3) PASTAR UWE: Part number V9240-0025 PASTAR UC: Spray type :Part number V9240-0008
Aerosol type: Part number V9240-0021



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REFERENCE

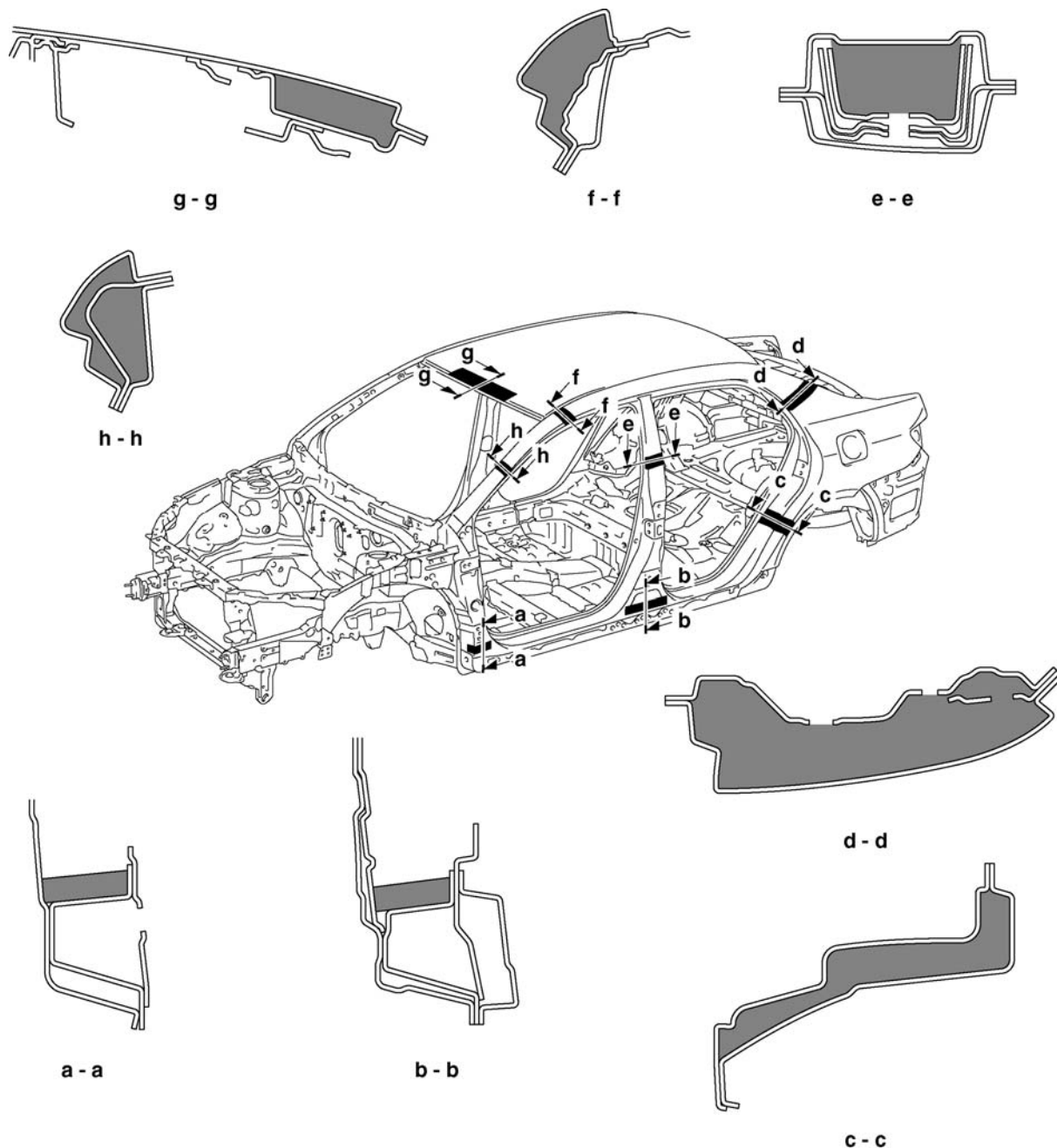
The undercoating should be applied according to the specifications for your country while referring to the notes above.

FOAMED MATERIAL APPLICATION AREAS

If an increase in temperature or other condition damages the foamed material when repairing or replacing the panel, fill in the insufficient areas with urethane foam. The following illustration shows the areas for one side, but the foamed material must be applied equally to both the left and right sides.

HINT:

- 1) Work must be performed while wearing the appropriate protective gear and in a well-ventilated area.
- 2) Apply tape or equivalent to any holes, nuts, etc., near the areas to be filled.

