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 FJ CRUISER.

Applicable models: GSJ 10, 15 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 this TOYOTA model are 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 FJ CRUISER 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.

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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.	Cautionary items. Views of weld panel replacement instructions.
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.	Under coating. Body sealer.

Contents omitted in this manual.

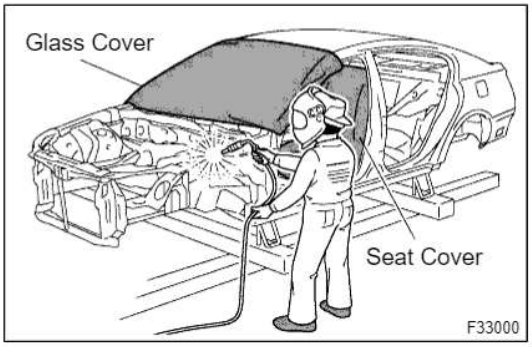
- ☐ Make sure to perform the following essential procedures, although they are omitted in this manual.
  (1) Clean and wash removed parts, if necessary.
  (2) Visual inspection.

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PRECAUTION

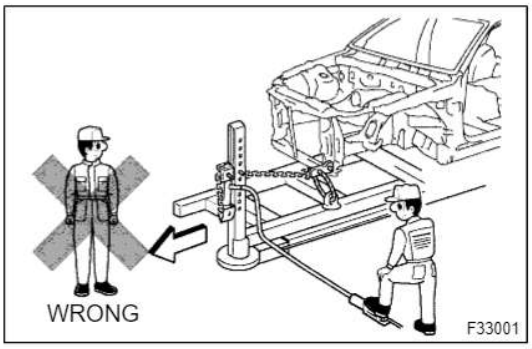
GENERAL REPAIR INSTRUCTIONS

1. WORK PRECAUTIONS



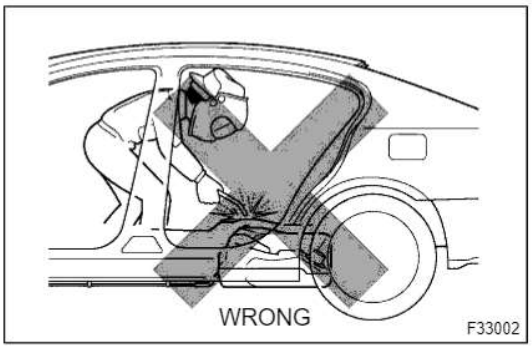
(a) VEHICLE PROTECTION

(1) When welding, protect the painted surfaces, windows, seats and carpet with heat resistant, fireproof covers.



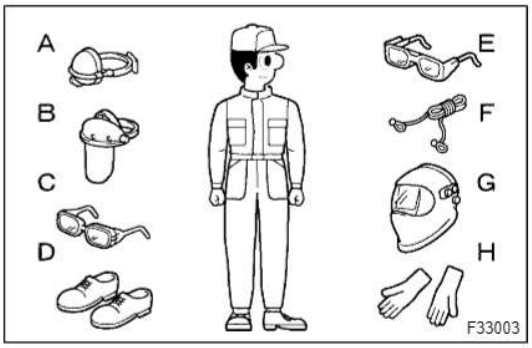
(b) SAFETY

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



(2) Before performing repair work, check for fuel leaks. If a leak is found, be sure to close the opening completely.

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



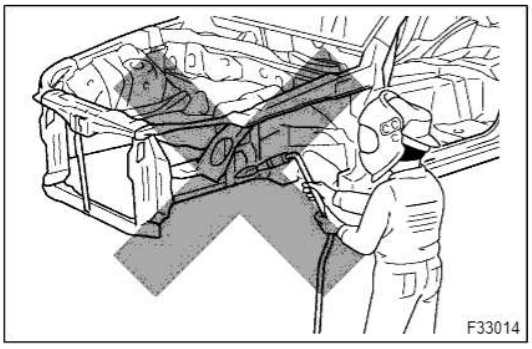
(c) SAFETY WORK CLOTHES

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

Code	Name
A	Dust-Prevention Mask
B	Face Protector
C	Eye Protector
D	Safety Shoes
E	Welder's Glasses
F	Ear Plugs
G	Head Protector
H	Welder's Gloves

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PRECAUTIONS FOR REPAIRING BODY STRUCTURE PANELS



1. HEAT REPAIR FOR BODY STRUCTURE PANELS

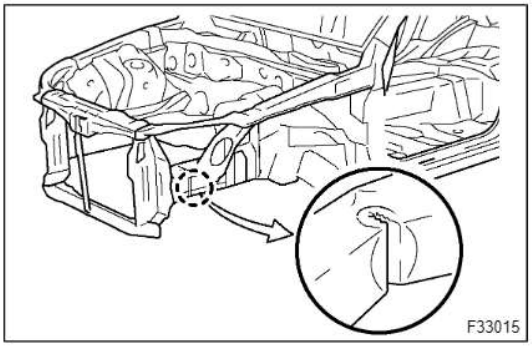
Toyota prohibits the use of the heat repair method on body structure panels when repairing a vehicle damaged in a collision.

Panels that have high strength and rigidity, as well as a long life span for the automobile body are in high demand.

At Toyota, in order to fulfill these requirements, we use high tensile strength steel sheets and rust preventive steel sheets on the body. High tensile steel sheets are made with alloy additives and a special heat treatment in order to improve their strength.

To prevent the occurrence of rust for a long period of time, the surface of the steel is coated with a zinc alloy.

If body structure parts are heat repaired with an acetylene torch or other heating source, the crystalline organization of the steel sheet will change and their strength of the steel sheet will be reduced. The ability of the body to resist rust is significantly lowered as well since the rust resistant zinc coating is destroyed by heat and the steel sheet surface is oxidized.



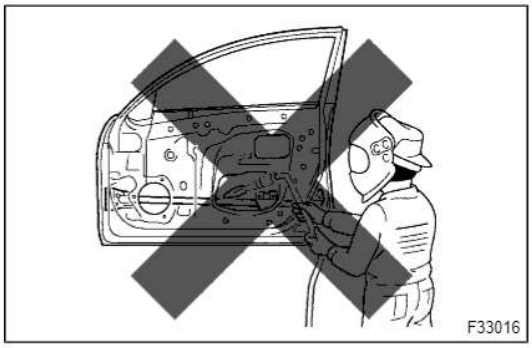
2. STRUCTURE PANEL KINKS

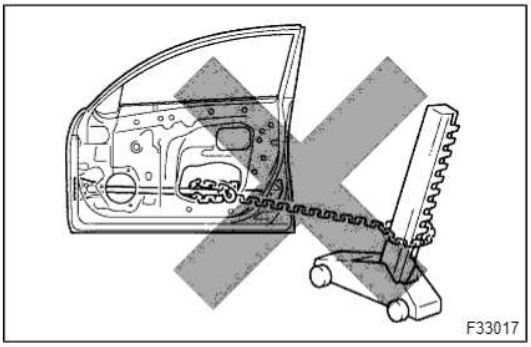
A sharp deformation angle on a panel that cannot be returned to its original shape by pulling or hammering is called a kink.

Structural parts are designed to perform in their original shape. If parts are deformed in an accident, or if the deformed parts are repaired and reused, the parts may be unable to perform as intended.

It is necessary to replace the part where the kink has occurred.

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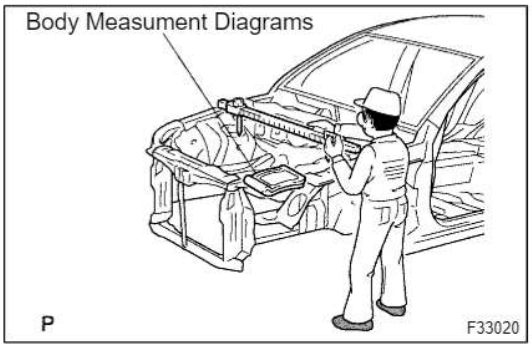


3. IMPACT BEAM REPAIR

The impact beam and bracket are necessary and important parts that help reduce the probability of injury to passengers in side collisions.
For impact beams, we use special high tensile strength steel.
The high tensile strength steel maintains its special crystalline organization by heat treatment or alloy additives.
Structural parts are designed to perform in their original shape. If parts are deformed in an accident, or if the deformed parts are repaired and reused, the parts may be unable to perform as intended.
If the impact beam or bracket is damaged, replace the door assembly that has the damaged beam.
Also, the bumper reinforcement is a necessary and important part that helps reduce the probability of injury to passengers in front collisions, and for the same reasons explained above, should be replaced if damaged.

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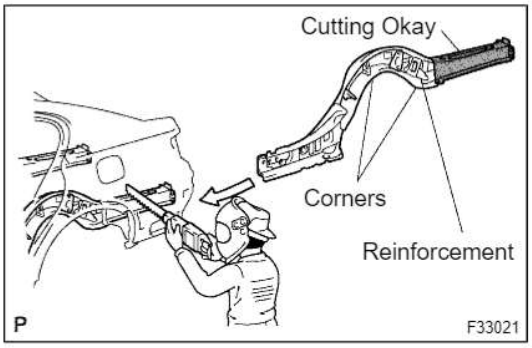
PROPER AND EFFICIENT WORK PROCEDURES



1. REMOVAL

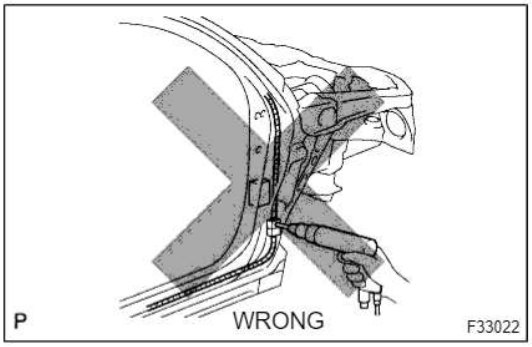
(a) PRE-REMOVAL MEASURING

(1) Before removal or cutting operations, take measurements in accordance with the dimensions diagram. Always use a puller to straighten a damaged body or frame.



(b) CUTTING AREA

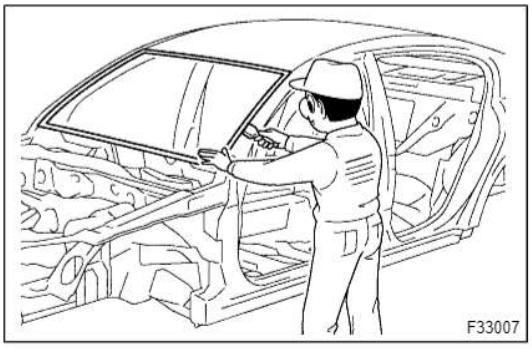
(1) Always cut in a straight line and avoid cutting reinforced areas.



(c) PRECAUTIONS FOR DRILLING OR CUTTING

(1) Check behind any area to be drilled or cut to ensure that there are no hoses, wires, etc., that may be damaged.

HINT: See "Handling Precautions on Related Components" on page IN-9.

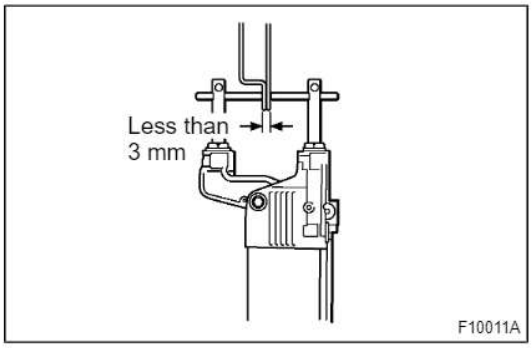


(d) REMOVAL OF ADJACENT COMPONENTS

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

HINT: See "Handling Precautions on Related Components" on page IN-9.

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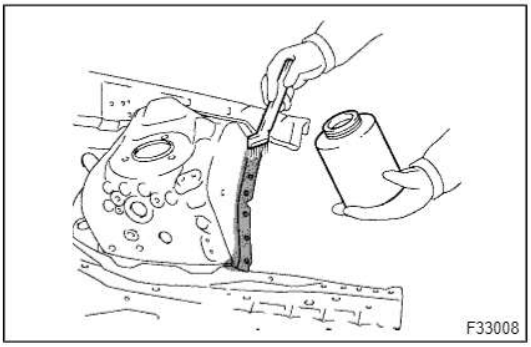


2. PREPARATION FOR INSTALLATION

(a) SPOT WELD POINTS

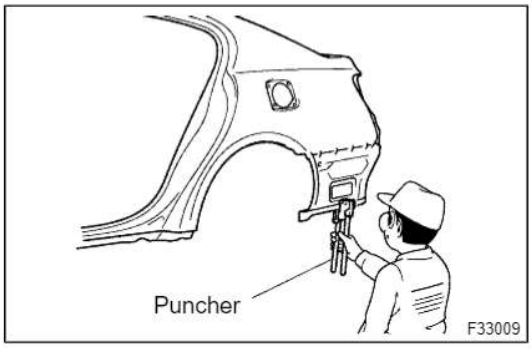
(1) When welding panels with a combined thickness of over 3 mm (0.12 in.), use a MIG (Metal Inert Gas) welder for plug welding.

HINT: Spot welding does not provide sufficient durability for panels with a combined thickness of over 3 mm (0.12 in.)



(b) APPLICATION OF WELD-THROUGH PRIMER (SPOT SEALER)

(1) Remove the paint from the portion of the new parts and body to be welded, and apply weld-through primer.

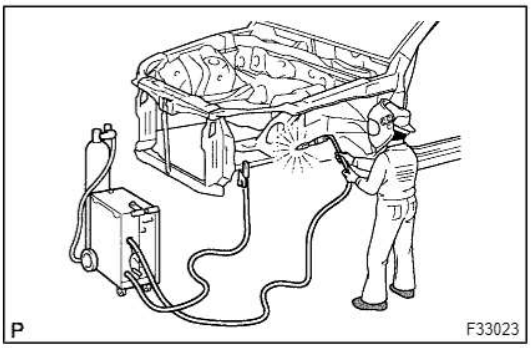


(c) MAKING HOLES FOR PLUG WELDING

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

REFERENCE: mm (in.)

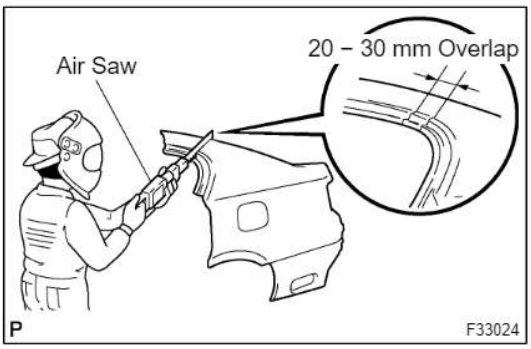
Thickness of welded portion	Size of plug hole
1.0 (0.04) under	ø 5 (0.20) over
1.0 (0.04) – 1.6 (0.06)	ø 6.5 (0.26) over
1.7 (0.07) – 2.3 (0.09)	ø 8 (0.31) over
2.4 (0.09) over	ø 10 (0.39) over



(d) SAFETY PRECAUTIONS FOR ELECTRICAL COMPONENTS

(1) When welding, there is a danger that electrical components will be damaged by the electrical current flowing through the body.

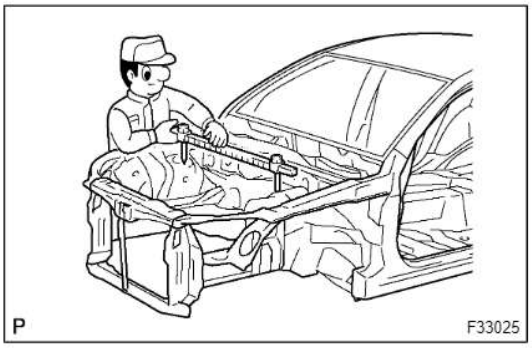
(2) Before starting work, disconnect the negative terminal of the battery and ground the welder near the welding location of the body.



(e) ROUGH CUTTING OF JOINTS

(1) For joint areas, rough cut the new parts, leaving 20 – 30 mm (0.79 – 1.18 in.) of overlap.

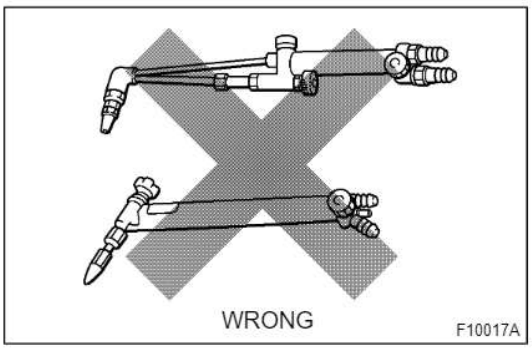
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3. INSTALLATION

(a) PRE-WELDING MEASUREMENTS

(1) Always take measurements before installing underbody or engine components to ensure correct assembly. After installation, confirm proper fit.

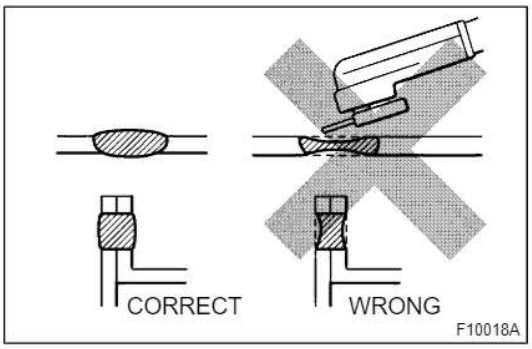


(b) WELDING PRECAUTIONS

(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.

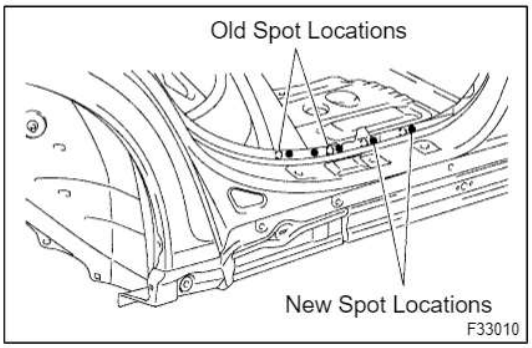
(2) Plug welding should be done with a MIG (Metal Inert Gas) welder. Do not gas weld or braze panels at areas other than where specified.



(c) POST-WELDING REFINISHING

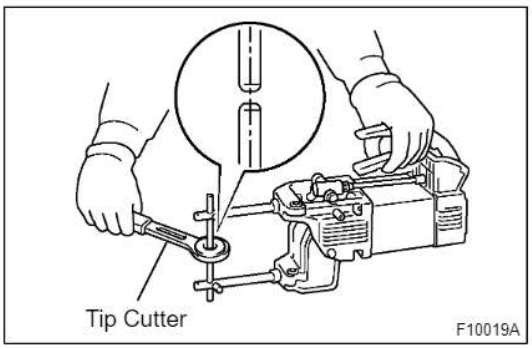
(1) Always check the welded spots to ensure that they are secure.

(2) When smoothing out the weld spots with a disc grinder, be careful not to grind off too much as this will weaken the weld.



(d) SPOT WELD LOCATIONS

(1) Avoid welding over previously welded areas.



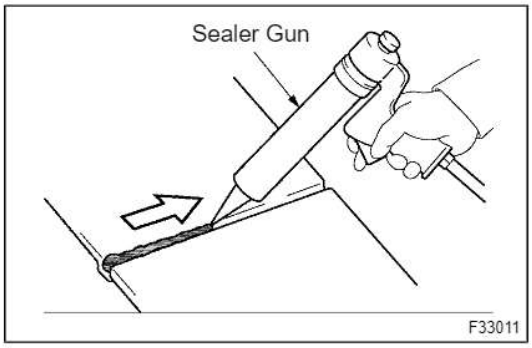
(e) SPOT WELDING PRECAUTIONS

(1) The shape of the tip point of the spot welder significantly affects the strength of the weld. Therefore, maintain the tip point in the proper shape, and allow it to cool after every five or six spots.

(2) Completely remove the paint from the areas to be spot welded, including the seams and the surfaces that come in contact with the welding tip.

(3) Use a sander to remove any burrs that are created during spot welding.

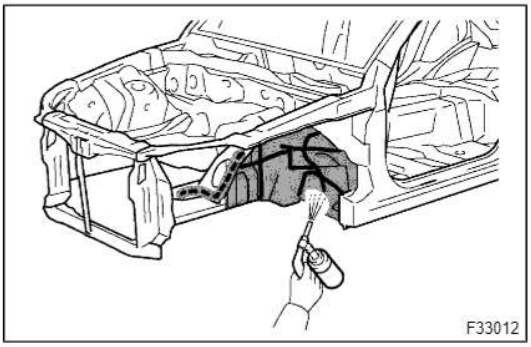
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4. ANTI-RUST TREATMENT AFTER INSTALLATION (BEFORE PAINTING PROCESS)

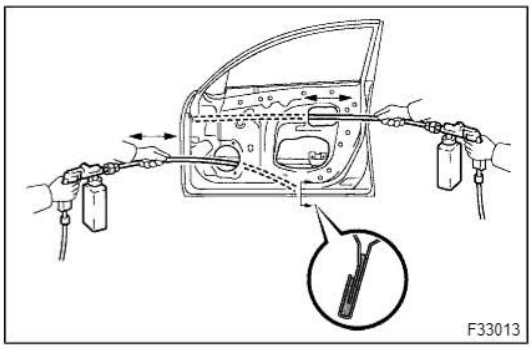
(a) BODY SEALER APPLICATION

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



(b) UNDERCOAT APPLICATION

(1) To prevent corrosion and protect the body from damage by flying stones, always apply sufficient under coating to the bottom surface of the under body and inside of the wheel housings.



5. ANTI-RUST TREATMENT AFTER INSTALLATION (AFTER PAINTING PROCESS)

(a) ANTI-RUST AGENT (WAX) APPLICATION

(1) To preserve impossible to paint areas from corrosion, always apply sufficient anti-rust agent (wax) to the inside of the hemming areas of the doors and hood, and around the hinges, or the welded surfaces inside the box-shaped cross sections of the side members, body pillars, etc.

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6. ANTI-RUST TREATMENT BY PAINTING

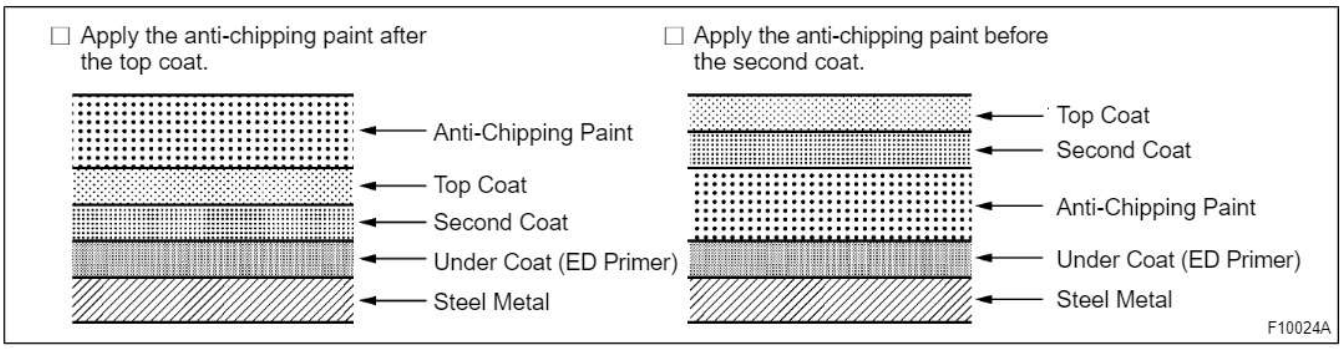
REFERENCE:

Painting prevents corrosion and protects the sheet metal from damage. In this section, anti-chipping paint only for anti-corrosion purposes is described.

(a) ANTI-CHIPPING PAINT

(1) To prevent corrosion and protect the body from damage by flying stones, etc., apply anti-chipping paint to the rocker panel, wheel arch areas, balance panel, etc.

HINT:
Depending on the model or the application area, there are cases where the application of anti-chipping paint is necessary before the second coat or after the top coat.



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HANDLING PRECAUTIONS ON RELATED COMPONENTS

1. BRAKE SYSTEM

The brake system is one of the most important safety components. Always follow the directions and notes given in the brake section of the repair manual for the relevant model year when handling brake system parts.

NOTICE: When repairing the brake master cylinder or TRAC system, bleed the air out of the TRAC system.

2. DRIVE TRAIN AND CHASSIS

The drive train and chassis are components that can have great effects on the running performance and vibration resistance of the vehicle. After installing components in the sections listed in the table below, perform alignments to ensure correct mounting angles and dimensions. Body repair must be particularly accurate to ensure correct alignment.

HINT: Correct procedures and special tools are required for alignment. Always follow the directions given in the repair manual for the relevant model year during alignment and in section DI of this section.

Component to be aligned	Section of repair manual for relevant model
Front Wheels	Front Suspension section
Rear Wheels	Rear Suspension section
Propeller Shaft	Propeller Shaft section

3. COMPONENTS ADJACENT TO THE BODY PANELS

Various types of component parts are mounted directly on or adjacently to the body panels. Strictly observe the following precautions to prevent damaging these components and the body panels during handling.

- ☐ Before repairing the body panels, remove their components or apply protective covers over the components.
- ☐ Before prying components off using a screwdriver or a scraper, etc., attach protective tape to the tool tip or blade to prevent damaging the components and the body paint.
- ☐ Before removing components from the outer surface of the body, attach protective tape to the body to ensure no damage to painted areas.

  HINT: Apply touch-up paint to any damaged paint surfaces.
- ☐ Before drilling or cutting sections, make sure that there are no wires, etc., on the reverse side.

4. ECU (ELECTRONIC CONTROL UNIT)

Many ECUs are mounted in this vehicle.
Take the following precautions during body repair to prevent damage to the ECUs.

- ☐ Before starting electric welding operations, disconnect the negative (−) terminal cable from the battery.
  When the negative (−) terminal cable is disconnected from the battery, the memory of the clock and audio systems will be erased. So, before starting work, make a record of the contents memorized by each memory system. Then when work is finished, reset the clock and audio systems as before.
  When the vehicle has tilt and telescopic steering, power seats and outside rear view mirrors, which are all equipped with a memory function, it is not possible to make a record of the memory contents. When the operation is finished, it will be necessary to explain this fact to the customer, and request the customer to adjust the features and reset the memory.
- ☐ Do not expose the ECUs to ambient temperatures above 80°C (176°F).

  NOTICE: Since it is possible that the ambient temperature may reach 80° C (176° F) or more, remove the ECUs from the vehicle before starting work.
- ☐ Be careful not to drop the ECUs and not to apply physical shocks to them.

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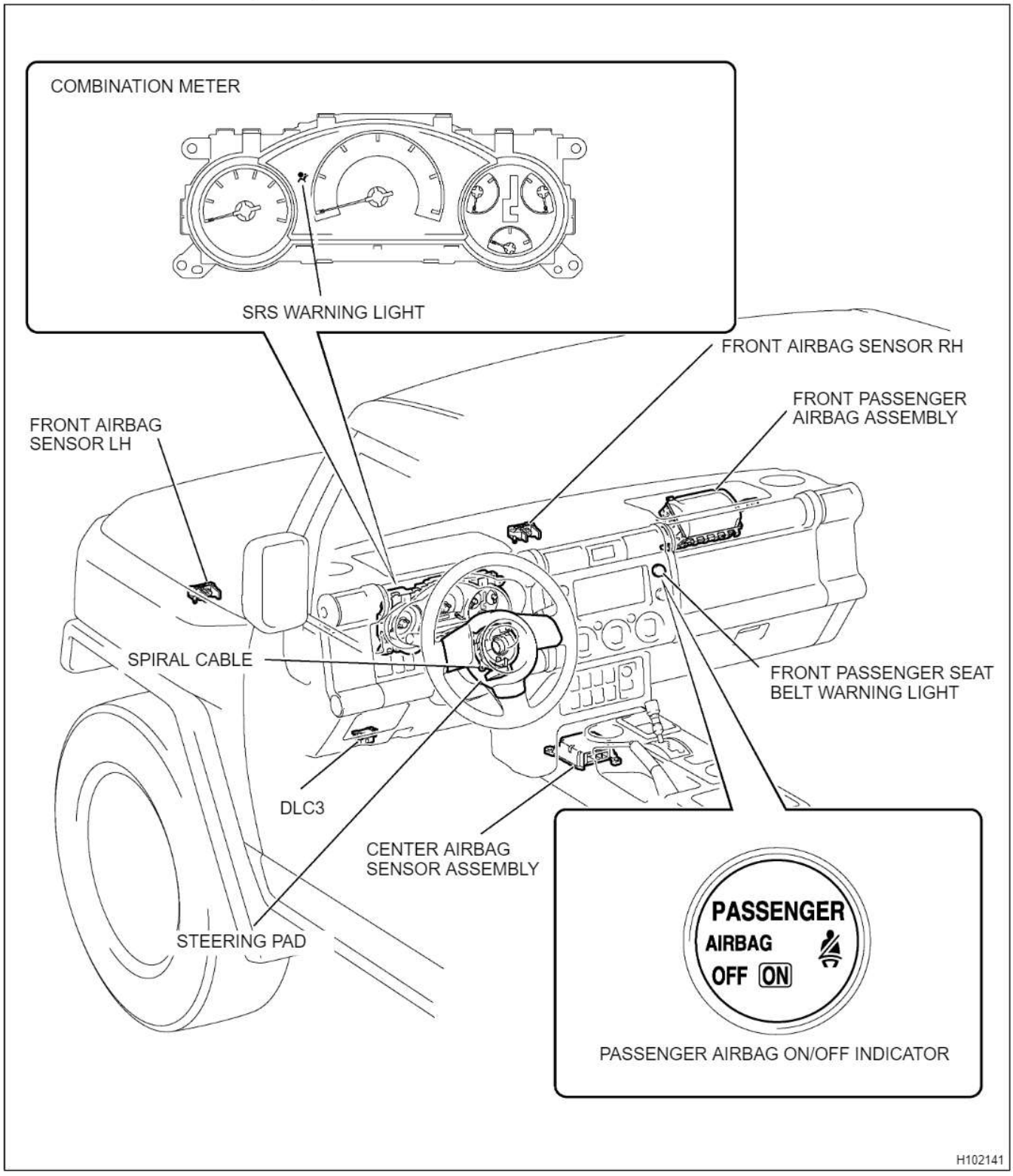
DAMAGED VEHICLE DISPOSAL PRECAUTION (SRS AIRBAG SYSTEM)

For SRS airbag system adjustment methods, refer to the TOYOTA Repair Manual.

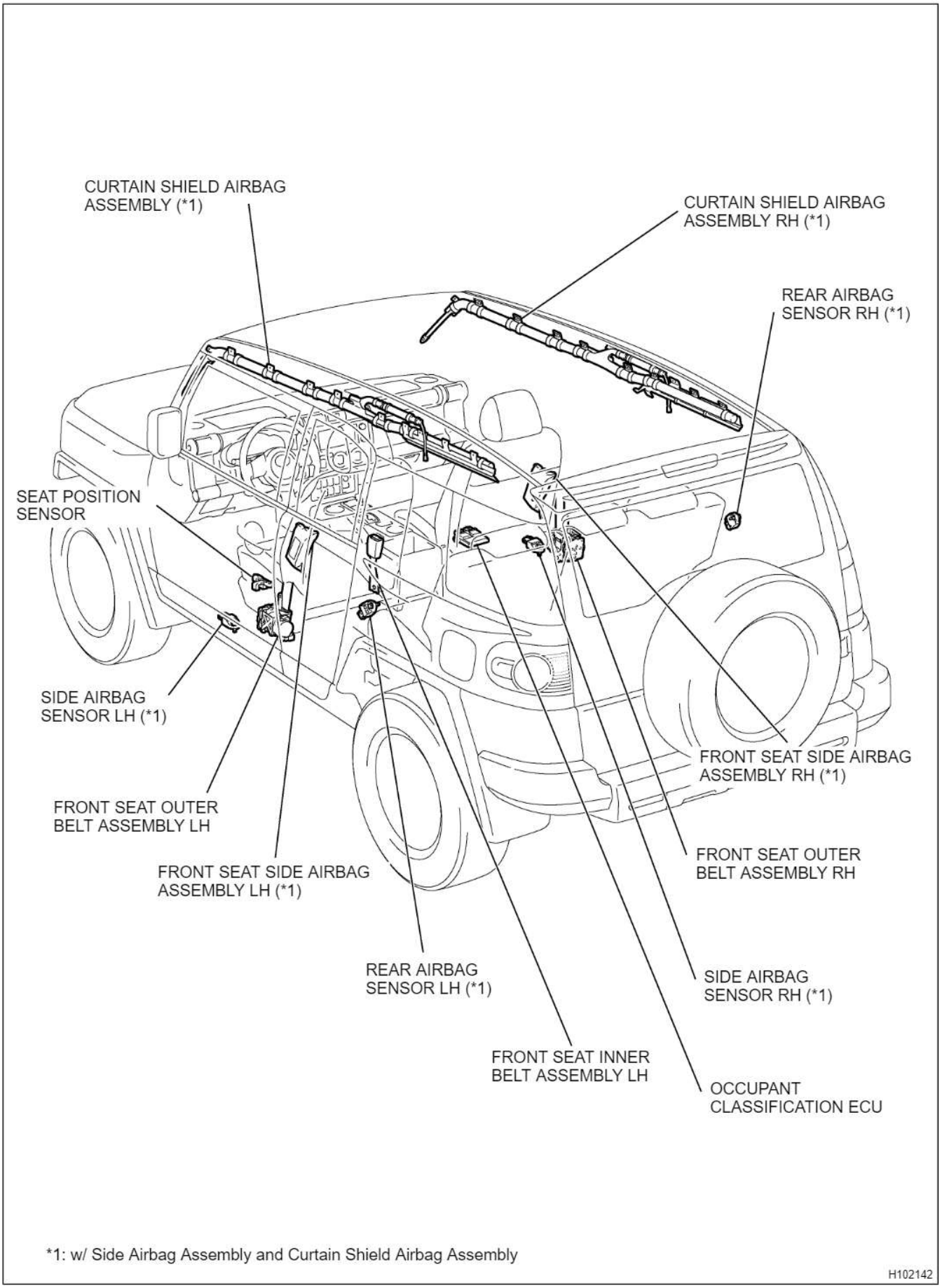
(1) When using an electric welder, first remove all airbags and the seat belt pretensioner.

(2) If impacts are likely to occur to the front airbag sensor, side airbag sensor, rear airbag sensor or seat position sensor, remove each sensor as necessary beforehand.

(3) Do not allow the front airbag sensor, side airbag sensor, rear airbag sensor or seat position sensor to become heated to high temperatures.



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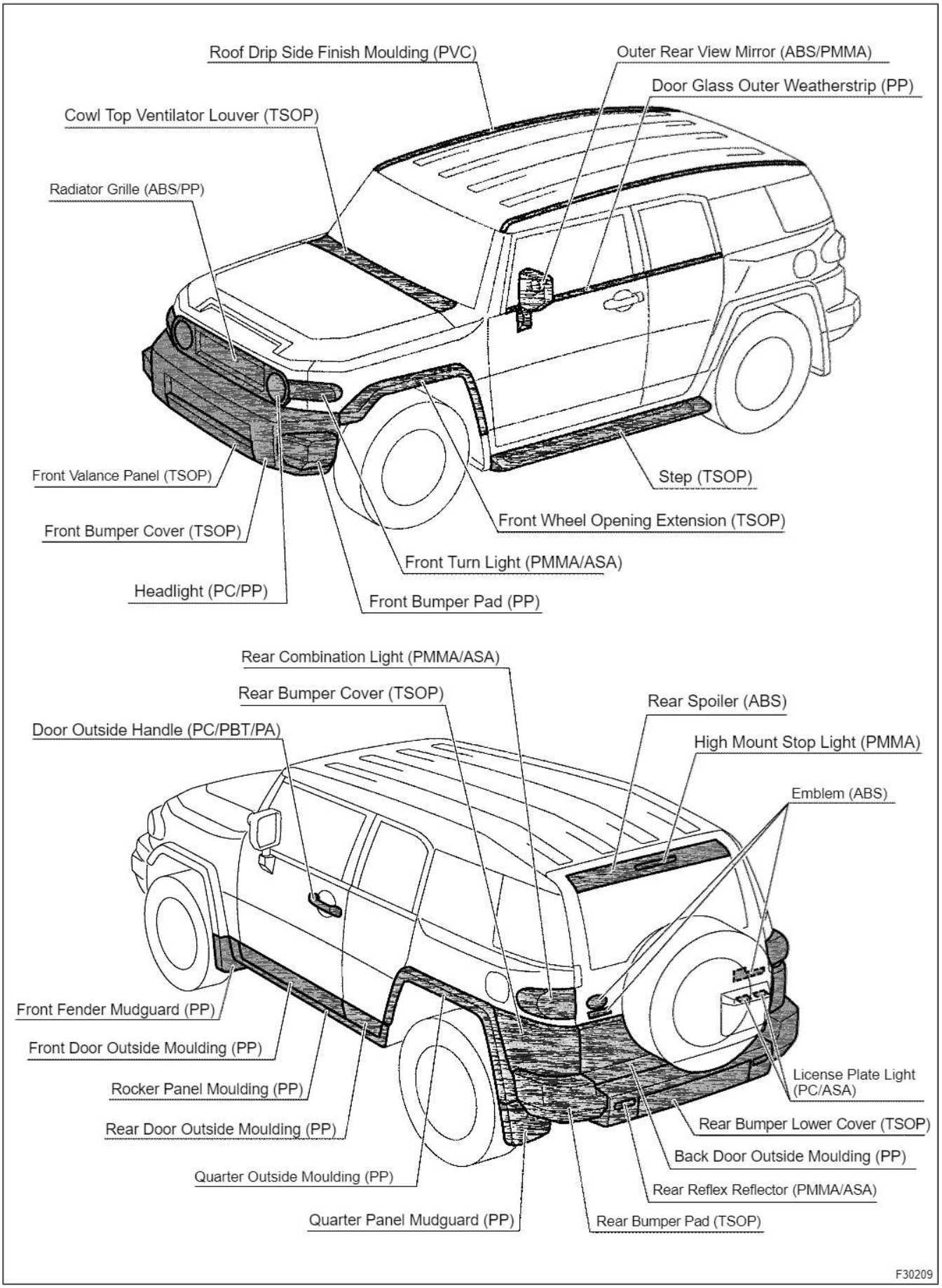
HANDLING PRECAUTIONS OF PLASTIC BODY PARTS

1. The repair procedure for plastic body parts must conform with the type of plastic material.
2. Plastic body parts are identified by the codes in the following table.
3. When repairing metal body parts adjoining plastic body parts (by brazing, frame cutting, welding, painting etc.), consideration must be given to the properties of the plastic.

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.
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.
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.
PP	Polypropylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
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.
PVC	Polyvinylchloride (Vijnyl)	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.
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.

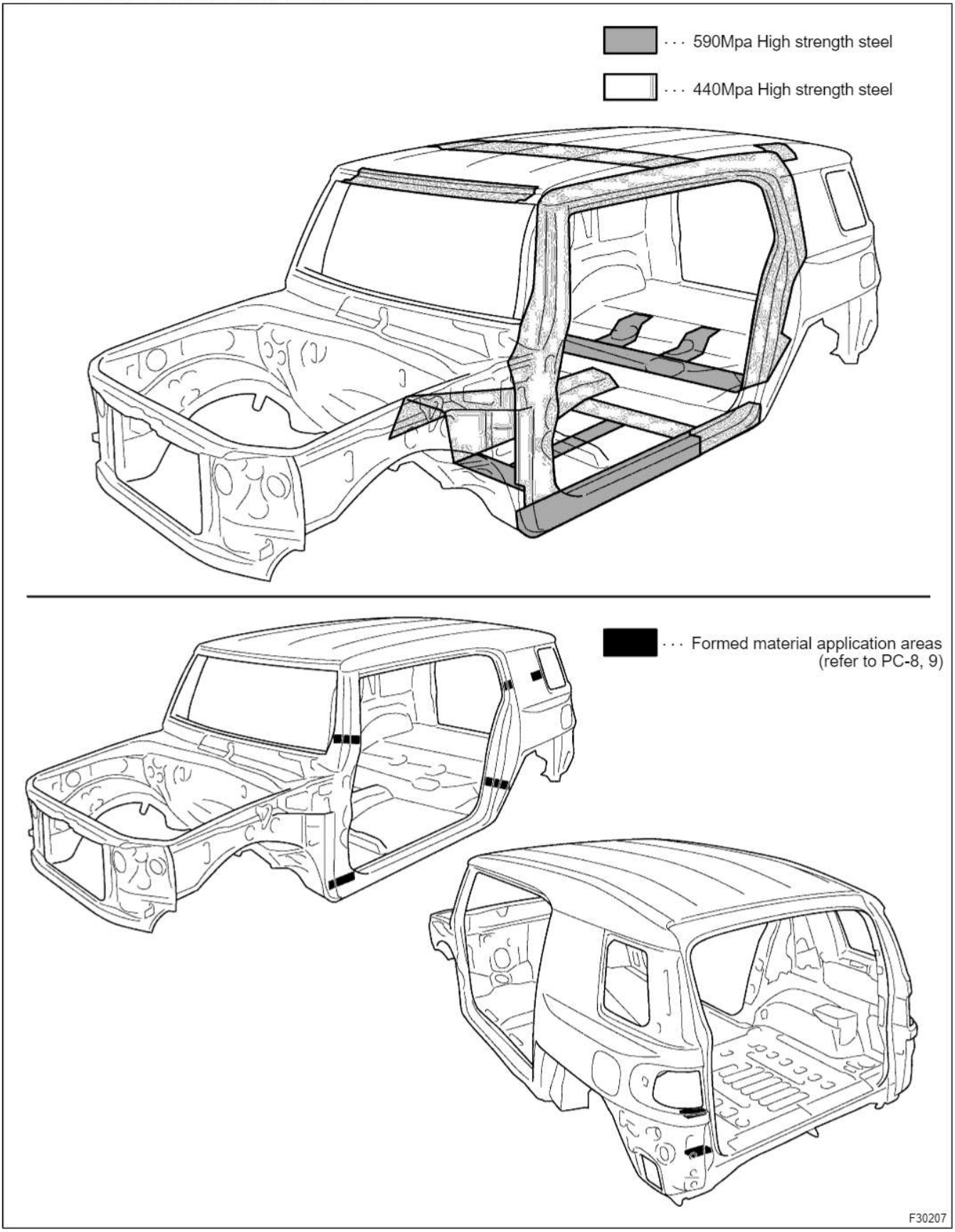
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ABOUT THIS VEHICLE

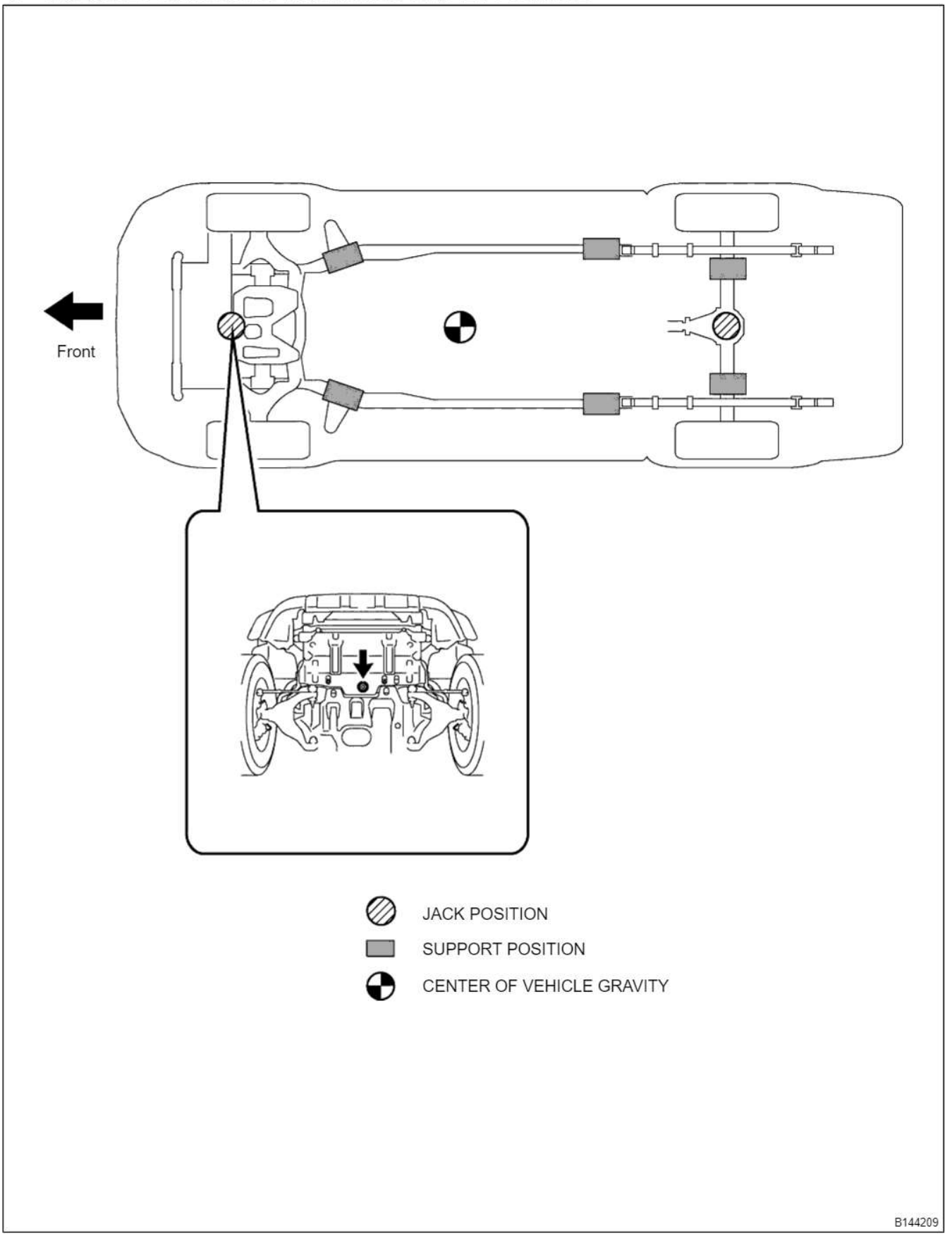
1. STRUCTUAL OUTLINE



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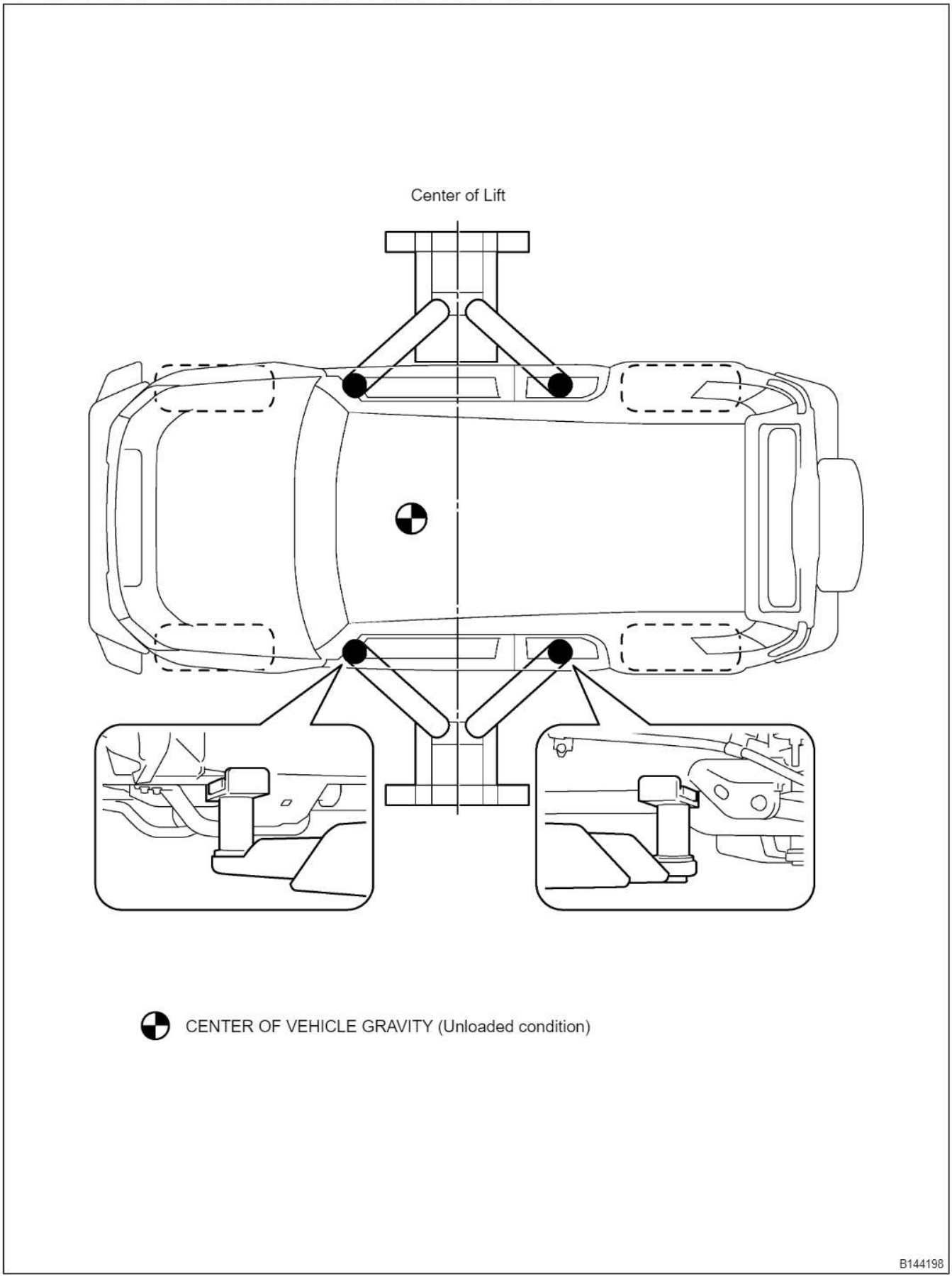
NOTICE ABOUT VEHICLE CONDITION WHEN JACKING UP VEHICLE

1. NOTICE FOR USING JACK AND SAFETY STAND



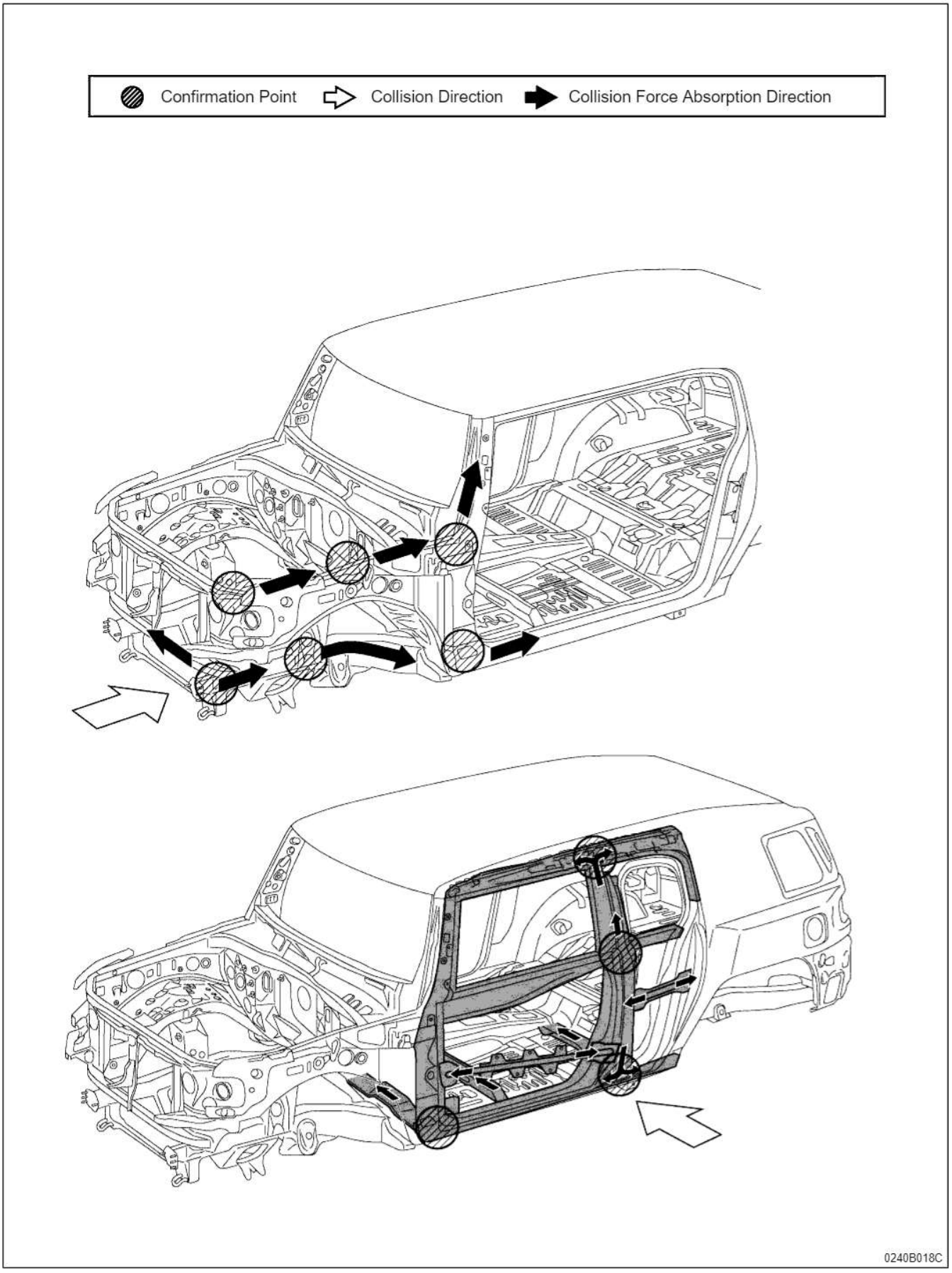
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2. NOTICE FOR USING SWING ARM TYPE LIFT



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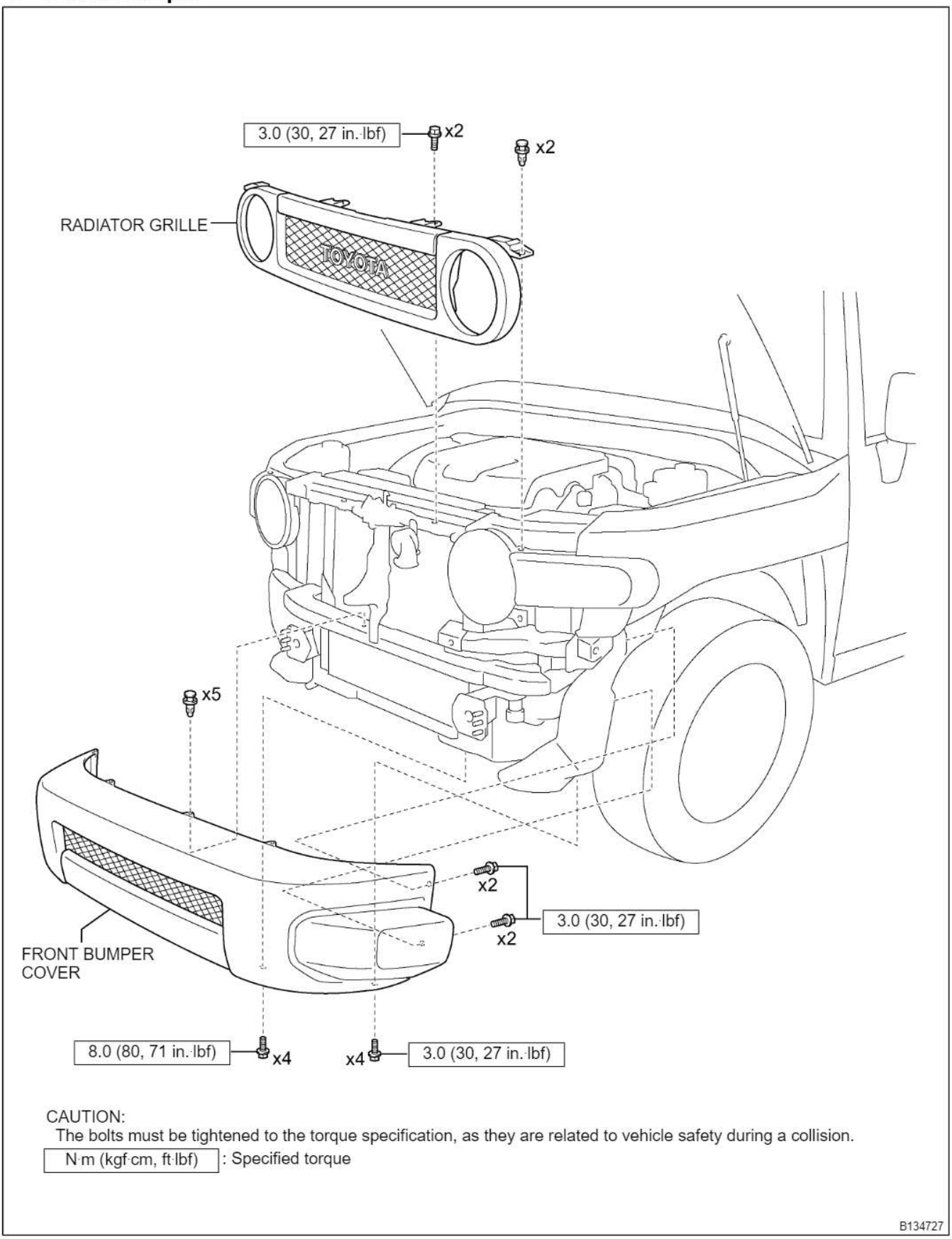
DAMAGE DIAGNOSIS



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COMPORNENTS

1. Front bumper

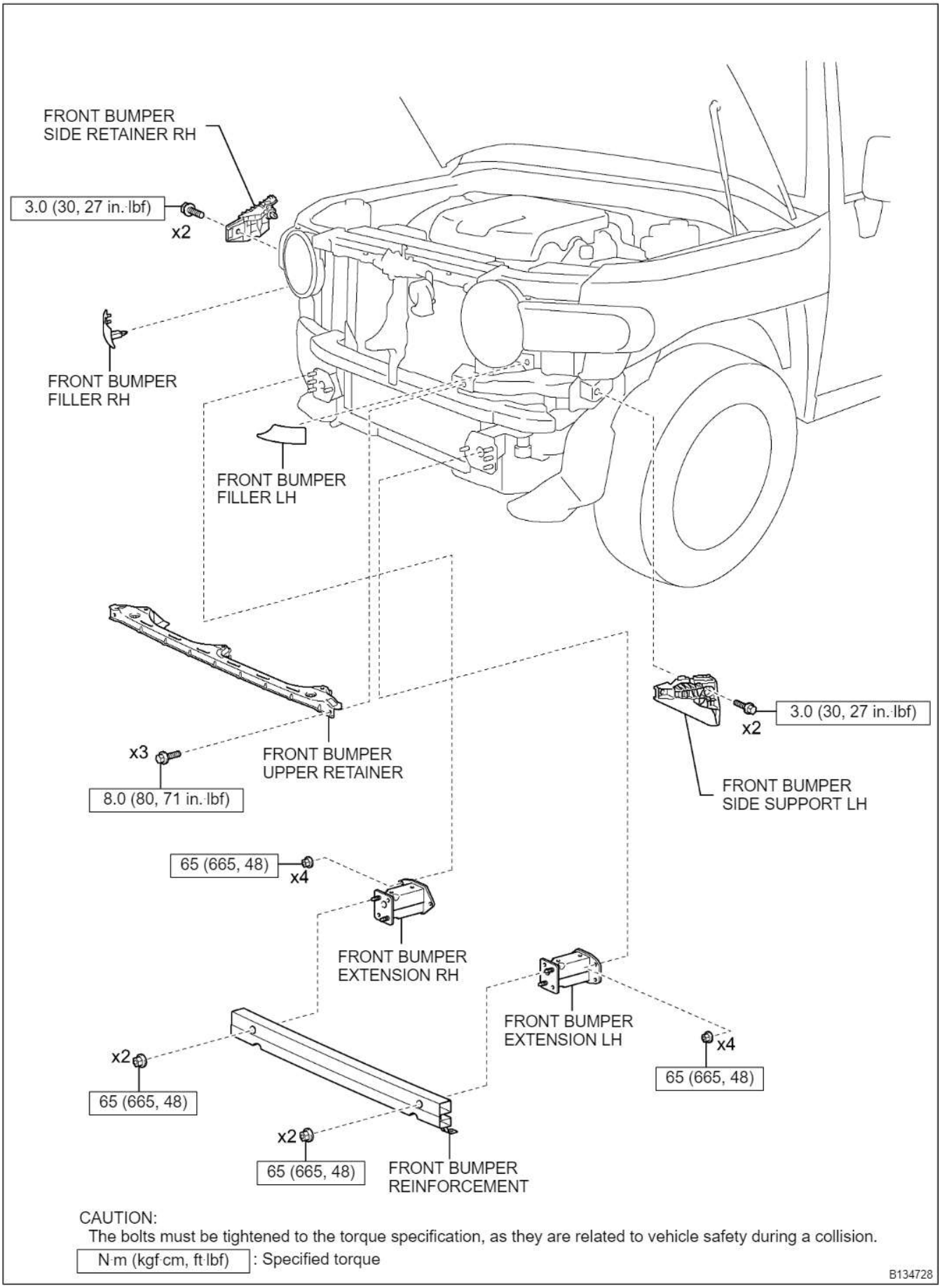


CAUTION:
The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

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

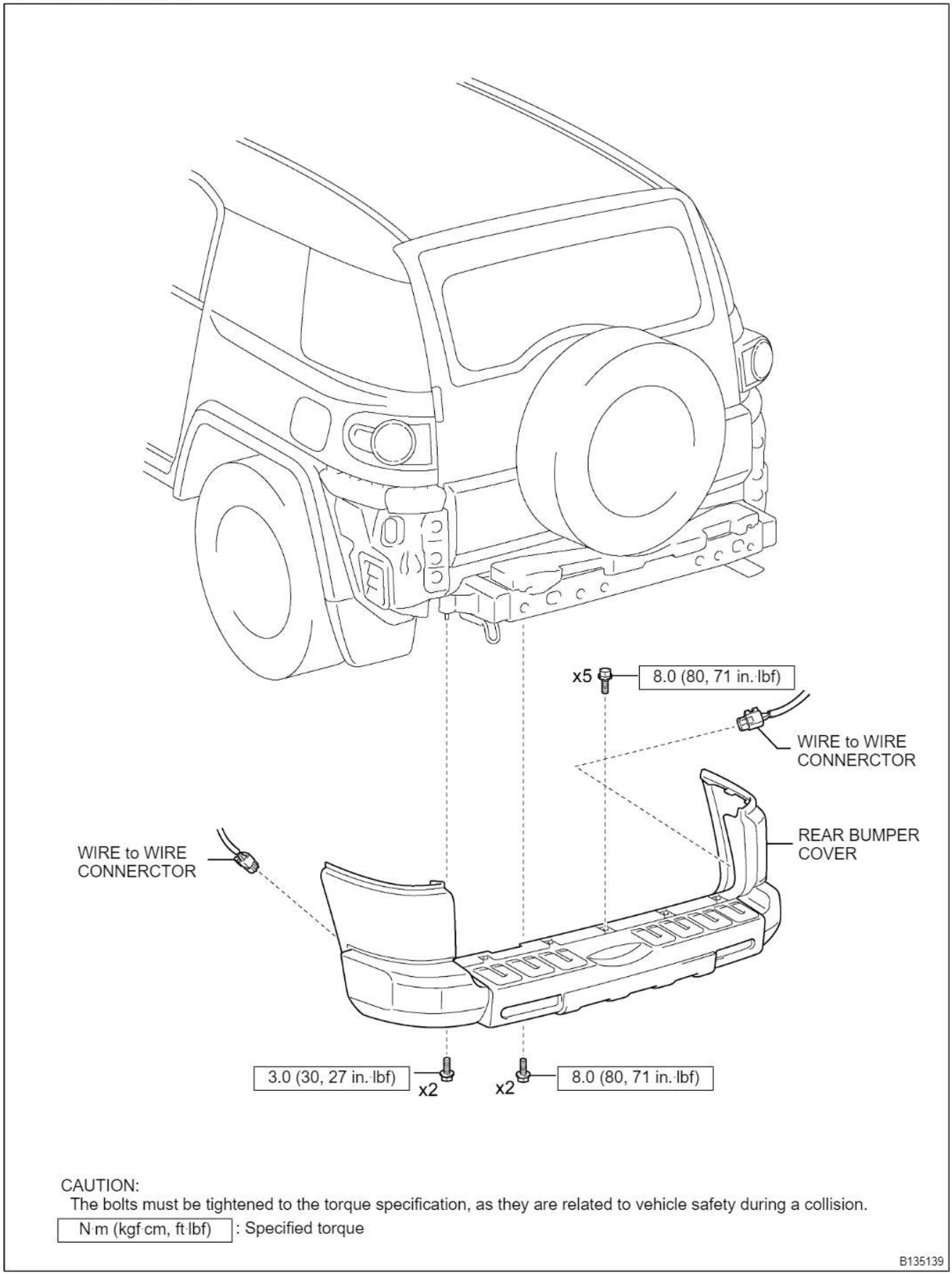
B134727

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2. Rear bumper

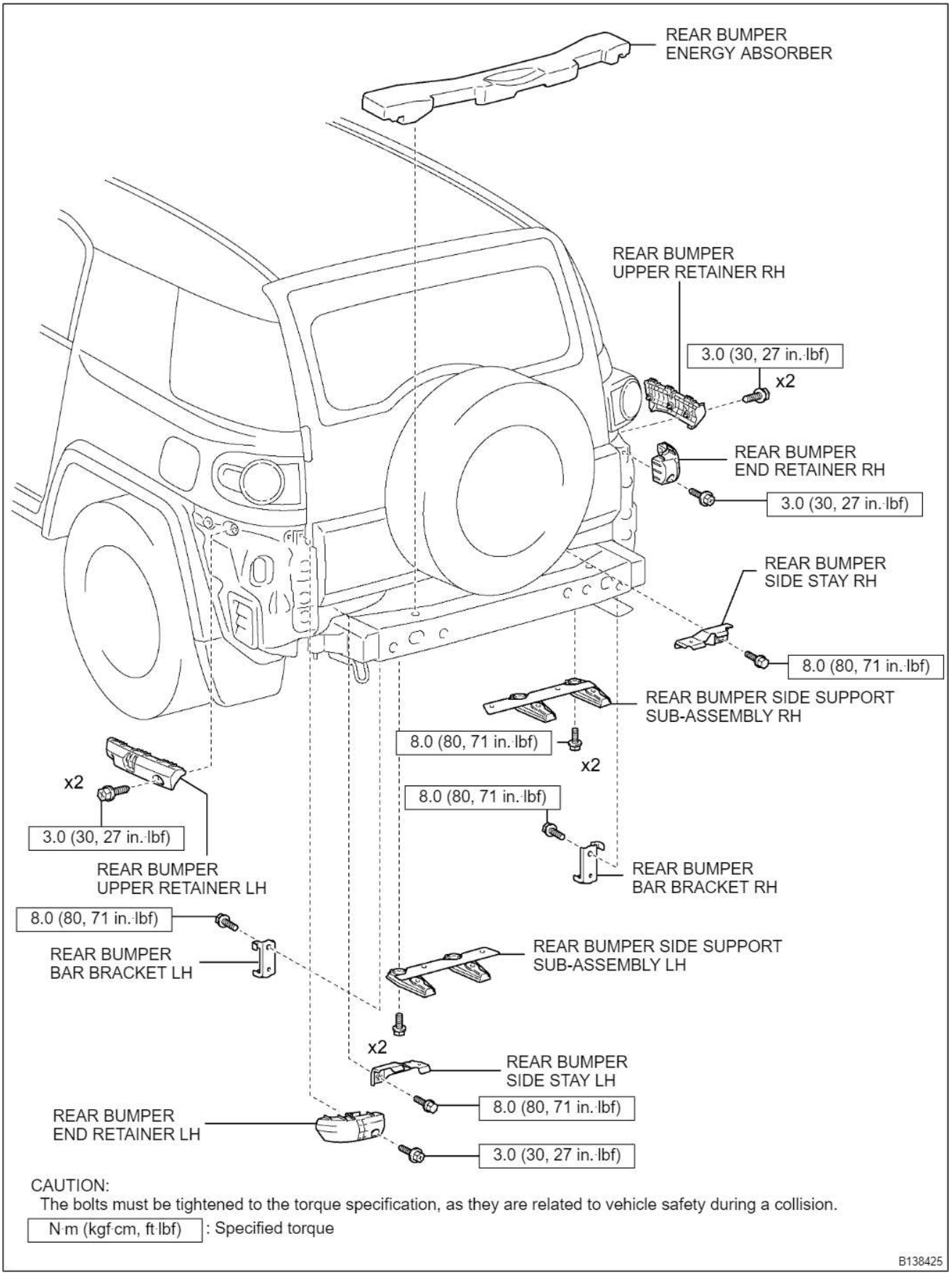


CAUTION:
The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

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

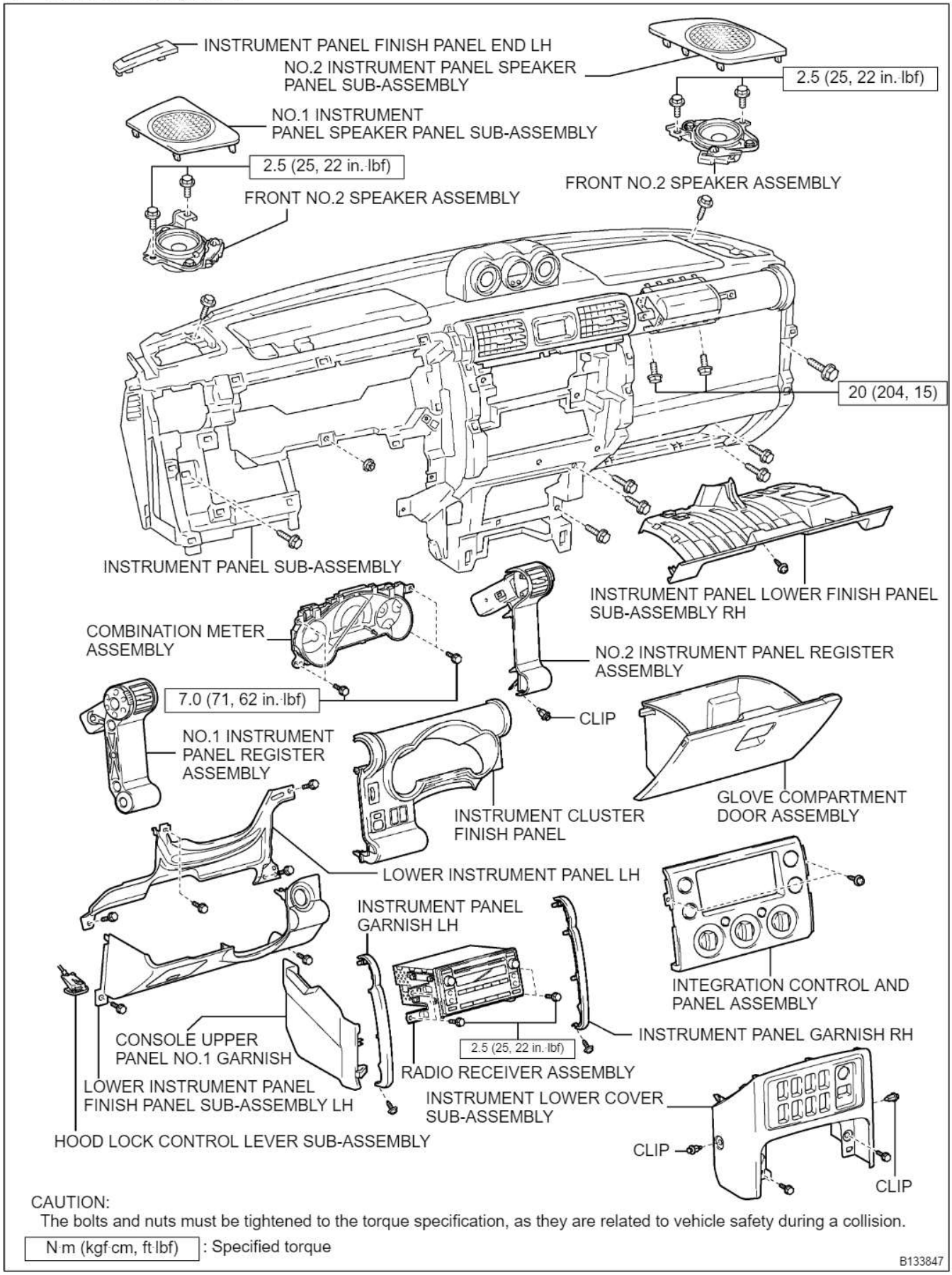
B135139

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3. Instrument panel

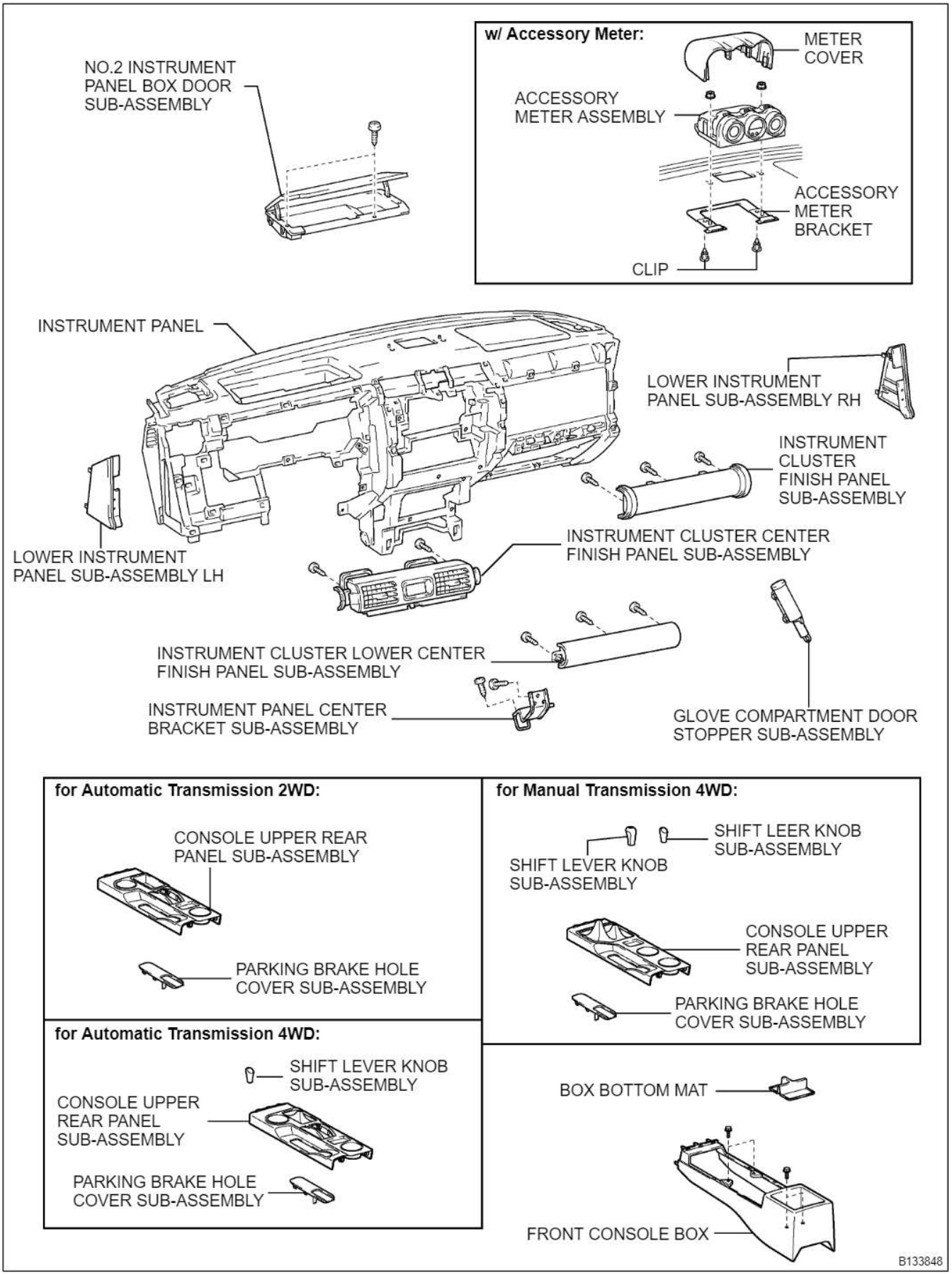


CAUTION:
The bolts and nuts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

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

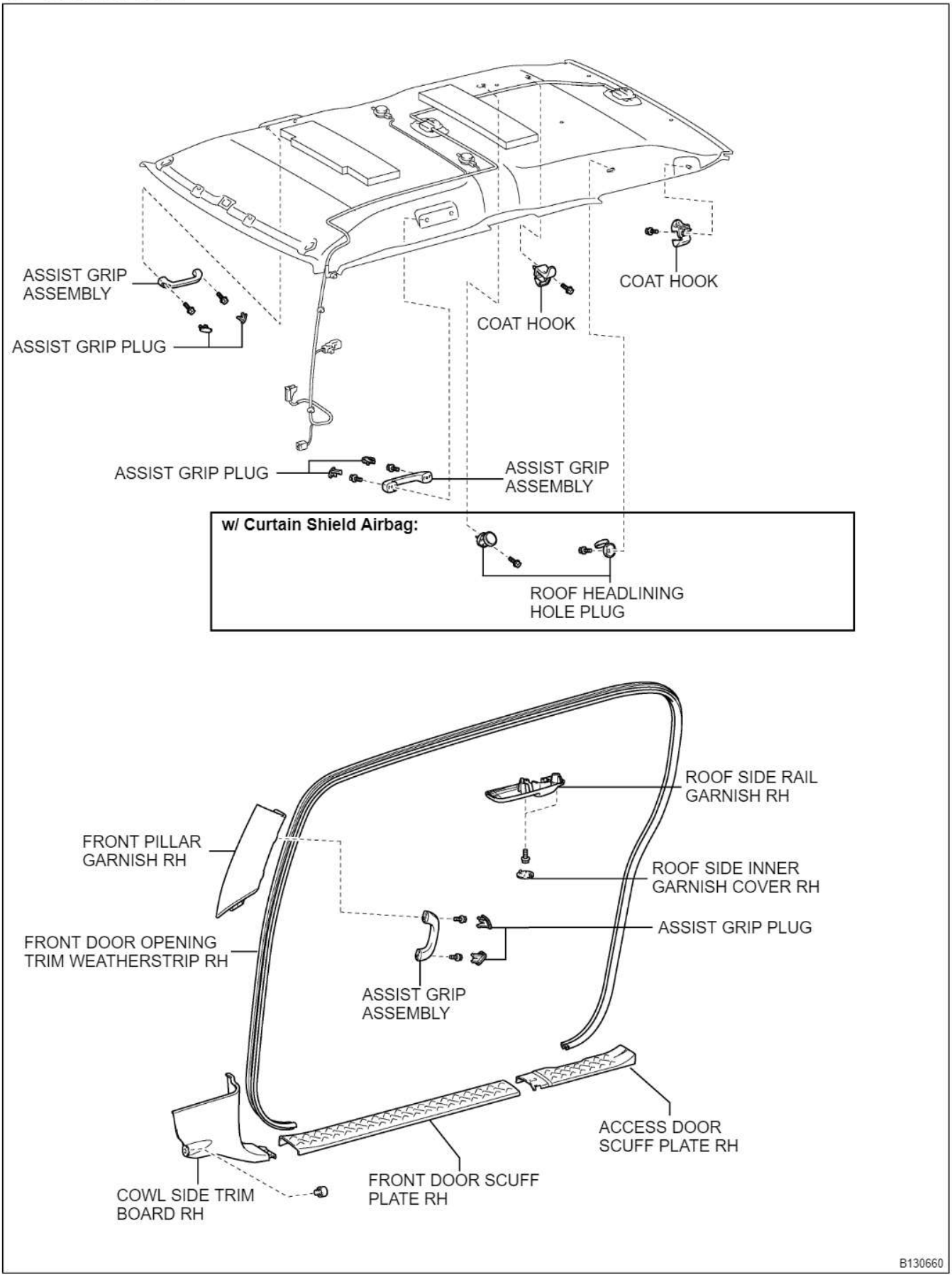
B133847

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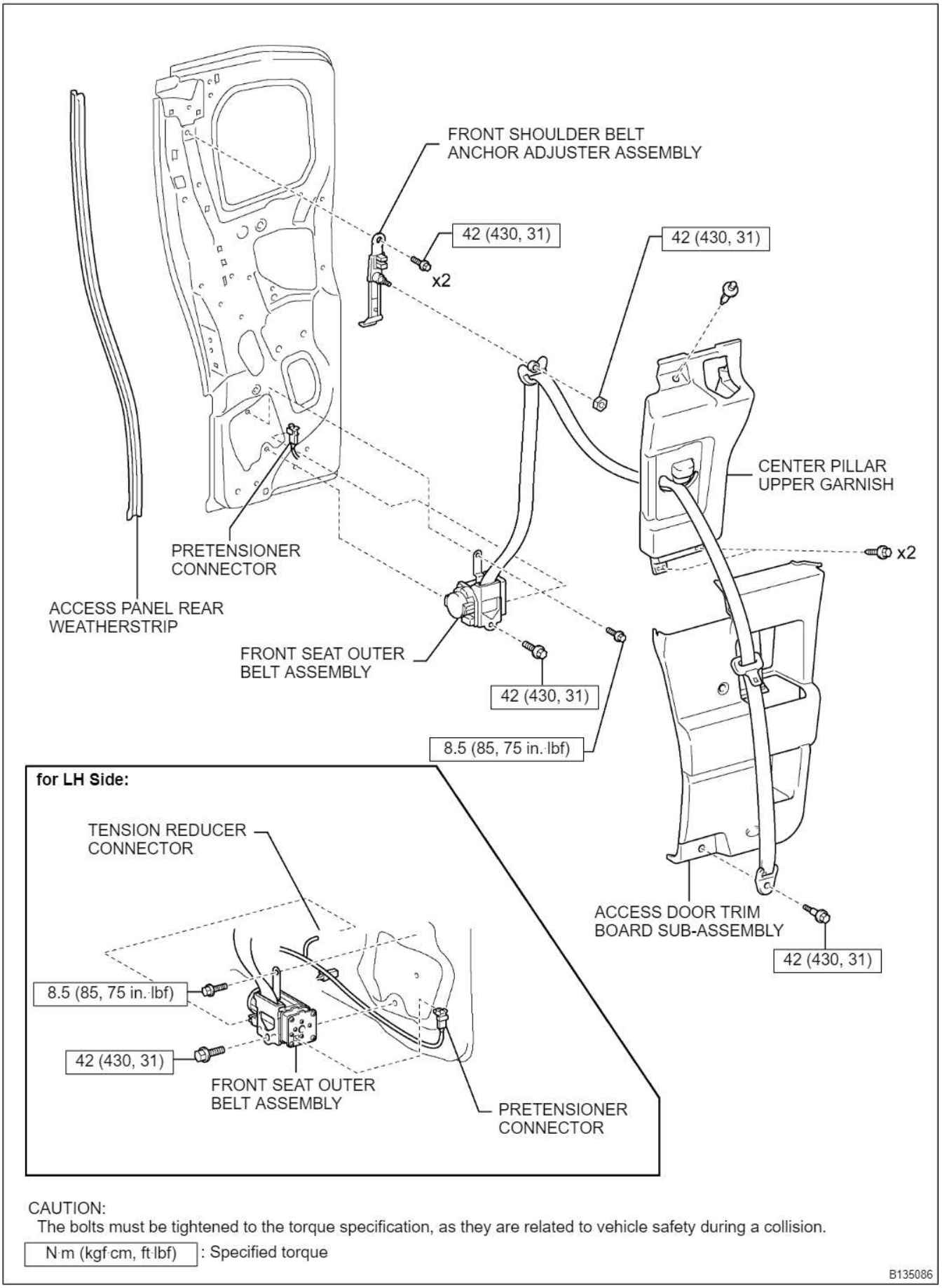


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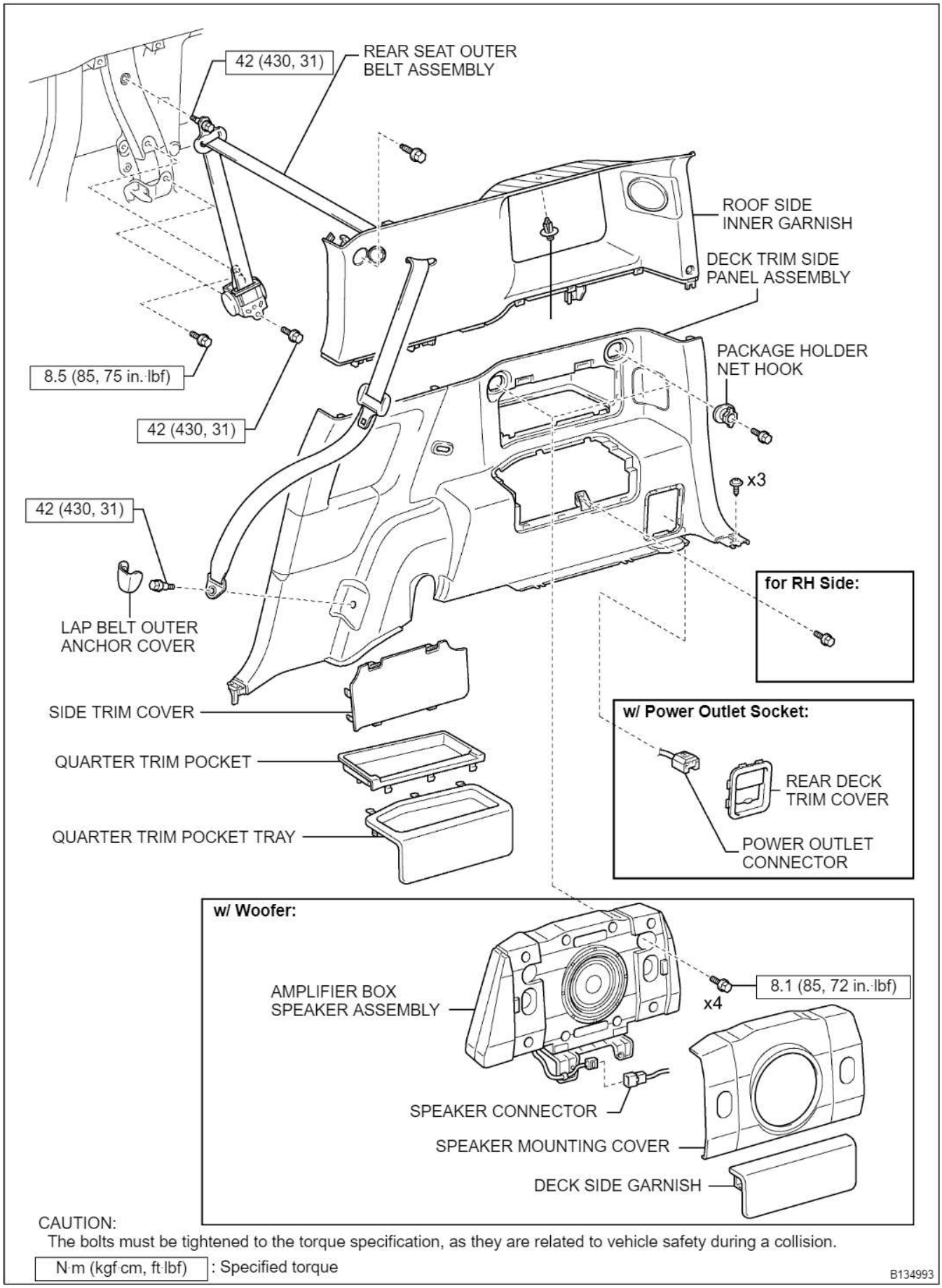
4. Interior trim



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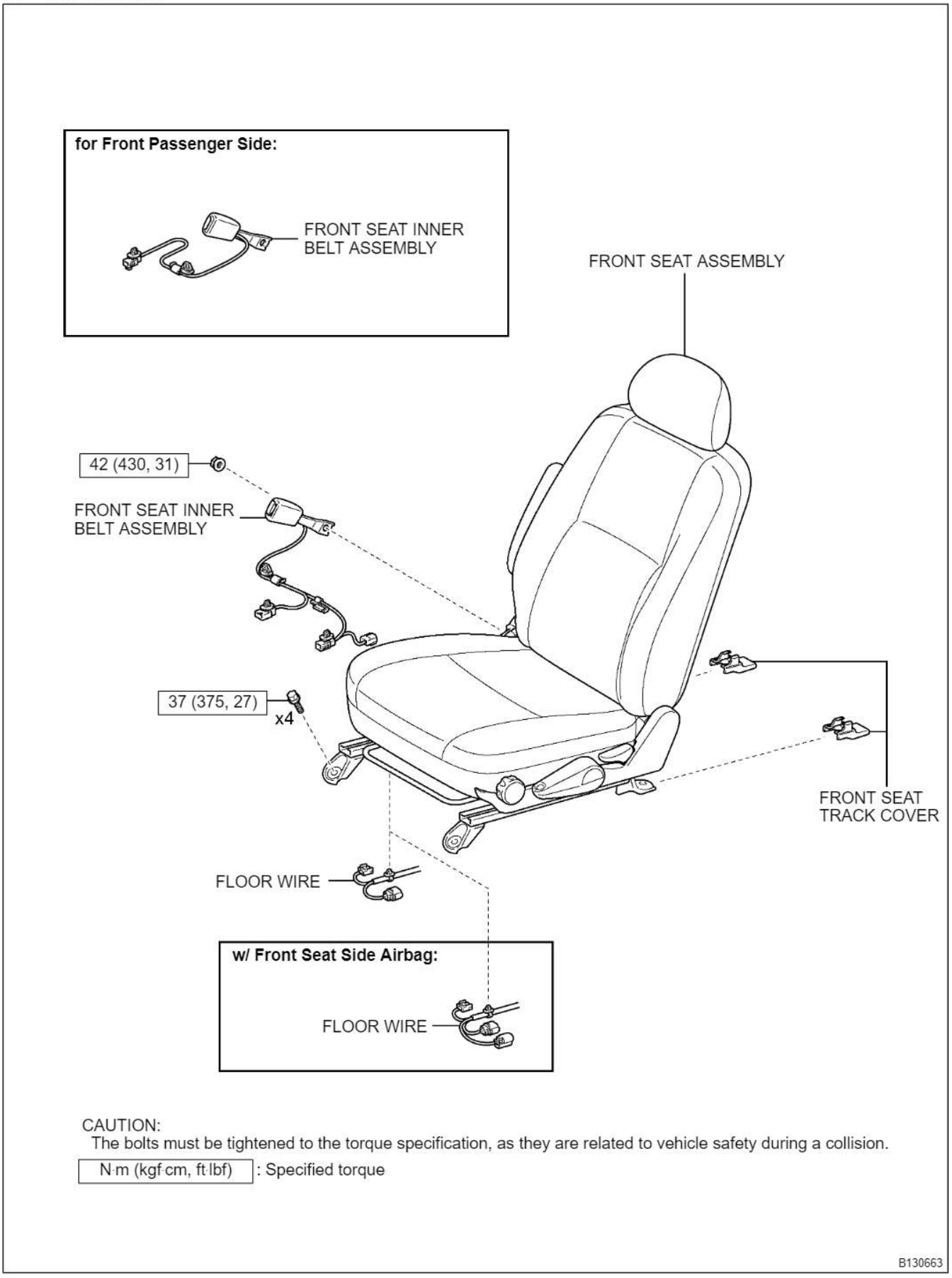
CAUTION:
The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

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

B134993

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5. Front seat



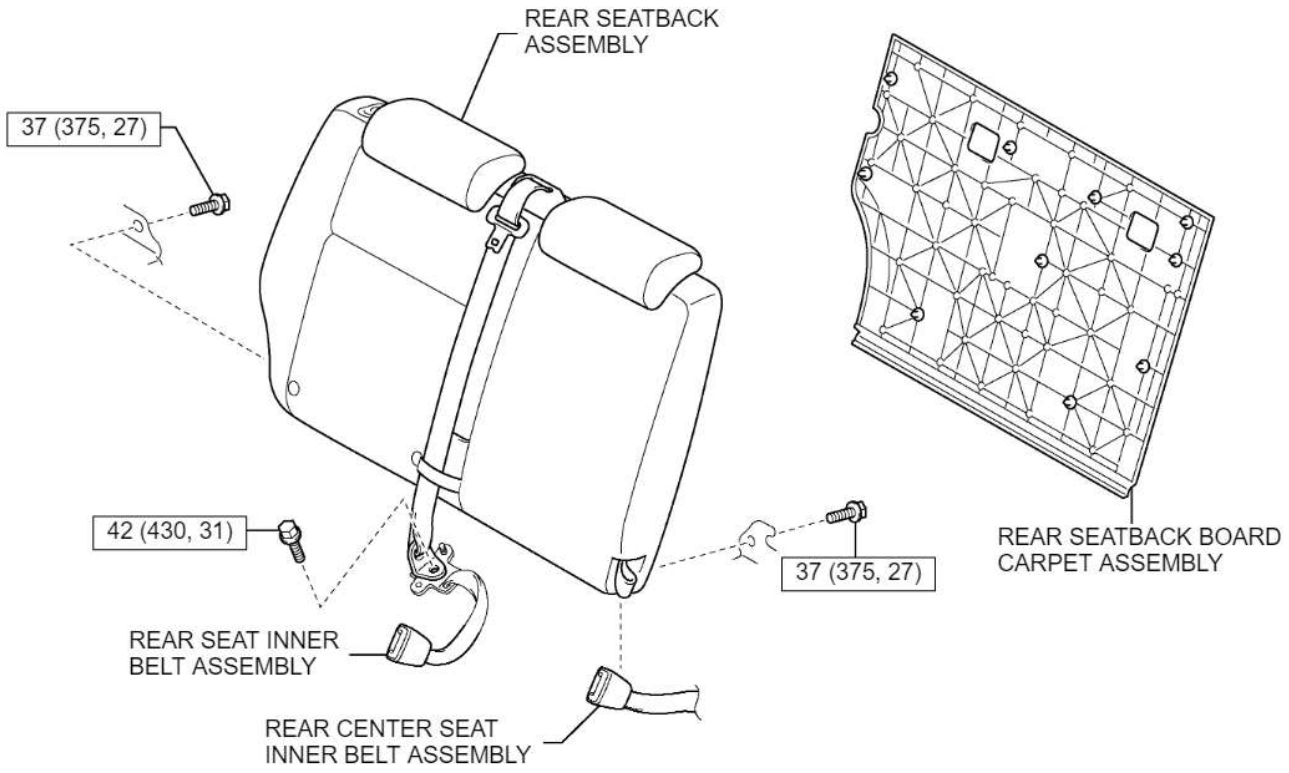
CAUTION:
The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

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

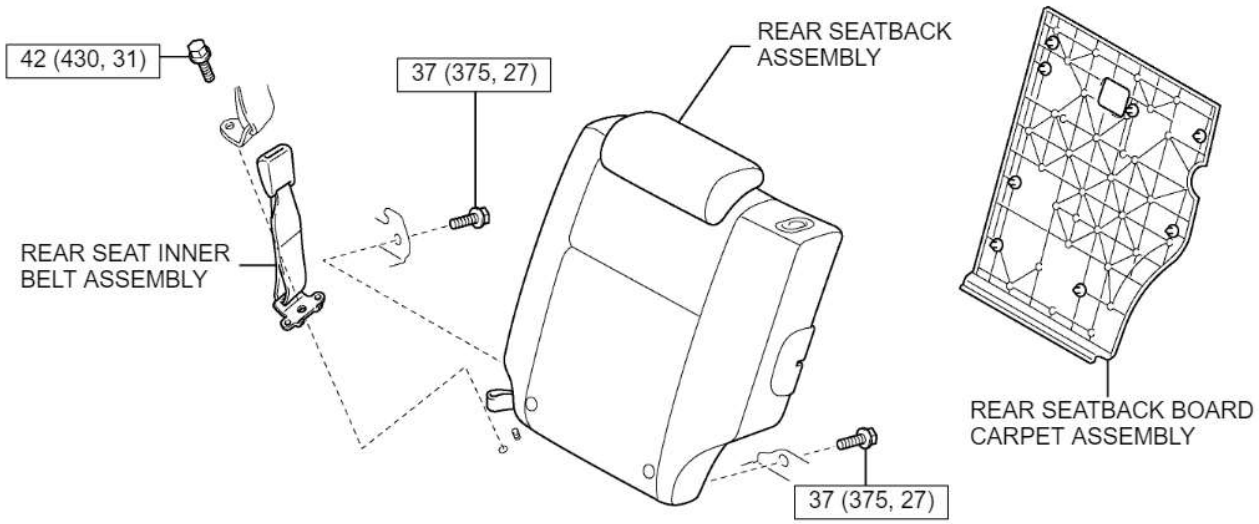
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6. Rear seat

for RH Side:



for LH Side:

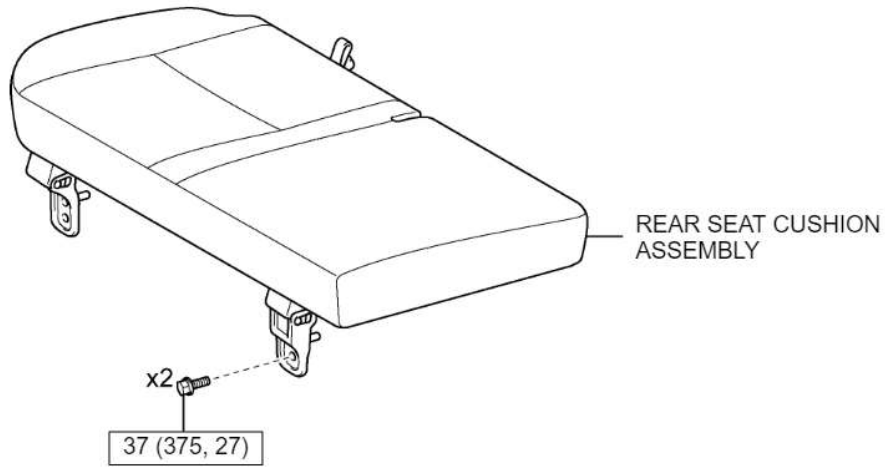


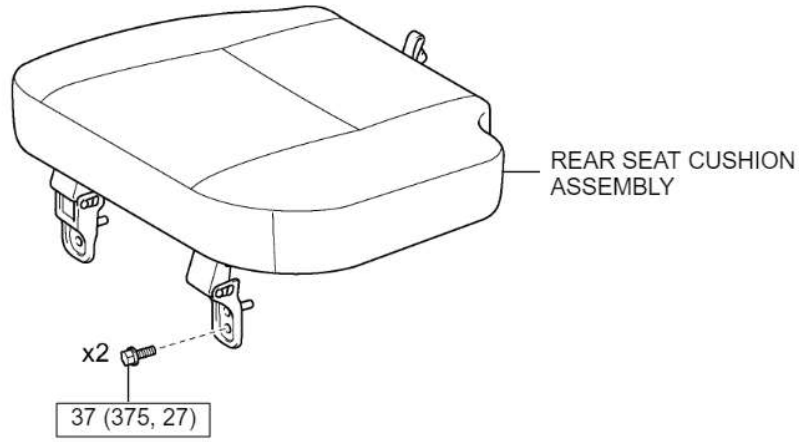
CAUTION:
The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

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

B130654

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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

B130746

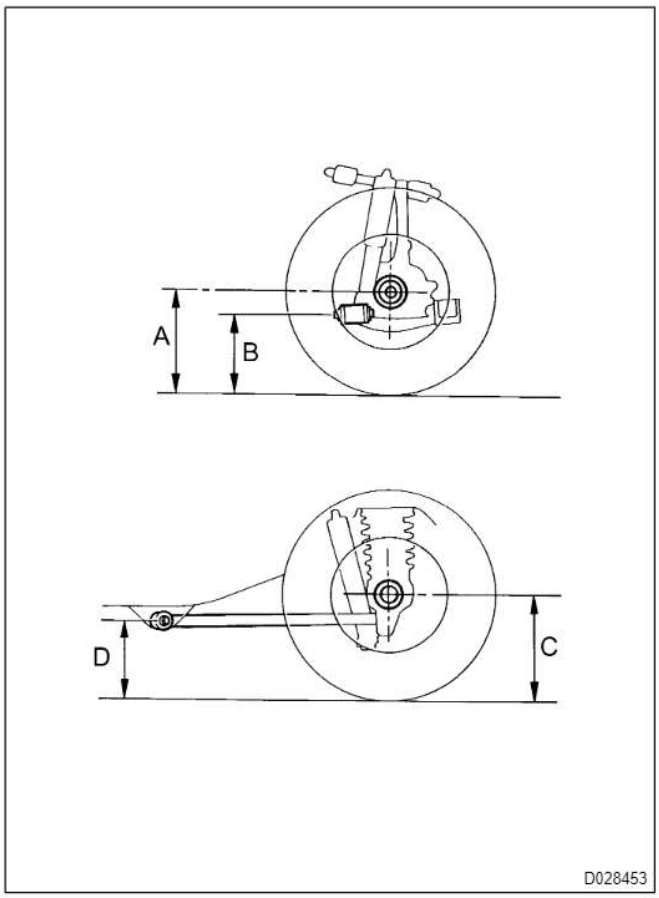
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WHEEL ALIGNMENT STANDARD

1. FRONT WHEEL ALIGNMENT

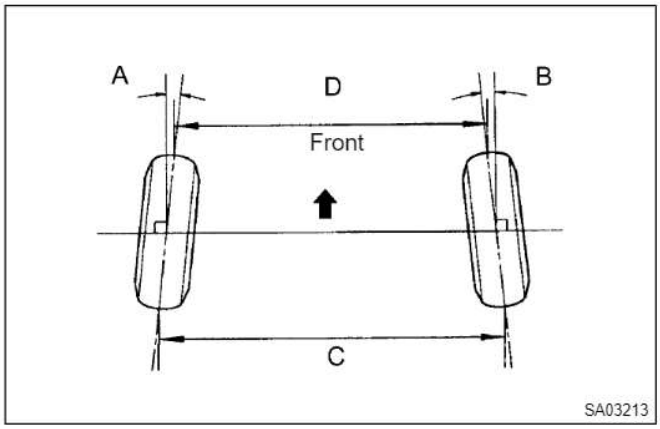
Standard vehicle height:

Vehicle Model	A-B	C-D
GSJ10L-GKASKA	115.9 mm (4.56 in.)	81.4 mm (3.20 in.)
GSJ15L-GKFSKA	87.0 mm (3.43 in.)	61.4 mm (2.42 in.)
GSJ15L-GKASKA	87.0 mm (3.43 in.)	61.6 mm (2.43 in.)



Standard toe-in:

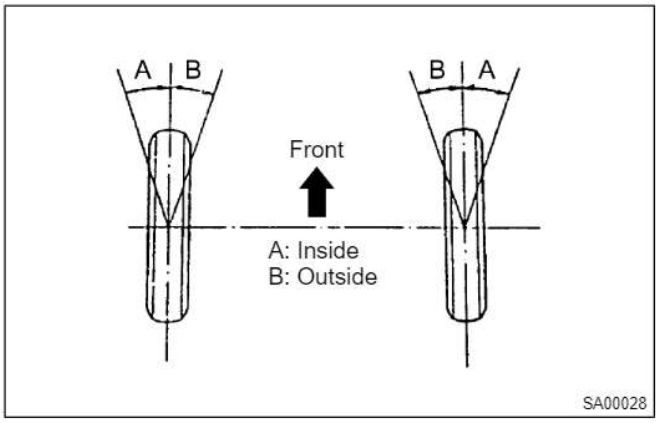
A+B	C-D
0°05' + -0°10' (0.08° + -0.16°)	1.0 + -2.0 mm (0.04 + -0.08 in.)



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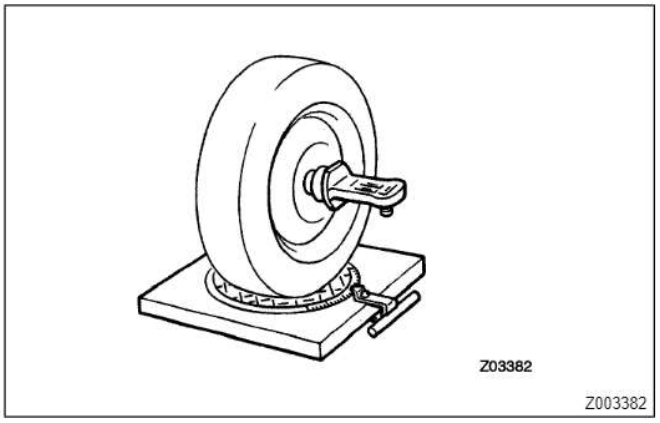
Standard wheel turning angle:

Vehicle Model	Inside wheel	Outside wheel (Reference)
GSJ10L-GKASKA	32°45' (30°45' to 33°45') 32.75° (30.75° to 33.75°)	28°56' (28.93°)
GSJ15L-GKFSKA	33°10' (31°10' to 34°10') 33.17° (31.17° to 34.17°)	29°38' (29.63°)
GSJ15L-GKASKA	33°10' (31°10' to 34°10') 33.17° (31.17° to 34.17°)	29°38' (29.63°)



Standard Camber:

Vehicle Model	Camber
GSJ10L-GKASKA	-0°34' + -30' (-0.57° + -0.50°)
GSJ15L-GKFSKA	0°09' + -30' (0.15° + -0.50°)
GSJ15L-GKASKA	0°09' + -30' (0.15° + -0.50°)



Standard caster:

Vehicle Model	Caster
GSJ10L-GKASKA	3°34' + -30' (3.57° + -0.50°
GSJ15L-GKFSKA	2°49' + -30' (2.82° + -0.50°)
GSJ15L-GKASKA	2°49' + -30' (2.82° + -0.50°)

Standard steering axis inclination:

Vehicle Model	Steering Axis Inclination
GSJ10L-GKASKA	12°55' + -30' (12.92° + -0.50°)
GSJ15L-GKFSKA	12°21' + -30' (12.35° + -0.50°)
GSJ15L-GKASKA	12°21 + -30' (12.35° + -0.50°)

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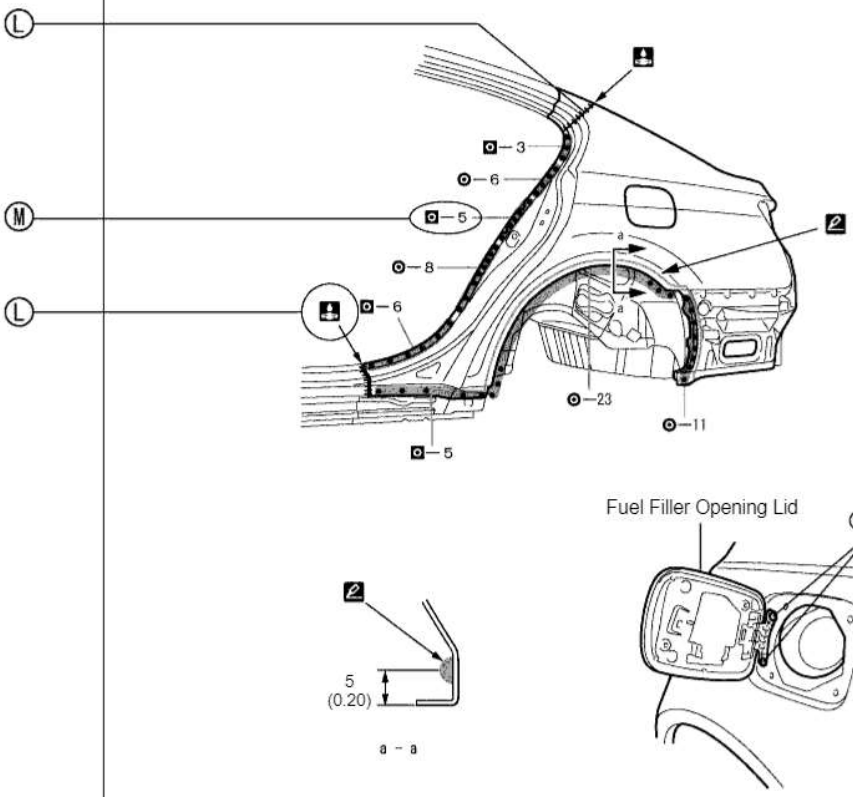
HOW TO USE THIS MANUAL

1. BODY PANEL REPLACEMENT THIS MANUAL

Symbol meaning

: Mig Plug Weld
: Spot Weld
: Body Sealer
: Butt Weld

INSTALLATION



POINT

1. Before temporarily installing the new parts, apply 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.
2. 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)
3. After welding, apply body sealer and undercoating to the corresponding parts.