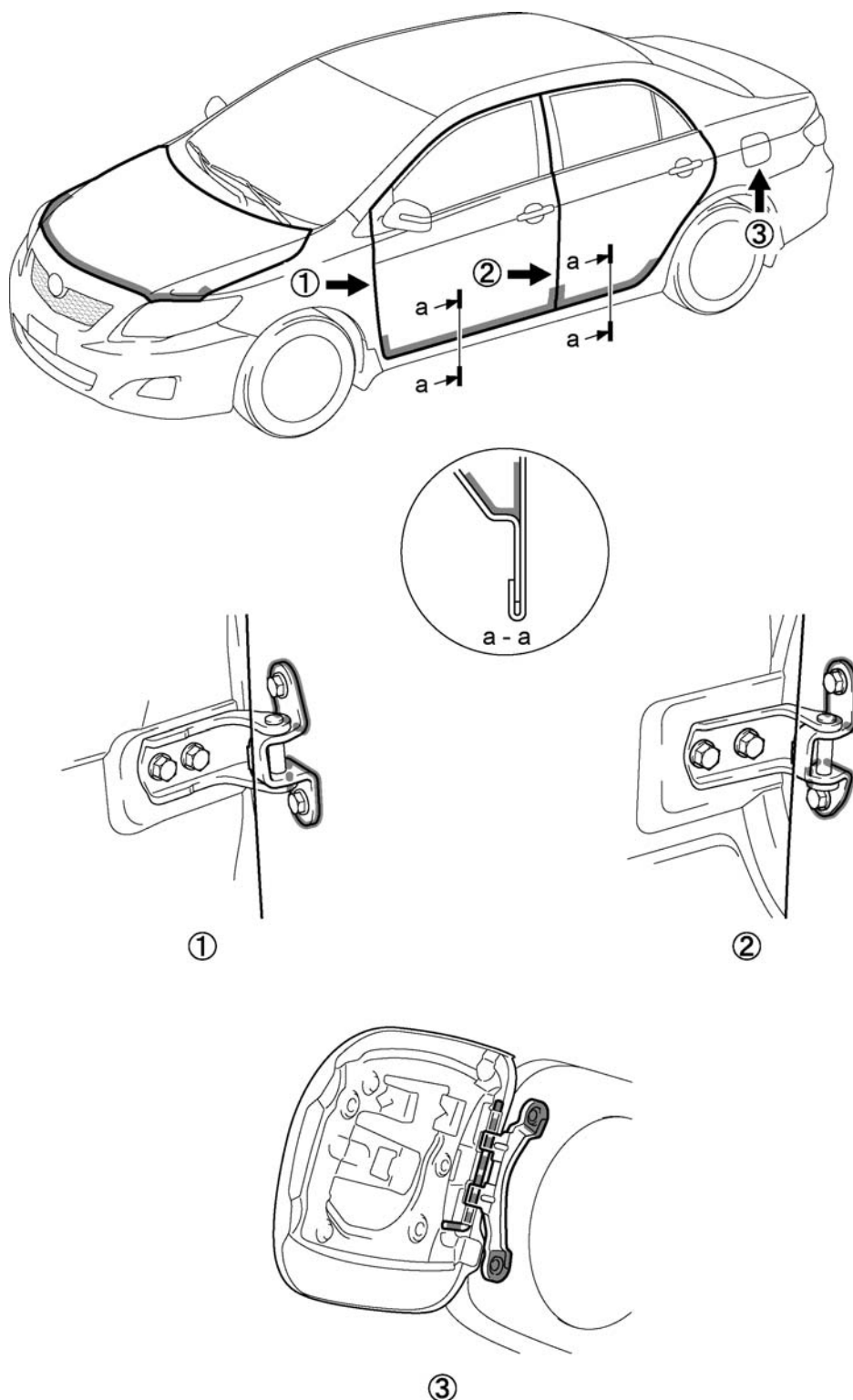


BODY PANEL ANTI-RUST AGENT (WAX) APPLICATION AREAS

Apply RUSTOP W to the doors and hood edges (tips of outer panel folded parts) and undersides, areas around hinges, etc. to prevent rust. Coat the undersides of the edges using a nozzle and air gun, and coat the areas around the hinges using a brush.

HINT:

- 1) If RUSTOP is unnecessarily applied to an area, apply degreasing agent to a clean cloth and clean off the RUSTOP immediately.



SILENCER SHEET INSTALLATION AREAS

Substitute silencer sheets for the laminate coat application areas.

Thicknee of Silencer Sheet mm (in.)

 ··· 1.5 (0.06)

 ··· 2.0 (0.08)

 ··· 3.0 (0.12)