Ⓘ SYMBOL MEANING

Ⓙ INSTALLATION DIAGRAM
Describes in detail installation to the new parts involving repair by welding and/or cutting, but excluding painting.

Ⓚ INSTALLATIOLN GUIDE
Provides additional to more efficiently help you perform the installation.

Ⓛ SYMBOLS (See page IN-34)

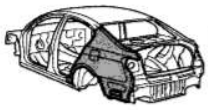
Ⓜ INSTALLATION OF WELD POINTS (See page IN-36)
Weld method and panel position symbols

Ⓝ PART NAME

F33026

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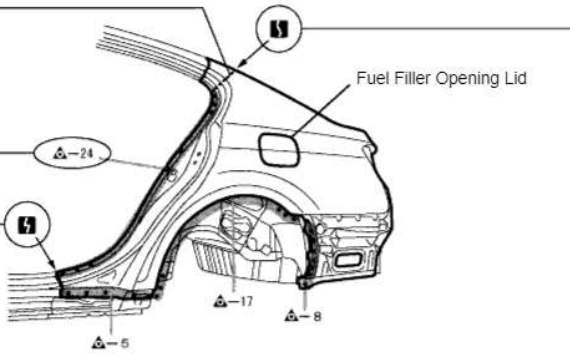
Ⓐ QUARTER PANEL (CUT)

Ⓑ 

Ⓒ · With the body lower back panel removed.

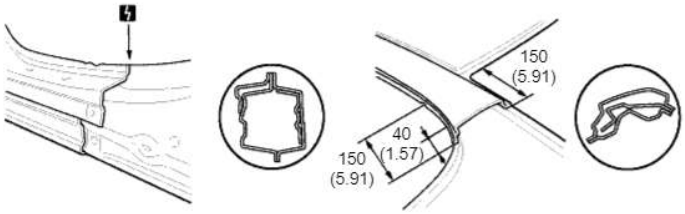
Ⓓ Symbol meaning
▲▲▲: Remove Weld Points
: Cut and Join Location
: Cut Location for Suplly Parts

REMOVAL

Ⓗ 

Ⓖ 24

Ⓗ

Ⓔ 

REMOVAL POINT
1. Remove the Fuel Filler Opening Lid at the same time.

Ⓕ

Ⓐ REPLACEMENT PART AND METHOD
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

Ⓑ PART LOCATION

Ⓒ REMOVAL CONDITIONS

Ⓓ SYMBOL MEANING

Ⓔ REMOVAL DIAGRAM
Describes in detail the removal of the damaged part involving repair by cutting.

Ⓕ REMOVAL GUIDE
Provides additional information to more efficiently help you perform the removal.

Ⓖ INSTALLATION OF WELD POINTS
Weld method and panel position symbols
(See page IN-36)

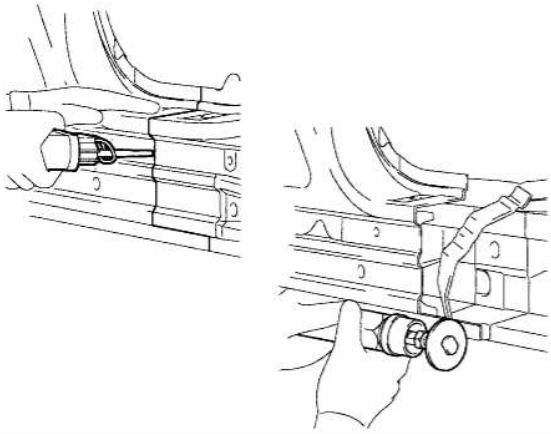
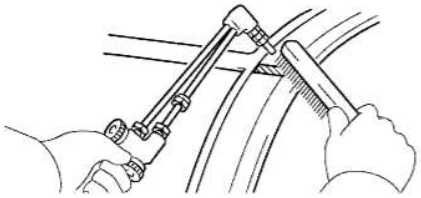
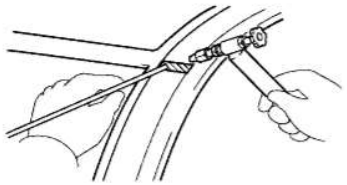
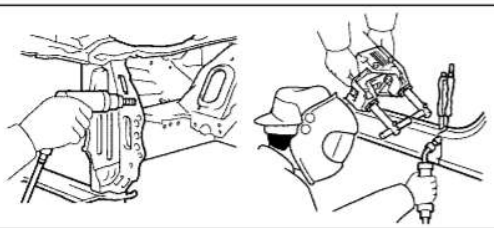
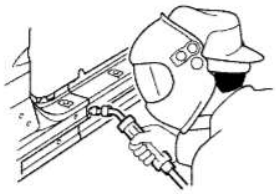
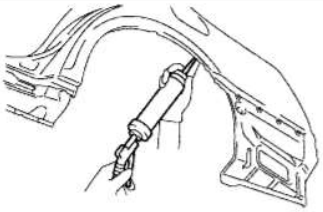
Ⓗ SYMBOLS (See page IN-34)

F33027

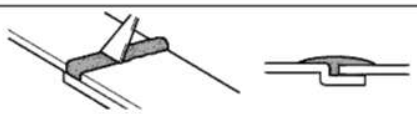
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2. SYMBOLS

The following symbols are used in the welding diagrams in section BP of this manual to indicate cutting areas and the types of weld required.

SYMBOLS	MEANING	SYMBOLS	MEANING	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		BRAZE (Removal)	
OOOO	BRAZE		BRAZE (Installation)	
O M I O I O M I	WELD POINTS	—	SPOT WELD OR MIG PLUG WELD	
+++	WELDING		CONTINUOUS MIG WELD (BUTT WELD)	
			CONTINUOUS MIG WELD (TACK WELD)	
	SEALER		BODY SEALER	 F33004

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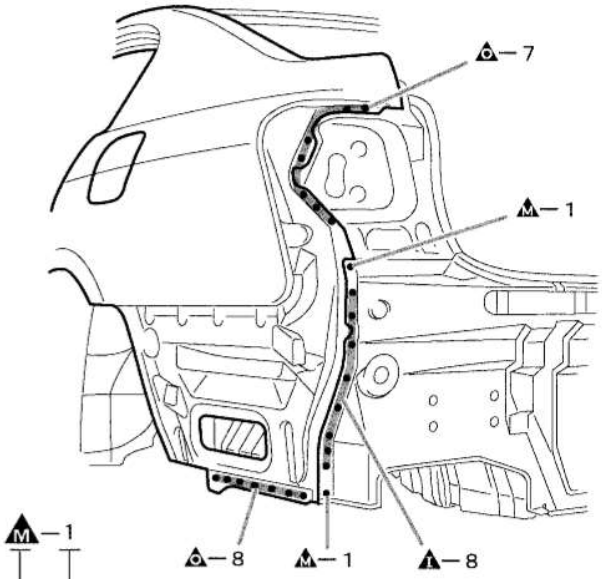
SYMBOLS	MEANING	SYMBOLS	MEANING	ILLUSTRATION
—			Assembly Mark	—
	—	—	BODY SEALER (Flat Finishing)	
	—		BODY SEALER (Flat Finishing)	 F33005

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3. ILLUSTRATION OF WELD POINT SYMBOLS

EXAMPLE:

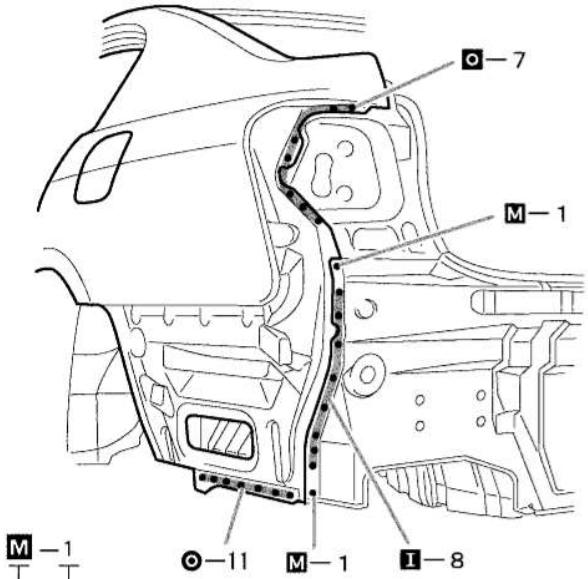
REMOVAL



Weld points

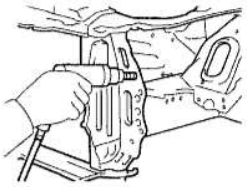
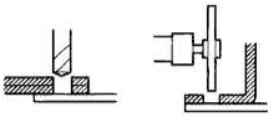
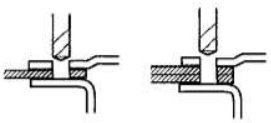
Remove weld point and panel position

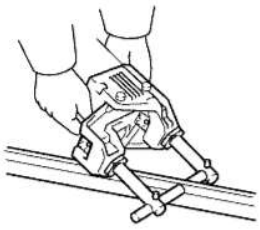
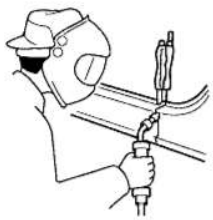
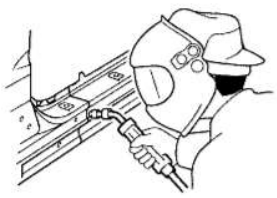
INSTALLATION



Weld points

Remove weld point and panel position

SYMBOLS	MEANING	ILLUSTRATION
▲	Remove Weld Points	
O	(Outside)	
M	(Middle)	
I	(Inside)	

SYMBOLS	MEANING	ILLUSTRATION
●	Spot Weld	
■	MIG Plug Weld	
+	Spot MIG Weld	

F33006

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ABBREVIATIONS USED IN THIS MANUAL

For convenience, the following abbreviations are used in this manual.

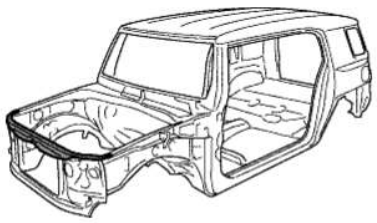
ABS	Antilock Brake System
A/C	Air Conditioner
assy	assembly
ECT	Electronic Controlled Transmission
ECU	Electronic Control Unit
e.g.	Exempli Gratia (for Example)
Ex.	Except
FWD	Front Wheel Drive Vehicles
2WD	Two Wheel Drive Vehicles
4WD	Four Wheel Drive Vehicles
in.	inch
LH	Left-hand
LHD	Left-hand Drive
MIG	Metal Inert Gas
M/Y	Model Year
PPS	Progressive Power Steering
RH	Right-hand
RHD	Right-hand Drive
SRS	Supplemental Restraint System
SSM	Special Service Materials
w/	with
w/o	without

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MEMO

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RADIATOR UPPER SUPPORT (ASSY)



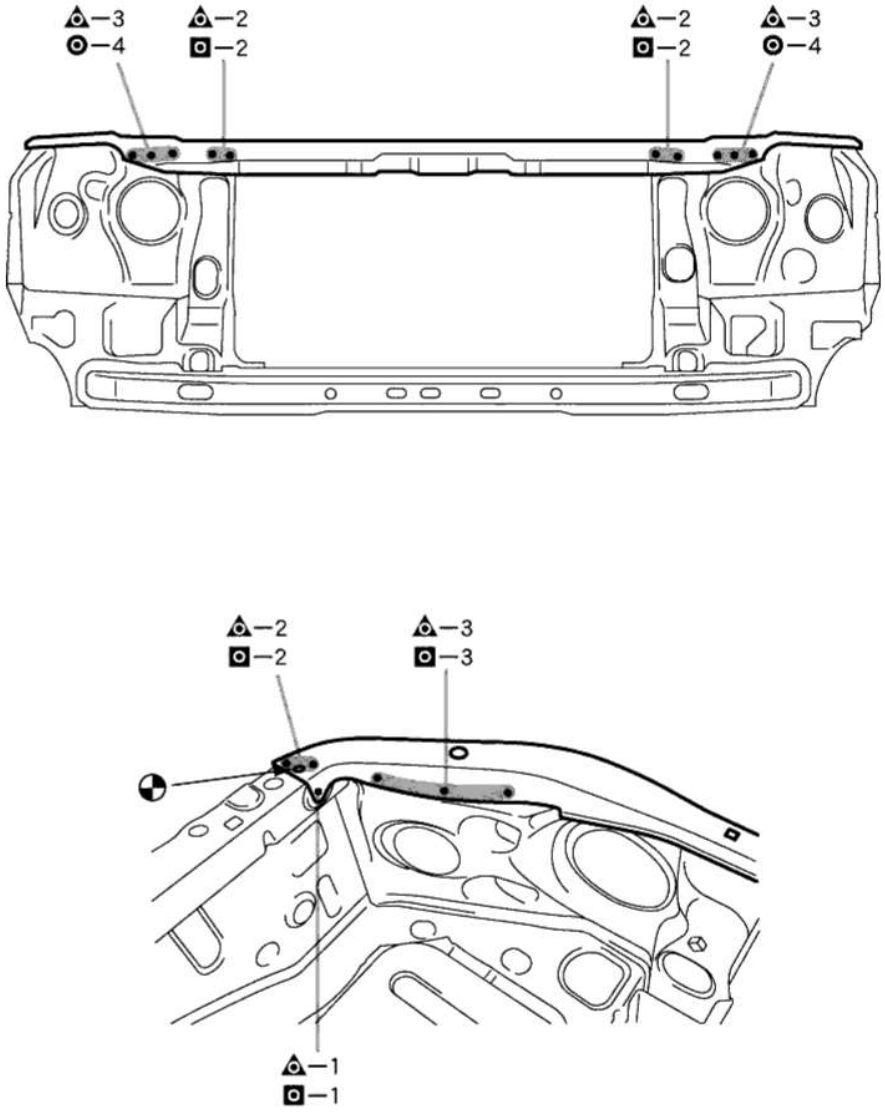
F25271A

Symbol meaning

REMOVAL	▲ : Remove Weld Points	
INSTALLATION	⊙ : Spot Weld	◘ : MIG Plug Weld

F25271B

REMOVAL·INSTALLATION



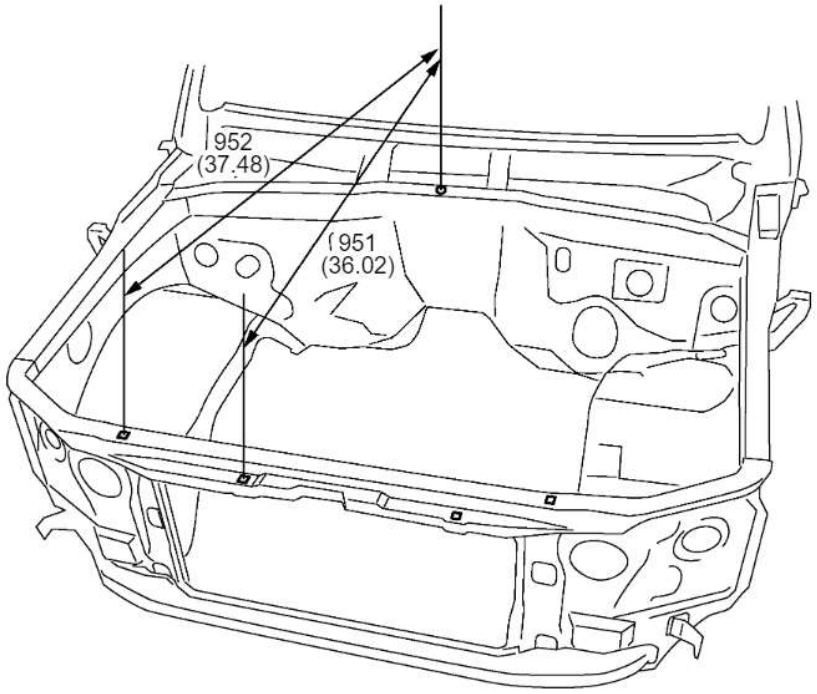
F25271

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.

2 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)

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mm (in.)

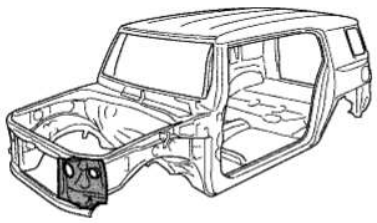
F25272

INSTALLATION POINT

1 Measure the dimensions before installing the headlights.
2 These values are reference values.

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RADIATOR SIDE SUPPORT (ASSY)



F25273A

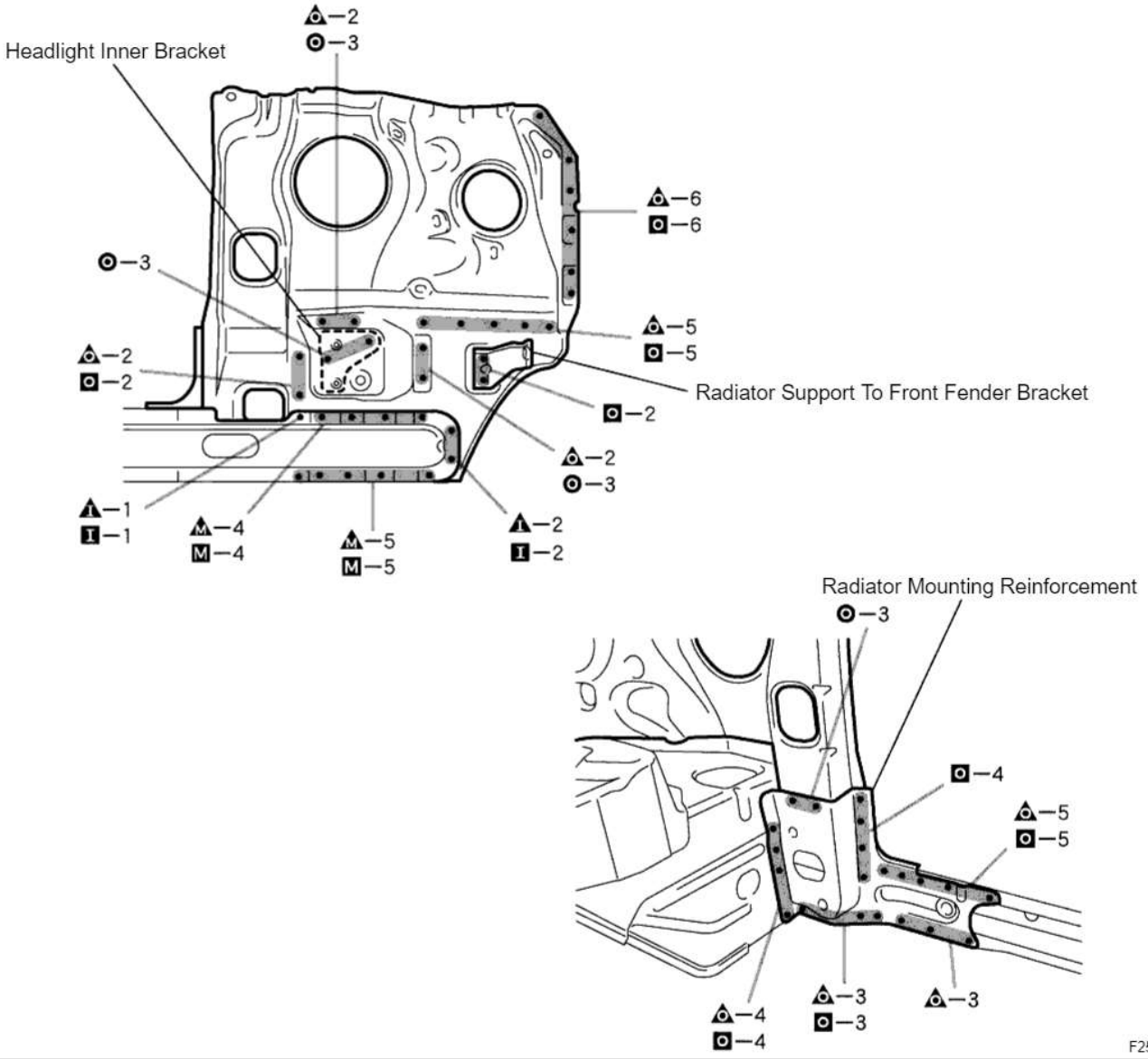
With the radiator upper support removed.

Symbol meaning

REMOVAL	▲ Ⓜ ▲ : Remove Weld Points
INSTALLATION	⊙ : Spot Weld ■ Ⓜ Ⓘ : MIG Plug Weld

F25273B

REMOVAL·INSTALLATION



F25273

REMOVAL POINT

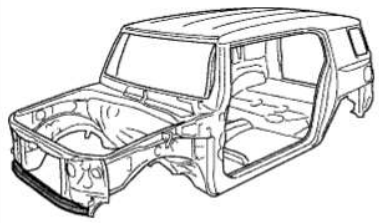
1 Remove the radiator mounting reinforcement at the same time.

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer to the corresponding parts. (See the paint·coating)

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FRONT CROSSMEMBER (ASSY)



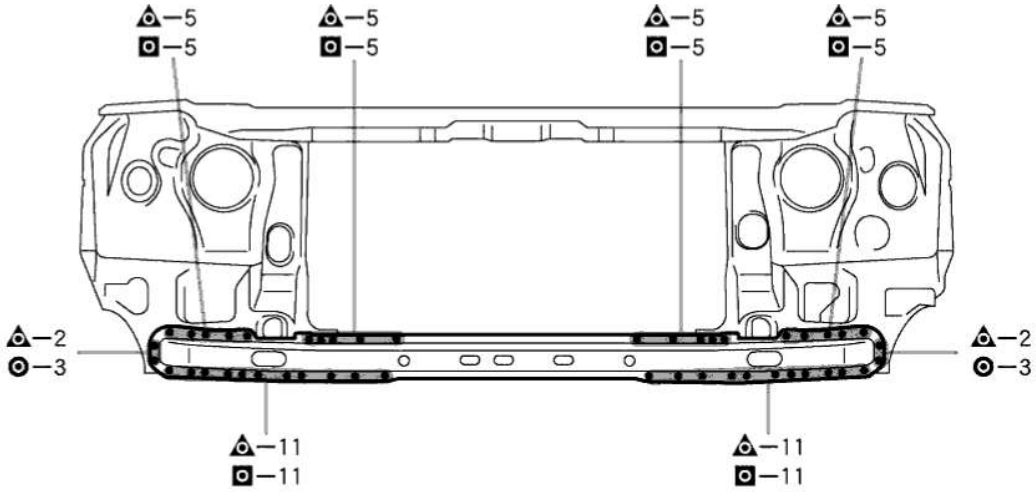
F25274A

Symbol meaning

REMOVAL	: Remove Weld Points
INSTALLATION	: Spot Weld : MIG Plug Weld

F25274B

REMOVAL·INSTALLATION



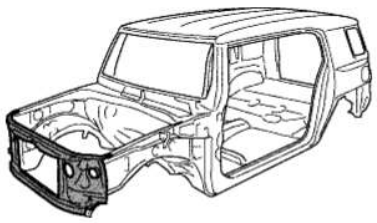
F25274

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer to the corresponding parts. (See the paint·coating)

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RADIATOR SUPPORT (ASSY)



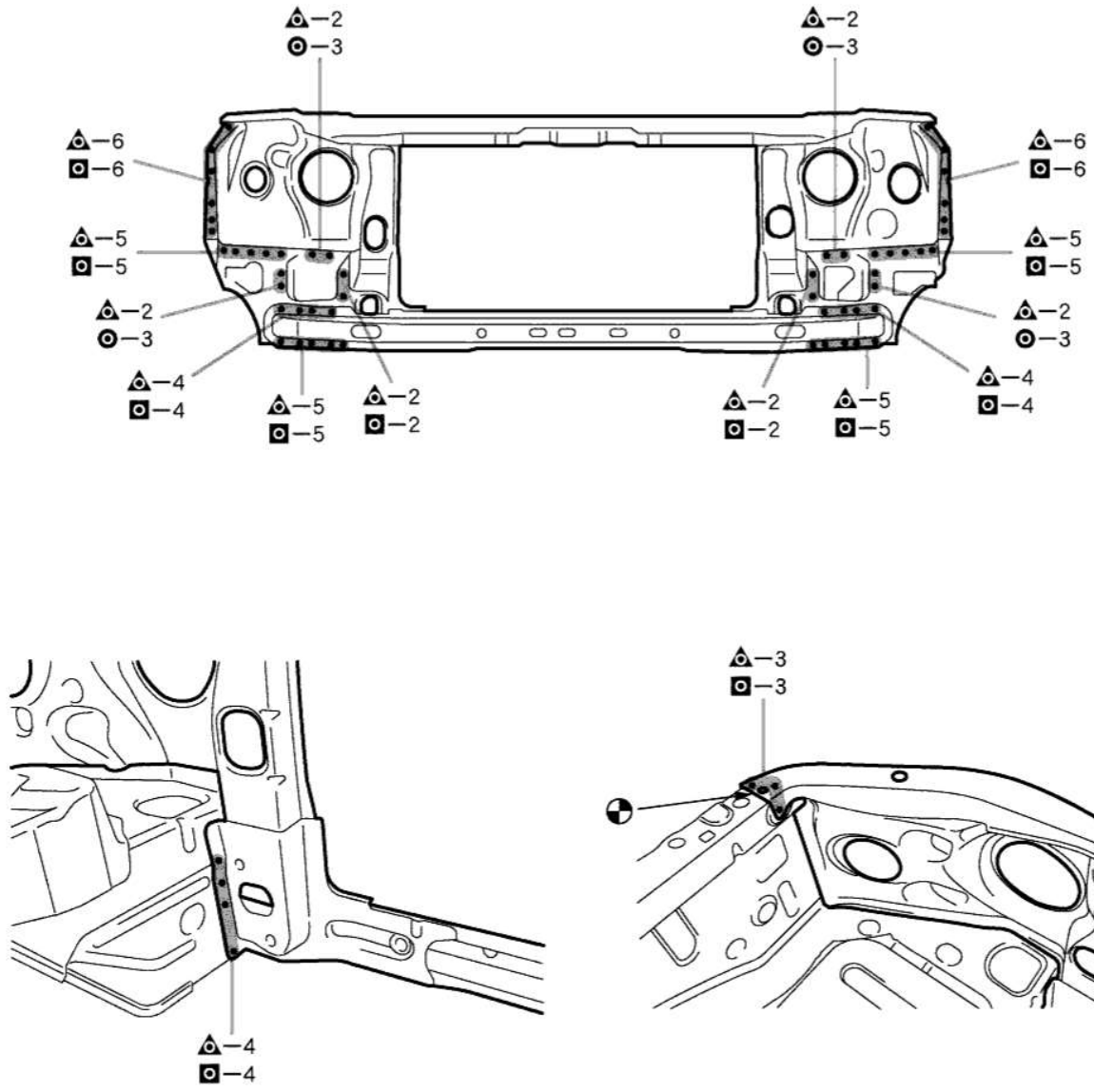
F25275A

Symbol meaning

REMOVAL	▲ : Remove Weld Points	
INSTALLATION	⊙ : Spot Weld	◘ : MIG Plug Weld

F25275B

REMOVAL·INSTALLATION



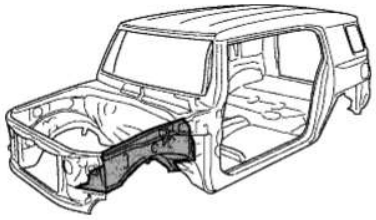
F25275

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer to the corresponding parts. (See the paint·coating)

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FRONT FENDER APRON (ASSY)



F25276A

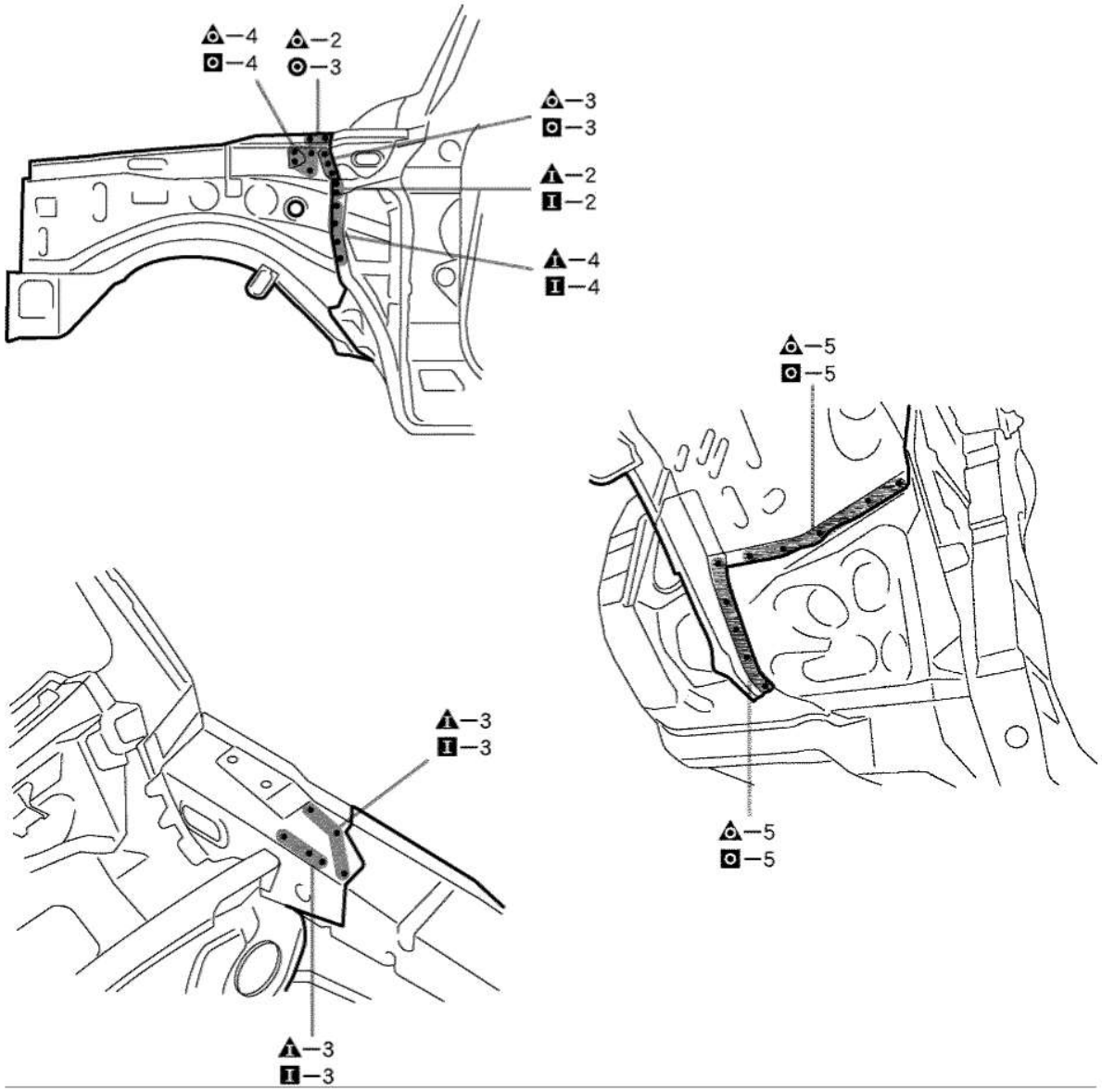
With the cowl side reinforcement removed.

Symbol meaning

REMOVAL	▲1 ▲2 : Remove Weld Points
INSTALLATION	● : Spot Weld ■1 ■2 : MIG Plug Weld

F25276B

REMOVAL·INSTALLATION



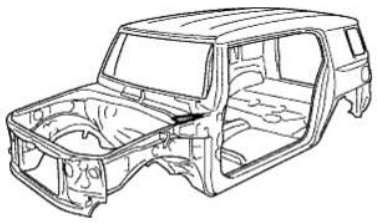
F25276

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint·coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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COWL TOP TO APRON BRACE (ASSY)



F25277A

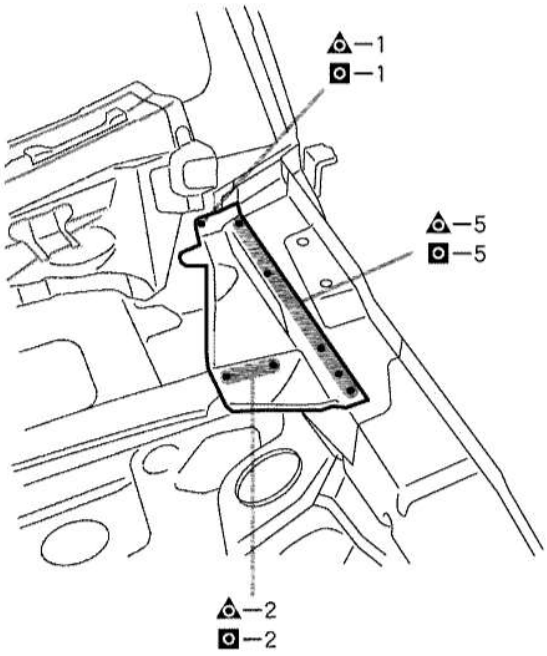
Symbol meaning

REMOVAL	: Remove Weld Points	: Cut with disc sander, etc.
INSTALLATION	: MIG Plug Weld	: Tack Weld

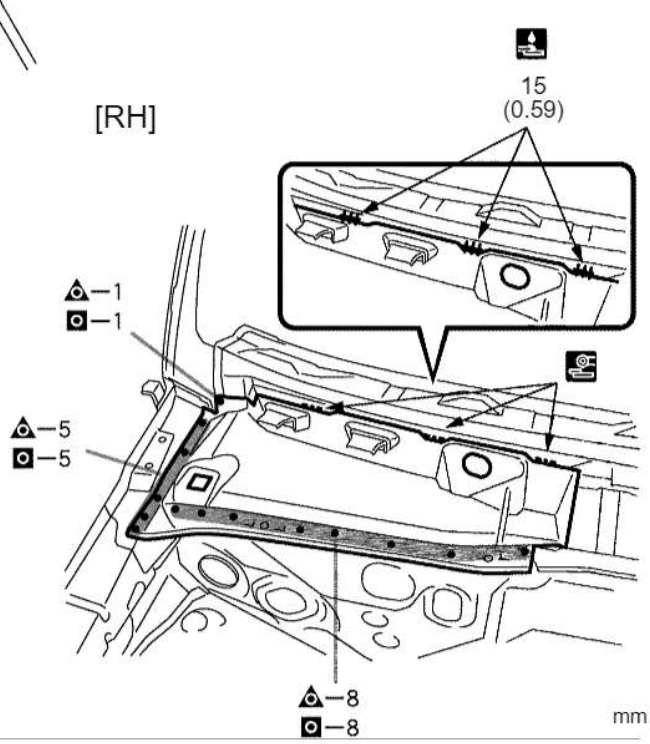
F25277B

REMOVAL·INSTALLATION

[LH]



[RH]



mm (in.)

F25277

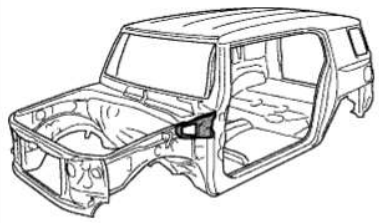
INSTALLATION POINT

1 After welding, apply body sealer to the corresponding parts. (See the paint·coating)

2 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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COWL SIDE REINFORCEMENT (ASSY)



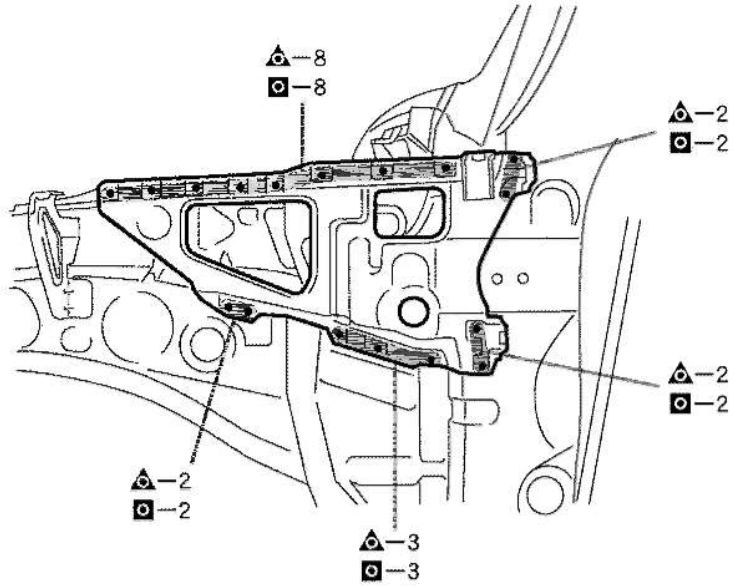
F25278A

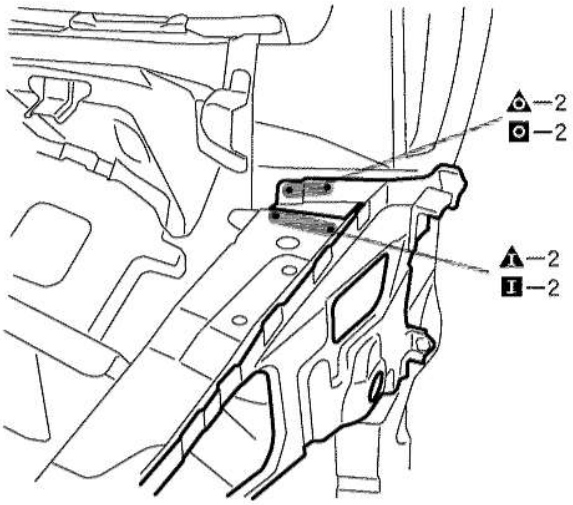
Symbol meaning

REMOVAL	: Remove Weld Points
INSTALLATION	: MIG Plug Weld

F25278B

REMOVAL·INSTALLATION





F25278

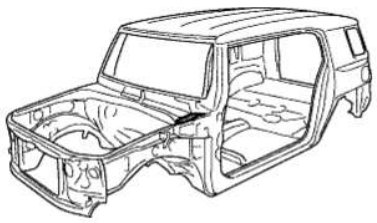
INSTALLATION POINT

1 After welding, apply body sealer to the corresponding parts. (See the paint·coating)

2 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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COWL TOP SIDE INNER (ASSY)



F25279A

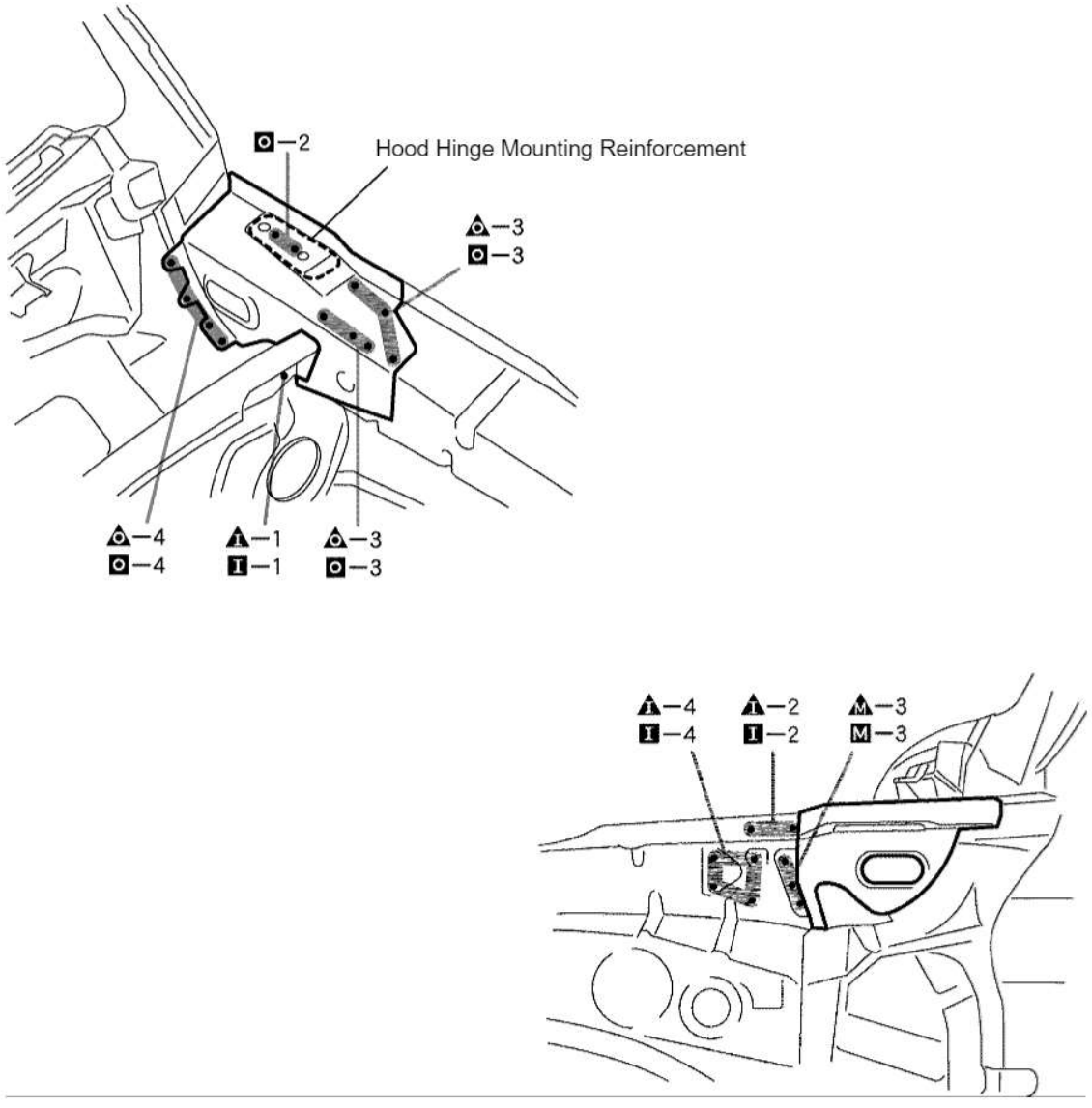
With the cowl top to apron brace removed.

Symbol meaning

REMOVAL	◎ Ⓜ ▲ : Remove Weld Points
INSTALLATION	O M I : MIG Plug Weld

F25279B

REMOVAL·INSTALLATION



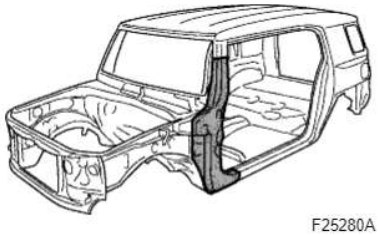
F25279

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish
2 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)
3 After welding, apply body sealer to the corresponding parts. (See the paint·coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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FRONT BODY PILLAR (CUT)


F25280A

With the cowl side reinforcement and cowl top side inner removed.

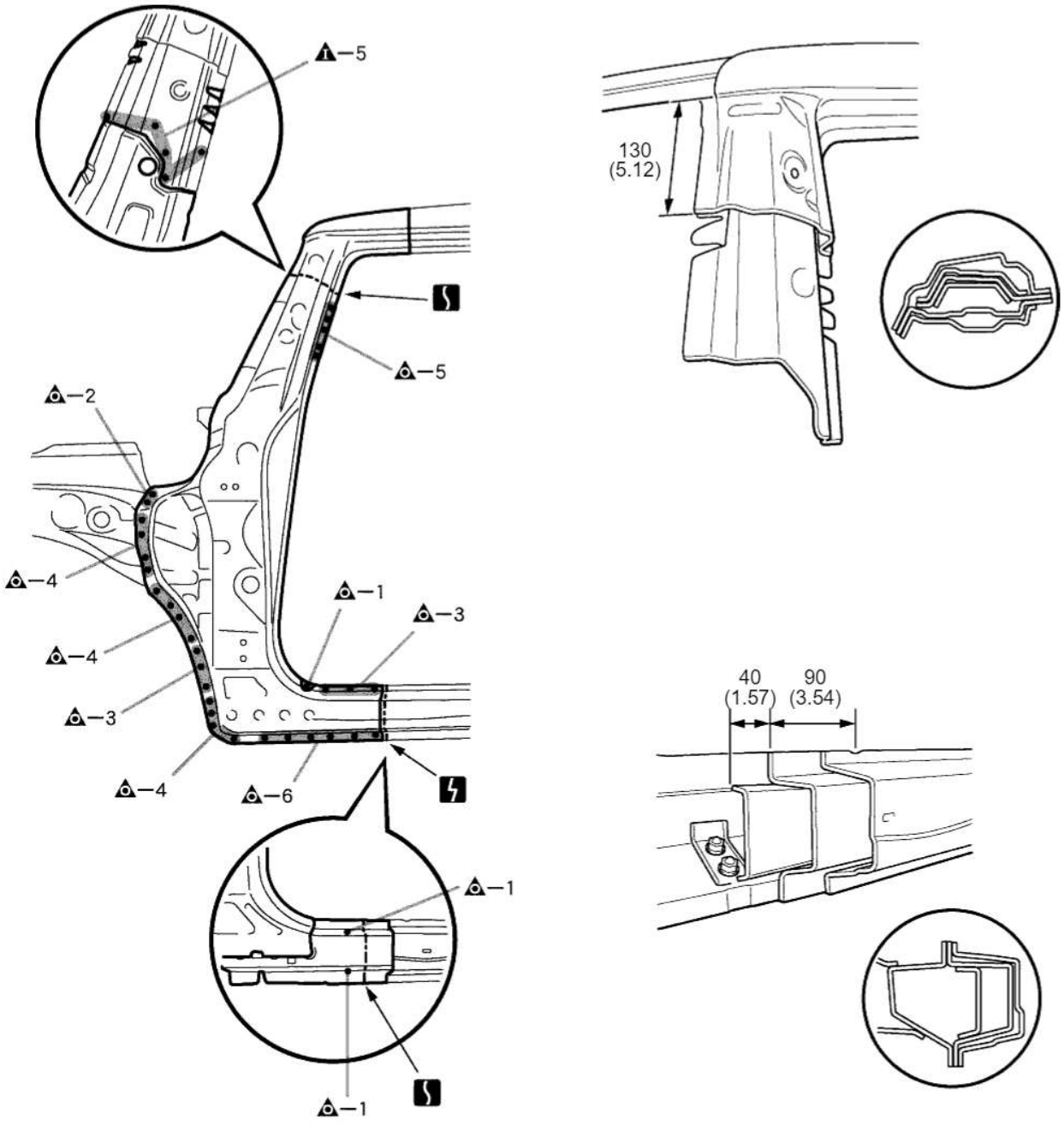
Symbol meaning

: Remove Weld Points : Cut and Join Location

: Cut Location for Supply Parts

F25280B

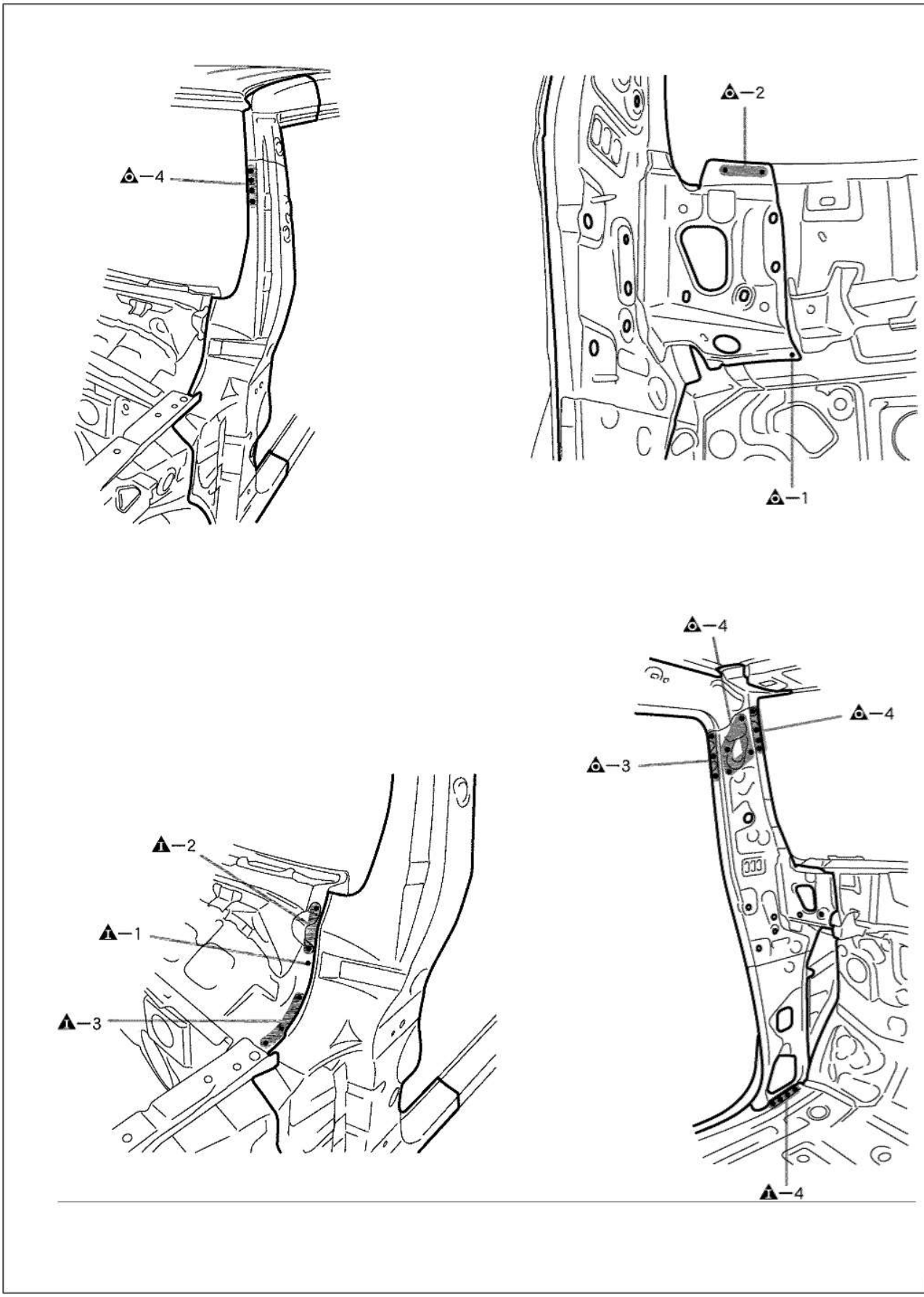
REMOVAL



mm (in.)

F25280

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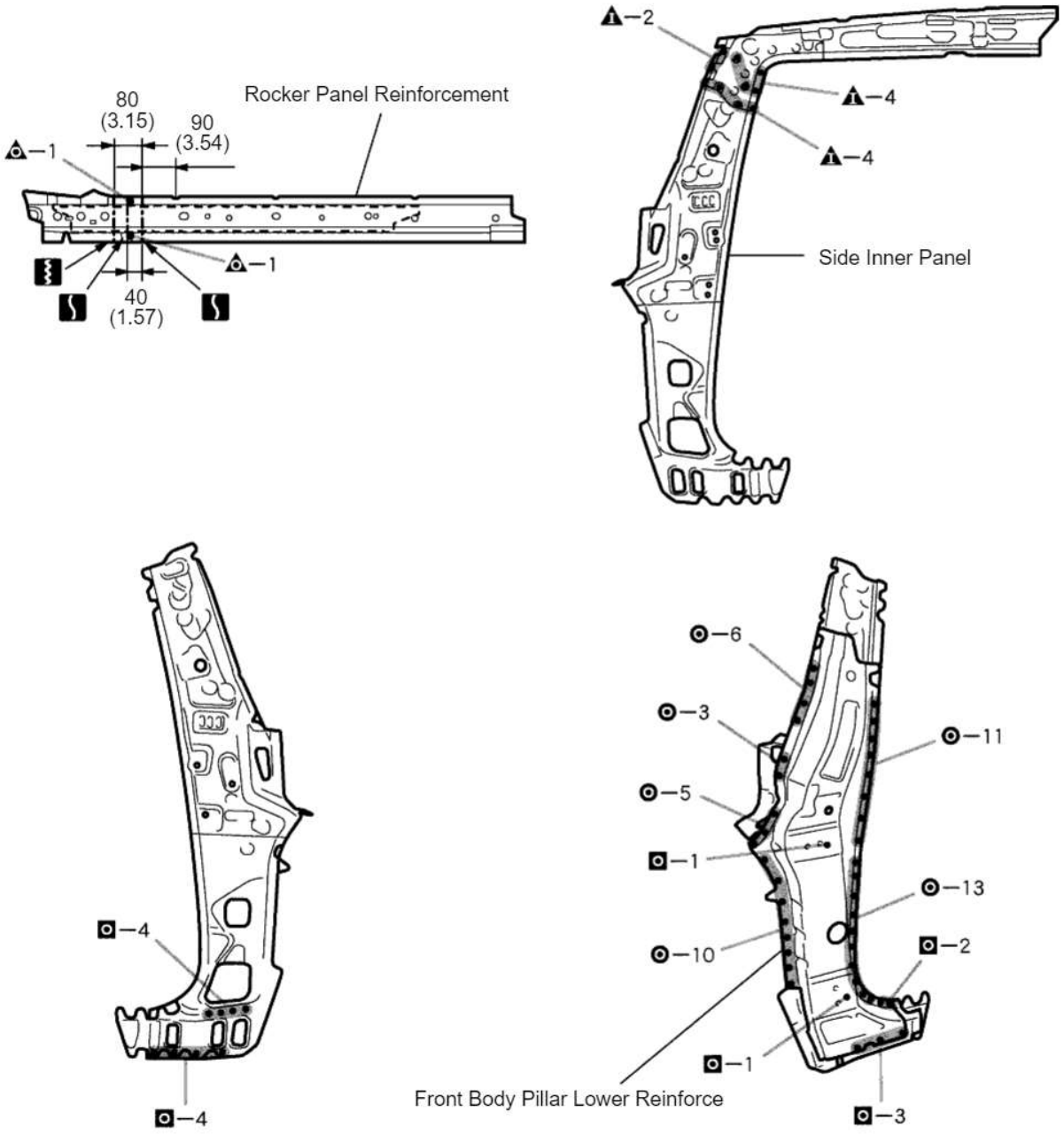
Symbol meaning

▲ ▲ : Remove Weld Points ⟆ : Cut and Join Location ⟆ : Cut Location

⊙ : Spot Weld ⊙ I : MIG Plug Weld

F25282B

INSTALLATION

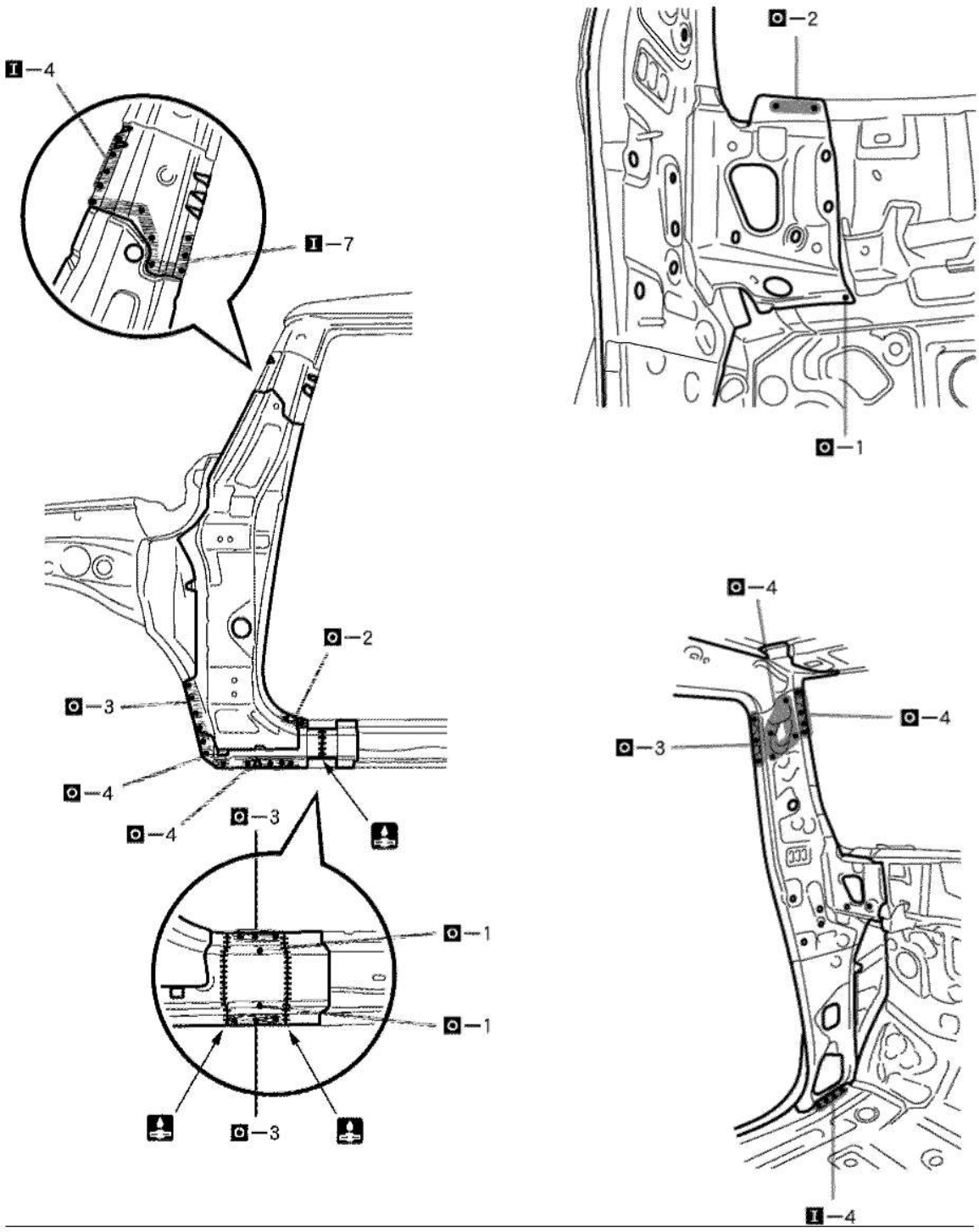


F25282

INSTALLATION POINT

1 Before temporarily installing the new parts, weld the rocker panel reinforcement, front body pillar lower reinforce, front body pillar upper reinforce and side inner panel with the standard number of welding points.

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INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.

2 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)

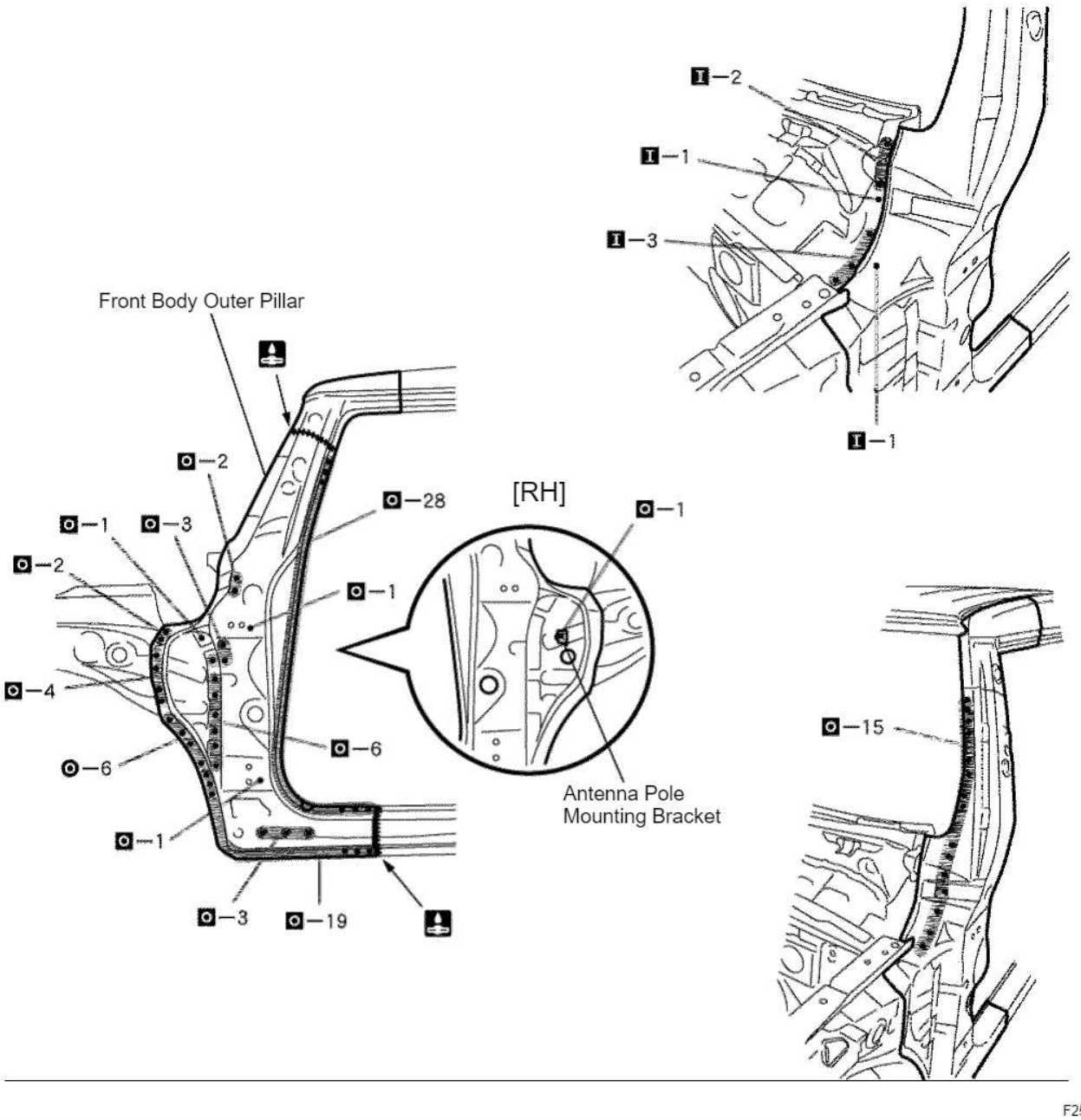
cardiagn.com

Symbol meaning

▲ ▲ : Remove Weld Points ⟆ : Cut and Join Location ⧑ : Cut Location

● : Spot Weld ▣ ▮ : MIG Plug Weld

F25282B



F25284

INSTALLATION POINT

1 After welding the the rocker panel reinforcement, front body pillar lower reinforce, front body pillar upper reinforce and side inner panel to the vehicle side, install the front body outer pillar and antenna pole mounting bracket.

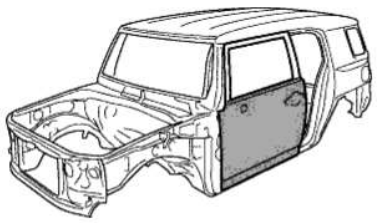
2 After welding, apply the polyurethane foam to the corresponding parts. (See the paint coating)

3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint coating)

4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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FRONT DOOR OUTER PANEL (ASSY)



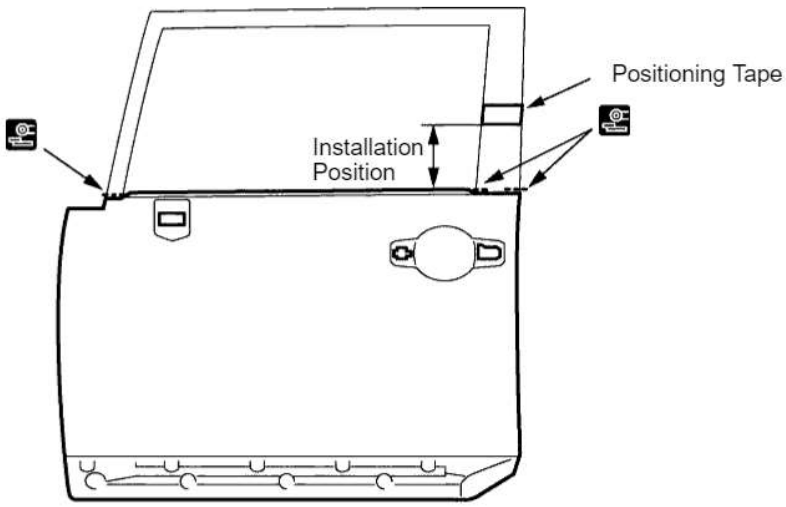
F25285A

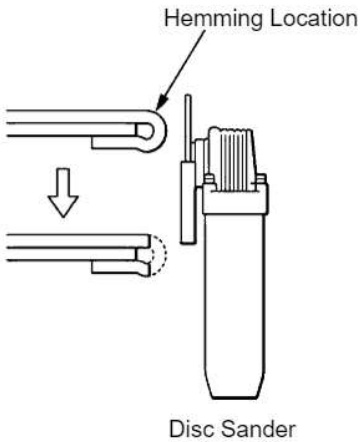
Symbol meaning

+ : Spot MIG Weld : Body Sealer

F25285B

REMOVAL





F25285

REMOVAL POINT

1 Before removing the outer panel, mark the installation position with tape.
2 Before removing the outer panel, establish its exact position in relation to the window frame using a reference marker, etc.
3 After grinding off the hemming location, remove the outer panel.

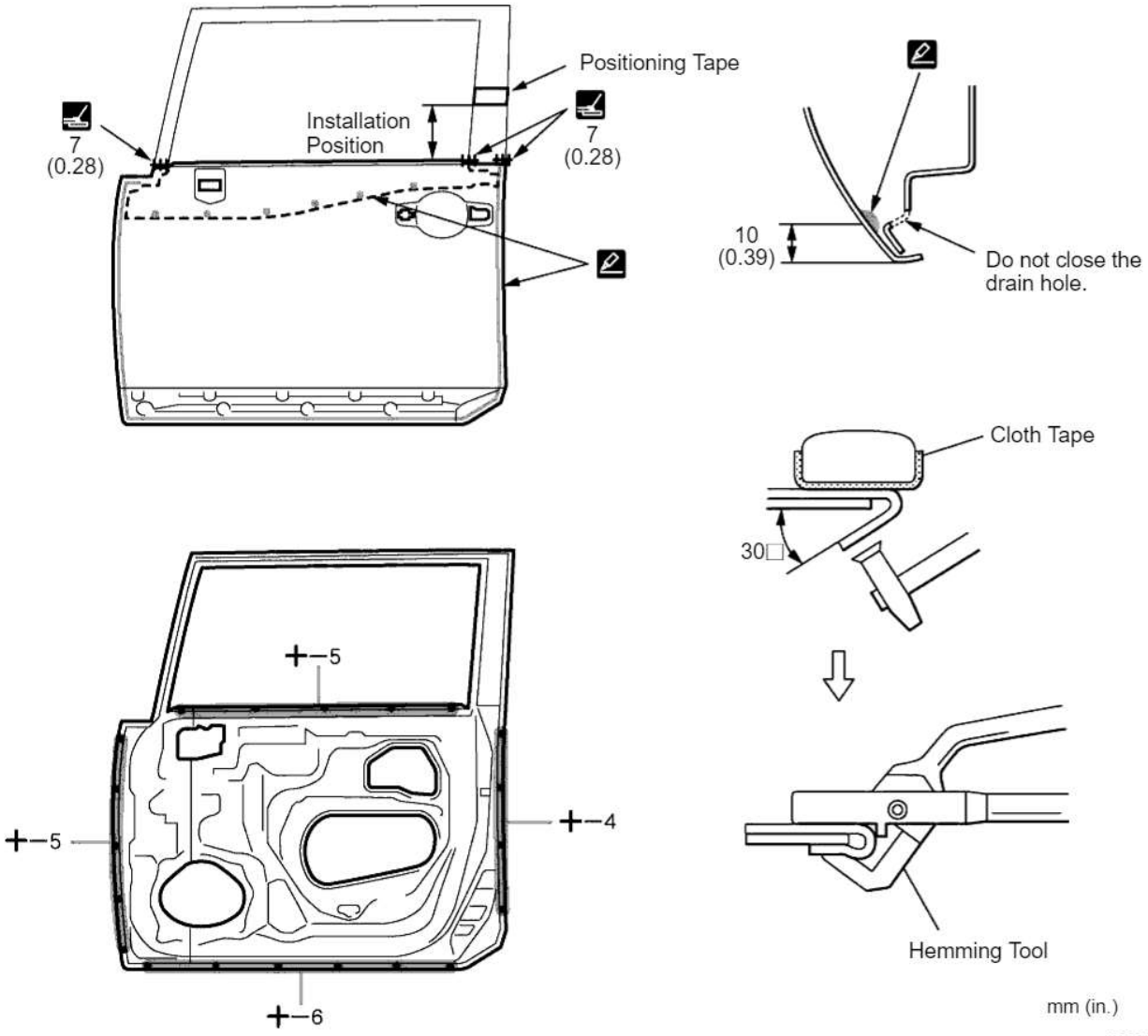
cardiagn.com

Symbol meaning

+ : Spot MIG Weld : Body Sealer

F25285B

INSTALLATION



F25286

INSTALLATION POINT

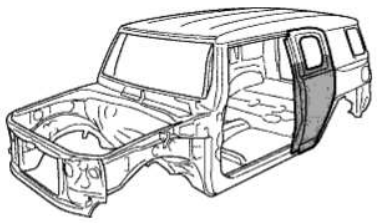
1 Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and backside of the new parts.
HINT:
1) Apply sealer evenly about 10 mm (0.39 in.) from the flange and 3 mm (0.12 in.) in diameter on the outer panel and apply just enough sealer for the reinforcement and side impact protection beam to make contact.

2 Bend the flange hem about 30□with a hammer and dolly. Then, fasten tightly with a hemming tool.
HINT:
1) Perform hemming in three steps, being careful not to warp the panel.
2) If a hemming tool cannot be used, hem with a hammer and dolly.

3 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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REAR DOOR OUTER PANEL (CUT)



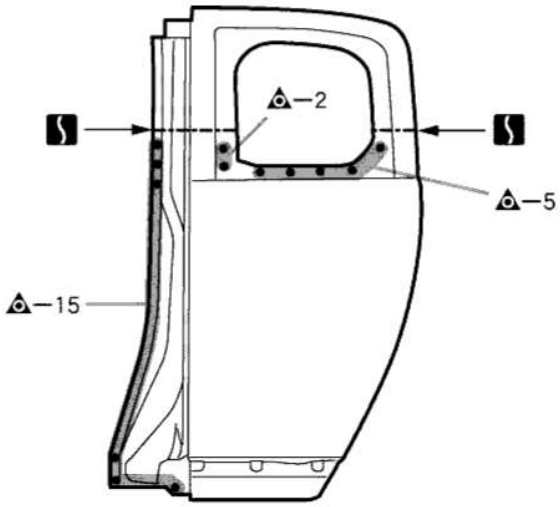
F25287A

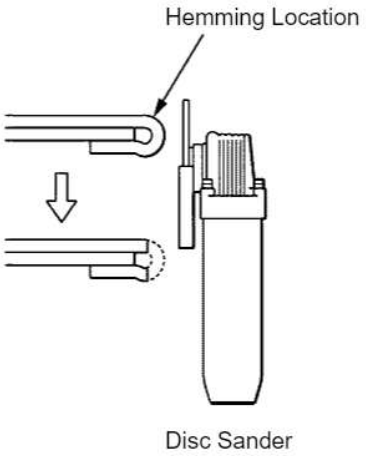
Symbol meaning

+ : Spot MIG Weld : Body Sealer

F25287B

REMOVAL





F25287

REMOVAL POINT

1 After grinding off the hemming location, remove the outer panel.

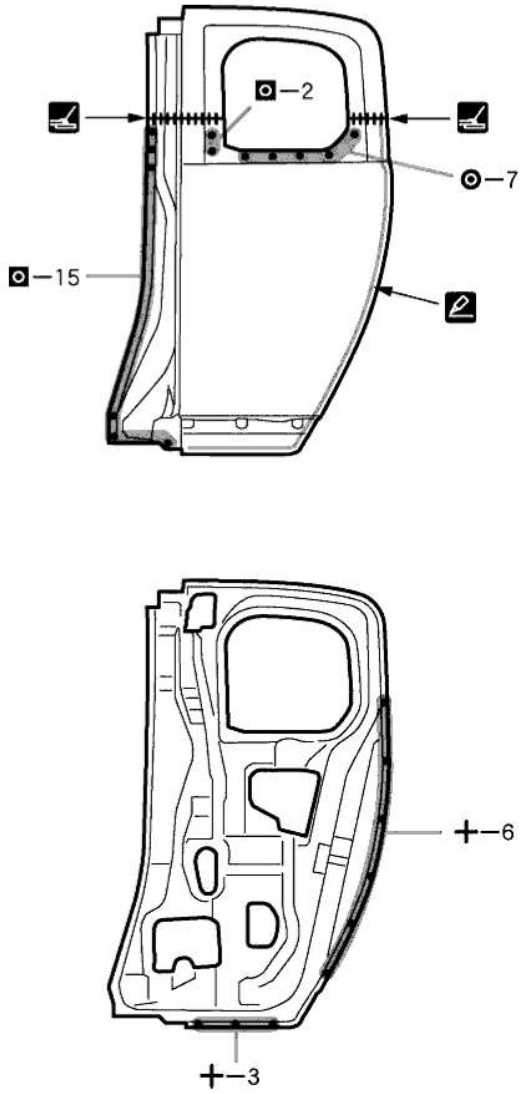
cardiagn.com

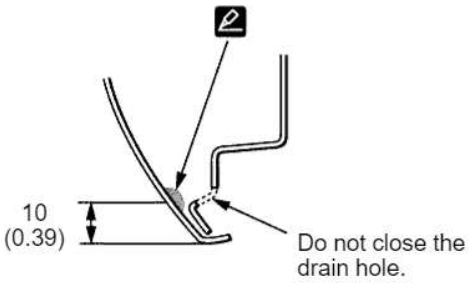
Symbol meaning

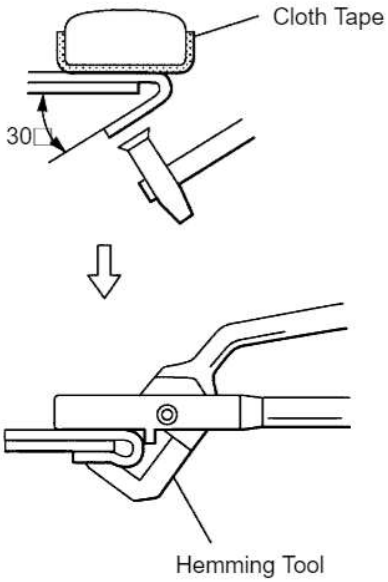
+ : Spot MIG Weld : Body Sealer

F25287B

INSTALLATION







mm (in.)

F25288

INSTALLATION POINT

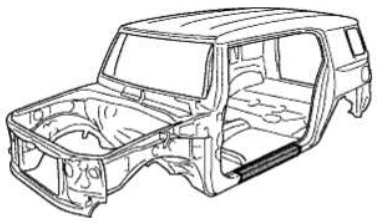
1 Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and backside of the new parts.
HINT:
1) Apply sealer evenly about 10 mm (0.39 in.) from the flange and 3 mm (0.12 in.) in diameter on the outer panel and apply just enough sealer for the reinforcement and side impact protection beam to make contact.

2 Bend the flange hem about 30□with a hammer and dolly. Then, fasten tightly with a hemming tool.
HINT:
1) Perform hemming in three steps, being careful not to warp the panel.
2) If a hemming tool cannot be used, hem with a hammer and dolly.

3 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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ROCKER OUTER PANEL (CUT)



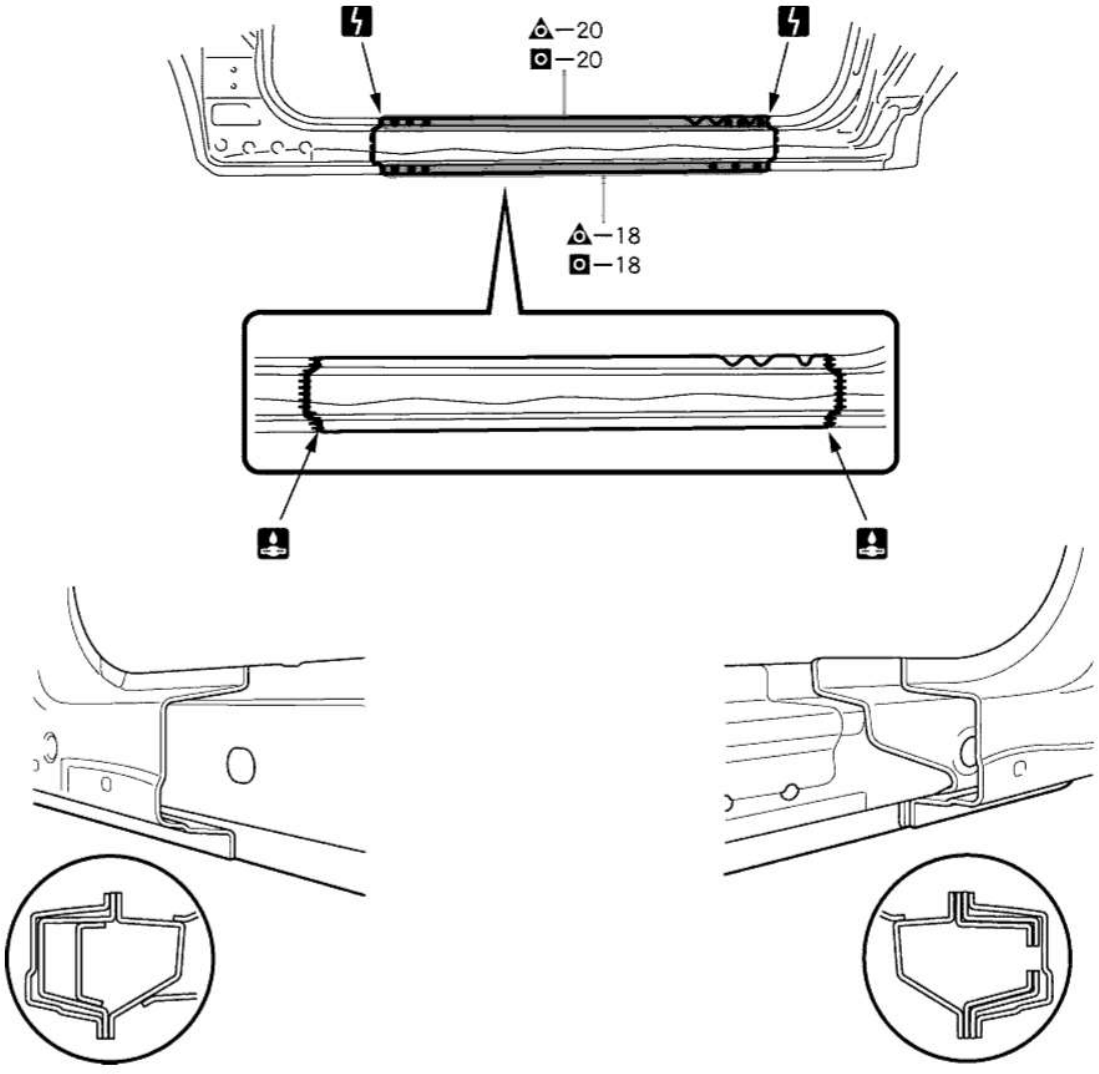
F25289A

Symbol meaning

REMOVAL	: Remove Weld Points	: Cut Location for Supply Parts
INSTALLATION	: MIG Plug Weld	: Butt Weld

F25289B

REMOVAL·INSTALLATION



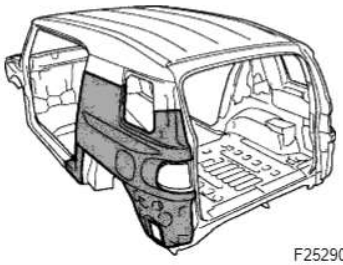
F25289

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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QUARTER PANEL (CUT)



F25290A

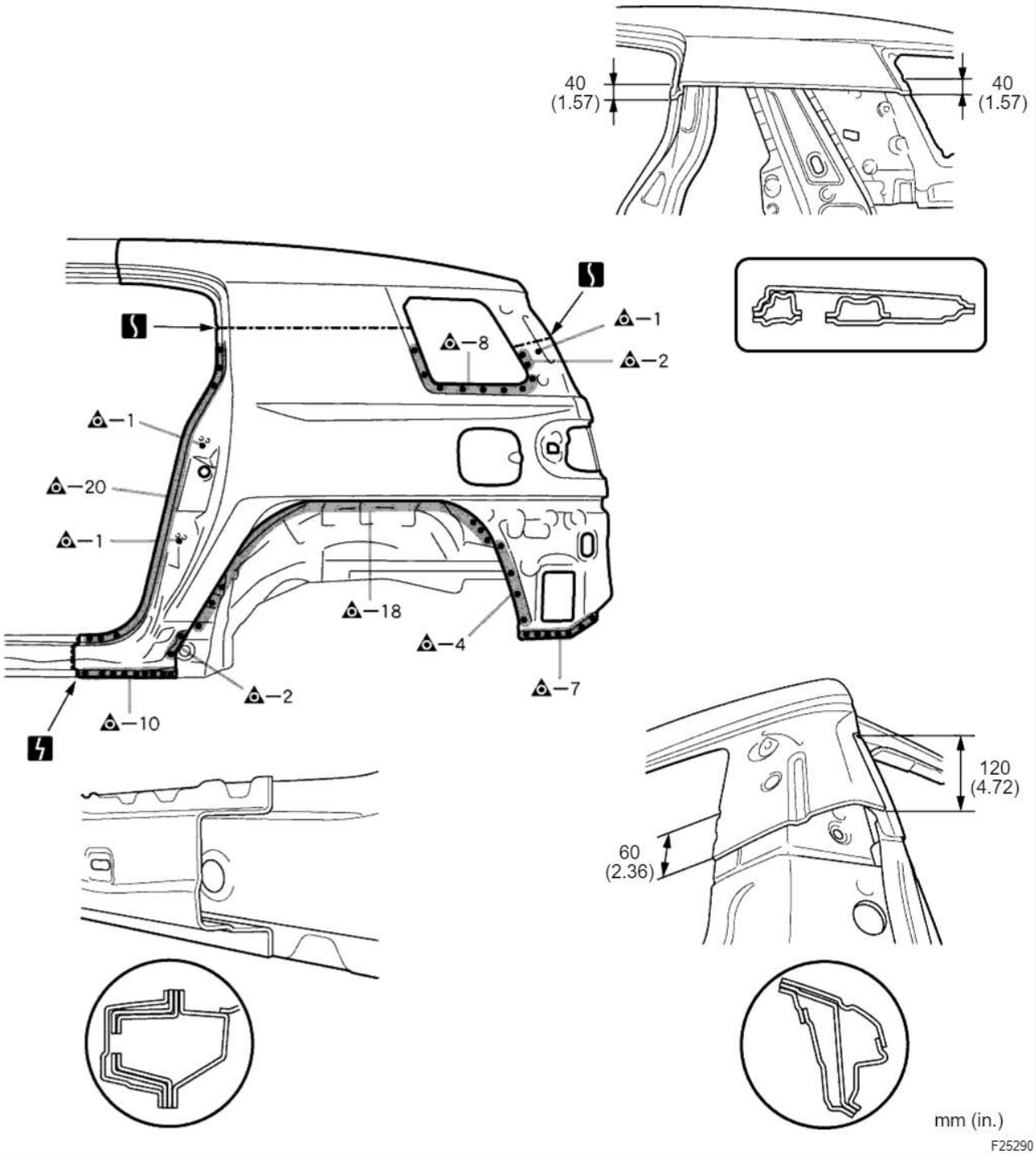
Symbol meaning

: Remove Weld Points : Cut and Join Location

: Cut Location for Supply Parts

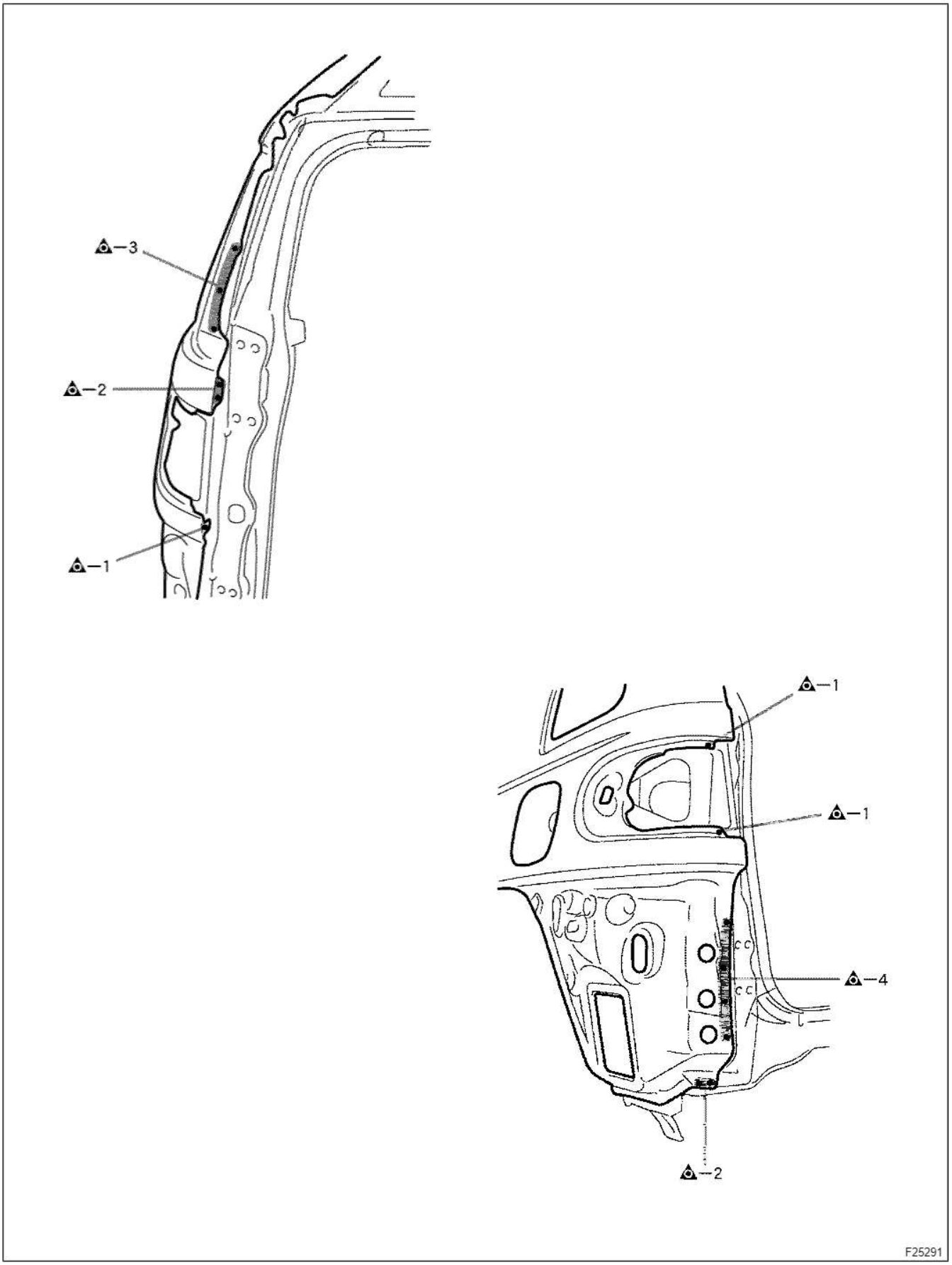
F25290B

REMOVAL



F25290

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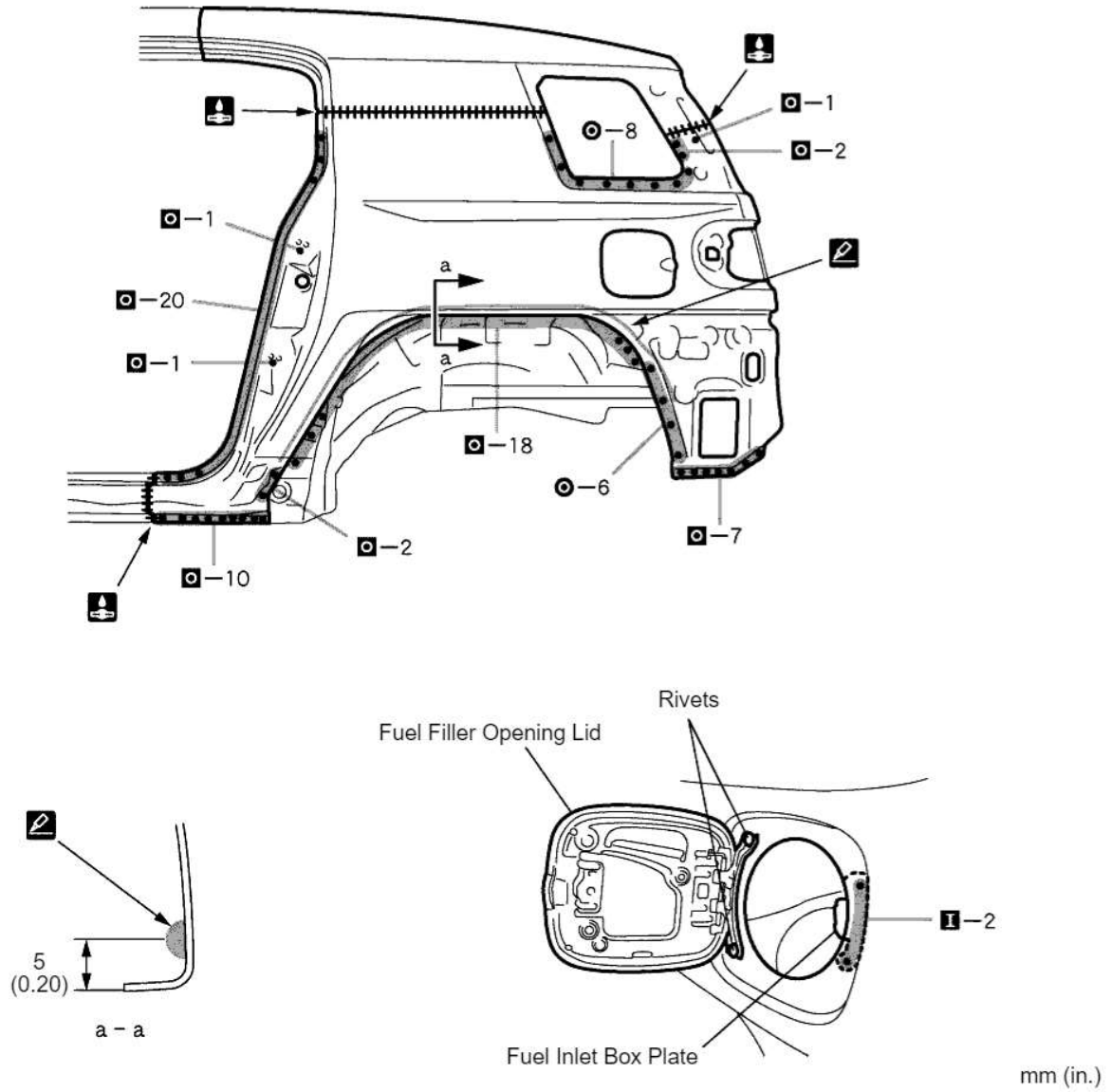
cardiagn.com

Symbol meaning

: Spot Weld : MIG Plug Weld : Butt Weld : Body Sealer

F25292B

INSTALLATION



F25292

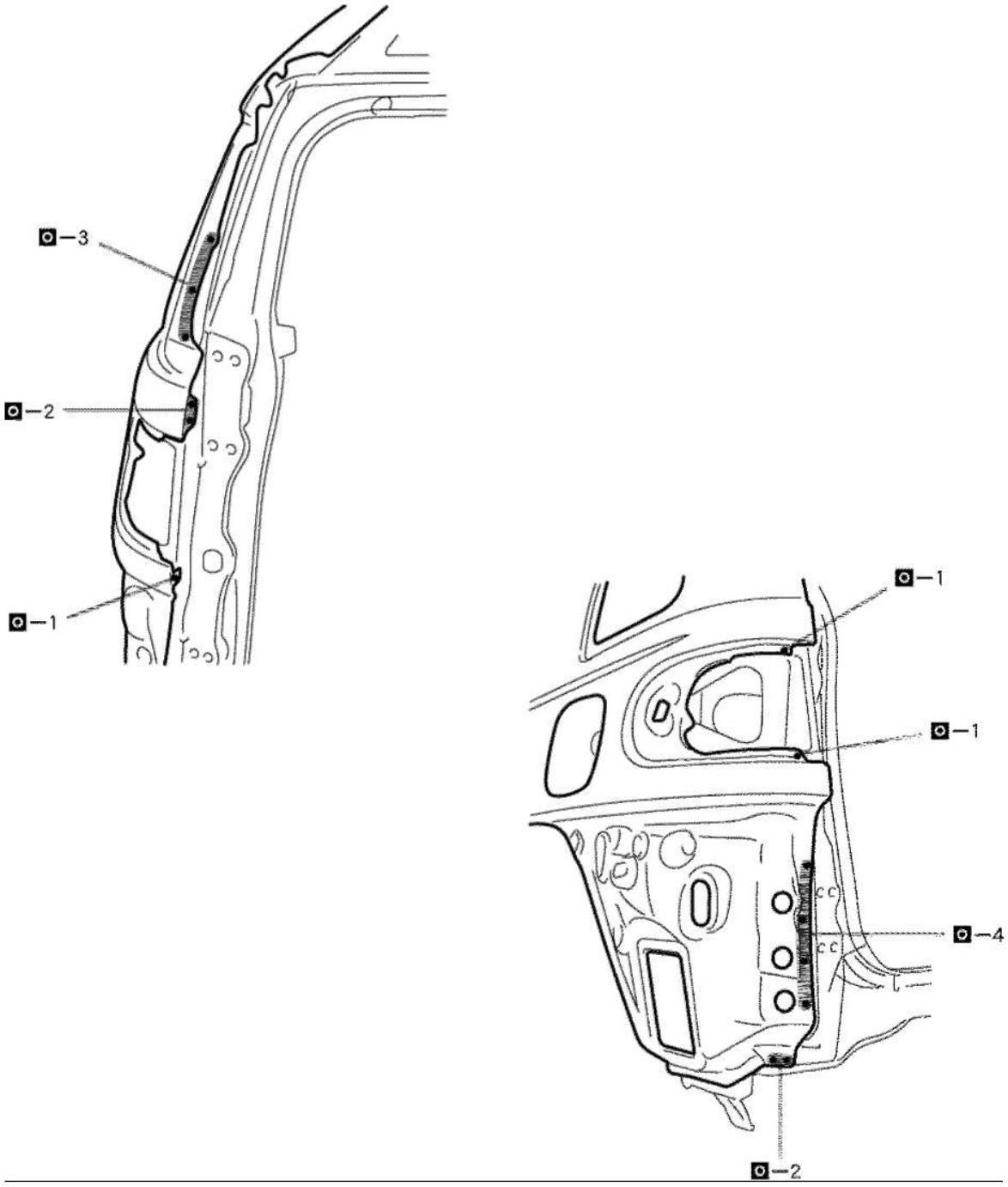
INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.

2 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.

3 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)

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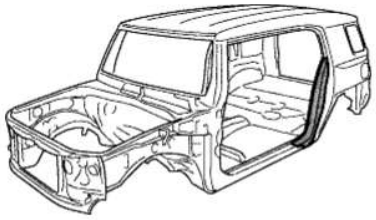


INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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QUARTER PANEL REINFORCEMENT (CUT)


F25294A

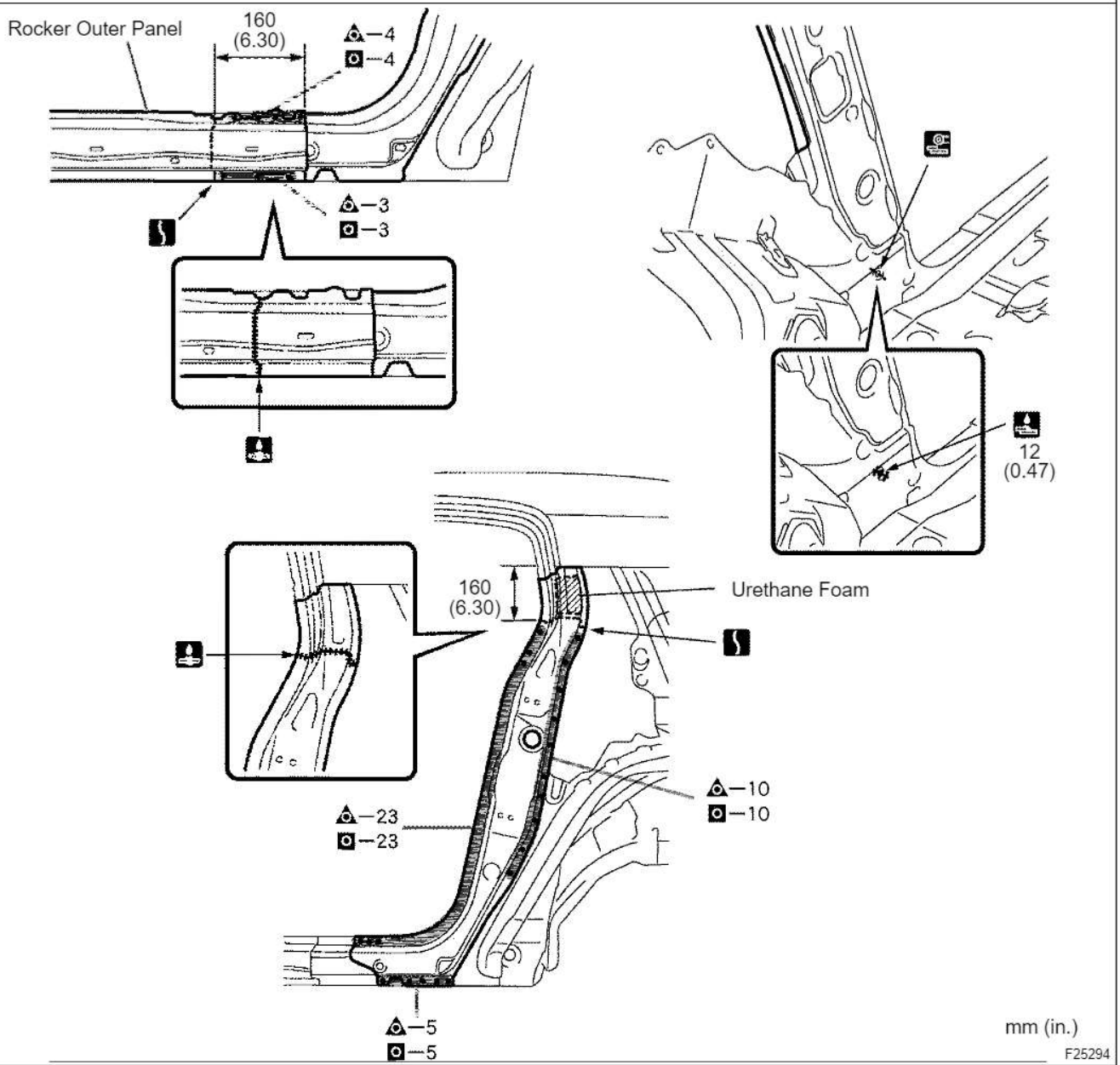
With the quarter panel removed.

Symbol meaning

REMOVAL	: Remove Weld Points	: Cut with disc sander, etc.	: Cut and Join Location
INSTALLATION	: MIG Plug Weld	: Tack Weld	: Butt Weld

F25294B

REMOVAL·INSTALLATION



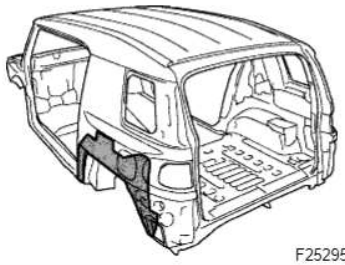
F25294

INSTALLATION POINT

1 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)
2 After welding, apply the polyurethane foam to the corresponding parts. (See the paint·coating)
3 After welding, apply body sealer to the corresponding parts. (See the paint·coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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QUARTER WHEEL HOUSING OUTER PANEL (ASSY)


F25295A

With the quarter panel removed.

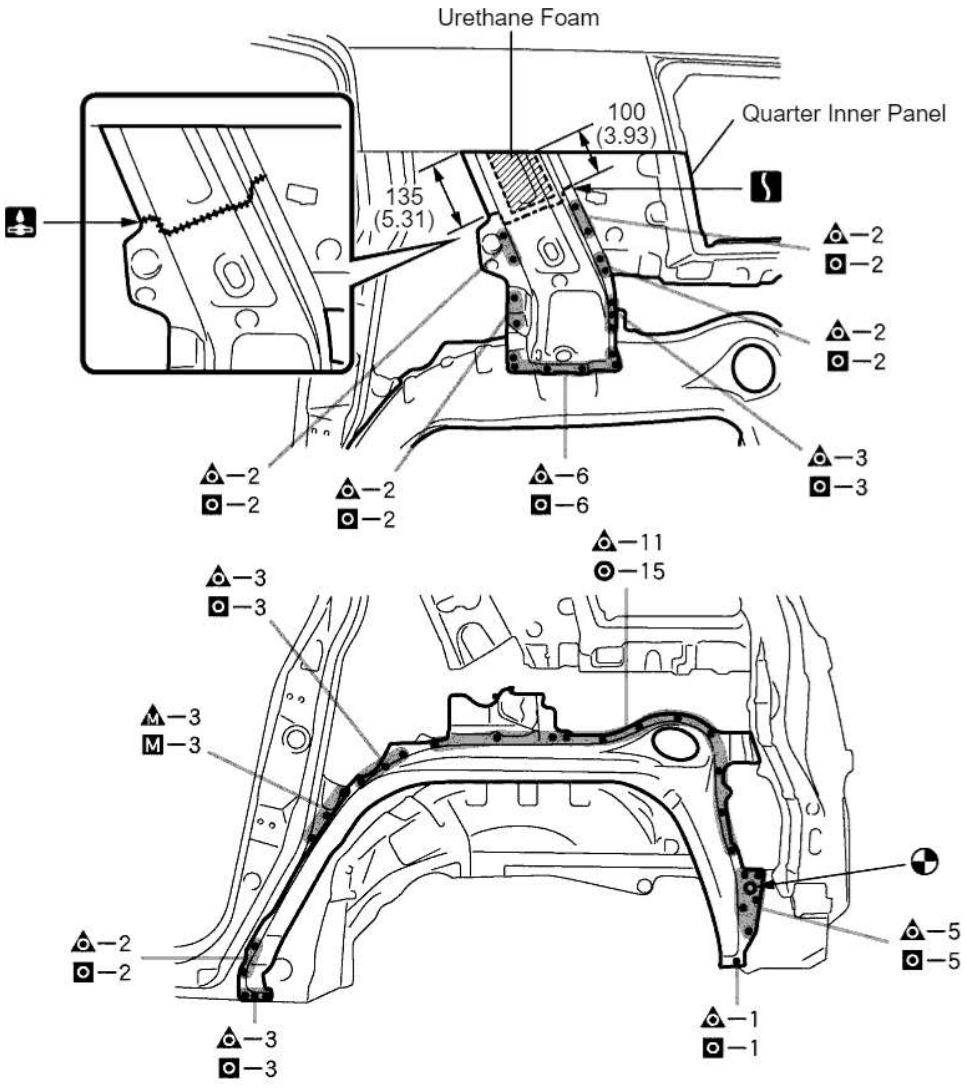
Symbol meaning

REMOVAL	▲ ▲M : Remove Weld Points	: Cut and Join Location	
INSTALLATION	● : Spot Weld	■ M : MIG Plug Weld	: Butt Weld

F25295B

REMOVAL·INSTALLATION

[LH]



F25295

REMOVAL POINT

1 After removing the quarter inner panel,remove the quarter wheel housing outer panel.

INSTALLATION POINT

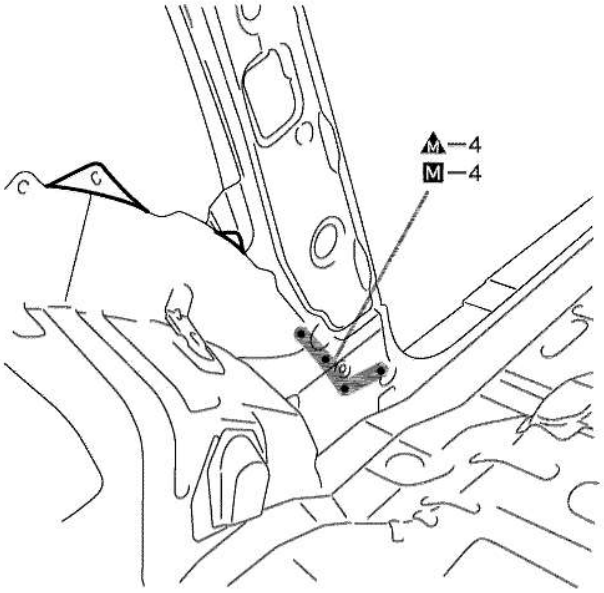
1 After welding the quarter wheel housing outer panel to the vehicle side, install the quarter inner panel.
2 After welding, apply the polyurethane foam to the corresponding parts. (See the paint·coating)
3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint·coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

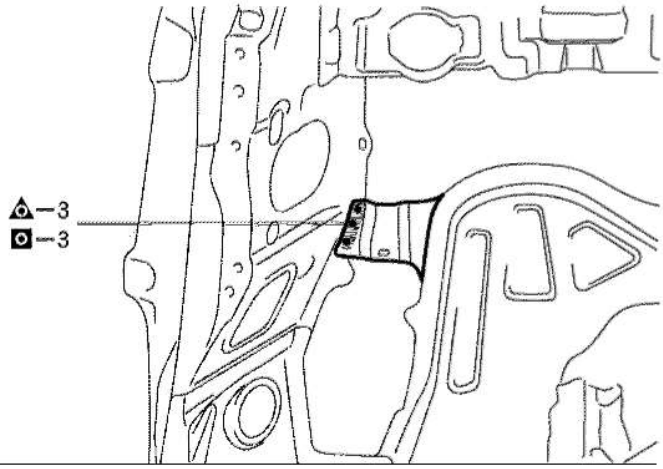
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Symbol meaning

REMOVAL	▲ ▲M : Remove Weld Points	: Cut and Join Location	
INSTALLATION	● : Spot Weld	● M : MIG Plug Weld	: Butt Weld

F25295B





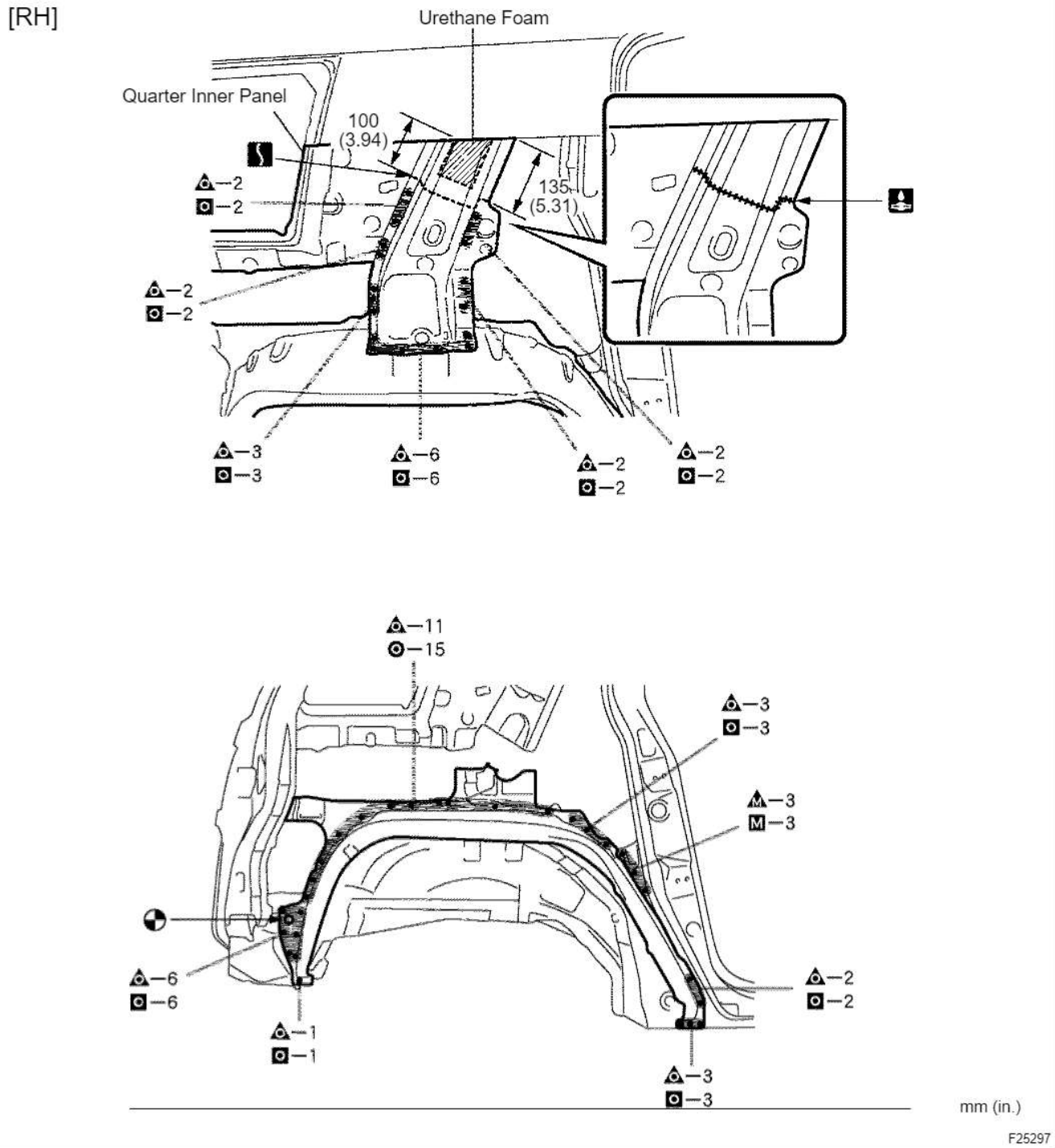
F25296

INSTALLATION POINT

1 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint coating)

2 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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REMOVAL POINT

1 After removing the quarter inner panel,remove the quarter wheel housing outer panel.

INSTALLATION POINT

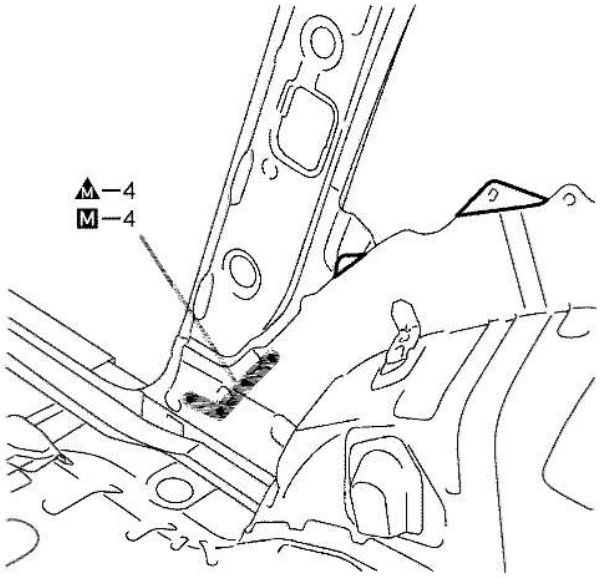
1 After welding the quarter wheel housing outer panel to the vehicle side, install the quarter inner panel.
2 After welding, apply the polyurethane foam to the corresponding parts. (See the paint coating)
3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

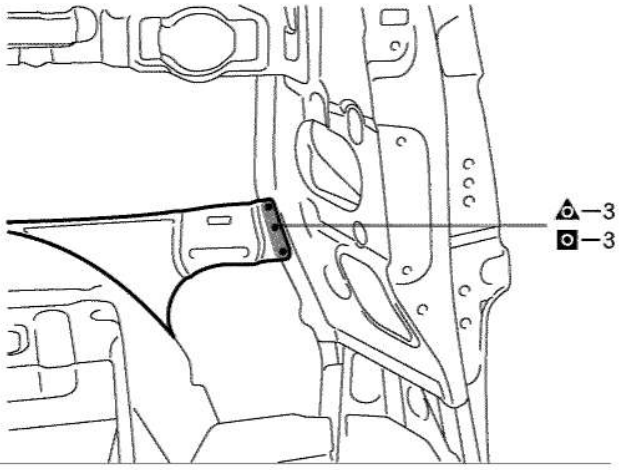
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Symbol meaning

REMOVAL	▲ ▲M : Remove Weld Points	: Cut and Join Location	
INSTALLATION	● : Spot Weld	●M : MIG Plug Weld	: Butt Weld

F25295B





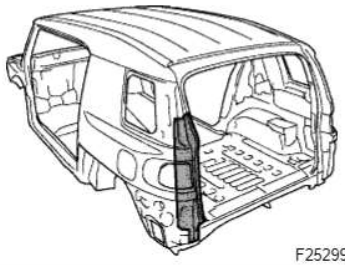
F25298

INSTALLATION POINT

1 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint coating)
2 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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BACK DOOR OPENING SIDE REINFORCEMENT (ASSY)


F25299A

With the quarter panel removed.

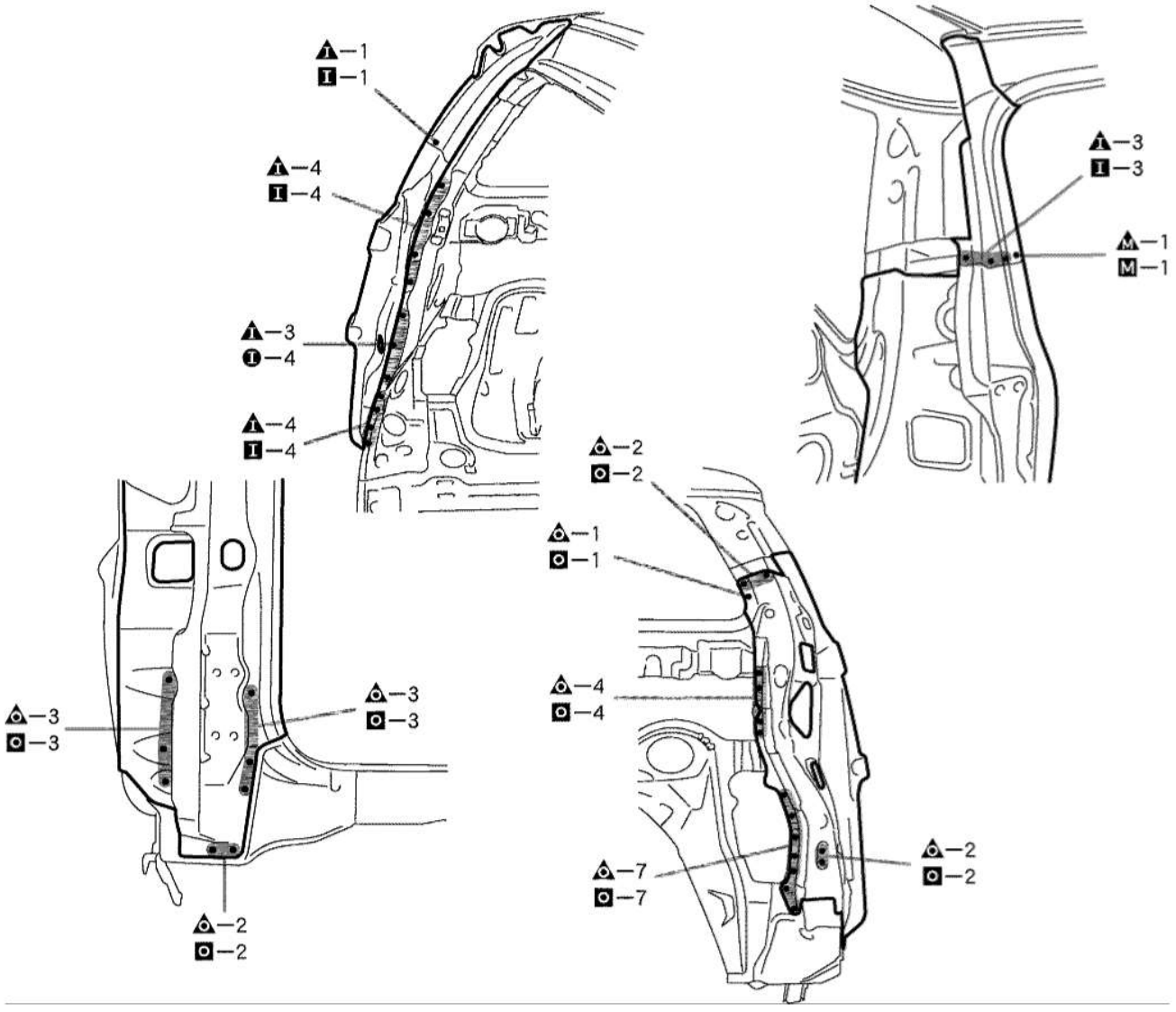
Symbol meaning

REMOVAL	▲ M ▲ : Remove Weld Points
INSTALLATION	● : Spot Weld ○ M ■ : MIG Plug Weld

F25299B

REMOVAL·INSTALLATION

[LH]



F25299

INSTALLATION POINT

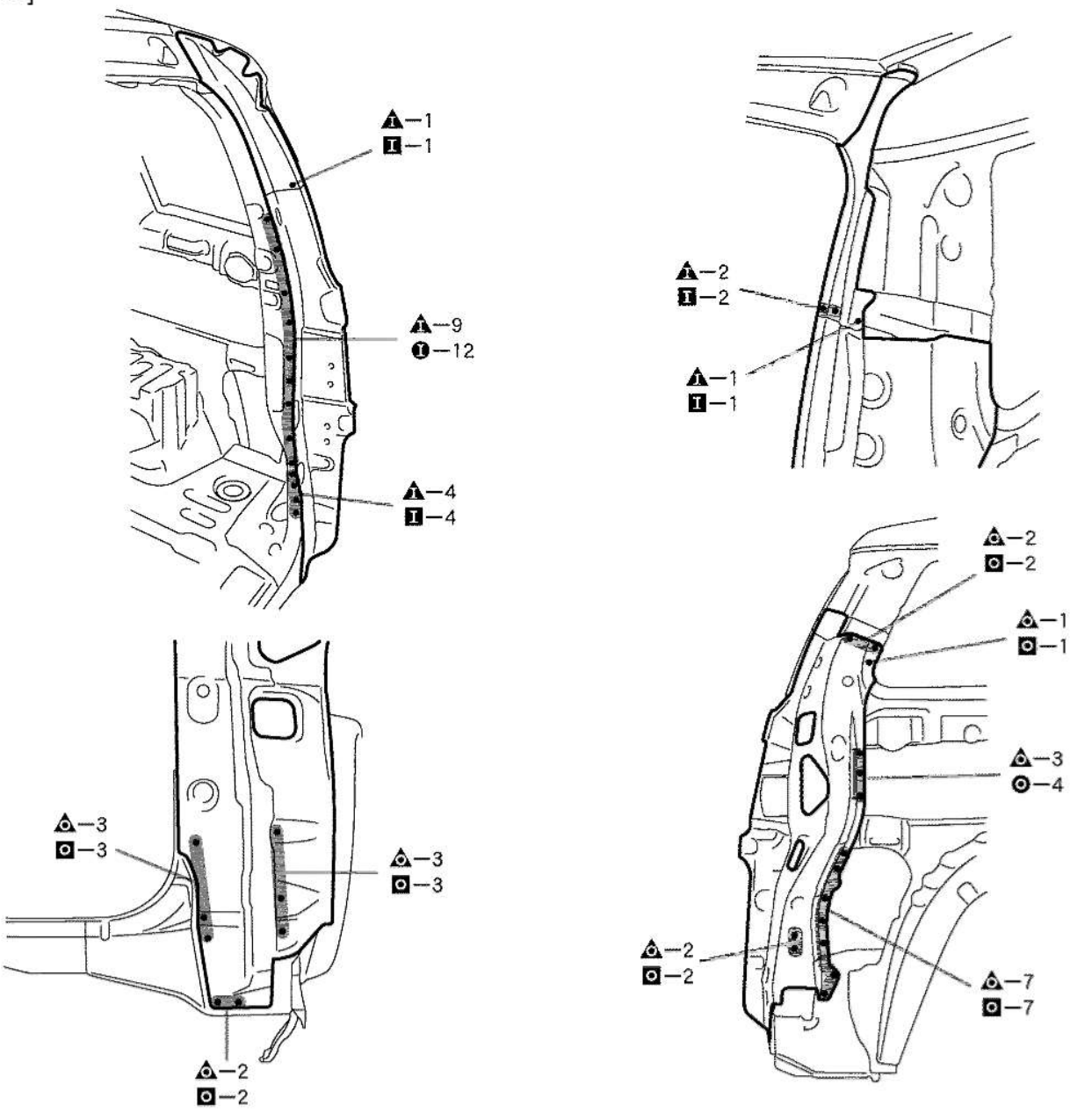
1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint·coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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Symbol meaning	
REMOVAL	▲ ▲M ▲1 : Remove Weld Points
INSTALLATION	● : Spot Weld ○ M ○1 : MIG Plug Weld

F25299B

[RH]



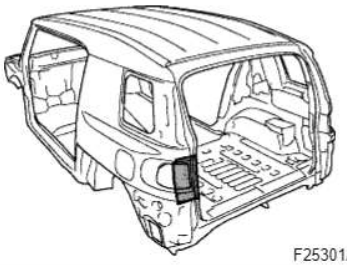
F25300

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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QUARTER INNER PANEL (CUT)



F25301A

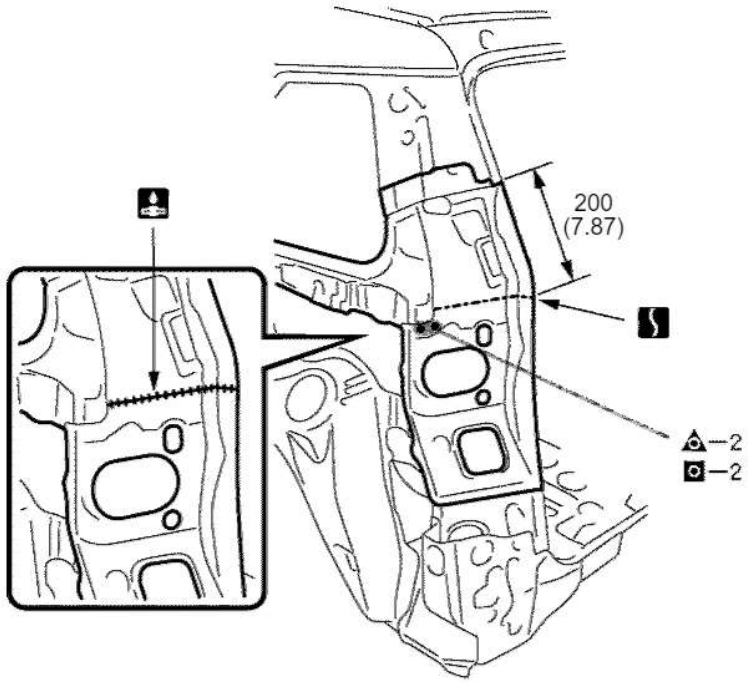
With the quarter panel and back door opening side reinforcement removed.

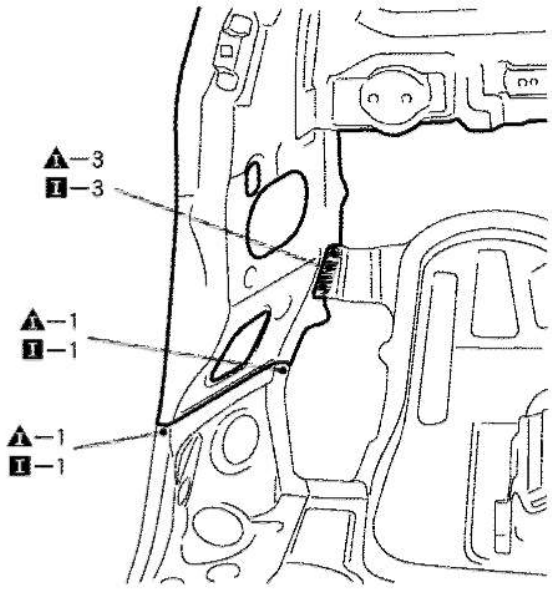
Symbol meaning

REMOVAL	▲ ▲ : Remove Weld Points	: Cut and Join Location
INSTALLATION	■ I : MIG Plug Weld	: Butt Weld

F25301B

REMOVAL·INSTALLATION





mm (in.)

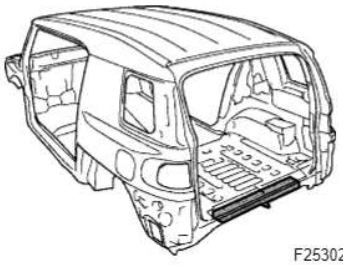
F25301

INSTALLATION POINT

1 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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BODY LOWER BACK PANEL (CUT-H)



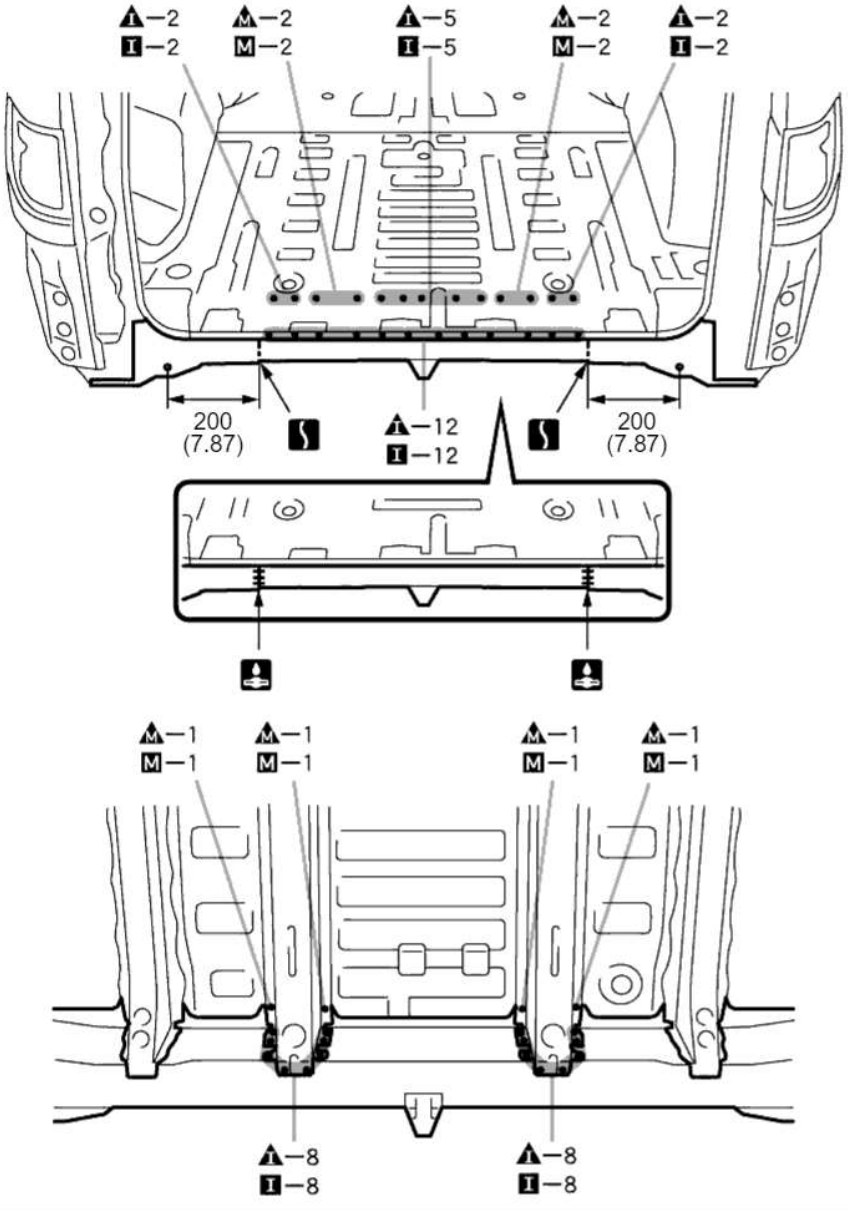
F25302A

Symbol meaning

REMOVAL	A A : Remove Weld Points	: Cut and Join Location
INSTALLATION	M I : MIG Plug Weld	: Butt Weld

F25302B

REMOVAL·INSTALLATION



mm (in.)

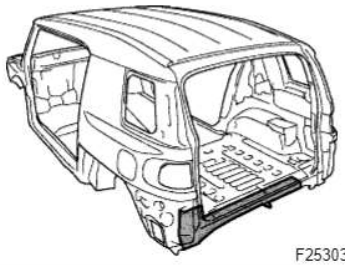
F25302

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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BODY LOWER BACK PANEL (CUT)


F25303A

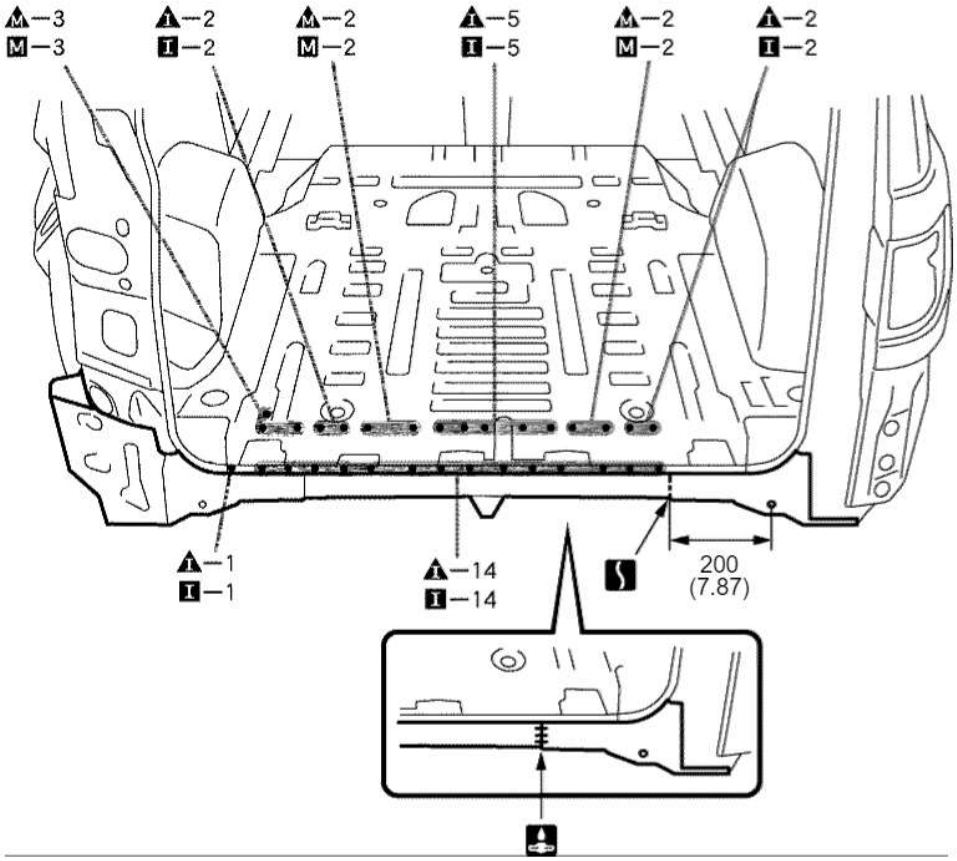
With the back door opening side reinforcement removed.

Symbol meaning

REMOVAL	M A : Remove Weld Points	: Cut and Join Location	
INSTALLATION	M I : MIG Plug Weld	: Butt Weld	

F25303B

REMOVAL·INSTALLATION



mm (in.)

F25303

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.

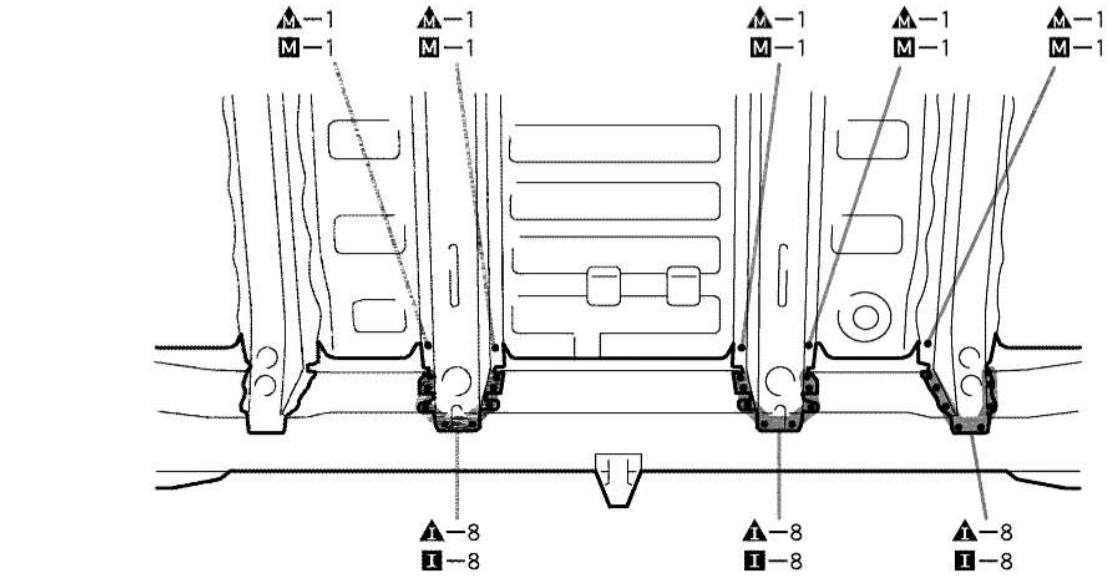
2 Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)

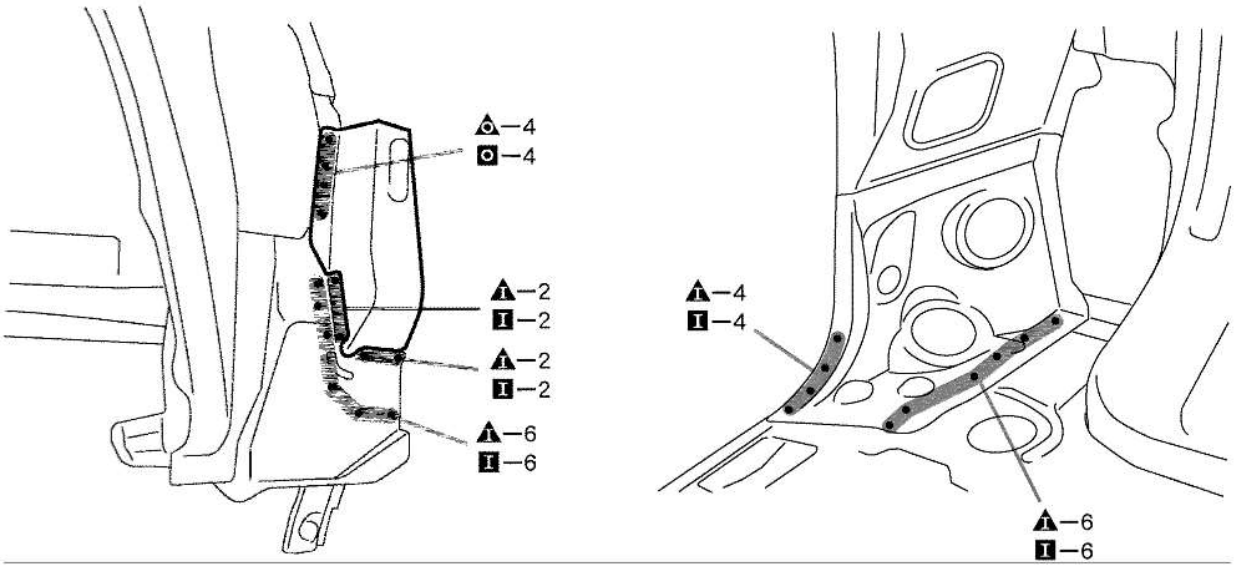
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Symbol meaning

REMOVAL	A A : Remove Weld Points	S : Cut and Join Location	
INSTALLATION	M I : MIG Plug Weld	: Butt Weld	

F25303B



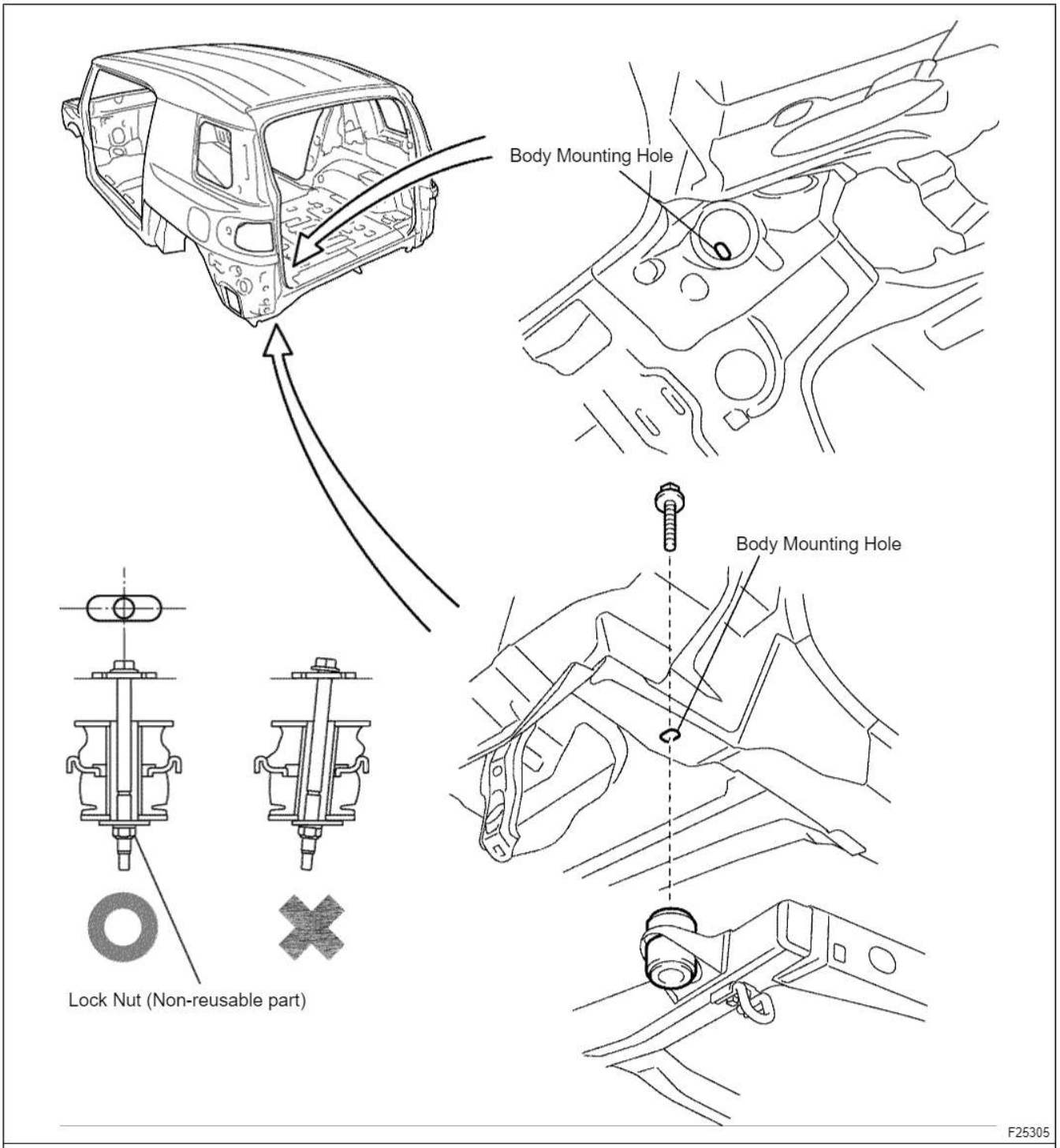


F25304

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer to the corresponding parts. (See the paint·coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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INSTALLATION POINT

1 Check if the body mounting hole is the correct position.

2 Vertically tighten the bolt.

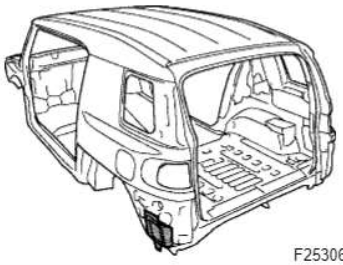
HINT:

1) Specified torque for the cab mounts No.1, No.2, No.4 and rear end cab mountis 45 N·m(459 kgf·cm, 33 ft.·lbf).

NOTICE: Do not reuse the lock nut.

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REAR FLOOR SIDE PANEL REAR EXTENSION (ASSY)



F25306A

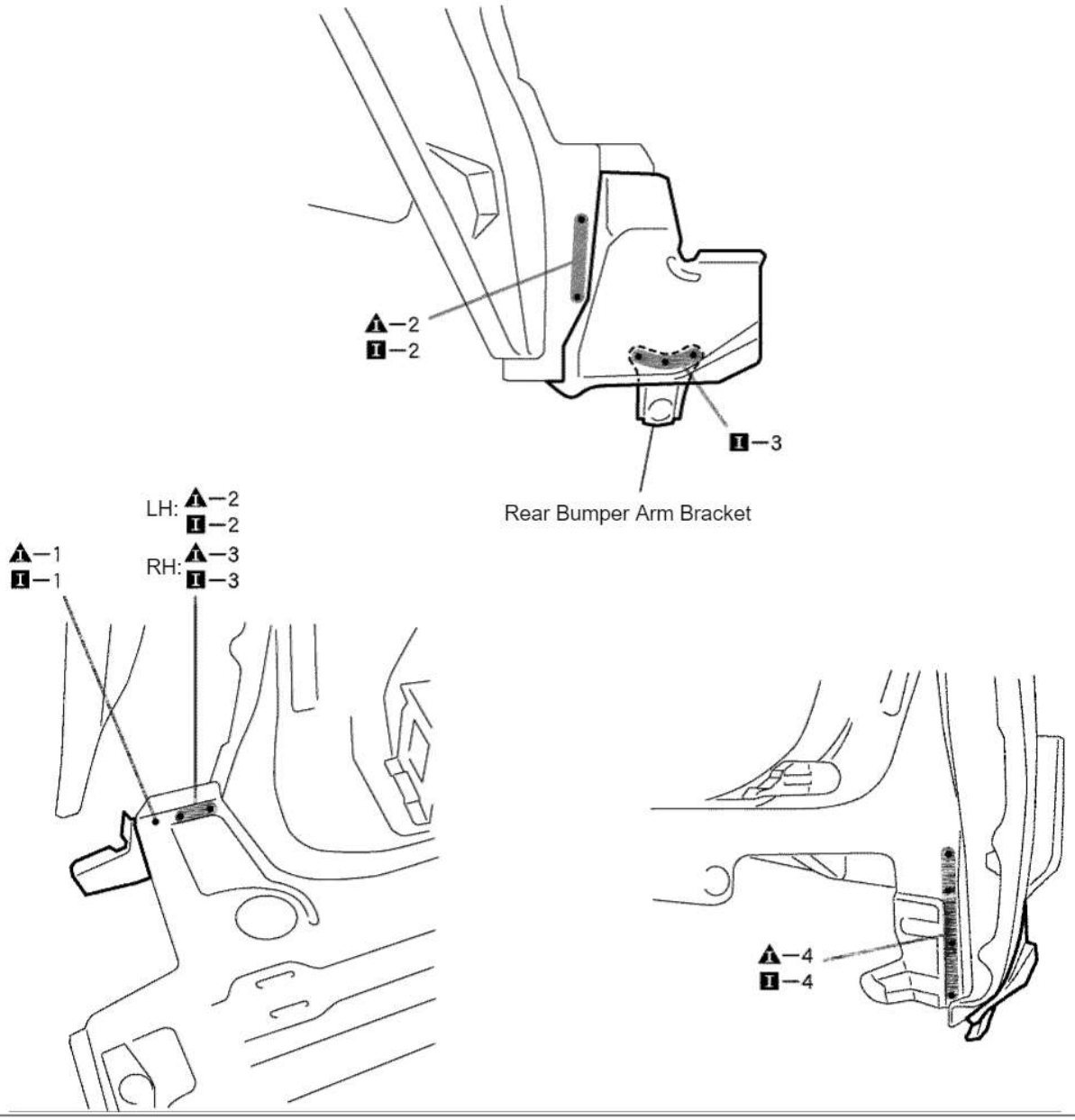
With the body lower back panel removed.

Symbol meaning

REMOVAL	▲1 : Remove Weld Points
INSTALLATION	I : MIG Plug Weld

F25306B

REMOVAL·INSTALLATION



F25306

REMOVAL POINT

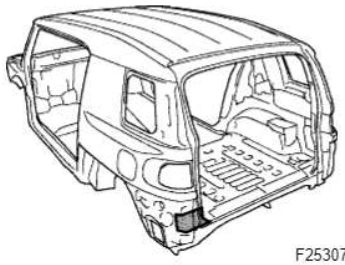
1 Remove the rear bumper arm bracket at the same time.

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.

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REAR FLOOR PAN TO QUARTER PANEL EXTENSION (ASSY)

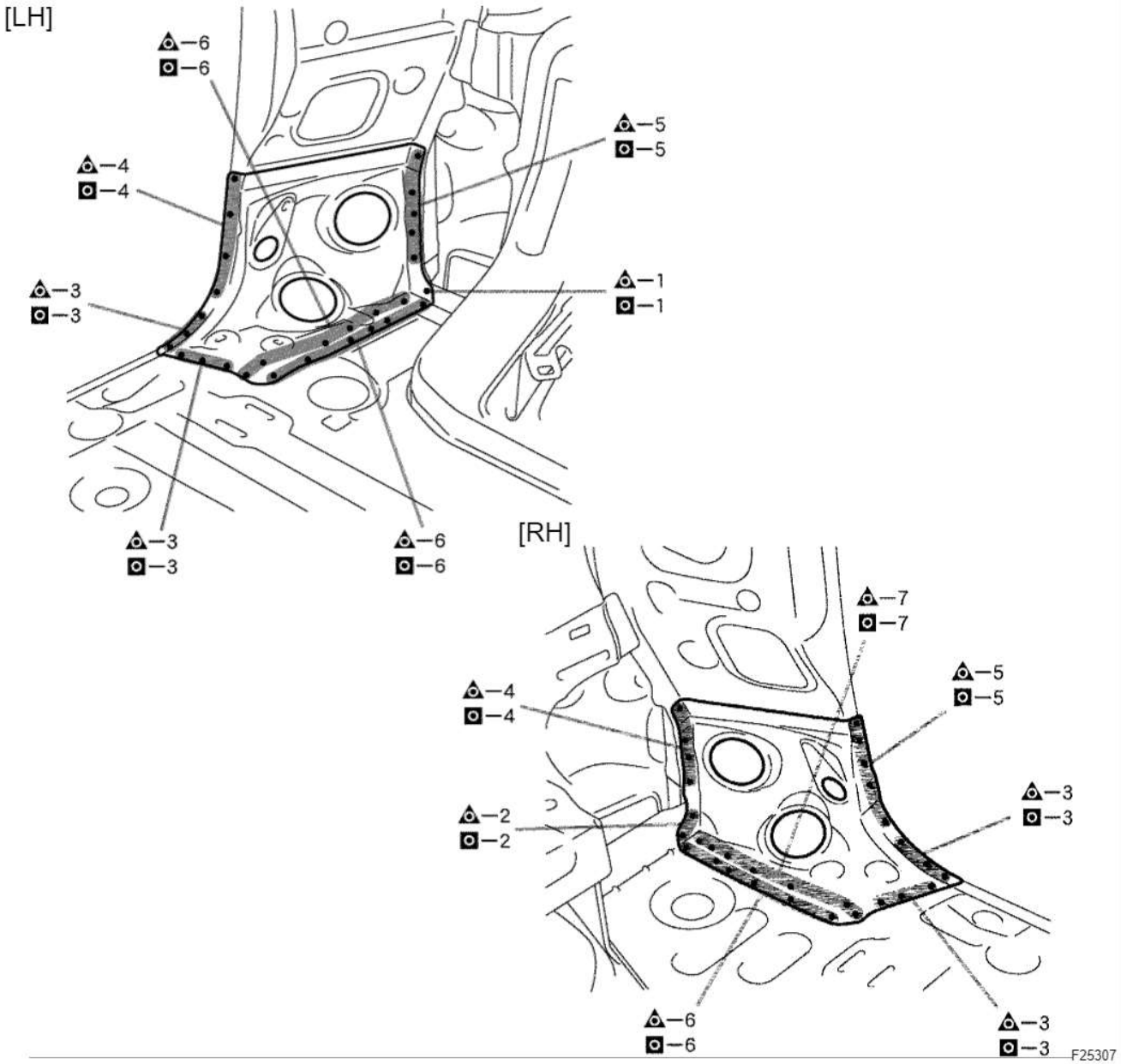

F25307A

Symbol meaning

REMOVAL	▲ : Remove Weld Points
INSTALLATION	■ : MIG Plug Weld

F25307B

REMOVAL·INSTALLATION



F25307

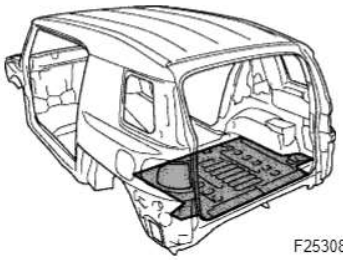
INSTALLATION POINT

1 After welding, apply body sealer to the corresponding parts. (See the paint·coating)

2 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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REAR FLOOR PAN (ASSY)


F25308A

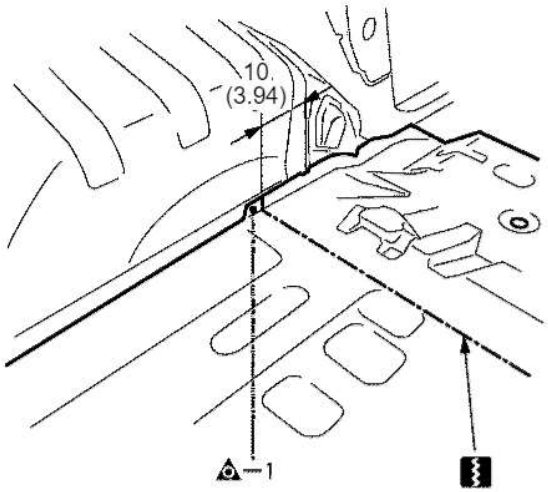
With the body lower back panel and rear floor pan to quarter panel extension removed.

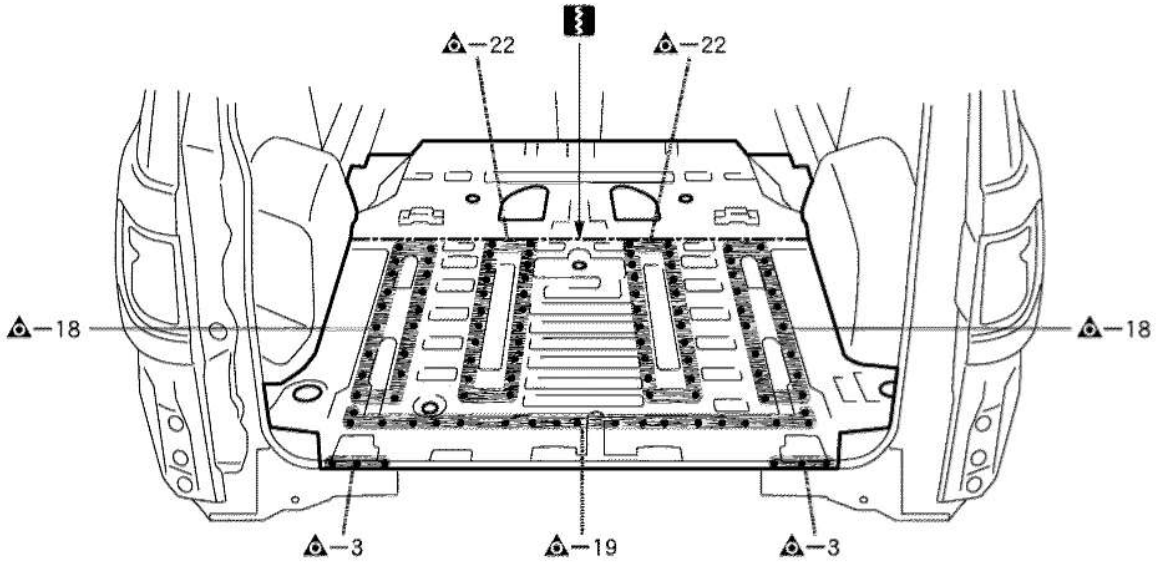
Symbol meaning

: Remove Weld Points : Cut Location

F25308B

REMOVAL

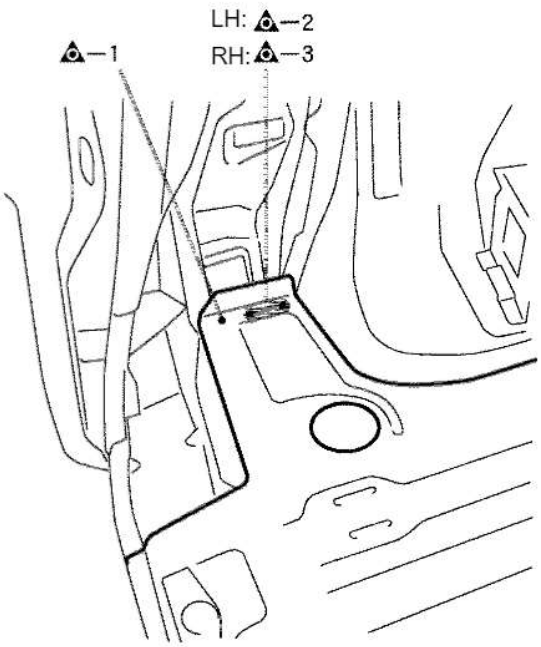


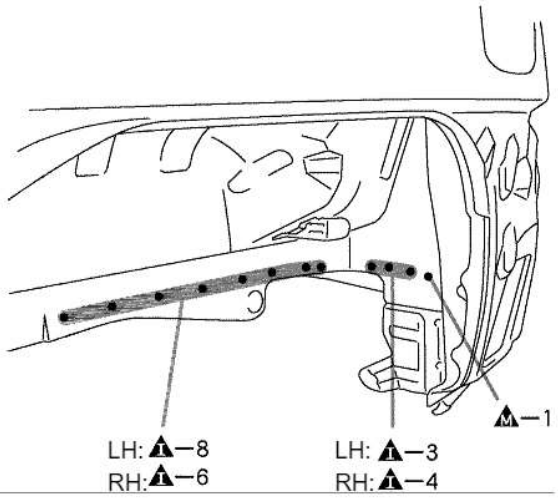


mm (in.)

F25308

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F25309

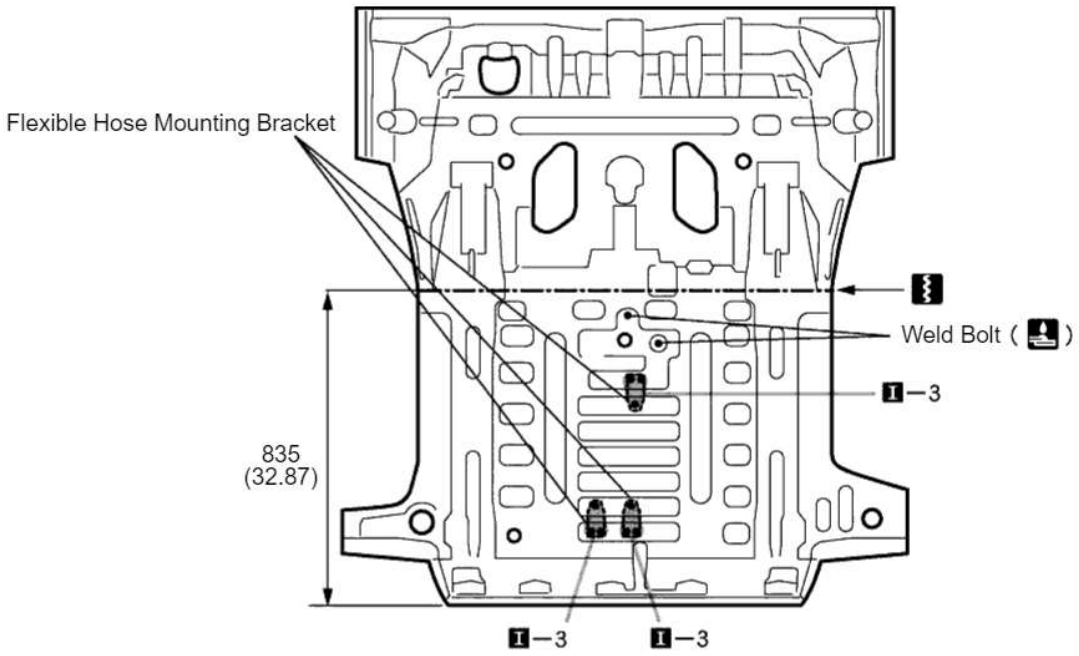
cardiagn.com

Symbol meaning

: Spot Weld : MIG Plug Weld : Cut Location

F25310B

INSTALLATION



mm (in.)

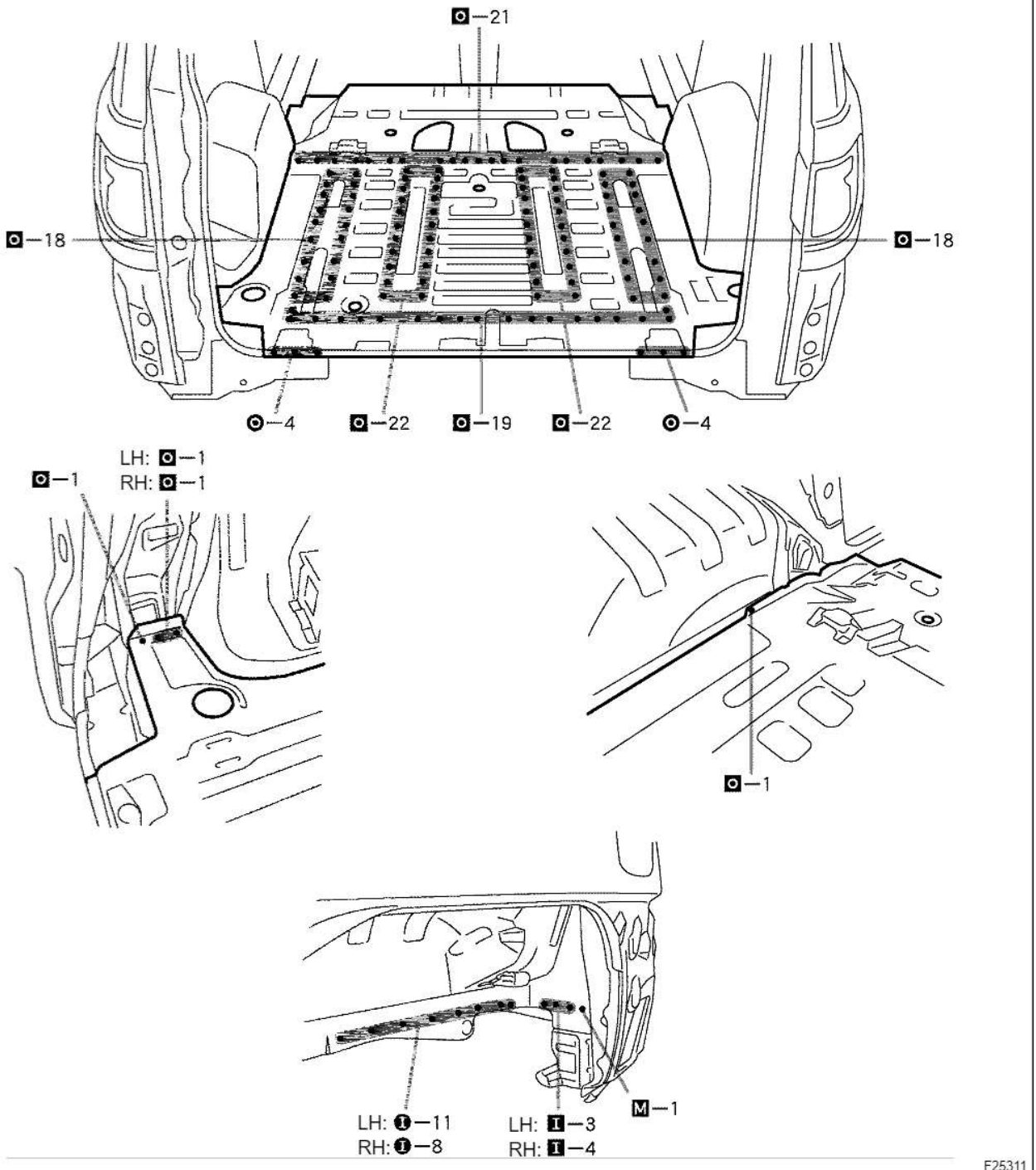
F25310

INSTALLATION POINT

1 Cut the new part so that it overlaps the previous cut location by approximately 20 mm (0.79 in).

2 Before temporarily installing the new parts, weld the flexible hose mounting bracket and weld bolt with the standard number of welding points.

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INSTALLATION POINT

1 Perform MIG plug-welding in the area where the panel are over lapped. Apply body sealer to both sides of each panel.
HINT:
1) Confirm that the panels are securely welded together.
2) Apply sealer in an even, continuous bead.

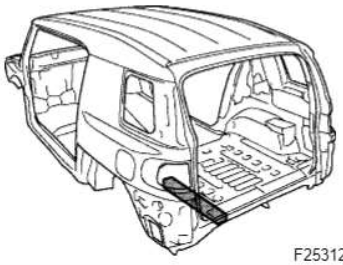
2 Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)

3 After welding, apply body sealer and undercoating to the corresponding parts. (See the paint coating)

4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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REAR FLOOR SIDE MEMBER (CUT)


F25312A

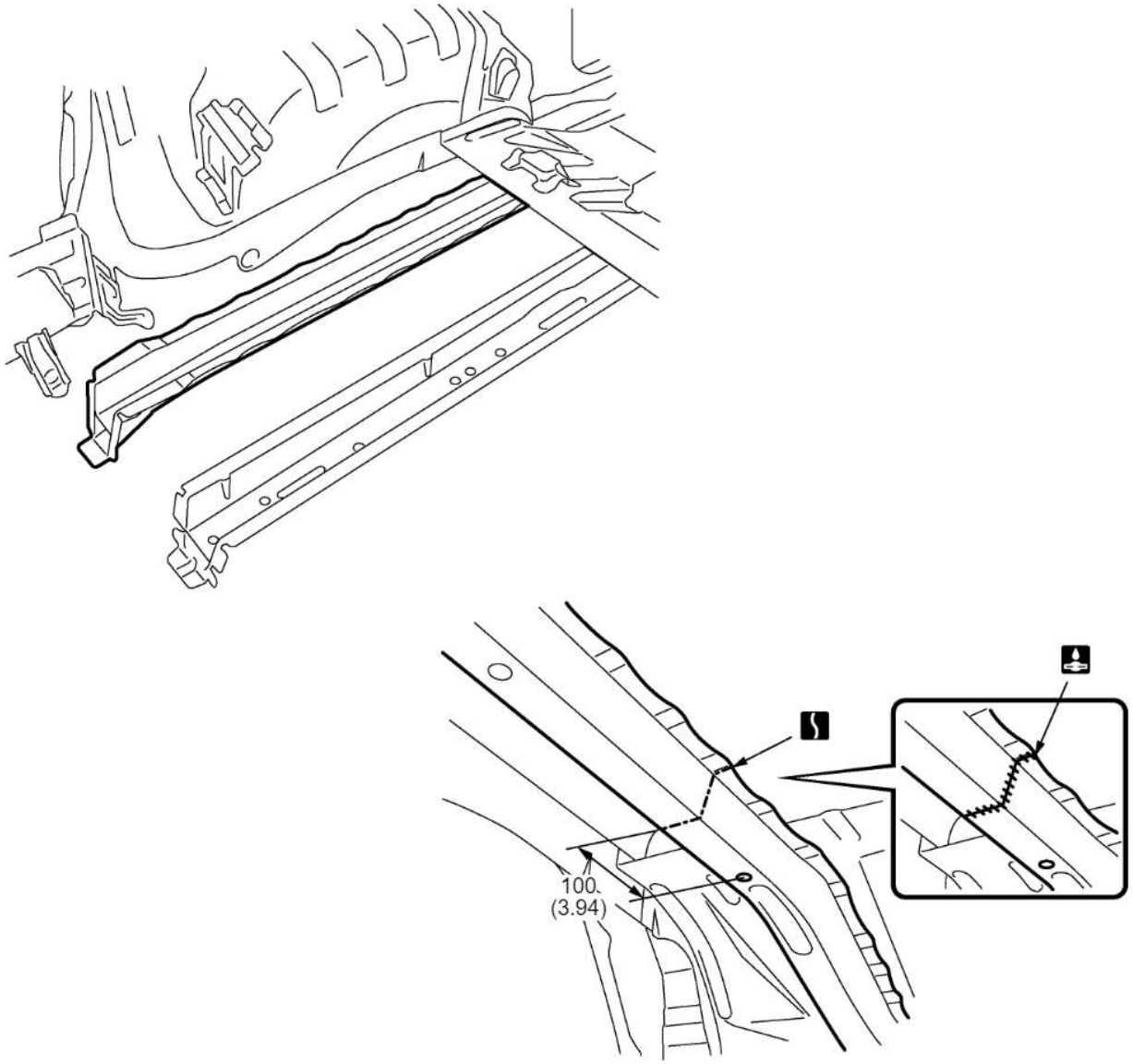
With the body lower back panel and rear floor pan removed.

Symbol meaning

REMOVAL	: Cut and Join Location
INSTALLATION	: Butt Weld

F25312B

REMOVAL·INSTALLATION



mm (in.)

F25312

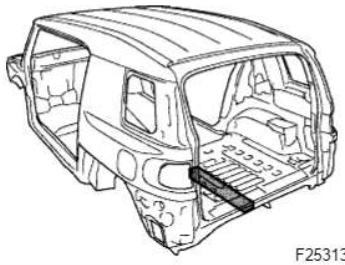
INSTALLATION POINT

1 After welding, apply undercoating to the corresponding parts.(See the paint·coating)

2 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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REAR FLOOR SIDE REAR MEMBER (ASSY)



F25313A

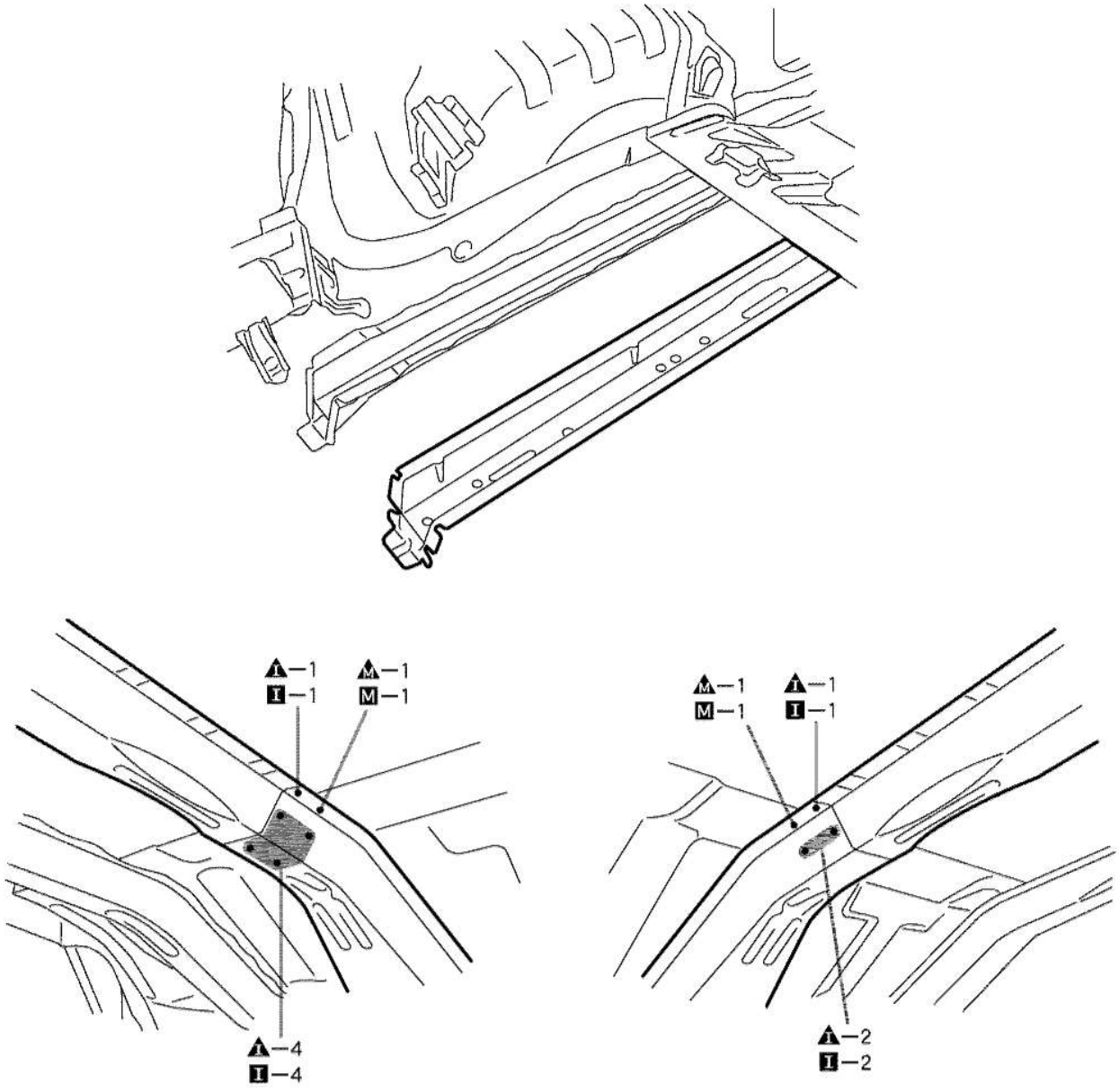
With the body lower back panel and rear floor pan removed.

Symbol meaning

REMOVAL	A A : Remove Weld Points
INSTALLATION	M I : MIG Plug Weld

F25313B

REMOVAL·INSTALLATION



F25313

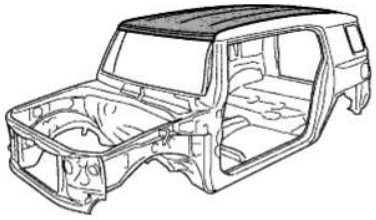
INSTALLATION POINT

1 After welding, apply undercoating to the corresponding parts.(See the paint·coating)

2 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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ROOF PANEL (ASSY)



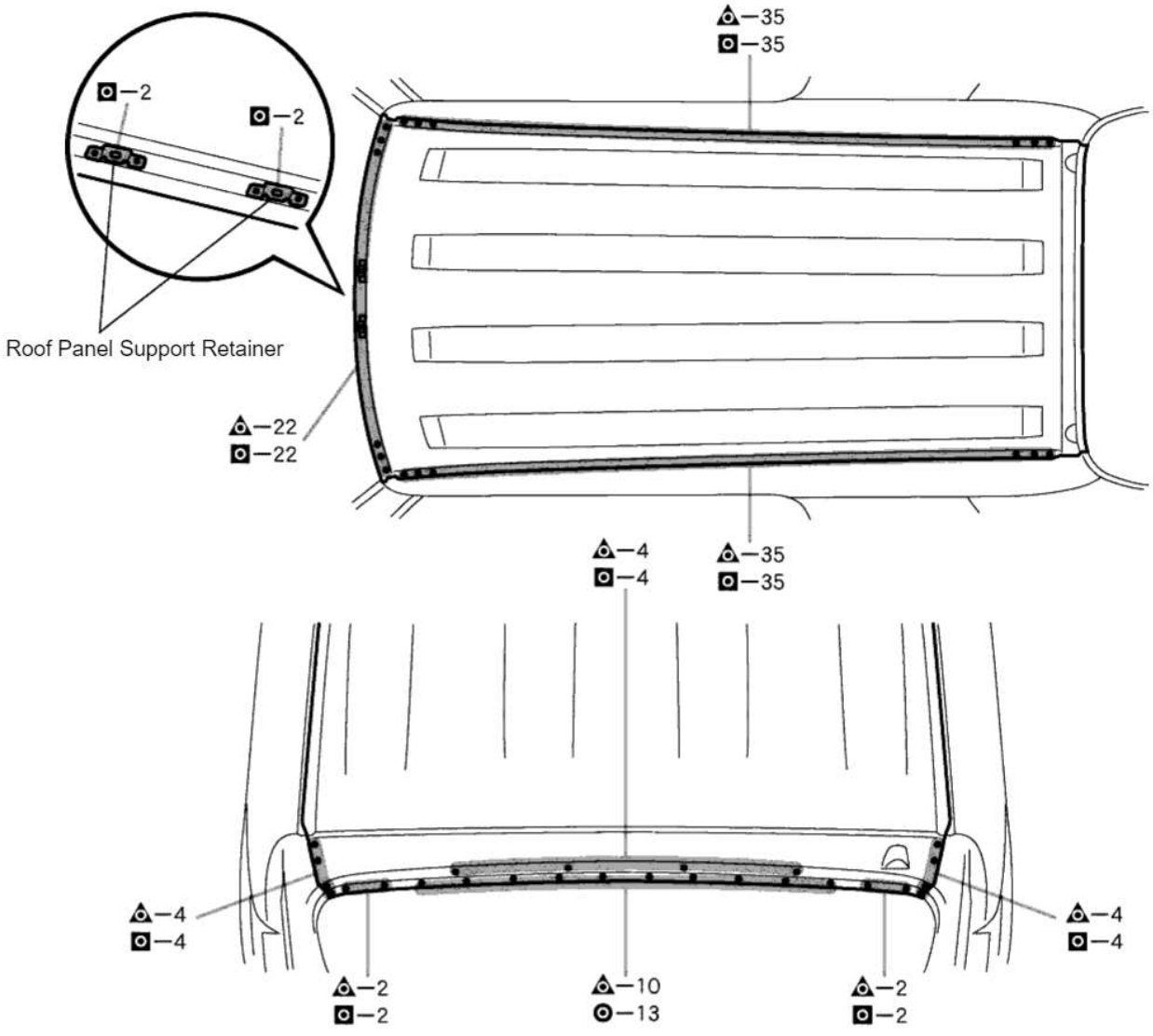
F25314A

Symbol meaning

REMOVAL	: Remove Weld Points			
INSTALLATION	: Spot Weld	: MIG Plug Weld	: Body Sealer	

F25314B

REMOVAL·INSTALLATION

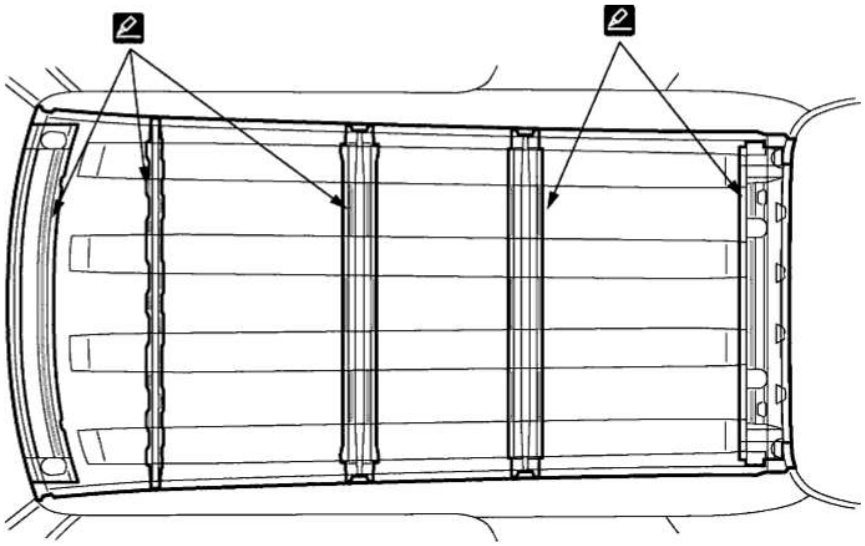


F25314

INSTALLATION POINT

1 Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
2 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)
3 After welding, apply body sealer to the corresponding parts. (See the paint·coating)
4 After applying the top coat, apply anti-rust agent to the internal panel portion of the closed section structural weld points.

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F25315

INSTALLATION POINT

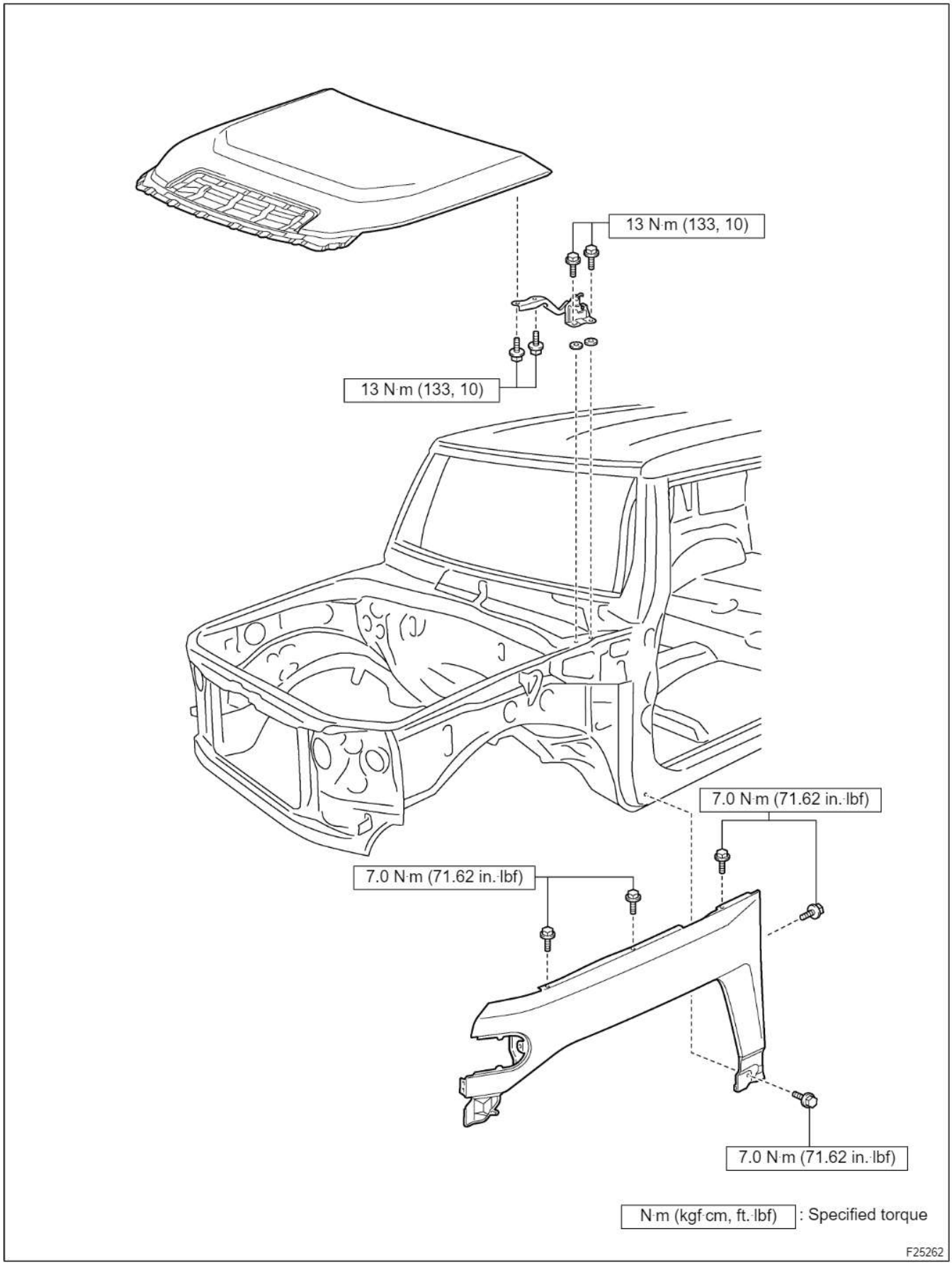
1 Before temporarily installing the new parts, apply body sealer to the windshield header panel, roof panel reinforcement and back door opening frame.

HINT:

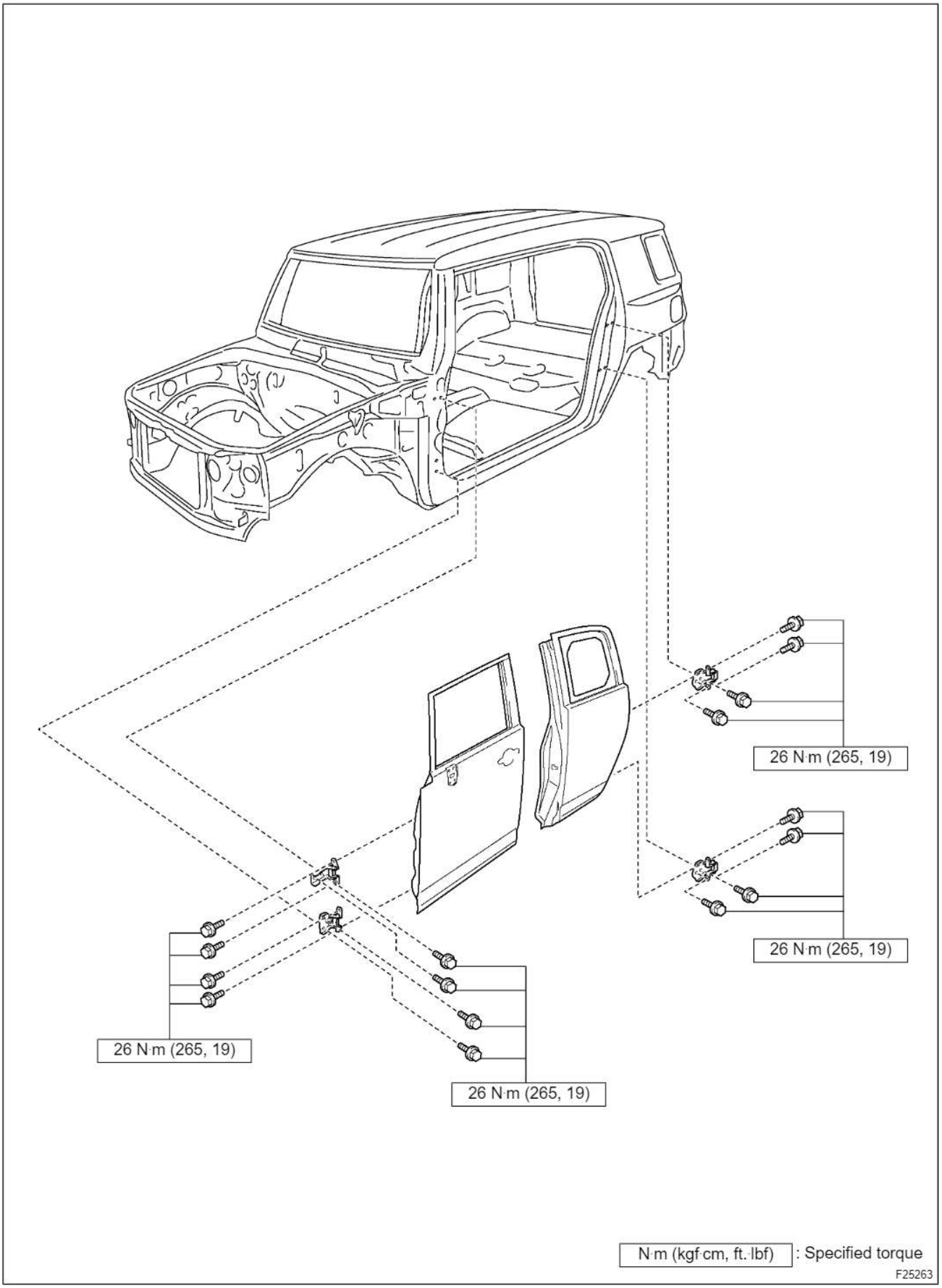
1) Apply just enough sealer for the new parts to make contact.

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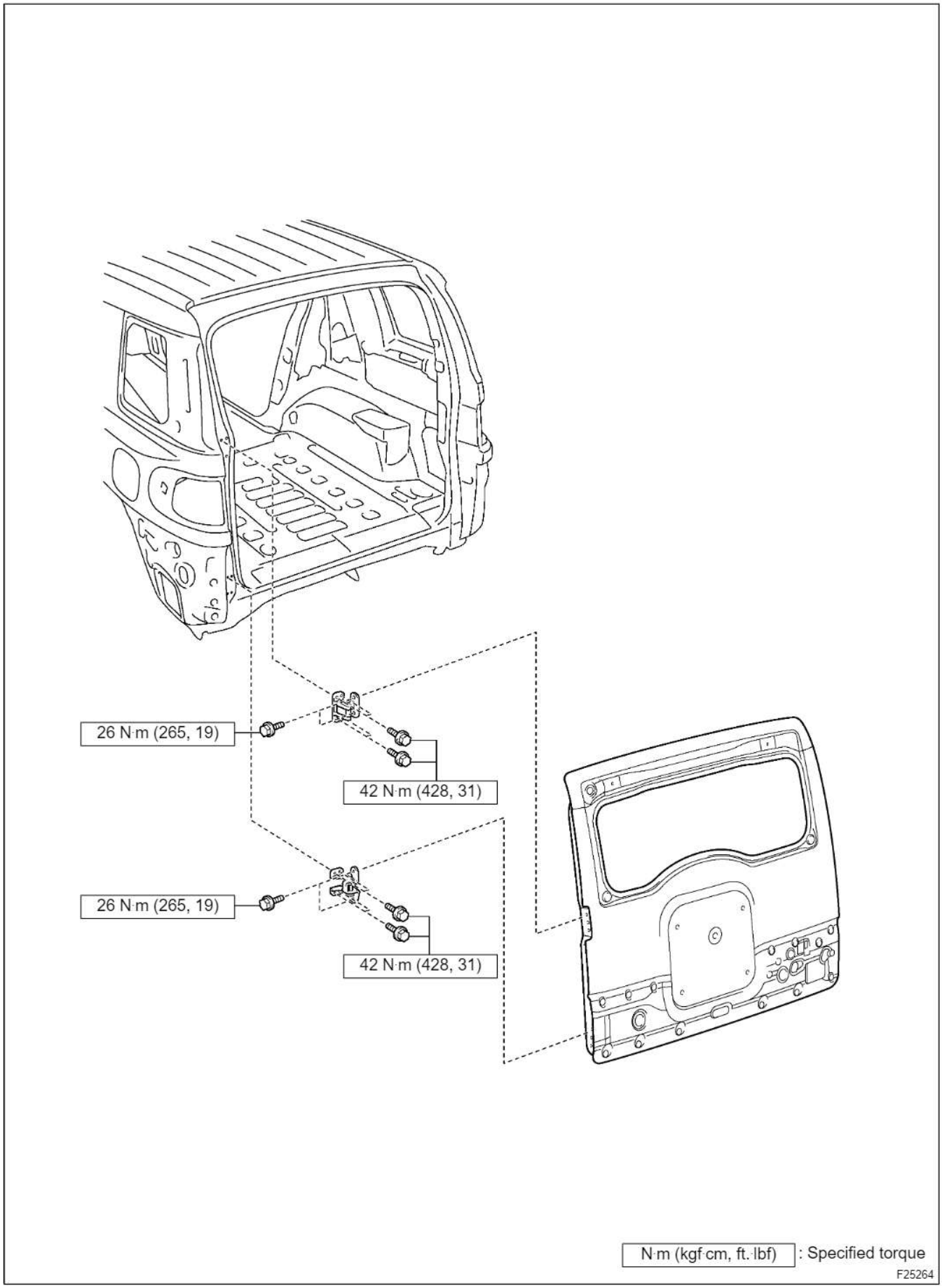
OUTER PANEL INSTALLATION TORQUE



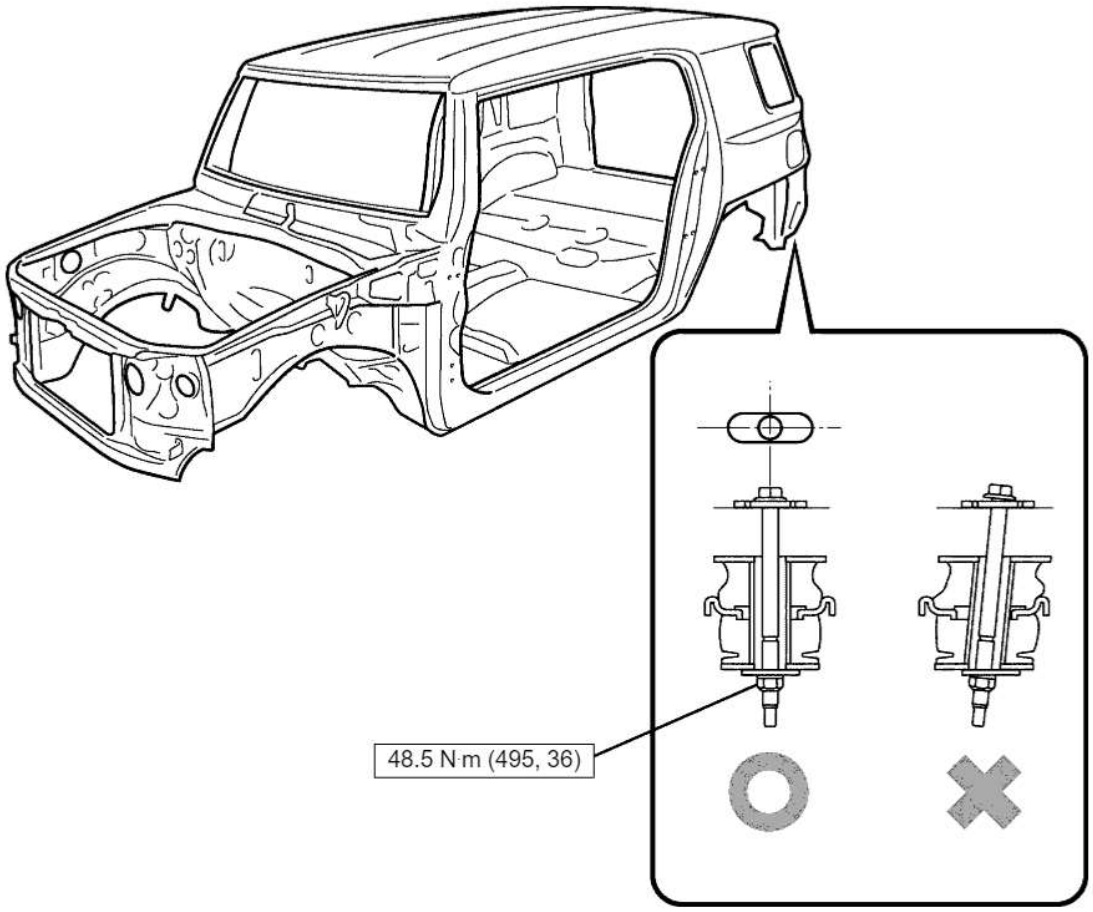
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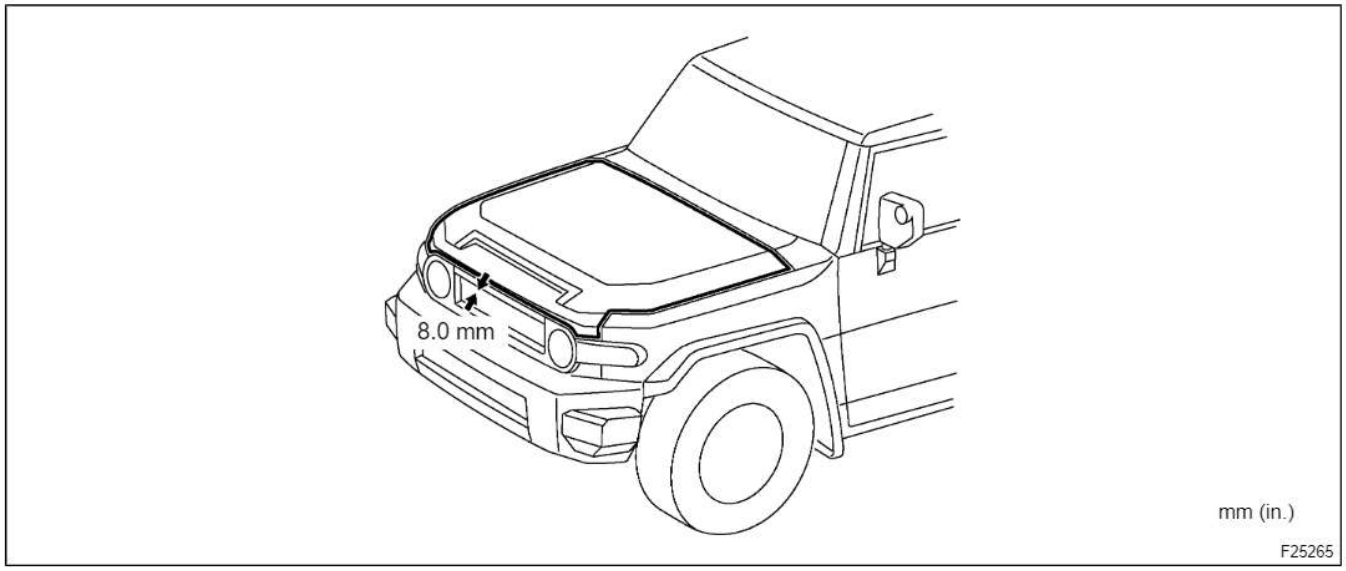
N·m (kgf·cm, ft.·lbf) : Specified torque

F25270

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FIT STANDARD/ADJUSTMENT METHOD/TORQUE SPECIFICATION

HOOD SUB-ASSEMBLY



1. ADJUST HOOD SUB-ASSEMBLY

HINT:

☐ *Centering bolts are used to mount the hood hinge and hood lock. The hood and hood lock cannot be adjusted with the centering bolts on. Substitute standard bolts (with washers) for the centering bolts when making adjustments.*

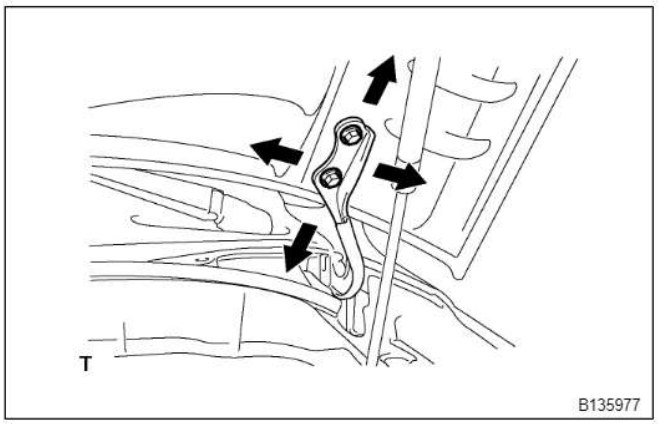
a. Adjust the hood position.

i. Loosen the 4 hinge bolts on the hood side.

ii. Move the hood and adjust the clearance between the hood and front fender. Make sure that the clearance is within the standard range.

iii. Tighten the hood side hinge bolts after the adjustment.

Torque:
13 N·m (133 kgf·cm, 10 ft.·lbt)



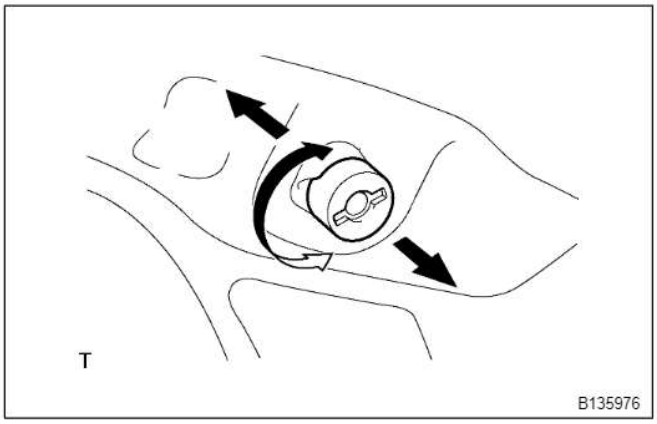
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b. Adjust the cushion rubber so that the heights of the hood and the fender are equal.

i. Raise or lower the hood front end by turning the cushion rubber.
Make sure that the clearance is within the standard range.

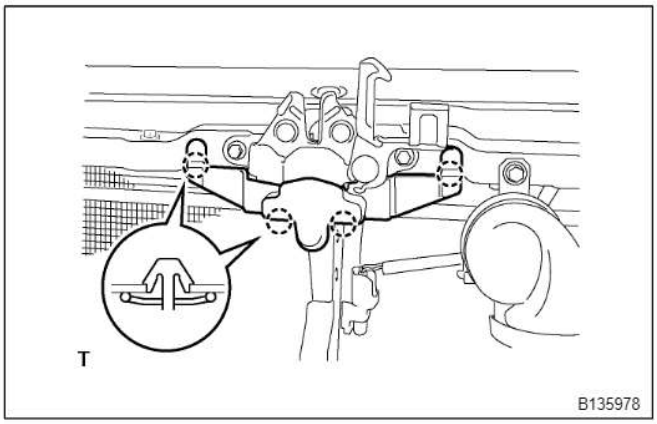
HINT:

Raise or lower the cushion rubber by turning it.

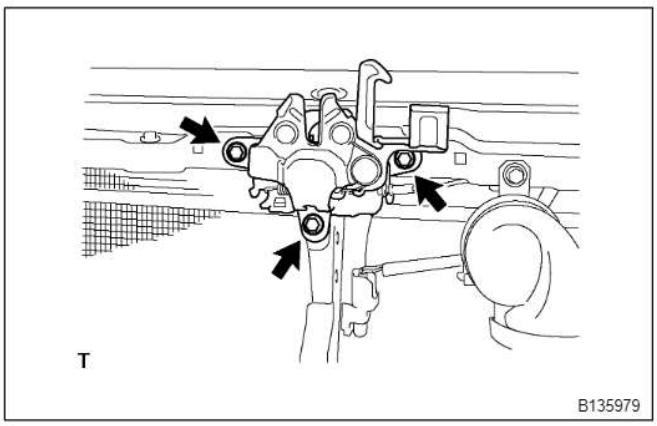


c. Adjust the hood lock.

i. Disengage the 4 claws and remove the hood lock release lever protector.

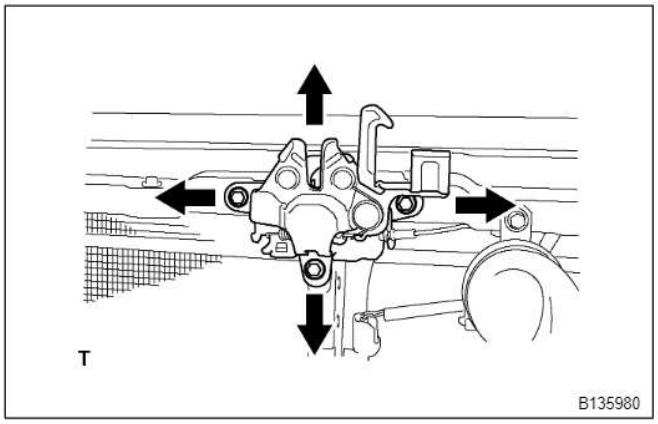


ii. Loosen the 3 bolts.



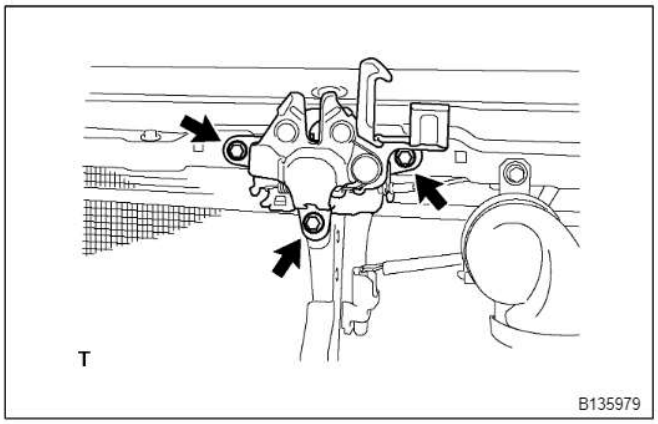
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iii. Adjust the hood lock position so that the striker can enter it smoothly.

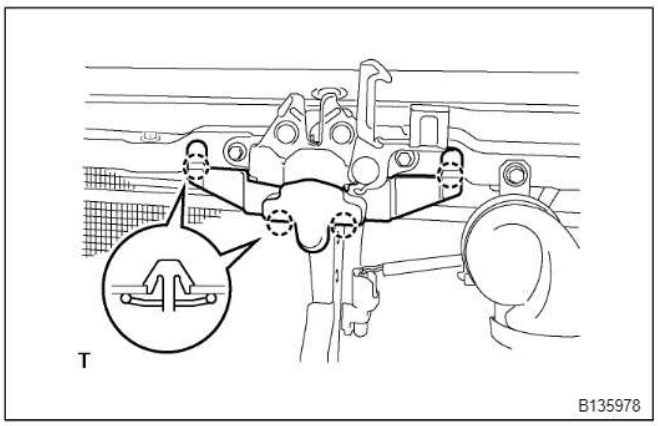


iv. Tighten the 3 bolts after the adjustment.

Torque:
8.0 N·m (82 kgf·cm, 71 in.·lbf)

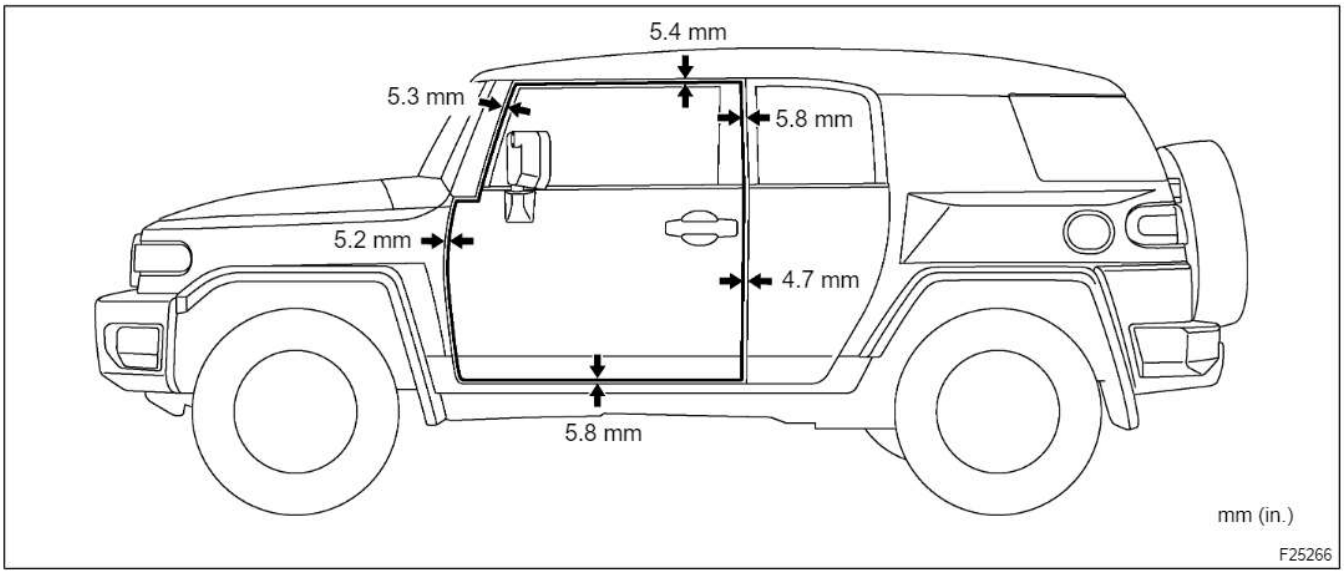


v. Engage the 4 claws and install the hood lock release lever protector.



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FRONT DOOR PANEL



HINT:

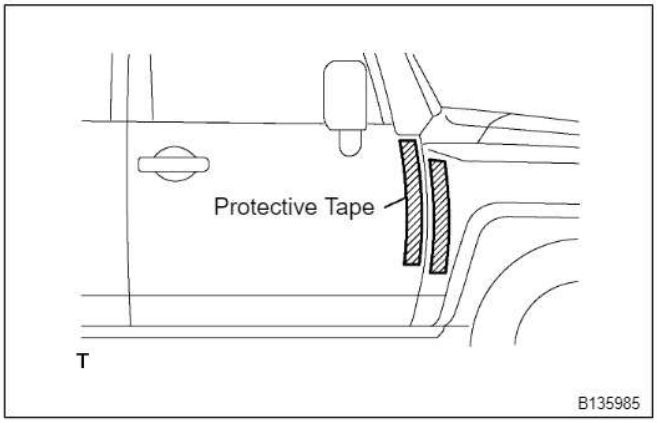
- *Before adjusting the door position on vehicles equipped with side airbags and curtain shield airbags, be sure to disconnect the battery. After the adjustment, inspect the SRS warning light, the side airbag system and the curtain shield airbag system for normal operation. Then initialize both airbag systems.*
- *Use the same procedure for the RH and LH sides.*
- *The procedures described below are for the RH side.*
- *Centering bolts are used to mount the door hinge onto the vehicle body and door. The door cannot be adjusted with the centering bolts on. Substitute standard bolts (with washers) for the centering bolts when making adjustments.*

1. ADJUST FRONT DOOR

a. Disconnect the cable from the negative battery terminal.

CAUTION:
The work must be started at least 90 seconds after the ignition switch is turned to OFF and the cable is disconnected from the negative battery terminal. (The SRS is equipped with a back-up power source. If the work is started within 90 seconds of disconnecting the cable from the negative battery terminal and the ignition switch being turned to OFF, the SRS may deploy).

b. Apply strips of protective tape to the door panel and fender panel, as shown in the illustration.



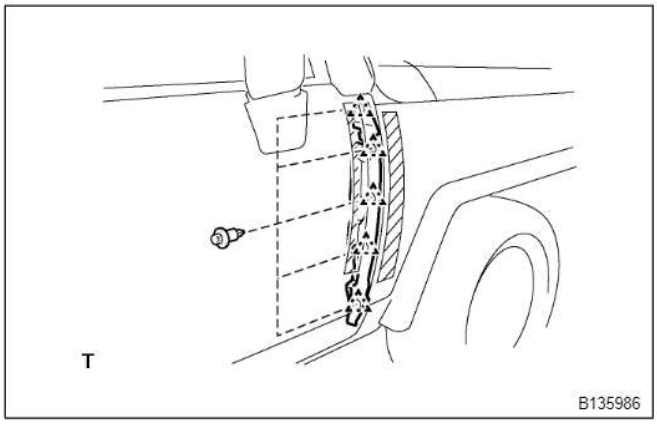
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c. Open the door, and then disengage the 5 clips.

HINT:

If any clips are damaged, replace them with new ones.

d. Remove the front fender splash shield from the gap between the fender and door.

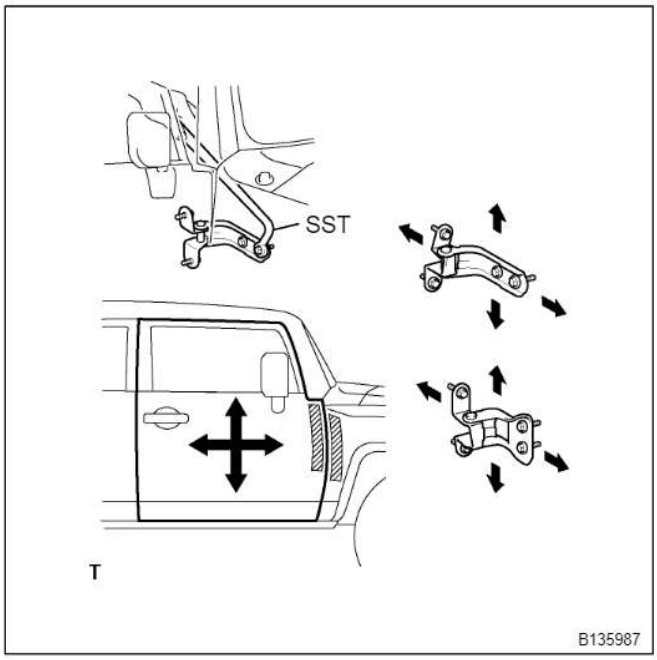


e. Using SST, adjust the door horizontally and vertically by loosening the body side hinge bolts.

SST
09812-00010

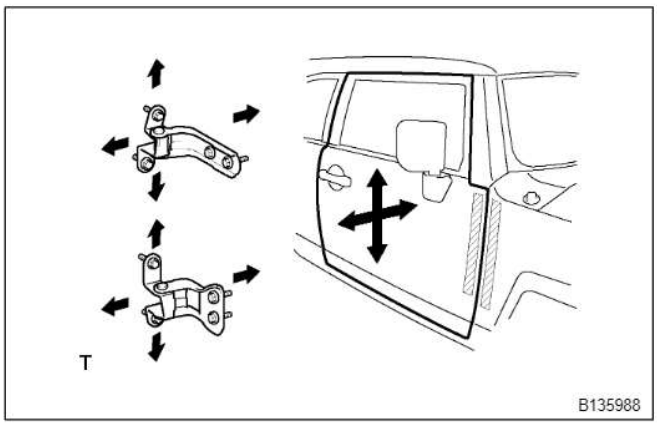
f. Tighten the body side hinge bolts after the adjustment.

Torque:
26 N·m (265 kgf·cm, 19 ft.·lbf)



g. Adjust the door horizontally and vertically by loosening the door side hinge bolts.

h. Tighten the door side hinge bolts after the adjustment.
Torque:
26 N·m (265 kgf·cm, 19 ft.·lbf)

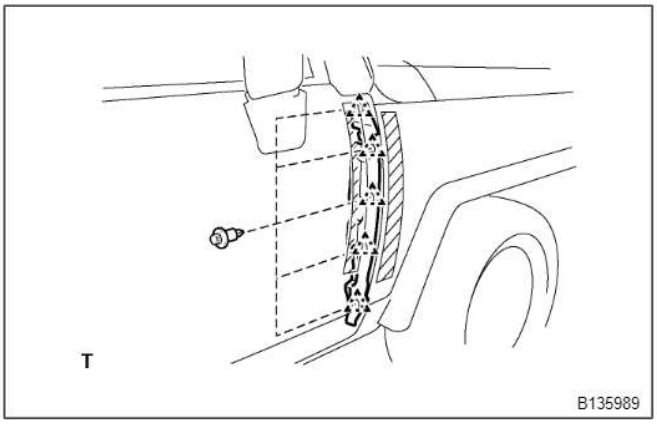


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i. Using “Torx” socket wrench T40, adjust the striker position by slightly loosening the striker mounting screws and hitting the striker with a plastic-faced hammer.

j. Using “Torx” socket wrench T40, tighten the striker mounting screws after the adjustment.

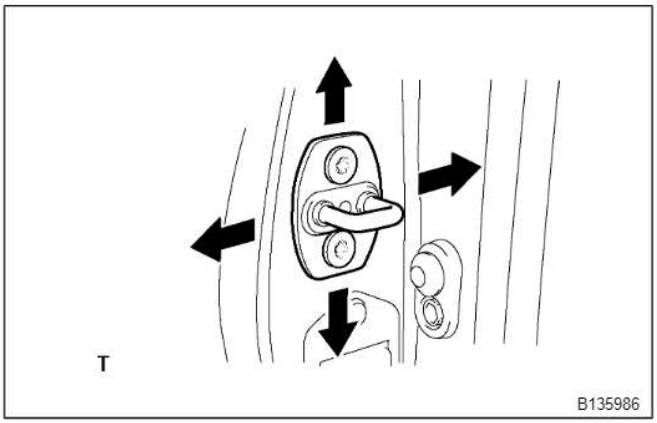
Torque:
23 N·m (235 kgf·cm, 17 ft.· lbf)



k. Install the front fender splash shield with the 5 clips.

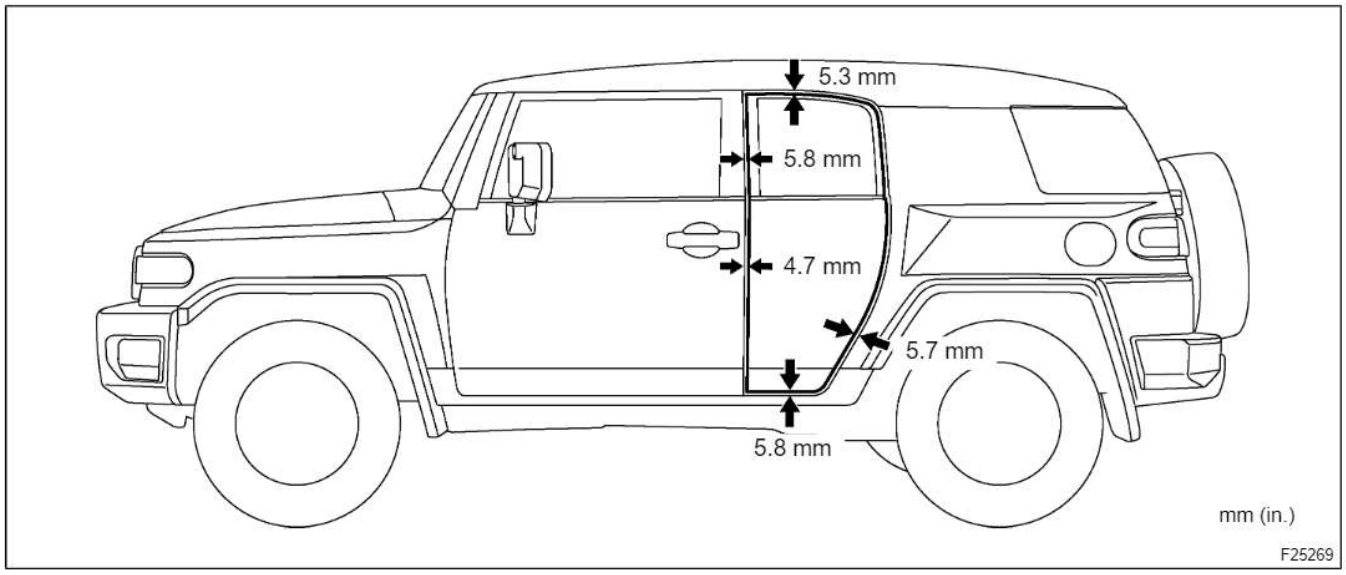
l. Connect the cable to the negative battery terminal.

Torque:
3.9 N·m (40 kgf·cm, 35 in.·lbf)



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REAR DOOR PANEL



HINT:

- *Before adjusting the door position on vehicles equipped with side airbags and curtain shield airbags, be sure to disconnect the battery. After the adjustment, inspect the SRS warning light, the side airbag system and the curtain shield airbag system for normal operation. Then initialize both airbag systems.*
- *Use the same procedure for the RH and LH sides.*
- *The procedures described below are for the RH side.*
- *Centering bolts are used to mount the door hinge onto the vehicle body and door. The door cannot be adjusted with the centering bolts on. Substitute standard bolts (with washers) for the centering bolts when making adjustments.*

1. ADJUST REAR DOOR

a. Disconnect the cable from the negative battery terminal.

CAUTION:

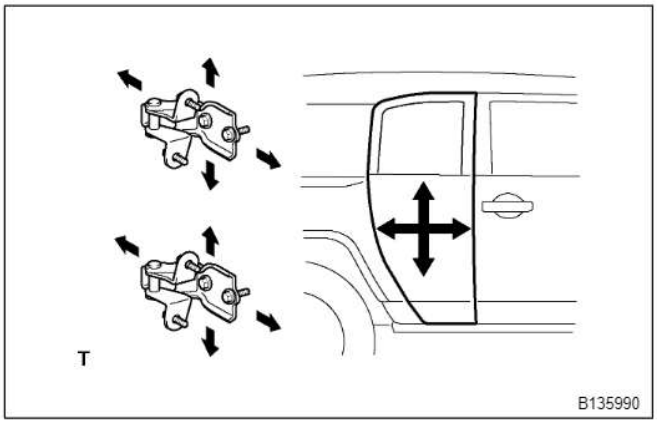
The work must be started at least 90 seconds after the ignition switch is turned to OFF and the cable is disconnected from the negative battery terminal. (The SRS is equipped with a back-up power source. If the work is started within 90 seconds of disconnecting the cable from the negative battery terminal and the ignition switch being turned to OFF, the SRS may deploy).

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b. Loosen the body side hinge bolts and adjust the door position.

c. Tighten the body side hinge bolts after the adjustment.

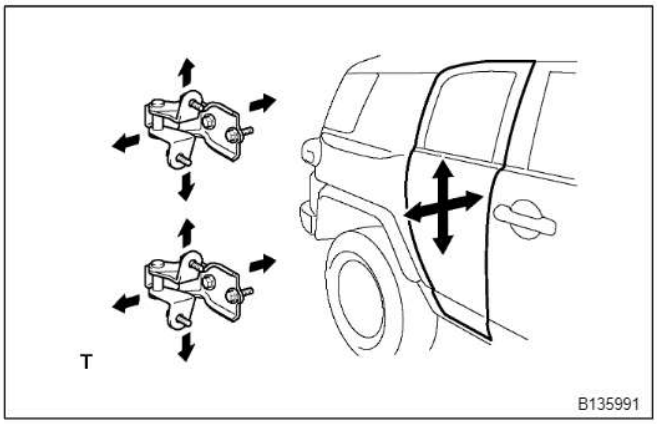
Torque:
26 N·m (265 kgf·cm, 19 ft.·lbf)



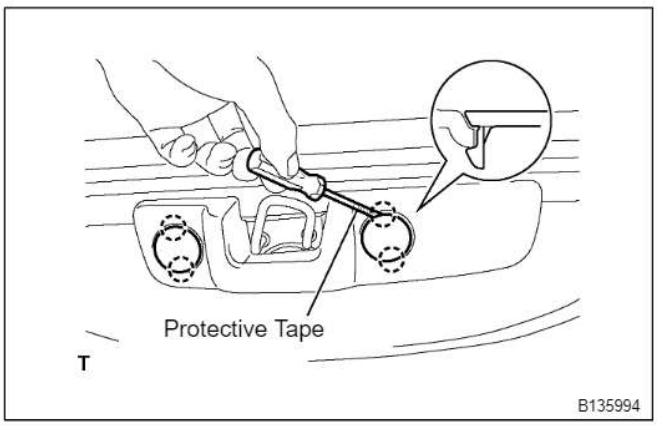
d. Loosen the door side hinge bolts and adjust the door position.

e. Tighten the door side hinge bolts after the adjustment.

Torque:
26 N·m (265 kgf·cm, 19 ft.·lbf)

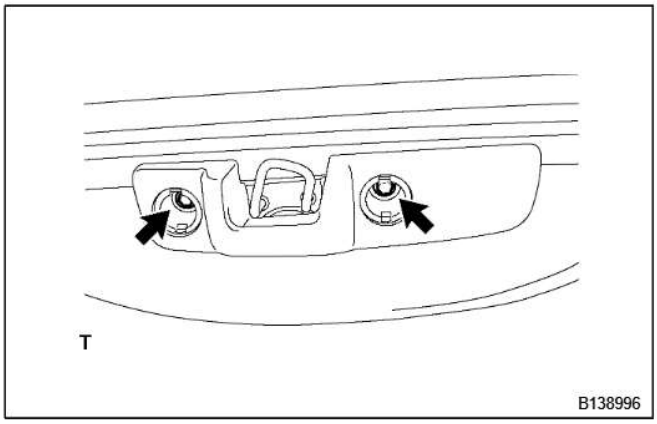


f. Using a screwdriver with its tip wrapped in protective tape, disengage the 2 claws and remove the 2 roof side inner garnish covers.

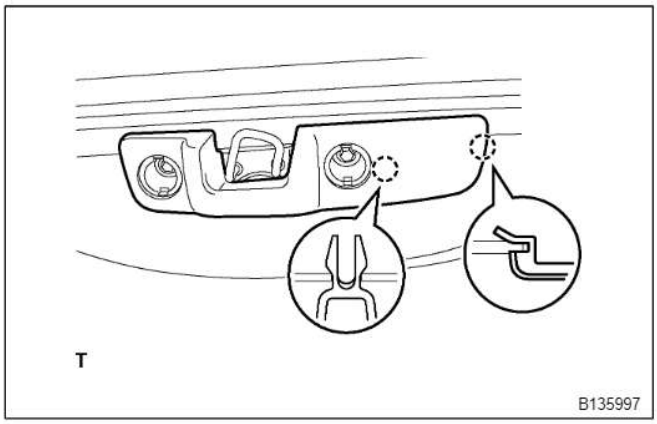


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g. Remove the 2 bolts.



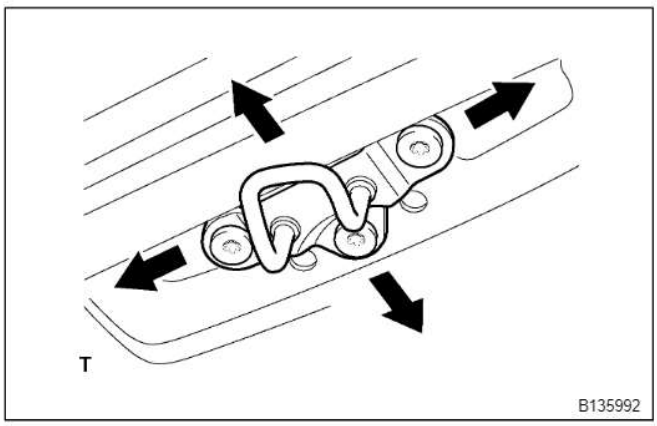
h. Disengage the 2 claws and remove the No. 1 roof side rail garnish.



i Adjust the striker position by slightly loosening the striker mounting screws with “Torx” socket wrench T40 and hitting the striker with a plastic hammer (upper side).

j Using “Torx” socket wrench T40, tighten the striker mounting screws after the adjustment.

Torque:
23 N·m{235 kgf·cm, 17 ft.·lbf}

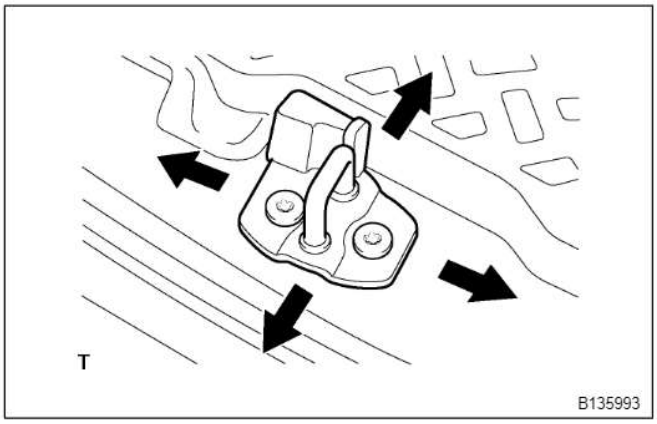


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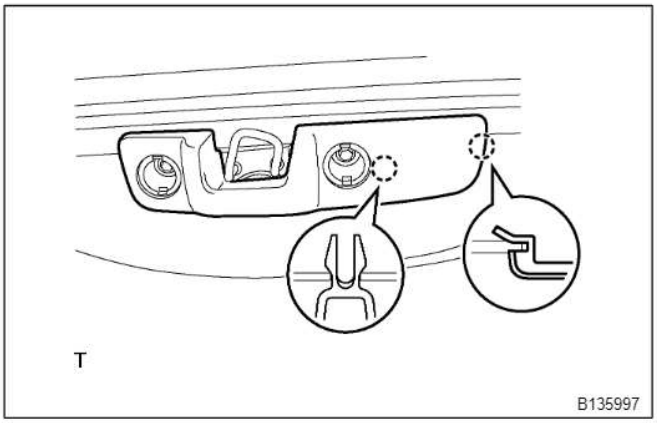
k. Adjust the striker position by slightly loosening the striker mounting screws with “Torx” socket wrench T40 and hitting the striker with a plastic hammer (lower side).

l. Using “Torx” socket wrench T40, tighten the striker mounting screws after the adjustment.

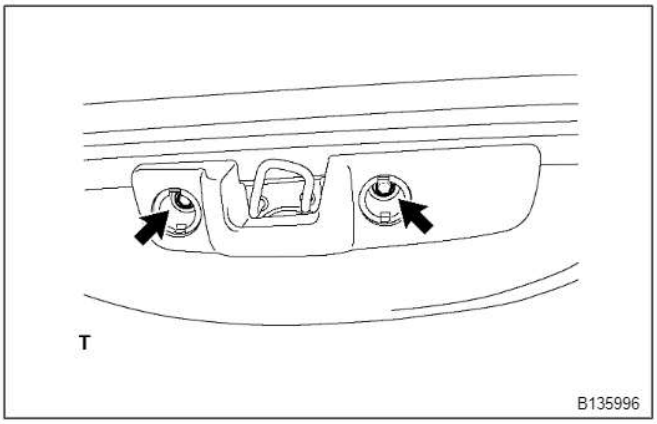
Torque:
23 N·m{235 kgf·cm, 17 ft.·lbf}

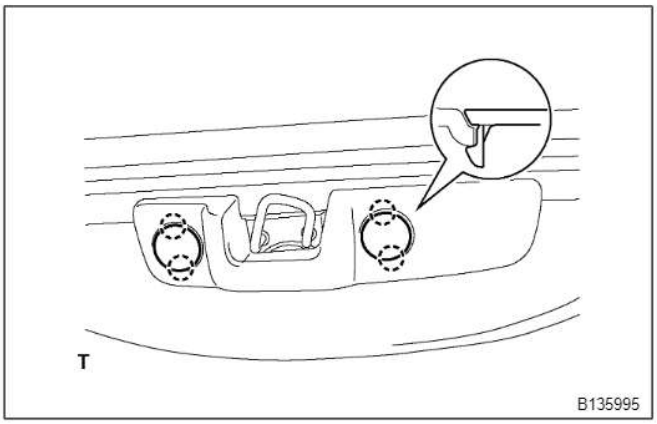


m. Engage the 2 claws and install the No. 1 roof side rail garnish.



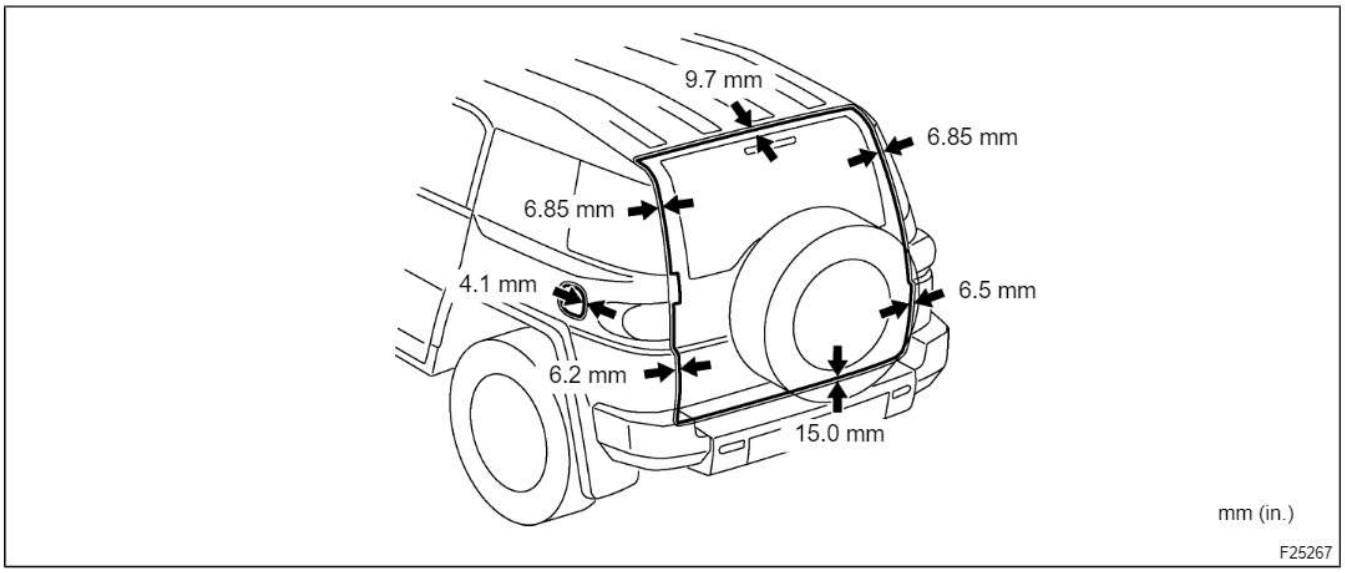
n. Install the 2 bolts.





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BACK DOOR



HINT:

- *Centering bolts are used to mount the door hinge onto the vehicle body and door. The door cannot be adjusted with the centering bolts on. Substitute standard bolts (with washers) for the centering bolts when making adjustments.*

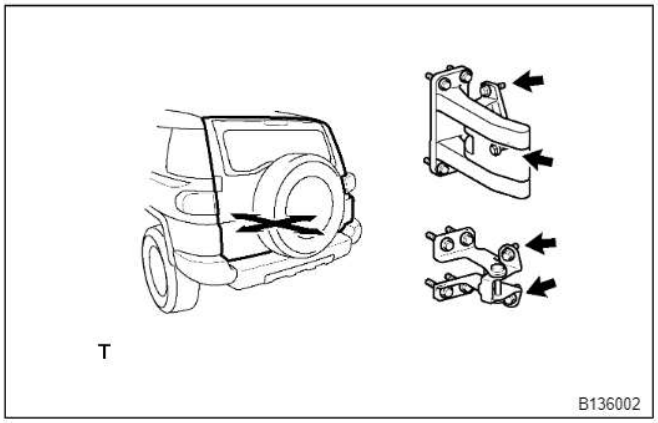
1. ADJUST BACK DOOR

a. Adjust the door position.

i. Adjust the door horizontally and longitudinally by loosening the 4 door side hinge bolts.

ii. Tighten the door side hinge bolts after the adjustment.

Torue:
26 N·m {265 kgf·cm, 19 ft.·lbf}



o. Engage the 2 claws and install the roof side inner garnish cover.

p. Connect the cable to the negative battery terminal.

Torque:
3.9 N·m{40 kgf·cm, 35 in.·lbf}

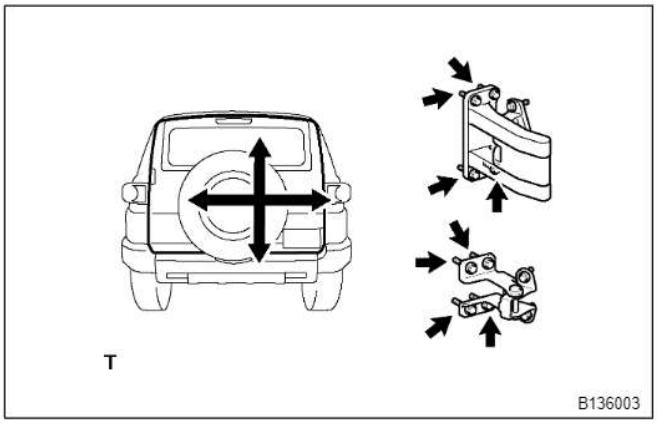
q. Inspect the SRS warning light

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iii. Horizontally and vertically adjust the door by loosening the 8 body side hinge bolts.

iv. Tighten the body side hinge bolts after the adjustment.

Torue:
42 N·m {428 kgf·cm, 31 ft.·lbf}

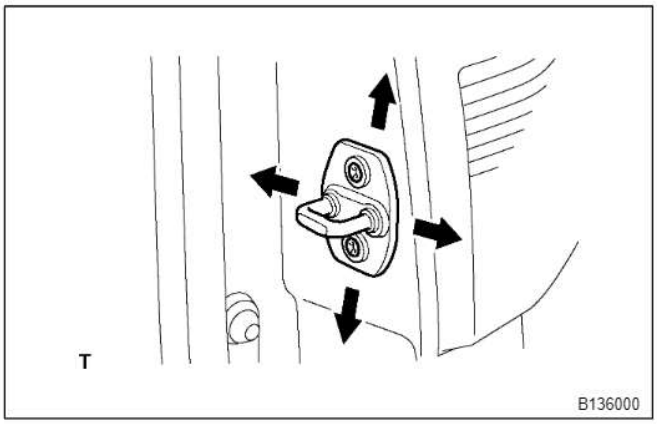


b. Adjust the striker position.

i. Adjust the striker position by slightly loosening the striker mounting screws and hitting the striker with a plastic hammer.

ii. Tighten the striker mounting screws after the adjustment.

Torue:
23 N·m {235 kgf·cm, 17 ft.·lbf}

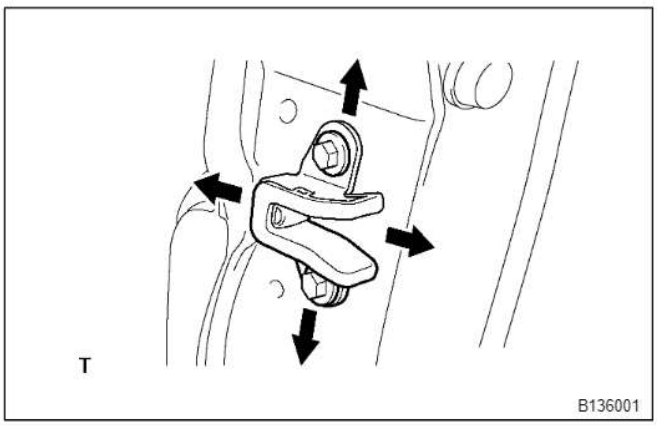


c. Adjust the back door side female stopper.

i. Adjust the side female stopper so that the door can be opened/closed smoothly, as shown in the illustration.

ii. Tighten the side female stopper bolts after the adjustment.

Torue:
7.0 N·m {71 kgf·cm, 62 in.·lbf}



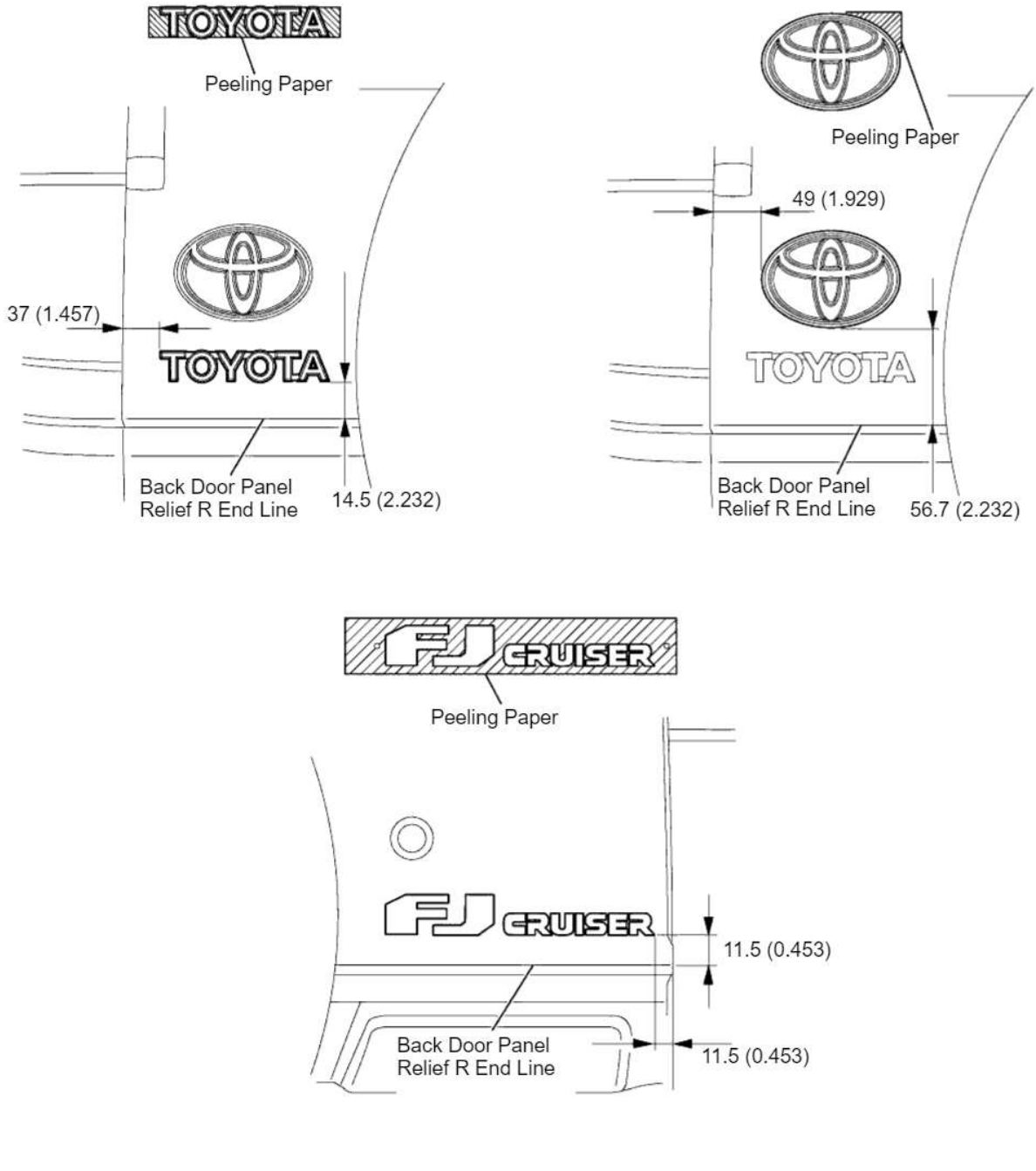
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NAME PLATE APPLICATION PROCEDURE

(a) Heat the double-sided tape remaining on the body with an infrared lamp or equivalent.
HINT:
Heat the tape to 40 to 60°C for approximately 1 to 2 minutes.

(b) Wipe off the remaining double-sided tape using a clean cloth or equivalent.
HINT:
If a name plate is installed without thoroughly removing the remaining double-sided tape from the body, the name plate will not adhere properly. Make sure to thoroughly wipe off the double-sided tape.

(c) After cleaning the installation area of the body with degreasing agent, attach the name plate to the position shown in the illustration.
HINT:
The working environment should be 20°C when installing the name plate. If the working environment is below 20°C, heat the installation area of the body to 20 to 30°C and then install the name plate.



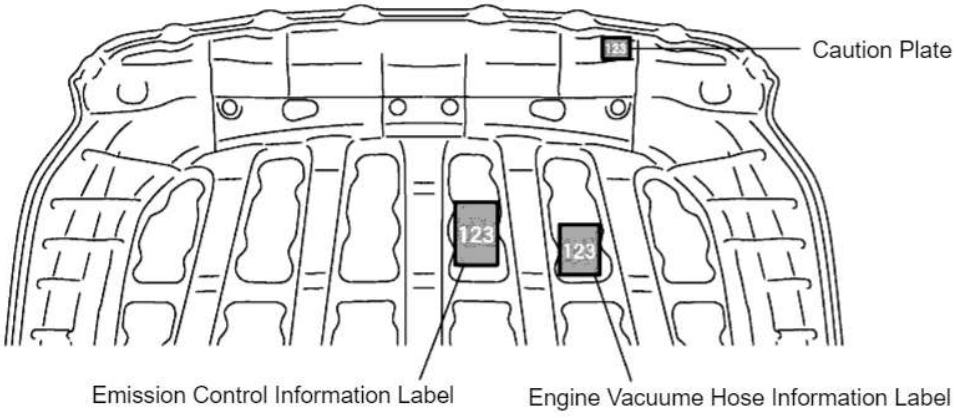
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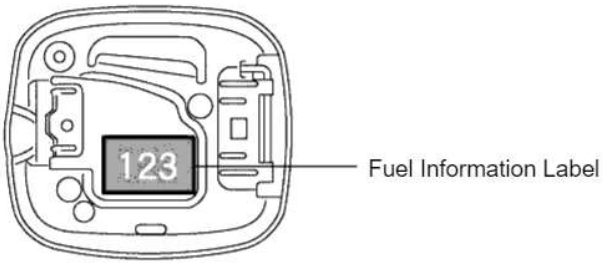
CAUTION LABEL ATTACHMENT POSITION

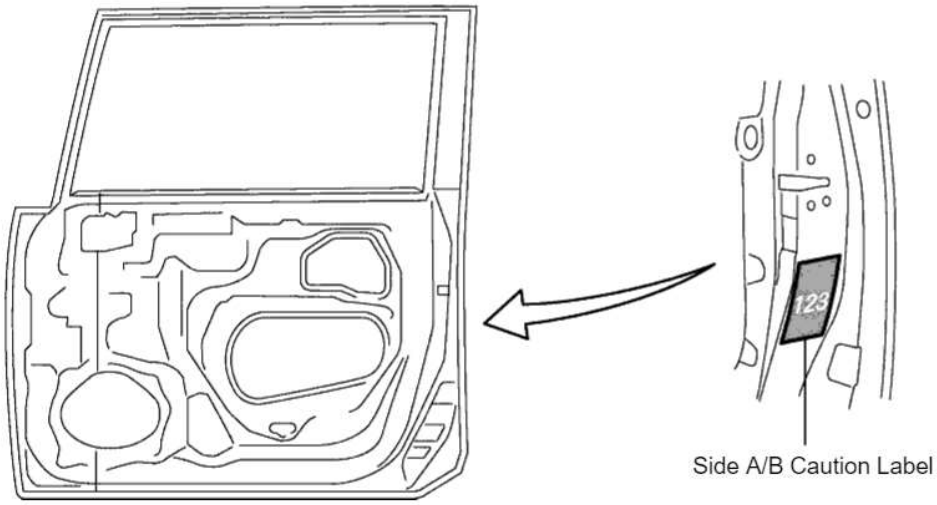
After using a degreasing agent to clean the surfaces of the body where the caution labels will be attached, attach the caution labels to the positions shown in the illustration.

HINT:

1) *Attach each caution label with its orientation the same as the numbers shown in the illustration.*
2) *Make sure the caution label is not attached over a spot weld.*
3) *When attaching the caution label, make sure not to touch the label's adhesive surface.*
4) *To prevent the edges of the caution label from peeling, apply extra pressure to the label's periphery.*
5) *If the work area's temperature is 5°C or less, the caution label's adhesive will deteriorate. It is recommended that you heat the label to 20 to 40°C.*







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MEMO

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BODY PANEL SEALING AREAS

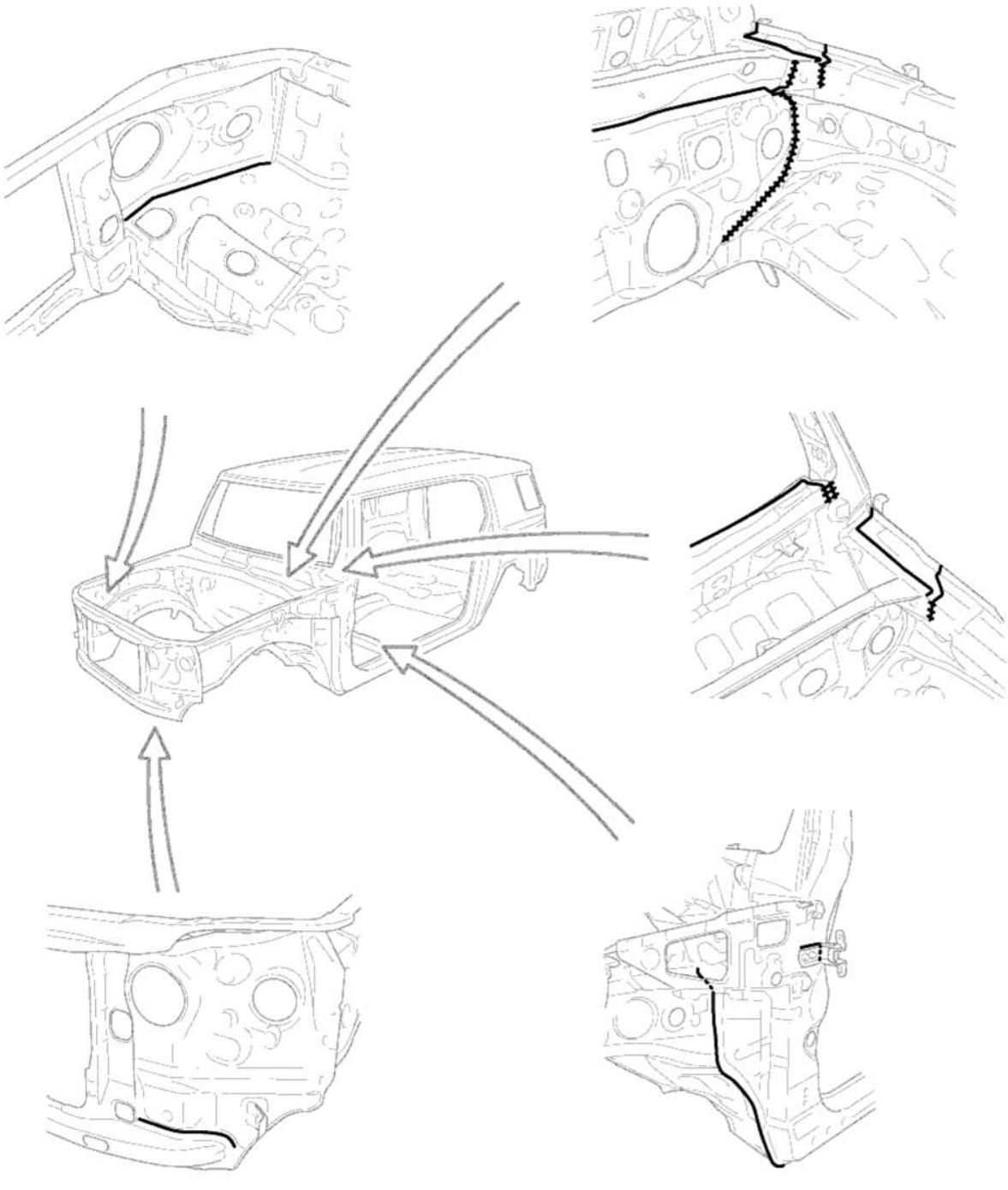
Be sure to apply body sealer to the body panel joints and door edges (tip of outer panel folded part), etc., to waterproof and rustproof them.

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, rustproof 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

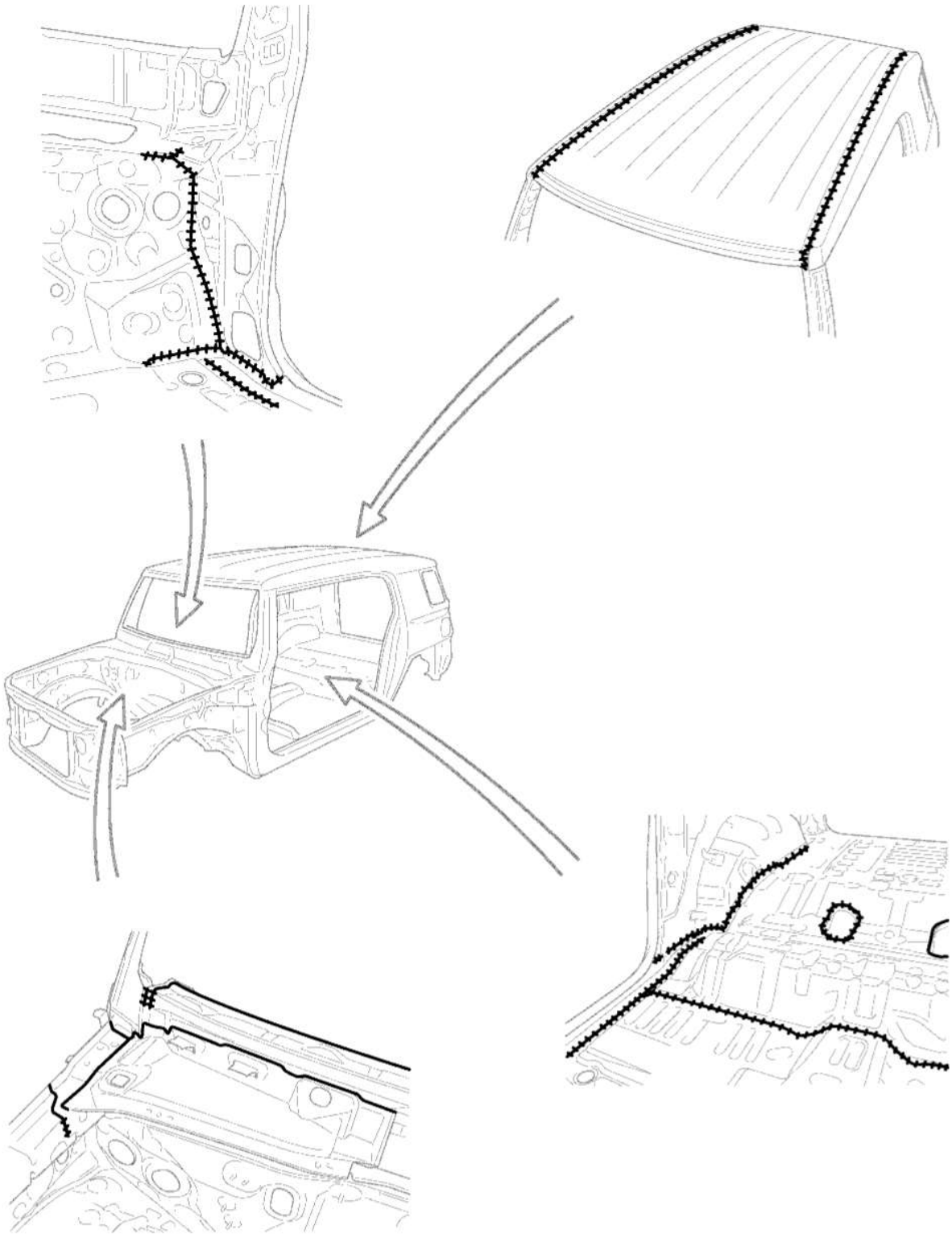
1. ENGINE COMPARTMENT



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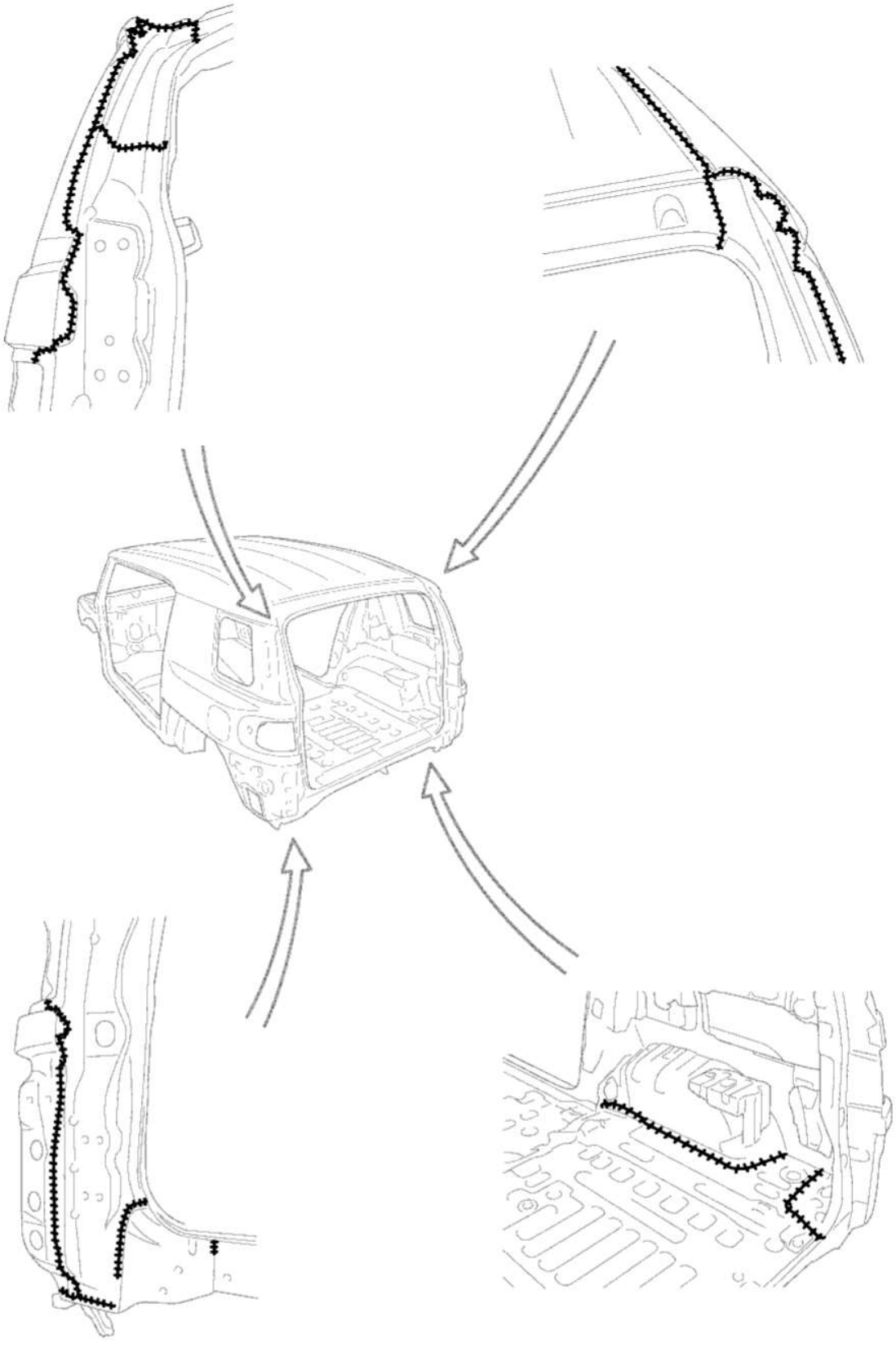
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2. INSIDE

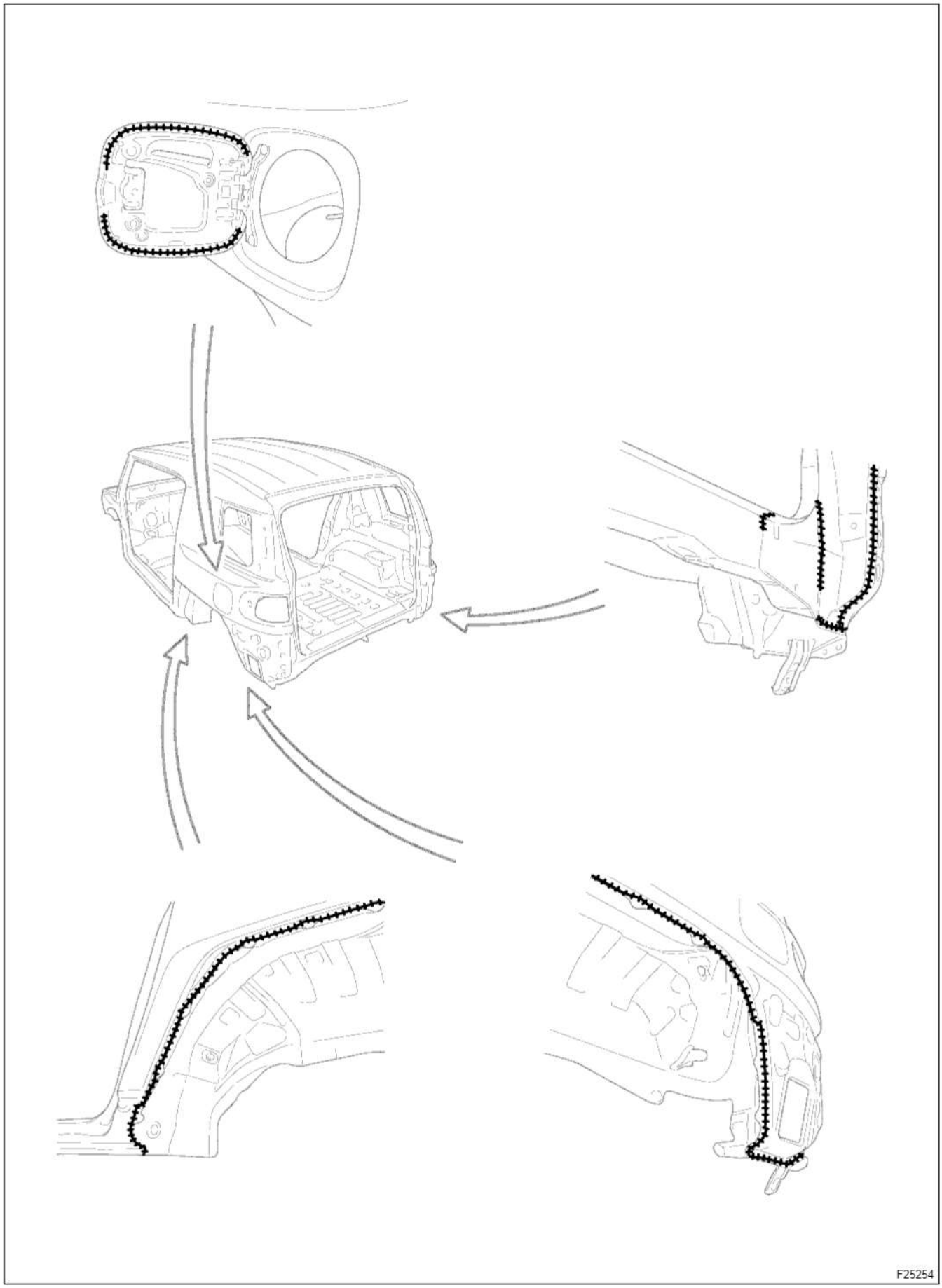


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3. OUTSIDE

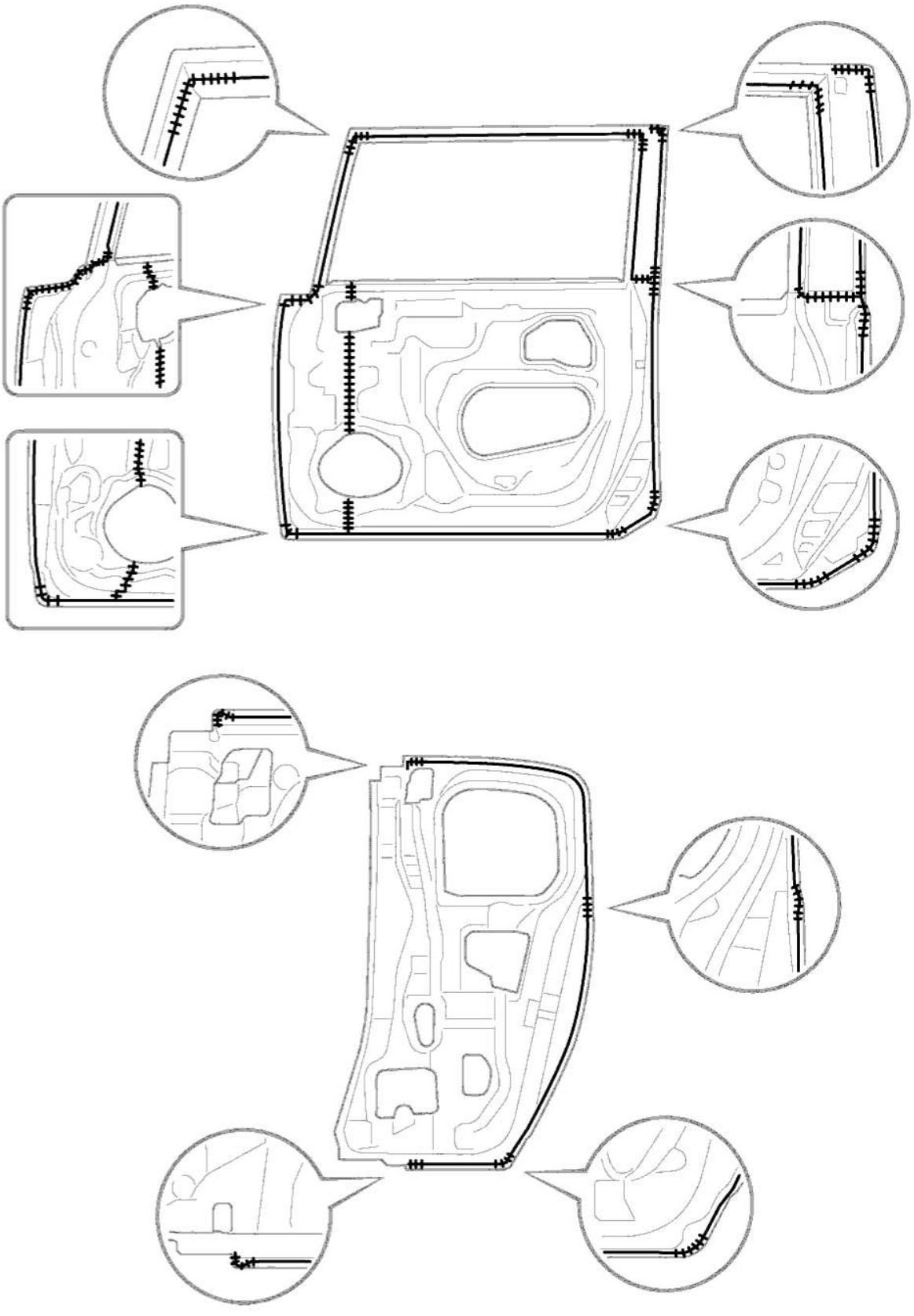


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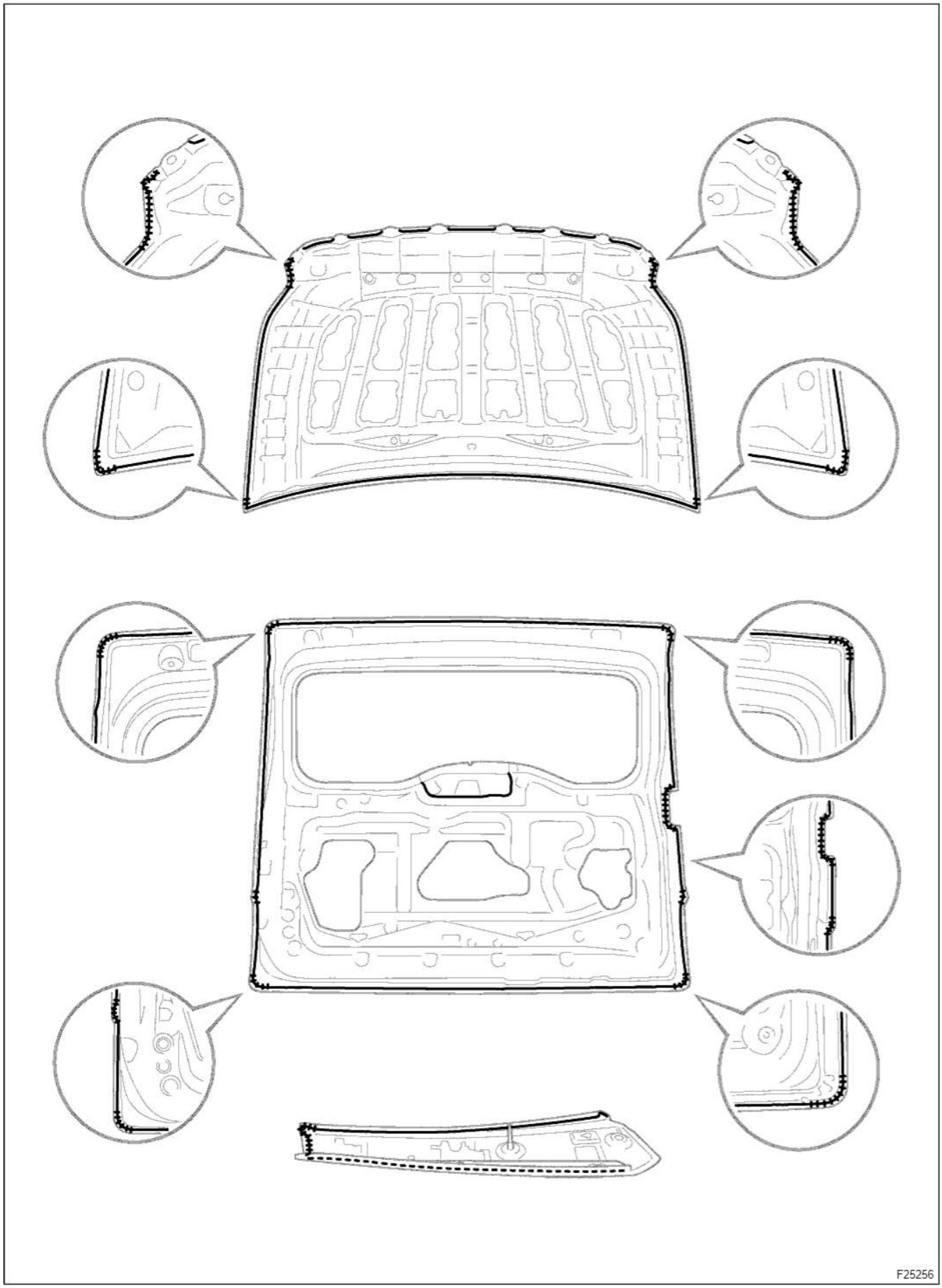


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4. DOOR PARTS



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BODY PANEL UNDERCOATING AREAS

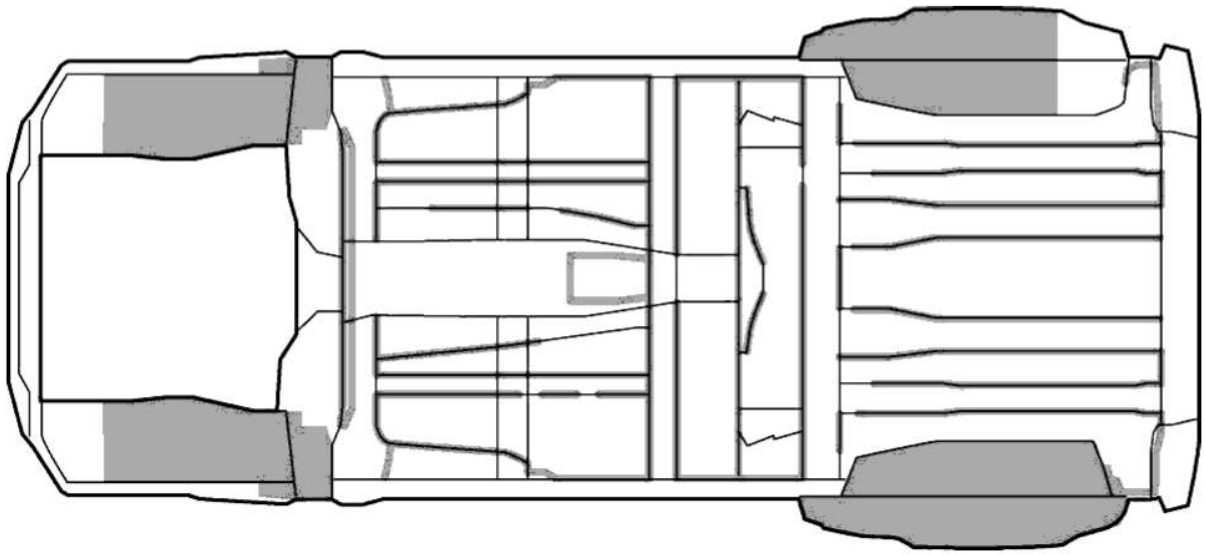
Apply PASTAR UWE or PASTAR UC to the chassis, floor underside, sheet metal fitting weld points of the body, and inside of the wheel house to prevent rust and noise, as well protect the body from flying rocks.

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.

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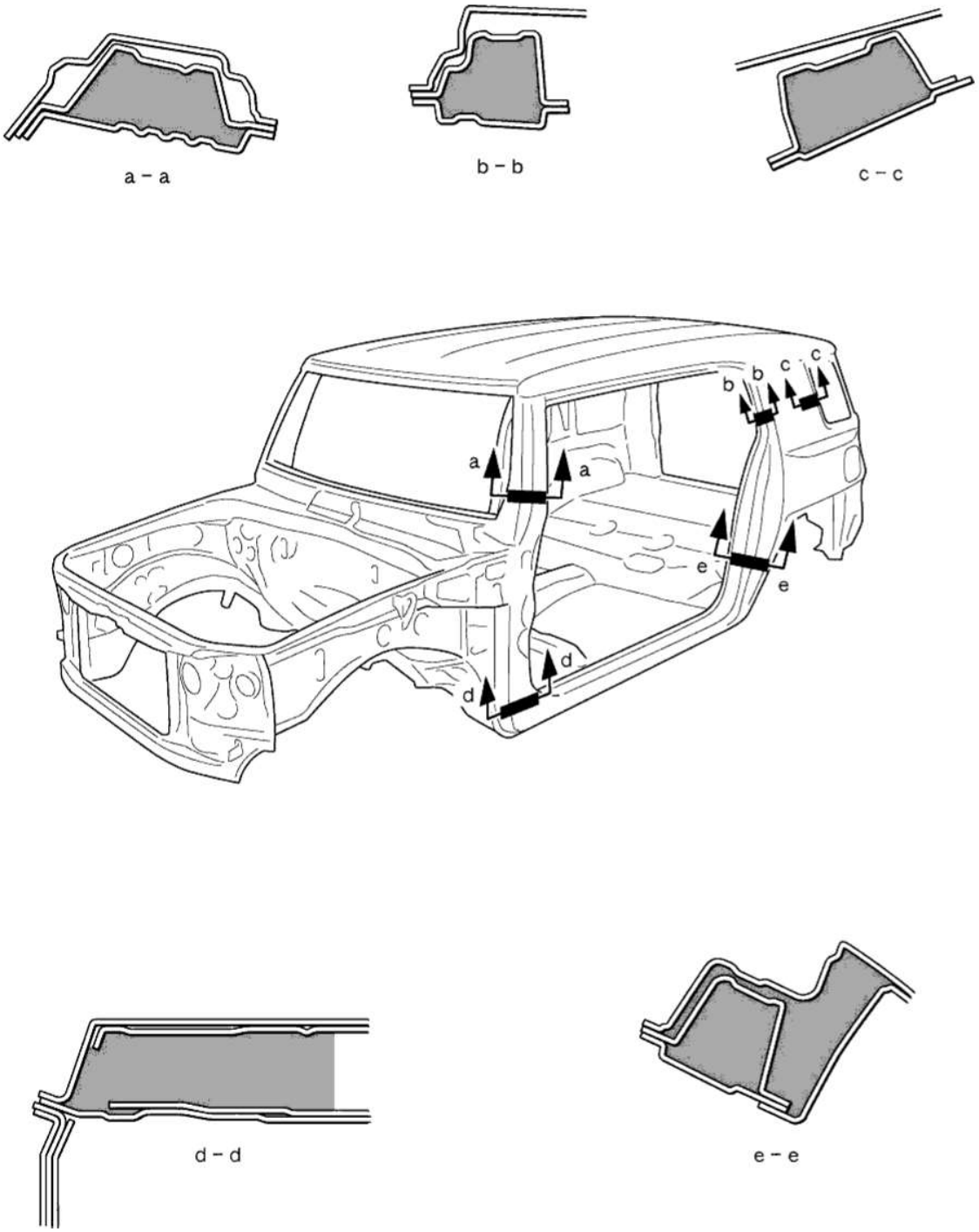
FOAMED MATERIAL APPLICATION AREAS

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.

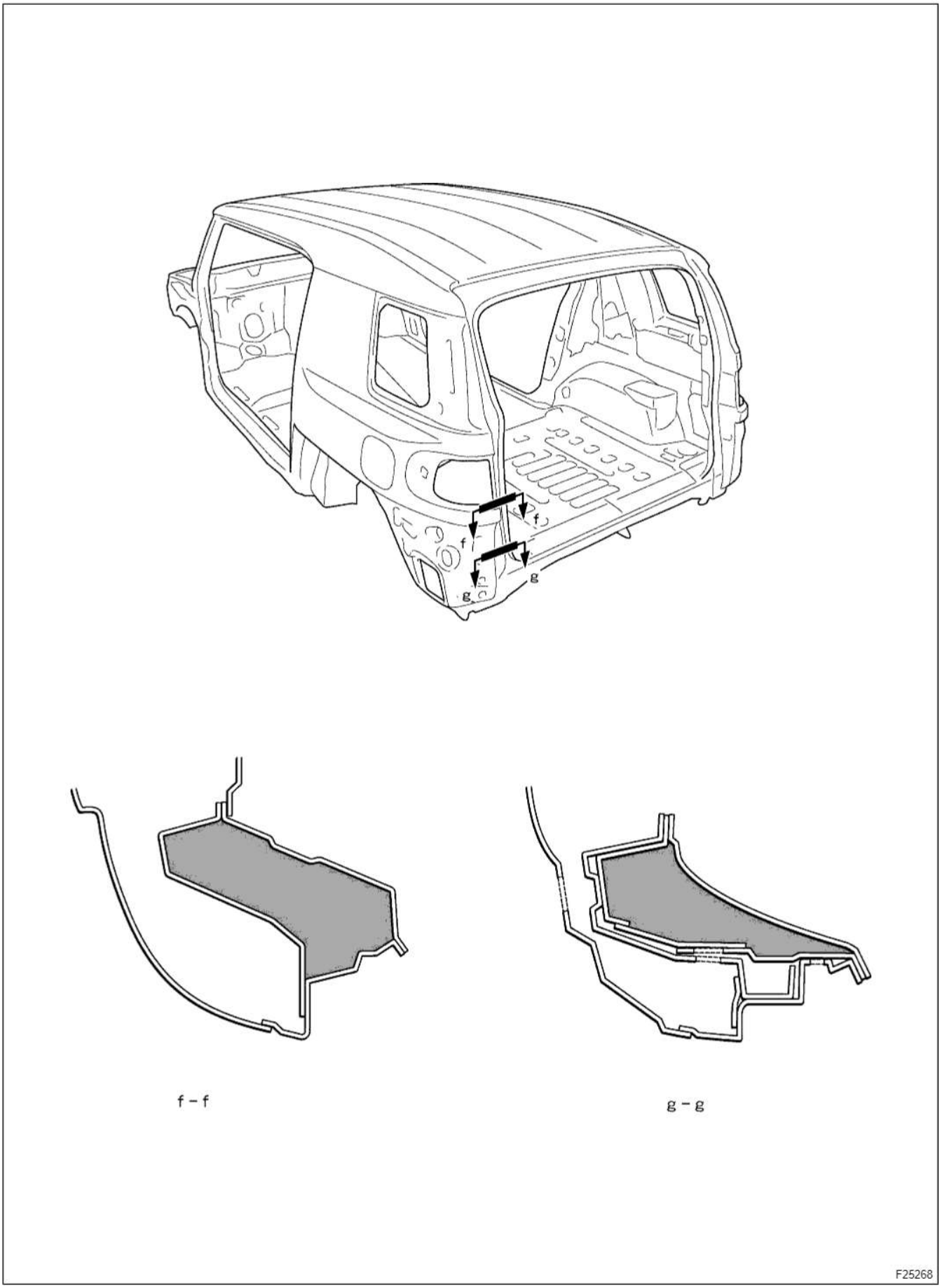
HINT:

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.



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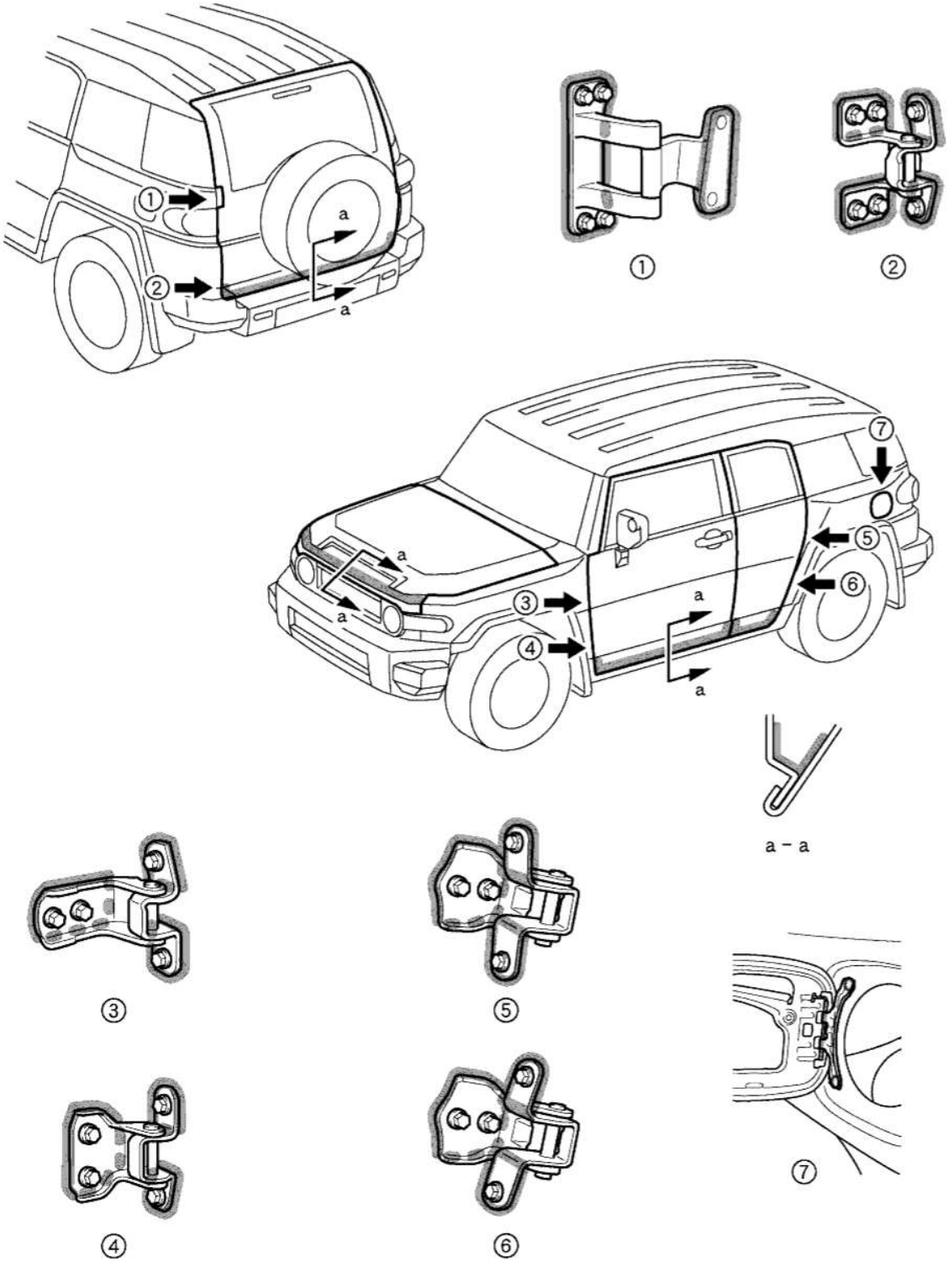
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BODY PANEL ANTI-RUST AGENT (WAX) APPLICATION AREAS

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.

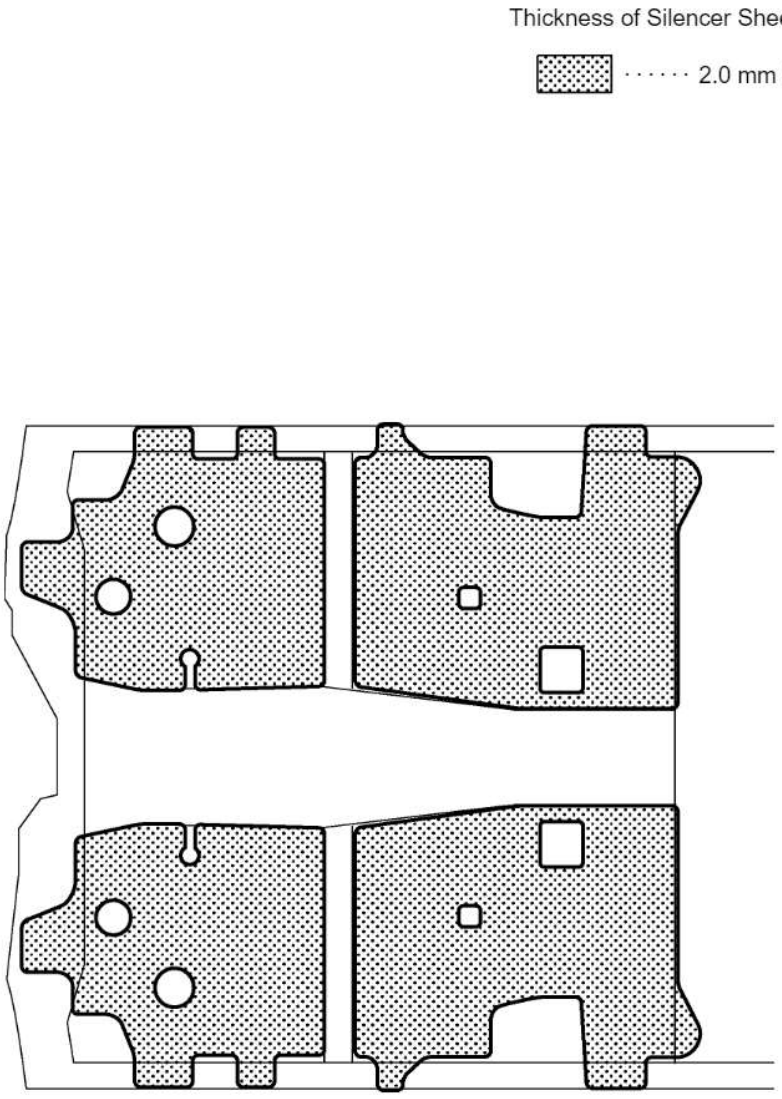
HINT:

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



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SILENCER SHEET INSTALLATION AREAS



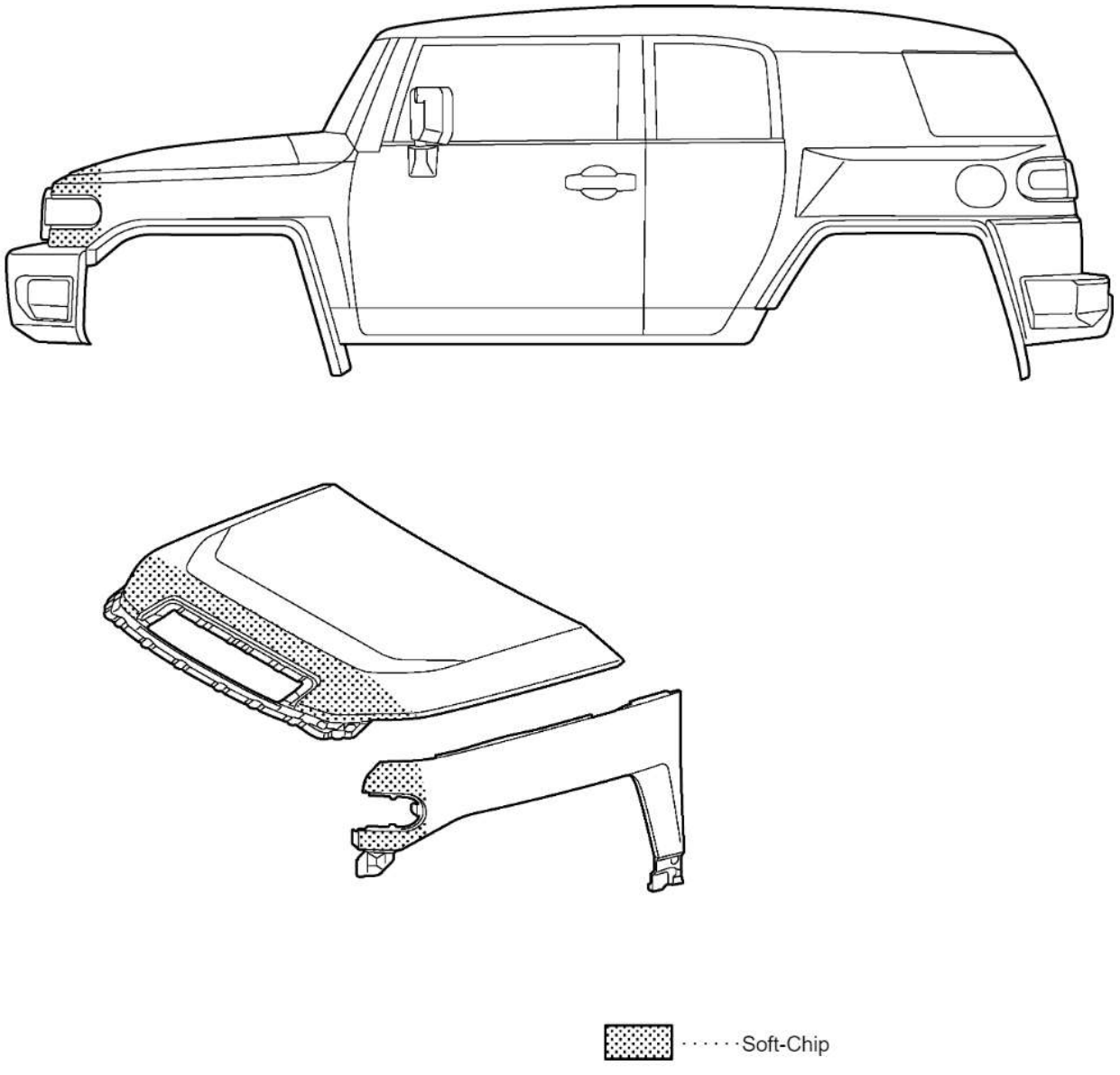
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BODY PANEL ANTI-CHIPPING PAINT APPLICATION AREAS

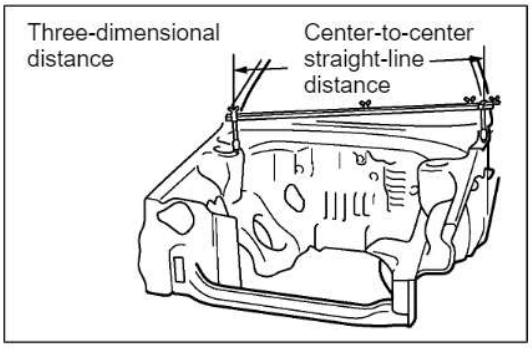
To protect the body from damage due to flying rocks, apply the anti-chipping paint to the rocker panels, wheel arches, and lower parts of the doors.

HINT:

1) *Work must be performed while wearing the appropriate protective gear and in a well-ventilated area.*
2) *Apply anti-chipping paint to the indicated areas first, before applying the top coat.*
3) *If anti-chipping paint is unnecessarily applied to an area, apply degreasing agent to a clean cloth and clean the paint off immediately.*



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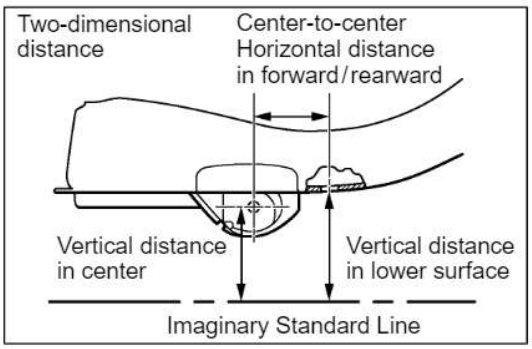
GENERAL INFORMATION

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.

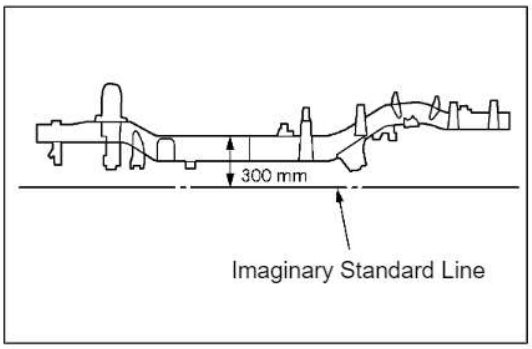


(2) (Two-dimensional distance)

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

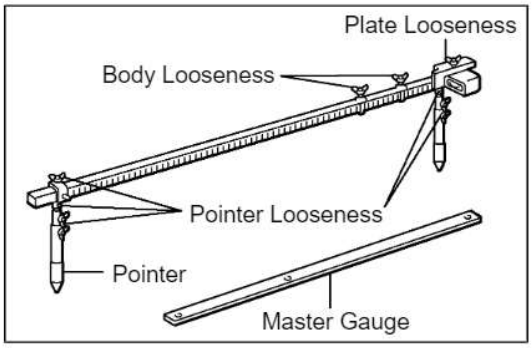
(b) In cases in which only one dimension is given, left and right are symmetrical.

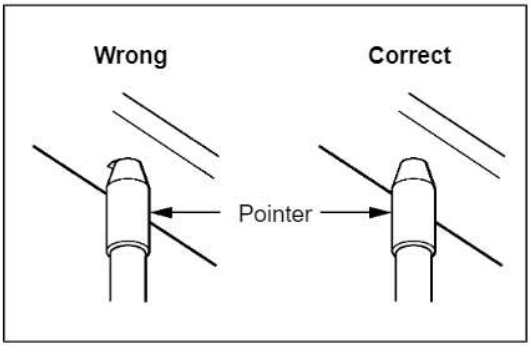
(c) The dimensions in the following drawing indicate actual distance. Therefore, please use the dimensions as a reference.



(d) The imaginary standard line when measuring the height is below 300 mm (11.81 in.) from the upper face on the center of the frame.

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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:

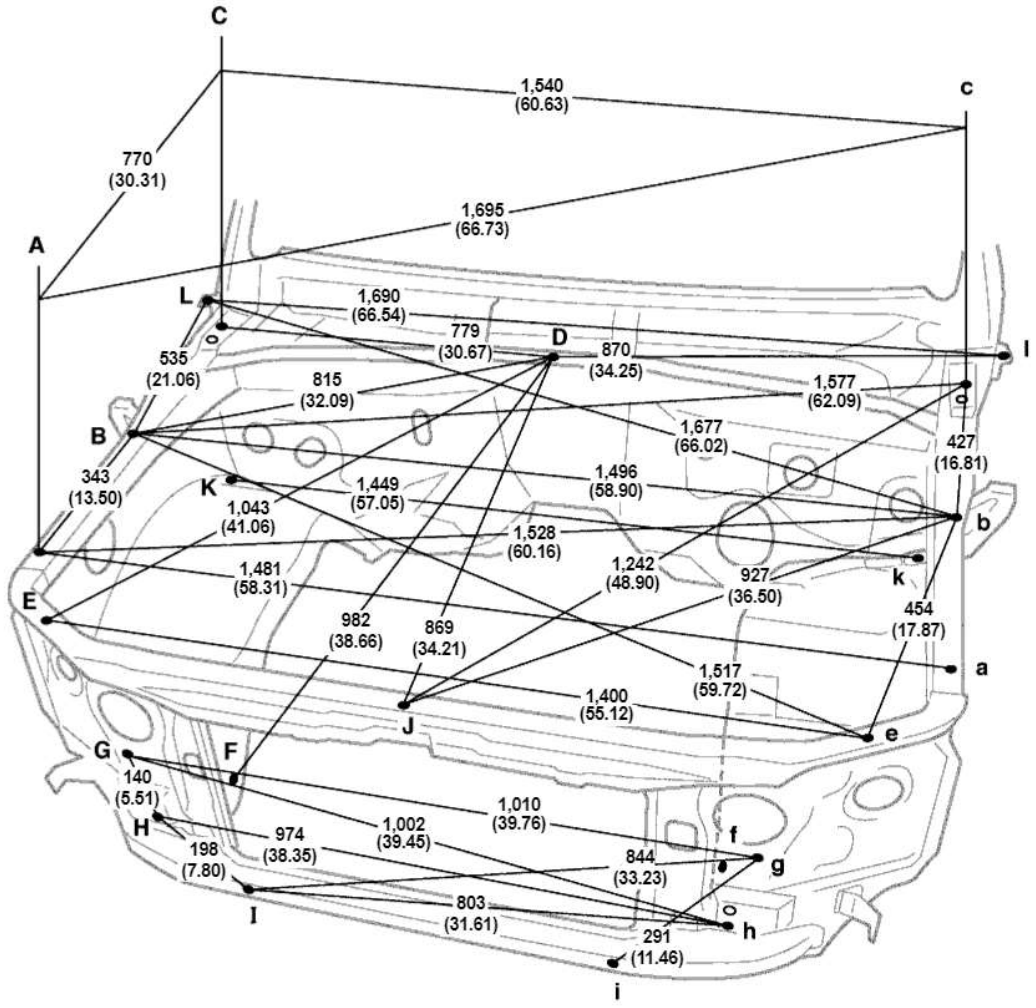
1) The height of the left and right pointers must be equal.
2) Always calibrate the tracking gauge before measuring or after adjusting the pointer height.
3) Take care not to drop the tracking gauge or otherwise shock it.
4) Confirm that the pointers are securely in the holes.

(c) When using a tape measure, avoid twists and bends in the tape.

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BODY DIMENSION DRAWINGS
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).

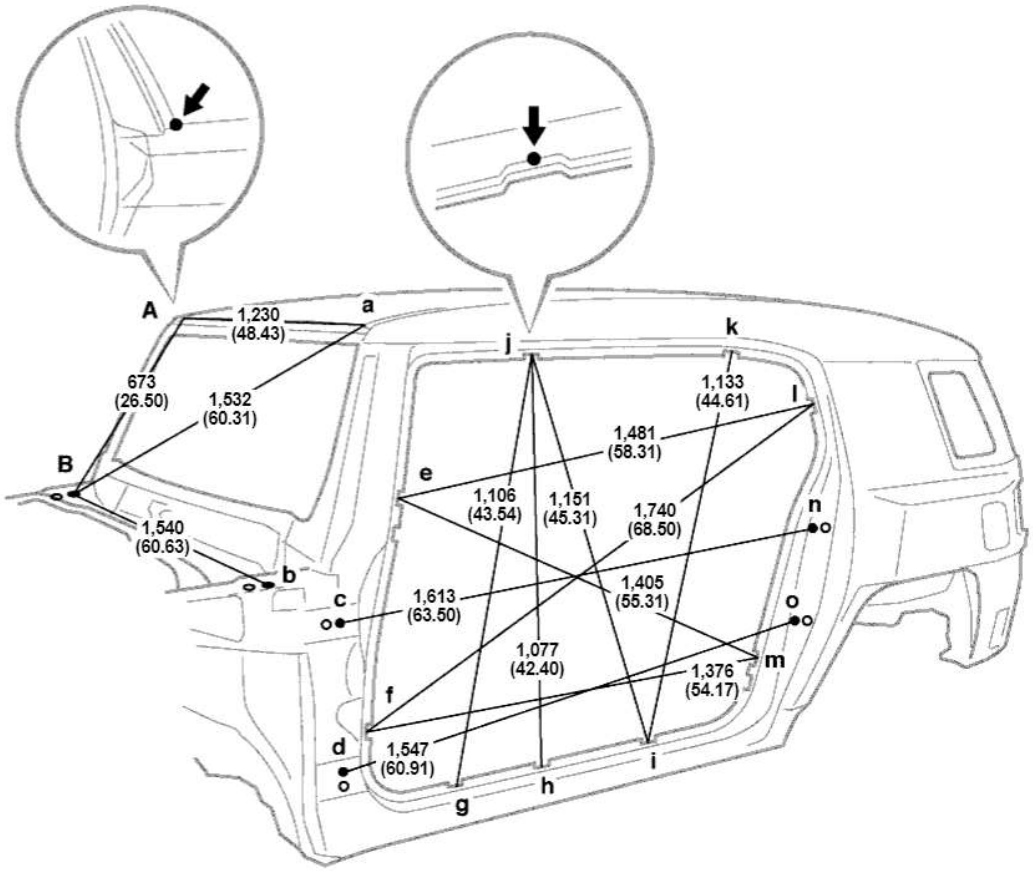
mm (in.)

Symbol	Name	Hole dia.			
A, a	Front fender installation nut	M6 (0.24)	G, g	Hood lock opener cable clamp hole	ø7 (0.28)
B, b	Front fender installation nut	M6 (0.24)	H, h	Radiator grille lower bracket installation hole	ø11 (0.43)
C, c	Hood hinge installation nut	M8 (0.31)	I, i	Power steering cooler pipe bracket installation nut	M6 (0.24)
D	Cowl Top ventilator louver installation hole	ø8 (0.31)	J, j	Radiator support upper seal installation hole	ø8 (0.31)
E, e	Radiator upper support standard hole	ø10 (0.39)	K, k	Fender splash rear shield installation hole	□9 (0.35)
F, f	Front fender apron seal installation hole	ø8 (0.31)	L, l	Front fender installation nut	M6 (0.24)
			—	—	—

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BODY OPENING AREAS (Side View)

(Three-Dimensional Distance)



Vehicle Dimensions

E-e	F-f	G-g	H-h	I-i	J-j	K-k	L-l	M-m
1,548 (60.94)	1,520 (59.84)	1,521 (59.88)	1,521 (59.88)	1,521 (59.88)	1,357 (53.43)	1,367 (53.82)	1,482 (58.35)	1,520 (59.84)

E-f or e-F	E-h or e-H	F-I or f-L	F-m or f-M	G-i or g-I	H-j or h-J	I-j or i-J	L-m or I-M
1,643 (64.69)	1,774 (66.50)	2,298 (90.47)	2,050 (80.71)	1,658 (65.28)	1,796 (70.71)	1,841 (72.48)	1,691 (66.57)

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

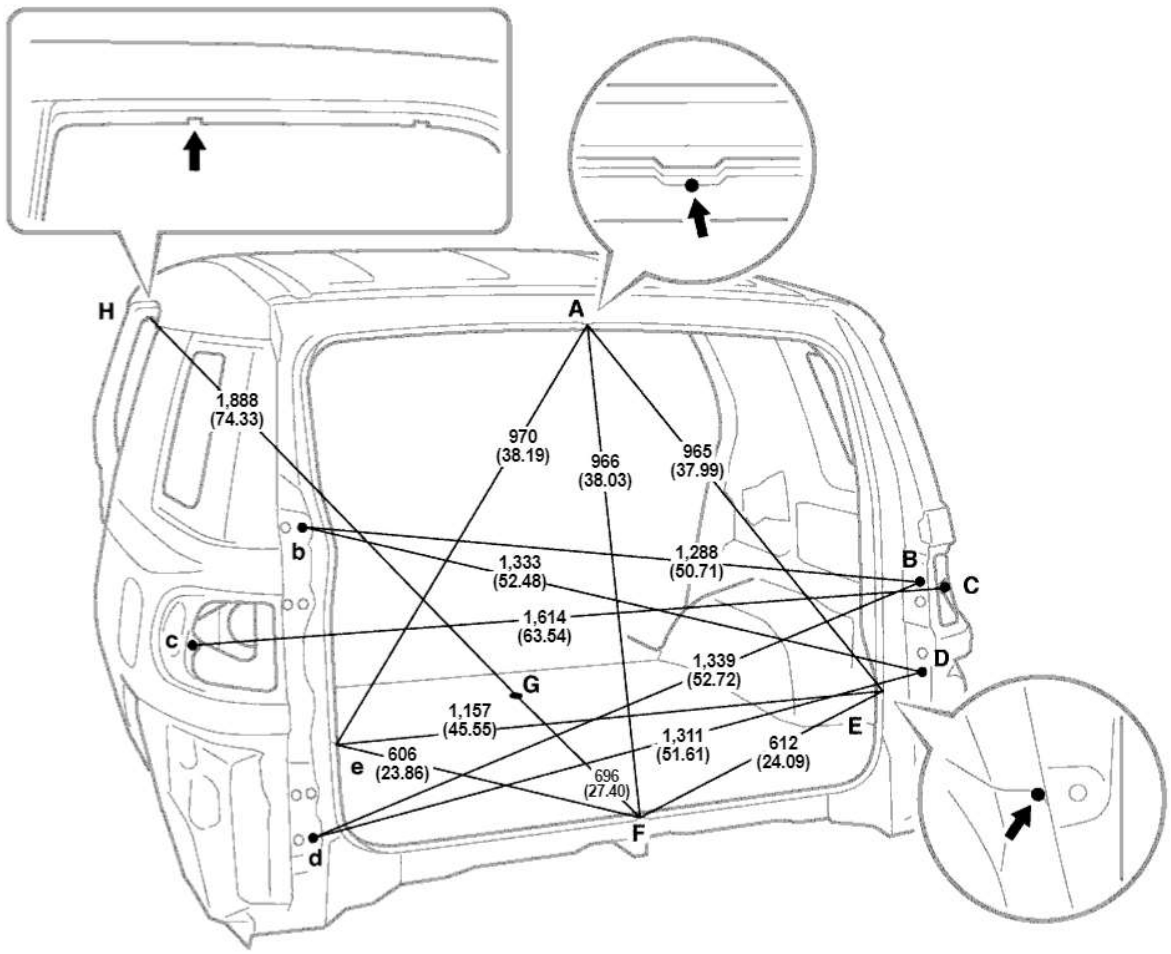
mm (in.)

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

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BODY OPENING AREAS (Rear View)

(Three-Dimensional Distance)



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

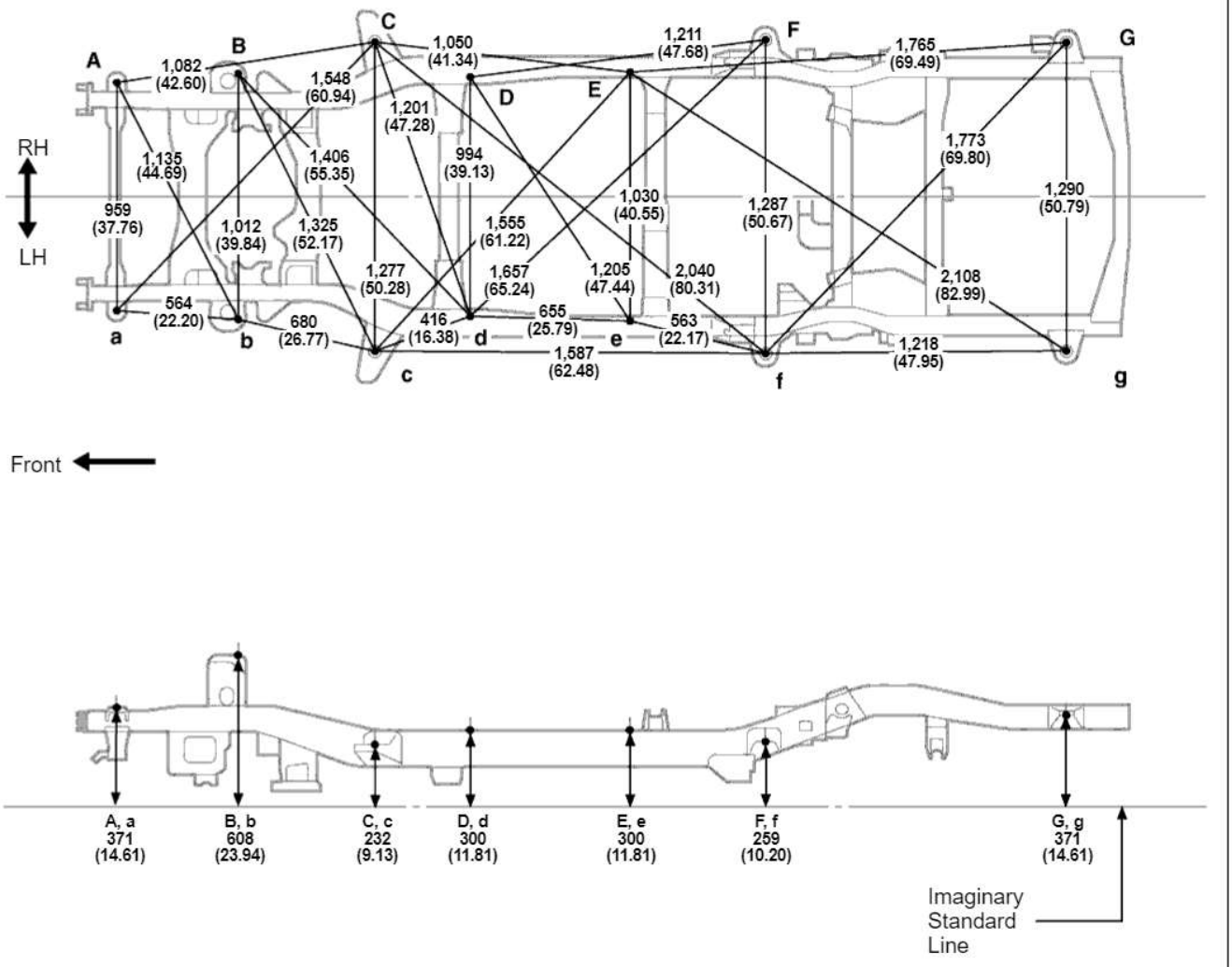
mm (in.)

Symbol	Name	Hole dia.			
A, a	Back door opening flame center mark	—	d	Back door hinge installation nut	M8 (0.31)
B	Back door lock striker plate installation nut	M8 (0.31)	E, e	Rear floor pan to quarter panel extension corner	—
b	Back door hinge installation nut	M8 (0.31)	F, f	Rear floor pan center mark	—
C, c	Side outer panel standard hole	ø10 (0.39)	G, g	Rear floor pan standard hole	ø30 (1.18)
D	Back door side male stopper installation nut	M6 (0.31)	H, h	Roof side rail assembly mark	—
			—	—	—

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FRAME DIMENSION-Upper Face

(Three-Dimensional Distance)



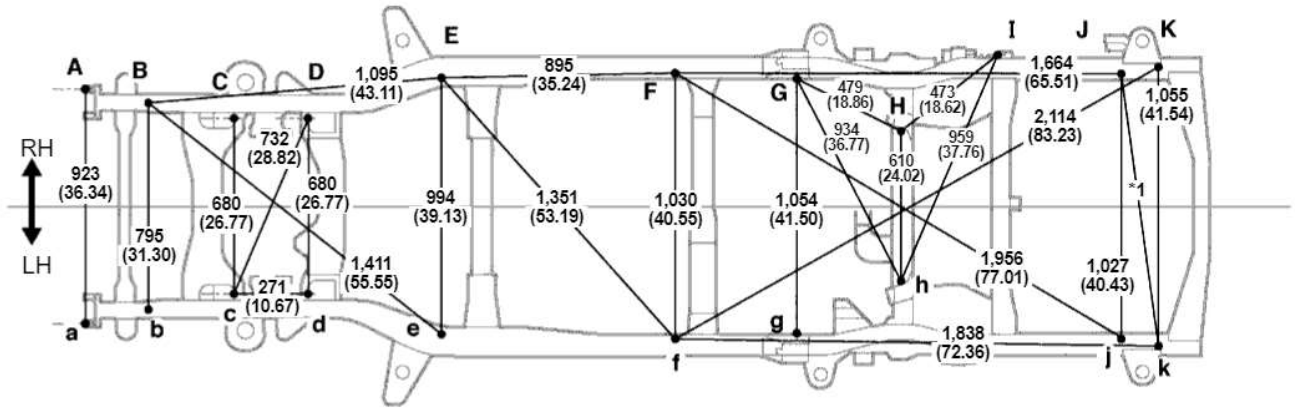
mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Body mounting hole	ø26 (1.02)	D, d	Side rail inner channel standard hole	16 x 16 (0.63 x 0.63)
B, b	Shock absorber installation hole	ø12.15 (0.478)	E, e	Side rail inner channel standard hole	ø20 (0.792)
C, c	Body mounting hole	ø43 (1.69)	F, f	Body mounting hole	ø43 (1.69)
			G, g	Body mounting hole	ø43 (1.69)

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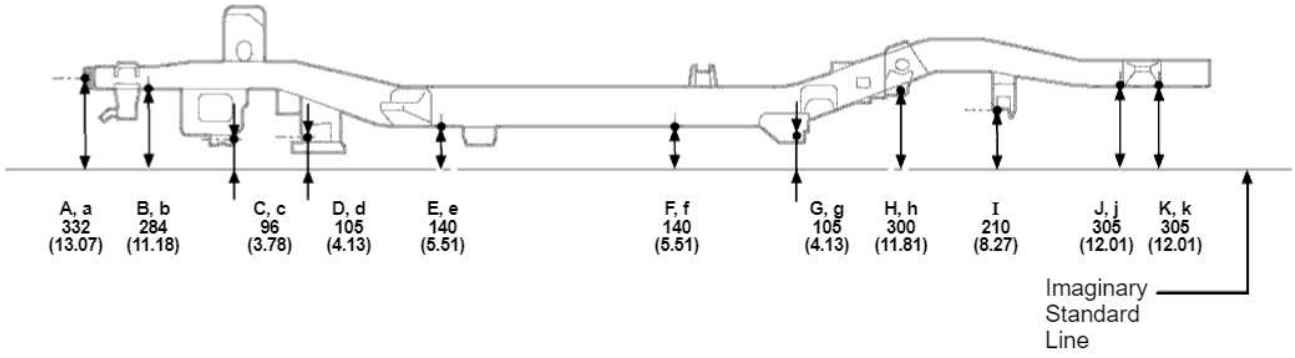
FRAME DIMENSION-Lower Face

(Three-Dimensional Distance)



Front ←

*1	1,056 (41.57)



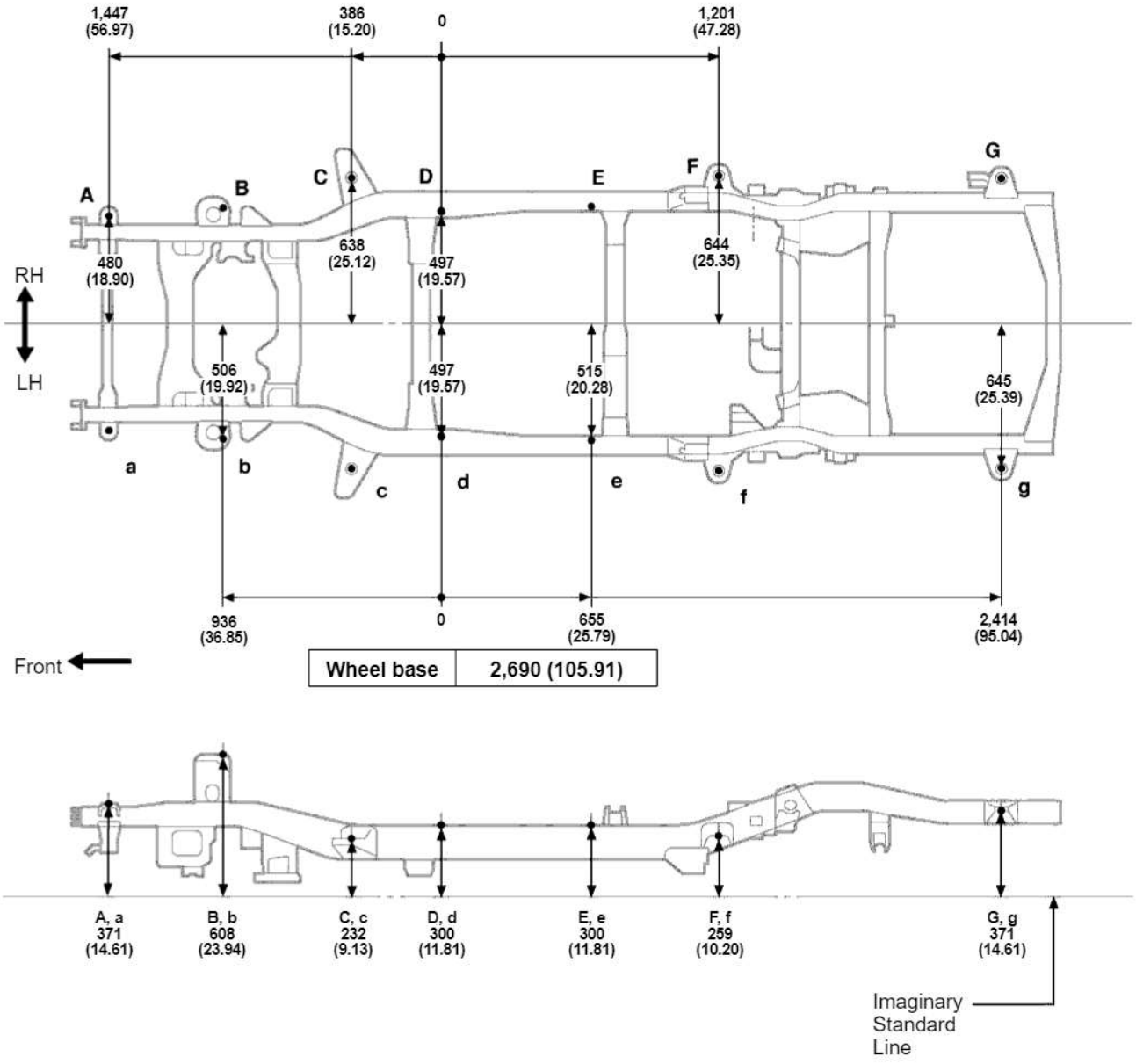
mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Bumper reinforcement installation nut	M10 (0.39)	F, f	Side rail inner channel standard hole	16 x 16 (0.63 x 0.63)
B, b	Stabilizer bracket installation nut	M10 (0.39)	G, g	Lower control arm installation hole	ø14.2 (0.559)
C, c	Suspension lower arm installation hole	20 x 38 (0.79 x 1.50)	H, h	Upper control arm installation hole	ø12.15 (0.478)
D, d	Suspension lower arm installation hole	14.5 x 32.5 (0.571 x 1.280)	I, i	Lateral control rod installation hole	ø15 (0.59)
E, e	Side rail inner channel standard hole	16 x 16 (0.63 x 0.63)	J, j	Side rail inner channel standard hole	16 x 16 (0.63 x 0.63)
			K, k	Transport hook installation nut	M12 (0.47)

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FRAME DIMENSION-Upper Face

(Two-Dimensional Distance)



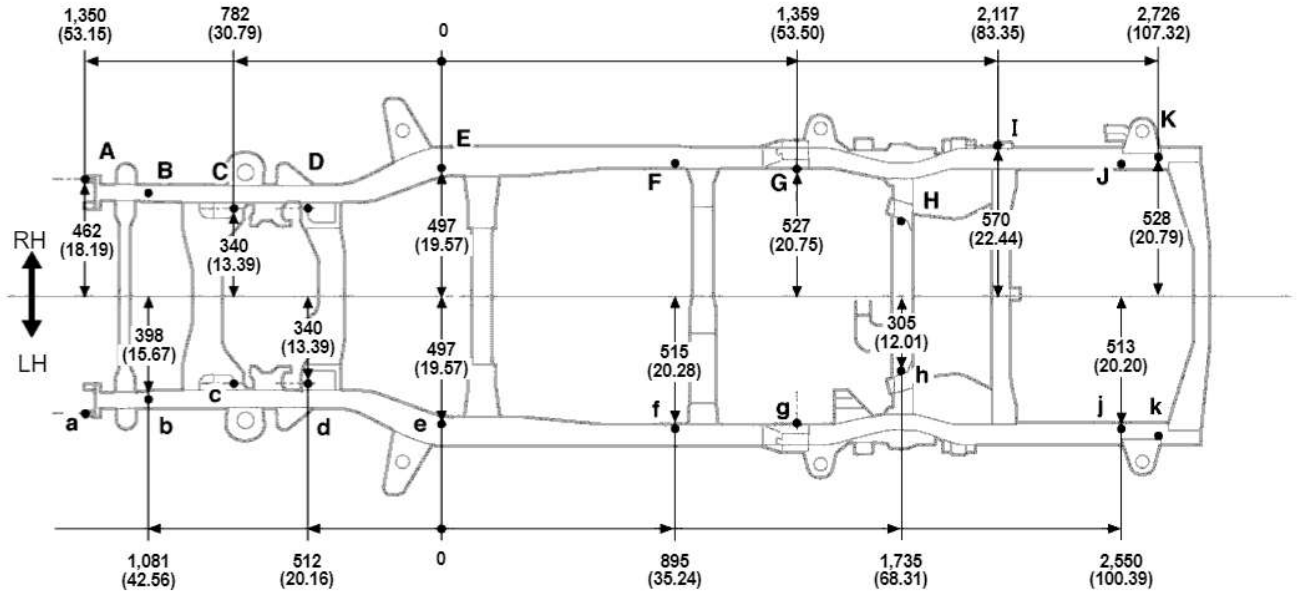
mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Body mounting hole	ø26 (1.02)	D, d	Side rail inner channel standard hole	16 x 16 (0.63 x 0.63)
B, b	Shock absorber installation hole	ø12.15 (0.478)	E, e	Side rail inner channel standard hole	ø20 (0.792)
C, c	Body mounting hole	ø43 (1.69)	F, f	Body mounting hole	ø43 (1.69)
			G, g	Body mounting hole	ø43 (1.69)

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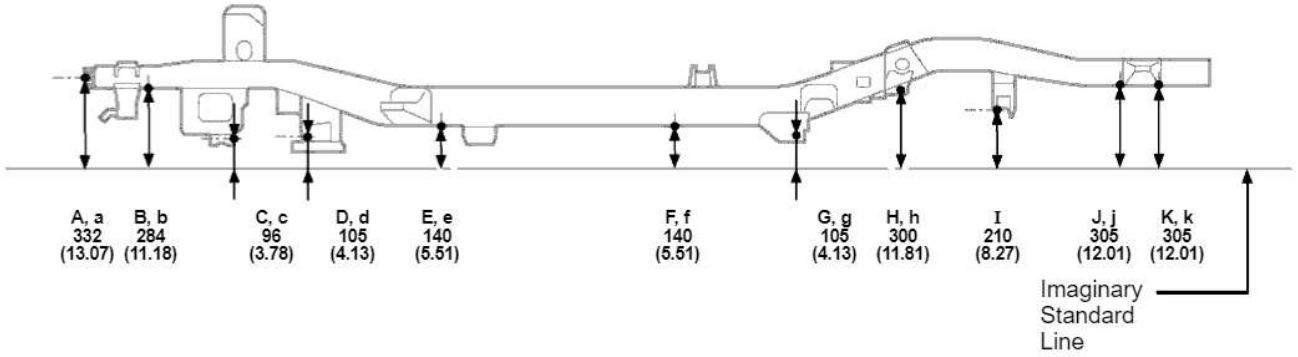
FRAME DIMENSION-Lower Face

(Two-Dimensional Distance)



Front ←

Wheel base	2,690 (105.91)



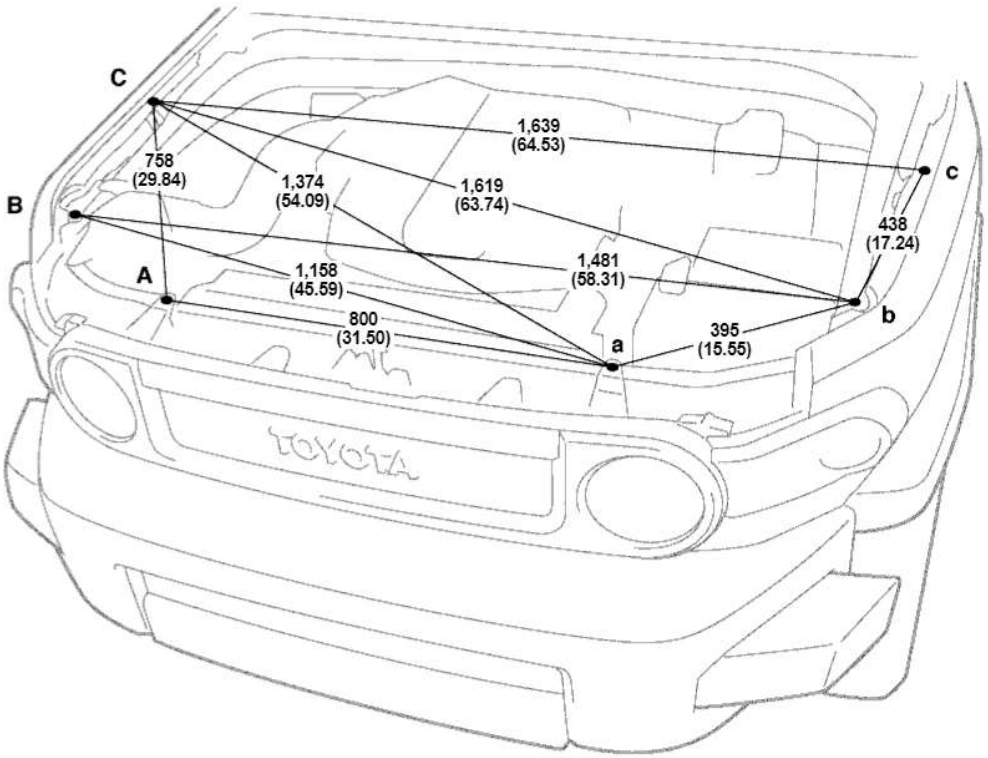
mm (in.)

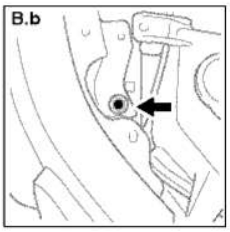
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Bumper reinforcement installation nut	M10 (0.39)	F, f	Side rail inner channel standard hole	16 x 16 (0.63 x 0.63)
B, b	Stabilizer bracket installation nut	M10 (0.39)	G, g	Lower control arm installation hole	ø14.2 (0.559)
C, c	Suspension lower arm installation hole	20 x 38 (0.79 x 1.50)	H, h	Upper control arm installation hole	ø12.15 (0.478)
D, d	Suspension lower arm installation hole	14.5 x 32.5 (0.571 x 1.280)	I, i	Lateral control rod installation hole	ø15 (0.59)
E, e	Side rail inner channel standard hole	16 x 16 (0.63 x 0.63)	J, j	Side rail inner channel standard hole	16 x 16 (0.63 x 0,63)
			K, k	Transport hook installation nut	M12 (0.47)

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REFERENCE VALUE
ENGINE COMPARTMENT

(Three-Dimensional Distance)





HINT: These values are actual measurements made on model.
Use these reference values.

mm (in.)

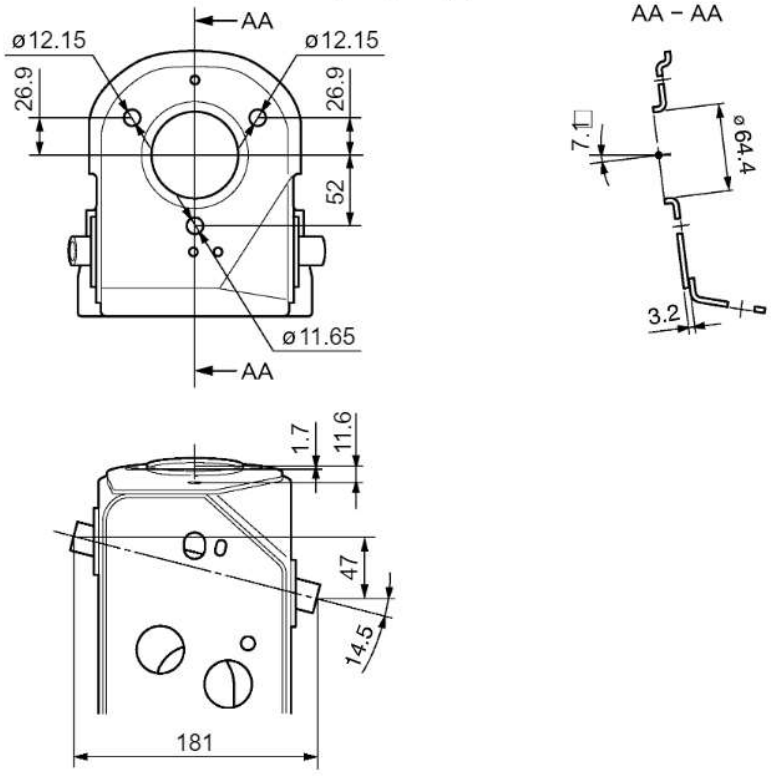
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Headlight installation bolt	—	B, b	Front fender installation bolt	—
			C, c	Front fender installation bolt	—

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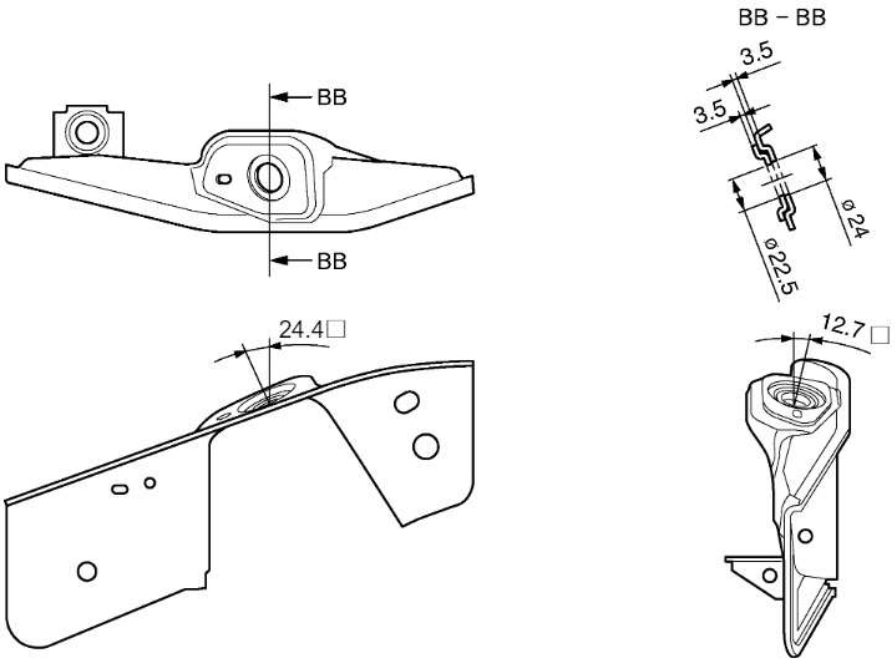
UNDER BODY

(Two-Dimensional Distance)

Front spring support



Rear shock absorber bracket



mm

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